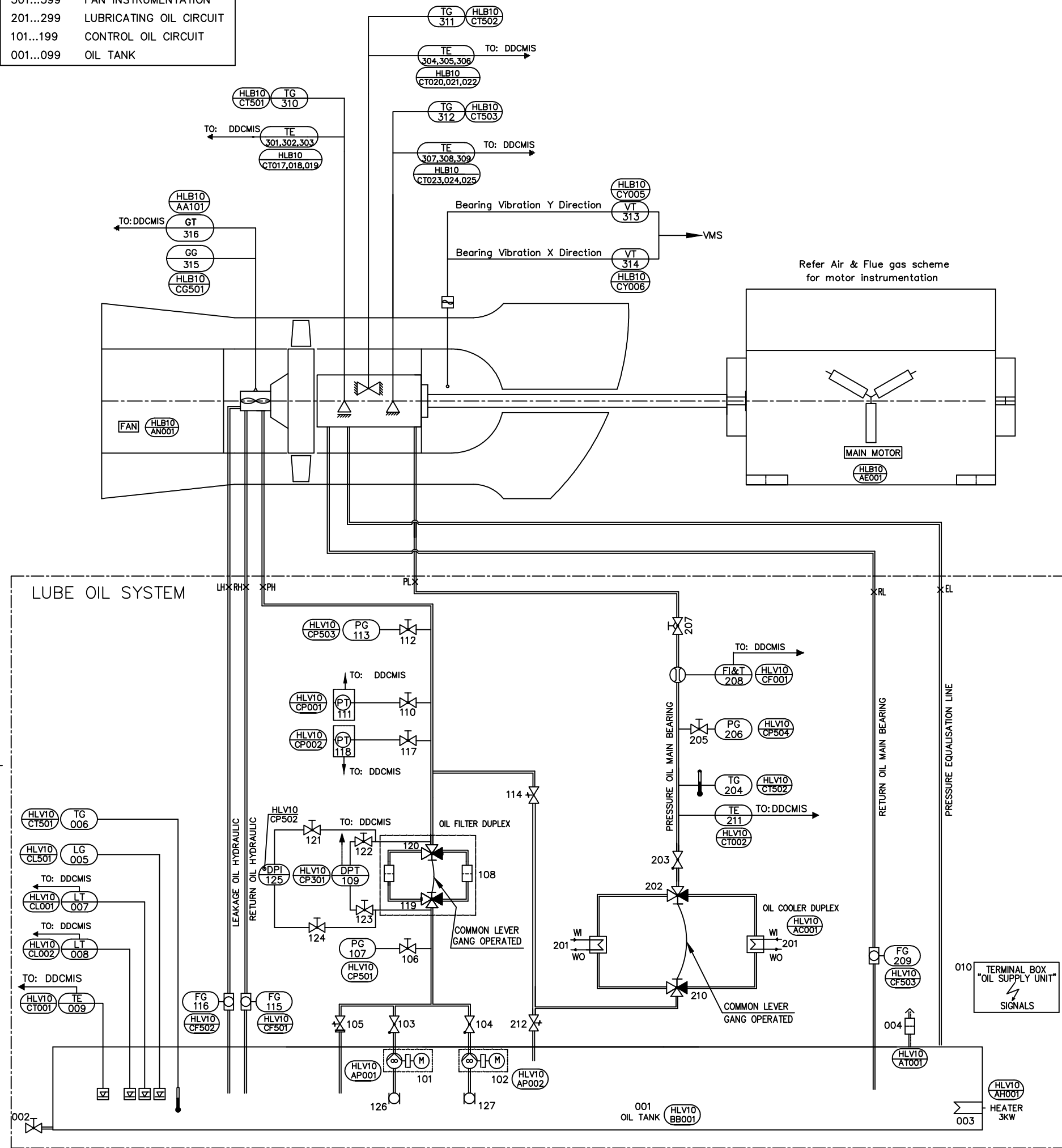


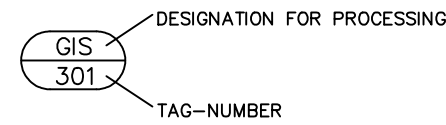
DESIGNATION:

301...399	FAN INSTRUMENTATION
201...299	LUBRICATING OIL CIRCUIT
101...199	CONTROL OIL CIRCUIT
001...099	OIL TANK



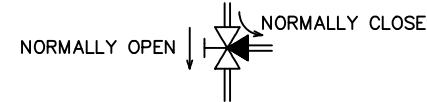
MEASURING INSTRUMENTS

GI 302	LOCAL INDICATING MEASURING EQUIPMENT
GIS 301	MEASURING EQUIPMENT WITH ELECTRICAL SIGNAL (BINARY OR ANALOG)



Bx0xx	ANALOGUE MEASURING
Bx3xx	BINARY MEASURING
Bx5xx	LOCAL INDICATING MEASURING EQUIPMENT

ADDITIONAL INFORMATION FOR VALVES:



