

MANUFACTURER'S DATA

BHT-212-MD-1

Section 4

EXPANDED PERFORMANCE

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4-1/4-2

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Section 4

EXPANDED PERFORMANCE

4-1. FUEL FLOW

The fuel flow charts ([figure 4-1](#)) are based on estimates and limited flight test data. Fuel consumption may vary between engines. It is recommended that the operator conduct measurements to be used to adjust the presented data as required. These data do not include the effects of bleed air on fuel consumption. Fuel flow is applicable to the basic helicopter without any optional equipment which would appreciably affect lift, drag, or power available.

4-2. EXPANDED PERFORMANCE PT6T-3B ENGINE

4-2-A. SINGLE ENGINE HOVER CEILING CHARTS

The Single Engine Hover Ceiling charts ([figure 4-2](#)) herein are based upon the engine manufacturer's minimum specification power for the PT6T-3B engine. Separate charts are presented for the 71.8 and 79.4 percent torque meter configurations.

PRESSURE ALTITUDE
OAT
SKID HEIGHT (IGE)
SKID HEIGHT (OGE)
.....

2400 feet
+10°C
10 feet
50 feet or above
.....

NOTE

Single engine takeoffs are not authorized without a special flight permit issued by the appropriate aviation authority having jurisdiction over the area in which the aircraft operates.

4-2-B. HOVER GROSS WEIGHT VS SKID HEIGHT AND HEADWIND CHARTS

The Hover Gross Weight Vs Skid Height and Headwind Charts ([figure 4-3](#) and [figure 4-4](#)) present twin and single engine hover performance under various degrees of ground effect and headwind effect. A separate chart is presented for each torque meter configuration.

The upper portion of the chart is used to determine the out-of-ground-effect (OGE) hover capability in a zero wind condition. The SKID HEIGHT portion of the chart depicts how hover performance increases as skid height decreases (as ground effect increases). The HEADWIND portion of the chart shows how hover capability (allowable gross weight) increases as a direct headwind increases.

EXAMPLE: Find the maximum IGE and OGE hover gross weights (twin and single engine operation) for the following conditions:

HEADWIND

5 knots

4-3

BHT-212-MD-1**MANUFACTURER'S DATA****4-2-B-1. FOR MAXIMUM OGE
HOVER GROSS WEIGHT
(TWIN ENGINE
OPERATION)**

Enter chart at 2400 feet pressure altitude, proceed across to +10°C (twin engine operation). Drop to headwind baseline. (The skid height portion of the chart is not used for OGE operation.) Follow nearest curve contour to 5 knots headwind. Move down, read 11,000 pounds. The helicopter will hover OGE at a maximum of 11,000 pounds under these conditions.

**4-2-B-2. FOR MAXIMUM IGE
HOVER GROSS WEIGHT
(TWIN ENGINE
OPERATION)**

Enter chart at 2400 feet pressure altitude, proceed across to +10°C (twin engine operation). Move down to skid height baseline. Follow nearest curve contour to 10 feet skid height. The plotted line intersects the maximum gross weight limit before intersecting the 10 foot skid height line; therefore, the maximum IGE hover gross weight is 11,200 pounds under these conditions.

4-2-B-3. FOR MAXIMUM OGE**HOVER GROSS WEIGHT
(SINGLE ENGINE
OPERATION)**

Enter chart at 2400 feet pressure altitude, proceed across to +10°C (single engine operation). Move down to headwind baseline. (The skid height portion of the chart is not used for OGE operation.) Follow nearest curve contour to 5 knots headwind. Move down, read 8350 pounds. The helicopter will hover OGE at a maximum of 8350 pounds on one engine under these conditions.

**4-2-B-4. FOR MAXIMUM IGE
HOVER GROSS WEIGHT
(SINGLE ENGINE
OPERATION)**

Enter chart at 2400 feet pressure altitude, proceed across to +10°C (twin engine operation). Move down to skid height baseline. Follow nearest curve contour to 10 feet skid height. Drop to headwind baseline. Follow nearest curve contour to 5 knots headwind. Move down, read 8850 pounds. The helicopter will hover IGE at a maximum of 8850 pounds on one engine under these conditions.

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MANUFACTURER'S DATA

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FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = SEA LEVEL
OAT = -5°C

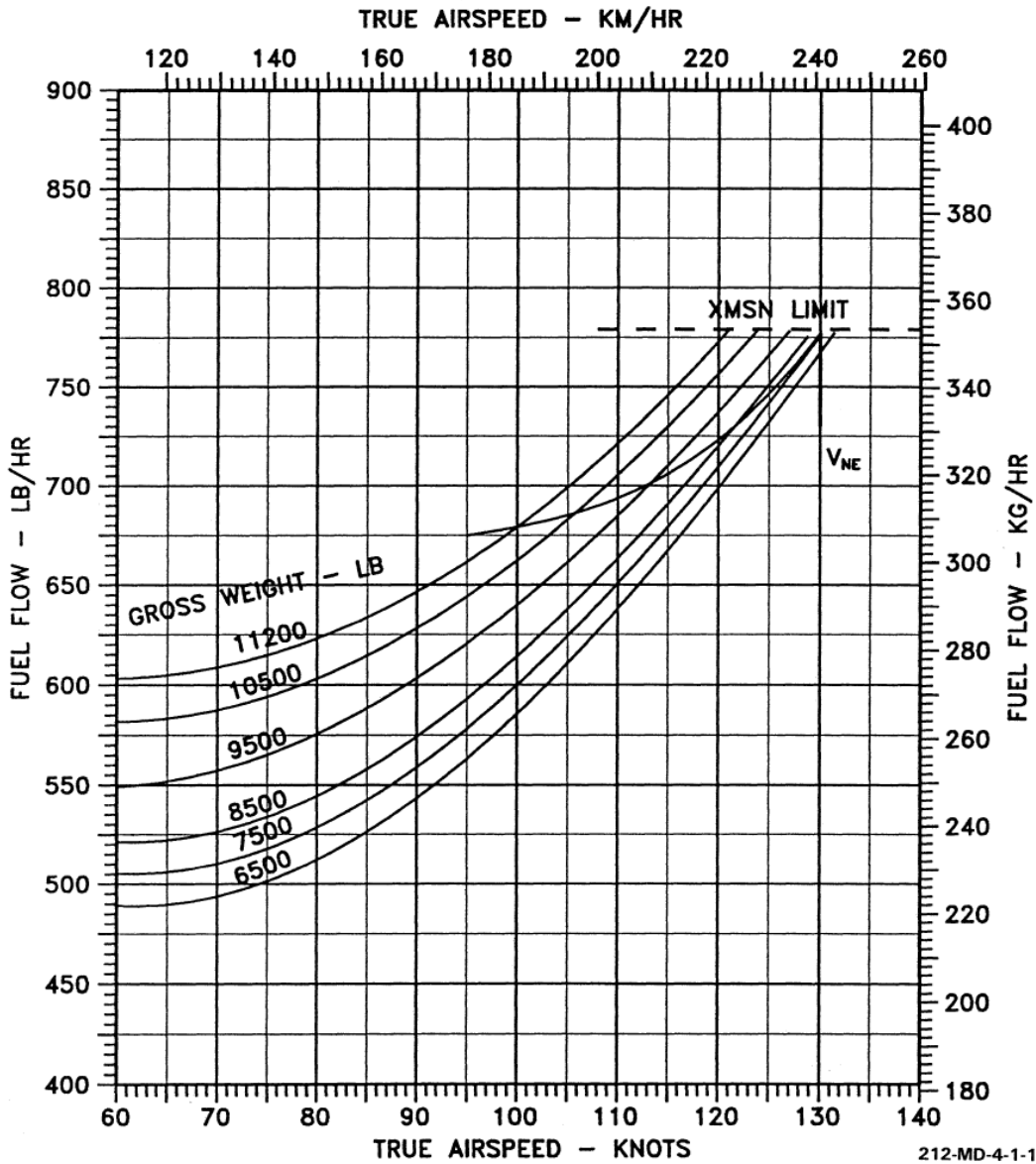


Figure 4-1. Fuel flow VS airspeed (Sheet 1 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = SEA LEVEL
OAT = +15°C

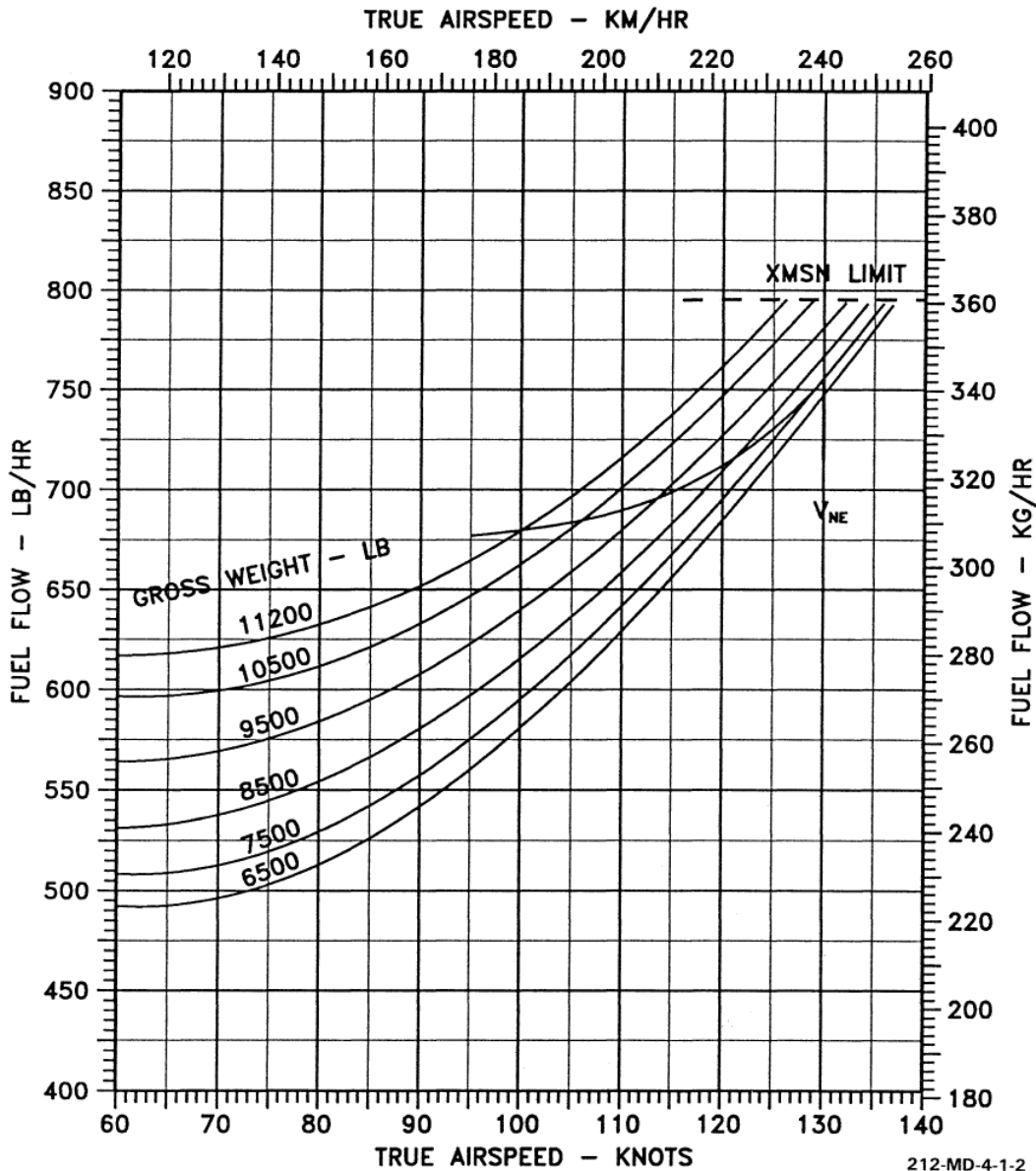


Figure 4-1. Fuel flow vs airspeed (Sheet 2 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = SEA LEVEL
OAT = +35°C

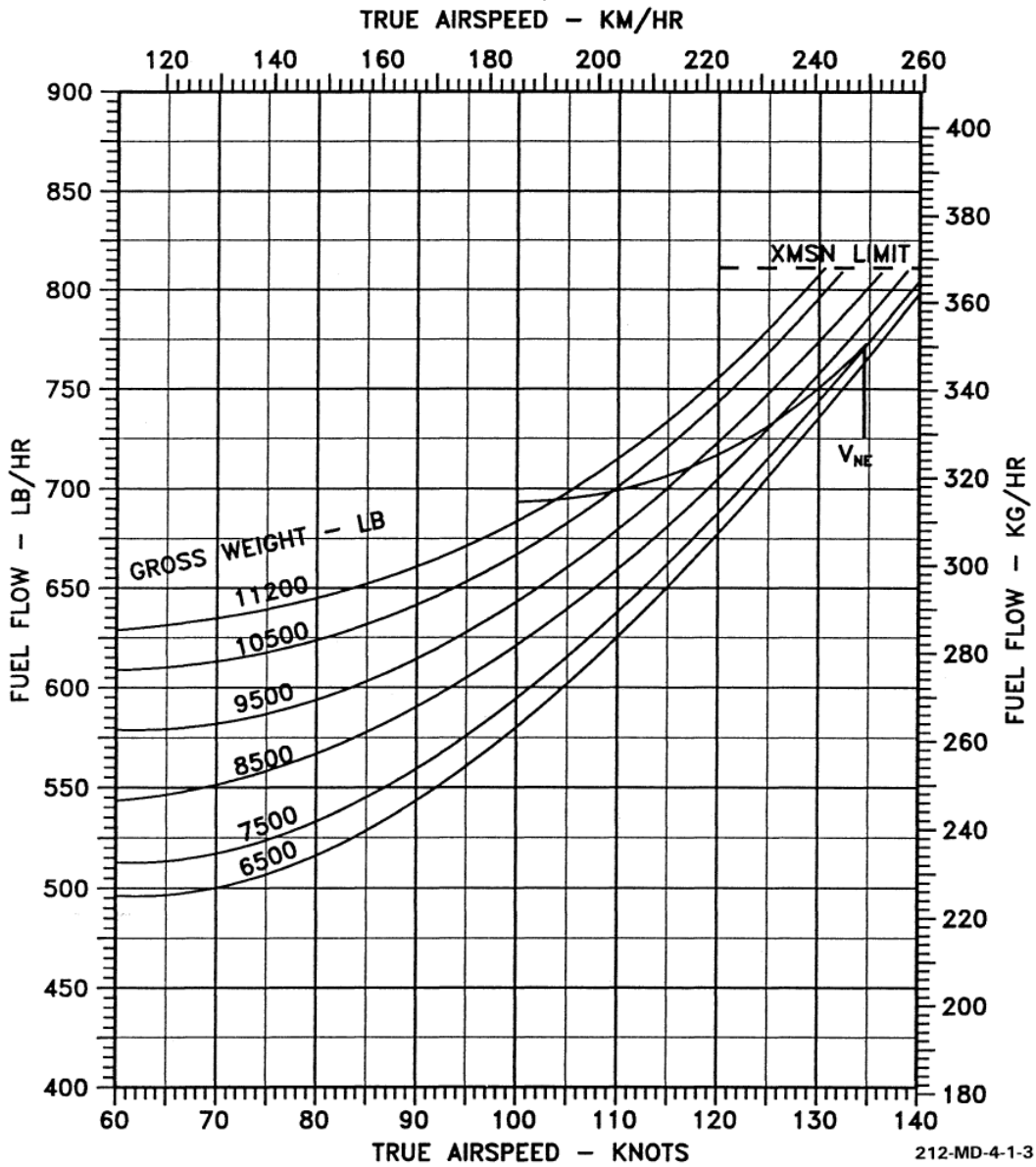


Figure 4-1. Fuel flow vs airspeed (Sheet 3 of 24)

