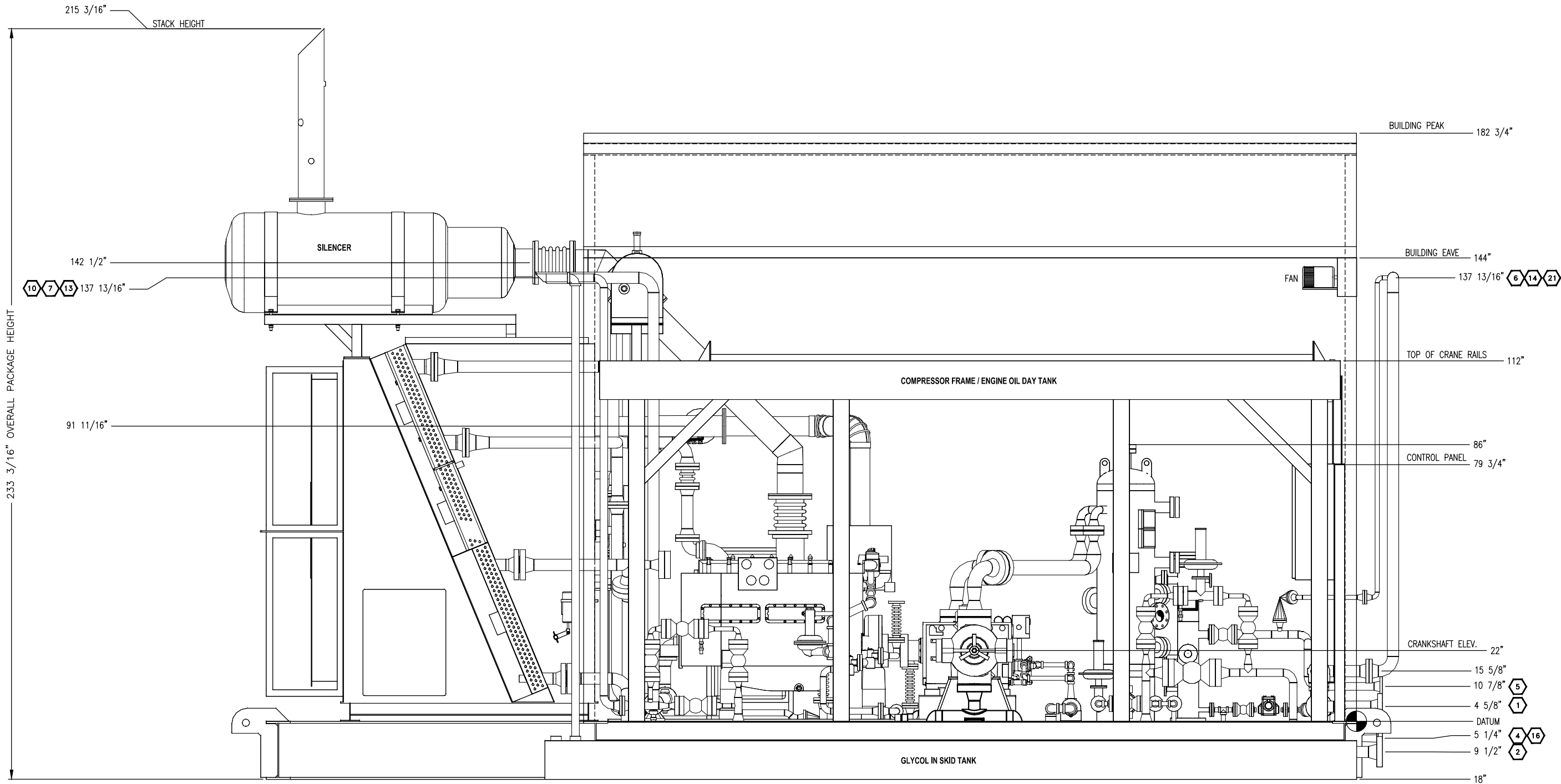


PLOT DATE Sep 05, 2013, W:\urcios P:\40000 Projects\40_42600-42699\42637 EFX Cooper Rental - F18GSI JGJ2-1\4. Drafting\42637-MODEL-AS-BUILT.dwg



ELEVATION VIEW A-A

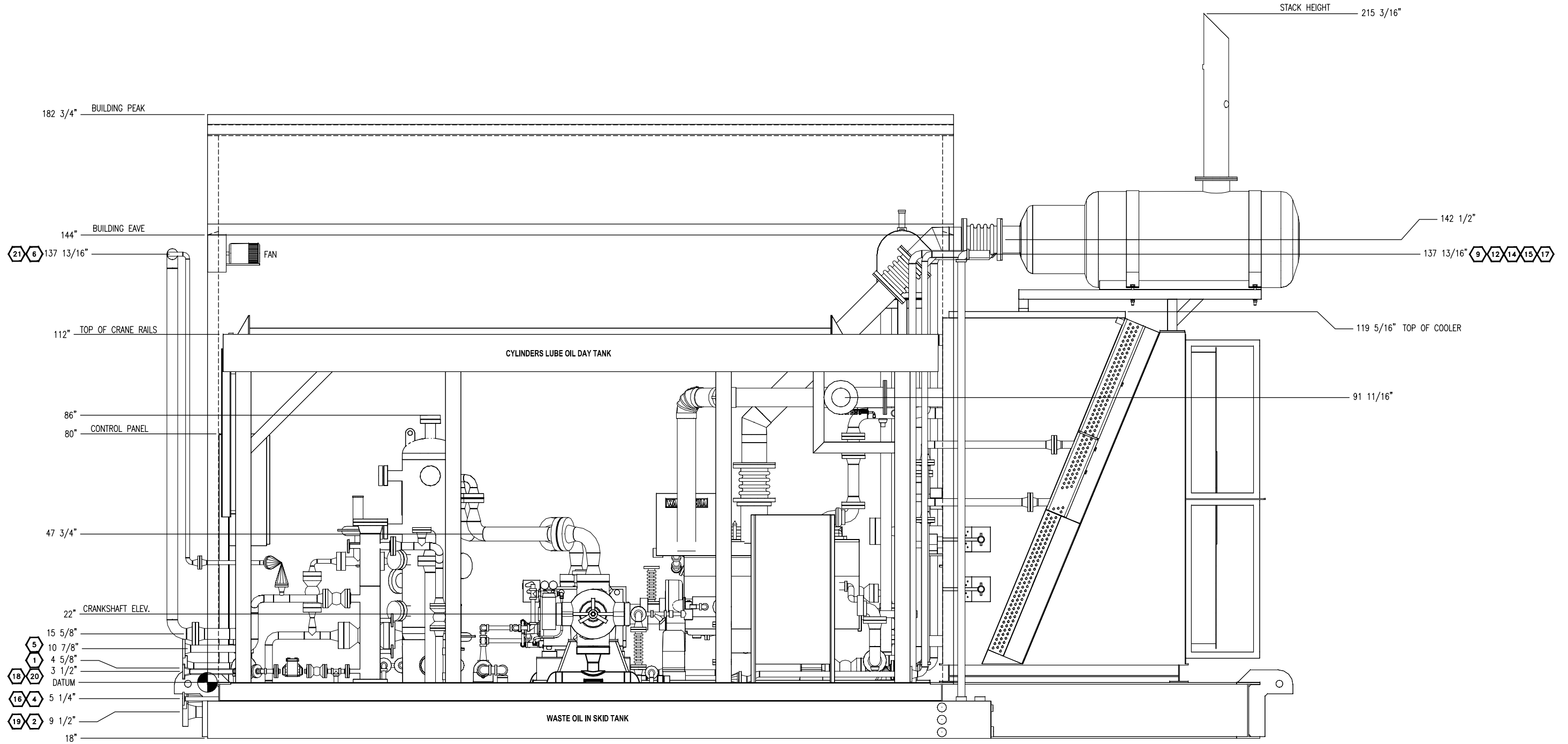
NOTE:
ALL TAIL DIMENSIONS ARE
TAKEN FROM REFERENCE
POINT AT TOP OF SKID

**FINAL
AS BUILT**
NAME W.Turcios DATE SEP.06.13


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THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF ENERFLEX, LTD., AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM ENERFLEX, LTD.

