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**

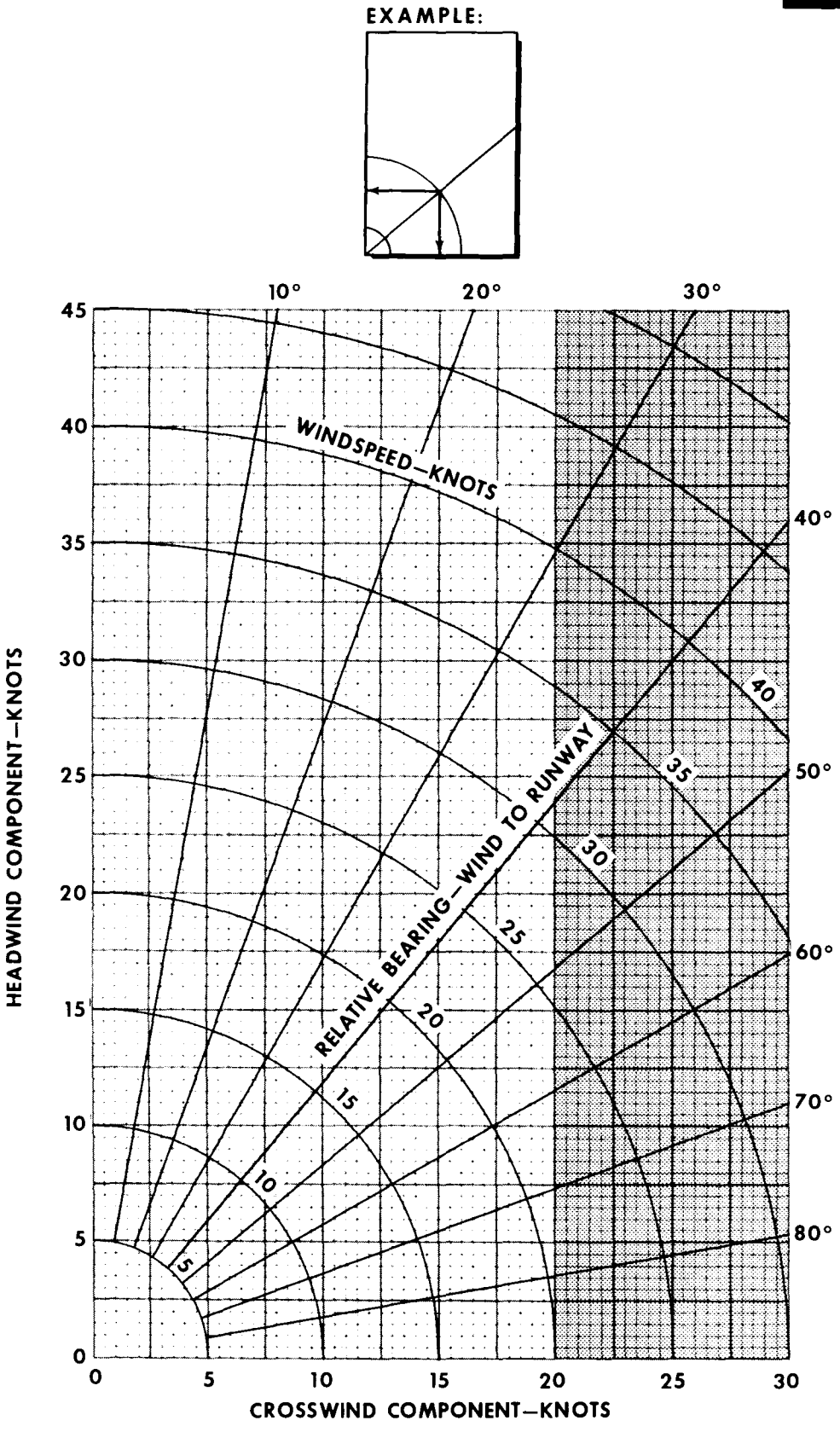
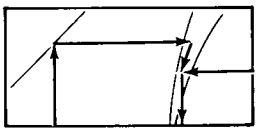


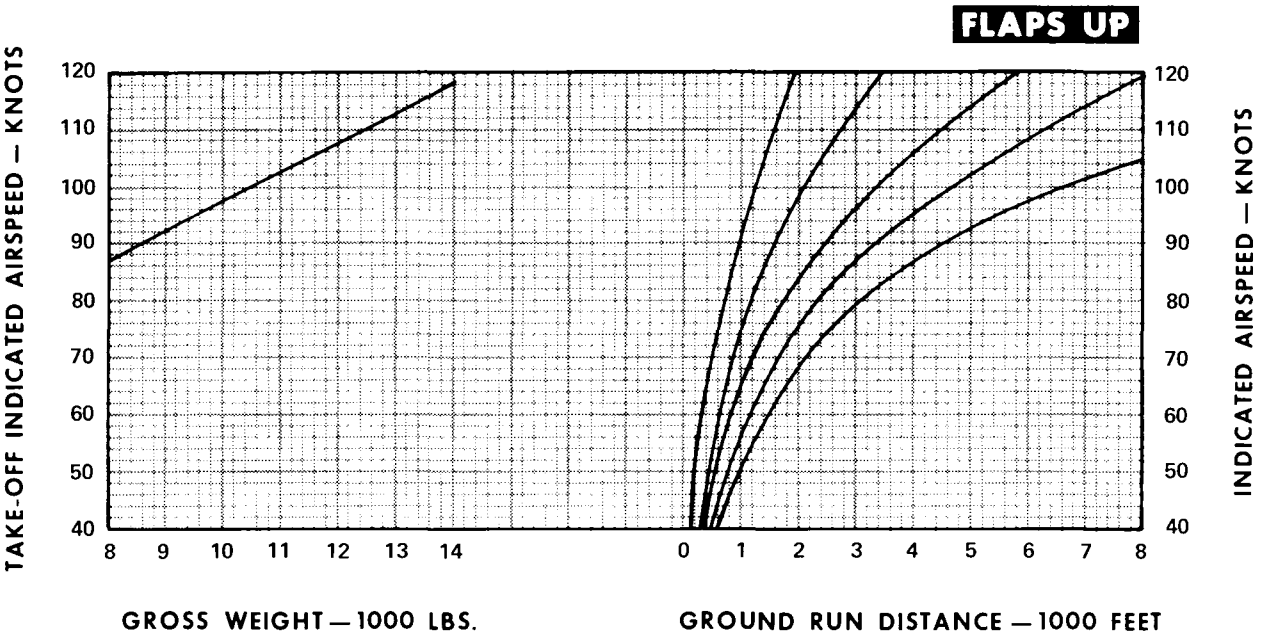

*Figure A2-1*

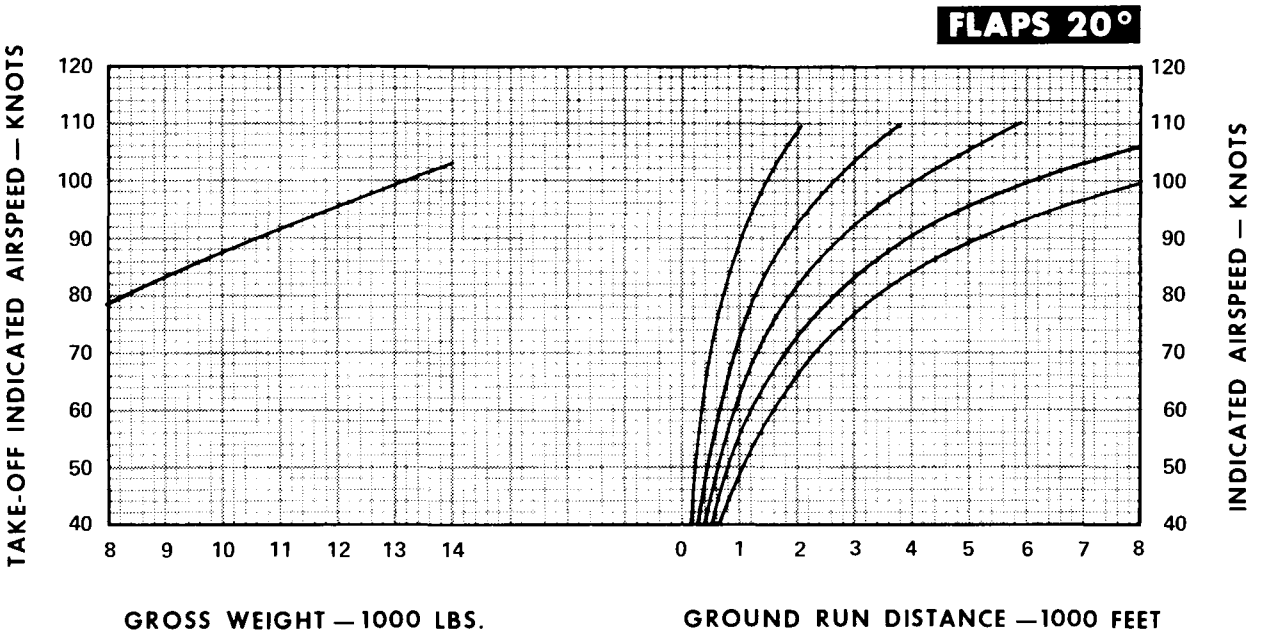
# ACCELERATION CHECK SPEED CHART

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



EXAMPLE



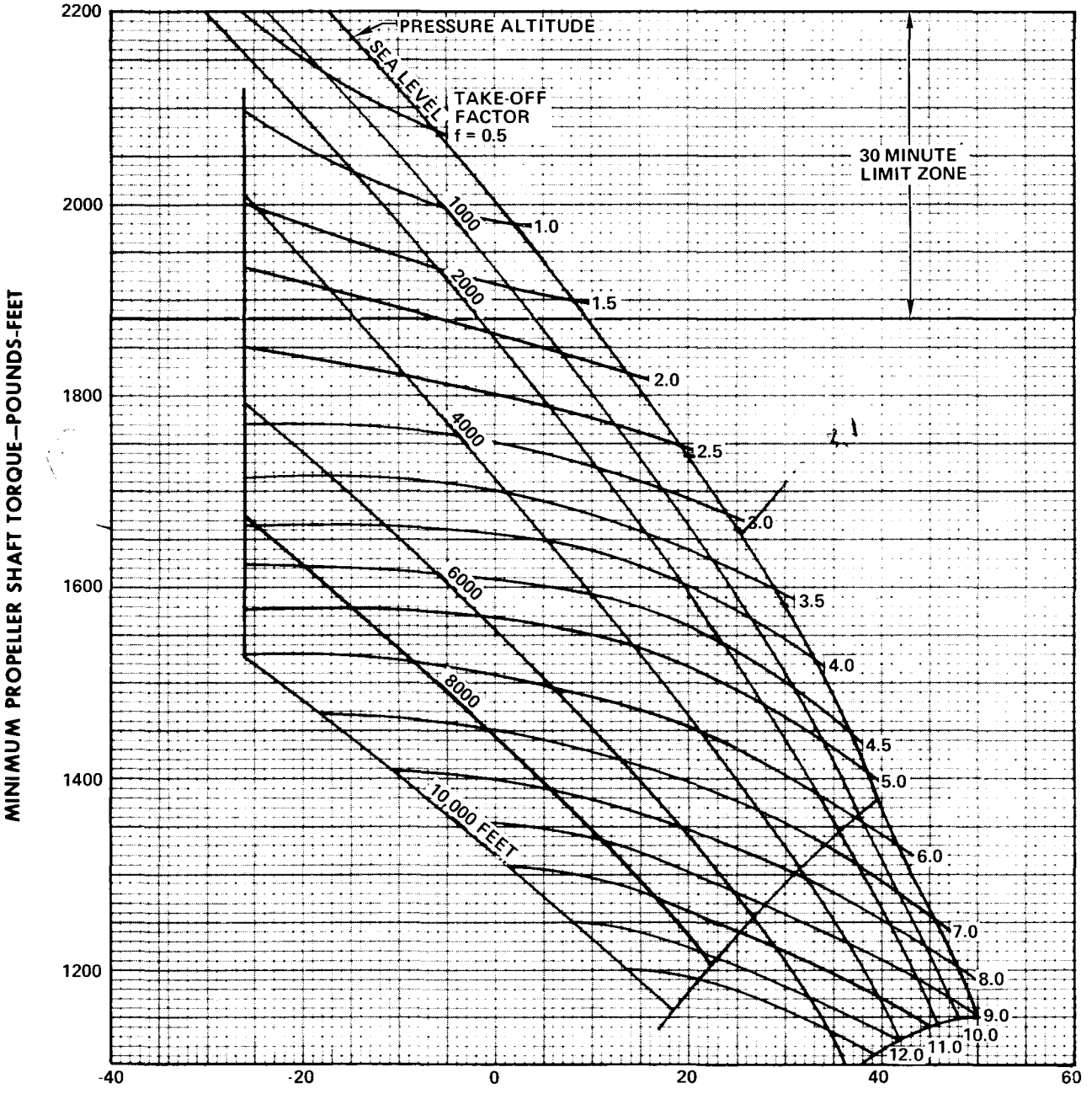

VA-1-180

*Figure A2-2*

# 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 |

**NOTE:**

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

**EXAMPLE**

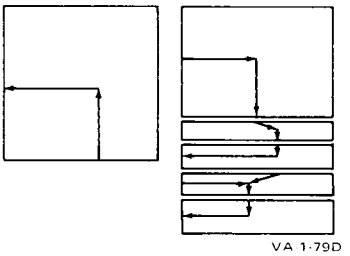
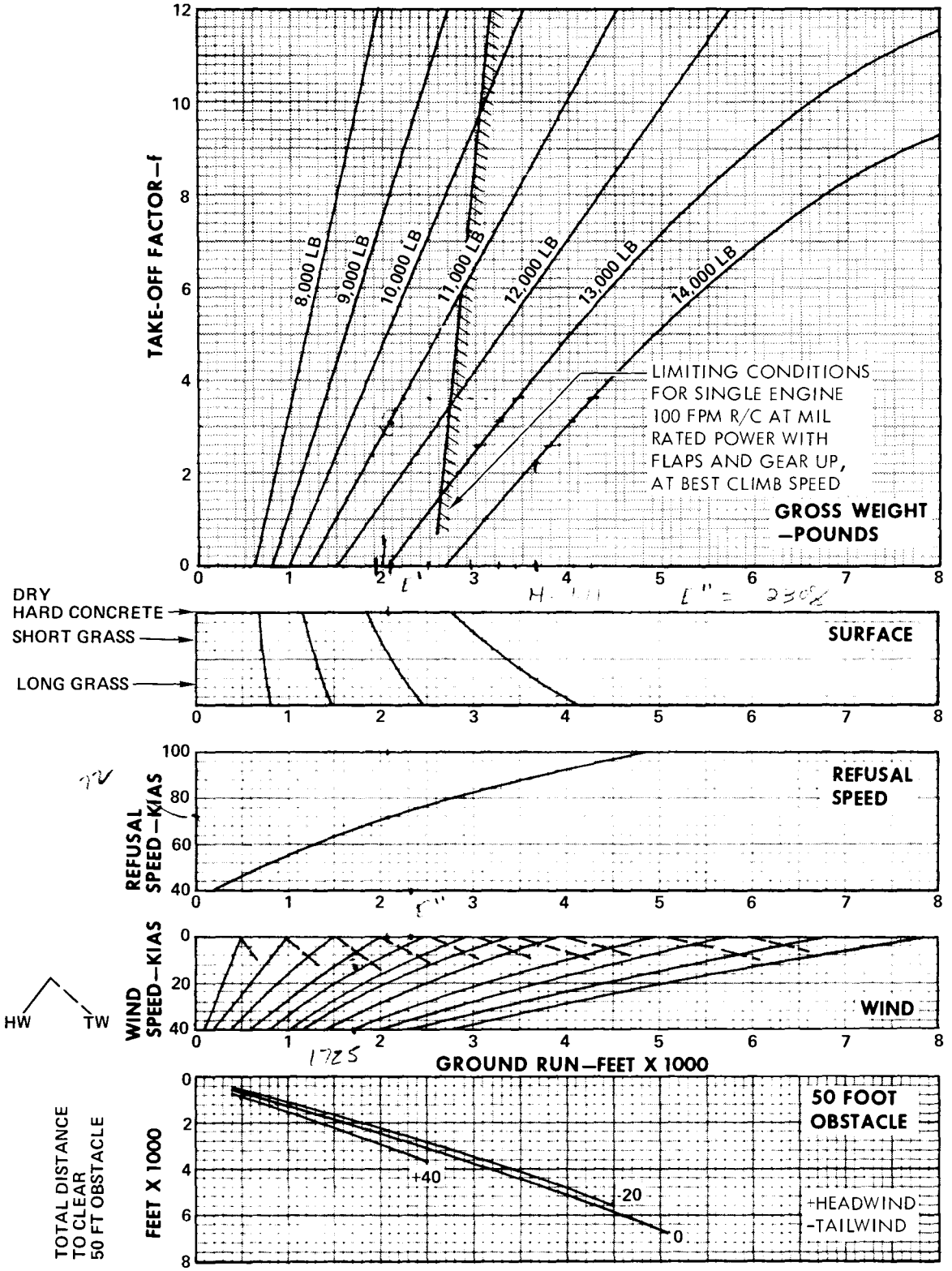



*Figure A2-3 (Sheet 1 of 2)*



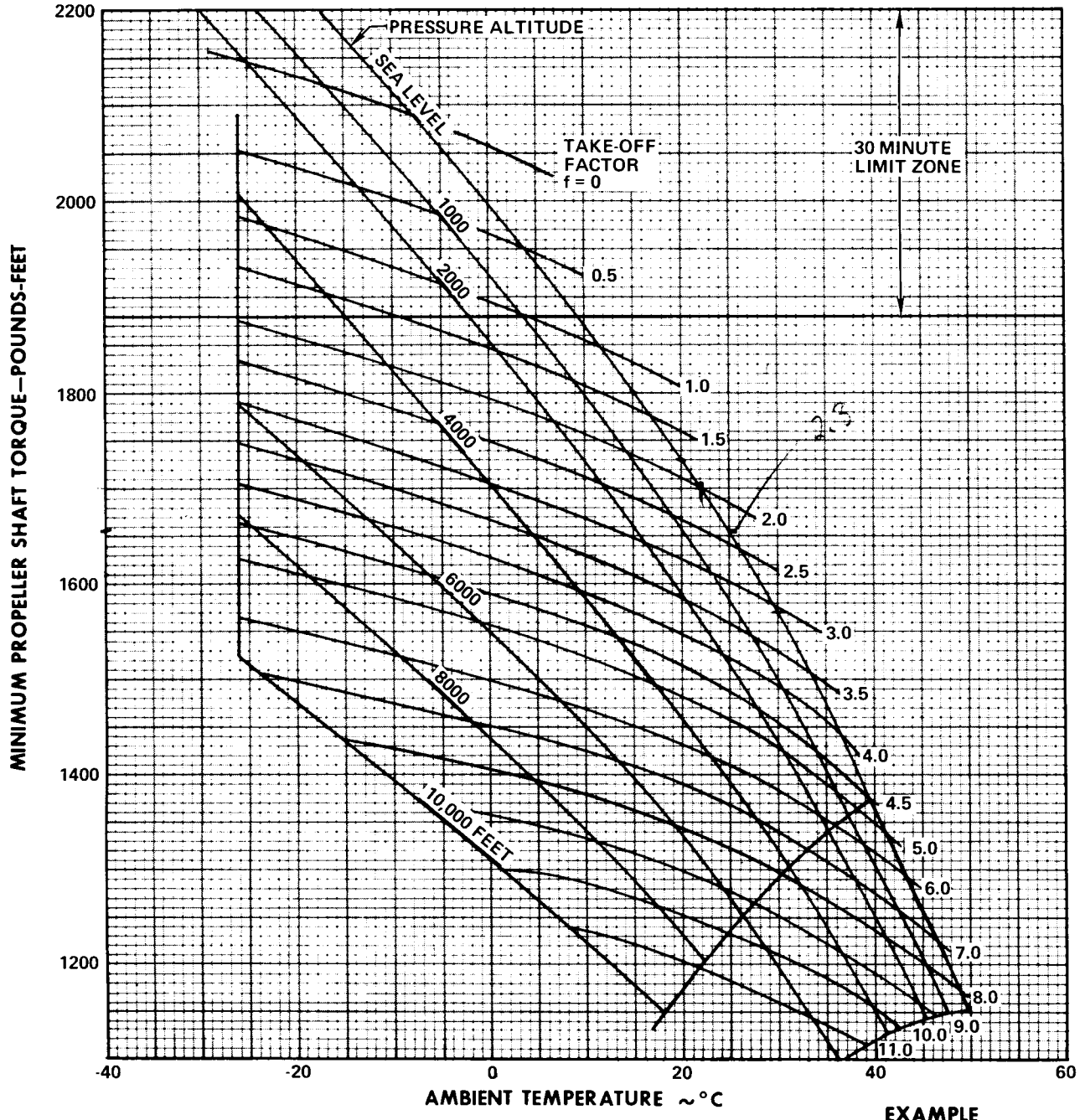

VA-1-158A

*Figure A2-3 (Sheet 2 of 2)*

# TAKE-OFF DISTANCE

**FLAPS 20°**

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



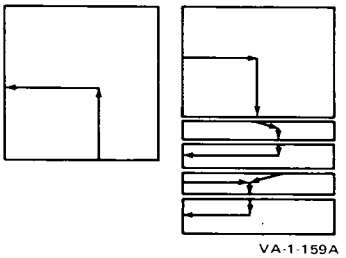

**TAKE-OFF SPEED—KNOTS IAS**

| 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:**

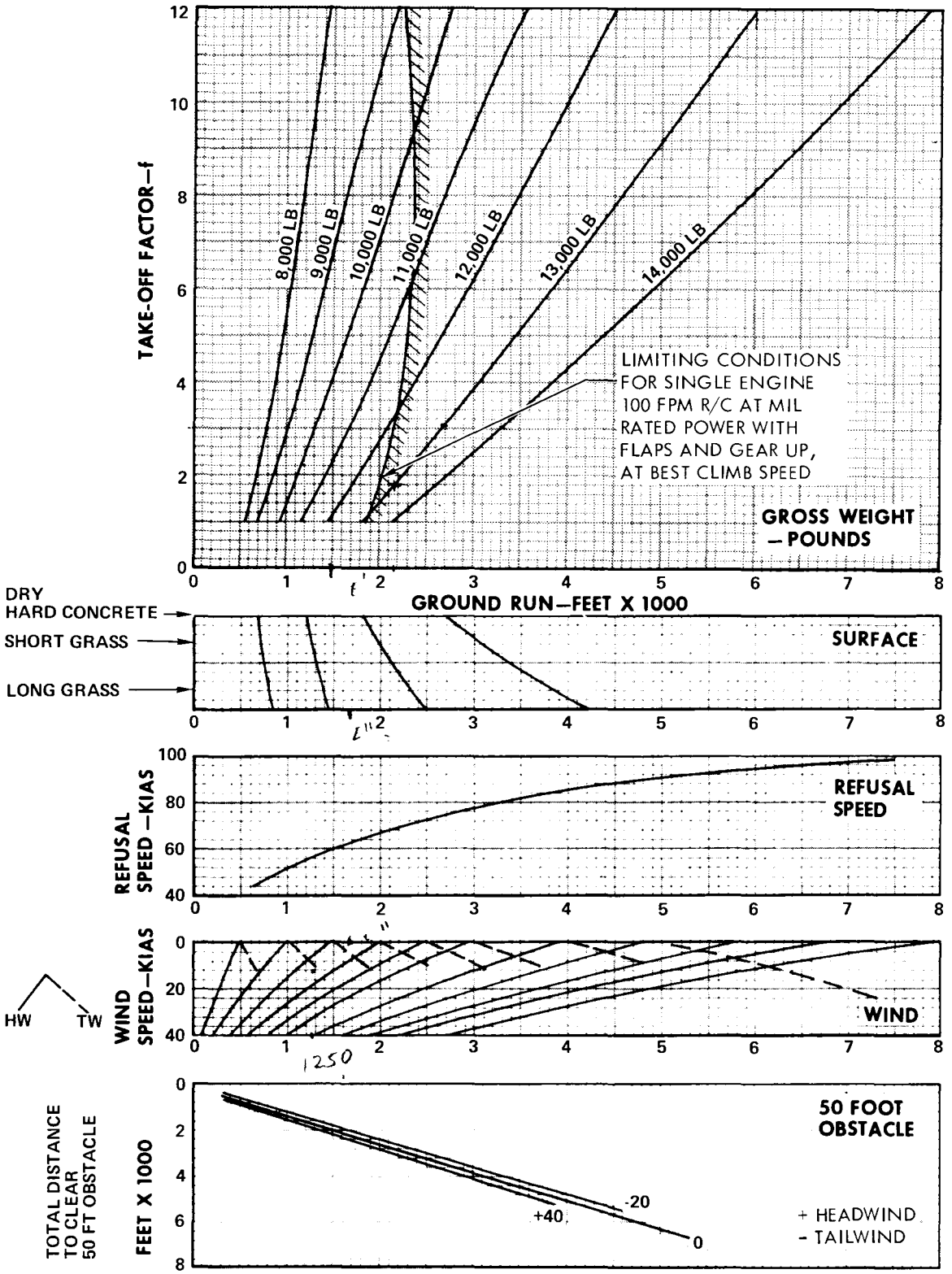
INCREASE GROUND RUN DISTANCE 4% FOR EACH ONE PERCENT INCREASE IN THE RUNWAY SLOPE

**EXAMPLE**



VA-1-159A

*Figure A2-4 (Sheet 1 of 2)*




VA-1-80D

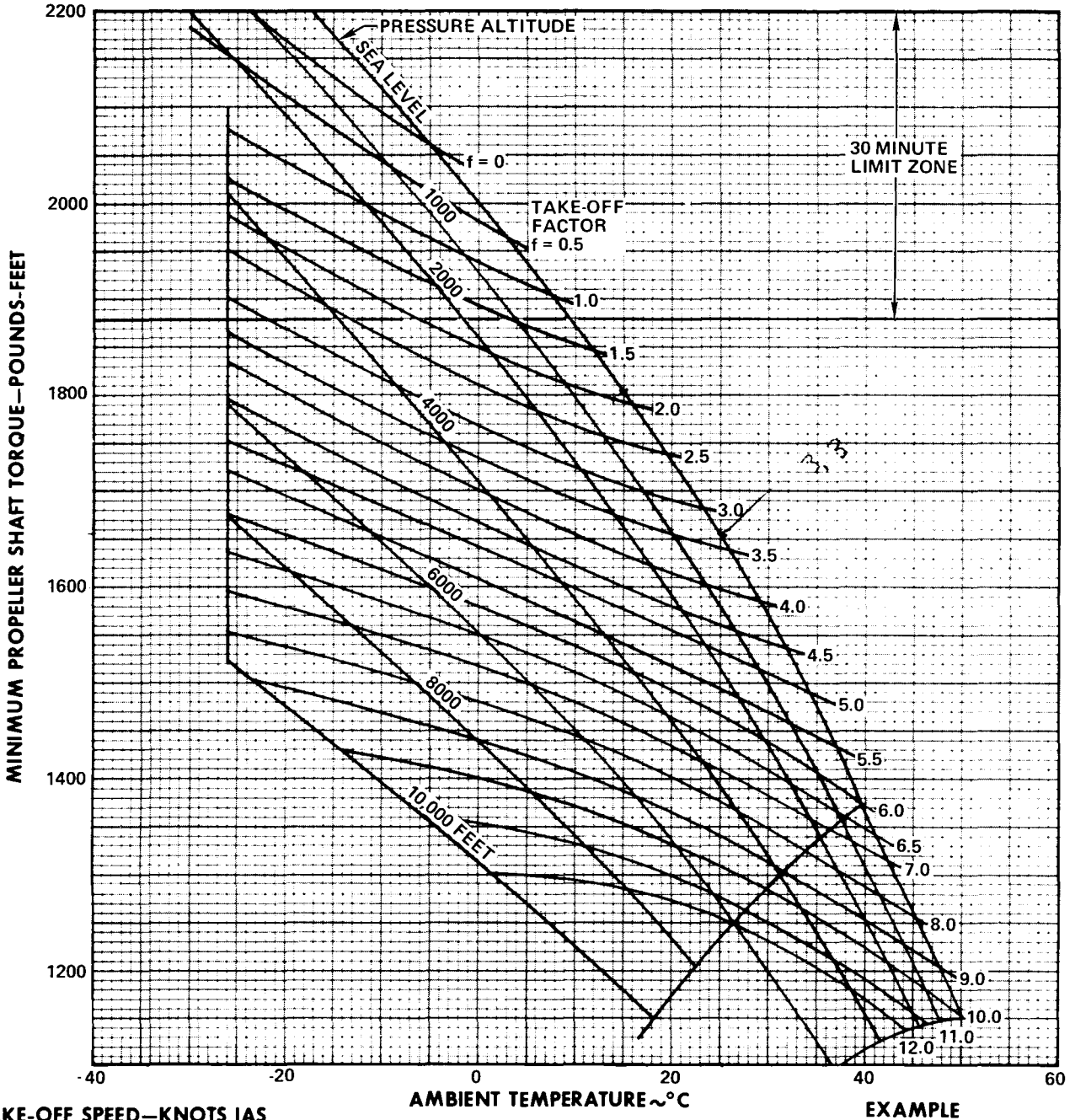
*Figure A2-4 (Sheet 2 of 2)*

# TAKE-OFF DISTANCE – STOL

**MAXIMUM PERFORMANCE**

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

**FLAPS 20°**



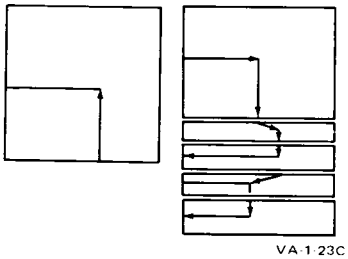

**TAKE-OFF SPEED—KNOTS IAS**

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

**NOTE:**

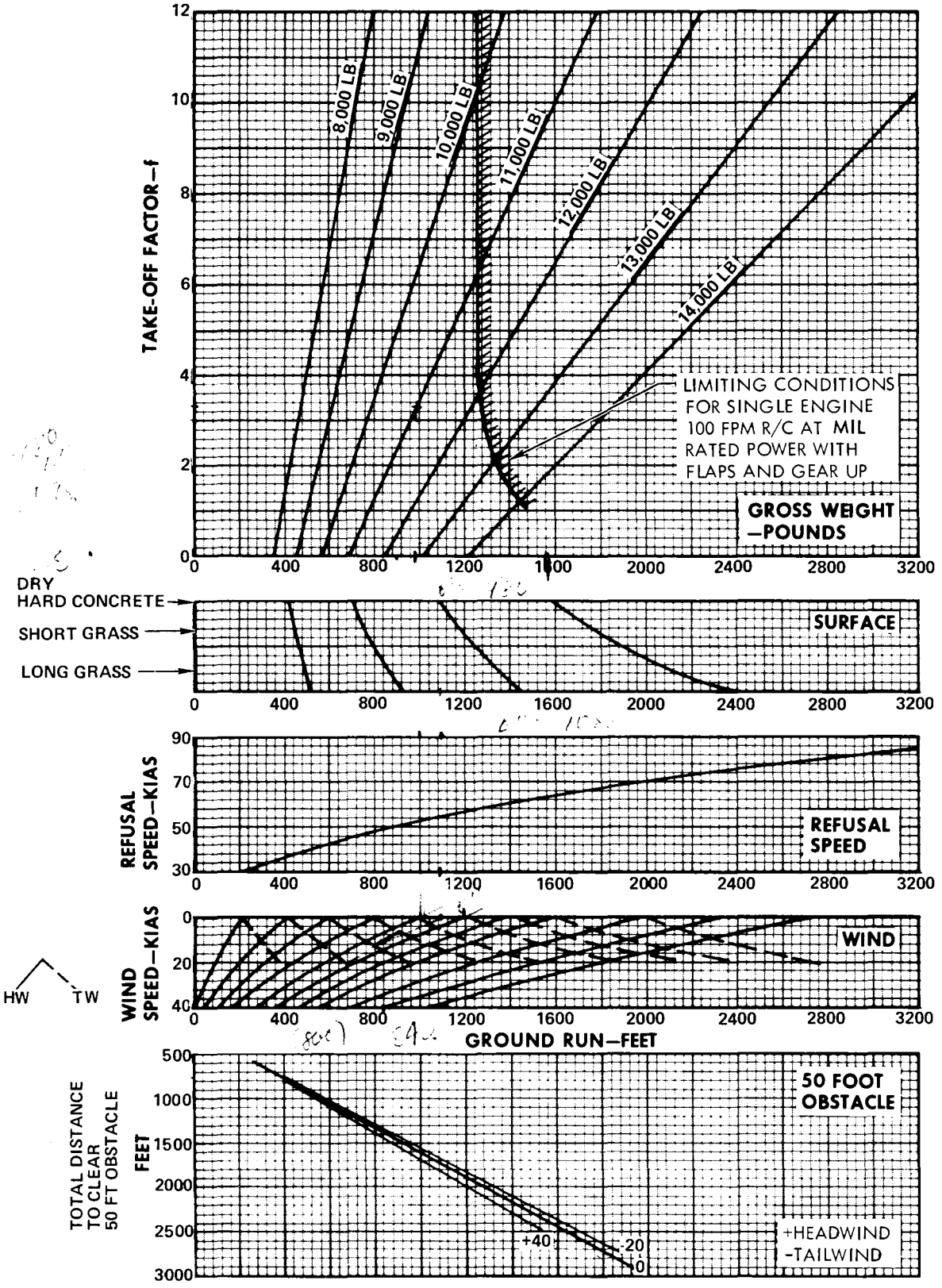
INCREASE GROUND RUN DISTANCE 4% FOR EACH ONE PERCENT INCREASE IN THE RUNWAY SLOPE

