CP-1
CONTROL PANEL
TYPE: MURPHY TTDJ
POWER SUPPLY: IGNITION SYSTEM

V-1
COMPRESSOR SUCTION SCRUBBER
SIZE: 30" OD. X 102" S/S
M.A.W.P.: 245 PSIG @ 250 DEG. F
M.D.M.T.: -20 DEG F @ 245 PSIG
C.A.: 0.0625"
SHELL MATERIAL: SA-516-70
HEAD MATERIAL: SA-516-70
WEIGHT: 1845 LBS.

SKID GENERAL NOTES:

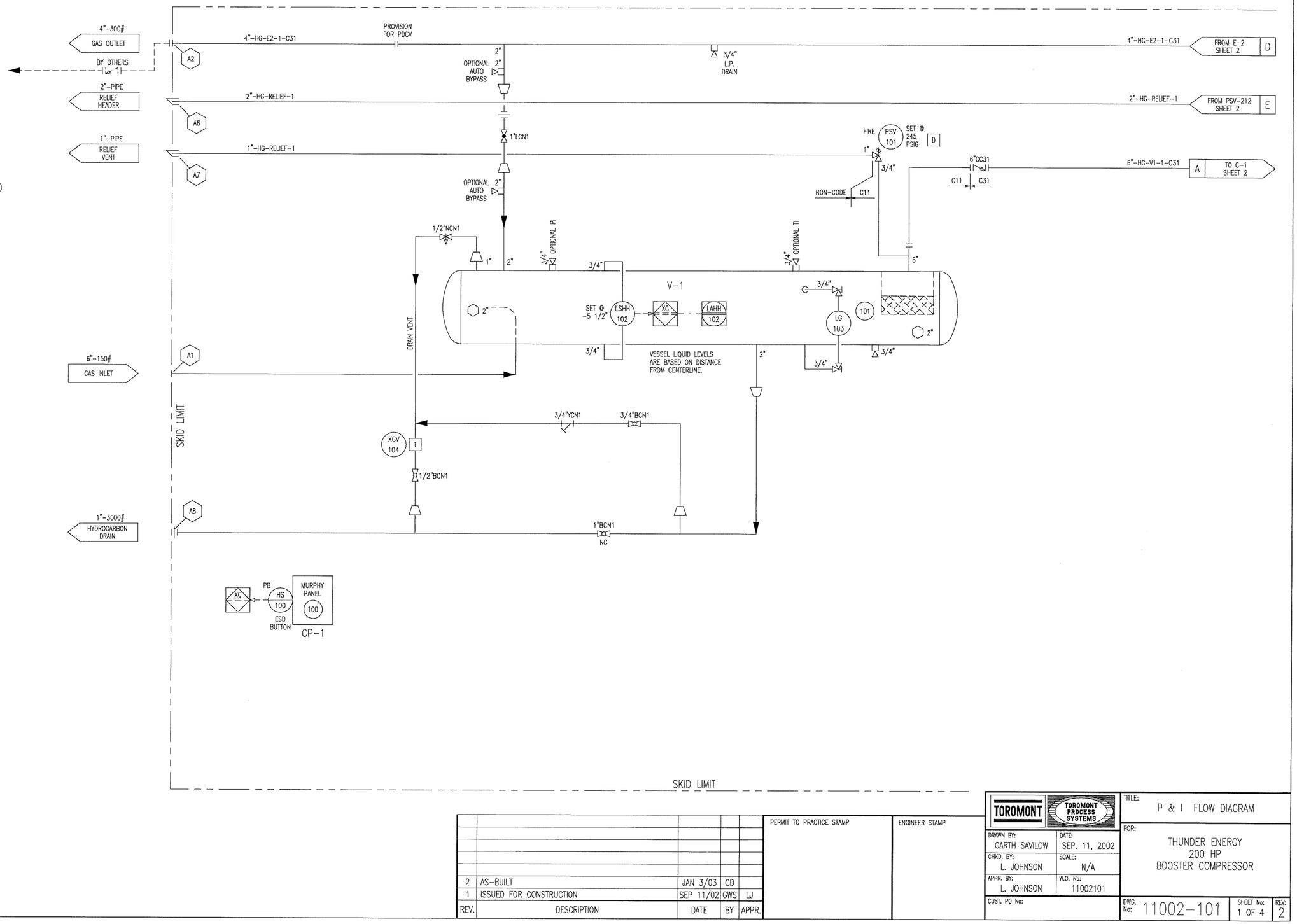
- UNIT LOCATION: T.B.A.
- LSD: T.B.A.
- ELECTRICAL CLASSIFICATION: CLASS 1, DIV. II, GROUP D (BUILDING GAS DETECTION TO BE SUPPLIED BY OTHERS AS REQUIRED)
- MINIMUM DESIGN INDOOR TEMPERATURE: 60 DEG.F
- MAXIMUM DESIGN AMBIENT TEMPERATURE: 100 DEG.F
- COMPRESSOR SYSTEM OIL CHARGE: 50 USGAL
- COMPRESSOR OIL TYPE: S5-100

- ENGINE OIL CHARGE: 50 USGAL
- ENGINE OIL TYPE: SAE 40
- ENGINE JACKET COOLANT CAPACITY: 40 USGAL
- ENGINE TURBO COOLANT CAPACITY: 65 USGAL
- ENGINE COOLANT: 50/50 ETHYLENE GLYCOL
- INSTRUMENT / FUEL GAS CONSUMPTION: 2000 SCFH
- START GAS CONSUMPTION 550 SCFM
- ATMOSPHERIC PRESSURE: 13.4 PSIA
- ELEVATION: 2500 FT. DESIGN

CUSTOMER INTERFACE

DISCRETE INPUTS FROM CUSTOMER:
REMOTE ESD (N.C.)

OUTPUTS TO CUSTOMER:
ONE SET OF DRY CONTACTS



SKID LIMIT

REV.	DESCRIPTION	DATE	BY	APPR.
2	AS-BUILT	JAN 3/03	CD	
1	ISSUED FOR CONSTRUCTION	SEP 11/02	GWS	LJ

PERMIT TO PRACTICE STAMP

ENGINEER STAMP

TOROMONT PROCESS SYSTEMS

TITLE: P & I FLOW DIAGRAM

FOR: THUNDER ENERGY 200 HP BOOSTER COMPRESSOR

DRAWN BY: GARTH SAVILOW	DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON	SCALE: N/A
APPR. BY: L. JOHNSON	W.O. No: 11002101
CUST. PO No:	

DWG. No: 11002-101 | SHEET No: 1 OF 4 | REV: 2

C-1
GAS COMPRESSOR
FRICK: TDSH-233S-HW
OPERATING SPEED: 1800 RPM
SUCTION PRESSURE: SEE CURVE
DISCHARGE PRESSURE: SEE CURVE
DISPLACEMENT: 512.8 ACFM @ 100%
OIL TEMPERATURE: 160 DEG.F
DESIGN OIL FLOW RATE: 50.5 GPM (MAX.)
POWER DRAW: 193 BHP
WEIGHT: 2670 LBS.

F-1
OIL FILTER
SIZE: 8.6" O.D. X 27.5" S/F
MAWP: 400 PSIG @ 250 DEG.F
MDMT: -20 DEG.F @ 400 PSIG
CA: 0.0625"
SHELL MATERIAL: SA-106B
HEAD MATERIAL: SA-234-WPB
ELEMENT: (1) MODEL 1833C
WEIGHT: 286 LBS.

V-2
OIL SEPARATOR
SIZE: 20" O.D. X 90" S/F
MAWP: 375 PSIG @ 250 DEG.F
MDMT: -20 DEG.F @ 375 PSIG
CA: 0.0625"
SHELL MATERIAL: SA-106B
HEAD MATERIAL: SA-516-70
ELEMENT: (1) RSC18321
WEIGHT: 2225 LBS.

E-1
OIL COOLER
MODEL: VIEX VX-20-FN1-75
PLATES: 29
MAWP OIL SIDE: 375 PSIG @ 250 DEG.F
MAWP GLYCOL SIDE: 375 PSIG @ 250 DEG.F
DESIGN DUTY: 342249 BTU/HR
SURFACE AREA: 58.10 SQ.FT
WEIGHT: 755 LBS.

