

SKID GENERAL NOTES:

- ELECTRICAL CLASSIFICATION: CLASS 1, DIV. II, GROUP D
- BUILDING FIRE & GAS DETECTION BY OTHERS AS REQUIRED
- MINIMUM DESIGN INDOOR TEMPERATURE: 60 DEG.F
- COMPRESSOR SYSTEM OIL CHARGE: 120 USGAL
- COMPRESSOR OIL TYPE: S5-100
- ENGINE OIL CHARGE: 95 USGAL
- ENGINE OIL TYPE: SAE 40
- ENGINE JACKET COOLANT CAPACITY: 82 USGAL
- ENGINE TURBO COOLANT CAPACITY: 50 USGAL
- ENGINE COOLANT: 50/50 ETHYLENE GLYCOL
- INSTRUMENT / FUEL GAS CONSUMPTION: 5620 SCFH
- START GAS CONSUMPTION 660 SCFM
- ATMOSPHERIC PRESSURE: 13.4 PSIA
- ELEVATION: 2500 FT. DESIGN
- EXHAUST STACK 1.2 TIMES PEAK HEIGHT
- C11\* LINES BUILT TO C11 SPEC BUT NOT PRESSURE TESTED OR REGISTERED

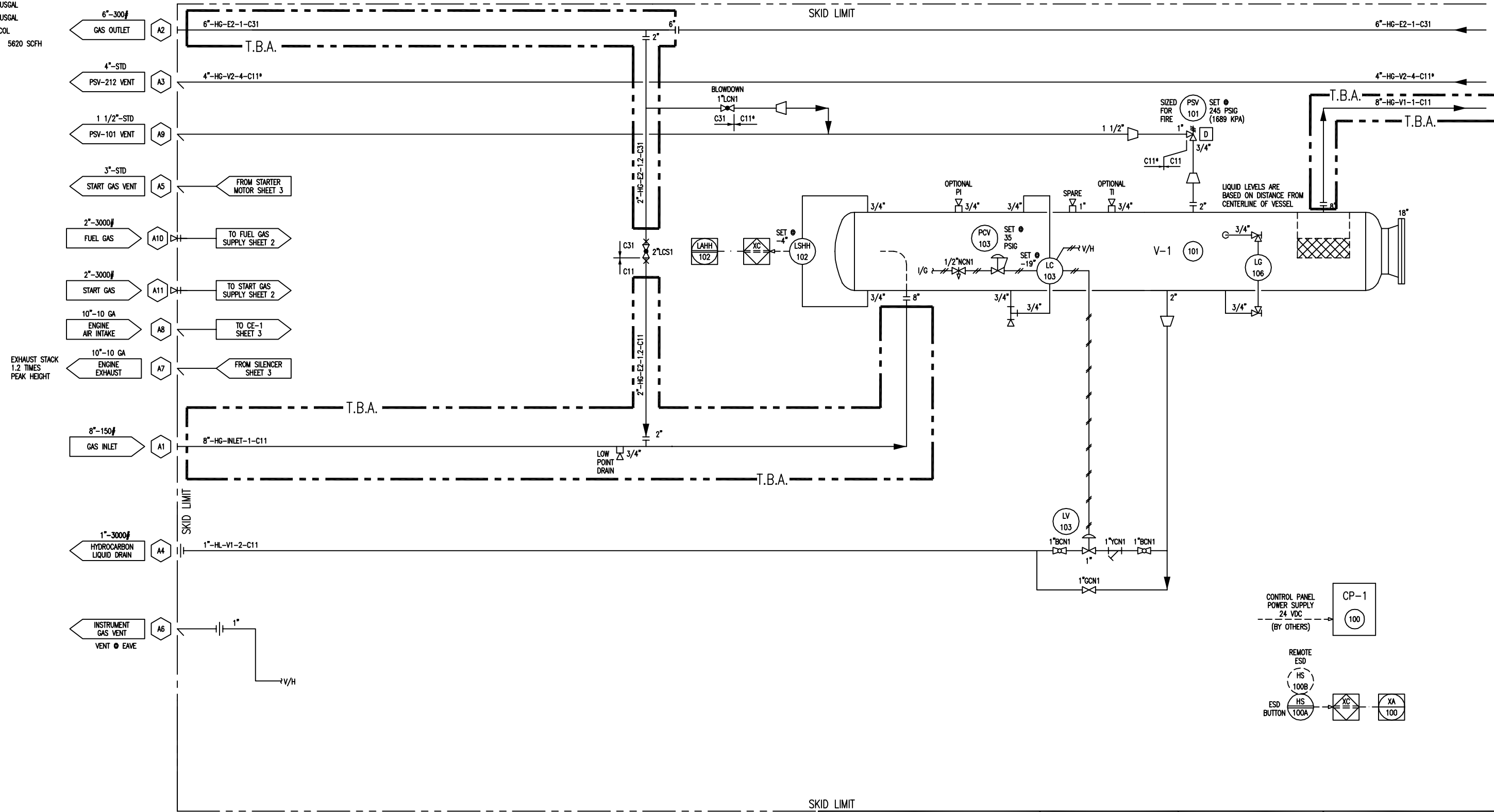
CUSTOMER INTERFACE

DISCRETE INPUTS FROM CUSTOMER:

REMOTE ESD (N.C.)

V-1  
 COMPRESSOR SUCTION SCRUBBER  
