

7. If engines are producing rated power, read total distance over 50-foot obstacle (L) of 1440 feet.
8. To correct for engine torque deficiency, subtract total distance over 50-foot obstacle for rated engines (L) from corrected ground run distance (K), multiply by power correction factor (H), and add corrected ground run distance (K) or
 $(1440-870) 1.3 + 870$
 $741 + 870 = 1611$ feet over 50-foot obstacle.
9. With flaps and gear up, single-engine fly-away capabilities can be determined using figure A2-8. The maximum weight at which 100 feet per minute rate of climb can be maintained is 10,700 pounds. If the flaps are not retracted but the gear is up, only a 9600-pound gross weight will permit a single engine, 100 feet per minute rate of climb.

CLIMB-OUT FLIGHT PATH (FIGURES A2-9 THROUGH A2-11)

The Climb-out Flight Path charts (figures A2-9 through A2-11) may be used to determine distance required from *lift-off* to clear obstacles up to 200 feet high. In order to obtain the performance shown, it is essential *that airspeed be held constant* at take-off speed shown for the given gross weight and flap setting.

Note

The performance shown can be exceeded slightly by retracting the landing gear when safely airborne.

Climb-out Flight Path Example Problem

Determine distance following normal take-off to clear an obstacle for the following conditions:

- Obstacle Height Above Runway—120 feet
- Flap Setting—20 degrees (normal take-off)
- Pressure Altitude—4000 feet
- Gross Weight—10,000 pounds (figure A2-10)

1. Distance from lift-off = 900 feet at a climb speed of 88 knots.

Note

Assuming a take-off run distance of 1500 feet under these conditions, a total cleared surface length of 2400 feet in front of the obstacle is required for take-off and straight-ahead climb.

TAKE-OFF AND LANDING DATA CARD (FIGURE A2-12)

A Take-off and Landing Data (TOLD) Card is provided in figure A2-12.

WIND COMPONENT**CROSSWIND**

EXAMPLE:

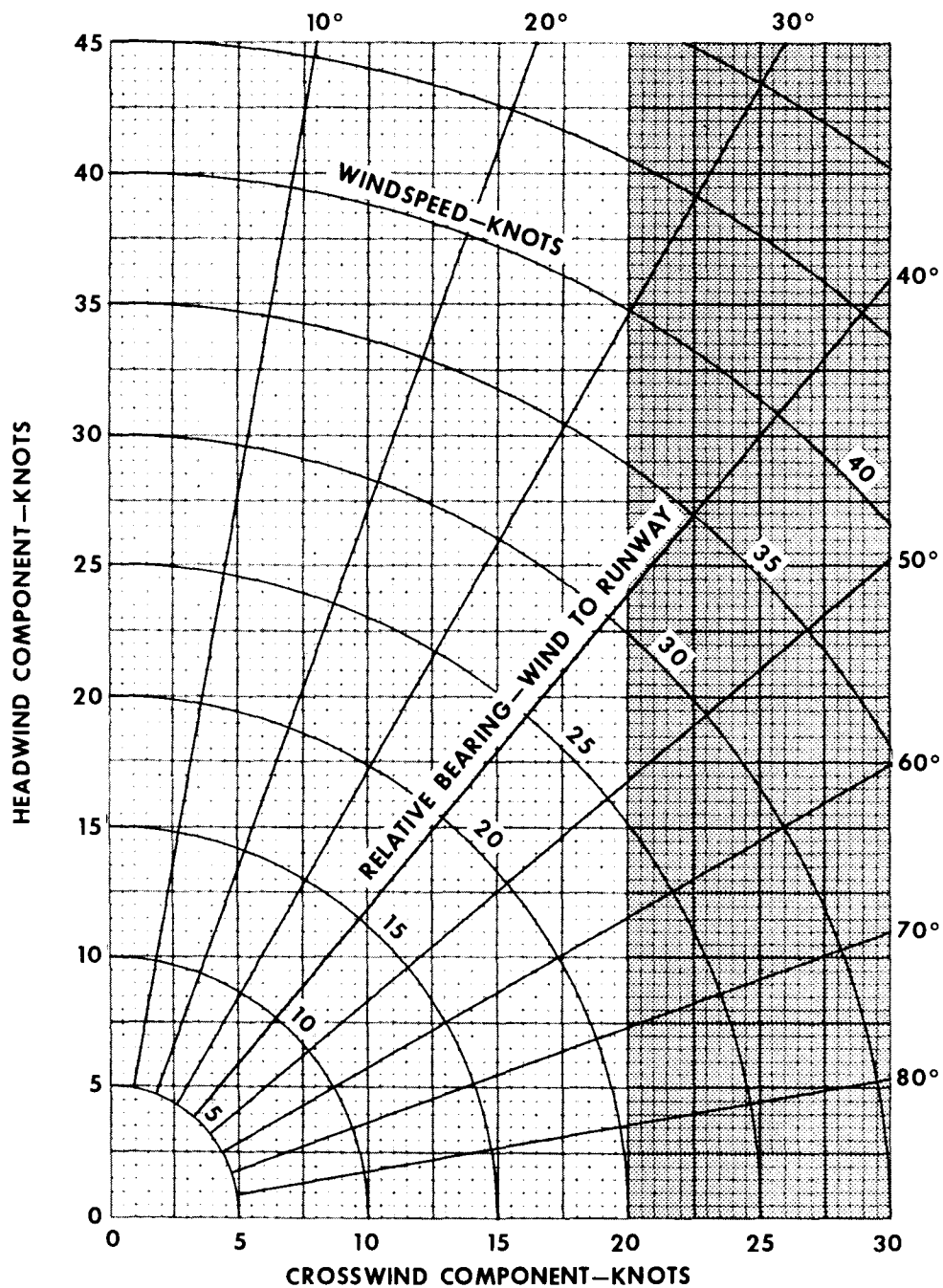
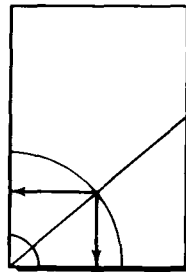


Figure A2-1

VA-1-76B

ACCELERATION CHECK SPEED CHART

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971



EXAMPLE

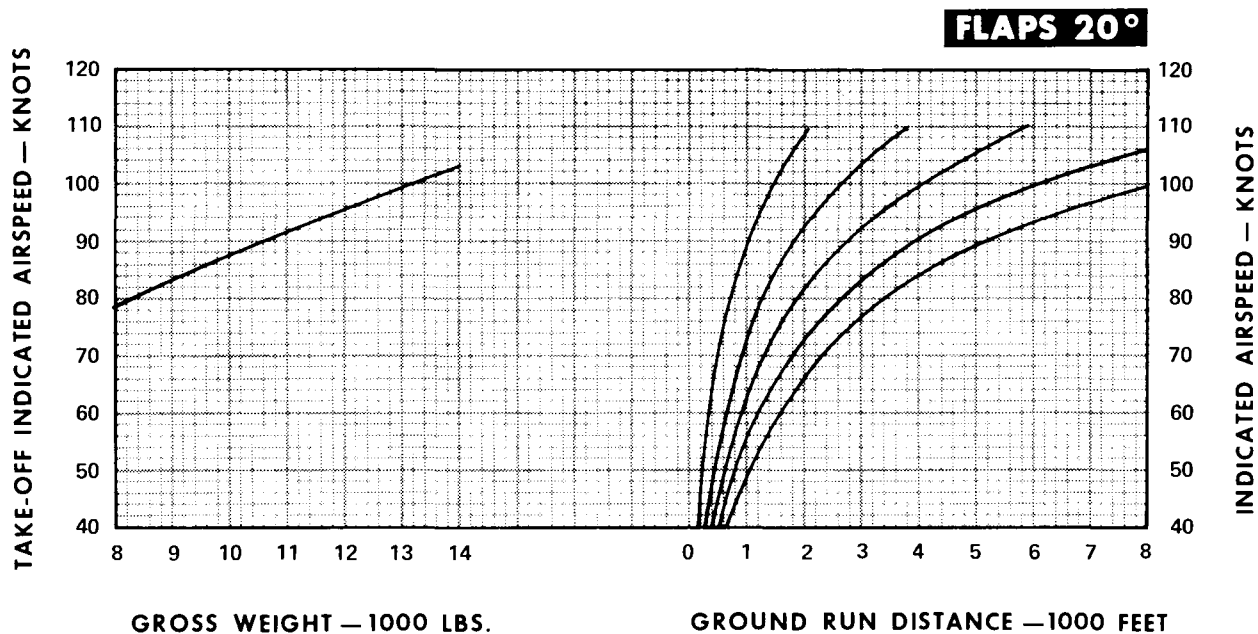
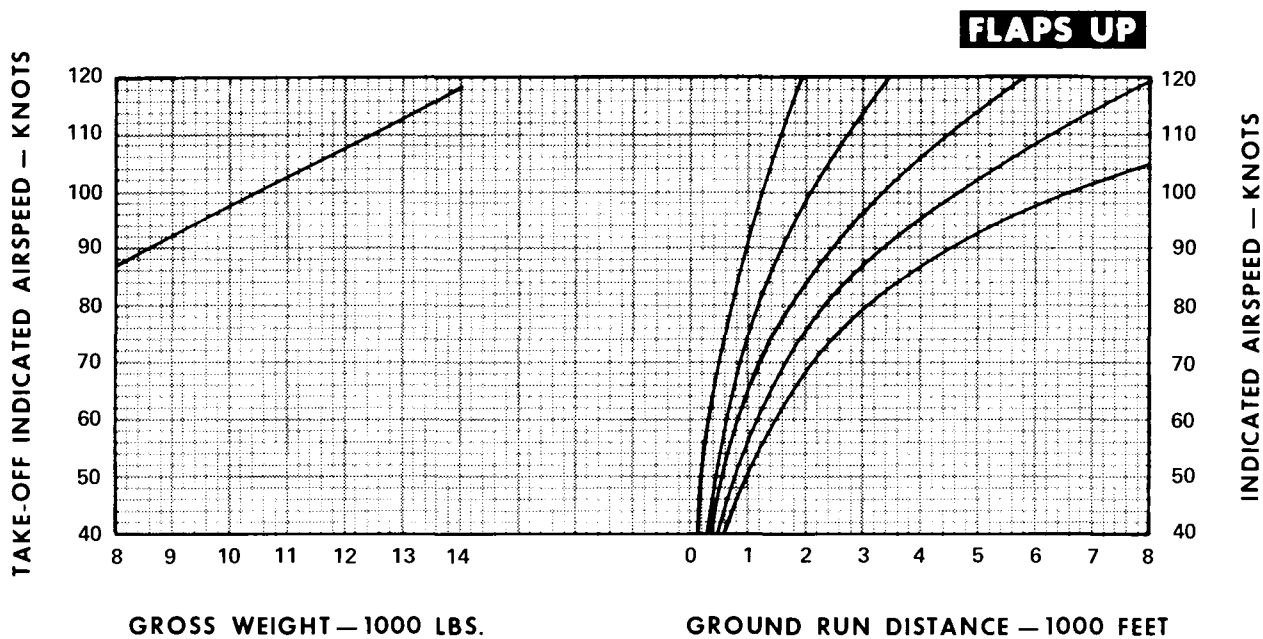


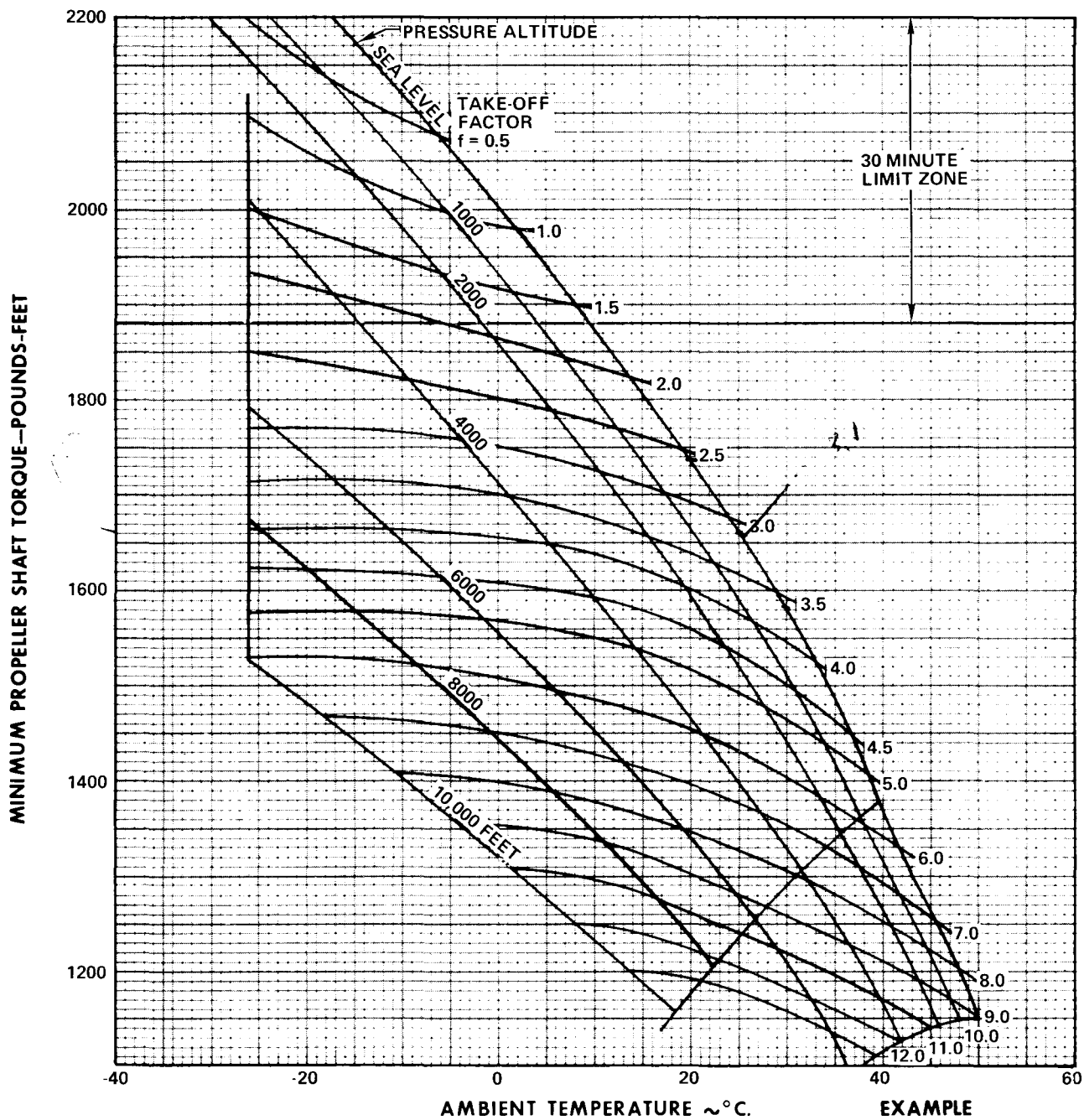
Figure A2-2

VA-1-180

TAKE-OFF DISTANCE

BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 15 JUNE 1969

FLAPS UP



TAKE-OFF SPEED — KNOTS IAS

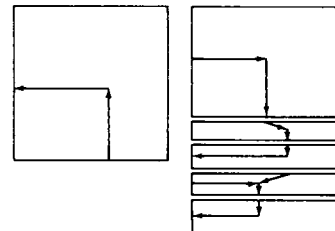
GROSS WEIGHT (POUNDS)	SPEED
8,000	87
9,000	93
10,000	98
11,000	102
12,000	106
13,000	111
14,000	118

AMBIENT TEMPERATURE ~°C.

NOTE:

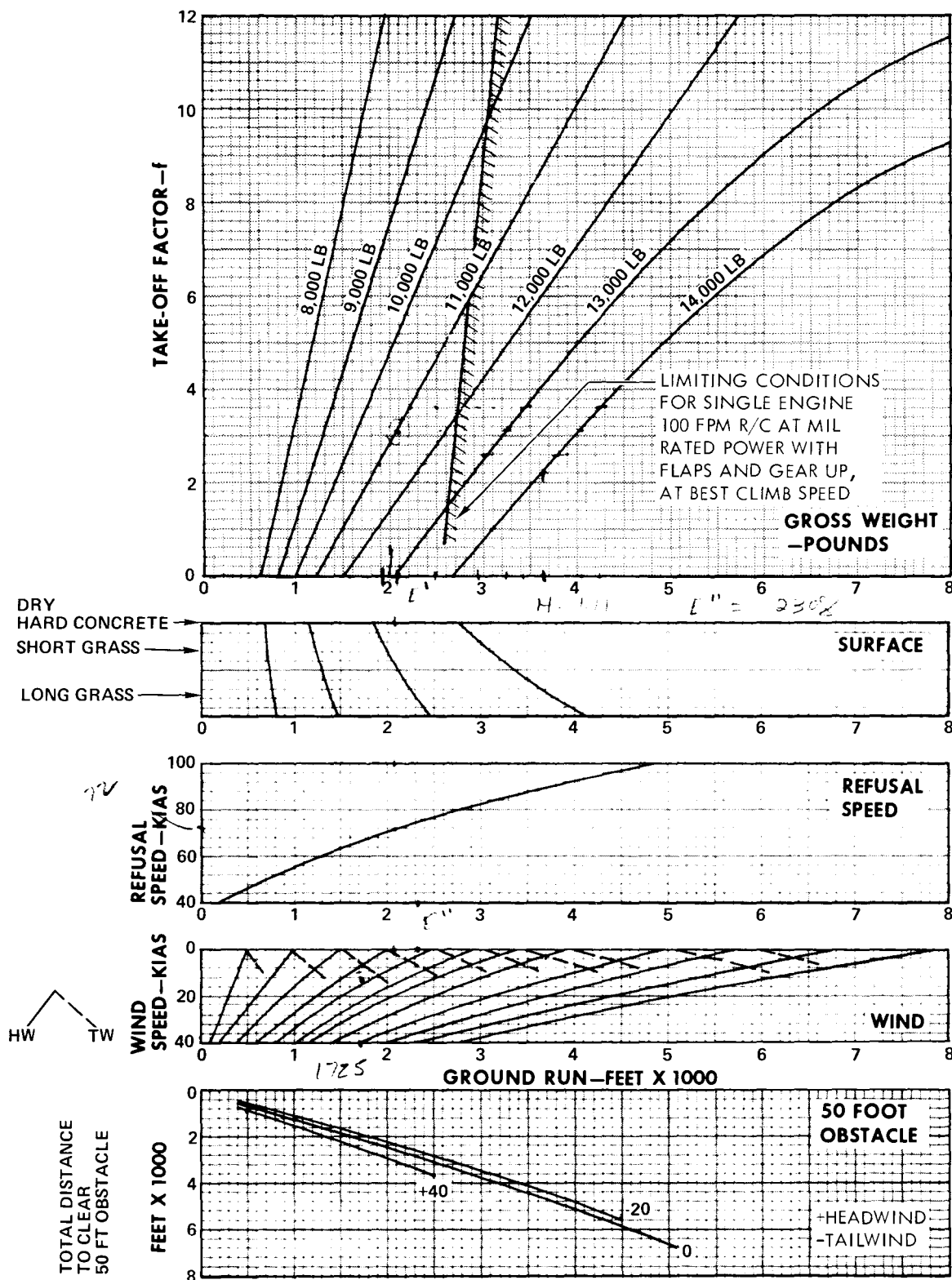
INCREASE GROUND RUN
DISTANCE 4% FOR EACH
ONE PERCENT INCREASE
IN THE RUNWAY SLOPE

EXAMPLE



VA 1-79D

Figure A2-3 (Sheet 1 of 2)



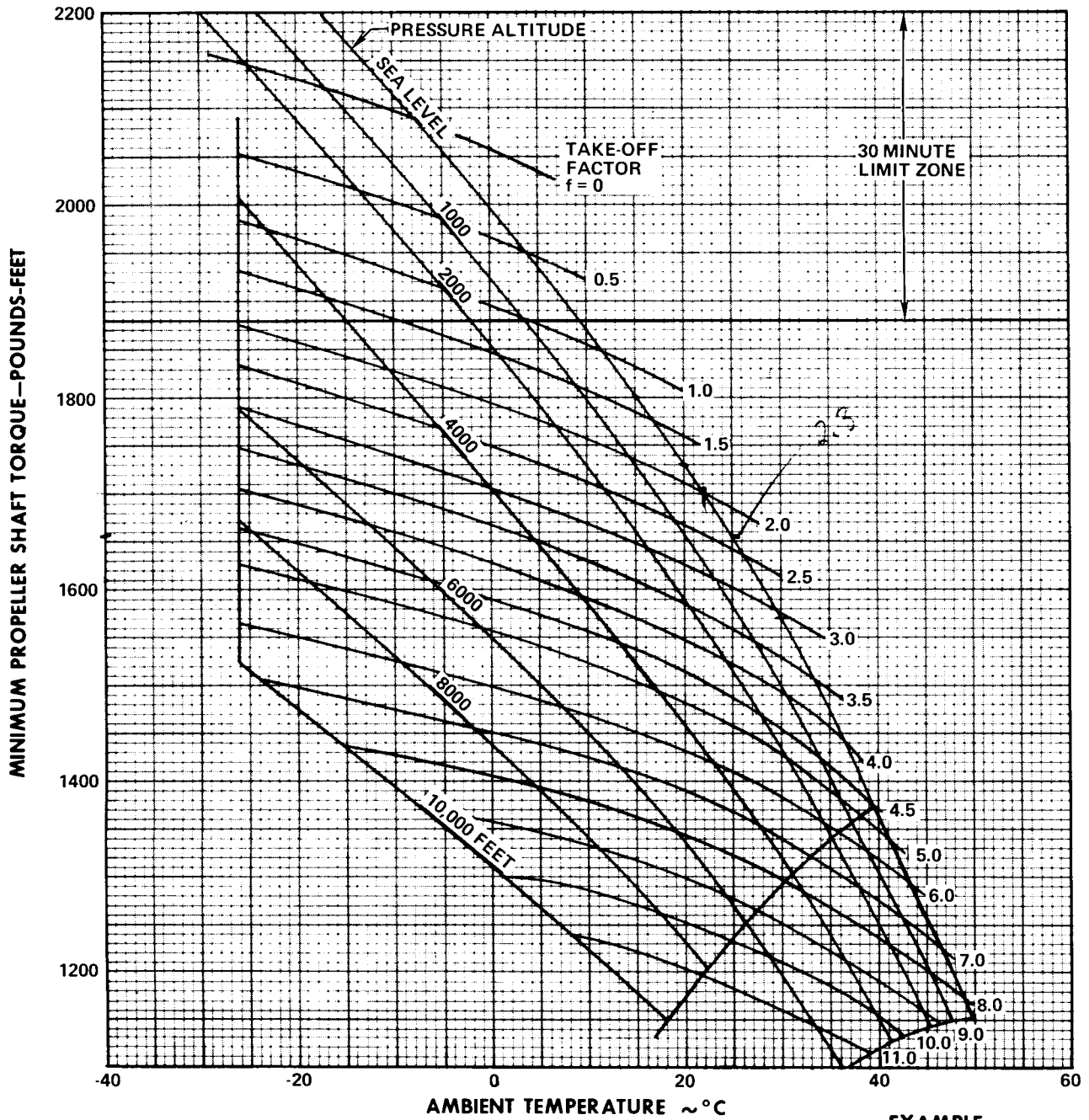
VA-1-158A

Figure A2-3 (Sheet 2 of 2)

TAKE-OFF DISTANCE

FLAPS 20°

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969



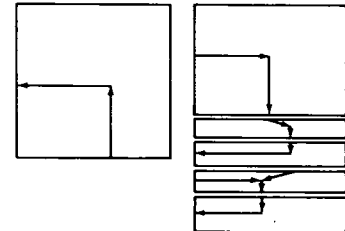
TAKE-OFF SPEED—KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	78
9,000	83
10,000	87
11,000	91
12,000	95
13,000	99
14,000	103

NOTE:

INCREASE GROUND RUN
DISTANCE 4% FOR EACH
ONE PERCENT INCREASE
IN THE RUNWAY SLOPE

EXAMPLE



VA-1 159A

Figure A2-4 (Sheet 1 of 2)

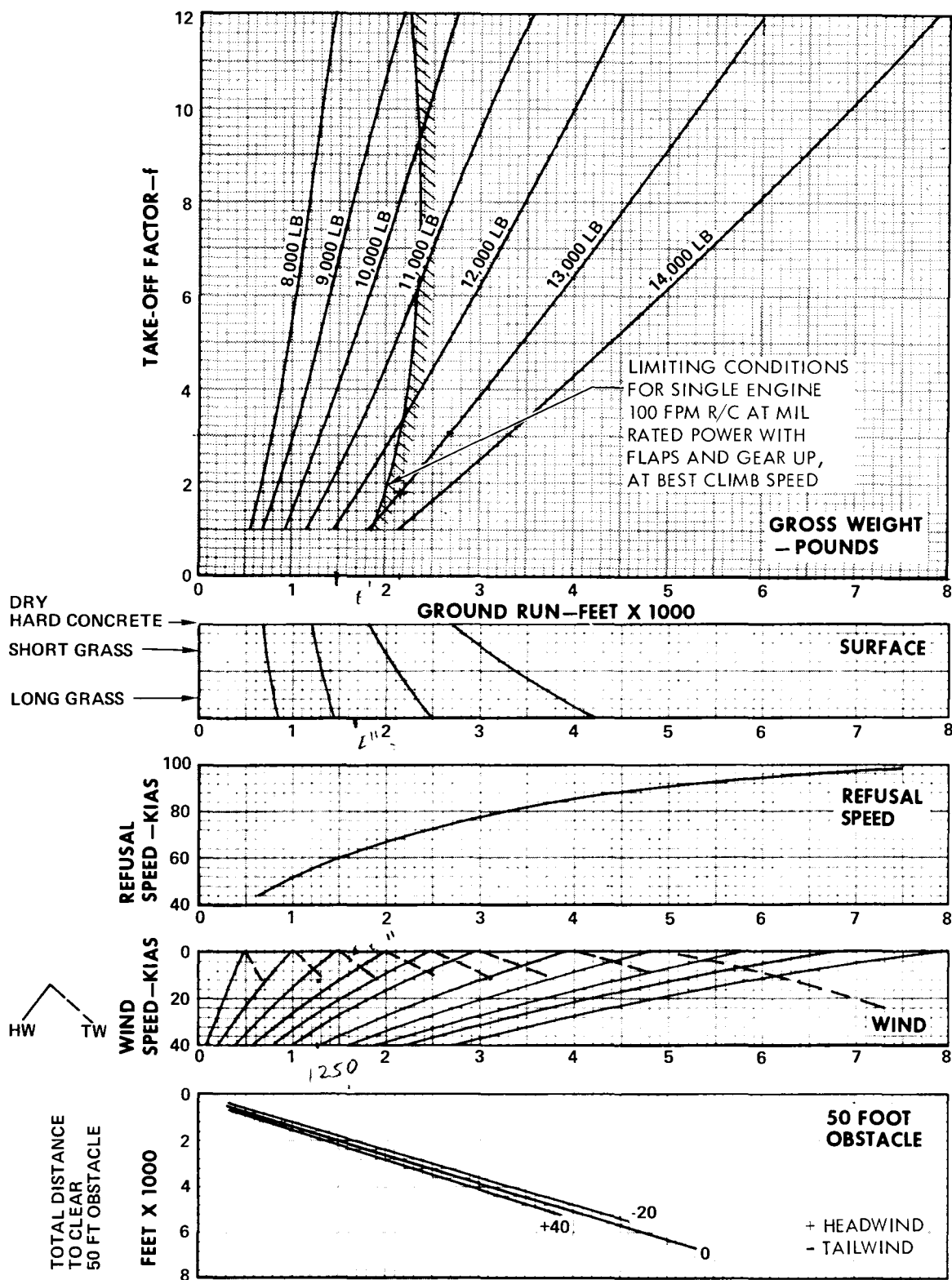
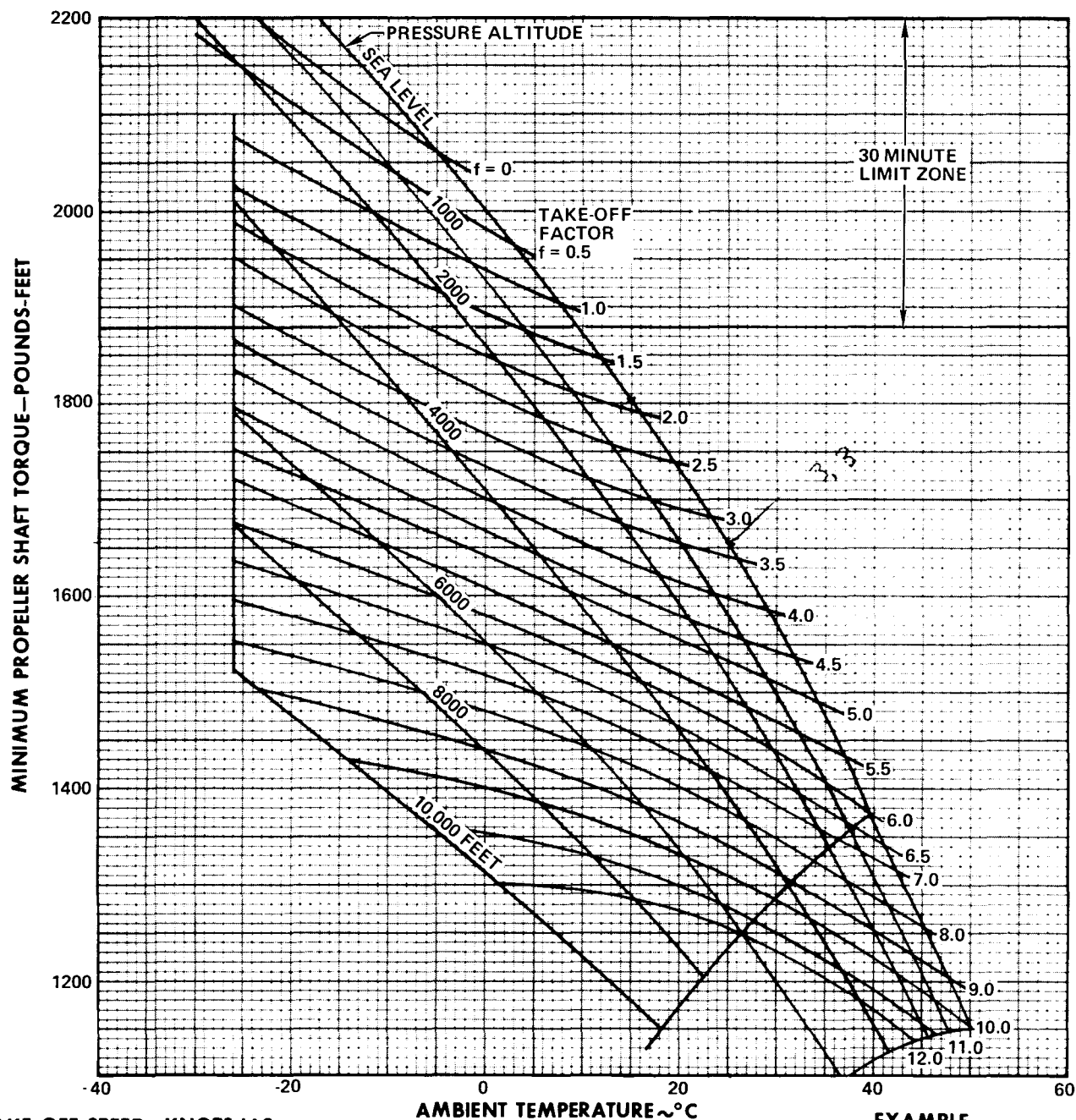


Figure A2-4 (Sheet 2 of 2)

TAKE-OFF DISTANCE – STOL

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

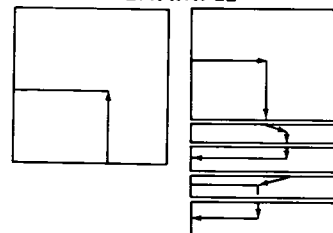
MAXIMUM PERFORMANCE**FLAPS 20°****TAKE-OFF SPEED—KNOTS IAS**

AMBIENT TEMPERATURE ~°C

GROSS WEIGHT (POUNDS)	SPEED
8,000	65
9,000	69
10,000	73
11,000	76
12,000	80
13,000	83
14,000	86

NOTE:

INCREASE GROUND RUN
DISTANCE 4% FOR EACH
ONE PERCENT INCREASE
IN THE RUNWAY SLOPE

EXAMPLE

VA-1 23C

Figure A2-5 (Sheet 1 of 2)

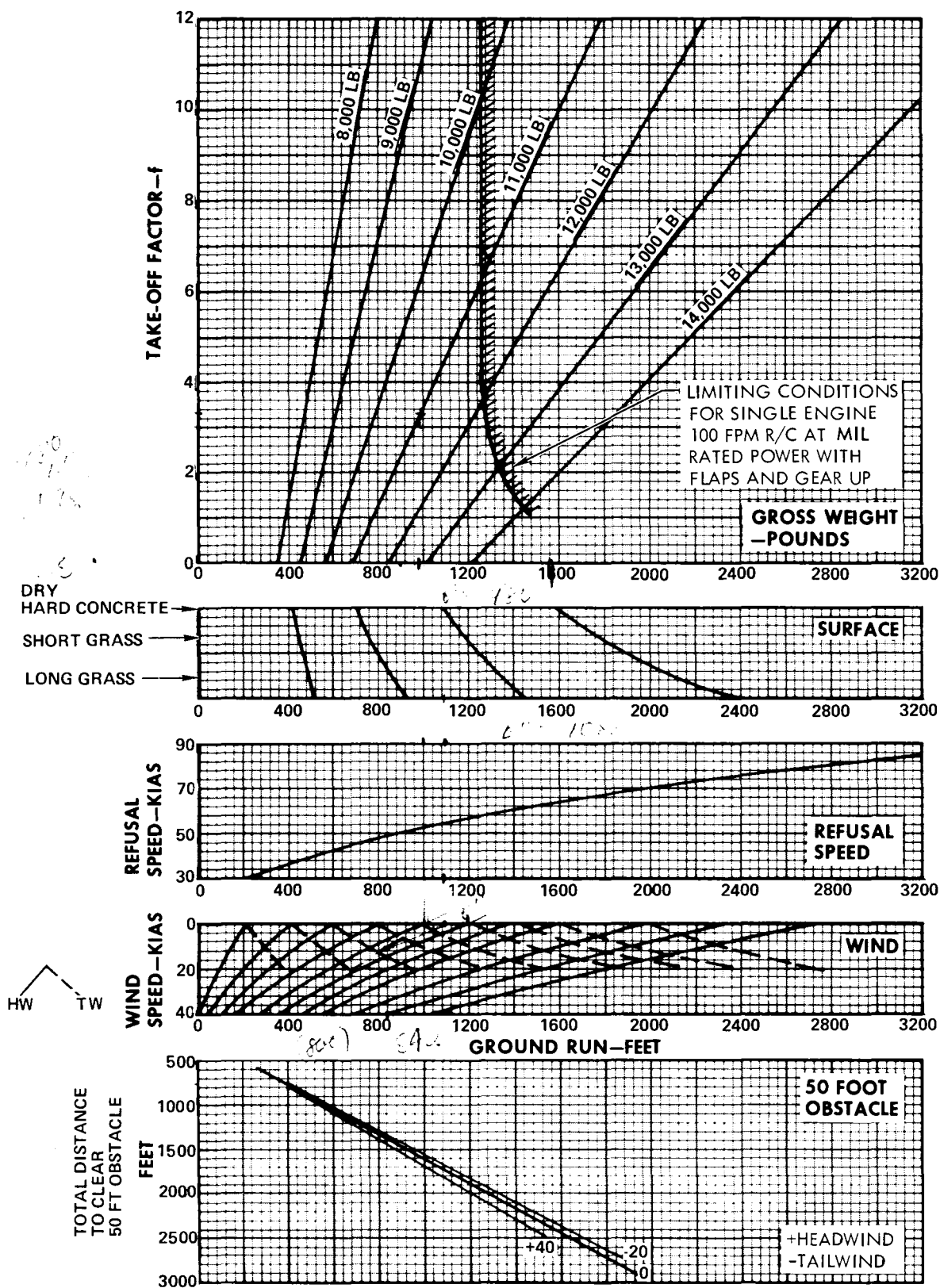


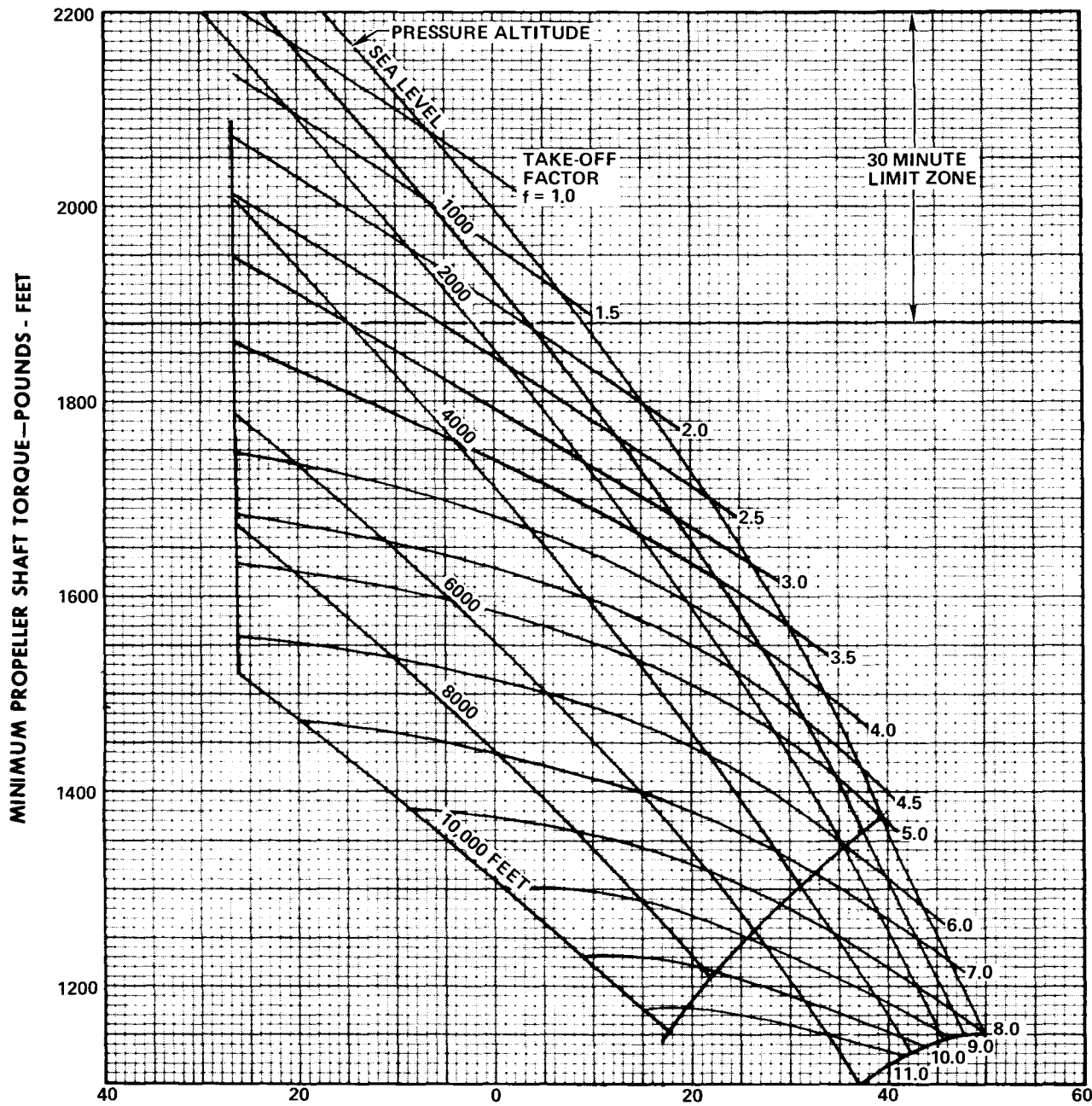
Figure A2-5 (Sheet 2 of 2)

