

MISC. COMPONENTS: CONTINUED / with Tag No.

ITEM NO.	TAG#	DESCRIPTION
29	PK-300-F1	DUPEX OIL FILTERS - AUX OIL
30	PK-300-E2	ARIEL A-660 SPIN-ON OIL FILTERS - MAIN CASE
31	TVC-0264	FLUID POWER ENERGY THERMOSTATIC VALVE - AUX OIL
32	PCV-0264	FLUID FLO RELIEF VALVE / V-SERIES - AUX. OIL
33	LSL/G-0261	KENCO OIL CONTROLLER / MODEL KLCE-9

### MAIN COMPONENT LIST

ITEM NO.	TAG#	DESCRIPTION	DATA / INFORMATION
1	PKM-302	HYUNDAI INDUCTION MOTOR	850 HP AT 900 RPM / 4160V-3P-60HZ
2	PK-302	ARIEL JGT-2 COMPRESSOR FRAME	4.5" STROKE, 2.00" OD ROOS
3	G1	THROW #2 (1st STAGE)	17.375" I.D. X 4.5" STROKE / 404 PSIG MAWP
4	PK-302-V1A	SUCTION BOTTLE-THROW 2	24" OD X 64" S/S / DP: 200 PSIG @ 350°F
5	PK-302-V2A	DISCHARGE BOTTLE-THROW 2	24" OD X 37" S/S / DP: 300 PSIG @ 350°F
6	G2	THROW 1 (2nd STAGE)	13.625" I.D. X 4.5" STROKE / 577 PSIG MAWP
7	PK-302-V1B	SUCTION BOTTLE-THROW 1	22" OD X 55" S/S / DP: 300 PSIG @ 350°F
8	PK-302-V2B	DISCHARGE BOTTLE-THROW 1	22" OD X 40" S/S / DP: 500 PSIG @ 350°F
9	PK-302-E1	INTERSTAGE COOLER	12" OD X 150" LONG SHELL - DP: 150 PSIG @ 300°F TUBE - DP: 300 PSIG @ 300°F
10	PK-302-E2	RECYCLE COOLER	12" OD X 98" LONG SHELL - DP: 150 PSIG @ 300°F TUBE - DP: 450 PSIG @ 300°F
11	PK-302-V3A	DISTANCE PIECE K.O. POT	6.625" OD X 12" S/S / MWAP 214 PSI @ 350°F
12	PK-302-V3B	PACKING CASE K.O. POT	6.625" OD X 12" S/S / MWAP 214 PSI @ 350°F
13	PK-302-V4A	THROW 2 LIQUIDS K.O. POT	8.625" OD X 12" S/S / MWAP 551 PSI @ 350°F
14	PK-302-V4B	THROW 1 LIQUIDS K.O. POT	8.625" OD X 12" S/S / MWAP 551 PSI @ 350°F
15	PK-302-P1A	MAIN OIL PUMP - FRAME DRIVEN	17 GPM @ 60 PSI
16	PK-302-H1	CRANKCASE HEATER	2000W, 120V-1P-60H
17	PK-302-PMB	AUX. PUMP MOTOR	3 HP ELECTRIC MOTOR / 3600 RPM, 460V-3P-60H
18	PK-302-P1B	AUX. OIL PUMP	D3EBCS-118 / 20.4 GPM AT 75 PSIG
19	PK-302-E3	AUX. LUBE OIL HEAT EXCHANGER	300 PSIG @ 20F 300F / OIL FLOW, 17 GPM
20	PKL-3748A	UNIT CONTROL PANEL	NEMA 4X, CLASS 1, GROUP B/D, DIV. 2
21	PCV-0170	FISHER CONTROL VALVE	NPS 2 ET 667 SIZE 40 DVC020 SS

