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CONFIGURATION TABLE

All configurations listed below are composed by the basic AFM plus the applicable Supplements and Appendices.

NOTE: The list below presents, for each configuration, all the Supplements and Appendices that may be applicable to that configuration. It does not imply that all those Supplements or Appendices must be used with that configuration. Application of Service Bulletins or options made by the operator may render some Supplements/Appendices not applicable. The Supplements - Table of Contents must be used to clarify if a specific Supplement is or not applicable to a specific configuration. In any case, if an operation requires an approved AFM Supplement/Appendix, it must be in the operator's AFM.

The basic AFM means all AFM sections except the Supplements and Appendices sections.

CONFIGURATION DESCRIPTION	APPLICABLE SUPPLEMENTS and APPENDICES
Master (all configurations).	ALL
EMB-145 equipped with AE3007A engines and FMS FMZ2000.	1, 2, 3, 15, 16, 17, 19, 20, 23, 25 and Appendix 1
EMB-145 equipped with AE3007A engines and FMS UNS-1K.	1, 3, 4, 15, 16, 17, 19, 20, 23, 25 and Appendix 1
EMB-145 equipped with AE3007A engines and FMS FMZ2010 (Software Version NZ 6.1.1).	1, 3, 15, 16, 17, 19, 20, 23, 25, 30 and Appendix 1
EMB-145 equipped with AE3007A1/1 engines and FMS FMZ2000.	1, 2, 3, 15, 16, 17, 19, 20, 23, 25, 26 and Appendix 1
EMB-145 equipped with AE3007A1/1 engines and FMS UNS-1K.	1, 3, 4, 15, 16, 17, 19, 20, 23, 25, 26 and Appendix 1
EMB-145 equipped with AE3007A1/1 engines and FMS FMZ2010 (Software Version NZ 6.1.1).	1, 3, 15, 16, 17, 19, 20, 23, 25, 26, 30 and Appendix 1

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CONFIGURATION DESCRIPTION	APPLICABLE SUPPLEMENTS and APPENDICES
EMB-145 equipped with AE3007A1 engines and FMS FMZ2000.	1, 2, 3, 9, 15, 16, 17, 19, 20, 23, 24, 25, 26 and Appendix 1
EMB-145 equipped with AE3007A1 engines and FMS UNS-1K.	1, 3, 4, 9, 15, 16, 17, 19, 20, 23, 24, 25, 26 and Appendix 1
EMB-145 equipped with AE3007A1 engines and FMS FMZ2010 (Software Version NZ 6.1.1).	1, 3, 9, 15, 16, 17, 19, 20, 23, 24, 25, 26, 30 and Appendix 1
EMB-145 equipped with AE3007A1P engines and FMS FMZ2000.	1, 2, 3, 12, 15, 16, 17, 19, 20, 23, 24, 25, 26 and Appendix 1
EMB-145 equipped with AE3007A1P engines and FMS UNS-1K.	1, 3, 4, 12, 15, 16, 17, 19, 20, 23, 24, 25, 26 and Appendix 1
EMB-145 equipped with AE3007A1P engines and FMS FMZ2010 (Software Version NZ 6.1.1).	1, 3, 12, 15, 16, 17, 19, 20, 23, 24, 25, 26, 30 and Appendix 1
EMB-145 XR equipped with AE3007A1E engines and FMS FMZ2000.	1, 2, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 27, 28 and Appendix 1
EMB-145 XR equipped with AE3007A1E engines and FMS FMZ2010.	1, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29 and Appendix 1
EMB-145 XR equipped with AE3007A1E engines and FMS UNS-1K.	1, 4, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 27 and Appendix 1
EMB-145 XR equipped with AE3007A1E engines and FMS FMZ2010 (Software Version NZ 6.1.1).	1, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 27, 30 and Appendix 1
EMB-135 equipped with AE3007A1/3 engines, FMS FMZ2000, flaps 9° or 18°, standard or 21.1% CG envelope.	1, 2, 10, 11, 13, 14, 15, 16, 17, 19, 20, 23, 25 and Appendix 1

CONFIGURATION DESCRIPTION	APPLICABLE SUPPLEMENTS and APPENDICES
EMB-135 equipped with AE3007A1/3 engines, FMS UNS-1K, flaps 9° or 18°, standard or 21.1% CG envelope.	1, 4, 10, 11, 13, 14, 15, 16, 17, 19, 20, 23, 25 and Appendix 1
EMB-135 equipped with AE3007A3 engines and FMS FMZ2000.	1, 2, 10, 15, 16, 17, 18, 19, 20, 25 and Appendix 1
EMB-135 equipped with AE3007A3 engines and FMS UNS-1K.	1, 4, 10, 15, 16, 17, 18, 19, 20, 25 and Appendix 1
EMB-135 equipped with AE3007A3 engines and FMS FMZ2010 (Software Version NZ 6.1.1).	1, 10, 15, 16, 17, 18, 19, 20, 25,30 and Appendix 1

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SUPPLEMENT 1

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REVISION.....	10 to 40	Not Applicable
REVISION.....	41.....	NOV 07, 2000
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REVISION.....	56.....	OCT 21, 2003
REVISION.....	57 to 60	Not Applicable
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CAT II OPERATION

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GENERAL

CAT II CHECKLIST LOGIC

The Primus-1000 integrated Avionics has a CAT II Checklist Logic which is automatically activated whenever the decision height is selected between 80 and 200 ft through the RA knob on the Display Control Panels. The correct setting is indicated by a green CAT 2 annunciator and the incorrect setting is indicated by an amber CAT 2 annunciator. The CAT 2 annunciator is displayed on the top right side on each PFD.

NOTE: Although the radio altitude setting may be adjusted down to 80 ft, if requested by an ILS Cat II Approved Chart, the Decision Height (DH) is limited to 100 ft above ground level.

CAT II OPERATING CONDITIONS

To obtain a green CAT 2 annunciator the following conditions must be met:

- Radio Altimeter indication valid on both PFDs.
- Radio altitude above 80 ft.
- Flaps 22°.
- NAV 1 on pilot's side and NAV 2 on copilot's side, both NAV's tuned to the same frequency.
- An active approach mode selected above 1000 ft.
- Both Flight Directors operational (command bars visible).
- Attitude and Heading valid on both PFD's.
- Glide slope and Localizer deviation valid on both PFD's.
- No reversions (AHRS, ADC, SG) modes selected on both PFD's.
- Valid Airspeed and Baro Altitude on both PFD's.
- No comparison monitors are tripped (Attitude, Heading, Airspeed, Baro Altitude, Localizer, Glide slope and Radio altitude) on both PFD's.
- No back course selected.
- Autopilot engaged (not required for EMB-135 and EMB-145 XR models).
- CAT II Decision Height setting on both Display Control Panels (greater than 80 ft and less than 200 ft).

NOTE: For EMB-135 and EMB-145 XR models, the CAT II approaches are allowed using either the Autopilot or Flight Director for guidance.

If one of these conditions is not met, the CAT 2 annunciator will not appear.

If the green CAT 2 annunciation is displayed and one of the above conditions is lost, the annunciation will turn amber and will flash for 10 seconds.

CAT II WARNINGS

LOCALIZER, GLIDE SLOPE AND RADIO ALTITUDE COMPARATORS WARNINGS

A comparison between the localizer, glide slope and radio altitude deviation indications are performed when the following conditions are met:

- On-side radio altitude valid and between 1200 and 80 ft.
- APR mode selected on Flight Guidance Controller.
- Autopilot engaged (not required for EMB-135 and EMB-145 XR models).
- Flaps 22°.
- CAT II Decision Height setting on both Display Control Panels.
- On-side RMU with VOR/LOC active course valid.
- Cross-side data valid.
- Go-around not selected on either side.
- No back course selected.

For localizer, the following additional condition is required:

- Both LOC signals tuned and valid for at least 15 seconds.

If LOC indications differ by values above approximately 1/2 dot, an amber LOC annunciator will appear flashing (for 10 seconds) then steady on the left side of the PFD's between EADI and EHSI.

For glide slope, the following additional condition is required:

- Both glide slope signals valid and both LOC signals tuned and valid for at least 15 seconds.

If GS indications differ by values above approximately 2/3 dot, an amber GS annunciator will appear flashing (for 10 seconds) then steady on the left side of the PFD's between EADI and EHSI.

For radio altitude, the following additional condition is required:

- Both radio altimeters signals valid and on scale.

If radio altimeters indications differ more than 10 ft approximately, an amber RA annunciator will appear flashing (for 10 seconds) then steady on the left side of the PFD's between EADI and EHSI.

NOTE: - For airplanes equipped with single radio altimeter the radio altitude comparison is made between both displayed RA values.

- If the radio altimeter is off scale, its value is set to maximum for comparison purposes.

EXCESSIVE LOCALIZER AND GLIDE SLOPE DEVIATIONS WARNINGS

The on-side localizer and glide slope excessive deviations are compared to the Cat II limits and displayed when the following conditions are met:

- APR mode selected on both Flight Guidance Controller.
- Autopilot engaged (not required for EMB -135 and EMB-145 XR models).
- Flaps 22°.
- CAT II Decision Height setting on Display Control Panels.
- VOR/LOC is the active course from the on-side RMU.
- On-side radio altitude between 500 and 80 ft.
- On-side localizer tuned and valid.
- On-side glide slope valid.
- No back course selected.
- Go-around not selected on either side.

Localizer excessive deviation:

If a localizer deviation greater than approximately 1/3 dot is detected, the EHSI lateral deviation bar on the PFD's EHSI will change from green to amber, the lateral deviation scale will change from white to amber, and flash.

NOTE: The on-side excessive deviation warning is also displayed when the cross-side system has detected an excessive deviation.

Glide slope excessive deviation:

If a glide slope deviation greater than approximately one dot is detected, the GS pointer on the PFD's EADI will change from green to amber, the GS scale will change from white to amber, and flash.

NOTE: The on-side excessive deviation warning is also displayed when the cross-side system has detected an excessive deviation.

LIMITATIONS

MINIMUM EQUIPMENT REQUIRED

The performance of Category II approaches requires that the following equipment and instruments be in proper operating conditions:

- 2 Attitude and Heading Reference Systems or 2 Inertial Reference Systems.
- 1 Yaw Damper System.
- 1 Autopilot (not required for EMB-135 and EMB-145 models). XR
- 2 Flight Director Systems.
- 2 Primary Flight Displays (PFD).
- Windshield Wipers.
- 2 VHF/NAV Systems.
- 1 VHF/COMM System.
- Both Engines.
- Cat II Checklist Logic.
- 1 Electrical Trim System.
- 1 Radio Altimeter.
- 1 Ground Proximity Warning System (GPWS).
- 1 Aural Warning Unit (AWU) Channel.
- 2 Air Data Systems (ADS).
- 1 Standby Attitude Indicator.
- 1 Standby Airspeed Indicator.
- 1 Standby Altimeter.

NOTE: Cat II operation with Autopilot engaged shall be performed by the pilot who has the Flight Director coupled to the Autopilot.

AUTOPILOT SYSTEM

Minimum Decision Height (DH) 100 ft

NOTE: Although the radio altitude setting may be adjusted down to 80 ft, if requested by an ILS Cat II Approved Chart, the Decision Height (DH) is limited to 100 ft above ground level.

Minimum Use Height (MUH) 50 ft

Runway Visual Range (RVR) 1200 ft

Maximum Tailwind (except for EMB-145 XR models) .. 10 kt

Maximum Crosswind (except for EMB-145 XR models) ... 25 kt

Maximum Tailwind (EMB-145 XR models) 9 kt

Maximum Crosswind (EMB-145 XR models) 10 kt

NOTE: - Flight Director monitored manual approaches are restricted to Category I minimums (not applicable to EMB-135 and EMB-145 XR models).

- Coupled go-around height loss may be 50 ft.

APPROACH AND LANDING FLAPS

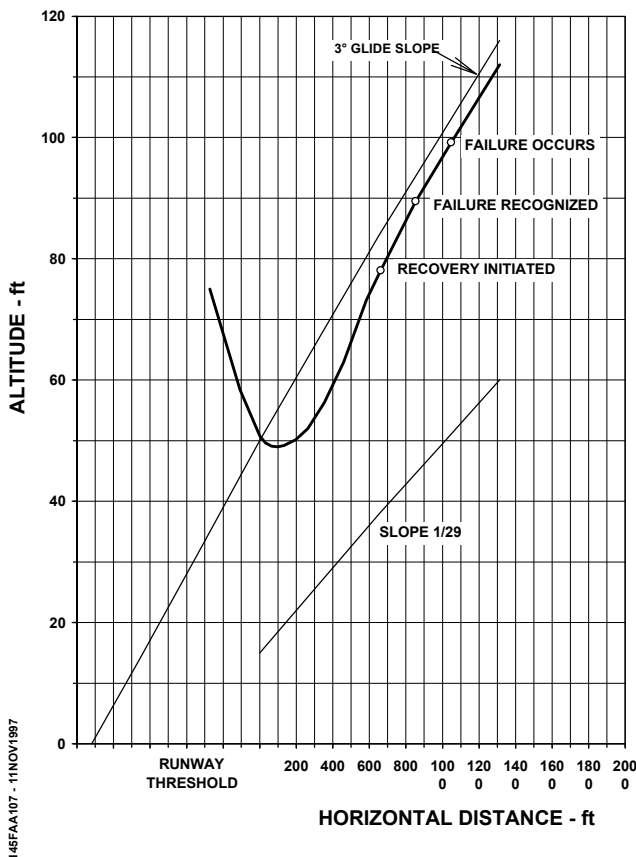
CAT II approach and landing must be performed with flaps 22°.

EMERGENCY AND ABNORMAL PROCEDURES

ALTITUDE LOSS

The demonstrated altitude loss due to a pitch down hardover during flight test is presented in the graph below.

- Recovery initiated 1 second after recognition:



NOTE: - The maximum demonstrated altitude loss due to autopilot malfunction is 30 ft (except for EMB-145 XR model).

- For EMB-145 XR model, the maximum demonstrated altitude loss due to autopilot malfunction is 35 ft.



ABNORMAL PROCEDURES

HARDOVER

If any unusual acceleration or motion is noticed on the airplane flight path the approach must be discontinued, and:

Autopilot DISENGAGE
MISSED APPROACH Procedure.....PERFORM AS
REQUIRED

- Consider the possibility of continuing and performing the landing if adequate visual reference has been established to assure the airplane position and approach path.
- For EMB-135 and EMB-145 XR models, consider the possibility of continuing on the approach using the Flight Director for guidance.

SLOWOVER

The Slowover consists in a smooth and slow airplane attitude change due to an autopilot system malfunction. It may be recognized if one of the following symptoms occurs during approach:

- Unusual glide slope small deviation.
- Change in the rate of descent (small or large).
- Excessive glide slope deviation and the GS indications becoming amber.
- Flight Director command bar diverging from the airplane symbol.
- Autopilot self disconnection.

If a Slowover tendency is confirmed:

Autopilot DISENGAGE
MISSED APPROACH Procedure.....PERFORM AS
REQUIRED

- Consider the possibility of continuing and performing the landing if adequate visual reference has been established to assure the airplane position and approach path.
- For EMB-135 and EMB-145 XR models, consider the possibility of continuing on the approach using the Flight Director for guidance.

ENGINE FAILURE ON FINAL APPROACH OR DURING GO-AROUND

ONE ENGINE INOPERATIVE

GO-AROUND Procedure APPLY

AUTOPILOT MALFUNCTION

BEFORE REACHING OUTER MARKER

If the autopilot disengages or has to be disengaged, transfer autopilot and reengage it. The pilot on side the engaged autopilot may continue the approach. Check no failure light illuminated on the PFD and no EICAS message related to the autopilot system.

If the autopilot disengages again:

MISSED APPROACH Procedure **PERFORM AS
REQUIRED**

- For EMB-145 Models, consider the possibility of continuing and performing the landing if adequate visual reference has been established to assure the airplane position and approach path.
- For EMB-135 Models, consider the possibility of continuing on the approach using the Flight Director for guidance.

AFTER REACHING OUTER MARKER

If the autopilot disengages or has to be disengaged, do not reengage the autopilot.

MISSED APPROACH Procedure **PERFORM AS
REQUIRED**

- For EMB-145 Models, consider the possibility of continuing and performing the landing if adequate visual reference has been established to assure the airplane position and approach path.
- For EMB-135 Models, consider the possibility of continuing on the approach using the Flight Director for guidance.

WARNINGS DURING FINAL APPROACH

Discontinue the approach if any of the following warnings occur:

- CAT 2 (not displayed or amber)
- RA (amber)
- RAD ALT FAIL (cyan) (for airplanes Post-Mod. SB 145-31-0020 or with an equivalent modification factory incorporated)
- GS (red or amber)
- LOC (red or amber)
- ILS (amber)
- ATT FAIL (red)
- ATT (amber)
- PIT (amber)
- ROL (amber)
- HDG FAIL (red)
- HDG (amber)
- FD (red)

Perform a normal MISSED APPROACH Procedure or consider the possibility of continuing and performing the landing if adequate visual reference has been established to assure the airplane position and approach path.

EXCESSIVE DEVIATION WARNING

If warning occurs above 200 ft Radio Altitude:

Monitor the ILS deviation to ensure that the airplane returns to the center beam. If not recovered up to 200 ft radio altitude:

Discontinue the approach.

If warning occurs below 200 ft Radio Altitude:

Discontinue the approach.

On both cases, perform a normal MISSED APPROACH Procedure, or consider the possibility of continuing and performing the landing if adequate visual reference has been established to assure the airplane position and approach path.

ABNORMALITIES

The following abnormalities are deviation from CAT II normal range and must be called out:

- Excessive LOC or GS deviations.
- Airspeed 10 kt higher or 5 kt lower than the Landing Reference Speed ($V_{REF 22}$).
- Roll angle in excess of 15°.
- Pitch angle below - 5° or above 5°.
- Rate of descent in excess of 1200 ft/min.

NORMAL PROCEDURES

AUTOPILOT COUPLED CAT II APPROACH

BEFORE INTERCEPTING LOCALIZER COURSE

- Perform the Descent/Approach/Before Landing checklists, as appropriate.
- Perform the Radio Altimeter test.
- Set the CAT II Decision Height on both Display Control Panels.
- Check radio altimeter information on both PFD.
- Select the same ILS frequency on both RMU.

NOTE: - After test, if Radio Altimeter is checked not functioning properly the CAT II approach must discontinued.

- A minimum distance of 4 NM to the Outer Marker is recommended for interception and stabilization along the approach course.

BEFORE INTERCEPTING THE GLIDE SLOPE

- Monitor radio altimeter information.
- Lower landing gear (one dot below GS interception) and set flaps to 22°.
- Set the Landing Reference Speed ($V_{REF 22}$) on AP bug (green bug).
- Stabilize and maintain the Landing Reference Speed ($V_{REF 22}$).
- Set approach climb speed on SPD reference speed bug (cyan bug).
- Be sure that Marker Beacon audio is on.

AFTER PASSING THE OUTER MARKER INBOUND

- The pilot flying should maintain the Landing Reference Speed ($V_{REF 22}$).
- Both pilots must monitor the progress of the approach on their displays down to approximately 200 ft above the decision height. At this point the pilot not flying looks out for external visual references while the pilot flying continues to monitor his displays down to the decision height.
- At 50 ft above the decision height setting the GP WS will call out "APPROACHING MINIMUM".
- At the decision height setting the GP WS will call out "MINIMUM", and the pilot not flying will call out "LANDING" or "GO AROUND", as appropriate.
- If visual contact is not made upon reaching the decision height or if any malfunction could not be promptly identified during approach, a missed approach must be immediately initiated.

NOTE: The Landing Reference Speed used for ILS CAT II approaches is the $V_{REF 22}$ speed presented in the Landing Climb and Reference Speeds (Flaps 22°) of the basic AFM.

FLIGHT DIRECTOR CAT II APPROACH (ONLY APPLICABLE TO EMB-135 AND EMB-145 XR MODELS)

The procedures for Flight Director CAT II Approach are the same as those for Autopilot Coupled CAT II Approach except that the approach is performed manually following the Flight Director indications.



MISSED APPROACH

GO-AROUND Procedure APPLY

LANDING

Reaching the Decision Height with runway in sight:

Autopilot DISENGAGE

Landing PERFORM

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PERFORMANCE

GENERAL

The performance data used in Category II operations not presented in this Supplement are presented in the Section 5 (Performance) of the basic AFM or in the Supplements where landing performance data with flaps 22° is presented.

CAT II PERFORMANCE CONFIGURATION

	OPERATING ENGINES	POWER	FLAPS	GEAR	AIRSPEED
APPROACH CLIMB	1	MAX T/O	9°	UP	APPROACH CLIMB SPEED
LANDING CLIMB	2	MAX T/O	22°	DOWN	V _{REF 22}
LANDING	2	IDLE	22°	DOWN	V _{REF 22}

SUPPLEMENT 2

LIST OF EFFECTIVE PAGES

ORIGINAL	0	Not Applicable
REVISION	1 to 11	Not Applicable
REVISION	12	APR 24, 1998
REVISION	13 to 22	Not Applicable
REVISION	23	JAN 14, 1999
REVISION	24	Not Applicable
REVISION	25	FEB 12, 1999
REVISION	26	Not Applicable
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REVISION	28 to 30	Not Applicable
REVISION	31	NOV 22, 1999
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REVISION	65	OCT 03, 2013
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FMZ2000 FLIGHT MANAGEMENT SYSTEM

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GENERAL

This Supplement is a part of, and must be placed in, the FAA Approved Airplane Flight Manual for airplanes incorporating single or dual FMZ2000 Flight Management System. The information contained herein supplements the information of the basic AFM. For limitations, procedures and performance information not contained in the Supplement, refer to the basic AFM.

NAVIGATION OPERATIONAL APPROVALS

The single Honeywell FMZ2000 Flight Management System, with the software version NZ4.8 Mod A or Mod C, and the single or dual Honeywell FMZ2000 Flight Management System software version NZ5.2 Mod B, Mod C, Mod D and Mod E have been demonstrated capable of and have been shown to meet the requirements for the following operations:

OCEANIC AND REMOTE

In accordance with AC 20-130A and FAA Notice 8110.60 the dual FMS is approved as a two independent Long Range Navigation (LRN) System on these routes, provided it is receiving usable signals from the GPS which meets requirements of AC 90-94 for use as the only LRN System sensor. The dual FMZ2000 installation with dual GPS sensors as installed has been found to comply with the requirements for GPS primary means of navigation in oceanic and remote airspace, when used in conjunction with Honeywell Off Line RAIM prediction program. For single FMS installation, in accordance with AC 20-130A, along routes requiring a single Long Range Navigation (LRN) System, provided it is receiving usable signals from the GPS which meets requirements of AC 90-94 for use as the only LRN System sensor on these routes.

NORTH ATLANTIC (NAT) MINIMUM NAVIGATION PERFORMANCE SPECIFICATION (MNPS) AIRSPACE

- Provided two FMS installations are operating with each receiving information from two inertial reference systems (IRS) or from two global positioning systems (GPS) when used in conjunction with Honeywell Off Line RAIM prediction program, the FMS is capable of unrestricted flight into North Atlantic (NAT) Minimum Navigation Performance Specification (MNPS) airspace and has been shown to meet the accuracy specification in accordance with AC 120-33 or AC 91-49.
- For single FMS installation as defined in AC 91-49 and AC 91-70, along the special routes requiring a single LRN (Long Range Navigation System), provided it is receiving usable signals from the GPS which meets requirements of AC 90-94 for use as the only LRN System sensor on these routes.

RNP-10 - REQUIRED NAVIGATION PERFORMANCE

- The dual FMZ2000 installation with dual Global Positioning System (GPS) sensors as installed has been found to comply with the requirements of FAA Order 8400.12A, as amended, as a primary means of navigation with no time limitation, when used in conjunction with Honeywell Off Line RAIM prediction program.
- The dual FMZ2000 installation with dual Inertial Reference Systems (IRS) as installed has been found to comply with the requirements of FAA Order 8400.12A, as amended, as a primary means of navigation for flights up to 6.2 hours after the system is placed in the navigation mode.
- The dual FMZ2000 installation with dual Global Positioning System (GPS) sensors and dual Inertial Reference Systems (IRS) as installed has been found to comply with the requirements of FAA Order 8400.12A, as amended, as a primary means of navigation with no time limitation.

ENROUTE AND TERMINAL

In accordance with AC 20-130A and TSO C129a C1 provided it is receiving usable signals from:

- One VOR/DME or multiple DME's;
- GPS.

NON-PRECISION APPROACH

In accordance with AC 20-130A, TSO C129a C1 and AC 90-94 (Phase II and III overlay approaches and GPS only approaches), provided:

- The APP annunciation is set on the PFD at the Final Approach Fix.
- The DGR or DR is not annunciated on the PFD.
- The flight director is coupled to the LNAV mode (GPS only approaches).

NOTE: AC 90-94 deals with the use of GPS in the U.S. National Airspace System (NAS) and in oceanic areas. The general approval to use GPS to fly overlay instrument approaches as described in the AC, is initially limited to the U.S. NAS. Refer to Limitations Section of this Supplement, for use of GPS for non-precision approaches outside the U.S. NAS.

LIMITATIONS

The following limitations are applicable to the FMS:

- The Honeywell Flight Management System (FMS) Pilot's Operating Manual, Honeywell Publication Number A28-1146-122-00, August 1997 edition (or later revision of the manual) for the software version NZ4.8, Honeywell Publication Number A28-1146-133-00, February 1999 edition (or later revision of the manual) for the software version NZ5.2 or FAA accepted Operating Manual, must be immediately available to the flight crew whenever navigation is predicated on the use of the FMS. The software status stated in the Pilot's Manual must match that displayed on the FMS Control Display Unit (CDU).
- Honeywell software version NZ4.8 or NZ5.2 must be installed.
- FMS instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the FMS navigation data base. The FMS data base must incorporate the current update cycle.
- Use of FMS guidance for conducting instrument approach procedures is prohibited with the FMS operating in the degrade or dead reckoning mode (DGR or DR annunciation set on PFD).
- Operation above 72° 30.0' north latitude and below 59° 30.0' south latitude is prohibited due to unreliable magnetic heading.
- The pilot must review the complete transition-approach, comparing the waypoints and altitudes displayed on the FMS with those on the published procedure prior to activation to insure that the correct procedure and transition are selected.
- The Flight Director must be coupled to the LNAV mode (autopilot coupled or not coupled), to accomplish GPS only approaches.

CONTINUES ON NEXT PAGE

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- When using FMS guidance for conducting instrument approach procedures that do not include a GPS reference in the title of the published procedure, the flight crew must verify that the procedure specified navaid and associated avionics are operational.
- For airplanes equipped with single FMS, when using FMS guidance for conducting instrument approach procedures, the procedure navaid must be tuned and valid, and the raw data must be displayed in the cockpit, under the following conditions:
 - For VOR approaches (where the procedure specified navaid is a VOR only navaid - no DME capability) and NDB approaches, without GPS (GPS failed or RAIM out of limits or unavailable).
 - For any instrument approach (other than a GPS stand alone approach), outside the Brazilian Airspace, with GPS as the navigation sensor.
- ILS, LOC, LOC-BC, LDA, SDF and MLS approaches, using the FMS for guidance, are prohibited.
- When flying to an airport where GPS (non-overlay) is the intended approach, prior to dispatch, the crew is required to verify that the predictive RAIM at the destination ETA is within the approach criteria. This information (RAIM AVAILABLE), is displayed on the PREDICTIVE RAIM page, accessed via the GPS STATUS page.
- When the approach at the destination is based on GPS and an alternate airport is required by the applicable operating rules, the alternate must be served by an approach based on a navigation aid other than GPS. The navigation aid must be operational and the airplane must have operational equipment capable of using that navigation aid.
- IFR non-precision approaches, including those based upon the use of GPS, may be performed with approved published instrument approach procedures.

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- The FMS is approved for those oceanic and North Atlantic (NAT) Minimum Navigation Performance Specification (MNPS) routes requiring only a single FMS and a single GPS in accordance with AC 20-130A.
- The pilot must check for leg gaps in the Flight Plan Display on EFIS and input waypoints to fill in any gaps as necessary.
- IFR enroute and terminal navigation is prohibited unless the pilot verifies the currency of the data base or verifies each selected waypoint for accuracy by reference to current approved data.
- The fuel flow and fuel used presented on the FMS are supplementary information only. The flight crew must use fuel information primarily from the MFD and EICAS display.
- Coupled FMS vertical guidance is not available. Therefore, during FMS operation with Autopilot coupled, the pilot must use the Flight Guidance Controller for vertical control. Advisory vertical guidance is available only in descent.
- During oceanic, North Atlantic (NAT) Minimum Navigation Performance Specification (MNPS), enroute and terminal area operation with DR or DGR annunciated on the PFD, the flight crew must verify the FMS position using VOR/DME raw data or other appropriate means.
- The airplane must have other navigation equipment installed and operating, appropriate to the route of flight.
- The FMS approaches and missed approaches are prohibited for airplanes with NZ4.8 Mod A software installed.
- FMS missed approaches using the CDU Mode Select Button is prohibited.

EMERGENCY AND ABNORMAL PROCEDURES

All FMZ Action/Malfunction Messages are described in the Honeywell Flight Management System (FMS) Pilot's Operating Manual, Honeywell Publication Number A28-1146-122-00, August 1997 edition (or later revision of the manual) for the software version NZ4.8 and Honeywell Publication Number A28-1146-133-00, February 1999 edition (or later revision of the manual) for the software version NZ5.2.

The airplane abnormal operating procedures are the same as those in the basic FAA Approved Airplane Flight Manual except as follows:

FMS NAVIGATION PERFORMANCE DEGRADED

Verify airplane position by using VOR/DME information (enroute and terminal operations) or other sources as appropriate (oceanic).

If conducting an instrument approach, discontinue use of FMS for approach guidance and select an alternate source of navigation, if available.

In case of one FMS (single FMS) or both FMS (dual FMS) entering in Dead Reckoning Mode and EGPWS is installed:

EGPWS TERRAIN SYS OVRD Button..... PRESS

The Terrain Awareness Alerting and Display functions on MFD will be inhibited. This will not affect the basic GPWS functions (modes 1 to 7).

If the FMS is restored after a period of inadequacy:

EGPWS TERRAIN SYS OVRD Button PRESS

The Terrain Awareness will be enabled.

NOTE: The DEGRADE annunciator indicates that the FMS cannot guarantee that the accuracy of the system meets the requirements for the current phase of flight.

FMS IN DEAD RECKONING MODE

During periods of dead reckoning, refer to FMS NAVIGATION PERFORMANCE DEGRADED Procedure.

NOTE: The FMS will continue to provide the best estimate of the airplane position based on airspeed and heading inputs, but it cannot guarantee the required accuracy for any of the flight phases. The pilot should cross check position with other nav aids, station overfly or visually.

NORMAL PROCEDURES

The airplane normal operating procedures are the same as those in the basic AFM except as follows:

BEFORE START

FMS SET

HOLDING

If a Holding Pattern is depicted, but is not a mandatory part of the procedure, then the following is necessary:

FMS AS REQUIRED

The pilot must verify the type of entry and direction of turn prior to entering the hold. For anything other than a direct entry, the pilot must activate the holding procedure when it is retrieved from the navigation data base, prior to the FMS initiating any part of the procedure.

NOTE: The FMS normal operating procedures are contained in the Honeywell Flight Management System (FMS) Pilot's Operating Manual, Honeywell Publication Number A28-1146-122-00, August 1997 edition (or later revision of the manual) for the software version NZ4.8 and in the Honeywell Publication Number A28-1146-133-00, February 1999 edition 9 (or later revision of the manual) for the software version NZ5.2.

FMS SOURCE SELECTION

- Flight Plan SELECT OR
CREATE
- FMS Source SELECT
- The FMS can be selected as the navigation source through the FMS Selector Button located on the Display Control Panel.
- FMS Label..... CHECK
- The FMS label appears on the associated PFD and MFD.
- On PFD:

For airplanes Pre-Mod. SB 145-22-0001 or Post-Mod. SB 145-31-0009 or equipped with an equivalent modification factory incorporated, if the FMS is the navigation source for only one side the color will be magenta, otherwise will be amber.

For airplanes Post-Mod. SB 145-22-0001 or Post-Mod. SB 145-31-0007, revision 02, or S/N 145.048, 145.052 and on or with an equivalent modification factory incorporated, the FMS label will be always magenta.

On MFD the FMS label will be always magenta.

- For FMS coupling to the Autopilot/Flight Director:
- NAV Mode (flight guidance controller)..... SELECT
- The FMS will be coupled to the Autopilot/Flight Director when is selected and valid at the on side EHSI and crew selects the NAV mode on the associated Flight Guidance Controller. Once coupled the autopilot will follow the preselected flight plan on the FMS.

APPROACH (ONLY PERMITTED FOR AIRPLANES WITH SOFTWARE NZ4.8 MOD C OR NZ5.2 MOD B, MOD C, MOD D OR MOD E INSTALLED)

The FMS LOC, B/C, GPS, NDB, RNAV, VOR, VOR/DME and VFR approaches may be linked into the flight plan and laterally coupled to the Autopilot/Flight Director.

ILS approaches can be retrieved from the navigation data base and linked to the flight plan, but cannot be armed or activated as FMS approaches. The FMS can be used to provide navigation up to the final approach course at the point that the PFD must be changed to display raw ILS data.

TRANSITION FROM FMS TO AUTOPILOT ILS APPROACH

- ILS Frequency SELECT AS
REQUIRED
- Radio Altitude SELECT AS
REQUIRED
- HDG Mode (flight guidance controller) SELECT
Before selection, set the desired interception course on heading
bug.
- Navigation Source SELECT
Select the NAV source on the Display Control Panel (LOC course
selected on the PFD).
- Autopilot/Flight Director AS REQUIRED
- When cleared for approach:
APR Mode (flight guidance controller)..... SELECT

ARC DME APPROACH USING FMS

- Pilot Not-Flying CHECK DME
During Arc DME approach using FMS the pilot not-flying must
check DME raw data.

MISSED APPROACH (ONLY PERMITTED FOR AIRPLANES WITH SOFTWARE NZ4.8 MOD C OR NZ5.2 MOD B, MOD C, MOD D OR MOD E INSTALLED)

Go Around Button PRESS
Thrust Levers MAX

Verify that airplane rotates to 10° nose up wings level (Pitch Mode) and changes to Speed Hold Mode after 20 seconds.

Flaps 9°

With positive rate of climb:

Landing Gear UP
Airspeed APPROACH
CLIMB SPEED
OR ABOVE

NAV Mode (flight guidance controller) SELECT
Reselecting the NAV mode the airplane will regain the lateral guidance from the FMS to fly the missed approach legs to the missed holding point and to enter holding, as required.

LATERAL DEVIATION SCALE

When the FMS is selected as the navigation source the cross track deviation scale and pointer, if valid, will be displayed. The lateral deviation values are the following:

DEVIATION	ENROUTE (NM)	TERMINAL (NM)	APPROACH (NM)
0	0	0	0
1 dot	2.5	0.5	0.15
2 dots	5.0	1.0	0.30

PERFORMANCE

Performance Data presented in the basic AFM remain unchanged.

SUPPLEMENT 3

LIST OF EFFECTIVE PAGES

ORIGINAL.....	0.....	Not Applicable
REVISION.....	1 to 12	Not Applicable
REVISION.....	13.....	APR 27, 1998
REVISION.....	14.....	MAY 07, 1998
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REVISION.....	35.....	APR 25, 2000
REVISION.....	36 to 52	Not Applicable
REVISION.....	53.....	OCT 22, 2002
REVISION.....	54 to 55	Not Applicable
REVISION.....	56.....	OCT 21, 2003
REVISION.....	57 to 60	Not Applicable
REVISION.....	61.....	NOV 17, 2006

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S3-34..... REVISION 13

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* Asterisk indicates pages revised, added or deleted by the current revision.

TAKEOFF WITH FLAPS 22°

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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 3 TAKEOFF WITH FLAPS 22°

GENERAL

This Supplement is provided to present the takeoff data required for takeoff operations with flaps 22°. The information herein presented must replace the equivalent data in the basic AFM.

For limitations, procedures and performance informations not contained in this Supplement, see the basic AFM.

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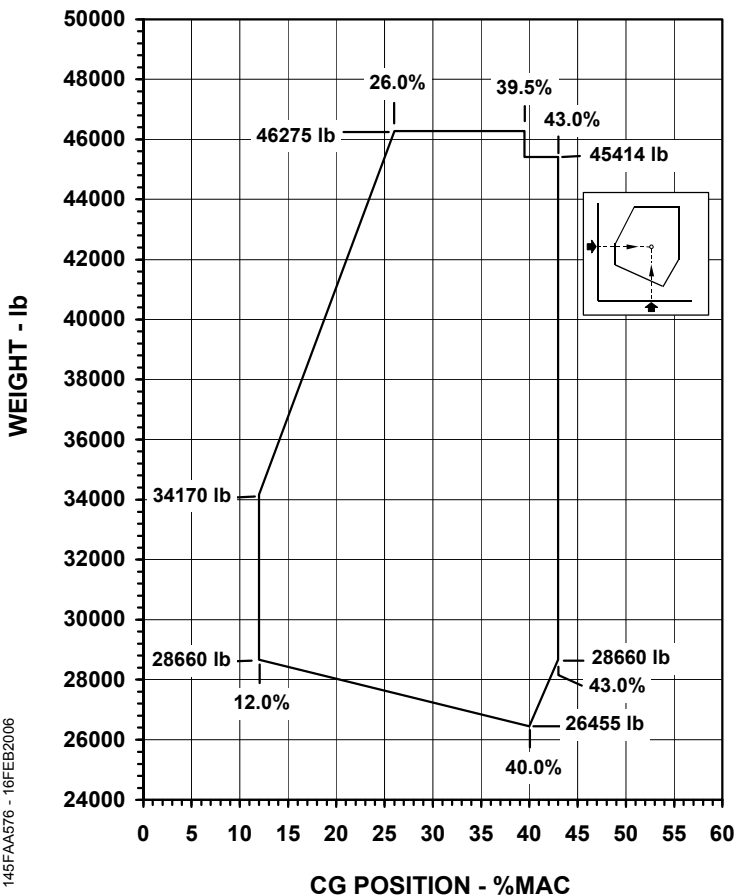
LIMITATIONS

CENTER OF GRAVITY LIMITS

For takeoff with Flaps 22°, the following Center of Gravity Envelope applies:

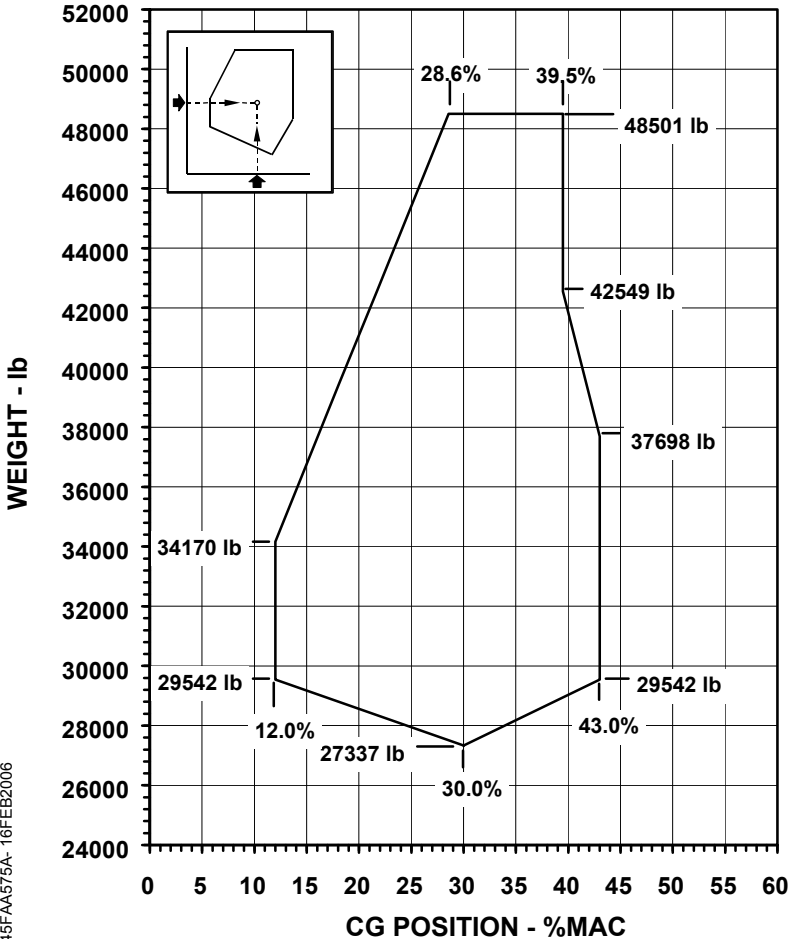
STANDARD, ER AND EP MODELS (TAKEOFF WITH FLAPS 22°)

NOTE: The data below must be used in conjunction with the maximum weight values (ramp, takeoff and zero fuel) associated to each model and found in the Operational Limitations Section, Weight table.



LR PRE-MOD. SB 145-00-0032 AND MP MODELS (TAKEOFF WITH FLAPS 22°)

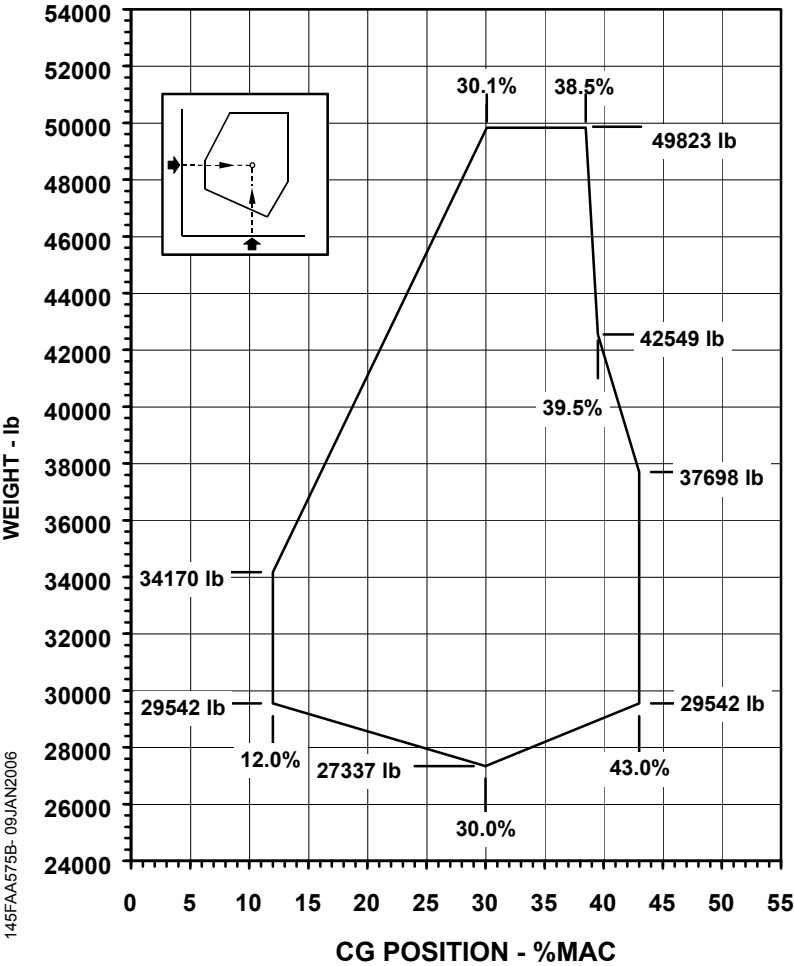
NOTE: The data below must be used in conjunction with the maximum weight values (ramp, takeoff and zero fuel) associated to each model and found in the Operational Limitations Section, Weight table.



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**LR MODELS POST-MOD. SB 145-00-0032 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED
(TAKEOFF WITH FLAPS 22°)**

NOTE: The data below must be used in conjunction with the maximum weight values (ramp, takeoff and zero fuel) associated to each model and found in the Operational Limitations Section, Weight table .





AIRPLANE FLIGHT MANUAL

SUPPLEMENT 3 TAKEOFF WITH FLAPS 22°

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POWER PLANT

ENGINES

Two Rolls-Royce AE3007A or AE3007A1/1 engines.

TAKEOFF THRUST MODE

Only T/O-1 Mode is allowed for takeoff.

AIRSPEEDS

Only NORMAL V_2 takeoff speed is allowed for takeoff.

EMERGENCY AND ABNORMAL PROCEDURES

TAKEOFF WITH ENGINE FAILURE ABOVE V_1

Maximum Takeoff Thrust	CHECK
At V_R rotate the airplane.	
With positive rate of climb:	
Landing Gear	UP
Airspeed	V_2

Maintain V_2 up to the level off altitude. If maneuvering is required, maintain a maximum bank 15°.

At $V_2 + 5$ KIAS:

Flaps.....9°

At $V_2 + 25$ KIAS:

Flaps.....UP
Airspeed ACCELERATE
TO FINAL
SEGMENT
SPEED

When appropriate:

PRECAUTIONARY ENGINE SHUTDOWN or
ENGINE FIRE, SEVERE DAMAGE OR
SEPARATION Procedure AS REQUIRED

After 5 minutes at T/O-1:

Thrust Rating.....COM

NORMAL PROCEDURES

BEFORE START

Takeoff Data SET
Select T/O-1 mode.

AFTER START

Flaps 22°

TAKEOFF

Thrust Levers THRUST SET

NOTE: - If the runway is considered to be limiting, a static takeoff must be accomplished. In this case, release brakes after engine has reached the target N1.

- During takeoff run, pedals should be used to steer the airplane.

Engine Parameters MONITOR

At V_R , rotate the airplane to 12°.

With positive rate of climb:

Landing Gear UP

Minimum Airspeed V_2

If maneuvering is required, maintain a minimum airspeed of $V_2 + 10$ KIAS with a maximum bank of 25°.

At $V_2 + 5$ KIAS:

Flaps 9°

At $V_2 + 25$ KIAS:

Flaps UP

PERFORMANCE

GENERAL

All performance data of this Supplement are the same of the basic AFM except the following configuration:

	WING FLAP POSITION
TAKEOFF	22°

The performance data presented in this section must replace the equivalent data in the basic AFM.

Unless otherwise specified, the performance charts presented in this Supplement must be used in the same way as in the basic AFM.

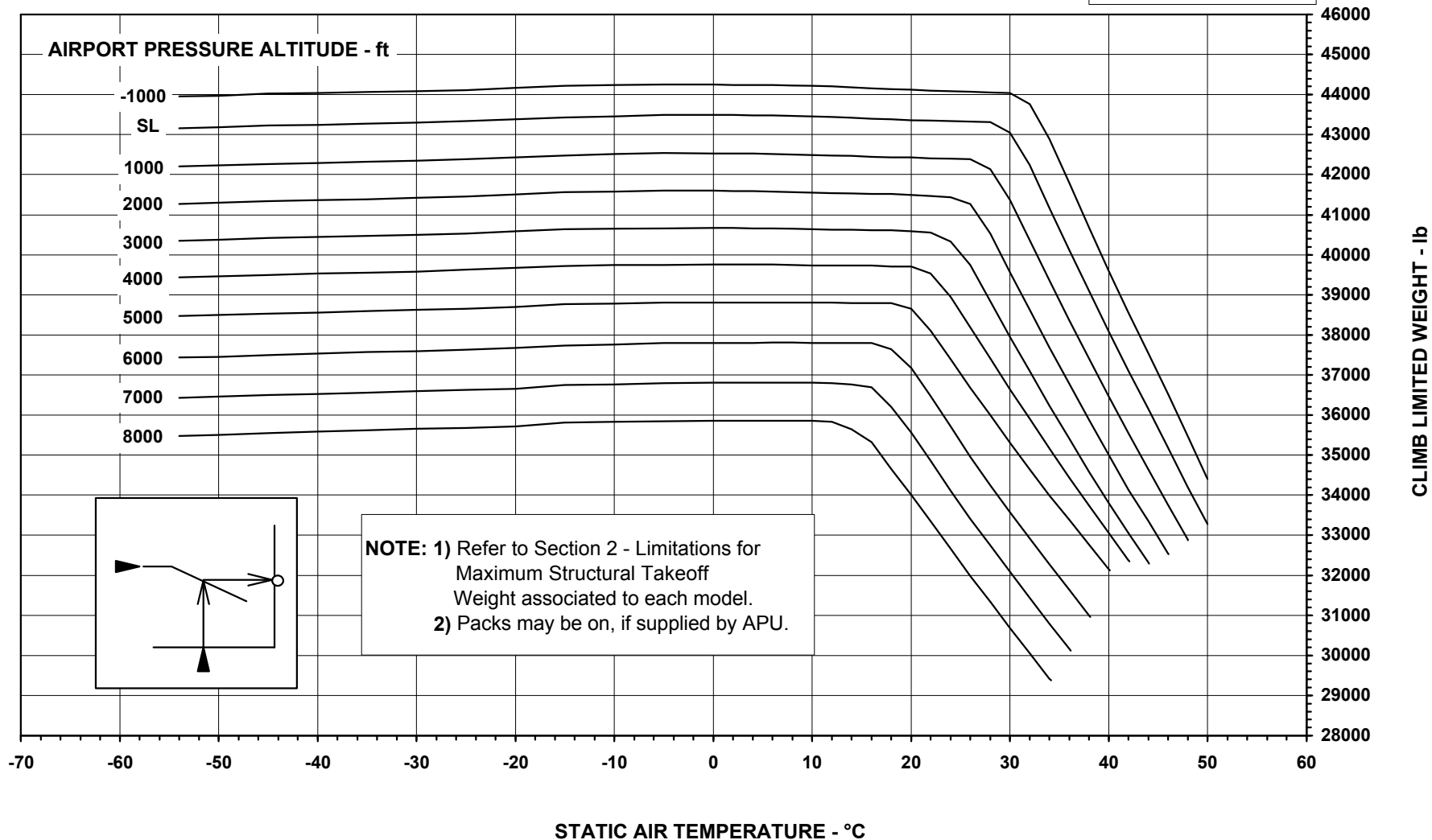
The data below are not presented in this Supplement and for takeoff calculations proceed as follows:

- BRAKE ENERGY - Use the Maximum Takeoff Weight - Brake Energy Limited (Normal V_2) chart of the basic AFM.
- NET TAKEOFF FLIGHT PATH - Use the Final Segment Net Gradient of Climb (Takeoff Flaps 9°) chart of the basic AFM.
- V_{MCA} AND V_{FS} - Use the Air Minimum Control Speed - V_{MCA} (Flaps 9°) and Final Segment Speed charts of the basic AFM.

NOTE: Although some performance charts are presented up to 52910 lb, the maximum takeoff weight associated to each model must be observed.

MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 22°
NORMAL V_2 - T/O-1 MODE - BLEED CLOSED (PACKS OFF - FADEC REF A/ICE OFF)

AE3007A ENGINES WITH T/R

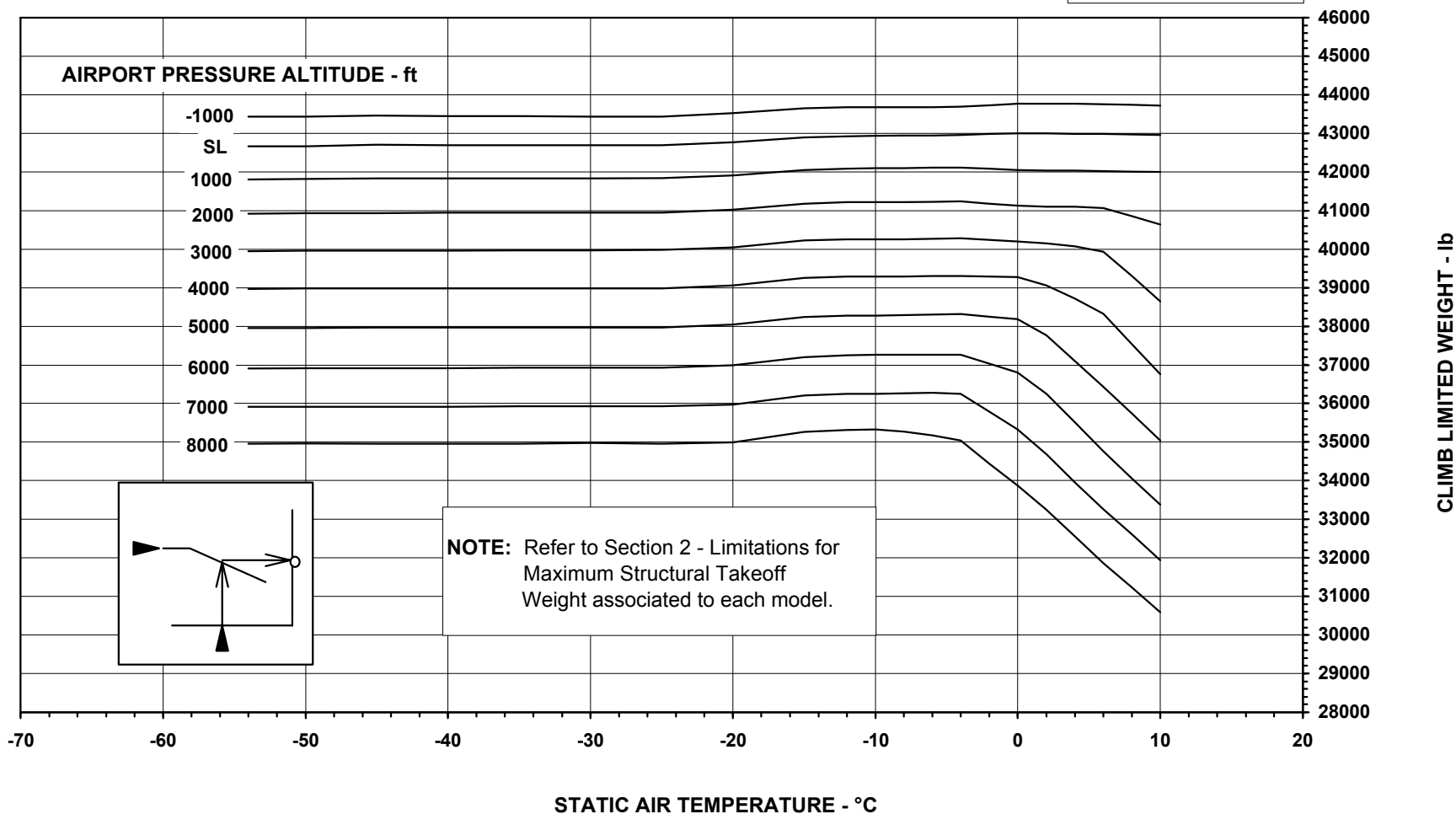


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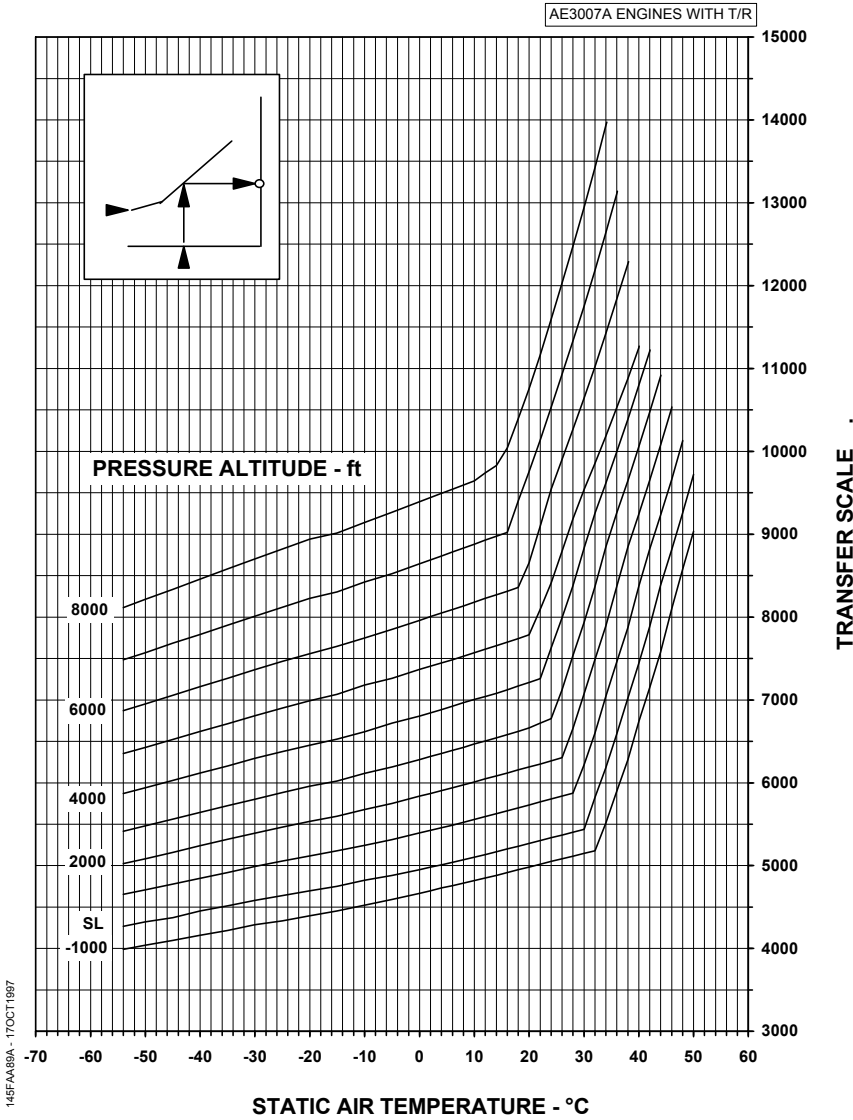
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MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 22°
NORMAL V_2 - T/O-1 MODE - BLEED OPEN (PACKS OFF - FADEC REF A/ICE ON)

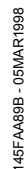
AE3007A ENGINES WITH T/R



**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**
T/O-1 MODE - FLAPS 22° - BALANCED FIELD LENGTH -
NORMAL V_2 - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 1 OF 2



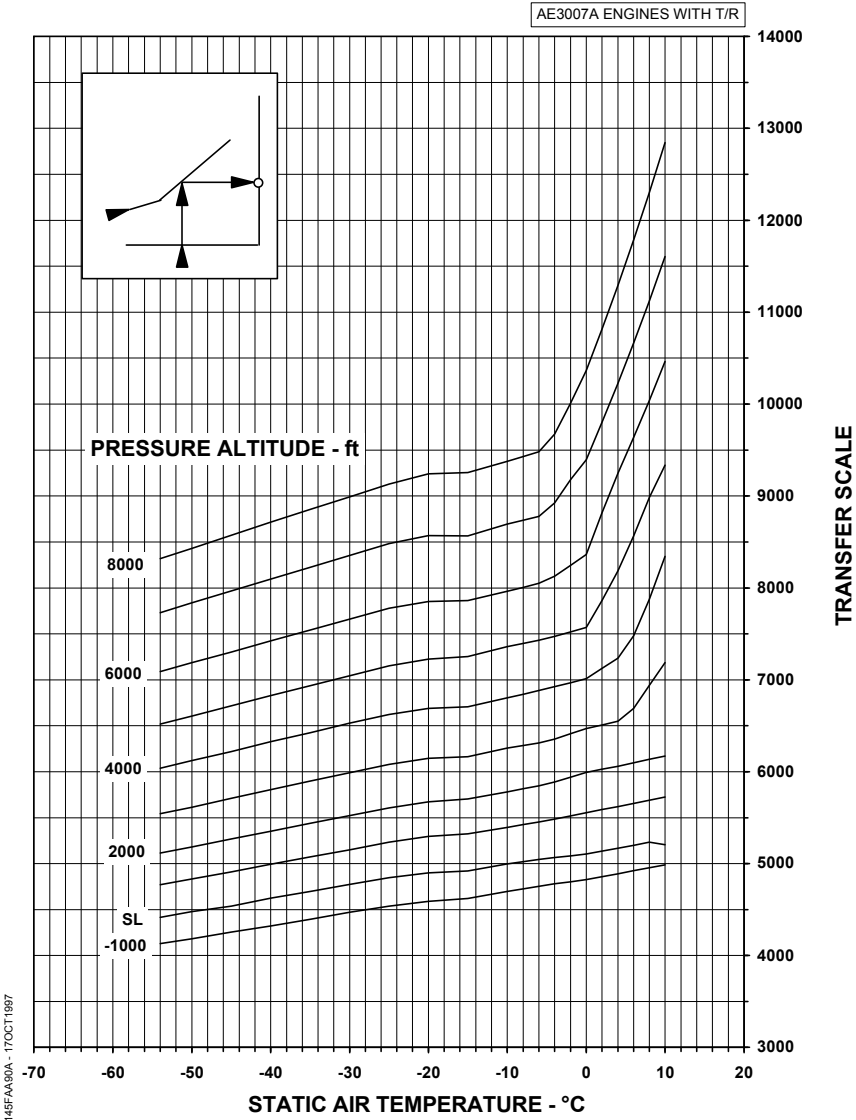
T/O-1 MODE - FLAPS 22° - BALANCED FIELD LENGTH - NORMAL V₂ - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 2 OF 2



MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED

T/O-1 MODE - FLAPS 22° - BALANCED FIELD LENGTH -
NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON

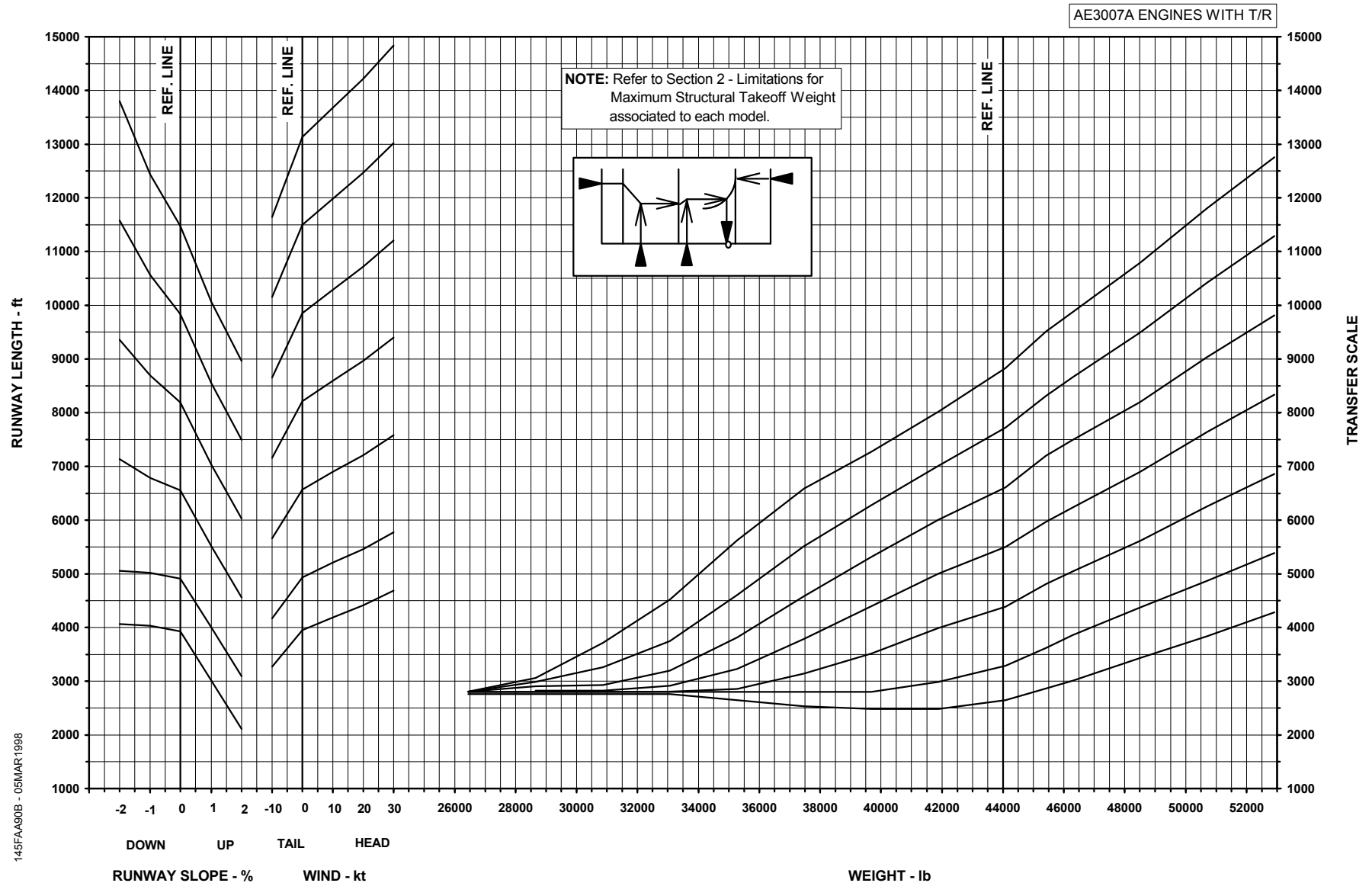
CHART 1 OF 2



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AFM-145/1153 - FAA

MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
T/O-1 MODE - FLAPS 22° - BALANCED FIELD LENGTH - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2

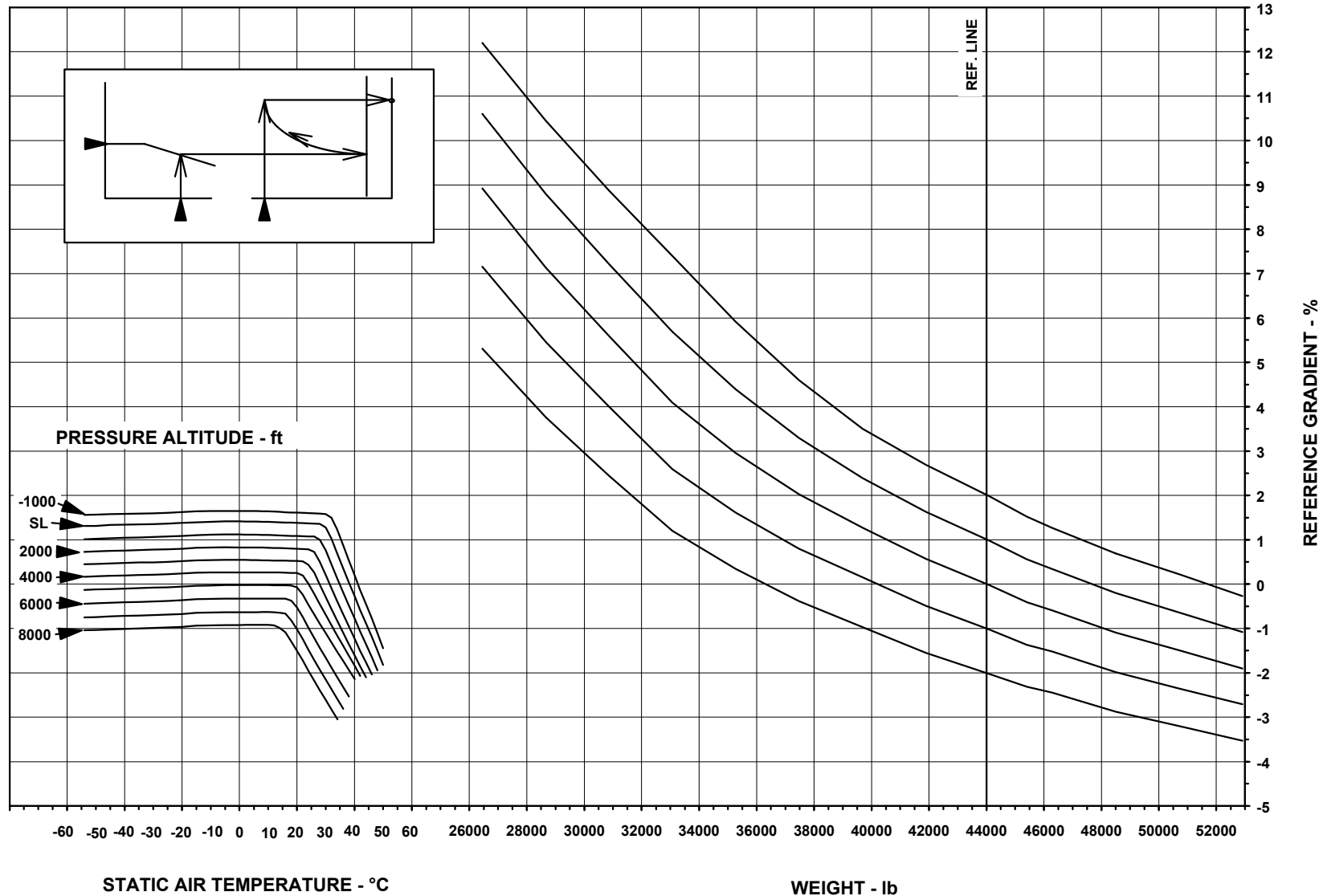




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OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 22° - T/O-1 MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AE3007A ENGINES WITH T/R

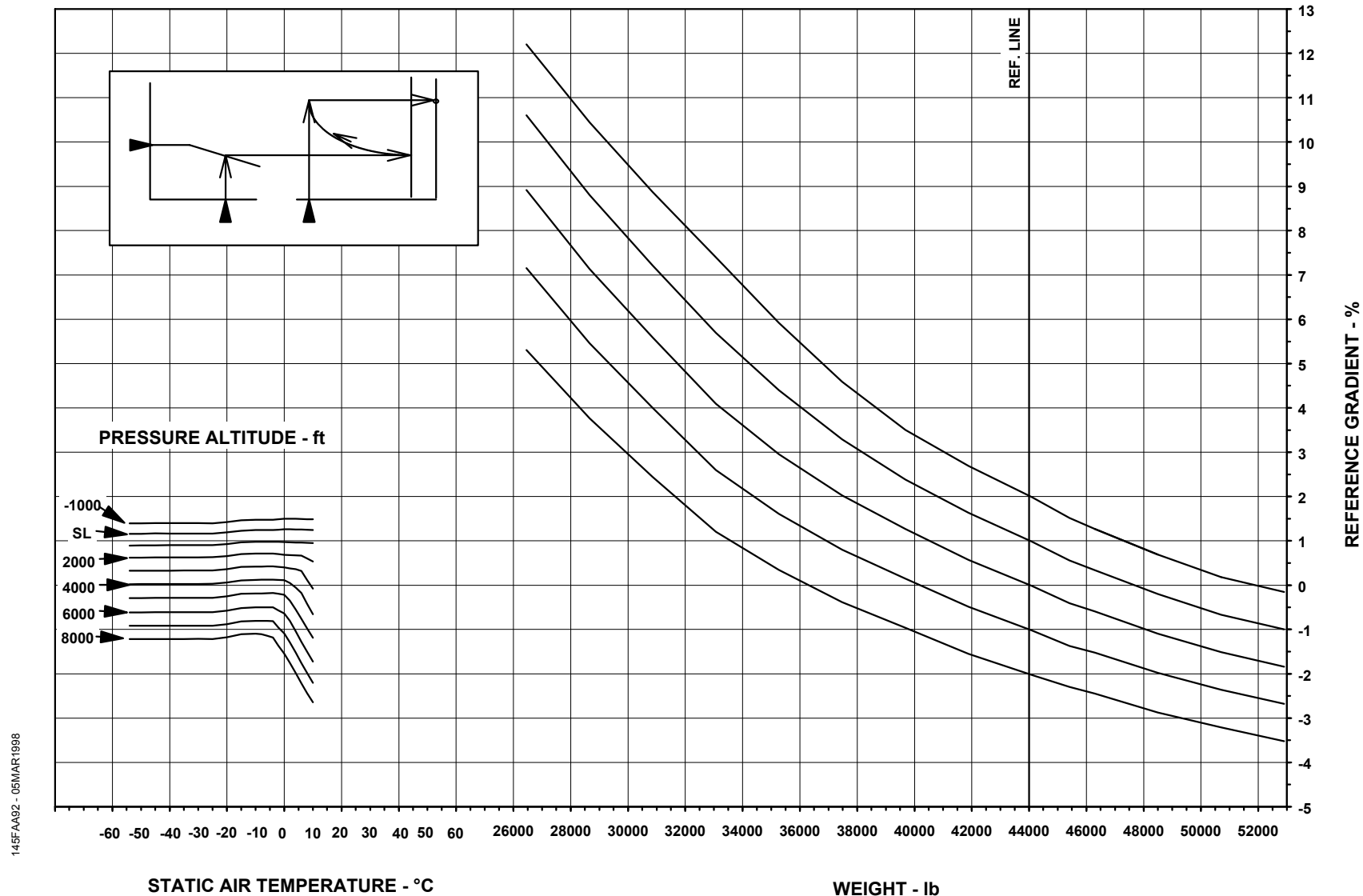




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OBSTACLE CLEARANCE - REFERENCE GRADIENT
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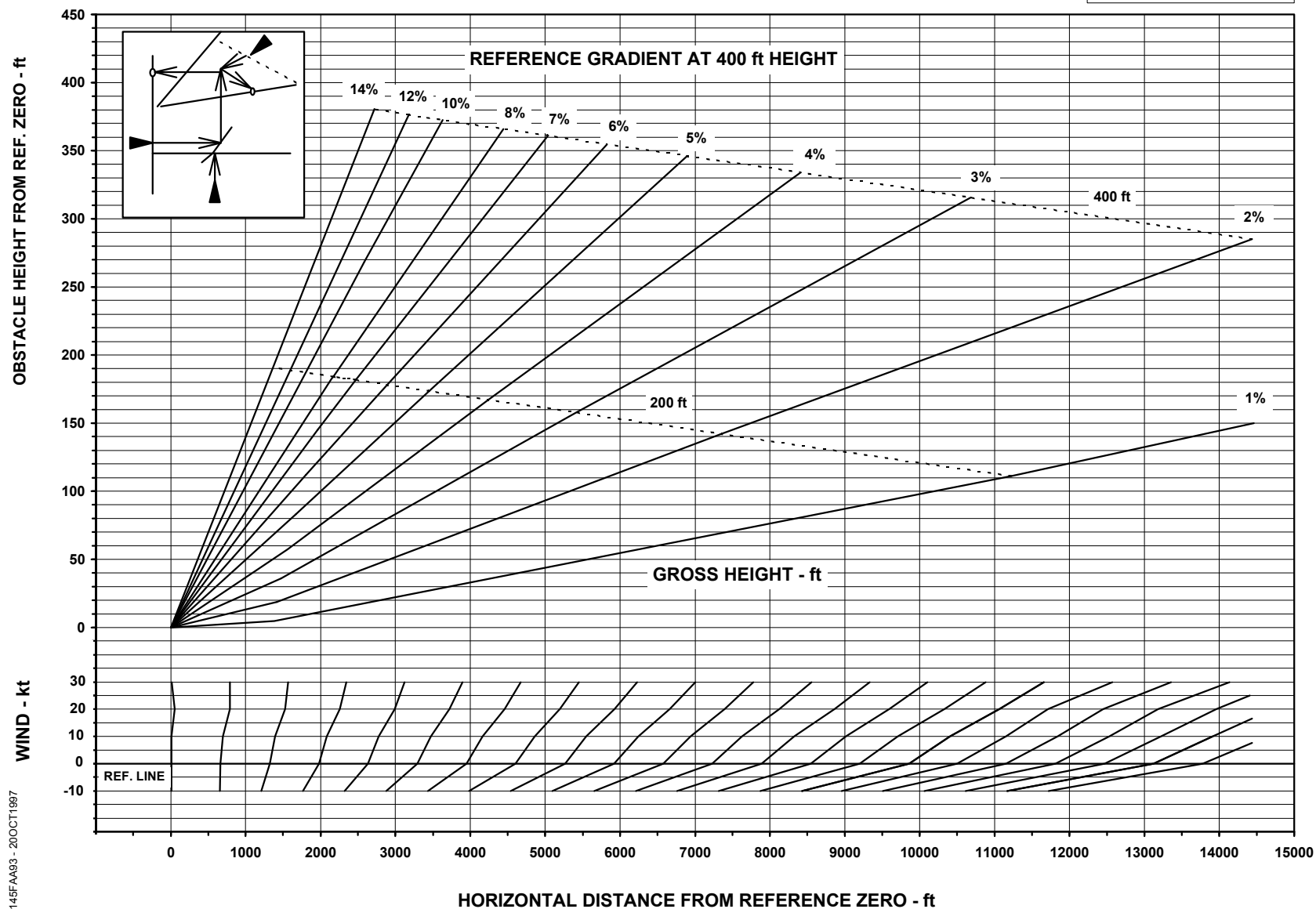
AE3007A ENGINES WITH T/R



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CLOSE-IN OBSTACLE CLEARANCE
FLAPS 22°

AE3007A ENGINES WITH T/R

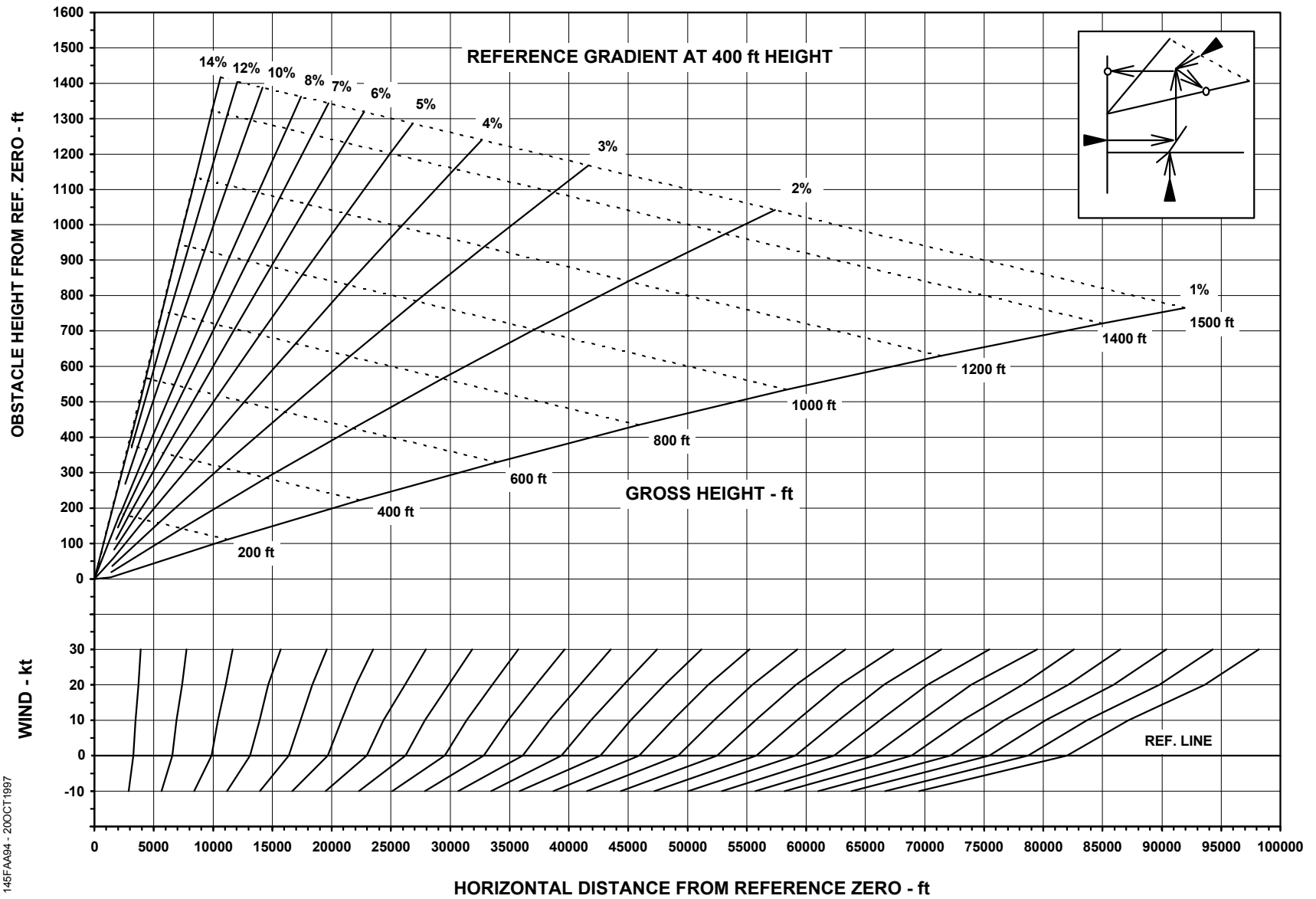




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DISTANT OBSTACLE CLEARANCE
FLAPS 22°

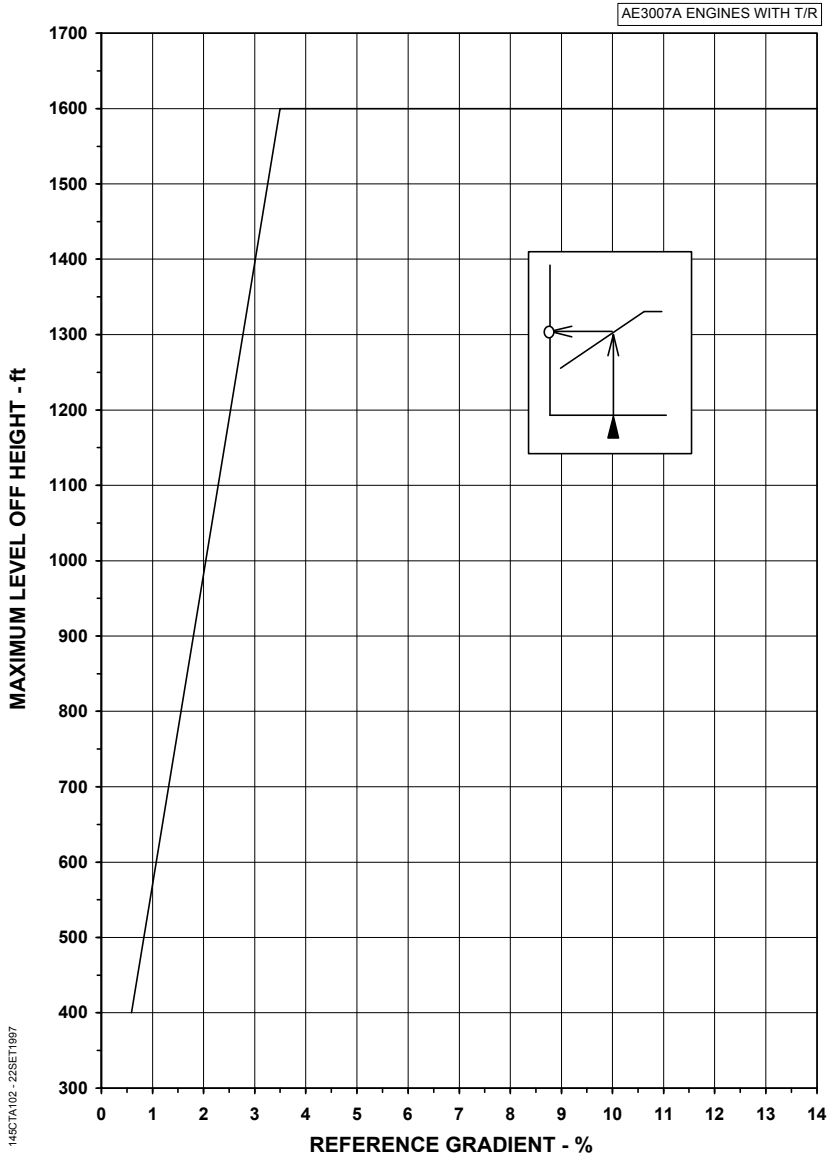
AE3007A ENGINES WITH T/R



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MAXIMUM LEVEL OFF HEIGHT
FLAPS 22°





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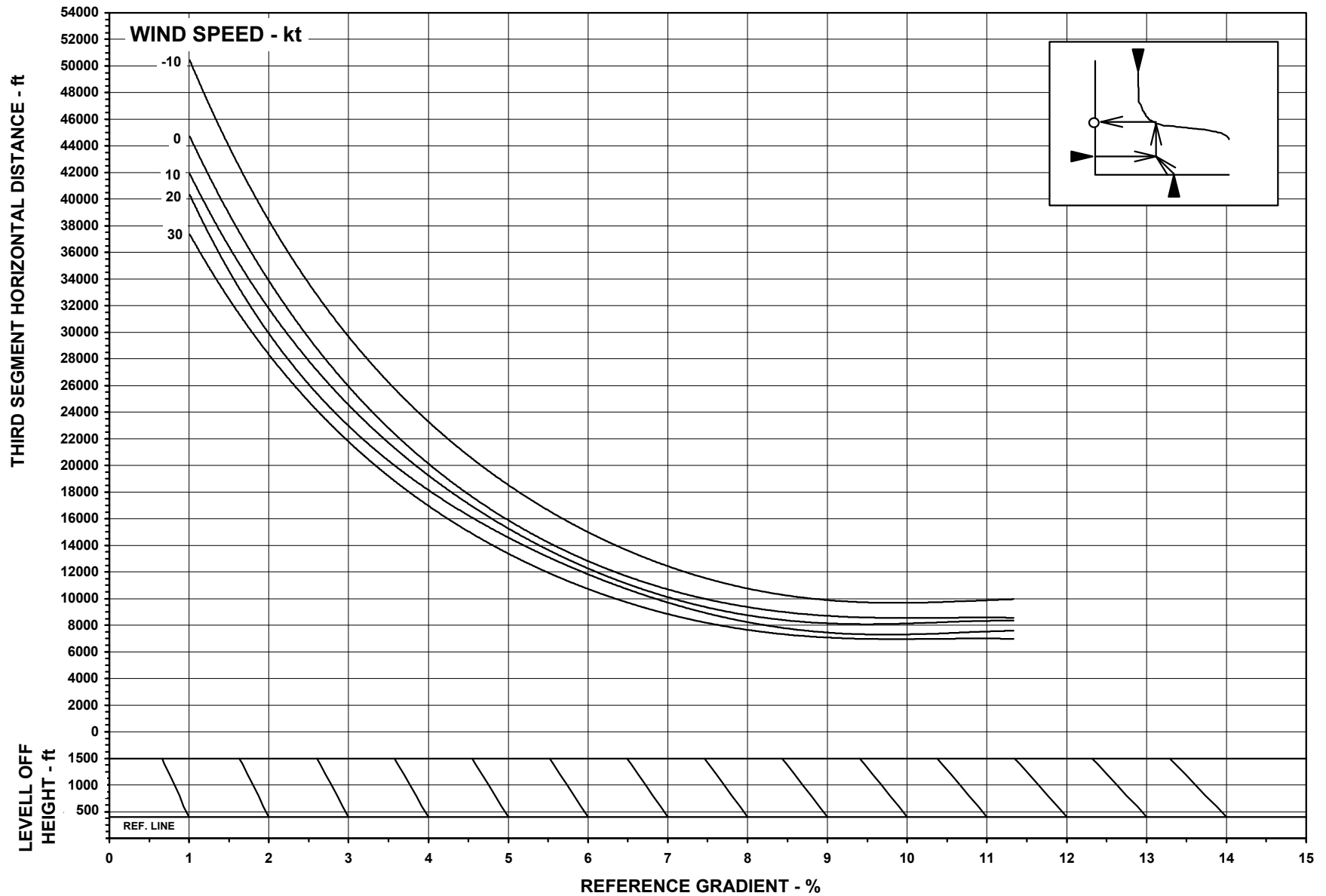
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DECEMBER 10, 1996
REVISION 13 – APRIL 27, 1998

AFM-145/1153 - FAA

145FAA95 - 21OCT1997

THIRD SEGMENT HORIZONTAL DISTANCE TAKEOFF FLAPS 22°

AE3007A ENGINES WITH T/R

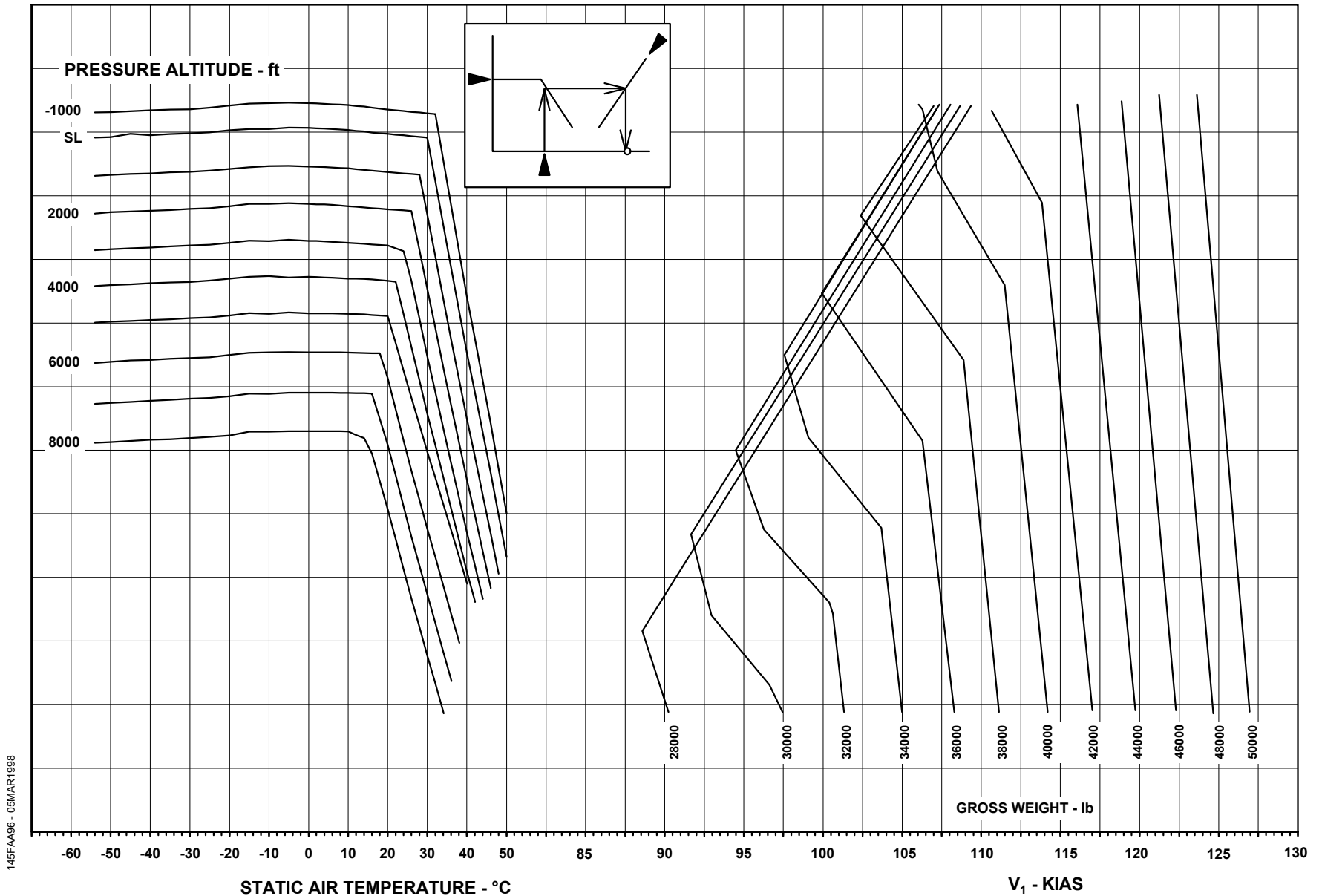




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TAKEOFF SPEEDS - V_1 (FOR NORMAL V_2)
FLAPS 22° - T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A ENGINES WITH T/R

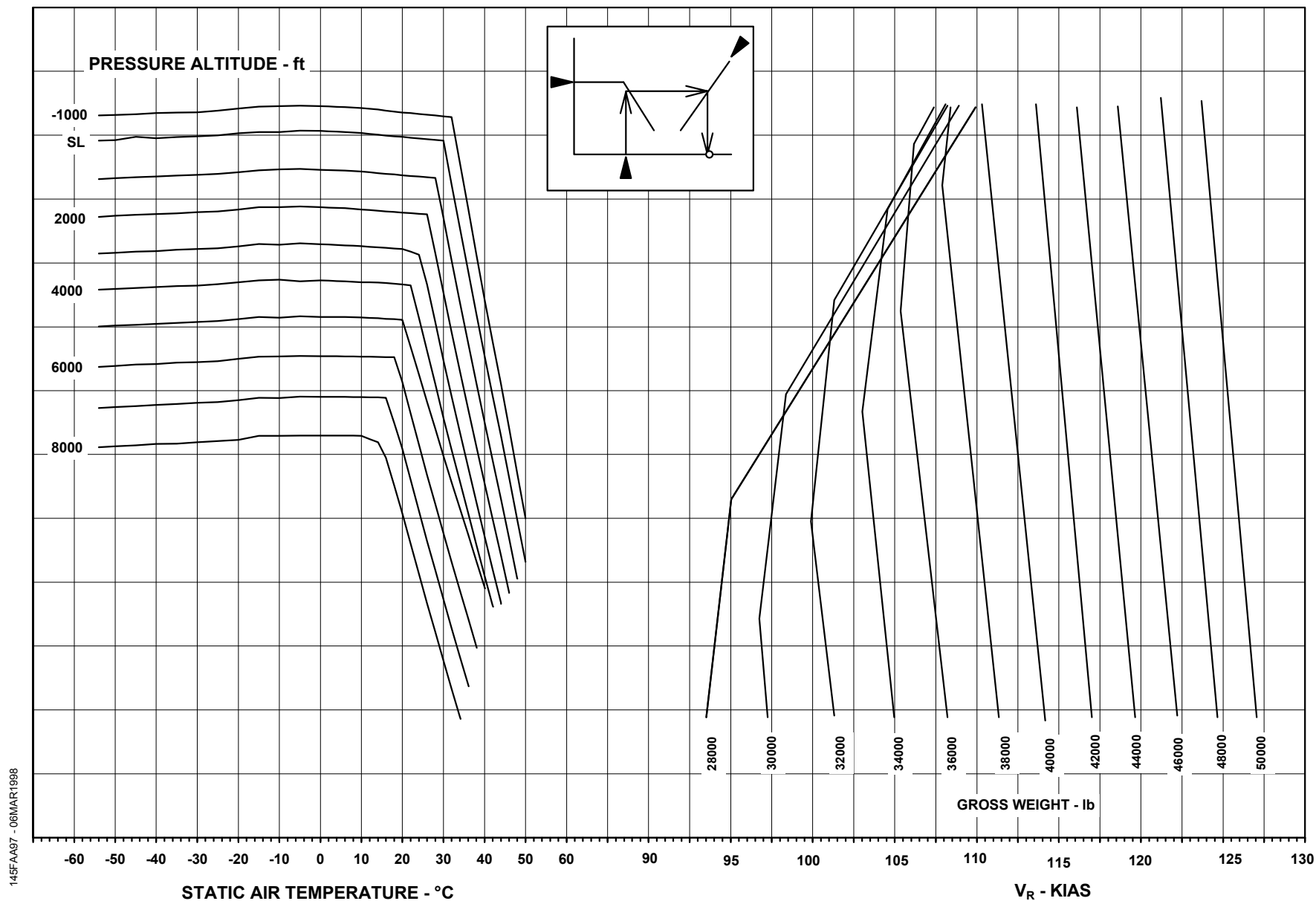




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TAKEOFF SPEEDS - V_R (FOR NORMAL V_2)
FLAPS 22° - T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A ENGINES WITH T/R



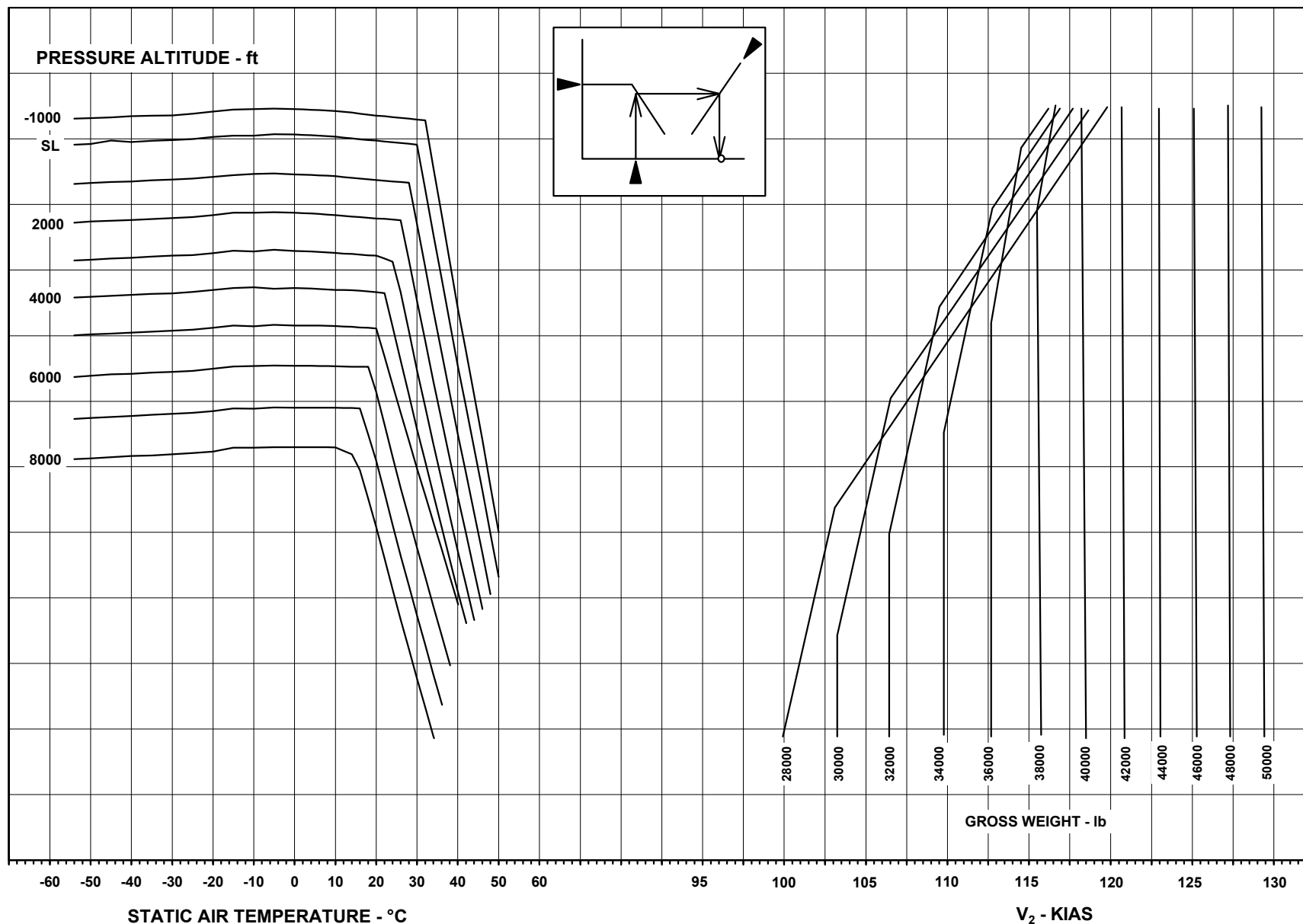
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TAKEOFF SPEEDS - V_2 (NORMAL V_2)
FLAPS 22° - T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A ENGINES WITH T/R



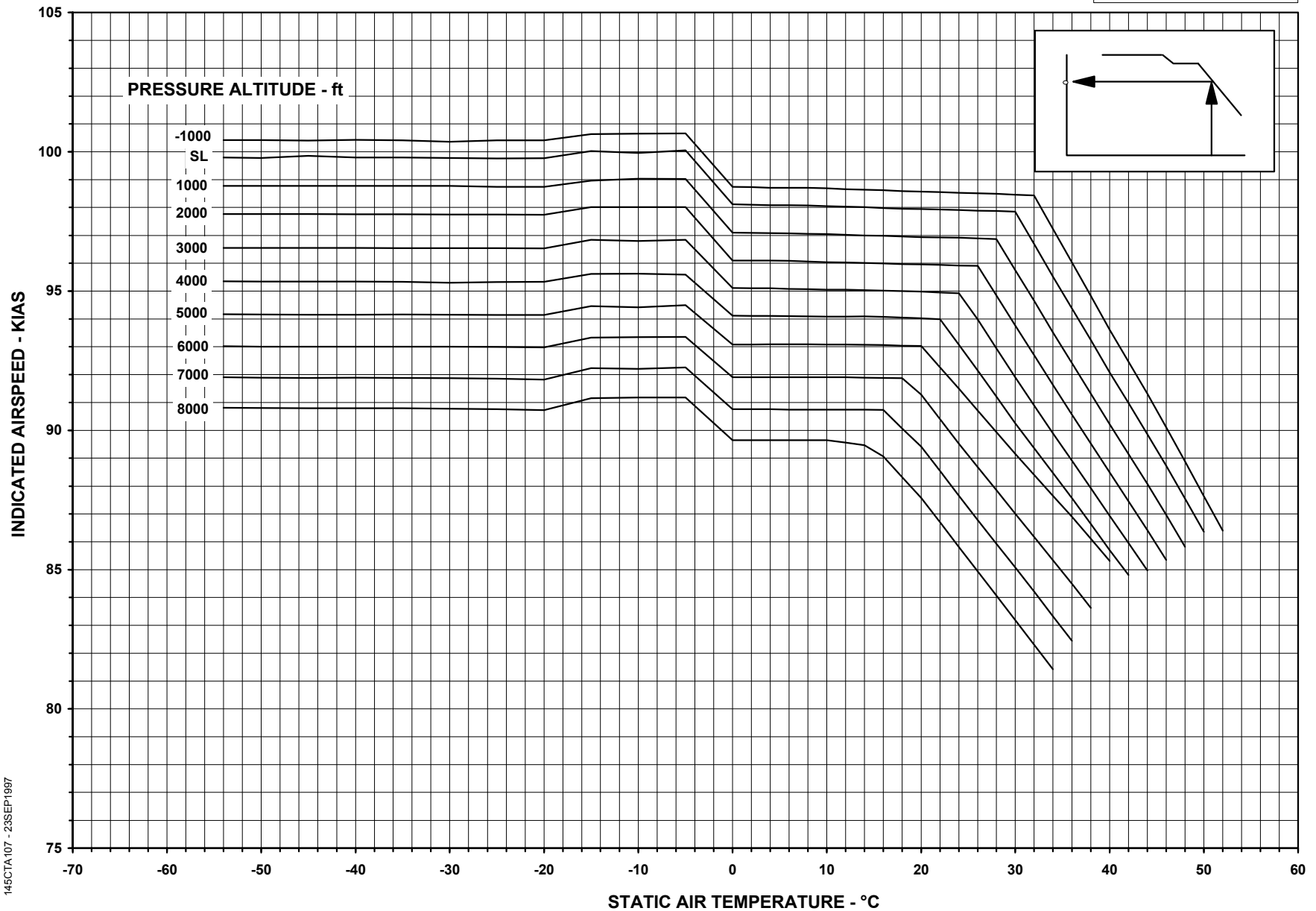
145FAA98 - 05MAR1998

CTA APPROVED
DECEMBER 10, 1996
REVISION 14 - MAY 07, 1998

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GROUND MINIMUM CONTROL SPEED
FLAPS 22°

AE3007A ENGINES WITH T/R



145CTA 107 - 23SEP1997

CTA APPROVED
DECEMBER 10, 1996
REVISION 13 – APRIL 27, 1998



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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 5
OPERATION WITH
AE3007A1/1 ENGINES

SUPPLEMENT 5

LIST OF EFFECTIVE PAGES

ORIGINAL.....	0.....	Not Applicable
REVISION.....	1 to 13	Not Applicable
REVISION.....	14.....	MAY 07, 1998
REVISION.....	15 to 60	Not Applicable
REVISION.....	61.....	NOV 17, 2006

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- * S5-ii..... REVISION 61
- * S5-iii (del) REVISION 61
- * S5-iv (del) REVISION 61
- * S5-1 (del) REVISION 61
- * S5-2 (del) REVISION 61

* Asterisk indicates pages revised, added or deleted by the current revision.

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REVISION 61

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SUPPLEMENT 7

LIST OF EFFECTIVE PAGES

ORIGINAL.....	0.....	Not Applicable
REVISION.....	1 to 19	Not Applicable
REVISION.....	20.....	NOV 25, 1998
REVISION.....	21 to 28	Not Applicable
REVISION.....	29.....	JUL 16, 1999
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REVISION.....	31 to 49	Not Applicable
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OPERATION WITH AE3007A1 ENGINES

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GENERAL

This Supplement is provided to present the data required for operations with engines AE3007A1. The information herein presented must replace the equivalent data in the basic AFM.

For limitations, procedures and performance information not contained in this Supplement, see the basic AFM or Supplement 3.

LIMITATIONS

TAKEOFF FLAPS

Takeoff with flaps 22° is only approved for T/O-1 thrust rating mode.

V₂ SCHEDULE

Only Normal V₂ Takeoff charts are presented in this Supplement.

Performance for Normal V₂ Schedule may also be computed through ETOASG.

Takeoff with increased V₂/V_s ratio can be computed only through ETOASG Version 18.20/6.03 or later approved version.

POWER PLANT

ENGINES

Two Rolls-Royce AE3007A1.

OPERATIONAL LIMITS (ROLLS-ROYCE AE3007A1)

PARAMETER (1)	MIN	MAX
N1	-	100.0%
N2	-	102.4% (2) (3)
ITT:	-	-
START	-	800°C
TAKEOFF MODES	-	948°C (4)
CONTINUOUS	-	901°C
OIL PRESSURE:	-	-
BELOW 88% N2	34 psi	95 psi (5) (6) 110 psi (5) (7)
AT OR ABOVE 88% N2	50 psi (8)	95 psi (6) (7) 110 psi (7)
OIL TEMPERATURE	21°C (9)	126°C
FUEL TEMPERATURE	-54°C	52°C
VIBRATION:	-	-
LP SPOOL	-	1.8 IPS (10)
HP SPOOL	-	1.1 IPS (10)

NOTE: 1) Any engine exceedance or peak must be monitored and logged by the crew.

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- 2) For airplanes Pre-Mod. SB 145-73-0029 the N2 limit is 102.5%.
- 3) For airplanes Post-Mod. SB 145-77-0004 the N2 limit is 105.0%.
- 4) Time limited to 5 minutes.
- 5) May be exceeded during starts if oil temperature is below 21°C. The engine must remain at IDLE until the oil pressure is less than 95 psi (110 psi for airplanes Post-Mod. SB 145-73-0022 or equipped with an equivalent modification factory incorporated).
- 6) Operation in oil pressure amber range is permitted between 96 and 115 psi in all operational modes and time limited to 5 minutes, or between 116 and 155 psi in all operational modes time limited to 2 minutes. Total time above 95 psi may not exceed 5 minutes.
- 7) For airplanes Post-Mod. SB 145-73-0022 or equipped with an equivalent modification factory incorporated the upper limit of the oil pressure green band is 110 psi. Operation in oil pressure amber range is permitted between 111 and 115 psi in all operational modes time limited to 5 minutes, or between 116 and 155 psi in all operational modes time limited to 2 minutes. Total time above 110 psi may not exceed 5 minutes.
- 8) While this is an abnormal condition, operation between 50 psi and 34 psi is permitted during takeoff and go-around phases.
- 9) Minimum oil temperature for starting is -40°C for lubrication oil specified by MIL-L-23699D and -54°C for lubrication oil specified by MIL-L-7808K.
- 10) Vibration in the amber range below 2.5 IPS is time limited to 5 minutes during the takeoff or go-around phases or 10 seconds during the remainder flight phases.

PERFORMANCE

APPROACH CLIMB GRADIENT AND APPROACH CLIMB LIMITED WEIGHTS

Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Gradient by 1% and decrease the Approach Climb Limited Weight by 1920 lb.

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EMERGENCY AND ABNORMAL PROCEDURES

Emergency and Abnormal Procedures presented in the basic AFM remain unchanged.

NORMAL PROCEDURES

Normal Procedures presented in the basic AFM remain unchanged.

PERFORMANCE

The performance data presented in this section must replace the equivalent data in the basic AFM.

Unless otherwise specified, the performance charts presented in this Supplement must be used in the same way as in the basic AFM or Supplement 3.

N1 FOR ALT T/O-1 MODE

ANTI-ICE OFF AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	72.3	72.9	73.7	74.6	75.3	76.1	76.9	77.7	78.4	79.2	79.9
0	72.9	73.5	74.3	75.1	75.9	76.7	77.5	78.3	79.1	79.8	80.6
1000	73.7	74.4	75.2	76.1	76.9	77.7	78.5	79.2	80.0	80.8	81.6
2000	74.6	75.3	76.1	77.0	77.8	78.6	79.4	80.2	81.0	81.8	82.5
3000	75.6	76.2	77.1	77.9	78.8	79.6	80.4	81.2	82.0	82.8	83.6
4000	76.6	77.2	78.1	79.0	79.8	80.6	81.5	82.3	83.1	83.9	84.7
5000	77.5	78.3	79.1	80.0	80.8	81.7	82.5	83.4	84.2	85.0	85.8
6000	78.0	78.7	79.6	80.5	81.3	82.2	83.0	83.9	84.7	85.5	86.3
7000	78.5	79.2	80.1	81.0	81.8	82.7	83.5	84.4	85.2	86.0	86.8
8000	78.9	79.6	80.5	81.4	82.2	83.1	84.0	84.8	85.6	86.5	87.3
9000	79.3	80.1	80.9	81.8	82.7	83.6	84.4	85.3	86.1	86.9	87.8
10000	79.7	80.5	81.4	82.2	83.1	84.0	84.8	85.7	86.5	87.4	88.2
11000	80.1	80.8	81.7	82.6	83.5	84.4	85.3	86.1	87.0	87.8	88.6
12000	80.5	81.2	82.1	83.0	83.9	84.8	85.7	86.5	87.4	88.2	89.0
13000	80.9	81.7	82.6	83.5	84.4	85.2	86.1	87.0	87.8	88.7	89.5
14000	81.4	82.1	83.1	84.0	84.9	85.7	86.6	87.5	88.3	89.2	90.0
15000	81.9	82.6	83.6	84.5	85.4	86.3	87.1	88.0	88.9	89.7	90.6
16000	82.6	83.3	84.3	85.2	86.1	87.0	87.9	88.8	89.6	90.5	91.4

N1 FOR ALT T/O-1 MODE

ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	0	5	10	15	20	25	30	35	40	45	50
-1000	80.7	81.4	82.2	82.9	83.6	84.3	85.0	85.7	86.4	87.1	87.3
0	81.3	82.1	82.8	83.5	84.3	85.0	85.7	86.4	87.1	87.7	87.5
1000	82.3	83.1	83.8	84.5	85.3	86.0	86.7	87.4	88.1	88.1	86.9
2000	83.3	84.1	84.8	85.6	86.3	87.0	87.8	88.5	88.6	87.7	87.1
3000	84.3	85.1	85.9	86.6	87.4	88.1	88.9	89.2	88.4	87.8	87.3
4000	85.5	86.2	87.0	87.8	88.5	89.3	89.8	89.1	88.5	87.8	87.6
5000	86.6	87.4	88.2	88.9	89.7	90.3	90.2	89.1	88.5	87.9	-
6000	87.1	87.9	88.7	89.5	90.2	90.6	89.7	89.1	88.5	88.0	-
7000	87.6	88.4	89.2	90.0	90.8	90.8	89.7	89.0	88.3	88.2	-
8000	88.1	88.9	89.7	90.5	91.0	90.3	89.6	88.9	88.3	-	-
9000	88.6	89.4	90.2	91.0	91.2	90.2	89.5	88.8	88.5	-	-
10000	89.0	89.8	90.6	91.4	91.3	90.1	89.4	88.6	-	-	-
11000	89.4	90.3	91.1	91.5	90.6	90.0	89.3	88.8	-	-	-
12000	89.9	90.7	91.5	91.5	90.5	89.9	89.2	89.0	-	-	-
13000	90.4	91.2	91.8	91.1	90.5	89.8	89.1	-	-	-	-
14000	90.9	91.7	92.0	91.1	90.4	89.7	89.3	-	-	-	-
15000	91.4	92.2	92.1	91.0	90.3	89.5	-	-	-	-	-
16000	92.2	92.5	91.5	90.8	90.1	89.6	-	-	-	-	-

N1 FOR ALT T/O-1 MODE

ANTI-ICE ON AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	75.7	76.5	77.3	78.1	78.9	79.6	80.4	81.2	80.7	81.4	82.2
0	76.3	77.1	77.9	78.7	79.5	80.3	81.0	81.8	81.3	82.1	82.8
1000	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8	82.3	83.1	83.8
2000	78.1	78.9	79.7	80.6	81.4	82.2	83.0	83.8	83.3	84.1	84.8
3000	79.1	79.9	80.7	81.6	82.4	83.2	84.0	84.8	84.3	85.1	85.9
4000	80.1	80.9	81.8	82.6	83.5	84.3	85.1	85.9	85.5	86.2	87.0
5000	81.1	82.0	82.9	83.7	84.5	85.4	86.2	87.0	86.6	87.4	88.1
6000	81.6	82.5	83.3	84.2	85.0	85.9	86.7	87.5	87.1	87.9	88.7
7000	82.1	83.0	83.8	84.7	85.5	86.4	87.2	88.0	87.6	88.4	89.2
8000	82.5	83.4	84.3	85.2	86.0	86.9	87.7	88.5	88.1	88.9	89.4
9000	83.0	83.8	84.7	85.6	86.5	87.3	88.1	89.0	88.6	89.4	89.3
10000	83.4	84.3	85.2	86.0	86.9	87.7	88.6	89.4	89.0	89.8	89.2
11000	83.8	84.7	85.6	86.4	87.3	88.2	89.0	89.8	89.4	89.7	88.8
12000	84.2	85.1	86.0	86.8	87.7	88.6	89.4	90.3	89.9	89.3	88.5
13000	84.6	85.5	86.4	87.3	88.2	89.0	89.9	90.7	89.8	89.0	88.3
14000	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3	89.6	88.9	88.2
15000	85.6	86.5	87.4	88.3	89.2	90.1	90.9	91.3	89.4	88.7	88.1
16000	86.3	87.3	88.2	89.1	90.0	90.8	91.7	91.3	89.4	88.7	88.0

N1 FOR T/O-1 MODE

ANTI-ICE OFF AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	0	5	10	15	20	25	30	35	40	45	50
-1000	83.6	84.3	85.1	85.8	86.6	87.3	88.0	88.8	89.5	90.2	90.3
0	84.2	85.0	85.8	86.5	87.3	88.0	88.8	89.5	90.2	90.9	90.8
1000	85.4	86.2	86.9	87.7	88.5	89.2	90.0	90.7	91.4	91.4	90.1
2000	86.5	87.3	88.1	88.9	89.7	90.4	91.2	91.9	92.0	91.0	90.2
3000	87.7	88.5	89.2	90.0	90.8	91.6	92.3	92.7	91.8	91.0	90.4
4000	88.7	89.5	90.3	91.1	91.9	92.7	93.2	93.1	91.8	91.0	90.7
5000	89.8	90.6	91.4	92.2	93.0	93.8	93.7	92.7	91.9	91.0	-
6000	90.3	91.2	92.0	92.8	93.6	94.0	93.3	92.6	91.7	91.2	-
7000	90.9	91.7	92.6	93.4	94.2	94.3	93.2	92.4	91.6	91.4	-
8000	91.5	92.4	93.2	94.0	94.5	94.4	93.1	92.3	91.6	-	-
9000	92.2	93.0	93.8	94.6	94.9	93.7	92.9	92.2	91.8	-	-
10000	92.8	93.6	94.5	94.5	93.2	92.2	91.5	90.9	-	-	-
11000	92.9	93.7	94.5	94.5	93.0	92.1	91.4	91.0	-	-	-
12000	92.9	93.8	94.6	94.6	92.8	92.0	91.3	91.2	-	-	-
13000	93.3	94.1	94.7	94.5	92.6	91.9	91.3	-	-	-	-
14000	93.8	94.7	94.9	93.4	92.5	91.7	91.4	-	-	-	-
15000	94.4	95.2	95.1	93.2	92.4	91.5	-	-	-	-	-
16000	94.1	94.1	92.7	91.7	90.9	90.3	-	-	-	-	-

N1 FOR T/O-1 MODE

ANTI-ICE ON
AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	78.3	79.2	80.0	80.8	81.6	82.4	83.2	84.0	83.6	84.3	85.1
0	79.0	79.8	80.6	81.5	82.3	83.1	83.9	84.7	84.2	85.0	85.8
1000	80.0	80.9	81.7	82.6	83.4	84.2	85.0	85.8	85.4	86.2	86.9
2000	81.1	82.0	82.8	83.7	84.5	85.3	86.2	87.0	86.5	87.3	88.1
3000	82.1	83.0	83.9	84.7	85.6	86.4	87.2	88.1	87.6	88.4	89.2
4000	83.1	84.0	84.9	85.7	86.6	87.4	88.3	89.1	88.7	89.5	89.5
5000	84.1	85.0	85.9	86.7	87.6	88.5	89.3	90.2	89.8	90.5	89.5
6000	84.6	85.5	86.4	87.3	88.2	89.0	89.9	90.7	90.3	90.1	89.1
7000	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3	90.6	89.8	88.8
8000	85.7	86.6	87.5	88.4	89.3	90.2	91.0	91.8	90.0	89.3	88.4
9000	86.3	87.2	88.1	89.0	89.9	90.8	91.6	91.1	89.3	88.7	88.0
10000	86.9	87.8	88.7	89.6	90.5	91.4	90.9	89.1	87.5	87.1	86.7
11000	86.9	87.9	88.8	89.7	90.6	90.9	90.4	88.8	87.3	87.0	86.6
12000	87.0	87.9	88.9	89.8	90.7	90.5	88.8	88.6	87.1	86.9	86.6
13000	87.3	88.2	89.2	90.1	90.5	90.1	88.6	88.4	87.0	86.8	86.5
14000	87.8	88.8	89.7	90.5	90.2	88.6	88.4	88.3	87.0	86.8	86.2
15000	88.4	89.3	90.2	90.2	89.9	88.4	88.3	88.3	87.0	86.9	85.9
16000	88.4	89.3	90.1	89.7	88.1	87.7	87.5	87.3	85.8	85.2	84.1

N1 FOR GO-AROUND

ANTI-ICE OFF

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	74.9	75.6	76.4	77.2	78.1	78.9	79.7	80.5	81.3	82.1	82.8
0	75.5	76.2	77.1	77.9	78.7	79.5	80.4	81.2	82.0	82.8	83.5
1000	76.5	77.2	78.1	78.9	79.7	80.6	81.4	82.2	83.0	83.8	84.6
2000	77.5	78.2	79.1	79.9	80.8	81.6	82.5	83.3	84.1	84.9	85.7
3000	78.4	79.2	80.0	80.9	81.8	82.6	83.5	84.3	85.1	86.0	86.8
4000	79.4	80.1	81.0	81.9	82.8	83.6	84.5	85.3	86.2	87.0	87.8
5000	80.4	81.1	82.0	82.9	83.8	84.6	85.5	86.4	87.2	88.0	88.9
6000	80.8	81.5	82.5	83.4	84.2	85.1	86.0	86.9	87.7	88.6	89.4
7000	81.3	82.0	82.9	83.8	84.7	85.6	86.5	87.4	88.2	89.1	89.9
8000	81.8	82.5	83.4	84.4	85.3	86.1	87.0	87.9	88.8	89.6	90.5
9000	82.3	83.1	84.0	84.9	85.8	86.7	87.6	88.5	89.4	90.2	91.1
10000	82.9	83.6	84.6	85.5	86.4	87.3	88.2	89.1	90.0	90.8	91.7
11000	83.0	83.8	84.7	85.6	86.5	87.4	88.3	89.2	90.1	91.0	91.8
12000	83.1	83.9	84.8	85.8	86.7	87.6	88.5	89.4	90.2	91.1	92.0
13000	83.5	84.2	85.2	86.1	87.0	87.9	88.8	89.7	90.6	91.5	92.3
14000	84.0	84.8	85.8	86.7	87.6	88.5	89.4	90.3	91.2	92.1	93.0
15000	84.6	85.4	86.3	87.3	88.2	89.1	90.0	90.9	91.8	92.7	93.6
16000	84.6	85.4	86.3	87.3	88.2	89.1	90.0	90.9	91.8	92.7	93.6

N1 FOR GO-AROUND

ANTI-ICE ON AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	78.4	79.2	80.0	80.9	81.7	82.5	83.3	84.1	83.6	84.4	85.1
0	79.0	79.9	80.7	81.5	82.4	83.2	84.0	84.8	84.3	85.1	85.8
1000	80.0	80.9	81.7	82.6	83.4	84.2	85.0	85.8	85.4	86.2	87.0
2000	81.1	81.9	82.8	83.6	84.5	85.3	86.1	86.9	86.5	87.3	88.1
3000	82.1	82.9	83.8	84.7	85.5	86.3	87.2	88.0	87.6	88.4	89.2
4000	83.0	83.9	84.8	85.7	86.5	87.4	88.2	89.0	88.6	89.5	89.8
5000	84.0	84.9	85.8	86.7	87.5	88.4	89.3	90.1	89.7	90.5	89.8
6000	84.5	85.4	86.3	87.2	88.1	88.9	89.8	90.6	90.2	90.5	89.5
7000	85.0	85.9	86.8	87.7	88.5	89.4	90.3	91.1	90.7	90.2	89.2
8000	85.5	86.4	87.3	88.2	89.1	90.0	90.8	91.7	90.6	89.7	88.8
9000	86.1	87.0	87.9	88.8	89.7	90.6	91.4	91.6	89.8	89.1	88.4
10000	86.6	87.6	88.5	89.4	90.3	91.2	91.5	89.7	88.0	87.5	86.9
11000	86.8	87.7	88.6	89.5	90.4	91.3	91.0	89.3	87.7	87.3	86.9
12000	86.9	87.8	88.7	89.7	90.6	91.1	89.4	89.0	87.5	87.2	86.9
13000	87.3	88.2	89.1	90.0	90.9	90.6	89.0	88.9	87.4	87.2	86.8
14000	87.8	88.8	89.7	90.6	90.6	89.1	88.9	88.8	87.4	87.3	86.5
15000	88.4	89.3	90.3	90.5	90.3	88.7	88.7	88.7	87.4	87.4	86.2
16000	88.4	89.3	90.3	90.3	88.6	88.3	88.1	87.8	86.3	85.8	84.5

N1 FOR GO-AROUND

ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	74.8	75.5	76.3	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8
0	75.4	76.1	77.0	77.8	78.7	79.5	80.3	81.1	81.9	82.7	83.5
1000	76.4	77.1	78.0	78.8	79.7	80.5	81.3	82.1	82.9	83.7	84.5
2000	77.4	78.1	79.0	79.8	80.7	81.5	82.4	83.2	84.0	84.8	85.6
3000	78.4	79.1	80.0	80.8	81.7	82.6	83.4	84.2	85.1	85.9	86.7
4000	79.3	80.1	81.0	81.8	82.7	83.6	84.4	85.3	86.1	87.0	87.8
5000	80.3	81.1	82.0	82.9	83.7	84.6	85.5	86.3	87.2	88.0	88.9
6000	80.7	81.5	82.4	83.3	84.2	85.1	85.9	86.8	87.6	88.5	89.3
7000	81.2	81.9	82.8	83.7	84.6	85.5	86.4	87.2	88.1	88.9	89.8
8000	81.6	82.4	83.3	84.2	85.1	86.0	86.9	87.7	88.6	89.4	90.3
9000	82.1	82.9	83.8	84.7	85.6	86.5	87.4	88.2	89.1	90.0	90.8
10000	82.6	83.4	84.3	85.2	86.1	87.0	87.9	88.8	89.7	90.5	91.4
11000	82.7	83.5	84.4	85.3	86.2	87.1	88.0	88.9	89.8	90.6	91.5
12000	82.8	83.6	84.5	85.4	86.3	87.2	88.1	89.0	89.9	90.7	91.6
13000	83.1	83.9	84.8	85.7	86.7	87.6	88.5	89.3	90.2	91.1	92.0
14000	83.7	84.5	85.4	86.3	87.3	88.2	89.1	90.0	90.9	91.7	92.6
15000	84.3	85.1	86.0	86.9	87.9	88.8	89.7	90.6	91.5	92.4	93.2
16000	84.3	85.0	86.0	86.9	87.8	88.8	89.7	90.6	91.5	92.3	93.2

N1 FOR GO-AROUND

ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	0	5	10	15	20	25	30	35	40	45	50
-1000	83.5	84.3	85.1	85.8	86.5	87.3	88.0	88.7	89.4	90.2	90.4
0	84.2	85.0	85.8	86.5	87.3	88.0	88.7	89.5	90.2	90.8	90.6
1000	85.3	86.1	86.9	87.6	88.4	89.1	89.9	90.6	91.4	91.3	89.7
2000	86.4	87.2	88.0	88.8	89.5	90.3	91.0	91.8	91.9	90.7	89.8
3000	87.5	88.3	89.1	89.9	90.7	91.4	92.2	92.5	91.6	90.8	90.1
4000	88.6	89.4	90.2	91.0	91.8	92.6	93.1	93.0	91.7	90.8	90.5
5000	89.7	90.5	91.3	92.1	92.9	93.7	93.6	92.5	91.7	90.9	-
6000	90.1	91.0	91.8	92.6	93.4	93.8	93.1	92.4	91.6	91.1	-
7000	90.6	91.4	92.3	93.1	93.9	94.0	93.0	92.3	91.5	91.3	-
8000	91.1	92.0	92.8	93.6	94.2	94.1	93.0	92.2	91.5	-	-
9000	91.7	92.5	93.3	94.2	94.4	93.5	92.8	92.0	91.7	-	-
10000	92.2	93.1	93.9	94.0	92.9	92.2	91.5	90.7	-	-	-
11000	92.3	93.2	94.0	94.1	92.8	92.0	91.3	90.8	-	-	-
12000	92.4	93.3	94.1	94.1	92.5	91.8	91.1	91.0	-	-	-
13000	92.8	93.7	94.2	94.0	92.3	91.7	91.1	-	-	-	-
14000	93.5	94.3	94.5	93.0	92.2	91.6	91.3	-	-	-	-
15000	94.1	94.9	94.8	92.7	92.1	91.4	-	-	-	-	-
16000	94.0	94.0	92.4	91.4	90.8	90.4	-	-	-	-	-

N1 FOR GO-AROUND

ANTI-ICE OFF

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	74.6	75.2	76.1	76.9	77.7	78.5	79.3	80.1	80.9	81.7	82.5
0	75.2	75.9	76.7	77.6	78.4	79.2	80.0	80.8	81.6	82.4	83.2
1000	76.2	76.9	77.8	78.6	79.5	80.3	81.1	81.9	82.7	83.5	84.3
2000	77.3	78.0	78.9	79.7	80.6	81.4	82.2	83.1	83.9	84.7	85.5
3000	78.3	79.0	79.9	80.8	81.6	82.5	83.3	84.2	85.0	85.8	86.6
4000	79.3	80.0	80.9	81.8	82.7	83.6	84.4	85.3	86.1	86.9	87.8
5000	80.4	81.1	82.0	82.9	83.8	84.6	85.5	86.3	87.2	88.0	88.9
6000	80.7	81.5	82.4	83.3	84.2	85.0	85.9	86.8	87.6	88.5	89.3
7000	81.1	81.8	82.8	83.7	84.5	85.4	86.3	87.2	88.0	88.9	89.7
8000	81.5	82.3	83.2	84.1	85.0	85.9	86.7	87.6	88.5	89.3	90.2
9000	82.0	82.7	83.6	84.5	85.4	86.3	87.2	88.1	89.0	89.8	90.7
10000	82.4	83.1	84.1	85.0	85.9	86.8	87.7	88.5	89.4	90.3	91.1
11000	82.4	83.2	84.1	85.0	85.9	86.8	87.7	88.6	89.5	90.3	91.2
12000	82.5	83.2	84.2	85.1	86.0	86.9	87.8	88.6	89.5	90.4	91.2
13000	82.8	83.5	84.4	85.4	86.3	87.2	88.1	88.9	89.8	90.7	91.5
14000	83.3	84.1	85.0	85.9	86.8	87.7	88.6	89.5	90.4	91.3	92.1
15000	83.8	84.6	85.5	86.5	87.4	88.3	89.2	90.1	91.0	91.9	92.7
16000	83.7	84.5	85.4	86.4	87.3	88.2	89.1	90.0	90.9	91.7	92.6

N1 FOR GO-AROUND

ANTI-ICE OFF
AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure	Static Air Temperature - °C										
Altitude											
(ft)											
	0	5	10	15	20	25	30	35	40	45	50
-1000	83.2	84.0	84.7	85.5	86.2	87.0	87.7	88.4	89.1	89.8	89.8
0	83.9	84.7	85.5	86.2	87.0	87.7	88.4	89.2	89.9	90.6	90.3
1000	85.1	85.9	86.7	87.4	88.2	88.9	89.7	90.4	91.1	91.1	89.3
2000	86.3	87.1	87.8	88.6	89.4	90.1	90.9	91.6	91.8	90.5	89.4
3000	87.4	88.2	89.0	89.8	90.6	91.3	92.1	92.5	91.5	90.5	89.7
4000	88.6	89.4	90.2	91.0	91.7	92.5	93.1	92.9	91.5	90.6	90.2
5000	89.7	90.5	91.3	92.1	92.9	93.7	93.6	92.4	91.6	90.7	-
6000	90.1	91.0	91.7	92.6	93.4	93.8	93.0	92.3	91.5	91.0	-
7000	90.5	91.4	92.2	93.0	93.8	93.9	93.0	92.3	91.5	91.3	-
8000	91.0	91.8	92.7	93.5	94.1	94.0	92.9	92.2	91.5	-	-
9000	91.5	92.3	93.2	94.0	94.2	93.5	92.8	92.0	91.7	-	-
10000	92.0	92.8	93.7	93.8	92.8	92.2	91.5	90.7	-	-	-
11000	92.0	92.9	93.7	93.7	92.7	92.0	91.2	90.7	-	-	-
12000	92.1	92.9	93.7	93.8	92.4	91.7	91.0	90.9	-	-	-
13000	92.4	93.2	93.8	93.7	92.2	91.6	91.0	-	-	-	-
14000	93.0	93.8	94.1	92.8	92.1	91.4	91.1	-	-	-	-
15000	93.6	94.4	94.3	92.5	91.9	91.3	-	-	-	-	-
16000	93.5	93.5	92.1	91.3	90.6	90.2	-	-	-	-	-

N1 FOR GO-AROUND

ANTI-ICE ON

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	78.1	78.9	79.7	80.5	81.3	82.1	82.9	83.7	83.2	84.0	84.7
0	78.7	79.5	80.4	81.2	82.0	82.8	83.6	84.4	83.9	84.7	85.5
1000	79.8	80.6	81.5	82.3	83.1	83.9	84.8	85.6	85.1	85.9	86.7
2000	80.9	81.7	82.6	83.4	84.3	85.1	85.9	86.7	86.3	87.1	87.8
3000	81.9	82.8	83.7	84.5	85.4	86.2	87.0	87.9	87.4	88.2	89.0
4000	83.0	83.9	84.7	85.6	86.5	87.3	88.1	89.0	88.6	89.4	89.8
5000	84.0	84.9	85.8	86.7	87.6	88.4	89.3	90.1	89.7	90.5	89.9
6000	84.4	85.3	86.2	87.1	88.0	88.8	89.7	90.5	90.1	90.7	89.7
7000	84.8	85.7	86.6	87.5	88.4	89.2	90.1	91.0	90.5	90.5	89.5
8000	85.2	86.1	87.0	87.9	88.8	89.7	90.6	91.4	91.0	90.1	89.0
9000	85.7	86.6	87.5	88.4	89.3	90.2	91.0	91.9	90.3	89.4	88.5
10000	86.1	87.1	88.0	88.9	89.8	90.6	91.5	90.4	88.5	87.7	87.0
11000	86.2	87.1	88.0	88.9	89.8	90.7	91.6	89.9	88.1	87.4	86.7
12000	86.2	87.1	88.1	89.0	89.8	90.7	90.2	89.6	87.8	87.2	86.6
13000	86.5	87.4	88.4	89.3	90.2	91.0	89.7	89.3	87.5	87.0	86.4
14000	87.1	88.0	88.9	89.8	90.7	89.9	89.4	89.0	87.4	86.9	86.2
15000	87.6	88.6	89.5	90.4	91.3	89.5	89.2	88.9	87.3	86.9	85.9
16000	87.5	88.5	89.4	90.3	89.2	88.7	88.2	87.8	86.1	85.4	84.4

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	0	5	10	15	20	25	30	35	40	45	50
0	81.6	82.3	83.1	83.8	84.5	85.2	85.9	86.6	87.3	88.0	87.8
2000	83.6	84.3	85.1	85.8	86.6	87.3	88.0	88.8	88.9	88.0	87.2
4000	85.7	86.5	87.3	88.1	88.8	89.6	90.1	89.4	88.8	88.1	87.9
6000	87.4	88.2	89.0	89.7	90.5	90.8	90.0	89.4	88.8	88.3	-
8000	88.4	89.2	90.0	90.8	91.3	90.6	90.0	89.3	88.7	-	-
10000	89.3	90.1	90.9	91.6	91.5	90.4	89.7	89.0	-	-	-
12000	90.2	91.0	91.8	91.9	90.9	90.2	89.5	89.3	-	-	-
14000	91.2	92.1	92.3	91.4	90.8	90.0	89.7	-	-	-	-
16000	92.3	92.7	91.9	91.2	90.5	90.0	-	-	-	-	-
18000	93.3	93.1	91.5	90.9	90.3	-	-	-	-	-	-
20000	93.0	92.0	91.4	90.8	-	-	-	-	-	-	-
22000	92.3	91.6	91.0	90.8	-	-	-	-	-	-	-
24000	91.8	91.1	90.8	-	-	-	-	-	-	-	-
26000	91.3	90.8	-	-	-	-	-	-	-	-	-
28000	90.8	-	-	-	-	-	-	-	-	-	-
30000	-	-	-	-	-	-	-	-	-	-	-
32000	-	-	-	-	-	-	-	-	-	-	-
34000	-	-	-	-	-	-	-	-	-	-	-
36000	-	-	-	-	-	-	-	-	-	-	-
37000	-	-	-	-	-	-	-	-	-	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE ON
AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	76.5	77.3	78.1	78.9	79.7	80.5	81.3	82.1	81.6	82.3	83.1
2000	78.3	79.2	80.0	80.8	81.6	82.4	83.2	84.0	83.6	84.3	85.1
4000	80.4	81.2	82.0	82.9	83.7	84.6	85.4	86.2	85.7	86.5	85.8
6000	81.9	82.7	83.6	84.5	85.3	86.1	87.0	87.8	87.1	86.4	85.6
8000	82.8	83.7	84.5	85.4	86.3	87.1	88.0	88.8	86.9	86.2	85.4
10000	83.6	84.5	85.4	86.3	87.1	88.0	88.8	89.0	86.9	86.0	85.0
12000	84.5	85.4	86.3	87.2	88.0	88.9	88.8	88.0	86.0	85.2	84.4
14000	85.4	86.3	87.3	88.1	89.0	88.8	88.1	87.5	85.5	84.8	83.9
16000	86.4	87.3	88.3	89.2	89.1	88.5	87.9	87.2	85.3	84.4	83.1
18000	87.6	88.6	89.5	89.9	89.3	88.5	87.7	86.9	84.7	83.4	82.1
20000	89.5	90.5	91.2	90.4	89.1	87.7	86.3	84.8	83.1	82.7	81.7
22000	90.3	90.8	90.1	89.1	87.8	86.5	85.2	84.5	82.8	82.1	81.3
24000	90.4	89.8	89.0	87.9	86.7	85.5	84.7	84.1	82.3	81.7	81.4
26000	89.5	88.8	87.9	87.0	86.0	85.0	84.3	83.7	82.0	81.6	-
28000	88.6	87.9	87.1	86.3	85.5	84.6	83.7	83.4	81.9	-	-
30000	87.7	87.1	86.4	85.8	84.9	84.1	83.5	82.9	-	-	-
32000	87.0	86.5	86.0	85.3	84.5	83.6	82.8	82.5	-	-	-
34000	86.4	86.0	85.4	84.7	83.9	82.9	82.4	-	-	-	-
36000	85.9	85.5	84.9	84.1	83.1	82.3	-	-	-	-	-
37000	85.7	85.2	84.5	83.6	82.6	81.9	-	-	-	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-65	-60	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
0	71.2	72.1	73.1	73.8	74.6	75.4	76.2	77.0	77.8	78.6	79.3	80.1	80.9
2000	73.0	73.9	74.9	75.6	76.4	77.3	78.1	78.9	79.7	80.5	81.3	82.1	82.9
4000	74.9	75.8	76.9	77.6	78.5	79.3	80.2	81.0	81.8	82.6	83.5	84.3	85.1
6000	76.3	77.3	78.3	79.0	79.9	80.8	81.7	82.5	83.4	84.2	85.0	85.8	86.6
8000	77.2	78.1	79.2	79.9	80.8	81.7	82.6	83.4	84.3	85.1	86.0	86.8	87.6
10000	78.0	78.9	80.0	80.8	81.7	82.6	83.4	84.3	85.2	86.0	86.9	87.7	88.5
12000	78.8	79.7	80.8	81.6	82.5	83.4	84.3	85.1	86.0	86.9	87.7	88.6	89.4
14000	79.6	80.6	81.7	82.4	83.3	84.2	85.1	86.0	86.9	87.8	88.6	89.5	90.3
16000	80.4	81.3	82.5	83.2	84.2	85.1	86.0	86.9	87.8	88.6	89.5	90.4	91.2
18000	81.3	82.3	83.5	84.2	85.2	86.1	87.0	87.9	88.8	89.7	90.6	91.5	92.3
20000	83.1	84.1	85.2	86.0	87.0	87.9	88.9	89.8	90.7	91.6	92.5	93.4	93.9
22000	83.9	84.9	86.1	86.9	87.9	88.8	89.8	90.7	91.7	92.6	93.5	94.1	94.0
24000	84.8	85.8	87.0	87.8	88.8	89.8	90.7	91.7	92.6	93.5	94.2	94.1	92.6
26000	85.7	86.7	87.9	88.7	89.7	90.7	91.7	92.6	93.6	94.2	94.1	92.8	92.0
28000	86.6	87.7	88.9	89.7	90.7	91.7	92.7	93.6	94.2	93.7	93.0	92.3	91.4
30000	87.7	88.7	89.9	90.8	91.8	92.8	93.8	94.3	93.7	93.1	92.4	91.6	90.7
32000	88.7	89.8	91.1	91.9	92.9	93.9	94.3	93.8	93.2	92.6	91.7	90.7	90.4
34000	89.9	91.0	92.3	93.1	94.1	94.2	93.7	93.3	92.7	91.9	90.8	90.3	-
36000	91.2	92.3	93.6	94.0	93.9	93.8	93.4	92.9	92.1	91.0	90.1	-	-
37000	90.8	91.9	93.2	94.0	94.1	94.1	93.7	93.2	92.4	91.2	90.3	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF
AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	0	5	10	15	20	25	30	35	40	45	50
-1000	81.0	81.7	82.4	83.1	83.9	84.6	85.3	86.0	86.7	87.3	87.6
0	81.6	82.4	83.1	83.8	84.5	85.3	86.0	86.7	87.4	88.0	87.8
1000	82.6	83.4	84.1	84.9	85.6	86.3	87.0	87.8	88.5	88.4	86.8
2000	83.6	84.4	85.2	85.9	86.7	87.4	88.1	88.8	89.0	87.9	87.0
3000	84.7	85.5	86.3	87.0	87.8	88.5	89.3	89.7	88.8	88.0	87.3
4000	85.8	86.6	87.4	88.2	88.9	89.7	90.2	89.5	88.8	88.1	87.7
5000	87.0	87.7	88.5	89.3	90.1	90.7	90.6	89.6	88.9	88.2	-
6000	87.4	88.2	89.0	89.8	90.6	90.9	90.1	89.5	88.9	88.4	-
8000	88.4	89.2	90.0	90.8	91.3	90.6	90.1	89.4	88.8	-	-
10000	89.4	90.2	91.0	91.7	91.6	90.6	89.9	89.1	-	-	-
12000	90.2	91.1	91.9	91.9	91.0	90.3	89.6	89.4	-	-	-
14000	91.2	92.0	92.2	91.4	90.8	90.1	89.8	-	-	-	-
16000	92.1	92.6	91.9	91.3	90.6	90.1	-	-	-	-	-
18000	93.2	93.1	91.6	91.0	90.4	-	-	-	-	-	-
20000	93.7	92.0	91.4	90.8	-	-	-	-	-	-	-
22000	92.3	91.6	91.0	90.8	-	-	-	-	-	-	-
24000	91.8	91.2	90.8	-	-	-	-	-	-	-	-
26000	91.3	90.8	-	-	-	-	-	-	-	-	-
28000	90.7	-	-	-	-	-	-	-	-	-	-
30000	-	-	-	-	-	-	-	-	-	-	-
32000	-	-	-	-	-	-	-	-	-	-	-
34000	-	-	-	-	-	-	-	-	-	-	-
36000	-	-	-	-	-	-	-	-	-	-	-
37000	-	-	-	-	-	-	-	-	-	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE ON AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	76.5	77.4	78.2	79.0	79.8	80.5	81.3	82.1	81.6	82.4	83.1
2000	78.4	79.3	80.1	80.9	81.7	82.5	83.3	84.1	83.7	84.4	85.2
4000	80.4	81.3	82.1	83.0	83.8	84.7	85.5	86.3	85.8	86.6	86.1
6000	81.9	82.8	83.7	84.5	85.4	86.2	87.1	87.9	87.3	86.6	85.9
8000	82.8	83.7	84.6	85.5	86.3	87.2	88.0	88.8	87.2	86.4	85.6
10000	83.7	84.6	85.5	86.4	87.2	88.1	88.9	89.6	87.4	86.4	85.4
12000	84.5	85.4	86.3	87.2	88.1	88.9	89.4	88.6	86.5	85.6	84.6
14000	85.4	86.3	87.2	88.1	89.0	89.2	88.5	87.8	85.7	84.9	84.0
16000	86.2	87.1	88.1	89.0	89.3	88.7	88.0	87.4	85.4	84.5	83.2
18000	87.2	88.2	89.1	90.0	89.4	88.6	87.8	87.0	84.8	83.5	82.2
20000	89.1	90.0	91.0	90.5	89.2	87.9	86.5	85.1	83.3	82.8	81.7
22000	90.0	90.9	90.2	89.2	88.0	86.7	85.4	84.7	82.9	82.1	81.2
24000	90.5	89.9	89.1	88.0	86.8	85.5	84.7	84.3	82.5	81.7	81.4
26000	89.6	88.9	88.0	87.0	86.0	85.1	84.4	83.8	82.0	81.6	-
28000	88.7	87.9	87.2	86.3	85.5	84.6	83.8	83.5	82.0	-	-
30000	87.8	87.2	86.5	85.8	85.0	84.2	83.6	83.0	-	-	-
32000	87.1	86.6	86.1	85.3	84.5	83.7	82.9	82.6	-	-	-
34000	86.5	86.1	85.5	84.8	83.9	82.9	82.4	-	-	-	-
36000	86.1	85.7	85.0	84.2	83.0	82.1	-	-	-	-	-
37000	85.9	85.4	84.7	83.7	82.6	81.8	-	-	-	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	0	5	10	15	20	25	30	35	40	45	50
0	81.5	82.2	83.0	83.7	84.4	85.1	85.8	86.5	87.2	87.8	87.6
2000	83.7	84.5	85.2	86.0	86.7	87.5	88.2	88.9	89.1	87.8	86.6
4000	86.0	86.7	87.5	88.3	89.0	89.8	90.2	89.6	88.9	88.0	87.6
6000	87.6	88.4	89.1	89.9	90.7	91.0	90.2	89.7	88.9	88.5	-
8000	88.5	89.4	90.1	90.9	91.4	90.7	90.2	89.6	89.1	-	-
10000	89.5	90.3	91.1	91.8	91.7	90.7	90.1	89.4	-	-	-
12000	90.3	91.1	91.9	92.0	91.1	90.5	89.8	89.6	-	-	-
14000	91.2	92.0	92.2	91.5	90.9	90.2	89.9	-	-	-	-
16000	91.9	92.5	91.9	91.3	90.6	90.2	-	-	-	-	-
18000	92.7	92.8	91.6	91.0	90.4	-	-	-	-	-	-
20000	93.4	92.0	91.4	90.8	-	-	-	-	-	-	-
22000	92.3	91.6	90.9	90.7	-	-	-	-	-	-	-
24000	91.8	91.1	90.7	-	-	-	-	-	-	-	-
26000	91.2	90.6	-	-	-	-	-	-	-	-	-
28000	90.4	-	-	-	-	-	-	-	-	-	-
30000	-	-	-	-	-	-	-	-	-	-	-
32000	-	-	-	-	-	-	-	-	-	-	-
34000	-	-	-	-	-	-	-	-	-	-	-
36000	-	-	-	-	-	-	-	-	-	-	-
37000	-	-	-	-	-	-	-	-	-	-	-

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N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE ON
AIRSPEED: 200 KCAS

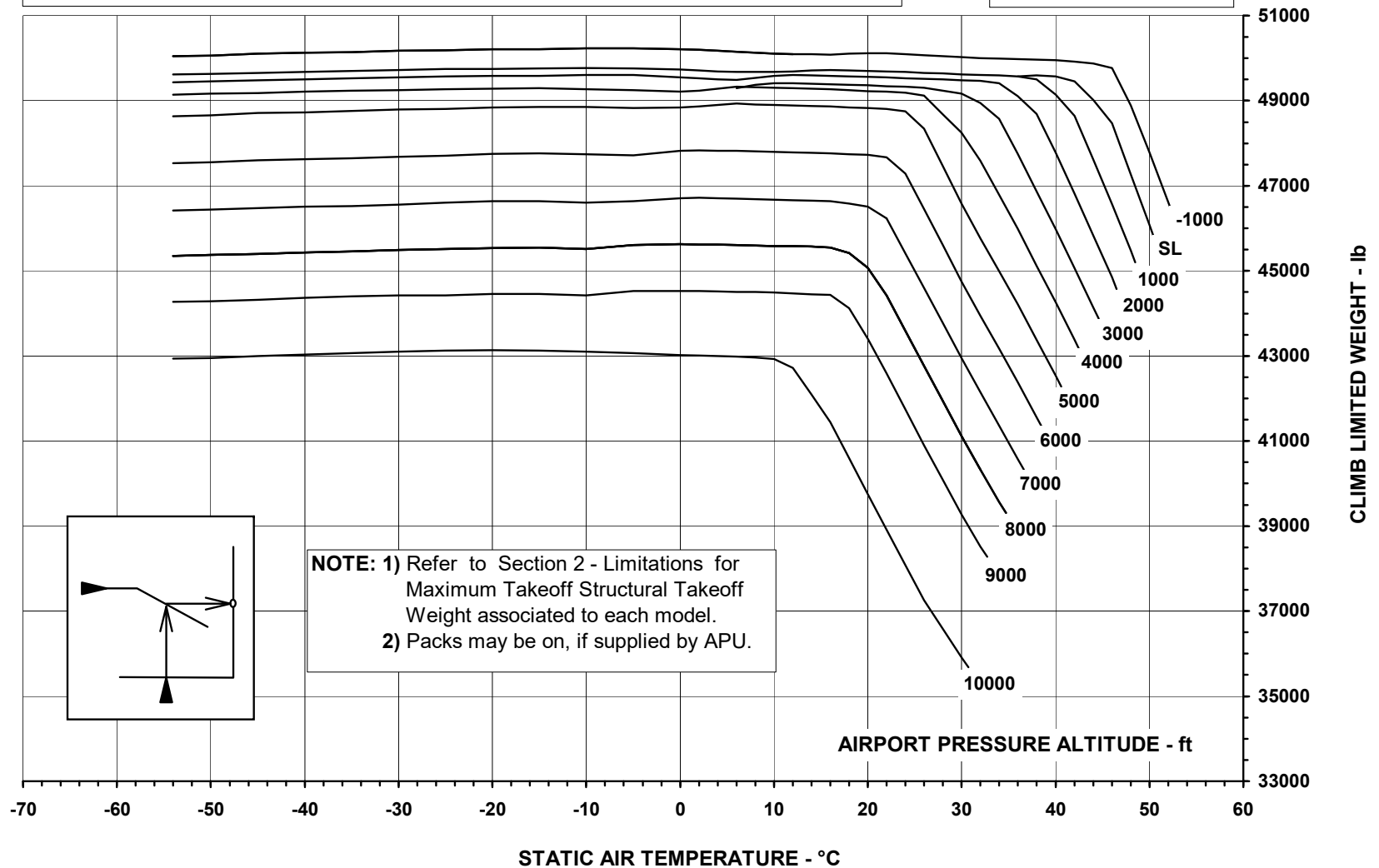
ROLLS-ROYCE AE3007A1 ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	76.4	77.2	78.0	78.8	79.6	80.4	81.2	82.0	81.5	82.2	82.9
2000	78.5	79.3	80.2	81.0	81.8	82.6	83.4	84.2	83.7	84.5	85.2
4000	80.6	81.4	82.3	83.1	83.9	84.8	85.6	86.4	86.0	86.7	86.4
6000	82.0	82.9	83.8	84.6	85.5	86.3	87.2	88.0	87.6	86.9	86.2
8000	83.0	83.8	84.7	85.6	86.4	87.3	88.1	89.0	87.4	86.7	85.9
10000	83.8	84.7	85.6	86.5	87.4	88.2	89.1	89.9	87.8	86.8	85.7
12000	84.6	85.5	86.4	87.3	88.1	89.0	89.9	89.1	86.9	85.9	84.9
14000	85.4	86.3	87.2	88.1	89.0	89.6	88.8	88.0	86.0	85.1	84.1
16000	86.1	87.0	87.9	88.8	89.4	88.8	88.1	87.4	85.5	84.5	83.3
18000	86.8	87.7	88.7	89.6	89.3	88.5	87.8	87.0	84.8	83.6	82.3
20000	88.3	89.2	90.1	90.3	89.1	87.9	86.7	85.4	83.4	82.5	81.5
22000	89.3	90.3	90.1	89.1	87.9	86.7	85.5	84.7	82.8	81.9	81.0
24000	90.4	89.9	89.0	87.9	86.7	85.5	84.7	84.2	82.3	81.5	81.1
26000	89.5	88.9	87.9	86.9	85.9	85.0	84.4	83.8	81.9	81.5	-
28000	88.7	87.9	87.1	86.2	85.3	84.6	83.9	83.5	81.9	-	-
30000	87.9	87.2	86.4	85.6	84.9	84.1	83.5	82.8	-	-	-
32000	87.2	86.6	85.9	85.2	84.4	83.6	82.7	82.4	-	-	-
34000	86.6	86.0	85.4	84.6	83.8	82.8	82.2	-	-	-	-
36000	86.1	85.5	84.7	83.9	82.8	82.0	-	-	-	-	-
37000	85.8	85.2	84.3	83.5	82.4	81.6	-	-	-	-	-

MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9°
NORMAL V_2 - T/O-1 AND ALT T/O-1 MODES - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R



145FAA270 - 19MAR1999

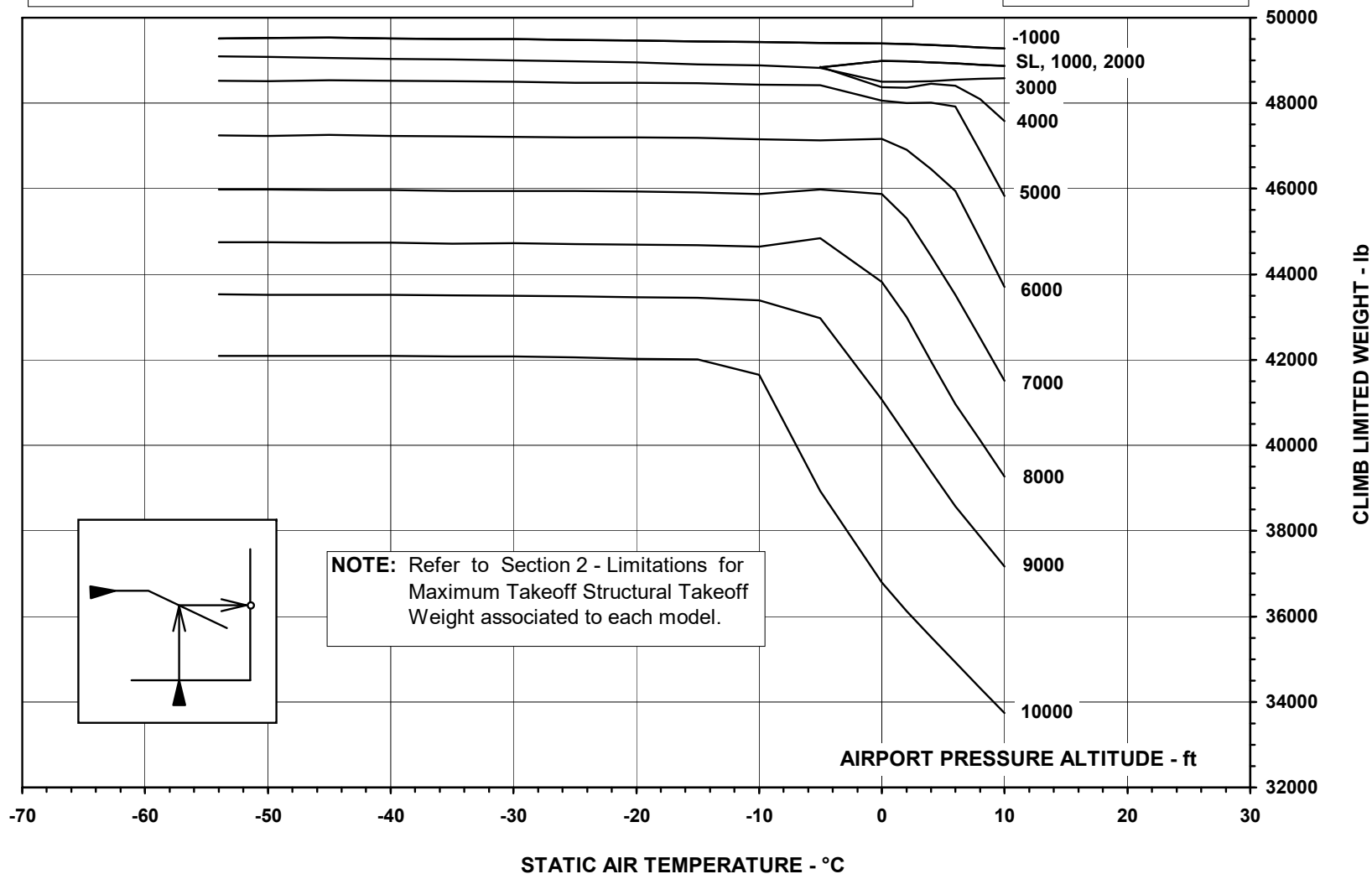
AFM-145/1153 - FAA

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 REVISION 69

MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9°
NORMAL V_2 - T/O-1 AND ALT T/O-1 MODES - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON

AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

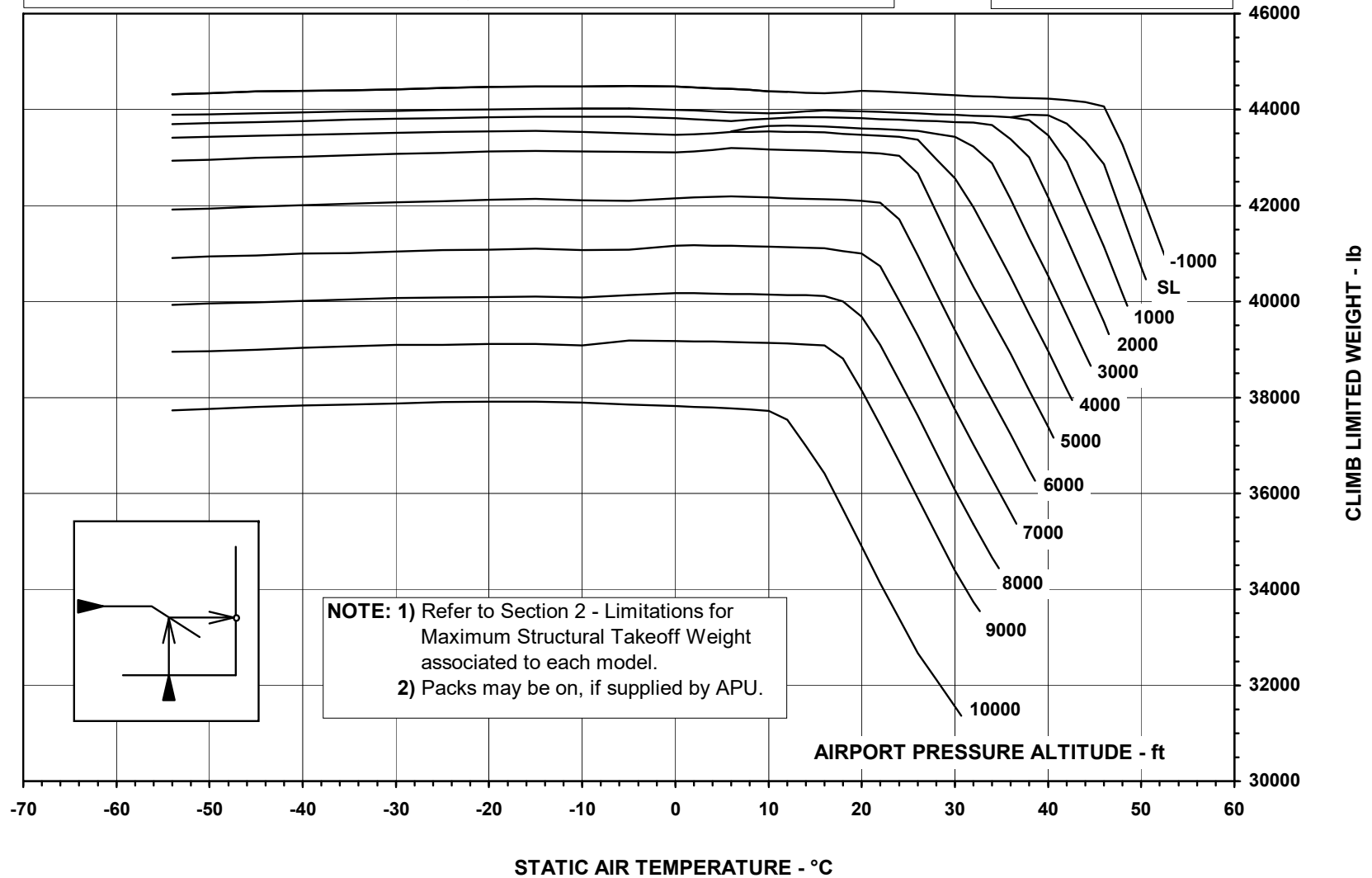
AE3007A1 ENGINES WITH T/R



MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 22°
NORMAL V_2 - T/O-1 MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R

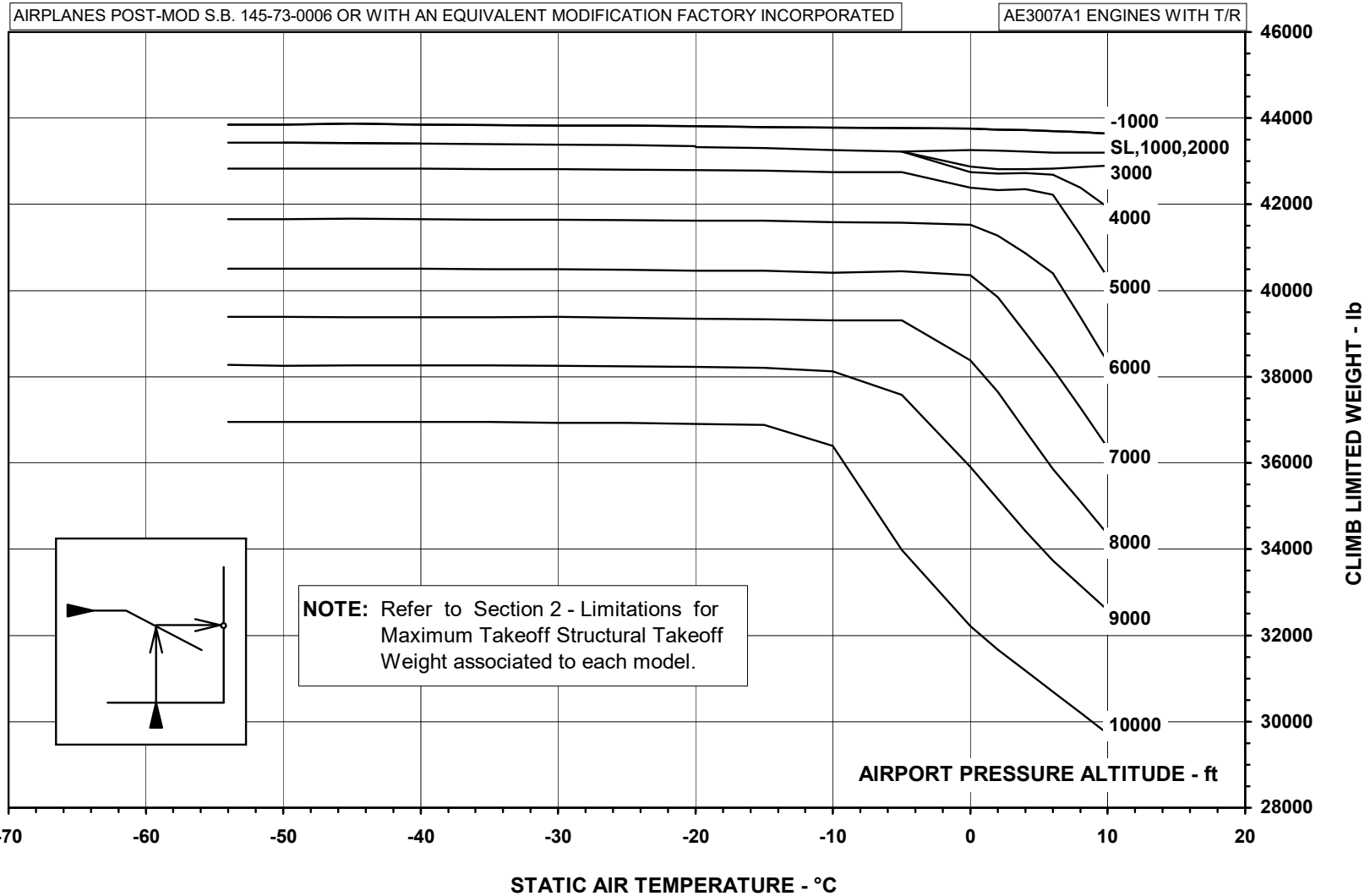


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REVISION 69

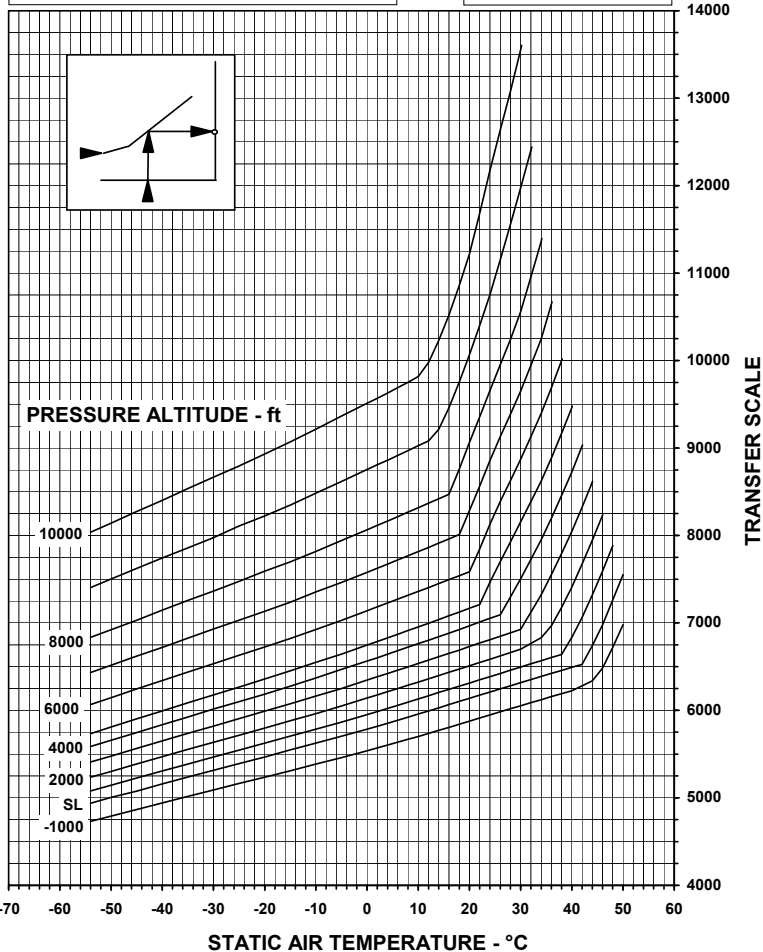
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 22°
NORMAL V_2 - T/O-1 MODE - BLEED OPEN (PACKS OFF - FADEC REF A/ICE ON)



**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**
T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH -
NORMAL V_2 - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 1 OF 2

AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R



145FAA274A - 17MAR1999

AFM-145/1153 - FAA

**ANAC APPROVED
REVISION 69**

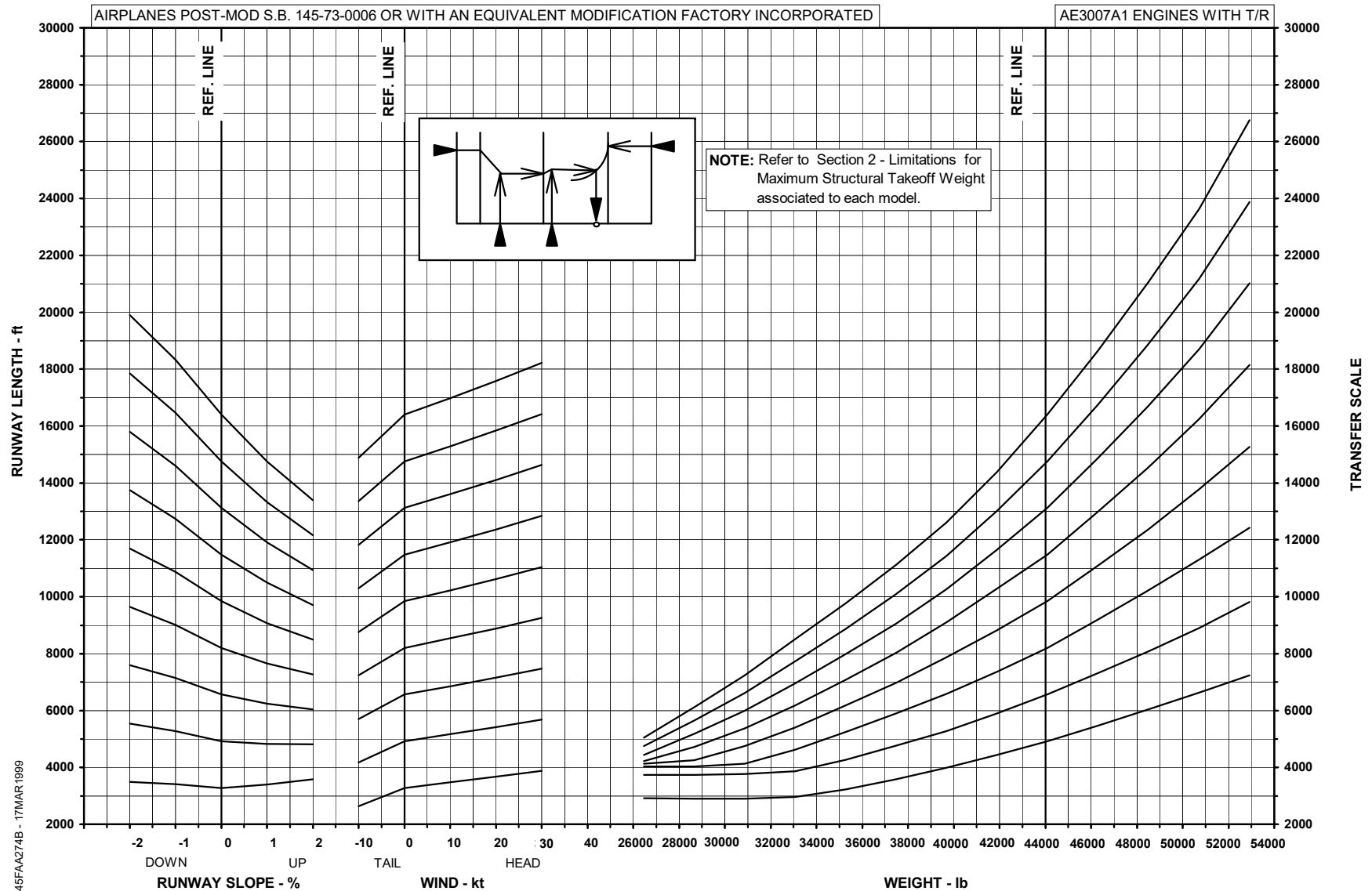
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S9-33

User: fherna0f - Printed By myTechCare - Nov 21/24 - 00:29:37

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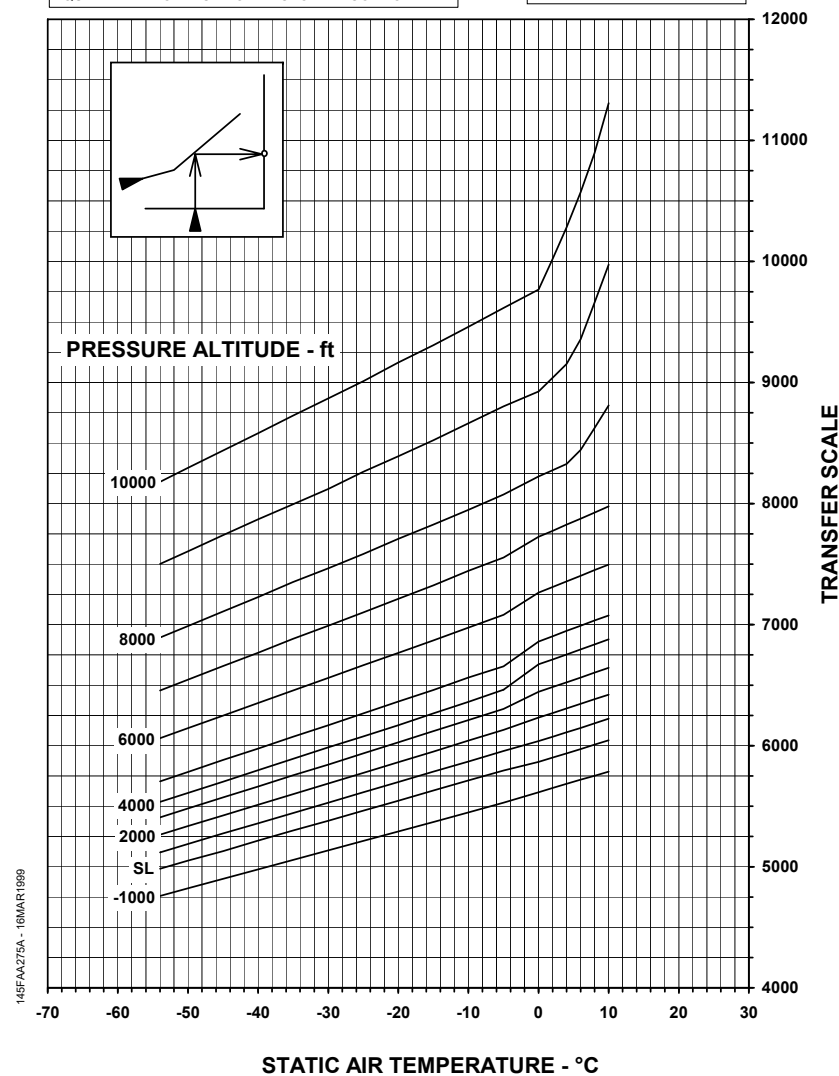
MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH - NORMAL V_2
BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 2 OF 2



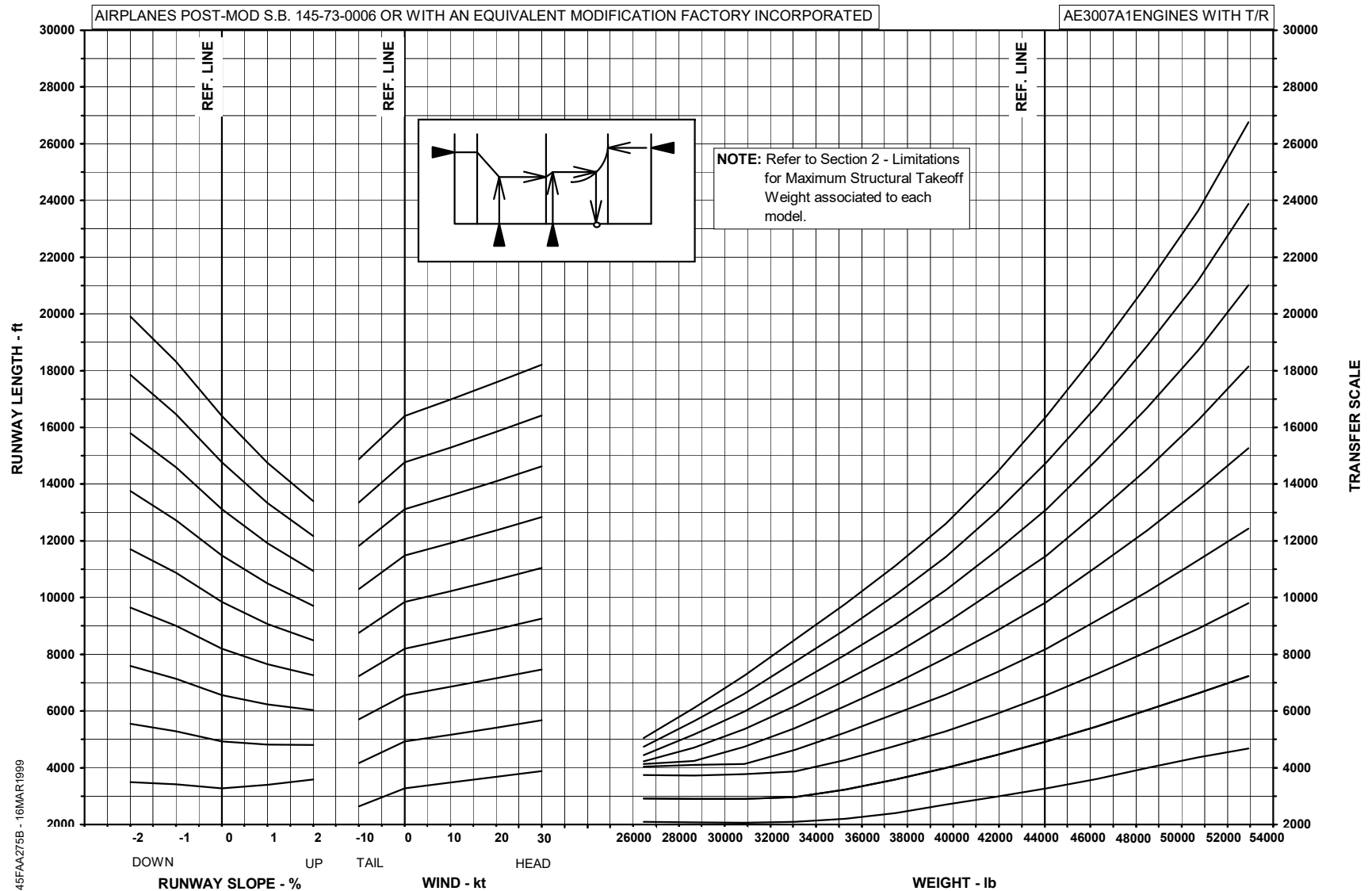
**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**
T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH -
NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2

AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R



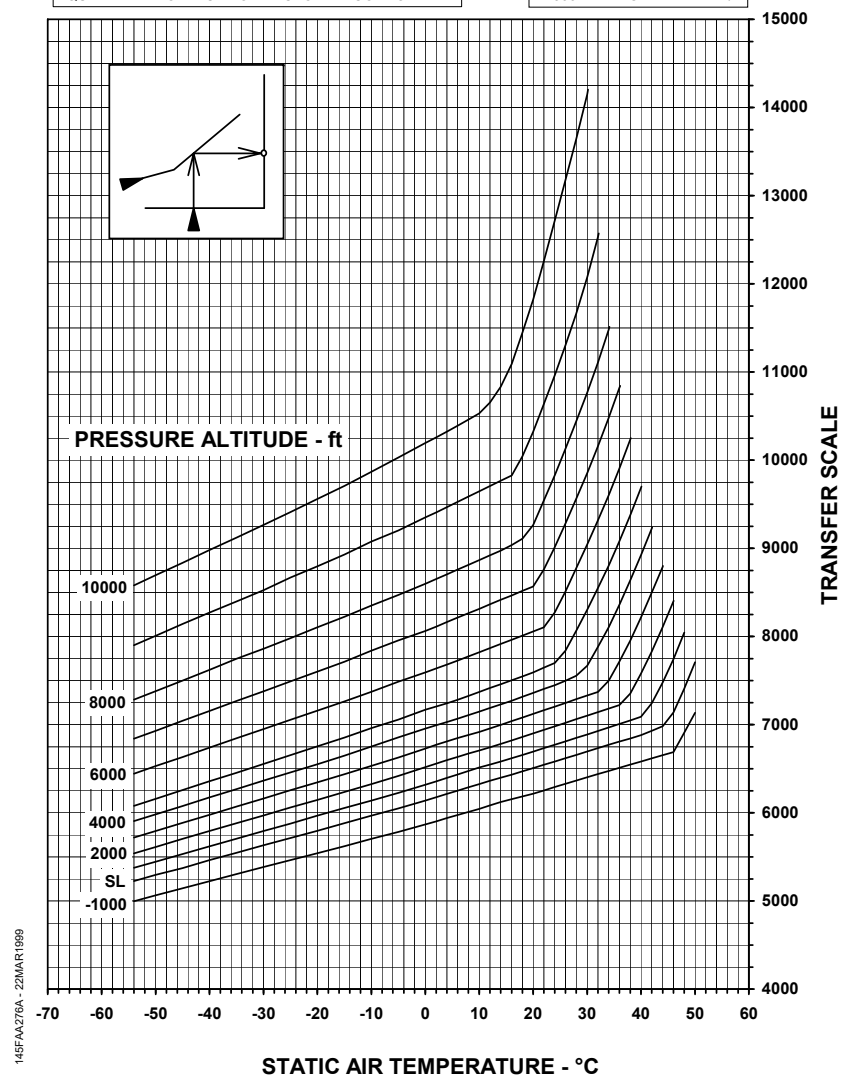
MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH - NORMAL V_2
BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2



**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**
ALT T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH -
NORMAL V_2 - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 1 OF 2

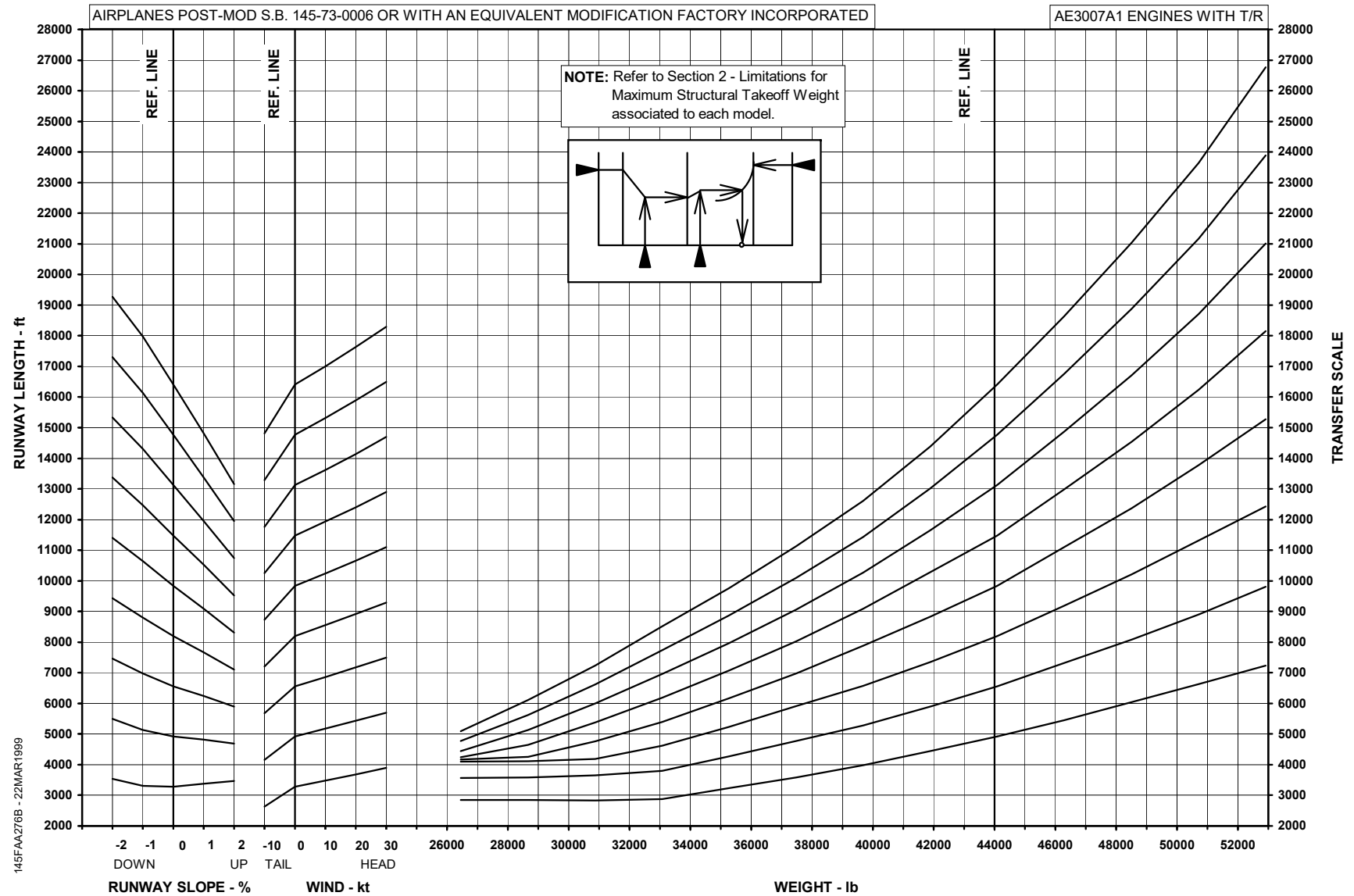
AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R





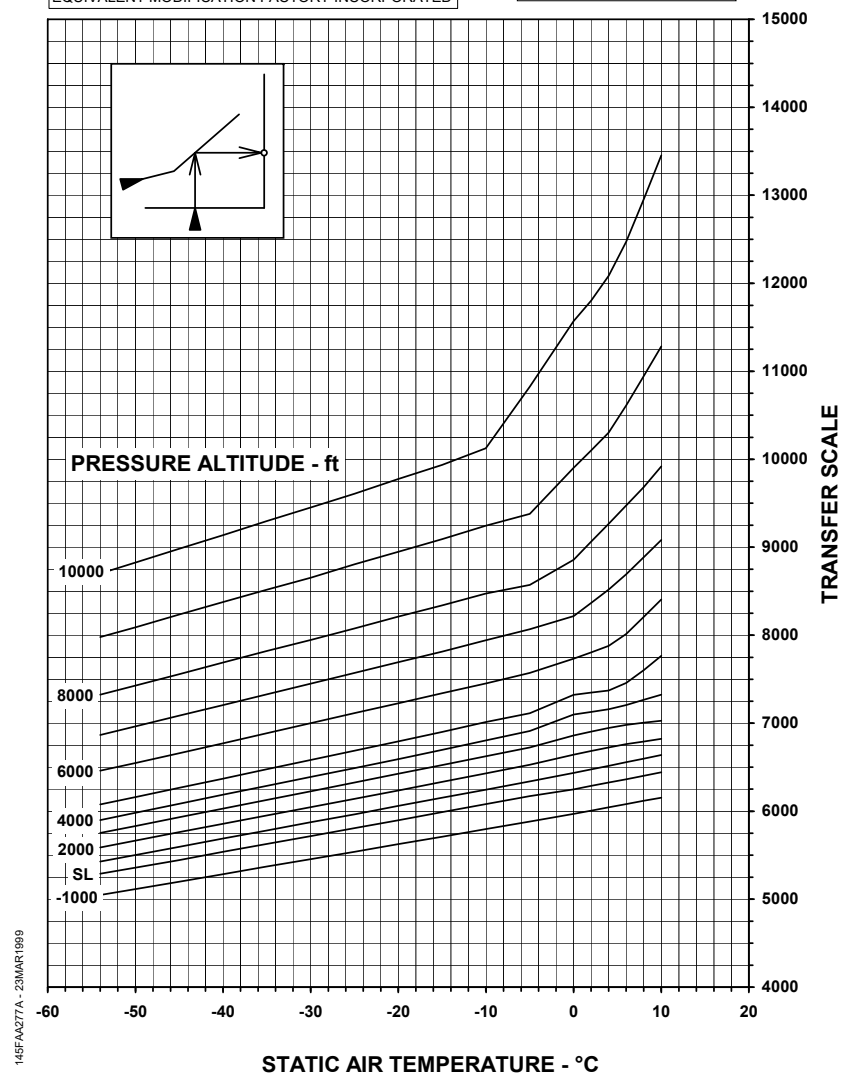
MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
 ALT T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH - NORMAL V_2 - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF
 CHART 2 OF 2



**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**
ALT T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH -
NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2

AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED

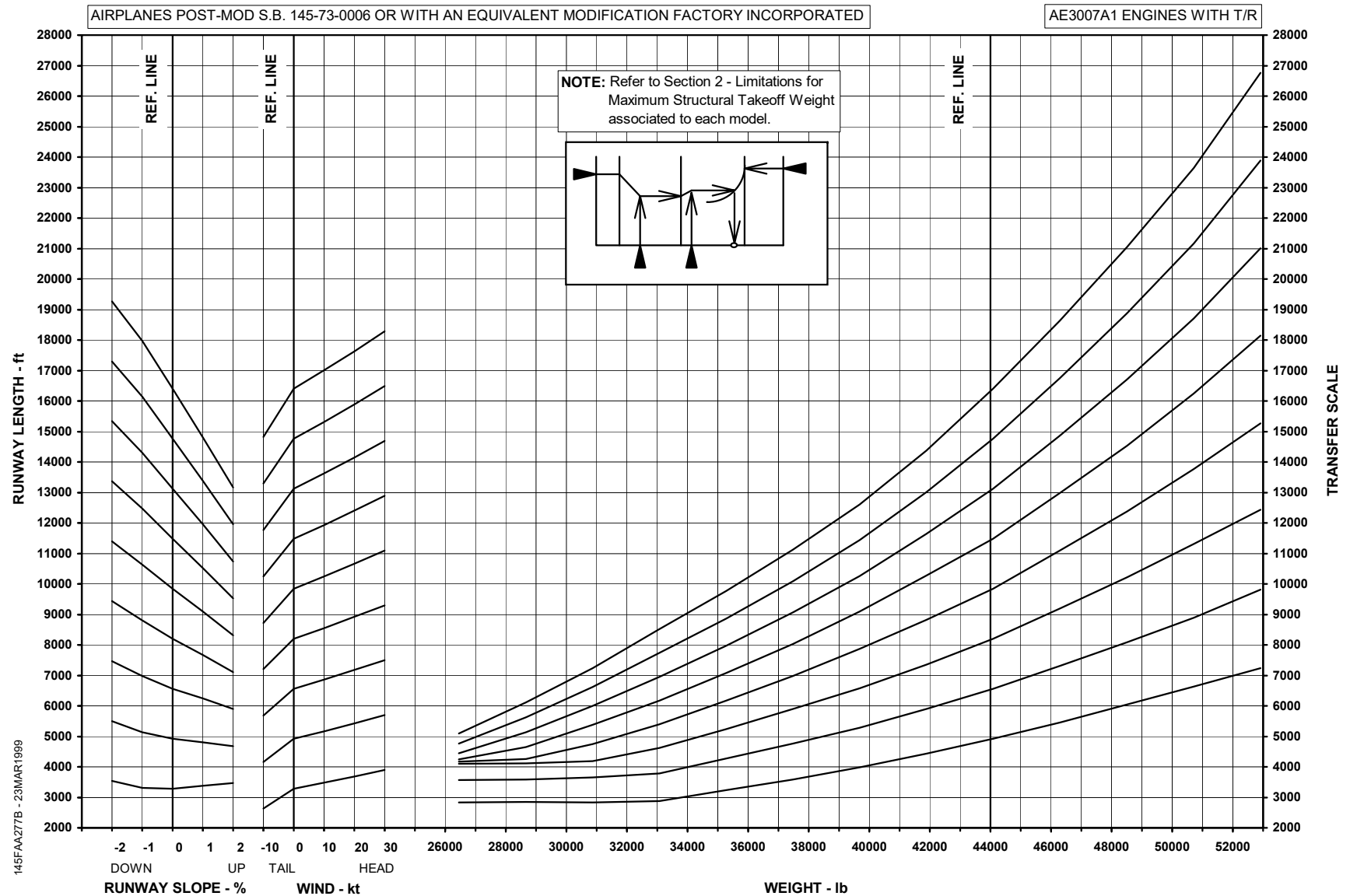
AE3007A1 ENGINES WITH T/R



145FAA271 A - 23MAR1999

AFM-145/1153 - FAA

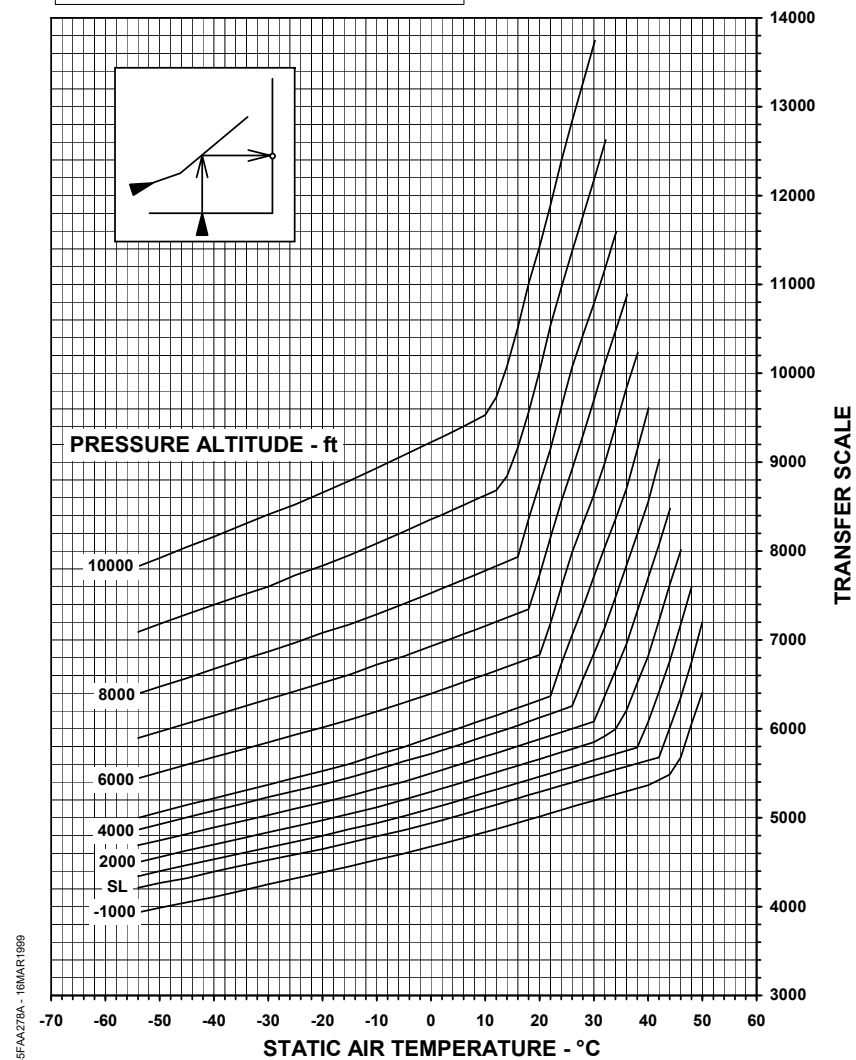
MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
ALT T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH - NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2



**MAXIMUM TAKEOFF WEIGHT
FIELD LENGTH LIMITED**
T/O-1 MODE - FLAPS 22° - BALANCED FIELD LENGTH
BLEEDS CLOSED - PACKS OFF - NORMAL V_2 - FADEC REF A/ICE OFF
CHART 1 OF 2

AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED

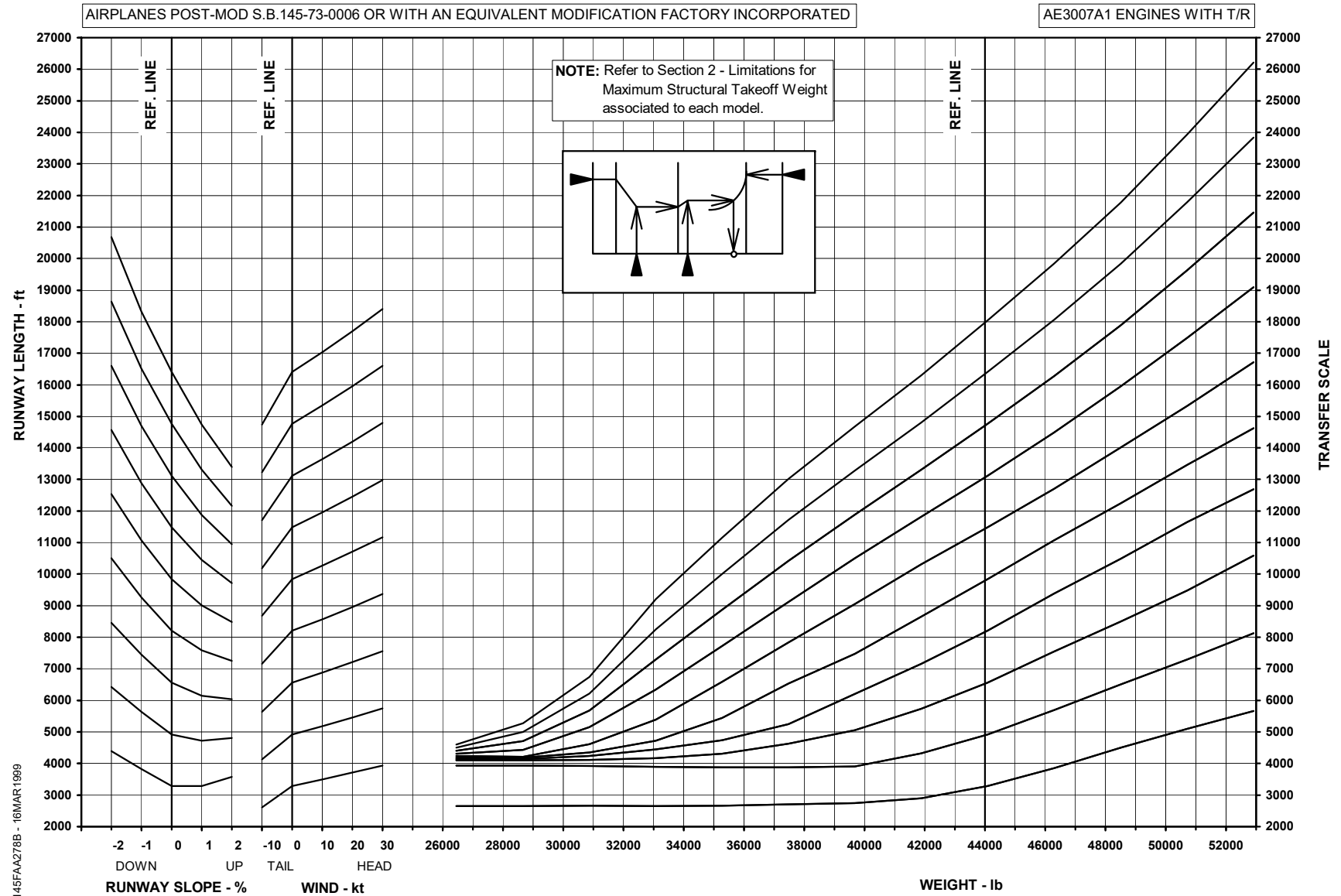
AE3007A1 ENGINES WITH T/R



145FAA278A - 16MAR1999

AFM-145/1153 - FAA

MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
T/O-1 MODE - FLAPS 22° - BALANCED FIELD LENGTH - NORMAL V_2 - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 2 OF 2

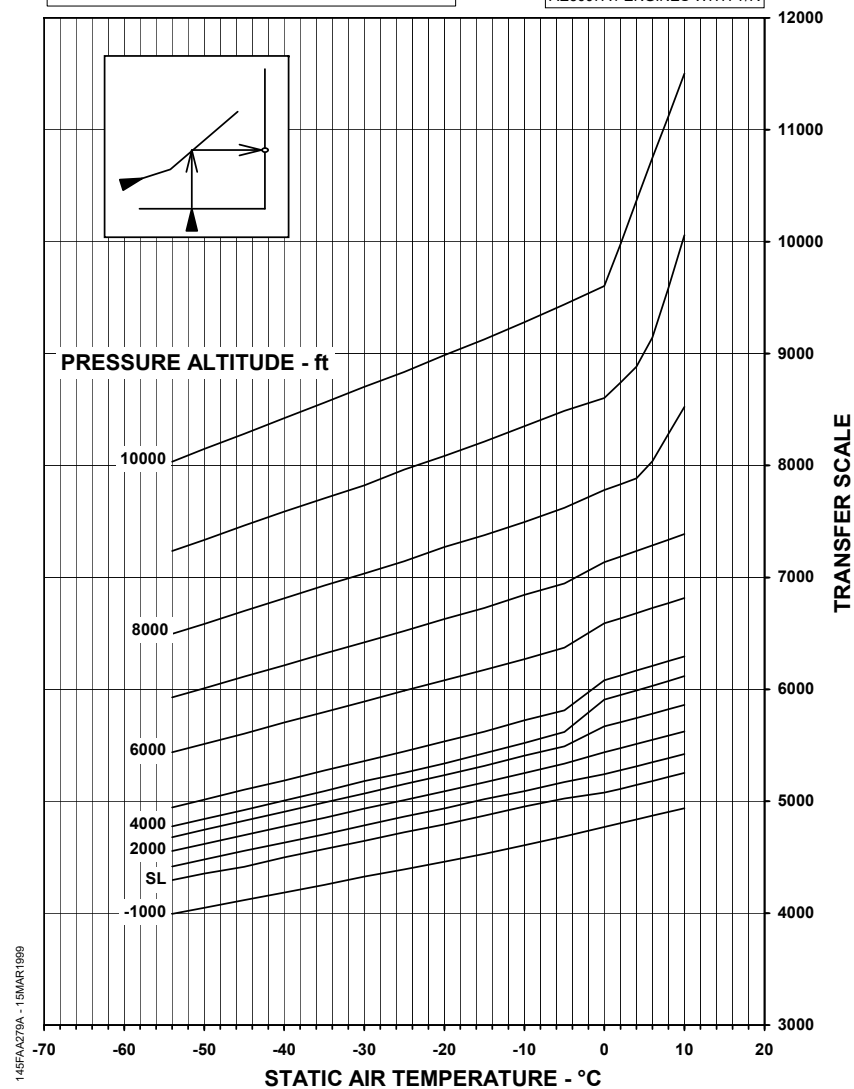


MAXIMUM TAKEOFF WEIGHT FIELD LENGTH LIMITED

**T/O-1 MODE - FLAPS 22° - BALANCED FIELD LENGTH
BLEEDS OPEN - PACKS OFF - NORMAL V_2 - FADEC REF A/ICE ON
CHART 1 OF 2**

AIRPLANES POST-MOD S.B. 145-73-0006 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R



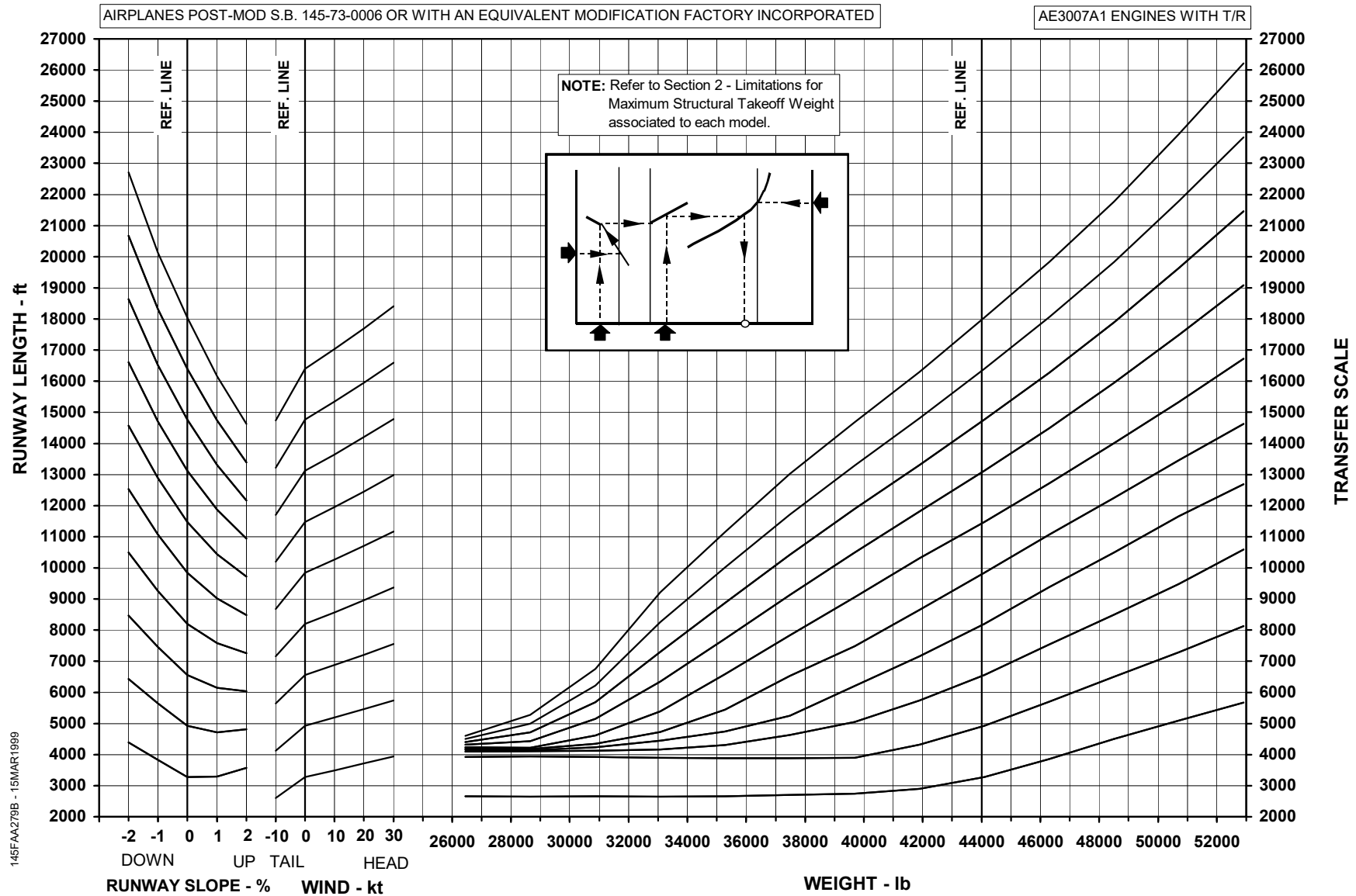
145FA279A - 15MAR1999

AFM-145/1153 - FAA

MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED

T/O-1 MODE - FLAPS 22° - BALANCED FIELD LENGTH - NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON

CHART 2 OF 2

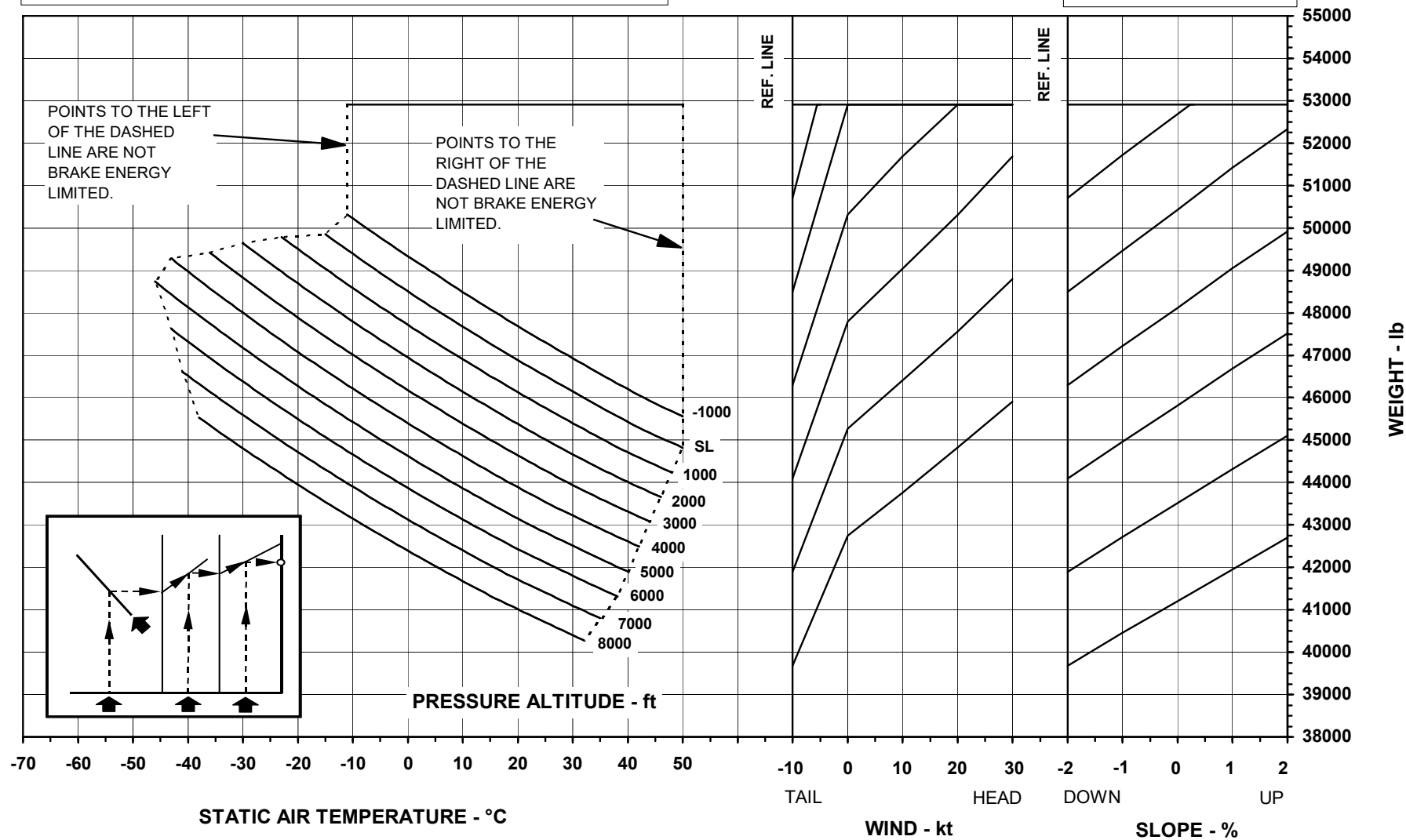


MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED

T/O-1 MODE - FLAPS 9° - NORMAL V_2

AIRPLANES EQUIPPED WITH ER VERSION BRAKES AND POST-MOD S.B. 145-73-0006
OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R

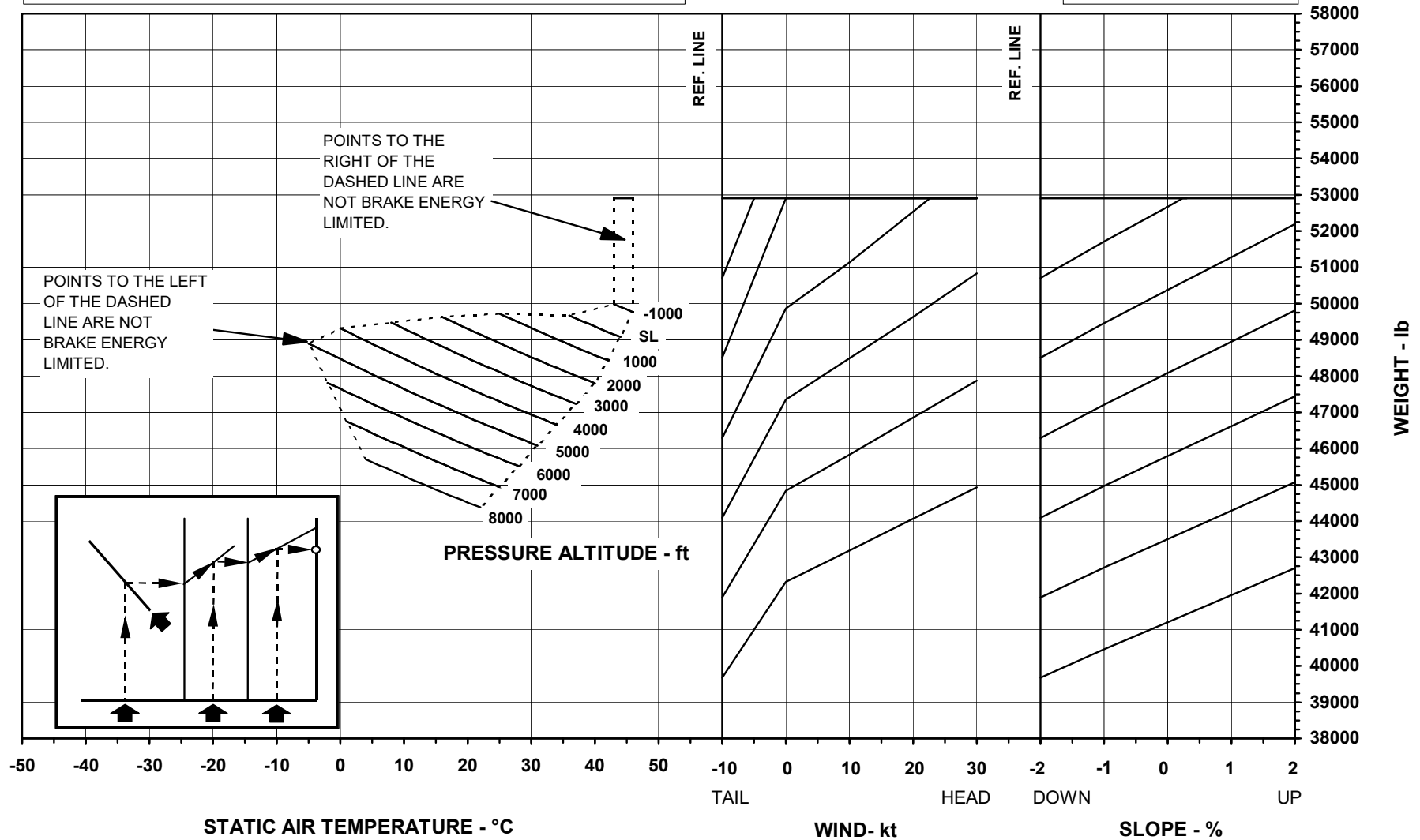


MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED

T/O-1 MODE - FLAPS 9° - NORMAL V_2

AIRPLANES EQUIPPED WITH LR VERSION BRAKES AND POST-MOD S.B. 145-73-0006
OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R



145FAA281 - 10MAR2005

AFM-145/1153 - FAA

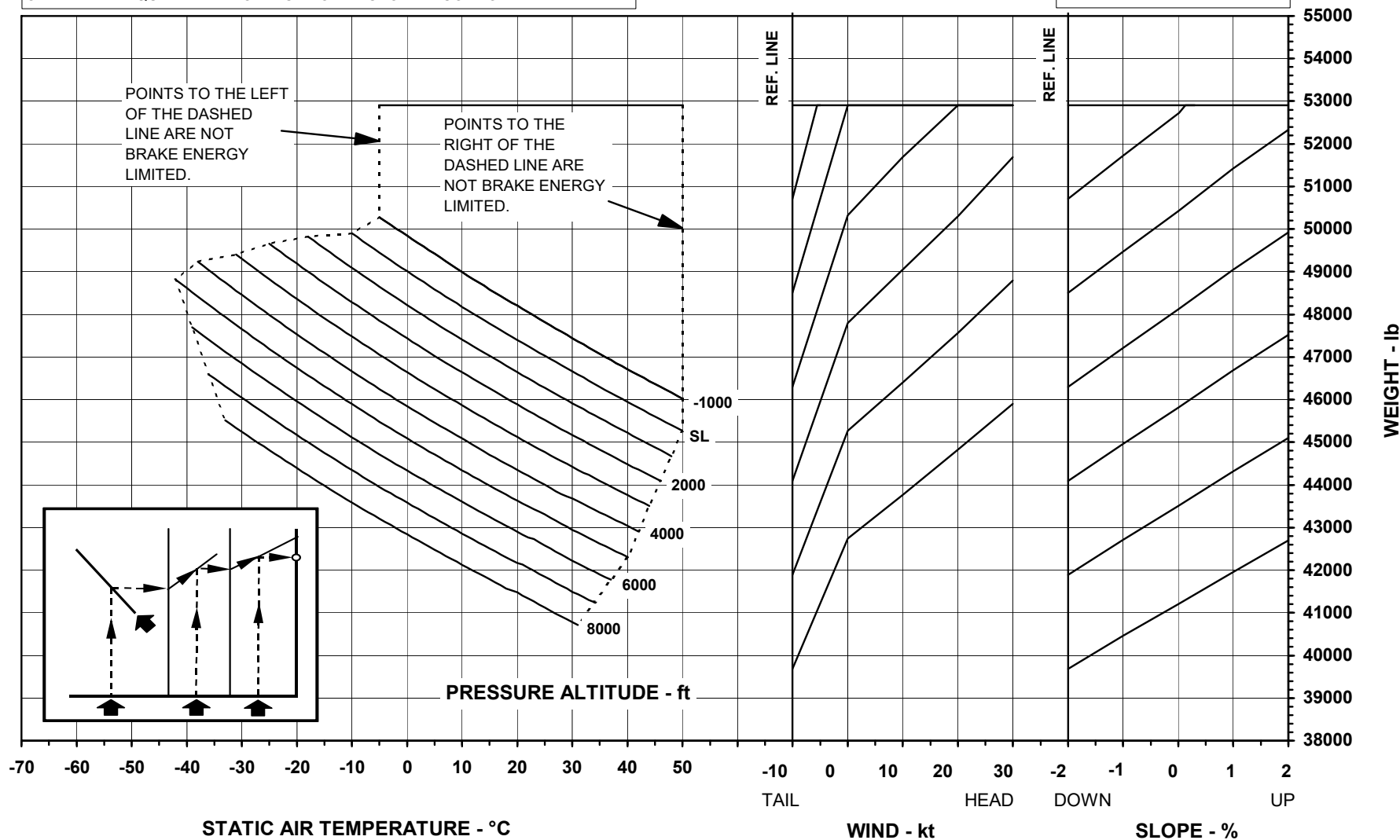
ANAC APPROVED
REVISION 69

MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED

ALT T/O-1 - FLAPS 9° - NORMAL V_2

AIRPLANES EQUIPPED WITH ER VERSION BRAKES AND POST-MOD 145-73-0006
OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R

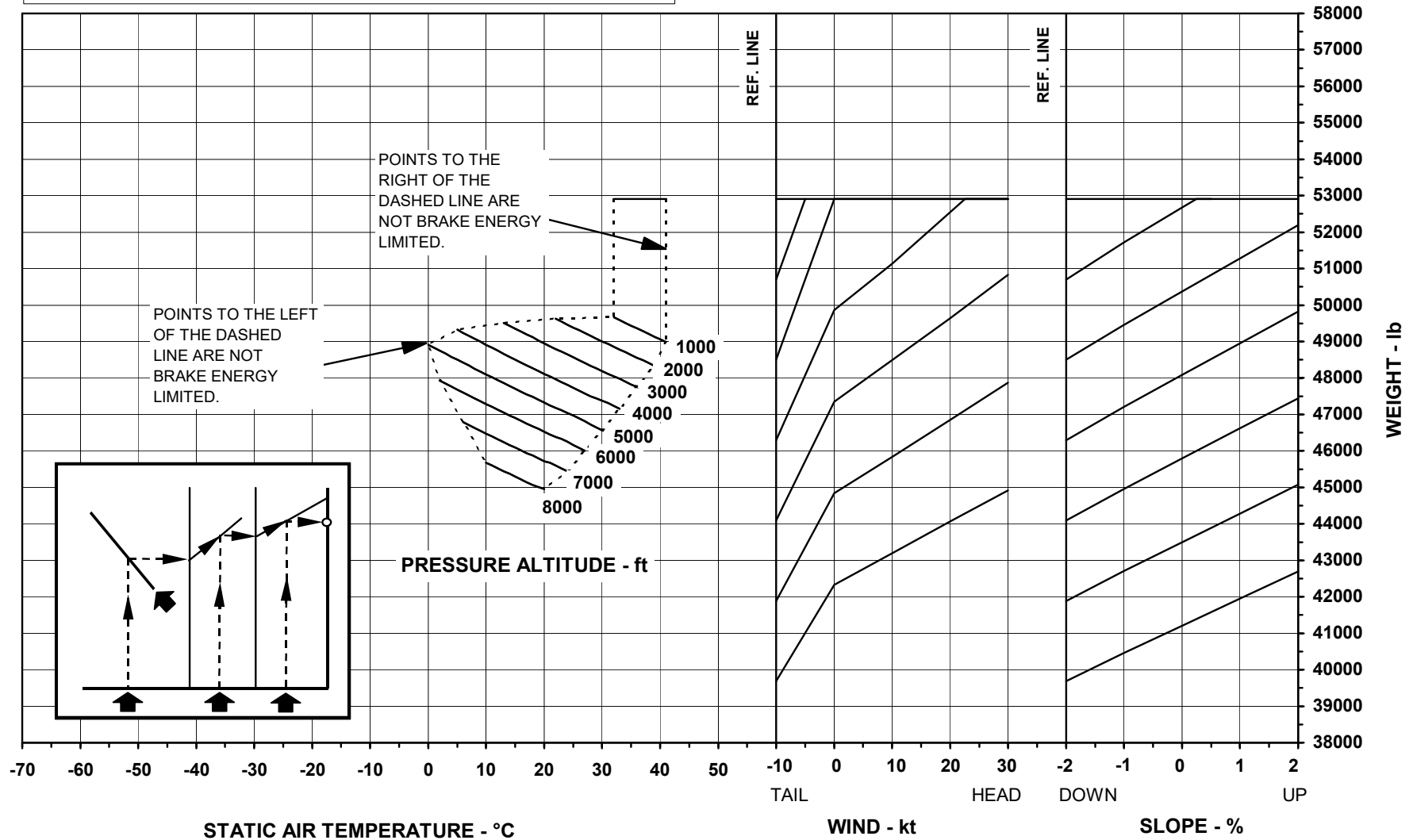


MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED

ALT T/O-1 - FLAPS 9° - NORMAL V_2

AIRPLANES EQUIPPED WITH LR VERSION BRAKES AND POST-MOD S.B. 145-73-0006
OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

AE3007A1 ENGINES WITH T/R



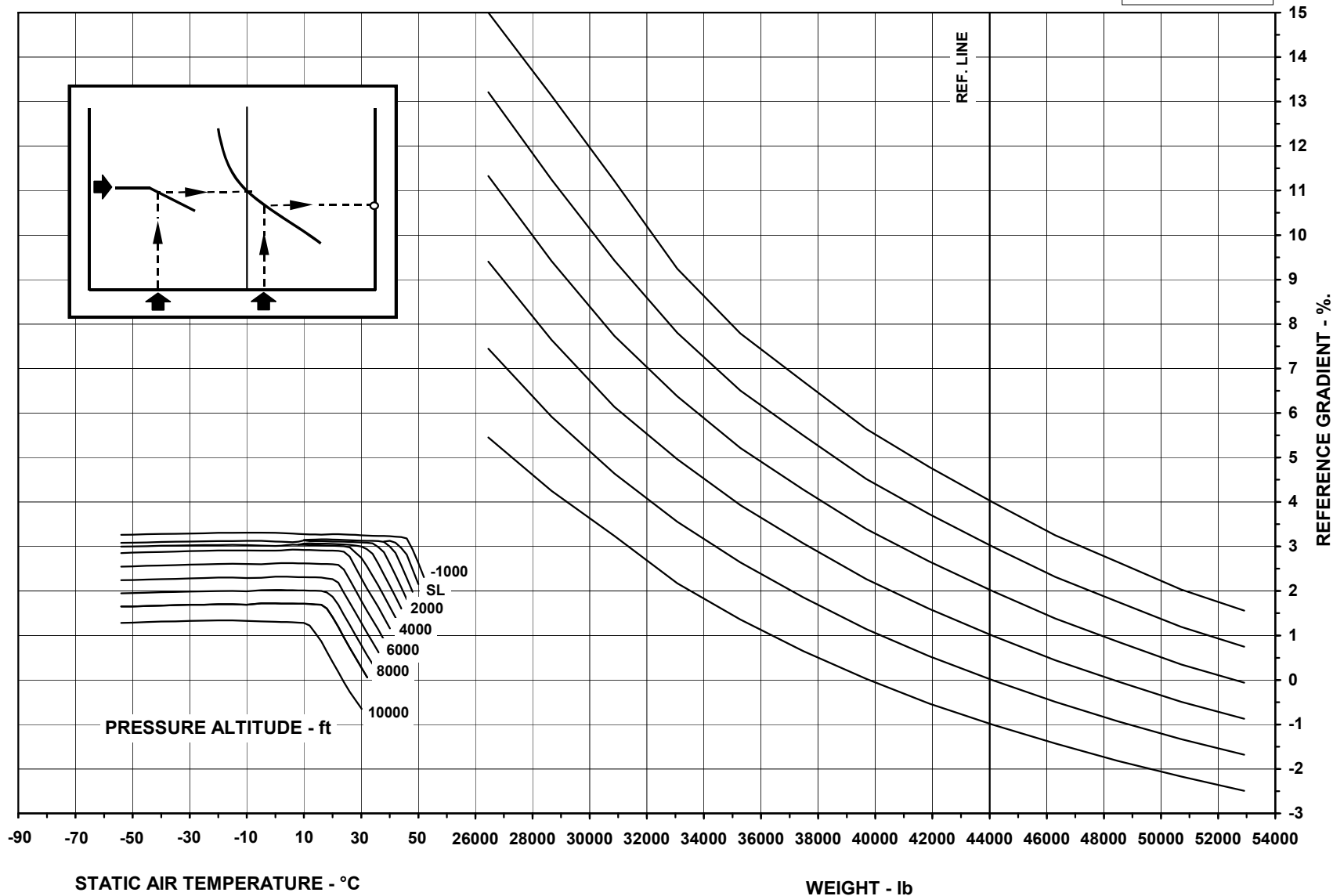
145FAA283 - 10MAR2005

AFM-145/1153 - FAA

ANAC APPROVED
REVISION 69

OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - T/O-1 MODE - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AE3007A1 ENGINES

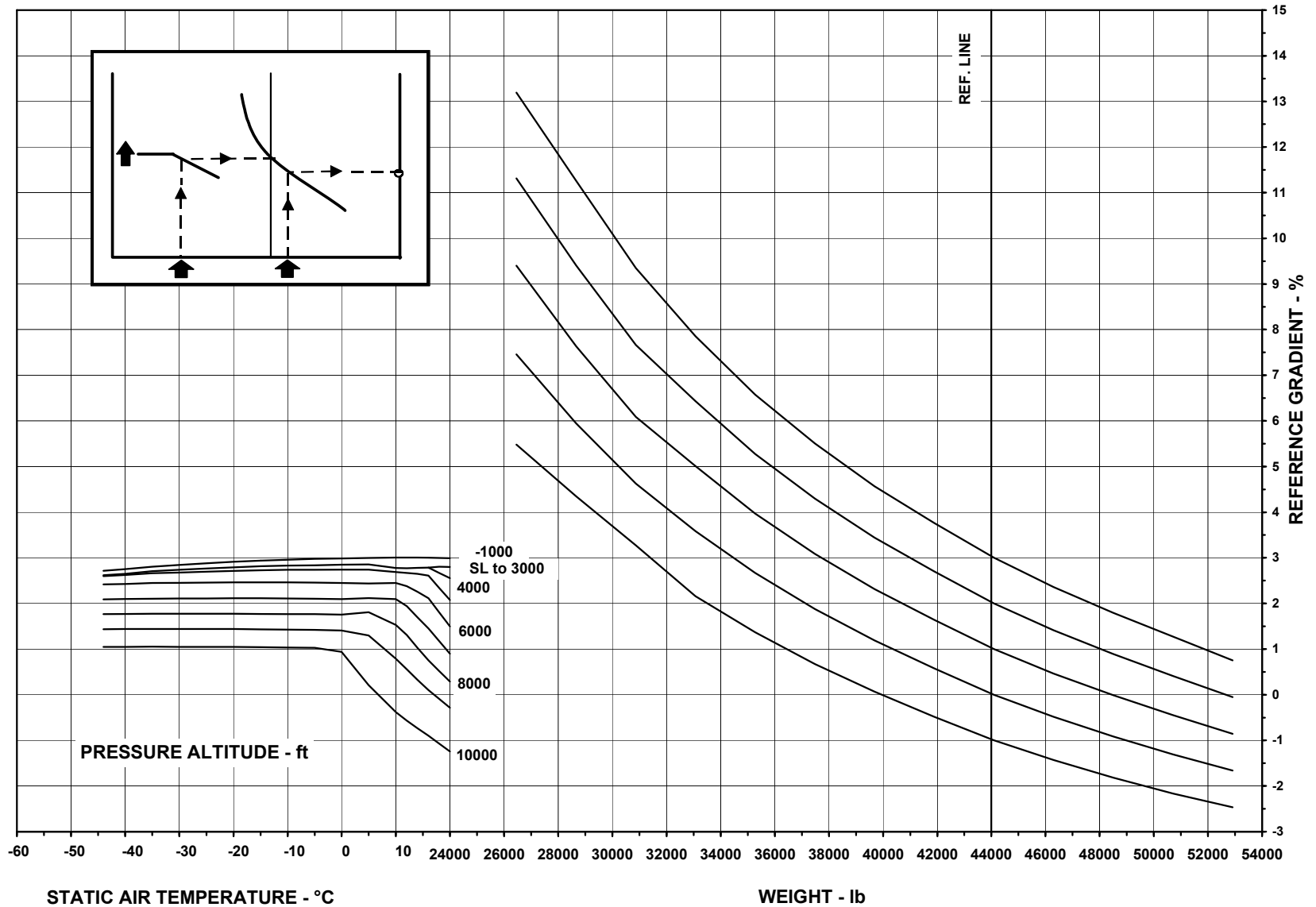


145FAA284 - 29JUL2003

OBSTACLE CLEARANCE - REFERENCE GRADIENT

FLAPS 9° - T/O-1 MODE - ANTI-ICE ON

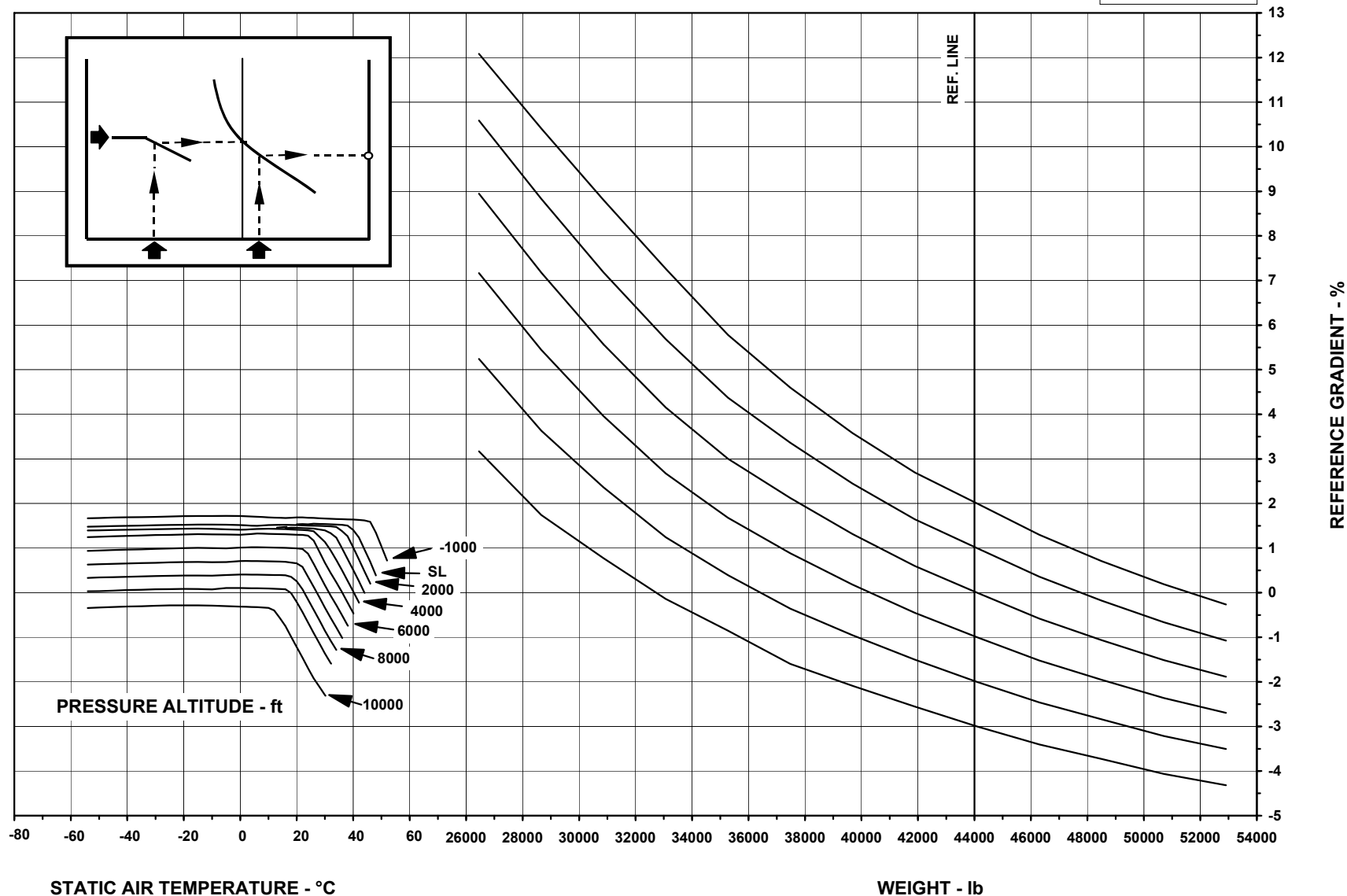
AE3007A1 ENGINES



OBSTACLE CLEARANCE - REFERENCE GRADIENT

FLAPS 22° - T/O-1 MODE - ANTI-ICE OFF

AE3007A1 ENGINES

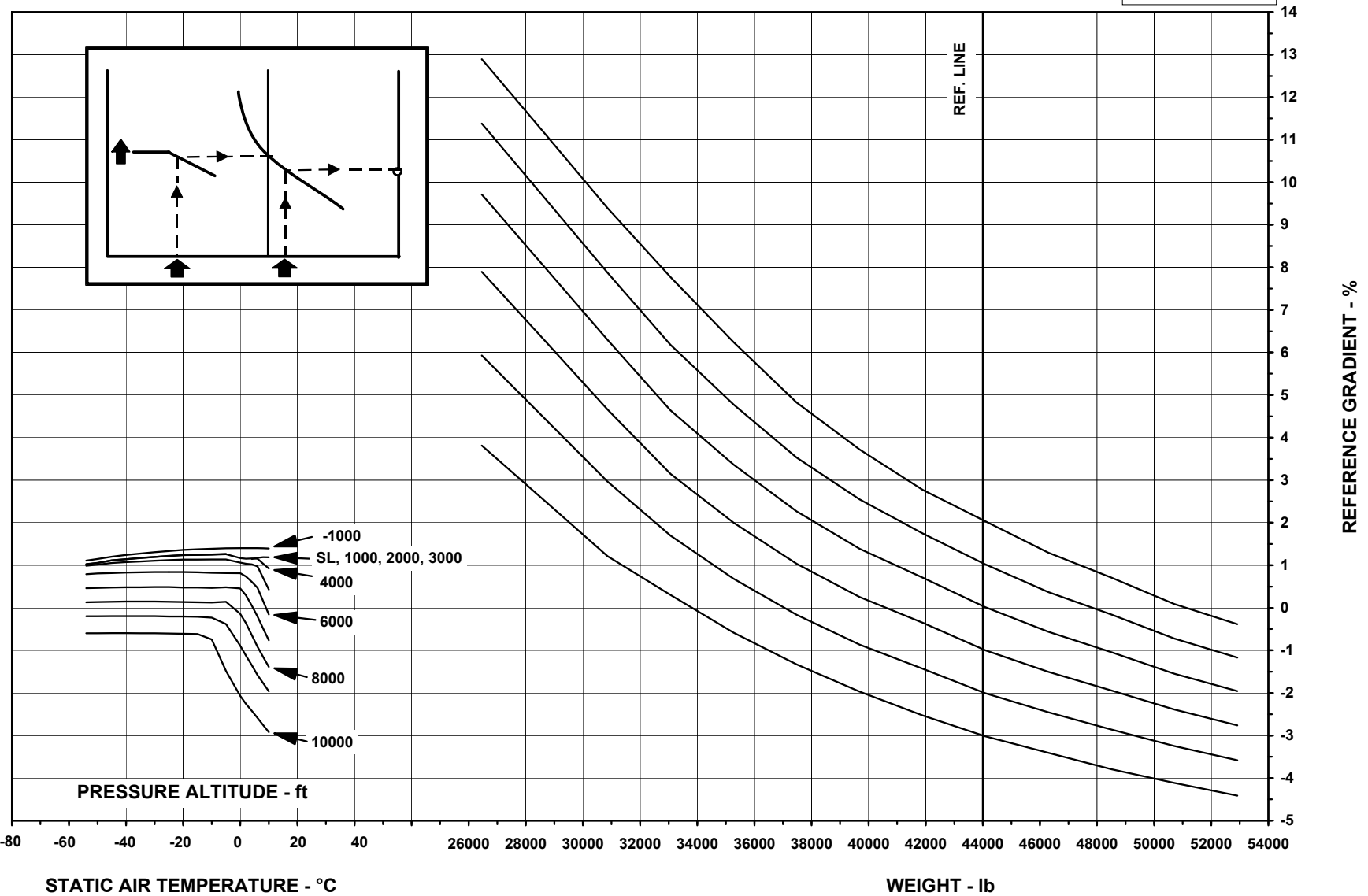


145FAA286 - 29JUL2003

OBSTACLE CLEARANCE - REFERENCE GRADIENT

FLAPS 22° - T/O-1 MODE - ANTI-ICE ON

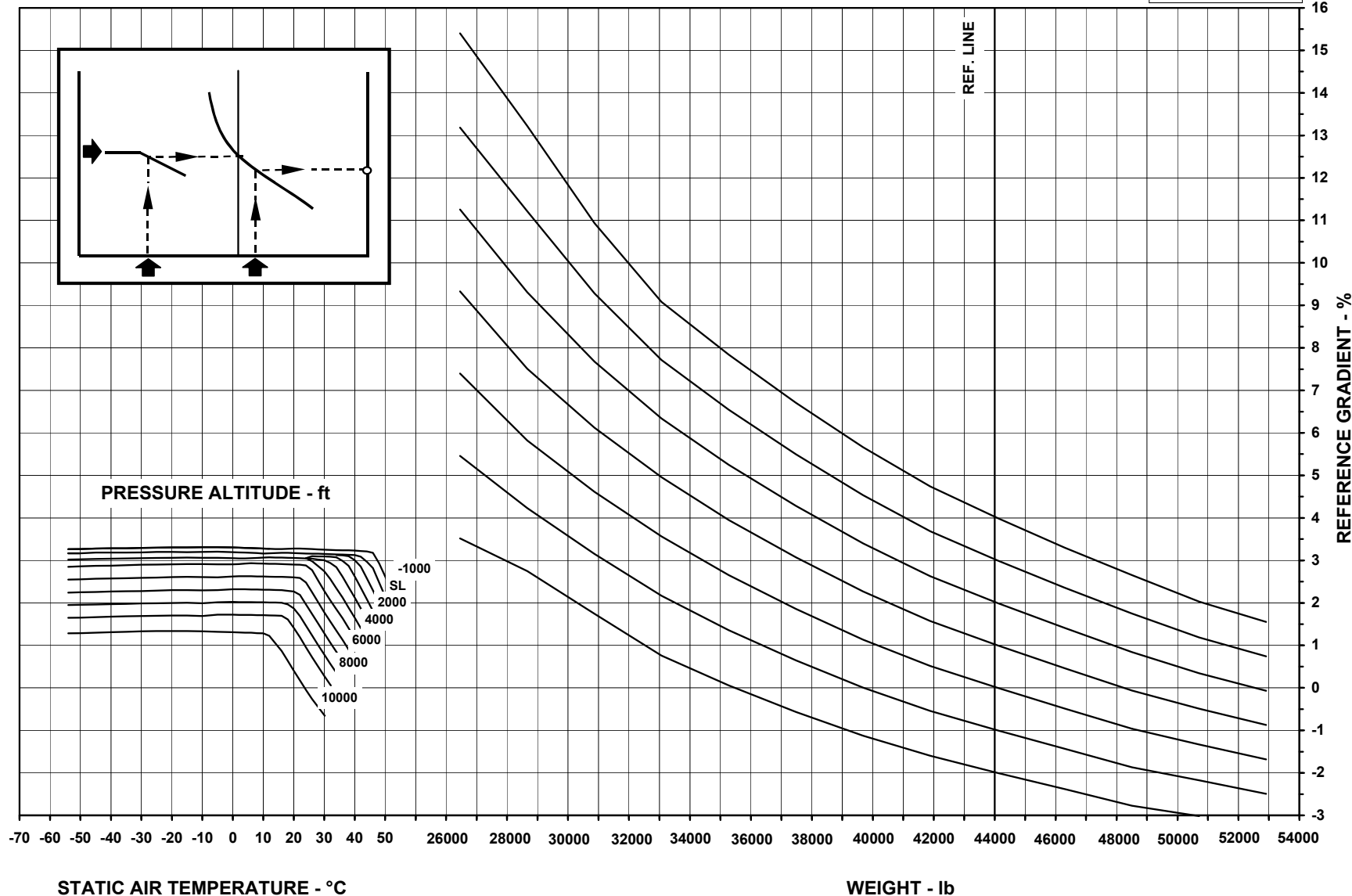
AE3007A1 ENGINES



OBSTACLE CLEARANCE - REFERENCE GRADIENT

FLAPS 9° - ALT T/O-1 MODE - ANTI-ICE OFF

AE3007A1 ENGINES

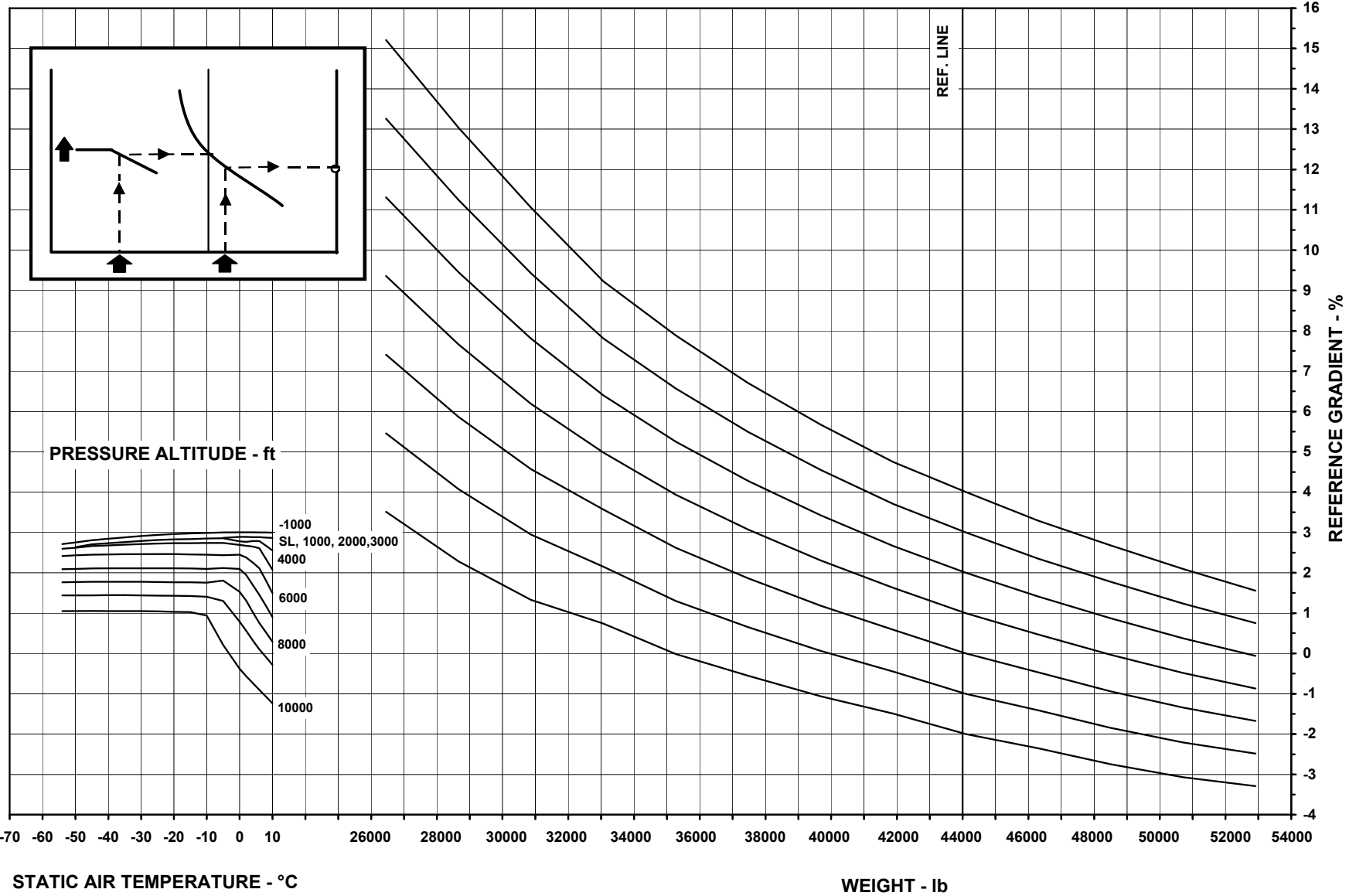


145FAA285 - 29 JUL 2003

OBSTACLE CLEARANCE - REFERENCE GRADIENT

FLAPS 9° - ALT T/O-1 MODE - ANTI-ICE ON

AE3007A1 ENGINES



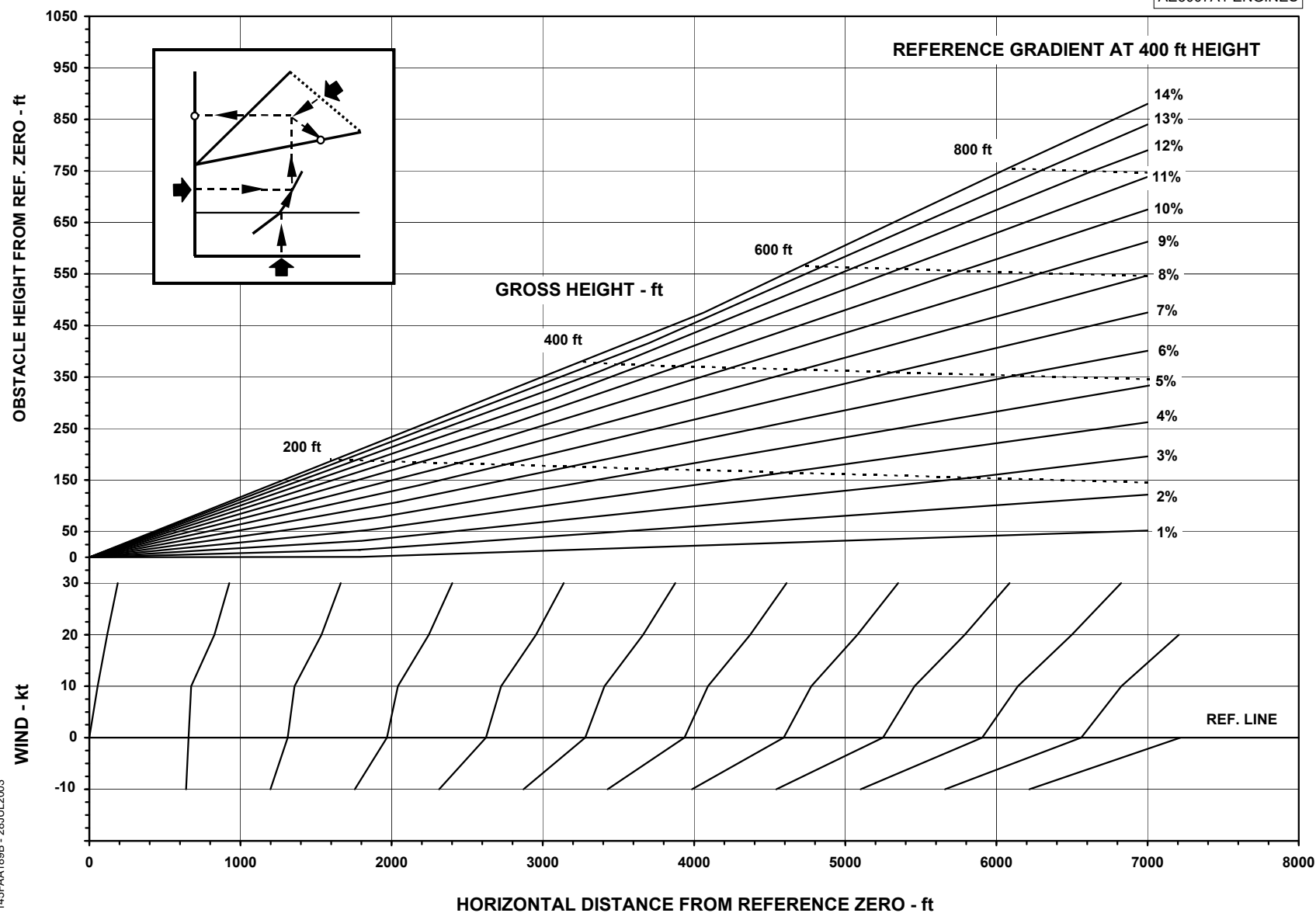
145FAA186 - 28JUL2003

AFM-145/1153 - FAA

ANAC APPROVED
REVISION 69

OBSTACLE CLEARANCE - CLOSE-IN FLAPS 9°

AE3007A1 ENGINES

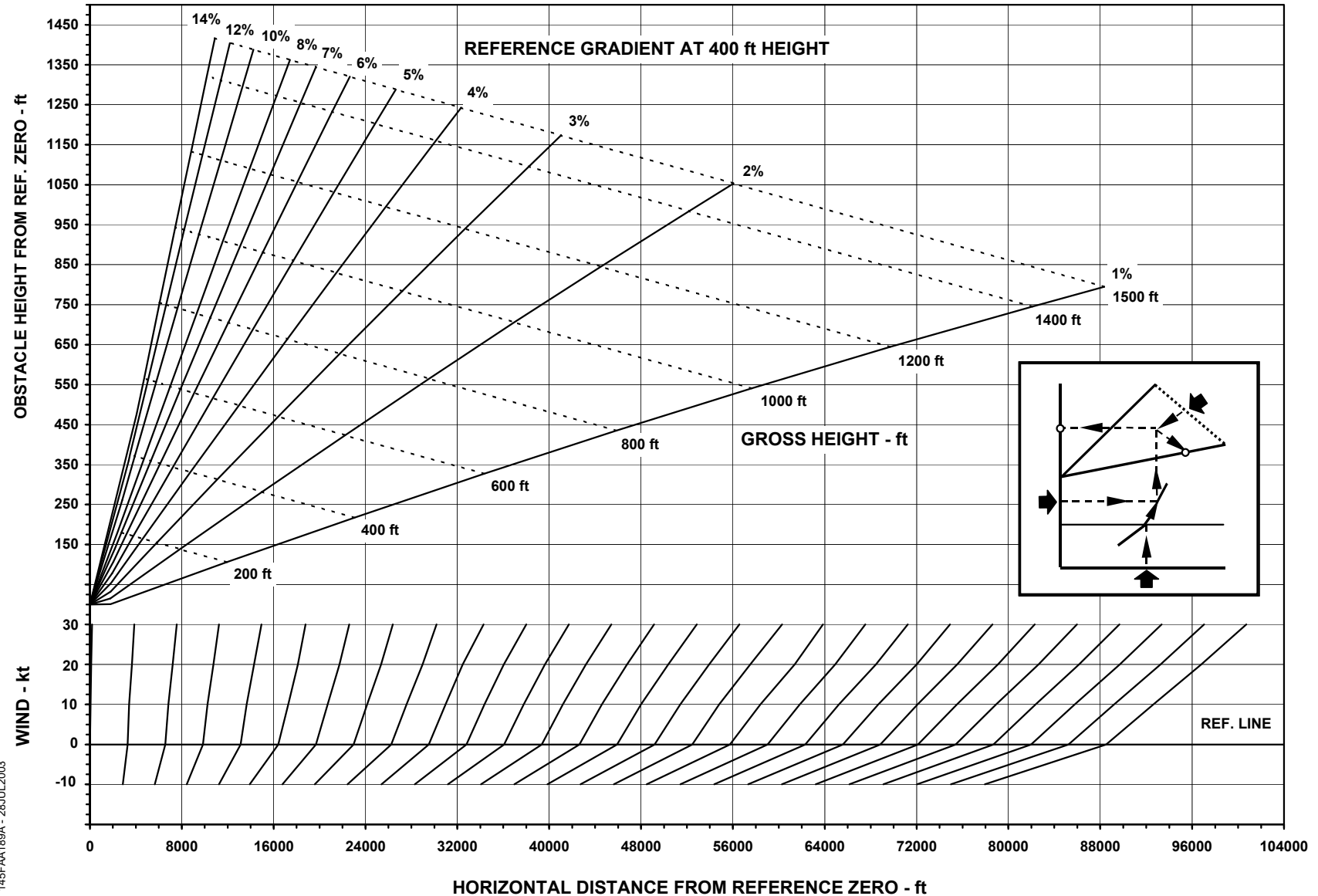


145FAA189B - 28JUL2003

OBSTACLE CLEARANCE DISTANT

FLAPS 9°

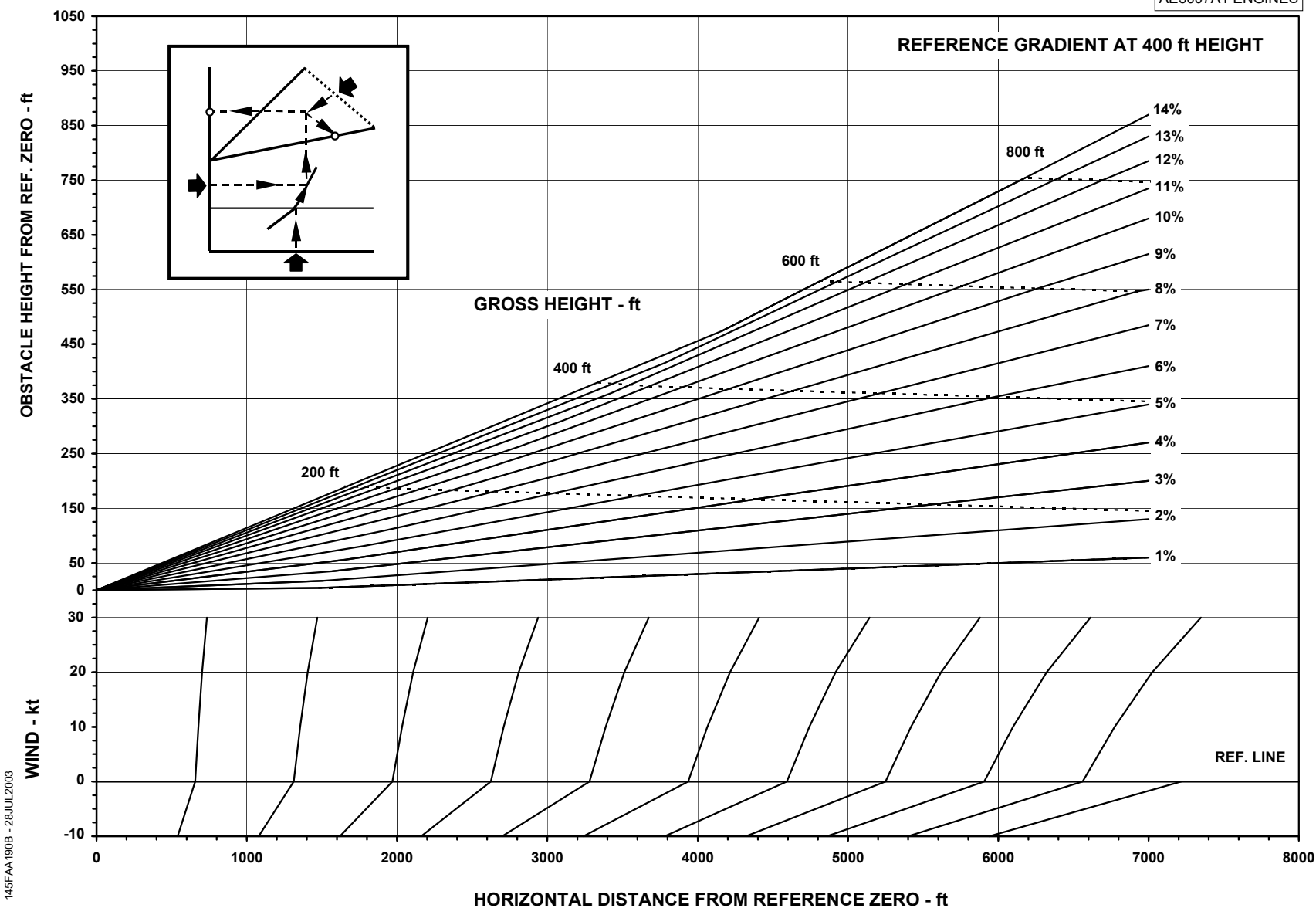
AE3007A1 ENGINES



OBSTACLE CLEARANCE CLOSE-IN

FLAPS 22°

AE3007A1 ENGINES

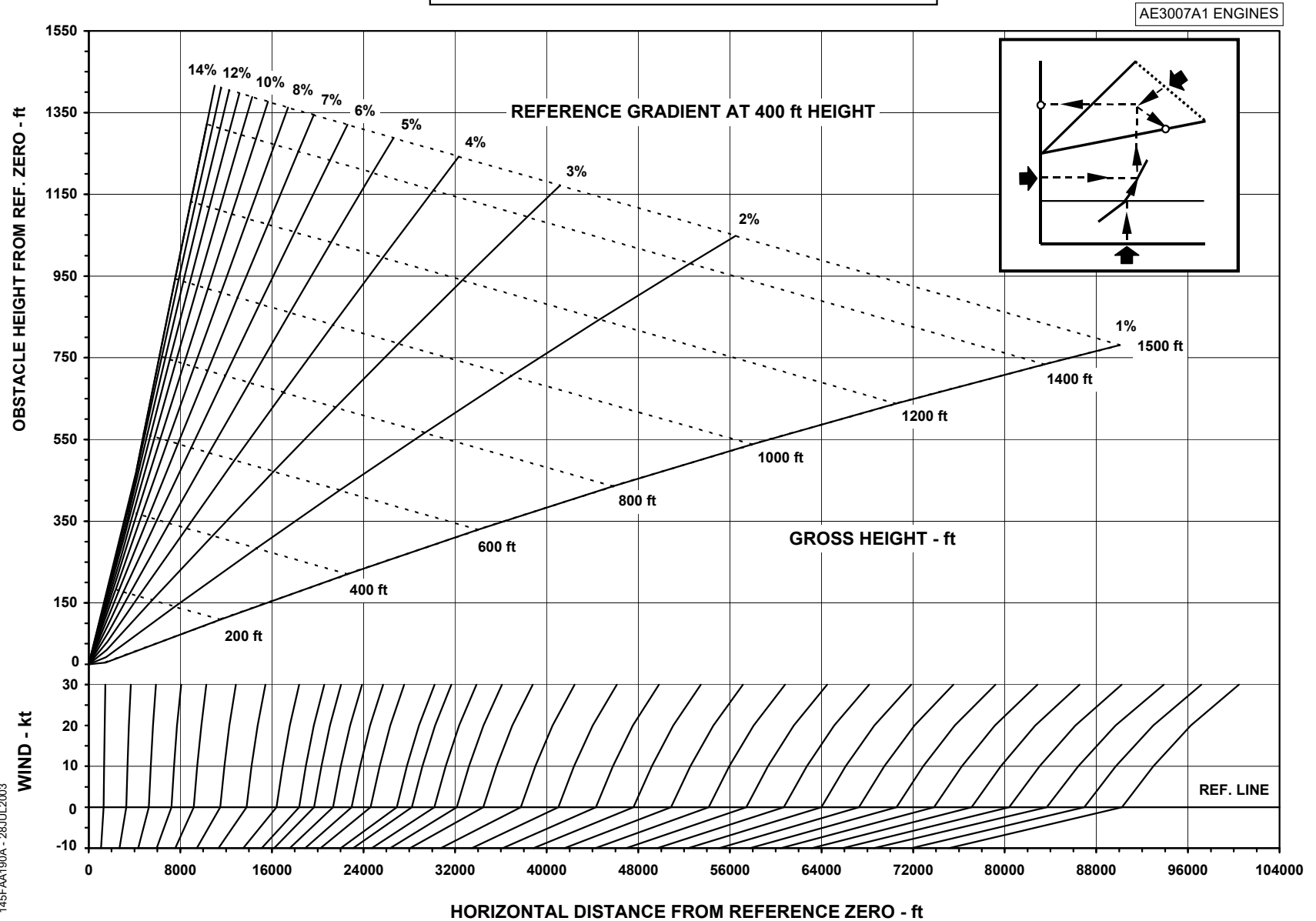


145FAA190B - 28JUL2003

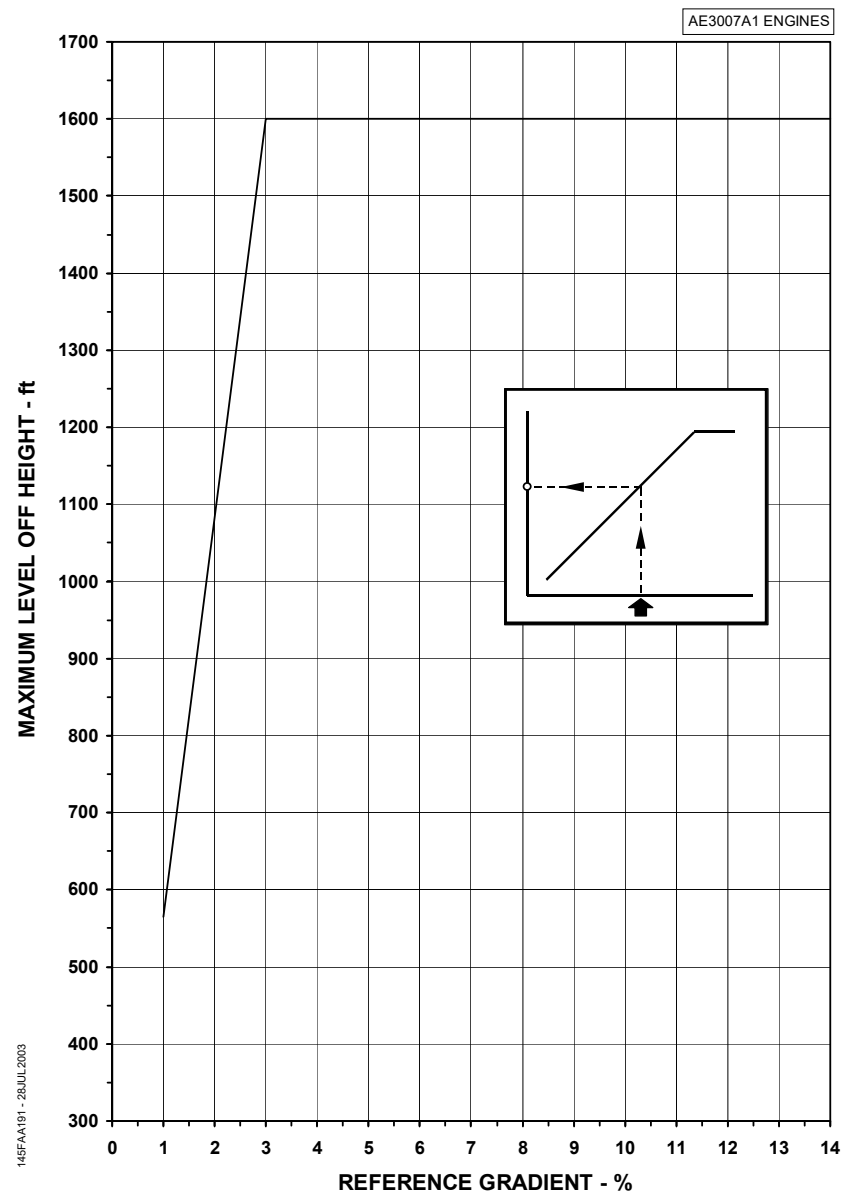
AFM-145/1153 - FAA

OBSTACLE CLEARANCE - DISTANT

FLAPS 22°



MAXIMUM LEVEL OFF HEIGHT
FLAPS 9°

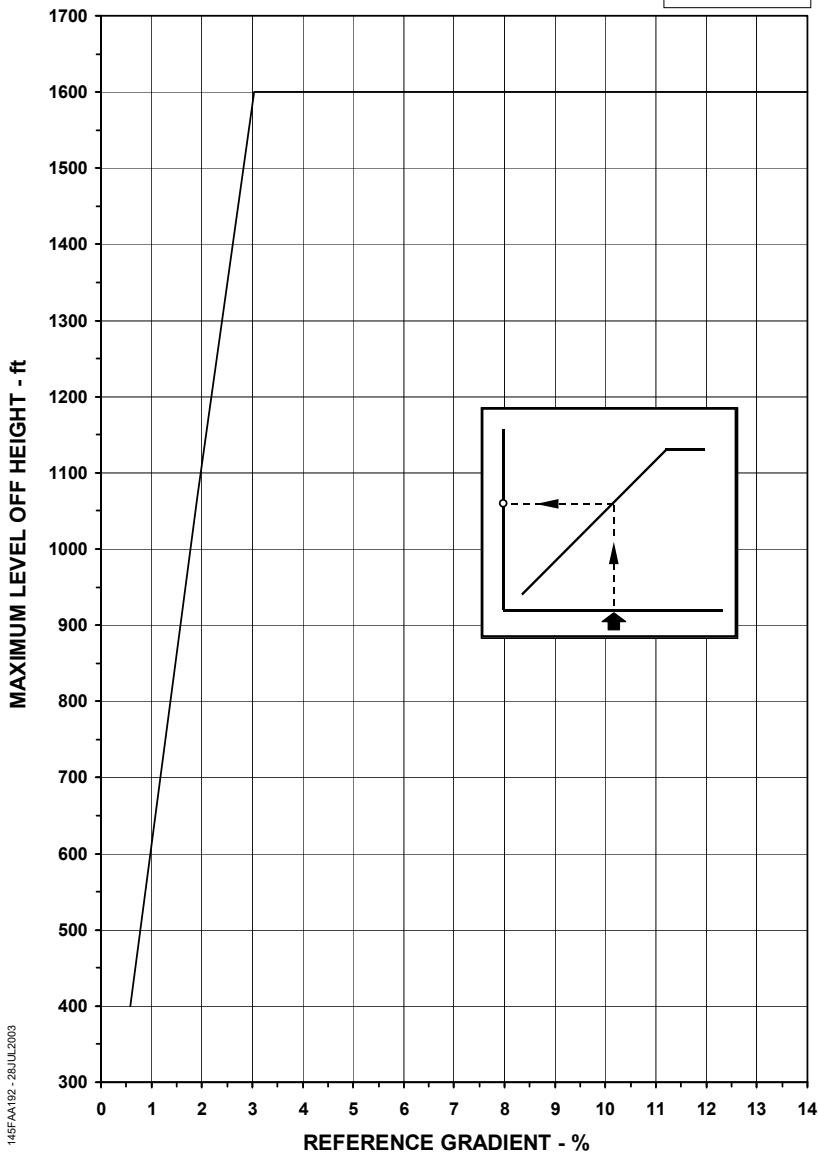


145FAA191-28JUL2003

AFM-145/1153 - FAA

MAXIMUM LEVEL OFF HEIGHT
FLAPS 22°

AE3007A1 ENGINES



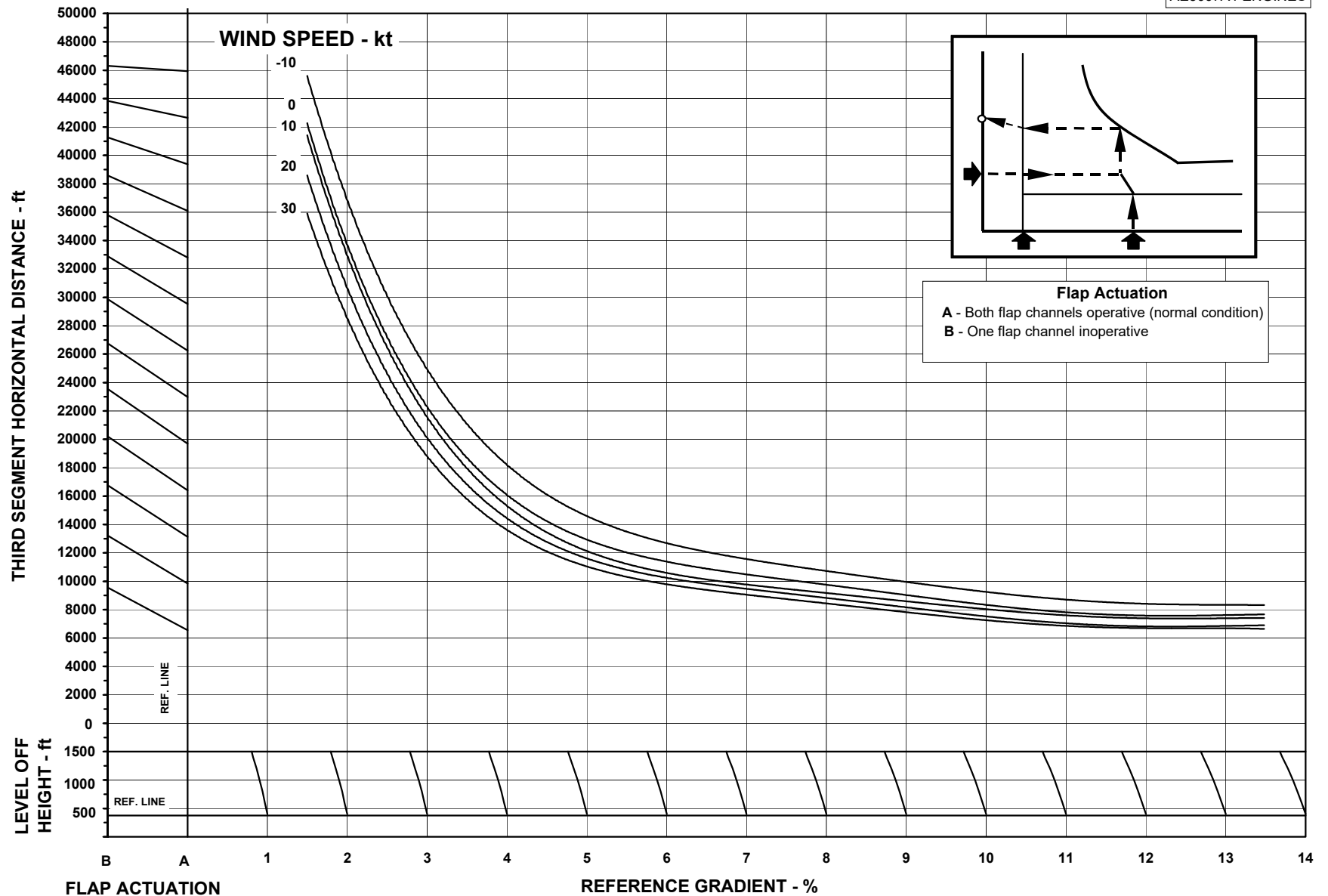


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145FAA193 - 29JUL2003

THIRD SEGMENT HORIZONTAL DISTANCE TAKEOFF FLAPS 9°

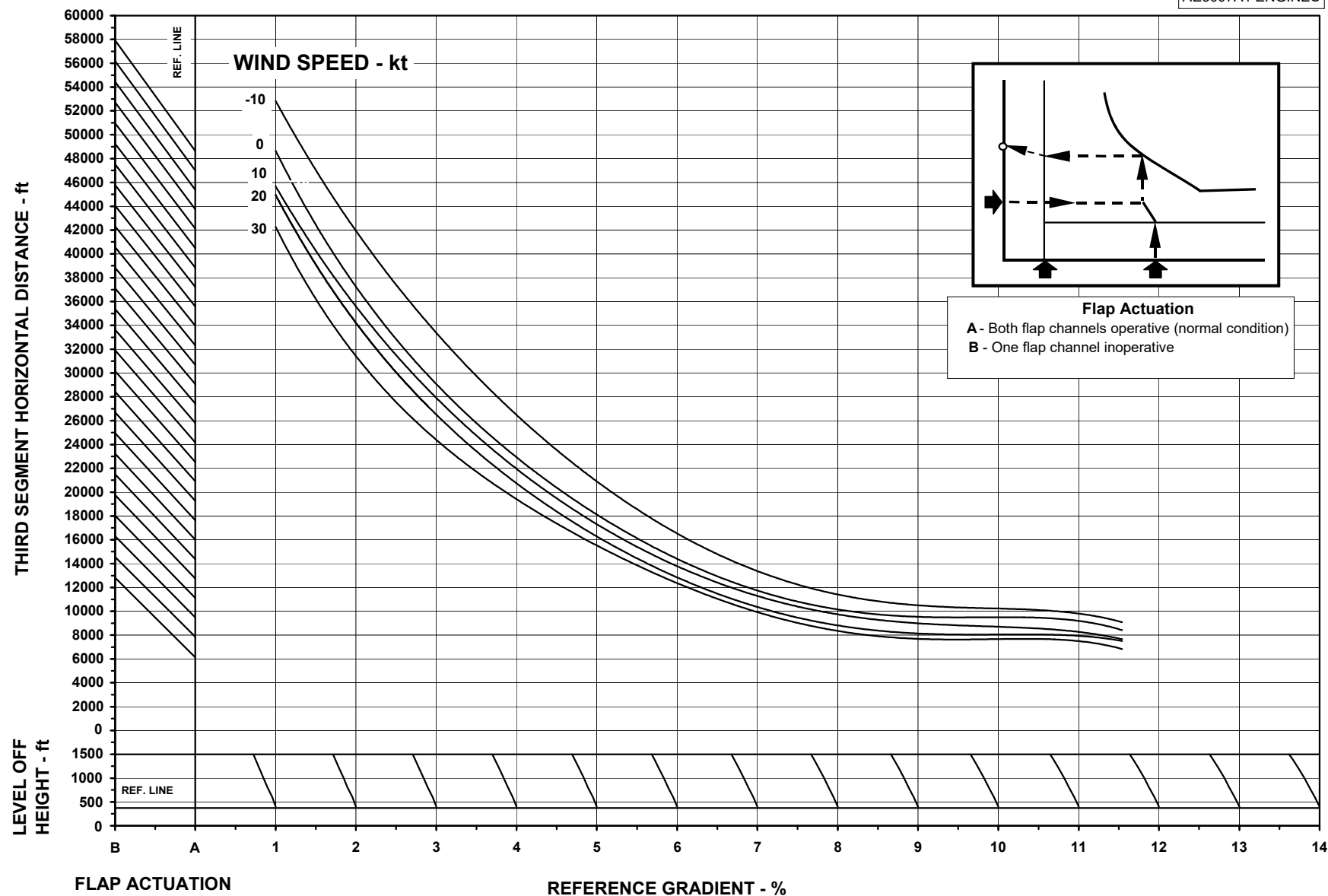
AE3007A1 ENGINES



145FAA194 - 28JUL2003

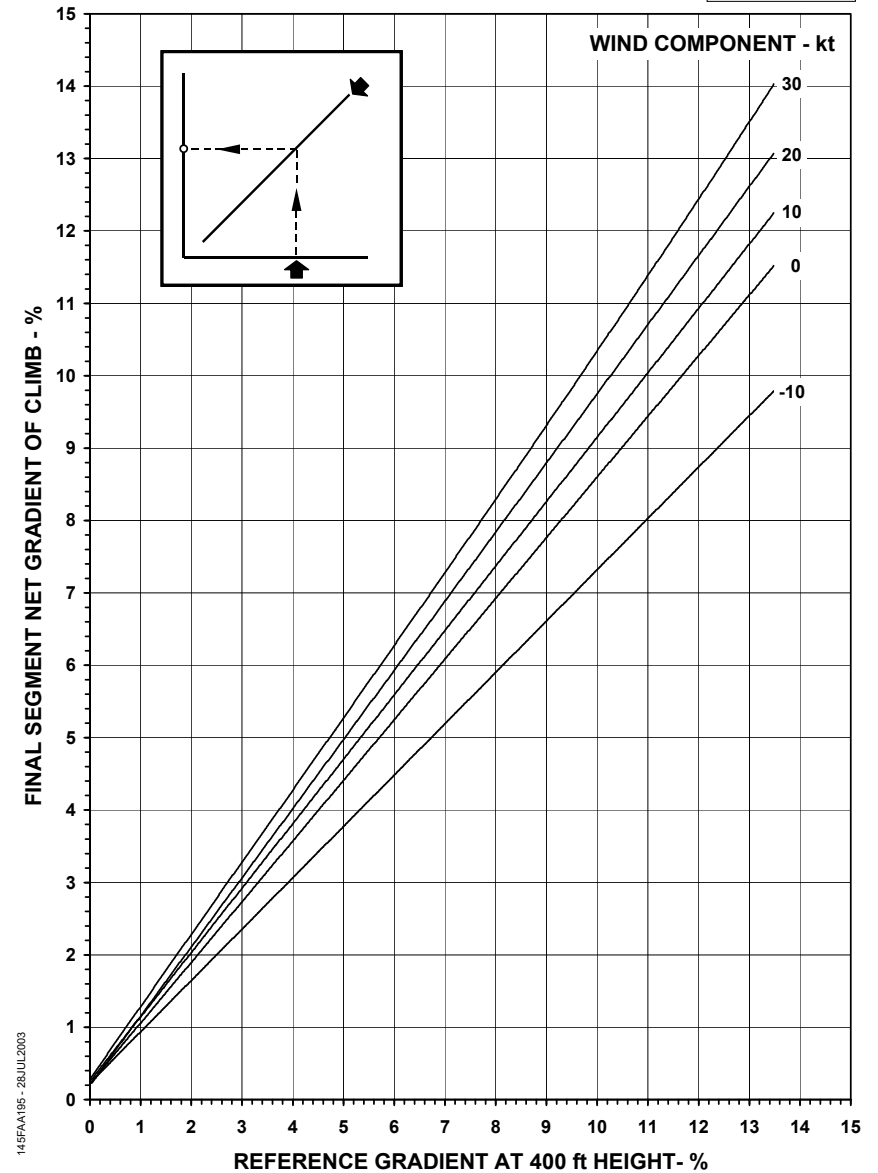
THIRD SEGMENT HORIZONTAL DISTANCE TAKEOFF FLAPS 22°

AE3007A1 ENGINES



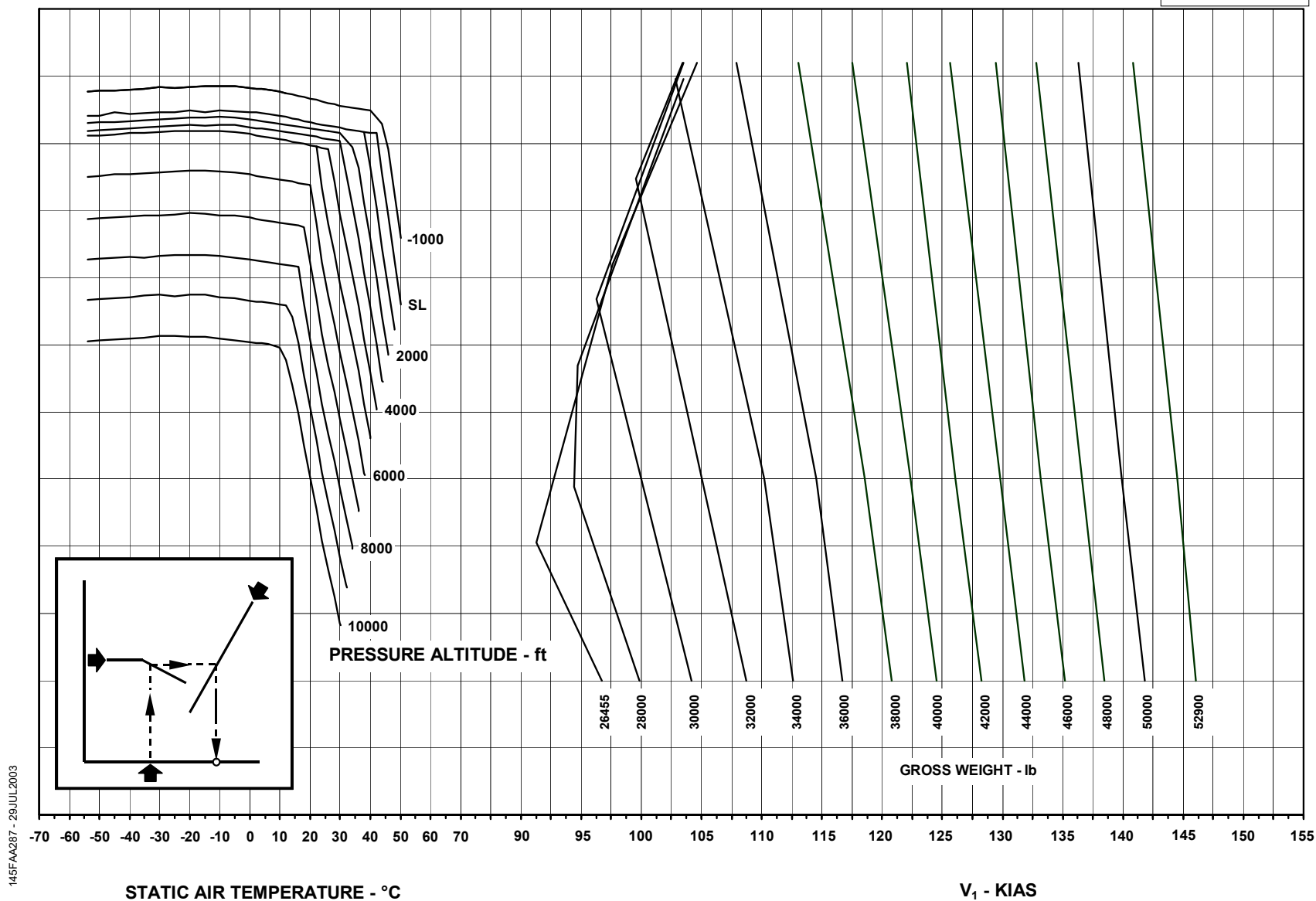
FINAL SEGMENT NET GRADIENT OF CLIMB
TAKEOFF FLAPS 9°

AE3007A1 ENGINES



TAKEOFF SPEEDS - V_1 FLAPS 9° - T/O-1 MODE - NORMAL V_2

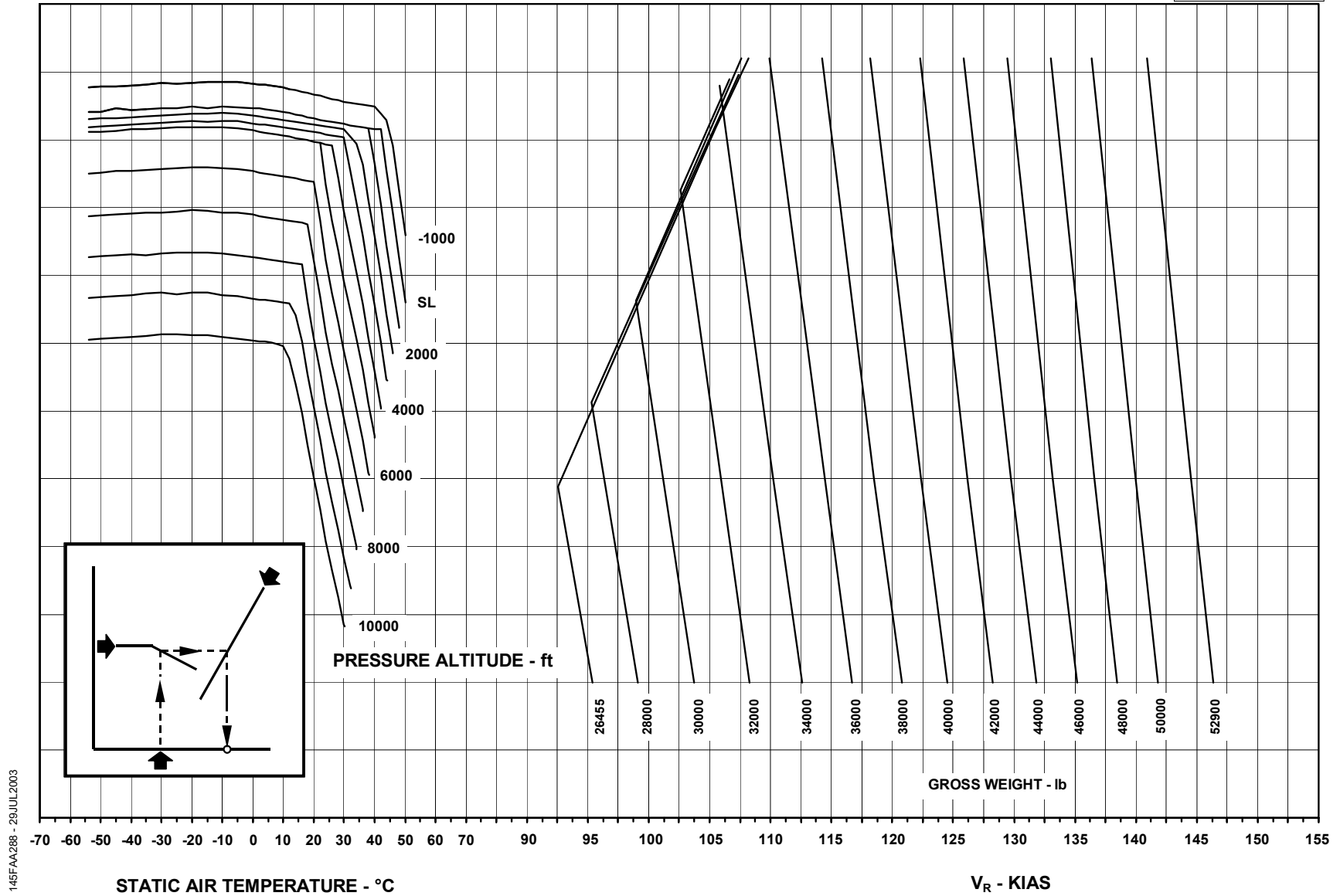
AE3007A1 ENGINES



145FAA287 - 29JUL2003

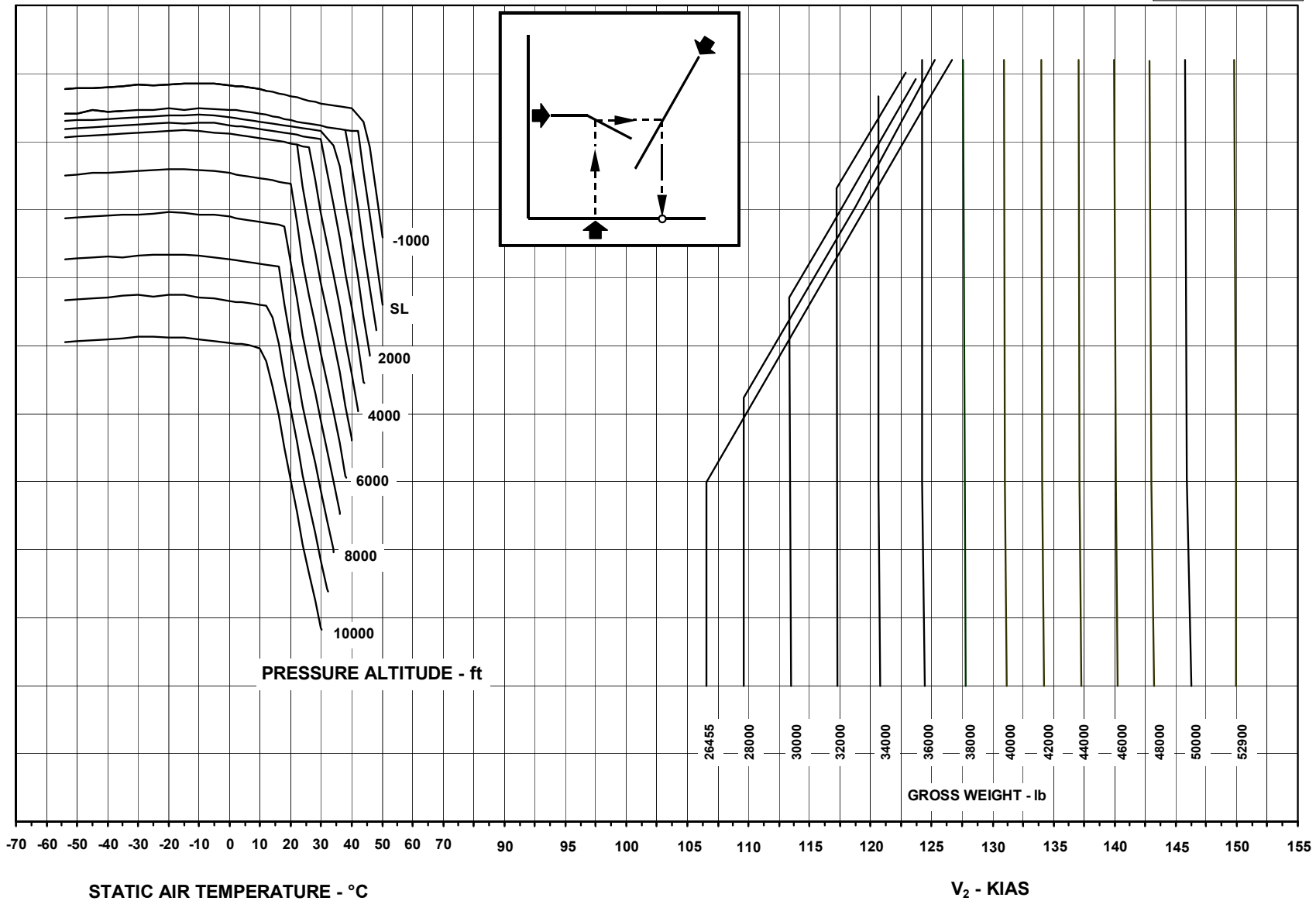
TAKEOFF SPEEDS - V_R
FLAPS 9° - T/O-1 MODE - NORMAL V_2