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BHT-212-MD-1

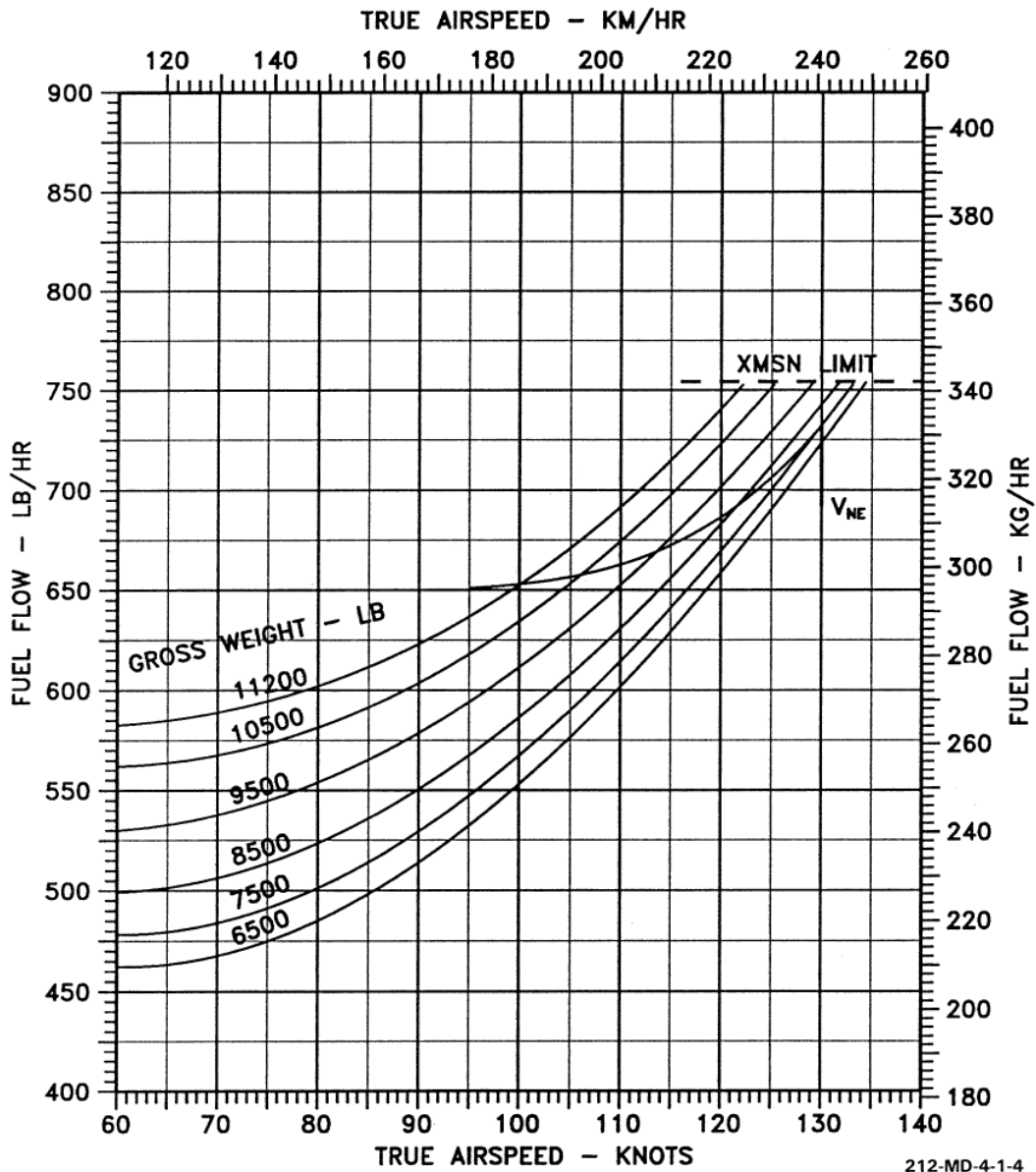
MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 2000 FEET
OAT = --9°C



212-MD-4-1-4

Figure 4-1. Fuel flow vs airspeed (Sheet 4 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 2000 FEET
OAT = +11°C

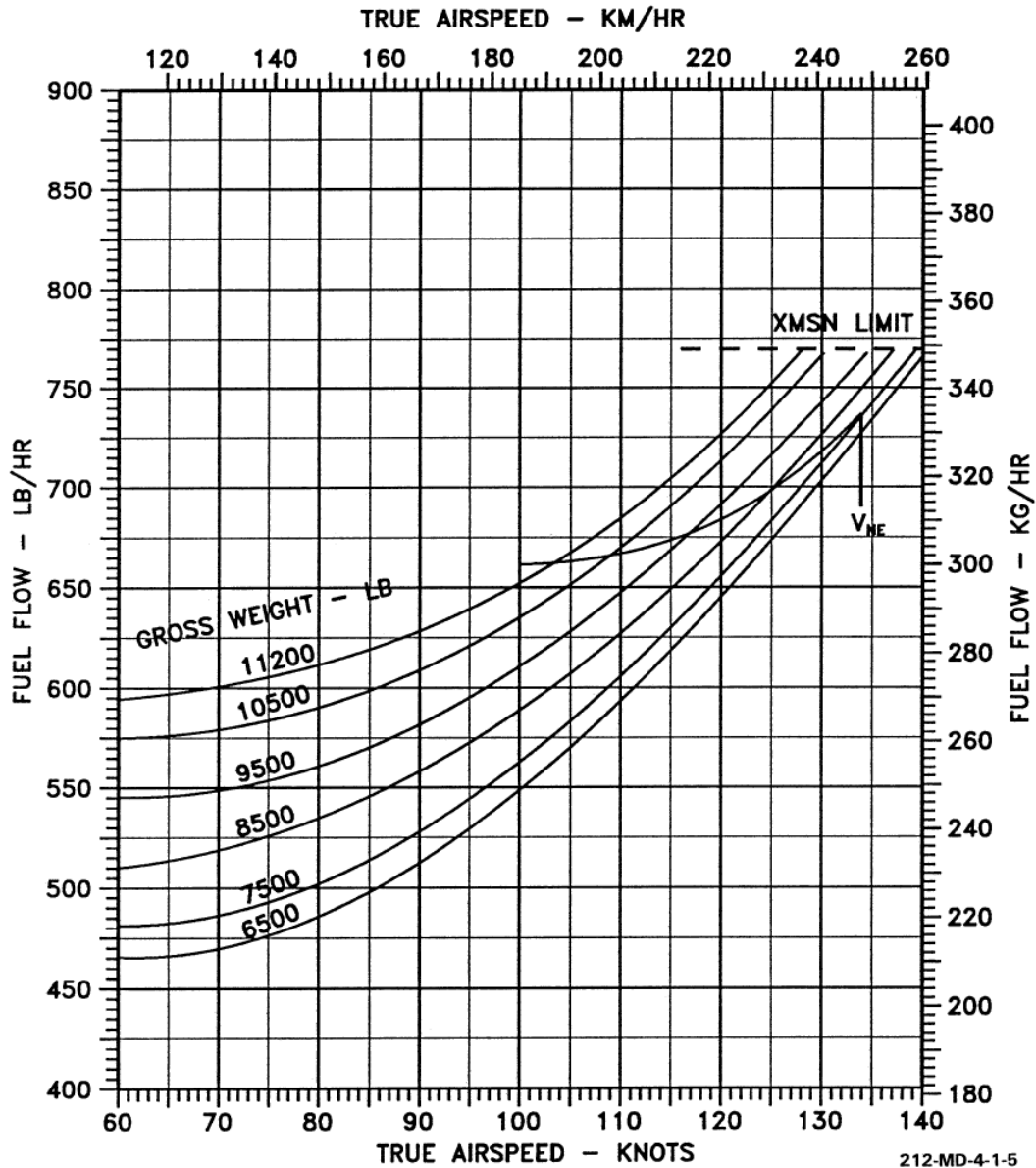


Figure 4-1. Fuel flow vs airspeed (Sheet 5 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 2000 FEET
OAT = +31°C

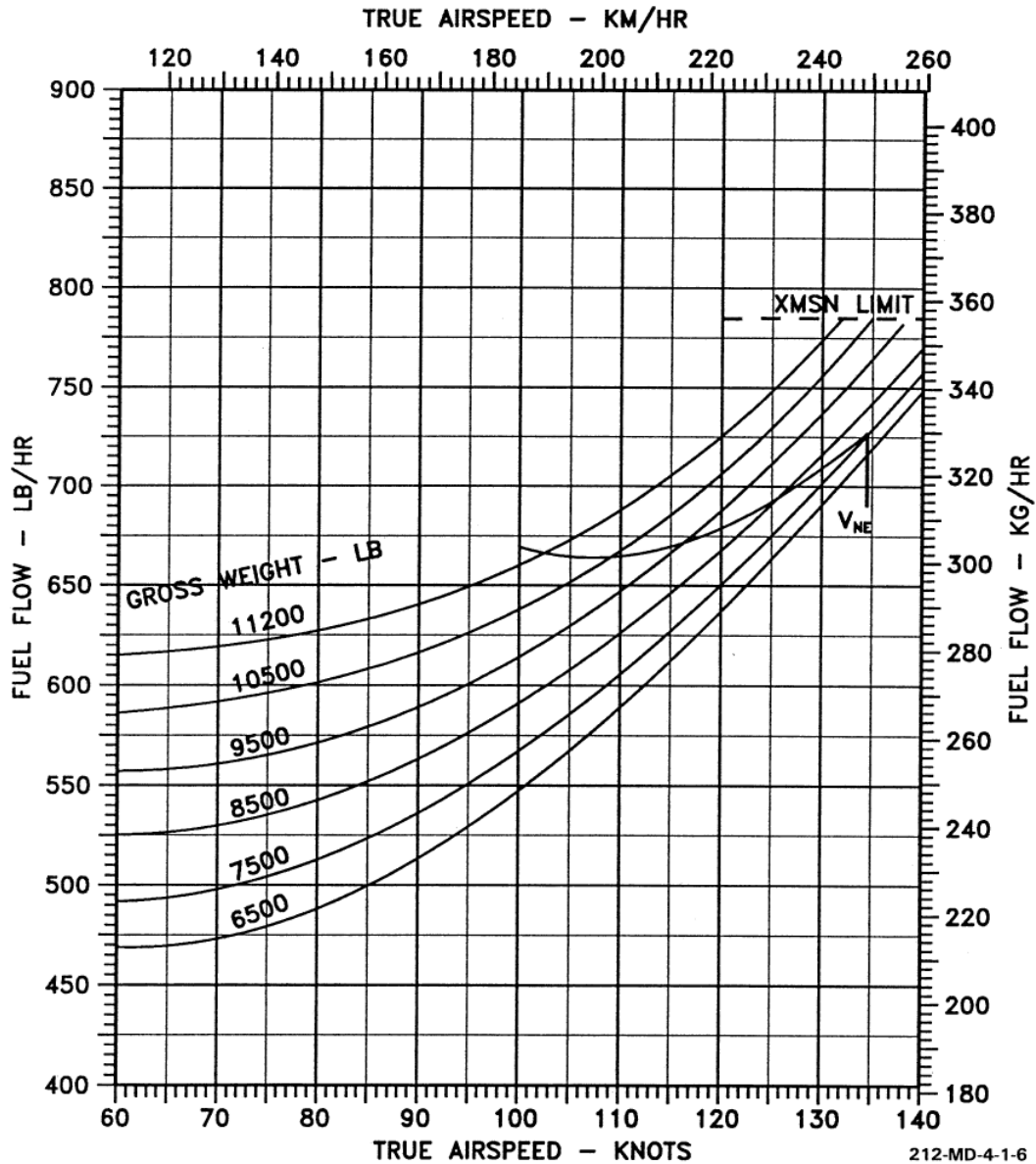


Figure 4-1. Fuel flow vs airspeed (Sheet 6 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 4000 FEET
OAT = -13°C

