

POWER PLANT PIPING & INSTRUMENT DIAGRAM (P&ID)

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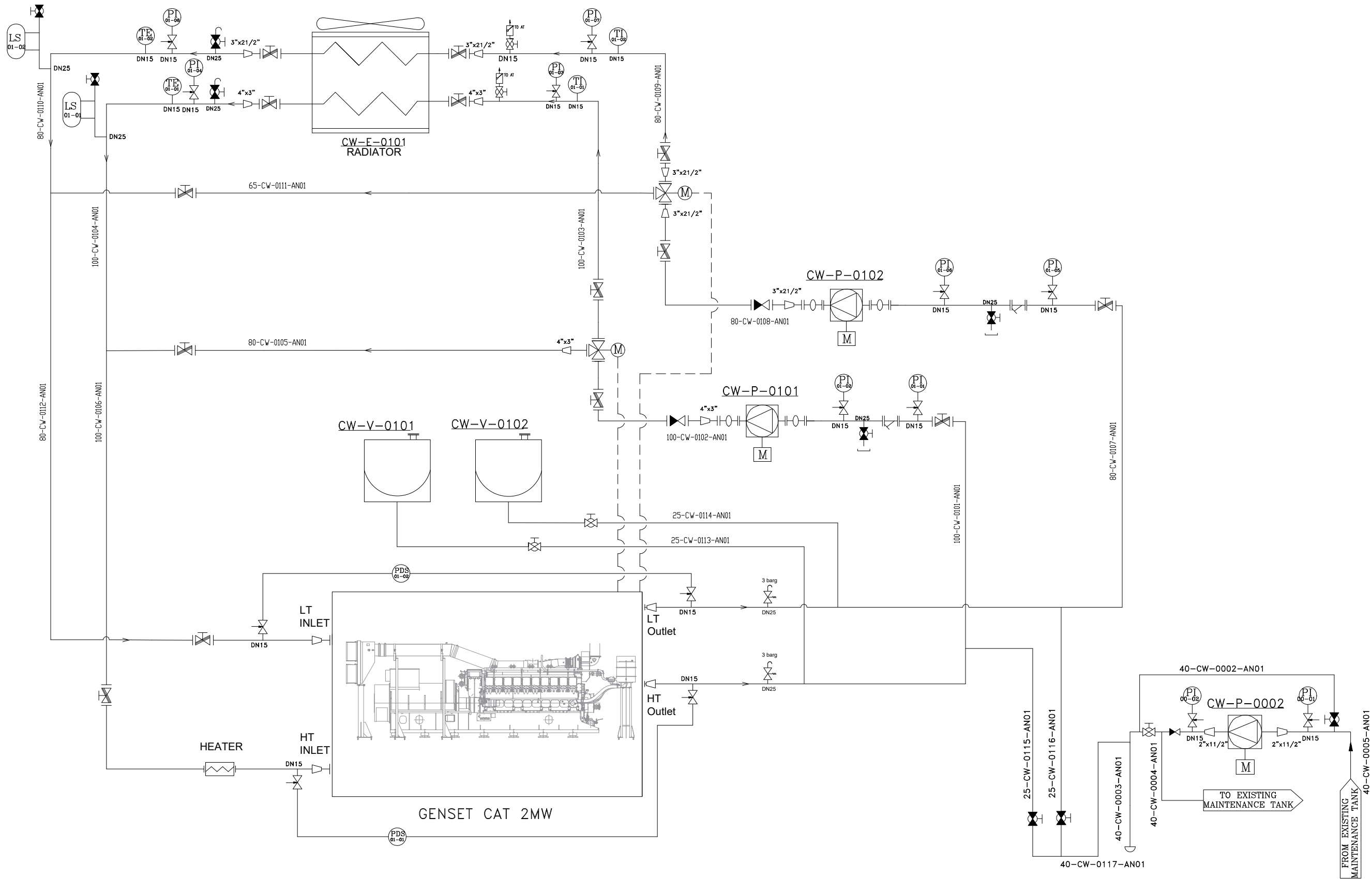
FUNCTION VARIABLE		INSTRUMENT IDENTIFICATION TABLE																												
		CONTROLLER						TRANSMITTER		CONVE	VALVE		GLASS	WELL	SWITCH						ALARM						SHUT DOWN			
		PRIM-ARY ELEMENT	INDI-CATOR	RECO-RDER	BLIND	IND.	REC.	BLIND	IND.	-RTER	CONT.	IND. CONT.			GENER-AL	EXT LOW	LOW & HIGH	HIGH	EXT. HIGH	HFO DO	GENER-AL	EXT LOW	LOW & HIGH	HIGH	EXT. HIGH	LOW	HIGH	EXT. HIGH	LOW	HIGH
		E	I	R	C	IC	RC	T	IT	Y	CV	ICV	G	W	S	SLL	SL	SHL	SH	SHH	SFO / SDO	A	ALL	AL	AHL	AH	AHH	SDL	SDH	
ANALYSIS	A	AE	AI	AR	AC	AIC	ARC	AT	AIT	AY	-	-	-	-	AS	-	ASL	-	ASH	-	-	-	AA	-	AAL	-	AAH	-	-	-
CONDUCTIVITY (ELECTD)	C	CE	CI	CR	CC	CIC	CRC	CT	CIT	CY	-	-	-	-	CS	-	-	-	-	-	-	CA	-	-	-	-	-	-	-	
DENSITY OR SPECIFIC GRAVITY	D	DE	DI	DR	DC	DIC	DRC	DT	DIT	DY	-	-	-	-	DS	-	-	-	-	-	-	DA	-	-	-	-	-	-	-	
VOLTAGE	E	EE	EI	ER	EC	EIC	ERC	ET	EIT	-	-	-	-	-	ES	-	-	-	-	-	-	EA	-	-	-	-	-	-	-	
