

TURBINE DATA SHEET

U - 21618

Serial Number - 35136

Turbine Frame - 11T

Number of Turbine Stages - 11 Rateau

Driven Machine - Electric Machinery Generator

Turbine Rating - 10,000 K. W. at 3600 R. P. M.

Turbine Rotation - Clockwise- As Viewed From Governor End of Turbine

Inlet Steam Conditions - 390 psig. at 650°F. T. T.

Exhaust Condition - ^{20160 1992} 15 psig.

Casing Material - Cast Steel

Shaft Packing - Labyrinth Packing Rings

Speed Governor - Woodward Full Oil Relay UG-40

Governor Oil Pressure - 80 psig.

Bearing Oil Pressure - 15 psig.

Auxiliary Oil Pump - Steam Driven - Capacity 56 G. P. M. at 75 psig. - Pump To
Cut In At 70 psig. - Cut Out at 75 psig.

Emergency Overspeed Trip Setting - 3960 R. P. M.

Low Oil Pressure Trip Switch To Trip At - 7 psig. - Reset 9 psig. Bearing Oil Pressure

Low Oil Pressure Alarm Switch Set - To Alarm At 9 psig. Falling Bearing Oil Pressure

Trip Throttle Valve To Trip At - 25 psig. Reset 35 psig. Governor Oil Pressure

Solenoid Dump Valve To Trip Turbine Out When - Energized

Sentinel Warning Valve Set To Open At - 25 psig.

Auxiliary Oil Pump Running Switch Set To Make Contact At - 40 psig.

Differential Pressure Switch Across Filter Set To Make Contact At - 10 psig. Rising
Oil Pressure

Turning Gear Permissive Start Switch Set To Make Contact At - 10 psig. Rising Oil
Pressure

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Emergency Oil Pump Start Switch Set To Make Contact at - 12 psig. Falling Oil Pressure

Number of Steam Inlet Valves - Five (5) Automatic Venturi

Exhaust Relief Valve To Start Opening at 26 psig.; to be fully open

to pass 234,000 #/hr. at 31 psig.

Temperature of Oil Leaving Cooler - 120°F.

Quantity of Fresh Cooling Water Required For:

Oil Cooler - 88 G. P. M. at 95°F.

Gland Condenser - 57 G. P. M. at 95°F.

Generator Air Cooler - 240 G. P. M. at 95°F.

Journal Bearing Information:

Shaft Bearing Journal Size -

Bearing Bore -

Steam End - 6.000 $\begin{smallmatrix} +.000 \\ -.001 \end{smallmatrix}$

6.009 $\begin{smallmatrix} +.001 \\ -.000 \end{smallmatrix}$

Exhaust End - 7.000 $\begin{smallmatrix} +.000 \\ -.001 \end{smallmatrix}$

7.010 $\begin{smallmatrix} +.001 \\ -.000 \end{smallmatrix}$

Main Journal Bearing Running Clearances:

Turbine - Steam End - .009" to .011"

Exhaust End - .010" to .012"

RECOMMENDED BEARING TEMPERATURE LIMITS

	<u>Metal Temp. °F.</u>	<u>Oil Temp. °F.</u>
Maximum Normal Operating	220	180
Alarm	230	185
Shutdown	240	195

CALCULATED CRITICAL SPEED - 2000 R. P. M.

GOVERNOR - TURBINE SPEED RELATIONSHIP

872 R. P. M. - 3888 R. P. M. (Maximum)

743 R. P. M. - 3312 R. P. M. (Minimum)

807 R. P. M. - 3600 R. P. M. (Rated)

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STEAM INLET VALVE DATA:

Valve Number - 1 - 5 - 4 - 3 - 2

Opening Order - 1 - 2 - 3 - 4 - 5

Lead (Inches) - .743 - .743 - .529 - .564 - .537 Min. Lift

ELECTRICAL REQUIREMENTS: See Wiring Diagram, Figure 28

TURBINE WEIGHTS: See Outline Drawing, Figure 2

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Governor Section	4	LE-162903
Turning Gear Section	4.1	LE-95011-A
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Trip Throttle Valve and Steam Strainer	5	Gimpel S-917
Handwheel Extention Assembly	5.1	Gimpel M-4094
Thrust Bearing Section	6	Waukesha D-312-660-009
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Emergency Overspeed Governor	8	LB-80813
Speed Governor	9	Woodward
. Governor Bulletin		03014
. Plant Operating Problems		01502
. Speed Adjusting Motor		03505
. Control of Prime Mover Speed		25031, Parts I, II, III
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. Oils for Governor		25007
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Low Oil Pressure Trip Switch	11	United Electric J6-156

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Differential Pressure Switch Across Filter	13.1	United Electric J300K-559
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