SKID LIMIT

GAS OUTLET SHEET 1 D — 4"-HG-E2-1-C31 — 4"-HG-E2-1-C31 — GAS OUTLET SHEET 3 C
4"-HG-V2-1-C31 — B TO E-2 SHEET 3
3/4" LOW POINT DRAIN
TO RELIEF HEADER SHEET 1 E — 2"-HG-RELIEF-1
2" E PSV 212 SET @ 375 PSIG
NON-CODE C31 1" SIZED FOR C-1 MAXIMUM FLOW
3/4"BCN1 NC
NON-CODE C31
A FROM V-1 SHEET 1 — 6"-HG-V1-1-C31
OPTIONAL BLOWCASE CONNECTION 1"
4"-300#
SET @ 10 PSIG (LOW) 100 PSIG (HIGH)
PISHH 200 PISLL 200 XC PISLH 200
1/2"NCN1
FG 211
1/2"YCN1
3/4"GCN1
6"SC31 6"-300#
VSHH 203 XC VAHH 203
3/8" SC-5
C-1
200
NOTE: SET VI @ 2.2
SC-3 SC-4
UNLOAD NOTE: 2
SM-1 SB-2 SB-3
3/4" 3/8" 3/4"
201
CONTINUED ON CE-1 SHEET 3
6"x4"-300#
SET @ 230 DEG.F TISHH 201 XC
TE 201
3/4"
4"-HG-C1-1-C31
4"-300#
202
V-2
3/4" OPTIONAL PI
3/4" OPTIONAL TI
3/4" SPARE
1 1/2" OPTIONAL LSHH
SET @ 13" 1 1/2" LSLL 210 XC LALL 210
2"-W-P1-1 FROM P-1 SHEET 3 H
G TO E-2 SHEET 3
2"-W-E1-2
2" 2" F1
2" F4
203 E-1
FO 205 1/8" ORIFICE NOTE: 1
FO 206
3/4" 3/4"
1"LCS1
MAIN OIL INJECTION 1"
SUCTION END BEARINGS
DISCHARGE END BEARINGS
3/4" TUBING
1" TUBING
PISHH 204 PISLL 204 XC PISLH 204
SET @ 15 PSIG (LOW) 325 PSIG (HIGH)
NLL 9"
2" 2"CC31
2"-L-V2-2-C31
3/4" LOW POINT DRAIN
2"-L-V2-2-C31 F2 2"-300#
OIL FILL/SPARE 3/4"GCN1
2" INSP. OPENING
3/4" LG 213 3/4"
2"-L-E1-1-C31 2"-300# F3
VESSEL LIQUID LEVELS ARE BASED ON DISTANCE FROM LOWER SEAM LINE.
SET @ 190 DEG.F TISHH 209
XC
TE 209
3/4"
OPTIONAL TI 3/4"
XC PDISLL 207 LO HI SET @ 15 PSID FALLING
HI PDISHH 202 LO SET @ 30 PSID RISING
PDAHH 202
3/4" OPTIONAL PDI
204 F-1
OPTIONAL VENT/PDI 3/4"
2" 3/4"BCN1,L
2"GCS1
2"-300#
2"-L-F1-1-C31
2"GCS1
2"-L-E1-1-C31
SET @ 160 DEG.F TCV 208 1 1/2" 1 1/2" B A C 1 1/2"

SKID LIMIT

NOTE: 1 ORIFICE SUPPLIED WITH COMPRESSOR.
NOTE: 2 TURN CLOCKWISE TO LOAD.

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PERMIT TO PRACTICE STAMP

ENGINEER STAMP

TOROMONT PROCESS SYSTEMS

DRAWN BY: GARTH SAVILOW	DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON	SCALE: N/A
APPR. BY: L. JOHNSON	W.O. No: 11002101
CUST. PO No:	

TITLE: P & I FLOW DIAGRAM
FOR: THUNDER ENERGY 200 HP BOOSTER COMPRESSOR
DWG. No: 11002-101
SHEET No: 2 OF 4
REV: 2

F-2
FUEL GAS FILTER
TYPE: HEADLINE
MODEL: 380AH-1
SIZE: 4" OD X 12" S/F
MAWP: 500 PSIG @ 175 DEG.F
ELEMENT: 38-152-70C
WEIGHT: 10 LBS

H-1A/B
CATALYTIC ROOM HEATER
INPUT: 16,000 BTU/HR (EACH)
SIZE: 24" X 24"
STARTING ELEMENT: 12V W/ 25' CABLES
C/W PRESSURE REGULATOR
THERMOSTAT & SAFETY SHUTOFF
WEIGHT: 90 LBS.

T-3
USED OIL STORAGE TANK
SIZE: HSS 3/8"THK X 8" X 12" X 222" LG
LOCATION: SIDE OF SKID
VOLUME: 80 USGAL

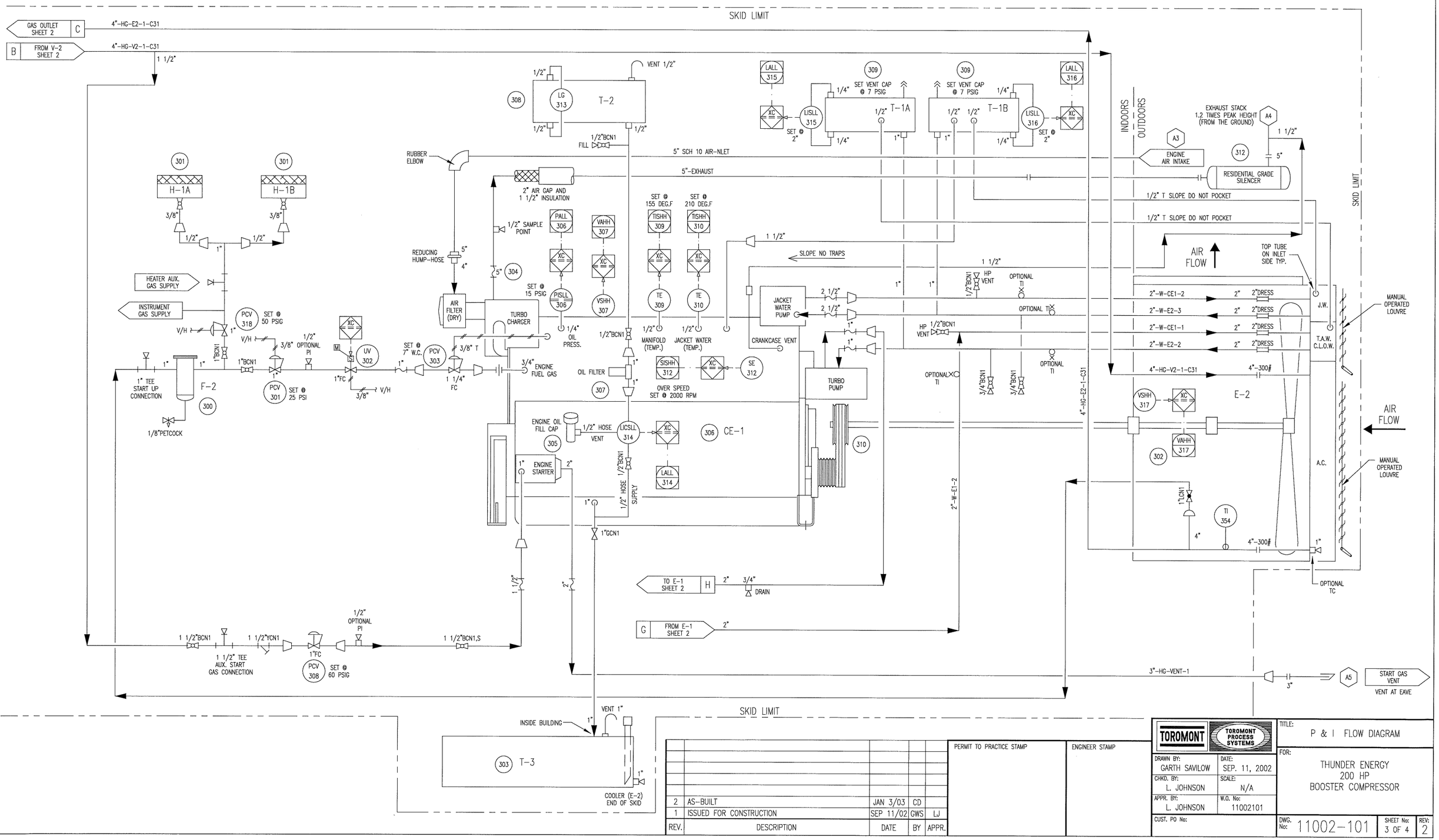
CE-1
NATURAL GAS ENGINE
TYPE: CATERPILLAR 3306TA
BORE: 4.75"
STROKE: 6"
DISPLACEMENT: 638 CU.IN
COMPRESSION RATIO: 8.0: 1
SPEED RANGE: 1400-1800 RPM
BHP (RATED): 203 HP @ 1800 RPM
WEIGHT: 2090 LBS.

