

APU Limits: (if installed)	AiResearch TSCP700-4B	
	Power Rating Maximum at sea level	189 hp
	Rotor Speeds	
	Low pressure speed (N ₁)	31,570 rpm (110%)
	High pressure speed (N ₂)	38,830 rpm (110%)
	Exhaust Gas Temperature	
	Maximum during operation	1085°F (585°C)
	Maximum indicated temperature during each starting cycle	1085°F (585°C)

Airspeed Limits:
(CAS)

V _{MO} /M _{MO} (Maximum Operating)	<u>With SB 37-87</u>	<u>Without SB 37-87</u>
At Sea Level	350K	350K
At 10,000 ft	350K	376K
At 24,820 ft	350K	376K (M=0.88)
At 28,310 ft	350K (M=0.88)	350K (M=0.88)
At 42,000 ft	258K (M=0.88)	258K (M=0.88)

V_A (Maneuvering) See FAA Approved Airplane Flight Manual

V _{FE}	<u>Flap Position (Inboard)</u>	
	5°	260K (M = 0.51)
	15°	250K (M = 0.51)
	20°	233K (M = 0.51)
	25°	214K (M = 0.51)
	30°	198K (M = 0.51)
	35°	187K (M = 0.51)
	50°	171K (M = 0.51)

V_{SLAT} (Slat Operating)

Takeoff and Approach:

<u>Flap Position (Inboard)</u>	
5°	260K (M = 0.51)
15°	250K (M = 0.51)
25°	214K (M = 0.51)

Landing

<u>Flap Position (Inboard)</u>	
30°	198K (M = 0.51)
35°	187K (M = 0.51)
50°	171K (M = 0.51)

Autoslat

Flaps retracted	260K (M = 0.51)
-----------------	-----------------

V_{LO} (Landing Gear)

Retraction	230K (M = 0.70)
Extension	260K (M = 0.70)

V_{LE} (Landing Gear Extended)

300K (M = 0.70)

V (Landing light extension)

Maximum speed extension retraction,
or extended position

V_{MO}/M_{MO}

V (Fuel Dump)

325K up to 28,000 feet
M = 0.82 above 28,000 feet

C.G. Range: See the appropriate FAA Approved Airplane Flight Manual and Weight and Balance Manual.

		<u>See Serial Numbers Eligible</u>	
Maximum Weight:	Taxi and Ramp	443,000 lb	458,000 lb
(See NOTE 10)	Takeoff	440,000 lb	455,000 lb
	Landing ²	363,500 lb	363,500 lb
	Zero Fuel ³	335,000 lb	335,000 lb
	Gear Jacking	443,000 lb	443,000 lb
	Fuselage and Wing Jacking	388,000 lb	388,000 lb

Minimum Crew: For all flights: Pilot, Copilot, and Flight Engineer.

Maximum Passengers: (See NOTE 6).

Maximum Baggage: (See Weight and Balance Manual).

Fuel Capacity: Fuel Tank Capacity (pounds)

<u>Location</u>	<u>Structural</u>	<u>Usable</u> ⁴	<u>Arm (Inches)</u>
Main No. 1	42,579	40,116	1488
Main No. 2	68,998	64,969	1296
Main No. 3	42,579	40,116	1488
Center Wing Auxiliary (if installed)	36,849	32,727	1279
Crossfeed Manifold and Lines		609	1429

Oil Capacity: 24.3 lb/engine usable at 8.1 lb/gal with wing engines moment arm at 1125 in. and tail engine moment arm at 2200 in.

Maximum Operating Altitude: 42,000 feet

MAC: 300.682 inches (Leading Edge of MAC Station 1299.83)

Service Life Limits: See NOTE 3

Serial Numbers Eligible:

Maximum Takeoff Weight of 440,000 pounds

46500, 46502-46509, 46511-46525, 46600-46636, 46645, 46646, 46700-46703, 46706-46710, 46900-46903, 46908, 46928, 46930, 46938, 46939, 46942, 46943, 46946-46948, 46977, 46983, 46984, 46989, 46994, 46996, 47800-47802, 47827-47830, 47832, 47833, 47965-47969, 48260-48263

Maximum Takeoff Weight of 455,000 pounds

46501, 46727, 46905, 46906, 46970, 46973, (46517, 46525, 46645, 46646, 46908, 46977, 46983, 47832, 47833) ⁵

² Fuel dump valves required for operation in excess of maximum landing weight. See NOTE 1 (f).

³ All weight in airplane above this weight must be fuel.

⁴ 6.7 lb/gal

⁵ When modified in accordance with McDonnell Douglas Service Bulletin 57-97.

Other
Information: See "Data Pertinent to All Models"

II - Model DC-10-40 (Transport Aircraft), Approved October 20, 1972

Engines: 3 Pratt and Whitney JT9D-20 Turbofan Engines with water injection, or 3 Pratt and Whitney JT9D-20J or JT9D-59A Turbofan Engines (JT9D-59A Engines are installed per Rohr STC SA3139WE) (See Serial Numbers Eligible).

Fuel: See NOTE 4.

Oil: See NOTE 5.

Engine Limits:	<u>JT9D-20</u>	<u>JT9D-20J</u>	<u>JT9D-59A</u>
Static Thrust, Sea Level			
Takeoff, Dry ⁶	44,500 lb	48,050 lb	51,720 lb
Takeoff, Wet ⁷	47,000 lb		
Maximum Continuous	39,240 lb	39,240 lb	44,770 lb
Maximum permissible engine rotor speeds			
N ₁ (Low Compressor)	3650 rpm (101.4%)	3750 rpm (104.2%)	3780 rpm (105%)
N ₂ (High Compressor)	8000 rpm (98.9%)	8000 rpm (98.9%)	8011 rpm (99%)
Maximum permissible engine temperature			
Turbine exhaust gas temperature at turbine outlet (Tt 6 for JT9D-20 & -20J and Tt 7 for JT9D-59A)			
Takeoff, Wet or Dry (5 min)	1679 ⁰ F (915 ⁰ C)	1805 ⁰ F (985 ⁰ C)	1238 ⁰ F (670 ⁰ C)
Maximum Continuous	1607 ⁰ F (875 ⁰ C)	1697 ⁰ F (925 ⁰ C)	1202 ⁰ F (650 ⁰ C)
Maximum Acceleration (2 min)	1679 ⁰ F (915 ⁰ C)	1805 ⁰ F (985 ⁰ C)	1238 ⁰ F (670 ⁰ C)
Starting ⁸	1202 ⁰ F (650 ⁰ C)	1202 ⁰ F (650 ⁰ C)	941 ⁰ F (505 ⁰ C)
Maximum permissible oil inlet temperature			
Continuous Operation	275 ⁰ F (135 ⁰ C)	275 ⁰ F (135 ⁰ C)	275 ⁰ F (135 ⁰ C)
Transient Operation ⁹	320 ⁰ F (160 ⁰ C)	320 ⁰ F (160 ⁰ C)	320 ⁰ F (160 ⁰ C)

⁶ 5 minutes flat to 84°F for JT9D-20 and 86°F for JT9D-20J and JT9D-59A.

⁷ 2 ½ minutes wet flat to 86°F.

⁸ Maximum transient for 10 seconds.

⁹ Transient operation above 275°F (135°C) is limited to 20 minutes.

APU Limits: (if installed)	AiResearch TSCP700-4	
	Power Rating Maximum at sea level	189 hp
	Rotor Speeds	
	Low pressure rotor speed (N ₁)	31,750 rpm (110%)
	High pressure rotor speed (N ₂)	38,830 rpm (110%)
	Exhaust Gas Temperature	
	Maximum during operation	1085°F (585°C)
	Maximum indicated temperature during each starting cycle	1085°F (585°C)
Airspeed Limits: (CAS)	V _{MO} /M _{MO} (Maximum Operating)	
	At Sea Level	350K
	At 10,000 ft.	376K
	At 24,820 ft.	376K (M = 0.88)
	At 42,000 ft.	258K (M = 0.88)
	V _A (Maneuvering)	See FAA Approved Airplane Flight Manual
		With JT9D-20 or -20J Engines (See Serial Numbers Eligible)
		With JT9D-59A Engines (See Serial Numbers Eligible)
V _{FE}	Flap Position (Inboard)	
	5 ⁰	260K (M = 0.51)
	15 ⁰	255K (M = 0.51)
	20 ⁰	240K (M = 0.51)
	25 ⁰	221K (M = 0.51)
	30 ⁰	206K (M = 0.51)
	35 ⁰	194K (M = 0.51)
	50 ⁰	178K (M = 0.51)
		270K (M = 0.55)
		255K (M = 0.51)
		240K (M = 0.51)
		221K (M = 0.51)
		206K (M = 0.51)
		194K (M = 0.51)
		178K (M = 0.51)
		270K (M = 0.55)
		255K (M = 0.51)
		221K (M = 0.51)
V _{SLAT} (Slat Operating) Takeoff and Approach:		
		With JT9D-20 or -20J Engines (See Serial Numbers Eligible)
		With JT9D-59A Engines (See Serial Numbers Eligible)
	Flap Position (Inboard)	
	5 ⁰	260K (M = 0.51)
	15 ⁰	255K (M = 0.51)
	20 ⁰	221K (M = 0.51)
		270K (M = 0.55)
		255K (M = 0.51)
		221K (M = 0.51)
Landing		
	Flap Position (Inboard)	
	25 ⁰	221K (M = 0.51)
	30 ⁰	206K (M = 0.51)
	35 ⁰	194K (M = 0.51)
	50 ⁰	178K (M = 0.51)
		221K (M = 0.51)
		206K (M = 0.51)
		194K (M = 0.51)
		178K (M = 0.51)
		221K (M = 0.51)
		206K (M = 0.51)
		194K (M = 0.51)
		178K (M = 0.51)
		221K (M = 0.51)
		206K (M = 0.51)
		194K (M = 0.51)
		178K (M = 0.51)
Autoslat		
	Flaps retracted	260K (M = 0.51)
		270K (M = 0.75)
V _{LO} (Landing Gear)		
	Retraction	230K (M = 0.70)
	Extension	260K (M = 0.70)
V _{LE} (Landing Gear Extended)		
V (Landing light extension)		
	Maximum speed extension, retraction, or extended position.	300K (M = 0.70)
		300K (M = 0.70)
V (Fuel Dump)		V _{MO} /M _{MO}
		V _{MO} /M _{MO}
		325K up to 28,000 feet
		M = 0.82 above 28,000 feet

C.G. Range: See the appropriate FAA Approved Airplane Flight Manual and Weight and Balance Manual.