PLOT DATE: Sep. 05, 2013, W:\turcios P:\40000 Projects\40_42600-42699\42637 EFX Casper Rental - F18GSI 4262-1\4. Drafting\42637-MODEL-AS-BUILT.dwg



ELEVATION VIEW B-B

NOTE:
ALL TAIL DIMENSIONS ARE
TAKEN FROM REFERENCE
POINT  AT TOP OF SKID

**FINAL
AS BUILT**
NAME: W.Turcios DATE: SEP.06.13

						DATE	FEB.18.2013	SCALE	NTS
						DRAWN BY	W.TURCIOS	CHECKED BY	K.OXFORD
						PROJECT MANAGER	BRIAN LANGER	PROJECT ENGINEER	ALLEN YUEN
1	AS BUILT	SEP.06.13	W.T.	A.Y.		CUST PO	P.O.		
0	ISSUED FOR CONSTRUCTION	MAY.24.13	W.T.	A.Y.		APEGA PERMIT No:	P8651	STEP CODE	198/298/490/511/591
REV	DESCRIPTION	DATE	BY	APR		WORK ORDER	W.O		

ENERFLEX INC. RENTAL
WAUKESHA F18GSI
ARIEL JGJ/2-1 STD SWEET

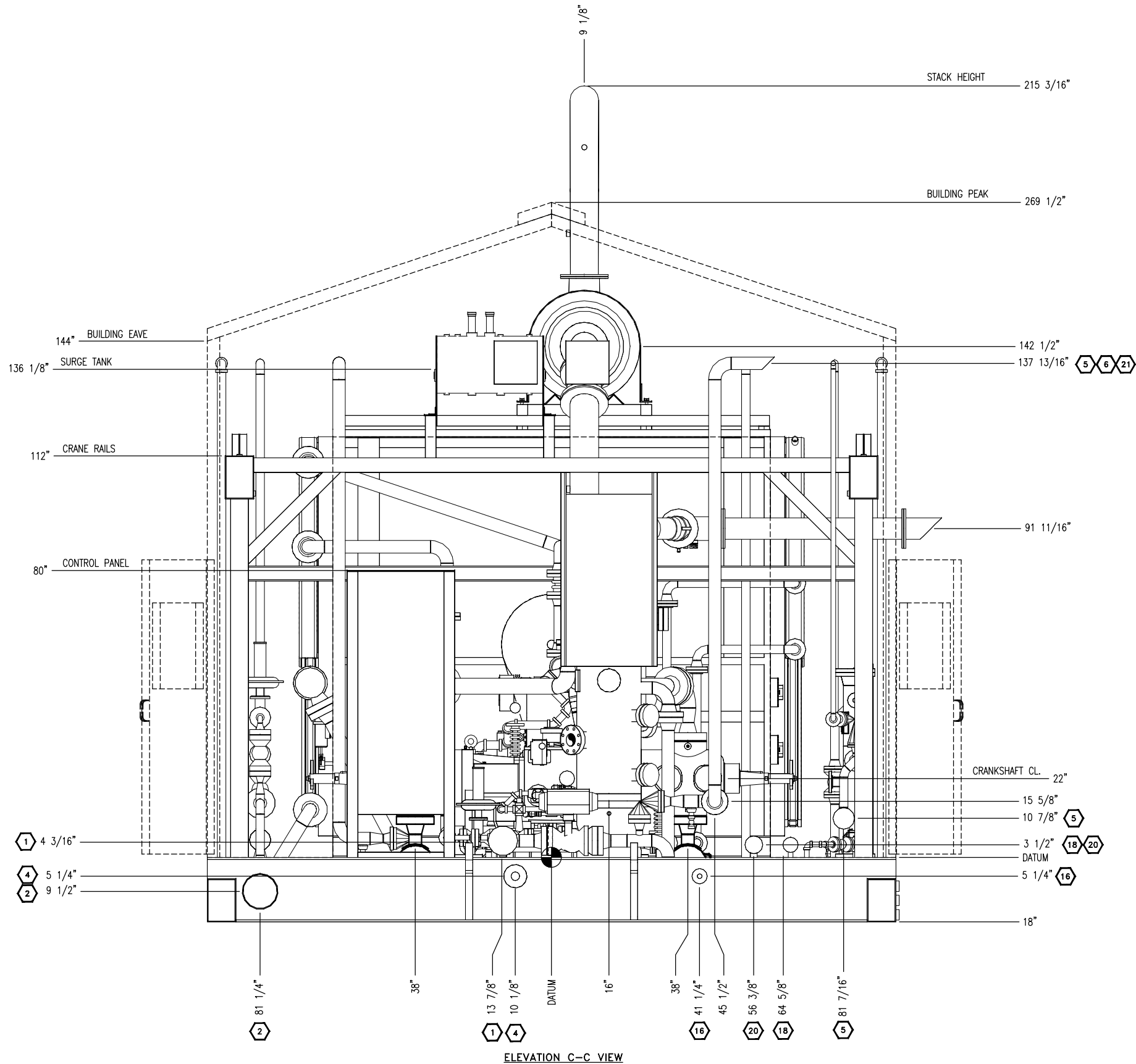
ENERFLEX
Calgary, Alberta,
Canada

GENERAL ARRANGEMENT
ELEVATION B-B

DWG NO	42637-201	SHT	3	REV	1
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THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF ENERFLEX, LTD., AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM ENERFLEX, LTD.

PLOT DATE Sep. 05, 2013, W.Turcios P:\40000 Projects\40_42600-42699\42637 EFX Casper Rental - F18GSI_4262-1\4. Drafting\42637-MODEL-AS-BUILT.dwg