T-2
OIL DAY TANK
SIZE: HSS 1/4"THK X 12" X 12" X 120" LG
VOLUME: 68 USGAL

T-1A
TAW/CLOW GLYCOL SURGE TANK
SIZE: HSS 1/4"THK X 12" X 12" X 24" LG
VOLUME: 12 USGAL

T-1B
JW GLYCOL SURGE TANK
SIZE: HSS 1/4"THK X 12" X 12" X 15" LG
VOLUME: 8 USGAL

E-2
COMPRESSOR AFTERCOOLER/OIL COOLER/GLYCOL COOLER
TYPE: ACE
MODEL: J3B
AFTERCOOLER COIL: MAWP: 400 PSI @ 350 DEG.F
MDMT: -20 DEG.F @ 400 PSIG
DUTY: 239864 BTU/HR
GLYCOL COIL: (JACKET WATER) MAWP: 14 PSI @ 350 DEG.F
DUTY: 596000 BTU/HR
GLYCOL COIL: (TURBO/OIL COOLER GLYCOL) MAWP: 14 PSI @ 350 DEG.F
DUTY: 387000 BTU/HR
FAN: MOORE 1000-16VT
FAN SPEED: 644 RPM
TOTAL AIR FLOW: 30543 SCFM
POWER DRAW: 8.7 HP
WEIGHT: 5769 LBS.



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TOROMONT / TOROMONT PROCESS SYSTEMS

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DWG. No: 11002-101 | SHEET No: 3 OF 4 | REV: 2

LINE IDENTIFICATION

A–B–CD–E–FGH–I,I,I

A : NOMINAL LINE SIZE IN INCHES

B : FLUID

CW	COOLING WATER	IA	INSTR. AIR SUPPLY
F	FUEL GAS	IG	INSTR. GAS SUPPLY
G	GLYCOL	L	LUBE OIL (COMPRESSOR)
HG	HYDROCARBON GAS	V	PRODUCED/PROCESS WATER
HL	HYDROCARBON LIQUID		

C : EQUIPMENT TYPE

B	BLOWER/FAN	H	HEATER
C	COMPRESSOR	P	PUMP
E	EXCHANGER	T	TANK
F	FILTER	V	PRESSURE VESSEL

MODIFIER
E ENGINE
M MOTOR

D : EQUIPMENT NUMBER: 1 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 TEMP. CARBON STEEL
- S STAINLESS STEEL

G : ANSI 16.5 FLANGE CLASS

1	150#	9	900#
3	300#	15	1500#
6	600#	25	2500#

H : LINE MATERIAL SPECIFICATION REFERENCE: 1 TO 9 SEQUENTIAL NUMBERS

III : MODIFIER / GENERAL

H	PLUS THICKNESS IN INCHES (HOT INSULATION)
C	PLUS THICKNESS IN INCHES (COLD INSULATION)
PP	PLUS THICKNESS IN INCHES (PERSONAL PROTECTION)
HT	PLUS THICKNESS IN INCHES (HEAT TRACING)
ST	STEAM TRACING
GT	GLYCOL TRACING
ET	ELECTRICAL TRACING

EXAMPLE: 3"–HG–V1–2–C11–HT1", ET
- 3" – LINE SIZE
- HG – HYDROCARBON GAS
- V1 – VESSEL
- 2 – SECOND LINE FROM VESSEL
- C11 – CARBON STEEL LINE
  - 1 150# ANSI FLANGE RATING
  - 1 LINE MATERIAL SPECIFICATION REFERENCE
- HT1" – HEAT TRACING INSULATION 1" THICK
- ET – ELECTRIC TRACING

LINE CODE

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

VALVE IDENTIFICATION

A"BCDE,F

A : NOMINAL VALVE SIZE IN INCHES

B : TYPE

A	ANGLE GLOBE	N	NEEDLE
B	BALL	P	PLUG
C	CHECK	S	START–UP STRAINER
G	GATE	T	TEE STRAINER
L	GLOBE	Y	Y–STRAINER
M	MANIFOLD	U	BUTTERFLY

C : BODY MATERIAL

B	BRONZE	L	LOW TEMP. CARBON STEEL
C	CARBON STEEL	S	STAINLESS STEEL
I	CAST IRON		

D : END CONNECTIONS

1	FLANGED 150#	B	BUTT WELD
3	FLANGED 300#	C	SW BY NPT
6	FLANGED 600#	F	NPT BY FLANGE (MANIFOLD)
9	FLANGED 900#	N	NPT (THREADED)
15	FLANGED 1500#	M	NPT MALE BY NPT FEMALE
25	FLANGED 2500#	S	SW (SOCKETWELD)
		T	TUBE (SWAGELOCK)

E : IDENTIFIER – NUMBER USED TO SPECIFY VALVE REFER TO VALVE DATA SHEETS

F : MODIFIER

C	CHAIN OPERATOR	O	OXYGEN SERVICE/CLEANING
E	EXTENDED BONNET	P	FULL PORT DESIGN
G	GEAR OPERATOR	R	RTJ FLANGED
L	LOCKING DEVICE	S	SPRING HANDLE (CLOSE)
N	NACE TRIM	X	SPECIAL SPECIFICATIONS

EXAMPLE: 6"GC11,C

6"	VALVE SIZE	1	150#
G	GATE	1	API–600
C	CARBON STEEL	C	CHAIN OPERATOR

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
- VALVE W/ BLEED
- VALVE W/ PLUG
- PRESSURE SAFETY/ RELIEF VALVE (XX – DESIGNATES ORIFICE LETTER (SIZE))

MISCELLANEOUS

- FLEXIBLE CONNECTION
- SPECTACLE BLIND (LINE OPEN)
- SPECTACLE BLIND (LINE CLOSED)
- FLOW GLASS
- RUPTURE DISC FOR PRESSURE RELIEF
- RUPTURE DISC FOR VACUUM RELIEF
- VORTEX BREAKER
- DIAPHRAM SEAL
- CONTINUOUS LIQUID DRAINER OR STEAM TRAP
- SKID TIE–POINTS
- OPEN DRAIN
- INSULATION – (C) COLD, (H) HOT, (HT) HEAT TRACING, (PP) PERSONAL PROTECTION
- ELECTRIC HEAT TRACE
- STEAM OR GLYCOL HEAT TRACE

VALVES

- ANGLE GLOBE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GATE VALVE
- GLOBE VALVE
- NEEDLE VALVE
- PLUG VALVE
- 3–WAY VALVE
- 4–WAY VALVE
- START–UP STRAINER
- TEE STRAINER
- Y–STRAINER

VALVE CONNECTIONS

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

INSTRUMENT IDENTIFICATION GENERAL REFERENCE (ISA – S5.1)

	(MODIFIER) FIRST LETTER	SUCCEEDING LETTERS	PRIMARY ELEMENT	INDICATOR	RECORDER	CONTROLLER BLIND	CONTROLLER INDICATING	CONTROLLER RECORDING	TRANS–MITTER	CONTROL SWITCH	CONTROL ALARM	CONTROL VALVE OR REGULATOR	SELF–ACTIVATED VALVE	RELAY OR CONVERTER
A	ANALYSIS	ALARM	AE	AI	AR	AC	AIC	ARC	AT	AS( )	AA( )	AV		AY
B	BURNER FLAME	USER'S CHOICE	BE	BI	BR	BC			BT	BS( )	BA( )	BV		BY
C	CONDUCTIVITY	CONTROL (CLOSE)	CE	CI	CR	CC	CIC	CRC	CT	CS( )	CA( )	CV		CY
D	DENSITY OR MASS (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	FCV	FY
G	GAUGING	GLASS	GE	GI	GR	GC	GIC	GRC	GT	GS( )	GA( )	GV		
H	HAND	(HIGH)				HC	HIC	HRC	HT	HS( )		HV	HCV	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( )			KY
L	LEVEL	LIGHT (LOW)	LE	LI	LR	LC	LIC	LRC	LT	LS( )	LA( )	LV	LCV	LY
M	MOISTURE, HUMIDITY	(MIDDLE OR INTERMEDIATE)	ME	MI	MR	MC	MIC	MRC	MT	MS( )	MA( )	MV		MY
N	USER'S CHOICE													
O	POINT	ORIFICE (OPEN)												
P	PRESSURE OR VACUUM	POINT	PE	PI	PR	PC	PIC	PRC	PT	PS( )	PA( )	PV	PCV	PY
Q	QUANTITY OR EVENT (INTEGRATE/TOTALIZE)			QI	QR	QC	QIC	QRC	QT	QS( )	QA( )	QV		QY
R	RADIOACTIVITY	RECORD OR PRINT	RE	RI	RR	RC	RIC	RRC	RT	RS( )	RA( )			RY
S	SPEED OR FREQUENCY	SWITCH		SI	SR	SC	SIC	SRC	ST	SS( )	SA( )			SY
T	TEMPERATURE	TRANSMIT	TE	TI	TR	TC	TIC	TRC	TT	TS( )	TA( )	TV	TCV	TY
U	MULTI–VARIABLE	MULTIFUNCTION		UI	UR	UC	UIC	URC				UV		UY
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	UNCLASSIFIED	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

(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

INSTRUMENTS

- THERMOWELL (THREADED)
- THERMOWELL (WELDED)
- 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
- PILOT LIGHT * COLOUR– (A) AMBER, (G) GREEN, (R) RED, (B) BLUE, (O) ORANGE, (W) WHITE

TV * I/P — RELAY OR CONVERTER
* FOR INPUT/OUTPUT SEQUENCES
DESIGNATION: SIGNAL:
- E VOLTAGE
- H HYDRAULIC
- I CURRENT (ELECTRICAL)
- O ELECTROMAGNETIC OR SONIC
- P PNEUMATIC
- R RESISTANCE (ELECTRICAL)

XC — PROGRAMMABLE LOGIC CONTROLLER (PLC) XC REPRESENTS GENERAL LOGIC
X/Y — X = PLC NUMBER, Y = PLC RACK NUMBER

THE ABOVE IDENTIFICATION NUMBER WILL BE USED TO REFERENCE THE CONTROL PANELS.

