

U.S. DEPARTMENT OF TRANSPORTATION  FEDERAL AVIATION ADMINISTRATION  TYPE CERTIFICATE SHEET NO. E2EA	TCDS NUMBER E2EA REVISION: 31 DATE: AUGUST 28, 2007		
	PRATT & WHITNEY  MODELS:  TURBO WASP JT8D-1                      JT8D-7B                      JT8D-17 JT8D-1A                    JT8D-9                        JT8D-17A JT8D-1B                    JT8D-9A                      JT8D-17R JT8D-5                      JT8D-11                      JT8D-17AR JT8D-7                      JT8D-15 JT8D-7A                    JT8D-15A		

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E2EA) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations, provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

TYPE CERTIFICATE (TC) HOLDER: Pratt & Whitney  
 United Technologies Corporation  
 East Hartford, Connecticut 06108

I. MODELS	JT8D-1, -1A, -7, -7A	JT8D-1B, -7B	JT8D-5	JT8D-9	JT8D-9A
TYPE	Dual, axial 13-stage compressor / four-stage turbine / nine can-annular combustion chambers				
RATINGS					
Sea Level Static Thrust (lbs)					
Maximum continuous	12,600	--	12,250	12,600	--
Normal takeoff (5 min.) (See NOTE 19)	14,000	--	12,250	14,500	--
Maximum takeoff (5 min.) (See NOTE 19)	14,000	--	12,250	14,500	--
FUEL CONTROL (See NOTE 17) (Hamilton Standard)	JFC60-1 or JFC60-2	--	--	--	--
FUEL PUMP (Argo-Tech Corp.)	P/N 243600, 358200, 371900, 378200, or 835800	--	--	--	--
AIR BLEED CONTROL (P&W)	P/N 492143, 492143-001, 564651, 564651-001, 593764, 593764-001, 658385, 658385-001, 658490, or 658490-001	--	--	564651, 564651-001, 593764, 593764-001, 658385, or 658385-001	--
FUEL	See Note 11	--	--	--	--
OIL	See Note 12	--	--	--	--

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LEGEND: "--" INDICATES "SAME AS PRECEDING MODEL"  
 "---" NOT APPLICABLE

I. MODELS (cont.)	JT8D-1, -1A, -7, -7A	JT8D-1B, -7B	JT8D-5	JT8D-9	JT8D-9A
PRINCIPAL DIMENSIONS:					
Length, in.	123.56	--	--	--	--
Width, in.	42.50	--	--	--	--
Height, in.	53.450	--	--	--	--
WEIGHT (dry), lb. (includes basic engine with all essential access., with fuel heater, oil tank and fuel oil cooler, but excluding starter exhaust nozzle and power source for the ignition system)	3205	--	--	3252	3402
CENTER OF GRAVITY, INCHES					
Aft of front mount area centerline	23.54	--	--	--	23.08
Below engine centerline	1.86	--	--	--	2.02
IGNITORS	Unison type TCFN-2, TCFN-4, TFN-32, 42074, 49965, or 49988 exciter with two igniters: P&W P/N 518367 or 709520				
NOTES	1-8, 10-15, & 19	--	--	--	--

II. MODELS	JT8D-11	JT8D-15	JT8D-15A	JT8D-17	JT8D-17A
TYPE	Dual, axial 13-stage compressor / four-stage turbine / nine can-annular combustion chambers				
RATINGS					
Sea Level Static Thrust (lbs)					
Maximum continuous	12,600	13,750	--	15,200	--
Normal takeoff (5 min.) (See NOTE 19)	15,000	15,500	--	16,000	--
Maximum takeoff (5 min.) (See NOTES 19)	15,000	15,500	--	16,000	--
FUEL CONTROL (Hamilton Standard)	JFC60-1 or JFC60-2	--	--	JFC60-2	--
FUEL PUMP (Argo-Tech Corp.)	P/N 358200, 371900, 378200, or 835800	P/N 378200 or 835800	--	P/N 384300 or 835900	--
AIR BLEED CONTROL (P&W)	P/N 658385 or 658385-001	--	--	--	--
FUEL	See Note 11	--	--	--	--
OIL	See Note 12	--	--	--	--