PIPE CONNECTION LEGEND

"PH": PRESSURE OIL HYDRAULIC
"RH": RETURN OIL HYDRAULIC
"LH": LEAKAGE OIL HYDRAULIC

"PL": PRESSURE OIL MAIN BEARING
"RL": RETURN OIL MAIN BEARING
"EL": PRESSURE EQUALISATION LINE

"WI": WATER CONNECTION INPUT COOLER (SIZE: 25NB)
"WO": WATER CONNECTION OUTPUT COOLER (SIZE: 25NB)

INSTRUMENTATION LOGIC TABLE

SEQUENCE	ALARM	FAN MOTOR & SERVO MOTOR START PERMISSIVE	FAN MOTOR TRIP	STAND BY OIL PUMP ON	HEATER ON	HEATER OFF	NORMAL OPERATION POINT	INITIATED BY
FAN BLADES & OUTLET DAMPER CLOSED		●						Refer A & FG Drawing
MAX. LEVEL IN OIL TANK ≥ 75%		●						LT(007,008) HLV10-CL001/CL002
MIN. LEVEL IN OIL TANK ≤ 60%	●							LT(007,008) HLV10-CL001/CL002
OIL TANK TEMPERATURE ≤ 17°C	●							TE(009) HLV10-CT001
OIL TANK TEMPERATURE ≥ 60°C	●							TE(009) HLV10-CT001
TEMP. IN OIL TANK ≤ 25°C					●			HEATER WITH THERMOSTAT (003)
TEMP. IN OIL TANK ≥ 35°C						●		HEATER WITH THERMOSTAT (003)
DIFF. PRESSURE ACROSS FILTER ≥ 5 bar	●							DPT(109) HLV10-CP301
CONTROL OIL PRESSURE ≥ 17 bar		●						PT(111,118) HLV10-CP001,002
CONTROL OIL PRESSURE ≤ 13 bar	●							PT(111,118) HLV10-CP001,002
LUB OIL FLOW ≥ 3.2 l/min (Fan Brgs.)		●						FI&T(208) HLV10-CF001
LUB OIL FLOW ≤ 2.4 l/min (Fan Brgs.)	●							FI&T(208) HLV10-CF001
LUB OIL TEMP ≥ 70°C	●							TE(211) HLV10-CT002
FAN BRG. TEMP HIGH ≥ 90°C	●							TE (301-309) HLV10-CT017 TO 025
FAN BRG. TEMP VERY HIGH ≥ 110°C			●					TE (301-309) HLV10-CT017 TO 025
FAN BRG. VIBRATION LEVEL > 4.5mm/s [rms] (Lead time: Nil)	●							VT(313,314) HLB10-CY005,006
FAN BRG. VIBRATION LEVEL > 9mm/s [rms] (Lead time: 2min)			●					VT(313,314) HLB10-CY005,006
FAN BRG. VIBRATION LEVEL > 15mm/s [rms] (Lead time: 5 sec)			●					VT(313,314) HLB10-CY005,006

P+I-SYMBOLS (ACCORD. TO DIN 30600 AND DIN 2481)

	SAFETY VALVE		OIL		ROTOR BLADE ADJUSTMENT
	PRESSURE RELIEF VALVE		WATER		ELECTRIC MOTOR
	NON RETURN VALVE		COUPLING		FAN
	3-WAY VALVE		HEATER		PNEUMATIC ACTUATOR
	3-WAY COCK		FLOW SIGHT-GLASS		ORIFICE
	SHUT-OFF VALVE		THERMOMETER		OIL TOP UP LOCATION
	PUMP		SLIDING VALVE		NON RETURN FLAP
	FILTER		FLOW METER		SUCTION STRAINER
	HEAT EXCHANGER (OIL COOLER)		THROTTLE VALVE		

TAG NO.	EQUIPMENT
001	OIL TANK (CAPACITY: 250 LTR)
002	DRAIN VALVE WITH SCREW PLUG
003	OIL TANK HEATER (3KW)
004	FILLER AND AIR BREATHER FILTER
005	LEVEL GAUGE
006	OIL TANK TEMPERATURE GAUGE
007	LEVEL TRANSMITTER
008	LEVEL TRANSMITTER
009	TEMPERATURE SENSING ELEMENT
010	TERMINAL BOX (OIL SUPPLY UNIT)
101 & 102	PUMP (25LPM/35 BAR) (1W,1S) (100% EACH) WITH MOTOR
103	NON RETURN VALVE
104	NON RETURN VALVE
105	PRESSURE RELIEF VALVE (30 BAR)
106	SHUT OFF VALVE
107	PRESSURE GAUGE
108	DOUBLE REVERSING OIL FILTER(DUPLEX)
109	DIFFERENTIAL PRESSURE TRANSMITTER
110	SHUT OFF VALVE
111	PRESSURE TRANSMITTER
112	SHUT OFF VALVE
113	PRESSURE GAUGE
114	PRESSURE RELIEF VALVE (22 BAR)
115	FLOW SIGHT GLASS
116	FLOW SIGHT GLASS
117	SHUT OFF VALVE
118	PRESSURE TRANSMITTER
119	THREE WAY VALVE
120	THREE WAY VALVE
121	SHUT OFF VALVE
122	SHUT OFF VALVE
123	SHUT OFF VALVE
124	SHUT OFF VALVE
125	DIFFERENTIAL PRESSURE GAUGE
126	SUCTION STAINER (149 MICRON/SS100 MESH)
127	SUCTION STAINER (149 MICRON/SS100 MESH)

