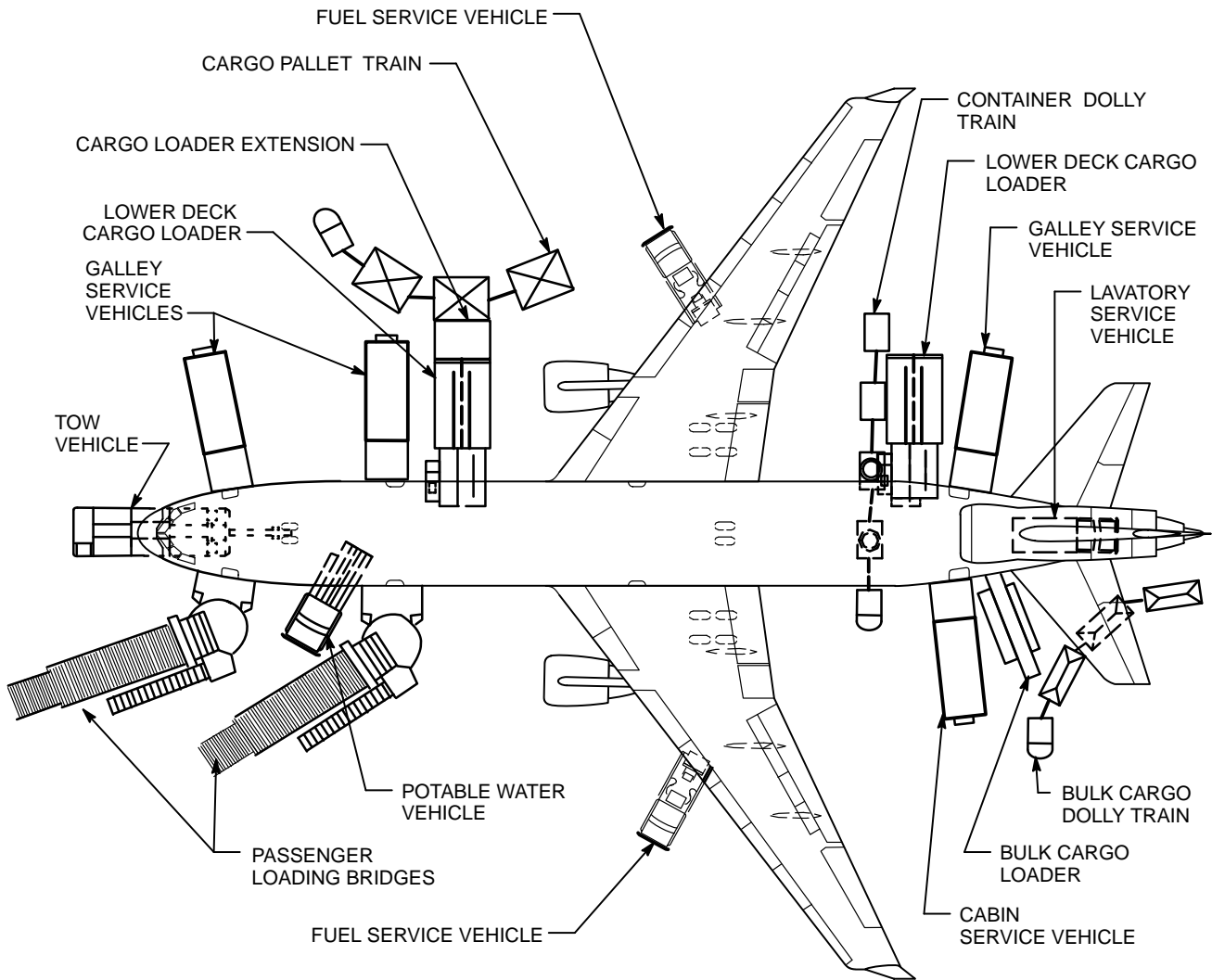


5.0 TERMINAL SERVICING

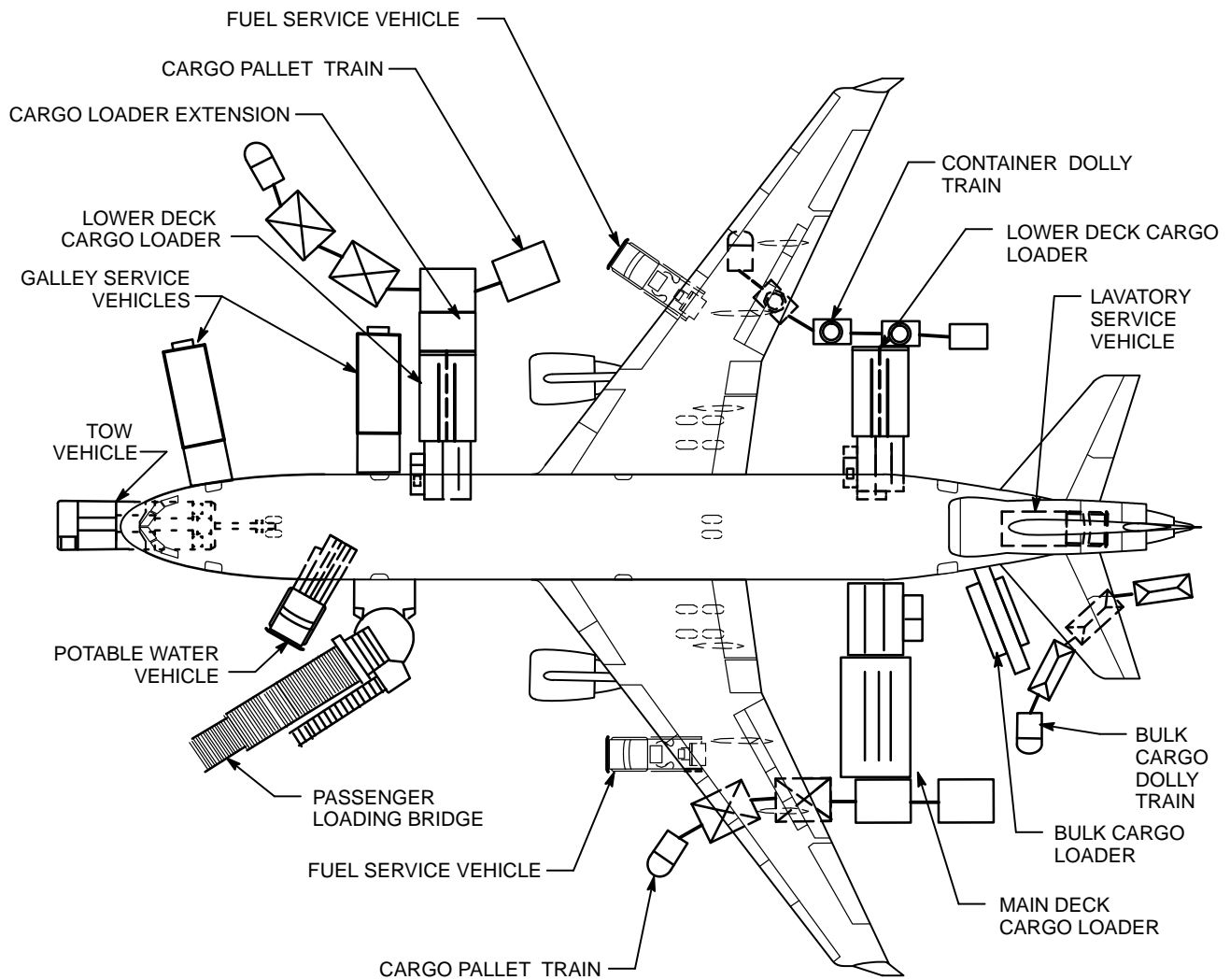
- 5.1 Airplane Servicing Arrangement (Typical)**
- 5.2 Terminal Operations, Turnaround Station**
- 5.3 Terminal Operations, En Route Station**
- 5.4 Ground Service Connections**
- 5.5 Engine Starting Pneumatic Requirements**
- 5.6 Ground Pneumatic Power Requirements**
- 5.7 Preconditioned Airflow Requirements**
- 5.8 Ground Towing Requirements**