MISC. COMPONENTS

22 LIFTING LUGS

23 ANCHOR BOLTS (BY OTHERS)

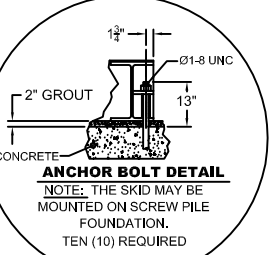
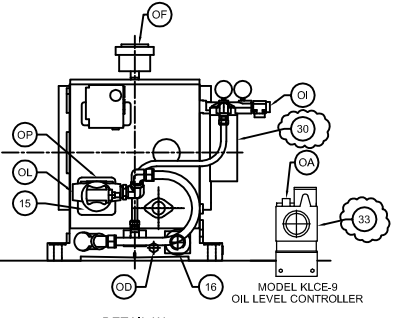
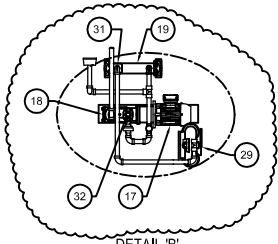
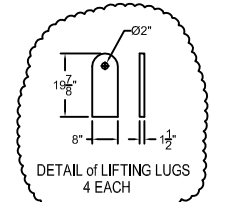
24 FLOW INDICATORS / COOLING WATER