TAKE-OFF DISTANCE – STOL

OPTIMUM PERFORMANCE

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

FLAPS 20°



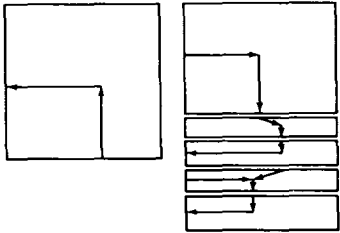
TAKE-OFF SPEED—KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	72
9,000	76
10,000	80
11,000	84
12,000	88
13,000	91
14,000	95

AMBIENT TEMPERATURE ~°C

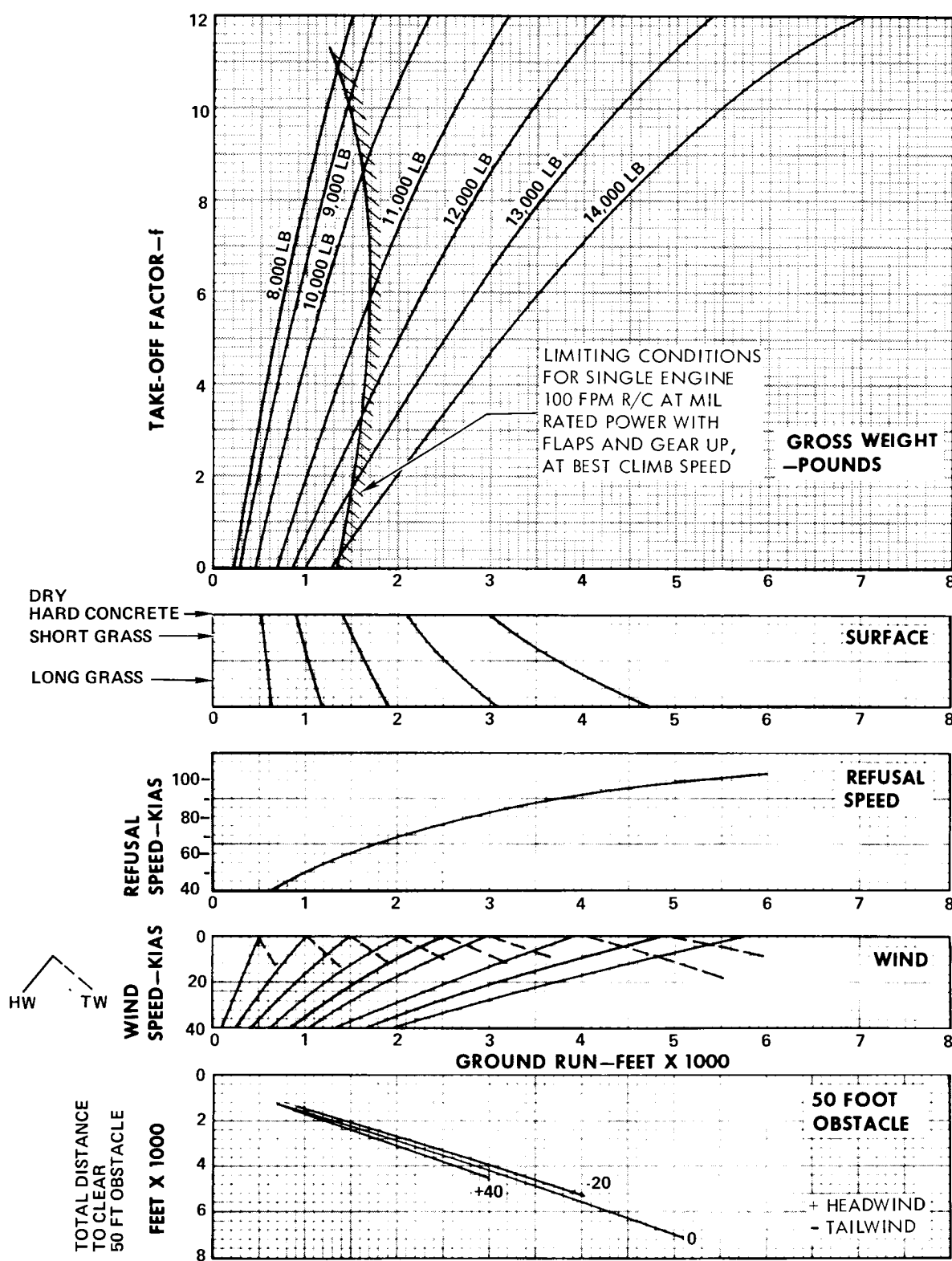
NOTE:
INCREASE GROUND RUN
DISTANCE 4% FOR EACH
ONE PERCENT INCREASE
IN THE RUNWAY SLOPE

EXAMPLE



VA-1-161A

Figure A2-6 (Sheet 1 of 2)

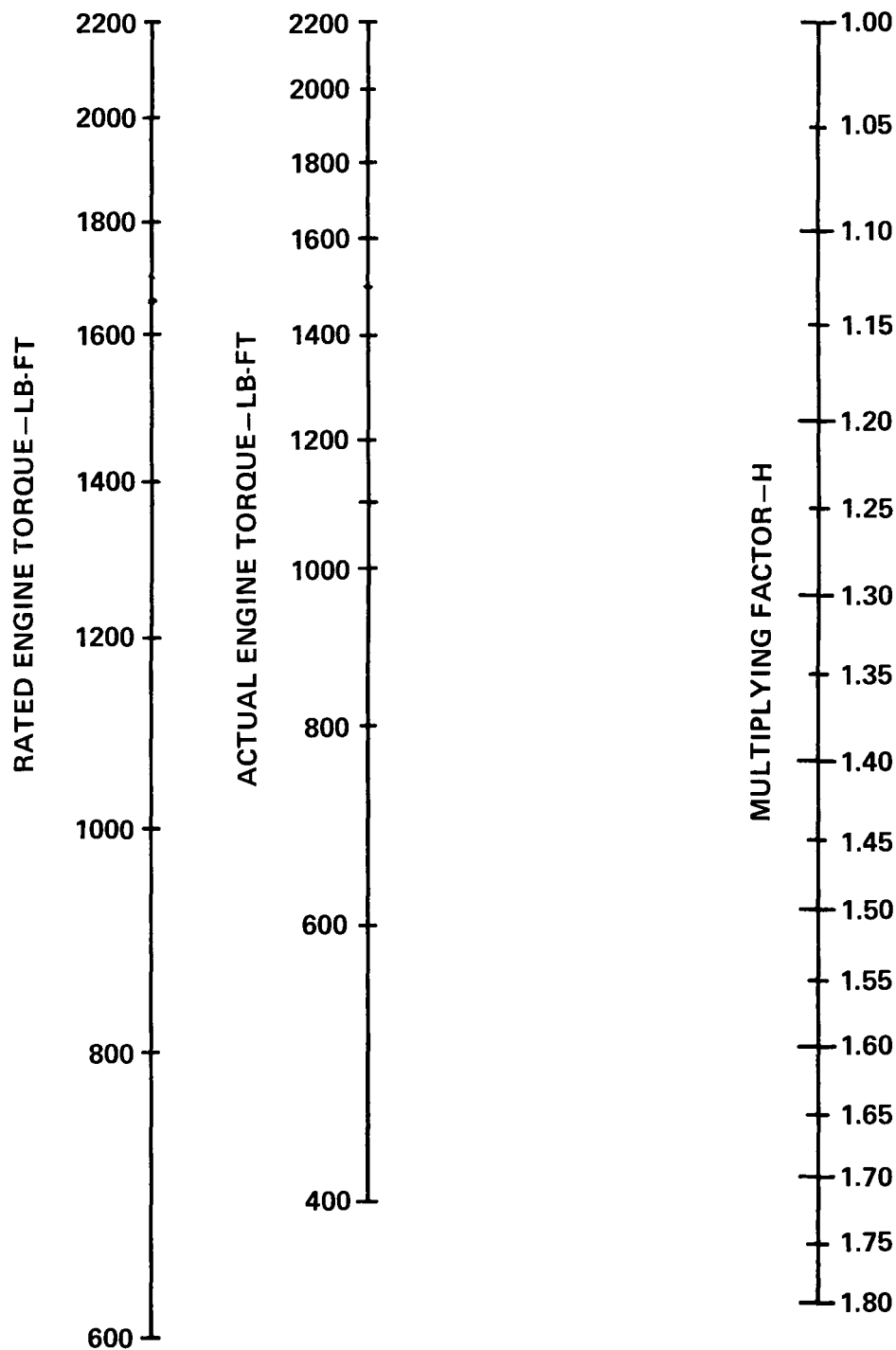


VA-1-162A

Figure A2-6 (Sheet 2 of 2)

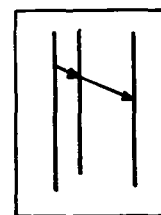
POWER CORRECTION

CORRECTION TO INITIAL TAKE-OFF DISTANCE DUE
TO ENGINE OPERATING BELOW RATED POWER



NOTE:

IF ENGINE TORQUE READING IS DEGRADED IN EXCESS OF 15% OF
RATED VALUE, TAKE-OFF AT HIGH WEIGHT MAY BECOME MARGINAL.



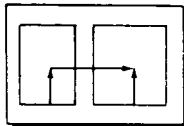
MULTIPLY INITIAL TAKE-OFF DISTANCE BY FACTOR H
TO CORRECT FOR DEFICIENT POWER

Figure A2-7

VA-1-172

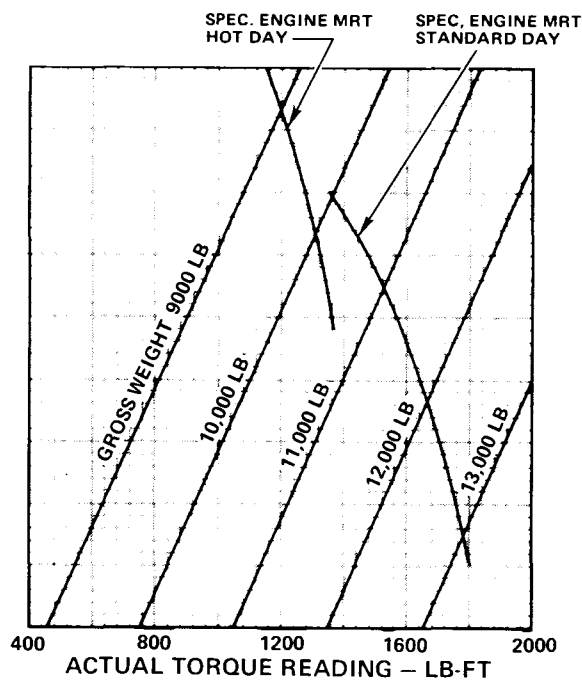
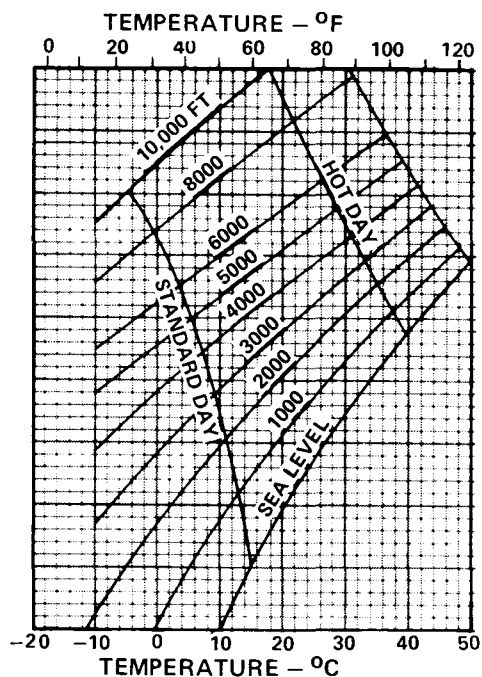
MINIMUM TORQUE READING vs. GROSS WEIGHT TO MAINTAIN 100 FPM RATE-OF-CLIMB

EXAMPLE

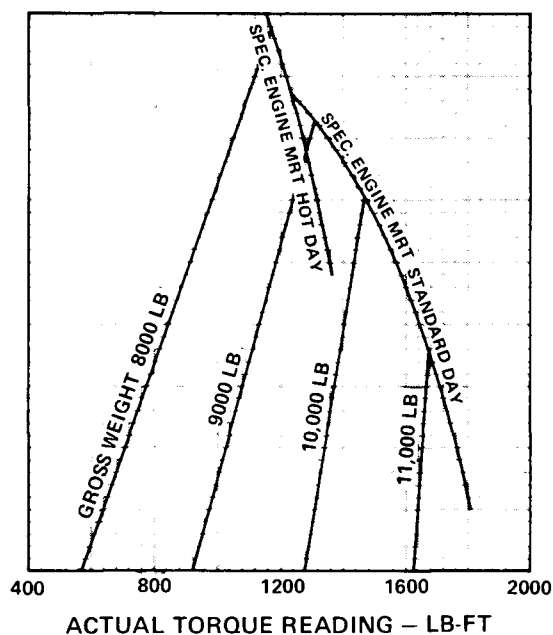
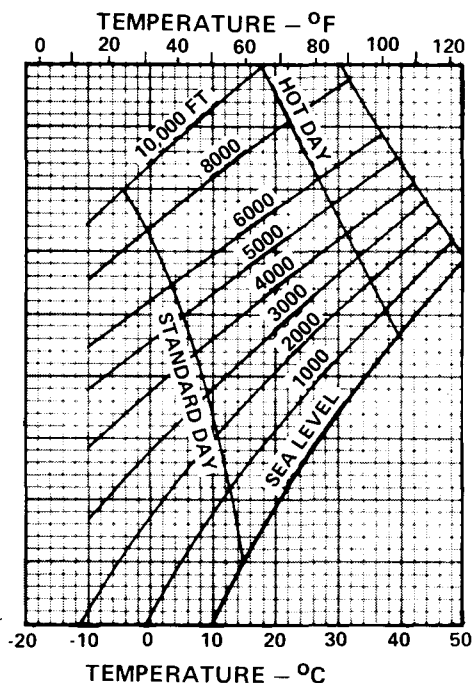


WARNING: AIRPLANE GROSS WEIGHTS IN EXCESS OF THE CHART DETERMINED VALUES INDICATE ONE ENGINE FLYAWAY NOT POSSIBLE (EXTERNAL STORES SHOULD BE DROPPED IF FEASIBLE)

ONE ENGINE OUT, FLAPS AND GEAR UP



ONE ENGINE OUT, FLAPS 20° AND GEAR UP



VA-1-163A

Figure A2-8

CLIMB-OUT FLIGHT PATH (2 ENGINES)

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

MILITARY POWER
SEA LEVEL
STANDARD DAY

FLAPS UP
GEAR DOWN
CLIMB SPEED CONSTANT

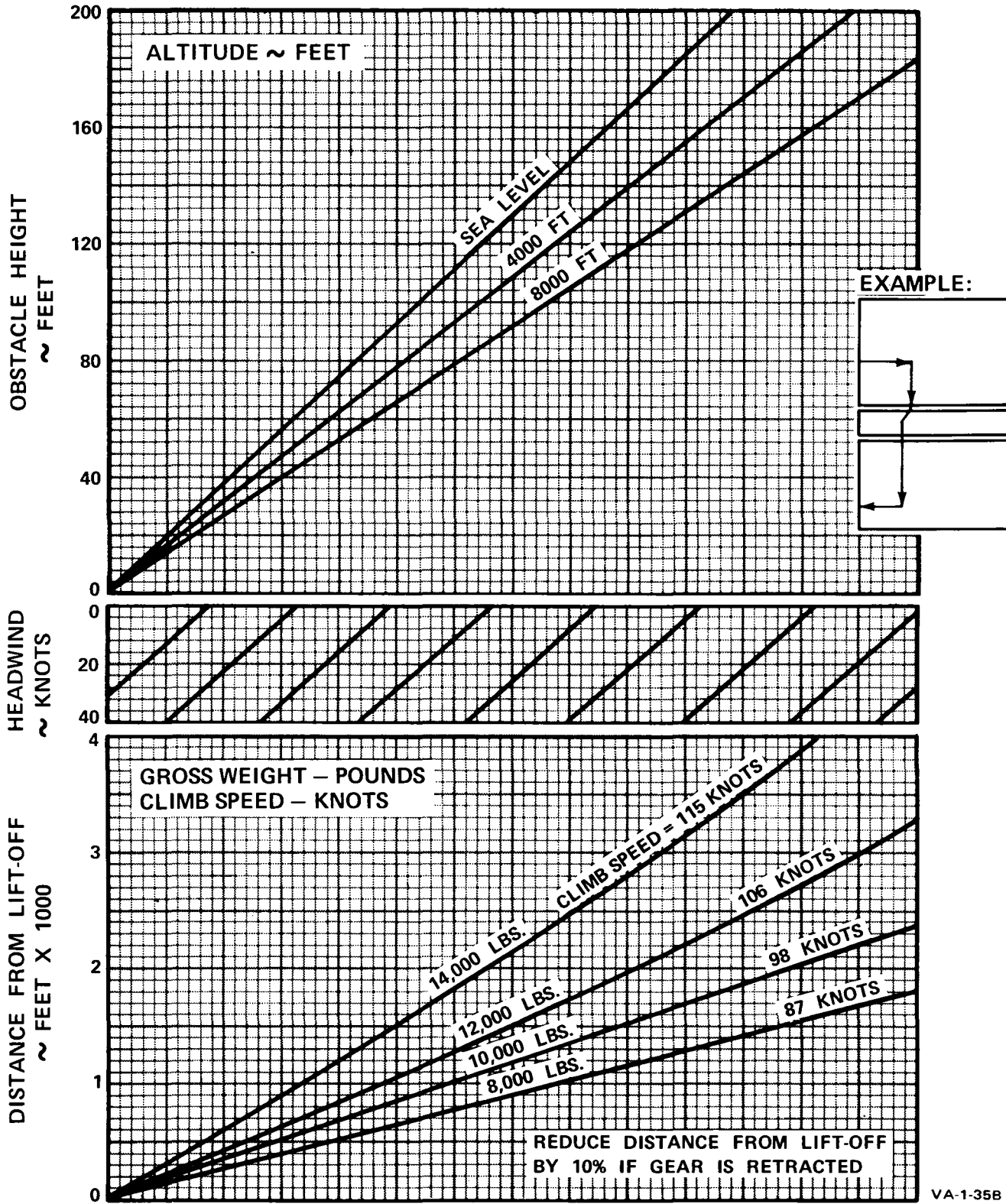


Figure A2-9

VA-1-35B

CLIMB-OUT FLIGHT PATH (2 ENGINES)

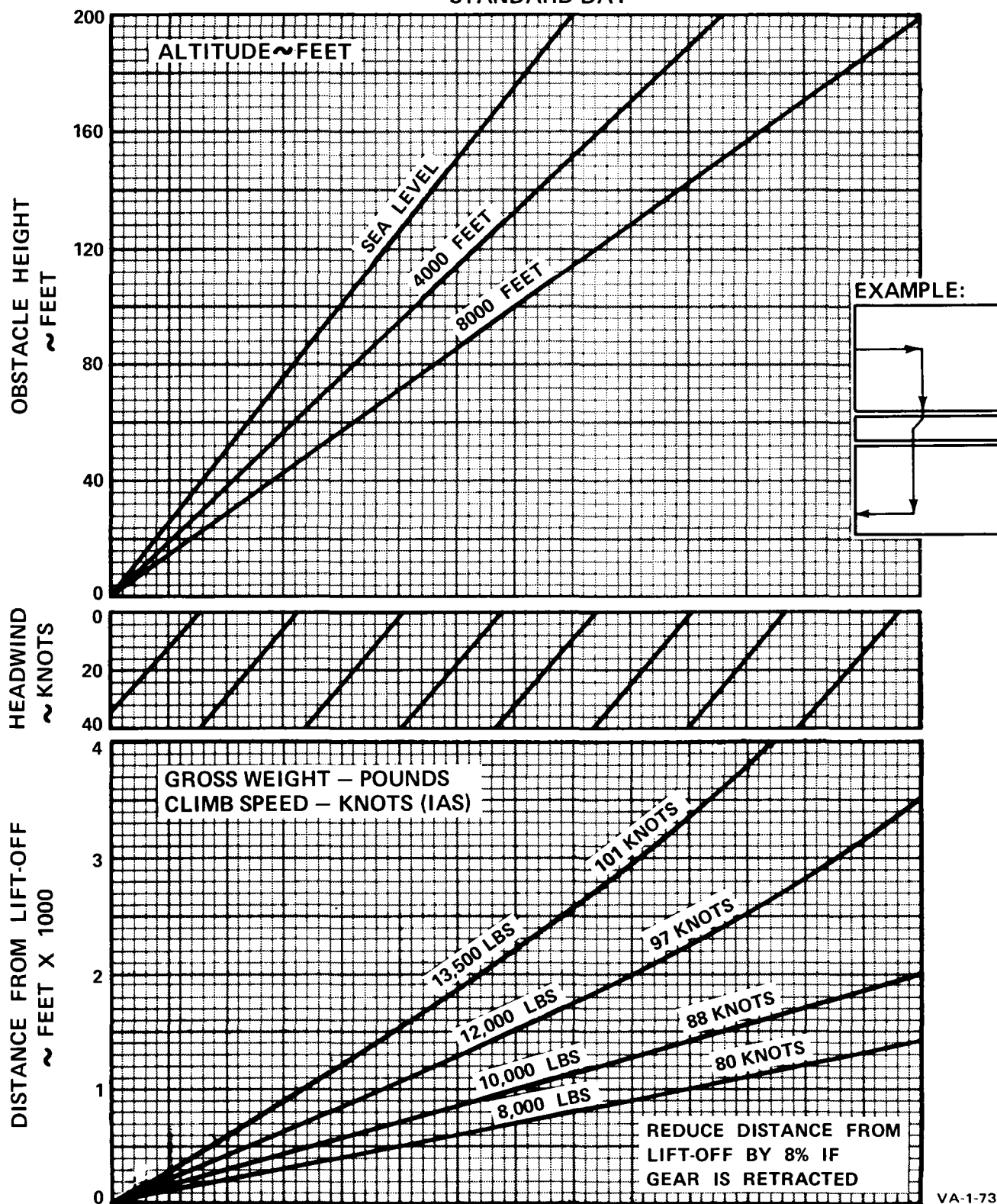
FLAPS 20°

GEAR DOWN

CLIMB SPEED CONSTANT

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

MILITARY POWER
SEA LEVEL
STANDARD DAY



VA-1-73B

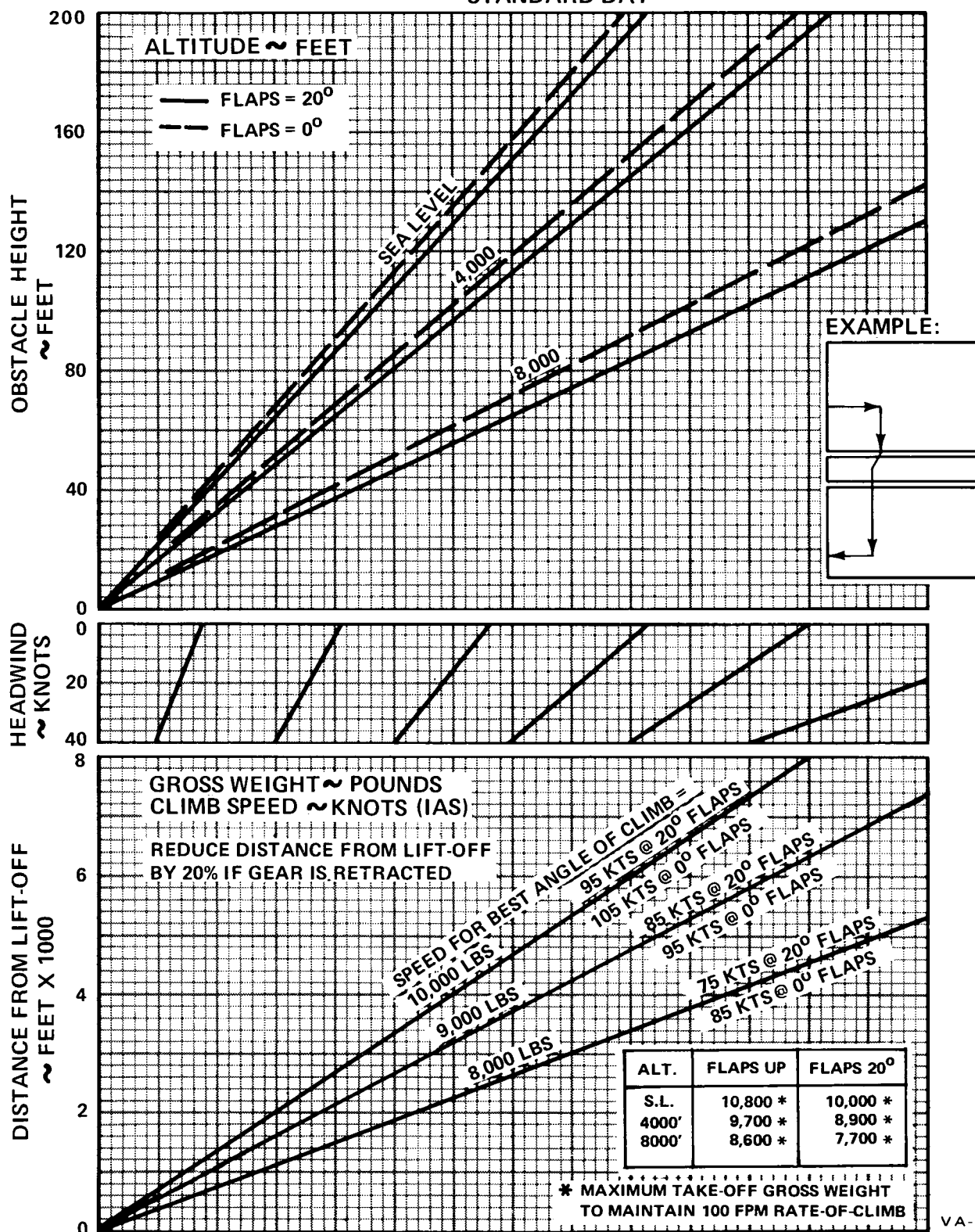
Figure A2-10

SINGLE ENGINE CLIMB-OUT FLIGHT PATH

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 SEPTEMBER 1968

MILITARY POWER
SEA LEVEL
STANDARD DAY

GEAR DOWN
FLAPS UP & 20°
CLIMB SPEED CONSTANT



VA-1-36C

Figure A2-11

TAKE-OFF AND LANDING DATA CARD

From
Latest
Published
Information

Latest
Weather
Data

Calculated

Latest
Weather
Data

From
Take-off
Distance
Charts

From
Landing
Distance
Charts

TAKE-OFF AND LANDING DATA CARD

CONDITIONS

Take-off

Landing

SURFACE LENGTH

TEMPERATURE

PRESSURE ALTITUDE

GROSS WEIGHT

WIND

TAKE-OFF

TORQUE

_____ LB-FT at _____ G.W.

ACCELERATION SPEED CHECK _____ Kts at _____ Feet

TAKE-OFF _____ Kts at _____ Feet

MINIMUM SAFE SINGLE-ENGINE SPEED _____ Kts

LANDING

Immediately
After Take-off

Final
Landing

APPROACH SPEED _____ Kts _____ Kts

GROUND ROLL (IDLE) _____ Feet _____ Feet

GROUND ROLL (REVERSE) _____ Feet _____ Feet

VA-1-75B

Figure A2-12

PART 3—CLIMB DATA**TABLE OF CONTENTS**

Climb Data	A3-1
Climb Charts	A3-1

Aircraft Ceilings	A3-1
-------------------------	------

CLIMB DATA**CLIMB CHARTS** (FIGURES A3-1 THROUGH A3-3)

Time to climb, distance covered, and fuel required at best climb speed during Military, normal power, and single-engine power climb at various gross weights, drag indexes, and ambient temperatures are shown in figures A3-1 through A3-3. Climb data assume that recommended speeds are used.

Military Power Climb Example Problem

Climb from sea level to 15,000 feet:

- Gross Weight—12,000 pounds
- Drag Index—60
- Average Temperature—20°C above standard
- Wind—Zero (average)

1. Time to climb = 16 minutes
2. Distance covered = 42 nautical miles
3. Fuel used = 190 pounds

AIRCRAFT CEILINGS (FIGURES A3-4 THROUGH A3-6)

Optimum cruise ceiling and Military power combat ceiling at various gross weights, drag indexes, and ambient temperatures are shown in figures A3-4 and A3-5. Single-engine service ceiling to maintain a rate of climb of 100 feet per minute in various configurations is shown in figure A3-6. To use these charts, estimate a gross weight at altitude by subtracting climb fuel, and determine a preliminary ceiling. Aircraft gross weight is adjusted for this weight reduction and ceiling is corrected for the new gross weight.