NOTE: THE AIRCRAFT AUXILIARY POWER UNIT SUPPLIES ELECTRICAL, PNEUMATIC AIR, AND PRECONDITIONED AIR.

DMC005-43

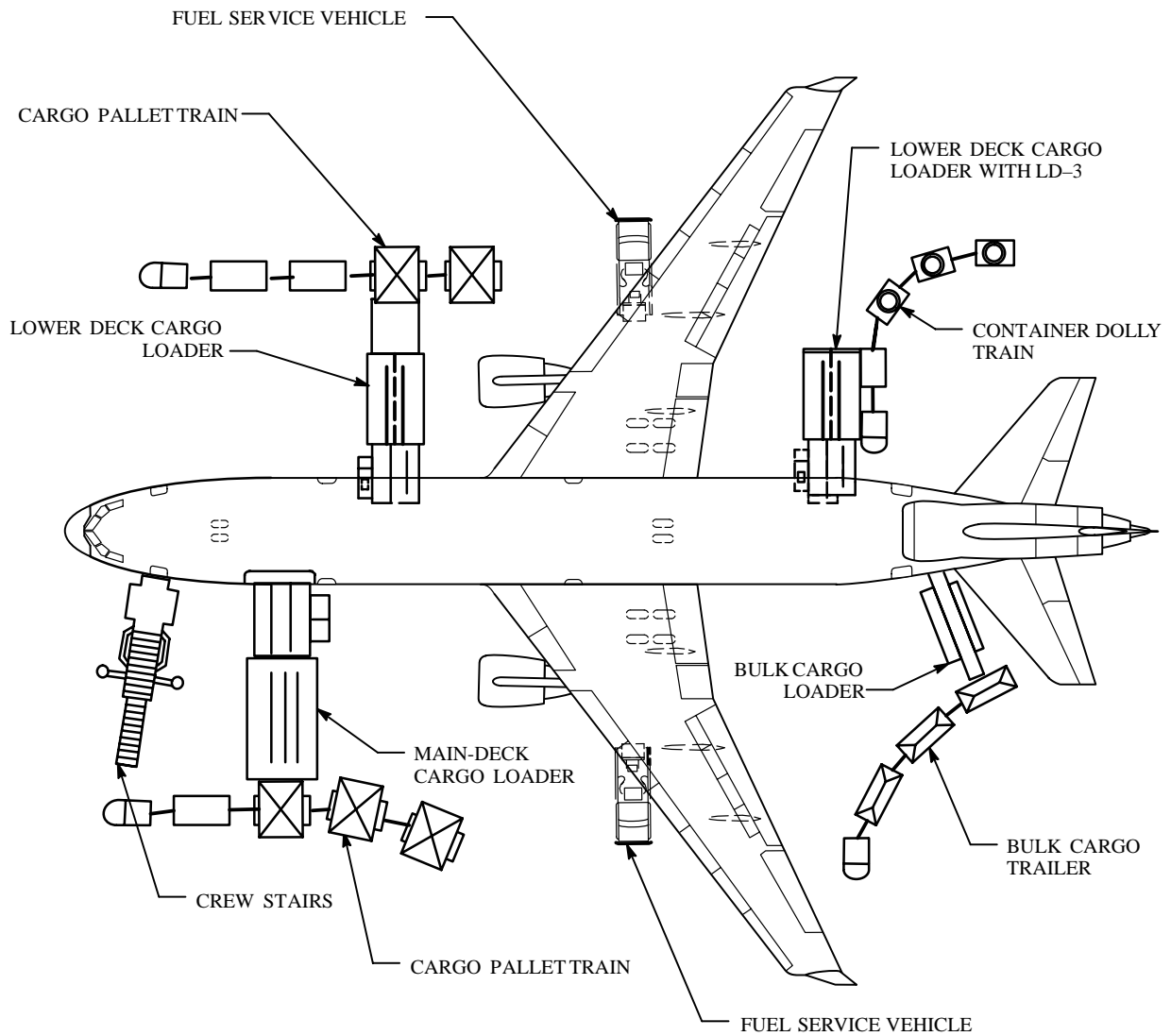
5.0 TERMINAL SERVICING
5.1 AIRPLANE SERVICING ARRANGEMENT (TYPICAL)
5.1.1 AIRPLANE SERVICING ARRANGEMENT — TYPICAL TURNAROUND
MODEL MD-11



NOTE: THE AIRCRAFT AUXILIARY POWER UNIT SUPPLIES ELECTRICAL, PNEUMATIC AIR, AND PRECONDITIONED AIR.