**EXAMPLE**



VA-1-23C

*Figure A2-5 (Sheet 1 of 2)*




VA-1-160

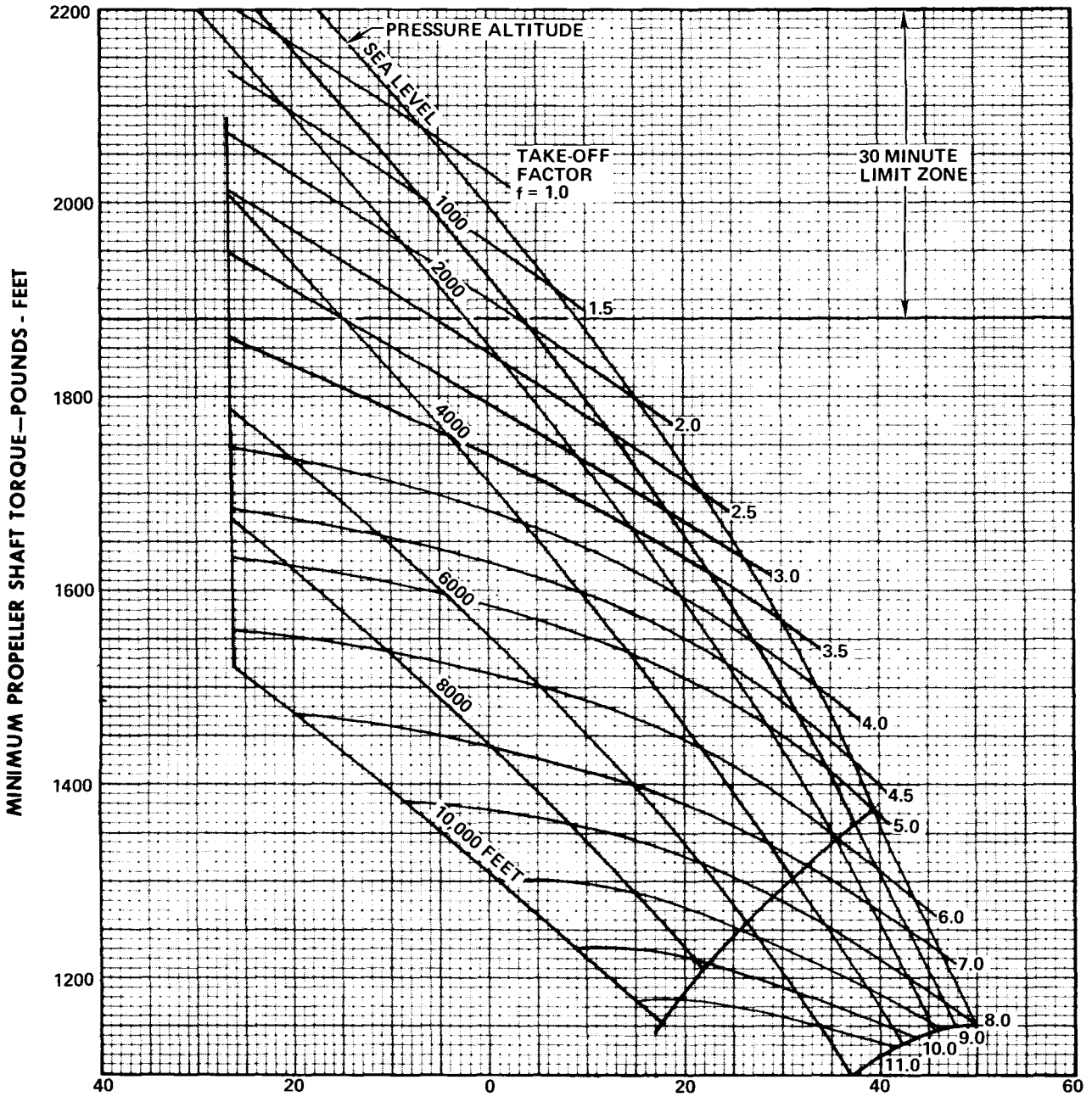
*Figure A2-5 (Sheet 2 of 2)*

# 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 |

**NOTE:**

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

**EXAMPLE**

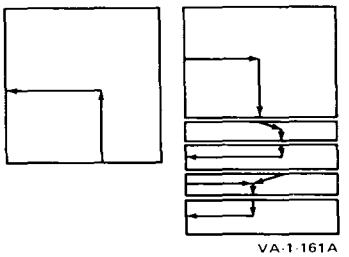
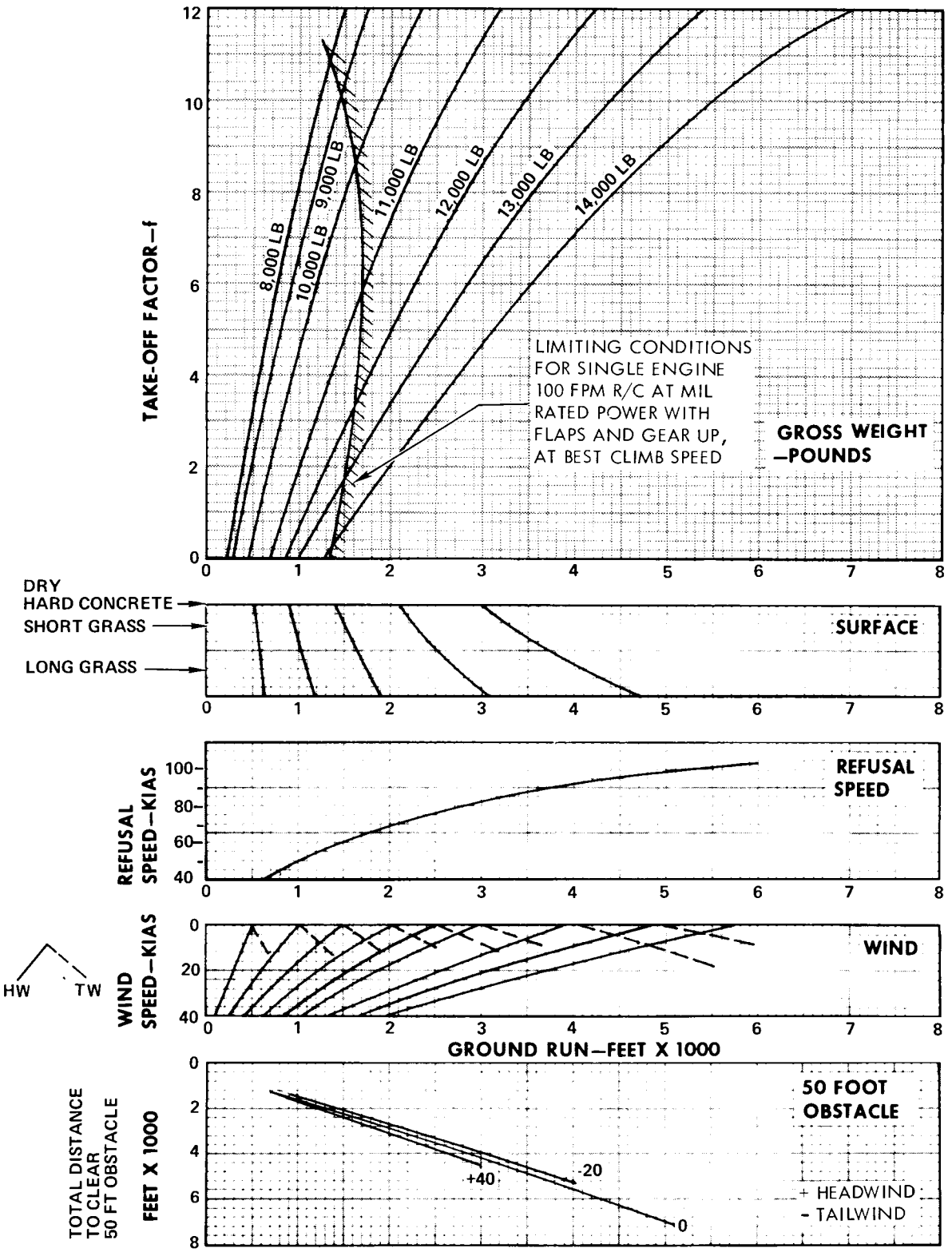



*Figure A2-6 (Sheet 1 of 2)*




VA-1-162A

*Figure A2-6 (Sheet 2 of 2)*

# POWER CORRECTION

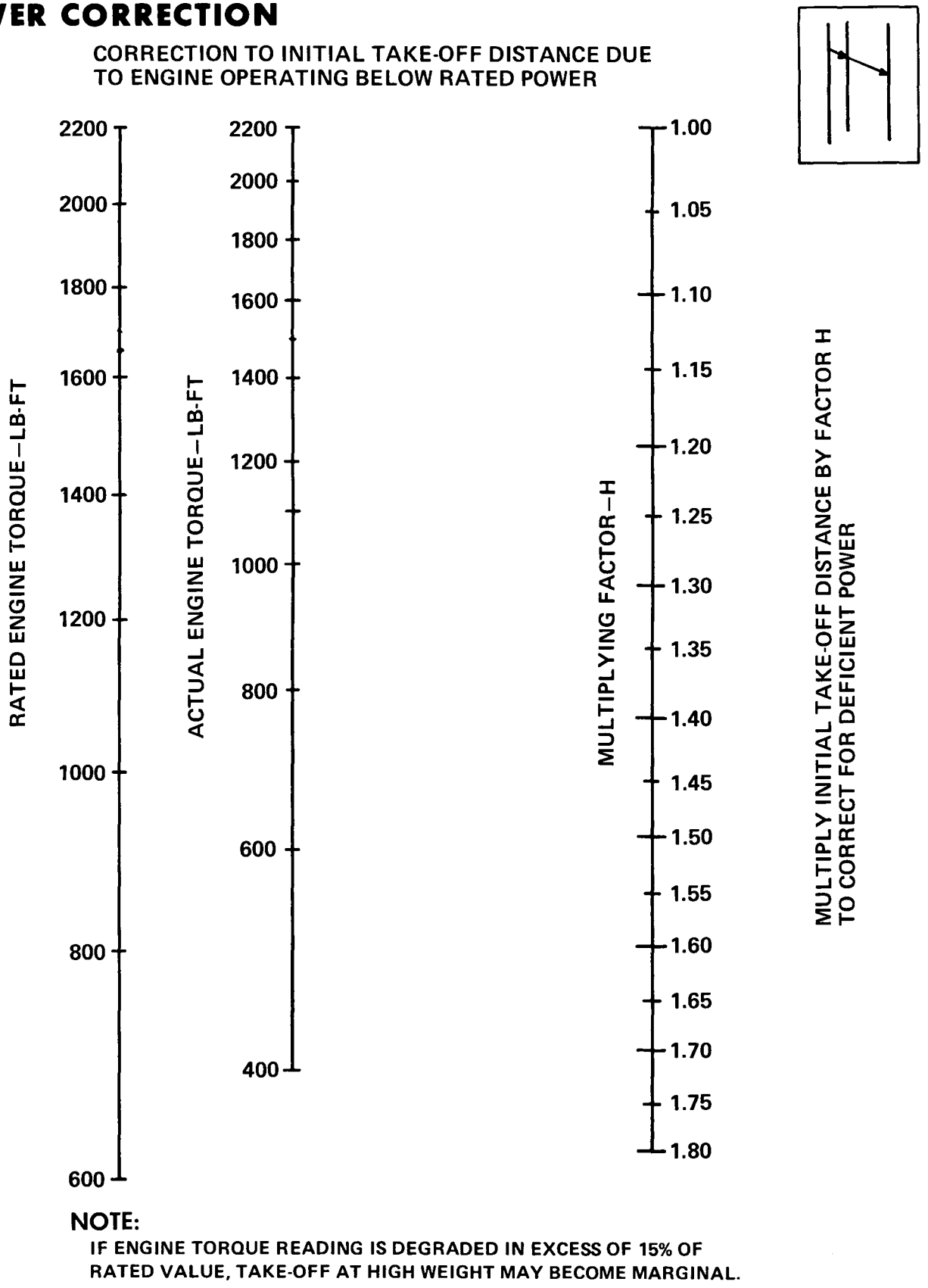
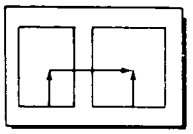



*Figure A2-7*

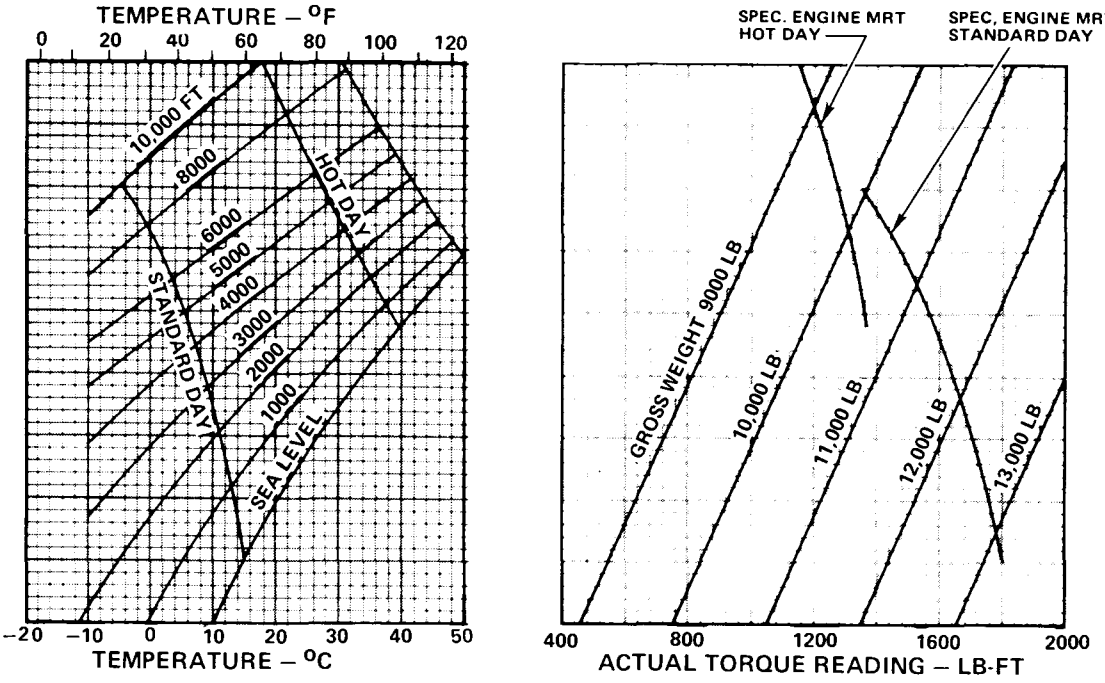
# MINIMUM TORQUE READING vs. GROSS WEIGHT TO MAINTAIN 100 FPM RATE-OF-CLIMB

EXAMPLE

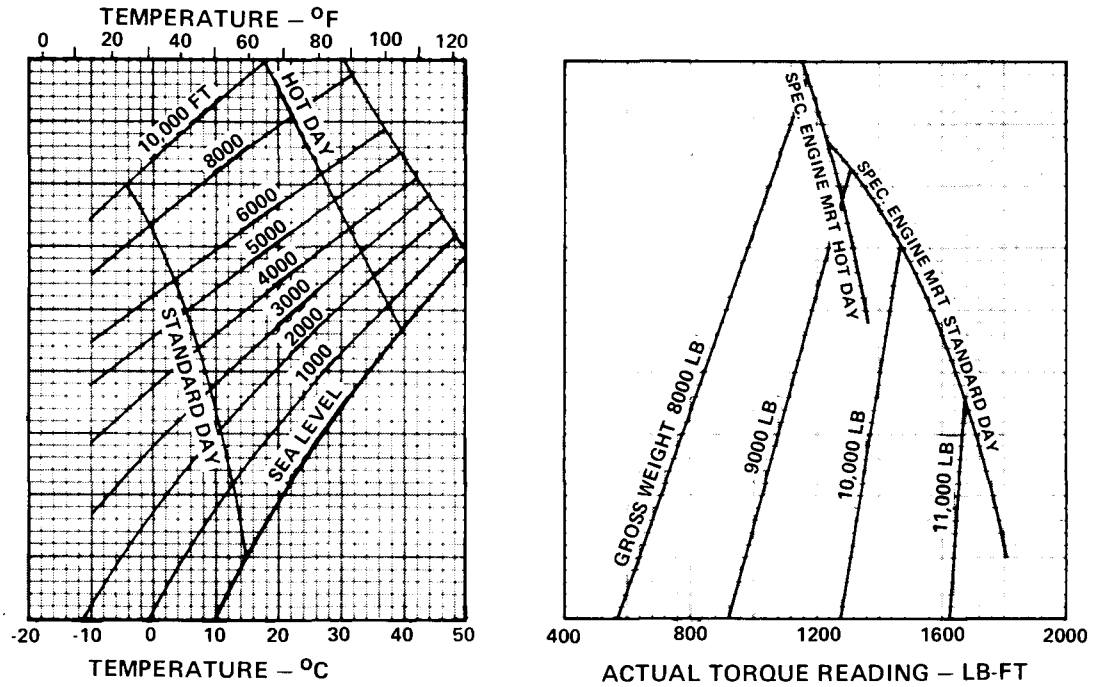


**WARNING:** AIRPLANE GROSS WEIGHTS IN EXCESS OF THE CHART DETERMINED VALUES INDICATE ONE ENGINE FLYAWAY NOT POSSIBLE (EXTERNAL STORES SHOULD BE DROPPED IF FEASIBLE)

## 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)

FLAPS UP
GEAR DOWN
CLIMB SPEED CONSTANT

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

MILITARY POWER
SEA LEVEL
STANDARD DAY

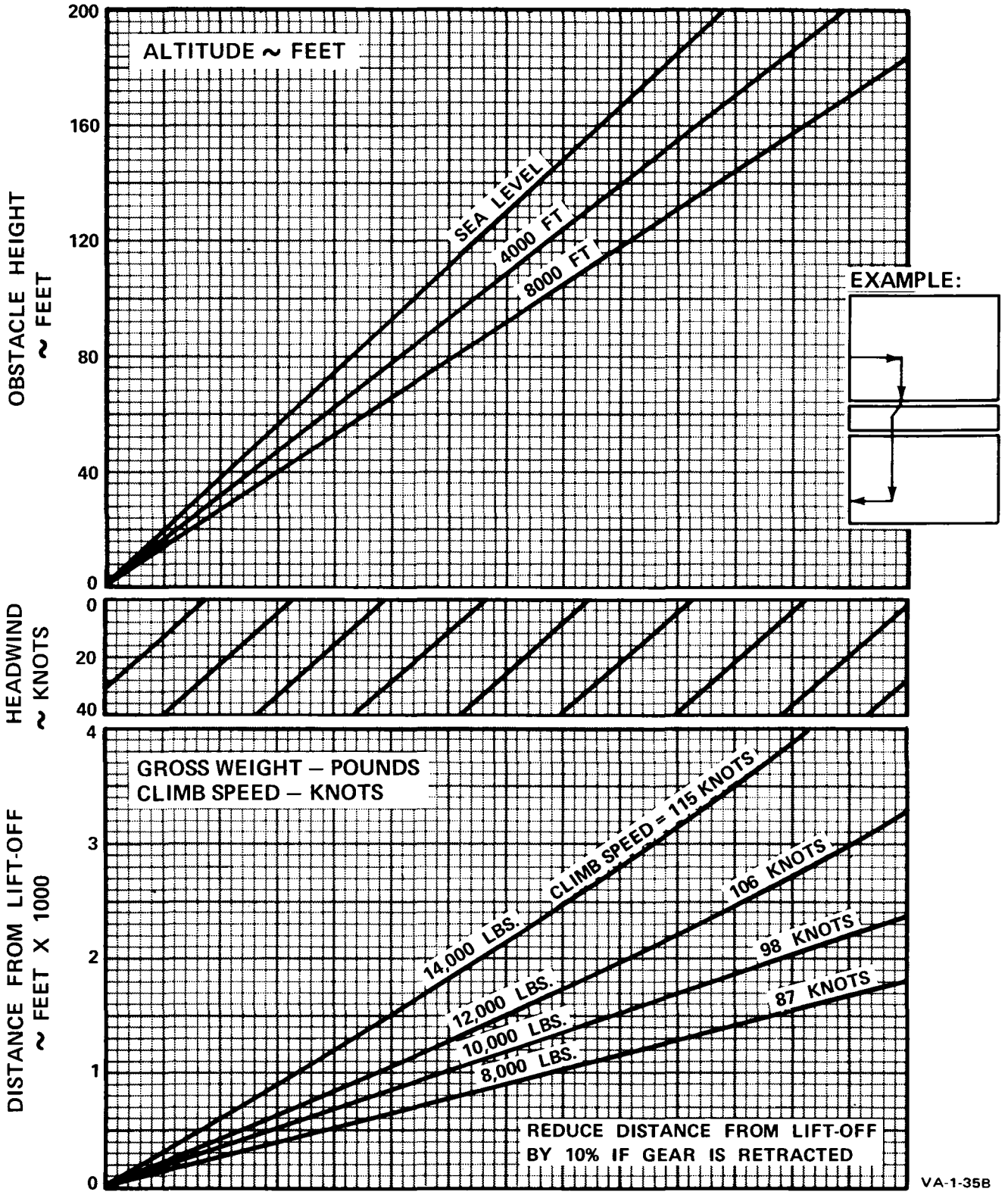



*Figure A2-9*

# 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

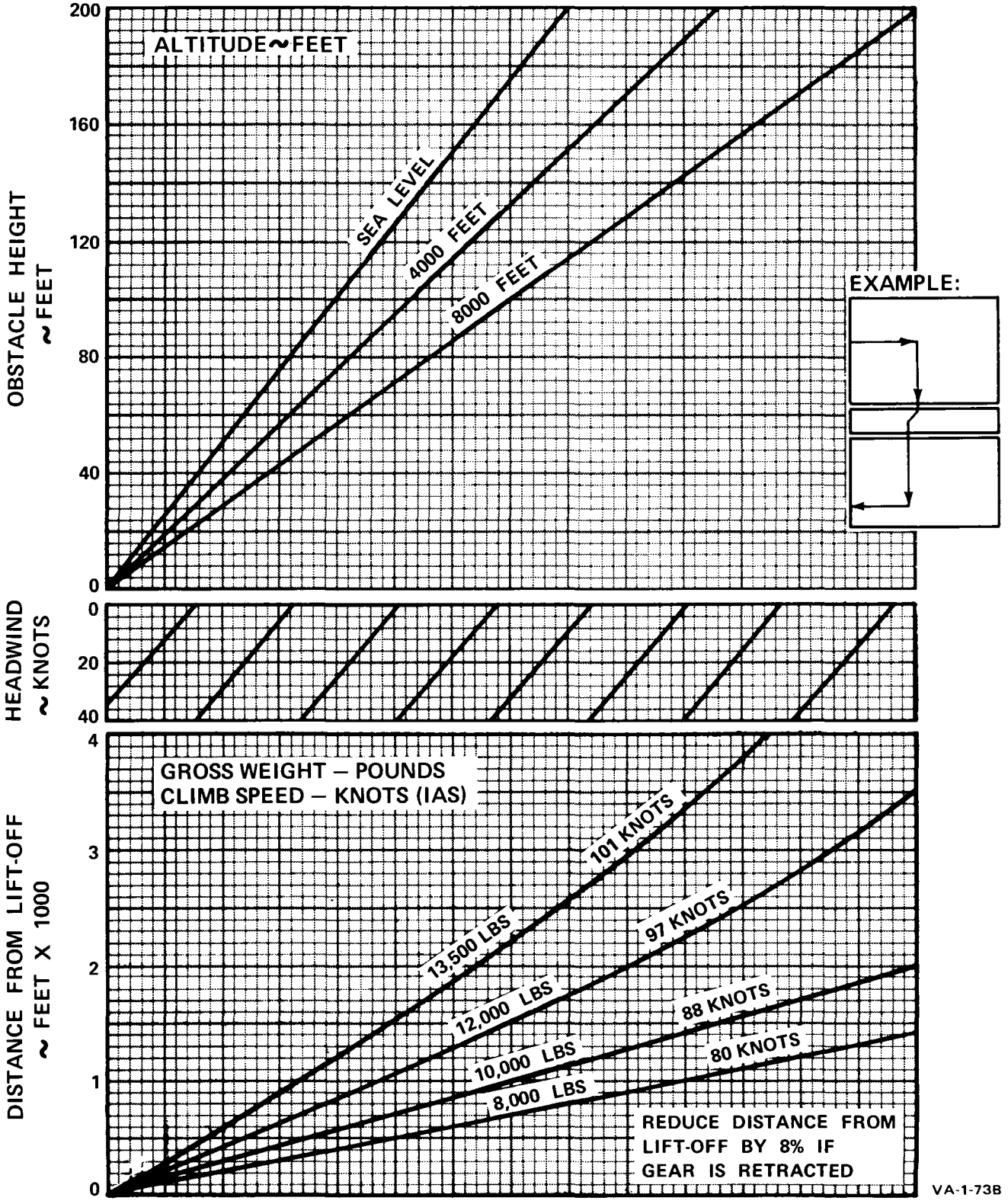


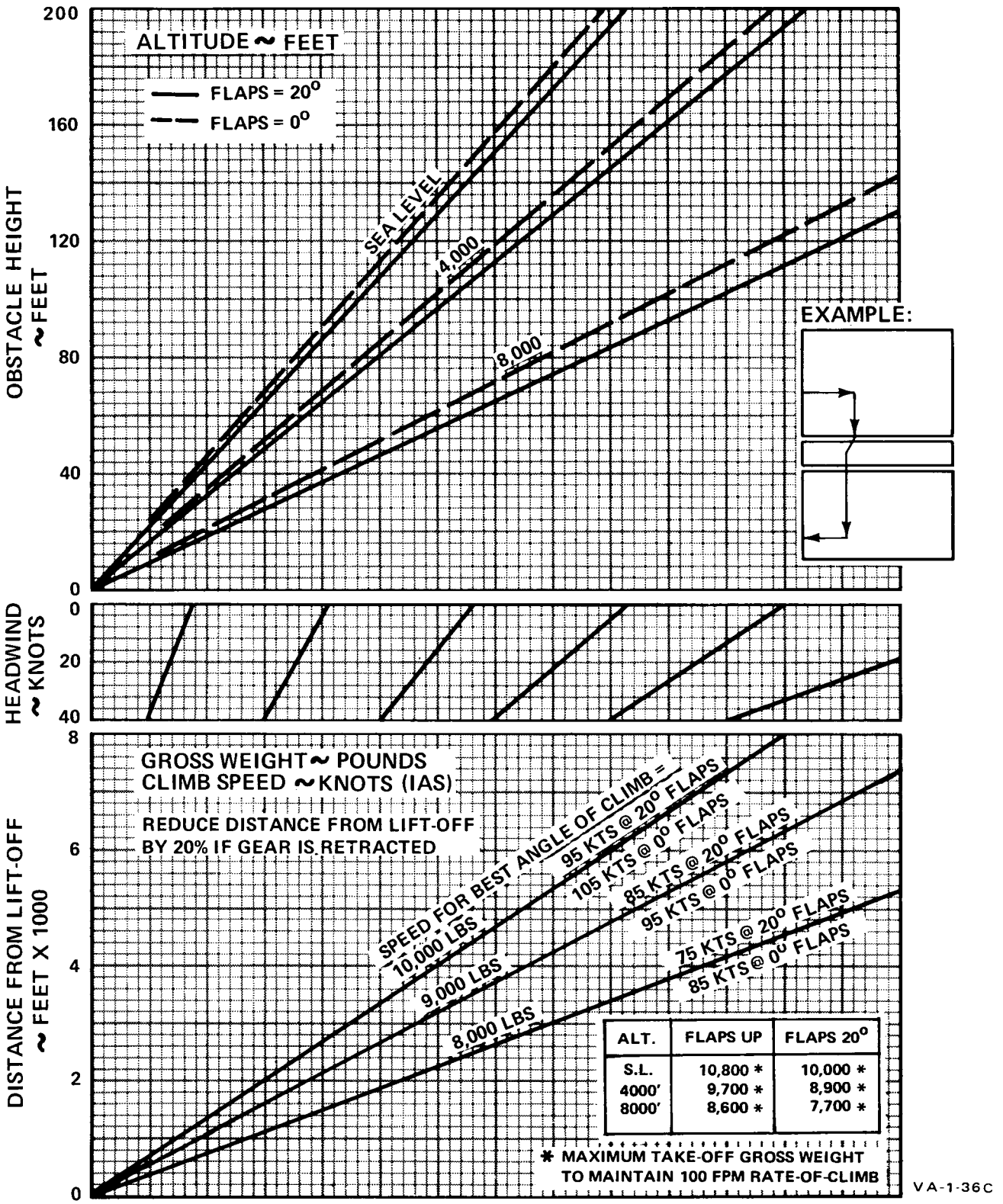

*Figure A2-10*

# SINGLE ENGINE CLIMB-OUT FLIGHT PATH

GEAR DOWN
FLAPS UP & 20°
CLIMB SPEED CONSTANT

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

MILITARY POWER
SEA LEVEL
STANDARD DAY




| ALT. | FLAPS UP | FLAPS 20° |
|---|---|---|
| S.L. | 10,800 * | 10,000 * |
| 4000' | 9,700 * | 8,900 * |
| 8000' | 8,600 * | 7,700 * |

* MAXIMUM TAKE-OFF GROSS WEIGHT TO MAINTAIN 100 FPM RATE-OF-CLIMB

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

### 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.

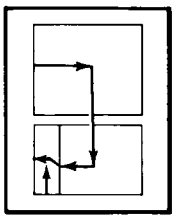
**Aircraft Ceiling Example Problem**

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

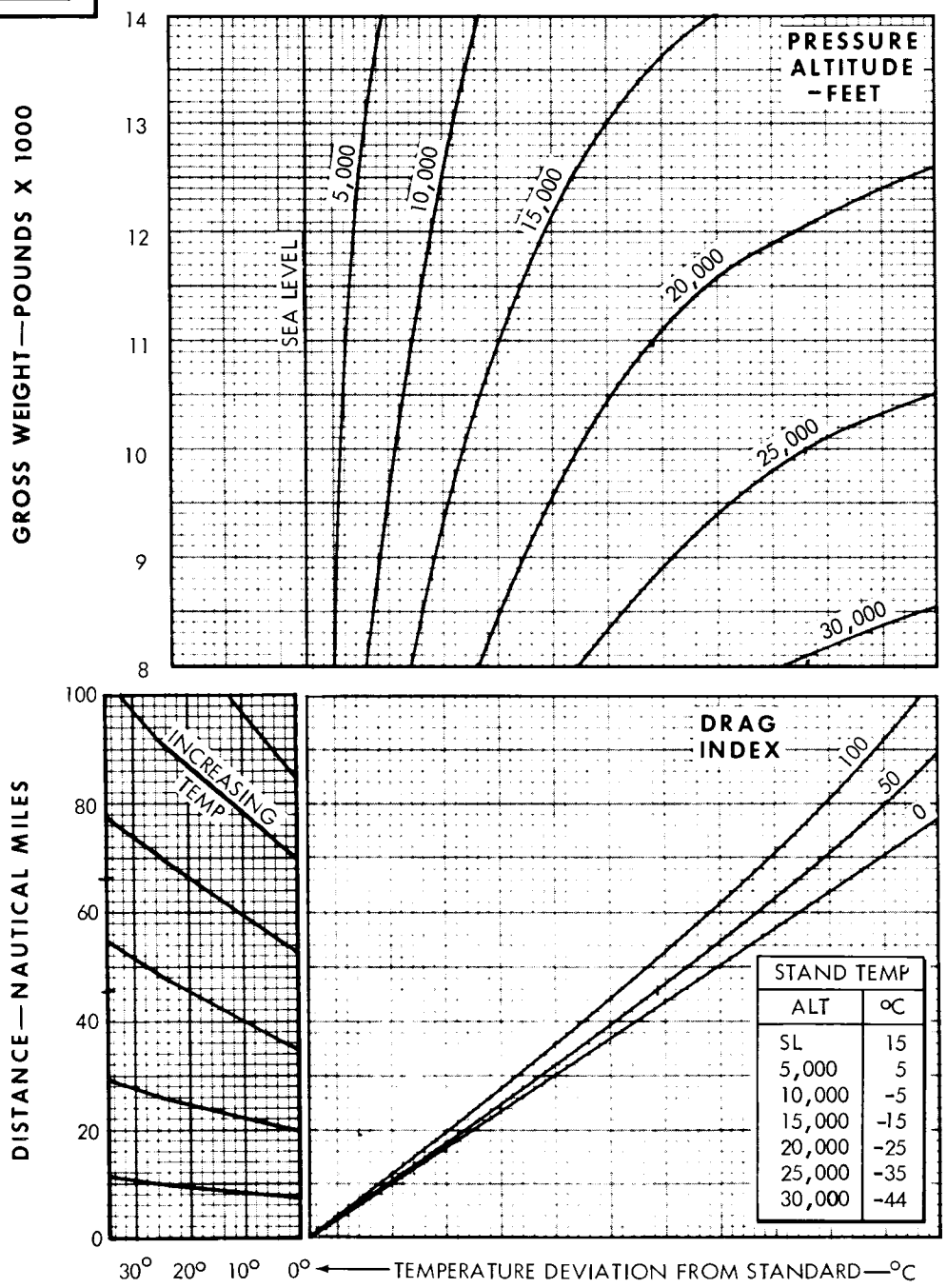
- Gross Weight—12,000 pounds
- Drag Index—60
- Ambient Temperature—10°C above standard (average)