FLOW	F	FE	FI	FR	FC	FIC	FRC	FI	FII	FY	FCV	FICV	FG	-	FS	FSLL	FSL	FSHL	FSH	FSHH	-	FA	FALL	FAL	FAHL	FAH	FAHH	FSDL	FSDH	
CURRENT	I	IE	II	IR	IC	IIC	IRC	IT	IIT	-	-	-	-	-	IS	-	-	-	-	-	-	IA	-	-	-	-	-	-	-	
POWER	J	JE	JI	JR	JC	JIC	JRC	JT	JIT	-	-	-	-	-	JS	-	-	-	-	-	-	JA	-	-	-	-	-	-	-	
LEVEL	L	LE	LI	LR	LC	LIC	LRC	LT	LIT	LY	LCV	-	LG	-	LS	LSLL	LSL	LSHL	LSH	LSHH	-	LA	LALL	LAL	LAHL	LAH	LAHH	LSDL	LSDH	
MOISTURE OR HUMIDITY	M	ME	MI	MR	MC	MIC	MRC	MT	MIT	MY	-	-	-	-	MS	-	-	-	-	-	-	MA	-	-	-	-	-	-	-	
PRESSURE	P	PE	PI	PR	PC	PIC	PRC	PT	PIT	PY	PCV	-	-	-	PS	PSLL	PSL	PSHL	PSH	PSHH	-	PA	PALL	PAL	PAHL	PAH	PAHH	PSDL	PSDH	
SPEED	S	SE	SI	SR	SC	SIC	SRC	ST	SIT	-	-	-	-	-	SS	-	-	-	-	-	-	SA	-	-	-	-	-	-	-	
TEMPERATURE	T	TE	TI	TR	TC	TIC	TRC	TT	TIT	TY	TCV	TICV	-	TW	TS	TSLL	TSL	TSHL	TSH	TSHH	-	TA	TALL	TAL	TAHL	TAH	TAHH	TSDL	TSDH	
VISCOSITY	V	VE	VI	-	VC	-	-	VT	VIT	-	-	-	-	-	VS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WEIGHT	W	WE	WI	WR	WC	WIC	WRC	WT	WIT	-	-	-	-	-	WS	-	-	-	-	-	-	WA	-	-	-	-	-	-	-	
