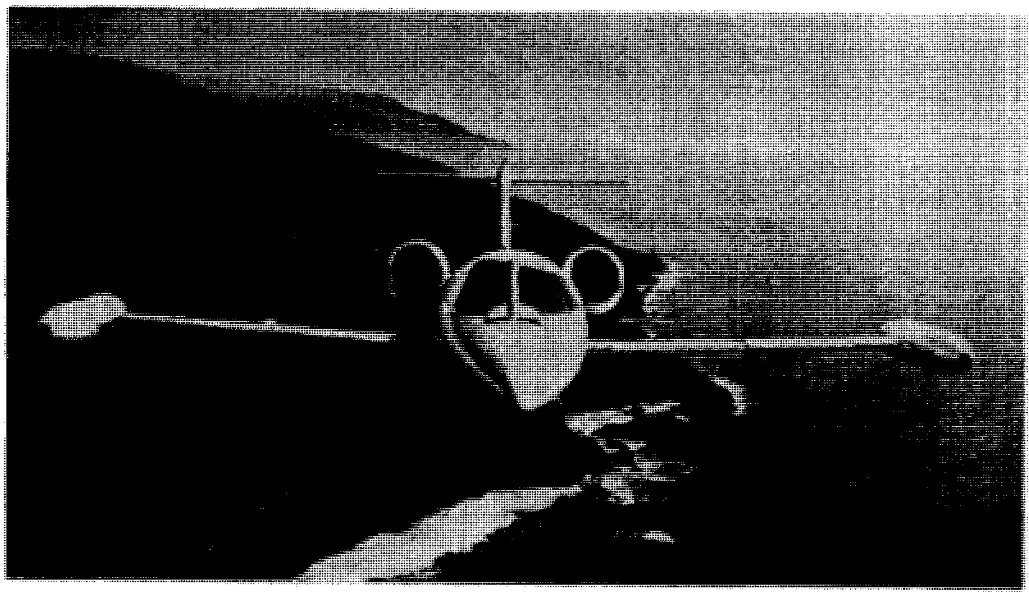
Gates Learjet 35A/36A with FC-200 Autopilot

FAA APPROVED AIRPLANE FLIGHT MANUAL



THIS AIRPLANE MUST BE OPERATED IN COMPLIANCE WITH THE PRESCRIBED LIMITATIONS IN SECTION 1 OF THIS MANUAL

NOTICE

This AFM is a revised issue of the original AFM dated 4-30-76. This reissue replaces all of the information in the original issue through Change 13.

SERIAL NO. ____________________

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REISSUE APPROVED [redacted] DATE 2/25/81

for CHIEF, AIRCRAFT CERTIFICATION PROGRAM
FAA CENTRAL REGION
WICHITA, KANSAS

FM-102

USE OF APPROACH AND LANDING CHARTS

The charts on the following pages present approach and landing climb gradients, maximum landing weights as limited by approach and landing climb performance, and landing weights as limited by maximum brake energy.

MAXIMUM LANDING WEIGHT

Landings must be made within the limitations of the maximum landing weight as governed by the LANDING WEIGHT LIMITS Chart and by the performance determined from the ACTUAL LANDING DISTANCE and FACTORED LANDING DISTANCE (if applicable) charts. The heaviest weight at which the aircraft can land is the **lowest** of the following weights:

1. The maximum landing weight (design structural limit for landing) is 14,300 pounds (6,486 Kg) or 15,300 pounds (6,940 Kg).
2. The landing weight limit for airport altitude and temperature as determined from the LANDING WEIGHT LIMITS Chart.
3. The maximum landing weight for the runway and ambient conditions as determined from the ACTUAL LANDING DISTANCE and FACTORED LANDING DISTANCE (if applicable) charts.

NOTE If the aircraft weight over the destination is greater than the lowest of the above weights, fuel must be burned off until the proper weight is achieved.

LANDING DISTANCE CHART

The ACTUAL LANDING DISTANCE Chart shows demonstrated landing distance in terms of altitude, outside air temperature, weight, wind, runway gradient, and anti-skid on or off. The FACTORED LANDING DISTANCE chart shows the operational landing field length when a factored landing distance is required by applicable regulations. The Factored Landing Distance determined from this chart is equal to the Actual Landing Distance divided by 0.60 (multiplied by 1.67). These charts may be used to determine either of the following:

1. The landing field length required given the airplane weight, runway gradient, pressure altitude, temperature, and wind.
2. The maximum landing weight corresponding to a specific runway length, runway gradient, pressure altitude, temperature, and wind. Landing weight for runway length available may be determined by working through the chart in the opposite manner as finding landing distance. Landing weight determined in this manner may not be the limiting landing weight, refer to MAXIMUM LANDING WEIGHT.

CALCULATION OF CORRECTION FOR RUNWAYS WITH A GRADIENT GREATER THAN 2.0% AND LESS THAN OR EQUAL TO 2.4%

The information provided here is used to calculate landing corrections for dry conditions with runway gradients >2.0% and ≤2.4%.

DOWNHILL (NEGATIVE) GRADIENT

Landing Weight Limit
Determine Climb Weight Limit using the appropriate chart in this section. Additional correction is not required.

Determine Brake Energy Weight Limit using the appropriate chart in this section and assume runway has a -2.0% gradient. If necessary, adjust the Brake Energy Weight Limit by subtracting the appropriate weight from the table below.

Landing Weight Limit	
Downhill Gradient	**Brake Energy Weight Correction**
-2.1%	Subtract 25 pounds (11.3 kg)
-2.2%	Subtract 50 pounds (22.7 kg)
-2.3%	Subtract 75 pounds (34.0 kg)
-2.4%	Subtract 100 pounds (45.4 kg)

Landing Distance
Determine Landing Distance using the appropriate chart in this section and assume runway has a -2.0% gradient. Add 100 feet (30.48 m) to the Landing Distance for runway gradients -2.0% to -2.4%.

UPHILL (POSITIVE) GRADIENT

Landing Weight Limit
Determine Climb Weight Limit using the appropriate chart in this section. Adjust the Climb Weight Limit by subtracting the appropriate weight from the table below.

Landing Weight Limit	
Uphill Gradient	**Climb Weight Correction**
+2.1%	Subtract 125 pounds (56.7kg)
+2.2%	Subtract 250 pounds (113.4kg)
+2.3%	Subtract 375 pounds (170.1 kg)
+2.4%	Subtract 500 pounds (226.8 kg)

Determine the Brake Energy Weight Limit using the appropriate chart in this section and assume runway has a +2.0% gradient. Additional correction is not required.

Landing Distance
Determine Landing Distance using the appropriate chart in this section and assume runway has a +2.0% gradient. Additional correction is not required.

APPROACH CLIMB GRADIENT

CONDITIONS:

1. Single Engine
2. Takeoff Thrust
3. Gear — Up
4. Flaps — 20°
5. Speed — 1.3 V_{S1}

EXAMPLE:

1. Temperature .... 25°F
2. Altitude .... 10,000 FT
3. Weight Ref. Line
4. Weight .... 15,000 LB
5. Anti-ice Ref. Line
6. Anti-ice .... NAC HT ONLY
7. Gross Climb Gradient 4.5%

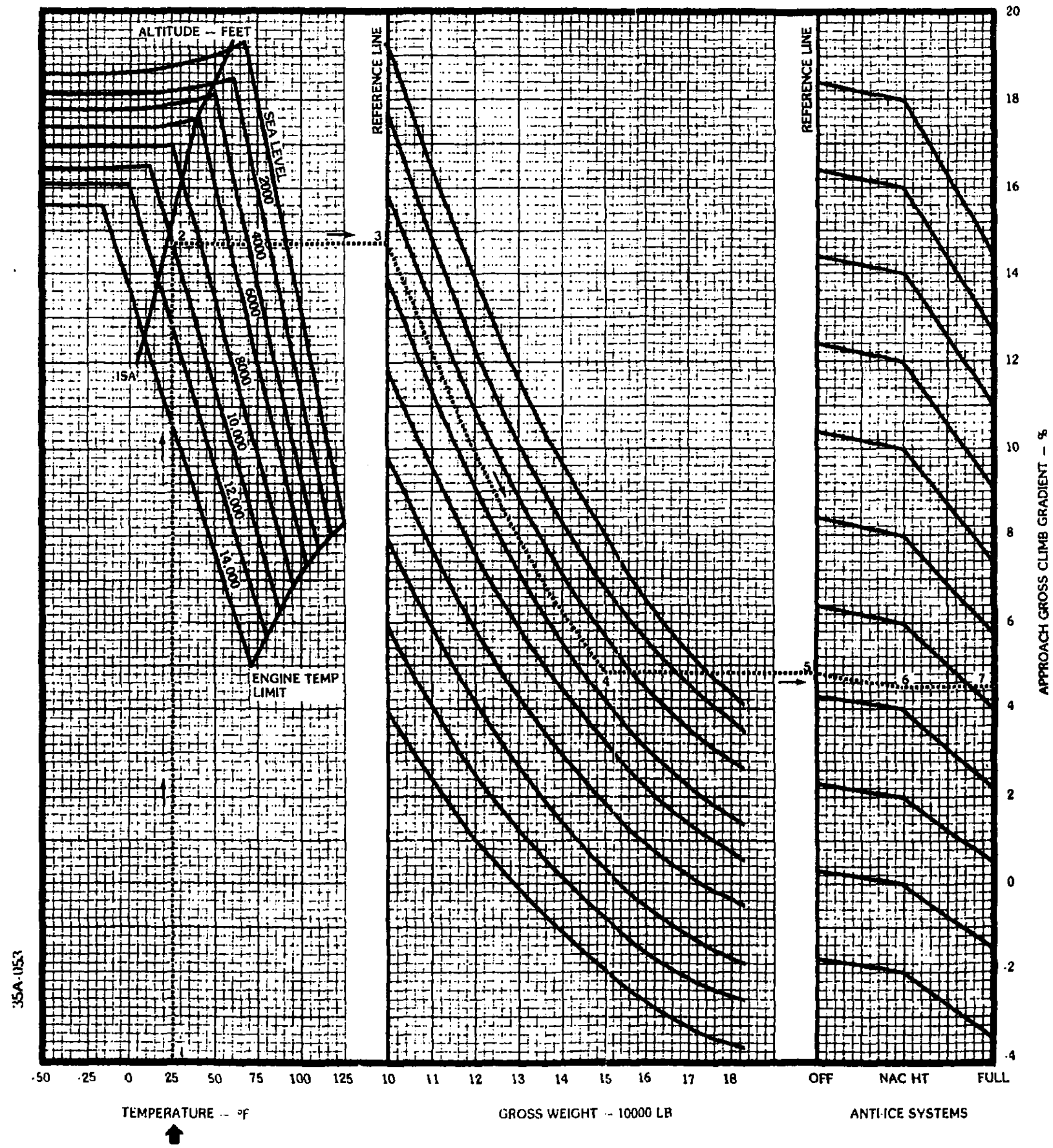
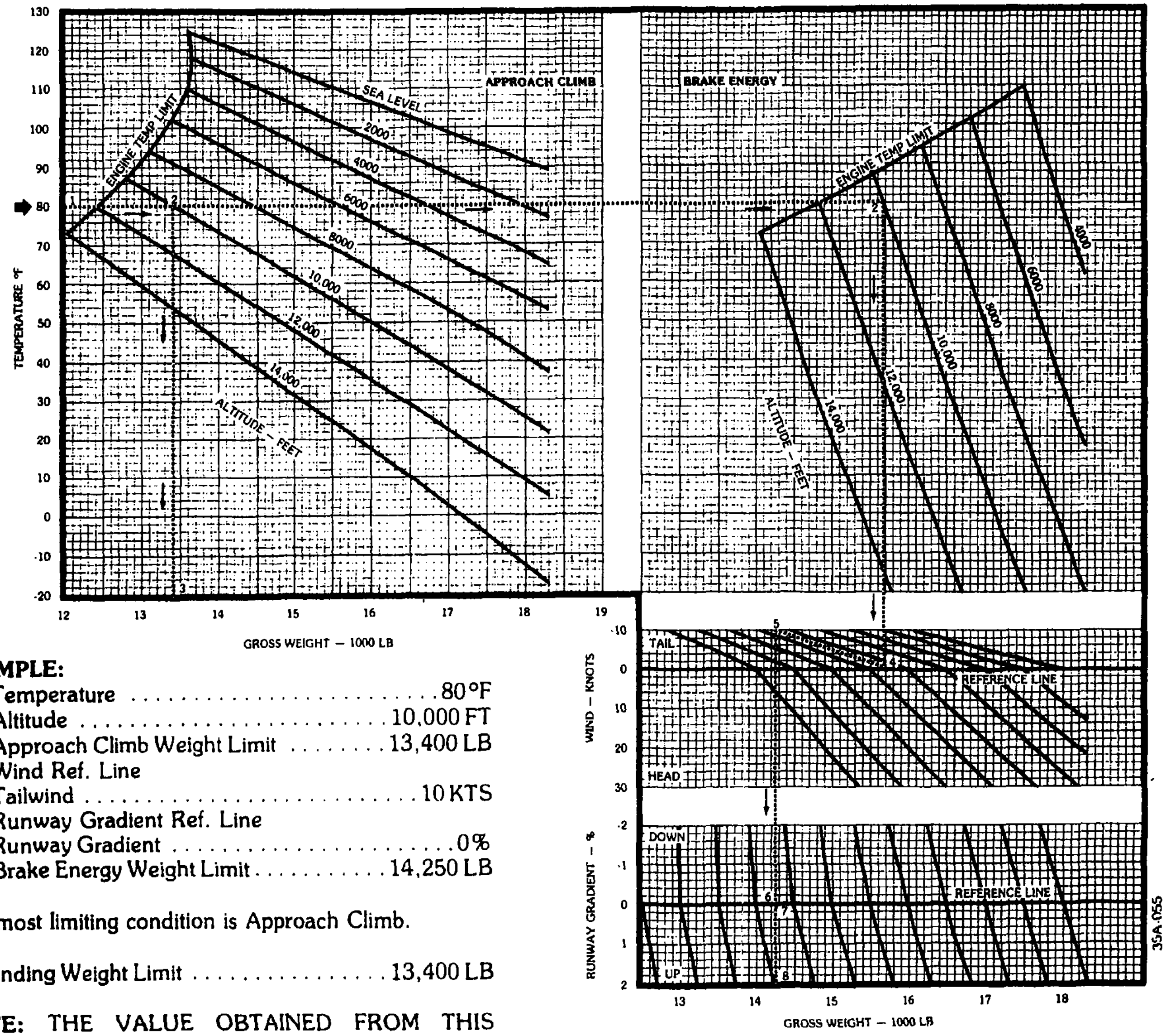


Figure 5-53

LANDING WEIGHT LIMIT ANTI-ICE – OFF



EXAMPLE:

1. Temperature .... 80°F
2. Altitude .... 10,000 FT
3. Approach Climb Weight Limit .... 13,400 LB
4. Wind Ref. Line
5. Tailwind .... 10 KTS
6. Runway Gradient Ref. Line
7. Runway Gradient 0%
8. Brake Energy Weight Limit .... 14,250 LB

The most limiting condition is Approach Climb.