Maximum Weight:
(See NOTE 10)

	With JT9D-20 or -20J Engines (See Serial Numbers Eligible)		With JT9D-59A Engines (See Serial Numbers Eligible)	
	Center Main <u>Gear Extended</u>	Center Main <u>Gear Retracted</u>	Center Main <u>Gear Extended</u>	Center Main <u>Gear Retracted or Removed</u>
Taxi and Ramp	568,000 lb	443,000 lb	575,000 lb	478,000 lb
Takeoff ¹⁰	565,000 lb	440,000 lb	572,000 lb	475,000 lb
Landing ¹¹	421,000 lb	363,500 lb	421,000 lb	400,000 lb
Zero Fuel ¹²	391,000 lb	363,500 lb	391,000 lb	391,000 lb
Gear Jacking Weight	568,000 lb	443,000 lb	575,000 lb	478,000 lb
Fuselage and Wing Jacking Weight	508,000 lb	443,000 lb	508,000 lb	478,000 lb

Minimum Crew: For all Flights: Pilot, Copilot, and Flight Engineer.

Maximum
Passengers: (See NOTE 6).

Maximum
Baggage: (See Weight and Balance Manual).

Fuel Capacity: Fuel Tank Capacity (pounds)

<u>Location</u>	<u>Structural</u>	<u>Usable (6.7 lb/gal)</u>	<u>Usable ¹³ (6.7 lb/gal)</u>	<u>Arm (inches)</u>
Main No. 1	43,202	40,203	40,704	1492.6
Main No. 2	69,495	64,969	65,438	1296.0
Main No. 3	43,202	40,403	40,704	1492.6
Center Wing Auxiliary	104,141	97,409	98,111	1266.1
Crossfeed Manifold & Lines		622	622	1420.1

Oil Capacity: 77 lb/engine usable at 8.1 lb/gal with wing engines moment arm at 1164.0 in. and tail moment area at 2239.0 in.

Maximum
Operating
Altitude: 42,000 feet

MAC: 295.78 inches (Leading Edge of MAC Station 1311.95)

Service Life
Limits: See NOTE 3.

¹⁰ For takeoff above 555,000 pounds, 28 ply main landing gear tires and modification per Douglas Service Bulletin 57-28 or equivalent are required.

¹¹ Fuel dump valves required for takeoff in excess of maximum landing weight. See NOTE 1 (f).

¹² All weight in airplane above this weight must be fuel.

¹³ When modified per Douglas Service Bulletin 28-27 and 28-32 or equivalents.

Serial Numbers

Eligible: Maximum Takeoff Weight of 565,000 pounds
(with JT9D-20 or -20J Engines)

46750-46771

Maximum Takeoff Weight of 572,000 pounds
(with JT9D-59A Engines installed per STC SA3139WE)

46660-46662, 46913, 46920, 46923, 46966, 46967, 46974, 47822-47826, 47852, 47853, 47855-47857, 48301

Spare Engine Transportation Pod - The Spare Engine Transportation Pod may be carried on models with JT9D-59A engines installed per STC SA3139WE in accordance with the limitations specified in the FAA approved Airplane Flight Manual.

Other

Information: See "Data Pertinent to All Models"

III - Model DC-10-30 (Transport Aircraft), Approved November 21, 1972

Engines: 3 General Electric CF6-50A, CF6-50C, CF6-50CA, CF6-50C1, CF6-50C2, CF6-50C2B or CF6-50C2-R Turbofan Engines. (Engines may be intermixed in accordance with Appendix XXII of applicable FAA Approved Airplane Flight Manual).

Fuel: See NOTE 4.

Oil: See NOTE 5.

Engine Limits:

	<u>CF6-50A</u>	<u>CF6-50C/-50CA/ -50C2-R</u>	<u>CF6-50C1/-50C2</u>	<u>CF6-50C2B</u>
Static Thrust, Sea Level Takeoff ¹⁴	48,400 lb	50,400 lb	51,800 lb	53,200 lb
Maximum Continuous (flat to 86°F)	46,300 lb	46,300 lb	46,300 lb	46,300 lb
Maximum permissible engine rotor operating speeds				
N ₁ (Low Compressor) ¹⁵	3982 rpm (116%) 4068 rpm (118.5%) ¹⁶	3982 rpm (116%) 4068 rpm (118.5%) ¹⁶	4068 rpm (118.5%) ¹⁶	4068 rpm (118.5%)
N ₂ (High Compressor)	10613 rpm (108%) 10761 rpm (109.5%) ¹⁷	10613 rpm (108%) 10761 rpm (109.5%) ¹⁷	10761 rpm (109.5%) ¹⁷	10761 rpm (109.5%)

¹⁴ 5 minutes flat to 87°F for -50A; 5 minutes flat to 86°F for -50C, -50CA, -50C1, -50C2, and -50C2-R; 5 minutes flat to 79°F for -50C2B.

¹⁵ The CF6-50C N₁ value of 116% is used for the preparation of the Airplane Flight Manual in lieu of the CF6-50C1 N₁ value of 116½% noted in the engine data sheet.

¹⁶ When modified per Douglas Service Bulletin 77-46 or production equivalent, for CF6-50A/-50C/-50CA/-50C1.

¹⁷ When modified per Douglas Service Bulletin 77-44 or production equivalent, for CF6-50A/-50C/-50CA/-50C1.

Engine Limits (cont'd)

	<u>CF6-50A</u>	<u>CF6-50C/-50CA/ -50C1</u>	<u>CF6-50C2/-50C2B/ -50C2-R</u>
Maximum permissible engine temperature Turbine exhaust gas temperature at turbine outlet			
Takeoff (5 min.)	1679°F (915°C)	1715°F (935°C) 1733°F (945°C) ¹⁸	1733°F (945°C)
Maximum Continuous	1607°F (875°C)	1607°F (875°C) 1670°F (910°C) ¹⁸	1670°F (910°C)
Maximum for Acceleration (2 min.)	1706°F (930°C)	1742°F (950°C) 1760°F (960°C) ¹⁸	1760°F (960°C)
Starting (Max. Transient for 40 sec.) (Max. no time limit)	1652°F (900°C) 1382°F (750°C)	1652°F (900°C) 1382°F (750°C)	1652°F (900°C) 1382°F (750°C)
Maximum permissible oil outlet temperature			
Continuous Operation	320°F (160°C)	320°F (160°C)	320°F (160°C)
Transient Operation ¹⁹	347°F (175°C)	347°F (175°C)	347°F (175°C)
APU Limits: (if installed)	AiResearch TSCP700-4		
Power Rating Maximum at sea level	189 hp		
Rotor Speeds			
Low pressure rotor speed (N ₁)	31,750 rpm (110%)		
High pressure rotor speed (N ₂)	38,830 rpm (110%)		
Exhaust Gas Temperature			
Maximum during operation	1085°F (585°C)		
Maximum indicated temperature each starting cycle	1085°F (585°C)		
Airspeed Limits: (CAS)			
V _{MO} /M _{MO} (Maximum Operating)			
At Sea Level	350K		
At 10,000 ft	376K		
At 24,820 ft	376K (M = 0.88)		
At 42,000 ft	258K (M = 0.88)		
V _A (Maneuvering)	See FAA Approved Airplane Flight Manual		
	572,000 lb/580,000 lb	565,000 lb	

¹⁸ When modified per Douglas Service Bulletin 77-47 or production equivalent, for CF6-50C/-50CA/-50C1.

¹⁹ Transient operation above 320°F (160°C) is limited to 15 minutes.

Airspeed Limits:
(CAS) (cont'd)

VFE	Flap Position (Inboard)	Takeoff Weight (See Serial Numbers Eligible)	Takeoff Weight (See Serial Numbers Eligible)
	5 ⁰	270K (M = 0.55)	260K (M = 0.51)
	15 ⁰	255K (M = 0.51)	255K (M = 0.51)
	20 ⁰	240K (M = 0.51)	240K (M = 0.51)
	25 ⁰	221K (M = 0.51)	221K (M = 0.51)
	30 ⁰	206K (M = 0.51)	206K (M = 0.51)
	35 ⁰	194K (M = 0.51)	194K (M = 0.51)
	50 ⁰	178K (M = 0.51)	178K (M = 0.51)
VSLAT (Slat Operating)			
Takeoff and Approach			
	<u>Flap Position</u>		
	5 ⁰	270K (M = 0.55)	260K (M = 0.51)
	15 ⁰	255K (M = 0.51)	255K (M = 0.51)
	25 ⁰	221K (M = 0.51)	221K (M = 0.51)
Landing			
	<u>Flap Position</u>		
	30 ⁰	206K (M = 0.51)	206K (M = 0.51)
	35 ⁰	194K (M = 0.51)	194K (M = 0.51)
	50 ⁰	178K (M = 0.51)	178K (M = 0.51)
Autoslat			
	<u>Flaps retracted</u>	270K (M = 0.55)	260K (M = 0.51)
V _{LO} Landing Gear			
	Retraction	230K (M = 0.70)	230K (M = 0.70)
	Extension	260K (M = 0.70)	260K (M = 0.70)
V _{LE} (Landing Gear Extended)			
	Extended	300K (M = 0.70)	300K (M = 0.70)
V (Landing light extension) - Maximum Speed in extension, retraction, or extended position			V _{MO} /M _{MO}
V (Fuel Dump)		325K up to 28,000 feet M=0.82 above 28,000 feet	

C.G. Range: See the appropriate FAA Approved Airplane Flight Manual and Weight and Balance Manual.

Maximum Weight:
(See Note 10)

	565,000 lb Takeoff Weight (See Serial Numbers Eligible)		572,000 lb/580,000 lb Takeoff Weight (See Serial Numbers Eligible)	
	<u>Center Main Gear Extended</u>	<u>Center Main Gear Retracted</u>	<u>Center Main Gear Extended</u>	<u>Center Main Gear Retracted</u>
Taxi and Ramp	568,000 lb	463,000 lb	575,000 lb/583,000 lb	478,000 lb
Takeoff ²⁰	565,000 lb	460,000 lb	572,000 lb/580,000 lb	475,000 lb
Landing ²¹	421,000 lb	400,000 lb	421,000 lb ²²	400,000 lb
Zero Fuel ²³	391,000 lb ²⁴	391,000 lb	401,000 lb	391,000 lb
Gear Jacking	568,000 lb	463,000 lb	575,000 lb/583,000 lb	478,000 lb
Fuselage and Wing Jacking	508,000 lb	463,000 lb	508,000 lb	478,000 lb

	590,000 lb Takeoff Weight (See Serial Numbers Eligible)	
	<u>Center Main Gear Extended</u>	<u>Center Main Gear Retracted</u>
Taxi and Ramp	593,000 lb	478,000 lb
Takeoff ²⁵	590,000 lb	475,000 lb
Landing ²⁶	411,000 lb	400,000 lb
Zero Fuel ²⁷	368,000 lb	368,000 lb
Gear Jacking	593,000 lb	478,000 lb
Fuselage and Wing Jacking	508,000 lb	478,000 lb

Minimum Crew: For all Flights: Pilot, Copilot, and Flight Engineer.