AE3007A1 ENGINES



TAKEOFF SPEEDS - V_2
FLAPS 9° - T/O-1 MODE - NORMAL V_2

AE3007A1 ENGINES

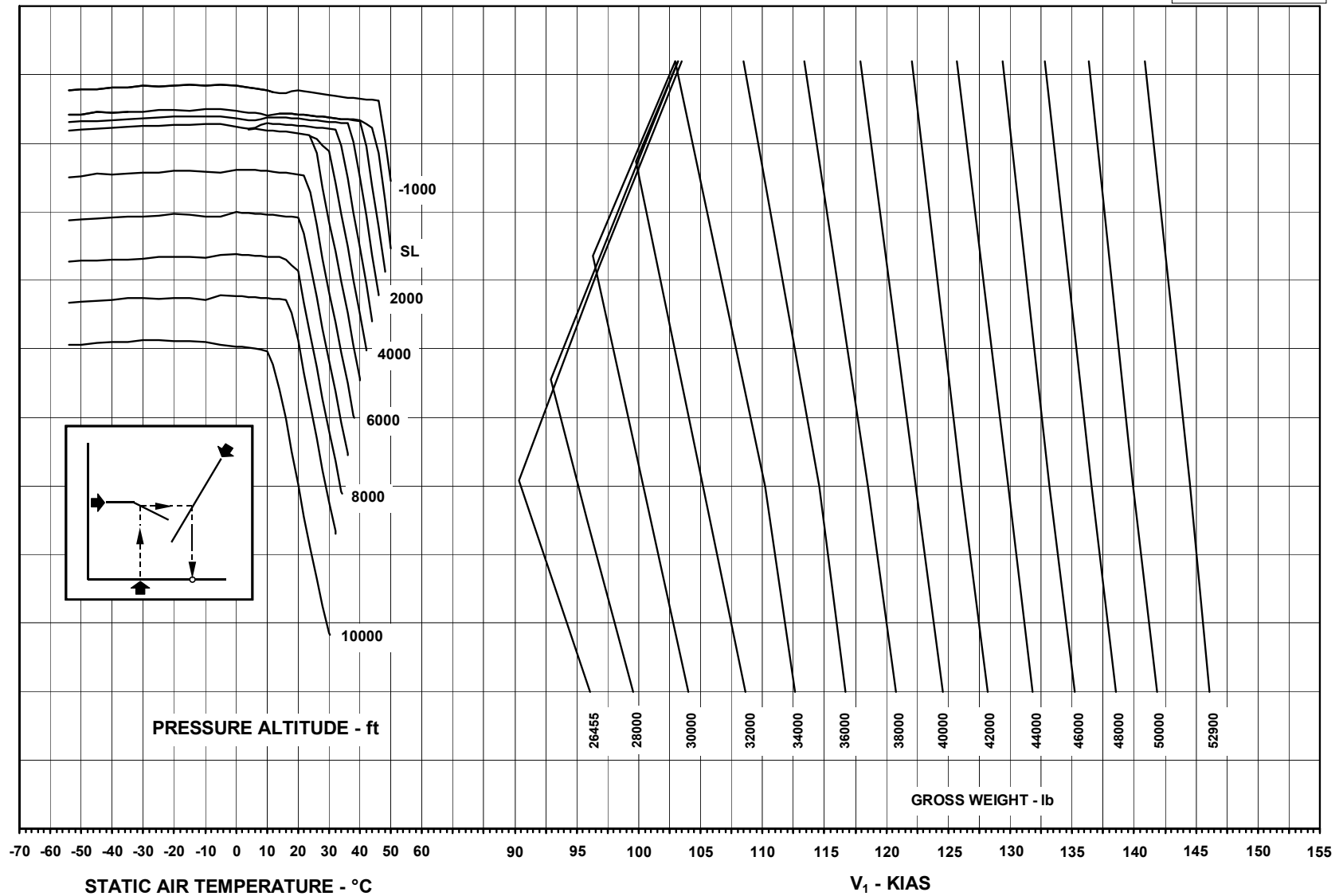


145FAA289 - 29JUL2003

AFM-145/1153 - FAA

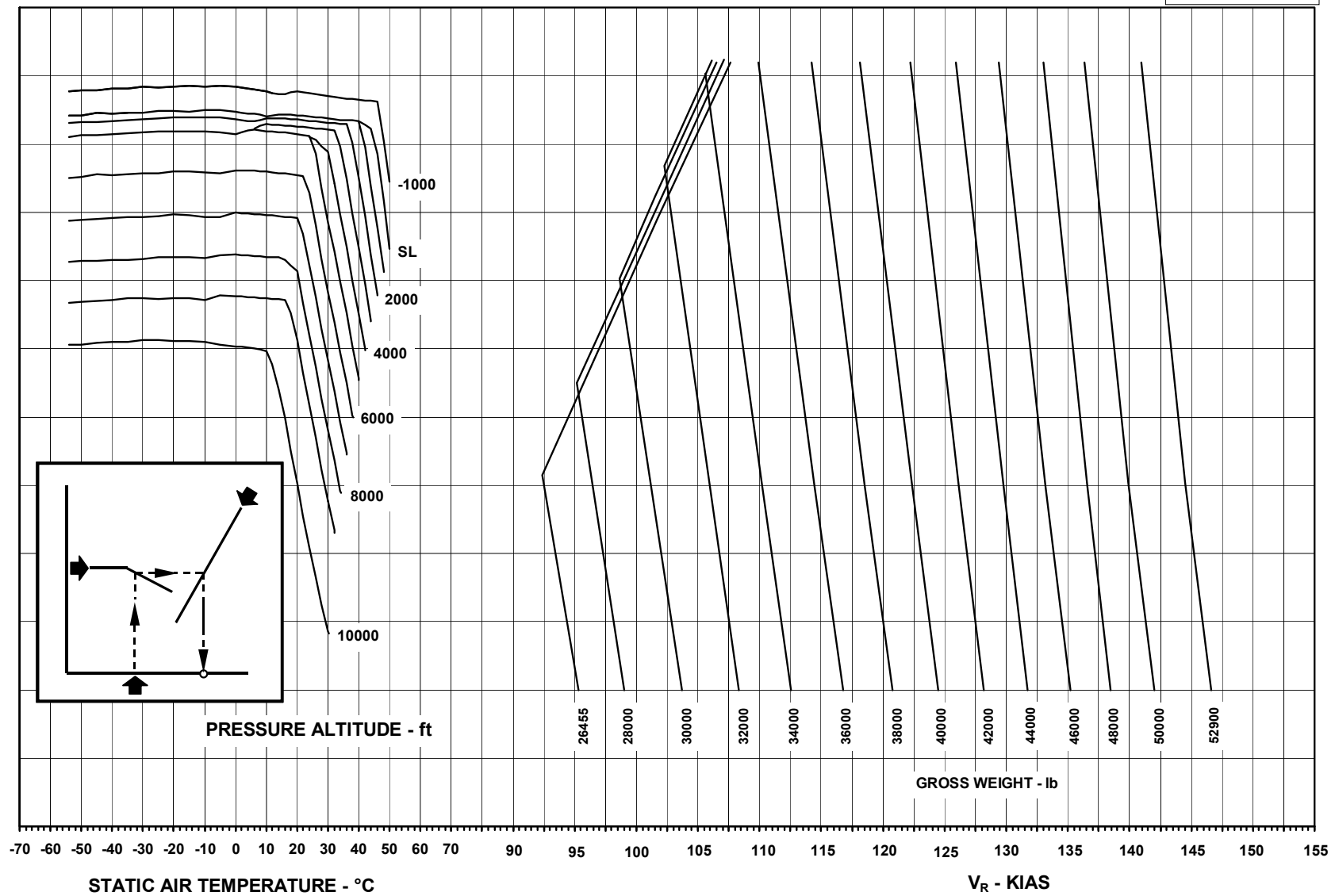
TAKEOFF SPEEDS - V_1
FLAPS 9° - ALT T/O-1 MODE - NORMAL V_2

AE3007A1 ENGINES



TAKEOFF SPEEDS - V_R
FLAPS 9° - ALT T/O-1 MODE - NORMAL V_2

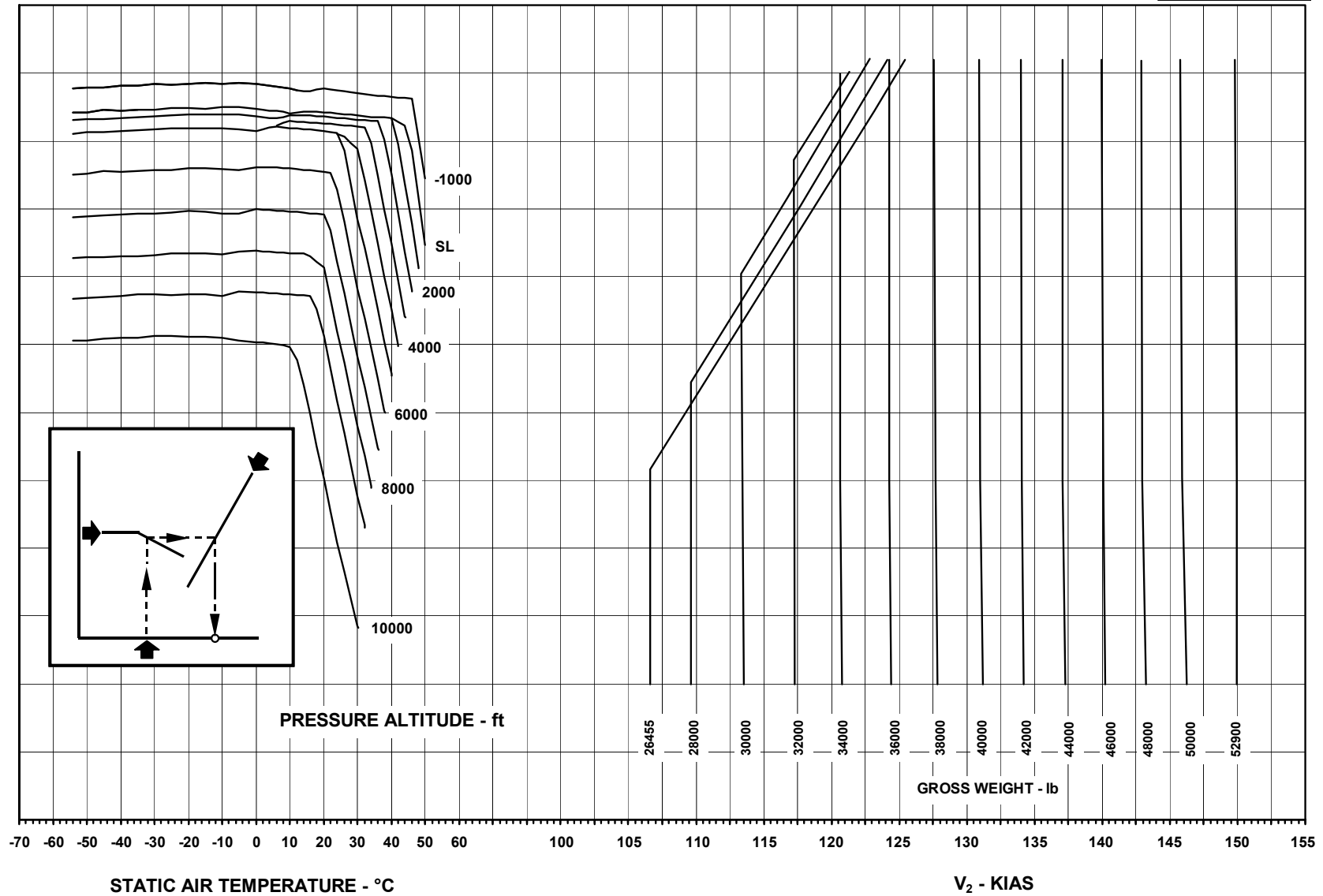
AE3007A1 ENGINES



145FAA291 - 29JUL2003

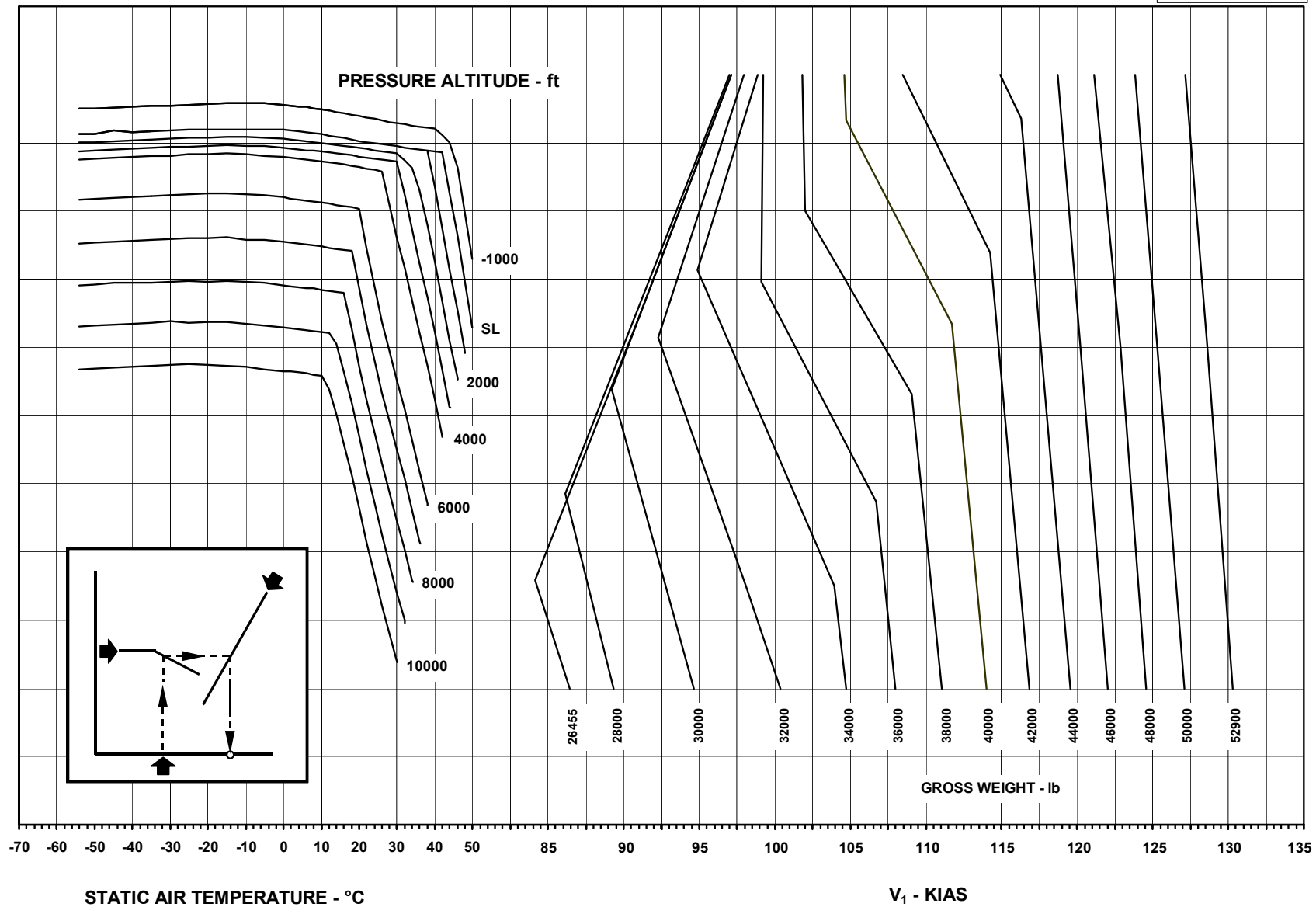
TAKEOFF SPEEDS - V_2
FLAPS 9° - ALT T/O-1 MODE - NORMAL V_2

AE3007A1 ENGINES



TAKEOFF SPEEDS - V_1
FLAPS 22° - T/O-1 MODE - NORMAL V_2

AE3007A1 ENGINES

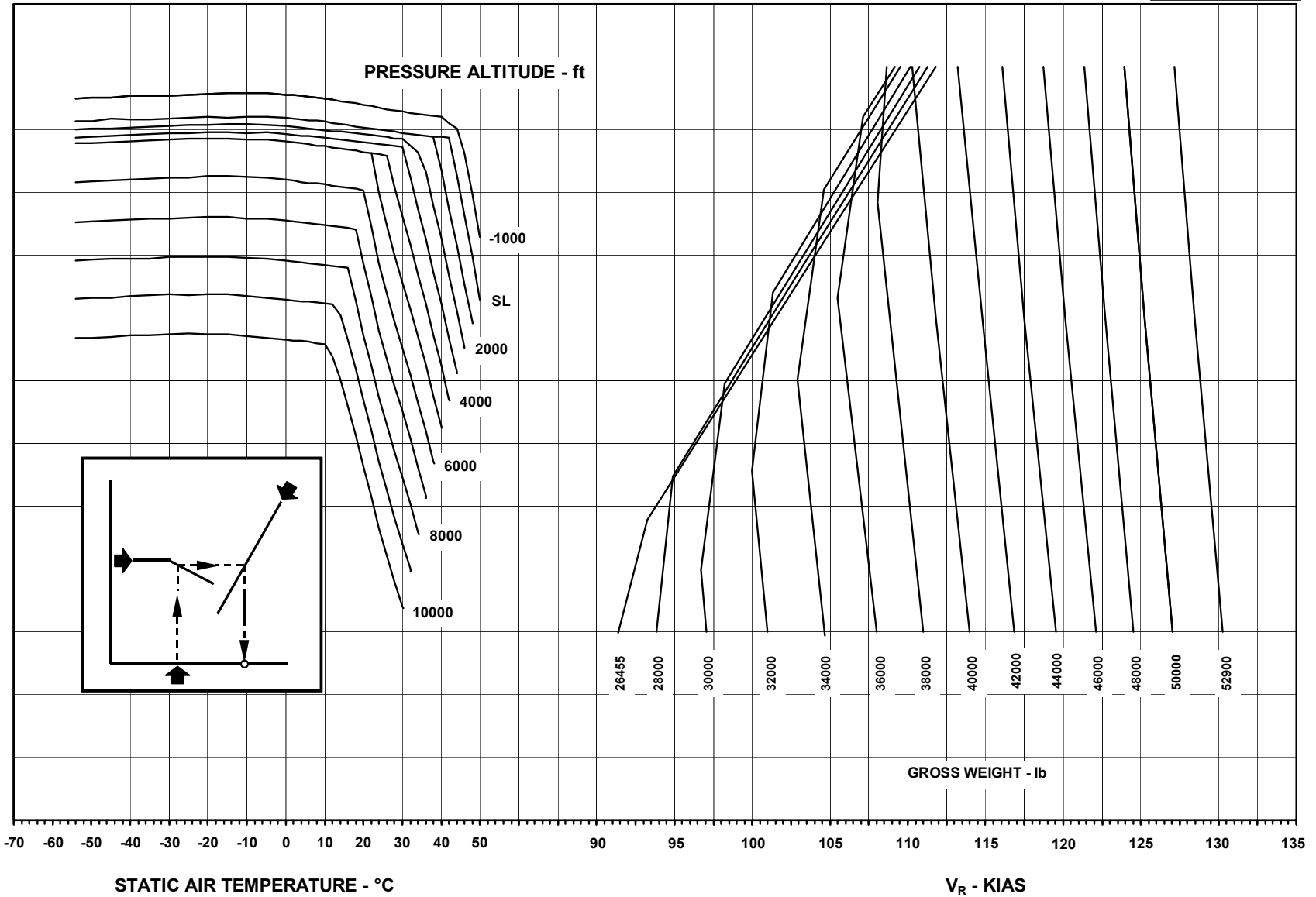


145FAA293 - 29JUL2003

AFM-145/1153 - FAA

TAKEOFF SPEEDS - V_R
FLAPS 22° - T/O-1 MODE - NORMAL V_2

AE3007A1 ENGINES



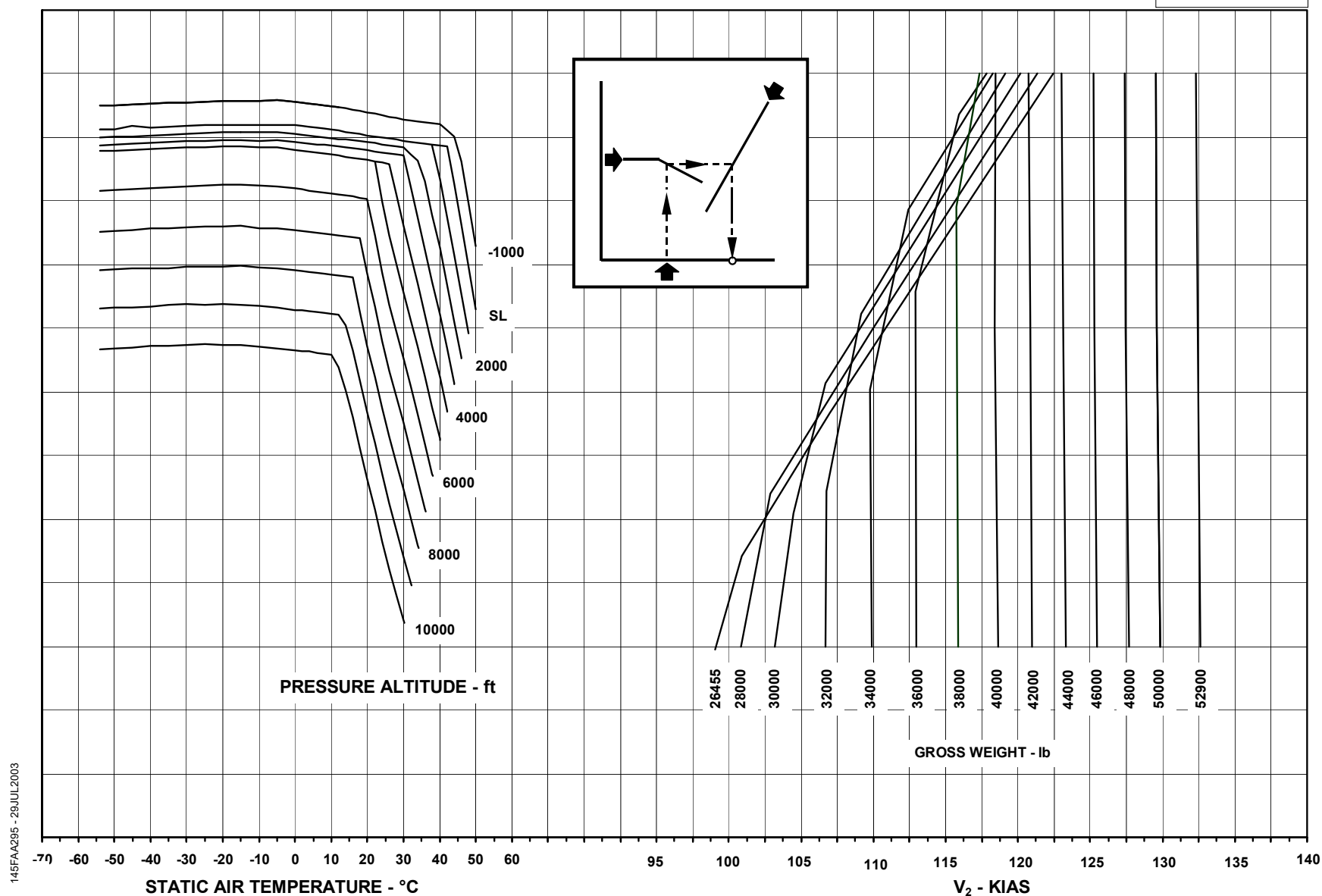
145FAA294 - 29JUL2003

AFM-145/1153 - FAA

ANAC APPROVED
REVISION 69

TAKEOFF SPEEDS - V_2
FLAPS 22° - T/O-1 MODE - NORMAL V_2

AE3007A1 ENGINES

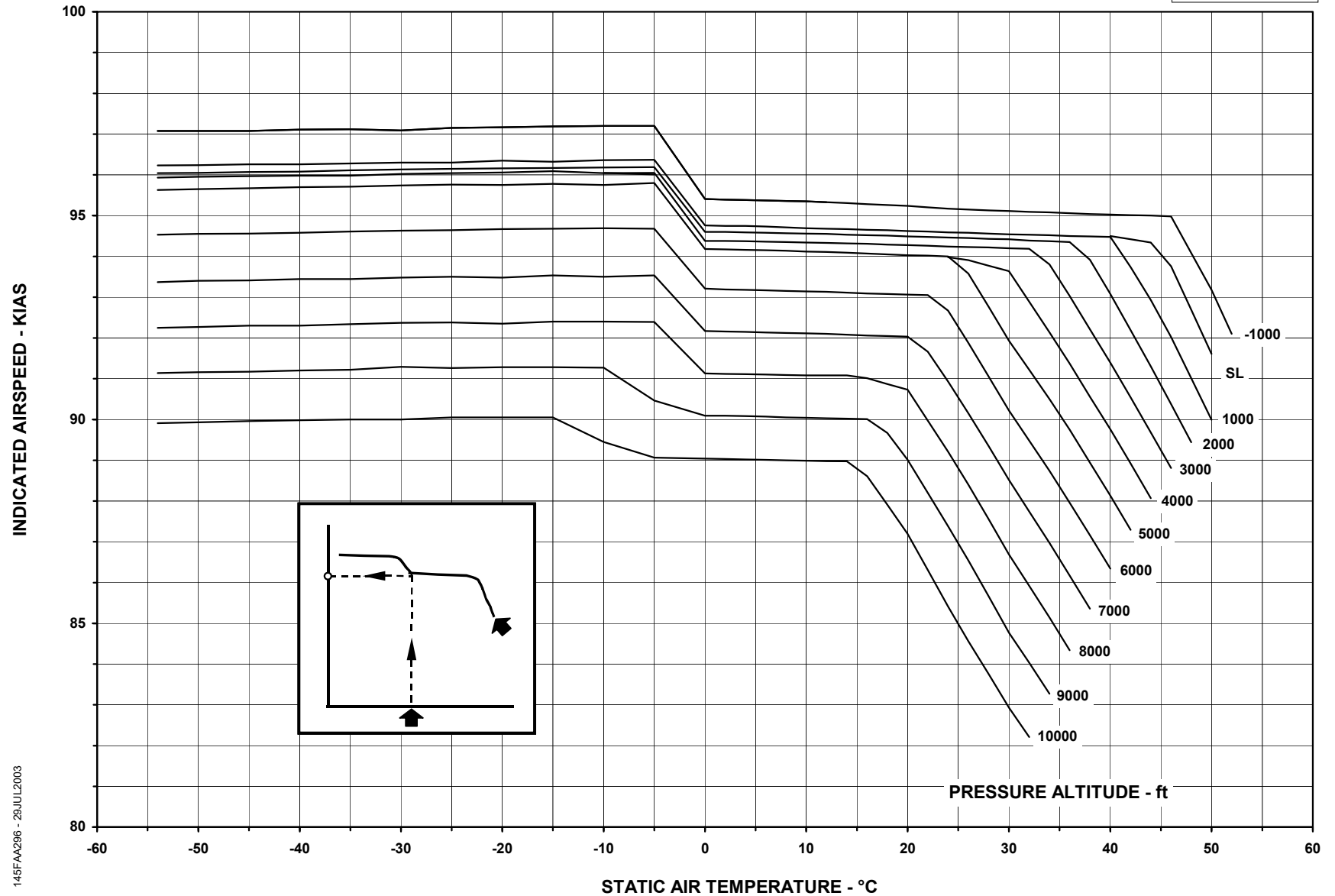


145FAA295 - 29JUL2003

AFM-145/1153 - FAA

GROUND MINIMUM CONTROL SPEED FLAPS 9°

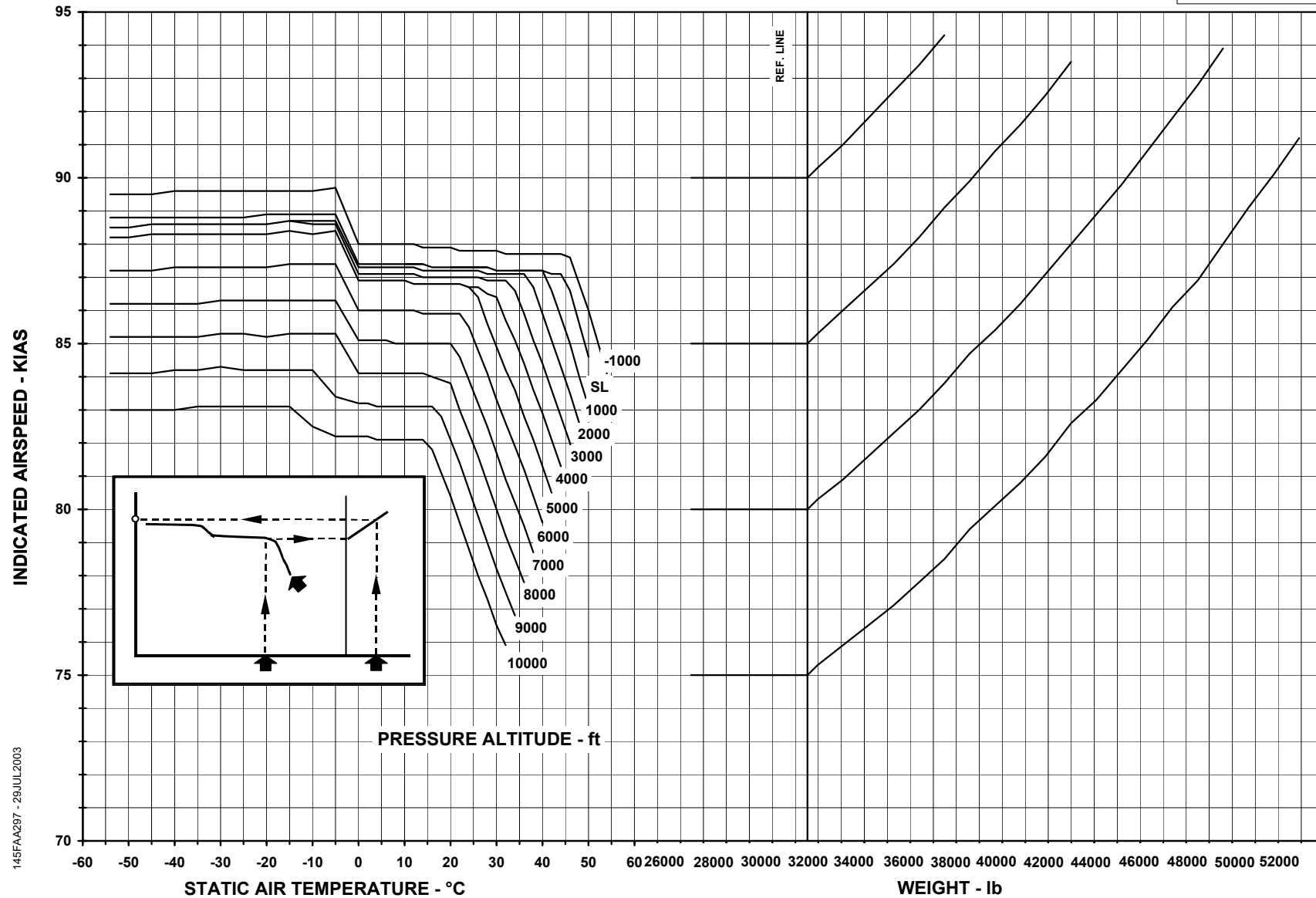
AE3007A1 ENGINES



145FAA296 - 29JUL2003

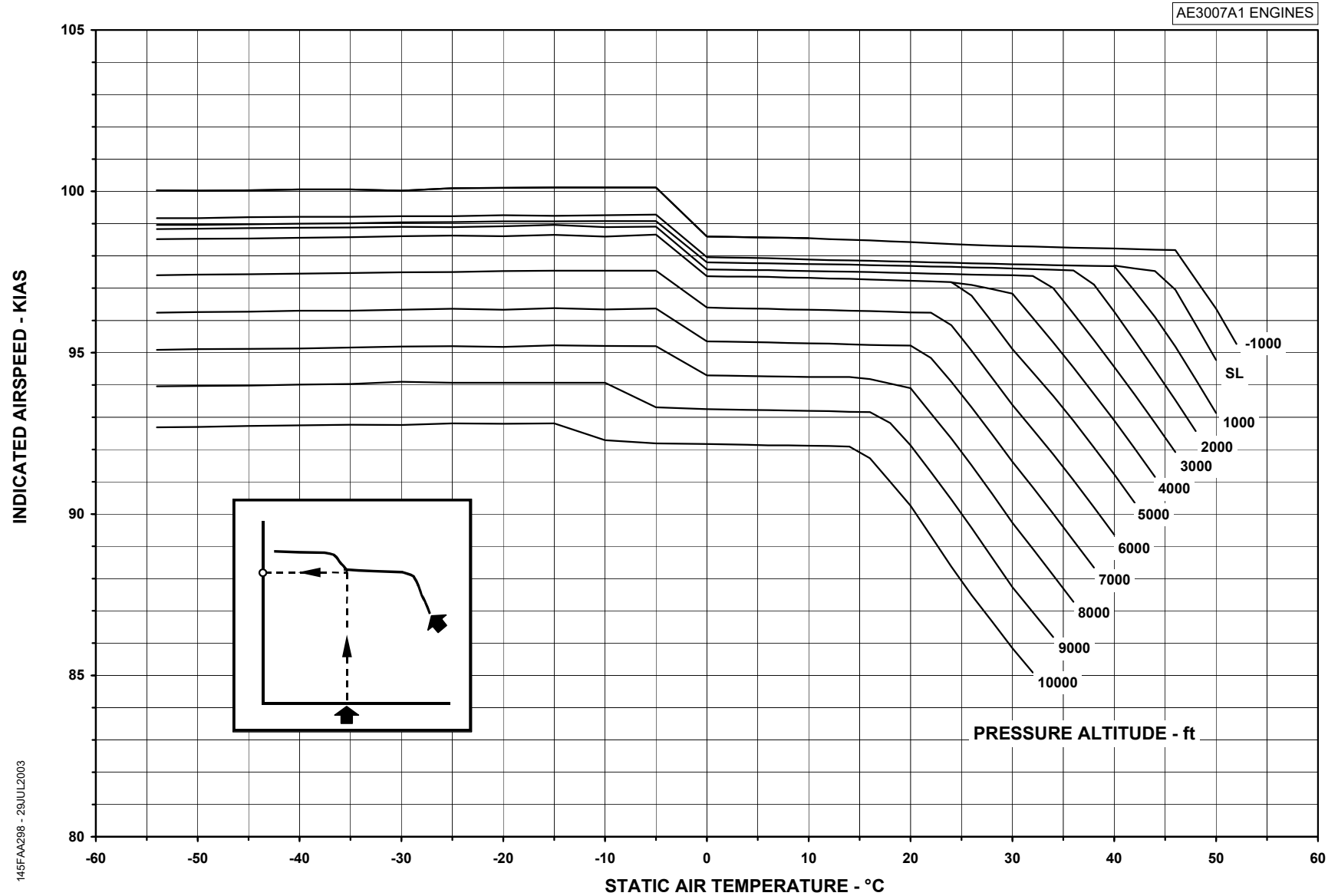
GROUND MINIMUM CONTROL SPEED FLAPS 22°

AE3007A1 ENGINES

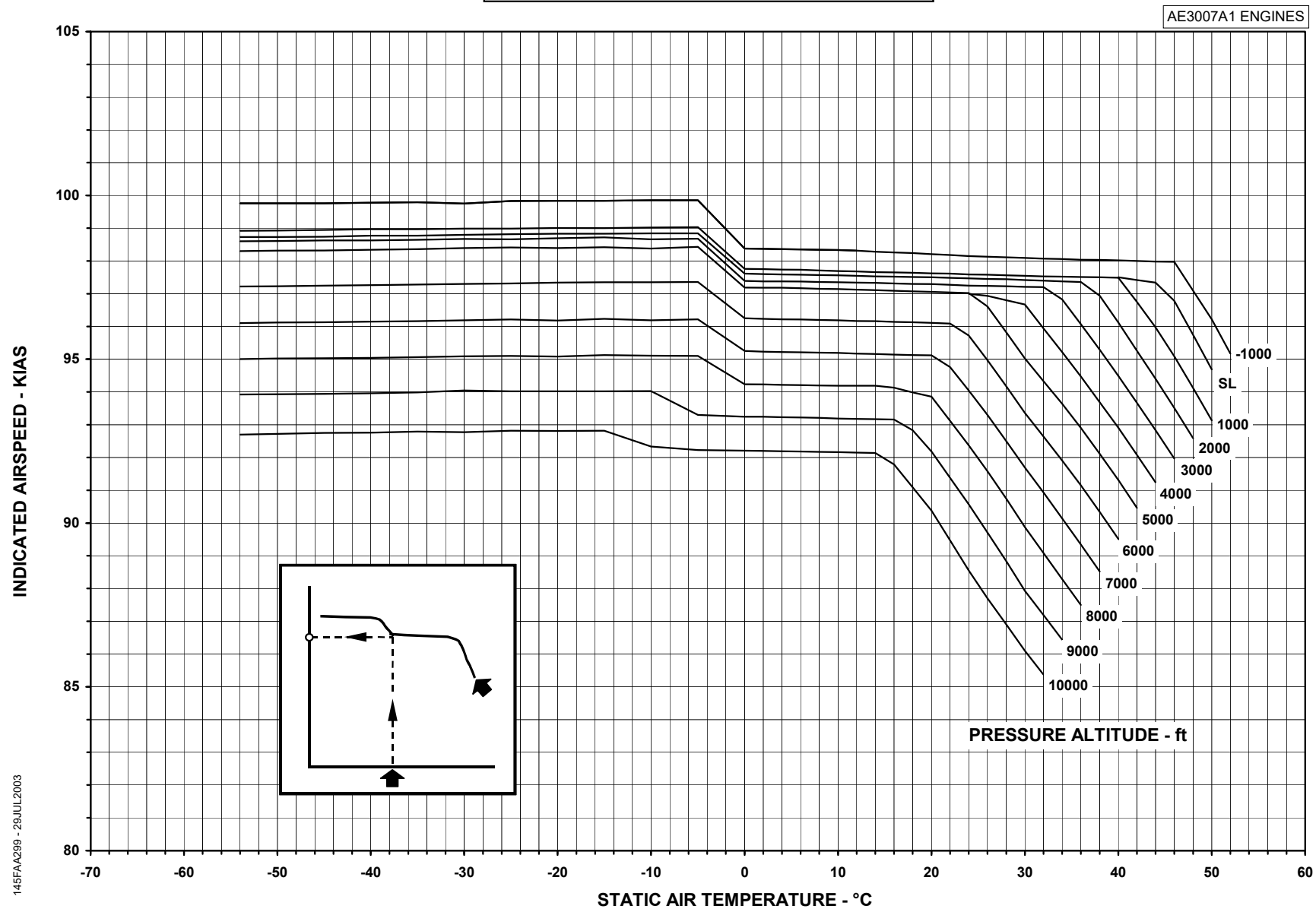


145FAA297 - 29JUL2003

AIR MINIMUM CONTROL SPEED FLAPS 9°

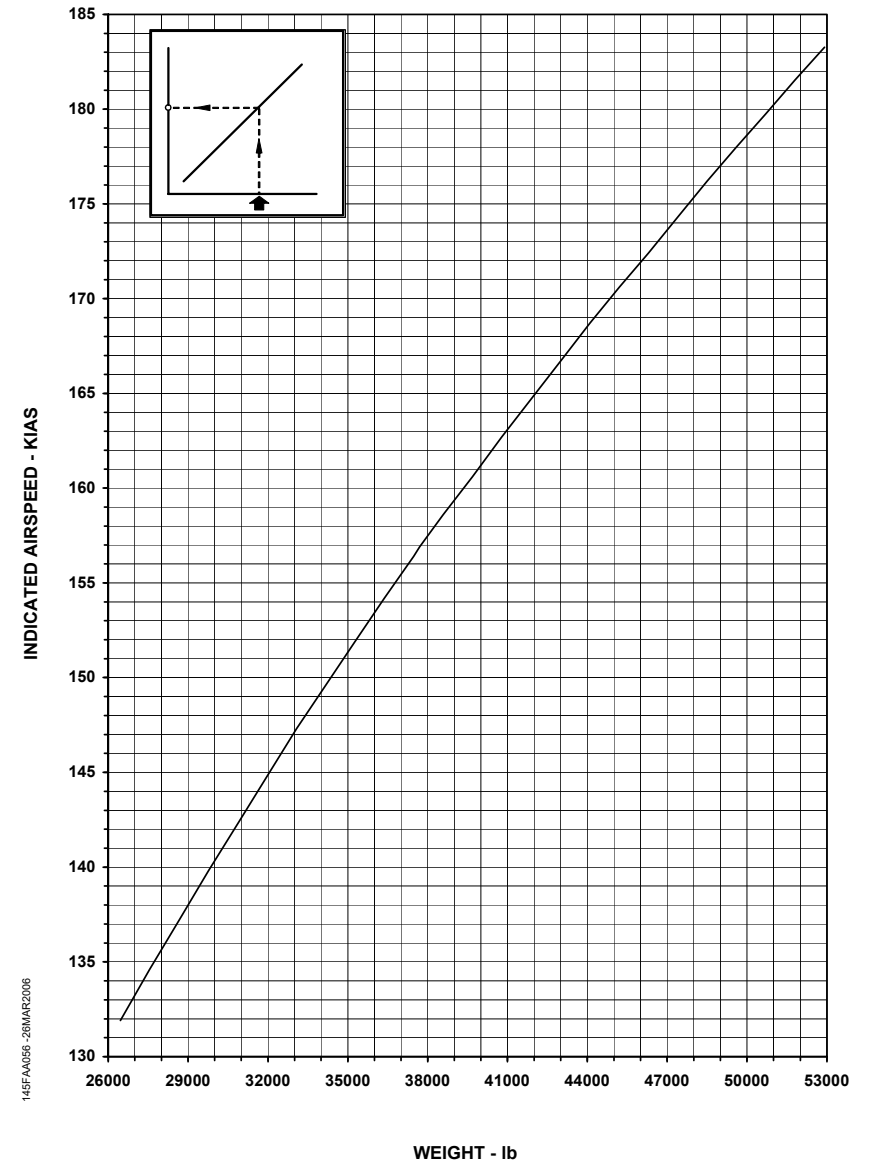


AIR MINIMUM CONTROL SPEED FLAPS 22°





FINAL SEGMENT SPEED
GEAR UP - FLAPS UP



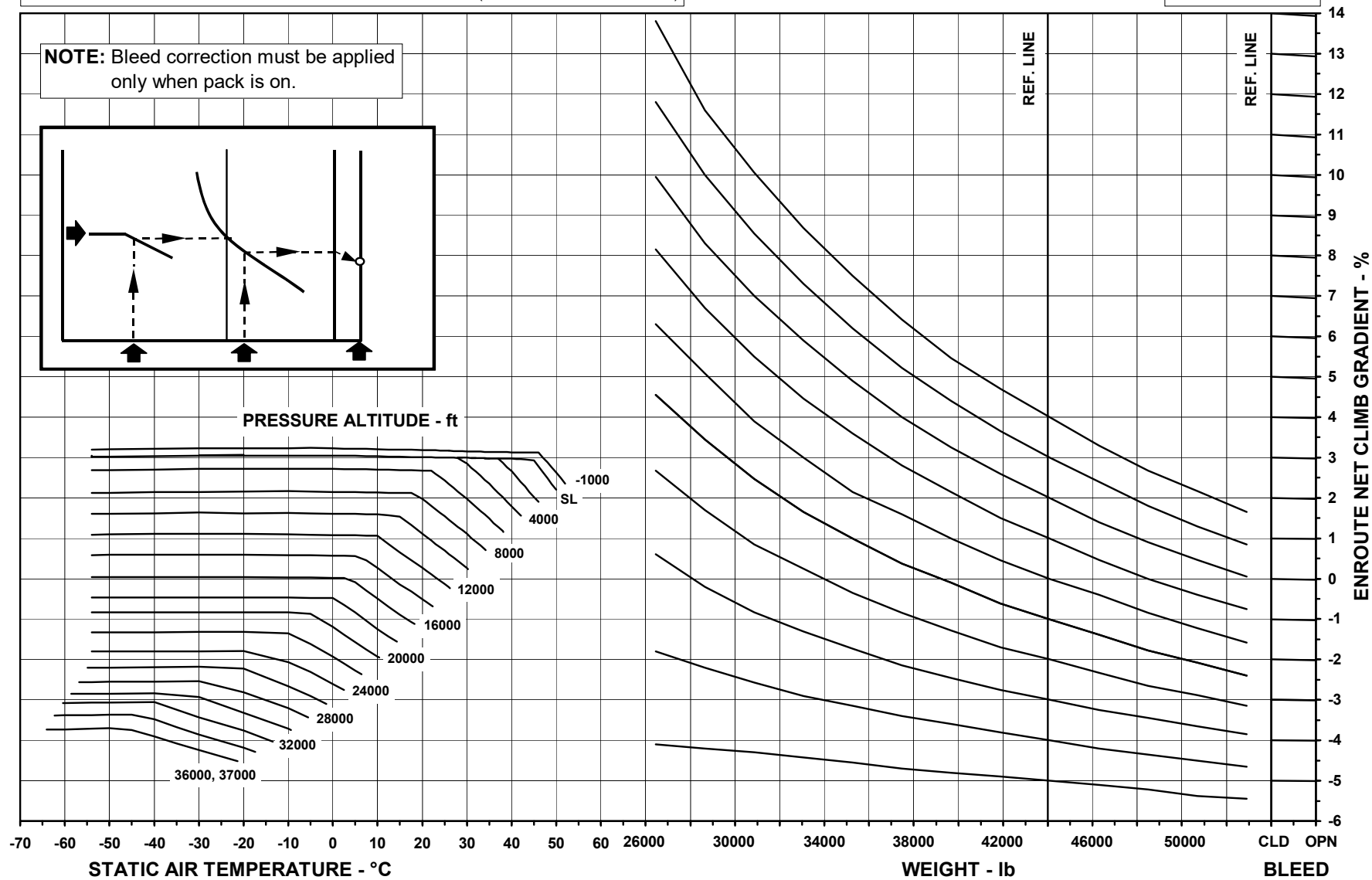
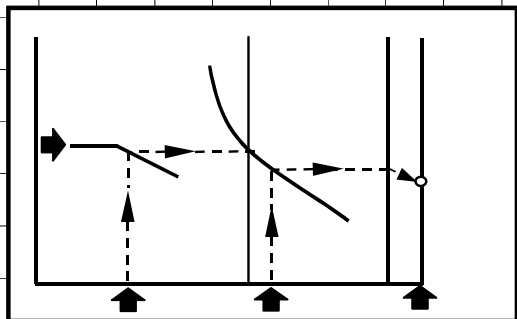
ENROUTE NET CLIMB GRADIENT

ONE ENGINE INOPERATIVE - FLAPS UP - ANTI-ICE OFF

AIRPLANE EQUIPPED WITH FADEC VERSION PRIOR TO B7.5 (PRE-MOD. SB 145-73-0019)

AE3007A1 ENGINES

NOTE: Bleed correction must be applied only when pack is on.



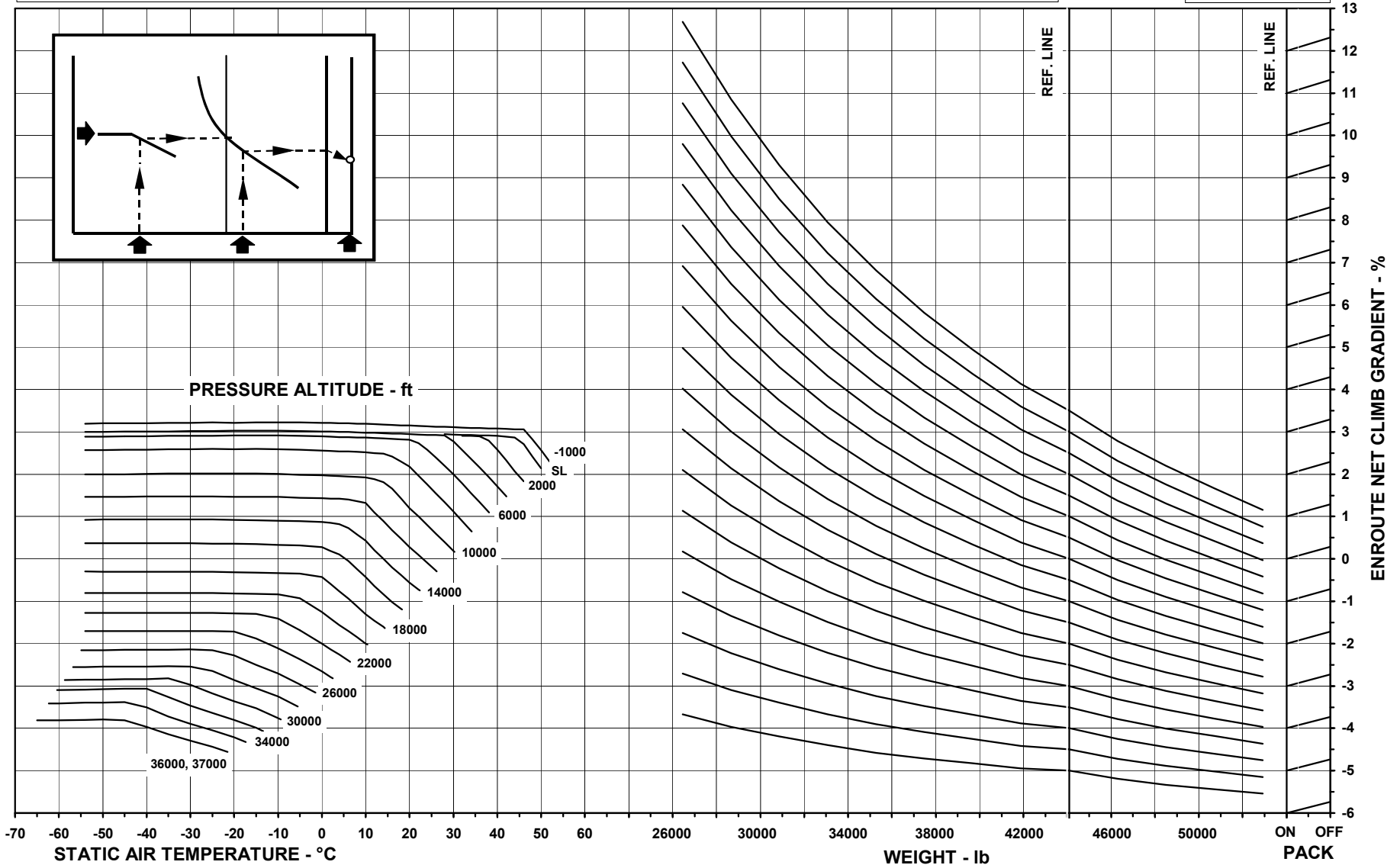
145FAA300 - 19MAR2004

ENROUTE NET CLIMB GRADIENT

ONE ENGINE INOPERATIVE - FLAPS UP - ANTI-ICE OFF

AIRPLANES EQUIPPED WITH FADEC B7.5 AND ON (POST-MOD. SB 145-73-0019 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED)

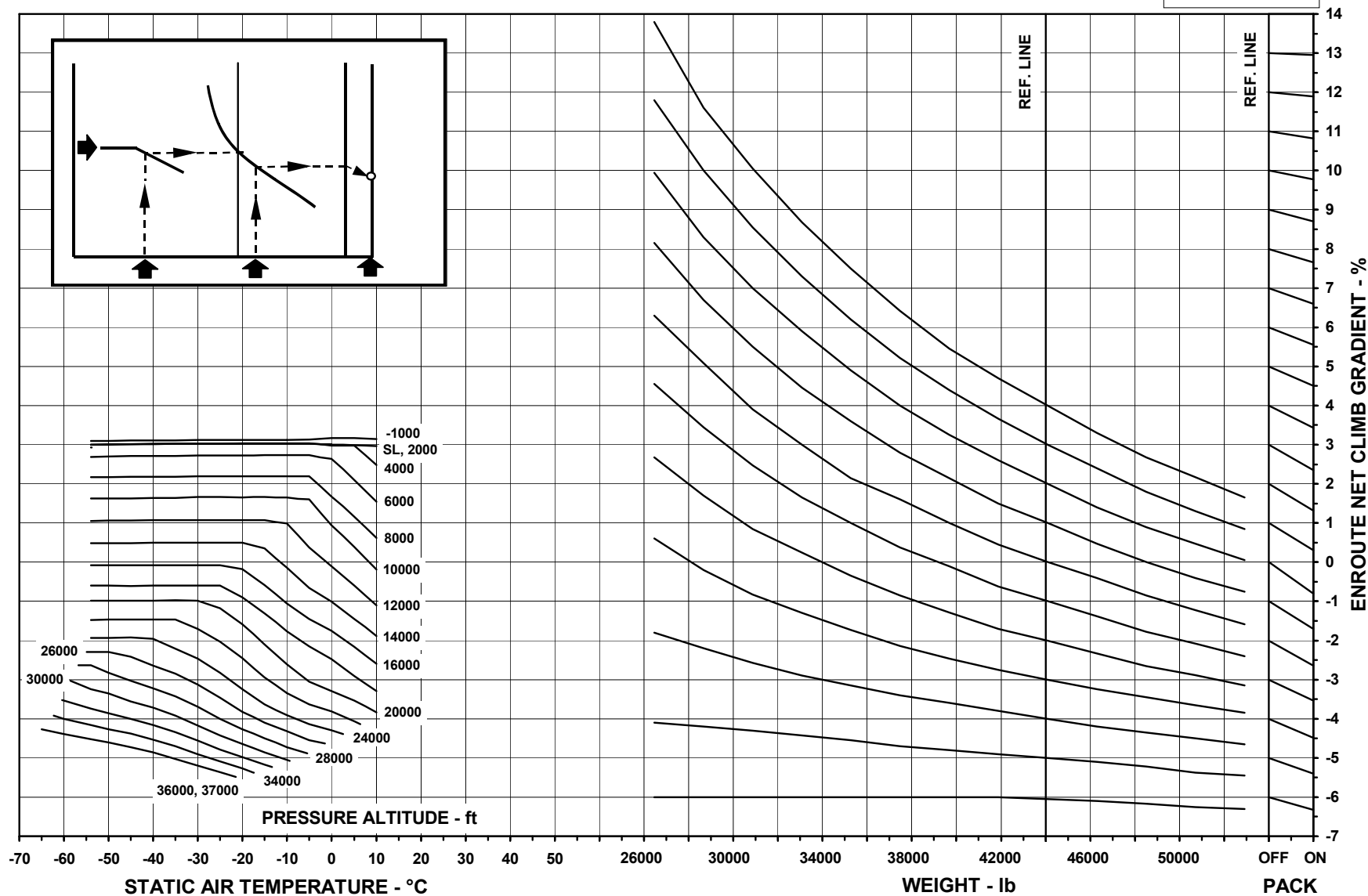
AE3007A1 ENGINES



ENROUTE NET CLIMB GRADIENT

ONE ENGINE INOPERATIVE - FLAPS UP - ANTI-ICE ON

AE3007A1 ENGINES



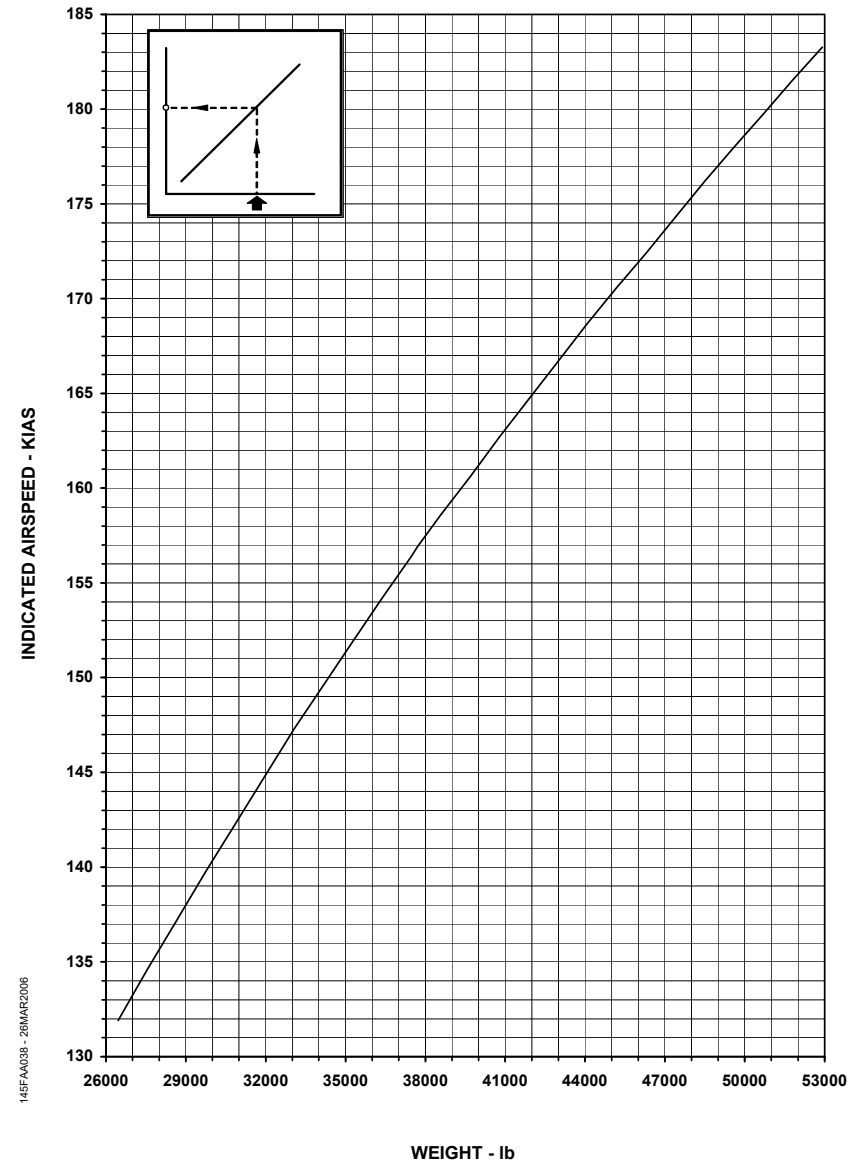
145FAA301-19MAR2004



**AIRPLANE
FLIGHT
MANUAL**

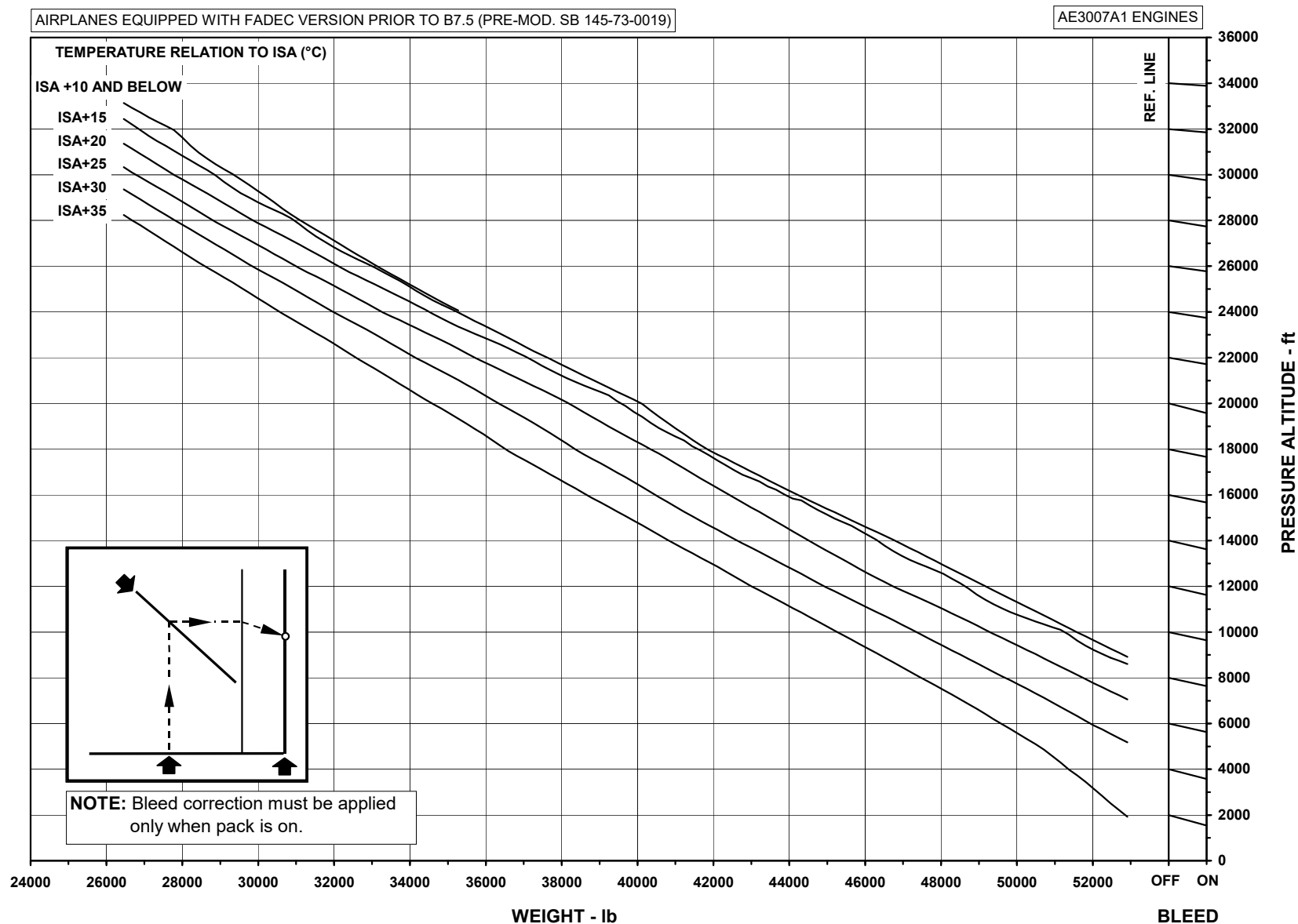
SUPPLEMENT 9
OPERATION WITH
AE3007A1 ENGINES

ENROUTE CLIMB SPEED
GEAR UP - FLAPS UP



ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF

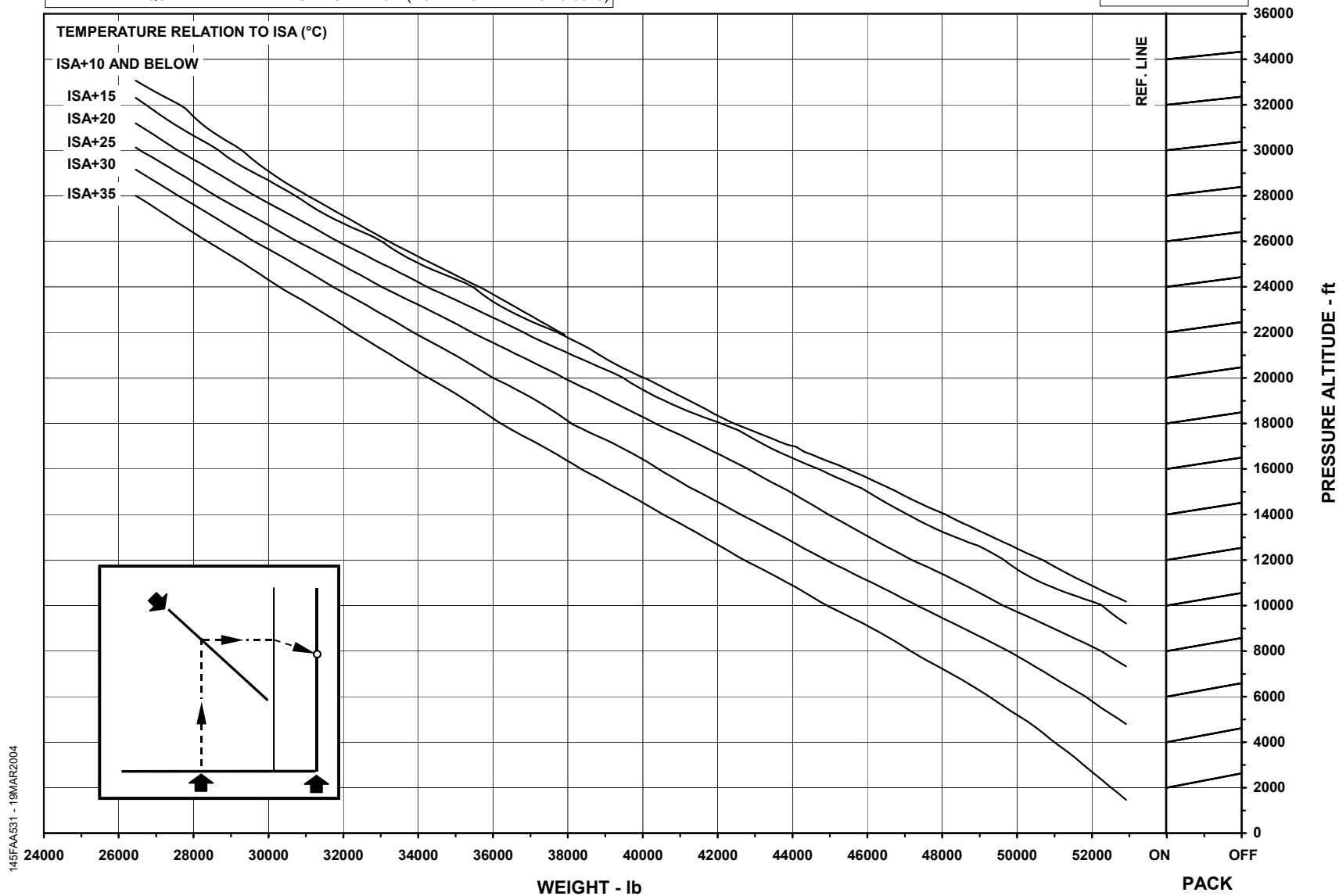


145FAA302 - 19MAR2004

ENROUTE CLIMB WEIGHT FOR POSITIVE NET GRADIENT **FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF**

AIRPLANES EQUIPPED WITH FADEC B7.5 AND ON (POST-MOD. SB 145-73-0019)

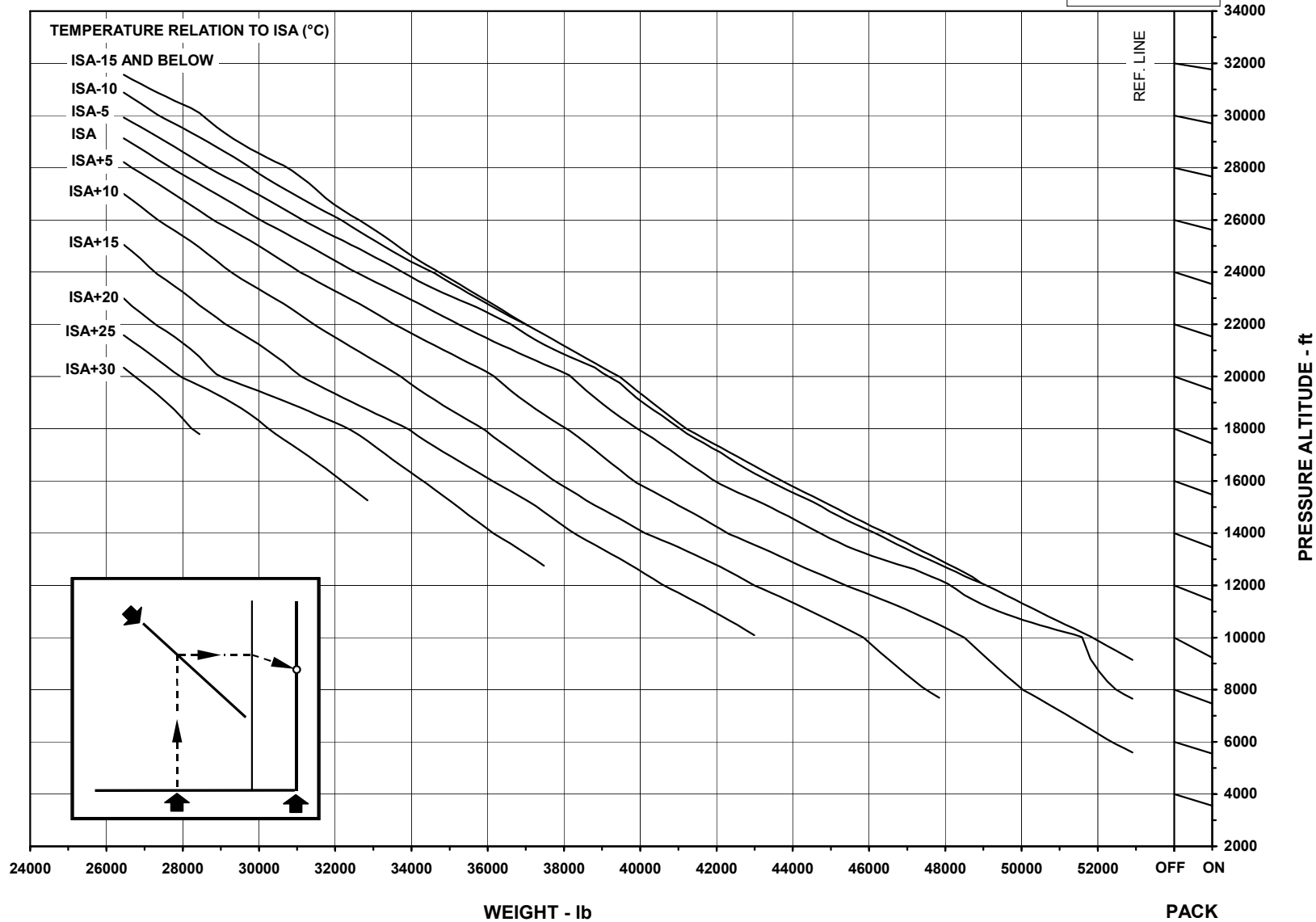
AE3007A1 ENGINES



ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE ON

AE3007A1 ENGINES



145FAA303 - 19MAR2004

APPROACH CLIMB GRADIENT CHARTS AND LANDING CLIMB GRADIENT CHARTS

USE

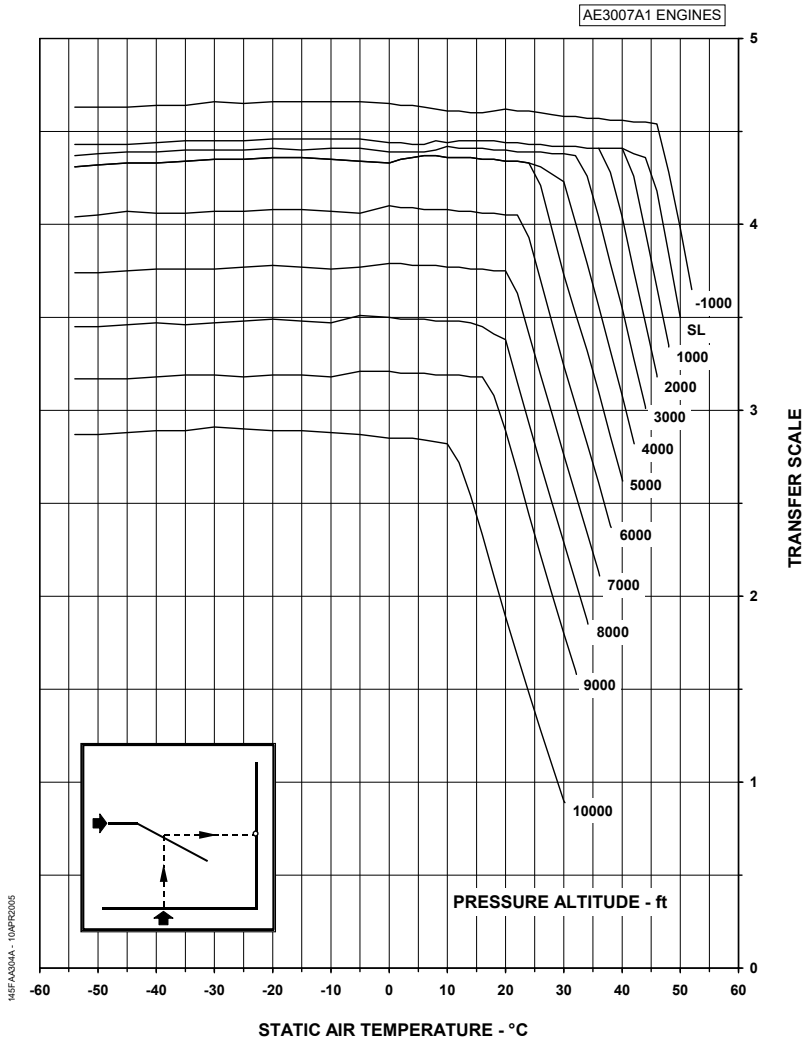
Choose the appropriate chart considering the anti-ice and flaps options.

For each gradient, enter the first chart with the Static Air Temperature and Airport Pressure Altitude to read the transfer scale. Enter the second chart with the value obtained from the first one, go to the reference line and follow the guide lines to the airplane weight, to read the desired gradient.

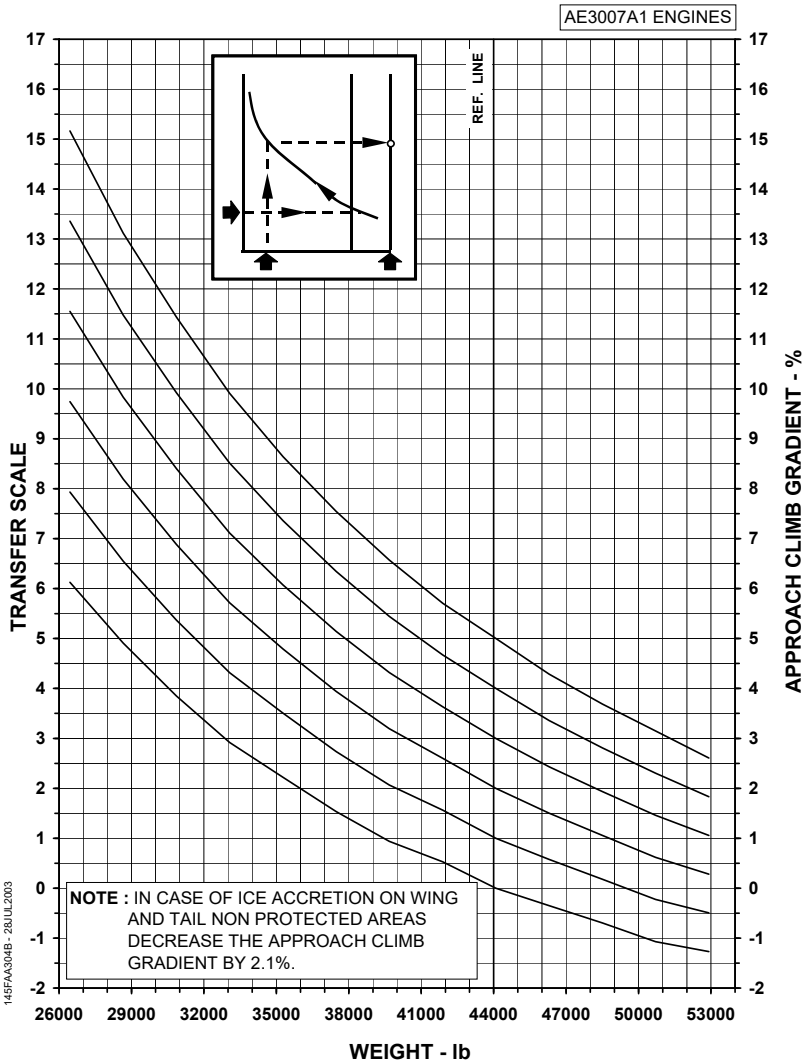
NOTE: Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Gradient by 1%.

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APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 1 OF 2

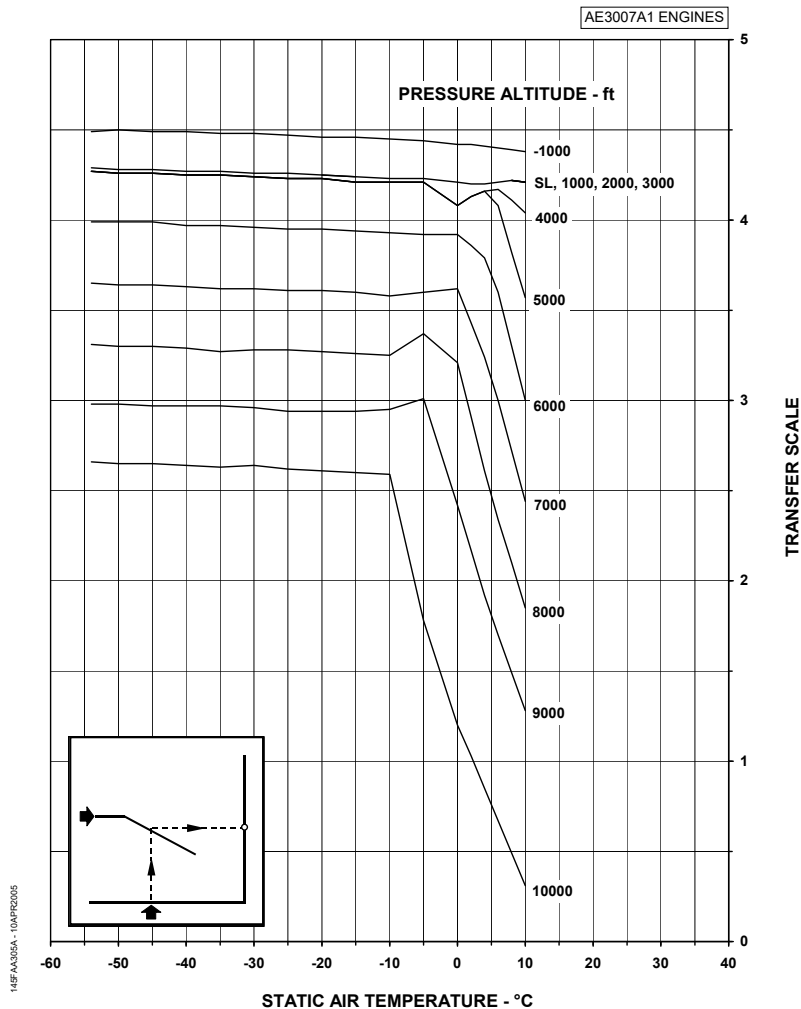


APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 2 OF 2



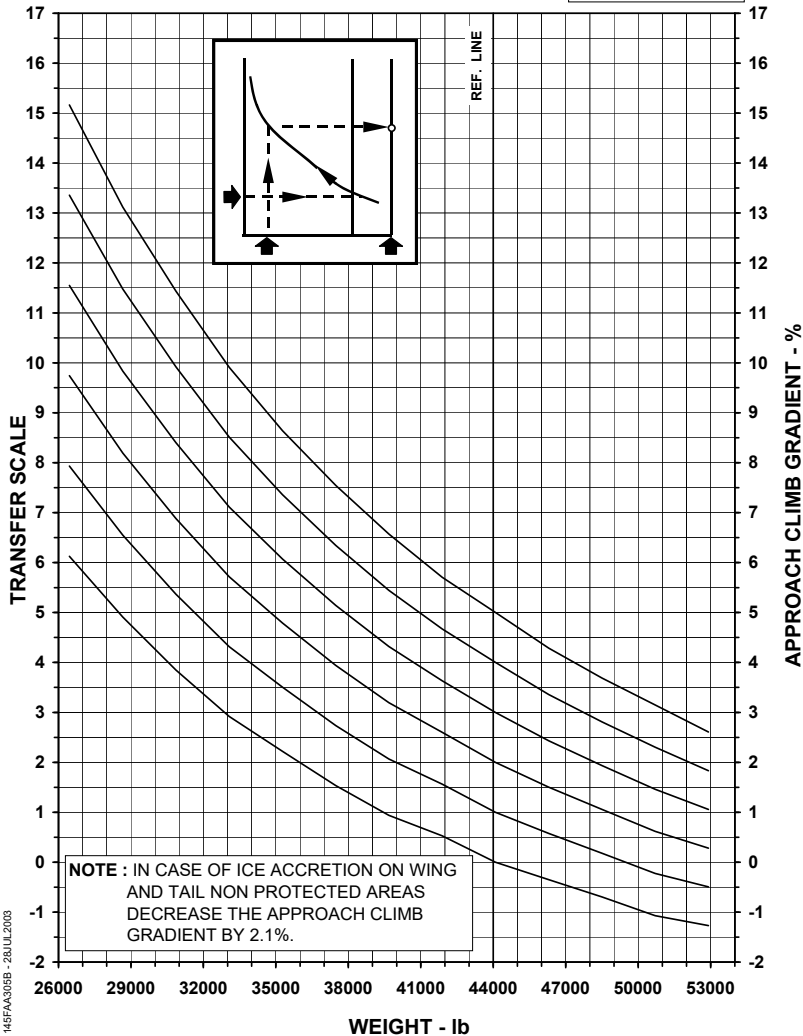
145FAA304B - 28JUL2003

APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 1 OF 2



APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 2 OF 2

AE3007A1 ENGINES

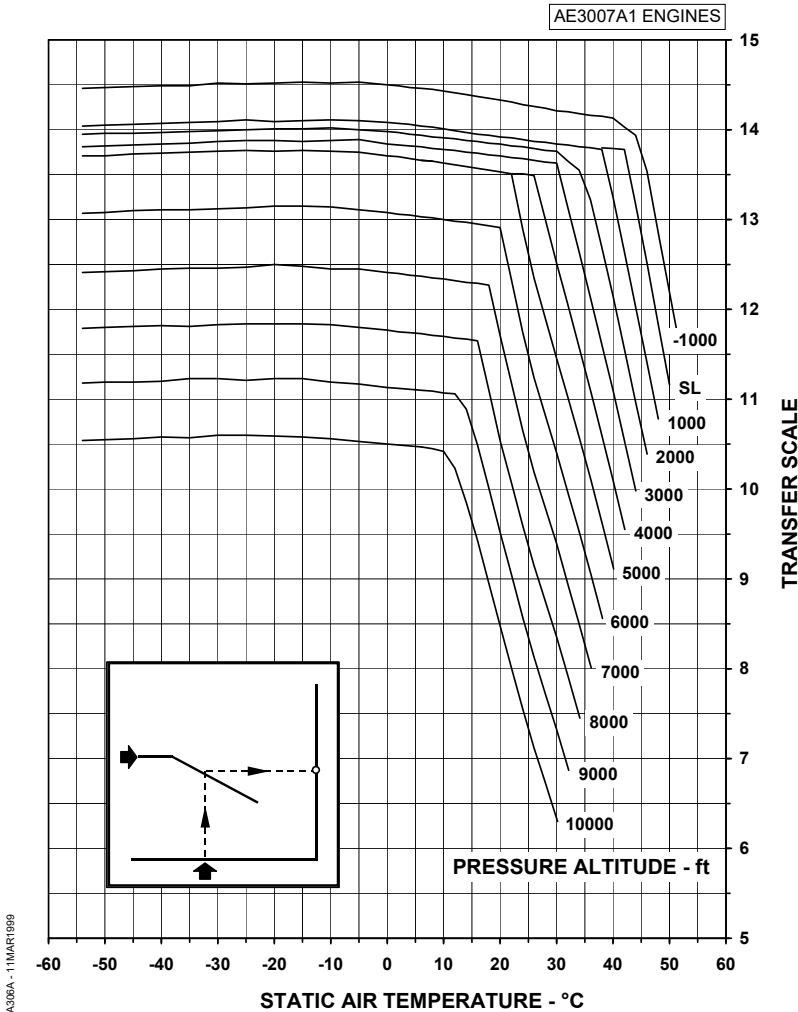


145FAA3058 - 28JUL2003

LANDING CLIMB GRADIENT

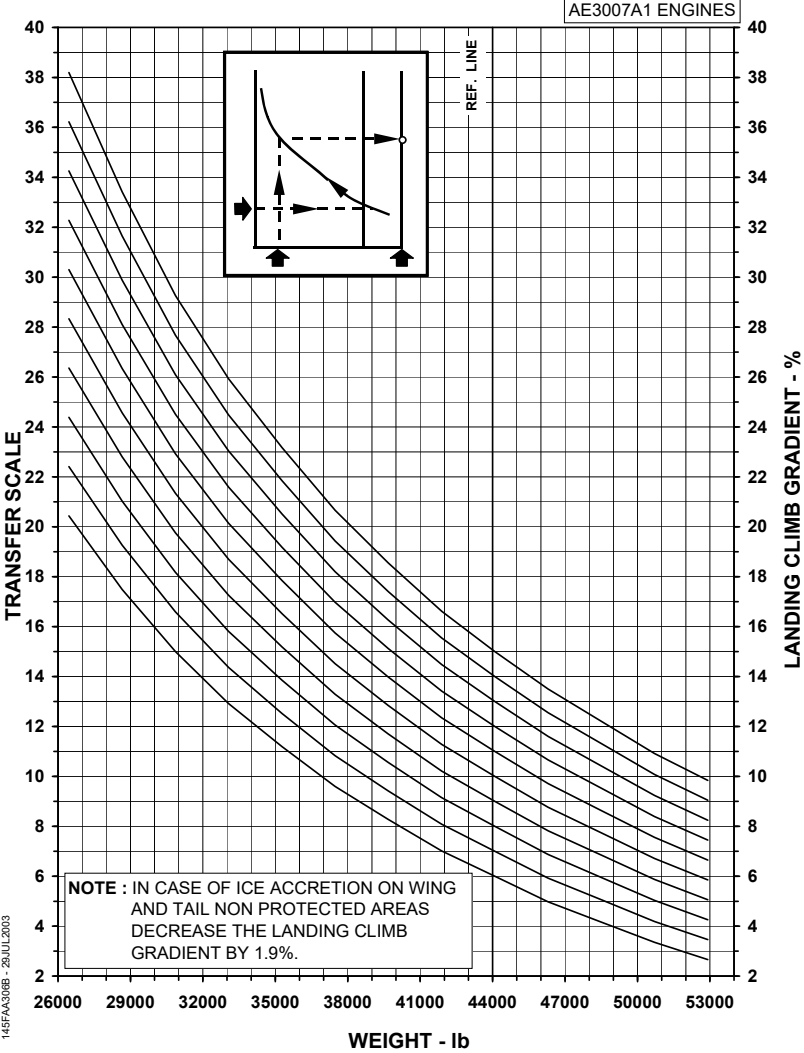
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF

CHART 1 OF 2

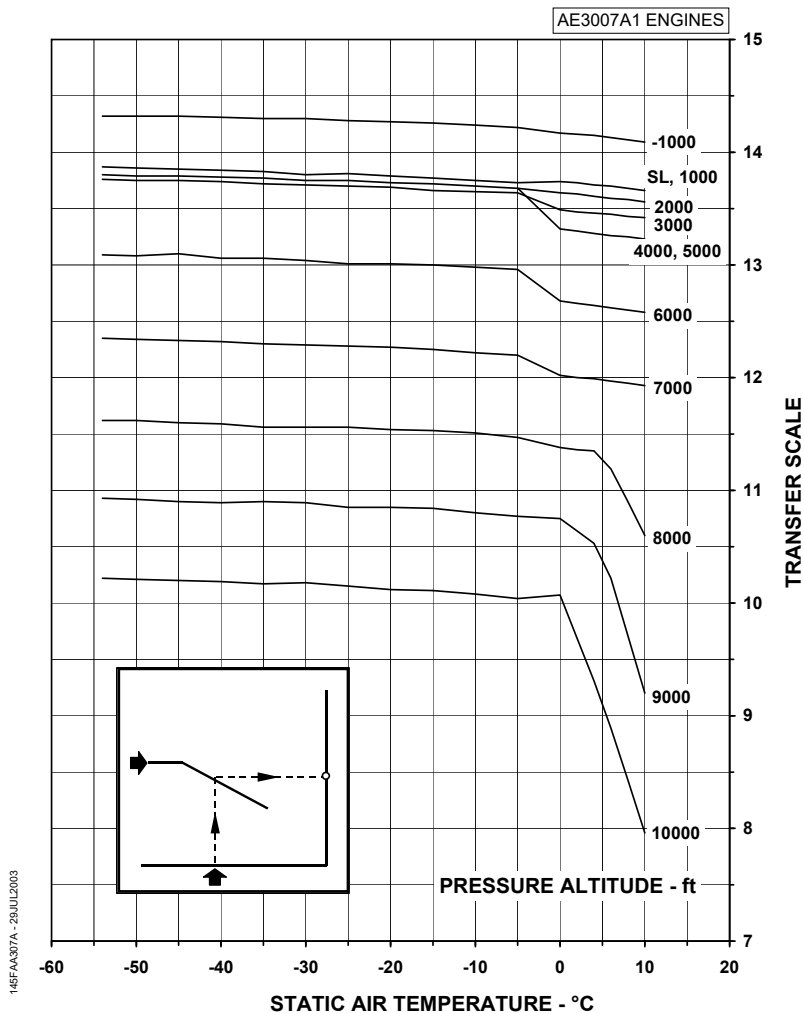


45FAA308A-11MAR1999

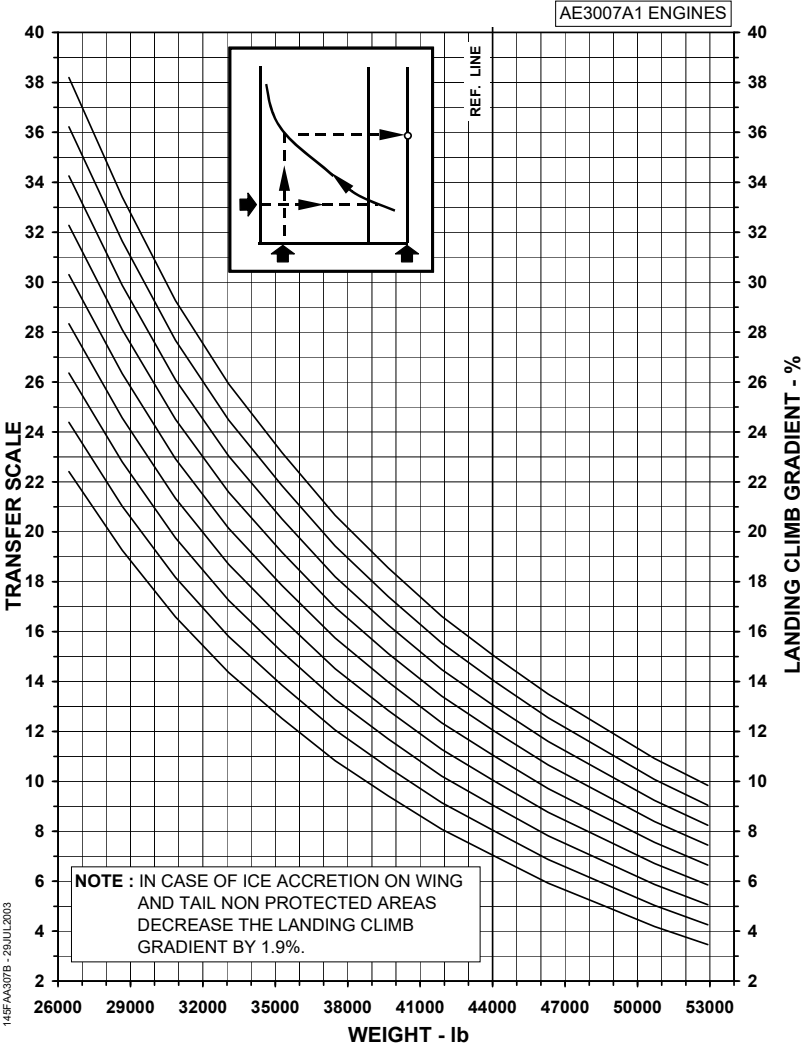
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 2 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 1 OF 2

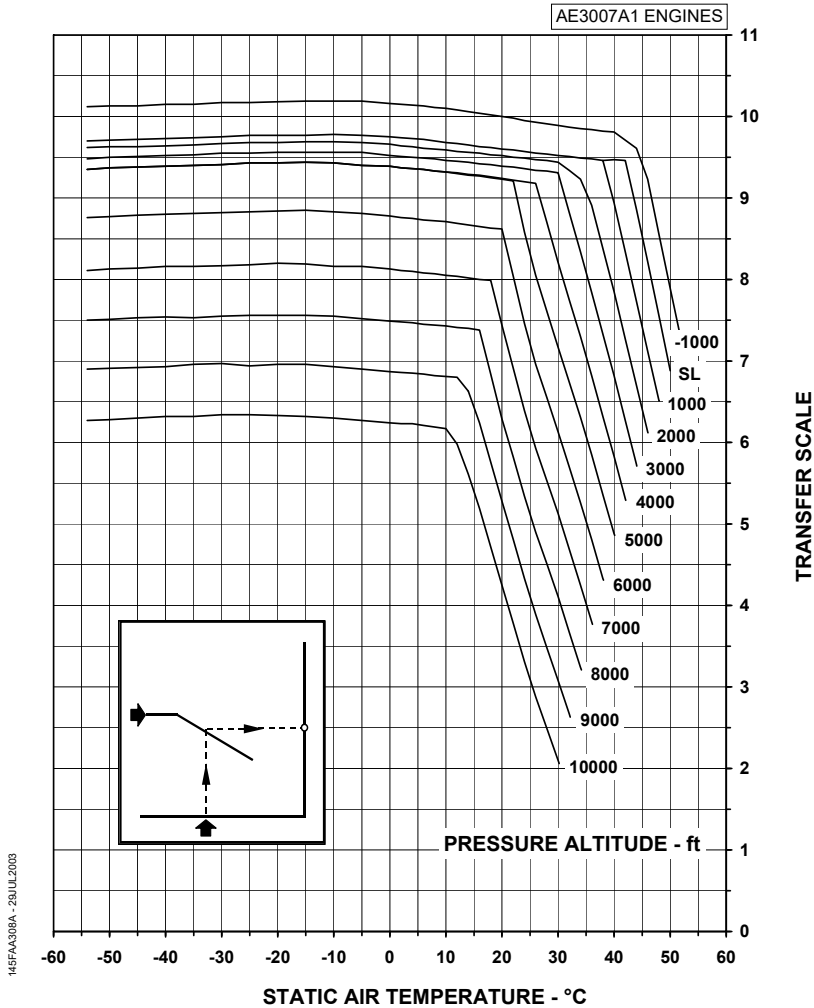


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 2 OF 2

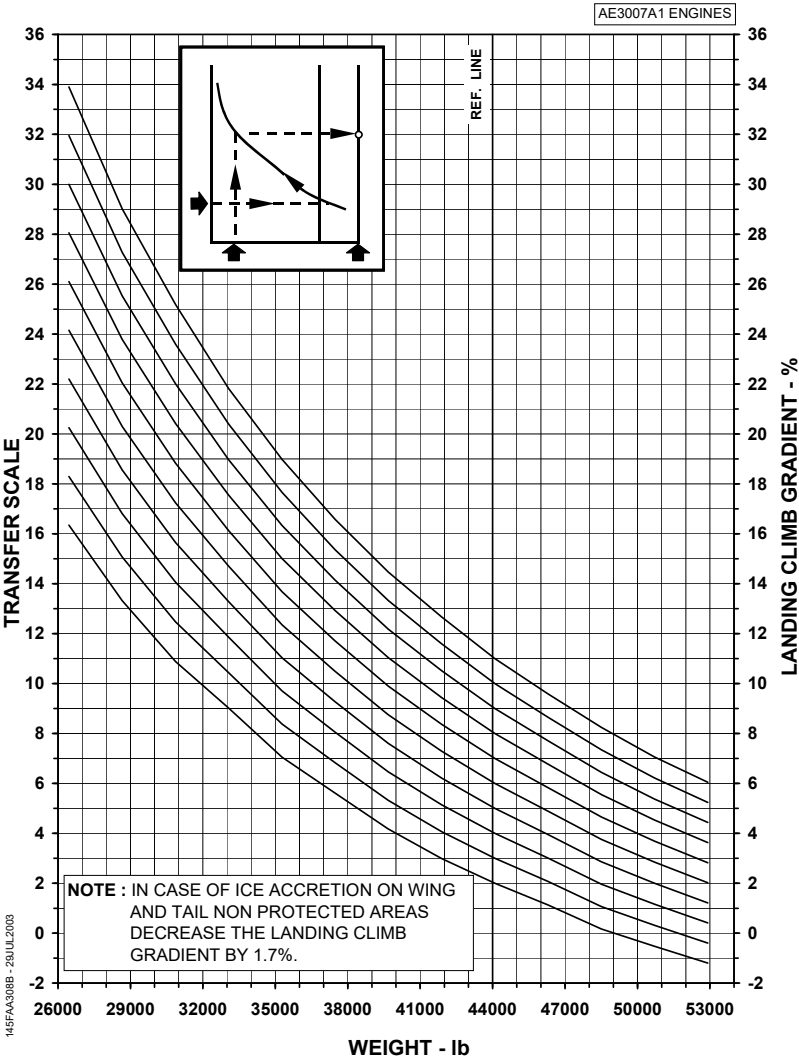


145FAA307B - 29JUL2003

LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 1 OF 2



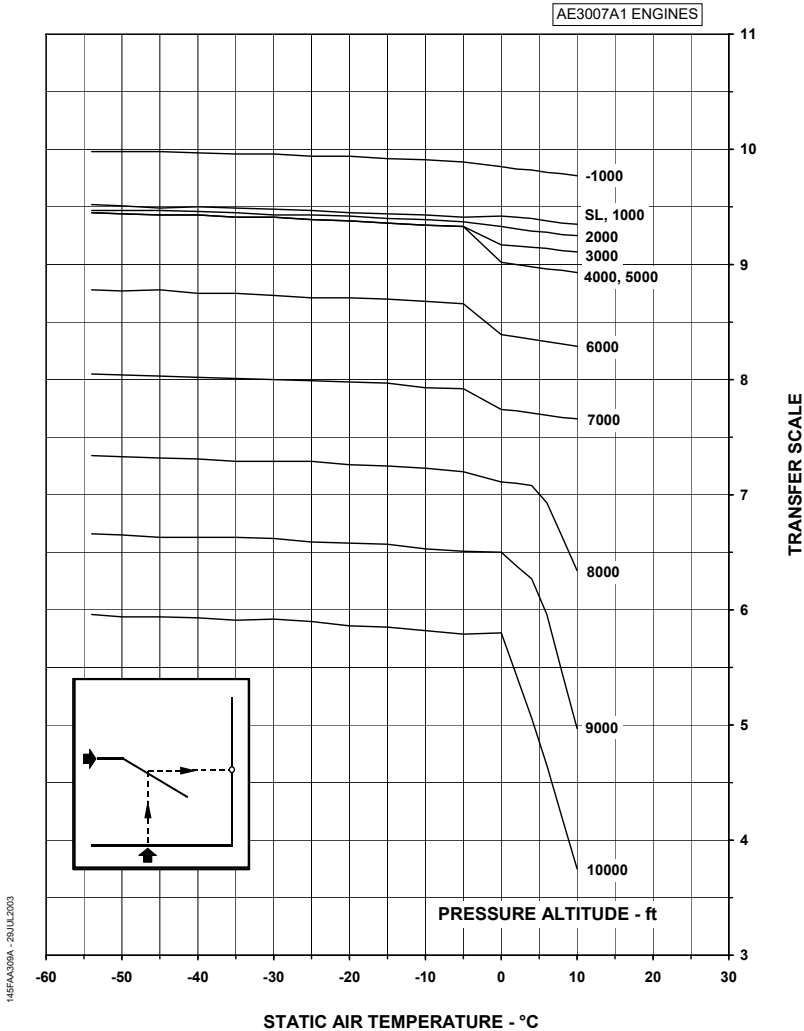
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 2 OF 2



LANDING CLIMB GRADIENT

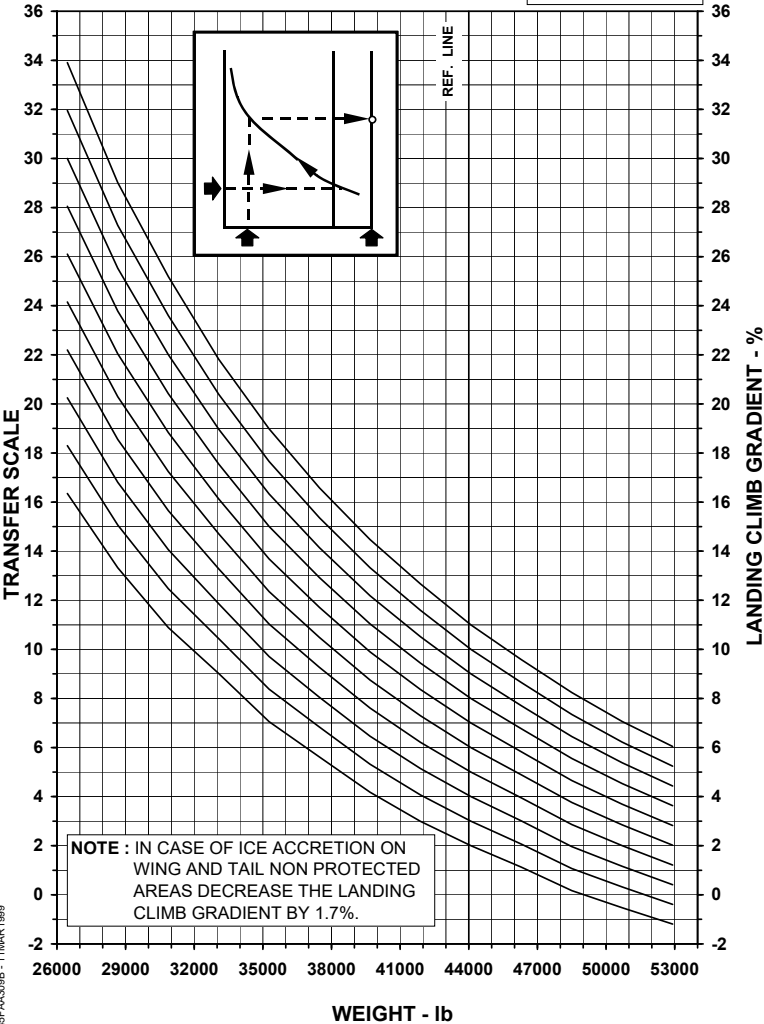
ALL ENGINES - FLAPS 45° - ANTI-ICE ON

CHART 1 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 2 OF 2

AE3007A1 ENGINES



145FAA309B - 11MAR1999

MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED CHARTS AND LANDING CLIMB LIMITED CHARTS

USE

Choose the appropriate chart considering the flaps and anti-ice options.

Enter the chart with the Static Air Temperature and go to the Airport Pressure Altitude. Read the desired climb limited weight.

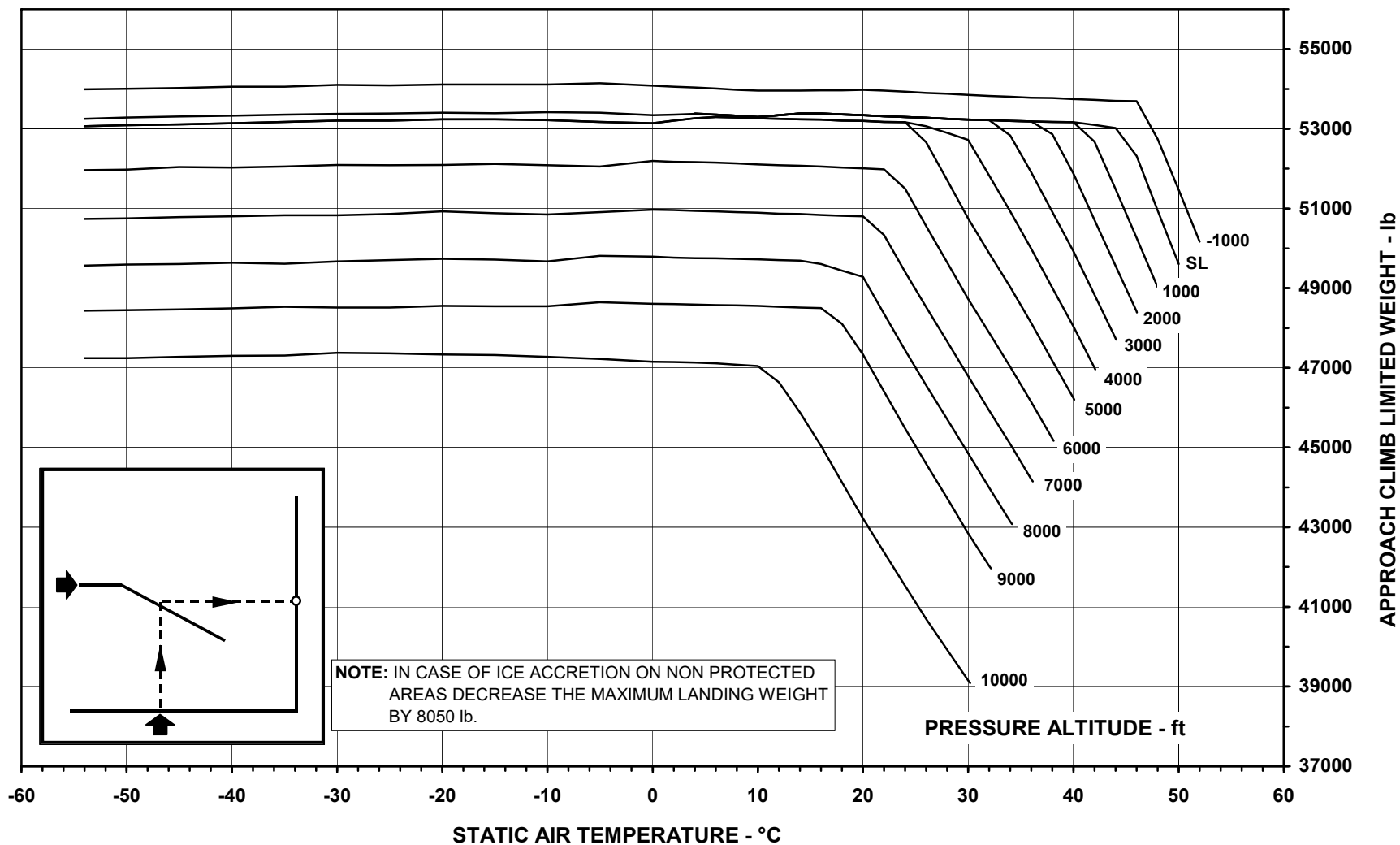
NOTE: Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Limited Weight by 1920 lb.



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MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED APPROACH FLAPS 9° - ANTI-ICE OFF

AE3007A1 ENGINES



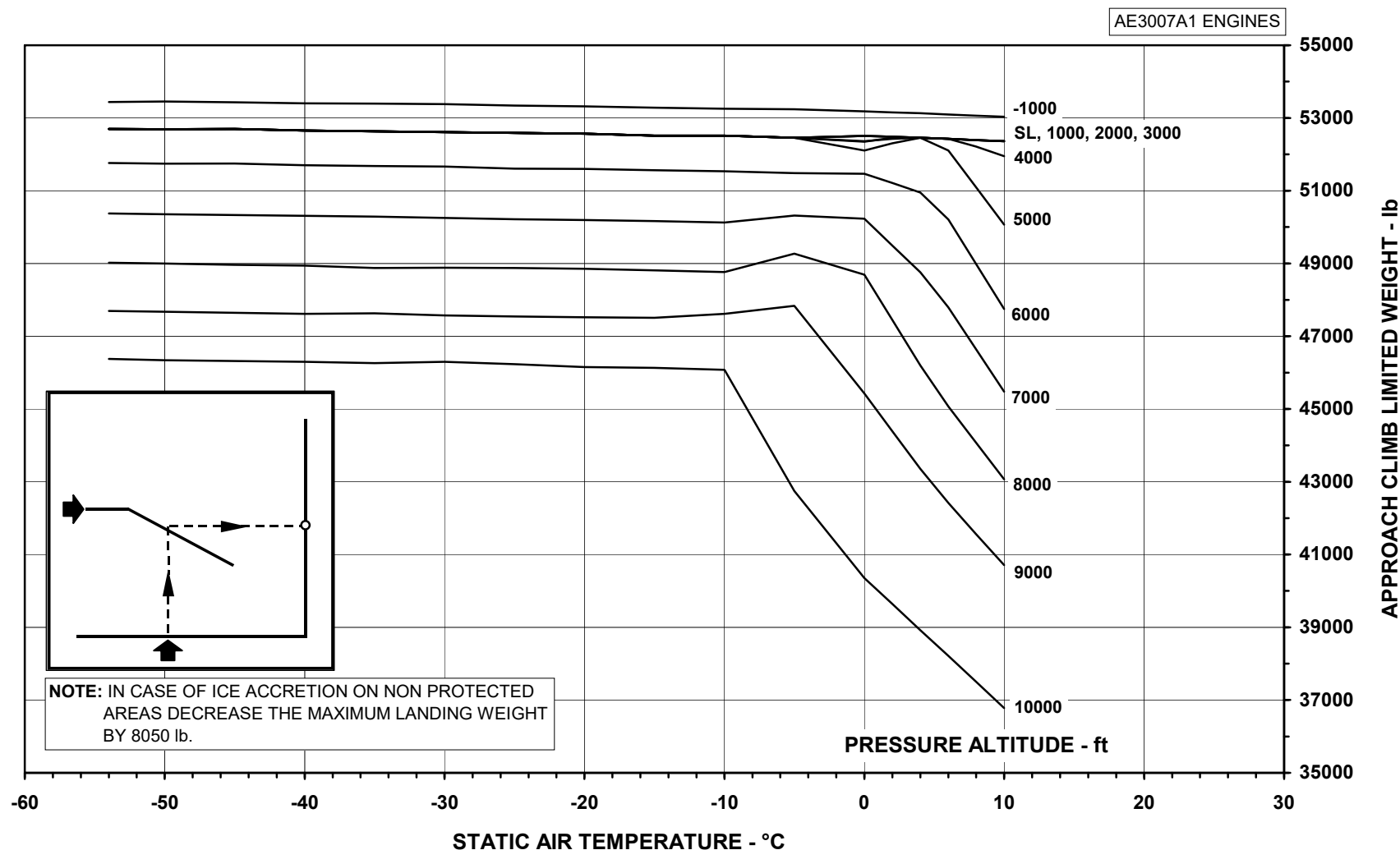
145FAA310 - 10APR2005

AFM-145/1153 - FAA

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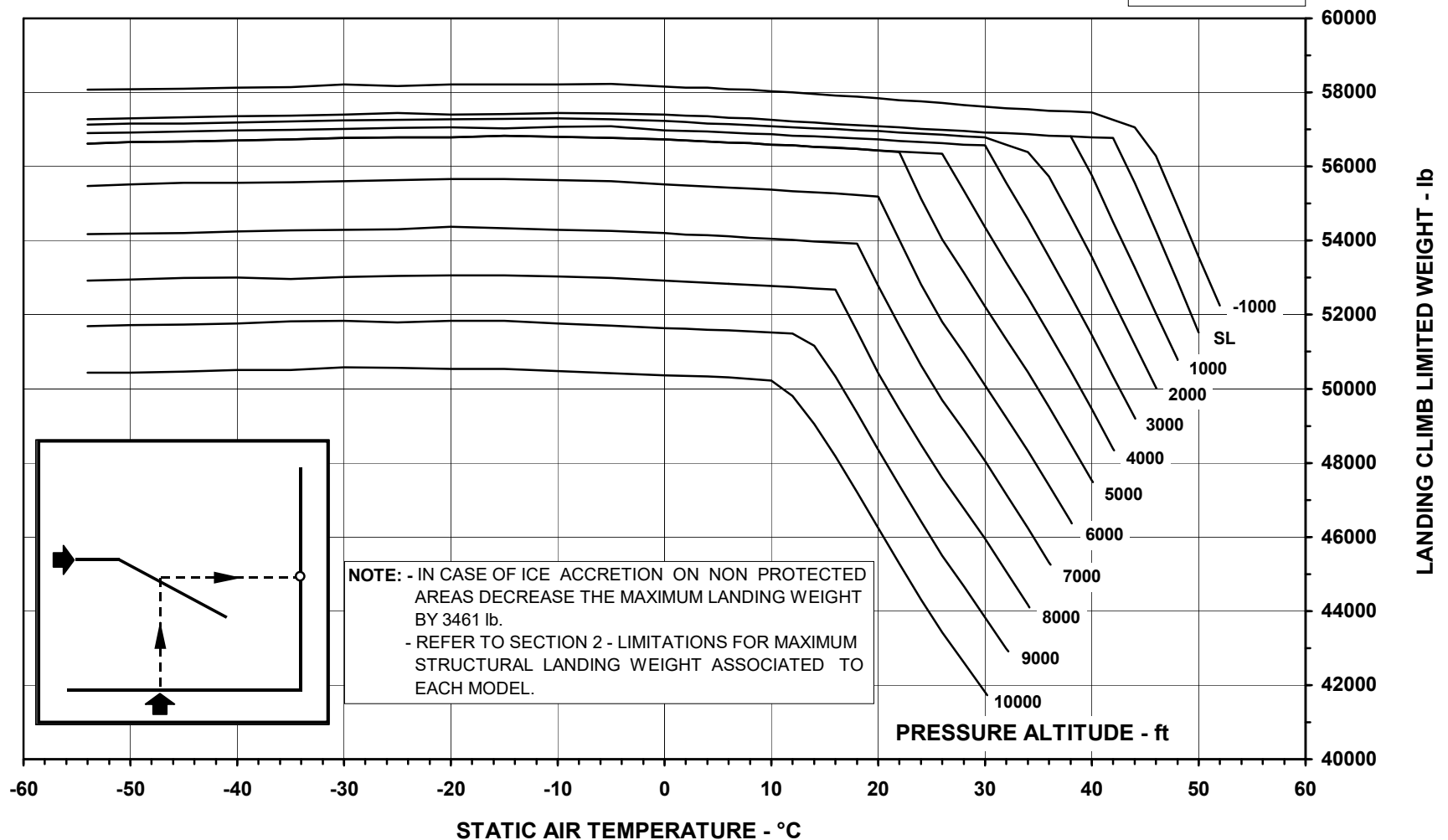
MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED

APPROACH FLAPS 9° - ANTI-ICE ON



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE OFF**

AE3007A1 ENGINES

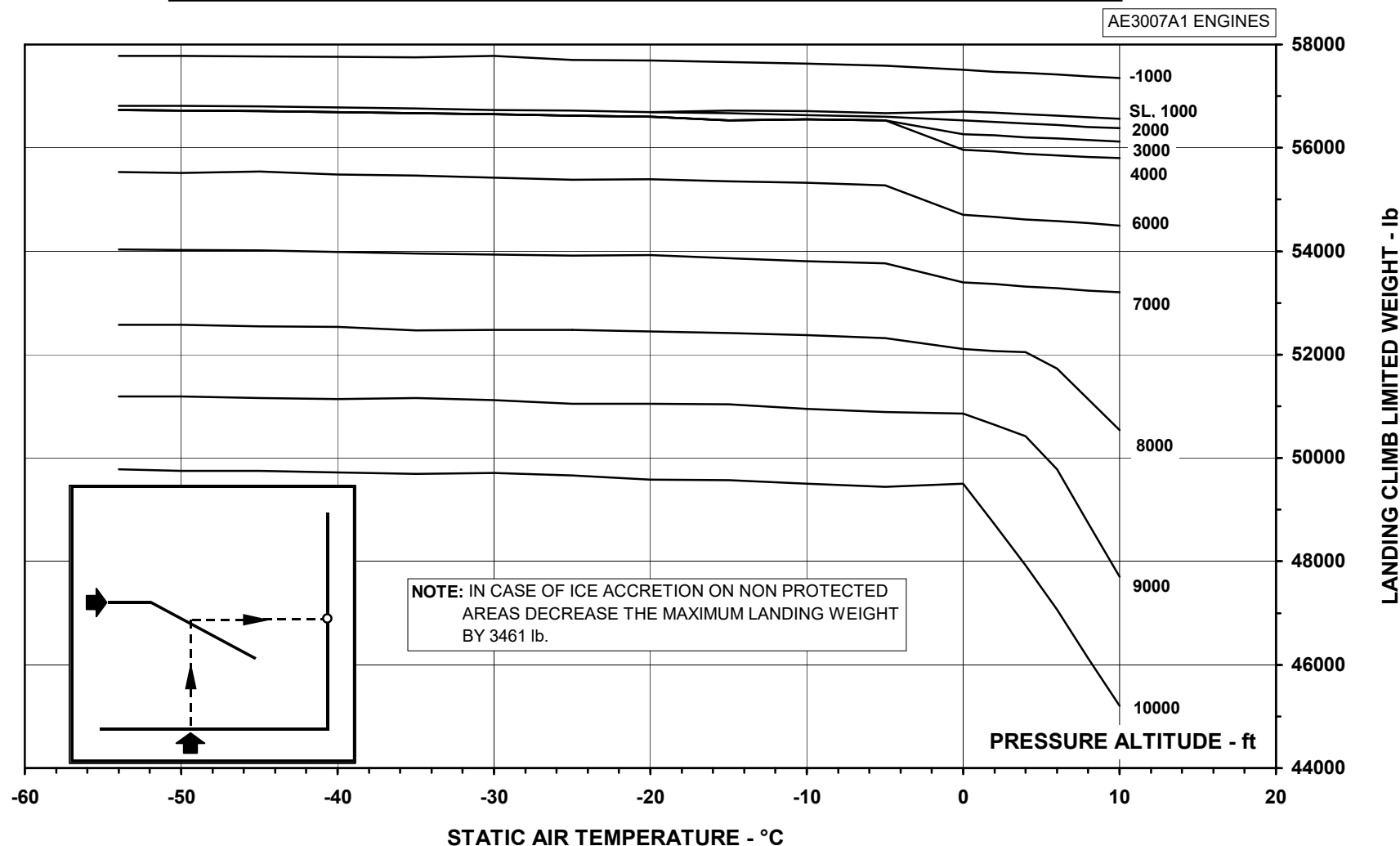


145FAA312 - 29JUL2003

AFM-145/1153 - FAA

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MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE ON**



UNRELIABLE AIRSPEED TABLES

The unreliable airspeed tables must be used when the indications of airspeed are not reliable and are called by the abnormal procedure Unreliable Airspeed from section 3, which also must be accomplished. For each certified engine type, charts are presented according to the following associated conditions:

Anti-Ice.....ON or OFF

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: OFF

CLB THRUST MODE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	13	12	11	10	10	9
	V/S (ft/min)	4800	4000	3400	2900	2500	2200
10000 (240 KIAS)	Pitch (deg)	10	9	8	8	8	7
	V/S (ft/min)	3800	3100	2700	2200	1900	1600
20000 (0.56 M)	Pitch (deg)	7	6	6	5	5	5
	V/S (ft/min)	3500	2800	2300	1800	1500	1200
30000 (0.56 M)	Pitch (deg)	7	7	7	8	7	7
	V/S (ft/min)	2700	2000	1600	1200	900	600
37000 (0.56 M)	Pitch (deg)	7	7	8	8	8	-
	V/S (ft/min)	1800	1300	900	400	100	-

CRUISE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
15000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	68.7	69.9	71.1	72.4	73.8	75.3
20000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	72.0	73.3	74.8	76.4	78.0	79.6
25000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	76.1	77.6	79.3	80.7	81.9	83.1
30000 (0.63 M)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	78.5	80.0	81.2	82.5	84.0	85.5
37000 (0.63 M)	Pitch (deg)	2	2	2	3	3	4
	N1 (%)	79.8	81.7	83.8	86.4	89.8	92.8

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UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: OFF

FLIGHT IDLE DESCENT

PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	-3	-2	-2	-1	-1	0
	V/S (ft/min)	-1800	-1700	-1600	-1500	-1500	-1500
10000 (240 KIAS)	Pitch (deg)	-3	-2	-1	-1	0	0
	V/S (ft/min)	-2000	-1900	-1800	-1800	-1700	-1700
20000 (240 KIAS)	Pitch (deg)	-2	-2	-1	-1	0	0
	V/S (ft/min)	-2200	-2100	-2000	-1900	-1900	-1900
30000 (240 KIAS)	Pitch (deg)	-2	-2	-1	0	0	1
	V/S (ft/min)	-2500	-2400	-2200	-2100	-2100	-2000
37000 (240 KIAS)	Pitch (deg)	-1	-1	0	0	1	1
	V/S (ft/min)	-2400	-2200	-2100	-2100	-2000	-2000

HOLDING

PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
5000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	54.0	55.9	57.8	59.9	62.2	64.4
10000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	57.5	59.5	61.8	63.9	66.2	68.4

Terminal Area (5000 ft) - %N1 for Level Flight

Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (V _{REF45} + 30)	Pitch (deg)	7	7	7	8
	N1 (%)	48.9	52.5	55.7	58.8
9 (V _{REF45} + 15)	Pitch (deg)	7	7	7	8
	N1 (%)	51.6	55.3	58.6	61.7

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: OFF

Final Approach (1500 ft) - %N1 for 3° Glideslope					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
22 (V _{REF22} + 10)	Pitch (deg)	3	3	3	3
	N1 (%)	47.7	51.1	53.9	56.6
45 (V _{REF45} + 10)	Pitch (deg)	-1	0	0	0
	N1 (%)	58.6	62.4	65.7	68.6

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: ON

CLB THRUST MODE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	13	11	10	10	9	9
	V/S (ft/min)	4700	3900	3400	2900	2500	2200
10000 (240 KIAS)	Pitch (deg)	8	8	7	7	7	6
	V/S (ft/min)	3500	2800	2400	1900	1600	1400
20000 (0.56 M)	Pitch (deg)	6	5	5	5	5	5
	V/S (ft/min)	3000	2300	1900	1500	1200	900
30000 (0.56 M)	Pitch (deg)	6	6	6	6	6	6
	V/S (ft/min)	2000	1400	1100	700	400	200
37000 (0.56 M)	Pitch (deg)	6	6	7	7	-	-
	V/S (ft/min)	1200	700	400	0	-	-

CRUISE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
15000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	68.7	69.9	71.1	72.4	73.8	75.3
20000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	72.0	73.4	74.8	76.4	78.0	79.6
25000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	76.1	77.6	79.3	80.7	81.9	83.1
30000 (0.63 M)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	78.5	79.9	81.2	82.5	84.0	85.5
37000 (0.63 M)	Pitch (deg)	2	2	2	3	3	4
	N1 (%)	79.8	81.7	83.8	86.4	89.8	92.8

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: ON

FLIGHT IDLE DESCENT							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	-1	0	0	0	1	1
	V/S (ft/min)	-900	-900	-900	-900	-900	-1000
10000 (240 KIAS)	Pitch (deg)	-1	0	0	0	1	1
	V/S (ft/min)	-1200	-1200	-1200	-1200	-1200	-1200
20000 (240 KIAS)	Pitch (deg)	-1	0	0	0	1	1
	V/S (ft/min)	-1300	-1300	-1300	-1300	-1300	-1400
30000 (240 KIAS)	Pitch (deg)	0	0	0	1	1	2
	V/S (ft/min)	-1400	-1400	-1400	-1400	-1400	-1400
37000 (240 KIAS)	Pitch (deg)	0	0	0	1	1	2
	V/S (ft/min)	-1700	-1600	-1600	-1500	-1500	-1500

HOLDING							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
5000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	54.0	55.9	57.8	59.9	62.2	65.7
10000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	57.5	59.5	61.8	65.7	66.2	69.7

Terminal Area (5000 ft) - %N1 for Level Flight					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (V _{REF45} + 30)	Pitch (deg)	7	7	7	8
	N1 (%)	48.9	52.5	55.7	61.3
9 (V _{REF45} + 15)	Pitch (deg)	7	7	7	8
	N1 (%)	52.3	55.3	58.6	64.3



UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: ON

Final Approach (1500 ft) - %N1 for 3° Glideslope					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
22 (V _{REF22} + 10)	Pitch (deg)	3	3	3	3
	N1 (%)	48.9	52.5	55.7	61.3
45 (V _{REF45} + 10)	Pitch (deg)	-1	0	0	0
	N1 (%)	58.6	62.4	65.7	70.9

SUPPLEMENT 10

LIST OF EFFECTIVE PAGES

ORIGINAL.....	0.....	Not Applicable
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REVISION.....	29.....	JUL 16, 1999
REVISION.....	30 to 33	Not Applicable
REVISION.....	34.....	DEC 27, 1999
REVISION.....	35 to 41	Not Applicable
REVISION.....	42.....	DEC 13, 2000
REVISION.....	43 to 44	Not Applicable
REVISION.....	45.....	MAR 12, 2001
REVISION.....	46 to 47	Not Applicable
REVISION.....	48.....	JUN 12, 2001
REVISION.....	49.....	Not Applicable
REVISION.....	50.....	NOV 09, 2001
REVISION.....	51 to 55	Not Applicable
REVISION.....	56.....	OCT 21, 2003
REVISION.....	57.....	JUN 17, 2004
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REVISION.....	61.....	NOV 17, 2006

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* S10-1	REVISION 61	S10-6	REVISION 50
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* S10-2B (del)	REVISION 61	S10-6C.....	REVISION 50
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**ANAC APPROVED
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OPERATION OF EMB-135 MODELS

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GENERAL

This Supplement is provided to present the data required for Operation of EMB-135 models. The information herein presented must replace the equivalent data in the basic AFM.

For limitation, procedures information not contained in this Supplement, refer to the basic AFM.

LIMITATIONS

OPERATIONAL LIMITATIONS

WEIGHT

AIRPLANE MODELS	MAXIMUM WEIGHT (lb)			
	Max. Ramp Weight (MRW)	Max. Takeoff Weight (MTOW)	Max. Landing Weight (MLW)	Max. Zero Fuel Weight (MZFW)
ER	42108 (2)	41887 (2)	40785	34392 (1)
LR	44312	44092	40785	35274

NOTE: 1) For airplanes Post-Mod. SB 145-00-0025 or with an equivalent modification factory incorporated, the MZF W is 35274 lb.

2) For airplanes Post-Mod. SB 145-00-0028 or equipped with an equivalent modification factory incorporated, the MTOW is 43210 lb and MRW is 43431 lb.

POWER PLANT

ENGINES

Two Rolls-Royce AE3007A1/3 or two Rolls-Royce AE3007A3.

FLIGHT CONTROLS

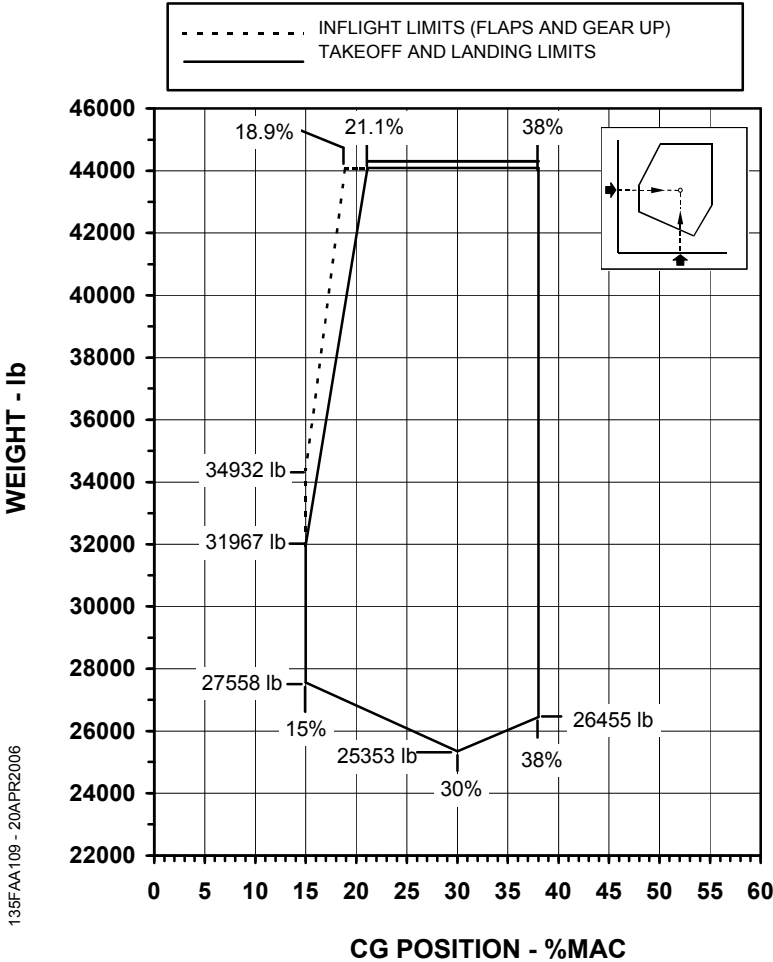
FLAPS

Flaps 22° not approved for takeoff.

CENTER OF GRAVITY LIMITS

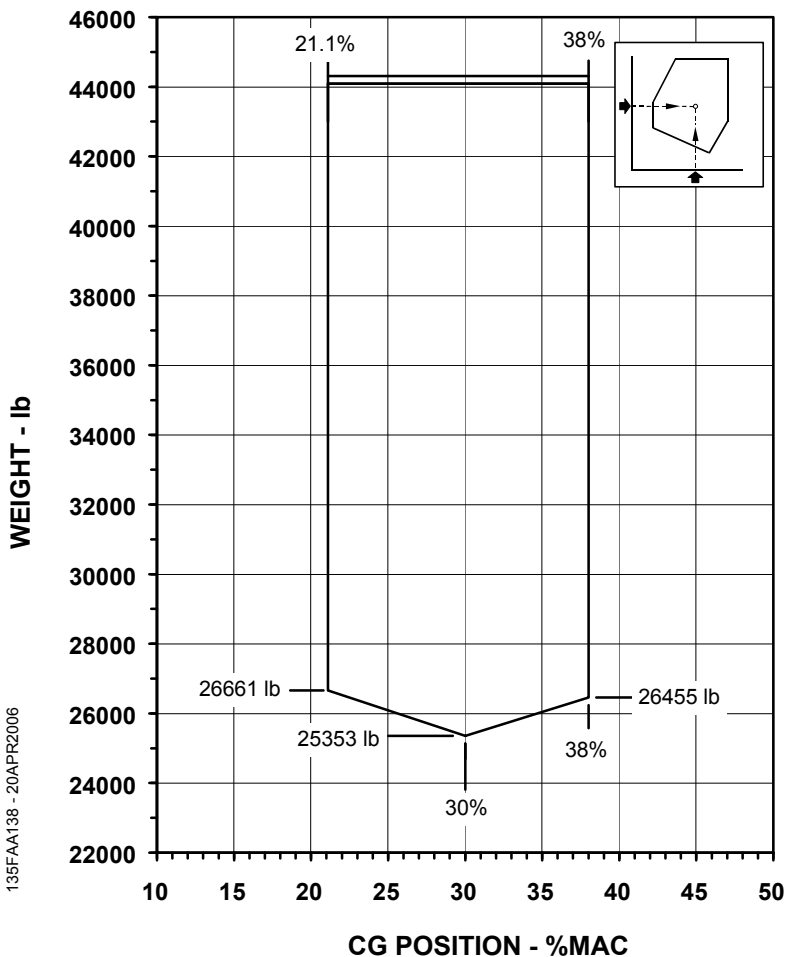
ER AND LR MODELS (TAKEOFF WITH FLAPS 9° OR 18°)
STANDARD CG

-



NOTE: For maximum structural weights, refer to Weight Limitations.

ER AND LR MODELS (TAKEOFF WITH FLAPS 18°) - CG 21.1%



NOTE: - For maximum structural weights, refer to Weight Limitations.
- For inflight and landing limits, refer to standard CG envelope.



EMERGENCY AND ABNORMAL PROCEDURES

The Emergency and Abnormal procedures presented in the basic AFM remain unchanged.

NORMAL PROCEDURES

BEFORE START

Trims SET

Set the pitch trim to the units required for takeoff using the table bellow. Set the roll and yaw trims to zero. When setting pitch trim, alternate between main and backup systems.

PITCH TRIM UNITS	8	7	6	5	4
CG POSITION (%)	LESS THAN 25	28	32	35	38

PERFORMANCE

GENERAL

The performance data presented in this Supplement must replace the equivalent data in the basic AFM.

NOISE LEVELS

The following Effective Perceived Noise Levels (EPNL's) comply with FAR Part 36, Appendix C, Stage 3 noise limits. The tests and analysis procedures used to obtain these noise levels are essentially equivalent to those required by the ICAO Annex 16, Volume 1, Chapter 3.

NOISE LEVEL IN EPNdb				
Airplane Model	Noise Level	CONDITION		
	Maximum Allowable	Sideline	Takeoff	Approach
		94.0	89.0	98.0
ER	Actual	84.4	78.6	92.3
ER (1)	Actual	84.3	79.1	92.3
LR	Actual	84.3	79.4	92.3

NOTE: 1) Only applicable to airplanes Post-Mod. SB 145-00-0028 or with an equivalent modification factory incorporated.

These values are stated for reference conditions of standard atmosphere pressure at sea level, 25°C ambient temperature, 70% relative humidity, and zero wind. Takeoff and sideline noise levels were established for the EMB-135 model equipped with two Rolls-Royce AE3007A1/3 or with two Rolls-Royce AE3007A3 engines at the MTOW (Maximum Takeoff Weight) related to each model, V_2 climb speed and flaps 9°. Approach noise levels were established from a 3° glide slope at the MLW (Maximum Landing Weight) related to each model, $V_{REF 45}$ and flaps 45°.

The takeoff power cutback procedure was used.

No determination has been made by the Airworthiness Authority that the noise levels in this manual are or should be acceptable or unacceptable for operation at, into, or out of any airport.



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POSITION ERROR CORRECTIONS

The corrections to be applied to indicated airspeed or altitude in order to eliminate the effect of location of the static port on instrument reading, are shown in the Airspeed and Altitude Position Error Correction charts. For Standby Pitots, a set of charts is presented for airplanes Pre-Mod. SB 145-34-0054 and another for Post-Mod. SB 145-34-0054. For Pilot's and Copilot's Pitot, two sets of Airspeed and Altitude Position Error Correction charts are presented, one for airplanes equipped for RVSM operations (Post-Mod. SB 145-34-0082 or with an equivalent modification factory incorporated) and another for airplanes not equipped for RVSM operations (Pre-Mod. SB 145-34-0082).

Since all airspeeds and altitudes in this section are presented as indicated values, no position correction need to be made when reading from the charts.

AIRSPEED AND ALTITUDE POSITION ERROR CORRECTION CHARTS

USE

Refer to the basic AFM.

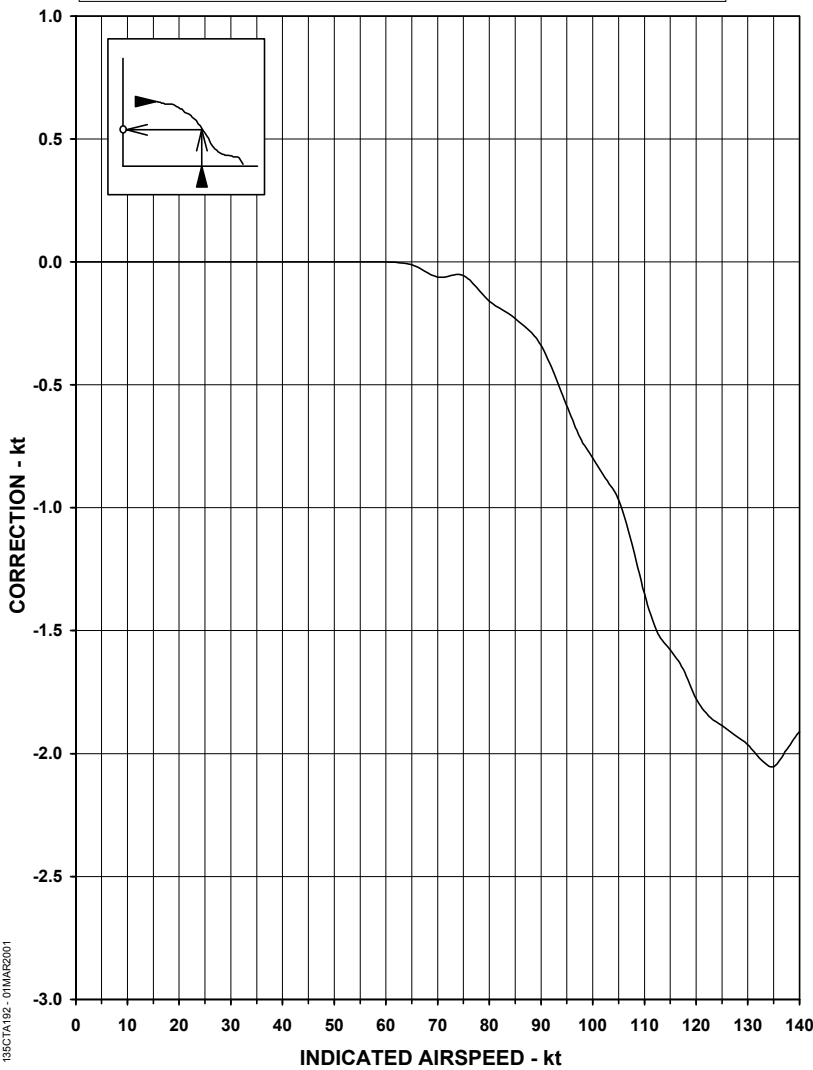


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**AIRSPEED POSITION ERROR CORRECTION
STANDBY PITOT
GROUND EFFECT - FLAPS 9°, 18° and 22°**

AIRPLANES POST-MOD. SB 145-34-0054 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED



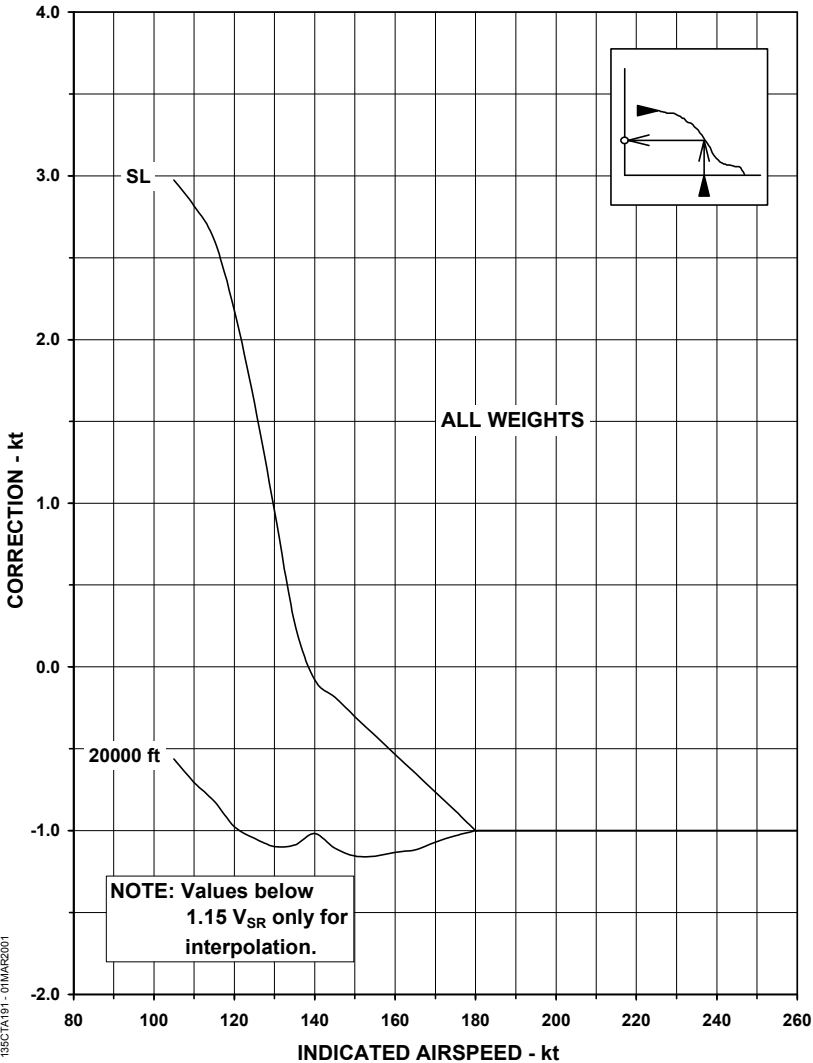
135CTA192 - 01MAR2001



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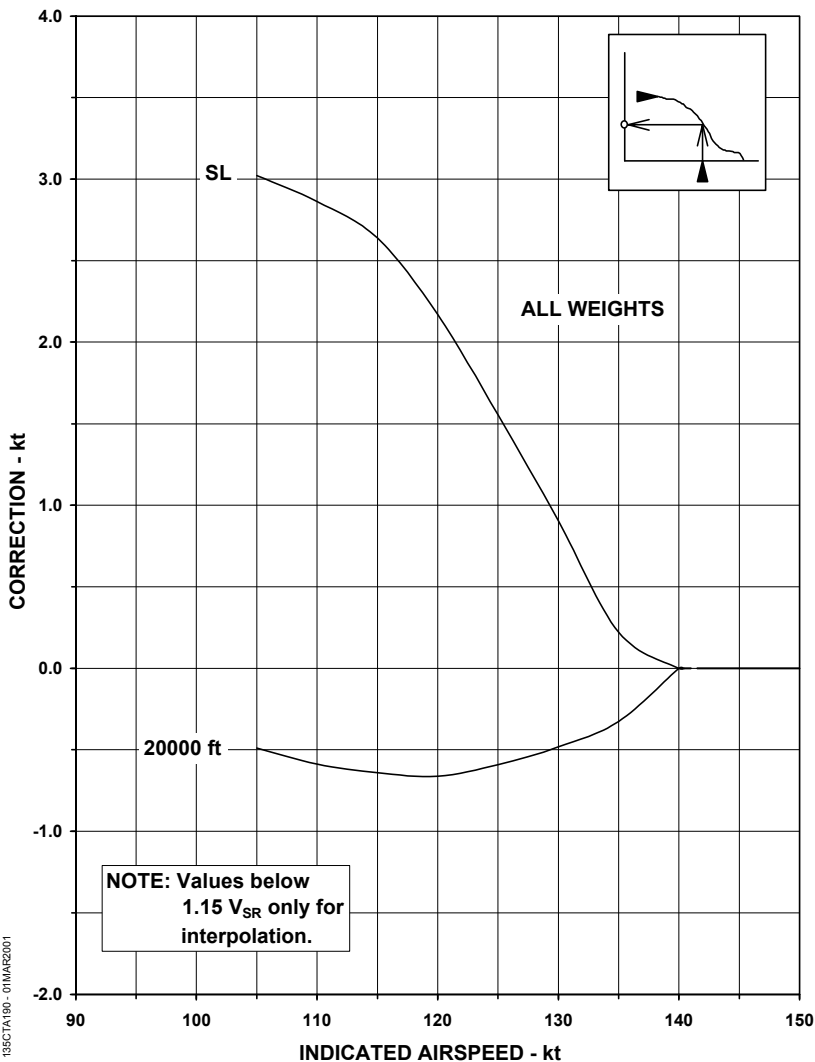
GEAR DOWN - FLAPS 9°, 18° and 22°

AIRPLANES POST-MOD. SB 145-34-0054 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED



**AIRSPEED POSITION ERROR CORRECTION
STANDBY PITOT
GEAR DOWN - FLAPS 45°**

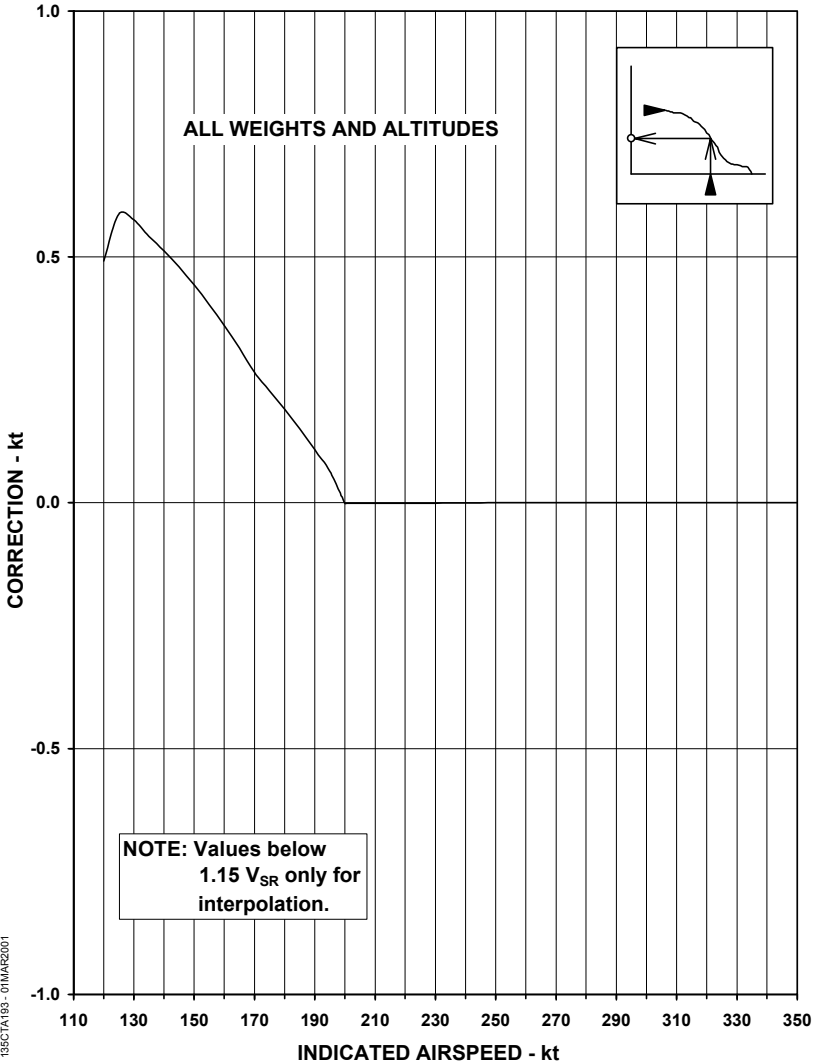
AIRPLANES POST-MOD. SB 145-34-0054 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED





**AIRSPED POSITION ERROR CORRECTION
STANDBY PITOT
GEAR UP - FLAPS UP**

AIRPLANES POST-MOD. SB 145-34-0054 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

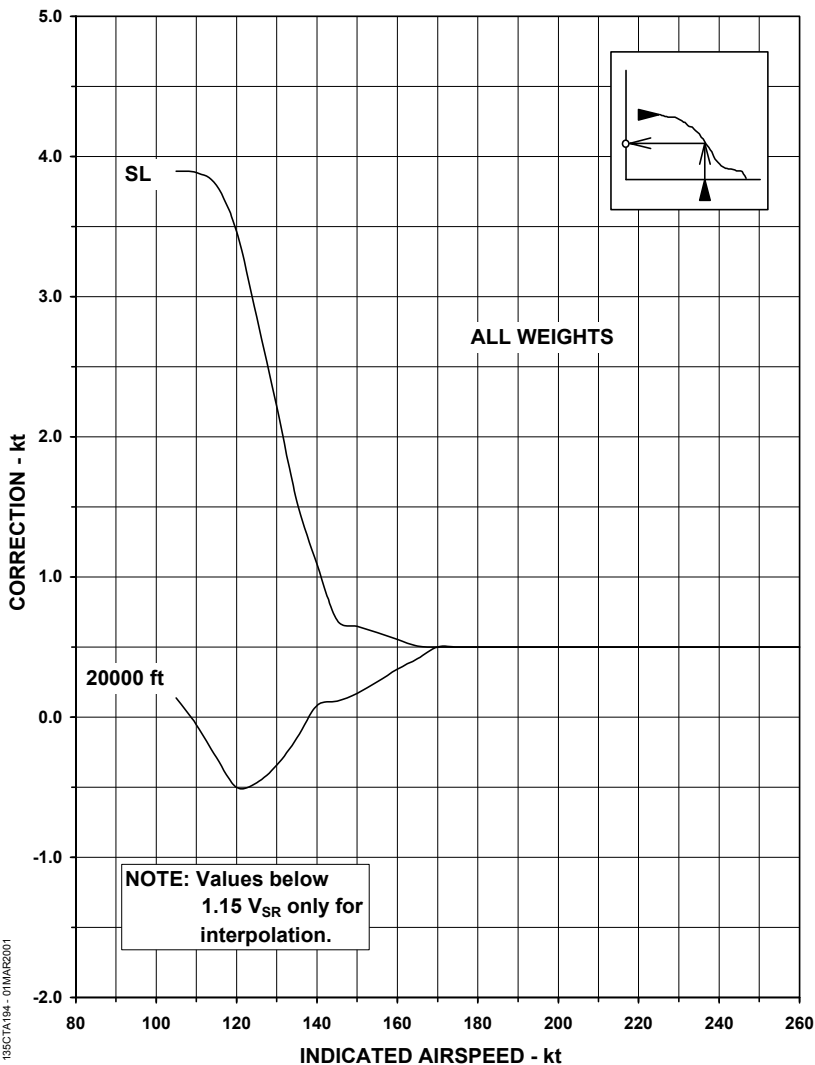


135CTA193 - 01MAR2001

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STANDBY PITOT**

GEAR UP - FLAPS 9°, 18° and 22°

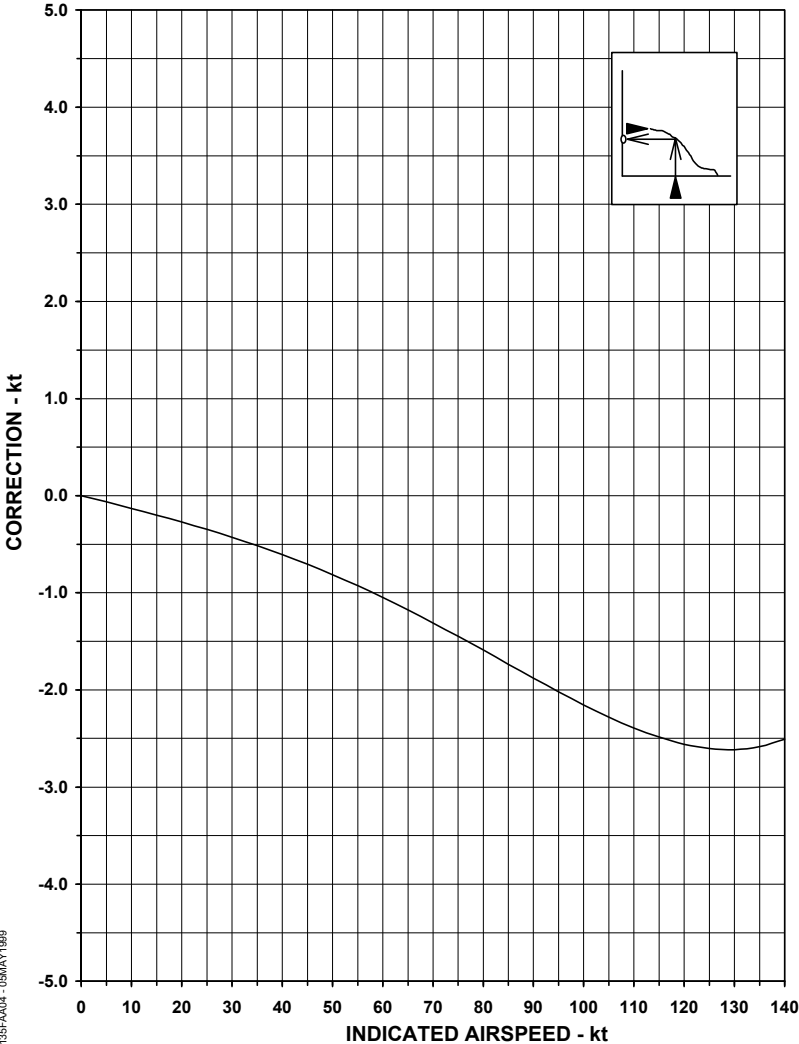
AIRPLANES POST-MOD. SB 145-34-0054 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED





**AIRSPEED POSITION ERROR CORRECTION
STANDBY PITOT
GROUND EFFECT - FLAPS 9°, 18° AND 22°**

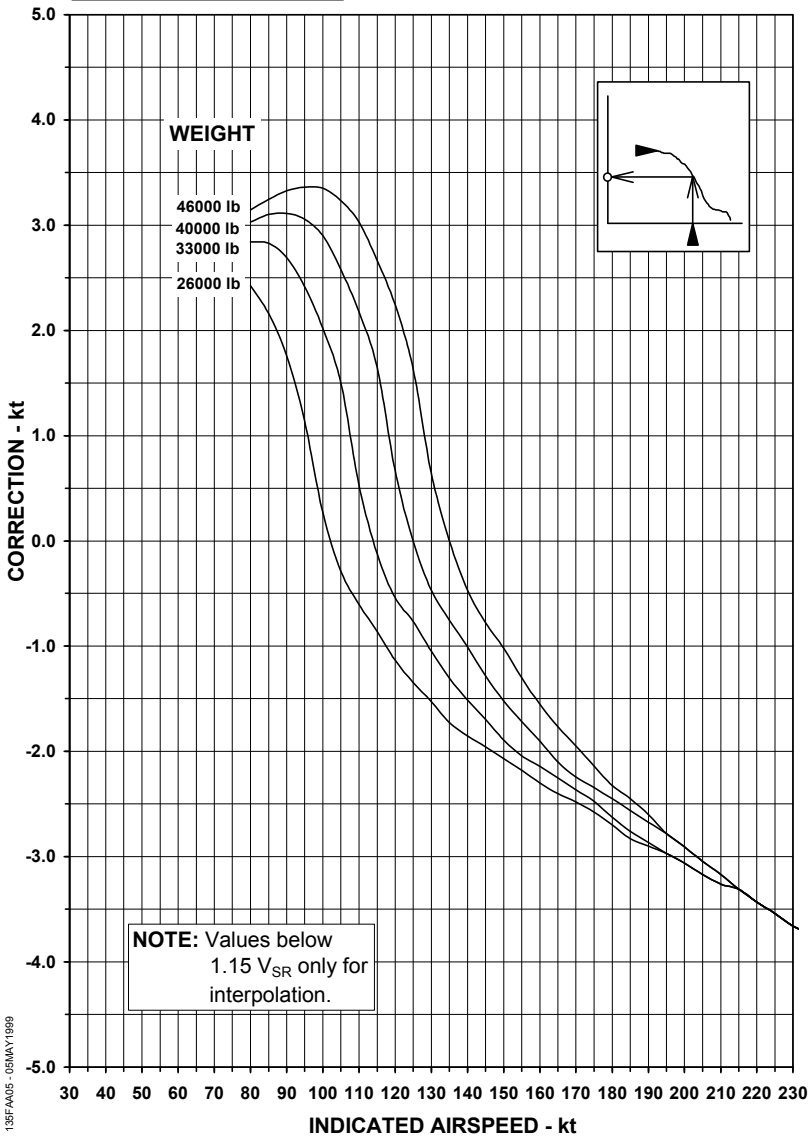
AIRPLANES PRE-MOD. SB 145-34-0054



135FA004 - 05MAY1999

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GEAR DOWN - FLAPS 9°, 18° AND 22°**

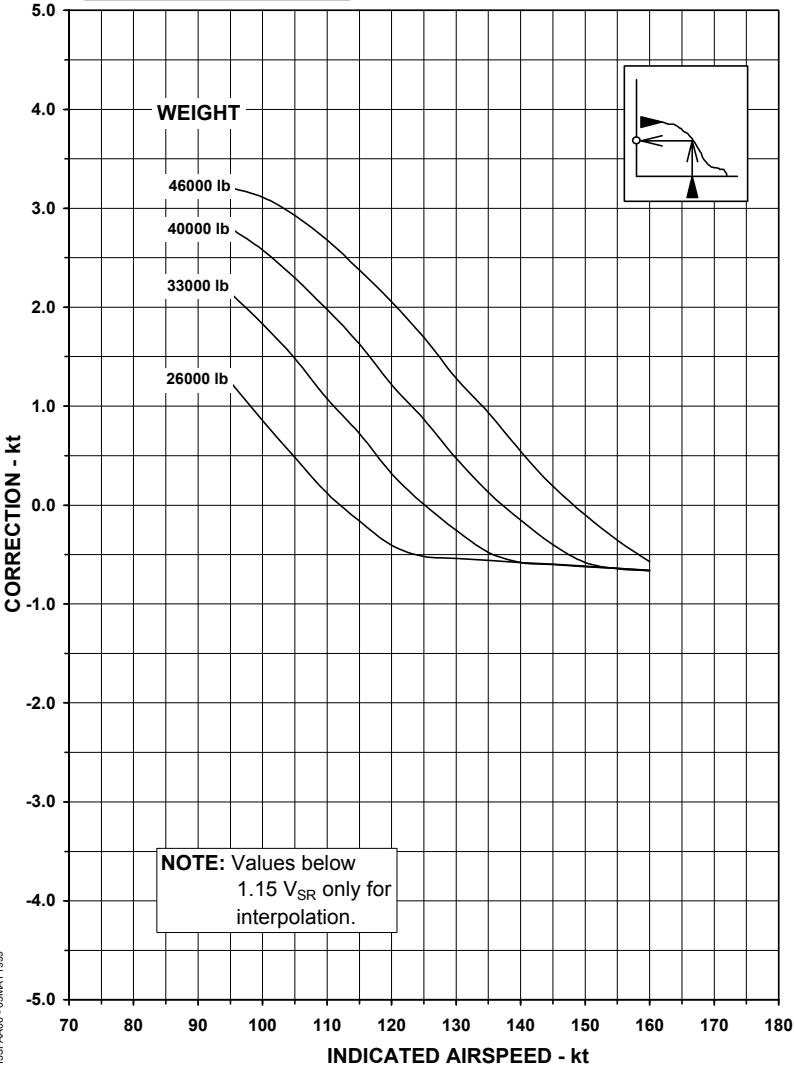
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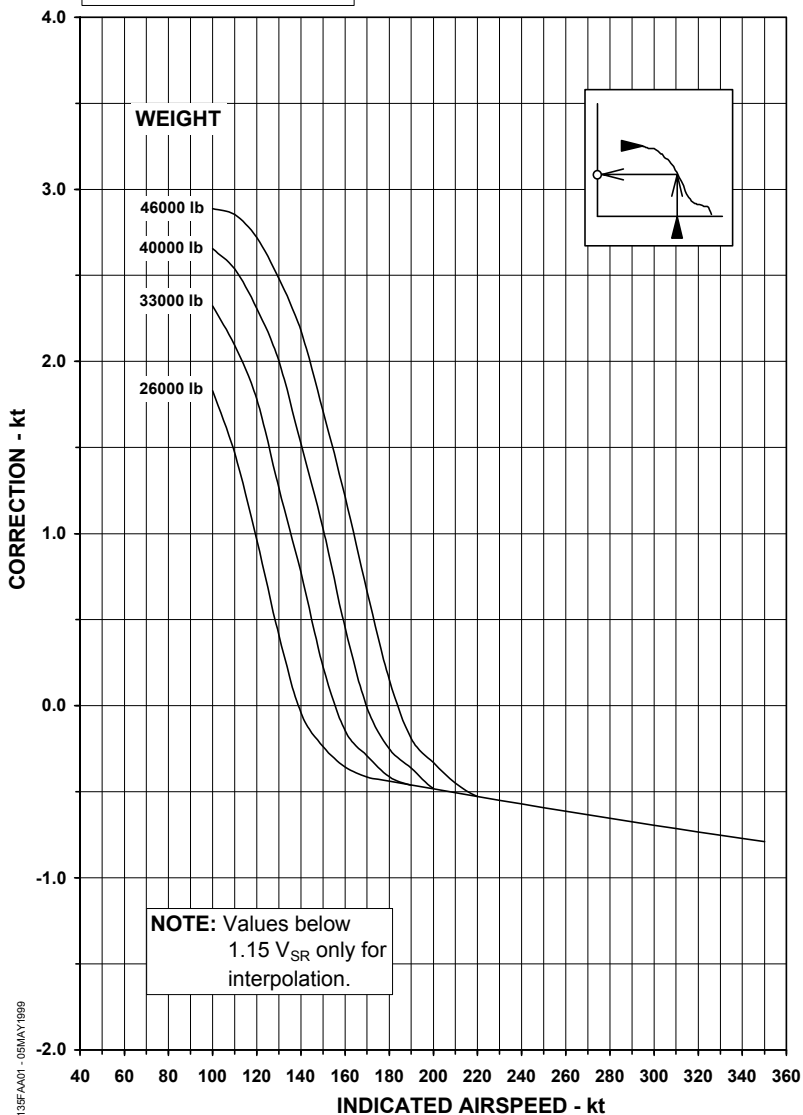
AIRSPEED POSITION ERROR CORRECTION
STANDBY PITOT
GEAR DOWN - FLAPS 45°

AIRPLANES PRE-MOD. SB 145-34-0054



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STANDBY PITOT
GEAR UP - FLAPS UP**

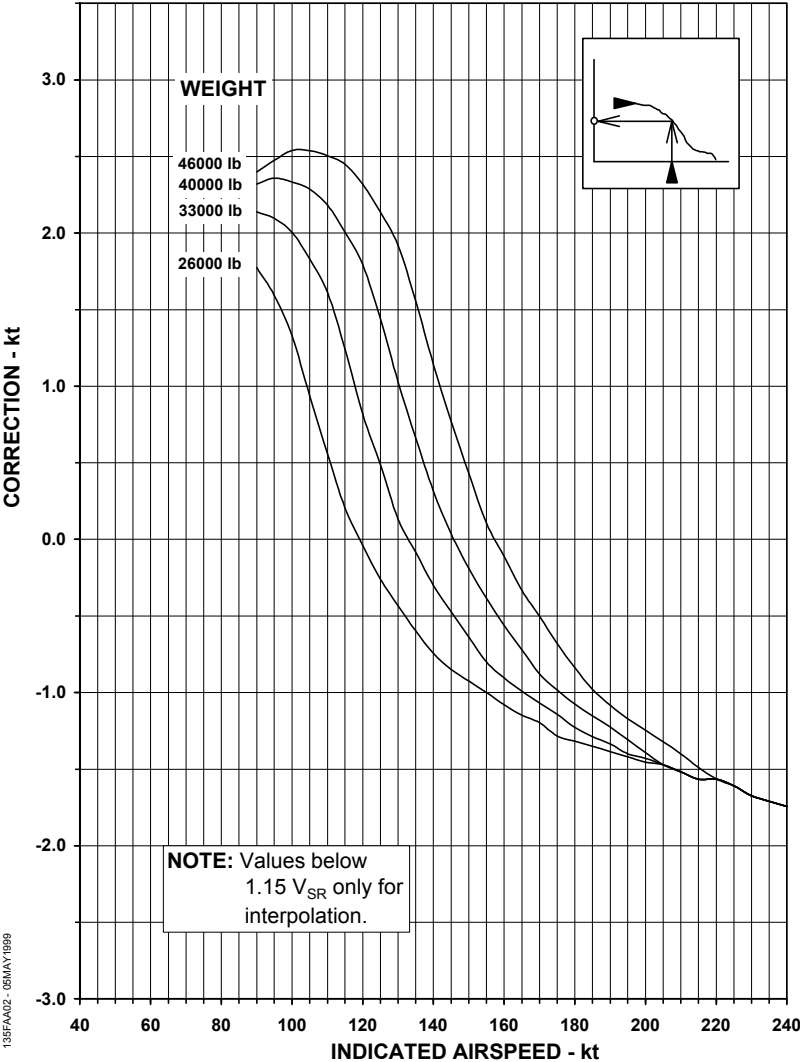
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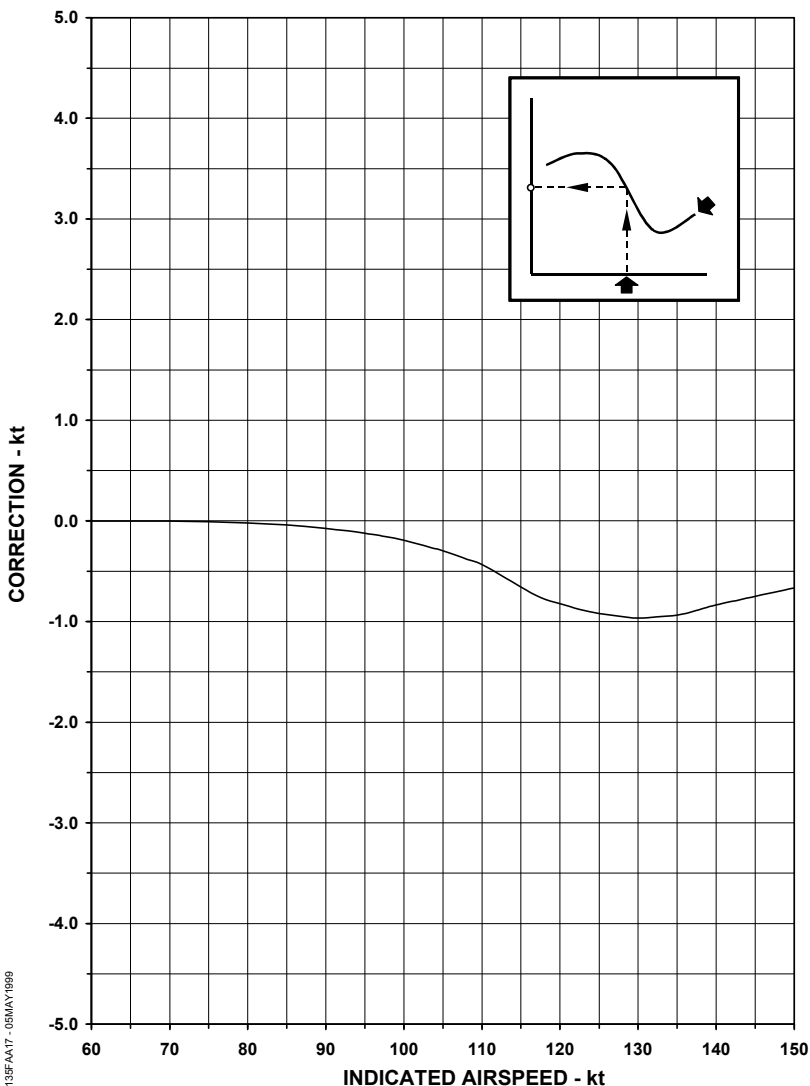


**AIRSPED POSITION ERROR CORRECTION
STANDBY PITOT
GEAR UP - FLAPS 9°, 18° AND 22°**

AIRPLANES PRE-MOD. SB 145-34-0054



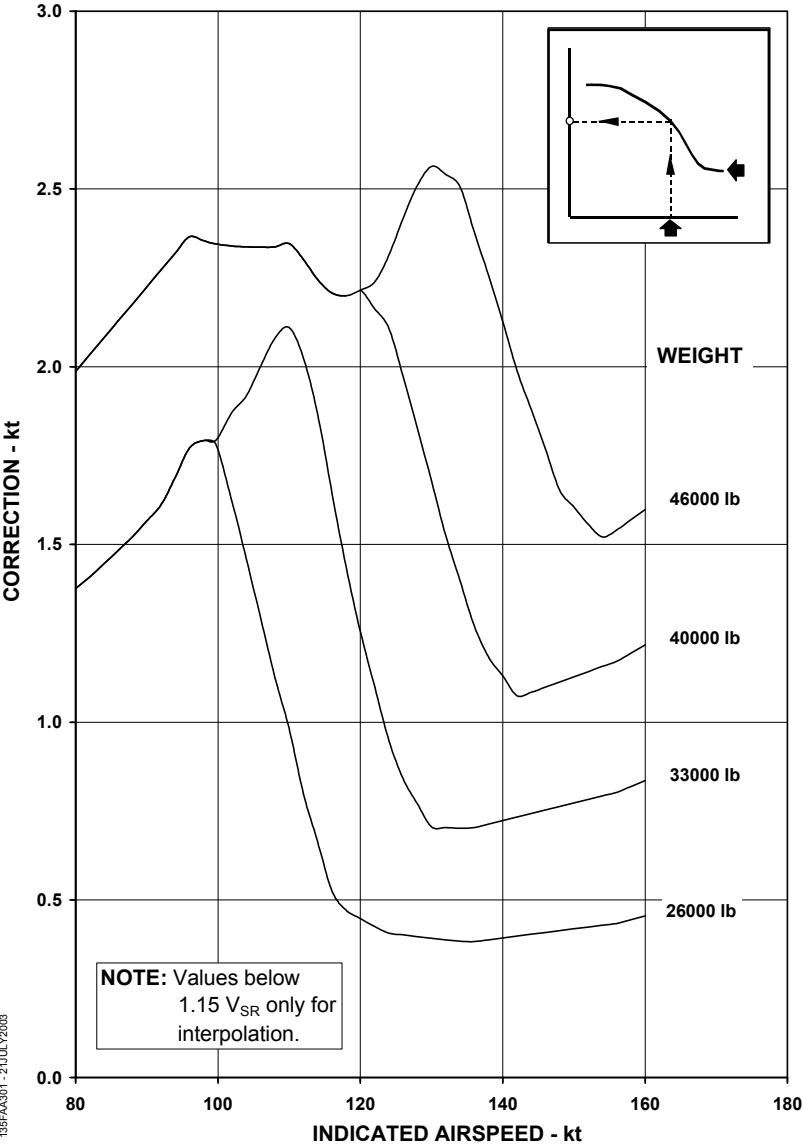
AIRSPED POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS
GROUND EFFECT - FLAPS 9°, 18° AND 22°



135FAA17 - 05MAY1999

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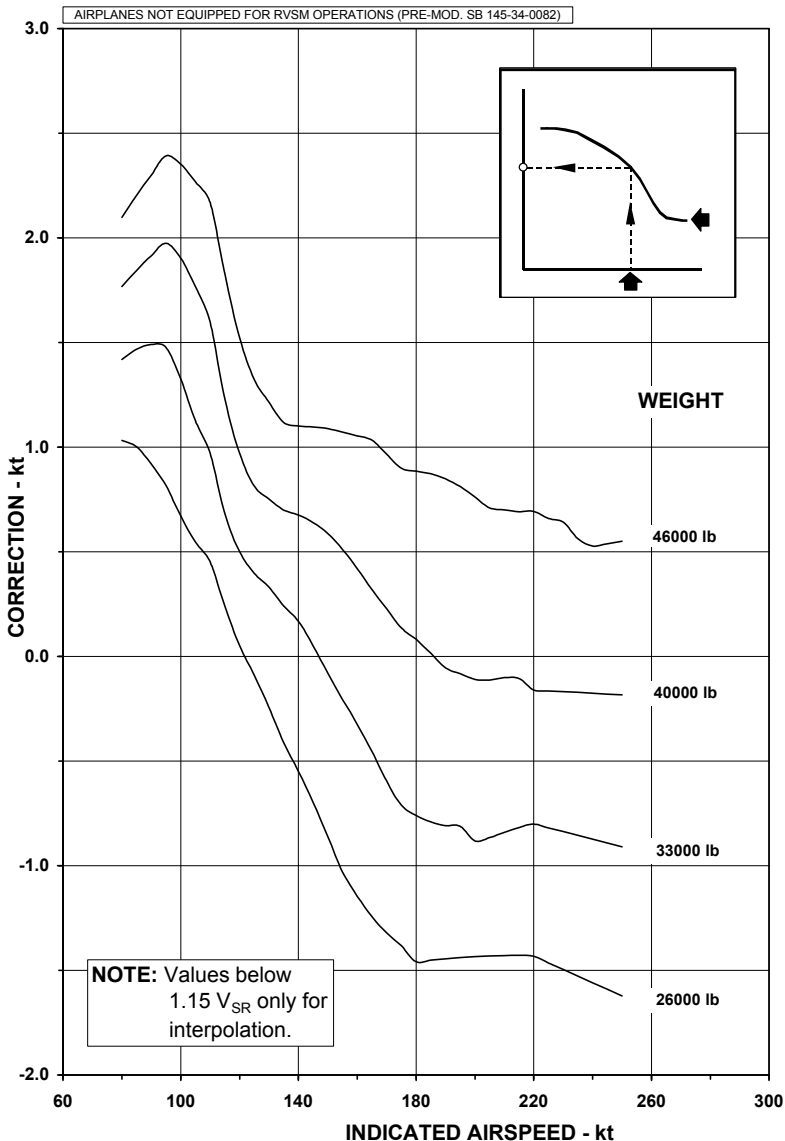
GEAR DOWN - FLAPS 45°



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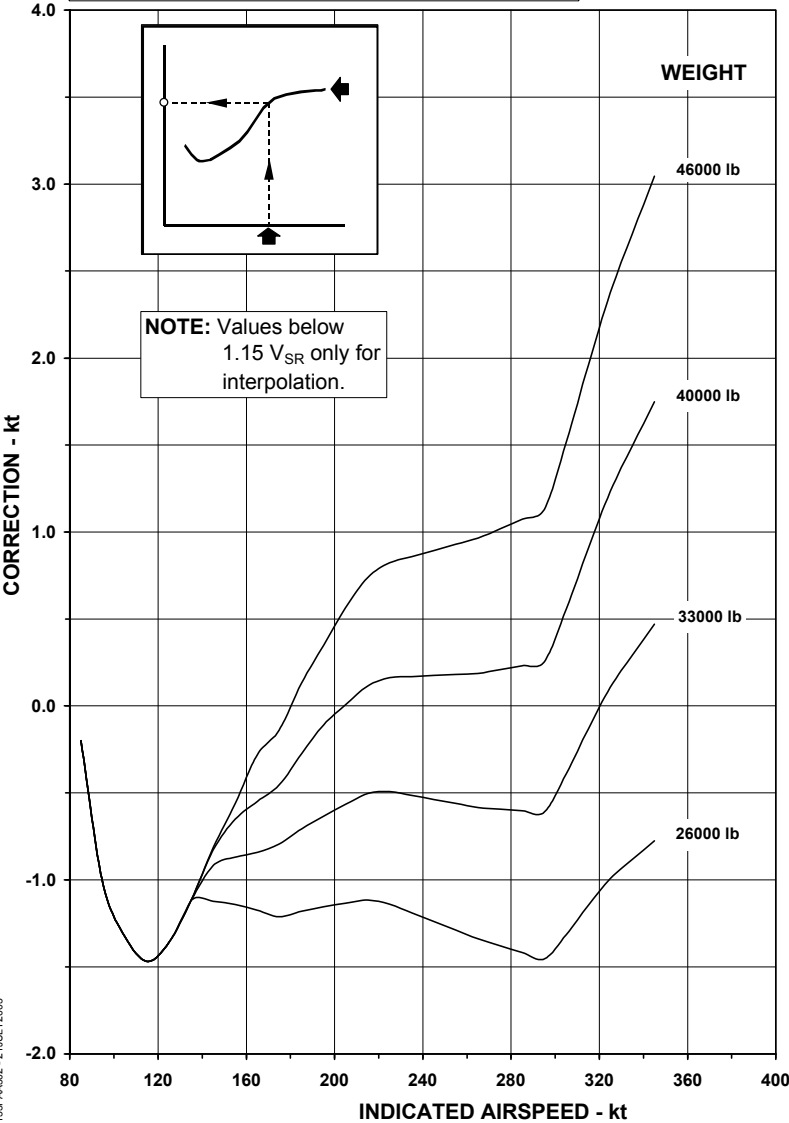
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GEAR DOWN - FLAPS 9°, 18° OR 22°



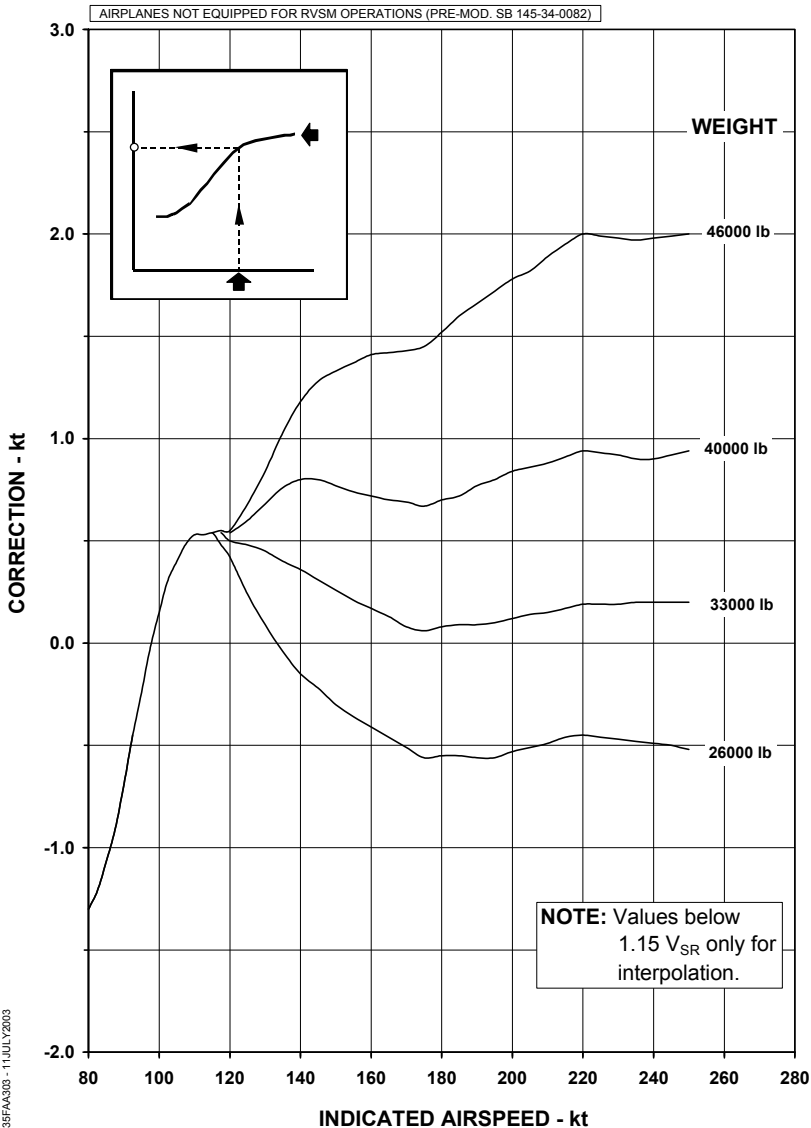
AIRSPEED POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS
GEAR UP - FLAPS UP

AIRPLANES NOT EQUIPPED FOR RVSM OPERATIONS (PRE-MOD. SB 145-34-0082)



**AIRSPPEED POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS**

GEAR UP - FLAPS 9°, 18° OR 22°

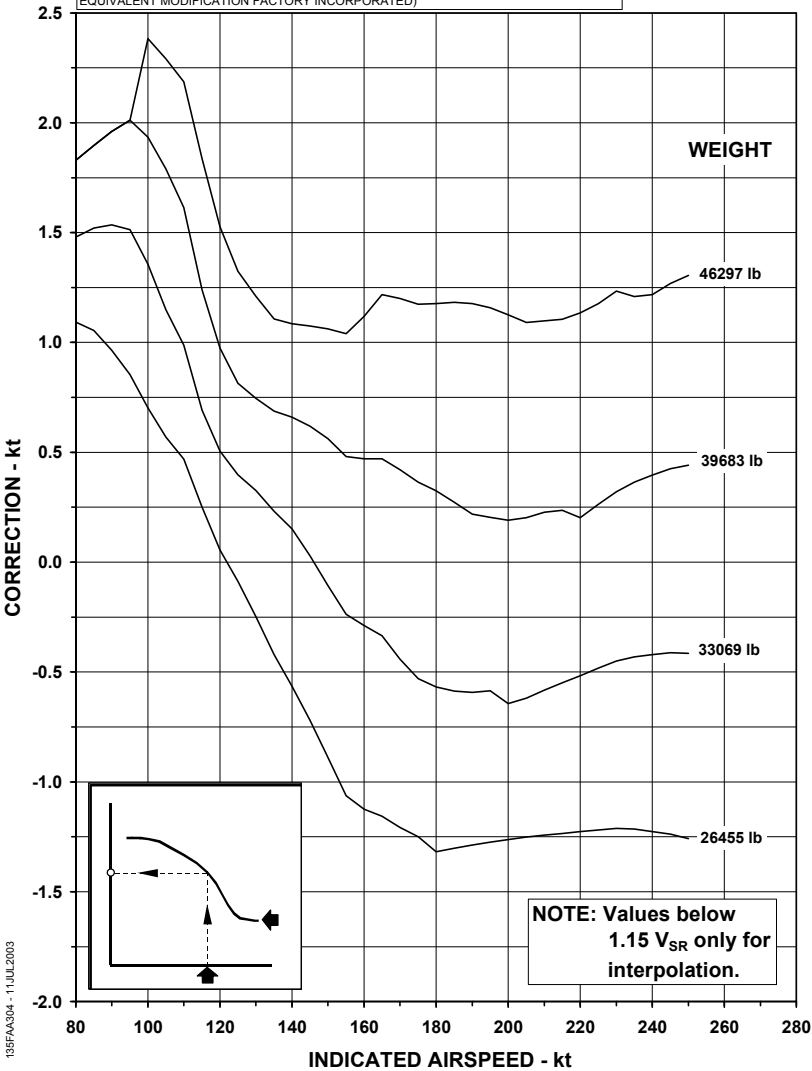


135FAA303-11JULY2003



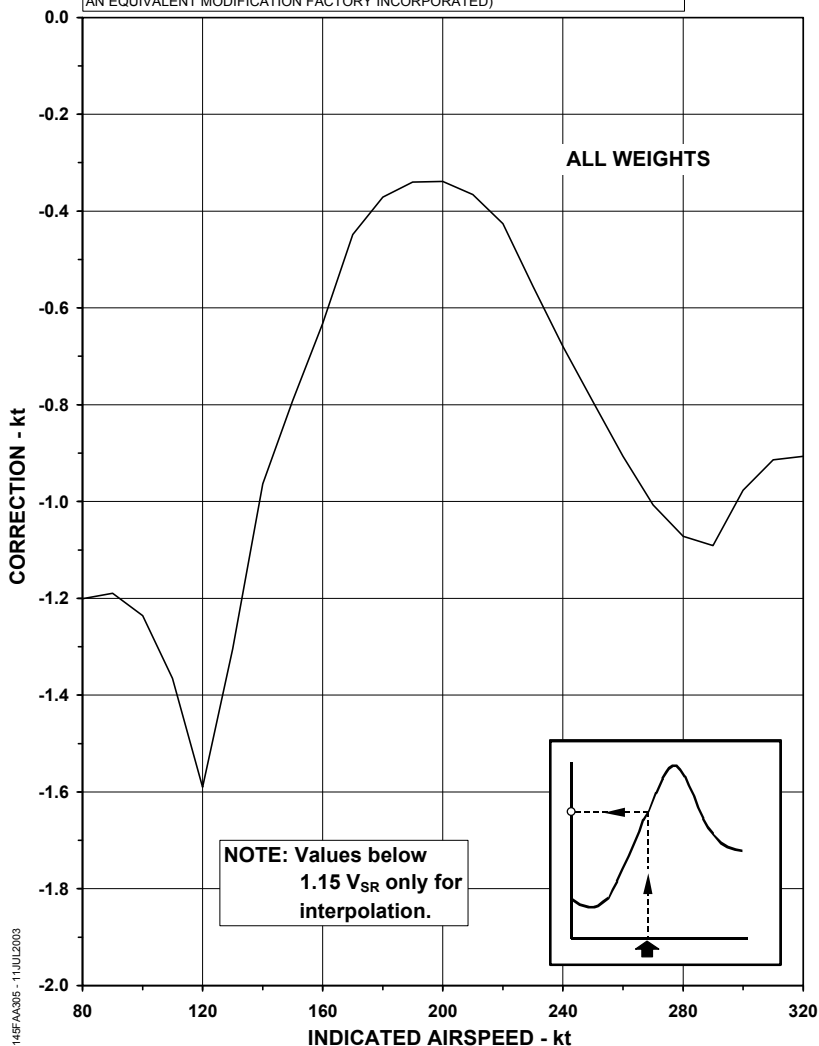
AIRSPPEED POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS
GEAR DOWN - FLAPS 9°, 18° OR 22°

AIRPLANES EQUIPPED FOR RVSM OPERATION (POST-MOD. SB 145-34-0082 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED)



AIRSPEED POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS
GEAR UP - FLAPS UP

AIRPLANES EQUIPPED FOR RVSM OPERATIONS (POST-MOD. SB 145-34-0082 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED)



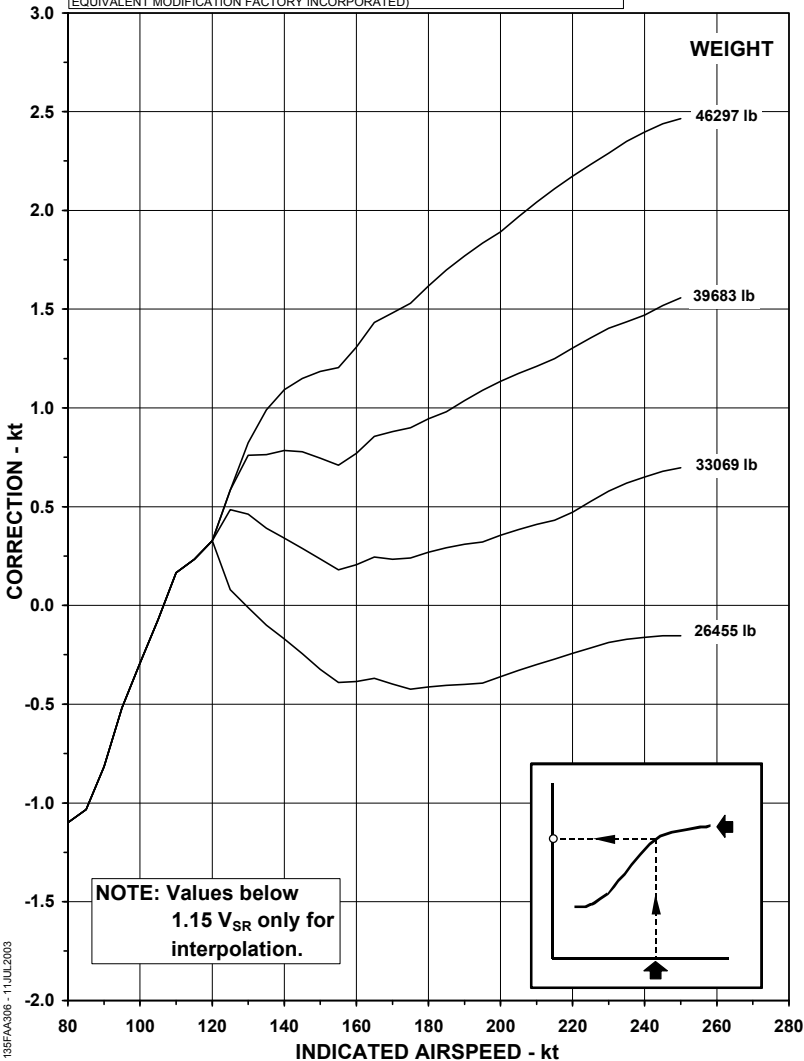
145F A4305 - 11 JUL 2003



**AIRSPPEED POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS**

GEAR UP - FLAPS 9°, 18° OR 22°

AIRPLANES EQUIPPED FOR RVSM OPERATIONS (POST-MOD. SB 145-34-0082 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED)





AIRPLANE FLIGHT MANUAL

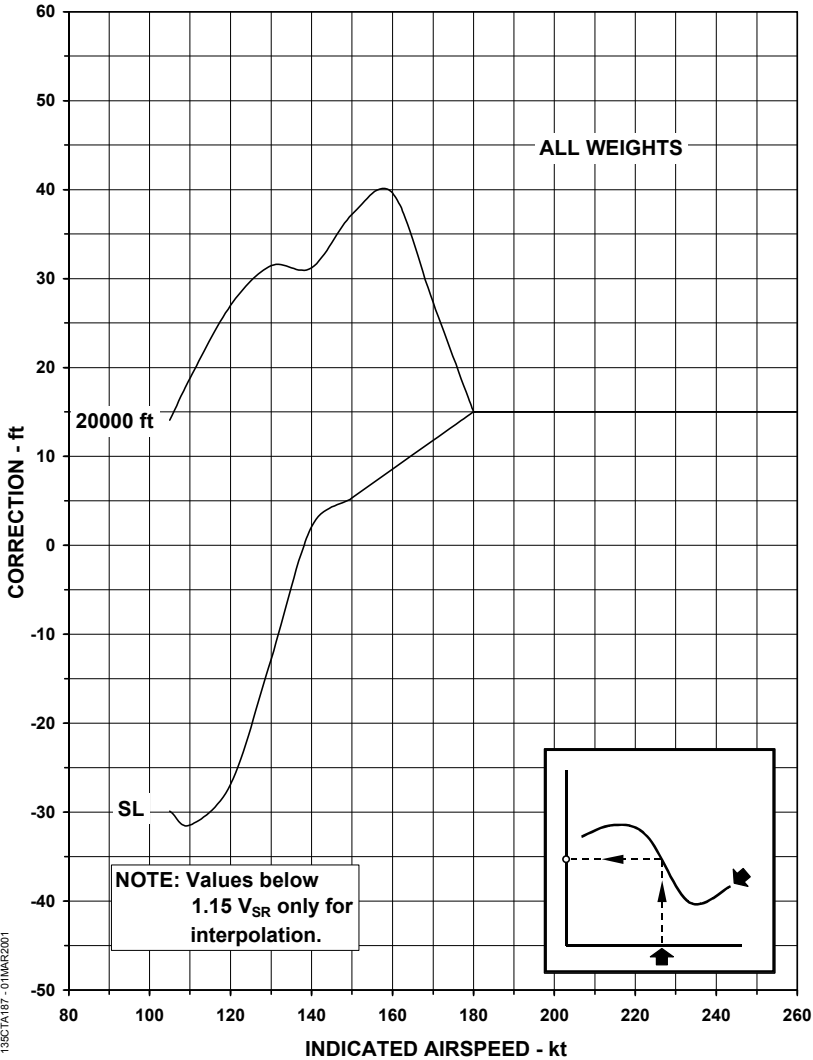
SUPPLEMENT 10
OPERATION OF
EMB-135 MODELS

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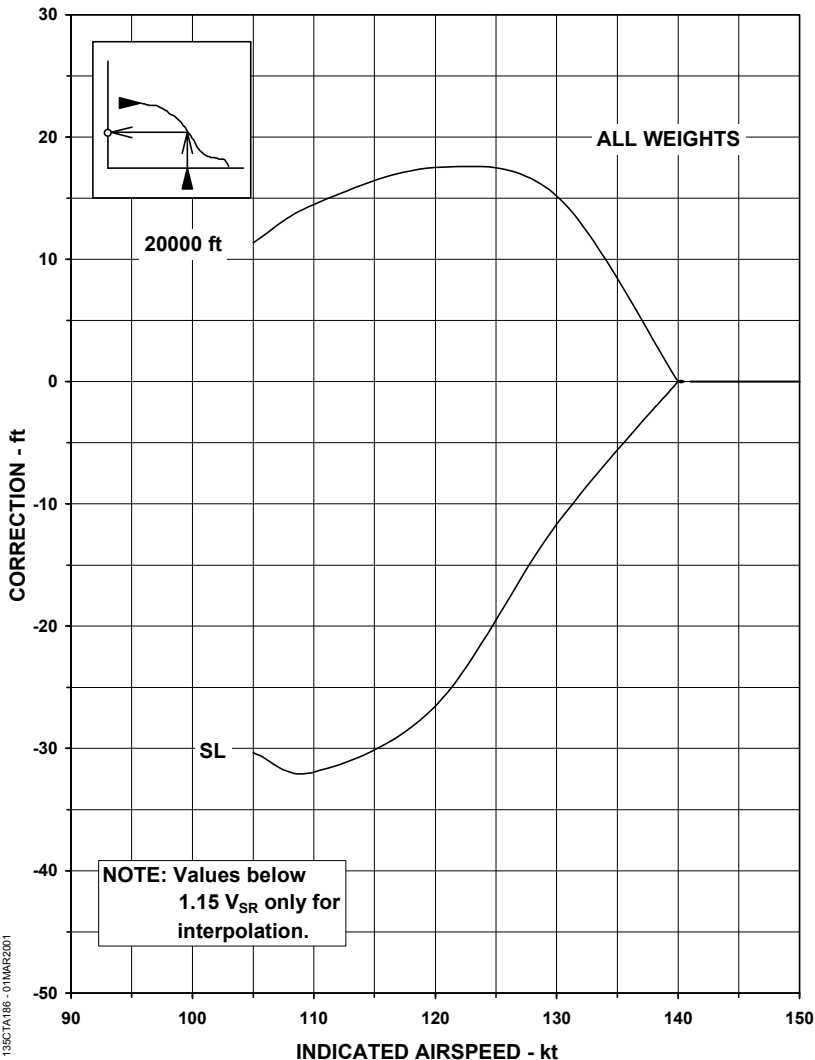
**ALTITUDE POSITION ERROR CORRECTION
STANDBY PITOT
GEAR DOWN - FLAPS 9°, 18° and 22°**

AIRPLANES POST-MOD. SB 145-34-0054 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED



**ALTITUDE POSITION ERROR CORRECTION
STANDBY PITOT
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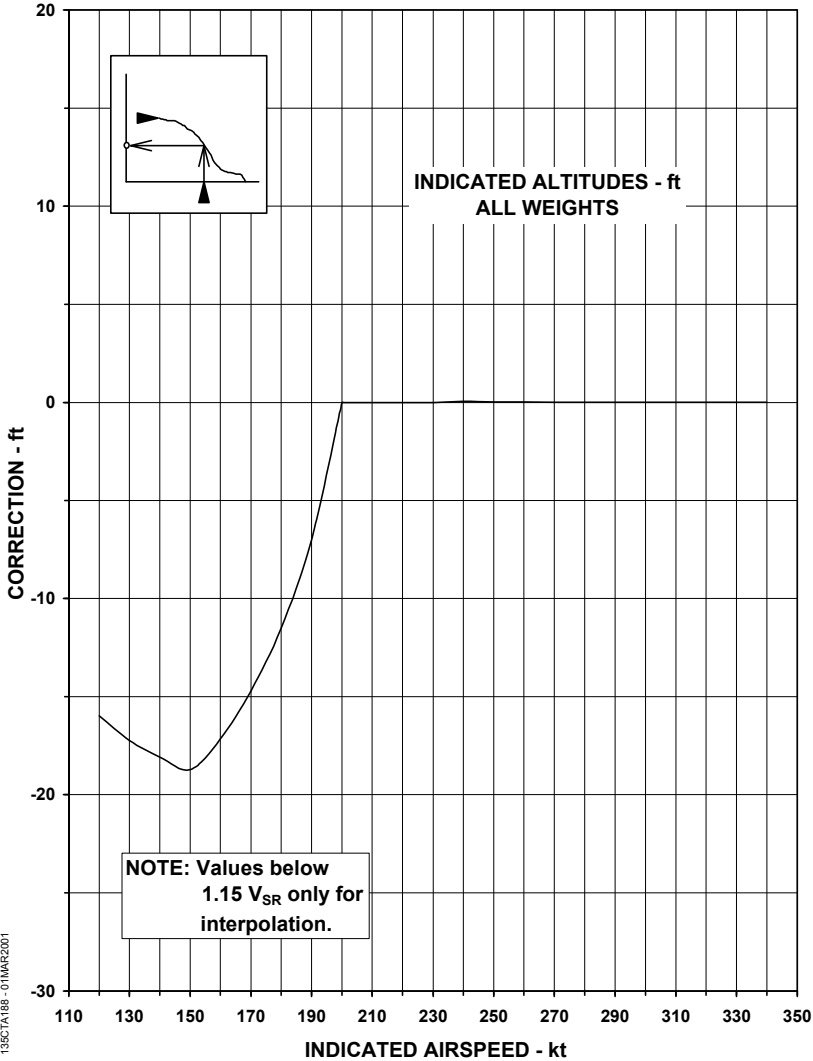
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**ALTITUDE POSITION ERROR CORRECTION
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GEAR UP - FLAPS UP**

AIRPLANES POST-MOD. SB 145-34-0054 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED

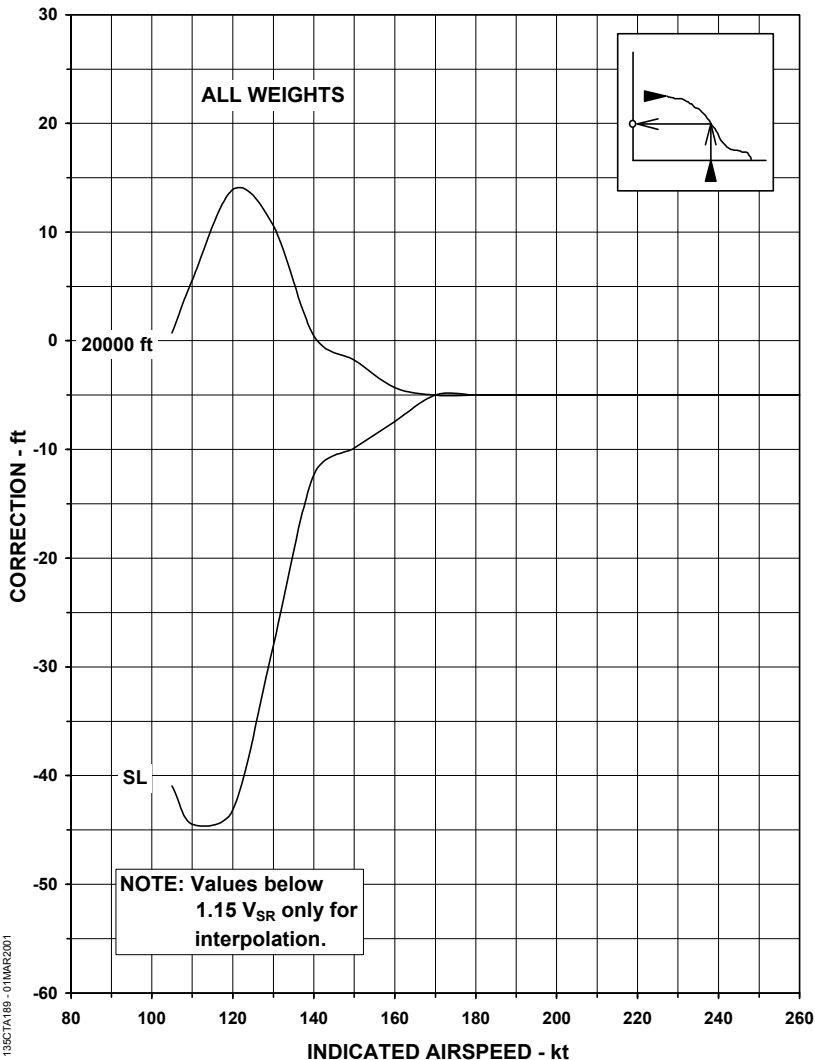


135CTA188 - 01MAR2001

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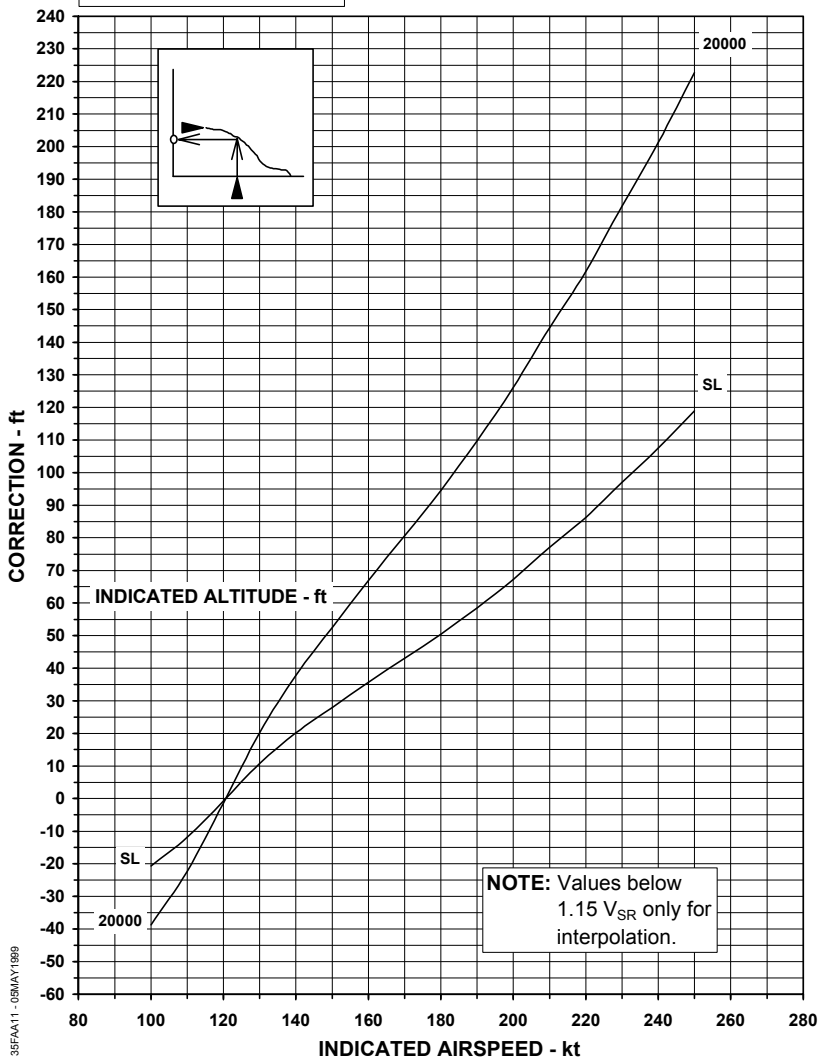
GEAR UP - FLAPS 9°, 18° and 22°

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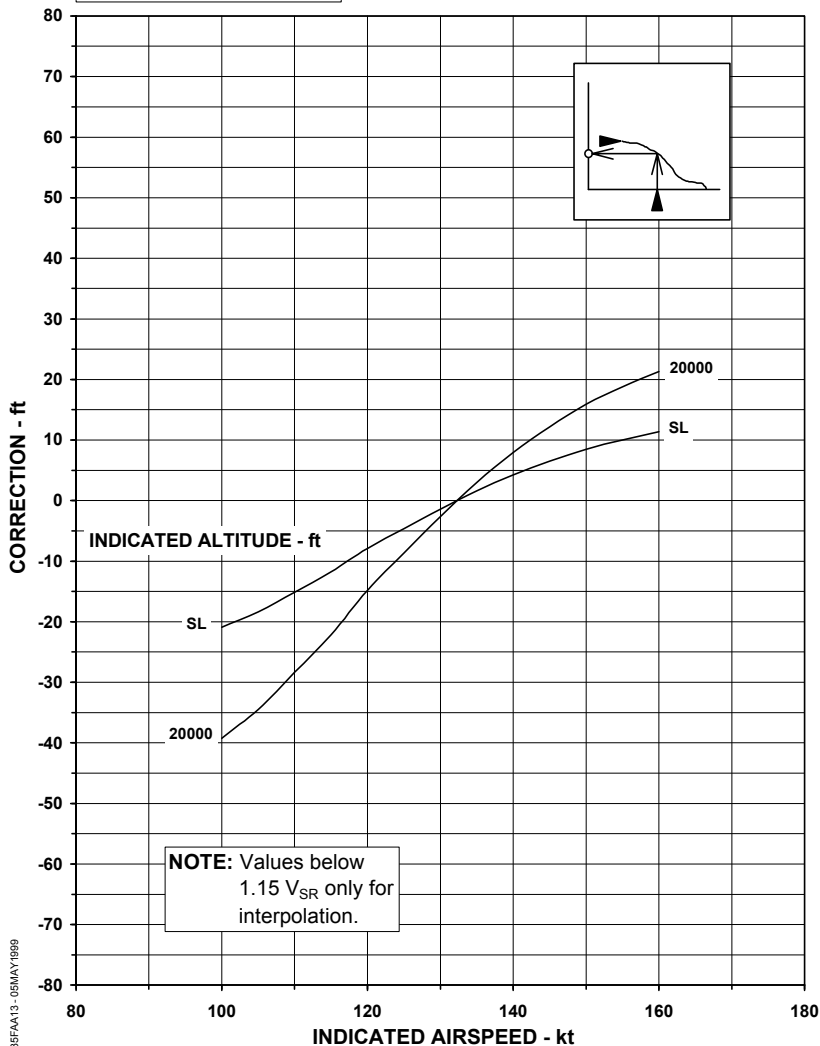
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135FAA11 - 03MAY1999

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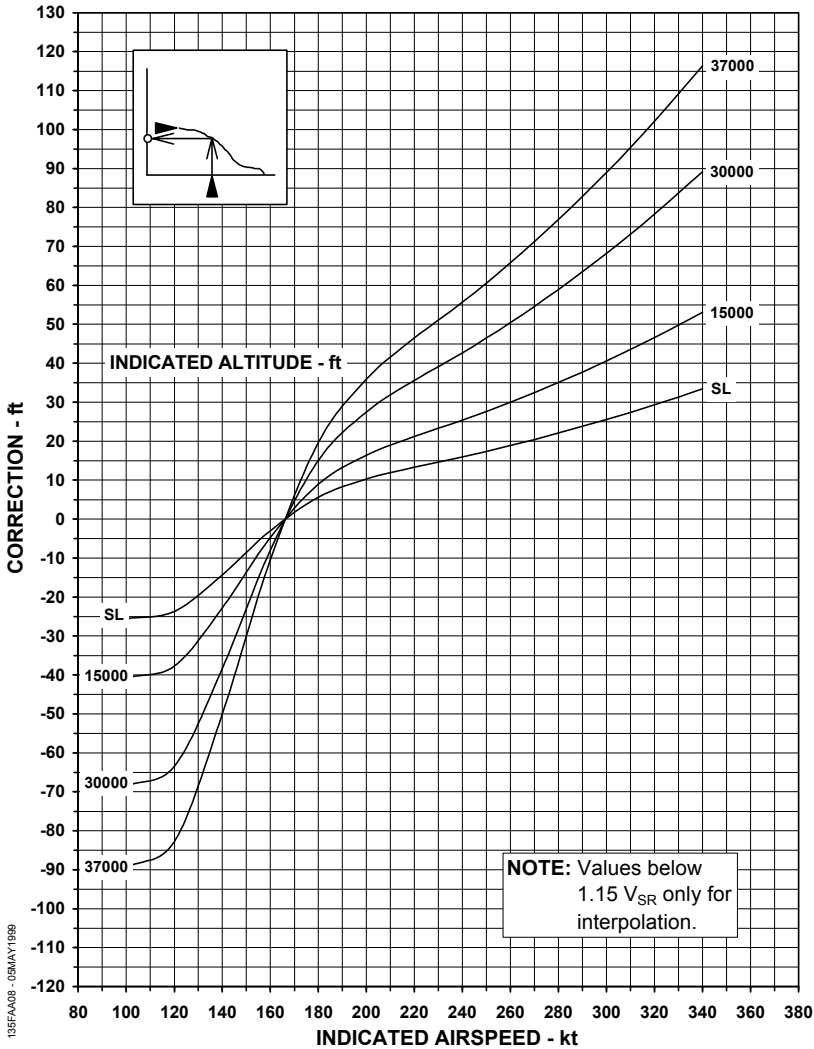


135FAA13-05MAY1999



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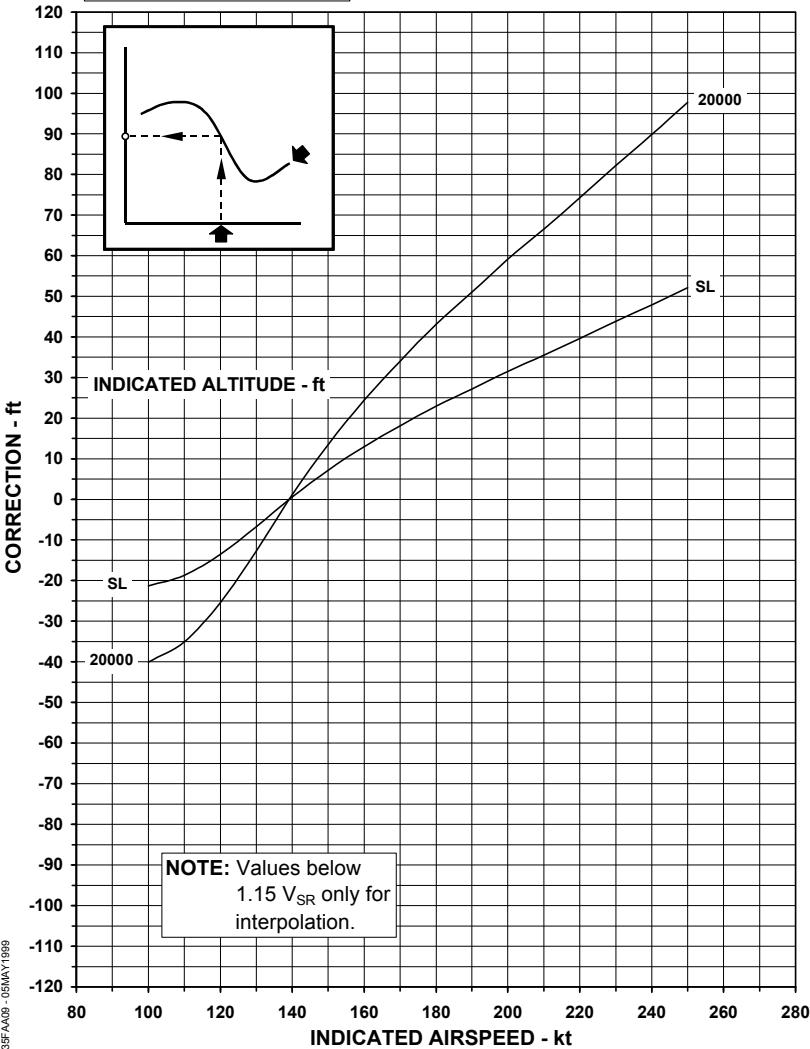
AIRPLANES PRE-MOD. SB 145-34-0054



NOTE: Values below
1.15 V_{SR} only for
interpolation.

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GEAR UP - FLAPS 9°, 18° AND 22°**

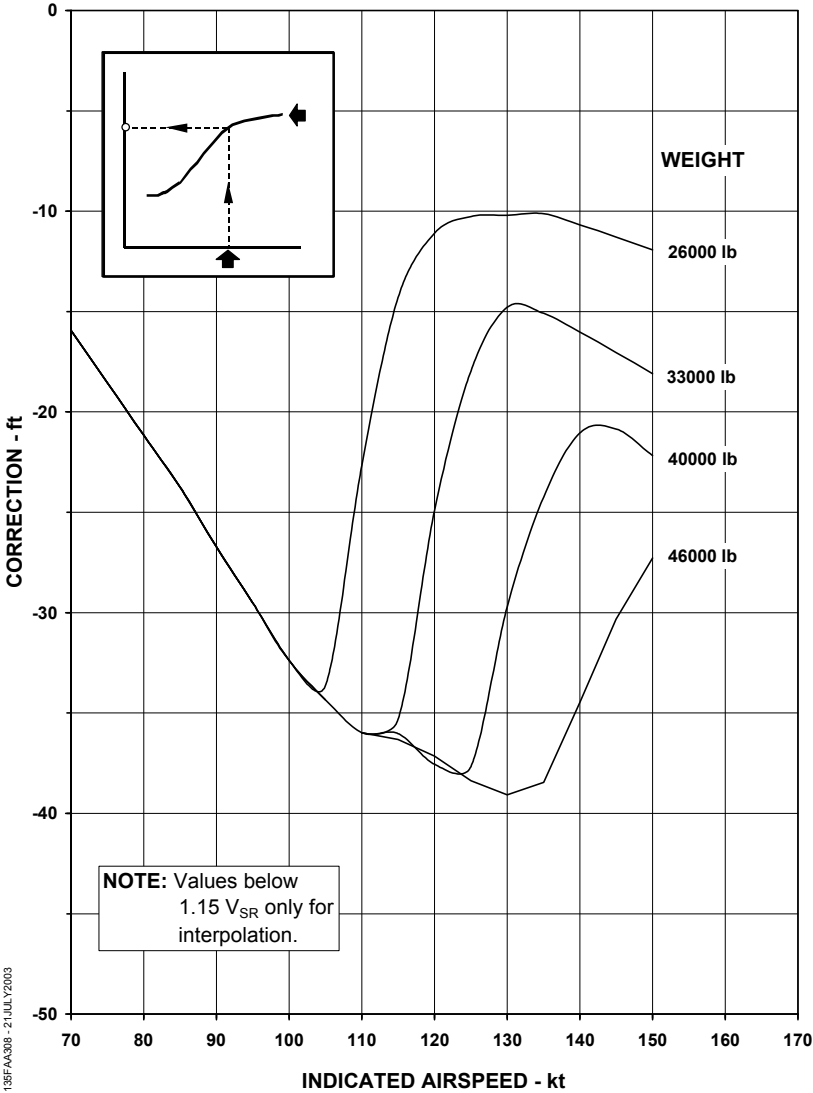
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135FAA09 - 05MAY1999

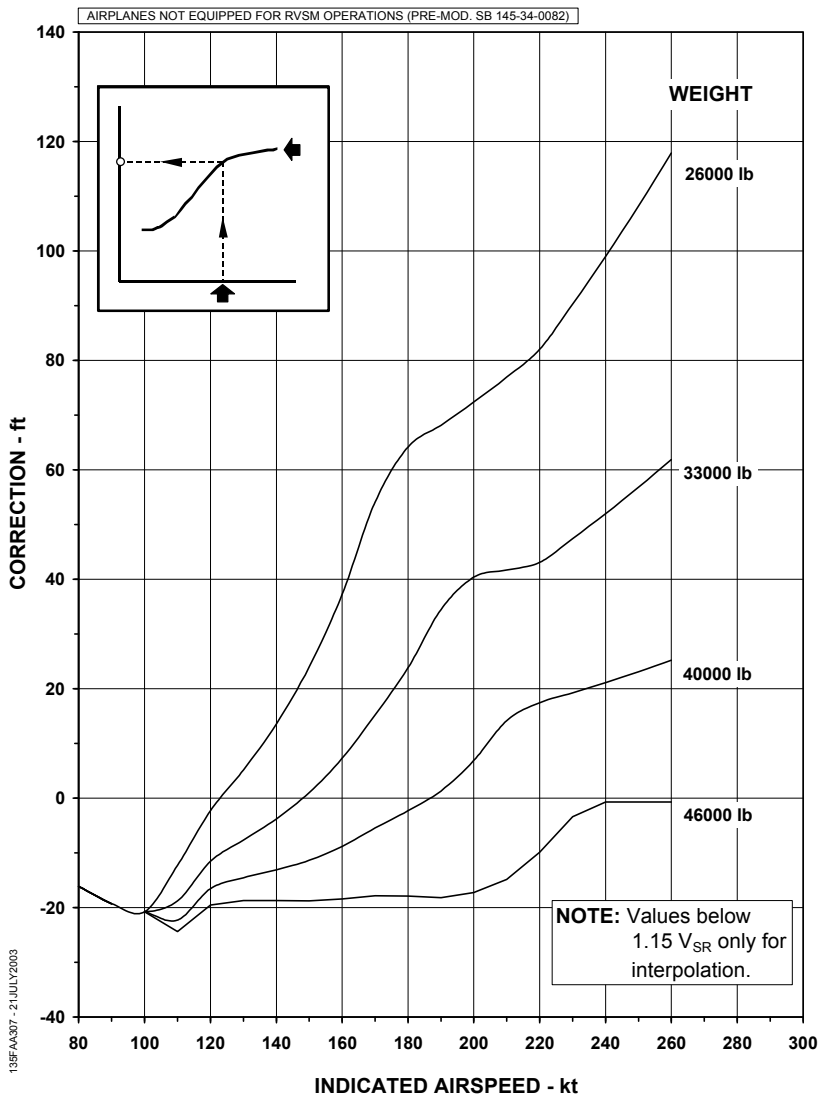


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PILOT'S AND COPILOT'S PITOTS
GEAR DOWN - FLAPS 45°



135FA338 - 21 JULY 2003

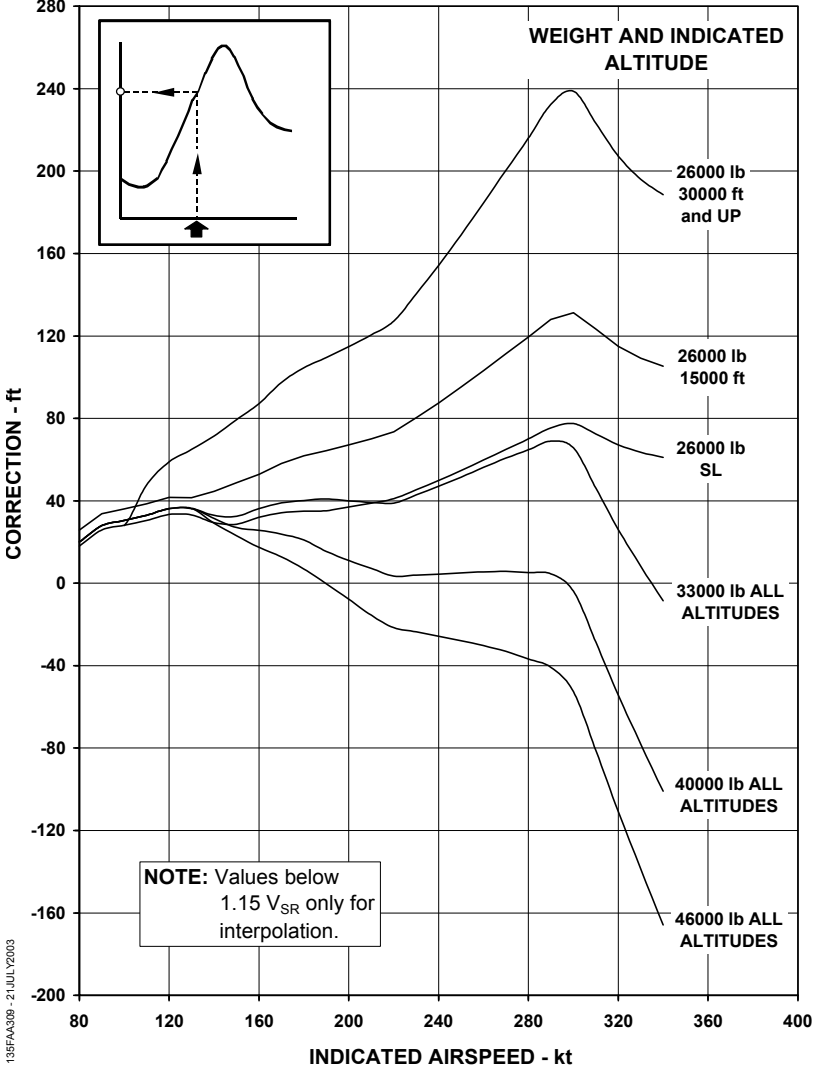
ALTITUDE POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS
GEAR DOWN - FLAPS 9°, 18° OR 22°





ALTITUDE POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS
GEAR UP - FLAPS UP

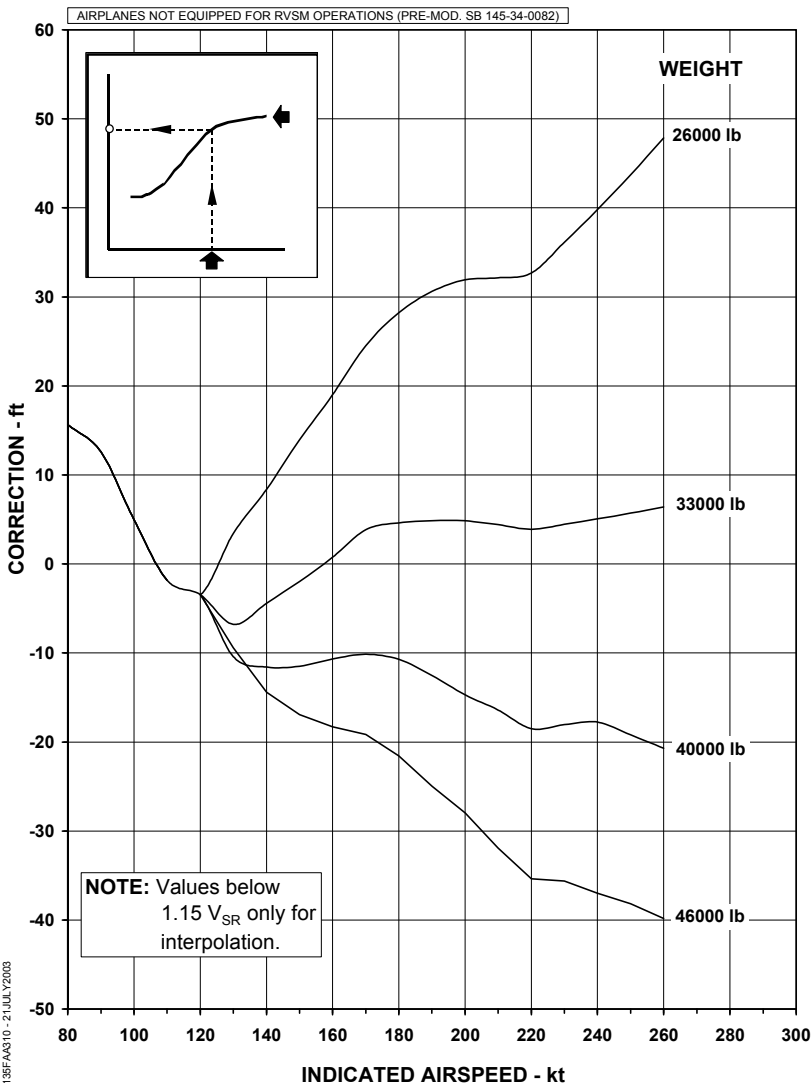
AIRPLANES NOT EQUIPPED FOR RVSM OPERATIONS (PRE-MOD. SB 145-34-0082)



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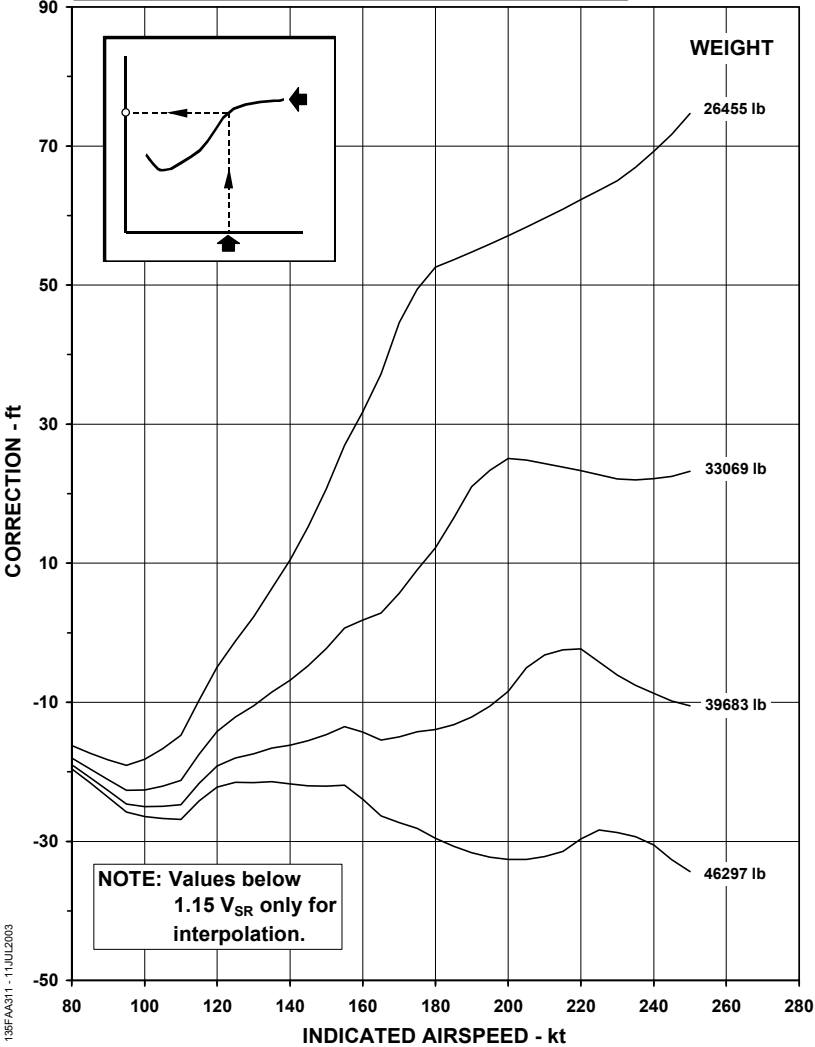
GEAR UP - FLAPS 9°, 18° OR 22°





ALTITUDE POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS
GEAR DOWN - FLAPS 9°, 18° OR 22°

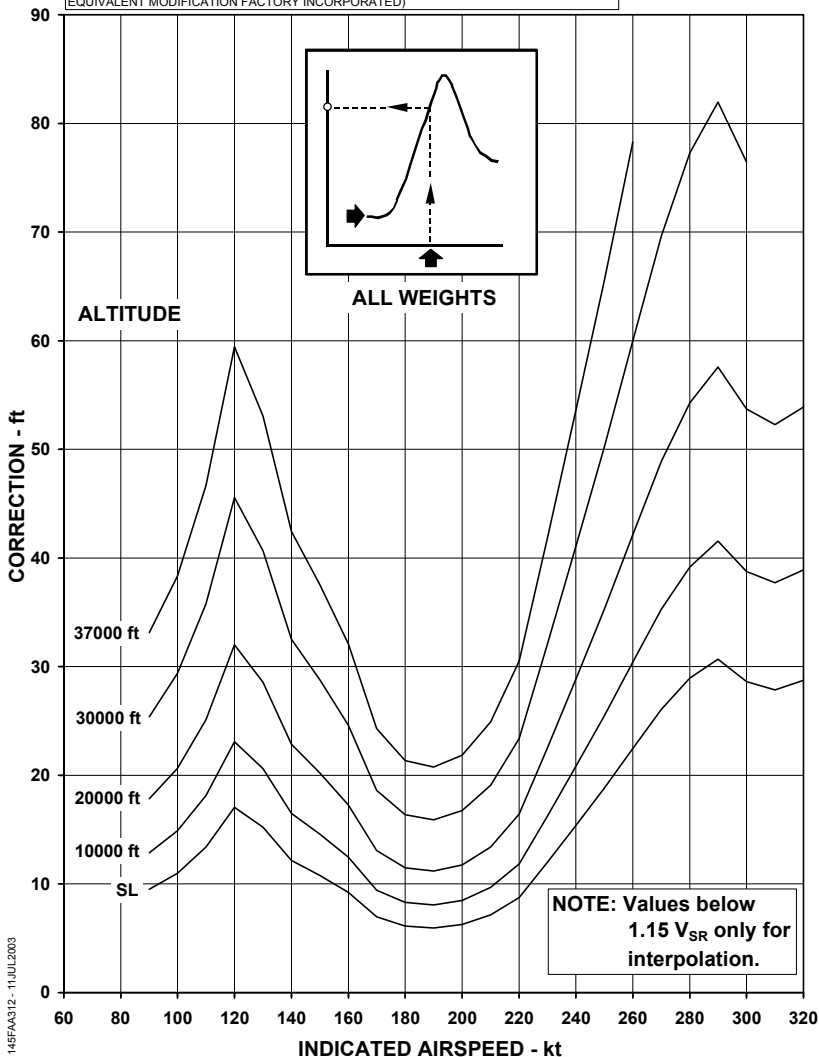
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**ALTITUDE POSITION ERROR CORRECTION
PILOT'S AND COPILOT'S PITOTS
GEAR UP - FLAPS UP**

AIRPLANES EQUIPPED FOR RVSM OPERATIONS (POST-MOD. SB 145-34-0082 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED)

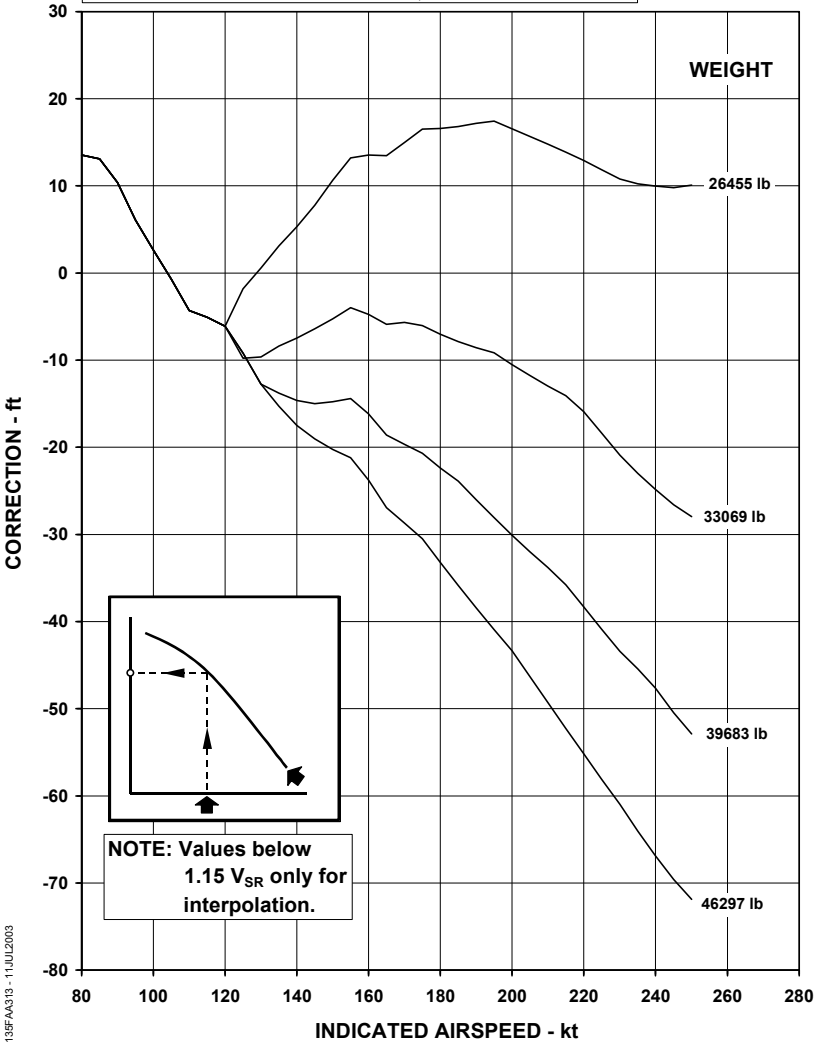




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PILOT'S AND COPILOT'S PITOTS**

GEAR UP - FLAPS 9°, 18° OR 22°

AIRPLANES EQUIPPED FOR RVSM OPERATIONS (POST-MOD. SB 145-34-0082 OR WITH AN
EQUIVALENT MODIFICATION FACTORY INCORPORATED)



139FAA313 - 11 JUL 2003



AIRPLANE FLIGHT MANUAL

SUPPLEMENT 10
OPERATION OF
EMB-135 MODELS

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SPEEDS IN THE STALL

The stalling speed is shown in the Stall Speed chart. Stalling speeds, with zero thrust in accordance with Airworthiness Requirements, are the reference for the various handling speeds herein presented. This chart is provided in terms of knots of calibrated airspeed for various weights and airplane configurations.

STALL SPEED CHART

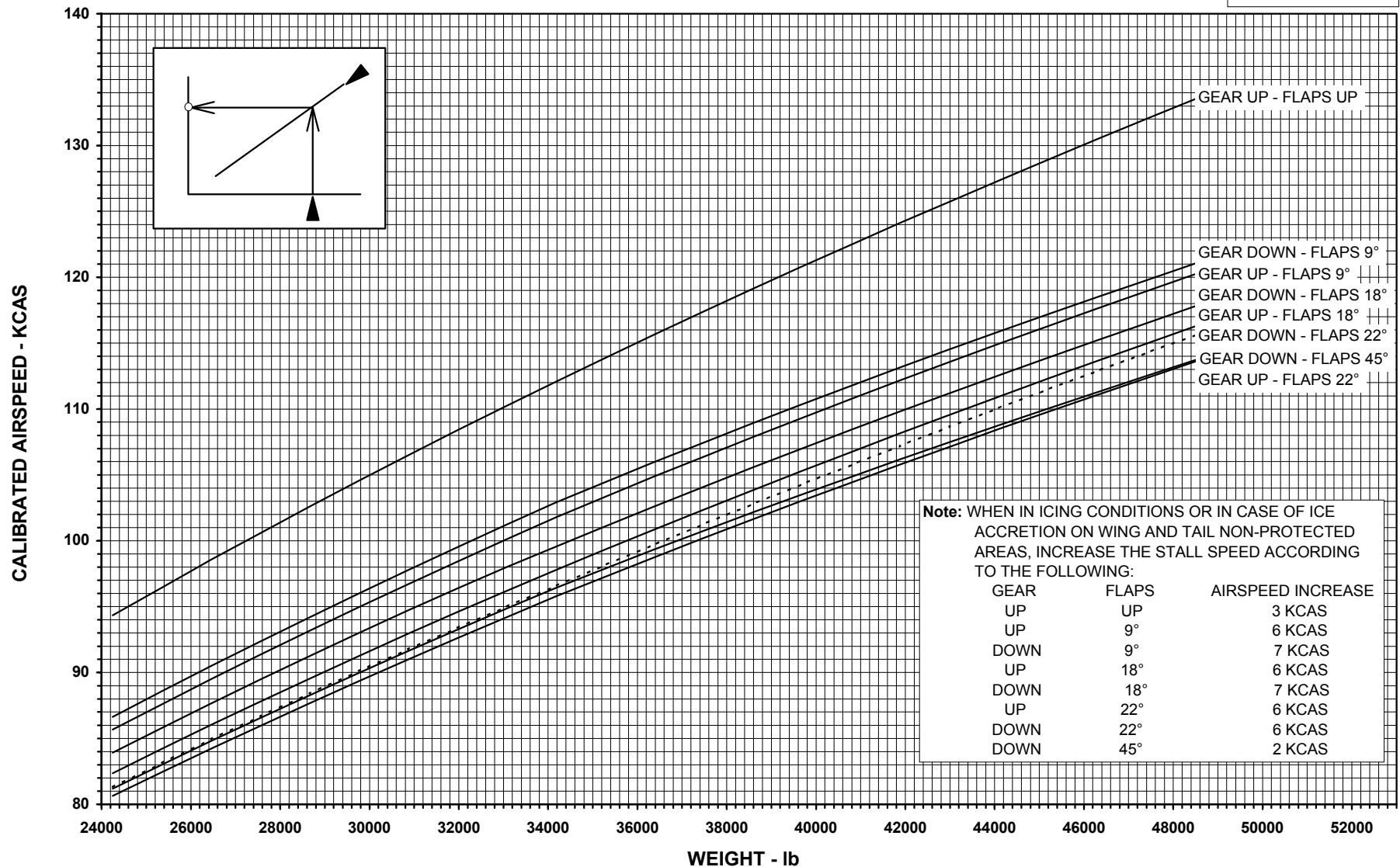
USE

Refer to the basic AFM.

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STALL SPEED (STICK PUSHER SPEED - V_{SR})
ZERO THRUST - FORWARD CG

AE3007A1/3 ENGINES



135FAA27 - 16DEC1999



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SUPPLEMENT 11

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REVISION	43 to 49	Not Applicable
REVISION	50	NOV 09, 2001
REVISION	51	JAN 14, 2002
REVISION	52	Not Applicable
REVISION	53	OCT 22, 2002
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GENERAL

This Supplement is provided to present the data required for EMB-135 operation with AE3007A1/3 engines. The information herein presented must replace the equivalent data in the basic AFM.

For performance information not contained in this Supplement, refer to the basic AFM.

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LIMITATIONS

POWER PLANT

ENGINES

Two Rolls-Royce AE3007A1/3.

OPERATIONAL LIMITS (ROLLS-ROYCE AE3007A1/3)

PARAMETER (1)	MIN	MAX
N1	-	100.0%
N2	-	102.4% (2)(3)
ITT:	-	-
START	-	800°C
TAKEOFF MODES	-	948°C (4)
MAX CONTINUOUS	-	901°C
OIL PRESSURE:	-	-
BELOW 88% N2	34 psi	95 psi (5)(6) 110 psi (5)(7)
AT OR ABOVE 88% N2	50 psi (8)	95 psi (6) 110 psi (7)
OIL TEMPERATURE	21°C (9)	126°C
FUEL TEMPERATURE	-54°C	52°C
VIBRATION:	-	-
LP SPOOL	-	1.8 IPS (10)
HP SPOOL	-	1.1 IPS (10)

- NOTE:** 1) Any engine exceedance or peak must be monitored and logged by the crew.
- 2) For airplanes Pre-Mod. SB 145-73-0031 the N2 limit is 102.5%.
- 3) For airplanes Post-Mod. SB 145-77-0004 the N2 limit is 105.0%
- 4) Time limited to 5 minutes.

