



# STANDARD AIRCRAFT CHARACTERISTICS

## C-9B

MC DONNELL DOUGLAS



POWER PLANT			MISSION AND DESCRIPTION		WEIGHTS		
Number and Model	(2) JT8D-9		Air Force equivalent: C-9A	Mfr's Model: DC-9-32		Lb	L.F.
Manufacturer	Pratt & Whitney		The Model C-9B is a medium multi-engine jet transport aircraft which provides an efficient means of transporting personnel and cargo.		Empty (C)	61,348	
Engine Spec No.	1823, 23 November 1965 Rev 2 September 1971		Accommodations are provided for a crew of five, consisting of a captain, a first officer, a flight observer, and two cabin crew members.		Basic (C)	61,687	
Type	Axial Flow Turbofan		The aircraft provides accommodations for a total of 90 passengers or cargo pallet loading capabilities.		Operating (C)	65,064	
Length	120 In.		Special features include cabin pressurization, ground and in-flight air conditioning, thermal de-icing for engine nacelle, wing leading edge, and vertical stabilizer, single point refueling, forward air stair, aft ventral stair, auxiliary power unit, three 40-kva electrical generators, liquid repellent rain removal system, and all-weather landing (Category II).		Design	110,000	3.75
Diameter	42.5 In.				Combat	87,778	
Weight (Dry)	3196 Lb				Maximum Takeoff	110,000	3.75
Tail Pipe	Fixed Area				Maximum Ramp	111,000	
					Maximum Landing	99,000	3.55
					Maximum Zero Fuel Weight	92,000	4.59
					(C) Calculated		
RATINGS					FUEL AND OIL		
		Max Spec Fuel Cons lb/hr/lb	Thrust	Min.	Location	No. Tanks	Gal.
SL Static	Lb				Wing, Left Main	1	1386
Takeoff	14,500	0.595			Wing, Right Main	1	1386
Max Continuous	12,600	0.570	Cont		Wing, Center	1	907
Max Climb	12,600	0.570	Cont		Forward Fuselage	1	1250
Max Cruise	11,400	0.555	Cont		Aft Fuselage	1	1000
					Total		5929
					Grade	JP-5	
					Specification	MIL-T-5624G	
ELECTRONICS			DEVELOPMENT		OIL		
Radio Set UHF	Collins	AN/ARC-109	Date of Contract	April 1972	Main Engine Oil System (per engine)		4 gal.
Radio Set VHF (2)	Collins	618M-2D	Scheduled First Flight	April 1973	Auxiliary Power Unit		1 gal.
Radio Set HF	Collins	618T-2	Scheduled First Fleet Delivery	May 1973			
Omega	Northrop	AN/ARN-99			ORDNANCE		
Weather Radar	Bendix	RDR-1E					
Radio Altimeter	Bendix	ALA-51A					
Marker Beacon	Collins	51Z-4					
DME (2)	King	KDM-7000					
VOR/LOC/GS (2)	Collins	51RV-1					
LF/ADF (2)	Collins	51Y-4					
IFF	Honeywell	APX-72					
Flight Director System (2)	Collins	FD-109G					
Flight Recorder	Fairchild						
Voice Recorder	Collins	642C-1					
Inertial Navigation	Delco	Carousel-IV					
CPI	Leigh Instr Ltd						
TACAN	Hoffman	ANS-100					
			DIMENSIONS				
			Wing				
			- Span	93.3 ft			
			- Incidence (Root)	2.9 deg			
			- Incidence (Tip) (Rigid)	-1.0 deg			
			- Dihedral (at Trailing Edge)	3.0 deg			
			- Sweepback (0.25C)	24.5 deg			
			Length	119.3 ft			
			Height	27.5 ft			
			Tread	16.4 ft			