Maximum
Passenger: (See NOTE 6).

Maximum
Baggage: (See Weight and Balance Manual).

²⁰ For takeoff weights above 555,000 pounds, 28 ply main landing gear tires and modification per Douglas Service Bulletin 57-28 or equivalents are required.

²¹ Fuel dump valves required for operation in excess of maximum landing weight. See NOTE 1(f).

²² Configuration 5B

²³ All weight in airplane above this weight must be fuel.

²⁴ When Douglas Service Bulletin 103-15 is incorporated, the zero fuel weight is 401,000 pounds.

²⁵ For takeoff weights above 555,000 pounds, 28 ply main landing gear tires and modification per Douglas Service Bulletin 57-28 or equivalents are required.

²⁶ Fuel dump valves required for operation in excess of maximum landing weight. See NOTE 1(f).

²⁷ All weight in airplane above this weight must be fuel.

Fuel Capacity:	<u>Fuel Tank Capacity (pounds)</u>	Usable	Usable ²⁸	Arm
		<u>Structural</u>	<u>(6.7 lb/gal)</u>	
	<u>Location</u>			<u>(inches)</u>
	Main No. 1.	43,202	40,203	1492.6
	Main No. 2.	69,495	64,969	1296.0
	Main No. 3.	43,202	40,203	1492.6
	Center Wing Auxiliary	104,141	97,409	1266.1
	Aft Aux. ²⁹	11,028	N/A	1819.5
	Aft Aux. ³⁰	23,052	N/A	1850.0
	Aft Aux. ³¹	24,018	N/A	
	Crossfeed Manifold & Lines		609	1420.5

NOTE: The integrity of the transfer system must be demonstrated per Maintenance Manual, Chapter 28-21-100, section titled "Manifold Integrity Check" whenever the system is disturbed for maintenance. Also, if the tank overfilled light is illuminated any time during fueling, comply with the caution note in Chapter 12-11-04, section titled "Safety and Operating Precautions", item pertaining to tank overfilled condition.

Oil Capacity: 24.3 lb/engine usable at 8.1 lb/gal with wing engines moment arm at 1125 in. and tail engine moment arm at 2200 in.

Maximum Operating
Altitude: 42,000 feet

MAC: 295.78 inches (Leading Edge of MAC Station 1311.95)

Service Life
Limits: See NOTE 3

Serial Numbers
Eligible: Maximum Takeoff Weight of 565,000 pounds
46550-46557, 46575-46582, 46640, 46685, 46686, 46711-46714, 46850-46854, 46868, 46870, 46872, 46890, 46892, 46911, 46912, 46914- 46919, 46922, 46926, 46927, 46931, 46933, 46934, 46936, 46937, 46940, 46941, 46944, 46945, 46950-46955, 46957, 46958, 46963-46965, 46968, 46969, 46971, 46972, 46981, 46982, 46997, 46998, 47834, 47837, 47846-47849, 47862-47868, 47886, 47887, 47889, 47921-47929, 47980, 47982, 48283, 48286

Maximum Takeoff Weight of 572,000 pounds
46540-46542, 46590, 46591, 46921, 46932, 46949, 46959, 46961, 46976, 46978, 46981, 46988, 46990, 46991, 46993, 46995, 46999, 47816-47818, 47831, 47838, 47840, 47888, 47956, 47957, 48266, 48277, 48317, 48318

Maximum Takeoff Weight of 580,000 pounds
46583, 46584, 46869

Maximum Takeoff Weight of 590,000 pounds
46543, 46595, 46596, 47811-47815, 47843-47845, 47850, 47851, 48252, 48265, 48267, 48282, 48285, 48288, 48290, 48292, 48293, 48296, 48315, 48316, 48319

Other
Information: See "Data Pertinent to All Models"

²⁸ When modified per Douglas Service Bulletins 28-27 and 28-32 or equivalents.

²⁹ When modified per Douglas Service Bulletins 28-67, 28-111 and 28-114 or equivalents.

³⁰ When modified per Douglas Service Bulletin 28-79 or equivalent.

³¹ When modified in accordance with Service Bulletin 28-79 and 28-137 or production equivalent.

IV - Model DC-10-30F (Transport Aircraft), Approved March 30, 1973

(KC-10A See NOTE 11 Regarding certification)

Engines: 3 General Electric CF6-50A, CF6-50C, CF6-50CA, CF6-50C1, CF6-50C2, CF6-50C2B or CF6-50C2-R Turbofan Engines. (Engines may be intermixed in accordance with Appendix XXII of applicable FAA Approved Airplane Flight Manual).

Fuel: See NOTE 4.

Oil: See NOTE 5.

Engine Limits: (See Section III)

APU Limits: AiResearch TSCP700-4
(if installed) (See Section III)

Airspeed Limits: V_{MO}/M_{MO} (Maximum Operating)
(CAS) (KC-10A with Aerial Refueling Boom and Drogue Stowed)

At Sea Level	350K
At 10,000 ft	376K
At 24,820 ft	376K (M = 0.88)
At 42,000 ft	258K (M = 0.88)

V_{MO}/M_{MO} (Maximum Operating)
(KC-10A with Aerial Refueling Boom Deployed)

At Sea Level	350K
At 10,000 ft	355K
At 25,600 ft	370K (M = 0.88)
At 37,000 ft	289K (M = 0.88)

V_{MO}/M_{MO} (Maximum Operating)
(KC-10A with Drogue Deployed)

At Sea Level	325K
At 10,000 ft	329K
At 28,930 ft	345K (M = 0.88)
At 37,000 ft	289K (M = 0.88)

V_A (Maneuvering) See FAA Approved Airplane Flight Manual

V_{FE} Flap Position Inboard

5 ⁰	270K (M = 0.55)
15 ⁰	255K (M = 0.51)
20 ⁰	240K (M = 0.51)
25 ⁰	221K (M = 0.51)
30 ⁰	206K (M = 0.51)
35 ⁰	194K (M = 0.51)
50 ⁰	178K (M = 0.51)

V_{SLAT} (Slat Operating)
Takeoff and Approach

Flap Position (Inboard)

5 ⁰	270K (M = 0.55)
15 ⁰	255K (M = 0.51)
25 ⁰	221K (M = 0.51)

Landing

Flap Position (Inboard)

25 ⁰	221K (M = 0.51)
30 ⁰	206K (M = 0.51)
35 ⁰	194K (M = 0.51)
50 ⁰	178K (M = 0.51)

Autoslat
Flaps retracted 270K (M = 0.75)

V _{LO} Landing Gear	
Retraction	230K (M = 0.70)
Extension	260K (M = 0.70)
V _{LE} (Landing Gear Extended)	300K (M = 0.70)
V (Landing light extension) - Maximum speed in extension, retraction, or extended position	V _{MO} /M _{MO}
V (Fuel Dump)	325K up to 28,000 feet M = 0.82 above 28,000 feet

NOTE - The airspeed limits for DC-10-30F with CF6-50C1 engines are the same as those for DC-10-40 airplanes with JT9D-59A engines. (See Section II).

C.G. Range: DC-10-30F: See the appropriate FAA Approved Airplane Flight Manual and Weight and Balance Manual.
KC-10A: See the appropriate FAA Approved Airplane Flight Manual and "Basic Weight Checklist and Loading Data", Report No. T.O. 1C-10(K) A-5, Chg. 1, dated 15 March 1981.

Maximum Weight:
(See Note 10)

	565,000 pound Takeoff Weight (See Serial Numbers Eligible)		572,000 pound Takeoff Weight (See Serial Numbers Eligible)	
	<u>Center Main Gear Extended</u>	<u>Center Main Gear Retracted</u>	<u>Center Main Gear Extended</u>	<u>Center Main Gear Retracted or Removed</u>
Taxi and Ramp	568,000 lb	463,000 lb	575,000	478,000
Takeoff ³²	565,000 lb	460,000 lb	572,000	475,000
Landing ³³	421,000 lb ³⁴	400,000 lb	424,000	400,000
Zero Fuel ³⁵	401,000 lb	391,000 lb	401,000	391,000
Gear Jacking Wt.	568,000 lb	463,000 lb	575,000	478,000
Fuselage & Wing Jack Weight	508,000 lb	463,000 lb	508,000	478,000
	580,000 pounds Takeoff Weight (See Serial Numbers Eligible)		590,000 pounds Takeoff Weight (See Serial Numbers Eligible)	

³² For takeoff weights above 555,000 pounds, 28 ply main landing gear tires and modification per Douglas Service Bulletin 57-28 or equivalents are required.

³³ Fuel dump valves required for operation in excess of maximum landing weight. See NOTE 1 (f).

³⁴ Landing weight 424,000 pounds for configurations 6, 7, and 9.

³⁵ All weight in airplane above this weight must be fuel.

	<u>Center Main Gear Extended</u>	<u>Center Main Gear Retracted or Removed</u>	<u>Center Main Gear Extended</u>	<u>Center Main Gear Retracted or Removed</u>
Taxi and Ramp	583,000 lb	478,000 lb	593,000 lb	478,000 lb
Takeoff ³⁶	580,000 lb	475,000 lb	590,000 lb	475,000 lb
Landing ³⁷	424,000 lb	400,000 lb	436,000 lb	400,000 lb
Zero Fuel ³⁸	401,000 lb	391,000 lb	414,000 lb	400,000 lb
Gear Jacking Wt.	583,000 lb	478,000 lb	593,000 lb	478,000 lb
Fuselage & Wing Jack Weight	508,000 lb	478,000 lb	508,000 lb	478,000 lb

Minimum Crew: For all Flights: Pilot, Copilot, and Flight Engineer.

Maximum
Passengers: (See NOTE 6).

Maximum
Baggage: (See Weight and Balance Manual).