- Landing Weight Limit .... 13,400 LB

NOTE: THE VALUE OBTAINED FROM THIS CHART MAY NOT BE THE LIMITING WEIGHT. LANDING WEIGHT IS ALSO LIMITED BY THE MAXIMUM CERTIFIED LANDING WEIGHT AND THE LANDING WEIGHT FOR THE RUNWAY LENGTH AVAILABLE.

Figure 5-55

LANDING APPROACH SPEED V_{REF}

EXAMPLE:

1. Weight .... 14,000 LB
2. V_{REF} .... 123.2 KIAS

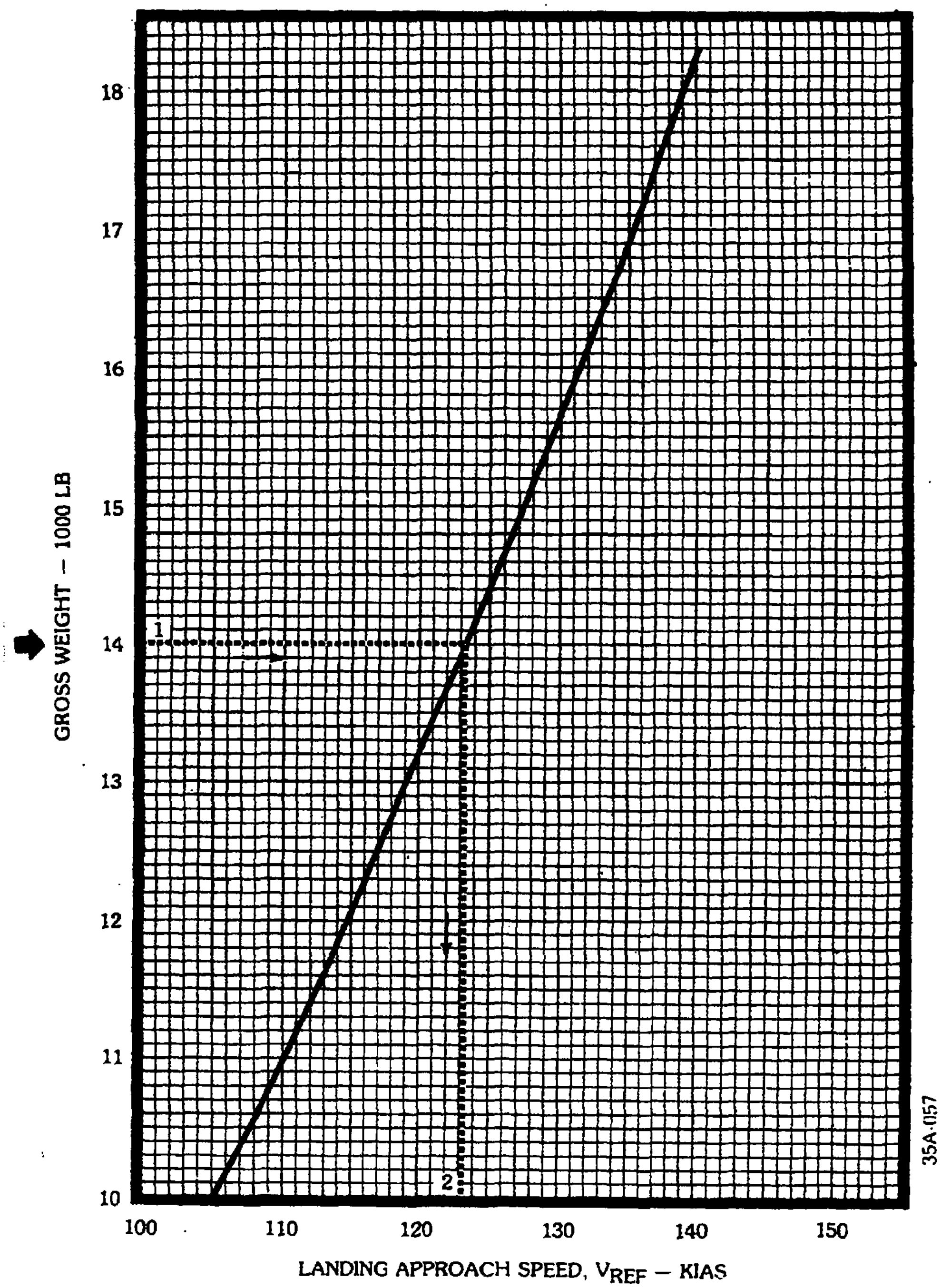


Figure 5-57

FACTORED LANDING DISTANCE

EXAMPLE:

1. Actual Landing Distance . . . . .3,000 FT (914 M)
2. Factored Landing Distance . . . . 5,000 FT (1,524 M)

NOTE: The Factored Landing Distance determined from this chart is equal to the Actual Landing Distance divided by 0.60.

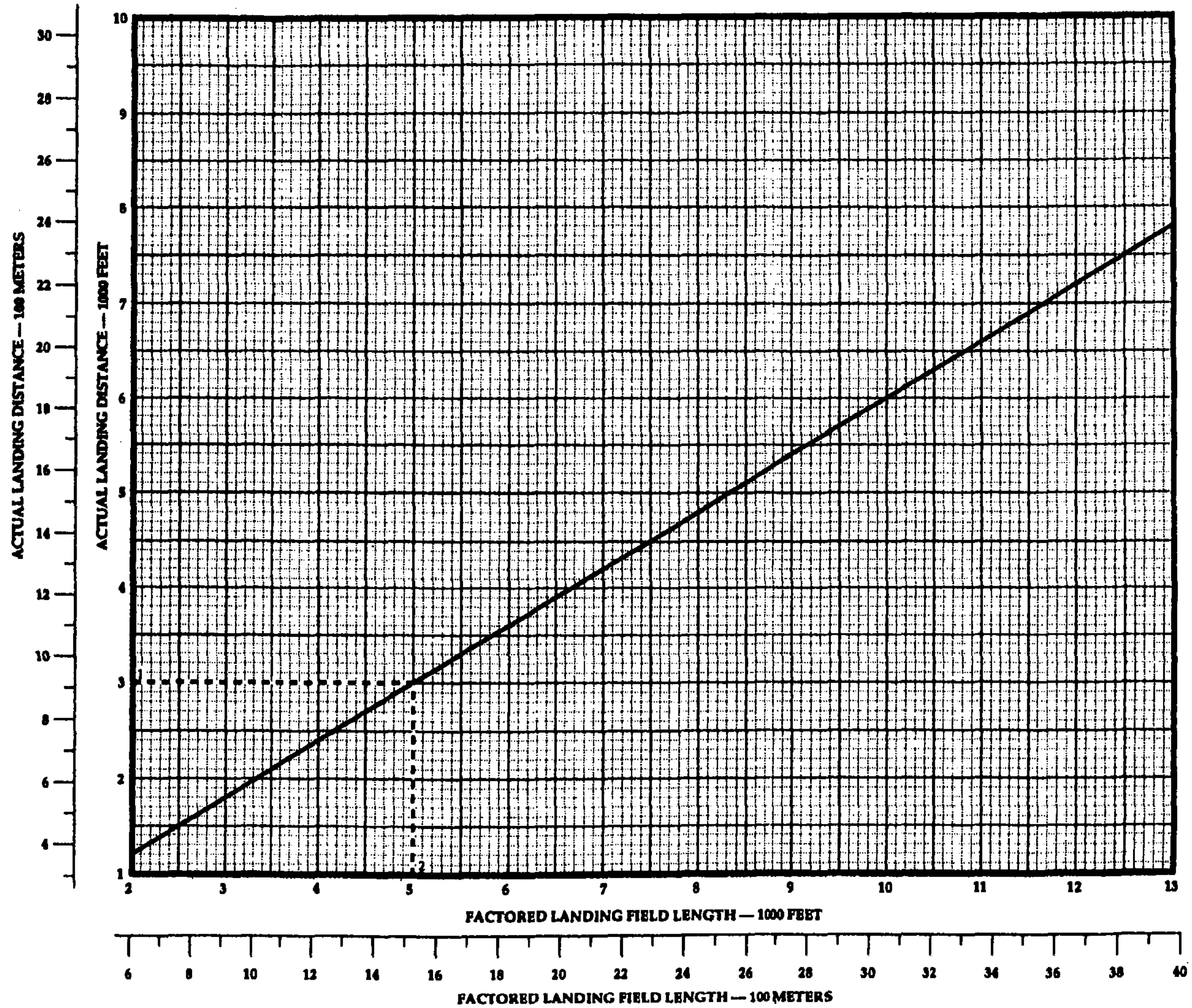


Figure 5-59

DESCENT

1. Windshield Heat — As required.
2. Windshield Aux Defog Heat (if installed) — As required.
3. Pressurization — Set as follows:

NOTE

- For manual mode pressurization, refer to PRESSURIZATION SYSTEM OPERATION, this section.
- *Aircraft with emergency pressurization override switches installed.* For landing at field elevations above 8500 feet pressure altitude, refer to PRESSURIZATION SYSTEM OPERATION, this section.
- Maintain sufficient RPM, especially at high altitudes, to maintain cabin pressurization.

   a. CABIN ALT Selector Knob — Turn to destination field elevation.
   b. Cabin RATE Selector — Adjust as desired during descent.

4. Anti-ice Systems — As required.

WARNING

Even **small** accumulations of ice on the wing leading edge can cause aerodynamic stall prior to activation of the stick shaker and/or pusher. These ice accumulations can also cause angle-of-attack indicator information to be unreliable.

NOTE

Anti-ice systems should be turned on prior to flight into visible moisture and Ram Air Temperature of 10°C or below.

FL 180 (or Transition Level) Checks:

1. Barometric Altimeters — Set to field barometric pressure at transition altitude. Cross-check pilot's and copilot's instruments.
2. RECOG LT Switch — ON.
3. Cabin Altitude and Cabin Climb Indicators — Check.
4. NO SMOKING FASTEN SEAT BELT Switch — On.
5. Cabin Check:
   a. Swivel Seats — Forward or as placarded.
   b. Work Table and Toilet Doors (if installed) — Check stowed.
   c. Emergency Exit — Check aisle clear and handle unobstructed.

APPROACH

1. Circuit Breakers — Check in.
2. HYDRAULIC PRESSURE and EMERGENCY AIR Pressure — Check.
3. Landing Approach Speed (V_{REF}), Approach Climb Speed (approximately V_{REF} + 7), and N_1 for Go-Around — Computed and bugs set. Refer to Section V.

NOTE

It is recommended that if turbulence is anticipated due to gusty winds, wake turbulence, or wind shear, the approach speed be increased. For gusty wind conditions, an increase in approach speed of one half the gust factor is recommended.

4. Fuel Balance — Check.
5. Avionics:
   a. Avionics Equipment — Set for approach.
   b. Radio Altimeter — Set to approach minimums.
   c. Crew Approach Briefing — Complete.

BEFORE LANDING

1. SPOILER — Check RET.
2. Flaps — As desired (8°/20°).
3. LANDING GEAR Switch — DN at VLO or less. Check for green LOCKED DN indication.

NOTE

- If taxi and/or takeoff were on ice, snow or slush; ANTI-SKID Switch — OFF, pump brakes 6 to 10 times, then ANTI-SKID Switch — On. Brake application will tend to crack any ice between brake discs and between the discs and wheels.
- The ENG SYNC light will illuminate whenever the nose gear is down and the ENG SYNC switch is in the SYNC position.

4. LDG LT-TAXI Switches — As required.

NOTE

The left landing light will not illuminate unless the left main gear is down and locked. The right landing light will not illuminate unless the right main gear is down and locked.

5. ANTI-SKID Switch — On. ANTI-SKID GEN Lights — Out.
6. ENG SYNC Switch — OFF.
7. Flaps — DN.
8. HYDRAULIC PRESSURE Gage — Check, normal.
9. AIR IGN Switches — On.
10. Autopilot — Disengage.

NOTE

Use control wheel trim switch to disengage autopilot. Control wheel master switch (MSW) will also disengage yaw damper.

11. Yaw Damper — Off during landing flare:
    a. Depressing either control wheel master switch will disengage primary or secondary yaw damper.
    b. Depressing the PRI or SEC OFF button on the Y/D controller will disengage the PRI or SEC yaw damper.

GO AROUND

WARNING

When the fuel quantity gage indicates 600 pounds or less remaining in either wing tank, prolonged nose-up attitude of 10° or more may cause fuel to be trapped in the aft area of the wing tank outboard of the wheel well. Fuel starvation and engine flameout may occur.

For go-around conditions with low fuel, on first steady indication by the LOW FUEL warning light, reduce climb attitude and thrust to a minimum required.

1. Autopilot — Disengaged.
2. Thrust Levers — Set to takeoff power or as required.
3. SPOILER Switch — Check RET.
4. Flaps — 20°.
5. LANDING GEAR Switch — UP after positive rate of climb is established.
6. Climb at Approach Climb Speed.
7. When clear of obstacles, accelerate to VREF +30 and retract flaps.