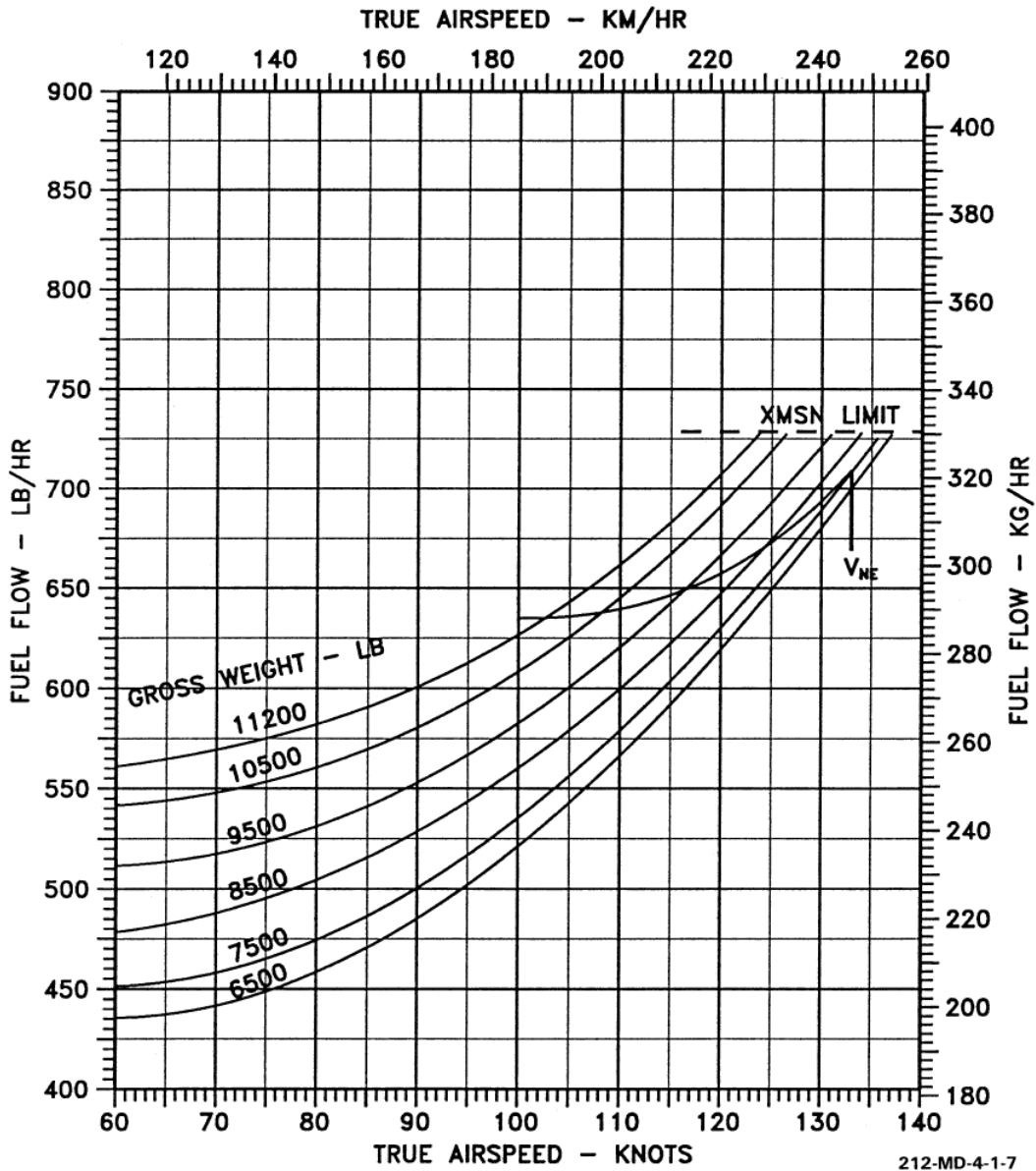


Figure 4-1. Fuel flow vs airspeed (Sheet 7 of 24)

4-11

BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 4000 FEET
OAT = +7°C

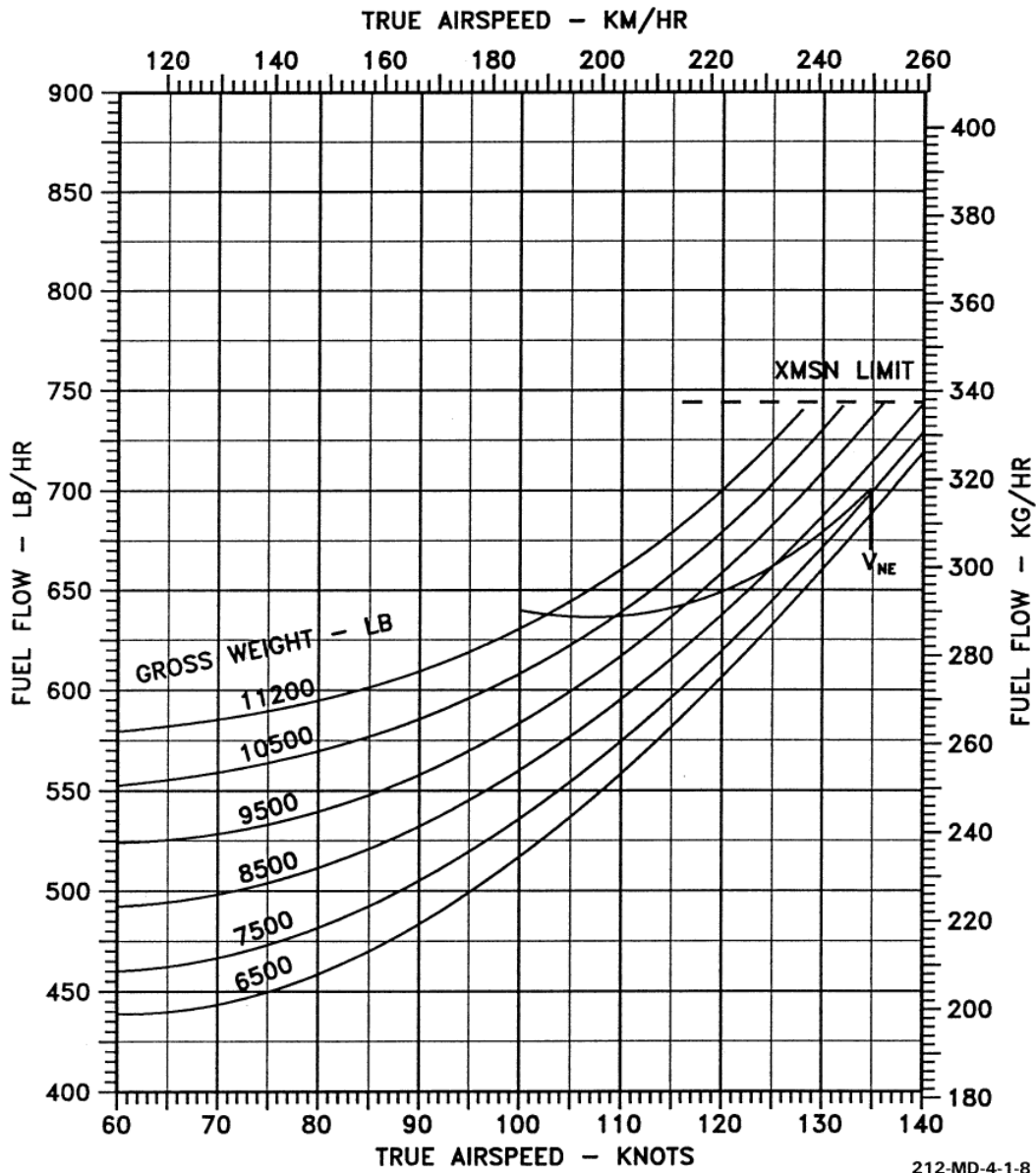


Figure 4-1. Fuel flow vs airspeed (Sheet 8 of 24)

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MANUFACTURER'S DATA

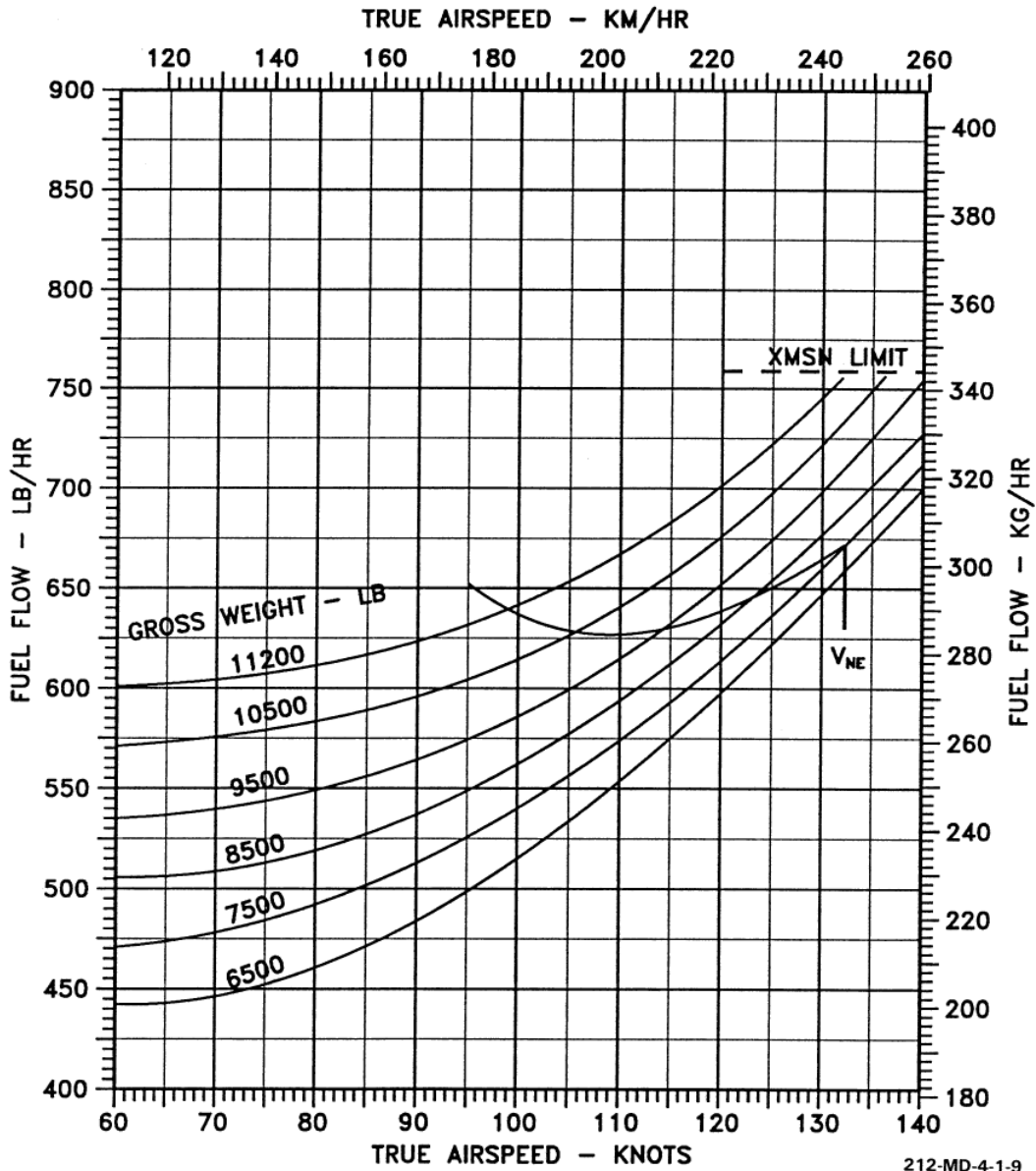
BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 4000 FEET
OAT = +27°C



212-MD-4-1-9

Figure 4-1. Fuel flow vs airspeed (Sheet 9 of 24)

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BHT-212-MD-1

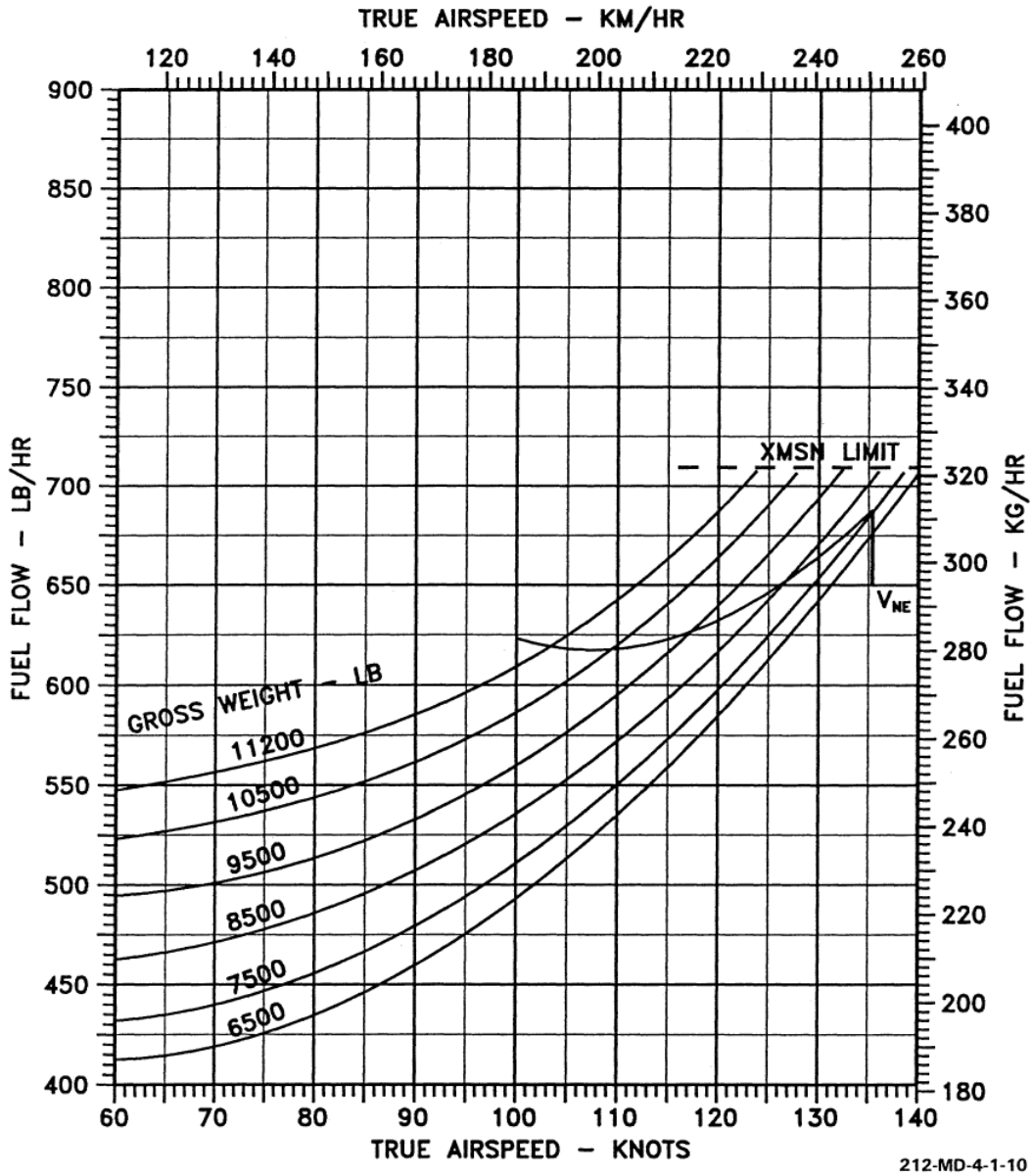
MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 6000 FEET
OAT = -17°C



212-MD-4-1-10

Figure 4-1. Fuel flow vs airspeed (Sheet 10 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 6000 FEET
OAT = +3°C