II. MODELS (cont.)	JT8D-11	JT8D-15	JT8D-15A	JT8D-17	JT8D-17A
PRINCIPAL DIMENSIONS:					
Length, in.	123.56	--	--	--	--
Width, in.	42.50	--	--	--	--
Height, in.	53.450	--	--	--	--
WEIGHT (dry), lb. (includes basic engine with all essential access., with fuel heater, oil tank and fuel oil cooler, but excluding starter exhaust nozzle and power source for the ignition system)	3389	3414	3474	3430	3475
CENTER OF GRAVITY, INCHES					
Aft of front mount area centerline	23.07	23.10	23.80	23.70	24.40
Below engine centerline	1.76	1.75	--	1.90	--
IGNITORS	Unison type TCFN-2, TCFN-4, TFN-32, 42074, 49965, or 49988 exciter with two igniters: P&W P/N 518367 or 709520				
NOTES	1-8, 10-15, & 19	--	1-8, 10-15, & 18-19	1-8, 10-15, & 19	1-8, 10-15, & 18-19

III. MODELS	JT8D-17R	JT8D-17AR			
TYPE	Dual, axial 13-stage compressor / four-stage turbine / nine can-annular combustion chambers				
RATINGS					
Sea Level Static Thrust (lbs)					
Maximum continuous	15,200	--			
Normal takeoff (5 min.) (See NOTE 19)	16,400	--			
Maximum takeoff (5 min.) (See NOTE 19)	17,400	--			
FUEL CONTROL (Hamilton Standard)	JFC60-3	--			
FUEL PUMP (Argo-Tech Corp.)	P/N 384300 or 835900	--			
AIR BLEED CONTROL (P&W)	P/N 658385 or 658385-001	--			
FUEL	See Note 11	--			
OIL	See Note 12	--			

III. MODELS (cont.)	JT8D-17R	JT8D-17AR			
PRINCIPAL DIMENSIONS:					
Length, in.	123.56	--			
Width, in.	42.50	--			
Height, in.	53.450	--			
WEIGHT (dry), lb. (includes basic engine with all essential access., with fuel heater, oil tank and fuel oil cooler, but excluding starter exhaust nozzle and power source for the ignition system)	3495	3500			
CENTER OF GRAVITY, INCHES					
Aft of front mount area centerline	23.50	24.00			
Below engine centerline	1.80	--			
IGNITORS	Unison type TCFN-2, TCFN-4, TFN-32, 42074, 49965, or 49988 exciter with two igniters: P&W P/N 518367 or 709520				
NOTES	1-8, 10-16, & 19	1-8, 10-16, & 18-19			

CERTIFICATION BASIS

CAR 13 effective June 15, 1956, as amended by 13-1, 13-2, 13-3, 13-4, and 13-5.

<u>MODEL</u>	<u>DATE OF APPLICATION</u>	<u>DATE OF TYPE CERTIFICATE NO. E2EA ISSUED/REVISED</u>
JT8D-1	July 5, 1962	February 1, 1963
JT8D-1A	February 25, 1971	April 7, 1971
JT8D-1B	July 1, 1975	August 14, 1975
JT8D-5	January 24, 1963	February 1, 1963
JT8D-7	January 30, 1966	March 24, 1966
JT8D-7A	July 1, 1970	August 4, 1970
JT8D-7B	July 1, 1975	August 14, 1975
JT8D-9	September 16, 1966	May 23, 1967
JT8D-9A	March 28, 1973	May 30, 1973
JT8D-11	April 19, 1968	September 25, 1968
JT8D-15	October 14, 1969	April 7, 1971
JT8D-15A	March 13, 1980	January 26, 1982
JT8D-17	January 15, 1973	February 1, 1974
JT8D-17A	March 13, 1980	January 26, 1982
JT8D-17R	May 15, 1974	April 29, 1976
JT8D-17AR	March 13, 1980	January 26, 1983

PRODUCTION BASIS

Production Certificate No. 2

<b>NOTES</b>
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NOTE 1. Rotor Speeds - Maximum permissible engine operating speeds for the engine rotors are as follows:

	JT8D-1, -1A, -1B, -7A, -7B, -9, -9A, -11	JT8D-5	JT8D-15, -15A, -17, -17A	JT8D-17R, -17AR
Low Pressure rotor (N), rpm				
Maximum takeoff	---	---	---	9,250
Normal takeoff	8,600	8,500	8,800	8,900
High pressure rotor (N <sub>2</sub> ), rpm				
Maximum takeoff	---	---	---	12,600
Normal takeoff	12,250	12,100	12,250	12,280