 SIZE: 48" I.D. X 120" S/S  
 M.A.W.P.: -15/245 PSIG @ 250 DEG. F  
 M.D.M.T.: -20 DEG F @ -15/245 PSIG  
 C.A.: 0.0625"  
 WEIGHT: 3800 LBS.

CP-1  
 CONTROL PANEL  
 MAKE: ALLEN BRADLEY  
 MODEL: COMPACT LOGIX  
 POWER: 10A, 24 VDC  
 CSA APPROVED CLASS LDV II,  
 GROUP D AS NON-INCENDIVE



REV.	DESCRIPTION	DATE	BY	APPR.
1	ISSUED FOR CONSTRUCTION	JAN 16/08	KW	

**TOROMONT ENERGY SYSTEMS INC.**  
 ISSUED FOR  
 CONSTRUCTION  
 JAN. 16, 2008  
 PER **K. WALTON**

ENGINEER STAMP



DRAWN BY: K. WALTON  
 DATE: DEC 19, 2007  
 CHKD. BY: G. SCHUSTER  
 SCALE: N/A  
 APPR. BY: G. SCHUSTER  
 W.O. No: 12198101  
 CUST. PO No:

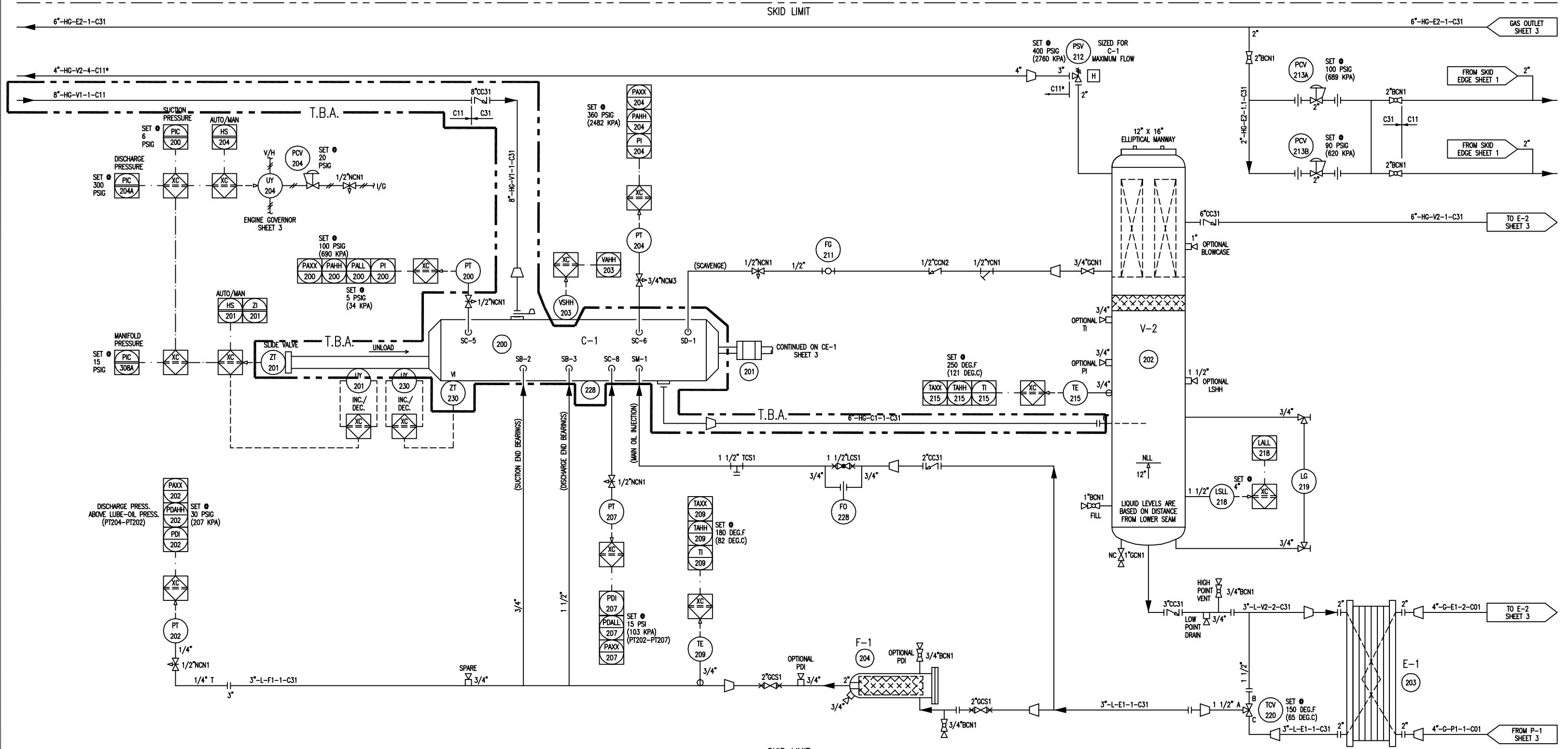
TITLE: P & I FLOW DIAGRAM  
 FOR: TOROMONT ENERGY SYSTEMS  
 530 HP / WAUKESHA H24GL  
 BOOSTER COMPRESSOR  
 DWG. No: 12198-101  
 SHEET No: 1 OF 4  
 REV: 1