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




VA-1-84B

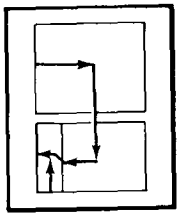
*Figure A3-1 (Sheet 2 of 3)*

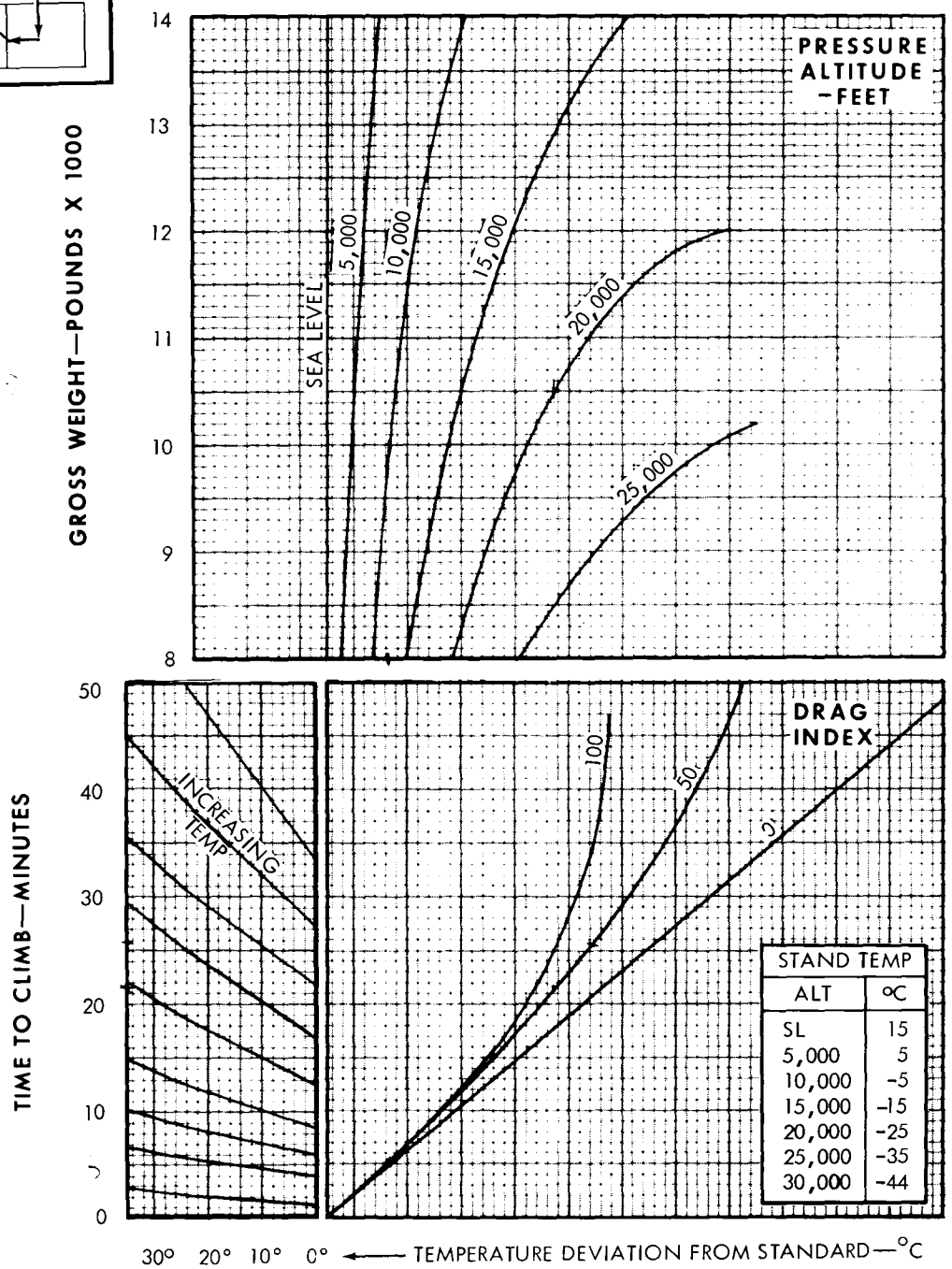
# NORMAL POWER CLIMB

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

NORM CLIMB TIME

EXAMPLE



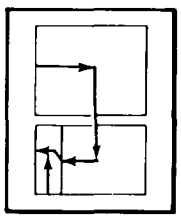



VA-1-97B

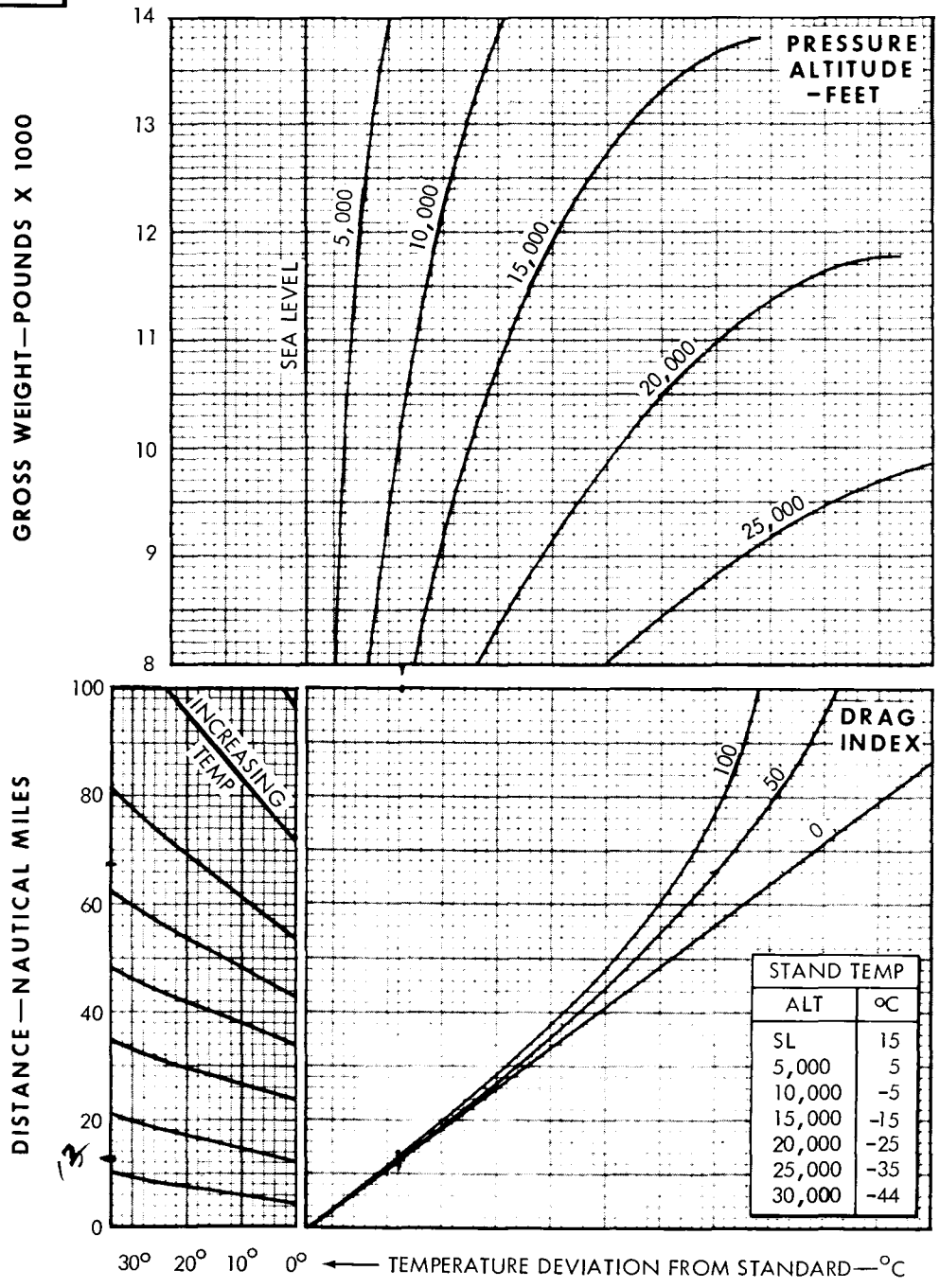
*Figure A3-2 (Sheet 1 of 3)*

# NORMAL POWER CLIMB

**NORM CLIMB DISTANCE**



EXAMPLE

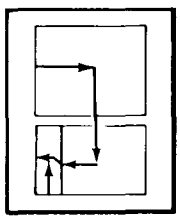



VA-1-100A

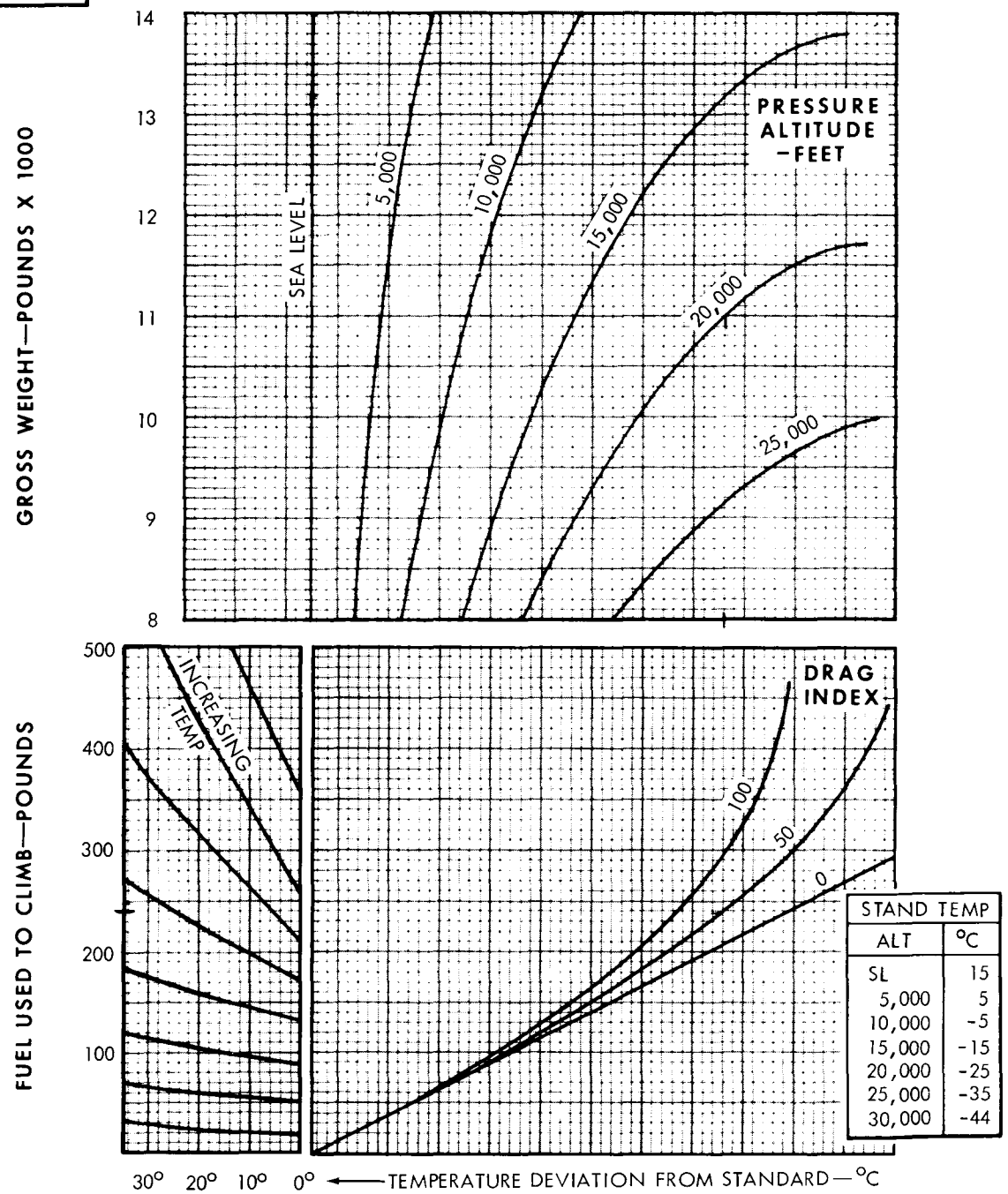
*Figure A3-2 (Sheet 2 of 3)*

# NORMAL POWER CLIMB

**NORM CLIMB FUEL**



EXAMPLE



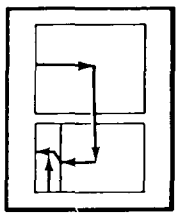

VA-1-101A

*Figure A3-2 (Sheet 3 of 3)*

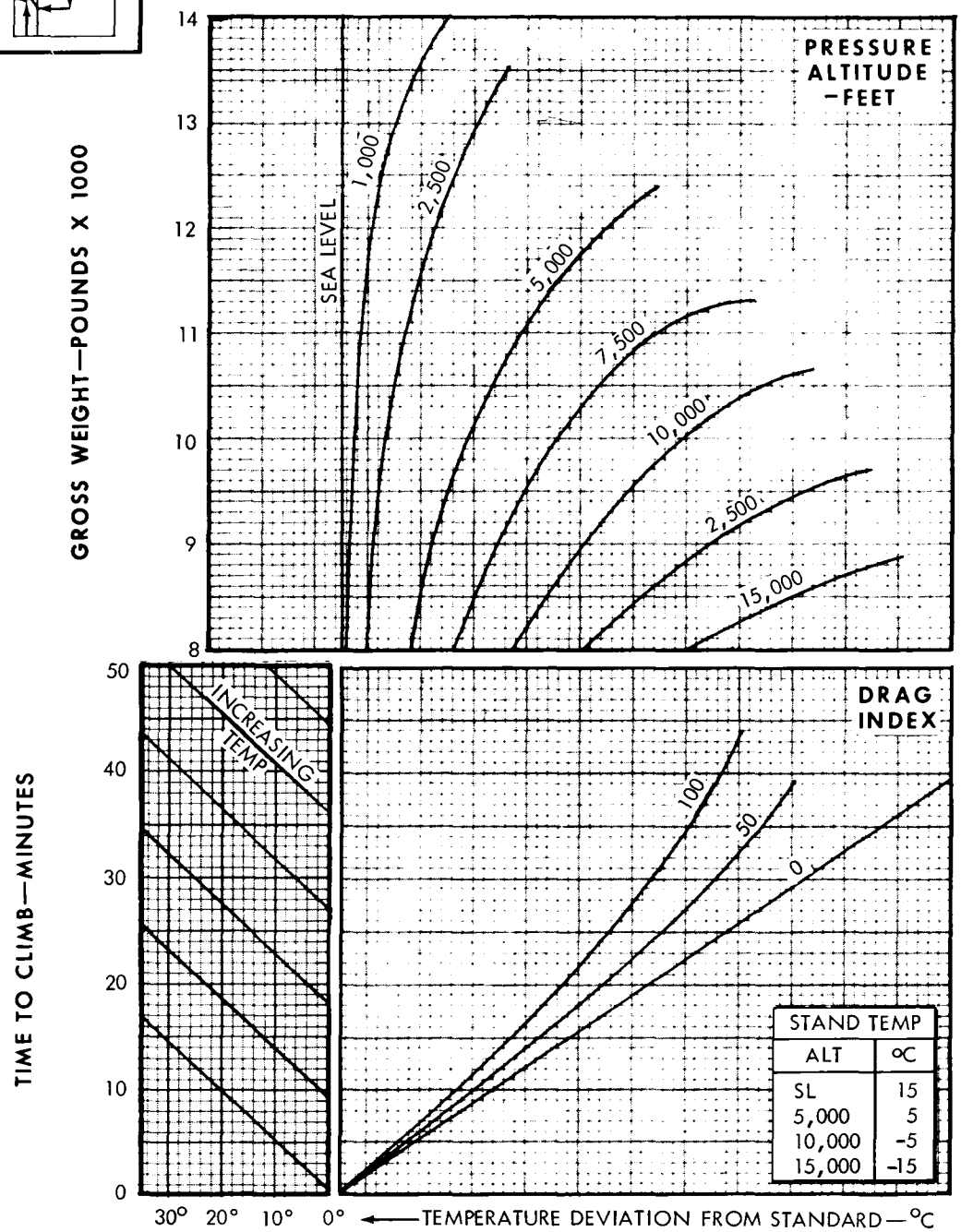
# SINGLE ENGINE CLIMB

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

**1 ENG CLIMB TIME**



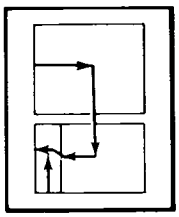
**EXAMPLE**



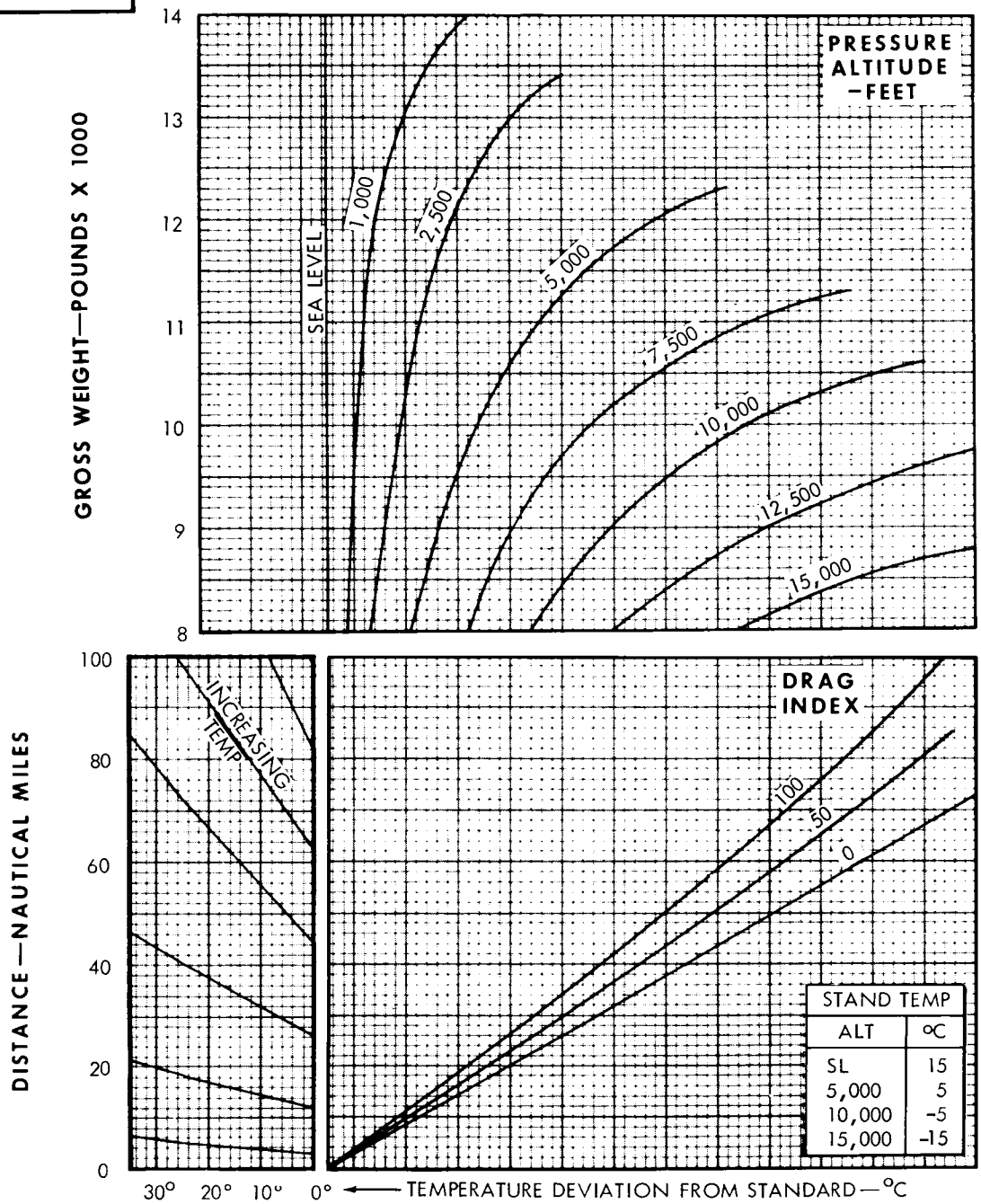

VA-1-102B

*Figure A3-3 (Sheet 1 of 3)*

**1 ENG CLIMB DIST**



EXAMPLE

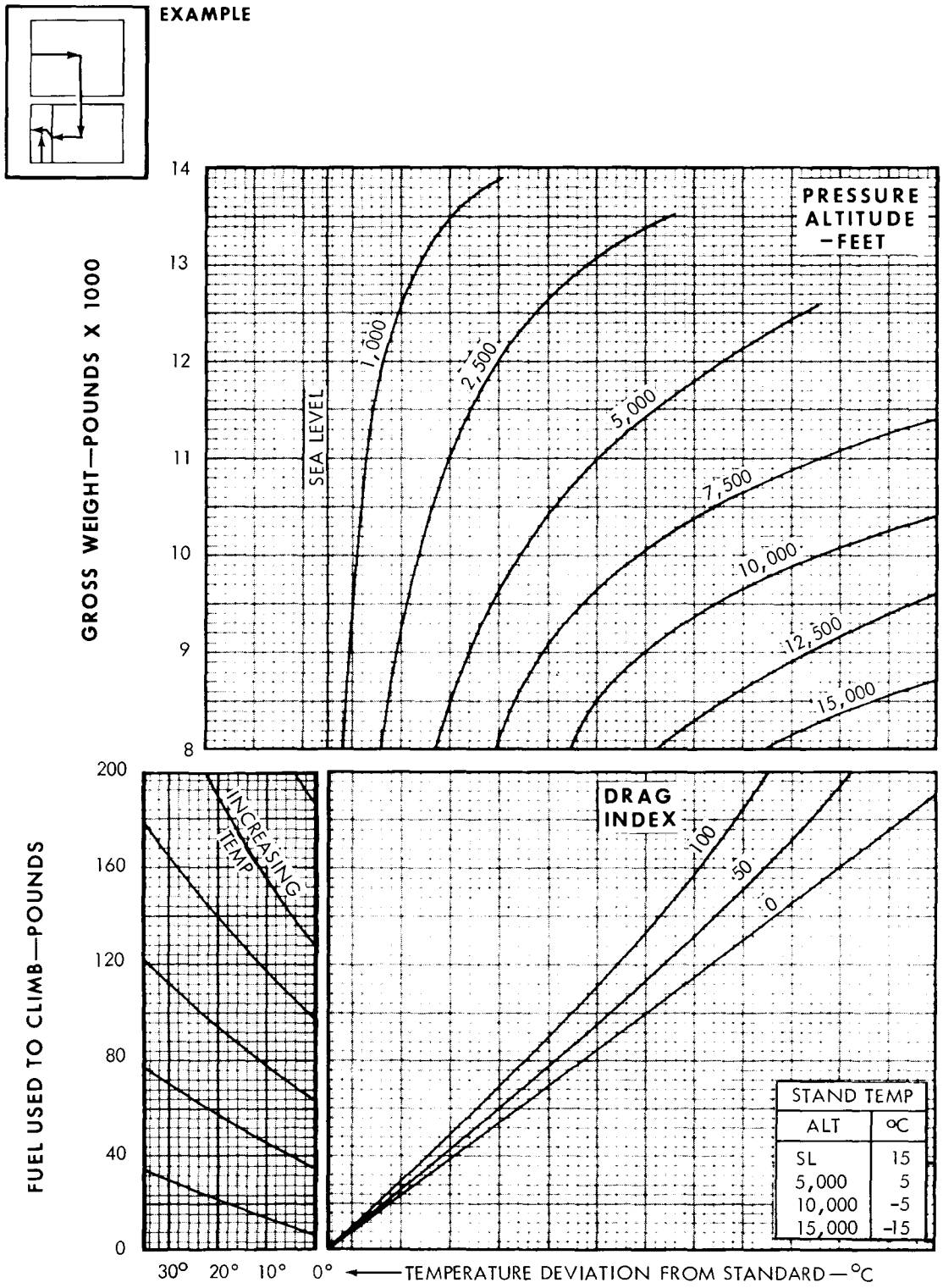



VA-1-103A

*Figure A3-3 (Sheet 2 of 3)*

# SINGLE ENGINE CLIMB

**1 ENG CLIMB FUEL**




VA-1 104A

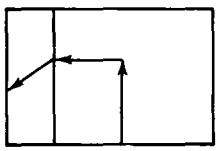
*Figure A3-3 (Sheet 3 of 3)*

# AIRCRAFT CEILINGS

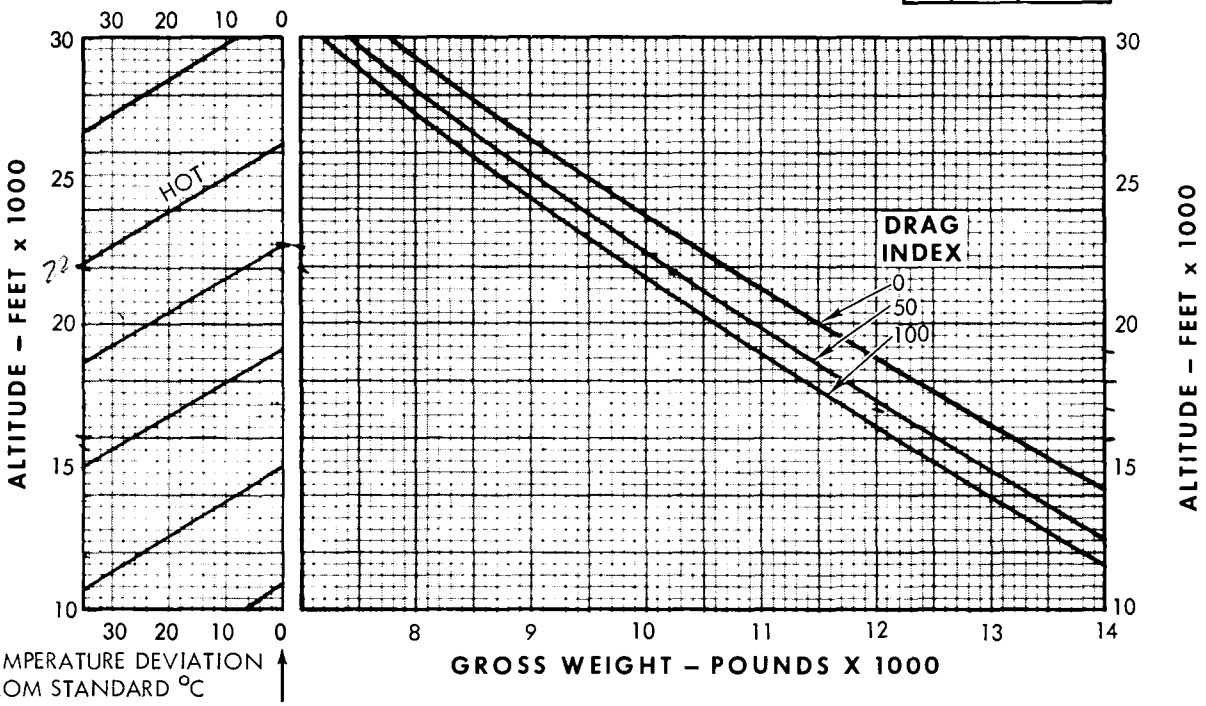
**2 ENGINE OPERATION**

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

EXAMPLE



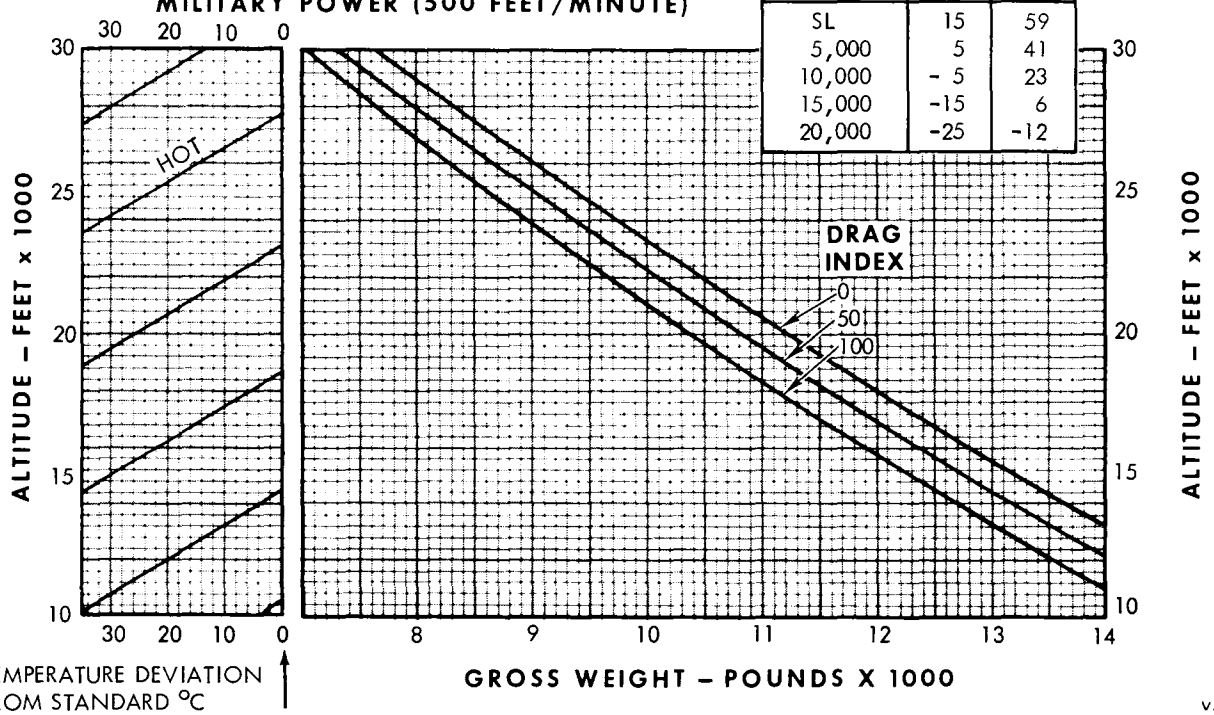
## OPTIMUM CRUISE CEILING




## COMBAT CEILING

MILITARY POWER (500 FEET/MINUTE)