Aircraft Ceiling Example Problem

Find initial optimum cruise ceiling (figure A3-4):

- Gross Weight—12,000 pounds
- Drag Index—60
- Ambient Temperature—10°C above standard (average)

1. Initial cruise ceiling = 15,700 feet
2. Correction for climb fuel = 170 pounds
3. Corrected cruise ceiling = 16,200 feet

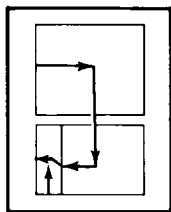
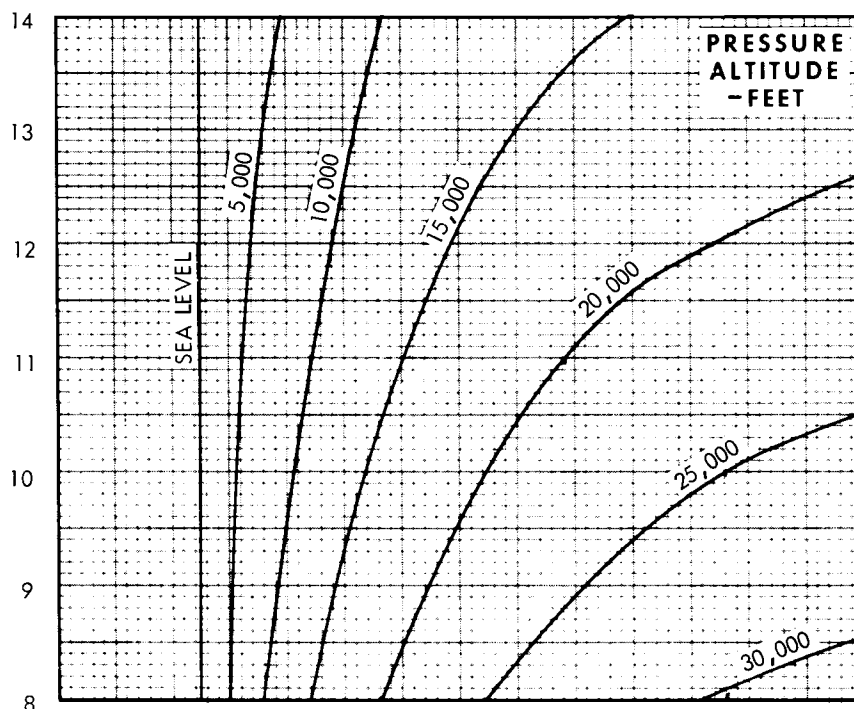
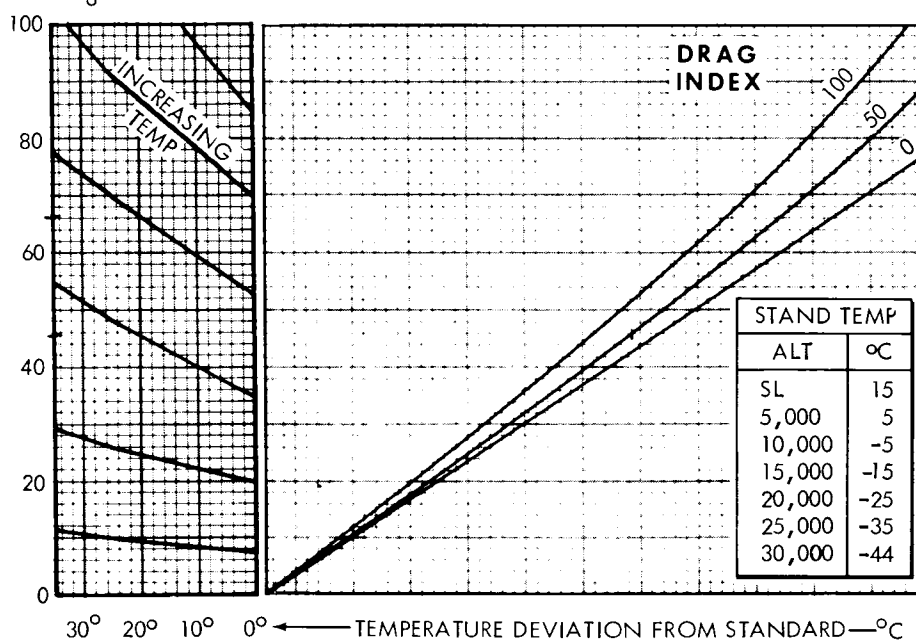
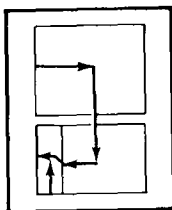
MIL CLIMB DISTANCE**EXAMPLE****GROSS WEIGHT—POUNDS X 1000****DISTANCE—NAUTICAL MILES**

Figure A3-1 (Sheet 2 of 3)

NORMAL POWER CLIMB

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

NORM CLIMB TIME



EXAMPLE

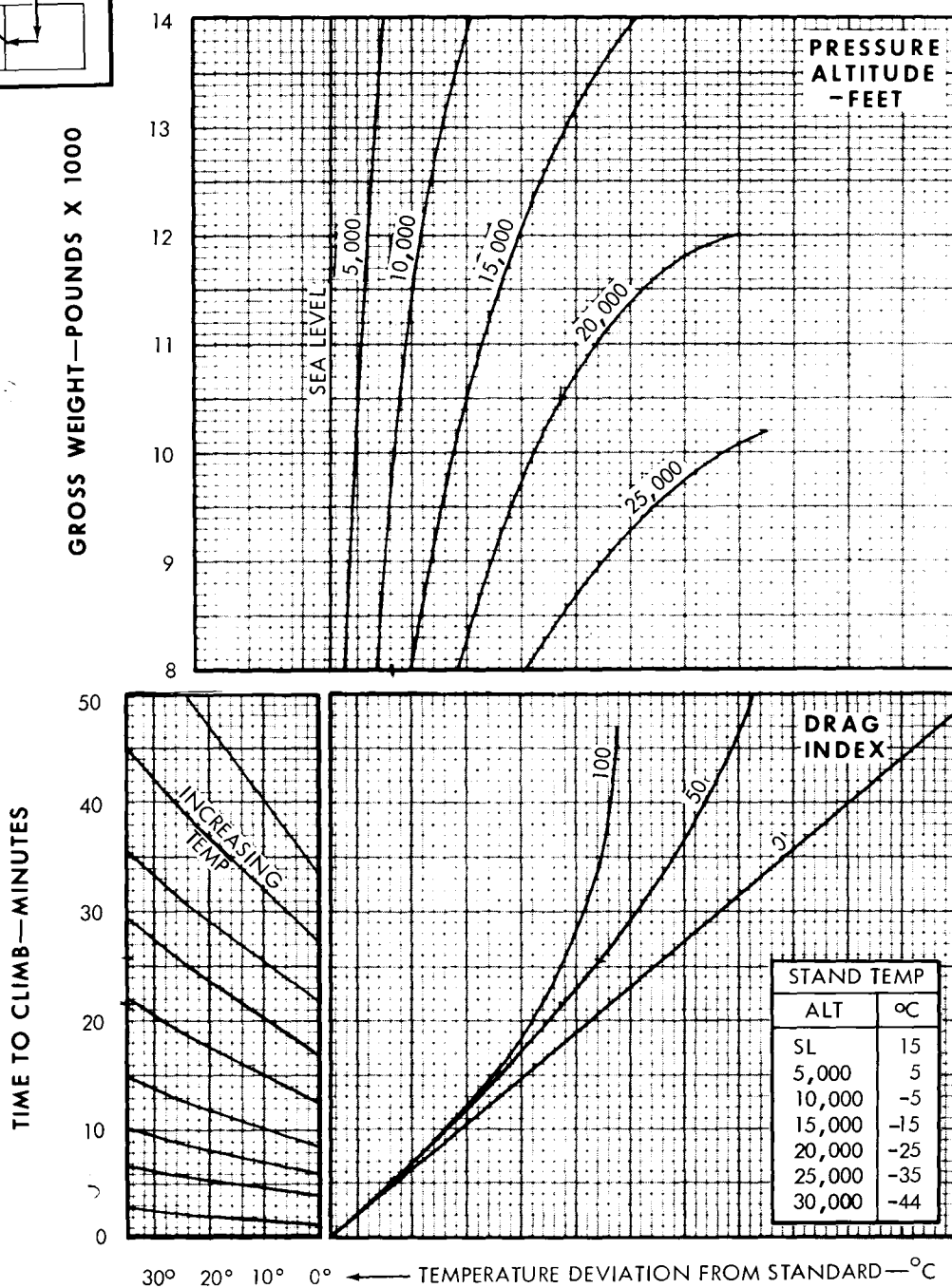
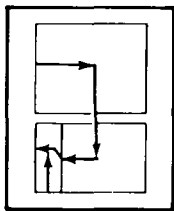


Figure A3-2 (Sheet 1 of 3)

NORMAL POWER CLIMB

NORM CLIMB DISTANCE


EXAMPLE

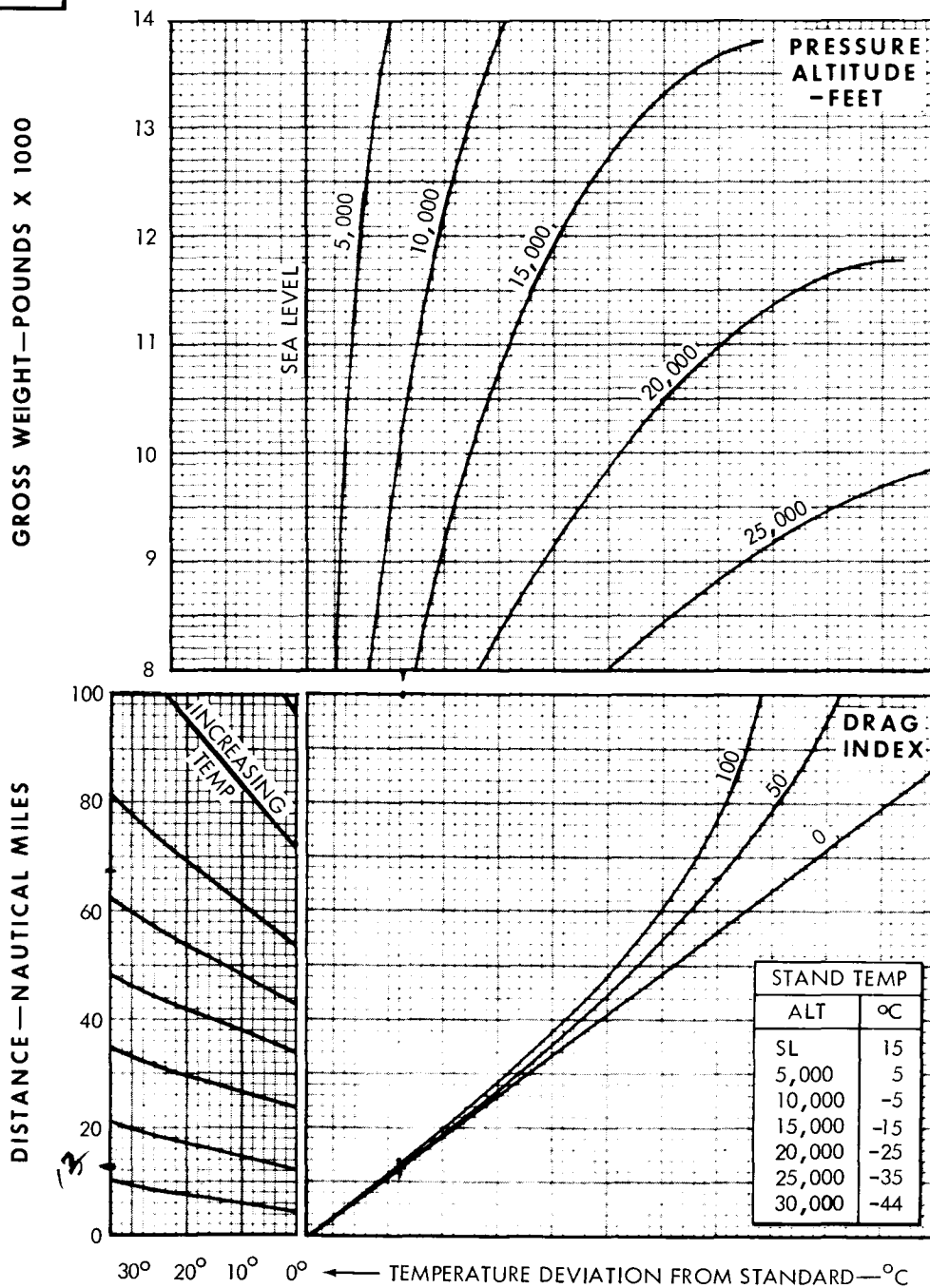
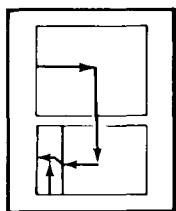


Figure A3-2 (Sheet 2 of 3)

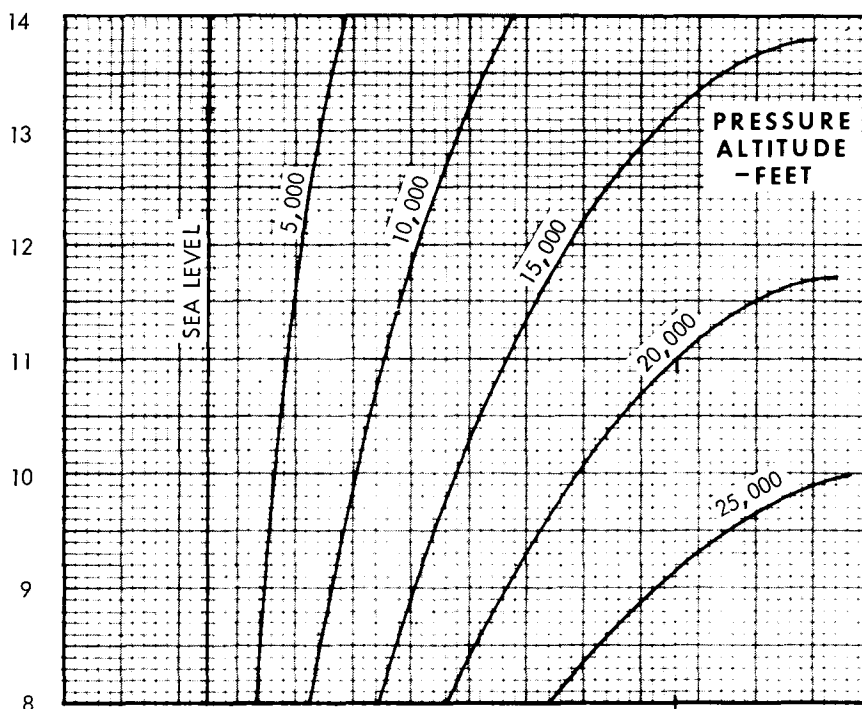
VA-1-100A

NORMAL POWER CLIMB

NORM CLIMB FUEL


EXAMPLE

GROSS WEIGHT—POUNDS X 1000



FUEL USED TO CLIMB—POUNDS

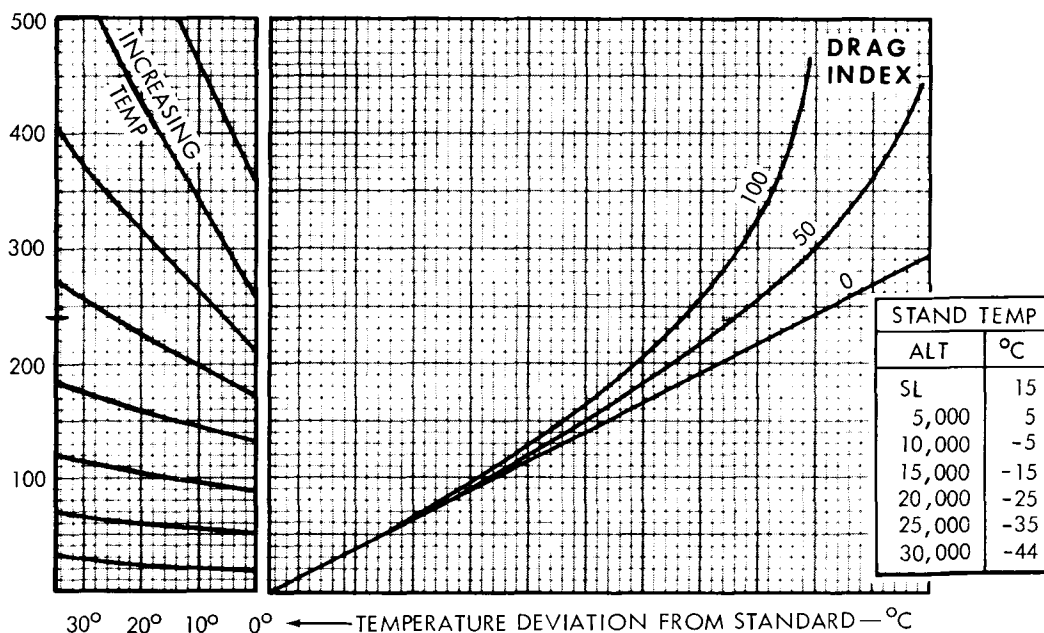
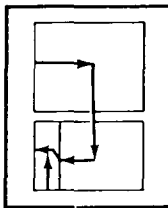


Figure A3-2 (Sheet 3 of 3)

SINGLE ENGINE CLIMB

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

1 ENG CLIMB TIME



EXAMPLE

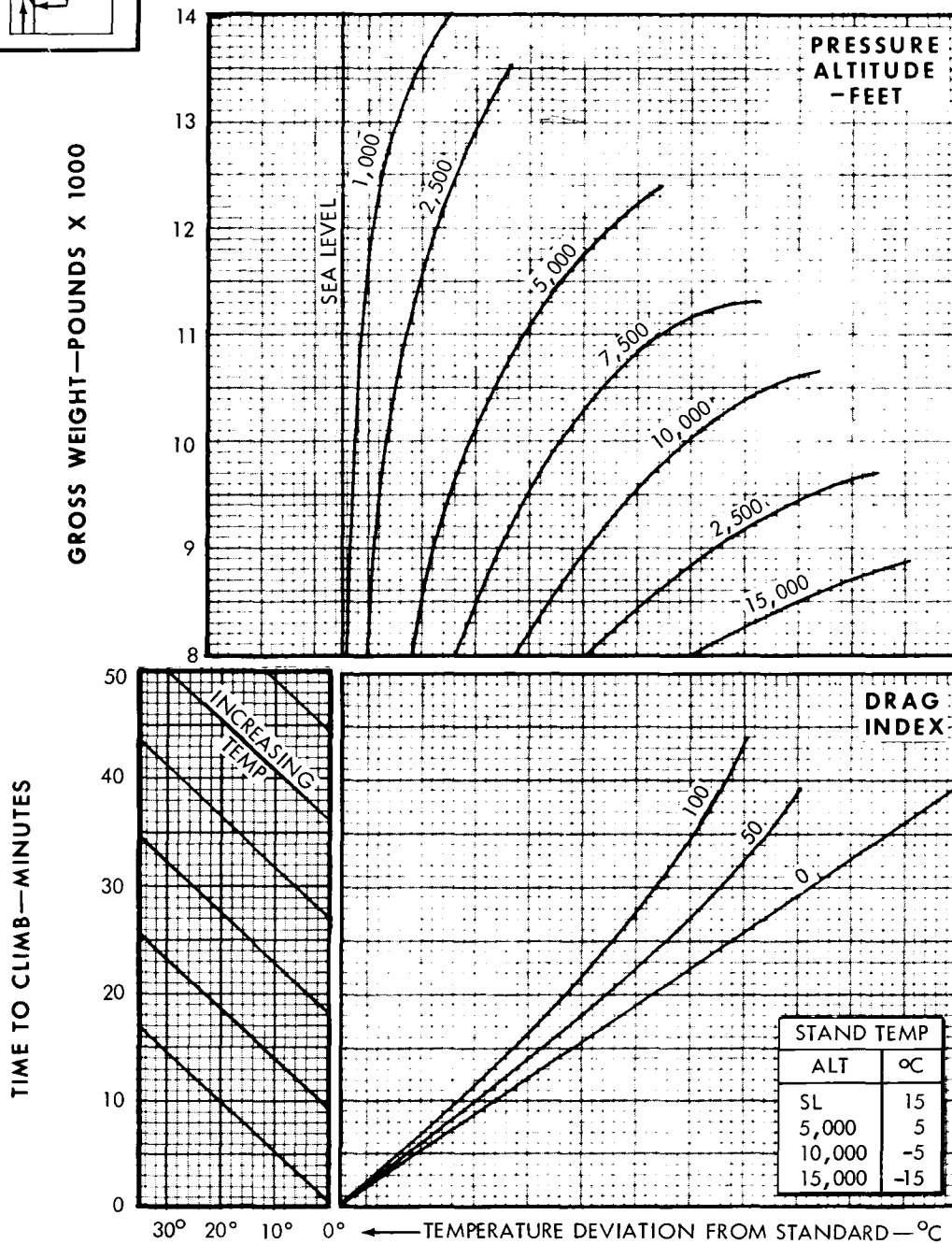


Figure A3-3 (Sheet 1 of 3)

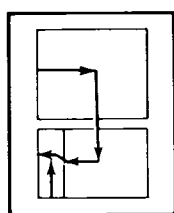
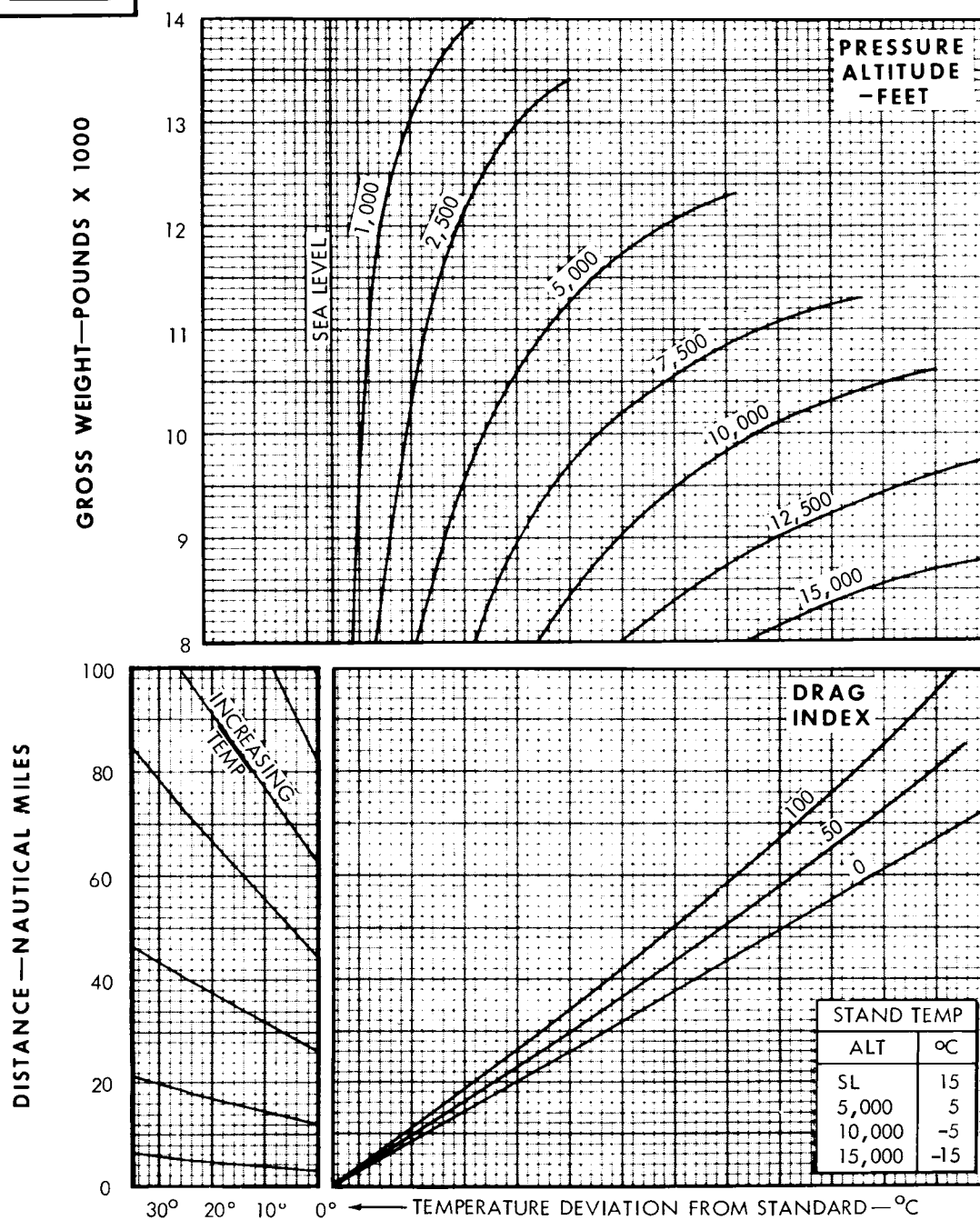
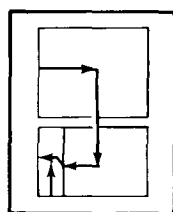
1 ENG CLIMB DIST**EXAMPLE**

Figure A3-3 (Sheet 2 of 3)

SINGLE ENGINE CLIMB

1 ENG CLIMB FUEL


EXAMPLE

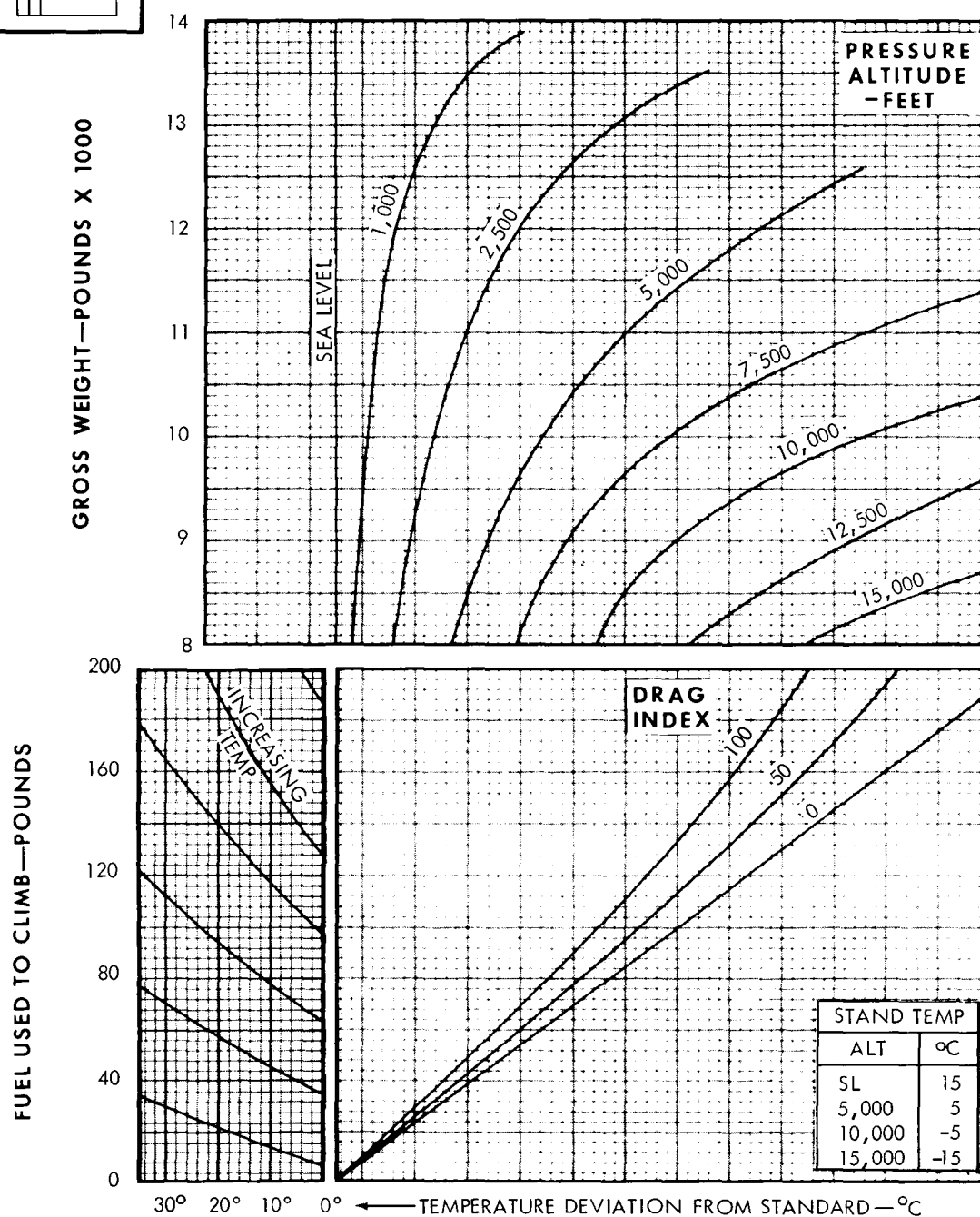


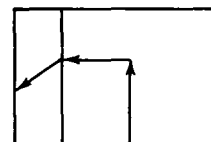
Figure A3-3 (Sheet 3 of 3)

AIRCRAFT CEILINGS

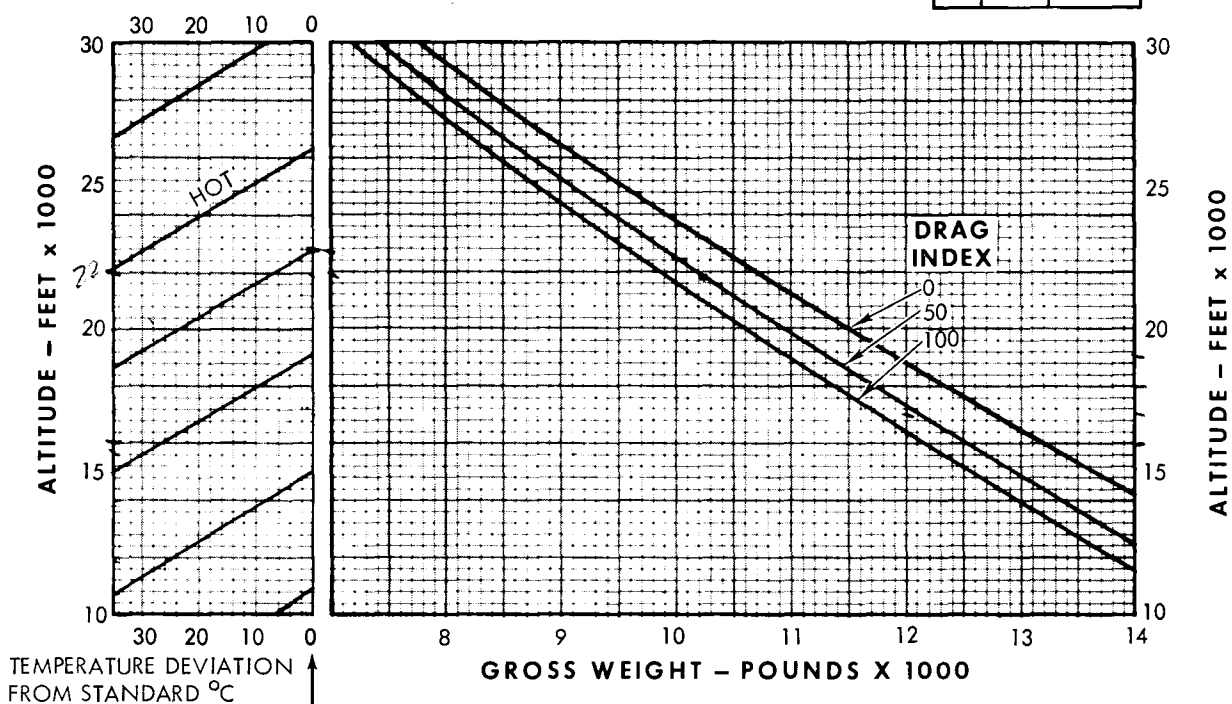
2 ENGINE OPERATION

BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 15 JUNE 1969

EXAMPLE



OPTIMUM CRUISE CEILING



COMBAT CEILING

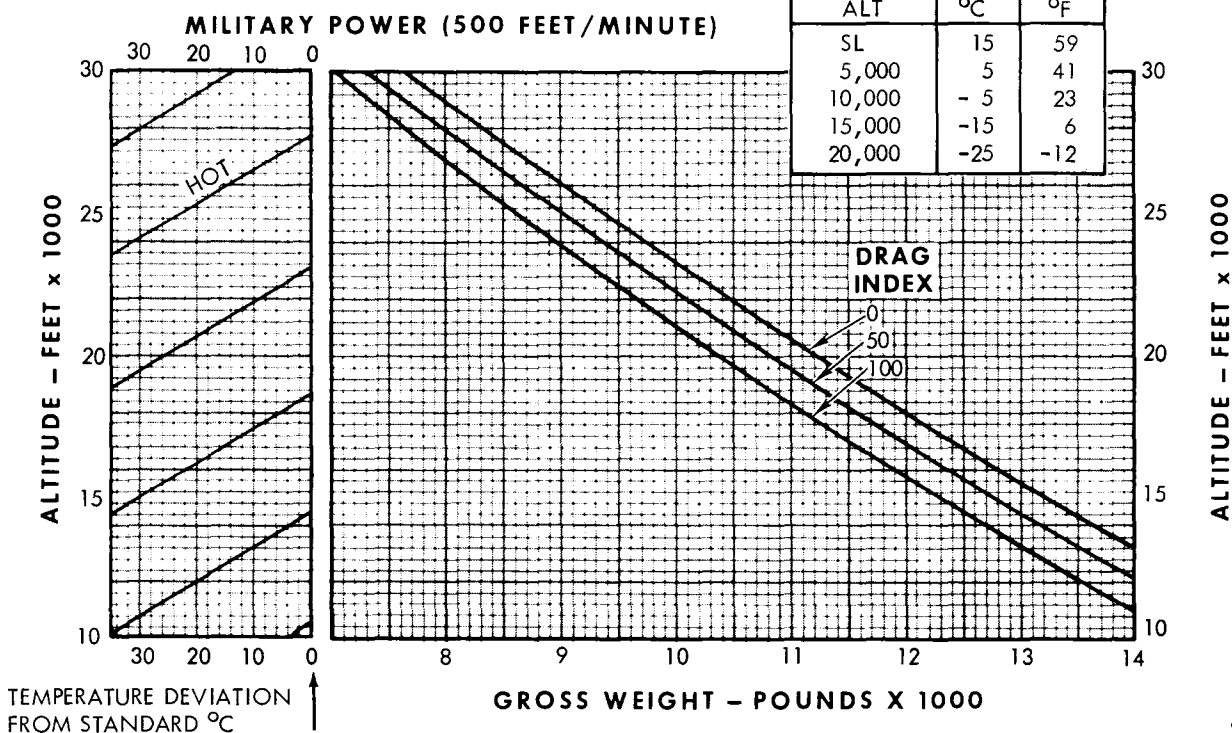


Figure A3-4

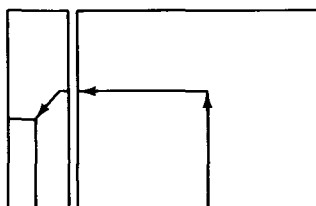
AIRCRAFT CEILINGS

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 NOVEMBER 1969

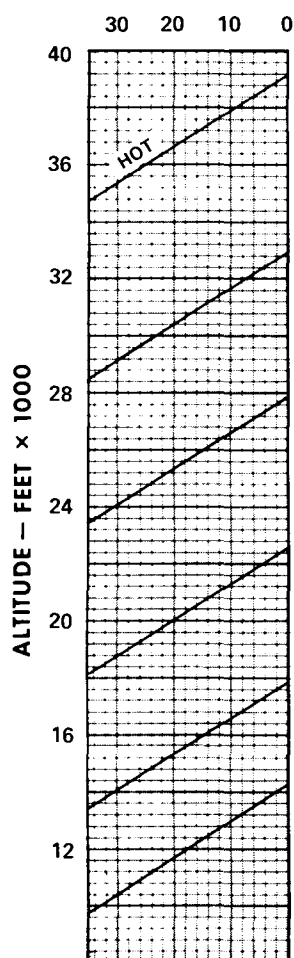
2 ENGINE OPERATION

MILITARY RATED POWER
RATE-OF-CLIMB = 100 FPM

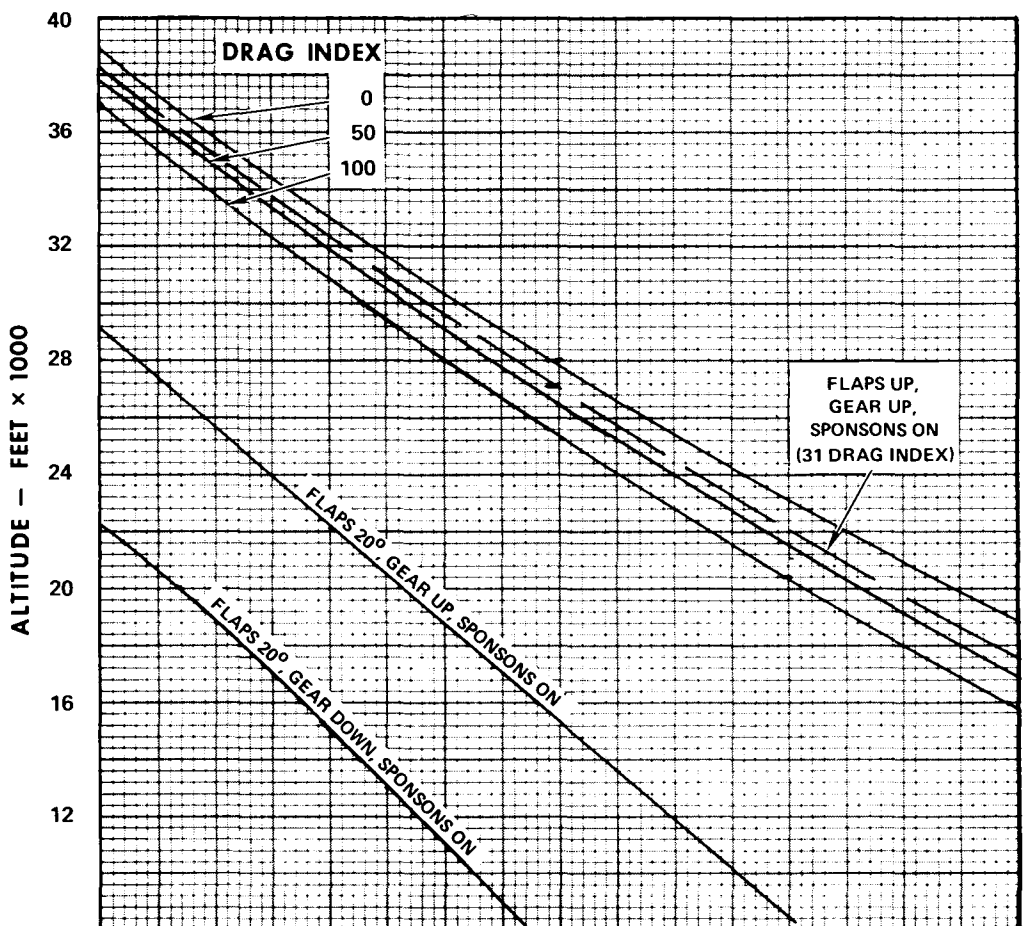
EXAMPLE



SERVICE CEILING



TEMPERATURE
DEVIATION FROM
STANDARD - °C

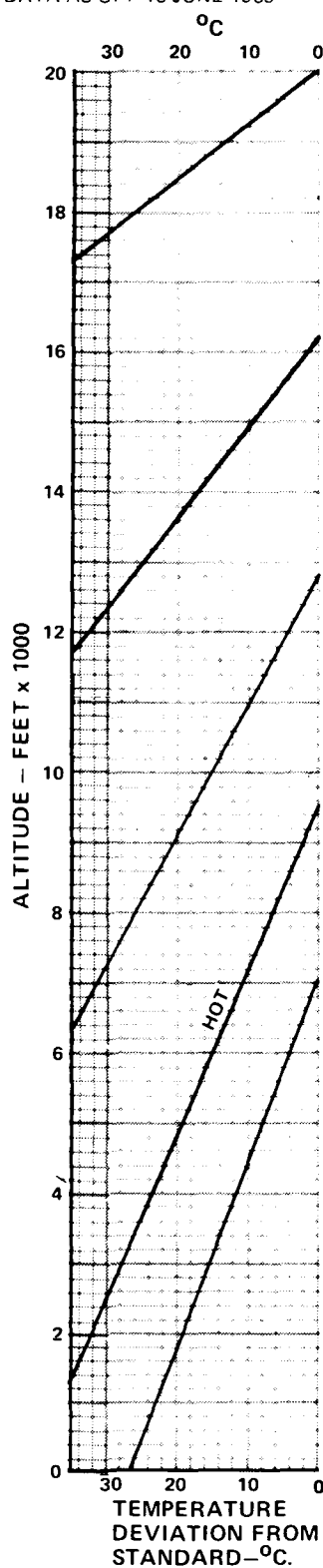


GROSS WEIGHT - POUNDS × 1000

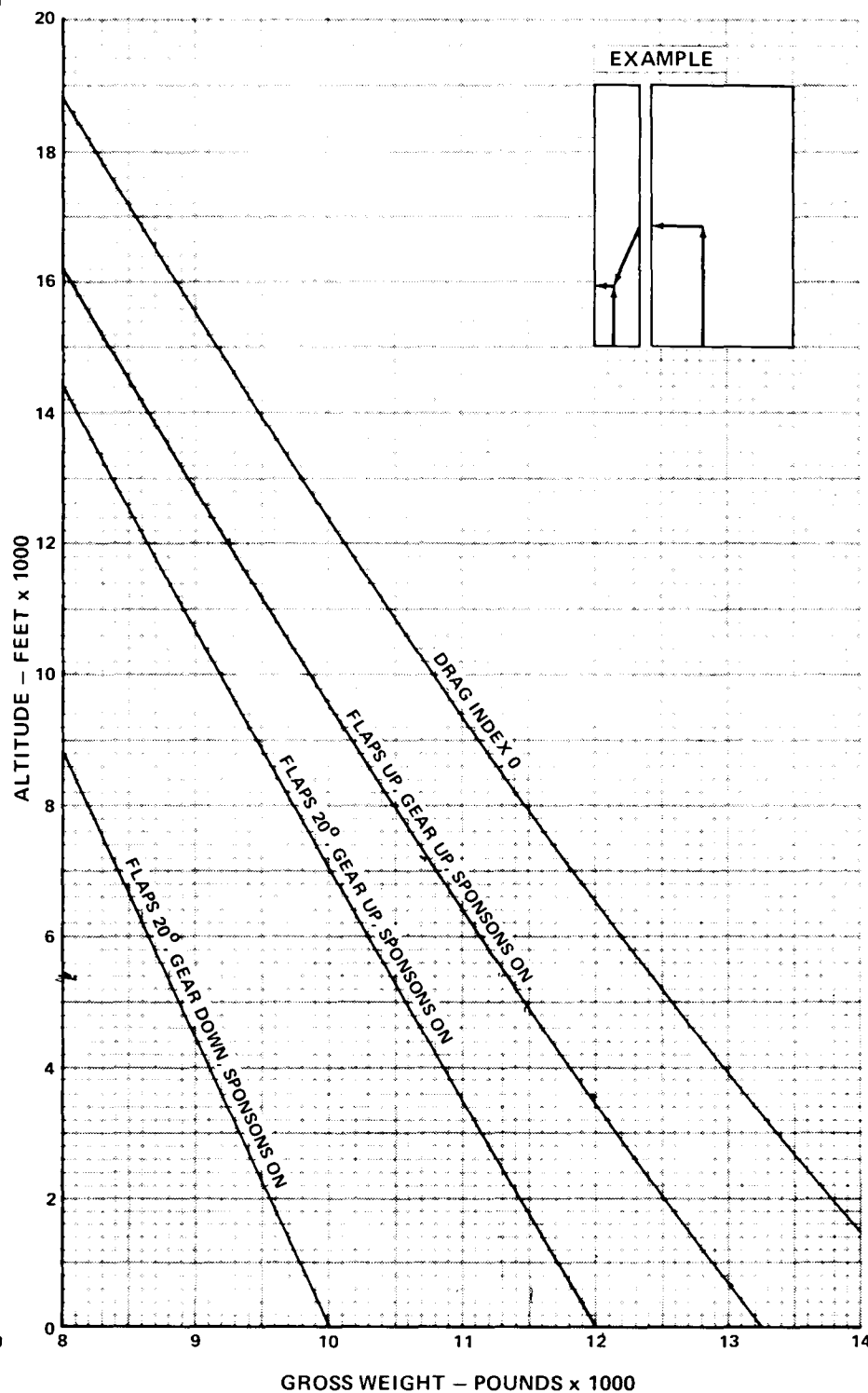
Figure A3-5

AIRCRAFT CEILINGS

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969



SINGLE ENGINE MILITARY RATED POWER RATE-OF-CLIMB = 100 FPM



VA-1-168A

Figure A3-6

PART 4—RANGE DATA

TABLE OF CONTENTS

Range Data	A4-1	Optimum Long-range Cruise Altitude ...	A4-1
Constant-Altitude Cruise	A4-1	Nautical Miles Per 100 Pounds Fuel	A4-2

RANGE DATA

CONSTANT-ALTITUDE CRUISE
(FIGURES A4-1 AND A4-2)

The Constant-altitude Cruise charts (figures A4-1 and A4-2) may be used in preflight planning to determine speeds, fuel and time requirements for navigational flights or preplanned missions. An average gross weight may be used for a given leg, or instantaneous data may be extracted. A standard temperature block is provided for use in determining deviation based on reported temperature at flight altitude.