**C-1 T.B.A.**  
**GAS COMPRESSOR**  
 FRICK:  
 OPERATING SPEED:  
 SUCTION PRESSURE:  
 DISCHARGE PRESSURE:  
 OIL TEMPERATURE:  
 POWER DRAW:  
 WEIGHT:

**F-1**  
**OIL FILTER**  
 SIZE: 8.6" O.D. X 27.5" S/F  
 MAWP: 450 PSIG @ 250 DEG.F  
 MDMT: -20 DEG.F @ 450 PSIG  
 CA: 0.0625"  
 ELEMENT: (1) MODEL 1833C  
 WEIGHT: 286 LBS.

**V-2**  
**OIL SEPARATOR**  
 SIZE: 36" I.D. X 102" S/S  
 MAWP: 400 PSIG @ 250 DEG.F  
 MDMT: -20 DEG.F @ 400 PSIG  
 CA: 0.0625"  
 ELEMENT: (5) RSC1175-3  
 WEIGHT: 4300 LBS.

**E-1**  
**OIL COOLER**  
 MAKE: FLATPLATE  
 MODEL: FPA 10X20-120  
 PLATES: 120  
 MAWP: 400 PSIG @ 250 DEG.F  
 WEIGHT: 143 LBS.



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ENGINEER STAMP  
 DATE: FEB. 14, 2006  
 SCALE: NTS  
 W.O. No: 12198101

**TOROMONT ENERGY SYSTEMS**  
 DRAWN BY: K. WALTON  
 CHK. BY: G. SCHUSTER  
 APPR. BY: G. SCHUSTER  
 W.O. No: 12198101  
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 530 HP / WAUKESHA H24GL  
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 SHEET No: 2 OF 4  
 REV: 1

H-1A/B/C

CATALYTIC ROOM HEATER
TYPE: CATA-DYNE
HEAT OUTPUT: 45000 BTU/HR (EACH)
SIZE: 24" X 48"
STARTING ELEMENT: 12V W/ 25' CABLES
C/W PRESSURE REGULATOR
THERMOSTAT & SAFETY SHUTOFF
WEIGHT: 90 LBS.

F-2

FUEL GAS FILTER
TYPE: FINITE
MODEL: HN-45-10-CN
MAWP: 500 PSIG
ELEMENT: 10C15-060
WEIGHT: 10 LBS

P-2

ENGINE PRE-LUBE PUMP
MAKE: WARREN RUPP
MODEL: G05B1ABTXS00
MAWP: 125 PSIG MAX. 100 PSIG MAX.
FLOW: 7 GPM @ 20 PSIG
WEIGHT: 22 LBS

CE-1

NATURAL GAS ENGINE
TYPE: H24GL
BORE: 5.98"
STROKE: 6.5"
DISPLACEMENT: 1462 CUIN
COMPRESSION RATIO: 8.7 : 1
SPEED RANGE: 1400-1800 RPM
BHP (RATED): 530 HP @ 1800 RPM
WEIGHT: 7200 LBS.