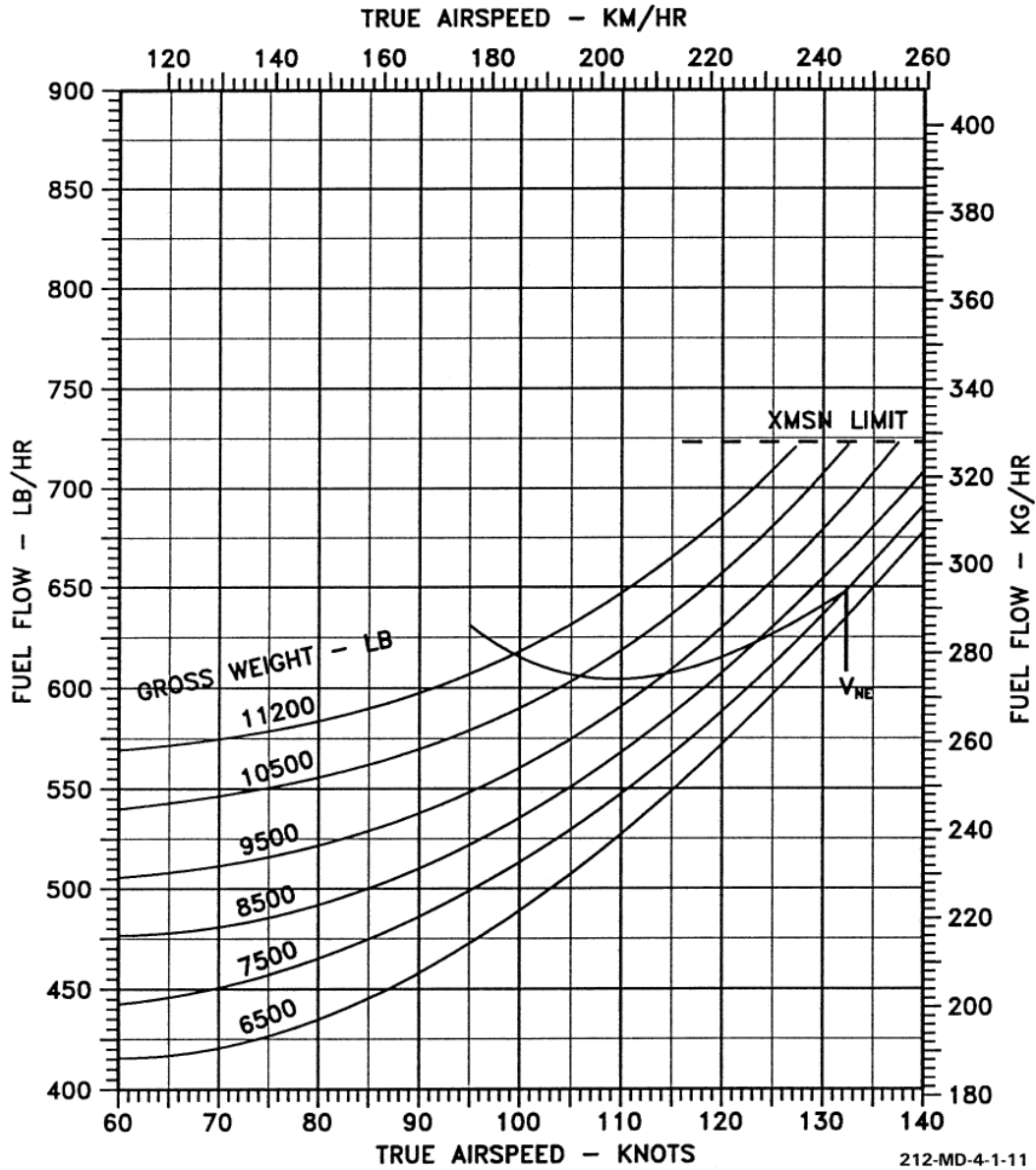


Figure 4-1. Fuel flow vs airspeed (Sheet 11 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 6000 FEET
OAT = +23°C

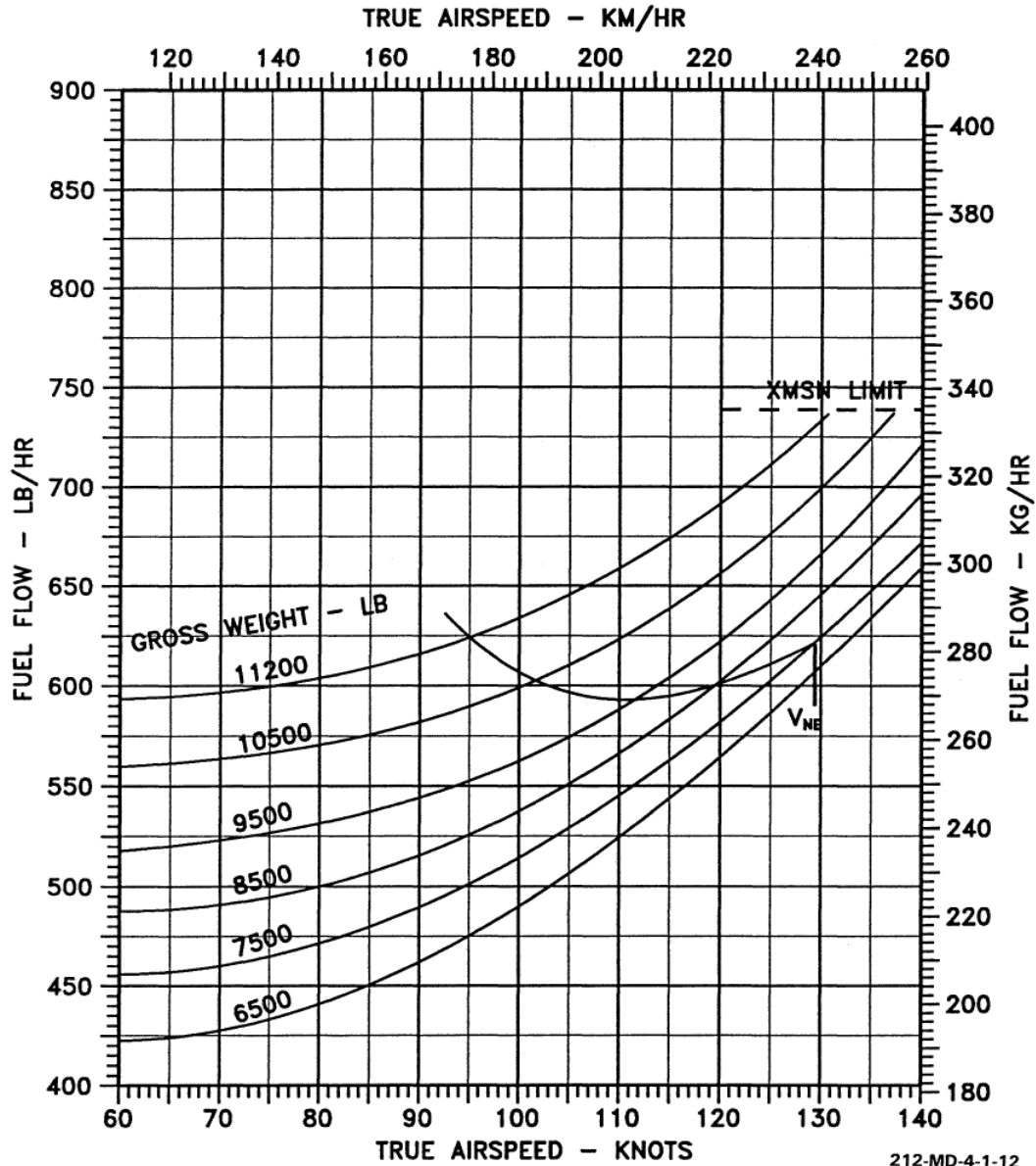


Figure 4-1. Fuel flow vs airspeed (Sheet 12 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 8000 FEET
OAT = -21°C

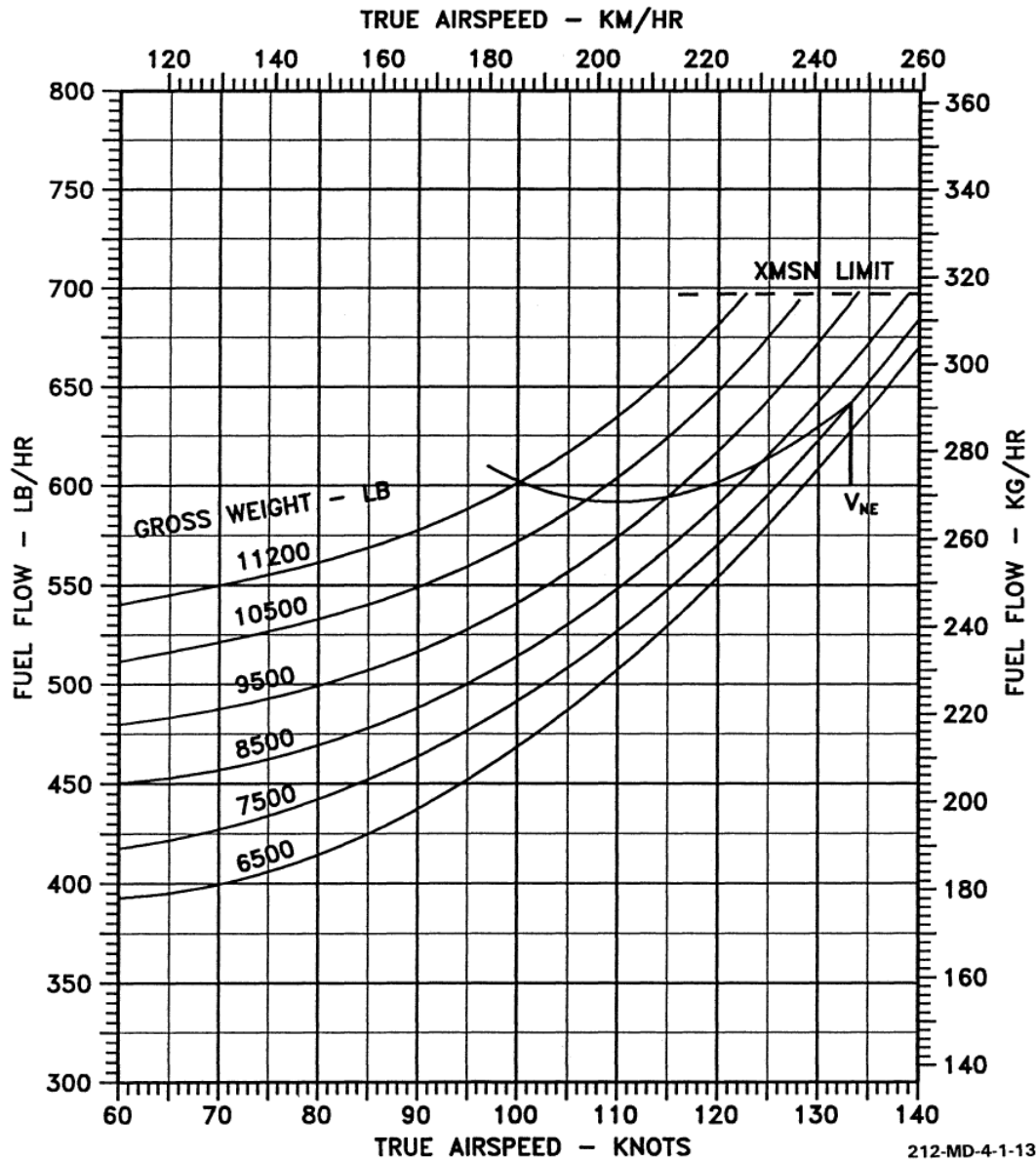


Figure 4-1. Fuel flow vs airspeed (Sheet 13 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 8000 FEET
OAT = -1°C

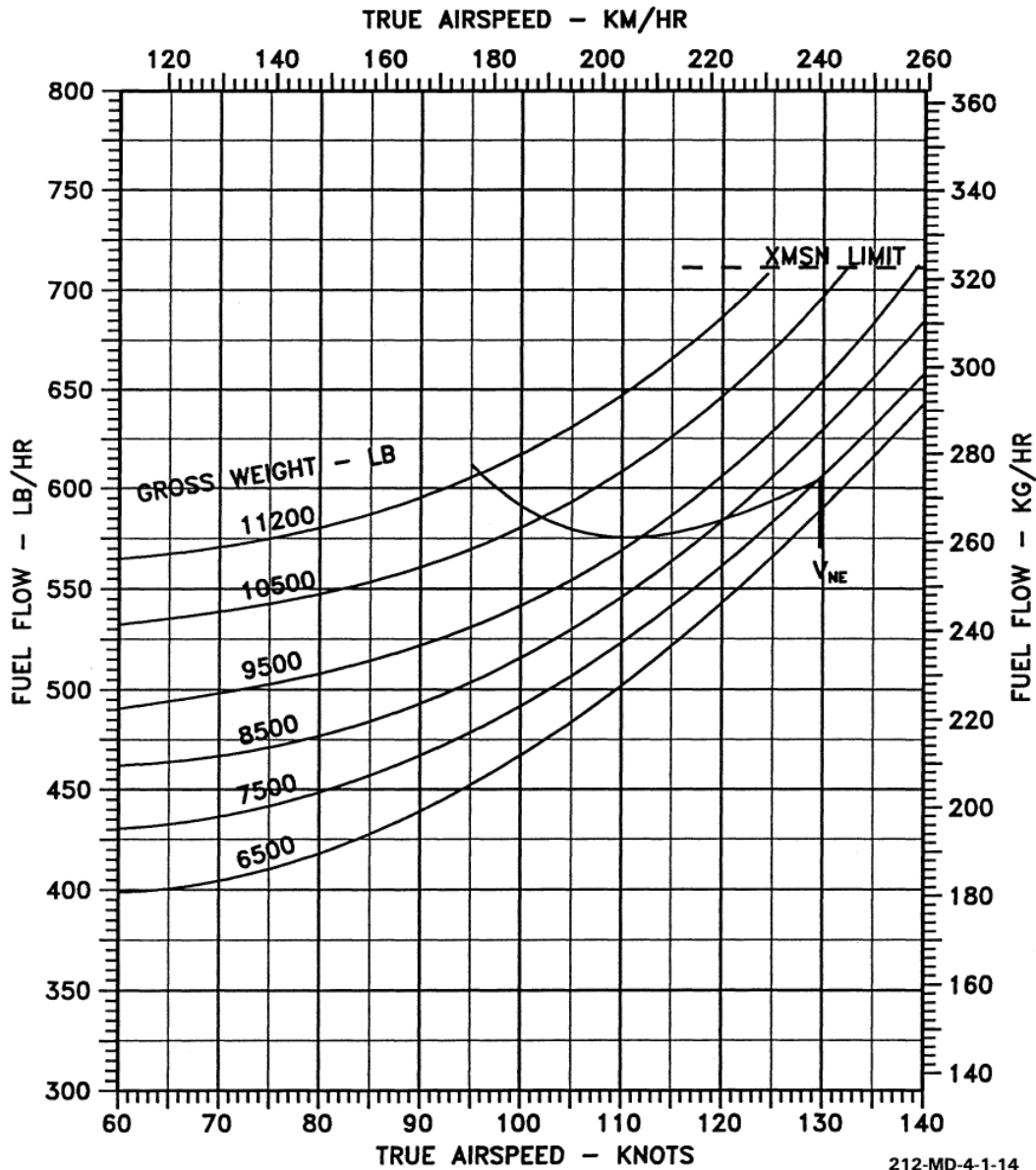


Figure 4-1. Fuel flow vs airspeed (Sheet 14 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 8000 FEET
OAT = +19°C

