



ENGINEERING & INDUSTRIES LTD.

**Turbine Business Group
Bangalore, INDIA.**

CLIENT : M/s TCP LIMITED,
NEW GUMMIDIPOONDI, TAMILNADU

TEIL WO NO. : C - 2244

TURBINE SL. NO. : FR - 13M-087

**TURBINE TYPE : BLEED /EXTRACTION CUM
CONDENSING TURBINE**

DRIVEN EQUIPMENT : 6000 KW ALTERNATOR

QUANTITY : 1- NOS.

YEAR OF MANUFACTURE : 2006

WHILST EVERY EFFORT HAS BEEN MADE TO ENSURE THAT THE INFORMATION CONTAINED IN THIS MANUAL IS CORRECT AND FULLY UP-TO-DATE, THE MANUFACTURER M/s. TRIVENI ENGINEERING & INDUSTRIES LTD., CANNOT BE HELD RESPONSIBLE FOR ANY ERRORS OR OMISSIONS.

ANY QUERIES REGARDING THIS HANDBOOK SHOULD BE REFERRED TO M/s. TRIVENI ENGINEERING & INDUSTRIES LTD., QUOTING ORDER REFERENCE NO. C - 2244

IMPORTANT

WHEN ORDERING SPARE PARTS, QUOTE THE ABOVE TEIL WORK ORDER NO:

C - 2244 AND TURBINE SERIAL NO. FR-13M-087

I. TURBINE

Power Normal	KW	-	6000
Inlet Steam Pressure	ATA	-	65
Inlet Steam Temperature	°C	-	490
Inlet Steam Flow	TPH	-	39.2
Bleed Pressure	ATA	-	11
Bleed Flow	TPH	-	3.6
Extraction Pressure	ATA	-	7
Extraction Flow	TPH	-	19.6
Exhaust Pressure	ATA	-	0.15
Turbine Speed	RPM	-	8280
Alternator Speed	RPM	-	1500
Turbine Trip Speed Range	RPM	-	9075/9490
First Critical Speed Range	RPM	-	3200/3600
Steam Inlet size		-	8" NB 900# RF
Direction of Rotation			
From Output end	-	-	Counter Clockwise

II. GEAR BOX (BT0210025)

Make	-	-	TEIL Mysore
Type	-	-	Double Helical
Model	-	-	HSG 560
Speed/Input	RPM	-	8280-1500

III. OIL SYSTEM

Lubricating Oil	-	-	ISO-VG-46
Oil Reservoir Capacity	LTRS	-	3000
1 st Fill Oil Requirement	LTRS	-	6000
Lube Oil Pressure Range	Kg/cm ² g	-	1.8 - 2
Control Oil Pressure	Kg/cm ² g	-	4.5-5.5

A. MAIN LUBRICATING OIL PUMP

Manufacturer	-	-	David Brown, UK
Type	-	-	Geared
Model	-	-	M30H-1FL AM.4.5"FW
Capacity	GPM	-	120
Driver	-	-	Gear Box

B. A.C. AUXILIARY OIL PUMP (BT0750141)

Manufacturer	-	-	Rotodel
Model	-	-	(RDN X 300L)
Type	-	-	Geared
Capacity	GPM	-	120
Speed	RPM	-	1440
Motor	HP	-	15

C. EMERGENCY OIL PUMP (DC)(BT0750154)

Manufacturer	-	-	Rotodel
Model	-	-	RDN X 125L
Type	-	-	Geared
Capacity	GPM	-	15
Motor	HP	-	2 HP DC Supply

D. OIL COOLER

Make	-	-	Eskay Industries Ltd.,
Model	-	-	(TB2SAM 4195-R5 Item 3)
Type	-	-	Horizontal Duplex
Capacity	GPM	-	120
Oil Temperature Inlet	°C	-	60
Oil Temperature Outlet	°C	-	45
No. of Tubes	-	-	320 - 5/8" O/D x 18 BWG
Surface Area	SQM	-	40
Cooling Water Temp. Inlet	°C	-	35
Cooling Water Temp. Outlet	°C	-	38
Cooling Water Flow	GPM	-	245

E. OIL FILTER (BTO150032)

Manufacturer	-	-	Industrial Enterprises (IEH 1405
Type	-	-	Duplex
Capacity	GPM	-	120
Grade of Filtration	Microns	-	10-15
Elements No.	-	-	120-02