T-1A/B/C

GLYCOL SURGE/OIL DAY TANK
SIZE: 12" X 8" X 228 LG
T-1A VOL.: 20 GALLONS
T-1B VOL.: 23 GALLONS
T-1C VOL.: 39 GALLONS

P-1

GLYCOL CIRCULATION PUMP
MAKE: PRICE
MODEL: CD150A1 1 1/2" X 2" X 5"
IMPELLER SIZE: FULL SIZED
PRESSURE: 45 FT. HEAD
FLOW: 164 GPM
FLUID: 50/50 GLYCOL
OPERATING SPEED: 3500 RPM
POWER DRAW: 3.5 HP
WEIGHT: 85 LBS

E-2

COMPRESSOR AFTERCOOLER/OIL COOLER/GLYCOL COOLER
TYPE: AIR-X-HEMELHILL
MODEL: 96AEF
AFTERCOOLER: MAWP: 400 PSI @ 300 DEG.F
MDMT: -20 DEG.F @ 400 PSIG
DUTY: 362 KBTU/HR
AMB: 90 DEG. F
FAN: MOORE 38VT HD, 96", 6-BLADE
FAN SPEED: 406 RPM
PITCH: 19 DEGREES
POWER DRAW: 22.6 HP
WEIGHT: 9812 LBS.

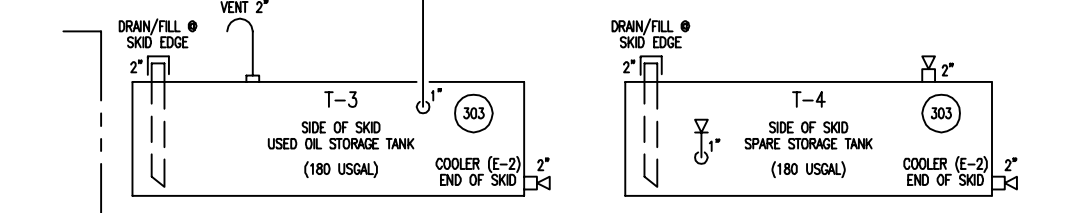
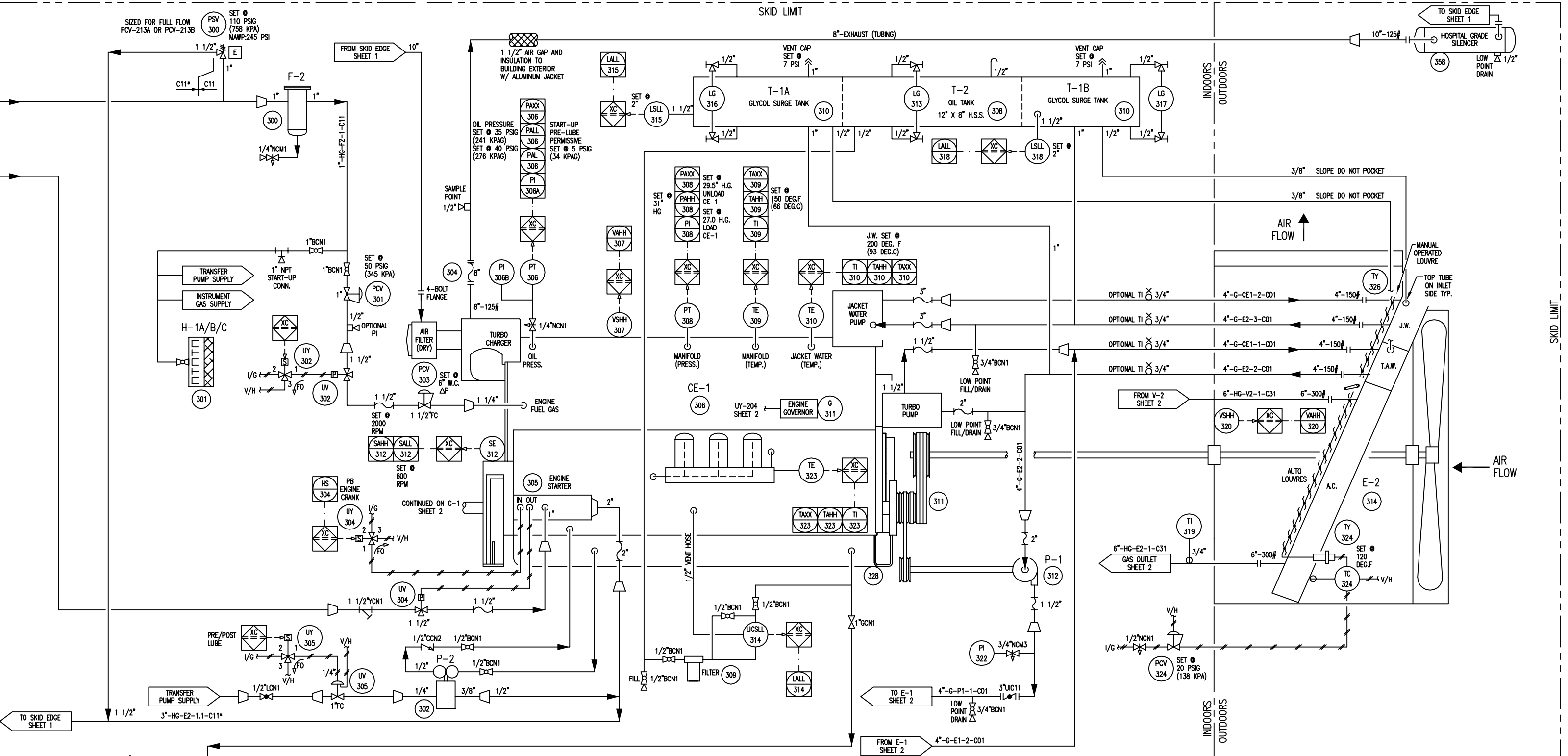