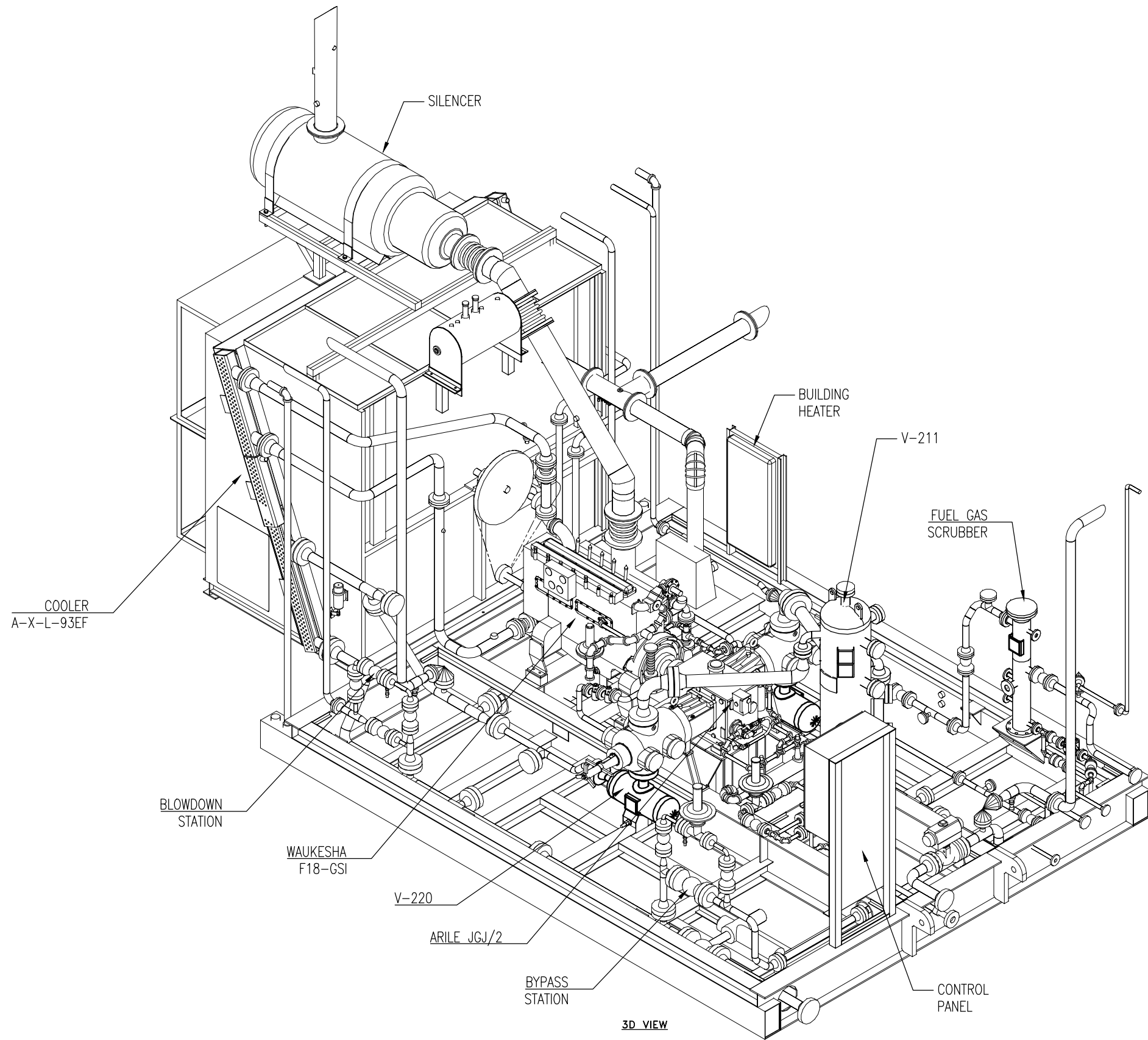
ELEVATION C-C VIEW

**FINAL
AS BUILT**
NAME: W.Turcios DATE: SEP.06.13

						DATE	FEB.18.2013	SCALE	NTS	ENERFLEX INC. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET	ENERFLEX Calgary, Alberta, Canada	GENERAL ARRANGEMENT ELEVATION C-C					
						DRAWN BY	W.TURCIOS	CHECKED BY	K.OXFORD						APPROVED BY	A. YUEN	
						PROJECT MANAGER	BRIAN LANGER	PROJECT ENGINEER	ALLEN YUEN								
						CUST PO	P.O.										
1	AS BUILT		SEP.06.13	W.T.	A.Y.												
0	ISSUED FOR CONSTRUCTION		MAY.24.13	W.T.	A.Y.												
REV	DESCRIPTION		DATE	BY	APR	APEGA PERMIT No:	P8651	STEP CODE	198/298/490/511/591	WORK ORDER	W.O	DWG NO	42637-201	SHT	4	REV	1

THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF ENERFLEX, LTD., AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM ENERFLEX, LTD.

PLOT DATE: Sep. 05, 2013, W:\turcios - P:\40000 Projects\40_42600-42699\42637 EFX Cogser Rental - F18GSI 4262-1\4. Drafting\42637-MODEL-AS-BUILT.dwg



**FINAL
AS BUILT**
NAME: W.Turcios DATE: SEP.06.13

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THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF ENERFLEX, LTD., AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM ENERFLEX, LTD.

PLOT 20 Aug. 2013--1:19pm. a.romero. THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF ENERFLEX, LTD. AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM ENERFLEX, LTD.

PROJECT DESCRIPTION

ONE (1) SWEET GAS COMPRESSOR PACKAGE
FOR: ENERFLEX LTD. RENTAL

POWER REQUIREMENTS

CONTROL PANEL: VOL: 24 VDC AMPS: NOM: TBC MAX: TBC

DESIGN SPECIFICATION:

ENERFLEX LTD. (EFX) SCOPE OF SUPPLY ON THIS PROJECT CONSISTS OF ONE SKIDDED SWEET GAS COMPRESSOR PACKAGE.

PACKAGE CONSISTS OF ONE (1) WAUKESHA F18GSI DRIVING AN ARIEL JGJ/2, SINGLE STAGE, SWEET GAS COMPRESSOR.

FABRICATED BY:

ENERFLEX LTD.
CASPER, WY, USA

SYSTEM CONSUMABLES

COMPRESSOR CRANKCASE LUBE OIL: SAE 40, LOW ASH
COMPRESSOR CYLINDER LUBE OIL: SAE 40, LOW ASH
ENGINE CRANKCASE LUBE OIL: SAE 40, LOW ASH
GLYCOL: 50% ETHYLENE INHIBITED GLYCOL/WATER
SOLUTION IN ENGINE JACKET WATER SYSTEMS

PROCESS PIPING: -SPOT X-RAY(5%)
-1/16” CORROSION ALLOWANCE
-NO PWHT
-SPOOLING BETWEEN CONE STRAINER AND COMPRESSOR
SUCTION FLANGE SANDBLASTED INTERNALLY SSPC-SP6
-1.5x MAWP HYDROTEST
-SPOT X-RAY(5%)
-1/8” CORROSION ALLOWANCE
-NO PWHT
-SUCTION VESSELS BETWEEN CONE STRAINER AND
COMPRESSOR SUCTION FLANGE SANDBLASTED
INTERNALLY SSPC-SP6
-1.5x MAWP HYDROTEST

VESSELS:

DESIGN CRITERIA & APPLICABLE CODES

SITE ELEVATION:	7200 FT ABOVE MEAN SEA LEVEL
BAROMETRIC PRESSURE:	11.234 PSIG
AMBIENT TEMPERATURE:	MAXIMUM 100°F MINIMUM -20°F
PROCESS INLET:	DESIGN 800 PSIG @ 300°F
PROCESS FINAL DISCHARGE:	DESIGN 1932 PSIG @ 350°F
INSTRUMENT AIR:	MINIMUM PRESSURE 100 PSIG MAXIMUM PRESSURE 150 PSIG
APPLICABLE CODE:	QUALITY FILTERED/DRY, 50°F MAXIMUM DEW POINT CODE PIPING B31.3 – LATEST EDITION NON-CODE PIPING EFX C01, 1mm CA VESSEL ASME SECTION VIII EXCHANGER ASME SECTION VIII STRUCTURAL AWS D1.1 ELECTRICAL NEC VESSEL NB MISCELLANEOUS: CGI TYPE, SPIRAL WOUND, GRAPHITE FILLED, 316SS WITH A CENTERING RING AND CARBON STEEL INNER RING
ELECTRICAL:	PROCESS PIPE CARBON STEEL SCRUBBER DRAINS CARBON STEEL UTILITY PIPE CARBON STEEL FLANGES RAISED FACE ORIFICE PLATES REMOVABLE SIZED BORE ORIFICE, SUCTION & DISCHARGE FOR EACH CYLINDER
SUITABLE FOR USE IN:	RIGID ALUMINUM CONDUIT CLASS 1, DIV. 2, GROUP D

PAINT SYSTEMS:

STRUCTURAL: SSPC-SP-1, FIN 2-A, CARLSBAD CANYON TAN
MAJOR EQUIPMENT (COMPR./MOTOR/COOLER): OEM STANDARD PRIMER AND FINISH PAINT
VESSELS AND PIPING: SSPC-SP-3, FIN 2-A, CARLSBAD CANYON TAN