F. CONTROL OIL FILTER (BT0150042)

Manufacturer	-	-	Industrial Enterprises (IEH 1435)
Model	-	-	Simplex
Capacity	GPM	-	8
Grade of Filtration	Microns	-	15
Elements No.	-	-	8-04

G. EOP FILTER (BT0150020)

Manufacturer	-	-	Industrial Enterprises (IEH 1427)
Model	-	-	Simplex
Capacity	GPM	-	15
Grade of Filtration	Microns	-	10-15
Elements No.	-	-	15-10

H. PRESSURE RELIEF VALVE (MOP) IMO190005)

Make	-	-	Hopkinsons, U.K.
Duty	-	-	Control Oil
Size Inlet / Outlet	-	-	1" NB
Set Pressure	Kg/cm ² g	-	6.05 kg
Discharge Capacity	GPM	-	25

I. PRESSURE RELIEF VALVE (AOP) VL0100033

Make	-	-	Nirmal Ind.
Duty	-	-	Control Oil
Size Inlet / Outlet	-	-	40 x 50 NB-ANSI 150# RF
Set Pressure	Kg/Cm ² g	-	5.90 kg
Discharge Capacity	GPM	-	120

J. PRESSURE RELIEF VALVE (LUBE OIL) IMO190007

Make	-	-	Hopkinsons, U.K.
Duty	-	-	Lube Oil
Size Inlet / Outlet	-	-	1" NB
Set Pressure	Kg/Cm ² g	-	1.5-2
Discharge Capacity	GPM	-	25

K. ACCUMULATOR (BT0220001)

Manufacturer	-	-	Fawcet - India
Model	-	-	2000A-00-201
Pre Charged Pr.	Kg/cm ² g	-	3.9

L. SOLENOID VALVE

Make	-	-	ASCO
Volts	-	-	110 DC
Connection	-	-	3/4" NPT (F)
Action	-	-	De Energise to Trip

M. THROTTLE VALVE SETTING

Throttle Valve Lift NO.1	mm	-	35.50
Throttle Valve Lift NO.2	mm	-	16.50
Throttle Valve Lift NO.3	mm	-	5
Throttle Lift (available)	mm	-	57
Pass in valve Lift	mm	-	30.50

IV GENERAL**1. High Speed Coupling**

Manufacturer	-	-	Euroflex Transmission (I) Pvt. Ltd.
Model	-	-	8GBH-215 (without s pin)
Drawing no.	-	-	01094-00

2. Low Speed Coupling

Manufacturer	-	-	Euroflex Transmissions (I)
Model	-	-	8GBH-300
Drawing no.	-	-	20057

3. Governor

Type	-	-	Woodward (505E Model)
Model	-	-	Digital

4. Actuator (HP)

Manufacturer	-	-	Woodward
Type	-	-	TG 13E
Operating Speed	RPM	-	1102

5. Actuator (LP)

Manufacturer	-	-	Woodward
Type	-	-	TG 13E
Motor	HP	-	0.5

6. CONDENSER - **NOT IN SCOPE**
(AIR COOLED COND.)**7. GLAND VENT CONDENSER**

Manufacturer	-	-	Eskay Industries
Type	-	-	Horizontal Shell & Tube
Steam Flow	Kg/Hr	-	300
Condensate Flow	Kg/Hr	-	26000
Condensate Temp Inlet/Outlet	°C	-	60/67.8
Surface Area	M ²	-	9.7

8. GVC BLOWER

Manufacturer	-	-	Nadi Airtechnics
Capacity	CFM	-	650 Air at 2" WC
Motor	KW	-	0.37 KW