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




VA-1-858

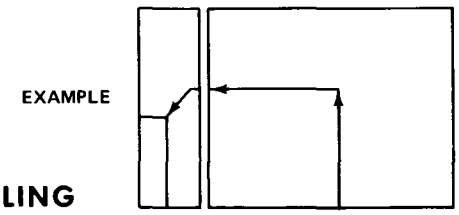
*Figure A3-4*

# AIRCRAFT CEILINGS

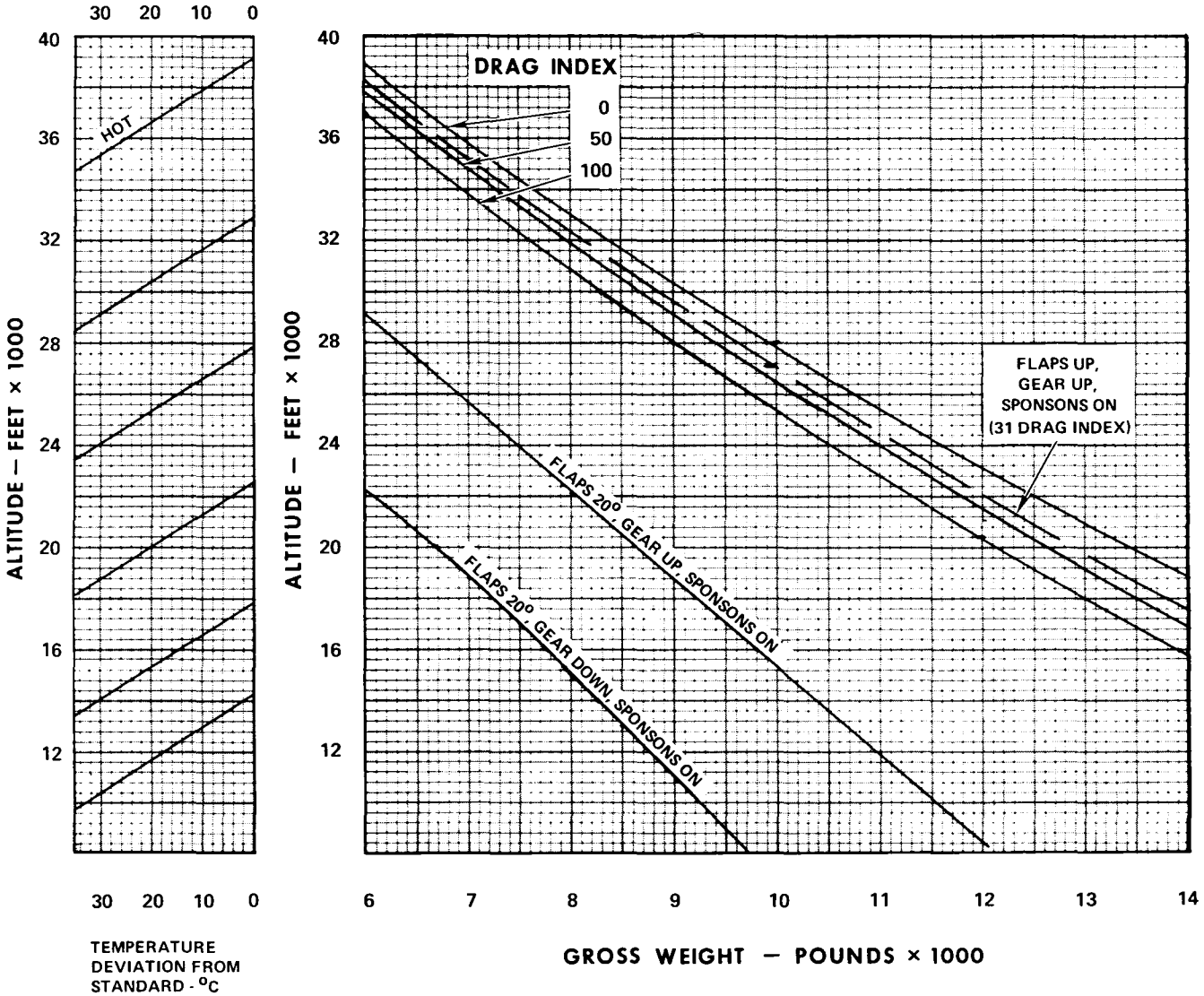
## 2 ENGINE OPERATION

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

**MILITARY RATED POWER**
**RATE-OF-CLIMB = 100 FPM**




## SERVICE CEILING




VA-1-177

*Figure A3-5*

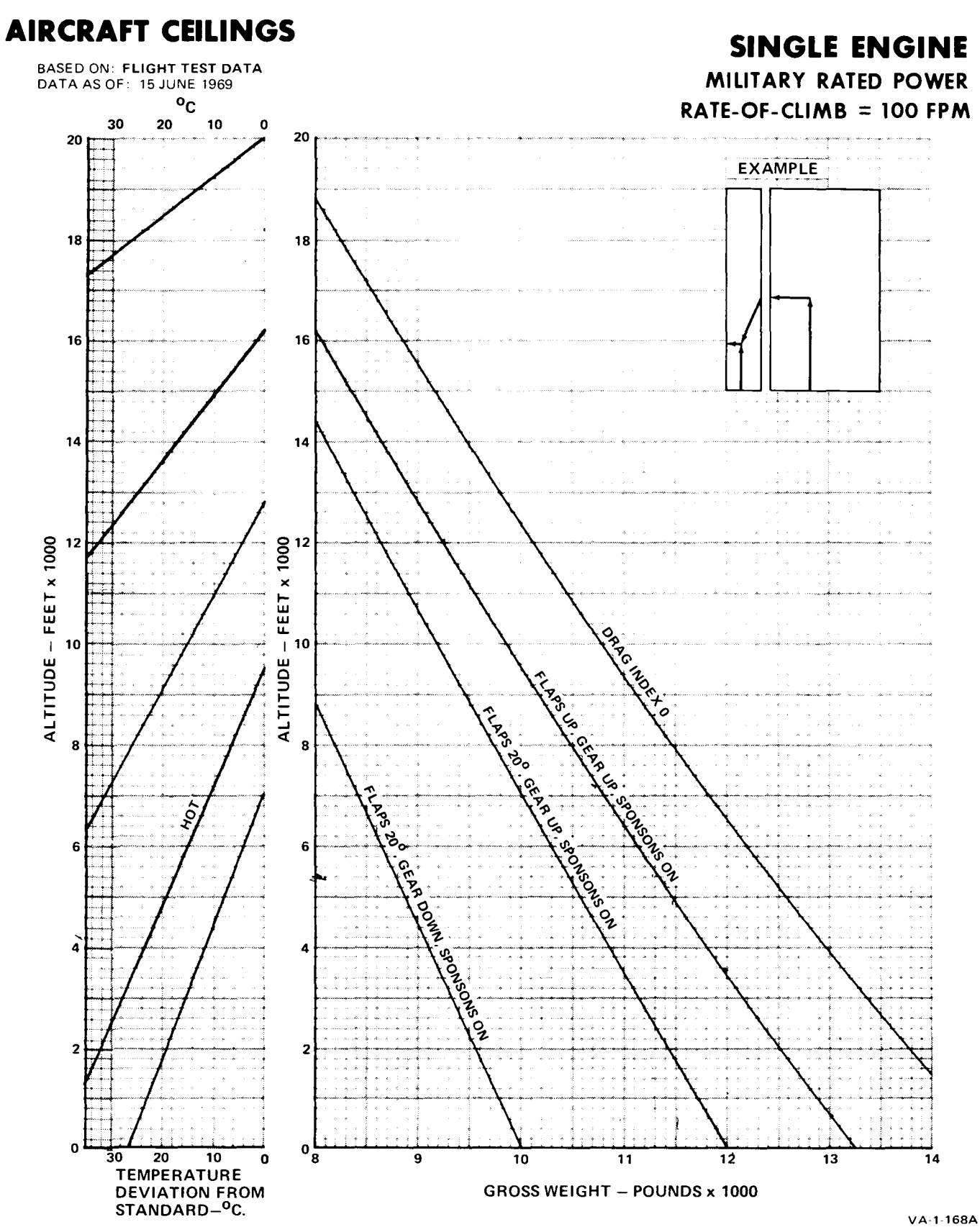

AIRCRAFT CEILINGS
BASED ON: FLIGHT TEST DATA
DATA AS OF: 15 JUNE 1969
SINGLE ENGINE
MILITARY RATED POWER
RATE-OF-CLIMB = 100 FPM
°C
30 20 10 0
ALTITUDE – FEET x 1000
HOT
TEMPERATURE DEVIATION FROM STANDARD–°C.
EXAMPLE
DRAG INDEX 0
FLAPS UP, GEAR UP, SPONSONS ON
FLAPS 20°, GEAR UP, SPONSONS ON
FLAPS 20°, GEAR DOWN, SPONSONS ON
GROSS WEIGHT – POUNDS x 1000
VA-1-168A

*Figure A3-6*

# PART 4—RANGE DATA

## TABLE OF CONTENTS



## 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:

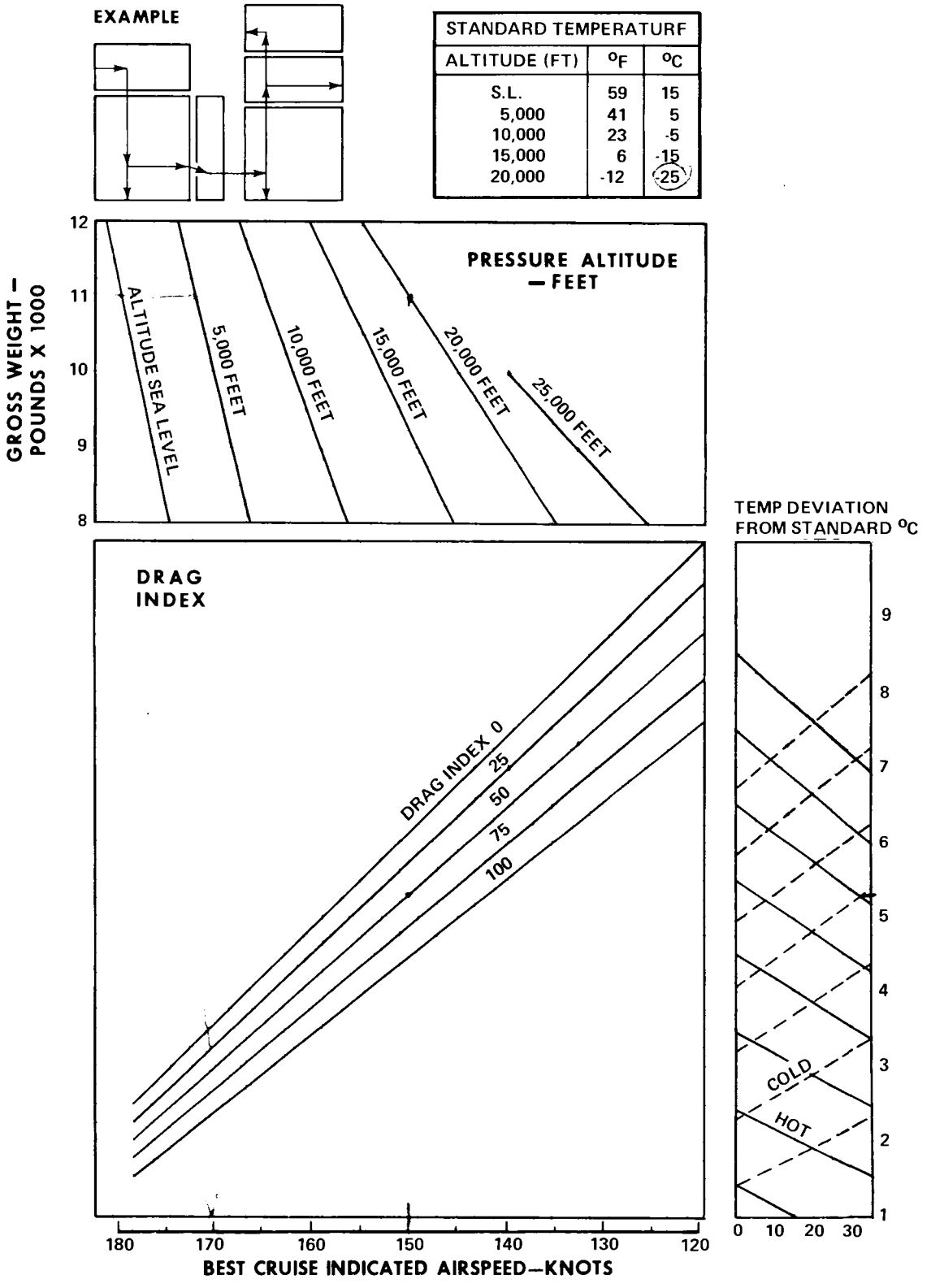
- Gross Weight—10,000 pounds
- Drag Index—60 (use nearest Drag Index chart; in this example, 50 Drag Index line)
- Enter Drag Index 50 chart for 5000 feet (figure A4-7)

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**




VA-1-86C

*Figure A4-1 (Sheet 1 of 2)*

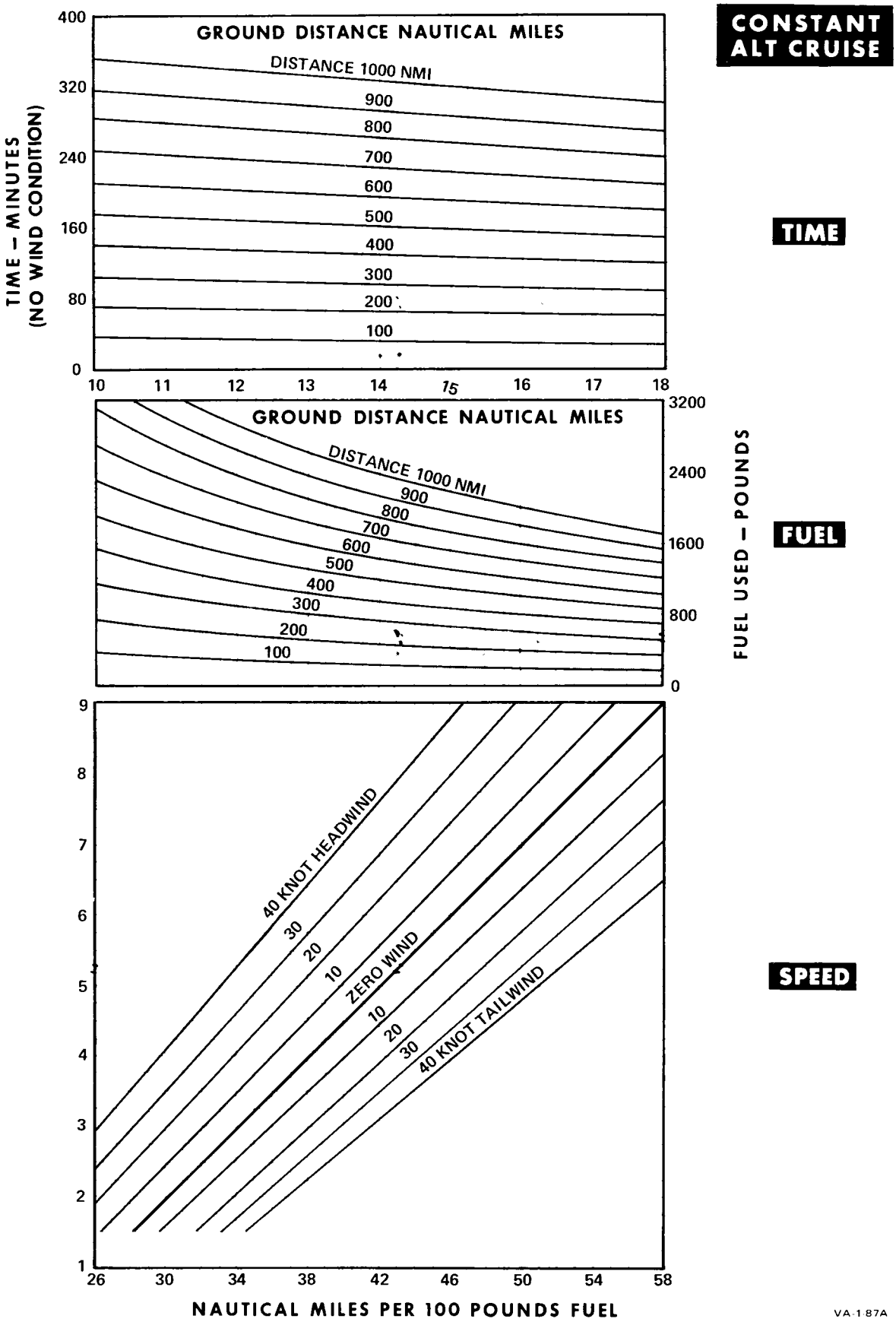
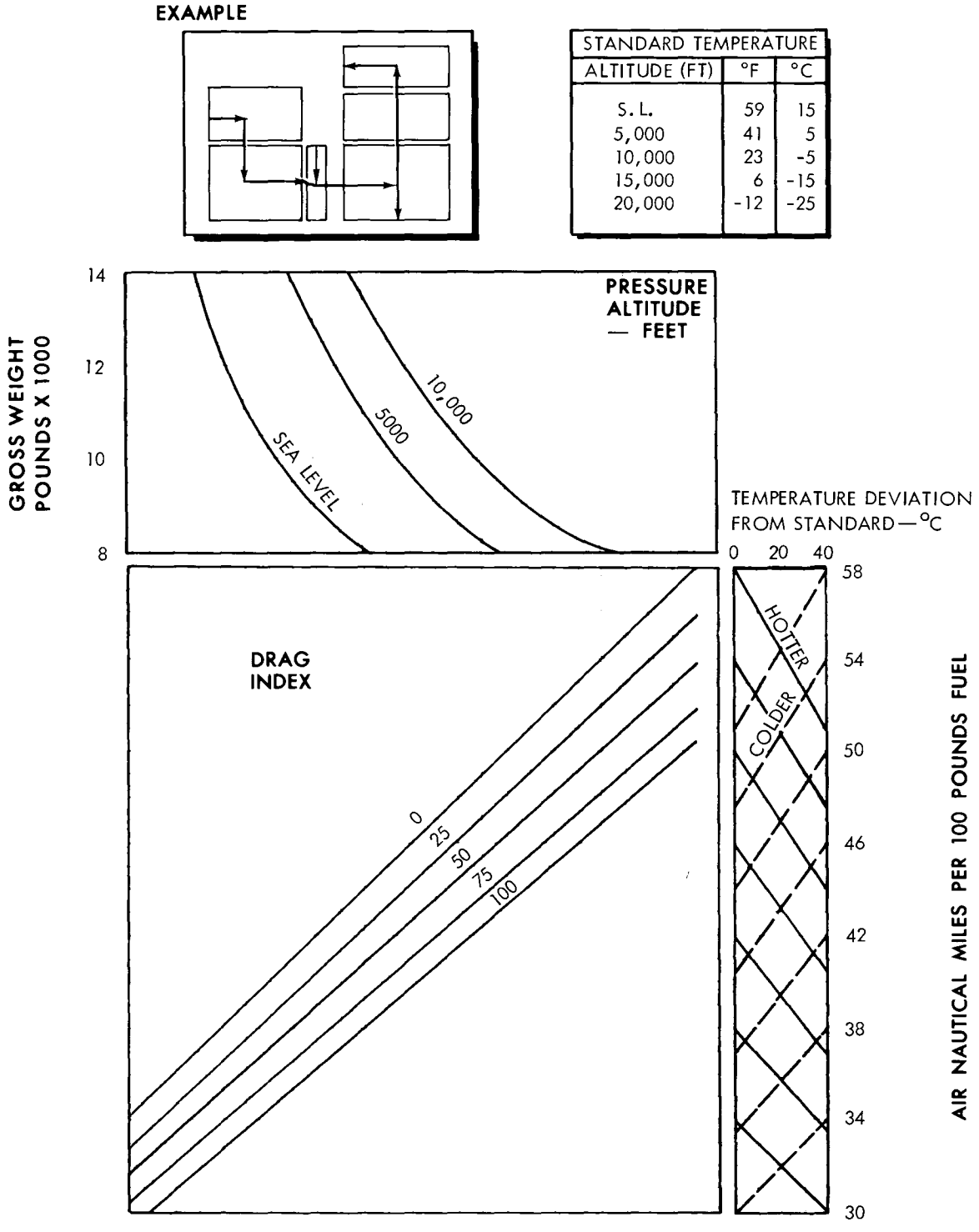



*Figure A4-1 (Sheet 2 of 2)*

# SINGLE - ENGINE CONSTANT ALTITUDE CRUISE

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

**MAXIMUM RANGE SPEED, FUEL AND TIME**




VA-1-105A

*Figure A4-2 (Sheet 1 of 2)*

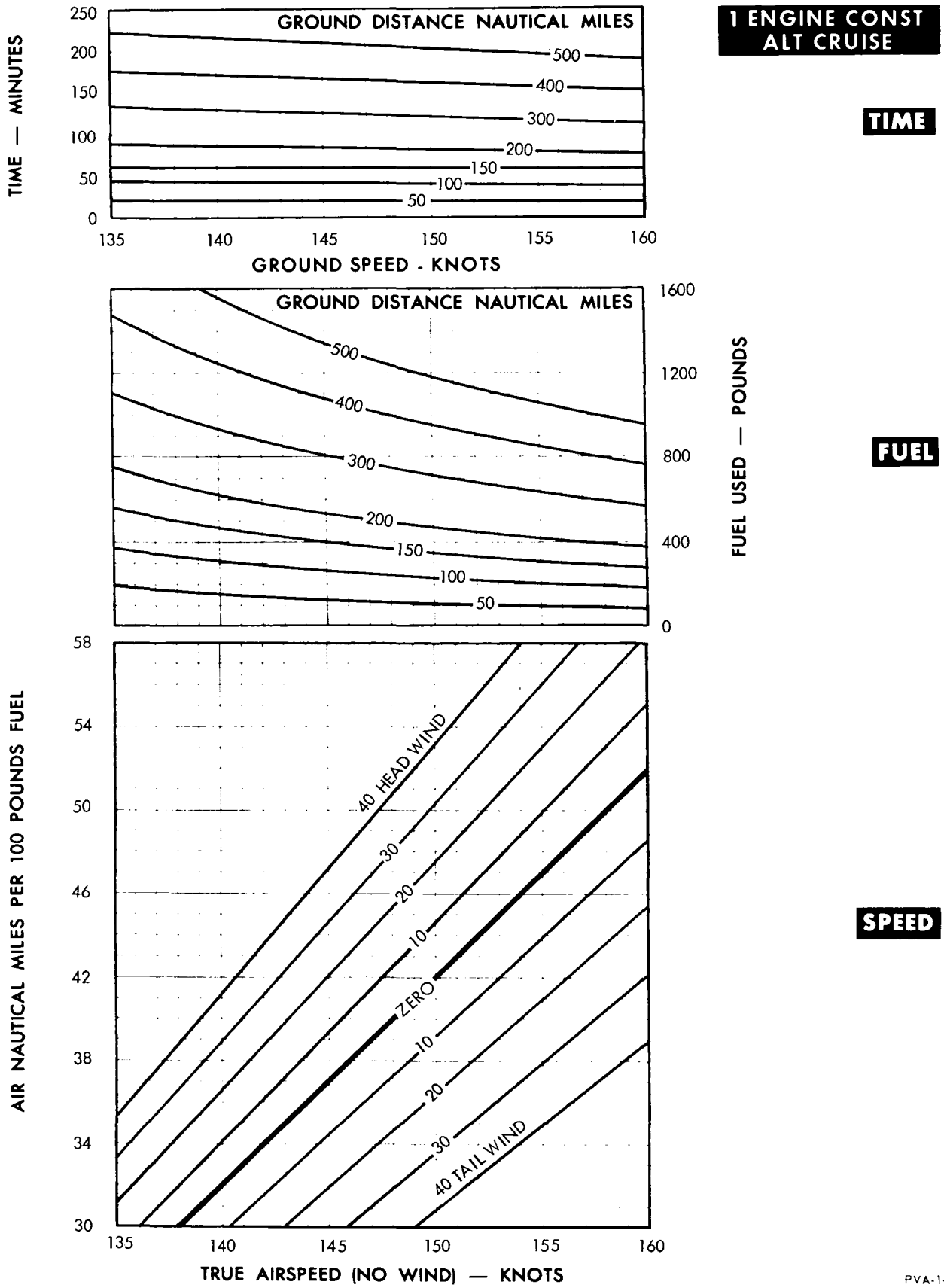
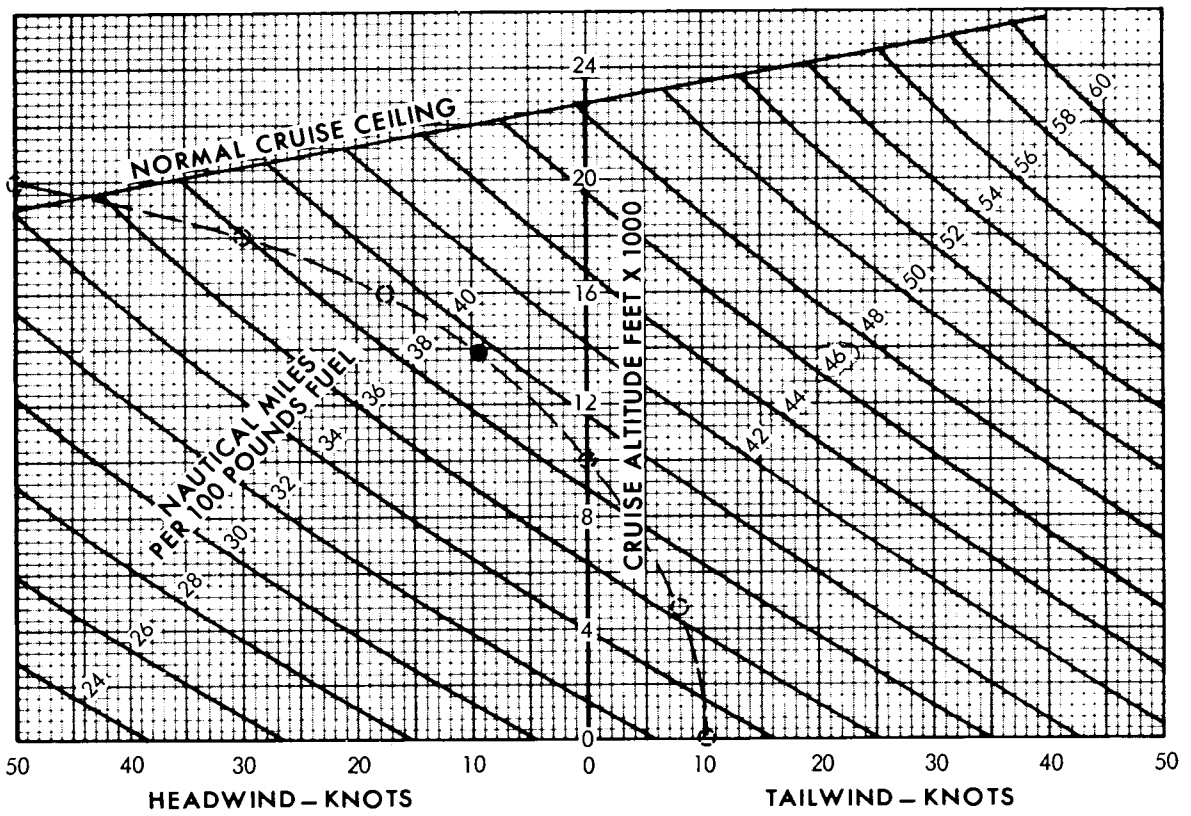



*Figure A4-2 (Sheet 2 of 2)*

# OPTIMUM CRUISE ALTITUDE

$C_L$ 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

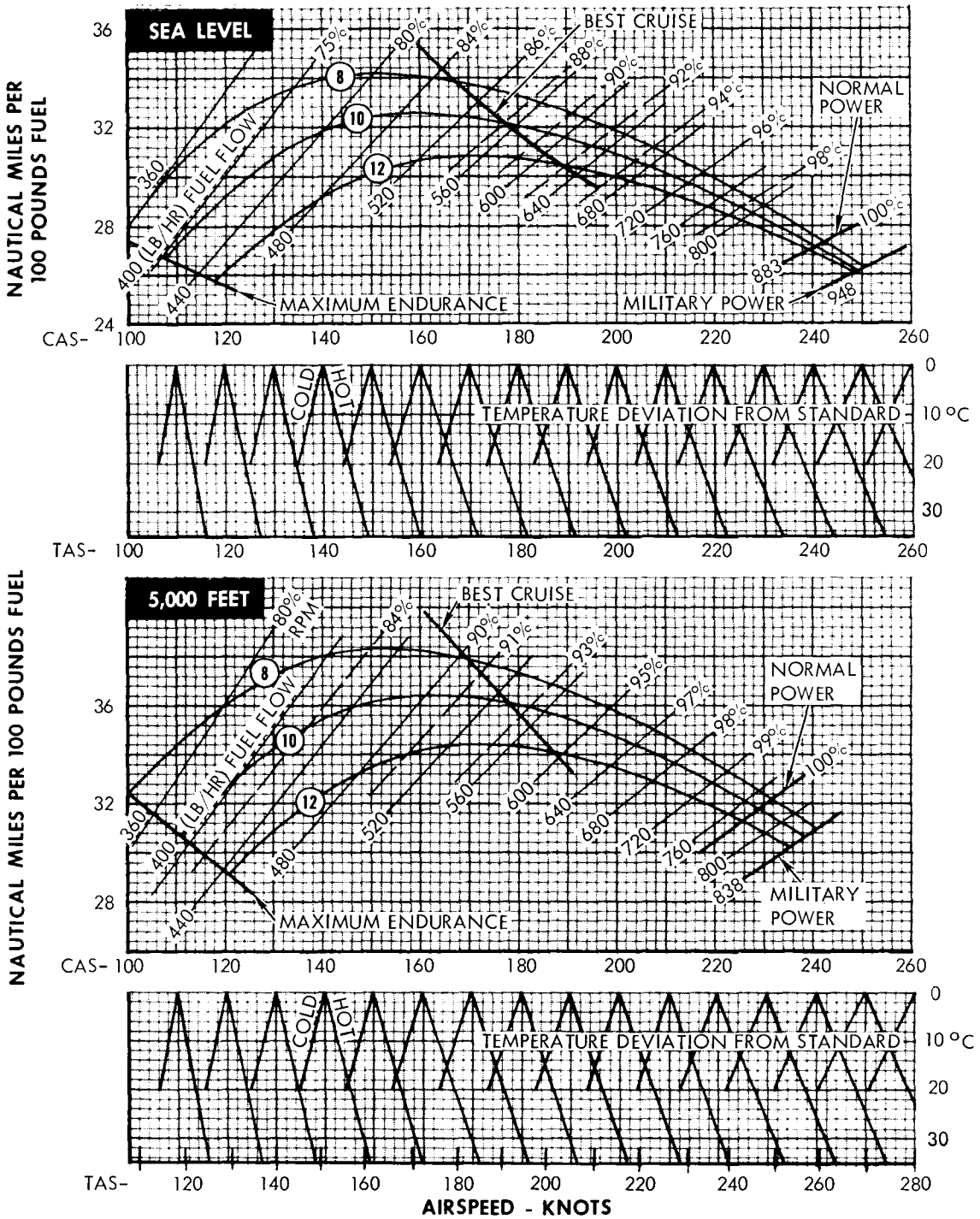
*Figure A4-3*

# 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:
  NMI/100 LB = NMI/100 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

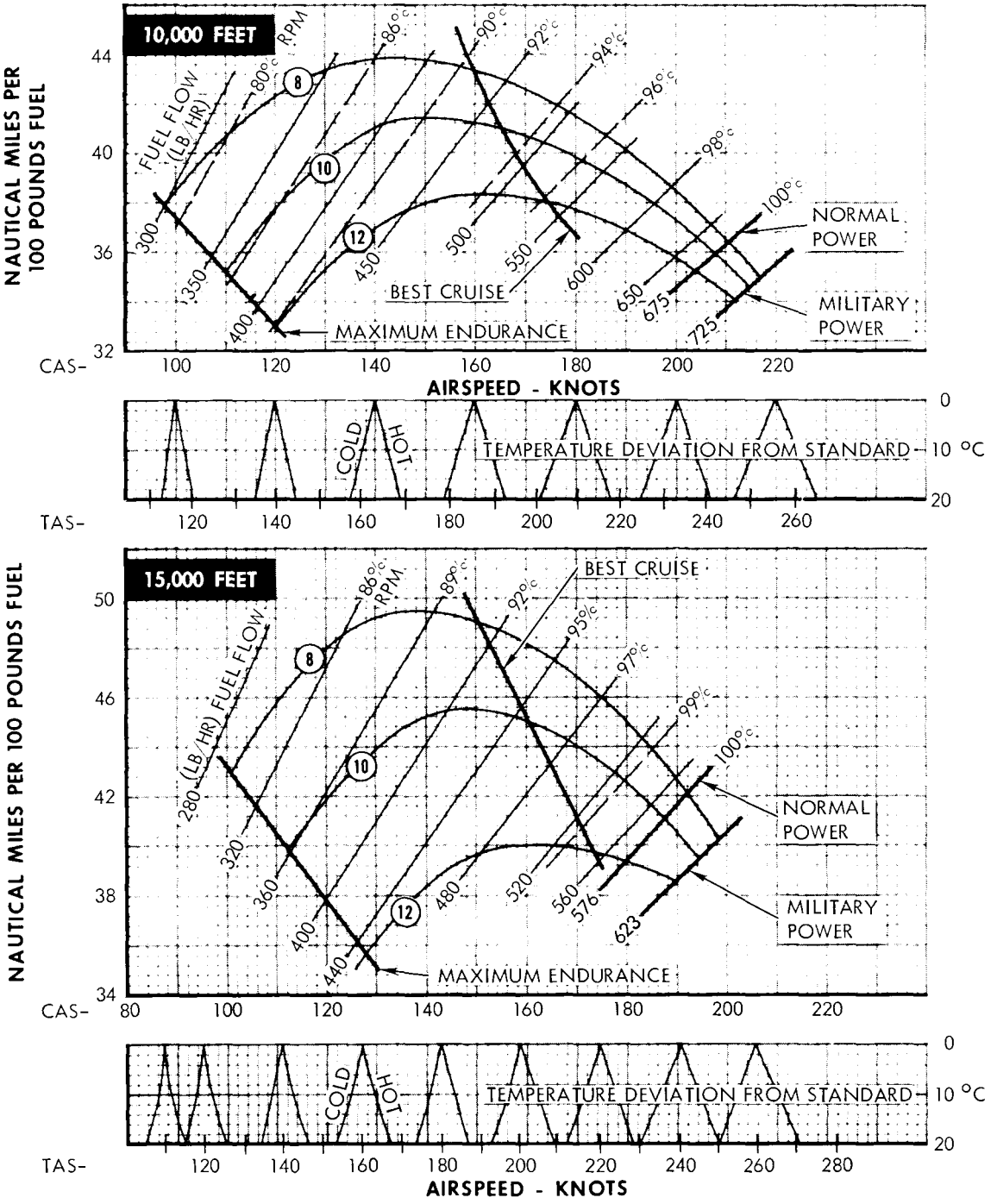
*Figure A4-4*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- 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-1-89C