25 DAY TANK - OIL - 20 GALLON CAPACITY

26 PUMP for DAY TANK - OIL - MWAP 120 PSI, 4.3 BAR / ARI 1" DIAPHRAGM PUMP #666100-362C

27 3-150 GATE VALVE - BONNEY FORGE / T 13389

28 4-300 GATE VALVE - BONNEY FORGE / T 12736



### SCHEDULE OF OPENINGS

ITEM QTY	RATING	DESCRIPTION
<b>(P-K-302-V1A THROW 2 - 1st STAGE SUCTION BOTTLE)</b>		
A2	1 8" 400# Special	SYNGAS INLET CONN.
A3	2 1 1/2" 300# RF	VENT CONN.
A4	1 1 1/2" 300# RF	PT CONN.
A5	1 1 1/2" 300# RF	PI CONN.
A6	1 1 1/2" 300# RF	TI CONN.
A7	1 1 1/2" 300# RF	TE CONN.
A8	1 1 1/2" 300# RF	DRAIN CONN.
A9	1 1 1/2" 300# RF	DRAIN TO K.O. POT
A10	1 8" 400# Special	INSPECTION OPENING W/BLIND
<b>(P-K-302-V1B THROW 2 - 1st STAGE DISCHARGE BOTTLE)</b>		
B1	1 8" 300# RF	SYNGAS INLET CONN.
B2	2 8" 400# Special	SYNGAS OUTLET CONN.
B3	1 1 1/2" 300# RF	PT CONN.
B4	1 1 1/2" 300# RF	PI CONN.
B5	2 1 1/2" 300# RF	TI CONN.
B6	1 1 1/2" 300# RF	TE CONN.
B7	1 1" 300# RF	DRAIN CONN.
B8	1 4" 300# RF	INSPECTION OPENING W/BLIND
<b>(P-K-302-V2A THROW 1 - 2nd STAGE SUCTION BOTTLE)</b>		
C1	1 8" 300# RF	SYNGAS INLET CONN.
C2	1 8" 300# RF	SYNGAS OUTLET CONN.
C3	2 1 1/2" 300# RF	VENT CONN.
C4	1 1 1/2" 300# RF	PT CONN.
C5	1 1 1/2" 300# RF	PI CONN.
C6	1 1 1/2" 300# RF	TI CONN.
C7	1 1 1/2" 300# RF	TE CONN.
C8	1 1 1/2" 300# RF	DRAIN CONN.
C9	1 1 1/2" 300# RF	BOTTLE DRAIN TO K.O. POT
C10	1 4" 300# RF	INSPECTION OPENING W/BLIND
<b>(P-K-302-V2B THROW 1 - 2nd STAGE DISCHARGE BOTTLE)</b>		
D1	1 8" 300# RF	SYNGAS INLET CONN.
D2	1 10" 300# RF	SYNGAS INLET CONN.
D3	1 1 1/2" 300# RF	PT CONN.
D4	1 1 1/2" 300# RF	PI CONN.
D5	1 1 1/2" 300# RF	TE CONN.
D6	1 1 1/2" 300# RF	TI CONN.
D7	1 1 1/2" 300# RF	DRAIN CONN.
D8	1 4" 300# RF	INSPECTION OPENING W/BLIND
<b>KNOCK-OUT POTS/LIQUID DRAINERS</b>		
KD	4 1" NPT	K.O. DRAIN CONNECTION
KV1	2 1 1/2" 300# RF	BOTTLE K.O. INLET CONNECTION
KV2	2 3/4" 600# F.L.D.L.	D.P. & P.P. K.O. INLET CONNECTION
KV3	2 1" 300# RF	D.P. & P.P. K.O. VENT CONNECTION
LD	1 1" 300# RF	LIQUID DRAINER CONNECTION
<b>HEAT EXCHANGER, INTERSTAGE</b>		
G1	1 6" 300# RF	SYNGAS INLET CONN.
G2	1 6" 300# RF	SYNGAS OUTLET CONN.
W1	1 3" 150# RF	COOLING WATER INLET
W2	1 3" FNPT	COOLING WATER OUTLET
V1	1 3/4" NPT	VENTS
V2	1 3/4" NPT	DRAIN
<b>HEAT EXCHANGER, RECYCLE</b>		
G3	1 4" 300# RF	SYNGAS INLET CONN.
G4	1 4" 300# RF	SYNGAS OUTLET CONN.
W3	1 3" 150# RF	COOLING WATER INLET
W4	1 3" FNPT	COOLING WATER OUTLET
V3	1 3/4" NPT	VENTS
V4	1 3/4" NPT	DRAIN
<b>LUBE OIL CONNECTIONS CRANKCASE/FRAME</b>		
OF	1 1 1/4" NPT	CRANKCASE MANUAL OIL FILL/BREATER
OD	1 1 1/2" NPT	CRANKCASE DRAIN
OL	1 1 1/2" NPT	L.O. PUMP DISCHARGE PORT
OP	1 1" NPT	CRANKCASE PRIME
OI	1" FNPT	FILTER INLET CONNECTION
OA	1 1/2" NPT	AUTOMATIC OIL FEEDER
<b>UTILITY CONNECTIONS</b>		
U1	1 12" 300# RF	SYNGAS INLET CONN.
U2	1 6" 300# RF	SYNGAS OUTLET CONN.
U3	1 4" 150# RF	COOLING WATER INLET
U4	1 4" 150# RF	COOLING WATER OUTLET
U5	1 1" 150# RF	INSTRUMENT AIR
U6	1 1/2" 150# RF	NITROGEN PURGE
U7	1 3/2" HOLE	MOTOR ELECTRICAL LEADS
U8	1 3/4" FNPT	HEATER BOX / MOTOR
U9	1 1 1/4" FNPT	FRAME HEATER ENCLOSURE CONNECTION
U10	1 1/2" FNPT	AUTOMATIC OIL FEEDER CONNECTION
U11	1 1 1/2" 150# RF	DAY OIL PUMP / TANK

**NOTES:**

- UNTIL FABRICATION IS COMPLETE ALL COORDINATES ARE ESTIMATED AND SHOULD BE ASSUMED +.2".
- X, Y, Z ZERO DATUM POINT IS THE BOTTOM LEFT CORNER OF SKID FACING THE FRONT END.
- CHAIR THRU HOLES "C" ARE Ø1 3/8"
- JACK BOLT THRU HOLES "A" ARE Ø1 1/8"
- ANCHOR BOLTS ARE Ø1 1/8" AND 1 1/4" PROJECTION ABOVE CONCRETE.
- Ø = CENTER OF GRAVITY.
- ALL FLANGES IN DIRECT CONTACT WITH HYDROGEN SHALL HAVE 125 RMS FLANGE FACING.
- COMPRESSOR MOTOR SPEED AT FULL LOAD: 890 RPM
- SEE DRAWING NO. '1424-01-3' FOR LOCATIONS OF CUSTOMER CONNECTIONS.
- U1 CONNECTION IS 'A1' ON DRAWING NO. '1424-01-3'; THE CUSTOMER CONNECTIONS DRAWING.
- U2 CONNECTION IS 'A2' ON DRAWING NO. '1424-01-3'; THE CUSTOMER CONNECTIONS DRAWING.
- U3 CONNECTION IS 'B1' ON DRAWING NO. '1424-01-3'; THE CUSTOMER CONNECTIONS DRAWING.
- U4 CONNECTION IS 'B2' ON DRAWING NO. '1424-01-3'; THE CUSTOMER CONNECTIONS DRAWING.