NOTE 2. Temperatures - Maximum permissible temperatures are as follows:

Turbine outlet gas temperature, °C/°F:

	JT8D-1, -7	JT8D-5	JT8D-1A, -7A, -9	JT8D-1B, -7B	JT8D-9A
Normal Takeoff (5 minutes)	570/1058	555/1031	580/1076	590/1094	--
Maximum continuous	535/995	--	540/1004	545/1013	--
Maximum for acceleration (2 minutes)	570/1058	555/1031	580/1076	590/1094	--
Starting (for 59°F ambient temperature and above)	420/788	--	--	--	--
(for 58°F ambient temperature and below)	350/662	--	--	--	--
Oil Inlet:					
continuous operation	120/250	--	--	--	--
transient operation	157/315	--	--	--	--
	JT8D-11	JT8D-15	JT8D-15A	JT8D-17	JT8D-17A
Normal takeoff (5 min.)	--	--	--	--	--
Takeoff (5 min.)	595/1103	620/1148	--	650/1202	--
Maximum continuous	550/1022	580/1076	--	610/1130	--
Max. for accel. (2 min)	595/1103	630/1166	--	660/1220	--
Starting (ground)	510/950*	550/1022	575/1067	550/1022	575/1067
(inflight)	550/1022	620/1148	--	650/1202	--
Oil Inlet:					
continuous operation	130/266	--	--	--	--
transient operation	165/329	--	--	--	--

NOTE 2. Temperatures - Maximum permissible temperatures are as follows:  
(Cont.)

Turbine outlet gas temperature, °C/°F:

	JT8D-17R	JT8D-17AR			
Maximum takeoff (5 min.)	690/1274	--			
Normal takeoff (5 min.)	650/1202	--			
Maximum continuous	610/1130	--			
Max. for accel. (2 min)	660/1220	--			
Starting (ground)	550/1022	575/1067			
(inflight)	650/1202	--			
Oil Inlet:					
continuous operation	130/266	--			
transient operation	165/329	--			

NOTE: \*Maximum starting limit (ground) is 530°C/986°F for JT8D-11 engines that have incorporated P&W Service Bulletin 5455.

Transient operation above 120°C (250°F) JT8D-1, -1A, -5, -7, -7A, -7B, -9, -9A 130°C (266°F) JT8D-11, -15, -15A, -17, -17A, -17R, and -17AR is limited to 15 minutes. External engine components maximum temperature (limiting temperature of specific components) are specified in the engine installation and operating manual.

NOTE 3. Pressures - Fuel and oil pressure limits are as follows:

Fuel Pressure - At inlet to engine system pump, not less than 5 p.s.i. above the true vapor pressure of the fuel and not greater than 50 p.s.i. with a vapor liquid ratio of zero.

Oil Pressure - Minimum 35 psig  
Normal Range 40-55 psig

Note: During cold weather starting, oil pressure in excess of 55 psig may be evidenced until oil viscosities are reduced by increasing oil temperature. Engine operation is limited to idle power when oil pressure is in excess of 55 psig during cold weather starts.

NOTE 4. Air Bleed Extraction - Maximum permissible air bleed extraction is as follows:

Percentage of Primary Engine Airflow

<u>Station</u>	<u>Individual Bleeding at a Single Station</u>		<u>Simultaneous Bleeding of Two or More Stations</u>	
	<u>Normal</u>	<u>Maximum *</u>	<u>Normal</u>	<u>Maximum *</u>
1. High-Pressure Bleed:				
a. At 70% maximum continuous thrust and below	6.7	8.0	6.7	8.0
b. From 70% maximum continuous thrust to maximum continuous thrust	3.5	5.5	3.5	5.5
c. Above maximum continuous thrust	2.8	3.0	2.8	3.0
2. Eighth-Stage Bleed:				
a. At and below maximum continuous thrust	4.0	4.0	4.0	4.0
b. Above maximum continuous thrust	2.75	3.25	2.75	3.25
3. Low Pressure Bleed:				
a. At 20% maximum continuous thrust and above	5.0	5.0	4.5	4.5
b. Below 20% maximum continuous thrust	4.0	4.0	3.5	3.5

Percentage of Secondary Airflow

4. Fan Air Bleed:				
a. At and below maximum continuous thrust	3.0	5.0	3.0	3.0
b. Above maximum continuous thrust	2.0	2.0	2.0	2.0

NOTE: \*Usable only when malfunction requires and only until next landing.