DMC005-44

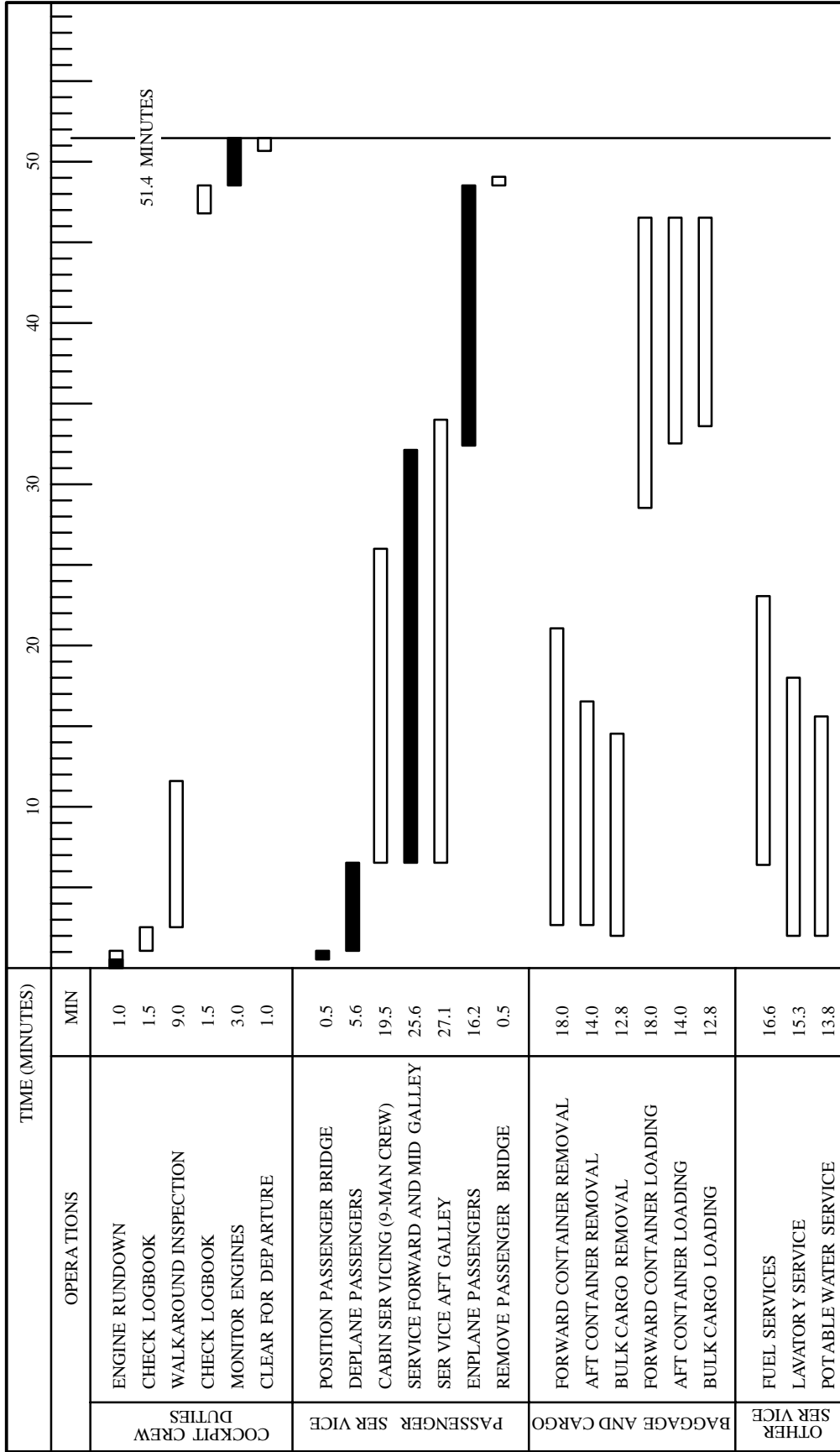
5.0 TERMINAL SERVICING
5.1.2 AIRPLANE SERVICING ARRANGEMENT — TYPICAL TURNAROUND
MODEL MD-11 COMBI



NOTE: THE AIRCRAFT AUXILIARY POWER UNIT SUPPLIES ELECTRICAL, PNEUMATIC, AND PRECONDITIONED AIR

5.0 TERMINAL SERVICING
5.1.3 AIRLINE SERVICING ARRANGEMENT – TYPICAL TURNAROUND
MODEL MD-11F/CF

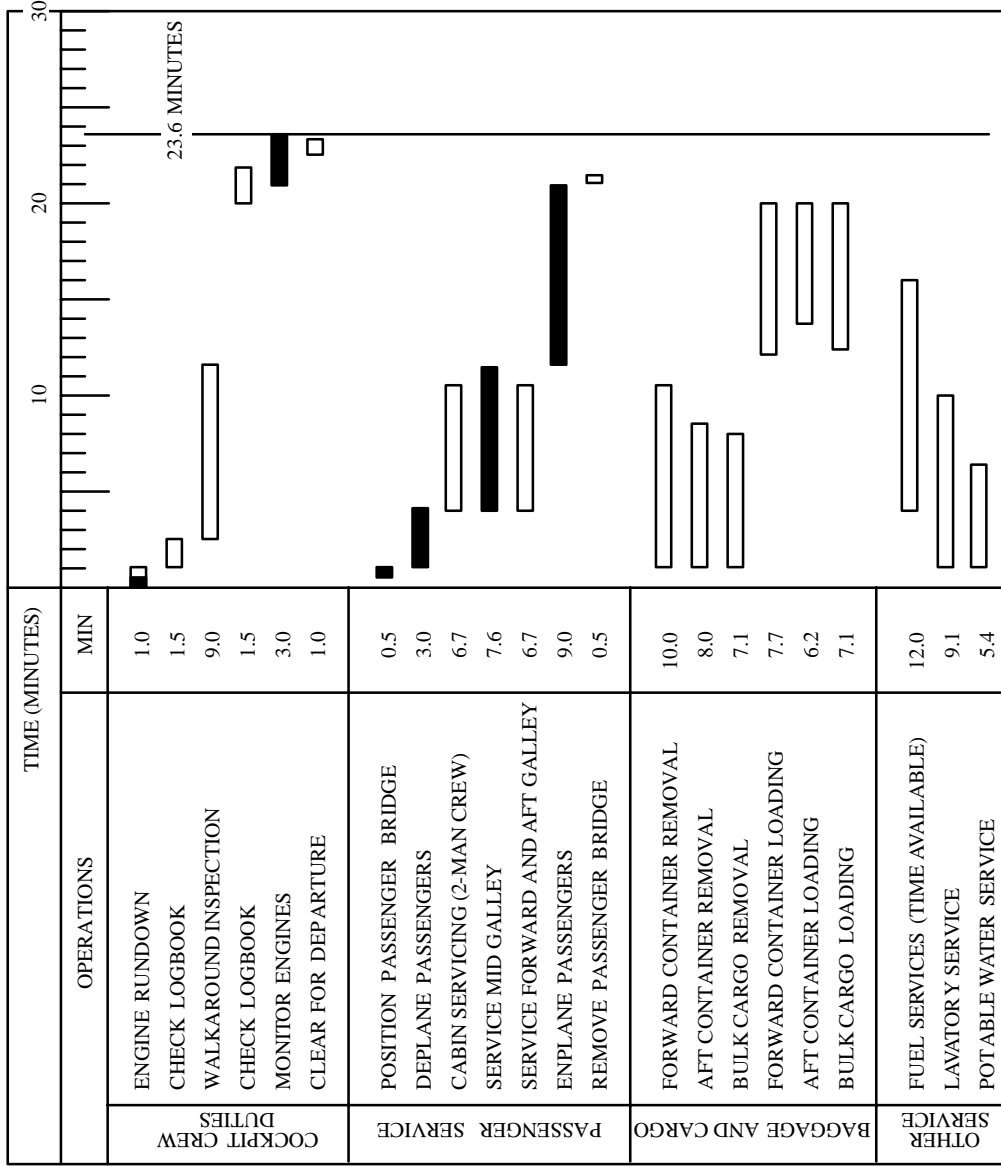
REV E



- NOTES:
1. ■ CRITICAL TIME PATH
 2. ESTIMATES BASED ON 34 FIRST CLASS AND 289 COACH
 3. DEPLANING AND ENPLANING THROUGH DOORS NO. 1 AND 2
 4. 1,562-GPM REFUELING RATE USING TWO HYDRANT VEHICLES
 5. UPPER GALLEY CONFIGURATION WITH FWD, MID, AND AFT GALLEYS
 6. AFT GALLEY CLOSED OFF DURING PART OF PASSENGER ENPLANEMENT