Table with 4 columns: REV., DESCRIPTION, DATE, BY APPR.

TOROMONT ENERGY SYSTEMS INC.
ISSUED FOR CONSTRUCTION
JAN. 16, 2008
PER K. WALTON

ENGINEER STAMP



Table with 2 columns: DRAWN BY, DATE, CHKD. BY, SCALE, APPR. BY, W.O. No., CUST. PO No.

TITLE: P & I FLOW DIAGRAM
FOR: TOROMONT ENERGY SYSTEMS
530 HP / WAUKESHA H24GL BOOSTER COMPRESSOR
DWG. No: 12198-101 SHEET No: 3 OF 4 REV: 1

**LINE IDENTIFICATION**

A-B-CCDD-E-FGH-I,J,K

- A : NOMINAL LINE SIZE IN INCHES
- B : FLUID
  - C CARBON DIOXIDE
  - CW COOLING WATER
  - FG FUEL GAS
  - G GLYCOL
  - HG HYDROCARBON GAS
  - HL HYDROCARBON LIQUID
  - I/A INSTRUMENT AIR
  - I/G INSTRUMENT GAS
  - L LUBE OIL (COMPRESSOR)
  - NG NATURAL GAS
  - P PROPANE
  - PG PURGE GAS
  - V PRODUCED WATER
- C : EQUIPMENT TYPE / MODIFIER (IF REQUIRED)
  - B BLOWER
  - C COMPRESSOR
  - D DRIVER (MOTOR/ENGINE)
  - E EXCHANGER
  - F FILTER
  - H HEATER
  - P PUMP
  - T TANK
  - V PRESSURE VESSEL
- D : EQUIPMENT NUMBER:
  - 101 TO 999 SEQUENTIAL NUMBERS
- E : LINE NUMBER:
  - 1 TO 9 SEQUENTIAL NUMBERS FROM EQUIPMENT
- FGH : PIPING SPECIFICATION
  - F : MATERIAL GROUP
    - C CARBON STEEL
    - L LOW TEMPERATURE CARBON STEEL
    - S STAINLESS STEEL
  - G : ANSI 16.5 FLANGE CLASS
    - 0 NON CODE
    - 1 150#
    - 3 300#
    - 6 600#
    - 9 900#
    - 15 1500#
    - 25 2500#
  - H : LINE MATERIAL SPECIFICATION REFERENCE:
    - 1 TO 9 SEQUENTIAL NUMBERS
  - I : INSULATION TYPE (IF REQUIRED)
    - C COLD
    - H HOT
    - HC HOT/COLD
    - HT HEAT TRACING
    - PP PERSONAL PROTECTION
  - J : INSULATION THICKNESS (IF REQUIRED)
    - THICKNESS IN MILLIMETERS OR INCHES
  - K : TRACING (IF REQUIRED)
    - ET ELECTRICAL TRACING
    - GT GLYCOL TRACING
    - ST STEAM TRACING