CONTINUES ON NEXT PAGE

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- 5) May be exceeded during starts if oil temperature is below 21°C. The engine must remain at IDLE until the oil pressure is less than 95 psi (110 psi for airplanes Post-Mod. SB 145-73-0024 or equipped with an equivalent modification factory incorporated).
- 6) Operation in oil pressure amber range is permitted between 96 and 115 psi in all operational modes and time limited to 5 minutes, or between 116 and 155 psi in all operational modes time limited to 2 minutes. Total time above 95 psi may not exceed 5 minutes.
- 7) For airplanes Post-Mod. SB 145-73-0024 or equipped with an equivalent modification factory incorporated the upper limit of the oil pressure green band is 110 psi. Operation in oil pressure amber range is permitted between 111 psi and 115 psi in all operational modes time limited to 5 minutes, or between 116 and 155 psi in all operational modes time limited to 2 minutes. Total time above 110 psi may not exceed 5 minutes.
- 8) While this is an abnormal condition, operation between 50 psi and 34 psi is permitted during takeoff and go-around phases.
- 9) Minimum oil temperature for starting is -40°C for lubrication oil specified by MIL-L-23699D and -54°C for lubrication oil specified by MIL-L-7808K.
- 10) Vibration in the amber range below 2.5 IPS is time limited to 5 minutes during the takeoff or go-around phases or 10 seconds during the remainder flight phases.

TAKEOFF THRUST MODE

ALT T/O-1, T/O and T/O RSV modes are allowed for takeoff.

NOTE: - Takeoff in T/O RSV mode is intended to be used only for Thrust Assurance Check purposes and does not improve certified performance.

- For airplanes Post-Mod. SB 145-31-0016 or equipped with an equivalent modification factory incorporated the ALT T/O and T/O mode designations were changed to T/O and T/O RSV, respectively.

AIRSPEEDS

Only Normal V_2 takeoff is allowed for takeoff.

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PERFORMANCE

APPROACH CLIMB GRADIENT AND APPROACH CLIMB LIMITED WEIGHTS

Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Gradient by 1% and decrease the Approach Climb Limited Weight by 1820 lb.



AIRPLANE FLIGHT MANUAL

SUPPLEMENT 11
EMB-135 OPERATION WITH
AE3007A1/3 ENGINES

INTENTIONALLY BLANK

EMERGENCY AND ABNORMAL PROCEDURES

Emergency and Abnormal Procedures presented in the basic AFM remain unchanged.

NORMAL PROCEDURES

TAKEOFF IN T/O RSV MODE

NOTE: Takeoff in T/O RSV mode is intended to be used only for Thrust Assurance Check purposes and does not improve certified performance.

Thrust Levers THRUST SET
Check green ATTCS indication displayed on EICAS.
Thrust Levers MAX

NOTE: - If the runway is considered to be limiting, a static takeoff must be accomplished. In this case, release brakes after engine has reached the target N1.
- For rolling takeoffs, performance data is valid from the point where takeoff thrust is achieved.
- During takeoff run, pedals should be used to steer the airplane.

Engine Parameters MONITOR
At V_R , rotate the airplane to 14° (flaps 9°) or 13° (flaps 18°).

With positive rate of climb:

Landing Gear UP
Minimum Airspeed V_2
If maneuvering is required, maintain a minimum airspeed of $V_2 + 10$ KIAS with a maximum bank of 25° .

At level off height altitude:

For flaps 9° :
Airspeed $V_2 + 15$ KIAS
Flaps UP

For flaps 18° :
At $V_2 + 10$ KIAS:
Flaps 9°
At $V_2 + 30$ KIAS:
Flaps UP

PERFORMANCE

GENERAL

The performance data presented in this Supplement must replace the equivalent data in the basic AFM. These data are valid for T/O and ALT T/O-1 modes. Takeoff performance data for T/O RSV mode is only available through ETOASG Version 15.00/4.01 or later approved version.

NOTE: Takeoff in T/O RSV mode is intended to be used only for Thrust Assurance Check purposes and does not improve certified performance.

Maximum Landing Weight - Landing Climb Limited - Due to the associated conditions, the Maximum Landing Weight - Landing Climb Limited will never be limiting with landing flaps 22°.

The following performance charts listed are the same as the basic AFM and are not presented in this Supplement:

- MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED
- QUICK TURN AROUND WEIGHT

ENGINE DATA

The engine power readings used to obtain the installed engine power on which the airplane certified performance in this manual is based are shown in the Takeoff and Go-Around Thrust tables for T/O mode.

THRUST SETTING TABLES

Settings are shown for various pressure altitudes and Static Air Temperatures, with engine bleed closed or open, and anti-ice on or off. Takeoff and Go-Around tables are presented in two sets: one for anti-ice off and other for anti-ice on.

USE

Refer to the basic AFM.

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N1 FOR T/O MODE

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C											
	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	
-1000	74.7	75.5	76.4	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8	
0	75.3	76.1	77.0	77.8	78.7	79.5	80.3	81.1	81.9	82.7	83.5	
1000	76.3	77.2	78.0	78.9	79.7	80.6	81.4	82.2	83.0	83.8	84.6	
2000	77.3	78.2	79.1	80.0	80.8	81.7	82.5	83.3	84.1	84.9	85.8	
3000	78.3	79.2	80.1	81.0	81.8	82.7	83.5	84.4	85.2	86.0	86.8	
4000	79.3	80.2	81.1	82.0	82.8	83.7	84.6	85.4	86.2	87.1	87.9	
5000	80.2	81.1	82.0	82.9	83.8	84.7	85.6	86.4	87.3	88.1	88.9	
6000	80.7	81.7	82.6	83.5	84.4	85.2	86.1	87.0	87.8	88.7	89.5	
7000	81.3	82.2	83.1	84.0	84.9	85.8	86.7	87.5	88.4	89.2	90.1	
8000	81.8	82.7	83.6	84.6	85.5	86.4	87.2	88.1	89.0	89.8	90.7	

N1 FOR T/O MODE

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

0 5 10 15 20 25 30 35 40 45 50

-1000	83.6	84.3	85.1	85.8	86.6	87.3	88.0	88.8	89.5	90.2	90.3
0	84.2	85.0	85.8	86.5	87.3	88.0	88.8	89.5	90.2	90.9	90.8
1000	85.4	86.2	86.9	87.7	88.5	89.2	90.0	90.7	91.4	91.4	90.1
2000	86.5	87.3	88.1	88.9	89.7	90.4	91.2	91.9	92.0	90.9	90.1
3000	87.7	88.5	89.2	90.0	90.8	91.6	92.3	92.7	91.8	91.0	90.3
4000	88.7	89.5	90.3	91.1	91.9	92.7	93.2	93.1	91.8	91.0	90.7
5000	89.8	90.6	91.4	92.2	93.0	93.8	93.7	92.7	91.9	91.0	-
6000	90.3	91.2	92.0	92.8	93.6	94.0	93.2	92.6	91.7	91.2	-
7000	90.9	91.7	92.6	93.4	94.2	94.2	93.2	92.4	91.6	91.4	-
8000	91.5	92.4	93.2	94.0	94.5	94.4	93.1	92.3	91.6	-	-

N1 FOR T/O MODE

BLEED CLOSED - ANTI-ICE ON
AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	78.3	79.2	80.0	80.8	81.6	82.4	83.2	84.0	83.6	84.3	85.1
0	79.0	79.8	80.6	81.5	82.3	83.1	83.9	84.7	84.2	85.0	85.8
1000	80.0	80.9	81.7	82.6	83.4	84.2	85.0	85.8	85.4	86.2	86.9
2000	81.1	82.0	82.8	83.7	84.5	85.3	86.2	87.0	86.5	87.3	88.1
3000	82.1	83.0	83.9	84.7	85.6	86.4	87.2	88.1	87.7	88.5	89.2
4000	83.1	84.0	84.9	85.7	86.6	87.4	88.3	89.1	88.7	89.5	89.5
5000	84.1	85.0	85.9	86.7	87.6	88.5	89.3	90.2	89.8	90.5	89.5
6000	84.6	85.5	86.4	87.3	88.2	89.0	89.9	90.7	90.3	90.1	89.1
7000	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3	90.6	89.8	88.8
8000	85.7	86.6	87.5	88.4	89.3	90.2	91.0	91.8	90.0	89.3	88.4

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

-55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5

-1000	74.7	75.6	76.4	77.2	78.1	78.9	79.7	80.5	81.3	82.1	82.8
0	75.3	76.2	77.0	77.9	78.7	79.5	80.4	81.2	82.0	82.7	83.5
1000	76.3	77.2	78.1	78.9	79.7	80.6	81.4	82.2	83.0	83.8	84.6
2000	77.3	78.2	79.1	79.9	80.8	81.6	82.5	83.3	84.1	84.9	85.7
3000	78.3	79.2	80.0	80.9	81.8	82.6	83.5	84.3	85.1	86.0	86.8
4000	79.2	80.1	81.0	81.9	82.8	83.6	84.5	85.3	86.2	87.0	87.8
5000	80.2	81.1	82.0	82.9	83.8	84.6	85.5	86.4	87.2	88.1	88.9
6000	80.6	81.6	82.5	83.4	84.3	85.1	86.0	86.9	87.7	88.6	89.4
7000	81.1	82.0	82.9	83.8	84.7	85.6	86.5	87.4	88.2	89.1	89.9
8000	81.6	82.5	83.5	84.4	85.3	86.2	87.0	87.9	88.8	89.6	90.5

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	0	5	10	15	20	25	30	35	40	45	50
-1000	83.6	84.4	85.1	85.9	86.6	87.3	88.1	88.8	89.5	90.2	90.5
0	84.3	85.1	85.8	86.6	87.3	88.1	88.8	89.5	90.3	90.9	90.7
1000	85.4	86.2	87.0	87.7	88.5	89.2	90.0	90.7	91.4	91.5	89.9
2000	86.5	87.3	88.1	88.9	89.6	90.4	91.1	91.9	92.0	90.9	90.1
3000	87.6	88.4	89.2	90.0	90.7	91.5	92.3	92.6	91.7	90.9	90.3
4000	88.6	89.5	90.3	91.0	91.8	92.6	93.2	93.0	91.8	91.0	90.6
5000	89.7	90.5	91.3	92.1	92.9	93.7	93.6	92.6	91.8	91.0	-
6000	90.2	91.1	91.9	92.7	93.5	93.9	93.2	92.5	91.7	91.2	-
7000	90.7	91.6	92.4	93.2	94.0	94.1	93.2	92.4	91.6	91.4	-
8000	91.3	92.1	93.0	93.8	94.4	94.2	93.1	92.3	91.6	-	-

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

-55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5

-1000	75.8	76.7	77.5	78.4	79.2	80.0	80.9	81.7	82.5	83.3	84.1
0	76.4	77.3	78.2	79.0	79.9	80.7	81.5	82.3	83.2	84.0	84.7
1000	77.4	78.3	79.2	80.0	80.9	81.7	82.6	83.4	84.2	85.0	85.8
2000	78.4	79.3	80.2	81.1	81.9	82.8	83.6	84.5	85.3	86.1	86.9
3000	79.4	80.3	81.2	82.1	82.9	83.8	84.7	85.5	86.3	87.2	88.0
4000	80.3	81.2	82.1	83.0	83.9	84.8	85.7	86.5	87.4	88.2	89.1
5000	81.3	82.2	83.1	84.0	84.9	85.8	86.7	87.6	88.4	89.3	90.1
6000	81.7	82.7	83.6	84.5	85.4	86.3	87.2	88.1	88.9	89.8	90.6
7000	82.2	83.1	84.1	85.0	85.9	86.8	87.7	88.6	89.4	90.3	91.1
8000	82.7	83.7	84.6	85.5	86.4	87.3	88.2	89.1	90.0	90.8	91.7

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON
AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	0	5	10	15	20	25	30	35	40	45	
-1000	83.6	84.4	85.1	85.9	86.6	87.3	88.1	88.8	89.5	90.2	
0	84.3	85.1	85.8	86.6	87.3	88.1	88.8	89.5	90.3	90.9	
1000	85.4	86.2	87.0	87.7	88.5	89.2	90.0	90.7	91.4	91.5	
2000	86.5	87.3	88.1	88.9	89.6	90.4	91.1	91.9	92.0	90.9	
3000	87.6	88.4	89.2	90.0	90.7	91.5	92.3	92.6	91.7	90.9	
4000	88.6	89.5	89.8	91.0	91.8	92.6	93.2	93.0	91.8	91.0	
5000	89.7	90.5	89.8	92.1	92.9	93.7	93.6	92.6	91.8	91.0	
6000	90.2	90.5	89.5	92.7	93.5	93.9	93.2	92.5	91.7	91.2	
7000	90.7	90.2	89.2	93.2	94.0	94.1	93.2	92.4	91.6	91.4	
8000	90.6	89.7	88.8	93.8	94.4	94.2	93.1	92.3	91.6	-	

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

-55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5

-1000	74.7	75.5	76.4	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8
0	75.3	76.1	77.0	77.8	78.7	79.5	80.3	81.1	81.9	82.7	83.5
1000	76.3	77.1	78.0	78.8	79.7	80.5	81.3	82.1	82.9	83.7	84.5
2000	77.2	78.1	79.0	79.8	80.7	81.5	82.4	83.2	84.0	84.8	85.6
3000	78.2	79.1	80.0	80.9	81.7	82.6	83.4	84.2	85.1	85.9	86.7
4000	79.2	80.1	81.0	81.9	82.7	83.6	84.4	85.3	86.1	87.0	87.8
5000	80.1	81.1	82.0	82.9	83.7	84.6	85.5	86.3	87.2	88.0	88.9
6000	80.6	81.5	82.4	83.3	84.2	85.1	85.9	86.8	87.6	88.5	89.3
7000	81.0	81.9	82.8	83.7	84.6	85.5	86.4	87.2	88.1	88.9	89.8
8000	81.4	82.4	83.3	84.2	85.1	86.0	86.9	87.7	88.6	89.4	90.3

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF
AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude
(ft)

	0	5	10	15	20	25	30	35	40	45	50
-1000	83.5	84.3	85.1	85.8	86.5	87.3	88.0	88.7	89.5	90.2	90.4
0	84.2	85.0	85.8	86.5	87.3	88.0	88.7	89.5	90.2	90.8	90.6
1000	85.3	86.1	86.9	87.6	88.4	89.1	89.9	90.6	91.4	91.3	89.7
2000	86.4	87.2	88.0	88.8	89.5	90.3	91.0	91.8	91.9	90.7	89.8
3000	87.5	88.3	89.1	89.9	90.7	91.4	92.2	92.5	91.6	90.8	90.1
4000	88.6	89.4	90.2	91.0	91.8	92.6	93.1	93.0	91.6	90.8	90.5
5000	89.7	90.5	91.3	92.1	92.9	93.7	93.6	92.5	91.7	90.9	-
6000	90.2	91.0	91.8	92.6	93.4	93.8	93.1	92.4	91.6	91.1	-
7000	90.6	91.4	92.3	93.1	93.9	94.0	93.1	92.3	91.5	91.3	-
8000	91.1	92.0	92.8	93.6	94.2	94.1	93.0	92.2	91.5	-	-

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

-55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5

-1000	75.8	76.6	77.5	78.3	79.2	80.0	80.8	81.6	82.4	83.2	84.0
0	76.4	77.3	78.1	79.0	79.8	80.6	81.5	82.3	83.1	83.9	84.7
1000	77.4	78.2	79.1	80.0	80.8	81.7	82.5	83.3	84.2	85.0	85.8
2000	78.3	79.2	80.1	81.0	81.9	82.7	83.6	84.4	85.2	86.0	86.9
3000	79.3	80.2	81.1	82.0	82.9	83.7	84.6	85.4	86.3	87.1	87.9
4000	80.3	81.2	82.1	83.0	83.9	84.8	85.6	86.5	87.3	88.2	89.0
5000	81.3	82.2	83.1	84.0	84.9	85.8	86.7	87.5	88.4	89.2	90.1
6000	81.7	82.6	83.5	84.4	85.3	86.2	87.1	88.0	88.8	89.7	90.6
7000	82.1	83.0	84.0	84.9	85.8	86.7	87.6	88.4	89.3	90.2	91.0
8000	82.5	83.5	84.4	85.3	86.2	87.1	88.0	88.9	89.8	90.7	91.5

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON
AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	0	5	10	15	20	25	30	35	40	45	
-1000	83.5	84.3	85.1	85.8	86.5	87.3	88.0	88.7	89.5	90.2	
0	84.2	85.0	85.8	86.5	87.3	88.0	88.7	89.5	90.2	90.8	
1000	85.3	86.1	86.9	87.6	88.4	89.1	89.9	90.6	91.4	91.3	
2000	86.4	87.2	88.0	88.8	89.5	90.3	91.0	91.8	91.9	90.7	
3000	87.5	88.3	89.1	89.9	90.7	91.4	92.2	92.5	91.6	90.8	
4000	88.6	89.4	89.8	91.0	91.8	92.6	93.1	93.0	91.6	90.8	
5000	89.7	90.5	89.9	92.1	92.9	93.7	93.6	92.5	91.7	90.9	
6000	90.2	90.6	89.6	92.6	93.4	93.8	93.1	92.4	91.6	91.1	
7000	90.6	90.3	89.3	93.1	93.9	94.0	93.1	92.3	91.5	91.3	
8000	90.8	89.8	88.9	93.6	94.2	94.1	93.0	92.2	91.5	-	

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

-55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5

-1000	74.4	75.2	76.1	76.9	77.7	78.5	79.3	80.1	80.9	81.7	82.5
0	75.0	75.9	76.7	77.6	78.4	79.2	80.0	80.8	81.6	82.4	83.2
1000	76.1	76.9	77.8	78.6	79.5	80.3	81.1	81.9	82.7	83.5	84.3
2000	77.1	78.0	78.9	79.7	80.6	81.4	82.2	83.1	83.9	84.7	85.5
3000	78.1	79.0	79.9	80.8	81.6	82.5	83.3	84.2	85.0	85.8	86.6
4000	79.2	80.1	80.9	81.8	82.7	83.6	84.4	85.3	86.1	86.9	87.8
5000	80.2	81.1	82.0	82.9	83.8	84.6	85.5	86.4	87.2	88.1	88.9
6000	80.6	81.5	82.4	83.3	84.2	85.0	85.9	86.8	87.6	88.5	89.3
7000	80.9	81.8	82.8	83.7	84.6	85.4	86.3	87.2	88.0	88.9	89.7
8000	81.3	82.3	83.2	84.1	85.0	85.9	86.7	87.6	88.5	89.3	90.2

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF
AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	0	5	10	15	20	25	30	35	40	45	50
-1000	83.2	84.0	84.8	85.5	86.2	87.0	87.7	88.4	89.1	89.8	89.8
0	83.9	84.7	85.5	86.2	87.0	87.7	88.4	89.2	89.9	90.6	90.3
1000	85.1	85.9	86.7	87.4	88.2	88.9	89.7	90.4	91.1	91.1	89.3
2000	86.3	87.1	87.8	88.6	89.4	90.1	90.9	91.6	91.8	90.5	89.4
3000	87.4	88.2	89.0	89.8	90.6	91.3	92.1	92.5	91.5	90.5	89.7
4000	88.6	89.4	90.2	91.0	91.8	92.5	93.1	92.9	91.5	90.6	90.2
5000	89.7	90.5	91.3	92.1	92.9	93.7	93.6	92.4	91.6	90.7	-
6000	90.1	91.0	91.8	92.6	93.4	93.8	93.0	92.3	91.5	91.0	-
7000	90.6	91.4	92.2	93.0	93.8	93.9	93.0	92.3	91.5	91.3	-
8000	91.0	91.8	92.7	93.5	94.1	94.0	92.9	92.2	91.5	-	-

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	75.5	76.4	77.2	78.1	78.9	79.7	80.5	81.3	82.1	82.9	83.7
0	76.1	77.0	77.9	78.7	79.5	80.4	81.2	82.0	82.8	83.6	84.4
1000	77.2	78.1	78.9	79.8	80.6	81.5	82.3	83.1	83.9	84.8	85.6
2000	78.2	79.1	80.0	80.9	81.7	82.6	83.4	84.3	85.1	85.9	86.7
3000	79.3	80.2	81.0	81.9	82.8	83.7	84.5	85.4	86.2	87.0	87.9
4000	80.3	81.2	82.1	83.0	83.9	84.7	85.6	86.5	87.3	88.2	89.0
5000	81.3	82.2	83.1	84.0	84.9	85.8	86.7	87.6	88.4	89.3	90.1
6000	81.7	82.6	83.5	84.4	85.3	86.2	87.1	88.0	88.8	89.7	90.5
7000	82.0	83.0	83.9	84.8	85.7	86.6	87.5	88.4	89.2	90.1	91.0
8000	82.5	83.4	84.3	85.2	86.1	87.0	87.9	88.8	89.7	90.6	91.4

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON
AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1/3 ENGINES

Pressure

Static Air Temperature - °C

Altitude
(ft)

	0	5	10	15	20	25	30	35	40	45
-1000	83.2	84.0	84.8	85.5	86.2	87.0	87.7	88.4	89.1	89.8
0	83.9	84.7	85.5	86.2	87.0	87.7	88.4	89.2	89.9	90.6
1000	85.1	85.9	86.7	87.4	88.2	88.9	89.7	90.4	91.1	91.1
2000	86.3	87.1	87.8	88.6	89.4	90.1	90.9	91.6	91.8	90.5
3000	87.4	88.2	89.0	89.8	90.6	91.3	92.1	92.5	91.5	90.5
4000	88.6	89.4	89.8	91.0	91.8	92.5	93.1	92.9	91.5	90.6
5000	89.7	90.5	89.9	92.1	92.9	93.7	93.6	92.4	91.6	90.7
6000	90.1	90.7	89.7	92.6	93.4	93.8	93.0	92.3	91.5	91.0
7000	90.6	90.5	89.5	93.0	93.8	93.9	93.0	92.3	91.5	91.3
8000	91.0	90.1	89.0	93.5	94.1	94.0	92.9	92.2	91.5	-



TAKEOFF CLIMB

The maximum takeoff weight for altitude and temperature in compliance with the airworthiness climb requirements is shown in the Maximum Takeoff Weight - Climb Limited charts.

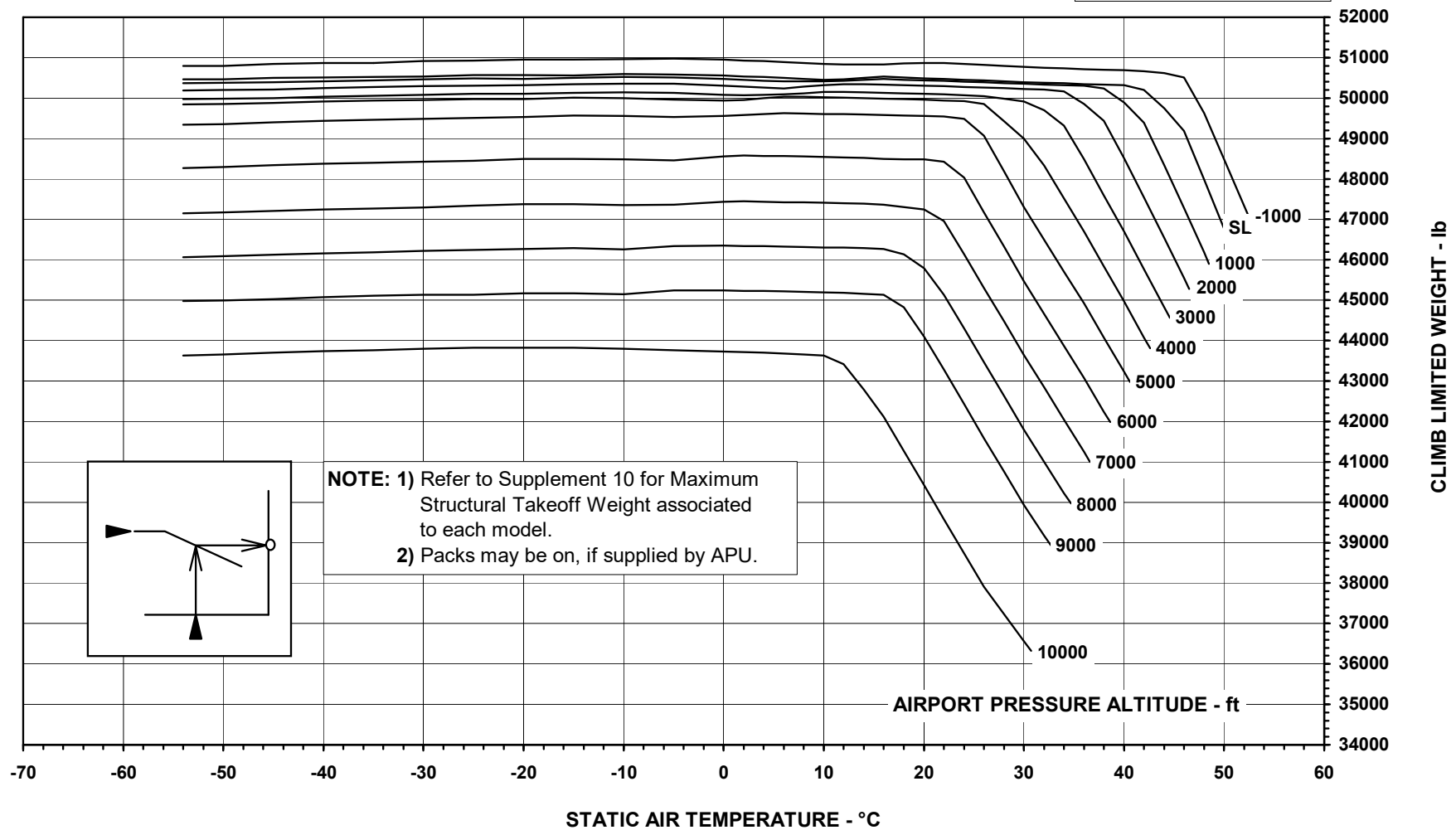
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED CHARTS

USE

Refer to the basic AFM.

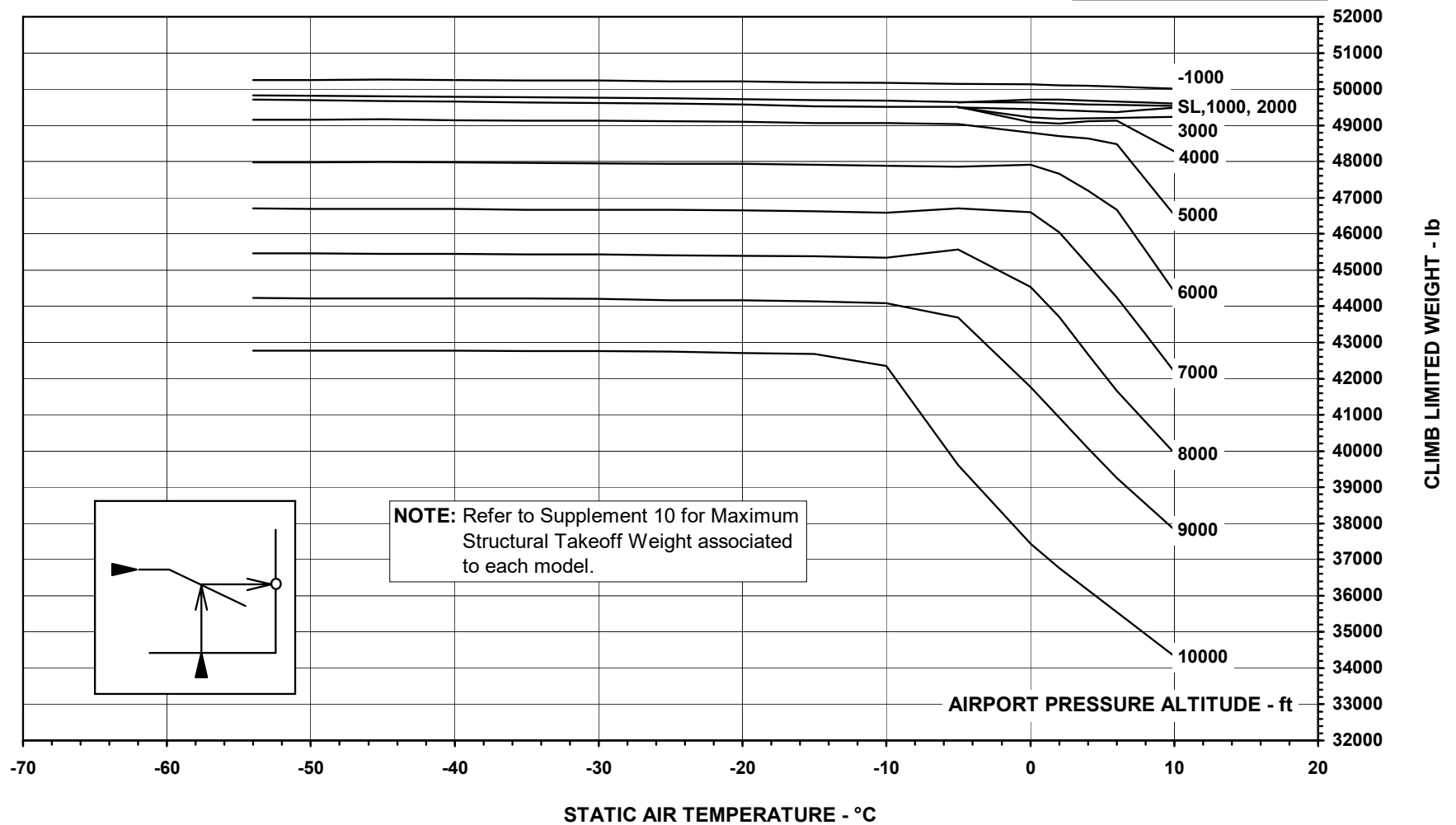
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED**FLAPS 9°****NORMAL V_2 - ALT T/O MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF**

AE3007A1/3 ENGINES WITH T/R



MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9°
NORMAL V_2 - ALT T/O MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON

AE3007A1/3 ENGINES WITH T/R

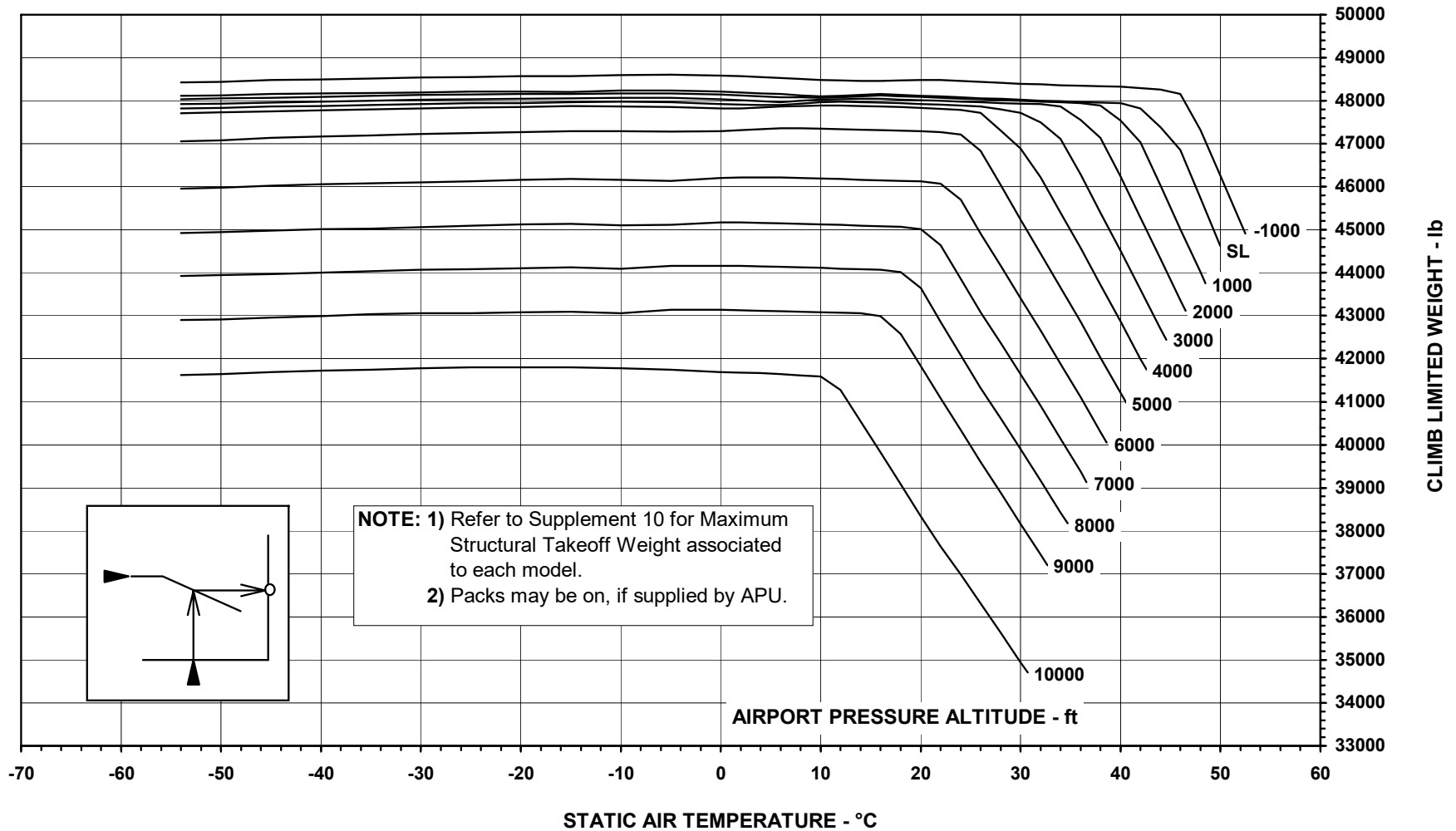


MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED

FLAPS 9°

NORMAL V_2 - ALT T/O-1 MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AE3007A1/3 ENGINES WITH T/R

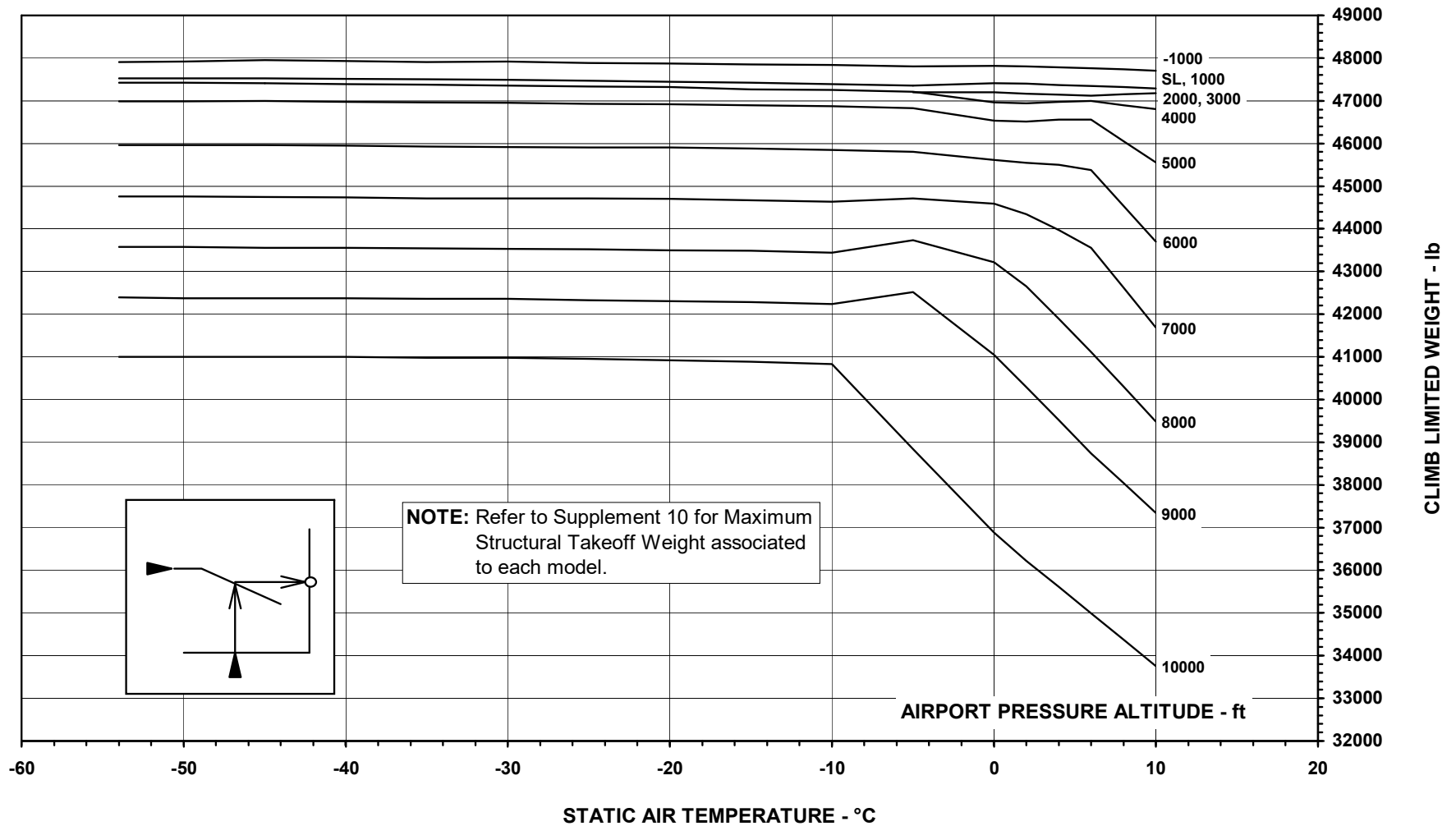


MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED

FLAPS 9°

NORMAL V_2 - ALT T/O-1 MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON

AE3007A1/3 ENGINES WITH T/R



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TAKEOFF FIELD LENGTHS

The maximum takeoff weight to enable compliance with operating regulations relating to takeoff field lengths is shown in the Maximum Takeoff Weight - Field Length Limited charts.

MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED CHARTS

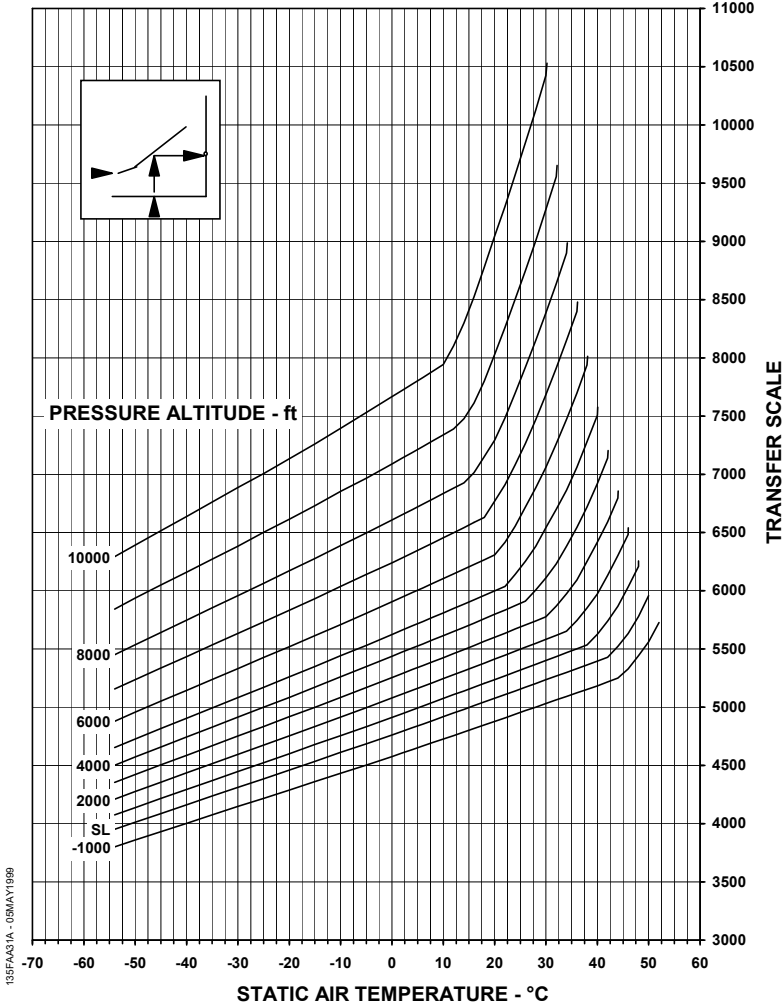
USE

Refer to the basic AFM.

**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**

ALT T/O MODE - FLAPS 9° - BLEED CLOSED - PACKS OFF
FADEC REF A/ICE OFF - BALANCED FIELD LENGTH - NORMAL V_2
CHART 1 OF 2

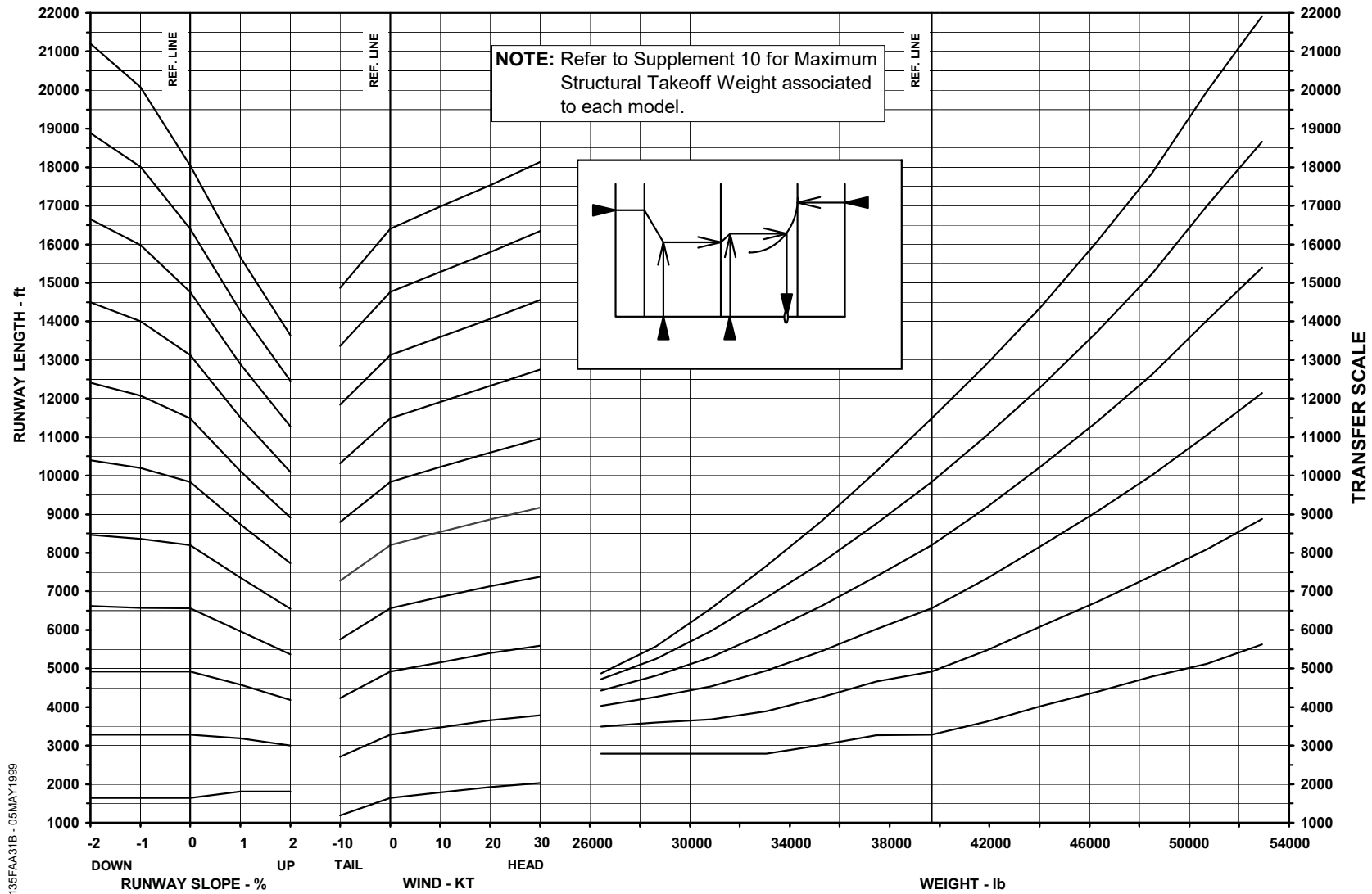
AE3007A1/3 ENGINES WITH T/R



135FA31A - 09MAY1999

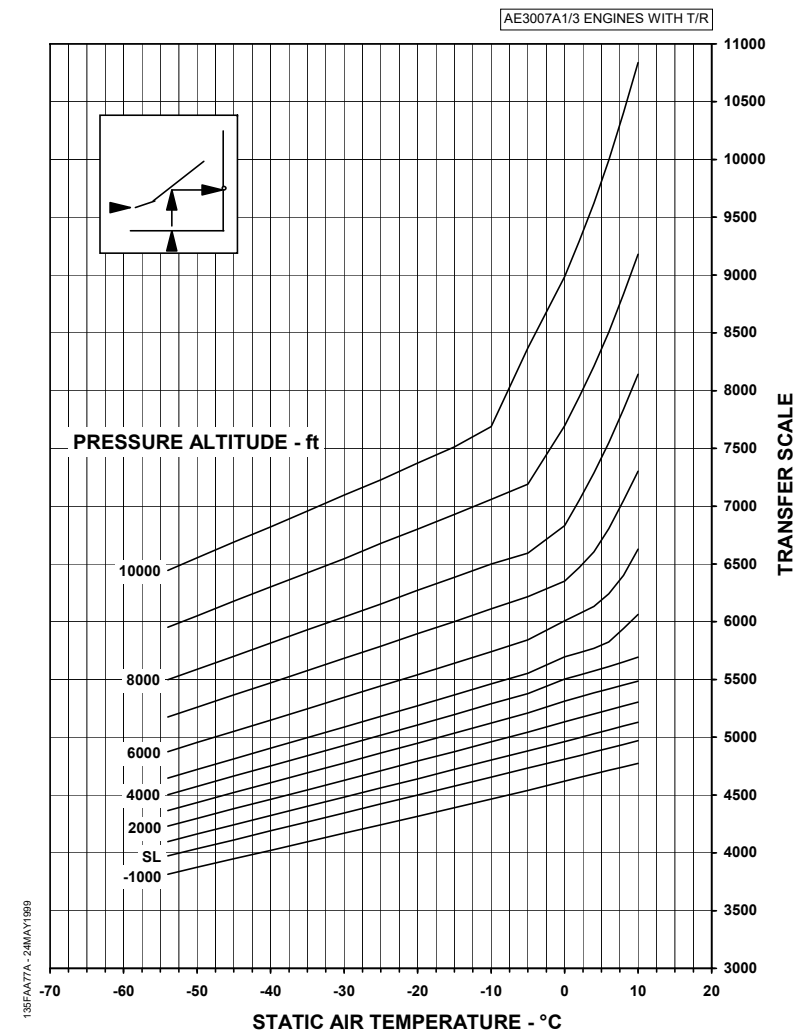
MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
ALT T/O MODE - FLAPS 9° - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - BALANCED FIELD LENGTH - NORMAL V_2
CHART 2 OF 2

AE3007A1/3 ENGINES WITH T/R



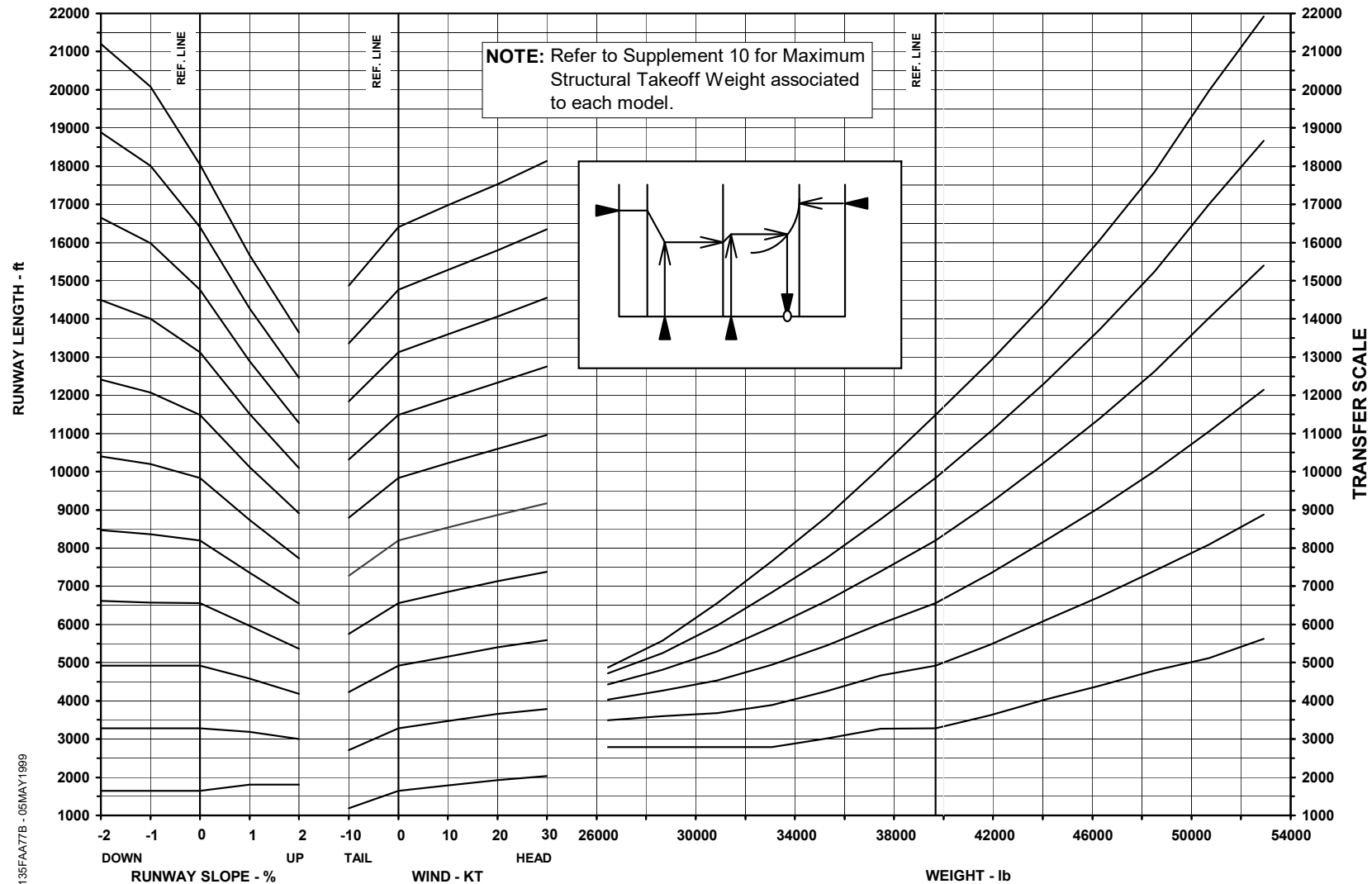
**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**

ALT T/O MODE - FLAPS 9° - BLEED OPEN - PACKS OFF -
FADEC REF A/ICE ON - BALANCED FIELD LENGTH - NORMAL V_2
CHART 1 OF 2



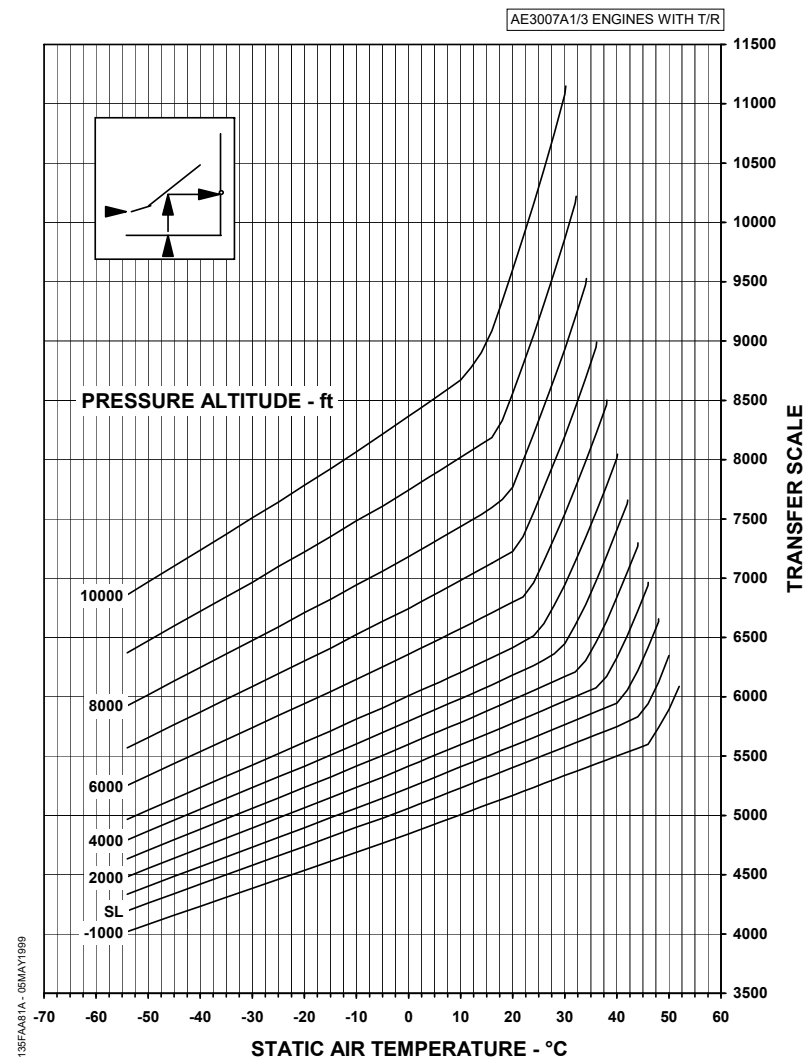
MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
ALT T/O MODE - FLAPS 9° - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - BALANCED FIELD LENGTH - NORMAL V_2
CHART 2 OF 2

AE3007A1/3 ENGINES WITH T/R



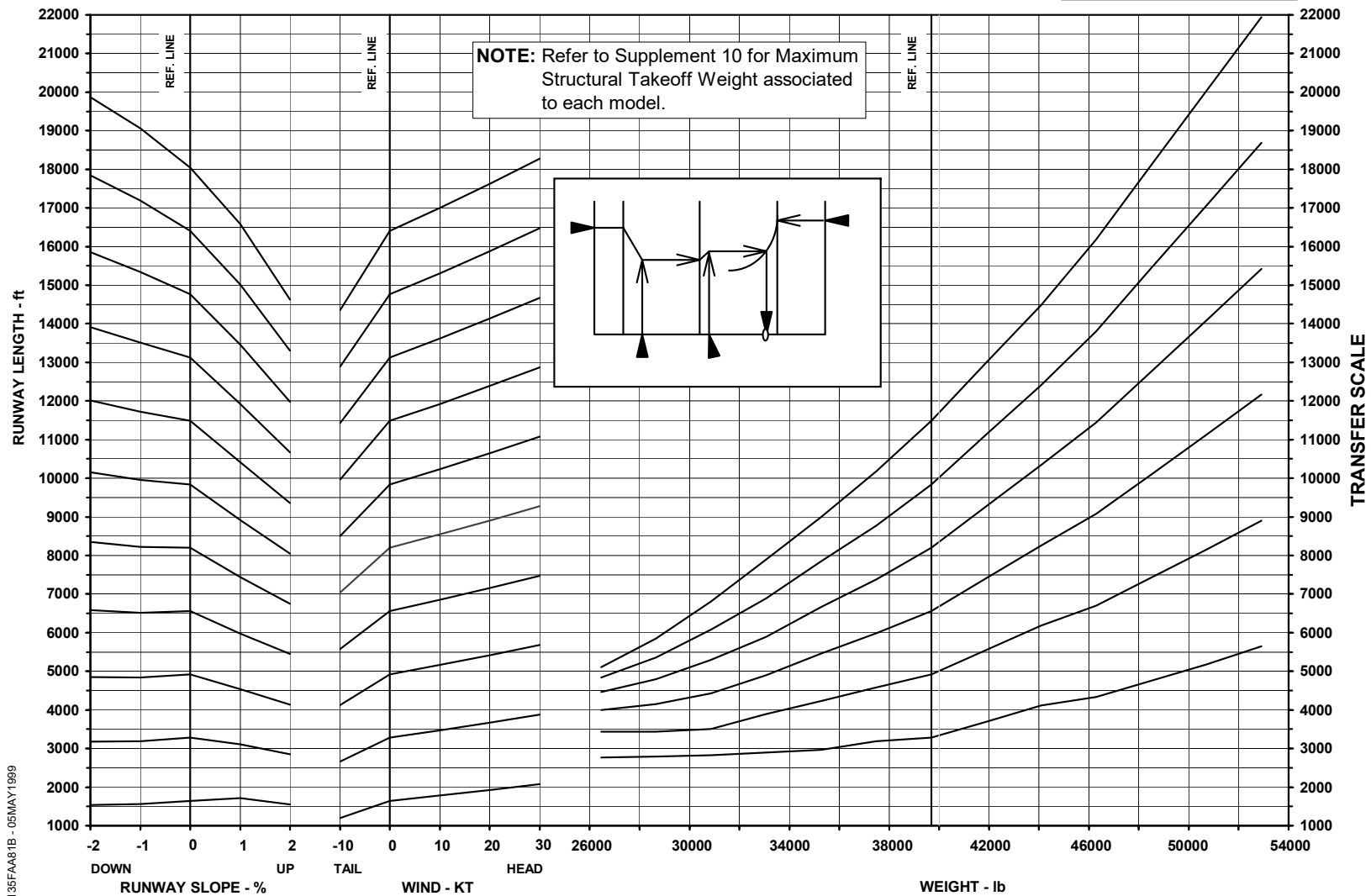
**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**

ALT T/O-1 MODE - FLAPS 9° - BLEED CLOSED - PACKS OFF
FADEC REF A/ICE OFF - BALANCED FIELD LENGTH - NORMAL V_2
CHART 1 OF 2

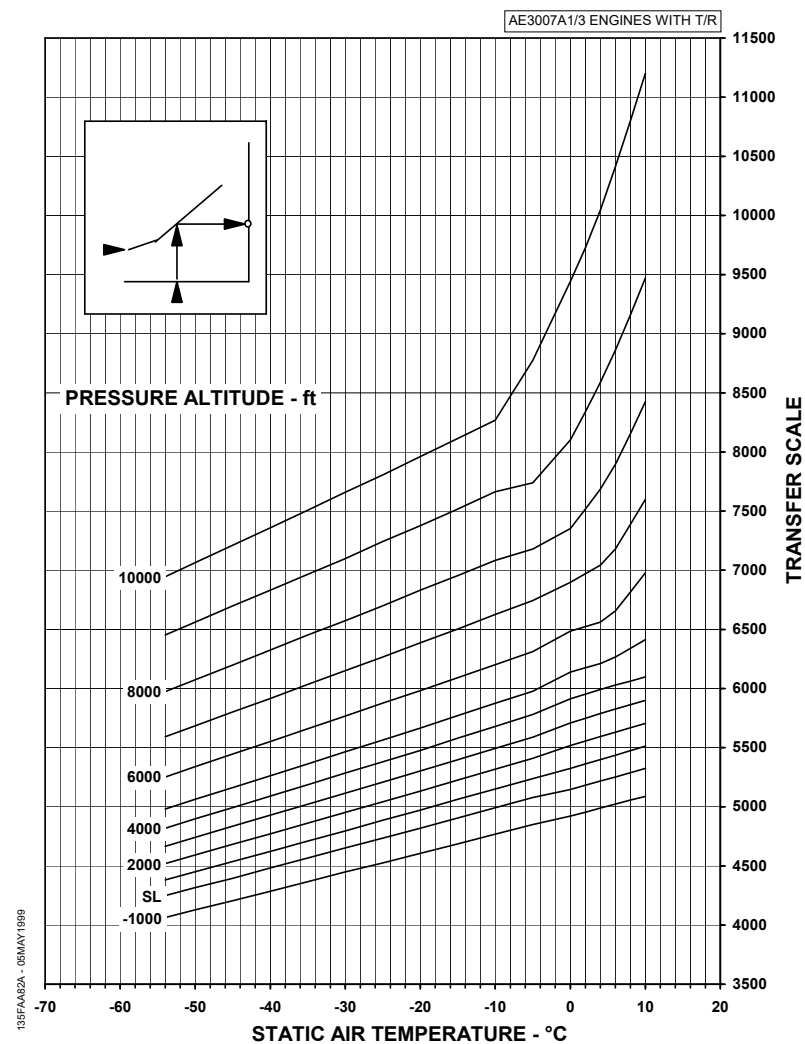


MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
ALT T/O-1 MODE - FLAPS 9° - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - BALANCED FIELD LENGTH - NORMAL V_2
CHART 2 OF 2

AE3007A1/3 ENGINES WITH T/R

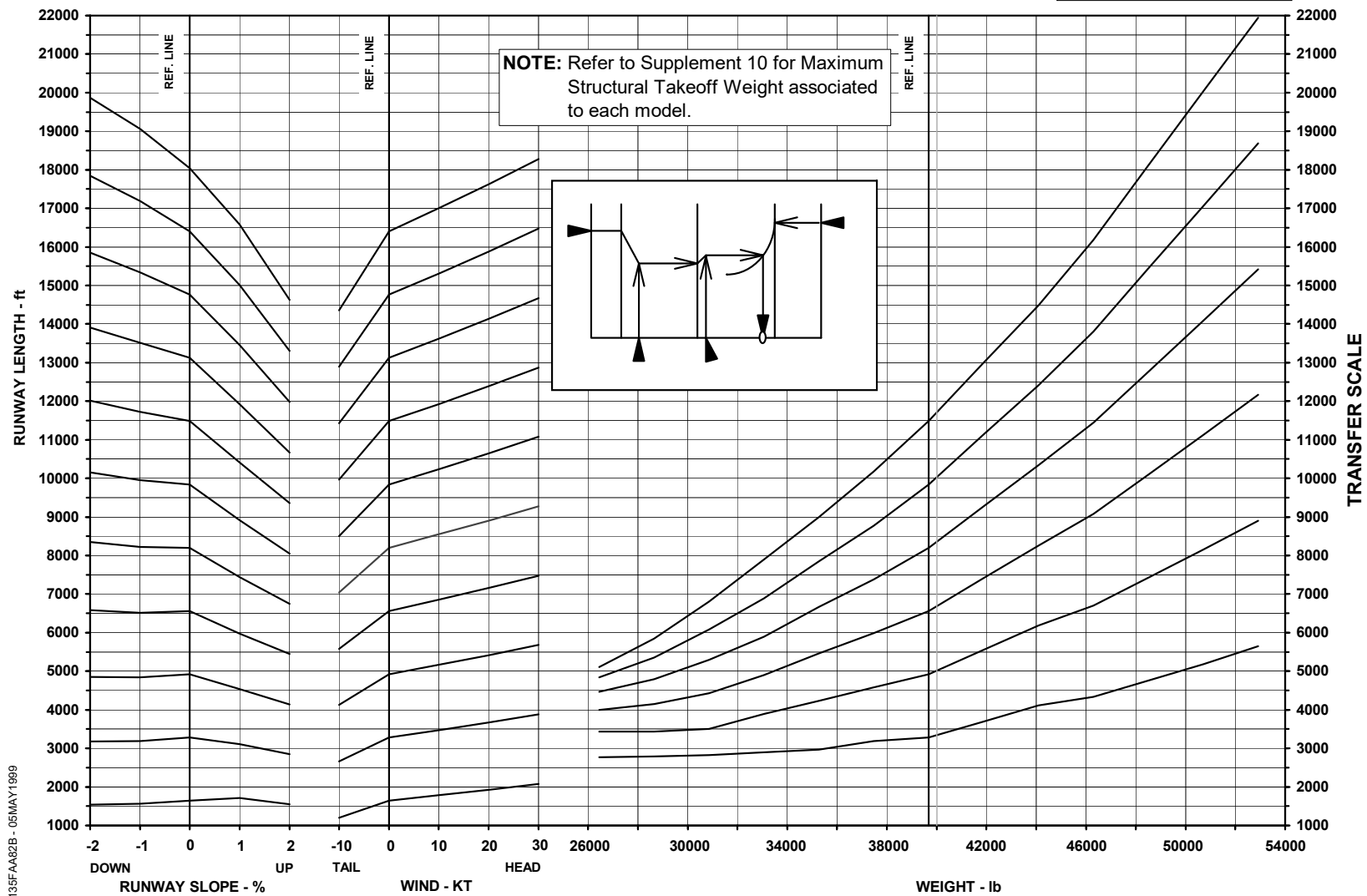


**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**
ALT T/O-1 MODE - FLAPS 9° - BLEED OPEN - PACKS OFF
FADEC REF A/ICE ON - BALANCED FIELD LENGTH - NORMAL V_2
CHART 1 OF 2



MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
 ALT T/O-1 MODE - FLAPS 9° - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - BALANCED FIELD LENGTH - NORMAL V_2
 CHART 2 OF 2

AE3007A1/3 ENGINES WITH T/R



BRAKE ENERGY

The maximum takeoff weight to enable compliance with brake energy requirements is shown in the Maximum Takeoff Weight - Brake Energy Limited chart.

MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED CHART

One chart for takeoffs with flaps 9° is provided. This chart allows obtaining the Maximum Takeoff Weight - Brake Energy Limited for takeoffs with normal V_2 .

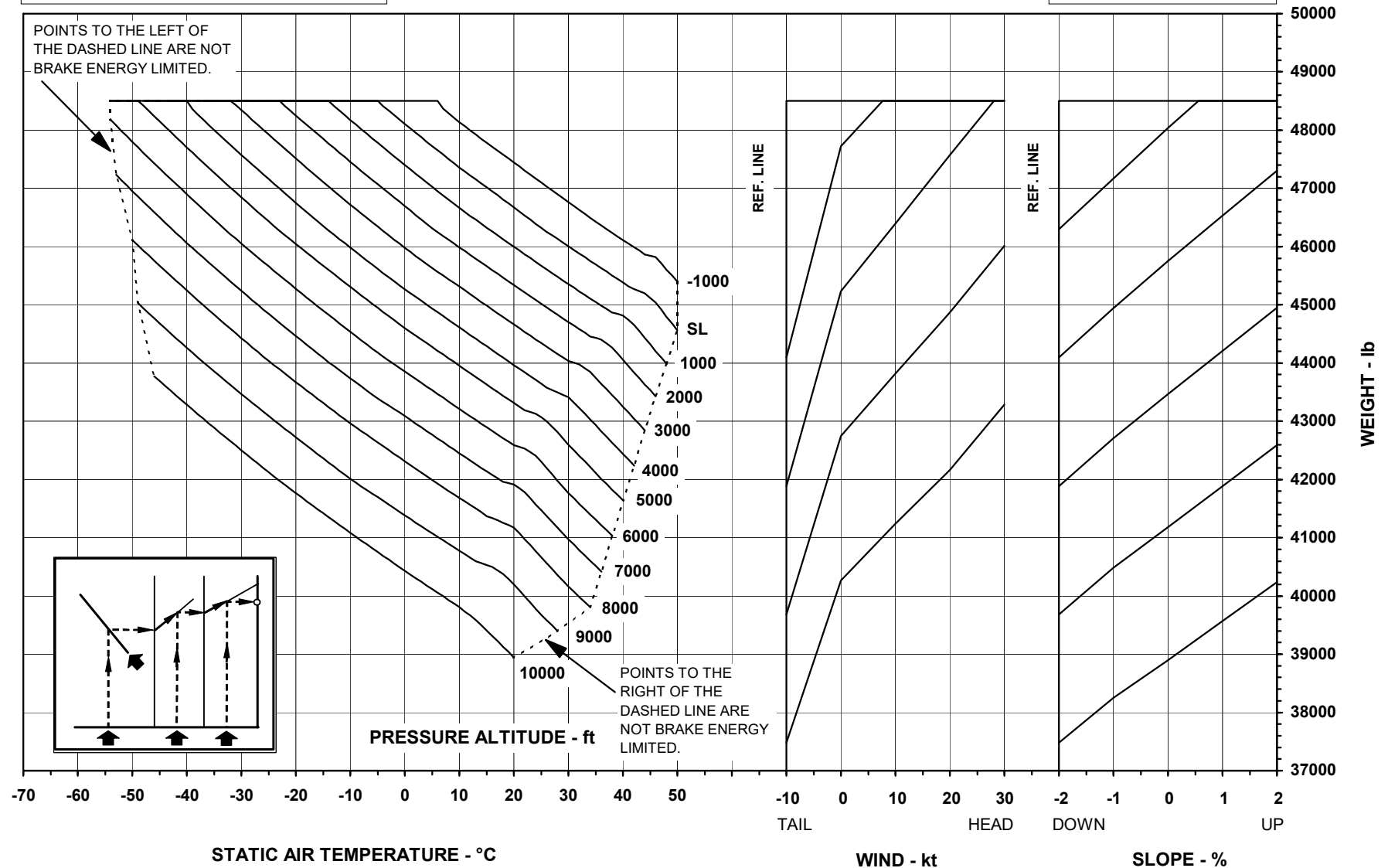
USE

Refer to the basic AFM.

MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED FLAPS 9° - NORMAL V_2

AIRPLANES EQUIPPED WITH ER VERSION BRAKES

AE3007A1/3 ENGINES WITH T/R



NET TAKEOFF FLIGHT PATH

The net flight path graphs are provided to allow calculation of obstacle clearance after takeoff. It is necessary to establish that all obstacles in the takeoff path will be cleared, once this is done there is no need for proceeding further with the calculations.

The construction of the flight path assumes that the airplane is flown in the following manner:

- Engine failure has been recognized at V_1 .
- Landing gear is selected up after liftoff, with positive rate of climb. At the end of the takeoff distance, where the net flight path begins, the landing gear is still retracting. The speed is V_2 .
- The climb is continued to the acceleration height where the airplane accelerates in level flight to the final segment speed, and retracts the flaps.
- When final segment speed is reached, and flaps are retracted, climb is resumed as far as necessary.
- If the flight path has to be extended beyond the limits of the net flight path data, the enroute climb chart must be used.

TAKEOFF NET FLIGHT PATH - REFERENCE GRADIENT

The reference gradient to be used on the obstacle analysis is shown in the Obstacle Clearance - Reference Gradient charts.

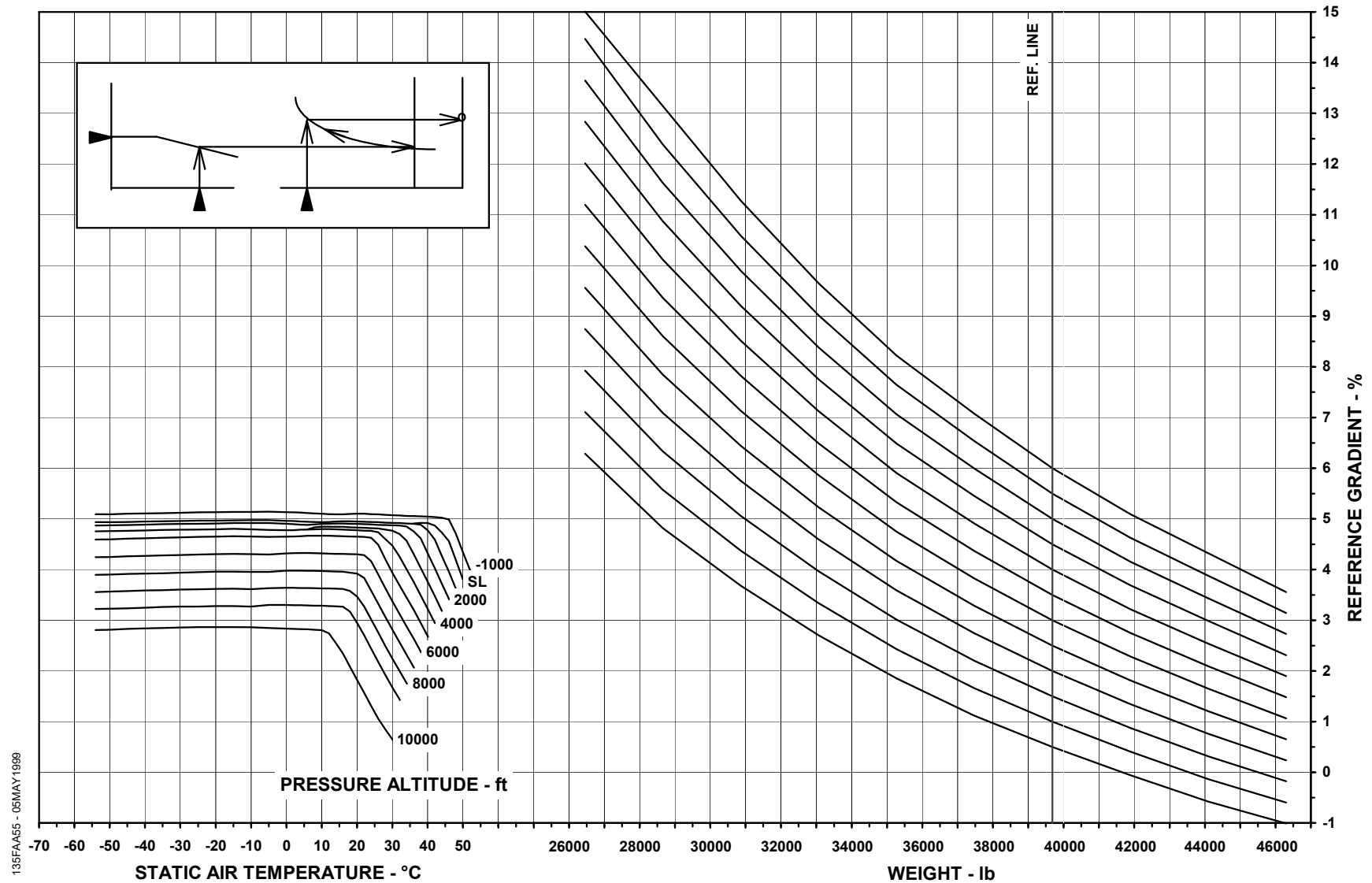
OBSTACLE CLEARANCE - REFERENCE GRADIENT CHARTS

USE

Refer to the basic AFM.

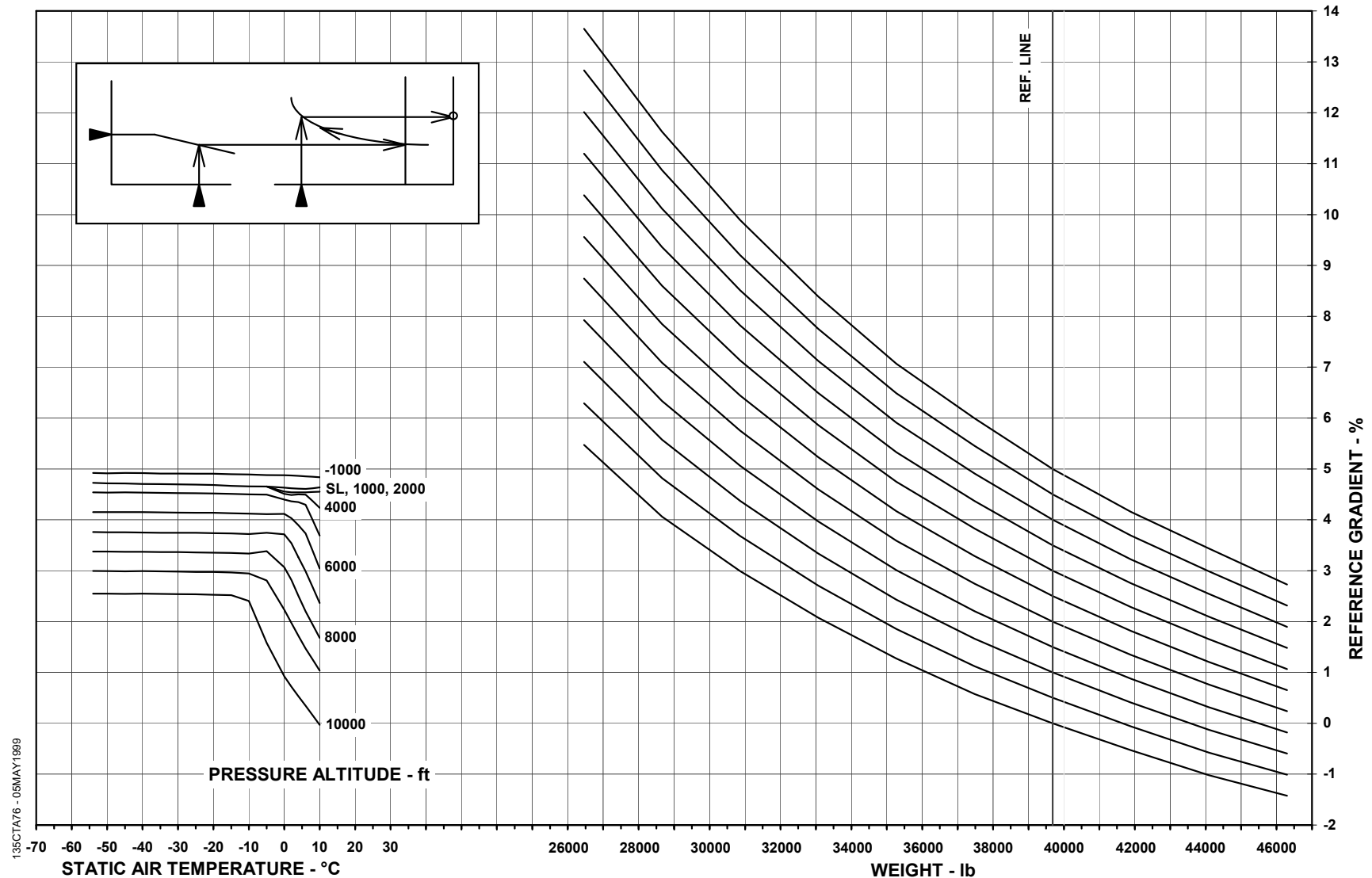
OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - ALT T/O MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AE3007A1/3 ENGINES WITH T/R



OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - ALT T/O MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON

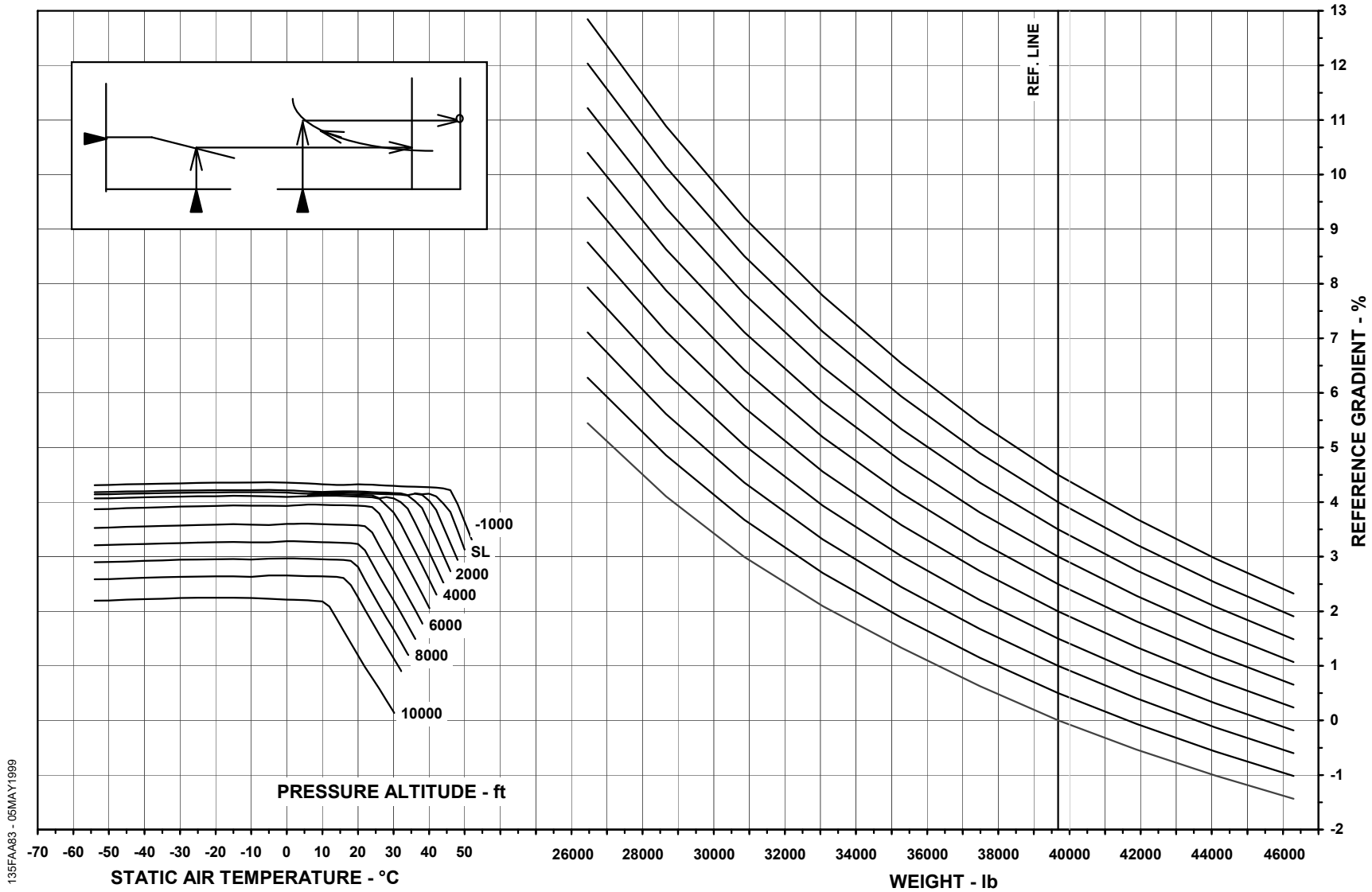
AE3007A1/3 ENGINES WITH T/R



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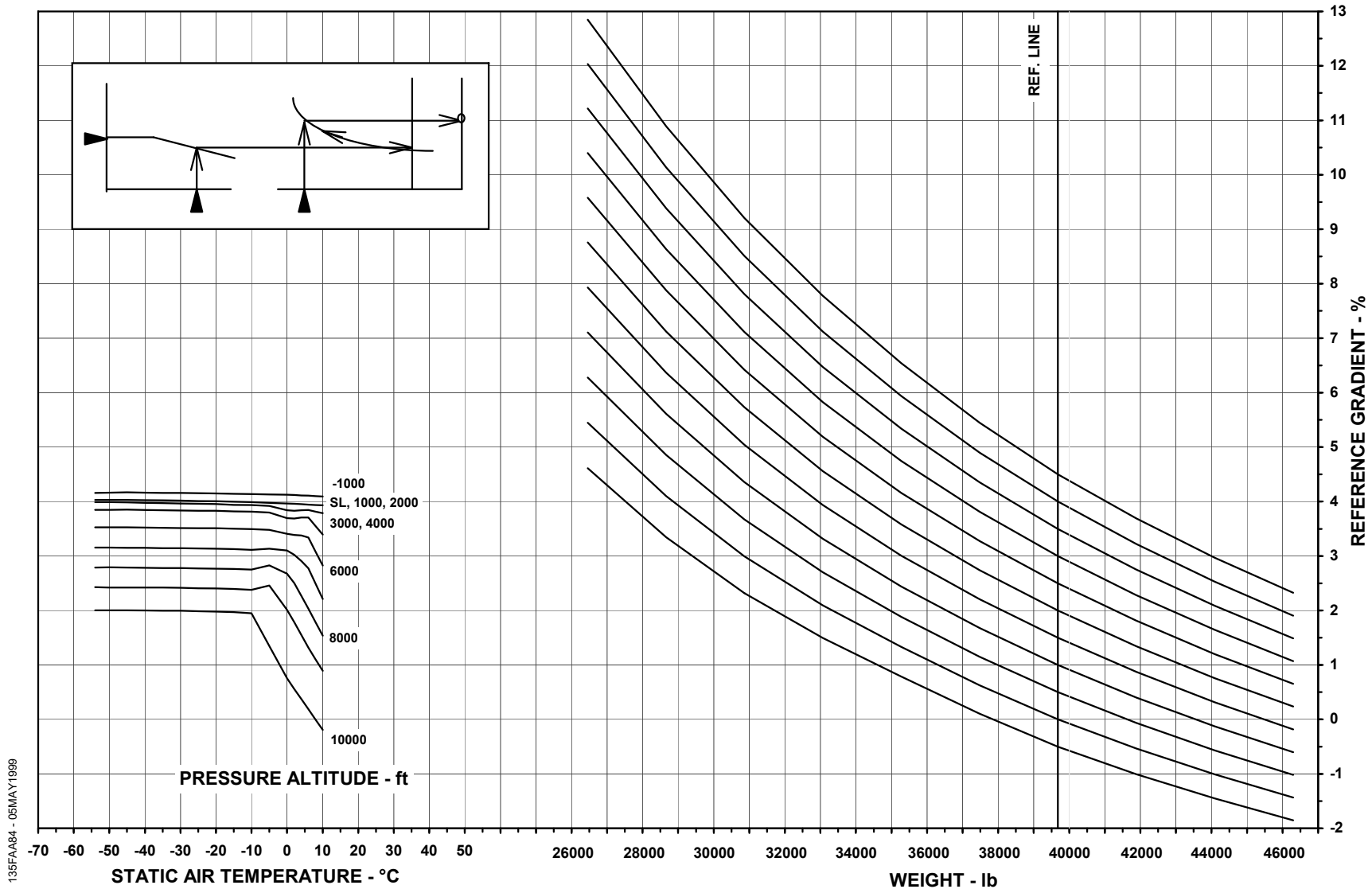
OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - ALT T/O-1 MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AE3007A1/3 ENGINES WITH T/R



OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - ALT T/O-1 MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON

AE3007A1/3 ENGINES WITH T/R



135FAA84 - 05MAY1999

AFM-145/1153 - FAA

TAKEOFF NET FLIGHT PATH - OBSTACLE CLEARANCE

The takeoff net flight path for the first and second segment is shown in Obstacle Clearance charts.

Associated conditions:

Airspeed	V _{LOF} TO V ₂ (FIRST SEGMENT) V ₂ (SECOND SEGMENT)
Flaps	9°
Landing gear	RETRACTING (FIRST SEGMENT) UP (SECOND SEGMENT)
Operating engine	TAKEOFF POWER

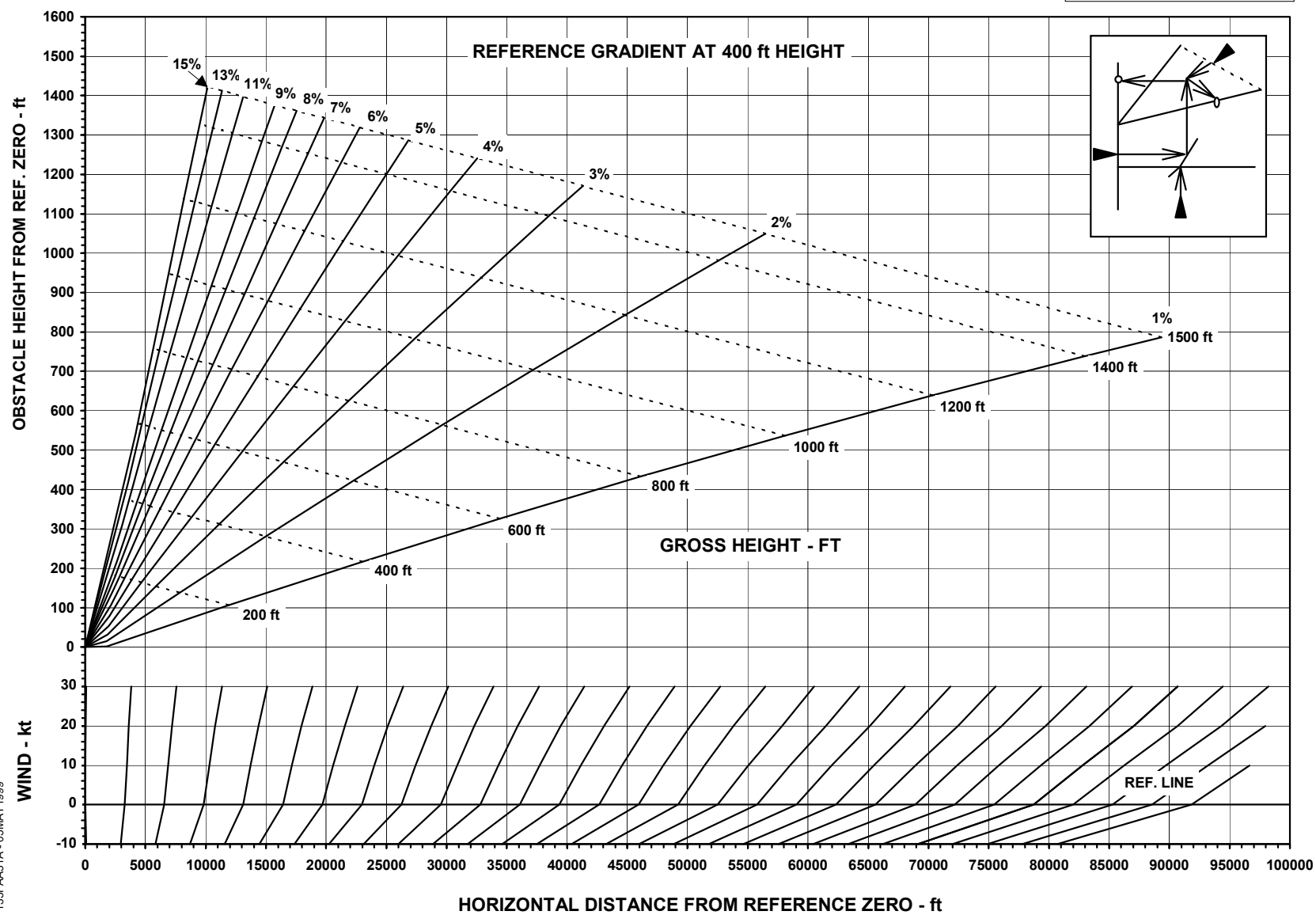
OBSTACLE CLEARANCE CHARTS

USE

Refer to the basic AFM.

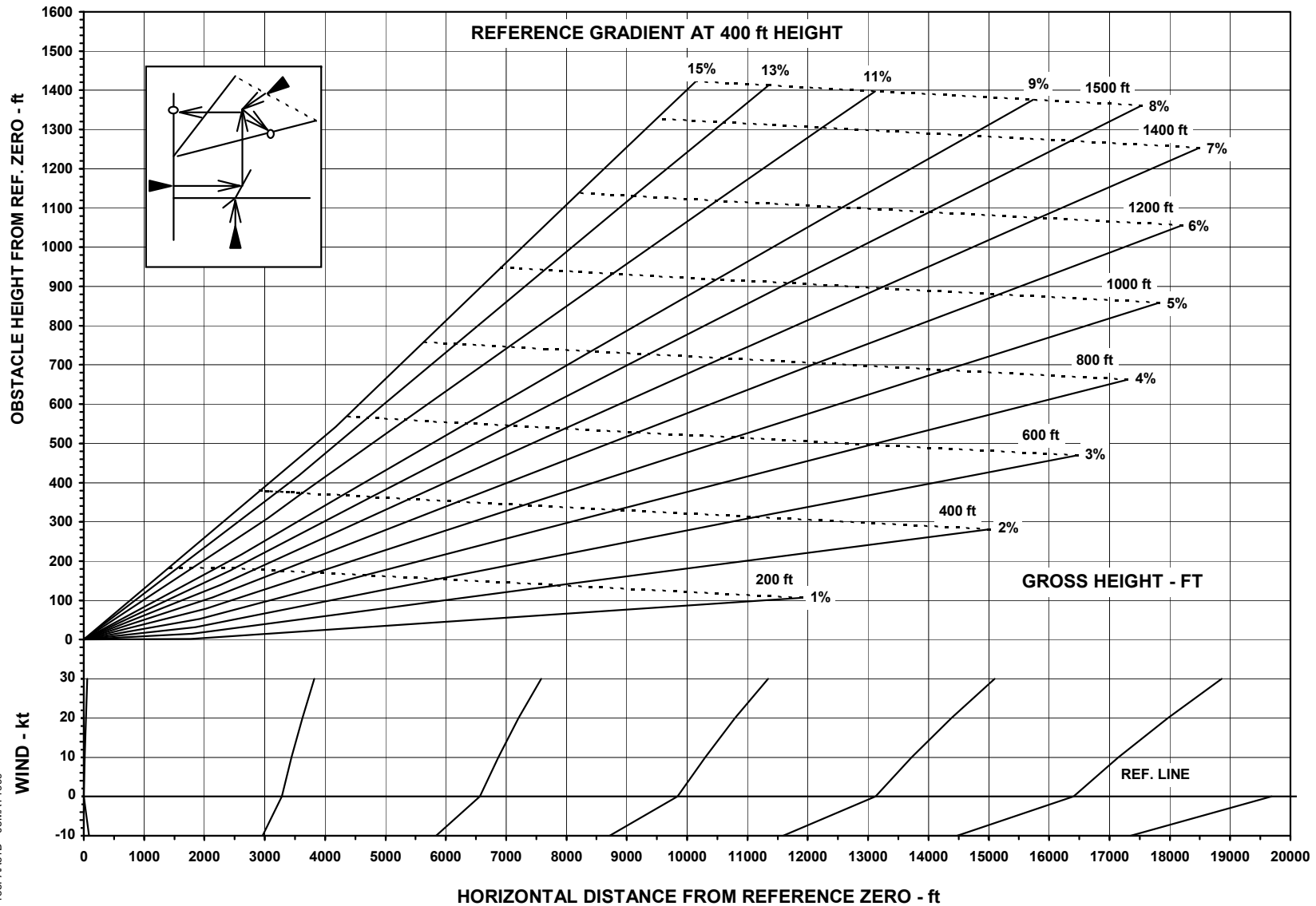
OBSTACLE CLEARANCE - DISTANT
 ALT T/O MODE - FLAPS 9°

AE3007A1/3 ENGINES WITH T/R



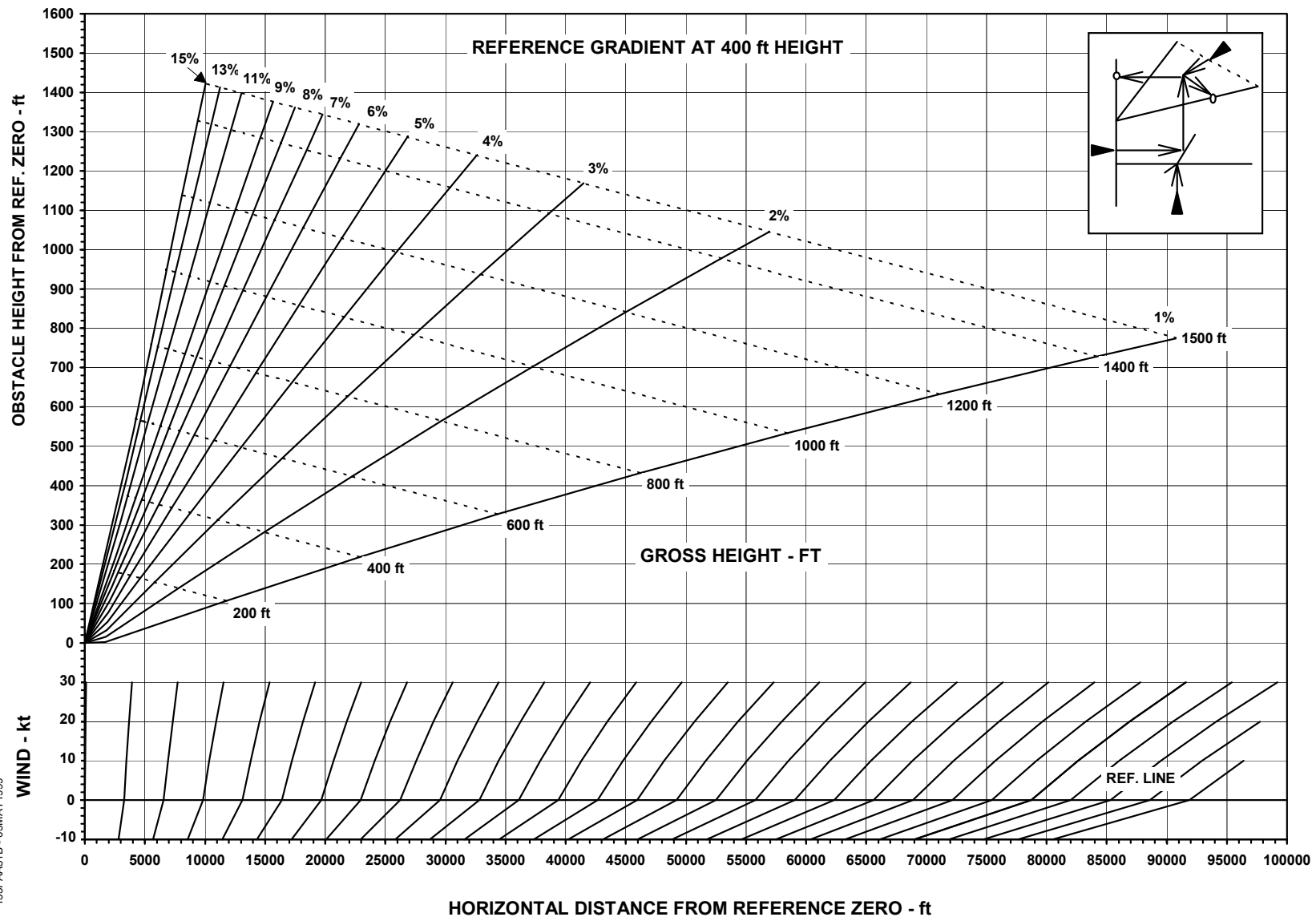
OBSTACLE CLEARANCE - CLOSE-IN
ALT T/O MODE - FLAPS 9°

AE3007A1/3 ENGINES WITH T/R



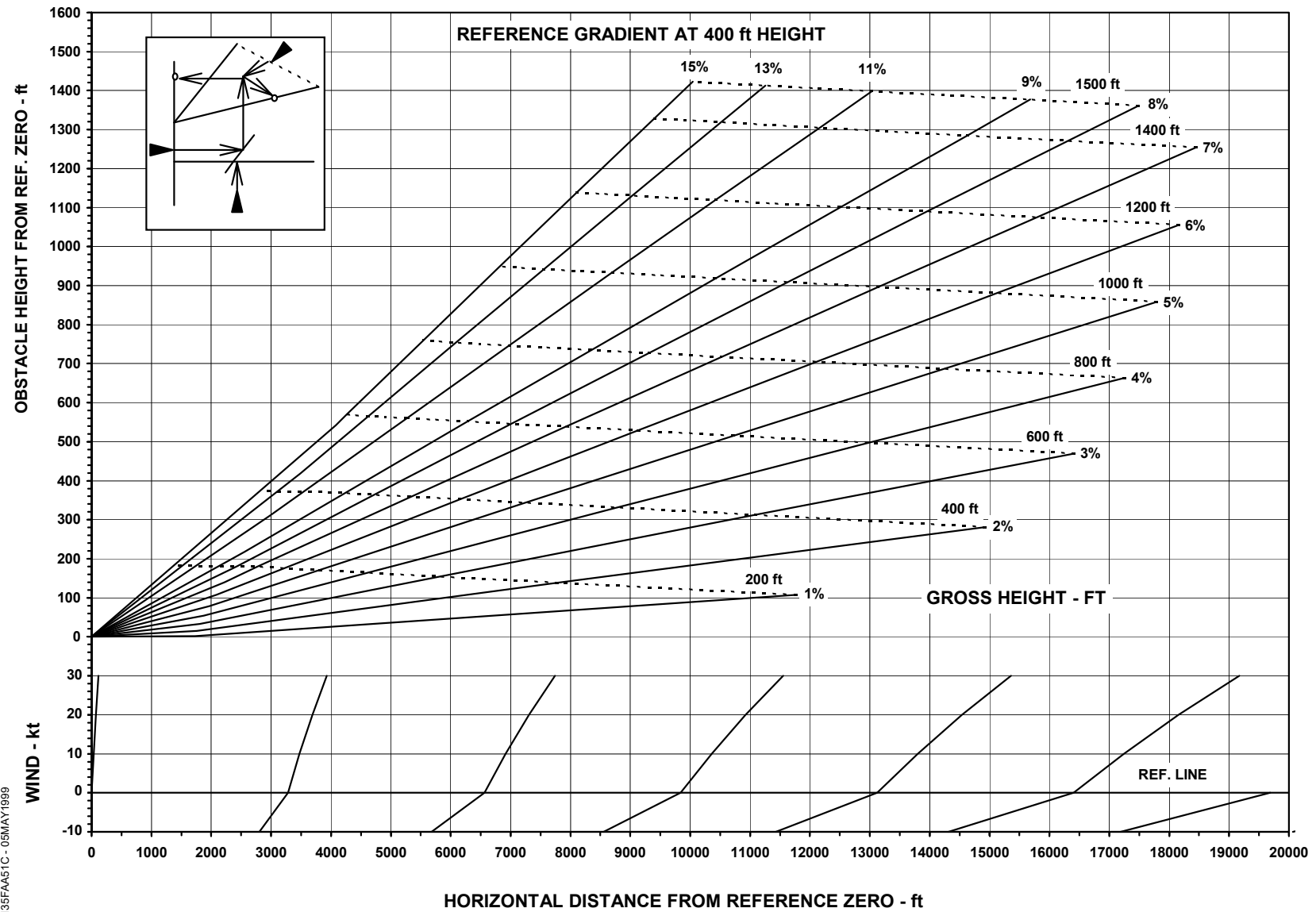
OBSTACLE CLEARANCE - DISTANT
 ALT T/O-1 MODE - FLAPS 9°

AE3007A1/3 ENGINES WITH T/R



OBSTACLE CLEARANCE - CLOSE-IN
ALT T/O-1 MODE - FLAPS 9°

AE3007A1/3 ENGINES WITH T/R



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MAXIMUM LEVEL OFF HEIGHT CHART

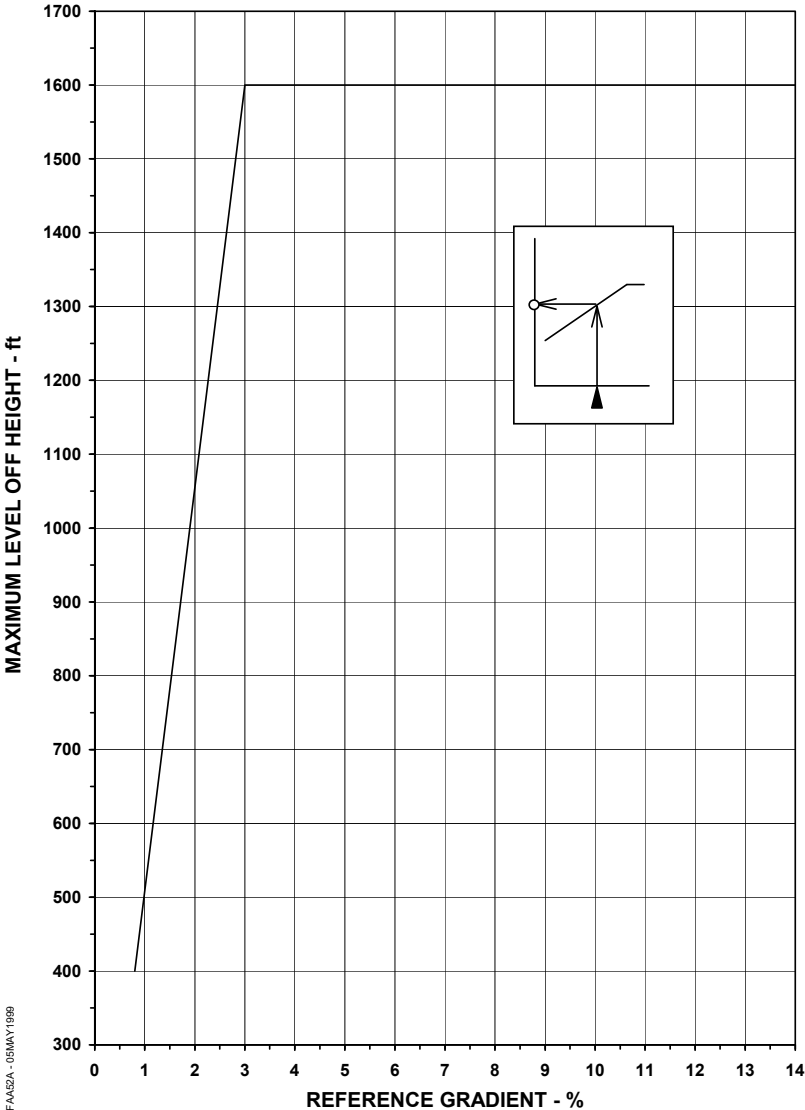
USE

Refer to the basic AFM.

User: fherna0f - Printed By myTechCare - Nov 21/24 - 00:29:37

MAXIMUM LEVEL OFF HEIGHT
FLAPS 9°

AE3007A1/3 ENGINES WITH T/R



139FAASZA - 05MAY1989

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AFM-145/1153 - FAA

TAKEOFF

NET

FLIGHT

PATH

-

THIRD

SEGMENT

The horizontal distance required for acceleration to the final segment speed and flap retraction to 0 is given in the Third Segment Horizontal Distance charts.

The height of the third segment acceleration may be varied to suit the current conditions. The lower limit is 400 ft above the runway surface, the upper limit is 1500 ft above the runway surface. In general, since most obstacles are close in, it will be advantageous to use the greatest acceleration height, but if the critical obstacle is a long way out it may be better to accelerate at the minimum height in order to improve the later stages of the flight path.

If obstacles exists both close in and far out, there may be an advantage in accelerating at an intermediate height.

If there are no obstacles, any convenient height between the two limits may be selected for the acceleration.

Associated conditions:

Airspeed.....	V ₂ TO V _{FS}
Flaps	RETRACTING
	FROM 9° TO
	ZERO
Landing gear.....	UP
Operating engine	TAKEOFF
	POWER

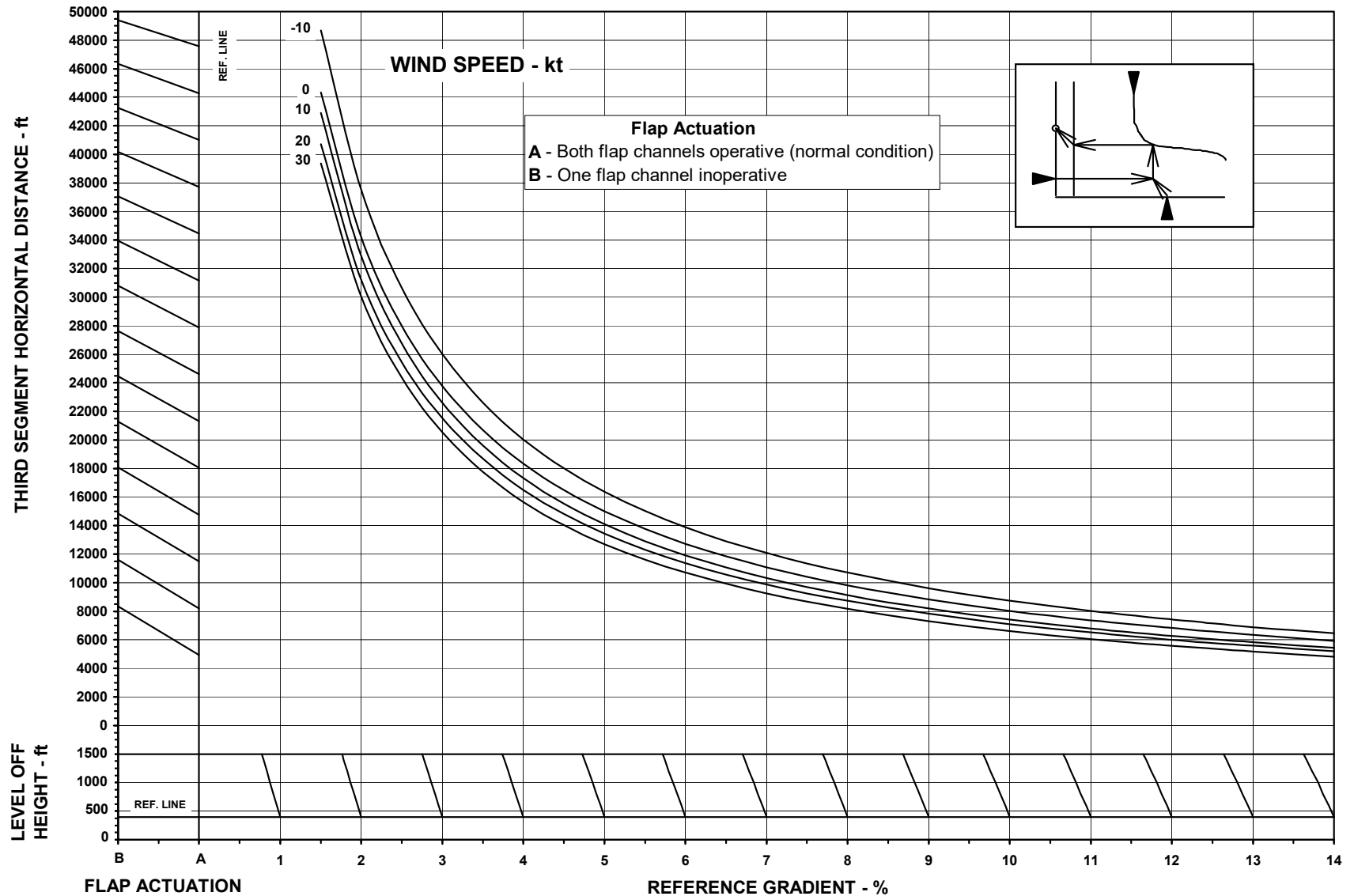


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135FAA126A - 05MAY1999

THIRD SEGMENT HORIZONTAL DISTANCE ALT T/O MODE - TAKEOFF FLAPS 9°

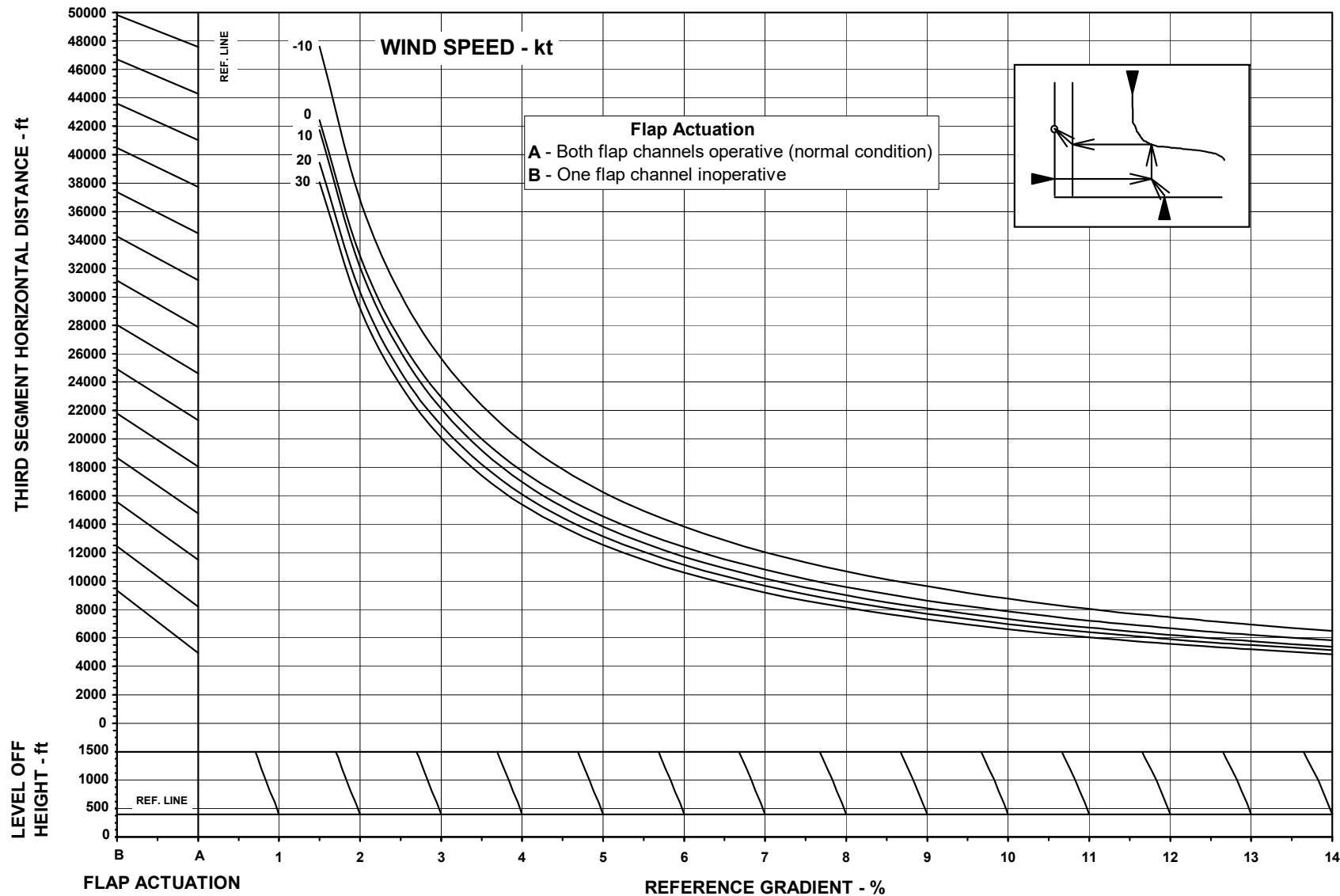
AE3007A1/3 ENGINES WITH T/R



135FAA126B - 05MAY1999

THIRD SEGMENT HORIZONTAL DISTANCE
ALT T/O-1 MODE - TAKEOFF FLAPS 9°

AE3007A1/3 ENGINES WITH T/R



TAKEOFF

NET

FLIGHT

PATH

-

FINAL

SEGMENT

The net gradient of climb between the end of the third segment and 1500 ft height point is shown in the Final Segment Net Gradient of Climb chart.

Associated conditions:

Airspeed.....	V _{FS}
Flaps	UP
Landing gear.....	UP
Operating engine	TAKEOFF
	POWER (MAX
	CONTINUOUS
	AFTER 5
	MINUTES)

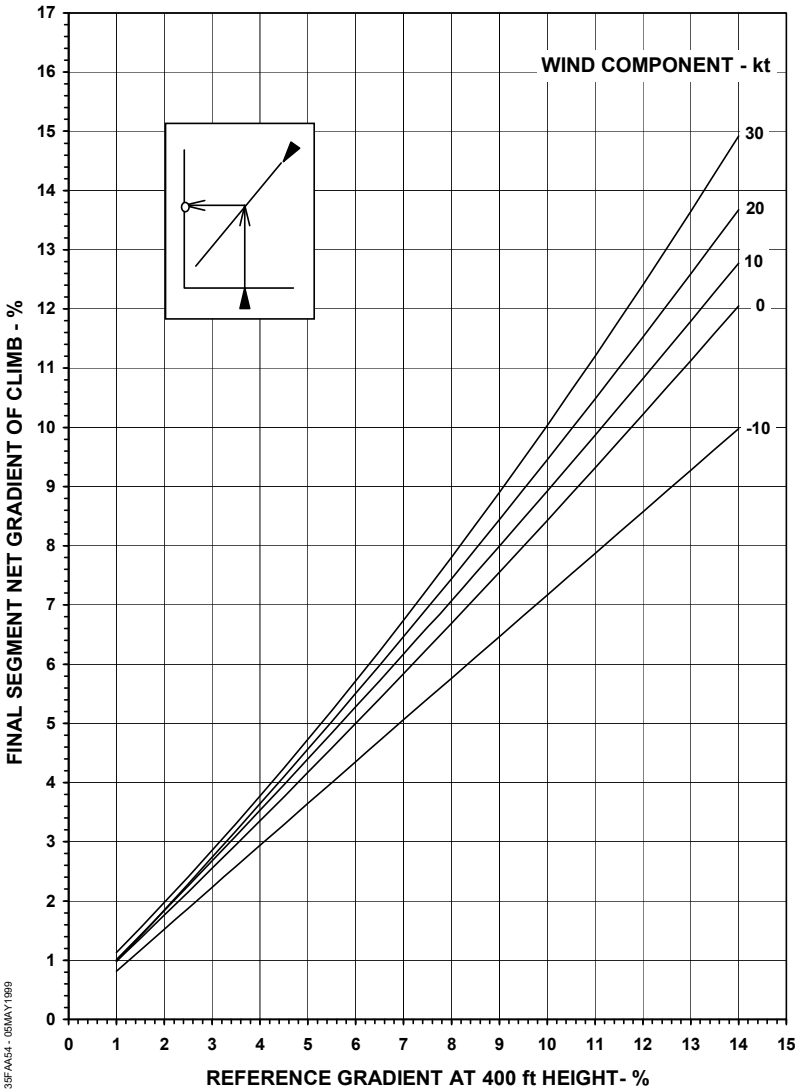
FINAL SEGMENT NET GRADIENT OF CLIMB CHART

USE

Refer to the basic AFM.

FINAL SEGMENT NET GRADIENT OF CLIMB

AE3007A1/3 ENGINES WITH T/R



135F AAS4 - 05MAY1999

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TAKEOFF SPEEDS

The speeds to be used during takeoff are shown in the Takeoff Speeds - V_1 , V_R and V_2 charts, Ground Minimum Control Speed - V_{MCG} chart, Air Minimum Control Speed - V_{MCA} chart and Final Segment Speed - V_{FS} chart.

Charts for flaps 9° are provided.

TAKEOFF SPEEDS - V_1 , V_R AND V_2 CHARTS

Two sets of charts for takeoffs with flaps 9° are provided, according to the following options:

- ALT T/O Thrust Rating Mode and Normal V_2 .
- ALT T/O-1 Thrust Rating Mode and Normal V_2 .

NOTE: If the maximum takeoff weight is higher than the actual takeoff weight, and if V_1 for this maximum permitted takeoff weight is higher than the V_1 for actual weight, any V_1 between the V_1 for the maximum takeoff weight and the V_1 for the actual weight may be used provided it is not higher than the V_R for the actual weight.

USE

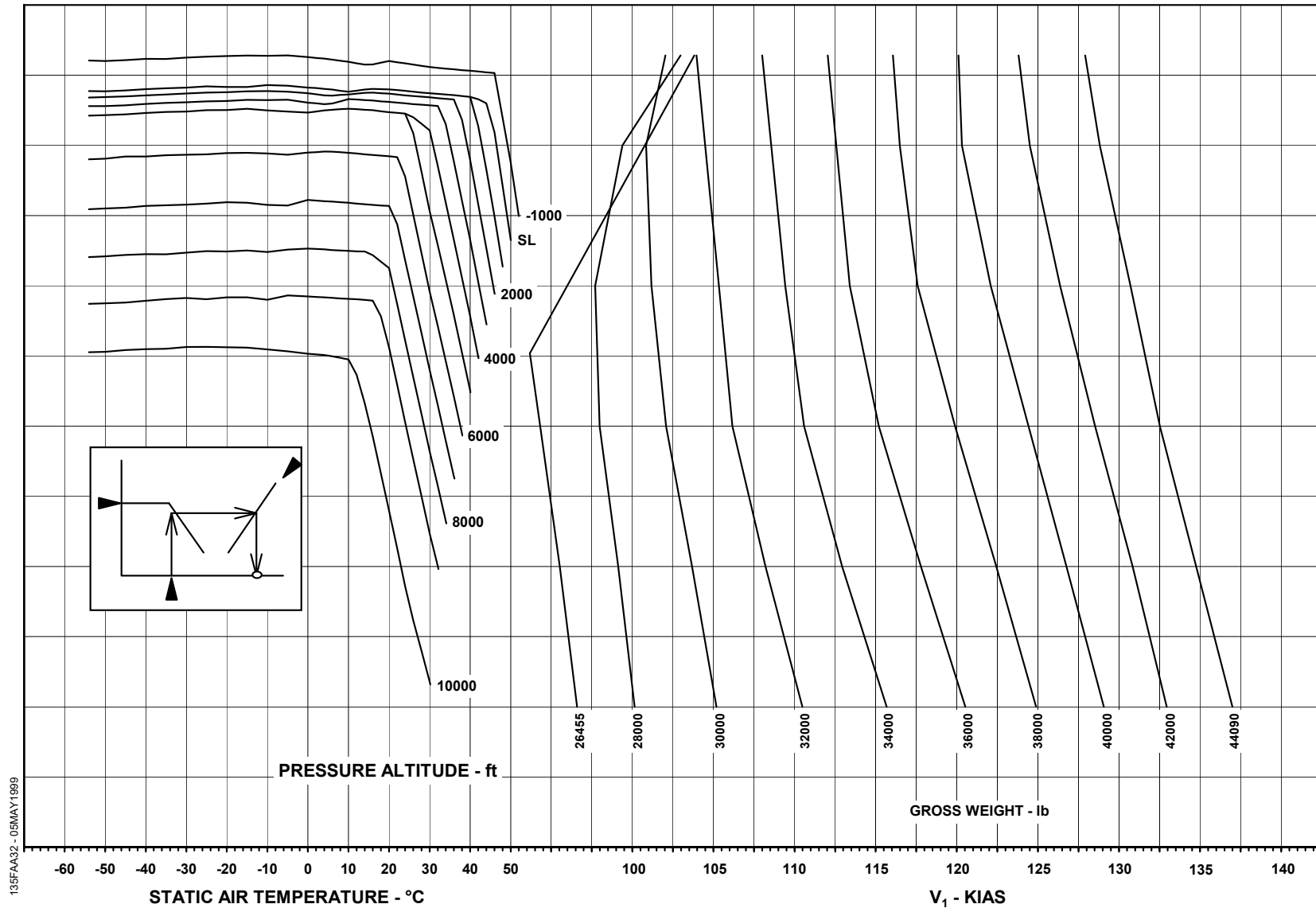
Refer to the basic AFM.



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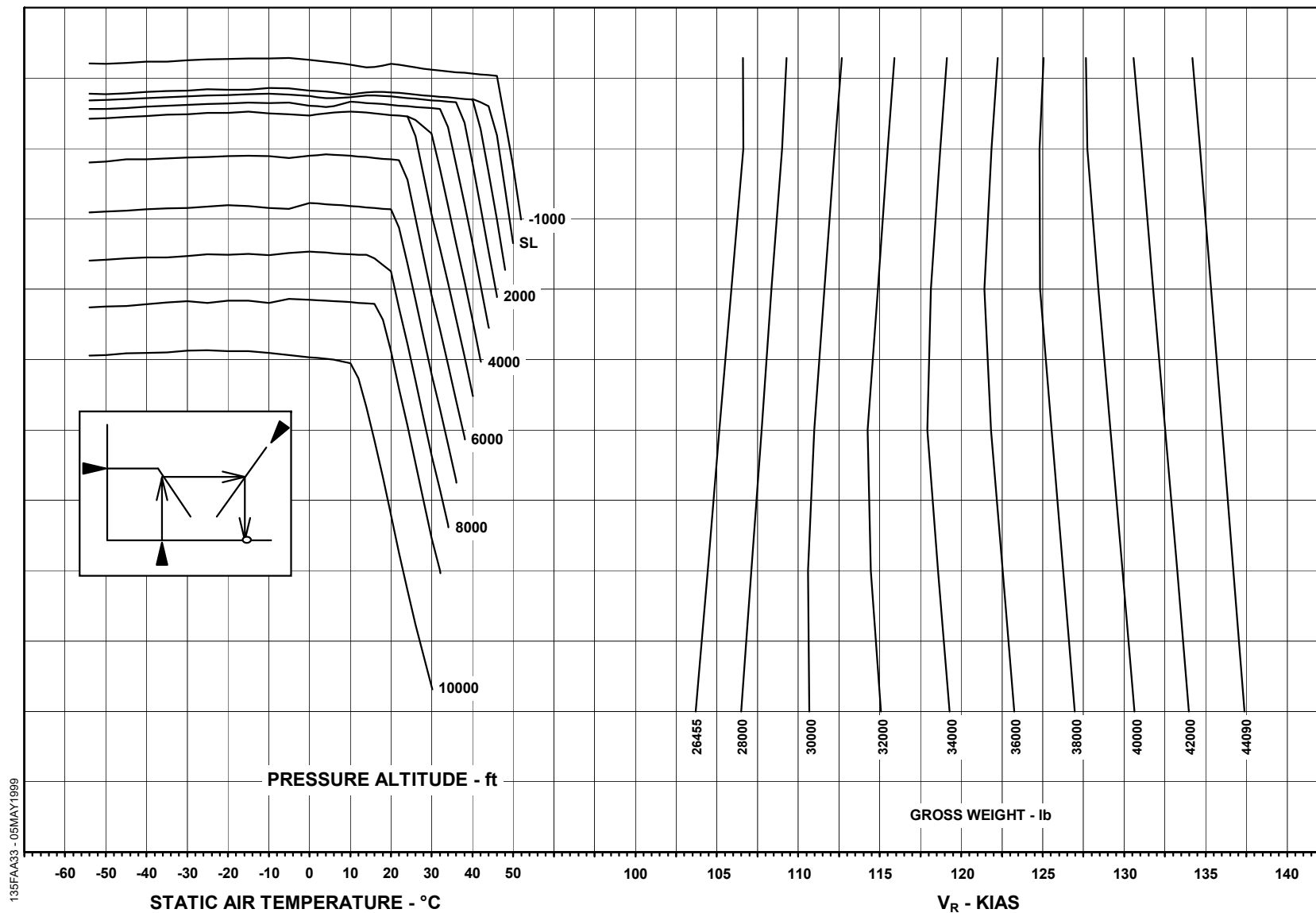
TAKEOFF SPEEDS - V_1 (FOR NORMAL V_2)
FLAPS 9° - ALT T/O MODE - BALANCED FIELD LENGTH

AE3007A1/3 ENGINES WITH T/R



TAKEOFF SPEEDS - V_R (FOR NORMAL V_2)
FLAPS 9° - ALT T/O MODE - BALANCED FIELD LENGTH

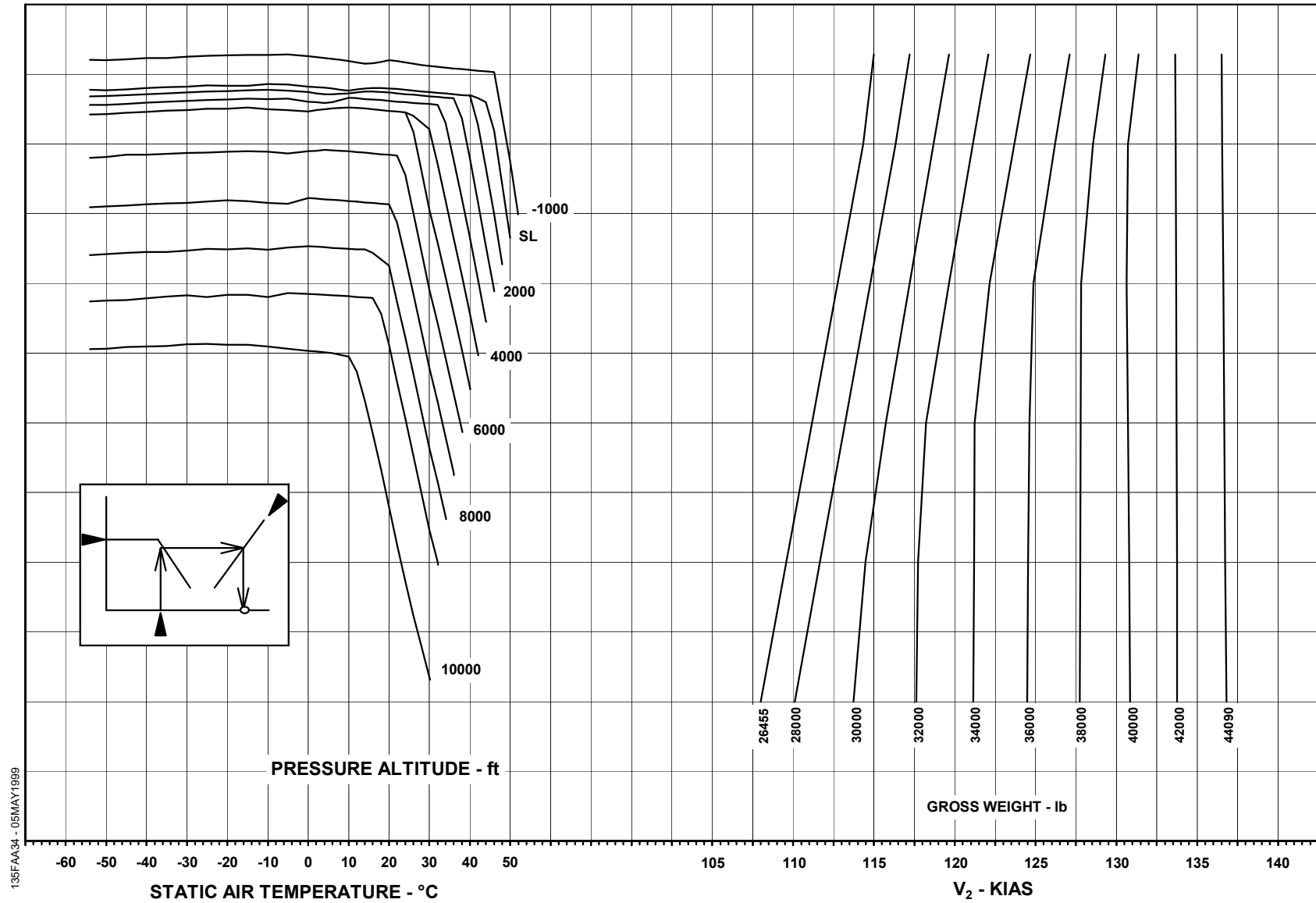
AE3007A1/3 ENGINES WITH T/R



135FAA33-05MAY1999

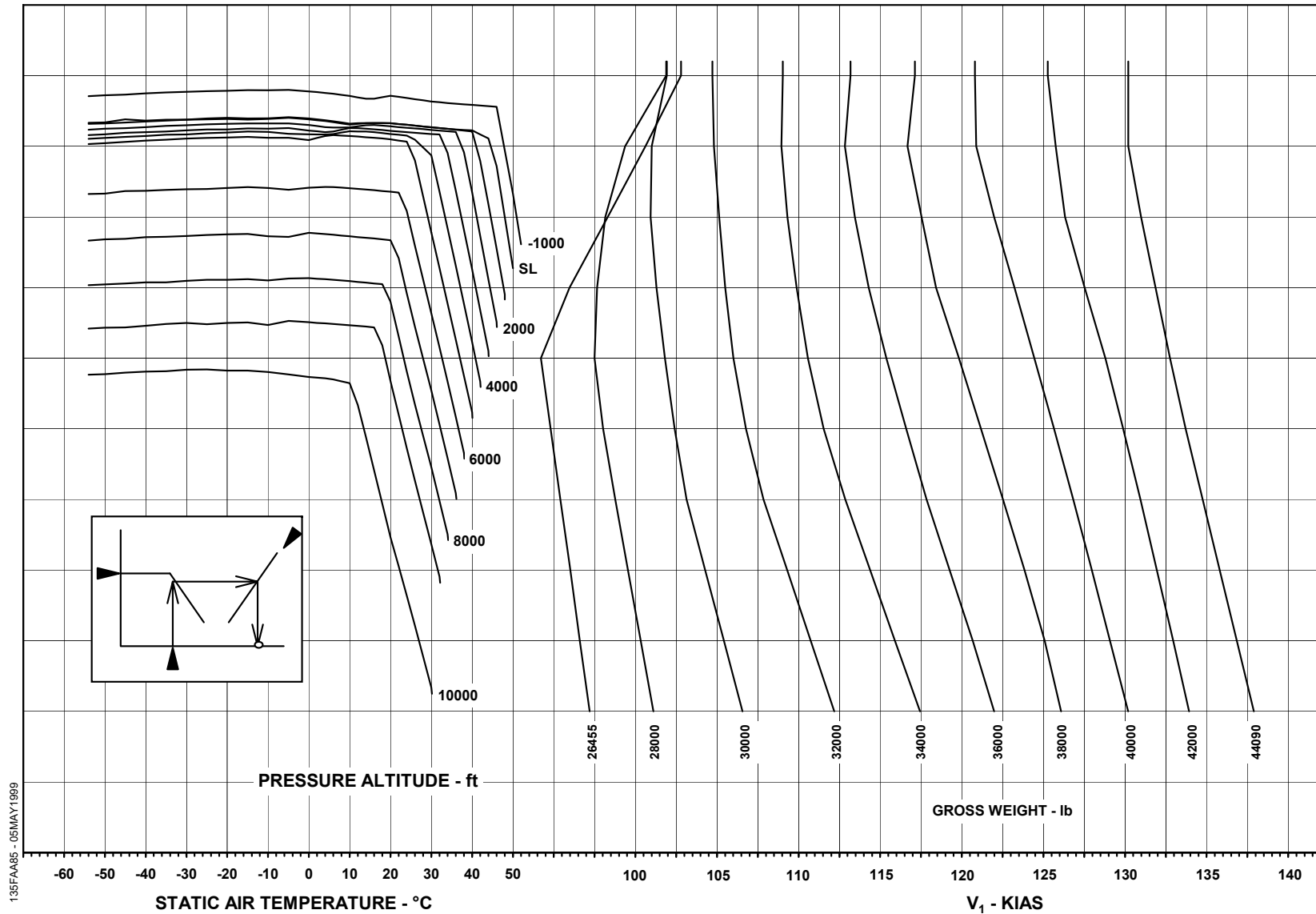
TAKEOFF SPEEDS - V_2 (NORMAL)
FLAPS 9° - ALT T/O MODE - BALANCED FIELD LENGTH

AE3007A1/3 ENGINES WITH T/R



TAKEOFF SPEEDS - V_1 (FOR NORMAL V_2)
FLAPS 9° - ALT T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A1/3 ENGINES WITH T/R

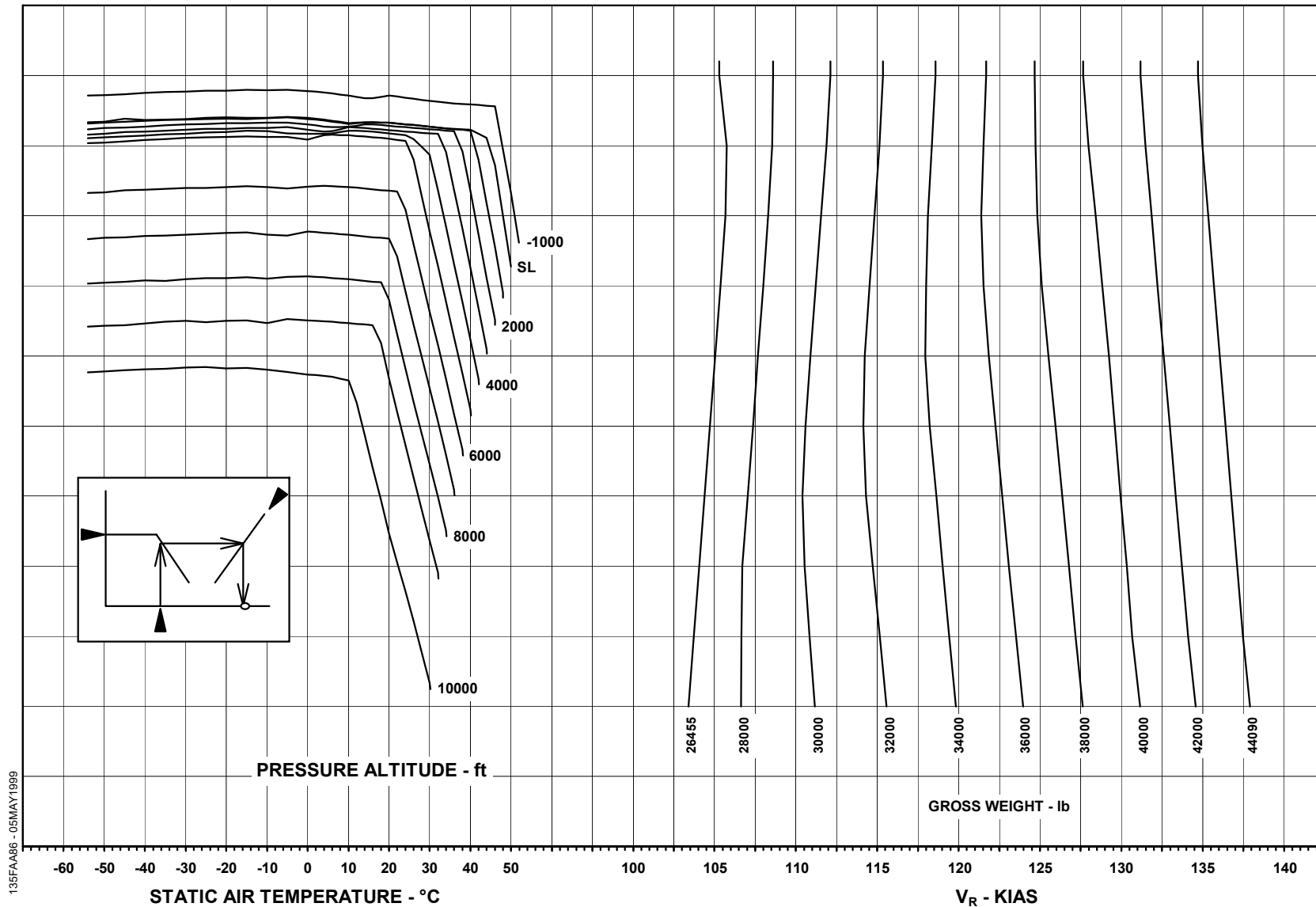


135FA085 - 05MAY1999

AFM-145/1153 - FAA

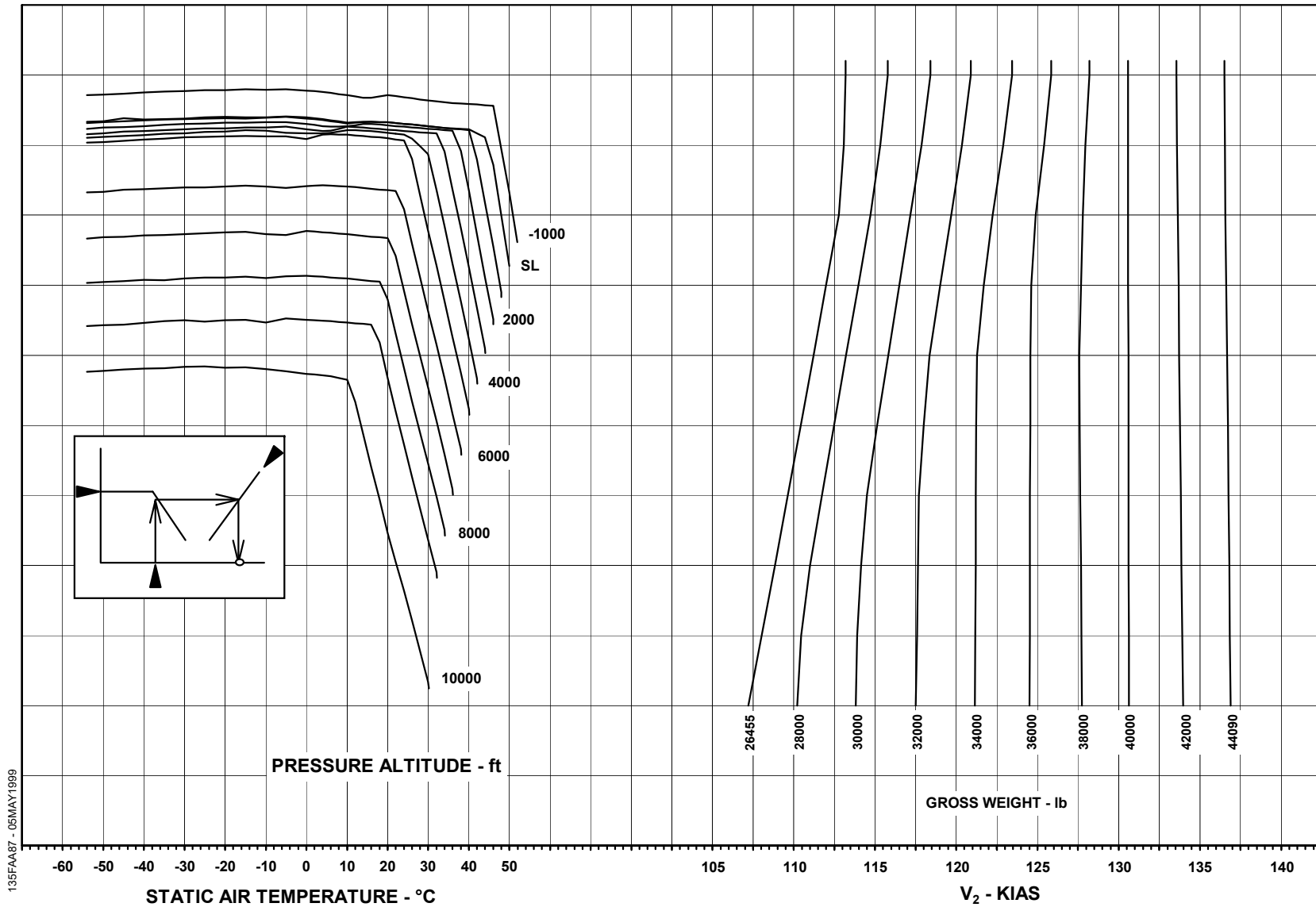
TAKEOFF SPEEDS - V_R (FOR NORMAL V_2)
FLAPS 9° - ALT T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A1/3 ENGINES WITH T/R



TAKEOFF SPEEDS - V_2 (NORMAL)
FLAPS 9° - ALT T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A1/3 ENGINES WITH T/R



135FAA87 - 05MAY1999



GROUND MINIMUM CONTROL SPEED - V_{MCG} CHART, AIR MINIMUM CONTROL SPEED - V_{MCA} CHART AND MINIMUM CONTROL SPEED DURING LANDING AND APPROACH – V_{MCL}

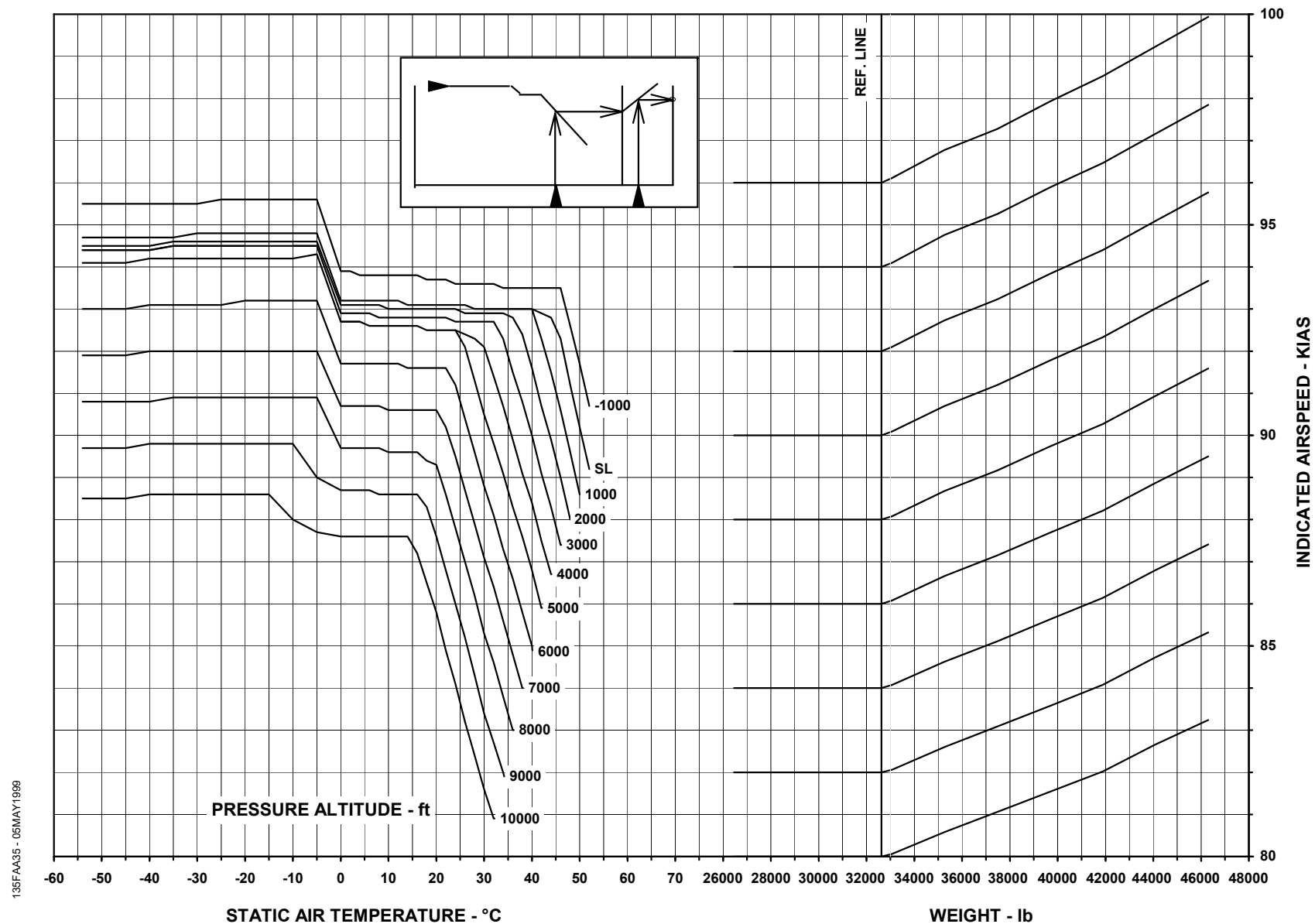
Minimum Control Speed During Landing and Approach (V_{MCL}) is equal to 100 KIAS.

USE

Refer to the basic AFM.

GROUND MINIMUM CONTROL SPEED
FLAPS 9°

AE3007A1/3 ENGINES WITH T/R



135FAA35 - 05MAY1999

AFM-145/1153 - FAA

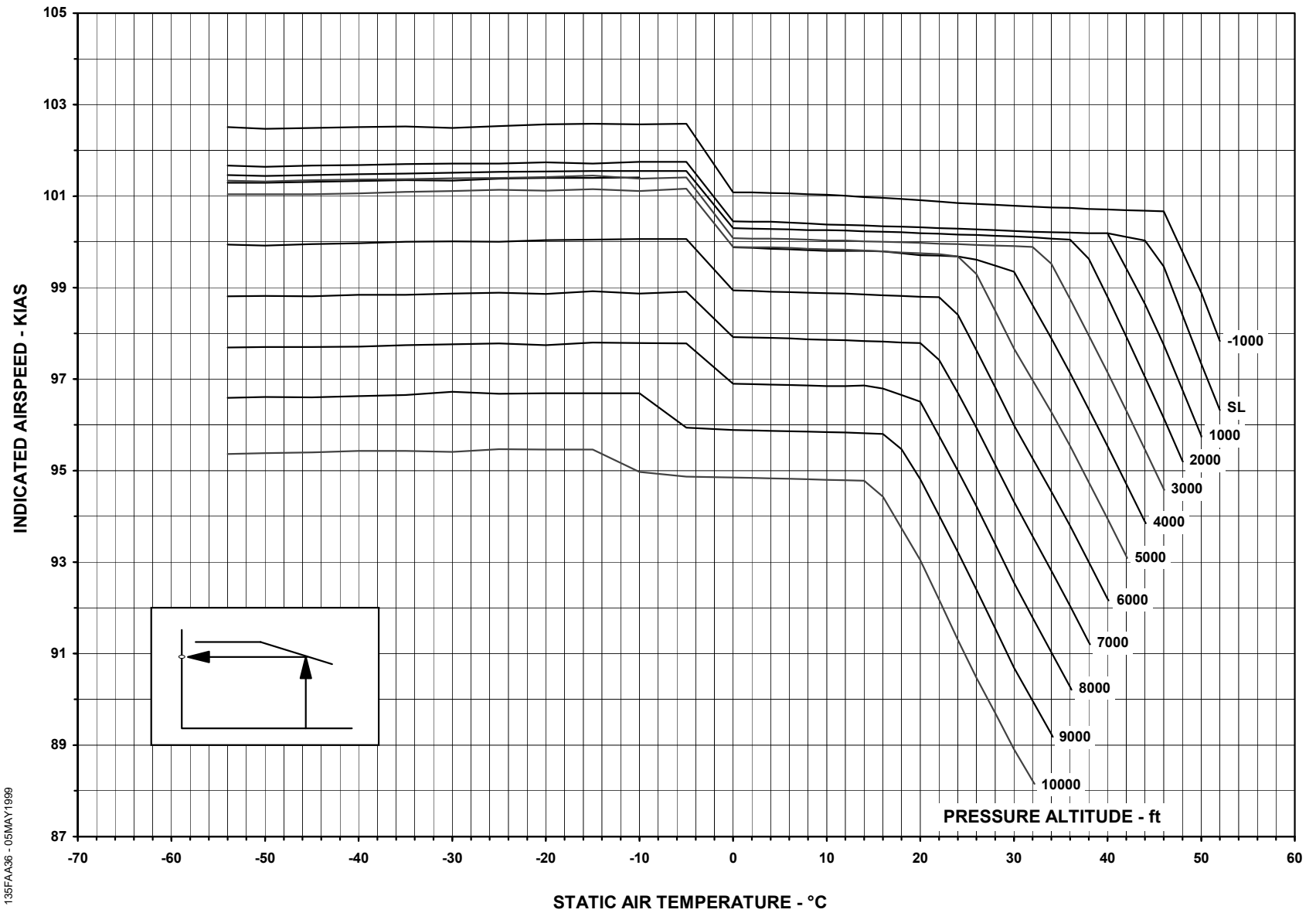


AIRPLANE FLIGHT MANUAL

SUPPLEMENT 11
EMB-135 OPERATION WITH
AE3007A1/3 ENGINES

AIR MINIMUM CONTROL SPEED FLAPS 9°

AE3007A1/3 ENGINES WITH T/R



135FAA36 - 05MAY1999

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FINAL SEGMENT SPEED - V_{FS} CHART

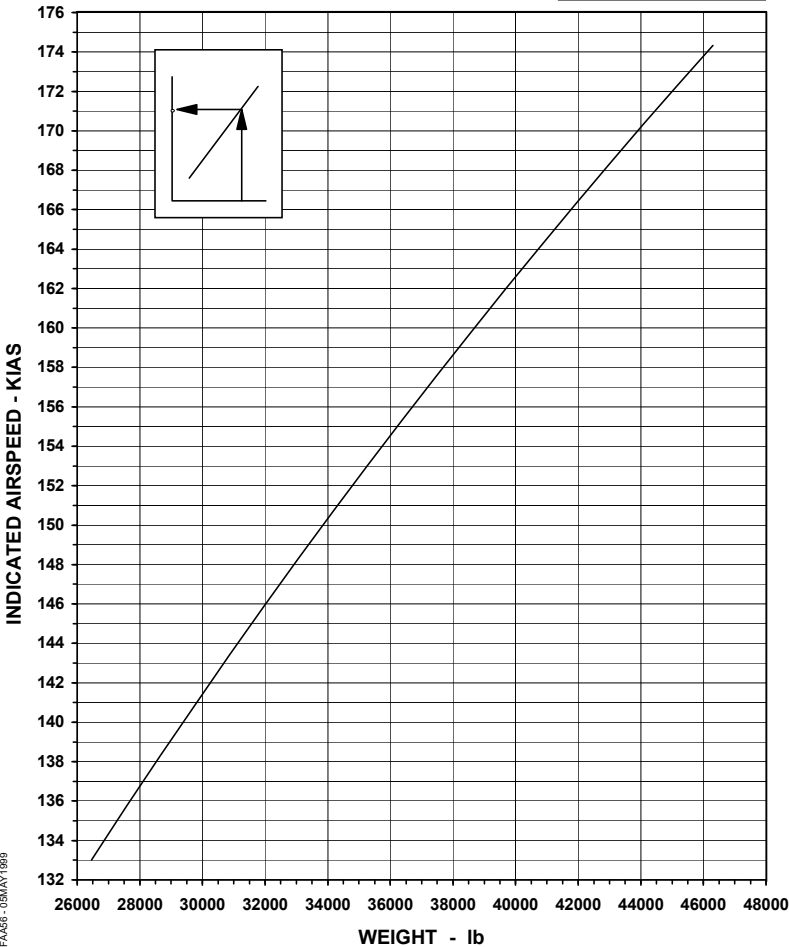
USE

Refer to the basic AFM.

User: fherna0f - Printed By myTechCare - Nov 21/24 - 00:29:37

FINAL SEGMENT SPEED

AE3007A1/3 ENGINES WITH T/R



135FA06 - 05MAY1999



ENROUTE

INTRODUCTION

Enroute climb data is provided for assessing compliance with the operating regulations relating to enroute flight.

ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE

The one engine inoperative enroute net climb gradient is shown for various pressure altitudes, static air temperatures, and weights.

Associated conditions:

Flaps	UP
Landing gear	UP
Operating engine	MAXIMUM CONTINUOUS POWER

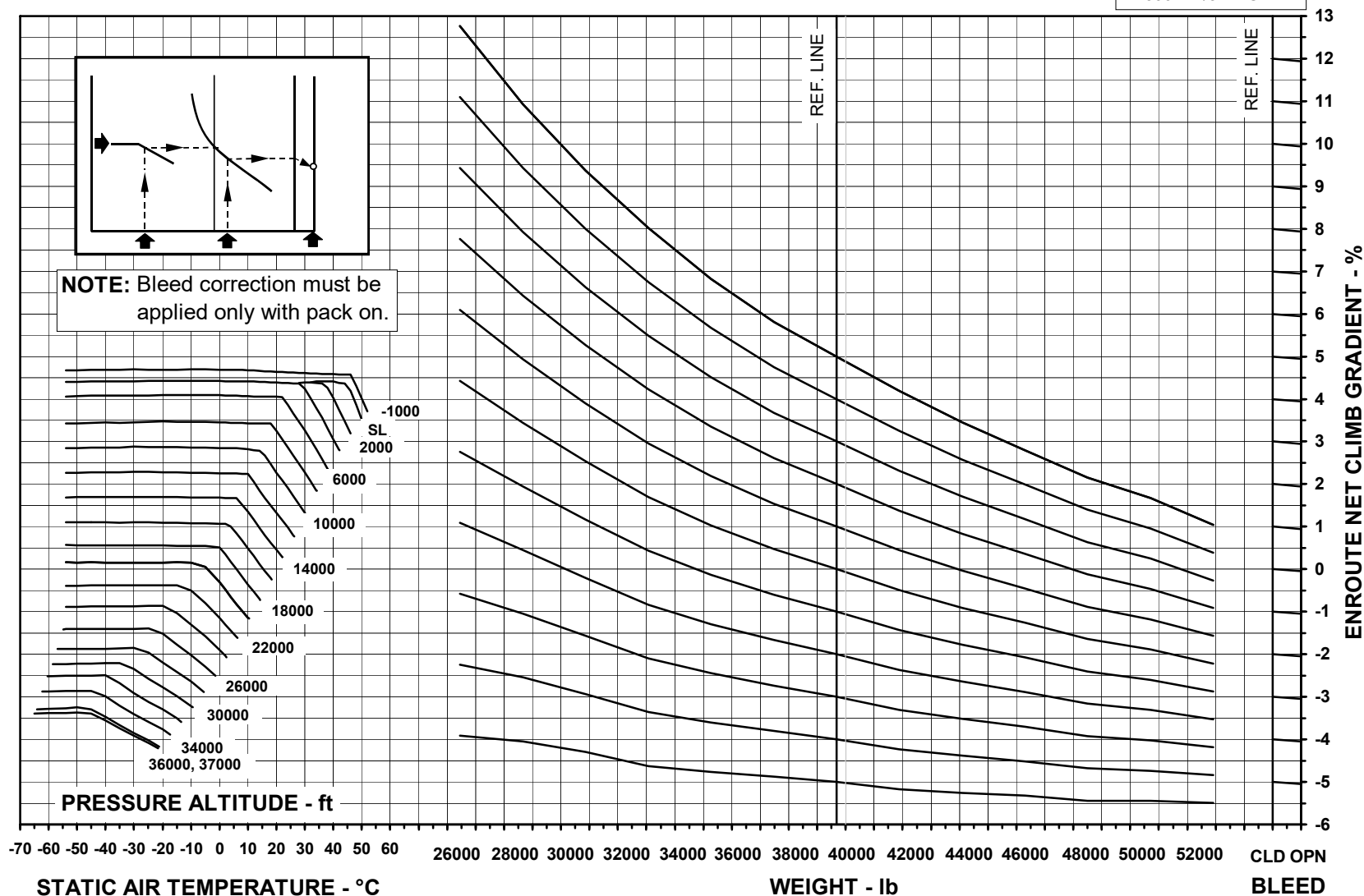
USE

Refer to the basic AFM.

ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE

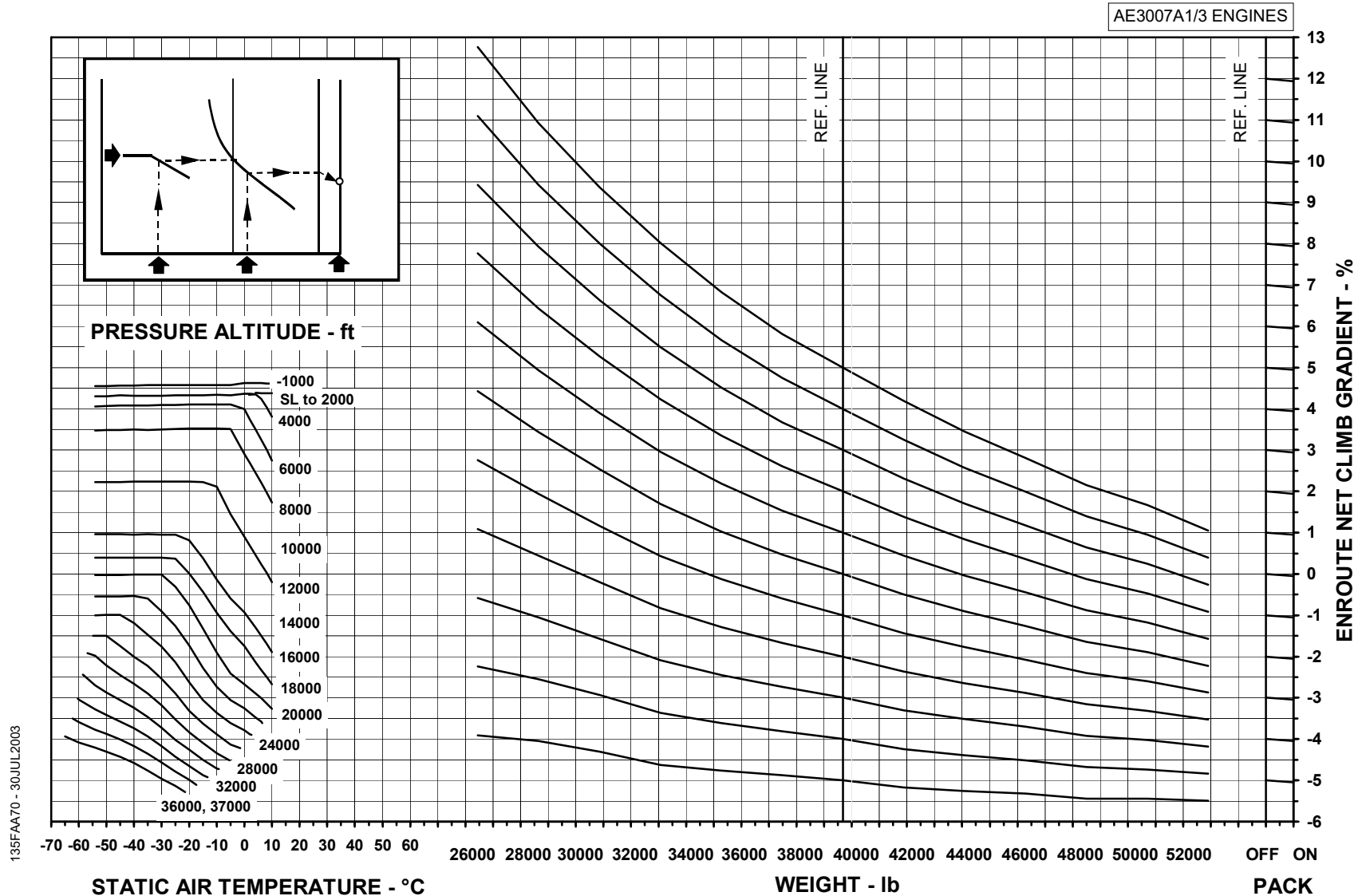
FLAPS UP - ANTI-ICE OFF

AE3007A1/3 ENGINES



135FAA37 - 30JUL2003

ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE FLAPS UP - ANTI-ICE ON



ENROUTE CLIMB SPEED

The one engine inoperative Enroute Climb Speed is shown for various weights.

Associated conditions:

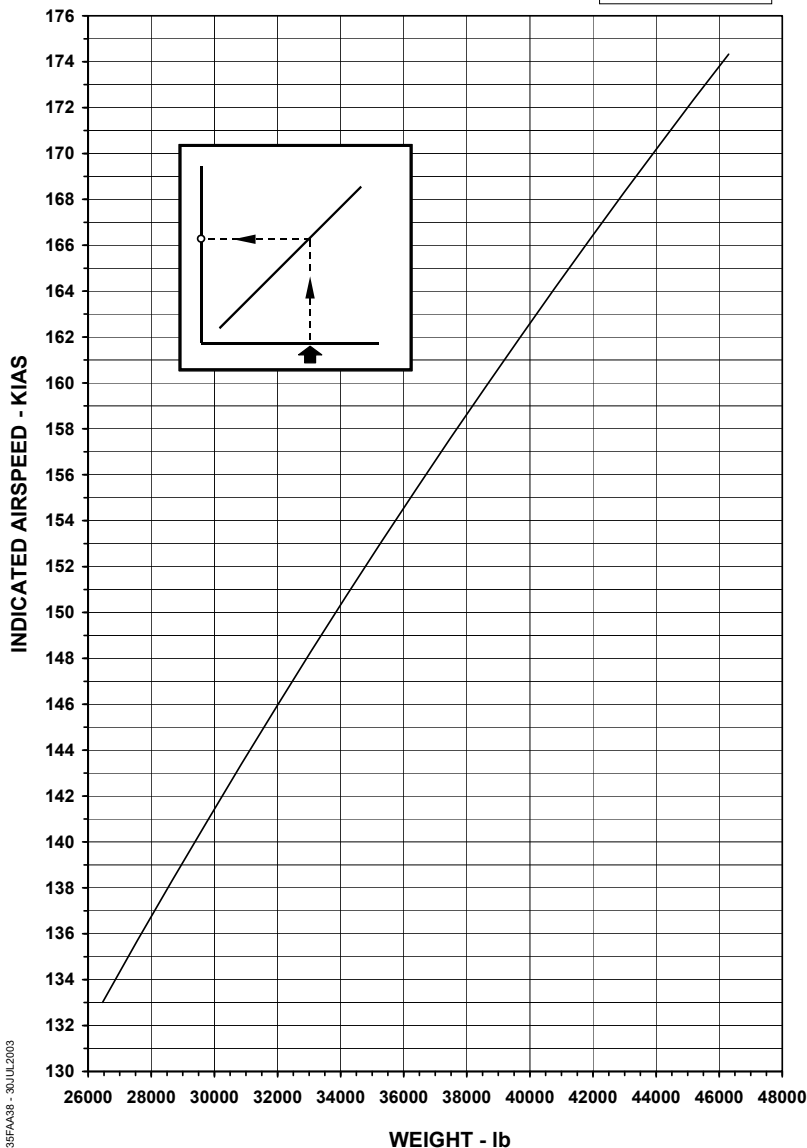
Flaps	UP
Landing gear	UP
Operating engine	MAXIMUM CONTINUOUS POWER

USE

Refer to the basic AFM.

ENROUTE CLIMB SPEED

AE3007A1/3 ENGINES



135FAA38 - 30JUL2003

ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

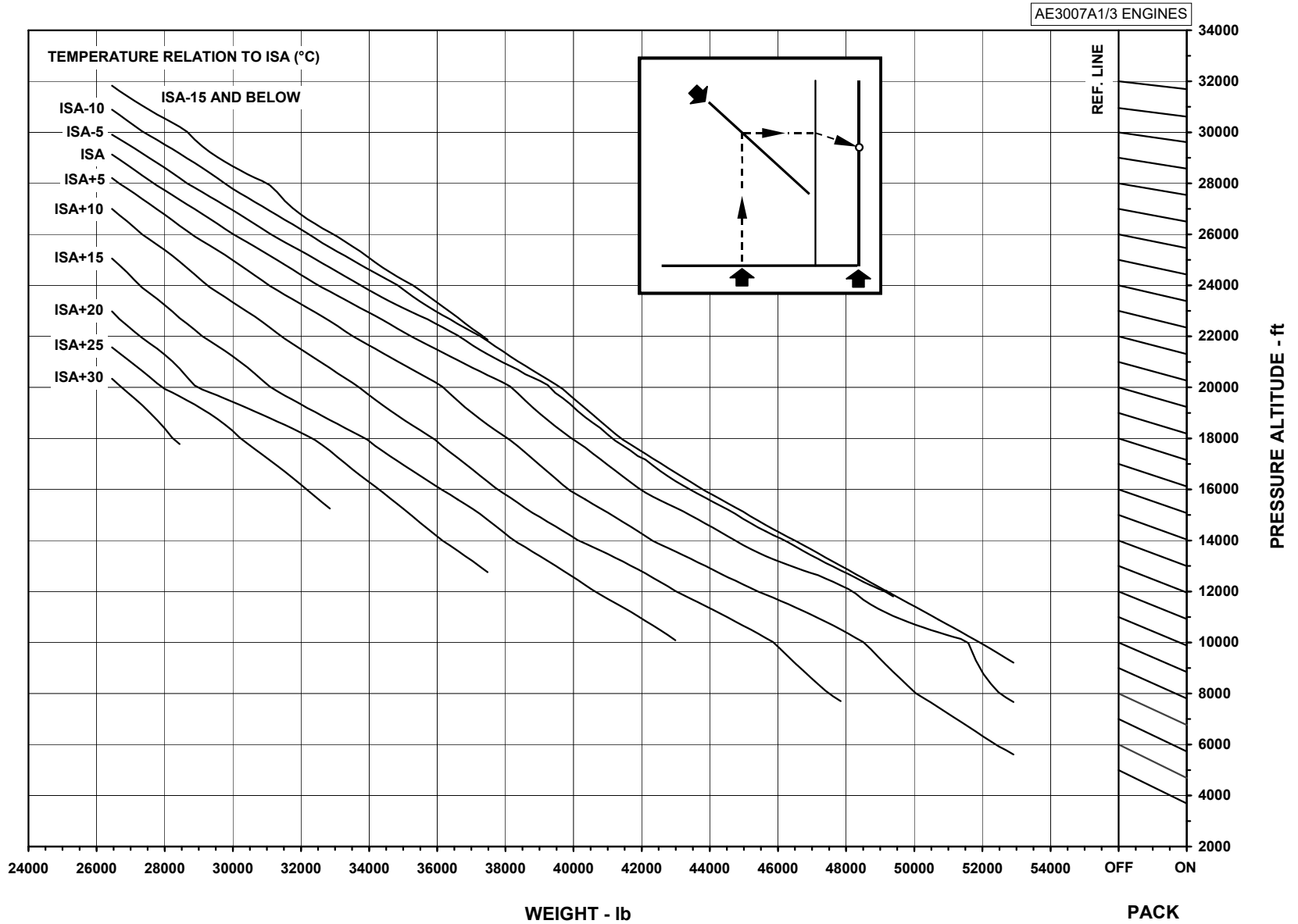
The one-engine climb weights for positive net gradient are shown for various pressure altitude and temperature relation to ISA.

USE

Refer to the basic AFM.

ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE ON



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APPROACH AND LANDING

INTRODUCTION

Information given herein is provided so that the level of safety implicit in the scheduled landing performance can regularly be achieved.

PROCEDURES

For final approach, wing flaps should be in landing position and the speed set according to the flap configuration given here. At 50 ft, the thrust levers are reduced smoothly. When the airplane is firmly on the ground with the nosewheel in contact, brakes are applied.

Refer to basic AFM Section 4 - Normal Procedures for further information on landing technique and Section 3 - Emergency and Abnormal Procedures when landing with one engine inoperative.

APPROACH AND LANDING CLIMB GRADIENTS

The approach and landing climb gradients attained during a go-around are shown for various Static Air Temperatures, airport pressure altitudes, and airplane gross weights.

APPROACH CLIMB GRADIENT

Two charts for Approach Climb Gradients are provided according to the following associated conditions:

Airspeed.....	APPROACH CLIMB SPEED
Anti Ice.....	ON OR OFF
Flaps	9°
Landing gear.....	UP
Operating engine	MAXIMUM TAKEOFF POWER

LANDING CLIMB GRADIENT

Two charts for Landing Climb Gradients are provided, according to the following associated conditions:

Airspeed	V _{REF} XX
Anti Ice	ON OR OFF
Flaps	45°
Landing gear	DOWN
Engines	MAXIMUM TAKEOFF POWER

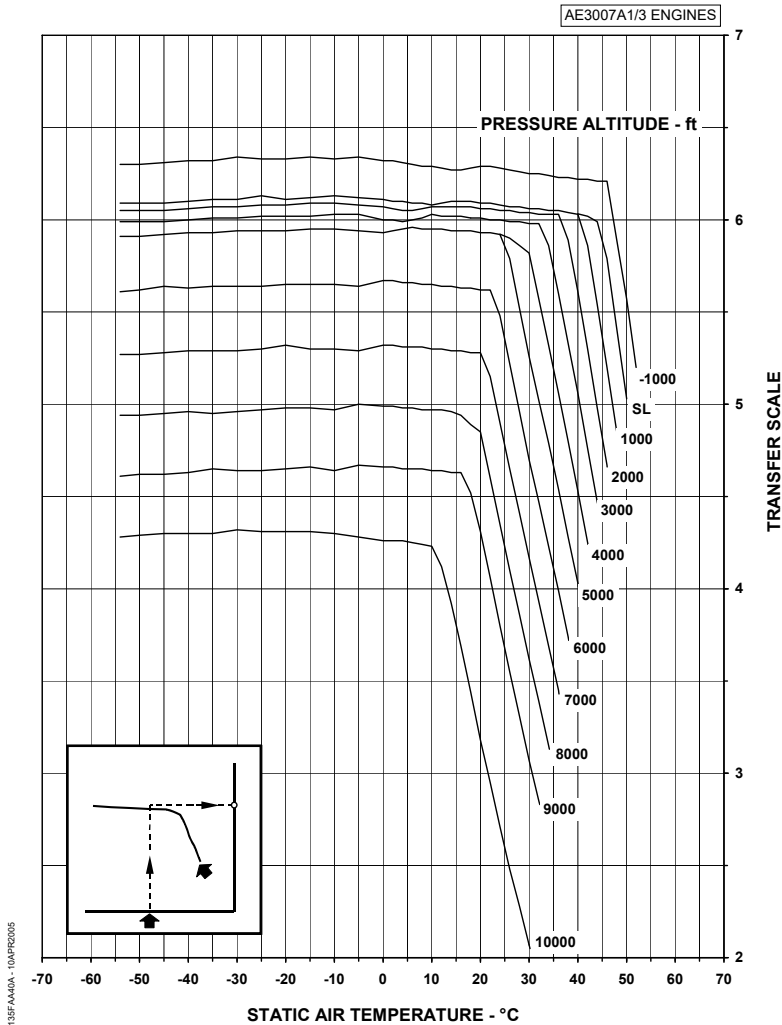
APPROACH CLIMB GRADIENT CHARTS AND
LANDING CLIMB GRADIENT CHARTS

USE

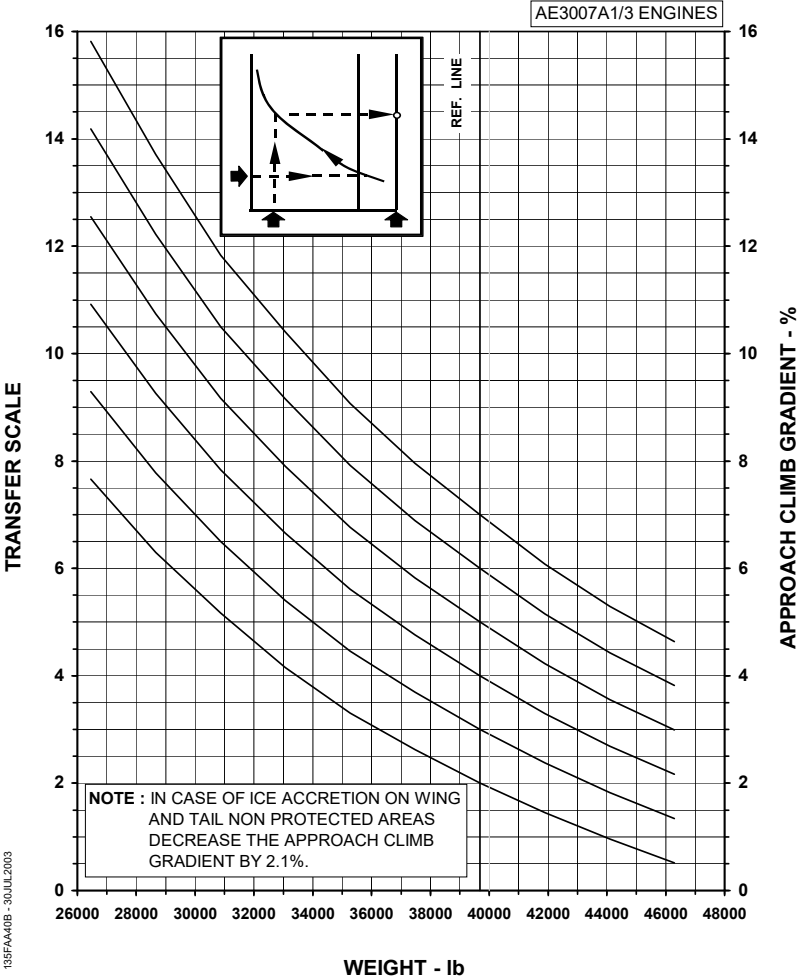
Refer to the basic AFM.

NOTE: Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Gradient by 1%.

APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 1 OF 2

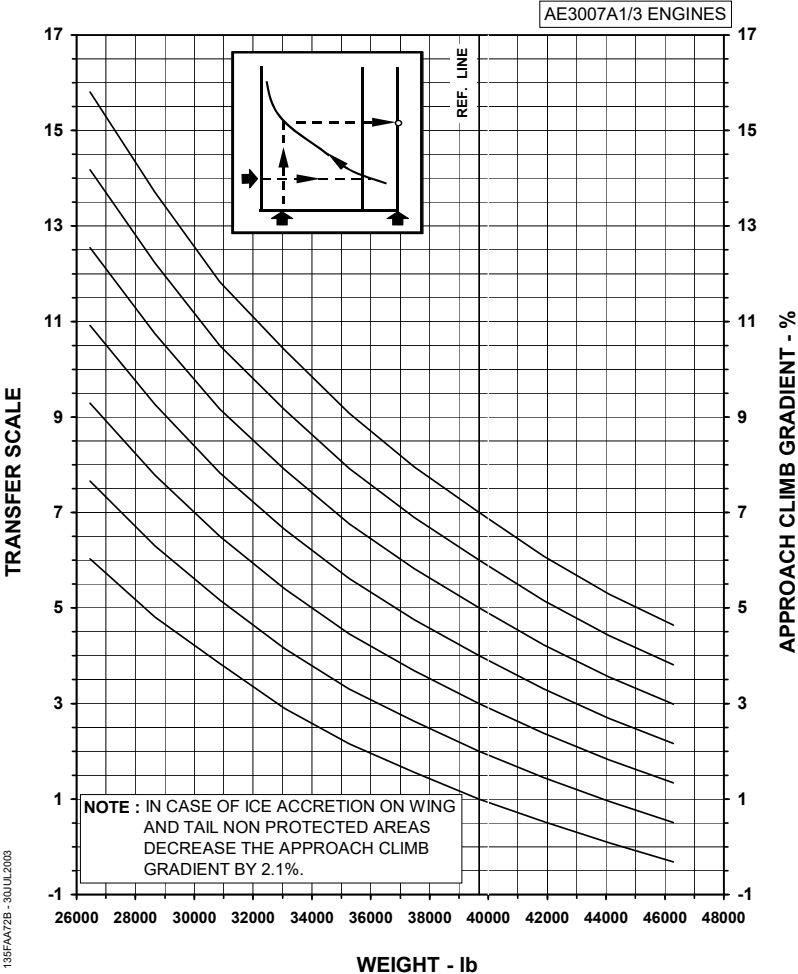


APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 2 OF 2



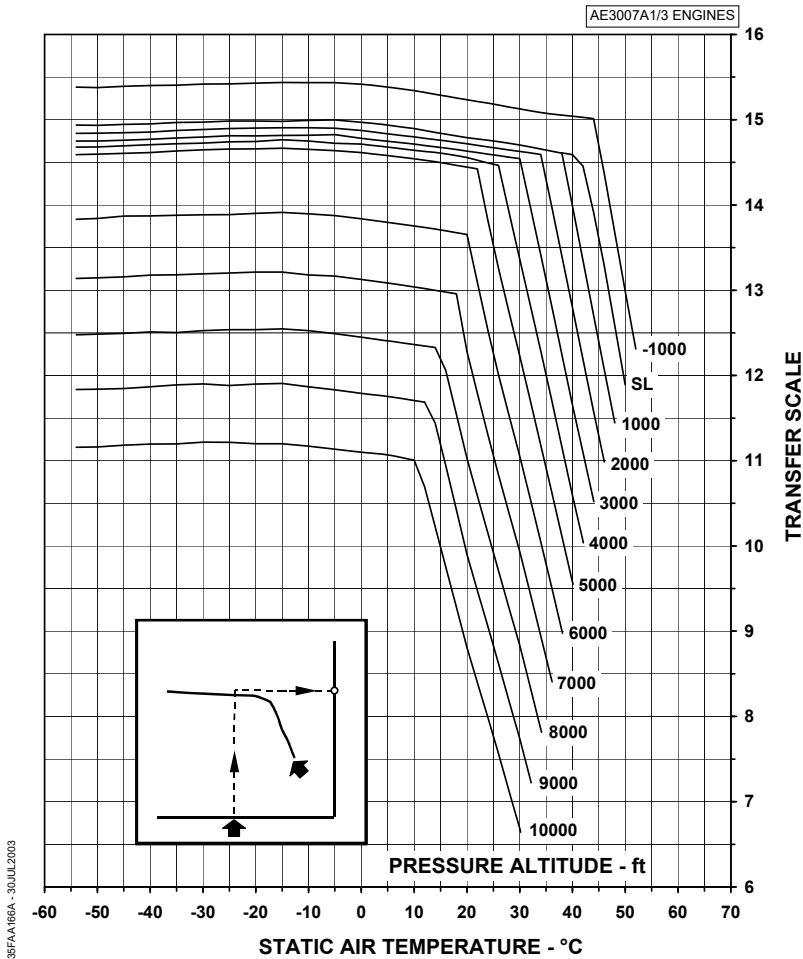
135FAA008 - 30JUL2003

APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 2 OF 2

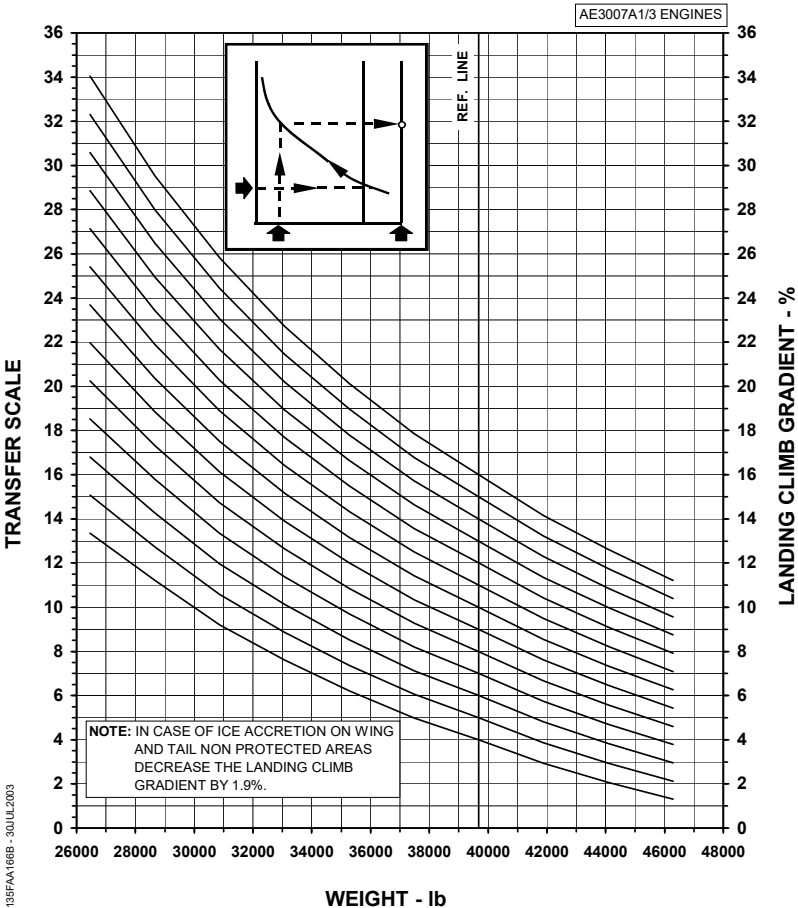


135FAA72B - 30JUL2003

LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 1 OF 2

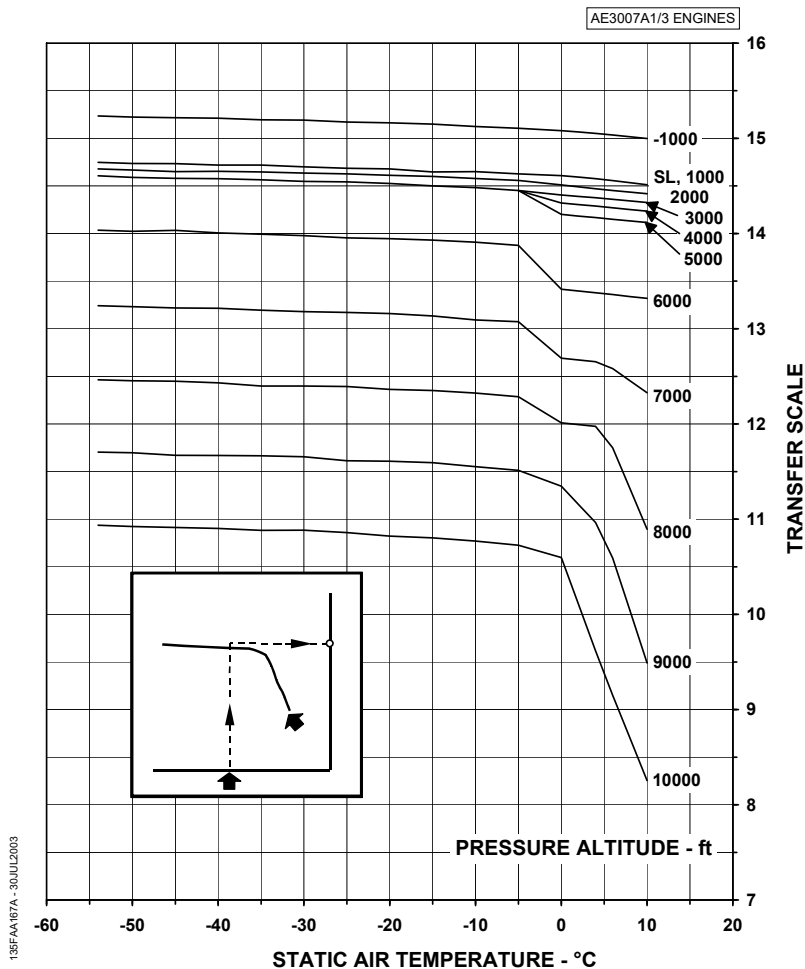


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 2 OF 2

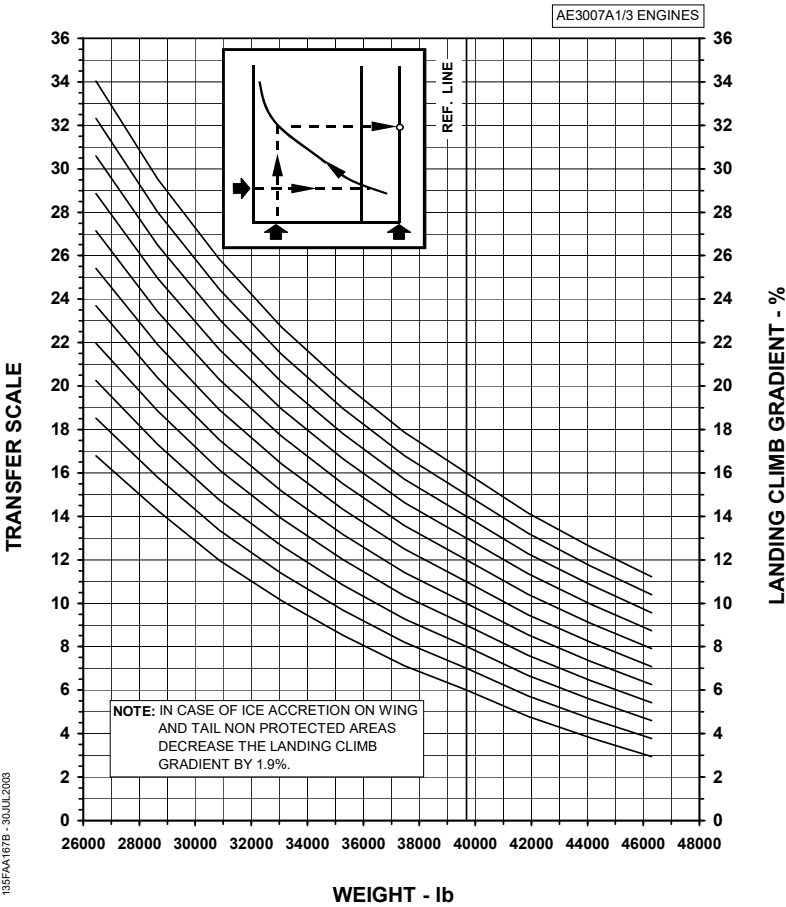


135FAA1166B - 30JUL2003

LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 1 OF 2

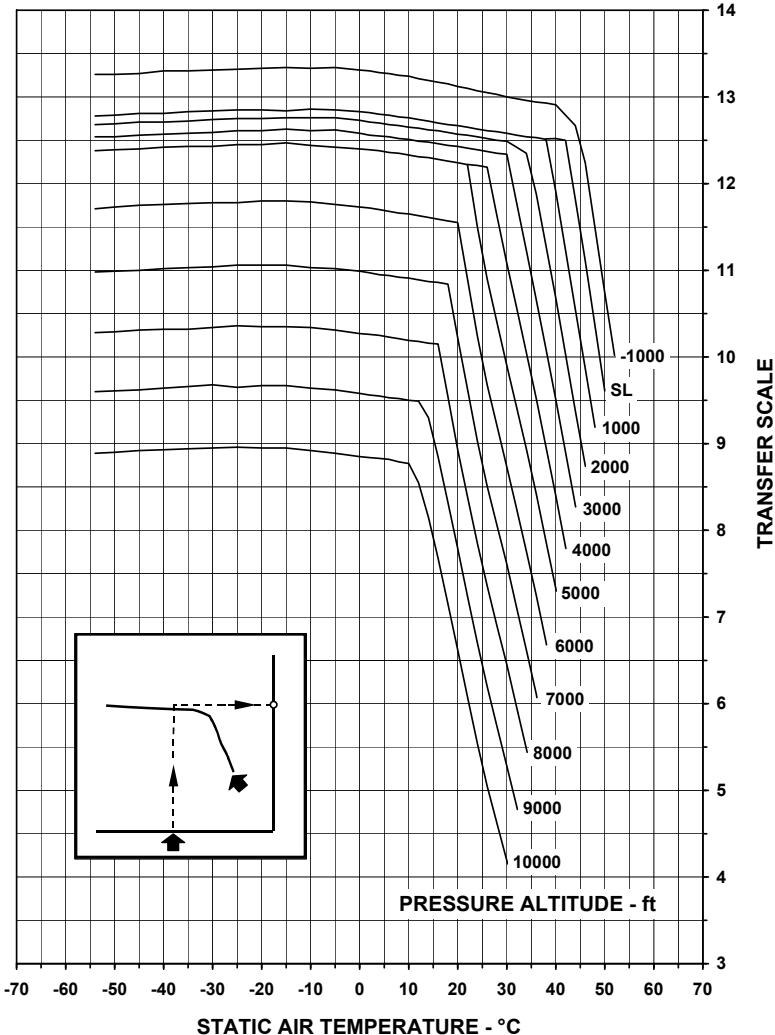


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 2 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 1 OF 2

AE3007A1/3 ENGINES



135FAA41A - 30JUL2003

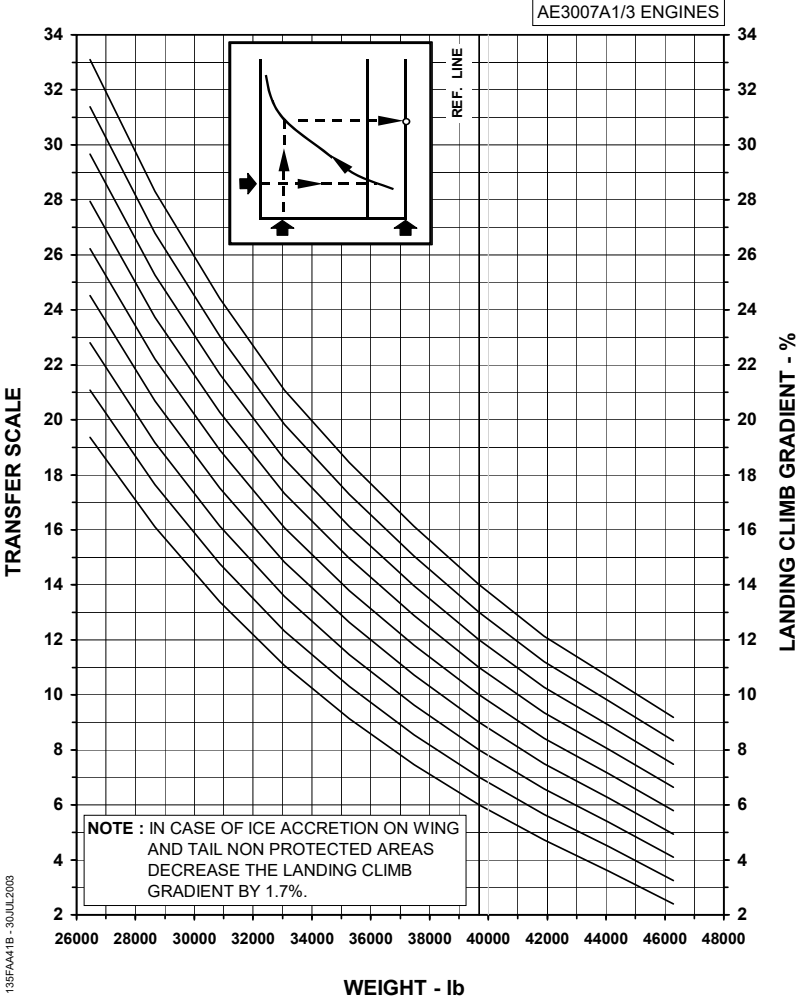
AFM-145/1153 - FAA

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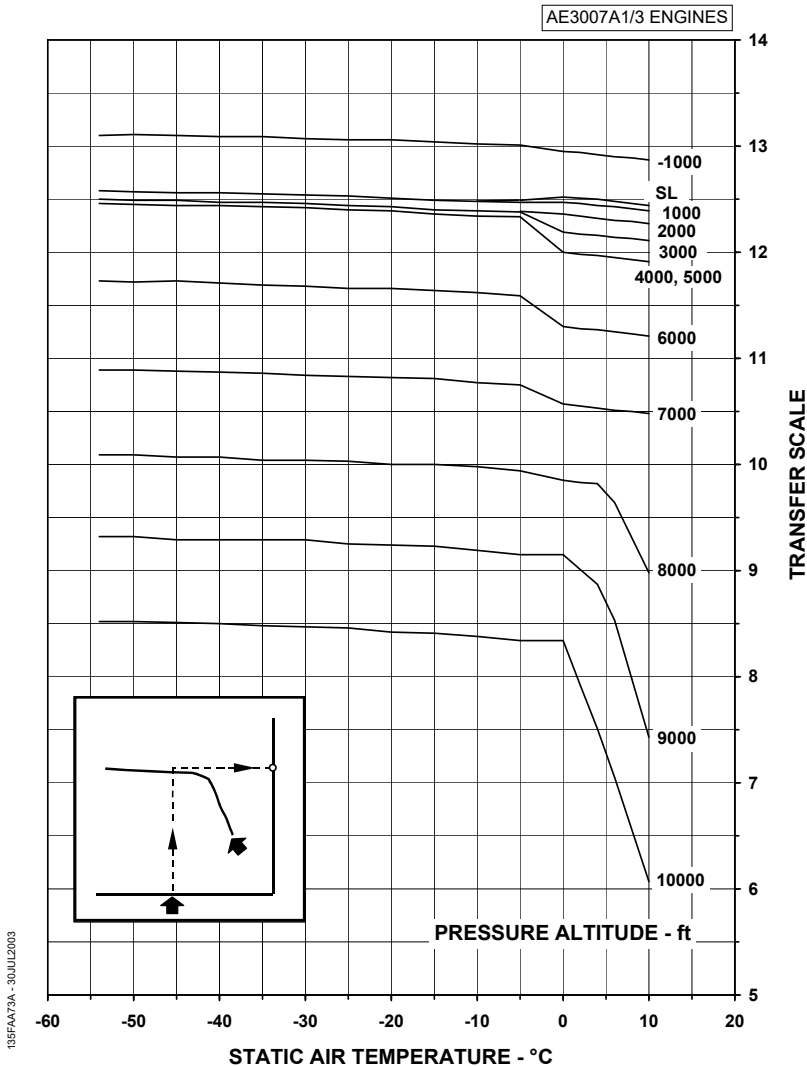
S11-91

LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 2 OF 2

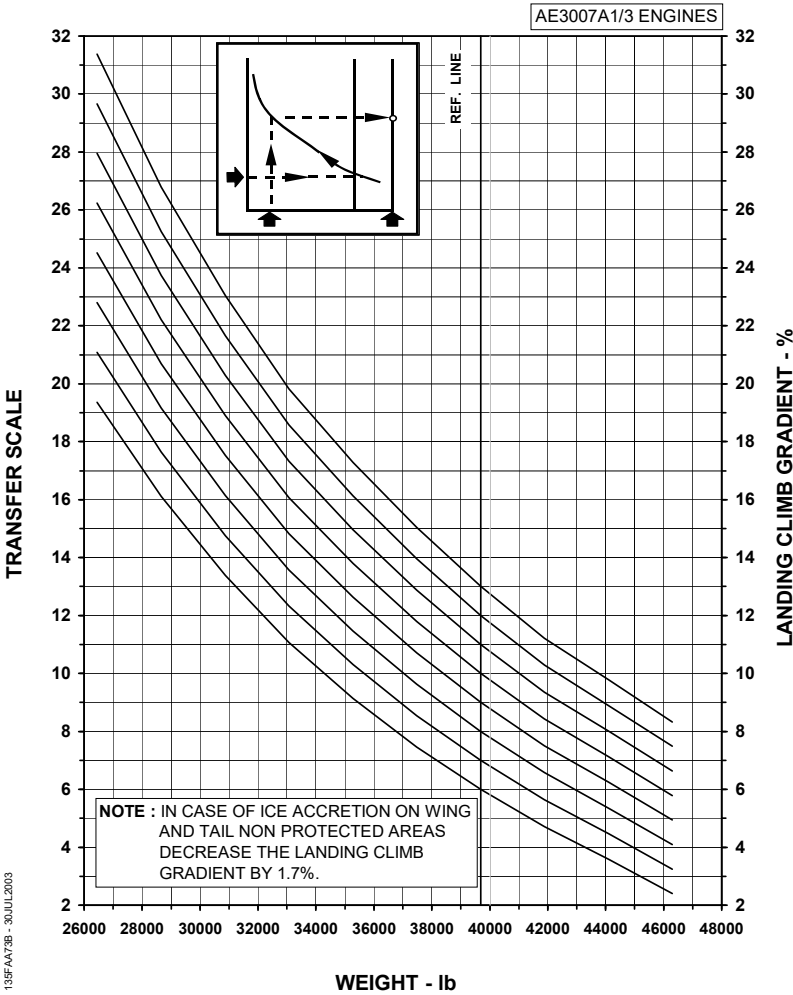


135FAA118 - 30JUL2003

LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 1 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 2 OF 2



135FAA73B - 30 JUL 2003

APPROACH AND LANDING CLIMB

The maximum landing weight for altitude and temperature, in compliance with the airworthiness climb requirements, is shown in the Maximum Landing Weight - Approach Climb Limited charts and Maximum Landing Weight - Landing Climb Limited charts.

Two charts are presented for approach flaps 9° according to the anti-ice system condition (on or off).

Two charts are presented for landing flaps 45° according to the anti-ice system condition (on or off).

The airspeeds related to the approach and landing climbs are also presented.

MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED CHARTS AND LANDING CLIMB LIMITED CHARTS

USE

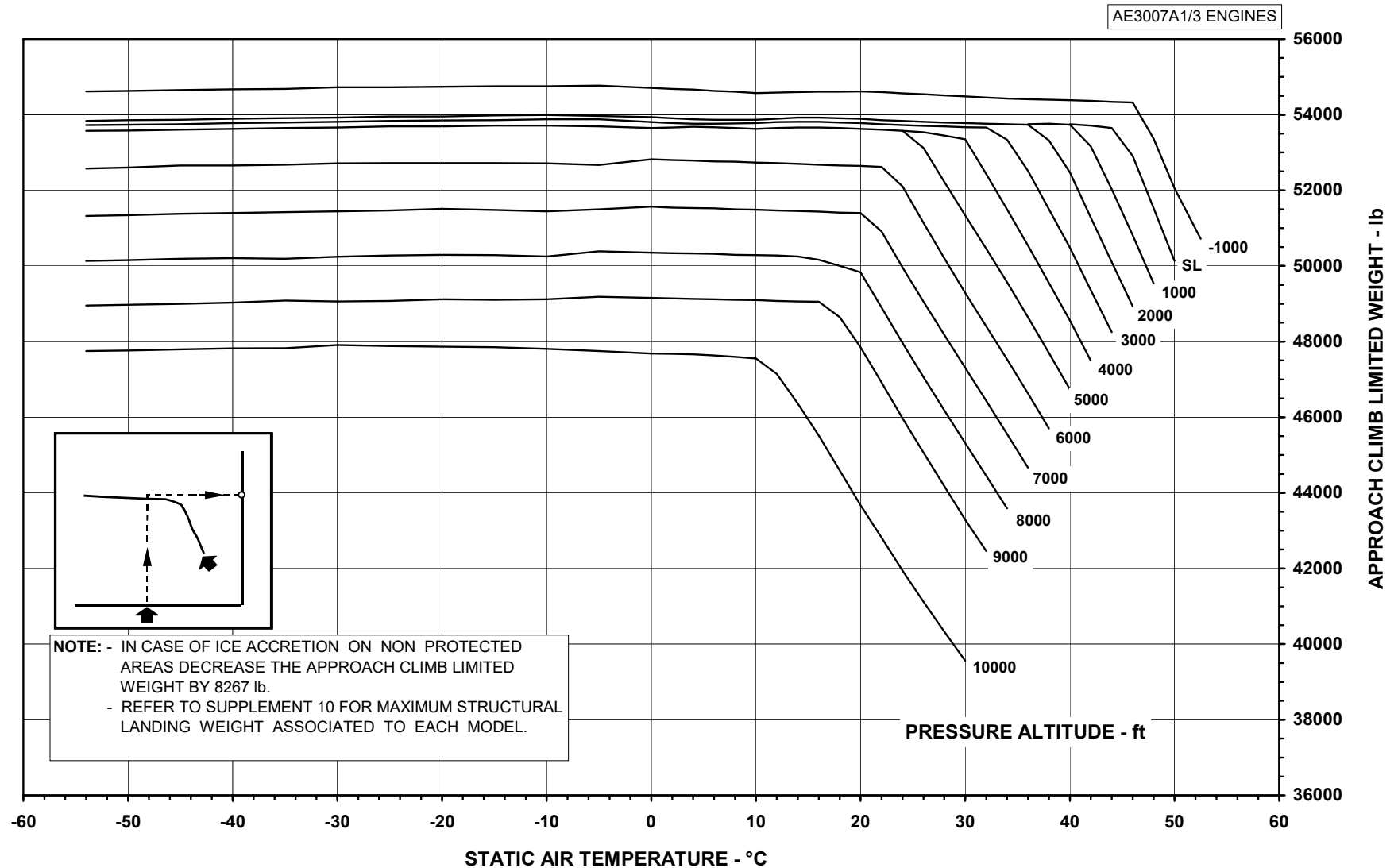
Refer to the basic AFM.

NOTE: Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Limited Weight by 1820 lb.

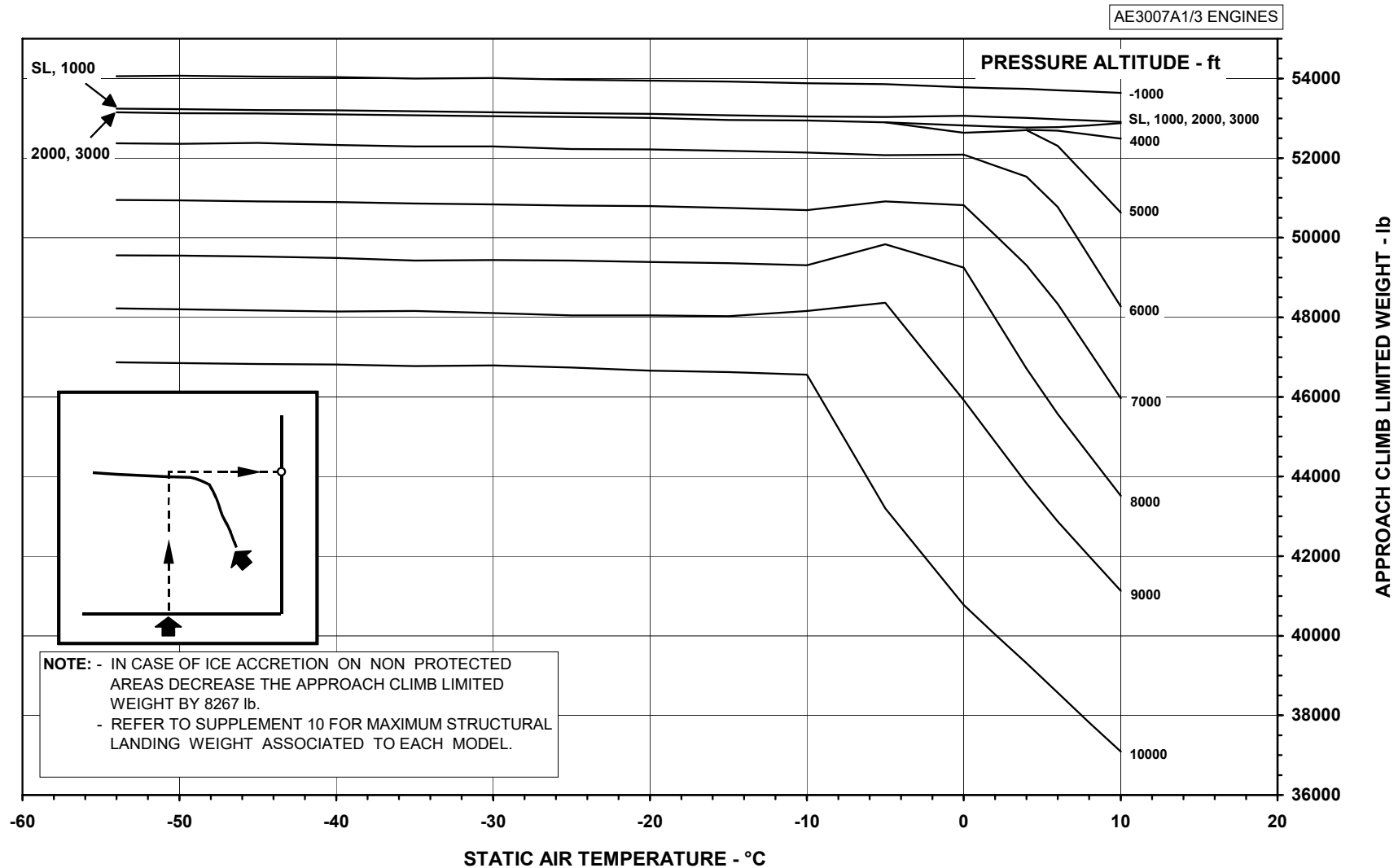


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MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED APPROACH FLAPS 9° - ANTI-ICE OFF

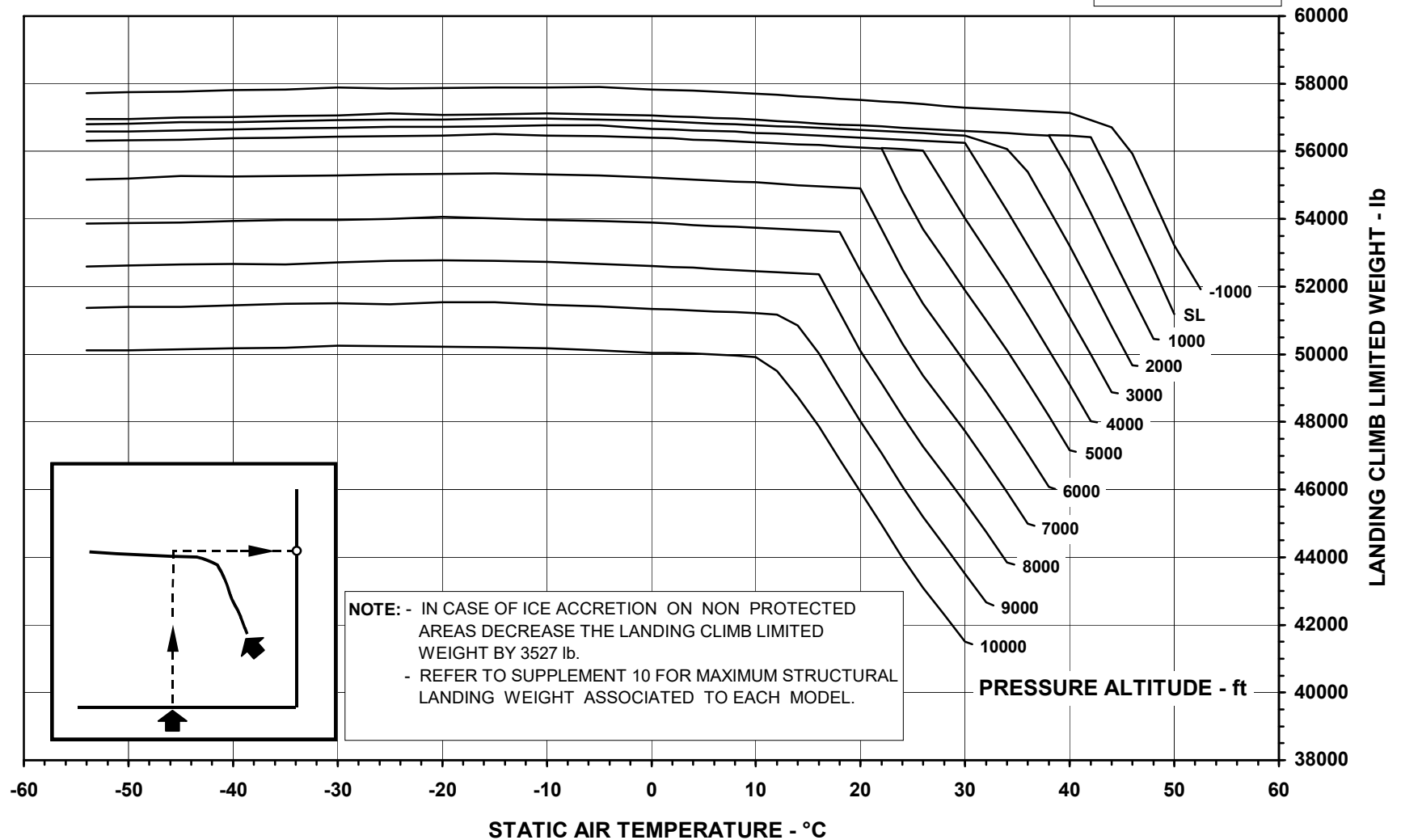


MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED APPROACH FLAPS 9° - ANTI-ICE ON



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **APPROACH FLAPS 9° - LANDING FLAPS 45° - ANTI-ICE OFF**

AE3007A1/3 ENGINES



135FAA43 - 30JUL2003

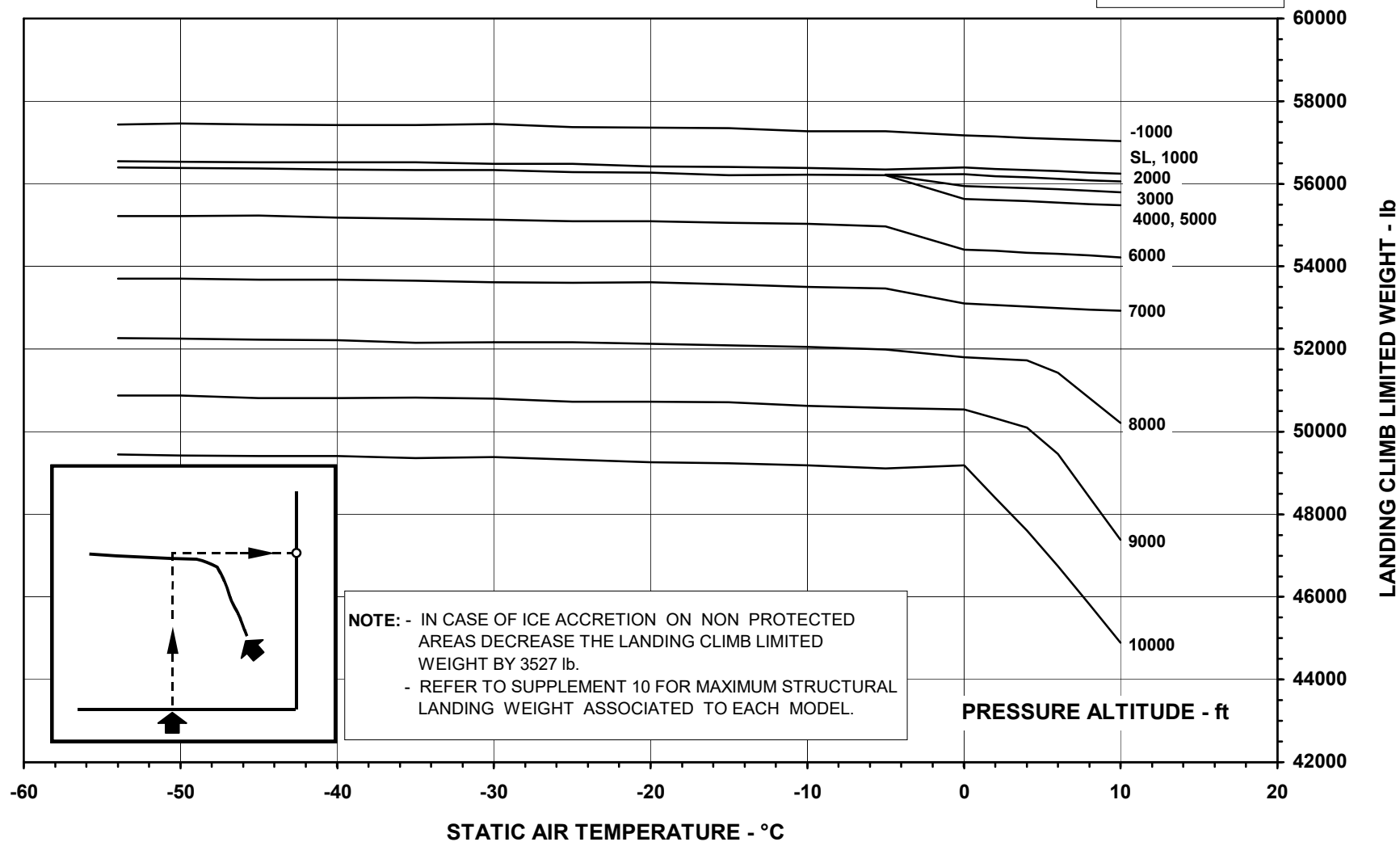
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MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED

APPROACH FLAPS 9° - LANDING FLAPS 45° - ANTI-ICE ON

AE3007A1/3 ENGINES



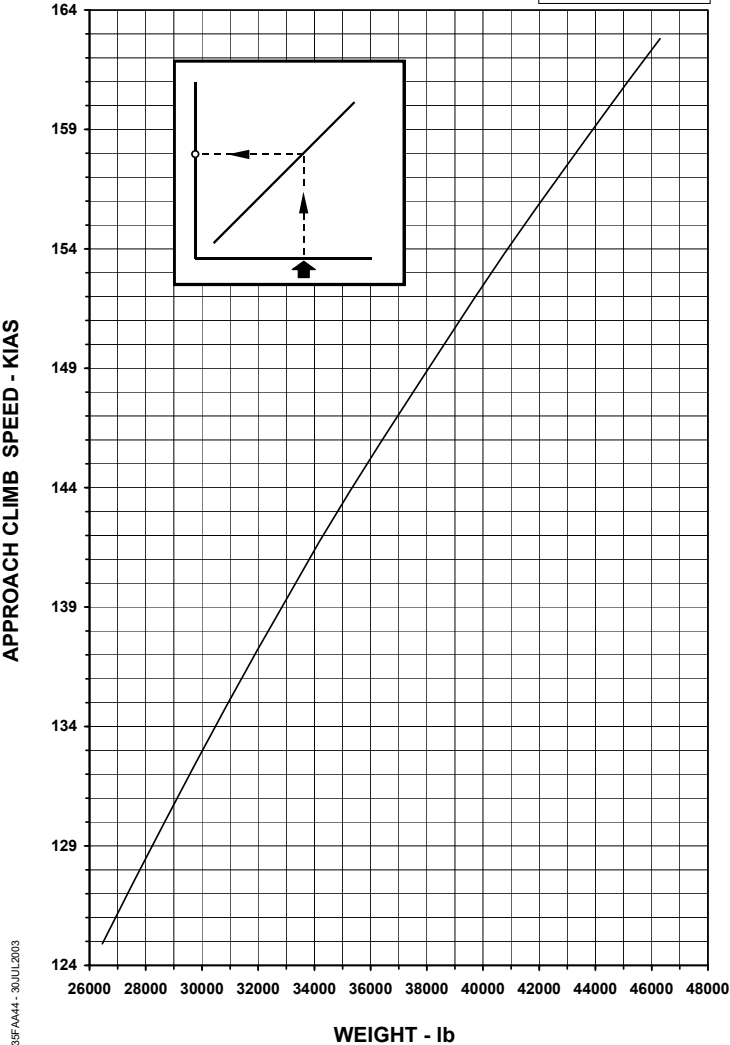
APPROACH CLIMB SPEED CHART AND LANDING CLIMB AND REFERENCE SPEEDS CHART

USE

Refer to the basic AFM.

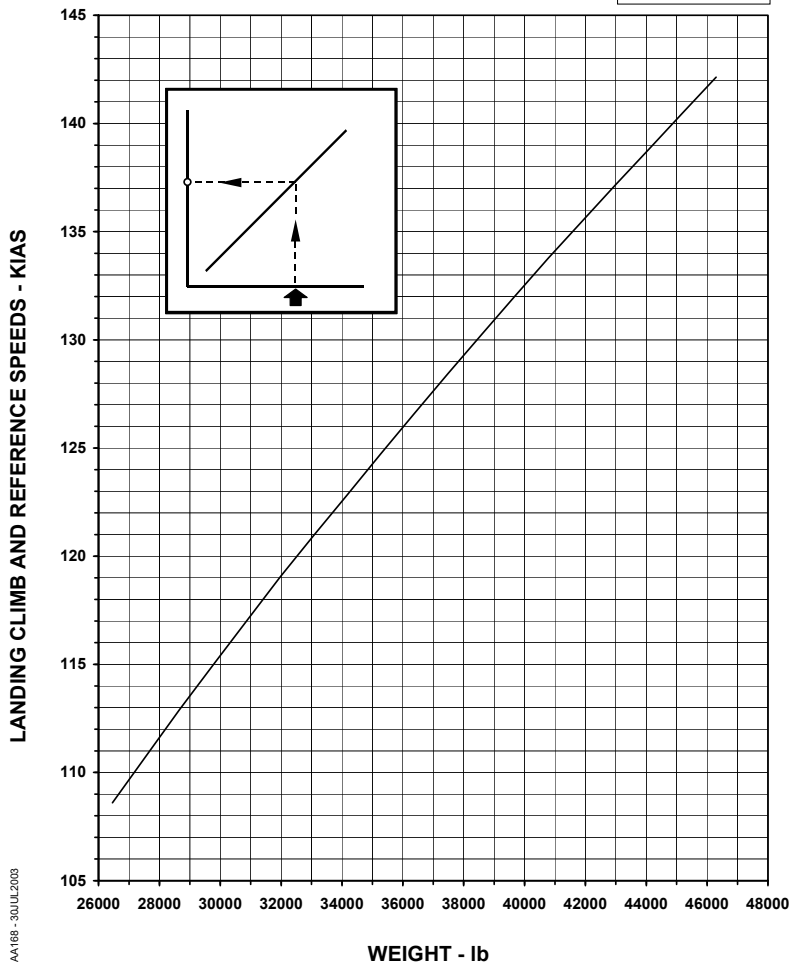
APPROACH CLIMB SPEED
FLAPS 9°

AE3007A1/3 ENGINES



LANDING CLIMB AND REFERENCE SPEEDS
FLAPS 22°

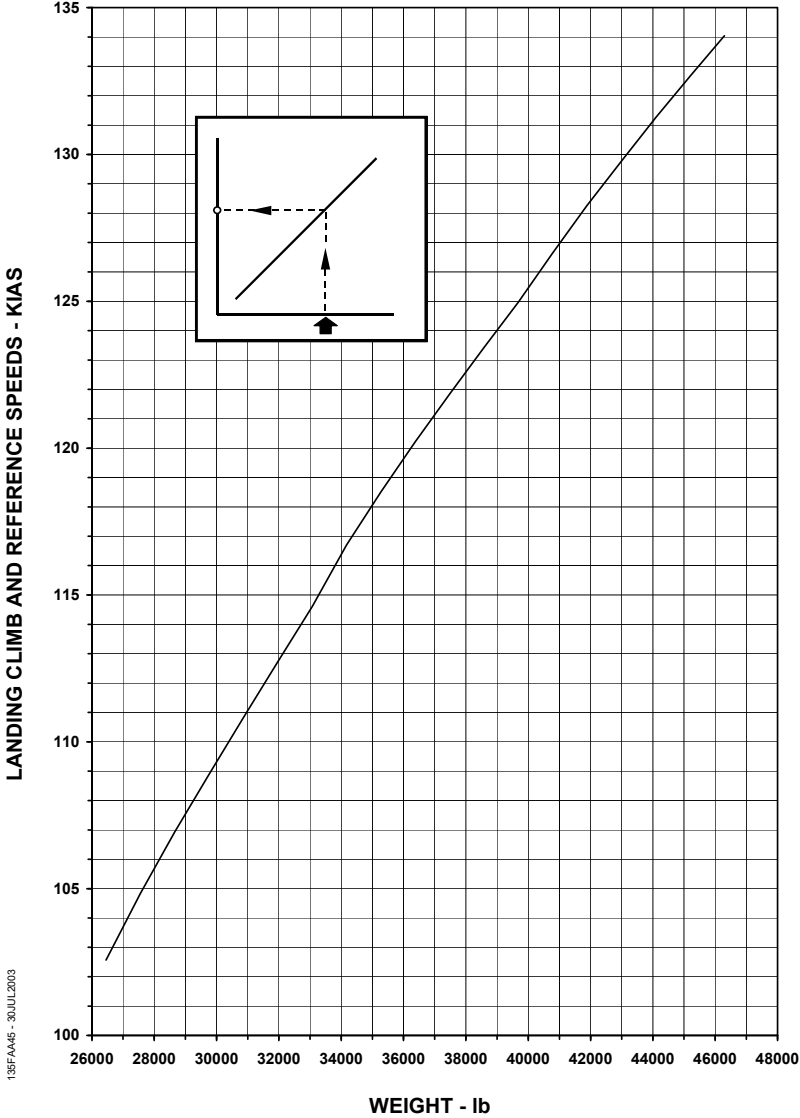
AE3007A1/3 ENGINES



135FAA1188 - 30 JUL 2003

LANDING CLIMB AND REFERENCE SPEEDS
FLAPS 45°

AE3007A1/3 ENGINES



135FAA46 - 30JUL2003

LANDING FIELD LENGTHS

Refer to the basic AFM. The Maximum Landing Weight - Field Length Limited charts, for flaps 45°, is the same as the AE3007A engines and is not presented in this Supplement.

QUICK TURN AROUND WEIGHT

Refer to the basic AFM. The Quick Turn Around Weight chart, for flaps 45°, is the same as the AE3007A engines and is not presented in this Supplement.

UNRELIABLE AIRSPEED TABLES

The unreliable airspeed tables must be used when the indications of airspeed are not reliable and are called by the abnormal procedure Unreliable Airspeed from section 3, which also must be accomplished. For each certified engine type, charts are presented according to the following associated conditions:

Anti-Ice.....ON or OFF

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-135	Engine: AE3007A1/3	Anti-Ice: OFF

CLB THRUST MODE

PRESSURE ALTITUDE (ft)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (240 KIAS)	Pitch (deg)	13	11	10	9
	V/S (ft/min)	4800	4000	3400	2900
10000 (240 KIAS)	Pitch (deg)	9	8	8	7
	V/S (ft/min)	3800	3100	2700	2200
20000 (0.56 M)	Pitch (deg)	7	6	6	5
	V/S (ft/min)	3500	2800	2300	1800
30000 (0.56 M)	Pitch (deg)	7	6	6	6
	V/S (ft/min)	2700	2000	1600	1200
37000 (0.56 M)	Pitch (deg)	7	7	7	7
	V/S (ft/min)	1800	1300	900	400

CRUISE

PRESSURE ALTITUDE (ft)		WEIGHT (lb)			
		30000	35000	40000	45000
15000 (250 KIAS)	Pitch (deg)	1	2	2	2
	N1 (%)	68.9	70.0	71.2	72.5
20000 (250 KIAS)	Pitch (deg)	1	2	2	2
	N1 (%)	72.1	73.5	74.9	76.5
25000 (250 KIAS)	Pitch (deg)	1	2	2	2
	N1 (%)	76.3	77.8	79.4	80.9
30000 (0.63 M)	Pitch (deg)	2	2	2	3
	N1 (%)	78.5	80.0	81.2	82.5
37000 (0.63 M)	Pitch (deg)	2	3	4	4
	N1 (%)	79.8	81.7	83.8	86.2

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-135	Engine: AE3007A1/3	Anti-Ice: OFF

FLIGHT IDLE DESCENT					
PRESSURE ALTITUDE (ft)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (240 KIAS)	Pitch (deg)	-3	-2	-2	-1
	V/S (ft/min)	-1800	-1700	-1600	-1600
10000 (240 KIAS)	Pitch (deg)	-3	-2	-2	-1
	V/S (ft/min)	-2100	-1900	-1800	-1800
20000 (240 KIAS)	Pitch (deg)	-2	-2	-1	-1
	V/S (ft/min)	-2200	-2100	-2000	-1900
30000 (240 KIAS)	Pitch (deg)	-2	-2	-1	0
	V/S (ft/min)	-2500	-2400	-2200	-2100
37000 (240 KIAS)	Pitch (deg)	-2	-1	0	0
	V/S (ft/min)	-2400	-2200	-2100	-2100

HOLDING					
PRESSURE ALTITUDE (ft)		WEIGHT (lb)			
		30000	35000	40000	45000
5000 (200 KIAS)	Pitch (deg)	3	3	4	5
	N1 (%)	54.1	55.9	57.9	59.9
10000 (200 KIAS)	Pitch (deg)	3	3	4	5
	N1 (%)	57.6	59.6	61.8	63.9

Terminal Area (5000 ft) - %N1 for Level Flight					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (V _{REF45} + 30)	Pitch (deg)	7	7	7	7
	N1 (%)	48.9	52.5	55.7	58.8
9 (V _{REF45} + 15)	Pitch (deg)	7	8	8	8
	N1 (%)	51.4	55.1	58.2	61.3



UNRELIABLE AIRSPEED TABLES

Airplane: EMB-135	Engine: AE3007A1/3	Anti-Ice: OFF

Final Approach (1500 ft) - %N1 for 3° Glideslope					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
22 (V _{REF22} + 10)	Pitch (deg)	3	3	4	4
	N1 (%)	47.5	50.8	53.5	56.0
45 (V _{REF45} + 10)	Pitch (deg)	0	0	0	0
	N1 (%)	59.5	63.4	66.7	69.6

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-135	Engine: AE3007A1/3	Anti-Ice: ON

CLB THRUST MODE					
PRESSURE ALTITUDE (ft)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (240 KIAS)	Pitch (deg)	12	11	10	9
	V/S (ft/min)	4700	3900	3400	2800
10000 (240 KIAS)	Pitch (deg)	8	8	7	7
	V/S (ft/min)	3500	2800	2400	1900
20000 (0.56 M)	Pitch (deg)	6	5	5	5
	V/S (ft/min)	3000	2300	1900	1500
30000 (0.56 M)	Pitch (deg)	6	5	5	5
	V/S (ft/min)	2000	1400	1100	700
37000 (0.56 M)	Pitch (deg)	6	6	6	6
	V/S (ft/min)	1200	700	400	0

CRUISE					
PRESSURE ALTITUDE (ft)		WEIGHT (lb)			
		30000	35000	40000	45000
15000 (250 KIAS)	Pitch (deg)	1	2	2	2
	N1 (%)	68.9	70.0	71.2	72.4
20000 (250 KIAS)	Pitch (deg)	1	2	2	2
	N1 (%)	72.2	73.5	74.9	76.5
25000 (250 KIAS)	Pitch (deg)	1	2	2	2
	N1 (%)	76.2	77.8	79.4	80.9
30000 (0.63 M)	Pitch (deg)	2	2	2	3
	N1 (%)	78.4	79.9	81.2	82.5
37000 (0.63 M)	Pitch (deg)	3	3	4	4
	N1 (%)	79.8	81.7	83.8	86.3

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-135	Engine: AE3007A1/3	Anti-Ice: ON

FLIGHT IDLE DESCENT

PRESSURE ALTITUDE (ft)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (240 KIAS)	Pitch (deg)	-1	0	0	0
	V/S (ft/min)	-900	-900	-900	-900
10000 (240 KIAS)	Pitch (deg)	-1	-1	0	0
	V/S (ft/min)	-1200	-1200	-1200	-1200
20000 (240 KIAS)	Pitch (deg)	-1	0	0	0
	V/S (ft/min)	-1300	-1300	-1300	-1300
30000 (240 KIAS)	Pitch (deg)	-1	0	0	1
	V/S (ft/min)	-1400	-1400	-1400	-1400
37000 (240 KIAS)	Pitch (deg)	-1	0	0	1
	V/S (ft/min)	-1700	-1600	-1600	-1500

HOLDING

PRESSURE ALTITUDE (ft)		WEIGHT (lb)			
		30000	35000	40000	45000
5000 (200 KIAS)	Pitch (deg)	3	3	4	6
	N1 (%)	54.1	55.9	57.8	61.8
10000 (200 KIAS)	Pitch (deg)	3	3	4	6
	N1 (%)	57.5	59.6	61.8	65.8

Terminal Area (5000 ft) - %N1 for Level Flight

Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (V _{REF45} + 30)	Pitch (deg)	7	7	7	7
	N1 (%)	48.9	52.5	55.7	61.3
9 (V _{REF45} + 15)	Pitch (deg)	7	8	8	8
	N1 (%)	51.5	55.1	58.3	63.9

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-135	Engine: AE3007A1/3	Anti-Ice: ON

Final Approach (1500 ft) - %N1 for 3° Glideslope					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
22 (V _{REF22} + 10)	Pitch (deg)	3	3	4	4
	N1 (%)	47.6	50.7	53.5	58.0
45 (V _{REF45} + 10)	Pitch (deg)	0	0	0	0
	N1 (%)	59.5	63.4	66.7	72.0



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SUPPLEMENT 12

LIST OF EFFECTIVE PAGES

ORIGINAL	0	Not Applicable
REVISION	1 to 31	Not Applicable
REVISION	32	DEC 17, 1999
REVISION	33 to 40	Not Applicable
REVISION	41	NOV 07, 2000
REVISION	42	DEC 28, 2000
REVISION	43 to 49	Not Applicable
REVISION	50	NOV 09, 2001
REVISION	51	JAN 14, 2002
REVISION	52	Not Applicable
REVISION	53	OCT 22, 2002
REVISION	54	NOV 04, 2002
REVISION	55	NOV 27, 2002
REVISION	56	OCT 21, 2003
REVISION	57	JUN 17, 2004
REVISION	58	NOV 23, 2004
REVISION	59	JUN 30, 2005
REVISION	60	Not Applicable
REVISION	61	NOV 17, 2006
REVISION	62	Not Applicable
REVISION	63	NOV 20, 2007
REVISION	64	Not Applicable
REVISION	65	OCT 03, 2013
REVISION	66 to 68	Not Applicable
REVISION	69	NOV 29, 2022

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* S12-v REVISION 69
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 * S12-2 REVISION 69

* Asterisk indicates pages revised, added or deleted by the current revision.

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GENERAL

This Supplement is provided to present the data required for operations with AE3007A1P. The information herein presented must replace the equivalent data in the basic AFM.

For limitations, procedures and performance information not contained in this Supplement, see the basic AFM or Supplement 3.

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LIMITATIONS

TAKEOFF FLAPS

Takeoffs with flaps 18° or 22° is only approved for T/O thrust rating mode.

V₂ SCHEDULE

Only Normal V₂ Takeoff charts are presented in this Supplement. Performance for Normal V₂ Schedule may also be computed through ETOASG.
Takeoff with increased V₂/V_s ratio can be computed only through ETOASG.

POWER PLANT

ENGINES

Two Rolls-Royce AE3007A1P.

OPERATIONAL LIMITS (AE3007A1P)

PARAMETER (5)	MIN	MAX
N1	-	100.0%
N2	-	102.4% (8)
ITT:	-	-
START	-	800°C
TAKEOFF	-	948°C (1)
CONTINUOUS	-	901°C
OIL PRESSURE:	-	-
BELOW 88% N2	34 psi	95 psi (2) (6) 110 psi (2) (7)
AT OR ABOVE 88% N2	50 psi (9)	95 psi (6) 110 psi (7)
OIL TEMPERATURE	21°C (3)	126°C
FUEL TEMPERATURE	-54°C	52°C
VIBRATION:	-	-
LP SPOOL	-	1.8 IPS (4)
HP SPOOL	-	1.1 IPS (4)

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NOTE: 1) Time limited to 5 minutes.

- 2) May be exceeded during starts if oil temperature is below 21°C. The engine must remain at IDLE until the oil pressure is less than 95 psi (110 psi for airplanes Post-Mod. SB 145-73-0023 or equipped with an equivalent modification factory incorporated).
- 3) Minimum oil temperature for starting is -40°C for lubrication oil specified by MIL-L-23699D and -54°C for lubrication oil specified by MIL-L-7808K.
- 4) Vibration in the amber range below 2.5 IPS is time limited to 5 minutes during the takeoff or go-around phases or 10 seconds during the remainder flight phases.
- 5) Any engine exceedance or peak must be monitored and logged by the crew.
- 6) Operation in oil pressure amber range is permitted between 96 and 115 psi in all operational modes and time limited to 5 minutes, or between 116 and 155 psi in all operational modes time limited to 2 minutes. Total time above 95 psi may not exceed 5 minutes.
- 7) For airplanes Post-Mod. SB 145-73-0023 or equipped with an equivalent modification factory incorporated the upper limit of the oil pressure green band is 110 psi. Operation in oil pressure amber range is permitted between 111 and 115 psi in all operational modes time limited to 5 minutes, or between 116 and 155 psi in all operational modes time limited to 2 minutes. Total time above 110 psi may not exceed 5 minutes.
- 8) For airplanes Pre-Mod. SB 145-73-0027 the N2 limit is 102.5%.
- 9) While this is an abnormal condition, operation between 50 and 34 psi is permitted during takeoff and go-around phases.

TAKEOFF THRUST MODE

ALT T/O-1, T/O and T/O RSV modes are allowed for takeoff.

NOTE: Takeoff in T/O RSV mode is intended to be used only for Thrust Assurance Check purposes and does not improve certified performance.

PERFORMANCE

APPROACH CLIMB GRADIENT AND APPROACH CLIMB LIMITED WEIGHTS

Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Gradient by 1.1% and decrease the Approach Climb Limited Weight by 1920 lb.

EMERGENCY AND ABNORMAL PROCEDURES

For takeoffs with flaps 9° refer to basic AFM.

For Takeoffs with Flaps 18° or 22° the following procedures are applicable:

TAKEOFF WITH ENGINE FAILURE ABOVE V₁

Maximum Takeoff Thrust	CHECK
With positive rate of climb:	
Landing Gear	UP
Airspeed	V ₂

NOTE: The airplane must be rotated to 13° (for flaps 18°) or 12° (for flaps 22°).

Maintain V₂ up to the level off altitude. If maneuvering is required, maintain a maximum bank of 15°.

When reaching the level off height:

At V₂ + 10 KIAS:

Flaps 9°

At V₂ + 30 KIAS:

Flaps UP
Airspeed ACCELERATE
TO FINAL
SEGMENT
SPEED

After flaps are retracted:

PRECAUTIONARY ENGINE SHUTDOWN or
ENGINE FIRE, SEVERE DAMAGE OR
SEPARATION Procedure AS REQUIRED

After a maximum of 5 minutes at T/O:

Thrust Rating CON

NORMAL PROCEDURES

For takeoffs with flaps 9° refer to basic AFM.

For Takeoffs with Flaps 18° or 22° the following procedures are applicable:

BEFORE START

Takeoff Data SET
Select T/O mode.

AFTER START

Flaps 18° OR 22°

TAKEOFF

Thrust Levers THRUST SET
Check green ATTCs indication displayed on EICAS.

NOTE: - If the runway is considered to be limiting, a static takeoff must be accomplished. In this case, release brakes after engine has reached the target N1.

- For rolling takeoffs, performance data is valid from the point where takeoff thrust is achieved.
- During takeoff run, pedals should be used to steer the airplane.

Engine Parameters MONITOR

At V_R , rotate the airplane to 13° (flaps 18°) or 12° (flaps 22°).

With positive rate of climb:

Landing Gear UP

Minimum Airspeed V_2

If maneuvering is required, maintain a minimum airspeed of $V_2 + 10$ KIAS with a maximum bank of 25°.

At $V_2 + 10$ KIAS:

Flaps 9°

At $V_2 + 30$ KIAS:

Flaps UP

TAKEOFF IN T/O RSV MODE

NOTE: Takeoff in T/O RSV mode is intended to be used only for Thrust Assurance Check purposes and does not improve certified performance.

Thrust Levers..... THRUST SET
Check green ATTCS indication displayed on EICAS.

Thrust Levers..... MAX

NOTE: - If the runway is considered to be limiting, a static takeoff must be accomplished. In this case, release brakes after engine has reached the target N1.

- For rolling takeoffs, performance data is valid from the point where takeoff thrust is achieved.
- During takeoff run, pedals should be used to steer the airplane.

Engine Parameters..... MONITOR

At V_R , rotate the airplane to 14° (flaps 9°), 13° (flaps 18°) or 12° (flaps 22°).

With positive rate of climb:

Landing Gear..... UP

Minimum Airspeed..... V_2

If maneuvering is required, maintain a minimum airspeed of $V_2 + 10$ KIAS with a maximum bank of 25° .

At level off height altitude:

For flaps 9° :

Airspeed $V_2 + 15$ KIAS

Flaps..... UP

For flaps 18° or flaps 22° :

At $V_2 + 10$ KIAS:

Flaps..... 9°

At $V_2 + 30$ KIAS:

Flaps..... UP

PERFORMANCE

The configurations referred in the charts are shown below.
Performance conditions not shown below are on the appropriate charts.

	OPERATING ENGINES	THRUST	FLAPS	GEAR	AIRSPEED
TAKEOFF	2 until V_{EF} , 1 after V_{EF}	THRUST SET or MAX	9° or 18° or 22°	DOWN	0 TO V_2
1 ST SEGMENT	1	MAX	9° or 18° or 22°	DOWN TO UP	V_{LOF} TO V_2
2 ND SEGMENT	1	MAX	9° or 18° or 22°	UP	V_2
3 RD SEGMENT	1	MAX	9° TO UP or 18° TO UP or 22° TO UP	UP	V_2 TO FINAL SEGMENT SPEED

The performance data presented in this section must replace the equivalent data in the basic AFM or Supplement 3.

Unless otherwise specified, the performance charts presented in this Supplement must be used in the same way as in the basic AFM.

The Takeoff Performance Charts are presented in two different sets of charts, one set for ALT T/O-1 mode - Flaps 9° and another for T/O Mode - Flaps 9°, Flaps 18° and 22°.

The Takeoff Performance Charts for ALT T/O-1 mode - Flaps 9° are balanced field length charts; the Takeoff Performance Charts for T/O mode - Flaps 9°, Flaps 18° and 22° are unbalanced field length charts.

Takeoff performance data for T/O RSV mode is only available through the ETOASG version 15.00/4.01 or later approved version.

One Final Segment Net gradient of Climb Chart is present for each takeoff flap position.

NOTE: - Takeoff in T/O RSV mode is intended to be used only for Thrust Assurance Check purposes and does not improve certified performance.

- The performance charts from Final Segment up to Landing are the same for all takeoff flaps.

BRAKE ENERGY - Due to the associated conditions, the maximum takeoff weight will never be limited by brake energy with takeoff flaps 18° or 22°.

The Minimum Control Speed in Landing Configuration (V_{MCL}) is equal to 101.7 KIAS.

PROCEDURE TO USE THE TAKEOFF PERFORMANCE CHARTS

For takeoffs with ALT T/O-1 Mode - Flaps 9° refer to basic AFM.

For Takeoffs with T/O Mode - Flaps 9° or Flaps 18° or Flaps 22° the following procedure is applicable:

MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED

Enter the chart with static air temperature and airport pressure altitude to read the climb limited weight.

MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED

It is possible to use these charts in two different ways. If the runway length is available, the maximum takeoff weight can be found. In the same way, if the maximum takeoff weight is available the runway length can be found.

MAXIMUM TAKEOFF WEIGHT TARGET

- a) Enter the Takeoff Distance Chart 1 of 2 from the right with the Runway Length.
 - b) If a clearway is available make the Clearway correction following directly the guidance line to the reference line. The difference between the runway length and the value found is the Maximum Allowable Clearway.

If the Maximum Allowable Clearway is equal or shorter than the Clearway, proceed to the next step (1c).

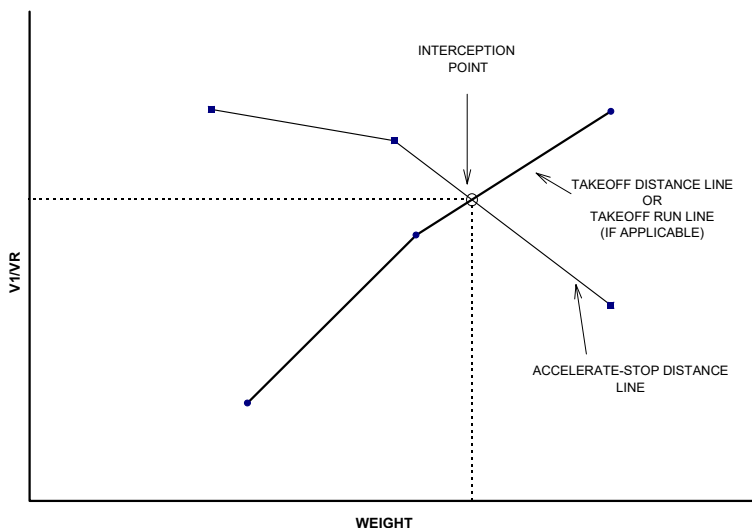
If the Maximum Allowable Clearway is bigger than the Clearway, enter again on the chart from the right with the runway length plus clearway, following directly to the reference line, and proceed to the next step (1c).

- c) Proceed through Slope and Wind corrections (as necessary). Make the corrections, proceeding horizontally to the correction value and following the guide line until the reference line. The Takeoff Distance correction must be done following directly the guidance line to the reference line.
- d) Proceed horizontally until intersecting three lines projected upwards from arbitrarily chosen V_1/V_R ratios. From the intersection, follow the guide line until the reference line, reading the transfer scale values.
- e) Enter the Takeoff Distance Chart 2 of 2 with the Static Air Temperature and Airport Pressure Altitude. Proceed right horizontally to intersecting the reference line.

Follow the guide lines to intersecting the three horizontal lines from transfer scale, and read three weights for the corresponding three values of V_1/V_R .

- 2. Enter the Accelerate Stop Distance Chart 1 of 2 from the right with the Accelerate-Stop distance. Proceed as step 1 (a through e) to read three weights for the corresponding three values of V_1/V_R .
- 3. a) Using V_1/V_R versus Weight Template, plot (see example 1) the three weights determined in the step 1, against the corresponding three values of V_1/V_R , creating the Takeoff Distance Line or the Takeoff Run Line (if applicable).
- b) Plot the three weights determined in the step 2, against the corresponding three values of V_1/V_R , creating the Accelerate-Stop Distance Line.

- Read the maximum takeoff weight and V_1/V_R at the intersection point between Takeoff Distance line and Accelerate-Stop Distance line.



EXAMPLE 1

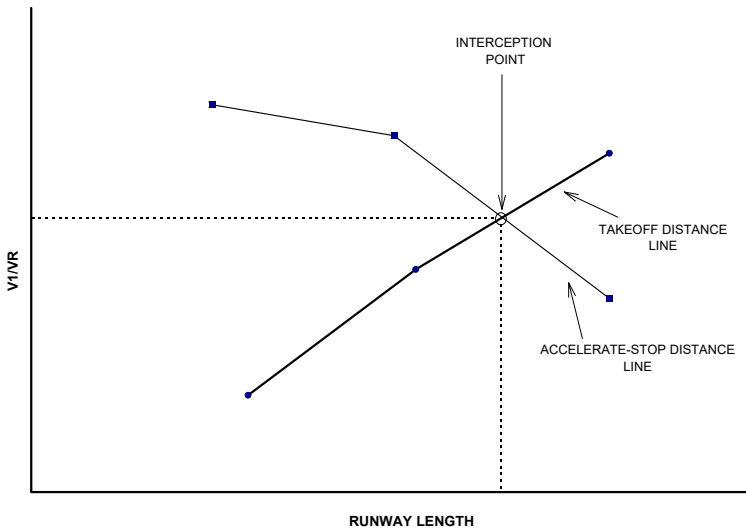
RUNWAY LENGTH TARGET

- Enter the Takeoff Distance Chart 2 of 2 with the True Outside Air Temperature and Airport Pressure Altitude. Proceed right horizontally to intersecting the reference line.

Follow the guide line to intersect the vertical line from the weight, and read the transfer scale value.

- Enter in the Takeoff Distance Chart 1 of 2 from the left with the transfer scale value. Follow the guide lines to intersect three lines projected upwards from arbitrarily chosen V_1/V_R ratios.
- Make the corrections (as necessary), proceeding horizontally to the reference line and following the guide line to the correction value. Read the three runway length values.

5. a) Using V_1/V_R versus Runway Length Template, plot (see example 2) the three runway lengths determined in step 3, against the corresponding three values of V_1/V_R , creating Takeoff Distance Line or Takeoff Run Line (if applicable).
 - b) Plot the three runway lengths determined in step 4, against the corresponding three values of V_1/V_R , creating the Accelerate-Stop Distance Line.
6. Read the runway length and V_1/V_R at the intersection point between Takeoff Line and Accelerate-Stop Distance Line.



EXAMPLE 2

MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED

Enter the chart in the same way as in the basic AFM to read the brake energy limited weight.

MAXIMUM TAKEOFF WEIGHT - OBSTACLE CLEARANCE LIMITED

Enter the charts (Obstacle Clearance - Reference Gradient and Obstacle Clearance) with the lowest among weight determined in the previous steps and the Maximum Takeoff Weight (structural) and check the obstacle clearance.

TAKEOFF SPEEDS V_1 , V_R , V_2 AND V_{FS}

Enter the Takeoff Speeds charts with the maximum allowable takeoff weight and read V_R and V_2 .

Enter the Takeoff Speeds - V_1 for Unbalanced Runway chart with the V_R and V_1/V_R and find the V_1 .

If the V_1 found is greater than 110 KIAS (flaps 18°) or 117 KIAS (flaps 22°), the V_1 can be used.

If the V_1 found is lower than 110 KIAS (flaps 18°) or 117 KIAS (flaps 22°), enter the Minimum V_1 - chart. Check whether the V_1 is equal or greater than the minimum V_1 , if V_1 found is lower than minimum V_1 it can not be used and it is necessary to procedure as follows:

- Enter the Takeoff Distance chart with a lower runway length and find three weights and the corresponding three values of V_1/V_R . Enter the V_1/V_R versus Weight Template with these values creating a new Takeoff Distance Line and maintaining the previous Accelerate-Stop Distance Line. Find the new Weight and the corresponding V_1/V_R . Find V_R and V_2 .

NOTE: For Final Segment Net Gradient of Climb calculation, enter the appropriate chart based on the takeoff flap position with the reference gradient obtained from the associated Obstacle Clearance Reference Gradient Chart.

PROCEDURE FOR DETERMINATION OF TAKEOFF WEIGHT - ILLUSTRATIVE EXAMPLE

Takeoff data:

Takeoff flaps	18°
Runway Length	5000 ft
Clearway	Not Available
FADEC REF A/ICE	OFF
Static Air Temperature	20°C
Airport Pressure Altitude	3000 ft
Runway Slope	-1% (DOWN HILL)
Wind component	10 kt (HEAD WIND)

- 1 - Determine the Maximum Takeoff Weight - Climb limited:
 - 46600 lb.
- 2 - Determine the Maximum Takeoff Weight - Field Length limited:
 - a) Transfer Scale value on the Takeoff distance chart:

Assuming that $V_1/V_R = 0.90, 0.95$ and 1.00 :

 - Transfer Scale = 5180 for $V_1/V_R = 0.90$
 - Transfer Scale = 5400 for $V_1/V_R = 0.95$
 - Transfer Scale = 5600 for $V_1/V_R = 1.00$
 - b) Determine the weight associated to each V_1/V_R on the Takeoff Distance chart:

Assuming that $V_1/V_R = 0.90, 0.95$ and 1.00 :

 - Weight = 40650 lb for $V_1/V_R = 0.90$
 - Weight = 41900 lb for $V_1/V_R = 0.95$
 - Weight = 42500 lb for $V_1/V_R = 1.00$

- c) Determine the Transfer Scale Value on the Accelerate Stop Distance chart:

Assuming that $V_1/V_R = 0.85, 0.90$ and 1 :

- Transfer Scale = 6680 for $V_1/V_R = 0.85$
- Transfer Scale = 5880 for $V_1/V_R = 0.90$
- Transfer Scale = 4800 for $V_1/V_R = 1$

- d) Determine the weight associated to each V_1/V_R on the Accelerate Stop Distance chart:

Assuming that V_1/V_R 0.85, 0.90 and 1 :

- Weight = 48500 lb for $V_1/V_R = 0.85$
- Weight = 45500 lb for $V_1/V_R = 0.90$
- Weight = 39500 lb for $V_1/V_R = 1$

- e) Determine the Maximum Takeoff Weight and V_1/V_R :

- Maximum Takeoff Weight = 42000 lb.
- $V_1/V_R = 0.958$

- 3 - Determine the Maximum Weight - Obstacle Clearance limited:

- 48501 lb (not limiting)

- 4 - As the determined takeoff weight - field length limited is lower than the maximum takeoff - climb limited, the takeoff weight – field length limited will be used.

5 - Determine V_R and V_2 for the Takeoff Weight determined in 6:

- $V_R = 118$ KIAS
- $V_2 = 125$ KIAS

6 - Determine V_1 from the Takeoff Speeds - V_1 chart:

- $V_1 = 118$ KIAS

The V_1 found is higher than 110 KIAS, and no further correction is necessary.

7 - Determine the Minimum V_1 from the Takeoff Speeds Minimum V_1 chart:

- Minimum $V_1 = 102$ KIAS

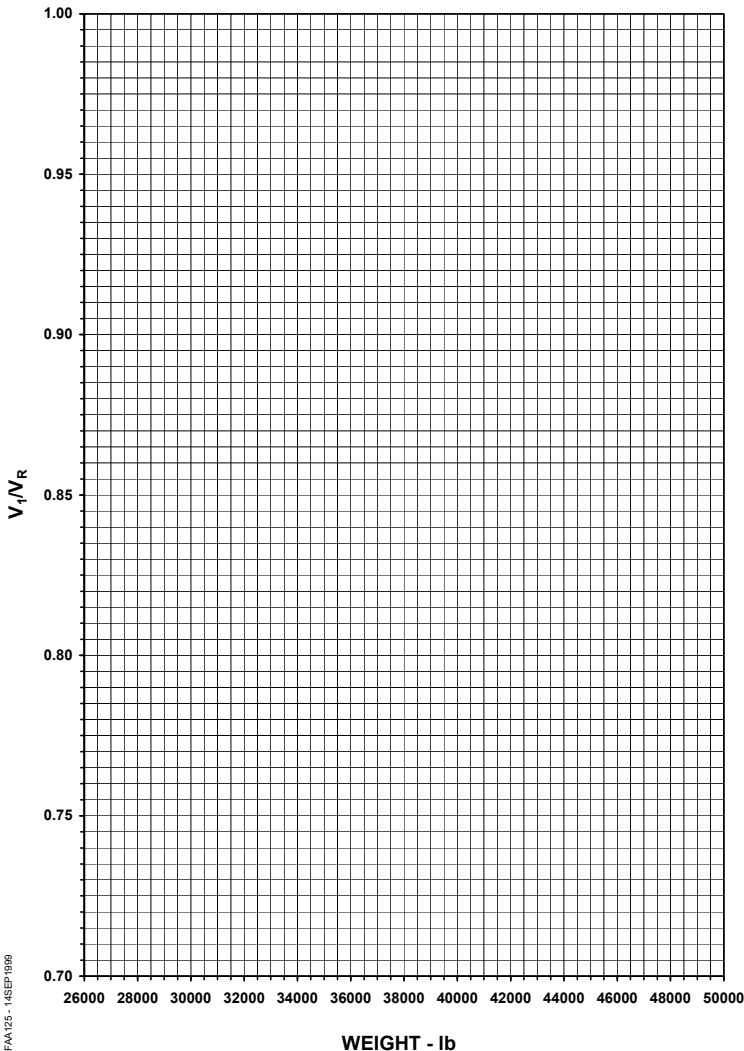
The V_1 found is greater than the minimum V_1 , so this value can be used.

NOTE: If the V_1 found was lower than the minimum V_1 , it would be necessary to find another Takeoff Distance Line in order to increase the V_1 , by decreasing the maximum takeoff weight or runway length, as described at the step 5 of the illustrative example.

8 - Determine the V_{FS} :

- $V_{FS} = 164$ KIAS

$V_1/V_R \times \text{WEIGHT}$



TEMPLATE 1

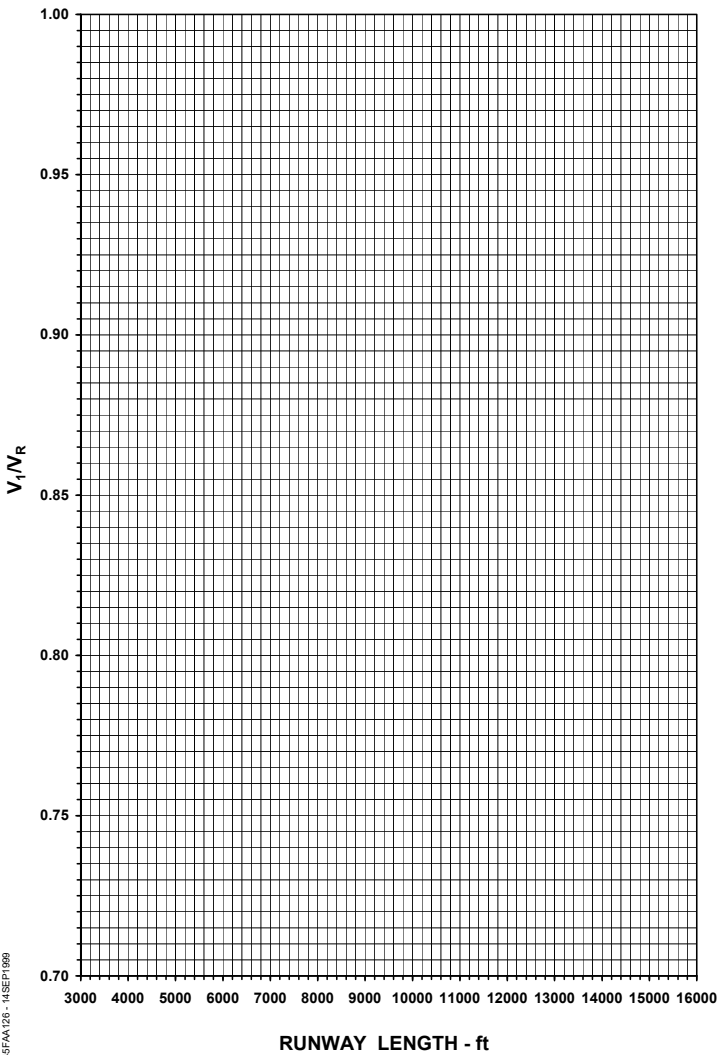
NOTE:

This chart is presented only to support the takeoff analysis calculation.

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$V_1/V_R \times \text{RUNWAY LENGTH}$



TEMPLATE 2

NOTE: This chart is presented only to support the takeoff analysis calculation.