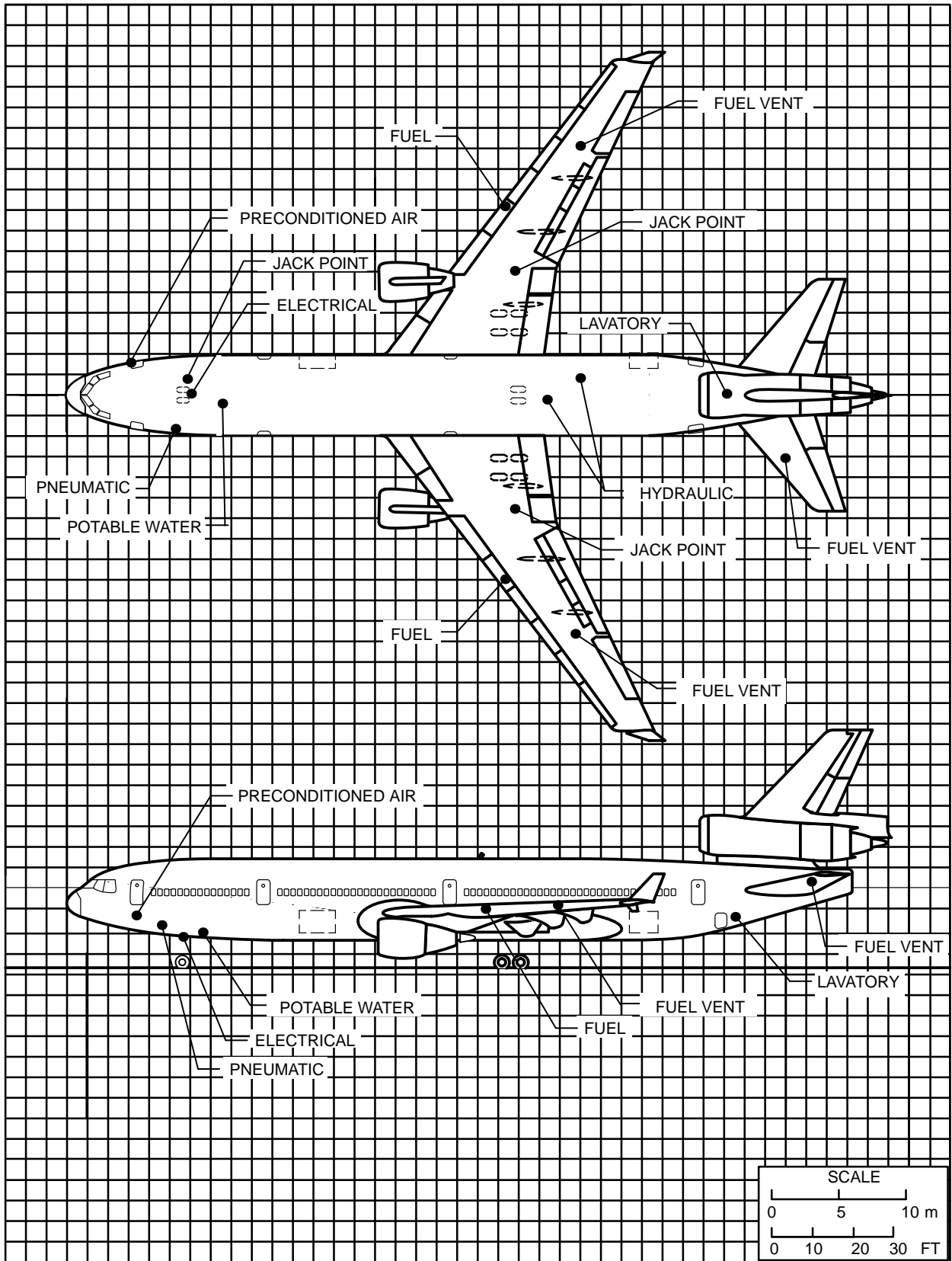
5.2 TERMINAL OPERATIONS, TURNAROUND

5.2.1 TURNAROUND MODEL MD-II



- NOTES:
1. CRITICAL TIME PATH
 2. 55-PERCENT LOAD FACTOR; 17 FIRST CLASS AND 160 COACH
 3. DEPLANING THROUGH DOORS NO. 1 AND 2
 4. ENPLANING FIRST CLASS PSGRS THROUGH NO. 1 DOOR AND COACH PSGRS THROUGH NO. 2 DOOR
 5. 962-GPM REFUELING RATE USING TWO TRUCKS
 6. UPPER GALLEY CONFIGURATION WITH FWD, MID, AND AFT GALLEYS
 7. AFT GALLEY CLOSED OFF DURING PART OF PASSENGER ENPLANEMENT