## PERFORMANCE SUMMARY

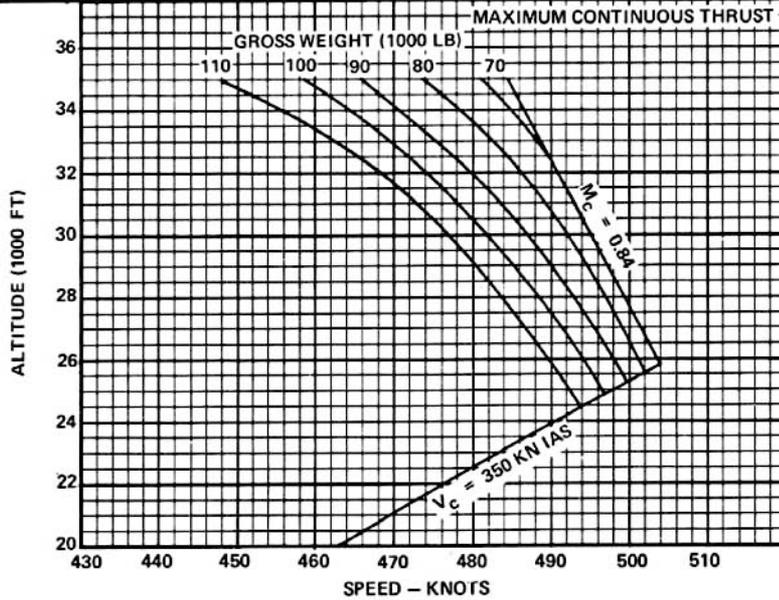
TAKE-OFF LOADING CONDITION			90 PASSENGERS	8 PALLETS	6-1/2 PALLETS	DESIGN MISSION	FERRY RANGE
TAKE-OFF WEIGHT	(D)	lb.	110,000	110,000	110,000	99,711	99,658
Fuel internal/external (JP-5)		lb./lb.	26,881/None	18,215/None	27,779/None	30,370/None	40,317/None
Payload		lb.	18,270	32,444	22,880	10,000	None
Wing loading		lb./sq. ft.	109.9	109.9	109.9	99.6	99.6
Stall speed—power-off		kn.	104.5	104.5	104.5	99.4	99.4
Take-off run at S.L.— calm	(A)	ft.	4820	4820	4820	3970	3965
Take-off run at S.L.— 25 kn. wind	(A)	ft.	3800	3800	3800	3115	3110
Take-off to clear 50 ft.— calm	(A)	ft.	5980	5980	5980	4990	4985
Max. speed/altitude	(B)	kn./ft.	493/24,500	493/24,500	493/24,500	497/24,900	497/24,900
Rate of climb at S.L.	(C)	fpm.	2830	2830	2830	3250	3250
Time: S.L. to 20,000 ft.	(C)	min.	10.0	10.0	10.0	8.6	8.6
Time: S.L. to 30,000 ft.	(C)	min.	18.7	18.7	18.7	15.7	15.7
Service ceiling (100 fpm)	(B)	ft.	33,140	33,140	33,140	35,000	35,000
Combat range		n.mi.	1707	952	1787	2250	3271
Average cruising speed		kn.	440	436	439	435	425
Cruising altitudes)		ft.	35,000	35,000	35,000	35,000	35,000
Combat radius/mission time		n.mi./hr.					
Average cruising speed		kn.					
COMBAT LOADING CONDITION							
COMBAT WEIGHT		lb.					
Engine power							
Fuel		lb.					
Combat speed/combat altitude		kn./ft.					
Rate of climb/combat altitude		fpm/ft.					
Combat ceiling (500 fpm)		ft.					
Rate of climb at S.L.		fpm.					
Max. speed at S.L.		kn.					
Max. speed/altitude		kn./ft.					
LANDING WEIGHT		lb.	87,053	95,471	86,185	73,185	63,557
Fuel		lb.	3719	3471	3749	3629	4001
Stall speed—power-off/approach power		kn./kn.	93.0/93.0	97.2/97.2	92.4/92.4	85.4/85.4	79.9/79.9
Landing distance—ground roll/over 50 ft. obst.		ft./ft.	1490/2280	1640/2460	1470/2260	1250/1990	1090/1790

## NOTES

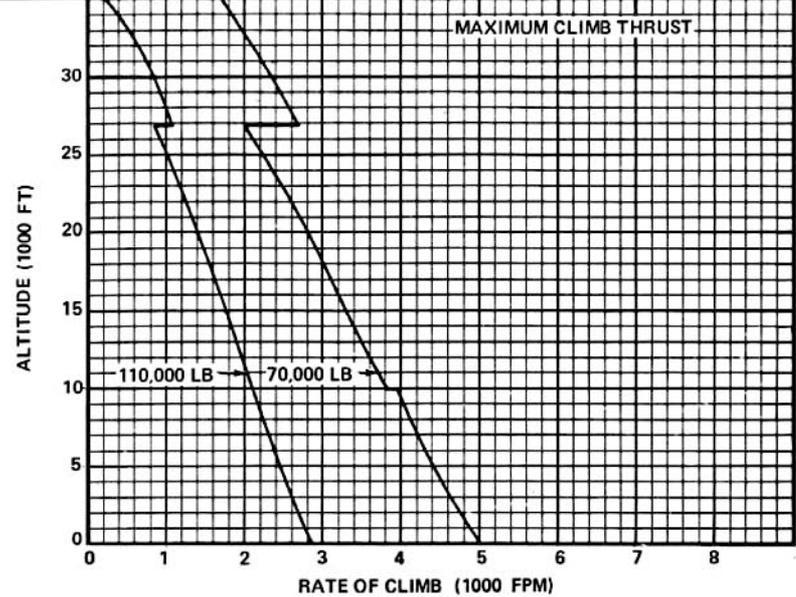
- (A) Takeoff thrust, takeoff weight.  
 (B) Maximum cruise thrust, takeoff weight.  
 (C) Maximum climb thrust, takeoff weight.  
 (D) Ramp weight equals takeoff weight plus 215 pounds.