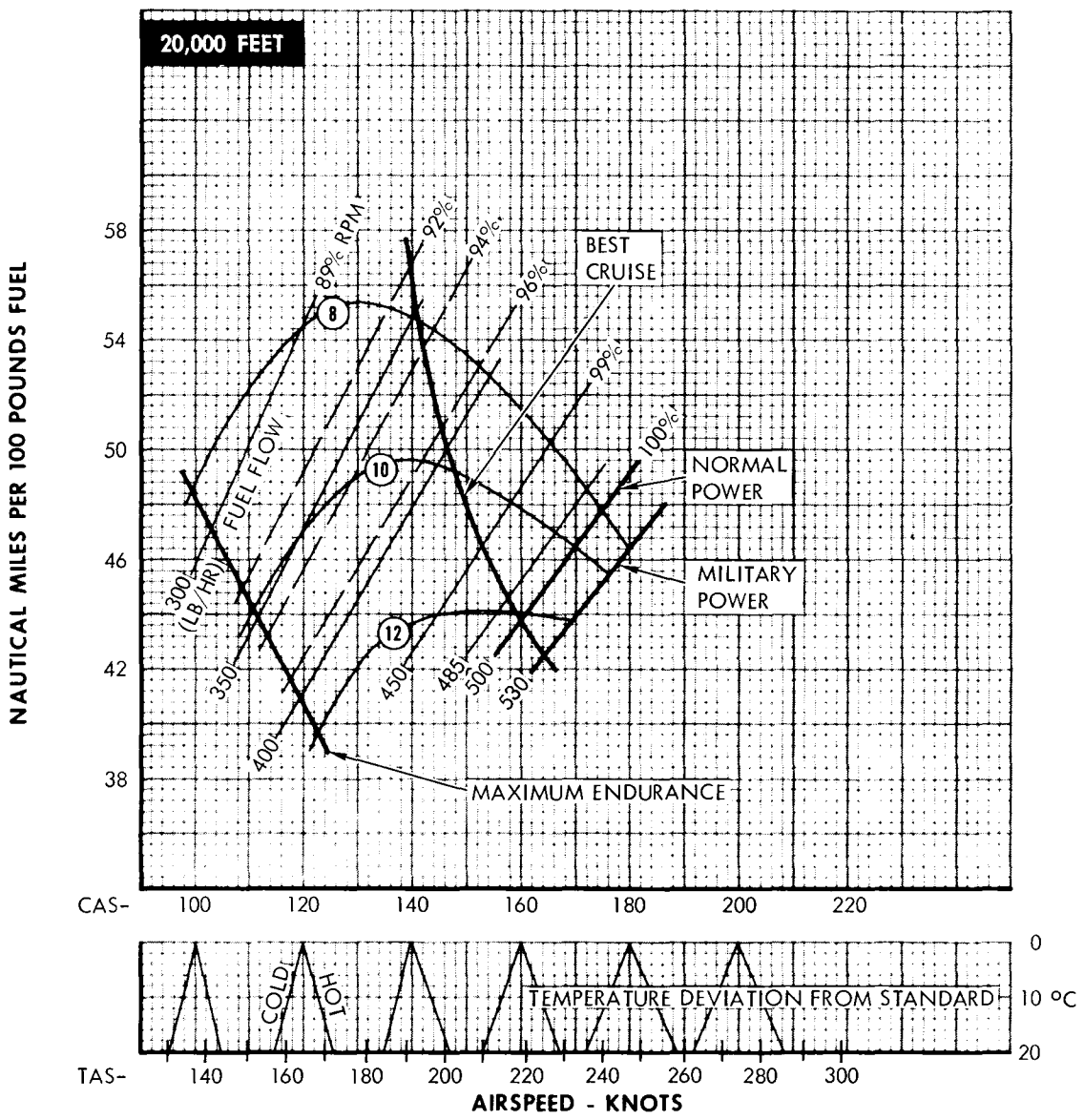
*Figure A4-5*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- 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-1-908

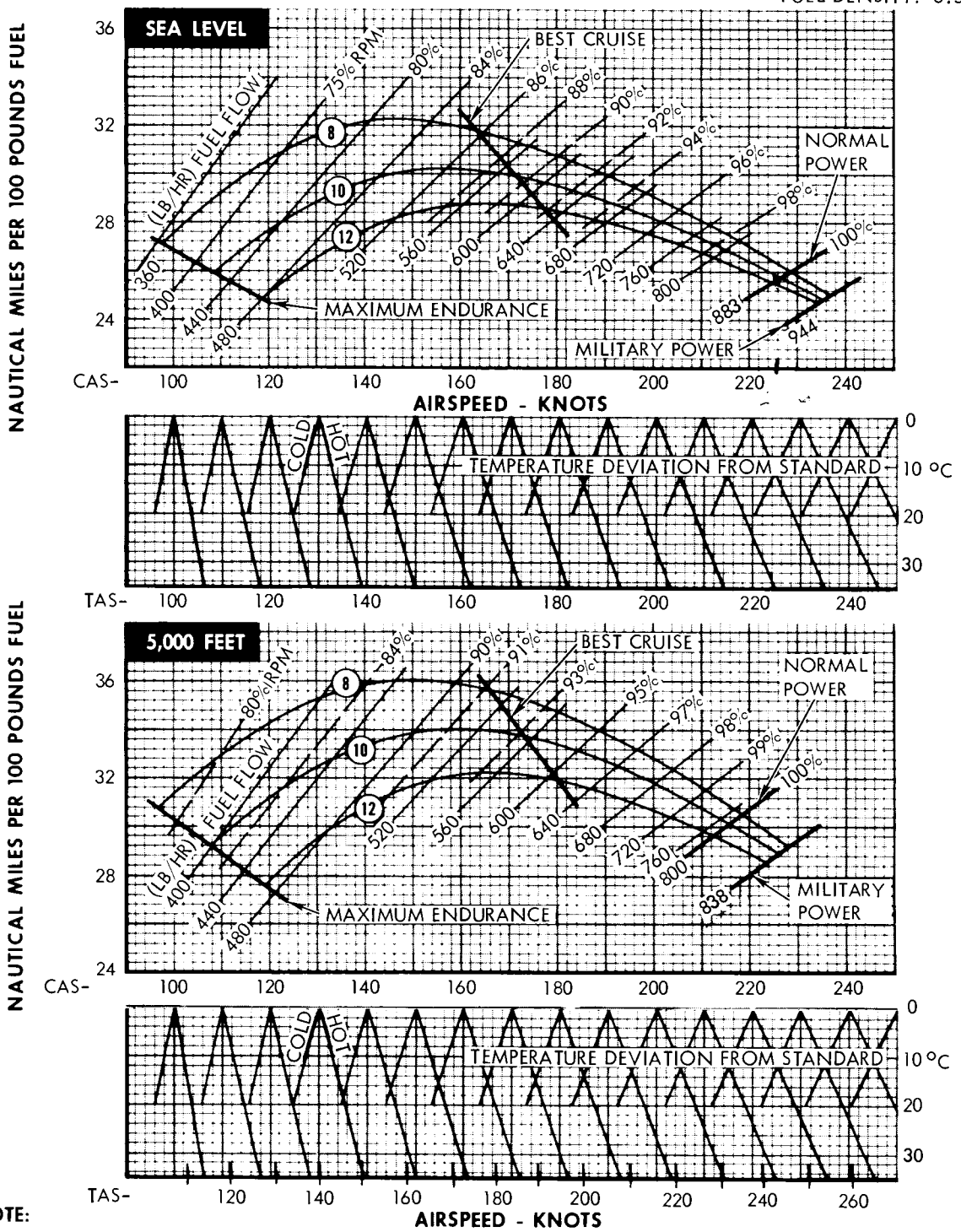
*Figure A4-6*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- 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-1-140B

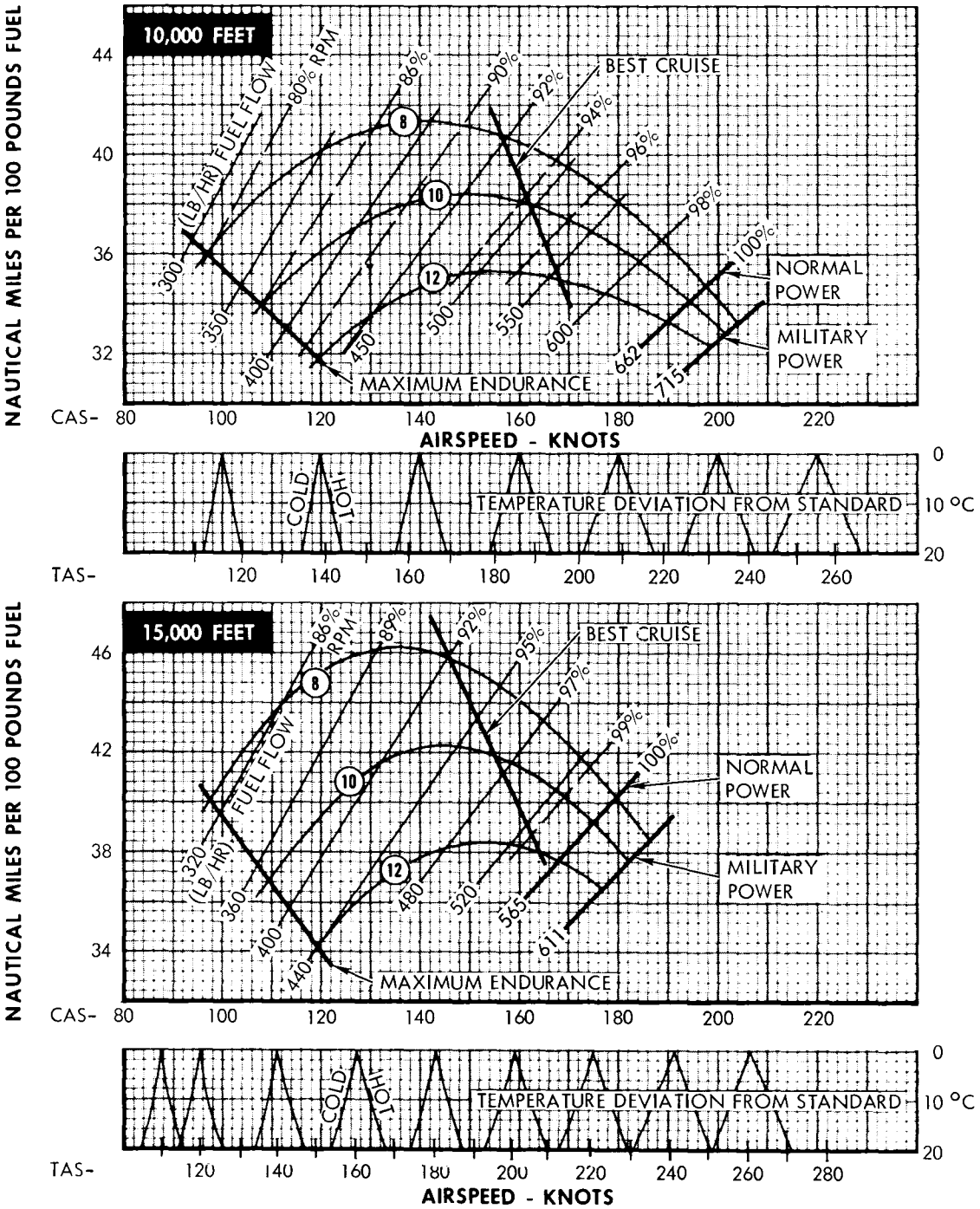
*Figure A4-7*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- 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-1-141A

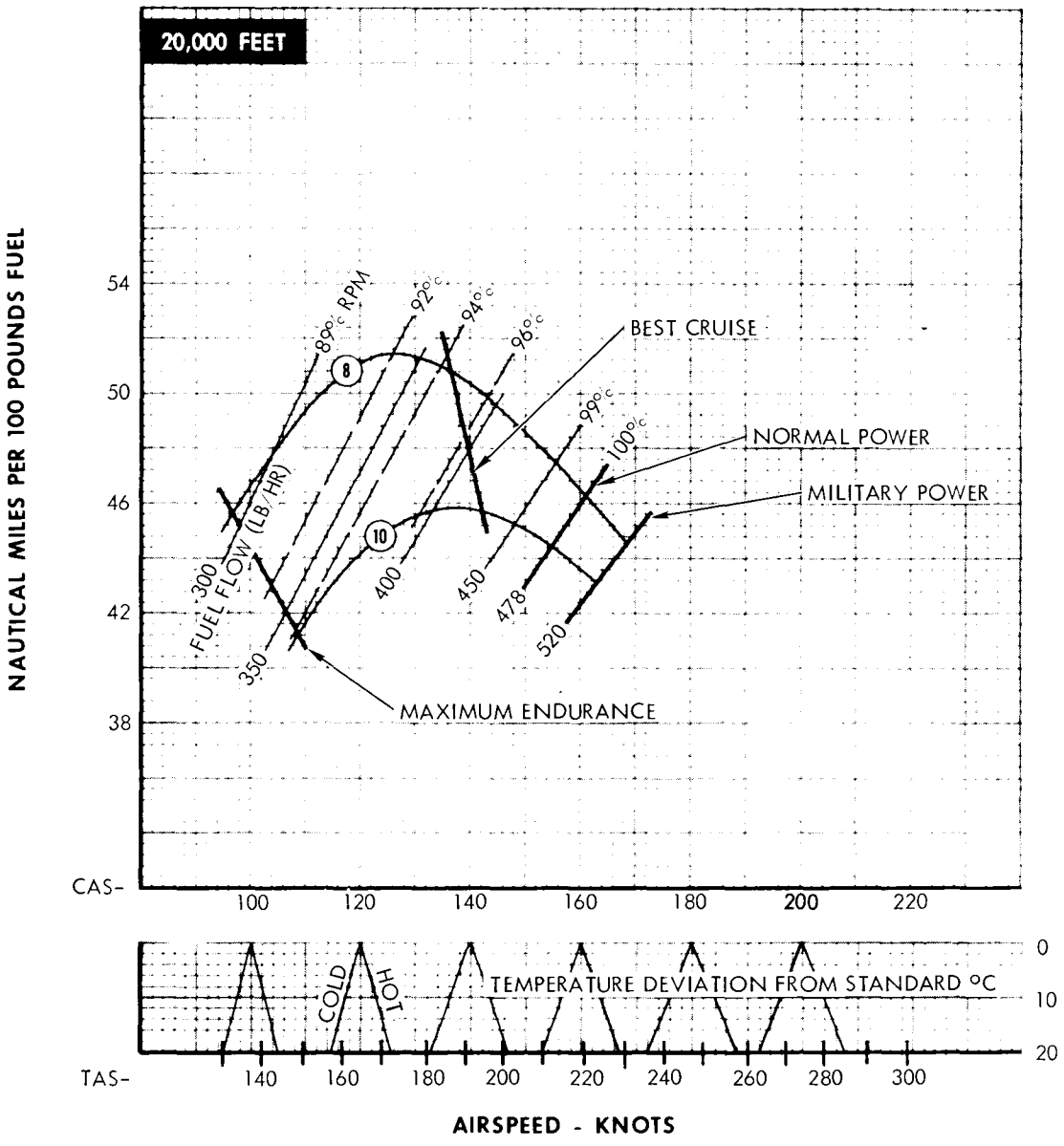
*Figure A4-8*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT
(8) 8,000 POUNDS
(10) 10,000 POUNDS

VA-1-142F

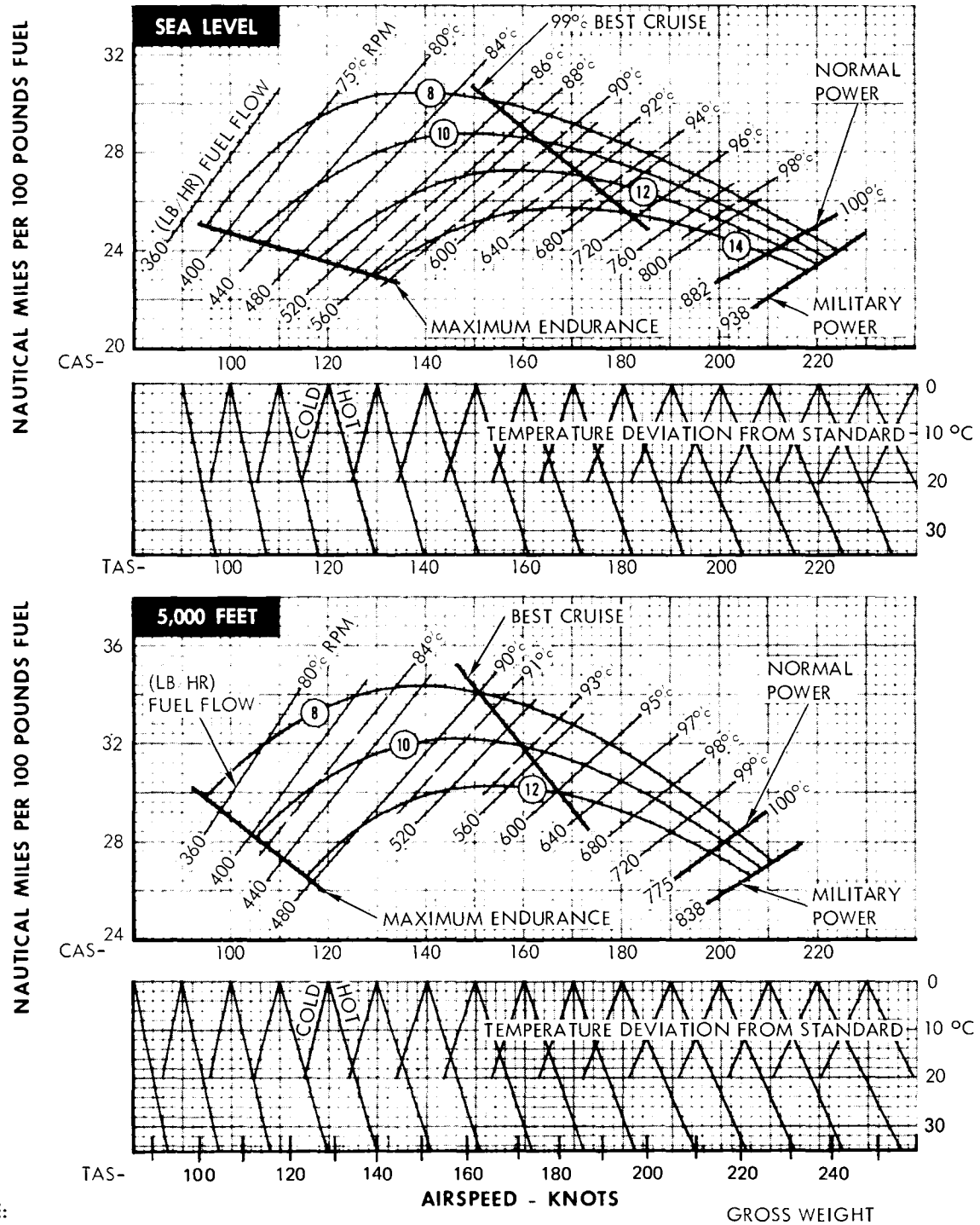
*Figure A4-9*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- 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
(14) 14,000 POUNDS

VA-1-91D

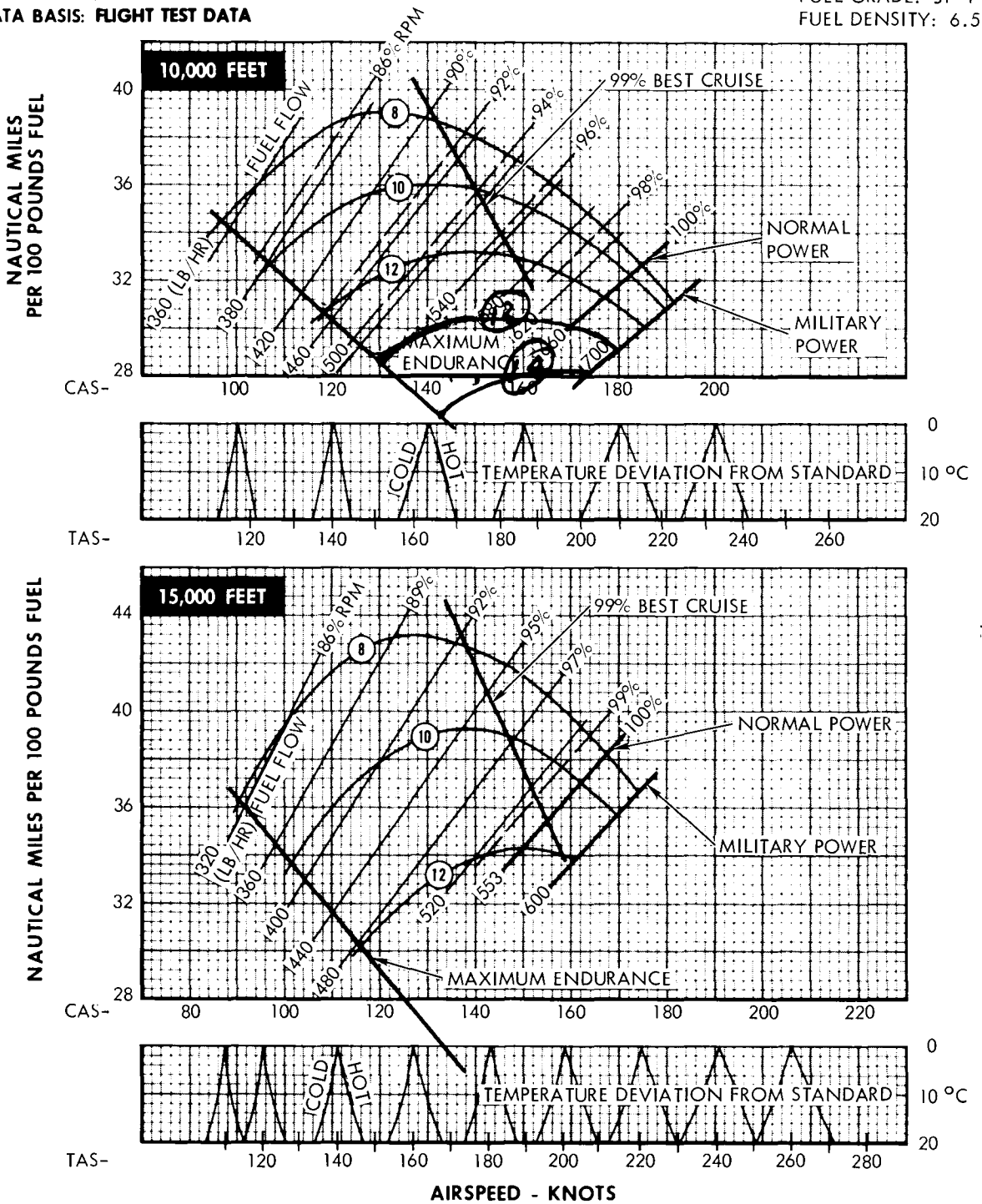
*Figure A4-10*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- 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-1-92B

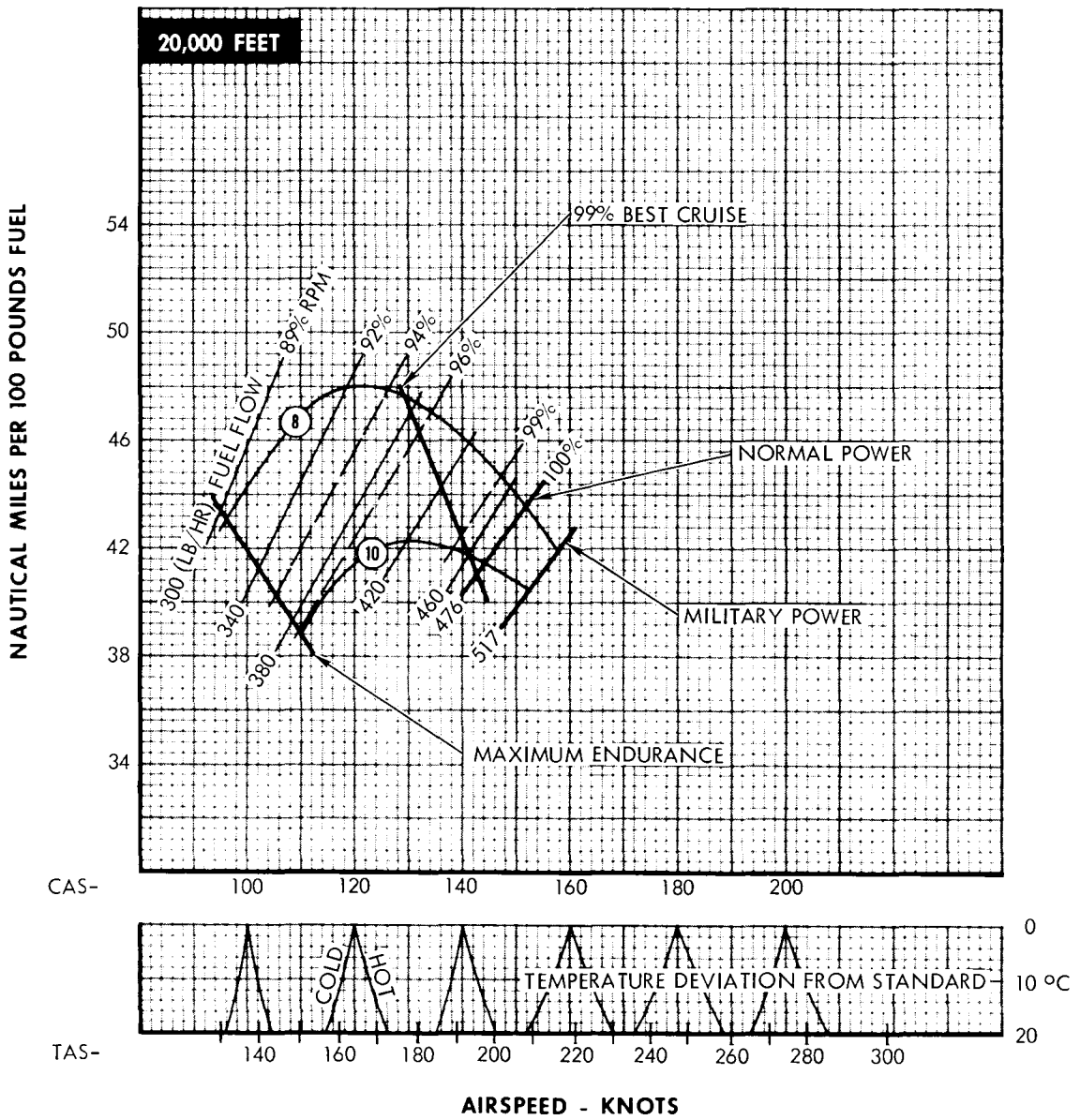
*Figure A4-11*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT
(8) 8,000 POUNDS
(10) 10,000 POUNDS

VA-1-93B

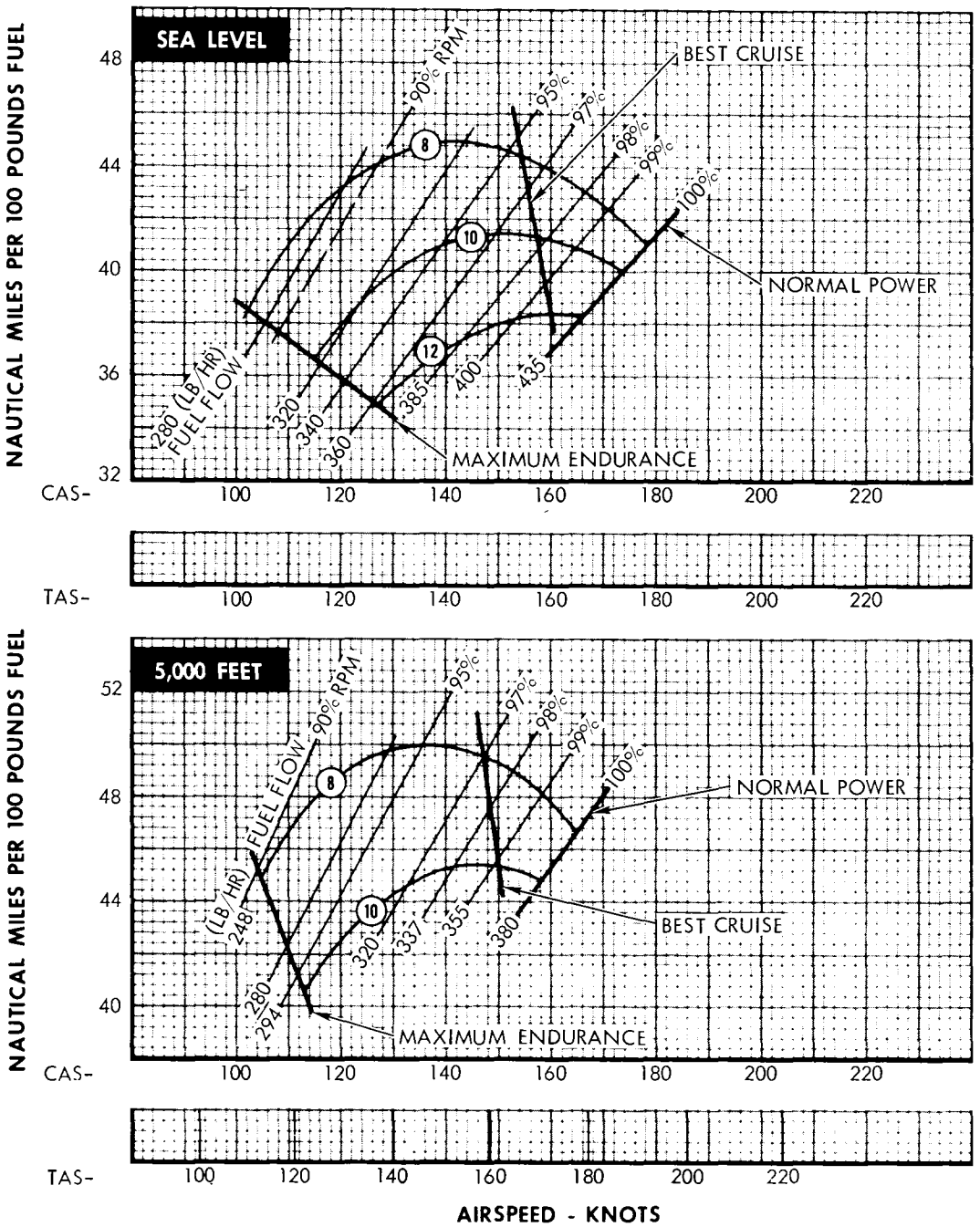
*Figure A4-12*

# 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. MI./100 LB = N. 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 1-1078