5.3 TERMINAL OPERATIONS, ENROUTE STATION MODEL MD-II



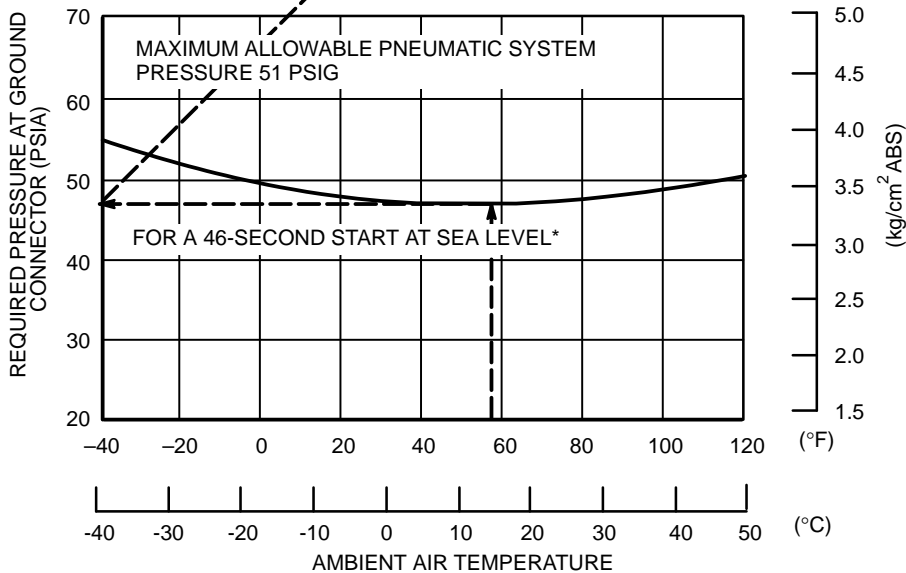
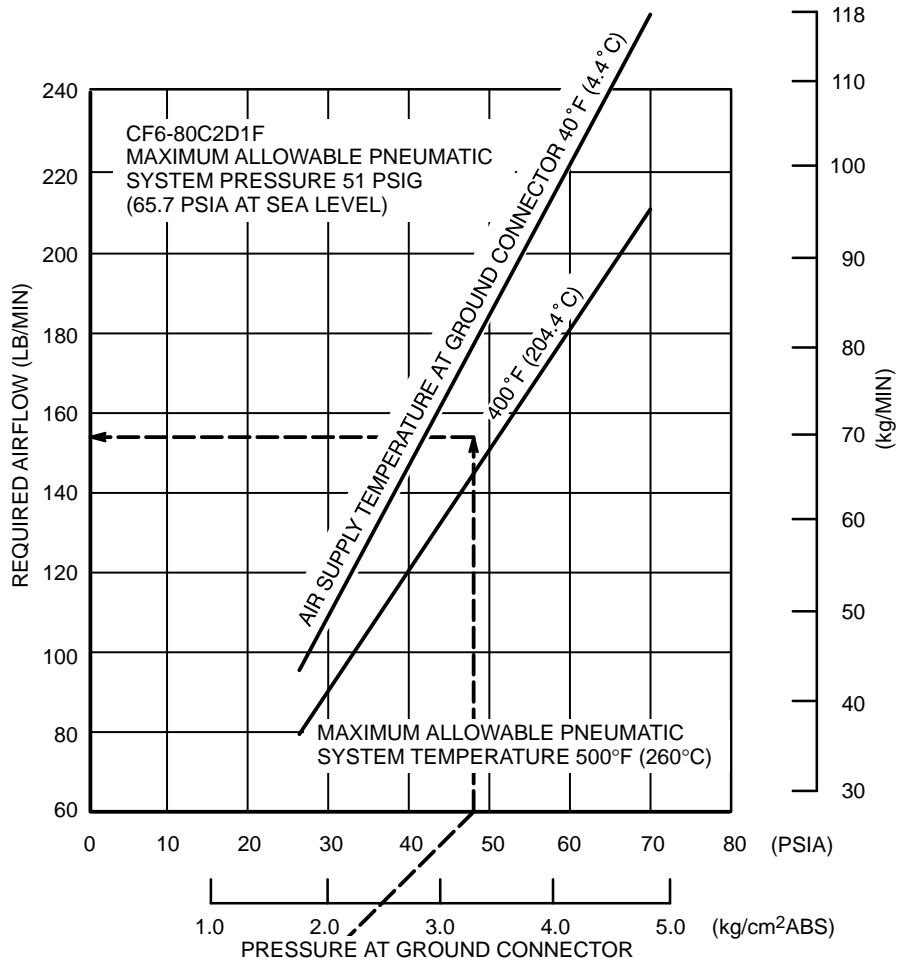
**5.4 GROUND SERVICE CONNECTIONS
MODEL MD-11**

DMC005-48

	DISTANCE AFT OF NOSE		DISTANCE FROM AIRPLANE CENTERLINE				HEIGHT ABOVE GROUND			
			RIGHTSIDE		LEFT SIDE		MINIMUM		MAXIMUM	
	FT - IN.	METERS	FT - IN.	METERS	FT - IN.	METERS	FT - IN.	METERS	FT - IN.	METERS
5.4.1 HYDRAULIC SYSTEM TWO SERVICE CONNECTIONS: A. SERVICE PANEL CONTAINING PRESSURE AND TEST STAND CONNECTIONS, 3,000 PSI (21 MPa) AT 50 GPM (189 IPM) MAXIMUM B. RESERVOIR FILL CONNECTIONS, 60 PSI (414 kPa)	126 - 0	38.40	4 - 2	1.27			9 - 1	2.77	9 - 8	2.95
	118 - 10	36.22			3 - 4	1.02	9 - 5	2.87	10 - 0	3.05
5.4.2 ELECTRICAL SYSTEM TWO SERVICE CONNECTIONS, 90 KVA, EA. 115 VOL, T-400 Hz, 3 PHASE	30 - 6	9.30			1 - 2	0.36	7 - 4	2.24	8 - 9	2.67
5.4.3 OXYGEN - INDEPENDENT AIRCREW AND PASSENGER SYSTEMS AIRCREW OXYGEN SYSTEM PASSENGER OXYGEN SYSTEM CYLINDER IN AVIONICS COMPARTMENT, CONNECTED TO MANIFOLD, PORTABLE CYLINDER FOR CREW, INFLIGHT COMPARTMENT, CHEMICAL OXYGEN SYSTEM IN MODULES IN OVERHEAD STORAGE RACKS, LAVATORIES, AND ATTENDANT STATIONS, PORTABLE CYLINDERS FOR FIRST AID										
5.4.4 FUEL SYSTEM TWO PRESSURE SERVICE POINTS IN EACH WING LEADING EDGE, 1,250 GPM (4,751 IPM) THROUGH 2 POINTS - 1,600 GPM (6,056 IPM) THROUGH 4 POINTS AT 50 PSIG (345 kPa) TOTAL USABLE CAPACITY 38,652 U.S. GALLONS (146,296 l) 6,075 U.S. GALLONS (22,945 l) EACH WING TANK 1 AND 2 9,767.9 U.S. GALLONS (36,968 l) NUMBER 2 TANK 13,001 U.S. GALLONS (49,208 l) CTR WING AUX TANK UPPER 1,643 U.S. GALLONS (6,217 l) UNDER WING AUX TANK LOWER 2,000 U.S. GALLONS (7,570 l) TAIL AUX TANK RIGHT WING SERVICE RECEPTACLES LEFT WING SERVICE RECEPTACLES FUEL VENT WING RIGHT FUEL VENT WING LEFT TAIL AUX TANK VENT	107 - 10 107 - 10 124 - 3 124 - 3 179 - 9	32.87 32.87 37.87 37.87 54.79	42 - 3 58 - 4	12.88 17.78			14 - 8 14 - 8 14 - 0 14 - 0 19 - 4	4.47 4.47 4.27 4.27 5.89	15 - 5 15 - 5 15 - 1 15 - 1 21 - 3	4.70 4.70 4.60 4.60 6.48
5.4.5 PNEUMATIC SYSTEM TWO 3-IN. SERVICE CONNECTIONS FOR ENGINE START AND AIR CONDITIONING	25 - 2	7.67			6 - 7	2.01	10 - 10	3.30	12 - 4	3.76
5.4.6 PRECONDITIONED AIR TWO 8-IN. CONNECTIONS FOR AIR CONDITIONING	15 - 2	4.62	6 - 2	1.88			12 - 3	3.73	13 - 1 ⁽¹⁾	4.24
5.4.7 POTABLE WATER SYSTEM ONE SERVICE CONNECTION FOUR-TANK SYSTEM 64 U.S. GALLONS EACH (242 l) - TOTAL SYSTEM CAPACITY 256 GAL (969 LITERS)	40 - 6	12.34			3 - 4	1.02	8 - 0	2.44	9 - 1	2.77
5.4.8 LAVATORY SYSTEM NUMBER OF TOILETS SERVICED LOCATION 1 ⁽¹⁾ FORWARD ⁽²⁾ AFT SERVICED CAPACITIES WASTE HOLDING 260 U.S. GALLONS (984 l)	13 - 10 (2) 163 - 8	4.22 (2) 49.89	5 5	1.5 1.5	5 5	1.5 1.5	9 - 5 (2) 9 - 9	2.87 (2) 2.97	10 - 8 (2) 11 - 3	3.25 (2) 3.43