LANDING

1. SPOILER Switch — EXT after touchdown.

CAUTION

If, upon touchdown, one or more ANTI-SKID GEN lights come on, anti-skid protection for the associated wheel is inoperative and has reverted to manual brake control.

2. Brakes — As required.

CAUTION

If not already operating, **do not** turn on cooling system during landing with anti-skid system operating. Initial voltage drop may cause false signals in the anti-skid system and dump brake pressure for 2 to 3 seconds.

3. Thrust Reversers or Drag Chute (if installed) — As desired.
4. Nose Wheel Steering — As required below 45 knots.

NOTE

During moderate to heavy braking action on patchy snow or ice, avoid use of nose wheel steering above 10 knots.

ICE DETECTION

Identification of ice on aircraft surfaces can be accomplished by the following methods:

1. Ice formation on the lower corners of the windshield or nose of the tip tank.
2. During night flights, two red ice detect lights will cause red areas approximately 1-1/2 inches (38.1 mm) in diameter to appear on the windshield when particles of ice or moisture adhere to the windshield. The light on the pilot's side is located in the defog airstream and the copilot's light is located outside the defog airstream; therefore, the copilot must monitor the light on his side when the windshield heat or alcohol de-ice systems are operating. The windshield ice detect lights will indicate ice encounters when OAT is below freezing and moisture encounters when OAT is above freezing. Refer to figure in Section V entitled RAM AIR — OUTSIDE AIR TEMPERATURE CONVERSION for RAT to OAT conversion.
3. Wing and horizontal stabilizer temperature conditions where icing may occur can be identified through the use of the WING TEMP and STAB TEMP indicators. When the indicator pointer is in the green arc, the wing or stabilizer structure is above 35°F (1.7°C) and is warm enough so that ice will not adhere to the surface. When the pointer is in the yellow area the structure is approaching a "too hot" condition. When the pointer is in the red arc, the structure is below 35°F (1.7°C) and indicates the anti-ice system should be used, if flying through visible moisture.
4. A visual inspection may be used to check for ice accumulations on the wing leading edges.

- *On aircraft 35-067 thru 35-415 and aircraft 36-018 thru 36-047,* the optional wing inspection light on the right fuselage below the emergency exit may be used to check for ice buildup on the wings during night operations. The wing inspection light, in itself, is inadequate for detecting the presence of ice near the wing tips. The wing inspection light is illuminated by setting the WING INSPECTION switch (pedestal) to ON.

NOTE

If the presence of ice on the wing leading edge is suspected during night operations in atmospheric conditions conducive to icing, the normal approach speeds must be increased per the WING HEAT FAILURE LANDING procedure in Section IV — ABNORMAL PROCEDURES.

ICE DETECTION (CONT)

- *On aircraft 35-416 and subsequent and aircraft 36-048 and subsequent*, an optional wing inspection light on the right forward fuselage may be used to check for ice buildup on the wings during night operations. The light illuminates a black dot placed on the outboard wing leading edge to enhance visual detection of ice accumulation. The wing inspection light is illuminated by pressing the WING INSP LT switch (copilot's dimmer panel). The light is extinguished when the switch is released.

NOTE

If the presence of ice on the wing leading edge is detected, the normal approach speeds must be increased per the WING HEAT FAILURE-LANDING procedure in Section IV — ABNORMAL PROCEDURES.

ANTI-ICE SYSTEMS

Anti-ice systems should be turned on prior to operation in icing conditions. Icing conditions exists when the outside air temperature is 10°C to -40°C and visible moisture in any form is present (such as clouds, rain, snow, sleet, ice crystals, or fog with visibility of 1 mile or less.)

If icing conditions are encountered and the anti-ice systems have not been energized, turn them on prior to significant ice accumulation. Observe recommendations for normal use of all anti-ice systems.

WARNING

Even **small** accumulations of ice on the wing leading edge can cause aerodynamic stall prior to activation of the stick shaker and/or pusher. These ice accumulations can also cause angle-of-attack indicator information to be unreliable.

Minimize the duration of icing encounters as much as practical. Minimize holding in icing conditions with flaps extended. This includes requesting an altitude above or below icing conditions, if practical.

Intermittently operating with the autopilot off will allow more readily detectable changes in flight control feel.

If flight has been conducted in icing conditions, remove any accumulated ice prior to next flight.

In the event of significant ice accumulation or failure of any portion of the anti-ice system, refer to INADVERTENT ICING ENCOUNTER and/or appropriate Anti-Ice System Failure procedures in Section IV.

When using anti-ice systems at high altitude, the cabin altitude may exceed 8000 feet unless engine speed is increased to compensate for the additional bleed air extraction.

Aircraft anti-icing is accomplished through the use of electrically heated anti-ice systems, engine bleed-air heated anti-ice systems, and alcohol anti-ice systems. Electrically heated systems include static ports, pitot tubes, engine inlet air-temperature and pressure sensor, and stall warning vanes. Engine bleed air is utilized to heat the wing leading edge, horizontal stabilizer leading edge, windshield and engine anti-icing. An alcohol anti-ice system is installed for radome anti-ice and as a back-up for windshield bleed air anti-ice system.

NOTE

In icing conditions above approximately 12,000 feet, ice buildup may occur at the junction of the wings and tip tanks. Satisfactory handling qualities have been demonstrated with this ice accumulation. Below approximately 12,000 feet, using normal descent procedures, all wing leading edge ice will be removed.

ANTI-ICE SYSTEMS (CONT)

On aircraft incorporating AAK 86-1 or SB 35/36-21-17, a combination of bleed air (heated with a supplemental electric heater) and air conditioned air provides defogging of the windshield interior in addition to the normal defogging provided by cabin airflow.

Systems controls and control functions are as follows:

1. STAB WING HEAT Switch — Controls wing and horizontal stabilizer heat systems (bleed air).
2. NAC HEAT Switches — Control engine anti-icing (bleed air) and engine inlet air temperature/pressure sensor electric heaters. *On aircraft 35-067 thru 35-244 and 36-018 thru 36-044 not incorporating AAK 79-4,* the engine spinner anti-ice is also activated.
3. PITOT HEAT Switches — Energize pitot tube, stall warning vane heaters, and total temperature probe (if installed) heaters.
4. WSHLD & RADOME — RADOME or RAD Switch — Controls windshield and radome alcohol anti-ice system.
5. • *On aircraft 35-067 thru 35-112 except 35-107, 36-018 thru 36-031,* WSHLD HEAT Switches and IN NORMAL OUT DEFOG Knob — Control bleed air to the windshield for defog, anti-ice and rain removal.
   • *On aircraft 35-107, 35-113 & subsequent and 36-032 & subsequent,* WSHLD HT ON-HOLD-OFF Switch — Controls bleed air to the windshield for defog, anti-ice and rain removal.
6. *On aircraft incorporating AAK 86-1 or SB 35/36-21-17,* W/S AUX DEFOG HEAT - CKPT Switch — Controls the supplemental electric heater and Freon cooling system for additional windshield defogging.
7. Static port heaters and red ice detect lights are energized whenever the battery switches are On.

ANTI-ICE SYSTEMS (CONT)

EXTERIOR WINDSHIELD DEFOG, ANTI-ICE, AND RAIN REMOVAL

- ***Aircraft 35-067 thru 35-112 except 35-107 not incorporating AMK 91-2. Aircraft 36-018 thru 36-031 not incorporating AMK 91-2.***

AUTOMATIC OPERATION

1. IN NORMAL OUT DEFOG Knob — Pull out.
2. WSHLD HEAT AUTO-MAN Switch — AUTO. The green WSHLD HEAT light will come on when the control valve begins to open. The valve will go to full open. If the red WSHLD OV HT light comes on, the airflow will automatically stop until the windshield has cooled sufficiently, then resume.
3. Automatic operation is recommended when constant use of the system is required.
4. To de-energize the system:
   a. AUTO-MAN Switch — MAN.
   b. ON-OFF Switch — Hold to OFF until the airflow stops.

NOTE If the system continually cycles to the WSHLD OV HT mode after prolonged use, it can be prevented by switching the AUTO-MAN switch to MAN and holding the ON-OFF switch to OFF for reduced defog flow.

MANUAL OPERATION

1. IN NORMAL OUT DEFOG Knob — Pull out.
2. WSHLD HEAT AUTO-MAN Switch — MAN.
3. WSHLD HEAT ON-OFF Switch — Hold ON until the desired amount of airflow is obtained. As the valve opens, the green WSHLD HT light will illuminate and the defog flow will remain at the level it is when the ON-OFF switch is released. If the red WSHLD OV HT light comes on, the airflow will automatically stop until the windshield has cooled sufficiently, then resume.

NOTE If the system continually cycles to the WSHLD OV HT mode after prolonged use, windshield airflow may be decreased by holding the WSHLD HT ON-OFF switch to OFF until desired airflow is reached and then releasing switch.

IF AIRFLOW SHOULD FAIL

The pilot's windshield may be anti-iced by the following:

1. WSHLD & RADOME/RADOME Switch — WSHLD & RADOME. This will anti-ice the radome and the pilot's windshield and give alcohol flow for approximately 45 minutes. The amber ALC AI light will come on when alcohol is depleted.
2. WSHLD & RADOME/RADOME Switch — OFF when ALC AI light illuminates or clear of icing conditions.

ANTI-ICE SYSTEMS (CONT)

- ***Aircraft 35-067 thru 35-112 except 35-107 incorporating AMK 91-2. Aircraft 36-018 thru 36-031 incorporating AMK 91-2.***

AUTOMATIC OPERATION

1. IN NORMAL OUT DEFOG Knob — Pull out.
2. WSHLD HEAT AUTO-MAN Switch — AUTO. The green WSHLD HEAT light will illuminate.

NOTE The overheat shutoff valve may cycle to prevent overheating of the windshield. When the overheat shutoff valve cycles closed, the green WSHLD HEAT light will extinguish. The system will automatically reset (green WSHLD HEAT light will illuminate) after the system cools.

3. Automatic operation is recommended when constant use of the system is required.
4. To reduce flow in the event of excessive noise or system cycling:
   a. AUTO-MAN Switch — MAN.
   b. ON-OFF Switch — Hold to OFF until flow is acceptable. Flow will remain at the level it is when the ON-OFF switch is released.

MANUAL OPERATION

1. IN NORMAL OUT DEFOG Knob — Pull out.
2. WSHLD HEAT AUTO-MAN Switch — MAN.
3. WSHLD HEAT ON-OFF Switch — Hold ON (green WSHLD HEAT light will illuminate) until the desired amount of airflow is obtained. Flow will remain at the level it is when the ON-OFF switch is released.

IF **WSHLD OV HT** LIGHT ILLUMINATES

1. AUTO-MAN Switch — MAN.
2. ON-OFF Switch — Hold to OFF until WSHLD OV HT light extinguishes. Flow will remain at the level it is when the ON-OFF switch is released.

TO DEACTIVATE THE SYSTEM

1. AUTO-MAN Switch — MAN.
2. ON-OFF Switch — Hold to OFF until flow stops.

ANTI-ICE SYSTEMS (CONT)

IF AIRFLOW SHOULD FAIL

The pilot's windshield may be anti-iced by the following:

1. WSHLD & RADOME/RADOME Switch — WSHLD & RADOME. This will anti-ice the radome and the pilot's windshield and give alcohol flow for approximately 45 minutes. The ALC AI light will come on when alcohol is depleted.
2. WSHLD & RADOME/RADOME Switch — OFF when ALC AI light illuminates or clear of icing conditions.

- ***Aircraft 35-107, 35-113 & Subsequent not incorporating AMK 91-2. Aircraft 36-032 & Subsequent not incorporating AMK 91-2.***

The WSHLD HT switch has three positions labeled ON, HOLD, OFF. In the OFF position, no windshield airflow is available. In the ON position, the control valve is fully open allowing maximum airflow to the windshield. The HOLD position is used to stop the control valve in any position between fully closed and fully open. If a change in airflow is desired, set switch to OFF or ON until desired airflow is obtained then set switch to HOLD.

TO ACTIVATE THE SYSTEM

1. WSHLD HT Switch — ON. The green WSHLD HT light will come on when the control valve begins to open. If the red WSHLD OV HT light comes on, the overheat shutoff valve will automatically close until the windshield has cooled, then open again.
2. To reduce flow in the event of excessive noise or system cycling: WSHLD HT Switch — OFF, until flow is acceptable, then HOLD.

TO DEACTIVATE THE SYSTEM:

1. WSHLD HT Switch — OFF.

IF AIRFLOW SHOULD FAIL

The pilot's windshield may be anti-iced by the following:

1. WSHLD/RADOME-RAD Switch — WSHLD/RADOME. This will anti-ice the radome and pilot's windshield and give alcohol flow for approximately 45 minutes. The amber ALC AI light will illuminate when alcohol level is low.
2. WSHLD/RADOME-RAD Switch — OFF when alcohol is depleted or clear of icing conditions.

ANTI-ICE SYSTEMS (CONT)

- ***Aircraft 35-107, 35-113 & Subsequent incorporating AMK 91-2. Aircraft 36-032 & Subsequent incorporating AMK 91-2.***

The WSHLD HT switch has three positions labeled ON, HOLD, OFF. In the OFF position, no windshield airflow is available. In the ON position, the control valve is fully open allowing maximum airflow to the windshield. The HOLD position is used to stop the control valve in any position between fully closed and fully open. If a change in airflow is desired, set switch to OFF or ON until desired airflow is obtained then set switch to HOLD. Illumination of the red WSHLD OV HT light indicates a windshield heat system failure.

TO ACTIVATE THE SYSTEM:

1. WSHLD HT Switch — ON. The green WSHLD HT light will illuminate.

NOTE: The overheat shutoff valve may cycle to prevent overheating of the windshield. When the overheat shutoff valve cycles closed, the green WSHLD HT light will extinguish. The system will automatically reset (green WSHLD HT light will illuminate) after the system cools.

2. To reduce flow in the event of excessive noise or system cycling: WSHLD HT Switch — OFF until flow is acceptable, then HOLD.