PROCESS	
TUBING SPECIFICATION	ENERFLEX: G-S16-S16-S16-S16-375
TUBING MATERIAL	316SS
FITTING MATERIAL	316SS C/W BACK FERRULE
OD	MINIMUM WALL THICKNESS
1/4"	0.028"
3/8"	0.035"
1/2"	0.049"
3/4"	0.065"
--	--
--	--
UTILITY	
TUBING SPECIFICATION	ENERFLEX: G-S16-S16-S16-S16-375
TUBING MATERIAL	316SS
FITTING MATERIAL	316SS C/W BACK FERRULE
OD	MINIMUM WALL THICKNESS
1/4"	0.028"
3/8"	0.035"
1/2"	0.049"
3/4"	0.065"
--	--
--	--
FRAME INTERNALS	
TUBING SPECIFICATION	ARIEL STANDARD TUBING
TUBING MATERIAL	304SS
FITTING MATERIAL	304SS C/W BACK FERRULE

**FINAL
AS BUILT**
NAME: A.ROMERO DATE: AUG 06/13

- GENERAL NOTES:
- CRANE,HANDRAILS AND LADDERS ARE TO BE PAINTED SAFETY YELLOW.
 - FABREEKA IS NEEDED ON PIPE CLAMPS. PIPE CLAMPS ARE NEEDED ON 2" PIPE AND LARGER.
 - PIPE THREADS SHALL BE COATED WITH NON-LOCKING PIPE THREAD SEALANT. TEFLON TAPE IS NOT ACCEPTABLE. SHOP TO USE TEFLON DOPING INSTEAD.
 - ALL CONNECTIONS SHALL BE LABELLED WITH REMOVABLE TAGS AT SKID EDGE.

						DATE	FEB 02/13	SCALE	NTS	ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET	ENERFLEX Calgary, Alberta, Canada	P&I DIAGRAM PROJECT DESCRIPTION & OVERVIEW								
2	AS-BUILT	AUG 06/13	AR	AY	DRAWN BY	G.PAHL	CHECKED BY	A.YUEN	APPROVED BY						B.LANGER					
1	REVISED PAINT AND GENERAL NOTES	JUN 24/13	CS	AY	PROJECT MANAGER		B.LANGER								PROJECT ENGINEER		A.YUEN			
0	ISSUED FOR CONSTRUCTION	MAY 21/13	CS	AY	CUST PO															
B	ISSUED FOR PCR APPROVAL	APR 09/13	AT	AY																
A	ISSUED FOR APPROVAL	MAR 18/13	NH	AY	APEGGA PERMIT No: P8651							OPER. CODE	WORK ORDER	42637	DWG NO	42637-099	SHT	1	REV	2
REV	DESCRIPTION		DATE	BY	APR															

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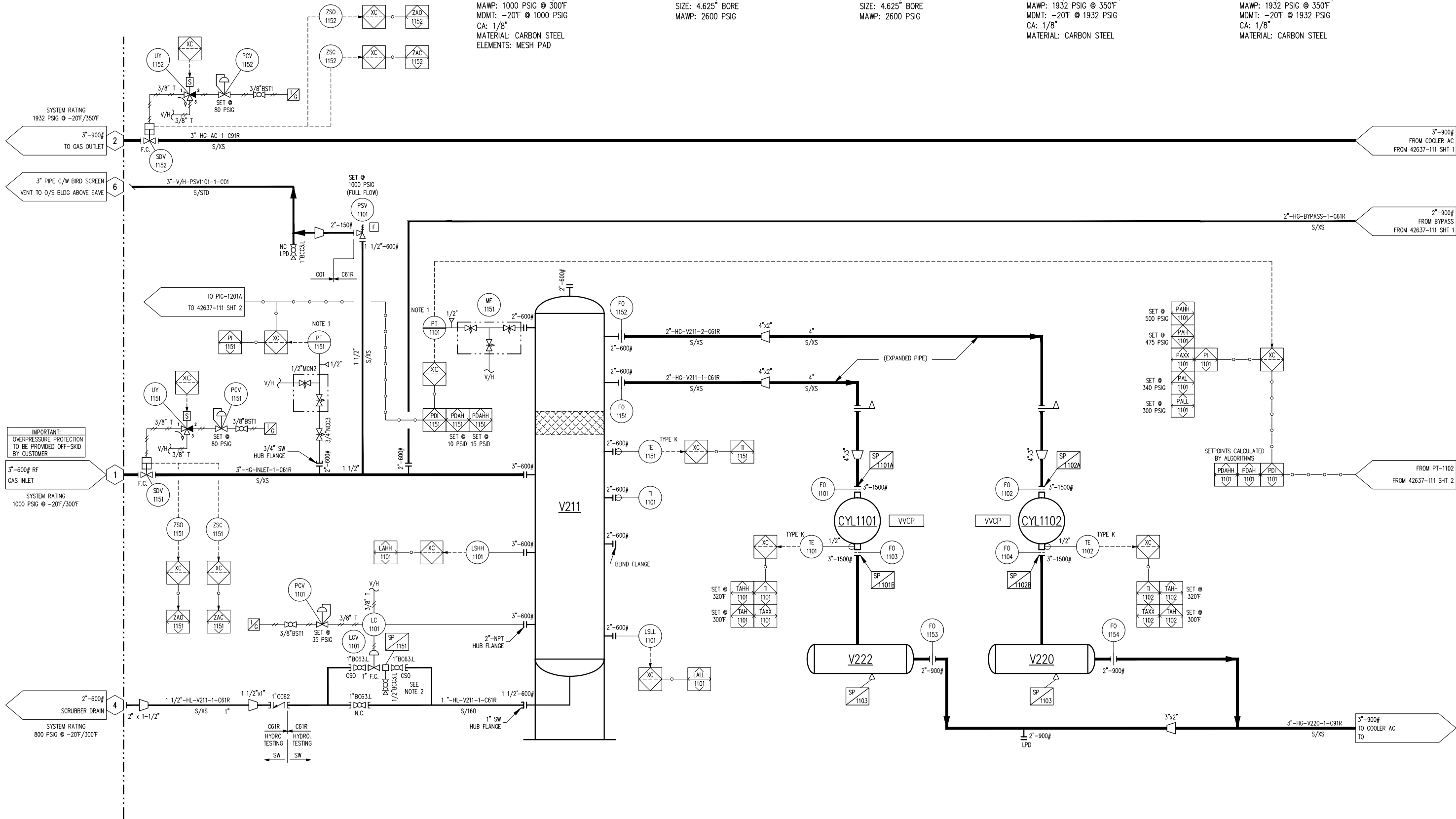
V211
SUCTION SCRUBBER
MFG: ENERFLEX LTD.
SIZE: 18" OD X 54" S/S
MAWP: 1000 PSIG @ 300°F
MDMT: -20°F @ 1000 PSIG
CA: 1/8"
MATERIAL: CARBON STEEL
ELEMENTS: MESH PAD

CYL1101
THROW #1 CYLINDER
MFG: ARIEL
MODEL: 4 5/8 HJ
SIZE: 4.625" BORE
MAWP: 2600 PSIG

CYL1102
THROW #2 CYLINDER
MFG: ARIEL
MODEL: 4 5/8 HJ
SIZE: 4.625" BORE
MAWP: 2600 PSIG

V222
THROW #1 DISCHARGE BOTTLE
MFG: ENERFLEX LTD.
SIZE: 10 3/4" OD X 20" S/S
MAWP: 1932 PSIG @ 350°F
MDMT: -20°F @ 1932 PSIG
CA: 1/8"
MATERIAL: CARBON STEEL

V220
THROW #2 DISCHARGE BOTTLE
MFG: ENERFLEX LTD.
SIZE: 10 3/4" OD X 20" S/S
MAWP: 1932 PSIG @ 350°F
MDMT: -20°F @ 1932 PSIG
CA: 1/8"
MATERIAL: CARBON STEEL