POSITION	Z	ZE	ZI	ZR	ZC	ZIC	ZRC	ZT	ZIT	-	-	-	-	-	ZS	ZSLL	ZSL	ZSHL	ZSH	ZSHH	ZSFO / ZSDO	ZA	ZALL	ZAL	ZAHL	ZAH	ZAHH	ZSDL	ZSDH	
PH	PH	PHE	PHI	PHR	PHC	PHIC	PHRC	PHT	PHIT	-	PHCV	-	-	-	PHS	-	-	-	-	-	-	PHA	-	-	-	-	-	-	-	
PRESSURE DIFFERENTIAL	Pd	PdE	PdI	PdR	PdC	PdIC	PdRC	PdT	PdIT	PdY	PdCV	-	-	-	PdS	PdSLL	PdSL	PdSHL	PdSH	PdSHH	-	PdA	PdALL	PdAL	PdAHL	PdAH	PdAHH	PdSDL	PdSDH	
FLOW RATIO	FF	FFE	FFI	FFR	FFC	FFIC	FFRC	FFT	FFIT	FFY	FFCV	-	-	-	FFS	-	FFSL	-	FFSH	-	-	FFA	-	-	-	-	-	-	-	
FLOW INTEGRATE	FQ	-	FQI	FQR	-	-	-	-	FQIT	FQIT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HAND (MANUALLY INITIATED)	H	-	-	-	HC	HIC	-	-	-	-	HCV	-	-	-	HS	-	-	-	-	-	-	-	-	-	-	-	-	HSDL	HSDH	
INTERFACE LEVEL	IL	ILE	ILI	ILR	ILC	ILIC	ILRC	ILT	ILIT	ILY	ILCV	-	-	-	ILS	ILSLL	ILSL	ILSHL	ILSH	ILSHH	-	ILA	ILALL	ILAL	ILAHL	ILAH	ILAHH	ILSDL	ILSDH	
OTHER	X	XE	XI	XR	XC	XIC	XRC	XT	XIT	XY	XCV	-	-	-	XS	XSLL	XSL	XSHL	XSH	XSHH	-	XA	XALL	XAL	XAHL	XAH	XAHH	XSDL	XSDH	