EXAMPLE: 3"-HG-V101-1-C61-HTXX,ET  
 3" - LINE SIZE  
 HG - HYDROCARBON GAS  
 V101 - PRESSURE VESSEL TAG NUMBER  
 1 - FIRST LINE FROM VESSEL  
 C61 - C CARBON STEEL LINE  
 6 600# ANSI FLANGE RATING  
 1 LINE MATERIAL SPECIFICATION REFERENCE  
 HT - HEAT TRACING INSULATION  
 XX - THICKNESS IN MILLIMETERS OR INCHES (\*)  
 ET - ELECTRICAL TRACING

**VALVE IDENTIFICATION**

A"BCDE,F

- A : NOMINAL VALVE SIZE IN INCHES
- B : TYPE
  - A ANGLE GLOBE
  - B BALL
  - C CHECK
  - G GATE
  - L GLOBE
  - M MANIFOLD
  - N NEEDLE
  - P PLUG
  - S START-UP STRAINER
  - T TEE STRAINER
  - U BUTTERFLY
  - Y Y PATTERN STRAINER
- C : BODY MATERIAL
  - B BRONZE
  - C CARBON STEEL
  - I CAST IRON
  - L LOW TEMP. CARBON STEEL
  - S STAINLESS STEEL
- D : END CONNECTIONS
  - 1 FLANGED 150#
  - 3 FLANGED 300#
  - 6 FLANGED 600#
  - 9 FLANGED 900#
  - 15 FLANGED 1500#
  - 25 FLANGED 2500#
  - B BUTT WELD
  - C SW BY NPT
  - F NPT BY FLANGE (MANIFOLD)
  - M NPT MALE BY NPT FEMALE
  - N NPT (THREADED)
  - S SW (SOCKETWELD)
  - T TUBE (SWAGELOCK)
- E : UNIQUE DESCRIPTION  
REFER TO VALVE DATA SHEETS
- F : MODIFIER
  - C CHAIN OPERATOR
  - E EXTENDED BONNET
  - G GEAR OPERATOR
  - L LOCKING DEVICE
  - N NACE TRIM
  - O OXYGEN SERVICE/CLEANING
  - P FULL PORT DESIGN
  - R RTJ FLANGED
  - S SPRING HANDLE (CLOSE)
  - X SPECIAL SPECIFICATIONS

EXAMPLE: 6"GC11,C  
 6" VALVE SIZE  
 G GATE  
 C CARBON STEEL  
 C CHAIN OPERATOR

**VALVE TYPES**

- ANGLE GLOBE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GATE VALVE
- GLOBE VALVE
- NEEDLE VALVE
- PLUG VALVE
- 3-WAY VALVE
- 4-WAY VALVE
- VALVE W/BLEED
- VALVE W/PLUG

**VALVE CONNECTIONS**

- THREADED
- WELDED (BUTT OR SOCKET)
- THREADED BY WELDED
- FLANGED

**LINE CODE**

- PRIMARY PROCESS LINE
- SECONDARY PROCESS LINE
- INSTRUMENT PROCESS LINE (TUBING)
- BY OTHERS
- SKID LIMIT
- PNEUMATIC SIGNAL
- ELECTRIC SIGNAL
- CAPILLARY TUBING
- INSTRUMENT SYSTEM LINK (ELECTRONIC MEMORY SHARING)

**CONTROL VALVES**

- POSITIONER DIAPHRAGM CONTROL VALVE
- OUTLET PRESSURE REGULATOR (SELF-CONTAINED)
- INLET PRESSURE REGULATOR (SELF-CONTAINED)
- PRESSURE DIFFERENTIAL CONTROL VALVE (SELF-CONTAINED)
- TWO-WAY SOLENOID VALVE
- THREE-WAY SOLENOID VALVE
- MOTOR ACTUATOR
- HYDRAULIC/PNEUMATIC PISTON OPERATED