NOTES:

1. PRESSURE TRANSMITTER INSTRUMENT TO BE INSTALLED ON RACK BY PANEL.
2. LOCAL VENT SHOULD POINT AWAY FROM OPERATOR.

FINAL
AS BUILT

NAME: A.ROMERO DATE: AUG 06/13

						DATE	FEB 02/13	SCALE	NTS	ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET	ENERFLEX Calgary, Alberta, Canada	P&I DIAGRAM PROCESS					
2	AS-BUILT	AUG 06/13	AR			DRAWN BY	G.PAHL	CHECKED BY	A.YUEN						APPROVED BY	B.LANGER	
1	REV. SUCT. SCRUBBER DRAINS & PCV SET PRESSURES	JUN 24/13	CS	AY		PROJECT MANAGER	B.LANGER	PROJECT ENGINEER	A.YUEN								
0	ISSUED FOR CONSTRUCTION	MAY 21/13	CS	AY													
B	ISSUED FOR PCR APPROVAL	APR 09/13	AT	AY													
A	ISSUED FOR APPROVAL	MAR 18/13	NH	AY													
REV	DESCRIPTION	DATE	BY	APR		APEGGA PERMIT No:	P8651	OPER. CODE		WORK ORDER	42637	DWG NO	42637-111	SHT	1	REV	2

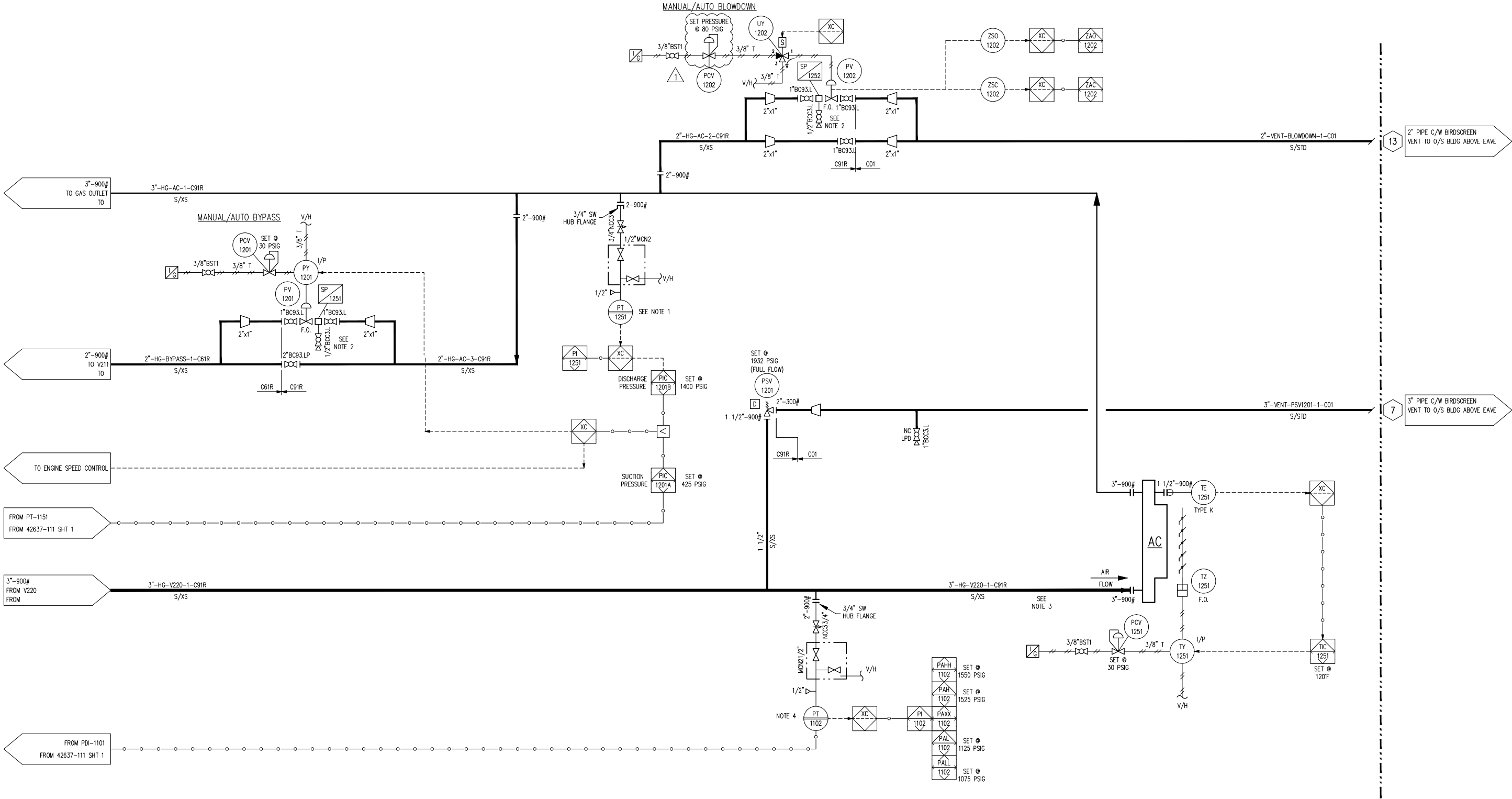
DWG NO 42637-111

SHT 1

REV 2

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AC
AC COOLER SECTION
MAKE: AIR-X-LIMITED
MODEL: 93EF
MAWP: 1932 PSIG @ -20°F/350°F
HEADER CA: 1/16"



- NOTES:
1. NEEDLE VALVE TO BE INSTALLED AT ROOT AND VALVE MANIFOLD TO BE INSTALLED WITH INSTRUMENT ON RACK BY PANEL.
 2. LOCAL VENT SHOULD POINT AWAY FROM OPERATOR.
 3. PLACE SIGN STATING "CAUTION: HOT PIPING" NEAR PIPING TO THE AC COOLER.
 4. PRESSURE TRANSMITTER INSTRUMENT TO BE INSTALLED ON RACK BY PANEL.

**FINAL
AS BUILT**
NAME: A.ROMERO DATE: AUG 06/13

						DATE	FEB 02/13	SCALE	NTS	ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET	ENERFLEX Calgary, Alberta, Canada	P&I DIAGRAM PROCESS				
2	AS-BUILT	AUG 06/13	AR			DRAWN BY	G.PAHL	CHECKED BY	A.YUEN						APPROVED BY	B.LANGER
1	REVISED PCV SET PRESSURE	JUN 24/13	CS	AY		PROJECT MANAGER		PROJECT ENGINEER								
0	ISSUED FOR CONSTRUCTION	MAY 21/13	CS	AY		B.LANGER		A.YUEN								
B	ISSUED FOR PCR APPROVAL	APR 09/13	AT	AY		CUST PO										
A	ISSUED FOR APPROVAL	MAR 18/13	NH	AY												
REV	DESCRIPTION	DATE	BY	APR	APEGGA PERMIT No: P8651			OPER. CODE		WORK ORDER 42637	DWG NO	42637-111	SHT	2	REV	2

PLOT DATE: August 20, 2013 THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF ENERFLEX, LTD. AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM ENERFLEX, LTD.