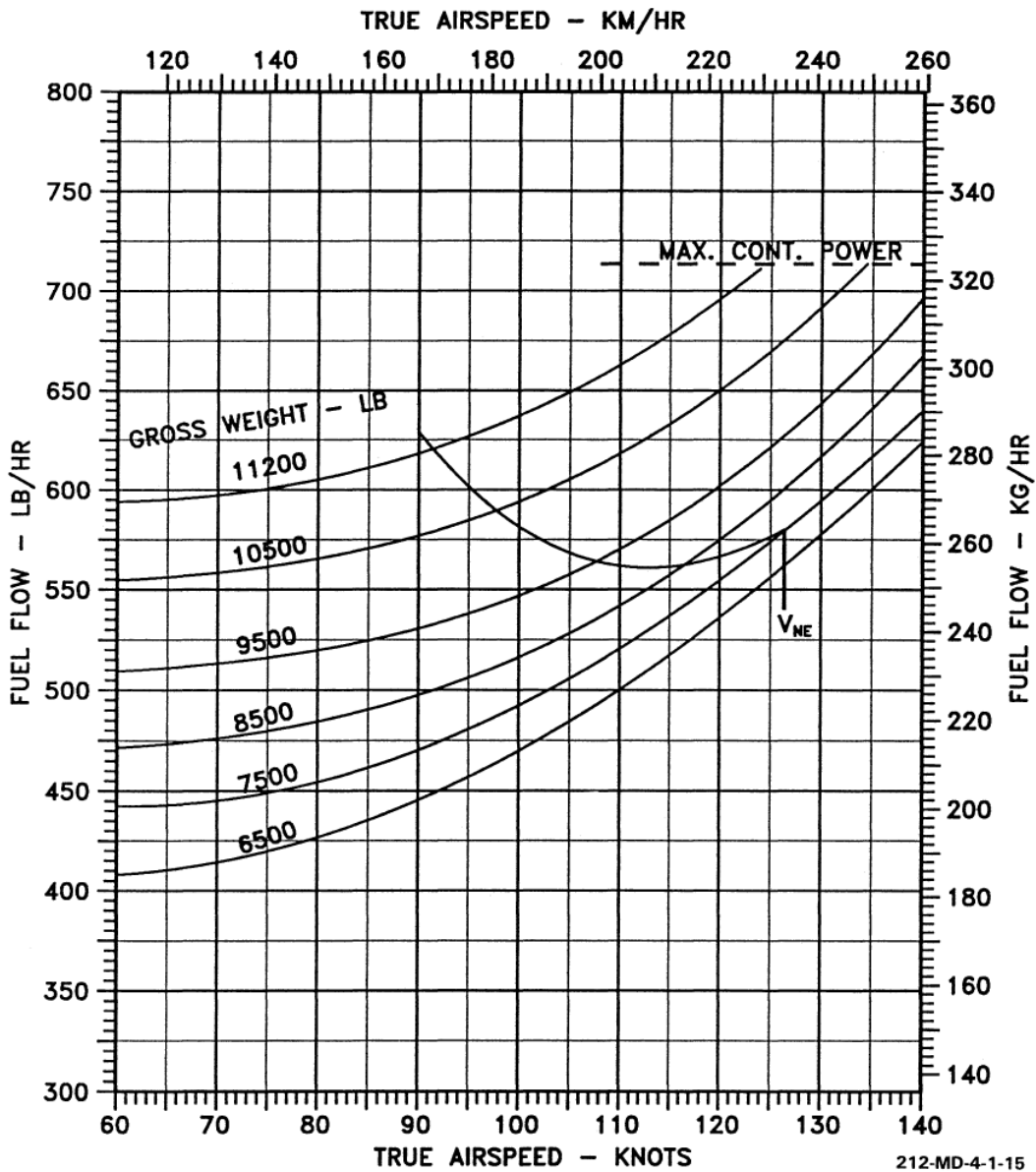


Figure 4-1. Fuel flow vs airspeed (Sheet 15 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 10000 FEET
OAT = -25°C

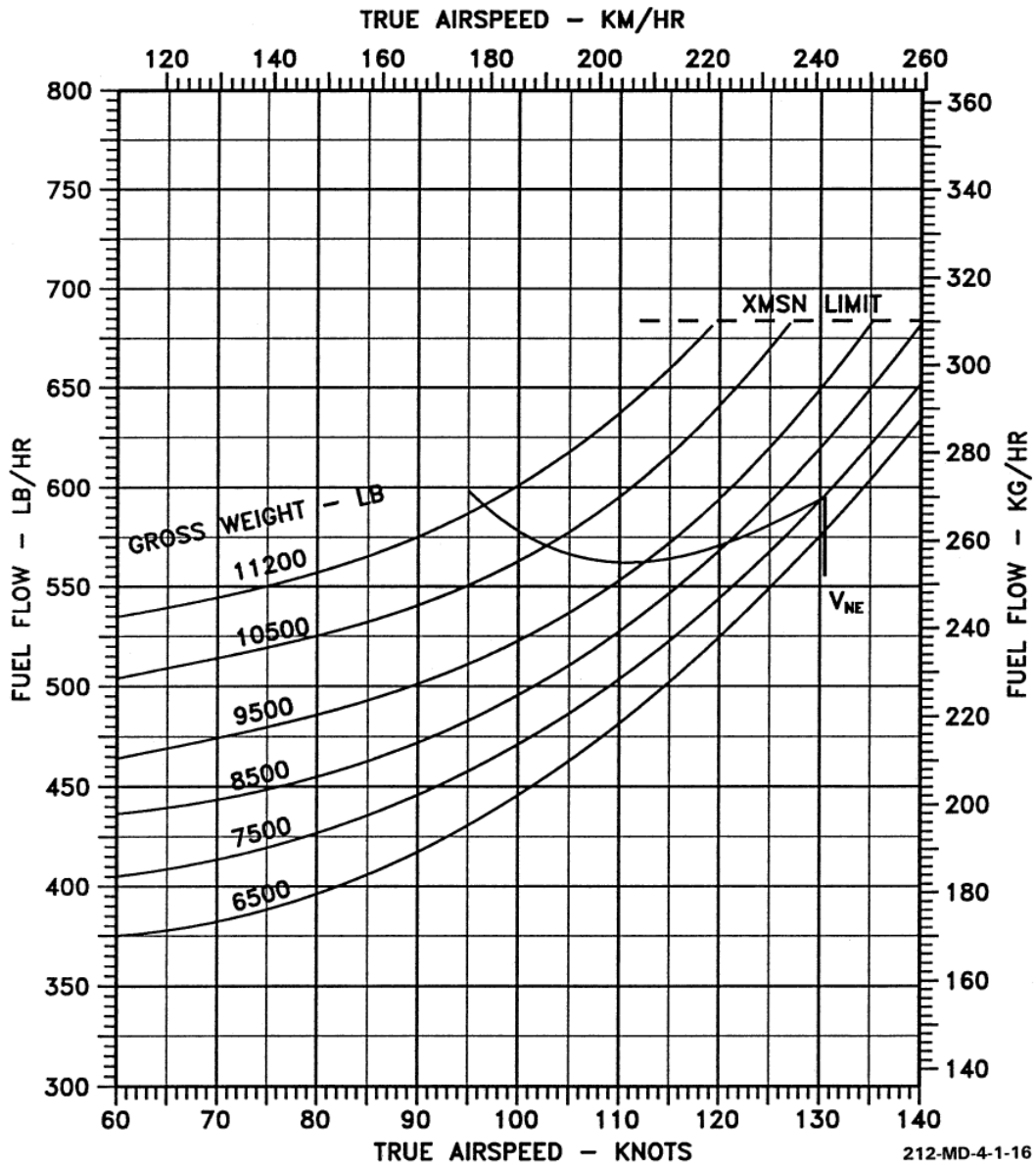


Figure 4-1. Fuel flow vs airspeed (Sheet 16 of 24)

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MANUFACTURER'S DATA

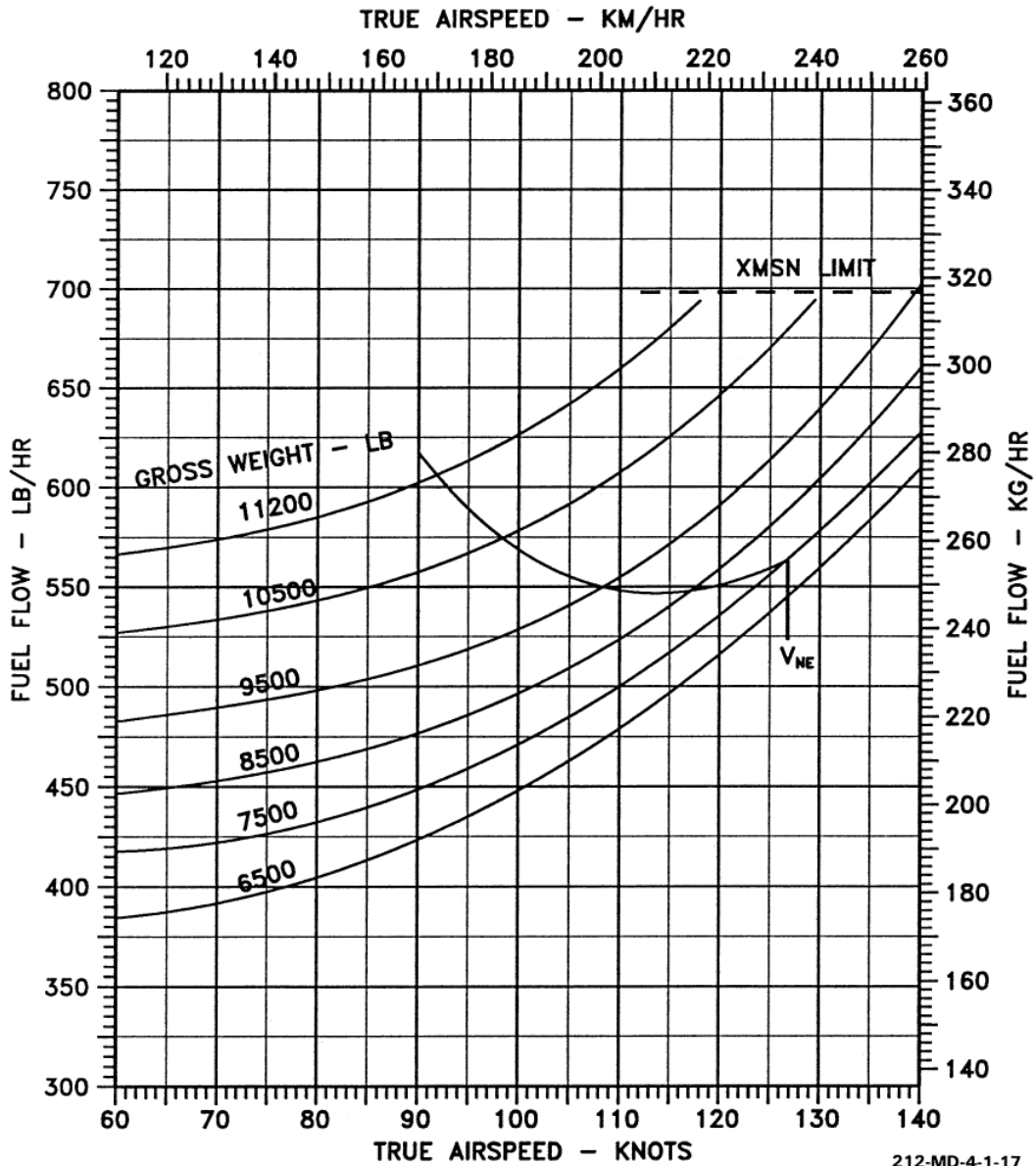
BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 10000 FEET
OAT = -5°C



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Figure 4-1. Fuel flow vs airspeed (Sheet 17 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 10000 FEET
OAT = +15°C

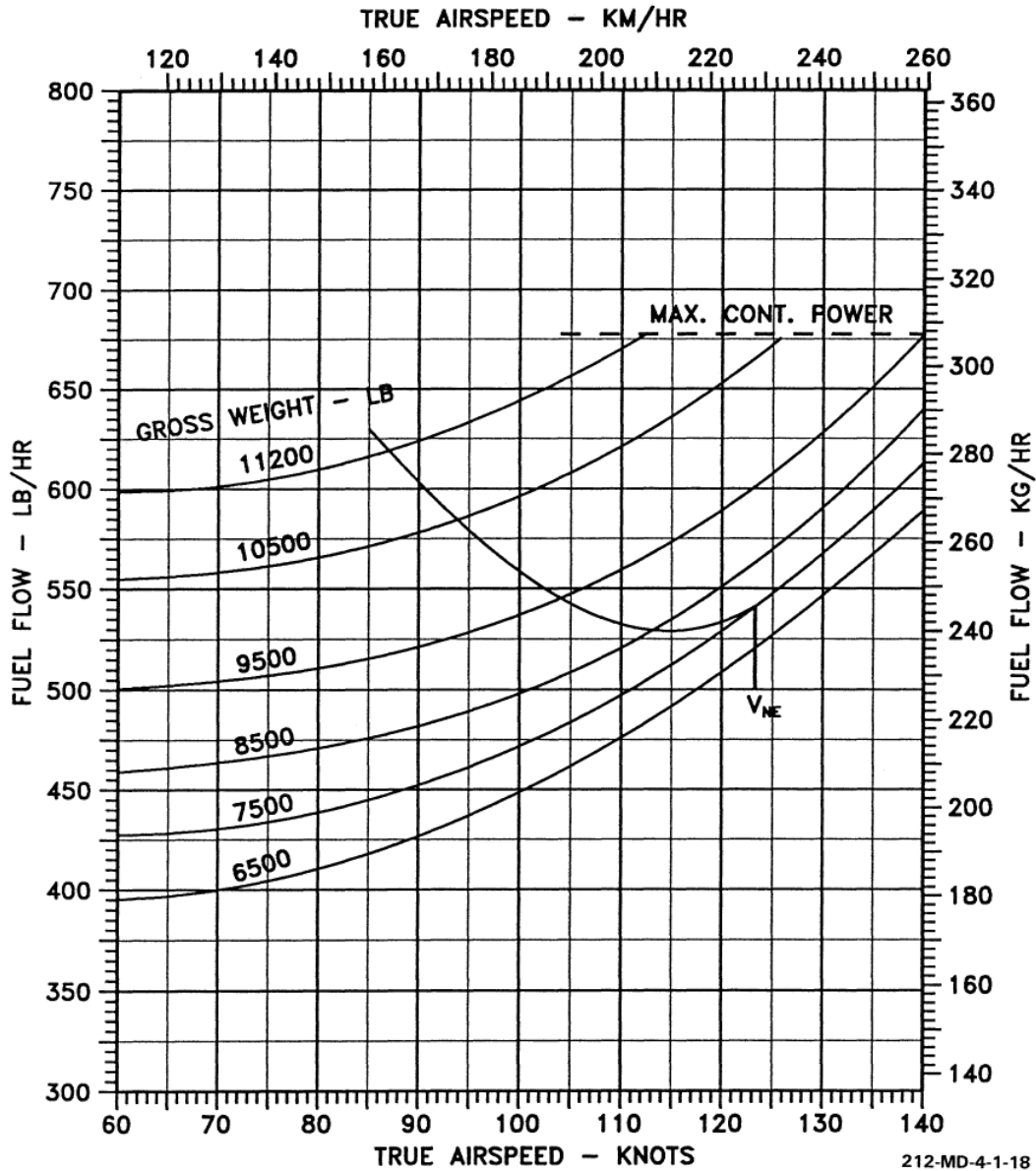


Figure 4-1. Fuel flow vs airspeed (Sheet 18 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 12000 FEET
OAT = -29°C