<u>Location</u>	<u>Fuel Tank Capacity (pounds)</u>		<u>Arm (inches)</u>
	<u>Usable Structural</u>	<u>Usable ³⁹ (6.7 lb/gal)</u>	
Main No. 1	43,202	40,203	1492.6
Main No. 2	69,495	64,969	1296.0
Main No. 3	43,202	40,203	1492.6
Center Wing Auxiliary	104,141	97,409	1266.1
Aft Aux. ⁴⁰	10,884	N/A	1819.5
Aft Aux. ⁴¹	22,670	N/A	1850.0
Crossfeed Manifold & Lines		609	1420.5
Fwd. Body (KC-10A)	59,171	55,308	959
Aft. Body (KC-10A)	70,294	66,149	1641

NOTE: The integrity of the transfer system must be demonstrated per Maintenance Manual, Chapter 28-21-100, section titled "Manifold Integrity Check" whenever the system is disturbed for maintenance. Also, if the tank overfilled light is illuminated any time during fueling, comply with the caution note in Chapter 12-11-04, section titled "Safety and Operating Precautions", item pertaining to tank overfilled condition.

Oil Capacity: 24.3 lb/engine usable at 8.1 lb/gal with wing engines moment arm at 1125 in. and tail engine moment arm at 2200 in.

³⁶ For takeoff weights above 555,000 pounds, 28 ply main landing gear tires and modification per Douglas Service Bulletin 57-28 or equivalents are required.

³⁷ Fuel dump valves required for operation in excess of maximum landing weight. See NOTE 1 (f).

³⁸ All weight in airplane above this weight must be fuel.

³⁹ When modified per Douglas Service Bulletins 28-27 and 28-32 or equivalents.

⁴⁰ When modified per Douglas Service Bulletins 28-67, 28-111 and 28-114 or equivalent.

⁴¹ When modified per Douglas Service Bulletin 28-79 or equivalent.

Maximum Operating Altitude: 42,000 feet

MAC: 295.78 inches (Leading Edge of MAC St. 1311.95)

Service Life Limits: See NOTE 3.

Serial Numbers Eligible: Maximum Takeoff Weight of 565,000 pounds
46800-46802, 46871, 46891, 46924, 46956, 46985, 47835, 47836, 47906-47908
Maximum Takeoff Weight of 572,000 pounds
46835-46837, 46960, 46975, 46986, 46987, 46992, 47819, 47820

Serial Numbers Eligible: Maximum Takeoff Weight of 580,000 pounds
(Continued) 47841, 47842, 48311-48314
Maximum Takeoff Weight of 590,000 pounds
47870, 48287, 48291, 48297-48300, 48200-48251, 48303-48310

Other Information: See "Data Pertinent to All Models"

V - Model DC-10-10F (Transport Aircraft), Approved February 1, 1974

Engines: 3 General Electric CF6-6D, CF6-6D1, CF6-6D1A, CF6-6K or CF6-6K2 Turbofan Engines. (CF6-6D and CF6-6K engines may be intermixed in accordance with Appendix XXII of applicable FAA Approved Airplane Flight Manual. CF6-6D1 and CF6-6D1A may be intermixed in accordance with page 2.1 of Section IV-B of applicable FAA Approved Airplane Flight Manual.)

Fuel: See NOTE 4.

Oil: See NOTE 5.

Engine Limits: Refer to Section I

APU Limit: Refer to Section I
(if installed)

Airspeed Limits: Refer to Section I
(CAS)

C.G. Range: See the appropriate FAA Approved Airplane Flight Manual and Weight and Balance Manual.

Maximum Weight:	443,000 pound Takeoff Weight (See Serial Numbers Eligible)	446,000 pound Takeoff Weight (See Serial Numbers Eligible)	455,000 pound Takeoff Weight (See Serial Numbers Eligible)
Taxi and Ramp	443,000 lb	449,000	458,000 lb
Takeoff	440,000 lb	446,000	455,000 lb
Landing ⁴²	363,500 lb ⁴³	375,000	375,000 lb
Zero Fuel ⁴⁴	335,000 lb ⁴⁵	355,000	355,000 lb
Gear Jacking Weight	443,000 lb	449,000	449,000 lb
Fuselage and Wing Jack Weight	388,000 lb	388,000	388,000 lb

Minimum Crew: For all flights: Pilot, Copilot, and Flight Engineer.

Maximum Passengers: (See NOTE 6).

Maximum Baggage: (See Weight and Balance Manual).

Fuel Capacity: Fuel Tank Capacity (pounds)

<u>Location</u>	<u>Structural</u>	<u>Usable (6.7 lb/gal)</u>	<u>Arm (inches)</u>
Main No. 1	42,579	40,116	1488
Main No. 2	68,998	64,969	1296
Main No. 3	42,579	40,116	1488
Crossfeed Manifold & Lines		609	1429
Center Wing Auxiliary (if installed)	36,849	32,727	1279

Oil Capacity: 24.3 lb/engine usable at 8.1 lb/gal. with wing engines moment arm at 1125 in. and tail engine moment arm at 2200 in.

Maximum Operating Altitude: 42,000 feet

MAC: 300.682 inches (Leading Edge of MAC Station 1299.83)

Service Life Limits: See NOTE 3

⁴² Fuel dump valves required for operation in excess of maximum landing weight. See NOTE 1(f).

⁴³ 370,000 pound landing weight is approved, in freighter mode only, when Douglas Drawing SM10000001 and Douglas Service Bulletin 27-156 are incorporated and main landing gear Goodyear brakes 5000709-7 or later are installed, or production equivalent.

⁴⁴ All weight in airplanes above this weight must be fuel.

⁴⁵ 350,000 pound zero fuel weight is approved, in freighter mode only, when Douglas drawing SM10000001 and Douglas Service Bulletin 27-156 are incorporated and main landing gear Goodyear brakes 5000709-7 or later are installed, or production equivalent.

Serial Numbers

Eligible: Maximum Takeoff Weight of 440,000 pounds
47803-47810, 48264

Maximum Takeoff Weight of 446,000 pounds
(47803-47810)⁴⁶, (46705, 46907)⁴⁷

Maximum Takeoff Weight of 455,000 pounds
(46970 and 46973)⁴⁸

Other

Information: See "Data Pertinent to All Models"

VI - Model DC-10-40F (Transport Aircraft, Approved November 5, 1976

Engines: 3 Pratt and Whitney Turbofan JT9D-59A Engines installed per Rohr STC SA3139WE

Fuel: See Note 4

Oil: See Note 5

Engine Limits: (See Section II)

APU Limits: (See Section II)

Airspeed

Limits: (See Section II) the airspeed limits are the same for airplanes with JT9D-59A engines.

C.G. Range: See the appropriate FAA Approved Airplane Flight Manual and Weight and Balance Manual.

Maximum Weight:
(See Note 10)

	<u>Center Main Gear Extended</u>	<u>Center Main Gear Retracted</u>
Taxi and Ramp	593,000 lb	478,000 lb
Takeoff ⁴⁹	590,000 lb	475,000 lb
Landing ⁵⁰	436,000 lb	400,000 lb
Zero Fuel ⁵¹	414,000 lb	391,000 lb
Gear Jacking Weight	593,000 lb	478,000 lb
Fuselage & Wing Jacking Weight	508,000 lb	478,000 lb

⁴⁶ Applicable in freighter mode only when airplane is modified in accordance with McDonnell Douglas Drawing SM10020002, Revision New or later FAA approved revision and DC-10 Service Bulletin No. 27-156 and Goodyear brakes P/N 5000709-1 or-8 are installed. For landing weights in excess of 373,500 lbs., 50° landing flaps must be used. These weights are applicable only when three CF6-6D engines, three CF6-6D1 engines, or three CF6-6D1A engines are installed and are operated at CF6-6D engine ratings.

⁴⁷ Applicable when airplane is modified in accordance with McDonnell Douglas Drawing No. SP10000001, Revision New.

⁴⁸ Applicable when airplane is modified in accordance with McDonnell Douglas Drawing No. SP10000001, Revision "A".

⁴⁹ For takeoff weights above 555,000 pounds, 28 ply main landing gear tires and modifications per Douglas Service Bulletin 57-28 or equivalents are required.

⁵⁰ Fuel dump valves required for operation in excess of maximum landing weight. See NOTE 1(f).

⁵¹ All weight in airplane above this weight must be fuel.

Minimum Crew:	For all flights: Pilot, Copilot, and Flight Engineer.
Maximum Passenger:	(See Note 6)
Maximum Baggage:	(See Weight and Balance Manual)
Fuel Capacity:	(See Section II)
Oil Capacity:	77 lb/engine usable at 8.1 lb/gal. with wing engines moment arm at 1164.0 in. and tail engine moment arm at 2239.0 in.
Maximum Operating Altitude:	42,000 feet
MAC:	295.78 inches (Leading Edge of MAC Station 1311.95)
Service Life Limits:	(See Note 3)
Serial Numbers Eligible:	None
Other Information:	See "Data Pertinent to All Models"

VII - Model DC-10-15 (Transport Aircraft), Approved June 12, 1981

Engines: 3 General Electric CF6-50C2-F Turbofan Engines

Fuel: See NOTE 4.

Oil: See NOTE 5.

Engine Limits:	Takeoff Thrust, Sea Level, Static (5 min. flat to Std. + 28.3°C)	<u>CF6-50C2-F</u> 45,600 lb
	Maximum Continuous (flat to Std. + 15°C)	43,250 lb
	Maximum permissible engine rotor operating speeds	
	N ₁ (Low Compressor)	4,067.5 rpm (111.3%)
	N ₂ (High Compressor)	10,761 rpm (109.5%)
	Maximum permissible engine temperature	
	Turbine exhaust gas temperatures at turbine outlet Takeoff (5 min.)	1,733°F (945°C)
	Maximum Continuous	1,670°F (910°C)
	Maximum for Acceleration (2 min.)	1,760°F (960°C)
	Starting (Max. Transient for 40 sec.) (Max. no time limit)	1,652°F (900°C) 1,382°F (750°C)
	Maximum permissible oil outlet temperature	
	Continuous operation	320°F (160°C)
	Transient operation ⁵²	347°F (175°C)

⁵² Transient operation above 320°F (160°C) is limited to 15 minutes.