Constant-altitude Cruise Example Problem

Find fuel and time required for a 200-nautical mile leg:

- Gross Weight—10,000 pounds
- Cruise Altitude—10,000 feet
- Drag Index—60 (use 50 Drag Index line)
- Ambient Temperature—10 °C above standard
- Wind—28 knots (headwind)

1. Best cruise CAS = 162 knots
2. Ground nautical miles per 100 pounds fuel = 31.0
3. Fuel quantity = 620 pounds
4. Time required = 69 minutes

OPTIMUM LONG-RANGE
CRUISE ALTITUDE (FIGURE A4-3)

During preflight planning, pilots are often faced with the task of determining what altitude should be used to obtain maximum range. This requires

detailed examination of reported or forecast wind information, then computation of best altitude as a function of ground speed. The Optimum Cruise Altitude chart (figure A4-3) permits rapid determination of best long-range cruise altitude for prevailing winds aloft. To use the chart, superimpose a plot of known effective headwind or tailwind values on the grid, then pick the altitude depicting maximum specific range (nautical miles per 100 pounds fuel).

Note

Figure A4-3 is designed for the long-range (ferry) configuration (sponsons removed), centerline pylon and 150-gallon drop tank installed: Drag Index = 28.5.

Optimum Cruise Altitude Example Problem

Find best cruise altitude for the following en route wind structure:

Altitude (Feet)	Wind
Surface	10 knots tail
5,000	8 knots tail
10,000	Zero
14,000	8 knots head
16,000	17 knots head
18,000	30 knots head
20,000	50 knots head

By examining the wind curve, it is seen that best range will result at approximately 14,000 feet (approximately 40 nautical miles per 100 pounds fuel).

NAUTICAL MILES PER 100 POUNDS FUEL (FIGURES A4-4 THROUGH A4-14)

Specific range data is provided for altitudes from sea level through 25,000 feet at Drag Indexes 0, 50, and 100. These charts may be used to determine instantaneous planning data and initial engine rpm required to obtain a specified true airspeed under Standard Day conditions. See figures A4-4 through A4-14.

Nautical Miles per 100 Pounds Fuel Example Problem

Find the best cruise data for 5000 feet:

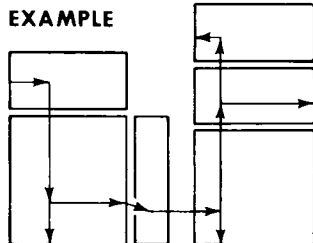
- Gross Weight—10,000 pounds
- Drag Index—60 (use nearest Drag Index chart; in this example, 50 Drag Index line)
- Enter Drag Index 50 chart for 5000 feet (figure A4-7)
 1. CAS = 172 knots
 2. TAS = 186 knots
 3. Fuel flow = 555 pounds per hour
 4. Nautical miles per 100 pounds fuel = 34.0
 5. RPM = 93%

CONSTANT ALTITUDE CRUISE

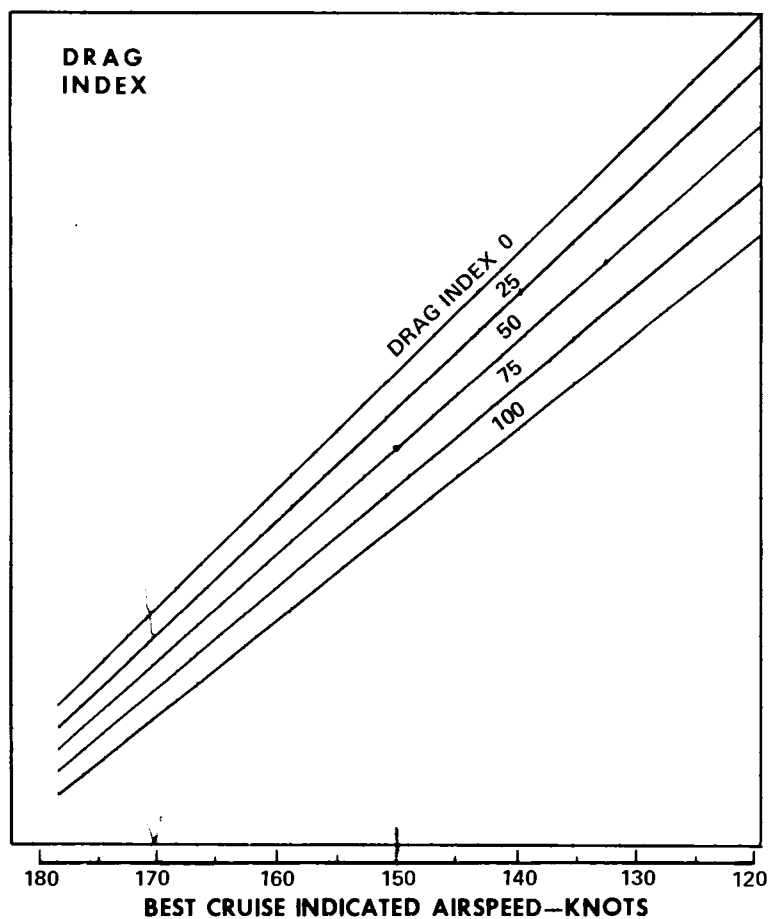
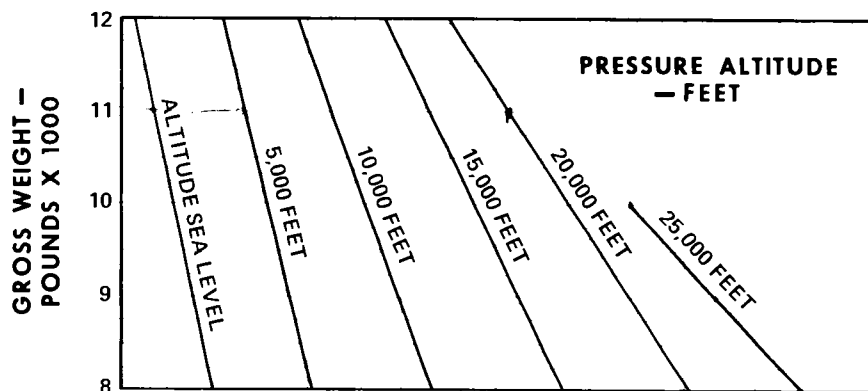
BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 15 JUNE 1969

**MAXIMUM RANGE
SPEED, FUEL AND TIME**

EXAMPLE



STANDARD TEMPERATURE		
ALTITUDE (FT)	°F	°C
S.L.	59	15
5,000	41	5
10,000	23	-5
15,000	6	-15
20,000	-12	-25



TEMP DEVIATION
FROM STANDARD °C

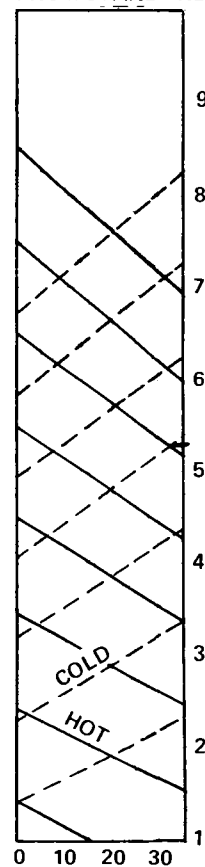


Figure A4-1 (Sheet 1 of 2)

VA-1-86C

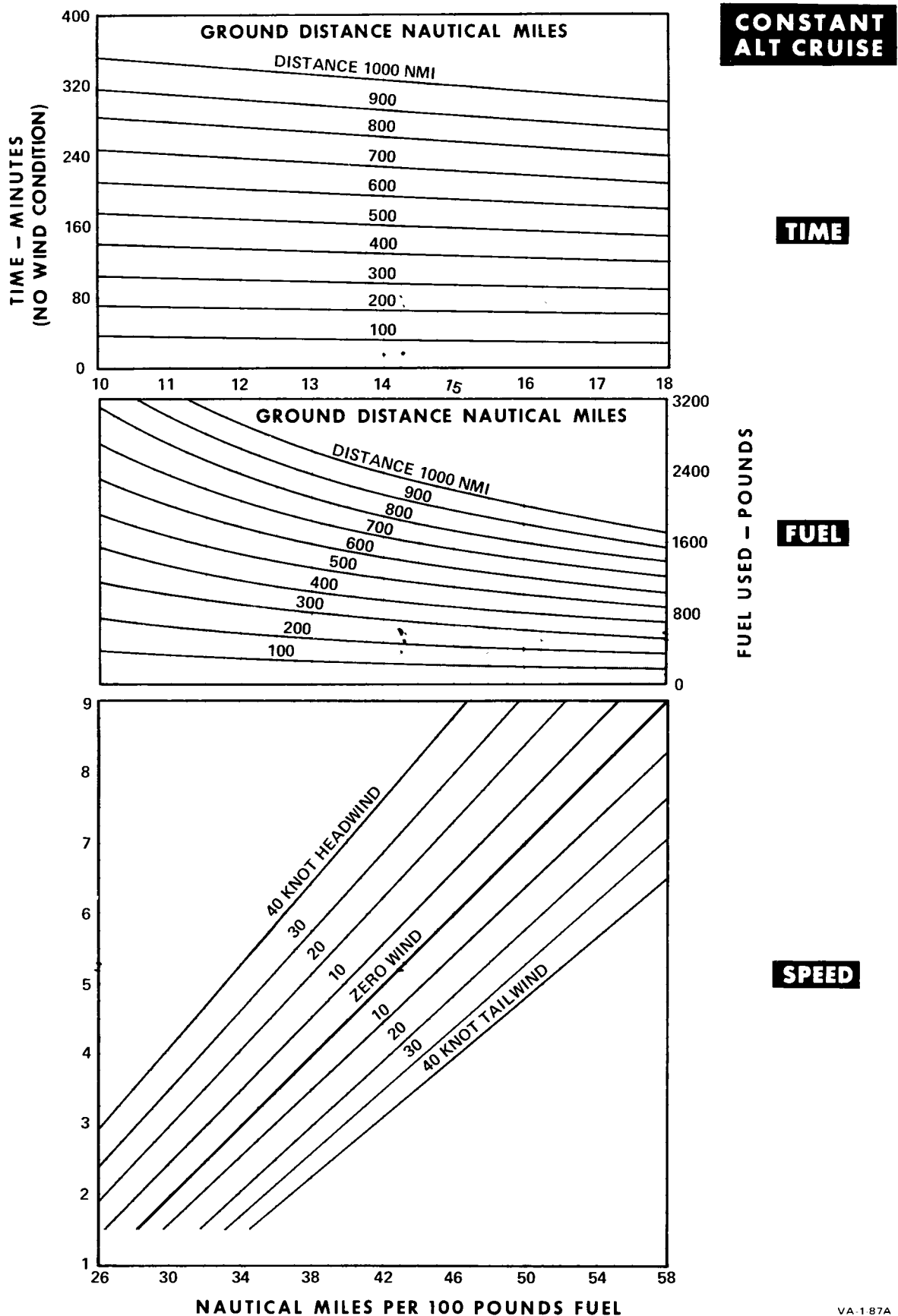


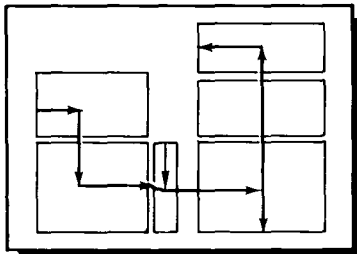
Figure A4-1 (Sheet 2 of 2)

SINGLE - ENGINE CONSTANT ALTITUDE CRUISE

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

MAXIMUM RANGE
SPEED, FUEL AND TIME

EXAMPLE



STANDARD TEMPERATURE		
ALTITUDE (FT)	°F	°C
S. L.	59	15
5,000	41	5
10,000	23	-5
15,000	6	-15
20,000	-12	-25

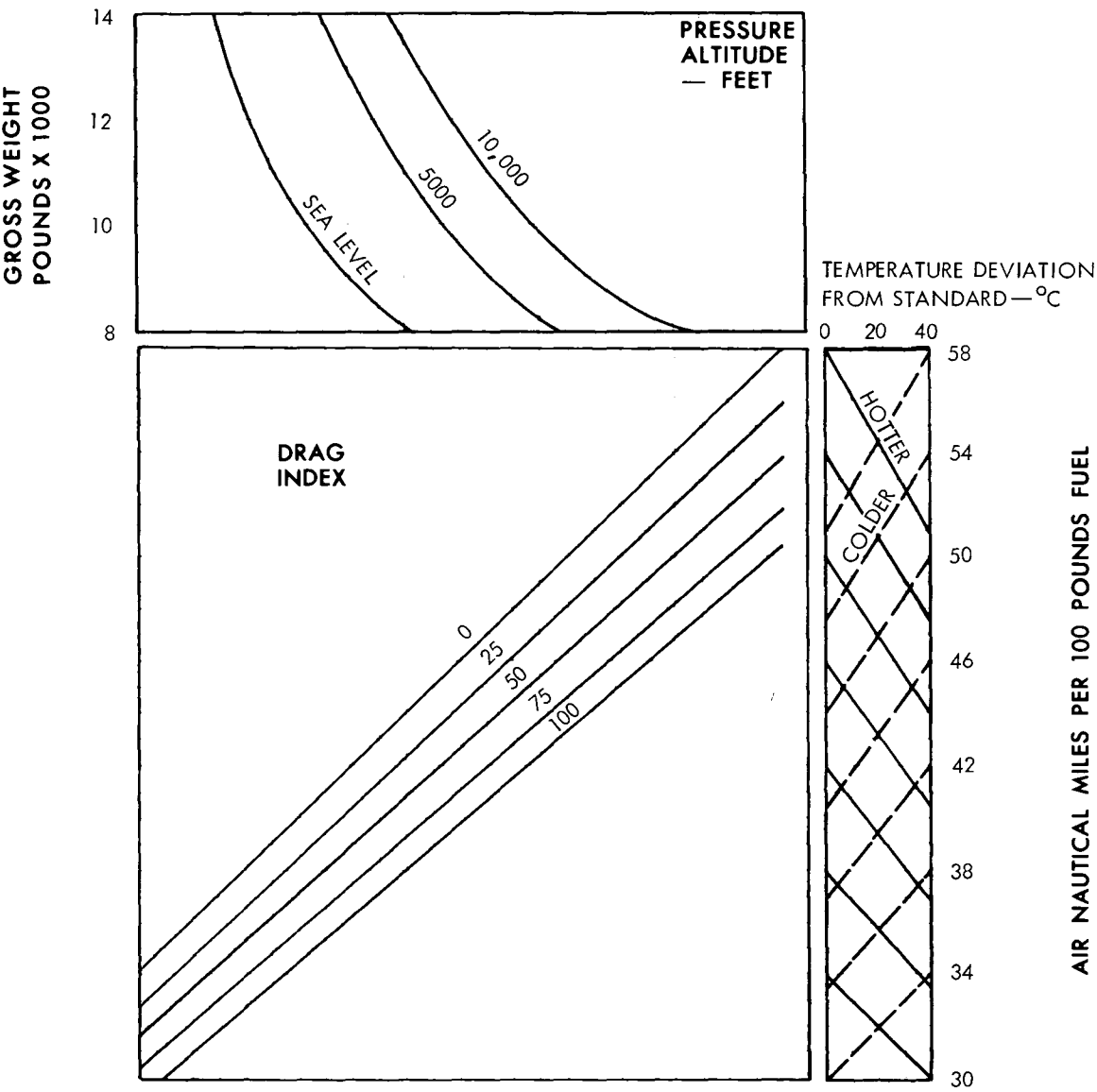
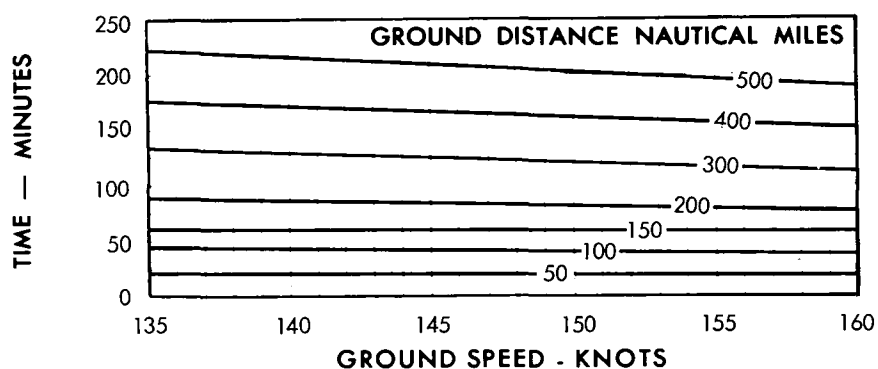
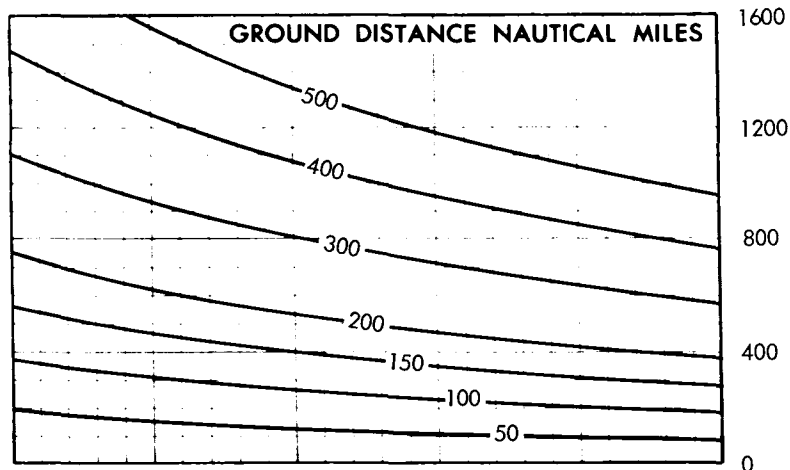


Figure A4-2 (Sheet 1 of 2)

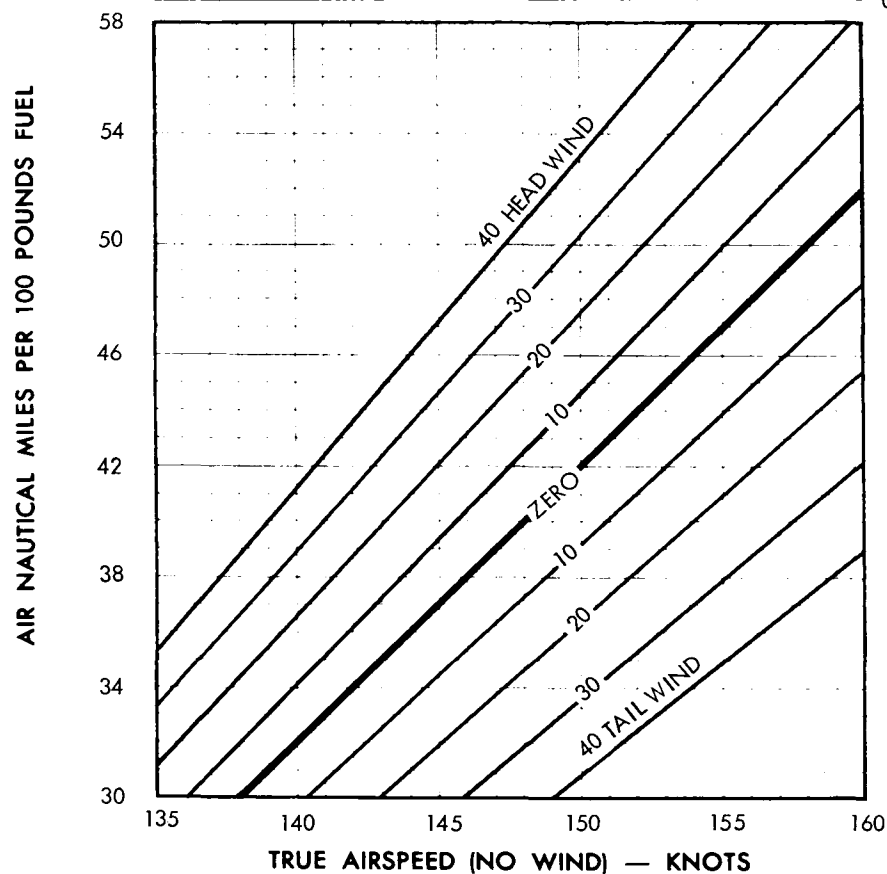


**1 ENGINE CONST
ALT CRUISE**

TIME



FUEL



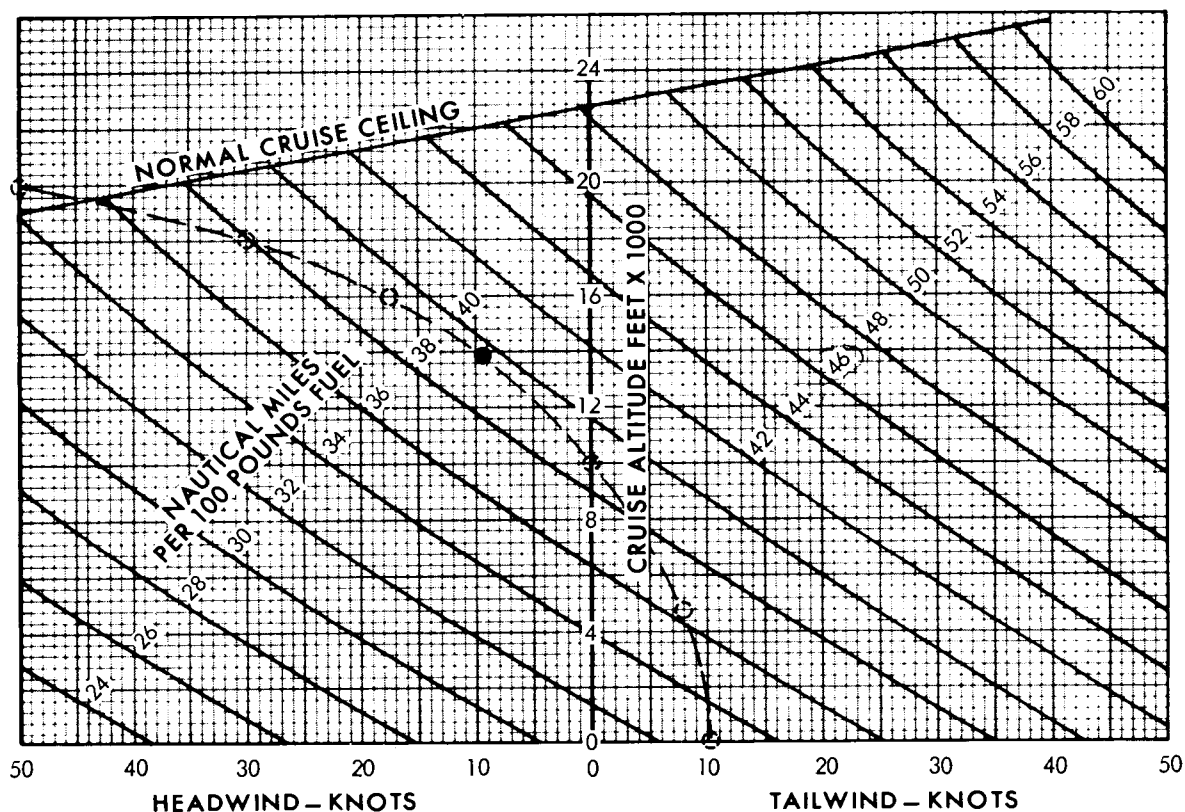
SPEED

Figure A4-2 (Sheet 2 of 2)

OPTIMUM CRUISE ALTITUDE

CL PYLON AND 150 GALLON
DROP TANK ONLY
DRAG INDEX = 28.5

AVERAGE GROSS WEIGHT
10,000 POUNDS



NOTE: • FOR DIFFERENT GROSS WEIGHTS, REDUCE NM/100 POUNDS 5% PER 1000 POUNDS (HEAVIER) OR INCREASE 5% PER 1000 POUNDS (LIGHTER)
• FOR OPTIMUM CRUISE SPEED, INCREASE ZERO - WIND TRUE AIRSPEED 0.5 KNOT FOR EACH KNOT HEADWIND, AND REDUCE 0.5 KNOT FOR EACH KNOT TAILWIND

VA-1-112A

Figure A4-3

NAUTICAL MILES PER 100 POUNDS FUEL

DRAG 0

MODEL: OV-10A

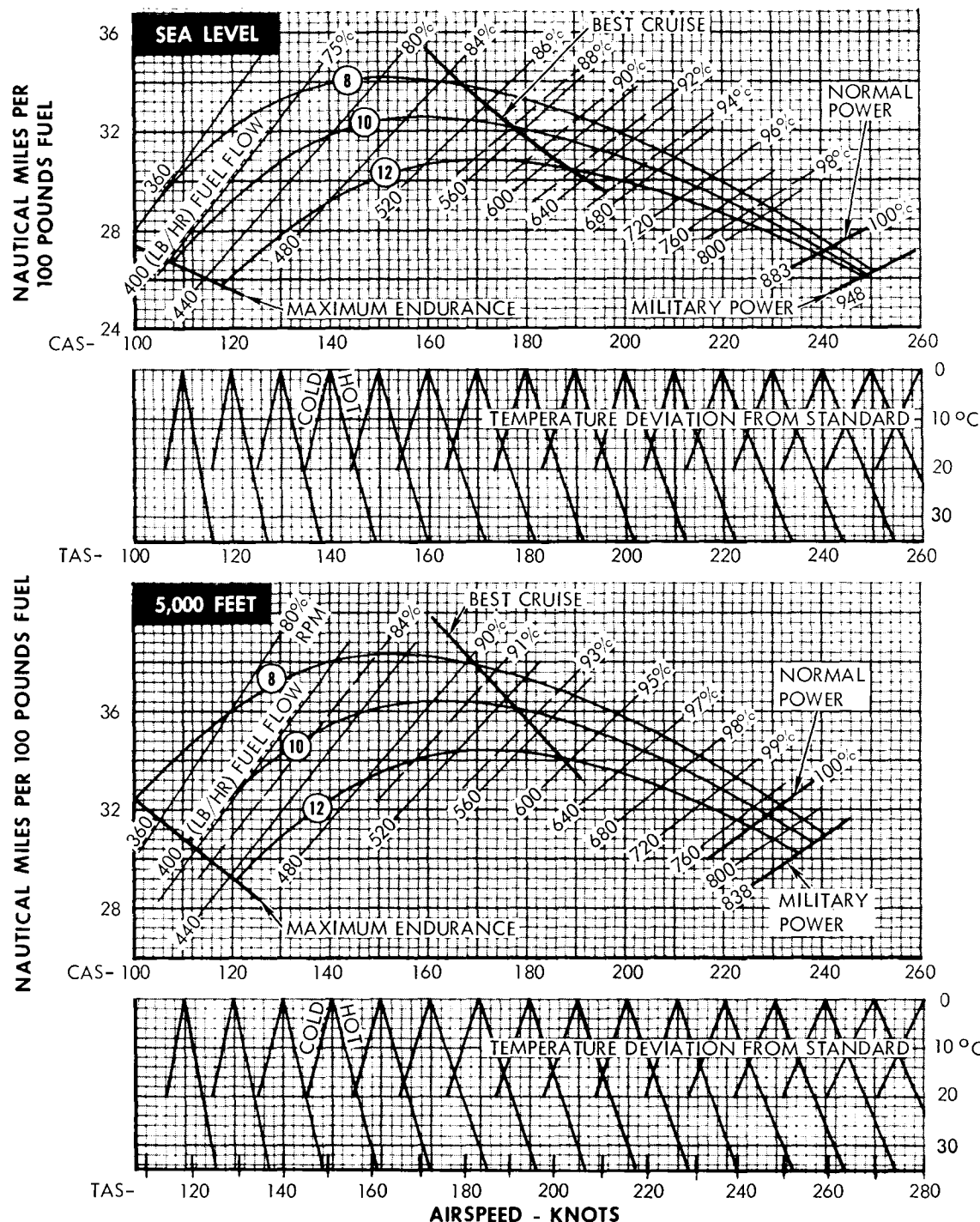
DATE: 1 SEPTEMBER 1968

DATA BASIS: FLIGHT TEST DATA

ENGINES (2) T-76

FUEL GRADE: JP-4

FUEL DENSITY: 6.5 LB/GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
TO COMPUTE FOR WIND EFFECTS:
$$\text{NMI}/100 \text{ LB} = \text{NMI}/100 \text{ LB (NO WIND)} \times \frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$$
- REDUCE NMI/100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

⑧ 8,000 POUNDS

⑩ 10,000 POUNDS

⑫ 12,000 POUNDS

VA-1-88C

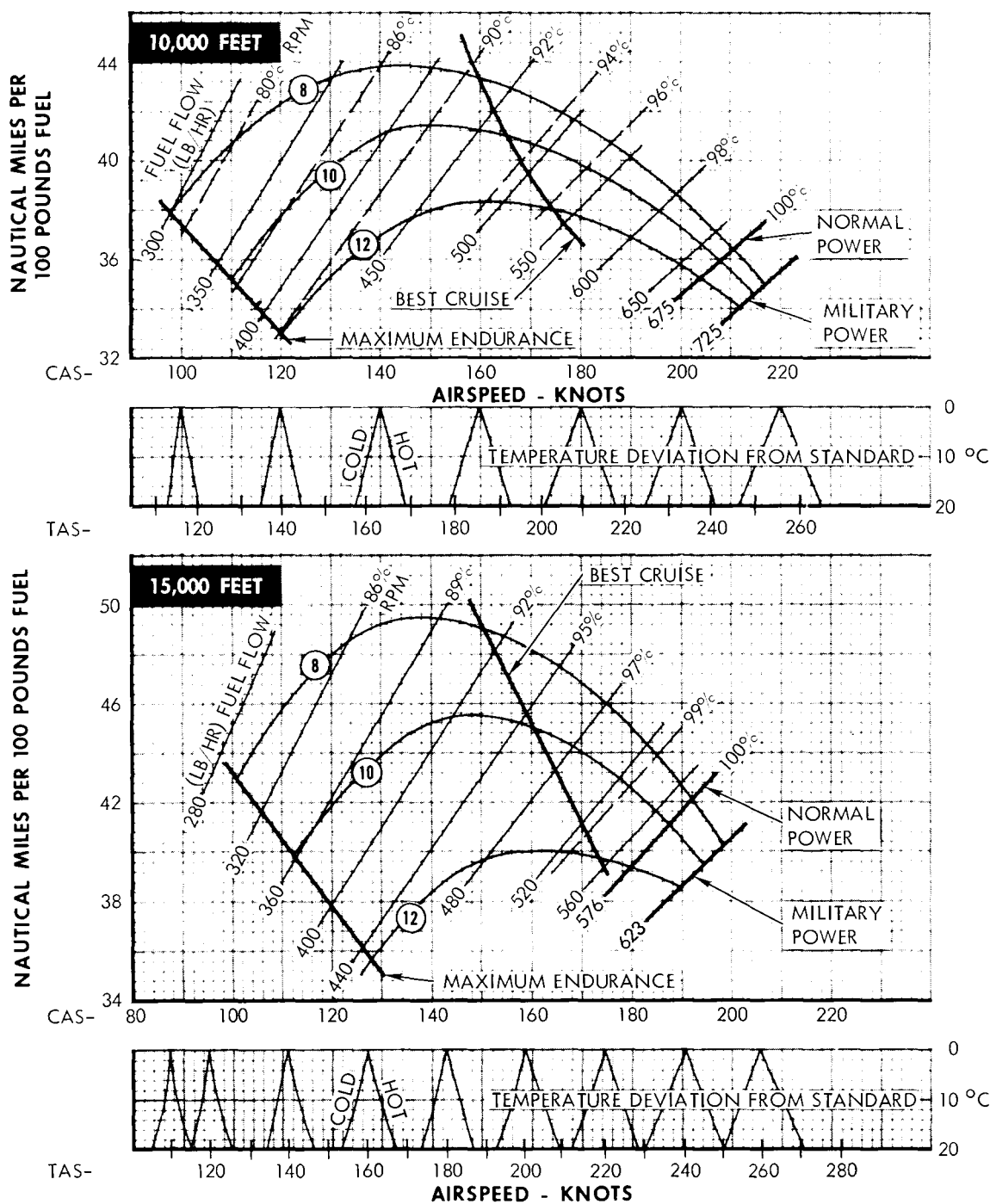
Figure A4-4

NAUTICAL MILES PER 100 POUNDS FUEL

DRAG 0

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

ENGINES (2) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB. GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:
 $N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

