



9000 KW EXTRACTION CONDENSING STEAM TURBINE GENERATOR SET

STEAM TURBINE:

Manufacturer: Murray (Dresser-Rand)
Serial number: T-5593
Rating: 9,000 KW
Inlet steam: 850 psig/750 deg f
Extraction steam: 125 psig
Exhaust steam: 3" Hga
Rating with zero extraction: 6500 kw
Steam flow at 6500 kw: 70,000 lbs/hr
Steam rate straight condensing: 10.77 lbs/kwh
Extraction steam flow: 0 to 50,000 lb/hr
Maximum inlet steam flow: 120,000 lbs/hr
Number of stages: 9
Speed: 4711 rpm
Inlet steam flange: 6" right side
Extraction steam Flange: 8" left side
Exhaust flange: 48" top
Rotation(view from Governor end): CCW

Control: Woodward 505E with ProTech 203

GEAR REDUCER:

Manufacturer: Lufkin
Model number: N2400C
Serial number: 116675
Rating: 12,837 hp
Service factor: 1.56

GENERATOR:

Manufacturer: Ideal
Serial number: 011077-01
Rating: 11177 kva
KW: 9500
PF: 0.85
Type: TEWAC
Exciter: Brushless 25 kw with PMG
Speed: 1800 rpm
Volts: 13200 v, 3 phase, 60 hz.

HISTORY:

Year built: 2001
Last major overhaul: 2006
Last year run: 2008, unit is very good running condition.
Turbine rebuilt and stored inside warehouse

SCOPE OF SUPPLY



NSV Energy, LLC

www.nsvenergy.com

9000 KW Dresser Rand extraction condensing steam turbine, serial number: T-5593, Lufkin gear reducer
Mounted on common skid with 6" steam inlet stop valve, 8" extraction NRV, with all internal piping.

9500 KW Ideal generator, 13200 v, Serial number: 011077-01, with exciter, PMG, air to water cooler.
Generator terminal box with ct's, surge arresters and capacitor, generator sole plate

Lube oil system with lube oil tank, lube oil cooler, pumps, lube oil conditioner, lube oil piping.

Lube oil conditioner with control panel

Gland steam condenser with steam trap.

Extraction steam safety valve.

Turbine and generator control panel with Woodward 505E governor, ProTech 203 , PLC, Woodward
auto synchronizer, meters.

Drawings, manuals.



Following equipment are not included if needed can be supplied:

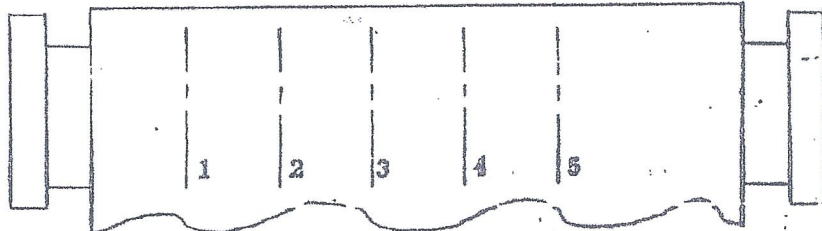
Condenser and auxiliaries

Generator breaker.

2-2-2

Rated Steam Pressure at Throttle -----	850	#/Sq. In. Ga.
Rated Steam Total Temp. at Throttle -----	750	degrees F.
Rated Back Pressure at Exhaust -----	---	#/Sq. In Ga.
Rated Vacuum at Exhaust -----	3.0	Hg.Abs.
Rated Horsepower -----	---	H. P.
K. W. -----	8964	K. W.
Rated Turbine Operating Speed -----	---	R. P. M.
Rated Gear Operating Speed -----	4711	R. P. M.
Turbine Rotation (Viewed from Gov. End)-----	CCW	
Hand Valves -----	---	

For Assembly &
Opening Sequence
see H. P. Control
Valve Linkage
Assembly.

[illegible]

	Min.	Max.
Steam End Rings -----	0.013	0.016
Exhaust End Rings -----	0.001	0.003
Diaphragm Ring/s <u>2</u> stage thru <u>4</u> stage ---	0.003	0.005
Diaphragm Ring/s <u>5</u> stage thru <u>10</u> stage ---	0.009	0.007

Carbon Rings in Steam End Gland to be Arranged for ATMOSPHERIC & ABOVE OPERATION

Carbon Rings in Exhaust End Gland to be Arranged for CONDENSING OPERATION.