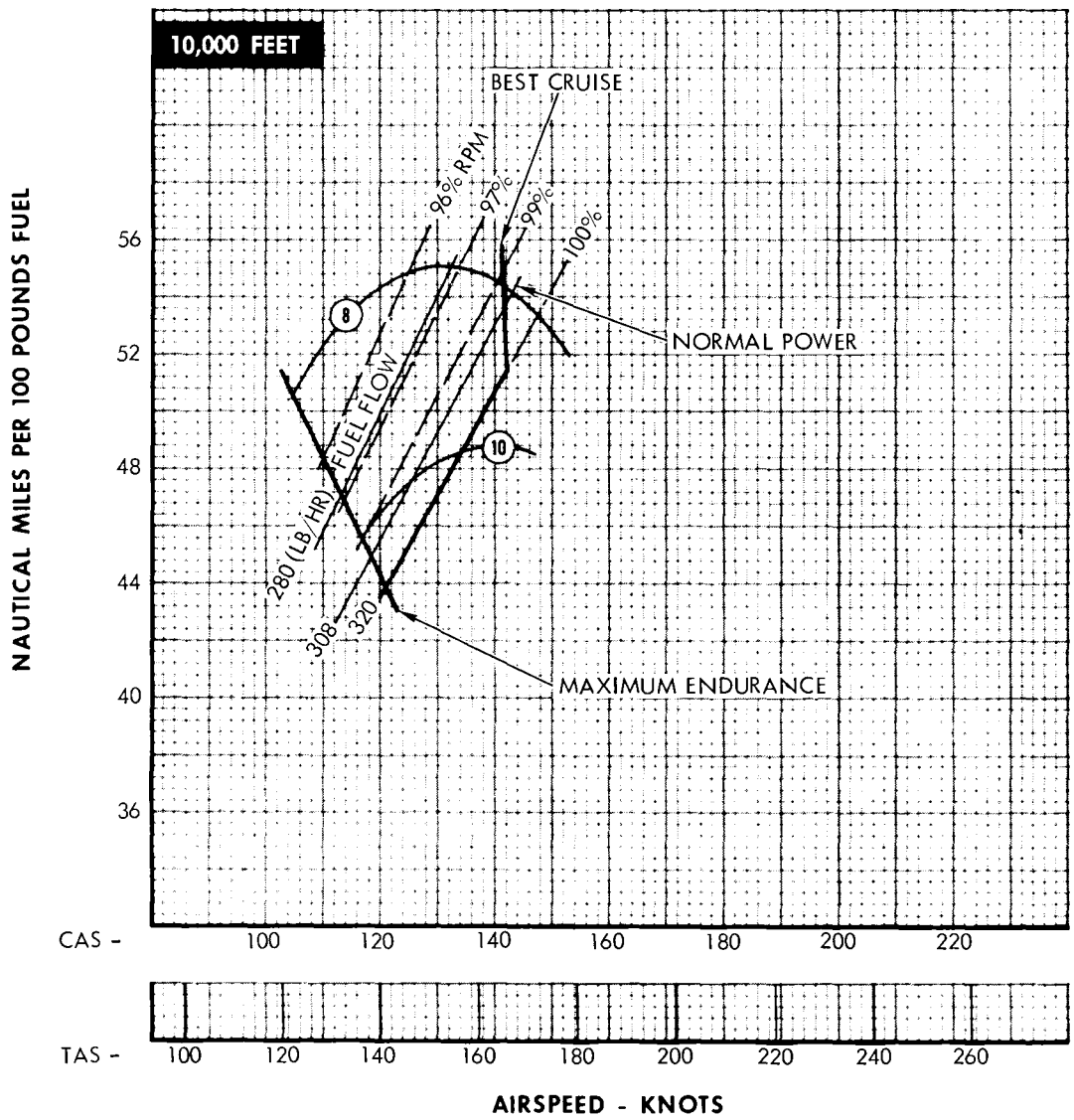
*Figure A4-13 (Sheet 1 of 2)*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT
(8) 8,000 POUNDS
(10) 10,000 POUNDS

VA-1-144A

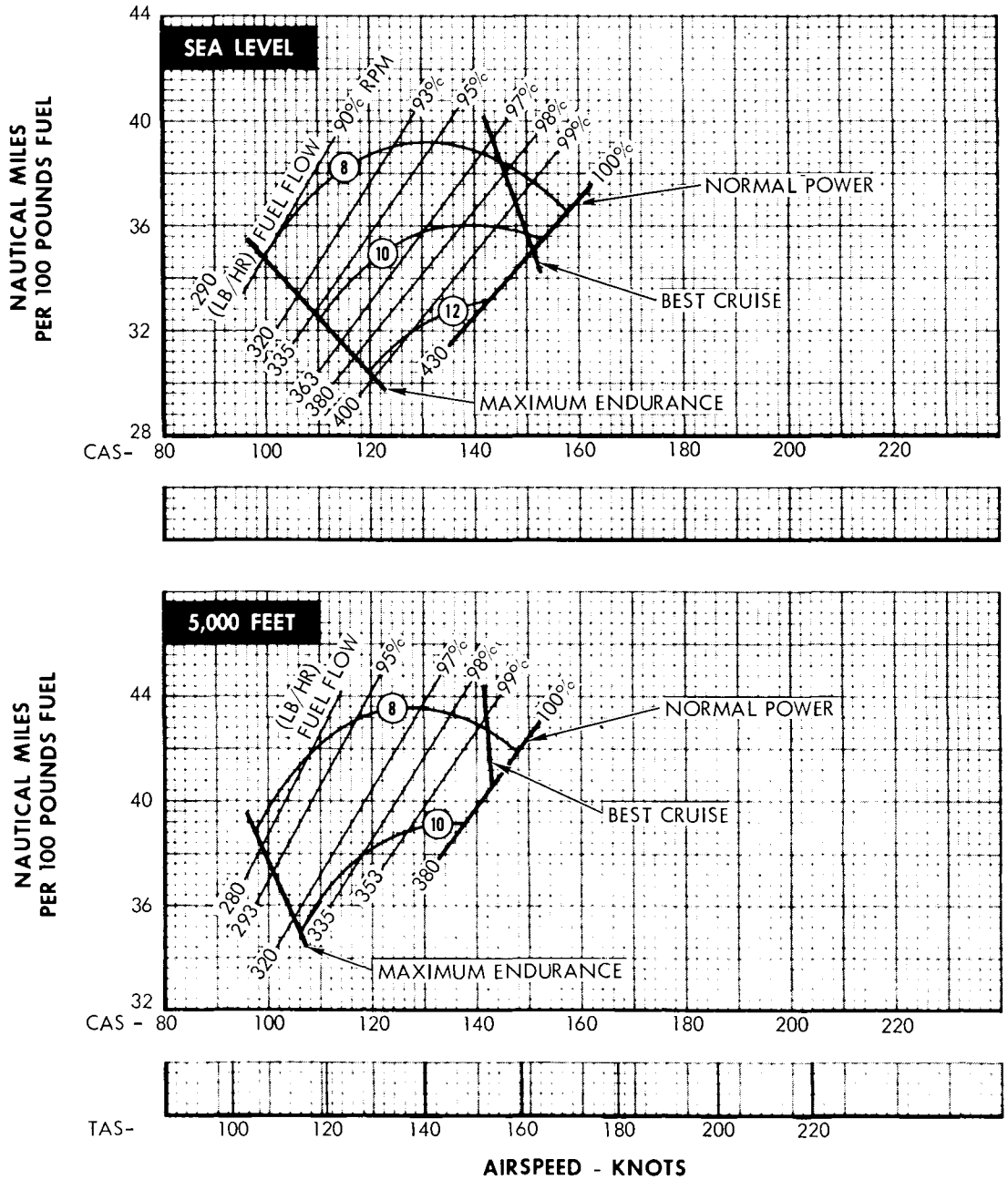
*Figure A4-13 (Sheet 2 of 2)*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- 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-1-1088

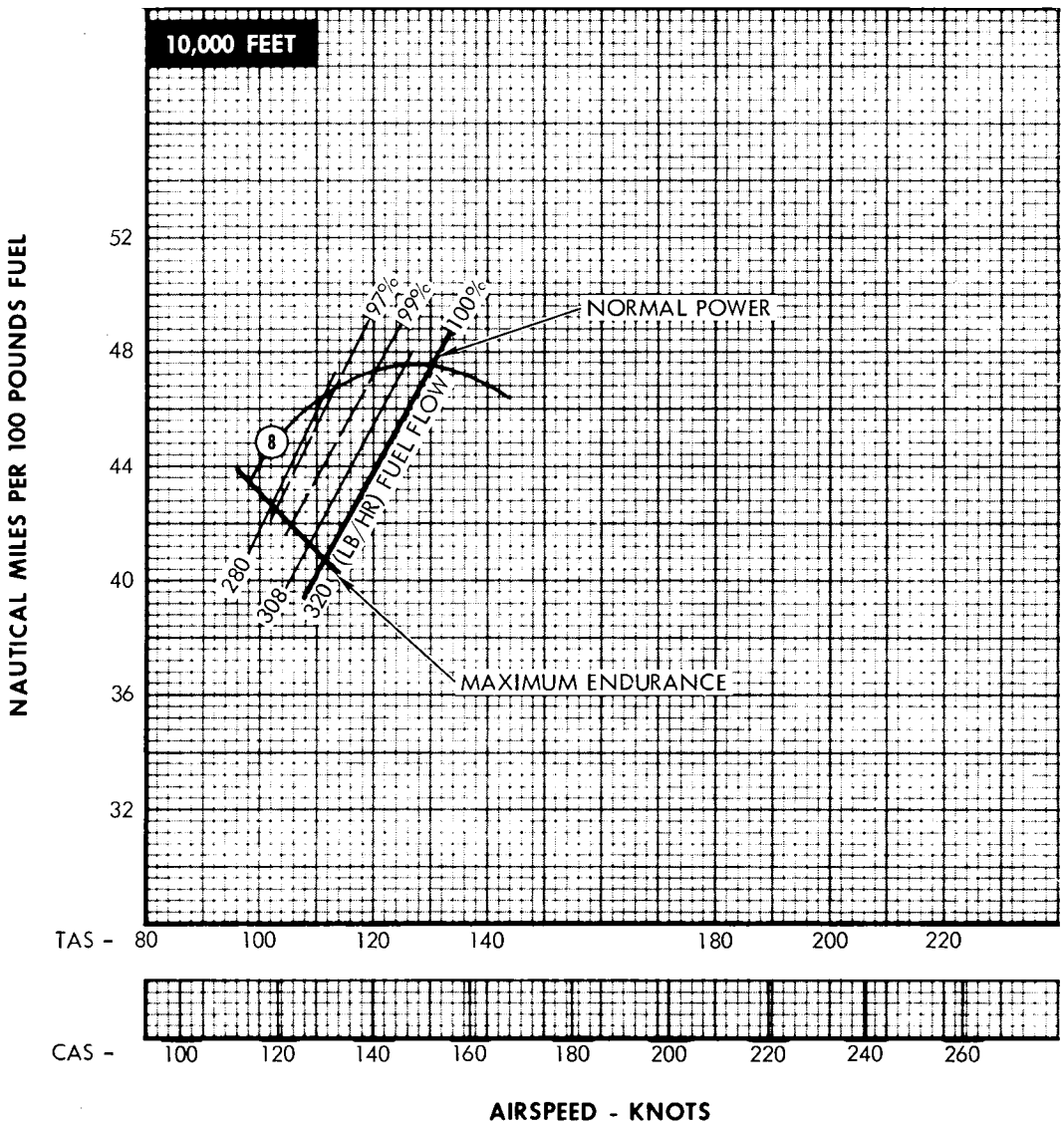
*Figure A4-14 (Sheet 1 of 2)*

# 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 $\frac{\text{GROUND SPEED}}{\text{TRUE AIR SPEED}}$
- REDUCE N. MI./100 LB 3% FOR EACH 10°C ABOVE STANDARD TEMPERATURE

GROSS WEIGHT
(8) 8,000 POUNDS

VA-1-143A

*Figure A4-14 (Sheet 2 of 2)*

# PART 5—ENDURANCE DATA

## TABLE OF CONTENTS



## 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

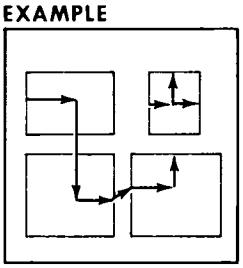
1. Best speed = 110 knots CAS
2. Fuel required = 192 pounds
3. Optimum altitude = 17,500 feet

# CONSTANT ALTITUDE MAXIMUM ENDURANCE

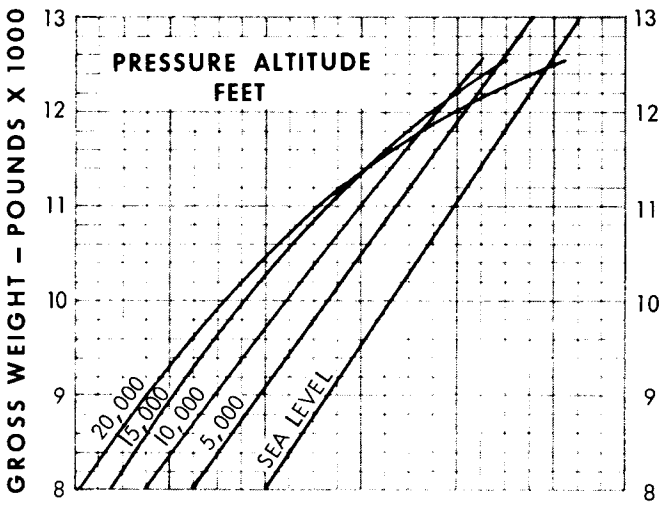
**MAX ENDURANCE**

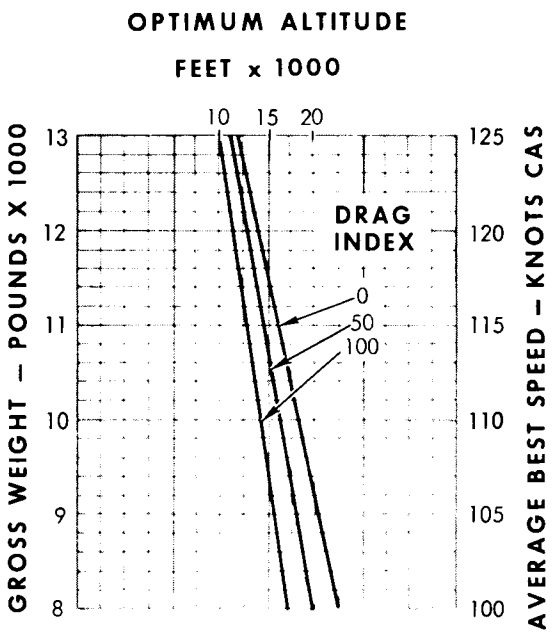
BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 15 JUNE 1969

**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 |



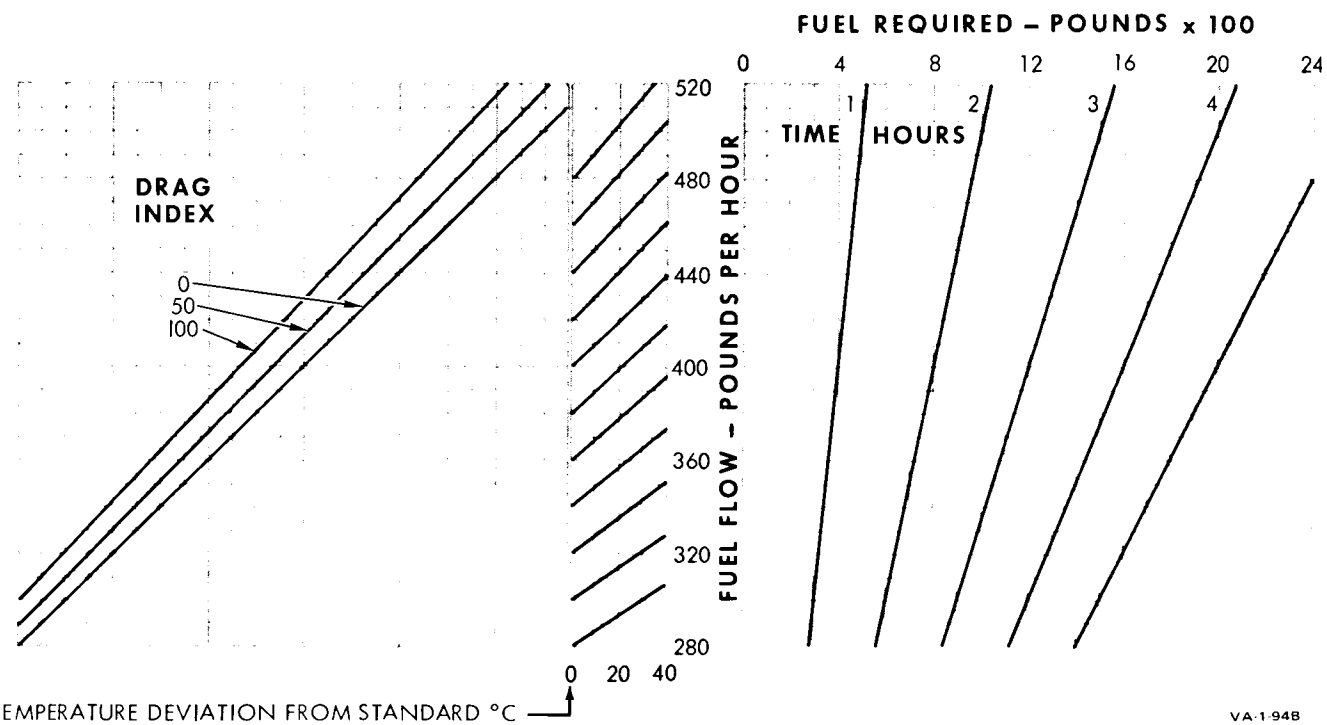




*Figure A5-1*

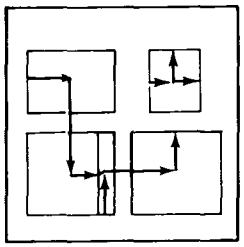
# CONSTANT ALTITUDE MAXIMUM ENDURANCE

**SINGLE - ENGINE**

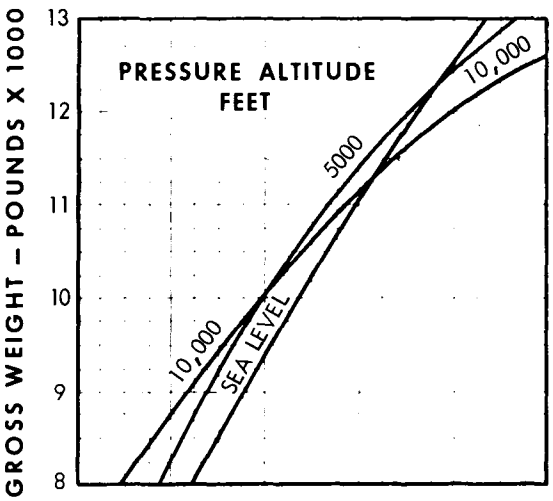
**MAX ENDURANCE**

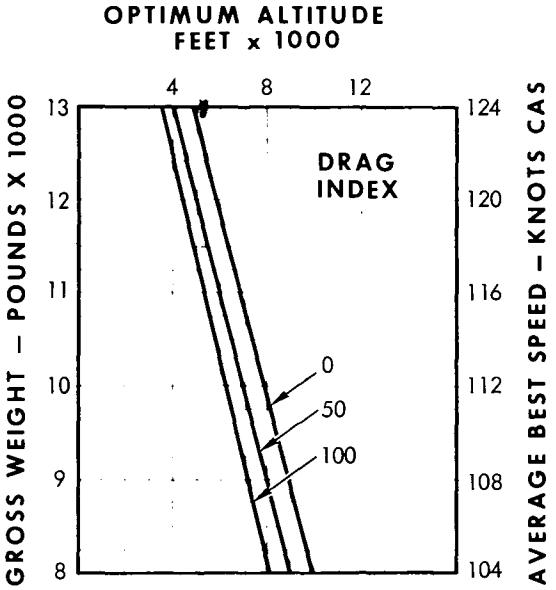
BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 15 JUNE 1969

**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 |



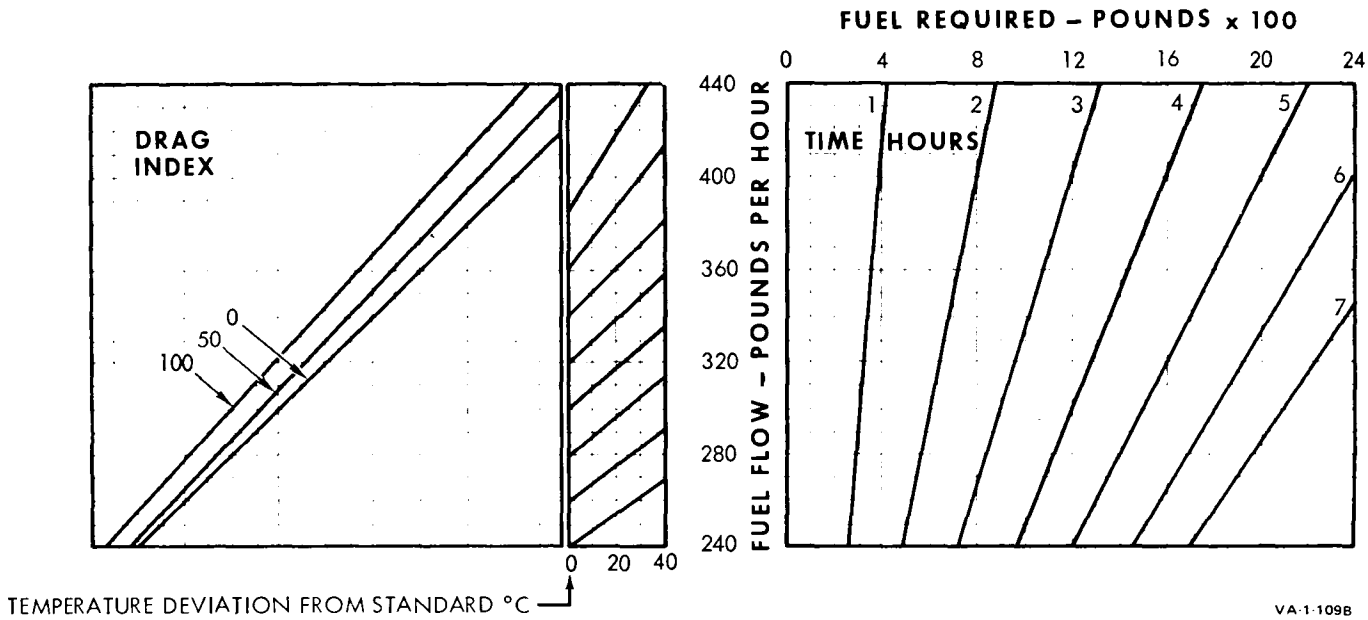




*Figure A5-2*

# PART 6—FLIGHT CHARACTERISTICS DATA

## TABLE OF CONTENTS



## 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

(POWER ON = MILITARY POWER)

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

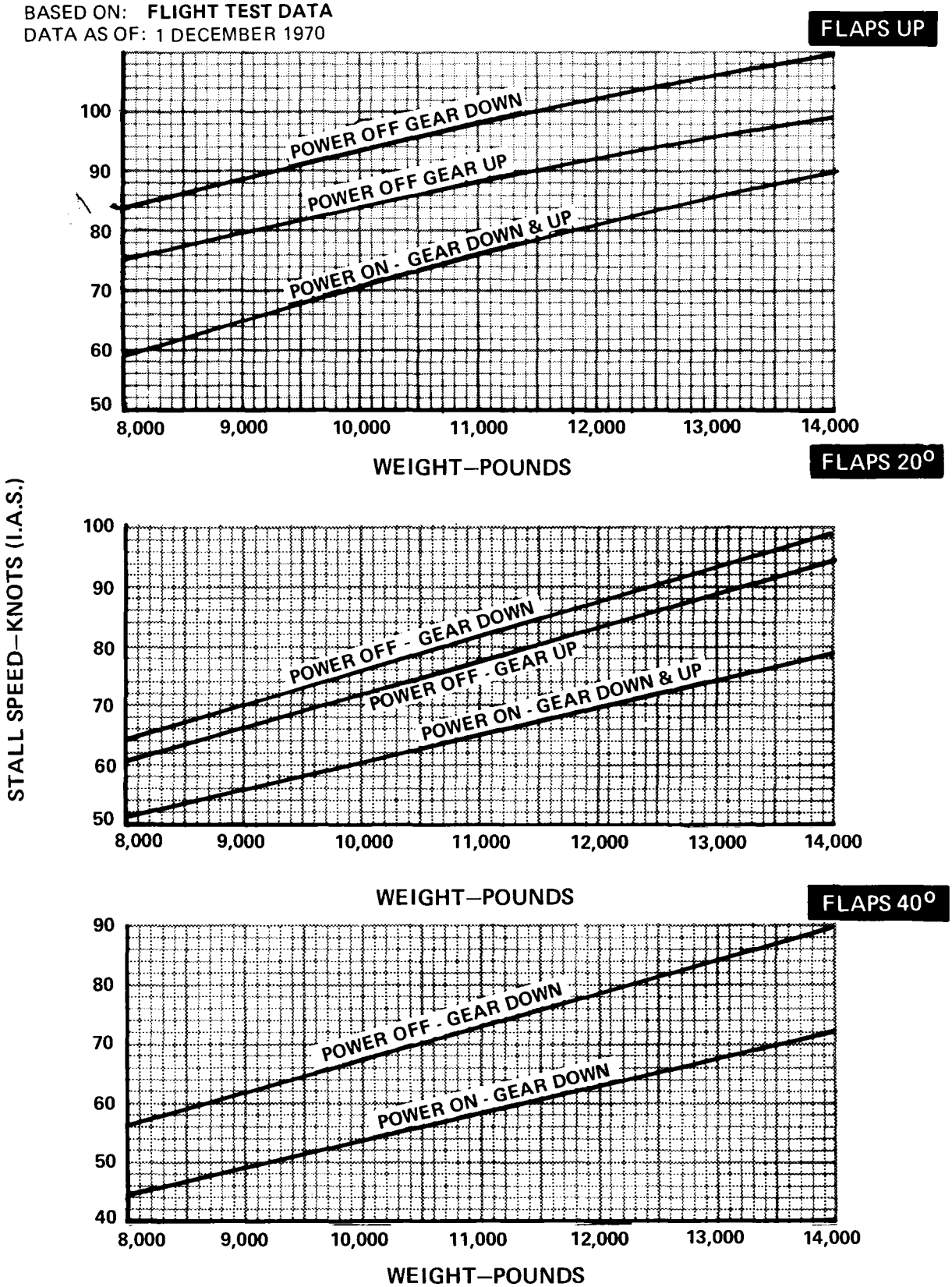
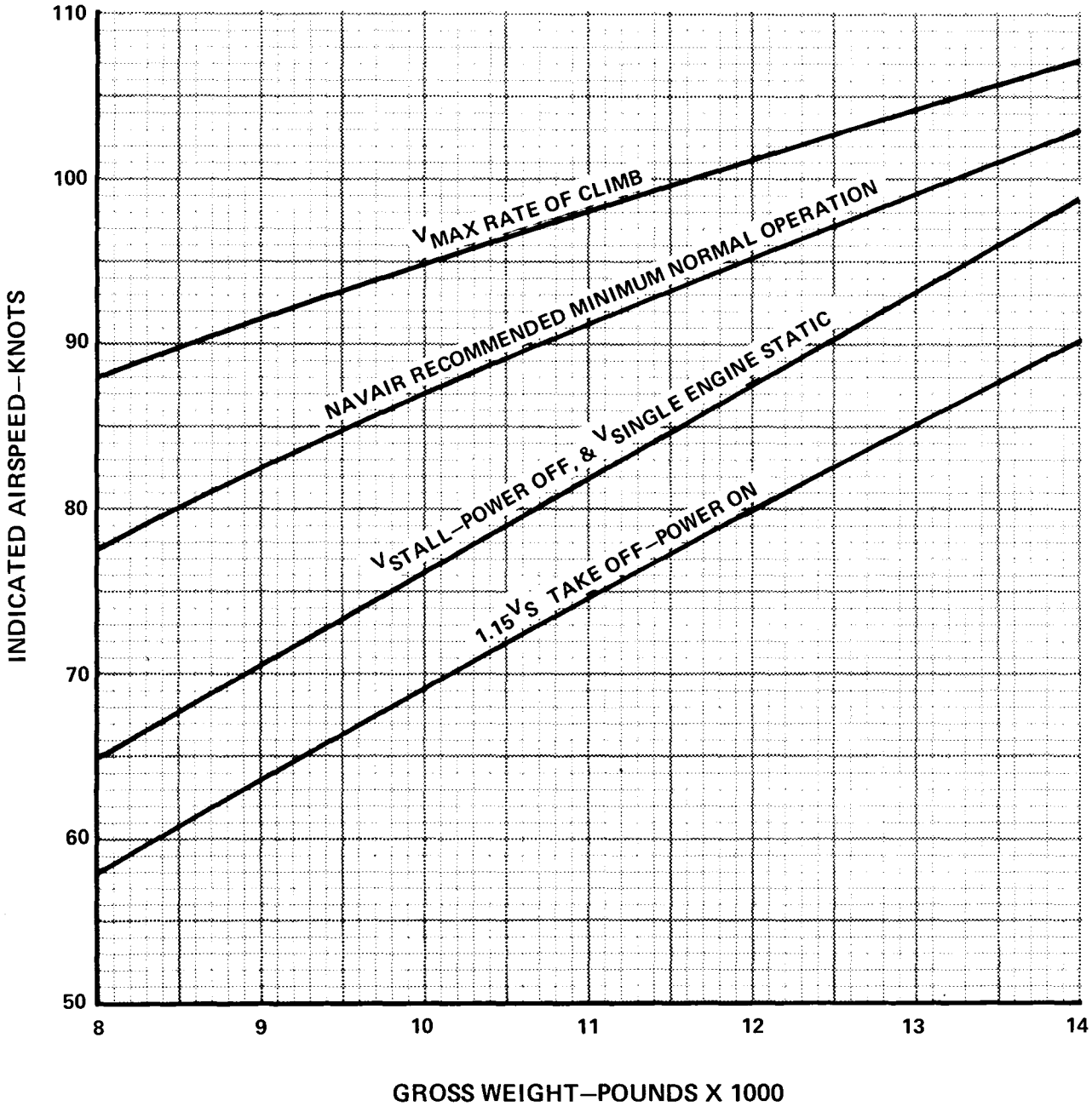



*Figure A6-1*

# AIRSPEED VS GROSS WEIGHT—FLAPS 20°

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




VA-1-147B

*Figure A6-2*

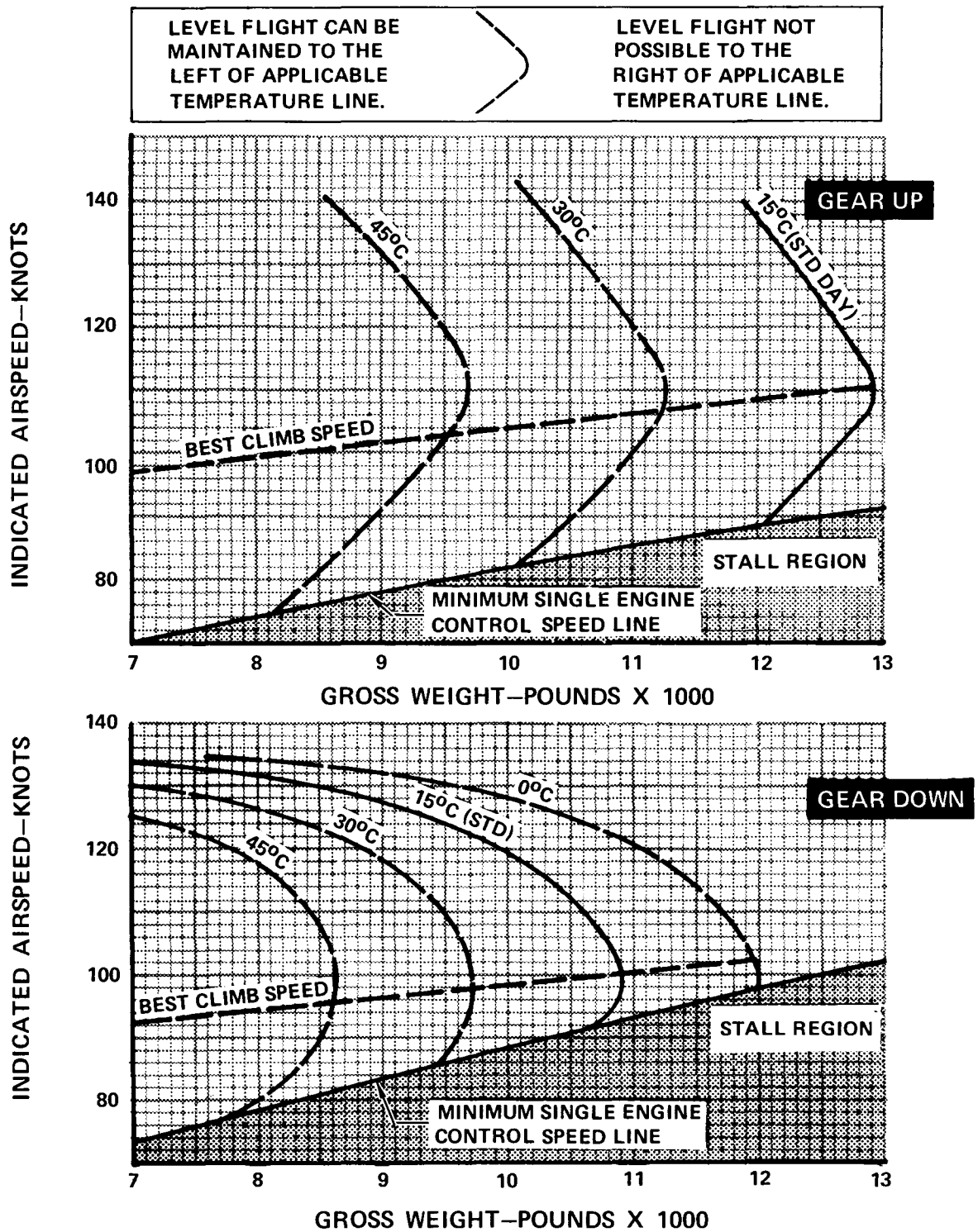
# MINIMUM SINGLE ENGINE SPEEDS

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




**NOTE:** OBSERVE ENGINE TORQUE LIMITS FOR COLD TEMPERATURE

VA-1-137C

*Figure A6-3 (Sheet 1 of 3)*

# MINIMUM SINGLE ENGINE SPEEDS

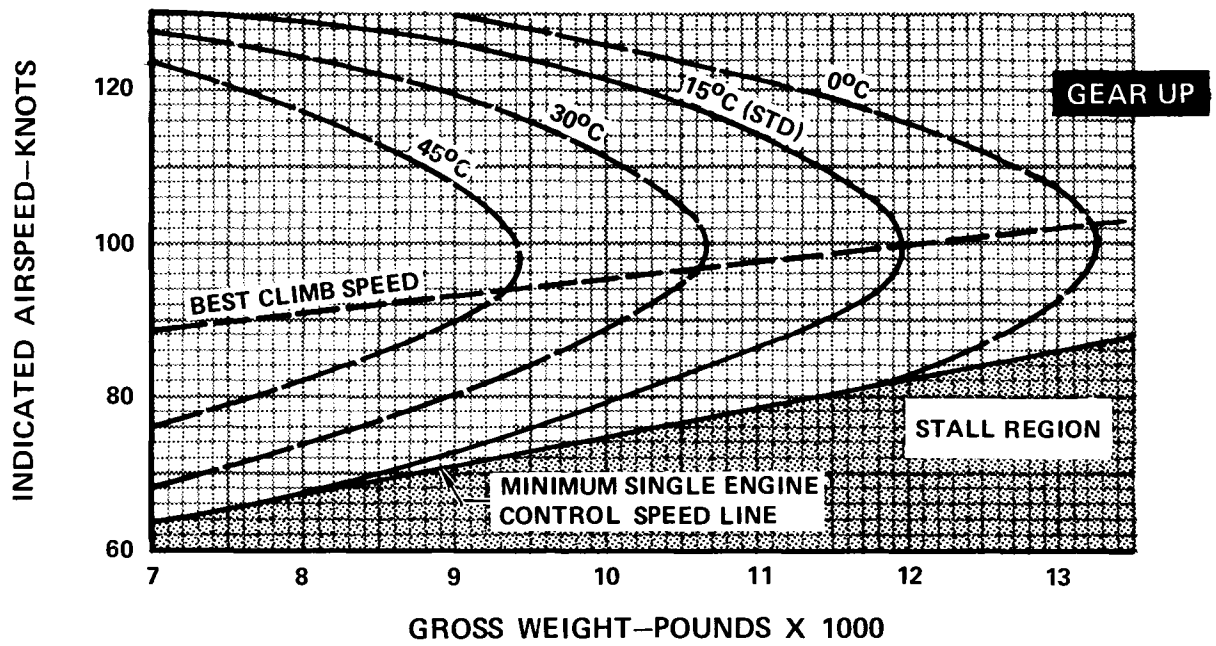
BASED ON: **FLIGHT TEST DATA**
DATA AS OF 1 JANUARY 1971