- (8) 8,000 POUNDS
- (10) 10,000 POUNDS
- (12) 12,000 POUNDS

VA-1-89c

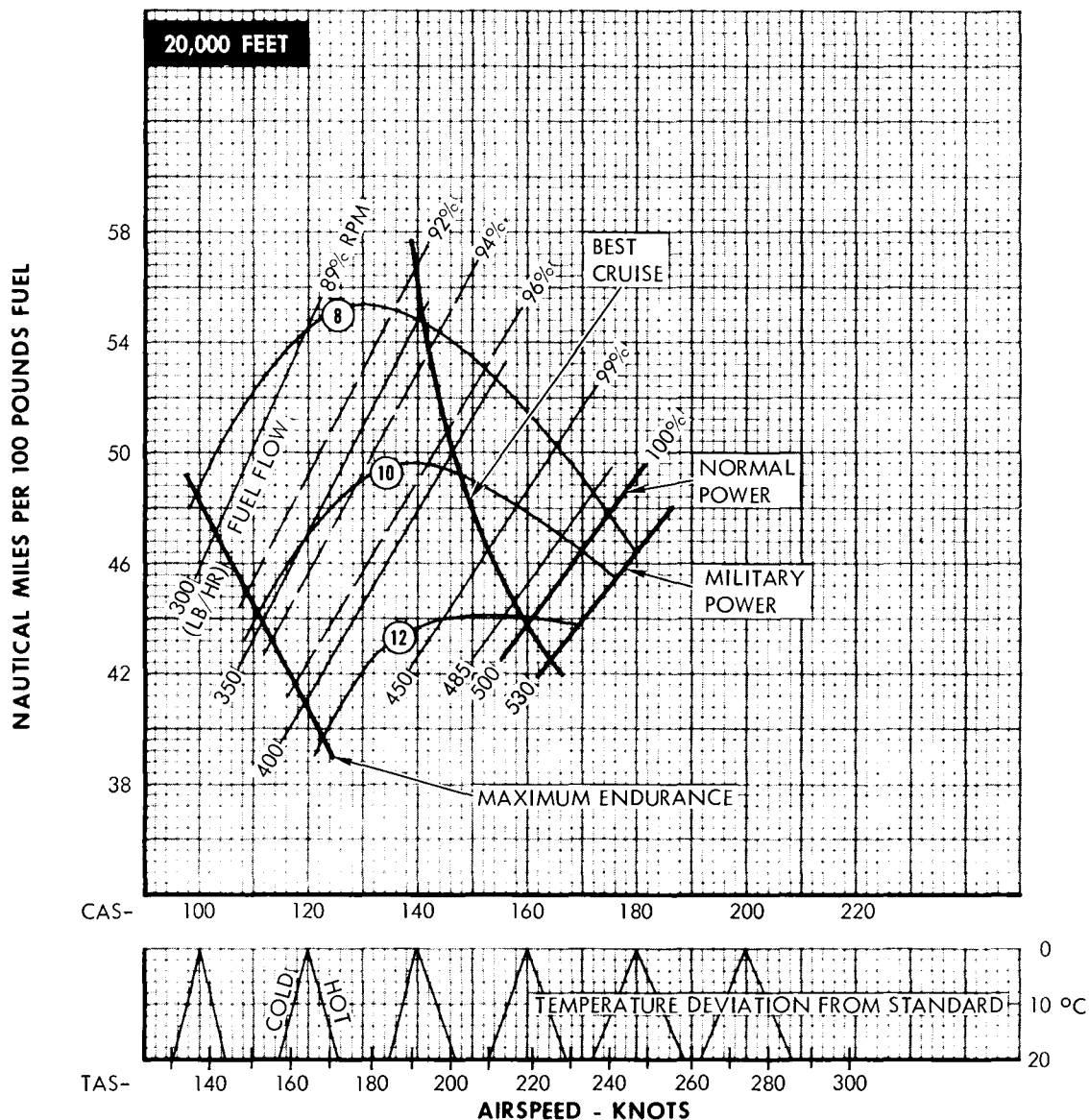
Figure A4-5

NAUTICAL MILES PER 100 POUNDS FUEL

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

DRAG 0

ENGINES (2) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL



NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:
 $N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

- ⑧ 8,000 POUNDS
- ⑩ 10,000 POUNDS
- ⑫ 12,000 POUNDS

VA-1-908

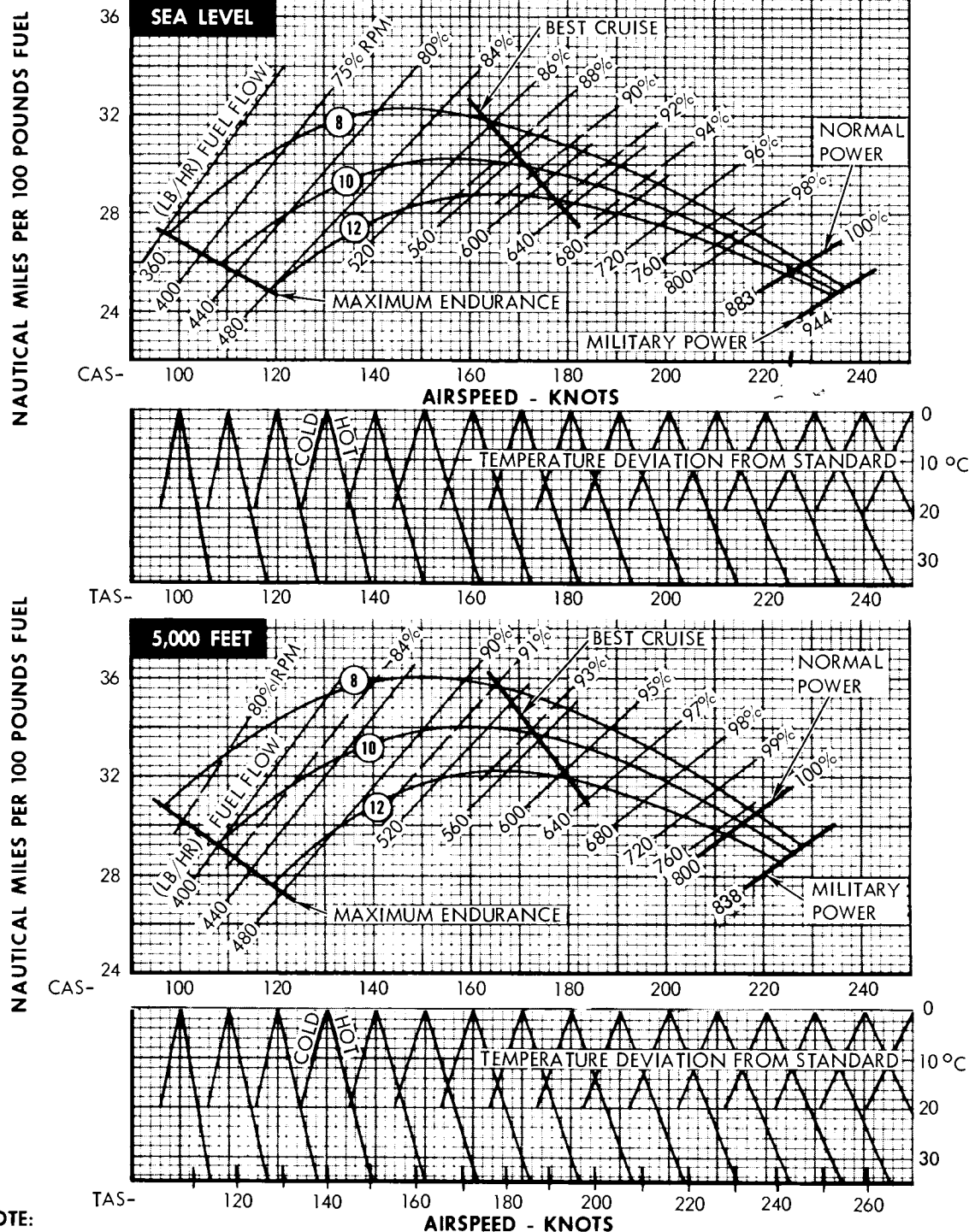
Figure A4-6

NAUTICAL MILES PER 100 POUNDS FUEL

DRAG 50

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

ENGINES (2) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:

$$N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

⑧ 8,000 POUNDS

⑩ 10,000 POUNDS

⑫ 12,000 POUNDS

VA-1-140B

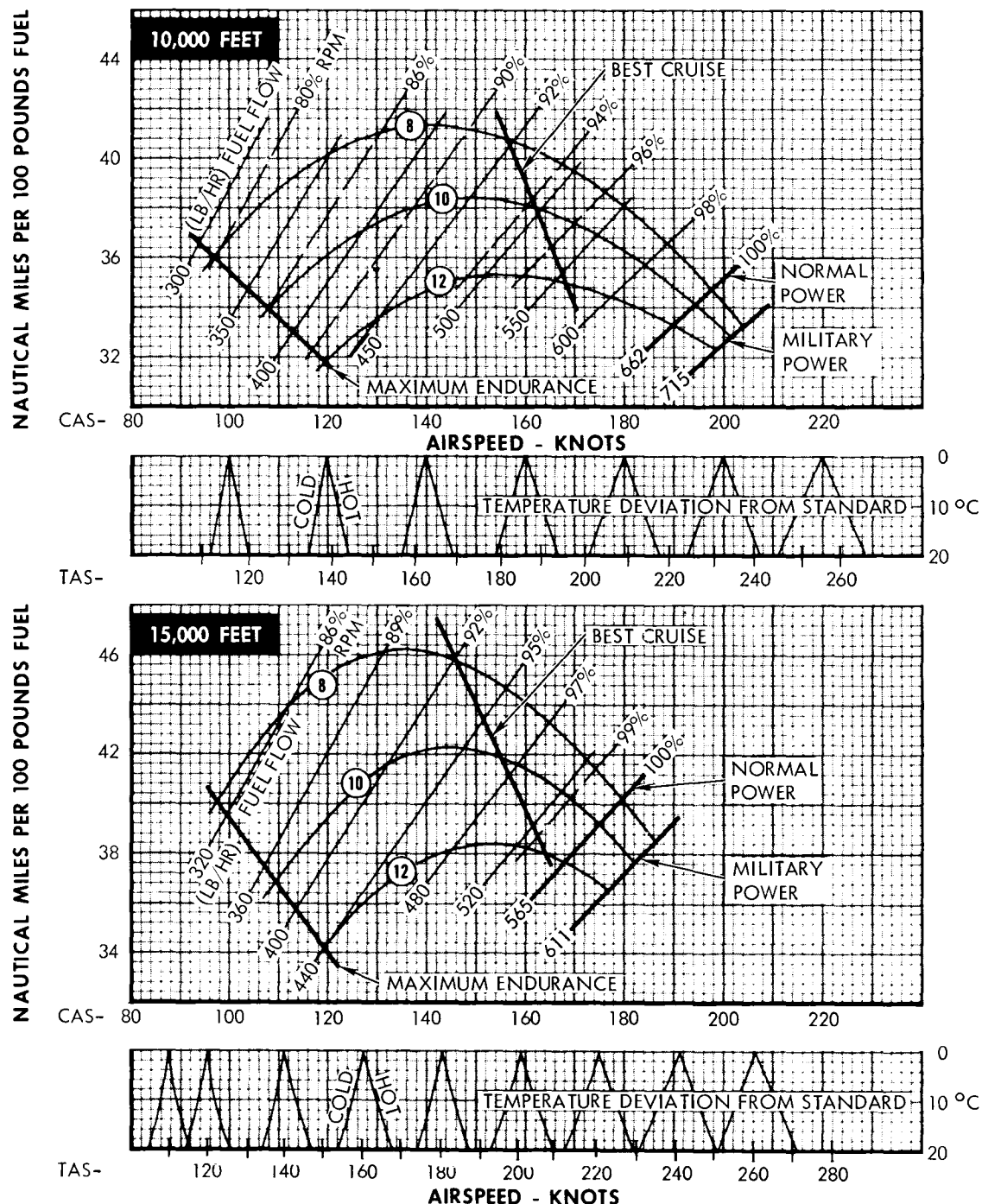
Figure A4-7

NAUTICAL MILES PER 100 POUNDS FUEL

DRAG 50

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

ENGINES (2) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:
 $N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

⑧ 8,000 POUNDS

⑩ 10,000 POUNDS

⑫ 12,000 POUNDS

VA-1-141A

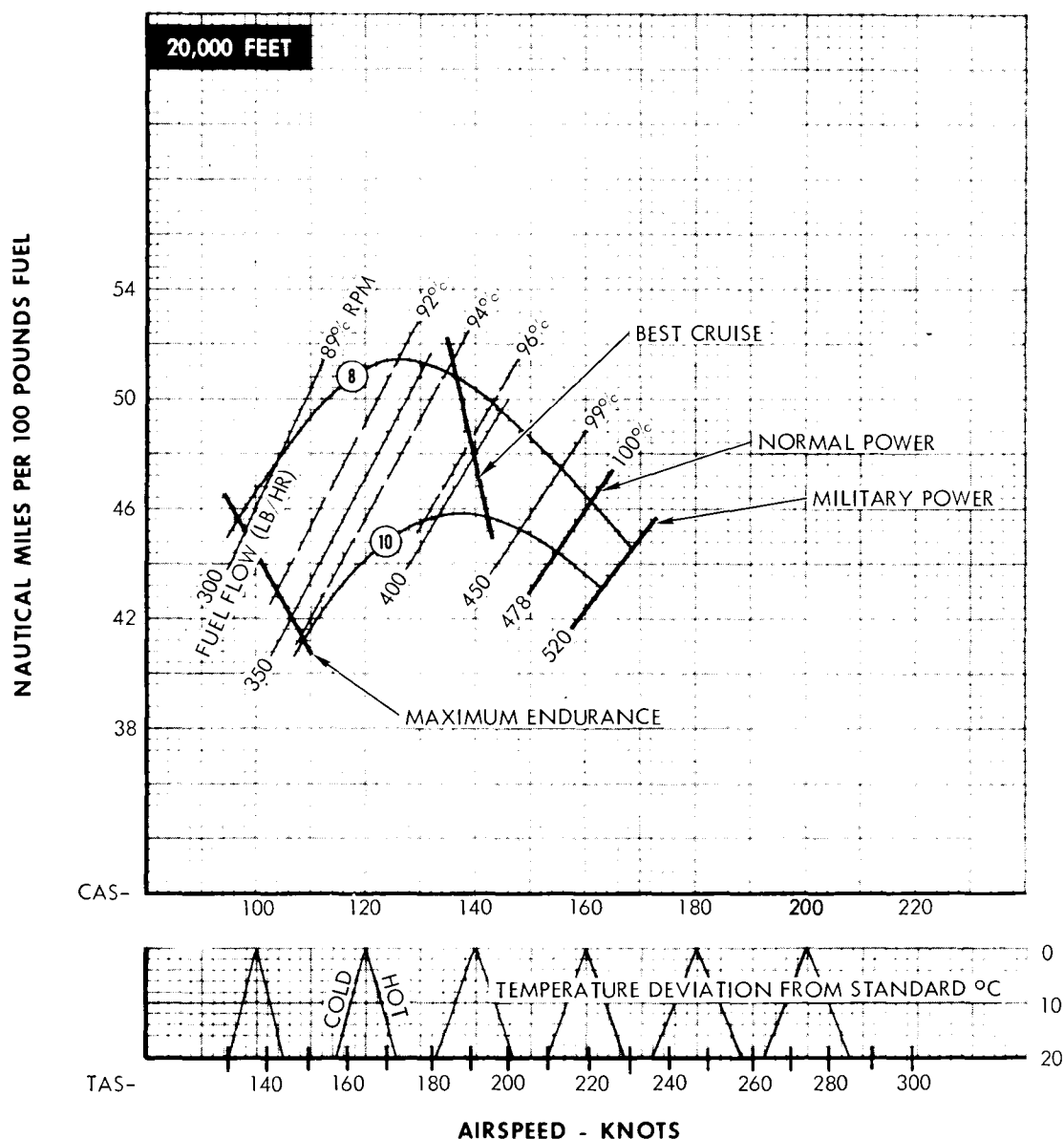
Figure A4-8

NAUTICAL MILES PER 100 POUNDS FUEL

MODEL: OV-10A
DATE: 1 SEPTEMBER 1968
DATA BASIS: FLIGHT TEST DATA

DRAG 50

ENGINES (2) T-76
FUEL GRADE: JP-4
FUEL DENSITY: 6.5 LB/GAL



NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
TO COMPUTE FOR WIND EFFECTS:
 $N. MI./100 LB = N. MI./100 LB (NO WIND) TIMES \frac{GROUND SPEED}{TRUE AIR SPEED}$
- REDUCE N. MI./100 LB 3° FOR EACH 10° ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

⑧ 8,000 POUNDS

⑩ 10,000 POUNDS

Figure A4-9

NAUTICAL MILES PER 100 POUNDS FUEL

DRAG 100

MODEL: OV-10A

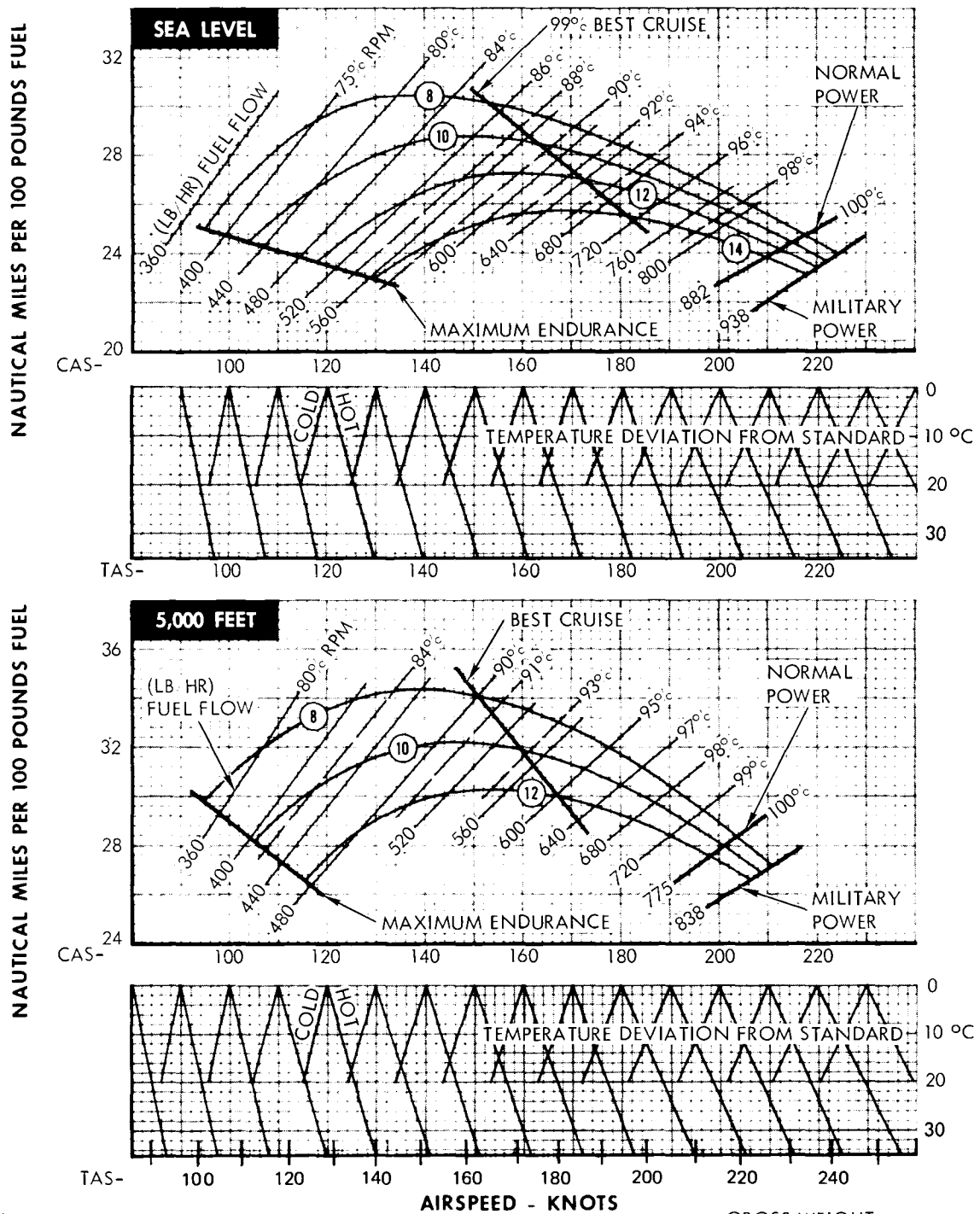
DATE: 1 SEPTEMBER 1968

DATA BASIS: FLIGHT TEST DATA

ENGINES (2) T-76

FUEL GRADE: JP-4

FUEL DENSITY: 6.5 LB/GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION. TO COMPUTE FOR WIND EFFECTS:

$$N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

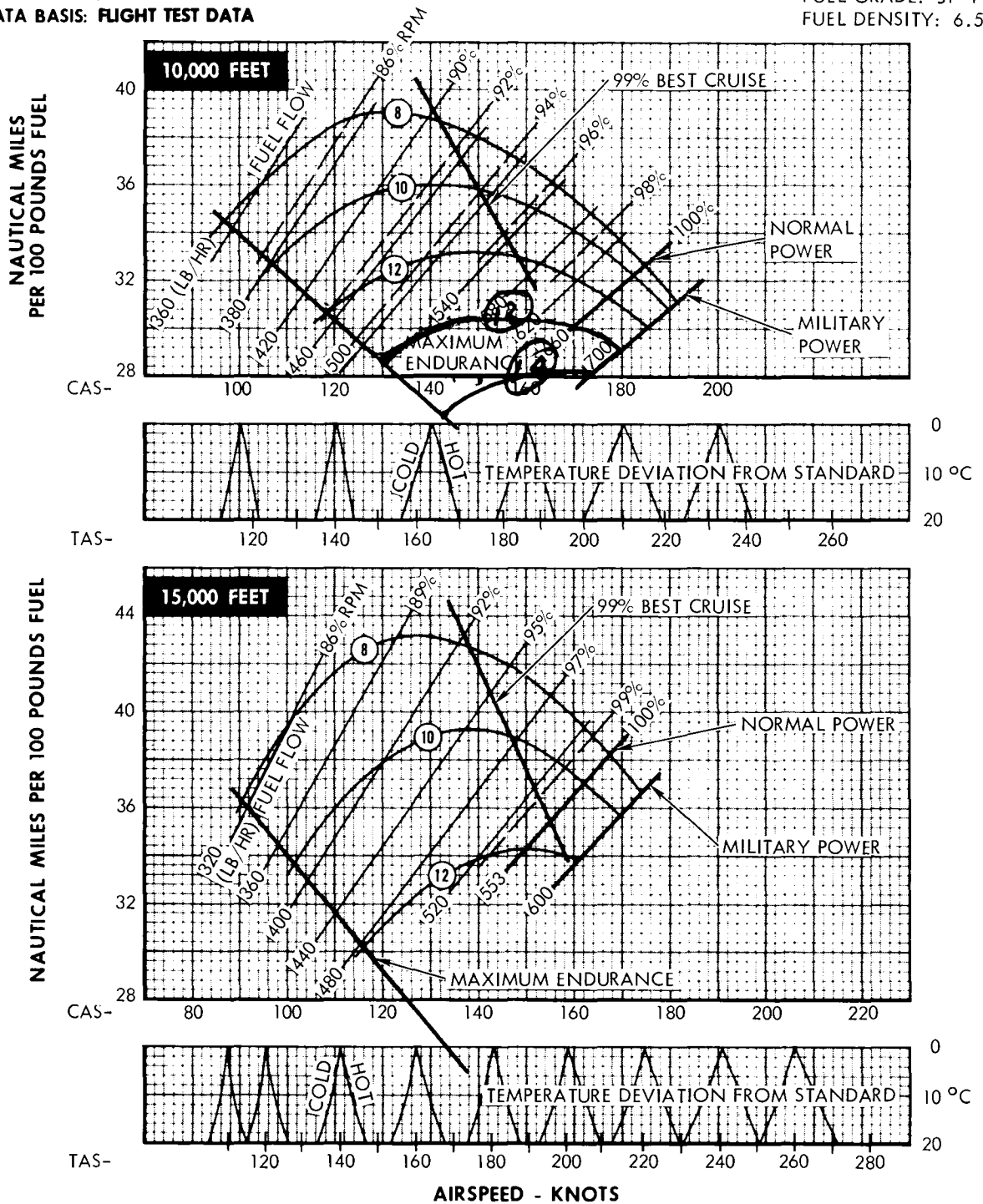
Figure A4-10

NAUTICAL MILES PER 100 POUNDS FUEL

DRAG 100

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

ENGINES (2) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:
 $N. MI./100 LB = N. MI./100 LB (NO WIND) TIMES \frac{GROUND SPEED}{TRUE AIR SPEED}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

⑧ 8,000 POUNDS

⑩ 10,000 POUNDS

⑫ 12,000 POUNDS

VA 1-92B

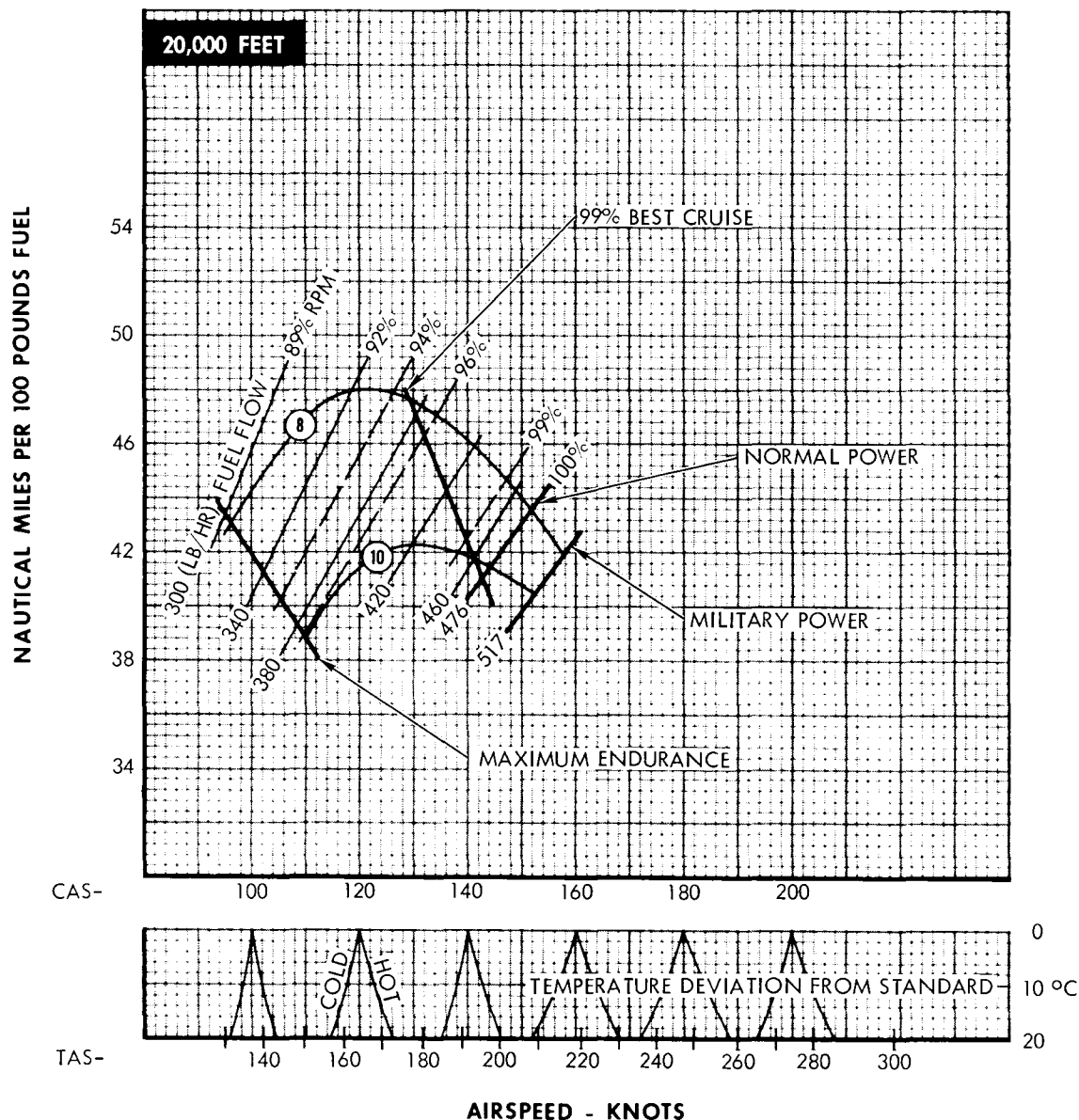
Figure A4-11

NAUTICAL MILES PER 100 POUNDS FUEL

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

DRAG 100

ENGINES (2) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL



NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:

$$N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

- ⑧ 8,000 POUNDS
- ⑩ 10,000 POUNDS

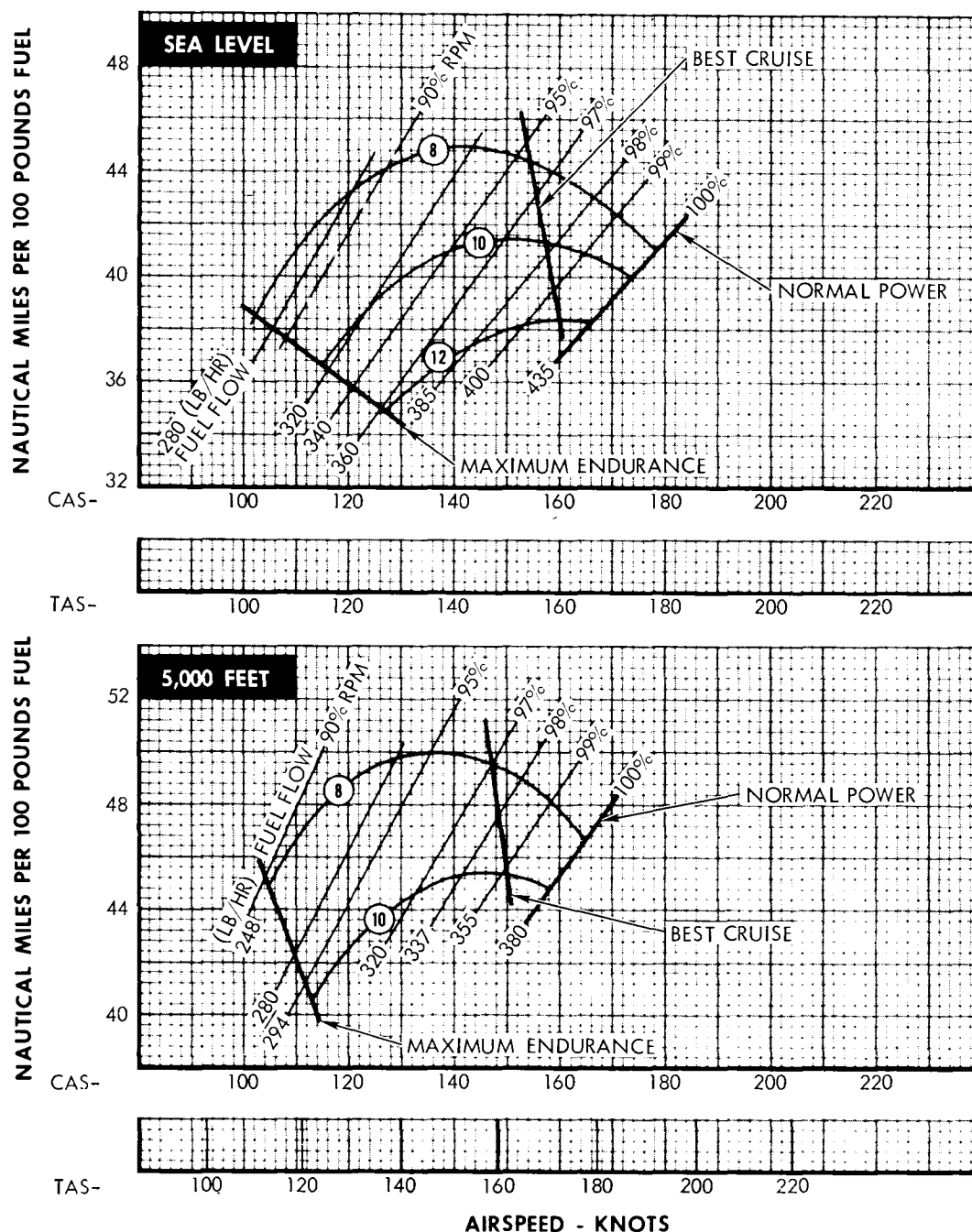
Figure A4-12

NAUTICAL MILES PER 100 POUNDS FUEL - SINGLE ENGINE

DRAG 0

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

ENGINES (1) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL


NOTE:

CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:

$$N. \text{ MI./100 LB} = N. \text{ MI./100 LB (NO WIND)} \times \frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$$

REDUCE N. MI./100 LB 3% FOR EACH 10°C
 ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

(8) 8,000 POUNDS

(10) 10,000 POUNDS

(12) 12,000 POUNDS

VA 1-107B

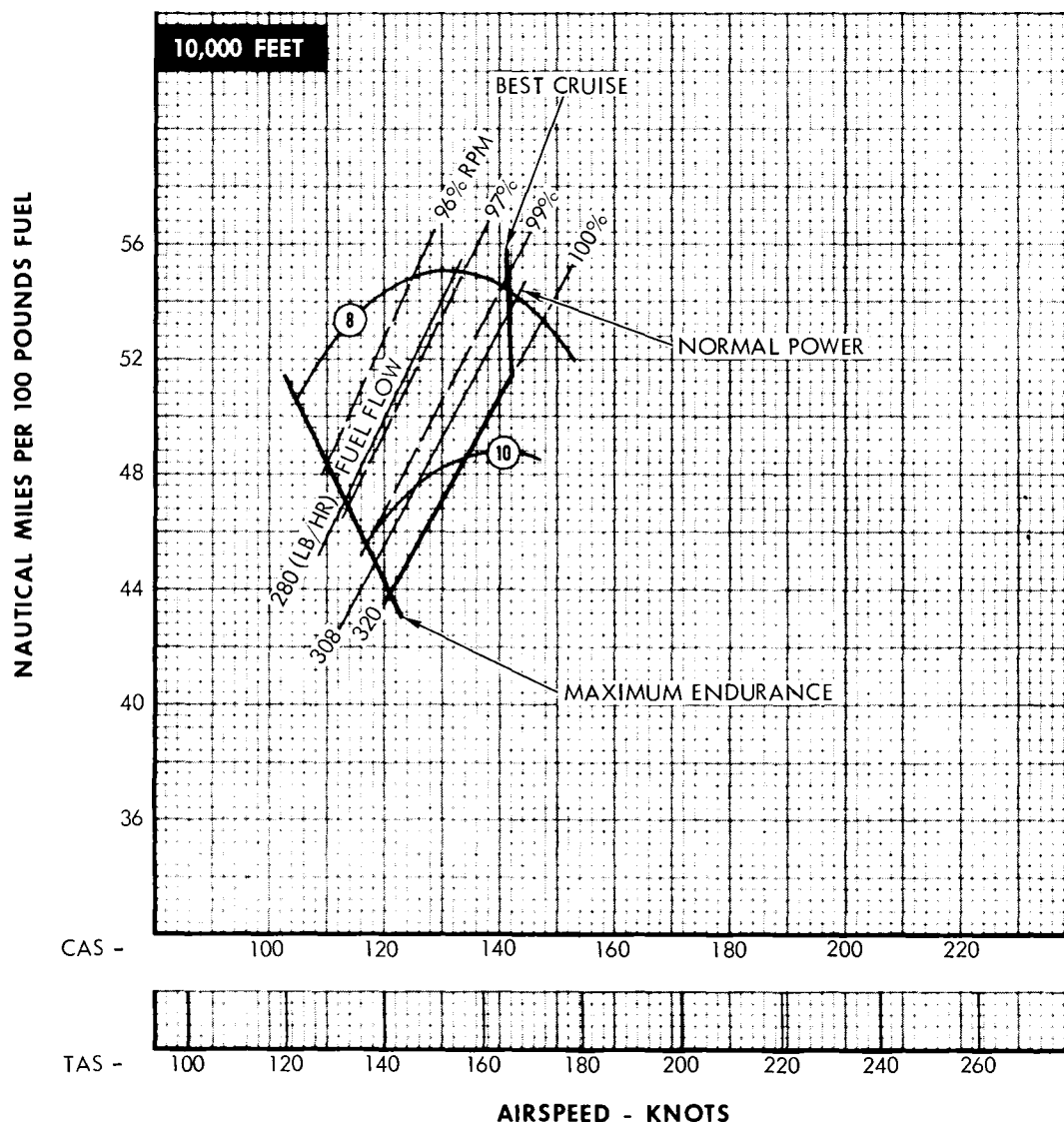
Figure A4-13 (Sheet 1 of 2)