IF **WSHLD OV HT** LIGHT ILLUMINATES:

1. WSHLD HT Switch — OFF until red WSHLD OV HT light extinguishes, then HOLD.

TO DEACTIVATE THE SYSTEM:

1. WSHLD HT Switch — OFF.

IF AIRFLOW SHOULD FAIL

The pilot's windshield may be anti-iced by the following:

1. WSHLD/RADOME-RAD Switch — WSHLD/RADOME. This will anti-ice the radome and pilot's windshield and give alcohol flow for approximately 45 minutes. The amber ALC AI light will illuminate when alcohol level is low.
2. WSHLD/RADOME-RAD Switch — OFF when alcohol is depleted or clear of icing conditions.

ANTI-ICE SYSTEMS (CONT)

INTERIOR WINDSHIELD AND PASSENGER WINDOW DEFOG

The windshield interior and passenger windows are normally defogged by normal cabin airflow. *On aircraft incorporating AAK 86-1 or SB 35/36-21-17*, additional windshield defogging is provided by the windshield auxiliary defog heat system.

TO PROVIDE ADDITIONAL WINDSHIELD DEFOGGING *(Aircraft incorporating AAK 86-1 or SB 35/36-21-17)*:

1. W/S AUX DEFOG HEAT Switch — DEFOG HEAT. This adds additional heat to the cabin air normally used to defog the windshield and activates the freon cooling system (below 18,000 feet) to dehumidify the cabin air.

NOTE With COOL-FAN switch in OFF position, the cool air from the freon system is diverted between the cabin headliner and the fuselage skin to prevent lowering the cabin temperature.

2. If operation of the freon cooling system is not desired, W/S AUX DEFOG HEAT Switch — CKPT.

NOTE Power for the windshield auxiliary defog heat system must be supplied by an engine generator or GPU.

FOR MAXIMUM WINDSHIELD DEFOGGING *(Aircraft incorporating AAK 86-1 or SB 35/36-21-17)*:

1. Approximately 15 minutes prior to descent, W/S AUX DEFOG HEAT Switch — DEFOG HEAT.
2. At start of descent:
   a. Cockpit Shoulder and Ankle Eyeball Outlets — Close.
   b. Windshield Heat — On.
3. *On aircraft incorporating FCN 89-1*, at FL350:
   a. COOL-FAN Switch — COOL.

   NOTE Switching the cabin blower switch (on the blower duct in the aft cabin) to OFF will divert airflow from the evaporator for passenger comfort.

   b. Cockpit Air Control — Low.
4. Leave Cabin Air, Windshield Auxiliary Defog Heat and Windshield Heat on until shutdown.

ANTI-ICE SYSTEMS (CONT)

RADOME ANTI-ICE

- ***Aircraft 35-067 thru 35-112 except 35-107. Aircraft 36-018 thru 36-031.***

Anti-icing the radome prevents ice from shedding off the nose and entering the engines. Anti-icing the radome is accomplished by setting the WSHLD & RADOME/RADOME switch to RADOME. Alcohol for radome anti-icing only will last for approximately 1-1/2 hours. The ALC AI light will illuminate when alcohol is depleted. Set WSHLD & RADOME/RADOME switch OFF when ALC AI light illuminates or clear of icing conditions.

NOTE Use WSHLD & RADOME position of the switch if bleed airflow for windshield anti-ice has failed, or as needed.

- ***Aircraft 35-107, 35-113 and subsequent. Aircraft 36-032 and subsequent.***

Anti-icing the radome prevents ice from shedding off the nose and entering the engines. Anti-icing the radome is accomplished by setting the WSHLD/RADOME/RAD switch to RAD. Alcohol for radome anti-icing only will last for approximately 2 hours 9 minutes. The ALC AI light will illuminate when alcohol level is low. Set WSHLD/RADOME/RAD switch OFF when alcohol is depleted or clear of icing conditions.

NOTE Use WSHLD/RADOME position of the switch if bleed air for the windshield anti-ice has failed or as needed.

WING AND HORIZONTAL STABILIZER ANTI-ICE

Wing and horizontal stabilizer anti-ice systems utilize engine bleed air directed through diffuser tubes in the leading edges for anti-icing.

1. STAB WING HEAT Switch — ON.
2. Monitor WING TEMP and STAB TEMP Indicators and WING OV HT and STAB OV HT lights. Maintain the indicators in the green range. Adjust power as necessary to maintain anti-icing and pressurization. If indicators progress to the yellow range, structure is approaching "too hot" condition. Corrective action can be taken by turning the STAB WING HEAT switch OFF and/or reducing engine RPM until indicators are back into the green range.

NOTE If the system is on and the WING TEMP or STAB TEMP indicator is in the red range, a system failure is indicated.

ANTI-ICE SYSTEMS (CONT)

NACELLE HEAT

The NAC HEAT switches energize both nacelle heat and engine inlet air pressure and temperature sensor heat. If installed, the NAC HEAT ON light or optional L or R NAC HEAT lights will illuminate anytime a NAC HEAT switch is set On. *On aircraft 35-067 thru 35-244 and 36-018 thru 36-044 not incorporating AAK 79-4,* the NAC HEAT switches also energize engine anti-ice.

CAUTION To prevent damage to the engine inlet sensor heating element, nacelle heat operation should be limited to 30 seconds if the engine is not running.

NOTE

- Illumination of the L or R ENG ICE lights with the NAC HEAT switches On indicates that bleed air pressure is not being applied to the nacelle heat anti-ice system due to a malfunction.
- Illumination of the L or R ENG ICE lights with the NAC HEAT switches OFF indicates that bleed air pressure is being applied to the nacelle heat system due to a malfunction.

ANTI-ICE SYSTEMS (CONT)

PITOT HEAT

Anti-ice protection for pitot head, stall warning vanes, total temperature probe heater (if installed) is accomplished by setting the L and R PITOT HEAT switches On.

PITOT HEAT MONITOR *(If installed)*

A dual pitot heat monitor system may be installed to provide the crew with a means of determining if sufficient current is being applied to the pitot head heating elements.

- *On aircraft equipped with Single PITOT HEAT light,* with the BAT and PITOT HEAT switches On, illumination of the PITOT HEAT light indicates insufficient current is being applied to a pitot head heating element. A failure in either system will cause the light to illuminate. The light will also illuminate whenever the BAT switches are On and either PITOT HEAT switch is OFF.
- *On aircraft equipped with L & R PITOT HEAT lights,* a failure in a pitot head heating system will illuminate the applicable light. The applicable light will also illuminate whenever the BAT switches are On and the corresponding PITOT HEAT switch is OFF.

STATIC PORT HEAT

Heating elements for static ports are energized whenever the BAT switches are On. Therefore, no management by the crew is required.

INADVERTENT ICING ENCOUNTER

- **If icing is inadvertently encountered:**

1. All Anti-Ice Systems — Activate immediately to preclude ice accumulation.
   If approach and landing must be made with any amount of ice on the airframe:
   a. Do not extend flaps beyond 20°.
   b. Use landing procedure for a wing and stabilizer heat failure. Refer to LANDINGS, this section.

WARNING: Even **small** accumulations of ice on the wing leading edge can cause aerodynamic stall prior to activation of the stick shaker and/or pusher. These ice accumulations can cause angle-of-attack indicator information to be unreliable.

NOTE: Ice accumulation on the stabilizer may cause deterioration in trim speeds and changes in handling characteristics. Low speed flight should be approached with care so that detection of abnormal flying qualities can be obtained. It may be necessary to land with flaps at 20° as some buffet and/or some nose pitch may be encountered with the flaps full down.

- **If heavy ice accumulation has occurred, proceed as follows:**

If en route and destination temperatures remain below freezing, consideration should be given to landing with ice on the wings.

- *If landing with ice on the wings and stabilizer:*

1. Use landing procedure for a wing and stabilizer heat failure. Refer to LANDINGS, this section.

- *If attempting to remove ice accumulation:*

1. AIR IGN Switches — On.
2. Engine RPM — Set as low as possible to maintain anti-icing heat and cabin pressure.
3. NAC HEAT Switch (for one engine) — On; wait until satisfactory engine operation is apparent, then opposite engine NAC HEAT Switch — On; observe Turbine Temperature (ITT) rise and ENG ICE light out for operation of engine anti-ice.
4. After satisfactory engine operation is apparent, STAB WING HEAT Switch — On.
5. After satisfactory engine operation is again apparent, energize remaining anti-ice systems, one system at a time, waiting for satisfactory engine operation between energizing each system.

PITOT HEAT LIGHT ILLUMINATED (If Installed)

Illumination of a Pitot Heat light indicates that one or more of the pitot tube heaters are inoperative or one or both PITOT HEAT switches are OFF. Several configurations of the pitot heat monitor exist:

- Single PITOT HEAT light on the instrument panel
- L PITOT HEAT and R PITOT HEAT lights on the instrument panel
- Single PITOT HT light on the annunciator panel

1. PITOT HEAT Switches — Check, On.
2. L and R PITOT HT Circuit Breakers (Ess Bus) — Check, In.
3. Pilot's and Copilot's Air Data Instruments — Crosscheck.

STABILIZER HEAT FAILURE

With the STAB WING HEAT switch On, a stabilizer heat failure is indicated by the STAB TEMP Indicator remaining in the red (below 35°F [1.7°C]) range.

1. STAB & WING HT Circuit Breaker (copilot's main bus) — Check and reset if necessary.
2. Engine RPM — Adjust as required to maintain STAB TEMP indicator in the green range.
3. If STAB TEMP indicator remains in the red range:
   a. Fly out of icing conditions, if possible.
   b. Do not extend flaps beyond 20°.
4. *On aircraft 35-067 thru 35-112 except 35-107 and 36-018 thru 36-031,* if cabin altitude climbs to an unacceptable level, CABIN AIR Switch — MAX. Descend to an acceptable level.

Ice accumulation on the stabilizer may cause deterioration in trim speeds and changes in handling characteristics. Low speed flight should be approached with care so that detection of abnormal flying qualities can be obtained. It may be necessary to land with flaps at 20° as some buffet and/or some nose pitch may be encountered with the flaps full down.

For landing procedure with a stabilizer heat failure, refer to LANDINGS, this section.

STAB OV HT LIGHT ILLUMINATED

Illumination of the STAB OV HT light indicates that the horizontal stabilizer structure has reached a temperature of 215°F (102°C).

1. STAB TEMP Indicator — Check.
2. If STAB TEMP indicator is approaching or in the yellow range, a stabilizer overheat condition exists:
   a. Engine RPM — Reduce until STAB TEMP indicator is back in the green range.
   b. *If overheat condition remains:*
      (1) STAB WING HEAT Switch — OFF.
      (2) Fly out of icing conditions.

WARNING

Even **small** accumulations of ice on the wing leading edge can cause aerodynamic stall prior to activation of the stick shaker and/or pusher. These ice accumulations can cause angle-of-attack indicator information to be unreliable.

If approach and landing must be made with any ice (or suspected ice during night operations) on the wing leading edge, refer to LANDINGS, this section.

WING HEAT FAILURE

With the STAB WING HEAT switch On, a failure is indicated by the WING TEMP indicator remaining in the red (below 35°F [1.7°C]) range and/or visual indications of ice accumulation.

WARNING

Even **small** accumulations of ice on the wing leading edge can cause aerodynamic stall prior to activation of the stick shaker and/or pusher. These ice accumulations can cause angle-of-attack indicator information to be unreliable.

1. STAB & WING HT Circuit Breaker (copilot's main bus) — Check and reset if necessary.
2. Engine RPM — Adjust as required to maintain WING TEMP indicator in the green range.
3. If WING TEMP indicator remains in the red range and/or visual indications of ice accumulation remain, fly out of icing conditions.
4. *On aircraft 35-067 thru 35-112 except 35-107 and 36-018 thru 36-031,* if cabin altitude climbs to an unacceptable level, CABIN AIR Switch — MAX. Descend to an acceptable level.

If approach and landing must be made with any ice (or suspected ice during night operations) on the wing leading edge, refer to LANDINGS, this section.

WING OV HT LIGHT ILLUMINATED

Illumination of the WING OV HT light indicates that the wing structure has reached a temperature of 215°F (102°C).

1. WING TEMP Indicator — Check.
2. If WING TEMP indicator is approaching or in the yellow range, a wing overheat condition exists:
   a. Engine RPM — Reduce until WING TEMP indicator is back in the green range.
   b. *If overheat condition remains:*
      (1) STAB WING HEAT Switch — OFF.
      (2) Fly out of icing conditions.

WARNING

Even **small** accumulations of ice on the wing leading edge can cause aerodynamic stall prior to activation of the stick shaker and/or pusher. These ice accumulations can cause angle-of-attack indicator information to be unreliable.

If approach and landing must be made with any ice (or suspected ice during night operations) on the wing leading edge, refer to LANDINGS, this section.

WINDSHIELD HEAT FAILURE

With the windshield heat system activated, a failure is indicated by the formation of ice on the heated portion of the windshield.

1. WSHLD HT Circuit Breaker (pilot's main bus) — Check and reset if necessary.
2. • *Aircraft 35-067 thru 35-112 except 35-107 and 36-018 thru 36-031,* WSHLD HEAT AUTO-MAN Switch — AUTO.
   • *Aircraft 35-107, 35-113 & subsequent and 36-032 & subsequent,* WSHLD HT Switch — ON.
3. Engine RPM — Increase as required to improve airflow.
4. *On aircraft 35-067 thru 35-112 except 35-107 and 36-018 thru 36-031,* if cabin altitude climbs to an unacceptable level, CABIN AIR Switch — MAX. Descend to an acceptable level.

WINDSHIELD HEAT FAILURE (CONT)

If system fails to anti-ice the windshield:

5. • *Aircraft 35-067 thru 35-112 except 35-107 and 36-018 thru 36-031,* WSHLD & RADOME/RADOME Switch — WSHLD & RADOME, if required. This will anti-ice the radome and windshield with alcohol flow for approximately 45 minutes.
   • *Aircraft 35-107, 35-113 & subsequent and 36-032 & subsequent,* WSHLD/RADOME-RAD Switch — WSHLD/RADOME, if required. This will anti-ice the radome and windshield with alcohol flow for approximately 45 minutes.
6. • *Aircraft 35-067 thru 35-112 except 35-107 and 36-018 thru 36-031,* WSHLD & RADOME/RADOME Switch — OFF when ALC AI light illuminates or clear of icing conditions.
   • *Aircraft 35-107, 35-113 & subsequent and 36-032 & subsequent,* WSHLD/RADOME-RAD Switch — OFF when ALC AI light illuminates or clear of icing conditions.