BF2101 A/B
BUILDING FAN
POWER: 115/230V, 1PH, 60Hz, 1/4HP

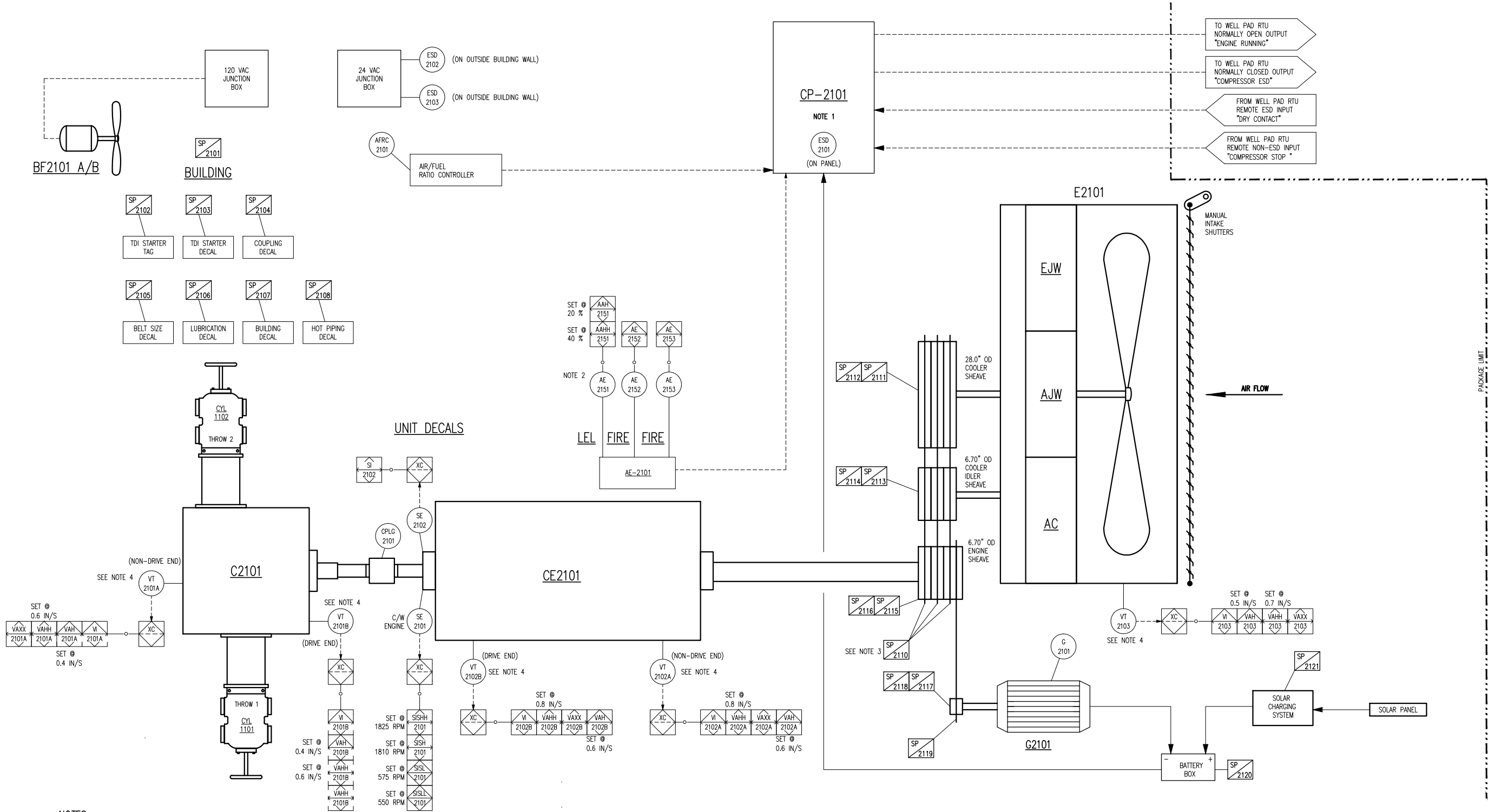
C2101
RECIPROCATING GAS
COMPRESSOR FRAME
MFG: ARIEL
MODEL: JGJ/2
RATED POWER: 620 HP @ 1800 RPM
STROKE: 3.50 in.
ROD LOAD, TOTAL: 42,000 LBS
ROD LOAD, COMPRESSION: 23,000 LBS
ROD LOAD, TENSION: 21,000 LBS

CE2101
COMPRESSOR ENGINE
MFG: WAUKESHA
MODEL: F18GSI
BORE: 5.98"
STROKE: 6.5"
DISPLACEMENT: 1096 IN CU.
COMP RATIO: 8.6:1
POWER: 354 BHP @ 1800 RPM

CP2101
CONTROL PANEL
MFG: EFX
POWER: 24 VDC
PROCESSOR: COMPACT LOGIX

E2101
GAS/GLYCOL COOLER
MFG: AIR-X-LIMITED
MODEL: 93EF
TYPE: FORCED
AIR FLOW: 61,758
FAN TYPE: 1 MOORE 6 BLADE x 93 DIA
FAN POWER: 20.2 BHP @ 432 RPM
FAN BLADE PITCH: 20 DEGREES
AMBIENT AIR: 100°F

G2101
GENERATOR
MAKE: CERAMAG
MODEL: A-60-24V
POWER: 24 VDC
CURRENT: 60 A



- NOTES:**
1. WIRING TO AND FROM WELL PAD RTU IS BY OTHERS.
 2. ROUTE GAS DETECTOR CALIBRATION TUBE TO OPERATOR HEIGHT.
 3. SINGLE 5VX BELTS ARE TO BE USED.
 4. VIBRATION TRANSMITTERS ARE TO BE DRILLED AND TAPPED INTO THE EQUIPMENT. DO NOT USE A FLANGE PLATE THAT IS BOLTED TO THE EQUIPMENT SURFACE. ARMORED CABLE SHOULD NOT BE TERMINATED AT THE END OF THE VIBRATION TRANSMITTERS TO MINIMIZE THE WEIGHT OF THE ELECTRICAL CONNECTIONS.

FINAL
AS BUILT
NAME: A.ROMERO DATE: AUG 06/13

				DATE FEB 02/13		SCALE NTS		ENERFLEX LTD. RENTAL		ENERFLEX		P&I DIAGRAM	
				DRAWN BY G.PAHL		CHECKED BY A.YUEN		WAUKESHA F18GSI		Calgary, Alberta,		DRIVE TRAIN/	
				PROJECT MANAGER B.LANGER		PROJECT ENGINEER A.YUEN		ARIEL JGJ/2-1 STD SWEET		Canada		CONTROL PANEL	
				CUST PO									
				APEGGA PERMIT No: P8651		OPER CODE		WORK ORDER 42637		DWG NO 42637-112		SHT 1	
												REV 2	
REV				DESCRIPTION		DATE		BY		APR			
2				AS-BUILT		AUG 06/13		AR					
1				ADDED NOTE 4 AND AE-2101 MODULE		JUN 24/13		CS		AY			
0				ISSUED FOR CONSTRUCTION		MAY 21/13		CS		AY			
B				ISSUED FOR PCR APPROVAL		APR 09/13		AT		AY			
A				ISSUED FOR APPROVAL		MAR 18/13		NH		AY			

COMPONENTS:

- T3101:** CYLINDER LUBE OIL DAYTANK (MFG: EFX, CAPACITY: 95 GALLONS)
- F3101:** COMP. FRAME OIL FILTER (ELEMENT: BALDWIN B-120, HOUSING: NAPA 4764)
- F3102:** COMP. CYLINDER LUBE MICRO OIL FILTER (MFG: ARIEL)
- P3101:** COMP. CYL. LUBE OIL PUMP (MFG: ARIEL, PLUNGER PUMP)
- F3103:** COMP. FRAME OIL FILTER (MFG: ARIEL)
- P3102:** COMP. FRAME OIL PUMP (MFG: ARIEL, MAX FLOW: 10 GPM, DRIVE: GEAR DRIVEN)
- E3101:** COMP. FRAME OIL COOLER (MFG: ARIEL, MODEL: B-1962, DRAWING#: A-4154)
- P3103:** COMP. PRELUBE OIL PUMP (MFG: YAMADA, MODEL: NDP-20, MAX FLOW: 31.7 GPM, DRIVE: PNEUMATIC)
- C2101:** COMP. FRAME OIL SUM (CAPACITY: 6 GALLONS)
- T3102:** COMP. /ENGINE WASTE OIL STORAGE TANK (MFG: EFX)

SYSTEM DETAILS:

- Oil Flow Path:** T3101 → F3101 → P3101 → C2101 → F3102 → P3102 → E3101 → F3103 → Cylinders.
- Instrumentation:** Includes pressure gauges (PI 3101, 3102A, 3102B, 3103), temperature gauges (TE 3101, 3102, 3103), and various control valves (XC, LALL, LSHH, LSHH, LSHH).
- Notes:**
 - NOTE 1: TYPICAL EACH THROW (CROSSHEAD, CYLINDERS, PACKING CASE, VVCP, 1/4" NPT VENT).
 - NOTE 2: SEE NOTE 2 (LCSLL 3101).
 - NOTE 3: TYPICAL EACH THROW (CROSSHEAD, CYLINDERS, PACKING CASE, VVCP, 1/4" NPT VENT).
 - NOTE 4: SEE NOTE 4 (LI 3102).