I — INTERLOCK

E — ELECTRICAL (HARD WIRE) INTERLOCK

ABBREVIATIONS

AOUT	AUTOMATIC OUTPUT	MAWP	MAXIMUM ALLOWABLE WORKING PRESSURE
CA	CORROSION ALLOWANCE	MDMT	MINIMUM DESIGN METAL TEMPERATURE
CHO	CHAIN OPERATED	MIN	MINIMUM
CUST	CUSTOMER	MCC	MOTOR CONTROL CENTER
DIR	DIRECT ACTING	MOUT	MANUAL OUTPUT
DB	DEADBAND	MS	MOTOR STARTER
△	DELTA (DIFFERENTIAL)	NC	NORMALLY CLOSED
ESD	EMERGENCY SHUTDOWN	NLL	NORMAL LIQUID LEVEL
FC	FAIL CLOSED	NO	NORMALLY OPEN
FO	FAIL OPEN	MMI	MAN / MACHINE INTERFACE
FLP	FAIL LAST POSITION	PB	PUSH BUTTON
GAIN	GAIN	PL	PILOT LIGHT
HI	HIGH	PLC	PROGRAMMABLE LOGIC CONTROLLER
HS	HAND SWITCH	REV	REVERSE ACTING
HTR	HEATER	RST	RESET (INTEGRAL)
I/A	INSTRUMENT AIR SUPPLY	SCR	SILICON CONTROLLED RECTIFIER
I/G	INSTRUMENT GAS SUPPLY	S/F	SEAM TO FACE OF FLANGE
I/O	INPUT / OUPUT	SP	SETPOINT
LB/HR	POUNDS PER HOUR	SPC	CALCULATED SETPOINT
FT3/DAY	CUBIC FEET PER DAY	SS	SELECTOR SWITCH
FT3/HR	CUBIC FEET PER HOUR	S/S	SEAM TO SEAM
FT3/MIN	CUBIC FEET PER MINUTE	T/T	TANGENT TO TANGENT
LC	LOCKED CLOSED	TS/TS	TUBESHEET TO TUBESHEET
LO	LOCKED OPEN	T/L	TUBE LENGTH
MAX	MAXIMUM	V/H	VENT HEADER

GENERAL NOTES

1. TUBING TO BE 304SS, SEAMLESS. 0.035" WALL THICKNESS, CADMIUM PLATED CARBON STEEL FITTINGS WITH STAINLESS STEEL FERRULES.
2. ALL TEMPERATURE INSTRUMENTS TO BE PROVIDED WITH A THERMOWELL.

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PERMIT TO PRACTICE STAMP

ENGINEER STAMP

TOROMONT / TOROMONT PROCESS SYSTEMS

TITLE: P & I FLOW DIAGRAM LEGEND

DRAWN BY: GARTH SAVILOW | DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON | SCALE: N/A
APPR. BY: L. JOHNSON | W.O. No: 11002101
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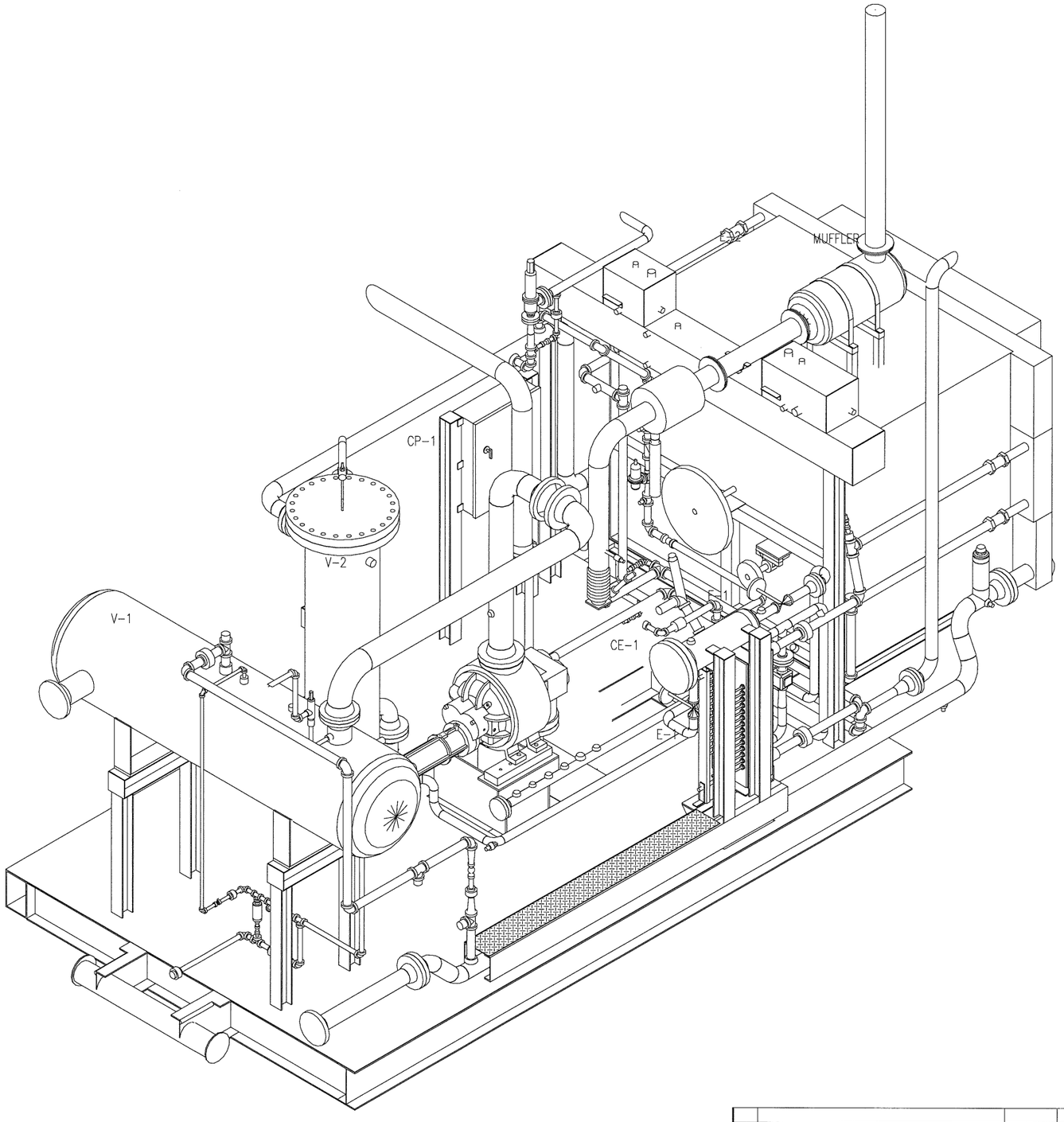
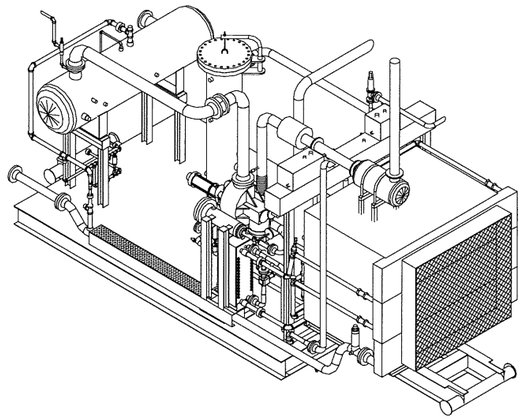
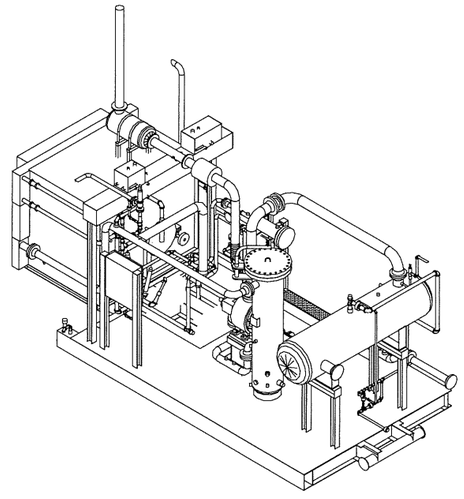
FOR: THUNDER ENERGY 200 HP BOOSTER COMPRESSOR