WSHLD OV HT LIGHT ILLUMINATED

Illumination of the WSHLD OV HT light indicates the bleed air temperature in the windshield nozzles has exceeded the system limits. Airflow should automatically shut off when the WSHLD OV HT light illuminates.

If airflow did not shut off when WSHLD OV HT light illuminated:

1. • *Aircraft 35-067 thru 35-112 except 35-107 and 36-018 thru 36-031:*
   a. WSHLD HEAT AUTO-MAN Switch — MAN.
   b. WSHLD HEAT ON-OFF Switch — Hold to OFF until airflow stops.
   c. **If WSHLD OV HT light remains on**, reduce engine power and/or push in IN NORMAL OUT DEFOG knob to reduce hot airflow to windshield.

   • *Aircraft 35-107, 35-113 & subsequent and 36-032 & subsequent,* WSHLD HT Switch — OFF.

PARTIAL FLAP LANDING

1. HYDRAULIC PRESSURE — Check.
   If pressure is low, refer to HYDRAULIC SYSTEM FAILURE/ ALTERNATE GEAR EXTENSION procedure and HYDRAULIC SYSTEM FAILURE — LANDING procedure, this section.
   If pressure is normal,
   Final Approach Configuration — Gear - DN.
2. Final Approach Speed — As appropriate for flap deflection. If actual flap deflection falls between those listed, use the final approach speed for the lesser flap deflection.
3. Landing Distance — As appropriate for flap deflection.

Flap Deflection	Final Approach Speed	Multiply Landing Distance By
UP	VREF + 30	1.35
8°	VREF + 20	1.30
20°	VREF + 10	1.20

NOTE Use of drag chute or thrust reversers (if installed) is recommended.

SINGLE-ENGINE LANDING

1. Final Landing Configuration — Gear - DN, Flaps - 20°.
2. Approach Speed — VREF + 10.
3. Yaw Damper — OFF prior to landing.
4. Landing Distance — Multiply by 1.20.

STABILIZER HEAT FAILURE — LANDING

When landing with the flaps at 20° proceed as follows:

1. Final Approach Configuration — Gear - DN, Flaps - 20°.
2. Final Approach Speed — VREF + 10.
3. Landing Distance — Multiply by 1.10.

WING HEAT FAILURE — LANDING

1. Final Approach Configuration — Gear - DN, Flaps - DN.
2. Final Approach Speed — VREF + 15.
3. Touchdown Speed — 15 knots above normal.
4. Landing Distance — Multiply by 1.20.

WING AND STAB HEAT FAILURE — LANDING

1. Final Approach Configuration — Gear - DN, Flaps - 20°.
2. Final Approach Speed — VREF + 25.
3. Touchdown Speed — 25 knots above normal.
4. Landing Distance — Multiply by 1.30.

INTRODUCTION TO PERFORMANCE DATA

REGULATORY COMPLIANCE

Information in this section is presented for the purpose of compliance with the appropriate performance criteria and certification requirements of FAR 25.

STANDARD PERFORMANCE CONDITIONS

All performance in this section is based on the following performance conditions:

1. Pertinent thrust ratings less installation, airbleed, and accessory losses.
2. Full temperature accountability within the operational limits for which the airplane is certified.

NOTE Should OAT be below the lowest temperature shown on the performance charts, use performance at the lowest temperature shown.

3. Wing flap positions are as follows:
   Takeoff .... 8° or 20°
   Enroute .... UP — 0°
   Approach .... 20°
   Landing .... DN — 40°
4. Power settings (N_1) from the appropriate charts or tables.

VARIABLE FACTORS AFFECTING PERFORMANCE

Details of variables affecting performance are given with the charts to which they apply. Conditions which relate to all performance calculations are:

1. Cabin pressurized.
2. Effect of humidity.
3. Winds, for which graphical correction is presented on the charts, are to be taken as the tower winds (20 feet above runway surface). Factors for 50% headwind component and 150% tailwind component have been applied as prescribed in pertinent regulations.
4. The percentages of stall speed are calculated from speeds as expressed in calibrated airspeed (KCAS).

STALL SPEEDS GEAR UP or DN

EXAMPLE:

Weight . . . . 13000 LBS
Flaps . . . . UP
Stall Speed . . . . 112 KIAS

*This chart effective for aircraft 35-067 through 35-278 and aircraft 36-018 through 36-044 when **not** incorporating AAK 79-10 or AMK 83-5.*

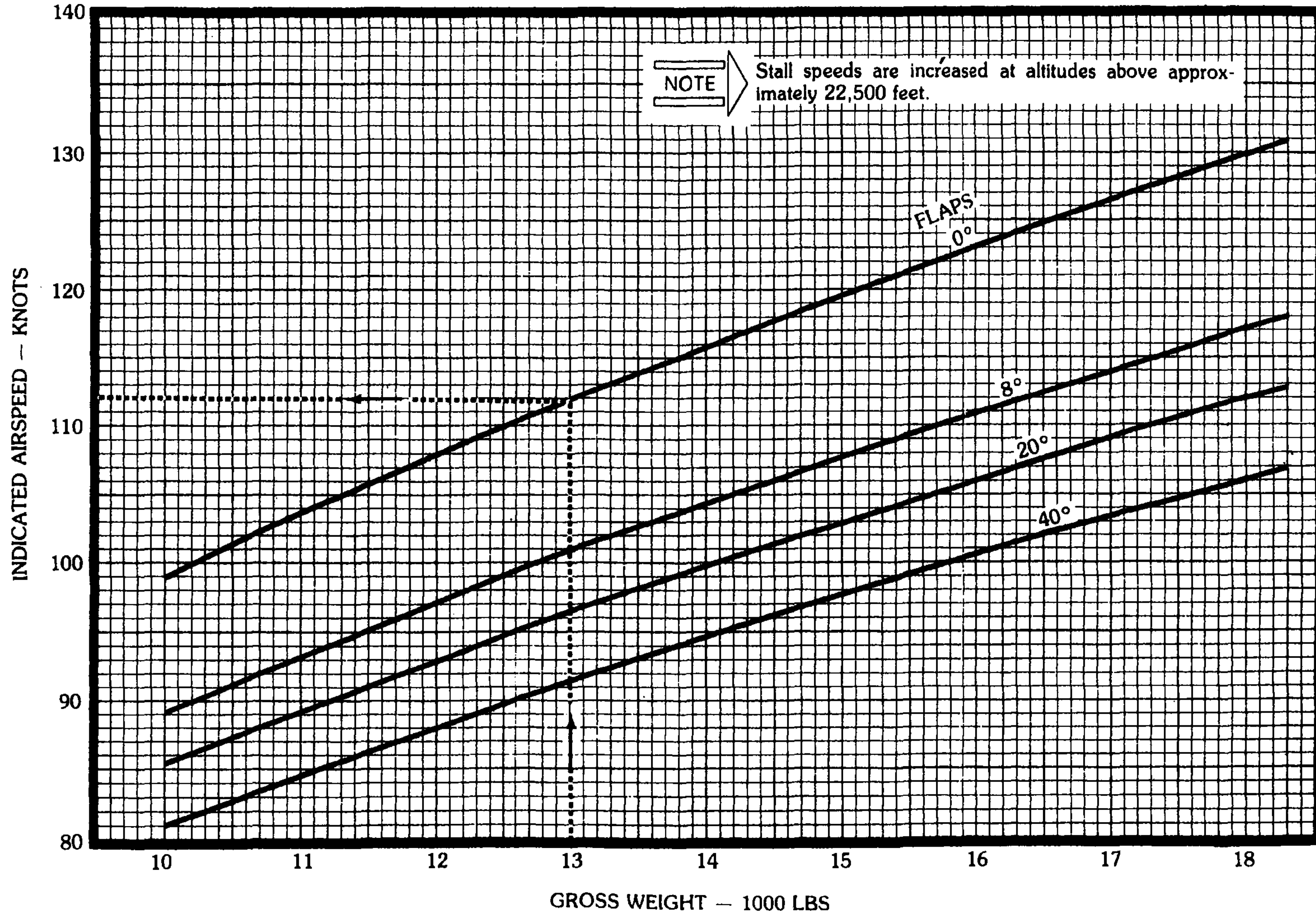


Figure 5-16

STALL SPEEDS – GEAR UP or DN

EXAMPLE:
Weight .... 16,000 Lb
Flaps .... 20°
Stall Speed .... 107.0 KIAS

This chart effective for aircraft 35-279 and subsequent, 36-045 and subsequent, and prior aircraft when incorporating AAK 79-10 or AMK 83-5.

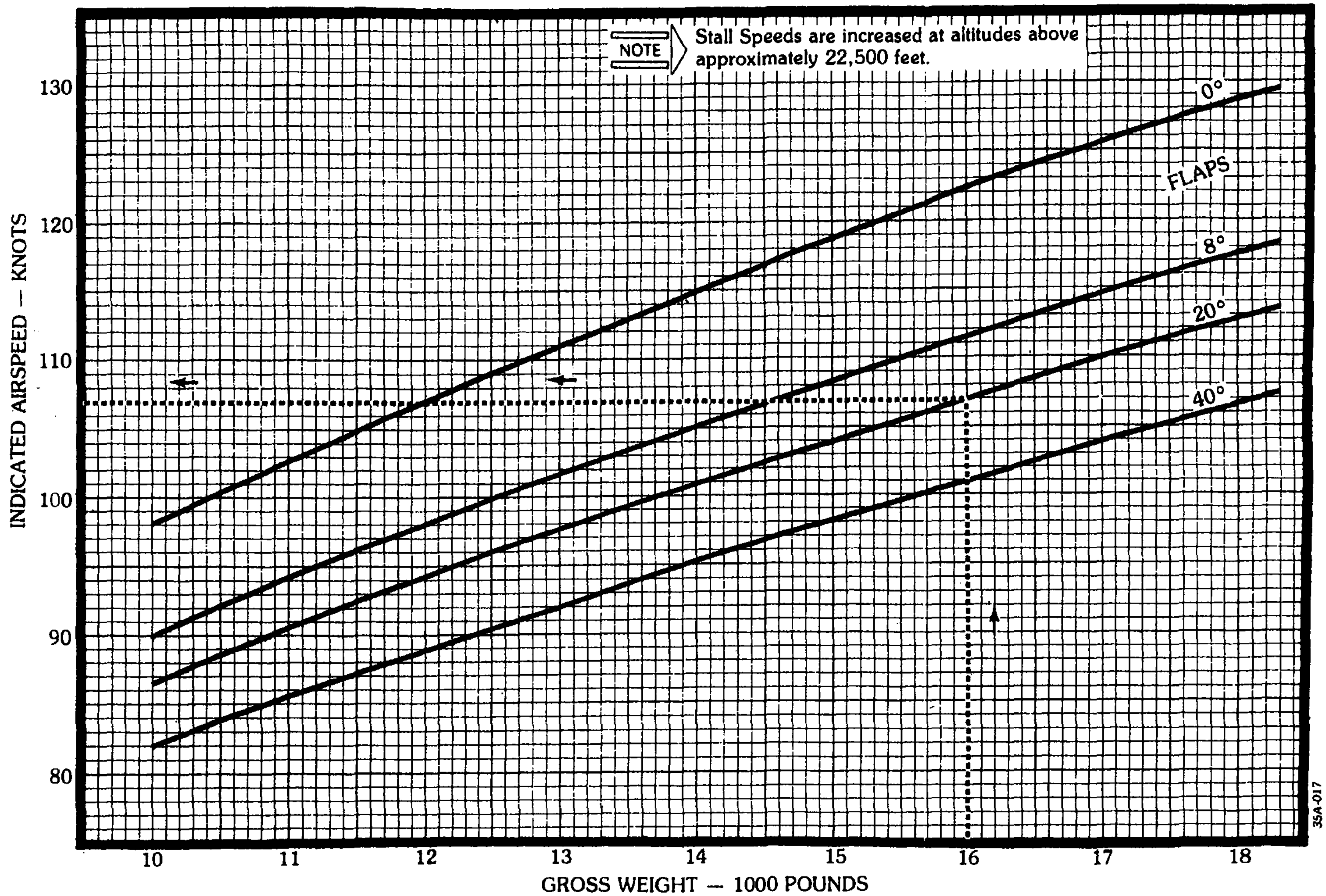


Figure 5-17

STALL SPEEDS – TURNING FLIGHT
GEAR UP or DN
LEVEL COORDINATED TURN

EXAMPLE:

Bank Angle .... 40°
Weight .... 15000 LBS
Flaps .... UP
Stall Speed .... 136.0 KIAS

*This chart effective for aircraft 35-067 through 35-278 and aircraft 36-018 through 36-044 when **not** incorporating AAK 79-10 or AMK 83-5.*