LINE IDENTIFICATION		ABBREVIATIONS		EQUIPMENT NUMBERING	
(A) PIPE SIZE (JIS/A) (B) SYSTEM NAME FG : FUEL GAS LB : LUBE OIL CW : COOLING WATER IN&EG : INTAKE AIR AND EXHAUST GAS CA : COMPRESSED AIR NI : NITROGEN SLUDGE BS&C : BOILER, STEAM & CONDENSATE TV : MAKE UP, TREATED WATER DO : DIESEL OIL (C) ENGINE SEQUENTIAL NO. 0 : SITE COMMON 1~9 : #1~#9 G/G SET (D) LINE NUMBER 01 ~ 99 (E) PIPE CLASS NUMBER ACCORDING TO PIPE SPECIFICATION (F) INSULATION TYPE INSULATION TYPE IH : HOT INSULATION IC : COLD INSULATION IP : PERSONNEL PROTECTION INSULATION IA : ACOUSTIC INSULATION IT : STEAM TRACING INSULATION IE : ELECTSTD TRACING INSULATION		A A/D : ANALOG TO DIGITAL AF : ANTI-FREEZING INSULATION A/M : AUTOMATIC-MANUAL SELECTOR AI : AIR SUPPLY AV : SPRINKLER ALARM VALVE B BE : FLAME DETECTOR BDV : BLOW DOWN VALVE BL : BATTERY LIMIT BF : BLIND FLANGE BRV : BREATHER VALVE C CC : CORROSION COUPON CCR : CENTRAL CONTROL ROOM D DA : DIRECT ACTING DR : DRAIN DTR : DRAIN TRAP DV : DUMP VALVE, DELUGE VALVE E ED : EDUCTOR-INJECTOR ESD : EMERGENCY SHUTDOWN ESDP : EMERGENCY SHUTDOWN PANEL ESDV : EMERGENCY SHUTDOWN VALVE E/S : ELECTSTD POWER SUPPLY F FB : FULL BORE FC : FAILURE CLOSE FL : FAILURE LOCK FO : FAILURE OPEN FX : FLOW STRAIGHTENING VANE G GD : GENERATOR DIESEL PRIME MOVER GG : GENERATOR GAS PRIME MOVER G/S : GAS SUPPLY H HC : HOSE CONNECTION HE : HEATING ELEMENT HH : HAND HOLE HV : HAND VALVE H/S : HYDRAULIC POWER SUPPLY I IA : INSTRUMENT AIR INS : INSULATOR I/P : CURRENT TO PNEUMATIC TRANSDUCER J LC : LOCKED CLOSED LO : LOCKED OPEN LCP : LOCAL CONTROL PANEL M MCC : MOTOR CONTROL CENTER ML : MANUAL LOADER MOV : MOTOR CONTROLLED VALVE MR : MANUAL RESET MS : MOTOR STARTER MH : MANHOLE N NC : NORMALLY CLOSED NO : NORMALLY OPEN O OS : OVER SPEED O/C : OPEN / CLOSE OWS : OILY WATER SEWER P PB : PUSH BUTTON PCP : PUMP CONTROL PANEL P/I : PNEUMATIC TO CURRENT TRANSDUCER PSV : PRESSURE SAFETY VALVE PRV : PRESSURE REGULATING VALVE R RA : REVERSE ACTION RO : RESTSTDION ORIFICE RR : RATIO RELAY S SC : SAMPLE CONNECTION SD : SLUDGE SDV : SHUT-DOWN VALVE SV : SOLENOID VALVE SWD : STORM SEWER DRAIN T U UA : MULTIVARIABLE USD : UNIT SHUT DOWN V VF : VENDOR FURNISHED W WL : WORK LIMIT X XA : COMMON TROUBLE ALARM XI : INDICATING LAMP		EQUIPMENT CODE T : TANK P : PUMP M : PACKAGE ITEM V : VESSEL E : HEAT EXCHANGER/RADIATOR R : PRESSURE REGULATOR F : FILTER / FLOWMETER S : SILENCER / STACK C : COMPRESSOR H : HEADER D : DAMPER OR OTHER J : EXPANSION JOINT D/G : SEQUENTIAL NO. O : SITE COMMON 1~40 EQUIPMENT SEQUENTIAL NO. ENGINE SEQUENTIAL NO. EQUIPMENT CODE SYSTEM NAME IN&EG : INTAKE AIR AND EXHAUST GAS CA : COMPRESSED AIR DWD : OILY WATER DRAIN, SLUDGE BS&C : BOILER, STEAM & CONDENSATE TV : MAKE UP, TREATED WATER DO : DIESEL OIL CH : CHILER INSTRUMENT NUMBER SEQUENTIAL NUMBER GENSET NUMBER 00:COMMON INSTRUMENT CATEGORY	