N1 FOR T/O MODE

ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	74.8	75.5	76.4	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8
0	75.5	76.1	77.0	77.8	78.7	79.5	80.3	81.1	81.9	82.7	83.5
1000	76.5	77.2	78.0	78.9	79.7	80.6	81.4	82.2	83.0	83.8	84.6
2000	77.5	78.2	79.1	80.0	80.8	81.7	82.5	83.3	84.1	84.9	85.7
3000	78.5	79.2	80.1	81.0	81.8	82.7	83.5	84.4	85.2	86.0	86.8
4000	79.5	80.2	81.1	82.0	82.8	83.7	84.6	85.4	86.2	87.1	87.9
5000	80.4	81.1	82.0	82.9	83.8	84.7	85.6	86.4	87.3	88.1	88.9
6000	80.9	81.7	82.6	83.5	84.4	85.2	86.1	87.0	87.8	88.7	89.5
7000	81.4	82.2	83.1	84.0	84.9	85.8	86.7	87.5	88.4	89.2	90.1
8000	82.0	82.7	83.6	84.6	85.5	86.3	87.2	88.1	89.0	89.8	90.7
9000	82.5	83.3	84.2	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3
10000	83.1	83.9	84.8	85.7	86.6	87.5	88.4	89.3	90.2	91.1	91.9
11000	83.2	83.9	84.9	85.8	86.7	87.6	88.5	89.4	90.3	91.1	92.0
12000	83.3	84.0	84.9	85.9	86.8	87.7	88.6	89.5	90.4	91.2	92.1
13000	83.5	84.3	85.2	86.2	87.1	88.0	88.9	89.8	90.7	91.5	92.4
14000	84.0	84.8	85.8	86.7	87.6	88.5	89.4	90.3	91.2	92.1	93.0
15000	84.6	85.3	86.3	87.2	88.2	89.1	90.0	90.9	91.8	92.7	93.5
16000	84.6	85.3	86.3	87.2	88.2	89.1	90.0	90.9	91.8	92.7	93.5

N1 FOR T/O MODE

ANTI-ICE OFF
AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	0	5	10	15	20	25	30	35	40	45	50
-1000	83.6	84.3	85.1	85.8	86.6	87.3	88.0	88.8	89.5	90.2	90.3
0	84.2	85.0	85.8	86.5	87.3	88.0	88.8	89.5	90.2	90.9	90.8
1000	85.4	86.2	86.9	87.7	88.5	89.2	90.0	90.7	91.4	91.4	90.1
2000	86.5	87.3	88.1	88.9	89.7	90.4	91.2	91.9	92.0	91.0	90.2
3000	87.7	88.5	89.2	90.0	90.8	91.6	92.3	92.7	91.8	91.0	90.4
4000	88.7	89.5	90.3	91.1	91.9	92.7	93.2	93.1	91.8	91.0	90.7
5000	89.8	90.6	91.4	92.2	93.0	93.8	93.7	92.7	91.9	91.0	-
6000	90.3	91.2	92.0	92.8	93.6	94.0	93.3	92.6	91.7	91.2	-
7000	90.9	91.7	92.6	93.4	94.2	94.3	93.2	92.4	91.6	91.4	-
8000	91.5	92.4	93.2	94.0	94.5	94.4	93.1	92.3	91.6	-	-
9000	92.2	93.0	93.8	94.6	94.9	93.7	92.9	92.2	91.8	-	-
10000	92.8	93.6	94.5	94.5	93.2	92.2	91.5	90.9	-	-	-
11000	92.9	93.7	94.5	94.5	93.0	92.1	91.4	91.0	-	-	-
12000	92.9	93.8	94.6	94.6	92.8	92.0	91.3	91.2	-	-	-
13000	93.3	94.1	94.7	94.5	92.6	91.9	91.3	-	-	-	-
14000	93.8	94.7	94.9	93.4	92.5	91.7	91.4	-	-	-	-
15000	94.4	95.2	95.1	93.2	92.4	91.5	-	-	-	-	-
16000	94.1	94.1	92.7	91.7	90.9	90.3	-	-	-	-	-

N1 FOR T/O MODE

**ANTI-ICE ON
AIRSPEED: 0 KCAS**

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	78.3	79.2	80.0	80.8	81.6	82.4	83.2	84.0	83.6	84.3	85.1
0	79.0	79.8	80.6	81.5	82.3	83.1	83.9	84.7	84.2	85.0	85.8
1000	80.0	80.9	81.7	82.6	83.4	84.2	85.0	85.8	85.4	86.2	86.9
2000	81.1	82.0	82.8	83.7	84.5	85.3	86.2	87.0	86.5	87.3	88.1
3000	82.1	83.0	83.9	84.7	85.6	86.4	87.2	88.1	87.6	88.4	89.2
4000	83.1	84.0	84.9	85.7	86.6	87.4	88.3	89.1	88.7	89.5	89.5
5000	84.1	85.0	85.9	86.7	87.6	88.5	89.3	90.2	89.8	90.5	89.5
6000	84.6	85.5	86.4	87.3	88.2	89.0	89.9	90.7	90.3	90.1	89.1
7000	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3	90.6	89.8	88.8
8000	85.7	86.6	87.5	88.4	89.3	90.2	91.0	91.8	90.0	89.3	88.4
9000	86.3	87.2	88.1	89.0	89.9	90.8	91.6	91.1	89.3	88.7	88.0
10000	86.9	87.8	88.7	89.6	90.5	91.4	90.9	89.1	87.5	87.1	86.7
11000	86.9	87.9	88.8	89.7	90.6	90.9	90.4	88.8	87.3	87.0	86.6
12000	87.0	87.9	88.9	89.8	90.7	90.5	88.8	88.6	87.1	86.9	86.6
13000	87.3	88.2	89.2	90.1	90.5	90.1	88.6	88.4	87.0	86.8	86.5
14000	87.8	88.8	89.7	90.5	90.2	88.6	88.4	88.3	87.0	86.8	86.2
15000	88.4	89.3	90.2	90.2	89.9	88.4	88.3	88.3	87.0	86.9	85.9
16000	88.4	89.3	90.1	89.7	88.1	87.7	87.5	87.3	85.8	85.2	84.1

N1 FOR GO-AROUND

ANTI-ICE OFF
AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	77.4	78.1	79.0	79.8	80.7	81.5	82.3	83.2	84.0	84.8	85.6
0	78.0	78.7	79.6	80.4	81.3	82.1	83.0	83.8	84.6	85.5	86.3
1000	78.5	79.2	80.1	81.0	81.8	82.7	83.5	84.4	85.2	86.0	86.8
2000	79.0	79.7	80.6	81.5	82.4	83.2	84.1	84.9	85.8	86.6	87.4
3000	79.5	80.2	81.1	82.0	82.9	83.7	84.6	85.4	86.3	87.1	87.9
4000	79.9	80.7	81.6	82.4	83.3	84.2	85.1	85.9	86.7	87.6	88.4
5000	80.4	81.1	82.0	82.9	83.8	84.6	85.5	86.4	87.2	88.1	88.9
6000	80.8	81.6	82.5	83.4	84.3	85.1	86.0	86.9	87.7	88.6	89.4
7000	81.3	82.0	82.9	83.8	84.7	85.6	86.5	87.4	88.2	89.1	89.9
8000	81.8	82.5	83.5	84.4	85.3	86.2	87.0	87.9	88.8	89.6	90.5
9000	82.3	83.1	84.0	84.9	85.8	86.7	87.6	88.5	89.4	90.2	91.1
10000	82.9	83.6	84.6	85.5	86.4	87.3	88.2	89.1	90.0	90.8	91.7

N1 FOR GO-AROUND

ANTI-ICE OFF

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	0	5	10	15	20	25	30	35	40	45	50
-1000	86.4	87.2	88.0	88.7	89.5	90.3	91.0	91.8	92.0	90.8	89.8
0	87.1	87.9	88.6	89.4	90.2	91.0	91.7	92.5	92.3	90.9	89.9
1000	87.6	88.4	89.2	90.0	90.8	91.6	92.3	92.6	91.7	90.9	89.9
2000	88.2	89.0	89.8	90.6	91.4	92.2	92.9	92.9	91.7	90.9	90.1
3000	88.8	89.6	90.4	91.2	92.0	92.7	93.2	92.5	91.7	90.9	90.3
4000	89.2	90.0	90.9	91.7	92.4	93.2	93.4	92.5	91.8	91.0	90.6
5000	89.7	90.5	91.3	92.1	92.9	93.7	93.6	92.6	91.8	91.0	-
6000	90.2	91.1	91.9	92.7	93.5	93.9	93.2	92.5	91.7	91.2	-
7000	90.7	91.6	92.4	93.2	94.0	94.1	93.2	92.4	91.6	91.4	-
8000	91.3	92.1	93.0	93.8	94.4	94.2	93.1	92.3	91.6	-	-
9000	91.9	92.8	93.6	94.4	94.7	93.6	92.9	92.1	91.8	-	-
10000	92.5	93.4	94.2	94.2	93.1	92.2	91.5	90.8	-	-	-

N1 FOR GO-AROUND

ANTI-ICE ON
AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C											
Altitude (ft)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	
-1000	81.0	81.8	82.7	83.5	84.4	85.2	86.0	86.8	86.4	87.2	88.0	
0	81.6	82.5	83.3	84.2	85.0	85.8	86.7	87.5	87.1	87.9	88.6	
1000	82.1	83.0	83.9	84.7	85.6	86.4	87.2	88.1	87.6	88.4	89.2	
2000	82.7	83.5	84.4	85.3	86.1	87.0	87.8	88.6	88.2	89.0	89.6	
3000	83.1	84.0	84.9	85.8	86.6	87.5	88.3	89.2	88.8	89.6	89.8	
4000	83.6	84.5	85.4	86.2	87.1	87.9	88.8	89.6	89.2	90.0	89.8	
5000	84.0	84.9	85.8	86.7	87.6	88.4	89.3	90.1	89.7	90.5	89.8	
6000	84.5	85.4	86.3	87.2	88.1	88.9	89.8	90.6	90.2	90.5	89.5	
7000	85.0	85.9	86.8	87.7	88.6	89.4	90.3	91.1	90.8	90.2	89.2	
8000	85.5	86.4	87.3	88.2	89.1	90.0	90.8	91.7	90.6	89.7	88.8	
9000	86.1	87.0	87.9	88.8	89.7	90.6	91.4	91.6	89.8	89.1	88.4	
10000	86.6	87.6	88.5	89.4	90.3	91.2	91.5	89.7	88.0	87.5	86.9	

N1 FOR GO-AROUND

ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	77.3	78.0	78.8	79.7	80.5	81.4	82.2	83.0	83.9	84.7	85.5
0	77.9	78.6	79.4	80.3	81.2	82.0	82.8	83.7	84.5	85.3	86.1
1000	78.4	79.1	80.0	80.9	81.7	82.6	83.4	84.3	85.1	85.9	86.7
2000	78.9	79.6	80.5	81.4	82.3	83.1	84.0	84.8	85.7	86.5	87.3
3000	79.4	80.1	81.0	81.9	82.8	83.7	84.5	85.4	86.2	87.0	87.9
4000	79.9	80.6	81.5	82.4	83.3	84.1	85.0	85.8	86.7	87.5	88.4
5000	80.3	81.1	82.0	82.9	83.7	84.6	85.5	86.3	87.2	88.0	88.9
6000	80.8	81.5	82.4	83.3	84.2	85.1	85.9	86.8	87.6	88.5	89.3
7000	81.2	81.9	82.8	83.7	84.6	85.5	86.4	87.2	88.1	88.9	89.8
8000	81.6	82.4	83.3	84.2	85.1	86.0	86.9	87.7	88.6	89.4	90.3
9000	82.1	82.9	83.8	84.7	85.6	86.5	87.4	88.3	89.1	90.0	90.8
10000	82.6	83.4	84.3	85.2	86.1	87.0	87.9	88.8	89.7	90.5	91.4

N1 FOR GO-AROUND

ANTI-ICE OFF
AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	0	5	10	15	20	25	30	35	40	45	50
-1000	86.3	87.0	87.8	88.6	89.4	90.1	90.9	91.6	91.8	90.7	89.7
0	86.9	87.7	88.5	89.3	90.0	90.8	91.6	92.3	92.3	90.8	89.7
1000	87.5	88.3	89.1	89.9	90.7	91.4	92.2	92.6	91.6	90.7	89.7
2000	88.1	88.9	89.7	90.5	91.3	92.1	92.8	92.9	91.6	90.7	89.8
3000	88.7	89.5	90.3	91.1	91.9	92.6	93.1	93.0	91.6	90.8	90.1
4000	89.2	90.0	90.8	91.6	92.4	93.2	93.4	92.4	91.7	90.8	90.5
5000	89.7	90.5	91.3	92.1	92.9	93.7	93.6	92.5	91.7	90.9	-
6000	90.2	91.0	91.8	92.6	93.4	93.8	93.1	92.4	91.6	91.1	-
7000	90.6	91.4	92.3	93.1	93.9	94.0	93.1	92.3	91.5	91.3	-
8000	91.1	92.0	92.8	93.6	94.2	94.1	93.0	92.2	91.5	-	-
9000	91.7	92.5	93.3	94.2	94.4	93.5	92.8	92.0	91.7	-	-
10000	92.2	93.1	93.9	94.0	92.9	92.2	91.5	90.7	-	-	-

N1 FOR GO-AROUND

ANTI-ICE ON AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	80.0	80.8	81.7	82.5	83.4	84.2	85.1	85.9	86.7	86.3	87.0	87.8
0	80.6	81.4	82.3	83.2	84.0	84.9	85.7	86.5	87.3	86.9	87.7	88.5
1000	81.1	82.0	82.9	83.7	84.6	85.4	86.3	87.1	87.9	87.5	88.3	89.1
2000	81.7	82.6	83.4	84.3	85.2	86.0	86.9	87.7	88.5	88.1	88.9	89.5
3000	82.2	83.1	84.0	84.8	85.7	86.6	87.4	88.2	89.1	88.7	89.5	89.7
4000	82.6	83.5	84.4	85.3	86.2	87.0	87.9	88.7	89.6	89.2	90.0	89.8
5000	83.1	84.0	84.9	85.8	86.7	87.5	88.4	89.2	90.1	89.7	90.5	89.9
6000	83.5	84.4	85.3	86.2	87.1	88.0	88.8	89.7	90.6	90.2	90.6	89.6
7000	84.0	84.9	85.8	86.7	87.6	88.4	89.3	90.2	91.0	90.6	90.4	89.3
8000	84.4	85.3	86.2	87.1	88.0	88.9	89.8	90.7	91.5	90.8	89.9	88.9
9000	84.9	85.9	86.8	87.7	88.6	89.5	90.3	91.2	91.9	90.0	89.2	88.4
10000	85.4	86.4	87.3	88.2	89.1	90.0	90.9	91.8	90.0	88.2	87.6	86.9

N1 FOR GO-AROUND

ANTI-ICE OFF
AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	77.0	77.7	78.6	79.4	80.3	81.1	82.0	82.8	83.6	84.4	85.2
0	77.7	78.4	79.3	80.1	81.0	81.8	82.7	83.5	84.3	85.1	85.9
1000	78.2	79.0	79.8	80.7	81.6	82.4	83.3	84.1	84.9	85.7	86.6
2000	78.8	79.5	80.4	81.3	82.2	83.0	83.9	84.7	85.5	86.4	87.2
3000	79.4	80.1	81.0	81.9	82.7	83.6	84.4	85.3	86.1	87.0	87.8
4000	79.9	80.6	81.5	82.4	83.2	84.1	85.0	85.8	86.7	87.5	88.3
5000	80.4	81.1	82.0	82.9	83.8	84.6	85.5	86.4	87.2	88.1	88.9
6000	80.7	81.5	82.4	83.3	84.2	85.0	85.9	86.8	87.6	88.5	89.3
7000	81.1	81.8	82.8	83.7	84.6	85.4	86.3	87.2	88.0	88.9	89.7
8000	81.5	82.3	83.2	84.1	85.0	85.9	86.7	87.6	88.5	89.3	90.2
9000	82.0	82.7	83.6	84.5	85.4	86.3	87.2	88.1	89.0	89.8	90.7
10000	82.4	83.1	84.1	85.0	85.9	86.8	87.7	88.6	89.4	90.3	91.1

N1 FOR GO-AROUND

ANTI-ICE OFF

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	0	5	10	15	20	25	30	35	40	45	50
-1000	86.0	86.8	87.6	88.3	89.1	89.8	90.6	91.3	91.6	90.5	89.3
0	86.7	87.5	88.3	89.1	89.8	90.6	91.4	92.1	92.1	90.6	89.3
1000	87.4	88.2	88.9	89.7	90.5	91.3	92.0	92.4	91.5	90.5	89.3
2000	88.0	88.8	89.6	90.4	91.2	91.9	92.7	92.8	91.5	90.5	89.4
3000	88.6	89.4	90.2	91.0	91.8	92.6	93.1	92.9	91.5	90.5	89.7
4000	89.1	90.0	90.8	91.6	92.4	93.1	93.3	92.4	91.5	90.6	90.2
5000	89.7	90.5	91.3	92.1	92.9	93.7	93.6	92.4	91.6	90.7	-
6000	90.1	91.0	91.8	92.6	93.4	93.8	93.0	92.3	91.5	91.0	-
7000	90.6	91.4	92.2	93.0	93.8	93.9	93.0	92.3	91.5	91.3	-
8000	91.0	91.8	92.7	93.5	94.1	94.0	92.9	92.2	91.5	-	-
9000	91.5	92.3	93.2	94.0	94.3	93.5	92.8	92.0	91.7	-	-
10000	92.0	92.8	93.7	93.8	92.8	92.2	91.5	90.7	-	-	-

N1 FOR GO-AROUND

ANTI-ICE ON
AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	80.6	81.5	82.3	83.1	84.0	84.8	85.6	86.4	86.0	86.8	87.6
0	81.3	82.1	83.0	83.8	84.7	85.5	86.3	87.2	86.7	87.5	88.3
1000	81.9	82.7	83.6	84.4	85.3	86.1	87.0	87.8	87.4	88.2	88.9
2000	82.4	83.3	84.2	85.1	85.9	86.8	87.6	88.4	88.0	88.8	89.4
3000	83.0	83.9	84.8	85.6	86.5	87.3	88.2	89.0	88.6	89.4	89.6
4000	83.5	84.4	85.3	86.2	87.0	87.9	88.7	89.6	89.1	90.0	89.8
5000	84.0	84.9	85.8	86.7	87.6	88.4	89.3	90.1	89.7	90.5	89.9
6000	84.4	85.3	86.2	87.1	88.0	88.8	89.7	90.5	90.1	90.7	89.7
7000	84.8	85.7	86.6	87.5	88.4	89.2	90.1	91.0	90.6	90.5	89.5
8000	85.2	86.1	87.0	87.9	88.8	89.7	90.6	91.4	91.0	90.1	89.1
9000	85.7	86.6	87.5	88.4	89.3	90.2	91.0	91.9	90.3	89.4	88.5
10000	86.1	87.1	88.0	88.9	89.8	90.6	91.5	90.4	88.5	87.7	87.0

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-65	-60	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
0	71.2	72.1	73.1	73.7	74.6	75.4	76.2	77.0	77.8	78.5	79.3	80.1	80.8
2000	72.9	73.8	74.9	75.5	76.4	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8
4000	74.8	75.7	76.8	77.5	78.4	79.2	80.1	80.9	81.7	82.5	83.4	84.2	85.0
6000	76.3	77.2	78.3	79.0	79.9	80.7	81.6	82.4	83.3	84.1	84.9	85.8	86.6
8000	77.1	78.0	79.1	79.9	80.8	81.6	82.5	83.4	84.2	85.1	85.9	86.7	87.6
10000	77.9	78.9	80.0	80.7	81.6	82.5	83.4	84.2	85.1	85.9	86.8	87.6	88.4
12000	78.7	79.7	80.8	81.5	82.4	83.3	84.2	85.1	86.0	86.8	87.7	88.5	89.4
14000	79.6	80.6	81.7	82.5	83.4	84.3	85.2	86.1	86.9	87.8	88.7	89.6	90.4
16000	80.6	81.5	82.7	83.4	84.4	85.3	86.2	87.1	88.0	88.9	89.7	90.6	91.5
18000	81.7	82.7	83.8	84.6	85.6	86.5	87.4	88.3	89.2	90.1	91.0	91.9	92.7
20000	83.5	84.5	85.7	86.4	87.4	88.4	89.3	90.2	91.2	92.1	93.0	93.9	94.3
22000	84.2	85.2	86.4	87.2	88.2	89.1	90.1	91.0	92.0	92.9	93.8	94.2	93.2
24000	85.0	86.0	87.2	88.0	89.0	89.9	90.9	91.9	92.8	93.7	94.3	93.4	92.6
26000	85.8	86.8	88.0	88.8	89.8	90.8	91.7	92.7	93.7	94.3	94.1	92.8	92.0
28000	86.6	87.6	88.8	89.7	90.7	91.6	92.6	93.6	94.3	94.2	93.0	92.2	91.5
30000	87.4	88.5	89.7	90.5	91.5	92.5	93.5	94.3	94.2	93.1	92.4	91.7	90.9
32000	88.3	89.3	90.6	91.4	92.4	93.4	94.2	94.1	93.2	92.6	91.9	91.0	90.7
34000	89.2	90.3	91.5	92.3	93.4	94.1	94.1	93.3	92.8	92.0	91.2	90.7	-
36000	90.1	91.2	92.5	93.3	94.0	93.8	93.4	92.9	92.2	91.3	90.6	-	-
37000	90.1	91.2	92.5	93.3	94.2	94.0	94.0	93.2	92.5	91.5	90.8	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	0	5	10	15	20	25	30	35	40	45	50
0	81.6	82.3	83.1	83.8	84.5	85.2	85.9	86.6	87.3	88.0	87.8
2000	83.6	84.3	85.1	85.8	86.6	87.3	88.0	88.8	88.9	88.0	87.2
4000	85.7	86.5	87.3	88.1	88.8	89.6	90.1	89.4	88.8	88.1	87.9
6000	87.4	88.2	89.0	89.7	90.5	90.8	90.0	89.4	88.8	88.3	-
8000	88.4	89.2	90.0	90.8	91.3	90.6	90.0	89.3	88.7	-	-
10000	89.3	90.1	90.9	91.6	91.5	90.4	89.7	89.0	-	-	-
12000	90.2	91.0	91.8	91.9	90.9	90.2	89.5	89.3	-	-	-
14000	91.2	92.1	92.3	91.4	90.8	90.0	89.7	-	-	-	-
16000	92.3	92.7	91.9	91.2	90.5	90.0	-	-	-	-	-
18000	93.3	93.1	91.5	90.9	90.3	-	-	-	-	-	-
20000	93.0	92.0	91.4	90.8	-	-	-	-	-	-	-
22000	92.3	91.6	91.0	90.8	-	-	-	-	-	-	-
24000	91.8	91.1	90.8	-	-	-	-	-	-	-	-
26000	91.3	90.8	-	-	-	-	-	-	-	-	-
28000	90.8	-	-	-	-	-	-	-	-	-	-
30000	-	-	-	-	-	-	-	-	-	-	-
32000	-	-	-	-	-	-	-	-	-	-	-
34000	-	-	-	-	-	-	-	-	-	-	-
36000	-	-	-	-	-	-	-	-	-	-	-
37000	-	-	-	-	-	-	-	-	-	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE ON

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	76.5	77.3	78.1	78.9	79.7	80.5	81.3	82.1	81.6	82.3	83.1
2000	78.3	79.2	80.0	80.8	81.6	82.4	83.2	84.0	83.6	84.3	85.1
4000	80.4	81.2	82.0	82.9	83.7	84.6	85.4	86.2	85.7	86.5	85.8
6000	81.9	82.7	83.6	84.5	85.3	86.1	87.0	87.8	87.1	86.4	85.6
8000	82.8	83.7	84.5	85.4	86.3	87.1	88.0	88.8	86.9	86.2	85.4
10000	83.6	84.5	85.4	86.3	87.1	88.0	88.8	89.0	86.9	86.0	85.0
12000	84.5	85.4	86.3	87.2	88.0	88.9	88.8	88.0	86.0	85.2	84.4
14000	85.4	86.3	87.3	88.1	89.0	88.8	88.1	87.5	85.5	84.8	83.9
16000	86.4	87.3	88.3	89.2	89.1	88.5	87.9	87.2	85.3	84.4	83.1
18000	87.6	88.6	89.5	89.9	89.3	88.5	87.7	86.9	84.7	83.4	82.1
20000	89.5	90.5	91.2	90.4	89.1	87.7	86.3	84.8	83.1	82.7	81.7
22000	90.3	90.8	90.1	89.1	87.8	86.5	85.2	84.5	82.8	82.1	81.3
24000	90.4	89.8	89.0	87.9	86.7	85.5	84.7	84.1	82.3	81.7	81.4
26000	89.5	88.8	87.9	87.0	86.0	85.0	84.3	83.7	82.0	81.6	-
28000	88.6	87.9	87.1	86.3	85.5	84.6	83.7	83.4	81.9	-	-
30000	87.7	87.1	86.4	85.8	84.9	84.1	83.5	82.9	-	-	-
32000	87.0	86.5	86.0	85.3	84.5	83.6	82.8	82.5	-	-	-
34000	86.4	86.0	85.4	84.7	83.9	82.9	82.4	-	-	-	-
36000	85.9	85.5	84.9	84.1	83.1	82.3	-	-	-	-	-
37000	85.7	85.2	84.5	83.6	82.6	81.9	-	-	-	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	-65	-60	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
0	71.2	72.1	73.1	73.8	74.6	75.4	76.2	77.0	77.8	78.6	79.3	80.1	80.9
2000	73.0	73.9	74.9	75.6	76.4	77.3	78.1	78.9	79.7	80.5	81.3	82.1	82.9
4000	74.9	75.8	76.9	77.6	78.5	79.3	80.2	81.0	81.8	82.6	83.5	84.3	85.1
6000	76.3	77.3	78.3	79.0	79.9	80.8	81.7	82.5	83.4	84.2	85.0	85.8	86.6
8000	77.2	78.1	79.2	79.9	80.8	81.7	82.6	83.4	84.3	85.1	86.0	86.8	87.6
10000	78.0	78.9	80.0	80.8	81.7	82.6	83.4	84.3	85.2	86.0	86.9	87.7	88.5
12000	78.8	79.7	80.8	81.6	82.5	83.4	84.3	85.1	86.0	86.9	87.7	88.6	89.4
14000	79.6	80.6	81.7	82.4	83.3	84.2	85.1	86.0	86.9	87.8	88.6	89.5	90.3
16000	80.4	81.3	82.5	83.2	84.2	85.1	86.0	86.9	87.8	88.6	89.5	90.4	91.2
18000	81.3	82.3	83.5	84.2	85.2	86.1	87.0	87.9	88.8	89.7	90.6	91.5	92.3
20000	83.1	84.1	85.2	86.0	87.0	87.9	88.9	89.8	90.7	91.6	92.5	93.4	93.9
22000	83.9	84.9	86.1	86.9	87.9	88.8	89.8	90.7	91.7	92.6	93.5	94.1	94.0
24000	84.8	85.8	87.0	87.8	88.8	89.8	90.7	91.7	92.6	93.5	94.2	94.1	92.6
26000	85.7	86.7	87.9	88.7	89.7	90.7	91.7	92.6	93.6	94.2	94.1	92.8	92.0
28000	86.6	87.7	88.9	89.7	90.7	91.7	92.7	93.6	94.2	93.7	93.0	92.3	91.4
30000	87.7	88.7	89.9	90.8	91.8	92.8	93.8	94.3	93.7	93.1	92.4	91.6	90.7
32000	88.7	89.8	91.1	91.9	92.9	93.9	94.3	93.8	93.2	92.6	91.7	90.7	90.4
34000	89.9	91.0	92.3	93.1	94.1	94.2	93.7	93.3	92.7	91.9	90.8	90.3	-
36000	91.2	92.3	93.6	94.0	93.9	93.8	93.4	92.9	92.1	91.0	90.1	-	-
37000	90.8	91.9	93.2	94.0	94.1	94.1	93.7	93.2	92.4	91.2	90.3	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	0	5	10	15	20	25	30	35	40	45	50
-1000	81.0	81.7	82.4	83.1	83.9	84.6	85.3	86.0	86.7	87.3	87.6
0	81.6	82.4	83.1	83.8	84.5	85.3	86.0	86.7	87.4	88.0	87.8
1000	82.6	83.4	84.1	84.9	85.6	86.3	87.0	87.8	88.5	88.4	86.8
2000	83.6	84.4	85.2	85.9	86.7	87.4	88.1	88.8	89.0	87.9	87.0
3000	84.7	85.5	86.3	87.0	87.8	88.5	89.3	89.7	88.8	88.0	87.3
4000	85.8	86.6	87.4	88.2	88.9	89.7	90.2	89.5	88.8	88.1	87.7
5000	87.0	87.7	88.5	89.3	90.1	90.7	90.6	89.6	88.9	88.2	-
6000	87.4	88.2	89.0	89.8	90.6	90.9	90.1	89.5	88.9	88.4	-
8000	88.4	89.2	90.0	90.8	91.3	90.6	90.1	89.4	88.8	-	-
10000	89.4	90.2	91.0	91.7	91.6	90.6	89.9	89.1	-	-	-
12000	90.2	91.1	91.9	91.9	91.0	90.3	89.6	89.4	-	-	-
14000	91.2	92.0	92.2	91.4	90.8	90.1	89.8	-	-	-	-
16000	92.1	92.6	91.9	91.3	90.6	90.1	-	-	-	-	-
18000	93.2	93.1	91.6	91.0	90.4	-	-	-	-	-	-
20000	93.7	92.0	91.4	90.8	-	-	-	-	-	-	-
22000	92.3	91.6	91.0	90.8	-	-	-	-	-	-	-
24000	91.8	91.2	90.8	-	-	-	-	-	-	-	-
26000	91.3	90.8	-	-	-	-	-	-	-	-	-
28000	90.7	-	-	-	-	-	-	-	-	-	-
30000	-	-	-	-	-	-	-	-	-	-	-
32000	-	-	-	-	-	-	-	-	-	-	-
34000	-	-	-	-	-	-	-	-	-	-	-
36000	-	-	-	-	-	-	-	-	-	-	-
37000	-	-	-	-	-	-	-	-	-	-	-

**ANAC APPROVED
REVISION 69**

S12-35

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE ON
AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	76.5	77.4	78.2	79.0	79.8	80.5	81.3	82.1	81.6	82.4	83.1
2000	78.4	79.3	80.1	80.9	81.7	82.5	83.3	84.1	83.7	84.4	85.2
4000	80.4	81.3	82.1	83.0	83.8	84.7	85.5	86.3	85.8	86.6	86.1
6000	81.9	82.8	83.7	84.5	85.4	86.2	87.1	87.9	87.3	86.6	85.9
8000	82.8	83.7	84.6	85.5	86.3	87.2	88.0	88.8	87.2	86.4	85.6
10000	83.7	84.6	85.5	86.4	87.2	88.1	88.9	89.6	87.4	86.4	85.4
12000	84.5	85.4	86.3	87.2	88.1	88.9	89.4	88.6	86.5	85.6	84.6
14000	85.4	86.3	87.2	88.1	89.0	89.2	88.5	87.8	85.7	84.9	84.0
16000	86.2	87.1	88.1	89.0	89.3	88.7	88.0	87.4	85.4	84.5	83.2
18000	87.2	88.2	89.1	90.0	89.4	88.6	87.8	87.0	84.8	83.5	82.2
20000	89.1	90.0	91.0	90.5	89.2	87.9	86.5	85.1	83.3	82.8	81.7
22000	90.0	90.9	90.2	89.2	88.0	86.7	85.4	84.7	82.9	82.1	81.2
24000	90.5	89.9	89.1	88.0	86.8	85.5	84.7	84.3	82.5	81.7	81.4
26000	89.6	88.9	88.0	87.0	86.0	85.1	84.4	83.8	82.0	81.6	-
28000	88.7	87.9	87.2	86.3	85.5	84.6	83.8	83.5	82.0	-	-
30000	87.8	87.2	86.5	85.8	85.0	84.2	83.6	83.0	-	-	-
32000	87.1	86.6	86.1	85.3	84.5	83.7	82.9	82.6	-	-	-
34000	86.5	86.1	85.5	84.8	83.9	82.9	82.4	-	-	-	-
36000	86.1	85.7	85.0	84.2	83.0	82.1	-	-	-	-	-
37000	85.9	85.4	84.7	83.7	82.6	81.8	-	-	-	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-65	-60	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
0	71.1	72.0	73.0	73.6	74.5	75.3	76.1	76.9	77.7	78.4	79.2	80.0	80.7
2000	73.1	74.0	75.0	75.7	76.5	77.4	78.2	79.0	79.8	80.6	81.4	82.2	83.0
4000	75.0	75.9	77.0	77.7	78.6	79.4	80.3	81.1	81.9	82.8	83.6	84.4	85.2
6000	76.4	77.3	78.4	79.1	80.0	80.9	81.8	82.6	83.5	84.3	85.1	85.9	86.8
8000	77.3	78.2	79.3	80.0	80.9	81.8	82.7	83.5	84.4	85.2	86.1	86.9	87.7
10000	78.1	79.1	80.2	80.9	81.8	82.7	83.6	84.4	85.3	86.2	87.0	87.8	88.7
12000	78.8	79.8	80.9	81.6	82.5	83.4	84.3	85.2	86.1	86.9	87.8	88.6	89.5
14000	79.6	80.5	81.7	82.4	83.3	84.2	85.1	86.0	86.9	87.8	88.6	89.5	90.3
16000	80.2	81.2	82.3	83.1	84.0	84.9	85.8	86.7	87.6	88.5	89.3	90.2	91.1
18000	80.9	81.9	83.0	83.8	84.7	85.7	86.6	87.5	88.4	89.3	90.1	91.0	91.8
20000	82.3	83.3	84.4	85.2	86.2	87.1	88.0	89.0	89.9	90.8	91.7	92.5	93.4
22000	83.3	84.3	85.5	86.2	87.2	88.1	89.1	90.0	90.9	91.8	92.8	93.6	93.5
24000	84.3	85.3	86.5	87.3	88.3	89.3	90.2	91.2	92.1	93.0	93.8	93.7	92.5
26000	85.5	86.5	87.7	88.5	89.5	90.5	91.4	92.4	93.3	93.9	93.8	92.7	92.0
28000	86.5	87.5	88.7	89.5	90.5	91.5	92.5	93.5	94.0	93.4	92.8	92.2	91.3
30000	87.7	88.7	90.0	90.8	91.8	92.8	93.8	94.2	93.5	92.9	92.3	91.4	90.4
32000	89.1	90.2	91.4	92.3	93.3	94.3	94.3	93.5	92.9	92.3	91.4	90.4	90.1
34000	89.6	90.6	91.9	92.7	93.8	94.1	93.5	93.0	92.3	91.5	90.5	89.9	-
36000	90.0	91.1	92.3	93.2	93.8	93.4	92.9	92.3	91.5	90.5	89.7	-	-
37000	90.0	91.1	92.3	93.2	94.1	94.0	93.1	92.4	91.6	90.6	89.9	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE OFF

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude											
(ft)	0	5	10	15	20	25	30	35	40	45	50
0	81.5	82.2	83.0	83.7	84.4	85.1	85.8	86.5	87.2	87.8	87.6
2000	83.7	84.5	85.2	86.0	86.7	87.5	88.2	88.9	89.1	87.8	86.6
4000	86.0	86.7	87.5	88.3	89.0	89.8	90.2	89.6	88.9	88.0	87.6
6000	87.6	88.4	89.1	89.9	90.7	91.0	90.2	89.7	88.9	88.5	-
8000	88.5	89.4	90.1	90.9	91.4	90.7	90.2	89.6	89.1	-	-
10000	89.5	90.3	91.1	91.8	91.7	90.7	90.1	89.4	-	-	-
12000	90.3	91.1	91.9	92.0	91.1	90.5	89.8	89.6	-	-	-
14000	91.2	92.0	92.2	91.5	90.9	90.2	89.9	-	-	-	-
16000	91.9	92.5	91.9	91.3	90.6	90.2	-	-	-	-	-
18000	92.7	92.8	91.6	91.0	90.4	-	-	-	-	-	-
20000	93.4	92.0	91.4	90.8	-	-	-	-	-	-	-
22000	92.3	91.6	90.9	90.7	-	-	-	-	-	-	-
24000	91.8	91.1	90.7	-	-	-	-	-	-	-	-
26000	91.2	90.6	-	-	-	-	-	-	-	-	-
28000	90.4	-	-	-	-	-	-	-	-	-	-
30000	-	-	-	-	-	-	-	-	-	-	-
32000	-	-	-	-	-	-	-	-	-	-	-
34000	-	-	-	-	-	-	-	-	-	-	-
36000	-	-	-	-	-	-	-	-	-	-	-
37000	-	-	-	-	-	-	-	-	-	-	-

N1 FOR MAXIMUM CONTINUOUS MODE

ANTI-ICE ON

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	76.4	77.2	78.0	78.8	79.6	80.4	81.2	82.0	81.5	82.2	82.9
2000	78.5	79.3	80.2	81.0	81.8	82.6	83.4	84.2	83.7	84.5	85.2
4000	80.6	81.4	82.3	83.1	83.9	84.8	85.6	86.4	86.0	86.7	86.4
6000	82.0	82.9	83.8	84.6	85.5	86.3	87.2	88.0	87.6	86.9	86.2
8000	83.0	83.8	84.7	85.6	86.4	87.3	88.1	89.0	87.4	86.7	85.9
10000	83.8	84.7	85.6	86.5	87.4	88.2	89.1	89.9	87.8	86.8	85.7
12000	84.6	85.5	86.4	87.3	88.1	89.0	89.9	89.1	86.9	85.9	84.9
14000	85.4	86.3	87.2	88.1	89.0	89.6	88.8	88.0	86.0	85.1	84.1
16000	86.1	87.0	87.9	88.8	89.4	88.8	88.1	87.4	85.5	84.5	83.3
18000	86.8	87.7	88.7	89.6	89.3	88.5	87.8	87.0	84.8	83.6	82.3
20000	88.3	89.2	90.1	90.3	89.1	87.9	86.7	85.4	83.4	82.5	81.5
22000	89.3	90.3	90.1	89.1	87.9	86.7	85.5	84.7	82.8	81.9	81.0
24000	90.4	89.9	89.0	87.9	86.7	85.5	84.7	84.2	82.3	81.5	81.1
26000	89.5	88.9	87.9	86.9	85.9	85.0	84.4	83.8	81.9	81.5	-
28000	88.7	87.9	87.1	86.2	85.3	84.6	83.9	83.5	81.9	-	-
30000	87.9	87.2	86.4	85.6	84.9	84.1	83.5	82.8	-	-	-
32000	87.2	86.6	85.9	85.2	84.4	83.6	82.7	82.4	-	-	-
34000	86.6	86.0	85.4	84.6	83.8	82.8	82.2	-	-	-	-
36000	86.1	85.5	84.7	83.9	82.8	82.0	-	-	-	-	-
37000	85.8	85.2	84.3	83.5	82.4	81.6	-	-	-	-	-

N1 FOR ALT T/O-1 MODE

ANTI-ICE OFF
AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	72.3	72.9	73.7	74.6	75.3	76.1	76.9	77.7	78.4	79.2	79.9
0	72.9	73.5	74.3	75.1	75.9	76.7	77.5	78.3	79.1	79.8	80.6
1000	73.7	74.4	75.2	76.1	76.9	77.7	78.5	79.2	80.0	80.8	81.6
2000	74.6	75.3	76.1	77.0	77.8	78.6	79.4	80.2	81.0	81.8	82.5
3000	75.6	76.2	77.1	77.9	78.8	79.6	80.4	81.2	82.0	82.8	83.6
4000	76.6	77.2	78.1	79.0	79.8	80.6	81.5	82.3	83.1	83.9	84.7
5000	77.5	78.3	79.1	80.0	80.8	81.7	82.5	83.4	84.2	85.0	85.8
6000	78.0	78.7	79.6	80.5	81.3	82.2	83.0	83.9	84.7	85.5	86.3
7000	78.5	79.2	80.1	81.0	81.8	82.7	83.5	84.4	85.2	86.0	86.8
8000	78.9	79.6	80.5	81.4	82.2	83.1	84.0	84.8	85.6	86.5	87.3
9000	79.3	80.1	80.9	81.8	82.7	83.6	84.4	85.3	86.1	86.9	87.8
10000	79.7	80.5	81.4	82.2	83.1	84.0	84.8	85.7	86.5	87.4	88.2
11000	80.1	80.8	81.7	82.6	83.5	84.4	85.3	86.1	87.0	87.8	88.6
12000	80.5	81.2	82.1	83.0	83.9	84.8	85.7	86.5	87.4	88.2	89.0
13000	80.9	81.7	82.6	83.5	84.4	85.2	86.1	87.0	87.8	88.7	89.5
14000	81.4	82.1	83.1	84.0	84.9	85.7	86.6	87.5	88.3	89.2	90.0
15000	81.9	82.6	83.6	84.5	85.4	86.3	87.1	88.0	88.9	89.7	90.6
16000	82.6	83.3	84.3	85.2	86.1	87.0	87.9	88.8	89.6	90.5	91.4

N1 FOR ALT T/O-1 MODE

ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure

Static Air Temperature - °C

Altitude

(ft)

	0	5	10	15	20	25	30	35	40	45	50
-1000	80.7	81.4	82.2	82.9	83.6	84.3	85.0	85.7	86.4	87.1	87.3
0	81.3	82.1	82.8	83.5	84.3	85.0	85.7	86.4	87.1	87.7	87.5
1000	82.3	83.1	83.8	84.5	85.3	86.0	86.7	87.4	88.1	88.1	86.9
2000	83.3	84.1	84.8	85.6	86.3	87.0	87.8	88.5	88.6	87.7	87.1
3000	84.3	85.1	85.9	86.6	87.4	88.1	88.9	89.2	88.4	87.8	87.3
4000	85.5	86.2	87.0	87.8	88.5	89.3	89.8	89.1	88.5	87.8	87.6
5000	86.6	87.4	88.2	88.9	89.7	90.3	90.2	89.1	88.5	87.9	-
6000	87.1	87.9	88.7	89.5	90.2	90.6	89.7	89.1	88.5	88.0	-
7000	87.6	88.4	89.2	90.0	90.8	90.8	89.7	89.0	88.3	88.2	-
8000	88.1	88.9	89.7	90.5	91.0	90.3	89.6	88.9	88.3	-	-
9000	88.6	89.4	90.2	91.0	91.2	90.2	89.5	88.8	88.5	-	-
10000	89.0	89.8	90.6	91.4	91.3	90.1	89.4	88.6	-	-	-
11000	89.4	90.3	91.1	91.5	90.6	90.0	89.3	88.8	-	-	-
12000	89.9	90.7	91.5	91.5	90.5	89.9	89.2	89.0	-	-	-
13000	90.4	91.2	91.8	91.1	90.5	89.8	89.1	-	-	-	-
14000	90.9	91.7	92.0	91.1	90.4	89.7	89.3	-	-	-	-
15000	91.4	92.2	92.1	91.0	90.3	89.5	-	-	-	-	-
16000	92.2	92.5	91.5	90.8	90.1	89.6	-	-	-	-	-

N1 FOR ALT T/O-1 MODE

ANTI-ICE ON
AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1P ENGINES

Pressure	Static Air Temperature - °C										
Altitude (ft)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	75.7	76.5	77.3	78.1	78.9	79.6	80.4	81.2	80.7	81.4	82.2
0	76.3	77.1	77.9	78.7	79.5	80.3	81.0	81.8	81.3	82.1	82.8
1000	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8	82.3	83.1	83.8
2000	78.1	78.9	79.7	80.6	81.4	82.2	83.0	83.8	83.3	84.1	84.8
3000	79.1	79.9	80.7	81.6	82.4	83.2	84.0	84.8	84.3	85.1	85.9
4000	80.1	80.9	81.8	82.6	83.5	84.3	85.1	85.9	85.5	86.2	87.0
5000	81.1	82.0	82.9	83.7	84.5	85.4	86.2	87.0	86.6	87.4	88.1
6000	81.6	82.5	83.3	84.2	85.0	85.9	86.7	87.5	87.1	87.9	88.7
7000	82.1	83.0	83.8	84.7	85.5	86.4	87.2	88.0	87.6	88.4	89.2
8000	82.5	83.4	84.3	85.2	86.0	86.9	87.7	88.5	88.1	88.9	89.4
9000	83.0	83.8	84.7	85.6	86.5	87.3	88.1	89.0	88.6	89.4	89.3
10000	83.4	84.3	85.2	86.0	86.9	87.7	88.6	89.4	89.0	89.8	89.2
11000	83.8	84.7	85.6	86.4	87.3	88.2	89.0	89.8	89.4	89.7	88.8
12000	84.2	85.1	86.0	86.8	87.7	88.6	89.4	90.3	89.9	89.3	88.5
13000	84.6	85.5	86.4	87.3	88.2	89.0	89.9	90.7	89.8	89.0	88.3
14000	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3	89.6	88.9	88.2
15000	85.6	86.5	87.4	88.3	89.2	90.1	90.9	91.3	89.4	88.7	88.1
16000	86.3	87.3	88.2	89.1	90.0	90.8	91.7	91.3	89.4	88.7	88.0

TAKEOFF PERFORMANCE CHARTS - ALT T/O-1 MODE - FLAPS 9°

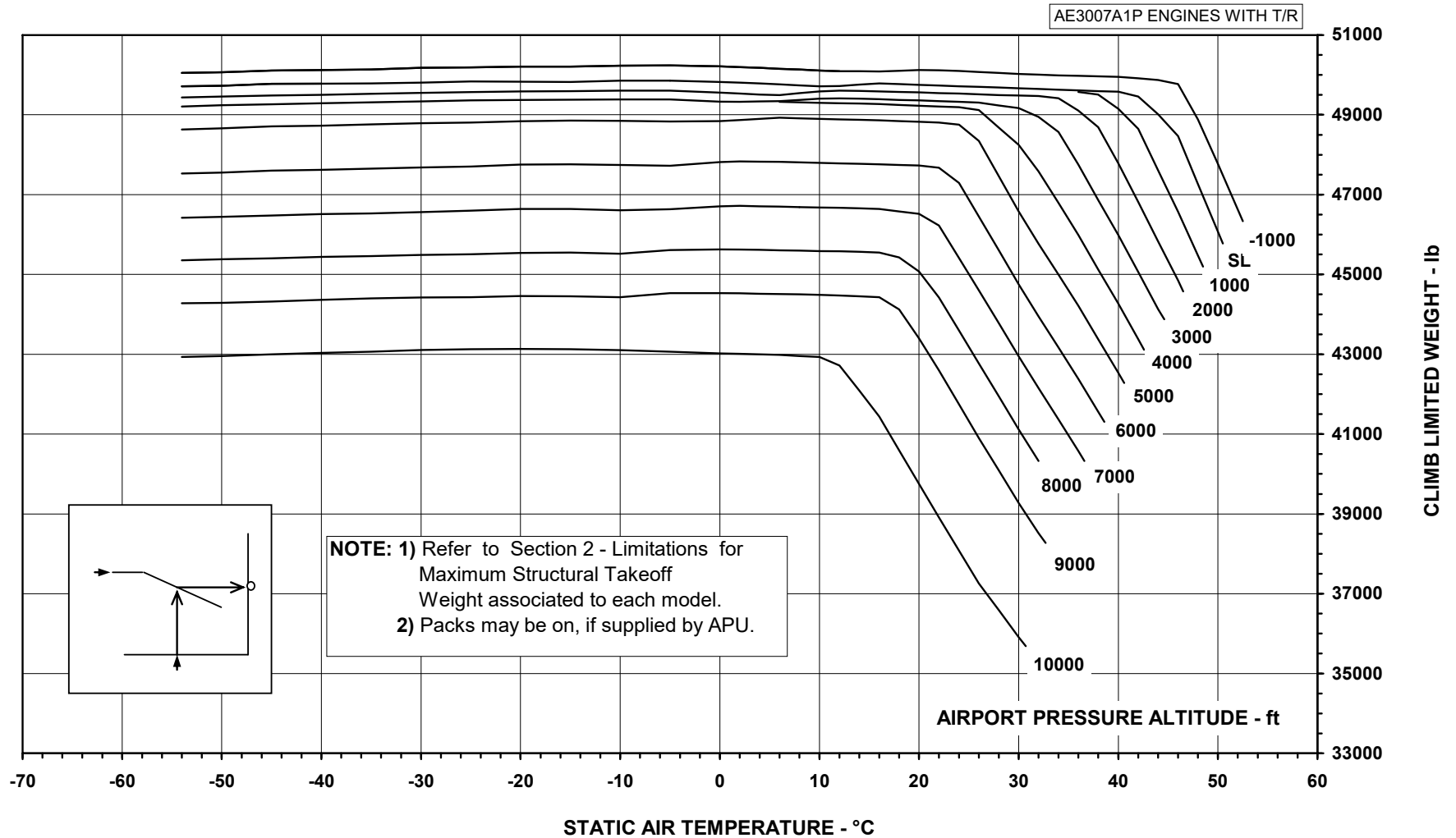
The performance charts presented herein refer to the takeoff performance with ALT T/O-1 Mode - Flaps 9°. These are balanced field length charts.

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MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9°
NORMAL V_2 - ALT T/O-1 MODE - BLEED CLOSED (PACKS OFF - FADEC REF A/ICE OFF)

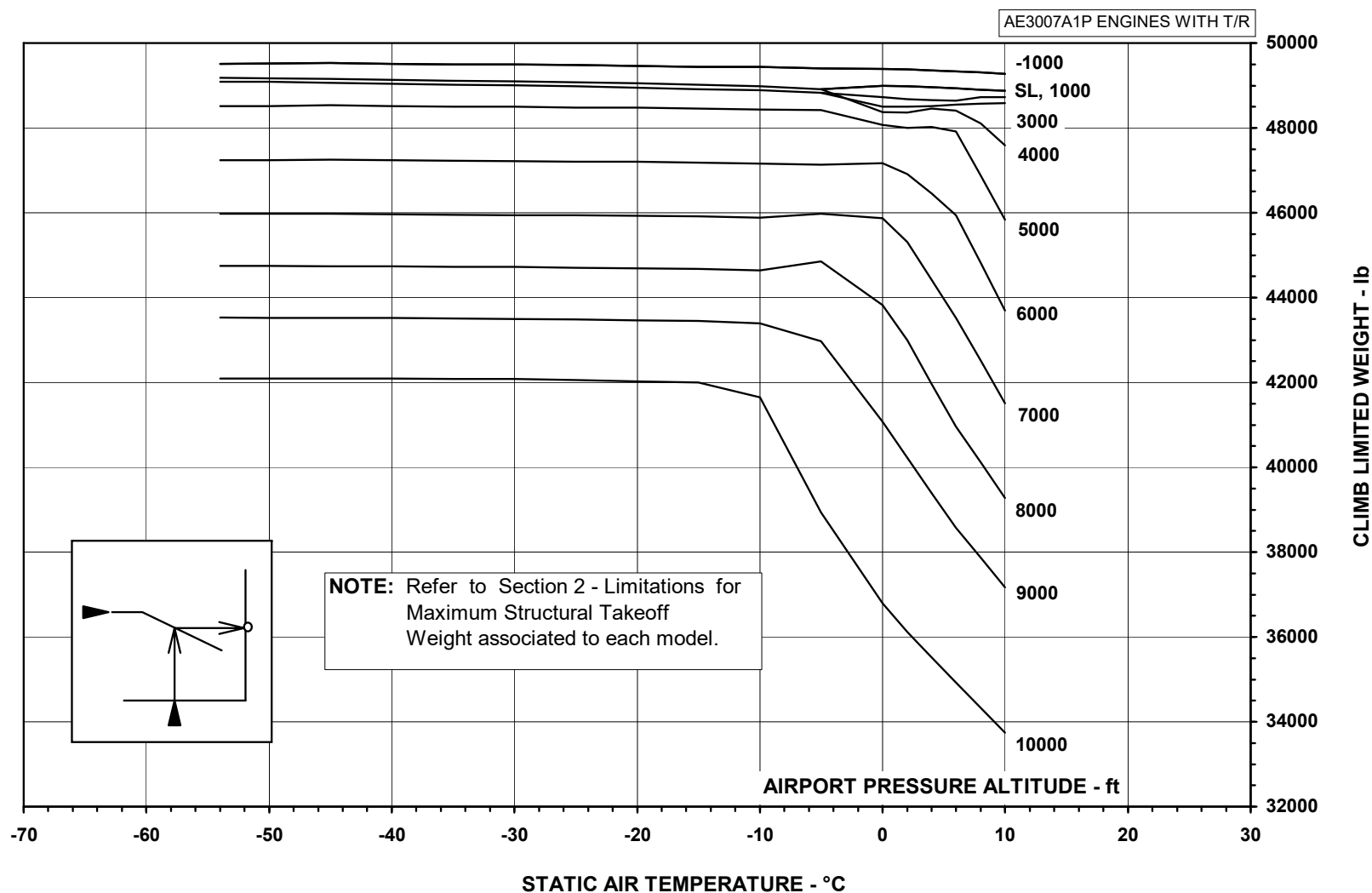


145FAA371 - 17JUN1999

AFM-145/1153 - FAA

ANAC APPROVED
REVISION 69

MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9°
NORMAL V_2 - ALT T/O-1 MODE - BLEED OPEN (PACKS OFF - FADEC REF A/ICE ON)



145FAA372 - 17JUN1999

ALT T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH -
NORMAL V₂ - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 1 OF 2

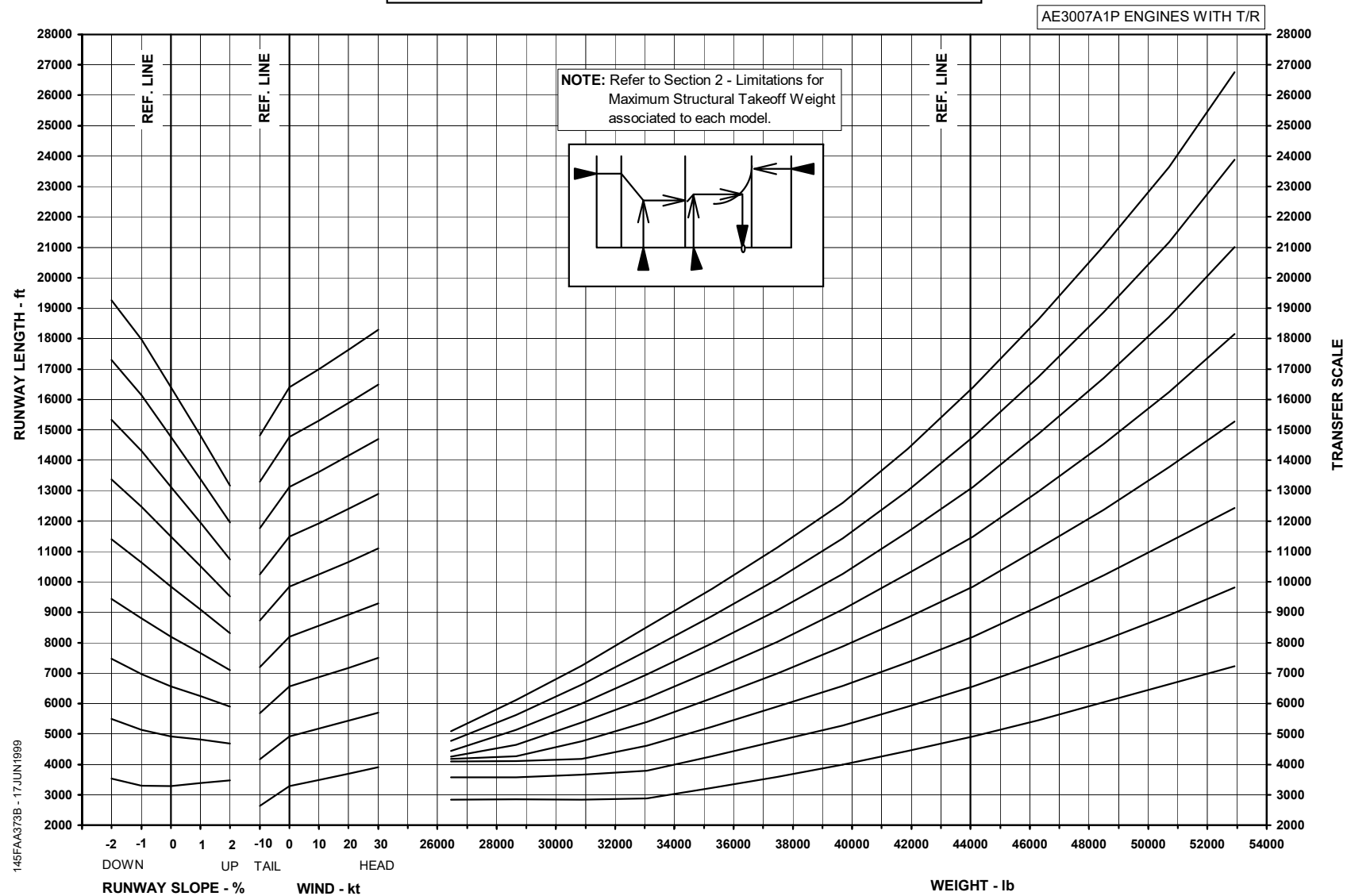
S12-47

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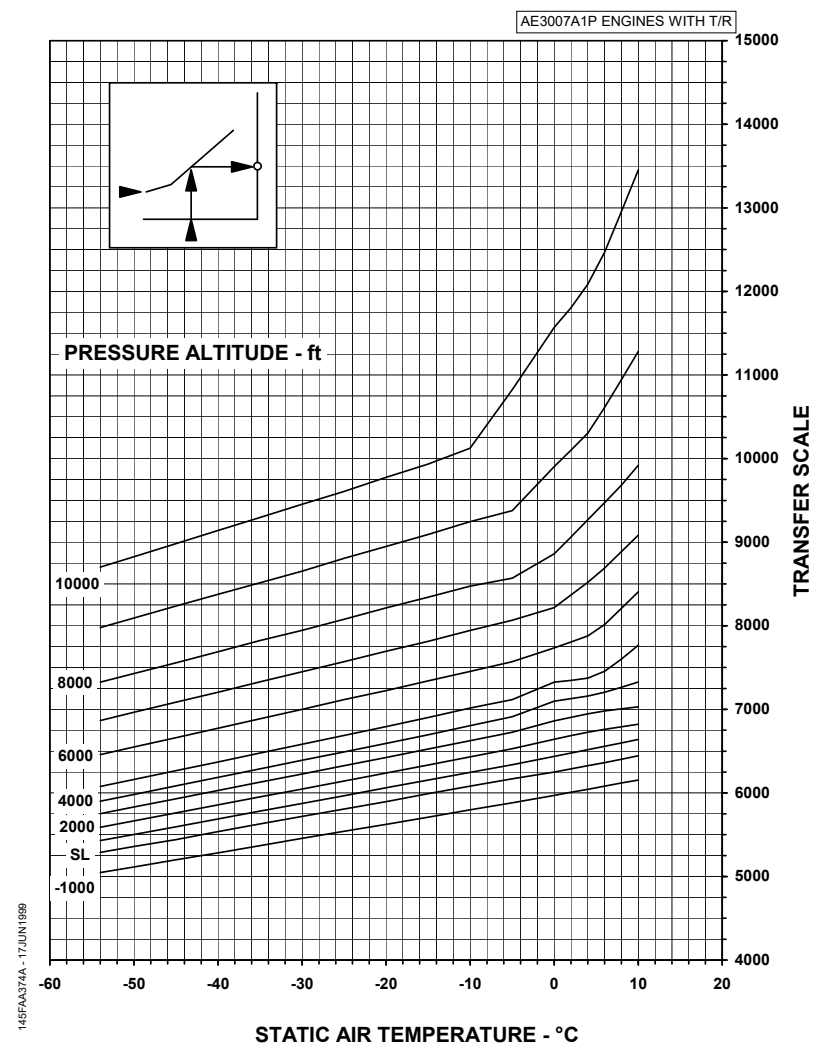


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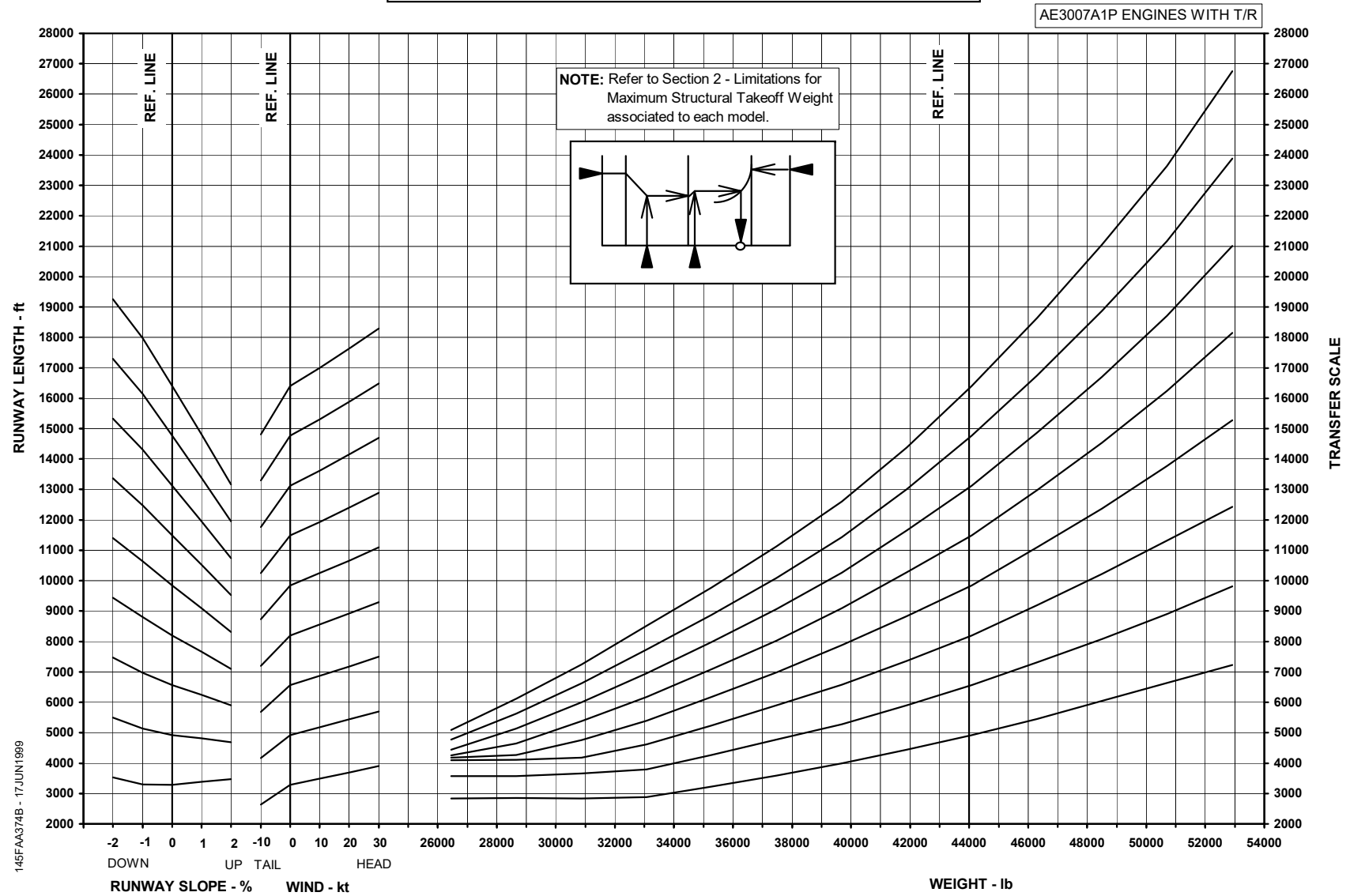
MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
ALT T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH - NORMAL V_2
BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 2 OF 2



**MAXIMUM TAKEOFF WEIGHT -
FIELD LENGTH LIMITED**
ALT T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH -
NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2



MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED
ALT T/O-1 MODE - FLAPS 9° - BALANCED FIELD LENGTH - NORMAL V_2
BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2

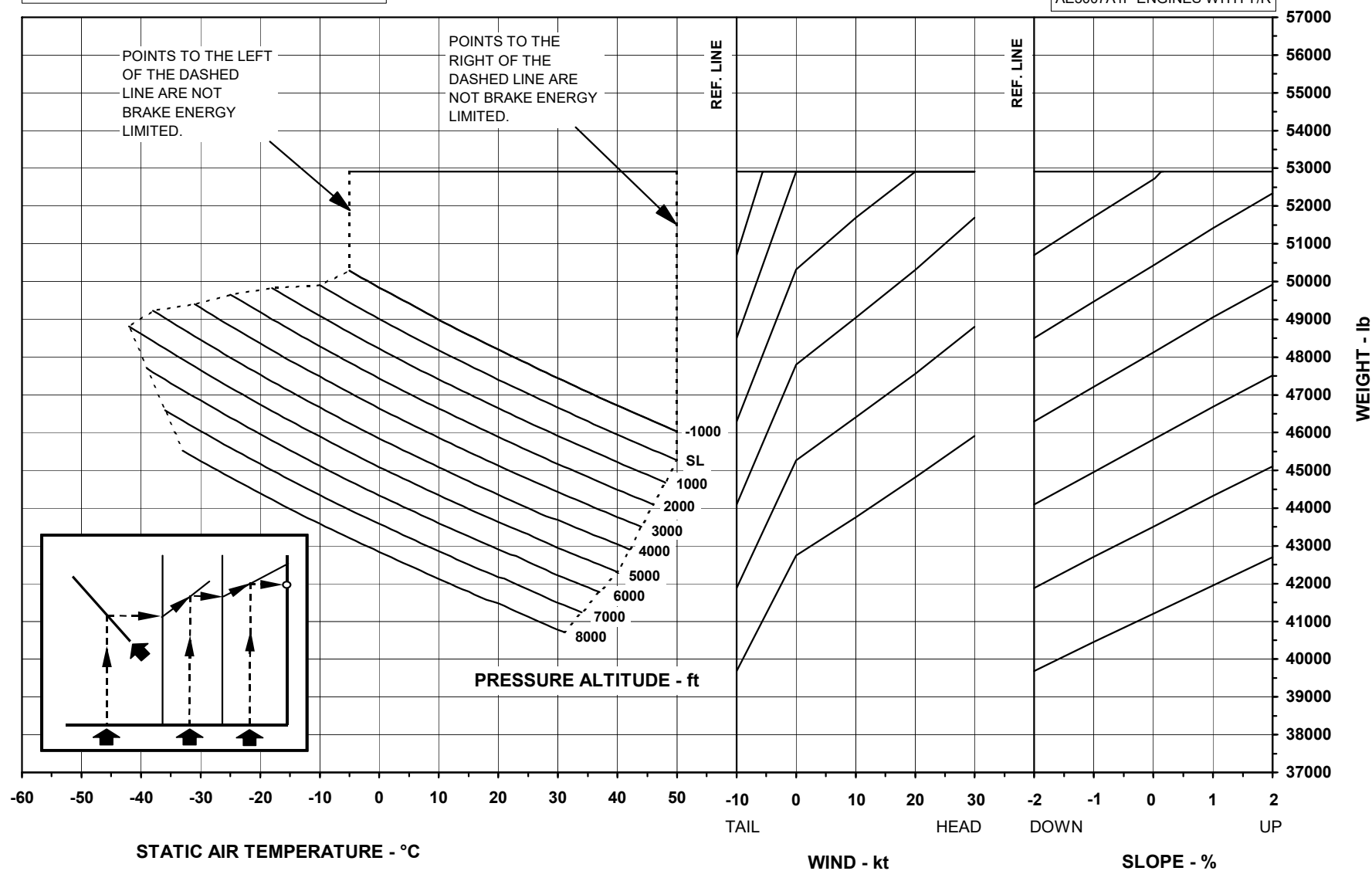


MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED

ALT T/O-1 - FLAPS 9° - NORMAL V_2

AIRPLANES EQUIPPED WITH ER VERSION BRAKES

AE3007A1P ENGINES WITH T/R

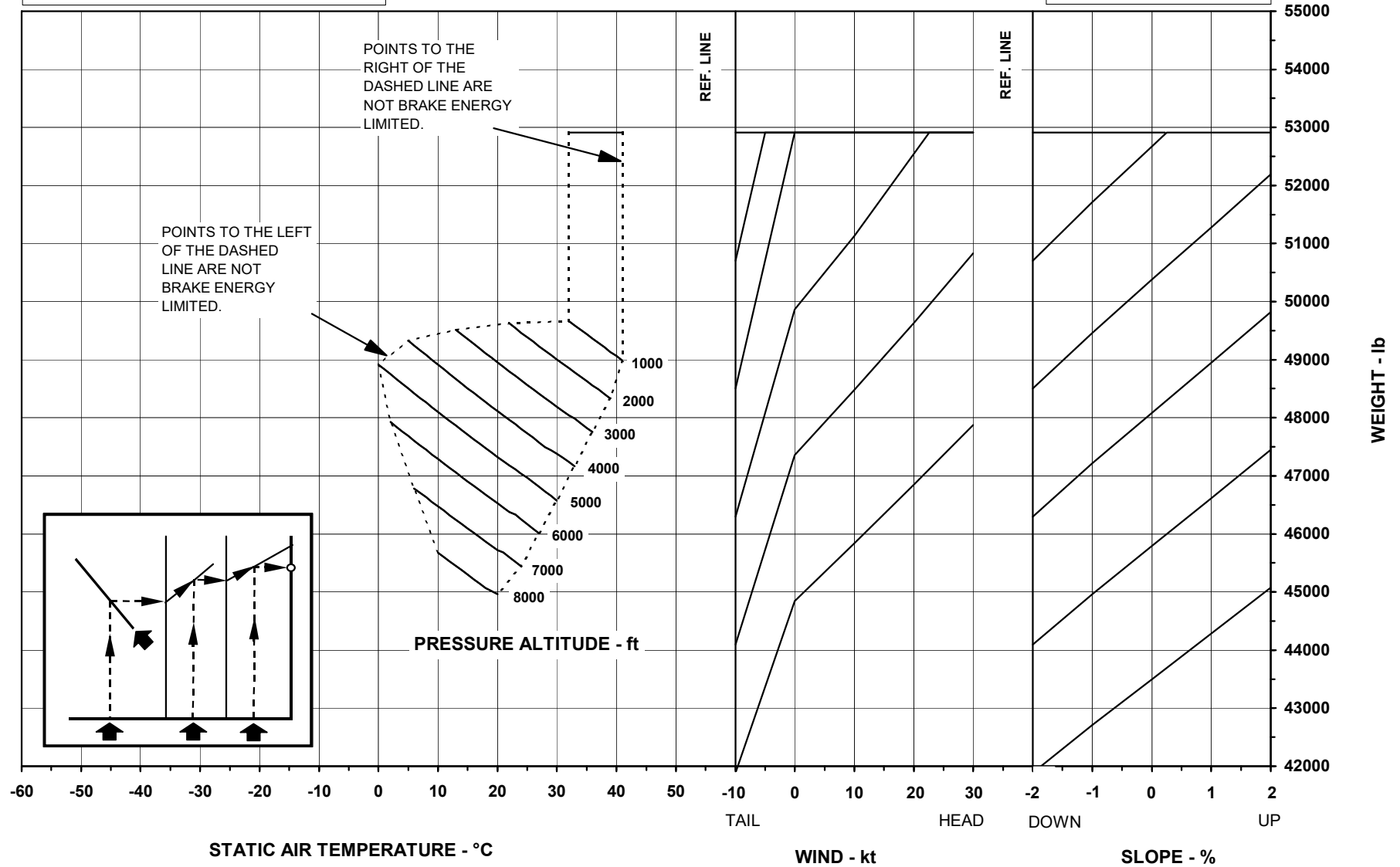


MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED

ALT T/O-1 - FLAPS 9° - NORMAL V_2

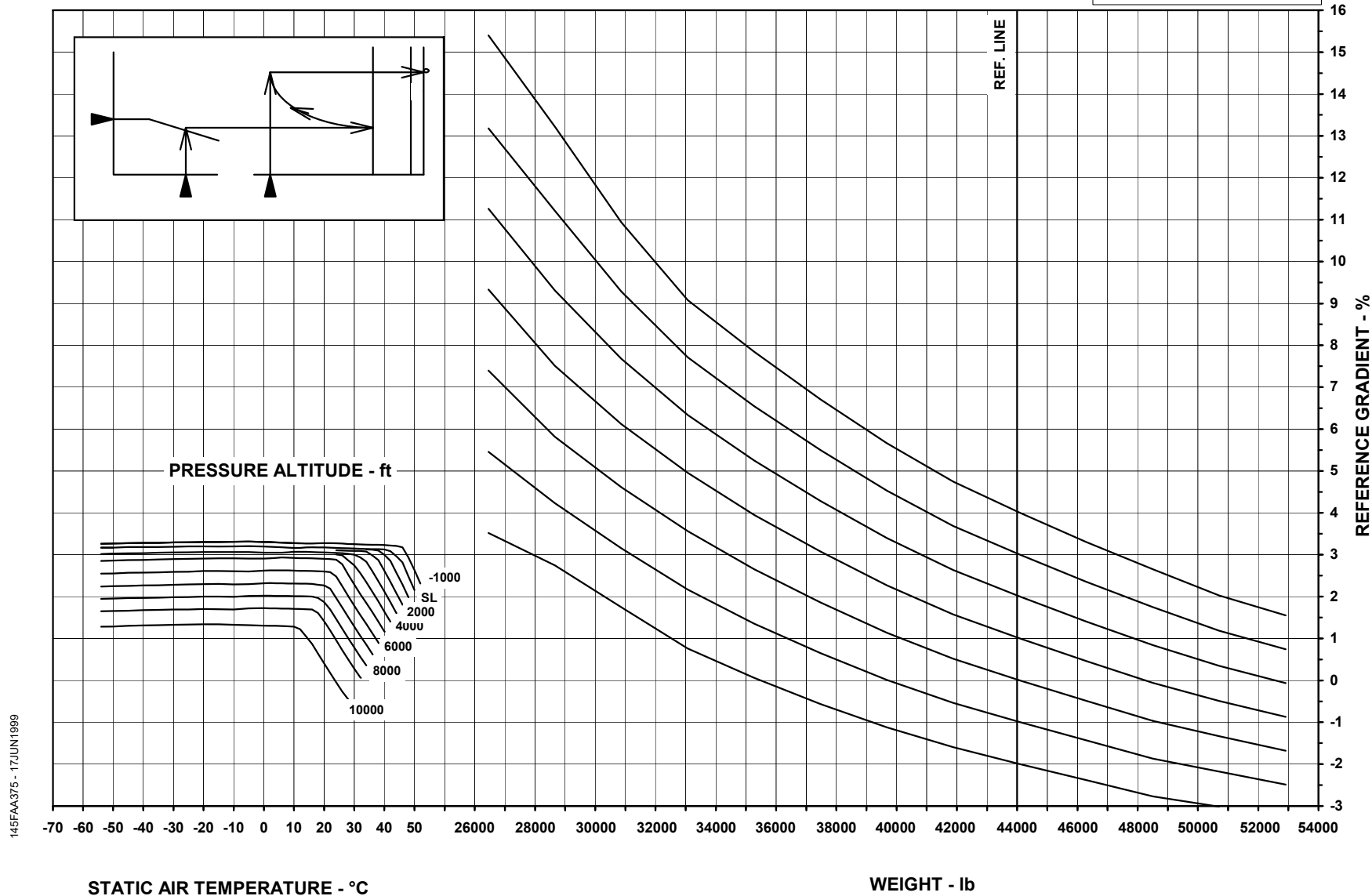
AIRPLANES EQUIPPED WITH LR VERSION BRAKES

AE3007A1P ENGINES WITH T/R



OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - ALT T/O-1 MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AE3007A1P ENGINES WITH T/R

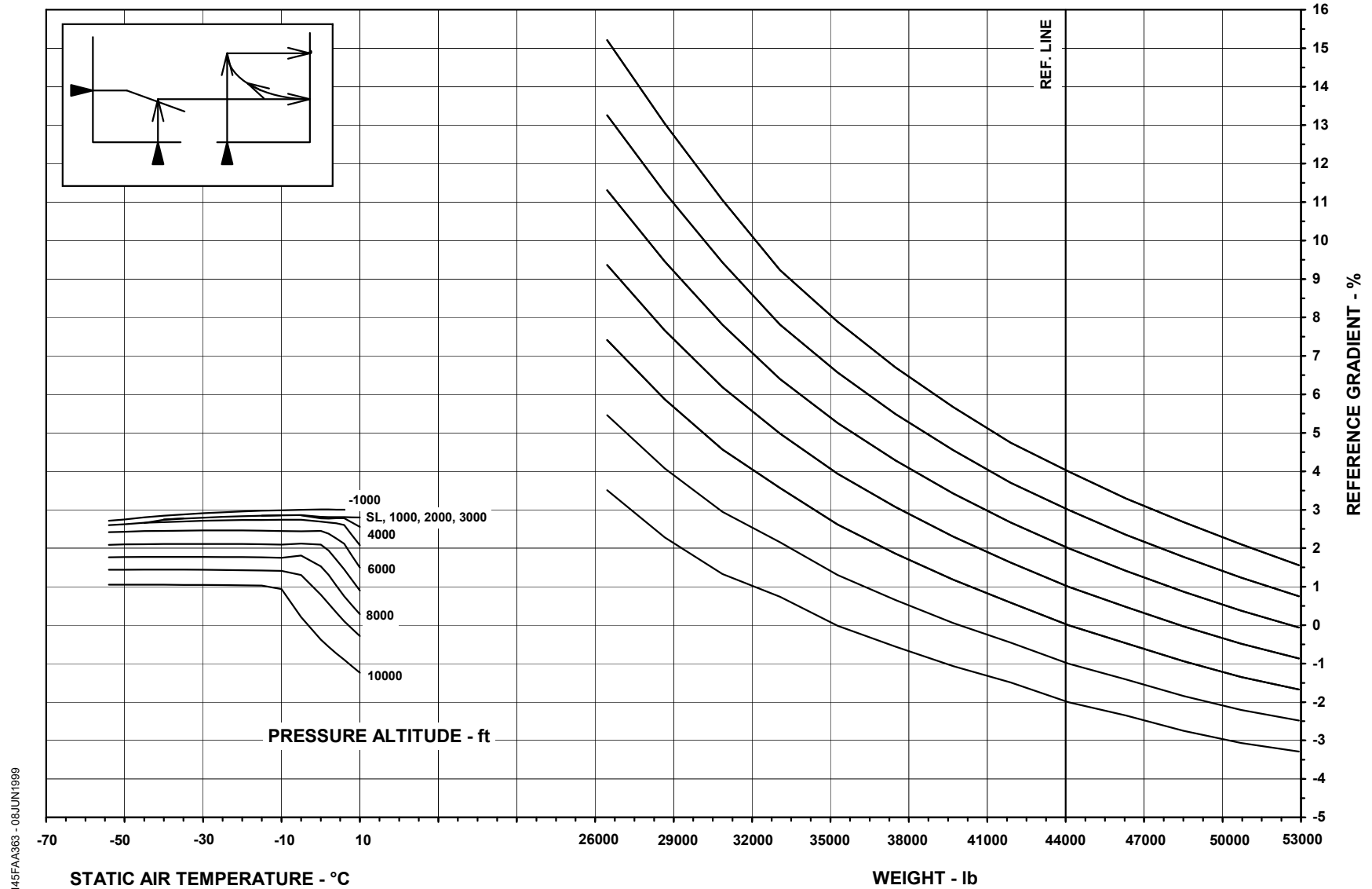


145FAA375 - 17JUN1999

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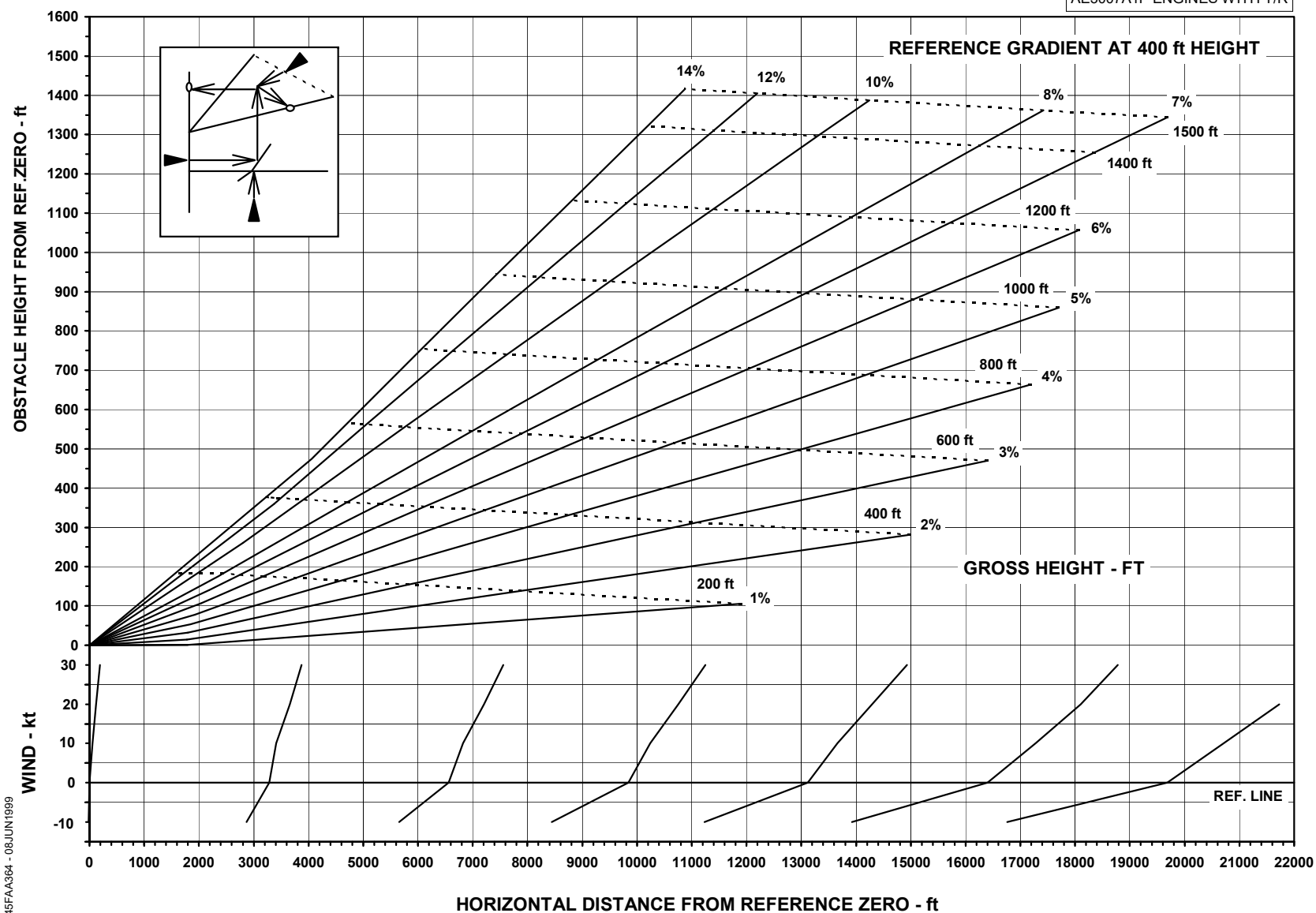
OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - ALT T/O-1 MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON

AE3007A1P ENGINES WITH T/R



OBSTACLE CLEARANCE - CLOSE IN
FLAPS 9°

AE3007A1P ENGINES WITH T/R

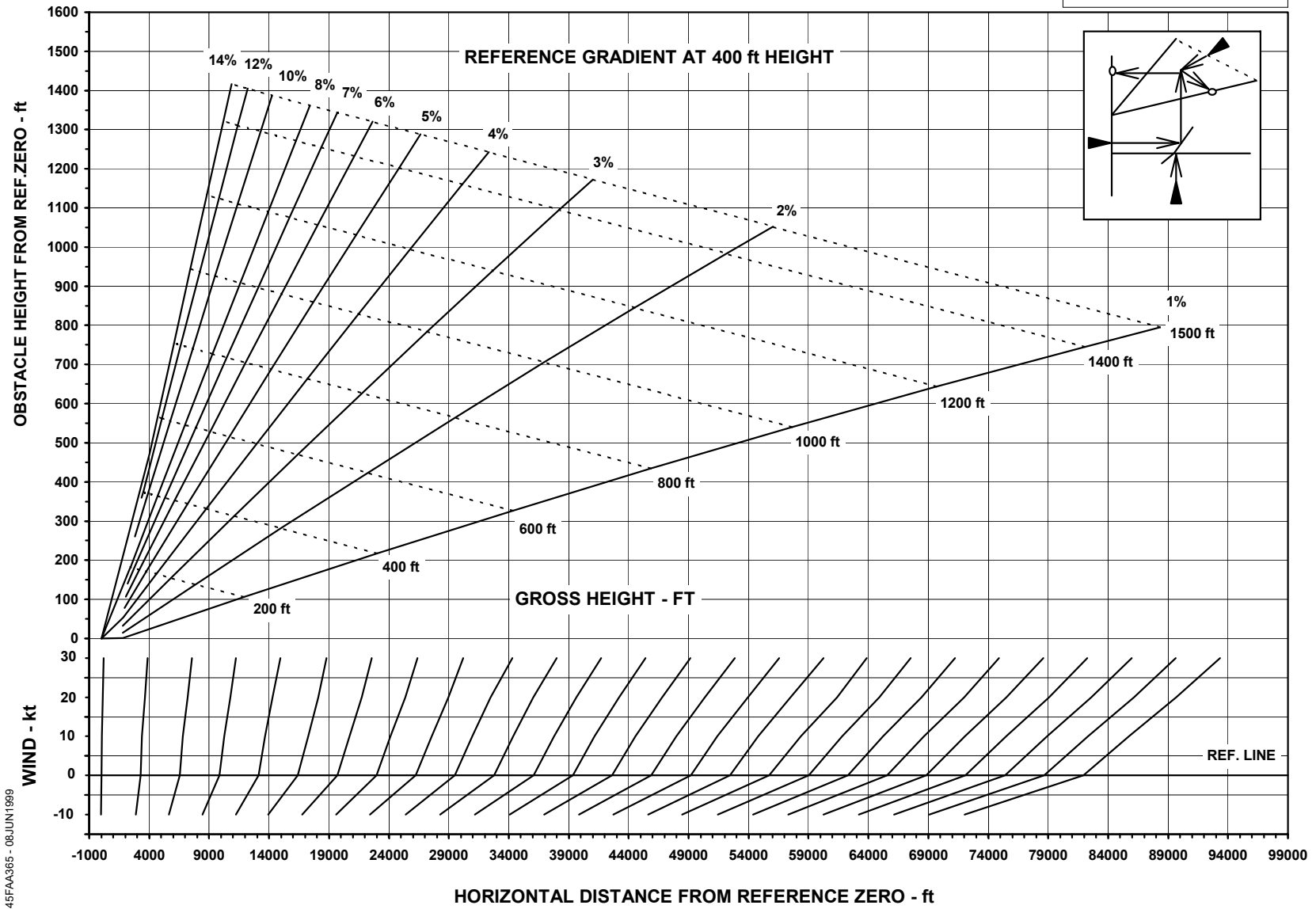


145FAA364 - 08JUN1999

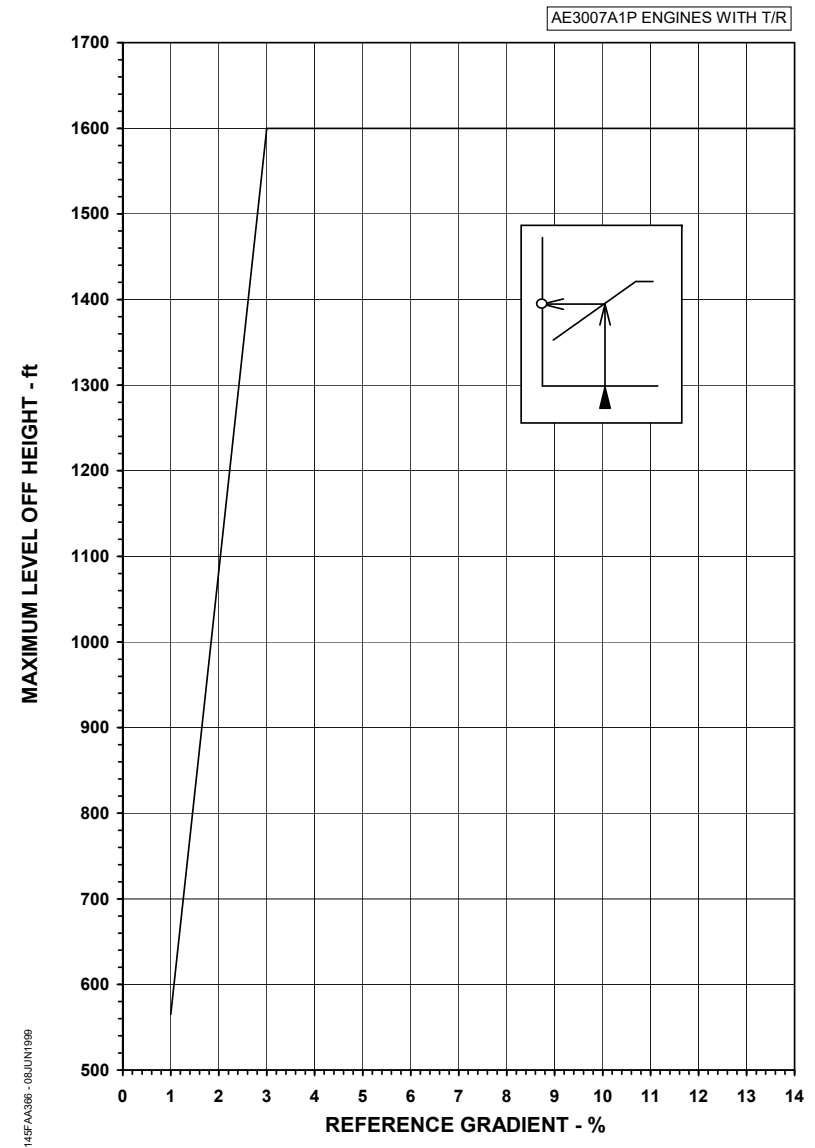
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OBSTACLE CLEARANCE - DISTANT
FLAPS 9°

AE3007A1P ENGINES WITH T/R



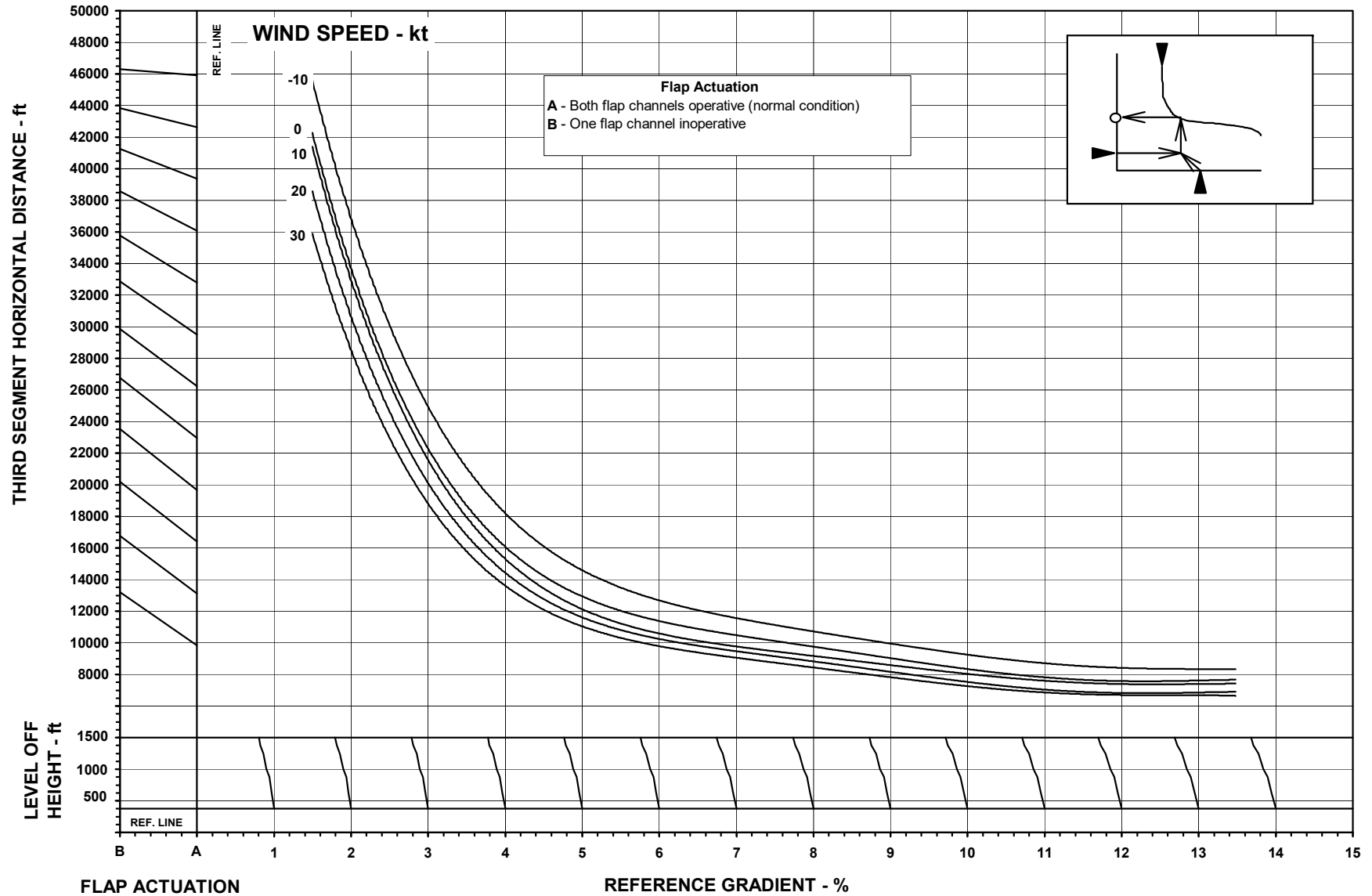
MAXIMUM LEVEL OFF HEIGHT
FLAPS 9°



145FAA367 - 08JUN1999

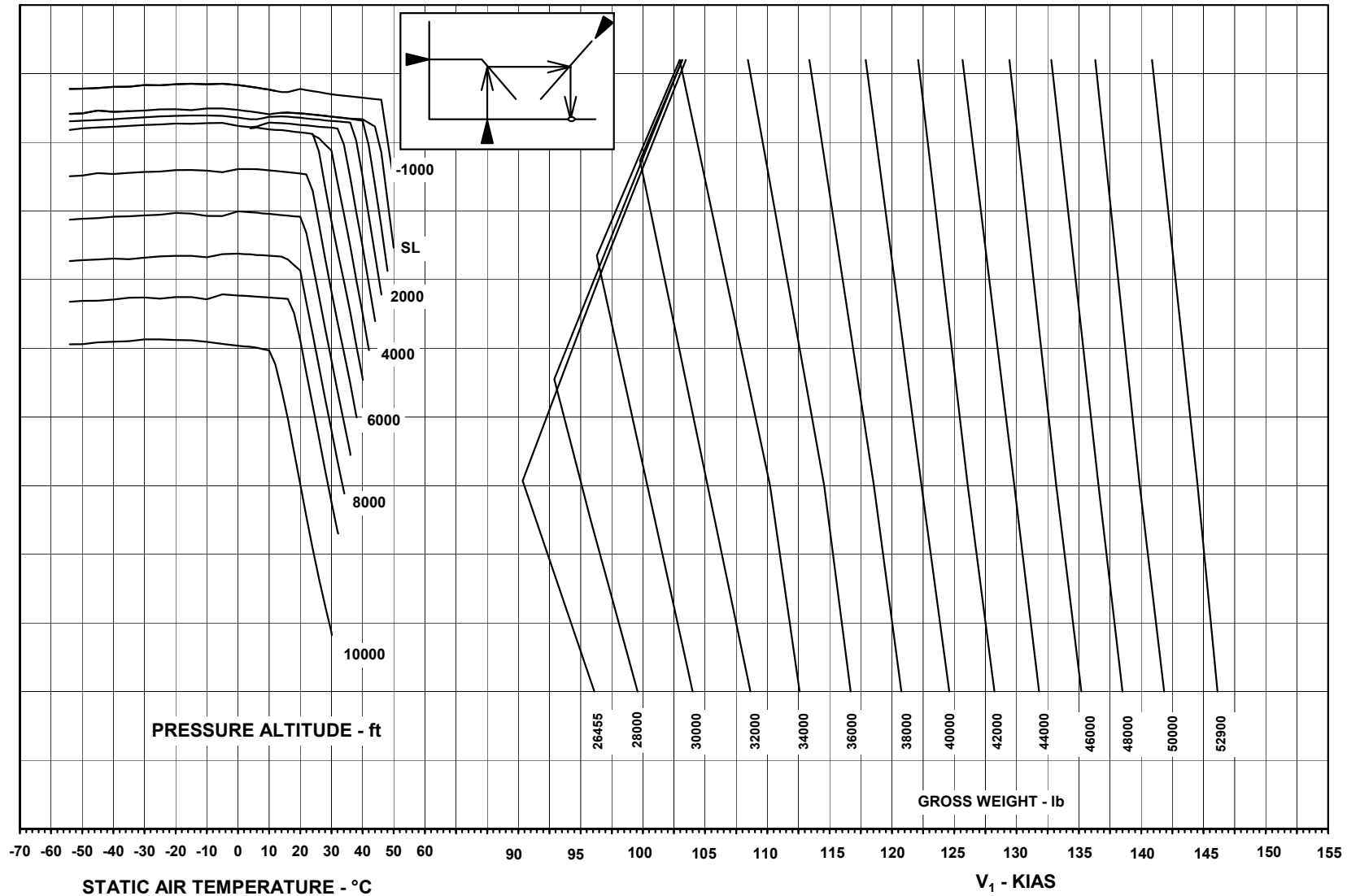
THIRD SEGMENT HORIZONTAL DISTANCE TAKEOFF FLAPS 9°

AE3007A1P ENGINES WITH T/R



TAKEOFF SPEEDS - V_1 (FOR NORMAL V_2)
FLAPS 9° - ALT T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A1P ENGINES WITH T/R

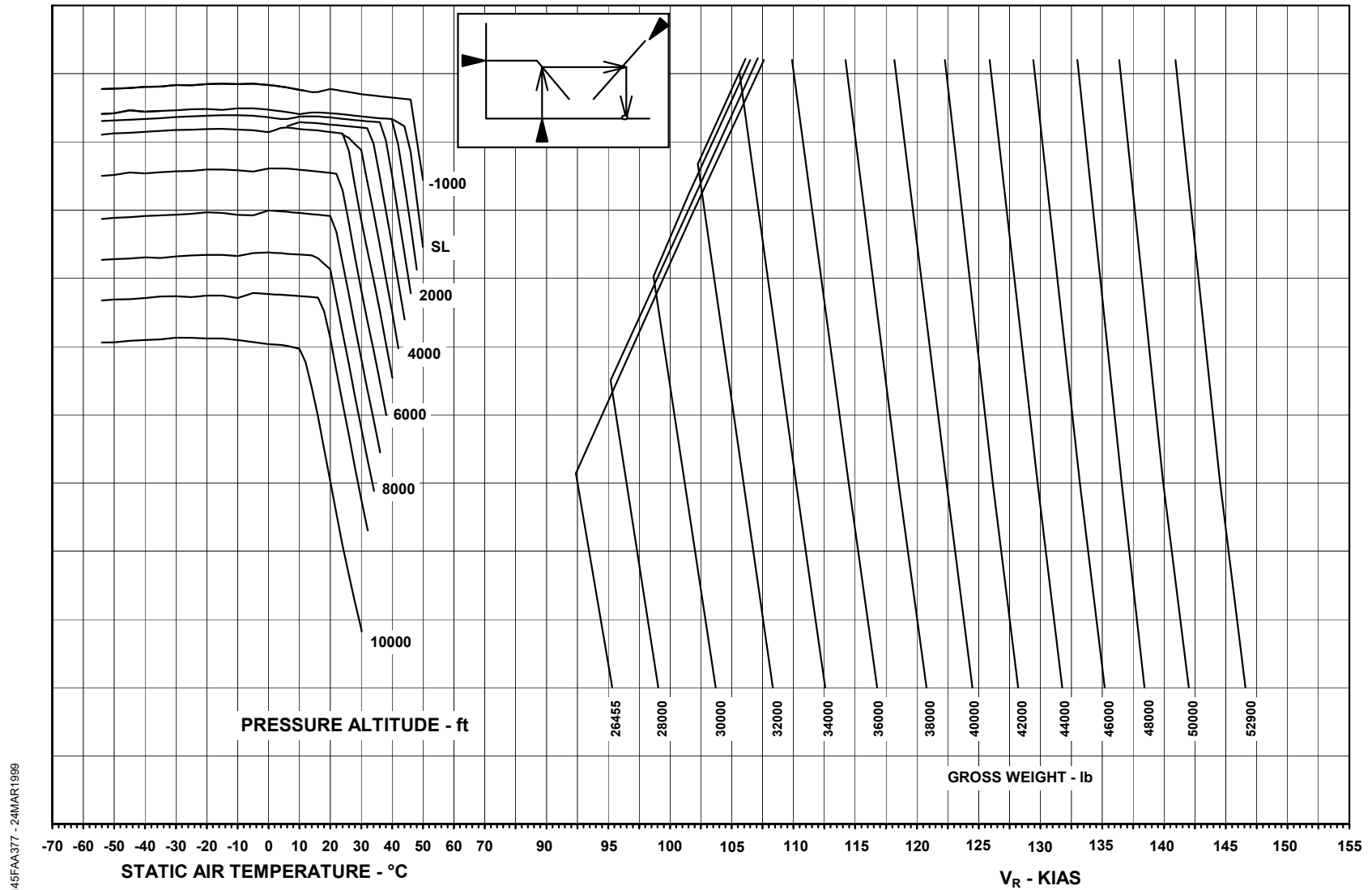


145FAA376 - 23MAR1999

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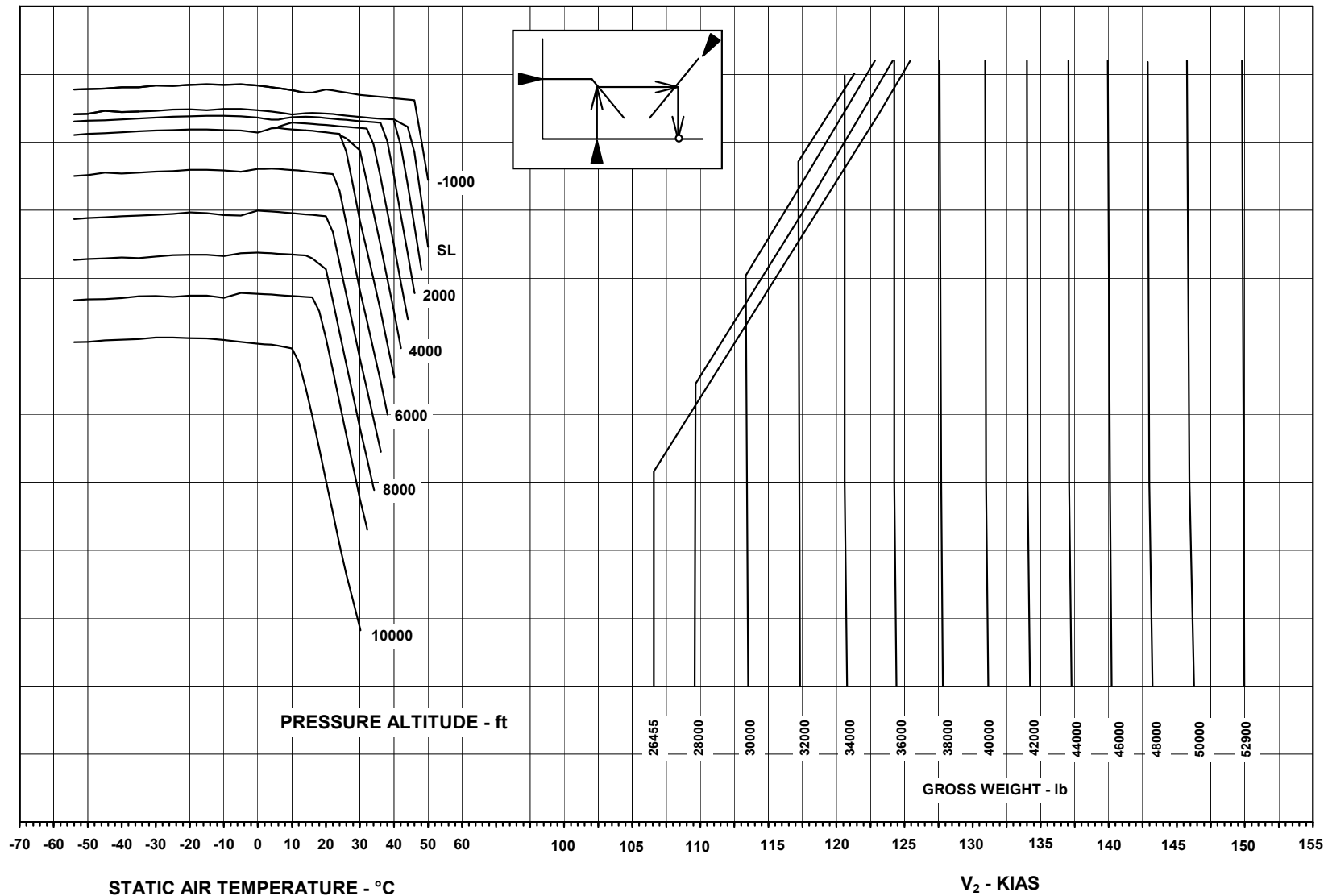
TAKEOFF SPEEDS - V_R (FOR NORMAL V_2)
FLAPS 9° - ALT T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A1P ENGINES WITH T/R



TAKEOFF SPEEDS - V_2 (NORMAL)
FLAPS 9° - ALT T/O-1 MODE - BALANCED FIELD LENGTH

AE3007A1P ENGINES WITH T/R

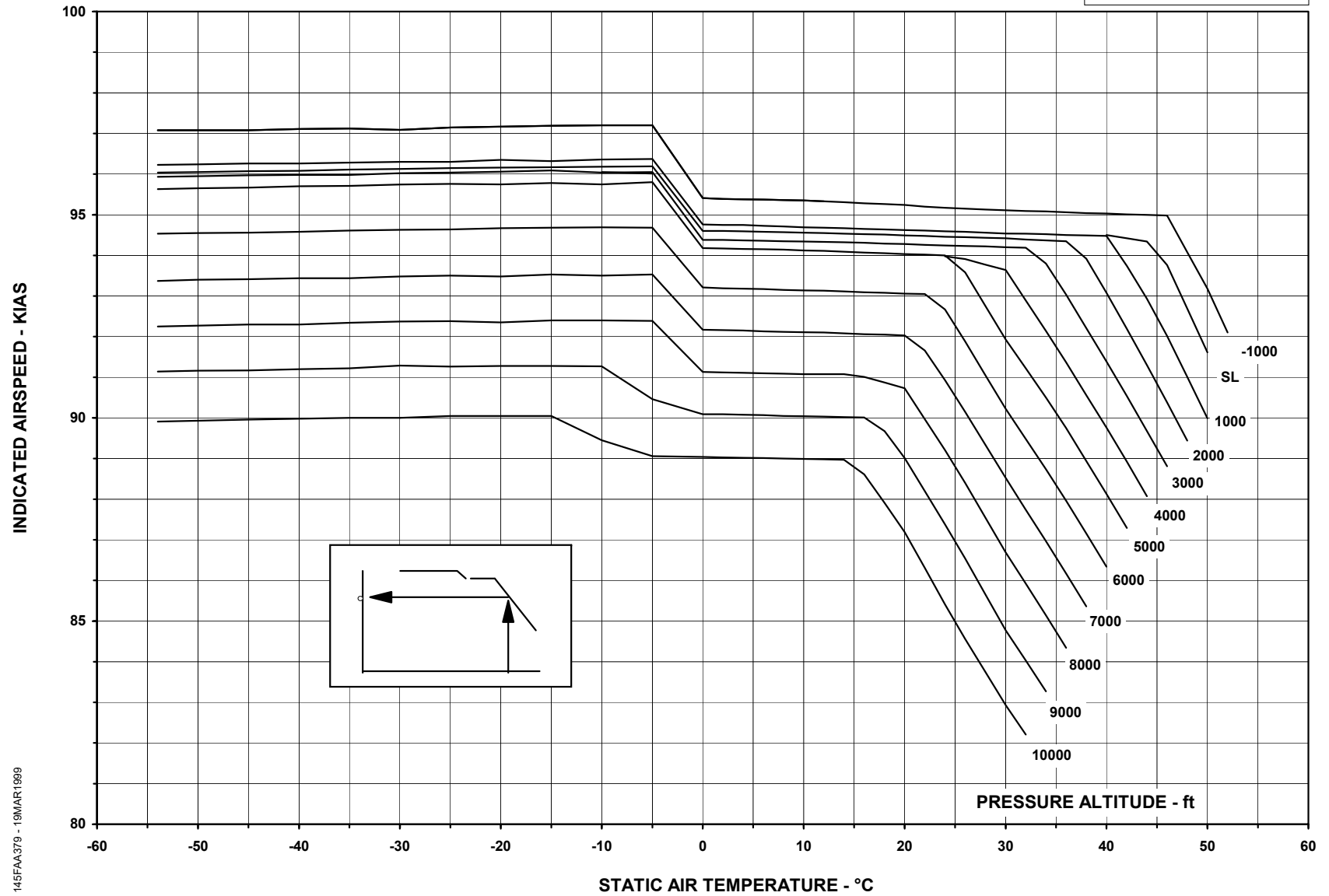


145FAA378 - 23MAR1999

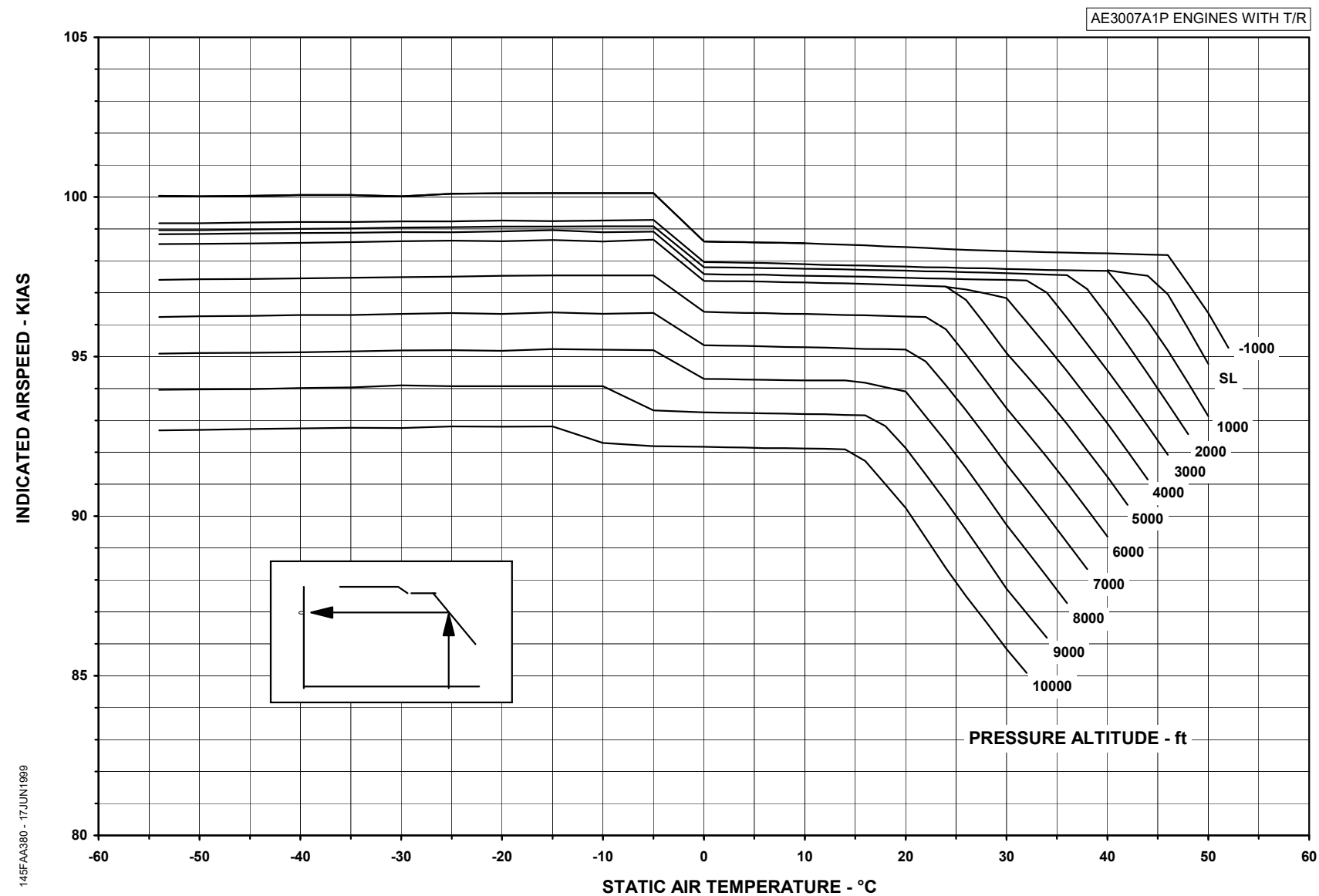
AFM-145/1153 - FAA

GROUND MINIMUM CONTROL SPEED
FLAPS 9°

AE3007A1P ENGINES WITH T/R



**AIR MINIMUM CONTROL SPEED
FLAPS 9°**



145FAA380 - 17JUN1999

AFM-145/1153 - FAA

TAKEOFF PERFORMANCE CHARTS - T/O MODE - FLAPS 9°, FLAPS 18° AND FLAPS 22°

The performance charts presented herein refer to the takeoff performance with T/O Mode - Flaps 9°, Flaps 18° and 22°. These are unbalanced field length charts.

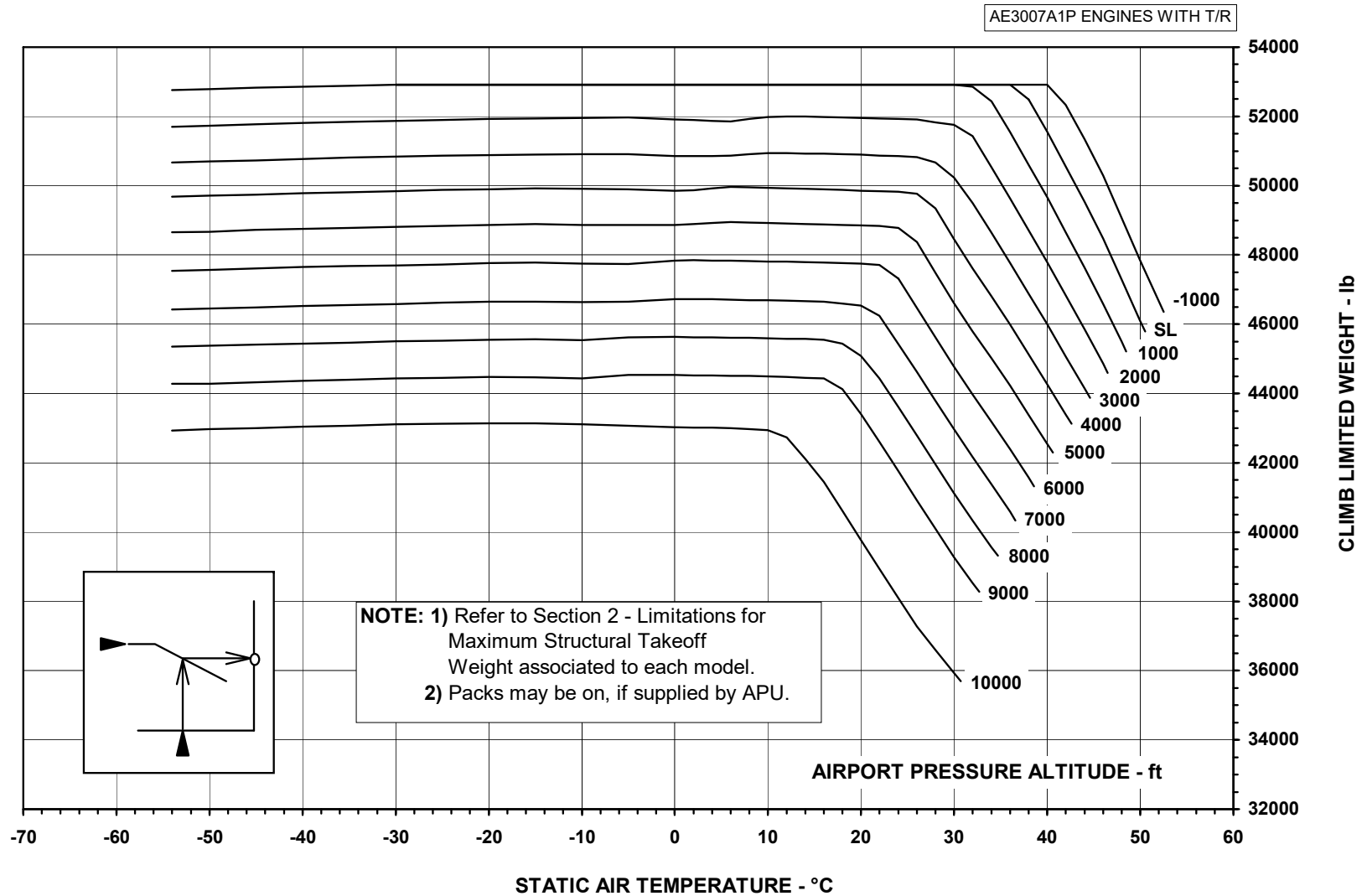
The performance charts presented herein from Final Segment up to Landing are also valid for takeoff with ALT T/O-1 - Flaps 9°.

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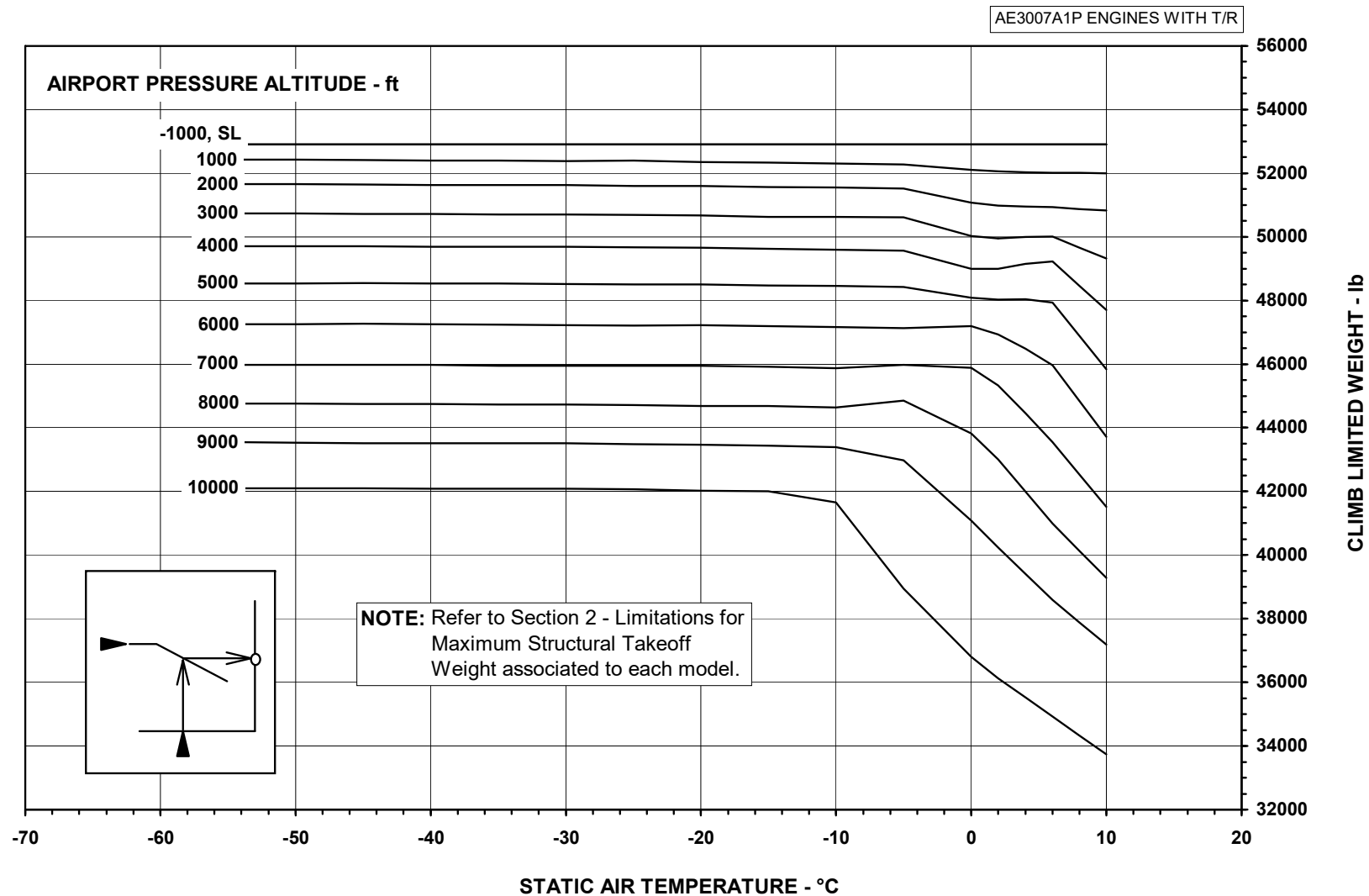


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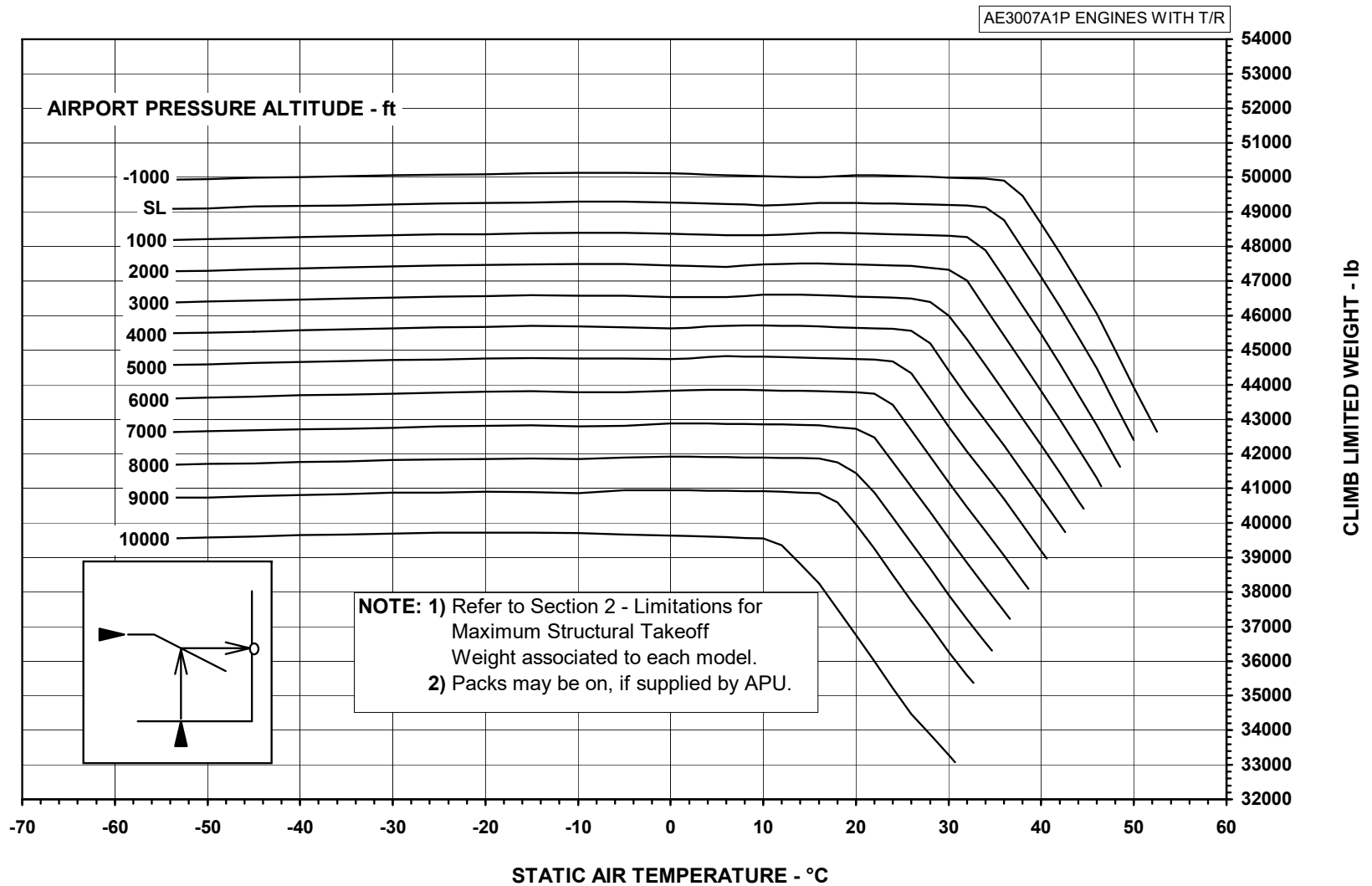
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9°
NORMAL V_2 - T/O MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF



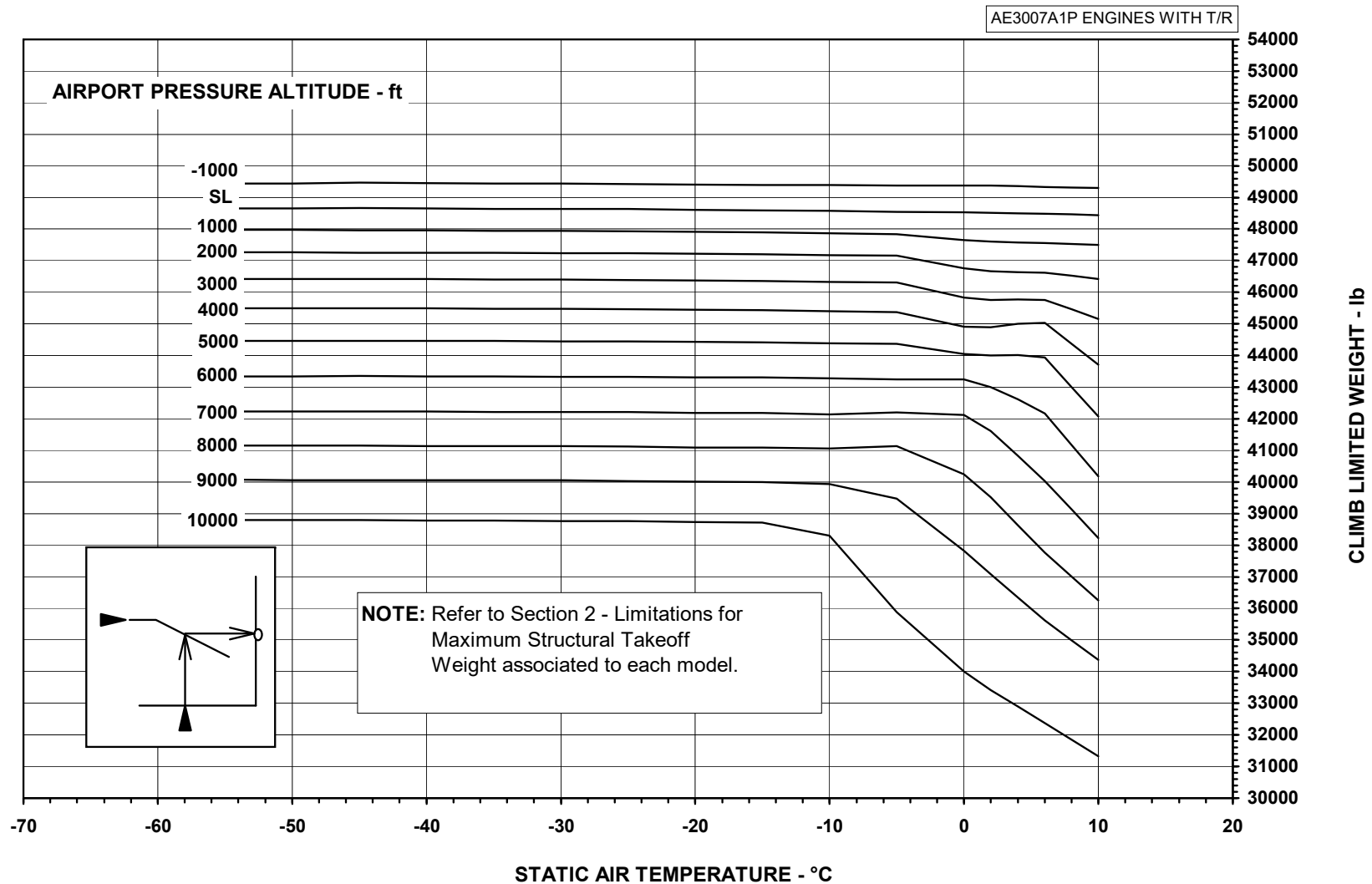
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9°
NORMAL V_2 - T/O MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON



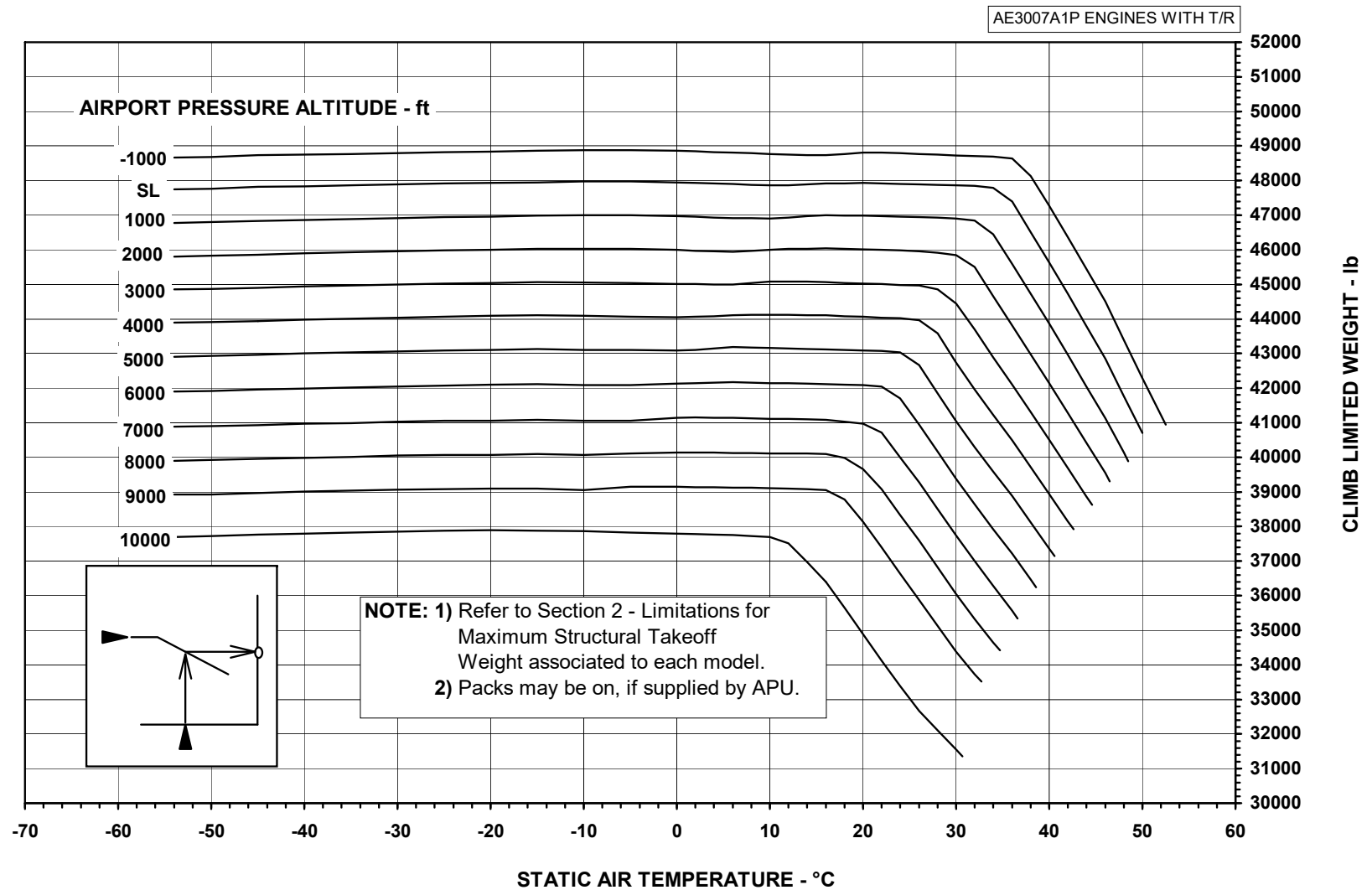
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 18°
NORMAL V_2 - T/O MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF



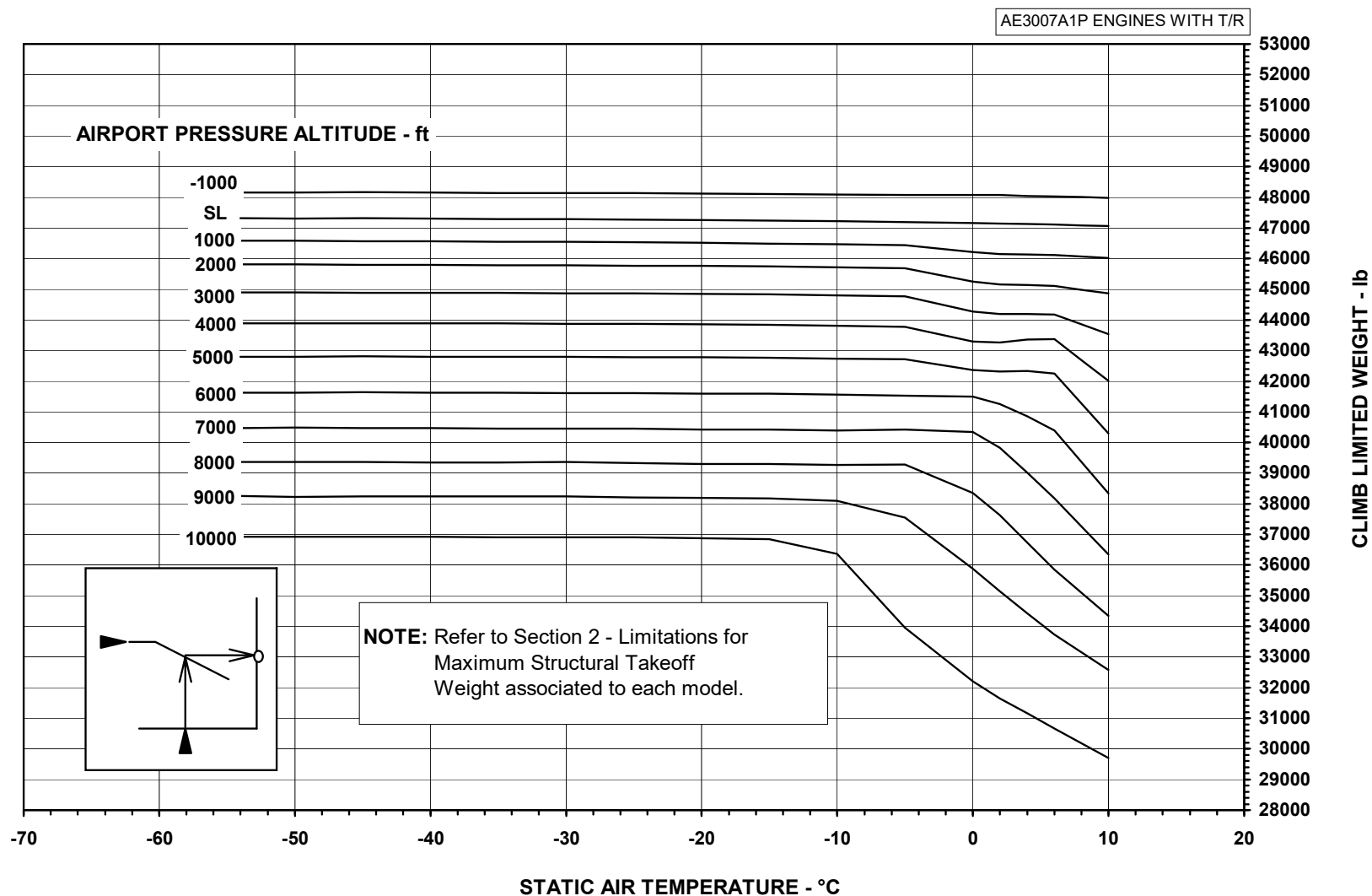
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 18°
NORMAL V_2 - T/O MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON



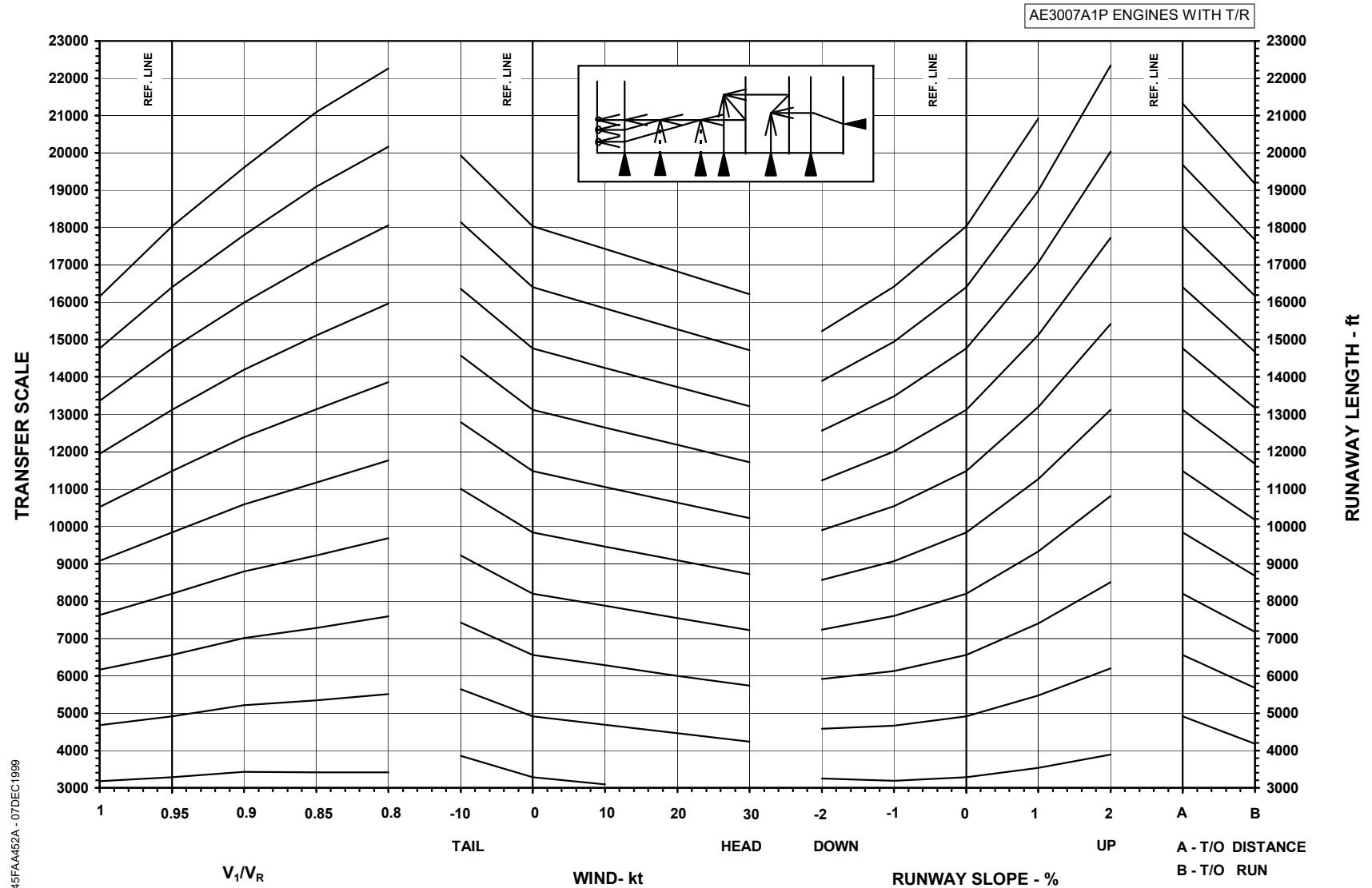
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 22°
NORMAL V_2 - T/O MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF



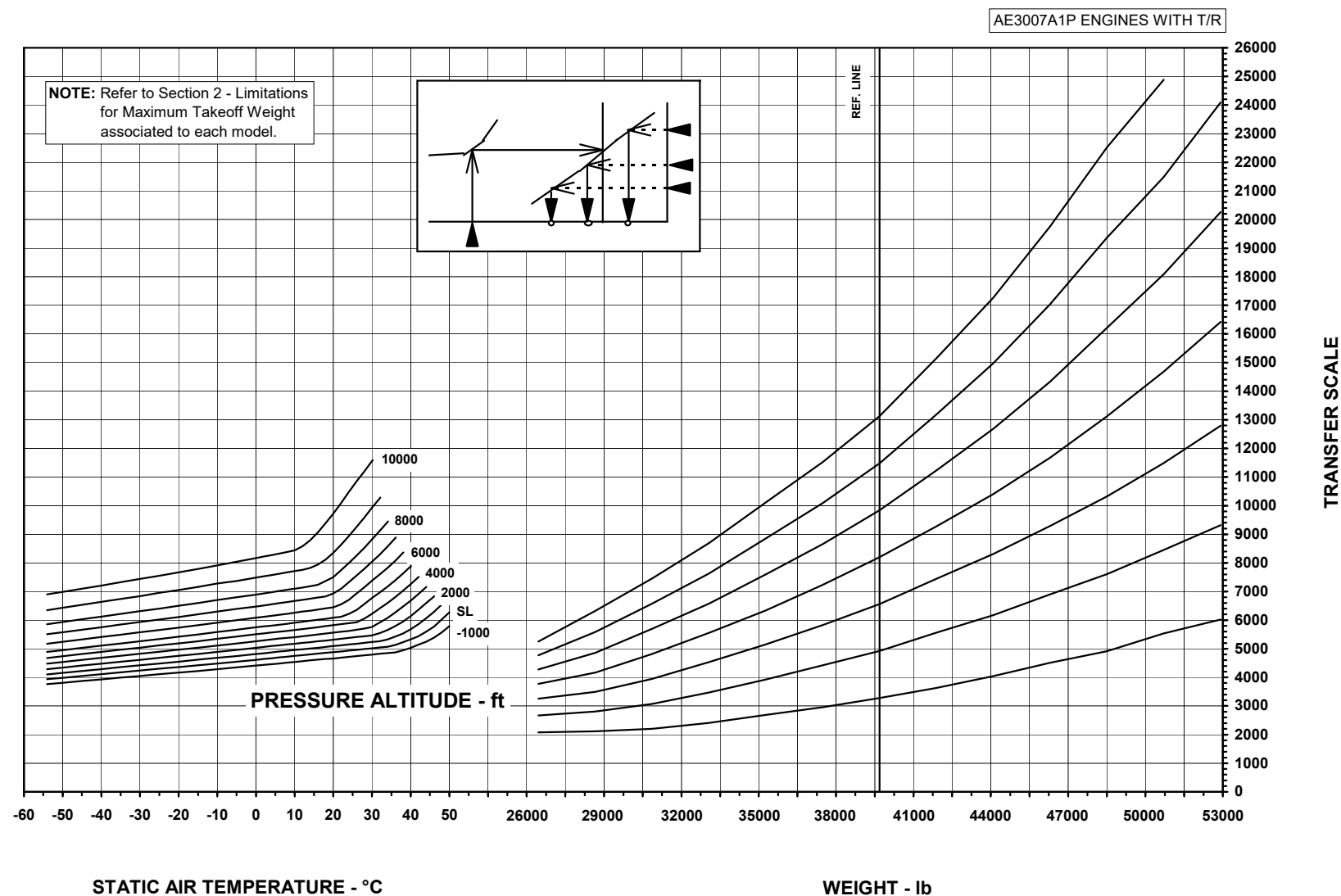
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 22°
NORMAL V_2 - T/O MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON



T/O MODE - FLAPS 9° - NORMAL V₂ - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 1 OF 2



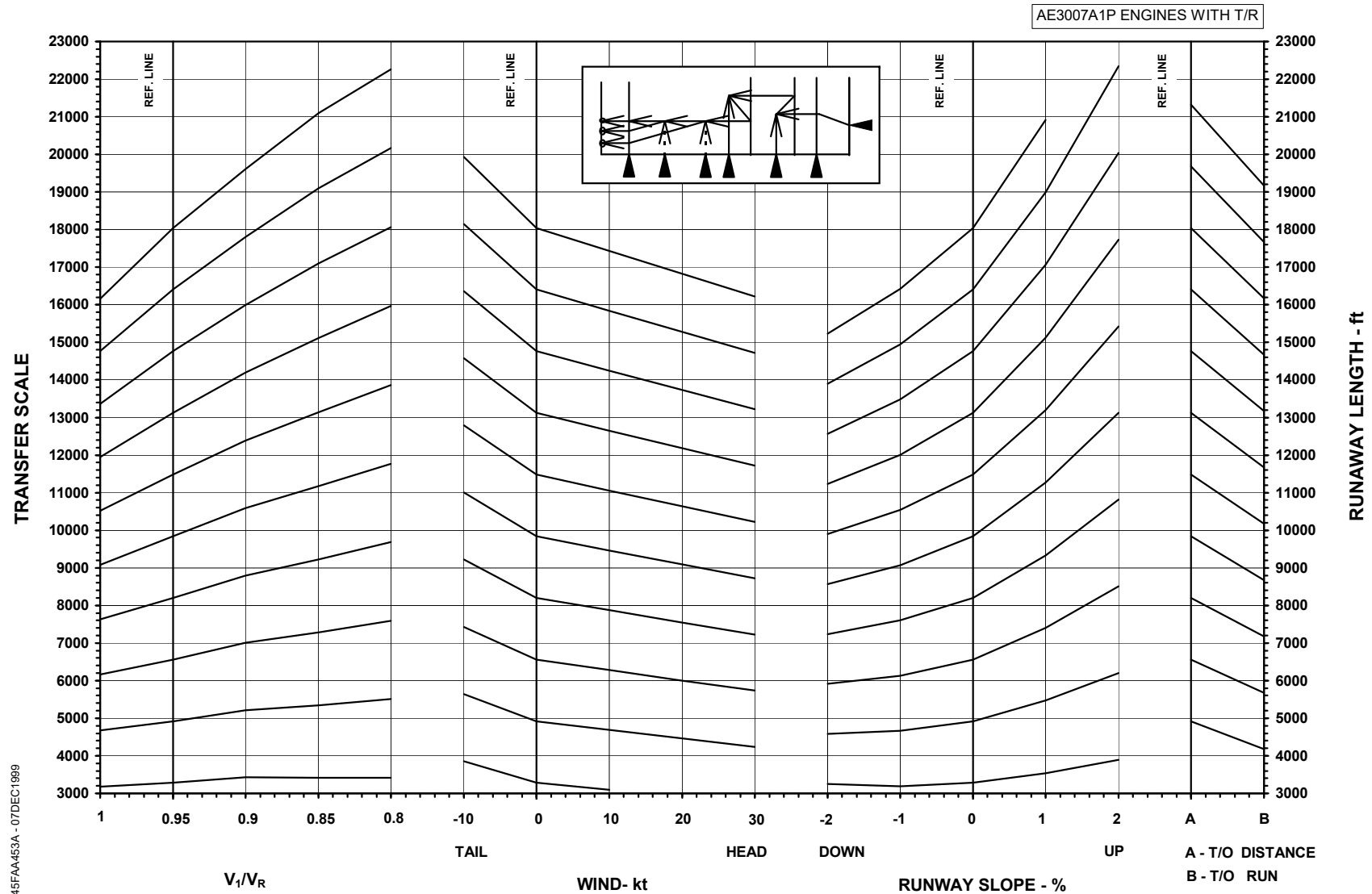
TAKEOFF DISTANCE
T/O MODE - FLAPS 9° - NORMAL V_2 - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 2 OF 2



145CTA452B - 07DEC1999

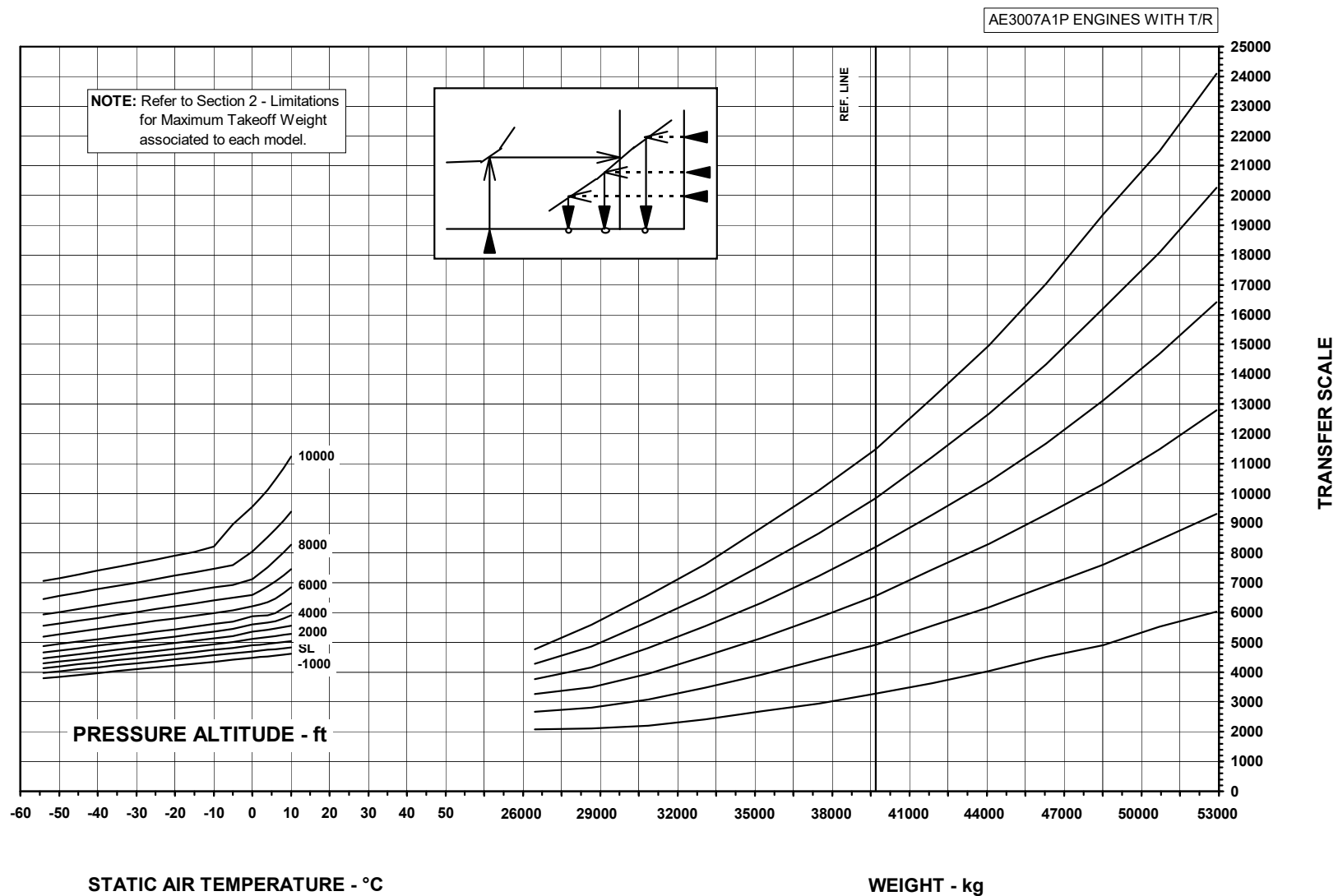
AFM-145/1153 - FAA

TAKEOFF DISTANCE
T/O MODE - FLAPS 9° - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 1 OF 2

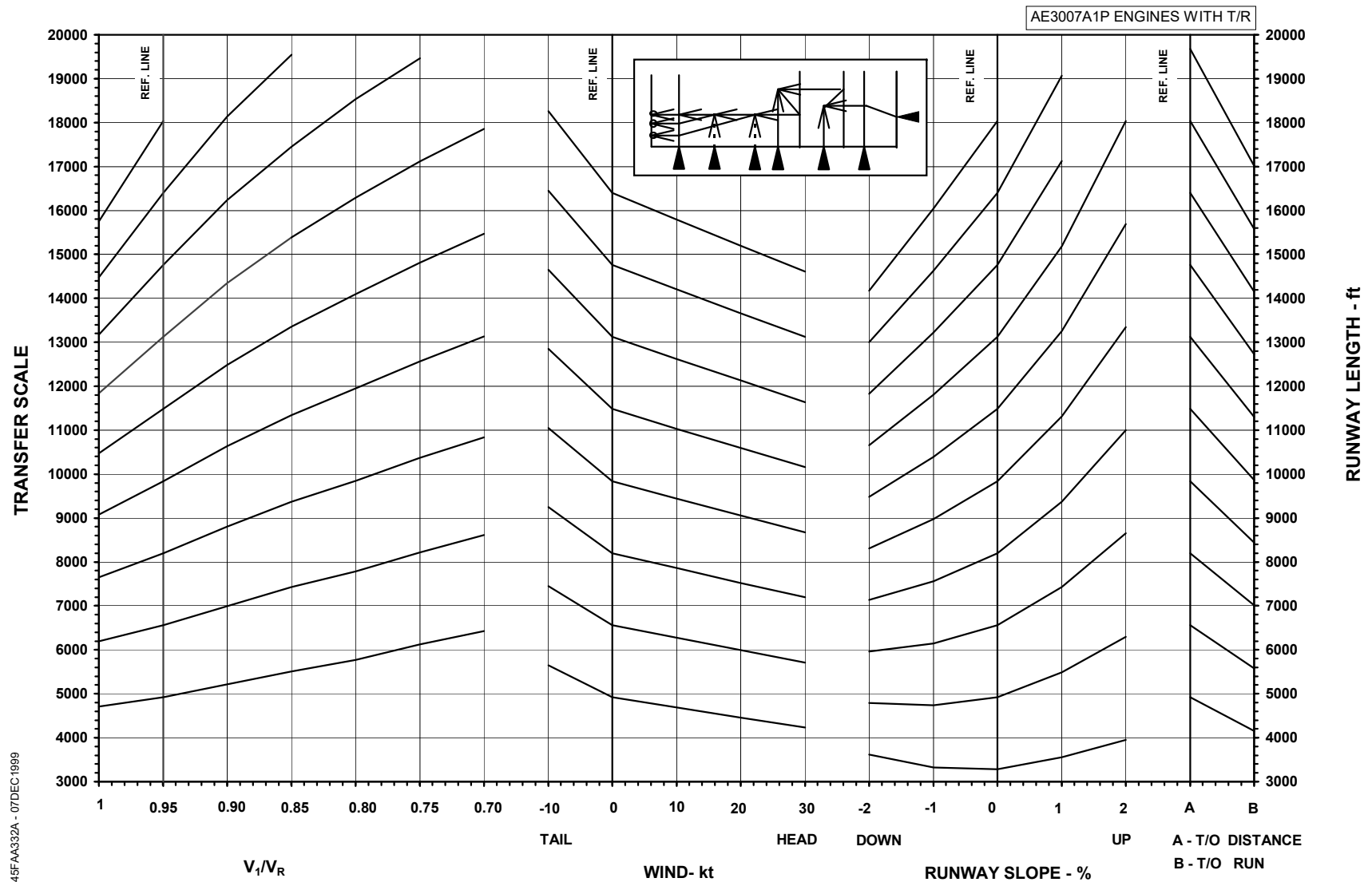


TAKEOFF DISTANCE

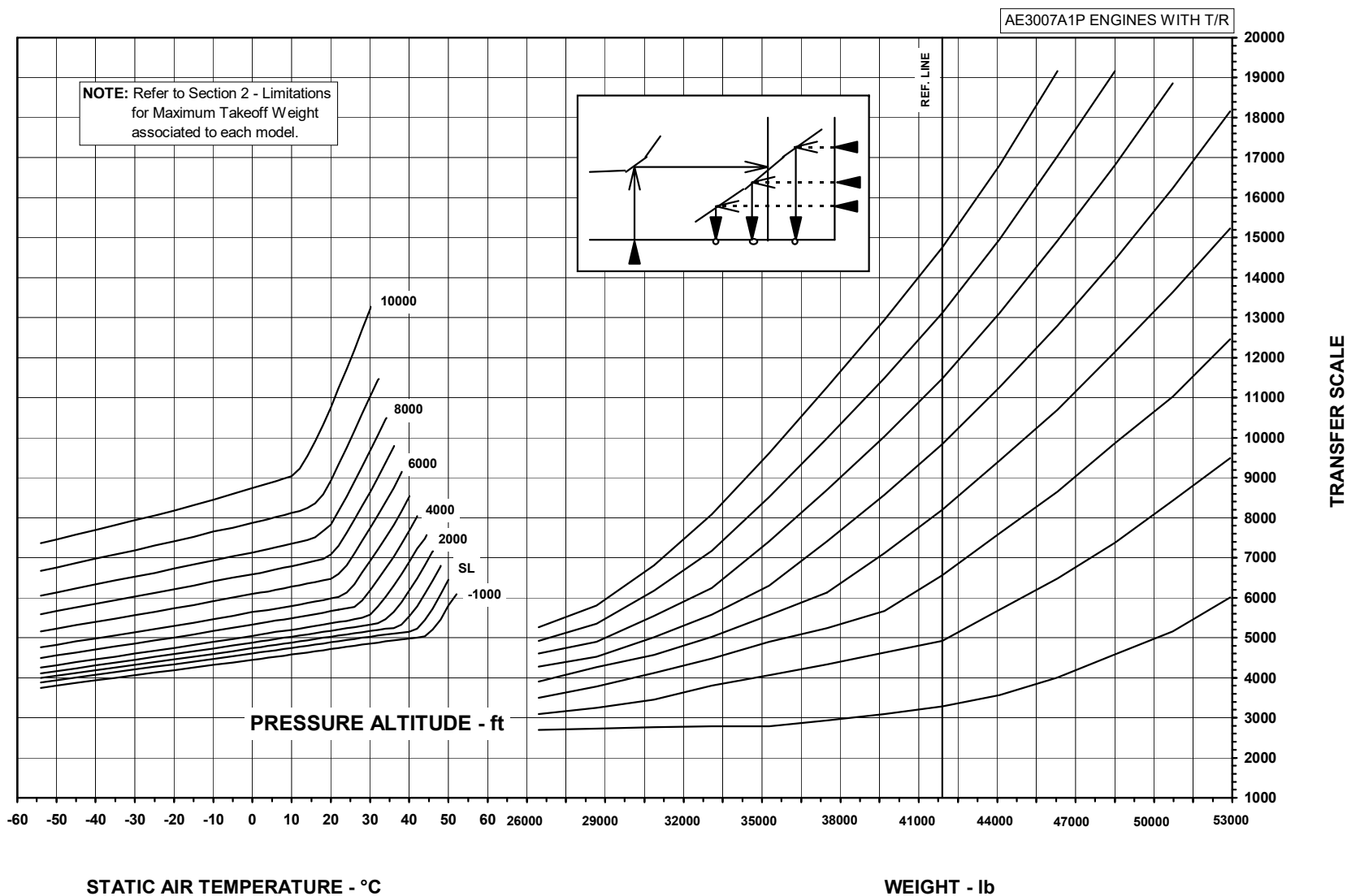
T/O MODE - FLAPS 9° - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 2 OF 2



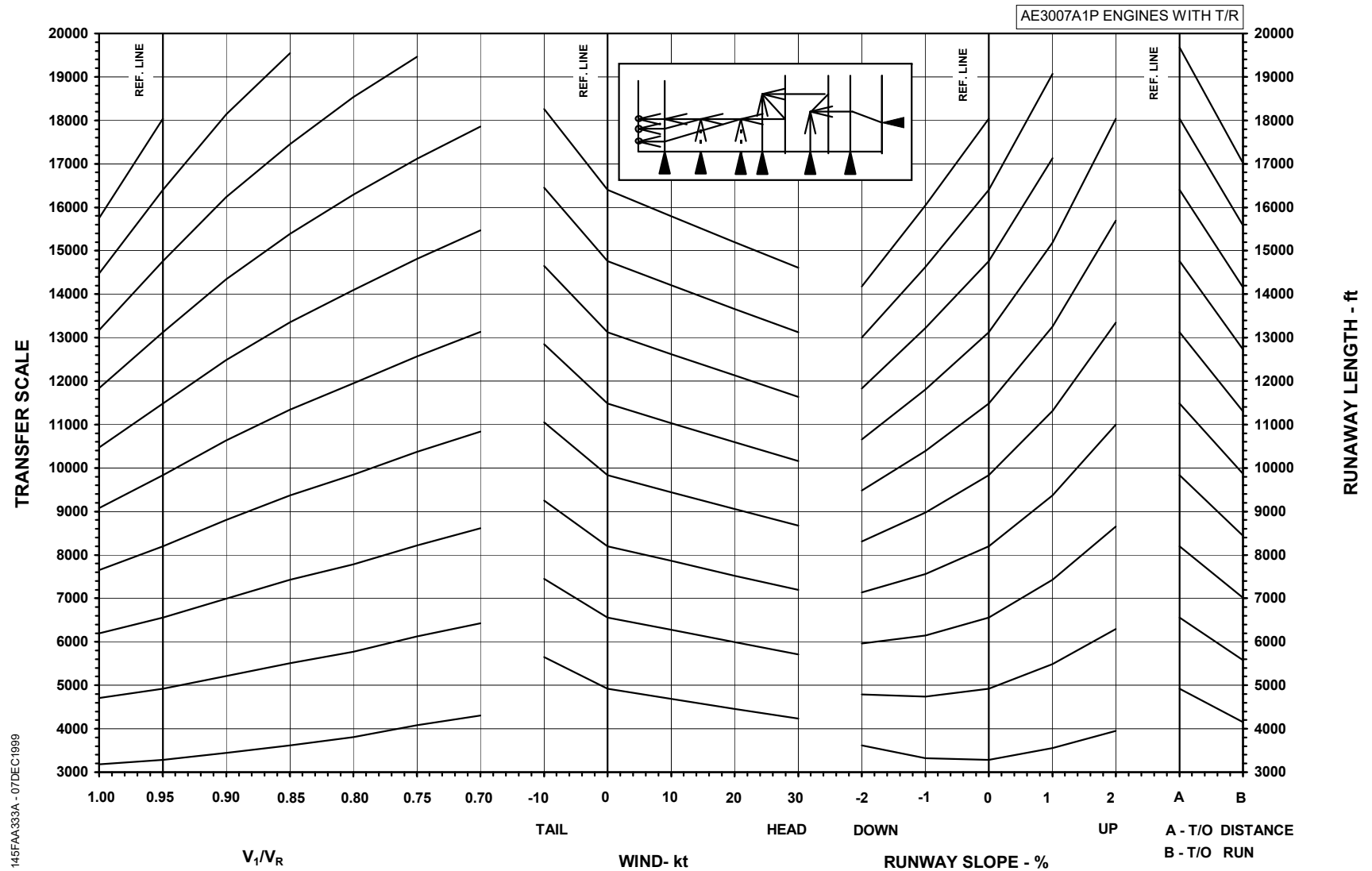
T/O MODE - FLAPS 18° - NORMAL V₂ - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 1 OF 2



TAKEOFF DISTANCE
T/O MODE - FLAPS 18° - NORMAL V_2 - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 2 OF 2

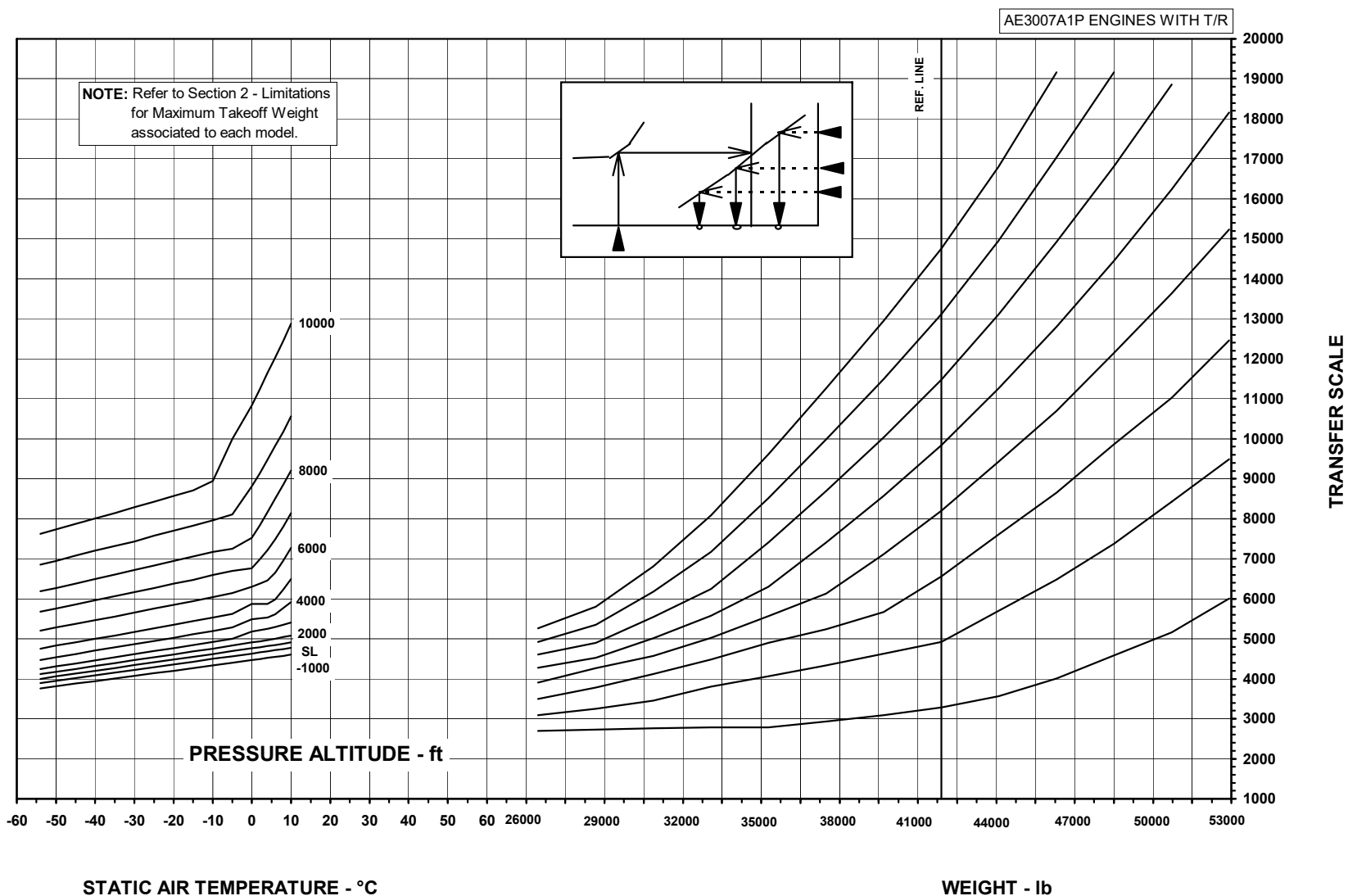


TAKEOFF DISTANCE
T/O MODE - FLAPS 18° - NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 1 OF 2



TAKEOFF DISTANCE

T/O MODE - FLAPS 18° - NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 2 OF 2

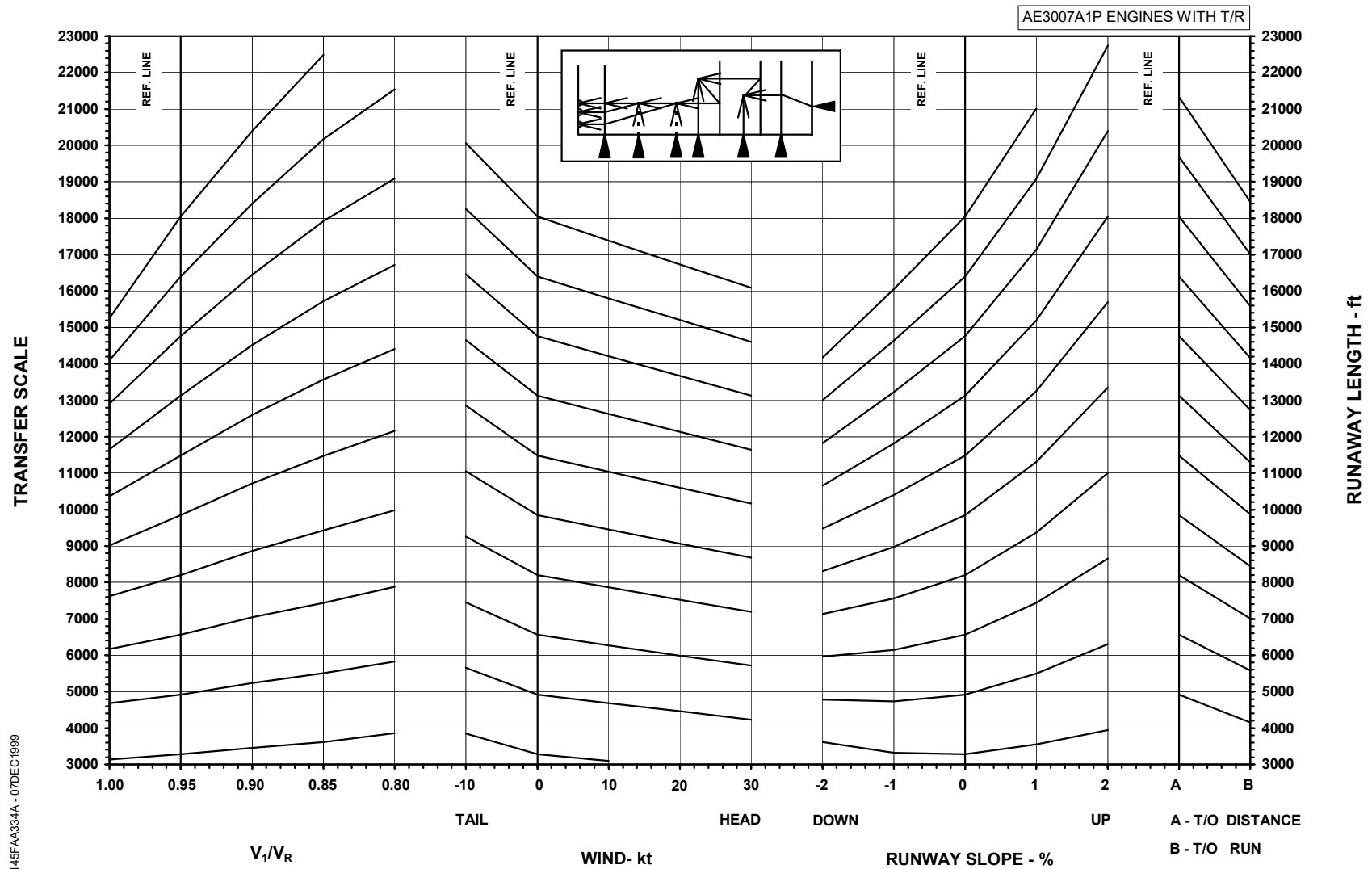


145FAA333B - 07DEC1999

AFM-145/1153 - FAA

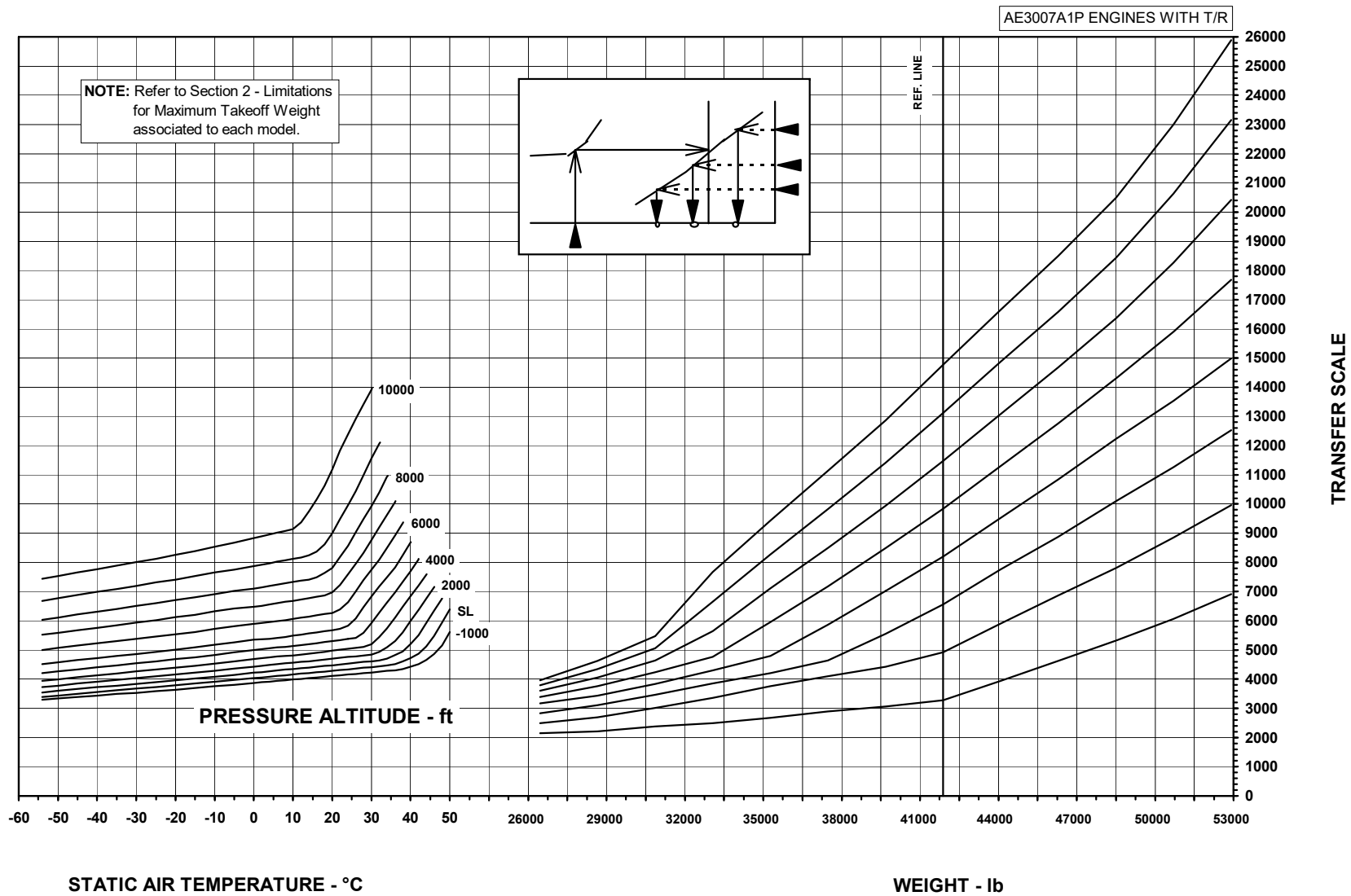
TAKEOFF DISTANCE

T/O MODE - FLAPS 22° - NORMAL V₂ - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 1 OF 2

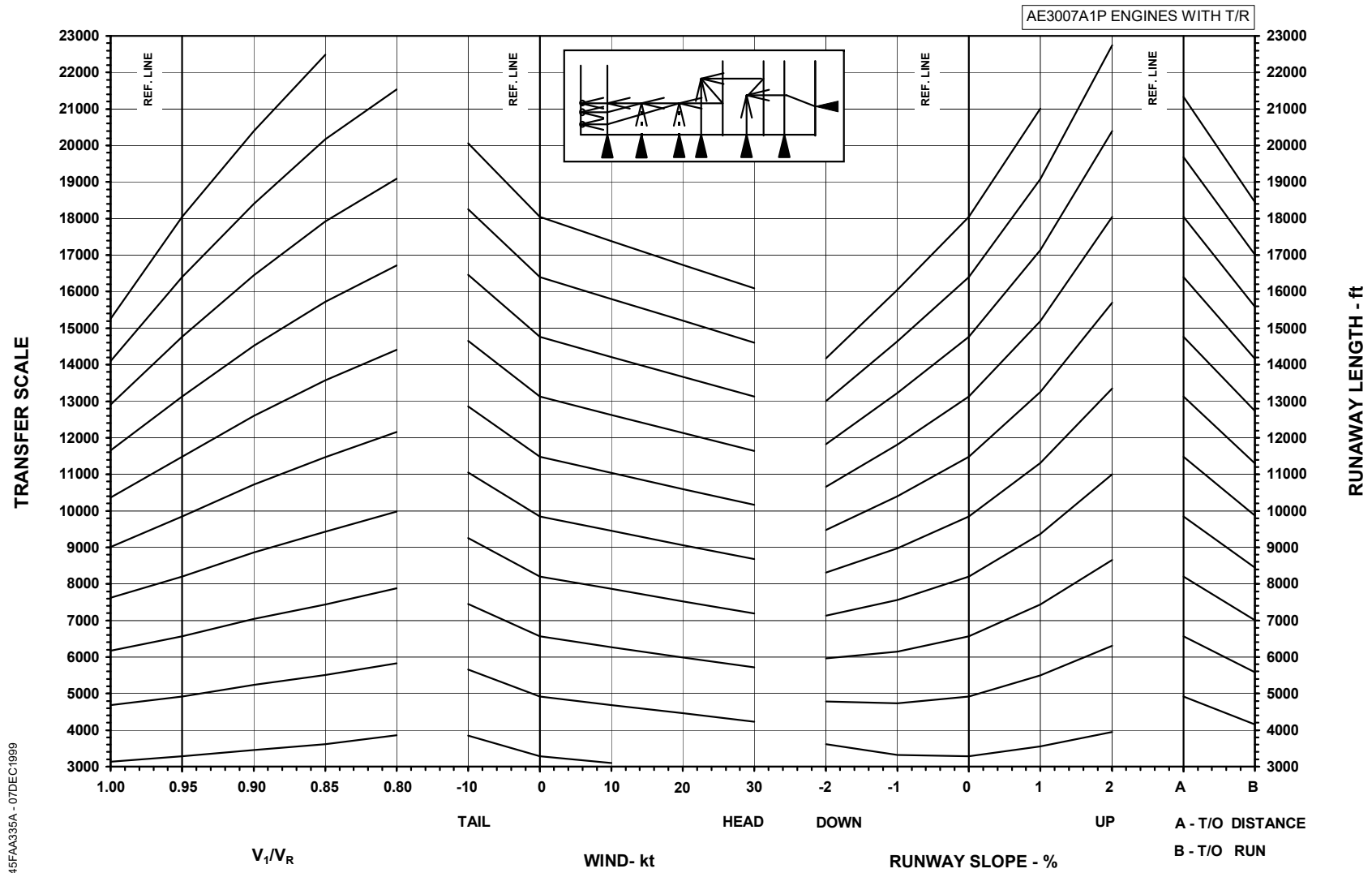


TAKEOFF DISTANCE

T/O MODE - FLAPS 22° - NORMAL V_2 - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 2 OF 2

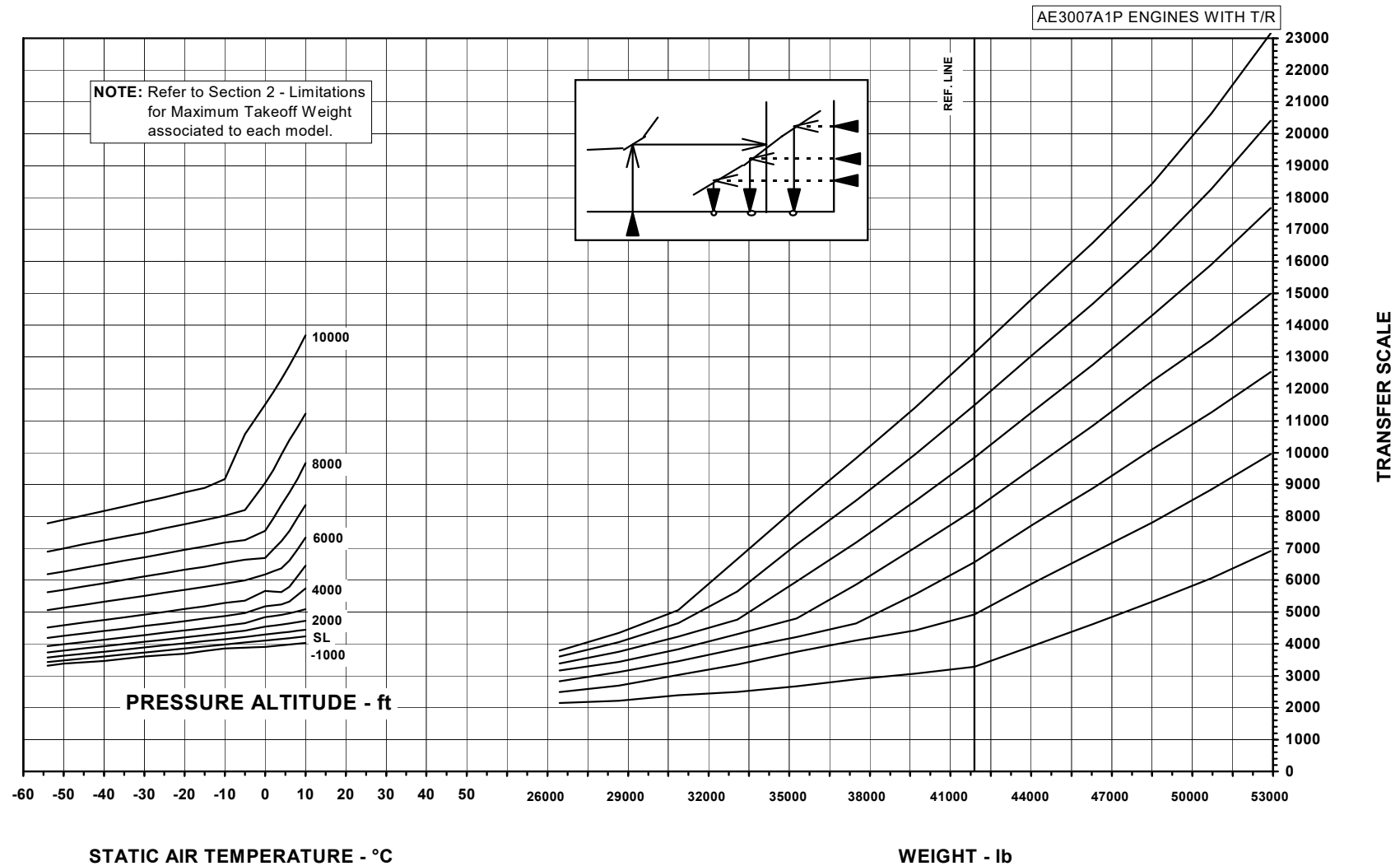


TAKEOFF DISTANCE
T/O MODE - FLAPS 22° - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 1 OF 2

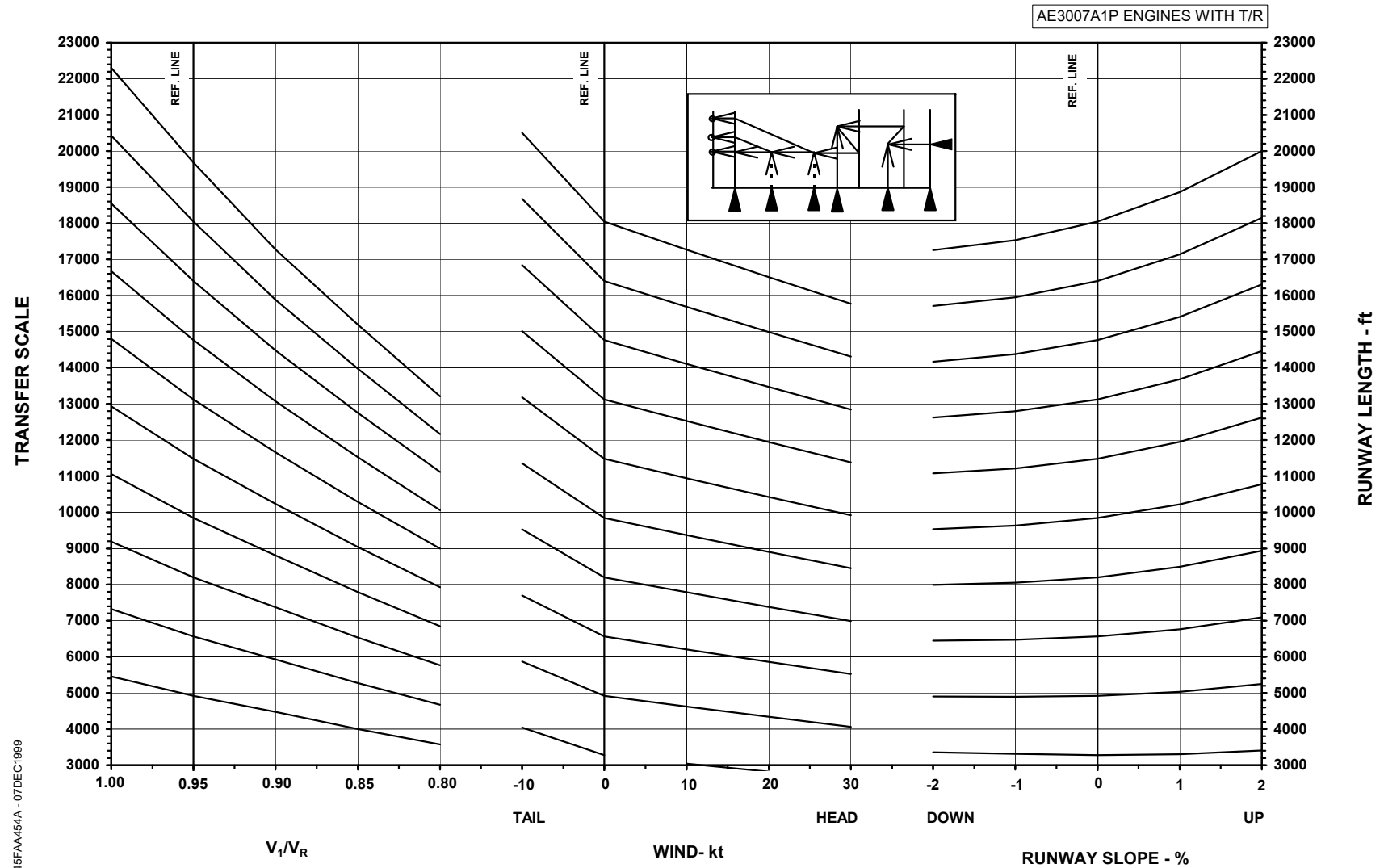


TAKEOFF DISTANCE

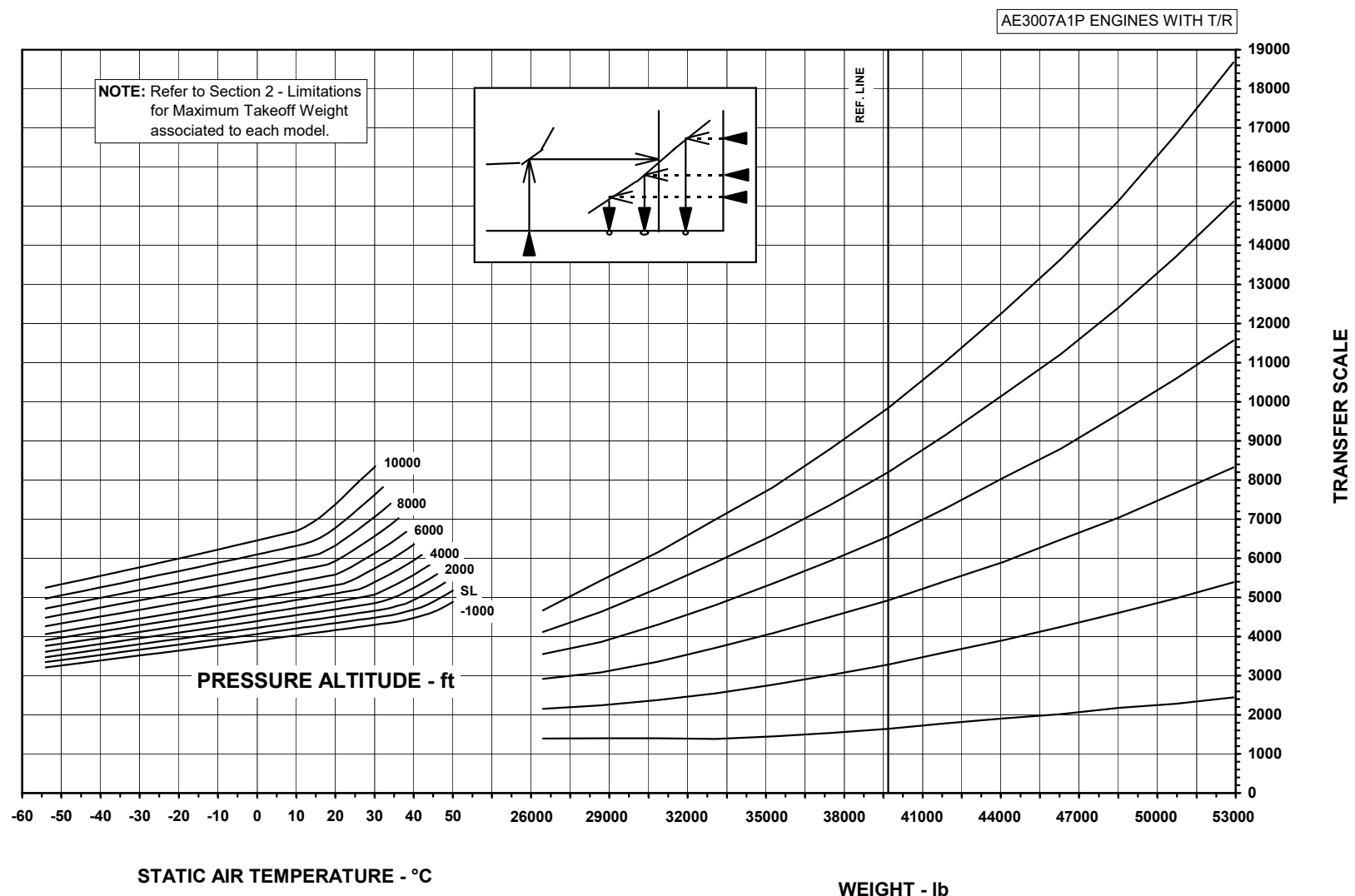
T/O MODE - FLAPS 22° - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 2 OF 2



ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 9° - NORMAL V_2 - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 1 OF 2



ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 9° - NORMAL V_2 - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 2 OF 2

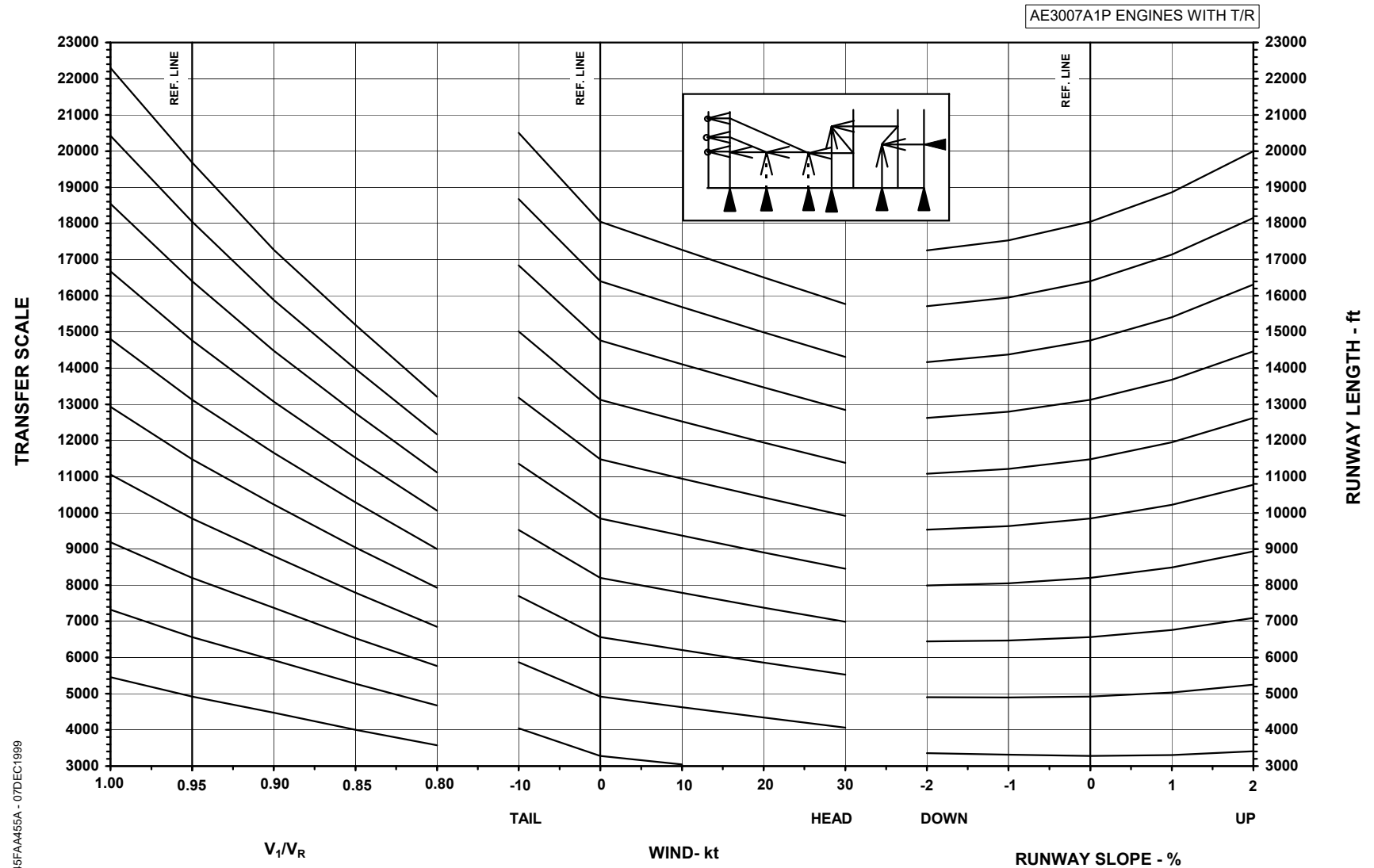


145FAA454B - 07DEC1999

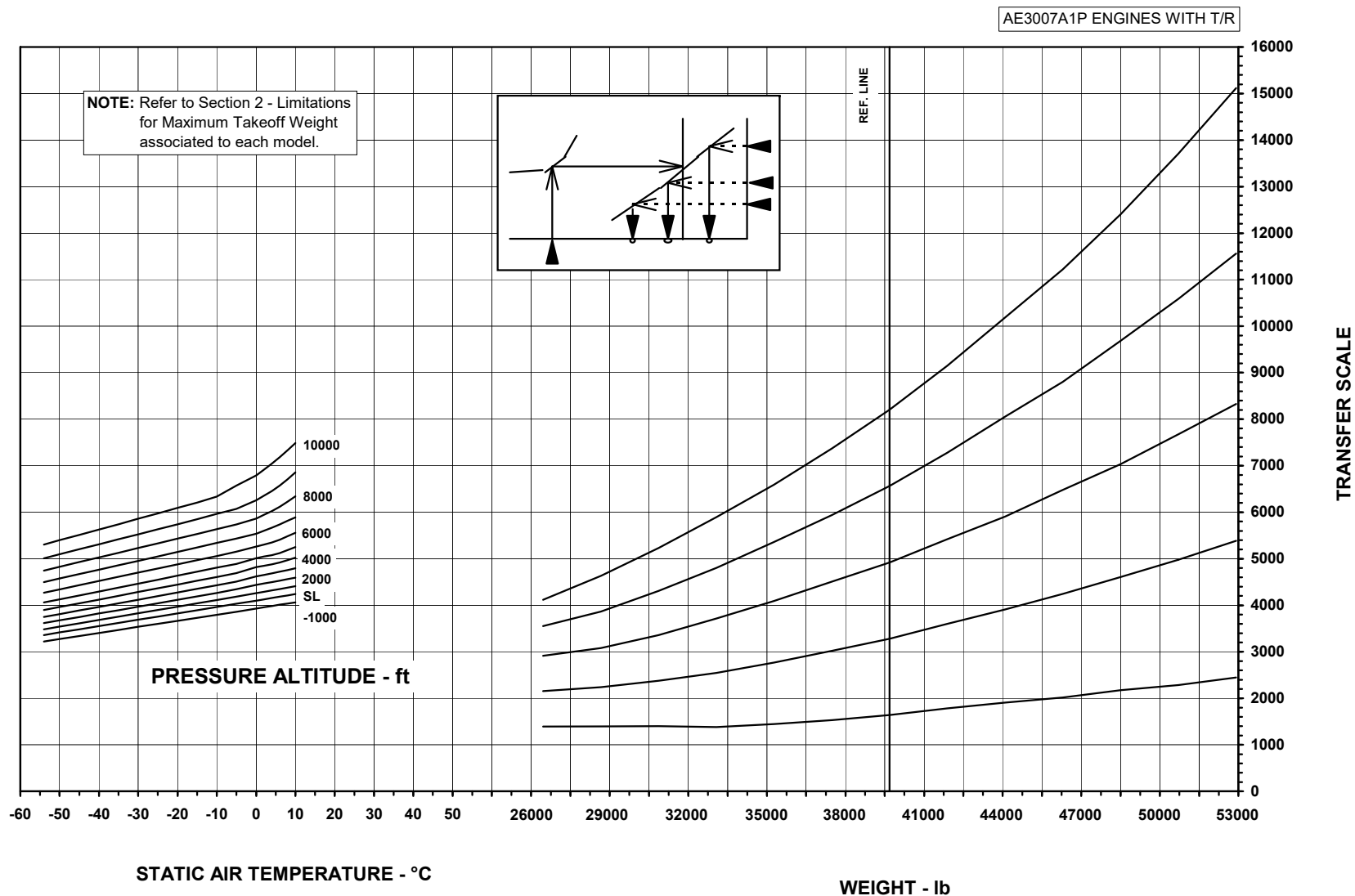
AFM-145/1153 - FAA

ACCELERATE STOP DISTANCE

T/O MODE - FLAPS 9° - NORMAL V₂ - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 1 OF 2

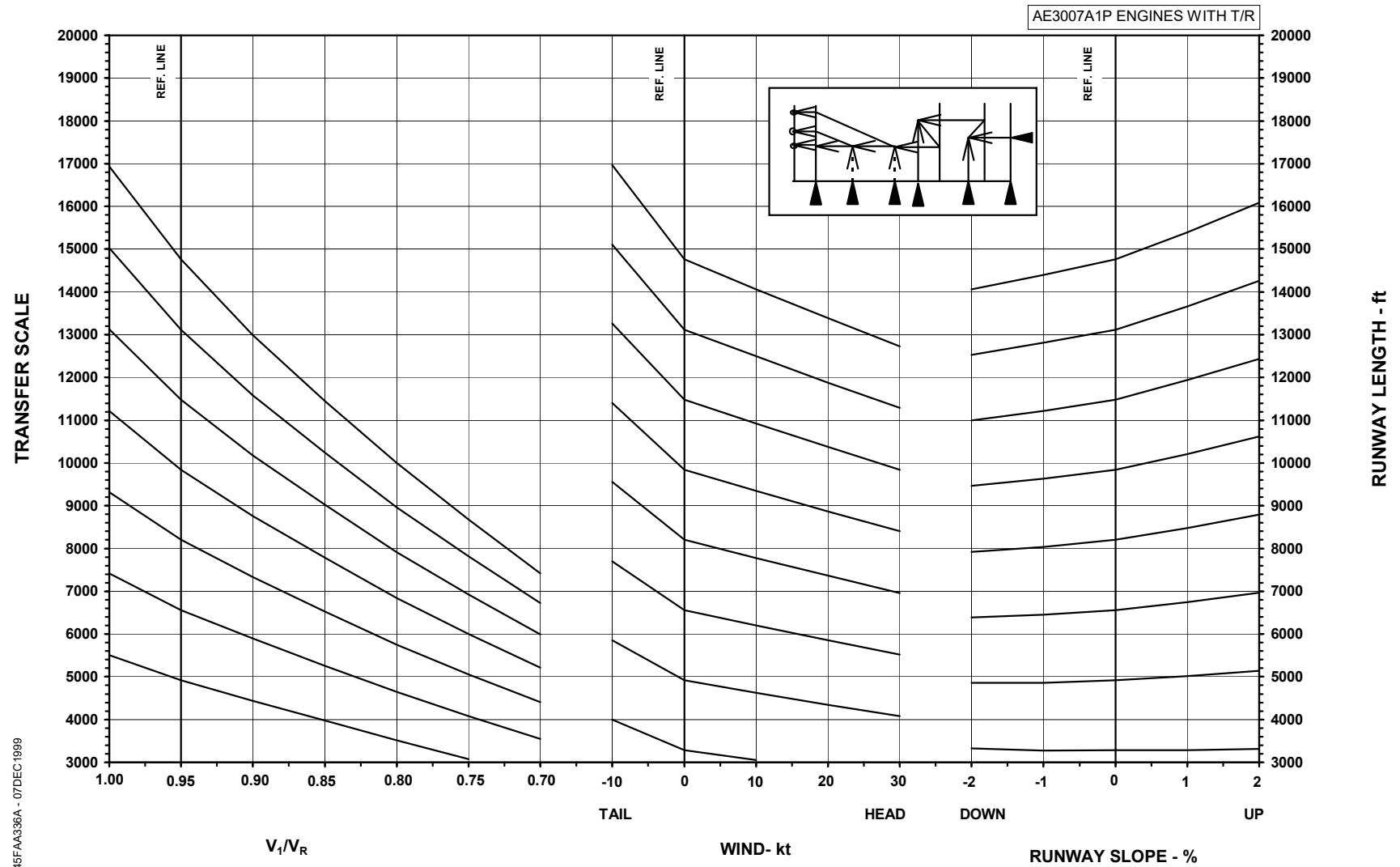


ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 9° - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 2 OF 2

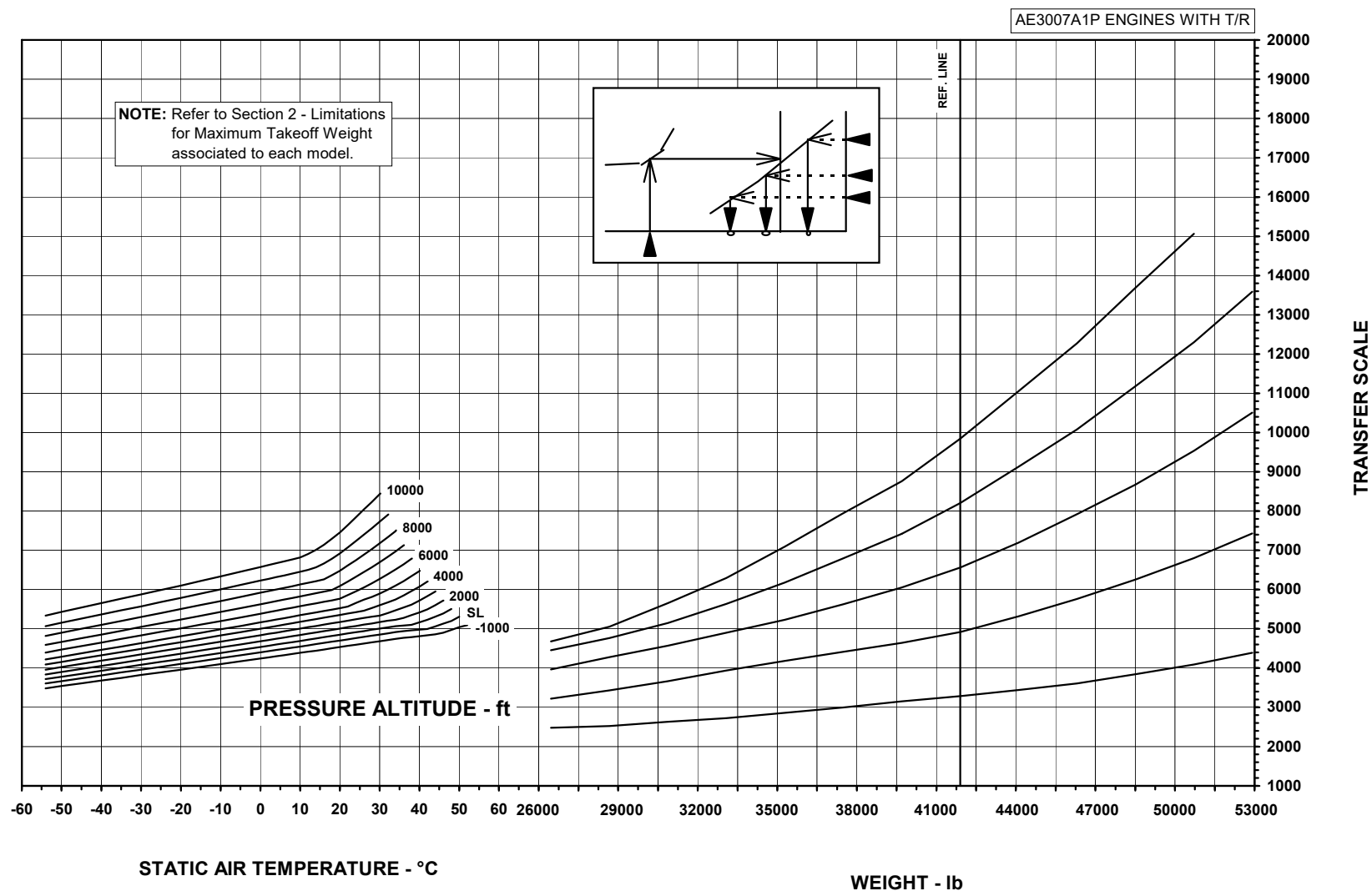


ACCELERATE STOP DISTANCE

T/O MODE - FLAPS 18° - NORMAL V₂ - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 1 OF 2

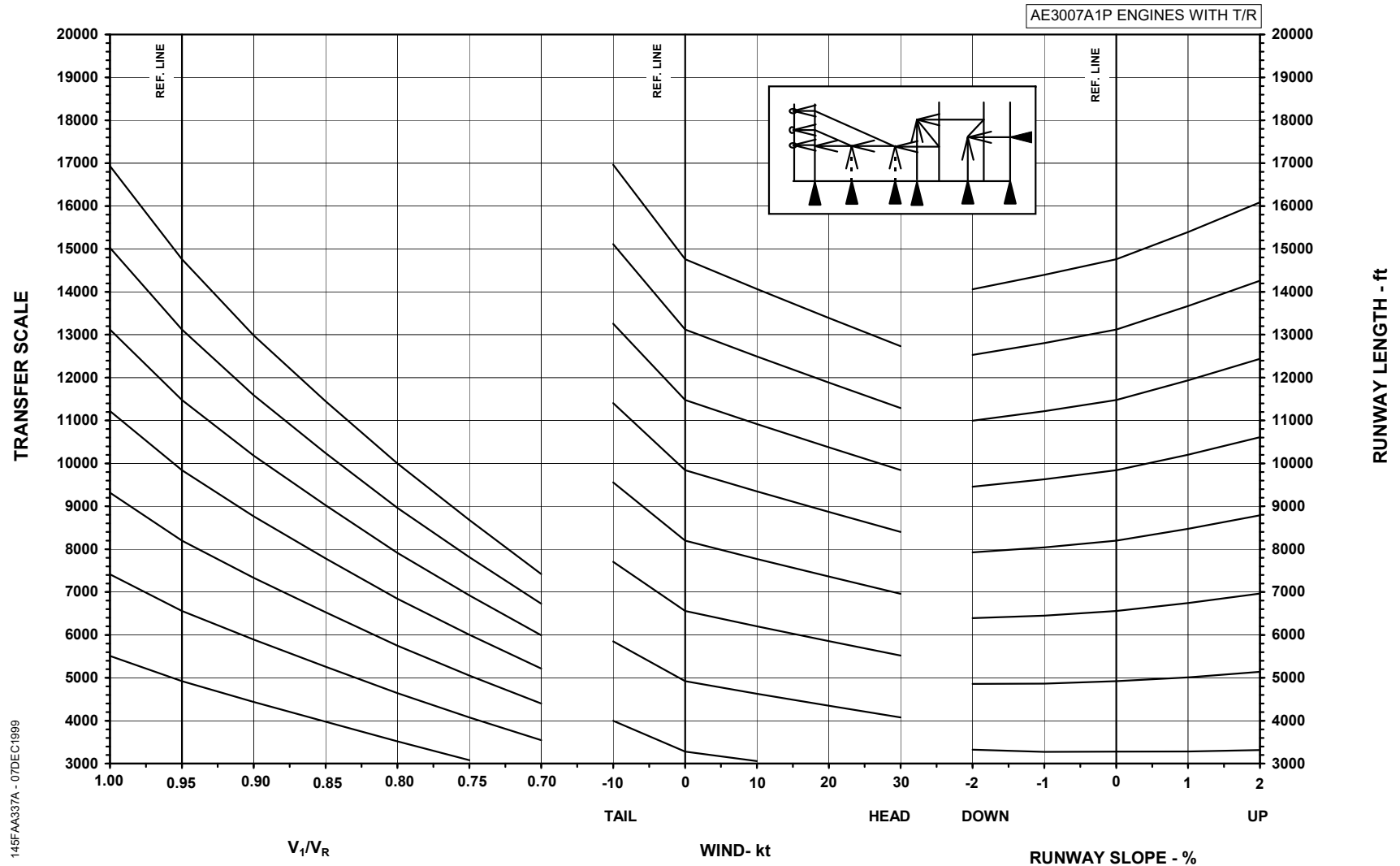


ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 18° - NORMAL V_2 - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 2 OF 2

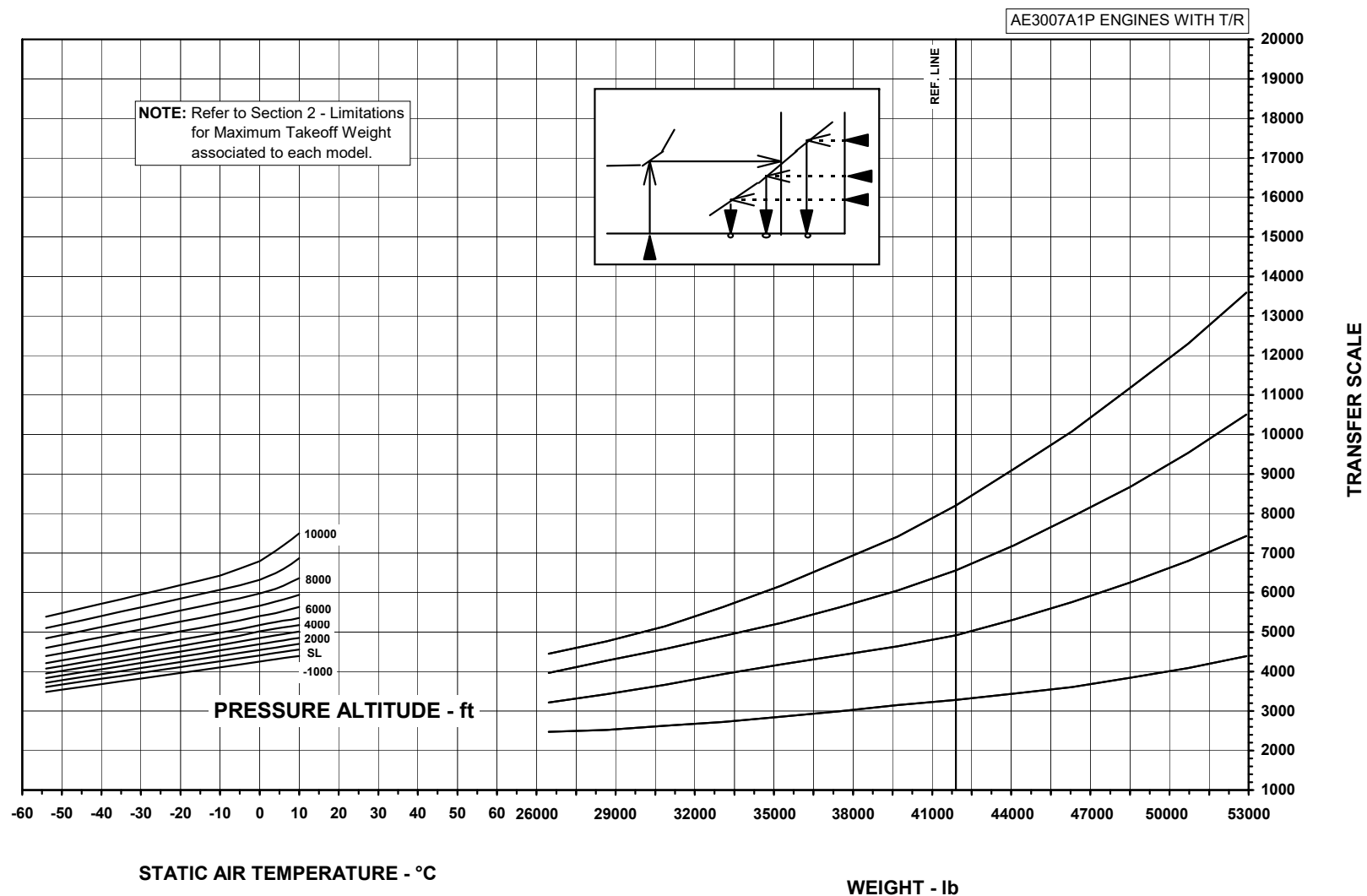


145FAA338B - 07DEC1999

ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 18° - NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 1 OF 2



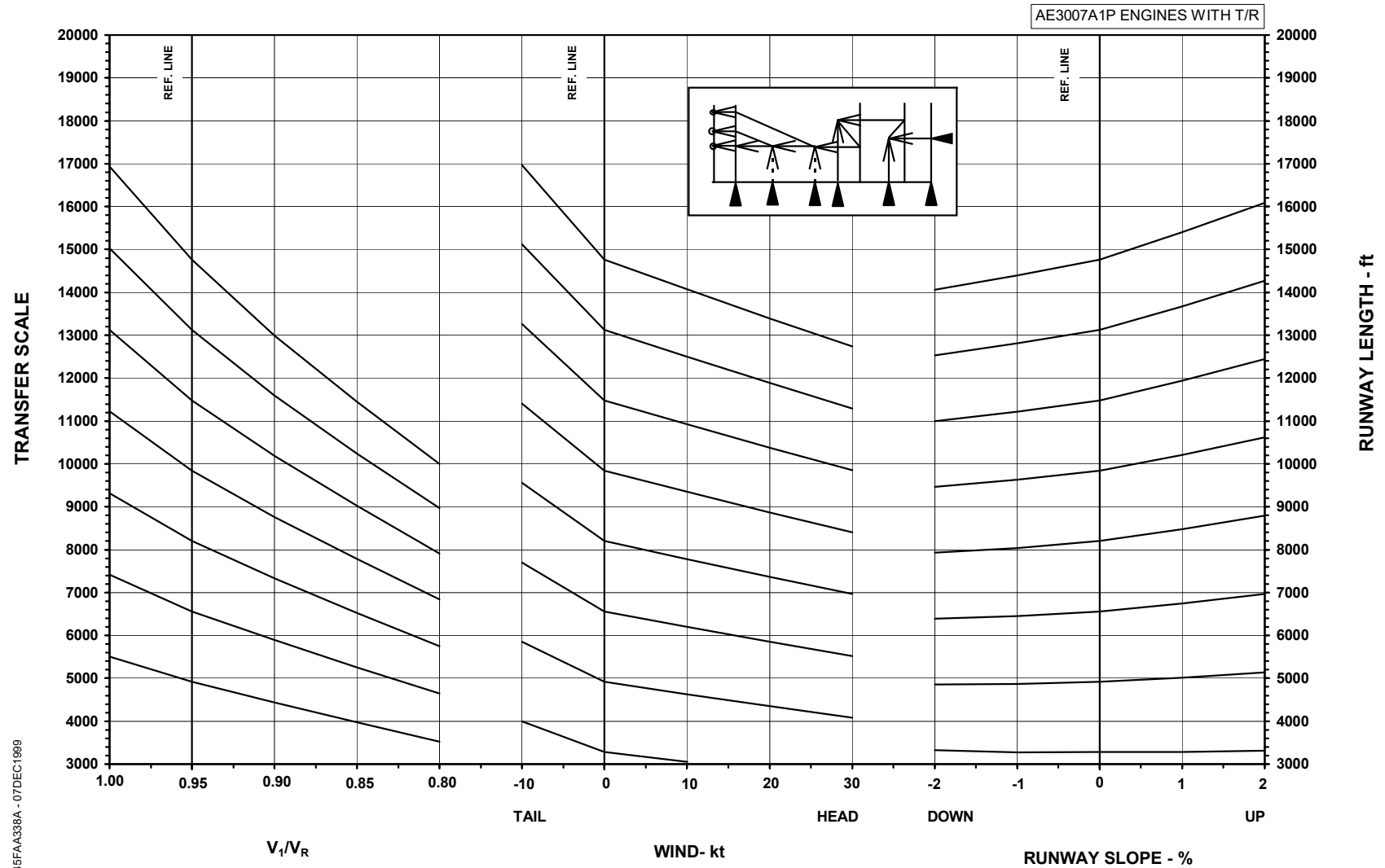
ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 18° - NORMAL V_2 - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 2 OF 2



145FAA337B - 07DEC1999

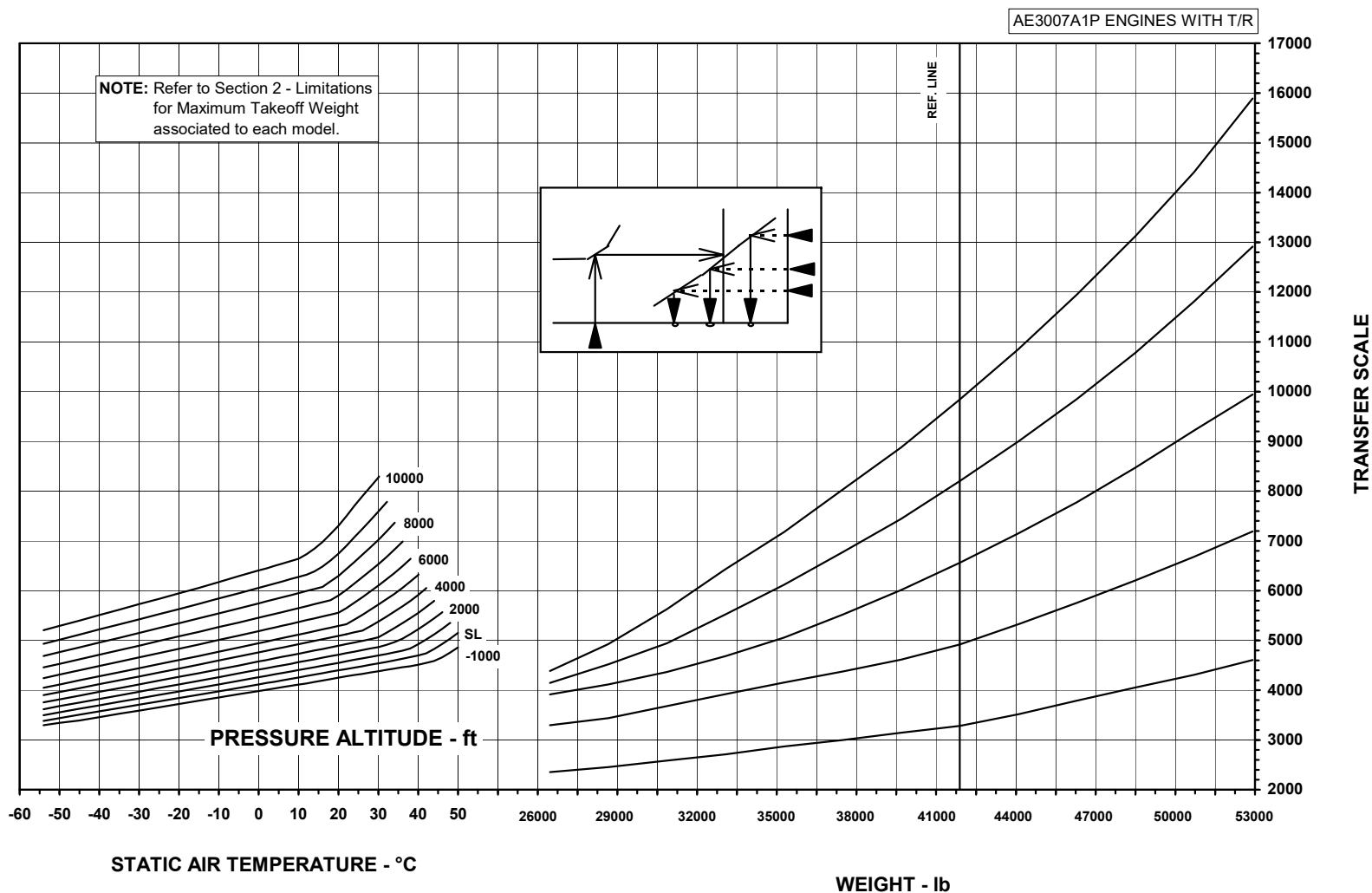
AFM-145/1153 - FAA

ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 22° - NORMAL V_2 - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 1 OF 2



ACCELERATE STOP DISTANCE

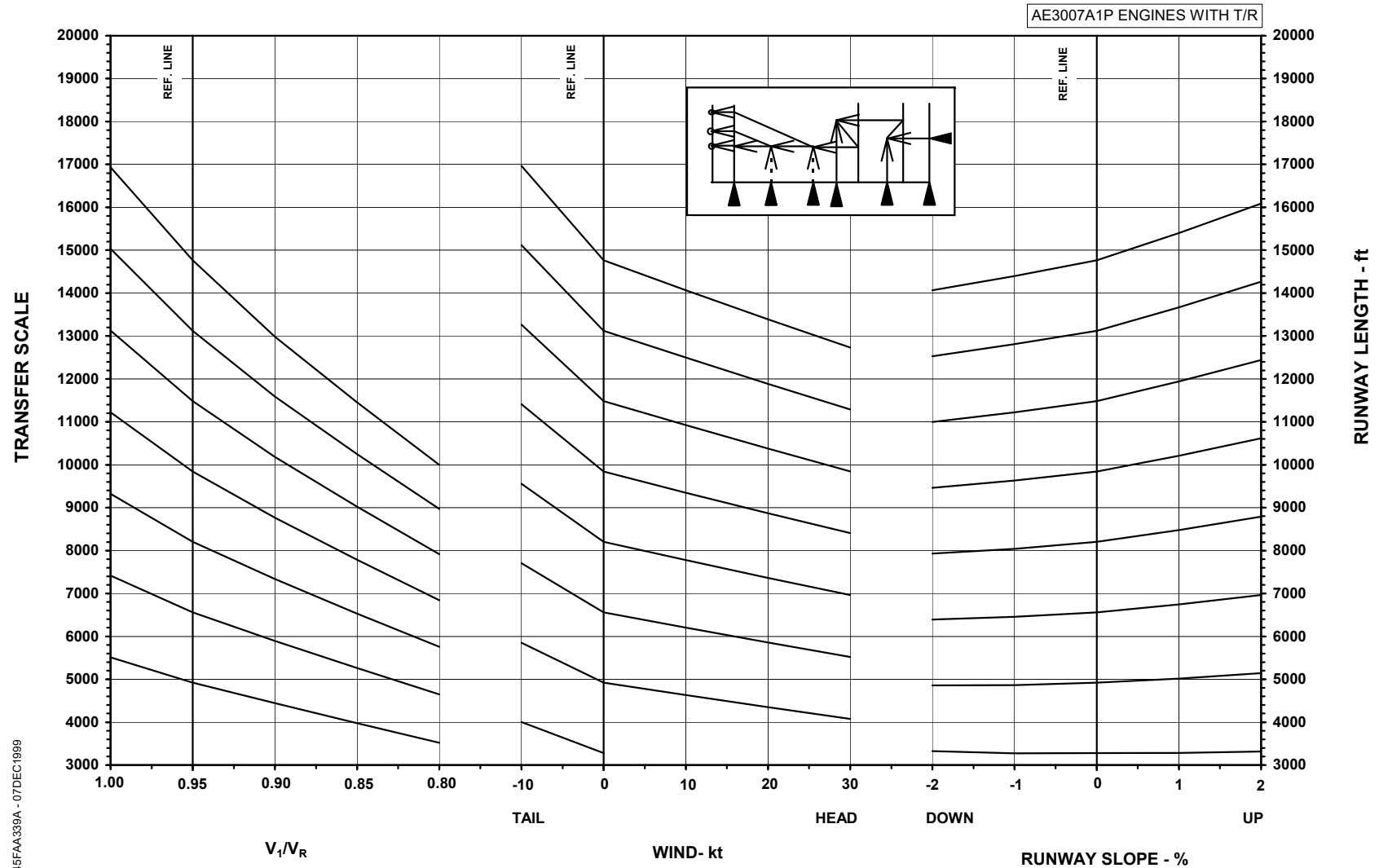
T/O MODE - FLAPS 22° - NORMAL V_2 - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF - DRY RUNWAY
CHART 2 OF 2



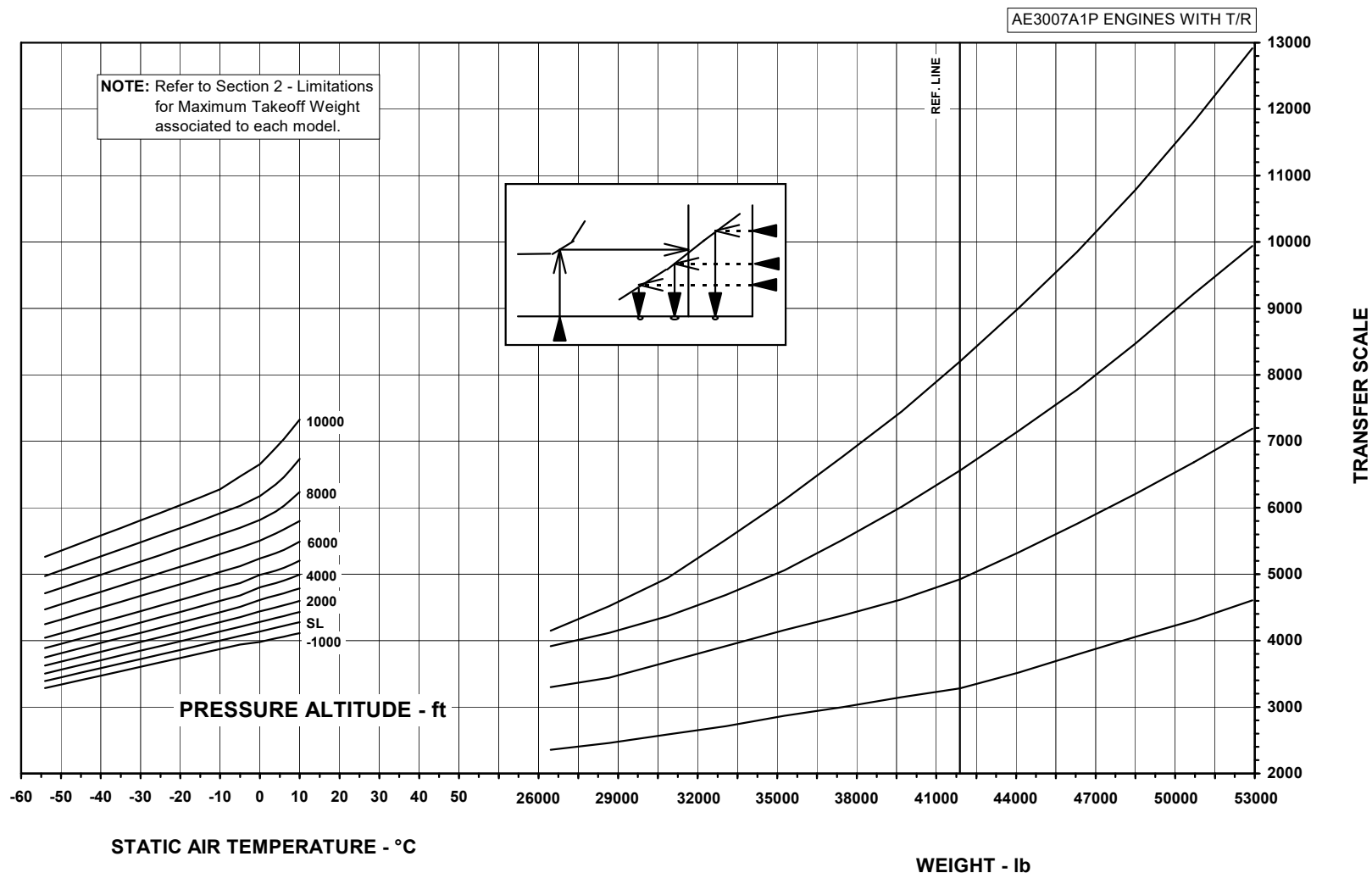
145FAA338B - 07DEC1999

AFM-145/1153 - FAA

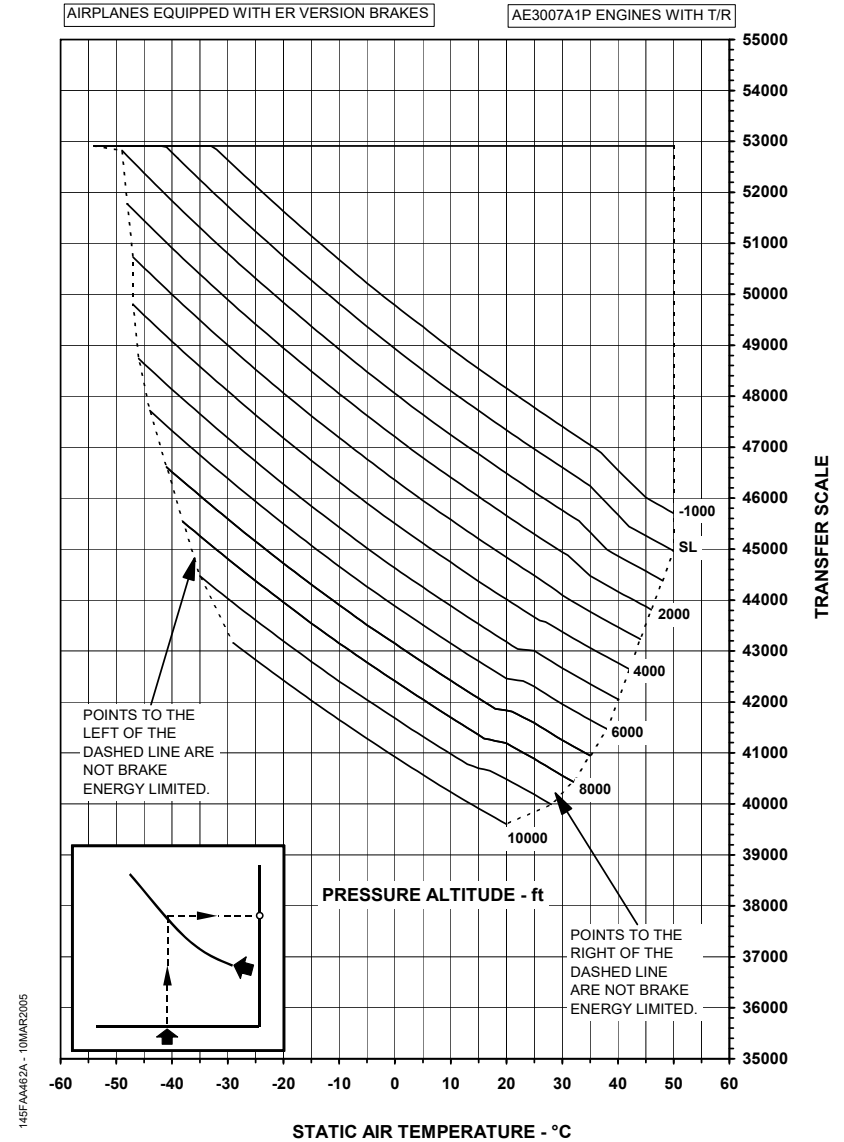
ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 22° - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 1 OF 2



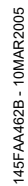
ACCELERATE STOP DISTANCE
T/O MODE - FLAPS 22° - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON - DRY RUNWAY
CHART 2 OF 2



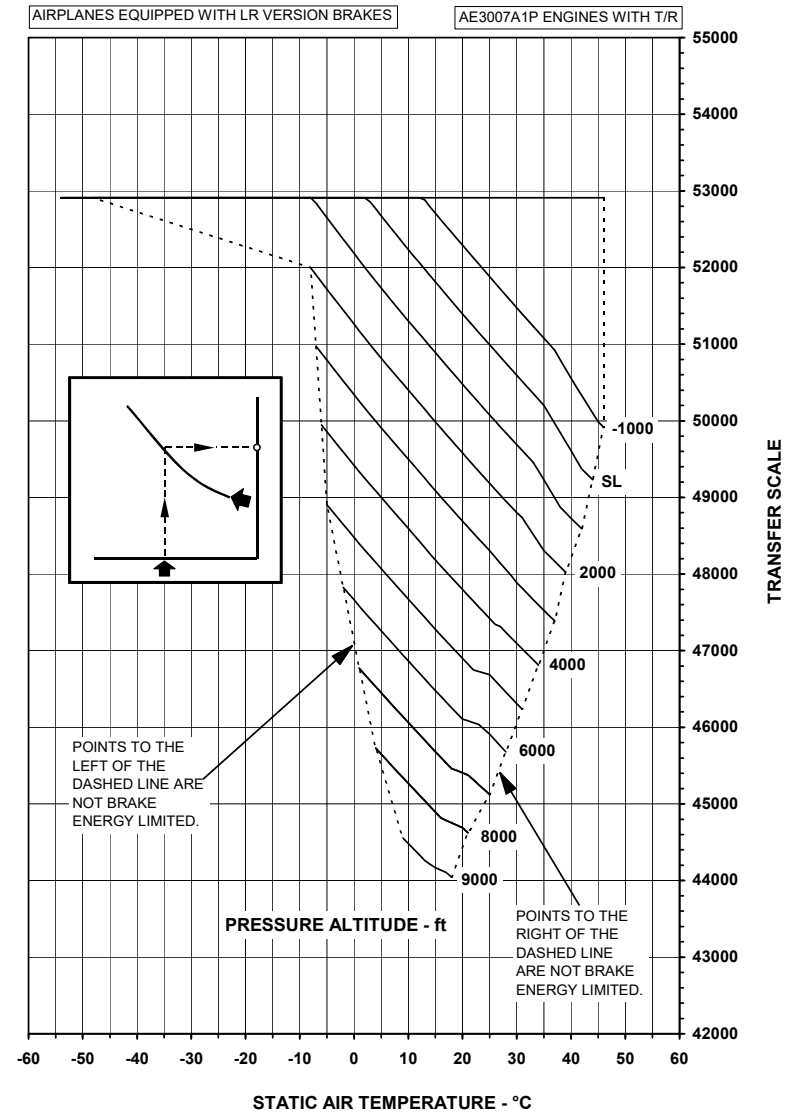
MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED
T/O MODE - FLAPS 9°
CHART 1 OF 2



T/O MODE - FLAPS 9°
CHART 2 OF 2

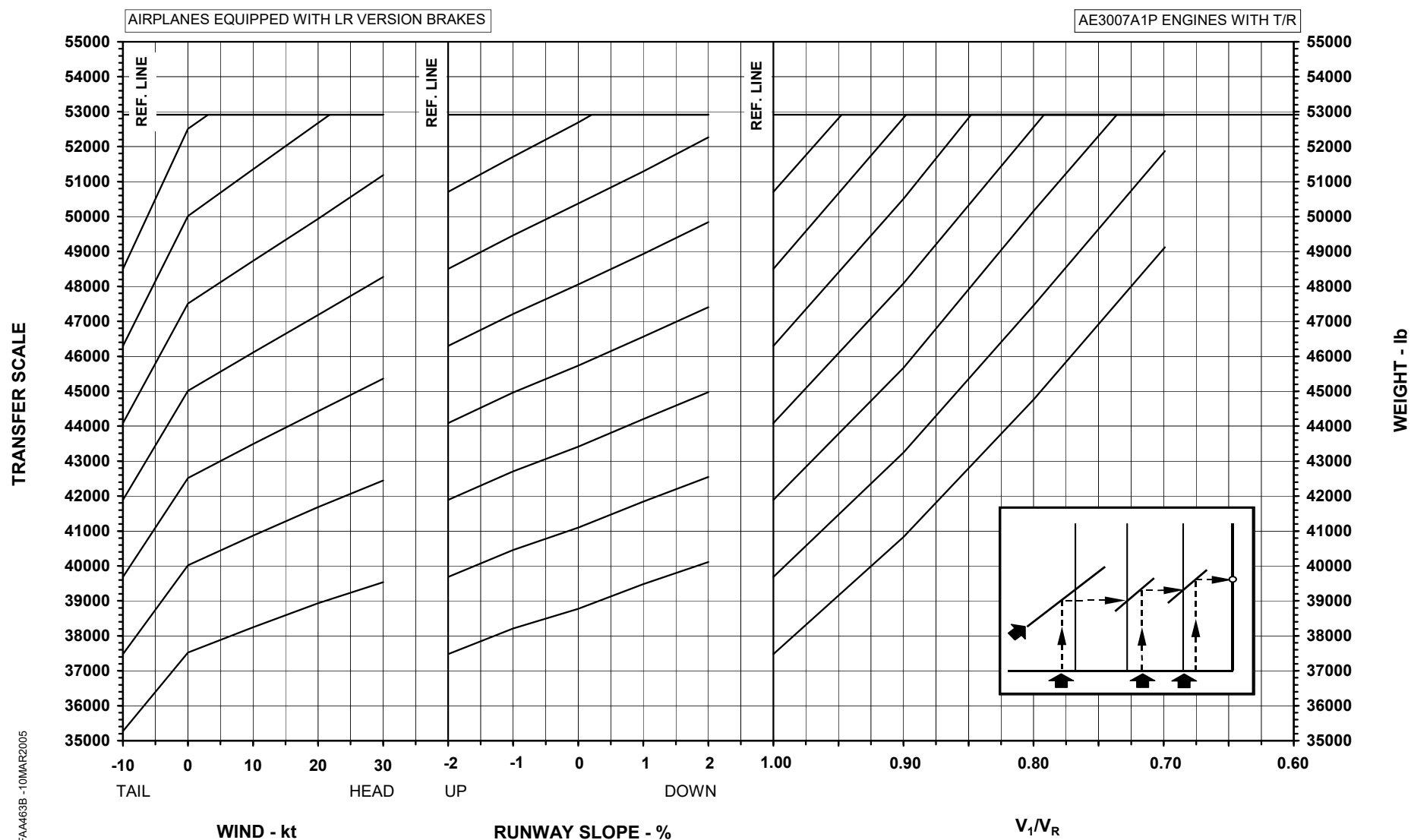


MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED
T/O MODE - FLAPS 9°
CHART 1 OF 2



MAXIMUM TAKEOFF WEIGHT - BRAKE ENERGY LIMITED

T/O MODE - FLAPS 9°
CHART 2 OF 2

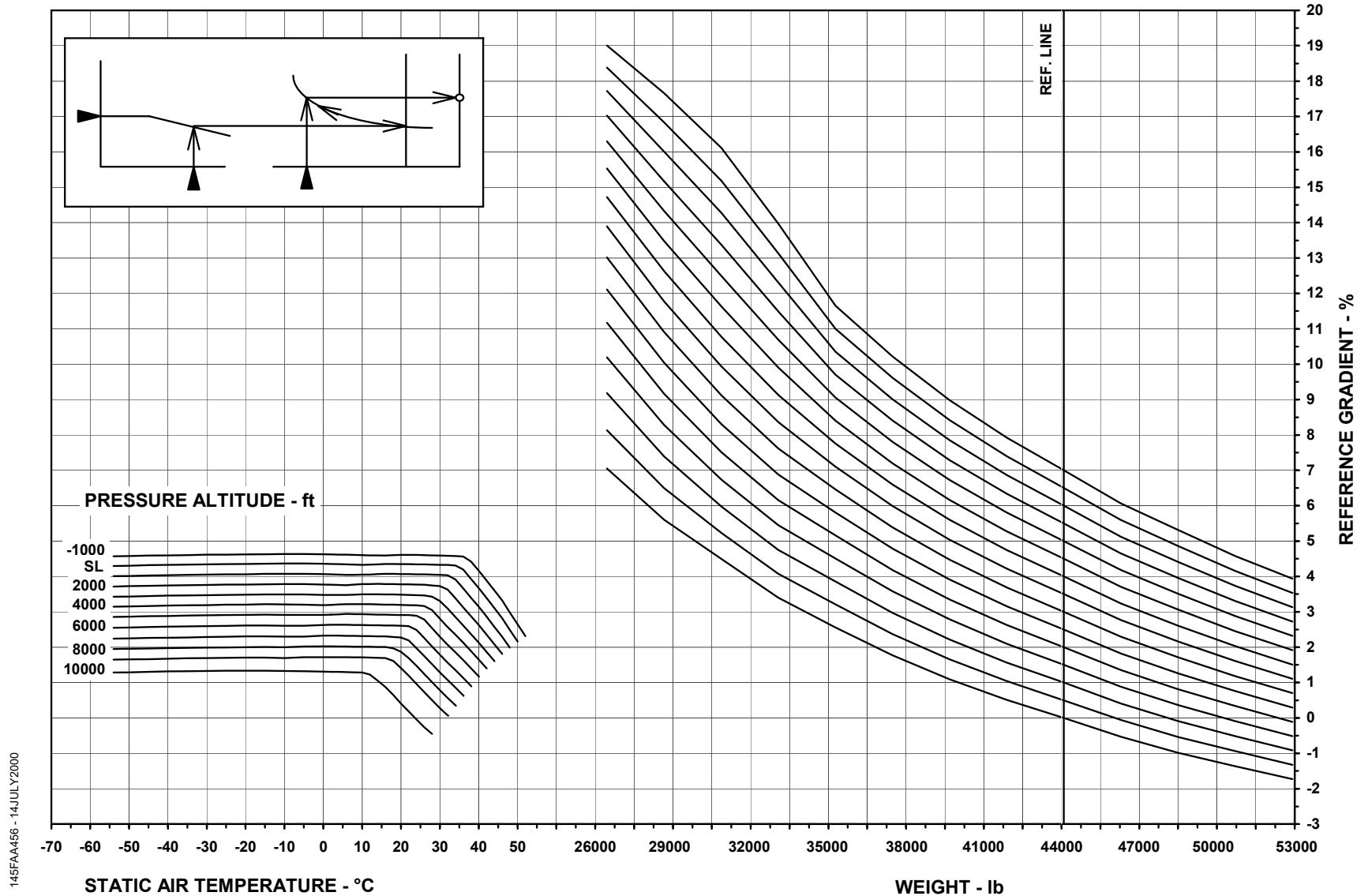


145FAA463B - 10MAR2005

AFM-145/1153 - FAA

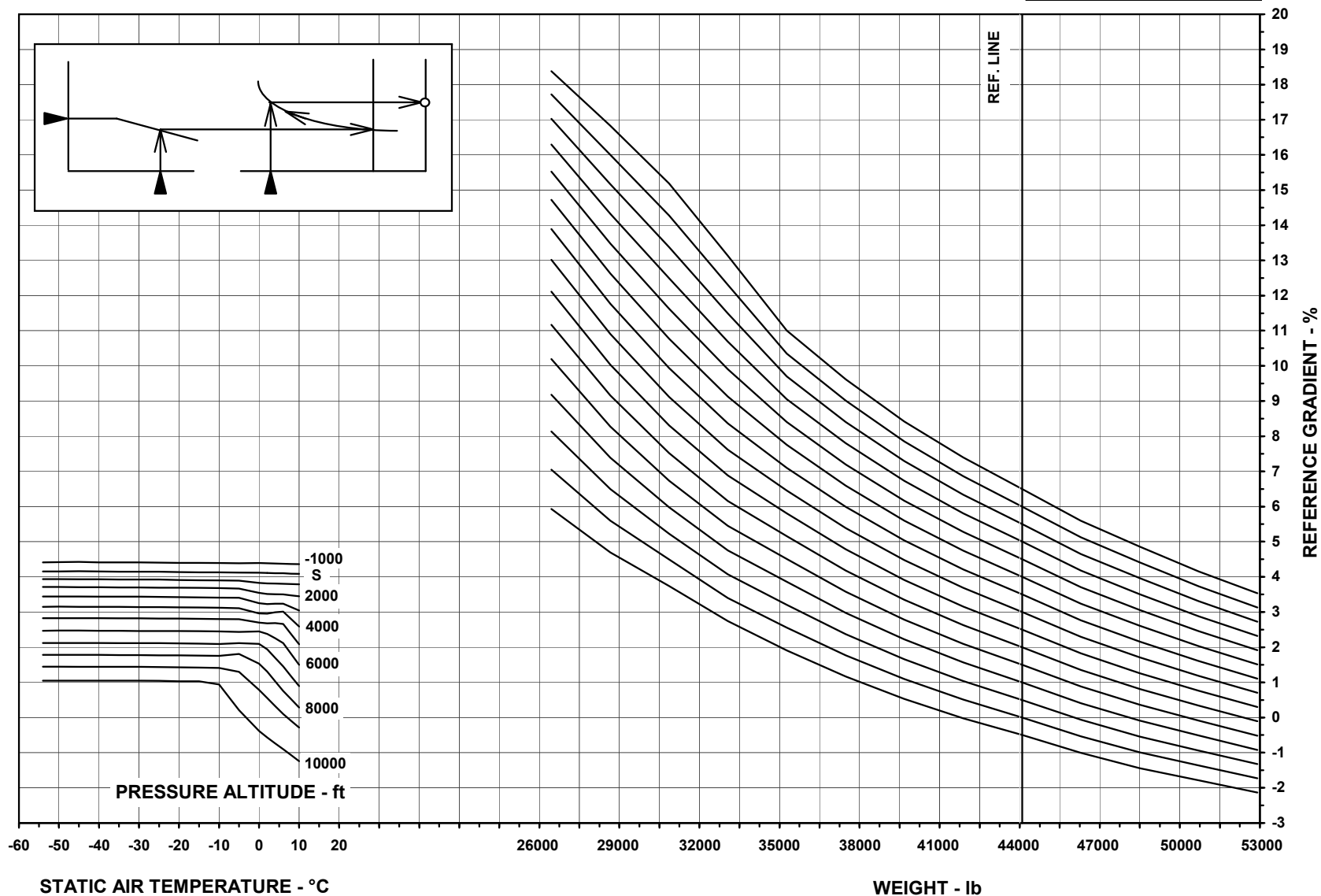
OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - T/O MODE - NORMAL V_2 - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AE3007A1P ENGINES WITH T/R



OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 9° - T/O MODE - NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON

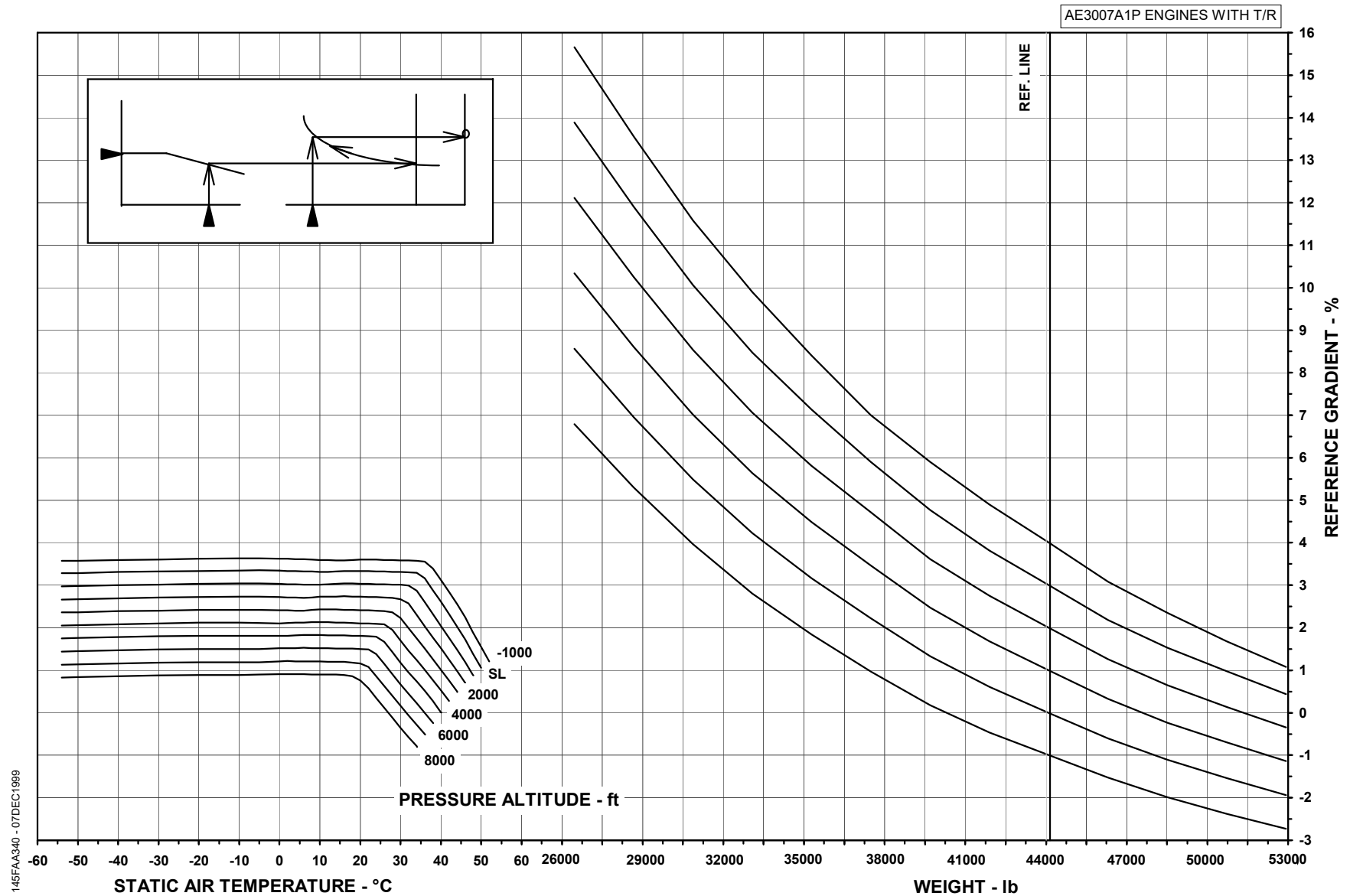
AE3007A1P ENGINES WITH T/R



145FAA457 - 14JULY2000

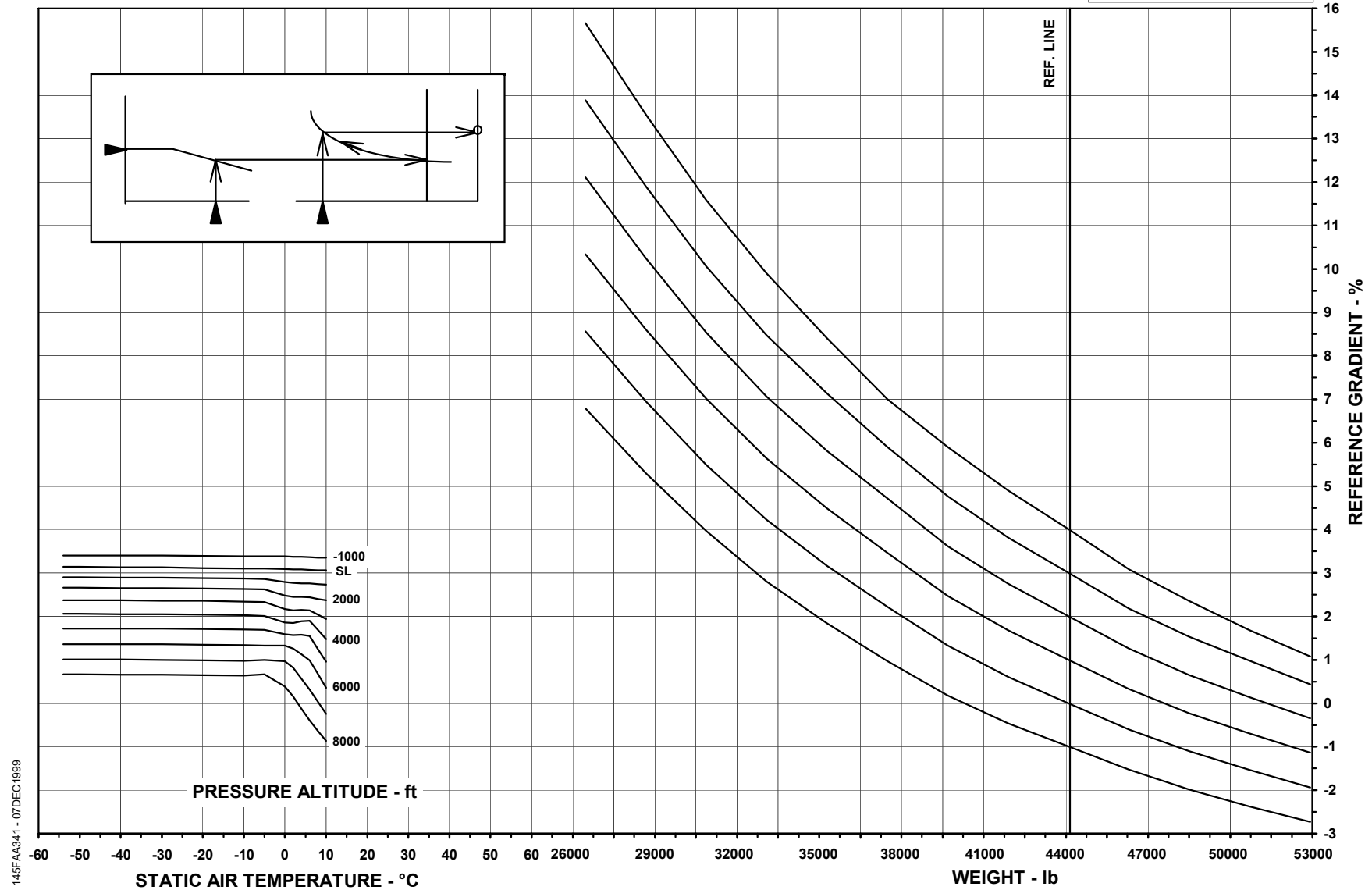
AFM-145/1153 - FAA

OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 18° - T/O MODE - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF



OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 18° - T/O MODE - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON

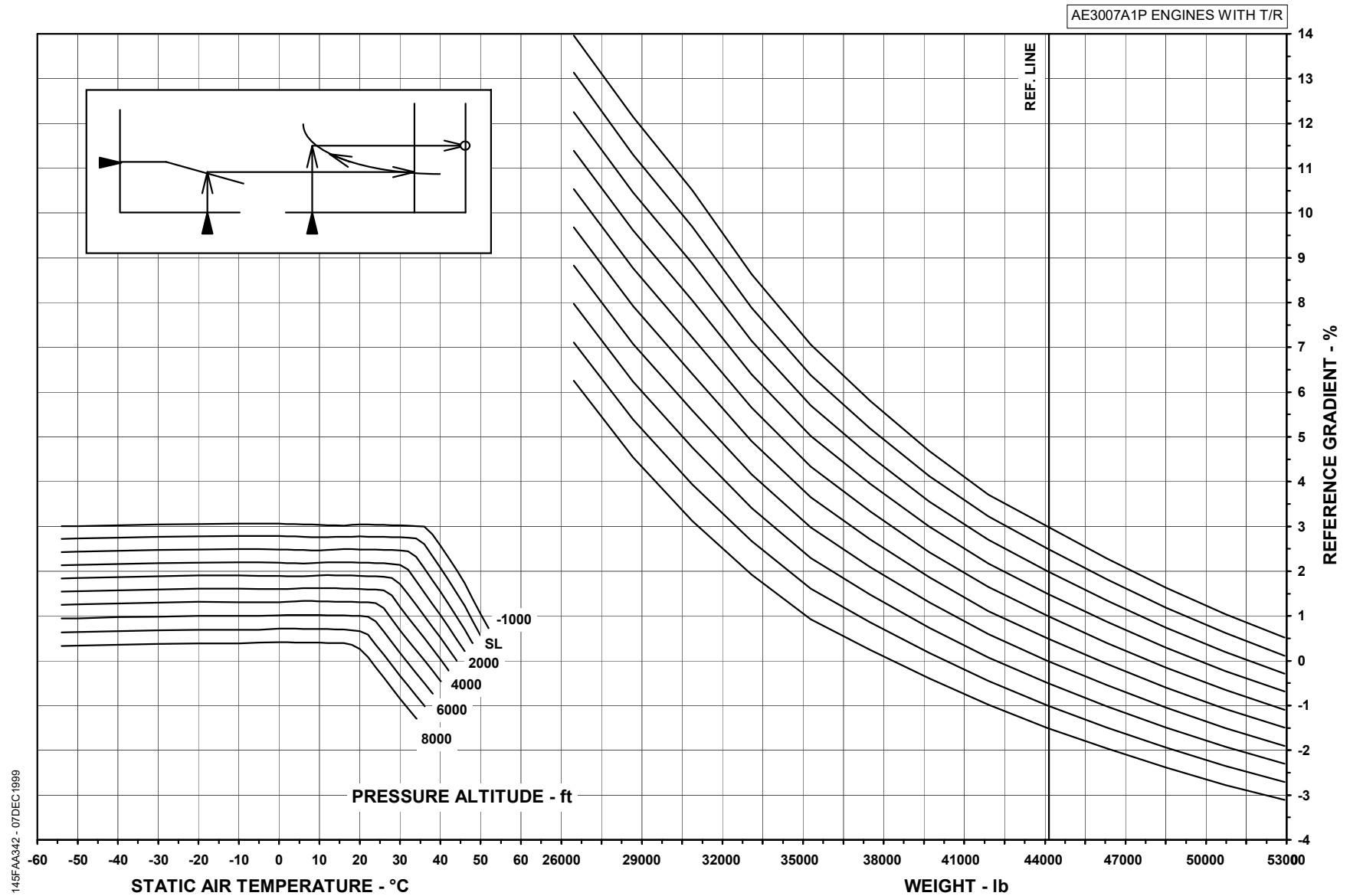
AE3007A1P ENGINES WITH T/R



145FAA341 - 07DEC1999

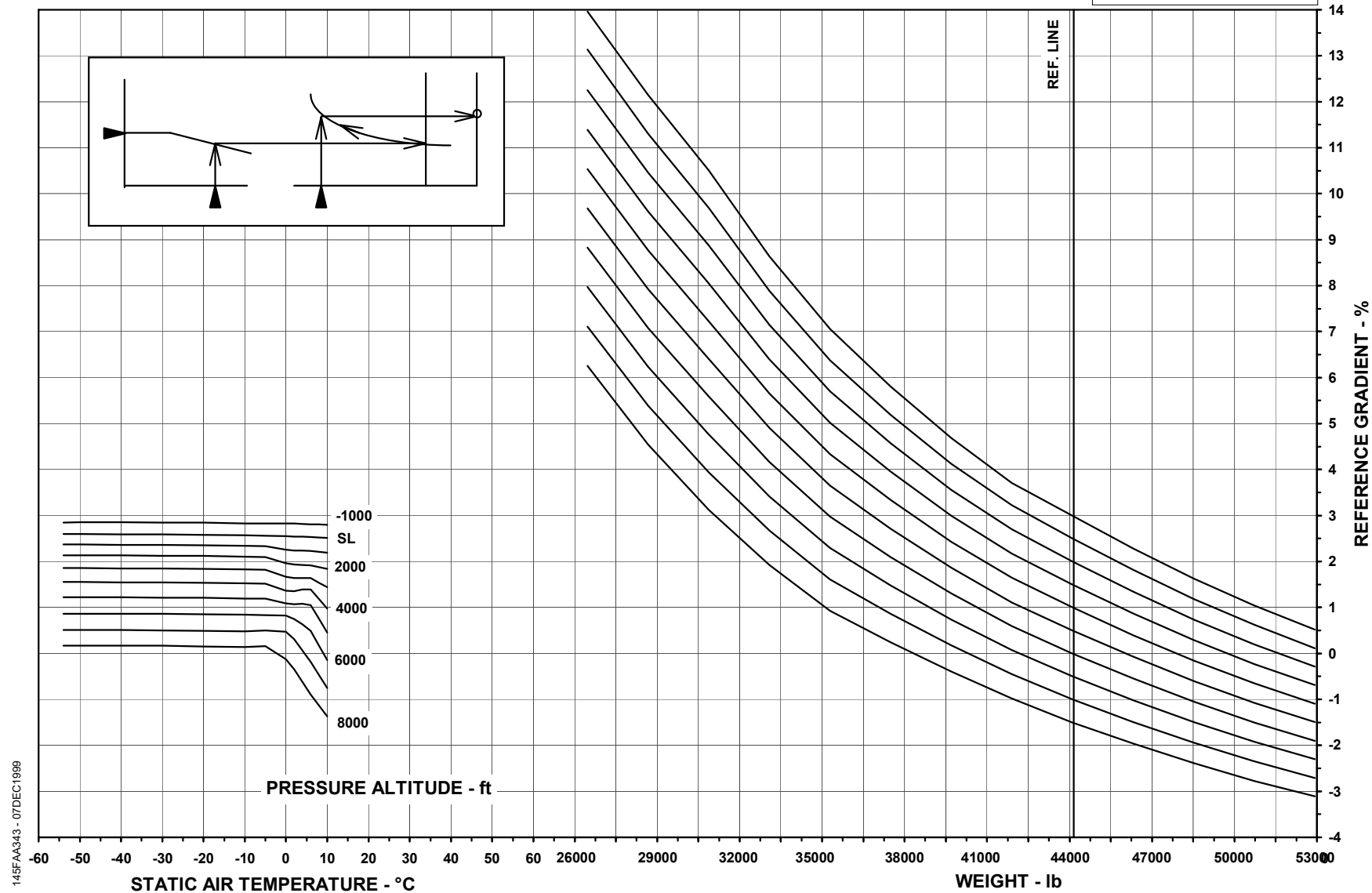
AFM-145/1153 - FAA

OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 22° - T/O MODE - BLEEDS CLOSED - PACKS OFF - FADEC REF A/ICE OFF



OBSTACLE CLEARANCE - REFERENCE GRADIENT
FLAPS 22° - T/O MODE - BLEEDS OPEN - PACKS OFF - FADEC REF A/ICE ON

AE3007A1P ENGINES WITH T/R

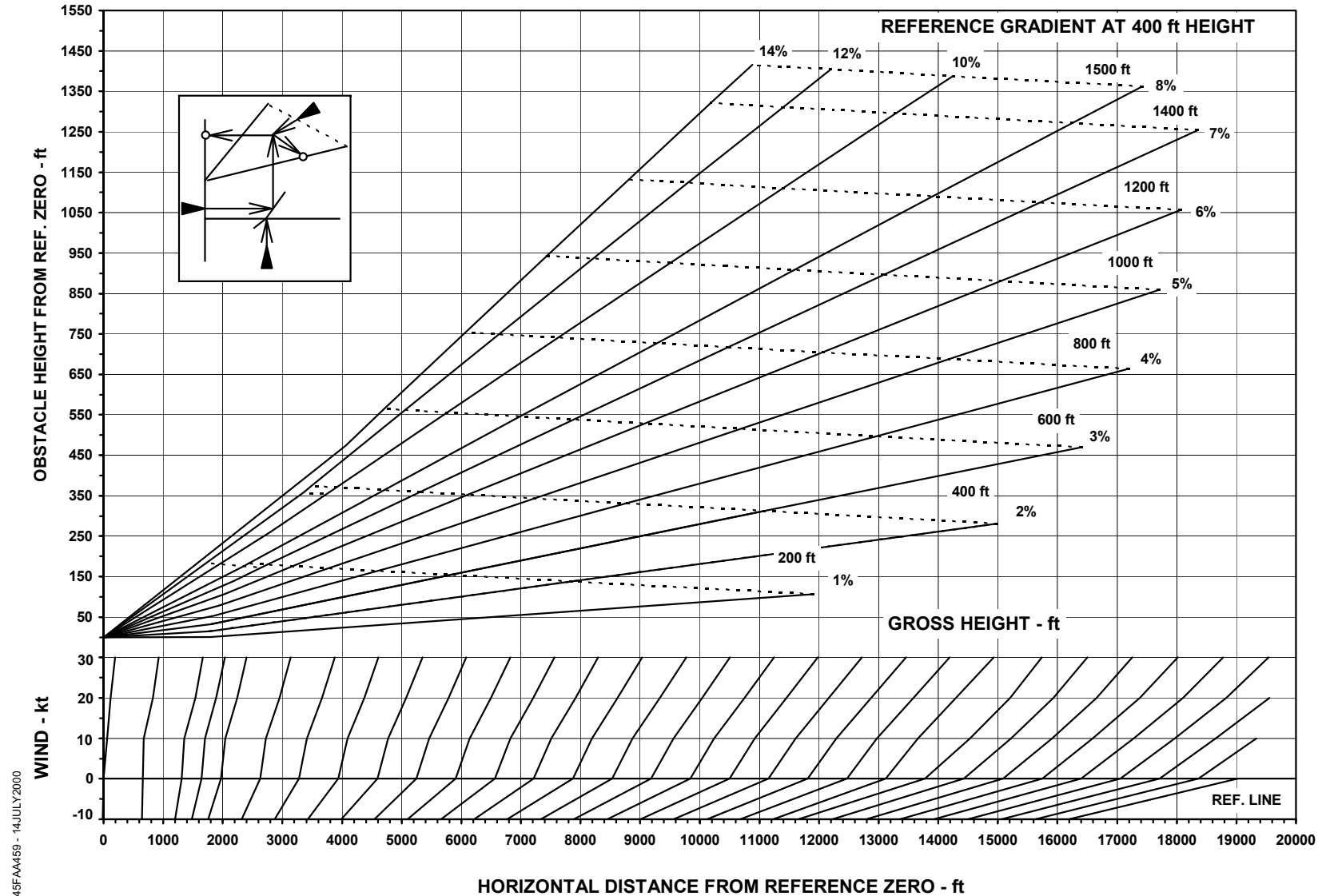


145FAA343 - 07DEC1999

AFM-145/1153 - FAA

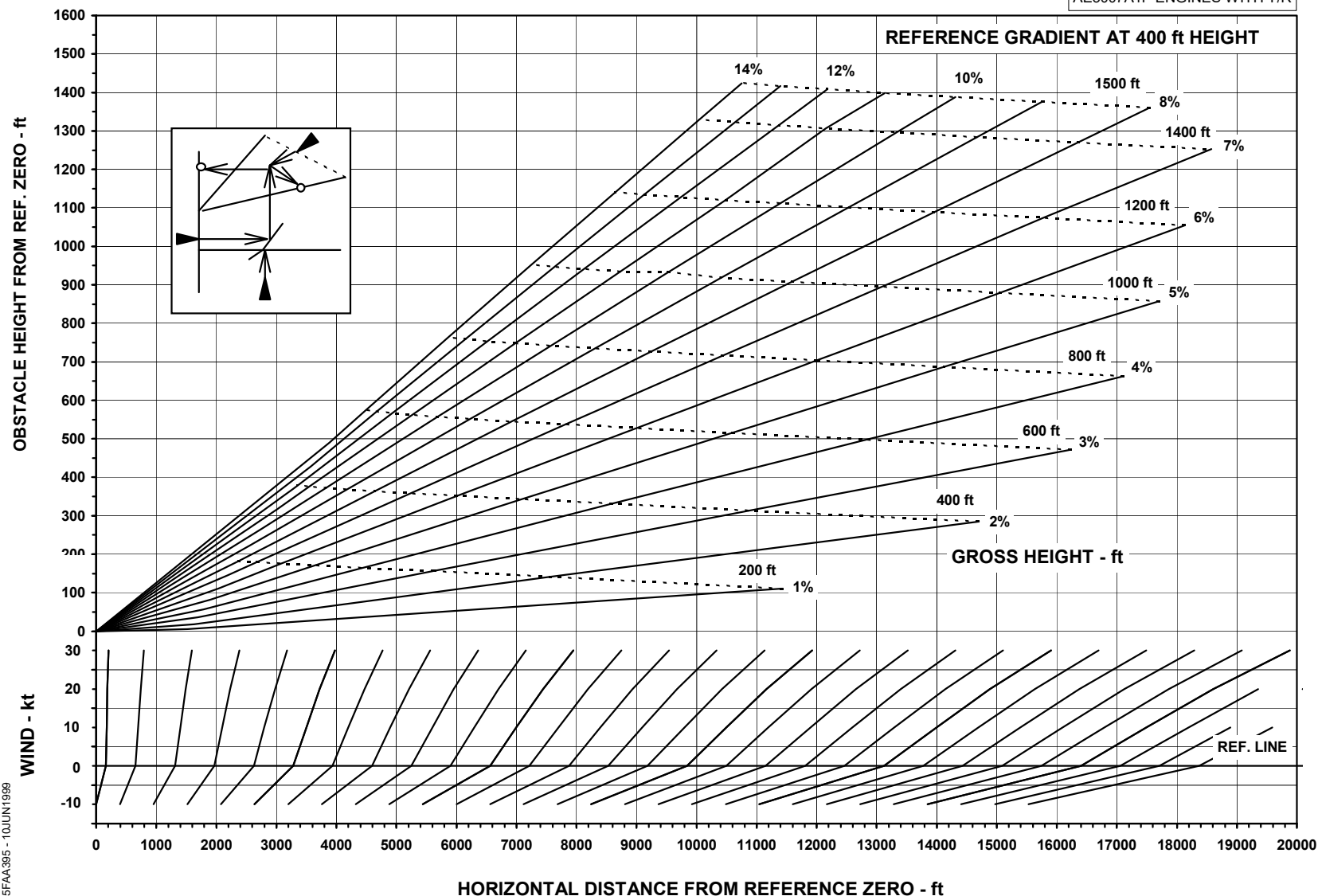
OBSTACLE CLEARANCE CLOSE IN
T/O MODE - FLAPS 9°