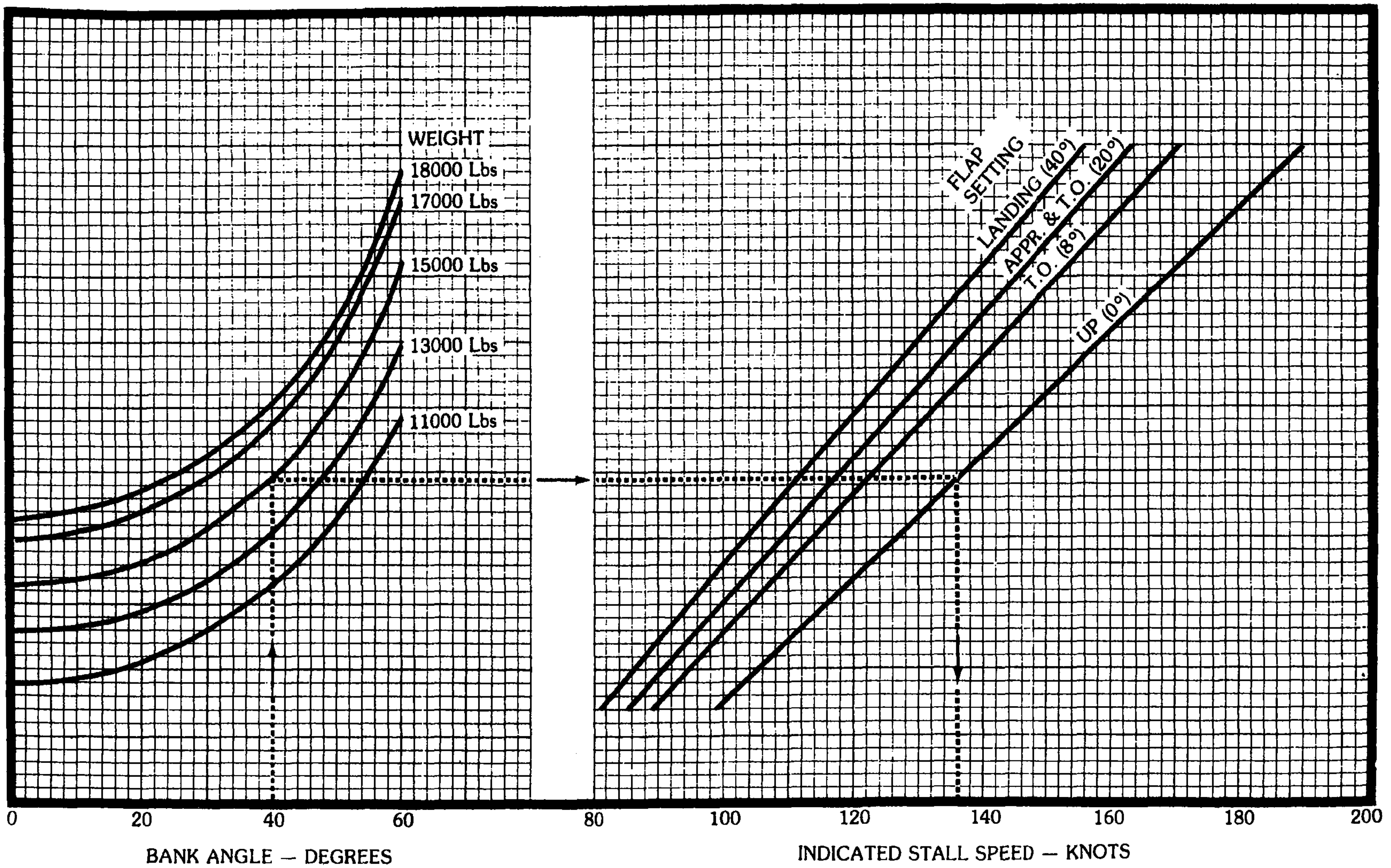


Figure 5-18

EXAMPLE:
Bank Angle . . . . 30°
Weight . . . . 15000 Lb
Flaps . . . . 40°
Stall Speed . . . . 106.0 KIAS

STALL SPEEDS – TURNING FLIGHT GEAR UP or DN LEVEL COORDINATED TURN

This chart effective for aircraft 35-279 and subsequent, 36-045 and subsequent, and prior aircraft when incorporating AAK 79-10 or AMK 83-5.

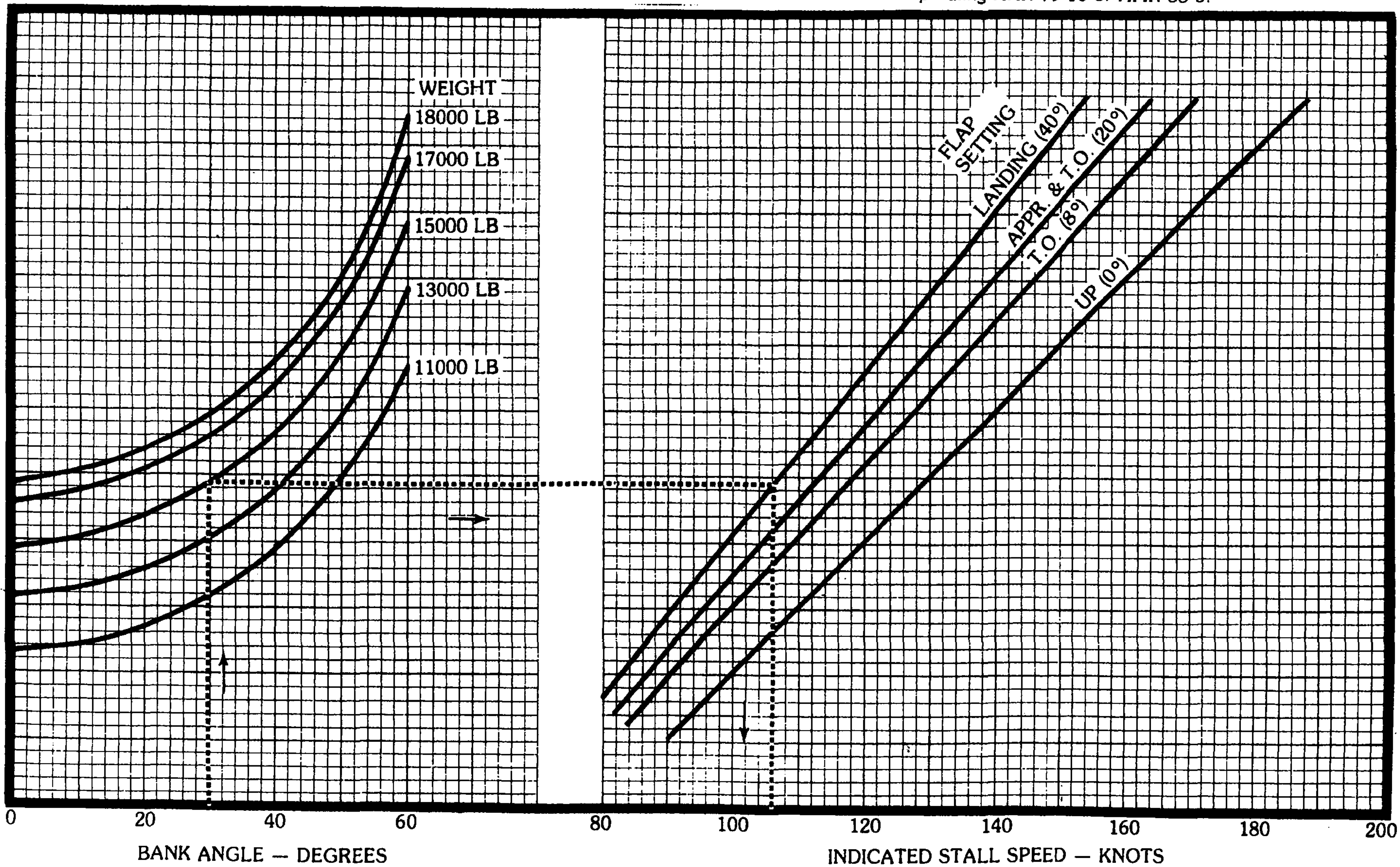


Figure 5-19

USE OF APPROACH AND LANDING CHARTS

The charts on the following pages present approach and landing climb gradients, maximum landing weights as limited by approach and landing climb performance, and landing weights as limited by maximum brake energy.

MAXIMUM LANDING WEIGHT

Landings must be made within the limitations of the maximum landing weight as governed by the LANDING WEIGHT LIMITS Chart and by the performance determined from the ACTUAL LANDING DISTANCE and FACTORED LANDING DISTANCE (if applicable) charts. The heaviest weight at which the aircraft can land is the **lowest** of the following weights:

1. The maximum landing weight (design structural limit for landing) is 14,300 pounds (6,486 Kg) or 15,300 pounds (6,940 Kg).
2. The landing weight limit for airport altitude and temperature as determined from the LANDING WEIGHT LIMITS Chart.
3. The maximum landing weight for the runway and ambient conditions as determined from the ACTUAL LANDING DISTANCE and FACTORED LANDING DISTANCE (if applicable) charts.

NOTE If the aircraft weight over the destination is greater than the lowest of the above weights, fuel must be burned off until the proper weight is achieved.

LANDING DISTANCE CHART

The ACTUAL LANDING DISTANCE Chart shows demonstrated landing distance in terms of altitude, outside air temperature, weight, wind, runway gradient, and anti-skid on or off. The FACTORED LANDING DISTANCE chart shows the operational landing field length when a factored landing distance is required by applicable regulations. The Factored Landing Distance determined from this chart is equal to the Actual Landing Distance divided by 0.60 (multiplied by 1.67). These charts may be used to determine either of the following:

1. The landing field length required given the airplane weight, runway gradient, pressure altitude, temperature, and wind.
2. The maximum landing weight corresponding to a specific runway length, runway gradient, pressure altitude, temperature, and wind. Landing weight for runway length available may be determined by working through the chart in the opposite manner as finding landing distance. Landing weight determined in this manner may not be the limiting landing weight, refer to MAXIMUM LANDING WEIGHT.

USE OF APPROACH AND LANDING CHARTS (CONT)

LANDING PROCEDURE

The landing distances on the ACTUAL LANDING DISTANCE Chart can be realized when the following procedure is used.

1. Approach through the 50-foot point over the end of the runway at VREF with flaps and gear down, using a 2.5° to 3° glideslope.
2. After passing the 50-foot point, progressively reduce thrust until the thrust levers are at IDLE prior to touchdown.
3. After touchdown, Spoilers — EXT immediately.
4. Wheel Brakes — Apply as soon as practical and continue maximum braking action until the airplane stops.
5. Elevator — Nose up to shift weight to main gear.

LANDING ON WET OR CONTAMINATED RUNWAY

Refer to the WET/CONTAMINATED RUNWAY DATA Addendum for guidance material pertaining to landing on a wet or contaminated runway.

APPROACH CLIMB AND LANDING CLIMB GRADIENT CHARTS

The APPROACH CLIMB GRADIENT and LANDING CLIMB GRADIENT Charts are read at the airport temperature and pressure altitude. The gradients will be achieved using the speeds shown in the APPROACH CLIMB SPEED and LANDING CLIMB SPEED Chart.

CALCULATION OF CORRECTION FOR RUNWAYS WITH A GRADIENT GREATER THAN 2.0% AND LESS THAN OR EQUAL TO 2.4%

The information provided here is used to calculate landing corrections for dry conditions with runway gradients >2.0% and ≤2.4%.

DOWNHILL (NEGATIVE) GRADIENT

Landing Weight Limit
Determine Climb Weight Limit using the appropriate chart in this section. Additional correction is not required.

Determine Brake Energy Weight Limit using the appropriate chart in this section and assume runway has a -2.0% gradient. If necessary, adjust the Brake Energy Weight Limit by subtracting the appropriate weight from the table below.

Landing Weight Limit	
Downhill Gradient	**Brake Energy Weight Correction**
-2.1%	Subtract 25 pounds (11.3 kg)
-2.2%	Subtract 50 pounds (22.7 kg)
-2.3%	Subtract 75 pounds (34.0 kg)
-2.4%	Subtract 100 pounds (45.4 kg)

Landing Distance
Determine Landing Distance using the appropriate chart in this section and assume runway has a -2.0% gradient. Add 100 feet (30.48 m) to the Landing Distance for runway gradients -2.0% to -2.4%.

UPHILL (POSITIVE) GRADIENT

Landing Weight Limit
Determine Climb Weight Limit using the appropriate chart in this section. Adjust the Climb Weight Limit by subtracting the appropriate weight from the table below.

Landing Weight Limit	
Uphill Gradient	**Climb Weight Correction**
+2.1%	Subtract 125 pounds (56.7kg)
+2.2%	Subtract 250 pounds (113.4kg)
+2.3%	Subtract 375 pounds (170.1 kg)
+2.4%	Subtract 500 pounds (226.8 kg)

Determine the Brake Energy Weight Limit using the appropriate chart in this section and assume runway has a +2.0% gradient. Additional correction is not required.

Landing Distance
Determine Landing Distance using the appropriate chart in this section and assume runway has a +2.0% gradient. Additional correction is not required.

APPROACH CLIMB SPEED AND LANDING CLIMB SPEED

EXAMPLE:

1. Weight . . . . 13,000 LB
2. Approach Climb Speed . . . . 125.4 KIAS
3. Landing Climb Speed . . . . 119.0 KIAS

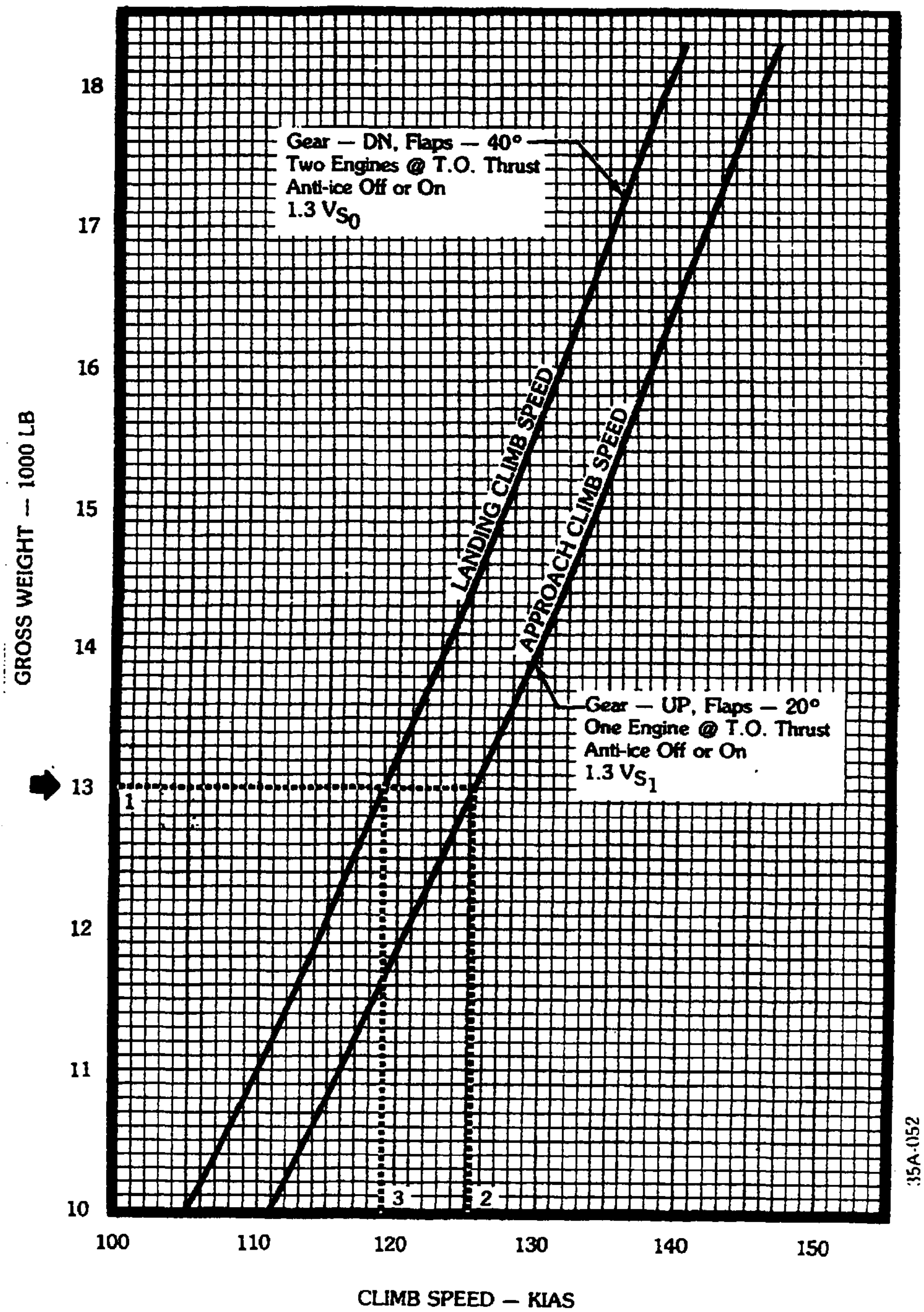


Figure 5-52

APPROACH CLIMB GRADIENT

CONDITIONS:

