FEDERAL AVIATION AGENCY

E-287
Revision 7
WRIGHT
Double Row Turbo Cyclone
981TC18EA1
988TC18EA1,2,3,4,5,6

January 27, 2012

TYPE CERTIFICATE DATA SHEET NO. E-287

Engines of models described herein conforming with this data sheet (which is a part of type certificate No. E-287) and other approved data on file with the Federal Aviation Agency meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Manufacturer: Curtiss-Wright/Marquette, Inc.
Fountain Inn, South Carolina

Model	Double Row Turbo Cyclone	981TC18EA1	988TC18EA1, EA3 EA4, EA6	988TC18EA2, EA5
Type	18RA with 3 Blow-down, exhaust-driven turbines	Reduction gear ratio 16:7	- -	- -
		Turbo drive ratio 6.52:1	- -	- -
Rating (with low impeller gear ratio)		6.46:1	- -	- -
Max. continuous, hp, rpm, in.Hg. at:				
Critical pressure altitude (ft.)		2920-2650-49.5-4800	- -	- -
Sea level pressure altitude		2860-2650-51.0-S.L.	- -	- -
Takeoff (5 min.), hp, rpm, in.Hg. at:				
Critical pressure altitude (ft.)		3400-2900-56.0-4000	- -	- -
Sea level pressure altitude (with anti-detonant injection)		3400-2900-58.5-S.L.	- -	- -
Takeoff (5 min.), hp, rpm, in.Hg. at:				
Critical pressure altitude (ft.)		3700-2900-58.0-3200	—	—
Sea level pressure altitude		3700-2900-58.5-S.L.	—	—
(with high impeller gear ratio, dry)		8.67:1	- -	- -
Max. continuous, hp, rpm, in.Hg. at:				
Critical pressure altitude (ft.)		2450-2600-47.0-16,400	- -	- -
Low critical pressure altitude (ft.)		2415-2600-48.5-10,800	- -	- -
Takeoff (5 min.), hp, rpm, in.Hg. at:				
Critical pressure altitude (ft.)		2550-2600-49.0-15,200	- -	- -
Low critical pressure altitude (ft.)		2535-2600-49.5-13,300	- -	- -
Fuel (minimum grade aviation gasoline) See Note 8.		115/145	- -	- -
Lubricating oil		MIL-L-6082, WAD Spec. 5815 or 5818	- -	- -
Bore and stroke, in.		6.125 X 6.312	- -	- -
Displacement, cu. in.		3350	- -	- -
Compression ratio		6.70:1	- -	- -
Weight (dry), lbs.		3670	3645 (EA1, 3)	3745 (EA2)
C.G. location (dry)			3675 (EA4, 6)	3775 (EA5)
Fwd. of mounting flange centerline, in.		18.22	- -	18.54
Left of vertical centerline, viewed from rear, in.		0.014	- -	0.021
Off propeller shaft, in.		0.133 above	- -	0.193 below
Propeller shaft, SAFE no.		60	- -	- -
Fuel injection model		Bendix Stromberg PR-58-S2 master control with two Direct injection pumps	- -	- -
Ignition, Dual		Scintilla DLN-9 magneto	- -	- -
Timing, °BTC		25 (30 in cruise)	- -	- -

Model	Double Row Turbo Cyclone	981TC18EA1	98TC18EA1, EA3 EA4, EA6	988TC18EA2, EA5
Spark plugs		See Note 9.	- -	- -
NOTES		1 through 10	1 through 9	1 through 9

"- -" indicates "same as preceding model."
"—" indicatoes "does not apply."

Certification basis Type Certificate No. 287

Production basis Production certificate No. 8

NOTE 1. Maximum permissible temperatures are as follows:

Head (Well Type Thermocouple)	Barrel	Oil Inlet
475° (500° for T.O. only)	350°	220°

NOTE 2. Fuel and oil pressure lmits:
Oil pressure (psi) 70 ± 5. Fuel pressure (psi) 25 ± 2

NOTE 3. The following accessory drives are provided:

Accessory	Rotation*	Speed**	Maximum Torque (in. lbs.) Continuous	Maximum Torque (in. lbs.) Static	Maximum Bending Moment (in. lbs.)
Starter	C	1.000	-	36000	350
Generator and accessory (2)	C	3.110	1500	6600	400
Fuel pump (2)	CC	1.000	25	450	15
Hydraulic pump (RH)	C	1.400	600	2700	350
Hydraulic pump (LH)	C	1.400	250	1650	75
Vacuum pump	C	1.400	250	1650	75
Tachometer (2)	1C 1CC	0.500	22	50	15
Propeller governor	C	0.857	125	825	30

*"C" - Clockwise viewing drive pad
"CC" - Counter clockwise
**Speed - Times crankshaft rpm

NOTE 4. These engines incorporate torquemeters, provisions for crankcase mounting and double-acting hydraulic propeller provisions.

NOTE 5. The ratings of these engines are based on standard conditions of temperature and barometric pressure (60°F and 29.92 in.Hg. at sea level) and 80% relative humidity. If corrected to dry standard air conditions, the rated powers would be increased approximately 2.5% at sea level to 0.4% at 15,000 ft. for equal manifold pressure settings.

NOTE 6. These engines incorporate 3 blow-down turbines for exhaust gas power recovery. To insure against secondary damage being caused by a turbine blade failure, it is required that each turbine wheel be provided with an approved type of guard prior to use in certificated aircraft. These guards should be capable of at least cushioning the energy effects of a failed blade.

NOTE 7. The model 988TC18EA1 is similar to the 988TC18EA3 model, except for installation feature differences. The 988TC18EA2 is similar to the 988TC18EA1 except for reduction gear ratio.

The models 988TC18EA4, 5 and 6 are similar to models 988TC18EA1, 2 and 3 respectively except for parts variations which permit increased cruise power ratings.

NOTE 8. The 988TC18EA1, 2, 3, 4, 5, and 6 engines are eligible for use with grade 100/130 at the following ratings for all operations include cruise:

With low impeller gear ratio:

Max. continuous, hp, rpm, in.Hg. at:	
Critical pressure altitude (ft.)	2450-2600-41.5-9400
Sea level pressure altitude	2380-2600-44.0-S.L.
Takeoff (5 min.) hp, rpm, in.Hg. at:	
Critical pressure altitude (ft.)	2950-2900-48.0-8500
Sea level pressure altitude	2880-2900-53.0-S.L.

With high impeller gear ratio:
Operation with grade 100/130 fuel not permitted.

NOTE 9. The following spark plugs are approved on these engines:
AC 275, 286A, 288, 298
Champion R103, RHB27P, RHA29E, RHA29N, RHB29E, RHB29N
Lodge RS35R (except EA4, 5 and 6)

NOTE 10. The wet low ratio takeoff rating of the 981TC18EA1 engine is based on the use of fuel derichment and water-alcohol injection at the rate of 18-1/4 pounds per minute at 26 p.s.i. at the control valve. The water injection fluid should comply with AMS-3006 Type 1 which specifies:

Methyl alcohol	48-52% by volume
Water	48-52% by volume

....END.....