**MISCELLANEOUS**

- PRESSURE SAFETY/RELIEF VALVE
- DESIGNATES API ORIFICE SIZE
- RUPTURE DISC FOR PRESSURE RELIEF
- RUPTURE DISC FOR VACUUM RELIEF
- SPECTACLE BLIND (LINE OPEN)
- SPECTACLE BLIND (LINE CLOSED)
- CONE START-UP STRAINER
- BASKET START-UP STRAINER
- Y-PATTERN STRAINER
- TEE STRAINER
- FLEXIBLE CONNECTION
- CONTINUOUS LIQUID DRAINER OR STEAM TRAP
- VORTEX BREAKER
- DIAPHRAM SEAL
- SKID TIE-POINTS
- OPEN DRAIN
- INSULATION TYPE
- ELECTRIC HEAT TRACE
- GLYCOL OR STEAM HEAT TRACE

**(MODIFIER)**

FIRST LETTER	SUCCEEDING LETTERS	PRIMARY ELEMENT	INDICATOR	RECORDER	CONTROLLER			TRANS-MITTER	CONTROL		CONTROL VALVE OR REGULATOR	SELF-ACTIVATED VALVE	RELAY OR CONVERTOR
					BLIND	INDICATING	RECORDING		SWITCH	ALARM			
A	ANALYSIS	ALARM	AE	AI	AR	AC	AIC	ARC	AT	AS( )	AA( )	AV	AY
B	USER'S CHOICE												
C	CONDUCTIVITY	CONTROL OR CLOSE	CE	CI	CR	CC	CIC	CRC	CT	CS( )	CA( )	CV	CY
D	DENSITY OR MASS (DIFFERENTIAL)	DIFFERENTIAL	DE	DI	DR	DC	DIC	DRC	DT	DS( )	DA( )	DV	DY
E	VOLTAGE	PRIMARY ELEMENT	EE	EI	ER	EC	EIC	ERC	ET	ES( )	EA( )	EV	EY
F	FLOW (RATIO OR FRACTION)	SHUTDOWN FIRST OUT	FE	FI	FR	FC	FIC	FRC	FT	FS( )	FA( )	FV	FY
G	GAUGING	GLASS	GE	GI	GR	GC	GIC	GRC	GT	GS( )	GA( )	GV	
H	HAND	HIGH				HC	HIC	HRC	HT	HS( )		HV	HY
I	CURRENT	INDICATE	IE	II	IR	IC	IIC	IRC	IT	IS( )	IA( )		IY
J	POWER (SCAN)		JE	JI	JR	JC	JIC	JRC	JT	JS( )	JA( )		JY
K	TIME	CONTROL STATION		KI	KR	KC	KIC	KRC	KT	KS( )	KA( )	KV	KY
L	LEVEL	LOW	LE	LI	LR	LC	LIC	LRC	LT	LS( )	LA( )	LV	LY
M	MOISTURE, HUMIDITY	MIDDLE OR INTERMEDIATE	ME	MI	MR	MC	MIC	MRC	MT	MS( )	MA( )	MV	MY
N	USER'S CHOICE												
O	USER'S CHOICE	ORIFICE OR OPEN											
P	PRESSURE OR VACUUM		PE	PI	PR	PC	PIC	PRC	PT	PS( )	PA( )	PV	PY
Q	QUANTITY OR EVENT (INTEGRATE/TOTALIZE)			QI	QR	QC	QIC	QRC	QT	QS( )	QA( )	QV	QY
R	RELIEF OR RESTRICTION	RECORD OR PRINT	RE	RI	RR	RC	RIC	RRC	RT	RS( )	RA( )		RY
S	SPEED OR FREQUENCY	SWITCH OR SAFETY		SI	SR	SC	SIC	SRC	ST	SS( )	SA( )		SY
T	TEMPERATURE	TRANSMIT	TE	TI	TR	TC	TIC	TRC	TT	TS( )	TA( )	TV	TY
U	MULTI-VARIABLE	MULTIFUNCTION		UI	UR	UC	UIC	URC				UV	
V	VIBRATION	VALVE OR DAMPER	VE	VI	VR	VC	VIC	VRC	VT	VS( )	VA( )	VV	VY
W	WEIGHT OR FORCE	WELL	WE	WI	WR	WC	WIC	WRC	WT	WS( )	WA( )	WV	WY
X	LIGHT	UNCLASSIFIED (DIAGNOSTIC)	XE	XI	XR	XC	XIC	XRC	XT	XS( )	XA( )	XV	XY
Y	USER'S CHOICE	RELAY OR COMPUTE											YY
Z	POSITION	DRIVE OR ACTUATE	ZE	ZI	ZR	ZC	ZIC	ZRC	ZT	ZS( )	ZA( )		ZY