1. Single Engine
2. Takeoff Thrust
3. Gear — Up
4. Flaps — 20°
5. Speed — 1.3 V_{S1}

EXAMPLE:

1. Temperature .... 25°F
2. Altitude .... 10,000 FT
3. Weight Ref. Line
4. Weight .... 15,000 LB
5. Anti-ice Ref. Line
6. Anti-ice .... NAC HT ONLY
7. Gross Climb Gradient 4.5%

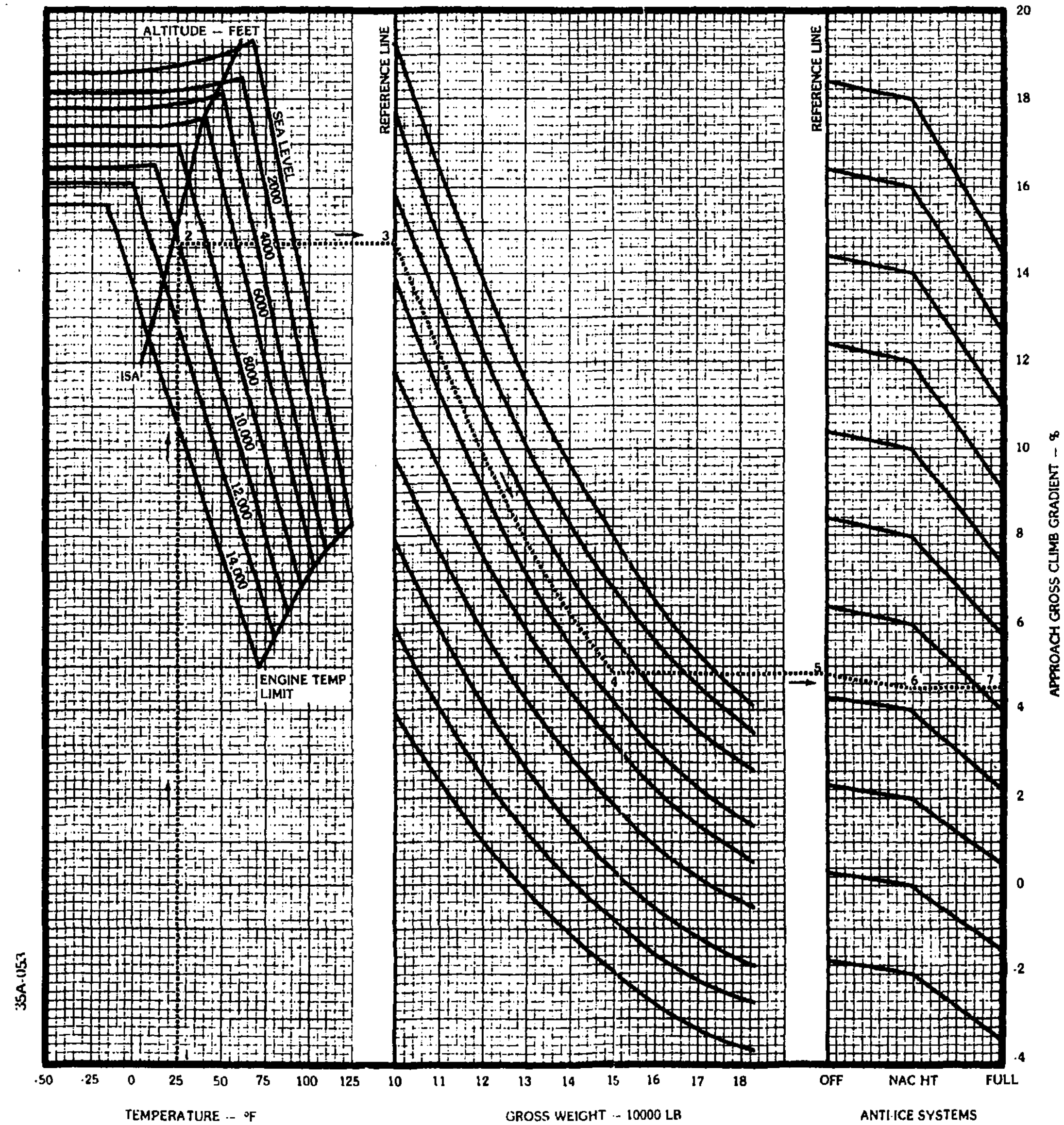


Figure 5-53

LANDING CLIMB GRADIENT

CONDITIONS:
1. Two Engines
2. Takeoff Thrust
3. Gear — Down
4. Flaps — 40°
5. Speed — 1.3 V_{S0}

EXAMPLE:
1. Temperature .... 75°F
2. Altitude .... 6000 Ft
3. Weight Ref. Line
4. Weight .... 14,000 LB
5. Anti-ice Ref. Line
6. Anti-ice .... OFF
7. Gross Climb Gradient 14.5%

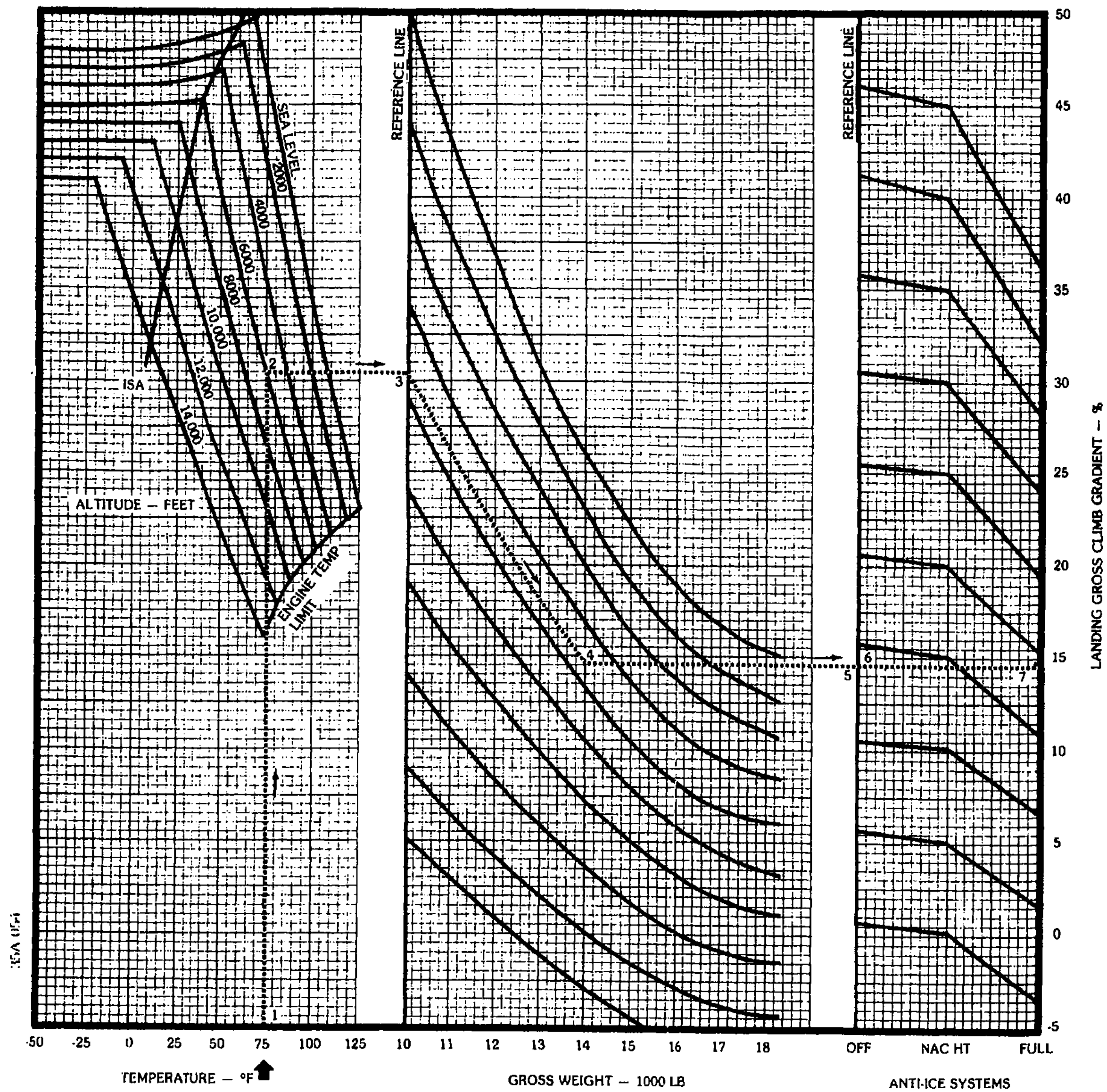
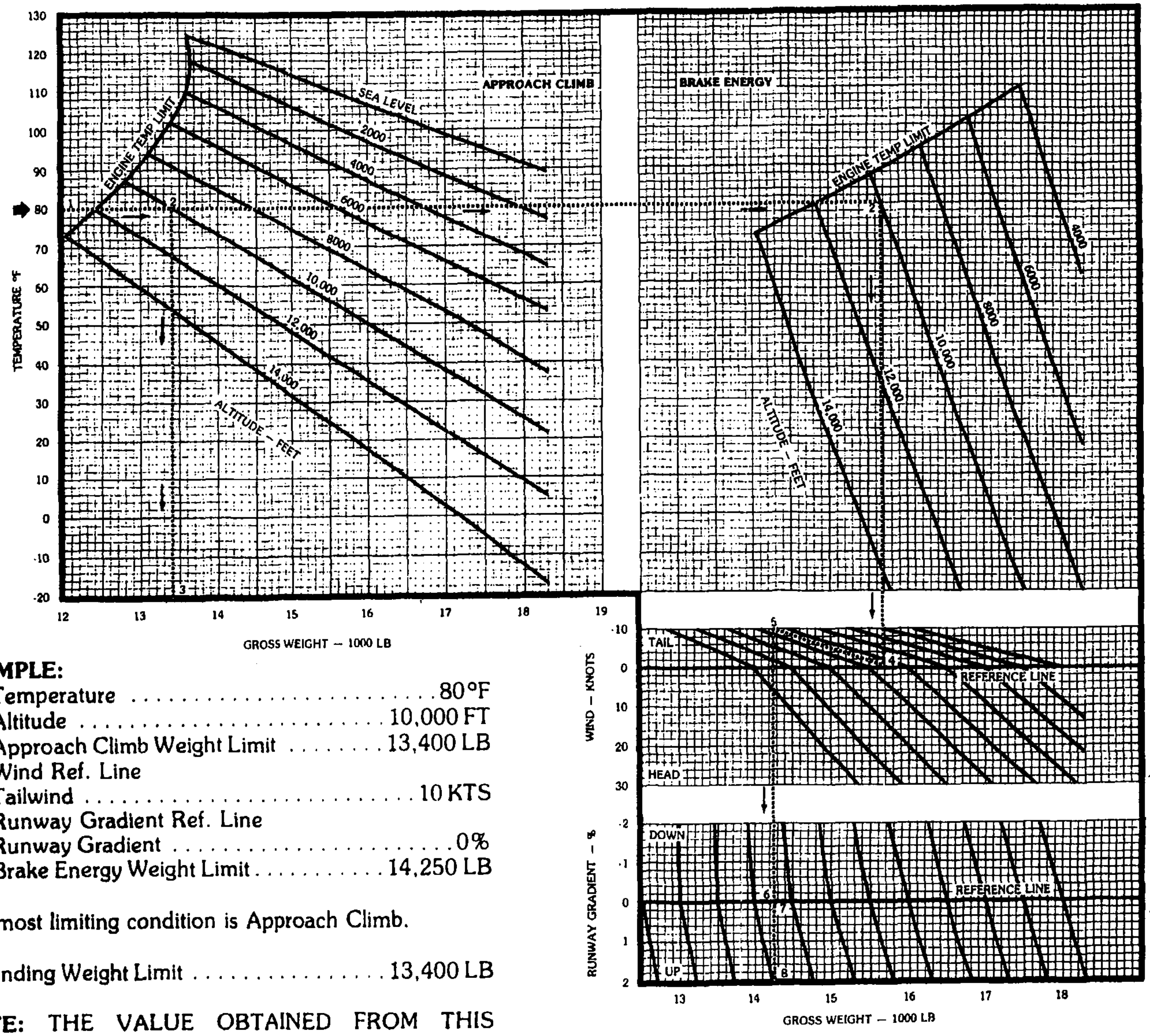