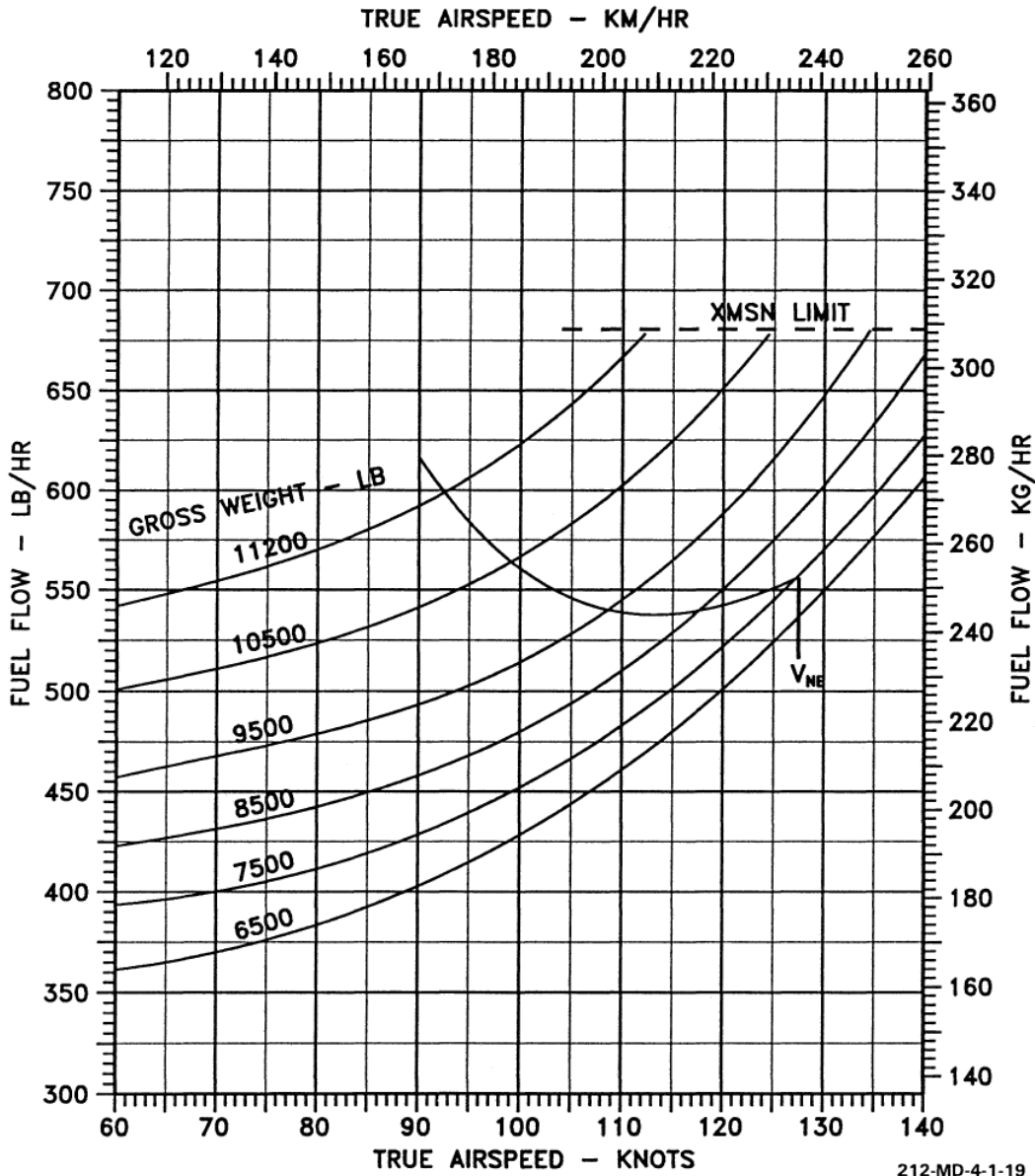


Figure 4-1. Fuel flow vs airspeed (Sheet 19 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 12000 FEET
OAT = -9°C

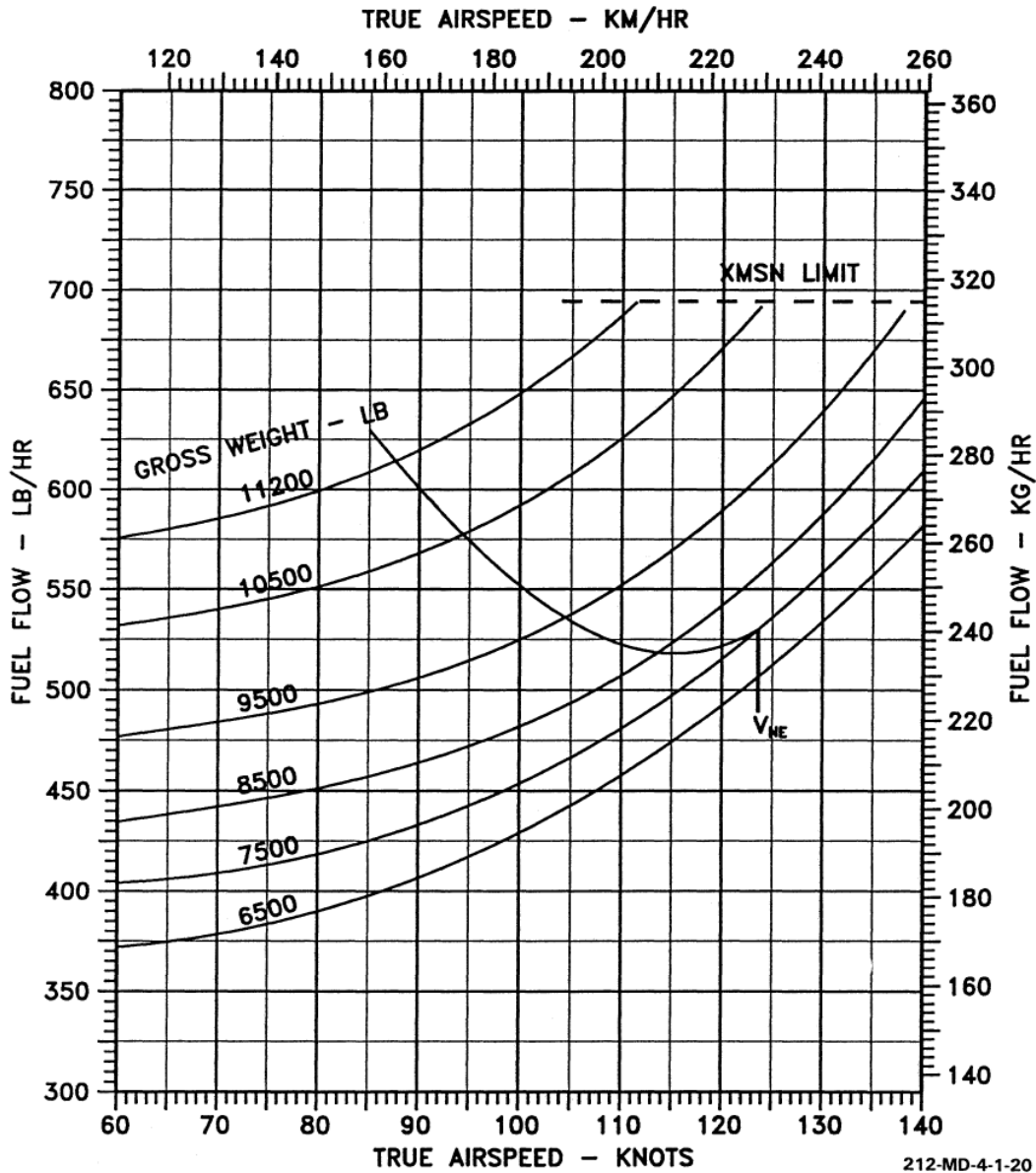


Figure 4-1. Fuel flow vs airspeed (Sheet 20 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
 ENGINE RPM 100%
 GENERATOR 150 AMPS

ZERO WIND
 HEATER OFF
 ANTI-ICE OFF

PRESSURE ALTITUDE = 12000 FEET
 OAT = +11°C

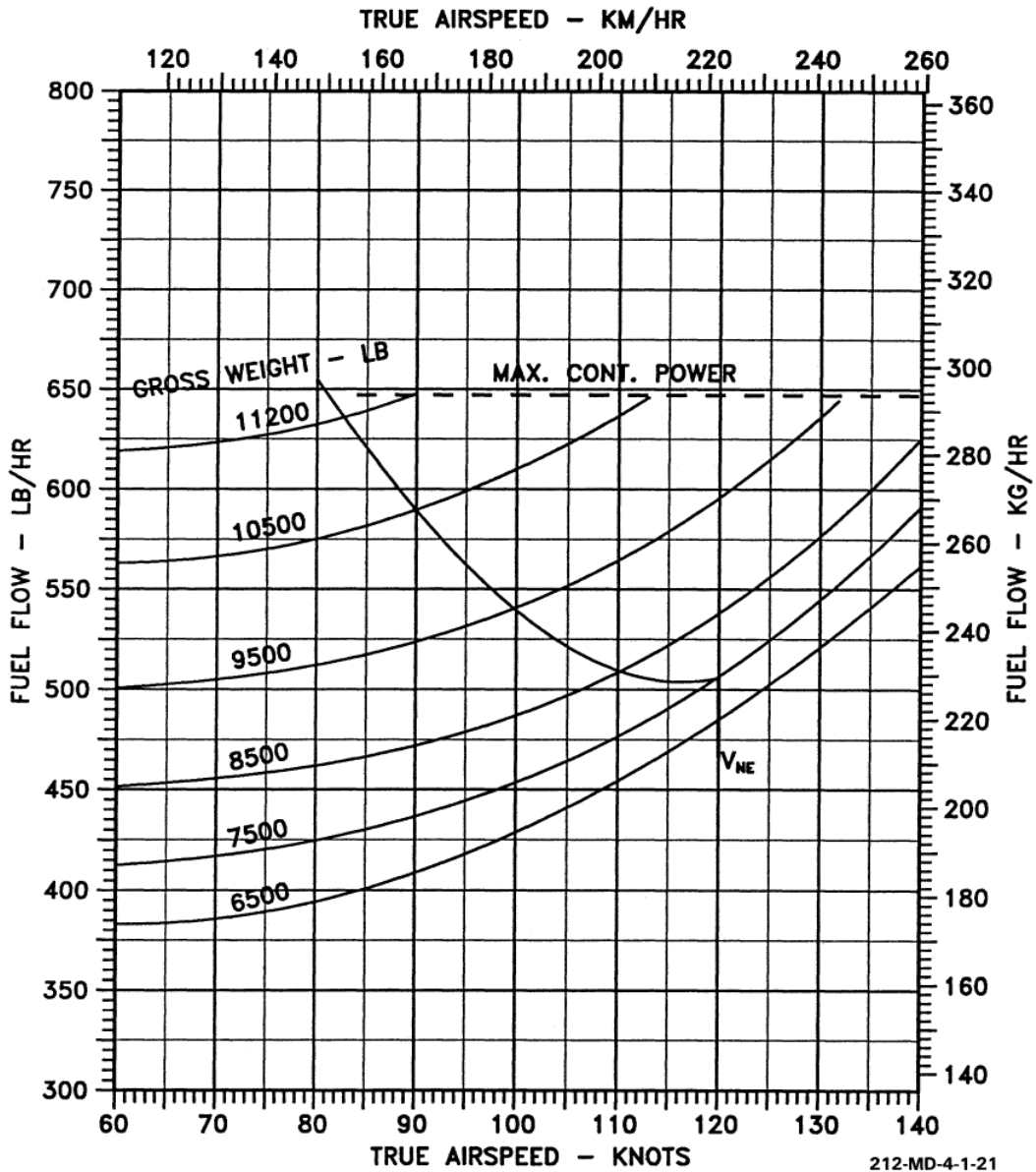


Figure 4-1. Fuel flow vs airspeed (Sheet 21 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 14000 FEET
OAT = -33°C

