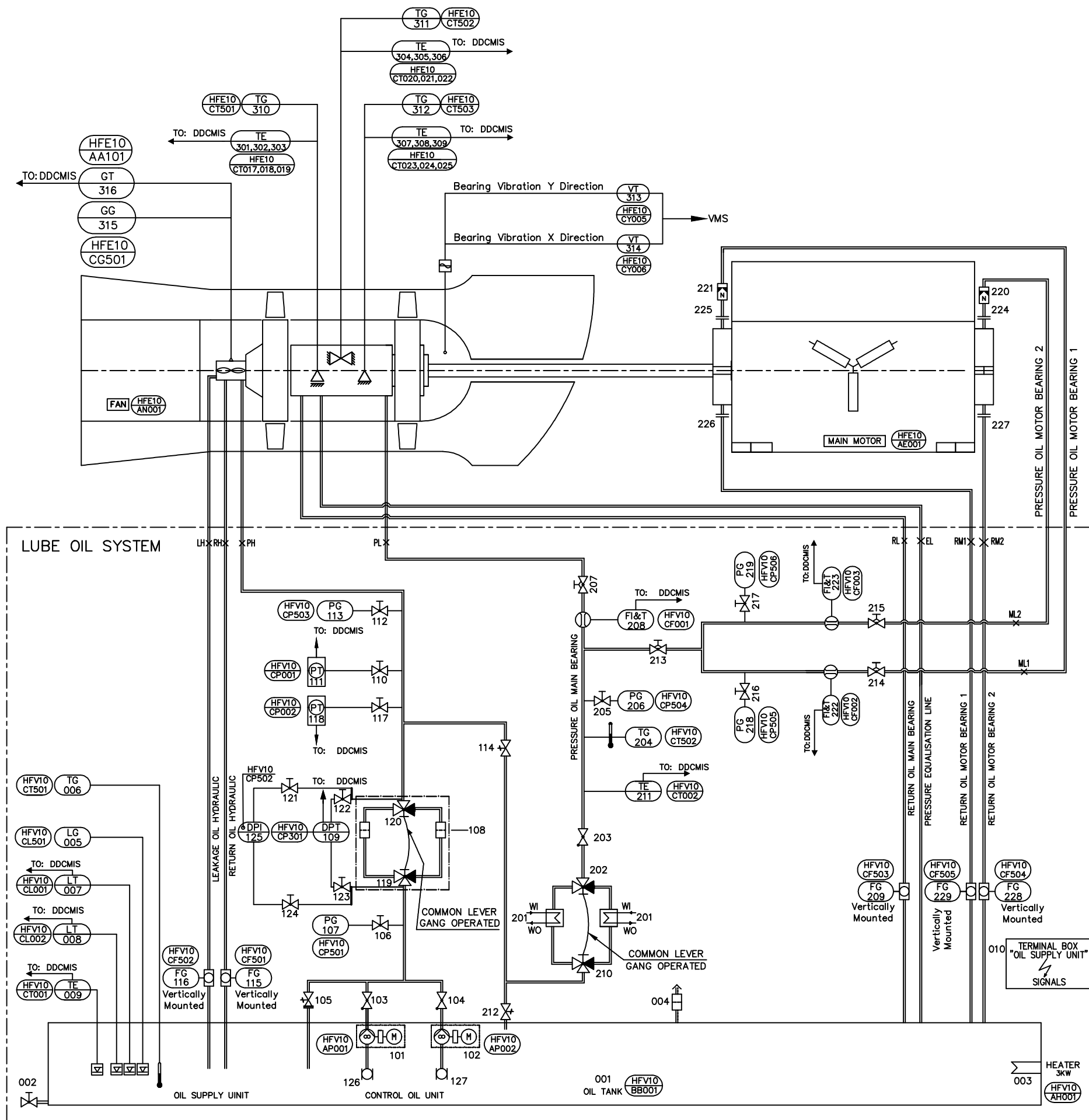




NOTES:-

01. THIS SCHEME IS APPLICABLE FOR ONE FAN AND SIMILAR SYSTEM IS APPLICABLE FOR OTHER FAN AND ALSO FOR ALL OTHER UNITS.
02. KKS NOS. HAVE BEEN MARKED FOR PA FAN - A LUBE OIL SYSTEM.
03. KKS BLOCK FOR PA FAN - B LUBE OIL SYSTEM SHALL BE HFV 20.
04. 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.
05. PLEASE REFER SCHEME OF AIR & FLUE GAS SYSSEMS RELEASED BY C&I TRICHY FOR INSTRUMENTS OTHER THAN LOS
06. GRADE OF OIL : ISO VG68.
07. FOR LOCATION OF LUBE OIL SYSTEM PLEASE REFER GA DRAWING FOR PA FAN WITH FOUNDATION PLAN DRG NO:1-00-100-29052.
08. ACTUATOR (ITEM NO: 316) IS IN THE SCOPE OF BHEL TRICHY.
09. RTD & MIST (ITEM NO: 301 TO 312) ARE NOT PART OF LUBE OIL SYSTEM AND WILL BE SUPPLIED SEPARATELY BY BHEL/BAP/RANIPET.
10. VIBRATION PROBES (ITEM NO: 313, 314) ARE NOT PART OF LUBE OIL SYSTEM AND WILL BE SUPPLIED SEPARATELY BY BHEL/EDN.
11. FOR ALL RTD's ONLY RING-TONG TYPE LUGS SHALL BE USED AT JUNCTION BOXES.
12. 2 OUT OF 3 VOTING LOGIC FOR BEARING METAL TEMP. SHALL BE IMPLEMENTED BY BHEL/PEM FOR GENERATING ALARM/TRIP SIGNAL OF MOTOR IN DDCMIS.

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

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

DESIGNATION:

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

MEASURING INSTRUMENTS

	LOCAL INDICATING MEASURING EQUIPMENT
	MEASURING EQUIPMENT WITH ELECTRICAL SIGNAL (BINARY OR ANALOG)

	DESIGNATION FOR PROCESSING
	TAG-NUMBER

ADDITIONAL INFORMATION FOR VALVES:

NORMALLY OPEN NORMALLY CLOSE

Bx0xx	ANALOGUE MEASURING
Bx3xx	BINARY MEASURING
Bx5xx	LOCAL INDICATING MEASURING EQUIPMENT

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

"ML1": PRESSURE OIL MOTOR BEARING 1
"ML2": PRESSURE OIL MOTOR BEARING 2
"RM1": RETURN OIL MOTOR BEARING 1
"RM2": RETURN OIL MOTOR BEARING 2
"W1": WATER CONNECTION INPUT COOLER 1 (SIZE: 40NB)