NAUTICAL MILES PER 100 POUNDS FUEL - SINGLE ENGINE

DRAG 0

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

ENGINES (1) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:
 $N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

8 8,000 POUNDS

10 10,000 POUNDS

VA-1-144A

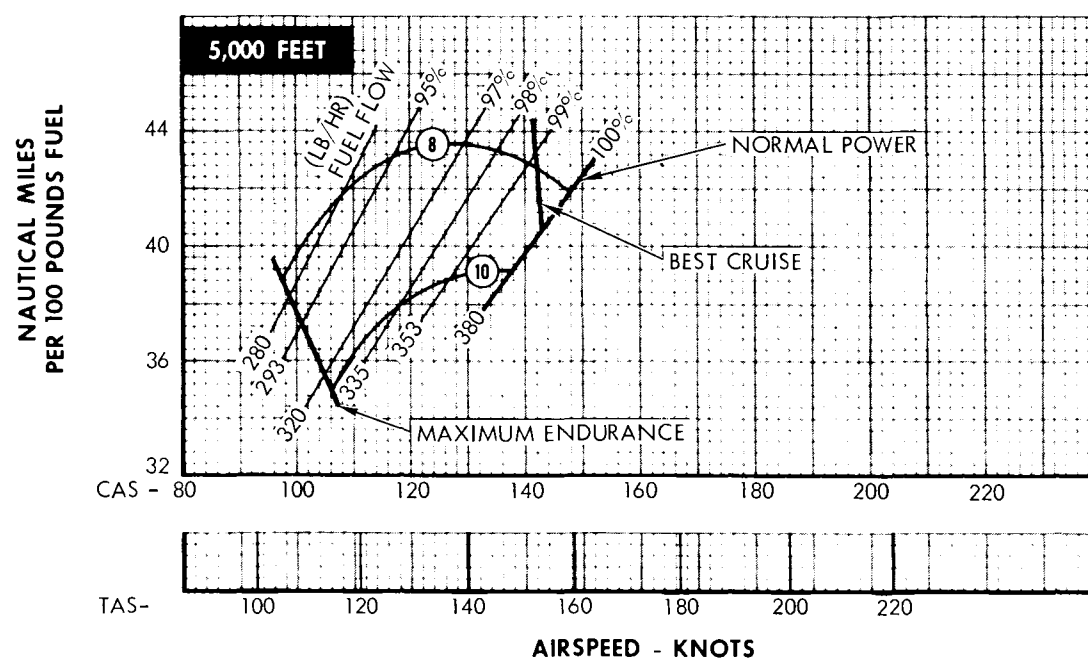
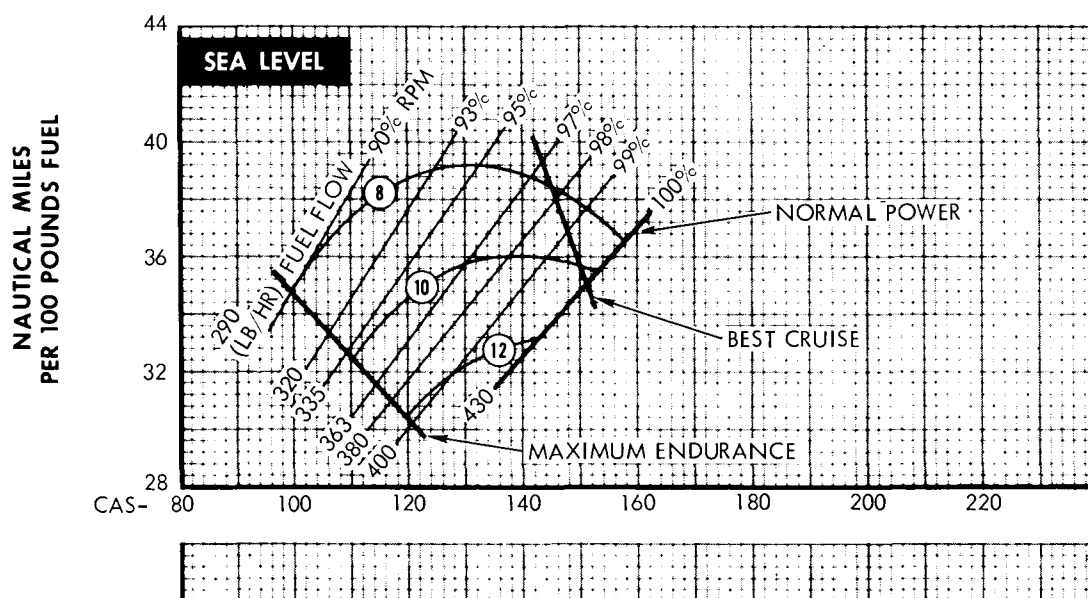
Figure A4-13 (Sheet 2 of 2)

NAUTICAL MILES PER 100 POUNDS FUEL - SINGLE ENGINE

DRAG 100

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

ENGINES (1) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION. TO COMPUTE FOR WIND EFFECTS:
 $N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

- ⑧ 8,000 POUNDS
 ⑩ 10,000 POUNDS
 ⑫ 12,000 POUNDS

VA-1-108B

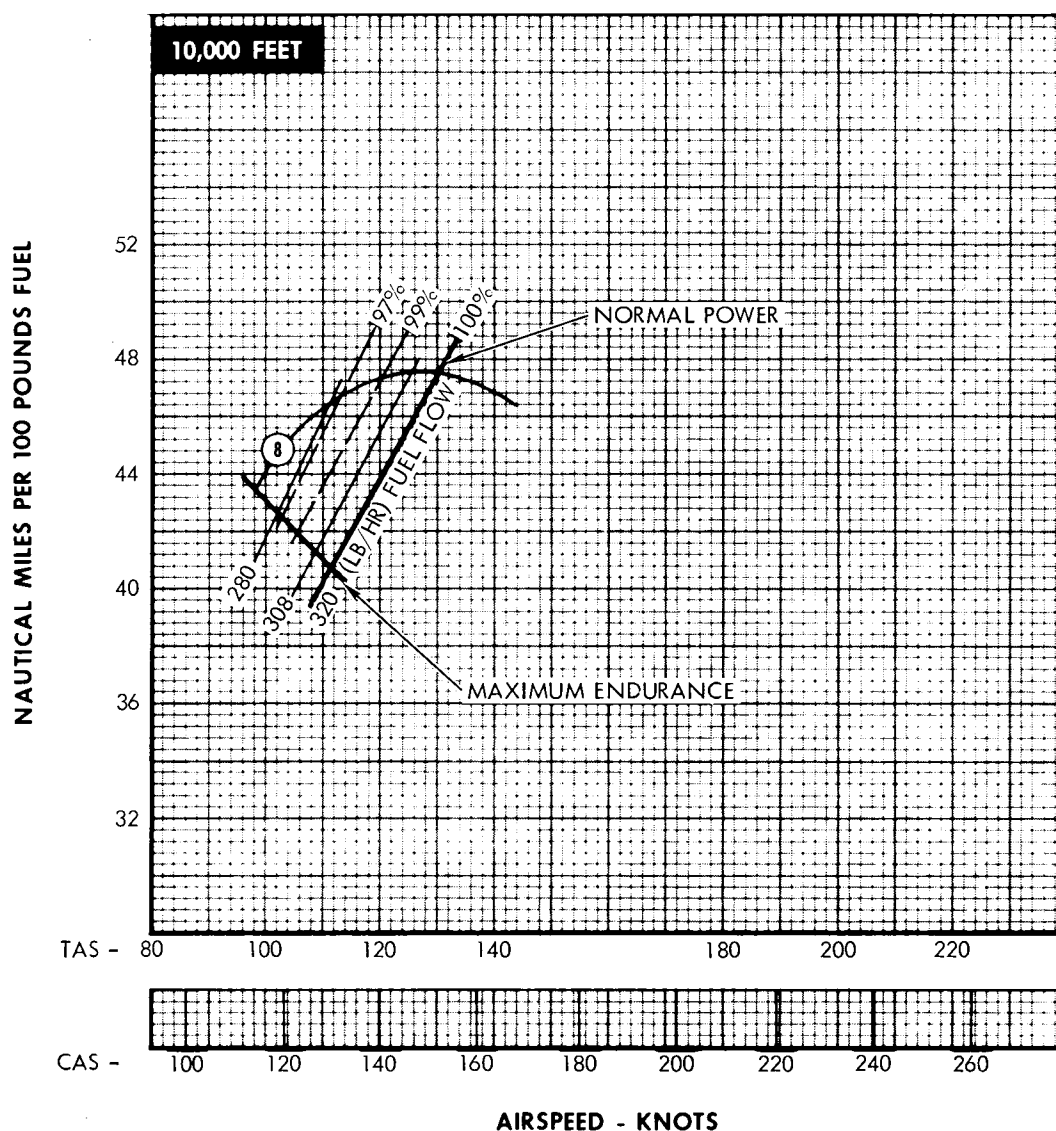
Figure A4-14 (Sheet 1 of 2)

NAUTICAL MILES PER 100 POUNDS FUEL - SINGLE ENGINE

DRAG 100

MODEL: OV-10A
 DATE: 1 SEPTEMBER 1968
 DATA BASIS: FLIGHT TEST DATA

ENGINES (1) T-76
 FUEL GRADE: JP-4
 FUEL DENSITY: 6.5 LB/GAL


NOTE:

- CURVE VALUES FOR A NO WIND ($V_w = 0$) CONDITION.
 TO COMPUTE FOR WIND EFFECTS:

$$N. MI./100 LB = N. MI./100 LB (NO WIND) \times \frac{GROUND SPEED}{TRUE AIR SPEED}$$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT

⑧ 8,000 POUNDS

Figure A4-14 (Sheet 2 of 2)

VA-1-143A

PART 5—ENDURANCE DATA

TABLE OF CONTENTS

Endurance Data A5-1

Constant-altitude Maximum Endurance . A5-1

ENDURANCE DATA

CONSTANT-ALTITUDE MAXIMUM ENDURANCE (FIGURES A5-1 AND A5-2)

The Constant-altitude Maximum Endurance charts provide fuel required for various drag indexes, gross weights, altitudes, and times.

Constant-altitude Maximum Endurance Example Problem

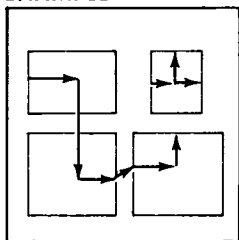
Find fuel required and best speed for normal two-engine operation for 30 minutes (figure A5-1):

- Gross Weight—10,000 pounds
 - Drag Index—50
 - Pressure Altitude—10,000 feet
 - Ambient Temperature—Standard
1. Best speed = 110 knots CAS
 2. Fuel required = 192 pounds
 3. Optimum altitude = 17,500 feet

CONSTANT ALTITUDE MAXIMUM ENDURANCE

MAX ENDURANCE

BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 15 JUNE 1969

EXAMPLE


STANDARD TEMPERATURE		
ALT	°F	°C
SL	59	15
5,000	41	5
10,000	23	-5
15,000	6	-15
20,000	-12	-25

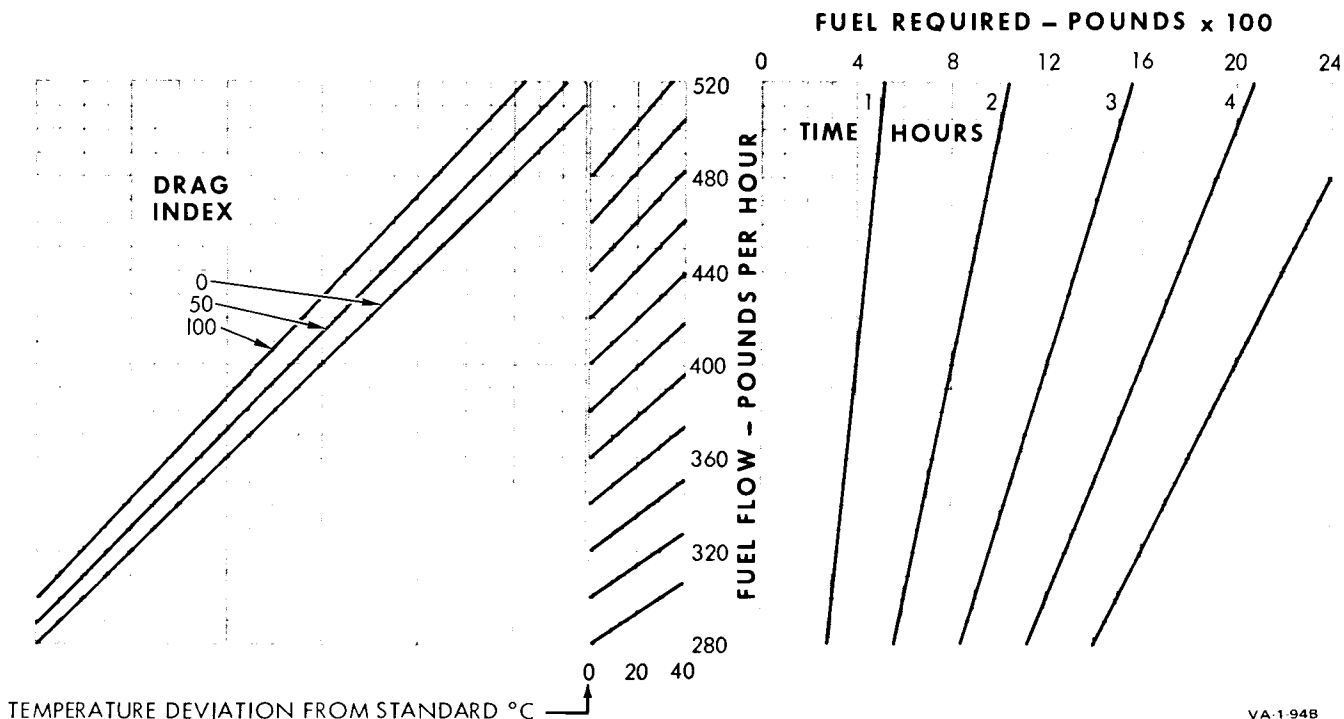
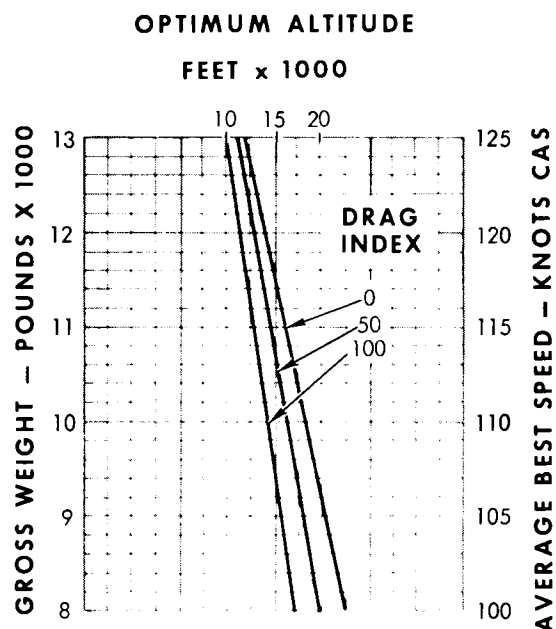
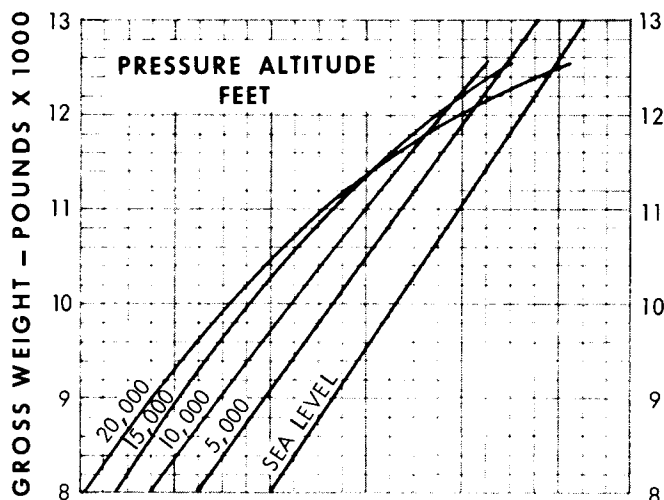


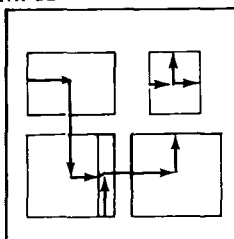
Figure A5-1

CONSTANT ALTITUDE MAXIMUM ENDURANCE

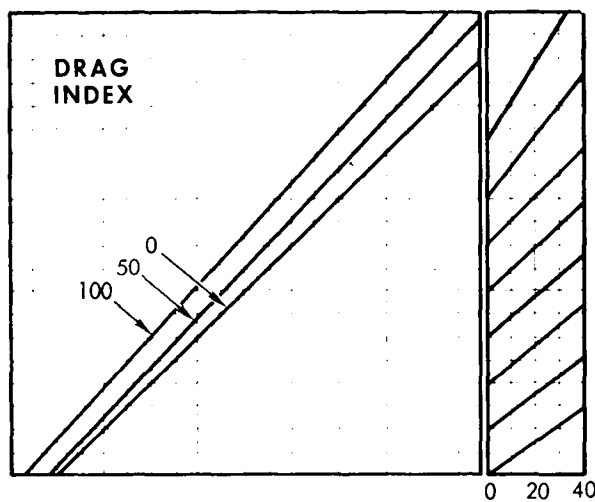
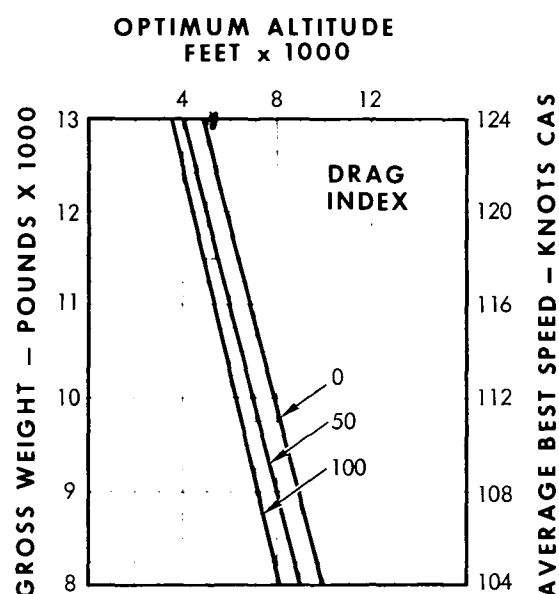
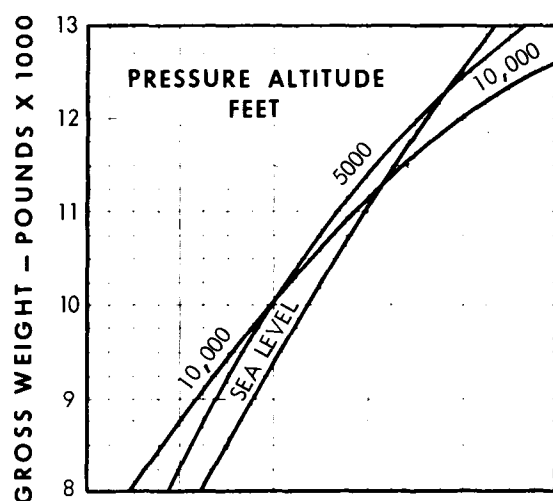
BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

SINGLE - ENGINE MAX ENDURANCE

EXAMPLE



STANDARD TEMPERATURE		
ALT	°F	°C
SL	59	15
5,000	41	5
10,000	23	- 5
15,000	6	-15
20,000	-12	-25



TEMPERATURE DEVIATION FROM STANDARD °C

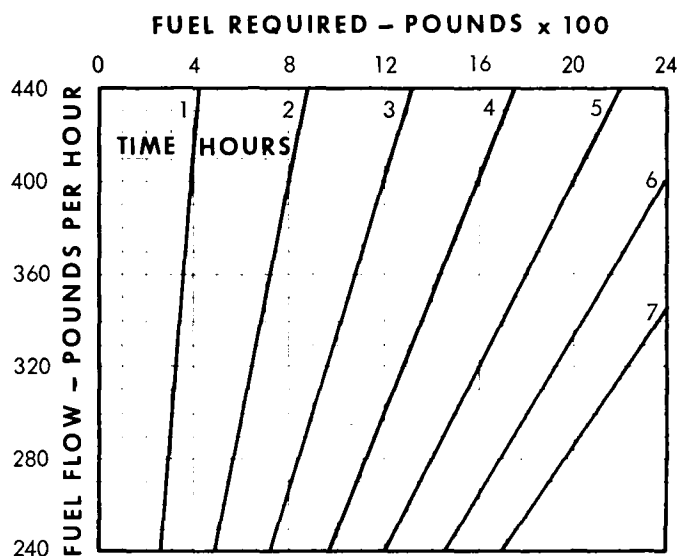


Figure A5-2

PART 6—FLIGHT CHARACTERISTICS DATA

TABLE OF CONTENTS

Flight Characteristics Data	A6-1
Stall Speeds	A6-1
Minimum Single-Engine Speeds	A6-1

Angle-of-Attack Relationship	A6-1
Altitude Lost in Dive Recovery	A6-2

FLIGHT CHARACTERISTICS DATA

STALL SPEEDS (FIGURES A6-1 AND A6-2)

The two-engine Stall Speeds chart (figure A6-1) and Airspeed vs. Gross Weight chart (figure A6-2) determine minimum safe operating speeds with Military power on both engines. Indicated airspeeds may be determined for any of three flap positions with gross weights up to 14,000 pounds.

Stall Speeds Example Problem

Find stall speed with the following conditions:

- Flaps—20 degrees
- Gross Weight—11,000 pounds
- Power Setting—Military power
- Landing Gear—down

1. Stall speed = 65 KIAS from figure A6-1.

MINIMUM SINGLE-ENGINE SPEEDS (FIGURE A6-3)

The Minimum Single-Engine Speeds charts (figure A6-3) determine the airspeeds required to maintain single-engine level flight as a function of aircraft gross weight and outside air temperature conditions. The charts provide the pilot with the minimum single-engine control speed for various gross weights. By extrapolating between temperature lines, the minimum safe single-engine speed for any given gross weight may be determined. If the aircraft gross weight is to the right of the appropriate temperature line, single-engine flyaway is not possible. Gross weight must be reduced to a value that falls left of the applicable temperature line.

Minimum Safe Speeds Example Problem

Find minimum single-engine control speed and minimum safe (maintaining level flight) speed, gear

down and up, if engine fails with the following conditions:

- Flap Position—20 degrees
 - Gross Weight—10,000 pounds
 - Airspeed—90 knots
 - Temperature—30°C
1. Enter weight scale at 10,000 pounds on 20-degree flaps (gear down) chart.
 2. Move vertically to minimum single-engine control speed line and note speed of 80 KIAS.
 3. Note that the gross weight is right of the temperature line. Under these conditions, wings-level climb is not possible at any airspeed.
 4. Enter weight scale at 10,000 pounds on 20-degree flaps (gear up) chart.
 5. Move vertically to minimum single-engine control speed line and note that speed is 75 KIAS.
 6. Move vertically to applicable temperature line and note minimum safe speed of 89 KIAS. Level flight at 100 fpm rate of climb is possible if airspeed is not reduced below this level.

ANGLE-OF-ATTACK RELATIONSHIP (FIGURE A6-4)

The relationship of aircraft angle of attack at the fuselage reference line (in degrees) and indicated angle of attack (in units) to gross weight, dive angle, and calibrated airspeed may be determined on the Angle-of-Attack Relationship chart (figure A6-4).

Angle-of-Attack Relationship Example Problem

Find indicated angle of attack and fuselage reference line angle of attack for the following conditions:

- Gross Weight—12,000 pounds
- Dive Angle—30 degrees
- Power Setting—Military power
- Airspeed—240 knots CAS

1. Fuselage reference line = -1.6 degrees
2. Angle of attack = 9.8 units

ALTITUDE LOST IN DIVE RECOVERY

(FIGURE A6-5)

Altitude lost in recovering to level flight at various dive angles, airspeeds, and load factors may be determined by using the Altitude Lost in Dive Recovery chart (figure A6-5).

Altitude Lost in Dive Recovery Example Problem

Find altitude lost in dive recovery for following conditions:

- Altitude at Start of Pullout—10,000 feet
- Airspeed—250 KIAS
- Dive Angle—50 degrees
- Load Factor—4.0 “g’s”

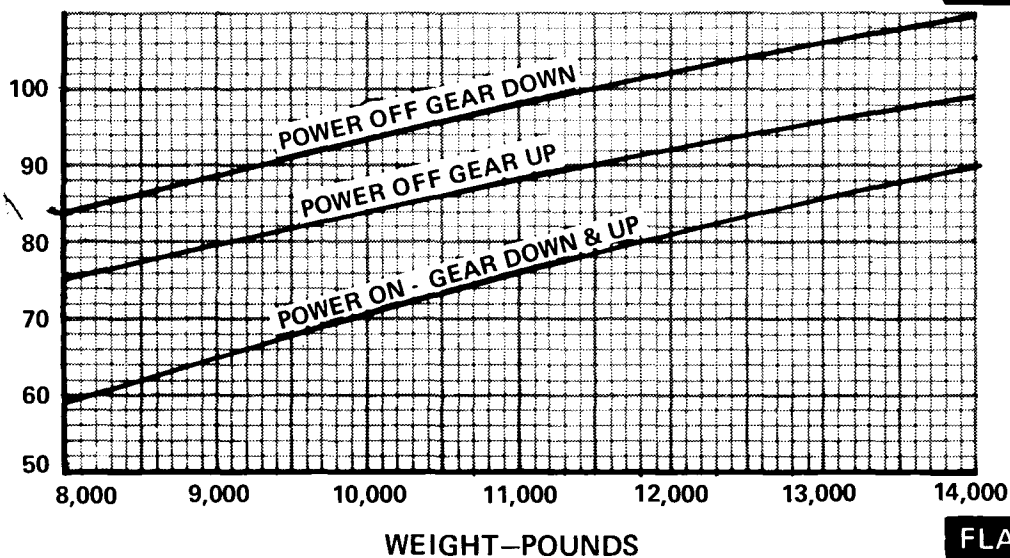
1. Altitude lost = 980 feet

STALL SPEEDS

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 DECEMBER 1970

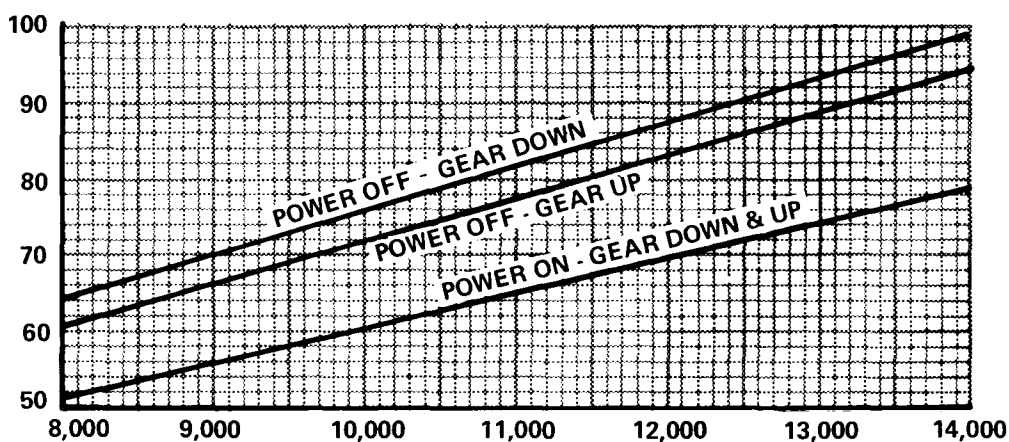
(POWER ON = MILITARY POWER)

FLAPS UP



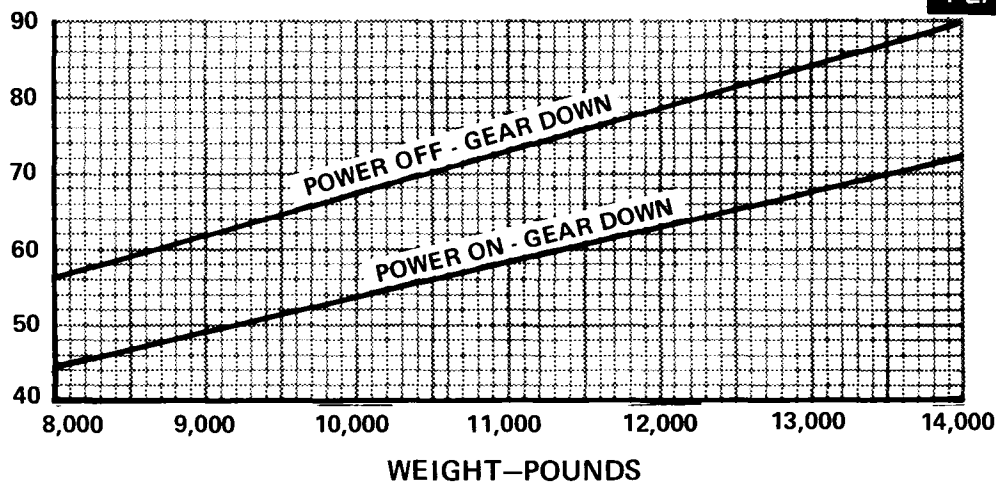
FLAPS 20°

STALL SPEED—KNOTS (I.A.S.)



WEIGHT—POUNDS

FLAPS 40°

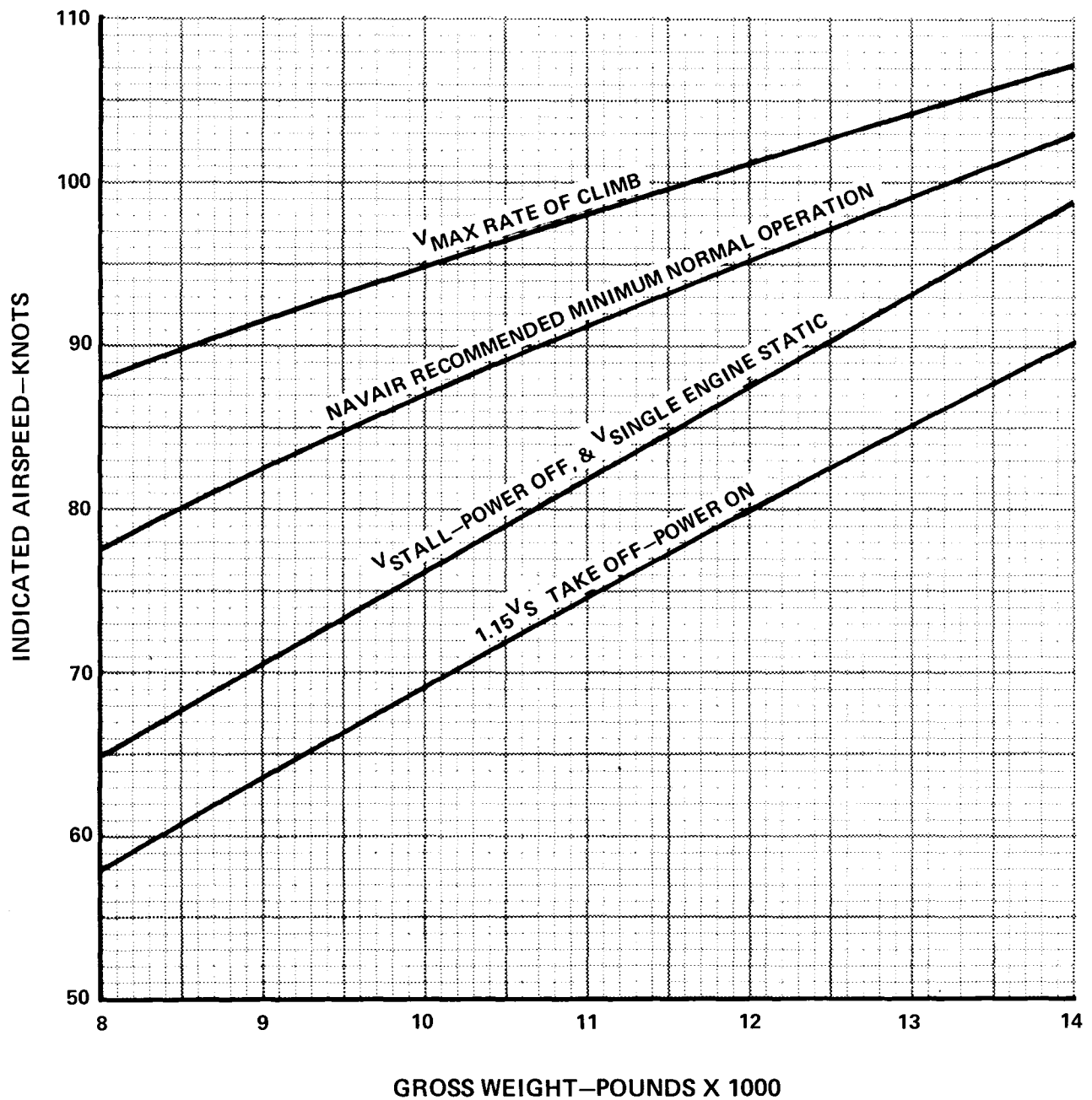


WEIGHT—POUNDS

Figure A6-1

AIRSPEED VS GROSS WEIGHT—FLAPS 20°

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971



VA-1-147B

Figure A6-2

MINIMUM SINGLE ENGINE SPEEDS

BASED ON: FLIGHT TEST DATA
DATA AS OF 1 JANUARY 1971

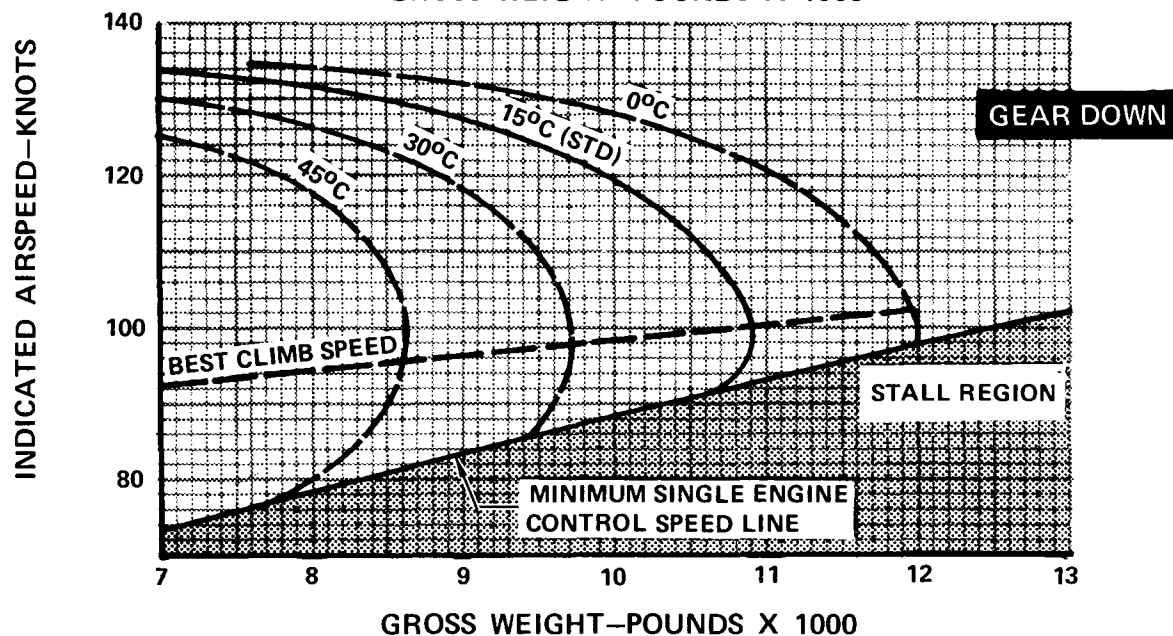
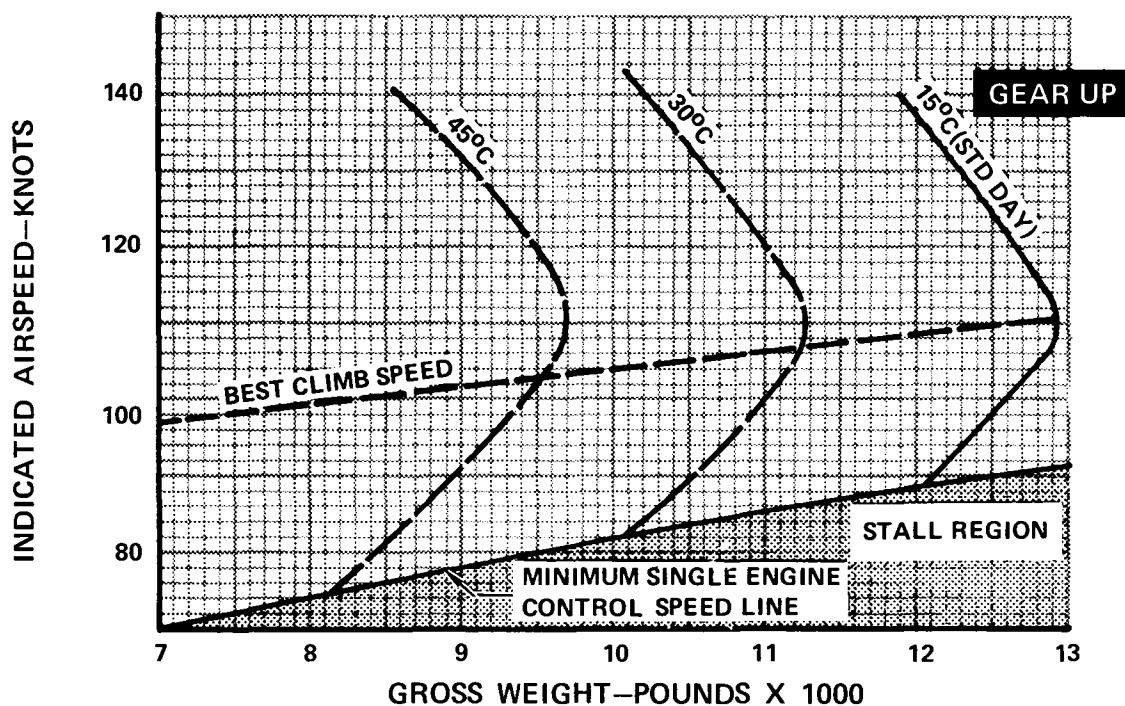
FLAPS UP

STANDARD DAY
SEA LEVEL

100 FPM RATE OF CLIMB
MILITARY RATED POWER ON OPERABLE ENGINE

LEVEL FLIGHT CAN BE
MAINTAINED TO THE
LEFT OF APPLICABLE
TEMPERATURE LINE.

