

TURBINE DATA SHEET
1600kW Turbodyne 703 HEB Turbine
U - 23476

Serial Number - 37544

Turbine Frame - 703HEB

Gear Frame - F-5 (16 x 9-3/4)

Number of Turbine Stages - 1 Curtis

Driven Machine - 1600 K. W. Generator

Turbine Rating - 1600 K. W. at 5498/1800 R. P. M.

Turbine Rotation Viewed From Governor End of Turbine - Clockwise

Inlet Steam Conditions - 485 psig. at 500° F. T. T.

Exhaust Condition - 150 psig.

Casing Material - Cast Steel

Shaft Packing - 7 Carbon Rings in Each Packing Case

Bearing Oil Pressure - 20 psig.

Quantity of Fresh Cooling Water Required For Oil Cooler - 50 G. P. M. at 105° F.

Auxiliary Oil Pump - Motor Driven - Capacity 26.7 G. P. M. at 40 psig. - Pump To
Cut In At 15 psig. - Cut Out at 18 psig.

Solenoid Dump Valve To Trip When - De-Energized

Sentinel Warning Valve Set To Open At - 165 psig.

Trip and Alarm Settings:

Mechanical Emergency Overspeed Trip Setting - 6048 R. P. M.

Electrical Emergency Overspeed Trip Setting - 5993 R. P. M.

Low Bearing Oil Pressure Switch Set To Alarm At - 12 psig. - Falling Oil Pressure
To Trip At - 8 psig. - Falling Oil Pressure (PS-400. 16A/B)

Low Bearing Oil Temperature Alarm Switch Set To Alarm At 90° F. - Falling Oil
Temperature (TS-400. 9)

High Bearing Oil Temperature Alarm Switch Set To Alarm At - 135° F. - Rising Oil
Temperature (TS-400. 10)

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Trip and Alarm Settings (Cont'd)

Control Oil Pump Permissive Start Switch Set At - 11 psig. - Rising Oil Pressure
(PS-400. 17)

High Oil Differential Pressure Alarm Switch Set At - 15 psid. Rising Oil Pressure
(PDS-400. 14)

Low Control Oil Pressure Alarm Switch Set To Alarm At - 100 psig. Falling Oil
Pressure, To Trip At - 90 psig. - Falling Oil Pressure (PS-200. 3A/B)

High Oil Temperature Steam End Bearing Oil Case Drain Alarm Switch Set To Alarm
At - 160°F. Rising Oil Temperature, To Trip At - 180°F. - Rising Oil Temperature
(TS-500. 4 A/B)

High Oil Temperature Exhaust End Bearing Oil Case Drain Alarm Switch Set To Alarm
At - 160°F. - Rising Oil Temperature, To Trip At - 180°F. - Rising Oil Temperature
(TS-500. 5 A/B)

Temperature Control Valve, Thermostat To Maintain Oil Outlet Temperature of 130°F.

Excessive Turbine Vibration Monitor To Alarm At - 2 Mils - To Trip At 3 Mils.
(VIU-000. 26)

Journal Bearing Information:

Shaft Bearing Journal Size -

Bearing Bore -

Steam End - $3.000^{+.000}_{-.001}$

$3.004^{+.001}_{-.000}$

Exhaust End - $3.000^{+.000}_{-.001}$

$3.004^{+.001}_{-.000}$

Turbine Main Journal Running Clearance: Steam End - .004" to .006"
Exhaust End - .004" to .006"

Gear Case Journal Running Clearance: Gear - .005" to .007"
Pinion- .004" to .006"

Governor Valve Size - 3-5/8"

Speed Governor - Tri-Sen TS-310

Governor Speed Setting - 5498/1800 R. P. M.

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Hand Speed Changer Settings: 5700 R. P. M. (Maximum)

5398 R. P. M. (Minimum)

Exhaust Relief Valve To Start Opening at 180 psig., to be fully open

at 195 psig. to pass 110,100 #/hr.

OPERATING CONDITIONS

K. W.	Speed RPM	Steam Conditions			Hand Valve Position	
		Inlet - psig.	° F. - Exh. - psig.	Steam Rate Lbs/Kw/Hr.	No. Open	No. Closed
1600	5498	485	500 - 150	63.34	3	0

TURBINE WEIGHTS - See Outline Drawing, Figure A-1

WARNING! EYELET IN TURBINE CASE COVER TO BE USED
FOR LIFTING TURBINE CASE COVER ONLY

NOTE: The 6" trip throttle valve cover is equipped with a throttle screw that regulates the amount of steam from the inlet side of the valve to the chamber above the main disc. If chattering of the main disc is encountered when opening the valve, it is necessary to increase the leakage to the chamber by turning the throttle screw counterclockwise. If, however, the handwheel effort appears excessive, it can be reduced by turning the throttle screw clockwise, thus decreasing the leakage to the chamber.

A pipe tap is provided in the cover to be used for a pressure gauge to check the pressure in the chamber after the pilot valve has been opened. This leakage pressure should be approximately 25% of the line operating pressure.