**MATERIAL WEIGHTS:**

COMPONENT	WEIGHT (LBS)
COMPRESSOR FRAME	4200
1st STAGE CYLINDER	3480
2nd STAGE CYLINDER	2970
DRIVE MOTOR	8818
MOTOR COUPLING	250
<b>PULSATION BOTTLES: (IN LBS.)</b>	
1st STG. SUCTION	2385
1st STG. DISCHARGE	1864
2nd STG. SUCTION	2163
2nd STG. DISCHARGE	1495
FLYWHEEL	585
PIPING & FLANGES: 4", 6" & 8" PIPE	1750
<b>MISC. COMPONENTS:</b>	
COOLER #1	2115
COOLER #2	1460
SKID MATERIALS:	15,860
L.O. SYSTEM & INSTRUMENTATION	450
PLC PANEL:	250
CONCRETE: (2.52 CU. YDS.)	10,220
GROUT: (6.8 CU. YDS.)	597
<b>APPROX. TOTAL WEIGHT:</b>	
EMPTY:	57,796
OPERATING:	62,412

ALL DIMENSIONS ARE IN INCH UNLESS OTHERWISE NOTED

CUSTOMER: VENTECH XTL OKLAHOMA CITY, OK. LLC  
 CUSTOMER PO#: 4777010-14-02793  
 CUSTOMER REQ: 4777-010-1222-002-0  
 LOCATION: OKLAHOMA CITY  
 ITEM NO.: PK-302  
 SERVICE: GTL  
 SYNGAS COMPRESSOR