Description	Service	Recommended settings	Range available
Diff Pr. Indicator cum sw	Pr. Diff across filter	0.7 Bar (g)	0 to 1.0 Bar (g)
Pressure switch	AOP auto ON/OFF	1.2 Bar (g) for cut-in, 2.3 Bar (g) for cut-off	0.4 to 4.0 Bar (g)
Pressure switch	EOP auto ON/OFF	0.6 Bar (g) for cut-in, 1.0 Bar (g) for cut-off,	0.4 to 4.0 Bar (g).
Pressure switch	Lube oil pressure low alarm	1.4 Bar (g)	0.2 to 2.0 Bar (g).
Pressure switch	Lube oil pressure very low alarm	1.2 Bar (g)	0.2 to 2.0 Bar (g).
Pressure switch	Barring gear interlock	1.5 Bar (g)	0.2 to 2.0 Bar (g).
Pressure switch	Control oil pressure low alarm	3.8 Bar (g)	0.6 to 6.0 Bar (g).
Pressure switch	Control oil pressure very low trip/alarm	3.5 Bar (g)	0.6 to 6. Bar (g).
Vibration monitor	Bearing vibrations	Alarm 2.5 and trip 3.5 mils	0 to 5 mils.
Vibration monitor	Axial vibrations	Alarm 10 and trip 14 mils	0 to 30 mils
RTD	Turbine bearings	Alarm 95 deg.C, Trip:100 deg.C.	Programmable
RTD	Gearbox bearings	Alarm 95 deg. C, Trip 100 deg.C	Programmable
Vibration Monitor	Gear box High speed shaft	Alarm 2.5 mils Trip 4.5 mils	0-5 mils.





Triveni

TURBINE BUSINESS GROUP



TURBINE SERIAL No. **FR13-87**

YEAR OF MANUFACTURE **2006**

		MINIMUM	NORMAL	MAXIMUM
POWER	- KW		6000	
INLET STEAM TEMPERATURE	- DEG. C		490	
INLET STEAM PRESSURE	- * ATA		65	
EXHAUST STEAM PRESSURE	- * ATA		0.15	
BLEED STEAM PRESSURE	- * ATA		11.0	
EXTRACTION STEAM PRESSURE	- * ATA		7.0	
TURBINE ROTOR SPEED	- RPM		8280	
GEAR BOX OUT-PUT SPEED	- RPM		1500	
TURBINE TRIP SPEED RANGE	- RPM	9100	TO	9525
1st CRITICAL SPEED RANGE	- RPM	3200	TO	3600

Manufactured & Marketed by :
Triveni Engineering & Industries Ltd.
 12A, Peenya Industrial Area,
 Bangalore-560 058, INDIA.
 URL : www.trivenigroup.com
 Email : customercare@tbg.trivenigroup.com



GEARS



MODEL NO.

H56-560

SERIAL NO.

883

GEAR
RATIO

5.520

POWER
HP/KW

5600 KW

RATED
INPUT

8280

RATED
OUTPUT

1500

RPM

RPM

ORDER
NUMBER

3821

SERVICE
FACTOR

1.50

NO. OF
TEETH GR/PIN

138/25

OIL REQUIREMENT

ISO GRADE

ISO-VG-46

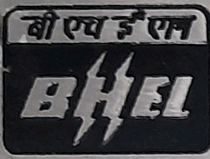
QUANTITY

180 LPM

AT 1.5 BAR



ENGINEERING & INDUSTRIES LIMITED
MYSORE, INDIA



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
BHARAT HEAVY ELECTRICALS LIMITED

तुल्यकालिक जनित्र
SYNCHRONOUS GENERATOR

ढांचा FRAME	G 651048
कि.वो.ए. k.V.A.	7500
किलोवाट kW	6000
परिक्रमण / मि. rpm	1500
शक्ति गुणांक P. F.	0.8 LAG
स्टेटर वोल्ट्स STATOR VOLTS	11000
स्टेटर एम्पिअर्स STATOR AMPS.	387

विद्युत रोधन श्रेणी INSLN. CLASS		F	
फेज PHASE	3	हर्ट्स HZ	50
संबंधन CONNECTION		STAR	
परिवात तापमान AMBIENT TEMP.		50°C	
प्रवेश तापमान INLET TEMP.		50°C	
उत्तेजन वोल्ट्स EXCT. VOLTS		122	
उत्तेजन एम्पिअर्स EXCT. AMPS.		387	

विनिर्देश SPECIFICATION	IS 4722		
निर्धारण DUTY	CONTINUOUS		
संरक्षण डिग्री DEG. OF PORT.	IP 54		
क्रम संख्या SERIAL NO	45193A26H11-01		
प्रभाग DIVISION	भोपाल BHOPAL		
वर्ष YEAR	2007	भार WT.	210000

भारत में निर्मित

MADE IN INDIA