⁽¹⁾ FREIGHTER - 1 TOILET FOR WARD LOCATION
⁽²⁾ FREIGHTER ONLY

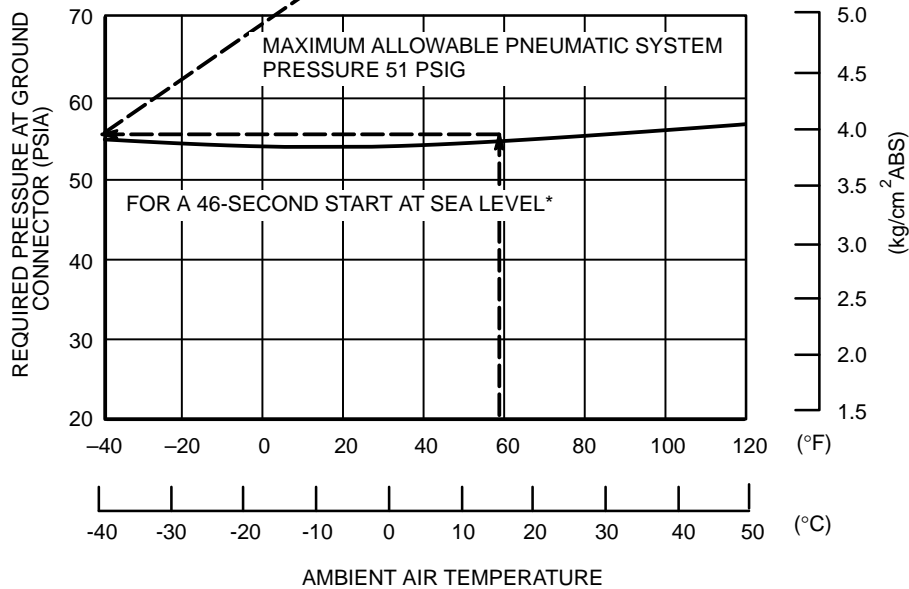
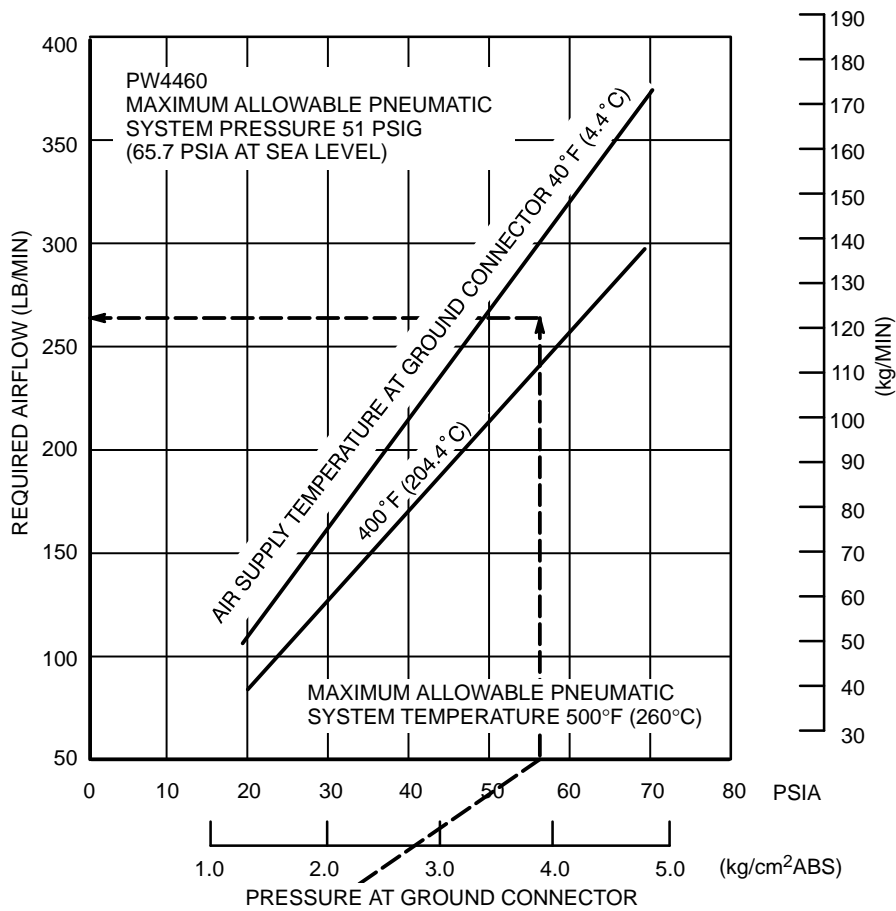
5.4 GROUND SERVICE CONNECTION DATA MODEL MD-11



* THERE IS NO SATISFACTORY DEFINITION FOR "REQUIRED PRESSURE AT GROUND CONNECTOR" SO THAT A SINGLE LINE CAN BE DEPICTED. THE LINE DEPICTED IS FOR A 46-SECOND START TIME, WHICH IS AN ARBITRARY VALUE.