DWG. No: 11002–101 | SHEET No: 4 OF 4 | REV: 2







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PERMIT TO PRACTICE STAMP

ENGINEER STAMP

TOROMONT / TOROMONT PROCESS SYSTEMS

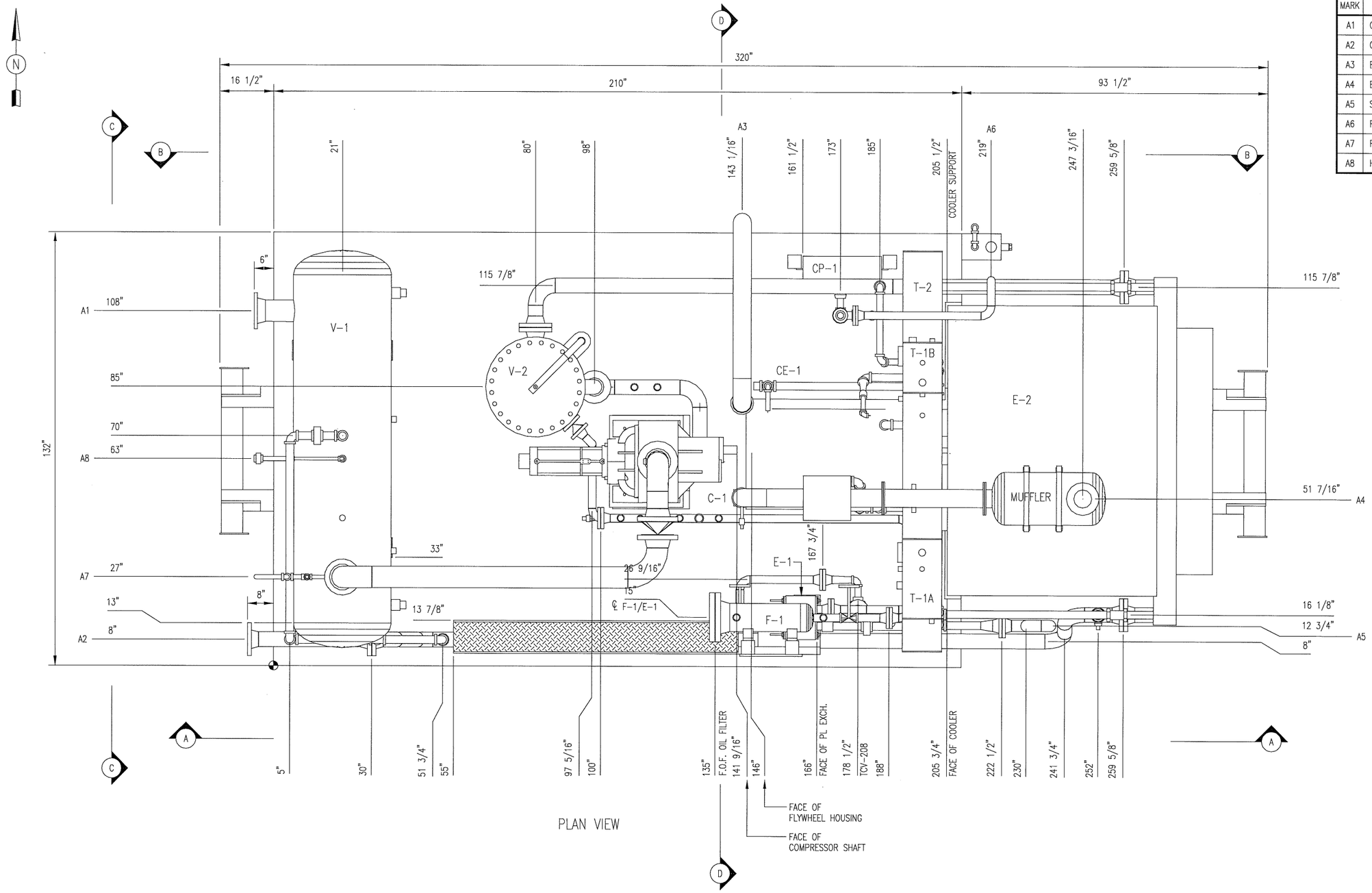
TITLE: 3D MODEL

FOR: THUNDER ENERGY
200 HP
BOOSTER COMPRESSOR

DRAWN BY: GARTH SAVILOW	DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON	SCALE: 1/2"=1'-0"
APPR. BY: L. JOHNSON	W.O. No: 11002201
CUST. PO No:	DWG. No: 11002-201

SHEET No: 1 OF 5

REV: 2



PLAN VIEW

NOZZLE SCHEDULE

MARK	SERVICE	SIZE	RATING	TYPE	CUSTOMER TIE POINT
A1	GAS INLET	6"	300#	RFWN	YES
A2	GAS OUTLET	4"	300#	RFWN	YES
A3	ENGINE AIR INTAKE	5"	–	STUB	NO
A4	ENGINE EXHAUST	5"	–	STUB	NO
A5	START GAS VENT	3"	–	STUB	NO
A6	RELIEF HEADER	2"	–	STUB	NO
A7	RELIEF VENT	1"	–	STUB	NO
A8	HYDROCARBON DRAIN	1"	3000#	UNION	NO

GENERAL NOTES:

1. ⊕ ALL TAIL DIMENSIONS FROM REFERENCE POINT.
2. SHIPPING LENGTH: 320"
   SHIPPING WIDTH: 143 1/2"
   SHIPPING HEIGHT: 160"
3. SHIPPING WEIGHT: 35600 LBS
4. OPERATING WEIGHT: 35600 LBS
5. OVERALL SKID DEPTH: 8 3/16"
6. NOZZLE ELEVATIONS ARE FROM CENTERLINE OF PIPE TO TOP OF BASE (REFERENCE POINT).
7. (*) DENOTES ELEVATION FROM FACE OF FLANGE TO TOP OF BASE (REFERENCE POINT).