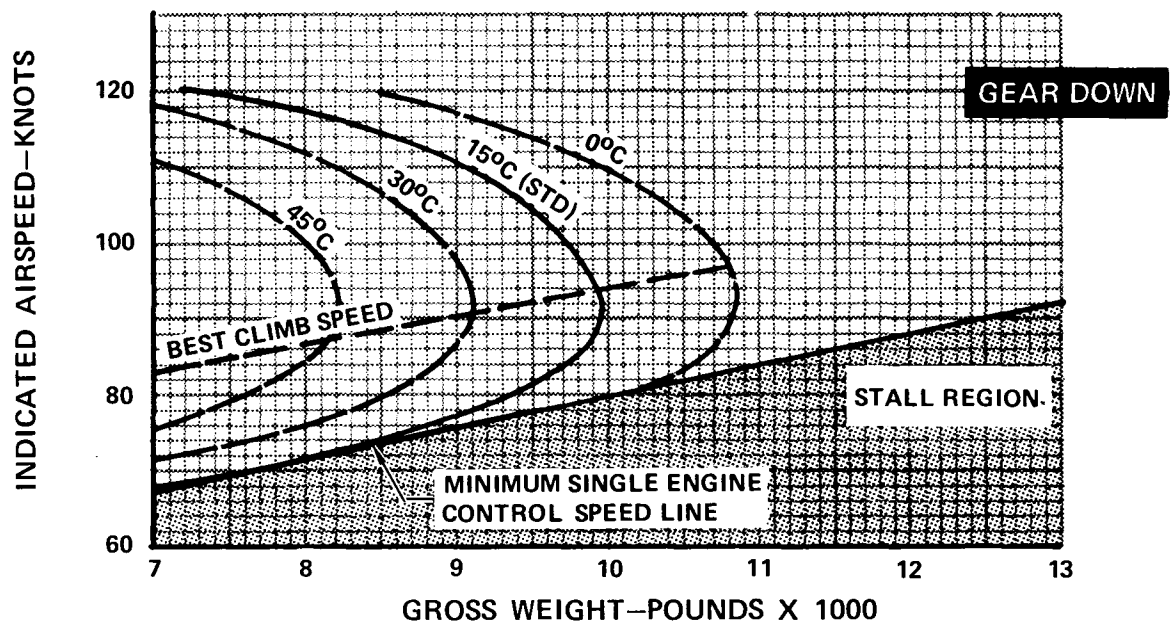
**FLAPS 20°**

**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)*

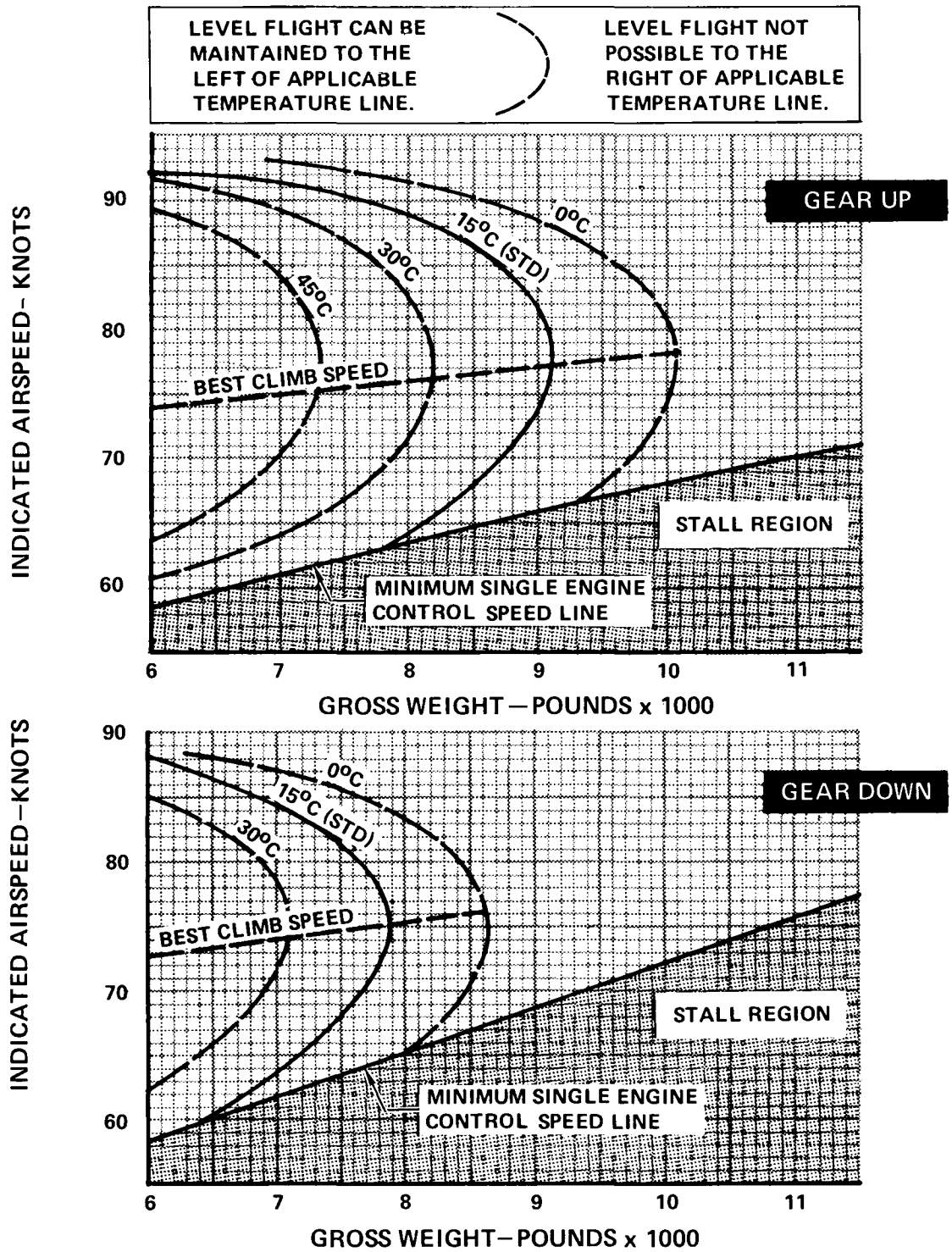
# MINIMUM SINGLE ENGINE SPEEDS

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

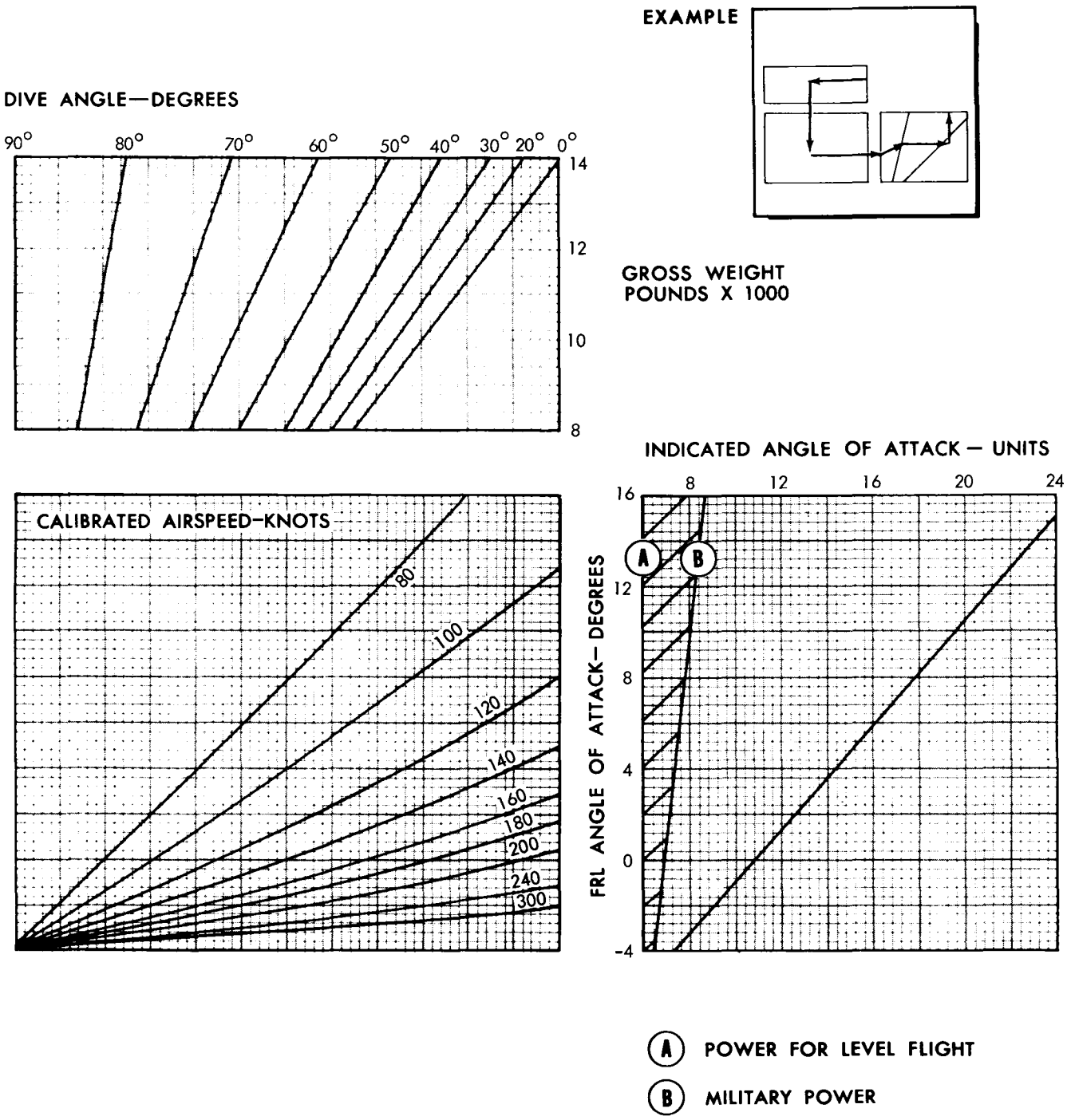
VA-1-139C

*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**

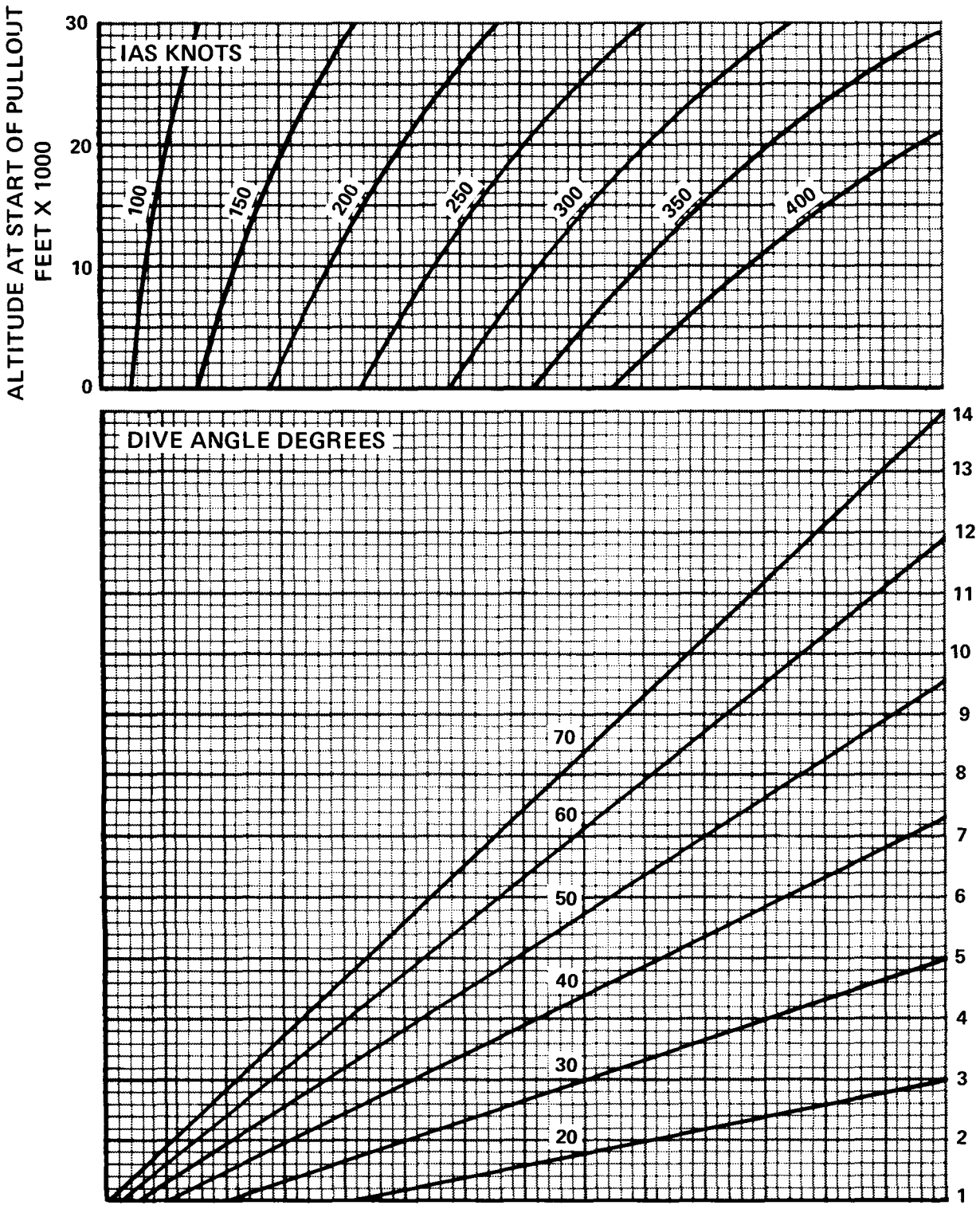



VA-1-64A

*Figure A6-4*

# ALTITUDE LOST IN DIVE RECOVERY

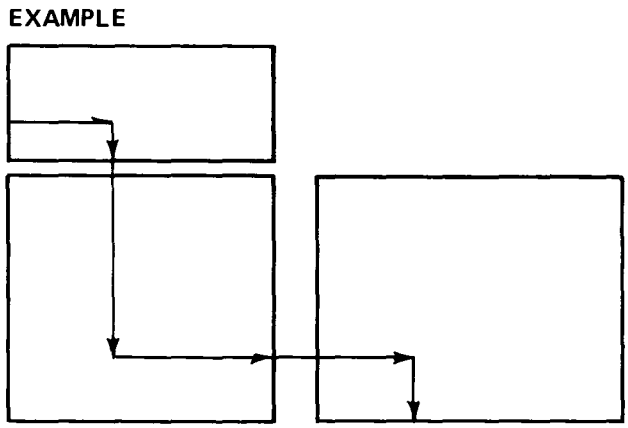
BASED ON **FLIGHT TEST DATA**
DATA AS OF: 1 SEPTEMBER 1968

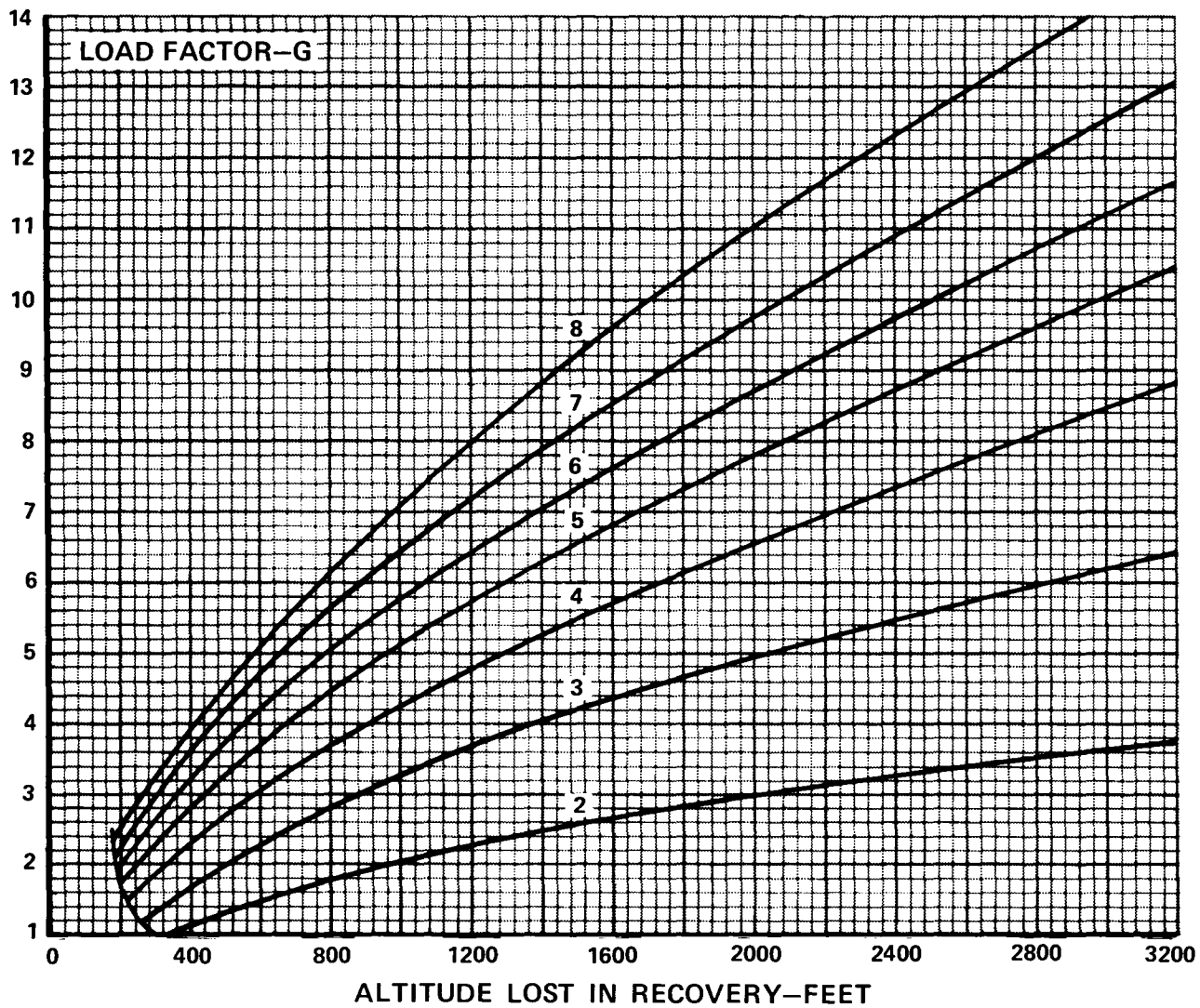



VA-1-65B

*Figure A6-5 (Sheet 1 of 2)*

**FLIGHT IDLE POWER**
**DIVE RECOVERY**




VA-1-111A

*Figure A6-5 (Sheet 2 of 2)*

# PART 7—DESCENT DATA

## TABLE OF CONTENTS



## 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

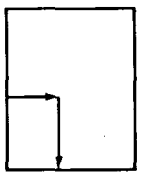
1. Distance = 25.5 nautical miles
2. Time = 10 minutes
3. Fuel used = 45 pounds

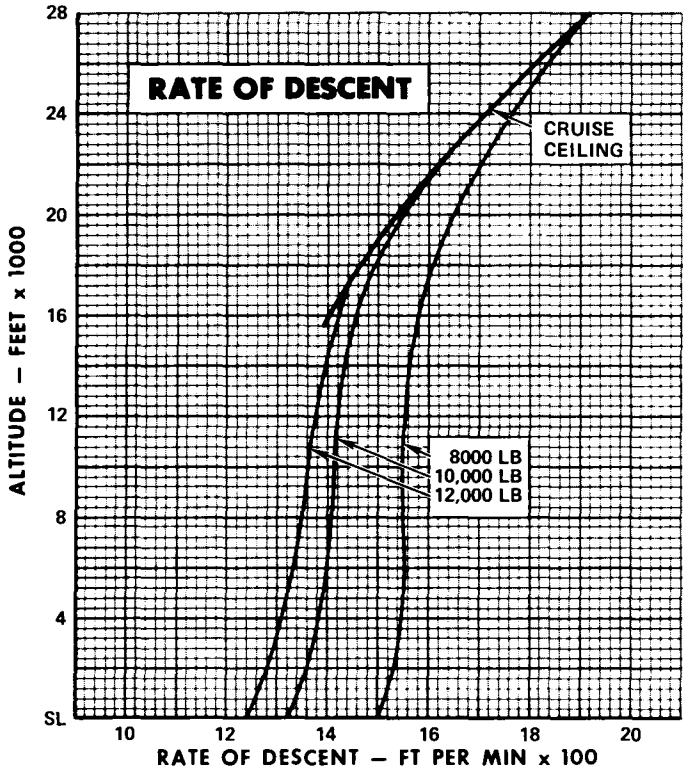
# NORMAL DESCENT

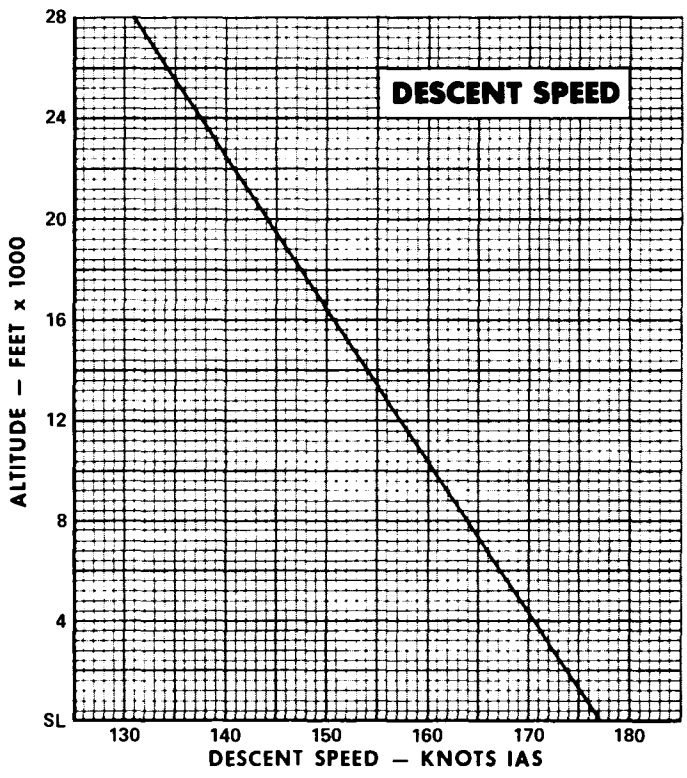
BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 15 JUNE 1969

**IDLE POWER**
**FLAPS AND GEAR UP**
ENGINES: (2) T-76

EXAMPLE






VA-1-164

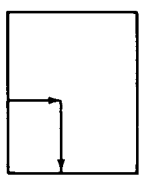
*Figure A7-1*

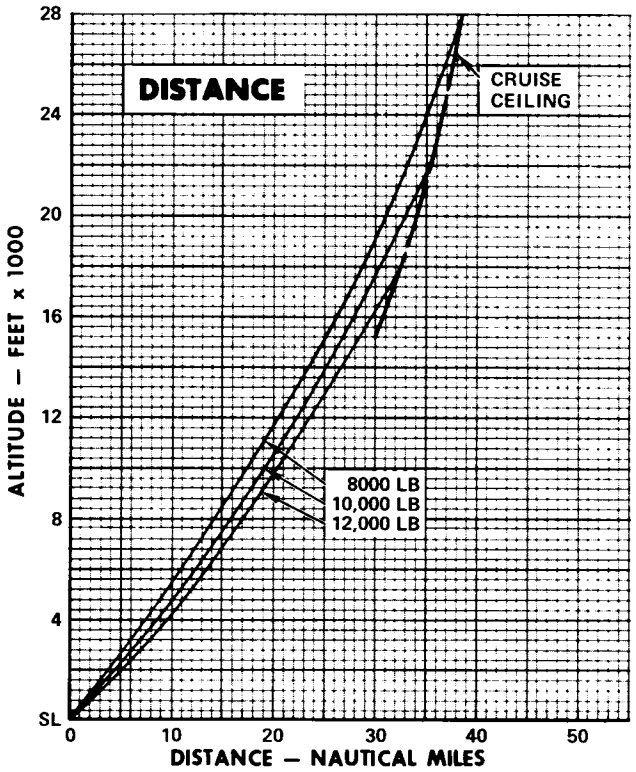
# NORMAL DESCENT

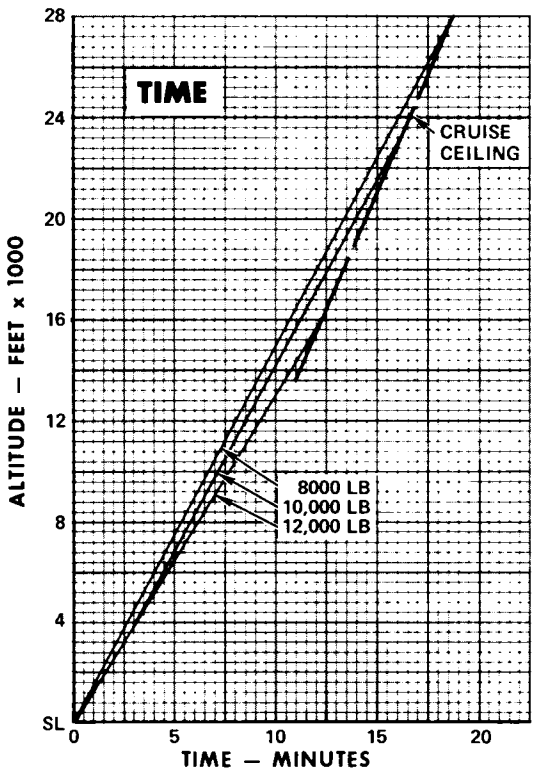
BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 15 JUNE 1969

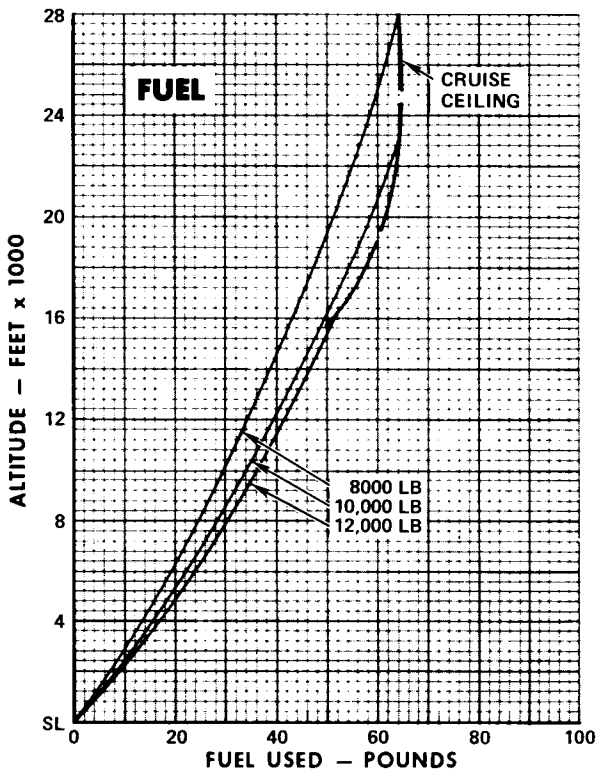
**IDLE POWER**
**FLAPS AND GEAR U**
ENGINES: (2) T-76

EXAMPLE






VA-1-1

*Figure A7-2*

# PART 8—LANDING DATA

## TABLE OF CONTENTS



## 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).

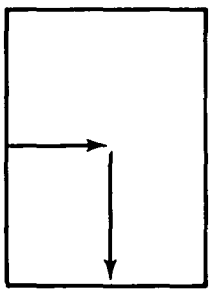
Find landing roll for idle power and reverse thrust:

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

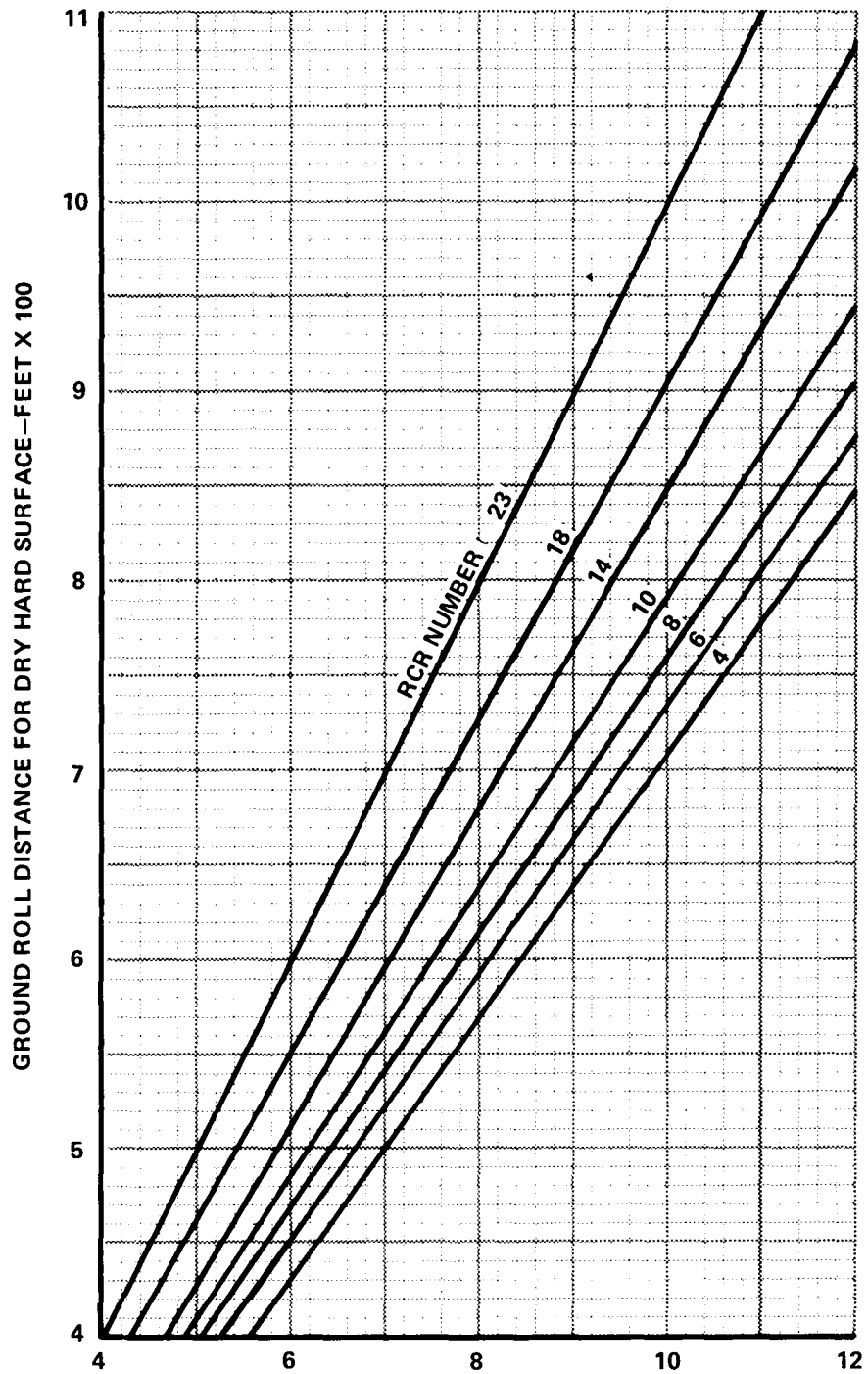
1. Full reverse distance = 920 feet
2. Idle power distance = 1380 feet (reverse distance x 1.5)