DMC005-49

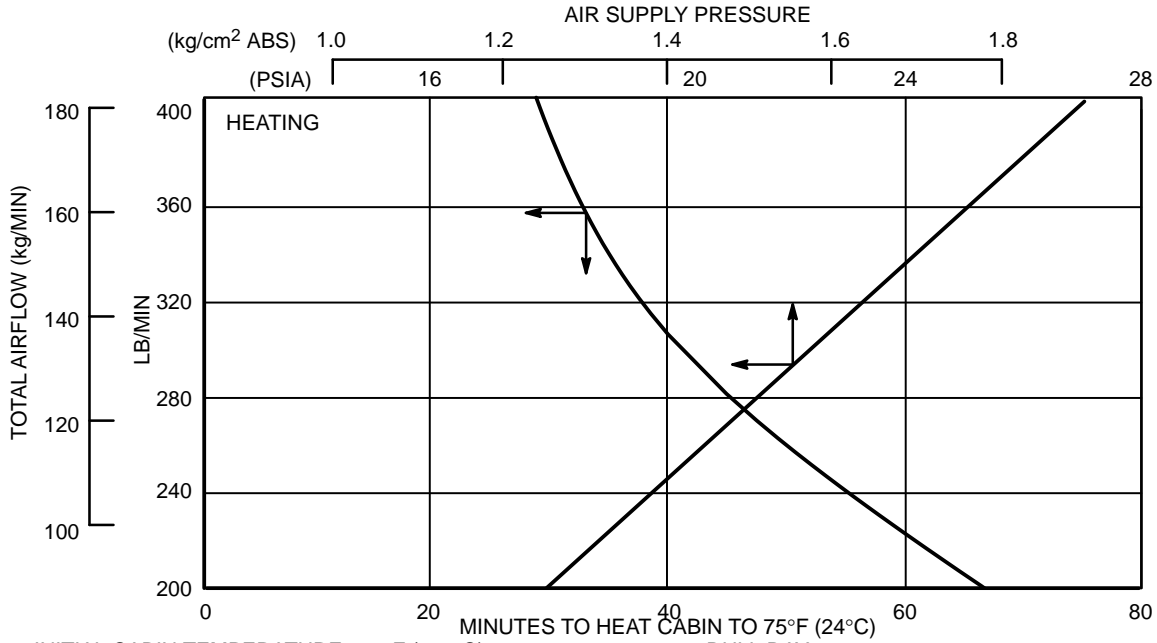
5.5 ENGINE STARTING PNEUMATIC REQUIREMENTS MODEL MD-11 GE ENGINE



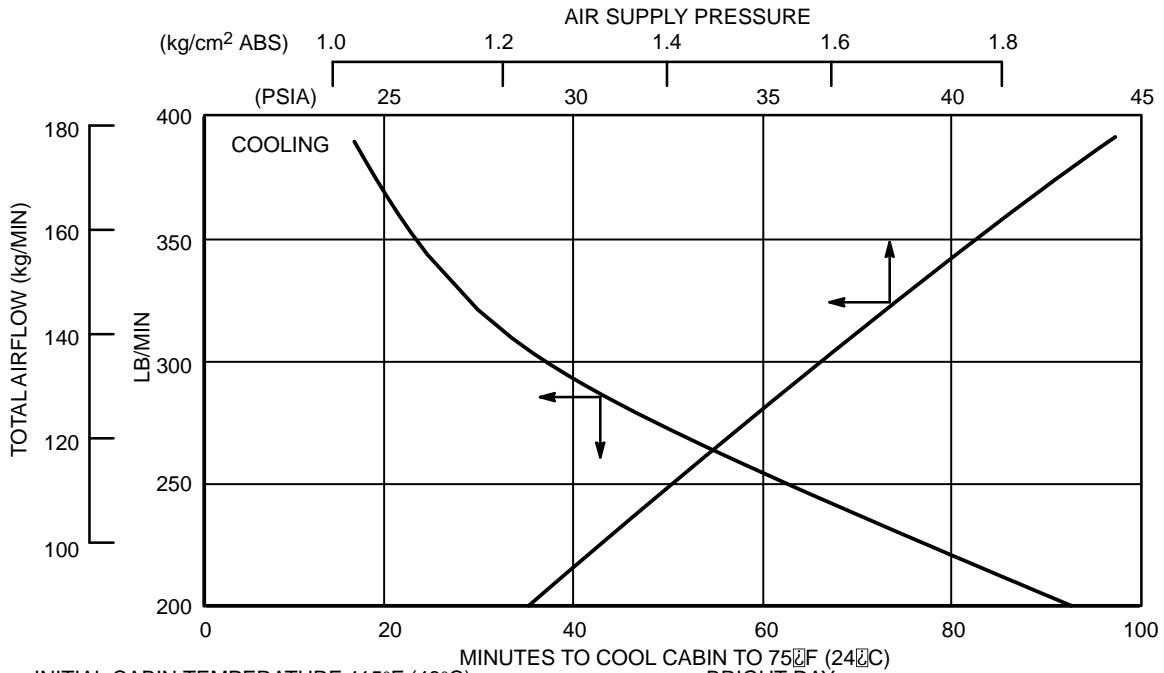
* THERE IS NO SATISFACTORY DEFINITION FOR "REQUIRED PRESSURE AT GROUND CONNECTOR" SO THAT A SINGLE LINE CAN BE DEPICTED. THE LINE DEPICTED IS FOR A 46-SECOND START TIME, WHICH IS AN ARBITRARY VALUE.

DMC005-50

5.5 ENGINE STARTING PNEUMATIC REQUIREMENTS MODEL MD-11 P&W ENGINE



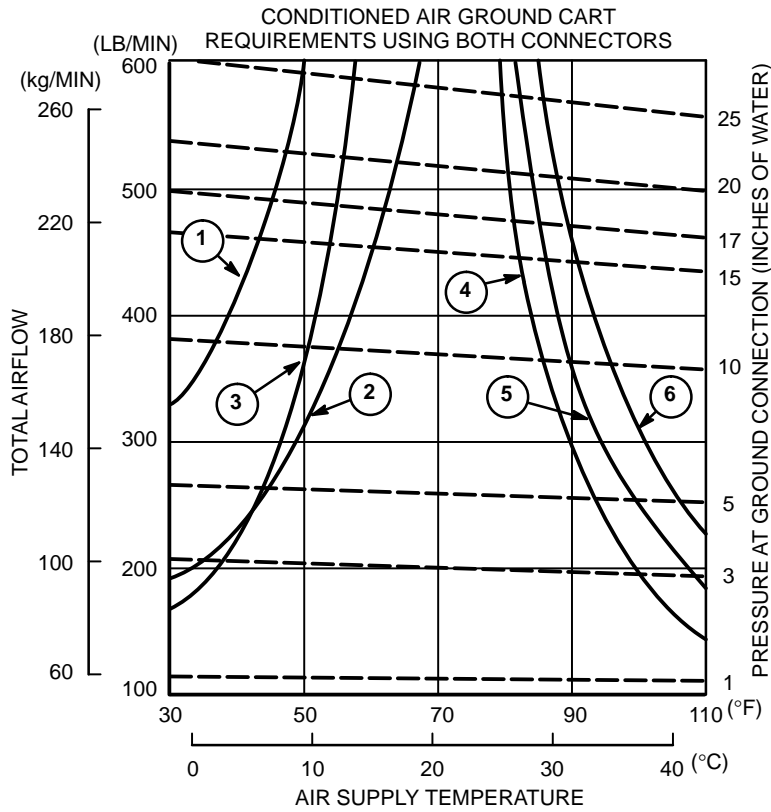
- INITIAL CABIN TEMPERATURE -25°F (-32°C)
- OUTSIDE AIR TEMPERATURE -40°F (-40°C)
- MAX TEMPERATURE AT GROUND CONN 440°F (227°C)
- MIN TEMPERATURE NOT LESS THAN 200°F (93°C) ABOVE O.A.T
- DOORS CLOSED
- DULL DAY
- NO CABIN OCCUPANTS OR ELECTRICAL LOAD
- MAX ALLOWABLE SUPPLY PRESSURE 45 PSIG
- BOTH GROUND CONNECTIONS USED
- THREE-PACK OPERATION



- INITIAL CABIN TEMPERATURE 115°F (46°C)
- OUTSIDE AIR TEMPERATURE 103°F (40°C) REL HUM 42%
- MAX TEMPERATURE AT GROUND CONN 440°F (227°C)
- MIN TEMPERATURE NOT LESS THAN 200°F (93°C) ABOVE O.A.T
- DOORS CLOSED
- BRIGHT DAY
- NO CABIN OCCUPANTS OR ELECTRICAL LOAD
- MAX ALLOWABLE SUPPLY PRESSURE 45 PSIG
- BOTH GROUND CONNECTIONS USED
- THREE-PACK OPERATION