"W01": WATER CONNECTION OUTPUT COOLER 1 (SIZE: 40NB)
"W2": WATER CONNECTION INPUT COOLER 2 (SIZE: 40NB)
"W02": WATER CONNECTION OUTPUT COOLER 2 (SIZE: 40NB)

INSTRUMENTATION LOGIC TABLE

SEQUENCE	FAN MOTOR & ALARM SERVOMOTOR START PERMISSIVE	FAN MOTOR OIL PUMP TRIP	HEATER ON	HEATER OFF	NORMAL OPERATION POINT	INITIATED BY TAG Nos.
FAN BLADES & OUTLET DAMPER CLOSED	●					Refer A & FG Drawing
MAX. LEVEL IN OIL TANK $\geq 75\%$	●					LT (007,008) HFV10-CL001/CL002
MIN. LEVEL IN OIL TANK $\leq 60\%$						LT (007,008) HFV10-CL001/CL002
OIL TANK TEMPERATURE $\leq 17^{\circ}\text{C}$	●					TE(009) HFV10-CT001
OIL TANK TEMPERATURE $\geq 60^{\circ}\text{C}$	●					TE(009) HFV10-CT001
TEMP. IN OIL TANK $\leq 25^{\circ}\text{C}$				●		HEATER WITH THERMOSTAT (003)
TEMP. IN OIL TANK $\geq 35^{\circ}\text{C}$				●		HEATER WITH THERMOSTAT (003)
DIFF. PRESSURE ACROSS FILTER ≥ 5 bar	●					DPT (109) HFV10-CP301
CONTROL OIL PRESSURE ≥ 20 bar	●					PT (111,118) HFV10-CP001/CP002
CONTROL OIL PRESSURE ≤ 15 bar	●					PT (111,118) HFV10-CP001/CP002
LUB OIL FLOW ≥ 8 l/min (Fan Brgs.)		●				FI&T (208) HFV10-CP001
LUB OIL FLOW ≤ 6 l/min (Fan Brgs.)	●					FI&T (208) HFV10-CP001
LUB OIL TEMP $\geq 70^{\circ}\text{C}$	●					TE(211) HFV10-CT002
FAN BRG. TEMP HIGH $\geq 90^{\circ}\text{C}$	●					TE (301-309) HFE10-CT017 TO 025
FAN BRG. TEMP VERY HIGH $\geq 110^{\circ}\text{C}$		●				TE (301-309) HFE10-CT017 TO 025
FAN BRG. VIBRATION LEVEL $> 4.5\text{mm/s [rms]}$ (Lead time: Nil)	●					VT(313,314) HFE10-CY005,006
FAN BRG. VIBRATION LEVEL $> 9\text{mm/s [rms]}$ (Lead time: 2min)		●				VT(313,314) HFE10-CY005,006
FAN BRG. VIBRATION LEVEL $> 15\text{mm/s [rms]}$ (Lead time: 5 sec)		●				VT(313,314) HFE10-CY005,006
MOTOR						
LUB OIL FLOW PER BEARING < 4.2 LPM	●					FI&T(222,223) HFV10-CP002,003
LUB OIL FLOW PER BEARING < 2.8 LPM		●				FI&T(222,223) HFV10-CP002,003