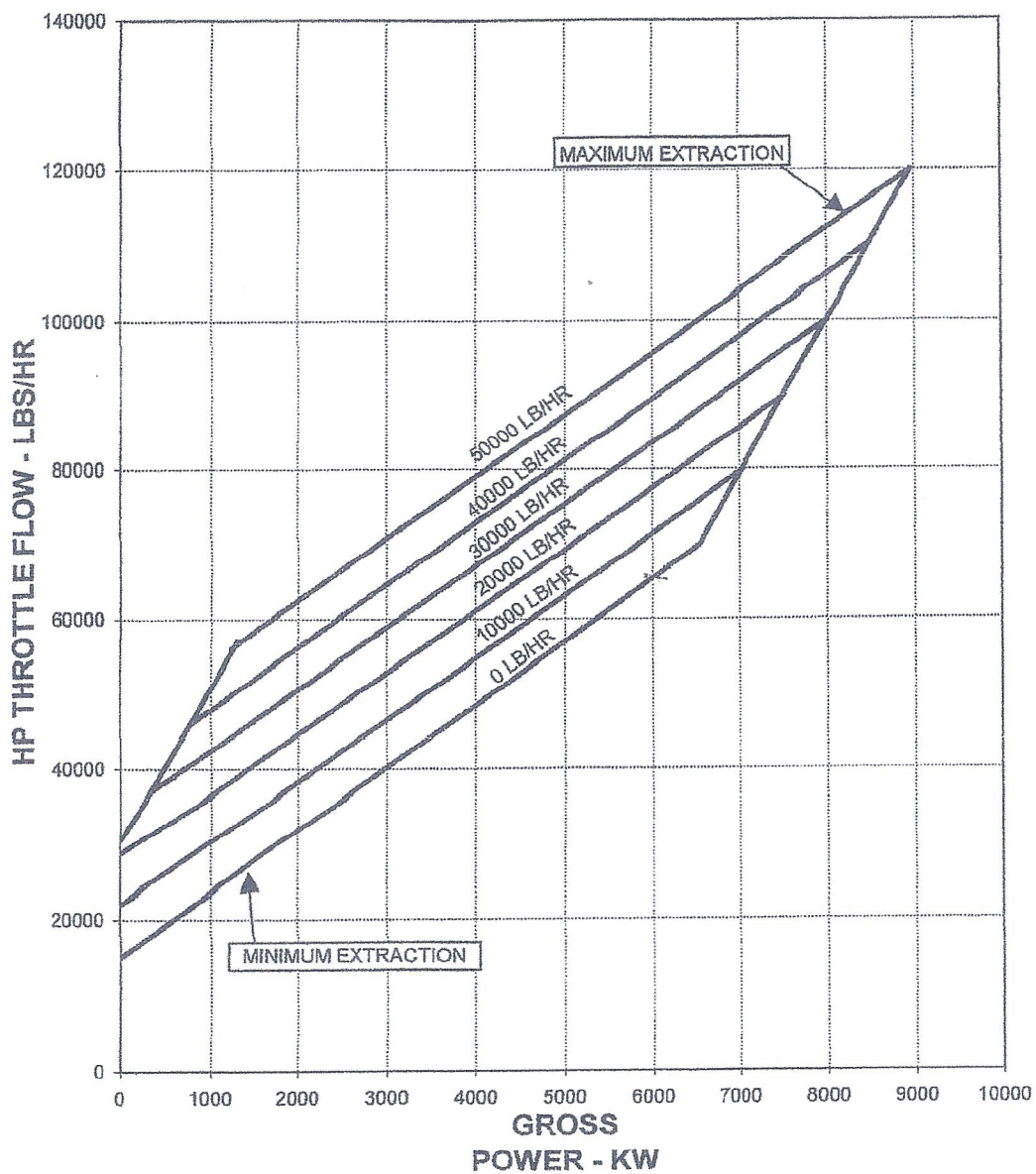


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STEAM TURBINE PERFORMANCE

INLET PRESSURE (PSIG)	850
INLET TEMPERATURE (DEG F)	750
EXHAUST PRESSURE ("HGA)	3
TURBINE RPM	4711/1800
EXTRACTION PRESSURE (PSIG)	125
DATE:	8/16/2001



IDEAL ELECTRIC CO.

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GENERATOR TEST REPORT

GENERATOR NAMEPLATE RATING

KW	KVA	RPM	Hz	Volts	Amps	Frame
9500	11177	1800	60	13200	489	21520-38

Rated Temperature Rise: Stator by Detector 80 °C
 Rotor by Res. 80 °C
 Insulation Class F

BRUSHLESS EXCITER NAMEPLATE RATING

KW	DC Volts	DC Amps	Field Volts	Field Amps	Frame	Temp Rise
25	180	139	71	3.5	BE-13-3	80 °C

FACTORY TEST RESULTS

Field coil polarity: Polarity alternating between Plus and Minus around the entire rotor.
PASS

		Generator		Exciter		
		Stator	Rotor	Armature	Field	PMA
Winding Resistance Ohms at	22 °C	0.0103	1.259	0.0260	15.41	1.039
Insulation Resistance Megohms	38 °C	21000	6480	6480	51000	20300
High Potential Test Voltage		27400	2000	2000	1500	1500
Average Air Gap Measurement		0.502		0.040		0.047

Phase Sequence: T1, T3, T2 with CCW shaft rotation viewed from the exciter end.

No Load Exciter Field Current: 1.2 Amps.

Phase Balance:	T1	T2	T3
	13198 V	13201 V	13203 V

Tests Certified by:
Report Date: 16-Nov-01

Simon P. Ghazarian
Simon Ghazarian, Electrical Engineer

9000 KW STEAM TURBINE GENERATOR SET PACKING LIST

Rev:03

Date: 09/22/2014

Item no.	Description	App, Size (LXWXH)	Weight lbs
1	Steam Turbine lower half with gear reducer Skid	22' x 11' x 10'9"	37,000
2	Steam turbine Rotor	14' x 4' x 4'	9,000
3	Steam turbine upper casing	15' x 5' x 5'	9,000
4	Generator	13'6" x 7' x 6'6"	53,000
5	Generator Air cooler	8'3" x 6'9"x3'	4,000
6	Lube oil skid	14' x10' 6' x 7'8"	12,000
7	Generator sole plates (2 pcs)	113' x 8" x 4"	2000
8	One 40 feet container 1 pc Generator terminal box 1 pc Turbine oil conditioner 1 pc Neutral Ground resister 1 pc Turbine control panel 1 pc Turbine main steam valve 1 Pc Generator coupling guard 2 boxes Bolts and nuts 1 pc Spirax steam trap package 1 PC Gland steam condenser package 1 exhaust pipe stand close to turbine 1 extraction safety valve 1 turbine trip valve operator stand 1 set of lube oil piping 1 box Manuals 1 set Steam turbine diaphragms		27,000