NOTE 5. The ratings are based on static test stand operation under the following conditions:

Compressor inlet air at 59°F and 29.92 in. Hg.

Nozzle exhaust pipe per P&W Drawing PWA 12202 (JT8D-1, -1A, -1B, -5, -7, -7A, -7B, -9, -9A, -11, -15 and -15A); PWA 33811 (JT8D-15 and -15A); PWA 33475 (JT8D-17, -17A, -17R, and -17AR); or PWA 12202 with PWA 33400 extender (JT8D-17, -17A, -17R, and -17AR) P&WA bellmouth on air inlet.

No aircraft accessory loads or air extraction.

No anti-icing air flow.

Turbine outlet gas temperature limits and engine rotor speed limits not exceeded.

NOTE 6. The following accessory drive provisions are incorporated:

<u>Drive</u>	<u>Rotation</u>	<u>Speed Ratio to Turbine Shaft</u>	<u>Torque (lb-in.)</u>		<u>Overhang (in.-lb.)</u>
			<u>Cont.</u>	<u>Static</u>	
Low Rotor: Tachometer	<u>C</u>	0.489:1	7	50	---
High Rotor: Starter	<u>C</u>	0.597:1	---	*	625
Generator	<u>C</u>	0.700:1	1500	6600**	2500
Fluid Power Pump	<u>C</u>	0.292:1	1000	4400	400
Tachometer	<u>CC</u>	0.343:1	7	50	---

C - Clockwise; CC – Counterclockwise, facing engine pad

\* - Maximum starter torque is 550 lb-ft. The shear section will fracture at 850 - 0 + 100 lb. ft.

\*\* - Maximum torque when used as a starter is 4920 lb-in.

NOTE 7. Power setting, power checks, and control of engine output in all operations is to be based upon P&W engine charts referring to turbine discharge section gas pressures. Pressure probes are included in the engine assembly for this reason.

NOTE 8. These engines meet FAA requirements for adequate turbine disk integrity and rotor blade containment and do not require external armoring. These engines have demonstrated satisfactory operation in icing conditions as defined in Civil Air Regulations (Amended August 25, 1955) 4b.1(b)7 and 8.

NOTE 9. DELETED.

NOTE 10. The maximum continuous static thrust at sea level at 29°F (JT8D-1, -1A, -1B, -7, -7A, -7B), 69°F (JT8D-5), 26°F (JT8D-9, -9a), 21°F (JT8D-11) and 30°F (JT8D-15, -15A, -17, -17A, -17R, -17AR) temperature and below is 14,000 lbs. (JT8D-1, -1A, -1B, -7, -7A, -7B), 12,250 lbs. (JT8D-5), 14,500 lbs. (JT8D-9, -9A), 15,000 lbs. (JT8D-11), 15,500 lbs. (JT8D-15, -15A), 16,000 lbs. (JT8D-17, -17A), and 17,400 lbs. (JT8D-17R, -17AR), respectively. The engine installation and operating manual should be consulted for variation in thrust between standard and 29°F (JT8D-1, -1A, -1B, -7, -7A, -7B), 26°F (JT8D-9, -9A), 21°F (JT8D-11), 30°F (JT8D-15, -15A), 39°F (JT8D-17, -17A), 19°F (JT8D-17R, -17AR).

NOTE 11. Fuels approved for these engines are listed in FAA approved P&W Service Bulletin No. 2016 and its later revisions. Approved fuel additives and their allowable concentrations are also listed in P&W Service Bulletin No. 2016 and its later revisions.

NOTE 12. The following oils are eligible for these engine:

P&W Service Bulletin No. 238 lists approved brand oils.