APU Limits: (if installed)	AiResearch TSCP700-4	
	Power Rating	
	Maximum at sea level	189 hp
	Rotor Speeds	
	Low pressure speed (N ₁)	31,570 rpm (110%)
	High pressure speed (N ₂)	38,830 rpm (110%)
	Exhaust Gas Temperature	
	Maximum during operation	1085 ⁰ F (585 ⁰ C)
	Maximum indicated temperature during each starting cycle	1085 ⁰ F (585 ⁰ C)
Airspeed Limits: (CAS)	V _{MO} /M _{MO} (Maximum Operating)	
	At Sea Level	350K
	At 28,310 ft	350K (M = 0.88)
	At 42,000 ft	258K (M = 0.88)
	V _A (Maneuvering)	See FAA Approved Airplane Flight Manual
	V _{FE} Flap Position (Inboard)	
	5 ⁰	260K (M = 0.51)
	15 ⁰	250K (M = 0.51)
	20 ⁰	233K (M = 0.51)
	25 ⁰	214K (M = 0.51)
	30 ⁰	198K (M = 0.51)
	35 ⁰	187K (M = 0.51)
	50 ⁰	171K (M = 0.51)
	V _{SLAT} (Slat Operating)	
	Takeoff and Approach	
	<u>Flap Position</u>	
	5 ⁰	260K (M = 0.51)
	15 ⁰	250K (M = 0.51)
	25 ⁰	214K (M = 0.51)
	Landing	
	<u>Flap Position</u>	
	30 ⁰	198K (M = 0.51)
	35 ⁰	187K (M = 0.51)
	50 ⁰	171K (M = 0.51)
	Autoslat	
	<u>Flap retracted</u>	260K (M = 0.51)
	V _{LO} (Landing Gear)	
	Retraction	230K (M = 0.70)
	Extension	260K (M = 0.70)
	V _{LE} (Landing Gear Extended)	300K (M = 0.70)
	(3) No fuel limitation	
	V (Landing light extension) - Maximum speed in extension, retraction, or extended position	V _{MO} /M _{MO}
	V (Fuel Dump)	325K up to 28,000 feet M = 0.82 above 28,000 feet
C.G. Range:	See the appropriate FAA Approved Airplane Flight Manual and Weight and Balance Manual.	

Maximum Weight: (See NOTE 10)	Taxi and Ramp	458,000 lb		
	Takeoff	455,000 lb		
	Landing ⁵³	363,500 lb		
	Zero Fuel ⁵⁴	335,000 lb		
	Gear Jacking Weight	443,000 lb		
	Fuselage and Wing Jack Weight	388,000 lb		
Minimum Crew:	For all flights: Pilot, Copilot, and Flight Engineer.			
Maximum Passenger:	(See NOTE 6).			
Maximum Baggage:	(See Weight and Balance Manual).			
Fuel Capacity:	Fuel Tank Capacity (pounds)		Usable (6.7 lb/gal)	Arm (inches)
	<u>Location</u>	<u>Structural</u>		
	Main No. 1	43,202	40,203	1488
	Main No. 2	69,495	64,969	1296
	Main No. 3	43,202	40,203	1488
	Center Wing Auxiliary	36,849	32,727	1279
	Crossfeed Manifold & Lines		609	1429
Oil Capacity:	24.3 lb/engine usable at 8.1 lb/gal. with wing engines moment arm at 1125 in. and tail engine moment arm at 2200 in.			
Maximum Operating Altitude:	42,000 feet			
MAC:	300.682 inches (Leading Edge of MAC Station 1299.83)			
Service Life Limits:	See NOTE 3.			
Serial Numbers Eligible:	48258, 48259, 48275, 48276, 48289, 48294, 48295			
Other Information:	See "Data Pertinent to All Models"			

VIII - Model MD-11 (Transport Aircraft), Approved November 8, 1990

Engines: 3 General Electric CF6-80C2D1F high-bypass turbofan engines.
or
3 Pratt & Whitney PW4460 high-bypass turbofan engines.
or
3 Pratt & Whitney PW4462 high-bypass turbofan engines.

⁵³ Fuel dump valves required for operation in excess of maximum landing weight. See NOTE 1(f).

⁵⁴ All weight in airplane above this weight must be fuel.

Fuel: See NOTE 4.

Oil: See NOTE 5.

Engine Limits,
General Electric
CF6-80C2D1F:

Takeoff thrust, sea level, static (5 min), lb	60,690
Maximum continuous thrust, sea level, static thrust, lb	56,210
Flat rating ambient temperature:	
Takeoff	86 ⁰ F (30 ⁰ C)
Maximum continuous	77 ⁰ F (25 ⁰ C)
Maximum permissible engine rotor speeds:	
Low pressure rotor (N ₁)	3,854 rpm (117.5%)
High pressure rotor (N ₂)	11,055 rpm (112.5%)
Maximum permissible exhaust gas temperatures:	
Takeoff (5 min)	1760 ⁰ F (960 ⁰ C)
Maximum continuous	1697 ⁰ F (925 ⁰ C)
Starting (Max. transient for 40 sec)	1598 ⁰ F (870 ⁰ C)
Starting (Max. with no time limit)	1382 ⁰ F (750 ⁰ C)

Engine Limits,
General Electric
CF6-80C2D1F:
(cont'd)

Maximum permissible oil outlet temperatures:	
Continuous operation	320 ⁰ F (160 ⁰ C)
Transient operation	347 ⁰ F (175 ⁰ C)
(Transient operation is limited to 15 minutes.)	

Fuel and Oil Pressure Limits:

Fuel pressure limits apply at the engine fuel pump inlet.

Ground Starting Air Starting and Operation.

This limit is from a minimum fuel pressure of not less than 5.0 psid (34.46 kPa, absolute) above the true fuel vapor pressure to a maximum of 70 psid (482.6 kPa gage) (relative to atmosphere) with vapor/liquid ratio of zero at all conditions.

Oil: Pressure Limit at Idle.

The pressure limit at idle is 9.5 psid (65.5 kPa diff) minimum; varying from 26 to 120 psid (179.4 to 827.6 kPa diff) in the normal operating range.

Engine Limits,
Pratt & Whitney
PW4460:

Takeoff thrust, sea level, static (5 min), lb.	60,000
Maximum continuous thrust, sea level, static thrust, lb.	51,050
Flat rating ambient temperature takeoff	86 ⁰ F (30 ⁰ C)
Maximum continuous	86 ⁰ F (30 ⁰ C)
Maximum permissible engine rotor speeds:	
Low pressure rotor (N ₁)	4,012 rpm (111.4%)
High pressure rotor (N ₂)	10,450 rpm (100.0%)

Maximum permissible exhaust temperatures:	
Takeoff (5 min)	1202 ⁰ F (650 ⁰ C)
Maximum continuous	1157 ⁰ F (625 ⁰ C)
Starting on ground	995 ⁰ F (535 ⁰ C)
Starting in flight	1202 ⁰ F (650 ⁰ C)

Maximum permissible oil outlet temperatures:	
Continuous operation	325 ⁰ F (163 ⁰ C)
Transient operation	350 ⁰ F (177 ⁰ C)
(Transient operation is limited to 20 minutes)	

Fuel and Oil Pressure Limits:

Fuel pressure limits apply at the engine fuel pump inlet:

Minimum fuel pressure must be not less than 5 psig (34.46 kPa, gage) above the true vapor pressure of the fuel.

Maximum fuel pressure must be not greater than 70 psig with a vapor-to-liquid ratio of zero.

Oil pressure, minimum 70 psid

(However, temporary interruption of oil pressure associated with negative "g" operation is limited to 30 seconds maximum. Normal oil pressure will be restored rapidly once the negative "g" effect has been eliminated.)

Engine Limits, Pratt & Whitney PW4462:

Takeoff thrust, sea level, static (5 min), lb.	62,000
Maximum continuous thrust, sea level, static thrust, lb.	51,050
Flat rating ambient temperature takeoff	86 ⁰ F (30 ⁰ C)
Maximum continuous	86 ⁰ F (30 ⁰ C)
Maximum permissible engine rotor speeds:	
Low pressure rotor (N ₁)	4,012 rpm (111.4%)
High pressure rotor (N ₂)	10,450 rpm (100.0%)

Maximum permissible exhaust temperatures:	
Takeoff (5 min)	1202 ⁰ F (650 ⁰ C)
Maximum continuous	1157 ⁰ F (625 ⁰ C)
Starting on ground	995 ⁰ F (535 ⁰ C)
Starting in flight	1202 ⁰ F (650 ⁰ C)

Maximum permissible oil outlet temperatures:	
Continuous operation	325 ⁰ F (163 ⁰ C)
Transient operation	350 ⁰ F (177 ⁰ C)
(Transient operation is limited to 20 minutes)	

Fuel and Oil Pressure Limits:

Fuel pressure limits apply at the engine fuel pump inlet:

Minimum fuel pressure must be not less than 5 psig (34.46 kPa, gage) above the true vapor pressure of the fuel.

Maximum fuel pressure must be not greater than 70 psig with a vapor-to-liquid ratio of zero.

Oil pressure, minimum 70 psid

(However, temporary interruption of oil pressure associated with negative "g" operation is limited to 30 seconds maximum. Normal oil pressure will be restored rapidly once the negative "g" effect has been eliminated.)

APU Limits: AIRResearch TSCP700-4E
(if installed)

Power Rating Maximum at sea level	189 hp
Rotor Speeds	
Low pressure speed (N ₁)	31,570 rpm (110%)
High pressure speed (N ₂)	38,830 rpm (110%)
Exhaust Gas Temperature -	
Starting	1602 ^o F (872 ^o C)
Continuous	1085 ^o F (585 ^o C)

Airspeed Limits:

V_{mo}/M_{mo} (MAXIMUM OPERATING)

<u>ALTITUDE (feet)</u>	<u>KEAS</u>	<u>KCAS</u>
At sea level	350	350
10,000	359.6	365
25,670	345.54	365
above 25,670	.87 Mach	.87 Mach

For additional airspeed limits below 90% wing tip fuel, see FAA Approved Airplane Flight Manual.

V_a (maneuvering). See FAA Approved Airplane Flight Manual.

FLAP AND SLAT SPEEDS:

FLAP	SLAT	SPEED	MACH	GROSS WEIGHT
0	ext	280	.55	MTOGW
15	ext	255	.51	MTOGW
22	ext	240	.51	MTOGW
25	ext	229	.51	MTOGW
28	ext	219	.51	MLW+3000 lb
35	ext	198	.51	MLW+3000 lb
50	ext	178	.51	MLW+3000 lb

V_{lo} (LANDING GEAR SPEEDS:)

Gear Extension = 260 KCAS
Gear Retraction = 230 KCAS to .7 MACH
V_{le} Landing Gear Extended = 300 KCAS

V (Landing Light Extension)

Maximum Speed in Extension, Retraction, or Extended Position: V_{mo}/M_{mo}

V (FUEL DUMP SPEED) No speed restriction is imposed upon the airplane during the time period in which fuel is being dumped.

C.G. Range: See MD-11 Weight and Balance Manual Report No. MDC-K0032.