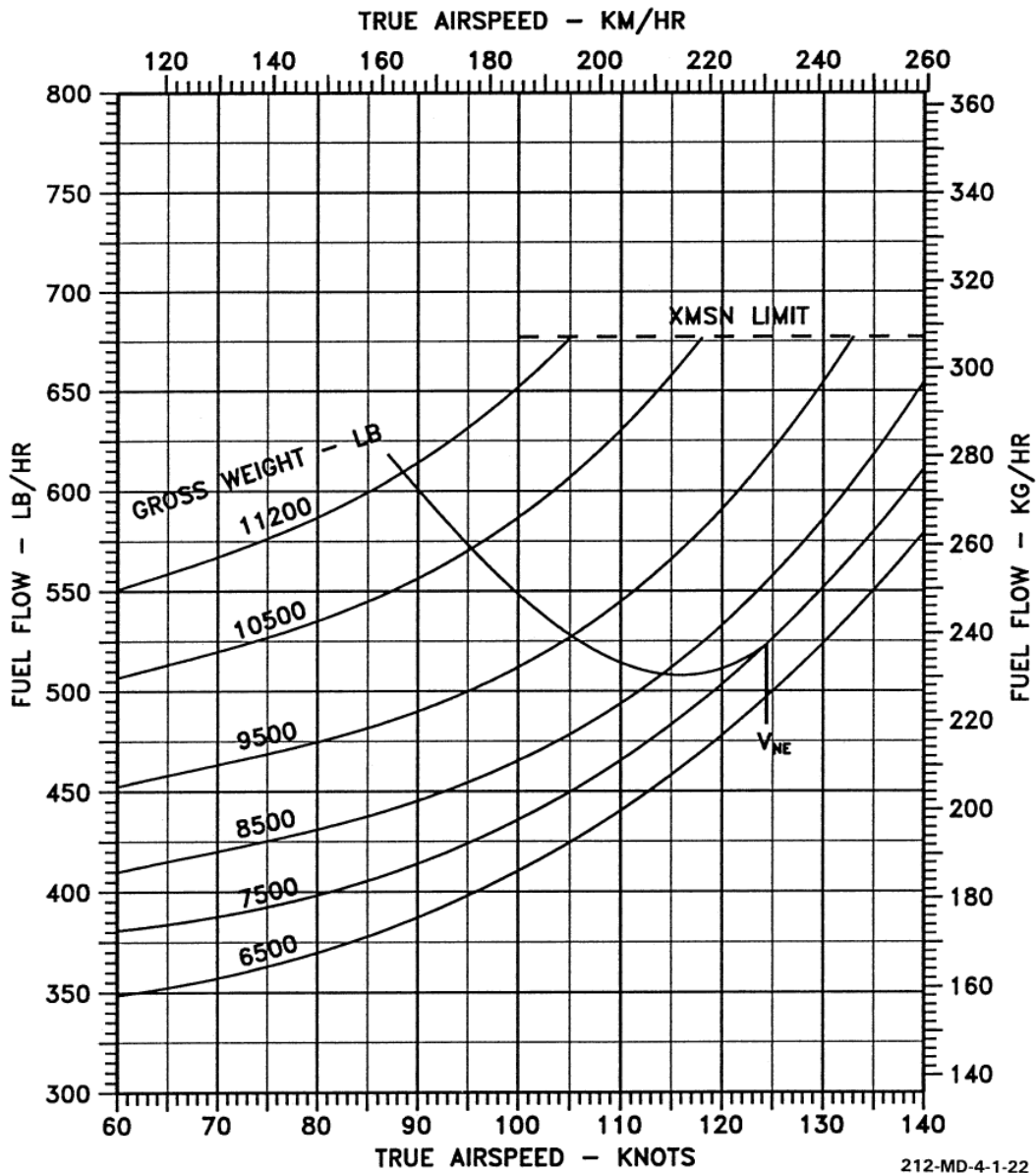


Figure 4-1. Fuel flow vs airspeed (Sheet 22 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

PRESSURE ALTITUDE = 14000 FEET
OAT = -13°C

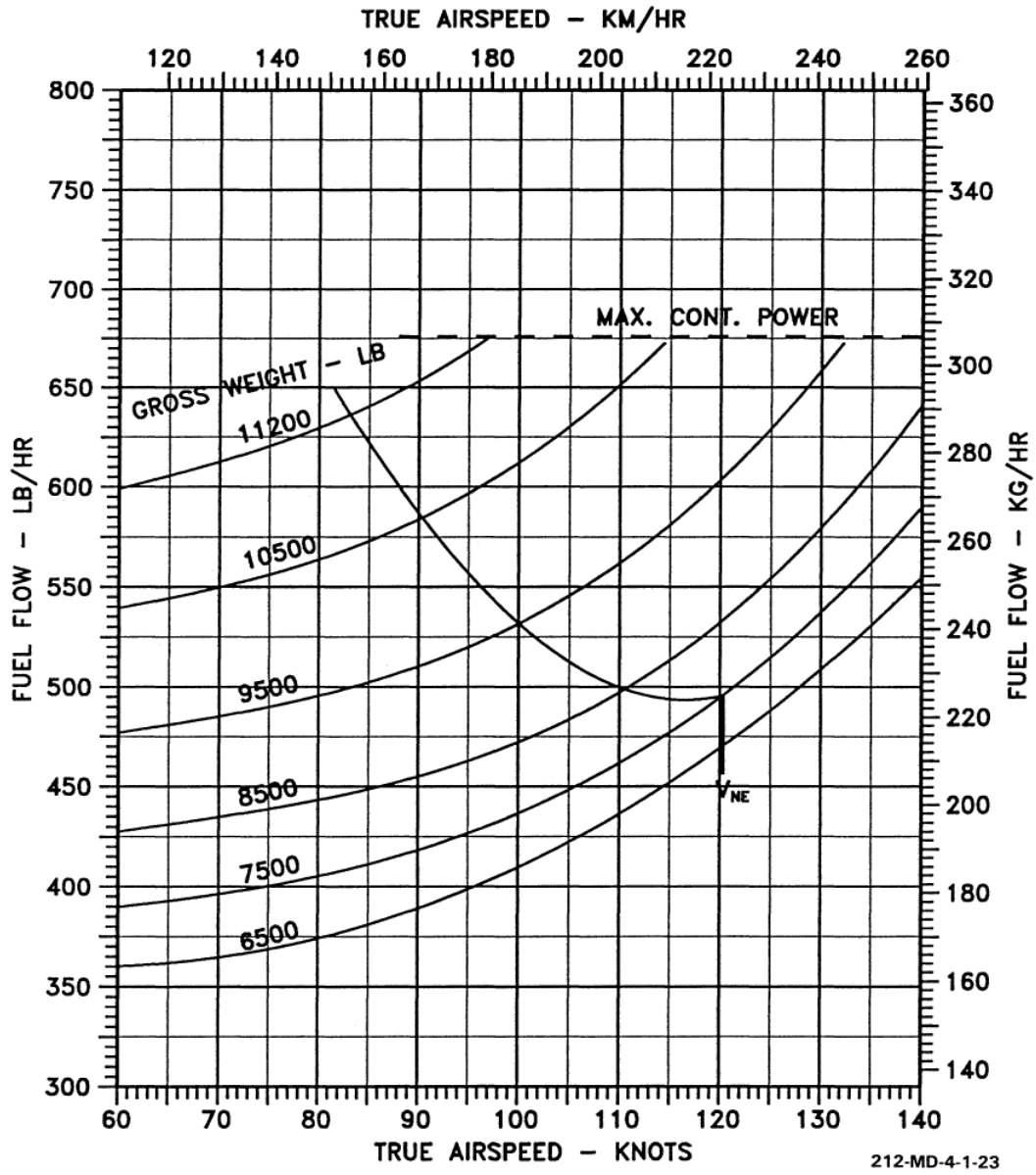


Figure 4-1. Fuel flow vs airspeed (Sheet 23 of 24)

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BHT-212-MD-1

MANUFACTURER'S DATA

FUEL FLOW VS AIRSPEED

CLEAN CONFIGURATION
ENGINE RPM 100%
GENERATOR 150 AMPS

ZERO WIND
HEATER OFF
ANTI-ICE OFF

**PRESSURE ALTITUDE = 14000 FEET
OAT = +7°C**

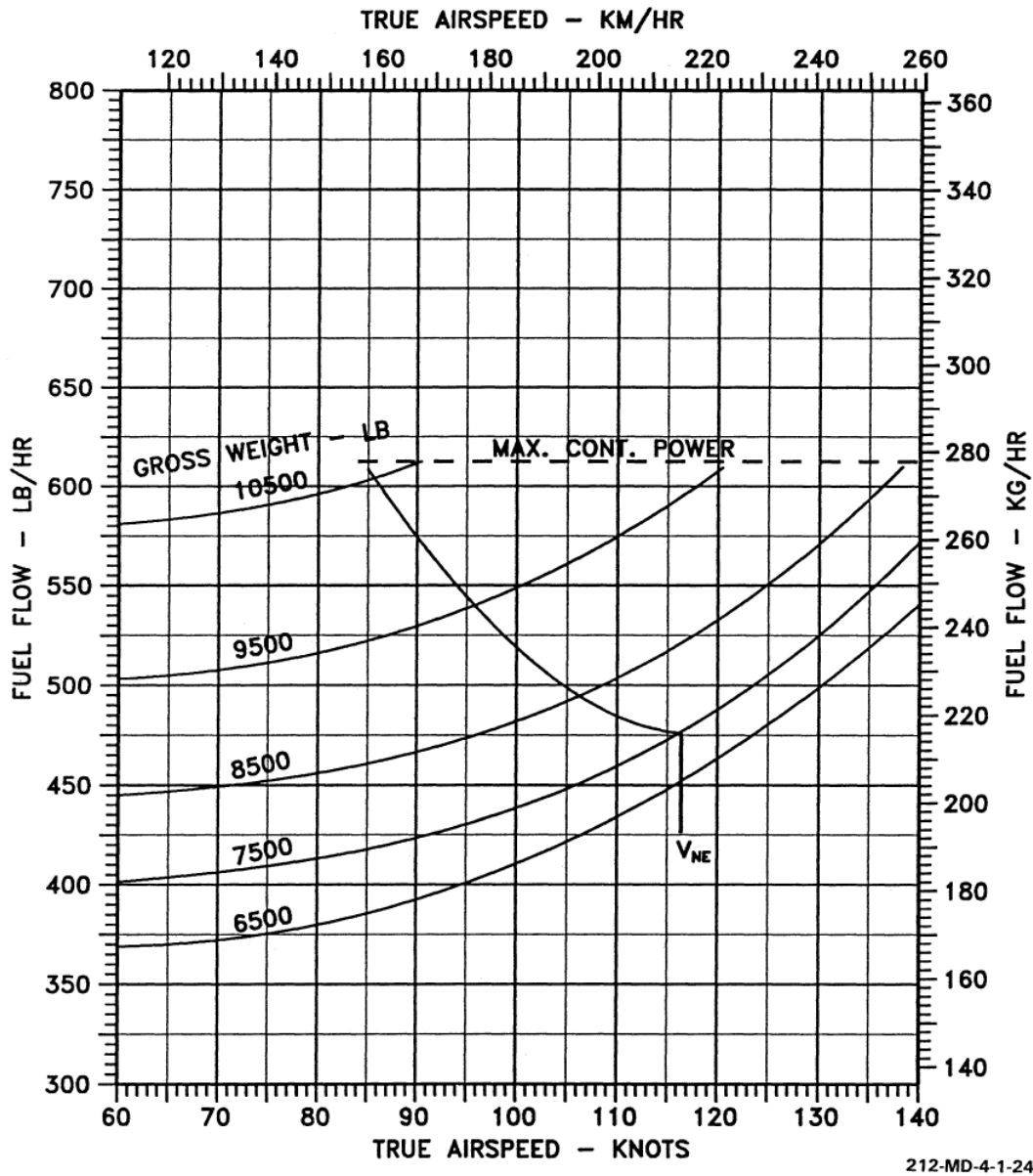


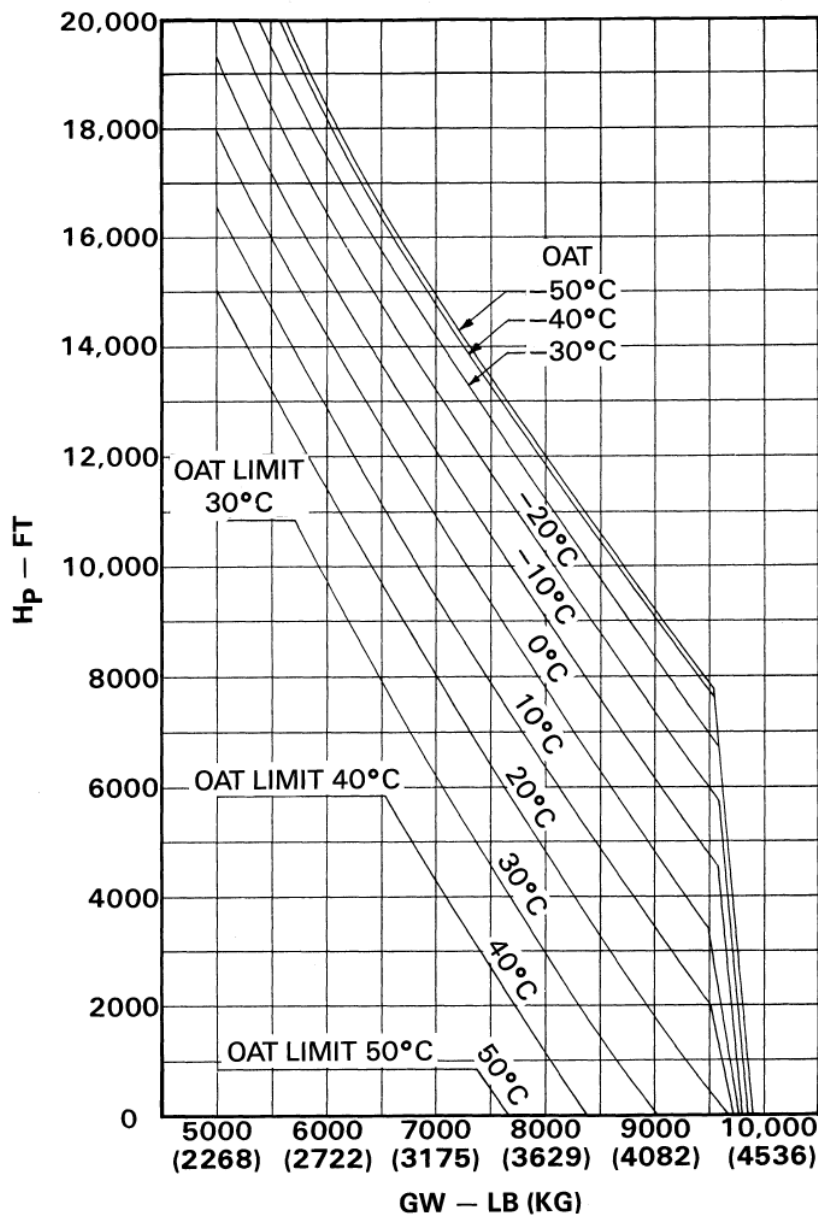
Figure 4-1. Fuel flow vs airspeed (Sheet 24 of 24)

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MANUFACTURER'S DATA

BHT-212-MD-1

SINGLE ENGINE HOVER CEILING – PT6T-3B IN GROUND EFFECT	
2 1/2 MINUTE OEI POWER (MAXIMUM TORQUE 71.8%) ENG RPM 97% (N2) GENERATOR 150 AMPS	SKID HEIGHT 4 FT HEATER OFF INOPERATIVE ENGINE SECURED



212-MD1-4-2-1

Figure 4-2. Single engine hover ceiling - PT6T-3B (Sheet 1 of 4)