LEVEL FLIGHT NOT
POSSIBLE TO THE
RIGHT OF APPLICABLE
TEMPERATURE LINE.



NOTE: OBSERVE ENGINE TORQUE LIMITS FOR COLD TEMPERATURE

VA-1-137C

Figure A6-3 (Sheet 1 of 3)

MINIMUM SINGLE ENGINE SPEEDS

BASED ON: FLIGHT TEST DATA
DATA AS OF 1 JANUARY 1971

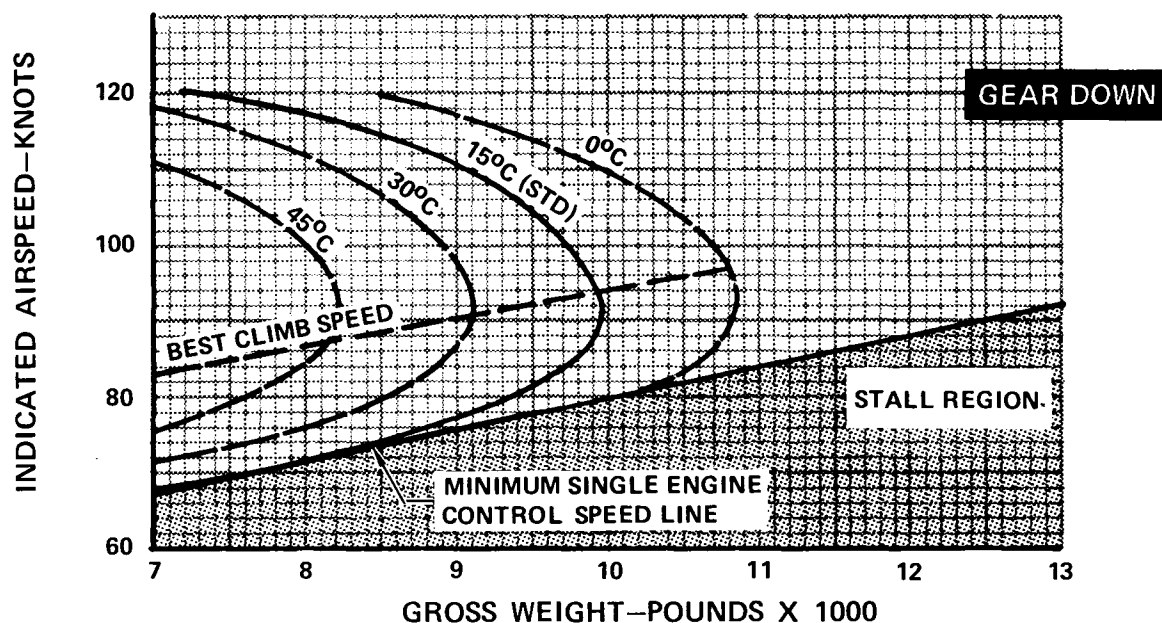
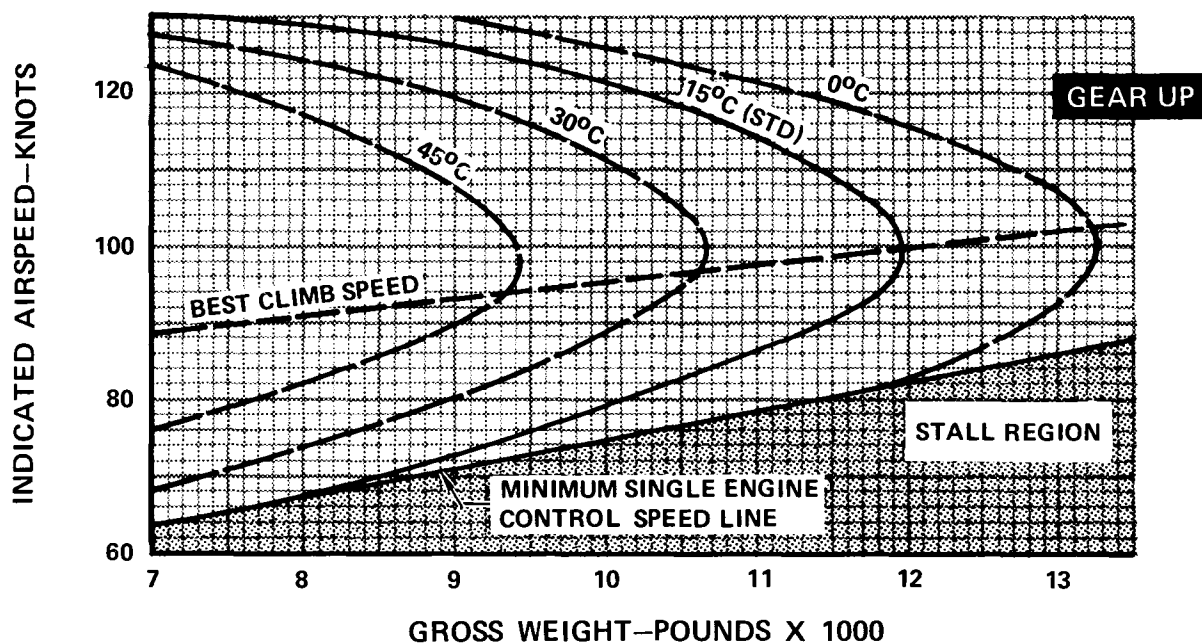
FLAPS 20°

STANDARD DAY
SEA LEVEL

100 FPM RATE OF CLIMB
MILITARY RATED POWER ON OPERABLE ENGINE

LEVEL FLIGHT CAN BE
MAINTAINED TO THE
LEFT OF APPLICABLE
TEMPERATURE LINE.

LEVEL FLIGHT NOT
POSSIBLE TO THE
RIGHT OF APPLICABLE
TEMPERATURE LINE.



NOTE: OBSERVE ENGINE TORQUE LIMITS FOR COLD TEMPERATURE

VA-1-138C

Figure A6-3 (Sheet 2 of 3)

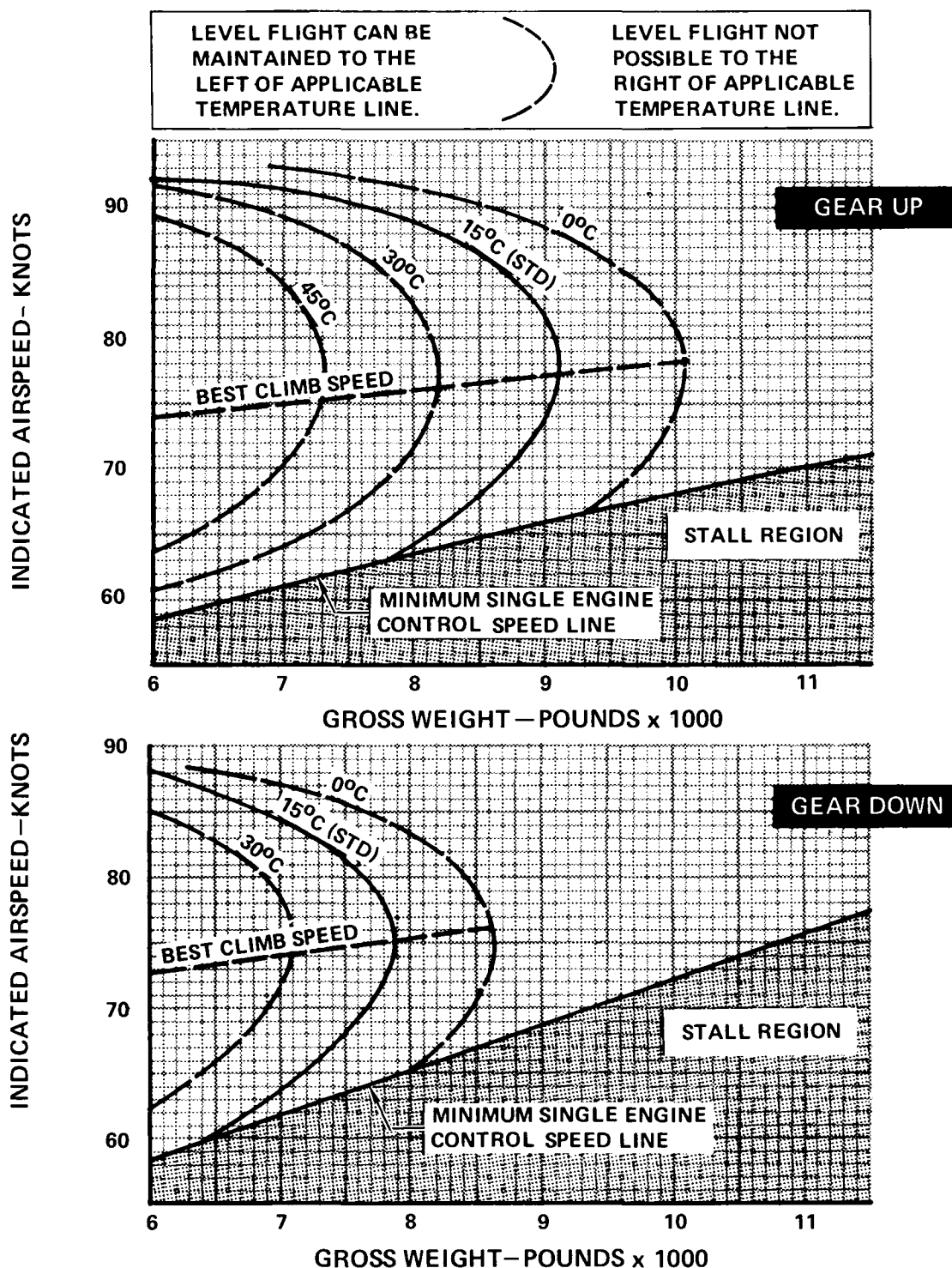
MINIMUM SINGLE ENGINE SPEEDS

BASED ON: FLIGHT TEST DATA
DATA AS OF 1 JANUARY 1971

FLAPS 40°

STANDARD DAY
SEA LEVEL

100 FPM RATE OF CLIMB
MILITARY RATED POWER ON OPERABLE ENGINE



NOTE: OBSERVE ENGINE TORQUE LIMITS FOR COLD TEMPERATURE

VA-1-139C

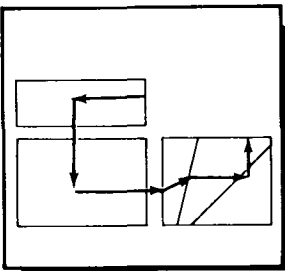
Figure A6-3 (Sheet 3 of 3)

ANGLE OF ATTACK RELATIONSHIP

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

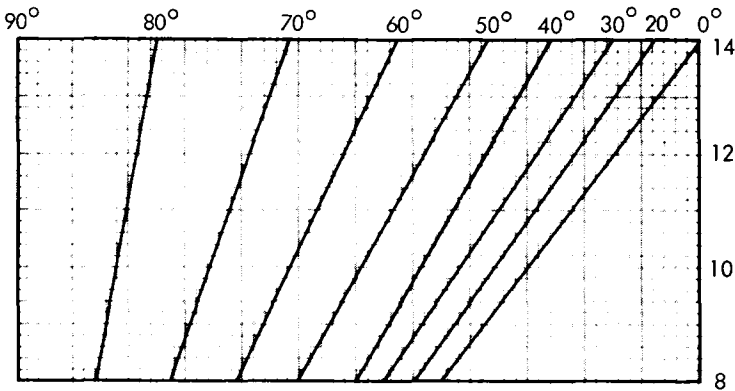
A/A VS CAS

EXAMPLE

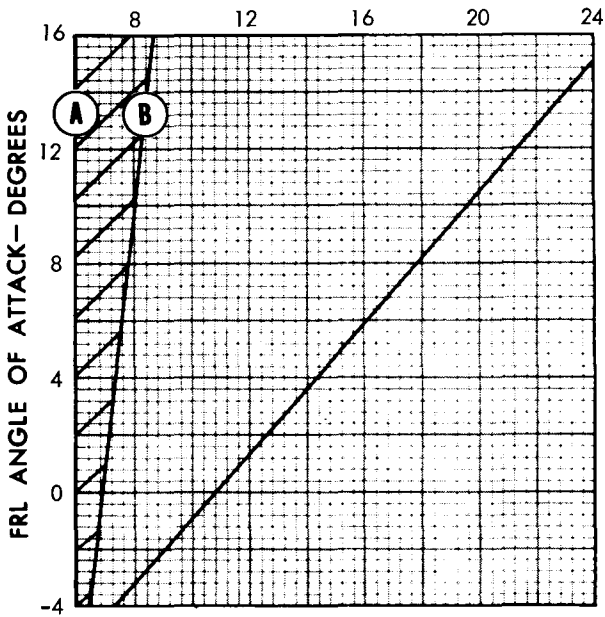


GROSS WEIGHT
POUNDS X 1000

DIVE ANGLE—DEGREES



INDICATED ANGLE OF ATTACK — UNITS

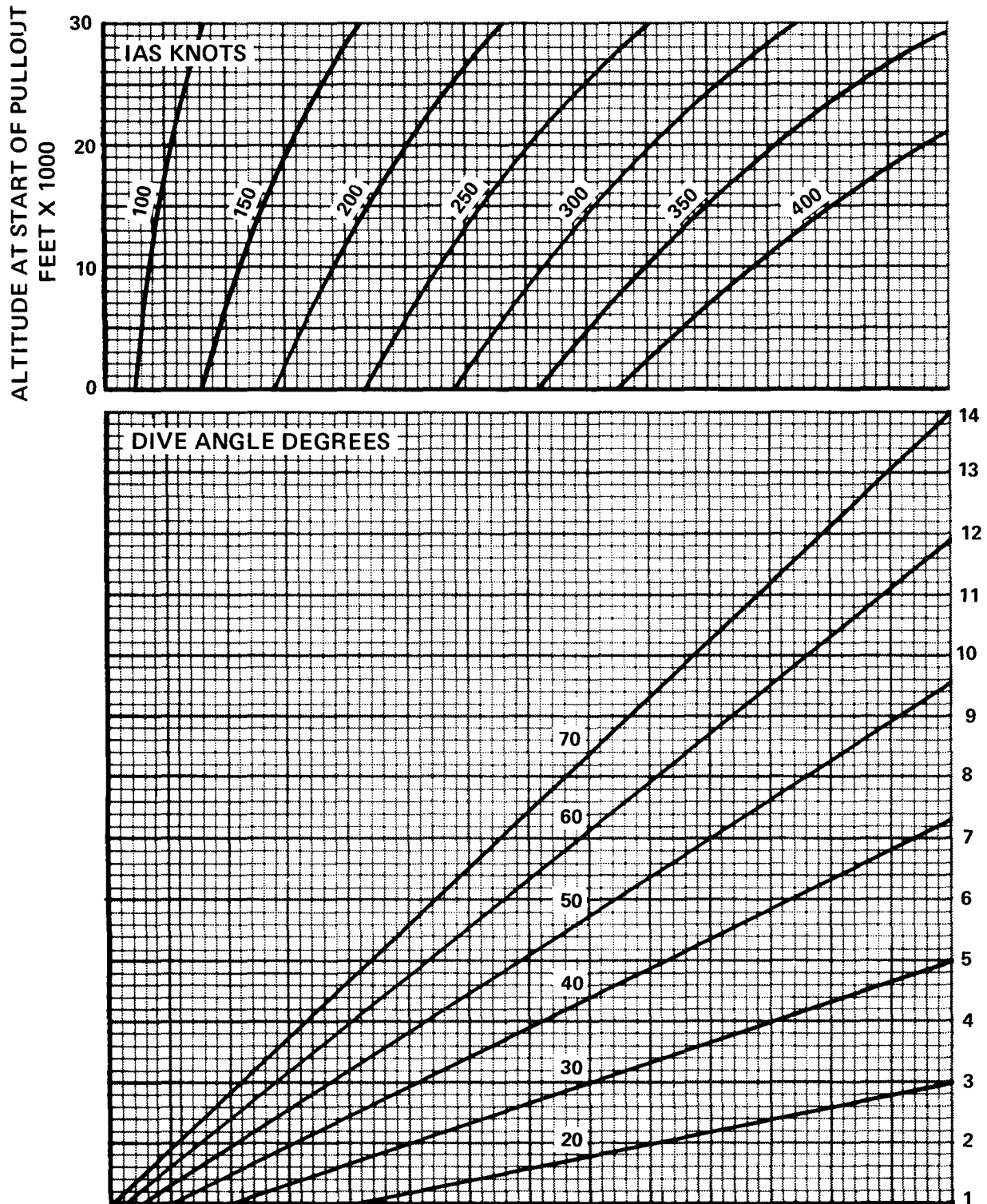


- (A) POWER FOR LEVEL FLIGHT
- (B) MILITARY POWER

Figure A6-4

ALTITUDE LOST IN DIVE RECOVERY

BASED ON FLIGHT TEST DATA
DATA AS OF: 1 SEPTEMBER 1968

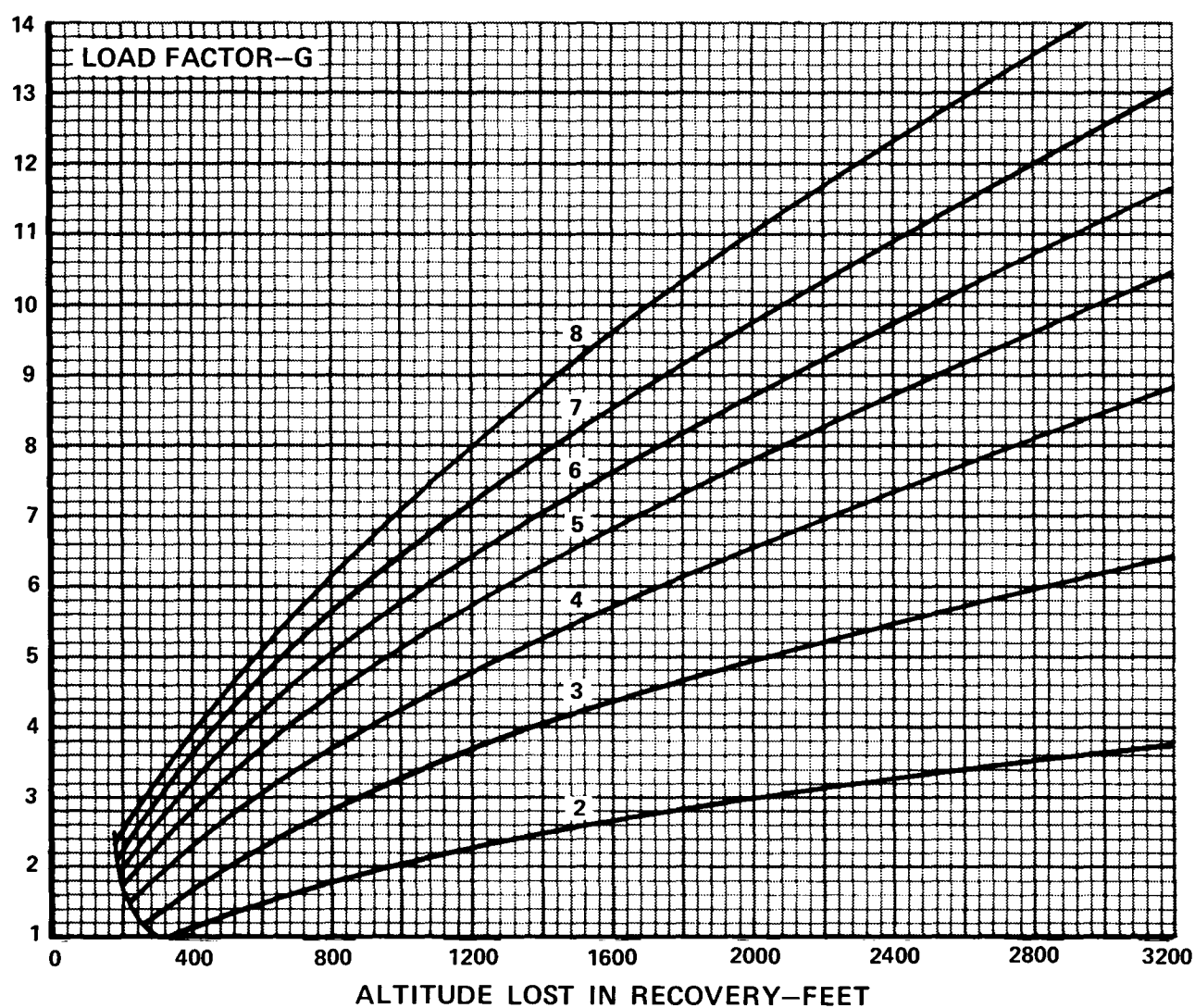
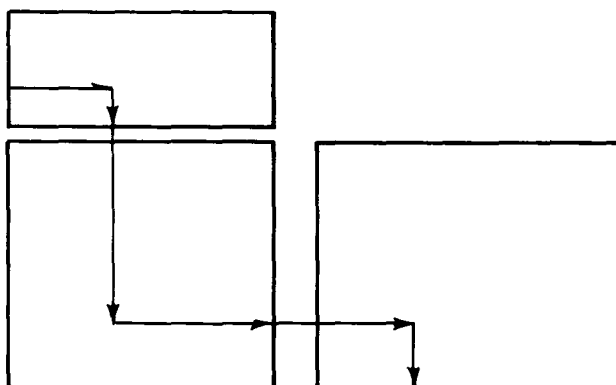


VA-1-65B

Figure A6-5 (Sheet 1 of 2)

FLIGHT IDLE POWER DIVE RECOVERY

EXAMPLE



VA-1-111A

Figure A6-5 (Sheet 2 of 2)

PART 7—DESCENT DATA

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Rate of Descent and Descent	
Speed in Normal Descent	A7-1

Distance, Time, and Fuel Used	
in Normal Descent	A7-1

DESCENT DATA

Descent data depict the maximum nautical miles per pound of fuel obtainable during operational descents from altitude down to the landing pattern or target area.

RATE OF DESCENT AND DESCENT SPEED IN NORMAL DESCENT (FIGURE A7-1)

The rate of descent and descent speed during a normal descent (figure A7-1) can be determined for the cruise configuration with both engines at idle power for descents from 28,000 feet and weights up to 12,000 pounds.

Rate of Descent and Descent Speed in Normal Descent Example Problem

Determine the desired speed at idle power to establish the optimum rate of descent for maximum penetration, miles per pound of fuel, and the value of the rate of descent in cruise configuration.

- Gross Weight—10,000 pounds
- Altitude—14,000 feet

1. Rate of Descent = 1430 feet per minute
2. Descent Speed = 154 KIAS

DISTANCE, TIME, AND FUEL USED IN NORMAL DESCENT (FIGURE A7-2)

The distance, time, and fuel requirements of a normal descent can be determined from figure A7-2 for descents from 28,000 feet and gross weights up to 12,000 pounds.

Distance, Time, and Fuel Used in Normal Descent Example Problem

Find the distance, time, and fuel used during a normal descent in the cruise configuration and both engines at idle power.

- Gross Weight—10,000 pounds
- Altitude—14,000 feet

1. Distance = 25.5 nautical miles
2. Time = 10 minutes
3. Fuel used = 45 pounds

NORMAL DESCENT

BASED ON: **FLIGHT TEST DATA**
 DATA AS OF: 15 JUNE 1969

**IDLE POWER
 FLAPS AND GEAR UP**

ENGINES: (2) T-76

EXAMPLE

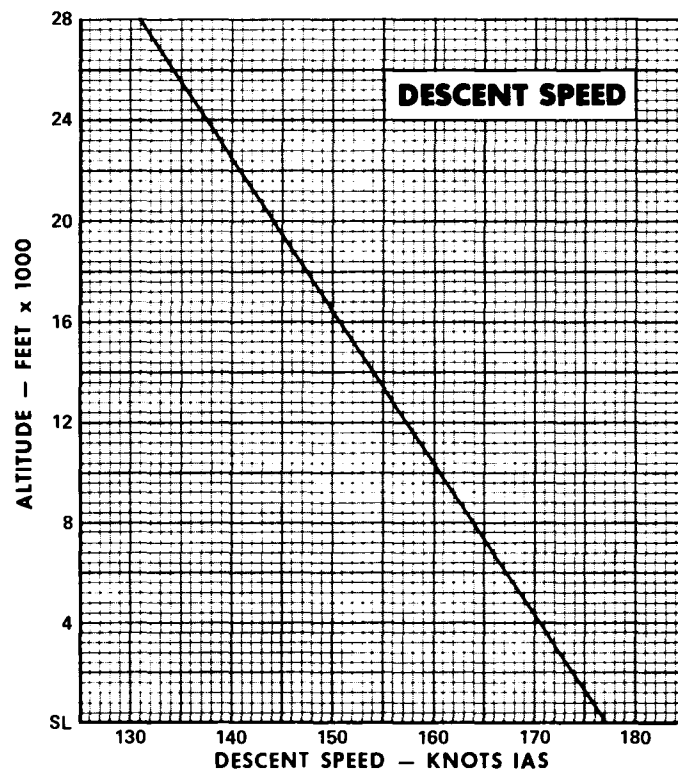
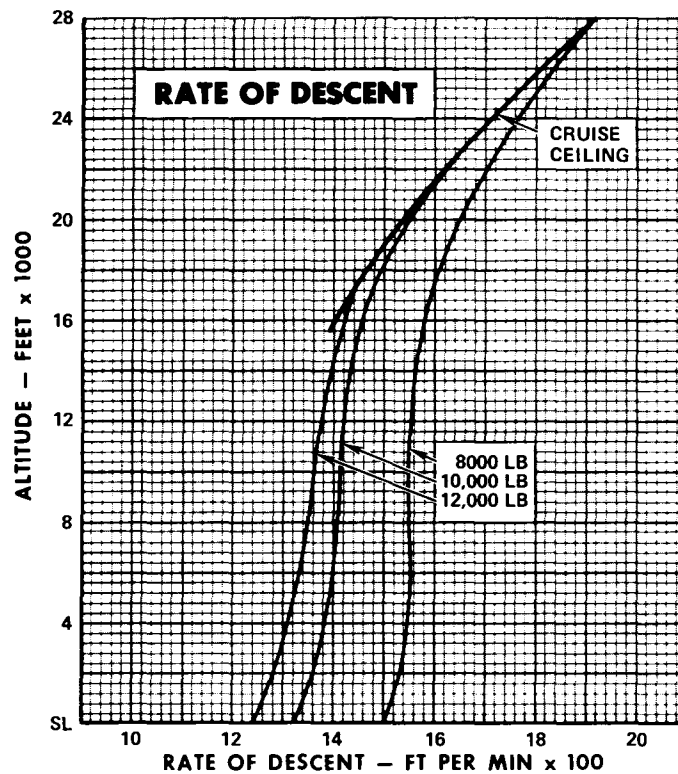
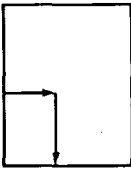


Figure A7-1

NORMAL DESCENT

BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969

IDLE POWER
FLAPS AND GEAR UP

ENGINES: (2) T-76

EXAMPLE

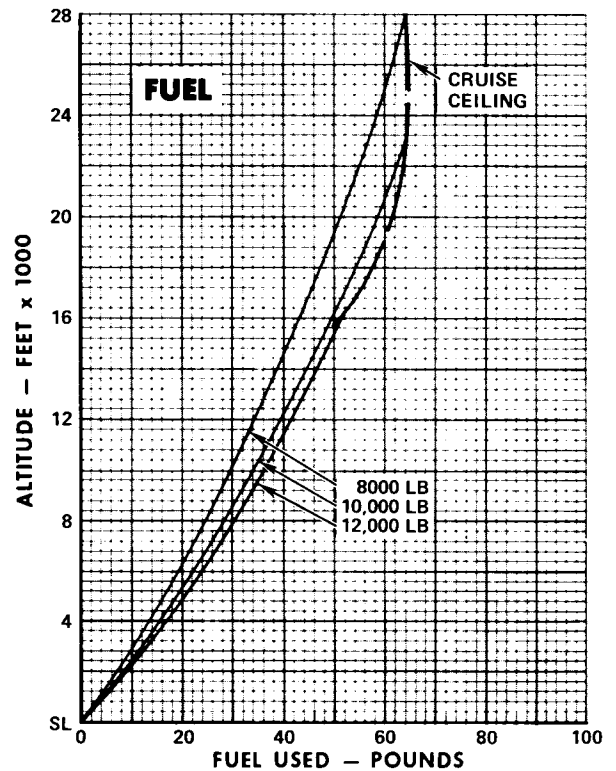
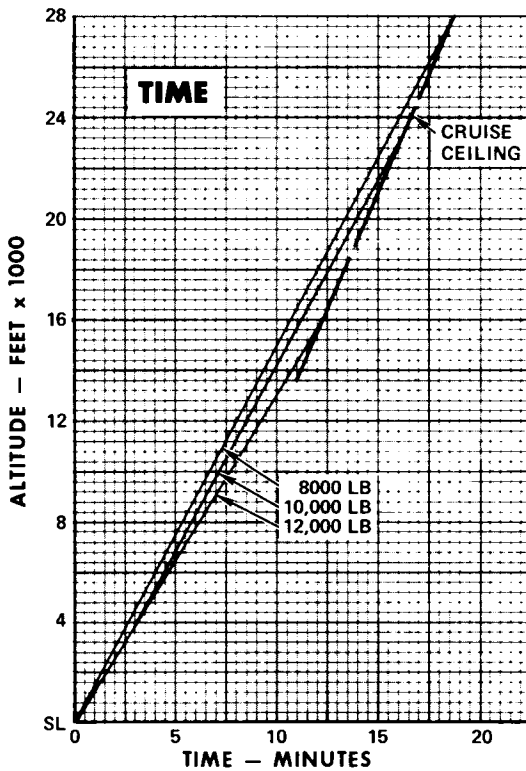
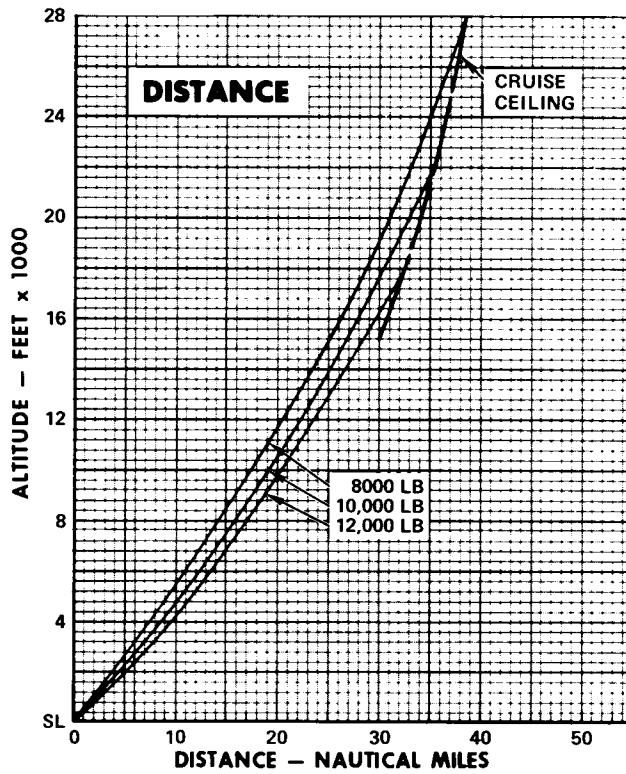
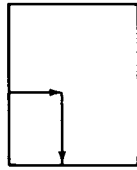


Figure A7-2

PART 8—LANDING DATA

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Landing Distance	A8-1
------------------------	------

LANDING DATA

EFFECT OF RUNWAY CONDITIONS (RCR) ON GROUND ROLL DISTANCE CHART (FIGURE A8-1)

In the event landings are to be made on hard surface runways, which are either wet or icy, the ground roll distance must be corrected. Enter the left side of the chart with ground roll distance as determined for dry hard surface runway and move horizontally to intercept the RCR number. This number indicates the runway condition. Then move vertically down and read the corrected ground run distance. See figure A8-1.

LANDING DISTANCE (FIGURES A8-2 THROUGH A8-6)

The Landing Distance chart determines landing roll for normal or STOL performance on hard-surface runways for various flap settings. Landing roll distance may be determined for idle or full-reverse power at various gross weights and ambient temperatures. See figures A8-2 through A8-6. On aircraft having T.O. 1L-10A-612 incorporated, the reverse thrust range is modified resulting in shorter stopping distance for normal performance landings

of 0° and 20° flap settings. See figures A8-2A and A8-3A for modified aircraft landing distances. Figures A8-2 and A8-3 remain appropriate for unmodified aircraft. Figures A8-4, A8-5, and A8-6 are to be used for both modified and unmodified aircraft since differences in ground run at the lower landing speeds are negligible.

Landing Distance Example Problem

Example based on figure A8-6 (maximum performance).