Maximum Weight:
(see Note 10)

	<u>See Serial Numbers Eligible</u>			<u>Center Main</u>
				<u>Gear Retracted</u>
Taxi and Ramp	613,000 lb	621,000 lb	628,000 lb	448,000 lb
Takeoff ⁵⁵	610,000 lb	618,000 lb	625,000 lb	445,000 lb
Landing ⁵⁶	458,000 lb	458,000 lb	458,000 lb	400,000 lb
Zero Fuel ⁵⁷	430,000 lb	430,000 lb	430,000 lb	370,000 lb
Gear Jacking Weight	613,000 lb	621,000 lb	628,000 lb	
Fuselage and Wing				
Jack Weight	508,000 lb	508,000 lb	508,000 lb	

Minimum Crew: For all flights: pilot, copilot.

Maximum
Passengers: (See NOTE 6)

Maximum
Baggage: (See Weight and Balance Manual)

Fuel Capacity:

FUEL TANK CAPACITY (lb)					
CAPACITY	1 MAIN	2 MAIN	3 MAIN	AUX	TAIL
MAX 7.1 lb/gal	42,908	67,863	42,908	103,968	13,908
USABLE 6.7 lb/gal	40,491	64,040	40,491	98,111	13,124
UNDUMPABLE 6.7 lb/gal	12,973	13,917	12,973	0	0
Note:	---an additional 436 lb (6.7 lb/gal) of useable fuel is available from manifold piping upon the completion of crossfeeding.				
Note:	This fuel is made available when the MANF DRAIN alert is displayed.				
Note:	An additional 173 lb (6.7 lb/gal) usable fuel in the engine and lines is available to the engine on the fuel runout. No action is required to make this fuel available.				

Oil Capacity: 22 to 23 quarts Indicated 26 to 27 quarts (tank)

Maximum
Operating
Altitude: 43,200 feet

MAC: 295.8 inches (Leading Edge of MAC Station 1312)

Service Life
Limits: See NOTE 3.

⁵⁵ All MD-11 passenger aircraft are eligible for 618,000 pounds maximum takeoff weight when modified per Douglas Service Bulletin 103-1 or production equivalent.

⁵⁶ Fuel dump valves required for operation in excess of maximum landing weight (See NOTE 1 (f)).

⁵⁷ All weight in the airplane above this weight must be fuel.

Serial Numbers

Eligible: Maximum Takeoff Weight of 610,000 lbs^{58 59}

GE Powered: 48411, 48412, 48416, 48417, 48419, 48420, 48421, 48426, 48427, 48428, 48431, 48449, 48450, 48459, 48461, 48487, 48505, 48512, 48513

P&W Powered: 48407, 48408, 48484, 48485, 48486, 48538

Maximum Takeoff Weight of 618,000 lbs

GE Powered: 48404, 48405, 48406, 48413, 48414, 48418, 48426, 48427, 48428, 48429, 48430, 48431, 48434, 48435, 48436, 48439, 48451, 48481, 48489, 48490, 48491, 48499, 48500, 48501, 48502, 48503, 48504, 48527, 48550, 48551, 48552, 48553, 48554, 48555, 48596, 48597, 48598

P&W Powered: 48409, 48410, 48437, 48443, 48444, 48445, 48446, 48447, 48448, 48452, 45453, 48454, 48455, 48456, 48457, 48458, 48468, 48469, 48470, 48471, 48472, 48473, 48475, 48476, 48477, 48478, 48479, 48480, 48488, 48489, 48495, 48496, 48497, 48498, 48518, 48519, 48520, 48521, 48523, 48532, 48533, 48565, 48566, 48571, 48572, 48573, 48600, 48601, 48623

Maximum Takeoff Weight of 625,500 lbs

GE Powered: 48415, 48542, 48543, 48556, 48557, 48558, 48559, 48560, 48561, 48562, 48563, 48581, 48630

P&W Powered: 48539, 48574, 48575, 48576, 48577, 48578, 48579, 48743, 48744, 48745, 48753

Other

Information: See "Data Pertinent to All Models"

IX - Model MD-11F (Transport Aircraft), Approved November 8, 1990

Engines: See Section VIII (MD-11)

Fuel: See NOTE 4.

Oil: See NOTE 5.

Engine Limits: See Section VIII (MD-11)

APU Limits:
(if installed) See Section VIII (MD-11)

Airspeed Limits: See Section VIII (MD-11)

C.G. Range: See MD-11 Weight and Balance Manual Report No. MDC-K5542.

⁵⁸ All MD-11 passenger airplanes are eligible for 618,000 pound maximum takeoff weight when modified in accordance with Douglas Service Bulletin 103-1 or production equivalent.

⁵⁹ All MD-11 passenger airplanes are eligible for 625,000 pound maximum takeoff weight when modified in accordance with Douglas Service Bulletin 57-20 or production equivalent.

Maximum Weight: (See NOTE 10)	<u>See Serial Numbers Eligible</u>			<u>Center Main Gear Retracted</u>
	Taxi and Ramp	613,000 lb	621,000 lb	628,000 lb
Takeoff	610,000 lb	618,000 lb	625,000 lb	445,000 lb
Landing ⁶⁰	471,500 lb	471,500 lb	481,500 lb	400,000 lb
Zero Fuel ⁶¹	451,300 lb	451,300 lb	451,300 lb	370,000 lb
Gear Jacking Weight	613,000 lb	621,000 lb	628,000 lb	
Fuselage and Wing Jack Weight	508,000 lb	508,000 lb	508,000 lb	

Minimum Crew: For all flights: Pilot, Copilot.

Maximum
Passengers: (See NOTE 6).

Maximum
Baggage: (See Weight and Balance Manual)

Fuel Capacity: See Section VIII MD-11

Oil Capacity: See Section VIII MD-11

Maximum
Operating
Altitude: 43,200 feet

MAC: 295.8 inches (Leading Edge of MAC Station 1312)

Service Life
Limits: See NOTE 3

Serial Numbers
Eligible: Maximum Takeoff Weight of 610,000 lbs^{62 63}

GE Powered: 48401, 48402, 48426, 48427, 48428, 48429, 48430, 48459, 48460, 48461, 48514,
48528, 48547, 48548, 48549, 48602, 48603, 48604, 48605

Maximum Takeoff Weight of 625,500 lbs

GE Powered: 48544, 48545, 48546, 48747, 48748

P&W Powered: 48616, 48617, 48618, 48629, 48631, 48632, 48633, 48749, 48767

Other
Information: See "Data Pertinent to All Models"

⁶⁰ Fuel dump valves required for operation in excess of maximum landing weight. (See NOTE 1(f)).

⁶¹ All weight in the airplane above this weight must be fuel.

⁶² All MD-11F freighter airplanes are eligible for 618,000 pound maximum takeoff weight when modified in accordance with Douglas Service Bulletin 103-1 or production equivalent.

⁶³ All MD-11F freighter airplanes are eligible for 625,000 pound maximum takeoff weight when modified in accordance with Douglas Service Bulletin 57-20 or production equivalent.

DATA PERTINENT TO ALL MODELS

Datum: For DC-10: 239 inches forward of fuselage nose (Station 0)
For MD-11: 139 inches forward of fuselage nose (Station 0)

Leveling Means: One of the following three systems in each airplane:

- (a) Two sets of lugs in nose wheel well
 - (1) DC-10: Lateral at station 595
MD-11: Lateral on centerline 2 inches forward of station 495.
 - (2) DC-10: Longitudinal 24 inches left of centerline, 20 inches and 40 inches forward of station 595.
MD-11: Longitudinal 24 inches left of centerline, 20 inches and 40 inches forward of station 495.
- (b) Plumb bob and grid plate at station 1516 aft bulkhead, right hand main gear wheel well, if installed per Service Bulletin 53-52.
- (c) Set of lugs at station 1521 in right hand main gear wheel well. Lay flat plate on which to put level for either lateral or longitudinal.

Control Surface: To insure proper operation of the airplane, the movement of the various control surfaces must be carefully controlled by proper rigging of the Flight Control Systems. The airplane must therefore be rigged in accordance with the following:

For DC-10: Douglas Drawing NXH 6004, "Rigging Procedures," and NXH-6005, "Throws - Flight Controls."

For MD-11: Douglas Drawing NXH 7604, "Rigging Procedures," and NXH-6705, "Throws - Flight Controls."

Certification

Basis: For all Model DC-10 airplanes issuance of a Type Certificate is based upon compliance with the following:

- (1) FAR 25, dated February 1, 1965, with Amendments 1 through 22 "Airworthiness Standards: Transport Category Airplanes," and FAR 25.471 of Amendment 25-23.
- (2) FAR Part 36 "Noise Standards: Aircraft Type Certification."
- (3) Special Conditions No. 25-18-WE-7 dated January 7, 1970 and Special Conditions No. 25-18-WE-7, Amendment No. 1 dated July 9, 1971. ⁶⁴
- (4) Special Condition No. 25-46-WE-14 dated October 26, 1972. (Models DC-10-30, DC-10-30F, DC-10-40, and DC-10-40F)

Compliance with the following optional requirements has been established:

Ditching Provisions 25.801
(Overwater operation can be approved when the aircraft has been equipped and installation has been approved according to FAR 25.801)

Ice Protection Provisions 25.1419

⁶⁴ See NOTE 7

For all Model MD-11 airplanes issuance of a Type Certificate is based upon compliance with the following:

- (1) Part 25 of the Federal Aviation Regulations, as amended by Amendments 25-1 through 25-61, except for §§ 25.607, 25.631 ⁶⁵, and 25.1309 ⁶⁶ as amended by Amendment 25-22; §25.109 as amended by Amendment 25-41; and §25.832 ⁶⁷ and §25.858.
- (2) Part 36 of the Federal Aviation Regulations, as amended by Amendments 36-1 through 36-16, and any later amendments in existence at the time of certification. McDonnell Douglas has elected to comply with the Stage 3 noise level requirements.
- (3) Special Condition No. 25-ANM-35 dated October 12, 1990. "Lightning and External High Energy Radio Frequency (RF) Protection and Automatic Longitudinal and Lateral Stability Augmentation System" (All MD-11 Models).

Compliance with the following optional requirements has been established:

Ditching Provisions 25.801

(Overwater operation can be approved when the aircraft has been equipped and installation has been approved according to FAR 25.801)

Ice Protection Provisions 25.1419

The following exemptions are part of the DC-10 certification basis and are also a part of the MD-11 certification basis:

- (1) Number 1573 issued April 28, 1972 - exemption from §25.807(c)(5) to permit evacuation with a passenger seating capacity of 80 for a pair of oversize Type I exits.
- (2) Number 2453 issued September 26, 1977 - exemption from §25.807(c)(1) to permit evacuation of passengers with either of the following exit-seat configurations:
 - (a) one oversize Type I emergency exit meeting the conditions specified in Exemption No. 1573 on each side of the fuselage with a passenger seating capacity of 50; or
 - (b) one Type A emergency exit on each side of the fuselage with a passenger seating capacity of 70.