**INSTRUMENTS**

- LOCAL MOUNTED
- LOCAL PANEL MOUNTED
- MOUNTED BEHIND OR IN LOCAL PANEL
- MAIN PANEL MOUNTED
- MOUNTED BEHIND OR IN MAIN PANEL
- MAN MACHINE INTERFACE IN MAIN PANEL
- BY OTHERS
- PILOT LIGHT
  - \* COLOUR
  - (A) AMBER (B) BLUE
  - (G) GREEN (O) ORANGE
  - (R) RED (W) WHITE
- RELAY OR CONVERTER
  - \* FOR INPUT/OUTPUT SEQUENCES
  - DESIGNATION: SIGNAL:
    - I CURRENT (ELECTRICAL)
    - P PNEUMATIC
- PROGRAMMABLE LOGIC CONTROLLER (PLC)
  - XC REPRESENTS GENERAL LOGIC
- INTERLOCK
- ELECTRICAL (HARD WIRE) INTERLOCK
- THERMOWELL (THREADED)
- THERMOWELL (WELDED)

(C) -CLOSE (O) -OPEN  
 (H) -HIGH ALARM (L) -LOW ALARM  
 (HH) -HIGH SHUTDOWN (LL) -LOW SHUTDOWN  
 (XX) -DIAGNOSTIC SHUTDOWN (USED TO INDICATE THE DIAGNOSTIC CHECK REQ'D ON THE ANALOG INPUT)

**ABBREVIATIONS**

- AOUT AUTOMATIC OUTPUT
- CA CORROSION ALLOWANCE
- CSO CAR SEAL OPEN
- CUST CUSTOMER
- DEG.C DEGREES CELSIUS
- DEG.F DEGREES FARENHEIT
- DIR DIRECT ACTING
- DB DEADBAND
- Δ DELTA (DIFFERENTIAL)
- ESD EMERGENCY SHUTDOWN
- FC FAIL CLOSED
- FO FAIL OPEN
- FOT FLAT ON TOP
- FLP FAIL LAST POSITION
- FT2 SQUARE FEET
- FT3 CUBIC FEET
- HI HIGH
- HLL HIGH LIQUID LEVEL
- HR HOUR
- HTR HEATER
- I/A INSTRUMENT AIR
- I/G INSTRUMENT GAS
- I/O INPUT / OUPUT
- I.D. INSIDE DIAMETER
- KGS KILOGRAMS
- KPAA KILOPASCAL ABSOLUTE
- KPAD KILOPASCAL DIFFERENTIAL
- KPAG KILOPASCAL GAUGE
- KW KILOWATTS
- LBS POUNDS
- LC LOCKED CLOSED
- LO LOCKED OPEN
- LP LOCKED IN POSITION
- M2 SQUARE METERS
- M3 CUBIC METERS
- MAX MAXIMUM
- MAWP MAXIMUM ALLOWABLE WORKING PRESSURE
- MCC MOTOR CONTROL CENTER
- MDMT MINIMUM DESIGN METAL TEMPERATURE
- MIN MINIMUM
- MM MILLIMETER
- MOUT MANUAL OUTPUT
- MS MOTOR STARTER
- NC NORMALLY CLOSED
- NLL NORMAL LIQUID LEVEL
- NO NORMALLY OPEN
- NPT NATIONAL PIPE THREAD
- OIC OPERATOR INTERFACE COMPUTER
- O.D. OUTSIDE DIAMETER
- PB PUSH BUTTON
- PSIA POUNDS / SQUARE INCH ABSOLUTE
- PSID POUNDS / SQUARE INCH DIFFERENTIAL
- PSIG POUNDS / SQUARE INCH GAUGE
- PLC PROGRAMMABLE LOGIC CONTROLLER
- REV REVERSE ACTING
- RST RESET (INTEGRAL)
- SCR SILICON CONTROLLED RECTIFIER
- S/F SEAM TO FACE OF FLANGE
- SP SETPOINT
- SPC CALCULATED SETPOINT
- SS SELECTOR SWITCH
- S/S SEAM TO SEAM
- T/T TANGENT TO TANGENT
- TS/TS TUBESHEET TO TUBESHEET
- T/L TUBE LENGTH
- V/H VENT HEADER

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PER **K. WALTON**

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DWG. No: 12198-101  
 SHEET No: 4 OF 4  
 REV: 4