# EFFECT OF RUNWAY CONDITIONS (RCR) ON GROUND ROLL DISTANCE

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



EXAMPLE




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

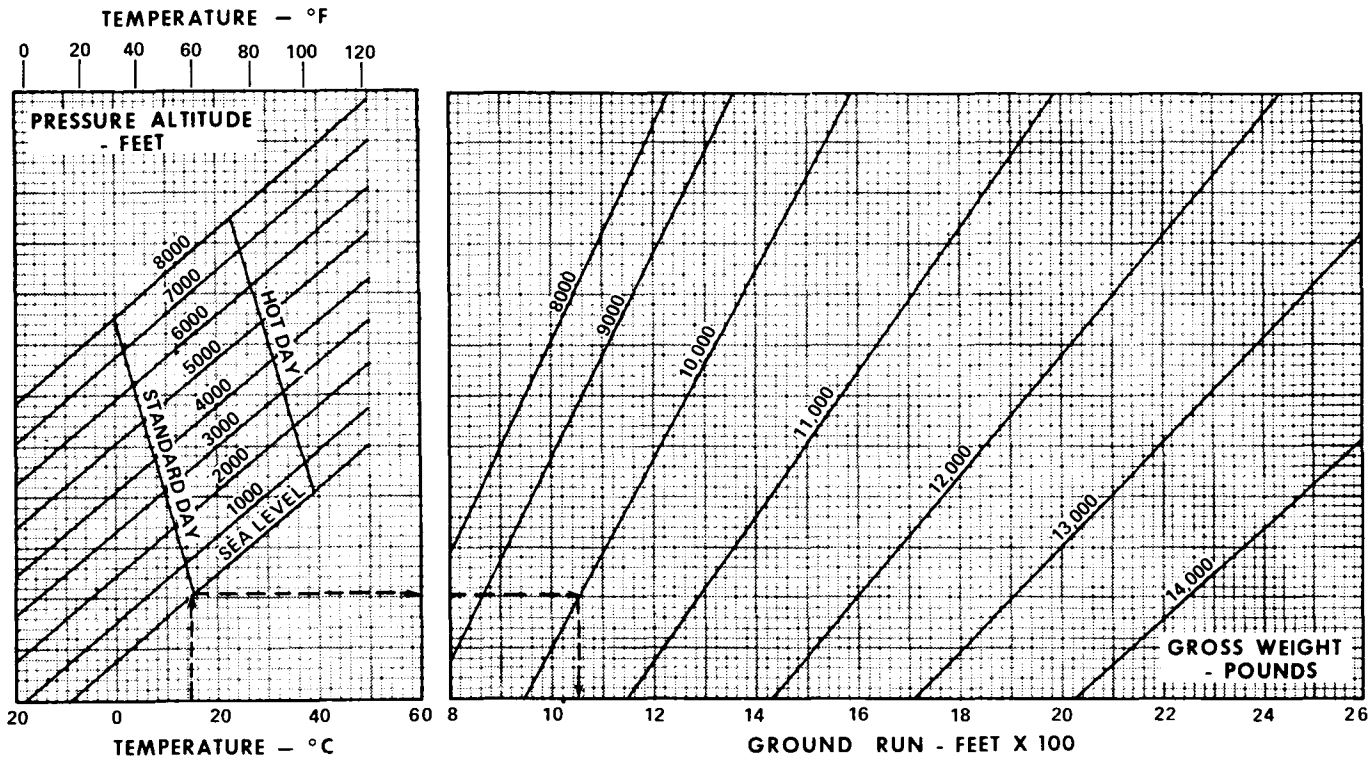
VA-1-182

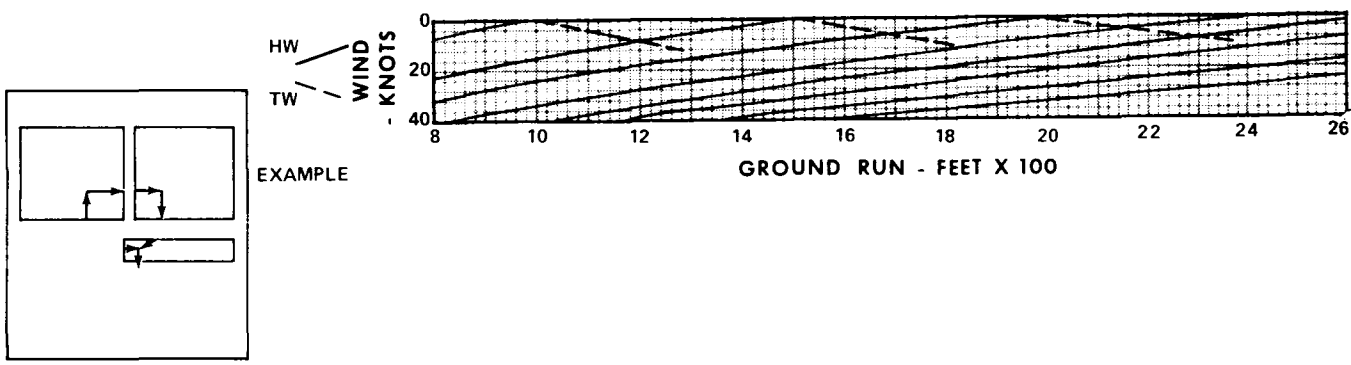
*Figure A8-1*

# 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%.

VA-1 169A

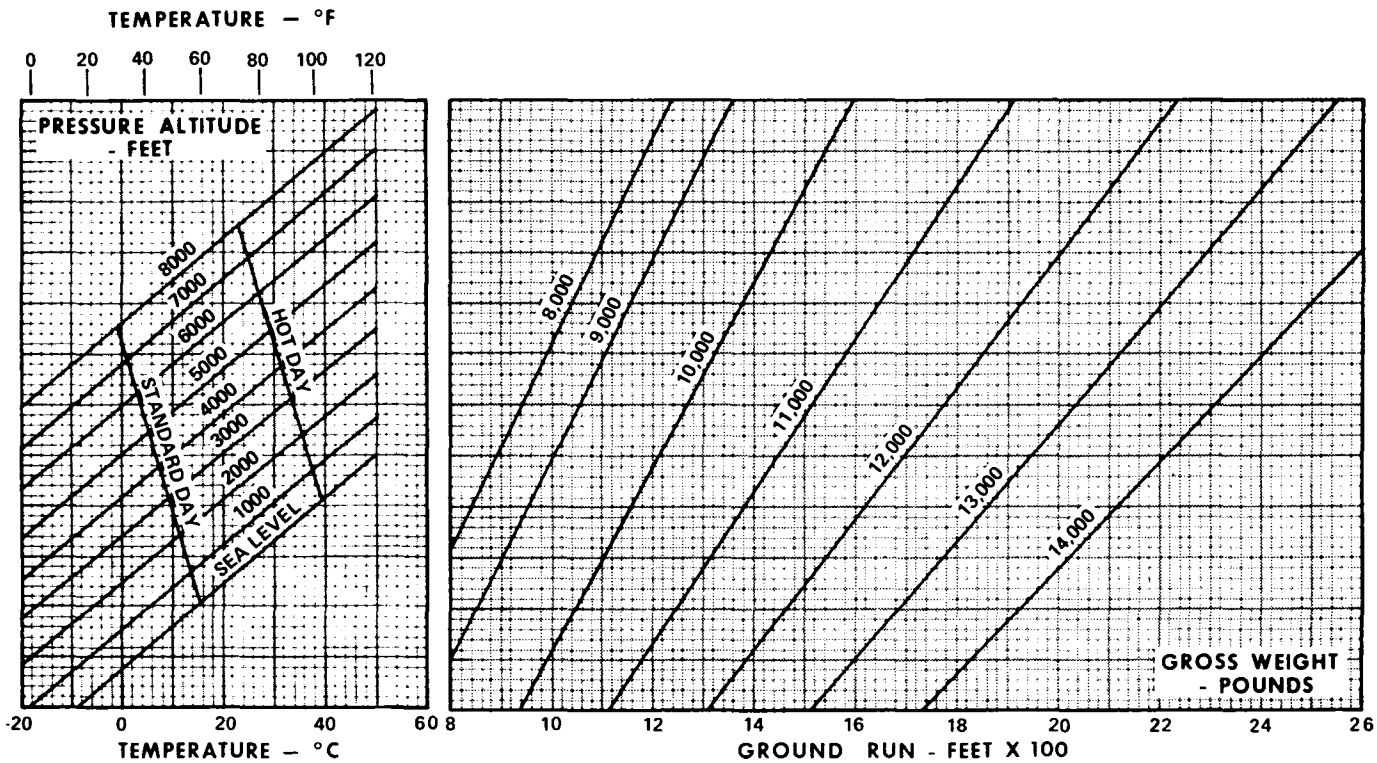
*Figure A8-2*

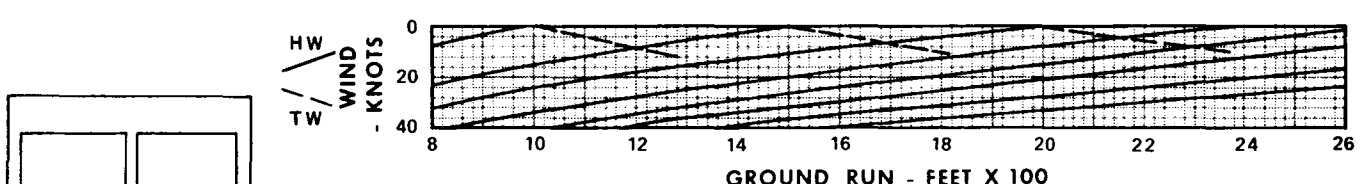
# LANDING DISTANCE

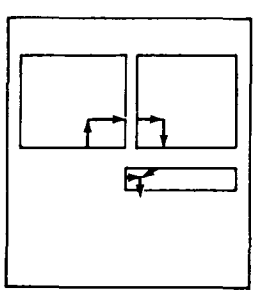
BASED ON: **FLIGHT TEST DATA**
DATA AS OF: 1 MARCH 1971

**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%.

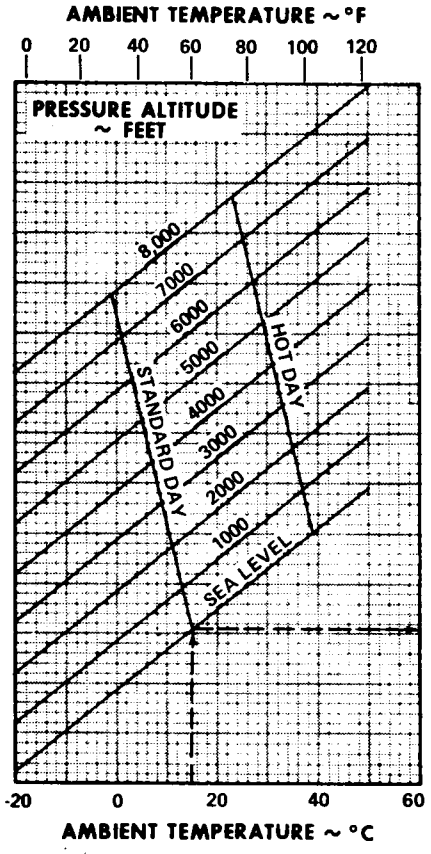
VA-1-183

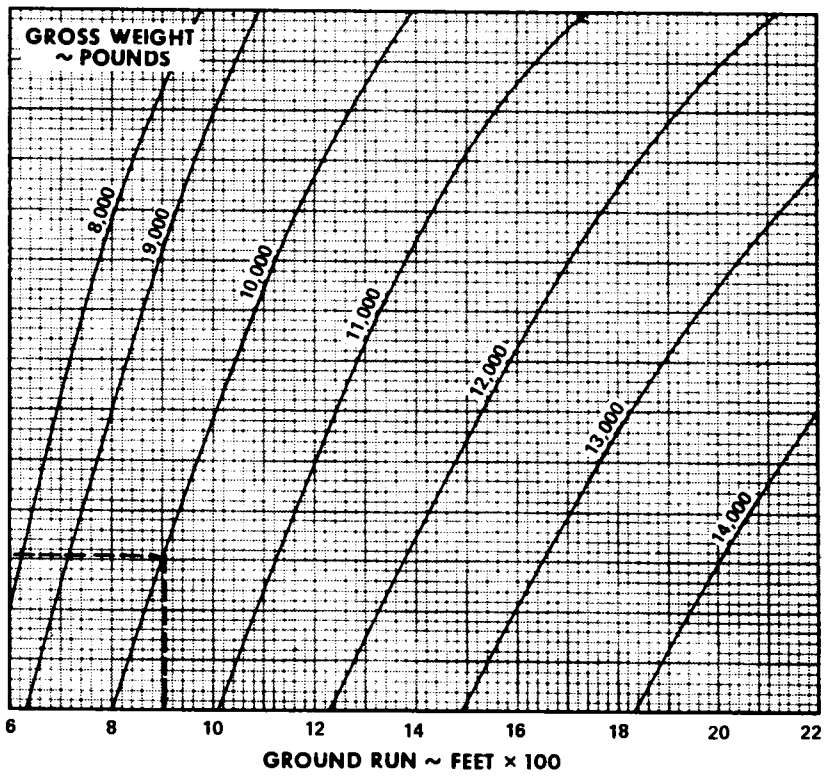
*Figure A8-2A*

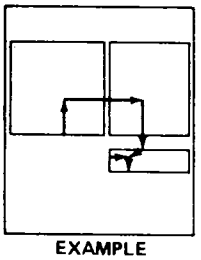
# LANDING DISTANCE

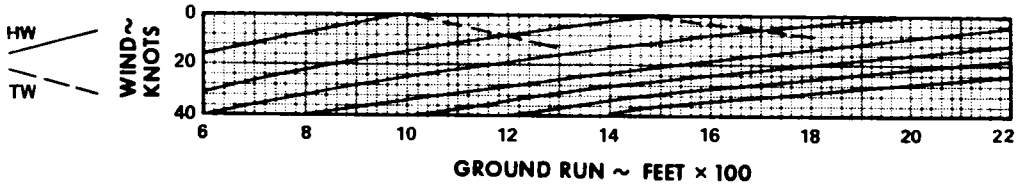
BASED ON: FLIGHT TEST DATA
DATA AS OF: 1 JANUARY 1971

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





EXAMPLE




**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

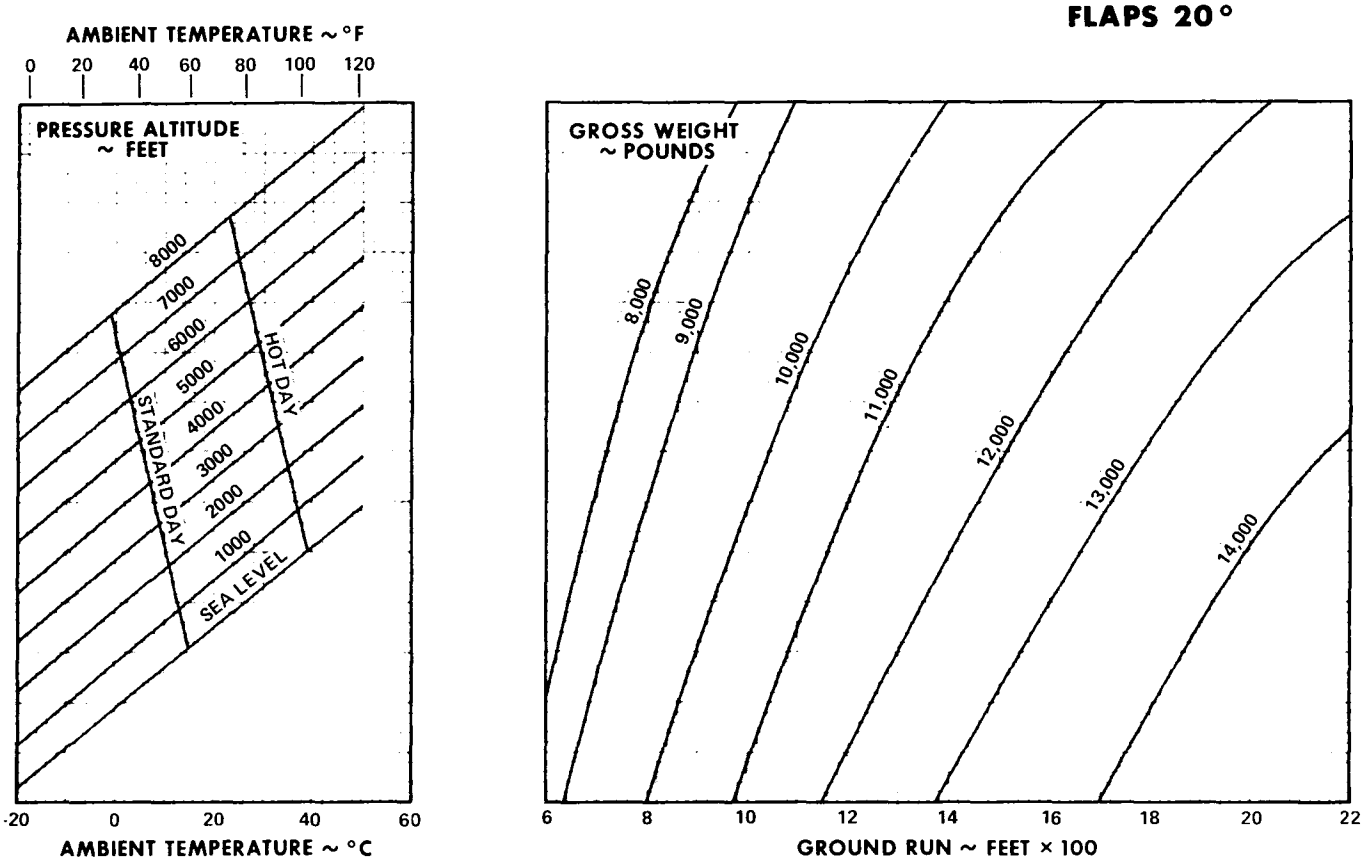
*Figure A8-3*

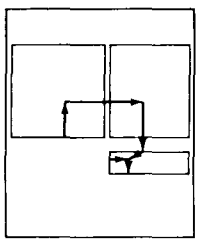
# LANDING DISTANCE

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

**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%.

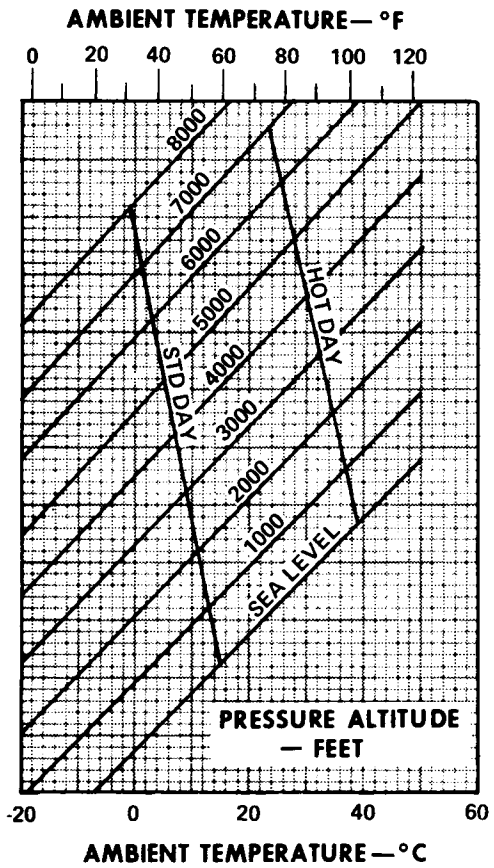
VA-1-184

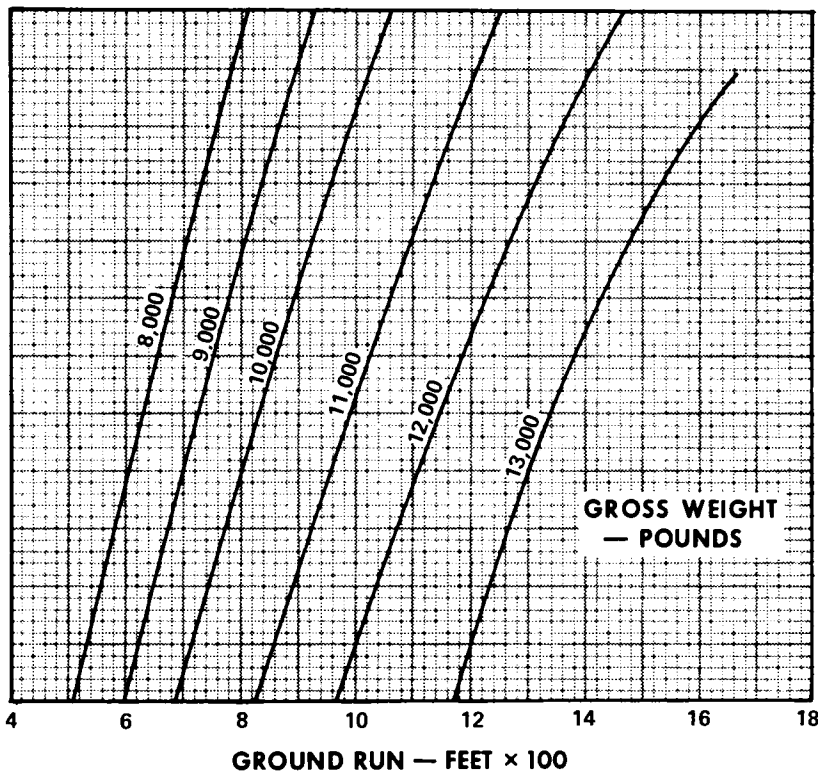
*Figure A8-3A*

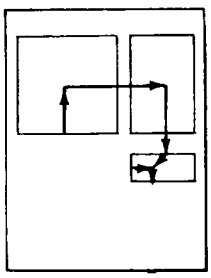
# LANDING DISTANCE

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

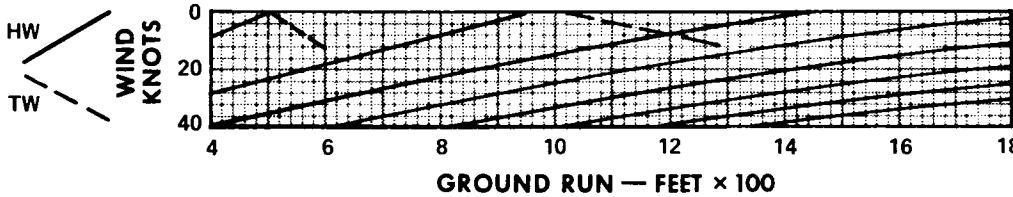
**FULL REVERSE THRUST**
**BELOW 70 KIAS (100 KIAS)***
**DRY HARD RUNWAY**
**FLAPS 40°**



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**

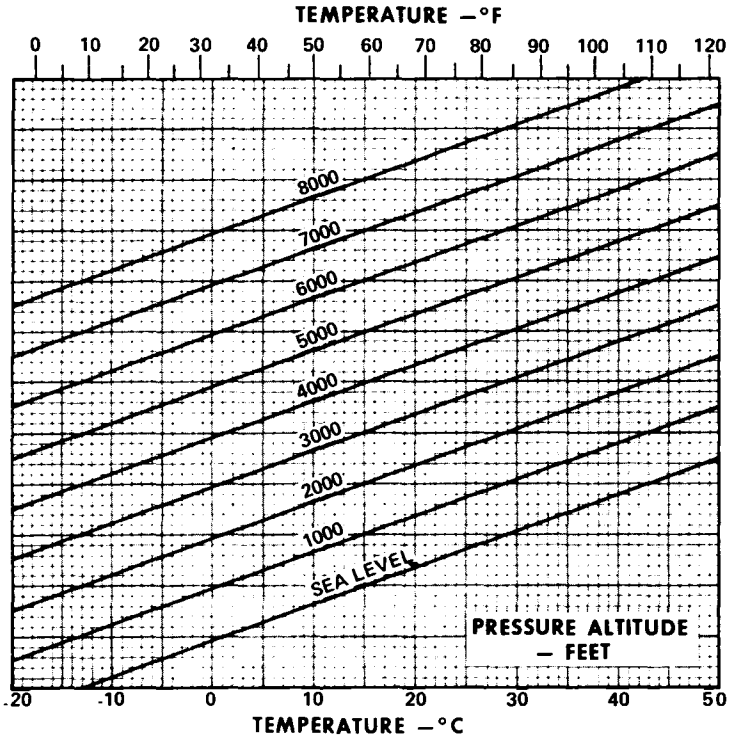
VA-1-146C

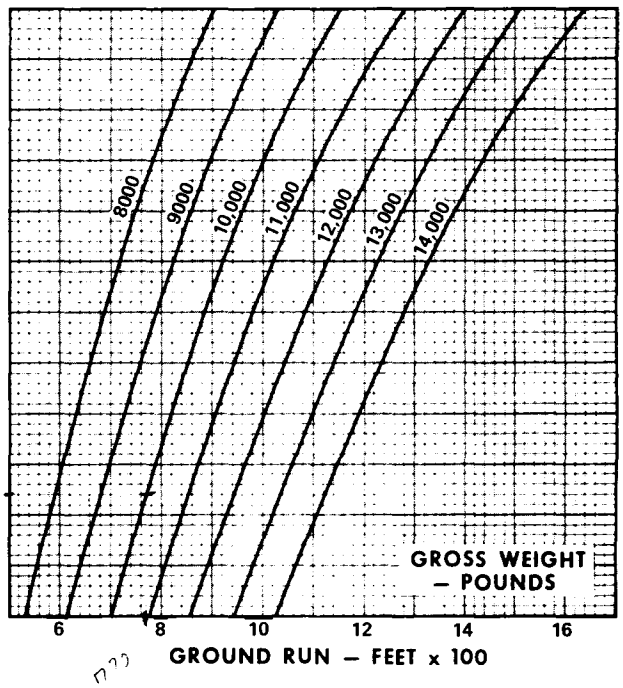
*Figure A8-4*

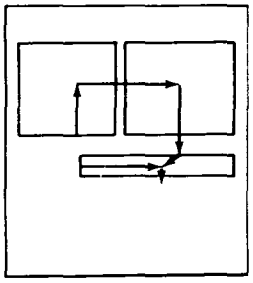
# LANDING DISTANCE – STOL

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°**

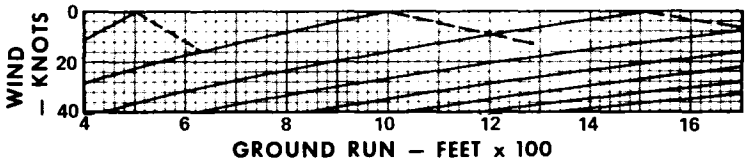


EXAMPLE

HW
TW




**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

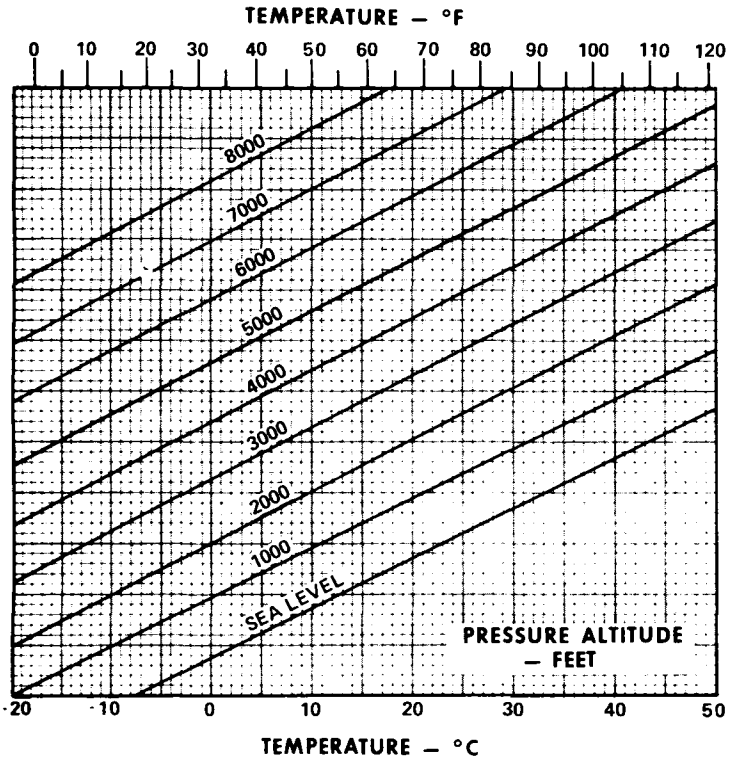
VA-1-166B

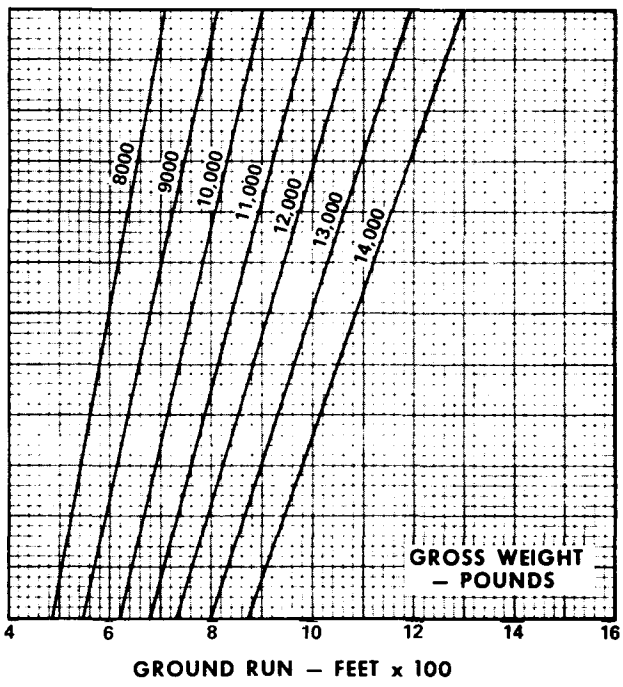
*Figure A8-5*

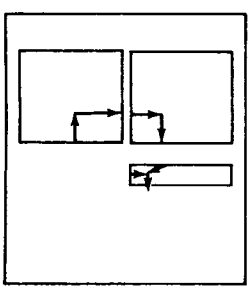
# LANDING DISTANCE — STOL

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°**

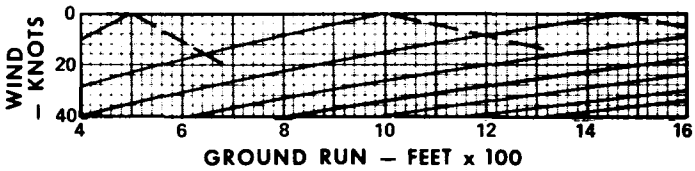


EXAMPLE

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:**

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 LANDING WITH NO REVERSE THRUST INCREASE GROUND RUN 50%.

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

VA 1-167B

*Figure A8-6*

INDEX

# ALPHABETICAL INDEX



Underlined Page Numbers Denote Illustration

Page



Page

B



Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

Underlined Page Numbers Denote Illustration

**Underlined Page Numbers Denote Illustration**

Underlined Page Numbers Denote Illustration

AUXILIARY EQUIPMENT