AE3007A1P ENGINES WITH T/R



OBSTACLE CLEARANCE CLOSE-IN
FLAPS 18°

AE3007A1P ENGINES WITH T/R

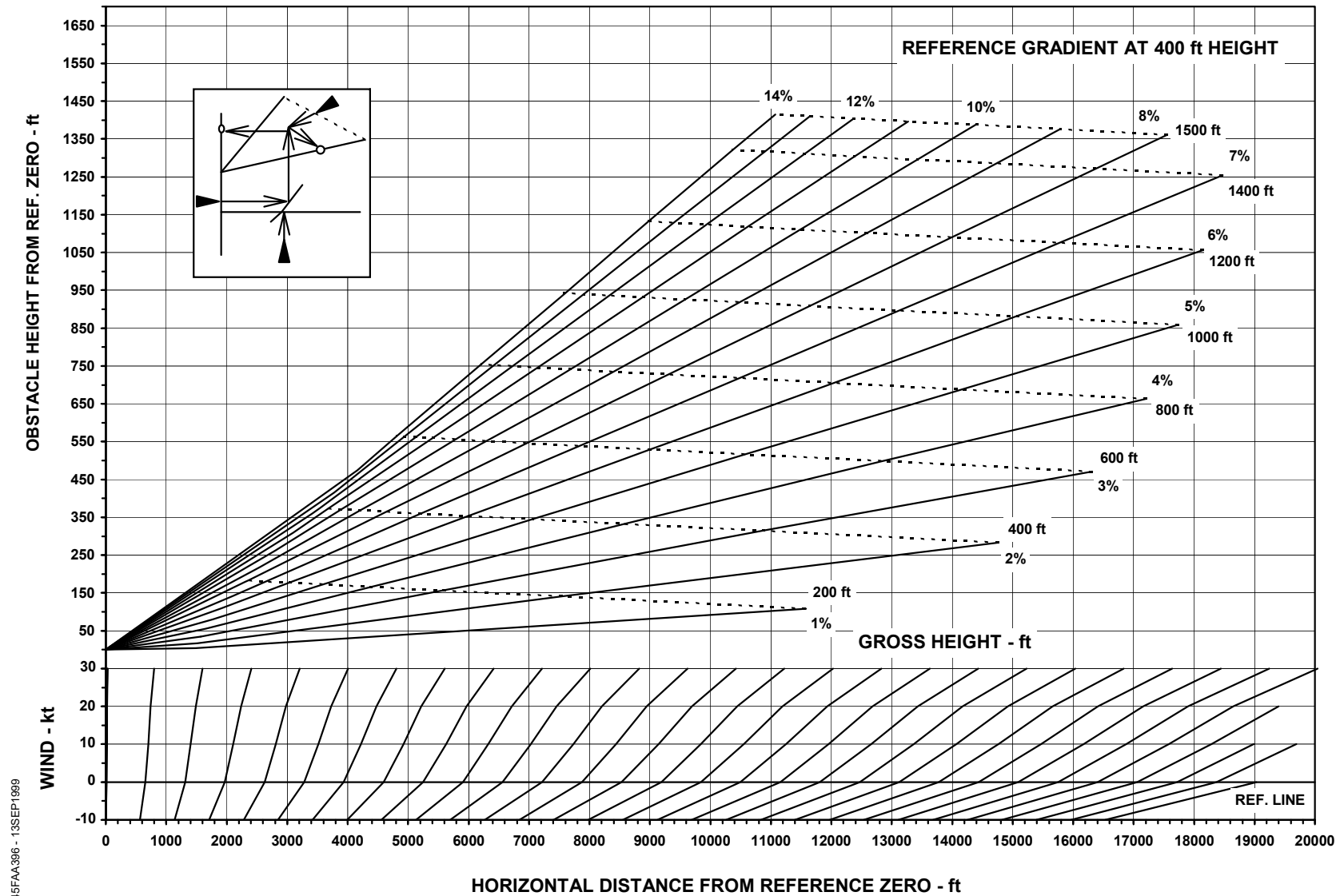


145FAA395 - 10JUN1999

AFM-145/1153 - FAA

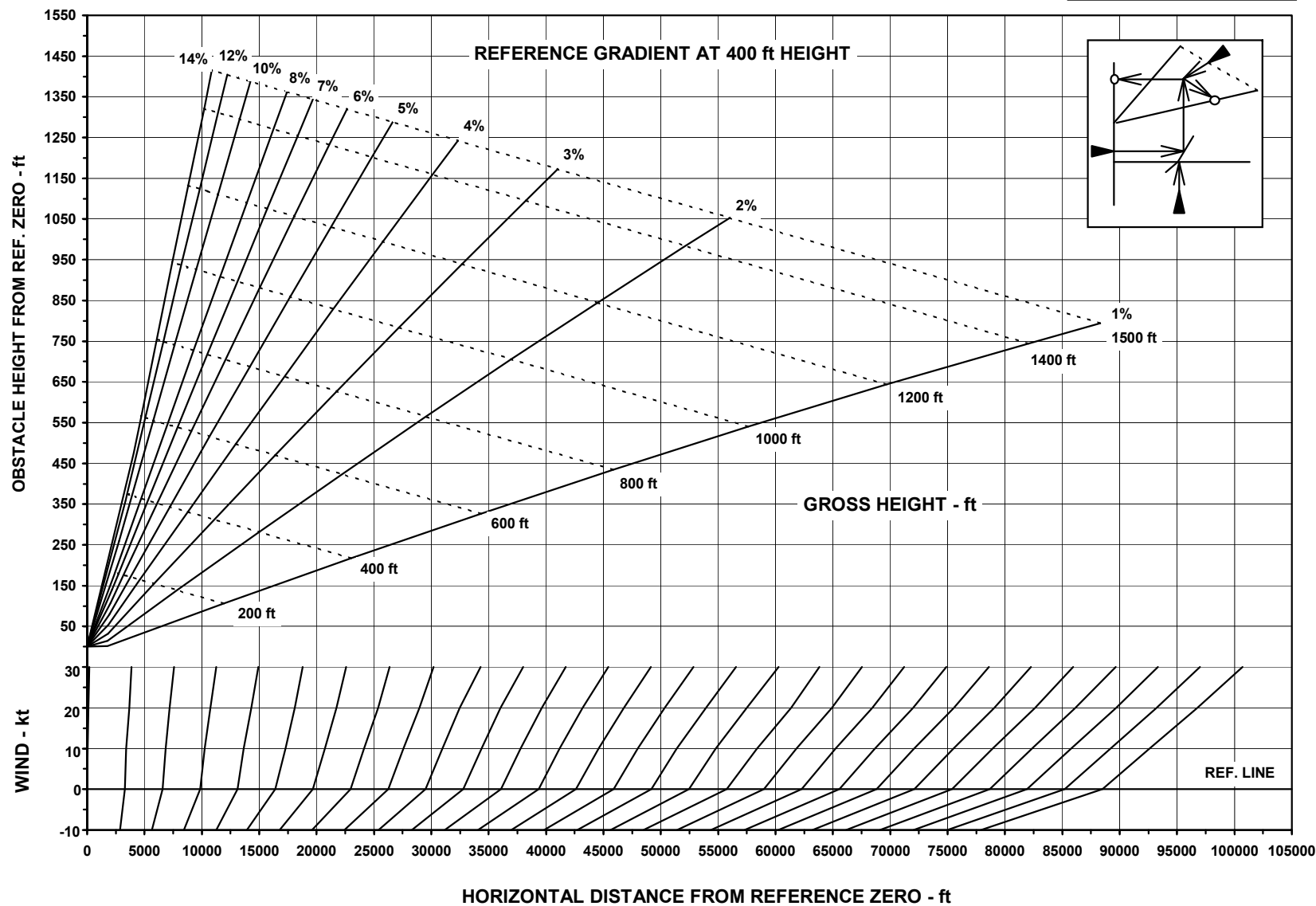
**OBSTACLE CLEARANCE CLOSE-IN
FLAPS 22°**

AE3007A1P ENGINES WITH T/R



OBSTACLE CLEARANCE DISTANT
T/O MODE - FLAPS 9°

AE3007A1P ENGINES WITH T/R

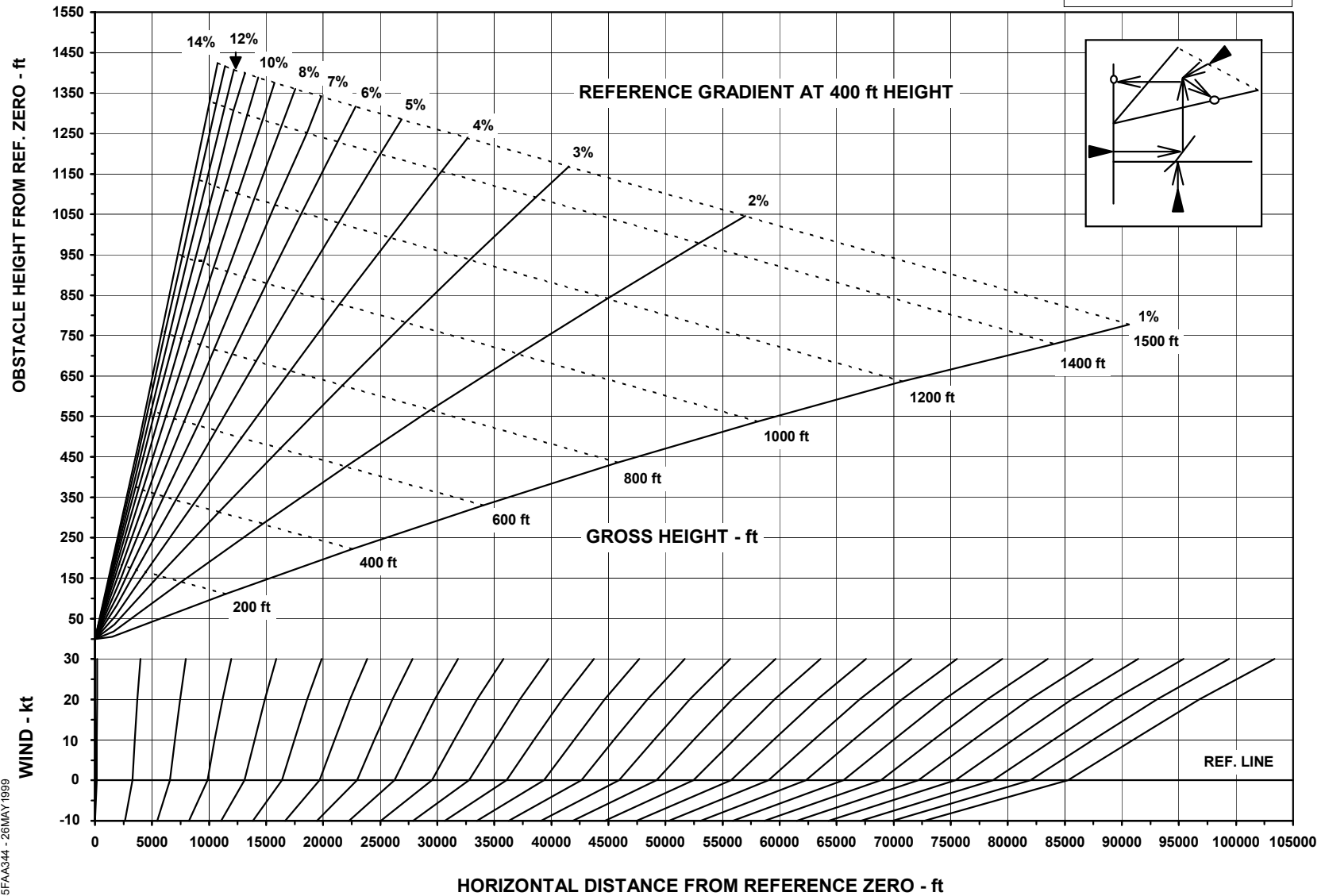


145FAA458 - 14 JULY 2000

AFM-145/1153 - FAA

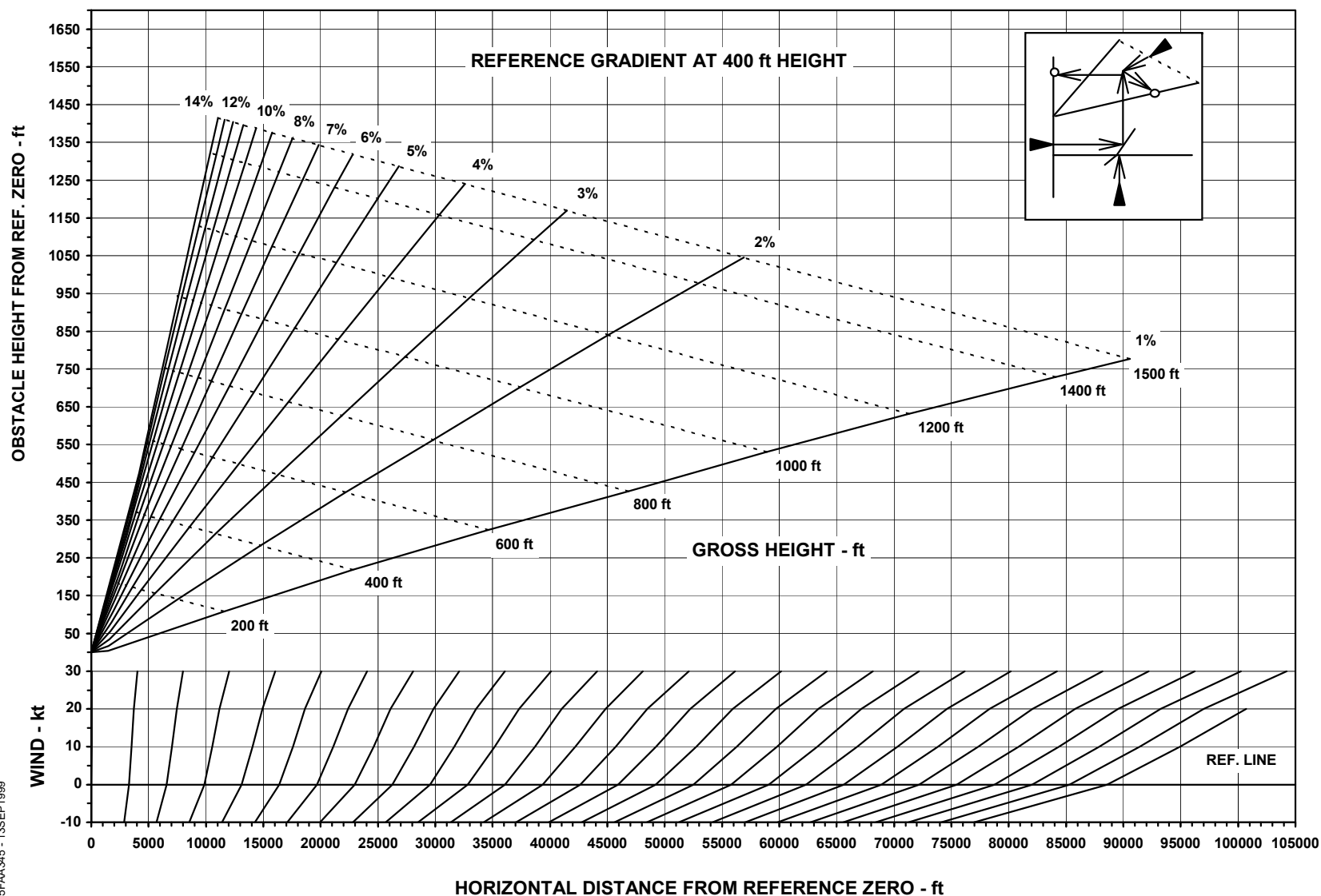
OBSTACLE CLEARANCE - DISTANT
FLAPS 18°

AE3007A1P ENGINES WITH T/R



OBSTACLE CLEARANCE DISTANT
FLAPS 22°

AE3007A1P ENGINES WITH T/R



145FAA345 - 13SEP1999

AFM-145/1153 - FAA



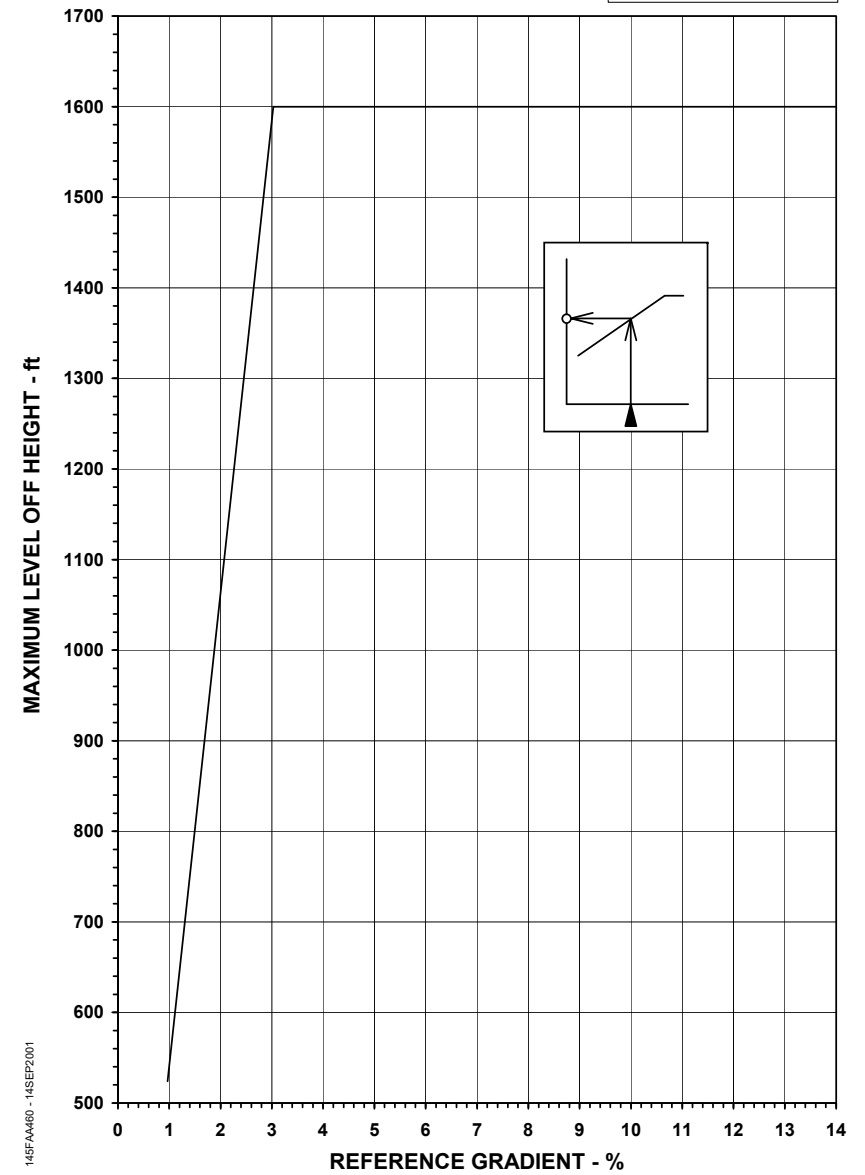
**AIRPLANE
FLIGHT
MANUAL**

SUPPLEMENT 12
OPERATION WITH
AE3007A1P ENGINES

MAXIMUM LEVEL OFF HEIGHT

ALT T/O MODE - FLAPS 9°

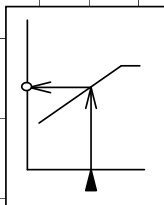
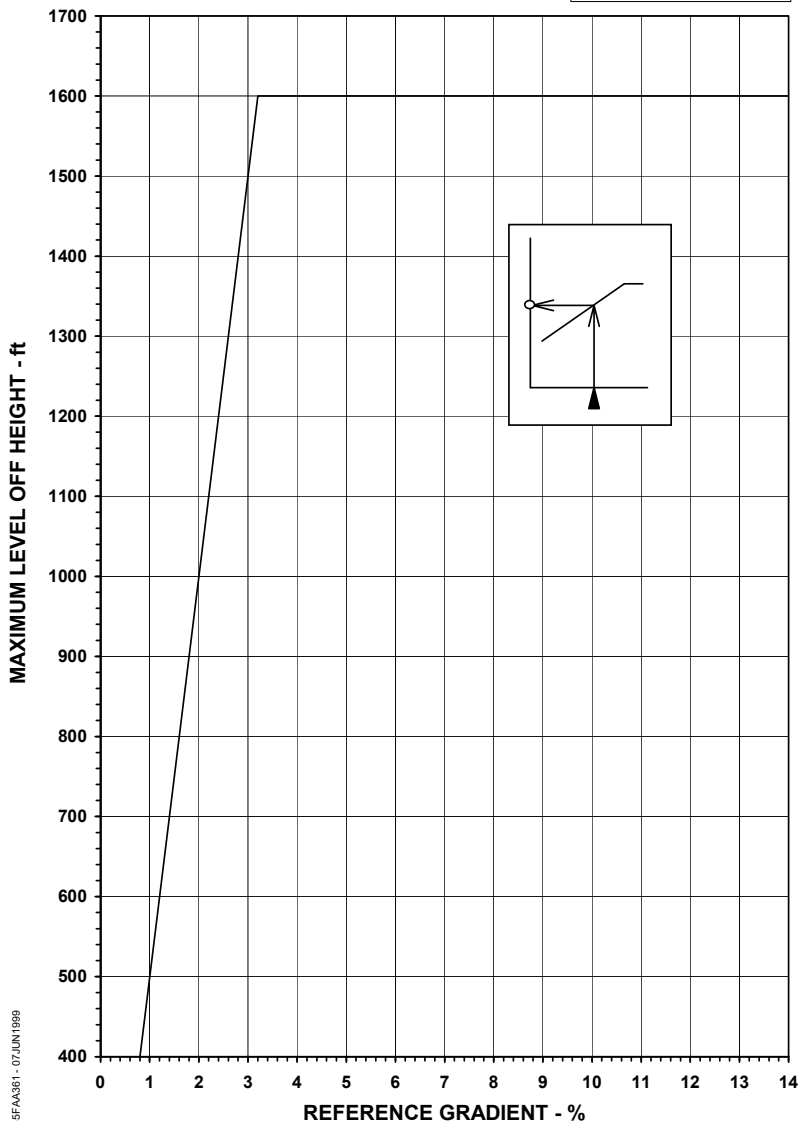
AE3007A1P ENGINES WITH T/R



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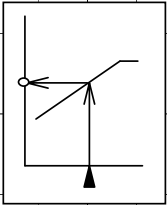
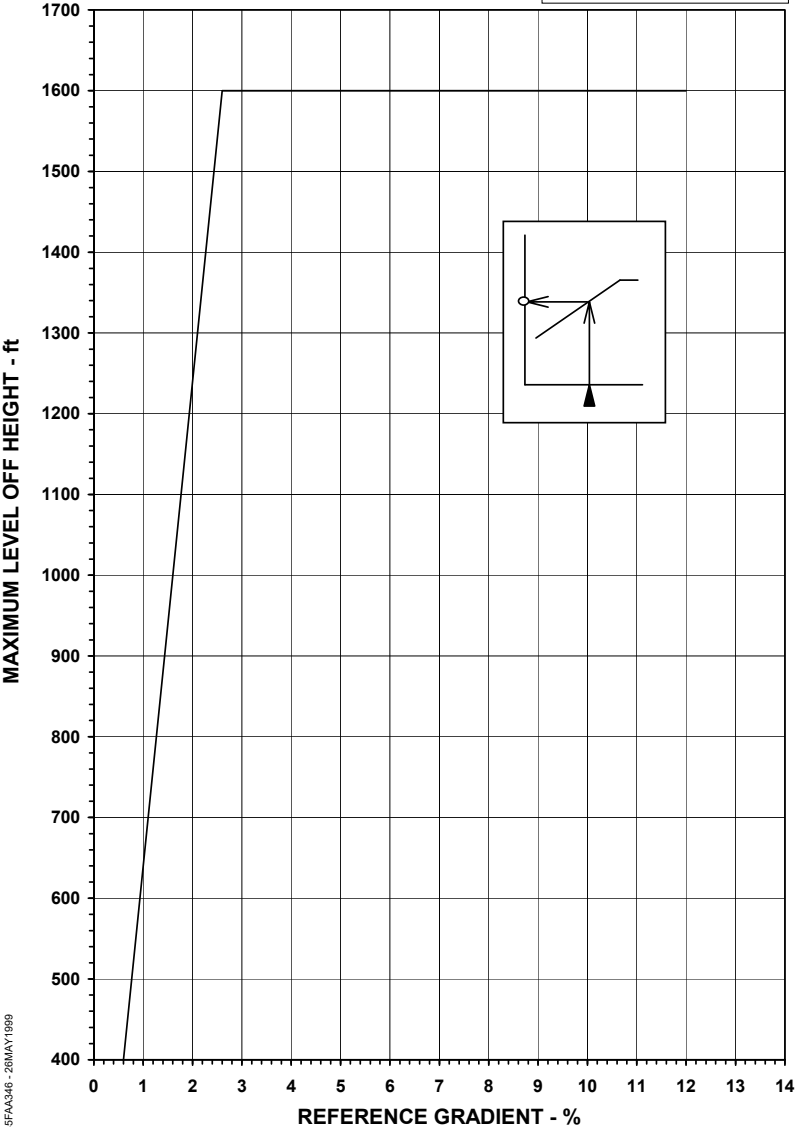
MAXIMUM LEVEL OFF HEIGHT
FLAPS 18°

AE3007A1P ENGINES WITH T/R



MAXIMUM LEVEL OFF HEIGHT
FLAPS 22°

AE3007A1P ENGINES WITH T/R

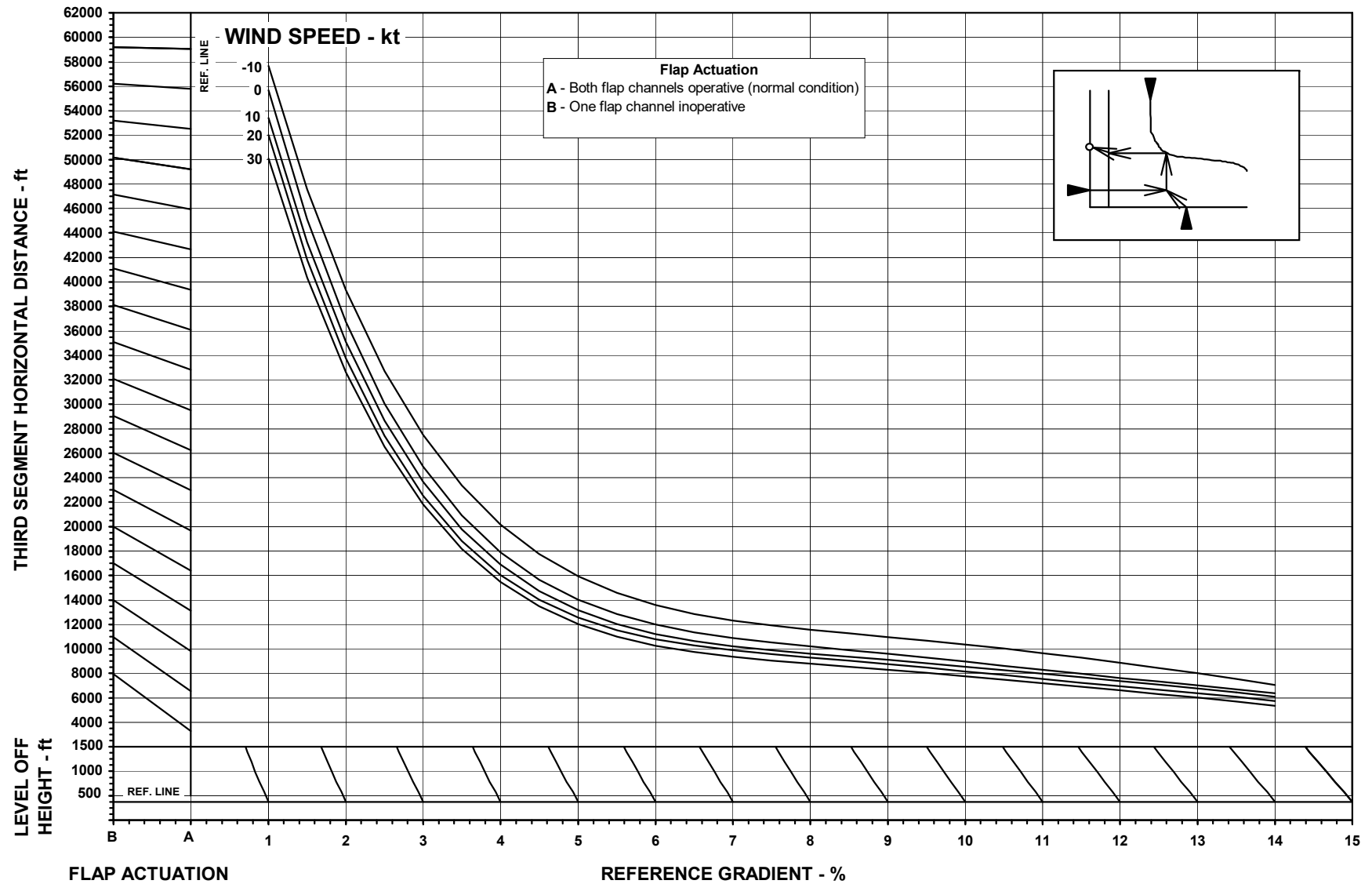


145FAA346 - 26MAY1999

145FAA461 - 14JULY2000

THIRD SEGMENT HORIZONTAL DISTANCE T/O MODE - TAKEOFF FLAPS 9°

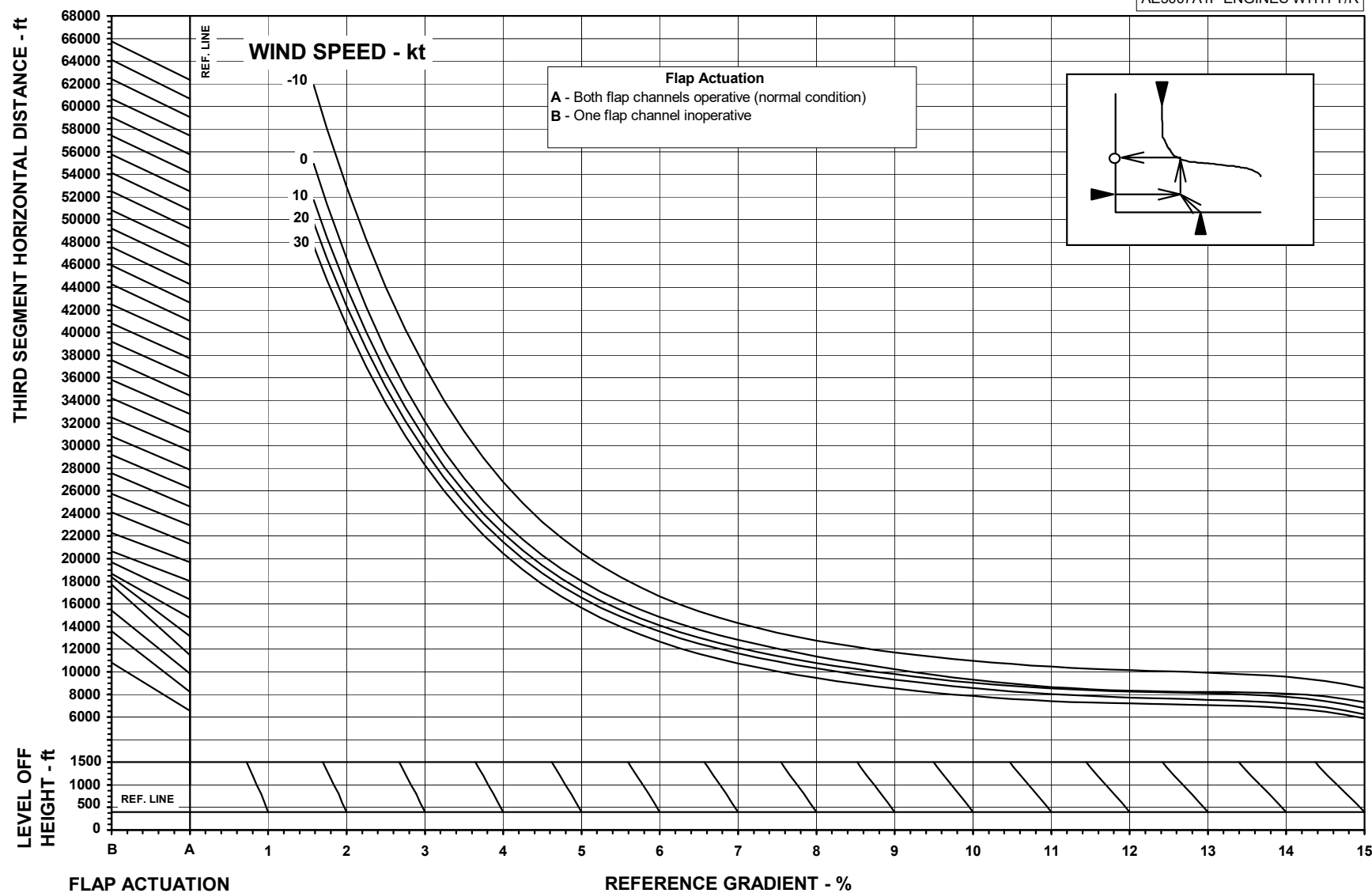
AE3007A1P ENGINES WITH T/R



145FAA362 - 07JUN1999

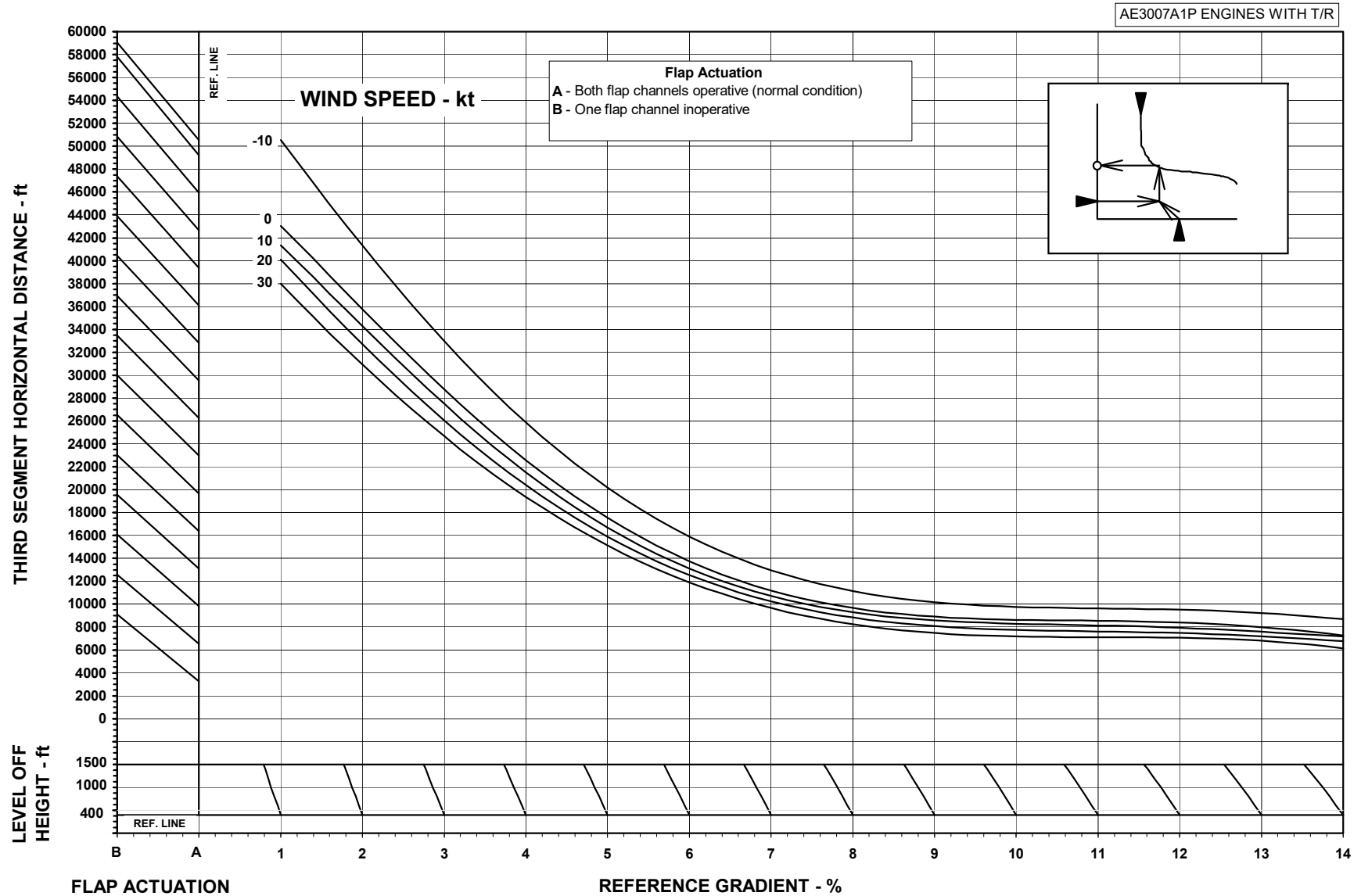
THIRD SEGMENT HORIZONTAL DISTANCE TAKEOFF FLAPS 18°

AE3007A1P ENGINES WITH T/R



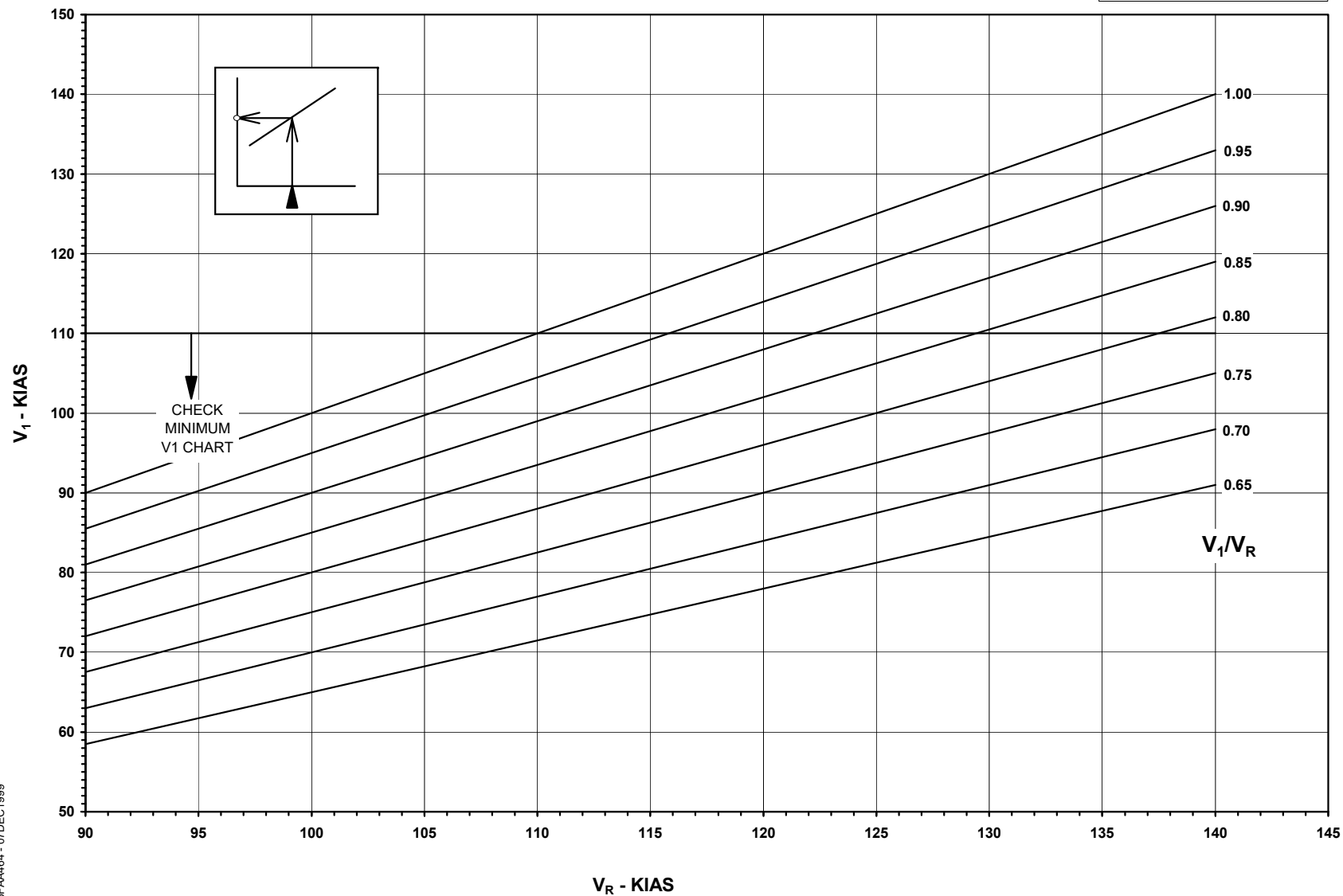
145CTA347 - 14JULY2000

THIRD SEGMENT HORIZONTAL DISTANCE TAKEOFF FLAPS 22°



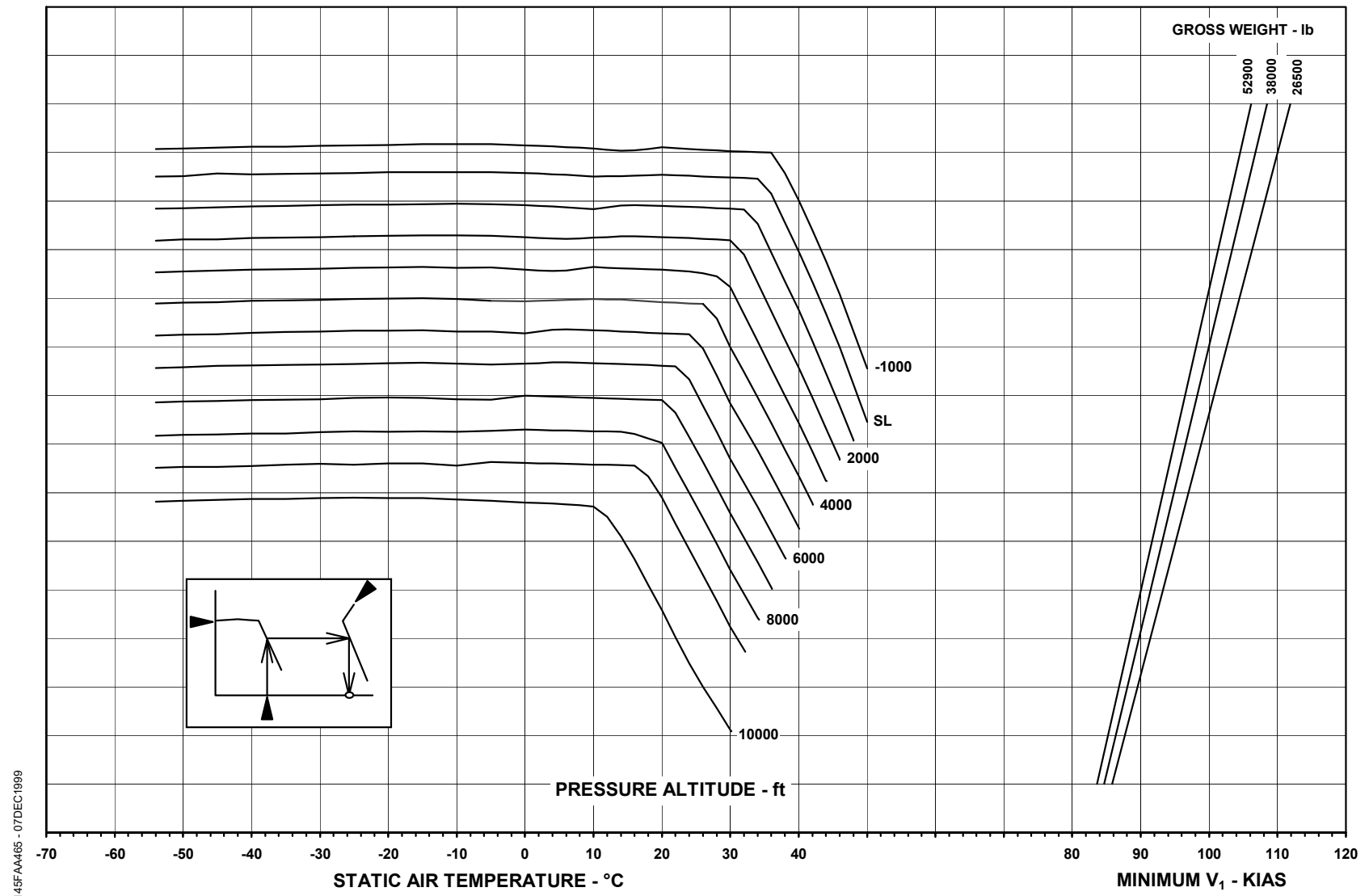
TAKEOFF SPEEDS - V_1
FLAPS 9° - T/O MODE

AE3007A1P ENGINES WITH T/R



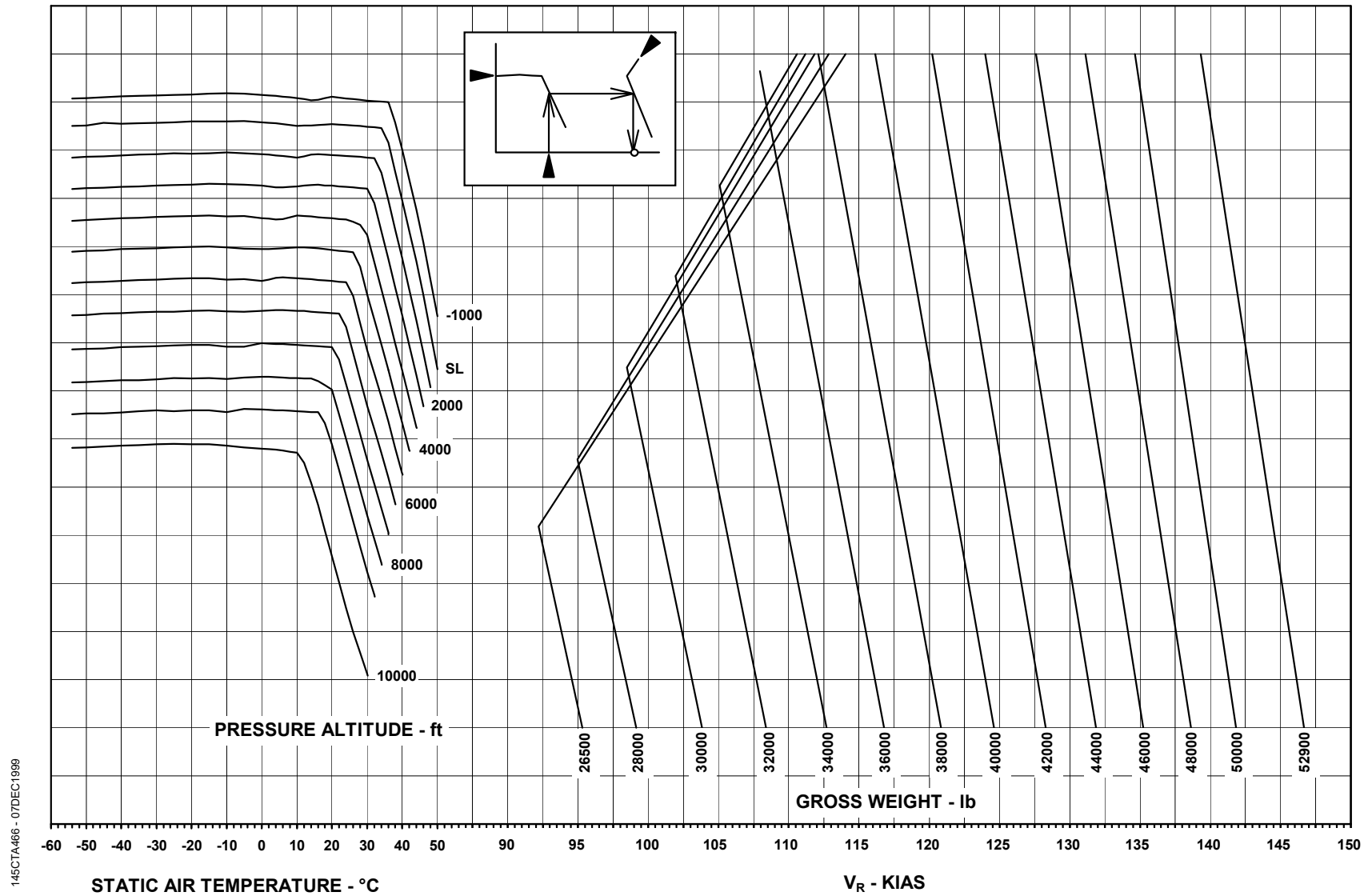
TAKEOFF SPEEDS - MINIMUM V_1 (NORMAL V_2)
FLAPS 9° - T/O MODE

AE3007A1P ENGINES WITH T/R



TAKEOFF SPEEDS - V_R (NORMAL V_2)
FLAPS 9° - T/O MODE

AE3007A1P ENGINES WITH T/R

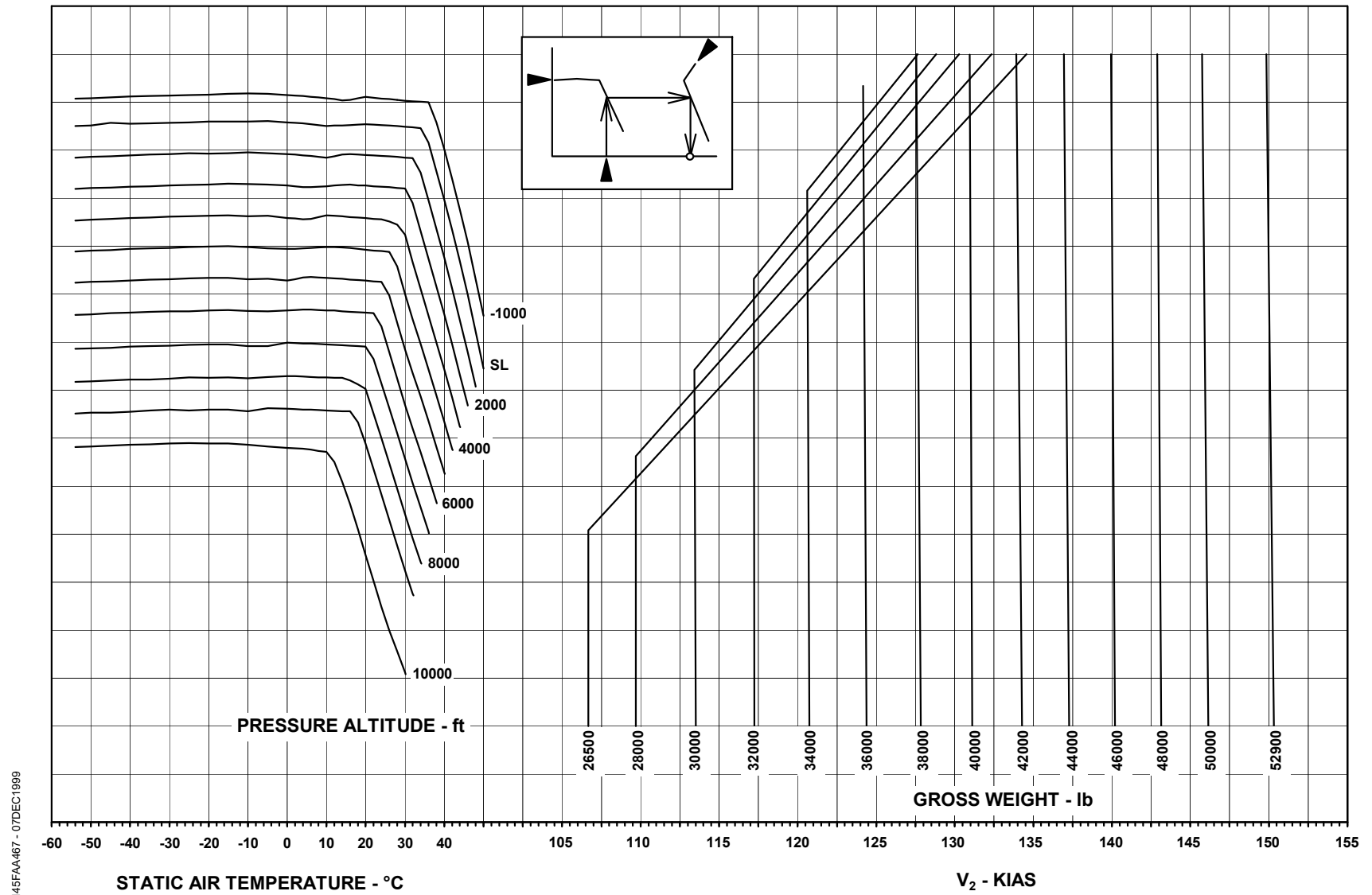


145CTA466 - 07DEC1999

AFM-145/1153 - FAA

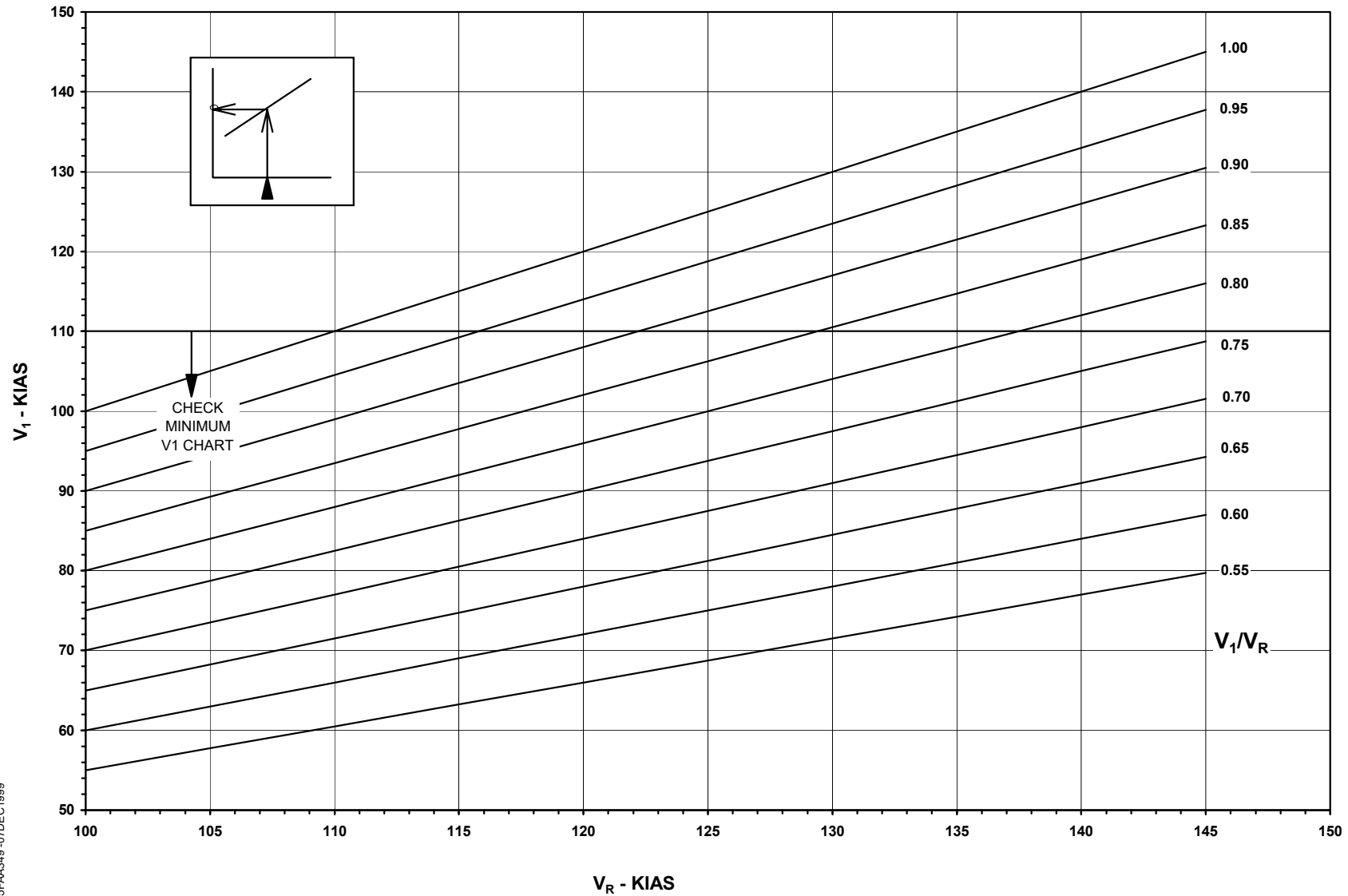
TAKEOFF SPEEDS - V_2 (NORMAL)
FLAPS 9° - T/O MODE

AE3007A1P ENGINES WITH T/R



TAKEOFF SPEEDS - V_1
FLAPS 18° - T/O MODE

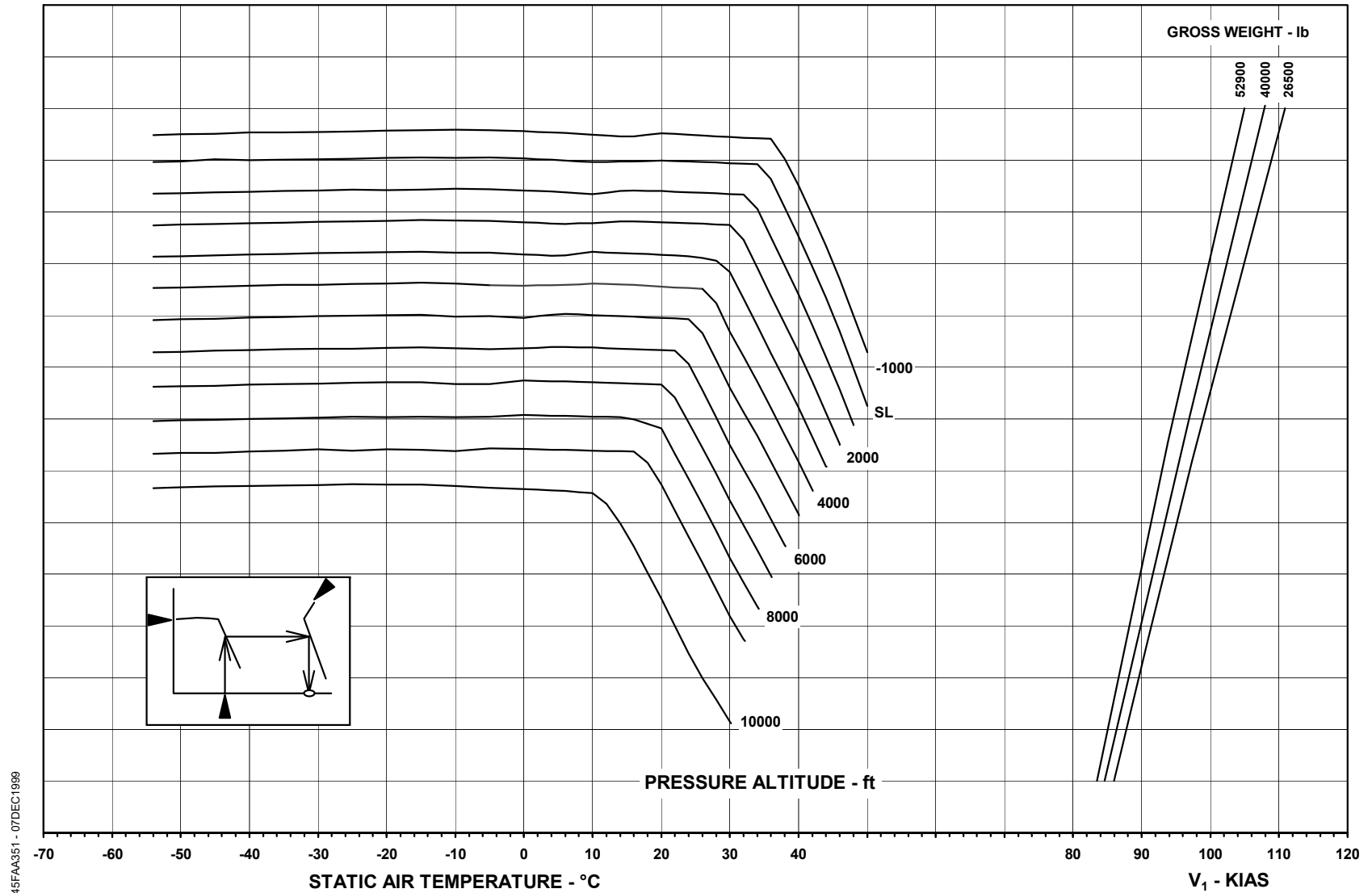
AE3007A1P ENGINES WITH T/R



145FAA349 -07DEC1999

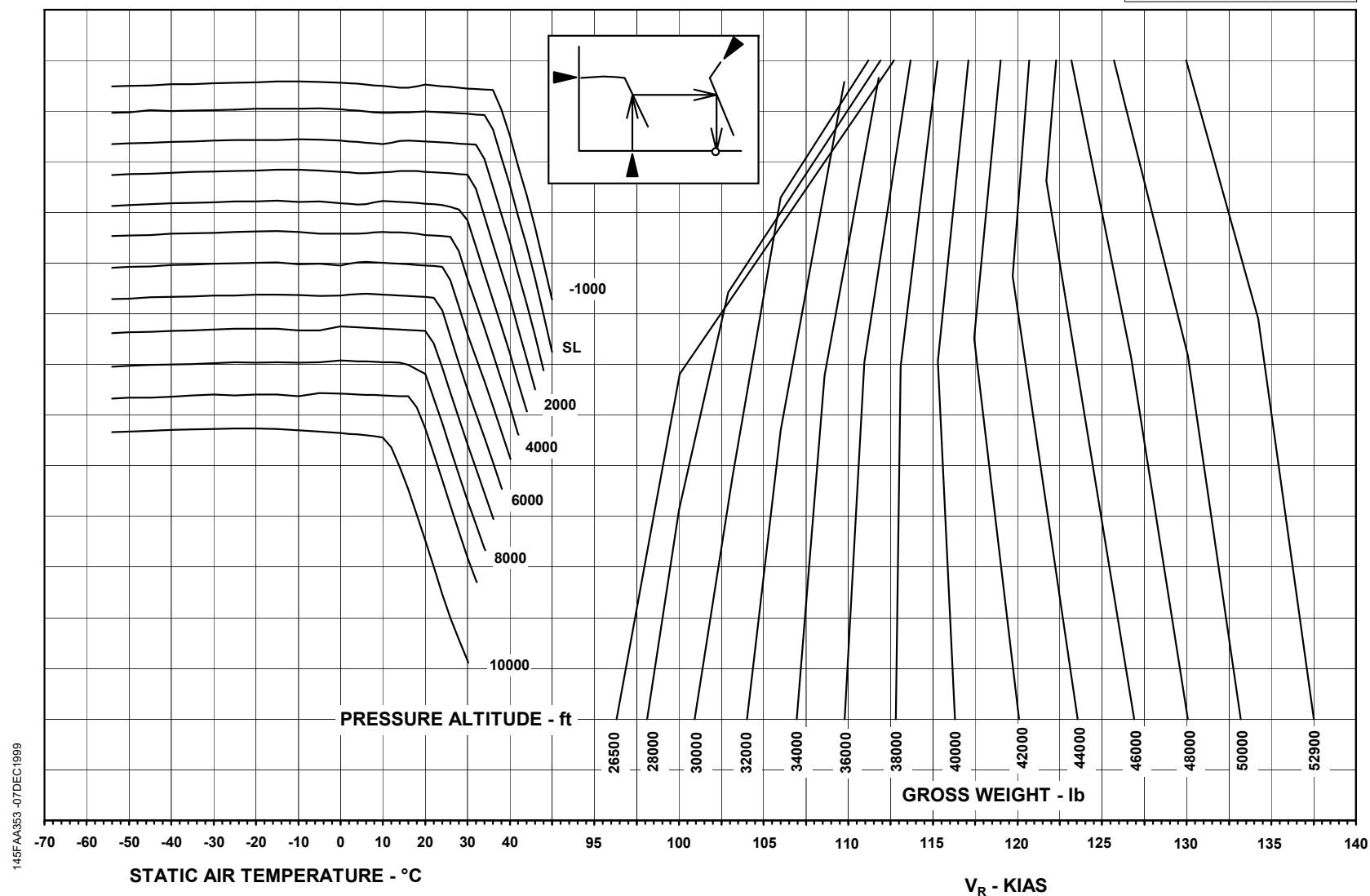
TAKEOFF SPEEDS - MINIMUM V_1 (NORMAL V_2)
FLAPS 18° - T/O MODE

AE3007A1P ENGINES WITH T/R



TAKEOFF SPEEDS - V_R (NORMAL V_2)
FLAPS 18° - T/O MODE

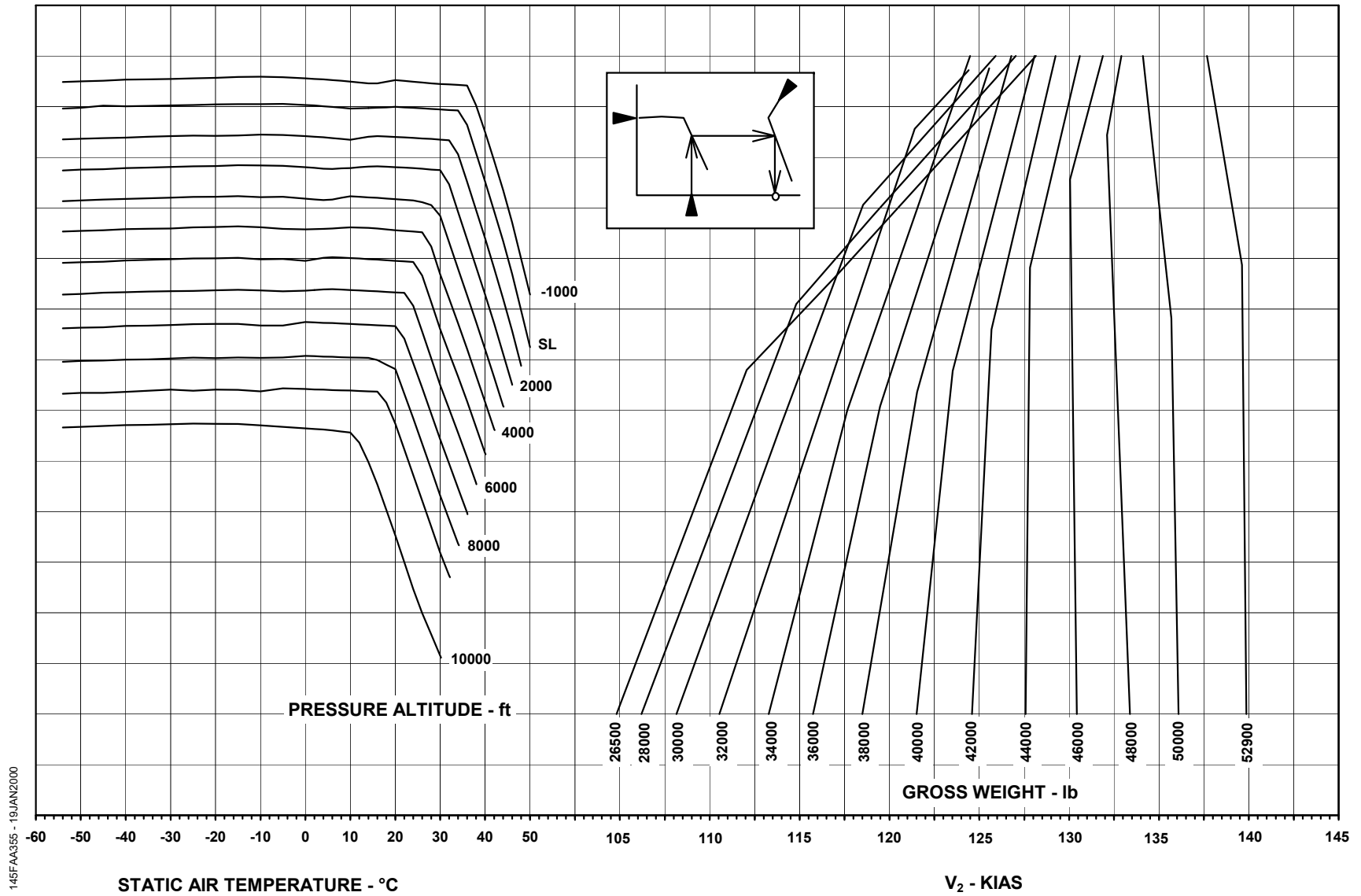
AE3007A1P ENGINES WITH T/R



145FAA353-07DEC1999

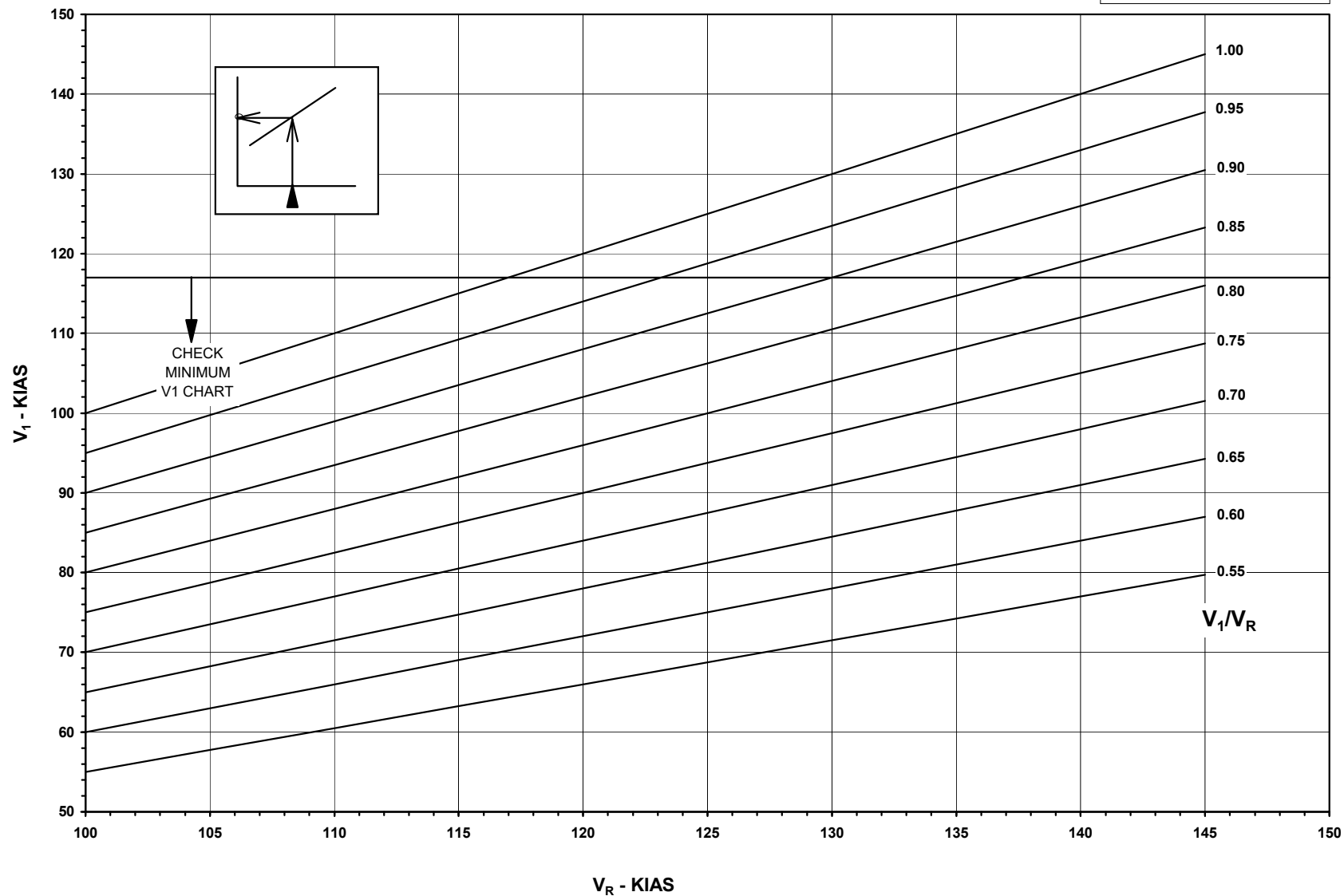
TAKEOFF SPEEDS - V_2 (NORMAL)
FLAPS 18° - T/O MODE

AE3007A1P ENGINES WITH T/R



TAKEOFF SPEEDS - V_1
FLAPS 22° - T/O MODE

AE3007A1P ENGINES WITH T/R

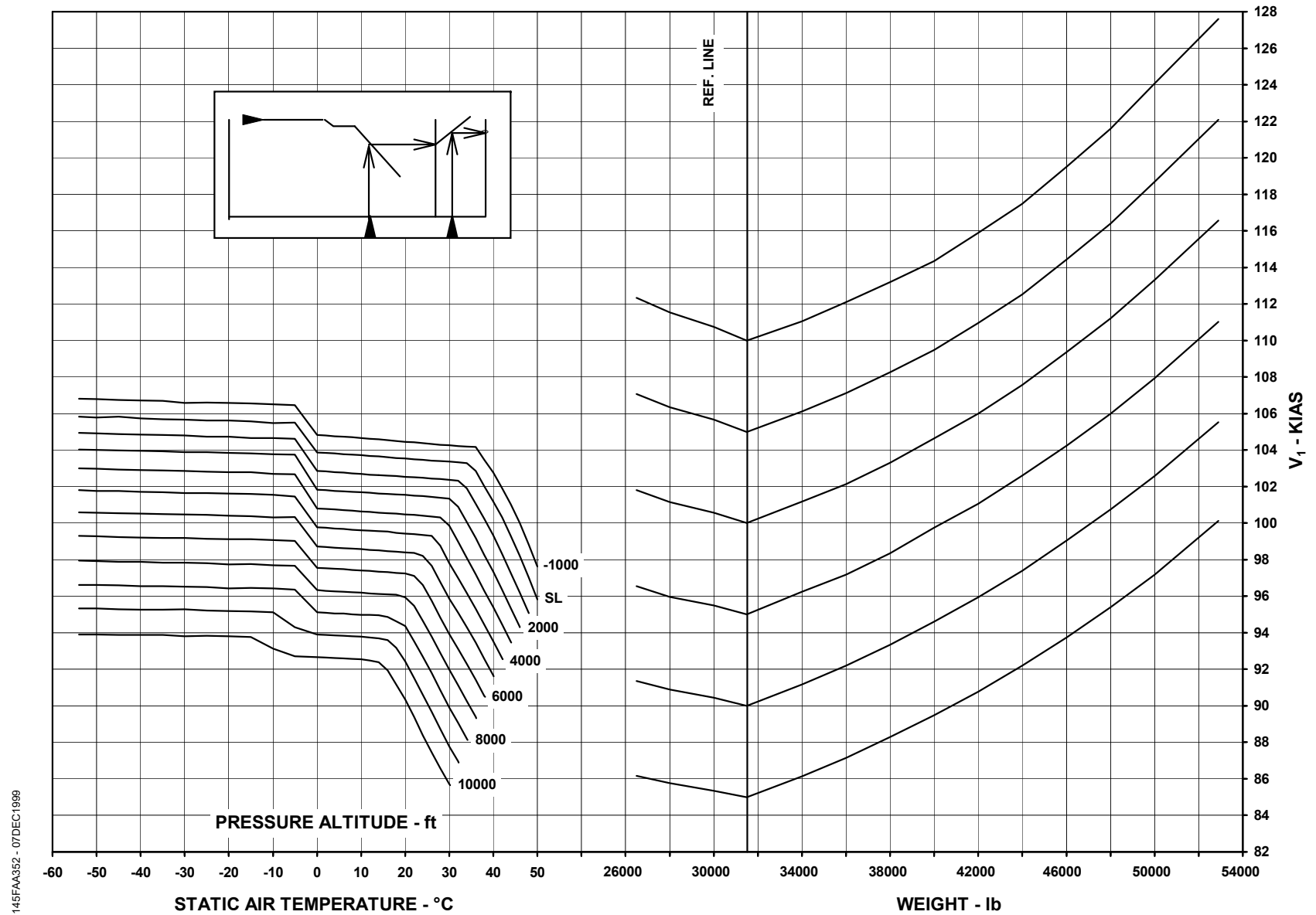


145FAA350 - 07DEC1999

TAKEOFF SPEEDS - MINIMUM V_1 (NORMAL V_2)

FLAPS 22° - T/O MODE

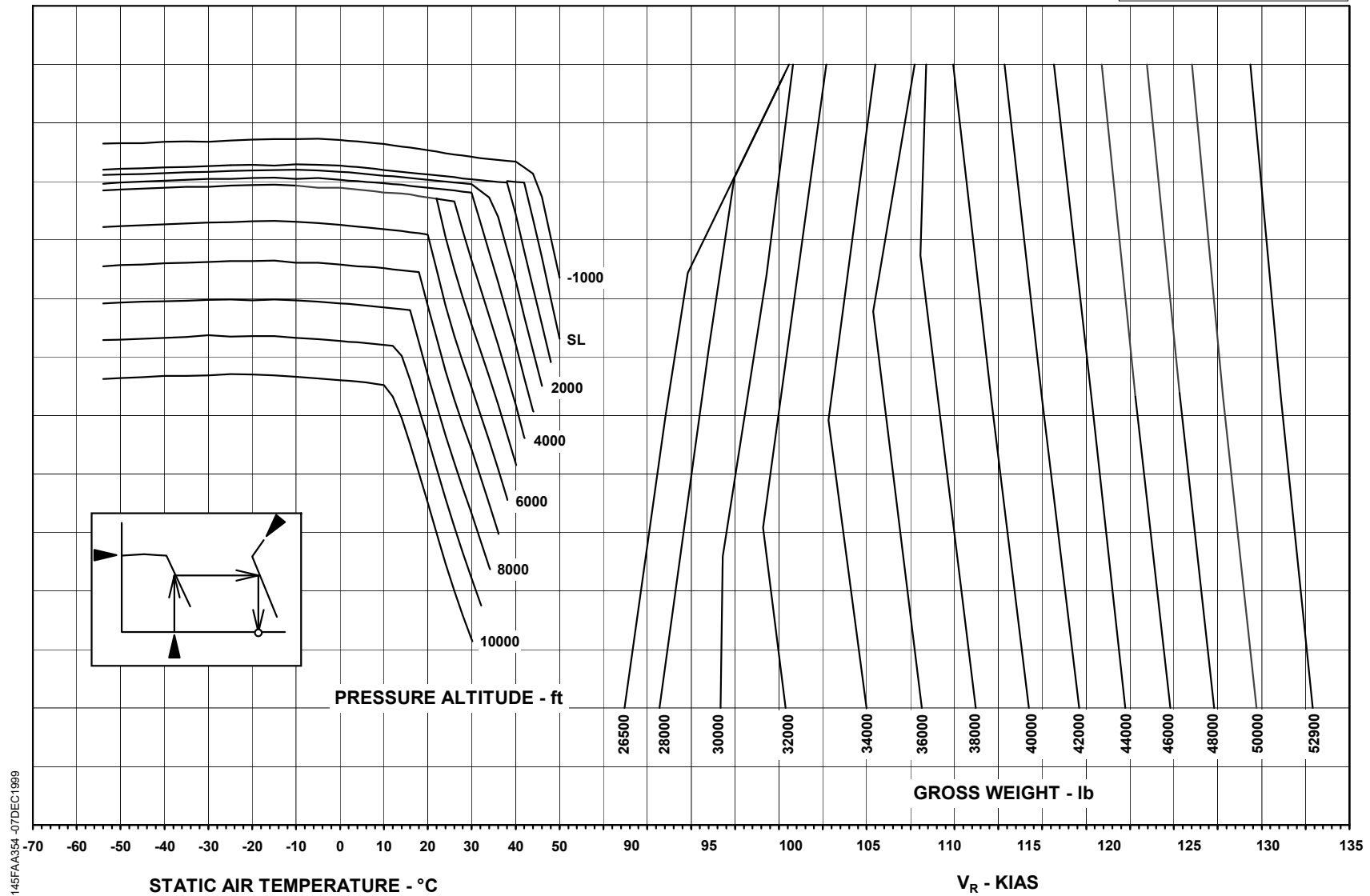
AE3007A1P ENGINES WITH T/R



TAKEOFF SPEEDS - V_R (NORMAL V_2)

FLAPS 22° - T/O MODE

AE3007A1P ENGINES WITH T/R



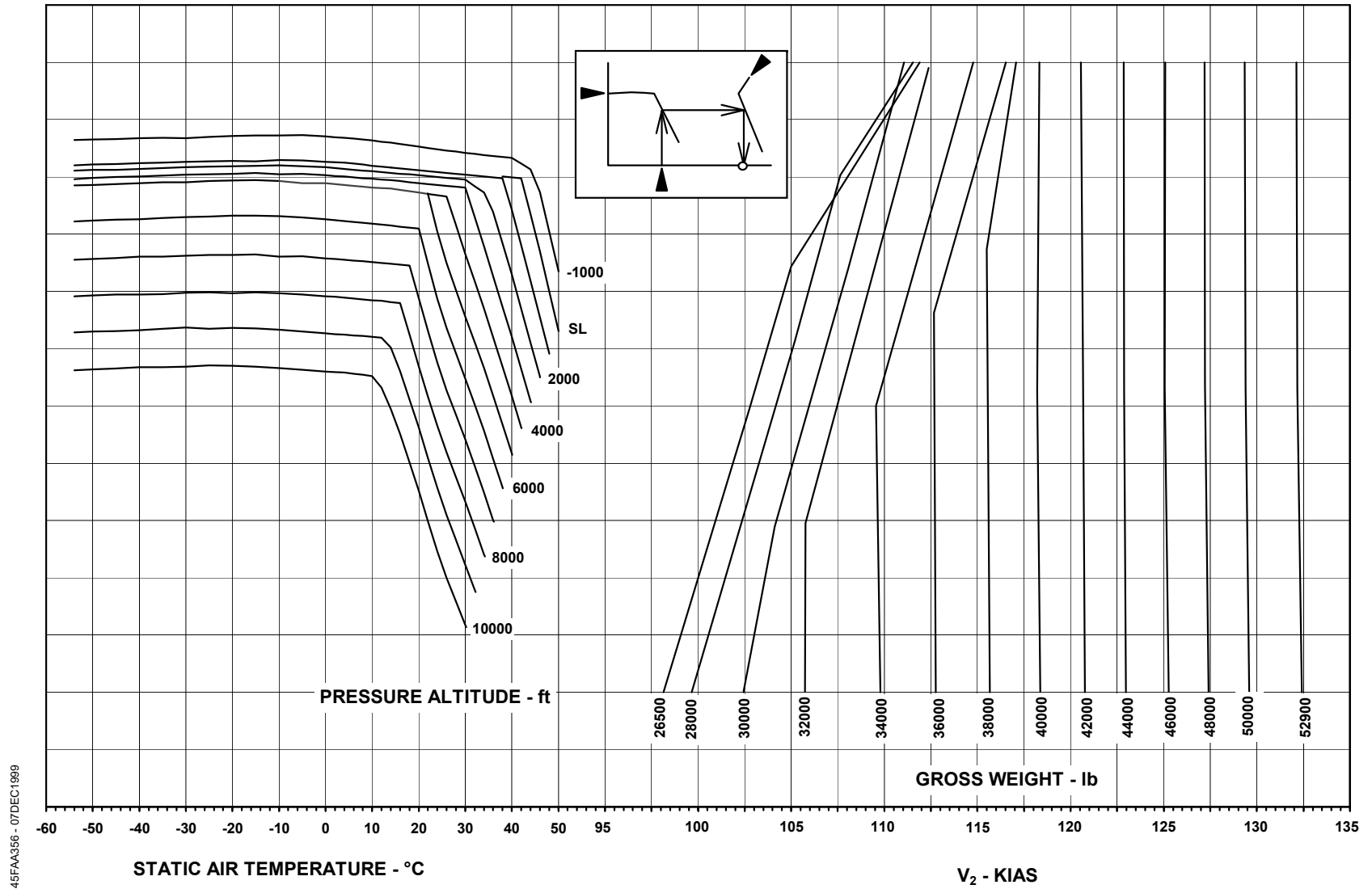
145FAA354 -07DEC1999

AFM-145/1153 - FAA

TAKEOFF SPEEDS - V_2 (NORMAL)

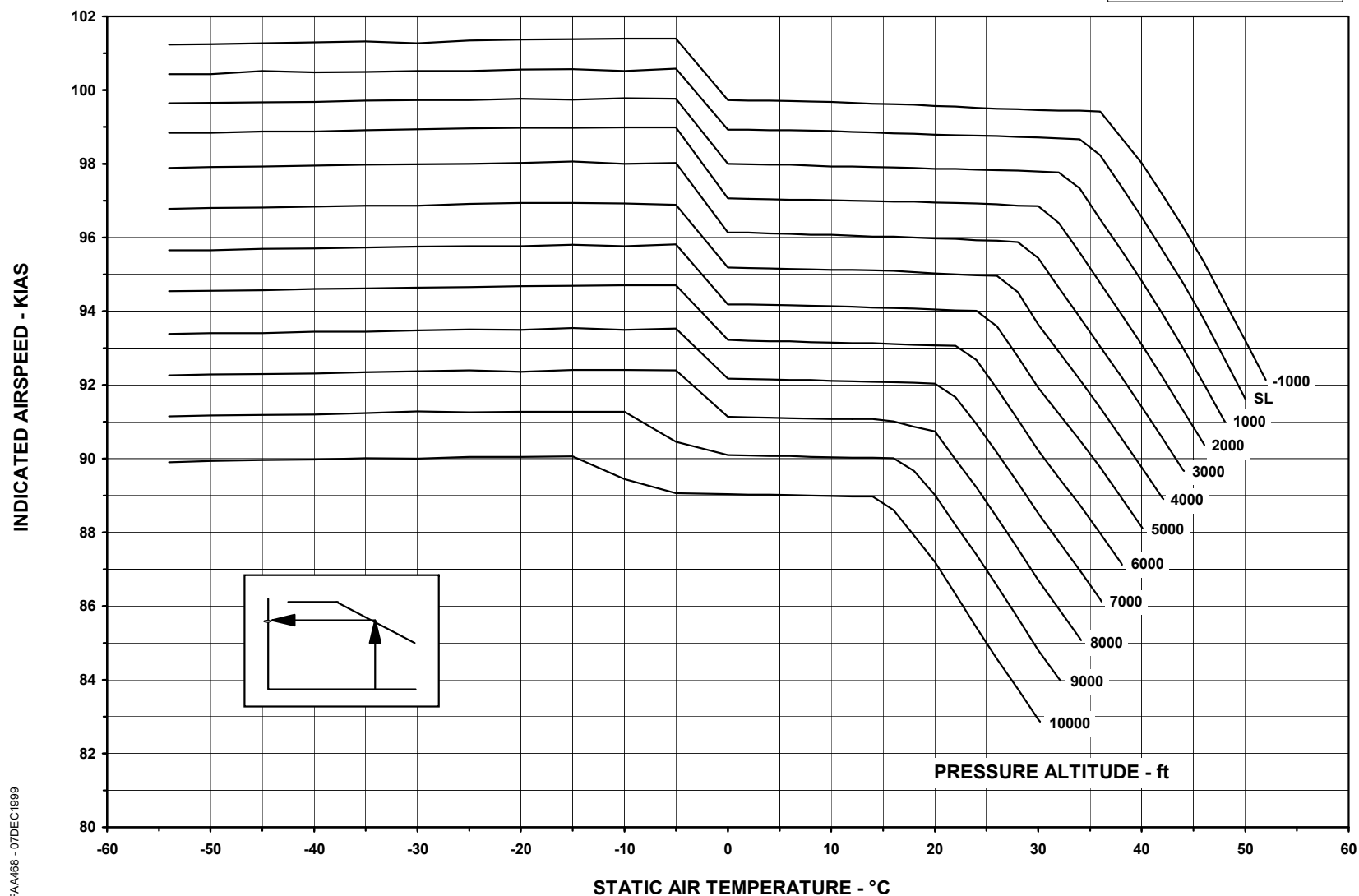
FLAPS 22° - T/O MODE

AE3007A1P ENGINES WITH T/R



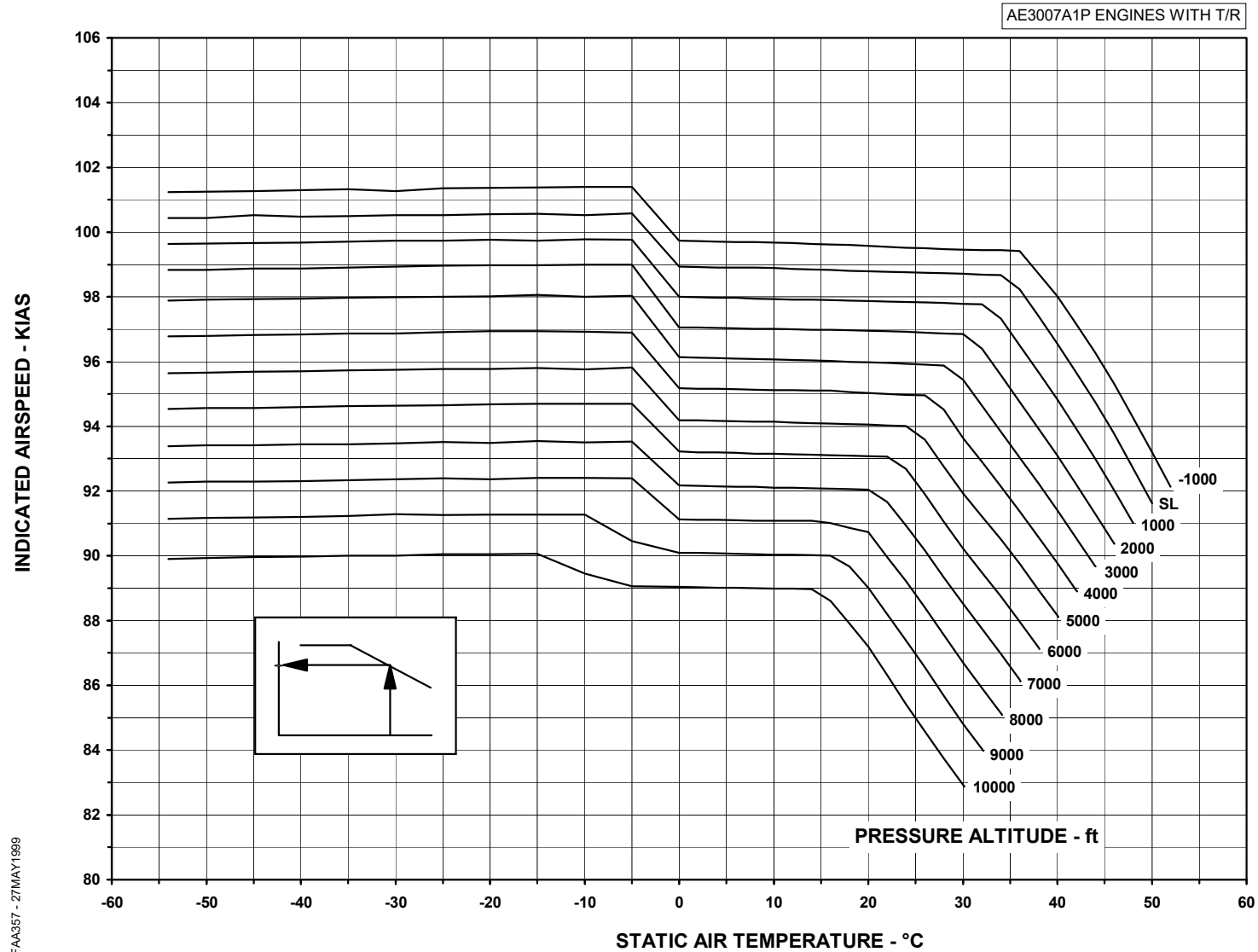
GROUND MINIMUM CONTROL SPEED
T/O MODE - FLAPS 9°

AE3007A1P ENGINES WITH T/R



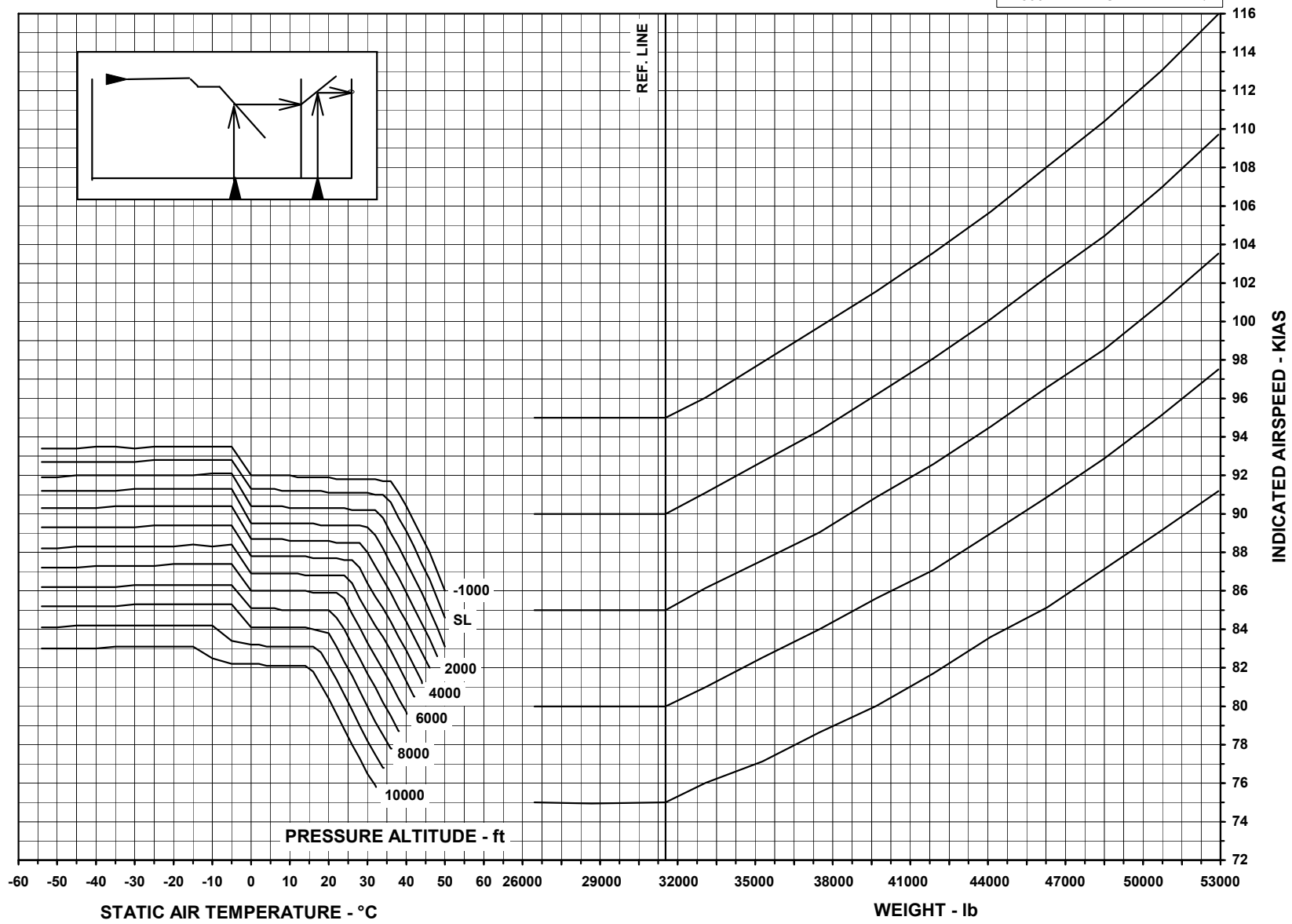
145FAA468 - 07DEC1999

**GROUND MINIMUM CONTROL SPEED
FLAPS 18°**



GROUND MINIMUM CONTROL SPEED
FLAPS 22°

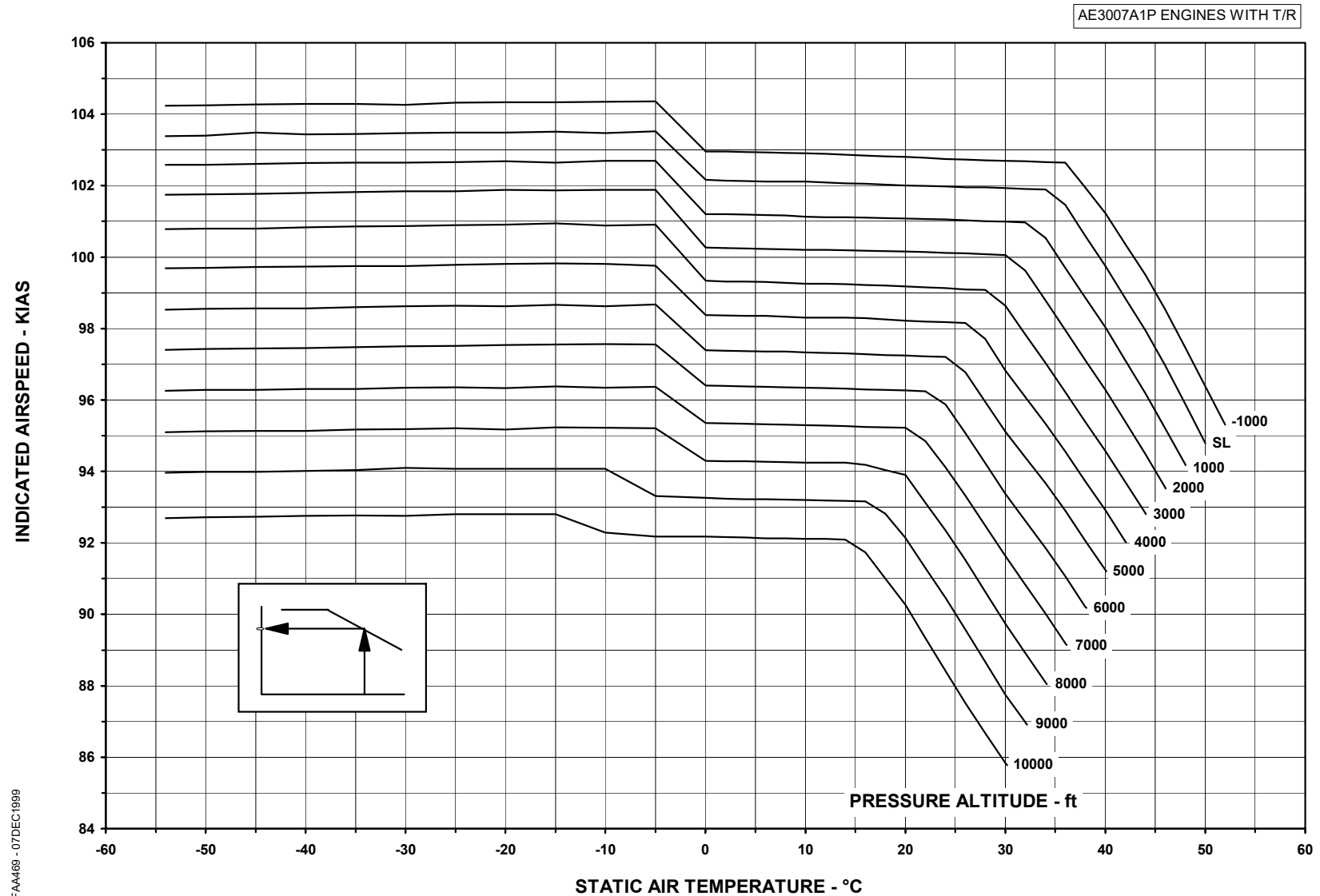
AE3007A1P ENGINES WITH T/R



145FAA358 - 27MAY1999

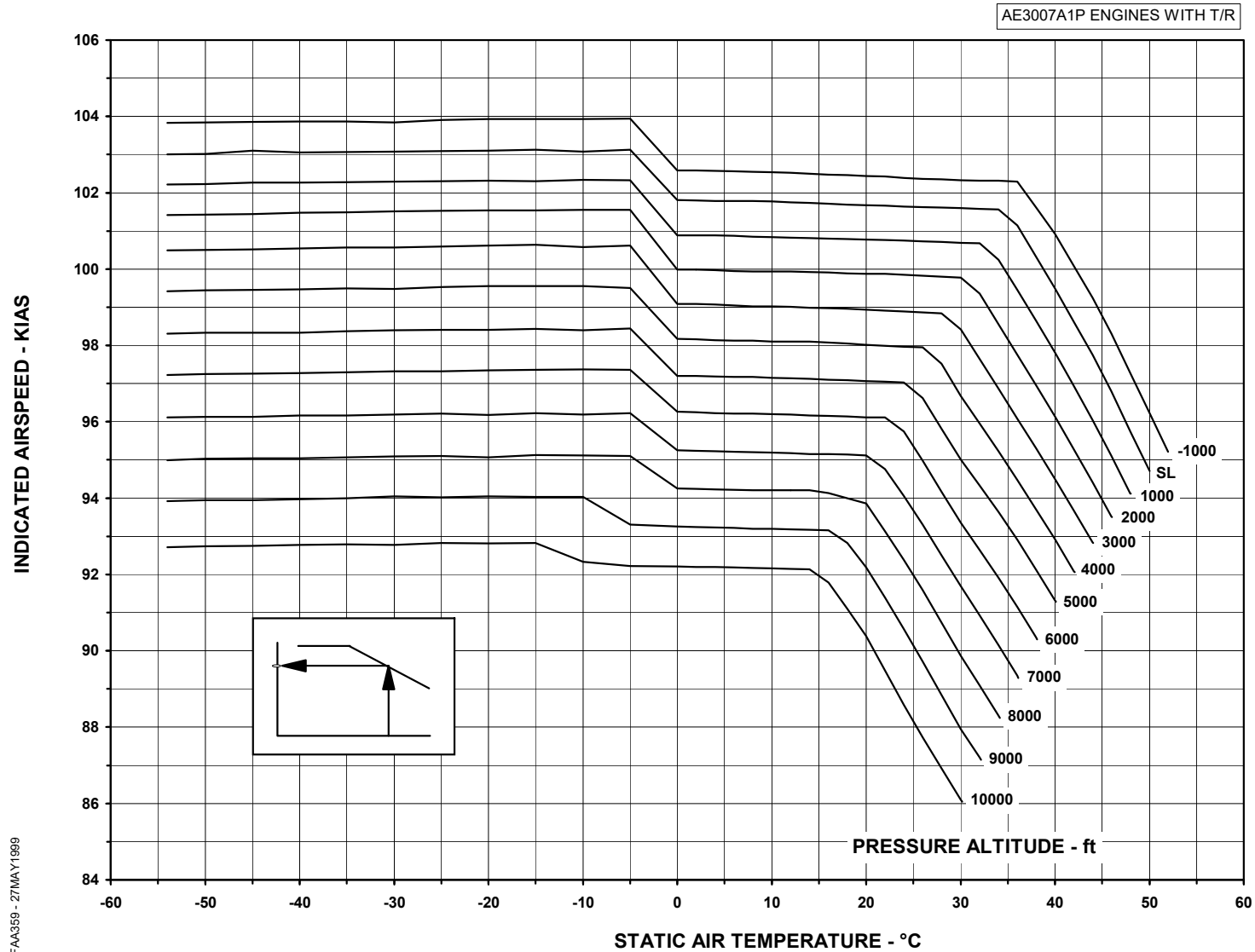
AFM-145/1153 - FAA

AIR MINIMUM CONTROL SPEED
T/O MODE - FLAPS 9°



145FAA469 - 07DEC1999

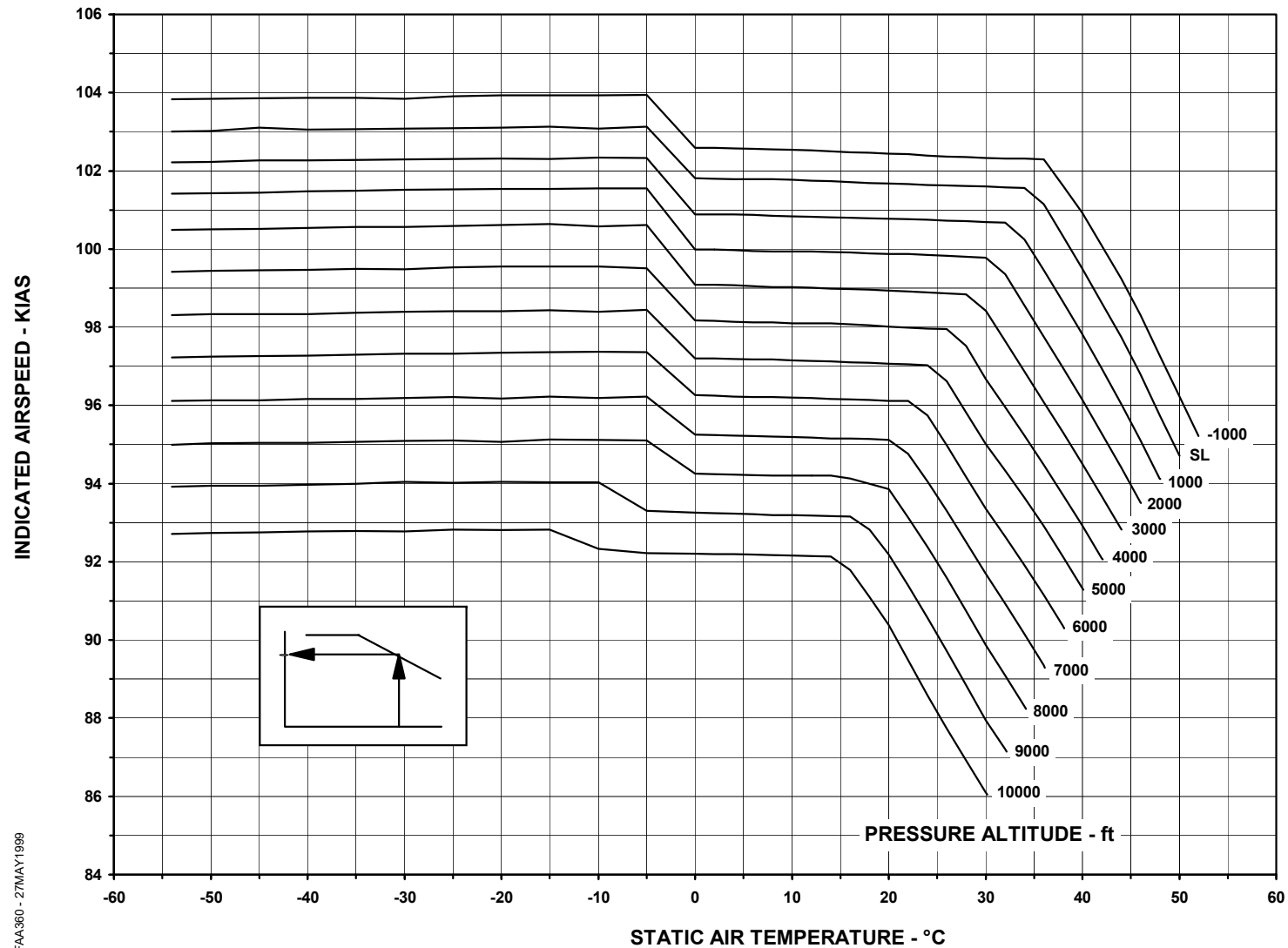
**AIR MINIMUM CONTROL SPEED
FLAPS 18°**



145FAA359 - 27MAY1999

**AIR MINIMUM CONTROL SPEED
FLAPS 22°**

AE3007A1P ENGINES WITH T/R



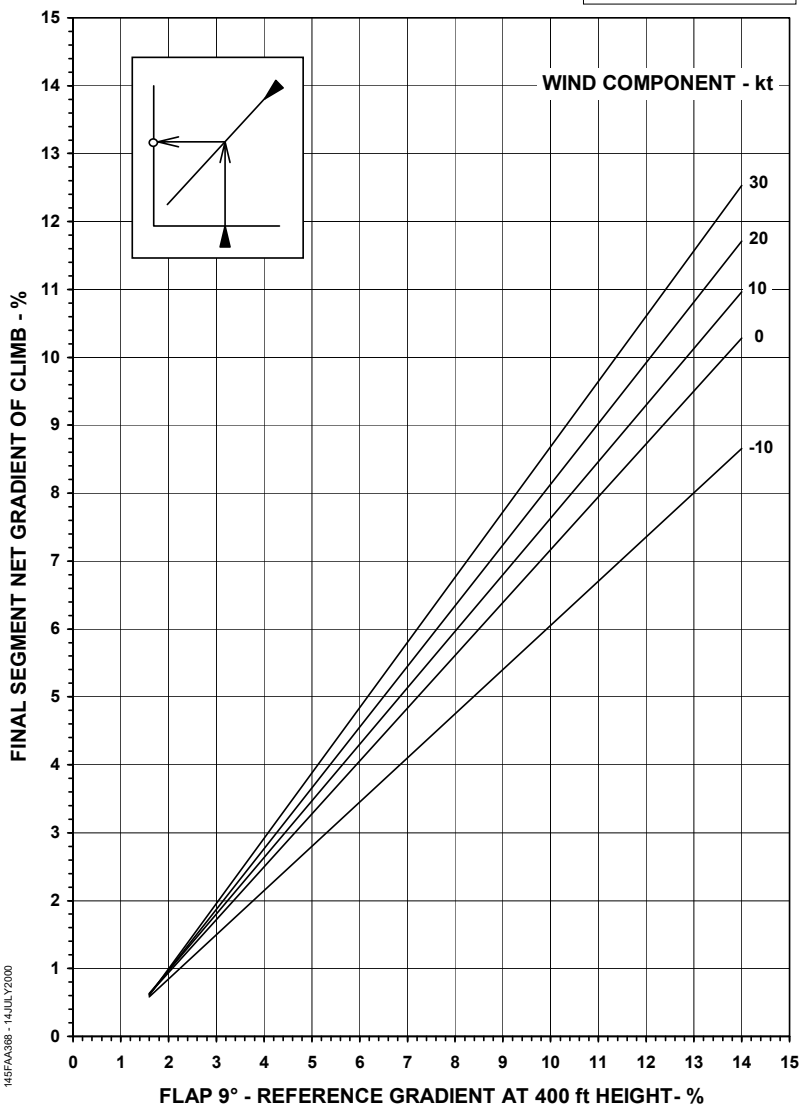
145FAA360 - 27MAY1999

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FINAL SEGMENT NET GRADIENT OF CLIMB

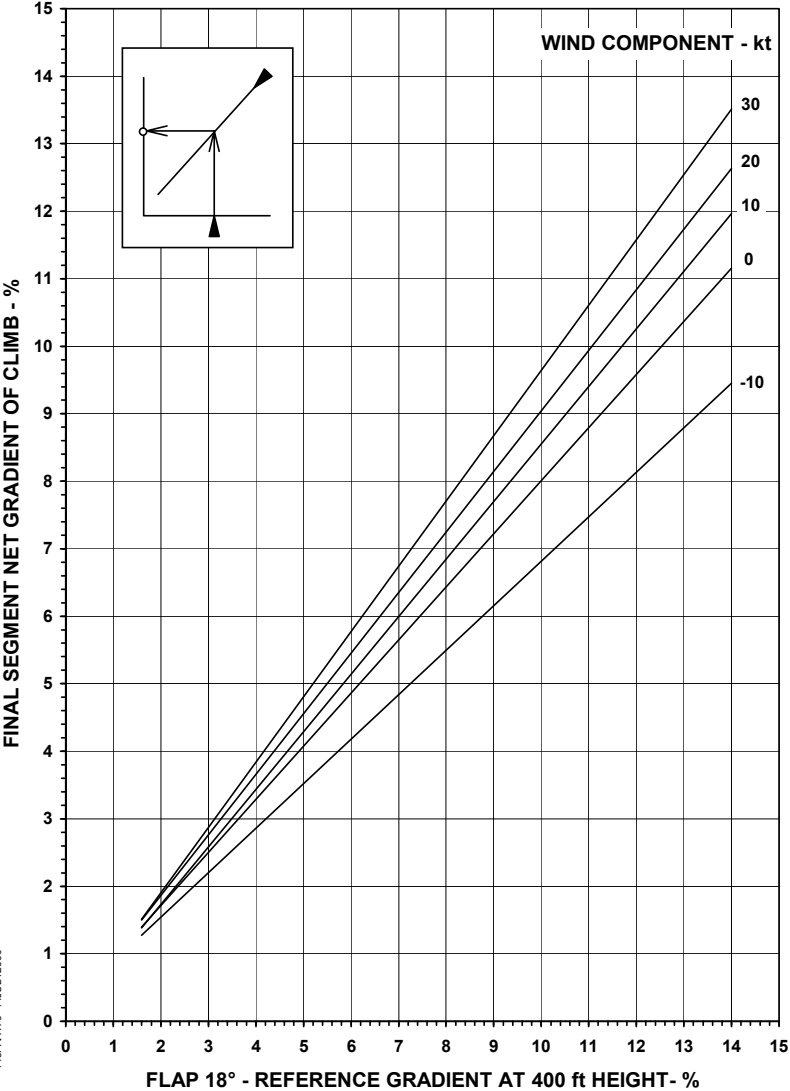
TAKEOFF FLAPS 9°

AE3007A1P ENGINES WITH T/R



FINAL SEGMENT NET GRADIENT OF CLIMB
TAKEOFF FLAPS 18°

AE3007A1P ENGINES WITH T/R



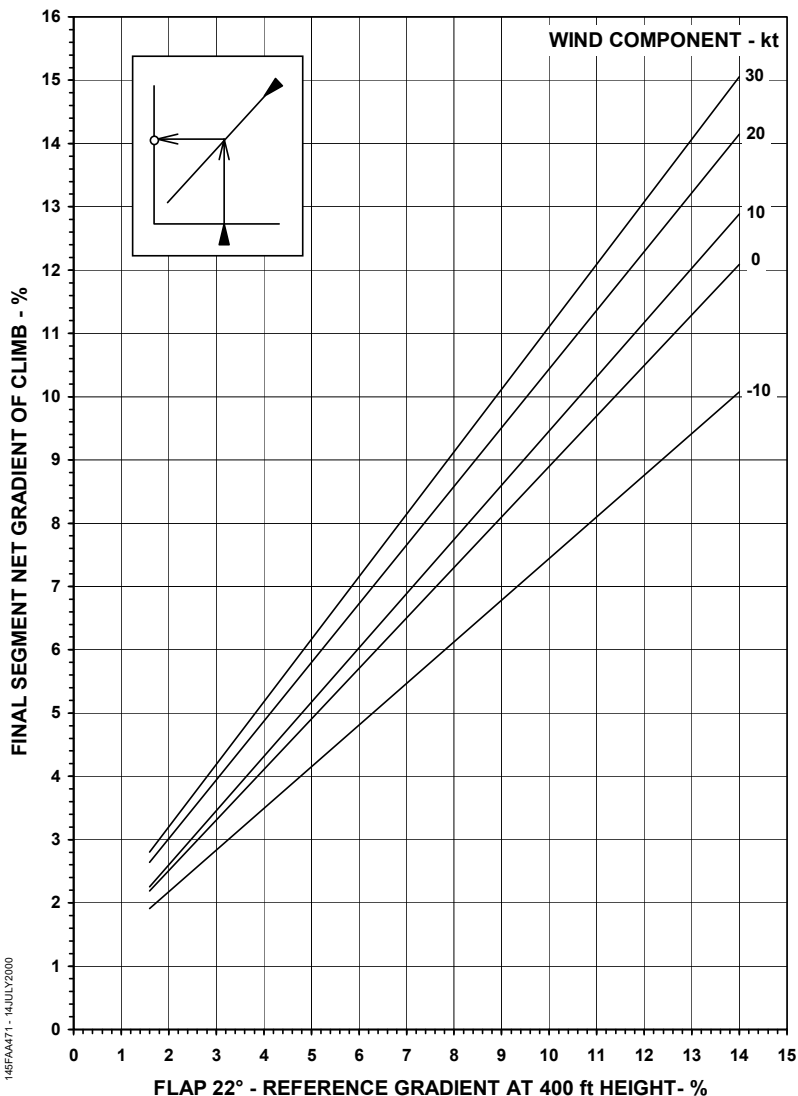
145F A4470- 14JULY2000

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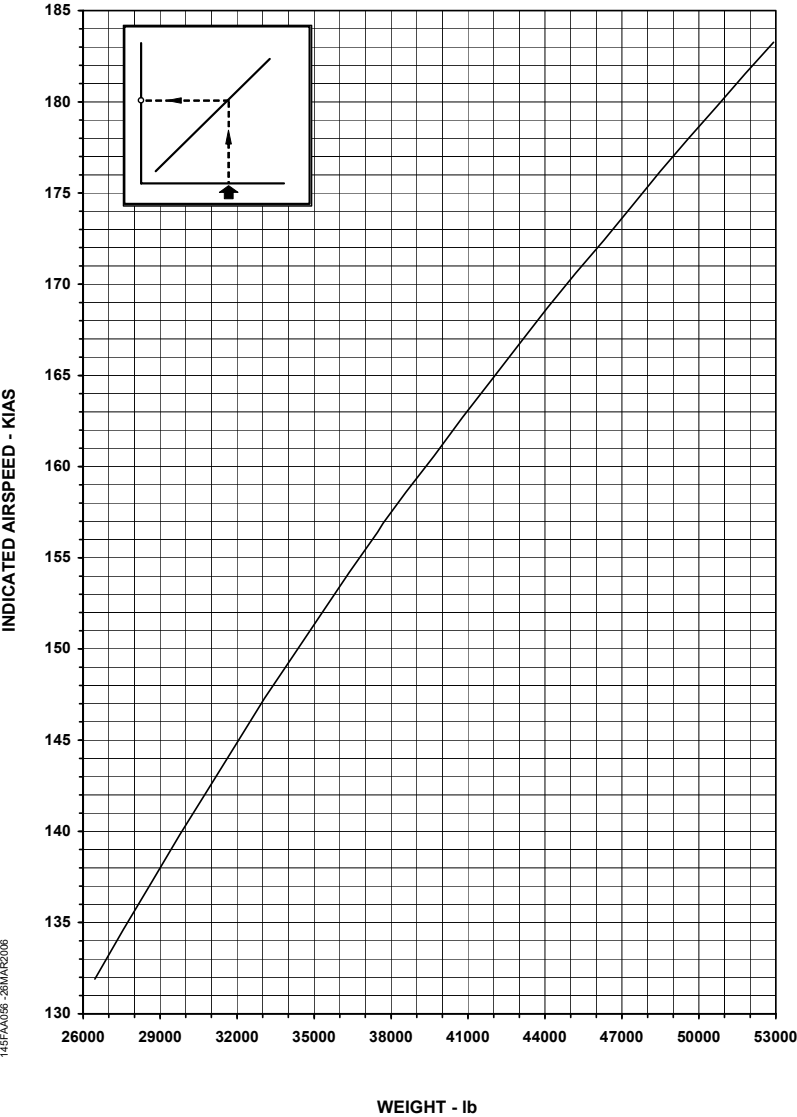
FINAL SEGMENT NET GRADIENT OF CLIMB

TAKEOFF FLAPS 22°

AE3007A1P ENGINES WITH T/R



FINAL SEGMENT SPEED
GEAR UP - FLAPS UP

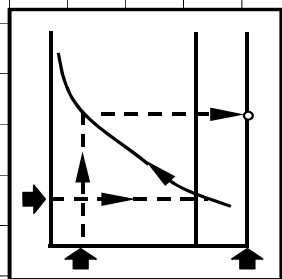


145FA0056 - 28MAR2006

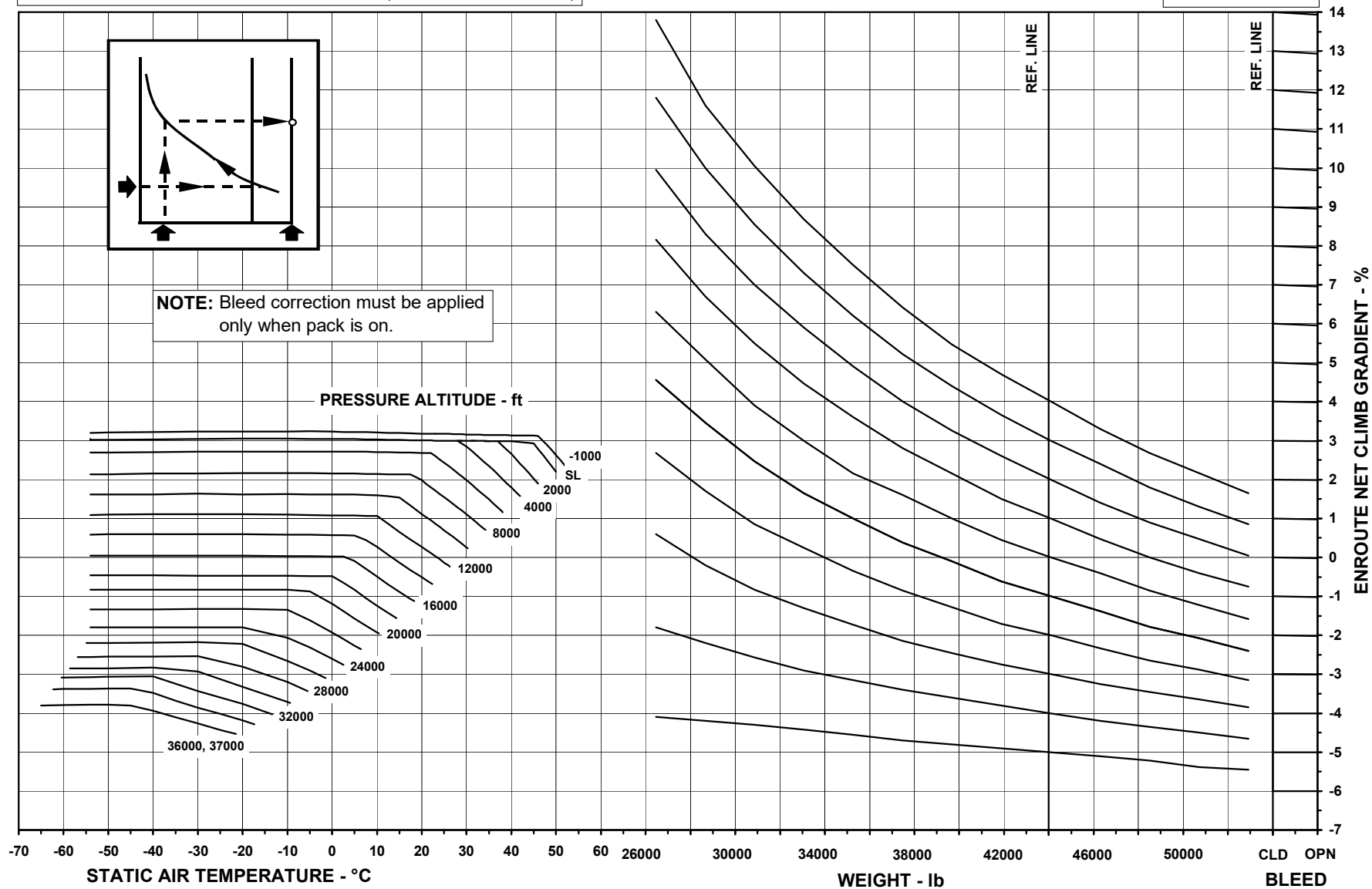
ENROUTE NET CLIMB GRADIENT **ONE ENGINE INOPERATIVE - FLAPS UP - ANTI-ICE OFF**

AIRPLANES EQUIPPED WITH FADEC PRIOR TO B7.5 (PRE-MOD. SB 145-73-0018)

AE3007A1P ENGINES



NOTE: Bleed correction must be applied
only when pack is on.



145FAA381 - 19JUN2004

AFM-145/1153 - FAA

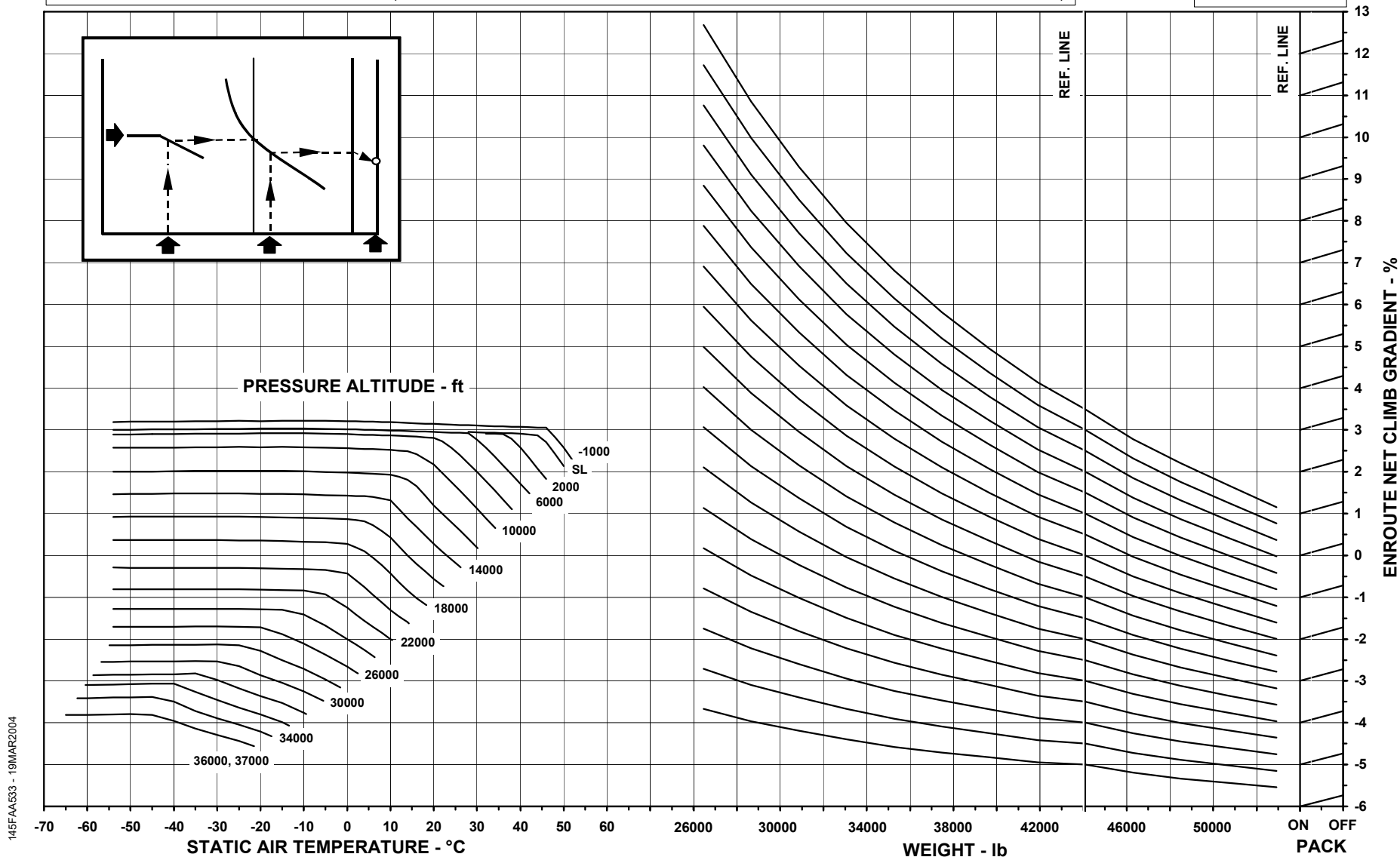
 ANAC APPROVED
REVISION 69

ENROUTE NET CLIMB GRADIENT

ONE ENGINE INOPERATIVE - FLAPS UP - ANTI-ICE OFF

AIRPLANES EQUIPPED WITH FADEC B7.5 AND ON (POST-MOD. SB 145-73-0018 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED)

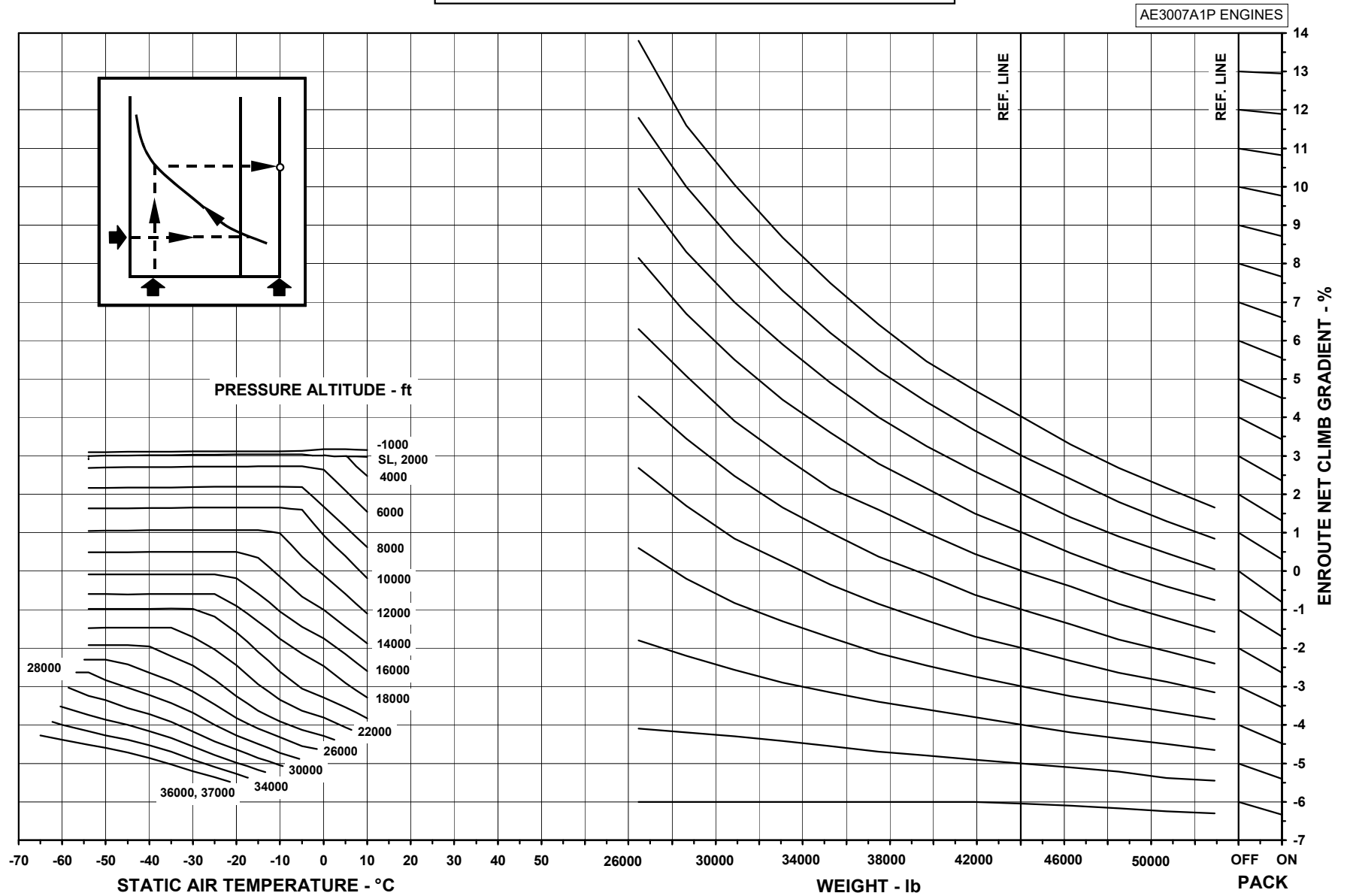
AE3007A1P ENGINES



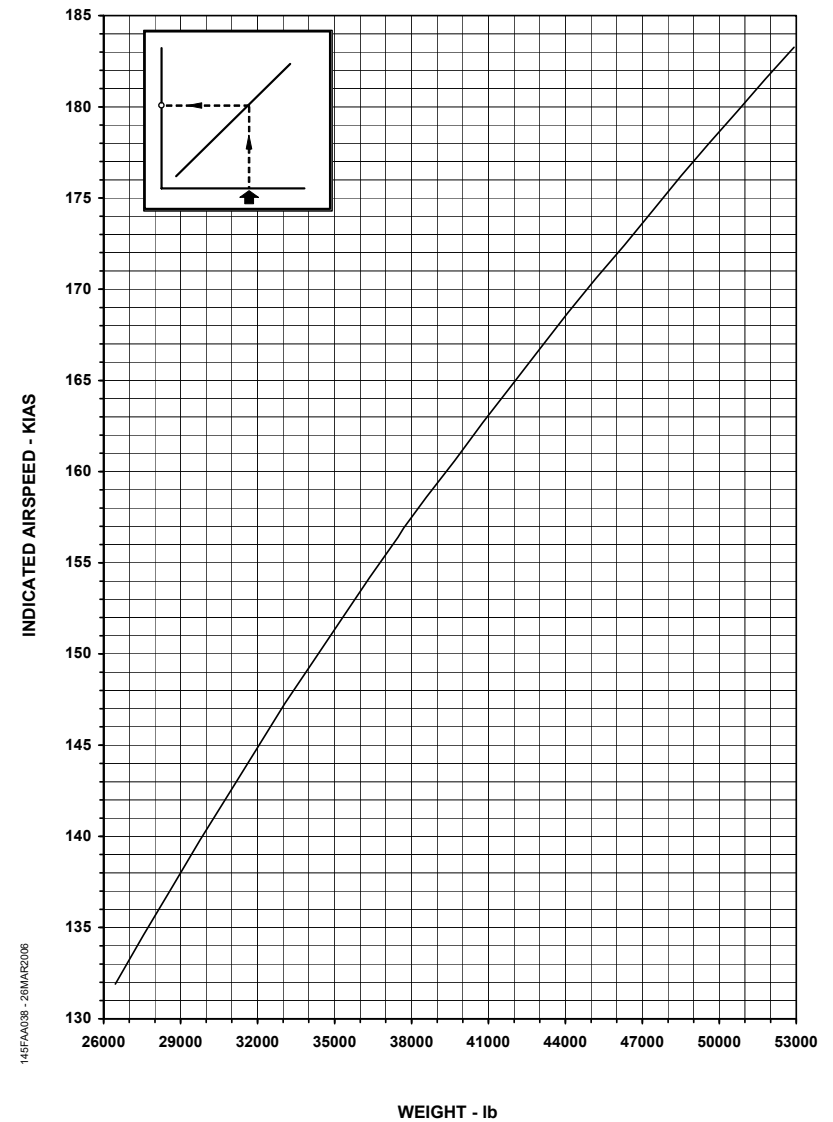
145FAA533 - 19MAR2004

AFM-145/1153 - FAA

ENROUTE NET CLIMB GRADIENT ONE ENGINE INOPERATIVE - FLAPS UP - ANTI-ICE ON



ENROUTE CLIMB SPEED
GEAR UP - FLAPS UP

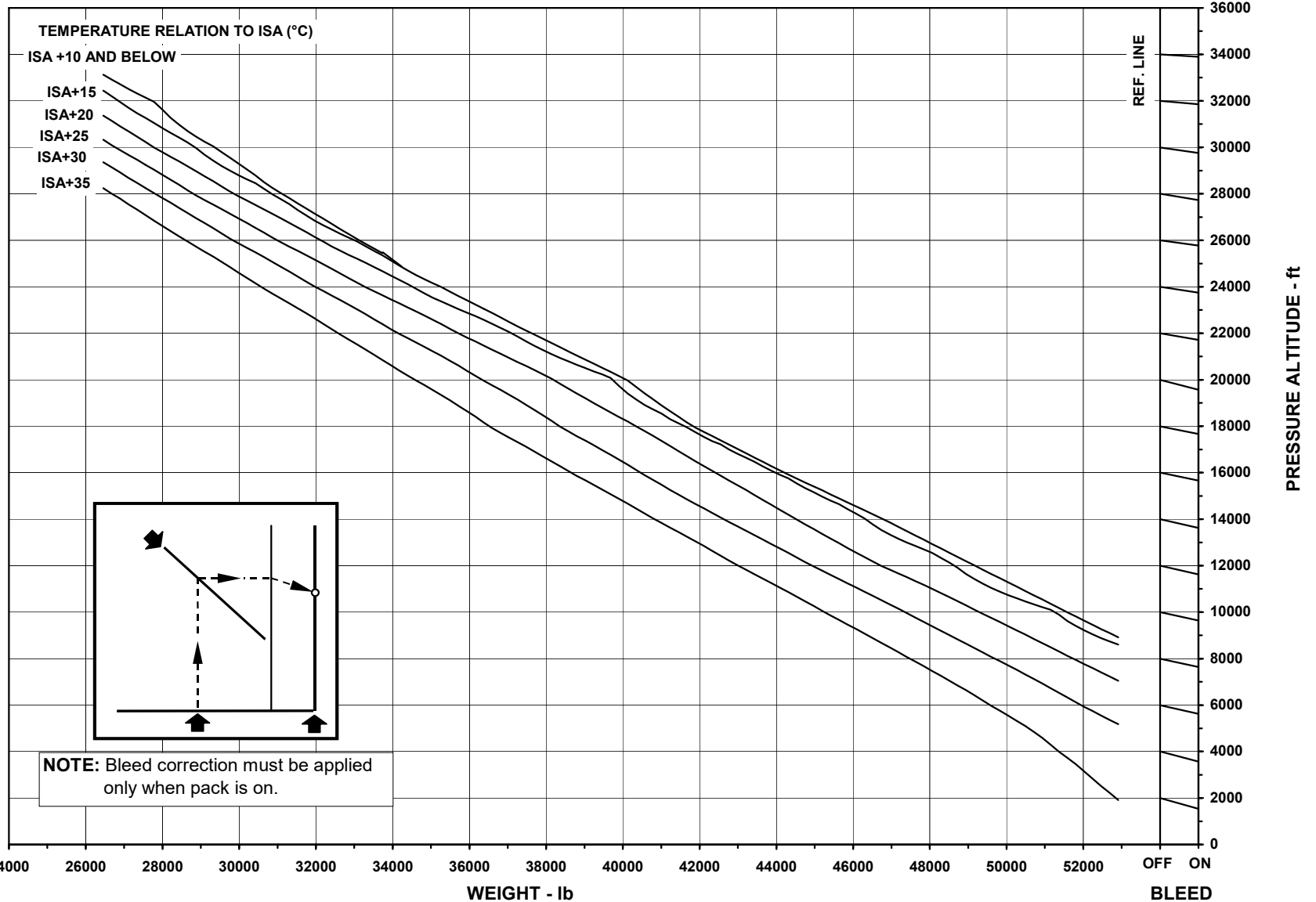


ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF

AIRPLANES EQUIPPED WITH FADEC PRIOR TO B7.5 (PRE-MOD. SB 145-73-0018)

AE3007A1P ENGINES



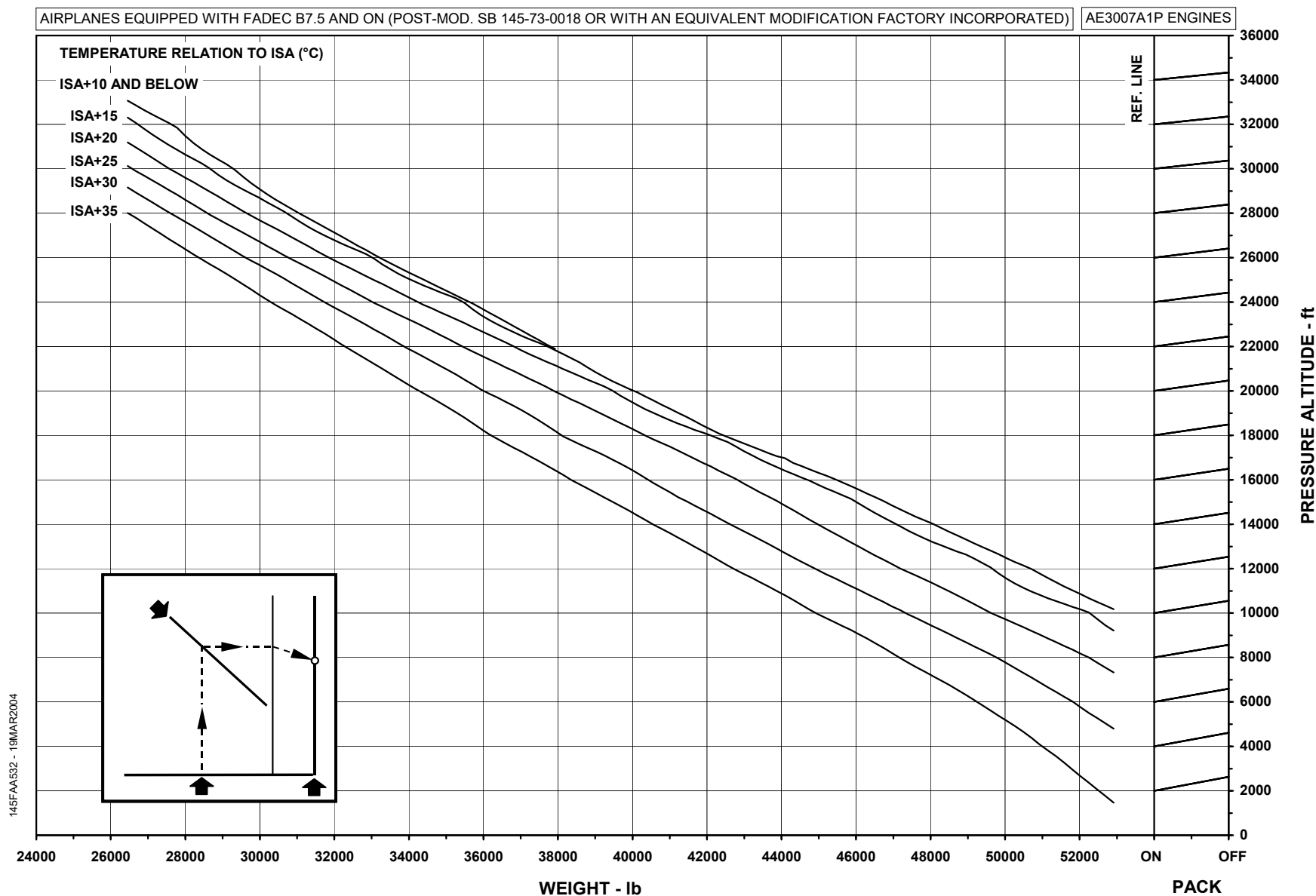
145FAA383 - 19JUN2004

AFM-145/1153 - FAA

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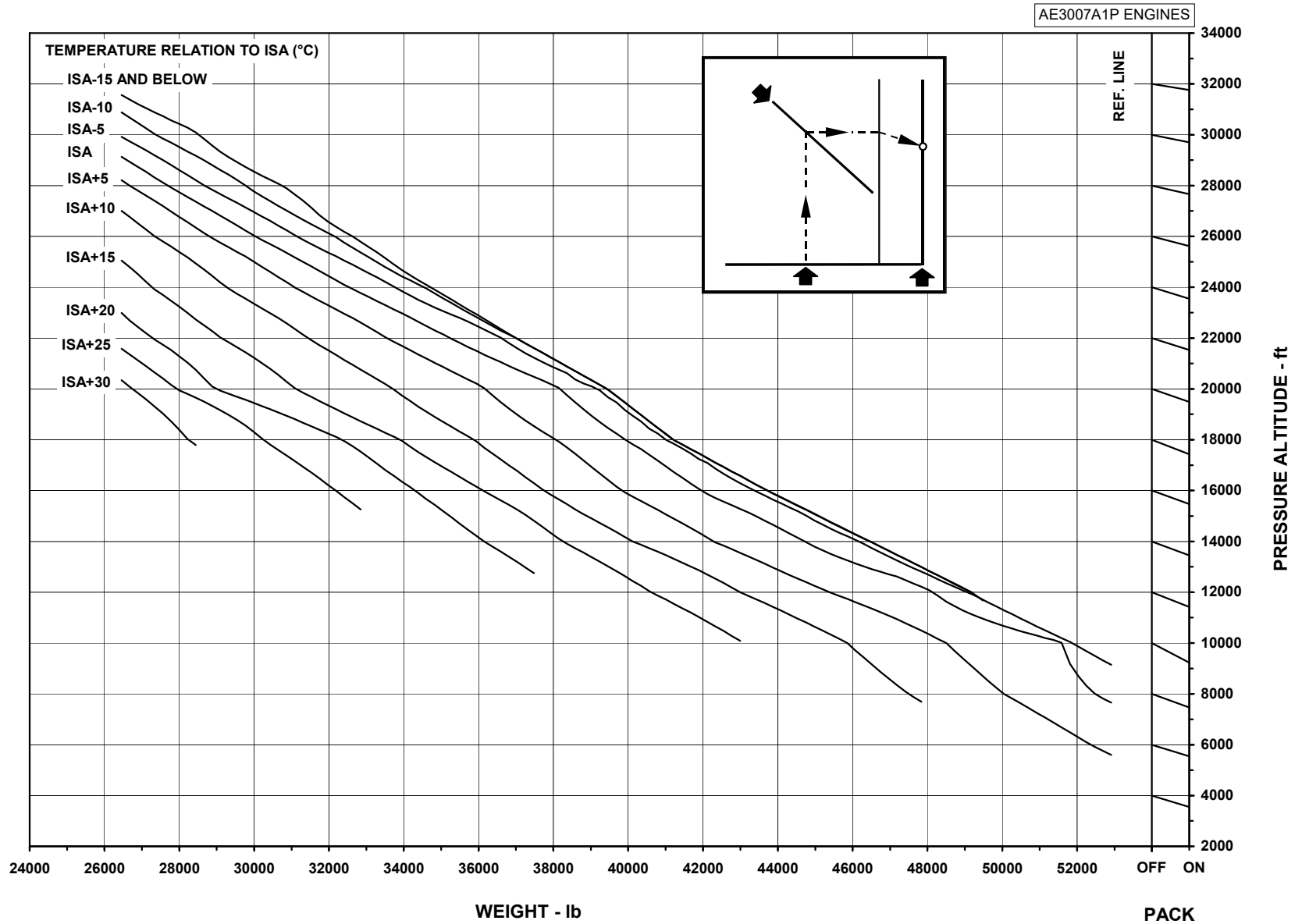
ENROUTE CLIMB WEIGHT FOR POSITIVE NET GRADIENT

FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF



ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE ON



APPROACH CLIMB GRADIENT CHARTS AND LANDING CLIMB GRADIENT CHARTS

USE

Choose the appropriate chart considering the anti-ice and flaps options.

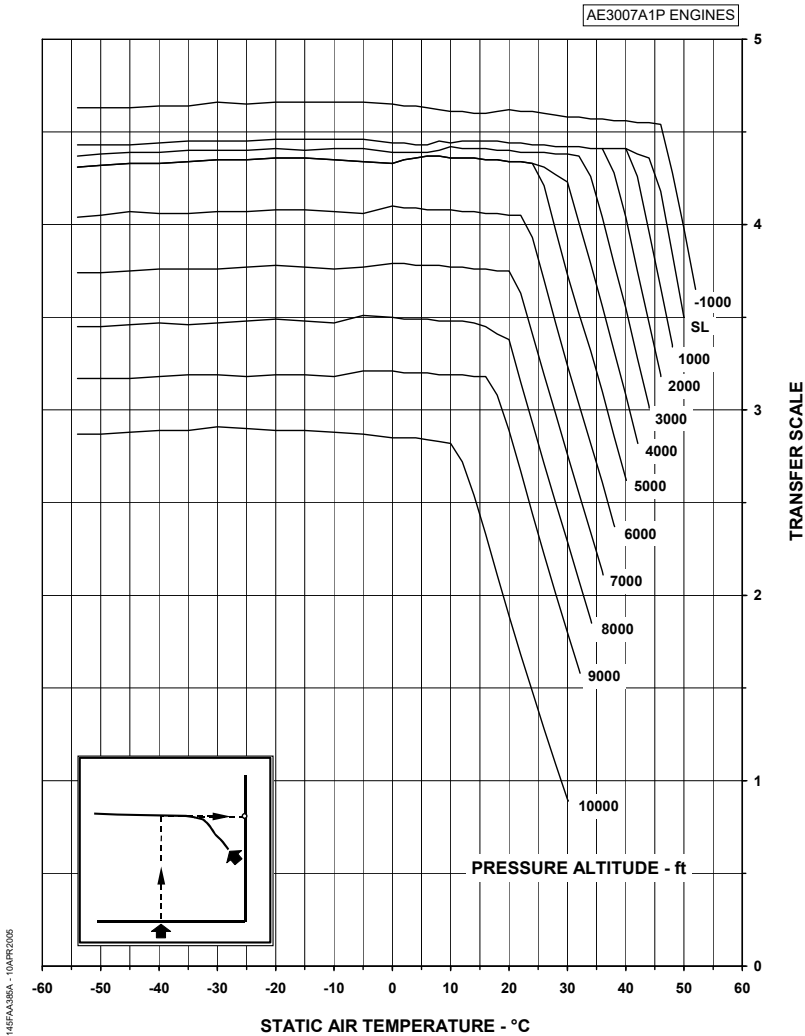
For each gradient, enter the first chart with the Static Air Temperature and Airport Pressure Altitude to read the transfer scale. Enter the second chart with the value obtained from the first one, go to the reference line and follow the guide lines to the airplane weight, to read the desired gradient.

NOTE: Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Gradient by 1.1%.

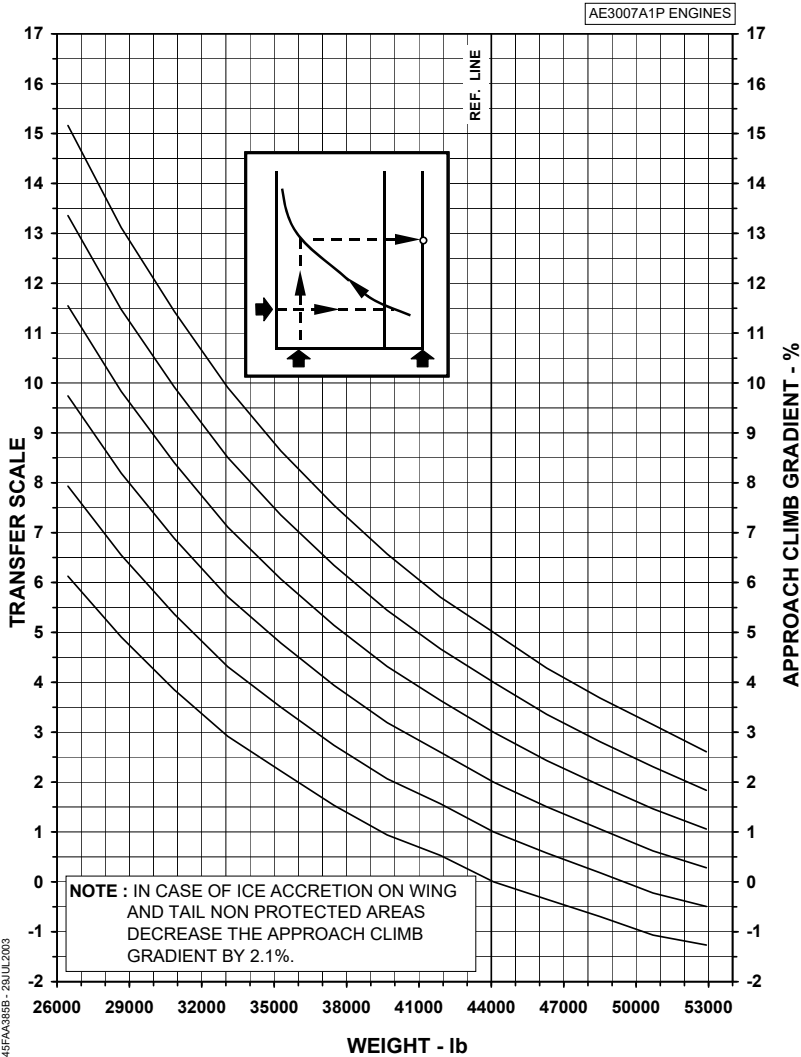
APPROACH CLIMB GRADIENT

ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF

CHART 1 OF 2

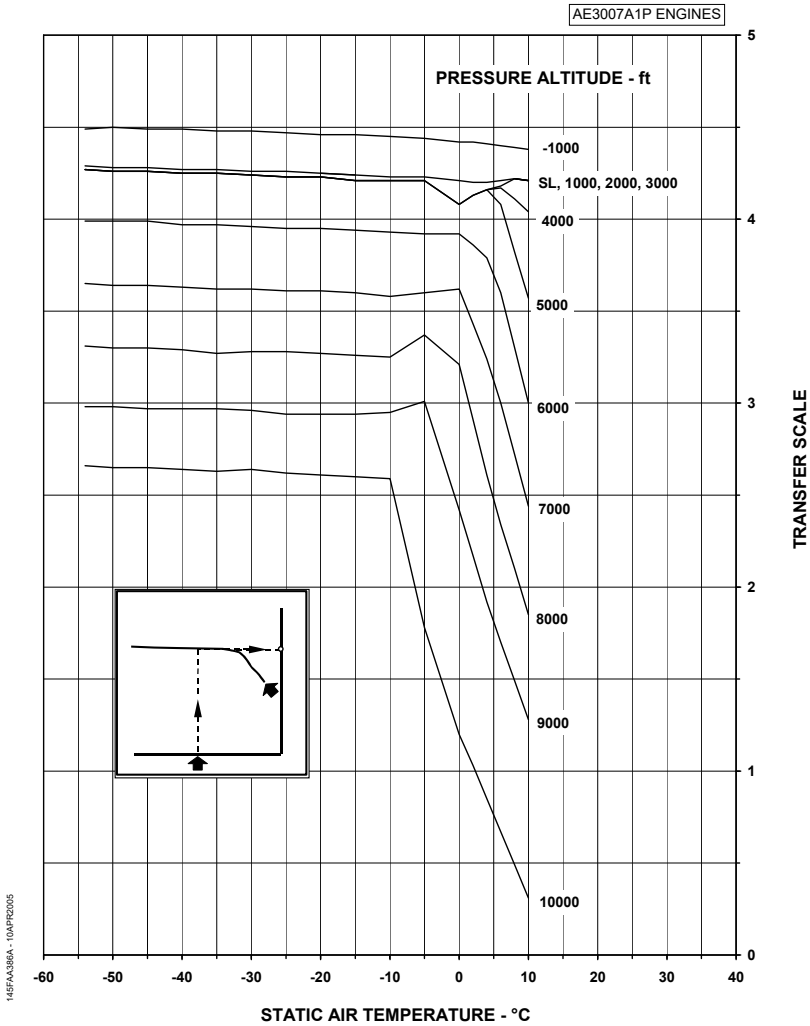


APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 2 OF 2

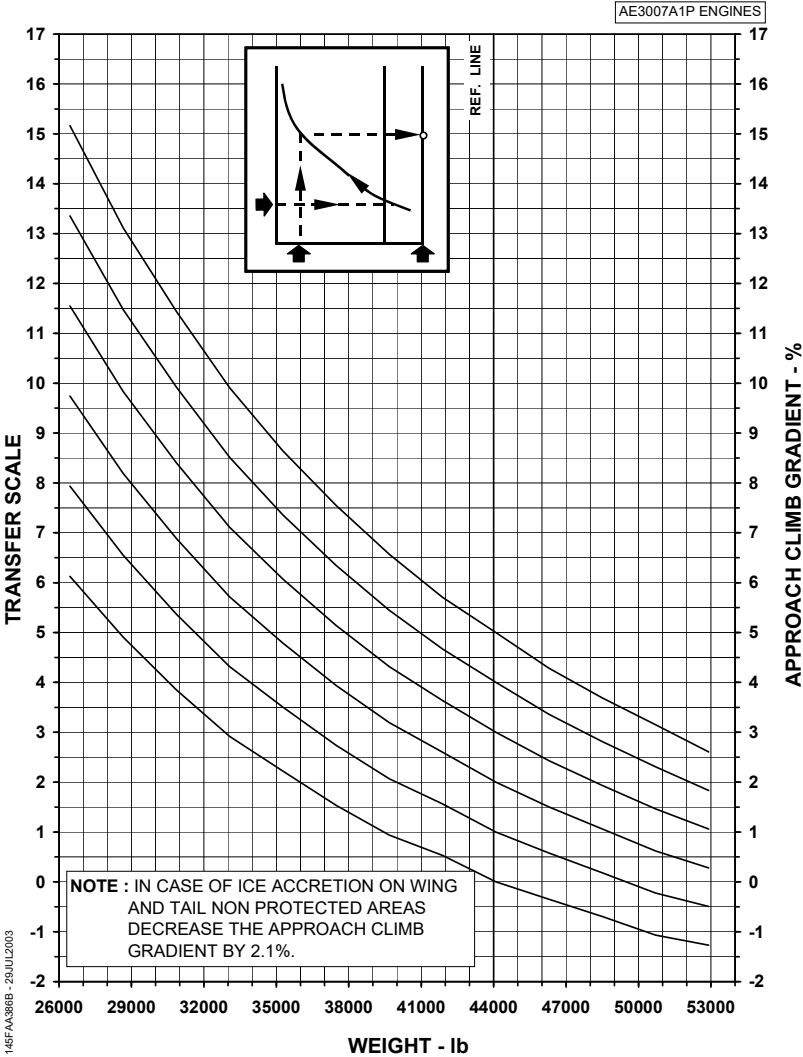


145FAA385B - 26JUL2003

APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 1 OF 2

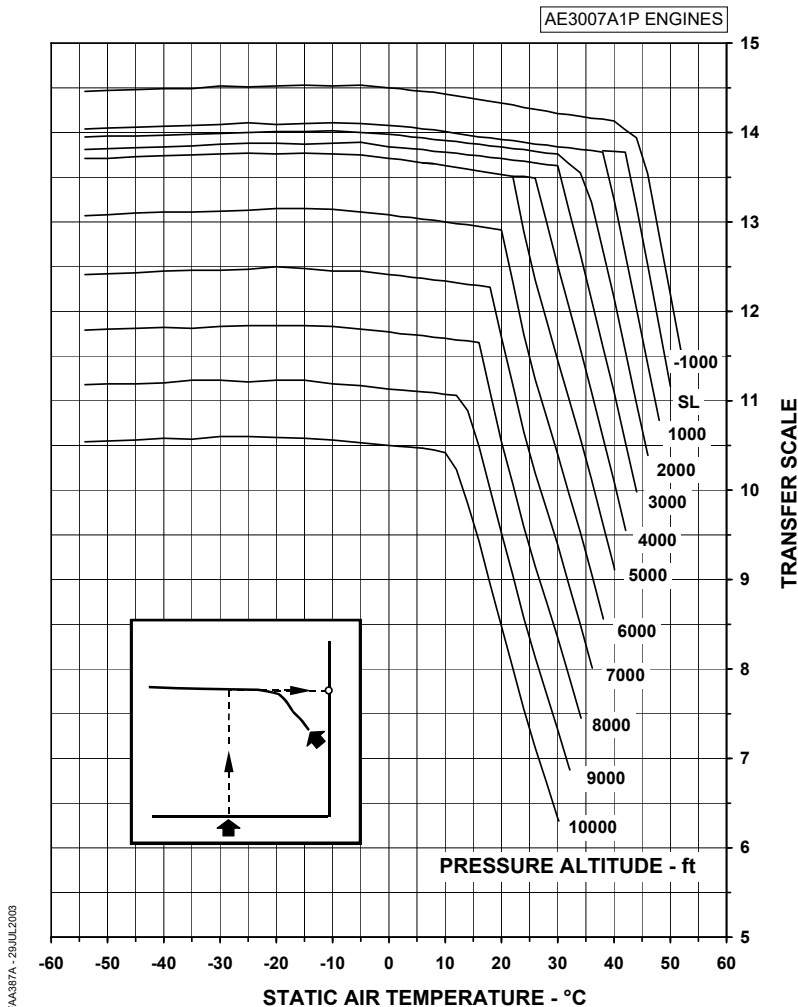


APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 2 OF 2

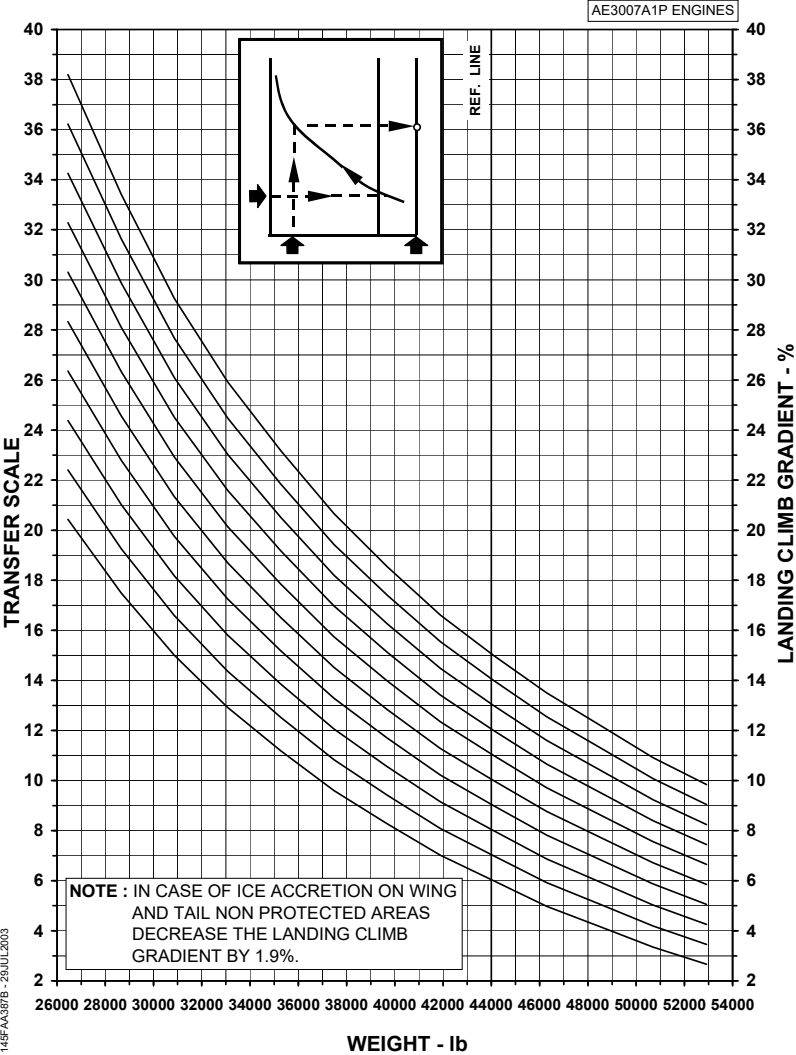


145FA386B - 29JUL2003

LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 1 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 2 OF 2

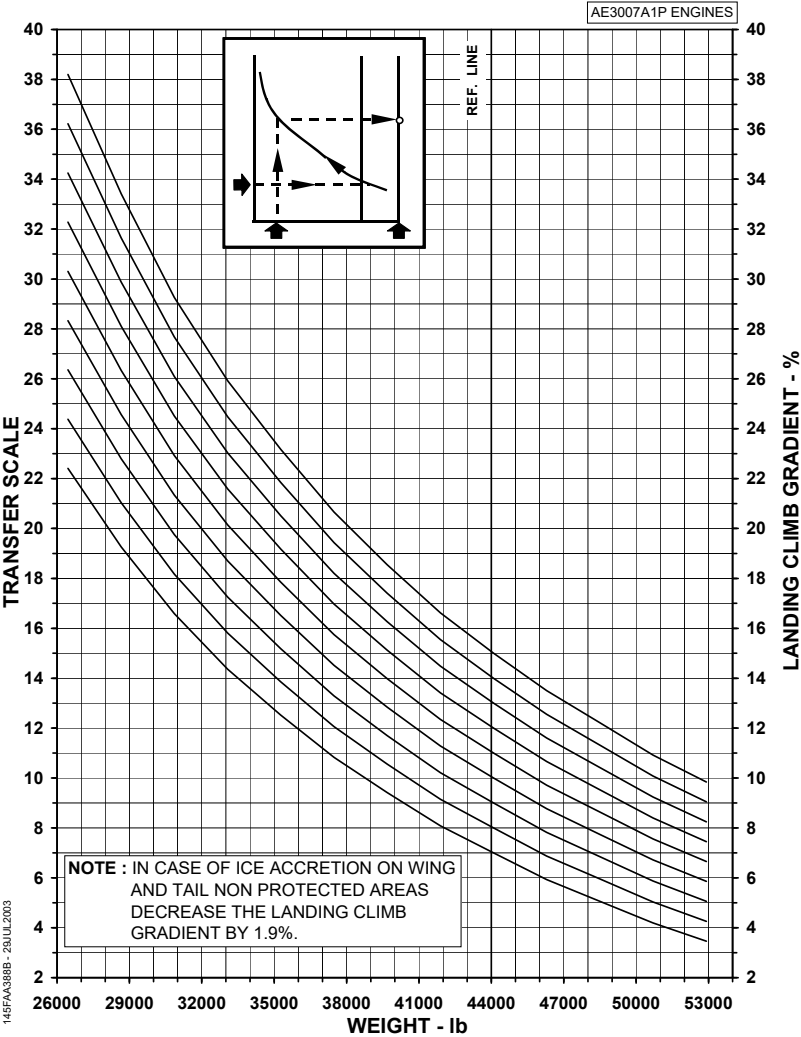


145FAA397B - 29JUL2003

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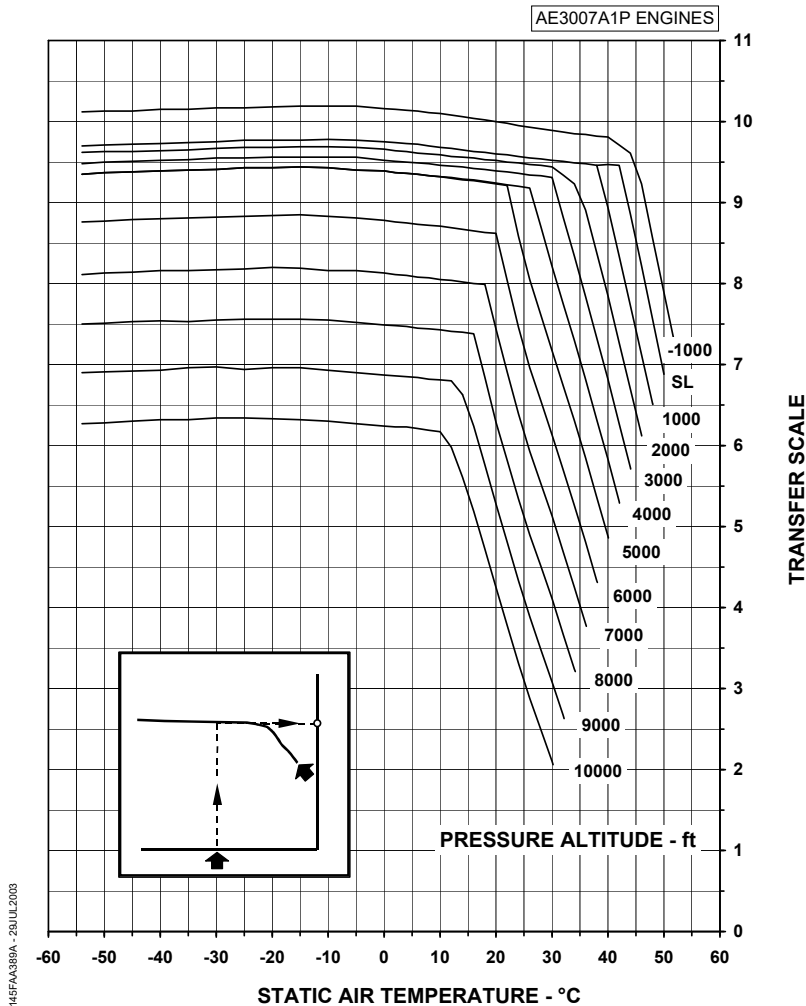
S12-157

LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 2 OF 2

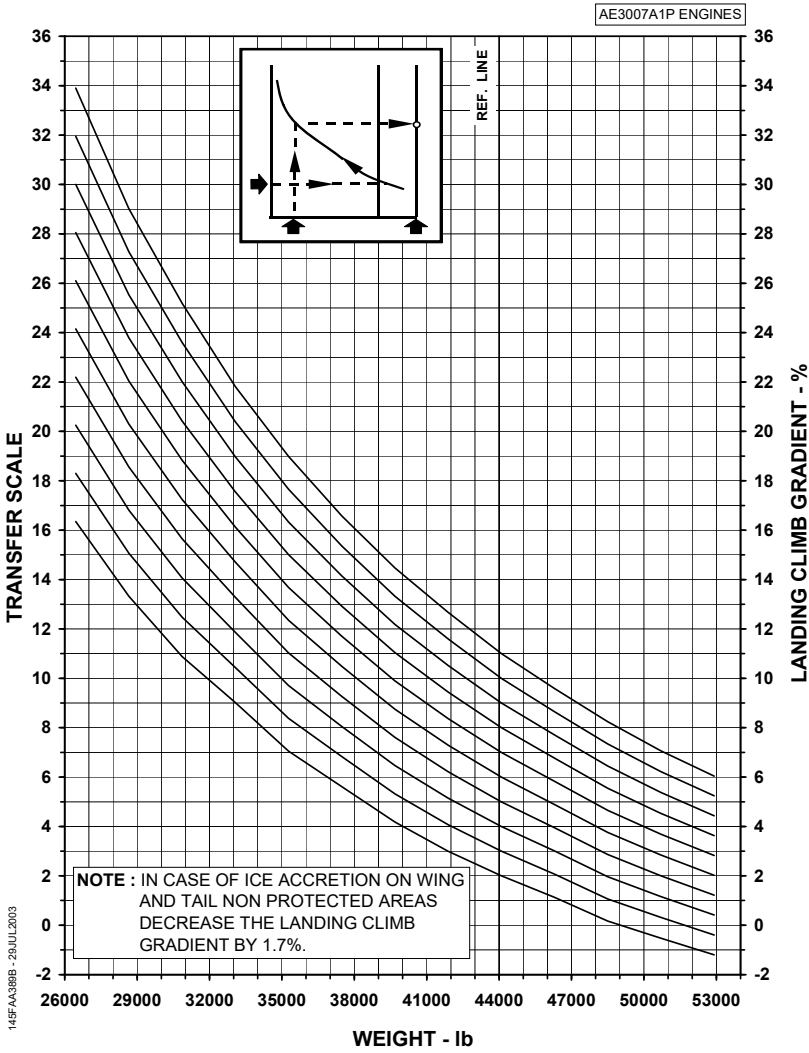


145FAA388B - 28JUL2003

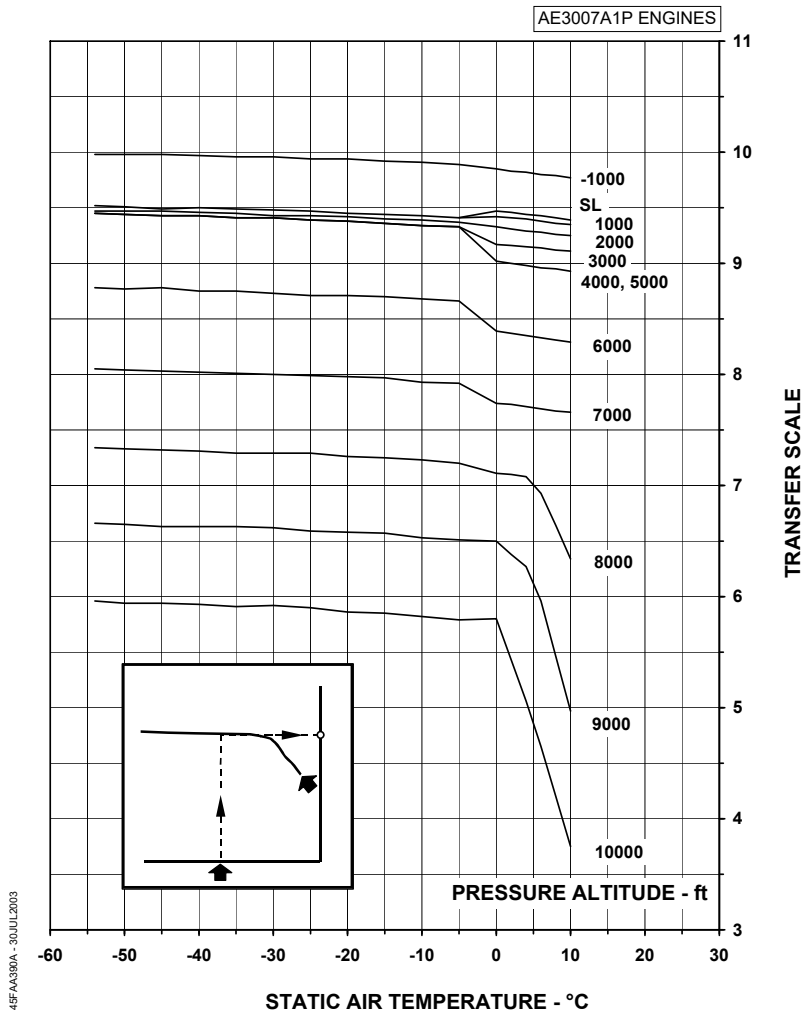
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 1 OF 2



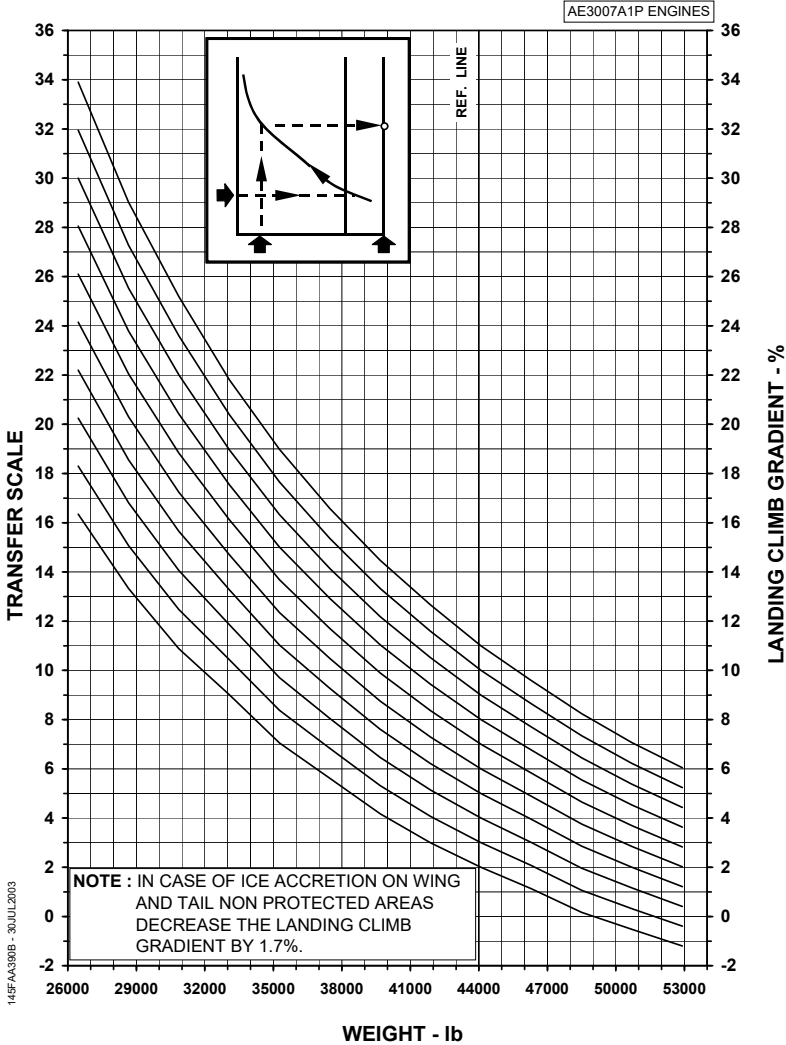
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 2 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 1 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 2 OF 2



145FAA390B - 30JUL2003

MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED CHARTS AND LANDING CLIMB LIMITED CHARTS

USE

Choose the appropriate chart considering the flaps and anti-ice options.

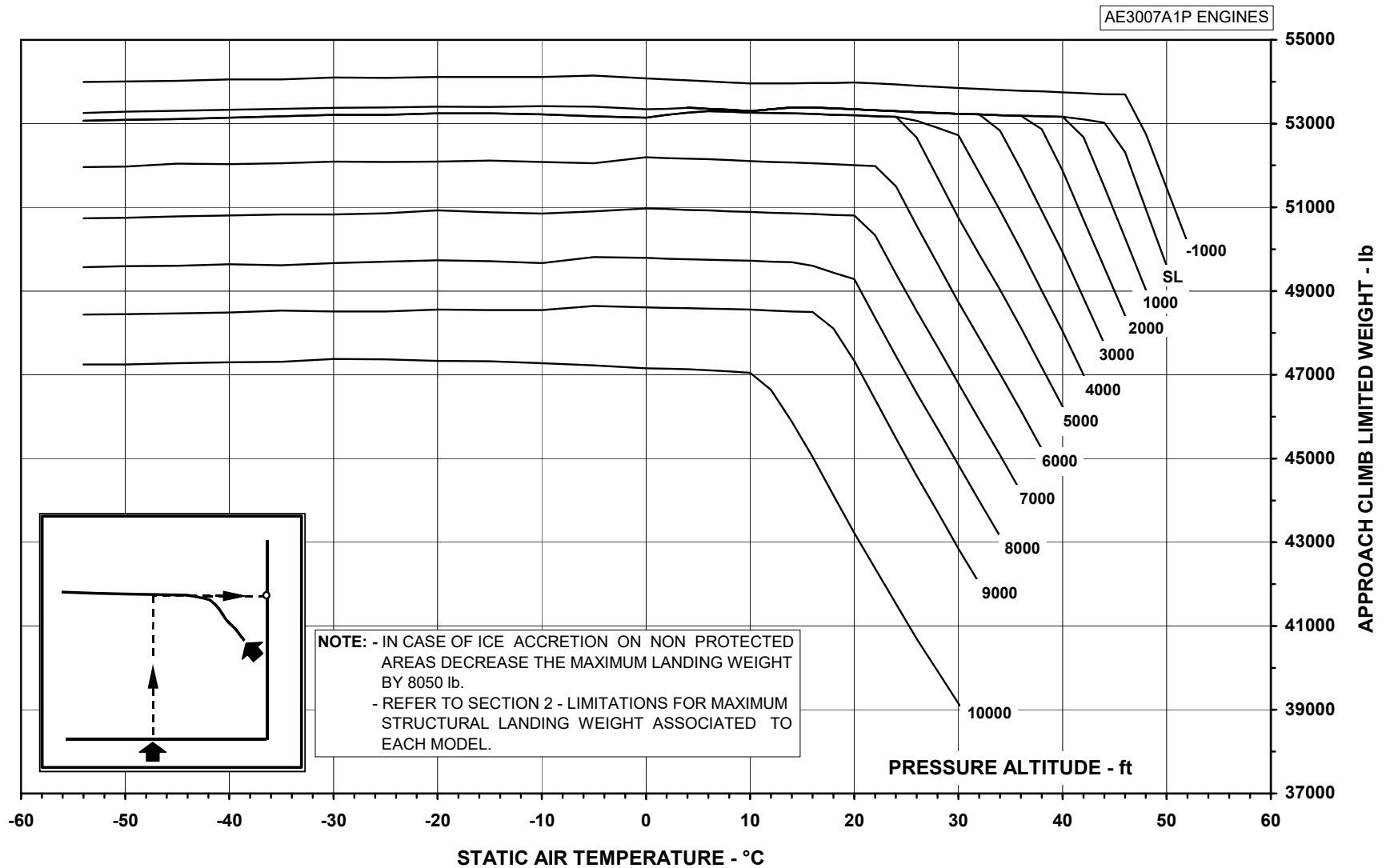
Enter the chart with the Static Air Temperature and go to the Airport Pressure Altitude. Read the desired climb limited weight.

NOTE: Airplanes equipped with FADEC software version B5.1.1 must decrease the Approach Climb Limited Weight by 1920 lb.

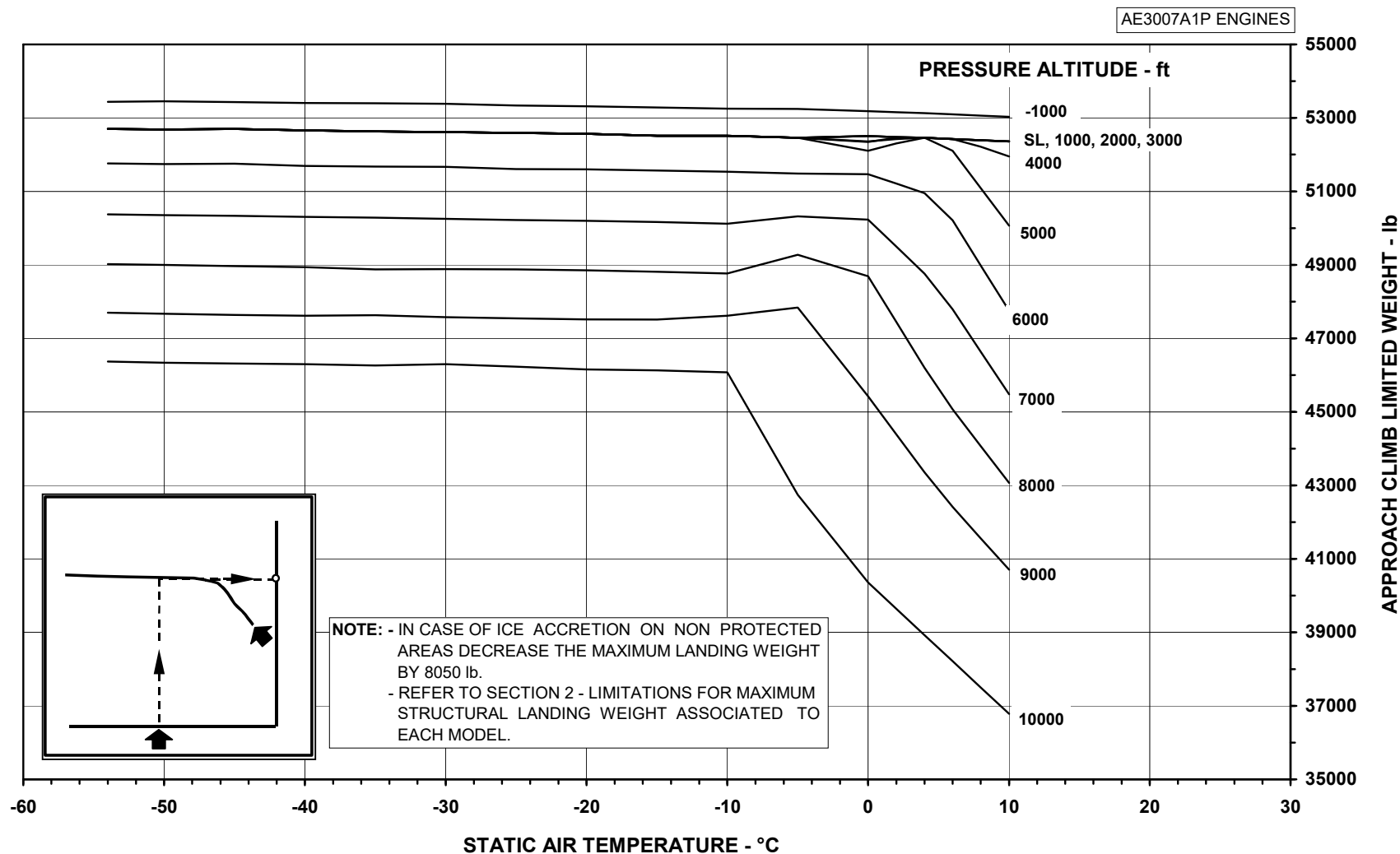


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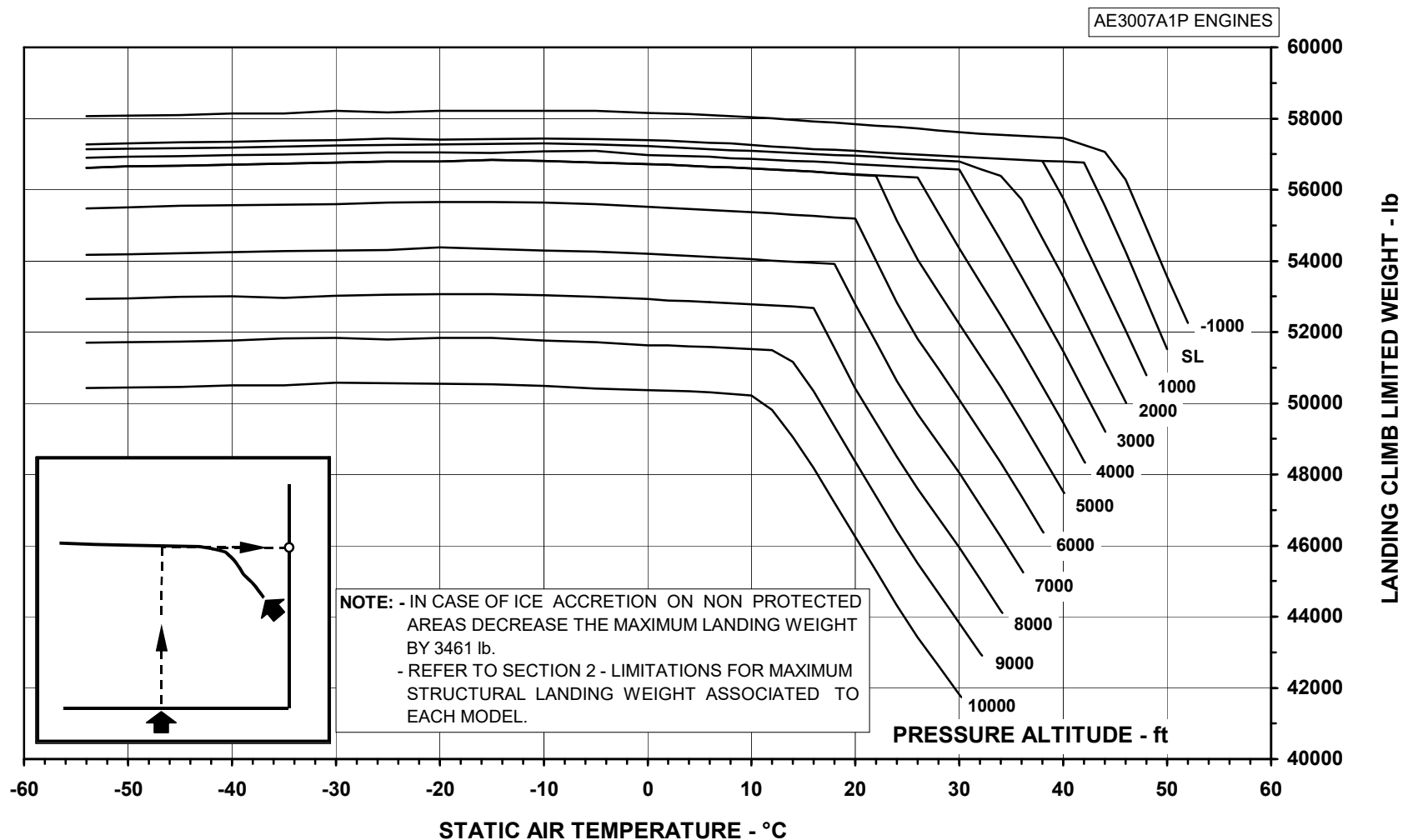
MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED **APPROACH FLAPS 9° - ANTI-ICE OFF**



MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED APPROACH FLAPS 9° - ANTI-ICE ON



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE OFF**

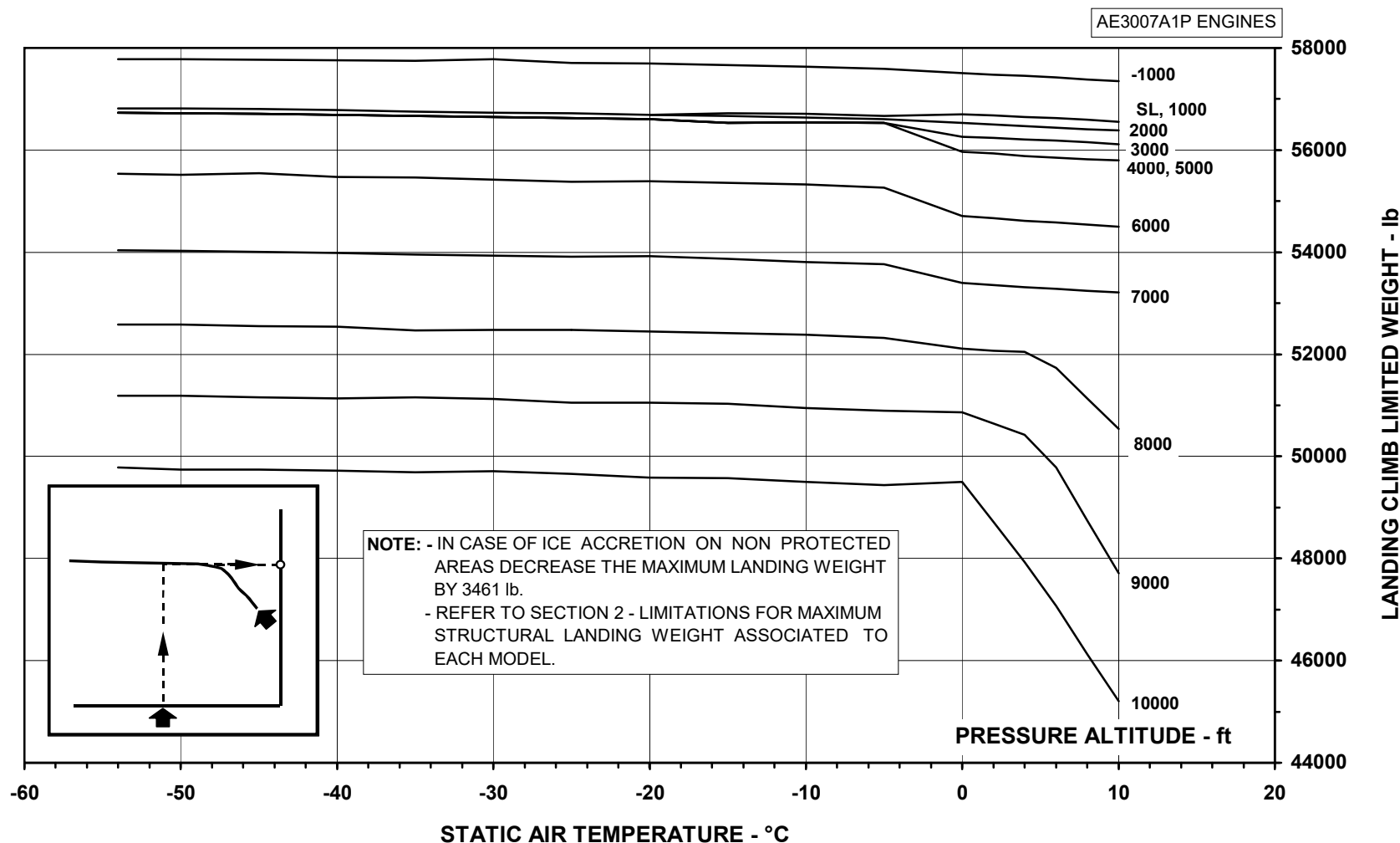


145FAA393 - 30JUL2003

AFM-145/1153 - FAA

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MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE ON**



145FAA394 - 30JUL2003

UNRELIABLE AIRSPEED TABLES

The unreliable airspeed tables must be used when the indications of airspeed are not reliable and are called by the abnormal procedure Unreliable Airspeed from section 3, which also must be accomplished. For each certified engine type, charts are presented according to the following associated conditions:

Anti-Ice.....ON or OFF

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: OFF

CLB THRUST MODE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	13	12	11	10	10	9
	V/S (ft/min)	4800	4000	3400	2900	2500	2200
10000 (240 KIAS)	Pitch (deg)	10	9	8	8	8	7
	V/S (ft/min)	3800	3100	2700	2200	1900	1600
20000 (0.56 M)	Pitch (deg)	7	6	6	5	5	5
	V/S (ft/min)	3500	2800	2300	1800	1500	1200
30000 (0.56 M)	Pitch (deg)	7	7	7	8	7	7
	V/S (ft/min)	2700	2000	1600	1200	900	600
37000 (0.56 M)	Pitch (deg)	7	7	8	8	8	-
	V/S (ft/min)	1800	1300	900	400	100	-

CRUISE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
15000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	68.7	69.9	71.1	72.4	73.8	75.3
20000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	72.0	73.3	74.8	76.4	78.0	79.6
25000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	76.1	77.6	79.3	80.7	81.9	83.1
30000 (0.63 M)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	78.5	80.0	81.2	82.5	84.0	85.5
37000 (0.63 M)	Pitch (deg)	2	2	2	3	3	4
	N1 (%)	79.8	81.7	83.8	86.4	89.8	92.8

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: OFF

FLIGHT IDLE DESCENT

PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	-3	-2	-2	-1	-1	0
	V/S (ft/min)	-1800	-1700	-1600	-1500	-1500	-1500
10000 (240 KIAS)	Pitch (deg)	-3	-2	-1	-1	0	0
	V/S (ft/min)	-2000	-1900	-1800	-1800	-1700	-1700
20000 (240 KIAS)	Pitch (deg)	-2	-2	-1	-1	0	0
	V/S (ft/min)	-2200	-2100	-2000	-1900	-1900	-1900
30000 (240 KIAS)	Pitch (deg)	-2	-2	-1	0	0	1
	V/S (ft/min)	-2500	-2400	-2200	-2100	-2100	-2000
37000 (240 KIAS)	Pitch (deg)	-1	-1	0	0	1	1
	V/S (ft/min)	-2400	-2200	-2100	-2100	-2000	-2000

HOLDING

PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
5000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	54.0	55.9	57.8	59.9	62.2	64.4
10000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	57.5	59.5	61.8	63.9	66.2	68.4

Terminal Area (5000 ft) - %N1 for Level Flight

Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (V _{REF45} + 30)	Pitch (deg)	7	7	7	8
	N1 (%)	48.9	52.5	55.7	58.8
9 (V _{REF45} + 15)	Pitch (deg)	7	7	7	8
	N1 (%)	51.6	55.3	58.6	61.7

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: OFF

Final Approach (1500 ft) - %N1 for 3° Glideslope					
Flap position (V_{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
22 (V _{REF22} + 10)	Pitch (deg)	3	3	3	3
	N1 (%)	47.7	51.1	53.9	56.6
45 (V _{REF45} + 10)	Pitch (deg)	-1	0	0	0
	N1 (%)	58.6	62.4	65.7	68.6

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: ON

CLB THRUST MODE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	13	11	10	10	9	9
	V/S (ft/min)	4700	3900	3400	2900	2500	2200
10000 (240 KIAS)	Pitch (deg)	8	8	7	7	7	6
	V/S (ft/min)	3500	2800	2400	1900	1600	1400
20000 (0.56 M)	Pitch (deg)	6	5	5	5	5	5
	V/S (ft/min)	3000	2300	1900	1500	1200	900
30000 (0.56 M)	Pitch (deg)	6	6	6	6	6	6
	V/S (ft/min)	2000	1400	1100	700	400	200
37000 (0.56 M)	Pitch (deg)	6	6	7	7	-	-
	V/S (ft/min)	1200	700	400	0	-	-

CRUISE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
15000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	68.7	69.9	71.1	72.4	73.8	75.3
20000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	72.0	73.4	74.8	76.4	78.0	79.6
25000 (250 KIAS)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	76.1	77.6	79.3	80.7	81.9	83.1
30000 (0.63 M)	Pitch (deg)	1	1	2	2	2	3
	N1 (%)	78.5	79.9	81.2	82.5	84.0	85.5
37000 (0.63 M)	Pitch (deg)	2	2	2	3	3	4
	N1 (%)	79.8	81.7	83.8	86.4	89.8	92.8

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: ON

FLIGHT IDLE DESCENT							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	-1	0	0	0	1	1
	V/S (ft/min)	-900	-900	-900	-900	-900	-1000
10000 (240 KIAS)	Pitch (deg)	-1	0	0	0	1	1
	V/S (ft/min)	-1200	-1200	-1200	-1200	-1200	-1200
20000 (240 KIAS)	Pitch (deg)	-1	0	0	0	1	1
	V/S (ft/min)	-1300	-1300	-1300	-1300	-1300	-1400
30000 (240 KIAS)	Pitch (deg)	0	0	0	1	1	2
	V/S (ft/min)	-1400	-1400	-1400	-1400	-1400	-1400
37000 (240 KIAS)	Pitch (deg)	0	0	0	1	1	2
	V/S (ft/min)	-1700	-1600	-1600	-1500	-1500	-1500

HOLDING							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
5000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	54.0	55.9	57.8	59.9	62.2	65.7
10000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	57.5	59.5	61.8	65.7	66.2	69.7

Terminal Area (5000 ft) - %N1 for Level Flight					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (V _{REF45} + 30)	Pitch (deg)	7	7	7	8
	N1 (%)	48.9	52.5	55.7	61.3
9 (V _{REF45} + 15)	Pitch (deg)	7	7	7	8
	N1 (%)	52.3	55.3	58.6	64.3

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145	Engine: AE3007A1&A1P	Anti-Ice: ON

Final Approach (1500 ft) - %N1 for 3° Glideslope					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
22	Pitch (deg)	3	3	3	3
(V _{REF22} + 10)	N1 (%)	48.9	52.5	55.7	61.3
45	Pitch (deg)	-1	0	0	0
(V _{REF45} + 10)	N1 (%)	58.6	62.4	65.7	70.9



AIRPLANE FLIGHT MANUAL

SUPPLEMENT 13
EMB-135 TAKEOFF WITH
FLAPS 18° - STD CG

SUPPLEMENT 13

LIST OF EFFECTIVE PAGES

ORIGINAL..... 0..... Not Applicable
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REVISION..... 34..... DEC 27, 1999
REVISION..... 35 to 52 Not Applicable
REVISION..... 53..... OCT 22, 2002

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S13-iii	REVISION 34	S13-24	REVISION 34
S13-iv	REVISION 34	S13-25	REVISION 34
S13-1	REVISION 34	S13-26	REVISION 34
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S13-11	REVISION 34	S13-36	REVISION 34
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S13-13	REVISION 34	S13-38	REVISION 34
S13-14	REVISION 34	S13-39	REVISION 34
S13-15	REVISION 34	S13-40	REVISION 34
S13-16	REVISION 34	S13-41	REVISION 34
S13-17	REVISION 34	S13-42	REVISION 34
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S13-19	REVISION 34		
S13-20	REVISION 34		
S13-21	REVISION 34		

* Asterisk indicates pages revised, added or deleted by the current revision.

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S13-i



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EMB-135 TAKEOFF WITH FLAPS 18° AND STANDARD CG

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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 13
EMB-135 TAKEOFF WITH
FLAPS 18° - STD CG

GENERAL

This Supplement is provided to present the takeoff data required for EMB-135 takeoff operations with flaps 18° and standard CG envelope. The information herein presented must replace the equivalent data in the basic AFM.

For limitations, procedures and performance information not contained in this Supplement, refer to basic AFM and Supplements related to the EMB-135 models, as applicable.

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LIMITATIONS

POWER PLANT

ENGINES

Two Allison AE3007A1/3 engines.

TAKEOFF THRUST MODE

Only ALT T/O Mode is allowed for takeoff.

NOTE: For airplanes Post-Mod. SB 145-31-0016 or equipped with an equivalent modification factory incorporated the ALT T/O mode designation was changed to T/O.

AIRSPEEDS

Only NORMAL V_2 takeoff speed is allowed for takeoff.

EMERGENCY AND ABNORMAL PROCEDURES

TAKEOFF WITH ENGINE FAILURE ABOVE V_1

Maximum Takeoff Thrust..... CHECK

At V_R rotate the airplane to 13°.

With positive rate of climb:

Landing Gear UP

Airspeed V_2

Maintain V_2 up to the level off altitude. If maneuvering is required, maintain a maximum bank of 15°.

When reaching the level off height:

At $V_2 + 10$ KIAS:

Flaps 9°

At $V_2 + 30$ KIAS:

Flaps UP

Airspeed ACCELERATE
TO FINAL
SEGMENT
SPEED

After flaps are retracted:

PRECAUTIONARY ENGINE SHUTDOWN or

ENGINE FIRE, SEVERE DAMAGE OR

SEPARATION Procedure AS REQUIRED

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S13-3

NORMAL PROCEDURES

BEFORE START

Takeoff Data.....SET
Select ALT T/O mode.

AFTER START

Flaps.....18°

TAKEOFF

Thrust Levers THRUST SET

NOTE: - If the runway is considered to be limiting, a static takeoff must be accomplished. In this case, release brakes after the engine has reached the target N1.
- During the takeoff run, pedals should be used to steer the airplane.

Engine Parameters.....MONITOR

At V_R , rotate the airplane to 13°.

With positive rate of climb:

Landing Gear.....UP

Minimum Airspeed V_2

If maneuvering is required, maintain a minimum airspeed of $V_2 + 10$ KIAS with a maximum bank of 25°.

At $V_2 + 10$ KIAS:

Flaps.....9°

At $V_2 + 30$ KIAS:

Flaps.....UP

PERFORMANCE

GENERAL

The performance data presented in this Supplement must replace the equivalent data in Supplement 11.

	OPERATING ENGINES	THRUST	FLAPS	GEAR	AIRSPEED
TAKEOFF	2 until V_{EF} , 1 after V_{EF}	THRUST SET or MAX	18°	DOWN	0 TO V_2
1 ST SEGMENT	1	MAX	18°	DOWN TO UP	V_{LOF} TO V_2
2 ND SEGMENT	1	MAX	18°	UP	V_2
3 RD SEGMENT	1	MAX	18° TO UP	UP	V_2 TO FINAL SEGMENT SPEED

Unless otherwise specified, the performance charts presented in this Supplement must be used in the same way as in the basic AFM.

The data below are not presented in this Supplement and for takeoff calculations proceed as follows:

- BRAKE ENERGY - Due to the associated conditions, the maximum takeoff weight will never be limited by brake energy for takeoff with flaps 18°.
- V_{MCG} - Use the Ground Minimum Control Speed (Flaps 9°) chart contained in Supplement 11.
- V_{MCA} - Use the Air Minimum Control Speed (Flaps 9°) chart contained in Supplement 11.
- V_{FS} - Use the Final Segment Speed chart contained in Supplement 11.
- V_{MCL} - The Minimum Control Speed During Landing and Approach is equal to 100 KIAS.



PROCEDURE TO USE THE TAKEOFF PERFORMANCE CHARTS

MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED

Enter the chart with static air temperature and airport pressure altitude to read the climb limited weight.

MAXIMUM TAKEOFF WEIGHT - FIELD LENGTH LIMITED

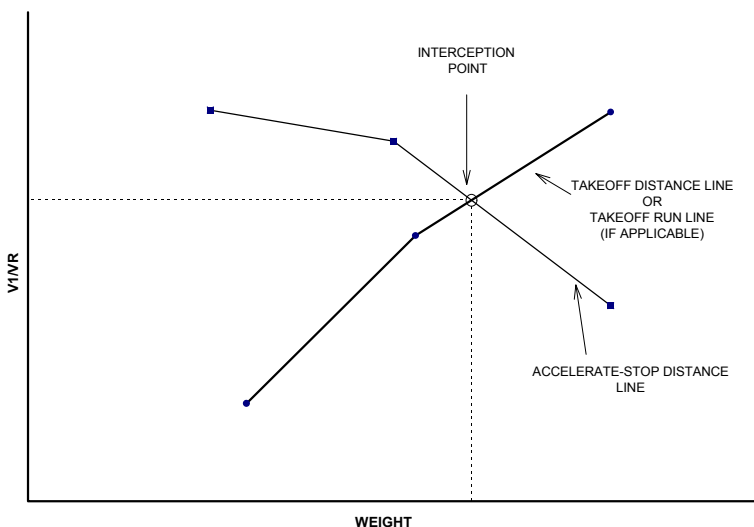
It is possible to use these charts in two different ways. If the runway length is available, the maximum takeoff weight can be found. In the same way, if the maximum takeoff weight is available the runway length can be found.

MAXIMUM TAKEOFF WEIGHT TARGET

1. a) Enter the Takeoff Distance Chart 1 of 2 from the right with the Runway Length.
b) If a clearway is available make the Clearway correction following directly the guidance line to the reference line. The difference between the runway length and the value found is the Maximum Allowable Clearway.
If the Maximum Allowable Clearway is equal or shorter than the Clearway, proceed to the next step (1c).
If the Maximum Allowable Clearway is bigger than the Clearway, enter again on the chart from the right with the runway length plus clearway, following directly to the reference line, and proceed to the next step (1c).
c) Proceed through Slope and Wind corrections (as necessary). Make the corrections, proceeding horizontally to the correction value and following the guide line until the reference line. The Takeoff Distance correction must be done following directly the guidance line to the reference line.
d) Proceed horizontally until intersecting three lines projected upwards from arbitrarily chosen V_1/V_R ratios. From the intersection, follow the guide line until the reference line, reading the transfer scale values.
e) Enter the Takeoff Distance Chart 2 of 2 with the Static Air Temperature and Airport Pressure Altitude. Proceed right horizontally to intersecting the reference line.
Follow the guide lines to intersecting the three horizontal lines from transfer scale, and read three weights for the corresponding three values of V_1/V_R .

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2. Enter the Accelerate Stop Distance Chart 1 of 2 from the right with the Accelerate-Stop distance. Proceed as step 1 (a through e) to read three weights for the corresponding three values of V_1/V_R .
3. a) Using V_1/V_R versus Weight Template, plot (see example 1) the three weights determined in the step 1, against the corresponding three values of V_1/V_R , creating the Takeoff Distance Line or the Takeoff Run Line (if applicable).
b) Plot the three weights determined in the step 2, against the corresponding three values of V_1/V_R , creating the Accelerate-Stop Distance Line.
4. Read the maximum takeoff weight and V_1/V_R at the intersection point between Takeoff Distance line and Accelerate-Stop Distance line.



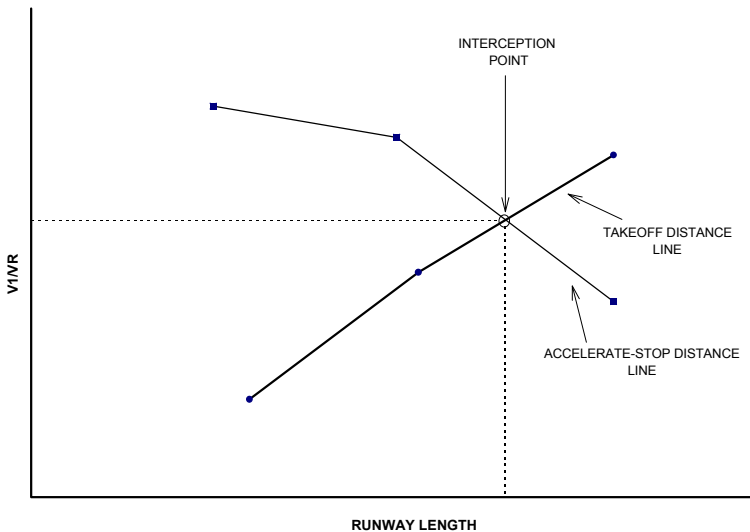
EXAMPLE 1

RUNWAY LENGTH TARGET

1. Enter the Takeoff Distance Chart 2 of 2 with the True Outside Air Temperature and Airport Pressure Altitude. Proceed right horizontally to intersecting the reference line. Follow the guide line to intersect the vertical line from the weight, and read the transfer scale value.

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2. Enter in the Takeoff Distance Chart 1 of 2 from the left with the transfer scale value. Follow the guide lines to intersect three lines projected upwards from arbitrarily chosen V_1/V_R ratios.
3. Make the corrections (as necessary), proceeding horizontally to the reference line and following the guide line to the correction value. Read the three runway length values.
4. Enter the Accelerate Stop Distance charts and proceed as step 1 through 3. Read three runway length values for the corresponding three values of V_1/V_R .
5. a) Using V_1/V_R versus Runway Length Template, plot (see example 2) the three runway lengths determined in step 3, against the corresponding three values of V_1/V_R , creating Takeoff Distance Line or Takeoff Run Line (if applicable).
b) Plot the three runway lengths determined in step 4, against the corresponding three values of V_1/V_R , creating the Accelerate-Stop Distance Line.
6. Read the runway length and V_1/V_R at the intersection point between Takeoff Line and Accelerate-Stop Distance Line.



EXAMPLE 2

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MAXIMUM TAKEOFF WEIGHT - OBSTACLE CLEARANCE LIMITED

Enter the charts (Obstacle Clearance - Reference Gradient and Obstacle Clearance) with the lowest among weight determined in the previous steps and the Maximum Takeoff Weight (structural) and check the obstacle clearance.

TAKEOFF SPEEDS V_1 , V_R , V_2 AND V_{FS}

Enter the Takeoff Speeds charts with the maximum allowable takeoff weight and read V_R and V_2 .

Enter the Takeoff Speeds - V_1 for Unbalanced Runway chart with the V_R and V_1/V_R and find the V_1 .

If the V_1 found is greater than 106 KIAS, the V_1 can be used.

If the V_1 found is lower than 106 KIAS, enter the Minimum V_1 chart. Check whether the V_1 is equal or greater than the minimum V_1 , if V_1 found is lower than minimum V_1 it cannot be used and it is necessary to proceed as follows:

- Enter the Takeoff Distance chart with a lower runway length and find three weights and the corresponding three values of V_1/V_R . Enter the V_1/V_R versus Weight Template with these values creating a new Takeoff Distance Line and maintaining the previous Accelerate-Stop Distance Line. Find the new Weight and the corresponding V_1/V_R . Find V_R and V_2 .



PROCEDURE FOR DETERMINATION OF TAKEOFF WEIGHT - ILLUSTRATIVE EXAMPLE

Takeoff data:

Takeoff flaps.....	18°
CG Envelope	21%
Runway Length.....	5000 ft
Clearway.....	Not Available
FADEC REF A/ICE.....	OFF
Static Air Temperature	20°C
Airport Pressure Altitude	3000 ft
Runway Slope	-1%
	(DOWN HILL)
Wind component	10 kt
	(HEAD WIND)

- 1 - Determine the Maximum Takeoff Weight - Climb limited:
 - 45700 lb.
- 2 - Determine the Maximum Takeoff Weight - Field Length limited:

a) Transfer Scale value on the Takeoff distance chart:

Assuming that $V_1/V_R = 0.90, 0.95$ and 1.00 :

- Transfer Scale = 5080 for $V_1/V_R = 0.90$
- Transfer Scale = 5400 for $V_1/V_R = 0.95$
- Transfer Scale = 5690 for $V_1/V_R = 1.00$

b) Determine the weight associated to each V_1/V_R on the Takeoff Distance chart:

Assuming that $V_1/V_R = 0.90, 0.95$ and 1.00 :

- Weight = 40000 lb for $V_1/V_R = 0.90$
- Weight = 41180 lb for $V_1/V_R = 0.95$
- Weight = 41600 lb for $V_1/V_R = 1.00$

- c) Determine the Transfer Scale Value on the Accelerate Stop Distance chart:

Assuming that $V_1/V_R = 0.90, 0.95$ and 1.00 :

- Transfer Scale = 5860 for $V_1/V_R = 0.90$
- Transfer Scale = 5250 for $V_1/V_R = 0.95$
- Transfer Scale = 4710 for $V_1/V_R = 1.00$

- d) Determine the weight associated to each V_1/V_R on the Accelerate Stop Distance chart:

Assuming that V_1/V_R 0.90, 0.95 and 1.00:

- Weight = 42750 lb for $V_1/V_R = 0.90$
- Weight = 40125 lb for $V_1/V_R = 0.95$
- Weight = 37180 lb for $V_1/V_R = 1.00$

- e) Determine the Maximum Takeoff Weight and V_1/V_R :

- Maximum Takeoff Weight = 40875 lb.
- $V_1/V_R = 0.935$.

3 - Determine the Maximum Weight - Obstacle Clearance limited:

- There is no obstacle on takeoff data, hence, the structural weight will be considered.

4 - As the determined takeoff weight - field length limited is lower than the maximum takeoff - climb limited, the takeoff weight - field length limited will be used.



5 - Determine V_R and V_2 for the Takeoff Weight determined in 4:

- $V_R = 120.0$ KIAS.
- $V_2 = 124.0$ KIAS.

6 - Determine V_1 from the Takeoff Speeds - V_1 chart:

- $V_1 = 112.5$ KIAS.

The V_1 found is higher than 110 KIAS, and no further correction is necessary.

7 - Determine the Minimum V_1 from the Takeoff Speeds Minimum V_1 chart:

- Minimum $V_1 = 101.8$ KIAS.

The V_1 found is greater than the minimum V_1 , so this value can be used.

NOTE: If the V_1 found was lower than the minimum V_1 , it would be necessary to find another Takeoff Distance Line in order to increase the V_1 , by decreasing the maximum takeoff weight or runway length, as described at the step 5 of the illustrative example.

8 - Determine the V_{FS} from the Final Segment Speed chart:

- $V_{FS} = 164.2$ KIAS.



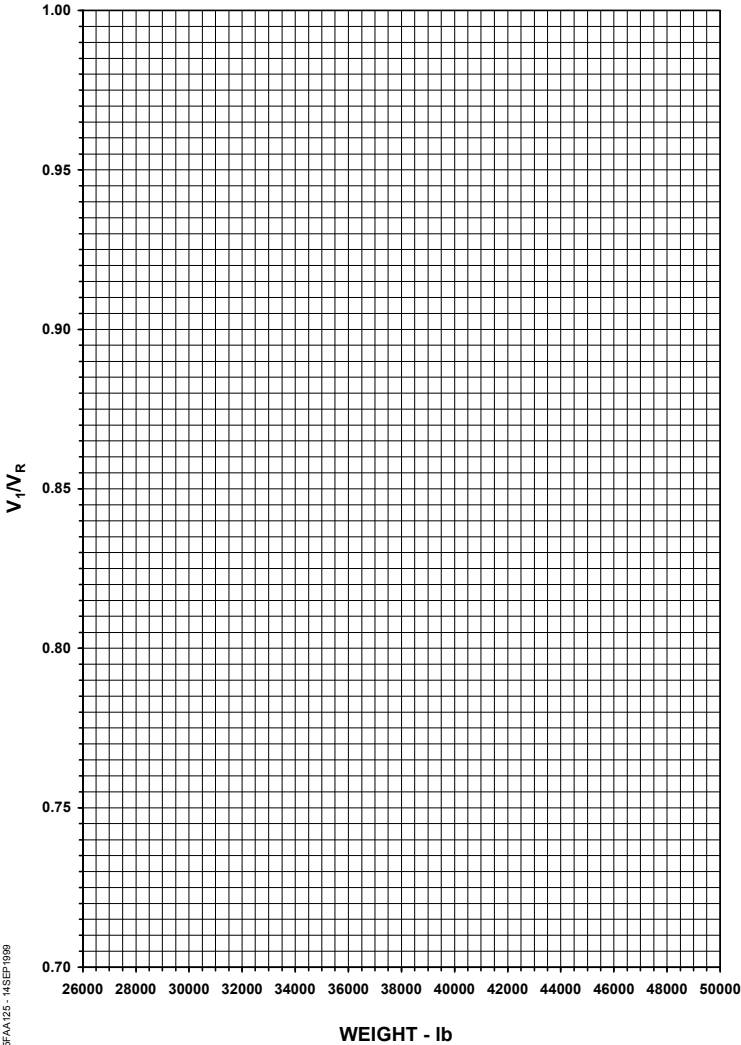
AIRPLANE FLIGHT MANUAL

SUPPLEMENT 13
EMB-135 TAKEOFF WITH
FLAPS 18° - STD CG

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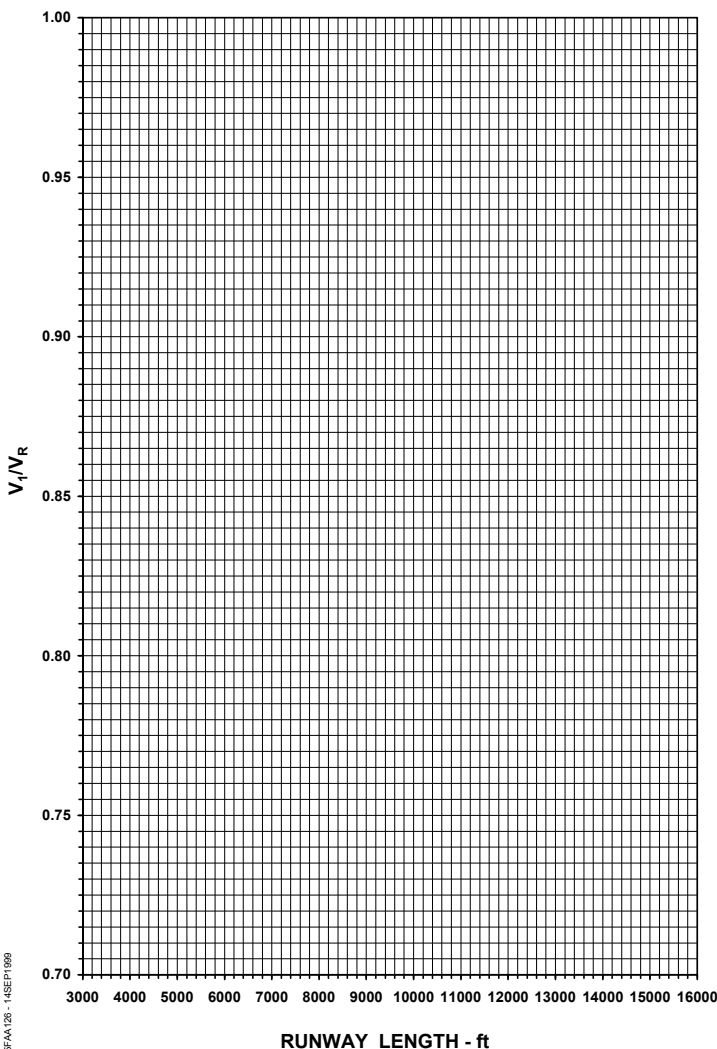
$V_1/V_R \times \text{WEIGHT}$



TEMPLATE 1

NOTE: This chart is presented only to support the takeoff analysis calculation.

$V_1/V_R \times \text{RUNWAY LENGTH}$



TEMPLATE 2

NOTE: This chart is presented only to support the takeoff analysis calculation.

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PERFORMANCE CHARTS FOR TAKEOFF WITH FLAPS 18° - CENTER OF GRAVITY ENVELOPE WITH STANDARD FORWARD LIMIT

The following performance charts are applicable for takeoff with AE3007A1/3 engines and flaps 18° using the Center of Gravity Envelope with standard forward limit.

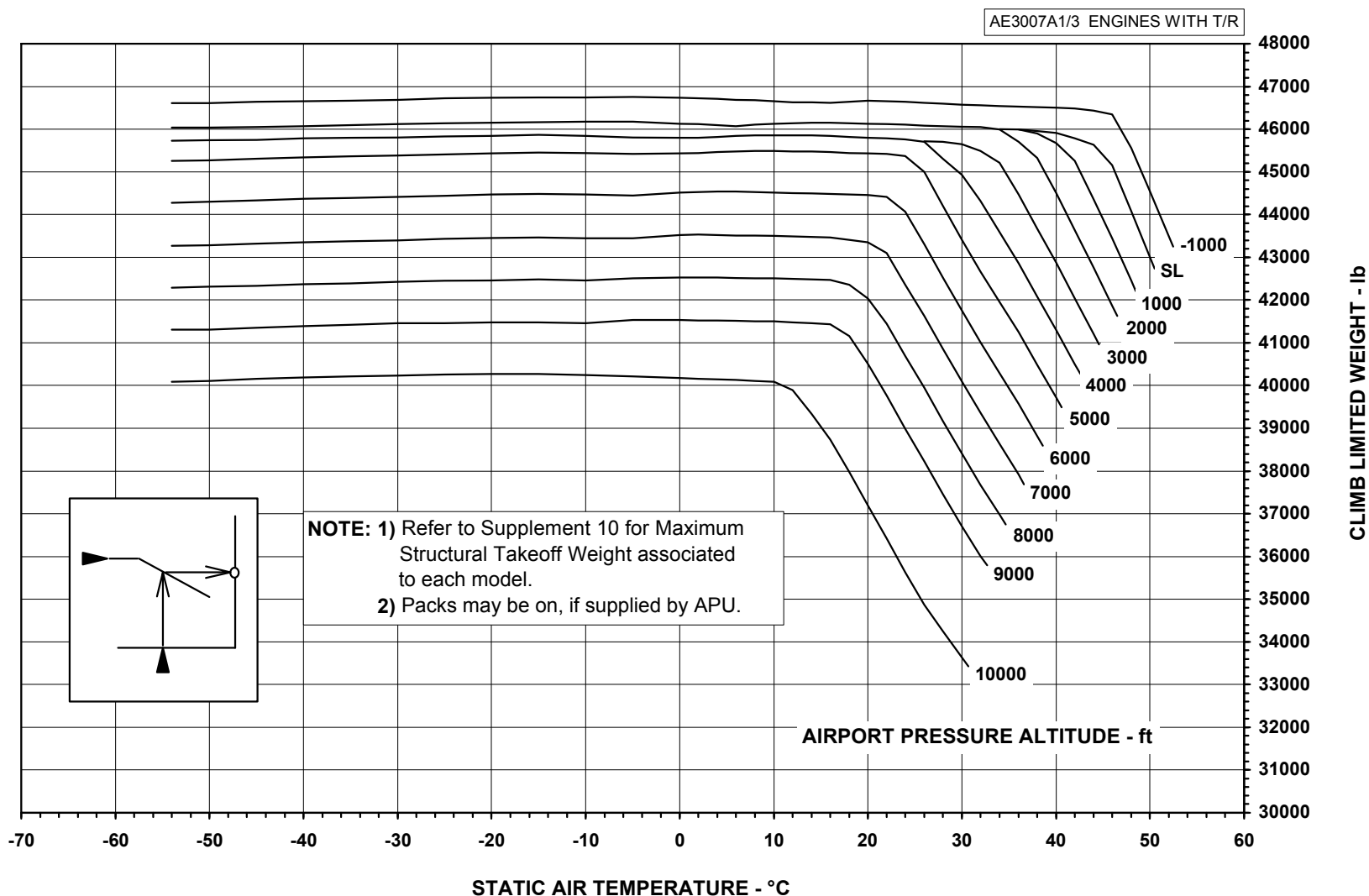
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MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED (STANDARD CG)

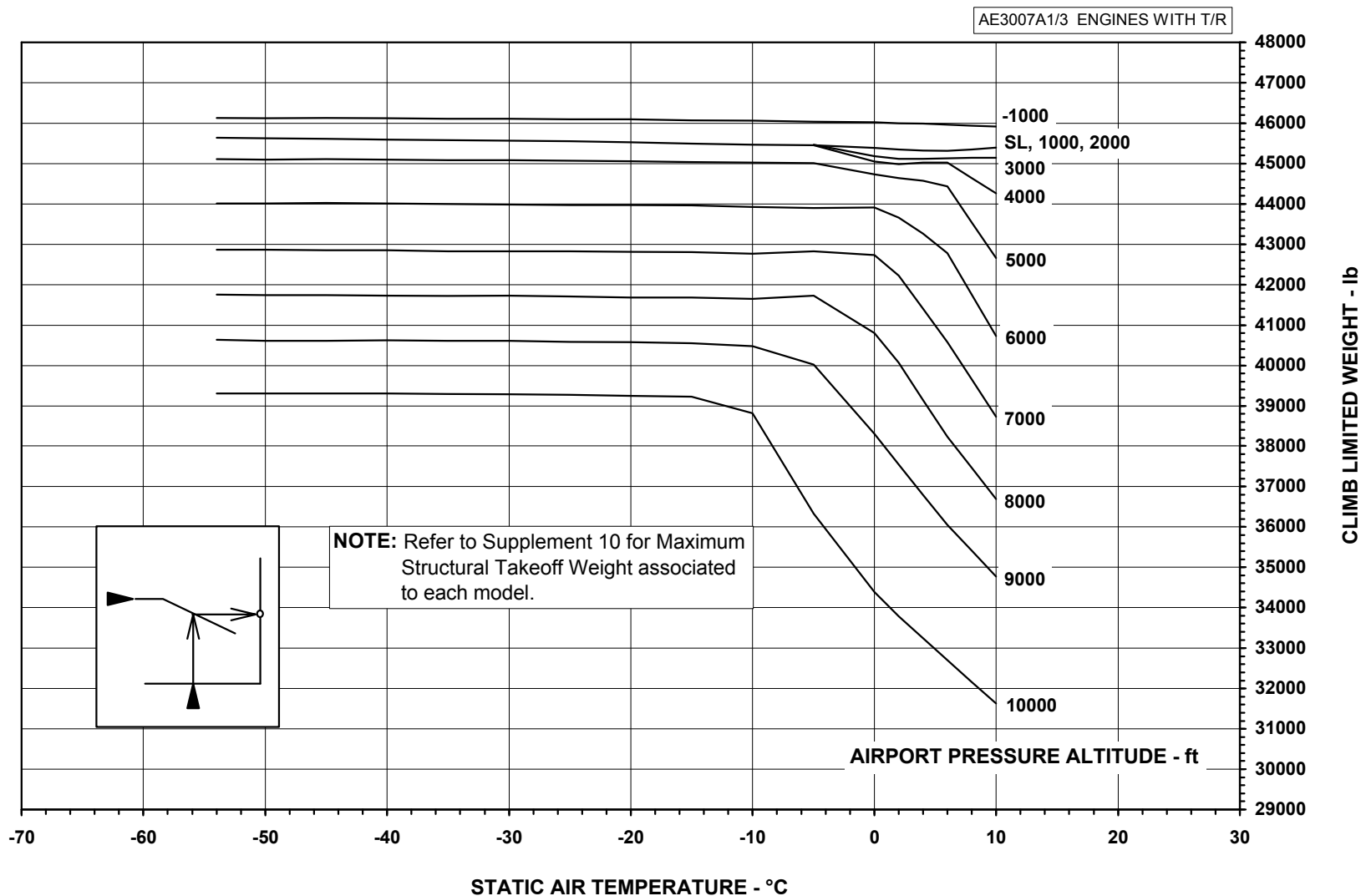
ALT T/O MODE - FLAPS 18°
NORMAL V_2 - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF



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MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED (STANDARD CG)

ALT T/O MODE - FLAPS 18°
NORMAL V_2 - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON



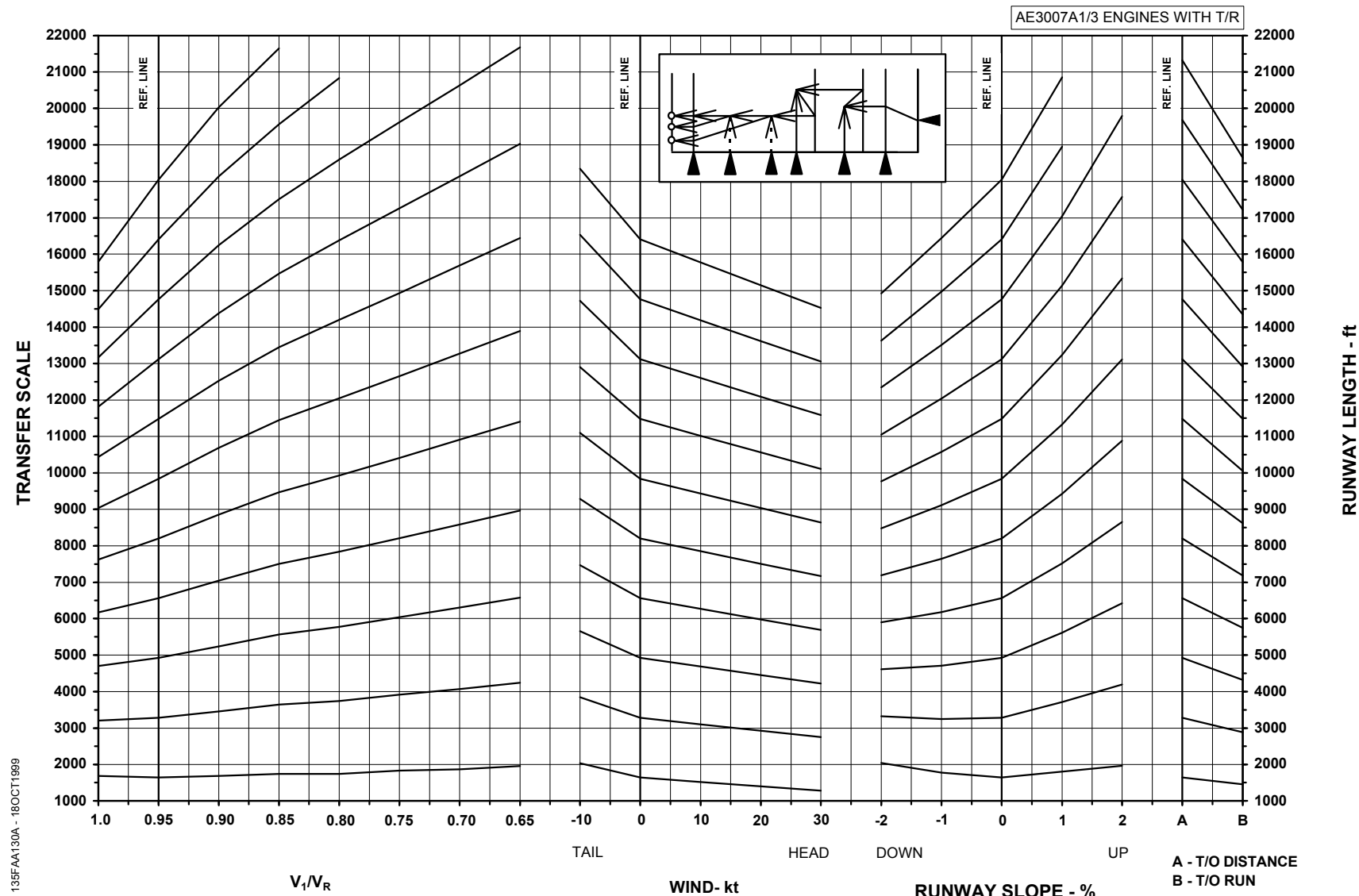


**AIRPLANE
FLIGHT
MANUAL**

SUPPLEMENT 13
EMB-135 TAKEOFF WITH
FLAPS 18° - STD CG

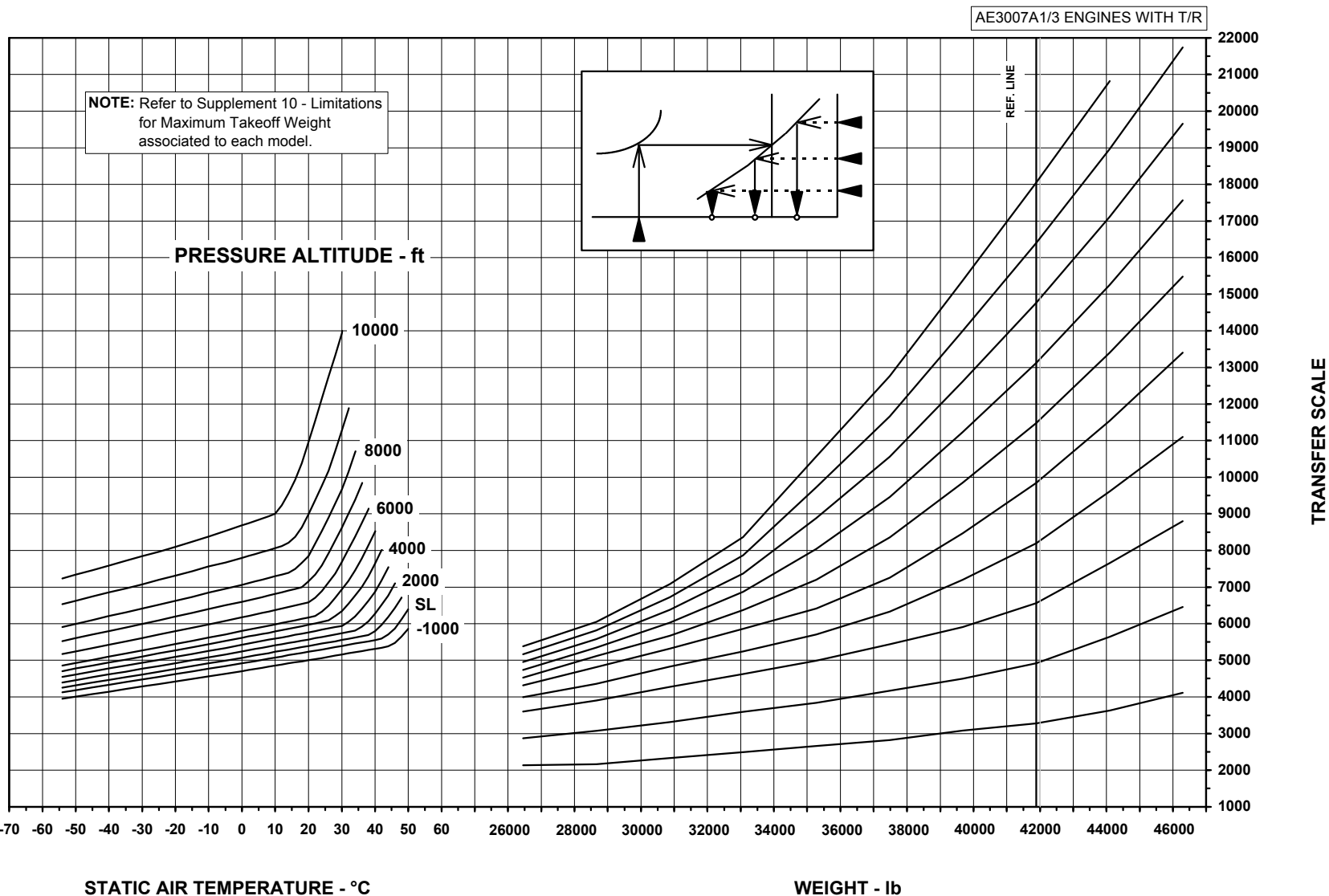
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TAKEOFF DISTANCE (STANDARD CG)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE OFF
CHART 1 OF 2



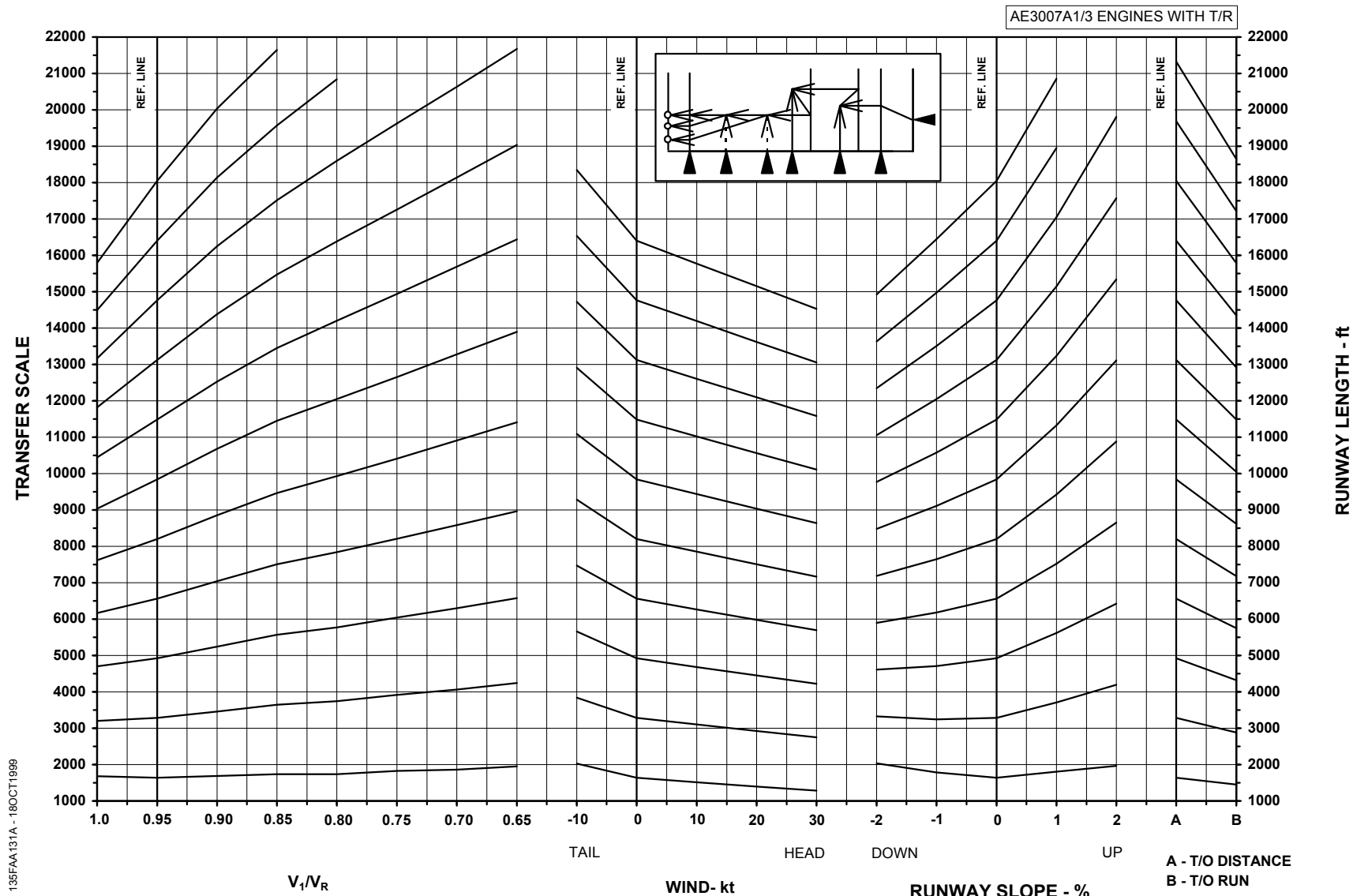
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TAKEOFF DISTANCE (STANDARD CG)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE OFF
CHART 2 OF 2



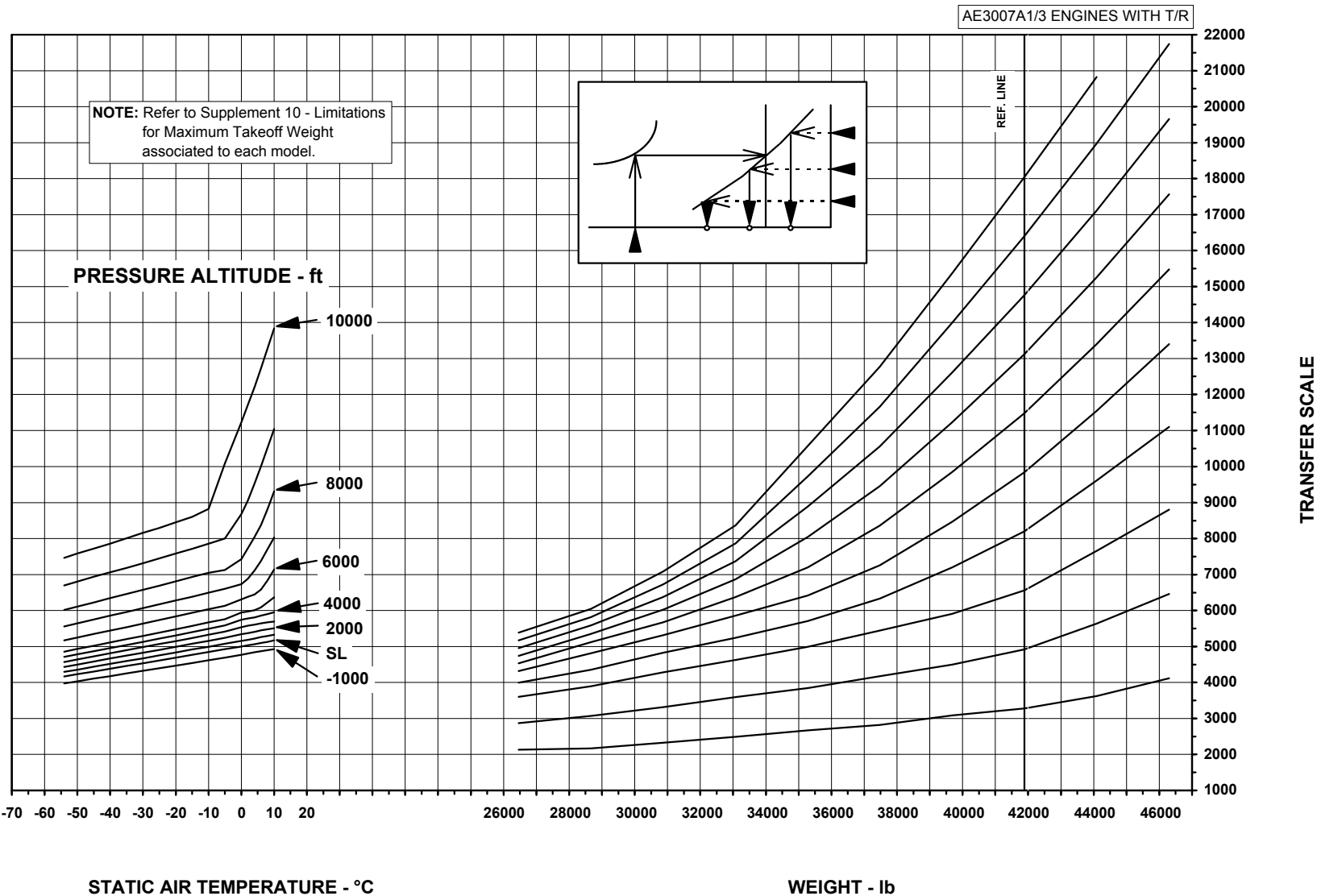
135FAA130B - 18OCT1999

TAKEOFF DISTANCE (STANDARD CG)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2



135FAA131A - 18OCT1999

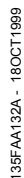
TAKEOFF DISTANCE (STANDARD CG)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2



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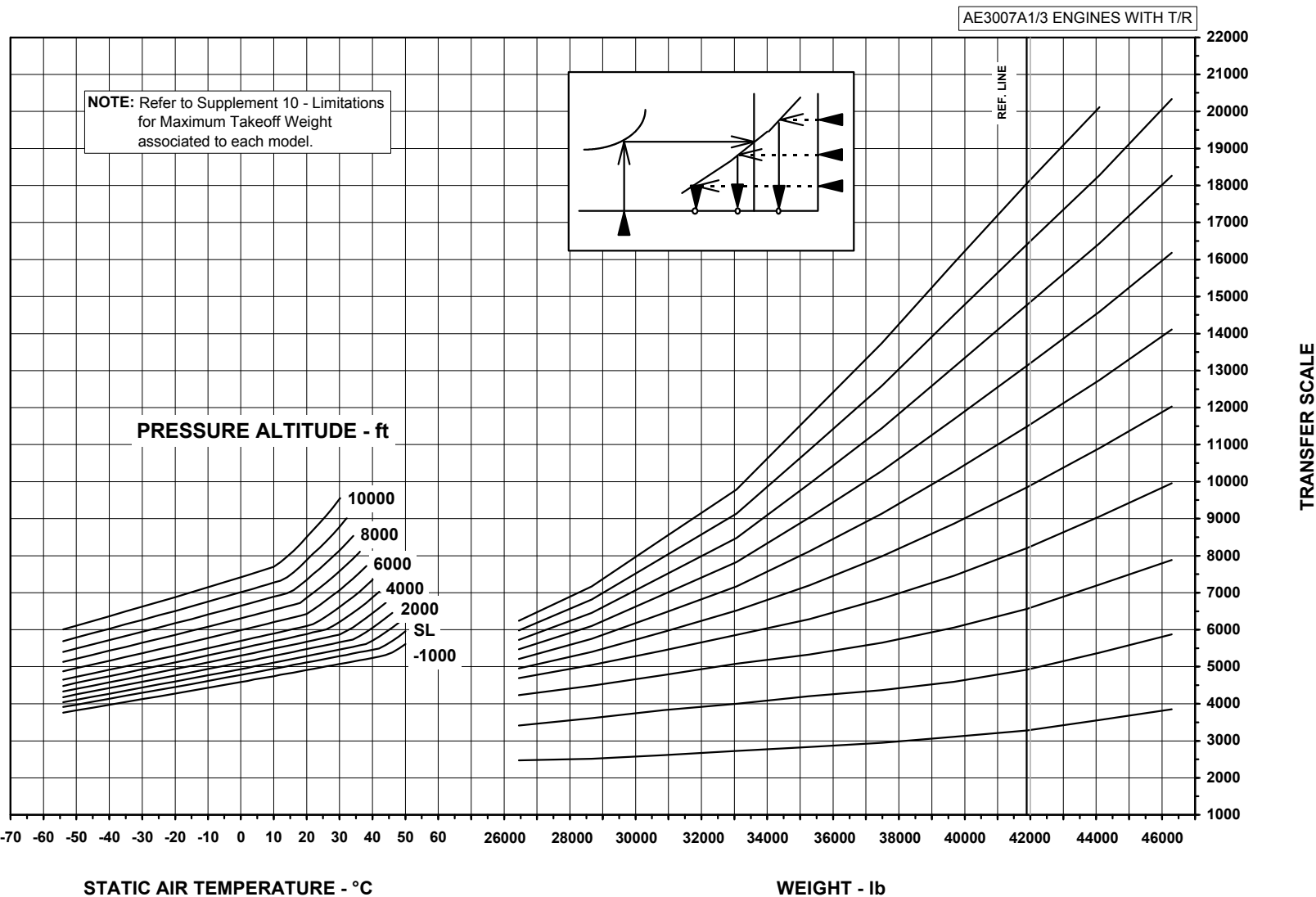
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CHART 1 OF 2



ACCELERATE STOP DISTANCE (STANDARD CG)

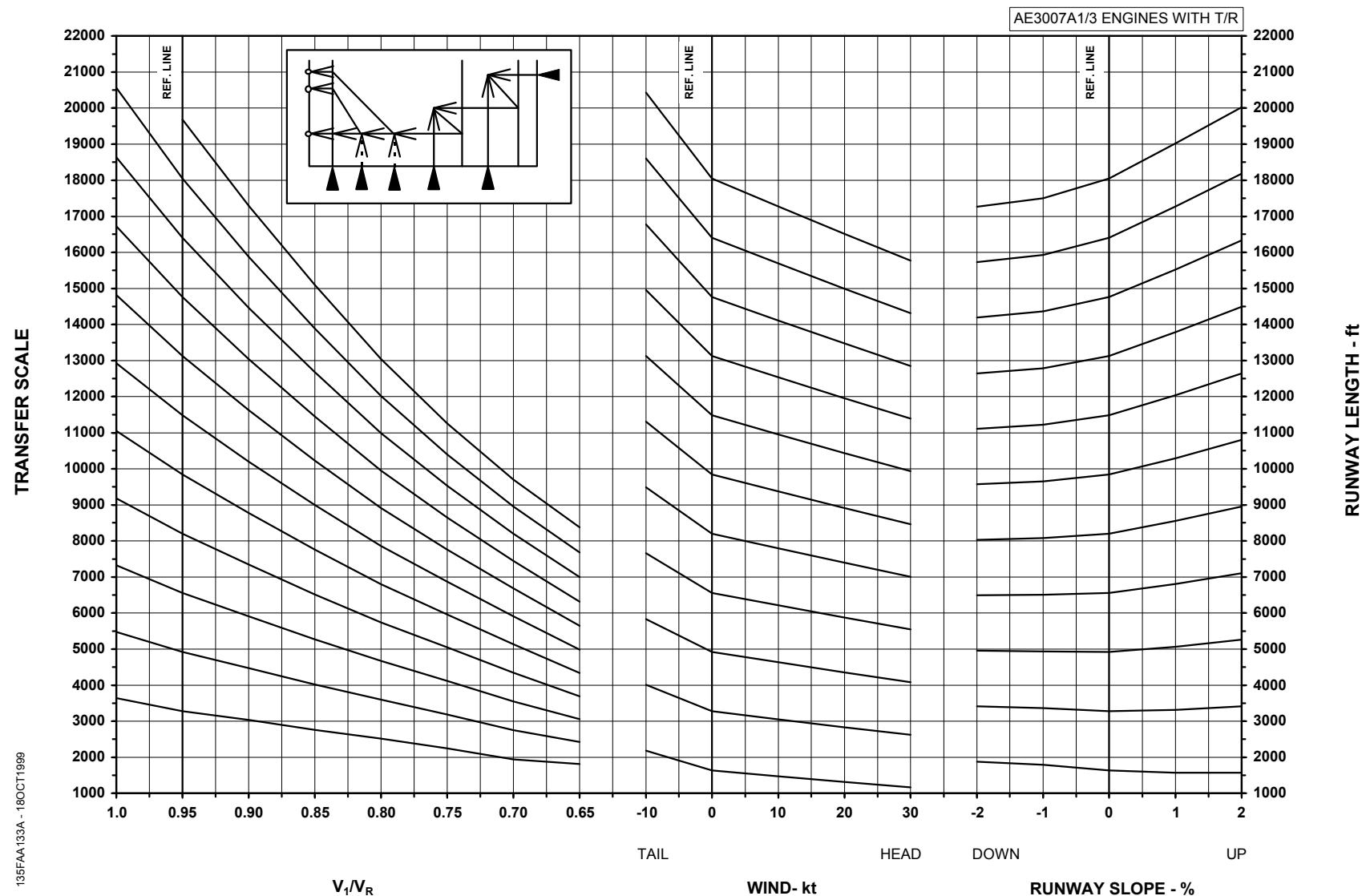
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE OFF
CHART 2 OF 2



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ACCELERATE STOP DISTANCE (STANDARD CG)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2



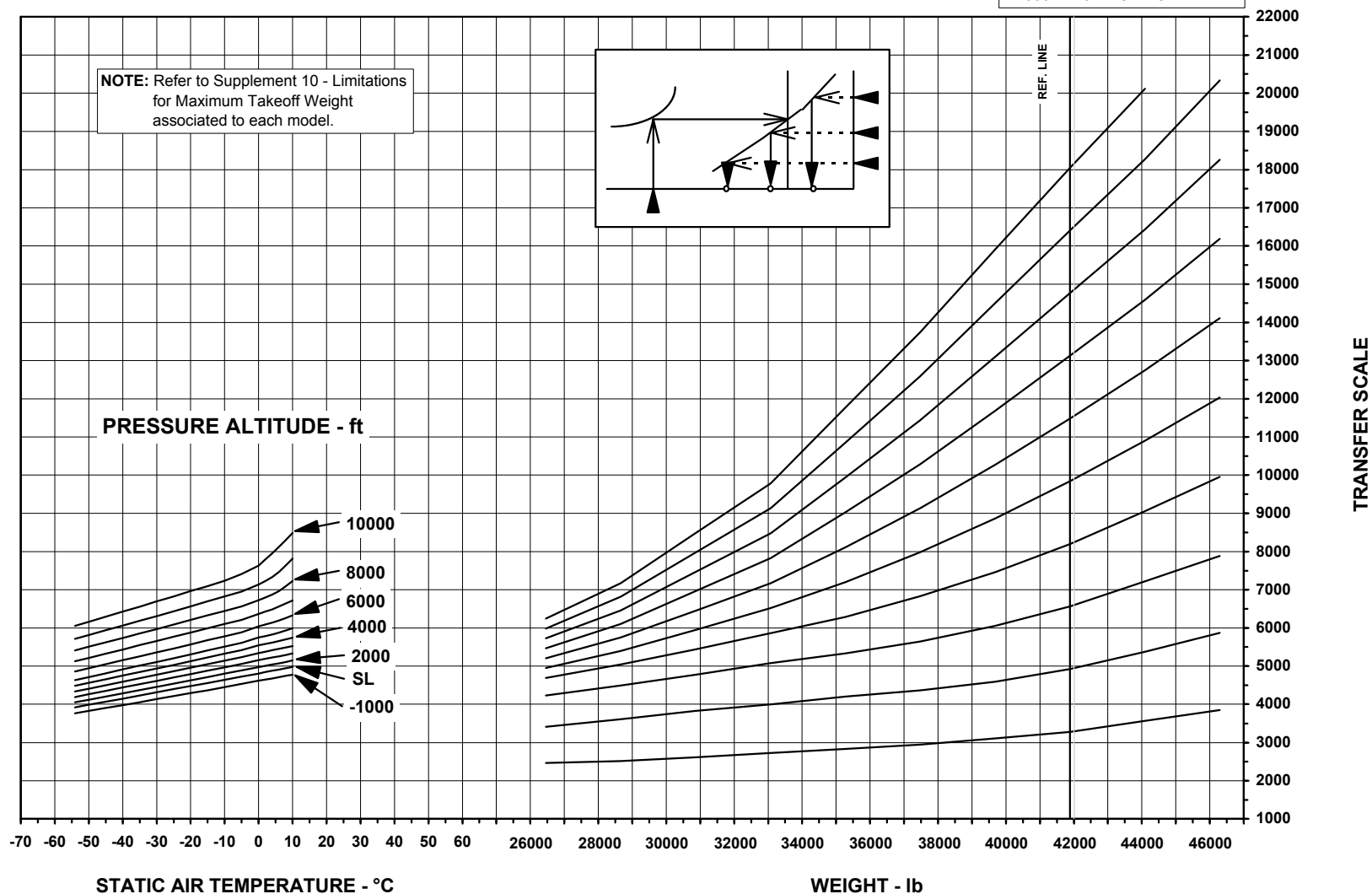
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ACCELERATE STOP DISTANCE (STANDARD CG)

ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE ON

CHART 2 OF 2

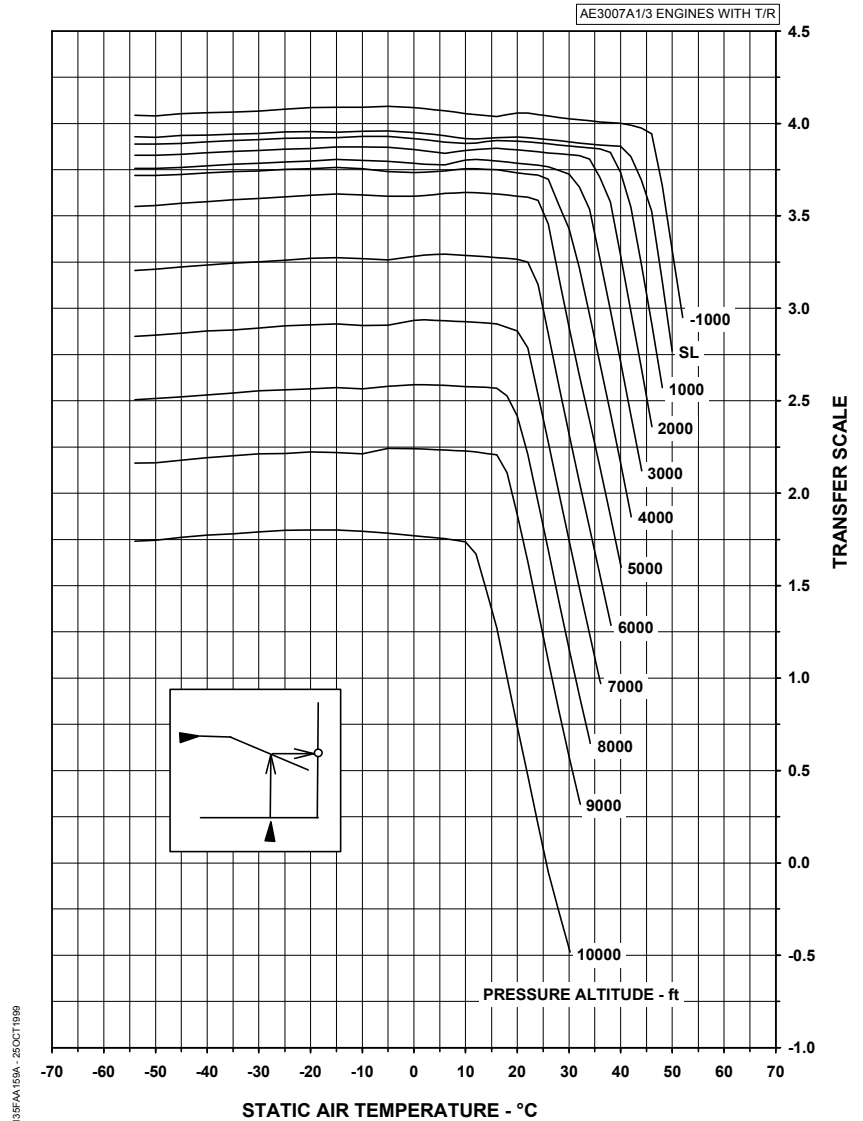
AE3007A1/3 ENGINES WITH T/R



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OBSTACLE CLEARANCE - REFERENCE GRADIENT
(STANDARD CG)

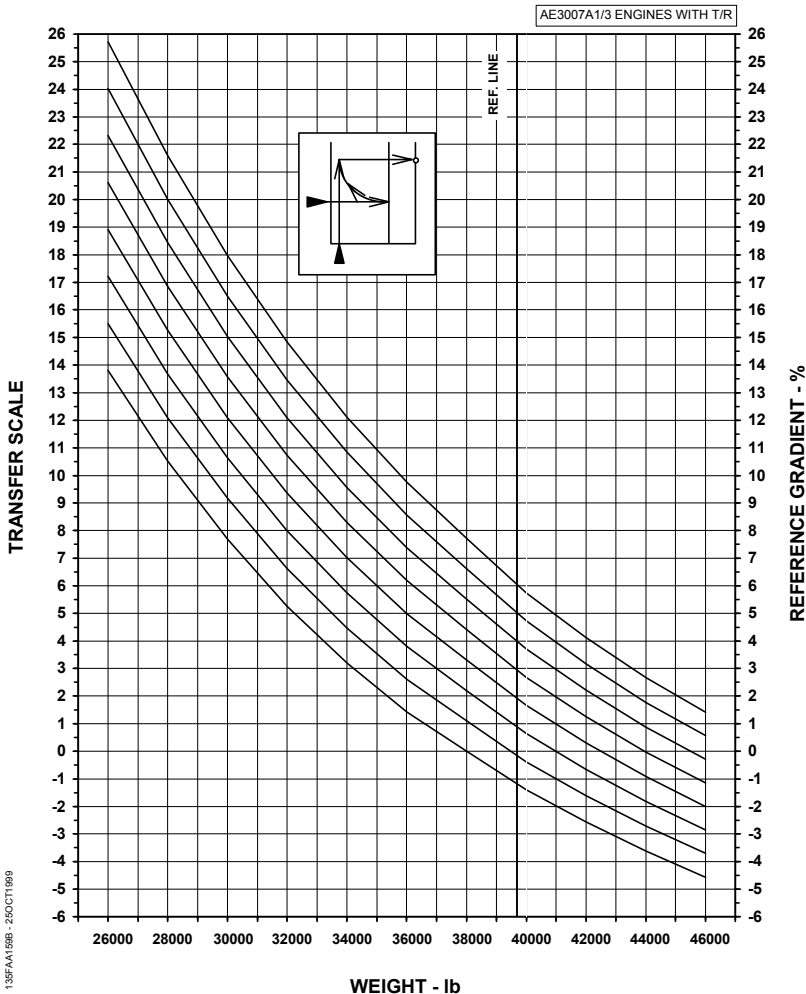
ALT T/O MODE - FLAPS 18° - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF
CHART 1 OF 2





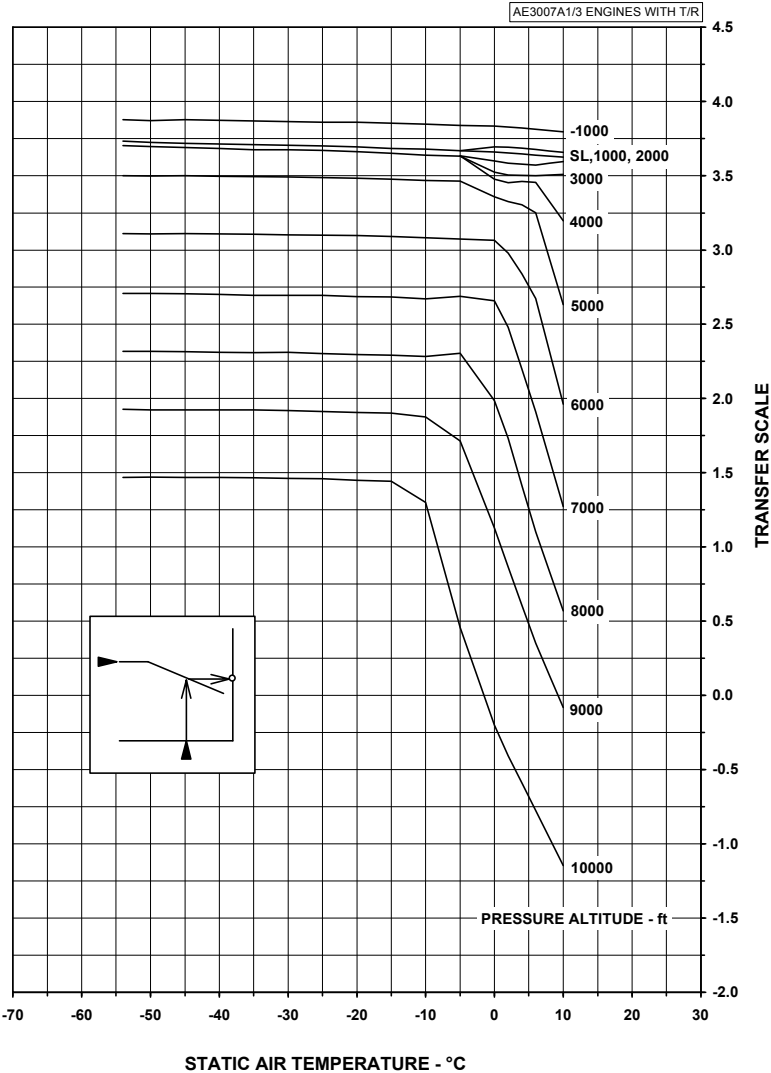
**OBSTACLE CLEARANCE - REFERENCE GRADIENT
(STANDARD CG)**

ALT T/O MODE - FLAPS 18° - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE
OFF
CHART 2 OF 2





**OBSTACLE CLEARANCE - REFERENCE GRADIENT
(STANDARD CG)**
ALT T/O MODE - FLAPS 18° - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2



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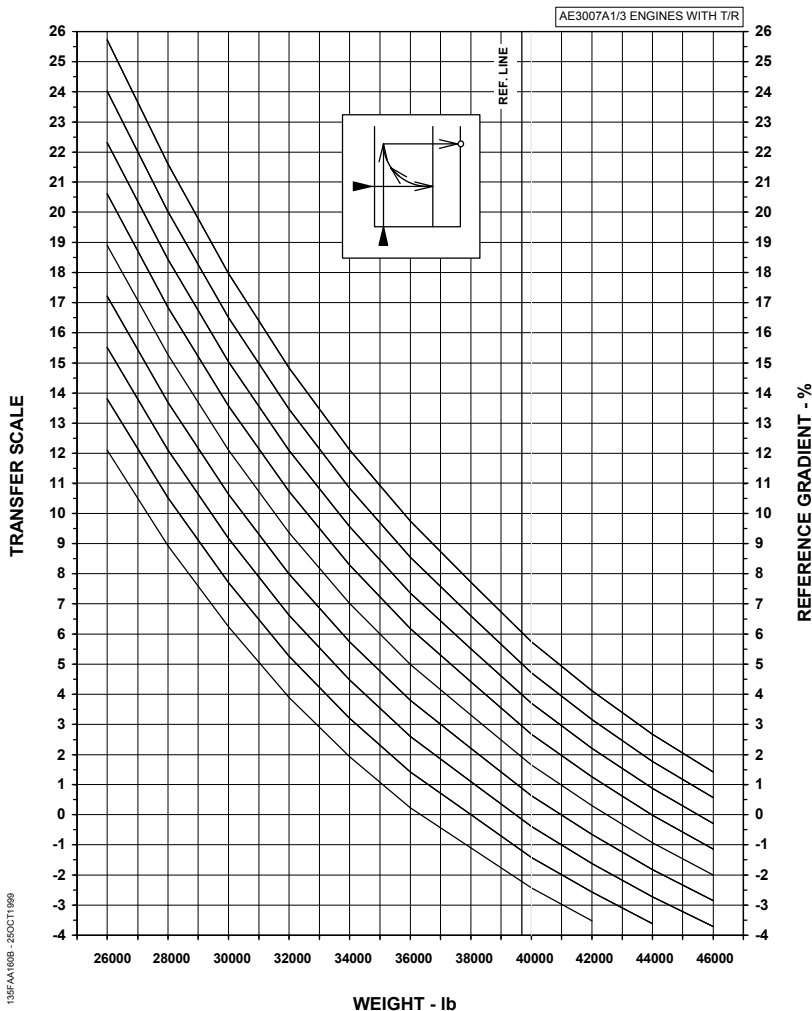
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OBSTACLE CLEARANCE - REFERENCE GRADIENT
(STANDARD CG)

ALT T/O MODE - FLAPS 18° - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2

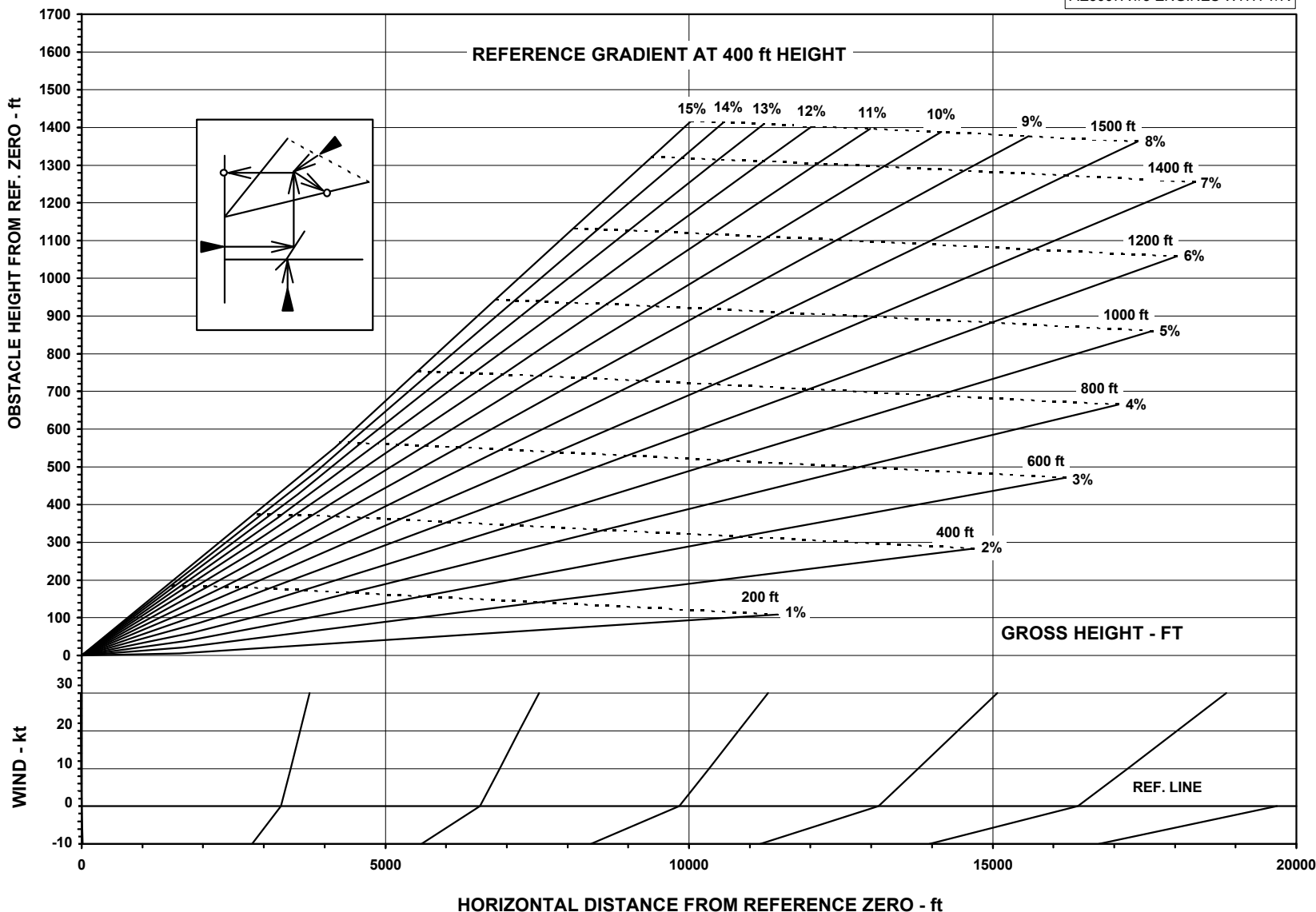




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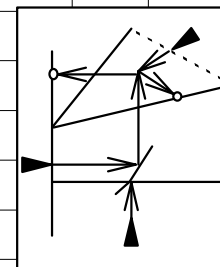
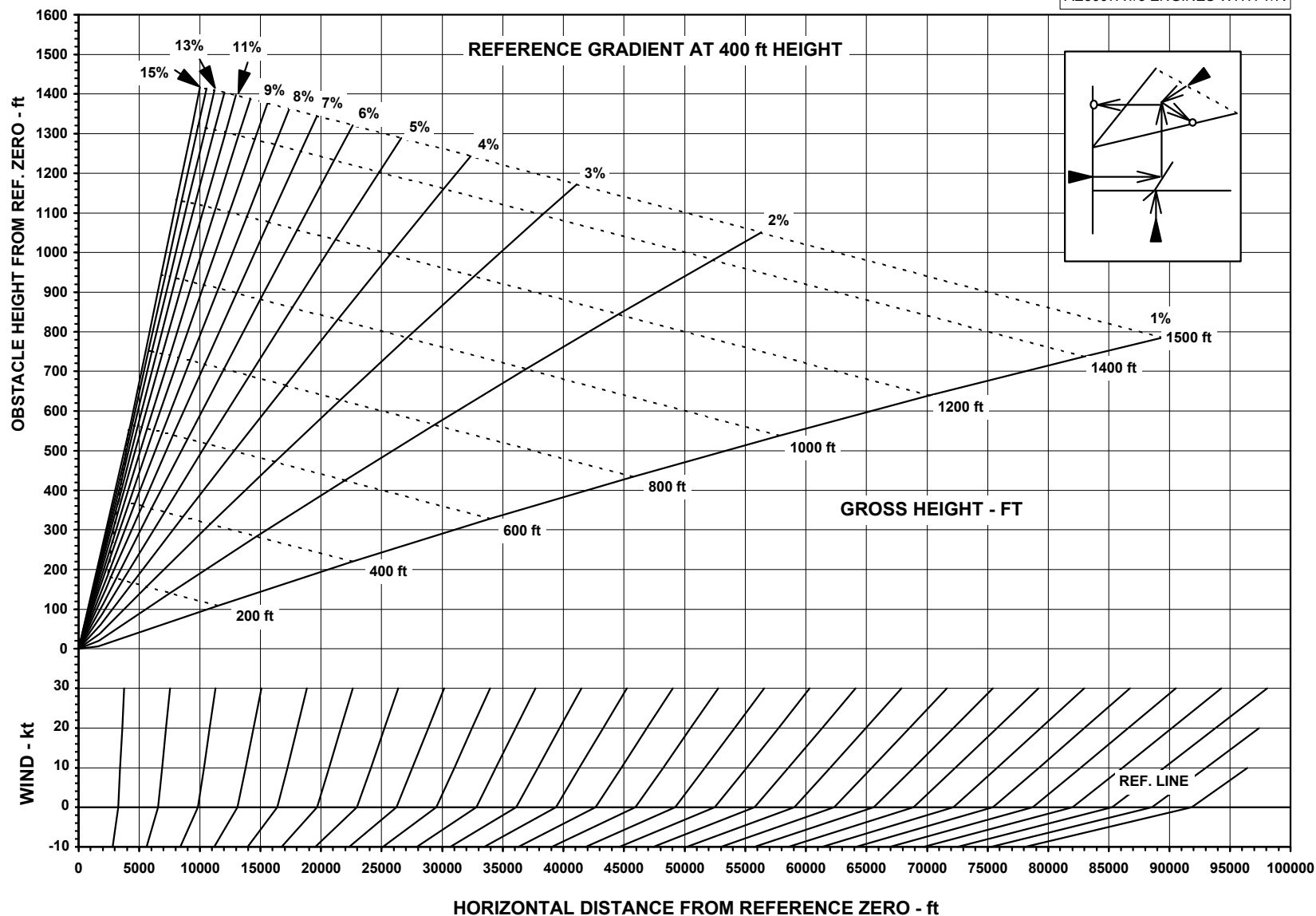
OBSTACLE CLEARANCE - CLOSE-IN (STANDARD CG)
ALT T/O MODE - FLAPS 18°

AE3007A1/3 ENGINES WITH T/R



OBSTACLE CLEARANCE - DISTANT (STANDARD CG)
ALT T/O MODE - FLAPS 18°

AE3007A1/3 ENGINES WITH T/R

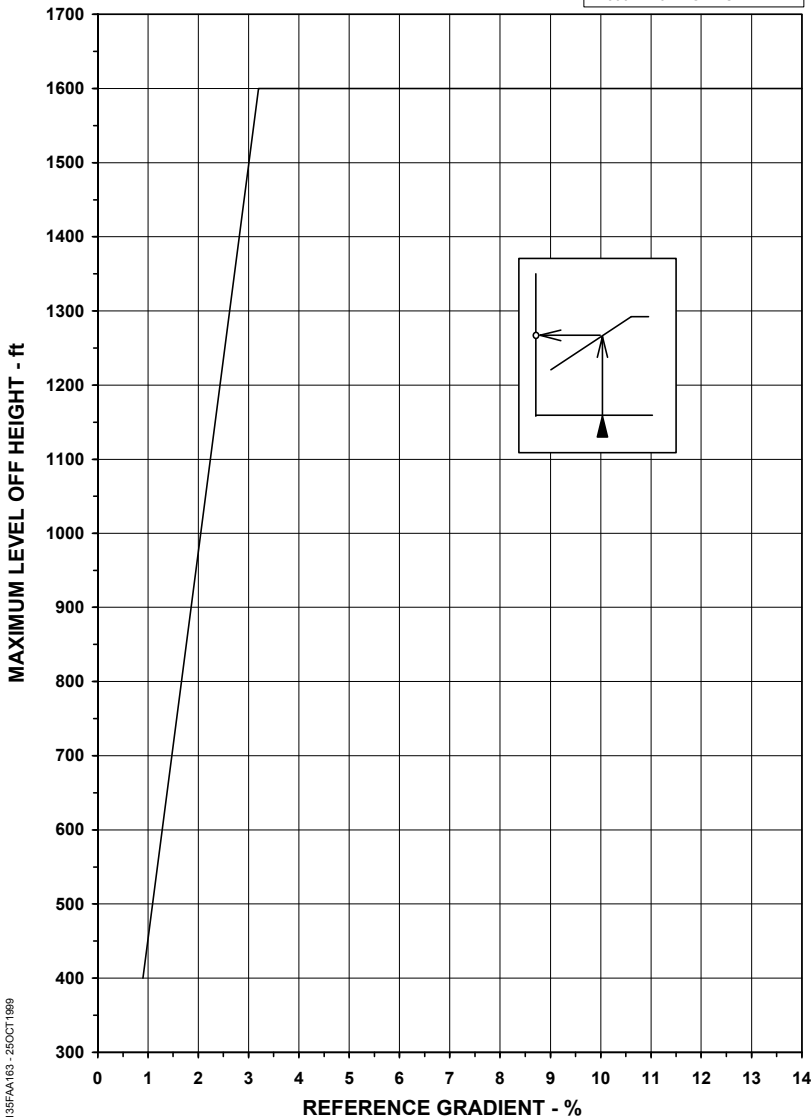




MAXIMUM LEVEL OFF HEIGHT (STANDARD CG)

ALT T/O MODE - FLAPS 18°

AE3007A1/3 ENGINES WITH T/R



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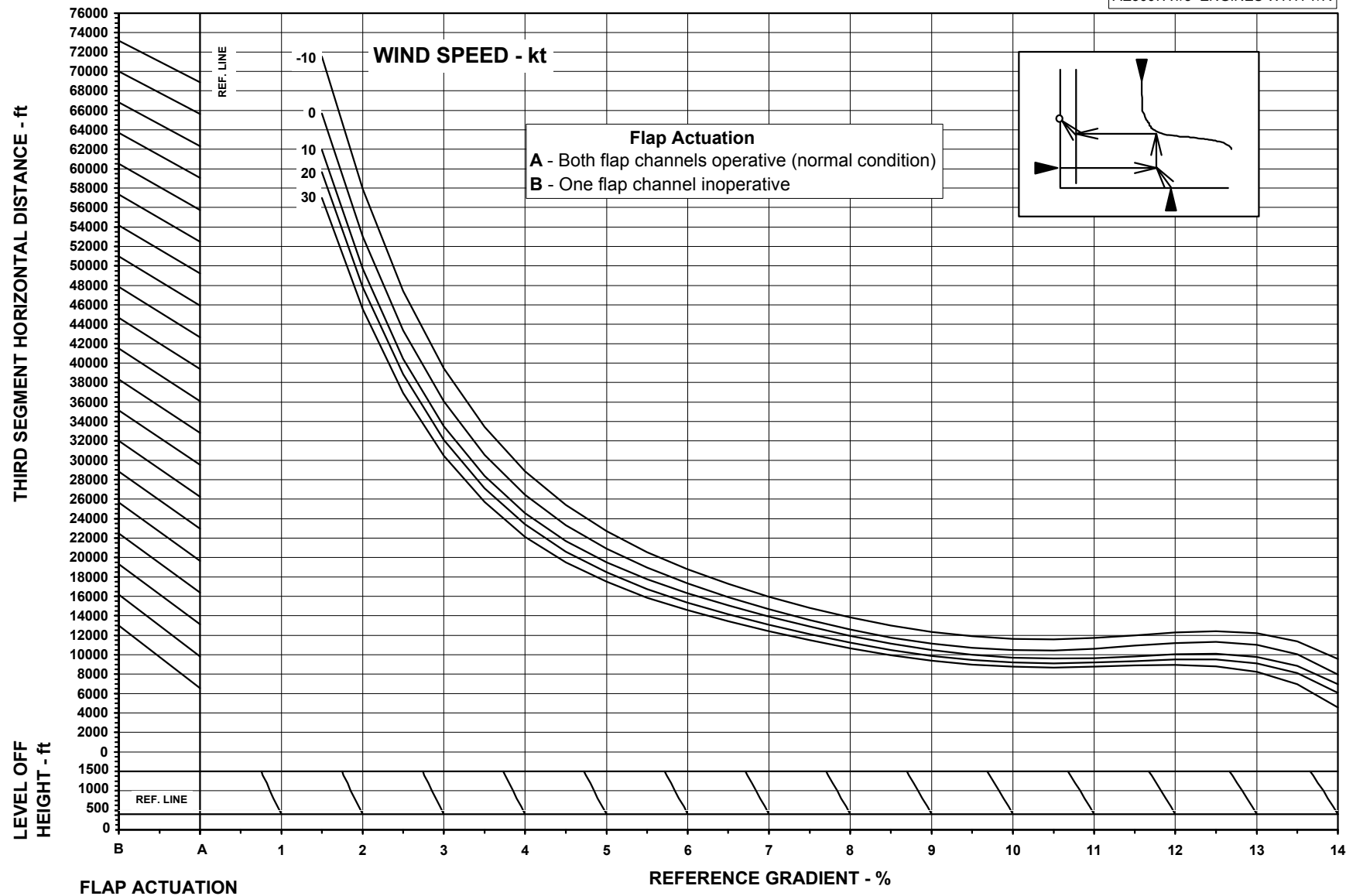


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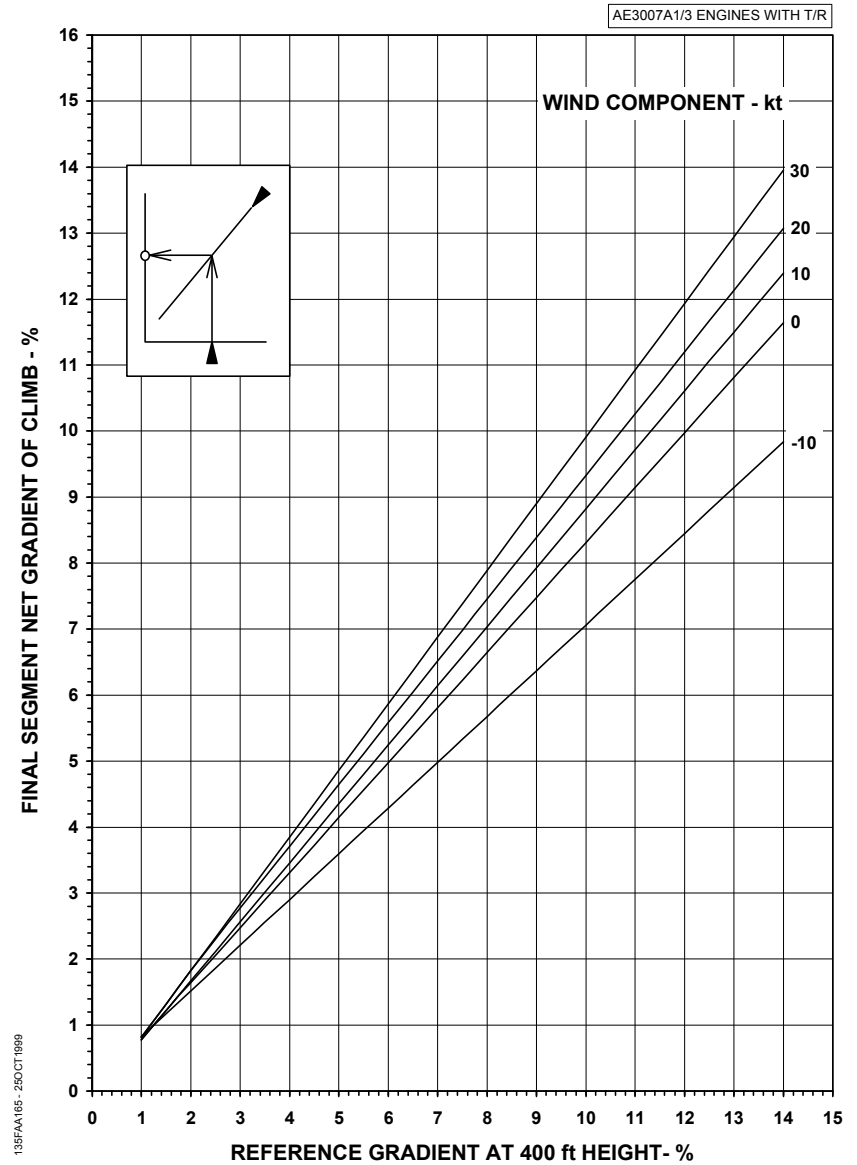
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THIRD SEGMENT HORIZONTAL DISTANCE (STANDARD CG)
ALT T/O MODE - TAKEOFF FLAPS 18°

AE3007A1/3 ENGINES WITH T/R



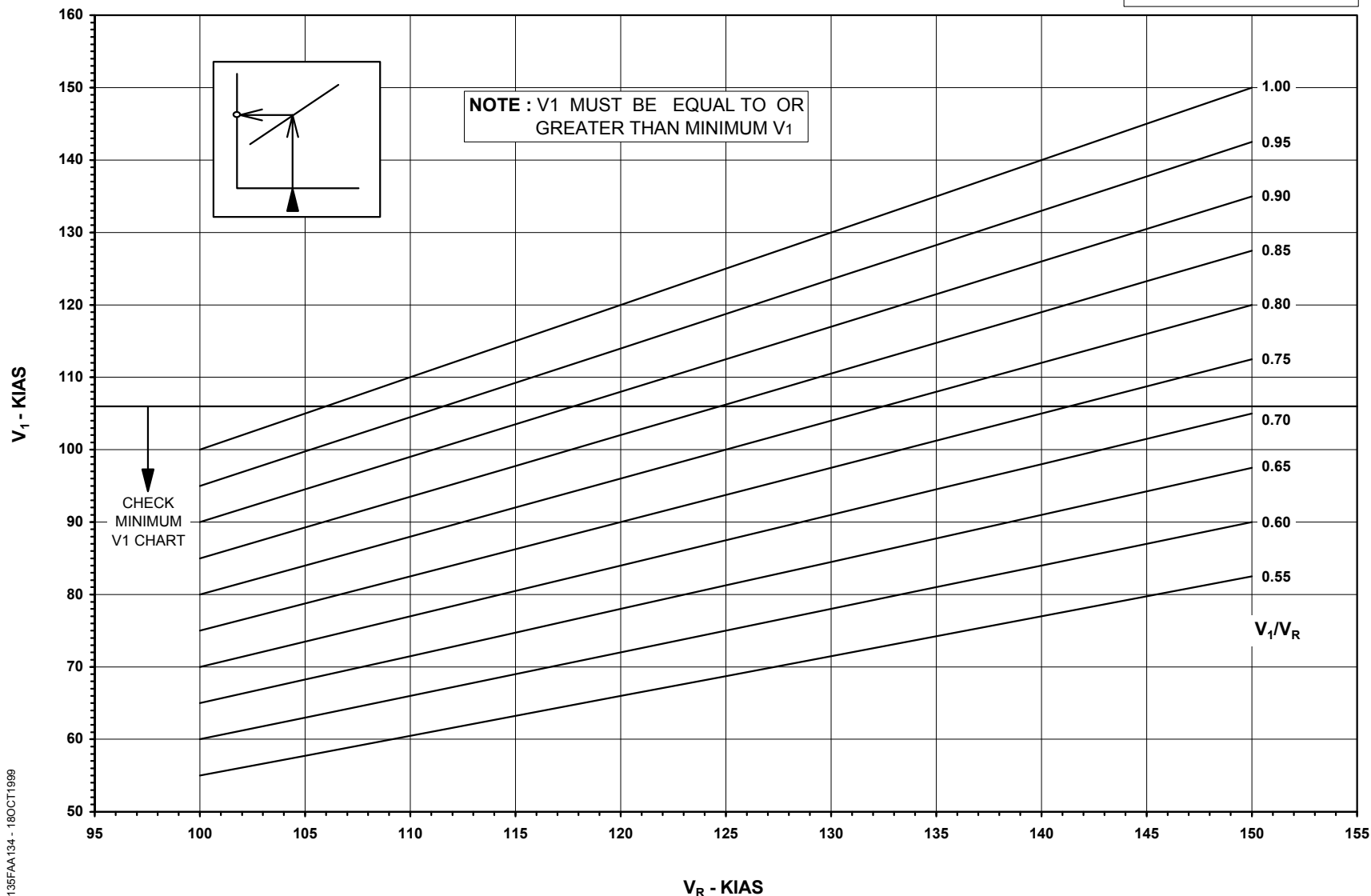
**FINAL SEGMENT NET GRADIENT OF CLIMB
(STANDARD CG)
TAKEOFF FLAPS 18°**



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TAKEOFF SPEEDS - V_1 (STANDARD CG)
ALT T/O MODE - FLAPS 18° - NORMAL V_2 - UNBALANCED FIELD LENGTH

AE3007A1/3 ENGINES WITH T/R

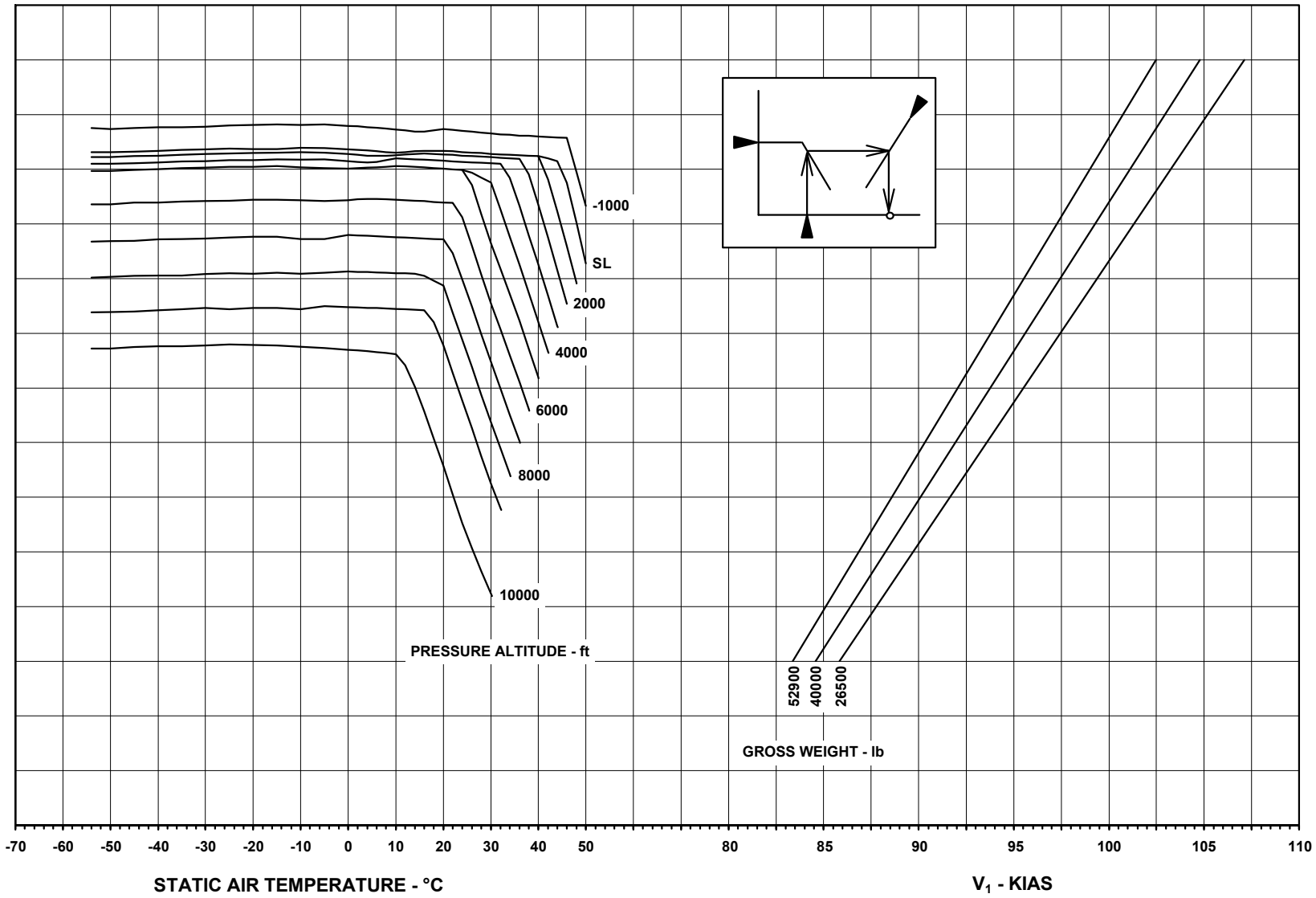


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TAKEOFF SPEEDS - MINIMUM V_1 (STANDARD CG)

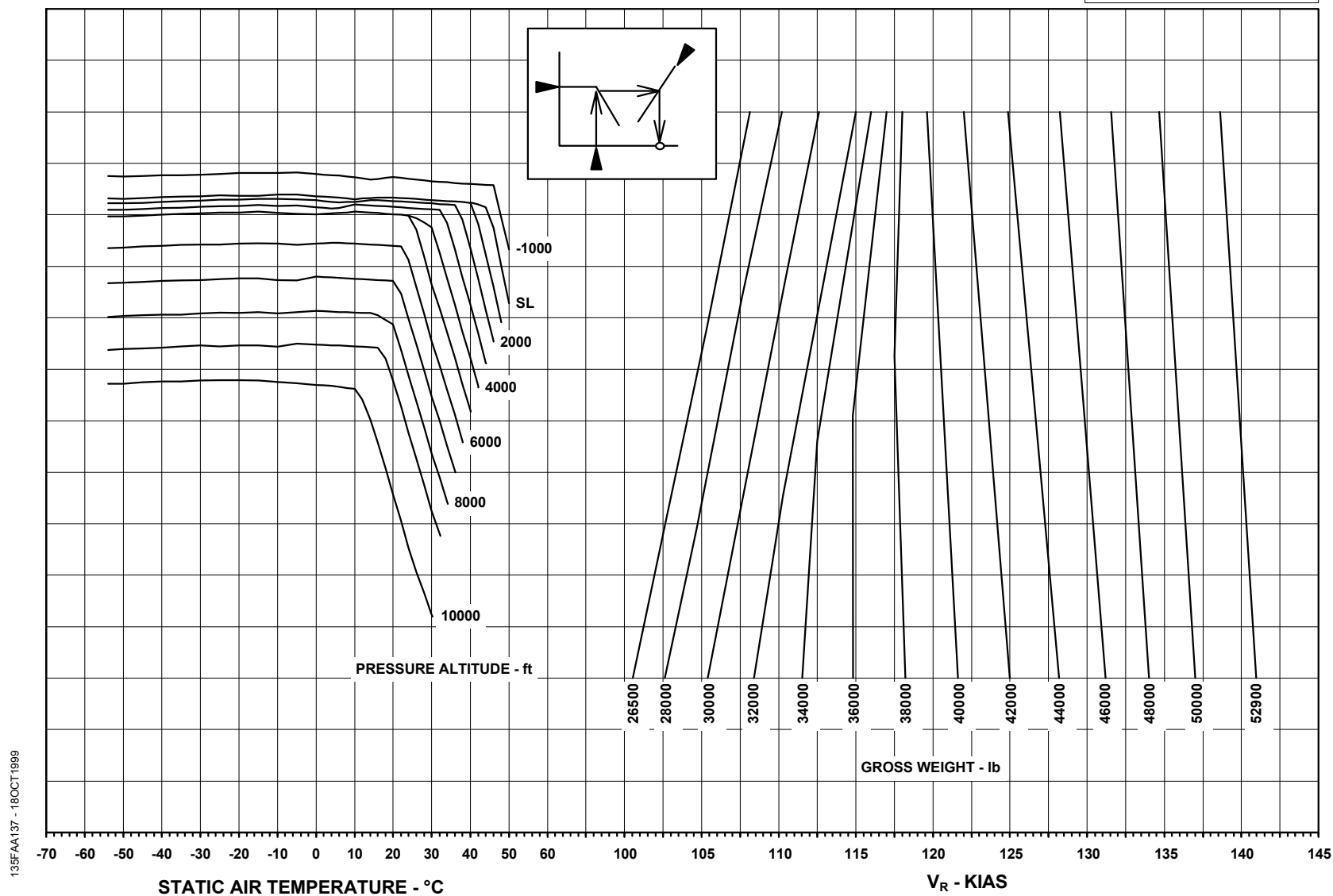
ALT T/O MODE - FLAPS 18° - NORMAL V_2

AE3007A1/3 ENGINES WITH T/R



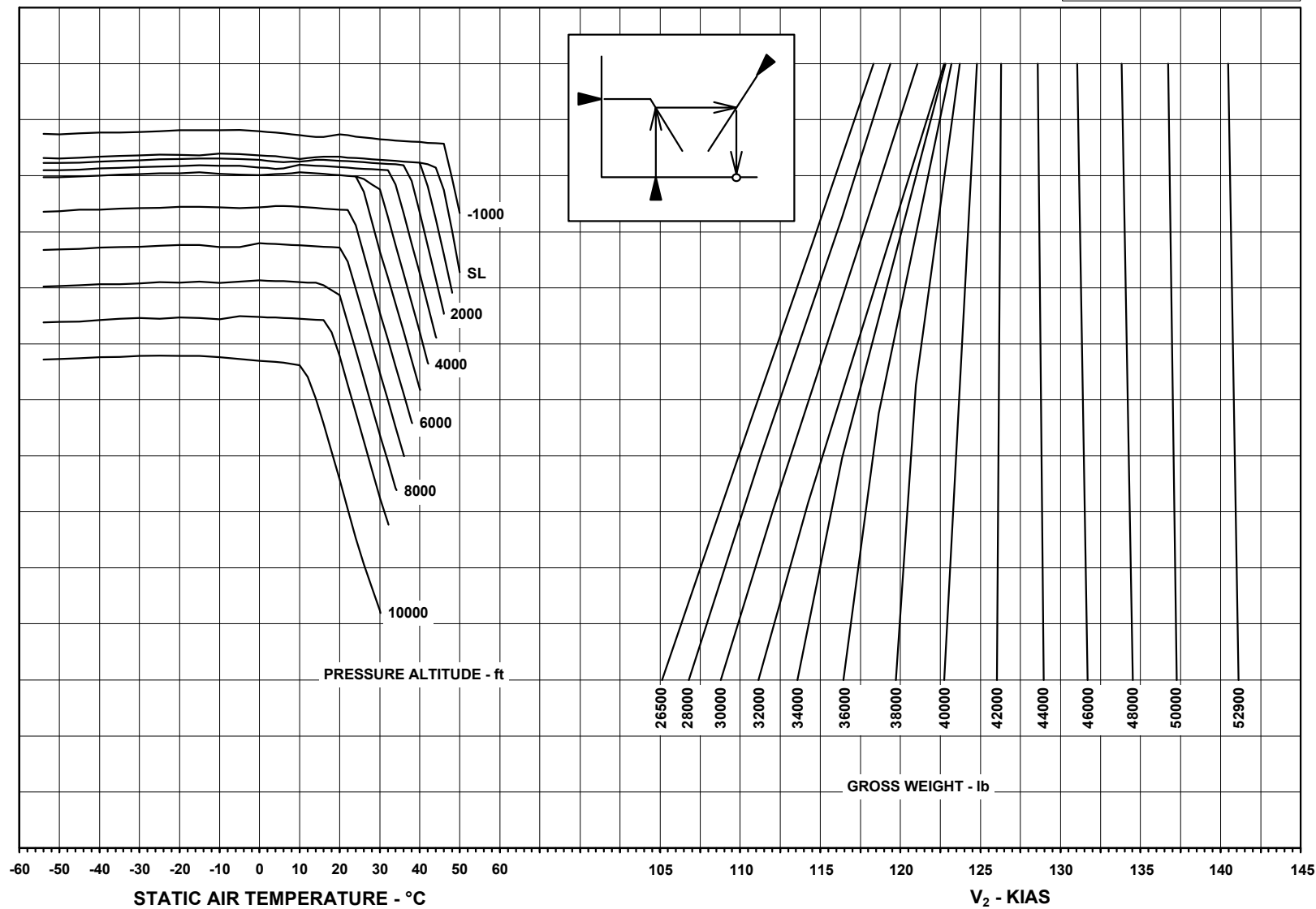
TAKEOFF SPEEDS - V_R (STANDARD CG)
ALT T/O MODE - FLAPS 18° - NORMAL V_2

AE3007A1/3 ENGINES WITH T/R



TAKEOFF SPEEDS - V_2 (STANDARD CG)
ALT T/O MODE - FLAPS 18° - NORMAL V_2

AE3007A1/3 ENGINES WITH T/R



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AFM-145/1153 - FAA

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SUPPLEMENT 14

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* Asterisk indicates pages revised, added or deleted by the current revision.