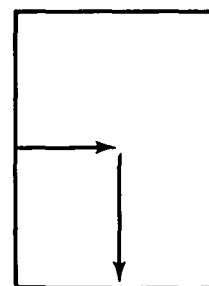
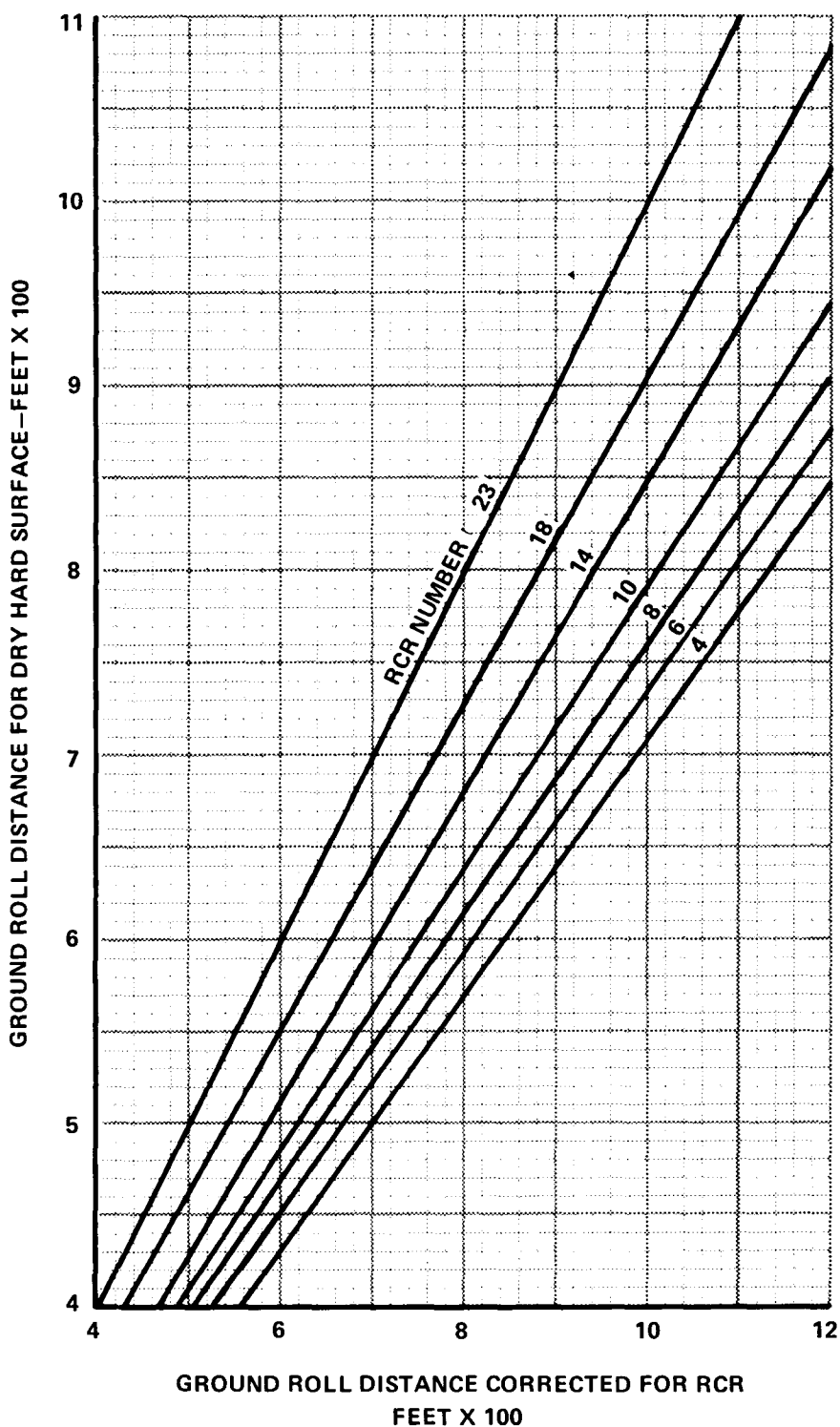
Find landing roll for idle power and reverse thrust:

- Gross Weight—12,000 pounds
- Flap Setting—40 degrees
- Pressure Altitude—2000 feet
- Ambient Temperature—30°C

1. Full reverse distance = 920 feet
2. Idle power distance = 1380 feet (reverse distance x 1.5)

EFFECT OF RUNWAY CONDITIONS (RCR) ON GROUND ROLL DISTANCE

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971



APPROXIMATE RCR VALUES FOR HARD-SURFACE RUNWAY CONDITIONS	
RUNWAY CONDITION	RCR NUMBER
DRY	23
WET	12
ICY	5

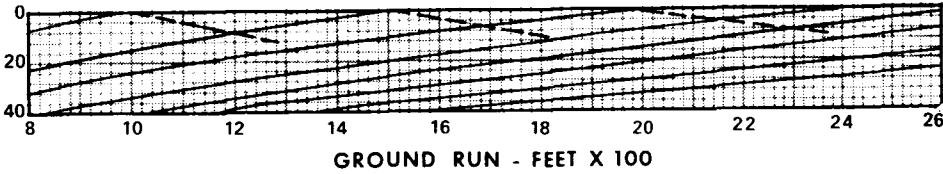
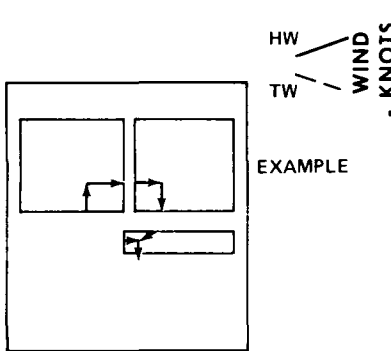
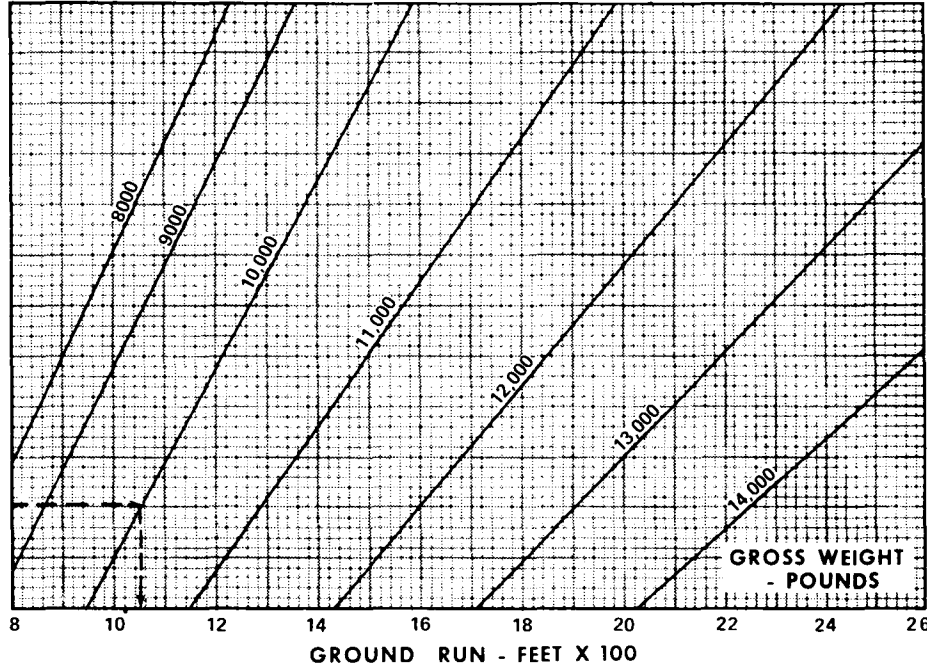
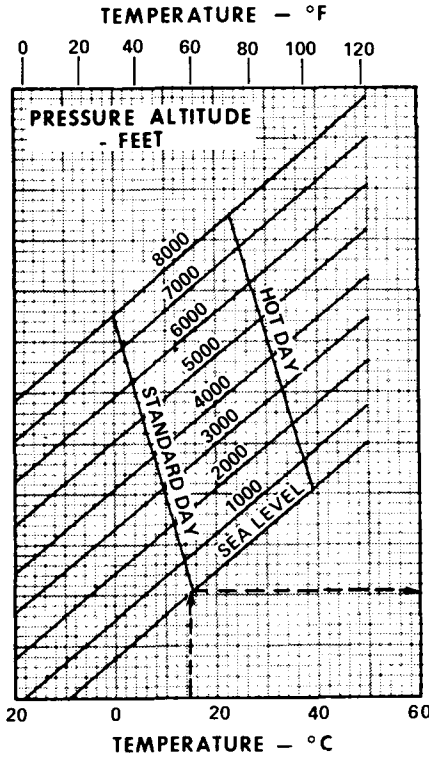
VA-1-182

Figure A8-1

LANDING DISTANCE

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971

**FULL REVERSE THRUST
BELOW 70 KIAS
DRY HARD RUNWAY
FLAPS UP**



APPROACH AND LANDING SPEEDS — KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	91
9,000	96
10,000	101
11,000	106
12,000	111
13,000	116
14,000	120

NOTE:

1. FOR DISTANCE TO CLEAR 50 FT. OBSTACLE, INCREASE GROUND RUN 70%.
2. FOR LANDING WITH NO REVERSE THRUST INCREASE GROUND RUN 25%
3. FOR EACH KNOT ABOVE RECOMMENDED APPROACH SPEED INCREASE GROUND RUN 25 FEET.
4. FOR LANDING WITHOUT BRAKES, INCREASE GROUND RUN 75%.

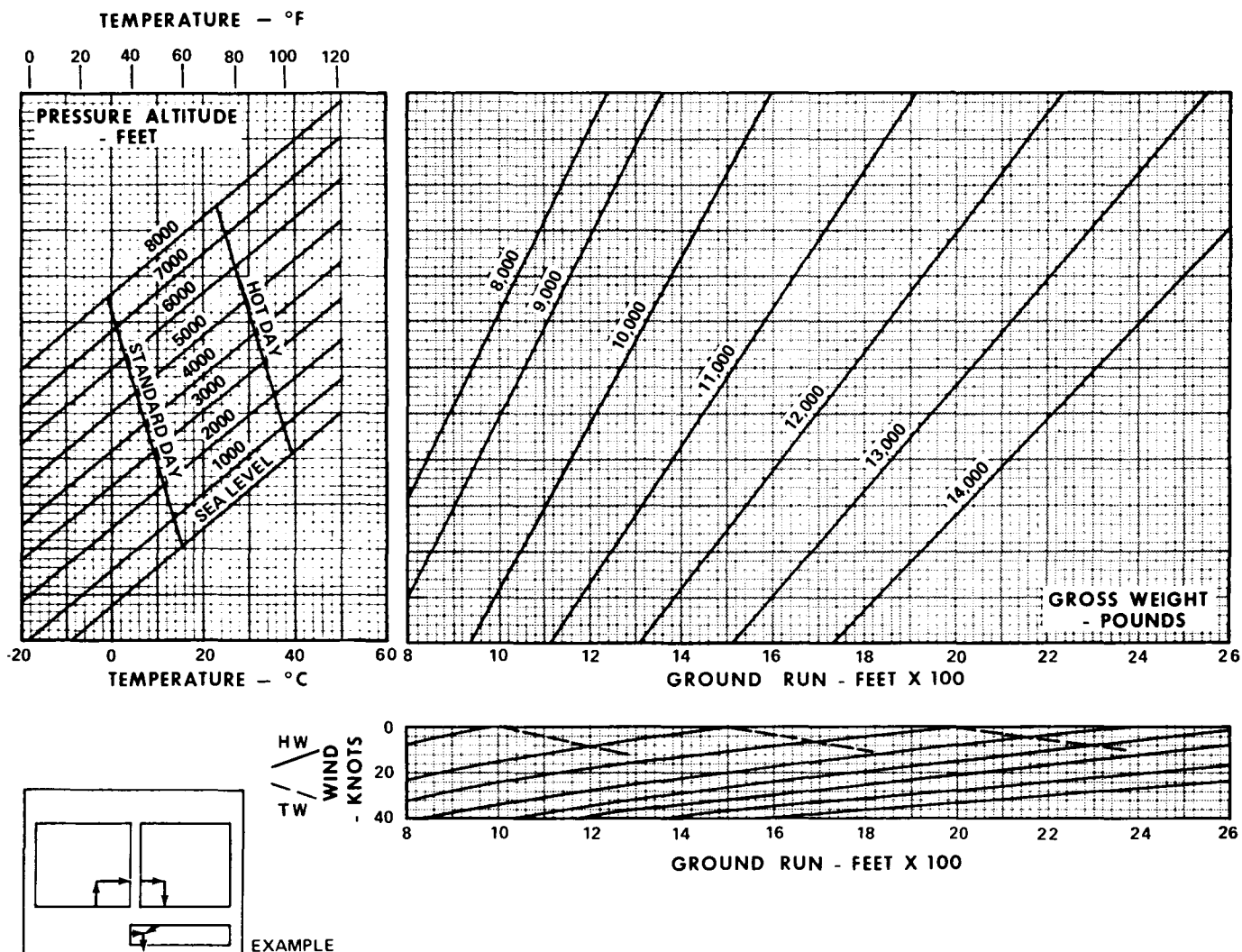
Figure A8-2

LANDING DISTANCE

BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 1 MARCH 1971

Aircraft having
T.O. 1L-10A-612
Incorporated

**FULL REVERSE THRUST
BELOW 100 KIAS
DRY HARD RUNWAY
FLAPS UP**



APPROACH AND LANDING SPEEDS - KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	91
9,000	96
10,000	101
11,000	106
12,000	111
13,000	116
14,000	120

NOTE:

1. FOR DISTANCE TO CLEAR 50 FT. OBSTACLE, INCREASE GROUND RUN 70%.
2. FOR LANDING WITH NO REVERSE THRUST INCREASE GROUND RUN 25%.
3. FOR EACH KNOT ABOVE RECOMMENDED APPROACH SPEED INCREASE GROUND RUN 25 FEET.
4. FOR LANDING WITHOUT BRAKES, INCREASE GROUND RUN 75%.

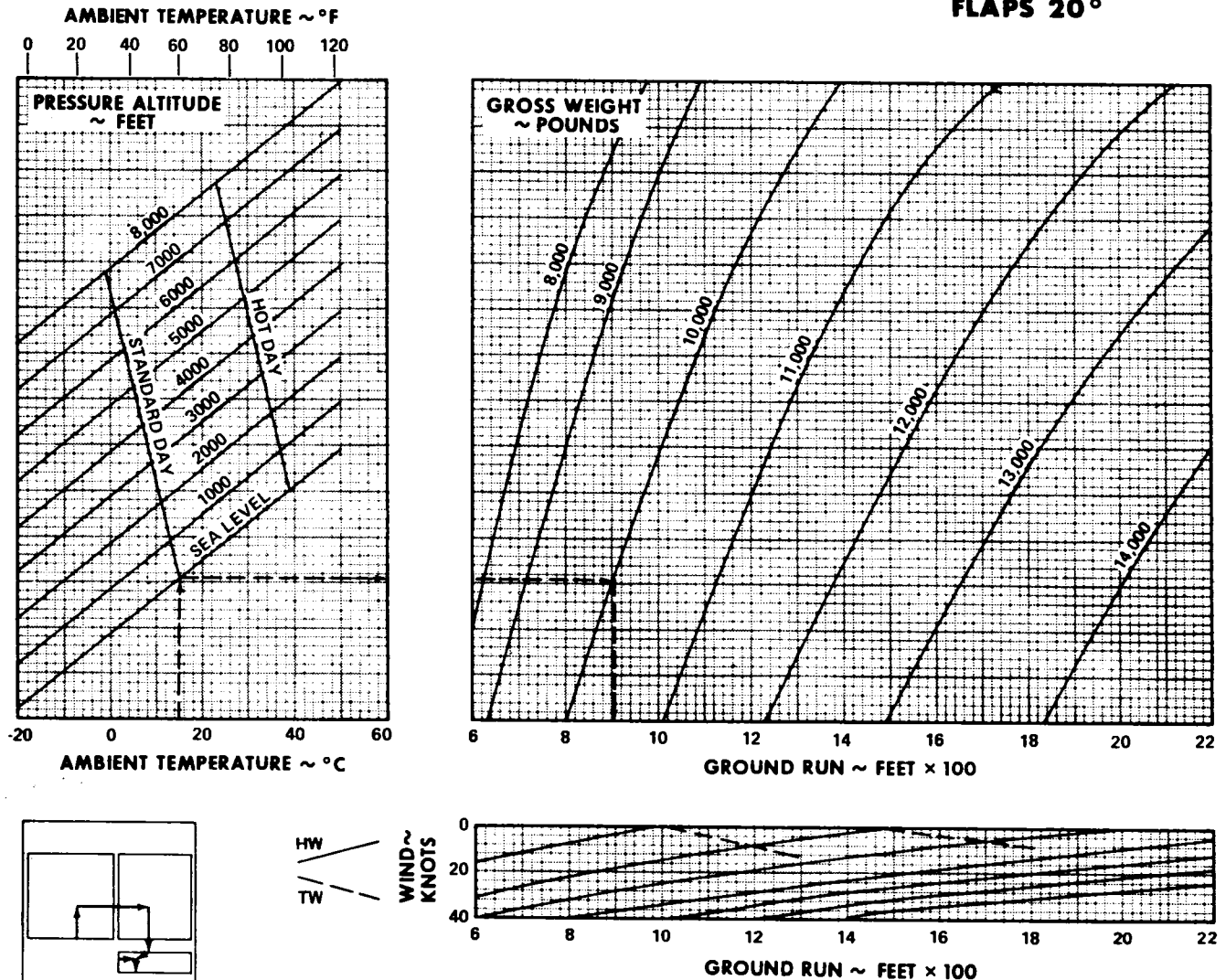
VA-1-183

Figure A8-2A

LANDING DISTANCE

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971

FULL REVERSE THRUST
BELOW 70 KIAS
DRY HARD RUNWAY
FLAPS 20°



APPROACH AND LANDING SPEEDS — KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	79
9,000	83
10,000	87
11,000	92
12,000	96
13,000	100

NOTES:

1. FOR DISTANCE TO CLEAR 50 FOOT OBSTACLE
INCREASE GROUND RUN 80%.
2. FOR EACH KNOT ABOVE RECOMMENDED APPROACH
SPEED INCREASE GROUND RUN 20 FEET.
3. FOR LANDING WITHOUT REVERSE THRUST
INCREASE GROUND RUN 25%.
4. FOR LANDING WITHOUT BRAKES,
INCREASE GROUND RUN 75%.

VA 1 96D

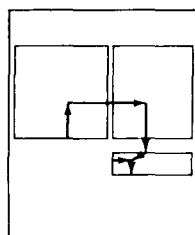
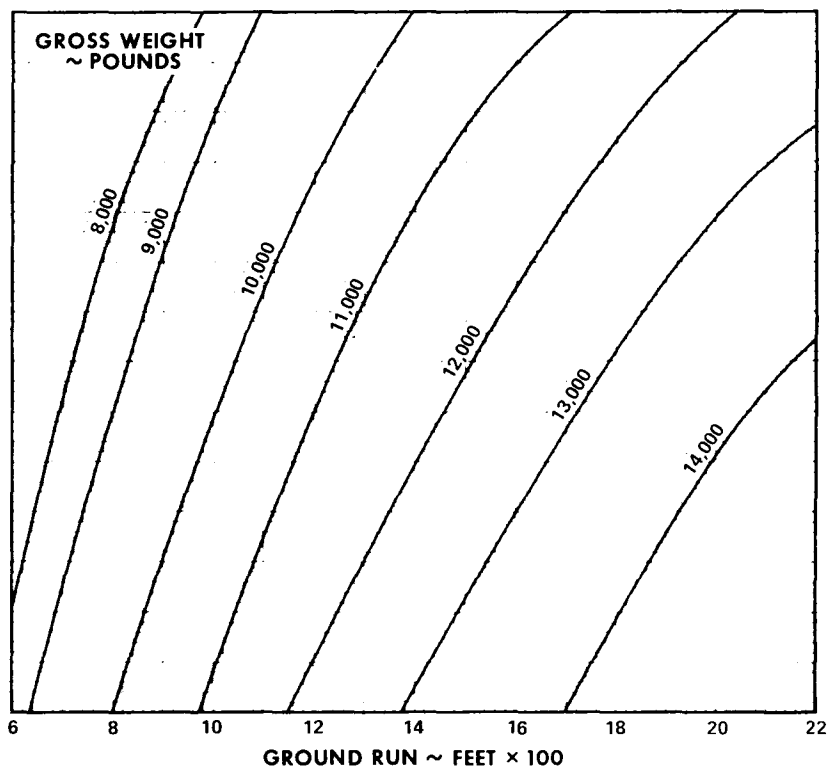
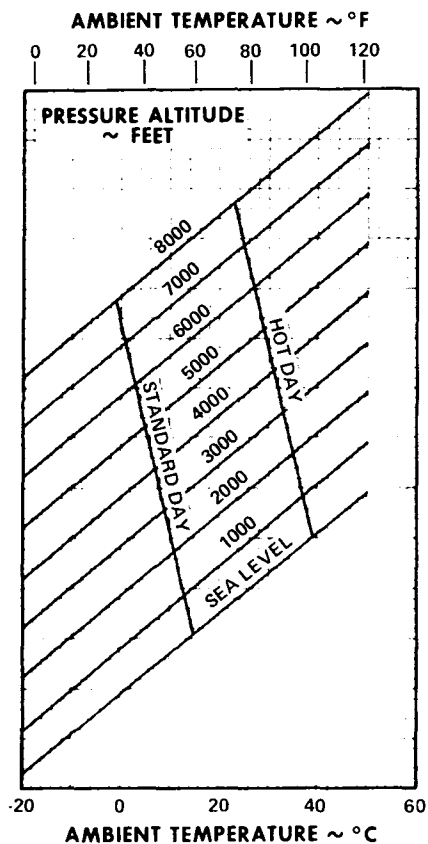
Figure A8-3

LANDING DISTANCE

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 MARCH 1971

Aircraft having
T.O. 1L-10A-612
Incorporated

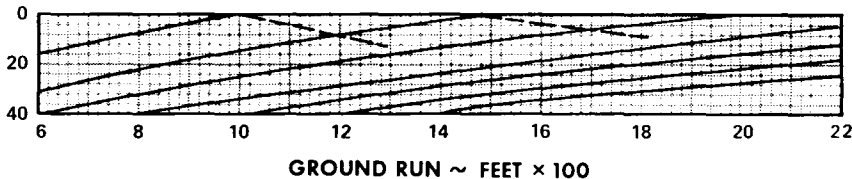
FULL REVERSE THRUST
BELOW 100 KIAS
DRY HARD RUNWAY
FLAPS 20°



EXAMPLE

HW
TW

WIND ~
KNOTS



APPROACH AND LANDING SPEEDS ~ KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	79
9,000	83
10,000	87
11,000	92
12,000	96
13,000	100
14,000	104

NOTE:

1. FOR DISTANCE TO CLEAR 50 FOOT OBSTACLE
INCREASE GROUND RUN 80%.
2. FOR EACH KNOT ABOVE RECOMMENDED APPROACH
SPEED INCREASE GROUND RUN 20 FEET.
3. FOR LANDING WITHOUT REVERSE THRUST
INCREASE GROUND RUN 25%.
4. FOR LANDING WITHOUT BRAKES,
INCREASE GROUND RUN 75%.

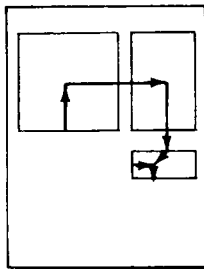
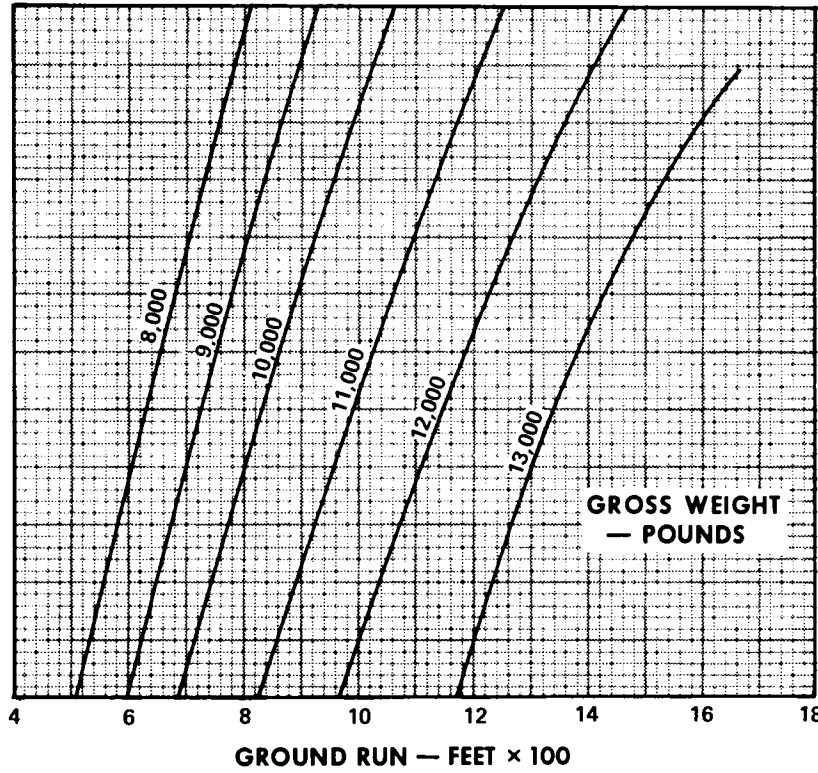
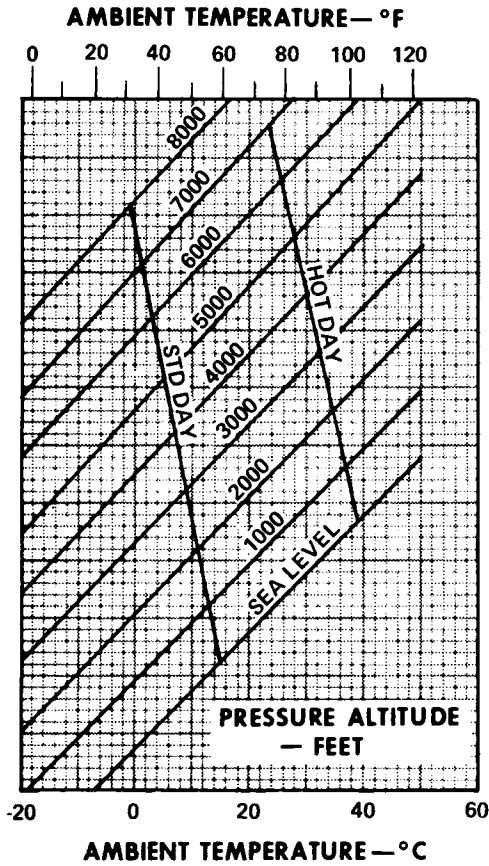
VA-1-184

Figure A8-3A

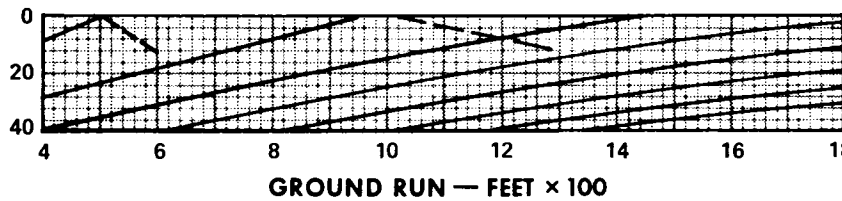
LANDING DISTANCE

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971

FULL REVERSE THRUST
BELOW 70 KIAS (100 KIAS)
DRY HARD RUNWAY
FLAPS 40°



EXAMPLE



APPROACH AND LANDING SPEED — KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	69
9,000	72
10,000	76
11,000	80
12,000	83.5
13,000	87

NOTE:

1. FOR DISTANCE TO CLEAR 50 FOOT OBSTACLE
INCREASE GROUND RUN 70%
2. FOR EACH KNOT ABOVE RECOMMENDED TOUCHDOWN
SPEED INCREASE GROUND RUN 25 FEET.
3. FOR LANDING WITHOUT REVERSE THRUST
INCREASE GROUND RUN 25%.
4. FOR LANDING WITHOUT BRAKES, INCREASE
GROUND RUN 75%.

* Aircraft having T.O. 1L-10A-612 Incorporated

VA-1-146 C

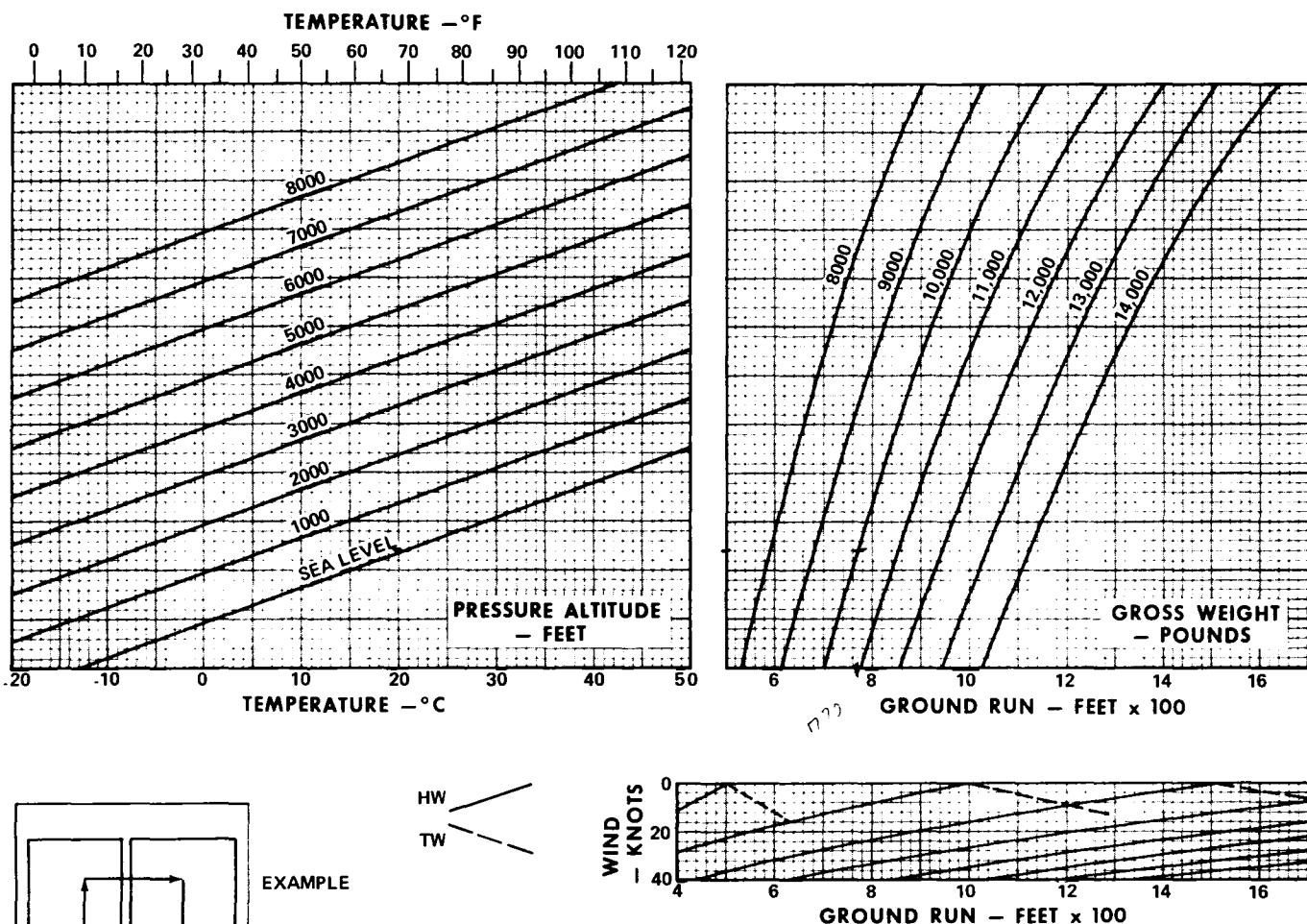
Figure A8-4

LANDING DISTANCE - STOL

BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971

OPTIMUM PERFORMANCE

FULL REVERSE THRUST
BELOW 70 KIAS (100 KIAS)*
DRY HARD RUNWAY
FLAPS 20°



APPROACH AND LANDING SPEEDS - KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	72
9,000	76
10,000	80
11,000	84
12,000	88
13,000	91
14,000	95

NOTE:

1. FOR DISTANCE TO CLEAR 50 FT OBSTACLE INCREASE GROUND RUN 70%.
2. FOR EACH KNOT ABOVE RECOMMENDED APPROACH SPEED INCREASE GROUND RUN 25 FEET.
3. FOR LANDINGS WITH NO REVERSE THRUST INCREASE GROUND RUN 50%.

* Aircraft having T.O. 1L-10A-612 Incorporated

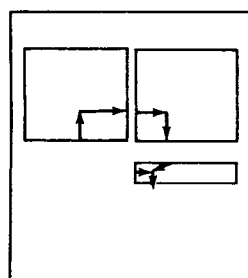
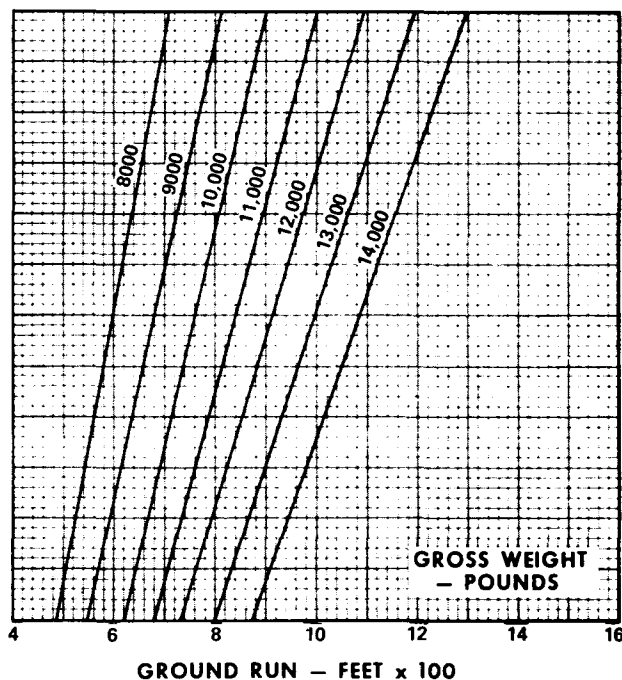
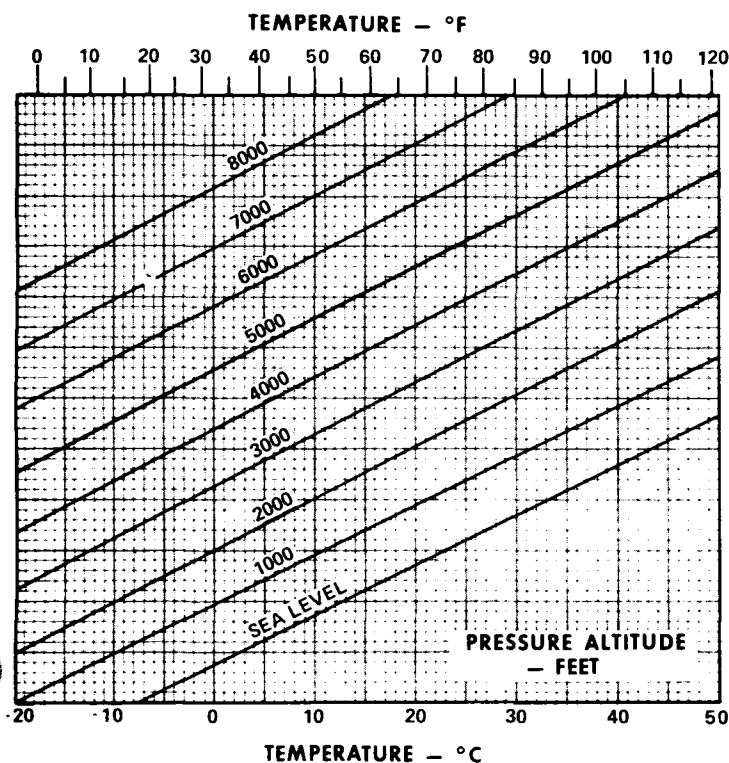
VA-1-166B

Figure A8-5

LANDING DISTANCE - STOL

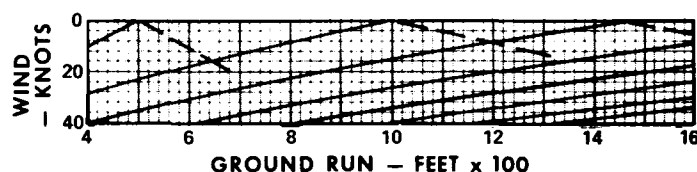
BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971

MAXIMUM PERFORMANCE
BASED ON MINIMUM
SINGLE ENGINE CONTROL SPEEDS
FULL REVERSE THRUST
BELOW 70 KIAS (100 KIAS)*
DRY HARD RUNWAY
FLAPS 40°



EXAMPLE

HW
TW



APPROACH AND LANDING SPEEDS — KNOTS IAS

GROSS WEIGHT (POUNDS)	SPEED
8,000	66
9,000	70
10,000	74
11,000	77
12,000	81
13,000	84
14,000	87

NOTE:

- FOR DISTANCE TO CLEAR 50 FT OBSTACLE INCREASE GROUND RUN 70%.
- FOR EACH KNOT ABOVE RECOMMENDED APPROACH SPEED INCREASE GROUND RUN 25 FEET.
- FOR LANDING WITH NO REVERSE THRUST INCREASE GROUND RUN 50%.

* Aircraft having T.O. 1L-10A-612 Incorporated

VA 1-167B

Figure A8-6

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AUXILIARY EQUIPMENT

SYSTEMS OPERATION