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NOTE: ADDED REVISION CLOUDS 3-10-16 TO REFLECT REVISIONS BELOW

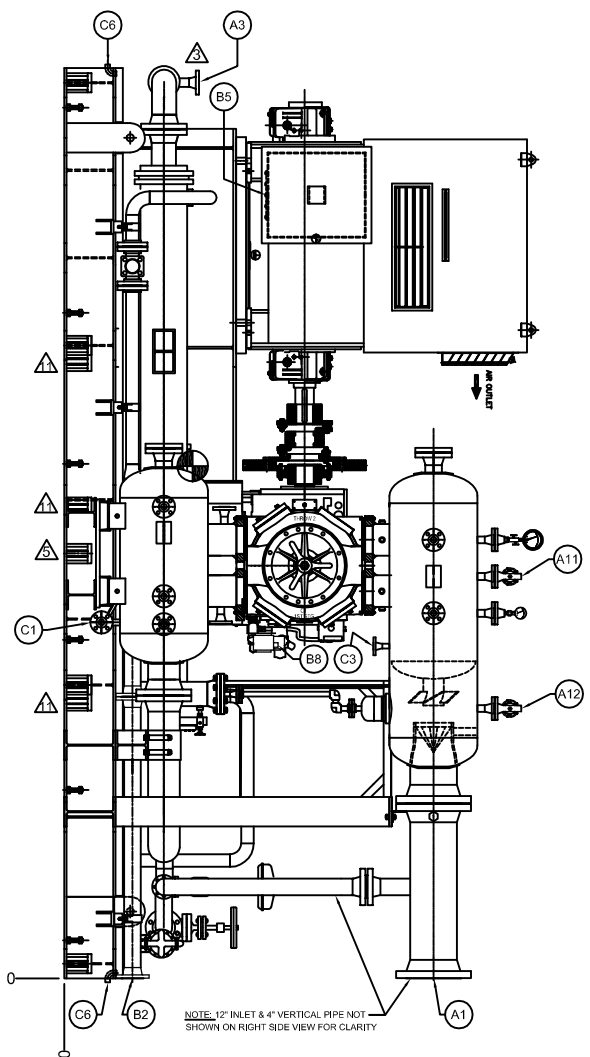
NO.	REVISION	DATE	BY
09	SOME ANCHORS BOLTS WAS INSTALLED INCORRECTLY IN THE FIELD, NEW ANCHOR BOLTS AND CHAIRS WAS ADDED TO SKID TO MATCH THE CURRENT FIELD PLACEMENT OF THE BOLTING	DLW	4/7/16
08	CORRECTED CYLINDER DESIGNATION UPDATED DRAWING TO SKID AS OF FIELD: ADDED UTILITY CONNECTIONS TO TABLE: ADDED DAY TANK, DAY TANK OIL PUMP & INLET CONNECTION	DLW	3/5/16
07	CORRECTED DRAWING AS NOTED ON R06: CORRECTED DRAIN RATING	DLW	2/25/16
06	CORRECTED DRAWING AS NOTED ON R05: SENT 6/26/15	DLW	6/10/15
05	ADDED COMPONENTS & UPDATED DRAWING	DLW	6/15/15
04	ADDED ANCHOR BOLTS AS PER BETA RECOMMENDATIONS	DLW	3/27/15
03	ADDED SUPPORTS AS PER BETA RECOMMENDATIONS AND CORRECTED DWG. AS PER CUSTOMER REQUEST VIA VENDOR DATA TRANSMITTAL 0468	DLW	2/28/15
02	ADDED CONTROL PANEL /CLEANED UPDRAWING	DLW	2/4/15
01	MOVED COOLERS AND PIPING	DLW	11/27/14

**TURBINE, PUMP & COMPRESSOR, LLC**  
**ENGINEERED PRODUCTS**  
 3203 LILAC, PASADENA, TX 77505

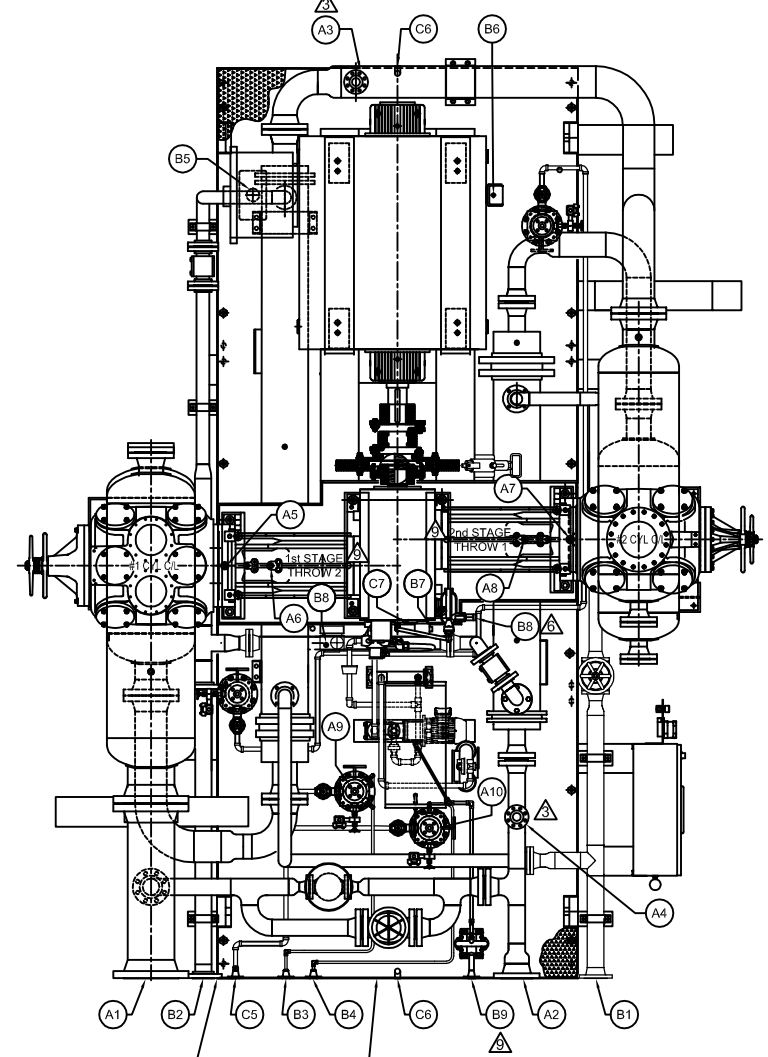
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DATE	JOB NO.	SCALE	NTS	REVISION
10/21/14	1424	1 OF 1	NTS	09