NOTE 13. The above models incorporate the following general characteristics:

<u>JT8D Model</u>	<u>Characteristics</u>
JT8D-1	Basic model.
JT8D-1A	Same as -1 except for increased turbine outlet gas temperature limits with the incorporation of improved engine parts.
JT8D-1B	Same as -1A except for increased turbine outlet gas temperature limits with the incorporation of improved engine parts.
JT8D-5	Same as -1 except for minor differences due to installation requirements, reduced ratings and increased disk life. The D-5 engine may be operated at D-1 takeoff ratings and limitations for engine-out emergency use during takeoff and/or aborted landing procedures only.
JT8D-7	Same as -1 except 14,000 lb. takeoff static thrust at sea level flat rated to 84°F ambient temperature and other minor altitude thrust increases with the incorporation of improved engine parts.
JT8D-7A	Same as -7 except for increased turbine outlet gas temperature limit with the incorporation of improved engine parts.
JT8D-7B	Same as -7A except for increased turbine outlet gas temperature limits with the incorporation of improved engine parts.
JT8D-9	Same as -7 except 14,500 lb. takeoff static thrust at sea level flat rated to 84°F ambient temperature and other minor altitude thrust increases with the incorporation of improved engine parts.
JT8D-9A	Same as -9 except for increased turbine outlet gas temperature limits with the incorporation of improved engine parts.
JT8D-11	Same as -9 except for 15,000 lb. takeoff static thrust at sea level flat rated to 84°F ambient temperature with the incorporation of improved engine parts.
JT8D-15	Same as -11 except 15,500 lb. takeoff static thrust at sea level flat rated to 84°F ambient temperature and other minor altitude thrust increases with the incorporation of improved engine parts.
JT8D-15A	Same as -15 except reduced fuel consumption by incorporation of improved engine parts.
JT8D-17	Same as -15 except 16,000 lb. takeoff static thrust at sea level flat rated to 84°F ambient temperature and other minor altitude thrust increases with the incorporation of improved engine parts.
JT8D-17A	Same as -17 except reduced fuel consumption by incorporation of improved engine parts.
JT8D-17R	Same as -17 except 16,400 lb. normal takeoff static thrust at sea level flat rated to 77°F ambient temperature, 17,400 lb. maximum takeoff static thrust at sea level flat rated to 77°F ambient temperature and a takeoff thrust reset mechanism incorporated in the fuel control along with improved engine parts.
JT8D-17AR	Same as -17R except reduced fuel consumption by incorporation of improved engine parts.

NOTE 14. Certain engine parts are life limited. These limits are listed in the FAA-approved Pratt & Whitney JT8D Series Turbofan Engine Manual, Part No. 481672, Time Limit Section.

NOTE 15. The following engines meet the February 1, 1974, smoke and emission requirements of SFAR-27:

1. All JT8D-11, -15, -15A, -17, -17A, -17R, and -17AR engines.
2. JT8D-1, -1A, -1B, -7, -7A, -7B, -9, and -9A engines modified in accordance with Pratt & Whitney Engineering Change 197707 or Service Bulletins 2417 or 2531.

The following engines meeting the January 1, 1975, fuel venting emission requirements of SFAR-27:

1. All JT8D-15A, -17, -17A, -17R, and -17AR engines.
2. JT8D-1, -1A, -1B, -7, -7A, -7B, -9, -9A, -11, and -15 engines modified in accordance with Pratt & Whitney Engineering Change 275159 or Service Bulletin 3757.

NOTE 16. A takeoff thrust setting limited to the normal takeoff rating of 16,400 lb. static thrust at sea level, flat rated to 77°F ambient temperature has been established for normal takeoff operation.

When the automatic reset mechanism in the fuel control is utilized, operation to the normal takeoff operating limits will prevent the engine from exceeding the maximum takeoff rating operating limits when the reset mechanism is actuated.

The time limit at the normal takeoff rating is 5 minutes and shall include any time accumulated at the maximum takeoff rating.

NOTE 17. DELETED.

NOTE 18. Turbine outlet gas temperature thermocouple box P/N 792863, cable assemblies P/N 792864 or P/N 798380, and turbine discharge gas pressure averaging probe assemblies P/N 793272 or P/N 793274 should be used for JT8D-15A, -17A, and -17AR engines and for JT8D-11 engines that have incorporated P&W Service Bulletin No. 5455.

NOTE 19. The 5 minute takeoff time may be extended to 10 minutes for one engine inoperative or shutdown for engines which have incorporated all the features specified in P&W Service Bulletin Numbers 5514, 5643 and Alert Service Bulletin Number 6196.

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