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S14-i



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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 14
EMB-135 TAKEOFF WITH
FLAPS 18° - CG 21.1%

EMB-135 TAKEOFF WITH FLAPS 18° AND CG 21.1%

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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 14
EMB-135 TAKEOFF WITH
FLAPS 18° - CG 21.1%

GENERAL

This Supplement is provided to present the takeoff data required for EMB-135 takeoff operations with flaps 18° and center of gravity envelope with forward limit constant at 21.1%. The information herein presented must replace the equivalent data in the basic AFM. For limitations, procedures and performance information not contained in this Supplement, refer to basic AFM and Supplements related to the EMB-135 models, as applicable.

LIMITATIONS

Refer to Supplement 13.

EMERGENCY AND ABNORMAL PROCEDURES

Refer to Supplement 13.

NORMAL PROCEDURES

Refer to Supplement 13.

PERFORMANCE

GENERAL

The performance data presented in this Supplement must replace the equivalent data in Supplement 11.

	OPERATING ENGINES	THRUST	FLAPS	GEAR	AIRSPEED
TAKEOFF	2 until V_{EF} , 1 after V_{EF}	THRUST SET or MAX	18°	DOWN	0 TO V_2
1 ST SEGMENT	1	MAX	18°	DOWN TO UP	V_{LOF} TO V_2
2 ND SEGMENT	1	MAX	18°	UP	V_2
3 RD SEGMENT	1	MAX	18° TO UP	UP	V_2 TO FINAL SEGMENT SPEED

Unless otherwise specified, the performance charts presented in this Supplement must be used in the same way as in the basic AFM.

The data below are not presented in this Supplement and for takeoff calculations proceed as follows:

- BRAKE ENERGY - Due to the associated conditions, the maximum takeoff weight will never be limited by brake energy for takeoff with flaps 18°.
- V_{MCG} - Use the Ground Minimum Control Speed (Flaps 9°) chart contained in Supplement 11.
- V_{MCA} - Use the Air Minimum Control Speed (Flaps 9°) chart contained in Supplement 11.
- V_{FS} - Use the Final Segment Speed chart contained in Supplement 11.
- V_{MCL} - The Minimum Control Speed During Landing and Approach is equal to 100 KIAS.

PROCEDURE TO USE THE TAKEOFF PERFORMANCE CHARTS

Refer to Supplement 13.



AIRPLANE FLIGHT MANUAL

SUPPLEMENT 14
EMB-135 TAKEOFF WITH
FLAPS 18° - CG 21.1%

PERFORMANCE CHARTS FOR TAKEOFF WITH FLAPS 18° - CENTER OF GRAVITY ENVELOPE WITH FORWARD LIMIT CONSTANT AT 21.1%

The following performance charts are applicable for takeoff with AE3007A1/3 engines and flaps 18° using the Center of Gravity Envelope with forward limit constant at 21.1%.

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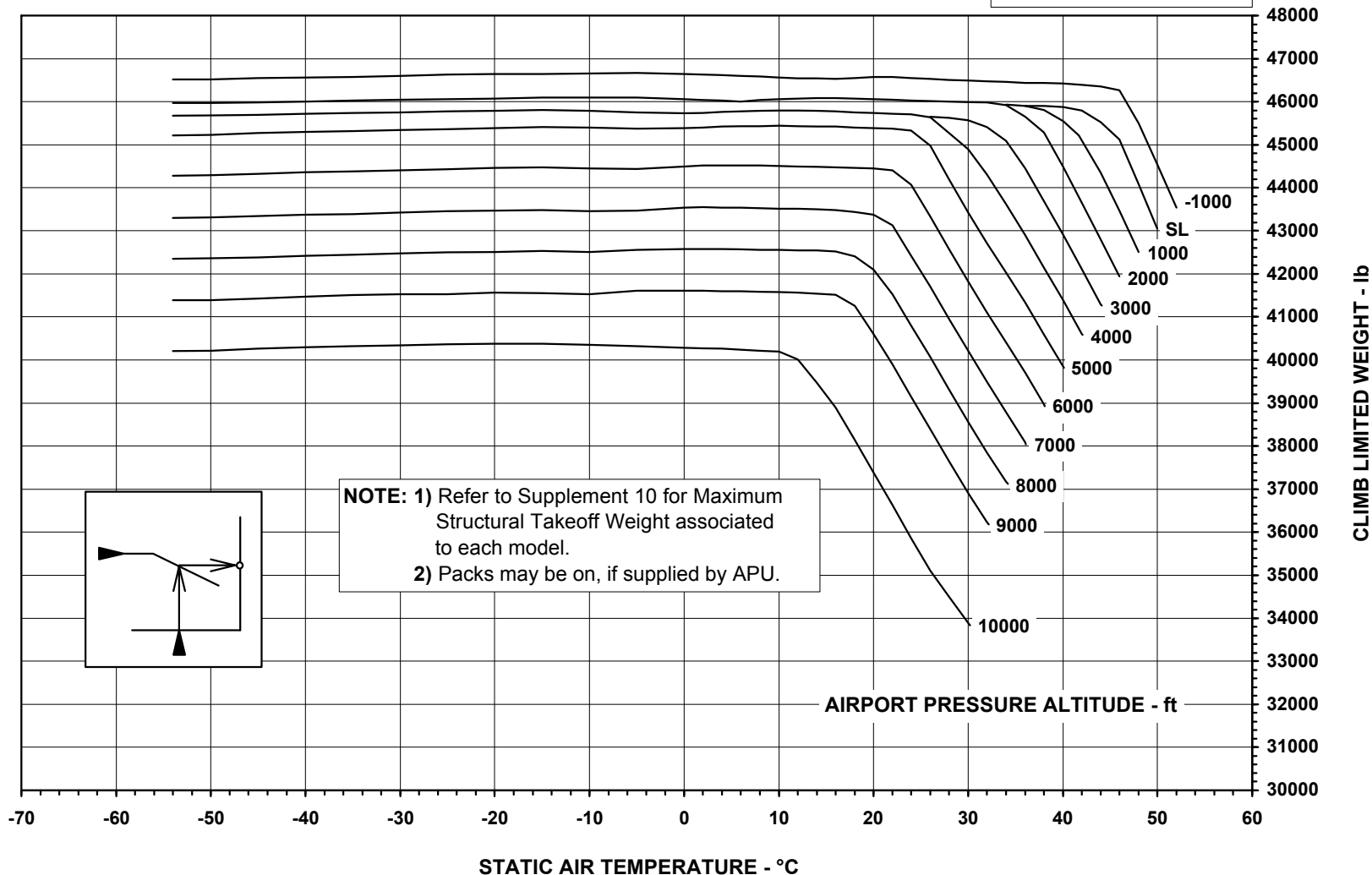
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MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED (CG 21.1%)

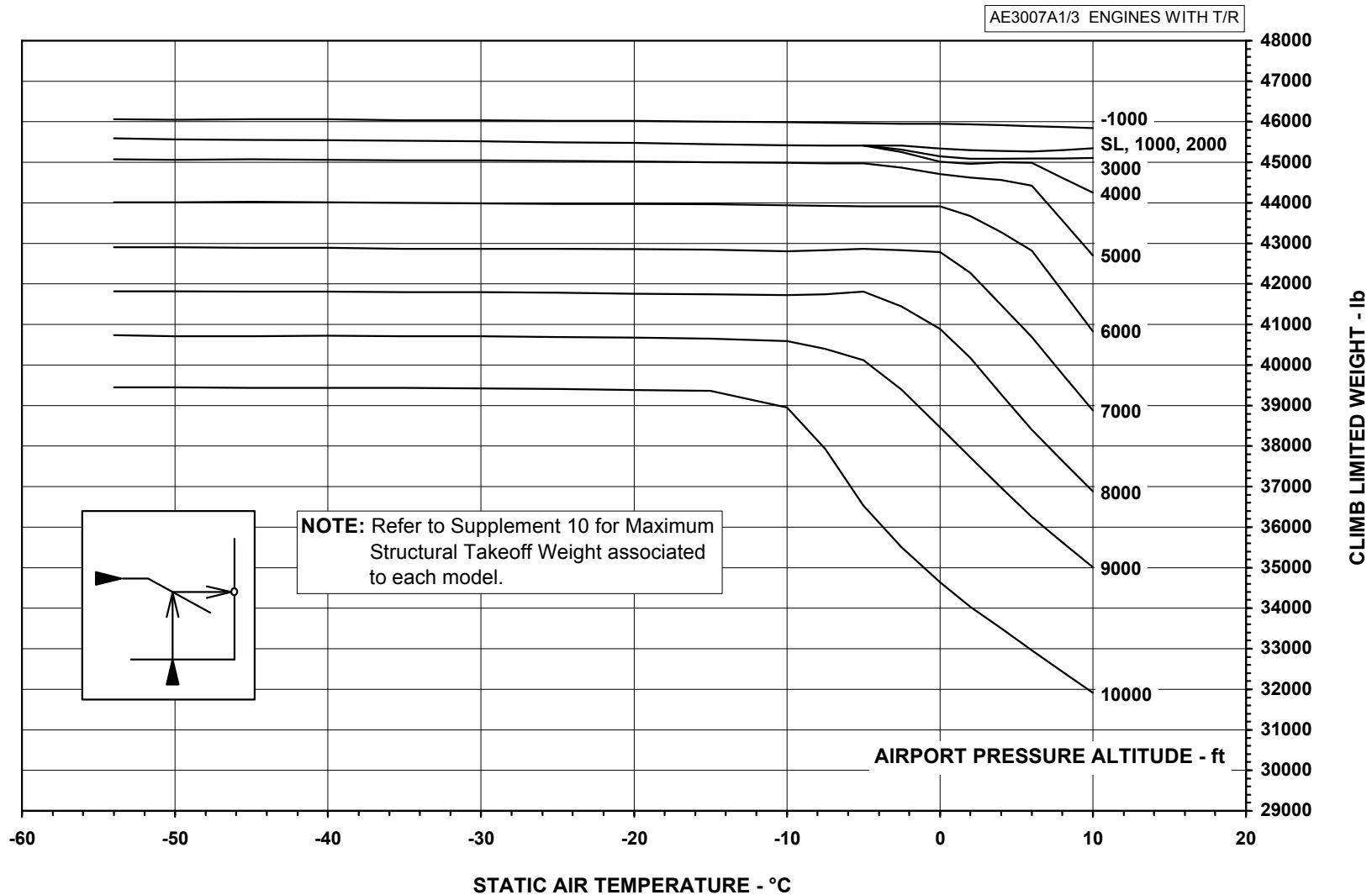
FLAPS 18°

NORMAL V_2 - ALT T/O MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE OFF

AE3007A1/3 ENGINES WITH T/R



MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED (CG 21.1%)
FLAPS 18°
NORMAL V_2 - ALT T/O MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON



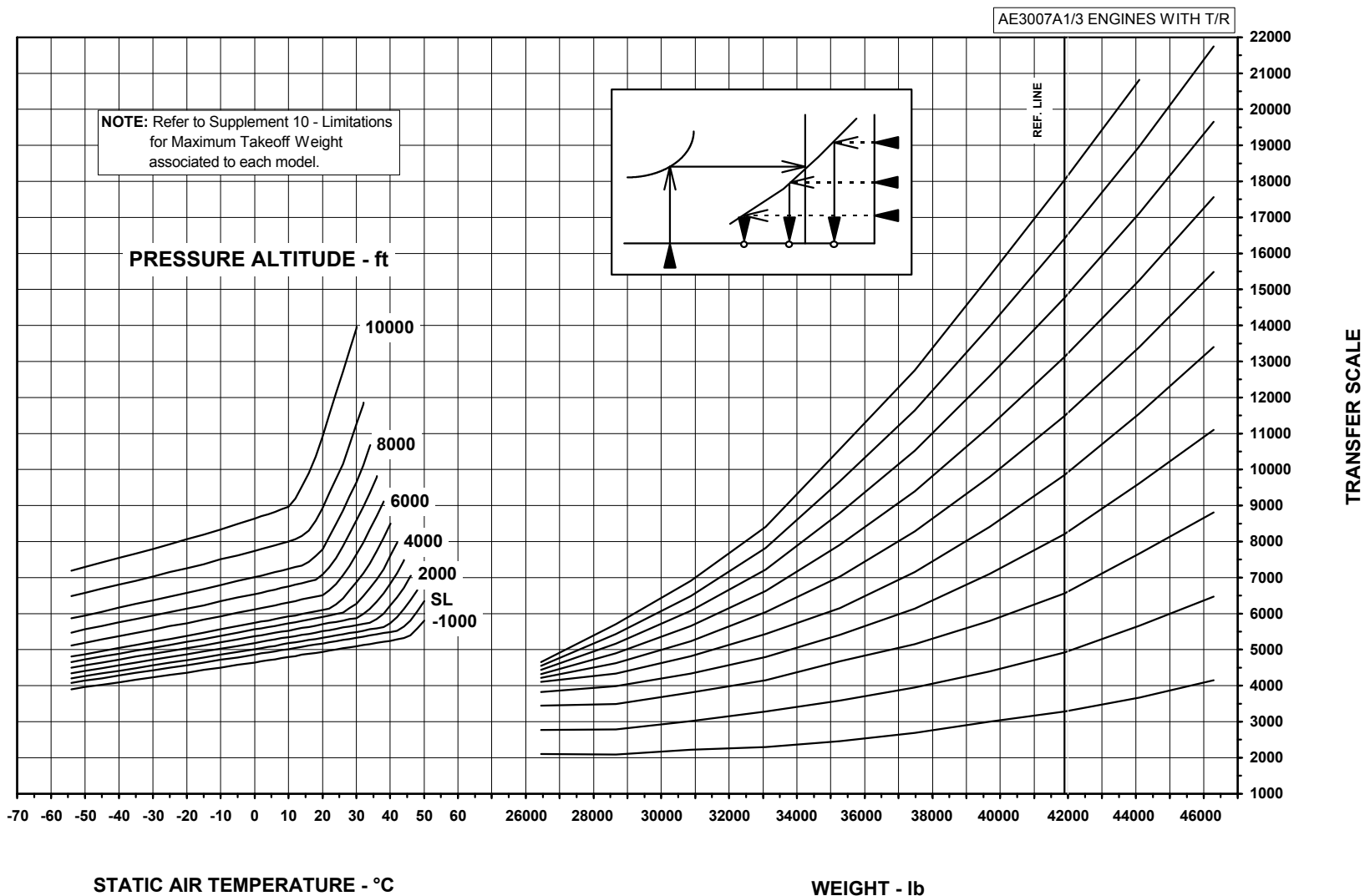


**AIRPLANE
FLIGHT
MANUAL**

SUPPLEMENT 14
EMB-135 TAKEOFF WITH
FLAPS 18° - CG 21.1%

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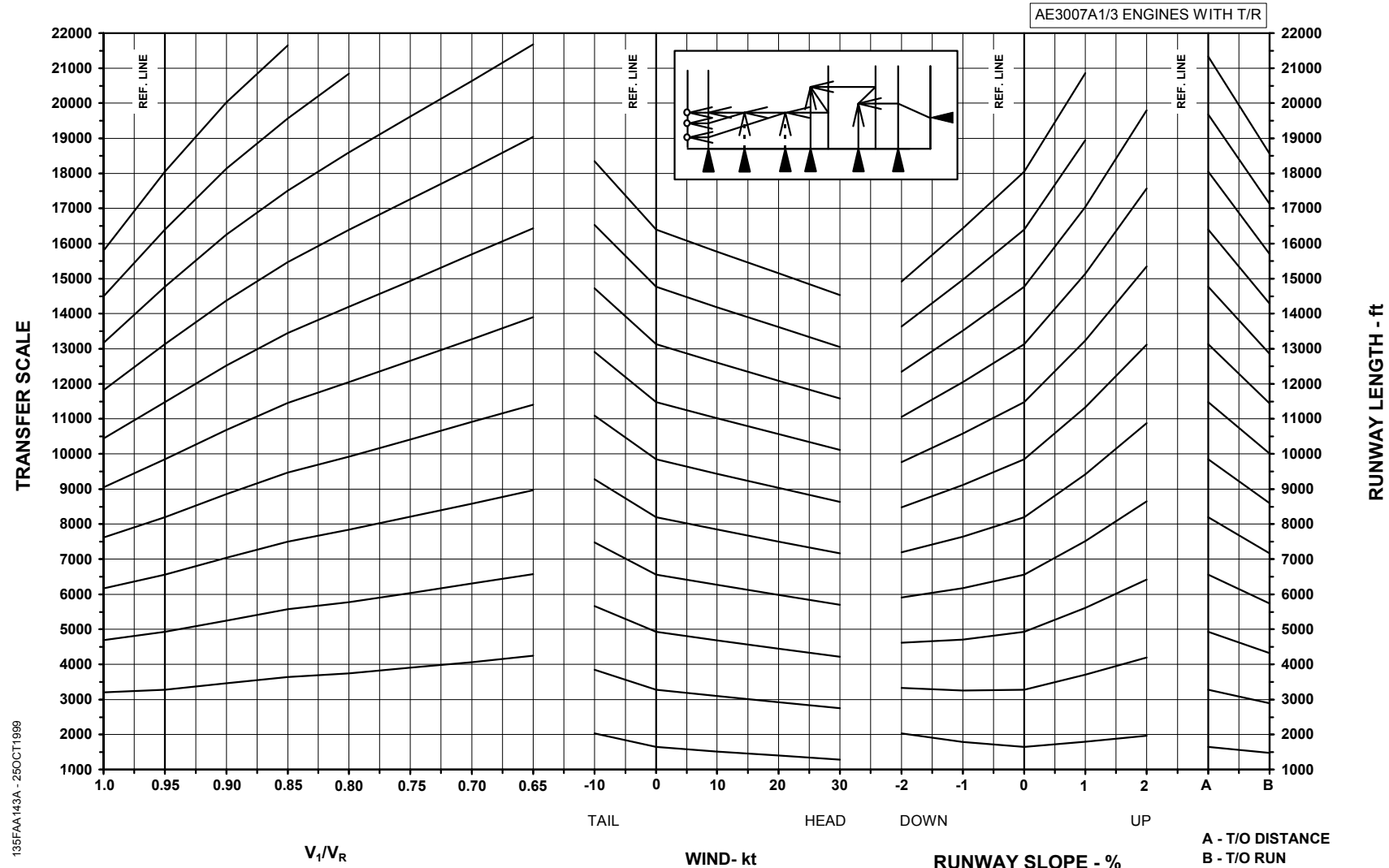
TAKEOFF DISTANCE (CG 21.1%)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE OFF
CHART 2 OF 2



135FAA142B - 25OCT1999

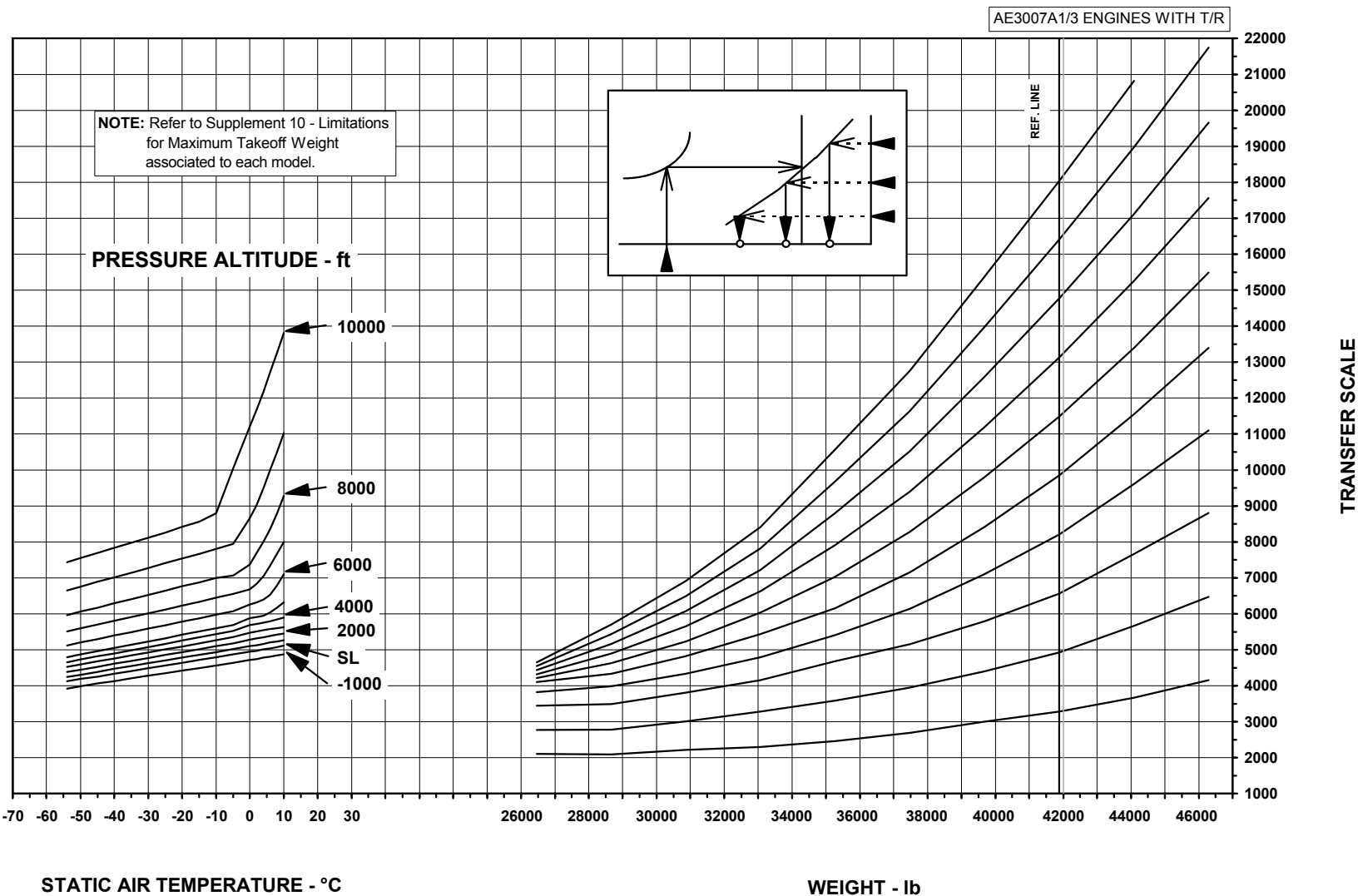
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TAKEOFF DISTANCE (CG 21.1%)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2



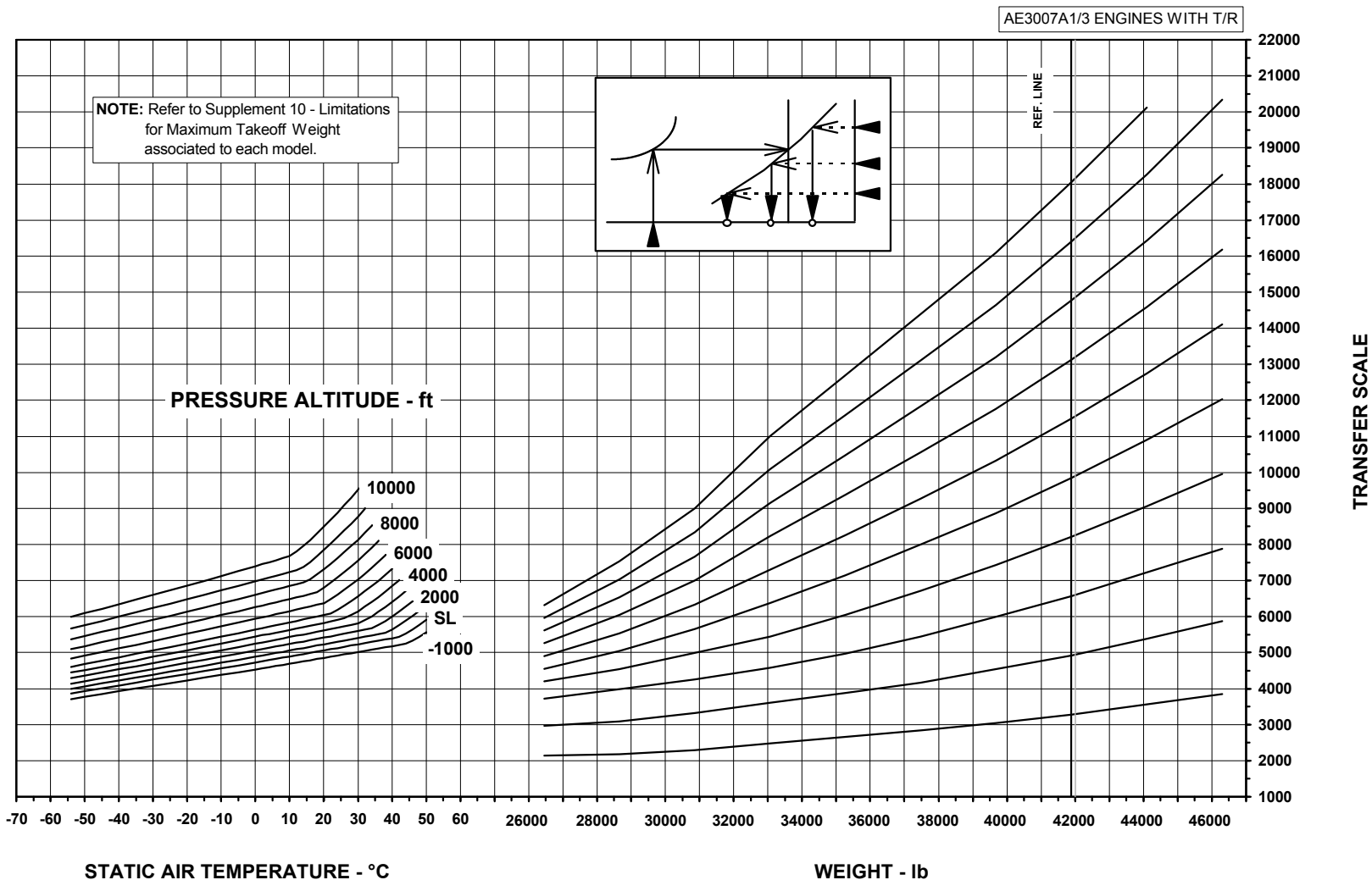
135FAA143A - 25OCT1999

TAKEOFF DISTANCE (CG 21.1%)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2



135FAA143B - 25OCT1999

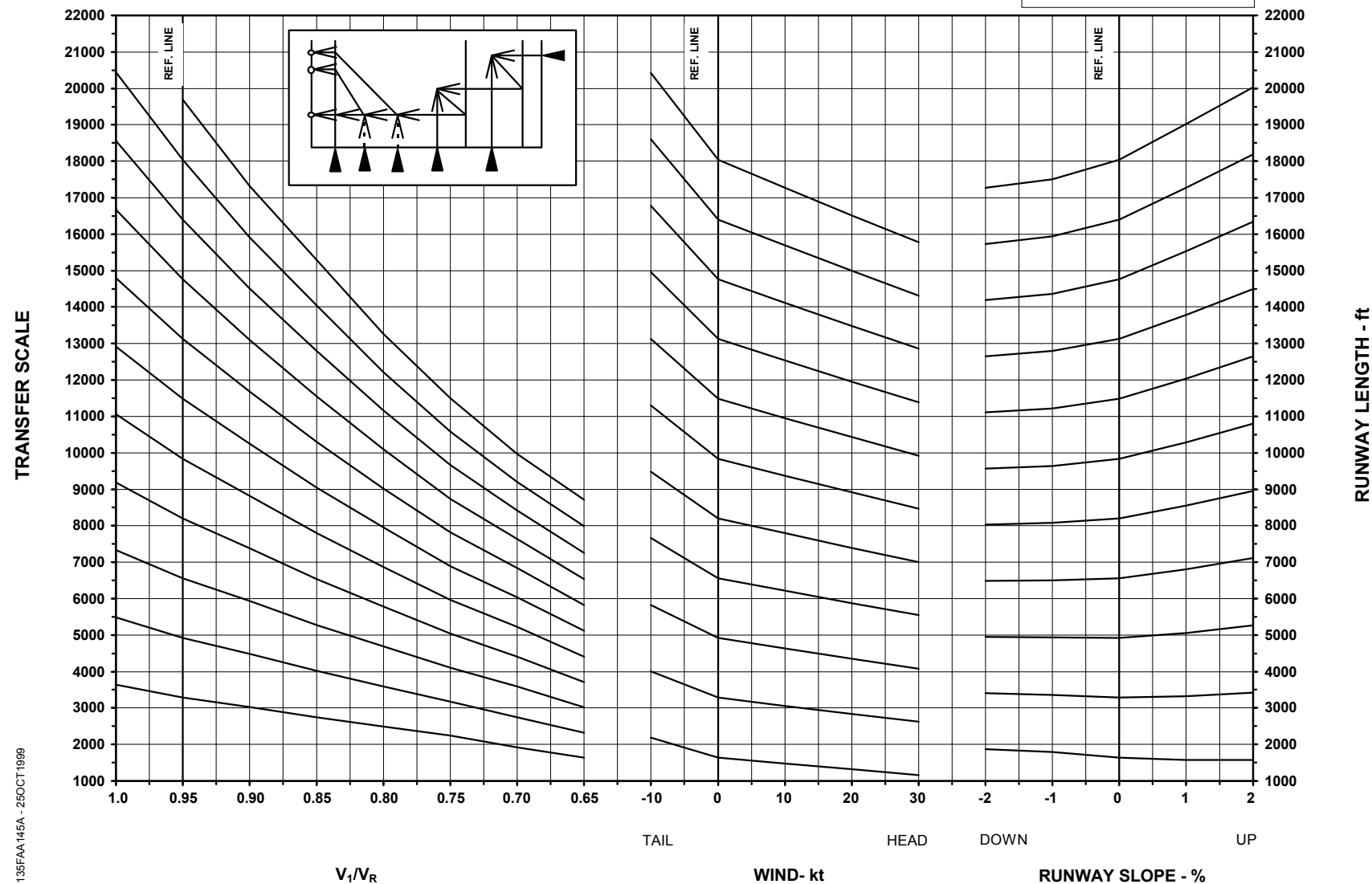
ACCELERATE STOP DISTANCE (CG 21.1%)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE OFF
CHART 2 OF 2



135FAA144B - 25OCT1999

ACCELERATE STOP DISTANCE (CG 21.1%)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2

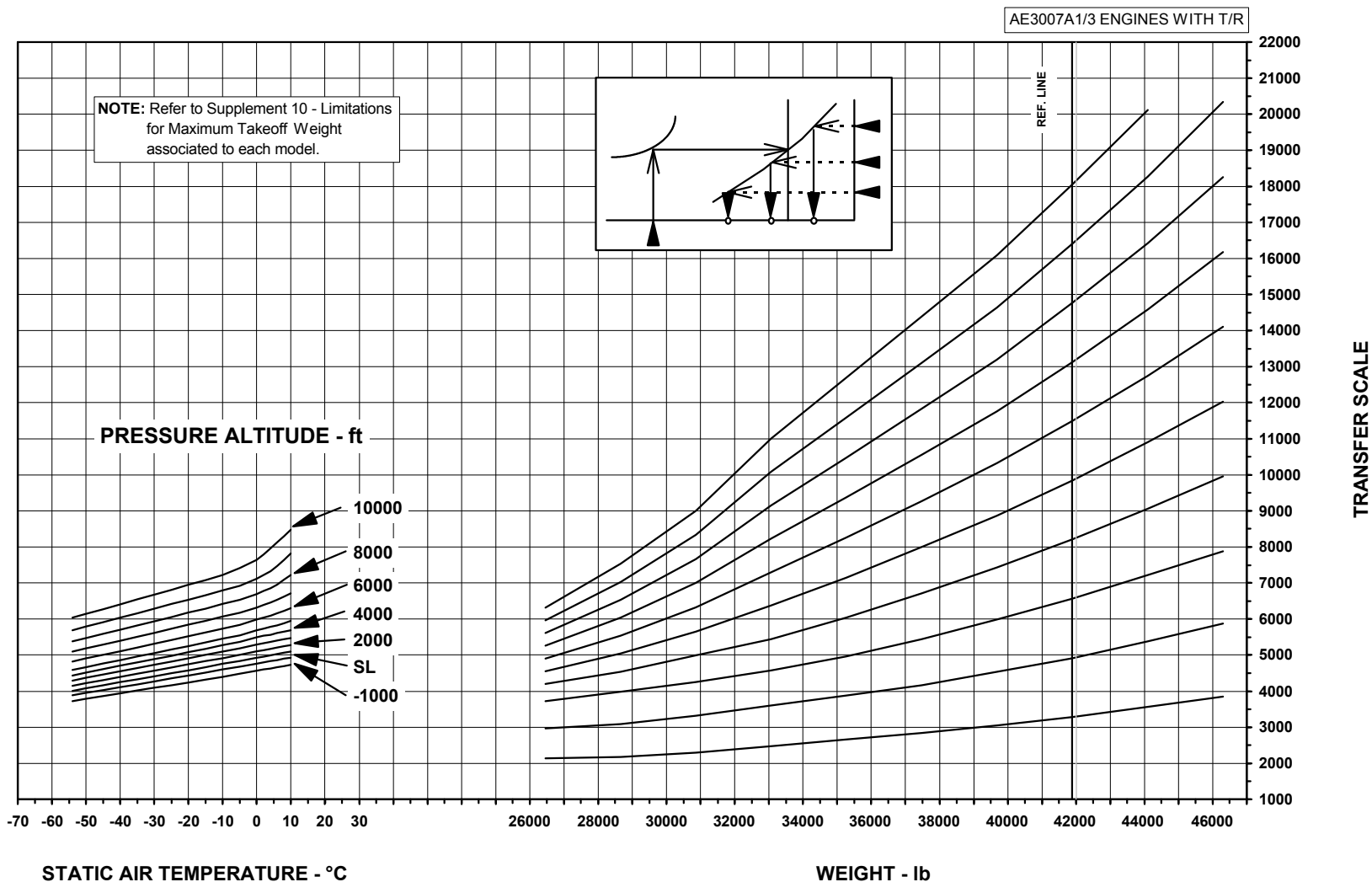
AE3007A1/3 ENGINES WITH T/R



135FAA145A - 25OCT1999

AFM-145/1153 - FAA

ACCELERATE STOP DISTANCE (CG 21.1%)
ALT T/O MODE - FLAPS 18° - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2



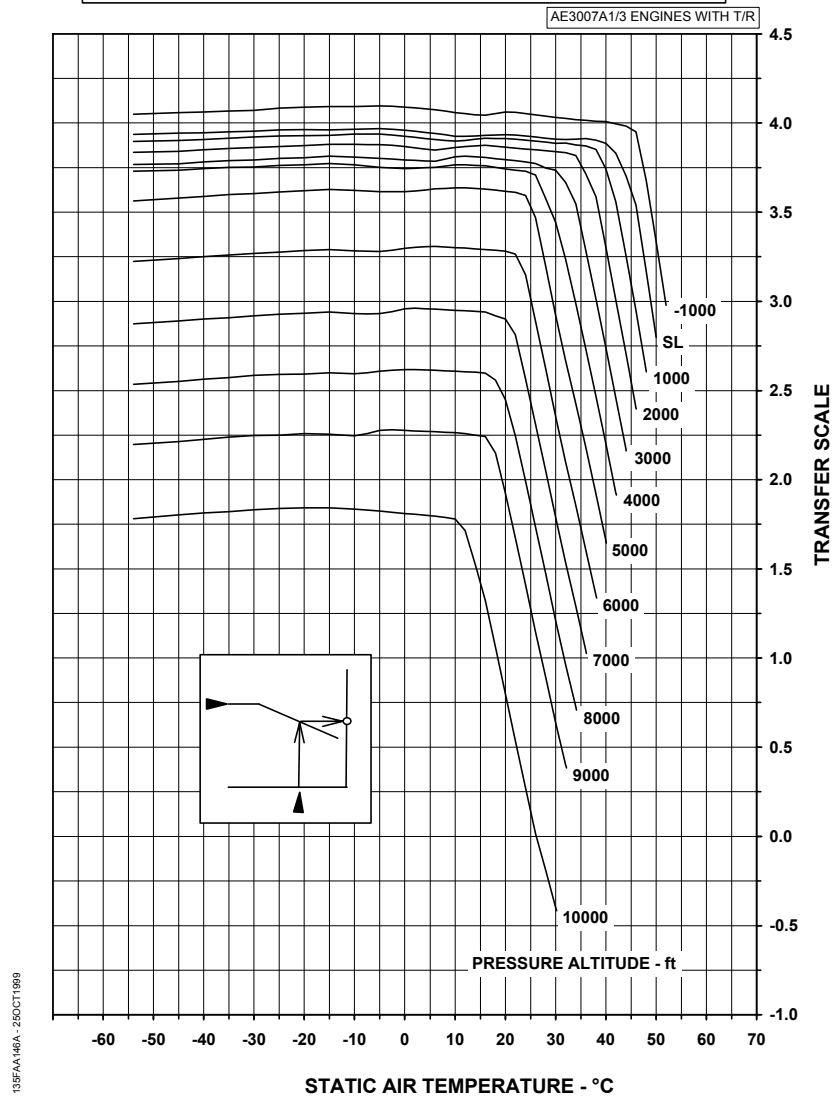
135FAA145B - 25OCT1999

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**OBSTACLE CLEARANCE - REFERENCE GRADIENT
(CG 21.1%)**

FLAPS 18° - ALT T/O MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE
OFF

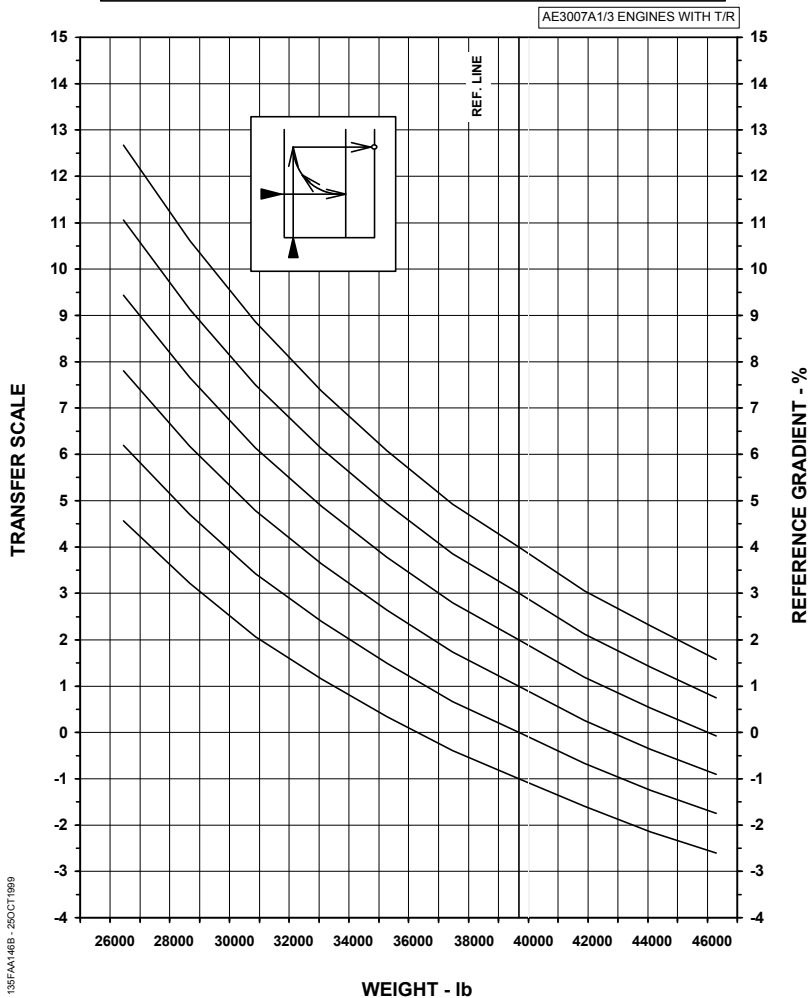
CHART 1 OF 2



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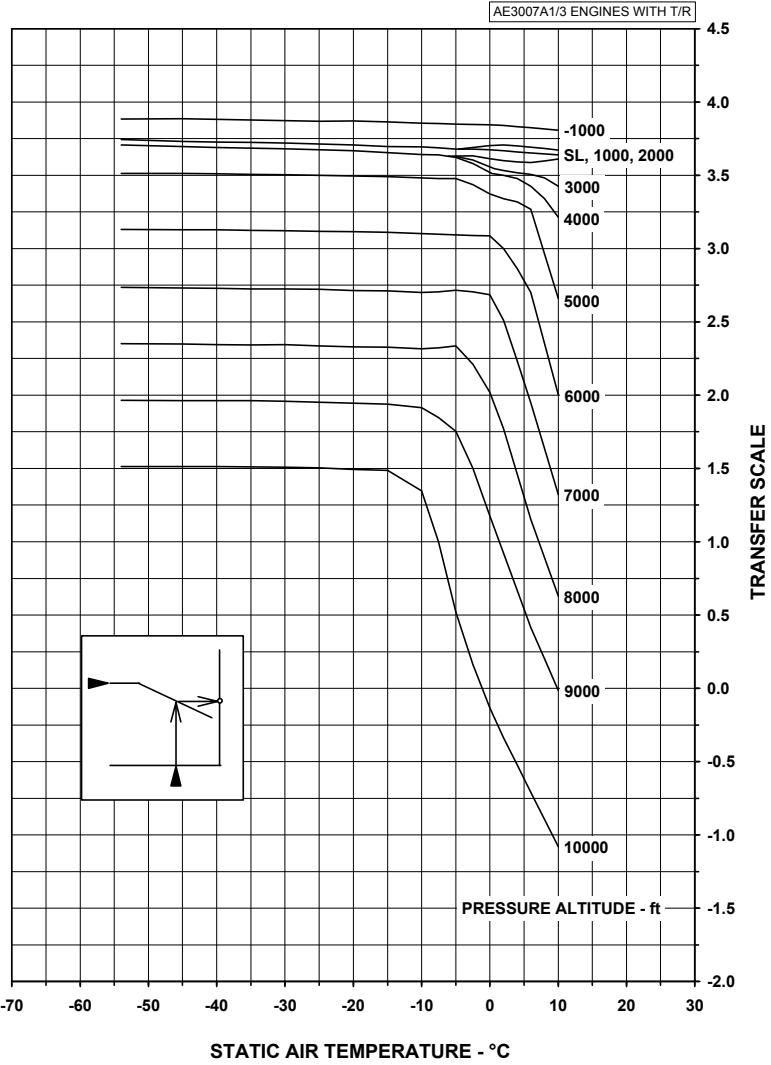
OBSTACLE CLEARANCE - REFERENCE GRADIENT
(CG 21.1%)
FLAPS 18° - ALT T/O MODE - BLEED CLOSED - PACKS OFF - FADEC REF A/ICE
OFF
CHART 2 OF 2



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OBSTACLE CLEARANCE - REFERENCE GRADIENT
(CG 21.1%)
FLAPS 18° - ALT T/O MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 1 OF 2

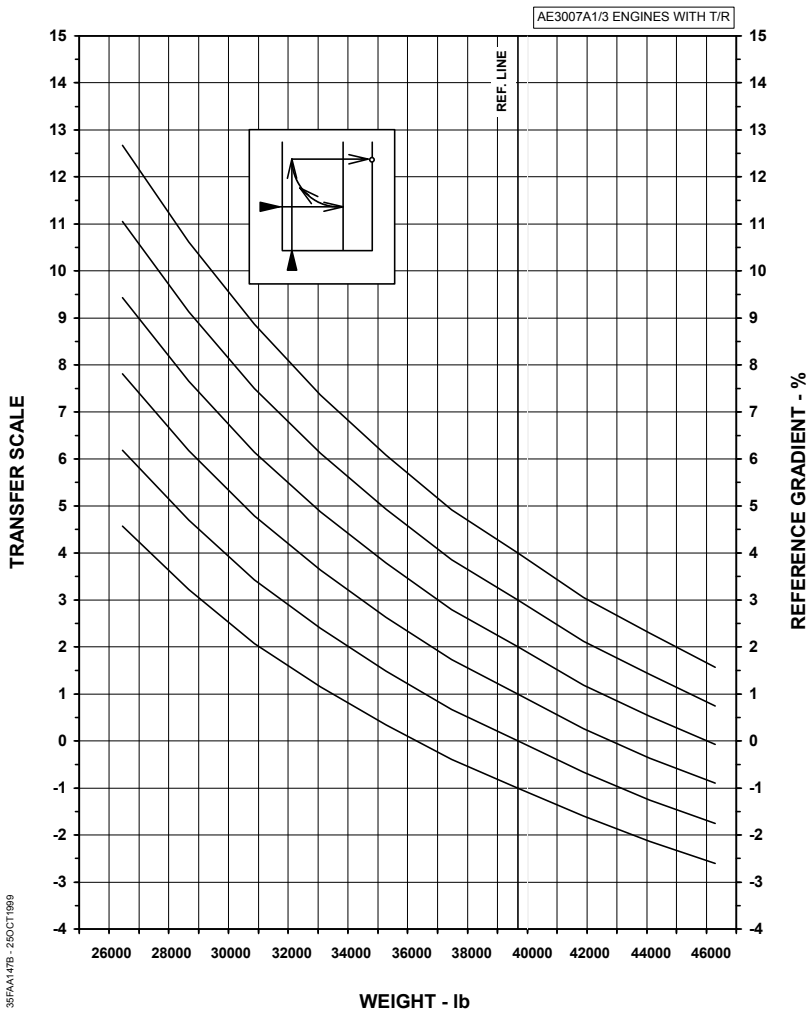


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OBSTACLE CLEARANCE - REFERENCE GRADIENT
(CG 21.1%)

FLAPS 18° - ALT T/O MODE - BLEED OPEN - PACKS OFF - FADEC REF A/ICE ON
CHART 2 OF 2



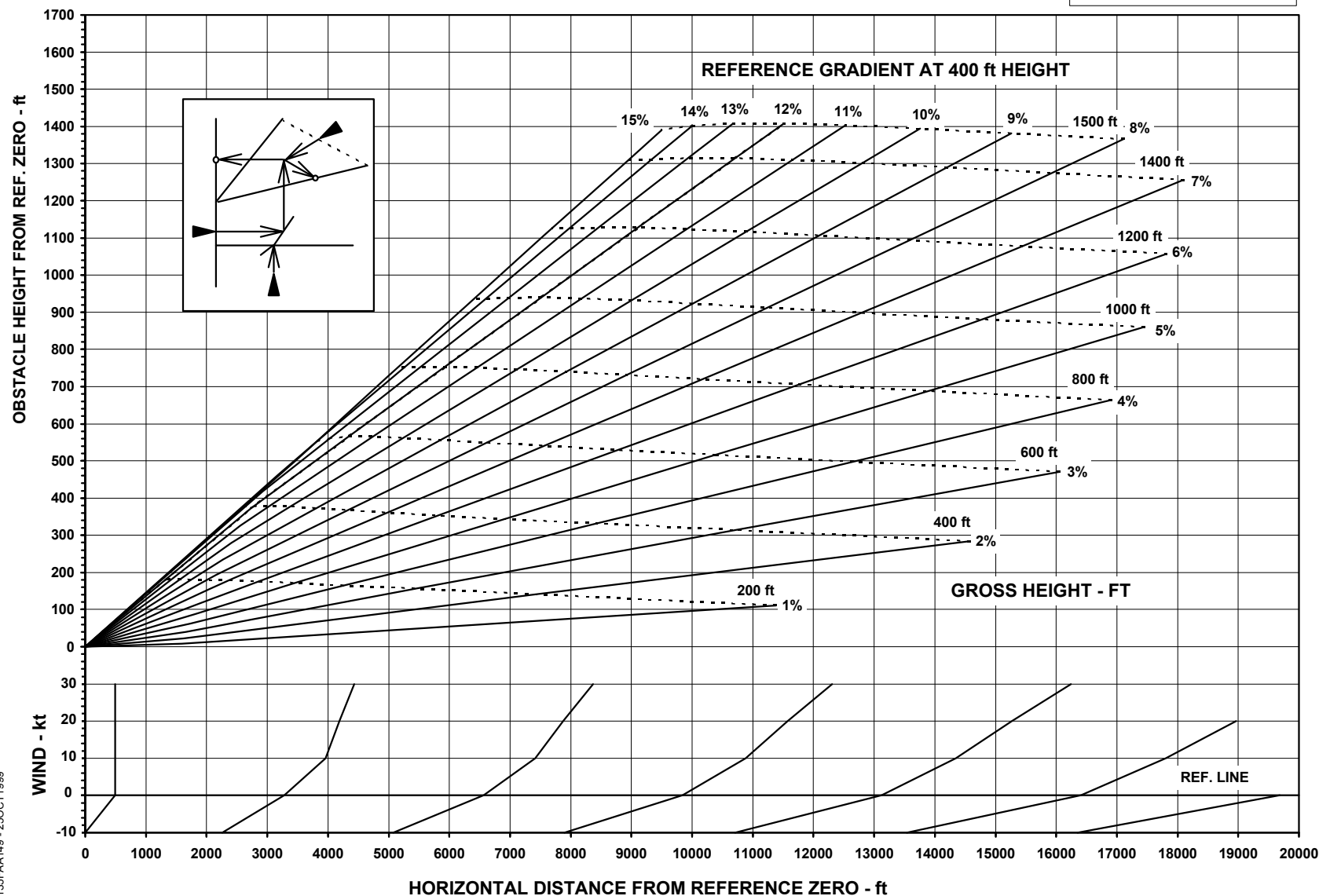
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OBSTACLE CLEARANCE - CLOSE-IN (CG 21.1%)
ALT T/O MODE - FLAPS 18°

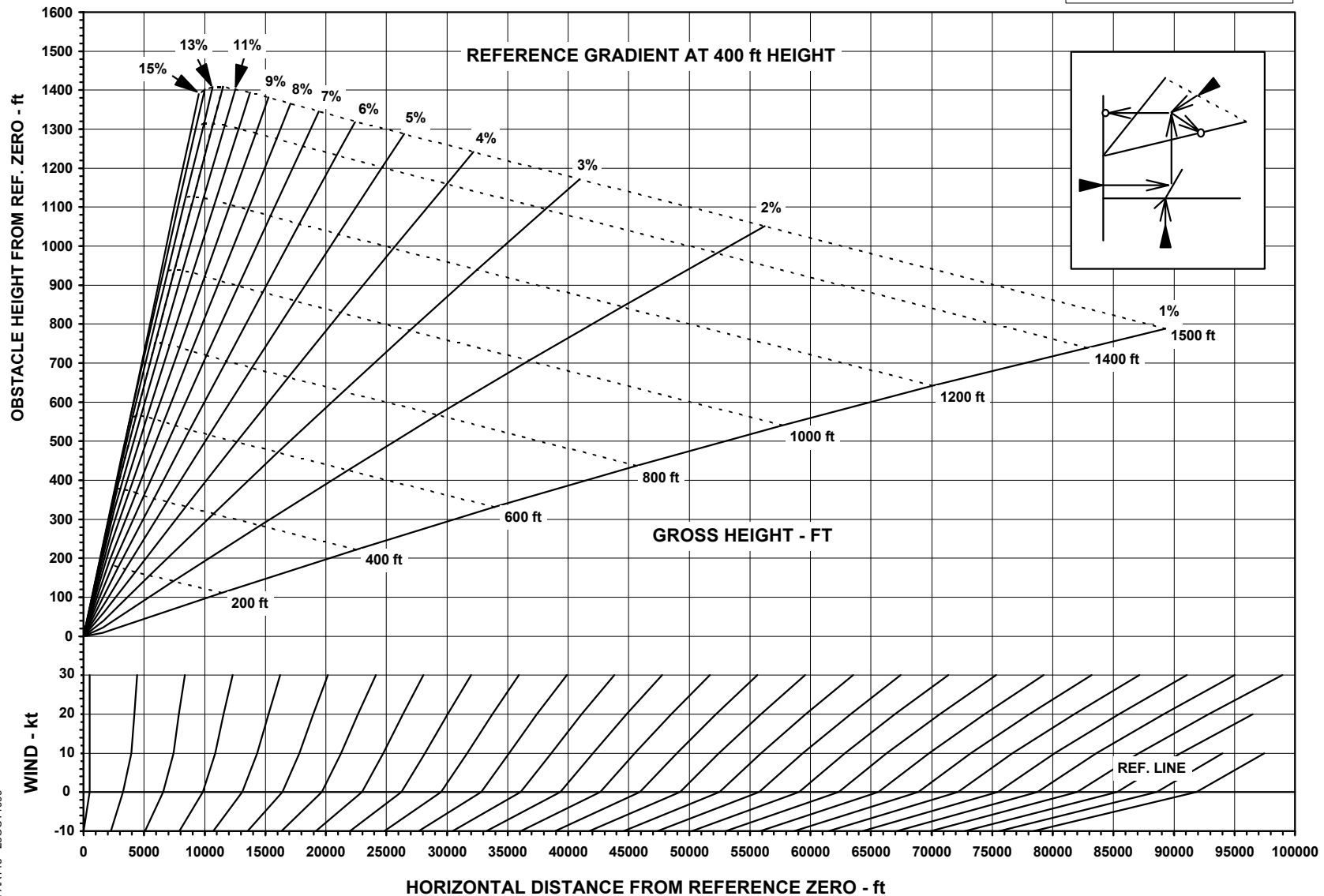
AE3007A1/3 ENGINES WITH T/R



135FAA149 - 25OCT1999

OBSTACLE CLEARANCE - DISTANT (CG 21.1%)
ALT T/O MODE - FLAPS 18°

AE3007A1/3 ENGINES WITH T/R



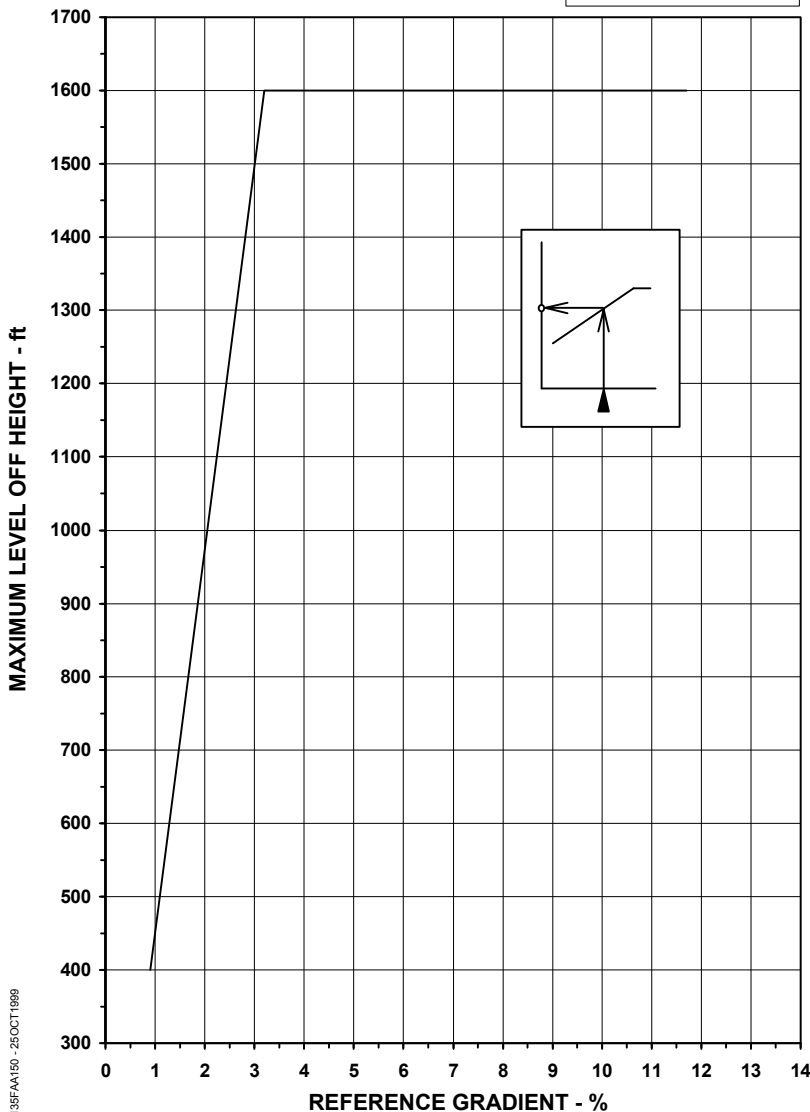
135FAA148 - 25OCT1999

AFM-145/1153 - FAA

MAXIMUM LEVEL OFF HEIGHT (CG 21.1%)

ALT T/O MODE - FLAPS 18°

AE3007A1/3 ENGINES WITH T/R



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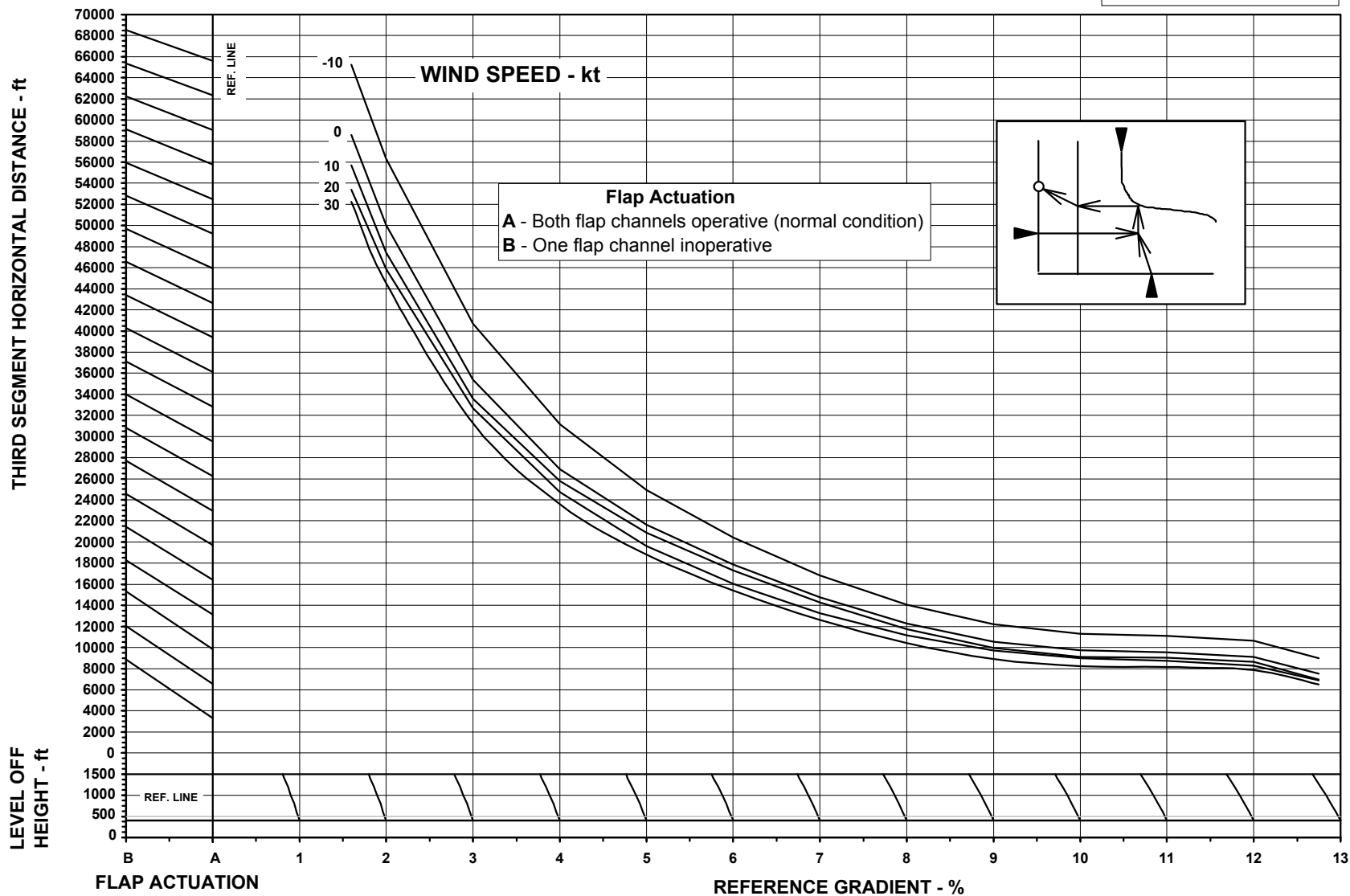


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THIRD SEGMENT HORIZONTAL DISTANCE (CG 21.1%)
ALT T/O MODE - TAKEOFF FLAPS 18°

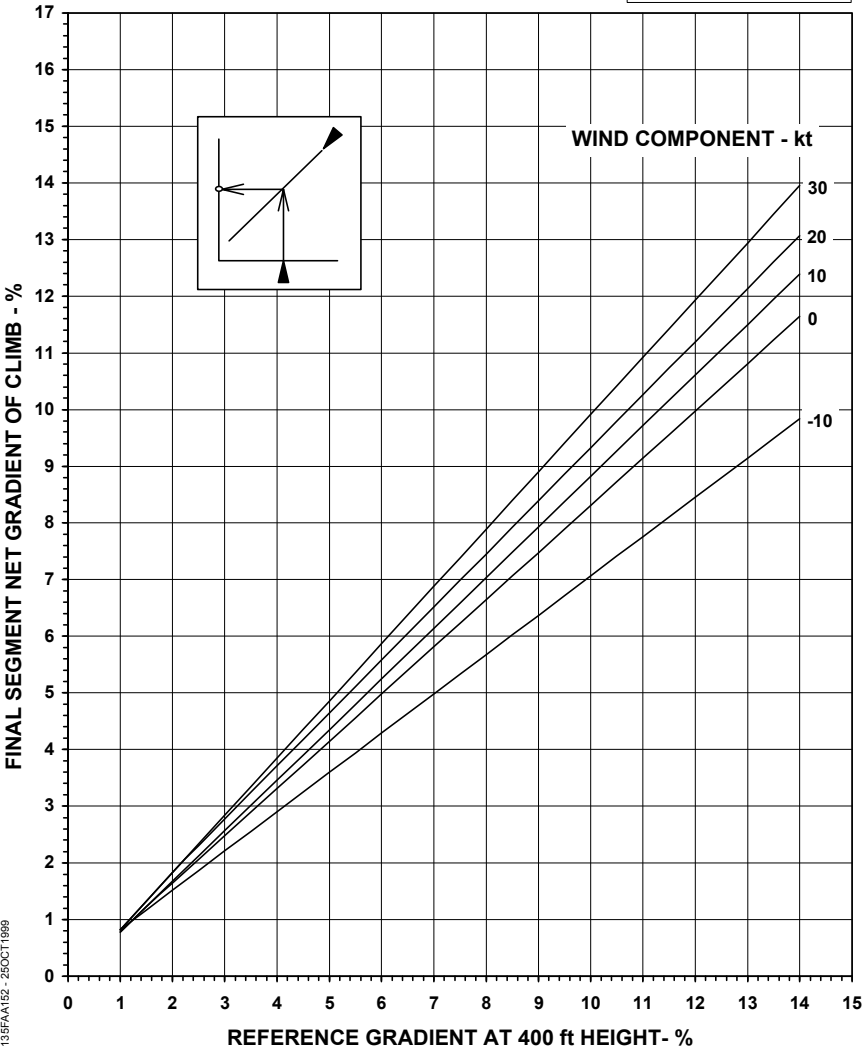
AE3007A1/3 ENGINES WITH T/R





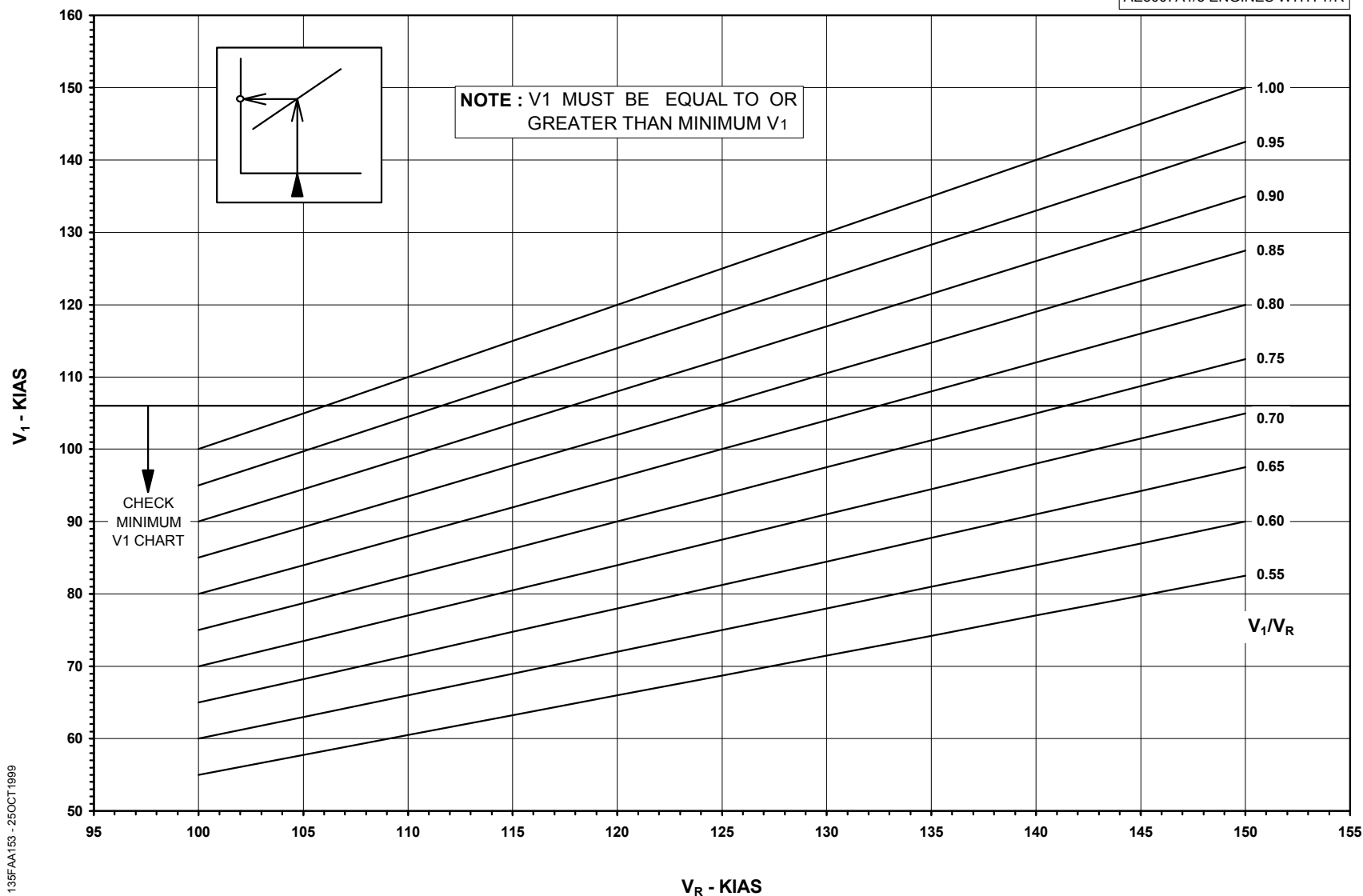
FINAL SEGMENT NET GRADIENT OF CLIMB
(CG 21.1%)
TAKEOFF FLAPS 18°

AE3007A1/3 ENGINES WITH T/R



TAKEOFF SPEEDS - V_1 (CG 21.1%)
NORMAL V_2 - FLAPS 18° - ALT T/O MODE - UNBALANCED FIELD LENGTH

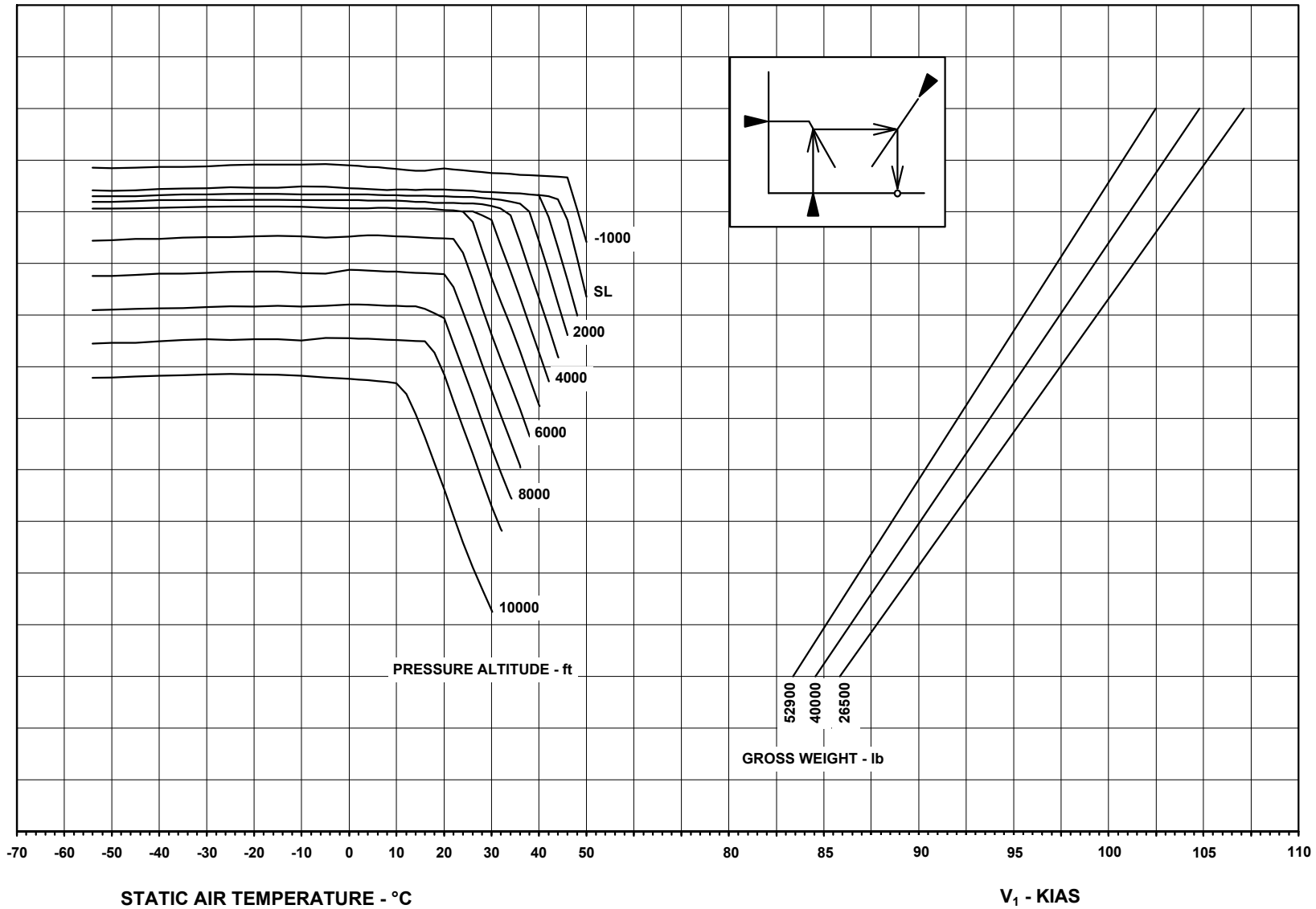
AE3007A1/3 ENGINES WITH T/R



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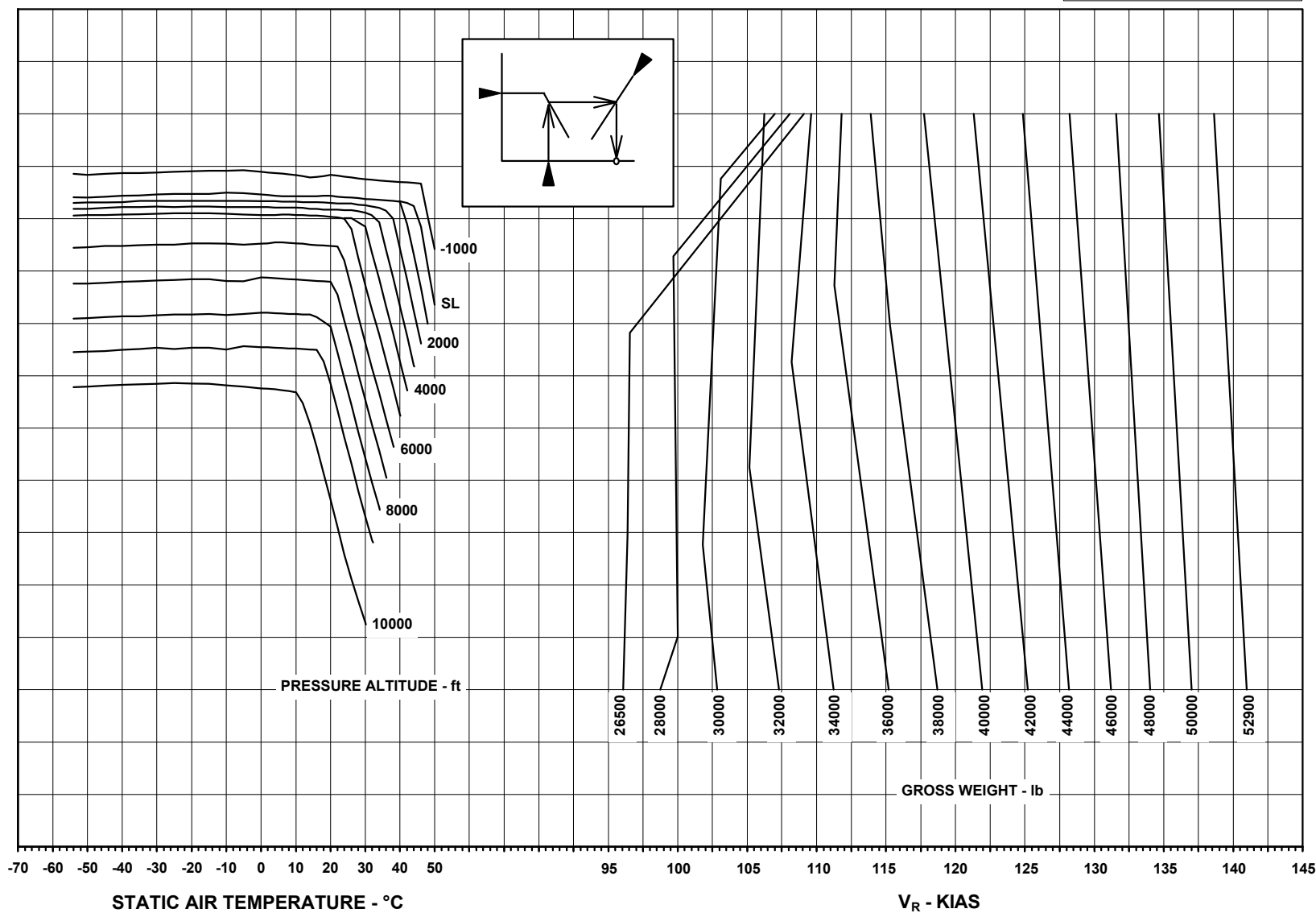
TAKEOFF SPEEDS - MINIMUM V_1 (CG 21.1%)
NORMAL V_2 - FLAPS 18° - ALT T/O MODE

AE3007A1/3 ENGINES WITH T/R



TAKEOFF SPEEDS - V_R (CG 21.1%)
NORMAL V_2 - FLAPS 18° - ALT T/O MODE

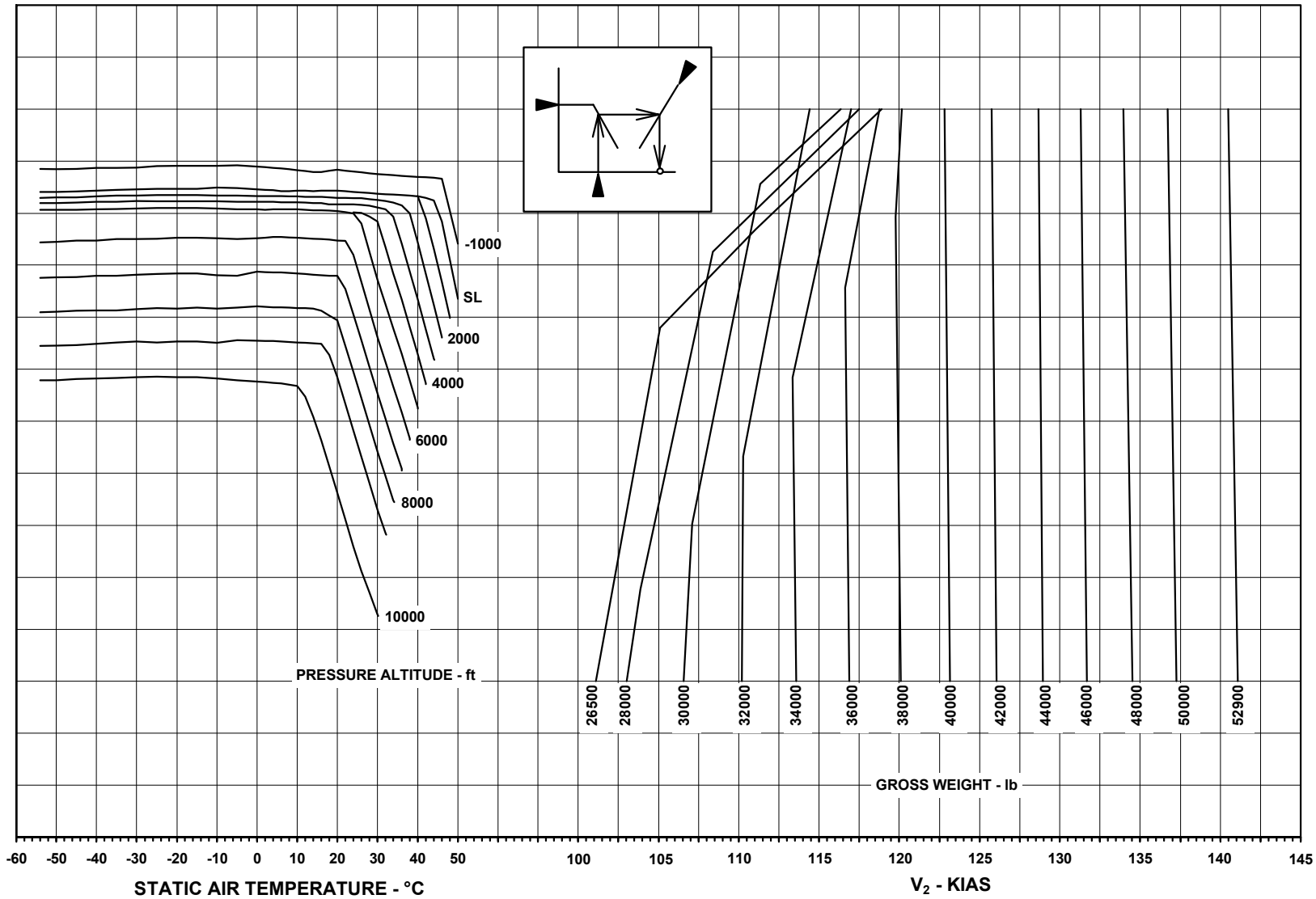
AE3007A1/3 ENGINES WITH T/R



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TAKEOFF SPEEDS - V_2 (CG 21.1%)
NORMAL V_2 - FLAPS 18° - ALT T/O MODE

AE3007A1/3 ENGINES WITH T/R



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EMBRAER TAKEOFF ANALYSIS SOFTWARE – ETOASG

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NORMAL PROCEDURES	S15-6
PERFORMANCE.....	S15-6

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GENERAL

This Supplement presents the information relating to takeoff data calculation through the Embraer Takeoff Analysis Software – ETOASG. The valid version is:

VERSION	APPLICABILITY	STATUS	REASON FOR MODIFICATION
APFP-145/016 Version 20.02/7.10	All models	Valid	-

The software calculates the airplane takeoff performance and the takeoff flight path. All the information supplied by the software complies with the applicable airworthiness requirements. All the instructions to use the software can be obtained from the applicable User Guide.

The software specified in this Supplement is not included physically as part of the AFM.

The software authorized by this Supplement is supplied by Embraer to the operators of the airplane.

The computerized AFM is not intended for use on board the airplane.

The operator is responsible for the correct use of this software.

LIMITATIONS

The ETOASG software is a part of the basic AFM, presenting the takeoff performance in order to complement performance data presented in the AFM Section 5 and in the Supplement dedicated to the engine. Any modification to the ANAC-approved computerized AFM software application, or subsequent alteration to the generated output, will cancel the airworthiness approval of the information, unless this change was approved by the appropriate airworthiness authority. This statement applies regardless of any approval notation printed on a generated output.

The ETOAS software replaces or supplements portions of the paper AFM, and is an ANAC approved source for that AFM information.

The ETOAS software has been tested only on WINDOWS[®] 95/98/NT/2000/XP Operational Systems.

The operator is responsible for the compliance with remaining airplane limitations.

RUNWAY CONDITION

Airplanes not equipped with thrust reversers must take the runway condition into account (wet or dry runway option) and use the FAA 25 AMDT 92 option.

NOTE: Airplanes equipped with thrust reversers may use either amendment 84 or amendment 92.

POSSIBLE CONFIGURATIONS

ENGINE	T/O MODE	FLAP	ASSOCIATED CONDITIONS
All Engines	All Modes	All Flaps	– Standard Forward CG; – Anti-Ice ON or OFF; – Normal V_2/V_S ratio; – Equipped or not with Reversers; – Dry or Wet Runway (1); – ER or LR Brakes; – Normal or Extended Second Segment.

NOTE: 1) The Wet Runway performance must be compared with the Dry Runway performance and the most conservative result must be used.

The following tables present associated conditions that are only applicable to specific configurations (engines, takeoff modes and flaps).

ENGINE	T/O MODE	FLAP	ASSOCIATED CONDITIONS
A or A1/1	T/O-1	9°	– Engine Anti-Ice Valve Locked Open; – Increased V_2/V_S ratio.
		22°	– Engine Anti-Ice Valve Locked Open.
	ALT T/O-1	9°	– Increased V_2/V_S ratio.

ENGINE	T/O MODE	FLAP	ASSOCIATED CONDITIONS
A1	T/O-1	9°	– High Altitude Operation; – Engine Anti-Ice Valve Locked Open; – Increased V_2/V_S ratio.
		22°	– High Altitude Operation; – Engine Anti-Ice Valve Locked Open.
	ALT T/O-1	9°	– High Altitude Operation; – Increased V_2/V_S ratio.
A1P	T/O	9°	– High Altitude Operation; – Engine Anti-Ice Valve Locked Open; – Increased V_2/V_S ratio.
		18°	– High Altitude Operation; – Engine Anti-Ice Valve Locked Open.
		22°	– High Altitude Operation; – Engine Anti-Ice Valve Locked Open.
	T/O RSV (1)	9°	– High Altitude Operation; – Increased V_2/V_S ratio.
		18°	– High Altitude Operation.
		22°	– High Altitude Operation.
	ALT T/O-1	9°	– High Altitude Operation; – Increased V_2/V_S ratio.
A1/3 (1)	T/O	9°	– Engine Anti-Ice Valve Locked Open.
		18°	– Engine Anti-Ice Valve Locked Open; – 21.1% Forward CG.

NOTE: 1) T/O RSV mode only for Thrust Assurance Check.

ENGINE	T/O MODE	FLAP	ASSOCIATED CONDITIONS
A1E	ALT T/O-1	9°	– Ferry Flight with Flaps 9°; – Ferry Flight with Landing Gear Down; – High Altitude Operation; – Increased V_2/V_S ratio.
		18°	– Ferry Flight with Landing Gear Down; – High Altitude Operation.
	T/O	9°	– Ferry Flight with Flaps 9°; – Ferry Flight with Landing Gear Down; – High Altitude Operation; – Engine Anti-Ice Valve Locked Open; – Increased V_2/V_S ratio.
		18°	– Ferry Flight with Landing Gear Down; – High Altitude Operation; – Engine Anti-Ice Valve Locked Open.
	E T/O	9°	– Ferry Flight with Flaps 9°; – Ferry Flight with Landing Gear Down; – High Altitude Operation; – Engine Anti-Ice Valve Locked Open; – Increased V_2/V_S ratio.
		18°	– Ferry Flight with Landing Gear Down; – High Altitude Operation; – Engine Anti-Ice Valve Locked Open.

EMERGENCY AND ABNORMAL PROCEDURES

Not applicable.

NORMAL PROCEDURES

Not applicable.

PERFORMANCE

The performance information obtained by the program may differ from that published in the AFM, since the calculation is performed exactly in a specific condition, instead of the interpolations used in the performance charts construction, where the entire airplane envelope should be represented in a unique graphical format. Therefore, the software may present improved takeoff performance information when compared with the information presented in the AFM.

Since the performance information supplied by the software complies with the applicable airworthiness requirements and is approved by the Certification Authorities, its results may be used as a valid alternative of the AFM performance charts.



AIRPLANE FLIGHT MANUAL

SUPPLEMENT 19
FERRY FLIGHT
WITH FLAPS 9°

SUPPLEMENT 19

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FERRY FLIGHT WITH FLAPS 9°

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GENERAL

The ferry flight is a flight for the purpose of returning an airplane to base or moving an airplane to and from a maintenance base where repairs or replacements can be made.

The information presented in this Supplement, associated with the basic AFM, enables the establishment of the conditions required to accomplish the ferry flight operation with flaps 9°.

The operator should ensure that any required approval from the Regulatory Authorities is granted prior to the ferry flight operation.

For limitations, procedures and performance information not contained in this Supplement, refer to the basic AFM.

LIMITATIONS

OPERATIONAL LIMITATIONS

AIRSPEED

Maximum Operating Limit Speed 250 KIAS

ALTITUDE

Maximum Altitude Operating Limit 20000 ft

BRAKES

A fully operational brake system is required.

KINDS OF OPERATION

This Supplement permits the airplane operation, for ferry flight only, in the following conditions:

- No icing;
- Visual (VFR) or Instrument (IFR);
- In case of any failure associated with flight controls degradation, landing must be performed in VMC.

OCCUPANTS

No passenger is allowed on board.



AIRPLANE FLIGHT MANUAL

SUPPLEMENT 19
FERRY FLIGHT
WITH FLAPS 9°

POWER PLANT

ENGINES

Two Rolls-Royce AE3007A or AE3007A1/1 or AE3007A1 or AE3007A1P or AE3007A1E or AE3007A3 or AE3007A1/3 engines. The AE3007A and AE3007A1/1 engines intermix operation is also permitted.



EMERGENCY AND ABNORMAL PROCEDURES

The actions, warnings, cautions and notes listed in the procedures below must replace the equivalent procedures contained in the basic AFM.

TAKEOFF WITH ENGINE FAILURE (ABOVE V₁)

Maximum Takeoff Thrust	CHECK
At V _R rotate the airplane.	
With positive rate of climb:	
Landing Gear.....	UP
Airspeed	V ₂
Maintain V ₂ up to the level off altitude. If maneuvering is required, maintain a maximum bank of 15°.	
When reaching the level off height:	
Airspeed	ACCELERATE TO APPROACH CLIMB SPEED
After flaps are retracted:	
PRECAUTIONARY ENGINE SHUTDOWN or ENGINE FIRE, SEVERE DAMAGE OR SEPARATION Procedure	AS REQUIRED
After a maximum of 5 minutes at takeoff mode:	
Thrust Rating.....	AS REQUIRED

PITCH TRIM INOPERATIVE

EICAS WARNING: PIT TRIM 1(2) INOP or
PTRIM MAIN INOP, PTRIM BACKUP INOP
(may be presented)

EICAS CAUTION: AUTO TRIM FAIL (may be presented)

If at least one message is presented without pressing any Pitch Trim Switch:

Affected Pitch Trim System OFF
Continue the flight with the remaining Pitch Trim System.

If both Pitch Trim Systems become inoperative:

Pitch Trim Main System OFF
Pitch Trim Back Up System OFF
Consider landing at the nearest suitable airport.

If no message is presented or is only presented when pressing any Pitch Trim Switch:

Airspeed REDUCE
Airspeed reduction alleviates control column forces and may permit Pitch Trim command to be recovered.

If Pitch Trim command is reestablished continue the flight with the remaining Pitch Trim System.

NOTE: - For the EMB-145 XR model, if the PTRIM BACKUP INOP message is displayed the maximum airspeed allowed is Mach 0.78.

- Do not engage the Autopilot if the Main Pitch Trim System is inoperative.
- If only one segment of the Pitch Trim Switch is pressed, the TRIM aural warning message will be generated.

WARNING: IF PITCH TRIM COMMAND IS NOT REESTABLISHED, DO NOT OPEN SPEEDBRAKE.

If pitch trim command is not reestablished and the airplane presents a NOSE UP tendency:

Airspeed REDUCE

NOTE: Turning the airplane and extending the landing gear helps to maintain minimum airspeed with unwanted pitch up tendency.

Pitch Trim Command CHECK ALL SWITCHES

CONTINUE ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

If pitch trim is recovered, re-trim the airplane and proceed with flight normally.

If pitch trim is not recovered:

Consider landing at the nearest suitable airport.

Approach and landing configuration:

Landing Gear DOWN

Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF\ 45} + 10$ KIAS

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.40.

If pitch trim command is not reestablished and the airplane presents a NOSE DOWN tendency:

Consider landing at the nearest suitable airport.

Airspeed REDUCE AS REQUIRED

Approach and landing configuration:

Landing Gear DOWN

NOTE: Gear extension should be delayed as long as possible.

Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF\ 45} + 25$ KIAS

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.70.

JAMMED ELEVATOR

EICAS WARNING: SPS 1-2 INOP (may be presented)

EICAS CAUTION: STICK PUSHER FAIL

Elevator Disconnect	PULL
Autopilot	OFF
Airspeed	MAXIMUM 200 KIAS
Pitch Trim	AS REQUIRED
Avoid landing at airports with anticipated turbulence or crosswind.	
Approach and landing configuration:	
Landing Gear	DOWN
Flaps Selector Lever	22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed..... $V_{REF\ 45} + 20$ KIAS

If both elevators are jammed, pitch trim may be used to land the airplane.

If left elevator is jammed, Stick Pusher will not be available.

Depending on the jammed elevator position, the remaining elevator power to flare the airplane will be reduced.

Do not reengage autopilot.

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.60.



JAMMEDAILERON

Aileron Disconnect	PULL
Autopilot.....	OFF
Airspeed	MAXIMUM 200 KIAS

NOTE: Roll rate with aileron disconnected is lower than with full system.

After control is regained:

If the copilot's aileron is operative, roll trim and artificial feel are available.

If the pilot's aileron is operative, roll trim and artificial feel are not available. Do not make sudden and large aileron inputs. Do not increase bank angle above 20°.

In either case, autopilot must not be reengaged.

If both ailerons are jammed, use rudder to control the airplane.

Avoid landing at airports with anticipated turbulence or crosswind.

Approach and landing configuration:

Landing Gear.....	DOWN
Flaps Selector Lever	22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed	$V_{REF\ 45^\circ} + 15\text{ KIAS}$

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.50.

JAMMED RUDDER

Command rudder through yaw trim. If not possible:

Rudder System 2 OFF

If still jammed:

Rudder System 2 ON

Rudder System 1 OFF

If rudder control through pedals is not restored:

Airspeed MAXIMUM
200 KIAS

Avoid landing at airports with anticipated turbulence or crosswind.

Approach and landing configuration:

Landing Gear DOWN

Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF 45} + 30$ KIAS
OR 160 KIAS
WHICHEVER IS
HIGHER

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 2.70.

If required, use asymmetric thrust to trim the airplane directionally, and maintain the engine thrust until nose gear contact in order to avoid lateral and directional miscontrol.

During final approach, the pilot not flying must keep the Steering Disengage Button pressed to avoid inadvertent nose wheel deflection once on ground.

When the airplane is firmly on ground, use the Steering Handle to control the airplane still keeping the Steering Disengage Button pressed and then reduce the engine thrust to IDLE.

The pilot not flying must help the pilot flying to keep control column pressed forward after nose gear touch down, to assist the landing maneuver.

If necessary, use differential braking to steer the airplane.

NOTE: The Steering handle is effective even with the Steering Disengage Button pressed.

INADVERTENT SPOILER OPENING IN FLIGHT

EICAS CAUTION: SPOILER FAIL (may be presented)

Speed Brake.....CLOSE

Speed Brake Circuit Breaker (F13) PULL

Ground Spoiler Outboard

Circuit Breaker (F14).....PULL

Ground Spoiler Inboard

Circuit Breaker (F21).....PULL

If any panel is jammed closed, open or is floating:

Approach and landing configuration:

Landing Gear DOWN

Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF\ 45} + 25$ KIAS

Do not reduce engine thrust during flare to avoid abrupt lateral and directional corrections before touchdown.

CAUTION: • IN CASE OF PANEL JAMMED CLOSED OR FLOATING, TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.72.

- IN CASE OF PANEL JAMMED OPEN, TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.70.

POWER PLANT

ONE ENGINE INOPERATIVE APPROACH AND LANDING

Approach and landing configuration:

Landing Gear	DOWN
Thrust Rating	TAKEOFF
	MODE
Flaps Selector Lever	22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed	$V_{REF\ 45} +$
	15 KIAS

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.48.

HYDRAULIC POWER

BOTH HYDRAULIC SYSTEMS FAILURE

EICAS CAUTION: HYD SYS 1-2 FAIL, RUDDER SYS 1-2 INOP or
AIL SYS 1-2 INOP

EICAS ADVISORY: E1-2 HYD PUMP FAIL

Airspeed	MAXIMUM
	250 KIAS

Check hydraulic systems fluid quantity:

If any hydraulic system fluid quantity is in green range:

Associated Electric Hydraulic Pump ON

If any hydraulic system fluid quantity is in amber range:

Associated Electric Hydraulic Pump OFF

CAUTION: DO NOT OPEN THE SPEED BRAKE.

If one system can be recovered, complete the appropriate procedure for one hydraulic system failure.

(continue on next page)



(continued from previous page)

If both systems remain inoperative:

Quick Disconnect Button PRESS
Both Electric Hydraulic Pumps OFF

NOTE: The nose landing gear doors will open, therefore the pilot should expect noise increase.

ABNORMAL LANDING GEAR

EXTENSION Procedure ACCOMPLISH

Use rudder for directional control on the ground.

Rudder and aileron are operating under mechanical reversion mode. Expect greater rudder pedals and control wheels control forces. Both pilots should act together to control the airplane, if required. Consider the use of aileron and asymmetric thrust to help in yaw control.

Land at the nearest suitable airport. Avoid landings at airports with anticipated crosswind or turbulence. Perform a long final approach. Landing must be performed only in VMC.

Approach and landing configuration:

Landing Gear DOWN
Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF\ 45} +$
45 KIAS

EMERGENCY BRAKE

TECHNIQUE Procedure ACCOMPLISH

Do not attempt to taxi.

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 3.60.

HYDRAULIC SYSTEM 1 FAILURE

EICAS CAUTION: HYD SYS 1 FAIL, RUDDER SYS 1 INOP or
AIL SYS 1 INOP

EICAS ADVISORY: E1 HYD PUMP FAIL

Check hydraulic system fluid quantity:

If hydraulic system fluid quantity is in green range:

Electric Hydraulic Pump 1 ON

If hydraulic system fluid quantity is in amber range:

Electric Hydraulic Pump 1 OFF

If hydraulic power is not recovered:

Airspeed MAXIMUM
250 KIAS

Electric Hydraulic Pump 1 OFF

NOTE: As the nose landing gear doors will open, the pilot should expect a noise increasing during flight.

For landing gear extension:

ABNORMAL LANDING GEAR

EXTENSION Procedure ACCOMPLISH

For approach and landing:

Landing Gear DOWN

Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF 45} +$
10 KIAS

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 2.20.

Do not actuate left Thrust Reverser.

Use rudder and differential braking for directional control on ground.

HYDRAULIC SYSTEM 2 FAILURE

EICAS CAUTION: HYD SYS 2 FAIL, RUDDER SYS 2 INOP or
AIL SYS 2 INOP

EICAS ADVISORY: E2 HYD PUMP FAIL

Check hydraulic system fluid quantity:

If hydraulic system fluid quantity is in green range:

Electric Hydraulic Pump 2 ON

If hydraulic system fluid quantity is in amber range:

Electric Hydraulic Pump 2 OFF

If hydraulic power is not recovered:

Airspeed MAXIMUM
250 KIAS

Electric Hydraulic Pump 2 OFF

For approach and landing:

Landing Gear DOWN

Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing
setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF 45} + 10$ KIAS

Do not actuate right Thrust Reverser.

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING
DISTANCE, MULTIPLY THE UNFACTORED LANDING
DISTANCE FOR FLAPS 45° BY 2.10.

NOTE: - Do not open the Speed Brake.

- The Emergency/Parking Brake will be available only with the accumulator charge.

FLIGHT CONTROLS

AILERON SYSTEM INOPERATIVE

EICAS CAUTION: AIL SYS 1 (2) INOP

Associated Aileron System OFF
Airspeed MAXIMUM
250 KIAS

If the remaining system fails:

Remaining Aileron System OFF
Quick Disconnect Button PRESS

Aileron is operating under mechanical reversion mode. Expect greater aileron control force. If required, both pilot should act together to control airplane. Avoid landing at airports with anticipated turbulence or crosswind. Perform a long final approach.

Approach and landing configuration:

Landing Gear DOWN
Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF\ 45} +$
45 KIAS

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 2.00.



RUDDER/YAW TRIM RUNAWAY

Quick Disconnect Button	PRESS
Rudder Systems 1 and 2	OFF
Yaw Trim Circuit Breaker (F12)	PULL
Quick Disconnect Button	RELEASE

If necessary, turn on one rudder system at a time to identify the failed system. Prepare to overcome the yaw generated by the failed system. Continue the flight with the failed system off.

If both systems remains inoperative:

- Expect greater rudder pedals force. Both pilots should act together to control the airplane, if required. Consider the use of aileron to help in yaw control, and asymmetric thrust to trim the airplane.
- Do not use yaw trim system for the remainder of the flight.
- Avoid landing at airports with anticipated turbulence or crosswind.
- Land at the nearest suitable airport.
- Landing must be performed only in VMC.

CAUTION: DO NOT TRY TO RESET THE RUDDER SYSTEMS.



RUDDER SYSTEM INOPERATIVE

EICAS CAUTION: RUDDER SYS 1 (2) INOP or RUDDER SYS 1-2 INOP

If only one system fails:

Confirm the failed side.

Affected Rudder System OFF

Check that only the affected RUDDER SYS INOP message is presented on EICAS.

If the message RUDDER SYS 1-2 INOP is displayed on EICAS and rudder is operating in Mechanical Reversion Mode:

If Mechanical Reversion Mode was resultant of Hardover Protection activation:

Do not reset the systems.

Expect greater rudder pedal force. If required, both pilots should act together to control the airplane. Consider the use of aileron to help in yaw control, and asymmetric thrust to control the airplane.

Landing must be performed only in VMC.

Avoid landing at airports with anticipated turbulence, gusts or crosswind.

If Mechanical Reversion Mode was not resultant of Hardover Protection activation:

Rudder System 2 OFF

If the message RUDDER SYS 1-2 INOP still remains on:

Rudder System 1 OFF

Both Rudder Systems ON

If the message RUDDER SYS 1-2 INOP still remains on:

Both Rudder Systems OFF

Expect greater rudder pedal force. Both pilots should act together to control the airplane, if required. Consider the use of aileron to help in yaw control, and asymmetric thrust to control the airplane.

Landing must be performed only in VMC.

Avoid landing at airports with anticipated turbulence, gusts or crosswind.

Approach and landing configuration:

Landing Gear DOWN

Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

Airspeed $V_{REF 45} + 10$ KIAS

CAUTION: TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.40.

NORMAL PROCEDURES

The actions, warnings, cautions and notes listed in the procedures below must complement or replace the equivalent procedures contained in the basic AFM.

WARNING: BE SURE THAT THE MAINTENANCE PERSONNEL HAS DISCONNECTED THE FPDU ELECTRICAL CONNECTORS P1101 AND P1102 (FOR ALL EMB-145 MODELS, EXCEPT EMB-145 XR) OR CONNECTORS P3683 AND P3682 (FOR EMB-145 XR MODELS).

BEFORE START

The EICAS caution message FLAP FAIL may be displayed and should be disregarded.

NOTE: The EICAS flaps indication will display dashes and the RMU will display 11°.

AFTER START

Flaps Selector Lever 9°

BEFORE LANDING

Flaps Selector Lever 22°

NOTE: The Flaps Selector Lever must be set to the landing setting to avoid GPWS/EGPWS nuisance messages.

LANDING

Airspeed $V_{REF 45} + 10 \text{ KIAS}$

For Landing Field Length correction, refer to the chart contained in this Supplement.

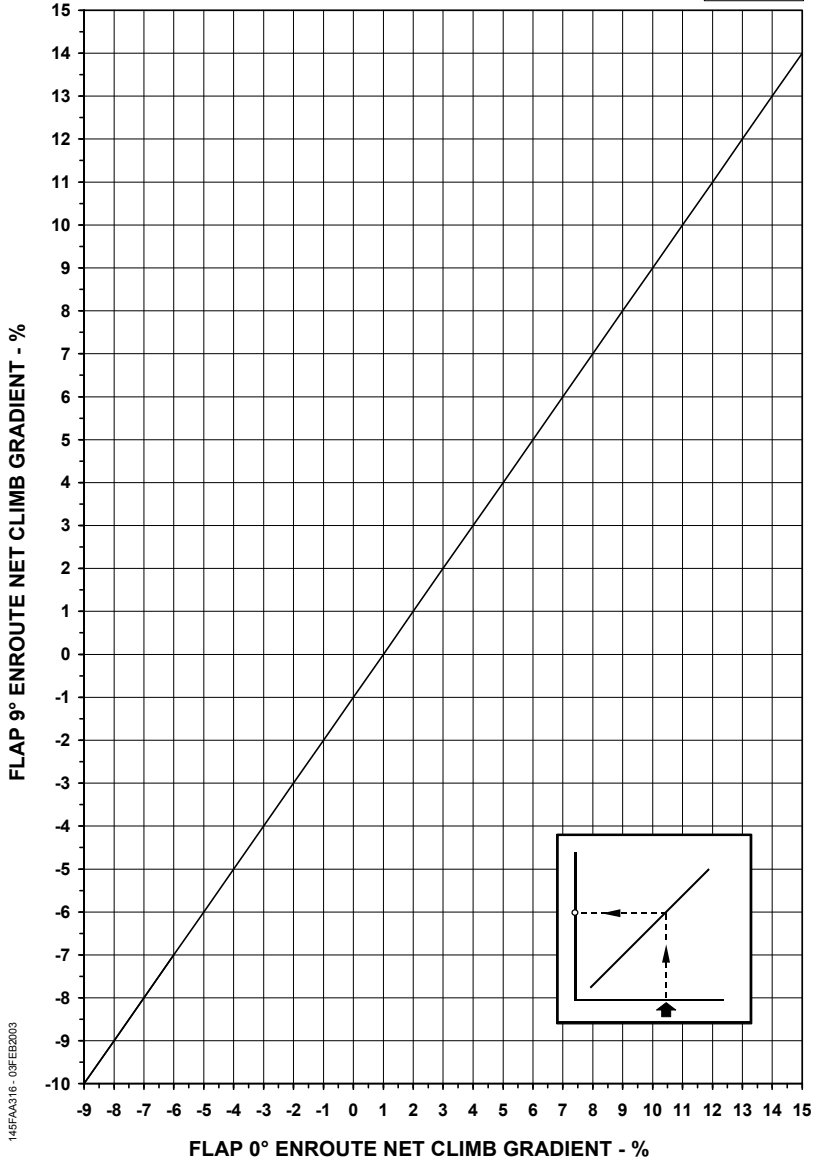
PERFORMANCE

The performance data presented in this section must replace or complement the equivalent data contained in the basic AFM and Supplements related to the associated engines, as applicable. Unless otherwise specified, the performance charts presented in this Supplement must be used in the same way as in the basic AFM.

- **TAKEOFF** - For the EMB-145 XR model, the takeoff data must be calculated through the ETOASG version 18.41/7.00 or later approved version.
- **OBSTACLE CLEARANCE** - The obstacle clearance must be made up to the second segment, and therefore the performance presented in AFM for flaps 9° is applicable.
- **FINAL SEGMENT SPEED and ENROUTE CLIMB SPEED** - The speed used in the final takeoff segment and in enroute climb with flaps 9° is the same used in the **APPROACH CLIMB SPEED** chart.
- **ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE** - A correction chart must be used to obtain the Enroute Net Climb Gradient. Use the **ENROUTE NET CLIMB GRADIENT - ONE ENGINE OPERATIVE** chart related to the associated engine and make the correction using the **ENROUTE NET CLIMB GRADIENT CORRECTION** chart contained in this Supplement.
- **MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED** - A correction chart must be used to obtain the Landing Field Length. Use the **MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED - FLAPS 45°** chart and make the correction using the **LANDING FIELD LENGTH CORRECTION** chart contained in this Supplement.

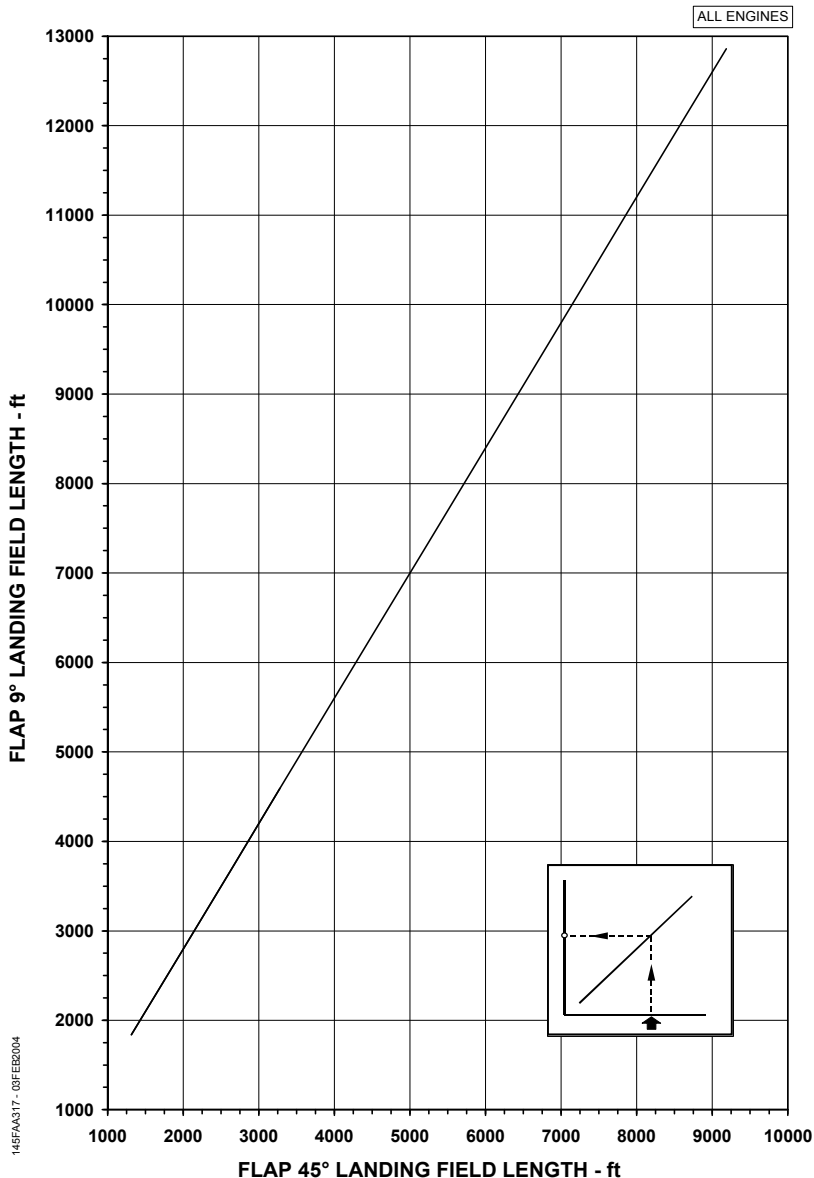
ENROUTE NET CLIMB GRADIENT CORRECTION

ALL ENGINES



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LANDING FIELD LENGTH CORRECTION





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SUPPLEMENT 20

LIST OF EFFECTIVE PAGES

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REVISION.....	1 to 49	Not Applicable
REVISION.....	50.....	NOV 09, 2001
REVISION.....	51 to 55	Not Applicable
REVISION.....	56.....	OCT 21, 2003
REVISION.....	57.....	JUN 17, 2004

* S20-i.....	REVISION 57	S20-22	REVISION 50
S20-ii	REVISION 50	S20-23	REVISION 56
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FERRY FLIGHT WITH LANDING GEAR DOWN

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GENERAL

The ferry flight is a flight for the purpose of returning an airplane to base or moving an airplane to and from a maintenance base where repairs or replacements can be made.

The information presented in this Supplement, associated with the basic AFM, enables the establishment of the conditions required to accomplish the ferry flight operation with the landing gear down.

The operator should ensure that any required approval from the Regulatory Authorities is granted prior to the ferry flight operation.

For limitations, procedures and performance information not contained in this Supplement, refer to the basic AFM.

LIMITATIONS

OPERATIONAL LIMITATIONS

AIRSPEED

Maximum Operating Limit Speed 250 KIAS

NOTE: The nose landing gear doors must be installed.

TEMPERATURE

Minimum Operating Temperature (SAT) -40°C

KINDS OF OPERATION

This Supplement permits the airplane operation, for ferry flight only, under the following conditions:

- No icing;
- Visual (VFR) or Instrument (IFR).

OCCUPANTS

No passengers are allowed on board.



POWER PLANT

ENGINES

Two Rolls-Royce AE3007A or AE3007A1/1 or AE3007A1 or AE3007A3 or AE3007A1/3 or AE3007A1P or AE3007A1E engines. The AE3007A and AE3007A1/1 engines intermix operation is also permitted.

FLIGHT CONTROLS

FLAPS

Takeoff Flaps 9°

EMERGENCY AND ABNORMAL PROCEDURES

The Emergency and Abnormal Procedures remain unchanged, except that all procedures will be performed with landing gear down.

NORMAL PROCEDURES

The actions listed in the procedure below must complement the equivalent procedure contained in the basic AFM. The remaining Normal Procedures section remains unchanged, except that all procedures will be performed with the landing gear down.

CRUISE

Monitor fuel quantity throughout the flight.

PERFORMANCE

The performance data presented in this section must replace or complement the equivalent data contained in the basic AFM and in the Supplements related to the associated engines, as applicable.

Unless otherwise specified, the performance charts presented in this Supplement must be used in the same way as in the basic AFM.

The following charts listed are presented in this Supplement:

- **MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED** - One chart for takeoff is provided, according to the following option:
 - T/O-1 or ALT T/O-1 thrust rating mode (for AE3007A, A1/1, A1 and A3 engines).
 - T/O thrust rating mode (for AE3007A1/3 and A1P engines).
 - ANTI-ICE OFF.
 - Normal V_2 and Increased V_2 (only for AE3007A engines).
- **OBSTACLE CLEARANCE - REFERENCE GRADIENT** - A correction chart is provided to obtain the Reference Gradient. Use the **OBSTACLE CLEARANCE - REFERENCE GRADIENT - ANTI-ICE OFF** chart related to the associated engine and make the correction using the **OBSTACLE CLEARANCE - REFERENCE GRADIENT CORRECTION** chart contained in this Supplement.
- **ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE** - A correction chart is provided to obtain the Enroute Net Climb Gradient. Use the **ENROUTE NET CLIMB GRADIENT - ONE ENGINE OPERATIVE - ANTI-ICE OFF** chart related to the associated engine and make the correction using the **ENROUTE NET CLIMB GRADIENT CORRECTION** chart contained in this Supplement.

- ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT
 - One chart is provided, according to the following option:
 - ANTI-ICE OFF.

- APPROACH CLIMB GRADIENT - A correction chart is provided to obtain the Approach Climb Gradient.

Use the APPROACH CLIMB GRADIENT - ANTI-ICE OFF chart related to the associated engine and make the correction using the APPROACH CLIMB GRADIENT CORRECTION chart contained in this Supplement.

- MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED
 - A correction chart is provided to obtain the Approach Climb Limited Weight.

Use the MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED - ANTI-ICE OFF chart related to the associated engine and make the correction using the MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED CORRECTION chart contained in this Supplement.



AIRPLANE FLIGHT MANUAL

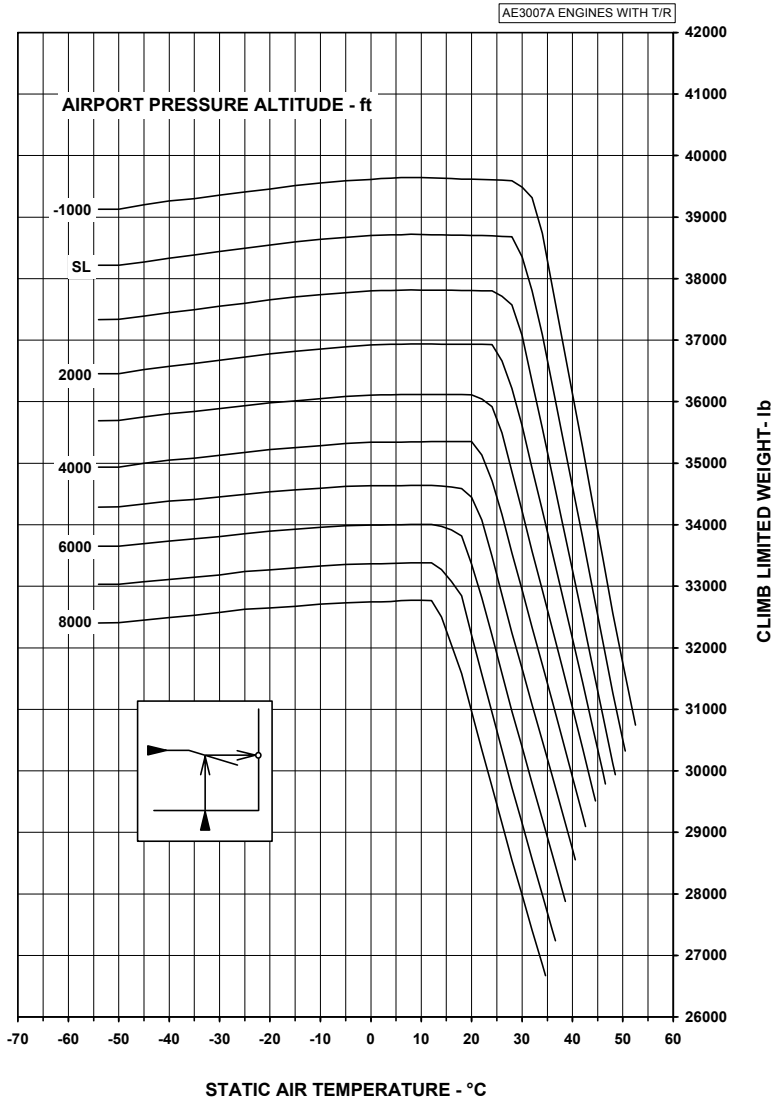
SUPPLEMENT 20
FERRY FLIGHT WITH
LANDING GEAR DOWN

PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A OR AE3007A1/1 ENGINES

The following performance charts are applicable for airplanes equipped with AE3007A or AE3007A1/1 engines.

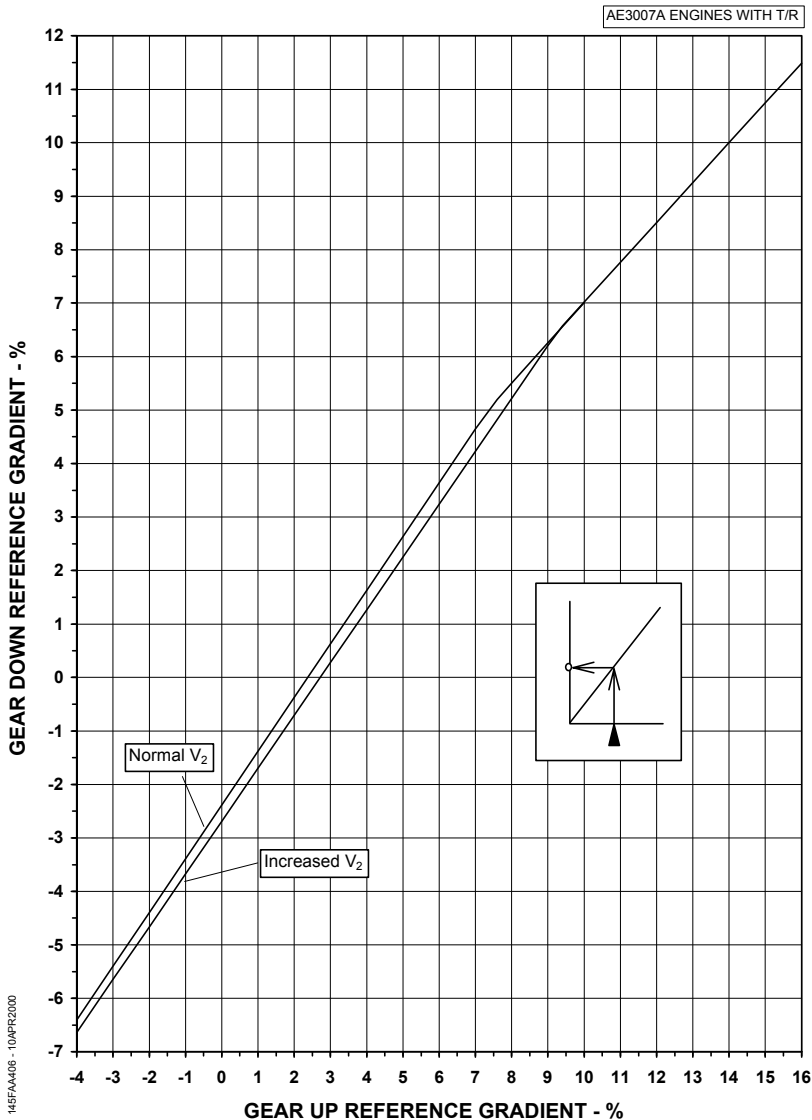
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MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9° - NORMAL V_2 AND INCREASED V_2
T/O-1 AND ALT T/O-1 MODE - GEAR DOWN - ANTI-ICE OFF



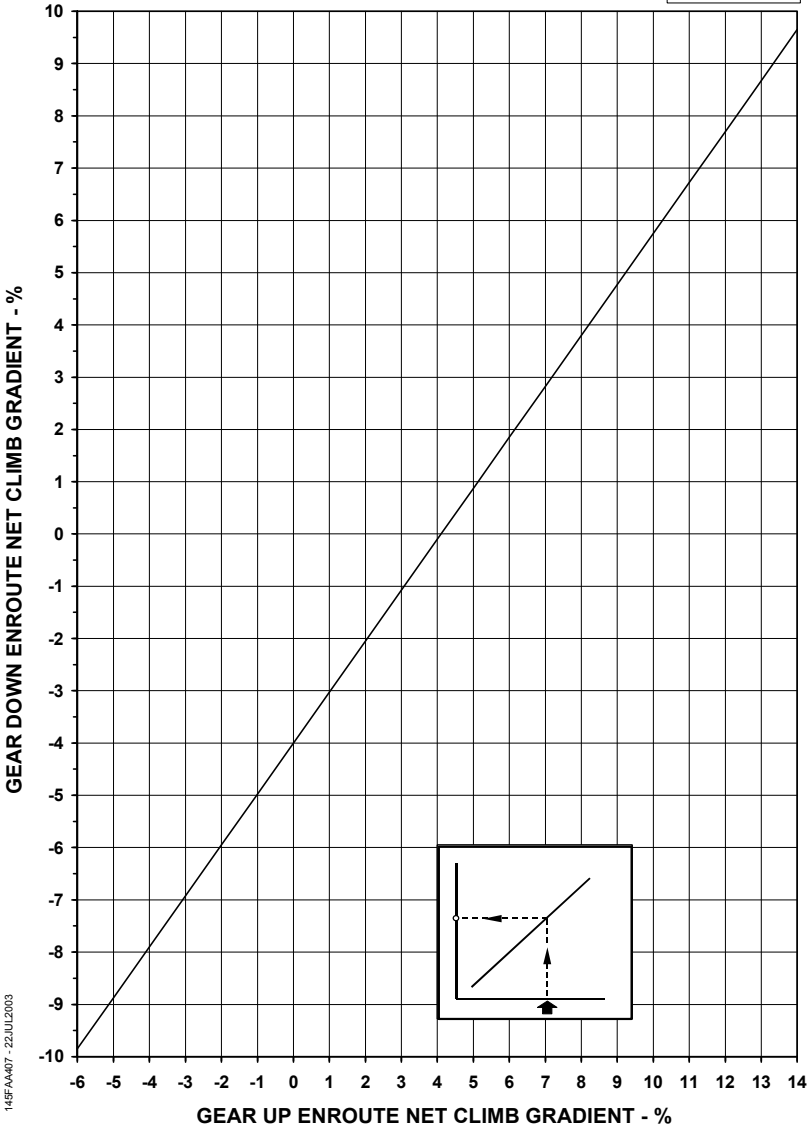
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**OBSTACLE CLEARANCE
REFERENCE GRADIENT CORRECTION**
FLAPS 9° - ANTI-ICE OFF



ENROUTE NET CLIMB GRADIENT CORRECTION
ANTI-ICE OFF

AE3007A ENGINES

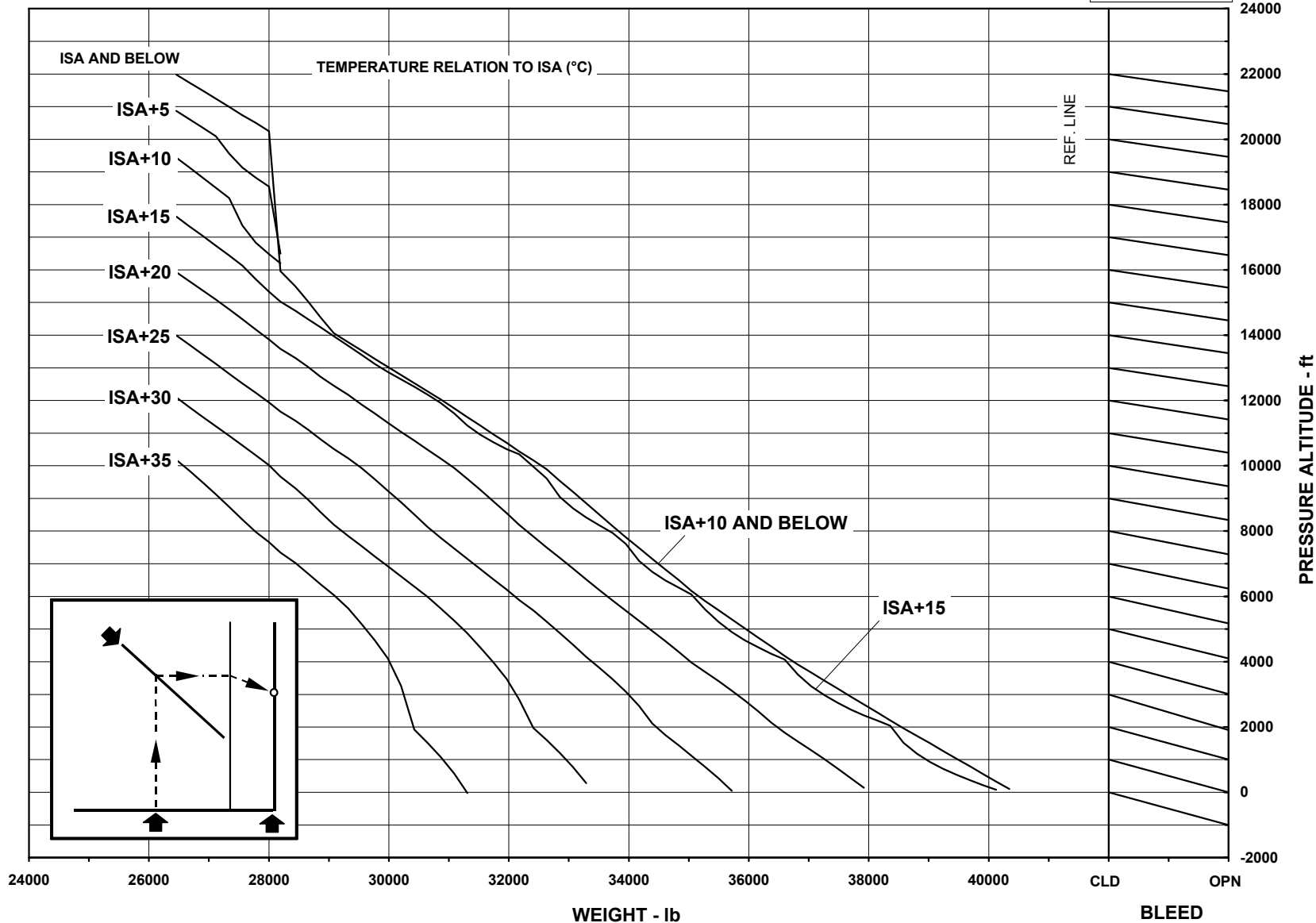


145FAA07 - 22JUL2003

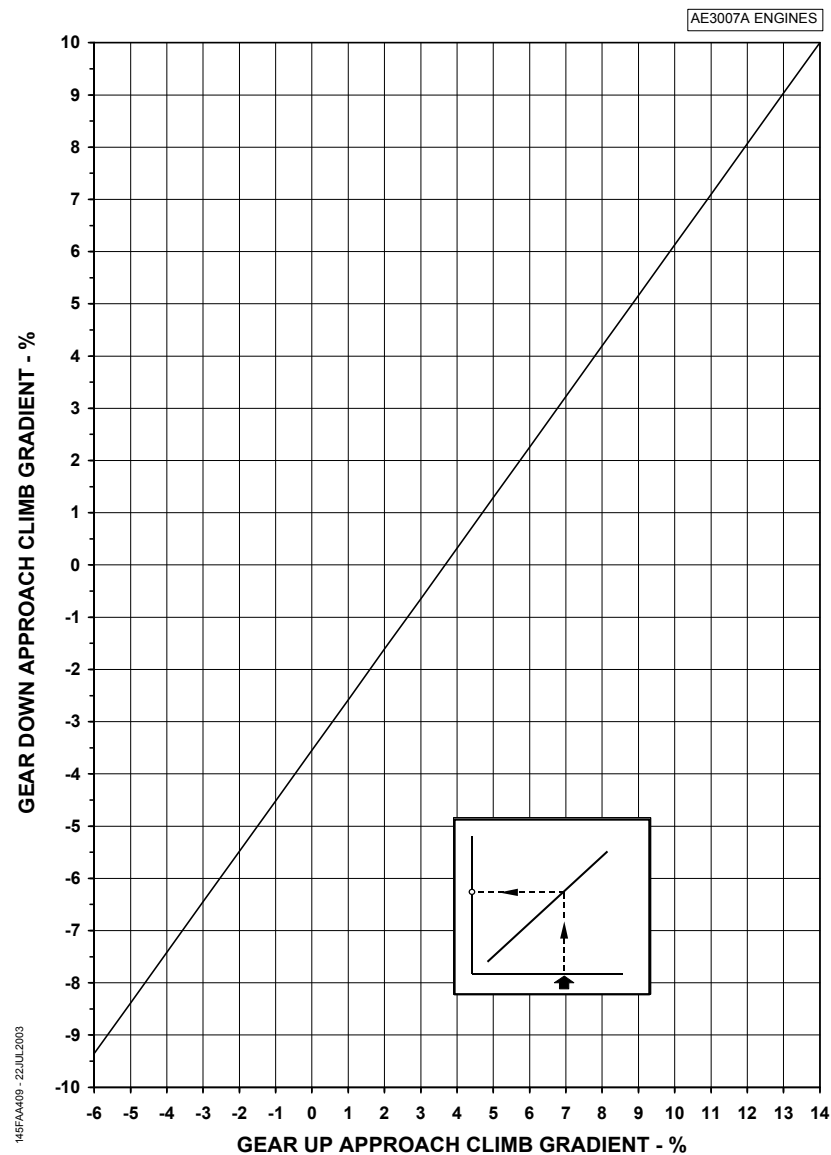
ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - GEAR DOWN - ONE ENGINE INOPERATIVE - ANTI-ICE OFF

AE3007A ENGINES

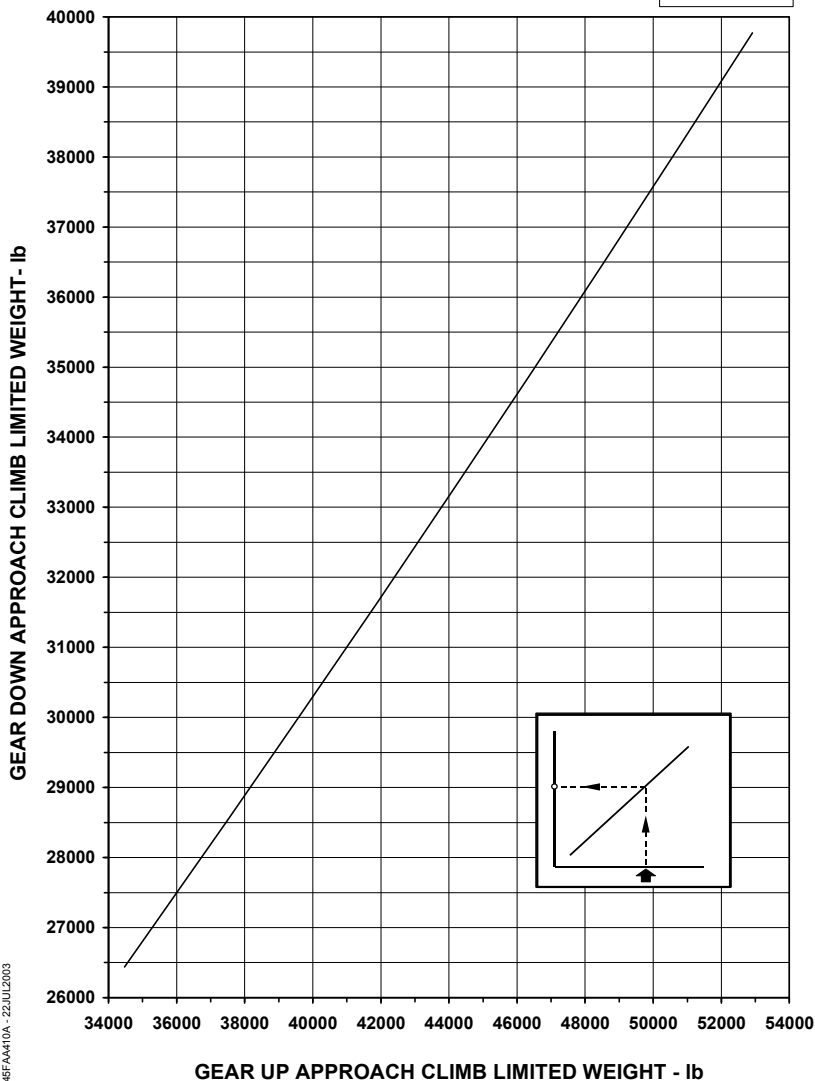


APPROACH CLIMB GRADIENT CORRECTION
ANTI-ICE OFF



**MAXIMUM LANDING WEIGHT
APPROACH CLIMB LIMITED CORRECTION**
ANTI-ICE OFF

AE3007A ENGINES



146FAA10A - 22JUL2003



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AIRPLANE FLIGHT MANUAL

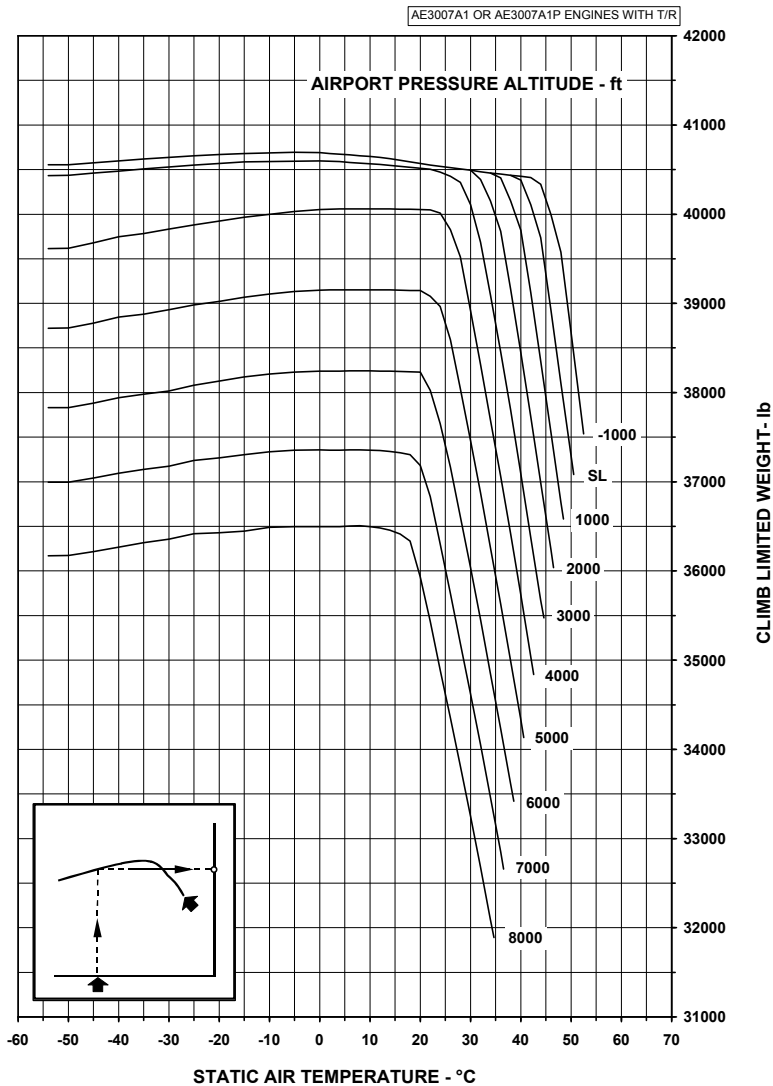
SUPPLEMENT 20
FERRY FLIGHT WITH
LANDING GEAR DOWN

PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A1 OR AE3007A1P ENGINES

The following performance charts are applicable for airplanes equipped with AE3007A1 or AE3007A1P engines.

User: fhhera0f - Printed By myTechCare - Nov 21/24 - 00:29:37

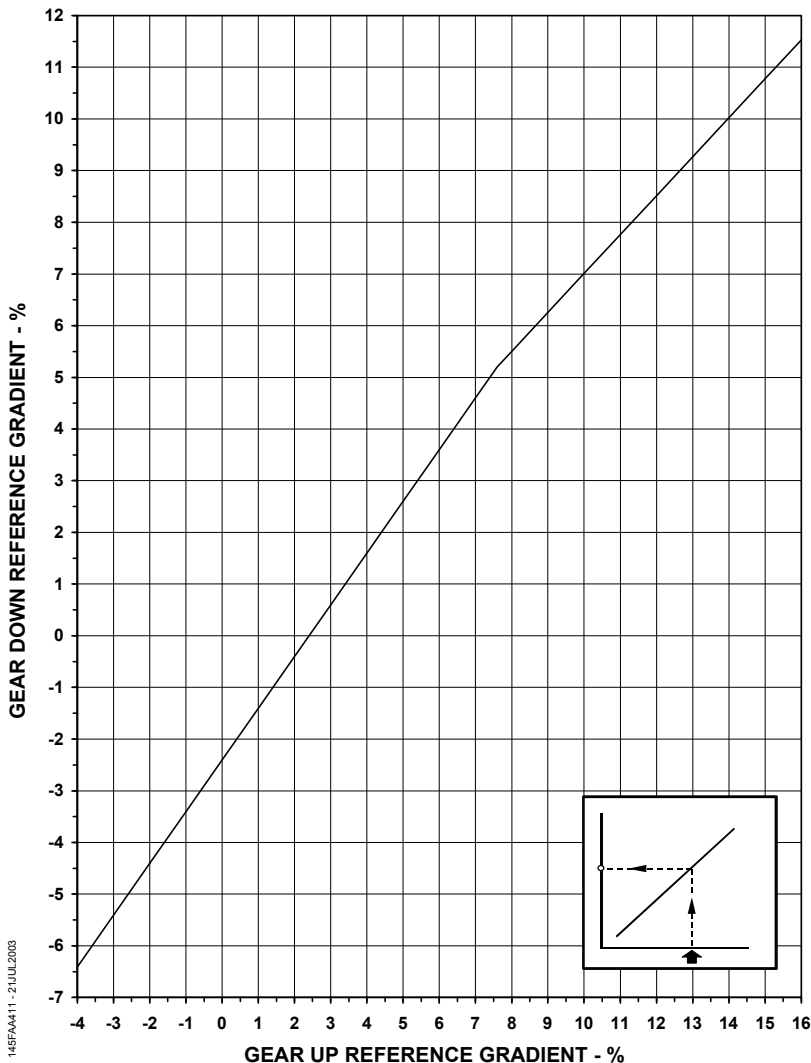
MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9° - NORMAL V_2 - GEAR DOWN - ANTI-ICE OFF



145FAA110-31APR2003

**OBSTACLE CLEARANCE
REFERENCE GRADIENT CORRECTION**
FLAPS 9° - ANTI-ICE OFF

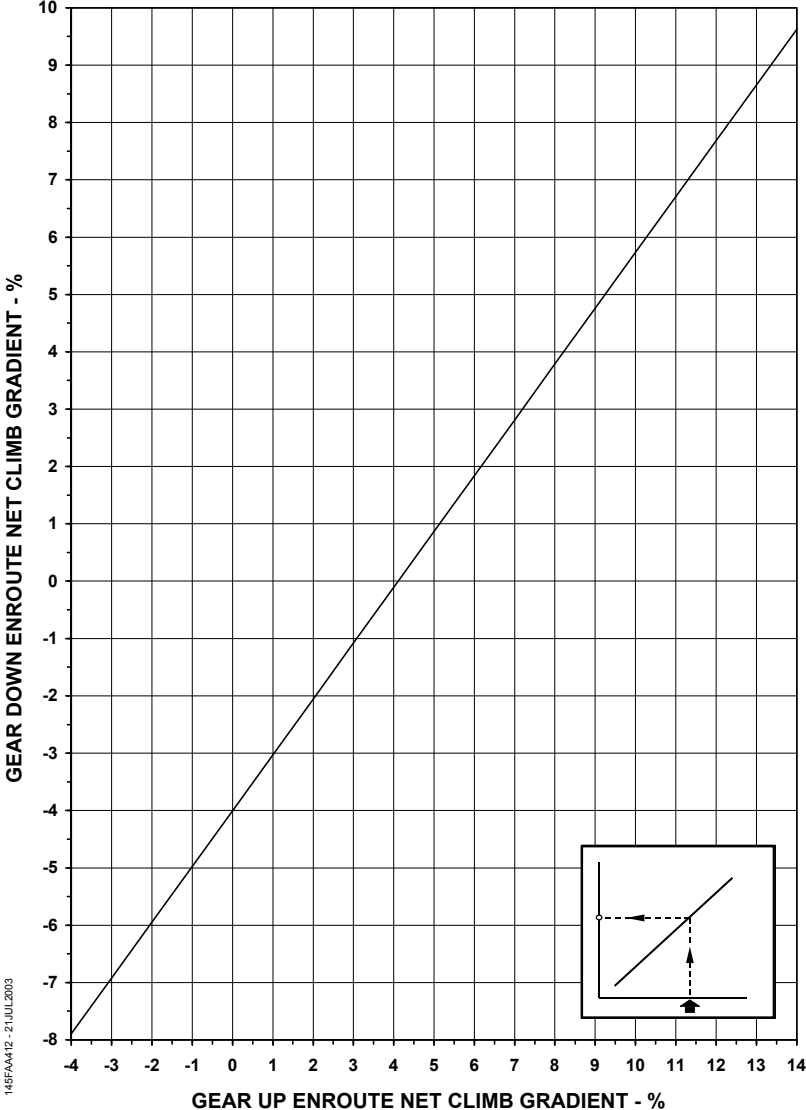
AE3007A1 OR AE3007A1P ENGINES



145FAA411 - 2 JUL 2003

ENROUTE NET CLIMB GRADIENT CORRECTION
ANTI-ICE OFF

AE3007A1 OR AE3007A1P ENGINES

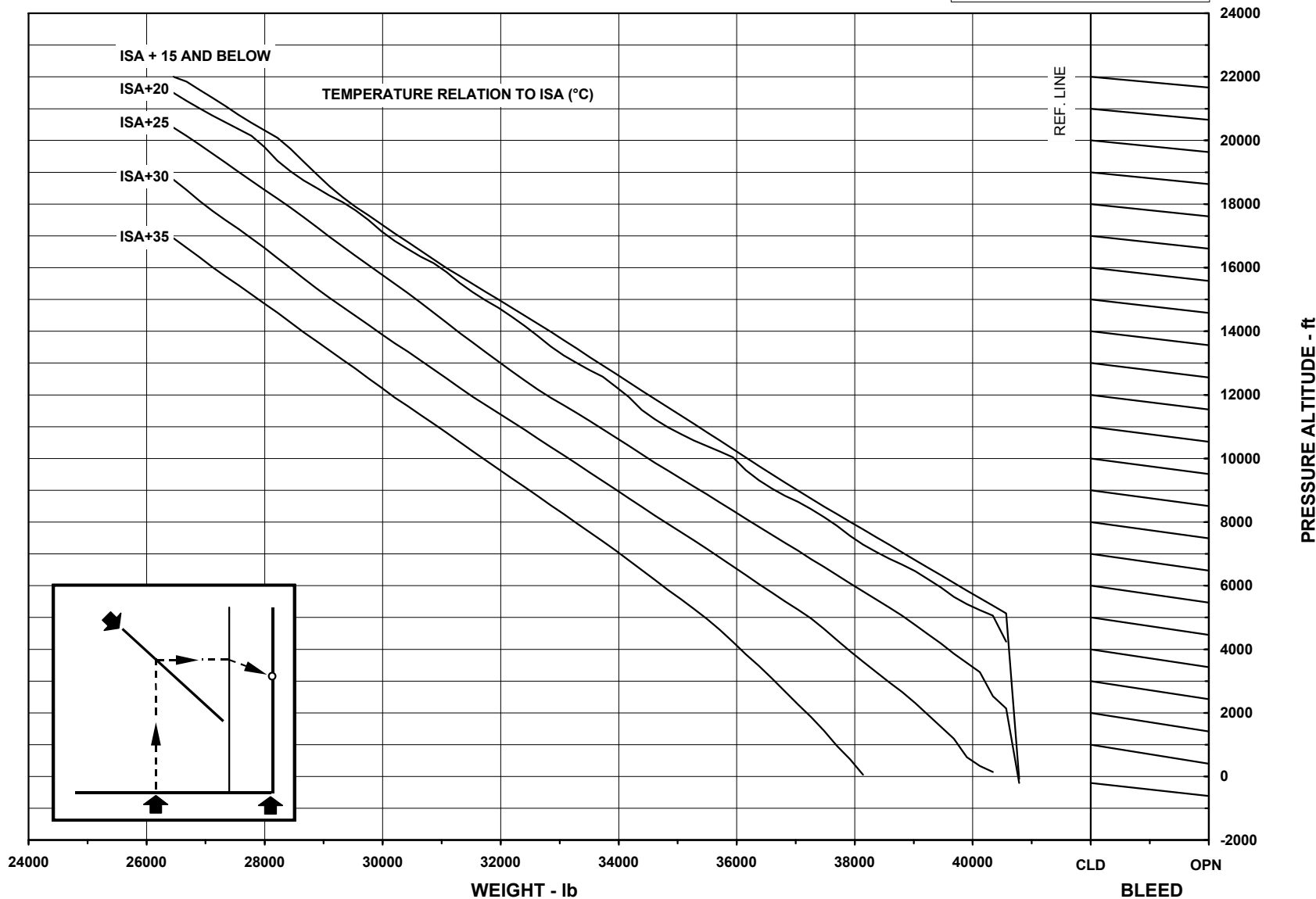


145FAA412 - 21JUL2003

ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - GEAR DOWN - ONE ENGINE INOPERATIVE - ANTI-ICE OFF

AE3007A1 OR AE3007A1P ENGINES

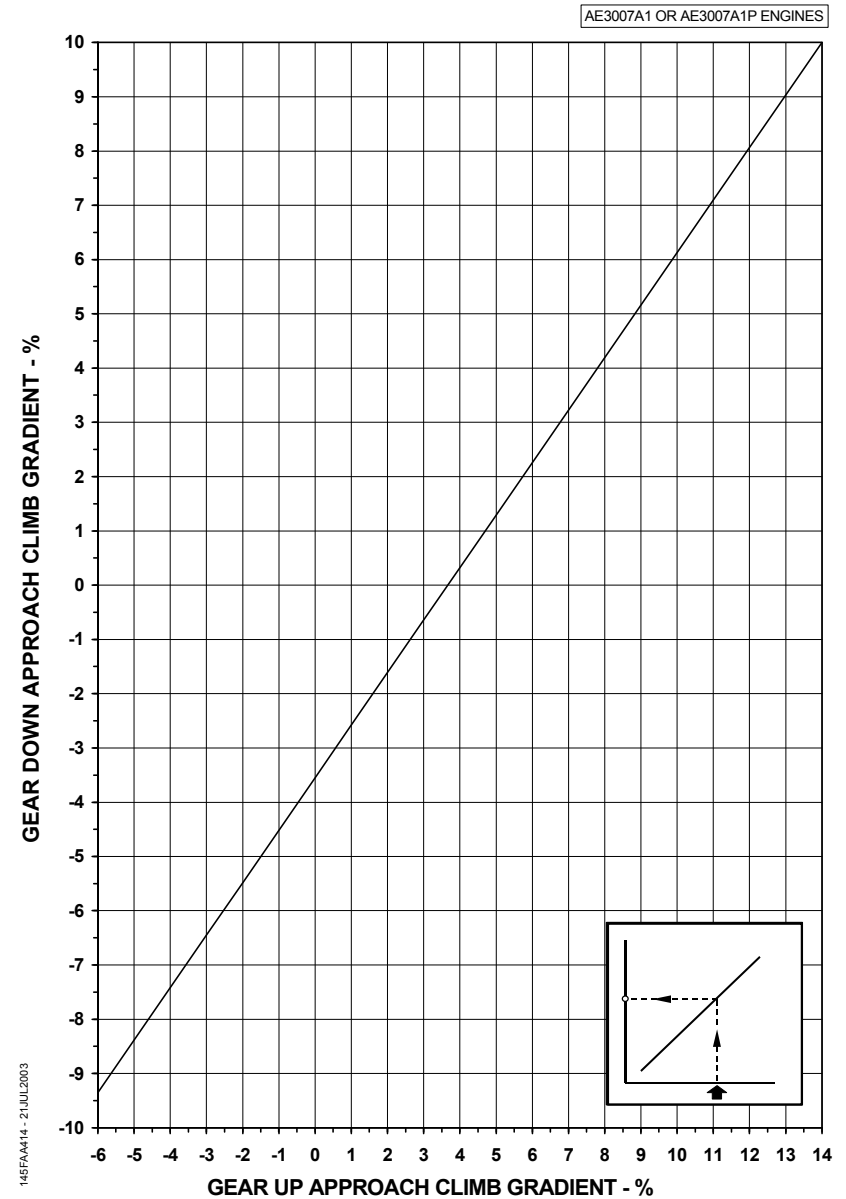


145FAA413 - 21JUL2003

AFM-145/1153 - FAA

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REVISION 57

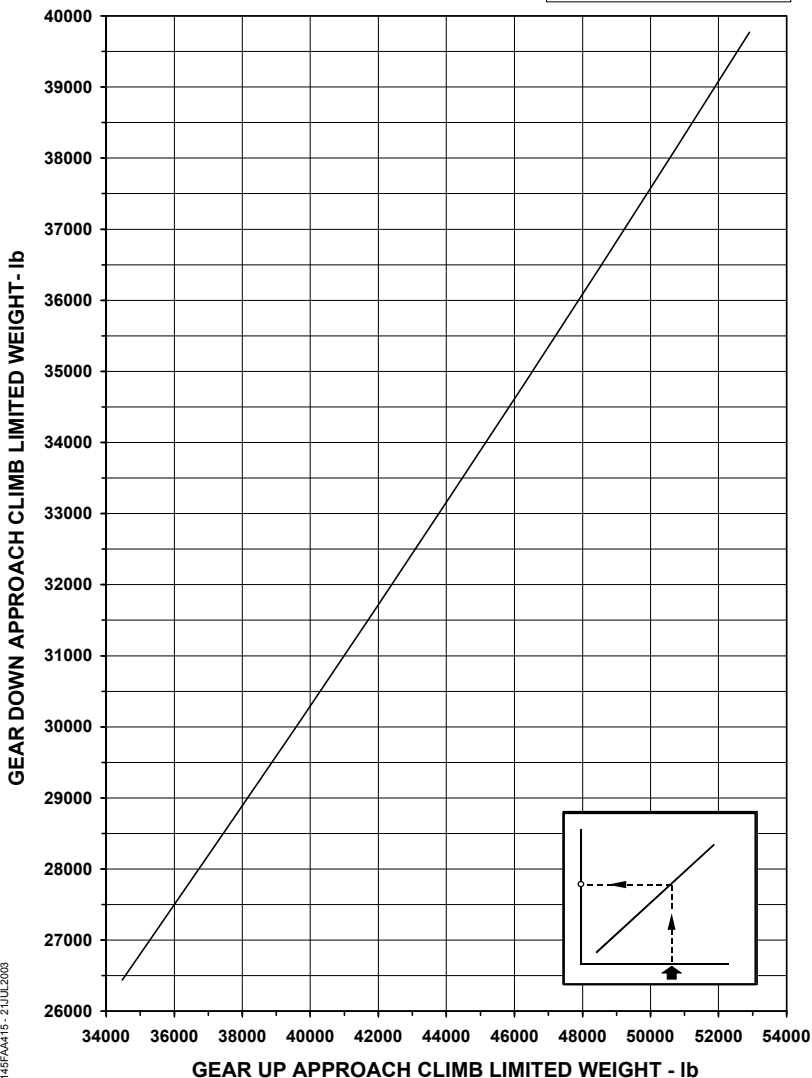
APPROACH CLIMB GRADIENT CORRECTION
ANTI-ICE OFF





**MAXIMUM LANDING WEIGHT
APPROACH CLIMB LIMITED CORRECTION**
ANTI-ICE OFF

AE3007A1 OR AE3007A1P ENGINES





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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 20
FERRY FLIGHT WITH
LANDING GEAR DOWN

PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A1/3 ENGINES

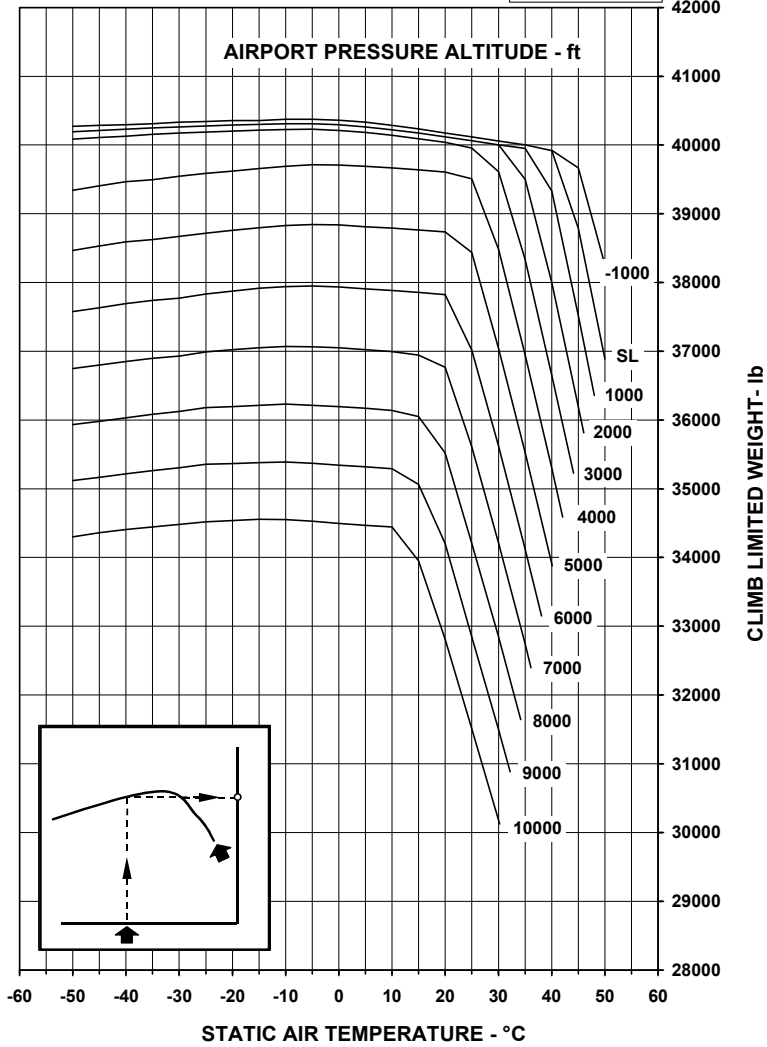
The following performance charts are applicable for airplanes equipped with AE3007A1/3 engines.

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MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED

FLAPS 9° - NORMAL V_2
T/O MODE - GEAR DOWN - ANTI-ICE OFF

AE3007A1/3 ENGINES

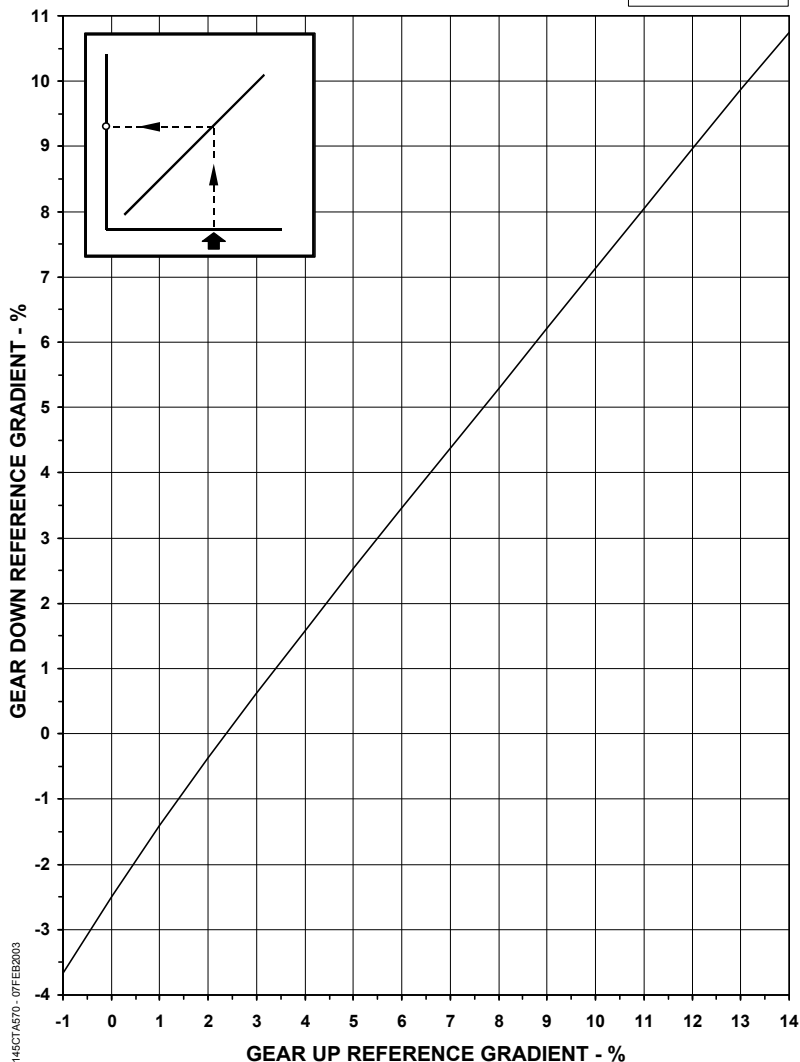


145FAA587 - 31MAR2003

**OBSTACLE CLEARANCE
REFERENCE GRADIENT CORRECTION**

FLAPS 9° - ANTI-ICE OFF

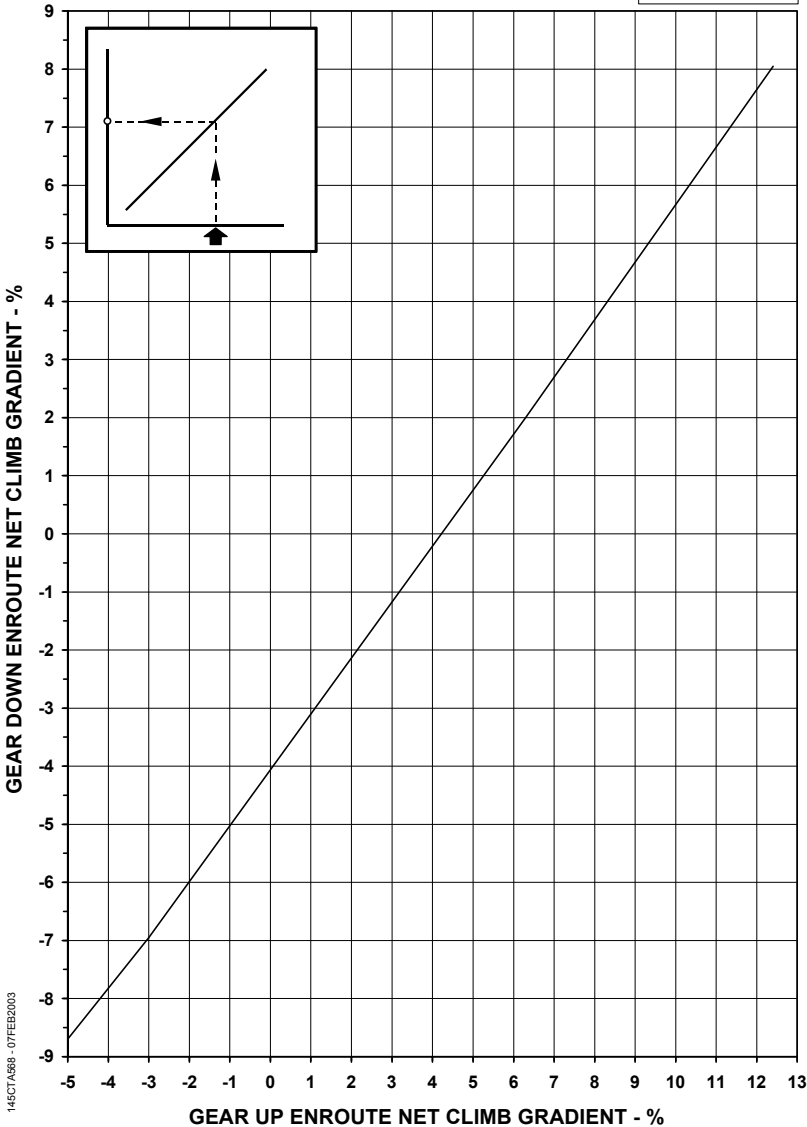
AE3007A1/3 ENGINES



145CTA/70 - 07FEB2003

ENROUTE NET CLIMB GRADIENT CORRECTION
ANTI-ICE OFF

AE3007A1/3 ENGINES

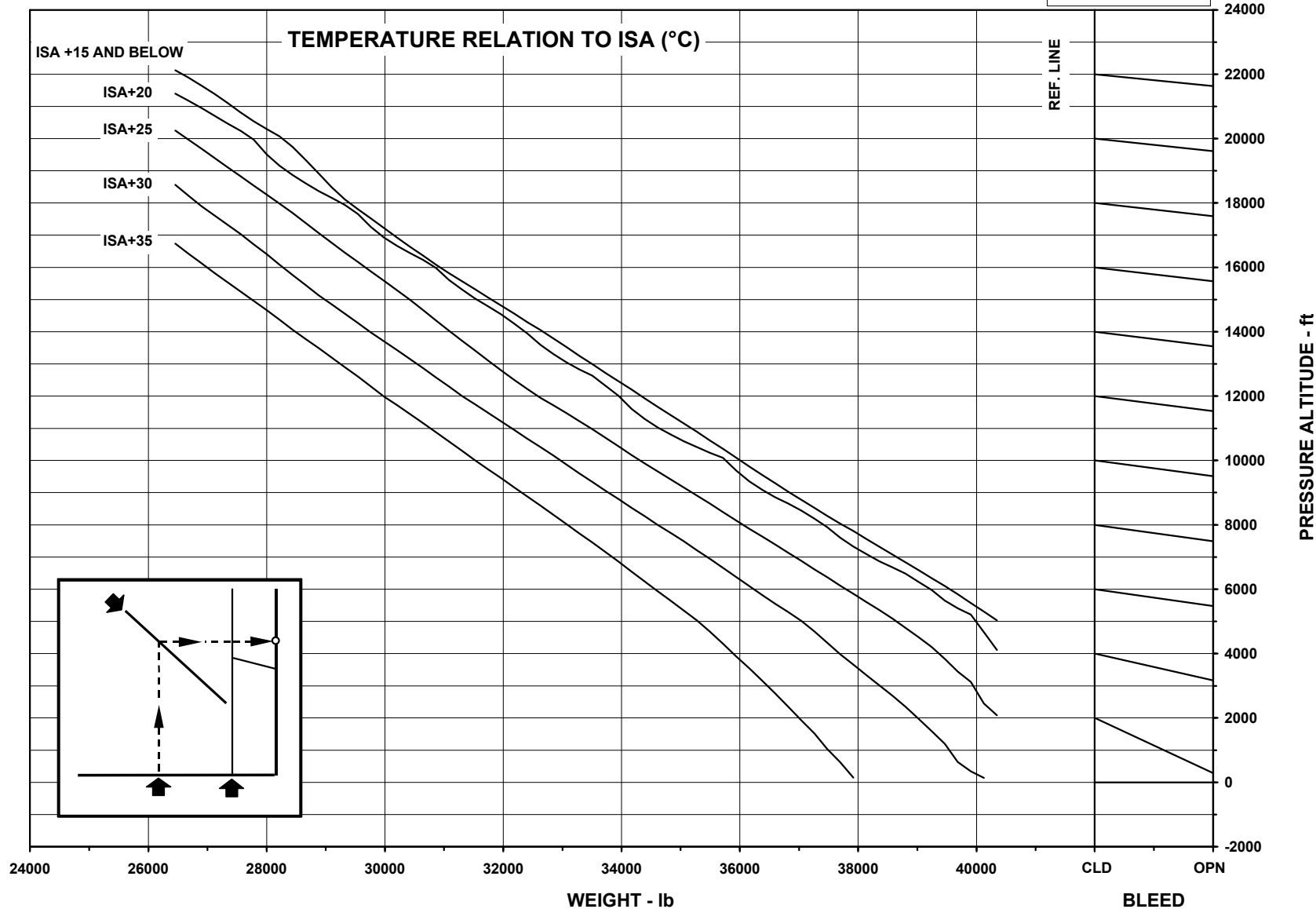


145CTA688 - 07FEB2003

ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - GEAR DOWN - ONE ENGINE INOPERATIVE - ANTI-ICE OFF

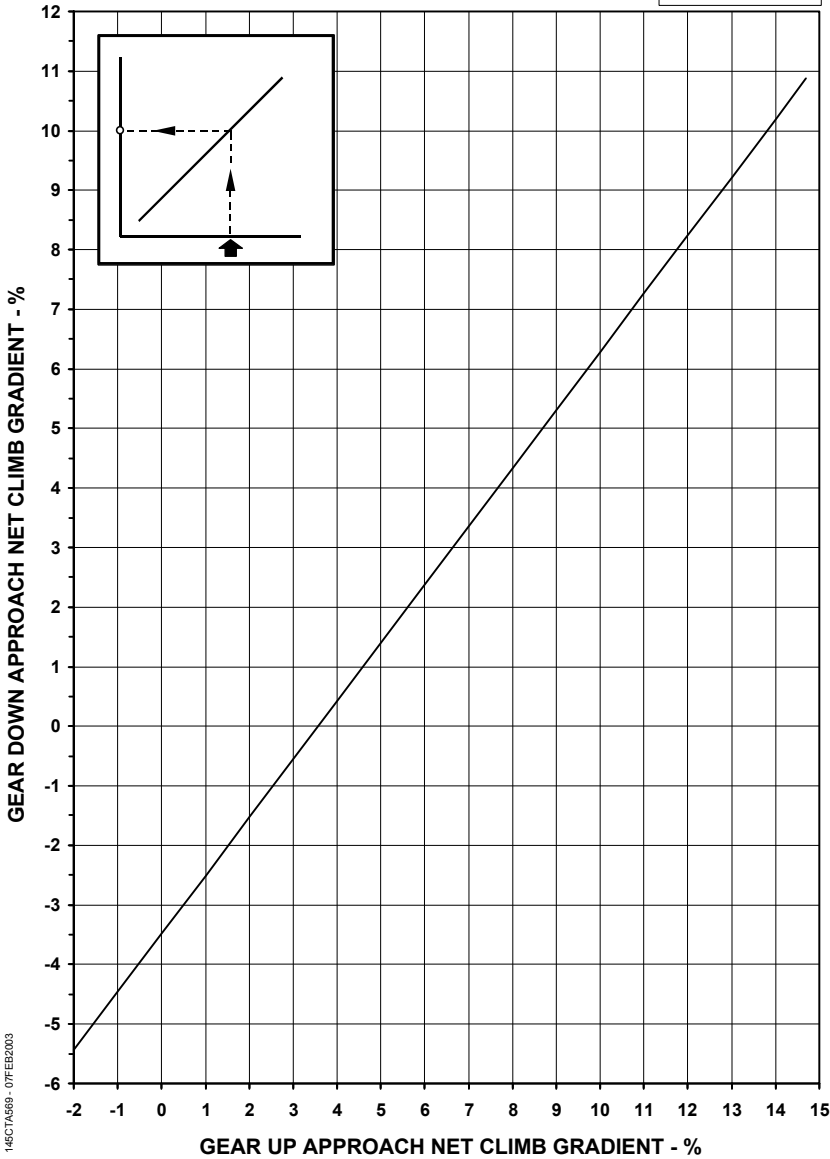
AE3007A1/3 ENGINES



145FAA561 - 31MAR2003

APPROACH CLIMB GRADIENT CORRECTION
ANTI-ICE OFF

AE3007A1/3 ENGINES

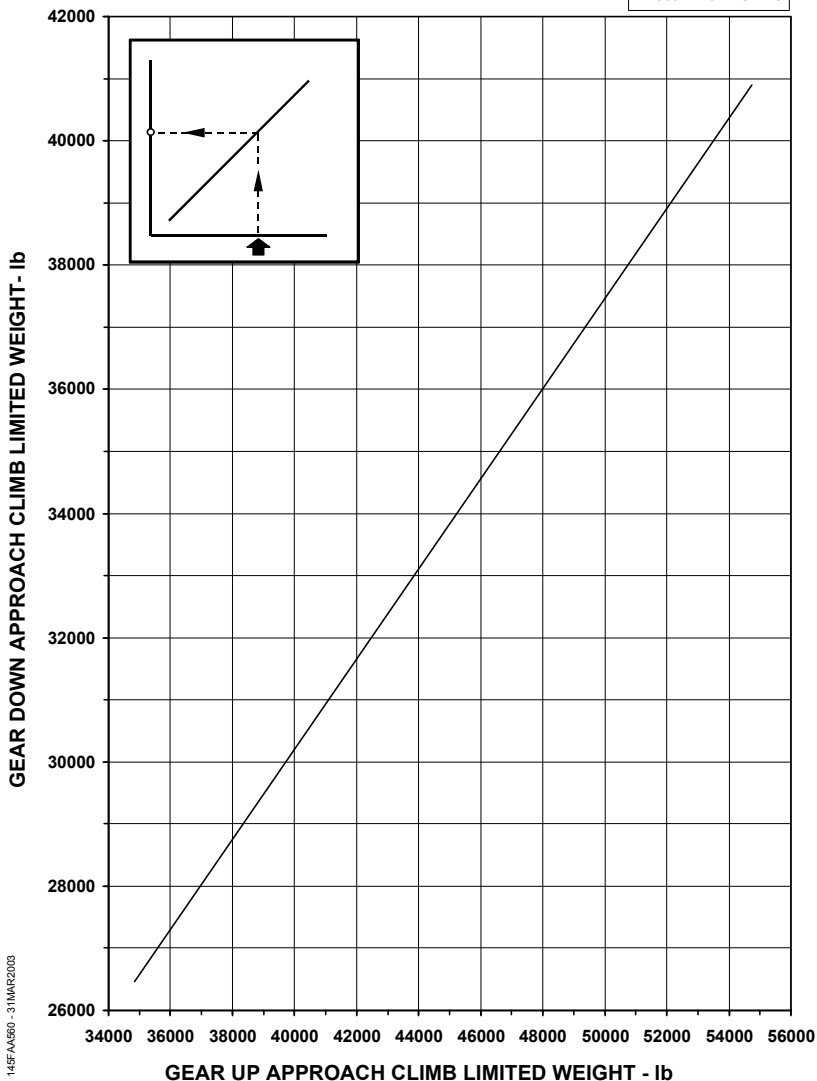


146CTA569 - 07FEB2003

AFM-145/1153 - FAA

**MAXIMUM LANDING WEIGHT
APPROACH CLIMB LIMITED CORRECTION**
ANTI-ICE OFF

AE3007A1/3 ENGINES



14EFAA560 - 31MAR2003



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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 20
FERRY FLIGHT WITH
LANDING GEAR DOWN

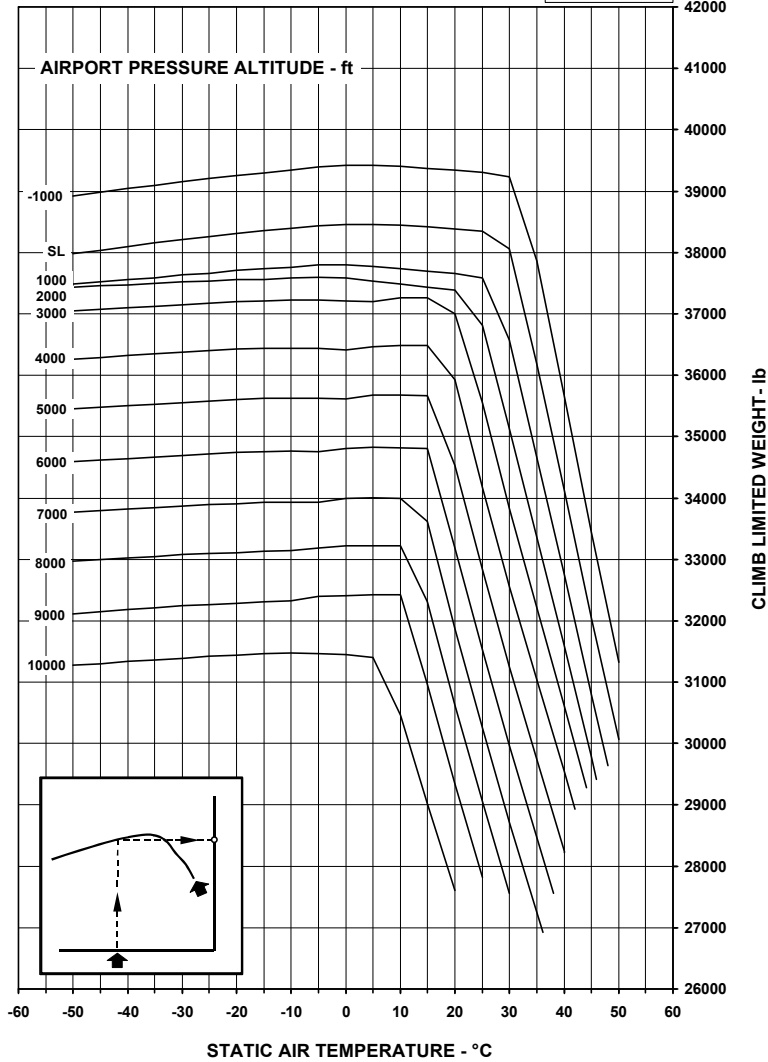
PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A3 ENGINES

The following performance charts are applicable for airplanes equipped with AE3007A3 engines.



MAXIMUM TAKEOFF WEIGHT - CLIMB LIMITED
FLAPS 9° - NORMAL V_2
T/O-1 AND ALT T/O-1 MODE - GEAR DOWN - ANTI-ICE OFF

AE3007A3 ENGINES

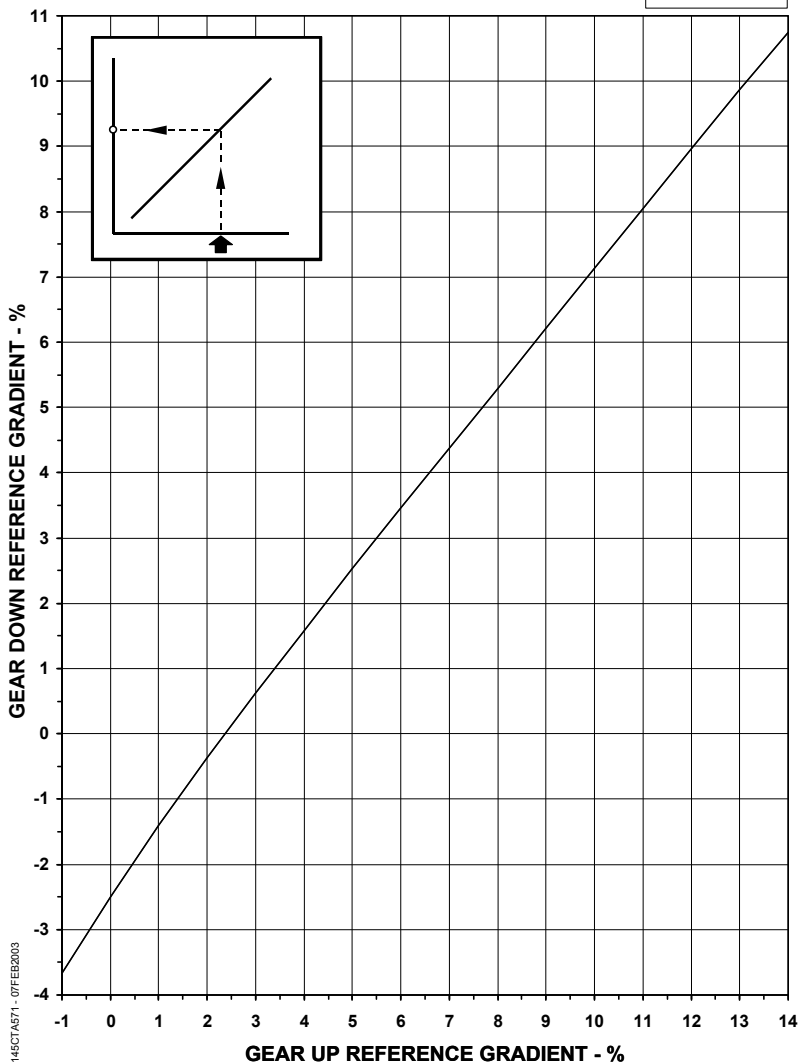


145FAA568-31MAR2003

**OBSTACLE CLEARANCE
REFERENCE GRADIENT CORRECTION**

FLAPS 9° - ANTI-ICE OFF

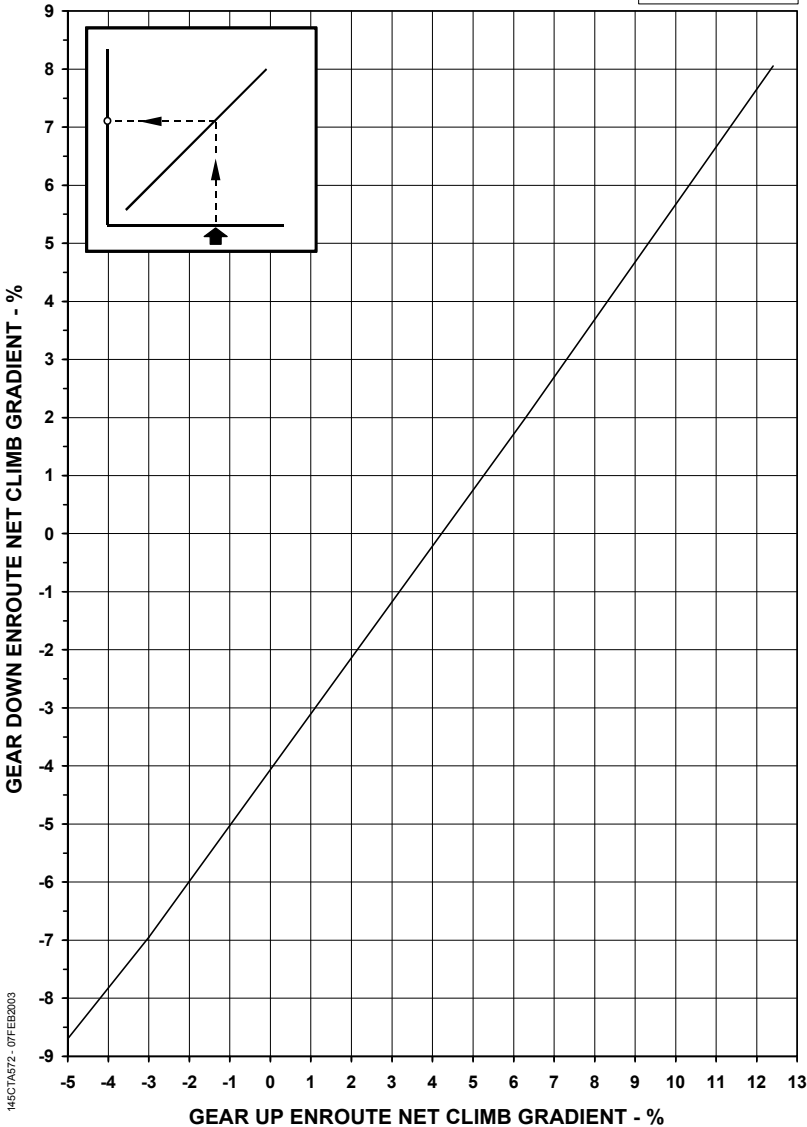
AE3007A3 ENGINES



145CT/A371 - 07FEB2003

ENROUTE NET CLIMB GRADIENT CORRECTION
ANTI-ICE OFF

AE3007A3 ENGINES

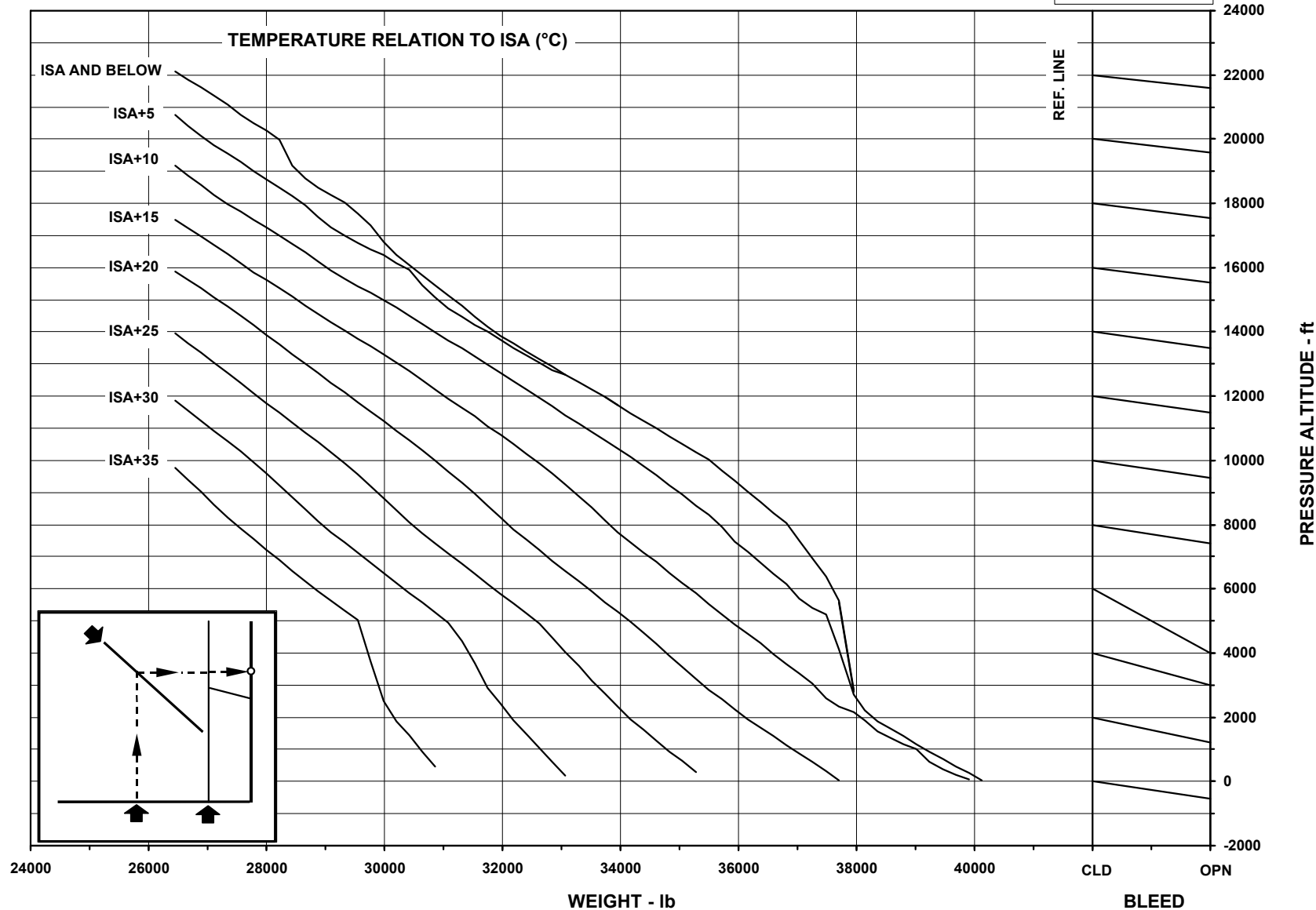


145CTA572 - 07FEB2003

ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - GEAR DOWN - ONE ENGINE INOPERATIVE - ANTI-ICE OFF

AE3007A3 ENGINES



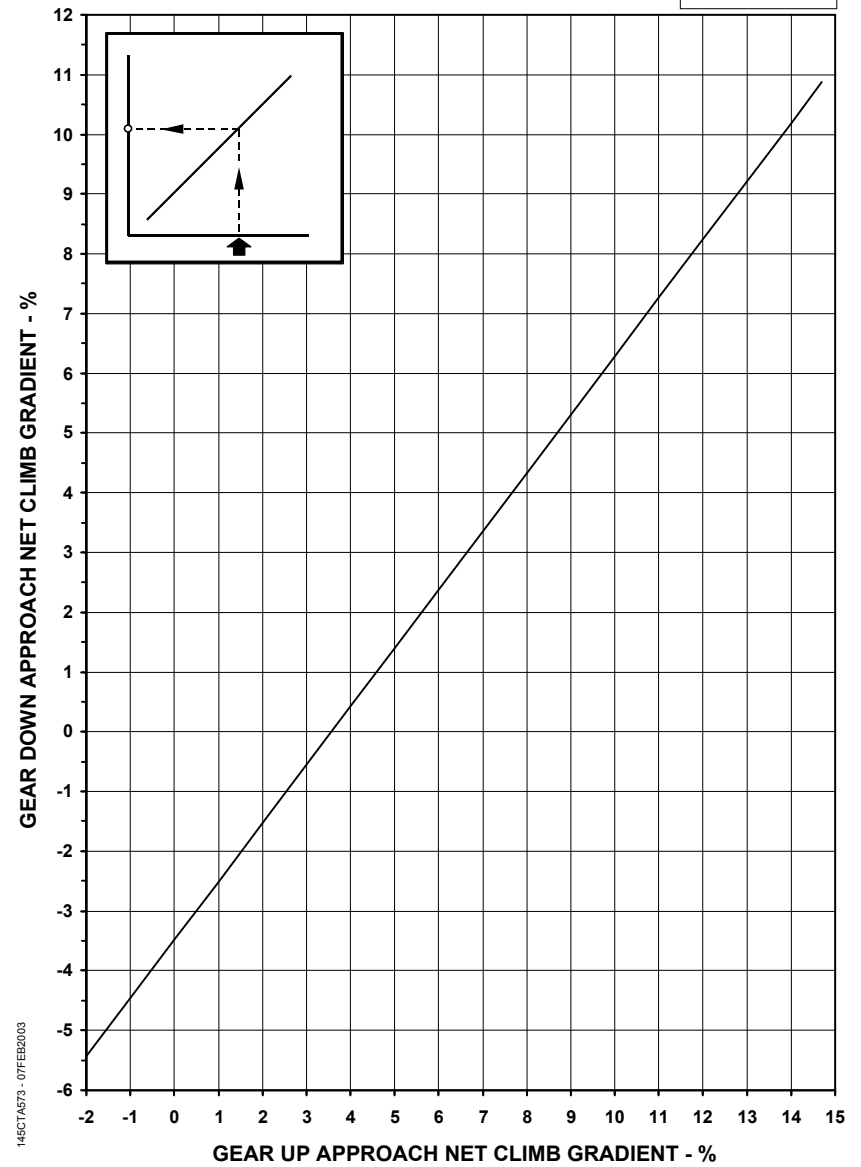
145FAA562 - 31MAR2003

AFM-145/1153 - FAA

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REVISION 56

APPROACH CLIMB GRADIENT CORRECTION
ANTI-ICE OFF

AE3007A3 ENGINES

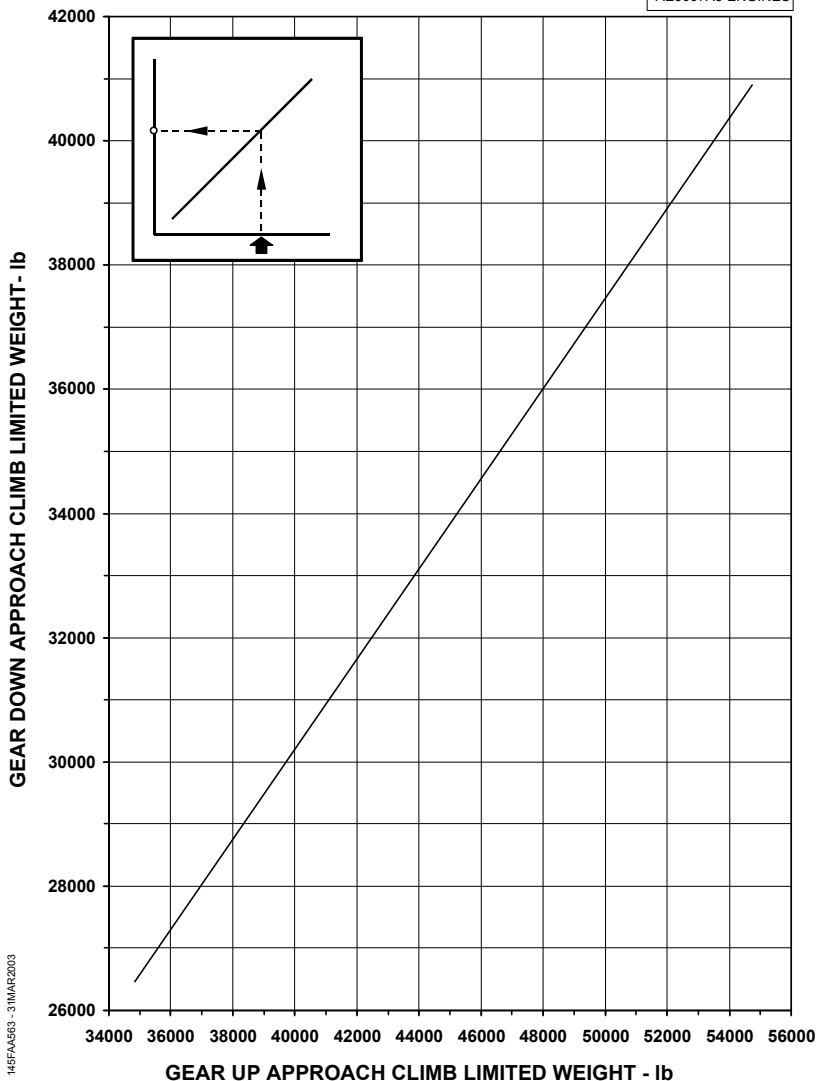


145CTA573 - 07FEB2003

AFM-145/1153 - FAA

**MAXIMUM LANDING WEIGHT
APPROACH CLIMB LIMITED CORRECTION**
ANTI-ICE OFF

AE3007A3 ENGINES



145FAA563 - 31MAR2003



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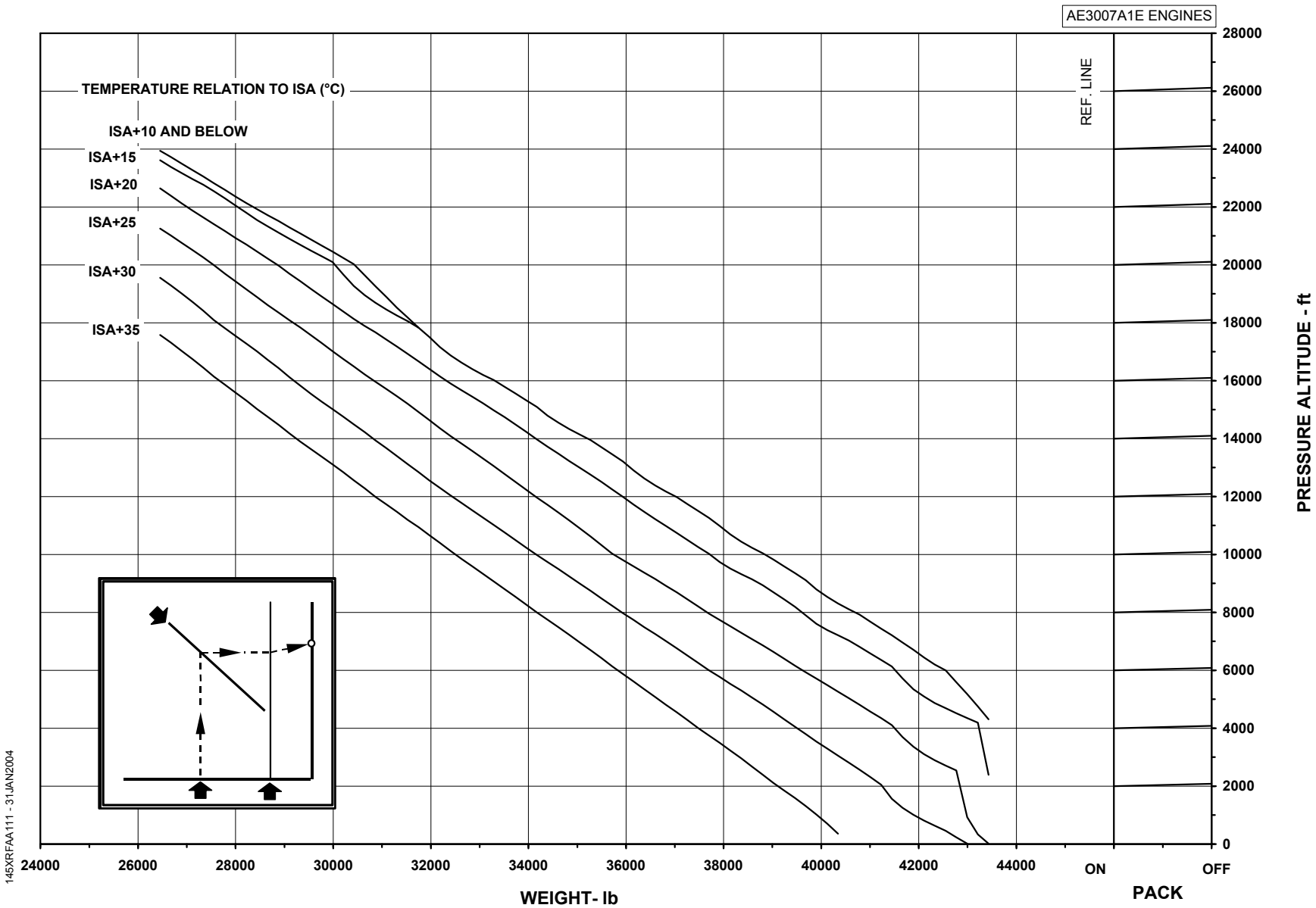
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PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A1E ENGINES

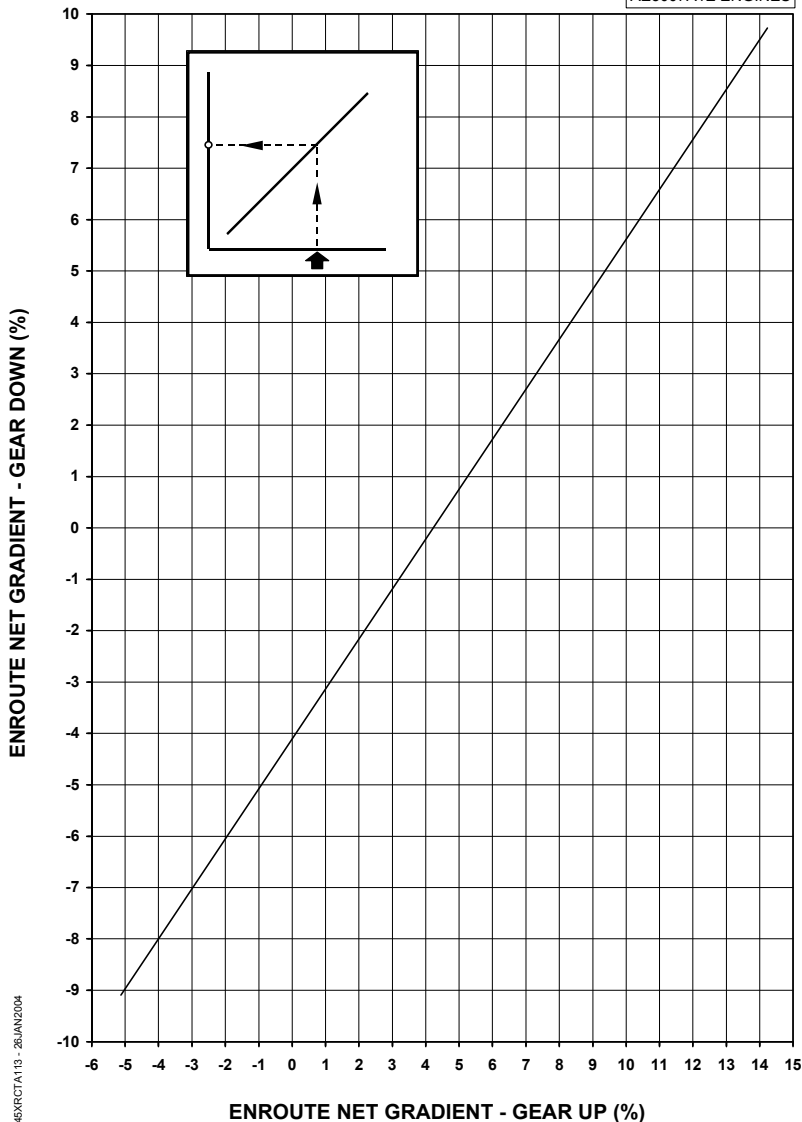
The following performance charts are applicable for airplanes equipped with AE3007A1E engines.

ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT
FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF



ENROUTE NET GRADIENT CORRECTION
ANTI-ICE OFF

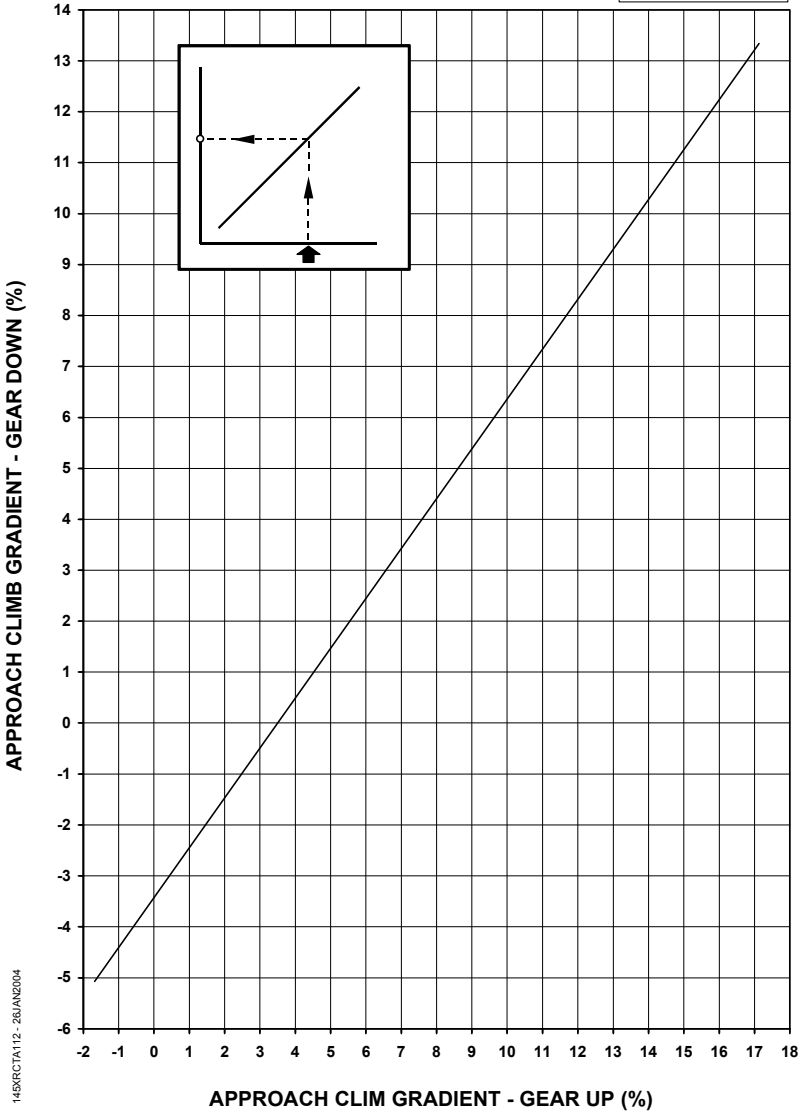
AE3007A1E ENGINES



145XRCCTA113 - 28JAN2004

APPROACH CLIMB GRADIENT CORRECTION
APPROACH FLAPS 9° - ANTI-ICE OFF

AE3007A1E ENGINES

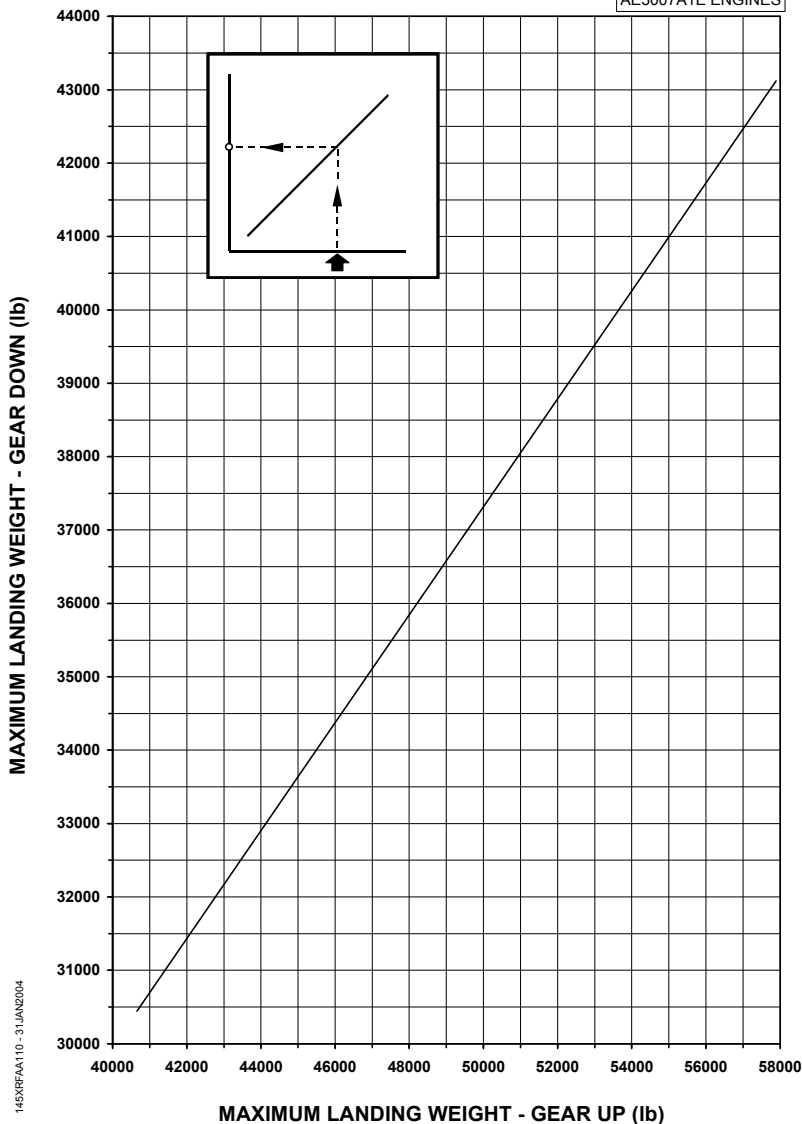


145RCTA112 - 26JAN2004



**MAXIMUM LANDING WEIGHT CORRECTION
APPROACH CLIMB LIMITED
ANTI-ICE OFF**

AE3007A1E ENGINES



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SUPPLEMENT 21

LIST OF EFFECTIVE PAGES

ORIGINAL 0 Not Applicable
 REVISION 1 to 52 Not Applicable
 REVISION 53 OCT 22, 2002
 REVISION 54 to 55 Not Applicable
 REVISION 56 OCT 21, 2003
 REVISION 57 JUN 17, 2004
 REVISION 58 Not Applicable
 REVISION 59 JUN 30, 2005
 REVISION 60 to 61 Not Applicable
 REVISION 62 JUN 19, 2007
 REVISION 63 to 64 Not Applicable
 REVISION 65 OCT 03, 2013

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* Asterisk indicates pages revised, added or deleted by the current revision.



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OPERATION WITH EMB-145 XR MODEL

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GENERAL

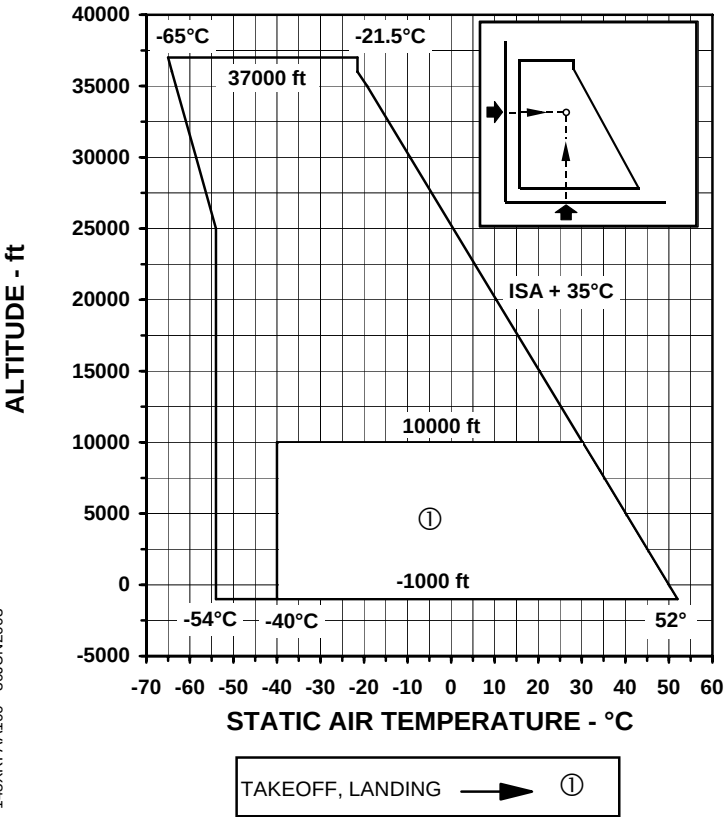
This Supplement is provided to present the data required for Operation with EMB-145 XR model. The information herein presented must replace the equivalent data in the basic AFM.

For limitations, procedures and performance information not contained in this Supplement, refer to the basic AFM and related Supplements, as applicable.

LIMITATIONS

OPERATIONAL ENVELOPE

AIRPLANES POST-MOD. SB 145-31-0042 OR WITH AN EQUIVALENT MODIFICATION FACTORY INCORPORATED



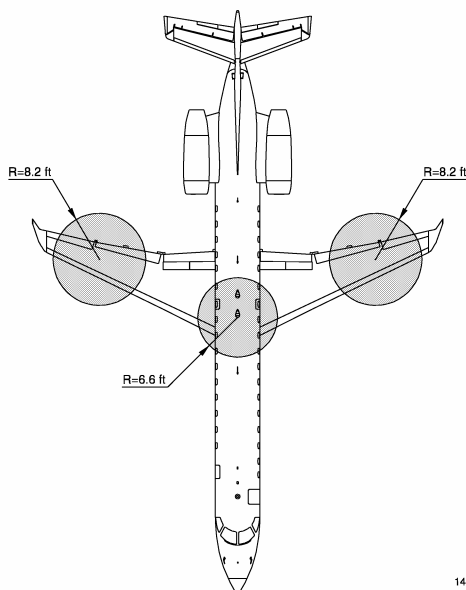
NOTE: - In the event of a landing below -40°C, the airplane may not takeoff without further maintenance inspection.
- Total Air Temperature in cruise flight above 25000 ft is limited to -45°C.

AIRPLANES PRE-MOD. SB 145-31-0042

Refer to the Limitations section of the basic AFM.

OPERATIONAL LIMITATIONS

This airplane may not be operated after June 30, 2004, unless the pressure refueling panel has been modified in accordance with the terms of Exemption No. 7909.



145AFM020001.MCE

CAUTION: DURING REFUELING OPERATION KEEP THE SHADOW AREAS IN THE FIGURE FREE OF VEHICLE AND EQUIPMENT.

WEIGHT

MAXIMUM WEIGHT (lb)			
Max. Ramp Weight (MRW)	Max. Takeoff Weight (MTOW)	Max. Landing Weight (MLW)	Max. Zero Fuel Weight (MZFW)
53351	53131	44092	40785

KINDS OF OPERATION

CAT II operation is not approved for airplanes Pre-Mod. SB 145-31-0040.

HIGH ALTITUDE LANDING AND TAKEOFF OPERATION

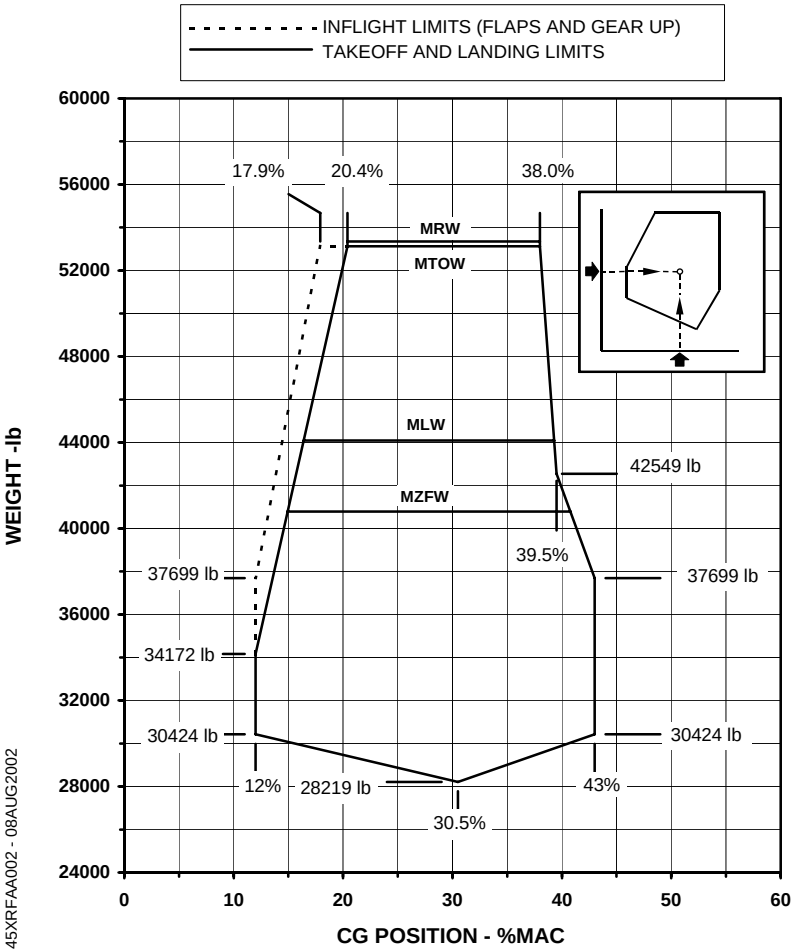
For landing and takeoff above 8000 ft, refer to Supplement 24.

ANAC APPROVED
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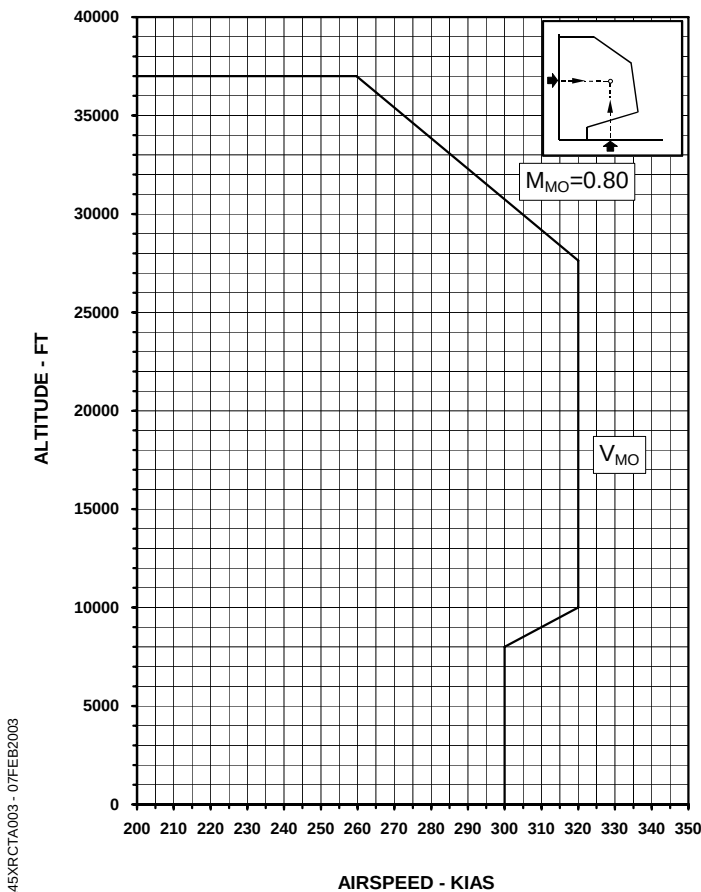
CENTER OF GRAVITY LIMITS

TAKEOFF WITH FLAPS 9° OR FLAPS 18°



AIRSPEEDS

**MAXIMUM OPERATING SPEED (AIRPLANES POST-MOD.
SB 145-31-0038 OR WITH AN EQUIVALENT MODIFICATION
FACTORY INCORPORATED)**



NOTE: The V_{MO}/M_{MO} may not be deliberately exceeded in any regime of flight (climb, cruise, or descent).

**MAXIMUM OPERATING SPEED (AIRPLANES PRE-MOD.
SB 145-31-0038)**

Refer to the Limitations section of the basic AFM.

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MAXIMUM FLAP EXTENDED SPEED (V_{FE})

Flaps 9°	250 KIAS
Flaps 18°	200 KIAS
Flaps 22°	200 KIAS
Flaps 45°	160 KIAS

Above 10000 ft with Yaw Damper disengaged:

Flaps 22°	180 KIAS
Flaps 45°	145 KIAS

FUEL

USABLE FUEL

TANK	USABLE FUEL	TOTAL
WING TANK	844.9 US Gal (5717 lb)	1689.8 US Gal (11435 lb)
VENTRAL TANK	275.3 US Gal (1863 lb)	275.3 US Gal (1863 lb)

Maximum permitted imbalance between wing tanks 800 lb

UNUSABLE FUEL

TANK	UNUSABLE FUEL	TOTAL
WING TANK	5.8 US Gal (39 lb)	11.6 US Gal (78 lb)
VENTRAL TANK	3.1 US Gal (21 lb)	3.1 US Gal (21 lb)

- NOTE:** - When the EICAS fuel quantity is zero in level flight, any fuel remaining in the tanks can not be used safely in flight.
- The values above have been determined for an adopted fuel density of 6.767 lb/US Gal.
 - When performing pressure refueling, the usable fuel quantity in each wing tank may be reduced 13.2 US Gal maximum.

POWER PLANT

ENGINES

Two Rolls-Royce AE3007A1E.

FLIGHT CONTROLS

FLAPS

Flaps 9° and 18° are approved for takeoff.

AUTOPILOT

The following limitations are applicable to the Autopilot:

- Minimum Decision Altitude During ILS Approach 200 ft AGL
- Minimum Engagement Height After Takeoff 500 ft
- Minimum Use Height 160 ft
- Malfunction altitude loss:
 - Cruise 80 ft
 - Maneuver 40 ft
 - ILS Approach 35 ft
- Descent below Minimum Decision Altitude on a non precision approach with autopilot engaged is prohibited.
- Single engine go-around with autopilot engaged is prohibited.
- Approach mode selection during Localizer capture is allowed only when airplane is inbound.

NOTE: Coupled go-around height loss may be 40 ft.

EMERGENCY AND ABNORMAL PROCEDURES

FUEL TRANSFER CRITICAL

EICAS WARNING: FUEL XFER CRITICAL

Thrust Levers REDUCE TO
LONG RANGE
SET

Fuel Transfer System CHECK STATUS

Verify on MDF Fuel Page if Ventral Tank fuel transfer is operating properly, in this case, proceed with flight normally.

NOTE: The EICAS Warning will remain presented while any wing tank quantity is below 3131 lb and the ventral tank fuel quantity is above 220 lb.

If system is inoperative:

- Check remaining fuel and consider diversion.
- Avoid rapid maneuvers and flying in severe turbulence conditions.
- Touch smoothly the runway surface. Reduce the engine thrust only after the touchdown.

CLEAR ICE DETECTED

EICAS CAUTION: CLR ICE 1 (2)

LIGHT: CLR ICE 1 (2)

- Do not takeoff.
- Airplane de-icing is required.
- If there is no clear ice on the wing surface, disregard the message.

CLEAR ICE DETECTION SYSTEM FAILURE

EICAS CAUTION: CLR/I INOP 1 (2)

- Check physically if wing surface is free of clear ice before each flight.
- If clear ice is found, de-ice the airplane.

FLAP SYSTEM FAILURE

EICAS CAUTION: FLAP FAIL

Flaps may be at intermediate positions. Maintain airspeed according to the following:

FLAPS POSITION	MAXIMUM AIRSPEED
1° to 9°	250 KIAS
10° to 22°	200 KIAS
23° to 45°	160 KIAS

Above 10000 ft with Yaw Damper disengaged:

FLAPS POSITION	MAXIMUM AIRSPEED
10° to 22°	180 KIAS
23° to 45°	145 KIAS

When landing maintain airspeed according to the following:

FLAPS POSITION	MINIMUM AIRSPEED
0 to 8°	$V_{REF\ 45} + 30$ KIAS
9° to 21°	$V_{REF\ 45} + 10$ KIAS
22° to 44°	$V_{REF\ 45} + 5$ KIAS
45°	$V_{REF\ 45}$

CAUTION: • TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.65 WHEN LANDING WITH FLAPS BETWEEN ZERO AND 8°.

• TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.40 WHEN LANDING WITH FLAPS BETWEEN 9° AND 21°.

• TO DETERMINE THE MINIMUM SUITABLE LANDING DISTANCE, MULTIPLY THE UNFACTORED LANDING DISTANCE FOR FLAPS 45° BY 1.40 WHEN LANDING WITH FLAPS BETWEEN 22° AND 44°.

NOTE: - Depending on the flap position, EGPWS/GPWS warnings may sound. If necessary, inhibit EGPWS/GPWS by pulling its circuit breaker (J7 or J8).

- If flap indication on EICAS is not available, use flap position marks on the wing.

DEFUEL VALVE OPEN

EICAS CAUTION: DEFUEL NOT CLOSED

On ground:

Do not takeoff.

In flight:

Ventral Tank Transfer Knob..... OFF
Crossfeed..... OFF
Fuel Imbalance MONITOR
Asymmetric Thrust..... AS REQUIRED
Avoid uncoordinated maneuvers and negative g's.
Land at the nearest suitable airport.

FUEL SYSTEM CONFIG DISAGREE

EICAS CAUTION: FUEL CONFIG DISAG

Do not takeoff.

FUEL TRANSFER ISOLATION VALVE FAILURE

EICAS CAUTION: XFER ISOL FAIL

On ground:

Do not takeoff.

In flight:

Ventral and Wing Fuel Quantity..... MONITOR
Check fuel transfer and consider diversion.
If fuel transfer does not occur:
Ventral Tank Transfer Knob OFF
The FUEL XFER INOP message may be displayed. In this case do not activate the Ventral Tank Transfer System.
Check remaining fuel quantity available and consider diversion.

FUEL TRANSFER OVERRIDE

EICAS ADVISORY: FUEL XFER OVRD

When the ventral tank fuel quantity is lower than 220 lb:

Ventral Tank Transfer Knob OFF

FUEL TRANSFER SYSTEM INOPERATIVE

EICAS CAUTION: FUEL XFER INOP

On ground:

Do not takeoff.

In flight:

Ventral Tank Transfer Knob AUTO

If message persists:

Pitch Attitude MAXIMUM
5° NOSE UP

Wait 30 seconds.

If message persists:

Ventral Pump Selector Button ALTERNATE

If message persists and the Ventral Tank Fuel quantity is above 220 lb:

Ventral Tank Transfer Knob OVRD

- CAUTION:**
- VENTRAL TANK TRANSFER KNOB MUST BE SWITCHED TO OFF IF VENTRAL TANK FUEL QUANTITY IS LOWER THAN 220 LB.
 - AVOID PITCH ATTITUDES IN EXCESS OF 5° NOSE UP ATTITUDE, UNCOORDINATED MANEUVERS AND NEGATIVE G'S.

Fuel Quantity MONITOR

Check remaining fuel quantity available and consider diversion.

NAV/FLIGHT INSTRUMENTS FAILURE

NOTE: If one ADC fails, indicated by a "X" (red) over the IAS and altitude tapes and a VS (red) annunciation displayed in the PFD, the maximum airspeed allowed is Mach 0.78.

HIGH ALTITUDE LANDING AND TAKEOFF FUNCTION (AIRPLANES PRE-MOD. SB 145-31-0042)

EICAS CAUTION: HI ALT LDG-T/O

NOTE: The use of the High Altitude function is prohibited.

If message is displayed:

HIGH ALT Button on MFD PRESS

SUSPECTED FUEL LEAK

If FMS Fuel Remaining quantity is less than 660 lb above the MFD Total Fuel indication:

If left wing presents lower level:

Crossfeed Selector LOW1

If right wing presents lower level:

Crossfeed Selector LOW2

Set engines at the same N1 and compare the Fuel Flow indications.

If a discrepancy is noticed and the engine with higher fuel flow is in the same side as the wing with lower fuel level, a fuel leakage may be occurring at the engine.

Monitor fuel quantities and consider diversion.

When the desired balance is achieved:

Crossfeed Selector OFF

If FMS Fuel Remaining quantity is more than 660 lb above the MFD Total Fuel indication, a fuel leakage may be occurring between the fuel tank and the engine. Proceed as follows:

Crossfeed Selector OFF

Asymmetric Thrust AS REQUIRED

Use asymmetric thrust to improve or maintain wing fuel balance to counteract the effect of the suspected wing fuel leak.

If EICAS message AP AIL MISTRIM is presented:

Autopilot DISENGAGE

Fly the airplane manually. Consider shutting down the engine on the same side as the fuel leakage in order to minimize fuel loss.

Land at the nearest suitable airport.

VENTRAL TANK VENTILATION VALVE OPEN

EICAS CAUTION: FUEL VENT OPEN

On ground:

Do not takeoff.

In flight:

While there is fuel in the Ventral Fuel Tank:
Avoid pitch attitudes in excess of 10° nose down attitude and uncoordinated maneuvers.

WING TANKS OVERFLOW

EICAS CAUTION: FUEL XFER OVERFLOW

- Ventral Tank Transfer Knob

OFF
- Wing Fuel Tank Quantity

MONITOR
- Crossfeed

AS REQUIRED
- When Wing Fuel Tanks quantity is at 4630 lb or below:
- Ventral Tank Transfer Knob

AUTO
- Fuel Imbalance

MONITOR
- Crossfeed

AS REQUIRED

User: fhhera0f - Printed By myTechCare - Nov 21/24 - 00:29:37

TAKEOFF WITH ENGINE FAILURE ABOVE V_1

Maximum Takeoff Thrust CHECK
At V_R rotate the airplane to 13° (for flaps 9°) or 12° (for flaps 18°).
With positive rate of climb:
Landing Gear UP
Airspeed V_2

Maintain V_2 up to the level off altitude. If maneuvering is required, maintain a maximum bank of 15°.

When reaching the level off height:

For takeoff with flaps 9°:
At $V_2 + 15$ KIAS FLAPS UP

For takeoff with flaps 18°:
At $V_2 + 10$ KIAS FLAPS 9°
At $V_2 + 30$ KIAS FLAPS UP

Airspeed ACCELERATE
TO FINAL
SEGMENT
SPEED

After flaps are retracted:
PRECAUTIONARY ENGINE SHUTDOWN or
ENGINE FIRE, SEVERE DAMAGE OR
SEPARATION Procedure AS REQUIRED
After a maximum of 5 minutes at Takeoff Thrust:
Thrust Rating AS REQUIRED

NORMAL PROCEDURES

INTERNAL SAFETY INSPECTION

COCKPIT

- * Backup Battery CHECK
Release the Backup Battery Button momentarily and check if ISIS remains operating normally.

TAKEOFF

Thrust Levers THRUST SET
Check green ATTCS indication presented on EICAS.

- NOTE:** - If the runway is considered to be limiting, a static takeoff must be accomplished. In this case, release brakes after engine has reached the target N1.
- For rolling takeoffs, performance data is valid from the point where takeoff thrust is achieved.
 - During takeoff run, pedals should be used to steer the airplane.

Engine Parameters MONITOR

At V_R , rotate the airplane to 13° (for flaps 9°) or 12° (for flaps 18°).

With positive rate of climb:

Landing Gear UP

Minimum Airspeed V_2

If maneuvering is required, maintain a minimum airspeed of $V_2 + 10$ KIAS with a maximum bank of 25° .

At level off height altitude:

For takeoff with flaps 9° :

At $V_2 + 15$ KIAS FLAPS UP

For takeoff with flaps 18° :

At $V_2 + 10$ KIAS FLAPS 9°

At $V_2 + 30$ KIAS FLAPS UP

GO-AROUND

- Go Around Button PRESS
- Thrust Levers MAX
- Rotate or verify that autopilot rotates the airplane to 10° nose up.
- Flaps 9°
- With positive rate of climb:
 - Landing Gear UP
 - Minimum Airspeed APPROACH
CLIMB SPEED

At the level off height, proceed as in a normal takeoff.

NOTE: - For coupled Go-Around the altitude loss may be 40 ft.
- During the GO-AROUND procedure, the DON'T SINK aural warning may sound. In this case monitor the sink rate and follow the GO-AROUND guidance.

CROSSFEED OPERATION

NOTE: Crossfeed must be OFF during takeoff and landing.

- If wing fuel imbalance is verified (no fuel leak suspected):
- Atittude WINGS
LEVELED

Compare Total Fuel indication in MFD Fuel Page with FMS Fuel Remaining information.

If FMS Fuel Remaining quantity is lower than MFD Total Fuel indication, disregard FMS Fuel Remaining information and monitor fuel quantities.

- If left wing presents lower level:
 - Crossfeed Selector LOW1
- If right wing presents lower level:
 - Crossfeed Selector LOW2
- Monitor fuel imbalance. When the desired balance is achieved:
 - Crossfeed Selector OFF
- Monitor Total Fuel indication in MFD Fuel Page with FMS Fuel Remaining information.

PERFORMANCE

GENERAL

The performance data presented in this Supplement must replace the equivalent data in the basic AFM.