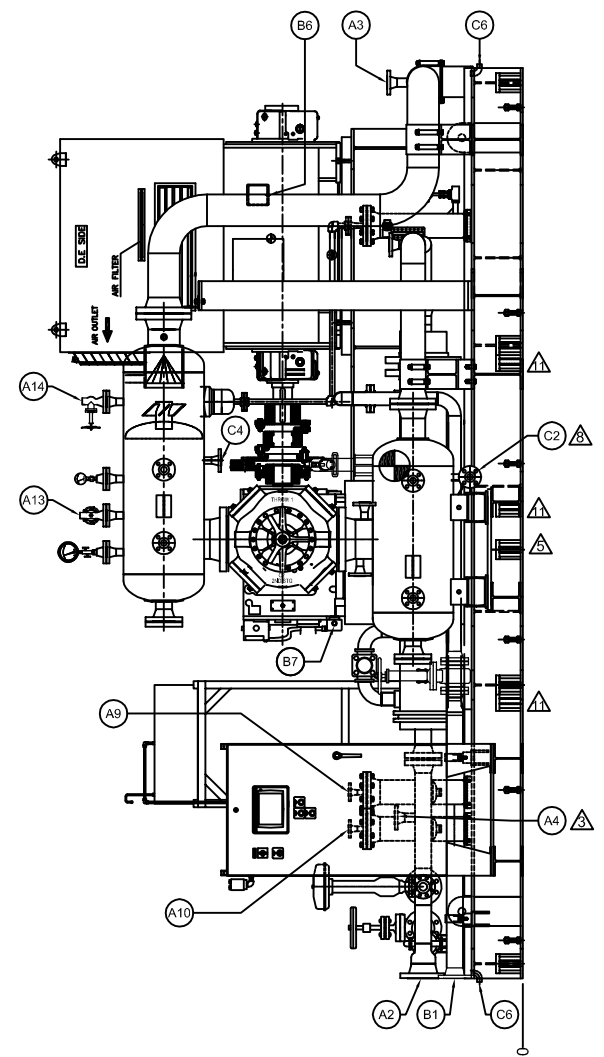
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 PAGE 1 OF 1  
 DWG. NO. 1424-01