Figure 5-54

LANDING WEIGHT LIMIT
ANTI-ICE – OFF



EXAMPLE:

1. Temperature .... 80°F
2. Altitude .... 10,000 FT
3. Approach Climb Weight Limit .... 13,400 LB
4. Wind Ref. Line
5. Tailwind .... 10 KTS
6. Runway Gradient Ref. Line
7. Runway Gradient 0%
8. Brake Energy Weight Limit .... 14,250 LB

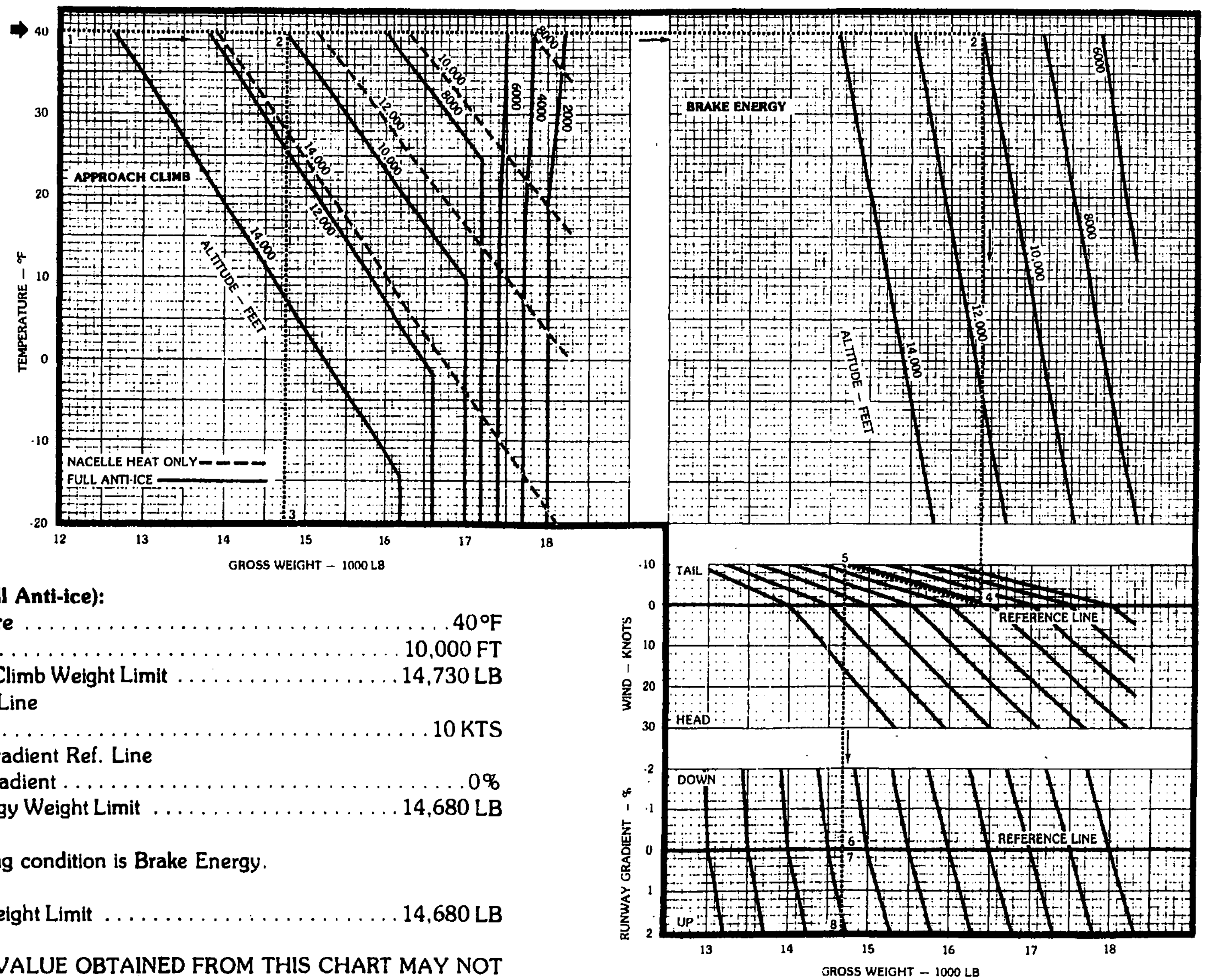
The most limiting condition is Approach Climb.

- Landing Weight Limit .... 13,400 LB

NOTE: THE VALUE OBTAINED FROM THIS CHART MAY NOT BE THE LIMITING WEIGHT. LANDING WEIGHT IS ALSO LIMITED BY THE MAXIMUM CERTIFIED LANDING WEIGHT AND THE LANDING WEIGHT FOR THE RUNWAY LENGTH AVAILABLE.

Figure 5-55

LANDING WEIGHT LIMIT ANTI-ICE – ON



EXAMPLE (Full Anti-ice):

1. Temperature . . . . 40°F
2. Altitude . . . . 10,000 FT
3. Approach Climb Weight Limit . . . . 14,730 LB
4. Wind Ref. Line
5. Tailwind . . . . 10 KTS
6. Runway Gradient Ref. Line
7. Runway Gradient 0%
8. Brake Energy Weight Limit . . . . 14,680 LB

The most limiting condition is Brake Energy.

- Landing Weight Limit . . . . 14,680 LB

NOTE: THE VALUE OBTAINED FROM THIS CHART MAY NOT BE THE LIMITING WEIGHT. LANDING WEIGHT IS ALSO LIMITED BY THE MAXIMUM CERTIFIED LANDING WEIGHT AND THE LANDING WEIGHT FOR THE RUNWAY LENGTH AVAILABLE.

Figure 5-56

LANDING APPROACH SPEED V_{REF}

EXAMPLE:

1. Weight . . . . 14,000 LB
2. V_{REF} . . . . 123.2 KIAS

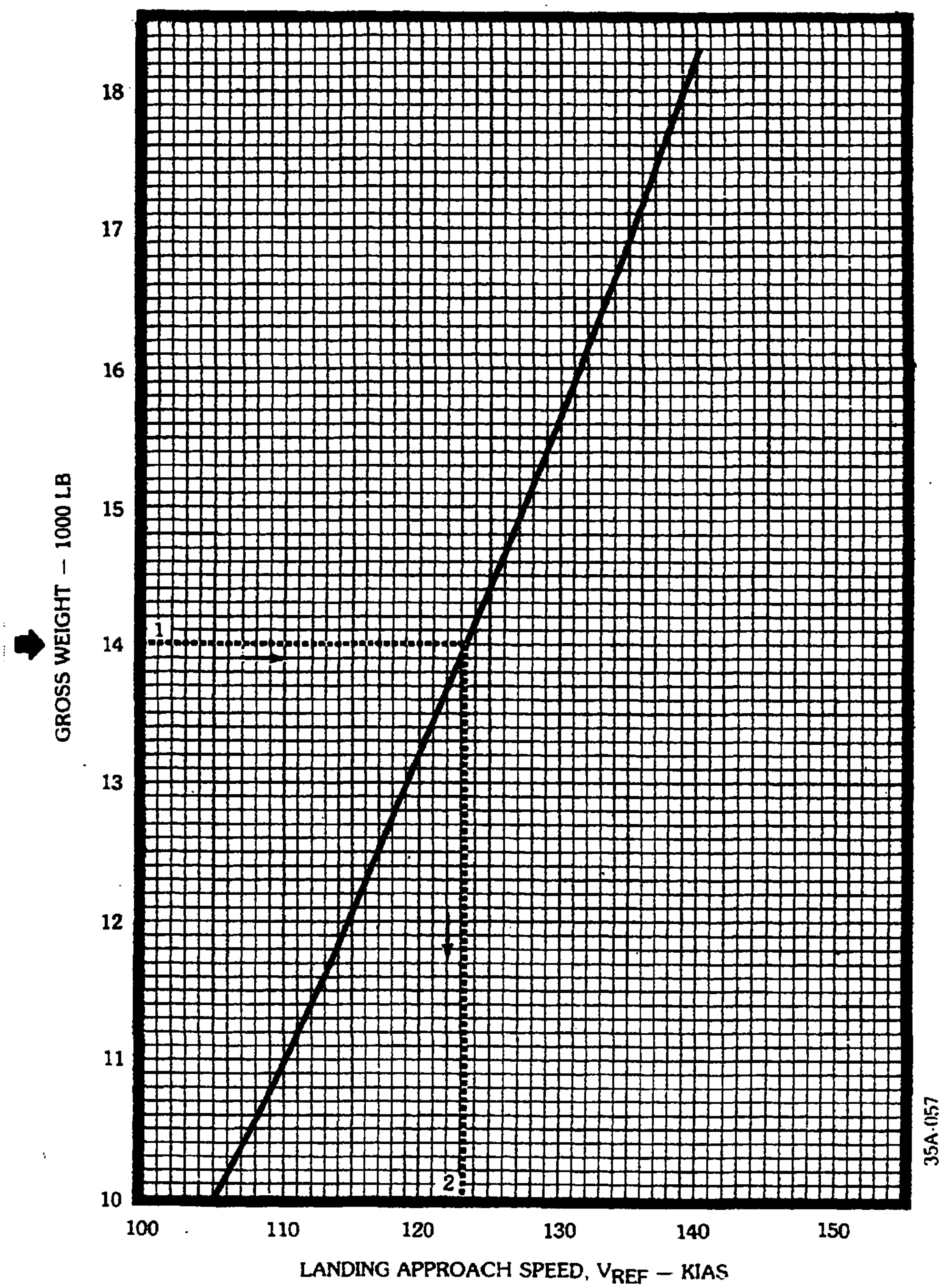


Figure 5-57

EXAMPLE:

1. Temperature .... 40°F
2. Altitude .... 8000 FT
3. Weight Ref. Line
4. Weight .... 13,000 LB
5. Wind Ref. Line
6. Headwind .... 10 KT
7. Runway Gradient Ref. Line
8. Runway Gradient .... 2% UP
9. Anti-skid Ref. Line
10. Anti-skid .... OFF
11. Altitude Ref. Line
12. Altitude .... 8000 FT
13. Actual Landing Distance .... 4480 FT

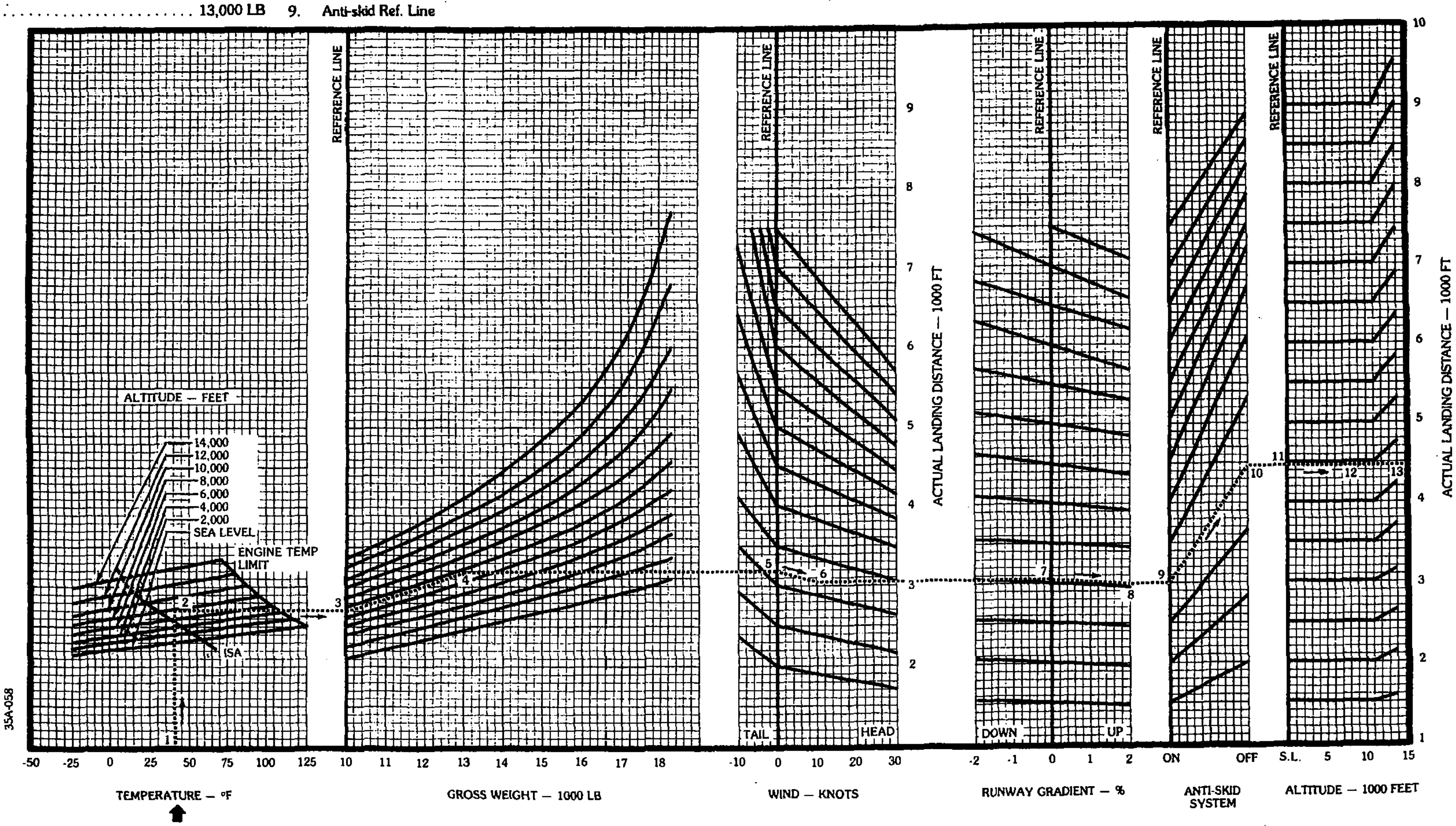


Figure 5-58