NOISE LEVELS

The following Effective Perceived Noise Levels (EPNL's) comply with FAR Part 36, Appendix C, Stage 3 noise limits. The tests and analysis procedures used to obtain these noise levels are essentially equivalent to those required by the ICAO Annex 16, Volume 1, Chapter 3.

NOISE LEVEL IN EPNdB		
CONDITION	ACTUAL	MAXIMUM ALLOWABLE
Sideline	86.9	94
Takeoff	81.2	89
Approach	91.6	98

These values are stated for reference conditions of standard atmosphere pressure at sea level, 25°C ambient temperature, 70% relative humidity, and zero wind. Takeoff and sideline noise levels were established for the EMB-145 XR model equipped with two Rolls-Royce AE3007A1E engines at the maximum takeoff weight of 53131 lb, V_2 climb speed, flaps 9°. Approach noise levels were established from a 3° glide slope at the maximum landing weight of 44092 lb, $V_{REF 45}$, and flaps 45°.

The takeoff power cutback procedure was used.

No determination has been made by the Airworthiness Authority that the noise levels in this manual are or should be acceptable or unacceptable for operation at, into, or out of any airport.

POSITION ERROR CORRECTIONS

The corrections to be applied to indicated airspeed or altitude in order to eliminate the effect of location of the static port on instrument reading are shown in the Airspeed and in the Altitude Position Error Correction charts presented in the AFM Section 5. For Pilot's and Copilot's Pitot use charts presented for all EMB-145 models equipped for RVSM operations (Post-Mod. SB 145-34-0082 or with an equivalent modification factory incorporated). Two sets of charts are presented for Standby Pitots:

- For airplanes Pre-Mod. SB 145-31-0038 use the charts presented for airplanes Pre-Mod SB 145-34-0054.
- For airplanes Post-Mod. SB 145-31-0038 or with an equivalent modification factory incorporated use the charts presented for airplanes Post-Mod. SB 145-34-0054.

SPEEDS IN THE STALL

The stalling speed is shown in the Stall Speed chart. Stalling speeds, with zero thrust in accordance with Airworthiness Requirements, are the reference for the various handling speeds herein presented. This chart is provided in terms of knots of calibrated airspeed for various weights and airplane configurations.

STALL SPEED CHART

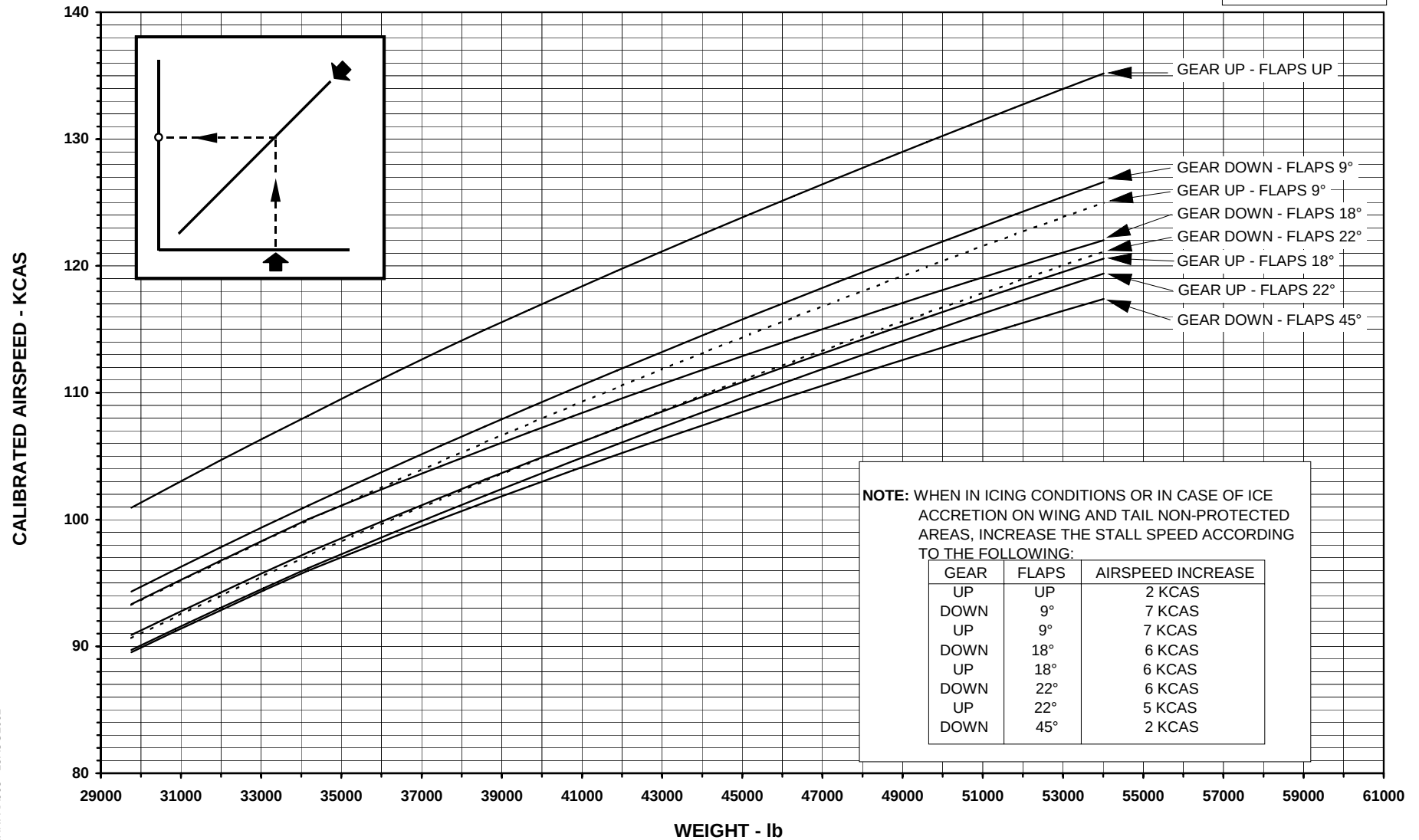
USE

Refer to the basic AFM.

STALL SPEED (STICK PUSHER SPEED)

ZERO THRUST - FORWARD CG

AE3007A1E ENGINES



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TIRE SPEED

The maximum landing weight to enable compliance with tire speed restrictions is shown in the Maximum Landing Weight - Tire Speed Limited.

MAXIMUM LANDING WEIGHT - TIRE SPEED LIMITED

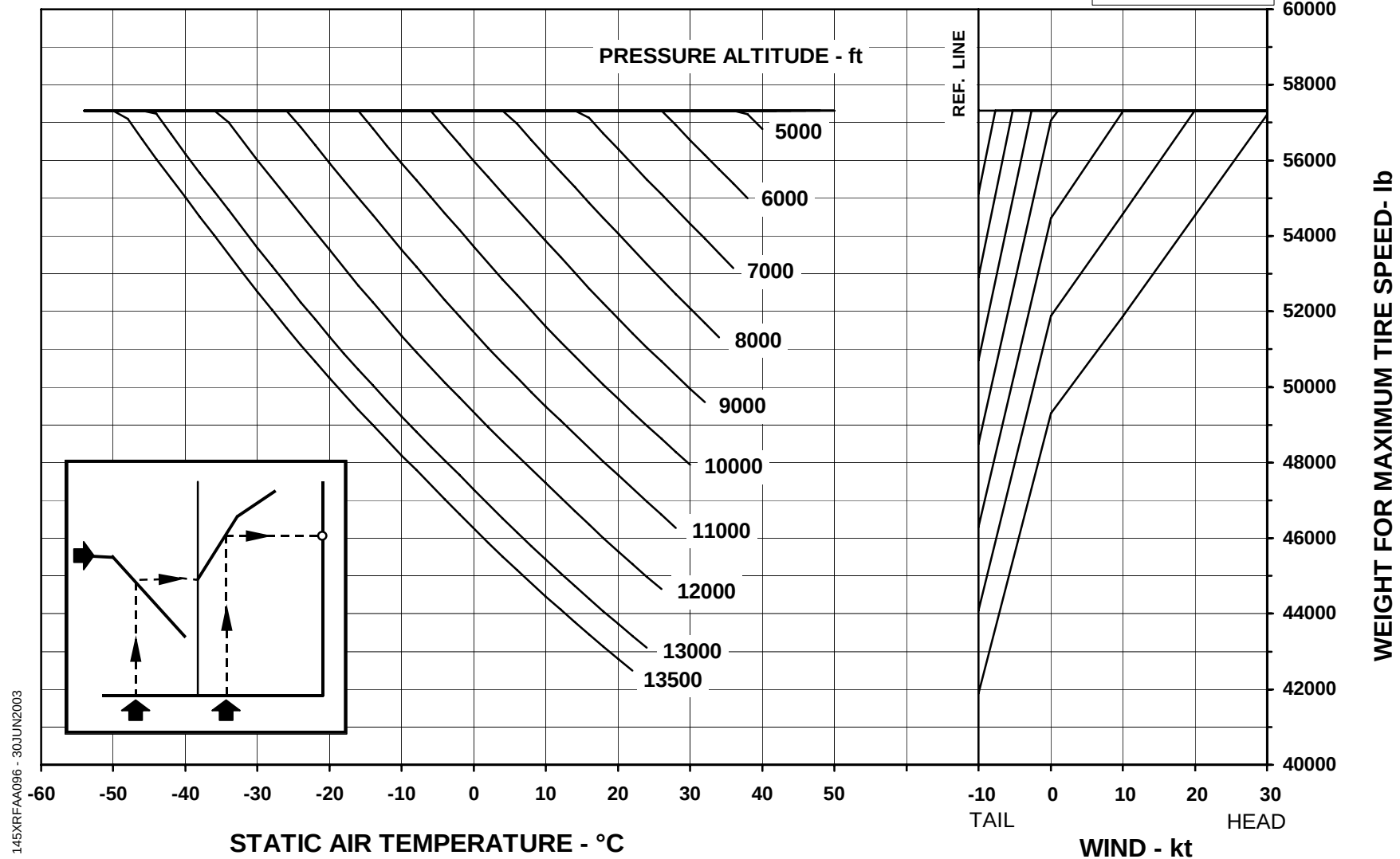
Two charts are presented for landing flaps 22° considering no ice encounter and after ice encounter.

One chart is presented for landing flaps 45°.

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MAXIMUM LANDING WEIGHT - TIRE SPEED LIMITED **LANDING FLAPS 22° - AFTER ICE ENCOUNTER**

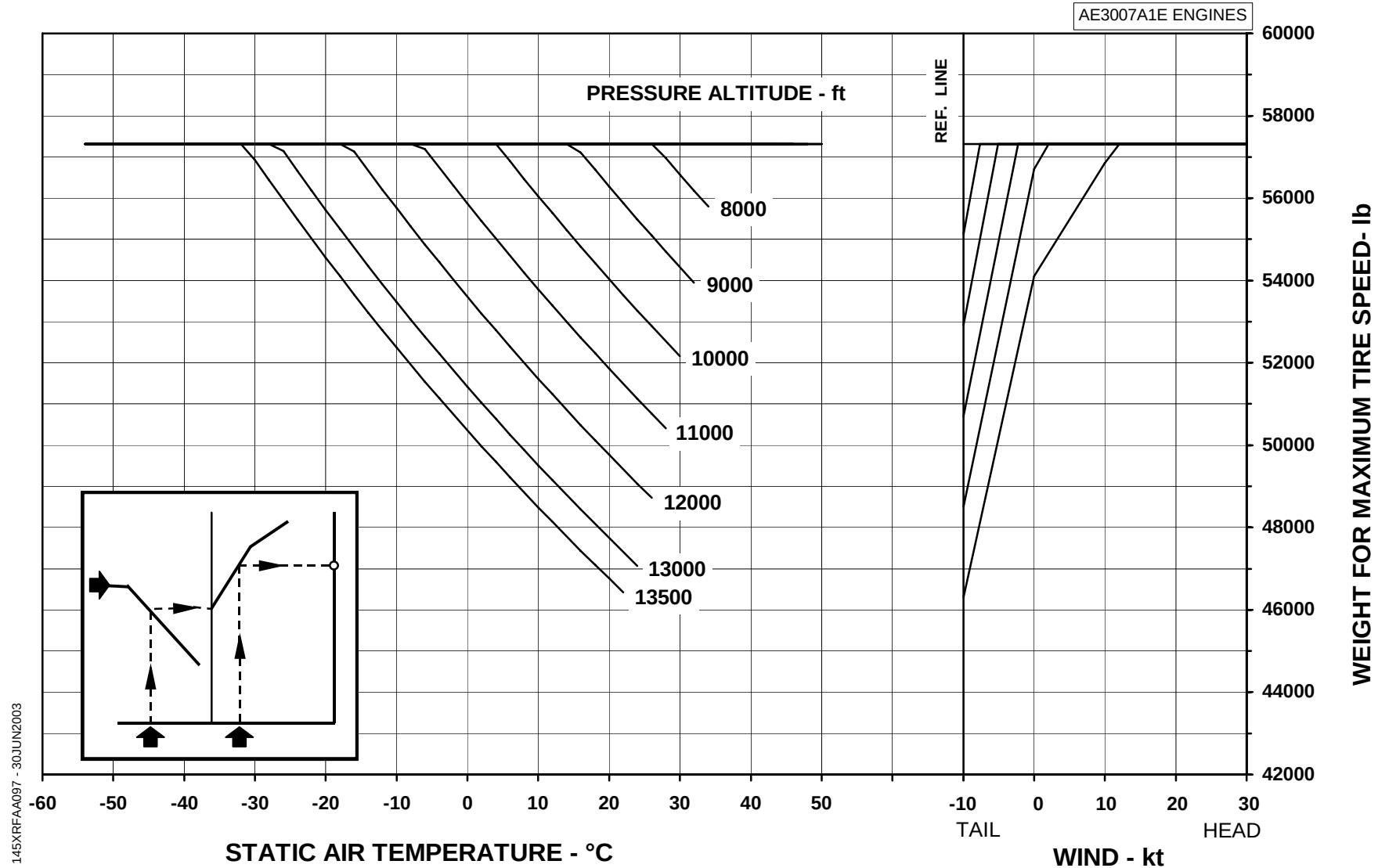
AE3007A1E ENGINES



MAXIMUM LANDING WEIGHT - TIRE SPEED LIMITED

LANDING FLAPS 22° - NO ICE ENCOUNTER

AE3007A1E ENGINES

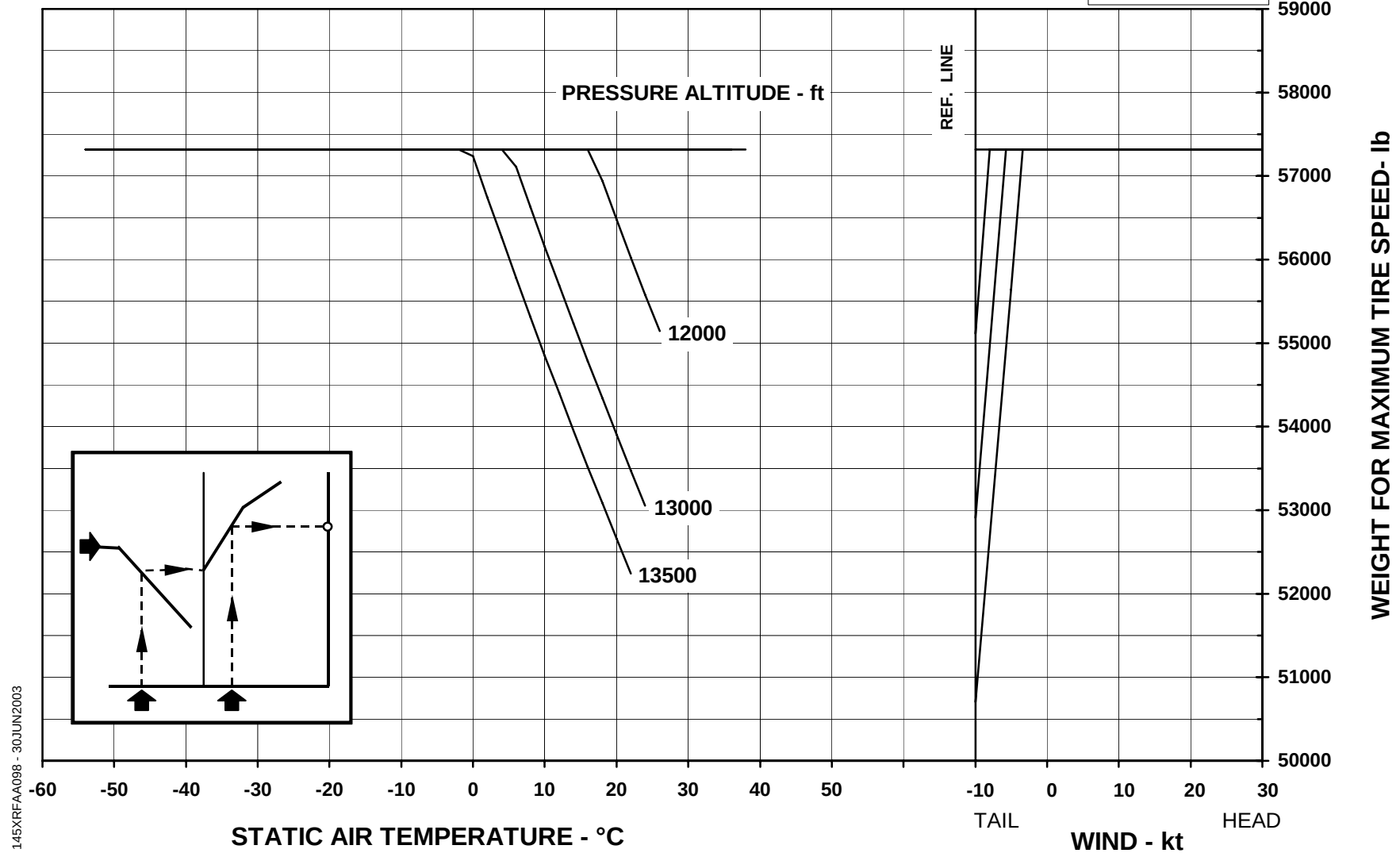


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MAXIMUM LANDING WEIGHT - TIRE SPEED LIMITED

LANDING FLAPS 45°

AE3007A1E ENGINES



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QUICK TURN AROUND WEIGHT

The landing weights for quick turn around, in compliance with the operating regulations relating brake energy, are provided in the Quick Turn Around Weight chart. This chart must be used when the brake temperature indication is not working properly, otherwise the brake temperature can be monitored through the brake temperature indication.

NOTE: If the weights provided in such chart are exceeded, a subsequent takeoff must not be performed before 27 minutes, without previous check of the wheel thermal plugs.

Four charts are presented according to the following associated conditions:

Airspeed

REFERENCE SPEED

Brakes Version

LR

Flaps

22° OR 45°

Landing gear.....

DOWN

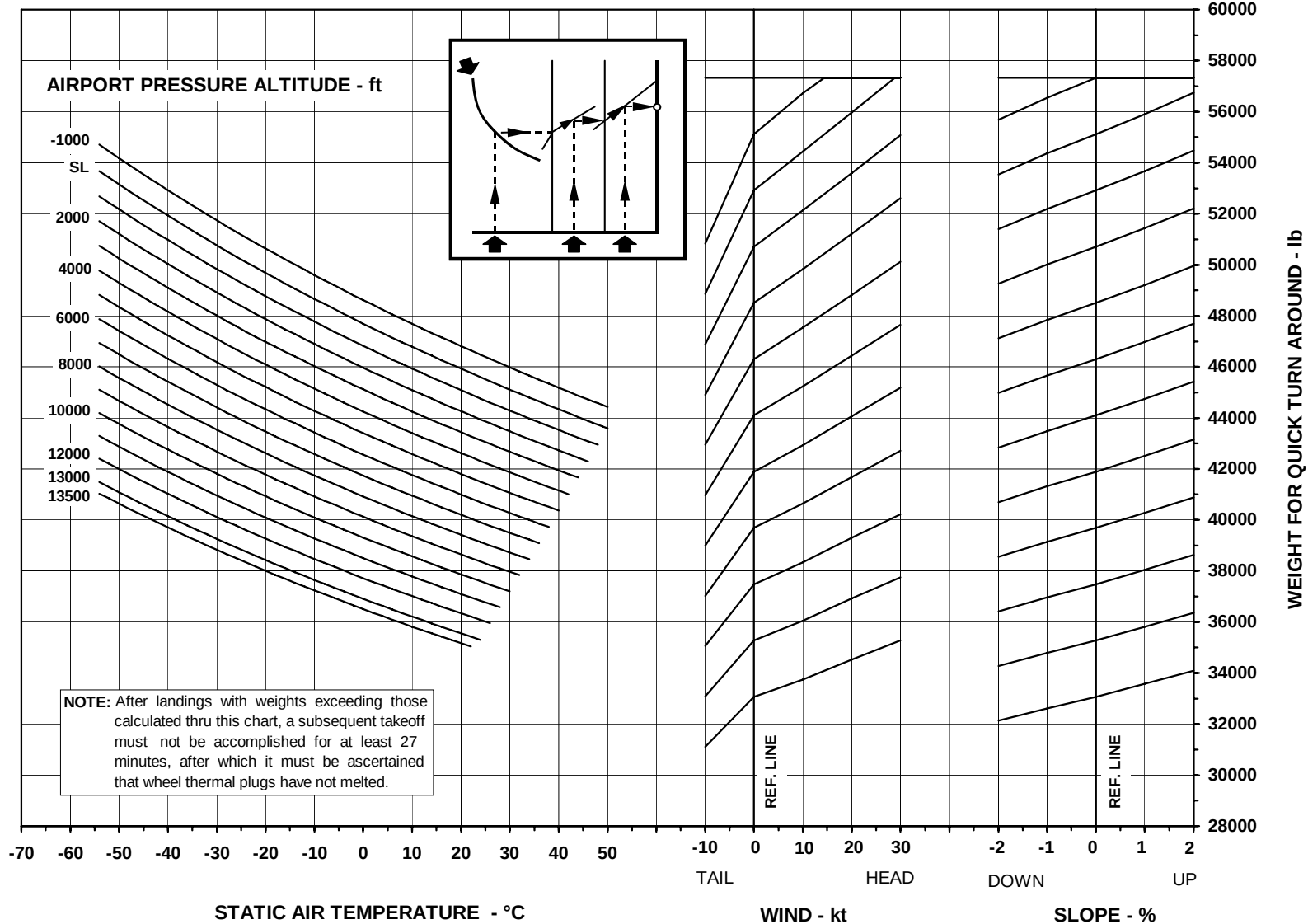
Charts for Flaps 22° are presented considering no ice encounter and after ice encounter conditions.

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QUICK TURN AROUND WEIGHT FLAPS 22° - NO ICE ENCOUNTER

AIRPLANES EQUIPPED WITH LR VERSION BRAKES

AE3007A1E ENGINES

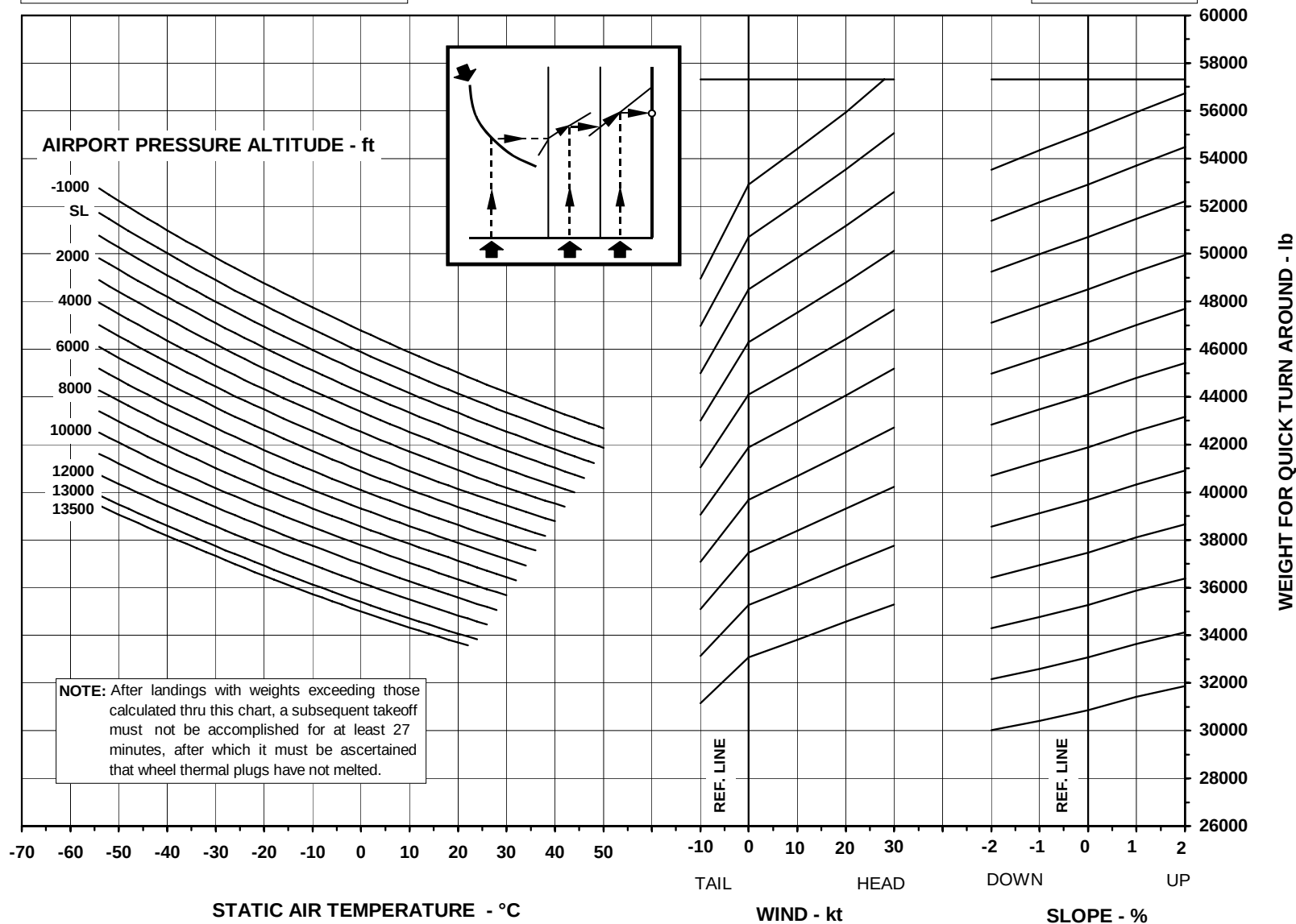


QUICK TURN AROUND WEIGHT

FLAPS 22° - AFTER ICE ENCOUNTER

AIRPLANES EQUIPPED WITH LR VERSION BRAKES

AE3007A1E ENGINES



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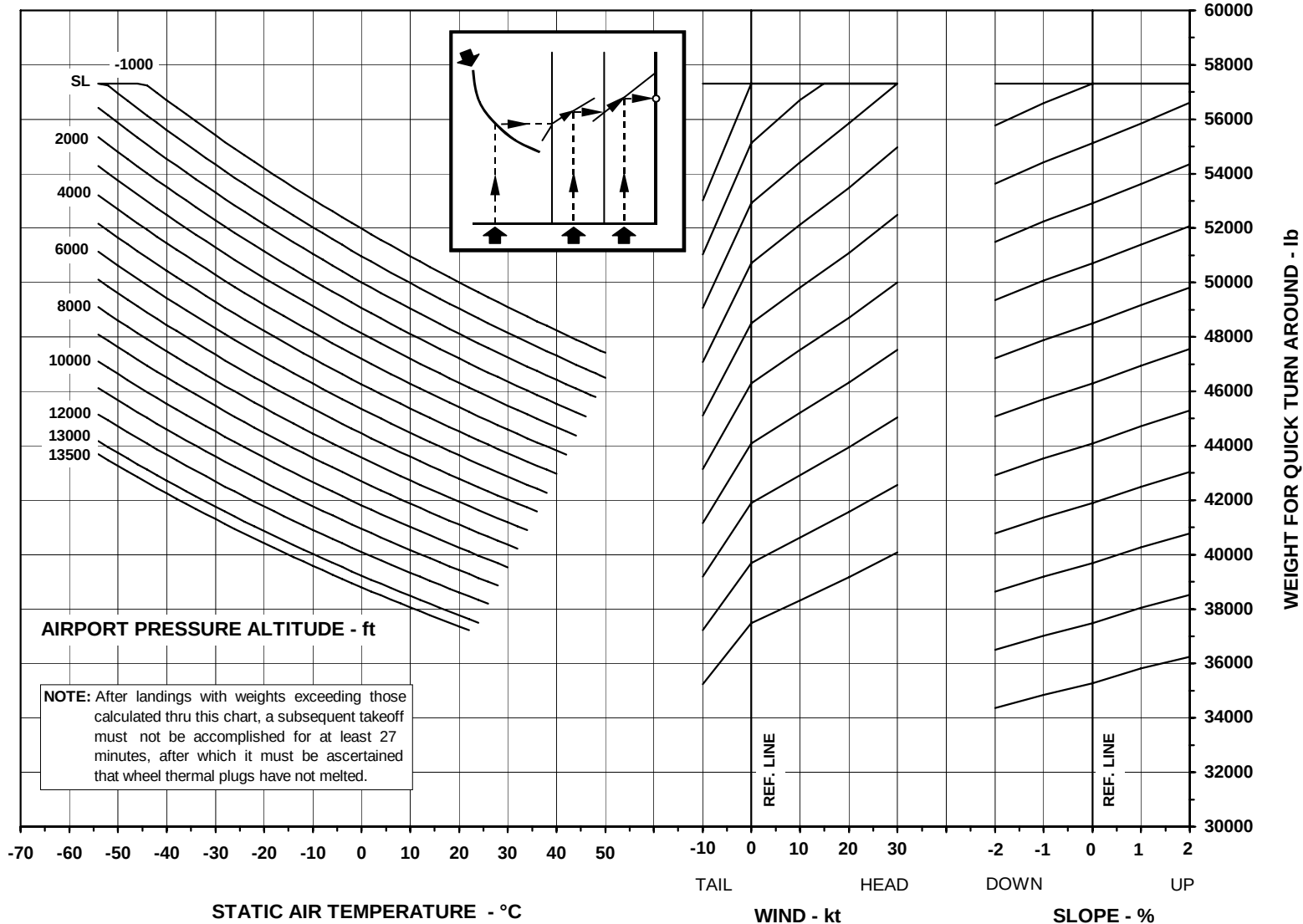
AFM-145/1153 - FAA

QUICK TURN AROUND WEIGHT

FLAPS 45°

AIRPLANES EQUIPPED WITH LR VERSION BRAKES

AE3007A1E ENGINES



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SUPPLEMENT 22

LIST OF EFFECTIVE PAGES

ORIGINAL	0	Not Applicable
REVISION	1 to 52	Not Applicable
REVISION	53	OCT 22, 2002
REVISION	54 to 55	Not Applicable
REVISION	56	OCT 21, 2003
REVISION	57	JUN 17, 2004
REVISION	58	NOV 23, 2004
REVISION	59	JUN 30, 2005
REVISION	60 to 61	Not Applicable
REVISION	62	JUN 19, 2007
REVISION	63	NOV 20, 2007
REVISION	64 to 68	Not Applicable
REVISION	69	NOV 29, 2022

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* S22-ii	REVISION 69	* S22-14	REVISION 69
* S22-iii	REVISION 69	* S22-15	REVISION 69
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* S22-12	REVISION 69	* S22-28	REVISION 69

* Asterisk indicates pages revised, added or deleted by the current revision.



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OPERATION WITH AE3007A1E ENGINES

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GENERAL

This Supplement is provided to present the data required for Operation with AE3007A1E engines.

All information presented herein complement AFM information and in conjunction with the ETOASG supplement constitute the basic AFM.

For performance information not contained in this Supplement, refer to the basic AFM or ETOASG Supplement.

LIMITATIONS

POWER PLANT

ENGINES

Two Rolls-Royce AE3007A1E.

OPERATIONAL LIMITS (ROLLS-ROYCE AE3007A1E)

PARAMETER	MIN	MAX
N1	-	100.0%
N2	-	103.7% (9)
ITT:	-	-
START	-	800°C
TAKEOFF:	-	-
ALL MODES	-	992°C (1) 970°C (2)
MAX CONTINUOUS	-	935°C
OIL PRESSURE:	-	-
BELOW 88% N2	34 psi	95 psi (4) (7) 110 psi (4) (8)
AT OR ABOVE 88% N2	48 psi (3)	95 psi (7) 110 psi (8)
OIL TEMPERATURE	21°C (5)	126°C
VIBRATION:	-	-
LP SPOOL	-	1.8 IPS (6)
HP SPOOL	-	1.1 IPS (6)

- NOTE:** 1) Temperatures between 971°C and 992°C are time limited to 90 seconds.
- 2) Time limited to 5 minutes.
- 3) While this is an abnormal condition, operation between 48 and 34 psi is permitted during takeoff and go-around phases.
- 4) May be exceeded during starts if oil temperature is below 21°C. The engine must remain at IDLE until the oil pressure is less than 95 psi (110 psi for airplanes Post-Mod. SB 145-73-0026 or equipped with an equivalent modification factory incorporated).

CONTINUES ON NEXT PAGE

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- 5) Minimum oil temperature for starting is -40°C for lubrication oil specified by MIL-L-23699D and -54°C for lubrication oil specified by MIL-L-7808K.
- 6) Vibration in the amber range below 2.5 IPS is time limited to 5 minutes during the takeoff or go-around phases or 10 seconds during the remainder flight phases.
- 7) Operation in oil pressure amber range between 96 and 115 psi is permitted in all operational modes and time limited to 5 minutes, or between 116 and 155 psi in all operational modes time limited to 2 minutes. Total time above 95 psi may not exceed 5 minutes.
- 8) For airplanes Post-Mod. SB 145-73-0026 or equipped with an equivalent modification factory incorporated the upper limit of the oil pressure green band is 110 psi. Operation in oil pressure amber range is permitted between 111 and 115 psi in all operational modes time limited to 5 minutes, or between 116 and 155 psi in all operational modes time limited to 2 minutes. Total time above 110 psi may not exceed 5 minutes.
- 9) For airplanes Post-Mod. SB 145-73-0028 or with an equivalent modification factory incorporated, the N2 limit is 105.0%.

TAKEOFF THRUST MODE

Only E T/O, T/O and ALT T/O-1 modes are allowed for takeoff.

AIRSPEEDS

Normal or increased V_2/V_S ratios are allowed for takeoff.

Takeoff performance can be computed only through ETOASG Version 17.60/5.01 and on.

EMERGENCY AND ABNORMAL PROCEDURES

The information herein presented must complement the information contained in the basic AFM and/or in other applicable Supplements.

ENGINE FPMU NOT DISPATCHABLE

EICAS CAUTION: E1 (2) FPMU NO DISP

Do not takeoff.

Report to the maintenance personnel.

NORMAL PROCEDURES

APPROACH

Thrust Rating E T/O

PERFORMANCE

GENERAL

The performance data presented in this Supplement must replace the equivalent data in the basic AFM and complement the performance data presented in the AFM Section 5, Supplement 21 and in the ETOASG Supplement.

These data are valid for E T/O, T/O and ALT T/O-1 modes.

The following performance charts are presented in this Supplement:

- FINAL SEGMENT SPEED
- ENROUTE
- APPROACH AND LANDING

For the EMB-145 XR, Quick Turn Around Weight charts are presented in the Performance section of the Supplement 21.

ENGINE DATA

The engine power readings used to obtain the installed engine power on which the airplane certified performance in this manual is based are shown in the Takeoff and Go-Around Thrust tables for ALT T/O-1, T/O and E T/O modes.

THRUST SETTING TABLES

Settings are shown for various pressure altitudes and Static Air Temperatures, with engine bleed closed or open, and anti-ice on or off. Takeoff and Go-Around tables are presented in two sets: one for anti-ice off and other for anti-ice on.

USE

Refer to the basic AFM.

ANAC APPROVED
REVISION 69

N1 FOR ALT T/O-1 MODE

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	72.3	72.9	73.7	74.6	75.3	76.1	76.9	77.7	78.4	79.2	79.9
0	72.9	73.5	74.3	75.1	75.9	76.7	77.5	78.3	79.1	79.8	80.6
1000	73.7	74.4	75.2	76.1	76.9	77.7	78.5	79.2	80.0	80.8	81.6
2000	74.6	75.3	76.1	77.0	77.8	78.6	79.4	80.2	81.0	81.8	82.5
3000	75.6	76.2	77.1	77.9	78.8	79.6	80.4	81.2	82.0	82.8	83.6
4000	76.6	77.2	78.1	79.0	79.8	80.6	81.5	82.3	83.1	83.9	84.7
5000	77.5	78.3	79.1	80.0	80.8	81.7	82.5	83.4	84.2	85.0	85.8
6000	78.0	78.7	79.6	80.5	81.3	82.2	83.0	83.9	84.7	85.5	86.3
7000	78.5	79.2	80.1	81.0	81.8	82.7	83.5	84.4	85.2	86.0	86.8
8000	78.9	79.6	80.5	81.4	82.2	83.1	84.0	84.8	85.6	86.5	87.3
9000	79.3	80.1	80.9	81.8	82.7	83.6	84.4	85.3	86.1	86.9	87.8
10000	79.7	80.5	81.4	82.2	83.1	84.0	84.8	85.7	86.5	87.4	88.2
11000	80.1	80.8	81.7	82.6	83.5	84.4	85.3	86.1	87.0	87.8	88.6
12000	80.5	81.2	82.1	83.0	83.9	84.8	85.7	86.5	87.4	88.2	89.0
13000	80.9	81.7	82.6	83.5	84.4	85.2	86.1	87.0	87.8	88.7	89.5
14000	81.4	82.1	83.1	84.0	84.9	85.7	86.6	87.5	88.3	89.2	90.0
15000	81.9	82.6	83.6	84.5	85.4	86.3	87.1	88.0	88.9	89.7	90.6
16000	82.6	83.3	84.3	85.2	86.1	87.0	87.9	88.8	89.6	90.5	91.4

N1 FOR ALT T/O-1 MODE

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	0	5	10	15	20	25	30	35	40	45	50
-1000	80.7	81.4	82.2	82.9	83.6	84.3	85.0	85.7	86.4	87.1	87.3
0	81.3	82.1	82.8	83.5	84.3	85.0	85.7	86.4	87.1	87.7	87.5
1000	82.3	83.1	83.8	84.5	85.3	86.0	86.7	87.4	88.1	88.1	86.9
2000	83.3	84.1	84.8	85.6	86.3	87.0	87.8	88.5	88.6	87.7	87.1
3000	84.3	85.1	85.9	86.6	87.4	88.1	88.9	89.2	88.4	87.8	87.3
4000	85.5	86.2	87.0	87.8	88.5	89.3	89.8	89.1	88.5	87.8	87.6
5000	86.6	87.4	88.2	88.9	89.7	90.3	90.2	89.1	88.5	87.9	-
6000	87.1	87.9	88.7	89.5	90.2	90.6	89.7	89.1	88.5	88.0	-
7000	87.6	88.4	89.2	90.0	90.8	90.8	89.7	89.0	88.3	88.2	-
8000	88.1	88.9	89.7	90.5	91.0	90.3	89.6	88.9	88.3	-	-
9000	88.6	89.4	90.2	91.0	91.2	90.2	89.5	88.8	88.5	-	-
10000	89.0	89.8	90.6	91.4	91.3	90.1	89.4	88.6	-	-	-
11000	89.4	90.3	91.1	91.5	90.6	90.0	89.3	88.8	-	-	-
12000	89.9	90.7	91.5	91.5	90.5	89.9	89.2	89.0	-	-	-
13000	90.4	91.2	91.8	91.1	90.5	89.8	89.1	-	-	-	-
14000	90.9	91.7	92.0	91.1	90.4	89.7	89.3	-	-	-	-
15000	91.4	92.2	92.1	91.0	90.3	89.5	-	-	-	-	-
16000	92.2	92.5	91.5	90.8	90.1	89.6	-	-	-	-	-

N1 FOR ALT T/O-1 MODE

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C												
	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	74.0	74.9	75.7	76.5	77.3	78.1	78.9	79.6	80.4	81.2	80.7	81.4	82.2
0	74.6	75.5	76.3	77.1	77.9	78.7	79.5	80.3	81.0	81.8	81.3	82.1	82.8
1000	75.5	76.4	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8	82.3	83.1	83.8
2000	76.4	77.3	78.1	78.9	79.7	80.6	81.4	82.2	83.0	83.8	83.3	84.1	84.8
3000	77.3	78.2	79.1	79.9	80.7	81.6	82.4	83.2	84.0	84.8	84.3	85.1	85.9
4000	78.4	79.2	80.1	80.9	81.8	82.6	83.5	84.3	85.1	85.9	85.5	86.2	87.0
5000	79.4	80.3	81.1	82.0	82.9	83.7	84.5	85.4	86.2	87.0	86.6	87.4	88.1
6000	79.8	80.7	81.6	82.5	83.3	84.2	85.0	85.9	86.7	87.5	87.1	87.9	88.7
7000	80.3	81.2	82.1	83.0	83.8	84.7	85.5	86.4	87.2	88.0	87.6	88.4	89.2
8000	80.8	81.7	82.5	83.4	84.3	85.2	86.0	86.9	87.7	88.5	88.1	88.9	89.4
9000	81.2	82.1	83.0	83.8	84.7	85.6	86.5	87.3	88.1	89.0	88.6	89.4	89.3
10000	81.6	82.5	83.4	84.3	85.2	86.0	86.9	87.7	88.6	89.4	89.0	89.8	89.2
11000	82.0	82.9	83.8	84.7	85.6	86.4	87.3	88.2	89.0	89.8	89.4	89.7	88.8
12000	82.3	83.3	84.2	85.1	86.0	86.8	87.7	88.6	89.4	90.3	89.9	89.3	88.5
13000	82.8	83.7	84.6	85.5	86.4	87.3	88.2	89.0	89.9	90.7	89.8	89.0	88.3
14000	83.3	84.2	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3	89.6	88.9	88.2
15000	83.7	84.7	85.6	86.5	87.4	88.3	89.2	90.1	90.9	91.3	89.4	88.7	88.1
16000	84.5	85.4	86.3	87.3	88.2	89.1	90.0	90.8	91.7	91.3	89.4	88.7	88.0

N1 FOR T/O MODE

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	-54	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	74.8	75.5	76.4	77.2	78.0	78.8	79.6	80.4	81.2	82.0	82.8
0	75.5	76.1	77.0	77.8	78.7	79.5	80.3	81.1	81.9	82.7	83.5
1000	76.5	77.2	78.0	78.9	79.7	80.6	81.4	82.2	83.0	83.8	84.6
2000	77.5	78.2	79.1	80.0	80.8	81.7	82.5	83.3	84.1	84.9	85.7
3000	78.5	79.2	80.1	81.0	81.8	82.7	83.5	84.4	85.2	86.0	86.8
4000	79.5	80.2	81.1	82.0	82.8	83.7	84.6	85.4	86.2	87.1	87.9
5000	80.4	81.1	82.0	82.9	83.8	84.7	85.6	86.4	87.3	88.1	88.9
6000	80.9	81.7	82.6	83.5	84.4	85.2	86.1	87.0	87.8	88.7	89.5
7000	81.4	82.2	83.1	84.0	84.9	85.8	86.7	87.5	88.4	89.2	90.1
8000	82.0	82.7	83.6	84.6	85.5	86.3	87.2	88.1	89.0	89.8	90.7
9000	82.5	83.3	84.2	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3
10000	83.1	83.9	84.8	85.7	86.6	87.5	88.4	89.3	90.2	91.1	91.9
11000	83.2	83.9	84.9	85.8	86.7	87.6	88.5	89.4	90.3	91.1	92.0
12000	83.3	84.0	84.9	85.9	86.8	87.7	88.6	89.5	90.4	91.2	92.1
13000	83.5	84.3	85.2	86.2	87.1	88.0	88.9	89.8	90.7	91.5	92.4
14000	84.0	84.8	85.8	86.7	87.6	88.5	89.4	90.3	91.2	92.1	93.0
15000	84.6	85.3	86.3	87.2	88.2	89.1	90.0	90.9	91.8	92.7	93.5
16000	84.6	85.3	86.3	87.2	88.2	89.1	90.0	90.9	91.8	92.7	93.5

N1 FOR T/O MODE

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	0	5	10	15	20	25	30	35	40	45	50
-1000	83.6	84.3	85.1	85.8	86.6	87.3	88.0	88.8	89.5	90.2	90.3
0	84.2	85.0	85.8	86.5	87.3	88.0	88.8	89.5	90.2	90.9	90.8
1000	85.4	86.2	86.9	87.7	88.4	89.2	90.0	90.7	91.4	91.4	90.1
2000	86.5	87.3	88.1	88.9	89.7	90.4	91.2	91.9	92.0	91.0	90.1
3000	87.6	88.4	89.2	90.0	90.8	91.6	92.3	92.7	91.8	91.0	90.4
4000	88.7	89.5	90.3	91.1	91.9	92.7	93.2	93.1	91.8	91.0	90.7
5000	89.8	90.6	91.4	92.2	93.0	93.8	93.7	92.7	91.9	91.0	-
6000	90.3	91.2	92.0	92.8	93.6	94.0	93.2	92.6	91.7	91.2	-
7000	90.9	91.7	92.6	93.4	94.2	94.2	93.2	92.4	91.6	91.4	-
8000	91.5	92.4	93.2	94.0	94.5	94.4	93.1	92.3	91.6	-	-
9000	92.2	93.0	93.8	94.6	94.9	93.7	92.9	92.2	91.8	-	-
10000	92.8	93.6	94.5	94.5	93.2	92.2	91.5	90.9	-	-	-
11000	92.9	93.7	94.5	94.5	93.0	92.1	91.4	91.0	-	-	-
12000	92.9	93.8	94.6	94.6	92.8	92.0	91.3	91.2	-	-	-
13000	93.3	94.1	94.7	94.5	92.6	91.9	91.3	-	-	-	-
14000	93.8	94.7	94.9	93.4	92.5	91.7	91.4	-	-	-	-
15000	94.4	95.2	95.1	93.2	92.4	91.5	-	-	-	-	-
16000	94.1	94.1	92.7	91.7	90.9	90.3	-	-	-	-	-

N1 FOR T/O MODE

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	76.6	77.5	78.3	79.2	80.0	80.8	81.6	82.4	83.2	84.0	83.6	84.3	85.1
0	77.3	78.1	79.0	79.8	80.6	81.5	82.3	83.1	83.9	84.7	84.2	85.0	85.8
1000	78.3	79.2	80.0	80.9	81.7	82.6	83.4	84.2	85.0	85.8	85.4	86.2	86.9
2000	79.3	80.2	81.1	82.0	82.8	83.7	84.5	85.3	86.2	87.0	86.5	87.3	88.1
3000	80.3	81.2	82.1	83.0	83.9	84.7	85.6	86.4	87.2	88.1	87.6	88.4	89.2
4000	81.3	82.2	83.1	84.0	84.9	85.7	86.6	87.4	88.3	89.1	88.7	89.5	89.5
5000	82.3	83.2	84.1	85.0	85.9	86.7	87.6	88.5	89.3	90.2	89.8	90.5	89.5
6000	82.8	83.7	84.6	85.5	86.4	87.3	88.2	89.0	89.9	90.7	90.3	90.1	89.1
7000	83.3	84.2	85.1	86.0	86.9	87.8	88.7	89.6	90.4	91.3	90.6	89.8	88.8
8000	83.8	84.8	85.7	86.6	87.5	88.4	89.3	90.2	91.0	91.8	90.0	89.3	88.4
9000	84.4	85.3	86.3	87.2	88.1	89.0	89.9	90.8	91.6	91.1	89.3	88.7	88.0
10000	85.0	85.9	86.9	87.8	88.7	89.6	90.5	91.4	90.9	89.1	87.5	87.1	86.7
11000	85.0	86.0	86.9	87.9	88.8	89.7	90.6	90.9	90.4	88.8	87.3	87.0	86.6
12000	85.1	86.1	87.0	87.9	88.9	89.8	90.7	90.5	88.8	88.6	87.1	86.9	86.6
13000	85.4	86.4	87.3	88.2	89.2	90.1	90.5	90.1	88.6	88.4	87.0	86.8	86.5
14000	85.9	86.9	87.8	88.8	89.7	90.5	90.2	88.6	88.4	88.3	87.0	86.8	86.2
15000	86.4	87.4	88.4	89.3	90.2	90.2	89.9	88.4	88.3	88.3	87.0	86.9	85.9
16000	86.5	87.4	88.4	89.3	90.1	89.7	88.1	87.7	87.5	87.3	85.8	85.2	84.1

N1 FOR E T/O MODE

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	76.6	77.5	78.3	79.2	80.0	80.9	81.7	82.5	83.3	84.1	84.9
0	77.3	78.2	79.0	79.9	80.7	81.6	82.4	83.2	84.1	84.9	85.7
1000	78.3	79.2	80.0	80.9	81.8	82.6	83.5	84.3	85.1	86.0	86.8
2000	79.2	80.1	81.0	81.9	82.8	83.7	84.5	85.4	86.2	87.0	87.9
3000	80.3	81.2	82.1	83.0	83.9	84.8	85.6	86.5	87.3	88.2	89.0
4000	81.4	82.3	83.3	84.2	85.1	86.0	86.8	87.7	88.6	89.4	90.3
5000	82.5	83.5	84.4	85.3	86.3	87.2	88.0	88.9	89.8	90.7	91.5
6000	83.2	84.1	85.1	86.0	86.9	87.8	88.7	89.6	90.5	91.3	92.2
7000	83.8	84.7	85.7	86.6	87.5	88.5	89.4	90.3	91.1	92.0	92.9
8000	84.4	85.3	86.3	87.2	88.2	89.1	90.0	90.9	91.8	92.7	93.5
9000	84.9	85.9	86.9	87.8	88.7	89.7	90.6	91.5	92.4	93.3	94.2
10000	85.5	86.5	87.4	88.4	89.3	90.3	91.2	92.1	93.0	93.9	94.8
11000	85.6	86.5	87.5	88.4	89.4	90.3	91.2	92.2	93.1	94.0	94.9
12000	85.6	86.6	87.6	88.5	89.5	90.4	91.3	92.2	93.1	94.0	94.9
13000	85.9	86.9	87.8	88.8	89.7	90.7	91.6	92.5	93.4	94.3	95.2
14000	86.4	87.4	88.3	89.3	90.2	91.2	92.1	93.0	94.0	94.9	95.8
15000	86.9	87.8	88.8	89.8	90.8	91.7	92.6	93.6	94.5	95.4	96.3
16000	86.9	87.9	88.8	89.8	90.8	91.7	92.6	93.6	94.5	95.4	95.9

N1 FOR E T/O MODE

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	0	5	10	15	20	25	30	35	40	45	50
-1000	85.7	86.5	87.3	88.0	88.8	89.6	90.3	91.0	91.3	90.0	89.1
0	86.5	87.3	88.0	88.8	89.6	90.3	91.1	91.7	91.6	90.1	89.2
1000	87.6	88.4	89.2	89.9	90.7	91.5	92.3	92.3	90.9	90.1	89.2
2000	88.7	89.5	90.3	91.1	91.9	92.6	92.8	91.6	90.9	90.1	89.3
3000	89.8	90.7	91.5	92.3	93.1	93.4	92.3	91.6	90.8	90.1	89.4
4000	91.1	91.9	92.8	93.6	94.0	93.9	92.3	91.6	90.9	90.1	89.7
5000	92.4	93.2	94.0	94.9	94.7	92.9	92.3	91.7	90.9	90.0	-
6000	93.1	93.9	94.8	95.1	93.7	92.8	92.2	91.5	90.7	90.2	-
7000	93.8	94.6	95.4	95.2	93.5	92.8	92.1	91.4	90.5	90.3	-
8000	94.4	95.3	95.6	94.3	93.5	92.7	92.0	91.2	90.5	-	-
9000	95.0	95.9	95.8	94.3	93.4	92.5	91.7	91.0	90.7	-	-
10000	95.7	96.1	95.0	94.2	93.2	92.2	91.5	90.9	0.0	-	-
11000	95.7	96.0	94.9	94.0	93.0	92.1	91.4	91.0	-	-	-
12000	95.8	96.0	94.8	93.8	92.8	92.0	91.3	91.2	-	-	-
13000	96.1	96.0	94.7	93.6	92.6	91.9	91.3	-	-	-	-
14000	96.2	95.3	94.5	93.4	92.5	91.7	91.4	-	-	-	-
15000	96.3	95.3	94.3	93.2	92.4	91.5	-	-	-	-	-
16000	95.1	94.2	93.0	91.9	91.1	90.6	-	-	-	-	-

N1 FOR E T/O MODE

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 0 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C													
	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	
-1000	78.6	79.5	80.3	81.2	82.0	82.9	83.7	84.5	85.3	86.1	85.7	86.5	87.3	
0	79.3	80.2	81.0	81.9	82.7	83.6	84.4	85.3	86.1	86.9	86.5	87.3	88.0	
1000	80.3	81.2	82.0	82.9	83.8	84.6	85.5	86.3	87.2	88.0	87.6	88.4	89.2	
2000	81.3	82.2	83.1	83.9	84.8	85.7	86.5	87.4	88.2	89.1	88.9	89.5	90.3	
3000	82.3	83.2	84.1	85.0	85.9	86.8	87.7	88.5	89.4	90.2	89.8	90.7	91.5	
4000	83.5	84.4	85.3	86.2	87.1	88.0	88.9	89.8	90.6	91.5	91.1	91.9	92.5	
5000	84.6	85.5	86.5	87.4	88.3	89.2	90.1	91.0	91.9	92.7	92.4	93.2	92.7	
6000	85.2	86.2	87.1	88.0	89.0	89.9	90.8	91.7	92.6	93.4	93.1	92.8	92.0	
7000	85.9	86.8	87.8	88.7	89.6	90.5	91.4	92.3	93.2	94.1	93.8	92.8	91.8	
8000	86.5	87.4	88.4	89.3	90.2	91.2	92.1	93.0	93.9	94.8	94.4	92.1	91.5	
9000	87.0	88.0	88.9	89.9	90.8	91.8	92.7	93.6	94.5	95.0	92.3	91.8	91.2	
10000	87.6	88.6	89.5	90.5	91.4	92.4	93.3	94.2	94.7	94.7	92.0	91.5	90.9	
11000	87.6	88.6	89.6	90.5	91.5	92.4	93.3	94.3	94.5	93.4	91.8	91.3	90.8	
12000	87.7	88.7	89.6	90.6	91.6	92.5	93.4	94.3	94.4	93.2	91.6	91.1	90.6	
13000	88.0	89.0	89.9	90.9	91.8	92.8	93.7	94.3	94.4	93.0	91.4	91.0	90.5	
14000	88.5	89.5	90.4	91.4	92.4	93.3	94.0	94.1	93.2	92.9	91.4	91.0	90.4	
15000	89.0	90.0	90.9	91.9	92.9	93.5	93.6	93.3	93.1	92.8	91.3	91.0	90.2	
16000	89.0	90.0	90.9	91.9	92.9	93.5	93.7	93.0	92.6	92.2	90.5	89.9	88.8	

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	76.5	77.3	78.2	79.1	79.9	80.7	81.6	82.4	83.2	84.0	84.8
0	77.2	78.0	78.9	79.8	80.6	81.5	82.3	83.1	83.9	84.7	85.5
1000	78.1	79.0	79.9	80.8	81.6	82.5	83.3	84.2	85.0	85.8	86.6
2000	79.1	80.0	80.9	81.7	82.6	83.5	84.3	85.2	86.0	86.8	87.7
3000	80.1	81.0	81.9	82.8	83.7	84.5	85.4	86.3	87.1	88.0	88.8
4000	81.1	82.1	83.0	83.9	84.8	85.7	86.5	87.4	88.3	89.1	89.9
5000	82.2	83.1	84.0	85.0	85.9	86.8	87.6	88.5	89.4	90.3	91.1
6000	82.8	83.7	84.6	85.6	86.5	87.4	88.3	89.2	90.0	90.9	91.8
7000	83.3	84.3	85.2	86.2	87.1	88.0	88.9	89.8	90.7	91.5	92.4
8000	83.9	84.9	85.8	86.8	87.7	88.6	89.5	90.4	91.3	92.2	93.1
9000	84.6	85.5	86.5	87.4	88.3	89.3	90.2	91.1	92.0	92.9	93.7
10000	85.2	86.1	87.1	88.0	89.0	89.9	90.8	91.7	92.7	93.5	94.4
11000	85.3	86.3	87.2	88.2	89.1	90.1	91.0	91.9	92.8	93.7	94.6
12000	85.4	86.4	87.4	88.3	89.3	90.2	91.1	92.0	92.9	93.8	94.7
13000	85.7	86.7	87.7	88.6	89.6	90.5	91.5	92.4	93.3	94.2	95.1
14000	86.3	87.2	88.2	89.2	90.1	91.1	92.0	92.9	93.8	94.7	95.6
15000	86.8	87.8	88.7	89.7	90.7	91.6	92.5	93.5	94.4	95.3	96.2
16000	86.8	87.8	88.7	89.7	90.7	91.6	92.5	93.5	94.4	95.3	95.8

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	0	5	10	15	20	25	30	35	40	45	50
-1000	85.6	86.3	87.1	87.9	88.6	89.4	90.1	90.9	91.1	90.0	89.1
0	86.3	87.1	87.9	88.7	89.4	90.2	91.0	91.7	91.5	90.1	89.1
1000	87.4	88.2	89.0	89.8	90.6	91.3	92.1	92.1	90.8	90.0	89.1
2000	88.5	89.3	90.1	90.9	91.7	92.4	92.7	91.6	90.8	90.0	89.2
3000	89.6	90.4	91.2	92.0	92.8	93.3	92.3	91.5	90.8	90.0	89.4
4000	90.8	91.6	92.4	93.2	94.0	93.8	92.2	91.5	90.8	90.0	89.7
5000	92.0	92.8	93.6	94.4	94.5	92.8	92.2	91.6	90.8	90.0	-
6000	92.6	93.5	94.3	94.8	93.6	92.7	92.2	91.5	90.7	90.1	-
7000	93.3	94.1	95.0	95.0	93.4	92.7	92.1	91.3	90.5	90.3	-
8000	93.9	94.8	95.3	94.2	93.3	92.6	92.0	91.1	90.4	-	-
9000	94.6	95.5	95.4	94.0	93.2	92.5	91.7	91.0	90.6	-	-
10000	95.3	95.7	94.8	94.0	93.1	92.2	91.5	90.8	-	-	-
11000	95.4	95.8	94.7	93.9	92.9	92.1	91.4	90.9	-	-	-
12000	95.6	95.8	94.7	93.7	92.6	91.9	91.3	91.1	-	-	-
13000	95.9	96.0	94.6	93.5	92.4	91.8	91.2	-	-	-	-
14000	96.1	95.3	94.4	93.3	92.4	91.7	91.4	-	-	-	-
15000	96.3	95.3	94.2	93.0	92.3	91.5	-	-	-	-	-
16000	95.0	94.1	92.8	91.7	91.0	90.6	-	-	-	-	-

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	76.3	77.2	78.0	78.9	79.7	80.6	81.4	82.2	83.0	83.8	84.6
0	77.0	77.9	78.7	79.6	80.4	81.3	82.1	82.9	83.8	84.6	85.4
1000	78.0	78.9	79.7	80.6	81.5	82.3	83.2	84.0	84.8	85.6	86.4
2000	79.0	79.9	80.8	81.6	82.5	83.4	84.2	85.1	85.9	86.7	87.5
3000	80.0	80.9	81.8	82.7	83.6	84.4	85.3	86.1	87.0	87.8	88.7
4000	81.0	81.9	82.8	83.7	84.6	85.5	86.4	87.2	88.1	88.9	89.8
5000	82.0	82.9	83.8	84.7	85.6	86.5	87.4	88.3	89.2	90.0	90.9
6000	82.5	83.4	84.4	85.3	86.2	87.1	88.0	88.9	89.7	90.6	91.5
7000	83.0	84.0	84.9	85.8	86.7	87.6	88.5	89.4	90.3	91.2	92.0
8000	83.6	84.5	85.5	86.4	87.3	88.2	89.1	90.0	90.9	91.8	92.7
9000	84.2	85.2	86.1	87.0	88.0	88.9	89.8	90.7	91.6	92.5	93.3
10000	84.8	85.8	86.7	87.7	88.6	89.5	90.4	91.4	92.3	93.1	94.0
11000	84.9	85.9	86.8	87.8	88.7	89.6	90.6	91.5	92.4	93.3	94.1
12000	85.0	86.0	86.9	87.9	88.8	89.8	90.7	91.6	92.5	93.4	94.3
13000	85.4	86.3	87.3	88.2	89.2	90.1	91.0	92.0	92.9	93.8	94.6
14000	86.0	86.9	87.9	88.9	89.8	90.7	91.7	92.6	93.5	94.4	95.3
15000	86.6	87.6	88.5	89.5	90.5	91.4	92.3	93.3	94.2	95.1	95.6
16000	86.6	87.5	88.5	89.5	90.4	91.4	92.3	93.2	94.2	95.1	95.1

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	0	5	10	15	20	25	30	35	40	45	50
-1000	85.4	86.2	86.9	87.7	88.5	89.2	90.0	90.7	91.0	89.9	88.9
0	86.2	86.9	87.7	88.5	89.3	90.0	90.8	91.5	91.5	90.0	88.9
1000	87.2	88.0	88.8	89.6	90.4	91.2	91.9	92.0	90.8	89.9	88.8
2000	88.4	89.2	90.0	90.8	91.5	92.3	92.6	91.5	90.7	89.8	88.9
3000	89.5	90.3	91.1	91.9	92.7	93.2	92.2	91.5	90.7	89.8	89.1
4000	90.6	91.4	92.2	93.0	93.9	93.7	92.1	91.5	90.7	89.8	89.5
5000	91.7	92.5	93.4	94.2	94.4	92.7	92.1	91.5	90.7	89.9	-
6000	92.3	93.1	94.0	94.6	94.4	92.6	92.0	91.4	90.5	90.0	-
7000	92.9	93.7	94.6	94.7	93.2	92.6	92.0	91.2	90.4	90.2	-
8000	93.5	94.4	95.0	94.8	93.1	92.5	91.9	91.1	90.4	-	-
9000	94.2	95.1	95.2	93.8	93.0	92.4	91.7	90.9	90.5	-	-
10000	94.9	95.3	94.4	93.6	92.9	92.2	91.5	90.7	-	-	-
11000	95.0	95.3	94.3	93.6	92.8	92.0	91.3	90.8	-	-	-
12000	95.1	95.3	94.3	93.4	92.5	91.8	91.1	91.0	-	-	-
13000	95.4	95.3	94.2	93.2	92.3	91.7	91.1	-	-	-	-
14000	95.5	94.8	94.1	93.0	92.2	91.6	91.3	-	-	-	-
15000	95.3	94.9	93.9	92.7	92.1	91.4	-	-	-	-	-
16000	94.3	93.7	92.6	91.6	91.0	90.5	-	-	-	-	-

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5
-1000	75.9	76.8	77.7	78.5	79.3	80.2	81.0	81.8	82.6	83.4	84.2
0	76.6	77.5	78.3	79.2	80.0	80.9	81.7	82.5	83.3	84.1	84.9
1000	77.7	78.6	79.5	80.3	81.2	82.0	82.9	83.7	84.5	85.3	86.1
2000	78.8	79.7	80.6	81.5	82.3	83.2	84.1	84.9	85.7	86.6	87.4
3000	79.9	80.8	81.7	82.6	83.4	84.3	85.2	86.0	86.9	87.7	88.5
4000	80.8	81.7	82.6	83.5	84.4	85.3	86.2	87.1	87.9	88.8	89.6
5000	81.8	82.7	83.6	84.5	85.4	86.3	87.2	88.1	88.9	89.8	90.6
6000	82.2	83.2	84.1	85.0	85.9	86.8	87.7	88.6	89.5	90.3	91.2
7000	82.7	83.7	84.6	85.5	86.4	87.3	88.2	89.1	90.0	90.8	91.7
8000	83.2	84.2	85.1	86.1	87.0	87.9	88.8	89.7	90.5	91.4	92.3
9000	83.8	84.8	85.7	86.6	87.6	88.5	89.4	90.3	91.2	92.0	92.9
10000	84.3	85.3	86.2	87.2	88.1	89.0	89.9	90.8	91.7	92.6	93.5
11000	84.4	85.3	86.3	87.2	88.2	89.1	90.0	90.9	91.8	92.7	93.5
12000	84.4	85.4	86.3	87.3	88.2	89.1	90.0	90.9	91.8	92.7	93.6
13000	84.7	85.7	86.6	87.6	88.5	89.4	90.4	91.3	92.2	93.0	93.9
14000	85.3	86.3	87.3	88.2	89.2	90.1	91.0	91.9	92.8	93.7	94.6
15000	85.9	86.9	87.9	88.9	89.8	90.7	91.7	92.6	93.5	94.4	95.0
16000	85.8	86.8	87.8	88.7	89.7	90.6	91.5	92.4	93.3	94.2	94.5

N1 FOR GO-AROUND

BLEED CLOSED - ANTI-ICE OFF

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C										
	0	5	10	15	20	25	30	35	40	45	50
-1000	85.0	85.7	86.5	87.3	88.0	88.8	89.5	90.2	90.7	89.7	88.5
0	85.7	86.5	87.2	88.0	88.8	89.5	90.3	91.0	91.2	89.8	88.5
1000	86.9	87.7	88.5	89.3	90.1	90.8	91.6	91.8	90.6	89.6	88.4
2000	88.2	89.0	89.8	90.6	91.4	92.1	92.5	91.4	90.6	89.6	88.5
3000	89.4	90.2	91.0	91.8	92.6	93.1	92.1	91.4	90.6	89.6	88.8
4000	90.4	91.2	92.1	92.9	93.7	93.6	92.1	91.4	90.6	89.6	89.2
5000	91.5	92.3	93.1	94.0	94.1	92.8	92.1	91.4	90.6	89.7	-
6000	92.0	92.9	93.7	94.5	94.3	92.6	92.0	91.3	90.5	89.9	-
7000	92.6	93.4	94.2	94.7	93.2	92.5	91.9	91.2	90.4	90.2	-
8000	93.1	94.0	94.8	94.7	93.0	92.4	91.8	91.0	90.4	-	-
9000	93.8	94.6	94.8	93.6	92.9	92.3	91.7	90.9	90.5	-	-
10000	94.4	94.9	94.1	93.4	92.8	92.2	91.5	90.6	-	-	-
11000	94.4	94.8	94.0	93.3	92.7	92.0	91.2	90.7	-	-	-
12000	94.4	94.7	93.9	93.2	92.4	91.7	91.0	90.9	-	-	-
13000	94.8	94.7	93.8	93.0	92.2	91.6	91.0	-	-	-	-
14000	94.9	94.4	93.7	92.8	92.1	91.4	91.1	-	-	-	-
15000	95.0	94.4	93.5	92.5	91.9	91.3	-	-	-	-	-
16000	93.8	93.2	92.3	91.5	90.9	90.4	-	-	-	-	-

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 100 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	78.5	79.3	80.2	81.0	81.9	82.7	83.6	84.4	85.2	86.0	85.6	86.3	87.1
0	79.2	80.0	80.9	81.8	82.6	83.5	84.3	85.1	86.0	86.8	86.3	87.1	87.9
1000	80.1	81.0	81.9	82.8	83.6	84.5	85.3	86.2	87.0	87.8	87.4	88.2	89.0
2000	81.1	82.0	82.9	83.8	84.6	85.5	86.4	87.2	88.1	88.9	88.7	89.3	90.1
3000	82.1	83.0	83.9	84.8	85.7	86.6	87.5	88.3	89.2	90.0	89.6	90.4	91.2
4000	83.2	84.1	85.0	85.9	86.8	87.7	88.6	89.5	90.3	91.2	90.8	91.6	92.4
5000	84.2	85.2	86.1	87.0	87.9	88.8	89.7	90.6	91.5	92.3	92.0	92.8	92.8
6000	84.8	85.8	86.7	87.6	88.5	89.4	90.3	91.2	92.1	93.0	92.6	92.9	92.1
7000	85.4	86.4	87.3	88.2	89.2	90.1	91.0	91.9	92.7	93.6	93.3	93.0	91.9
8000	86.0	87.0	87.9	88.9	89.8	90.7	91.6	92.5	93.4	94.3	93.3	92.3	91.6
9000	86.6	87.6	88.6	89.5	90.4	91.4	92.3	93.2	94.1	95.0	93.4	91.8	91.3
10000	87.3	88.2	89.2	90.1	91.1	92.0	92.9	93.9	94.8	94.9	92.0	91.5	91.0
11000	87.4	88.4	89.3	90.3	91.2	92.1	93.1	94.0	94.8	94.8	91.8	91.3	90.8
12000	87.5	88.5	89.5	90.4	91.4	92.3	93.2	94.1	93.5	93.3	91.6	91.1	90.6
13000	87.8	88.8	89.8	90.7	91.7	92.6	93.6	94.4	94.5	93.1	91.4	91.0	90.5
14000	88.4	89.3	90.3	91.3	92.2	93.2	93.9	94.1	93.1	92.8	91.3	90.9	90.3
15000	88.8	89.8	90.8	91.8	92.7	93.3	93.4	93.0	92.9	92.7	91.2	90.9	90.1
16000	88.9	89.9	90.8	91.8	92.8	93.5	93.6	92.8	92.5	92.1	90.4	89.8	88.7

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 150 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure Altitude (ft)	Static Air Temperature - °C												
	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	78.3	79.2	80.0	80.9	81.7	82.6	83.4	84.2	85.0	85.8	85.4	86.2	86.9
0	79.0	79.9	80.7	81.6	82.5	83.3	84.1	85.0	85.8	86.6	86.2	86.9	87.7
1000	80.0	80.9	81.8	82.6	83.5	84.3	85.2	86.0	86.9	87.7	87.2	88.0	88.8
2000	81.0	81.9	82.8	83.7	84.5	85.4	86.3	87.1	87.9	88.8	88.4	89.2	90.0
3000	82.0	82.9	83.8	84.7	85.6	86.5	87.3	88.2	89.0	89.9	89.7	90.3	91.1
4000	83.0	83.9	84.8	85.7	86.6	87.5	88.4	89.3	90.1	91.0	90.6	91.4	92.2
5000	84.0	84.9	85.9	86.8	87.7	88.6	89.5	90.4	91.2	92.1	91.7	92.5	92.8
6000	84.5	85.5	86.4	87.3	88.3	89.2	90.0	90.9	91.8	92.7	92.3	92.9	92.7
7000	85.1	86.0	87.0	87.9	88.8	89.7	90.6	91.5	92.4	93.3	92.9	93.1	91.9
8000	85.7	86.6	87.5	88.5	89.4	90.3	91.2	92.1	93.0	93.9	93.0	92.8	91.6
9000	86.3	87.2	88.2	89.1	90.1	91.0	91.9	92.8	93.7	94.6	93.4	91.8	91.3
10000	86.9	87.9	88.8	89.8	90.7	91.6	92.5	93.5	94.4	93.6	91.9	91.4	91.0
11000	87.0	88.0	88.9	89.9	90.8	91.7	92.7	93.6	94.5	93.4	91.6	91.2	90.8
12000	87.1	88.1	89.0	90.0	90.9	91.9	92.8	93.7	93.2	92.8	91.3	90.9	90.6
13000	87.5	88.4	89.4	90.3	91.3	92.2	93.1	94.1	94.1	92.5	91.0	90.8	90.4
14000	88.1	89.0	90.0	91.0	91.9	92.9	93.8	93.8	92.3	92.2	90.9	90.7	90.2
15000	88.7	89.7	90.6	91.6	92.6	93.4	93.4	92.0	92.0	92.0	90.8	90.7	90.0
16000	88.7	89.6	90.6	91.6	92.5	93.3	93.3	91.8	91.6	91.5	90.1	89.6	88.7

N1 FOR GO-AROUND

BLEED OPEN - ANTI-ICE ON

AIRSPEED: 200 KCAS

ROLLS-ROYCE AE3007A1E ENGINES

Pressure
Altitude
(ft)

Static Air Temperature - °C

	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
-1000	77.9	78.8	79.6	80.5	81.3	82.2	83.0	83.8	84.6	85.4	85.0	85.7	86.5
0	78.6	79.5	80.3	81.2	82.0	82.9	83.7	84.5	85.3	86.1	85.7	86.5	87.2
1000	79.7	80.6	81.5	82.3	83.2	84.0	84.9	85.7	86.6	87.4	86.9	87.7	88.5
2000	80.8	81.7	82.6	83.5	84.4	85.2	86.1	86.9	87.8	88.6	88.2	89.0	89.8
3000	81.9	82.8	83.7	84.6	85.5	86.4	87.2	88.1	88.9	89.8	89.7	90.2	91.0
4000	82.9	83.8	84.7	85.6	86.5	87.4	88.2	89.1	90.0	90.8	90.7	91.2	92.1
5000	83.8	84.8	85.7	86.6	87.5	88.4	89.3	90.2	91.0	91.9	91.5	92.3	92.7
6000	84.3	85.2	86.2	87.1	88.0	88.9	89.8	90.7	91.6	92.4	92.0	92.9	92.8
7000	84.8	85.7	86.7	87.6	88.5	89.4	90.3	91.2	92.1	92.9	92.6	92.9	92.0
8000	85.3	86.3	87.2	88.1	89.1	90.0	90.9	91.8	92.6	93.5	93.1	92.9	91.7
9000	85.9	86.8	87.8	88.7	89.6	90.6	91.5	92.4	93.3	94.1	93.4	91.9	91.3
10000	86.4	87.4	88.3	89.3	90.2	91.1	92.1	93.0	93.9	93.6	91.8	91.4	91.0
11000	86.5	87.4	88.4	89.3	90.3	91.2	92.1	93.0	93.9	93.3	91.4	91.1	90.8
12000	86.5	87.5	88.4	89.4	90.3	91.2	92.1	93.0	93.1	92.6	91.1	90.9	90.6
13000	86.8	87.8	88.7	89.7	90.6	91.5	92.5	93.4	92.7	92.3	90.9	90.7	90.4
14000	87.4	88.4	89.4	90.3	91.3	92.2	93.1	92.4	92.0	92.0	90.7	90.7	90.2
15000	88.1	89.0	90.0	91.0	91.9	92.9	93.5	93.4	91.7	91.8	90.6	90.7	89.9
16000	87.9	88.9	89.9	90.8	91.8	92.7	91.9	91.4	91.4	91.3	90.0	89.6	88.7

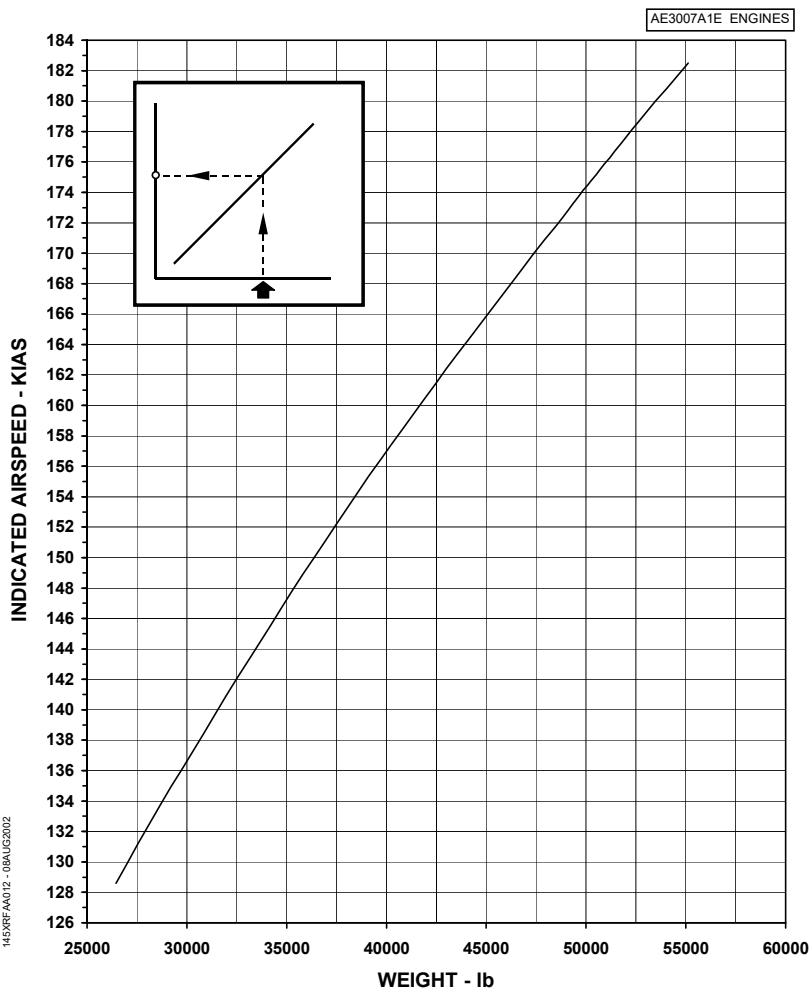


FINAL SEGMENT SPEED - V_{FS} CHART

USE

Refer to the basic AFM.

FINAL SEGMENT SPEED





INTENTIONALLY BLANK

ENROUTE

INTRODUCTION

Enroute climb data is provided for assessing compliance with the operating regulations relating to enroute flight.

ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE

The one engine inoperative enroute net climb gradient is shown for various pressure altitudes, static air temperatures, and weights.

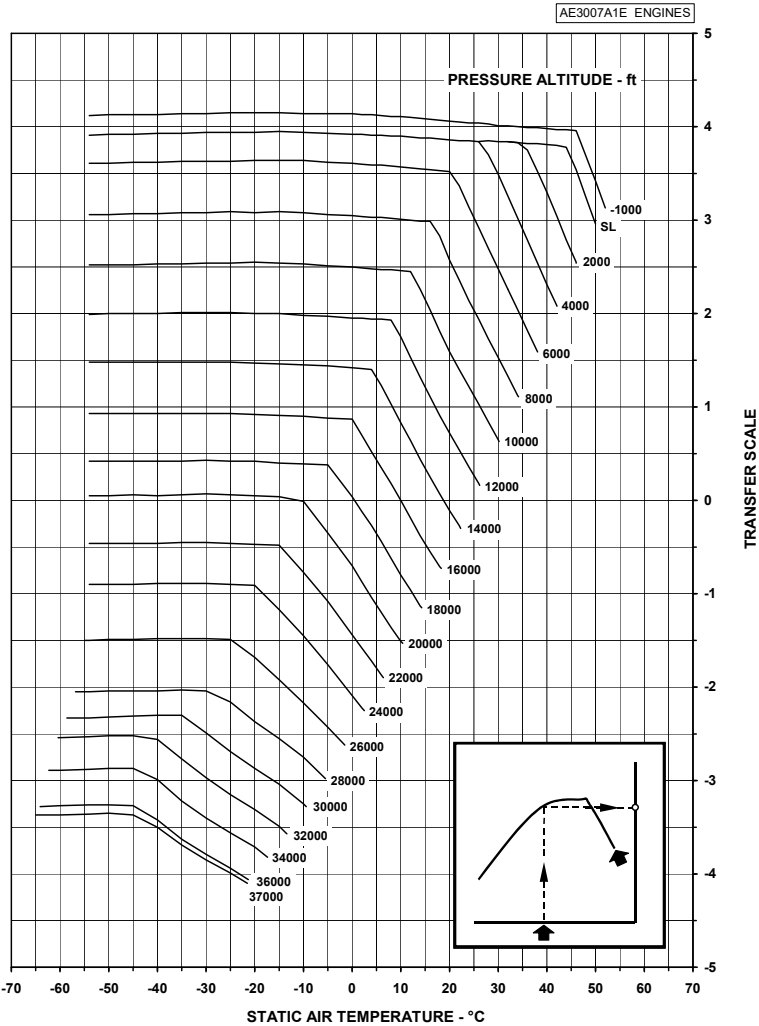
Associated conditions:

Flaps	UP
Landing gear.....	UP
Operating engine	MAXIMUM CONTINUOUS POWER

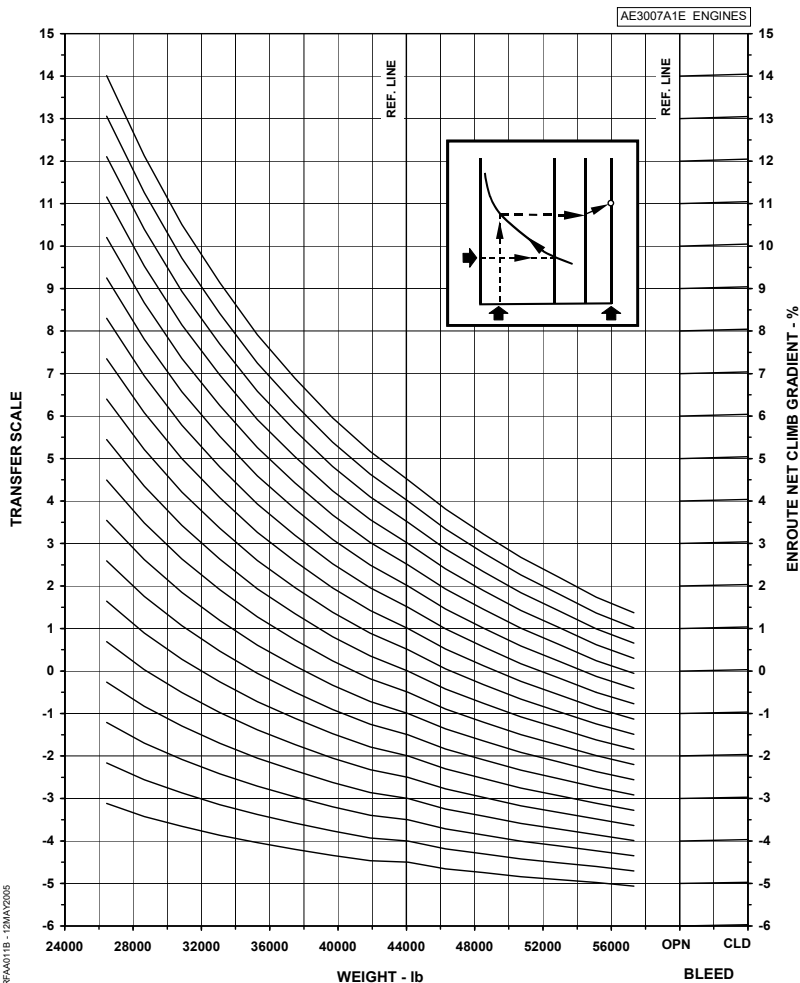
USE

Refer to the basic AFM.

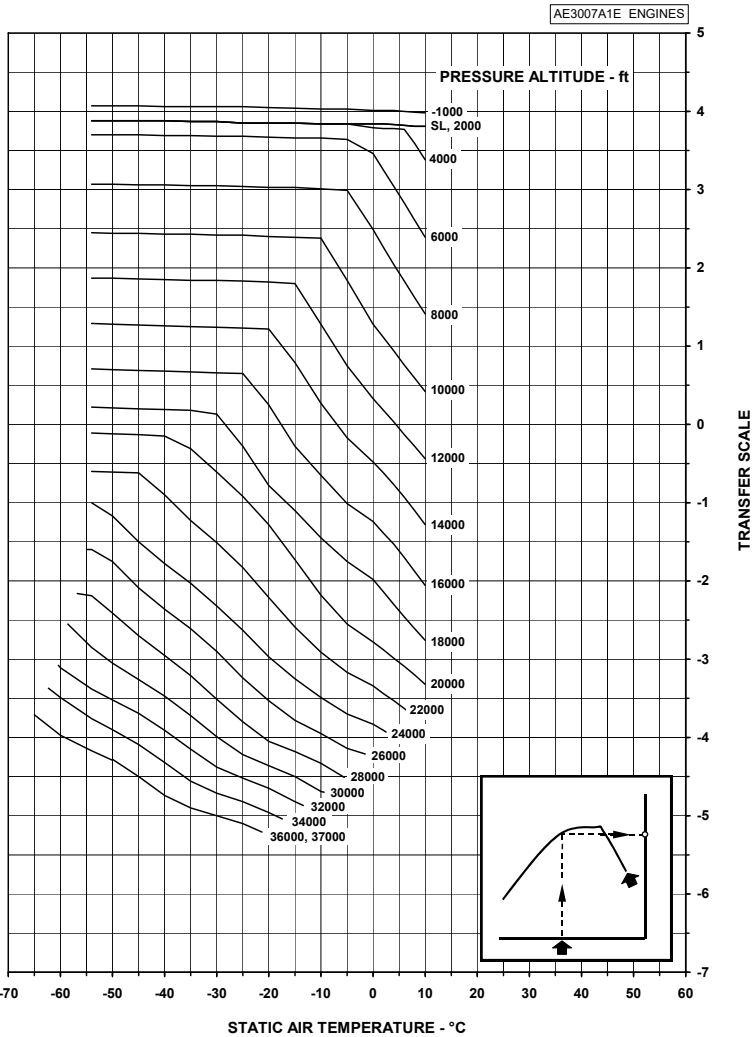
ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE OFF
CHART 1 OF 2



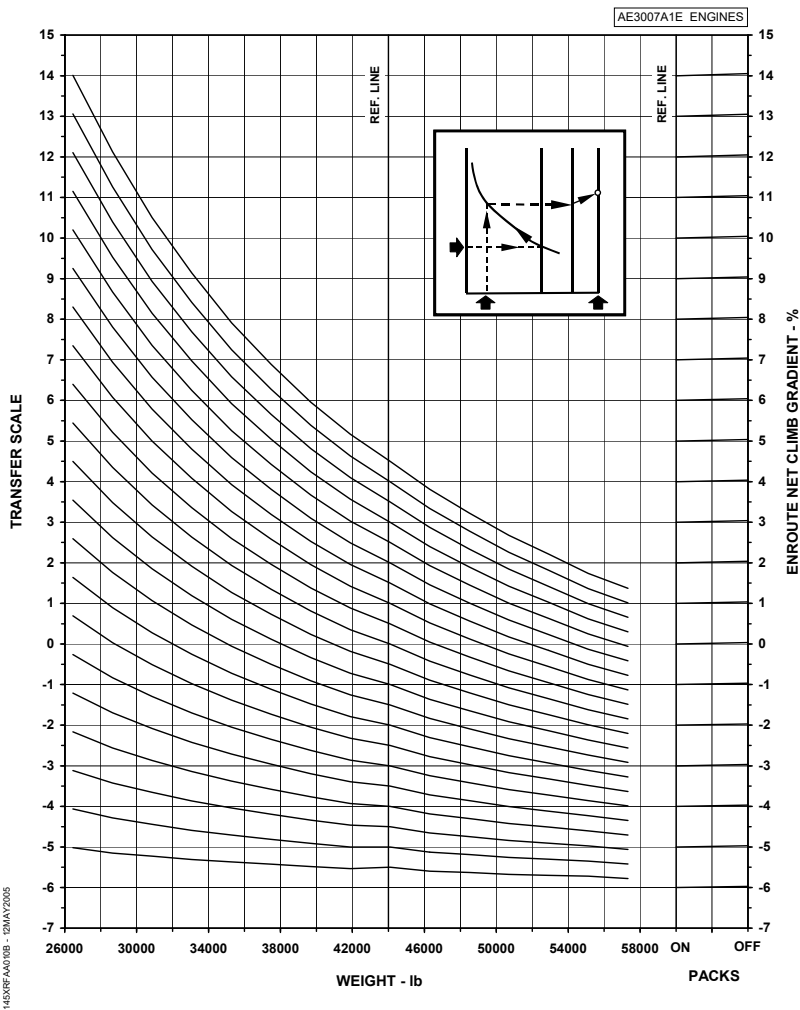
ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE OFF
CHART 2 OF 2



ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE ON
CHART 1 OF 2



ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE ON
CHART 2 OF 2



ENROUTE CLIMB SPEED

The one engine inoperative Enroute Climb Speed is shown for various weights.

Associated conditions:

- Flaps UP
- Landing gear UP
- Operating engine MAXIMUM
CONTINUOUS
POWER

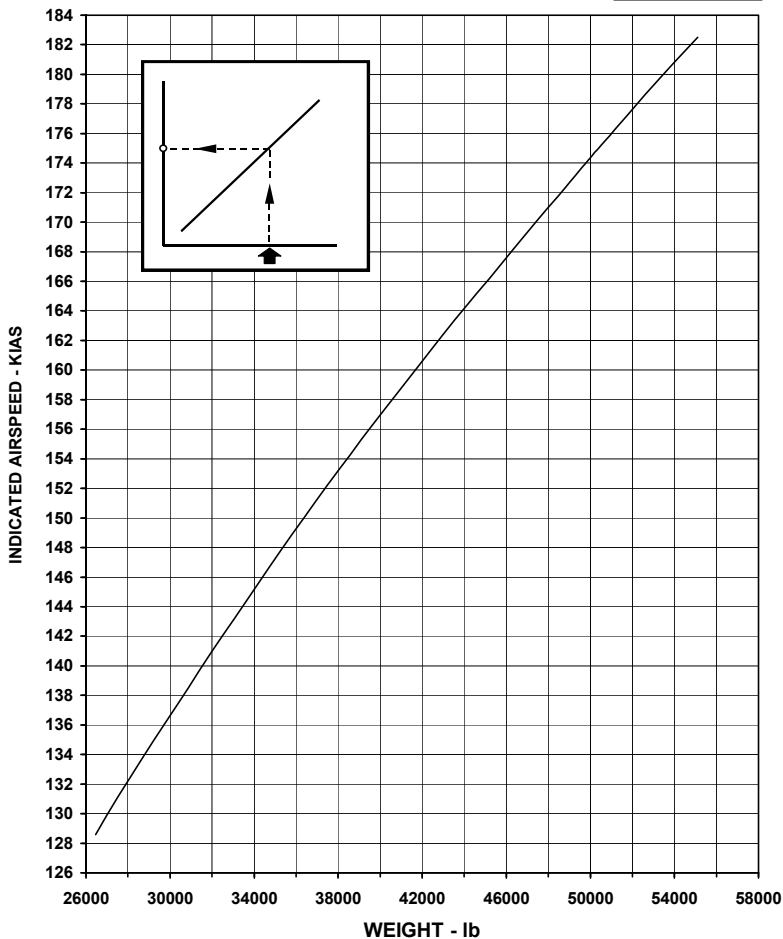
USE

Refer to the basic AFM.

User: fherna0f - Printed By myTechCare - Nov 21/24 - 00:29:37

ENROUTE CLIMB SPEED

AE3007A1E ENGINES



145XRFAA013 - 08AUG2002

ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

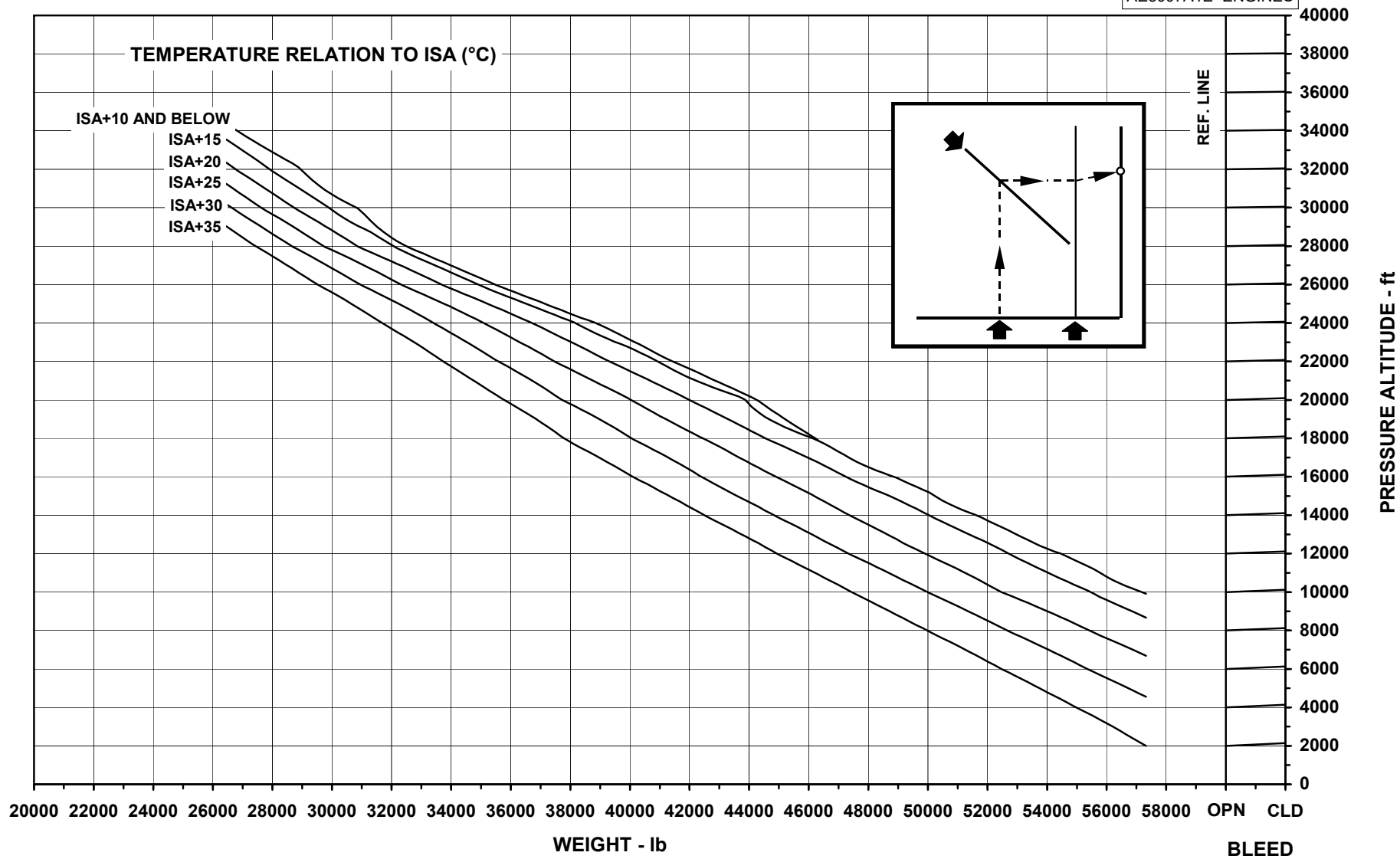
The one-engine climb weights for positive net gradient are shown for various pressure altitude and temperature relation to ISA.

USE

Refer to the basic AFM.

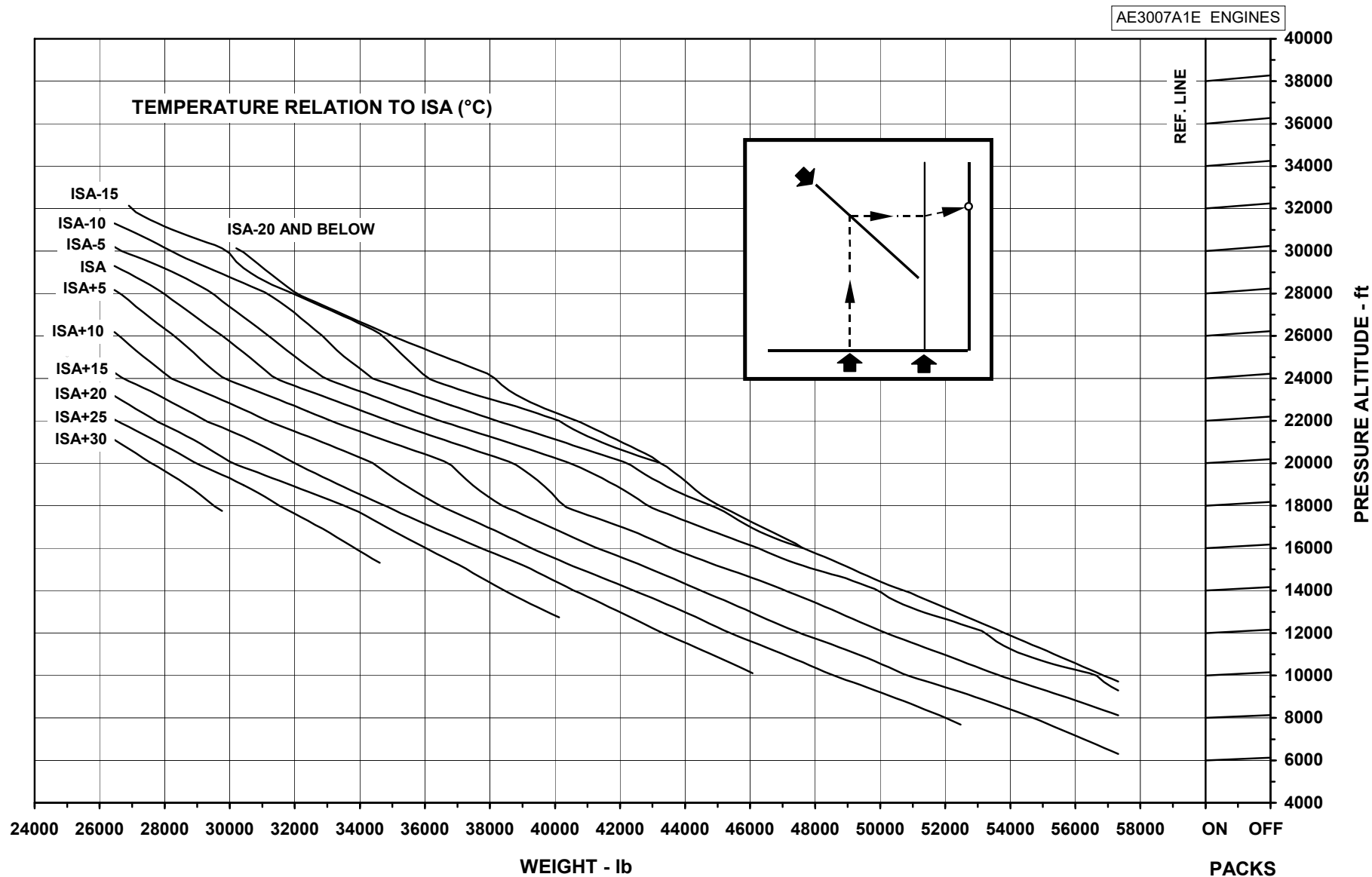
ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT **FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF**

AE3007A1E ENGINES



ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE ON



145XRFAA015 - 12MAY2005

APPROACH AND LANDING

INTRODUCTION

Information given herein is provided so that the level of safety implicit in the scheduled landing performance can regularly be achieved.

PROCEDURES

For final approach, wing flaps should be in landing position and the speed set according to the flap configuration given here. At 50 ft, the thrust levers are reduced smoothly. When the airplane is firmly on the ground with the nosewheel in contact brakes are applied.

Refer to basic AFM Section 4 - Normal Procedures for further information on landing technique and Section 3 - Emergency and Abnormal Procedures when landing with one engine inoperative and related Supplements, as applicable.

APPROACH AND LANDING CLIMB GRADIENTS

The approach and landing climb gradients attained during a go-around are shown for various Static Air Temperatures, airport pressure altitudes, and airplane gross weights.

APPROACH CLIMB GRADIENT

Two charts for Approach Climb Gradients are provided according to the following associated conditions:

Airspeed.....	APPROACH CLIMB SPEED
Anti Ice.....	ON OR OFF
Flaps	9°
Landing gear.....	UP
Operating engine	MAXIMUM TAKEOFF POWER

LANDING CLIMB GRADIENT

Two charts for Landing Climb Gradients are provided, according to the following associated conditions:

Airspeed	V _{REF} XX
Anti Ice	ON OR OFF
Flaps	45°
Landing gear	DOWN
Engines	MAXIMUM TAKEOFF POWER

APPROACH CLIMB GRADIENT CHARTS AND LANDING CLIMB GRADIENT CHARTS

USE

Refer to the basic AFM.

APPROACH CLIMB GRADIENT CHARTS AND LANDING CLIMB GRADIENT CHARTS

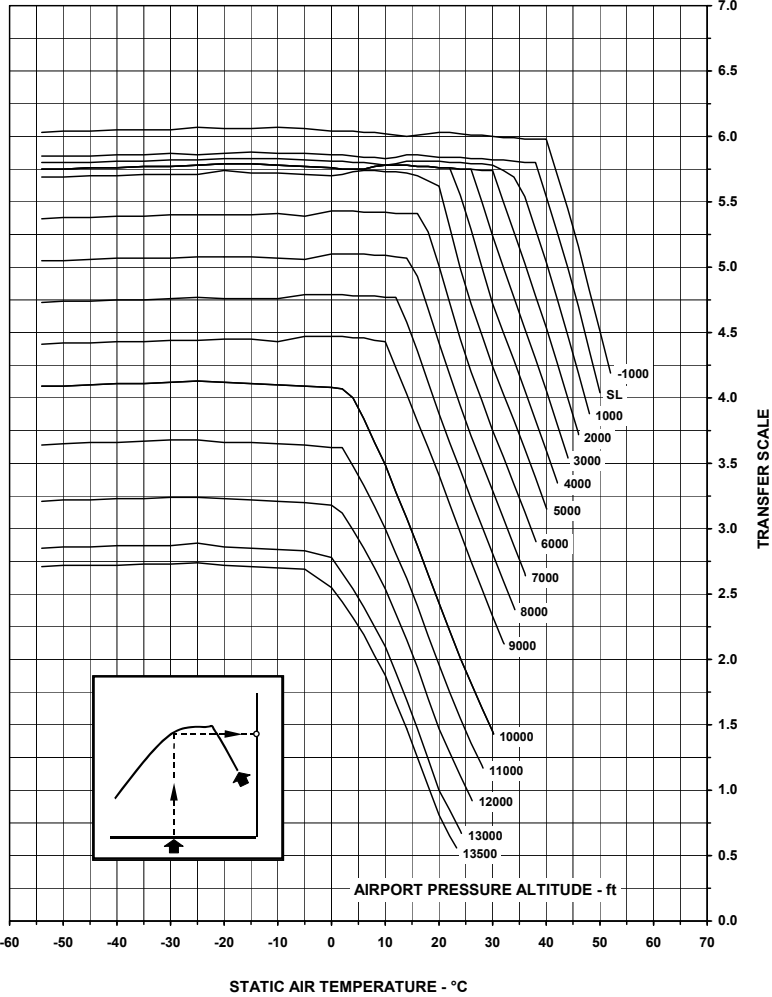
USE

Refer to the basic AFM.

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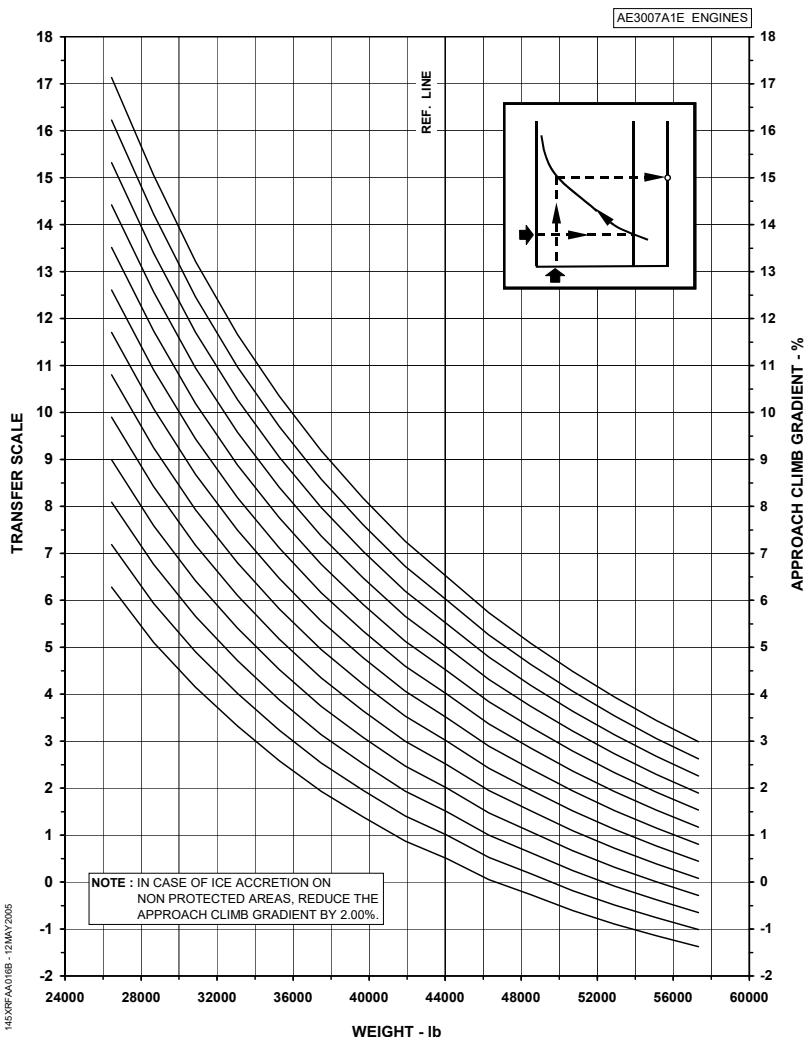
APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 1 OF 2

AE3007A1E ENGINES



1430RFA016A - 12 MAY 2005

APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 2 OF 2



145XRF-FA010B - 12 MAY 2005

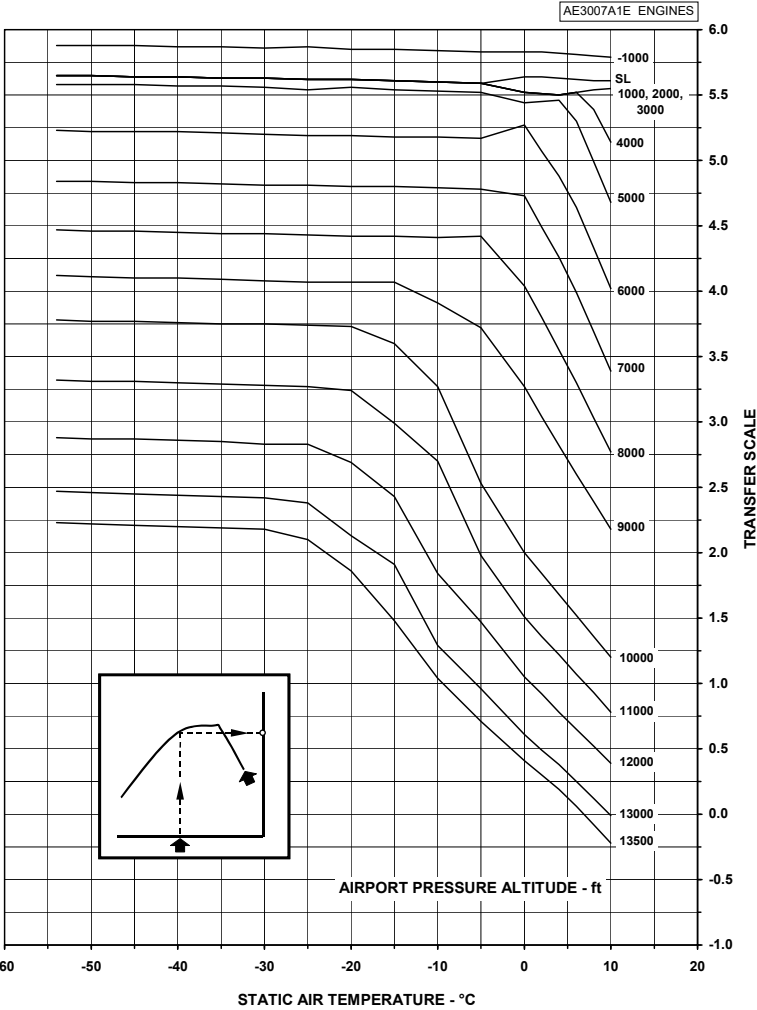
AFM-145/1153 - FAA

ANAC APPROVED
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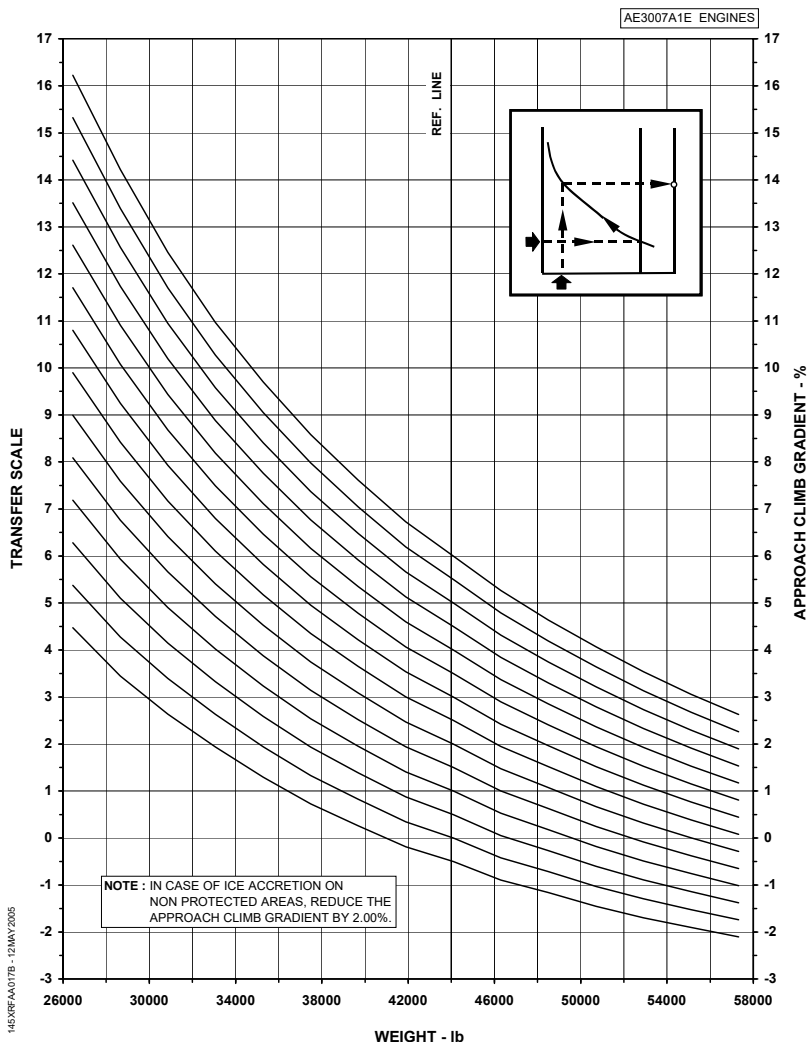
S22-41

APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 1 OF 2

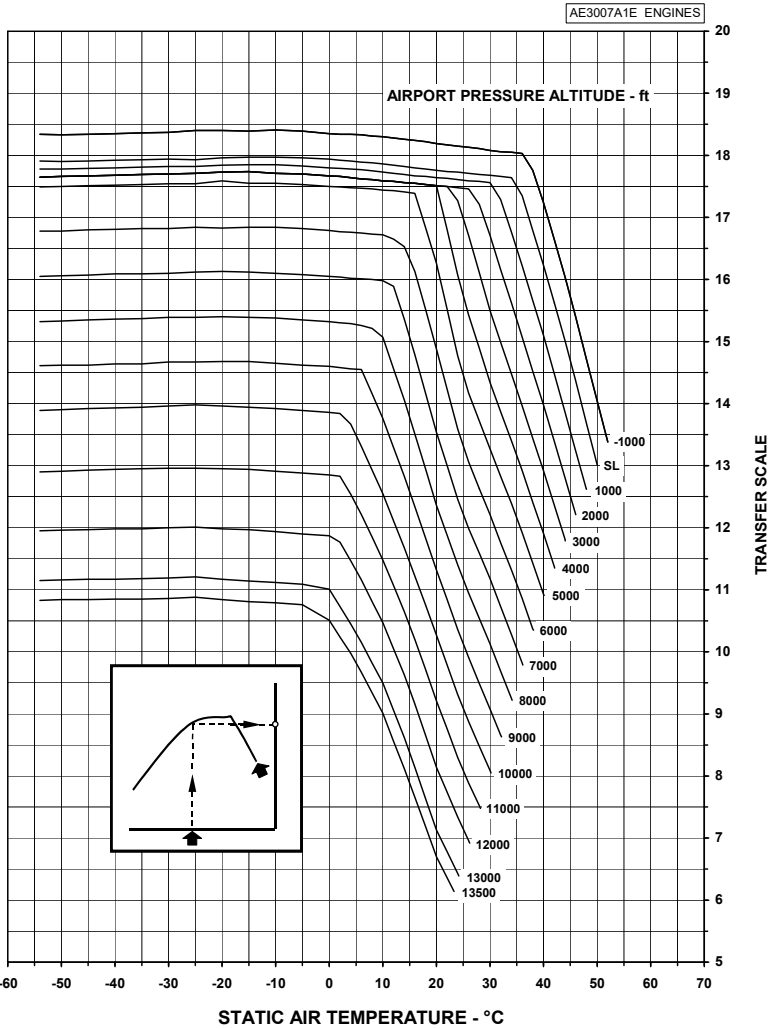


1450BFA017A - 12MA Y2005

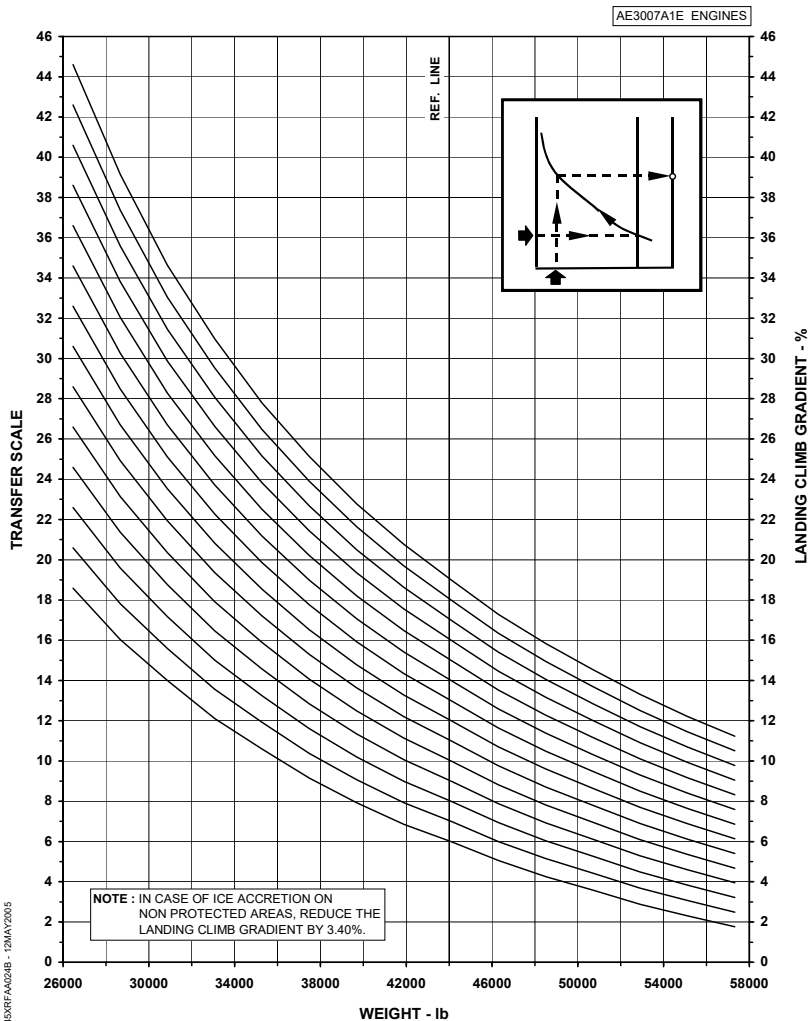
APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 2 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - LANDING FLAPS 22° - ANTI-ICE OFF
CHART 1 OF 2

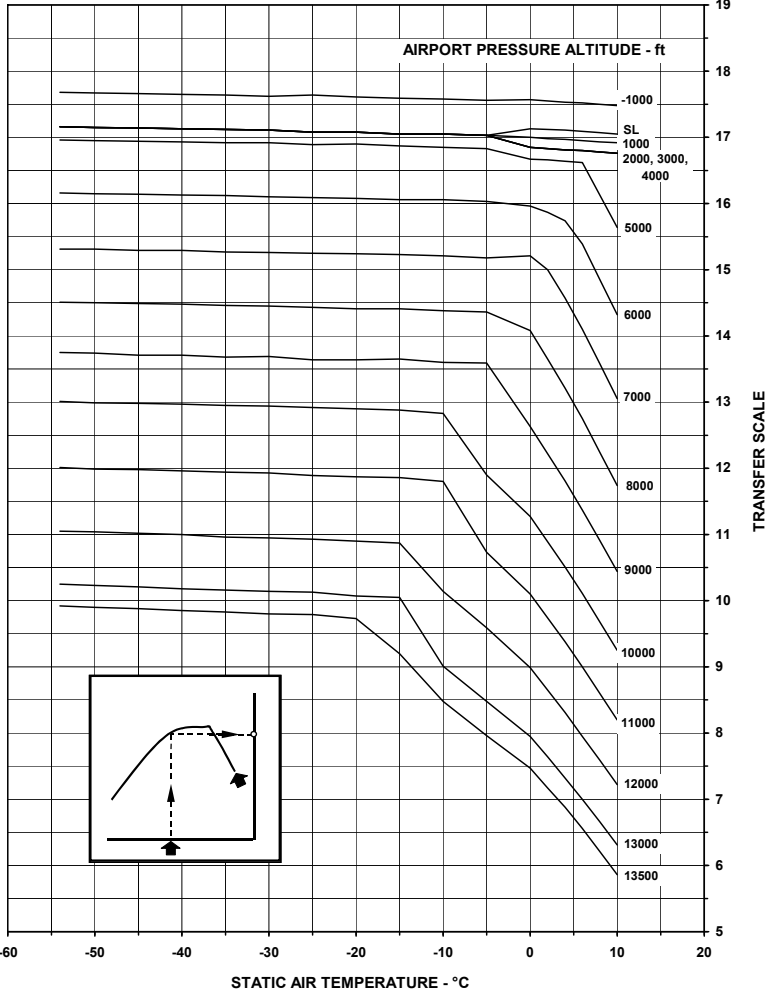


LANDING CLIMB GRADIENT
ALL ENGINES - LANDING FLAPS 22° - ANTI-ICE OFF
CHART 2 OF 2



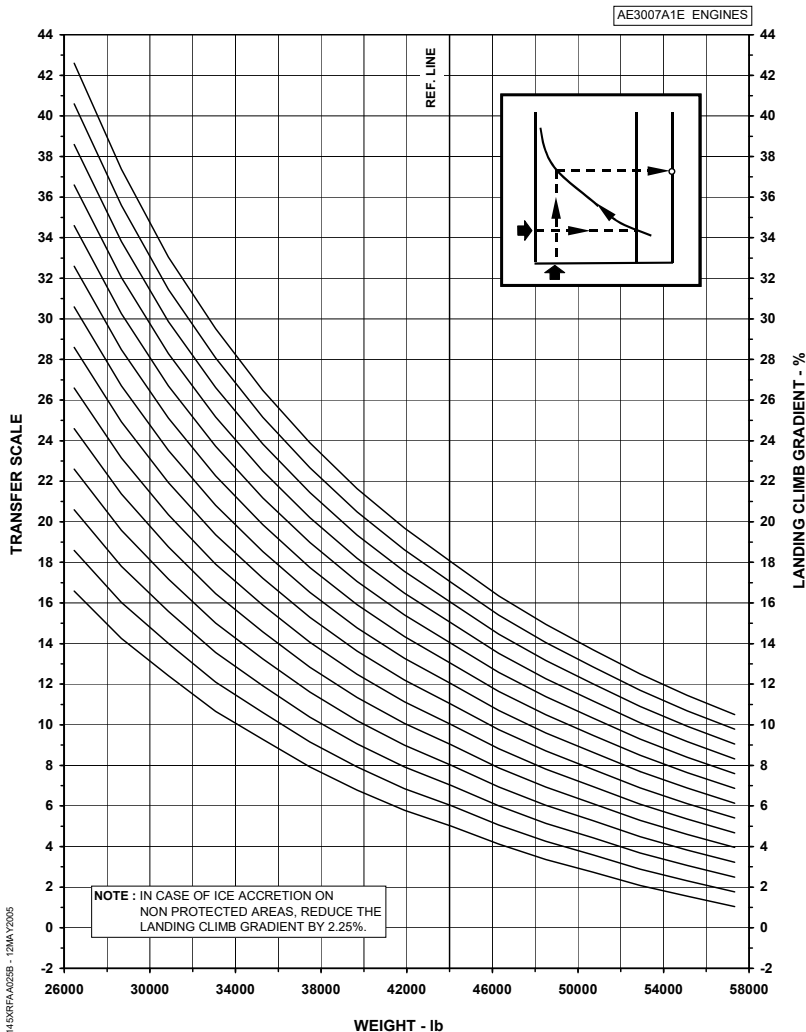
LANDING CLIMB GRADIENT
ALL ENGINES - LANDING FLAPS 22° - ANTI-ICE ON
CHART 1 OF 2

AE3007A1E ENGINES

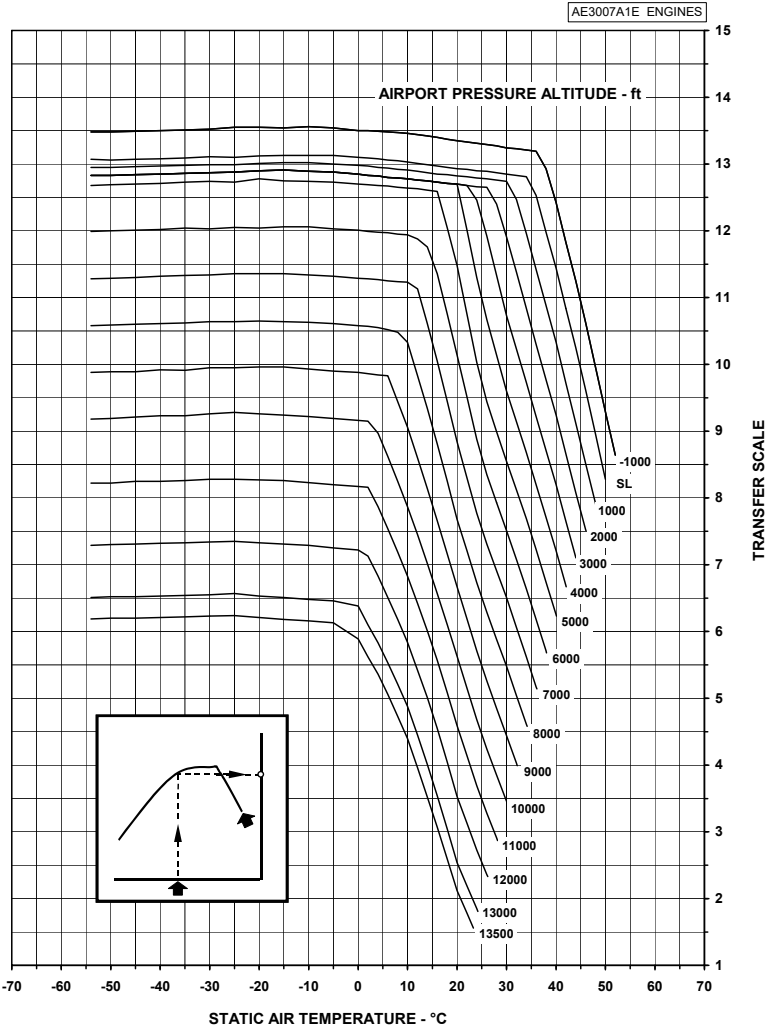


1450REF-FA025A - 12MAY2005

LANDING CLIMB GRADIENT
ALL ENGINES - LANDING FLAPS 22° - ANTI-ICE ON
CHART 2 OF 2



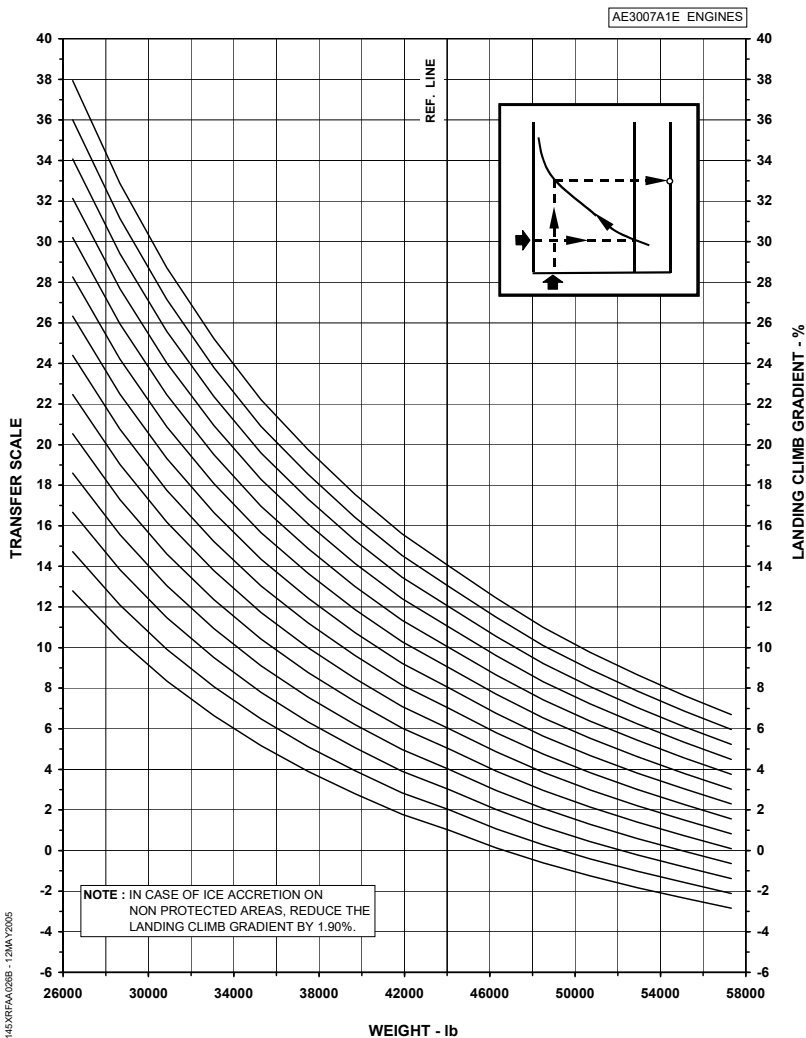
LANDING CLIMB GRADIENT
ALL ENGINES - LANDING FLAPS 45° - ANTI-ICE OFF
CHART 1 OF 2



User: fherna0f - Printed By myTechCare - Nov 21/24 - 00:29:37

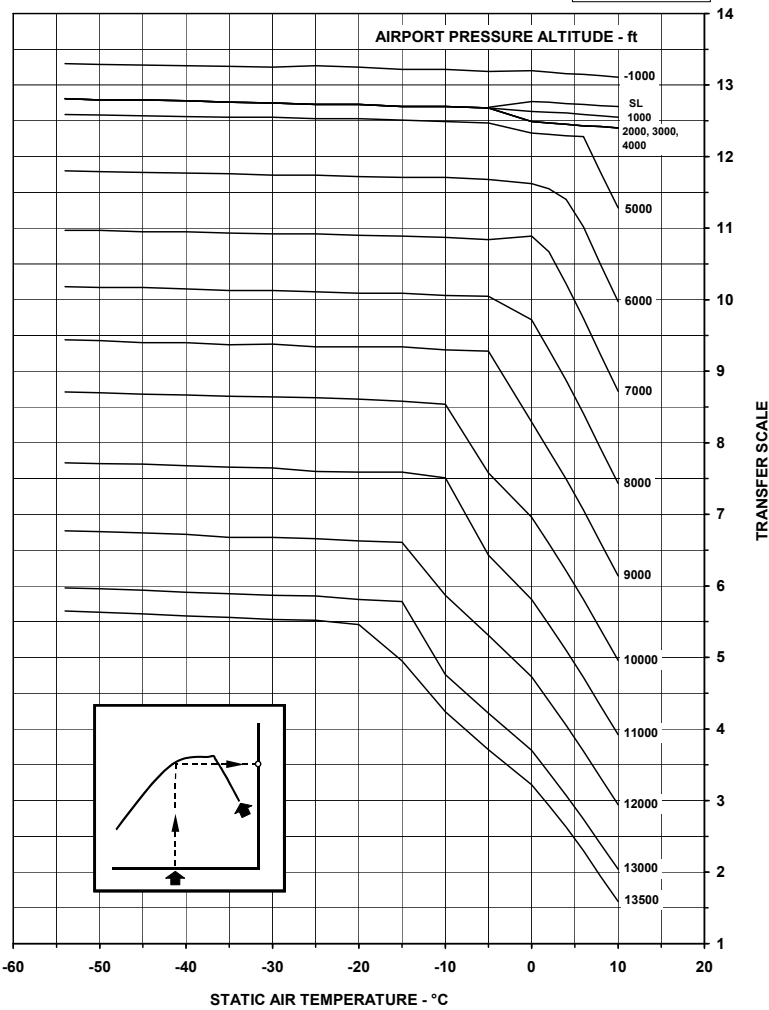
1450RFA025A - 12MAY2005

LANDING CLIMB GRADIENT
ALL ENGINES - LANDING FLAPS 45° - ANTI-ICE OFF
CHART 2 OF 2

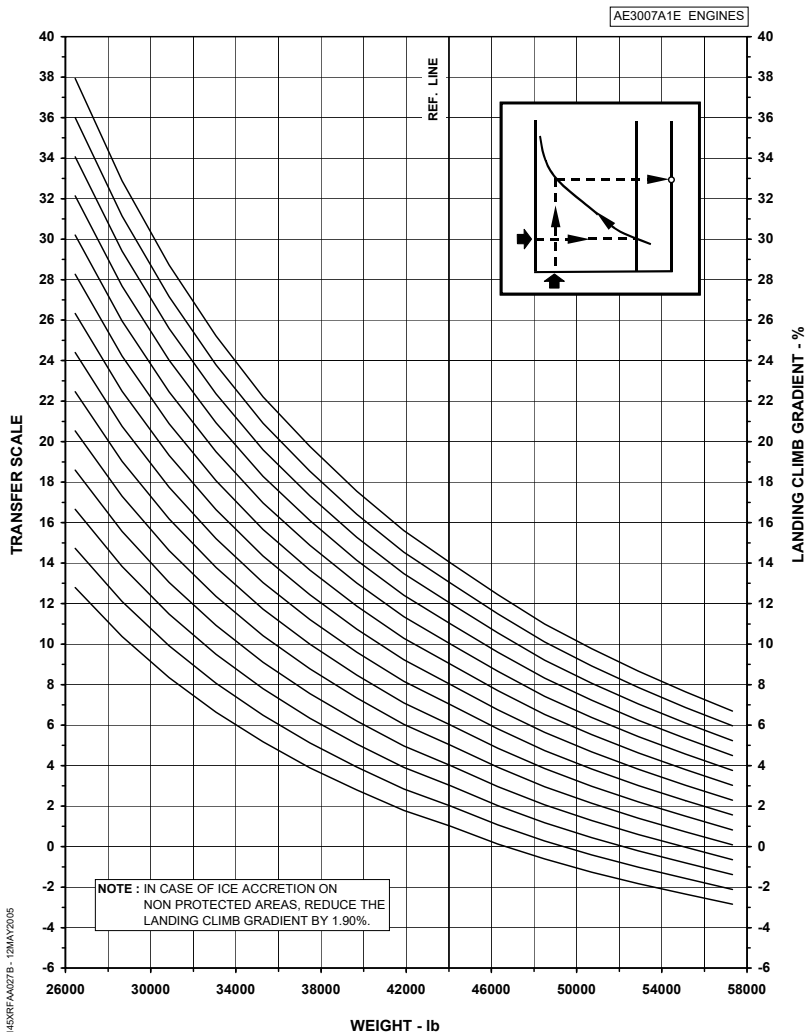


LANDING CLIMB GRADIENT
ALL ENGINES - LANDING FLAPS 45° - ANTI-ICE ON
CHART 1 OF 2

AE3007A1E ENGINES



LANDING CLIMB GRADIENT
ALL ENGINES - LANDING FLAPS 45° - ANTI-ICE ON
CHART 2 OF 2



APPROACH AND LANDING CLIMB

The maximum landing weight for altitude and temperature, in compliance with the airworthiness climb requirements, is shown in the Maximum Landing Weight - Approach Climb Limited charts and Maximum Landing Weight - Landing Climb Limited charts.

For Maximum Landing Weight - Approach Climb Limited, two charts are presented using flaps 9° as approach flaps configuration: one for anti-ice system on, one for anti-ice system off.

For Maximum Landing Weight - Landing Climb Limited, four charts are presented:

- two charts using flaps 45° as landing flaps configuration: one for anti-ice system on, one for anti-ice system off.
- two charts using flaps 22° as landing flaps configuration: one for anti-ice system on, one for anti-ice system off.

The airspeeds related to the approach and landing climbs are also presented.

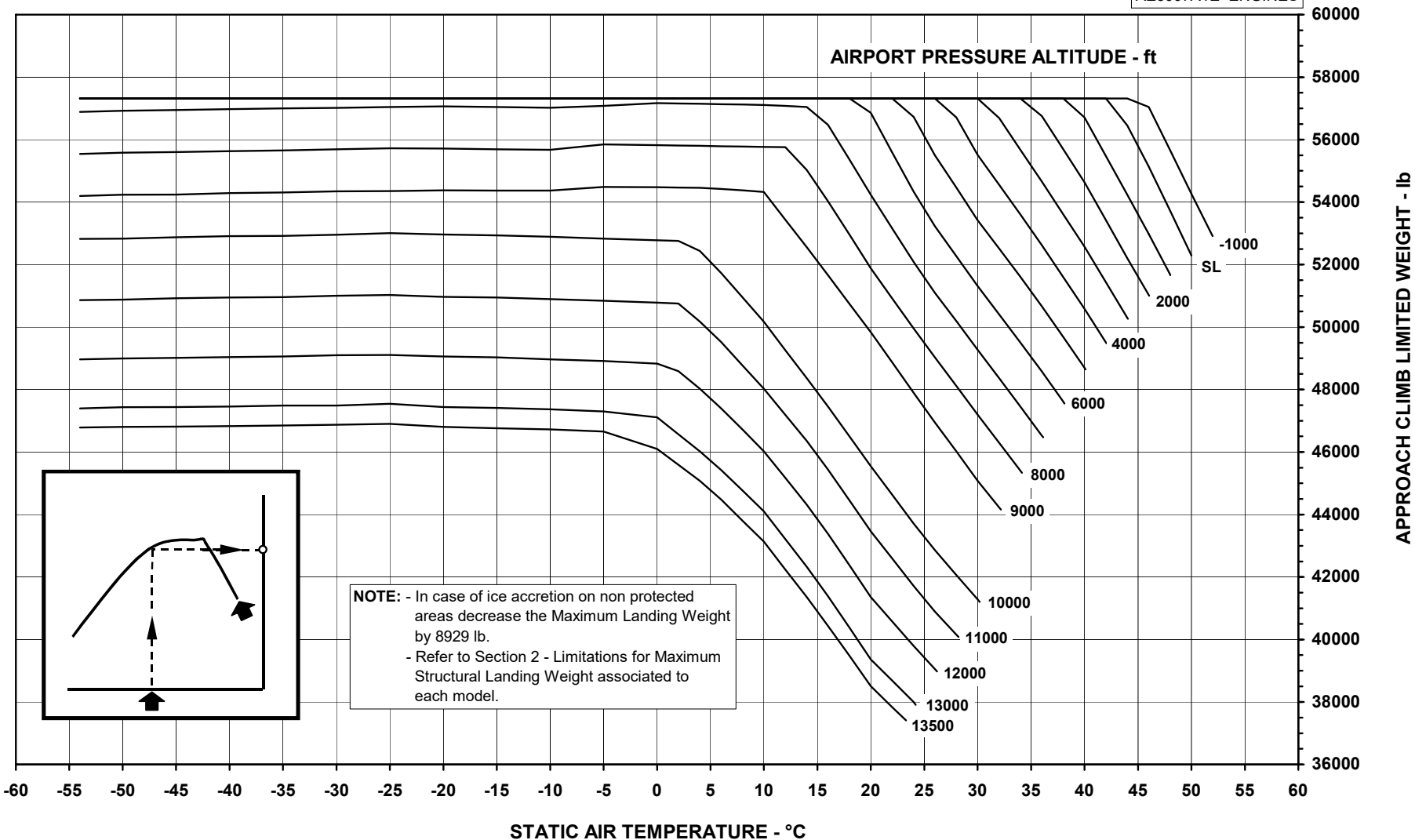
MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED CHARTS AND LANDING CLIMB LIMITED CHARTS

USE

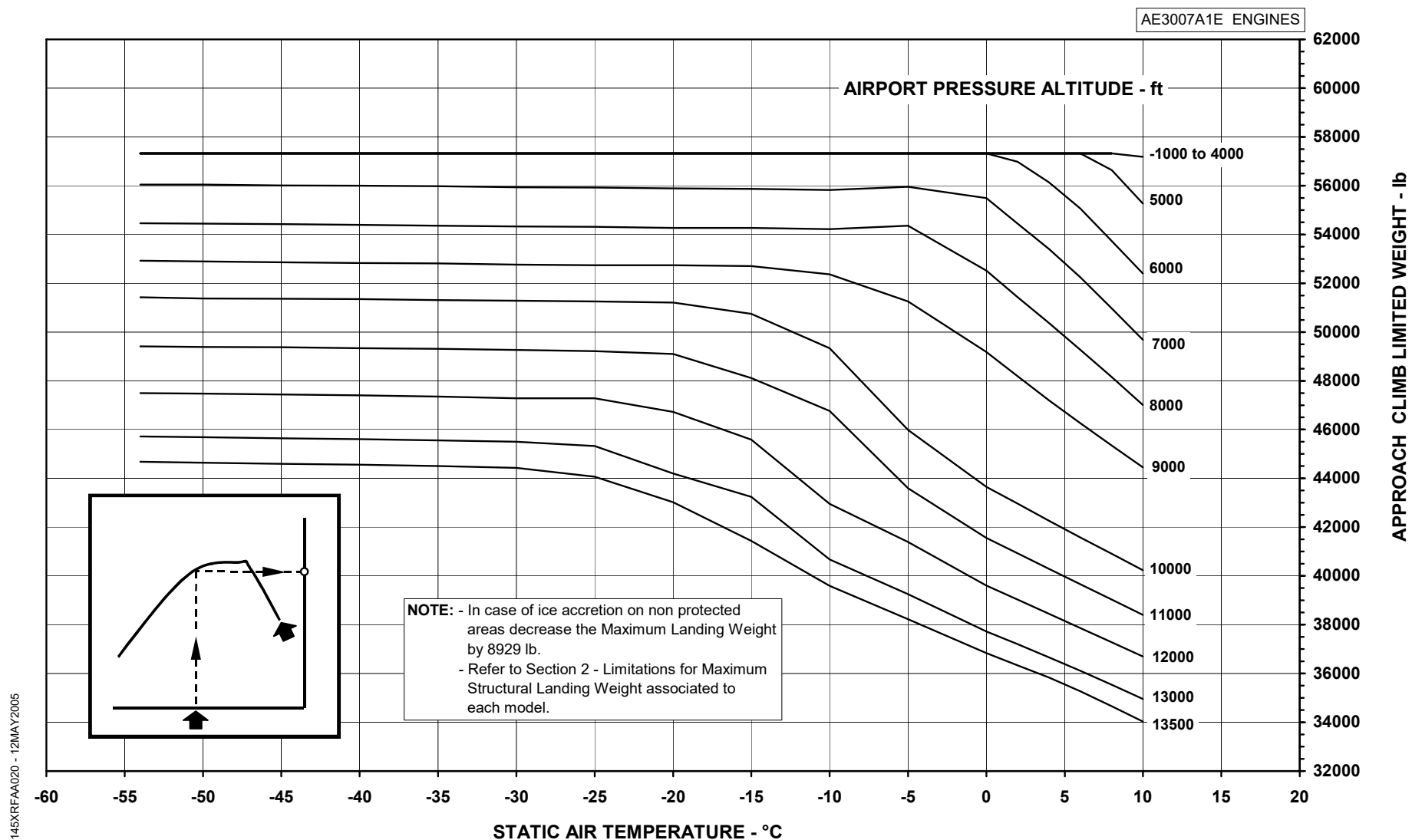
Refer to the basic AFM.

MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED **APPROACH FLAPS 9° - ANTI-ICE OFF**

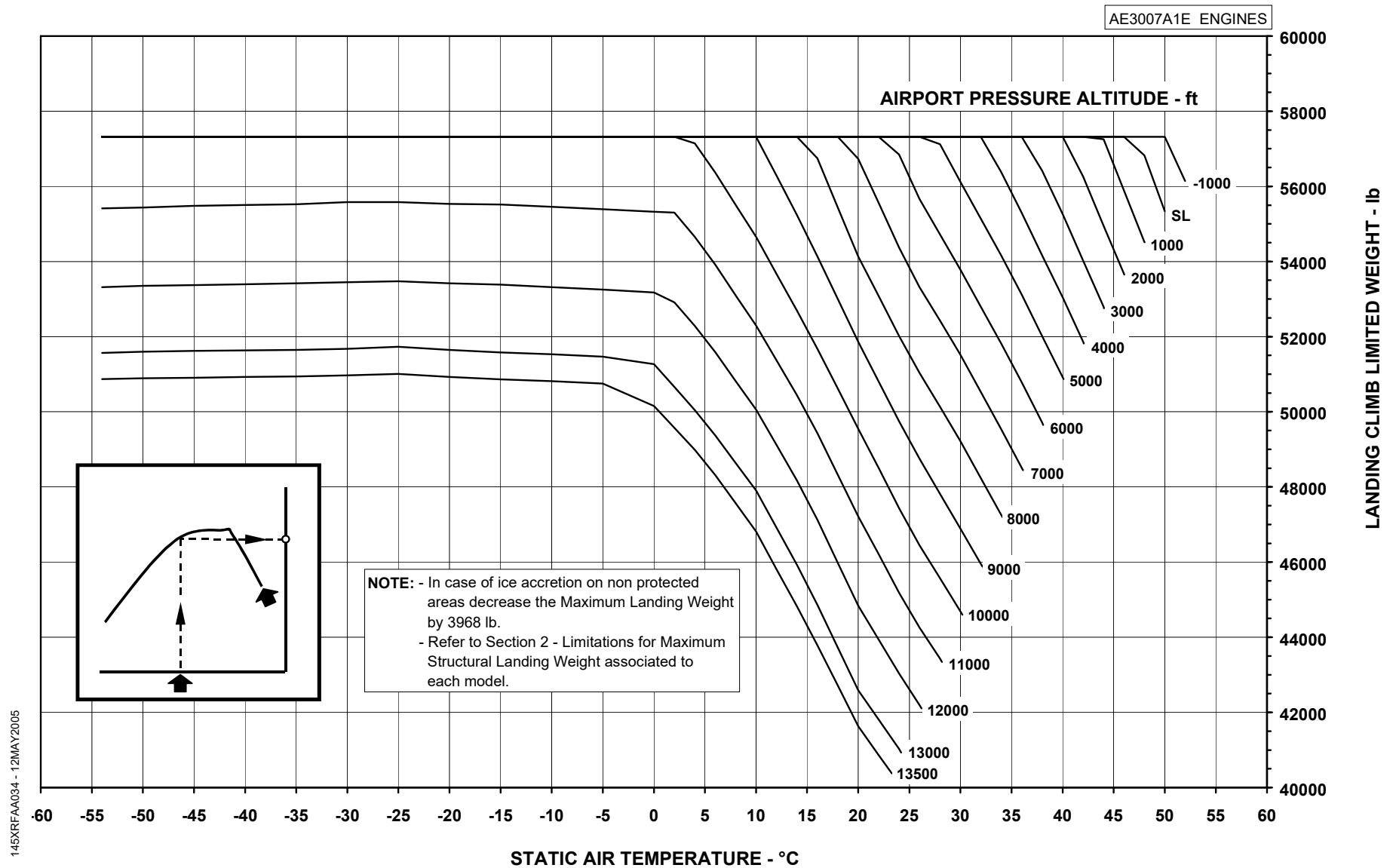
AE3007A1E ENGINES



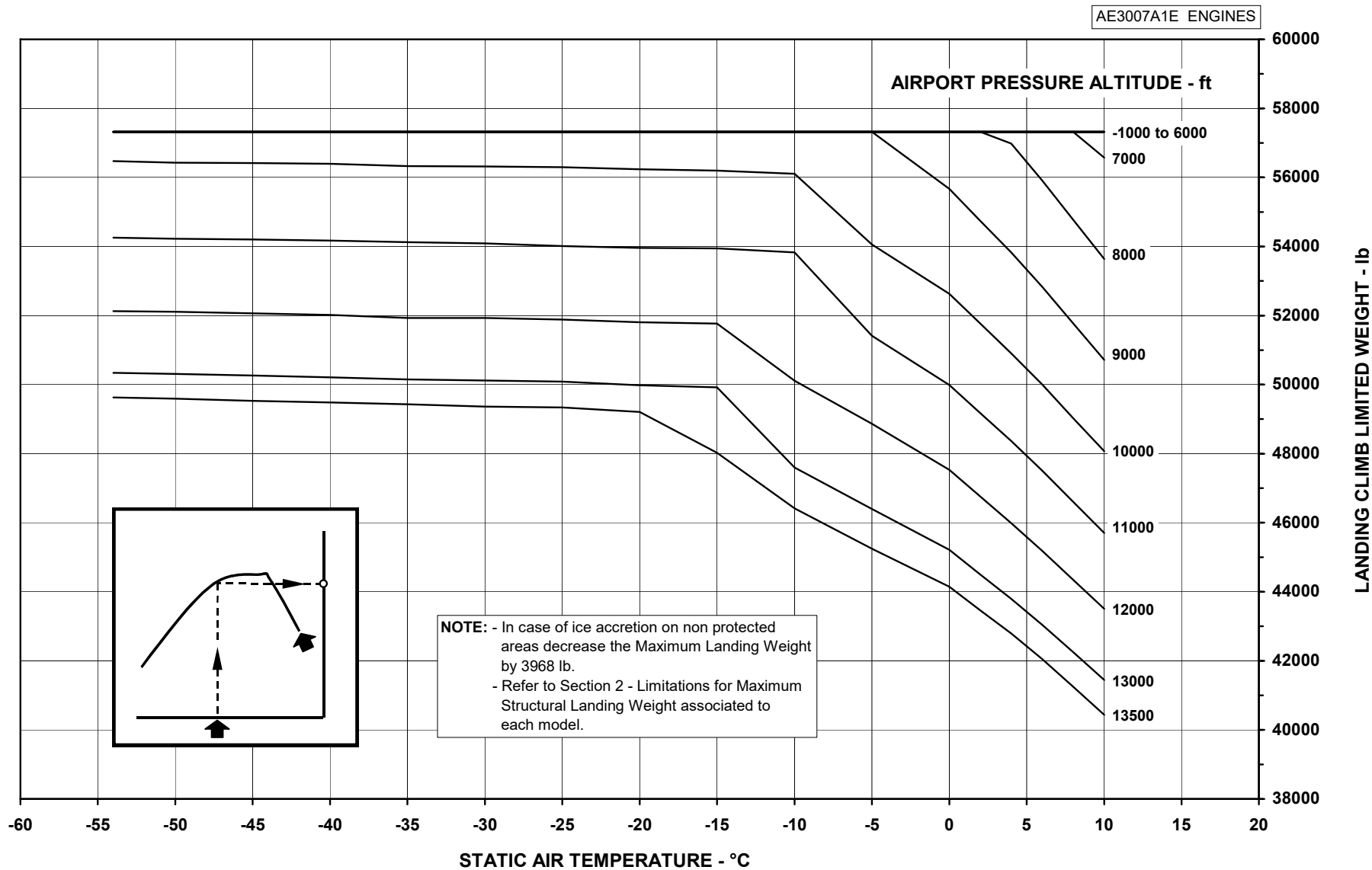
MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED APPROACH FLAPS 9° - ANTI-ICE ON



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE OFF**

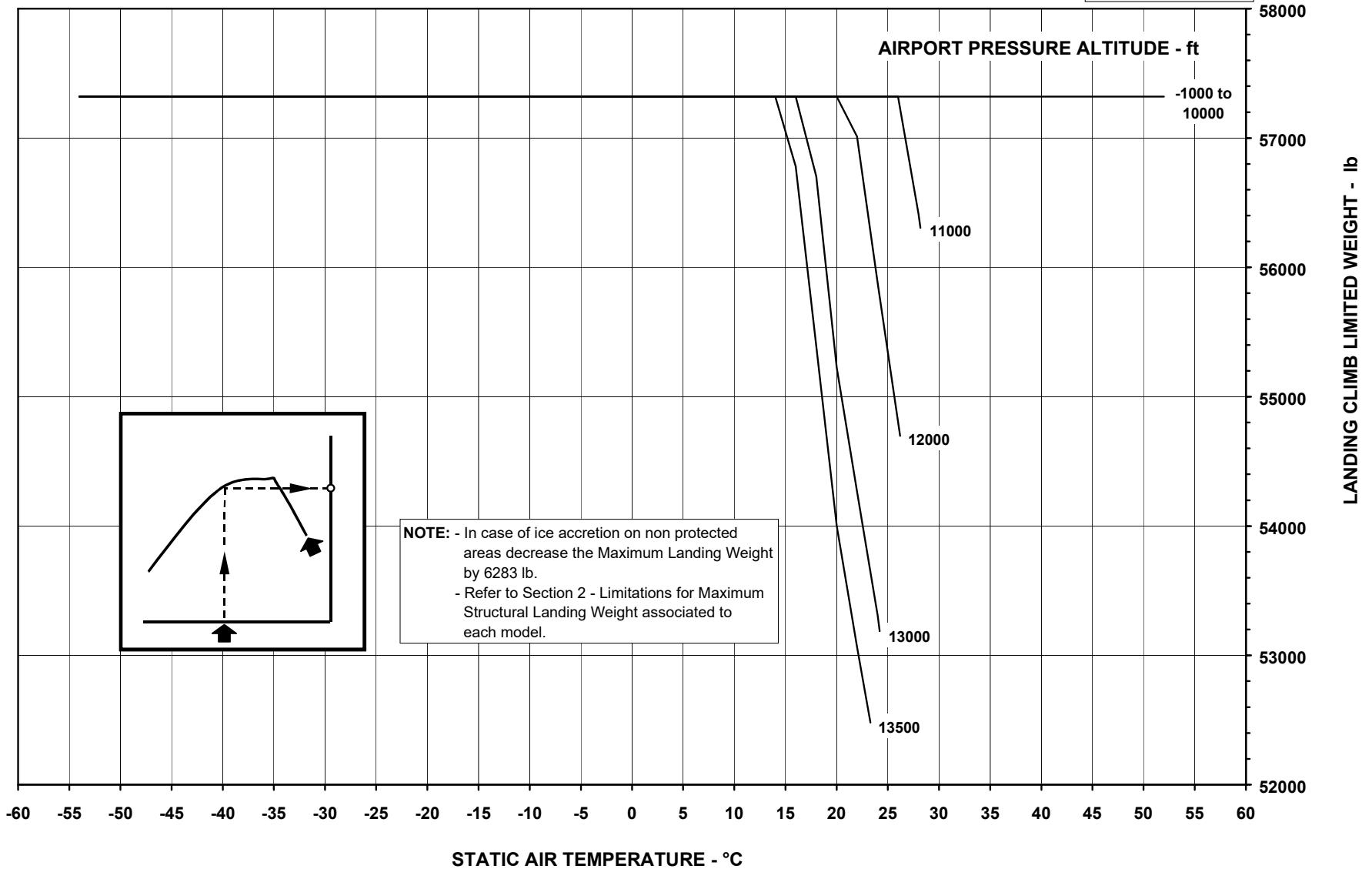


MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED LANDING FLAPS 45° - ANTI-ICE ON



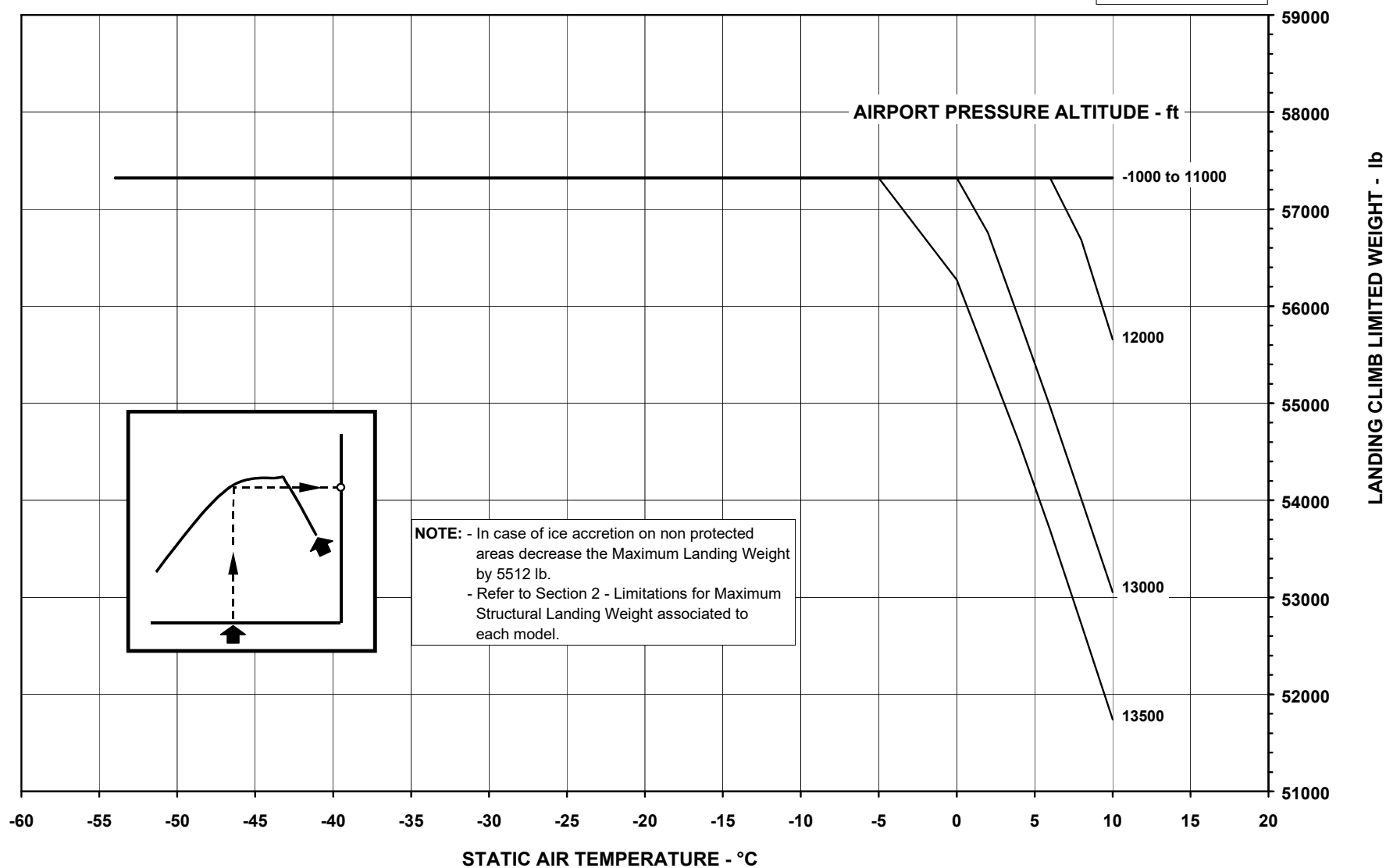
MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 22° - ANTI-ICE OFF**

AE3007A1E ENGINES



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 22° - ANTI-ICE ON**

AE3007A1E ENGINES



145XRFAA070 - 12MAY2005

AFM-145/1153 - FAA

APPROACH CLIMB SPEED CHART AND LANDING CLIMB AND REFERENCE SPEEDS CHART

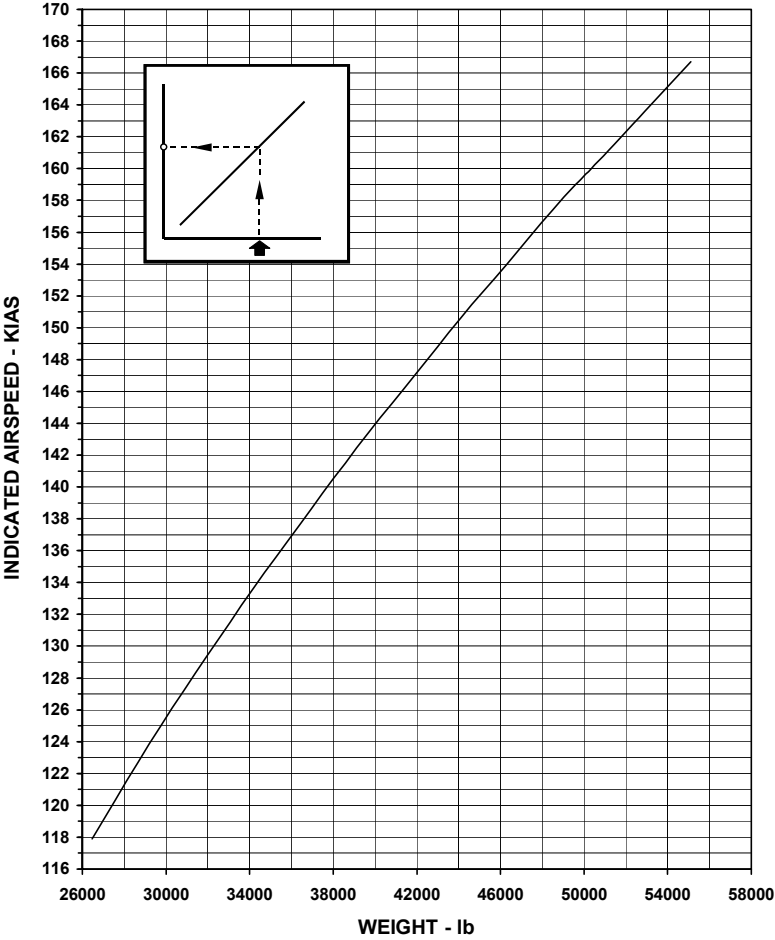
USE

Refer to the basic AFM.

User: fherna0f - Printed By myTechCare - Nov 21/24 - 00:29:37

APPROACH CLIMB SPEED
FLAP 9°

AE3007A1E ENGINES

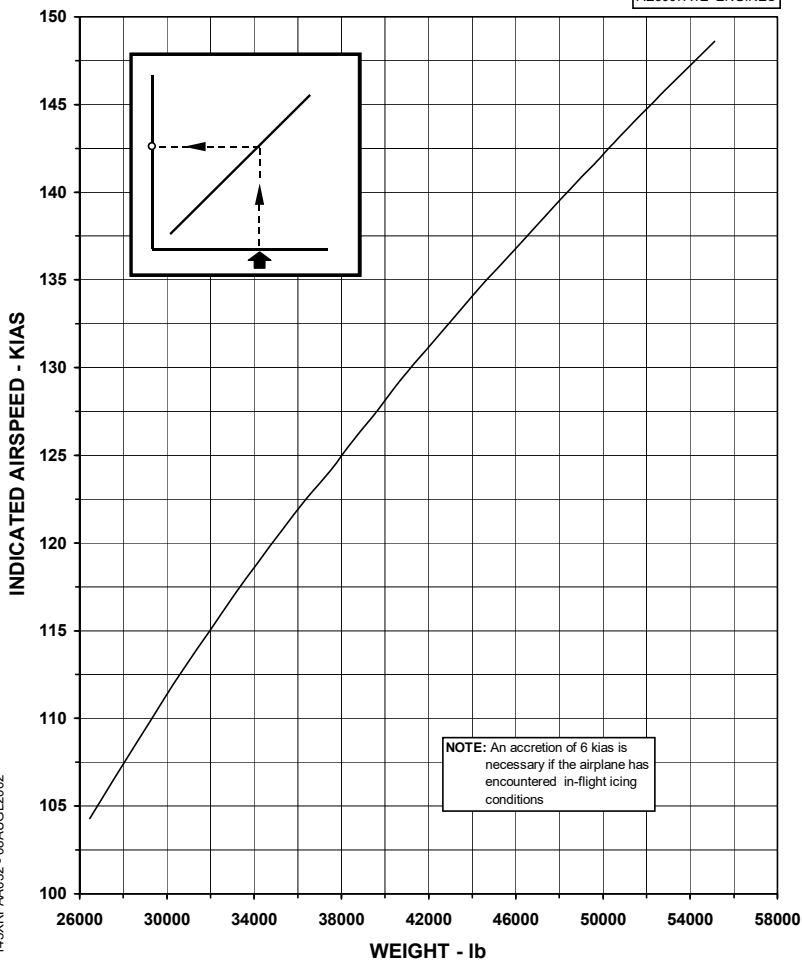


145XRF/A018 - 09AUG2002

LANDING CLIMB SPEED AND REFERENCE SPEEDS

FLAP 22°

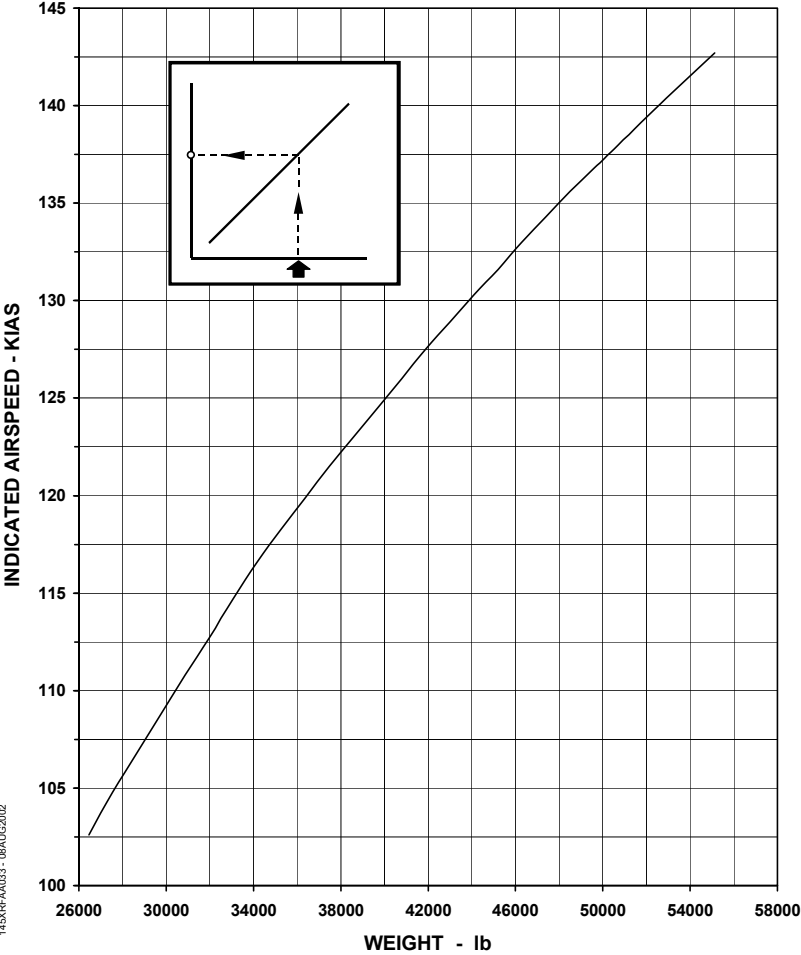
AE3007A1E ENGINES



145XRF AA032 - 08AUGL2002

LANDING CLIMB SPEED AND REFERENCE SPEEDS
FLAP 45°

AE3007A1E ENGINES



145XRF003 - 08AUG2002

LANDING FIELD LENGTHS

The maximum landing weights for compliance with the operating regulations relating landing field lengths are provided in the Maximum Landing Weight - Field Length Limited chart. Landing reference speed (V_{REF}) are provided in the Landing Climb and Reference Speed charts.

Charts are presented according to the following associated conditions:

Airspeed.....	REFERENCE SPEED
Flaps	22° OR 45°
Landing gear.....	DOWN

Charts for Flaps 22° are presented considering no ice encounter and after ice encounter conditions.

The charts present a correction scale to allow obtaining dry runway landing distance without the 60% factor prescribed in the operating regulations.

NOTE: The unfactored landing distance is to be used for emergency purposes only and must not be used for normal operation.

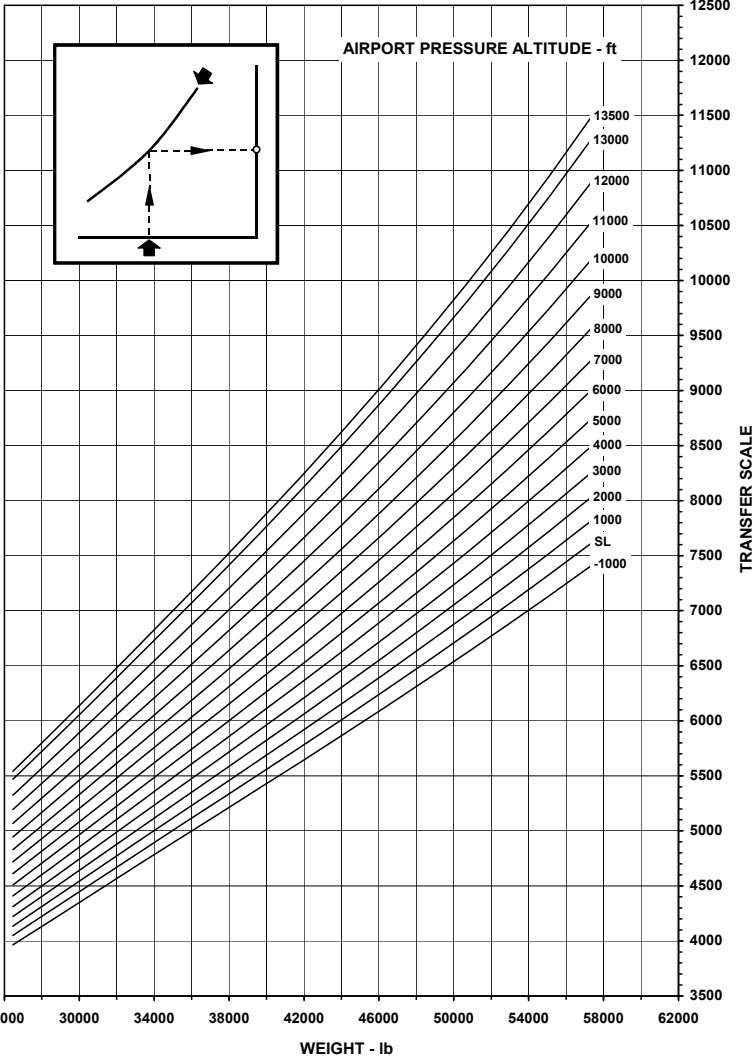
MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED CHART

USE

Refer to the basic AFM.

MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED
FLAPS 22° - NO ICE ENCOUNTER
CHART 1 OF 2

AE3007A1E ENGINES

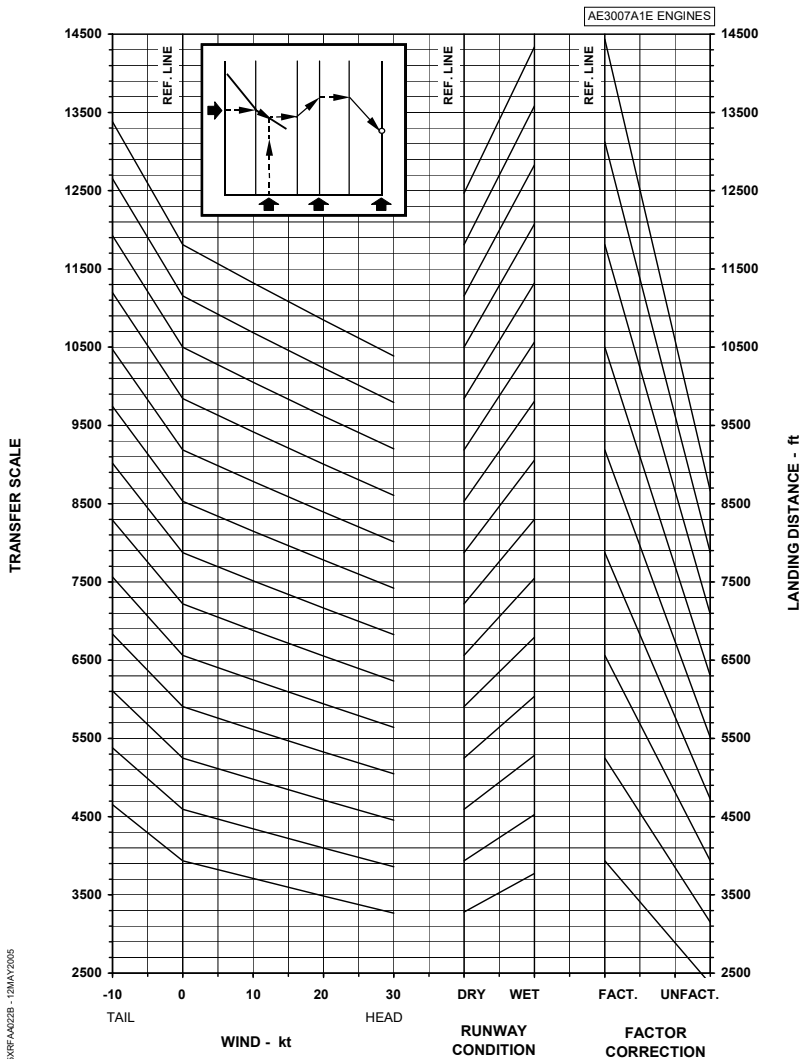




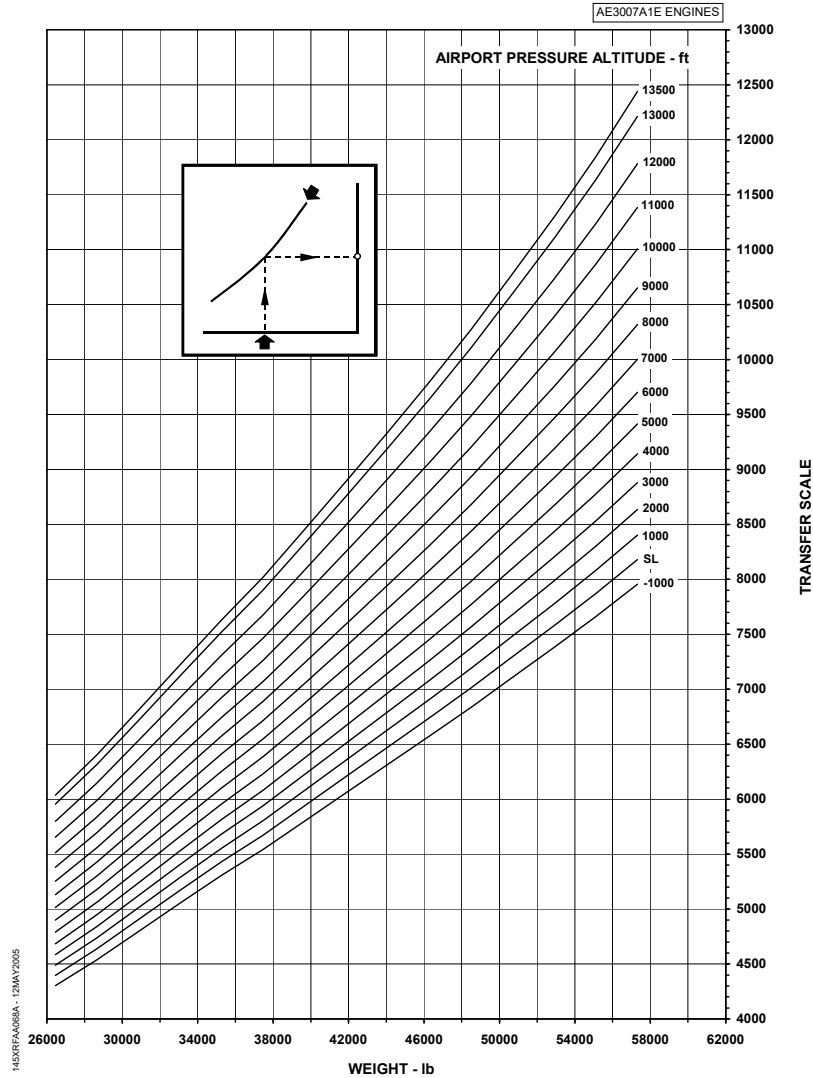
MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED

FLAPS 22° - NO ICE ENCOUNTER

CHART 2 OF 2

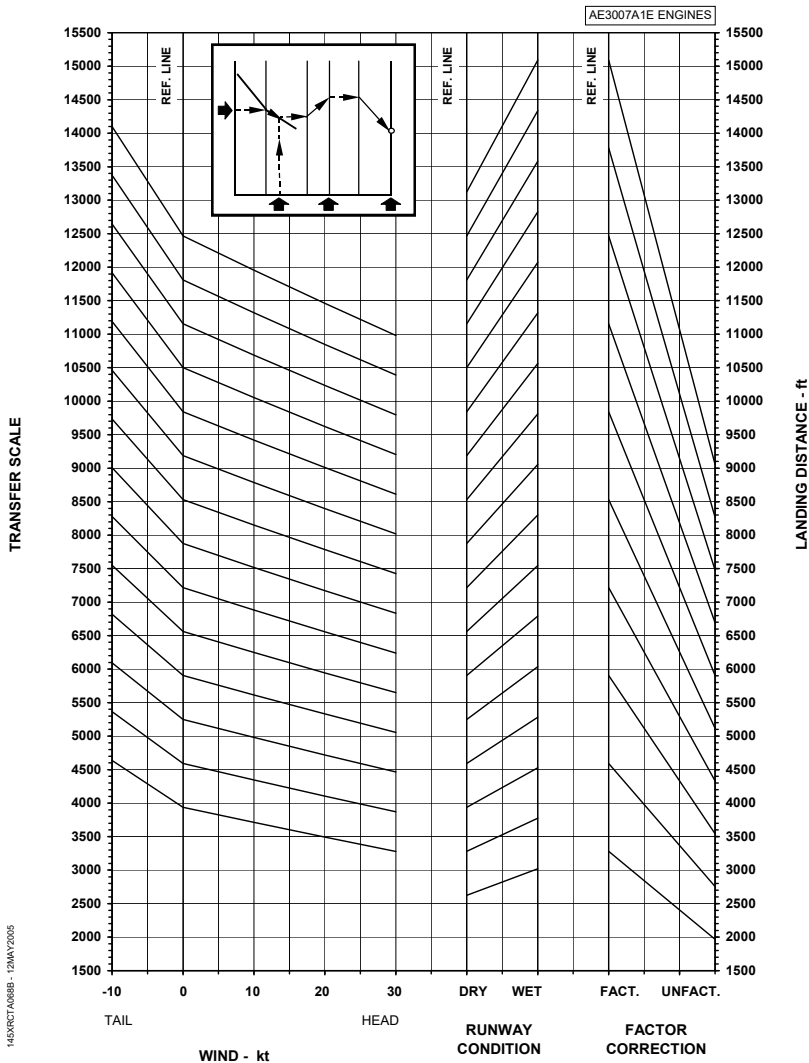


MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED
FLAPS 22° - AFTER ICE ENCOUNTER
CHART 1 OF 2

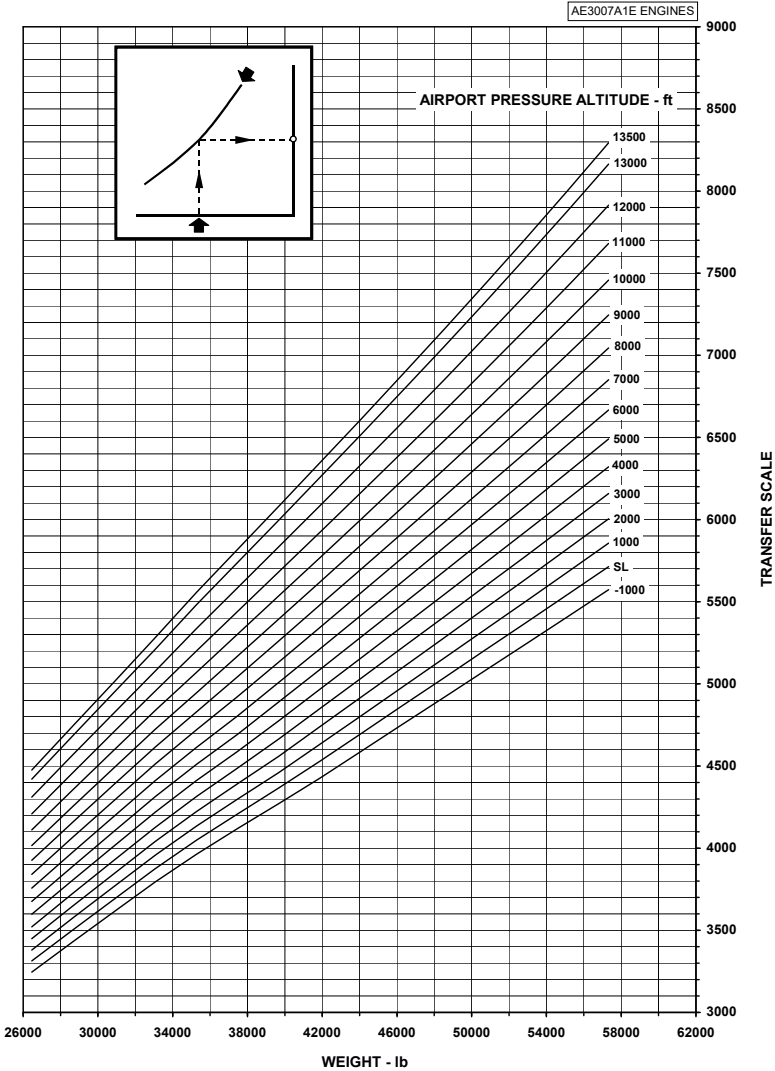




MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED
FLAPS 22° - AFTER ICE ENCOUNTER
CHART 2 OF 2

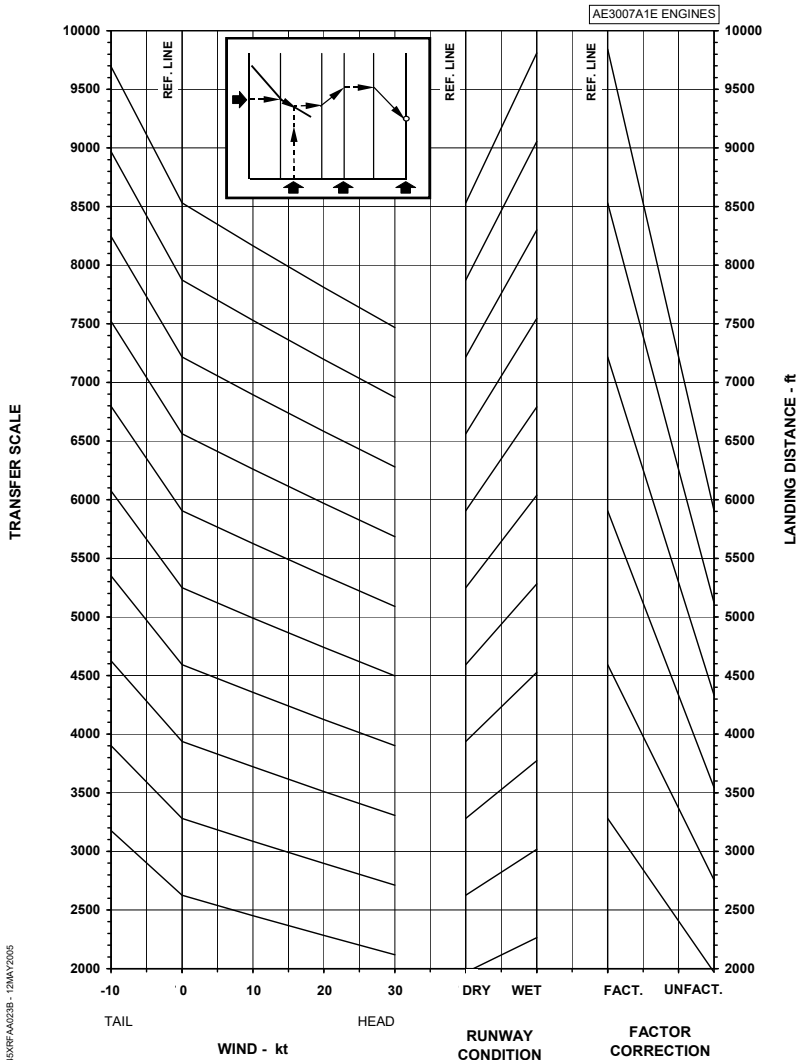


MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED
FLAPS 45°
CHART 1 OF 2





MAXIMUM LANDING WEIGHT - FIELD LENGTH LIMITED
FLAPS 45°
CHART 2 OF 2



145XRF-AA023B - 12MAY2005

UNRELIABLE AIRSPEED TABLES

The unreliable airspeed tables must be used when the indications of airspeed are not reliable and are called by the abnormal procedure Unreliable Airspeed from section 3, which also must be accomplished. For each certified engine type, charts are presented according to the following associated conditions:

Anti-Ice.....ON or OFF

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145XR	Engine: AE3007A1E	Anti-Ice: OFF

CLB THRUST MODE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	11	10	9	9	9	8
	V/S (ft/min)	4000	3400	3000	2600	2300	2000
10000 (240 KIAS)	Pitch (deg)	8	7	7	7	7	7
	V/S (ft/min)	3200	2700	2400	2000	1700	1500
20000 (0.56 M)	Pitch (deg)	4	4	4	4	4	4
	V/S (ft/min)	1800	1400	1200	1100	900	800
30000 (0.56 M)	Pitch (deg)	6	6	6	6	6	6
	V/S (ft/min)	1900	1400	1200	900	600	300
37000 (0.56 M)	Pitch (deg)	6	7	7	7	-	-
	V/S (ft/min)	1400	900	500	100	-	-

CRUISE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
15000 (250 KIAS)	Pitch (deg)	1	2	2	2	3	3
	N1 (%)	79.1	79.2	79.5	79.9	80.4	81.0
20000 (250 KIAS)	Pitch (deg)	1	2	2	2	3	3
	N1 (%)	82.7	82.8	83.1	83.5	84.0	84.6
25000 (250 KIAS)	Pitch (deg)	1	2	2	2	3	3
	N1 (%)	86.0	86.2	86.5	86.9	87.5	88.2
30000 (0.63 M)	Pitch (deg)	2	2	2	3	3	-
	N1 (%)	86.6	86.9	87.5	88.4	89.8	-
37000 (0.63 M)	Pitch (deg)	3	3	4	4	-	-
	N1 (%)	85.7	87.4	89.9	92.0	-	-

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145XR	Engine: AE3007A1E	Anti-Ice: OFF

FLIGHT IDLE DESCENT							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	-6	-5	-4	-3	-2	-1
	V/S (ft/min)	-3000	-2800	-2500	-2300	-2100	-2000
10000 (240 KIAS)	Pitch (deg)	-5	-4	-3	-2	-2	-1
	V/S (ft/min)	-3000	-3000	-2800	-2500	-2300	-2100
20000 (240 KIAS)	Pitch (deg)	-4	-3	-3	-2	-1	-1
	V/S (ft/min)	-3000	-3000	-2900	-2700	-2500	-2400
30000 (240 KIAS)	Pitch (deg)	-3	-2	-2	-1	-1	0
	V/S (ft/min)	-3000	-3000	-3000	-2900	-2700	-2600
37000 (240 KIAS)	Pitch (deg)	-2	-2	-1	-1	0	1
	V/S (ft/min)	-3000	-3000	-3000	-2800	-2600	-2400

HOLDING							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
5000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	61.4	62.2	63.3	64.6	66.0	67.5
10000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	65.1	66.0	67.0	68.2	69.6	71.1

Terminal Area (5000 ft) - %N1 for Level Flight					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (V _{REF45} + 30)	Pitch (deg)	7	7	7	8
	N1 (%)	51.4	54.8	57.9	60.9
9 (V _{REF45} + 15)	Pitch (deg)	7	7	8	8
	N1 (%)	49.3	52.8	56.0	58.8



UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145XR	Engine: AE3007A1E	Anti-Ice: OFF

Final Approach (1500 ft) - %N1 for 3° Glideslope					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
22 (V _{REF22} + 10)	Pitch (deg)	3	3	3	3
	N1 (%)	43.9	46.9	49.6	52.0
45 (V _{REF45} + 10)	Pitch (deg)	-1	0	0	0
	N1 (%)	57.1	60.8	63.9	66.7

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145XR	Engine: AE3007A1E	Anti-Ice: ON

CLB THRUST MODE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	10	10	9	9	8	8
	V/S (ft/min)	3800	3300	2900	2500	2200	1900
10000 (240 KIAS)	Pitch (deg)	7	7	6	6	6	6
	V/S (ft/min)	2700	2200	2000	1700	1400	1200
20000 (0.56 M)	Pitch (deg)	3	3	3	3	3	4
	V/S (ft/min)	900	800	700	600	400	300
30000 (0.56 M)	Pitch (deg)	4	4	5	5	5	0
	V/S (ft/min)	900	700	500	300	0	0
37000 (0.56 M)	Pitch (deg)	5	5	0	0	-	-
	V/S (ft/min)	500	100	0	0	-	-

CRUISE							
PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
15000 (250 KIAS)	Pitch (deg)	1	2	2	2	3	3
	N1 (%)	79.1	79.2	79.5	79.9	80.4	81.0
20000 (250 KIAS)	Pitch (deg)	1	2	2	2	3	3
	N1 (%)	82.7	82.8	83.1	83.5	84.0	84.6
25000 (250 KIAS)	Pitch (deg)	1	2	2	2	3	3
	N1 (%)	86.0	86.2	86.5	86.9	87.5	88.2
30000 (0.63 M)	Pitch (deg)	2	2	2	3	3	-
	N1 (%)	86.6	86.9	87.5	88.4	89.8	-
37000 (0.63 M)	Pitch (deg)	3	3	4	4	-	-
	N1 (%)	85.7	87.5	89.9	92.0	-	-

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145XR	Engine: AE3007A1E	Anti-Ice: ON

FLIGHT IDLE DESCENT

PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
0 (240 KIAS)	Pitch (deg)	-4	-3	-2	-1	-1	0
	V/S (ft/min)	-2400	-2000	-1800	-1700	-1600	-1500
10000 (240 KIAS)	Pitch (deg)	-4	-3	-2	-1	-1	0
	V/S (ft/min)	-2700	-2300	-2100	-1900	-1800	-1700
20000 (240 KIAS)	Pitch (deg)	-3	-2	-2	-1	0	0
	V/S (ft/min)	-2900	-2500	-2200	-2100	-2000	-1900
30000 (240 KIAS)	Pitch (deg)	-3	-2	-1	0	0	1
	V/S (ft/min)	-2900	-2500	-2300	-2100	-2000	-2000
37000 (240 KIAS)	Pitch (deg)	-2	-1	-1	0	0	1
	V/S (ft/min)	-3100	-2700	-2500	-2400	-2200	-2100

HOLDING

PRESSURE ALTITUDE (ft)		WEIGHT (lb)					
		30000	35000	40000	45000	50000	55000
5000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	61.4	62.2	63.3	64.6	66.0	68.4
10000 (200 KIAS)	Pitch (deg)	3	3	4	5	5	6
	N1 (%)	65.1	66.0	67.0	69.1	69.6	71.9

Terminal Area (5000 ft) - %N1 for Level Flight

Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
0 (V _{REF45} + 30)	Pitch (deg)	7	7	7	8
	N1 (%)	51.4	54.8	57.9	63.4
9 (V _{REF45} + 15)	Pitch (deg)	7	7	8	8
	N1 (%)	49.9	52.8	56.0	61.2

UNRELIABLE AIRSPEED TABLES

Airplane: EMB-145XR	Engine: AE3007A1E	Anti-Ice: ON

Final Approach (1500 ft) - %N1 for 3° Glideslope					
Flap position (V _{REF} + INCREMENT)		WEIGHT (lb)			
		30000	35000	40000	45000
22 (V _{REF22} + 10)	Pitch (deg)	3	3	3	4
	N1 (%)	51.4	54.8	57.9	63.4
45 (V _{REF45} + 10)	Pitch (deg)	-1	0	0	0
	N1 (%)	57.1	60.8	63.9	69.0



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SUPPLEMENT 23

LIST OF EFFECTIVE PAGES

ORIGINAL..... 0..... Not Applicable
 REVISION..... 1 to 54 Not Applicable
 REVISION..... 55..... NOV 27, 2002
 REVISION..... 56..... OCT 21, 2003
 REVISION..... 57..... JUN 17, 2004

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* Asterisk indicates pages revised, added or deleted by the current revision.

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* Asterisk indicates pages revised, added or deleted by the current revision.

OPERATION WITH ENGINE ANTI-ICE VALVE LOCKED OPEN

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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 23
OPERATION WITH
ENGINE ANTI-ICE VALVE
LOCKED OPEN

GENERAL

This supplement is provided to present the performance data for airplane dispatch with the engine anti-ice valves locked open, as permitted by MMEL.

Takeoff performance is computed through the ETOASG software (Version 18.30/6.05 or later approved version) while Enroute and Landing performance data is presented in this supplement.

The information presented in this Supplement, associated with the basic AFM, enables the establishment of the conditions required to accomplish the flight with the engine anti-ice valve locked open.

For limitations, procedures and performance information not contained in this Supplement, refer to the basic AFM.

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LIMITATIONS

POWER PLANT

ENGINES

Two Rolls-Royce AE3007A or AE3007A1/1 or AE3007A1 or AE3007A1P or AE3007A1E or AE3007A1/3 engines.

The AE3007A and AE3007A1/1 engines intermix operation is also permitted.

TAKEOFF THRUST MODE

Only T/O-1 Mode is allowed for takeoff with engine anti-ice valve locked open for AE3007A or AE3007A1/1 or AE3007A1 engines.

Only T/O Mode is allowed for takeoff with engine anti-ice valve locked open for AE3007A1P or AE3007A1/3 engines.

T/O and E T/O Modes are allowed for takeoff with engine anti-ice valve locked open for AE3007A1E engines.

EMERGENCY AND ABNORMAL PROCEDURES

The Emergency and Abnormal Procedures remain unchanged.

NORMAL PROCEDURES

The Normal Procedures remain unchanged.

PERFORMANCE

The performance data presented in this section must replace or complement the equivalent data contained in the basic AFM and in the Supplements related to the associated engines, as applicable.

Unless otherwise specified, the performance charts presented in this Supplement must be used in the same way as in the basic AFM.

Takeoff performance is not presented in this supplement and must be computed through ETOASG software.

For performance with all engines operative both engine anti-ice valves are considered to be locked open.

The following charts are presented in this Supplement:

- ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE - Two charts are provided, according to the following options for flaps up:
 - ANTI-ICE ON.
 - ANTI-ICE OFF.
- ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT - Two charts are provided, according to the following options for flaps up:
 - ANTI-ICE ON.
 - ANTI-ICE OFF.
- APPROACH CLIMB GRADIENT - Two charts are provided according to the following options for flaps 9°:
 - ANTI-ICE ON.
 - ANTI-ICE OFF.
- LANDING CLIMB GRADIENT - Charts are provided according to the following options for flaps 22° and 45°:
 - ANTI-ICE ON.
 - ANTI-ICE OFF.
- MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED - Two charts are provided according to the following options:
 - ANTI-ICE ON.
 - ANTI-ICE OFF.
- MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED - Charts are provided according to the following options for flaps 22° and 45°:
 - ANTI-ICE ON.
 - ANTI-ICE OFF.



NOTE: For the Rolls-Royce AE3007A1/3 engines the Maximum Landing Weight - Landing Climb Limited for landing flaps 22° (anti-ice on and off) is always above the maximum structural landing weight and is not presented herein.

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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 23
OPERATION WITH
ENGINE ANTI-ICE VALVE
LOCKED OPEN

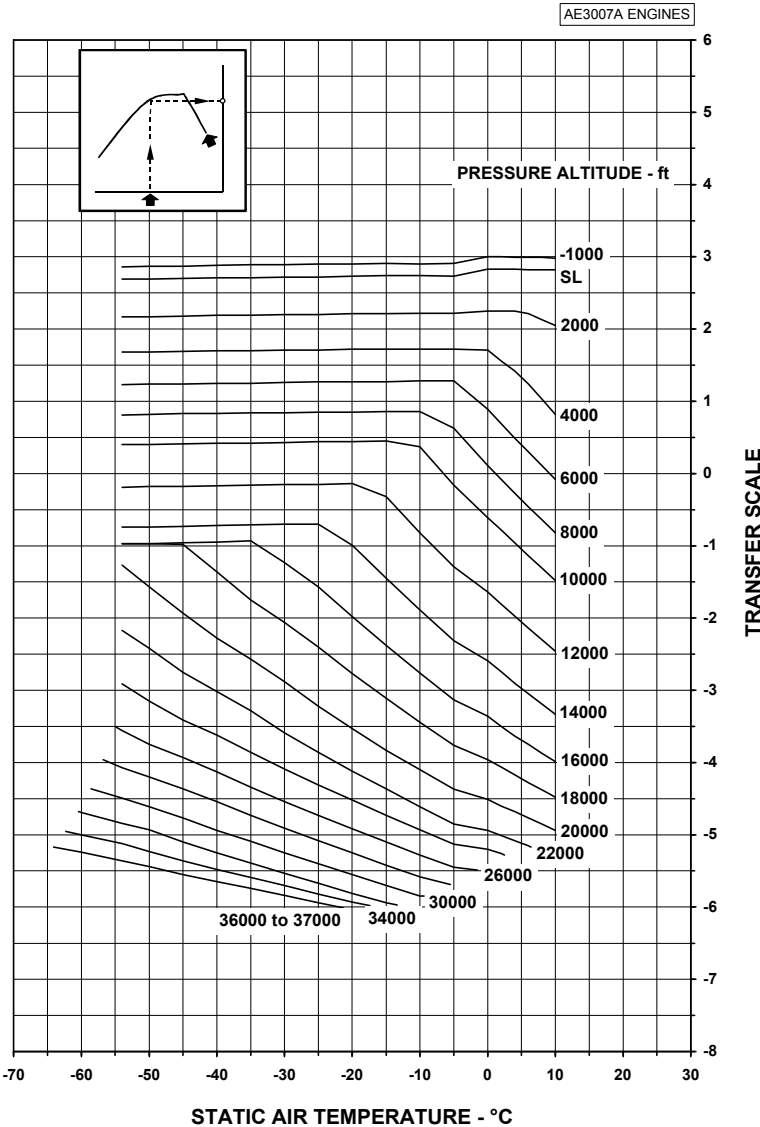
PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A ENGINES

The following performance charts are applicable for airplanes equipped with AE3007A engines.

NOTE: These performance charts are also applicable to AE3007A1/1 engines.

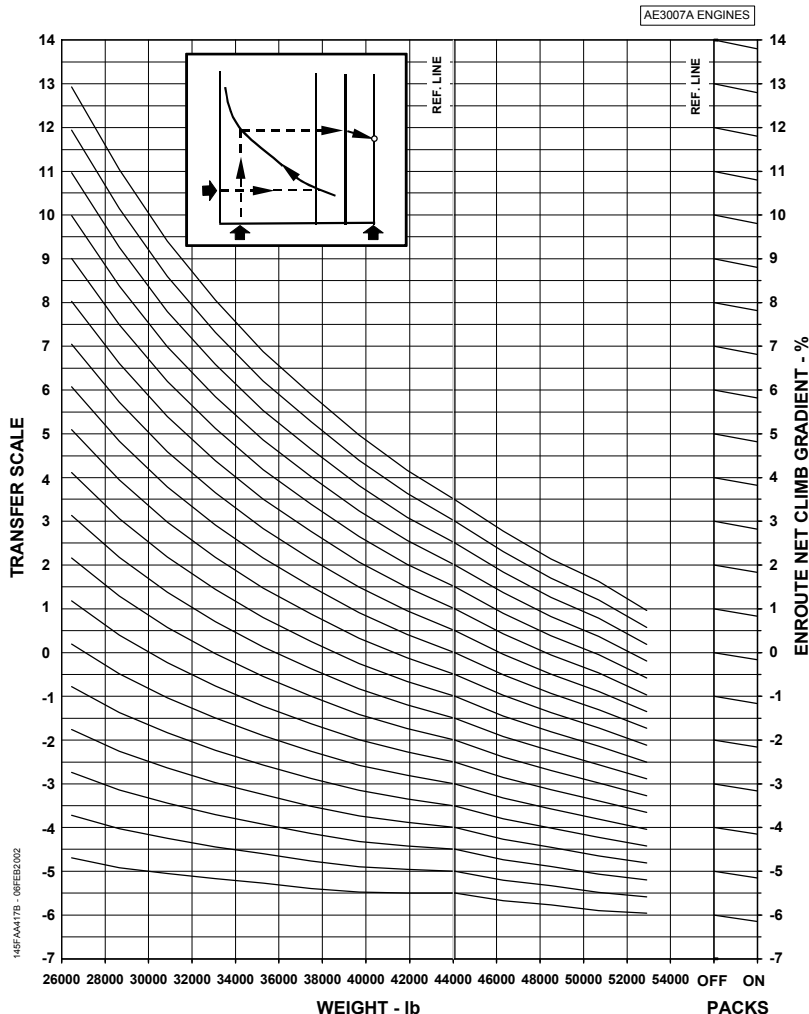
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ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE ON
CHART 1 OF 2

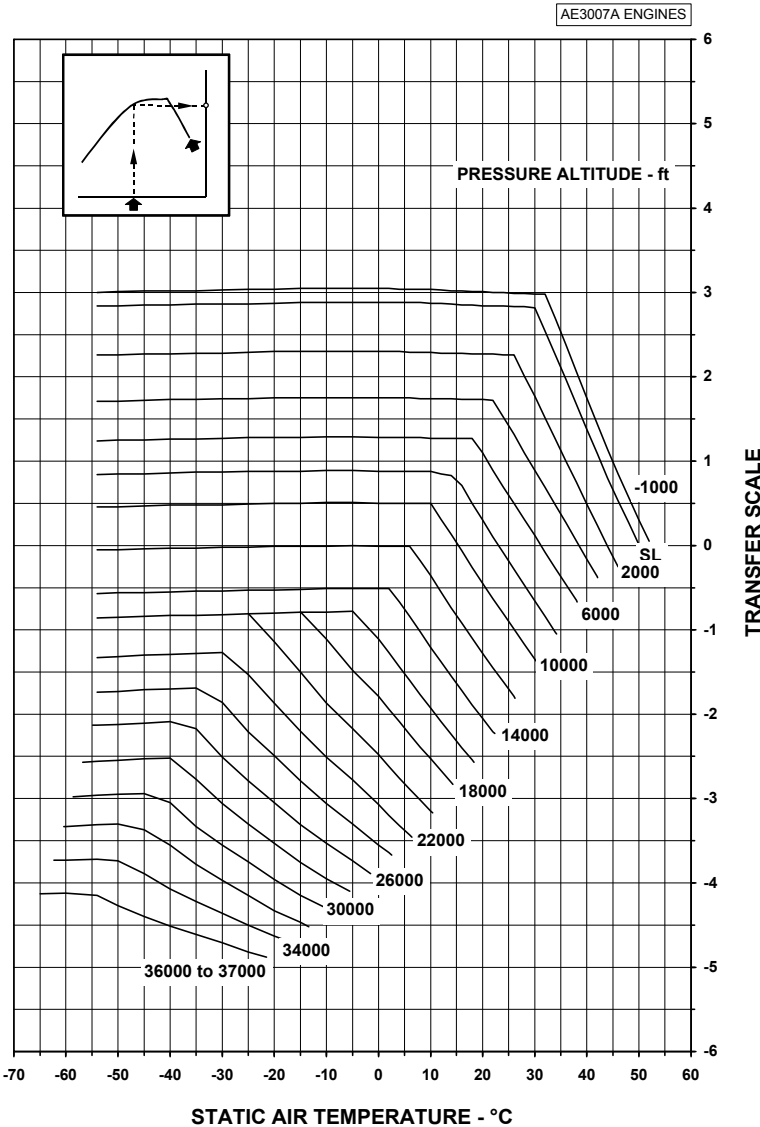


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ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE ON
CHART 2 OF 2



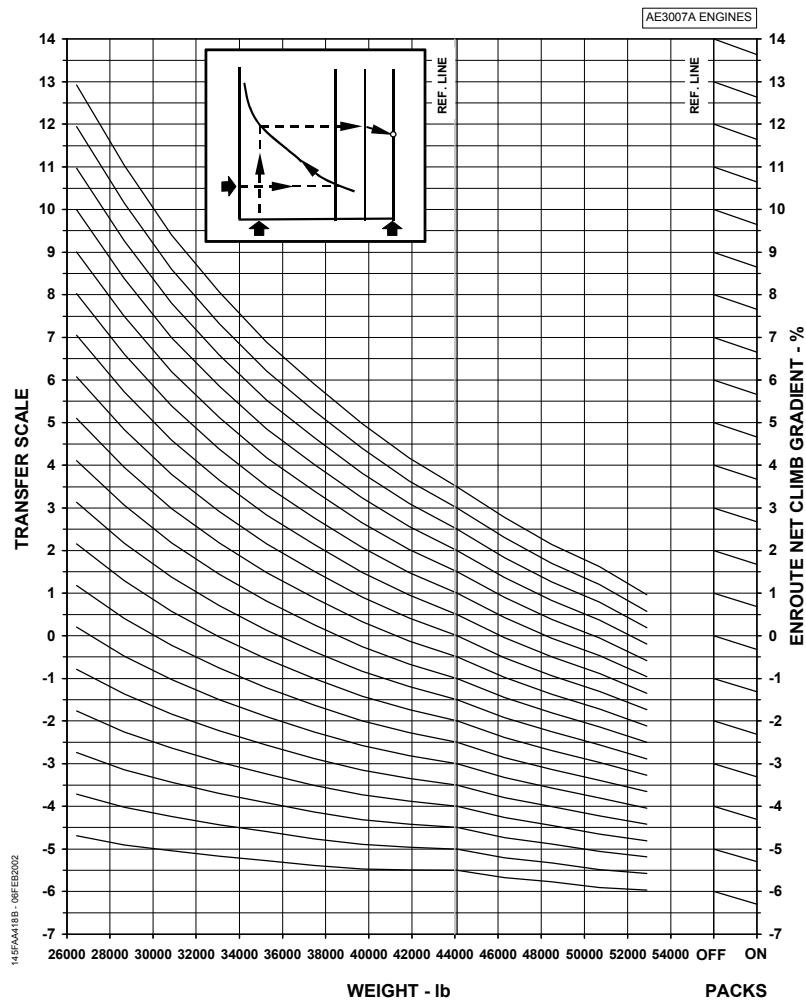
ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE OFF
CHART 1 OF 2



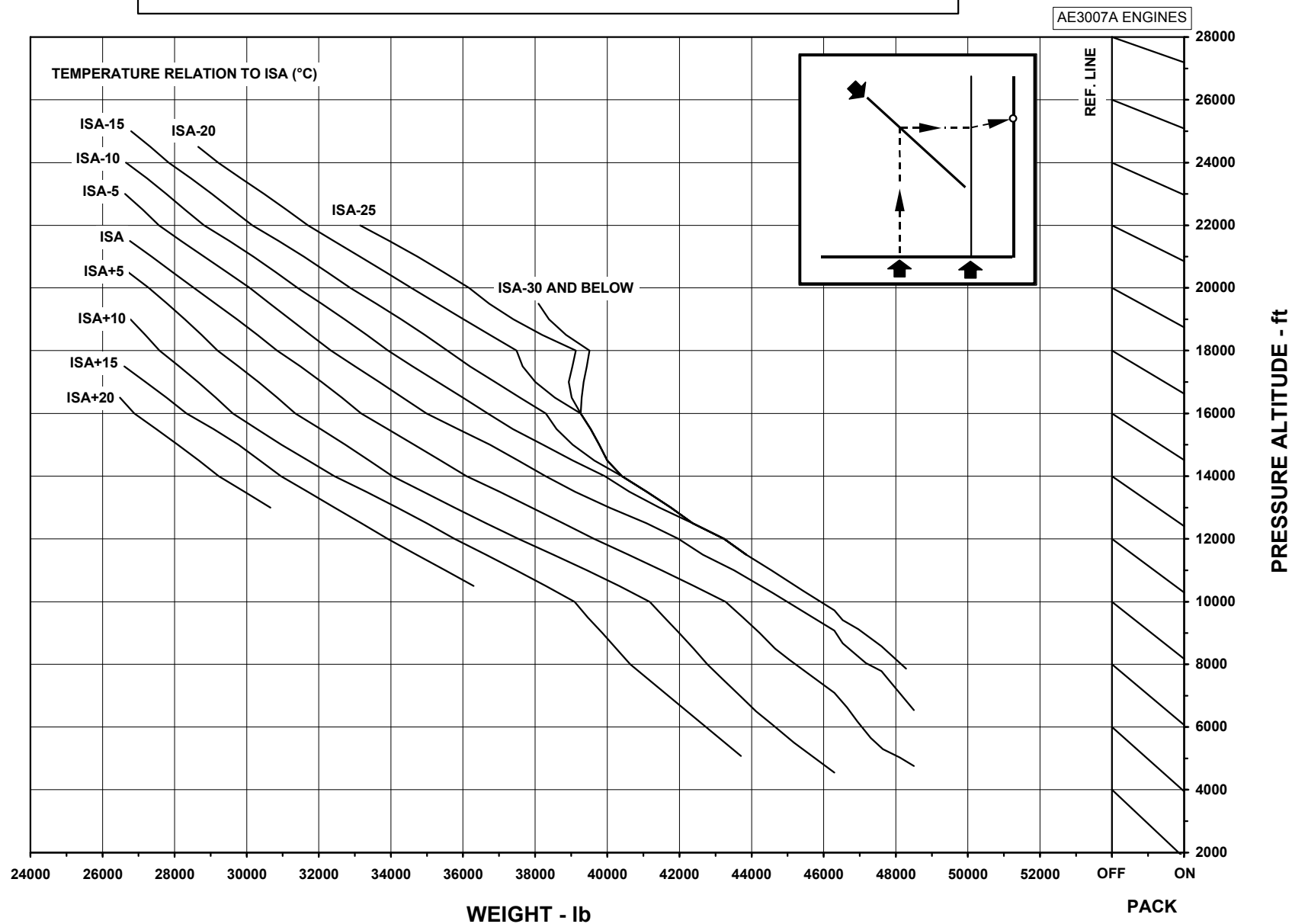
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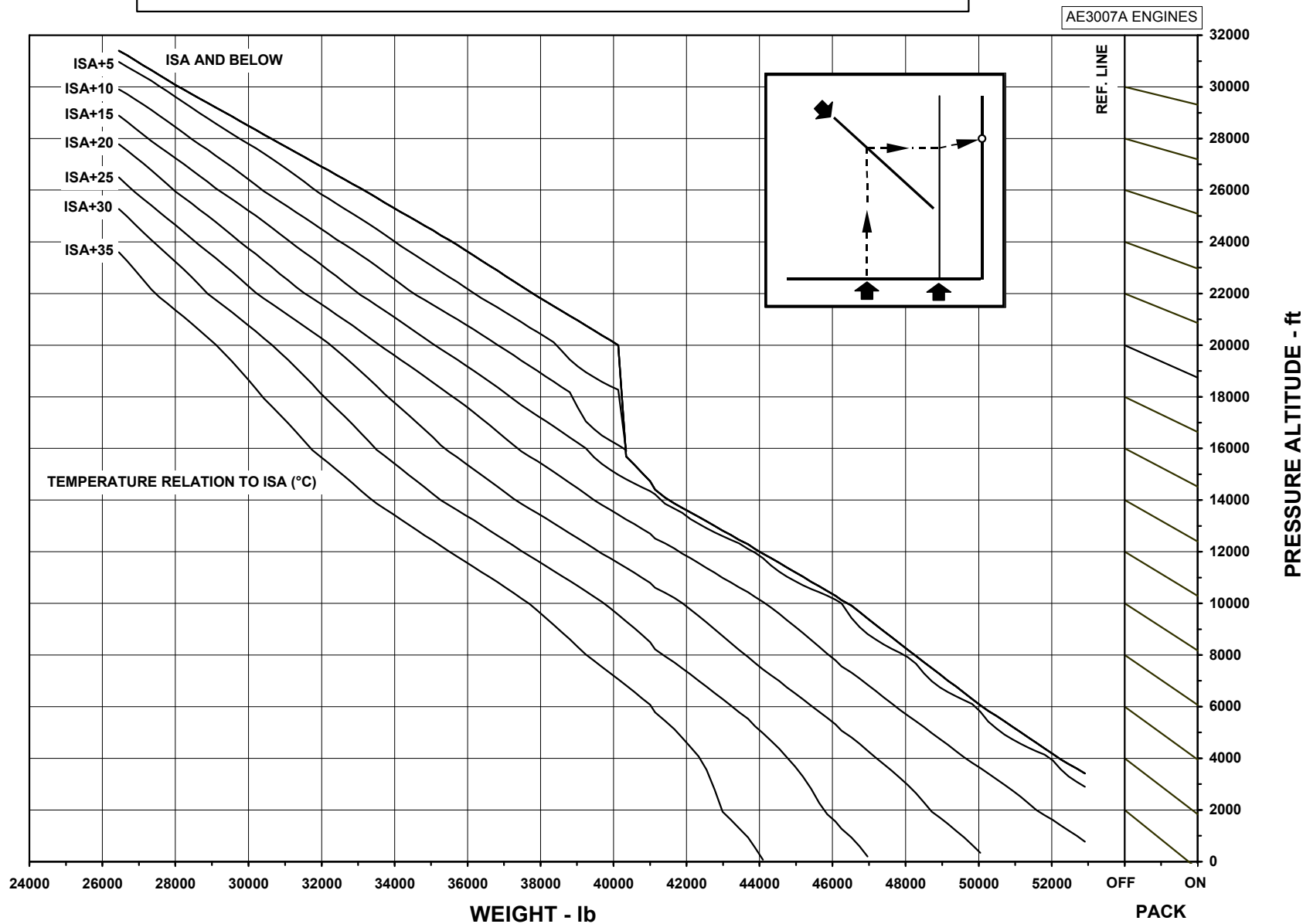
ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE OFF
CHART 2 OF 2



ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT
FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE ON



ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT
FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF

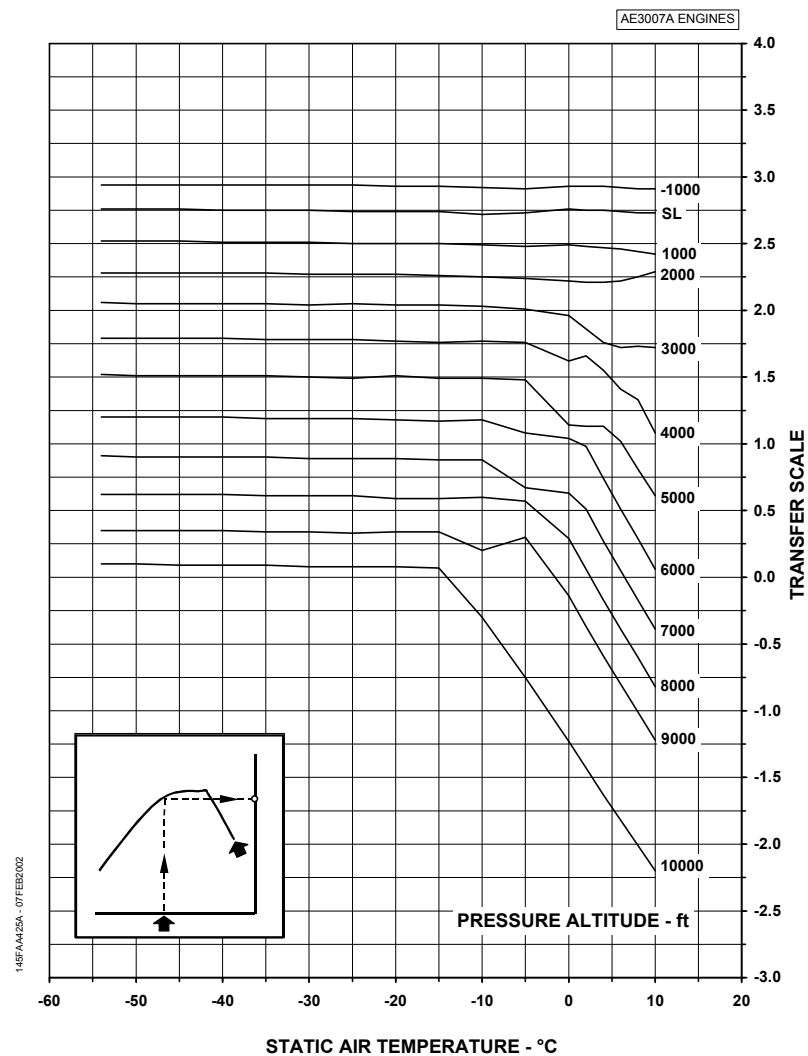


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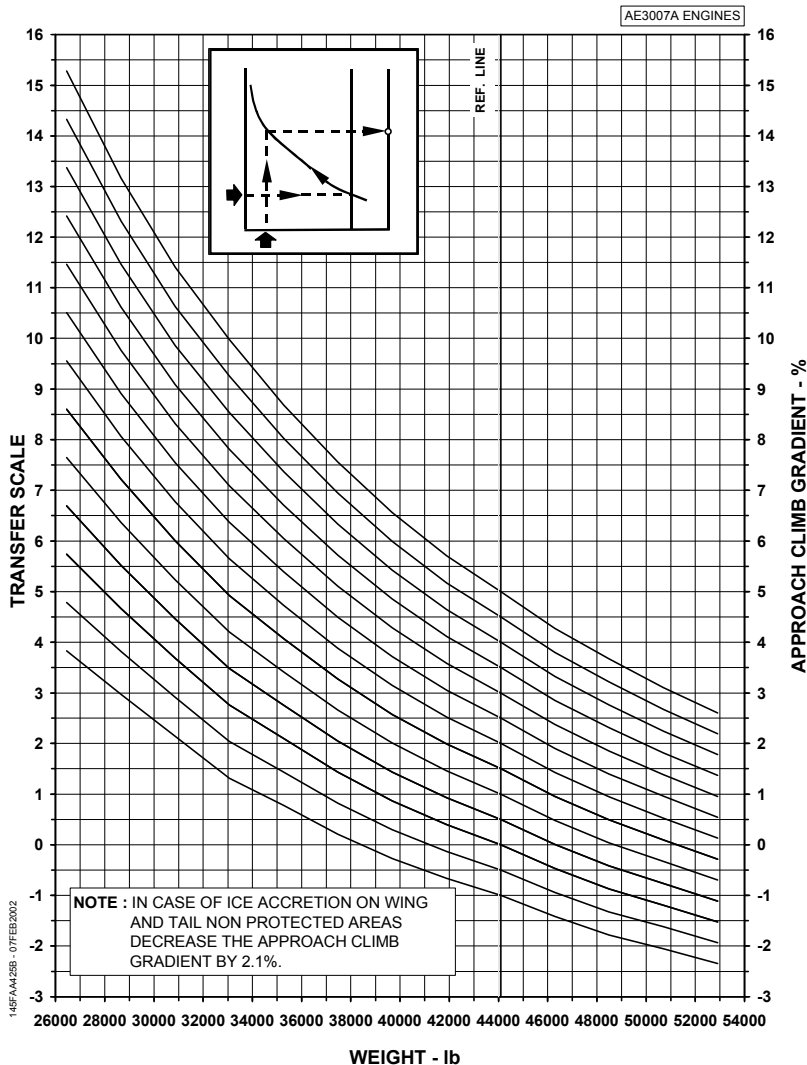
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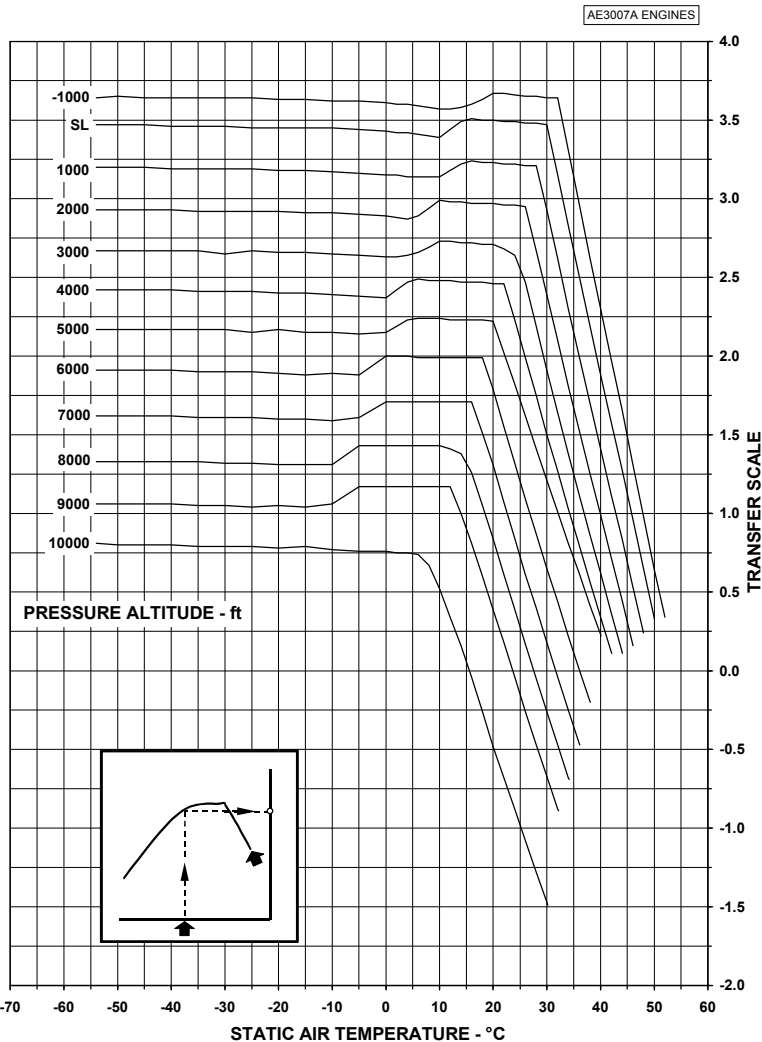
APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 1 OF 2



APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 2 OF 2



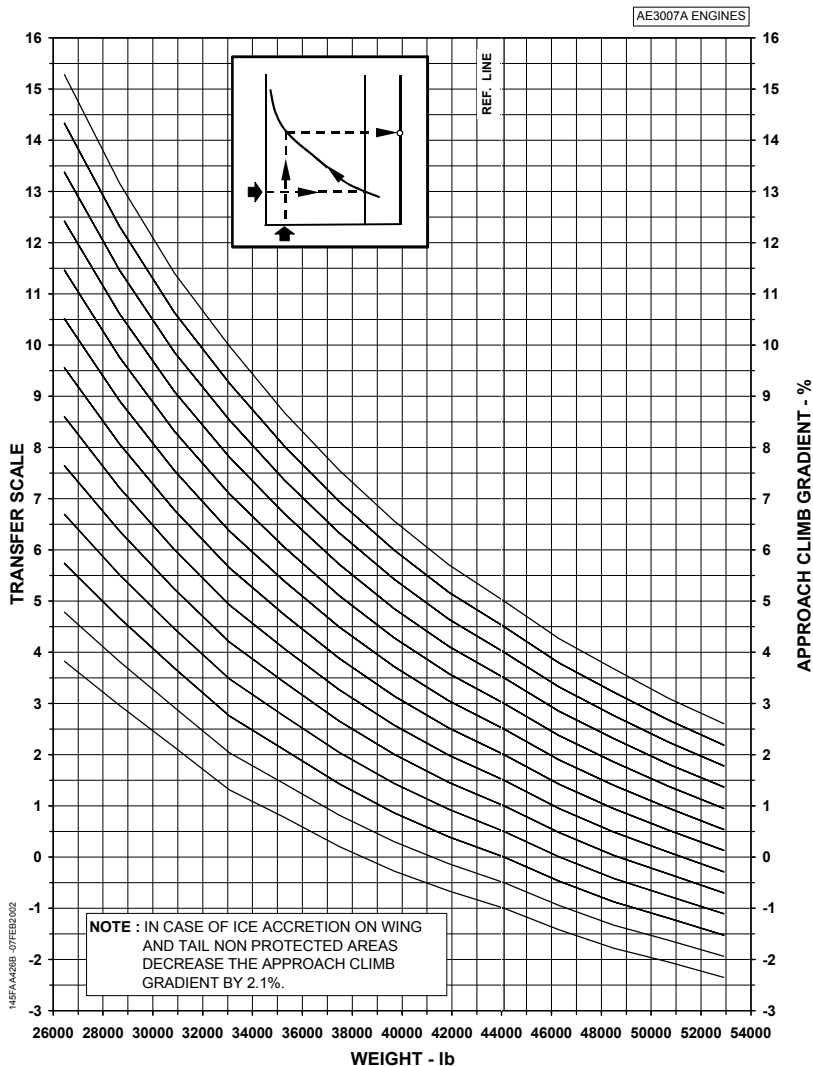
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ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 1 OF 2



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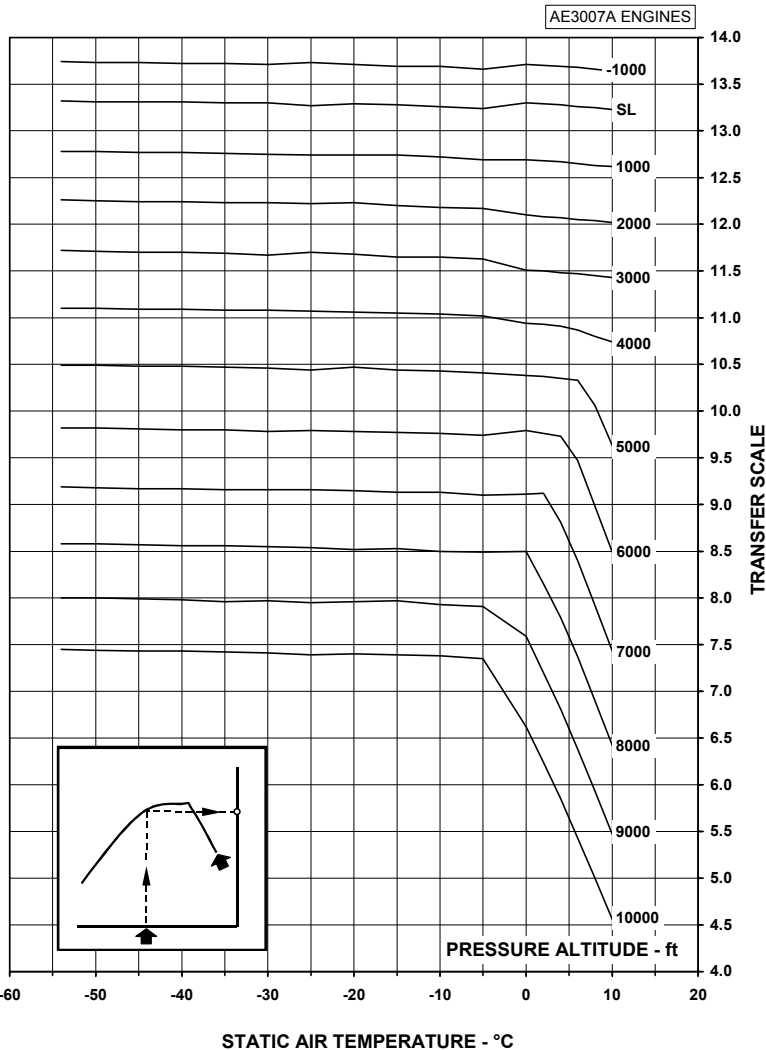


APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 2 OF 2



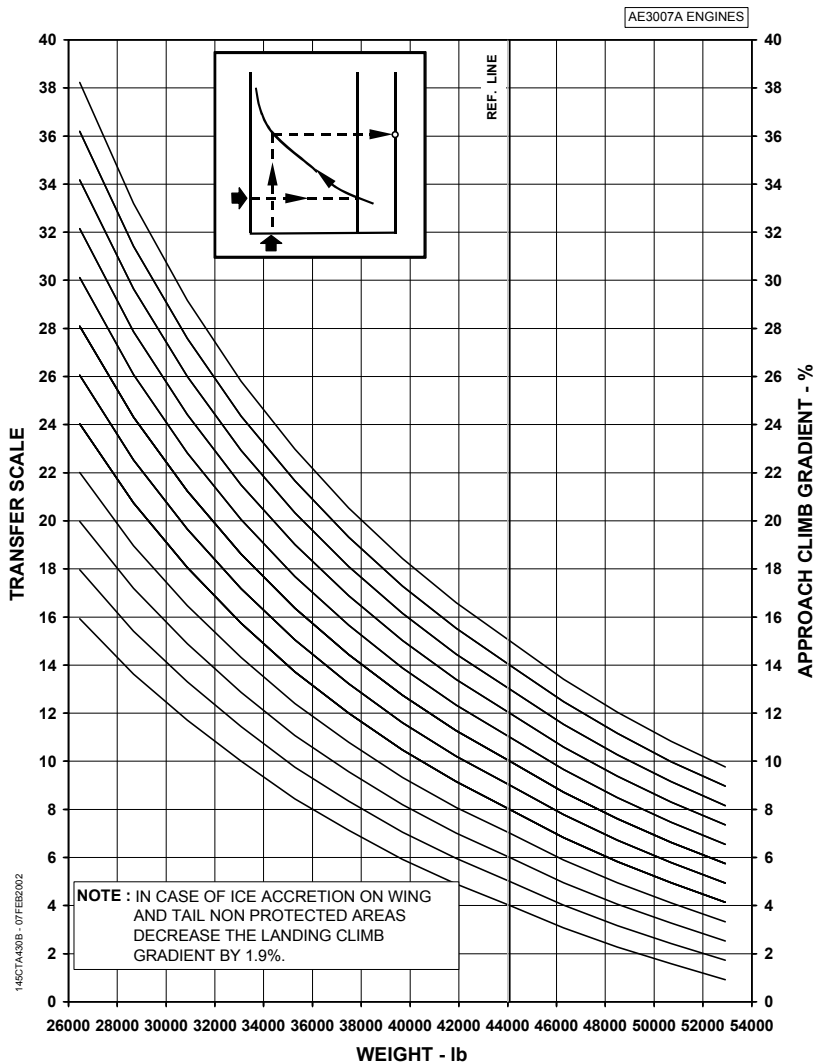


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 1 OF 2



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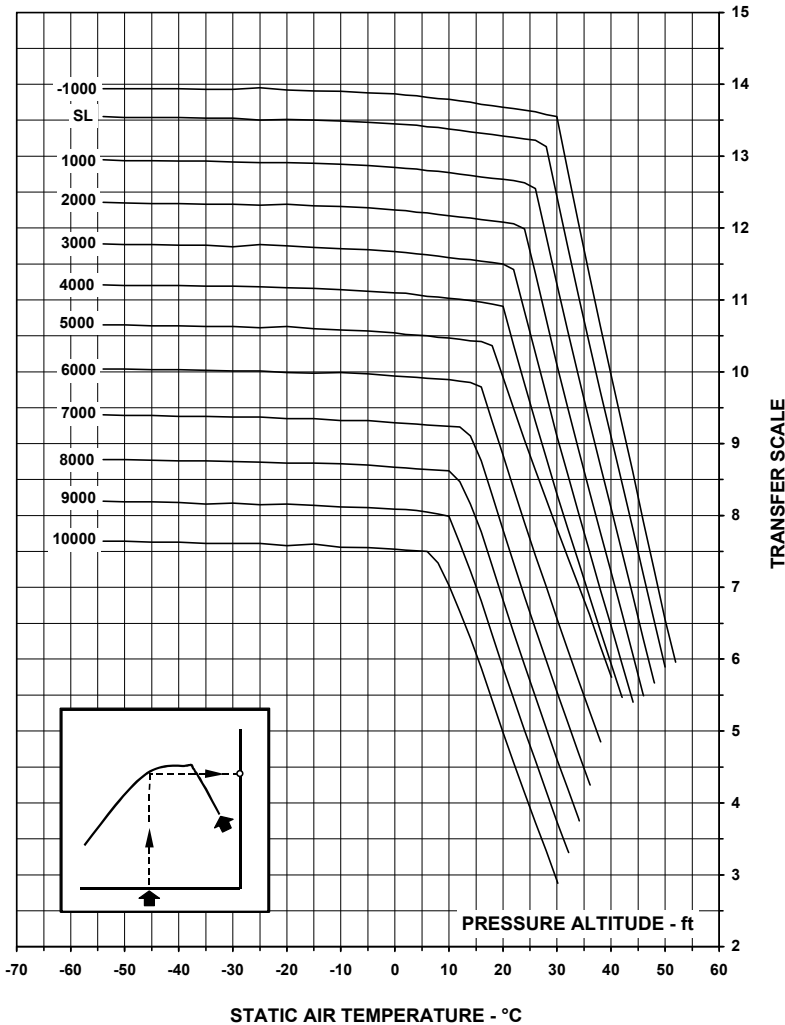
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 2 OF 2





LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 1 OF 2

AE3007A ENGINES

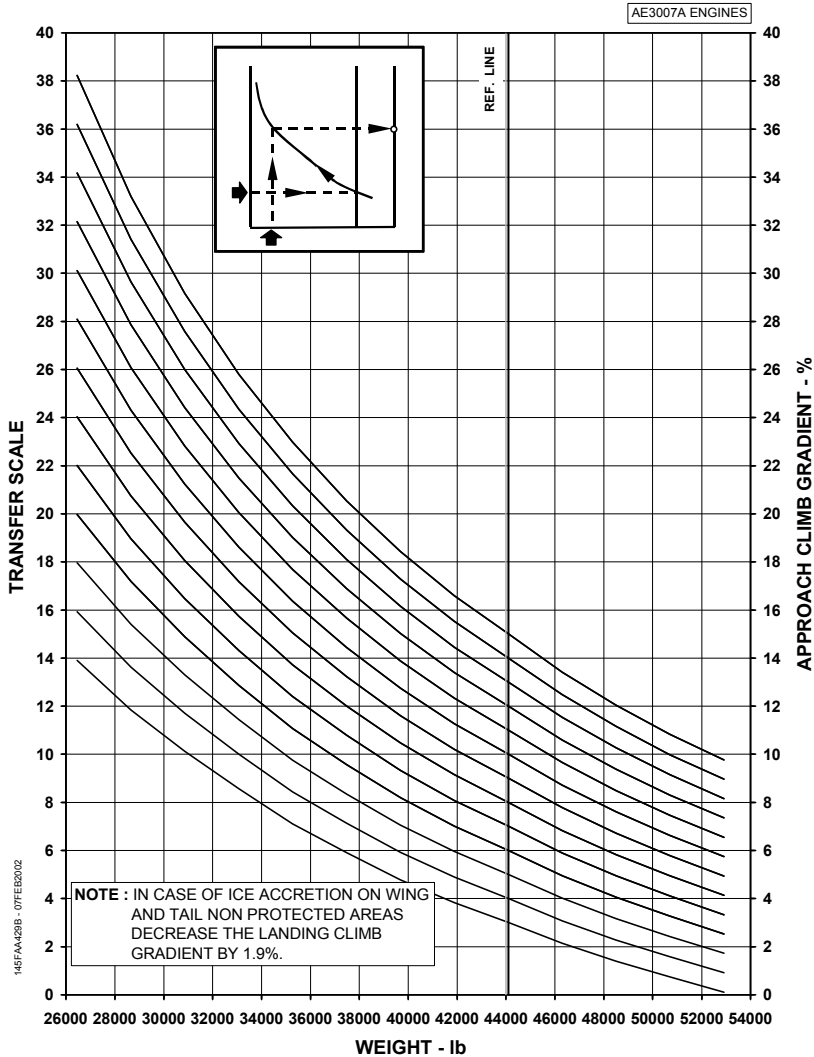


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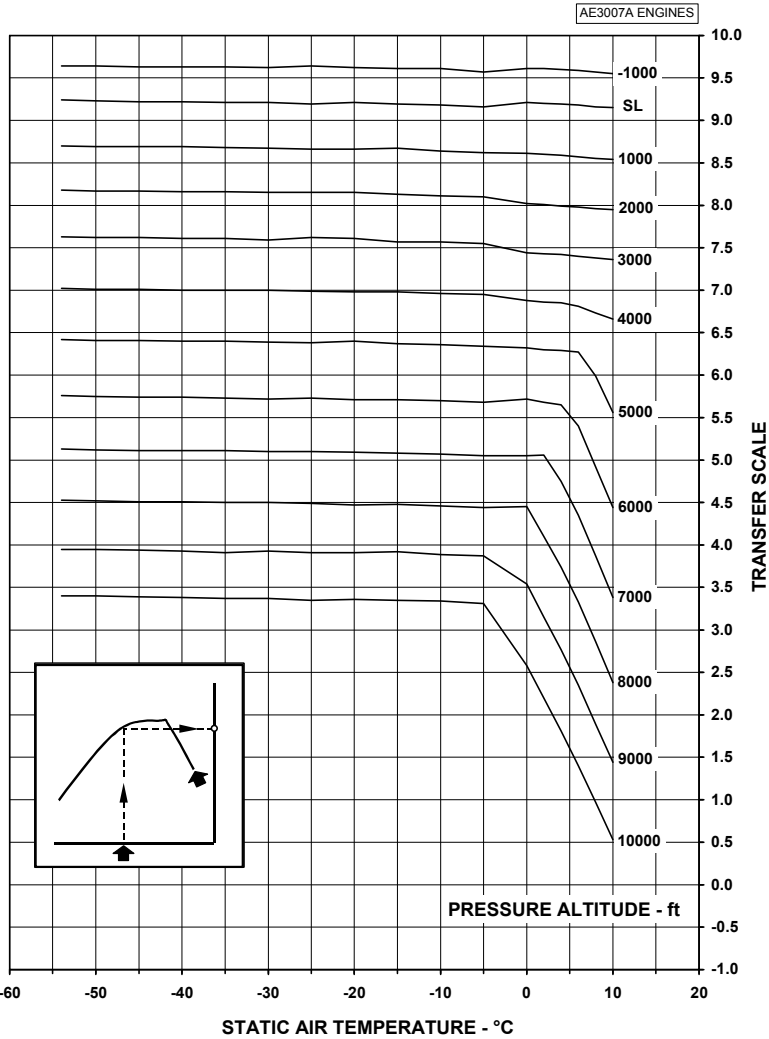
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LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 2 OF 2



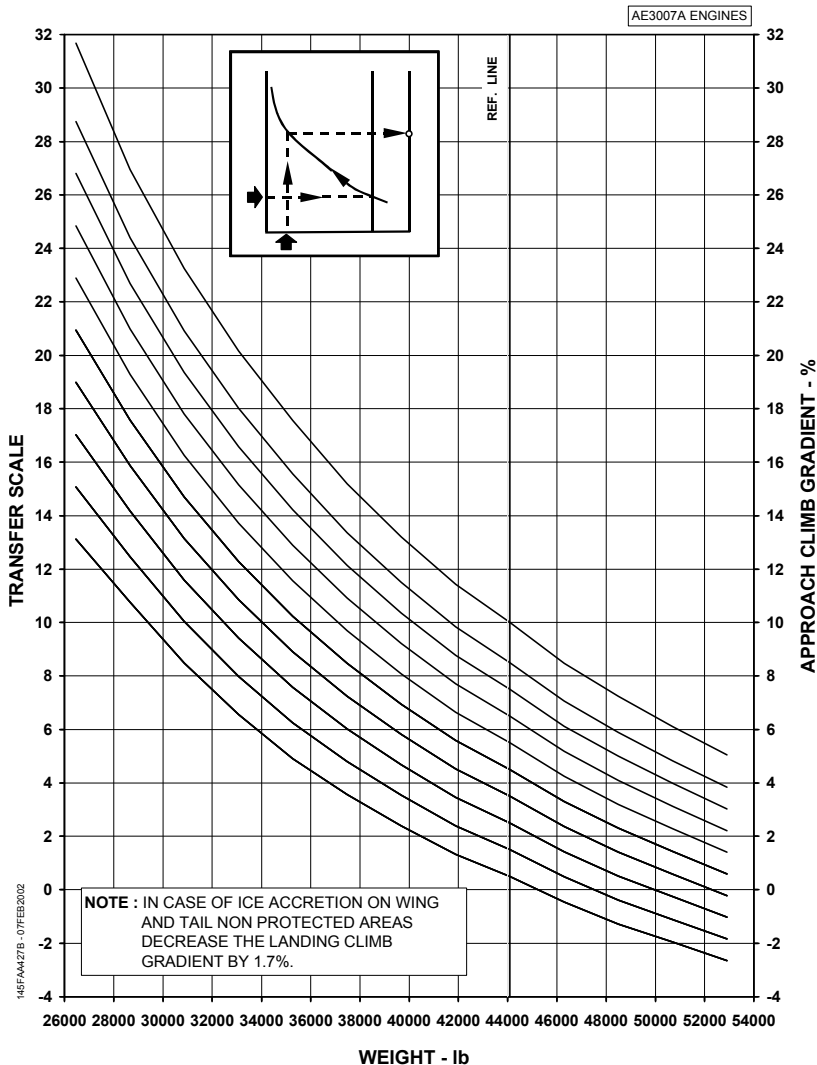
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 1 OF 2



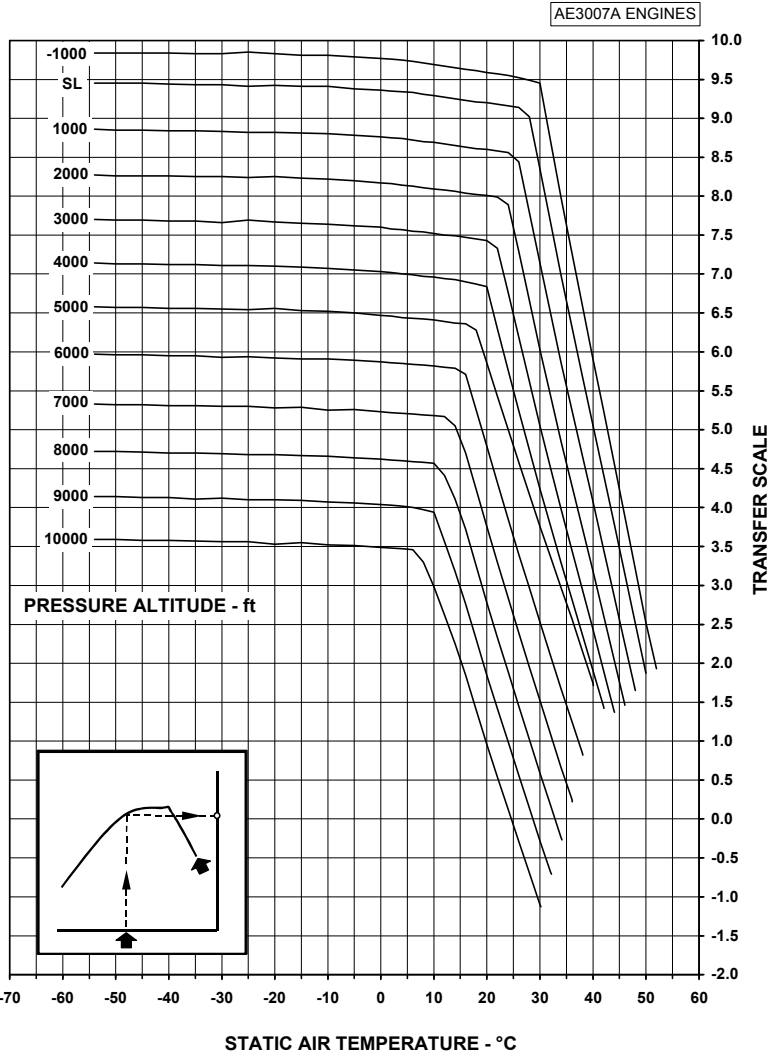
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LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 2 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 1 OF 2

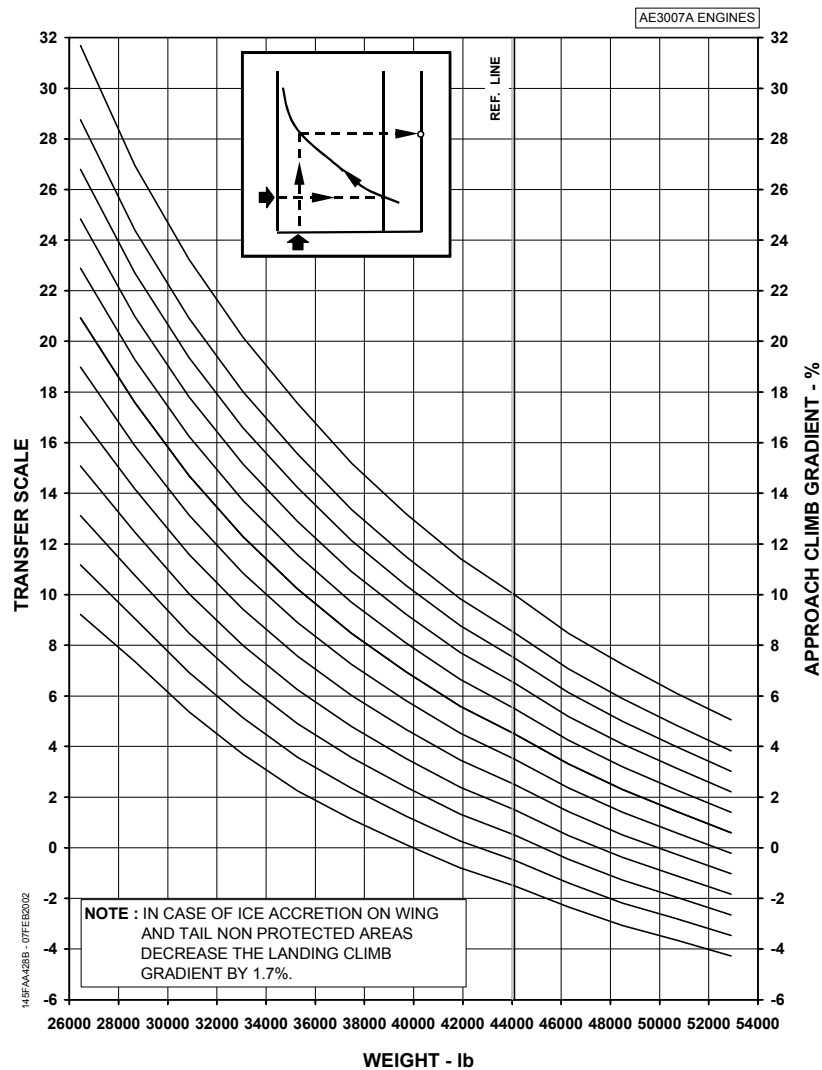


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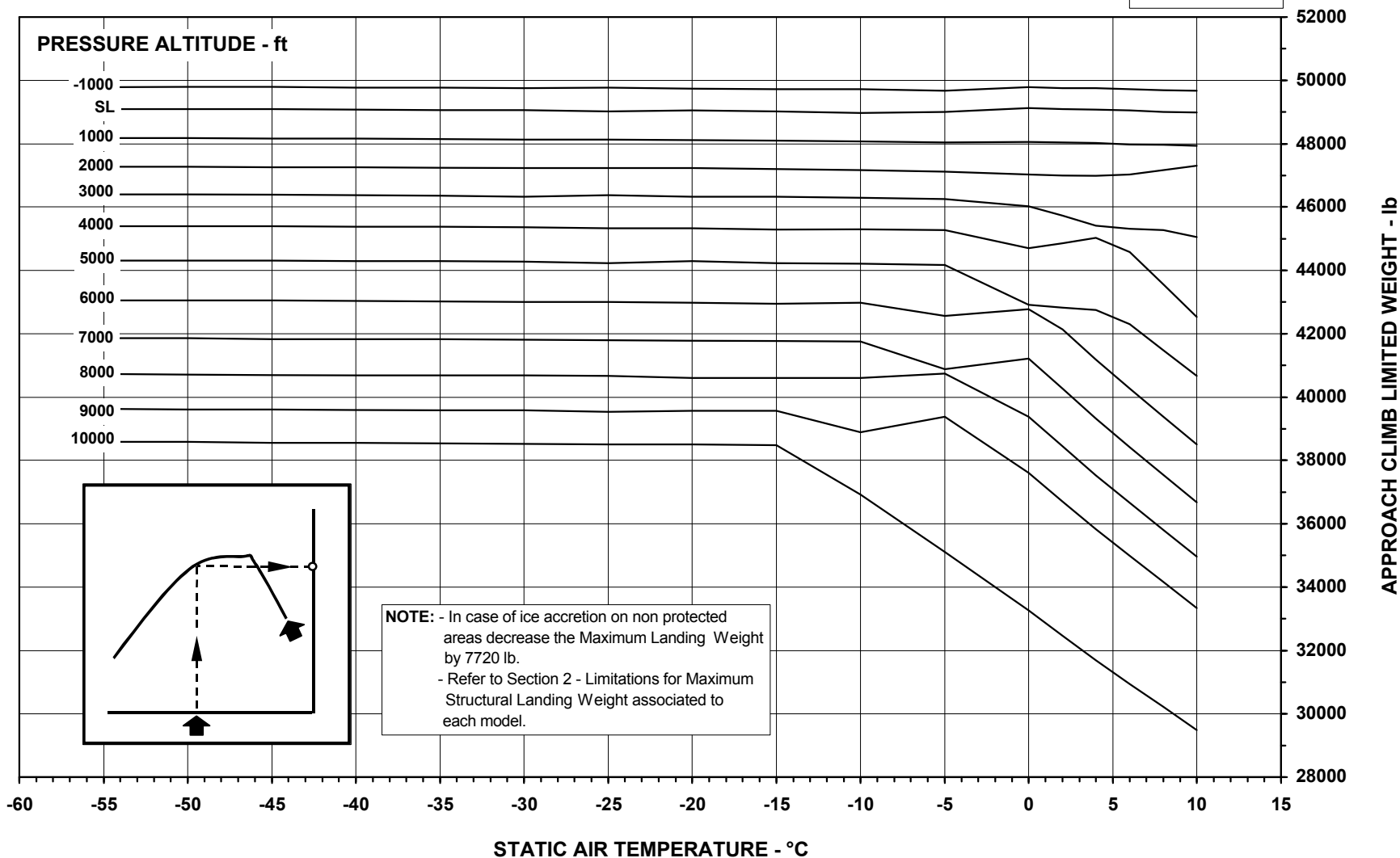


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 2 OF 2



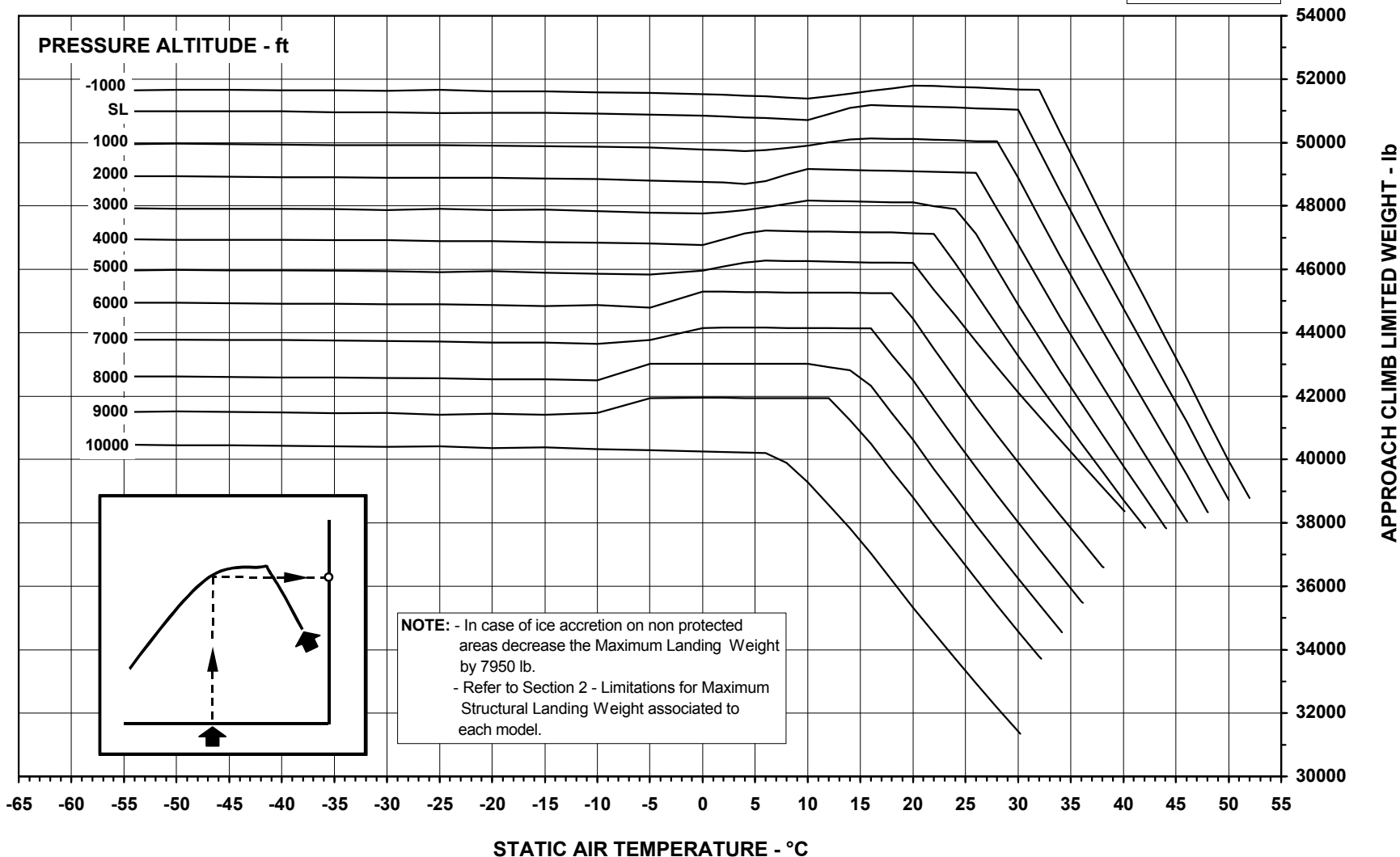
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AE3007A ENGINES



MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED **APPROACH FLAPS 9° - ANTI-ICE OFF**

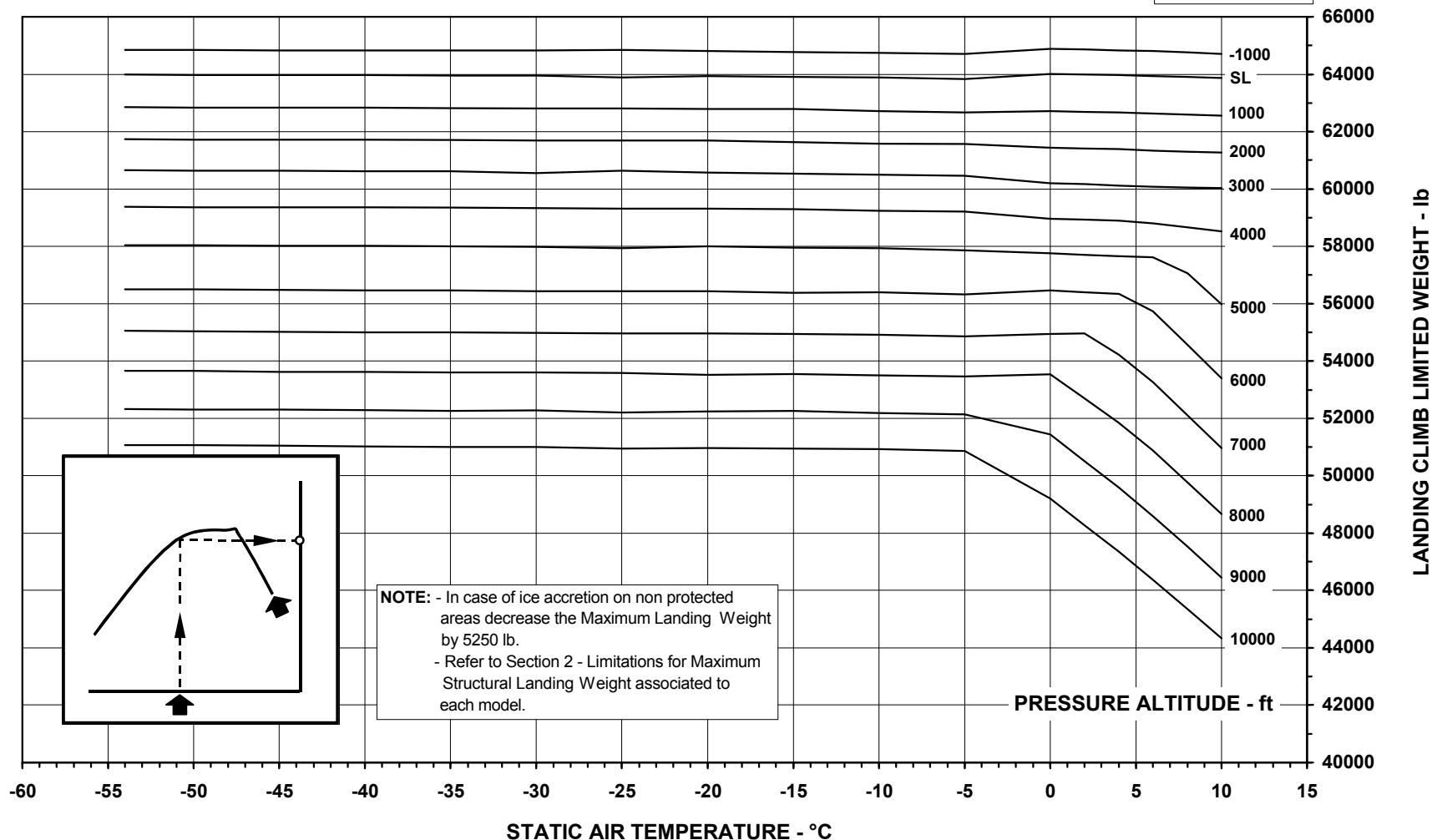
AE3007A ENGINES



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AE3007A ENGINES

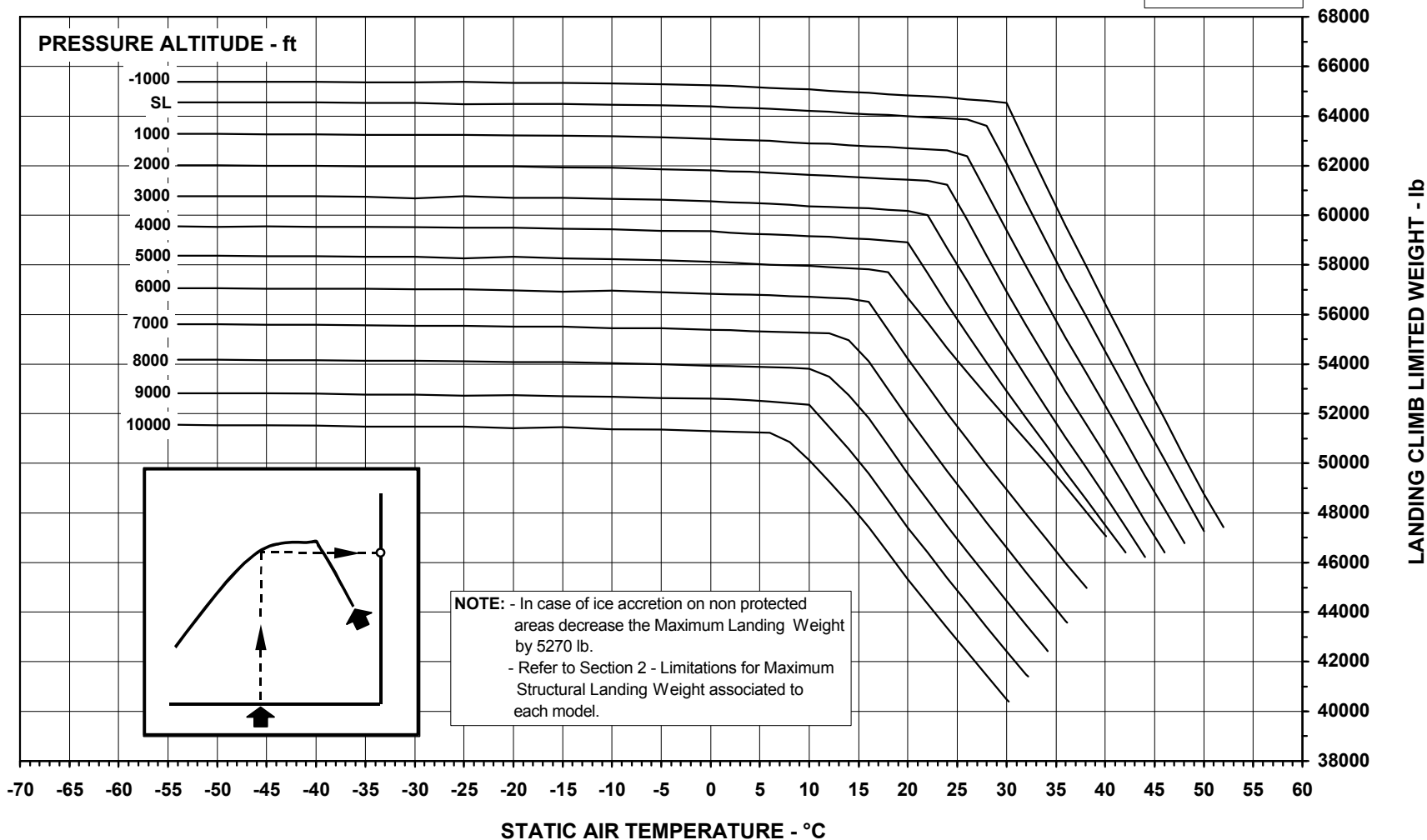


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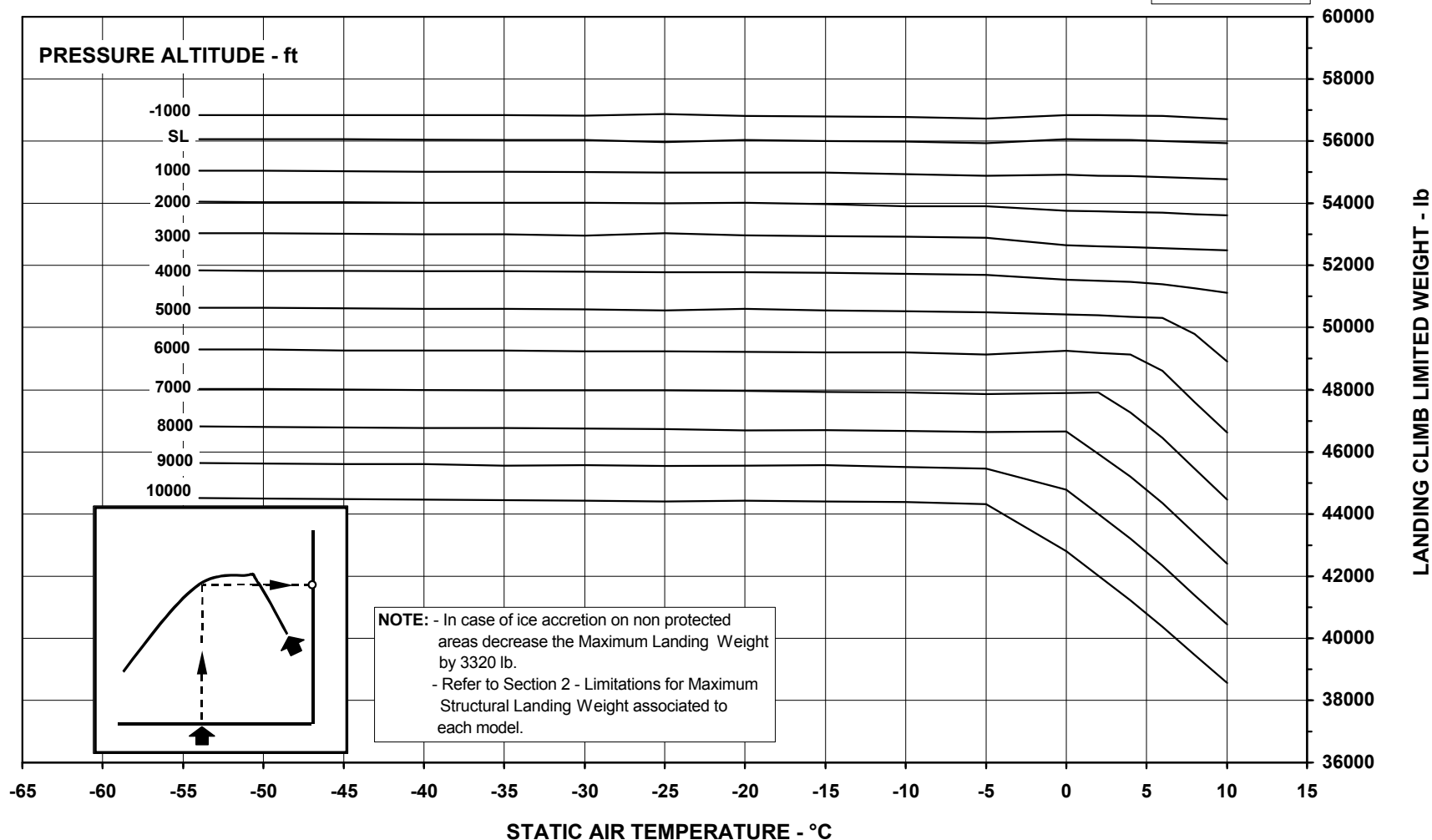
AE3007A ENGINES



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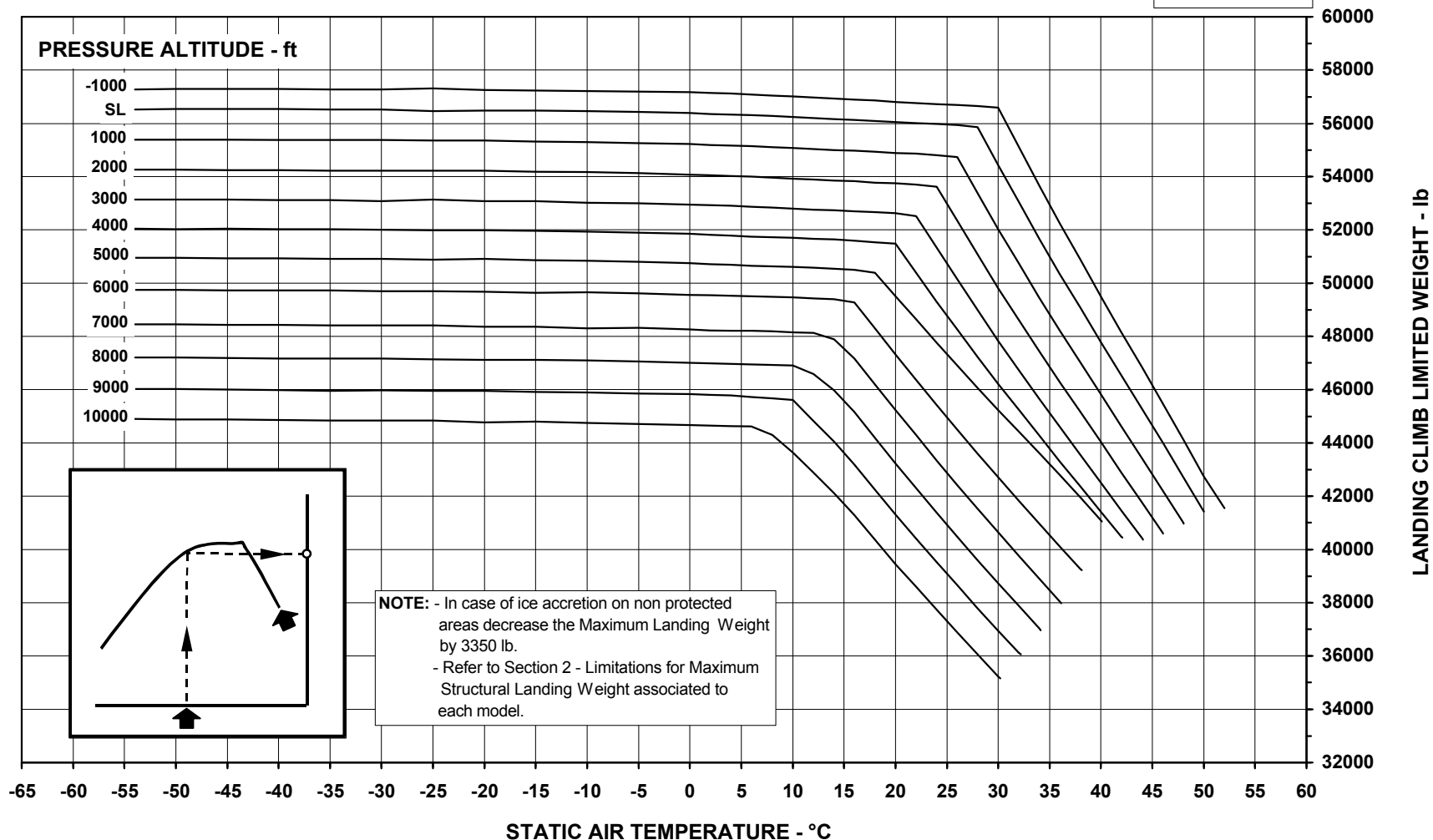
MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE ON**

AE3007A ENGINES



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED LANDING FLAPS 45° - ANTI-ICE OFF

AE3007A ENGINES



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AIRPLANE FLIGHT MANUAL

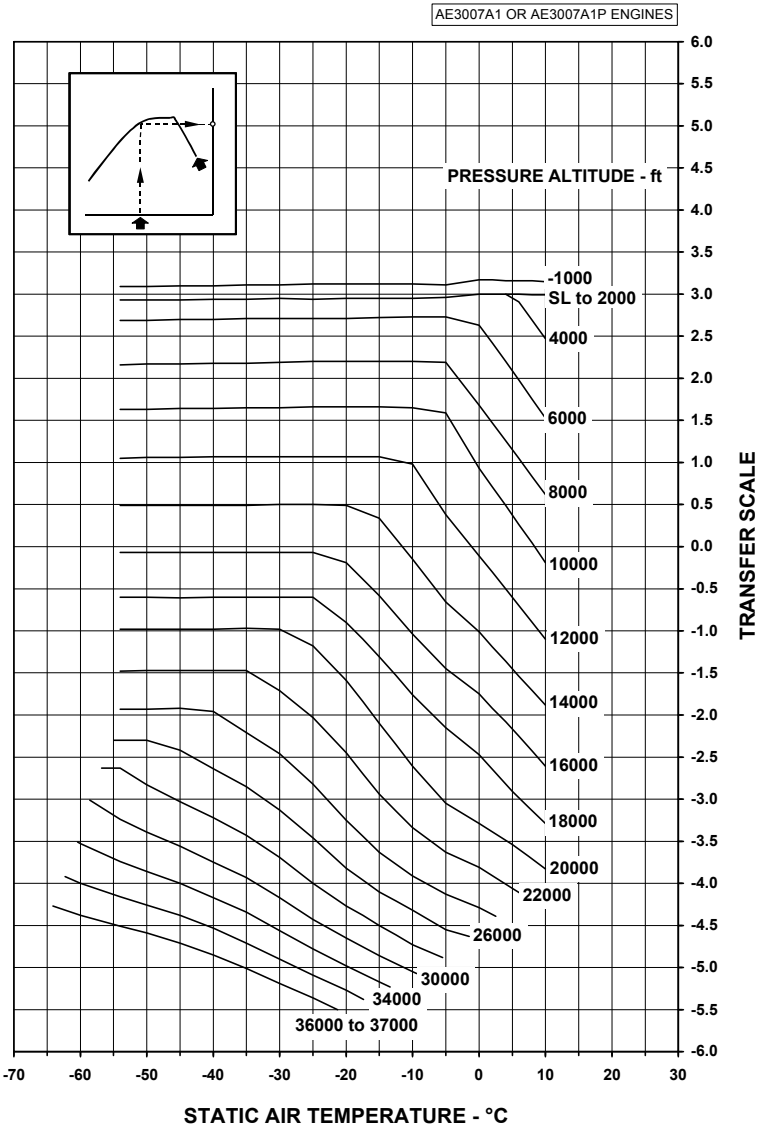
SUPPLEMENT 23
OPERATION WITH
ENGINE ANTI-ICE VALVE
LOCKED OPEN

PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A1 OR AE7003A1P ENGINES

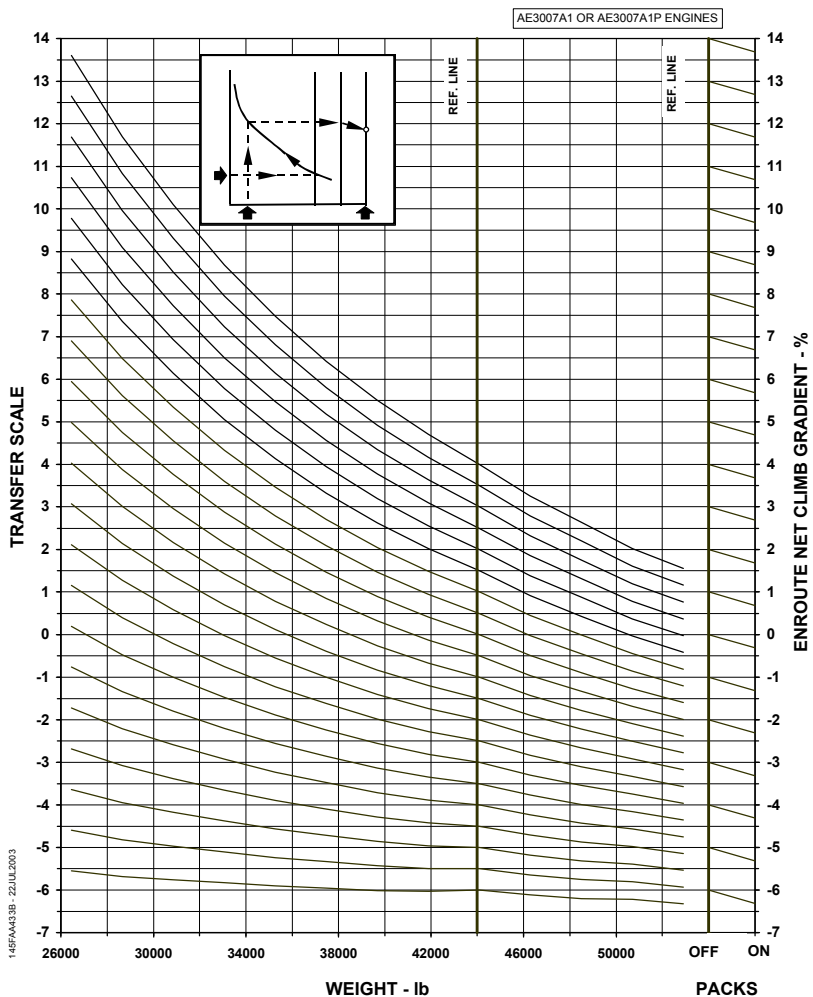
The following performance charts are applicable for airplanes equipped with AE3007A1 or AE3007A1P engines.