REFERENCES						NOTES						OWNER						M.C.						GENSET-2 MGW GARMSAR							
NO.	REFERENCE DRAWINGS				DATE	NUMBER	REV							CONTRACTOR						POWER PLANT P&ID											
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								ISSUED FOR REVIEW						A.Y	M.J	A.R	2.JUN.26							SCALE: A3							
								REV. DESCRIPTION						BY	CHECKED	APPROVED	DATE							NO.: GAR-BD-PR-DIG-001							
																								REV.: 00							

CW-P-0002	MAINTENANCE PUMP	M3/H, BAR	10 , 2.8	1	CENTRIFUGAL
CW-V-0101	HT EXPANSION TANK	Litr	150	1	DIAPHRAGM
CW-V-0102	LT EXPANSION TANK	Litr	60	1	DIAPHRAGM
CW-P-0102	LT PUMP	M3/H, BAR	40 , 2.5	1	CENTRIFUGAL
CW-P-0101	HT PUMP	M3/H, BAR	73 , 3.5	1	CENTRIFUGAL
CW-E-0101	CW RADIATOR (HT/LT)	KW	1145/195	1	DRY COOLER
TAG NO.	DESCRIPTION	UNIT	CAPACITY	QUANTITY	TYPE

POWER PLANT COOLING WATER P&ID



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OWNER


OTEP
Oman Textile & Paper Co. PSC

CONTRACTOR


TANIRESCO
TanireSCO Engineering & Construction

GENSET-2 MGW GARMSAR

POWER PLANT P&ID

SCALE: A3

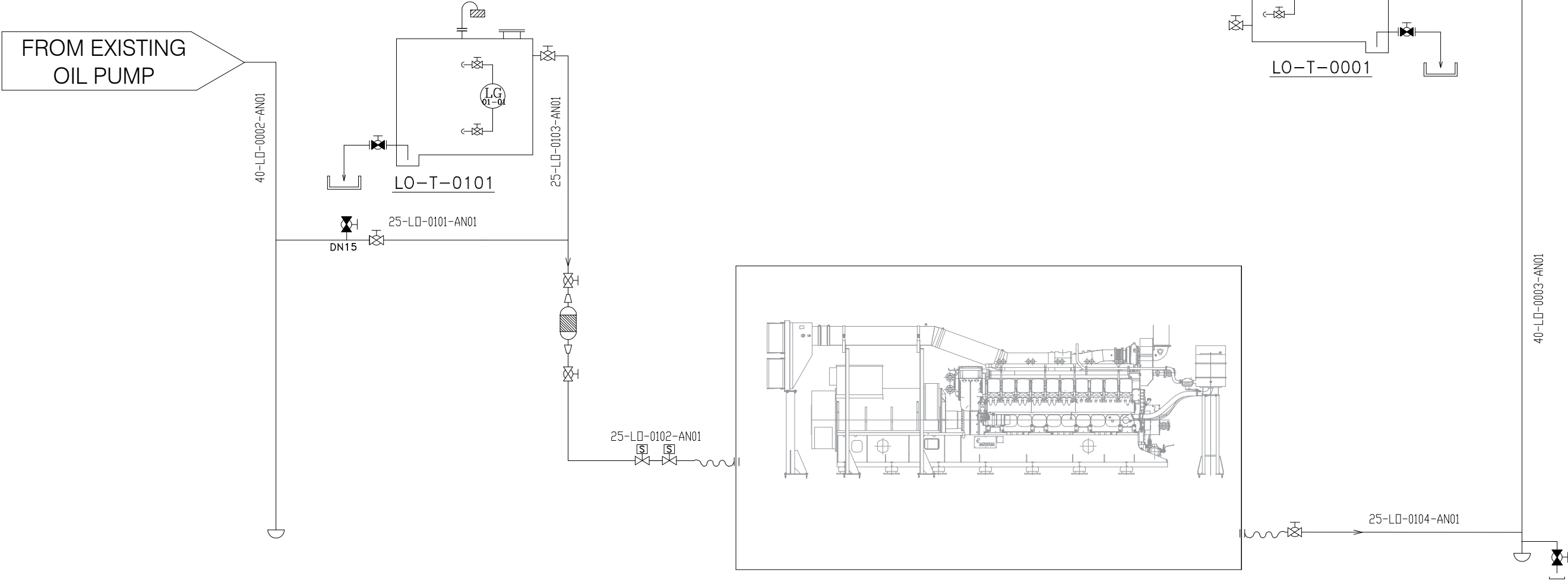
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REV: 00

Sheet 3 of 5

LO-T-0001	WASTE OIL TANK	M3, ATM	2, ATM	1	STORAGE
LO-T-0101	L.O. STORAGE TANK	LIT, ATM	120,ATM	1	STORAGE
TAG NO.	DESCRIPTION	UNIT	CAPACITY	QUANTITY	TYPE