NOTE: Performance Basis: Flight tests of the DC-9 Model 32 and C-9A.

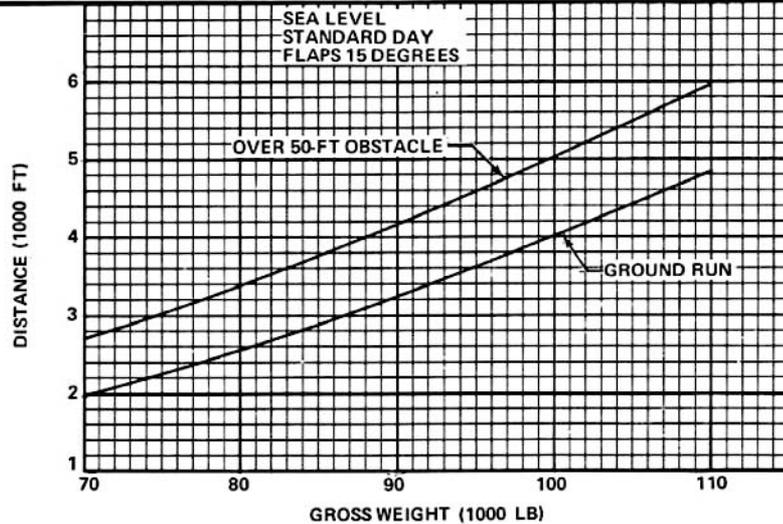
**SPEED**



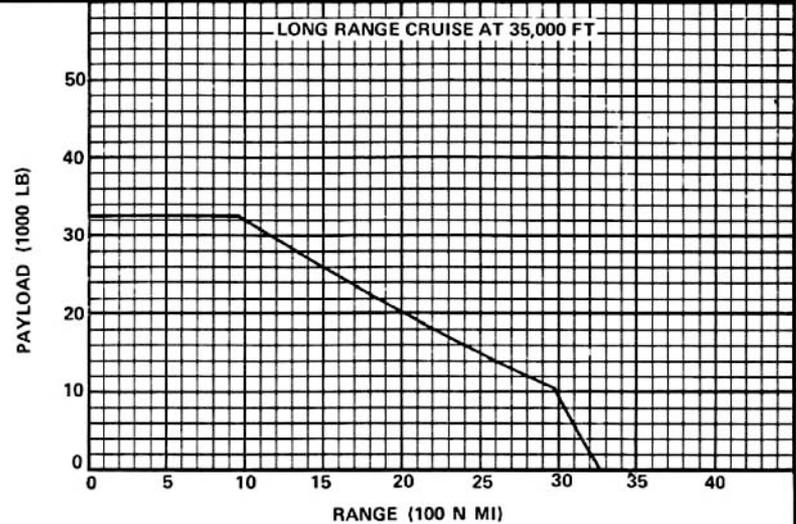
**CLIMB**



**TAKE-OFF**



**COMBAT RANGE**



LOADING CONDITION COLUMN NUMBER

STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4F (REV. 7-65)

## NOTES

### RANGE MISSIONS

Warmup, Taxi, Takeoff: Five minutes at sea level static maximum continuous thrust.

Climb: On course to 35,000 feet altitude with maximum climb thrust.

Cruise out: At speed for 99 percent maximum range at 35,000 feet altitude.

Reserve: Five percent of initial fuel plus 30 minutes at maximum endurance speed at sea level.

### PERFORMANCE BASIS

T.O. 1C-9A-1-1, Change 2, dated 1 March 1972, "Flight Manual Performance Data." McDonnell Douglas Report No. MDC J5447/01, dated 28 February 1972, "Substantiating Data Report Plus Basic Aerodynamic Data for the DC-9 Medium Range Multi-Engine Jet Transport Aircraft."

Pratt and Whitney Engine Specification No. 1823.