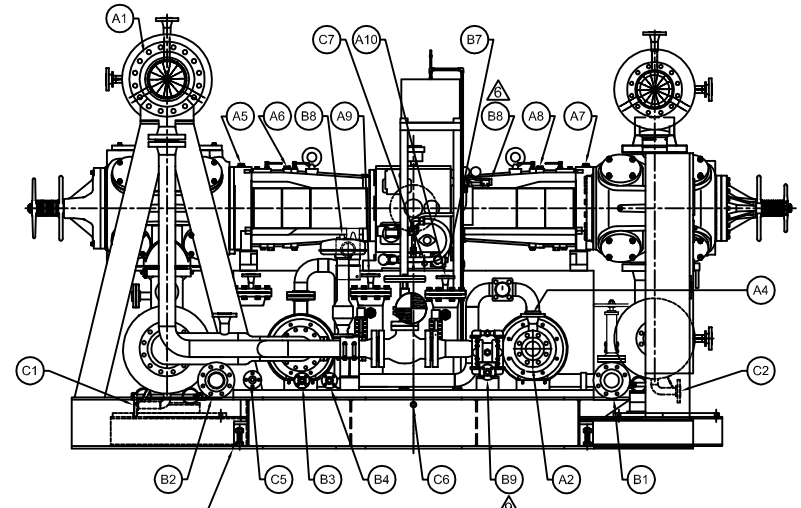
**LEFT SIDE**



**TOP VIEW**



**RIGHT SIDE**



**FRONT VIEW**

CUSTOMER CONNECTIONS						
ITEM	QTY	RATING	DESCRIPTION	COORDINATES / INCHES		
				X	Y	Z
<b>PROCESS GAS CONNECTIONS</b>						
A1	1	12" 300# RF	SYNGAS INLET	-18.06	0.00	100.68
A2	1	6" 300# RF	SYNGAS OUTLET	81.68	0.00	27.18
A3	1	2" 300# RF	INTERSTAGE PRV	37.88	244.44	36.75
A4	1	2" 300# RF	DISCHARGE PRV	81.68	44.06	36.75
A5	1	1" FNPT	THROW 2 OUTBOARD DIST. PC VENT	2.00	112.56	77.00
A6	1	1" FNPT	THROW 2 INBOARD DIST. PC VENT	14.68	112.56	76.25
A7	1	1" FNPT	THROW 1 OUTBOARD DIST. PC VENT	96.31	112.56	76.25
A8	1	1" FNPT	THROW 1 INBOARD DIST. PC VENT	83.62	112.56	77.00
A9	1	1" 300# RF	DIST. PC K.O. POT VENT TO FLARE	37.50	51.00	47.56
A10	1	1" 300# RF	PRESS. PACKING K.O. POT VENT	57.88	41.00	47.56
A11	1	1 1/2" 300# RF	THROW 2 SUCTION BOTTLE VENT / OUTB.	-18.06	109.62	117.37
A12	1	1 1/2" 300# RF	THROW 2 SUCTION BOTTLE VENT / INB.	-18.06	73.62	117.37
A13	1	1 1/2" 300# RF	THROW 1 SUCTION BOTTLE VENT / OUTB.	114.94	126.25	113.56
A14	1	1 1/2" 300# RF	THROW 1 SUCTION BOTTLE VENT / INB.	114.94	157.25	113.56
<b>UTILITY CONNECTIONS</b>						
B1	1	4" 150# RF	COOLING WATER INLET	103.18	0.00	18.56
B2	1	4" 150# RF	COOLING WATER OUTLET	-4.62	0.00	18.56
B3	1	1" 150# RF	INSTRUMENT AIR	18.75	0.00	18.68
B4	1	1/2" 150# RF	NITROGEN PURGE	26.25	0.00	18.68
B5	1	3 1/2" HOLE	MOTOR ELECTRICAL LEADS	9.75	213.62	55.06
B6	1	3/4" MNPT	HEATER BOX / MOTOR	75.31	213.62	69.31
B7	1	1 1/4" FNPT	FRAME HEATER ENCLOSURE CONNECTION	58.75	95.44	51.38
B8			TAG 'B8' NOT USED AT THIS TIME			
B9	1	1" 150# RF/BLIND	DAY TANK OIL PUMP INLET CONNECTION	69.38	0.00	18.68
<b>DRAIN CONNECTIONS</b>						
C1	1	1" 300# RF	THROW 2 DISCHARGE BOTTLE	-27.06	97.12	10.12
C2	1	1 1/2" 300# RF	THROW 1 DISCHARGE BOTTLE	121.94	136.75	14.44
C3	1	1 1/2" 300# RF	THROW 2 SUCTION BOTTLE	-18.06	90.62	84.25
C4	1	1 1/2" 300# RF	THROW 1 SUCTION BOTTLE	114.94	141.25	82.18
C5	1	1" 300# RF	K.O. POT DRAIN: Note: 4 pots connect & all drain to this one single flange.	5.00	0.00	18.68
C6	2	1 1/2" FNPT	SKID DRAIN	49.18	0.00	11.18
C7	1	1" FNPT	FRAME OIL DRAIN (PLUG)	52.12	97.06	50.50
<b>CENTER OF GRAVITY</b>				48.53	138.88	38.18