The following exemption is part of the MD-11 certification basis:

Number 5405 issued February 11, 1992, - exemption from §25.813(e) to permit installation of a door between passenger compartments.

Certification
Maintenance
Requirements:

MD-11 Certification Maintenance Requirements (CMR's) are listed in FAA approved MDC Report No. MDC-K4174, Revision H or later FAA approved revision and the engine Type Certificate Data Sheet. The more restrictive requirement from these two documents shall be in force.

Production
Basis:

Production Certificate No. 27.

⁶⁵ New structure will comply with Amendment 25-61.

⁶⁶ New systems and systems with major changes will comply with Amendment 25-61.

⁶⁷ The ozone converters are not required for MD-11F airplanes operated in all cargo configurations.

Required Equipment:	<p>The basic required equipment as prescribed in the applicable airworthiness regulations (See Certification Basis) must be installed in the aircraft for certification. All of the required equipment that must be installed as well as optional equipment installations approved by the FAA are contained in the following:</p> <p style="padding-left: 40px;">DC-10-10 Report No. MDC-J0994, Chapter 2, "Weight and Balance Manual." DC-10-10F Report No. MDC-J0997, Chapter 2, "Weight and Balance Manual." DC-10-15 Report No. MDC-J0995, Chapter 2, "Weight and Balance Manual." DC-10-40 Report No. MDC-J0998, Chapter 2, "Weight and Balance Manual." DC-10-30 Report No. MDC-J1001, Chapter 2, "Weight and Balance Manual." DC-10-30F Report No. MDC-J1002, Chapter 2, "Weight and Balance Manual." DC-10-30F (KC-10A) T.O. 1C-10(K) A-5, Chg. 1 dated March 18, 1981, Section II. DC-10-40F Report No. MDC-J0999, Chapter 2, "Weight and Balance Manual." MD-11 Report No. MDC-K0032, Chapter 2, "Weight and Balance Manual." Model MD-11. MD-11 Report No. MDC-K5542, Chapter 2, "Weight and Balance Manual." Model MD-11F.</p>
Service Information:	<p>McDonnell Douglas Model DC-10 and MD-11 Structural Repair Manual, Volume I and Volume IV is FAA approved.</p> <p>All McDonnell Douglas Service Bulletins and other service information, when FAA approved, will carry a statement to that effect.</p>
Automatic Landing System Limitations:	<p>See NOTE 8.</p>

NOTES

NOTE 1:	<p>(a) Current weight and balance report including list of equipment included in certificated empty weight, and loading instructions must be in each aircraft at the time of original certification and at all times thereafter except in the case of operators having an approved weight control system. The following Douglas Aircraft Company Report or Military Tech. order contains loading information for each airplane and interior arrangement configuration as delivered. This report contains, or refers to, information relative to location of all passenger and crew member seats, location and capacity of all cargo and baggage compartments, buffets, storage spaces and coat rooms, location and capacity of lounges and lavatories, and the required placards in the passenger compartment.</p> <p style="padding-left: 40px;">Report No. MDC-J0994, "Weight & Balance Manual", Model DC-10-10. Report No. MDC-J0997, "Weight & Balance Manual", Model DC-10-10F. Report No. MDC-J0998, "Weight & Balance Manual", Model DC-10-40. Report No. MDC-J1001, "Weight & Balance Manual", Model DC-10-30. Report No. MDC-J1002, "Weight & Balance Manual", Model DC-10-30F.</p> <p style="padding-left: 40px;">T.O. 1C-10(K) A-5, Chg. 1 dated 15 March 1981, "Basic Weight Checklist and Loading Data," KC-10A.</p> <p style="padding-left: 40px;">Report No. MDC-J0999, "Weight & Balance Manual", Model DC-10-40F. Report No. MDC-J0995, "Weight & Balance Manual", Model DC-10-15. Report No. MDC-K0032, "Weight & Balance Manual", Model MD-11. Report No. MDC-K5542, "Weight & Balance Manual", Model MD-11F. Report No. MDC-K5543, "Weight & Balance Manual", Model MD-11F (Combi) Report No. MDC-93K1163, Chapter 2, "Weight & Balance Manual", Model MD-11F(CF)</p>
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- (b) The airplane must be loaded so that the C.G. is within specified limits at all times, considering fuel loading and usage, gear retraction, and movement of crew and passengers from their assigned positions. The lateral loading limits contained in the weight and balance document listed above should not be exceeded.
- (c) The weight of system fuel and oil, as defined below, and hydraulic fluid, all of which must be included in the airplane empty weight, is listed in Douglas Master Weight and Balance Manual or Military Tech. Order specified in paragraph (a) above, for each airplane.

System Fuel:

The weight of all fuel required to fill all lines and tanks up to the zero fuel point on the fuel gages in the most critical flight attitude. This includes the unusable tank fuel as defined by FAR Part 25.959. The DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F, MD-11 and MD-11F have 609 pounds and the DC-10-40 and DC-10-40F have 622 pounds (based on 6.7 lb/gal fuel) of usable fuel in the cross feed manifold lines, manifolds, and engine that is not part of the system fuel and must be included in the total usable fuel to obtain correct weight and C.G. for takeoff. (See FAA Approved AFM for approved procedures.)

System Oil:

The weight of oil remaining in the engine, constant speed drive, lines and tanks after subtracting the oil in the tanks which is above the standpipe (zero gage) levels. The engine oil tank capacities shown elsewhere in this data sheet include only the usable oil for which the tanks must be placarded.

- (d) The "Unusable" fuel is that amount of fuel in the tanks which is unavailable to the engines under critical flight conditions as defined in FAR Part 25.959. See Weight and Balance Manual for "Unusable" fuel. This "Unusable" fuel is included in System Fuel as indicated in 1(c) above and need not be accounted for separately.
- (e) Fuel capacities shown in Sections I and II as well as fuel loading and usage procedures are dictated by structural design and to maintain airplane C.G. within approved limits. Fuel must be loaded symmetrically about the airplane centerline and in accordance with the following procedures and used as described below unless alternate procedures are approved and incorporated in the FAA Approved Airplane Flight Manual. The fuel system contains automatic transfer and quantity control features which will permit main tank-to-engine utilization of all fuel without manual control. During engine-out conditions, symmetrical fuel distribution must be maintained by cross feed or transfer of fuel to the tanks being used.

Fuel Loading - All Model MD-11 and all Model DC-10 airplanes except DC-10-30F (KC-10A)

Fill all main tanks equally until No. 1 and No. 3 tanks are full. Add additional fuel to No. 2 tank until full. Load remainder into center wing auxiliary fuel tank, if installed on DC-10.

MD-11 only: After filling of center wing aux tank, load remainder of fuel into the horizontal tail fuel tank.

Fuel Loading - (DC-10-30F (KC-10A))

Load fuel per T.O. 1C-10 (K) A-5, Chg. 1, dated 15 March 1981.

Fuel Usage - All Model MD-11 and all Model DC-10 airplanes, except KC-10A:

Each main tank feeds its respective engine. Additional fuel added to the lower center wing auxiliary fuel tank, if installed, and the upper center wing auxiliary fuel tank, if installed, is transferred to the three main tanks numbers 1, 2, and 3. Simultaneously as the upper auxiliary tank fuel is used, fuel is transferred to it from the lower auxiliary tank until the lower auxiliary is depleted and the transfer of the fuel from the upper auxiliary tank is continued until it is empty. Fuel transfer is then initiated from No. 2 main tank to main tanks No. 1 and 3 until fuel in all main tanks is equal. Then use fuel equally from each fuel tank.

Fuel Usage - KC-10A Only:

Fuel offloading is accomplished using fuel from the forward and aft fuselage fuel tanks, the center wing tanks and the main tanks as required. When off loading is complete, if the C.G. of the airplane, less usable fuel, is aft of 23.8 percent MAC, 15,000 pounds of fuel must remain in the forward fuel tank until the main fuel tanks are depleted to 5,000 pounds each. The 15,000 pounds in the forward fuselage fuel tanks may then be transferred equally to the main fuel tanks or off loaded.

(f) Fuel Dump

Refer to FAA Approved Airplane Flight Manual for limitations to be observed during fuel dumping. The total undumpable fuel remaining in the fuel tanks after dumping is as follows for fuel weight based on 6.7 lb/gal. fuel:

	<u>All DC-10 Models</u>	<u>All MD-11 Models</u>
No.1 Main Tank	12,973 lb	12,973 lb
No.2 Main Tank	13,917 lb	13,917 lb
No.3 Main Tank	12,973 lb	12,973 lb
Center Wing Auxiliary Tank (if installed)	0 lb	0 lb
AFT Auxiliary Tank (if installed)		0 lb
Manifold Piping	436 lb	436 lb

Undumpable fuel not applicable to MD-11 tail tank.

NOTE 2: Reserved.

NOTE 3: Life Limited Parts and Airworthiness Limitations:

- (a) DC-10 life limited components are listed in FAA approved Report MDC-J5752.
- (b) MD-11 life limited components and required structural inspections for damage tolerant structure, are listed in FAA approved Report MDC-K5225.
- (c) The DC-10/MD-11 FAA mandatory brake wear limits are contained in FAA Airworthiness Directives or McDonnell Douglas Report MDC-94K1158.

The life limited components must be replaced as indicated in the appropriate life limit report and revisions thereto. The MD-11 damage tolerance inspections must be conducted in accordance Report MDC-K5225. Copies of the reports may be obtained from the manufacturer:

McDonnell Douglas Corporation
Douglas Aircraft Company
Contract Data Management (C1-255)
Mail Code 35-22
3855 Lakewood Blvd.
Long Beach, CA 90846

NOTE 4: (a) The following fuels are eligible:

MD-11: Kerosene type fuels MIL-T-5624H (JP-5), MIL-T-83133 (JP-8) and ASTM D 1655-657 (Jet A and A1), as specified in engine Type Certification Data Sheet E13NE as revised and E24NE.

To Use MIL-T-5624 (JP-5) or Jet B fuels in MD-11 and MD-11F airplanes, McDonnell Douglas Drawing PZV0007 or Production Equivalent must be installed.

DC-10: Kerosene type fuels MIL-T-5624G (JP-4 and JP-5), ASTM D 1655-65T (Jet A, A1 and B), MIL-T-83133 (JP-8).

To use MIL-T-5624 (JP-4) or Jet B fuels in DC-10-10 and DC-10-10F airplanes that have not incorporated Service Bulletin No. 28-13, the following limitations must be applied.