						DATE FEB 15/13	SCALE NTS	ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET	ENERFLEX Calgary, Alberta, Canada	P&I DIAGRAM COMP. LUBE OIL & UTILITIES			
1	AS-BUILT	AUG 06/13	CS			DRAWN BY G.PAHL	CHECKED BY A.YUEN						APPROVED BY B.LANGER
0	ISSUED FOR CONSTRUCTION	MAY 21/13	CS	AY		PROJECT MANAGER B.LANGER	PROJECT ENGINEER A.YUEN						
B	ISSUED FOR PCR APPROVAL	APR 09/13	AT	AY									
A	ISSUED FOR APPROVAL	MAR 18/13	NH	AY		CUST PO							
REV	DESCRIPTION	DATE	BY	APR		APEGA PERMIT No: P8651	OPER CODE 490 511 591	WORK ORDER 42637	DWG NO 42637-113	SHT 1	REV 1		

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P4151
FRESH OIL TRANSFER PUMP
MFG: YAMADA
MODEL: NDP-20
MAX. FLOW: 31.7 GPM
DRIVE: PNEUMATIC

F4151
FRESH OIL TRANSFER FILTER
ELEMENT: BALDWIN B-120
HOUSING: NAPA 4764

F4102
ENGINE OIL FILTER (C/W ENGINE)

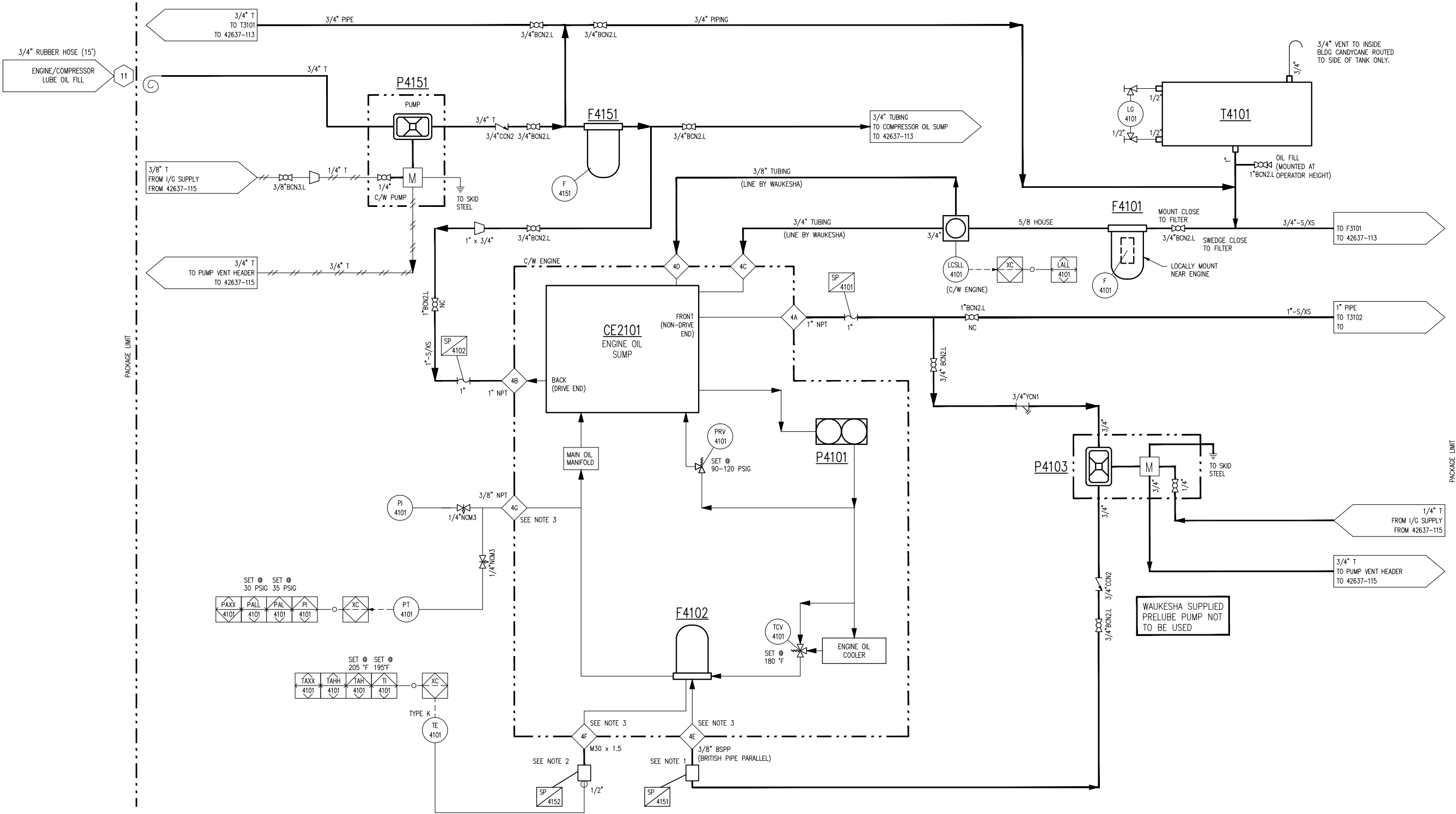
CE2101
ENGINE OIL SUMP
CAPACITY: 44 GALLONS

P4101
ENGINE LUBE OIL PUMP
MFG: WAUKESHA
CAPACITY: TBC

P4103
ENGINE PRE/POST LUBE OIL PUMP
MFG: YAMADA
MODEL: NDP-20
MAX. FLOW: 31.7 GPM
DRIVE: PNEUMATIC

F4101
ENGINE OIL FILTER
ELEMENT: BALDWIN B-120
HOUSING: NAPA 4764

T4101
COMPRESSOR FRAME/ENGINE OIL DAY TANK
MFG: EFX (INTEGRAL WITH CRANE RAIL)
CAPACITY: 95 GALLONS



NOTES:

1. AN 3/8" BSPP (BRITISH PIPE PARALLEL) TO 3/4" NPT ADAPTER FITTING IS NEEDED. (ORDERED BY SHOP).
2. AN M30 x 1.5 (METRIC FINE THREAD) TO 1/2" NPT ADAPTER FITTING IS NEEDED. (ORDERED BY SHOP).
3. REFER TO WAUKESHA DRAWING S-0764-58 FOR INSTRUMENT CONNECTIONS.