POWER PLANT LUBE OIL P&ID



REFERENCES				
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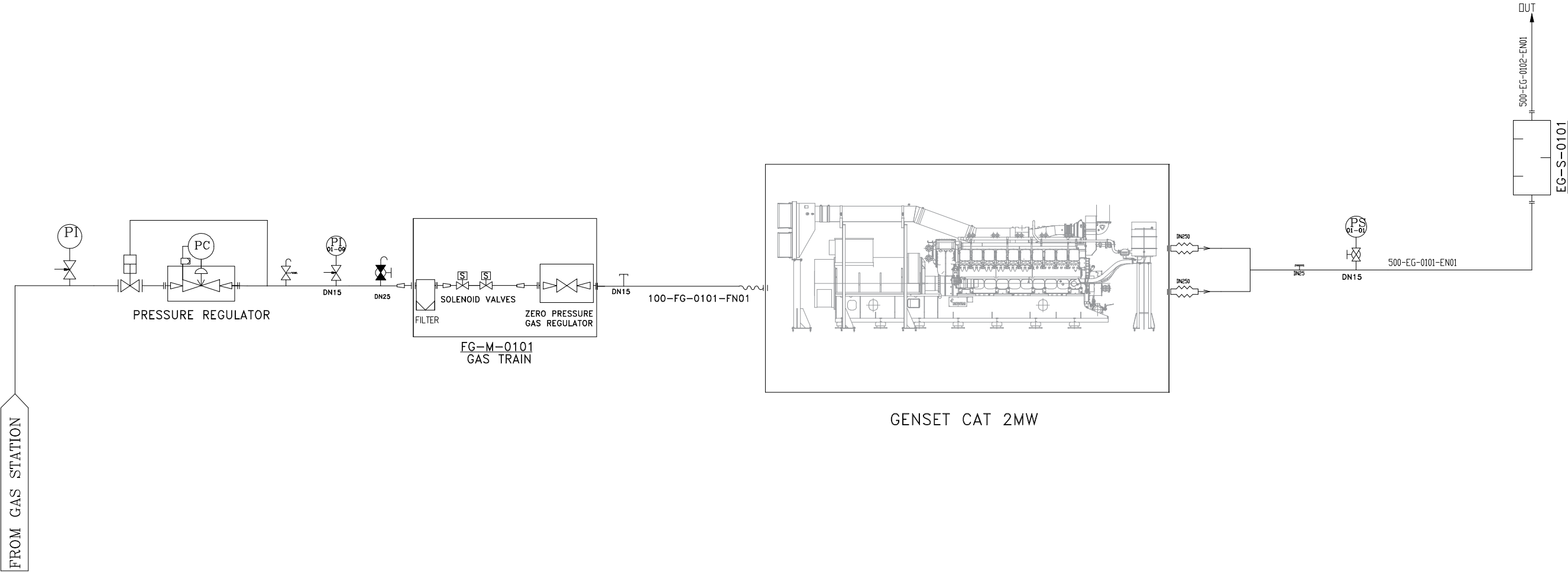
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OWNER		M.C		GENSET-2 MGW GARMSAR	
CONTRACTOR		TANIRESCO		POWER PLANT P&ID	
SCALE:		SIZE: A3		NO.: GAR-BD-PR-DIG-001	
REV:		00		Sheet: 4 of 5	

EG-S-0101	EXHAUST SILENCER	M3/H	22800	1	-
FG-M-0101	GAS TRAIN	NM3/H, BARG	500, 0.12	1	-
TAG NO.	DESCRIPTION	UNIT	CAPACITY	QUANTITY	TYPE

POWER PLANT GAS SYSTEM P&ID



REFERENCES				
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REV.	DESCRIPTION	BY	CHECKED	APPROVED	DATE

OWNER

CONTRACTOR


OTEP
O.T.E.P.C.O.


TANIRESCO


M.C.


TANIRESCO

GENSET-2 MGW GARMSAR			
POWER PLANT P&ID			
SCALE:	SIZE: A3	NO.: GAR-BD-PR-DIG-001	REV.: 00