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ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE ON
CHART 1 OF 2

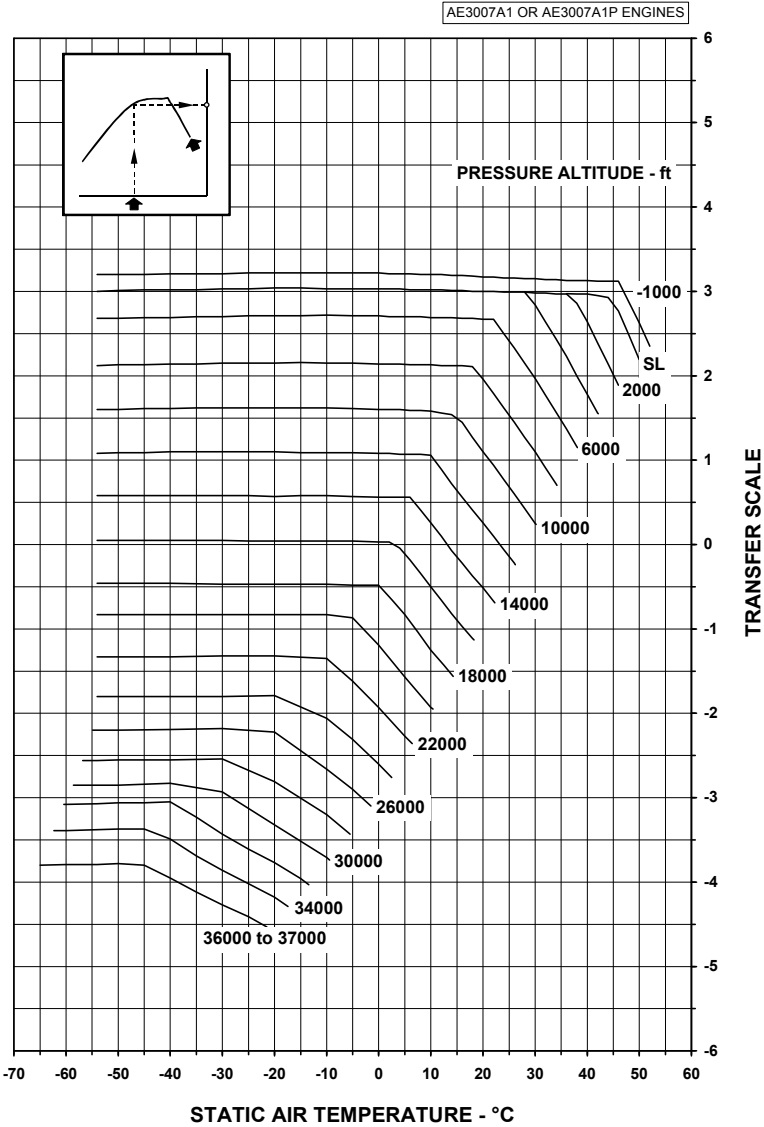


ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE ON
CHART 2 OF 2



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ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE OFF
CHART 1 OF 2

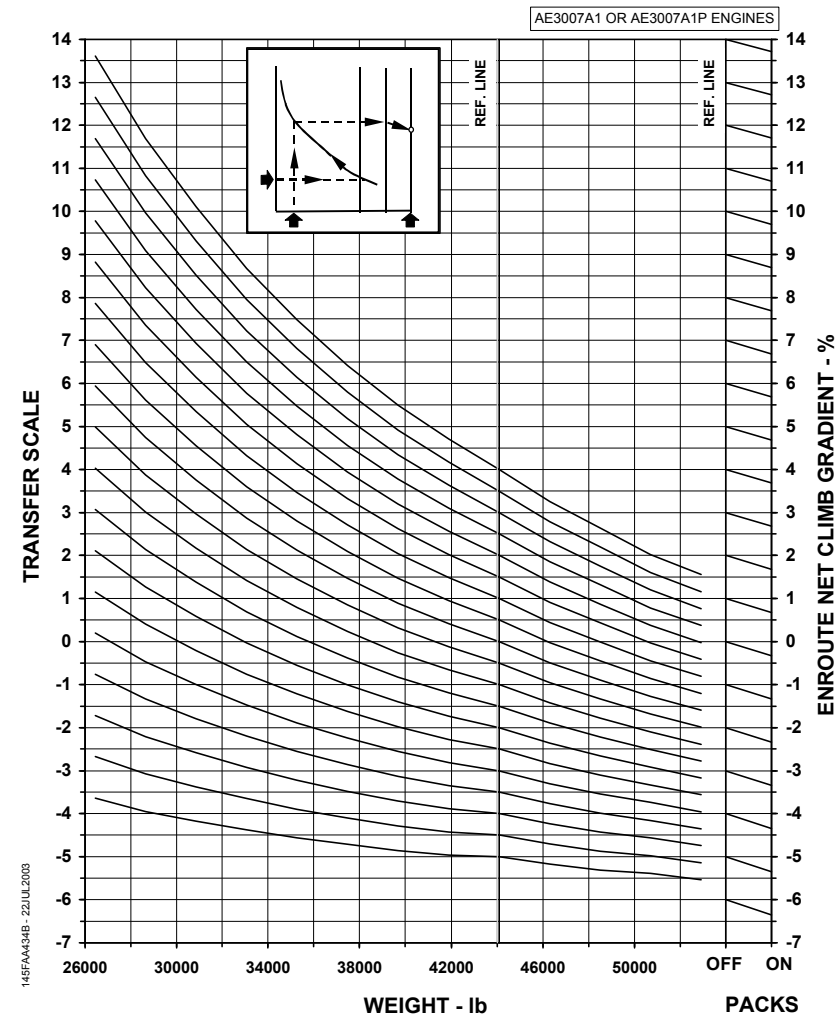




ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE

FLAPS UP - ANTI-ICE OFF

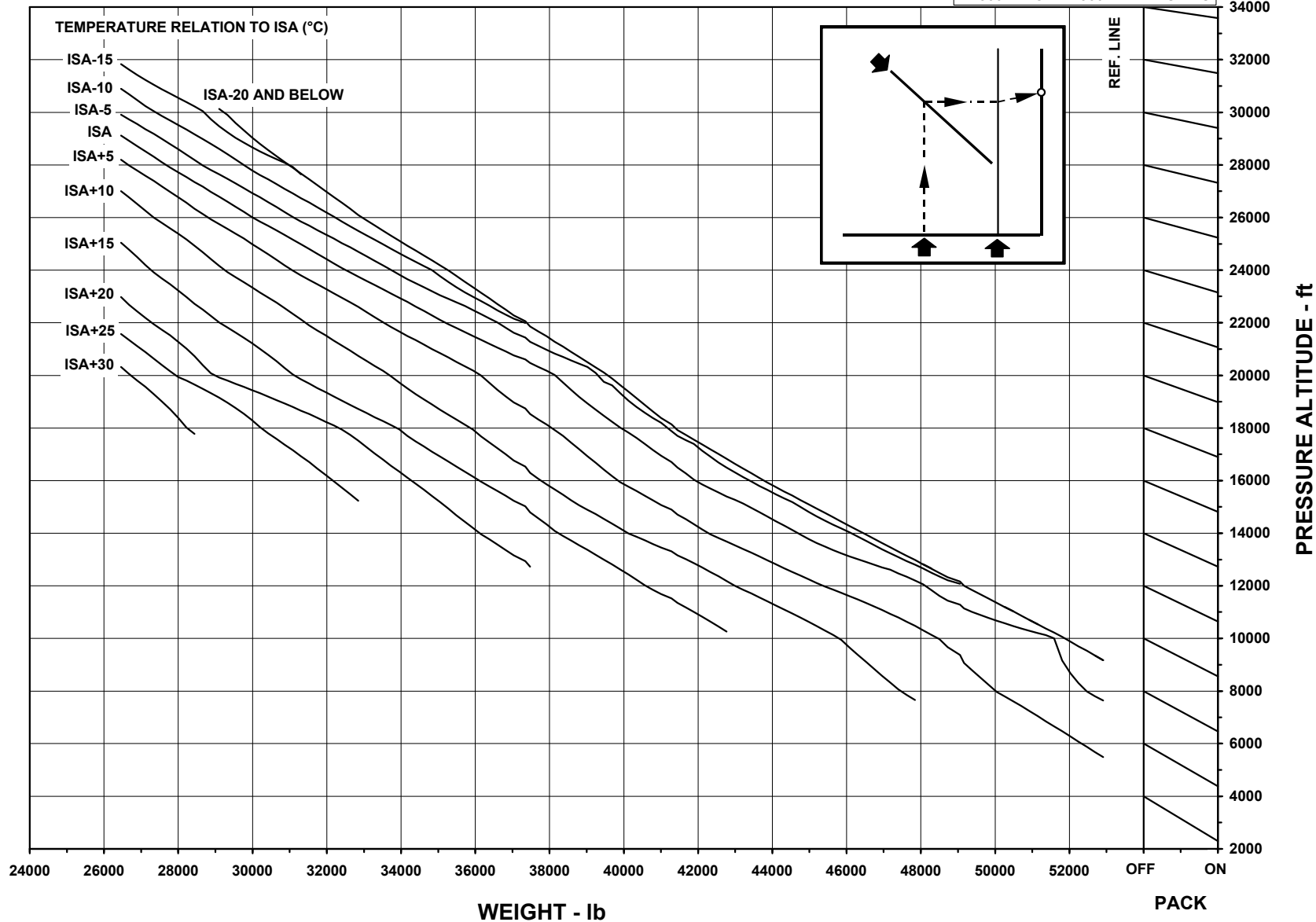
CHART 2 OF 2



ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT

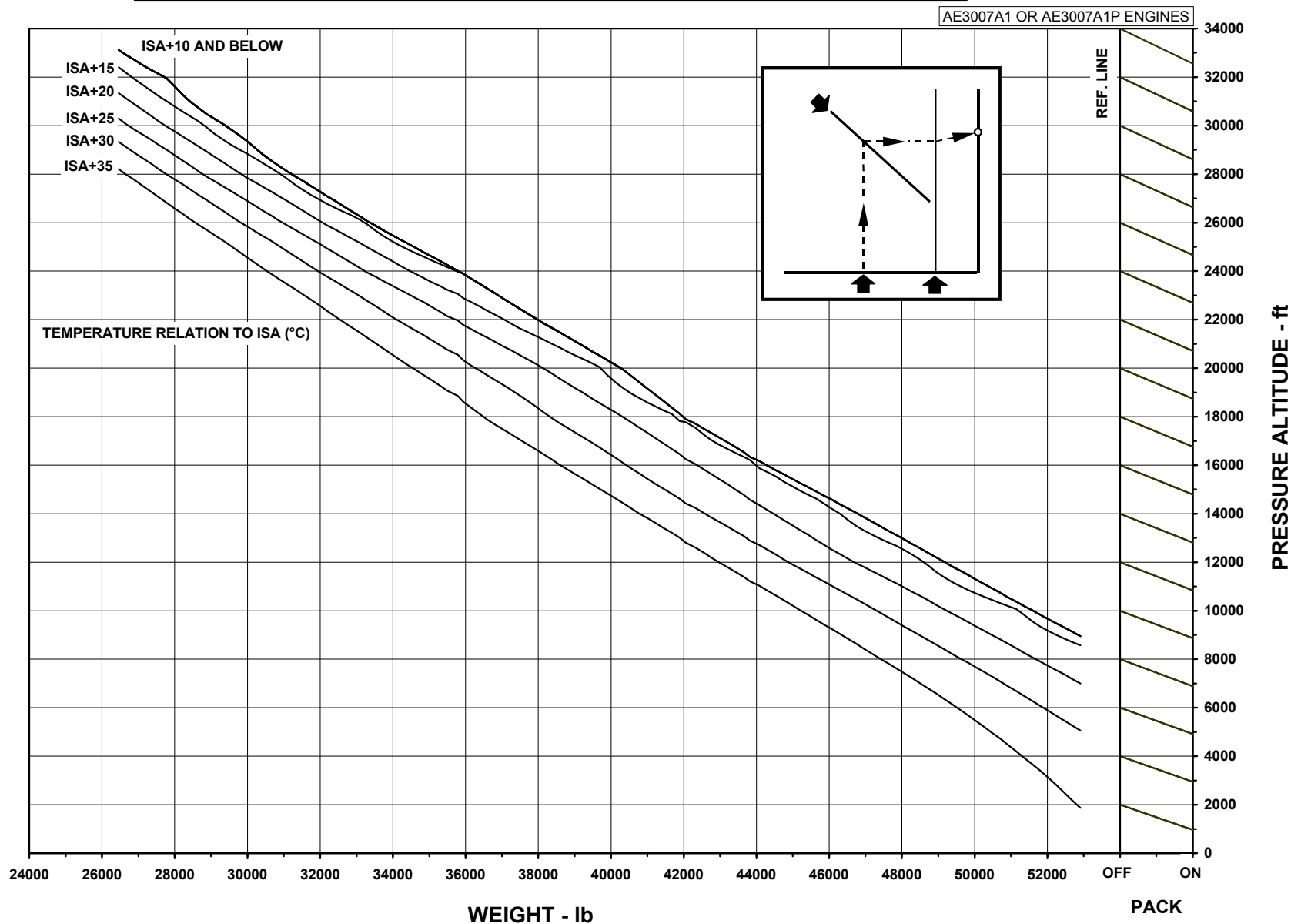
FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE ON

AE3007A1 OR AE3007A1P ENGINES

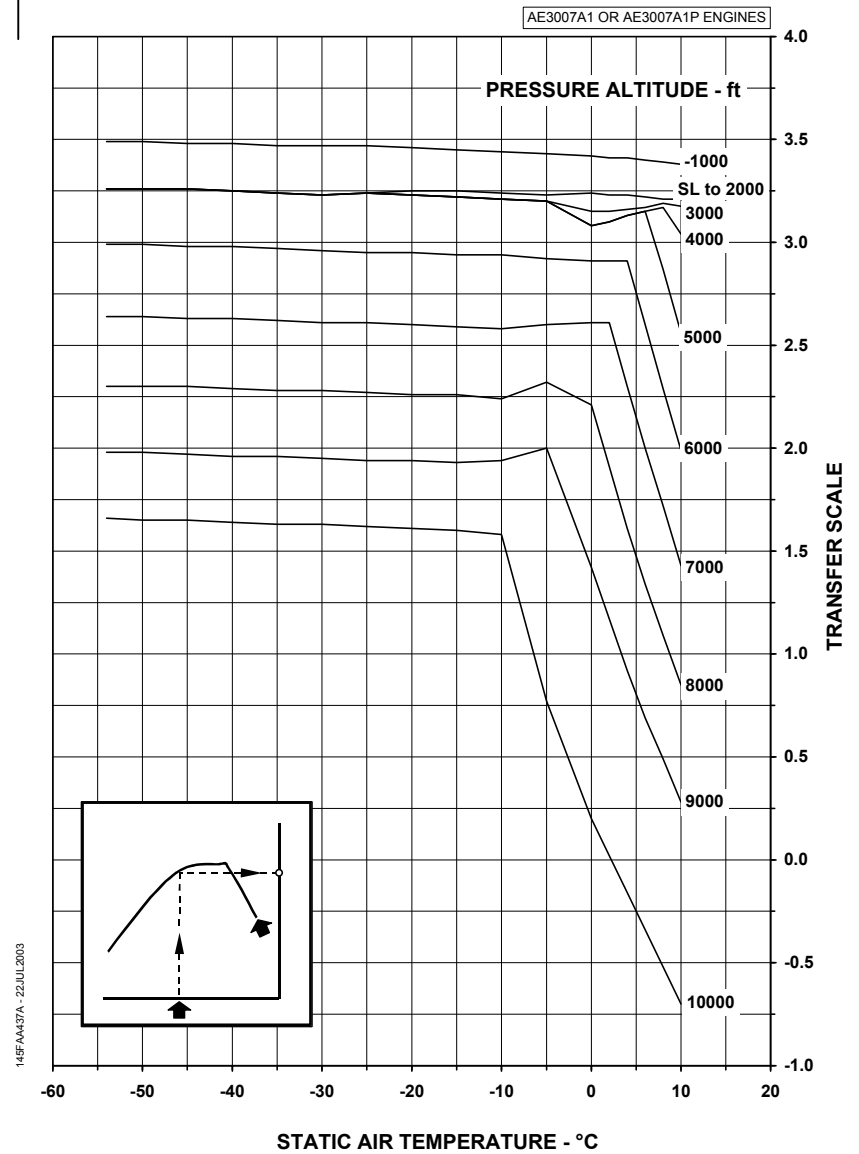


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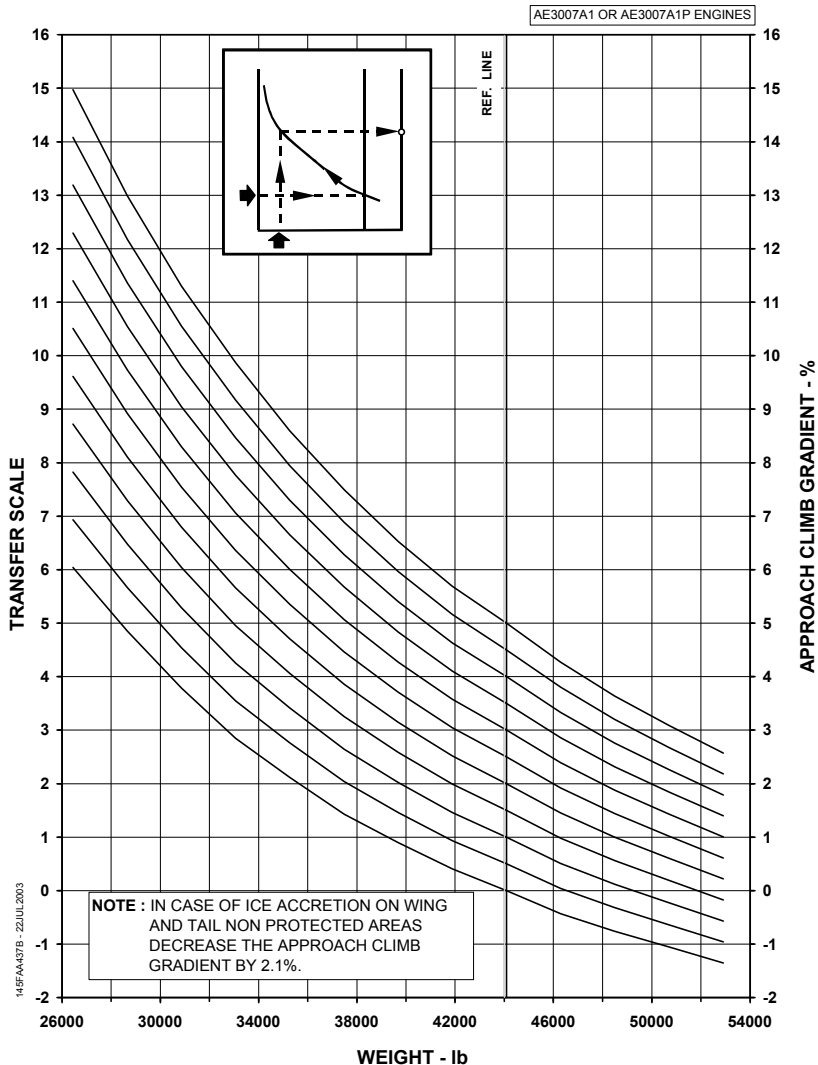
ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT
FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF



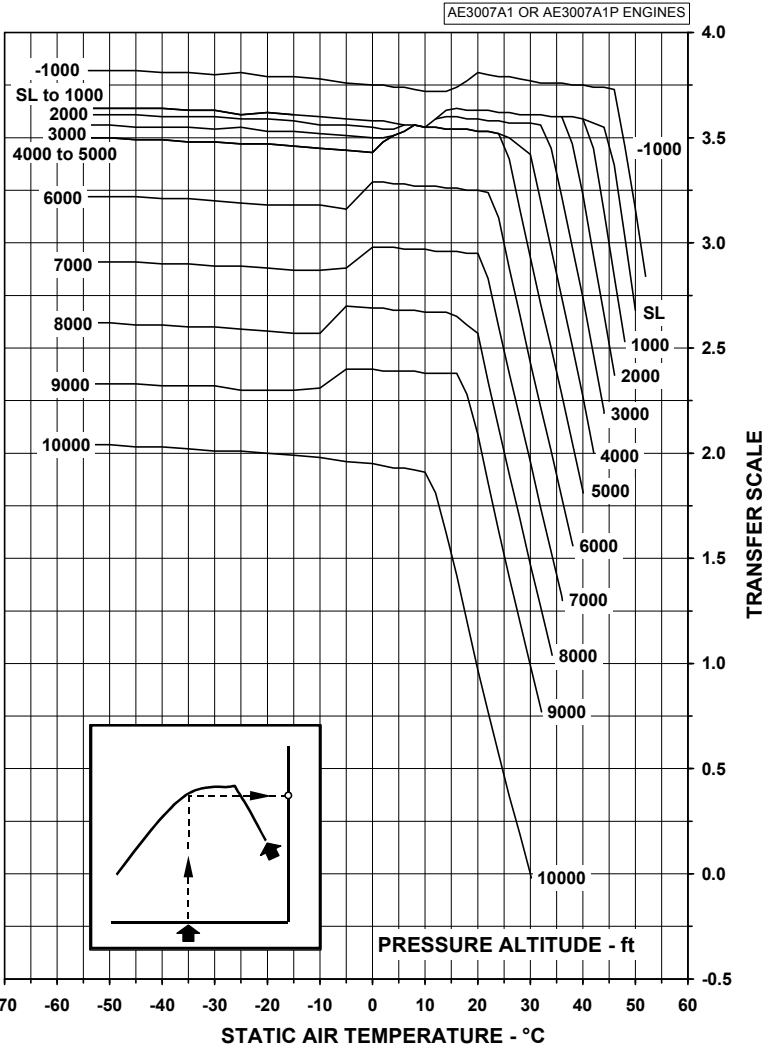
APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 1 OF 2



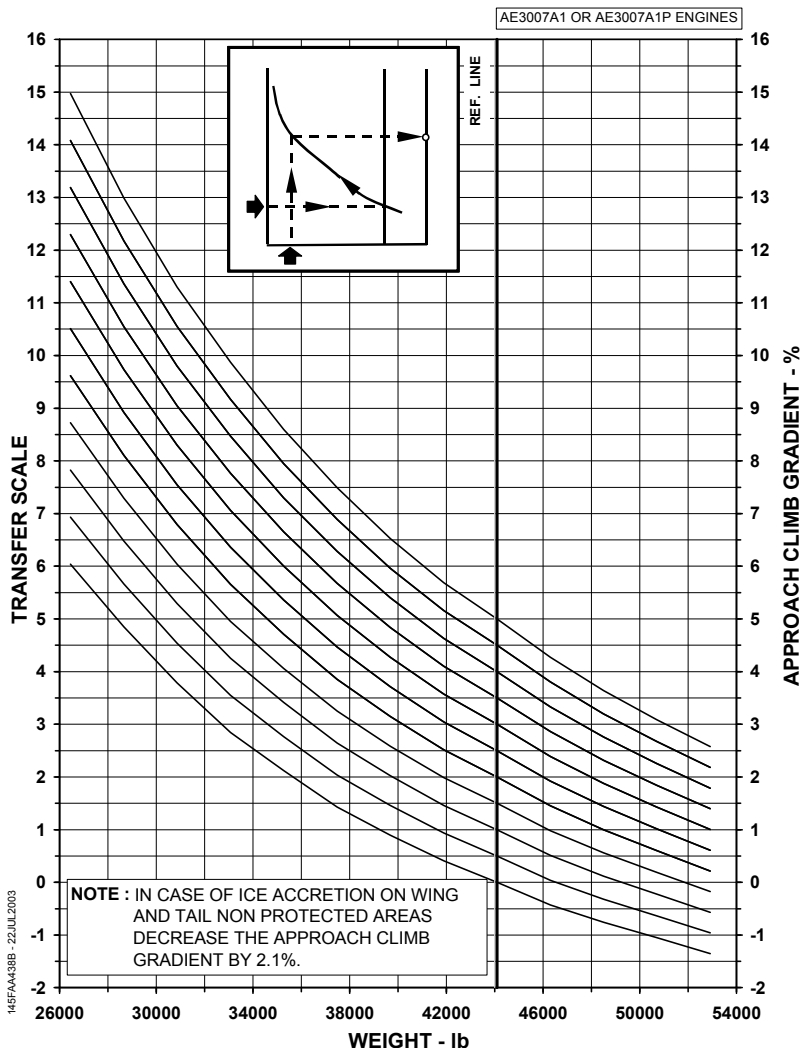
APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 2 OF 2



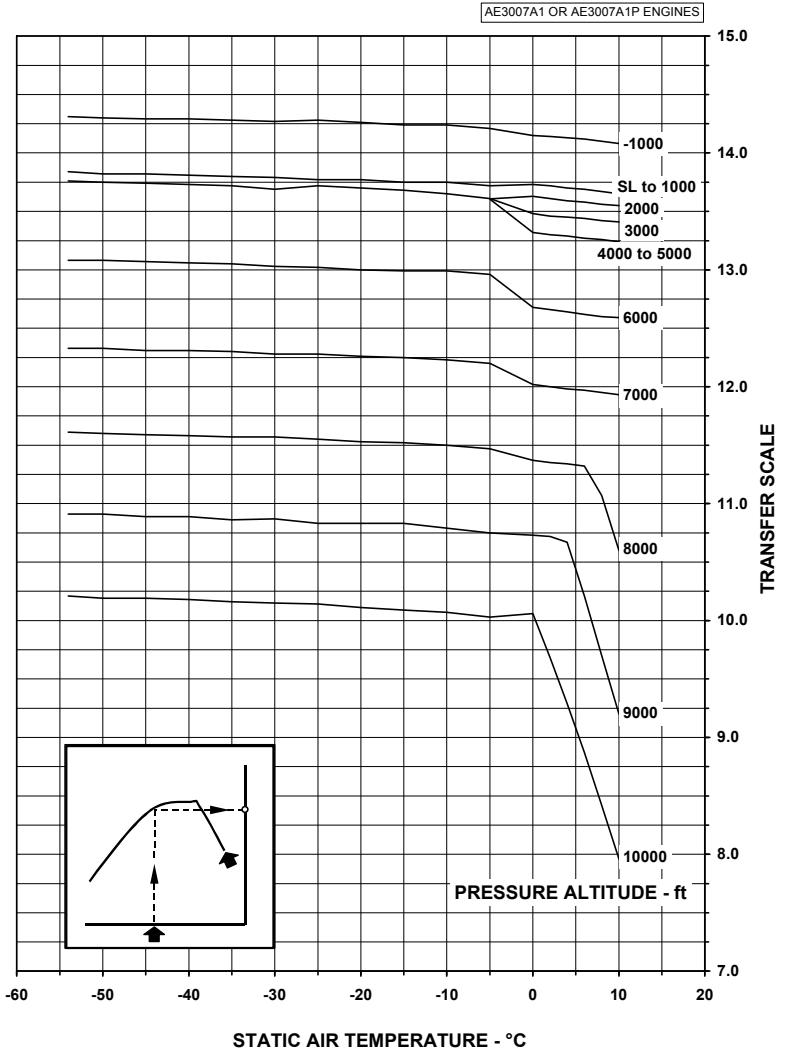
APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 1 OF 2



APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 2 OF 2

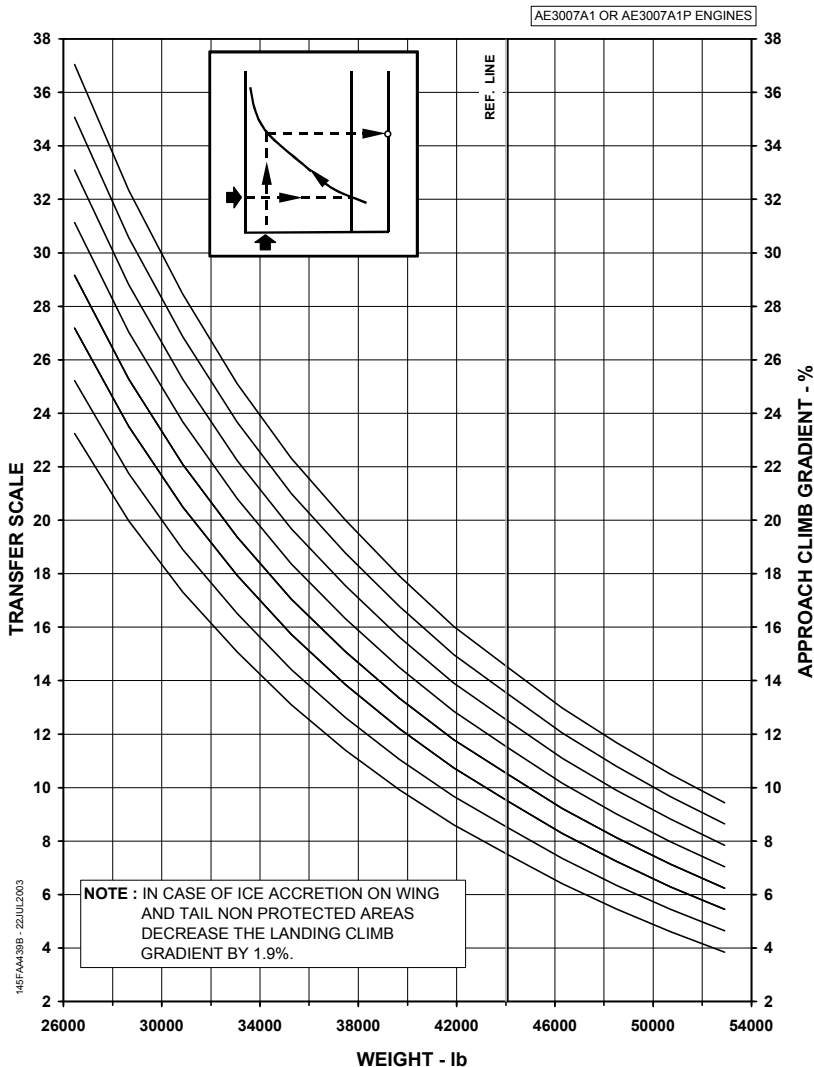


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 1 OF 2



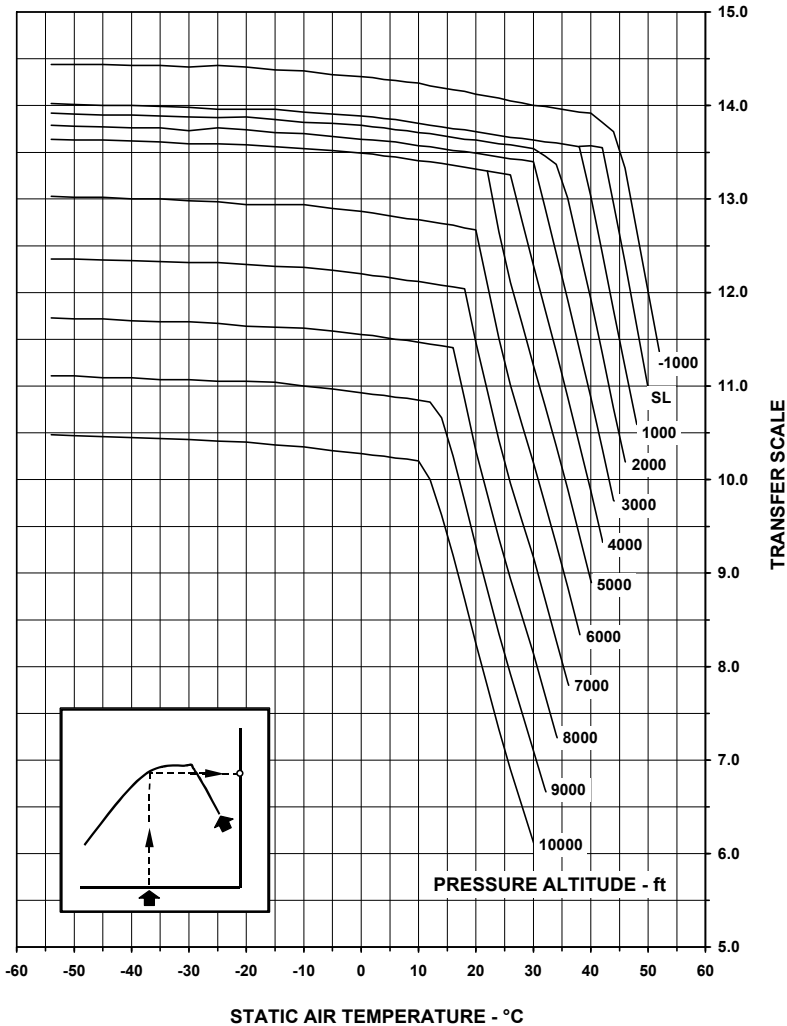


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 2 OF 2

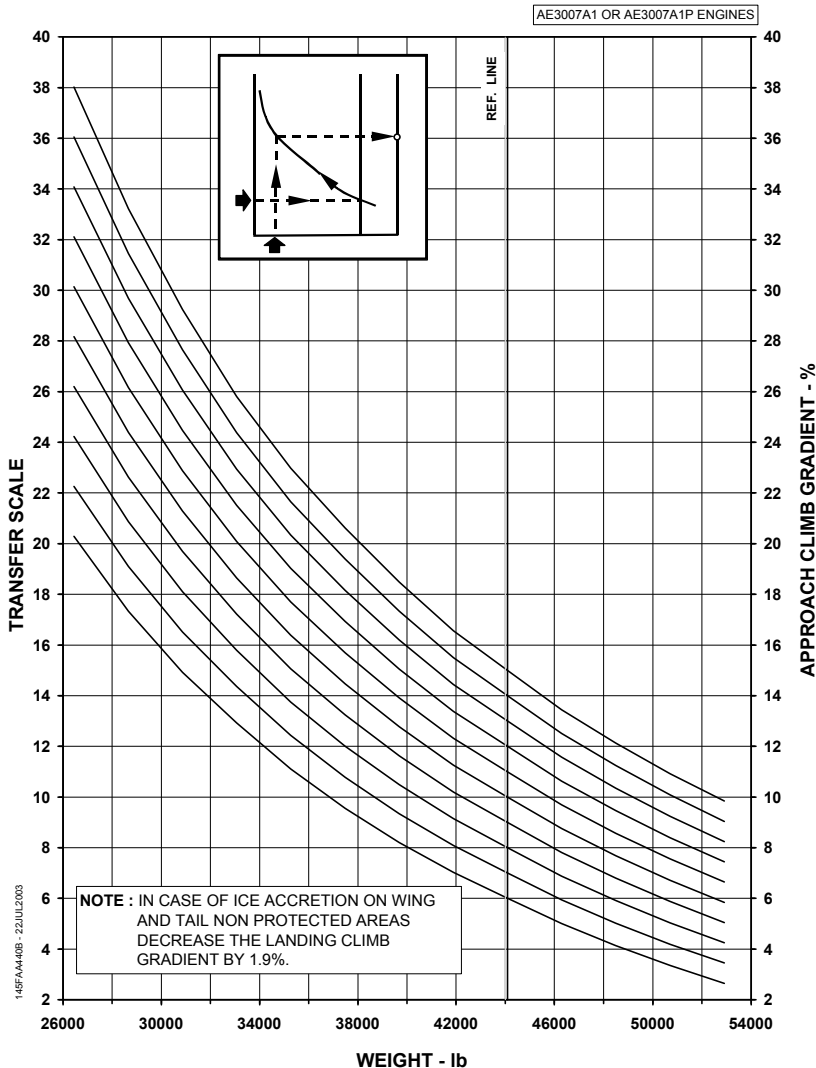


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 1 OF 2

AE3007A1 OR AE3007A1P ENGINES

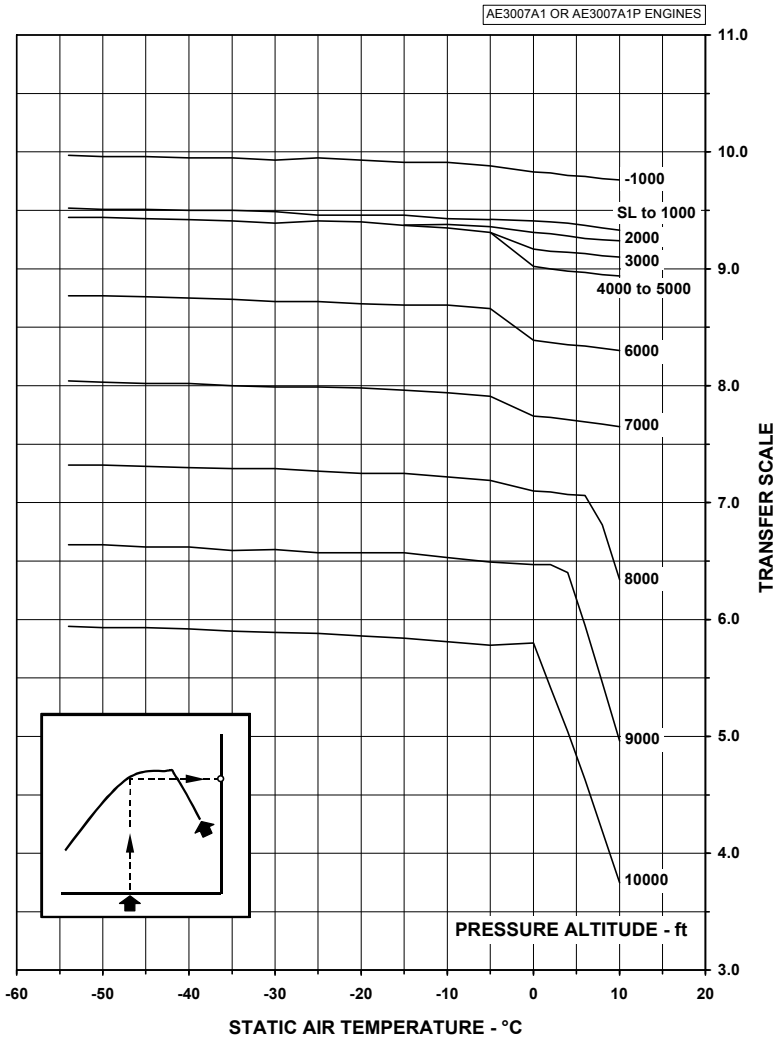


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 2 OF 2



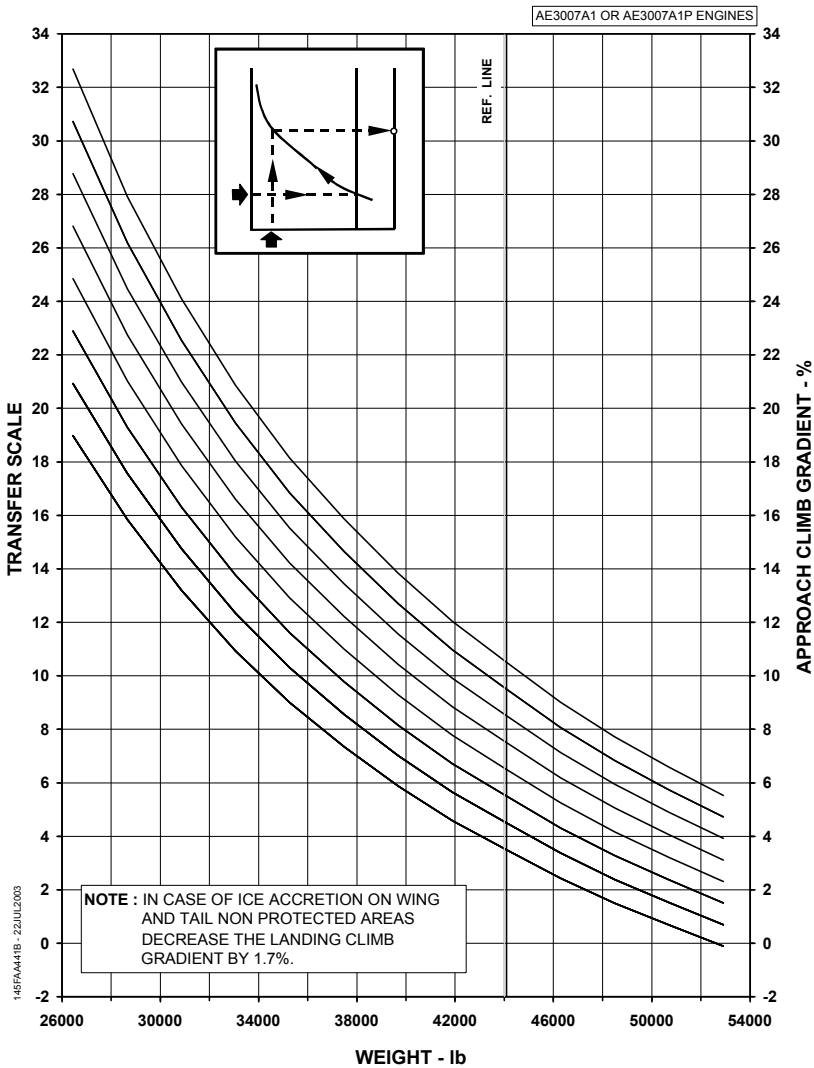


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 1 OF 2





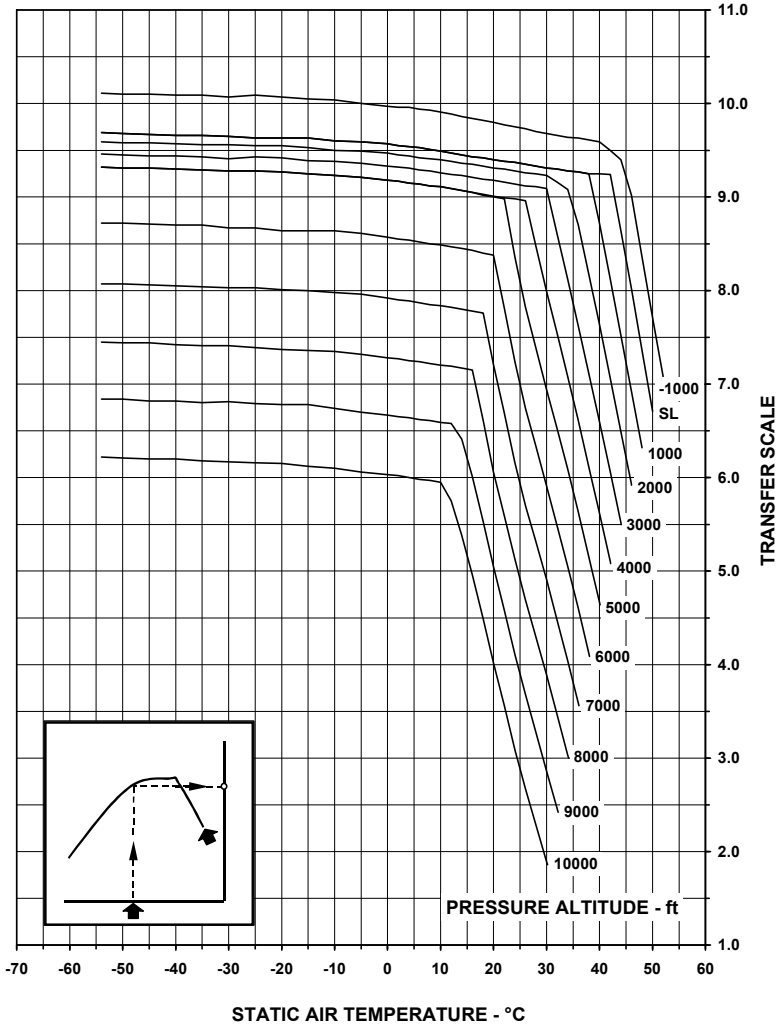
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 2 OF 2





LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 1 OF 2

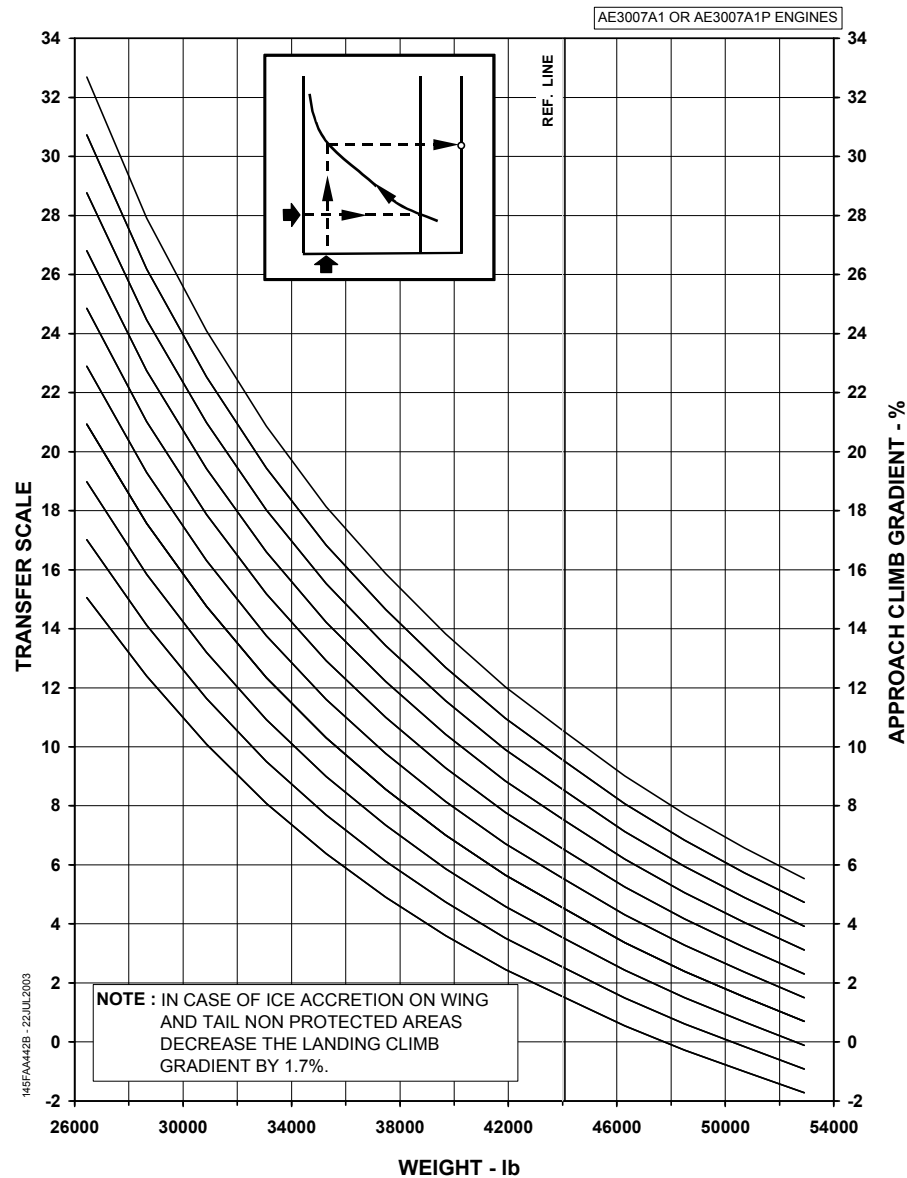
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145FAA442A - 22JUL2003

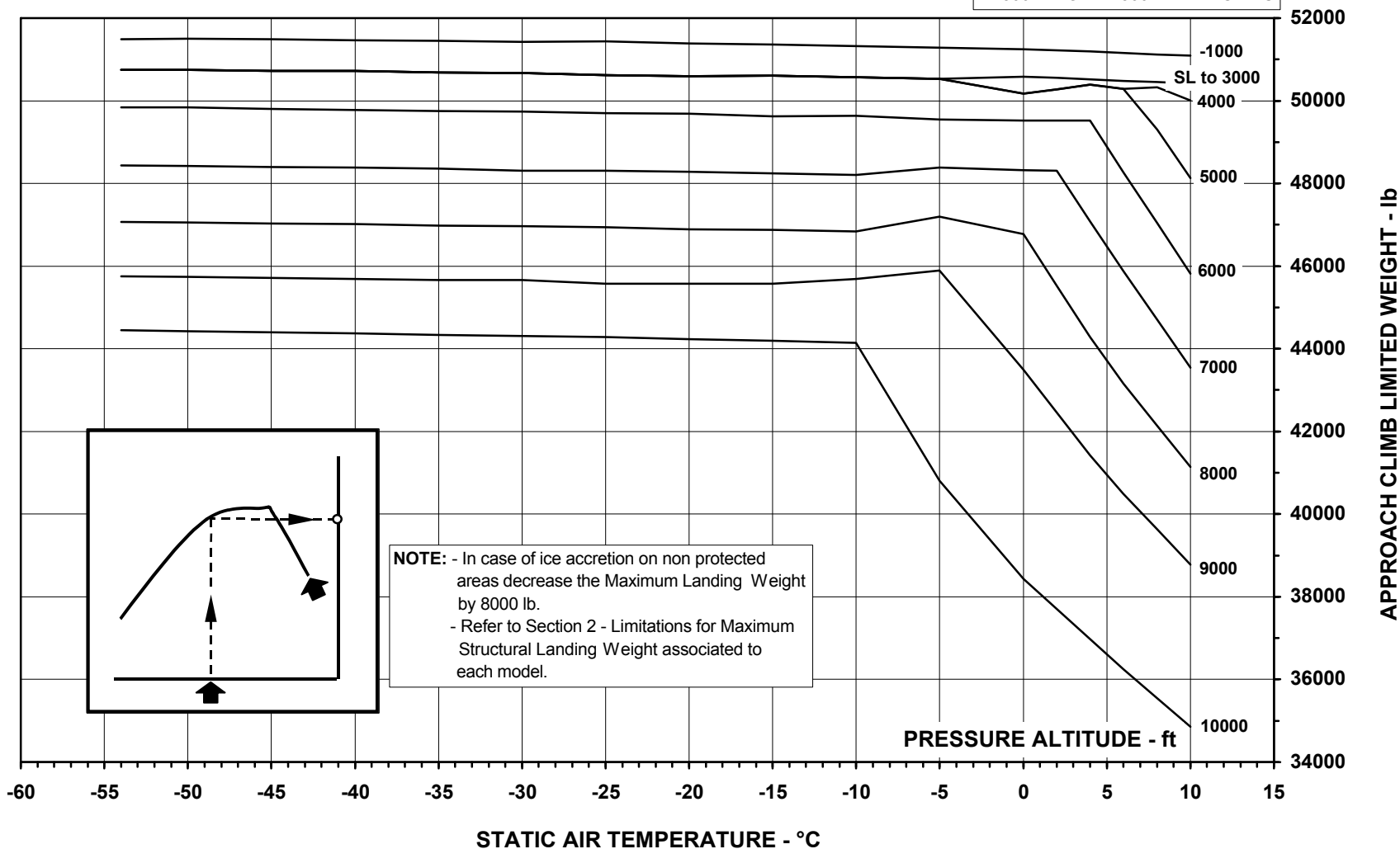
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LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 2 OF 2



MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED **APPROACH FLAPS 9° - ANTI-ICE ON**

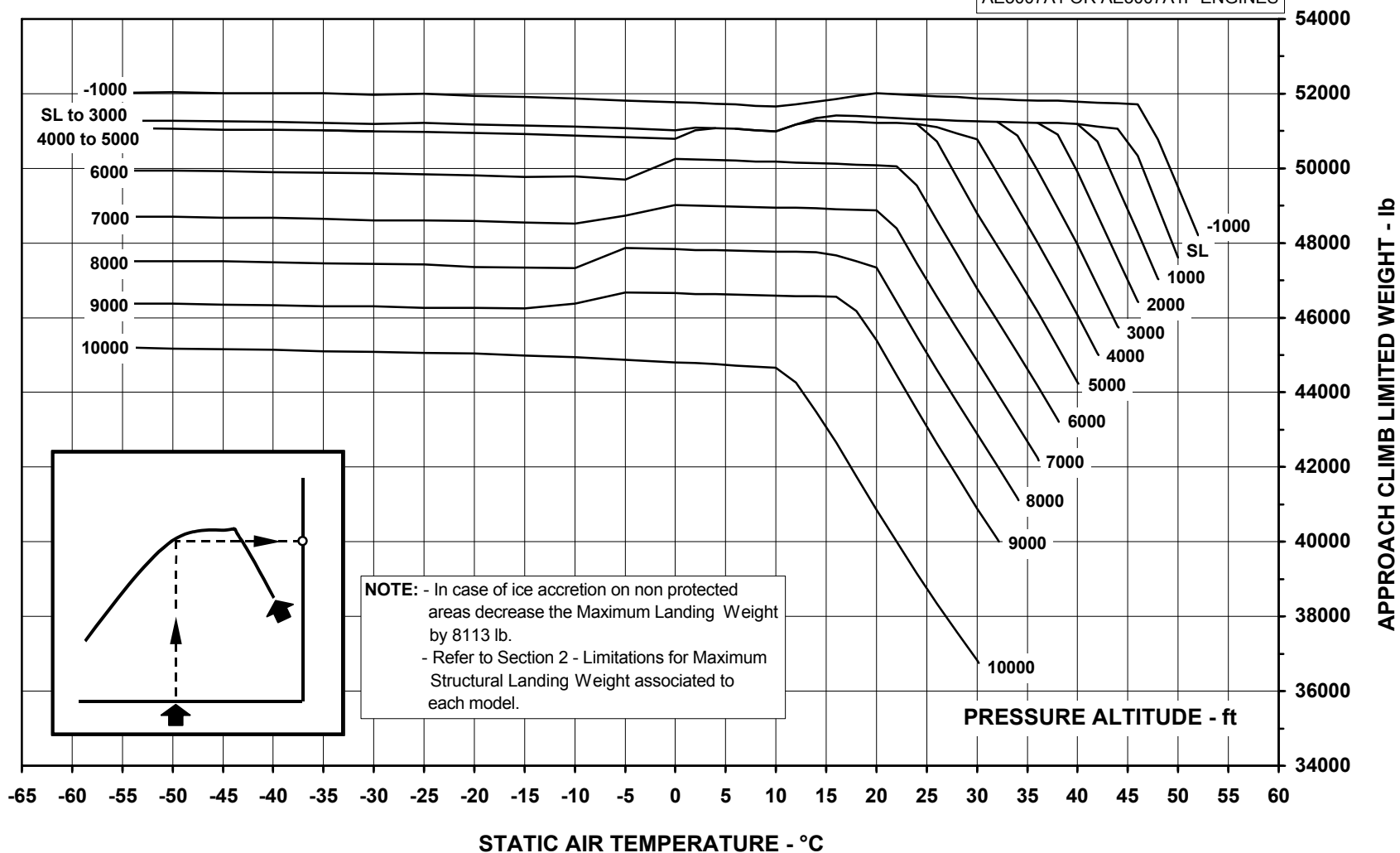
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MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED

APPROACH FLAPS 9° - ANTI-ICE OFF

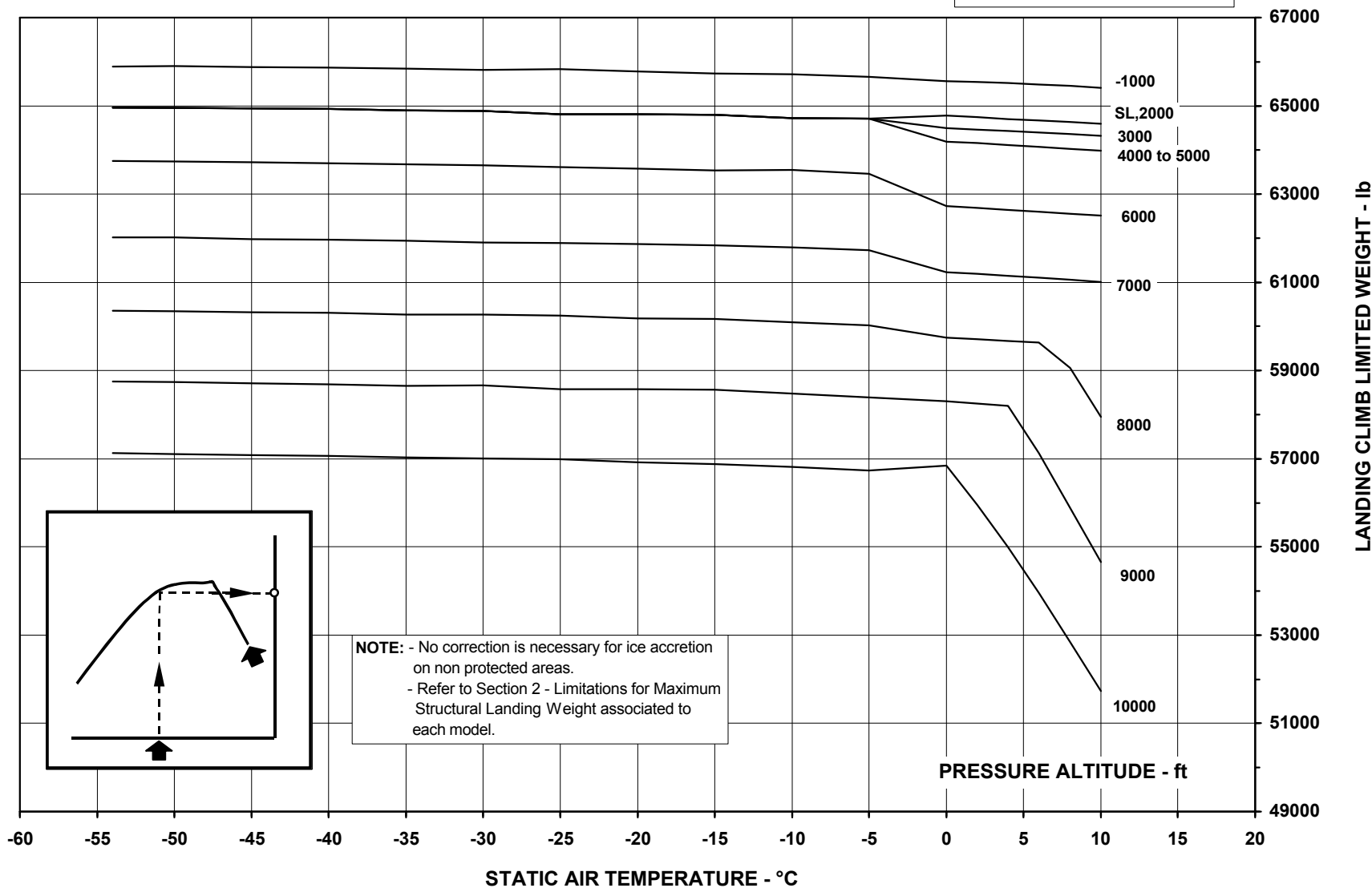
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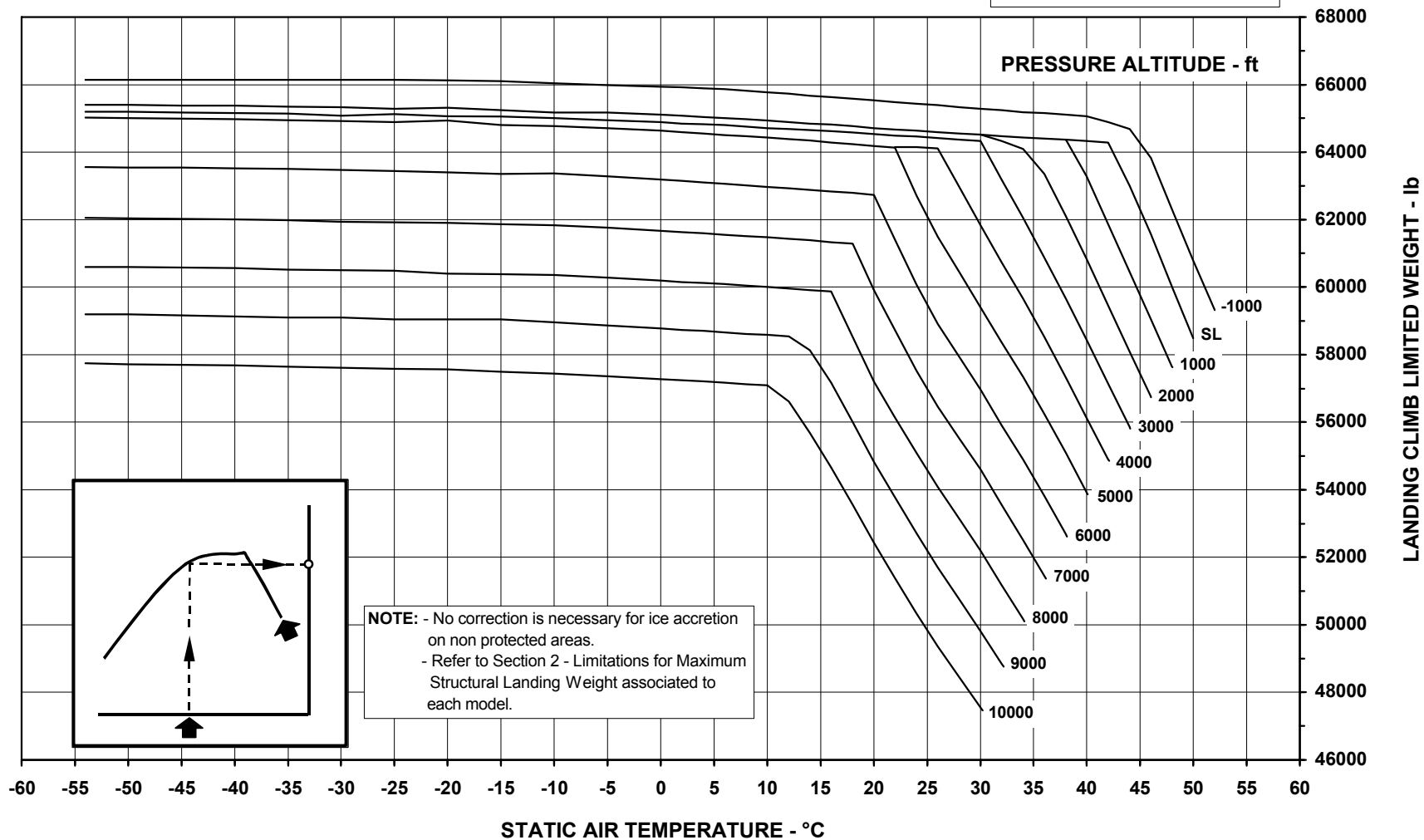
MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 22° - ANTI-ICE ON**

AE3007A1 OR AE3007A1P ENGINES



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 22° - ANTI-ICE OFF**

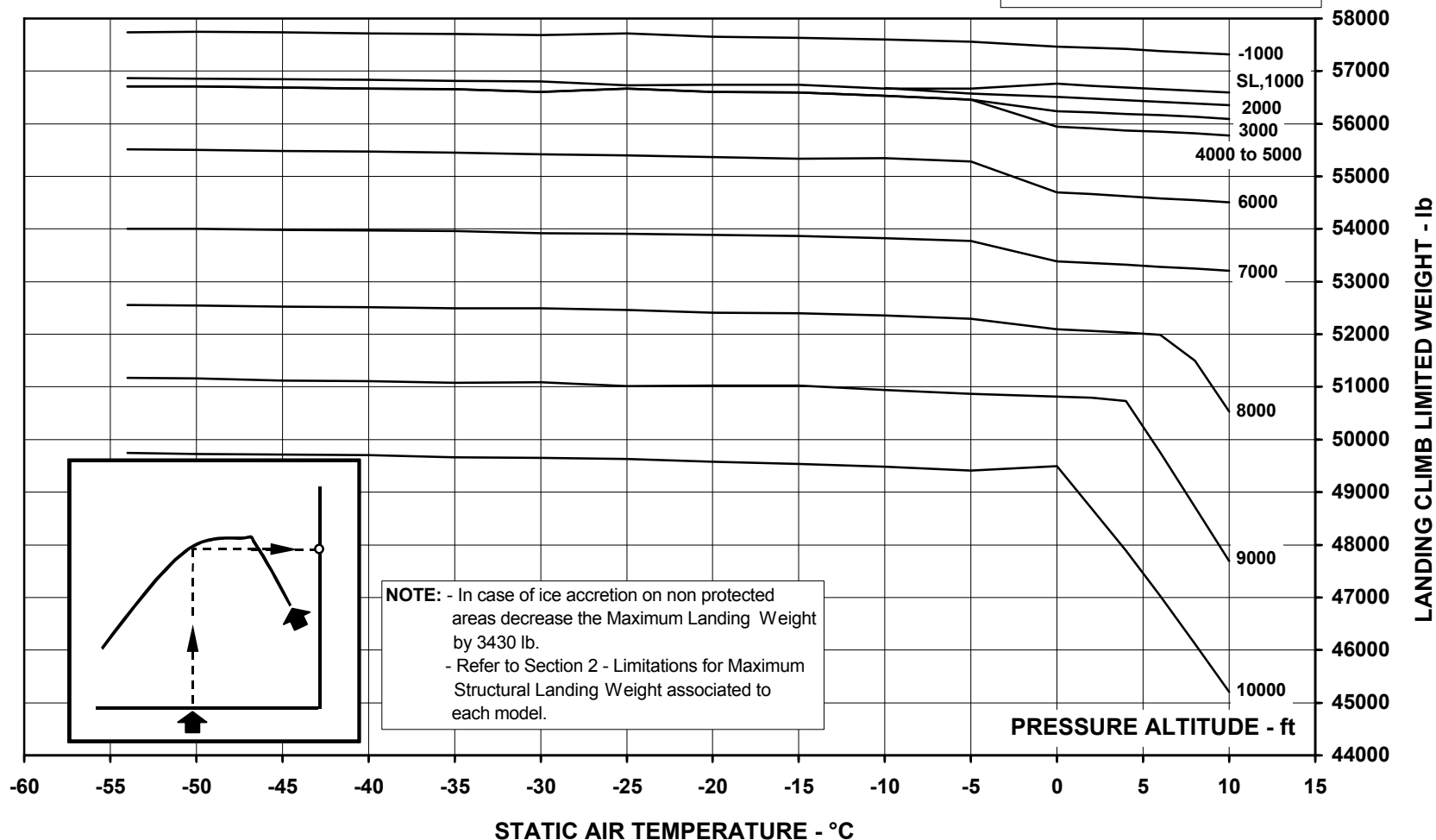
AE3007A1 OR AE3007A1P ENGINES



145FAA446 - 22JUL2003

MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE ON**

AE3007A1 OR AE3007A1P ENGINES

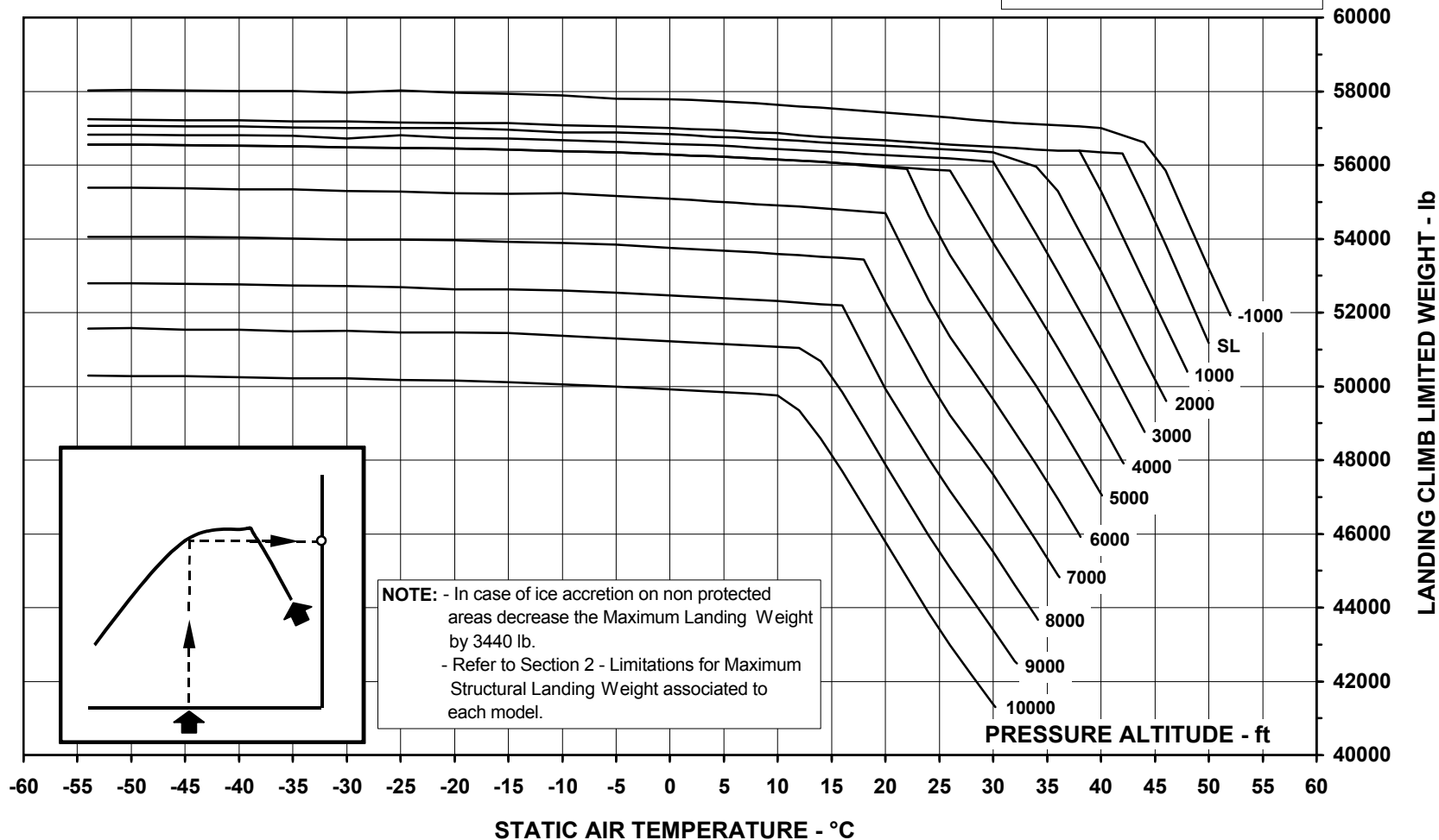


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MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE OFF**

AE3007A1 OR AE3007A1P ENGINES



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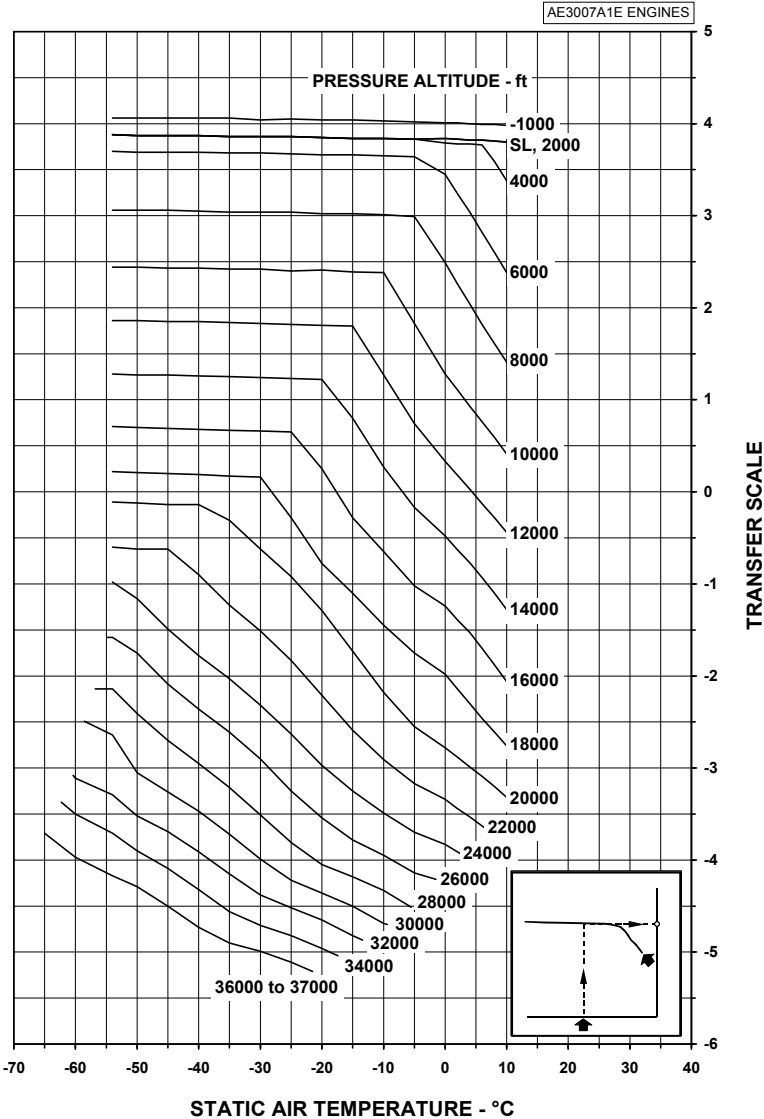
AIRPLANE FLIGHT MANUAL

SUPPLEMENT 23
OPERATION WITH
ENGINE ANTI-ICE VALVE
LOCKED OPEN

PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A1E ENGINES

The following performance charts are applicable to airplanes equipped with AE3007A1E engines.

ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE ON
CHART 1 OF 2

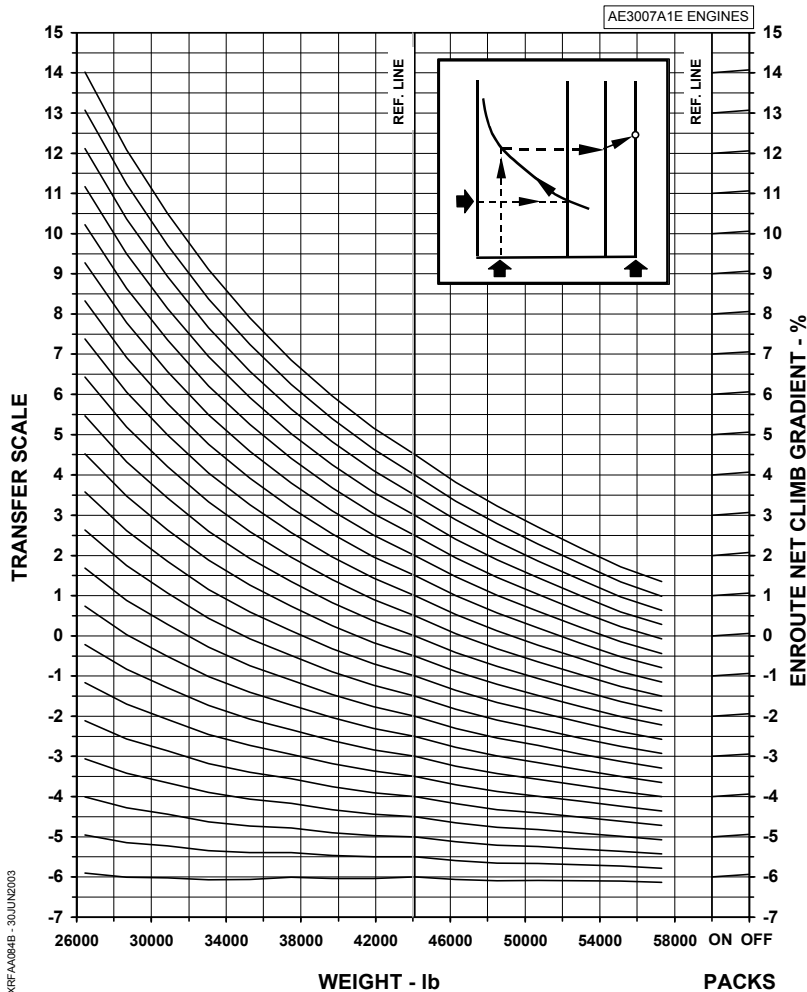


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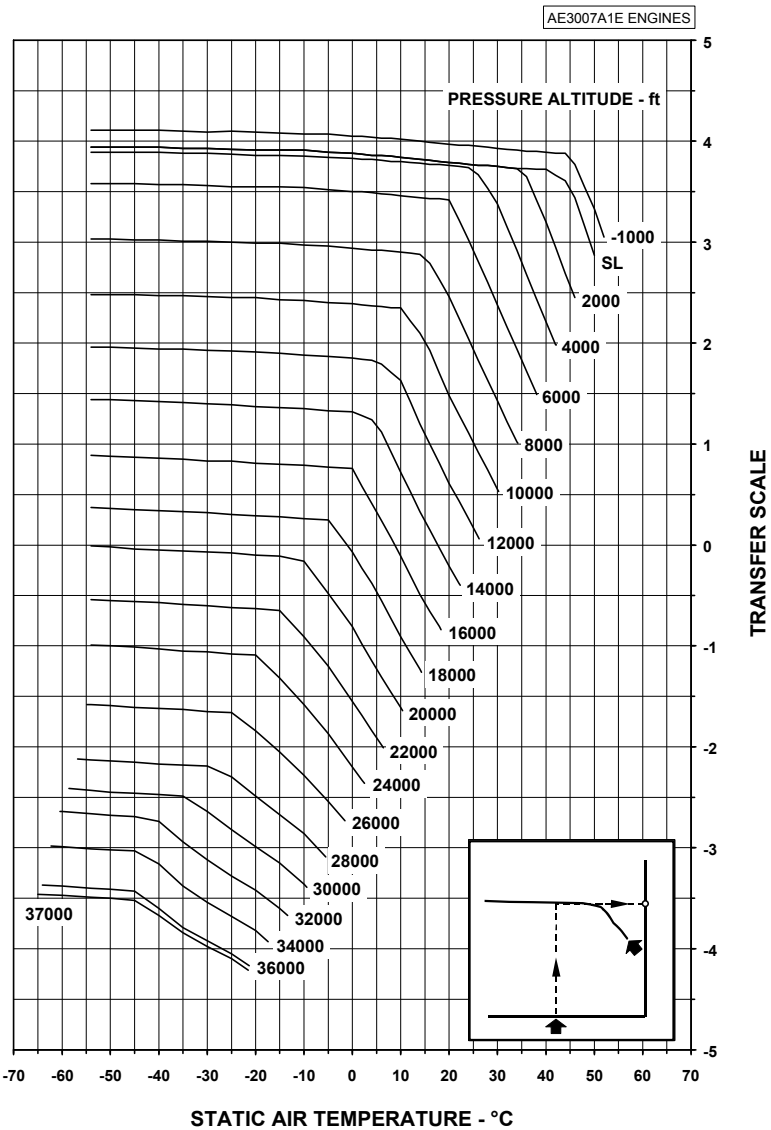
ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE

FLAPS UP - ANTI-ICE ON

CHART 2 OF 2



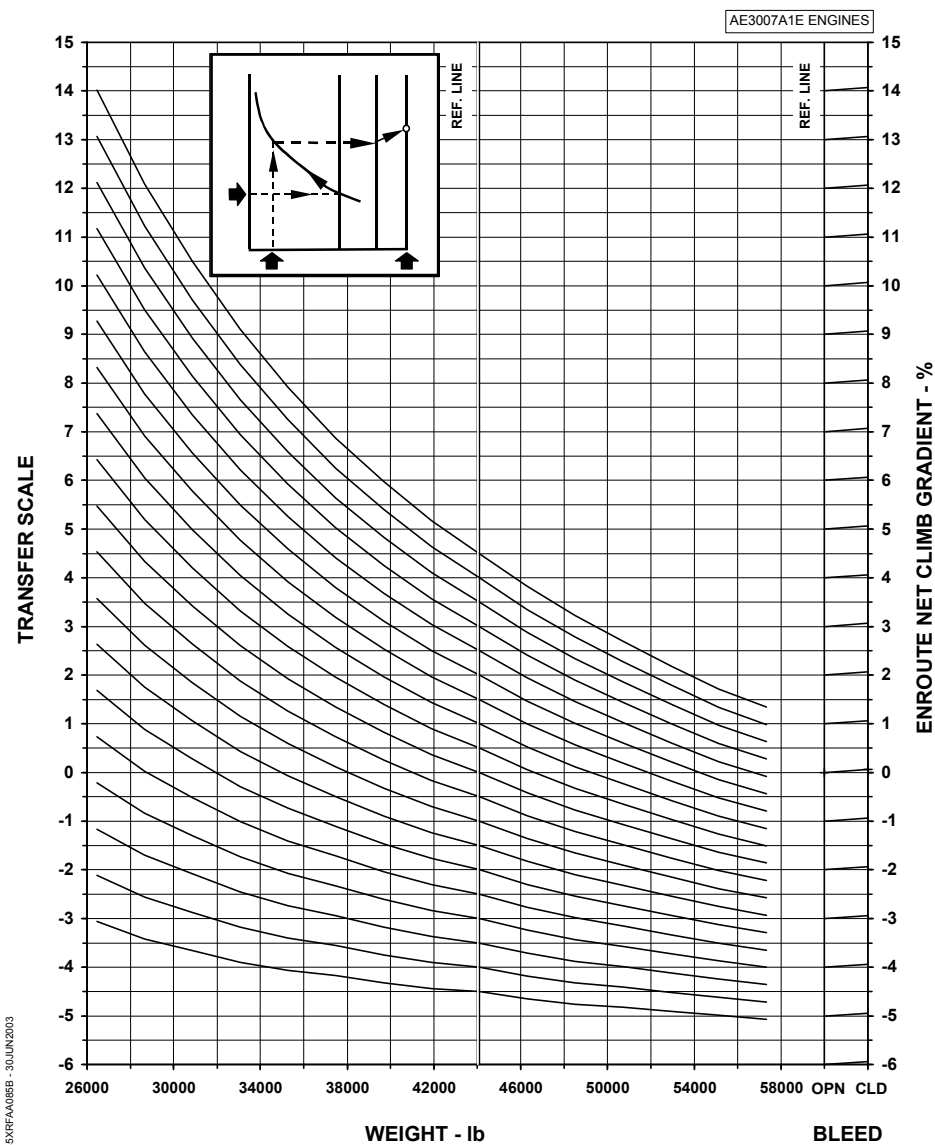
ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE OFF
CHART 1 OF 2



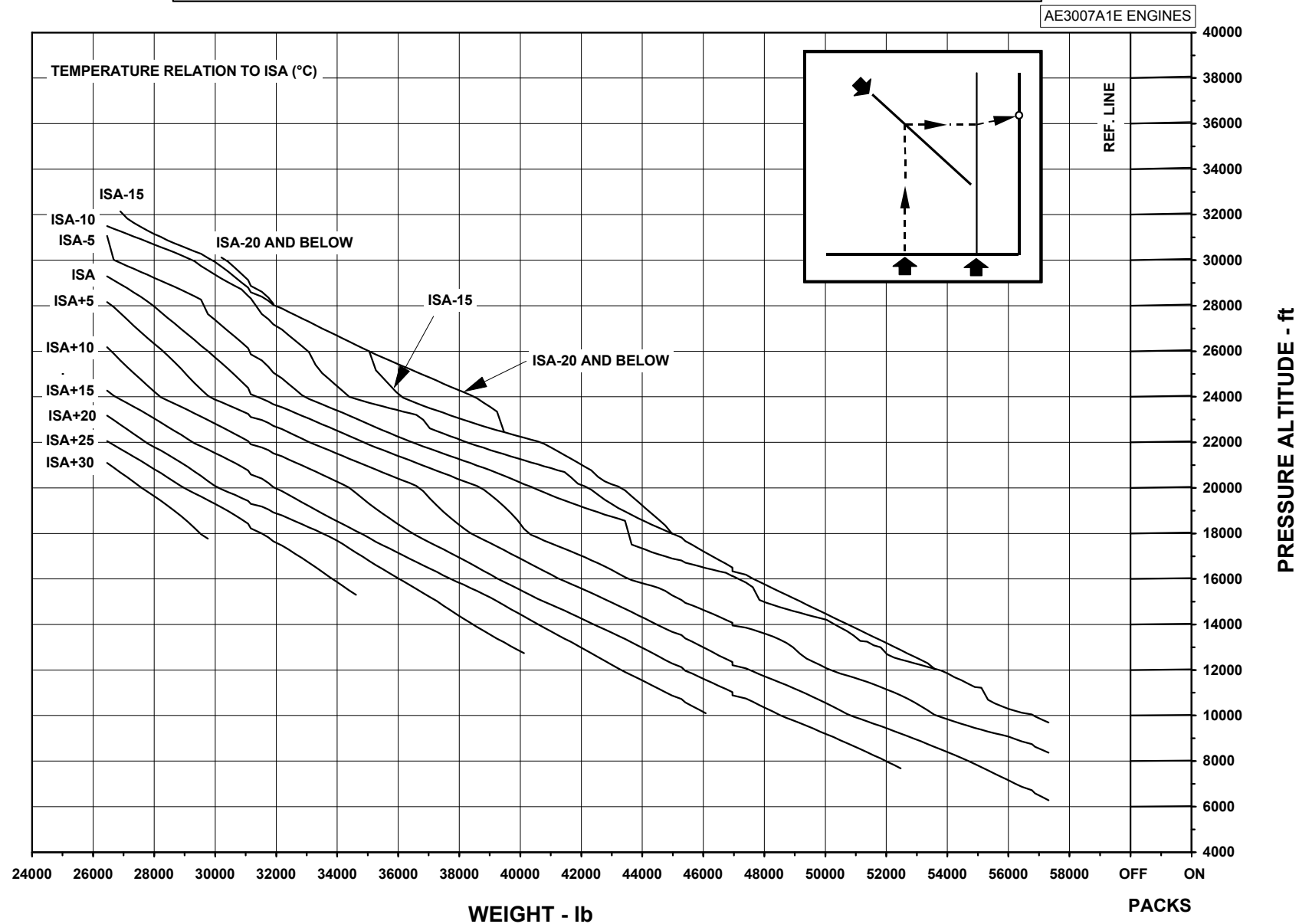
ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE

FLAPS UP - ANTI-ICE OFF

CHART 2 OF 2

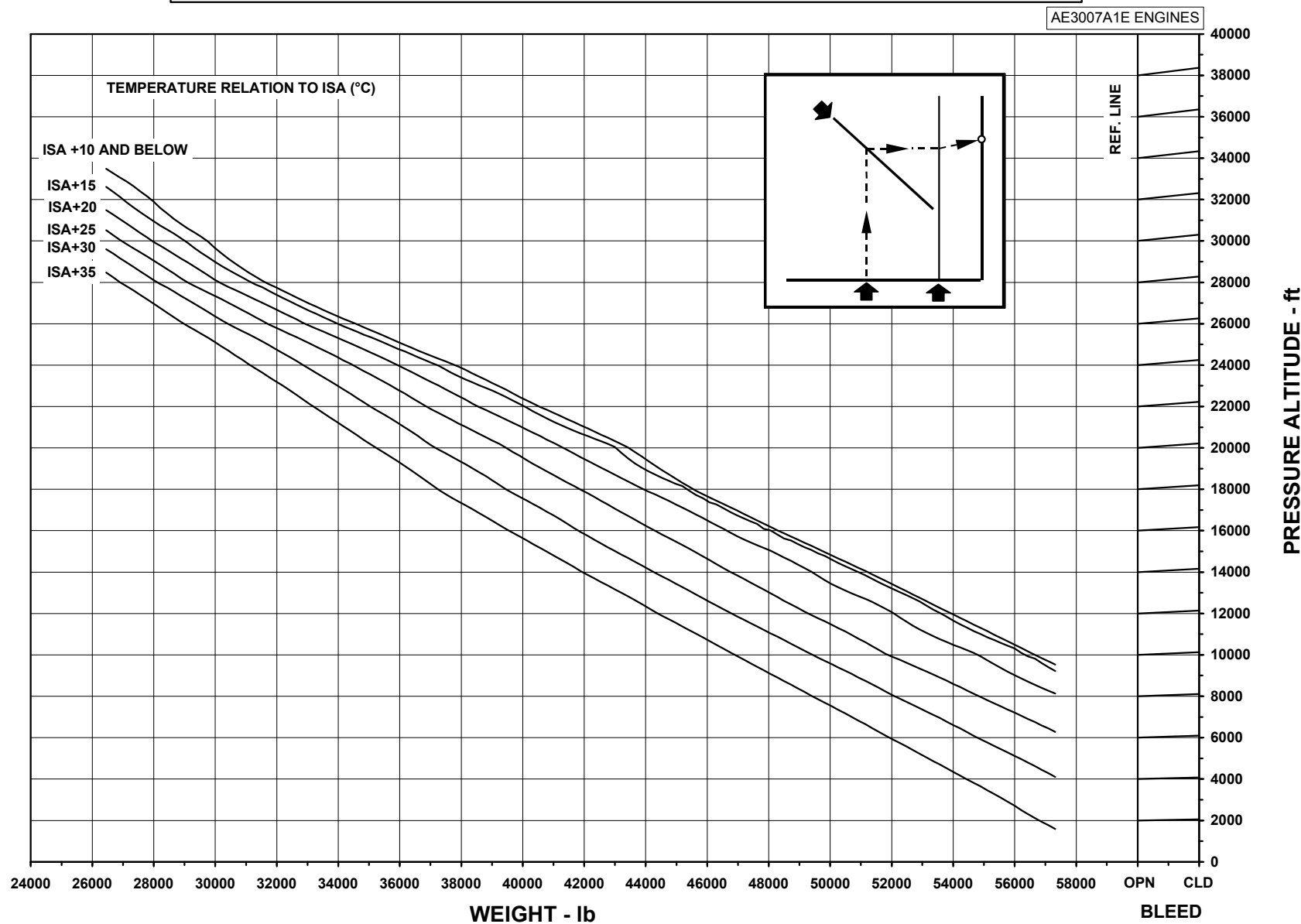


ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT
FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE ON

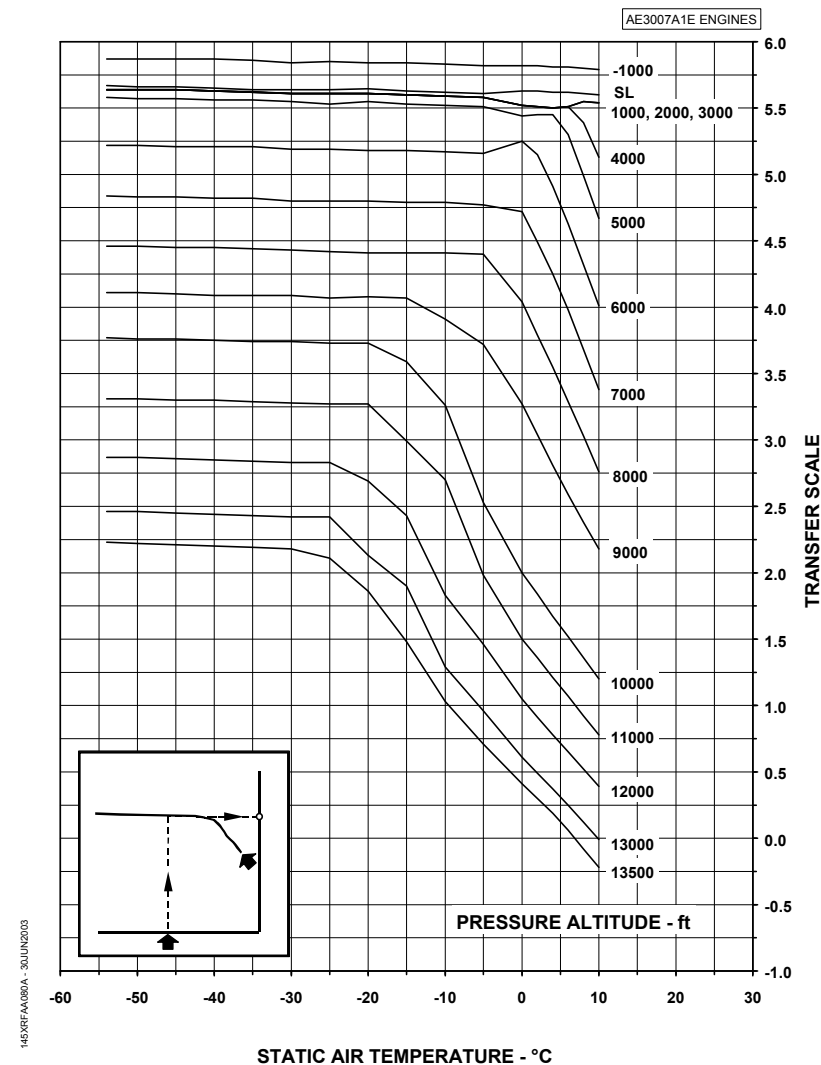


ENROUTE CLIMB WEIGHTS FOR POSITIVE GRADIENT

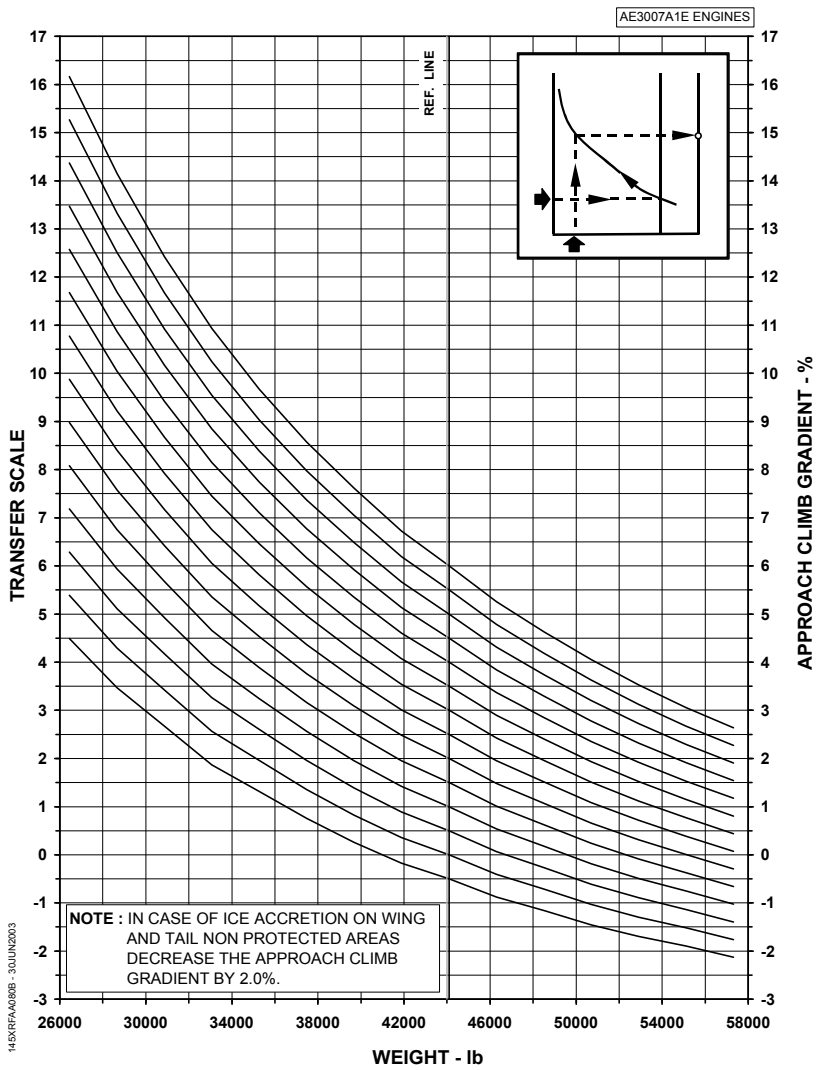
FLAPS UP - ONE ENGINE INOPERATIVE - ANTI-ICE OFF



APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 1 OF 2



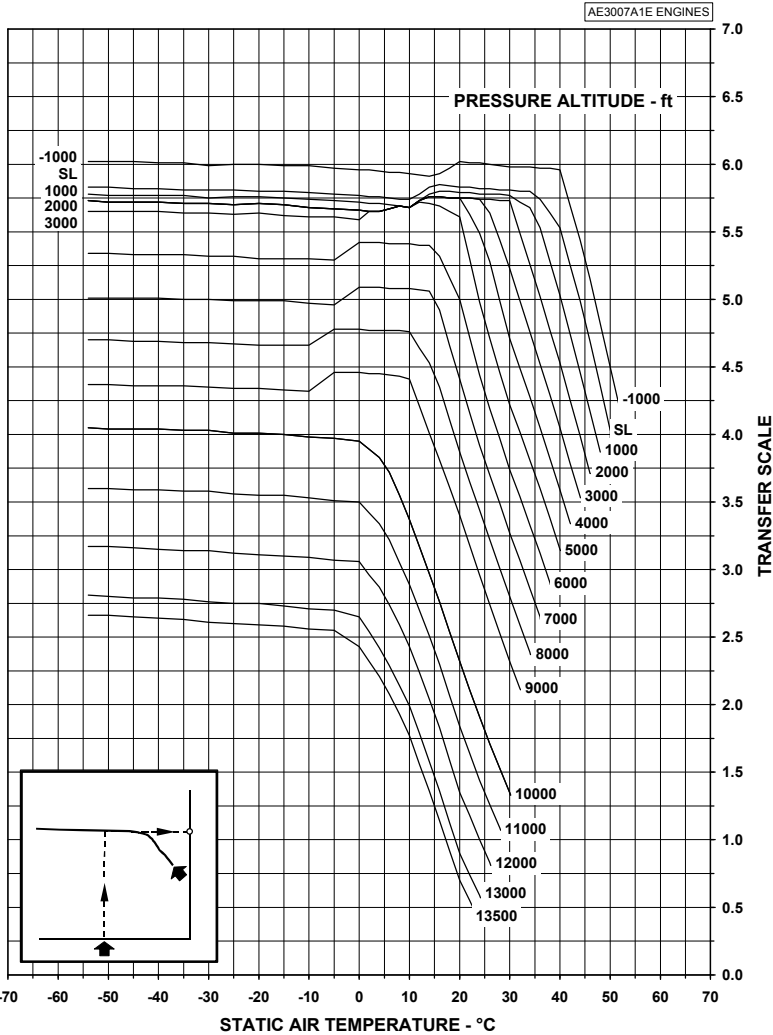
APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 2 OF 2



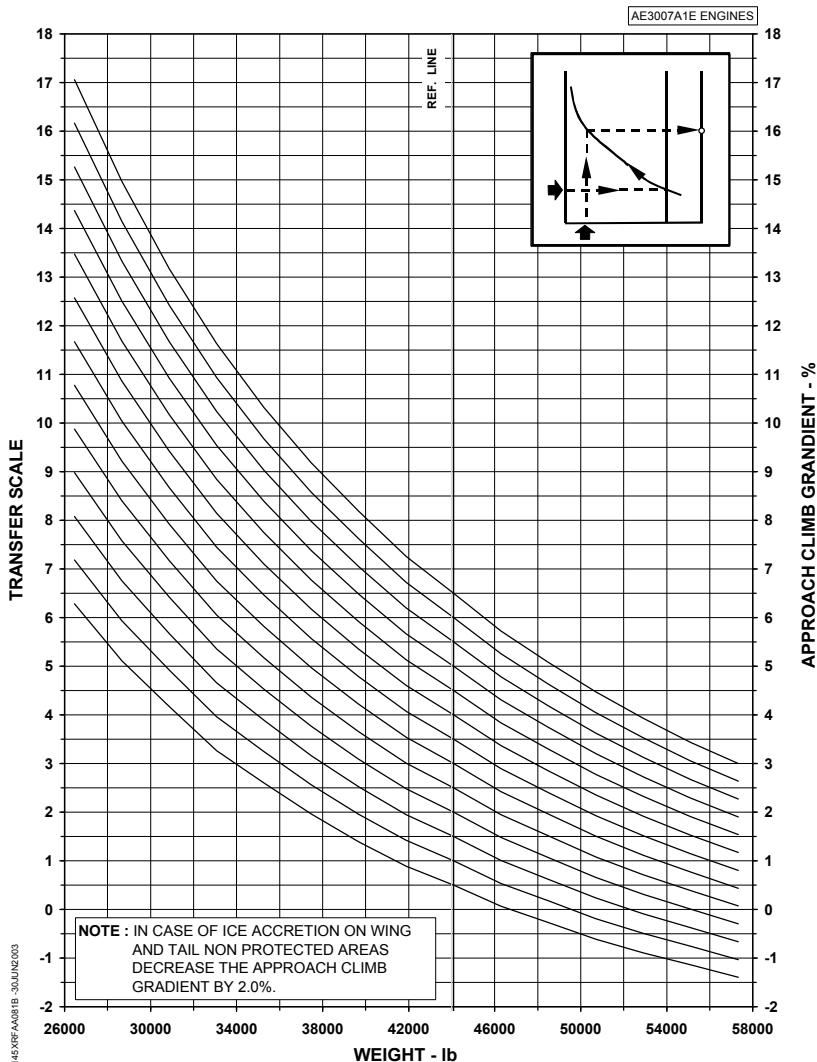
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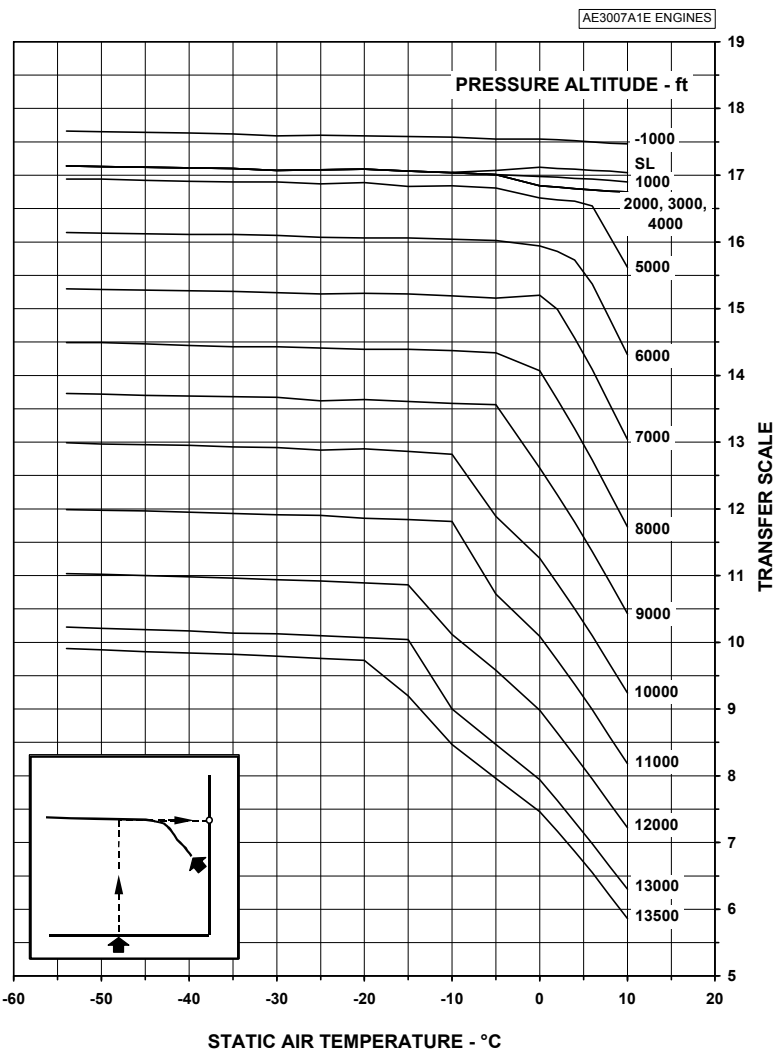
APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 1 OF 2



APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 2 OF 2

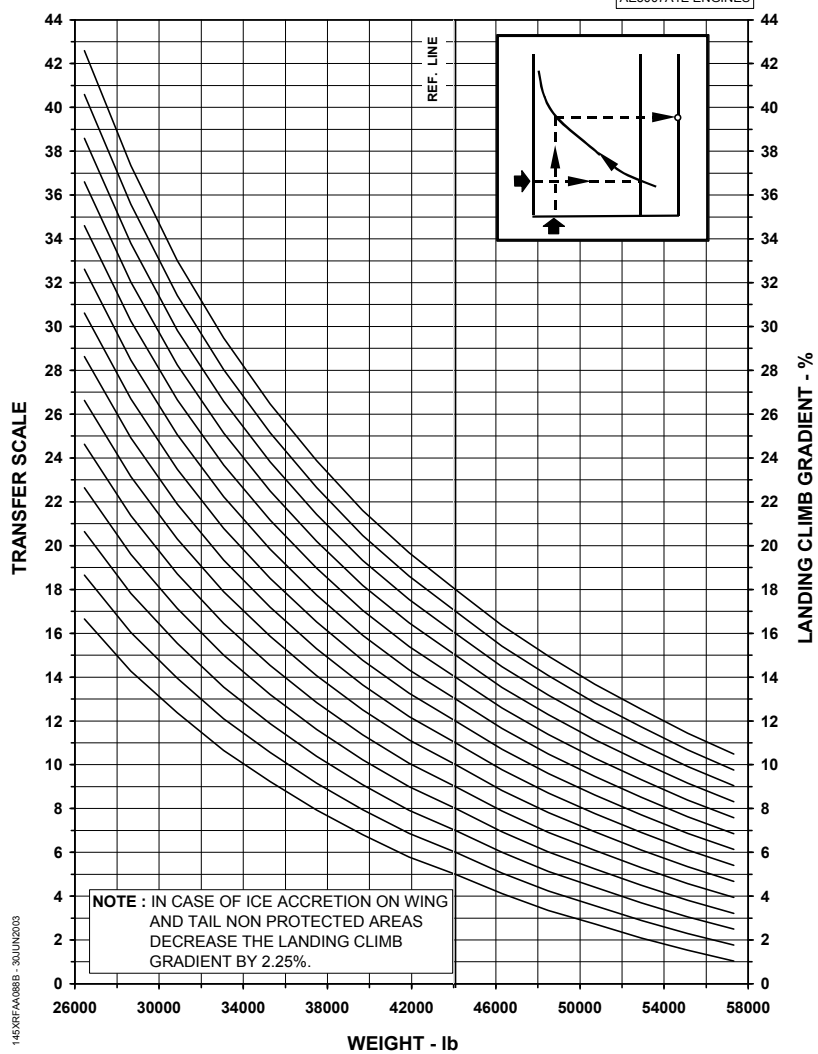


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 1 OF 2

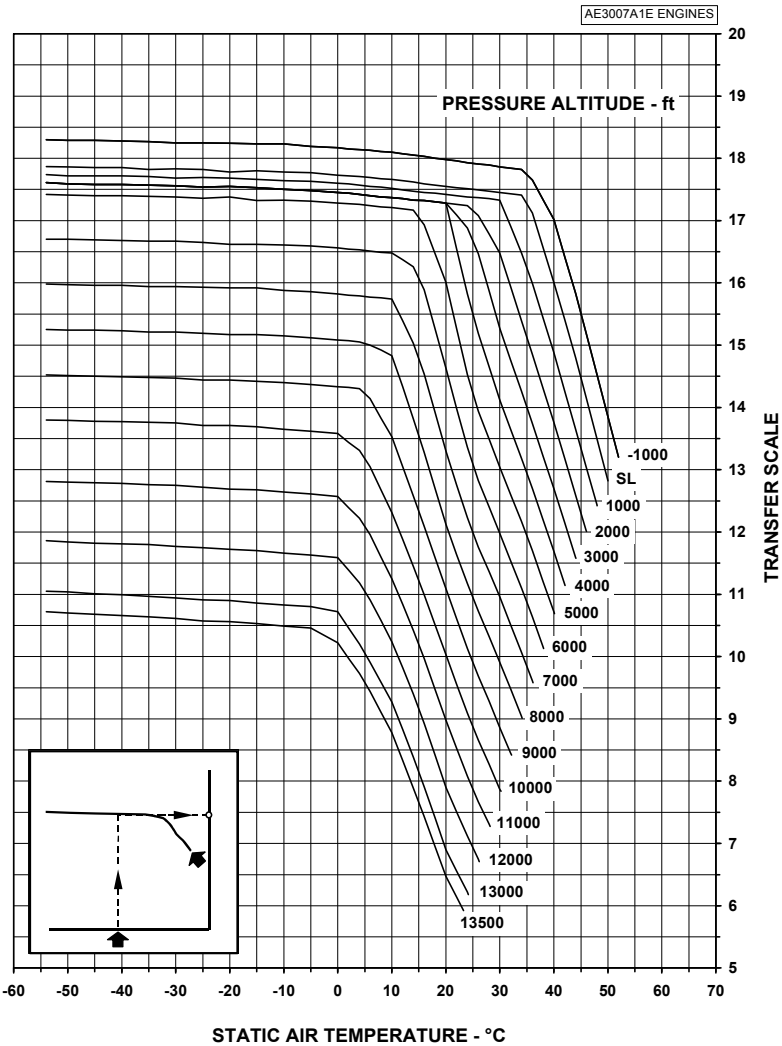


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 2 OF 2

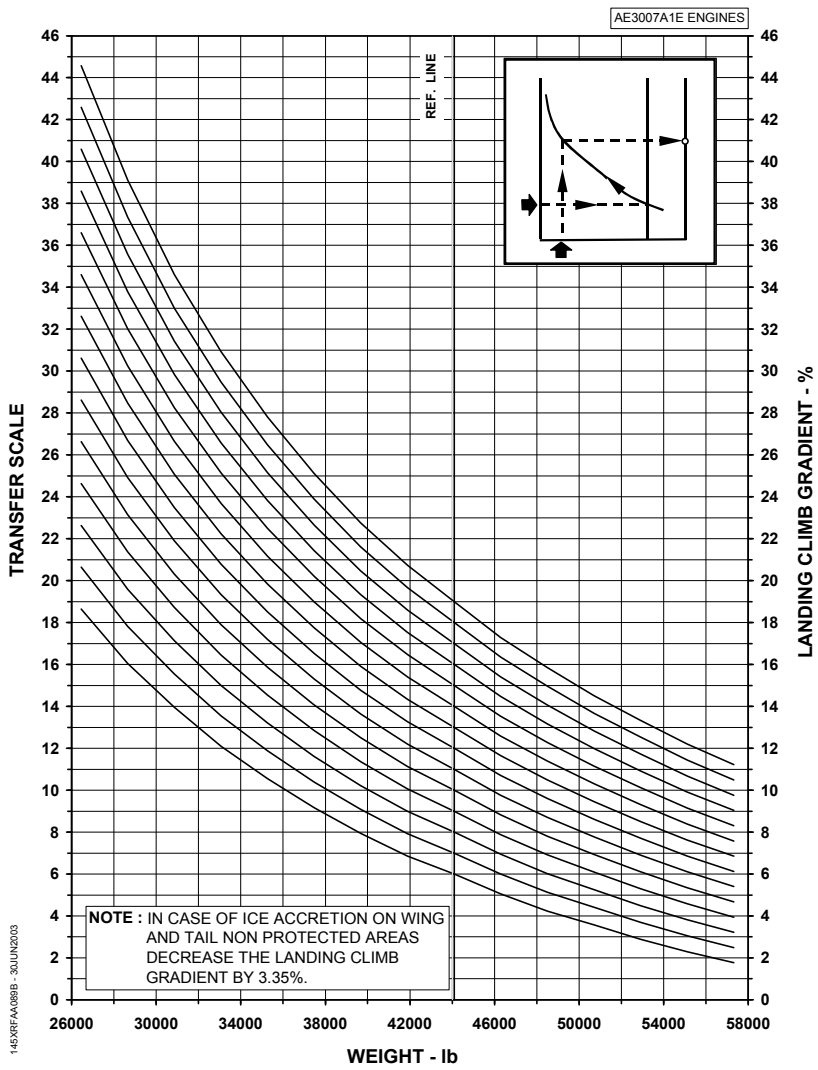
AE3007A1E ENGINES



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 1 OF 2

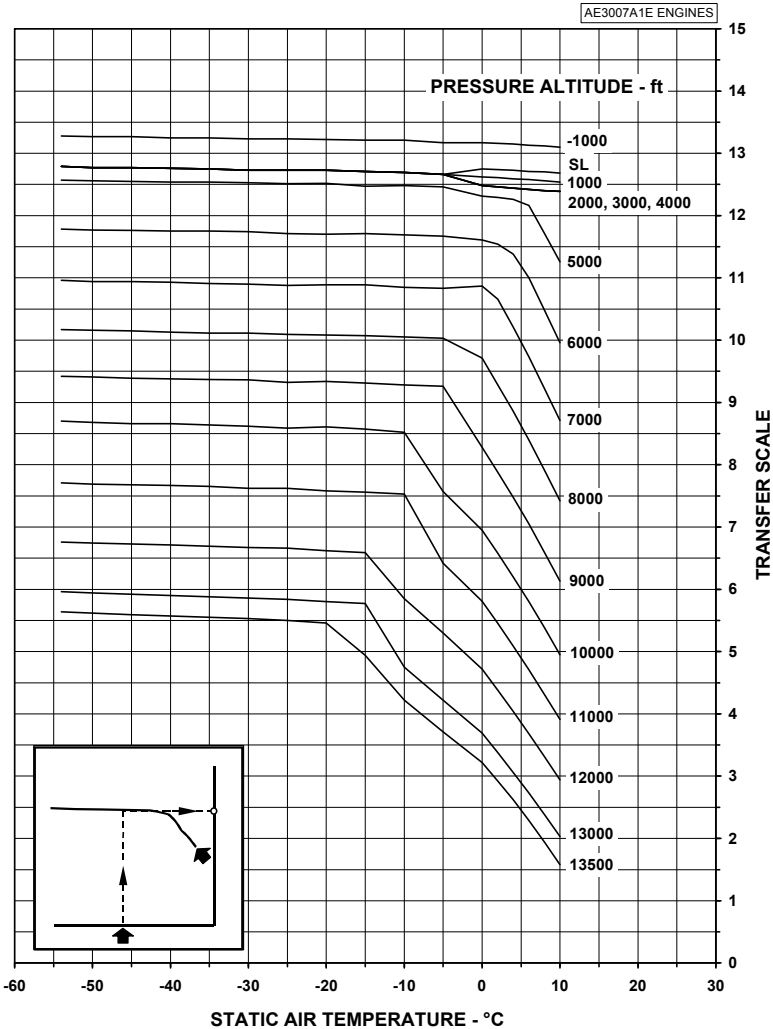


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 2 OF 2



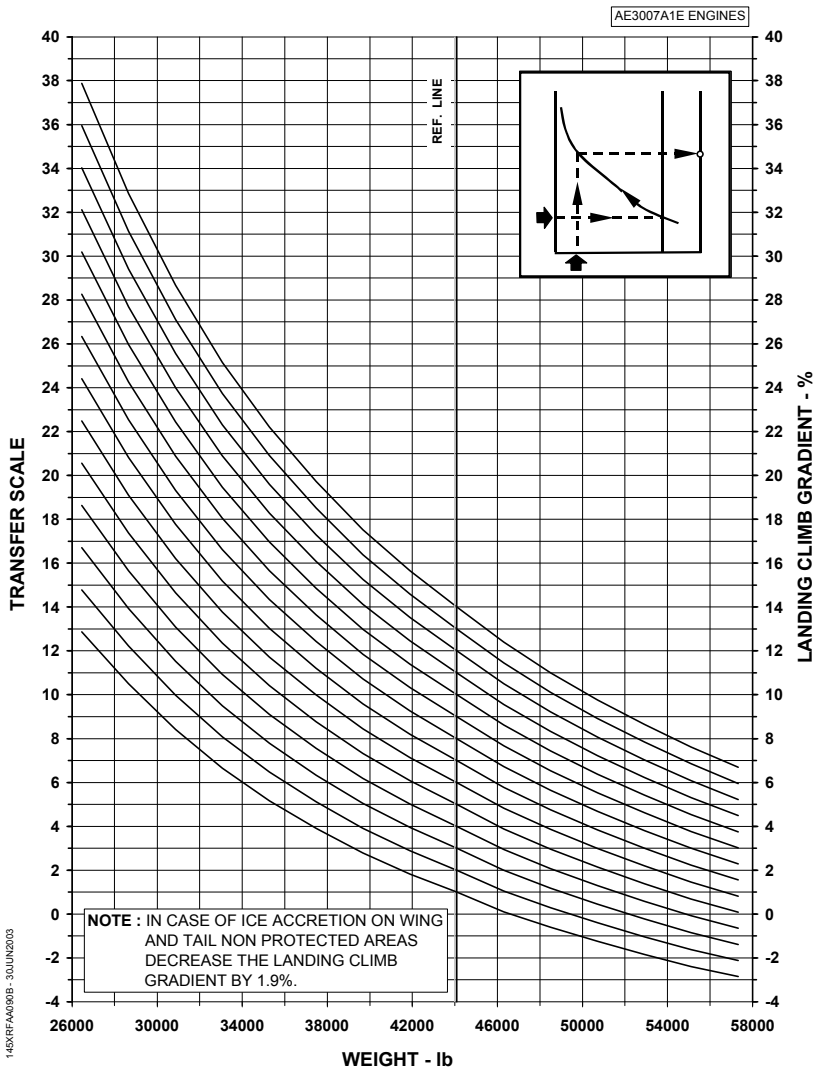


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 1 OF 2



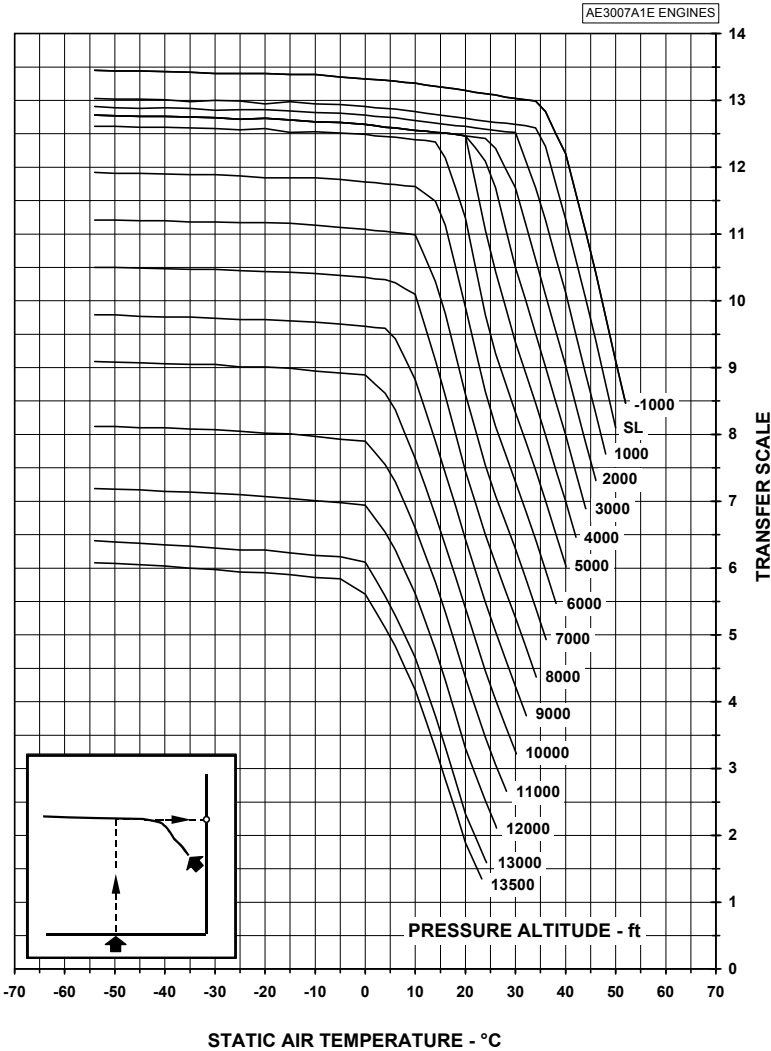
145XFEFA090A - 30JUN2003

LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 2 OF 2



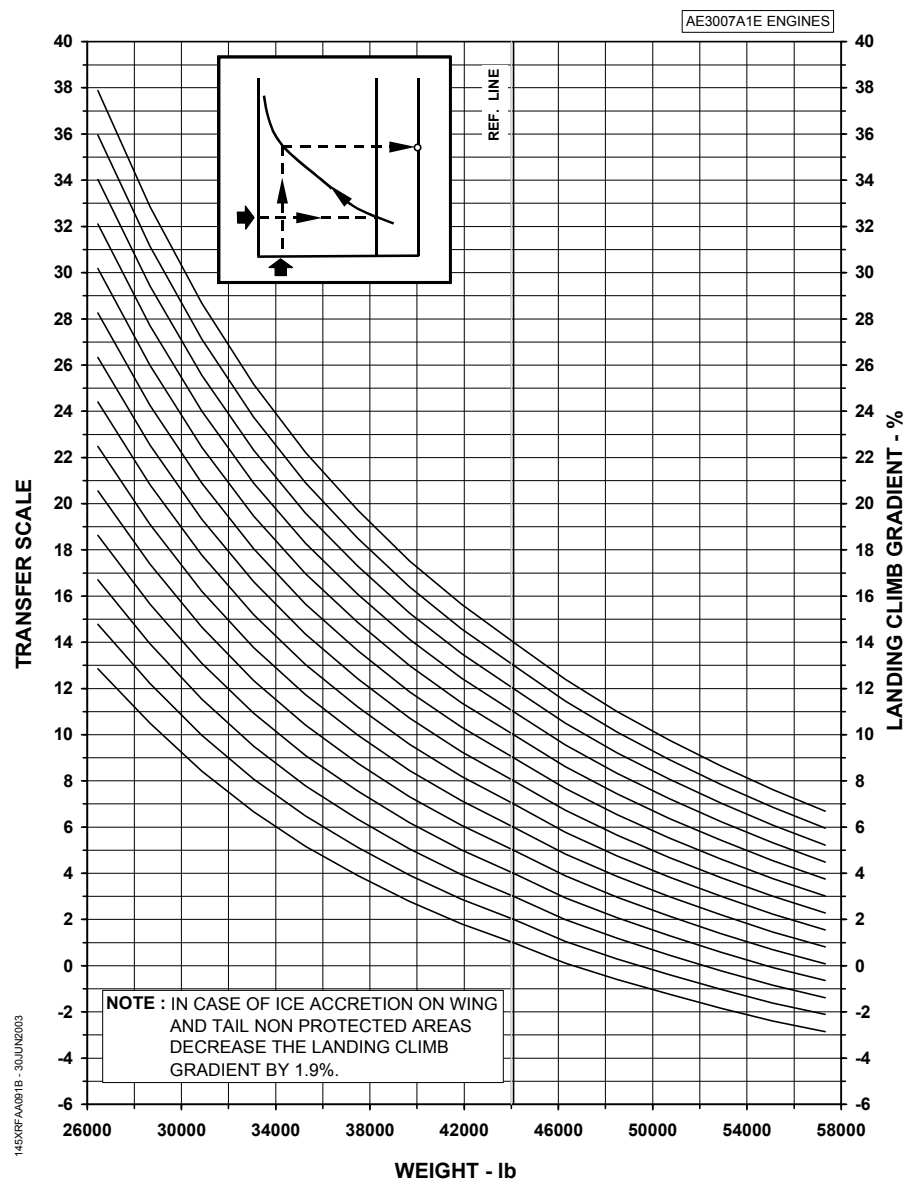


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 1 OF 2



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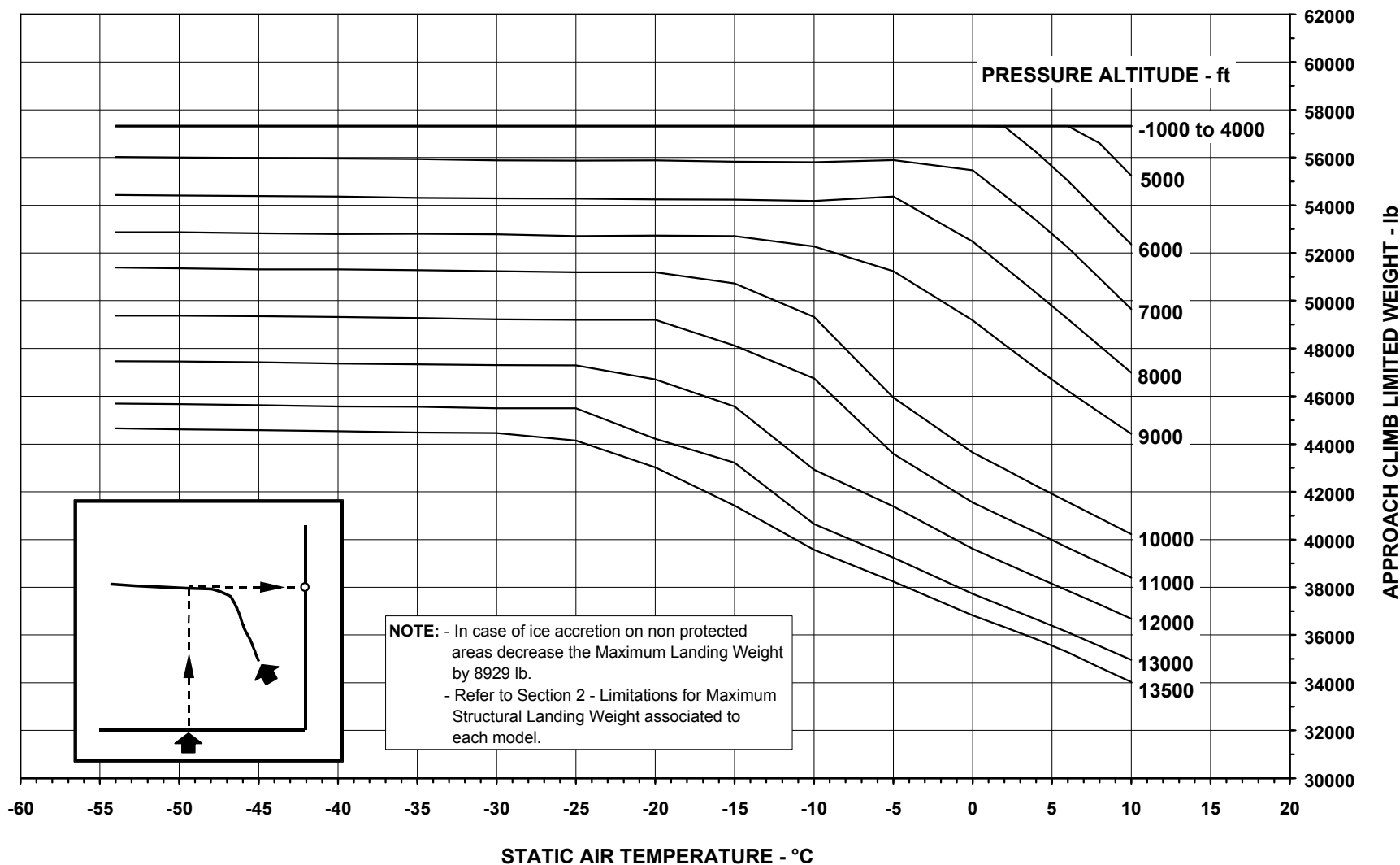
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 2 OF 2



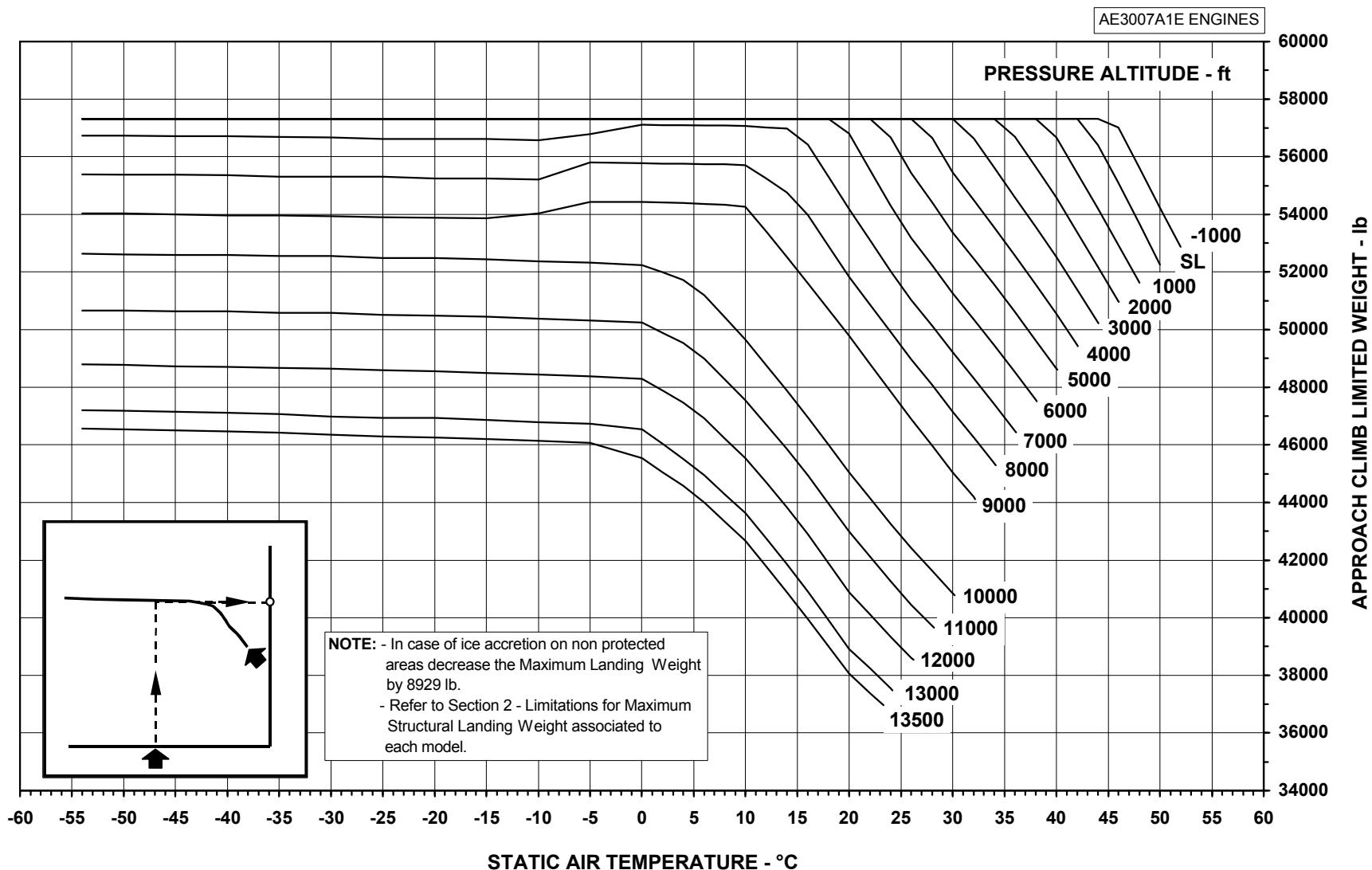
MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED

APPROACH FLAPS 9° - ANTI-ICE ON

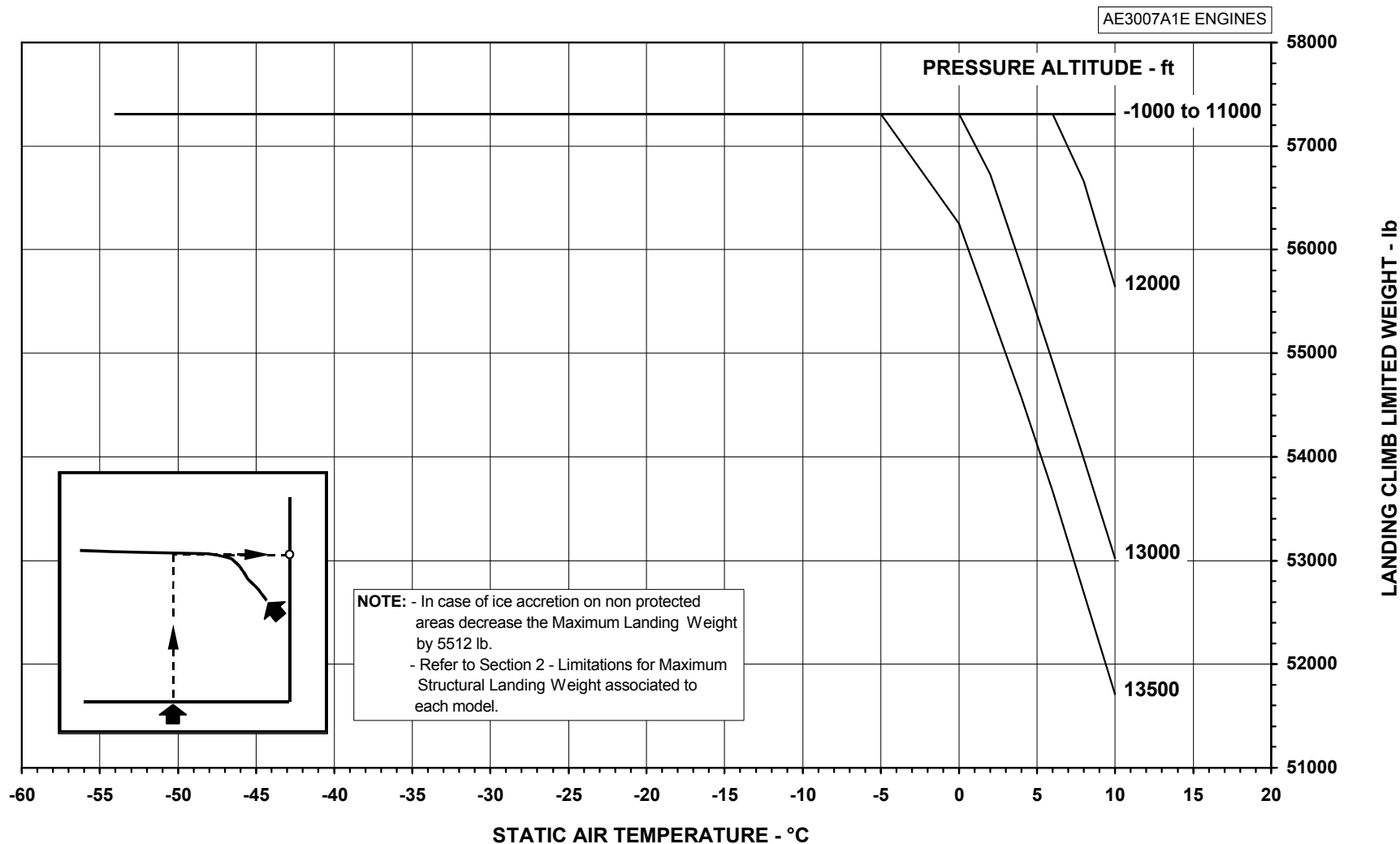
AE3007A1E ENGINES



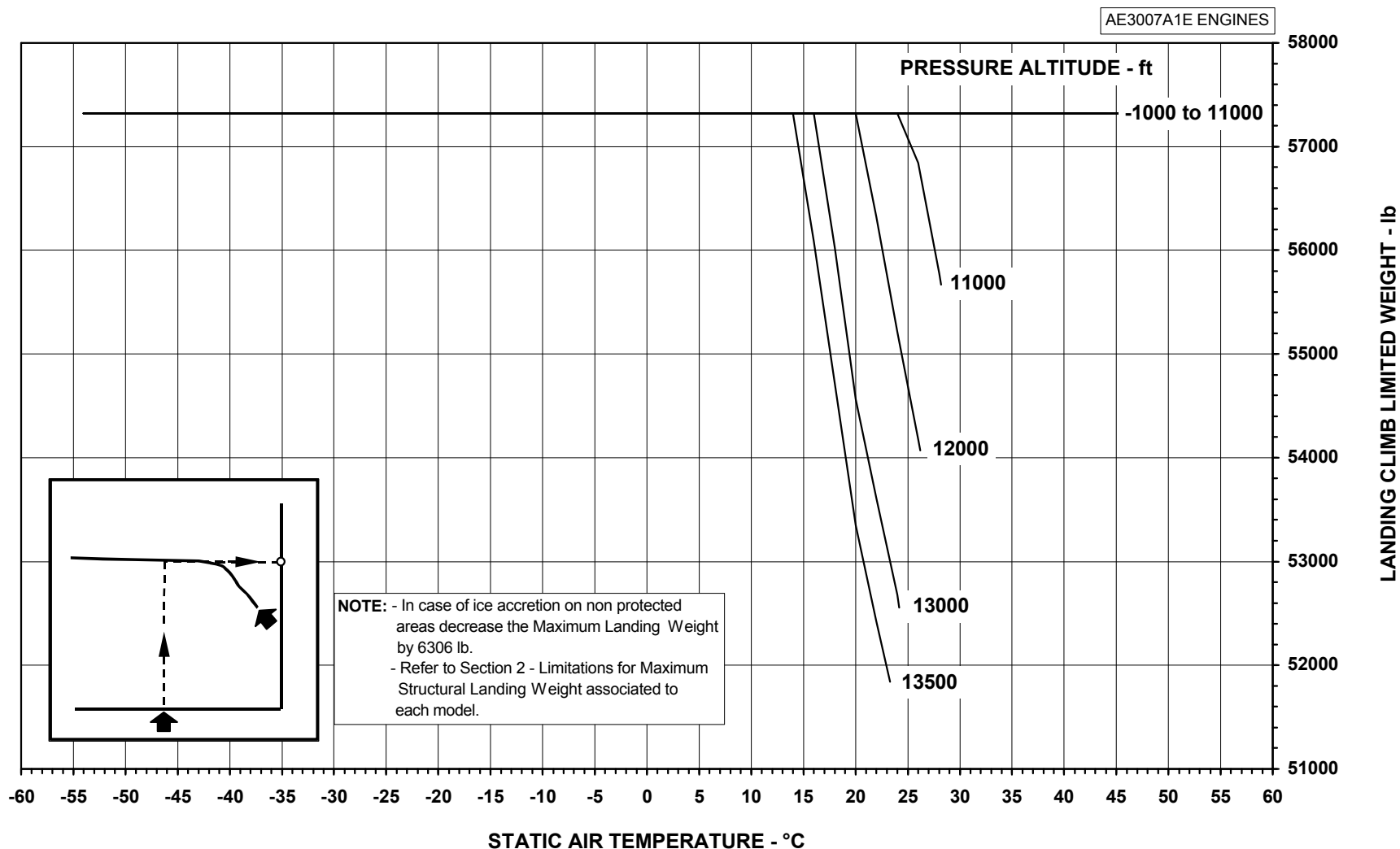
MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED APPROACH FLAPS 9° - ANTI-ICE OFF



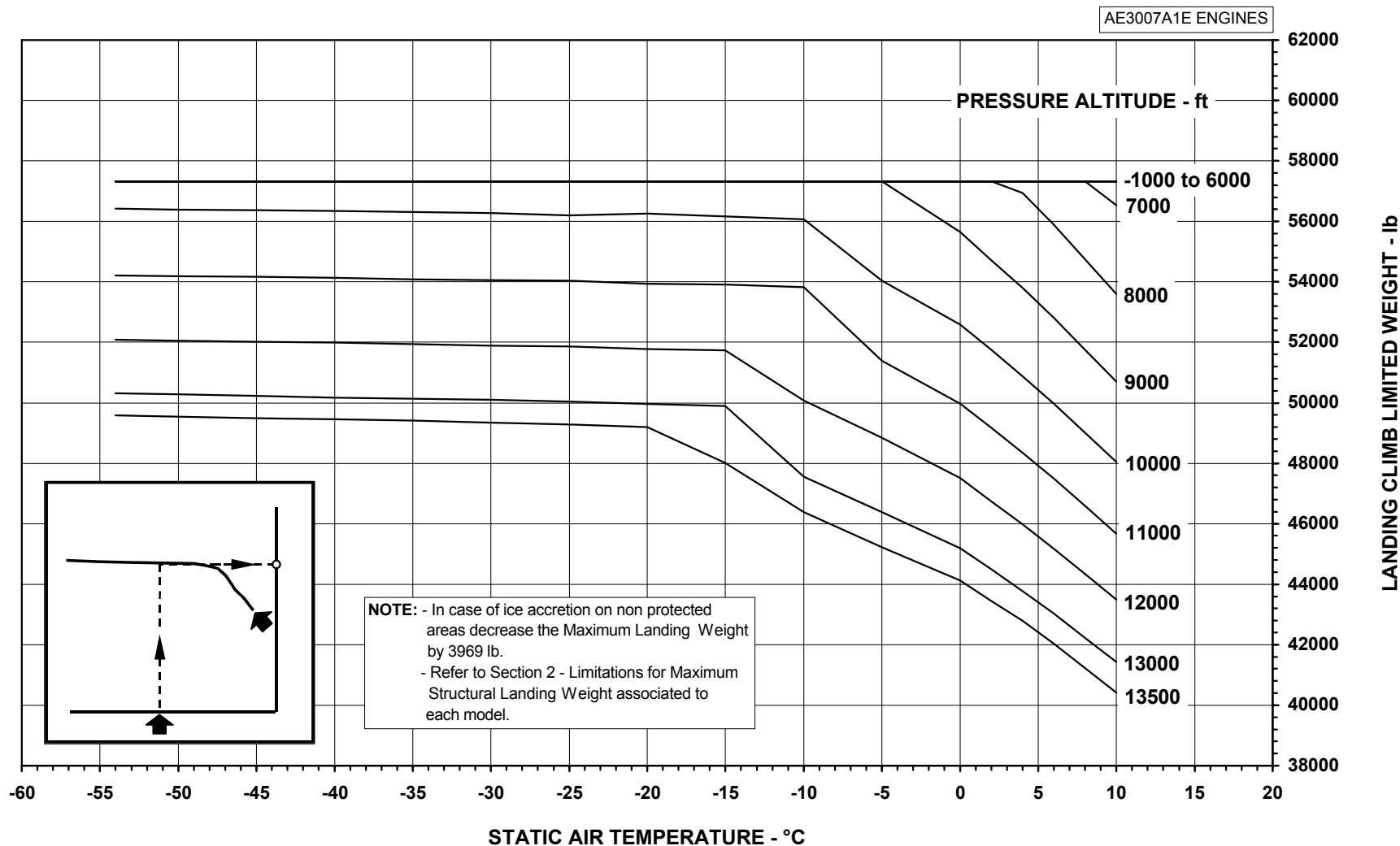
MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 22° - ANTI-ICE ON**



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 22° - ANTI-ICE OFF**

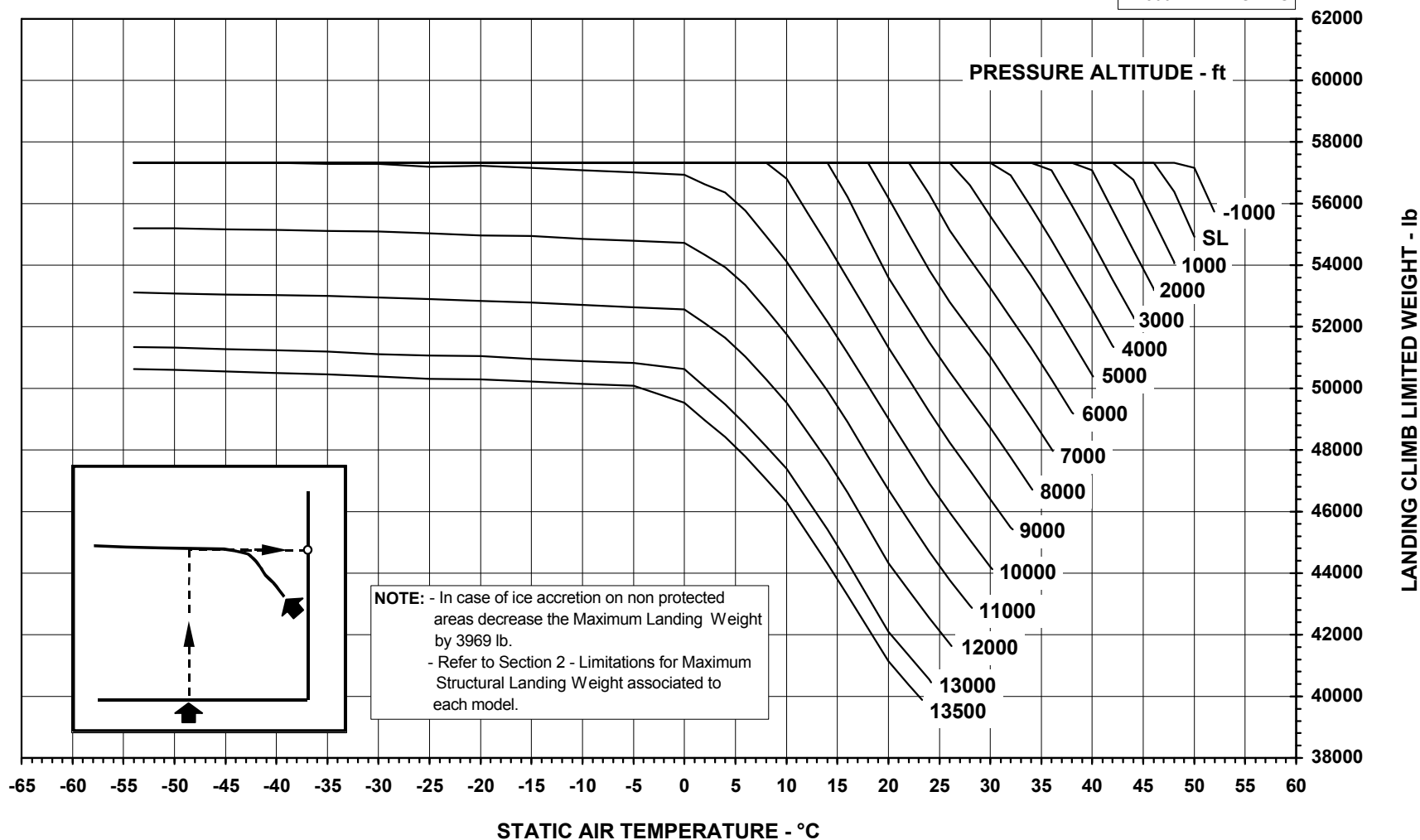


MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE ON**



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED **LANDING FLAPS 45° - ANTI-ICE OFF**

AE3007A1E ENGINES



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AIRPLANE FLIGHT MANUAL

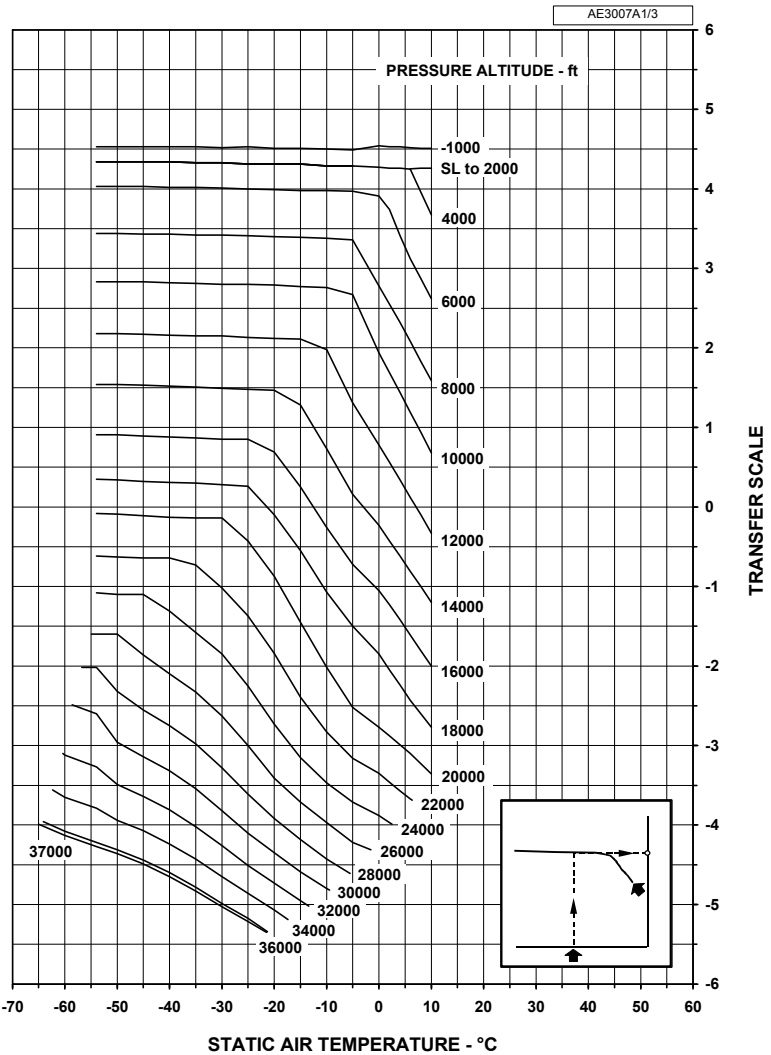
SUPPLEMENT 23
OPERATION WITH
ENGINE ANTI-ICE VALVE
LOCKED OPEN

PERFORMANCE CHARTS FOR AIRPLANES EQUIPPED WITH AE3007A1/3 ENGINES

The following performance charts are applicable for airplanes equipped with AE3007A1/3 engines.

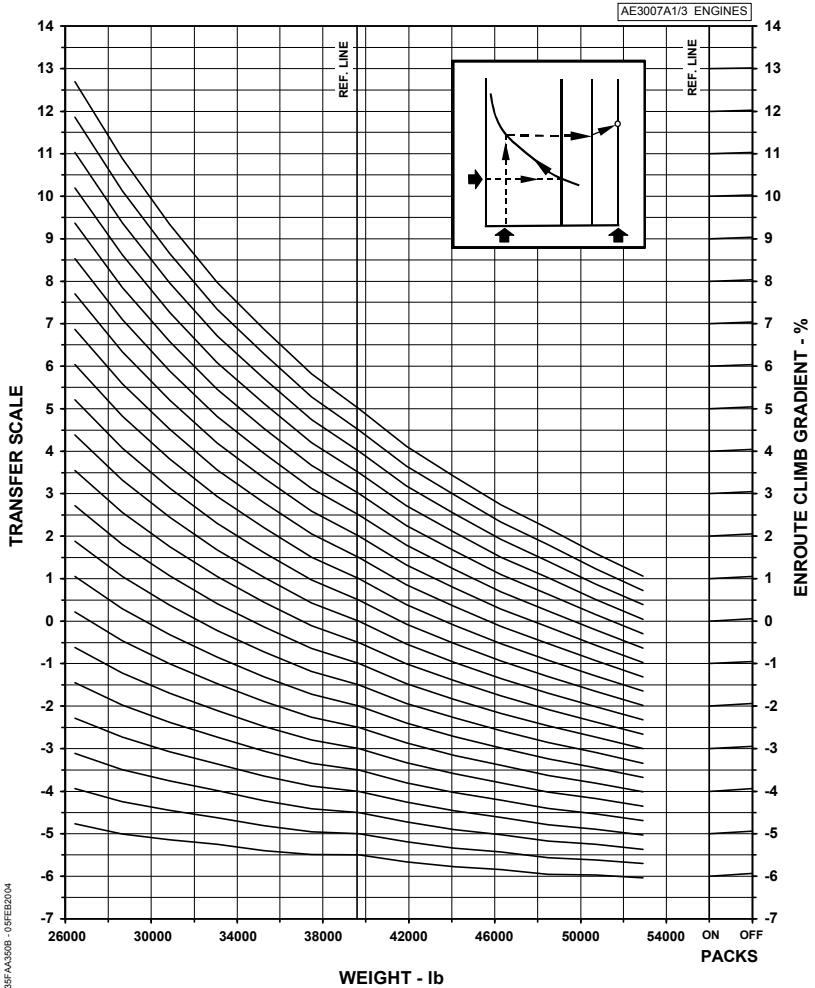
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ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE
FLAPS UP - ANTI-ICE ON
CHART 1 OF 2

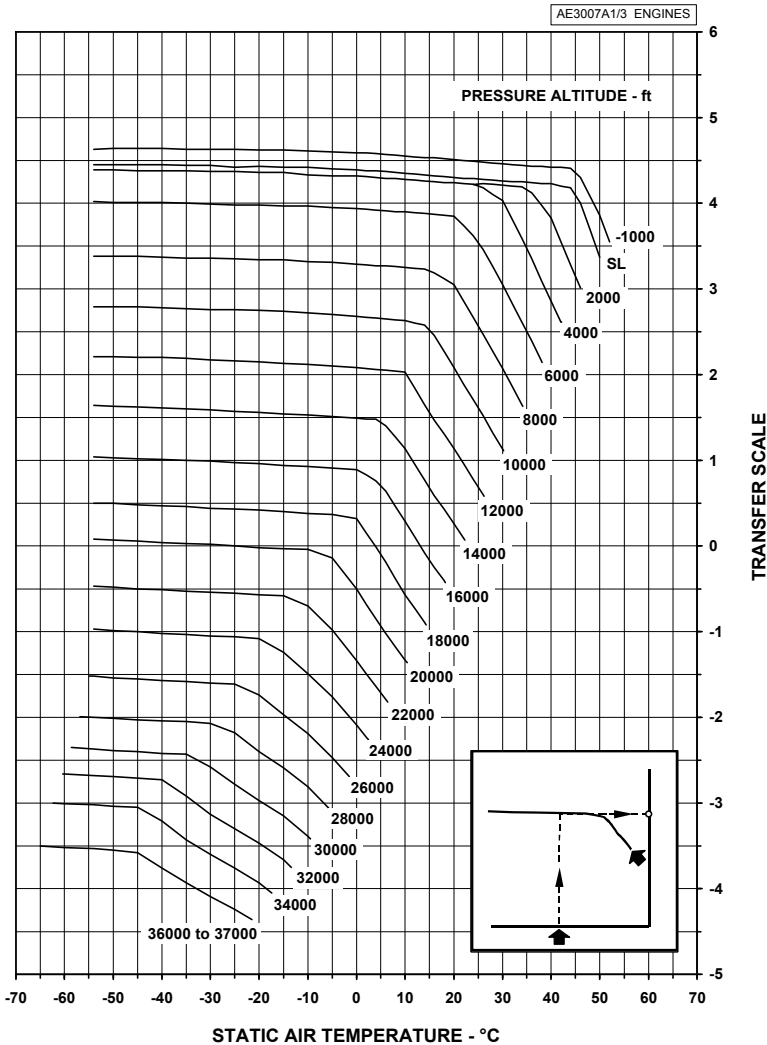


ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE

FLAPS UP - ANTI-ICE ON
CHART 2 OF 2



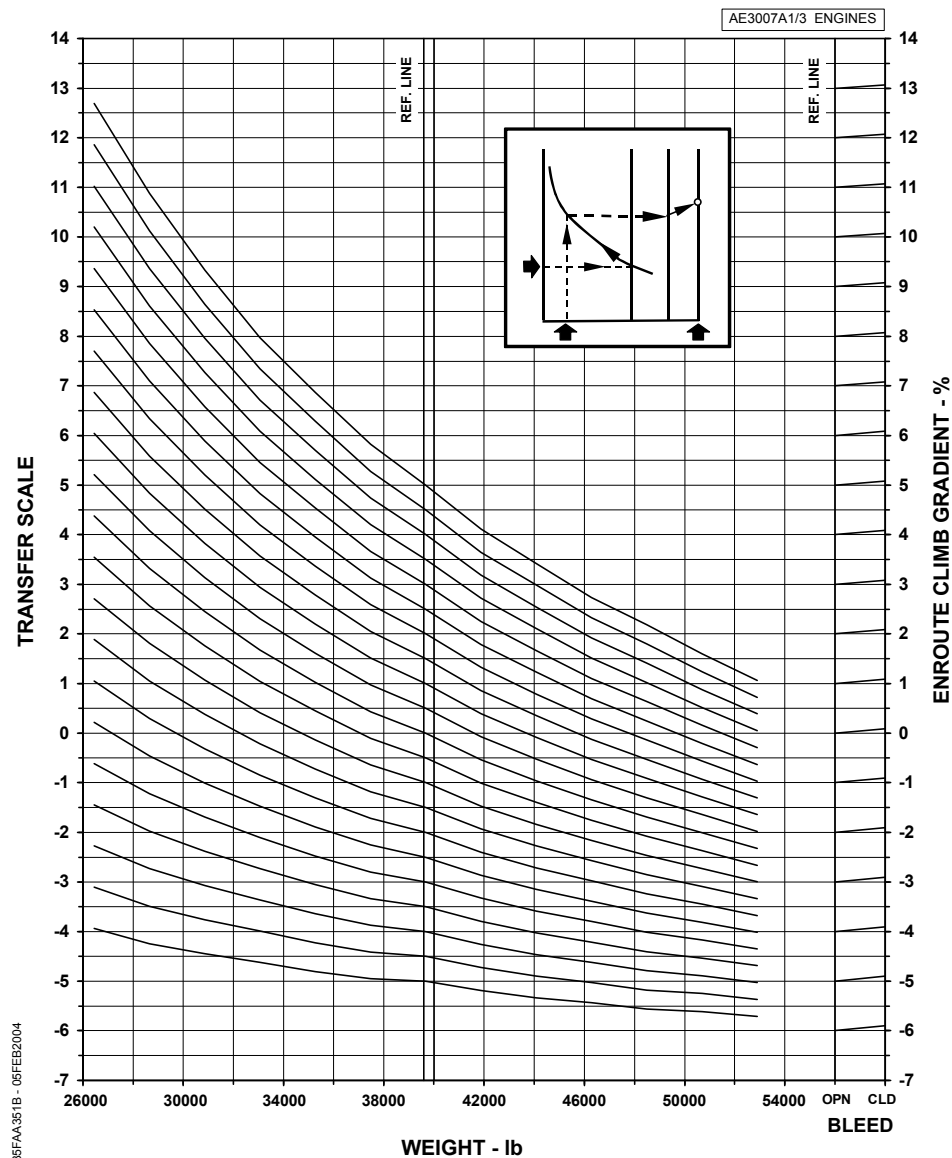
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FLAPS UP - ANTI-ICE OFF
CHART 1 OF 2



ENROUTE NET CLIMB GRADIENT - ONE ENGINE INOPERATIVE

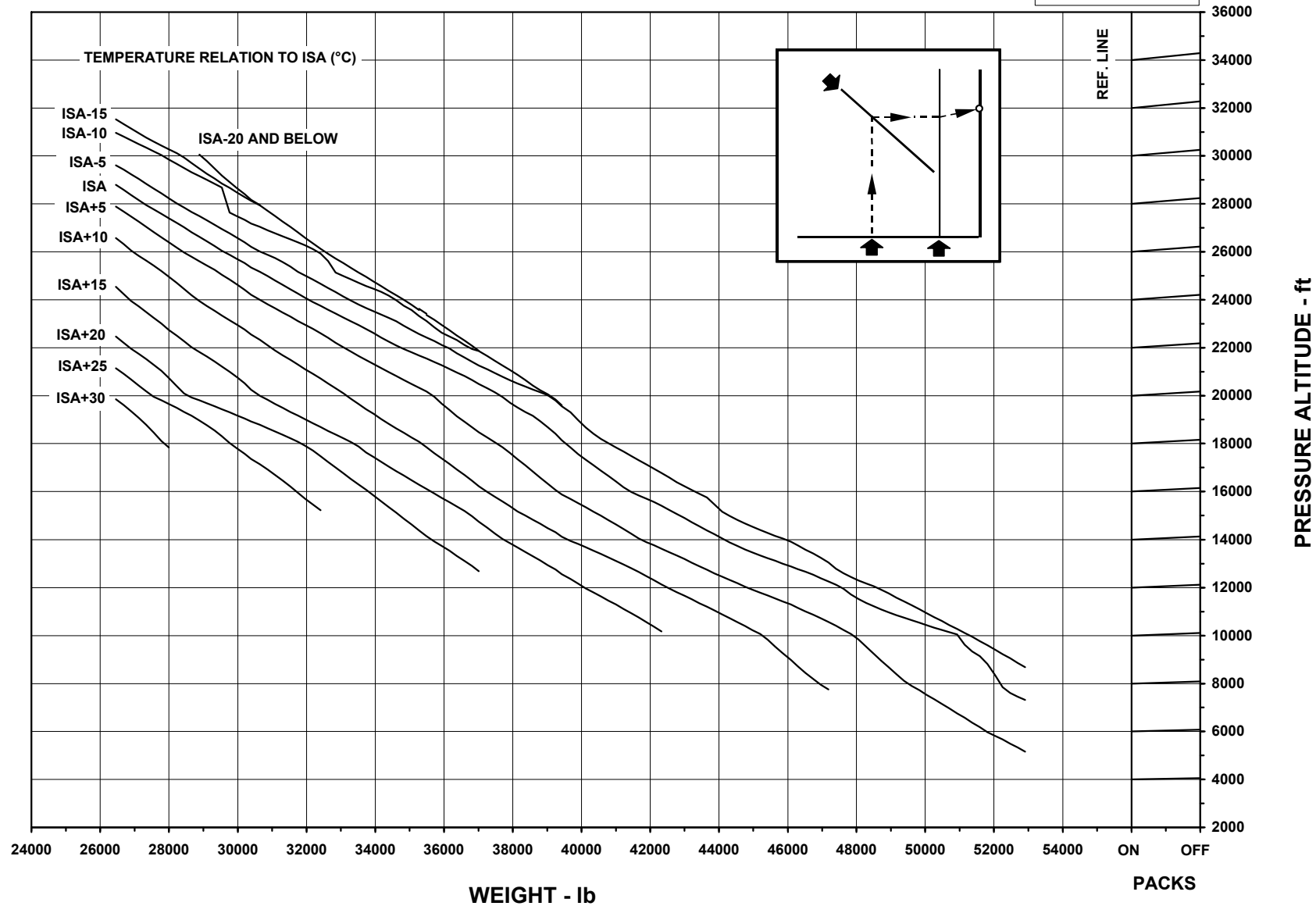
FLAPS UP - ANTI-ICE OFF

CHART 2 OF 2

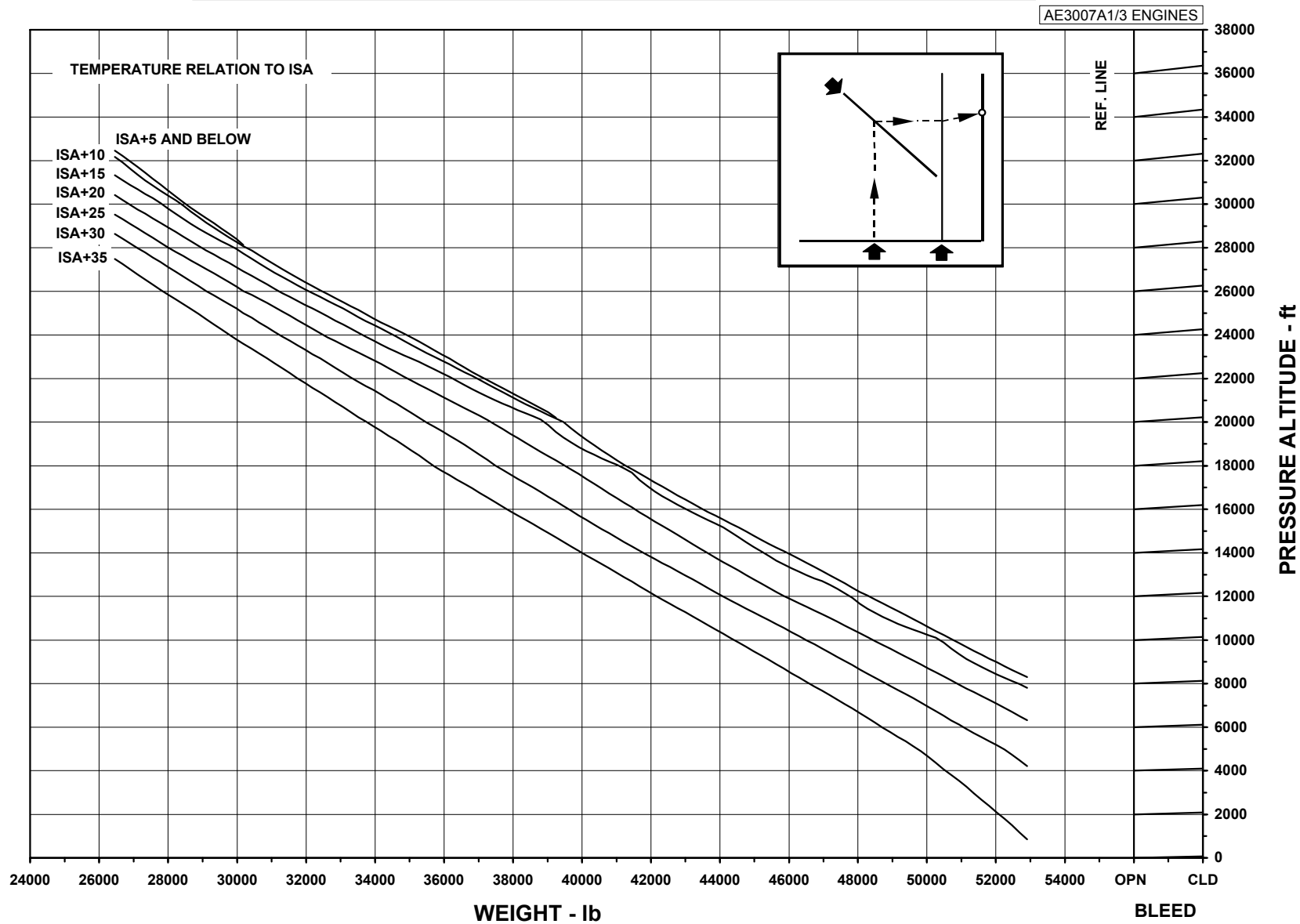


ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT
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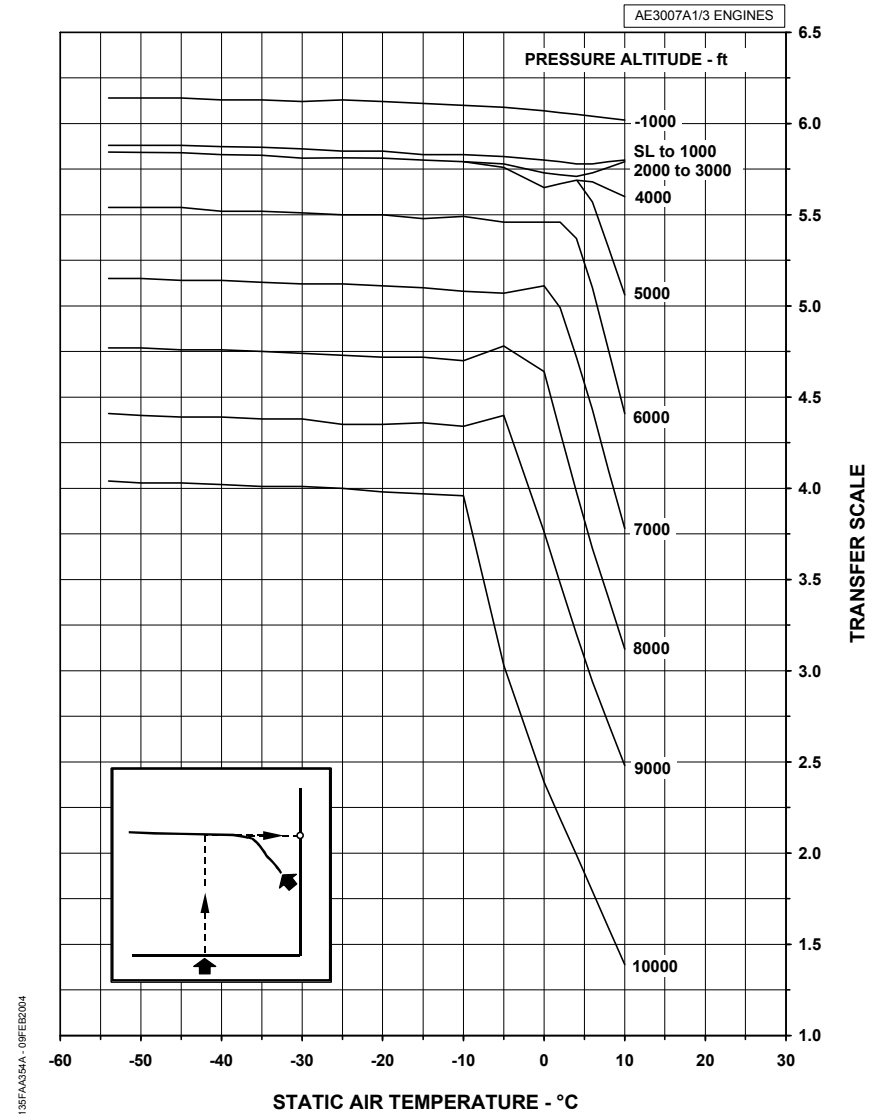
AE3007A1/3 ENGINES



ENROUTE CLIMB WEIGHTS FOR POSITIVE NET GRADIENT
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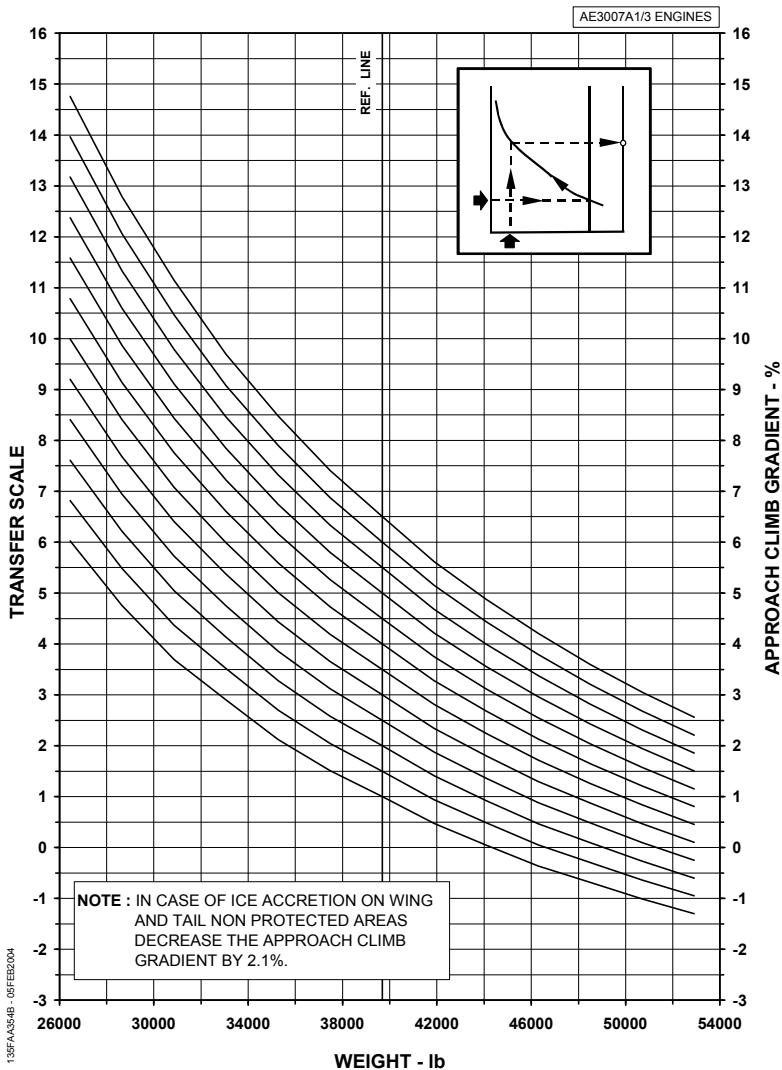


APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE ON
CHART 1 OF 2

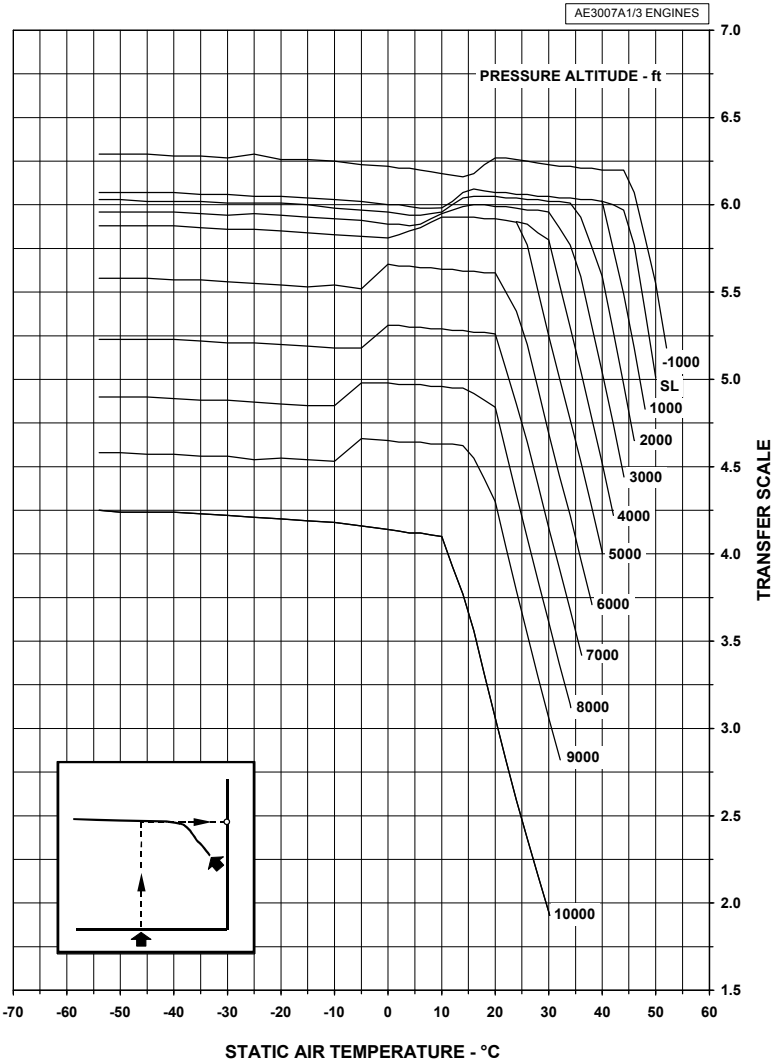


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CHART 2 OF 2

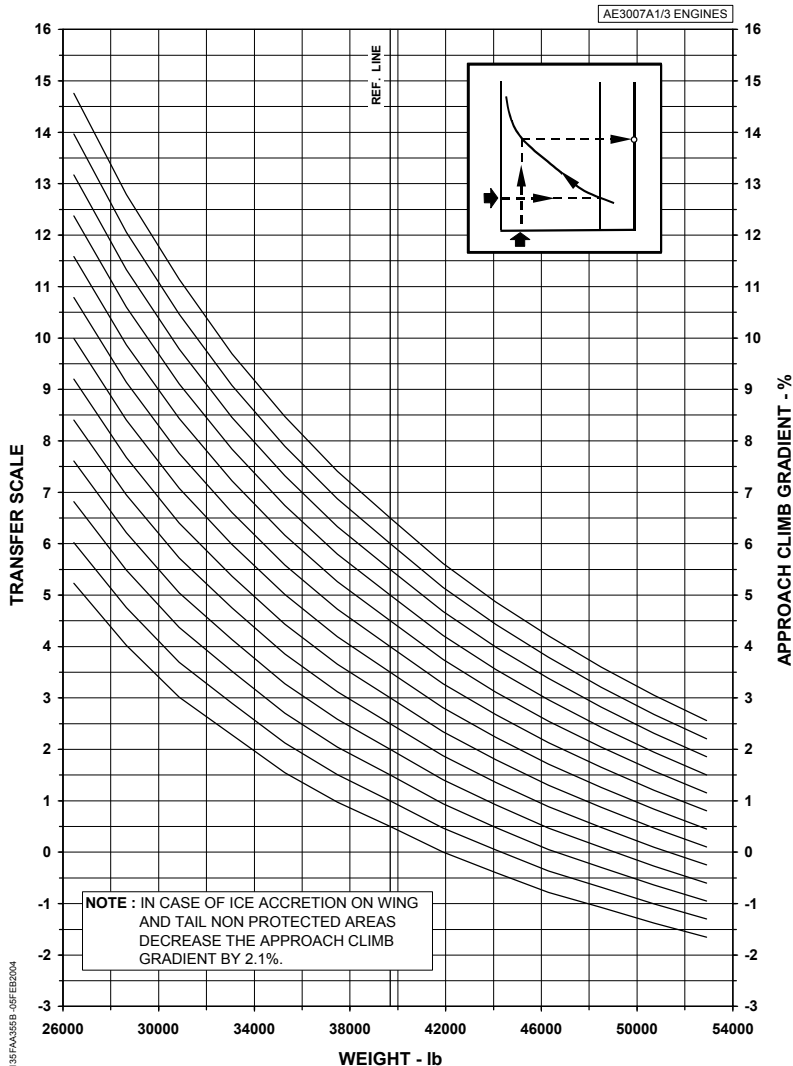


APPROACH CLIMB GRADIENT
ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 1 OF 2



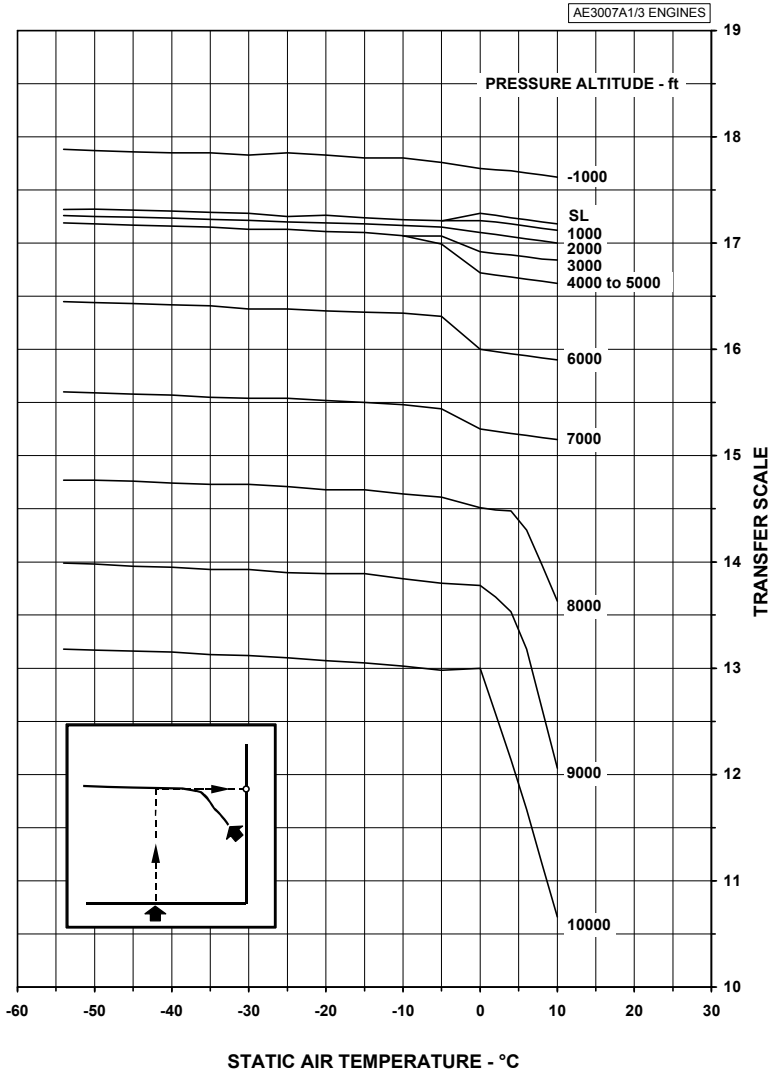
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ONE ENGINE INOPERATIVE - FLAPS 9° - ANTI-ICE OFF
CHART 2 OF 2



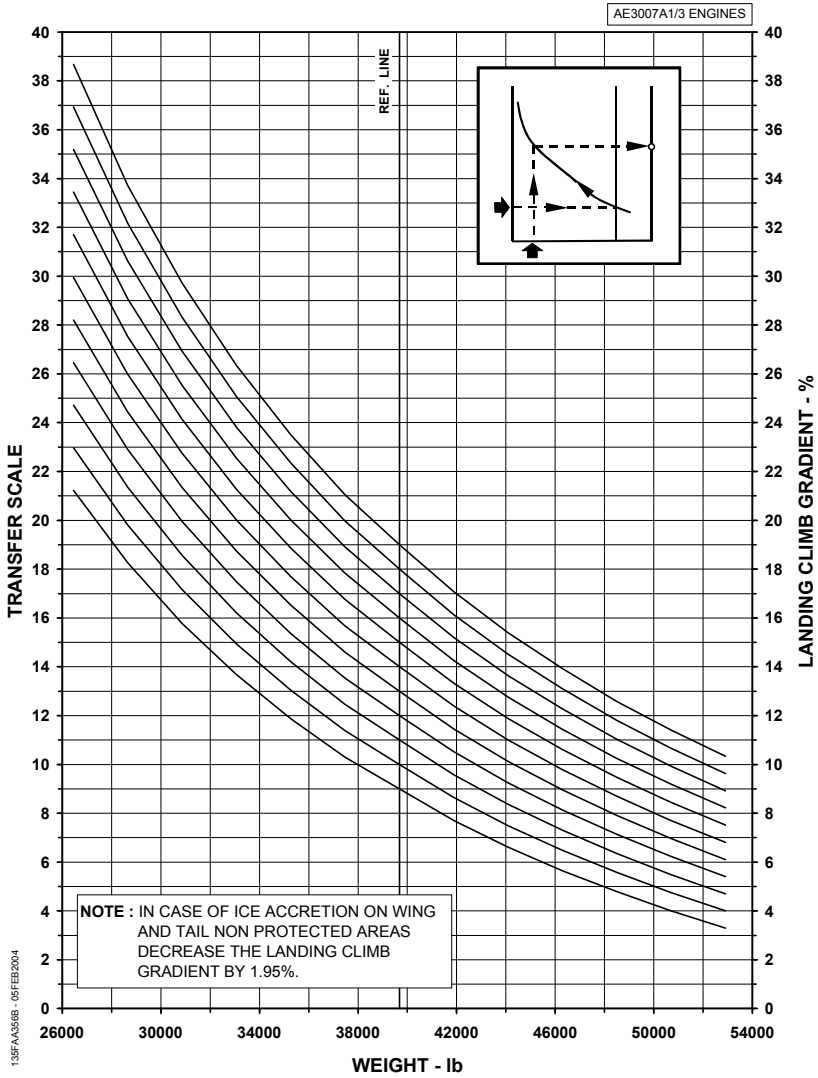


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 1 OF 2



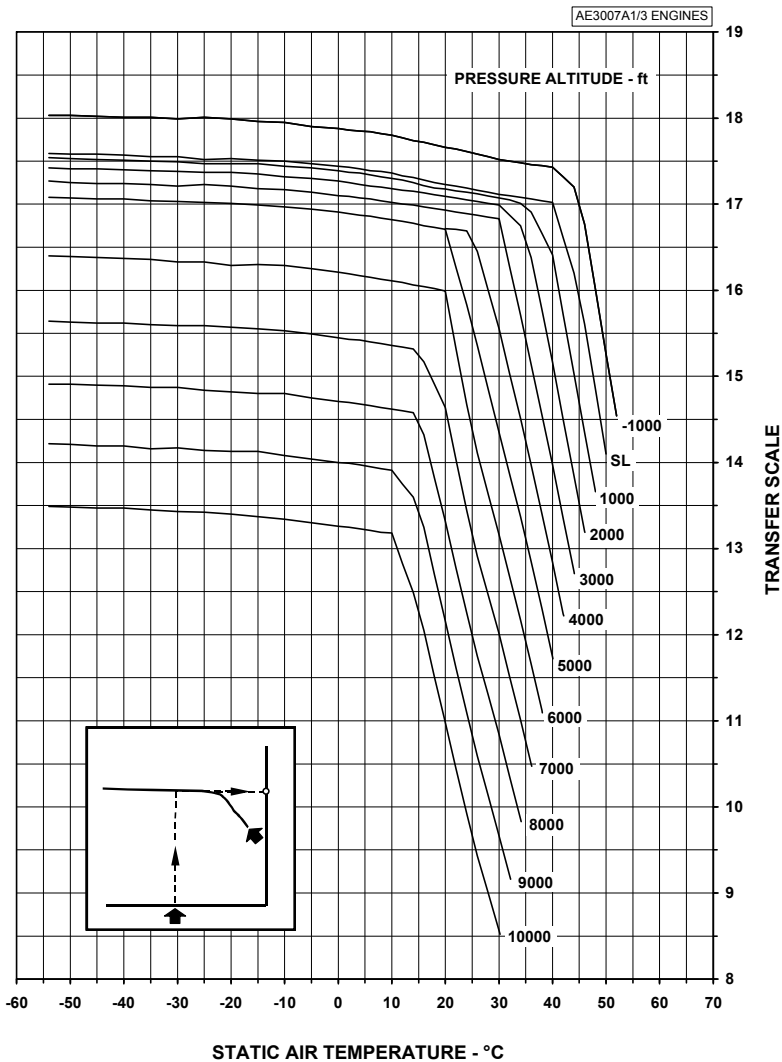
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LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE ON
CHART 2 OF 2

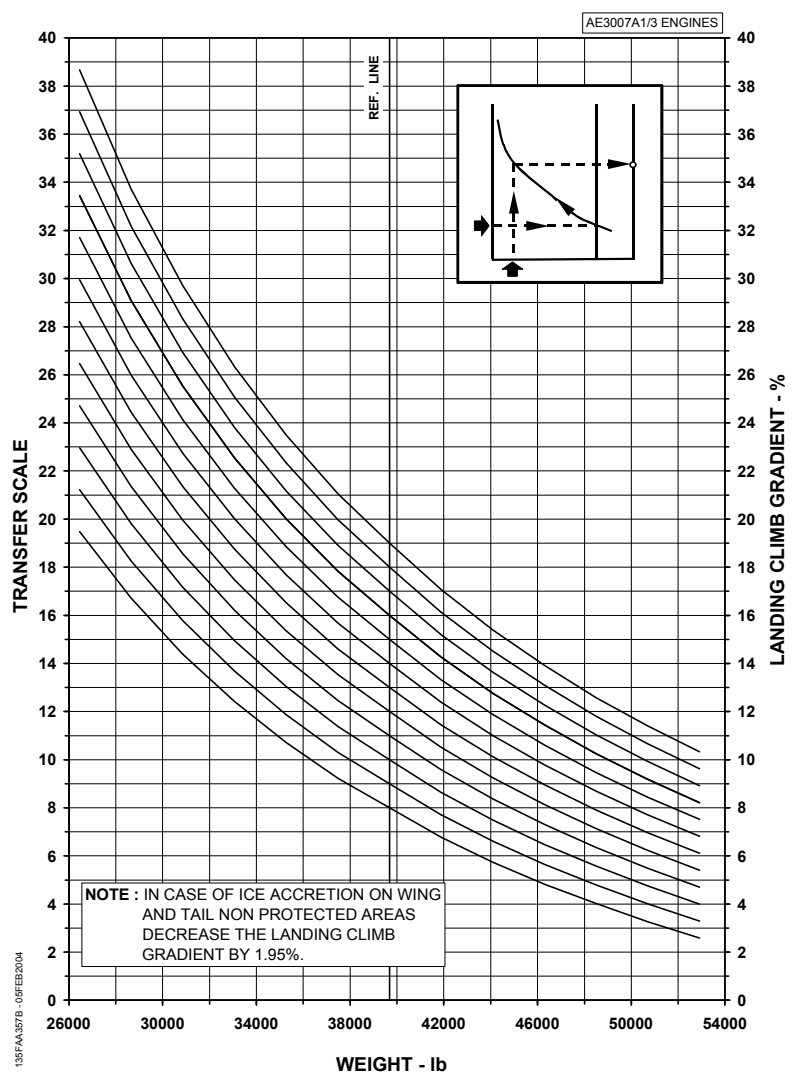


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LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 1 OF 2

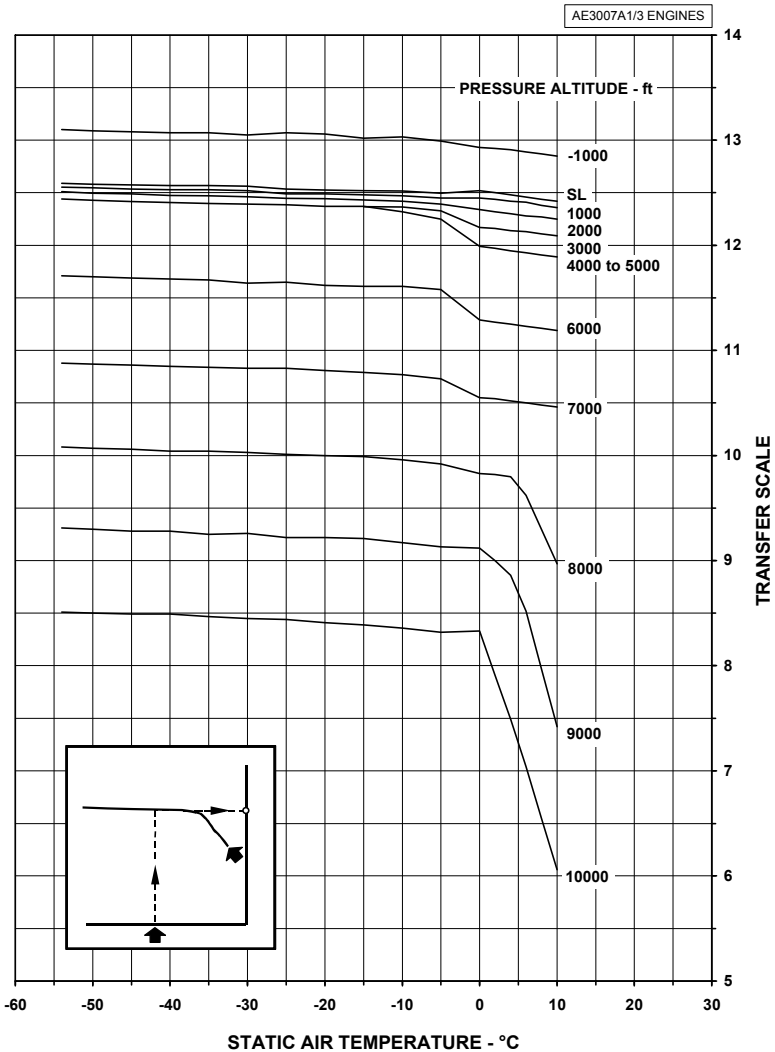


LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 22° - ANTI-ICE OFF
CHART 2 OF 2

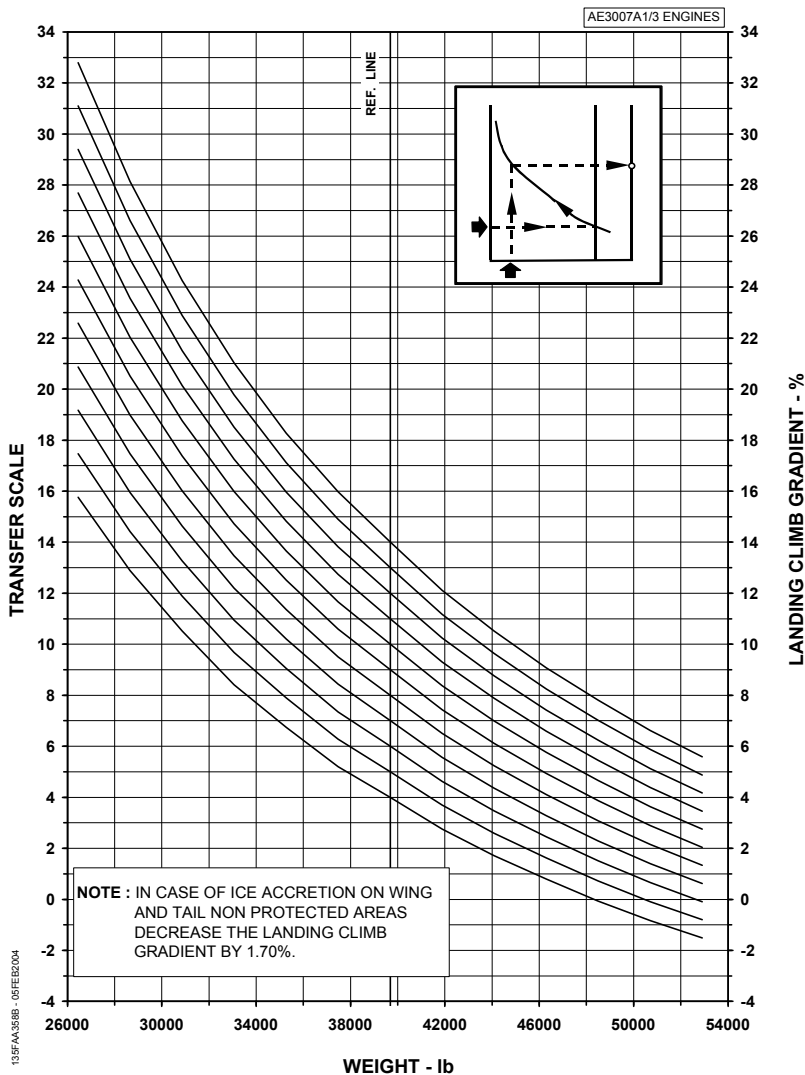


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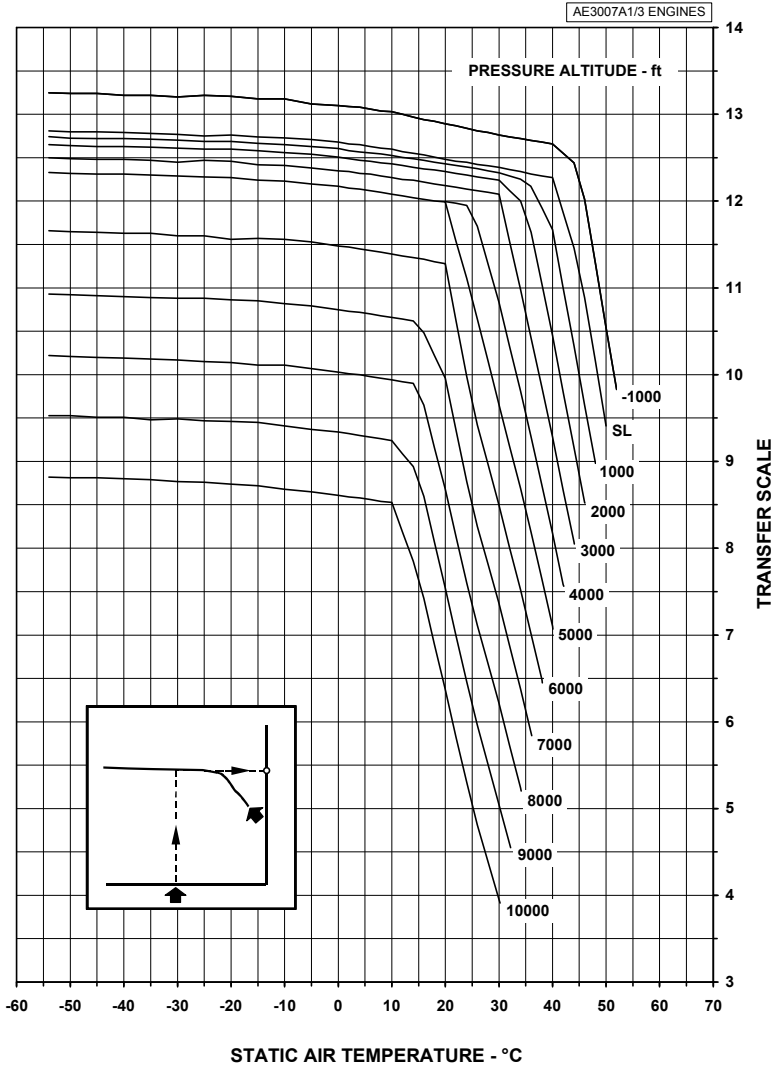
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 1 OF 2



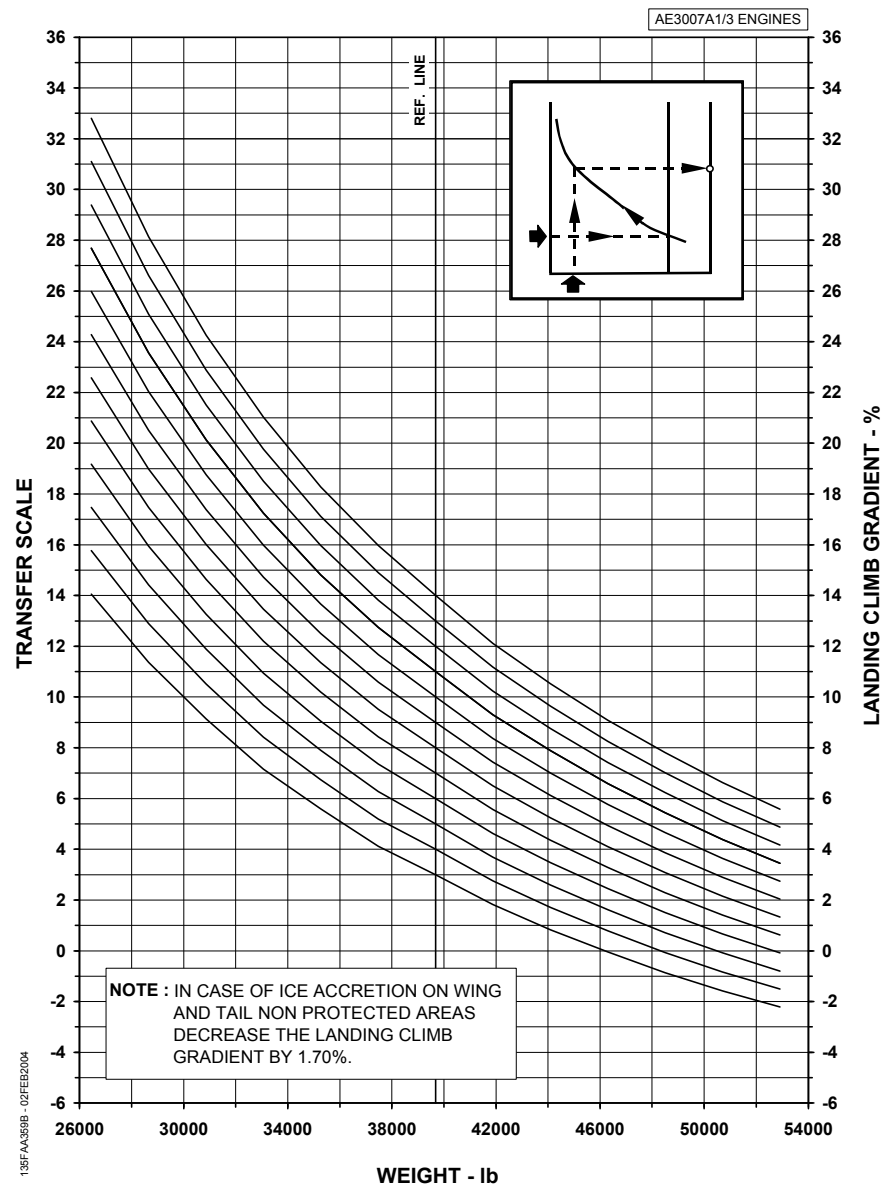
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ALL ENGINES - FLAPS 45° - ANTI-ICE ON
CHART 2 OF 2



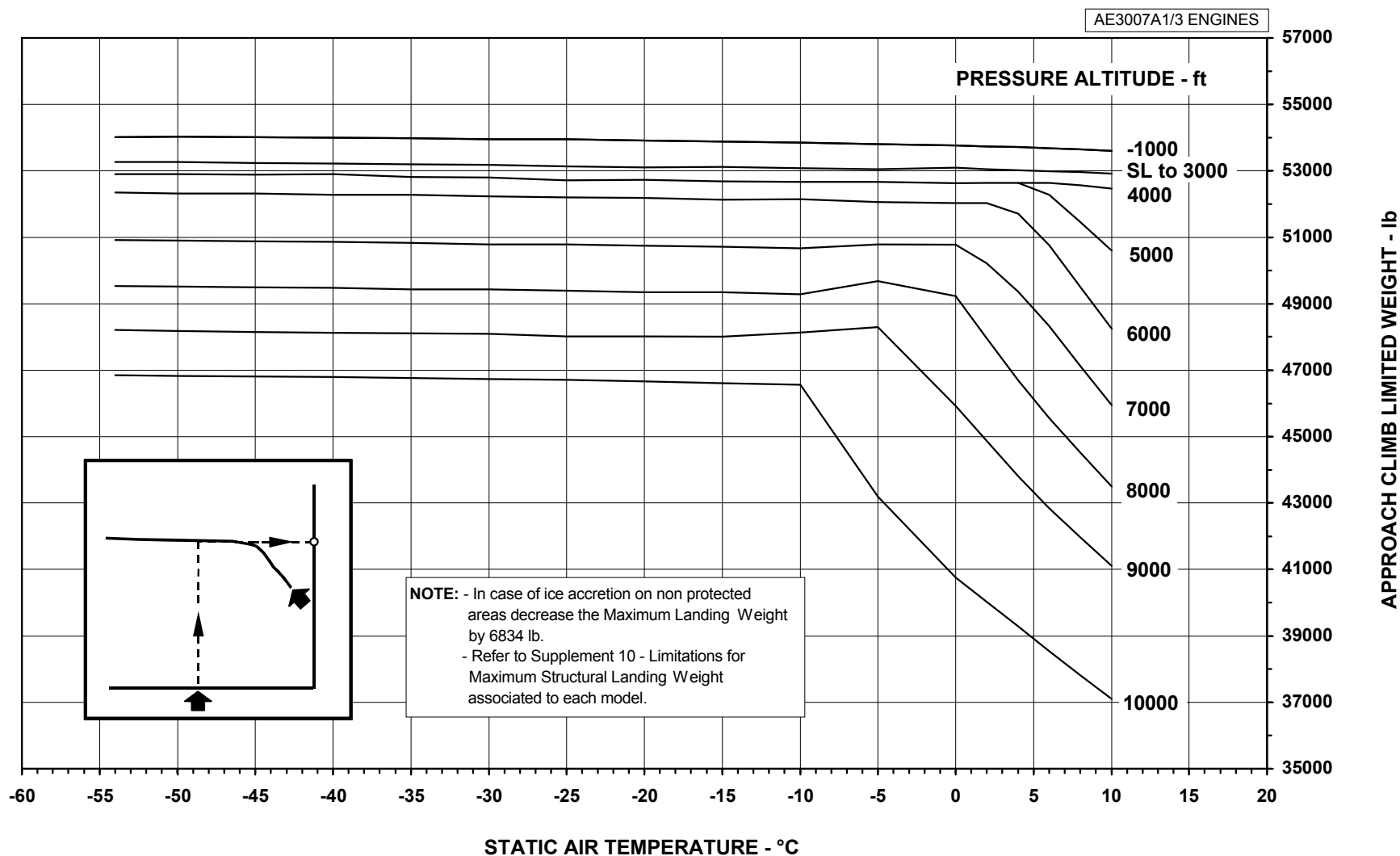
LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 1 OF 2



LANDING CLIMB GRADIENT
ALL ENGINES - FLAPS 45° - ANTI-ICE OFF
CHART 2 OF 2

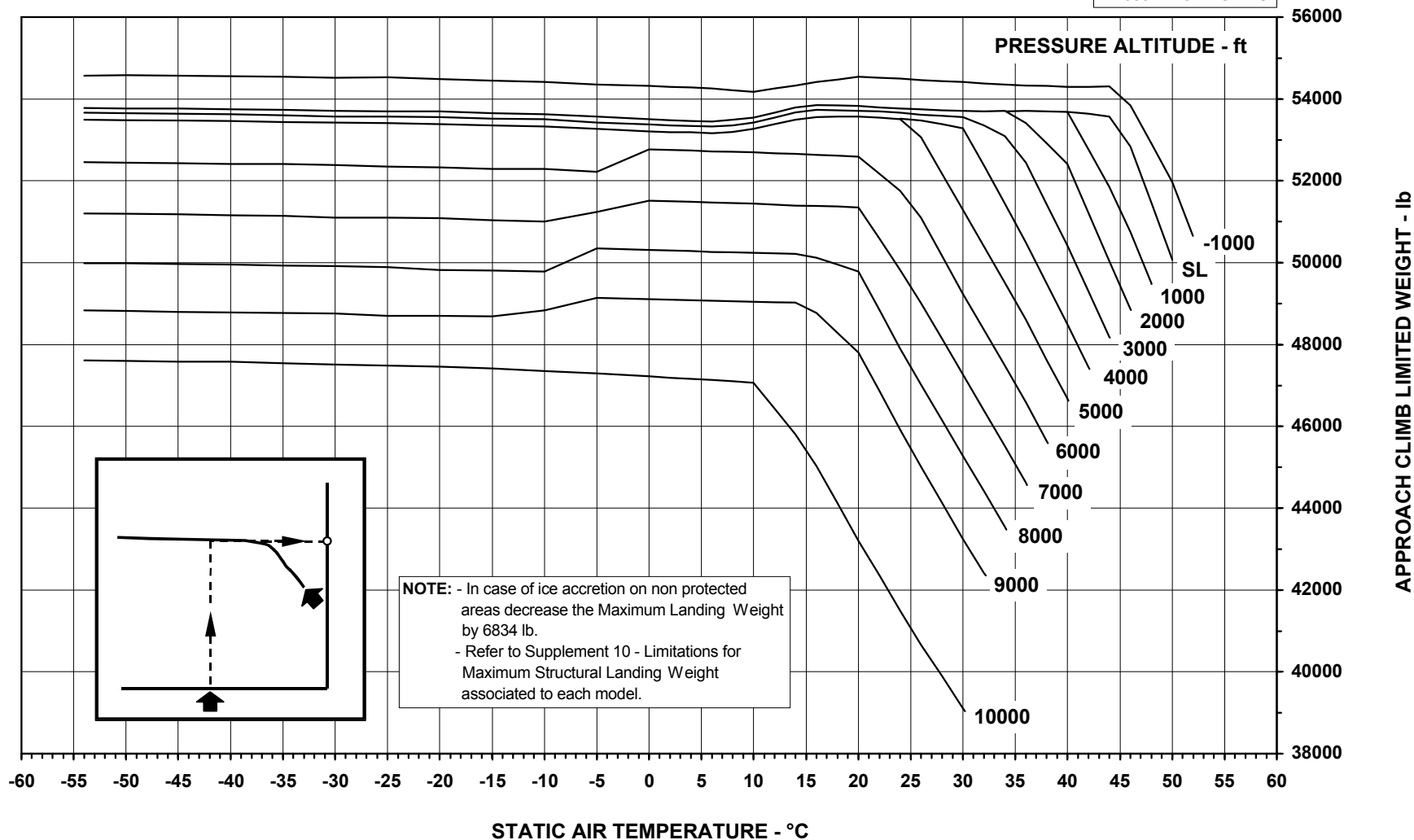


MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED **APPROACH FLAPS 9° - ANTI-ICE ON**

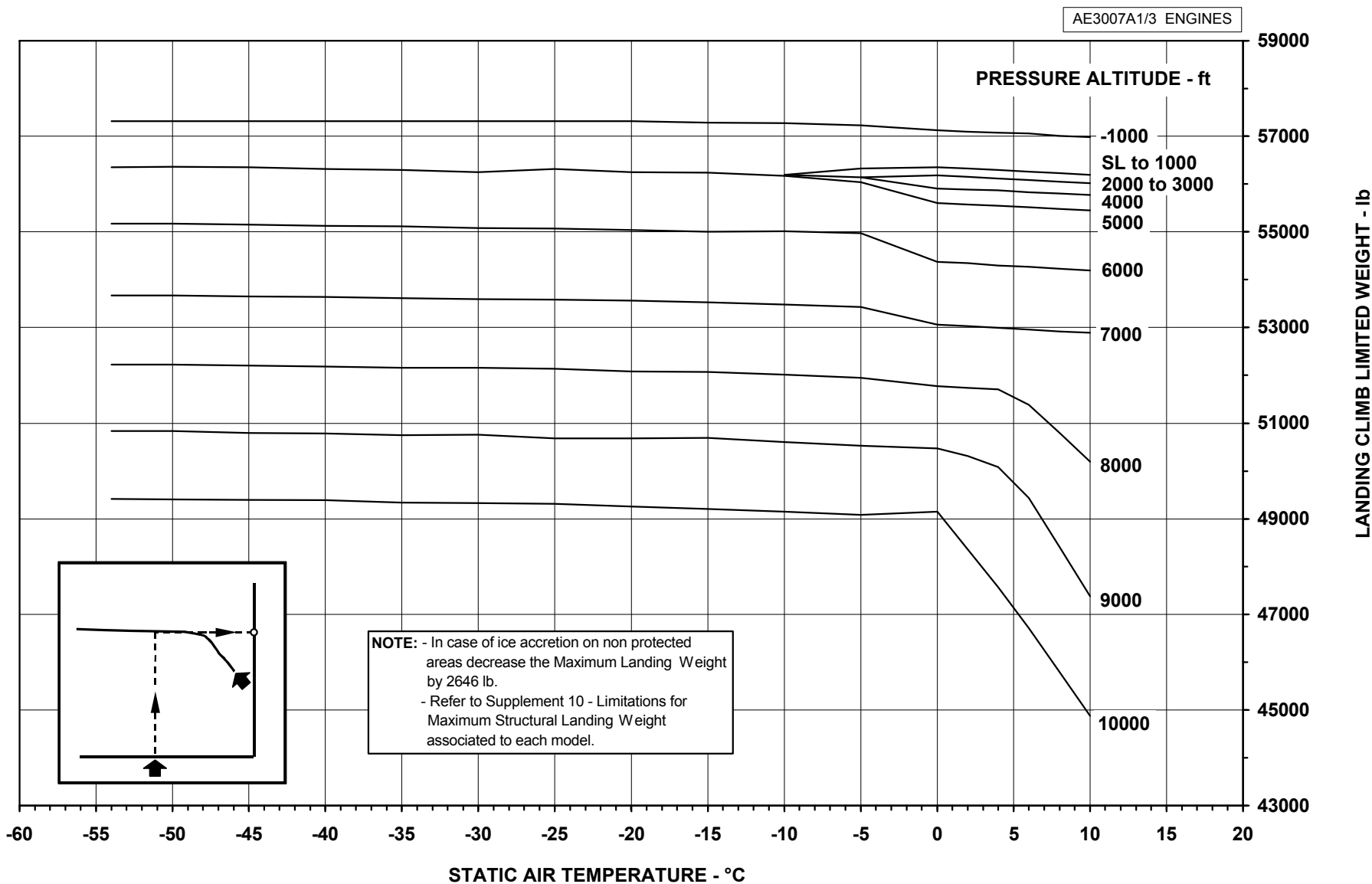


MAXIMUM LANDING WEIGHT - APPROACH CLIMB LIMITED APPROACH FLAPS 9° - ANTI-ICE OFF

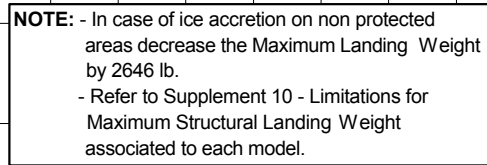
AE3007A1/3 ENGINES



MAXIMUM LANDING WEIGHT - LANDING CLIMB LIMITED LANDING FLAPS 45° - ANTI-ICE ON



AE3007A1/3 ENGINES



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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 24 HIGH ALTITUDE LANDING AND TAKEOFF OPERATION

SUPPLEMENT 24

LIST OF EFFECTIVE PAGES

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REVISION.....	1 to 55	Not Applicable
REVISION.....	56.....	OCT 21, 2003
REVISION.....	57.....	JUN 17, 2004

* S24-i.....	REVISION 57
S24-ii	REVISION 56
* S24-iii	REVISION 57
S24-iv	REVISION 56
* S24-1	REVISION 57
* S24-2	REVISION 57
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S24-4	REVISION 56

* Asterisk indicates pages revised, added or deleted by the current revision.

CTA APPROVED
REVISION 57

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HIGH ALTITUDE LANDING AND

TAKEOFF OPERATION

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AIRPLANE FLIGHT MANUAL

SUPPLEMENT 24 HIGH ALTITUDE LANDING AND TAKEOFF OPERATION

GENERAL

This Supplement presents the data required to perform takeoffs and landings operation at high altitude airports, from 8000 ft up to 10000 ft.

This AFM Supplement does not constitute approval to conduct High Altitude Operations. The airplane must be properly equipped and approval must be obtained from the appropriate regulatory authority prior to conducting these operations.

For limitations, procedures and performance information not contained in this Supplement, refer to the basic AFM and Supplements related to the associated engines, as applicable.

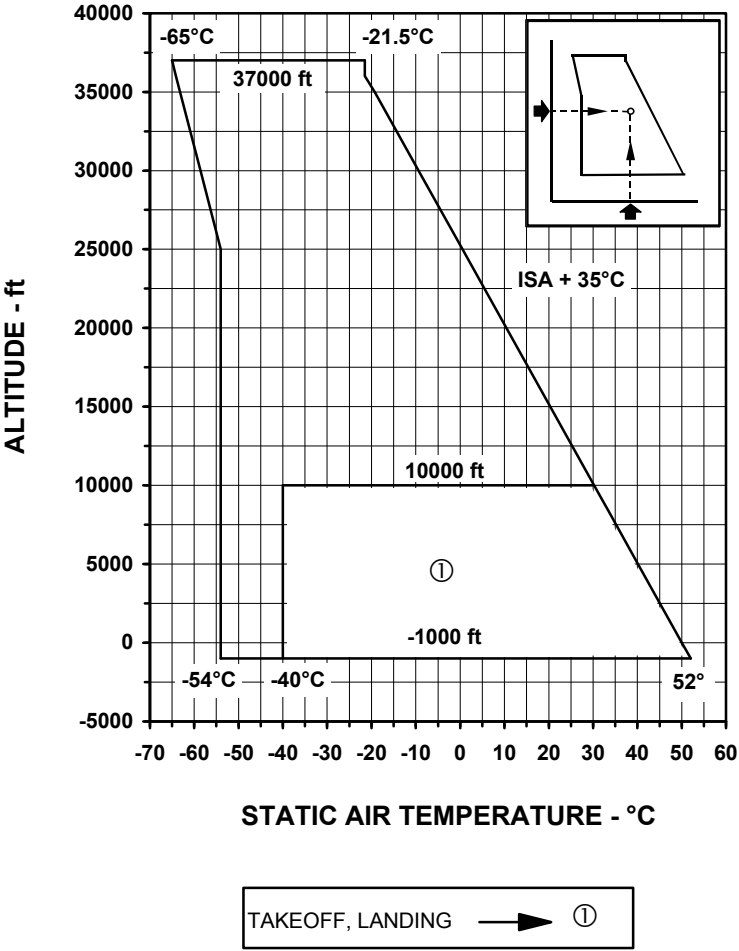
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LIMITATIONS

AIRPLANES

This supplement is applicable only to the EMB-145LR and EMB-145 XR models.

OPERATIONAL ENVELOPE



145XRC-TA100 - 15APR2003

EMERGENCY AND ABNORMAL PROCEDURES

The Emergency and Abnormal Procedures remain unchanged.

NORMAL PROCEDURES

The actions listed in the procedure below must complement the equivalent procedure contained in the basic AFM. The remaining Normal Procedures section remains unchanged.

NOTE: During high altitude operations, at least one pilot is required to use oxygen continuously, until the cabin altitude has reached 8000 ft.

BEFORE START

Pressurization 8000 ft

If flying from an airport above 8000 ft:

High Altitude Mode ON

Check that HI ALT LDG-T/O advisory message is displayed on the EICAS.

Crew Oxygen Mask DON

CLIMB

When cabin altitude is below 9700 ft:

High Altitude Mode OFF

Check that HI ALT LDG-T/O advisory message is no longer displayed on the EICAS.

DESCENT

Pressurization SET

Set the destination airport altitude.

If landing in an airport above 8000 ft:

High Altitude Mode ON

Check that HI ALT LDG-T/O advisory message is displayed on the EICAS.

Crew Oxygen Mask DON



PERFORMANCE

For Takeoff and Landing performance refer to the ETOASG software and/or to the associated engine Supplement as applicable.

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**AIRPLANE
FLIGHT
MANUAL**

**SUPPLEMENT 25
RVSM OPERATION**

SUPPLEMENT 25

LIST OF EFFECTIVE PAGES

ORIGINAL..... 0..... Not Applicable
REVISION..... 1 to 56 Not Applicable
REVISION..... 57..... JUN 17, 2004

* S25-i..... REVISION 57
* S25-ii..... REVISION 57
* S25-iii..... REVISION 57
* S25-iv..... REVISION 57
* S25-1..... REVISION 57
* S25-2..... REVISION 57
* S25-3..... REVISION 57
* S25-4..... REVISION 57
* S25-5..... REVISION 57
* S25-6..... REVISION 57

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REVISION 57

S25-i



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RVSM OPERATION

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GENERAL

This Supplement is provided to present the data required for operation in the RVSM (Reduced Vertical Separation Minimum) airspace. The RVSM operation reduces the EMB-145/135 minimum vertical separation from 2000 ft to 1000 ft between FL 290 and FL 370.

Airworthiness approval alone does not authorize flight into airspace for which an RVSM operational approval is required by an ICAO Regional Navigation Agreement.

The information herein presented must replace or complement the equivalent data in the basic AFM.

For performance information not contained in this Supplement, refer to the basic AFM.

LIMITATIONS

MINIMUM EQUIPMENT REQUIRED

During RVSM operation it is necessary that the following equipment and instruments be in proper operating condition:

- 2 Primary Altitude Measurement Systems;
- 1 Autopilot with Altitude Hold Mode operative;
- 1 Altitude Alerter;
- 1 Transponder.

NOTE: - An operating transponder may not be required for entry into all designated RVSM airspace. The operator should determine the requirement for an operational transponder in each RVSM area where operations are intended. The operator should also determine the transponder requirements for transition areas next to RVSM airspace.

- Should any of the required equipment fail prior to the aircraft entering RVSM airspace, the pilot should request a new clearance to avoid entering this airspace.

OPERATIONAL LIMITATION

RVSM operation is allowed for airplanes Post-Mod. SB 145-34-0082 or with an equivalent modification factory incorporated.

EMERGENCY AND ABNORMAL PROCEDURES

The actions listed below must complement the procedures contained in the basic AFM. The remaining Emergency and Abnormal Procedures section remains unchanged.

- In case of emergency or abnormal situation or contingencies (equipment failures, weather, etc.) which affect the ability to maintain the cleared flight level, notify ATC and co-ordinate an action plan that is appropriate to the airspace concerned;
- Notify ATC when encountering greater than moderate turbulence;
- If unable to notify ATC and obtain an ATC clearance prior to deviating from the cleared flight level, follow any established contingency procedures and obtain ATC clearance as soon as possible.

NORMAL PROCEDURES

The actions listed below must complement the procedures contained in the basic AFM. The remaining Normal Procedures section remains unchanged.

EXTERNAL SAFETY INSPECTION

NOSE SECTION

Sensors, Pitot Tubes and Static Ports..... CONDITION,
NO
OBSTRUCTION

Particular attention should be paid to the condition of static sources and to the marked area on the fuselage skin near each primary static source.

BEFORE TAKEOFF

Altimeters SET TO THE
AIRFIELD QNH
Altitude Indications CHECK

- NOTE:** - An alternative procedure using QFE may also be used;
- The maximum difference between altimeters indication should not exceed 23 m (75 ft).

CRUISE

Be sure that all required equipment are in proper operating condition.

Ensure that the aircraft is flown at the cleared flight level and that ATC clearances are fully understood and followed. Do not depart from cleared flight level without a positive clearance from ATC except for a contingency or emergency situation.

While changing flight levels, do not overshoot or undershoot the cleared flight level by more than 45 m (150 ft).

The autopilot should be operative and engaged during level cruise, except for circumstances such as the need to re-trim the aircraft or when it must be disengaged due to turbulence.

AFTER LANDING

In case of failure or malfunction, the following information should be recorded when appropriate:

- a) Primary and standby altimeter readings;
- b) Altitude selector setting;
- c) Barometric setting;
- d) Flight Director used with the Autopilot to control the airplane and any differences when the other Flight Director was coupled;
- e) Use of air data computer selector for fault diagnosis procedure;
- f) The transponder selected to provide altitude information to ATC and any difference noted when an alternative transponder was selected.



PERFORMANCE

The performance data used for RVSM operations are presented in Section 5 (Performance) of the basic AFM, in the Supplements related to the associated engines or airplane models, as applicable.

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SUPPLEMENT 30

LIST OF EFFECTIVE PAGES

ORIGINAL	0	Not Applicable
REVISION	1 to 68	Not Applicable
REVISION	69	NOV 29, 2022

- * S30-i (new) REVISION 69
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- * S30-19 (new) REVISION 69
- * S30-20 (new) REVISION 69

* Asterisk indicates pages revised, added or deleted by the current revision.

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FMZ2010 FLIGHT MANAGEMENT SYSTEM (SOFTWARE VERSION NZ 6.1.1)

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GENERAL

INTRODUCTION

This Supplement is a part of, and must be placed in, the ANAC Approved Airplane Flight Manual for airplanes incorporating single or dual FMZ2010 Flight Management System with Software Version NZ 6.1.1. The information presented herein must replace and/or complement the equivalent information in the basic AFM and applicable supplements.

The airplane capability does not constitute an operation approval. The operators must be granted local approval to conduct navigation operations.

NAVIGATION OPERATIONAL APPROVALS

The Honeywell Flight Management System, with the software version NZ 6.1.1 (identified on the FMS NAV IDENT PAGE) has been demonstrated to be capable of and has been shown to meet the requirements for the following operations:

ENROUTE, TERMINAL AND APPROACH OPERATIONS

The installed single or dual FMZ2010 equipment complies with FAA AC 20-138D for navigation using GPS and GPS/SBAS (within the coverage of a satellite-based augmentation system complying with ICAO Annex 10) for enroute, terminal area, non-precision approach, and for airplanes Post-Mod. SB145-34-0125 approach procedures with vertical guidance operations when the following equipment is installed and operative:

- For RNAV 1 and 2, and RNP 1:
 - 1 FMS;
 - 1 AHRS/IRS;
 - 1 CDU;
 - 4 display units;
 - 1 GPS ⁽¹⁾;
 - 1 VOR/DME module ⁽¹⁾;

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- 1 flight director for airplanes Pre-Mod. SB145-34-0125.

NOTE: (1) Requirement for VOR/DME may be replaced by dual FMS and dual GPS/SBAS equipment.

- For RNP 2:
 - 2 FMS;
 - 2 AHRS/IRS;
 - 2 CDU;
 - 4 display units;
 - 2 GPS ⁽¹⁾;
 - 1 flight director for airplanes Pre-Mod. SB145-34-0125.

NOTE: (1) Dual GPS is the primary navigation system to support RNP 2.

- For RNP APCH operations to LNAV minima:
 - 1 FMS ⁽¹⁾;
 - 1 AHRS/IRS;
 - 1 CDU ⁽²⁾;
 - 4 display units;
 - 1 GPS ⁽¹⁾;
 - 1 VOR/DME module ⁽¹⁾;
 - 1 flight director for airplanes Pre-Mod. SB145-34-0125.

NOTE: (1) GPS is the only approved sensor for RNP APCH operation. Replacing the requirement for retaining VOR/DME as backup navigation equipment by dual FMS and dual GPS/SBAS may be considered acceptable by some local authorities.

(2) In case of dispatch with single FMS, the available CDU must control the available FMS.

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- For RNP APCH operations to LNAV/VNAV minima (airplanes Post-Mod. SB145-34-0125):
 - 1 FMS ⁽¹⁾;
 - 1 AHRS/IRS;
 - 1 CDU ⁽¹⁾;
 - 4 display units;
 - 1 GPS;
 - 2 ADS RVSM compliant;
 - 1 TAT;
 - 1 flight director.

NOTE: (1) In case of dispatch with single FMS, the available CDU must control the available FMS.

- For RNP APCH operations to LPV minima (airplanes Post-Mod. SB145-34-0125):
 - 2 FMS;
 - 2 AHRS/IRS;
 - 2 CDU;
 - 4 display units;
 - 2 GPS;
 - 2 ADS RVSM compliant;
 - 1 TAT;
 - 2 flight directors.

REMOTE/OCEANIC OPERATION

The installed dual FMZ2010 equipment complies with the requirements of the FAA AC 20-138D regarding multi-sensor system operation in remote and oceanic flight, when the following equipment is installed and operative:

- For RNP 4 and RNP 10 ⁽¹⁾:
 - 2 FMS;
 - 2 AHRS/IRS ⁽²⁾;
 - 2 CDU;
 - 4 display units;
 - 2 GPS ⁽²⁾;
 - 1 flight director for airplanes Pre-Mod. SB145-34-0125.

NOTE: (1) The term RNP 10 must be understood as RNAV 10 as per ICAO nomenclature.

(2) Two long range sensors are required. Dual GPS is the primary navigation system to support RNP 4. Dual GPS and/or dual IRS meet the criteria for RNP 10 operations.

BAROMETRIC VERTICAL NAVIGATION

The airplanes Post-Mod. SB145-34-0125 have been demonstrated compliant with the requirements of the FAA AC 20-138D, regarding the barometric vertical navigation (Baro-VNAV) coupled to the Flight Director in enroute, terminal, and non-precision approach operations, when used in accordance with the limitations and operational procedures contained in this Supplement.

TEMPERATURE COMPENSATION

The temperature compensation feature complies with RTCA/DO-283B, Appendix H.

LIMITATIONS

GENERAL LIMITATIONS

The following limitations are applicable to Honeywell Flight Management System version NZ 6.1.1:

- The Honeywell Flight Management System (FMS) Pilot's Operating Manual, Honeywell Publication Number D200802000002 (or later revision of the manual) for the software version NZ 6.1.1 or FAA accepted Operating Manual, must be immediately available to the flight crew whenever navigation is predicated on the use of the FMS. The software status stated in the Pilot's Manual must match that displayed on the FMS Control Display Unit (CDU).
- Honeywell software version NZ 6.1.1 must be installed.
- RNAV equipment has a performance limitation necessitating alternate airport flight planning operational mitigation.
- Availability of suitable approved backup navigation equipment to divert and land at an alternate destination is required for RNP terminal and approach operations with single FMS or single GPS.
- Approved GPS FDE availability prediction program and suitable backup navigation to divert and land at an alternate destination is required for RNP operations with TSO-C129/129a sensor and to TSO-C145c/146c sensor operating outside SBAS coverage area. Operations requiring use of GPS enroute/remote coverage prediction must rely on approved offline prediction program.
- If GPS/SBAS service availability can be confirmed through service provider services (e.g.: NOTAM), then the use of prediction programs may not be required for RNP/RNAV operations with TSO-C145c/146c sensor operating within SBAS coverage area.
- For airplanes Pre-Mod. SB145-34-0125, the Flight Director must be coupled to the LNAV mode (autopilot coupled or not coupled), to accomplish instrument RNAV operations based on FMS guidance.
- For airplanes Pre-Mod. SB145-34-0125, FMS-coupled vertical guidance is not available. During FMS operation with autopilot engaged, the pilot must select the appropriate vertical guidance mode through the Flight Guidance Controller.

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- Advisory vertical guidance deviation information is only an aid to help pilots comply with altitude restrictions. When using advisory vertical guidance, the pilot must use the primary barometric altimeter for all flight operations to ensure compliance with all altitude restrictions.
- The Flight Director must be coupled to the VNAV mode (autopilot coupled or not coupled), for coupled Baro-VNAV operations.
- During takeoff and go-around, the Baro-VNAV must not be coupled to the flight director below 400 ft or prior to reaching the applicable acceleration altitude, whichever is higher.
- Baro-VNAV must not be used with altimeter adjustments referencing height above a ground location (QFE) rather than mean sea-level (QNH).
- The FMS does not correct the speed targets during Baro-VNAV operation, including approach and go around speeds for flap and landing gear positions, ice accretion or non-normal conditions. It is the pilot responsibility to ensure that the speeds are within the limits during all operations.
- RNAV/RNP/Baro-VNAV operations must not be performed following the indications from HGS (raw data or flight director guidance).
- It is required coordination with the ATC prior to employing the temperature compensation feature.
- FMS instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the FMS navigation database. The FMS database must incorporate the current update cycle.
- IFR operation based on FMS guidance is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
- The pilots must compare any procedures/route retrieved from the FMS database with those published on the procedure charts. Differences between the charts and the FMS information up to 3 degrees are acceptable. Otherwise, the coded procedure must not be used.

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- Operation in the following region using FMS as primary navigation source is prohibited: north of 72°30.0' N and south of 59°30.0' S.
- For areas in which the magnetic database error may differ in more than 3 degrees from the published charts, the following functions must be performed using true heading:
 - Manual creation of waypoints by place/bearing/distance;
 - Manual creation of waypoints by place/bearing/place/bearing;
 - Holding inbound course;
 - FIX INFO bearings;
 - DIRECT-TO with intercept course.

NOTE: To define course and bearing references to TRUE north in the FMS, insert the character "T" after the course/bearing value.

- The regions where the magnetic database error may differ in more than 3 degrees from published charts are the following:

Until December 31, 2024	
LATITUDE	LONGITUDE
North of 55°00' N	East of 180°00' W West of 105°00' W
North of 58°30' N	East of 100°00' W West of 020°00' W
North of 65°00' N	East of 020°00' W West of 005°00'E
North of 65°00' N	East of 170°00' E West of 180°00' E
South of 50°00' S	East of 120°00' E West of 165°00' E

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From January 01, 2025, until December 31, 2029	
LATITUDE	LONGITUDE
North of 50°00' N	East of 180°00' W West of 130°00' W
North of 55°00' N	East of 130°00' W West of 080°00' W
North of 47°30' N	East of 080°00' W West of 000°00'
North of 55°00' N	East of 000°00' West of 030°00' E
North of 65°00' N	East of 030°00' E West of 070°00' E
North of 70°00' N	East of 110°00' E West of 125°00' E
North of 60°00' N	East of 140°00' E West of 170°00' E
North of 55°00' N	East of 170°00' E West of 180°00' E
South of 10°00' S North of 30°00' S	East of 075°00' W West of 057°00' W
South of 05°00' S North of 30°00' S	East of 010°00' W West of 015°00' E
South of 50°00' S	East of 115°00' E West of 180°00' E

- RNAV/RNP operations with DGR or DR annunciated on the PFD are prohibited.
- FMS performance management information is only supplementary. The flight crew must use fuel information primarily from the MFD and EICAS display.
- Use of the UNDO function is prohibited with departure and arrival procedures and approaches linked in the flight plan.
- Airplane is not approved for RNP less than 0.3 operations.
- Airplane is not approved for RNP AR operations.
- Airplane is not approved for procedures containing RF legs.

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- Airplane is not approved for FRT leg transitions.
- Airplane is not approved for pre-planned parallel offsets.
- Airplane is not approved for TOAC.
- Airplane is not approved for RNAV Holding.
- For airplanes Pre-Mod. SB145-34-0125, operations using RNP 1 to RNP less than 2 require the use of Flight Director.
- For operations using RNP 0.3 to RNP less than 1 the use of GPS is required. For airplanes Pre-Mod. SB145-34-0125 the use of the Flight Director is also required.
- Airplane is not approved for missed approach operations less than RNP 1.

APPROACH LIMITATIONS

- LP, ILS, GLS, LOC, LOC-BC, LDA, SDF and MLS approaches, using the FMS for guidance, are prohibited.
- For airplanes Pre-Mod. SB145-34-0125, LNAV/VNAV and LPV approaches, using the FMS for guidance, are prohibited.
- Approved GPS FDE availability prediction program and suitable backup navigation to divert and land at an alternate destination is required for RNP approach operations with TSO-C129/129a sensor and to TSO-C145c/146c sensor operating outside SBAS coverage area.
- If GPS/SBAS service availability can be confirmed through service provider services (e.g.: NOTAM), then the use of prediction programs may not be required for RNP/RNAV operations with TSO-C145c/146c sensor operating within SBAS coverage area.
- Use of FMS guidance for conducting instrument approach operations is conditioned to the display of the APP annunciator set on PFD once within 2 NM from the final approach fix.
- Use of FMS guidance for conducting instrument approach procedures is prohibited with the FMS operating in the degrade or dead-reckoning mode (DGR or DR annunciation set on PFD).
- The pilot must review the complete transition-approach, comparing the waypoints and altitudes displayed on the FMS with those on the published procedure prior to activation to ensure that the correct procedure and transition are selected.
- For airplanes Pre-Mod. SB145-34-0125, the Flight Director must be coupled to the LNAV mode (autopilot coupled or not coupled), to accomplish approach operations based on FMS guidance.
- The Flight Director must be coupled to the LNAV/VGP mode (autopilot coupled or not coupled) to perform instrument approach operations to LNAV/VNAV or LPV line of minima.
- Advisory vertical guidance deviation information is only an aid to help pilots comply with altitude restrictions. When using advisory vertical guidance, the pilot must rely on the altimeter as the primary vertical reference for compliance with all altitude restrictions associated with the instrument approach procedure, including compliance with all associated step-down fixes.

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- Only the LNAV/VNAV or LPV line of minima on an approach chart can guarantee the vertical path. For airplanes Post-Mod. SB145-34-0125, when performing an approach to LNAV minimums and the approach chart also contains LNAV/VNAV line of minima with step-down fixes, vertical path is not guaranteed. When performing an approach to LNAV only minimums, VNAV guidance provided by the Baro-VNAV function must be considered as advisory only. The pilot must ensure compliance with ATC clearances and altitude restrictions by using the primary barometric altimeter.
- The use of temperature compensation feature is required if Baro-VNAV operation outside the temperature limits published on approach procedure chart is intended.
- FMS Missed Approaches using the CDU Mode Select Button during the final approach segment is prohibited.

REMOTE OPERATIONS LIMITATIONS

- RNP remote operations are conditioned by approved dispatch GPS FDE availability prediction for airplanes not equipped with optional dual IRS configuration. The maximum allowable for a predicted loss of GPS FDE capability is 25 minutes for RNP 4 operation and 34 minutes for RNP 10 operation. Operations requiring use of GPS enroute/remote coverage prediction must rely on approved offline prediction program.
- RNP 10 operations for airplanes equipped with optional dual IRS configuration meet the applicable performance criteria for up to 6.2 hours of flight time without GPS position update.

AUTOPILOT (AIRPLANES POST-MOD. SB145-34-0125)

The Minimum Use Height (MUH) during LPV approach is 160 ft.

EMERGENCY AND ABNORMAL PROCEDURES

All FMZ2010 Action/Malfunction Messages are described in the Honeywell Flight Management System (FMS) Pilot's Operating Manual, Honeywell Publication Number D200802000002 (or later revision of the manual) for the software version NZ 6.1.1.

The emergency and abnormal procedures are the same as those in the basic AFM and applicable supplements except as follows:

FMS NAVIGATION PERFORMANCE DEGRADED

Select the cross side FMS if available.

In case of one FMS (single FMS) or both FMS (dual FMS) are affected, use the procedures from the following table.

OPERATION	REQUIRED ACTION
Non-RNP Terminal or Enroute	Crosscheck FMS data with raw data from VOR, DME, and NDB. De-select error causing sensor, if detectable. Otherwise, contact ATC and revert to an alternative means of navigation (VOR, DME or NDB).
RNAV/RNP	Contact ATC, advise of any loss of the RNAV/RNP capability or inability to continue RNAV/RNP.

In case of one FMS (single FMS) or both FMS (dual FMS) entering in Dead Reckoning Mode:

EGPWS TERRAIN SYS OVRD Button..... PRESS
The Terrain Awareness Alerting and Display functions on MFD will be inhibited. This will not affect the basic GPWS functions (modes 1 to 7).

If the FMS is restored after a period of inadequacy:
EGPWS TERRAIN SYS OVRD Button PRESS
The Terrain Awareness will be enabled.

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NOTE: The DEGRADE annunciator indicates that the FMS cannot guarantee that the accuracy of the system meets the requirements for the current phase of flight. Except in the case of conducting an instrument approach procedure, the FMS may still be accurate and may be used for navigation, provided the crew can confirm the position through other means, such as cross checking the VOR/DME raw data.

FMS IN DEAD RECKONING MODE

During periods of dead reckoning mode, refer to FMS NAVIGATION PERFORMANCE DEGRADED procedure.

NOTE: The FMS will continue to provide the best estimate of the airplane position based on airspeed and heading inputs, but it cannot guarantee the required accuracy for any of the flight phases. The pilot should cross check position with other nav aids, station overfly or visually.

**LPV UNAVAILABLE (AIRPLANES POST-MOD.
SB145-34-0125)**

If on approach:

MISSED APPROACH Procedure ACCOMPLISH

- Consider the possibility of continuing and performing the landing if under visual conditions and the airplane position and attitude assure a safe landing.

Perform an approach with non-LPV minima.

NORMAL PROCEDURES

The FMS normal operating procedures are contained in the Honeywell Flight Management System (FMS) Pilot's Operating Manual, Honeywell Publication Number D200802000002 (or later revision of the manual) for the software version NZ 6.1.1.

The normal procedures are the same as those in the basic AFM and applicable supplements except as follows:

BEFORE START

FMS..... SET

HOLDING

If a Holding Pattern entering is necessary:

FMS AS REQUIRED

The pilot must check the entry type and turn direction of holding pattern before entering it. For entry types other than the direct one, the pilot must activate the procedure holding pattern as soon as the approach procedure is retrieved from the Navigation Database.

FMS SOURCE SELECTION

Flight Plan SELECT OR
CREATE

FMS Source SELECT

The FMS can be selected as the navigation source through the FMS Selector Button located on the Display Control Panel.

FMS Label..... CHECK

The FMS label appears on the associated PFD and MFD.
On PFD and MFD the FMS label will be always magenta.

For FMS coupling to the Autopilot/Flight Director:

NAV Mode (Flight Guidance Controller) SELECT

The FMS will be coupled to the Autopilot/Flight Director when is selected and valid at the on side EHSI and crew selects the NAV mode on the associated Flight Guidance Controller. Once coupled the autopilot will follow the preselected flight plan on the FMS.

APPROACH

The FMS GPS, NDB, RNAV, VOR, VOR/DME and VFR approaches may be linked into the flight plan and laterally coupled to the Autopilot/Flight Director.

ILS approaches can be retrieved from the navigation database and linked to the flight plan, but cannot be armed or activated as FMS approaches. The FMS can be used to provide navigation up to the final approach course at the point that the PFD must be changed to display raw ILS data.

TRANSITION FROM FMS TO AUTOPILOT ILS APPROACH

- ILS Frequency SELECT AS
REQUIRED
- Radio Altitude SELECT AS
REQUIRED
- HDG Mode (Flight Guidance Controller) SELECT
Before selection, set the desired interception course on heading
bug.
- Navigation Source SELECT
Select the NAV source on the Display Control Panel (LOC course
selected on the PFD).
- Autopilot/Flight Director AS REQUIRED
- When cleared for Approach:
APR Mode (Flight Guidance Controller) SELECT

ARC DME APPROACH USING FMS

- Pilot Not-Flying CHECK DME
During Arc DME approach using FMS the pilot not-flying must
check DME Raw Data.

LPV APPROACH (AIRPLANES POST-MOD. SB145-34-0125)

Prior to the IAF:
Approach Procedure LOAD

Prior to the FAF:
VNV Button PRESS
APR Button PRESS
LPV Armed..... VERIFY

After the FAF:
LPV Active VERIFY

NOTE: LPV indications will not be displayed if the navigation source is copied (FMS 2 is selected on PFD 1 or FMS 1 is selected on PFD 2 as the navigation source).

**LNAV/VNAV APPROACH (AIRPLANES POST-MOD.
SB145-34-0125)**

Prior to the IAF:
Approach Procedure LOAD

Prior to the FAF:
VNV Button PRESS
APR Button PRESS
VGP Armed..... VERIFY

After the FAF:
VGP Active..... VERIFY

MISSED APPROACH

Go-Around Button..... PRESS

Thrust Levers..... MAX

Verify that airplane rotates to 10° nose up wings level (Pitch Mode) and changes to Speed Hold Mode after 20 seconds.

Flaps 9°

With positive rate of climb:

Landing Gear UP

Airspeed..... APPROACH
CLIMB SPEED
OR ABOVE

NOTE: During the GO-AROUND procedure DON'T SINK aural warning may sound. In this case monitor the sink rate and follow the GO-AROUND guidance.

For airplanes Pre-Mod. SB145-34-0125:

NAV Mode (Flight Guidance Controller)..... SELECT

Reselecting the NAV mode the airplane will regain the lateral guidance from the FMS to fly the missed approach legs to the missed holding point and to enter holding, as required.

For airplanes Post-Mod. SB145-34-0125:

LNAV Mode (Flight Guidance Controller)..... CHECK IF
ARMED

When flying an ILS or non-RNAV approach, by reselecting the FMS source the airplane will regain the lateral guidance from the FMS to fly the missed approach legs to the missed holding point and to enter holding, as required.

BEFORE LANDING (AIRPLANES POST-MOD. SB145-34-0125)

PFD Speed SET VAPPCL

Set Approach Climb Speed via Speed Intervention function on FMS.

LATERAL DEVIATION SCALE

When the FMS is selected as the navigation source the cross track deviation scale and pointer, if valid, will be displayed. The PROGRESS 1/3 page displays the active RNP value, which is the two dots deviation on the lateral scale. For airplanes Post-Mod. SB145-34-0125 such information is also displayed on the PFD.

VERTICAL DEVIATION SCALE

When the FMS is selected as the navigation source the vertical track deviation scale and pointer, if valid, will be displayed. The vertical deviation values are the following:

DEVIATION	ENROUTE (ft)	TERMINAL (ft)	APPROACH (ft)
0	0	0	0
1 dot	250	250	75
2 dots	500	500	150

For airplanes Post-Mod. SB145-34-0125 the vertical deviation full-scale value readout is displayed below the scale on the PFD.

PERFORMANCE

Performance data presented in the basic AFM and applicable supplements remain unchanged.

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APPENDICES

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CTA APPROVED
DECEMBER 10, 1996

AFM-145/1153 - FAA

APPENDIX 1

LIST OF EFFECTIVE PAGES

ORIGINAL 0 DEC 10, 1996
 REVISION 1 to 15 Not Applicable
 REVISION 16 JUN 17, 1998
 REVISION 17 to 52 Not Applicable
 REVISION 53 OCT 22, 2002
 REVISION 54 to 55 Not Applicable
 REVISION 56 OCT 21, 2003
 REVISION 57 JUN 17, 2004
 REVISION 58 to 64 Not Applicable
 REVISION 65 OCT 03, 2013

* A1-i REVISION 65
 * A1-ii.....REVISION 65
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* Asterisk indicates pages revised, added or deleted by the current revision.



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CONFIGURATION DEVIATION LIST

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CONFIGURATION DEVIATION LIST

GENERAL LIMITATIONS

This Configuration Deviation List contains additional certificate limitations for operation of the EMB-145 airplane without certain secondary airframe and engine parts as listed herein. When the airplane is operated using the CDL, it must be operated in accordance with the limitations specified in the AFM, as amended in the CDL. All the items which are related to the airworthiness of the airplane and not included on the list are automatically required.

The associated limitations must be listed on a placard affixed in the cockpit in clear view of the pilots and other appropriate crewmember(s). The pilot in command should be notified of each operation with a missing part(s) by listing the missing part(s) in the flight or dispatch release. The operator should list in the airplane logbook an appropriate notation covering the missing part(s) on each flight.

If an additional part is lost, the airplane may not depart the airport at which it landed following this event, until it complies with the limitation of the CDL. This, of course, does not preclude the issuance of a ferry permit to allow the airplane to be flown to a point where the necessary repairs or replacement can be made.

No more than one part for any one system may be missing, unless specific combinations of parts are included in the CDL. Unless otherwise specified, parts from different systems may be missing. The performance penalties are cumulative, unless specifically designated penalties are indicated for the combination of missing parts.

No more than three parts that have each been determined to cause negligible performance degradation may be missing for takeoff without applying a performance penalty. When more than three such parts are missing, a performance penalty of either 0.05 percent of the maximum takeoff weight or 45 kilograms (100 pounds), whichever is less, must be applied for takeoff, en route, and landing for each missing part.

No more than ten parts that have each been determined to cause no performance penalty may be missing.

Takeoff performance penalties should be applied to the takeoff weights that are limited by performance considerations (i.e., takeoff field length, first, second, or final segment climb, or takeoff flight path). If the performance-limited takeoff weight is greater than the maximum certified takeoff weight, the takeoff performance penalties should be applied to the maximum certified takeoff weight to ensure compliance with the noise requirements.

Landing performance penalties should be applied to the landing weights that are limited by performance considerations (i.e., landing field length, landing climb, or approach climb). If the performance-limited landing weight is greater than the maximum certified landing weight, the landing performance penalties should be applied to the maximum certified landing weight to ensure compliance with the noise requirements.

En route performance penalties apply only to operations that are limited by the one-engine inoperative en route climb performance.

The numbering and designation of system in this Appendix is based on ATA Spec. 100. The parts within each system are identified by functional description and, when necessary, by panel identification. See Maintenance Manual, Chapter 6, for panel identification.



CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				6-1
System & Sequence Number	ITEM	1.	2. Number installed	
			3. Number required for dispatch	4. Remarks and/or exceptions
6 DIMENSIONS AND AREAS				
41-1 Exterior Main Door Control Panel Access Door		1	0	May be missing with no penalty.
41-2 External Power Connection Access Door		1	0	May be missing with no penalty.
41-3 Ground Air Conditioning Connection Access Door		1	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
41-4 Air Conditioning Heat Exchanger Grills		1	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
41-5 Pack Valve/ Wing Anti-ice Valve Access Door (191LR/KL)		2	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
41-6 Bleed Flexible Joint Access Door (194AR/CR, 195AL/CL)		4	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
41-7 Red Beacon Fairing (192EL)		1	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				6-2
System & Sequence Number	ITEM	1.	2. Number installed	3. Number required for dispatch
6 DIMENSIONS AND AREAS				4. Remarks and/or exceptions
41-8 Hydraulic Servicing Access Door (193GR/HR/JR, 193DL/EL/FL)		6	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
41-9 Fuel Tank Drain Valve Access Door (192CL/DR)		2	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
41-10 Fuel Wing Stub Drain Valve Access Door (192HL/JR) (EMB-145 LR/XR)		2	1	One may be missing with no penalty.
41-11 Drip Stick Door (192FL/GR) (EMB-145 LR/XR)		2	1	One may be missing with no penalty.
41-12 Pneumatic Duct Joints Access Panel (193YR/TR/SL/XL) (EMB-145 XR)		4	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
41-13 Hydraulic System Service Access Door (193WL/ZR) (EMB-145 XR)		2	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
41-14 Hydraulic Oil Level Sight Glass Access Door (193UL/VR) (EMB-145 XR)		2	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				6-3
System & Sequence Number	ITEM	1.	2. Number installed	
			3. Number required for dispatch	4. Remarks and/or exceptions
6 DIMENSIONS AND AREAS				
41-15 Pneumatic Duct Junction Access Panel (198ER/DL) (EMB-145 XR)		2	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
42-1 Pressure Fueling Panel Access Door		1	0	May be missing provided: a) Door microswitch is locked actuated (simulating door closed); b) Refueling, defueling and power switches are verified in the CLOSED/NORMAL position; c) Refueling cap is locked and latched; and d) Maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
42-2 Potable Water Service Door		1	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
42-3 Potable Water Service Access Panel (198BR) (EMB-145 XR)		1	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
42-4 Waste Service Door		1	0	May be missing with no penalty.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				6-4
System & Sequence Number	ITEM	1.	2. Number installed	
			3. Number required for dispatch	4. Remarks and/or exceptions
6 DIMENSIONS AND AREAS				
42-5 Engine Starting Pneumatic Connection Door		1	0	May be missing with no penalty.
42-6 Maintenance Interphone Connection Door		1	0	May be missing with no penalty.
42-7 APU Tail Cone Attaching Bolt Access Door (313ER/DR/AL/BR)		4	0	May be missing with no penalty.
42-8 APU Servicing Access Door (313CL)		1	0	May be missing provided APU operates on the ground only.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				23-1
System & Sequence Number	ITEM	1.	2. Number installed	3. Number required for dispatch
23 COMMUNICATIONS				4. Remarks and/or exceptions
60-1 Static Dischargers		22	13	A maximum of 9 (nine) static dischargers may be missing with no penalty. At least the following dischargers are required to be installed: a) 3 (three) are installed on each wing; b) 1 (one) is installed on the rudder; c) 3 (three) are installed on each elevator.
60-2 Static Dischargers (EMB-145 XR)		26	17	A maximum of 9 (nine) static dischargers may be missing with no penalty. At least the following dischargers are required to be installed: a) 4 (four) are installed on each wing; b) 1 (one) is installed on the rudder; c) 3 (three) are installed on each elevator.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				28-1
System & Sequence Number	ITEM	1.	2. Number installed	
			3. Number required for dispatch	
			4. Remarks and/or exceptions	
28 FUEL				
11-1 Fuel Tank Drain Access Door		2	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
12-1 Vent Valves Screen Assembly		2	0	May be missing with no penalty.
42-1 Direct Quantity Measuring Sticks		4	0	May be missing with no penalty.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				32-1
System & Sequence Number	ITEM	1.	2. Number installed	
			3. Number required for dispatch	
			4. Remarks and/or exceptions	
32 LANDING GEAR				
10-1 Main Landing Gear Doors		2	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
10-2 Main Landing Gear Wheels Fairing		2	0	May be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				33-1
System & Sequence Number	ITEM	1.	2. Number installed	
			3. Number required for dispatch	4. Remarks and/or exceptions
33 LIGHTS				
41-1	Nose Landing Light	1	0	May be missing with no penalty.
42-1	Taxi Light	2	0	May be missing with no penalty.
43-1	Navigation Light Protective Lens	3	0	May be missing with no penalty.
43-2	Navigation Light Protective Lens (EMB-145 XR)	6	0	May be missing with no penalty.
44-1	Inspection Light Protective Lens	2	0	May be missing with no penalty.
46-1	Logotype Light Protective Lens	2	0	May be missing with no penalty.
47-1	Red Beacon Light Protective Lens	2	0	May be missing with no penalty.
50-1	Exterior Emergency Light Protective Lens	4	0	May be missing with no penalty.



CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				49-1
System & Sequence Number	ITEM	1.	2. Number installed	
			3. Number required for dispatch	4. Remarks and/or exceptions
49 AUXILIARY POWER UNIT				
42-1	APU Starter/Generator Air Intake Scoop	1	0	May be missing provided APU operates on the ground only.
52-1	APU Compartment Cooling Air Intake Scoop	1	0	May be missing provided APU operates on the ground only.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page 52-1
EMB-145				
System & Sequence Number	ITEM	1.	2. Number installed	
			3. Number required for dispatch	
			4. Remarks and/or exceptions	
52 DOORS				
10-1 Main Door Handgrip		1	0	May be missing with no penalty.
42-1 Service Door Handgrip		1	0	May be missing with no penalty.
43-1 Tail Cone Access Door (312AR)		1	0	May be missing with no penalty.

CONFIGURATION DEVIATION LIST			
Airplane		Revision n° 65	Page
EMB-145			54-1
System & Sequence Number	ITEM	1.	2. Number installed
			3. Number required for dispatch
			4. Remarks and/or exceptions
54 NACELLE/PYLONS			
50-1 Systems Access Door (414AB/BB/EB, 424AB/BB/EB)		6	4 A maximum of 1 per pylon for a total of 2 may be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.
50-2 Bleed Valve Access Door (414CB, 424CB)		2	0 May be missing with no penalty.
50-3 Pre-cooler Access Door (414DB, 424DB)		2	0 May be missing with no penalty.
50-4 Engine Pylon Fairing (414HL, 424HR)		2	0 May be missing with no penalty.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				55-1
System & Sequence Number	ITEM	1.	2. Number installed	3. Number required for dispatch
				4. Remarks and/or exceptions
55 STABILIZERS				
10-2 Horizontal Stabilizer Access Door (334AB/BB/CB, 333AB/BB/CB)		6	4	A maximum of 1 per side for a total of 2 may be missing with no penalty.
20-2 Elevator Control Rod Fairing		4	0	May be missing with no penalty.
20-3 Elevator Trim Control Rod Fairing		2	0	May be missing with no penalty.
20-4 Elevator Access Door (335AB/BB/CB/DB/EB/FB/GB/HB, 336AB/BB/CB/DB/EB/FB/GB/HB)		16	15	One may be missing with no penalty. 335AB/BB/CB/DB/EB and 336AB/BB/CB/DB/EB cannot be missing.
30-1 Vertical Stabilizer Access Door (322AL/BR, 324AL/BL/CL/DL/EL, 324FR, 325AL/BL/CL/DL/EL, 325FR/GR/HR/JR/KR/LR)		19	16	A maximum of 3 in any combination may be missing with no penalty. 324FR/EL and 325EL/LR cannot be missing.
40-1 Rudder Access Door (326AL/BL/CL/EL/FL/GL/HL, 327AL/BL/CL/GL, 327ER/FR/GR/HR)		15	13	A maximum of 2 in any combination may be missing with no penalty.

CONFIGURATION DEVIATION LIST				
Airplane		Revision n° 65		Page
EMB-145				57-1
System & Sequence Number	ITEM	1.	2. Number installed	3. Number required for dispatch
		4. Remarks and/or exceptions		
57 WINGS				
20-1 Vortex Generator		24	22	A maximum of 1 per wing for a total of 2 may be missing with no penalty.
30-2 Wing Tip Glareshield		2	0	May be missing with no penalty.
42-1 Wing Grounding Point		2	0	One or both may be missing with no penalty provided: a) The hole is covered with Scotch Brand Tape (Silver Tape) or similar product and; b) The landing gear grounding point is available.
52-1 Flap Track Fairing		10	9	One may be missing with no penalty.
52-2 Wing-to-flap Seal		4	3	One may be missing provided maximum airspeed is limited to 250 KIAS/0.65 M, whichever is lower.

CONFIGURATION DEVIATION LIST			
Airplane		Revision n° 65	Page
EMB-145			78-1
System & Sequence Number	ITEM	1.	2. Number installed
			3. Number required for dispatch
			4. Remarks and/or exceptions
78 ENGINE EXHAUST			
31-1 Plug Inhibition of the Thrust Reversers		4	0 May be missing with no penalty.

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