REV.	DESCRIPTION	DATE	BY	APPR.
2	AS-BUILT	JAN 3/03	CD	
1	ISSUED FOR CONSTRUCTION	SEP 11/02	GWS	LS

PERMIT TO PRACTICE STAMP

ENGINEER STAMP

TOROMONT PROCESS SYSTEMS

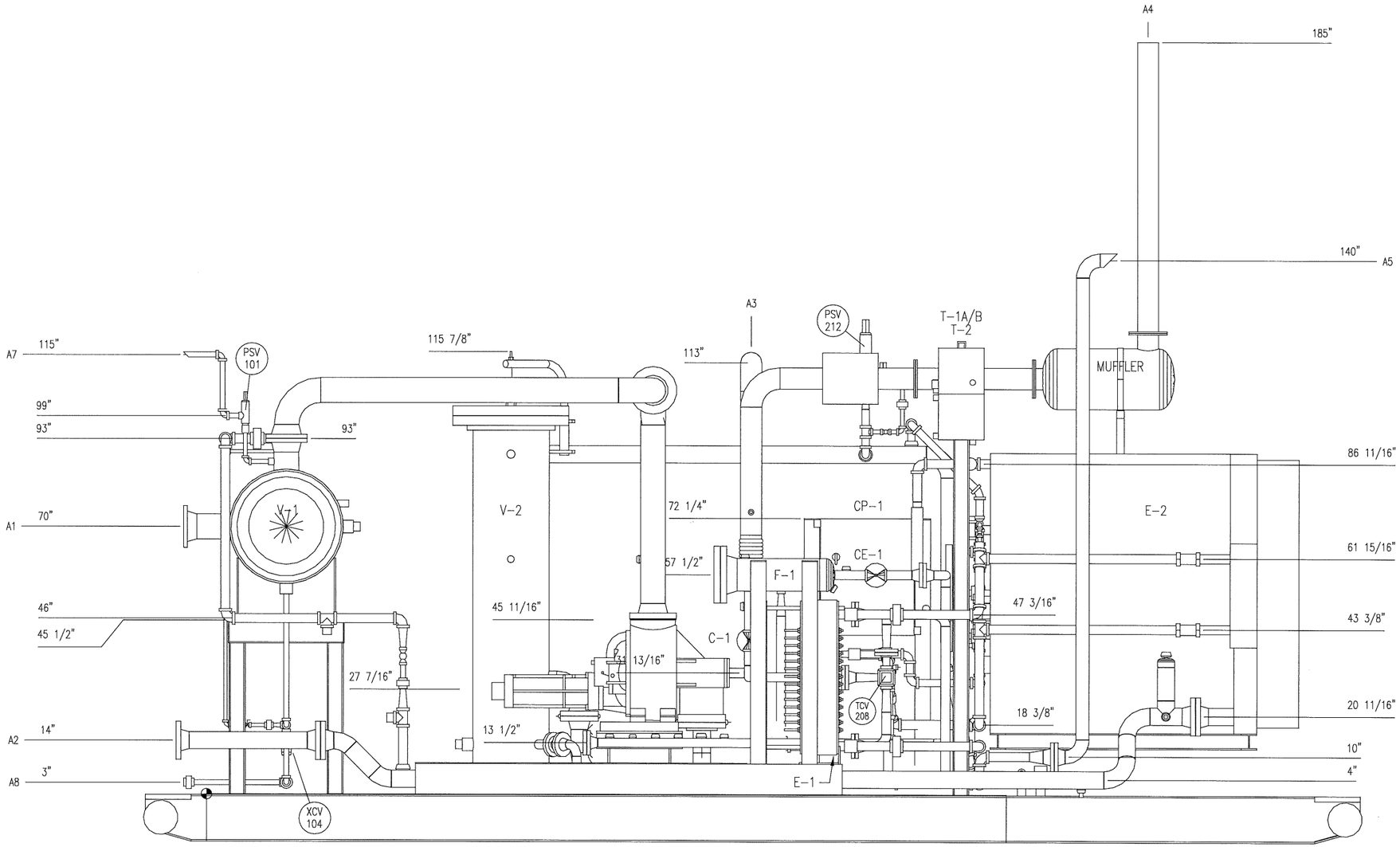
TITLE: GENERAL ARRANGEMENT

FOR: THUNDER ENERGY
200 HP
BOOSTER COMPRESSOR

DRAWN BY: GARTH SAVILOW	DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON	SCALE: 3/4"=1'-0"
APPR. BY: L. JOHNSON	W.O. No: 11002201
CUST. PO No:	DWG. No: 11002-201

SHEET No: 2 OF 5

REV: 2



ELEVATION "A-A"

REV.	DESCRIPTION	DATE	BY	APPR.
2	AS-BUILT	JAN 3/03	CD	
1	ISSUED FOR CONSTRUCTION	SEP 11/02	GWS	LS

PERMIT TO PRACTICE STAMP

ENGINEER STAMP

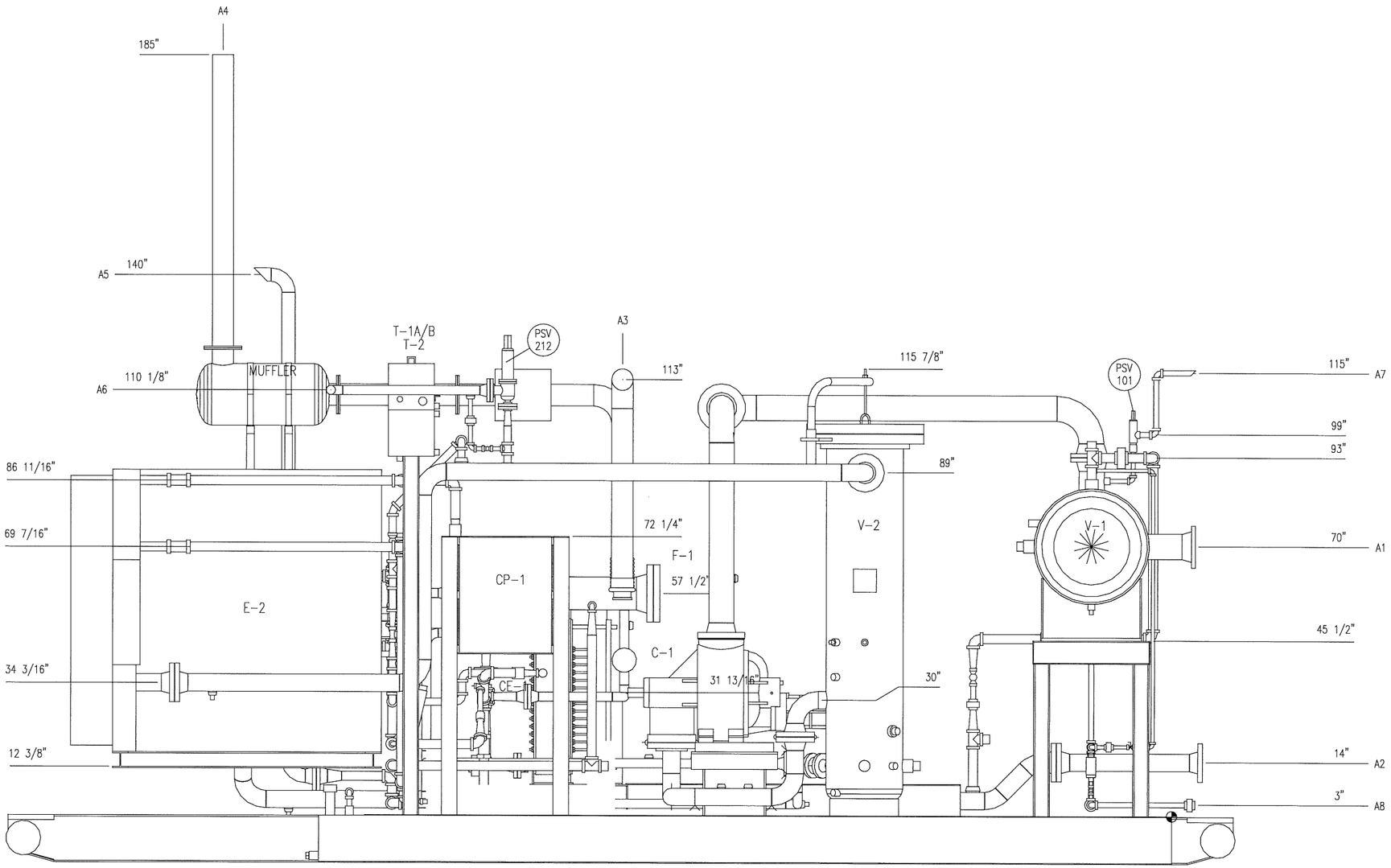
TOROMONT / TOROMONT PROCESS SYSTEMS

DRAWN BY: GARTH SAVILOW	DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON	SCALE: 3/4"=1'-0"
APPR. BY: L. JOHNSON	W.O. No: 11002201
CUST. PO No:	

TITLE: ELEVATION "A-A"

FOR: THUNDER ENERGY
200 HP
BOOSTER COMPRESSOR

DWG. No: 11002-201 | SHEET No: 3 OF 5 | REV: 2



ELEVATION "B-B"

REV.	DESCRIPTION	DATE	BY	APPR.
2	AS-BUILT	JAN 3/03	CD	
1	ISSUED FOR CONSTRUCTION	SEP 11/02	GWS	LS

PERMIT TO PRACTICE STAMP

ENGINEER STAMP

TOROMONT / TOROMONT PROCESS SYSTEMS

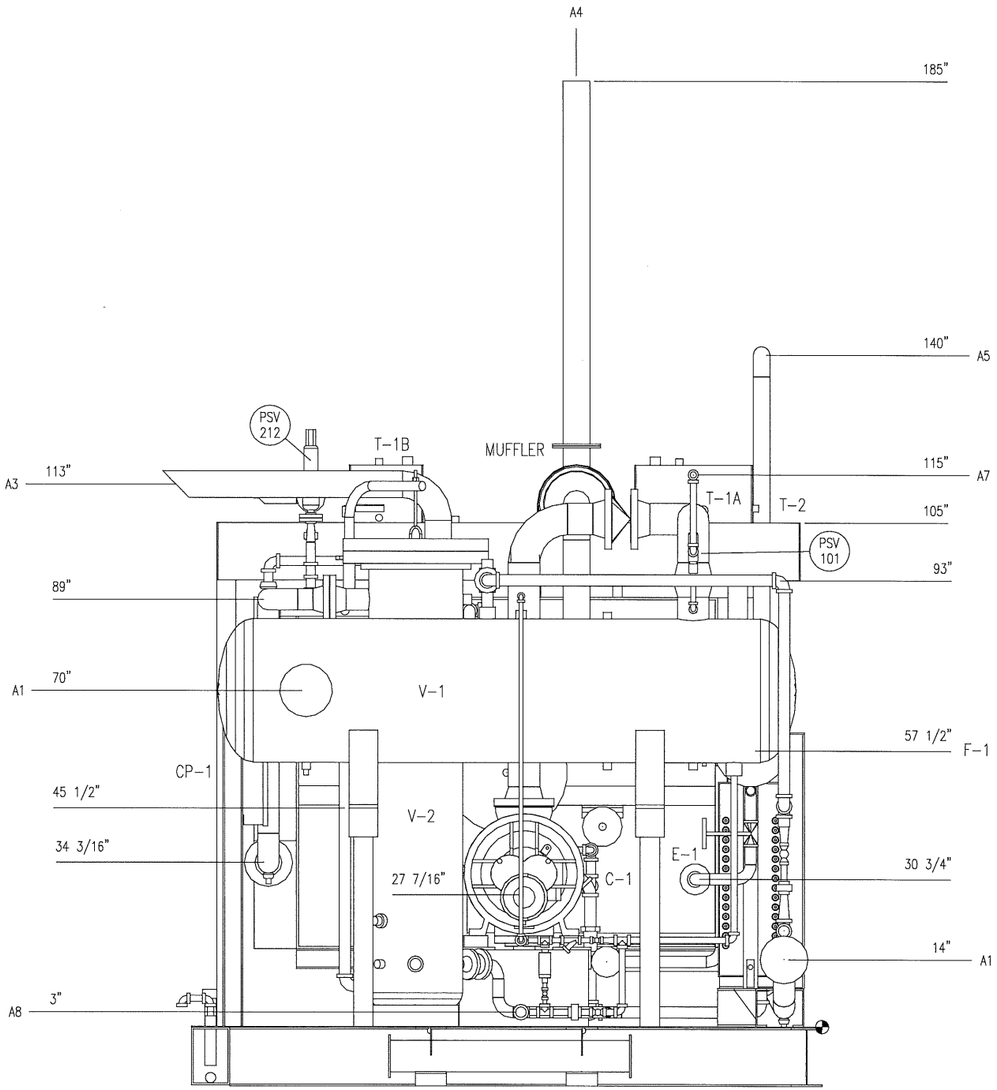
TITLE: ELEVATIONS "B-B"