COMMENTS: 'B7' IS THE CONNECTION WHERE THE WIRING WILL RUN THROUGH WHEN CONNECTING THE CHROMALOX IMMERSION HEATER FOR THE FRAME OIL. THIS CONNECTION IS ON THE 'TYPE E2' ENCLOSURE ON HEATER.

CORRECTED CYLINDER DESIGNATION. UPDATED DRAWING TO SKID 'AS OF MARCH 2016'. ADDED 'B9' DAY TANK PUMP CONNECTION. ANCHORS BOLTS WAS INSTALLED INCORRECTLY IN THE FIELD. NEW ANCHOR BOLTS WAS ADDED TO SKID TO MATCH THE CURRENT FIELD PLACEMENT OF THE BOLTING

NO.	REVISION	BY	DATE
11	CORRECTED CYLINDER DESIGNATION. UPDATED DRAWING TO SKID 'AS OF MARCH 2016'. ADDED 'B9' DAY TANK PUMP CONNECTION	DLW	4/7/16
10	REMOVED 'B8' FROM TABLE. IS NOT A CUSTOMER CONN.	DLW	3/22/16
09	CORRECTED CYLINDER DESIGNATION. UPDATED DRAWING TO SKID 'AS OF MARCH 2016'. ADDED 'B9' DAY TANK PUMP CONNECTION	DLW	3/10/16
08	CORRECTED DRAIN TO MATCH BOTTLE DWG	DLW	2/25/16
07	REVERSED 'X' DIMENSION ON ITEM A7 & A8	DLW	7/06/15
06	ADDED OIL FEED CONNECTION AND COMMENTS	DLW	6/03/15
05	ADDED ANCHOR BOLTS AS PER BETA RECOMMENDATIONS AND CHANGED 1st/2nd STG TO THROW 1/2 IN TABLE	DLW	3/30/15
04	CHANGED 'C5' TO 1"-300# RF CONNECTION	DLW	3/20/15
03	CHANGED PRV'S CONNECTION	DLW	3/09/15
02	CHANGED DWG# FOR GA COORDINATE DRAWING	DLW	12/02/14
01	FOR COMMENT	DLW	11/20/14

**ONE (1) REQUIRED**

**TURBINE, PUMP & COMPRESSOR, LLC**  
**ENGINEERED PRODUCTS**  
**3203 LILAC, PASADENA, TX 77505**

TITLE: **LOCATION of CUSTOMER CONNECTIONS**  
 PK-302 / SYNGAS, ARIEL JGT-2  
 VENTECH XTL, OKLAHOMA CITY, OK LLC

DATE	JOB.NO.	SCALE	NTS	REVISION
10/21/14	1424			11
DWN. NKF/DLW	CHECKED BY N. FEASTER	PAGE 1 OF 1	DWG.NO. 1424-01-3	

NOTES:  
 1. UNTIL FABRICATION IS COMPLETE ALL COORDINATES ARE ESTIMATED AND SHOULD BE ASSUMED +/- 2"  
 2. X, Y, Z ZERO DATUM POINT IS THE BOTTOM LEFT CORNER OF SKID FACING THE 'FRONT END'.

CUSTOMER:  
 VENTECH XTL OKLAHOMA CITY, OK, LLC  
 CUSTOMER PO#: 4777010-14-02793  
 CUSTOMER REQ: 4777-010-1222-002-0  
 LOCATION: OKLAHOMA CITY  
 ITEM NO.: PK-302  
 SERVICE: GTL  
 SYNGAS COMPRESSOR

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