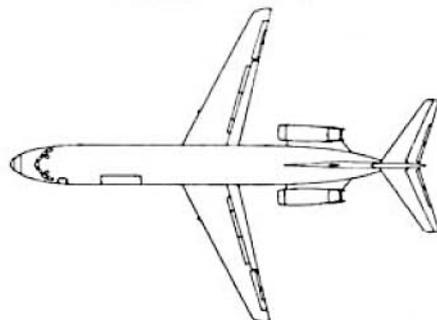


LOADING CONDITION COLUMN NUMBER

# CHARACTERISTICS SUMMARY

MEDIUM JET TRANSPORT

C-9B



**WING AREA** 1000.7 sq ft

**WING SPAN** 93.3 ft

**LENGTH** 119.3 ft

**HEIGHT** 27.5 ft

AVAILABILITY			PROCUREMENT				
NUMBER AVAILABLE			NUMBER DELIVERED IN FISCAL YEARS				
ACTIVE	RESERVE	TOTAL					

## STATUS

Date of Contract: April 1972

Scheduled First Flight: April 1973

Scheduled First Fleet Delivery: May 1973

## ENGINES

(2) P&W JT8D-9

Rating	Thrust
Takeoff	14,500 lb
Maximum Continuous	12,600 lb
Climb	12,600 lb
Cruise	11,400 lb

## FEATURES

Cabin Pressurization  
 Ground and In-Flight Air Cond  
 Thermal De-icing  
 Single Point Refueling  
 Forward Air Stair  
 Aft Ventral Stair  
 Auxiliary Power Unit  
 (3) 40 KVA Electrical Generators  
 Liquid Repellent Rain Removal System  
 All-Weather Landing (Category II)  
 Max Fuel Capacity – 5929 Gal.  
 Max Cargo Vol – 4180 Cu Ft

## GENERAL

**PAYLOAD**  
 Max Payload . . . . . 32,444 lb

**CLEARANCES**  
 Main Compartment  
 Length . . . . . 68.5 ft  
 Width . . . . . 114 in.  
 Height . . . . . 81 in.  
 Loading Door . . . 81 x 126 in.

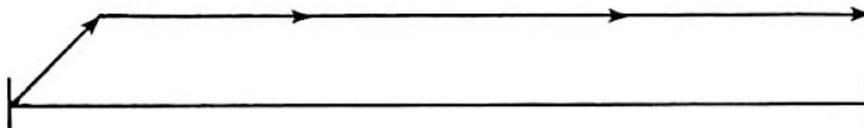
**PERSONNEL**  
 Provisions for  
 Crew . . . . . 5  
 Passengers . . . . . 90

# CHARACTERISTICS SUMMARY

## BASIC MISSION

C-9B JT8D — 9 Engines

LONG-RANGE CRUISE AT 35,000 FT ALTITUDE



## PERFORMANCE

COMBAT RANGE	FERRY RANGE	SPEED
1,707 nautical miles at 440 knots average speed in 4.2 hours	3,271 nautical miles at 425 knots average speed in 8.0 hours	493 knots at 24,500 ft Maximum Cruise Thrust, Takeoff Weight
CLIMB	CEILING	TAKE OFF
2,830 ft/min Sea Level, Maximum Climb Thrust, Takeoff Weight	33,140 ft 100 ft/min Rate of Climb, Takeoff Weight, Maximum Climb Thrust	4,820 ft Takeoff Run, No Wind, Sea Level, Takeoff Weight, Takeoff Thrust
3,250 ft/min Sea Level, Maximum Climb Thrust, Combat Weight	37,000 ft 300 ft/min Rate of Climb, Combat Weight Maximum Climb Thrust	5,980 ft Takeoff over 50 ft Obstacle, No Wind, S.L. Takeoff Weight, Takeoff Thrust
LOAD	WEIGHTS	STALLING SPEED
Fuel 3,953 gal (JP-5)  18,270 lb Payload	Basic 61,687 lb Landing 87,053 lb Combat 99,463 lb (60% Fuel) Takeoff 110,000 lb	104.5 knots Takeoff Weight Power-off
		TIME TO CLIMB
		18.7 min to 30,000 ft Takeoff Weight Maximum Climb Thrust

## NOTES

Data Basis: Flight Tests of the DC-9 Model 32 and C-9A; Pratt & Whitney Engine Specification No. 1823.

Reference: McDonnell Douglas Report No. MDC J5447/01, Substantiating Data Report Plus Basic Aerodynamic Data for the DC-9 Medium Range Multi-Engine Jet Transport Aircraft, dated 28 February 1972.