1. A maximum altitude of 10,000 feet with a tank fuel temperature above 80° F.
 2. A maximum altitude of 25,000 feet with a tank fuel temperature at 80° F or below.
 3. A minimum of two aft tank pumps must be on for engine number 2 operation.
 4. A minimum of one aft tank pump must be on for each wing engine.
- (b) Additives that may be used (in addition to those authorized by GE specification D50TF2 or by P&WA Specification 522, for the respective engines) in the approved fuel are listed below. These additives may be used in combination.
1. Philips PFA-55MB or anti-icing additive to Specifications MIL-I-27686E at a concentration not in excess of 0.15 percent by volume.
 2. Sohio Biobor JF biocide additive at a concentration not in excess of 20 ppm elemental boron (270 ppm total additive).
 3. Shell ASA-3 anti-static additive at a concentration that will provide not in excess of 3000 conductivity units, which is approximately equivalent to one ppm.
- (c) NALCO 5403 or DU PONT DCI-4A corrosion inhibitor fuel additive may be used if concentration delivered to airplane does not exceed 8 lb/1000bbl (23mg/l) of turbine fuel.

NOTE 5: The following oils are eligible for all CF6 engines:

Synthetic type conforming to GE Specification D501F1, classes A or B. GE Service Bulletin No.79-1 lists approved brand oils.

The following oils are eligible for all JT9D engines:

Oil specified in P&WA Specification 521 (P&WA Service Bulletin 238)

- NOTE 6:
- (a) All replacement seats (crew, passenger and lounge), although they may comply with TSO-C39 (for MD-11, TSO-C39b), must also be demonstrated to comply with FAR Part 25.785. Other installations, such as berths, compartments, or items as mass which could create a hazard to the safety of passengers and crew must also be demonstrated to meet the same requirements.
 - (b) For DC-10 model airplanes the maximum number of passengers demonstrated for emergency evacuation is 380. See FAA approved interior schematic drawing for maximum passenger capacities approved for each aircraft when delivered.
 - (c) For MD-11 model airplanes the maximum number of passengers approved for emergency evacuation is 410. Airplanes with a passenger configuration between 400 and 410 passengers require incorporation of MCDonnell Douglas Service Bulletin 25-145 or production equivalent. See FAA approved interior schematic drawing for the maximum passenger capacities approved for each aircraft when delivered.

NOTE 7: For purposes of administration, Special Airframe Conditions Numbers 5-17 contained in Special Conditions No. 25-18-WE-7, Amendment No. 1 dated 9 July 1971 (Docket No. 10058; Amendment No. 1) have been retitled and renumbered. Special Systems Condition No. 3 contained in the aforementioned Special Conditions has also been renumbered. These conditions are contained in the document entitled "SPECIAL CONDITIONS RETITLED AND RENUMBERED BY THE WESTERN REGION" dated 9 July 1971. Flammability requirements for compartment interior materials and electric wiring and cable insulation are also contained in FAR 25.853 and 25.1359(d) as revised by Amendment 25-32.

- NOTE 8: Only those DC-10 model airplanes which meet, in addition to normal maintenance requirements, criteria of McDonnell Douglas Report No. MDC-J1221 dated October 21, 1975, are eligible for Category IIIa auto-landings.
- Only those MD-11 model airplanes which meet, in addition to normal maintenance requirements, the MD-11 Certification Maintenance Requirements (CMR) listed in FAA approved report MDC-K4174, revision I or later FAA approved revision and have incorporated MD-11 Service Bulletin 22-4 or production equivalent, are eligible for Category IIIb auto-landings.
- NOTE 9: Adding (CF) to the DC-10-10F, DC-10-30F or MD-11F model designation does not alter the aircraft. For example, a DC-10-10F airplane and DC-10-10F (CF) airplane are the same. The convertible freighter "CF" designator signifies that there is a FAA Approved passenger and freighter configuration, delivered by the manufacturer, for the aircraft. The "CF" designator may be used in parentheses, but must be accompanied by the official designator (i.e., DC-10-10F (CF)).
- NOTE 10: The maximum weights specified do not apply to all aircraft listed on this Type Certification Data Sheet. Maximum weights and associated required items for an individual aircraft must be determined by reference to the FAA approved Airplane Flight Manual applicable to that aircraft.
- NOTE 11: KC-10A airplanes are tanker/cargo versions of the Model DC-10-30F. Prior to operation as a commercial aircraft, the following must be accomplished:
- (a) The maintenance, overhaul and modifications records of each aircraft must be reviewed for changes made by the military services that may affect the airworthiness of the aircraft. Modifications, changes of equipment and repairs, which affect the safety or performance of the aircraft, must be approved by the FAA.
 - (b) All aircraft returned to civil operations must comply with all applicable Airworthiness Directives.
 - (c) All items that are not FAA approved must be removed from the aircraft if they affect the safety or performance of the aircraft.
 - (d) Each deviation from the FAA approved type design as listed on FAA Form 8130-2, "Conformity Certificate - Military Aircraft" that is required for civil certification must be corrected per FAA approved data.
- NOTE 12: The MD-11 incorporates a number of computer systems which feature "option pins" allowing easy selection of variable features (i.e., "split" flight director command bars versus "single cue" flight director command bars - selection of one or the other made by grounding the appropriate connector pin on the Flight Control Computer) Some features are required and are identified as follows:
- a. On the Ground Proximity Warning System (GPWS) computer, "Envelope Modulation" must be disabled.
After incorporation of Service Bulletin 34-16 and Service Bulletin 34-17, or production equivalent, "Envelope Modulation" may be enabled.
 - b. On the Automatic Flight System (AFS) computer, "A/P Disconnect Aural warning" must be enabled. "G/S - LOC Capture No Priority" must be disabled.
After incorporation of Service Bulletin 22-05 or production equivalent, "A/P Disconnect Aural Warning" may be disabled.
After incorporation of Service Bulletin 22-10 and Service Bulletin 31-42, or production equivalent, "G/S - LOC Capture No Priority" may be enabled.
 - c. On the Electronic Display System (EIS) DEU, "Tape Engine Instrument" must be disabled. "Deletes Digital Altitude" must be disabled.
After incorporation of Service Bulletin 31-09, or production equivalent, "Tape Engine Instrument" may be enabled.

- d. On the Flight Management System (FMS) computer,
"V Speed Inhibit" must be enabled.
"Alternate T/O Thrust #1" must be disabled.
"Install Fuel Dipstick 2" must be disabled.
"Install BFE ACARS System" must be disabled.
"Install Single Weight & Balance System" must be disabled.

After incorporation of Service Bulletin 34-16 or production equivalent, "V Speed Inhibit" may be disabled.

After incorporation of Service Bulletin 34-16 or production equivalent and Collins ACARS P/N 622-9967-001, "Install BFE ACARS System" may be enabled. Also, this option pin may be enabled when Teledyne Controls ACARS P/N 2231500-2 or 2231500-6A is installed.

After installation of Service Bulletin 34-16 and Service Bulletin 31-30, or production equivalent "Install Single Weight & Balance System" may be enabled.

After incorporation of Service Bulletin 34-33 or production equivalent, "Alternate T/O Thrust #1" may be enabled.

After incorporation of Service Bulletin 34-33 or production equivalent, "Install Fuel Dipstick 2" may be enabled.

- NOTE 13: McDonnell Douglas DC-10 and MD-11 FAA Approved Maintenance Review Board Reports contain the initial minimum requirements used for development of a maintenance program that meets the requirements for continued airworthiness.
- NOTE 14: Engine and APU life limited components are listed in the respective manufacturers overhaul manuals and engine and APU Type Certificate Data Sheets.
- NOTE 15: Reserved.
- NOTE 16: MD-11F Combi Configuration:
- (a) Factory Serial Numbers (FSN's) 48426, 48427, 48428, 48429 and 48430 are eligible to operate in the all-passenger configuration when the 160 inch main deck cargo door deactivated in accordance with Douglas Report No. MDC-91K0528.
 - (b) Factory Serial Numbers (FSN's) 48426, 48427, 48428, 48429 and 48430 are eligible to operate in the Combi, 192 passenger/4 pallet configuration when:
 - 1. Service Bulletin 25-109, Revision 1 or production equivalent is incorporated, and
 - 2. Configured in accordance with Douglas Drawing NZZ6760-1.
 - 3. The upper exterior surface of the fuselage forward of station 1821.0 between longerons 16R and 16L must be painted white. Any deviation to this requirement must be FAA approved.
- NOTE 17: The location of flight attendant seats demonstrated to comply with the direct view requirements of FAR 25.785(h)(1), for the MD-11, are shown on the manufacturers interior arrangement drawing, entitled, "FAA Interior Schematic."
- NOTE 18: The number of required flight attendants which have been used to demonstrate compliance with the emergency evacuation requirements of FAR 25.803(c) or (d) is as follows:

- (a) For between one (1) and 306 passengers:

One (1) flight attendant for every 50 passenger seats plus two (2) additional flight attendants, when the following slides are installed:

Part Number 60289-101, or -103 at door 1,
Part Number 60290-101, or -103 at doors 2 and 4
Part Number 60291-101 through -104 at door 3.
See note 18(e)

- (b) For between one (1) and 381 passengers and 165 passenger seats or less in Zone "C":

One (1) flight attendant for every 50 passenger seats, when the following slides, or later FAA approved slides are installed:

Part Number 60289-111, or -113 at door 1,
Part Number 60290-111, or -113 at doors 2 and 4
Part Number 60291-111 through -114 at door 3.
See note 18(e)

- (c) For between one (1) and 381 passengers and more than 165 passenger seats or less in Zone "C":
One (1) flight attendant for every 50 passenger seats plus one (1) additional flight attendants when the following slides, or later FAA approved slides are installed:

Part Number 60289-111, or -113 at door 1,
Part Number 60290-111, or -113 at doors 2 and 4
Part Number 60291-111 through -114 at door 3.
See note 18(e)

- (d) For between 382 and 410 passengers:

One (1) flight attendant for every 50 passenger seats plus one (1) additional flight attendant (total of 9 flight attendants maximum), and the following slides, or later FAA approved slides must be installed:

Part Number 60289-115, or -117 at door 1,
Part Number 60290-115, or -117 at doors 2 and 4
Part Number 60291-115 through -118 at door 3.

If less than eight flight attendants are required for a particular passenger capacity, the flight attendants should be located at each overwing exit first, and then distributed equally throughout the cabin at the exit doors.

If nine flight attendants are required, the ninth should be located at door 2.

The number and location of flight attendants for compliance with FAR 25.803(c) or (d) shall not conflict with the requirements of NOTE 17, and may require additional attendants to meet both requirements.

- (e) AD 92-23-02 amendment 39-8402 effective November 25, 1992 requires upgraded slides to be installed.

.....END.....