FOR: THUNDER ENERGY
200 HP
BOOSTER COMPRESSOR

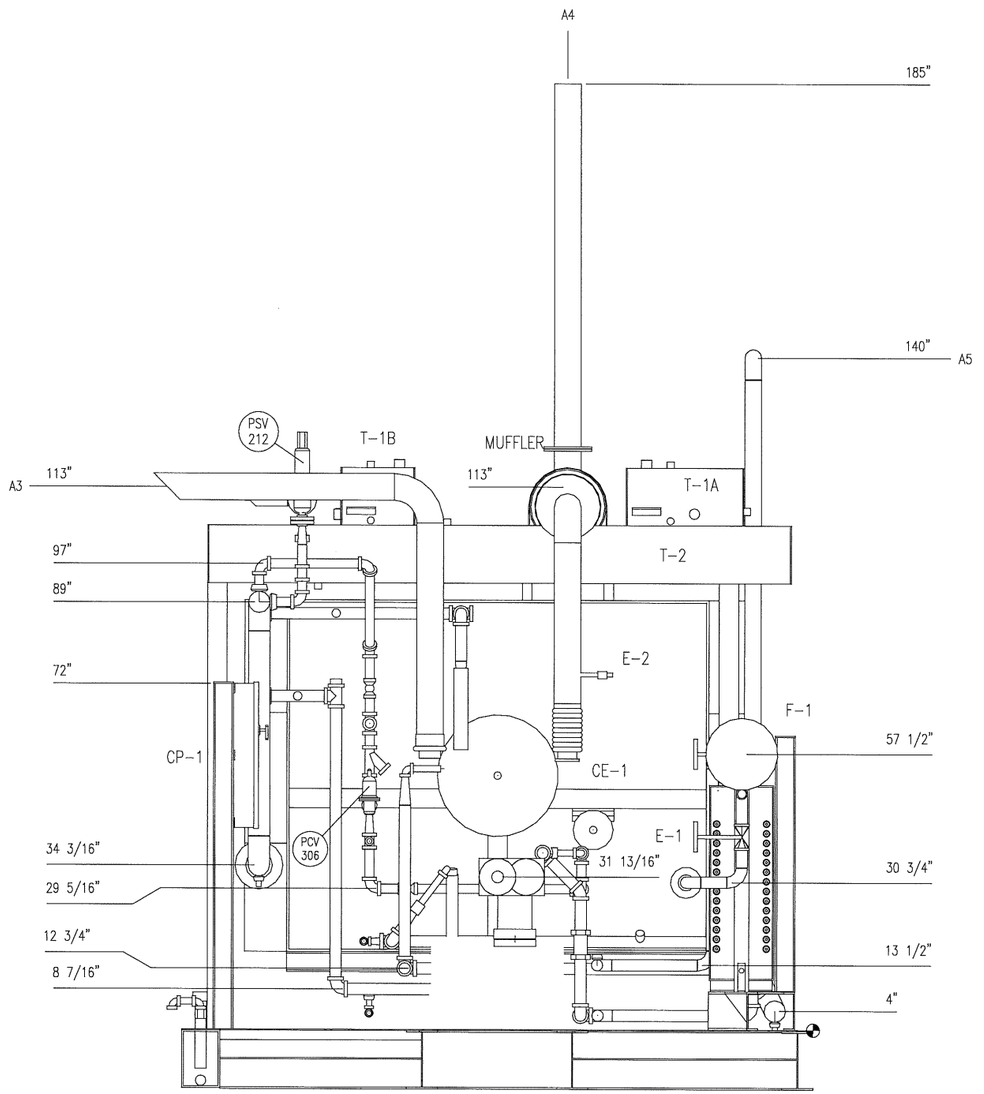
DRAWN BY: GARTH SAVILOW	DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON	SCALE: 3/4"=1'-0"
APPR. BY: L. JOHNSON	W.O. No: 11002201
CUST. PO No:	DWG. No: 11002-201

SHEET No: 4 OF 5

REV: 2



VIEW "C-C"



SECTION "D-D"

REV.	DESCRIPTION	DATE	BY	APPR.
2	AS-BUILT	JAN 3/03	CD	
1	ISSUED FOR CONSTRUCTION	SEP 11/02	GWS	LS

PERMIT TO PRACTICE STAMP

ENGINEER STAMP

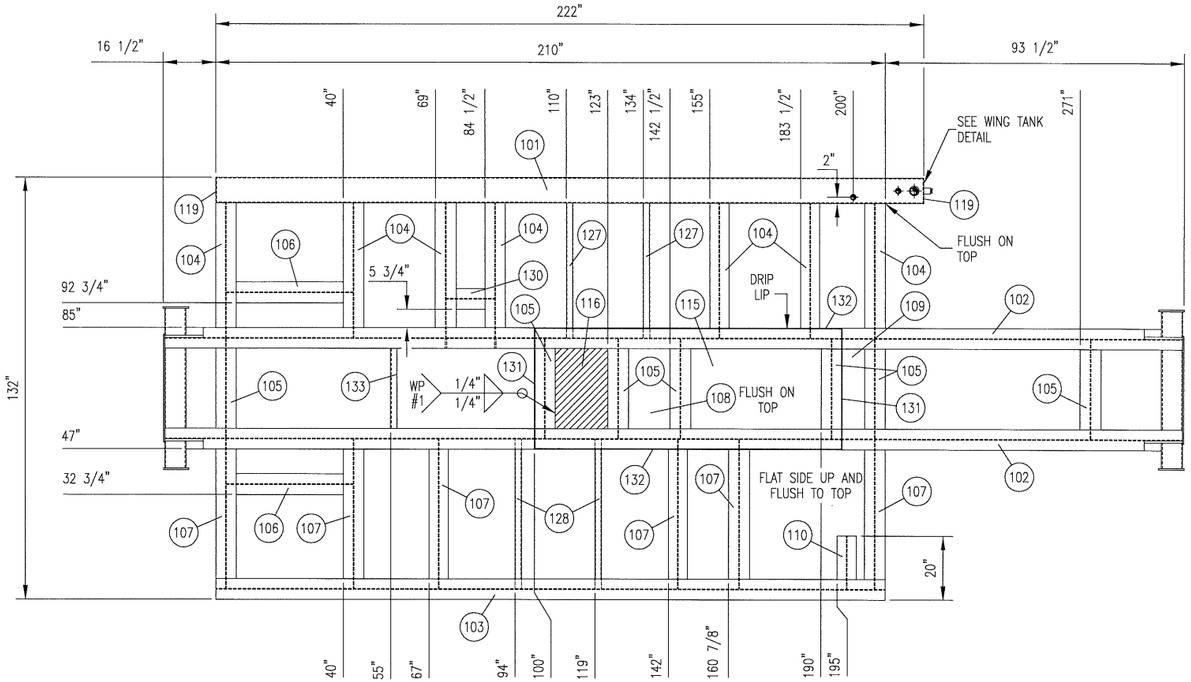
TOROMONT PROCESS SYSTEMS

DRAWN BY: GARTH SAVILOW	DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON	SCALE: 3/4"=1'-0"
APPR. BY: L. JOHNSON	W.O. No: 11002201
CUST. PO No:	