TAG NO.	EQUIPMENT
201	OIL COOLER DUPLEX
202	THREE WAY VALVE
203	NON RETURN VALVE
204	TEMPERATURE GAUGE
205	SHUT OFF VALVE
206	PRESSURE GAUGE
207	THROTTLE VALVE (SET POINT FLOW : 4 l/min)
208	FLOW INDICATOR CUM TRANSMITTER (DP TYPE)
209	FLOW SIGHT GLASS
210	THREE WAY VALVE
211	TEMPERATURE SENSING ELEMENT
212	PRESSURE RELIEF VALVE (5 BAR)
301	TEMPERATURE SENSING ELEMENT
302	TEMPERATURE SENSING ELEMENT
303	TEMPERATURE SENSING ELEMENT
304	TEMPERATURE SENSING ELEMENT
305	TEMPERATURE SENSING ELEMENT
306	TEMPERATURE SENSING ELEMENT
307	TEMPERATURE SENSING ELEMENT
308	TEMPERATURE SENSING ELEMENT
309	TEMPERATURE SENSING ELEMENT
310	TEMPERATURE GAUGE (MIST)
311	TEMPERATURE GAUGE (MIST)
312	TEMPERATURE GAUGE (MIST)
313	VIBRATION PROBE
314	VIBRATION PROBE
315	SCALE (BLADE POSITION)
316	ACTUATOR (PNEUMATIC)

NOTES:-

- THIS SCHEME IS APPLICABLE FOR ONE FAN AND SIMILAR SYSTEM IS APPLICABLE FOR OTHER FAN AND ALSO FOR ALL OTHER UNITS.
- KKS NOS. HAVE BEEN MARKED FOR FD FAN – A LUBE OIL SYSTEM.
- KKS BLOCK FOR FD FAN – B LUBE OIL SYSTEM SHALL BE HLV 20.
- PIPE LINES & VALVES IN THE COOLING WATER INLET&OUTLET ARE IN THE SCOPE OF PIPING CENTRE/BHEL/CHENNAI. REFER THE SCHEME DRAWING FURNISHED BY PIPING CENTRE/BHEL/CHENNAI.
- PLEASE REFER SCHEME OF AIR & FLUE GAS SYSTEMS RELEASED BY C&I TRICHY FOR INSTRUMENTS OTHER THAN LOS.
- GRADE OF OIL : ISO VG68
- FOR LOCATION OF LUBE OIL SYSTEM PLEASE REFER GA DRAWING FOR FD FAN WITH FOUNDATION PLAN AND LOADING DATA DRG NO:1-00-098-29050.
- ACTUATOR (ITEM NO: 316) IS IN THE SCOPE OF BHEL/CHENNAI.
- RTD & MIST (ITEM NO: 301 TO 312) ARE NOT PART OF LUBE OIL SYSTEM AND WILL BE SUPPLIED SEPARATELY BY BHEL/BAP/RANIPET.
- VIBRATION PROBES (ITEM NO: 313, 314) ARE NOT PART OF LUBE OIL SYSTEM AND WILL BE SUPPLIED SEPARATELY BY BHEL/EDN.
- DUE TO THE PROVISION TO MOUNT ONLY 9 No's TEMPERATURE ELEMENTS IN FAN BEARING. SITE IS DIRECTED TO REPLACE FAN BEARING MIST (3 No's) WITH RTD AFTER COMMISSIONING CHECKS FOR IMPLEMENTATION OF 2 OUT OF 3 VOTING LOGIC OF BEARING METAL TEMP. FOR GENERATING ALARM/TRIP SIGNAL OF MOTOR IN DDCMIS.
- FOR ALL RTD's ONLY RING-TONG TYPE LUGS SHALL BE USED AT JUNCTION BOXES.

CUSTOMER:		CUSTOMER Nos. R827 TO R831	
		TELANGANA STATE POWER GENERATION CORPORATION LTD.	
PROJECT :		YADADRI THERMAL POWER STATION-5X800MW NALGONDA DIST., TELANGANA STATE, INDIA	
		BHARAT HEAVY ELECTRICALS LTD. BOILER AUXILIARIES PLANT RANIPET - 632 406	
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TITLE		LUBE OIL SCHEME FOR FORCED FAN CAPACITY : 25 LPM/35 BAR	
DEPT. SCALE N.T.S		DRAWING NO. 2-00-107-30030	
SHEET 1 OF 1		REV. 00	