TAG NO.	EQUIPMENT
001	OIL TANK (CAPACITY: 250 LTR)
002	DRAIN VALVE WITH SCREW PLUG
003	OIL TANK HEATER (3 KW)
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	PUMP (40LPM, 35BAR) & (1WORKING, 1STANDBY) (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 (26 BAR)
115	FLOW SIGHT GLASS
116	FLOW SIGHT GLASS
117	SHUT OFF VALVE
118	PRESSURE TRANSMITTER
119	3-WAY VALVE
120	3-WAY VALVE
121	SHUT OFF VALVE
122	SHUT OFF VALVE
123	SHUT OFF VALVE
124	SHUT OFF VALVE
125	DIFFERENTIAL PRESSURE GAUGE
126	SUCTION STRAINER (149 MICRON/SS100 MESH)
127	SUCTION STRAINER (149 MICRON/SS100 MESH)
201	OIL COOLER DUPLEX
202	3-WAY VALVE
203	NON RETURN VALVE
204	TEMPERATURE GAUGE
205	SHUT OFF VALVE
206	PRESSURE GAUGE
207	THROTTLE VALVE (SET POINT: 10LPM)

TAG NO.	EQUIPMENT
208	FLOW INDICATOR CUM TRANSMITTER (MEASUREMENT TYPE: DP)
209	FLOW SIGHT GLASS
210	THREE WAY VALVE
211	TEMPERATURE SENSING ELEMENT
212	PRESSURE RELIEF VALVE (5 BAR)
213	THROTTLE VALVE(SET POINT:14LPM)
214	THROTTLE VALVE (SET POINT: 7LPM)
215	THROTTLE VALVE (SET POINT: 7LPM)
216	SHUT OFF VALVE
217	SHUT OFF VALVE
218	PRESSURE GAUGE
219	PRESSURE GAUGE
220	ORIFICE
221	ORIFICE
222	FLOW INDICATOR CUM TRANSMITTER (MEASUREMENT TYPE: DP)
223	FLOW INDICATOR CUM TRANSMITTER (MEASUREMENT TYPE: DP)
224	INLET FLEXIBLE CONNECTOR TO SUIT FOR SIZE 15 NB
225	OUTLET FLEXIBLE CONNECTOR TO SUIT FOR SIZE 32 NB
226	OUTLET FLEXIBLE CONNECTOR TO SUIT FOR SIZE 32 NB
227	FLOW SIGHT GLASS
228	FLOW SIGHT GLASS
229	FLOW SIGHT GLASS
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)

CUSTOMER:		CUSTOMER Nos. R827 TO R831	
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 PRIMARY AIR FAN CAPACITY : 40 LPM/35 BAR			
DEPT. SCALE N.T.S.		DRAWING NO. 2-00-107-30032	
SIGN		SHEET 1 OF 1 REV. 00	