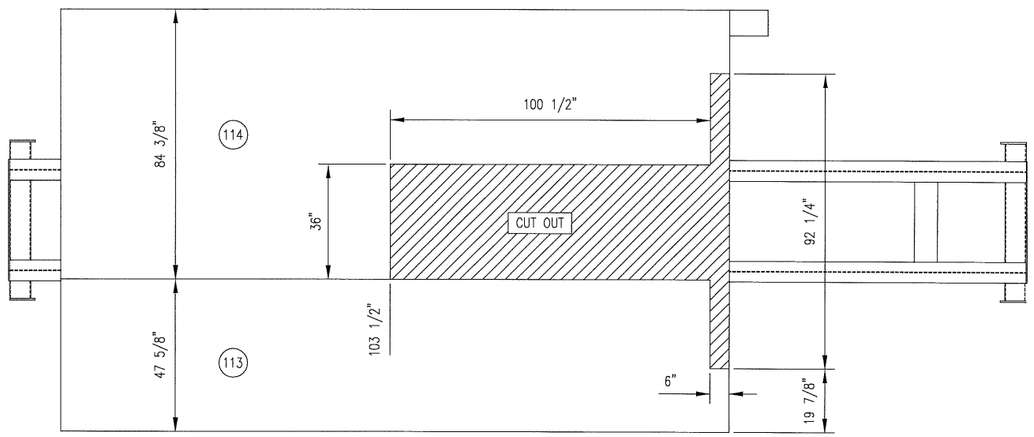
TITLE: VIEWS C-C/D-D

FOR: THUNDER ENERGY 200 HP BOOSTER COMPRESSOR

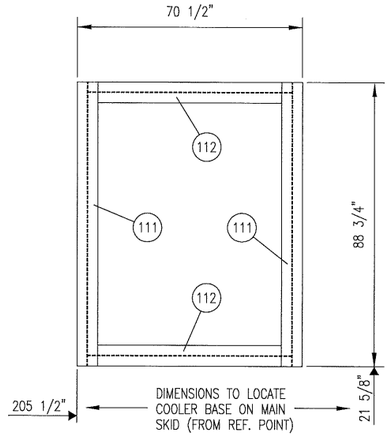
DWG. No: 11002-201 | SHEET No: 5 OF 5 | REV: 2



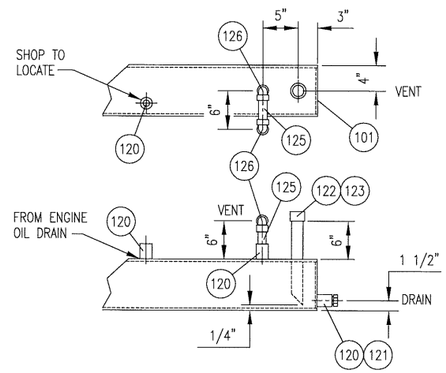
PLAN VIEW



CHECKER PLATE DETAIL

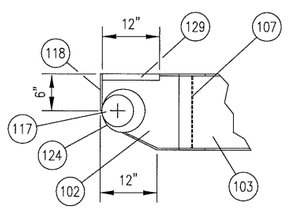


COOLER SUPPORT BASE



WING TANK DETAIL

NOT TO SCALE



SHOP NOTE: SHOP TO BEAD WELD JOB NUMBER ON TO FACE OF ITEM 118

DRAG BAR DETAIL

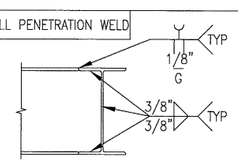
NOT TO SCALE

BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MATERIAL
101	1	H.S.S.: 8" X 12" X 0.375" THK X 222" LG	G40.21350W
102	2	W 12 X 26 X 319" LG	G40.2150W
103	1	W 12 X 26 X 210" LG	G40.2150W
104	7	W 12 X 26 X 42 1/8" LG	G40.2150W
105	7	W 12 X 26 X 31 1/4" LG	G40.2150W
106	2	W 12 X 26 X 39 3/4" LG	G40.2150W
107	6	W 12 X 26 X 46 3/4" LG	G40.2150W
108	1	PLATE: 3/16" THK 13" X 25" LG	SA-36
109	1	PLATE: 3/8" THK X 7" X 25" LG.	G40.2144W
110	1	W 6 X 15 X 16 5/8" LG	G40.2150W
111	2	W 12 X 26 X 88 3/4" LG	G40.2150W
112	2	W 12 X 26 X 63 3/4" LG	G40.2150W
113	1	CHECKER PLATE: 3/16" THK 48" X 210" LG	SA-36
114	1	CHECKER PLATE: 3/16" THK 84" X 210" LG	SA-36
115	1	PLATE: 3/16" THK 25" X 41" LG	SA-36
116	1	PLATE: 1/2" THK X 16 1/2" X 25" LG	G40.2144W
117	4	PLATE: 3/8" THK X 9" DIA.	G40.2144W
118	2	FLAT BAR: 3/8" THK X 6" X 33 3/4" LG.	G40.2144W
119	2	PLATE: 1/4" THK X 7 1/4" X 11 1/4" LG.	G40.2144W
120	3	COUPLING: 1"-3000# NPT	SA-105
121	1	PLUG: 1"-3000# HEX NPT	SA-105
122	1	PIPE CAP: 2"-3000# NPT	SA-234-WPB
123	1	PIPE: 2" NOM SCH STD WT X 20" LG. (CTS)	SA-106-B
124	2	PIPE: 6" NOM SCH STD WT X 50" LG.	SA-106-B
125	2	PIPE: 1" NOM SCH 80 WT X 6" LG. (C.T.S.)	SA-106-B
126	2	ELBOW: 1"-3000# 90° ELBOW NPT	SA-105
127	2	H.S.S.: 2" X 2" X 1/4" X 42 1/8" LG.	G40.2144W
128	2	H.S.S.: 2" X 2" X 1/4" X 46 3/4" LG.	G40.2144W
129	2	PIPE: 1" NOM SCH 40 X 12" LG. (CUT IN HALF)	SA-106-B
130	1	W 12 X 26 X 15 1/4" LG	G40.2150W
131	2	FLAT BAR: 1" X 1/8" THK X 37 3/4" LG.	G40.2144W
132	2	FLAT BAR: 1" X 1/8" THK X 96 1/2" LG.	G40.2144W
133	1	H.S.S.: 2" X 2" X 1/4" X 31 1/4" LG.	G40.2144W

GENERAL NOTES:

1. ● ALL TAIL DIMENSIONS FROM REFERENCE POINT.
2. WEIGHT OF SKID STEEL BASE: 7450 LBS
   WEIGHT OF RAISED BASES: 955 LBS
   WEIGHT OF TANKS: 1240 LBS
   TOTAL WEIGHT: 9645 LBS
3. COPE FLANGES WHERE REQUIRED.
4. ALL WELDS TO BE 1/4" FILLETS ALL AROUND, UNLESS OTHERWISE NOTED.
5. ALL CUT LENGTHS ARE EXACT TOL +0.0"/-0.125" (+0 MM/-3 MM)
6. ALL BOLT HOLES ARE 3/4"ø(19 MMø) UNLESS OTHERWISE NOTED.
7. SURFACE PREP: SANDBLAST TO SSPC-SP6.
   PRIMER: ONE COAT OF PRI-1 RED OXIDE
   PAINT: ONE COAT OF FIN-1 TPS GREY
8. ● FULL PENETRATION STRENGTH WELD IS REQ'D AT THESE LOCATIONS.
9. PERIMETER AND ALL PANEL JOINTS OF CHECKER PLATE ARE TO BE SEAL WELDED. SKID MEMBERS TO UNDERSIDE OF CHECKER PLATE TO BE STITCH WELDED AT 2"(50 MM) OF FILLET ON 16"(406 MM) CENTERS.

FULL PENETRATION WELD



NOTES:

1. FULL PENETRATION WELD ON FLANGE.
2. BACK GOUGE TO SOUND METAL AFTER WELDING SQUARE WELD

REV.	DESCRIPTION	DATE	BY	APPR.
2	AS BUILT	MAR 17/03	TM	
1	ISSUED FOR CONSTRUCTION	SEP 11/02	GWS	LJ

PERMIT TO PRACTICE STAMP

ENGINEER STAMP

TOROMONT / TOROMONT PROCESS SYSTEMS

DRAWN BY: GARTH SAVILOW	DATE: SEP. 11, 2002
CHKD. BY: L. JOHNSON	SCALE: 1/2" = 1'-0"
APPR. BY: L. JOHNSON	W.O. No: 11002301
CUST. PO No:	DWG. No: 11002-301

TITLE: SKID STEEL

FOR: THUNDER ENERGY 200 HP BOOSTER COMPRESSOR

SHEET No: 1 OF 6

REV: 2