5.6 GROUND PNEUMATIC POWER REQUIREMENTS MODEL MD-11

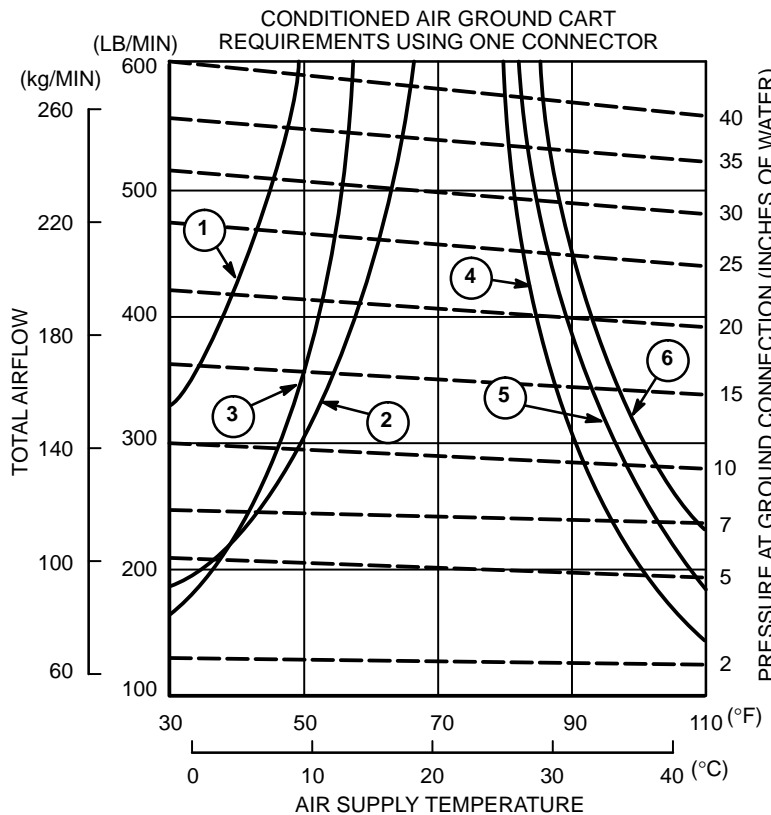
DMC005-51



- ① CABIN AT 75°F (24°C), 410 OCCUPANTS, BRIGHT DAY (SOLAR IRRADIATION), 103°F (39°C) DAY
- ② SAME AS 1 EXCEPT CABIN AT 85°F (29°C)
- ③ SAME AS 1 EXCEPT CABIN AT 70°F (21°C), NO CABIN OCCUPANTS, FIVE CREW MEMBERS ONLY
- ④ CABIN AT 70°F (21°C), 50 CABIN OCCUPANTS, OVERCAST DAY (NO SOLAR IRRADIATION), 0°F (-18°C) DAY
- ⑤ SAME AS 4 EXCEPT -20°F (-29°C) DAY
- ⑥ SAME AS 4 EXCEPT -40°F (-40°C) DAY

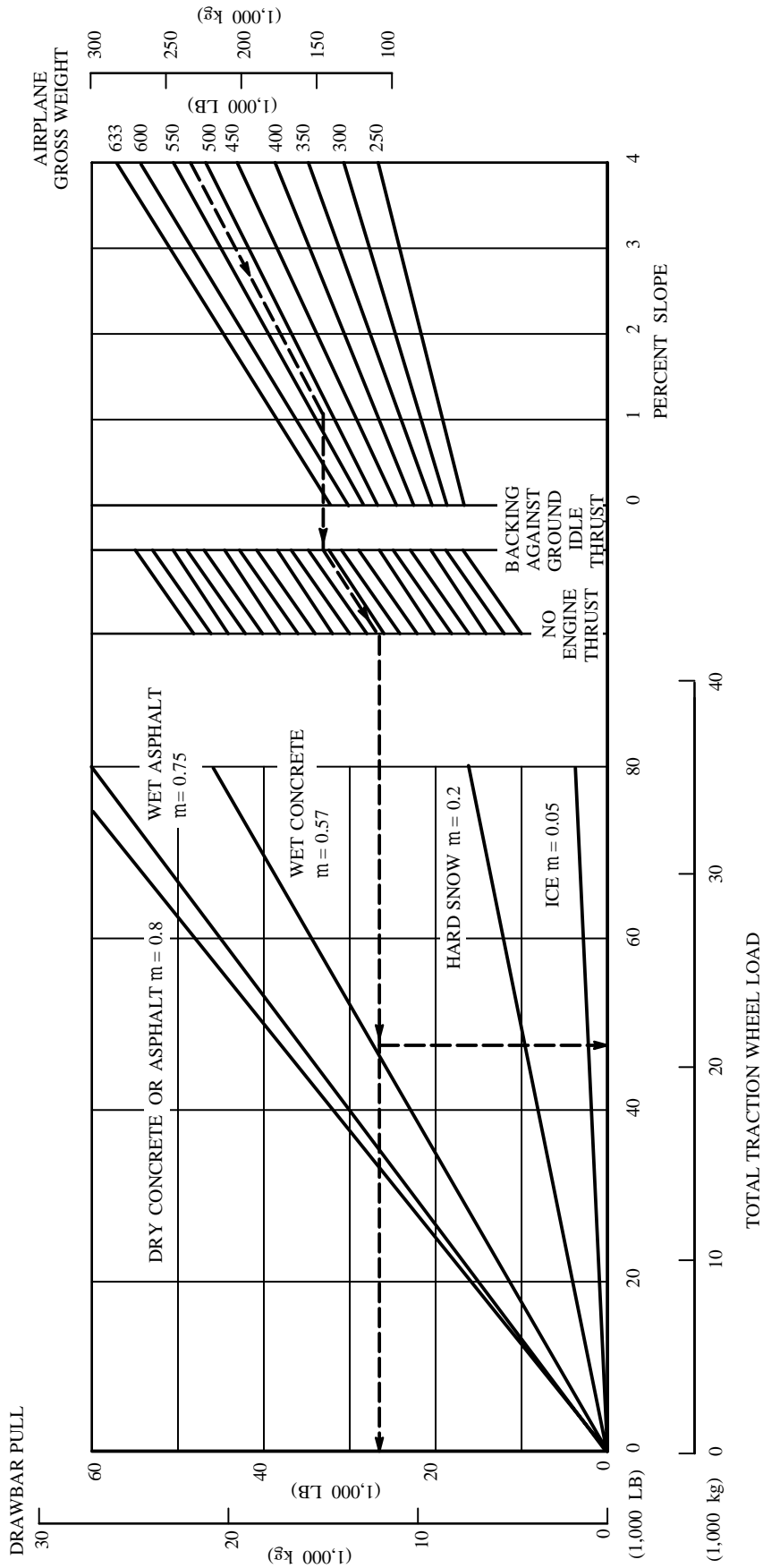
MAXIMUM ALLOWABLE TEMPERATURE
190°F (88°C)

MAXIMUM ALLOWABLE PRESSURE AT
GROUND CONNECTION (25 INCHES WATER)



5.7 PRECONDITIONED AIRFLOW REQUIREMENTS MODEL MD-11

DMC005-53-54



- UNUSUAL BREAKAWAY CONDITIONS NOT REFLECTED
- ESTIMATED FOR TOW VEHICLES WITH RUBBER TIRES
- COEFFICIENTS OF FRICTION (m) — APPROXIMATE

5.8 GROUND TOWING REQUIREMENTS MODEL MD-11