4-29

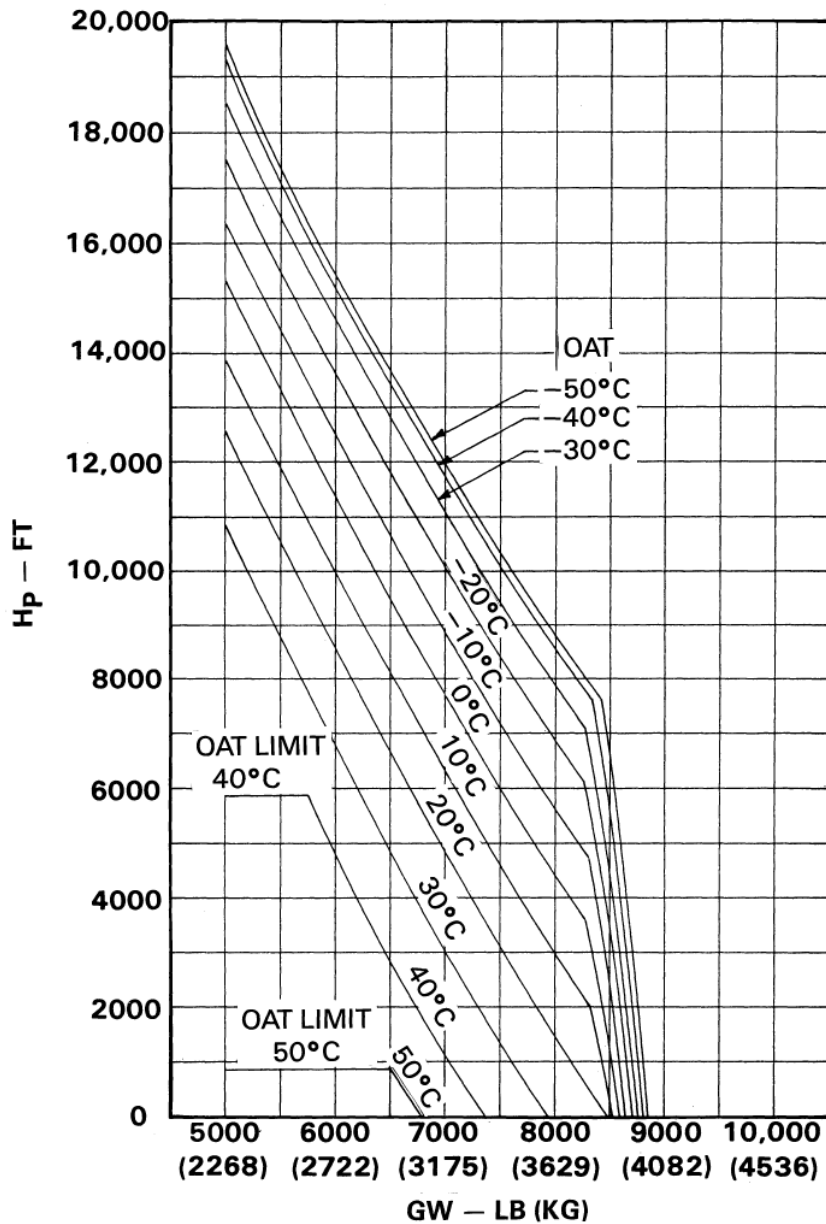
BHT-212-MD-1

MANUFACTURER'S DATA

**SINGLE ENGINE HOVER CEILING — PT6T-3B
OUT OF GROUND EFFECT**

2 1/2 MINUTE OEI POWER (MAXIMUM TORQUE 71.8%)
 ENG RPM 97% (N2)
 GENERATOR 150 AMPS

SKID HEIGHT 60 FT
 HEATER OFF
 INOPERATIVE ENGINE SECURED



212-MD1-4-2-2

Figure 4-2. Single engine hover ceiling - PT6T-3B (Sheet 2 of 4)

4-30

MANUFACTURER'S DATA

BHT-212-MD-1

SINGLE ENGINE HOVER CEILING - PT6T-3B
IN GROUND EFFECT

2 1/2 MINUTE OEI POWER (MAXIMUM TORQUE 79.4%
ENG RPM 97% (N2)
GENERATOR 150 AMPS

SKID HEIGHT 4 FT
HEATER OFF
INOPERATIVE ENGINE SECURED

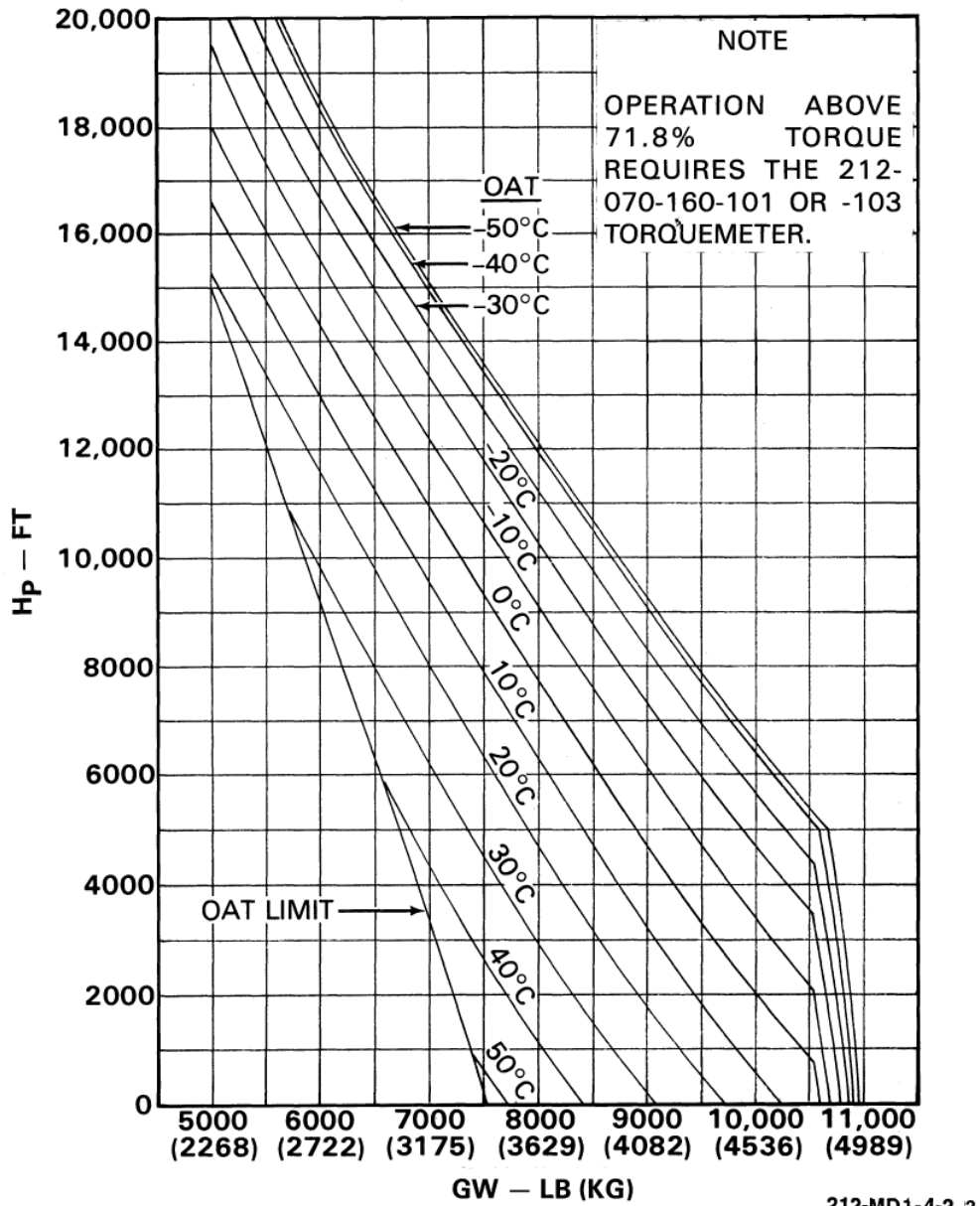


Figure 4-2. Single engine hover ceiling - PT6T-3B (Sheet 3 of 4)

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MANUFACTURER'S DATA

**SINGLE ENGINE HOVER CEILING — PT6T-3B
OUT OF GROUND EFFECT**

2 1/2 MINUTE OEI POWER (MAXIMUM TORQUE 79.4%)
ENG RPM 97% (N2)
GENERATOR 150 AMPS

SKID HEIGHT 60 FT
HEATER OFF
INOPERATIVE ENGINE SECURED

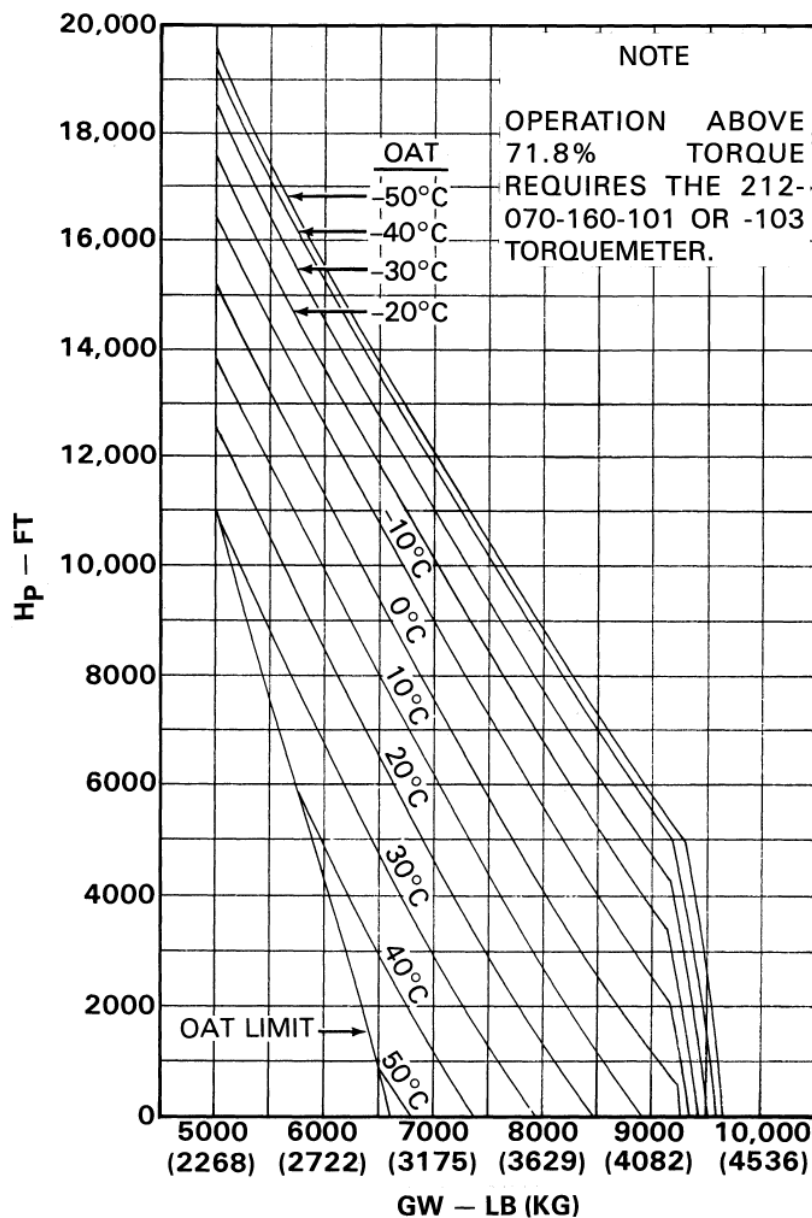
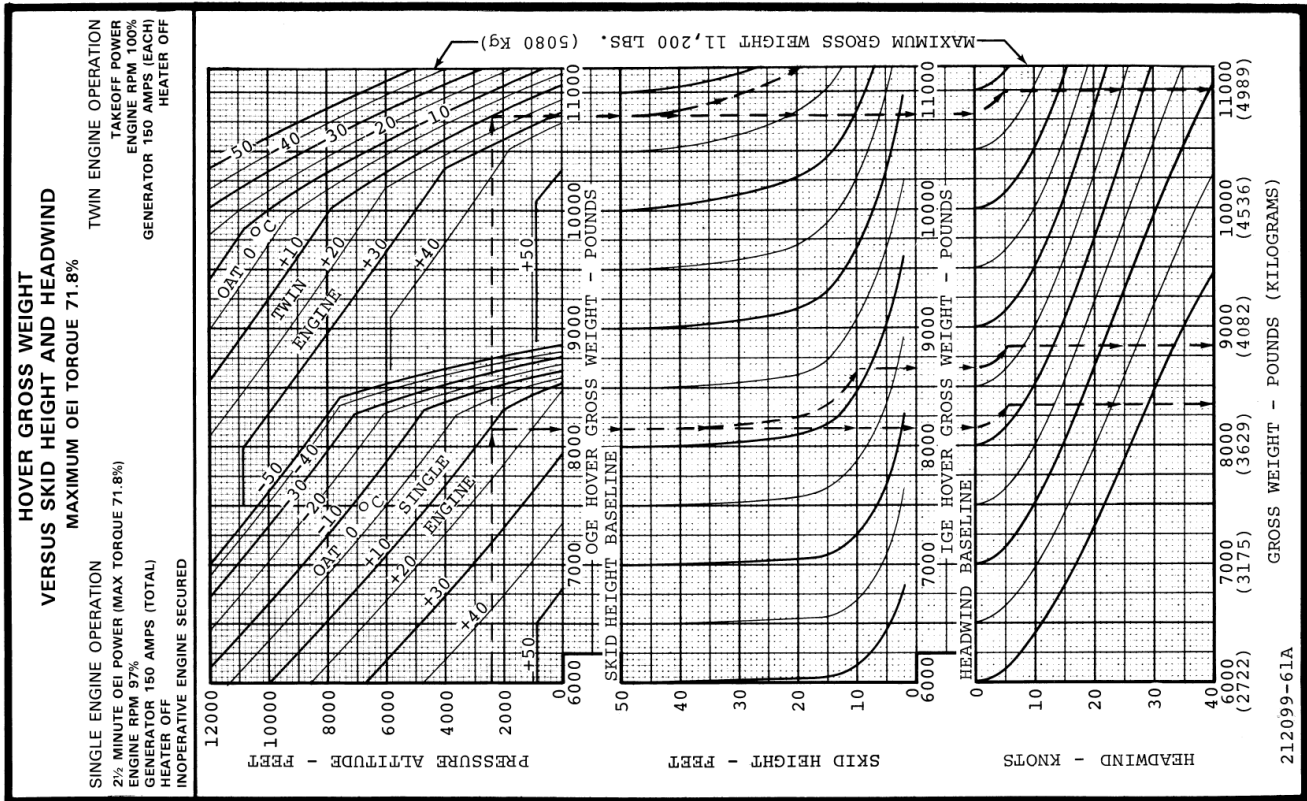


Figure 4-2. Single engine hover ceiling - PT6T-3B (Sheet 4 of 4)

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MANUFACTURER'S DATA

BHT-212-MD-1



212-MD1-4-3

Figure 4-3. Hover gross weight Vs skid height and headwind (max OEI torque 71.8%)

4-33/4-34