**FINAL
AS BUILT**

NAME: A.ROMERO DATE: AUG 06/13

				DATE	FEB 15/13	SCALE	NTS
1	AS-BUILT	AUG 06/13	AR	DRAWN BY	N.HUANG	CHECKED BY	A.YUEN
0	ISSUED FOR CONSTRUCTION	MAY 21/13	CS	PROJECT MANAGER	B.LANGER	PROJECT ENGINEER	A.YUEN
B	ISSUED FOR PCR APPROVAL	APR 09/13	AT	CUST PO			
A	ISSUED FOR APPROVAL	MAR 18/13	NH	AY			
REV	DESCRIPTION	DATE	BY	APR			
				APEGGA PERMIT No:	P8651	OPER. CODE	490 511 591
				WORK ORDER	42637		
				ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET			
				ENERFLEX Calgary, Alberta, Canada			
				DWG NO	42637-114	SHT	1
						REV	1

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FF5101
FUEL GAS FILTER
MFG: EFX
SIZE: 6" OD X 51-1/2" FF
MAWP: 245 PSIG @ 250°F

IMPORTANT
OVER PRESSURE PROTECTION
TO BE PROVIDED OFF-SKID BY
CUSTOMER
ON-SKID SYSTEM RATING
120 PSIG @ -20°/120°F

STARTER REQUIREMENTS
MODEL: TDI T306
MIN. INLET P: 60 PSIG
MIN. CONSUMPTION: 330 SCFM
MAX. INLET P: 120 PSIG
MAX. CONSUMPTION: 600 SCFM

IMPORTANT
OVERPRESSURE PROTECTION
TO BE PROVIDED OFF-SKID
BY CUSTOMER
ON-SKID SYSTEM RATING
125 PSIG @ -20°/120°F

ENGINE FUEL GAS FLOW
950 BTU/FT3
48.1 SCFM
NOTE 1

IMPORTANT
OVERPRESSURE PROTECTION
TO BE PROVIDED OFF-SKID
BY CUSTOMER
ON-SKID SYSTEM RATING
120 PSIG @ -20°/120°F

1"-150# RF
INSTRUMENT GAS INLET

1" PIPE C/W BIRDSCREEN
VENT TO O/S BLDG ABOVE EAVE

1" PIPE C/W BIRDSCREEN
VENT TO O/S BLDG ABOVE EAVE

FINAL
AS BUILT

NAME: A.ROMERO DATE: AUG 06/13

NOTES:

1. FLOW METER FOR FUEL GAS IS BY OTHERS.
2. HEATERS COME WITH 24 VDC STARTERS.
3. FINAL SETTING TO BE CONFIRMED DURING UNIT COMMISSIONING TO ENSURE SET POINT IS RIGHT FOR SITE CONDITIONS.
4. LEVEL GAUGE TO BE POST MOUNTED.

2	AS-BUILT	AUG 06/13	AR		DATE	FEB 15/13	SCALE	NTS
1	REV. SET PRESSURES & GAS LINE TO HEADERS	JUN 24/13	CS	AY	DRAWN BY	N.HUANG	CHECKED BY	A.YUEN
	ADDED FUEL FILTER DRAIN, MOVED PV-5105				APPROVED BY			B.LANGER
0	ISSUED FOR CONSTRUCTION	MAY 21/13	CS	AY	PROJECT MANAGER	B.LANGER	PROJECT ENGINEER	A.YUEN
B	ISSUED FOR PCR APPROVAL	APR 09/13	AT	AY	CUST PO			
A	ISSUED FOR APPROVAL	MAR 18/13	NH	AY				
REV	DESCRIPTION	DATE	BY	APR	APEGGA PERMIT No:	P8651	OPER. CODE	490 511 591

DATE	FEB 15/13	SCALE	NTS
DRAWN BY	N.HUANG	CHECKED BY	A.YUEN
APPROVED BY	B.LANGER		
PROJECT MANAGER	B.LANGER	PROJECT ENGINEER	A.YUEN
CUST PO			

ENERFLEX LTD. RENTAL
WAUKESHA F18GSI
ARIEL JGJ/2-1 STD SWEET

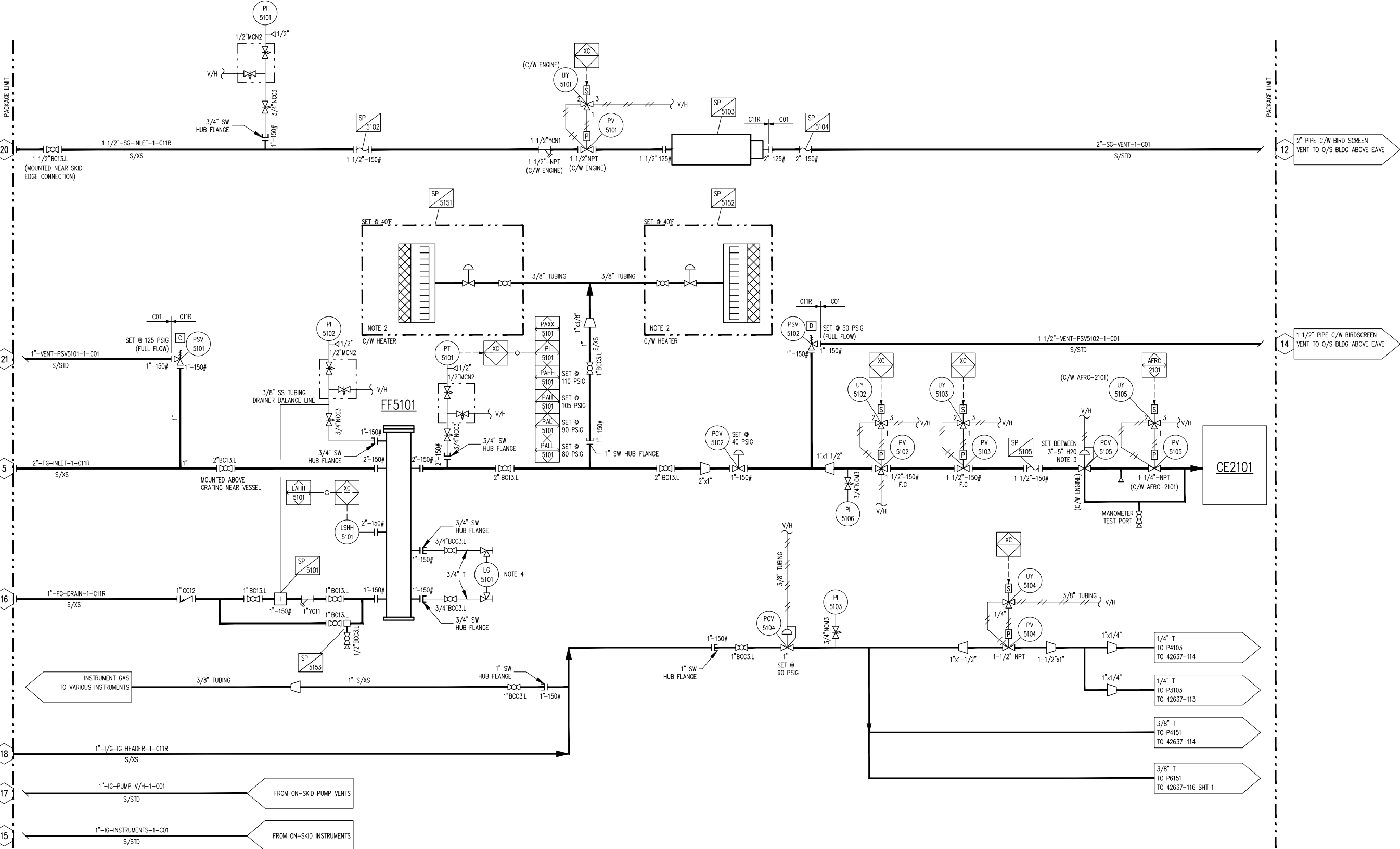
ENERFLEX
Calgary, Alberta,
Canada

P&I DIAGRAM
START/FUEL GAS SYSTEM

DWG NO 42637-115

SHT 1

REV 2



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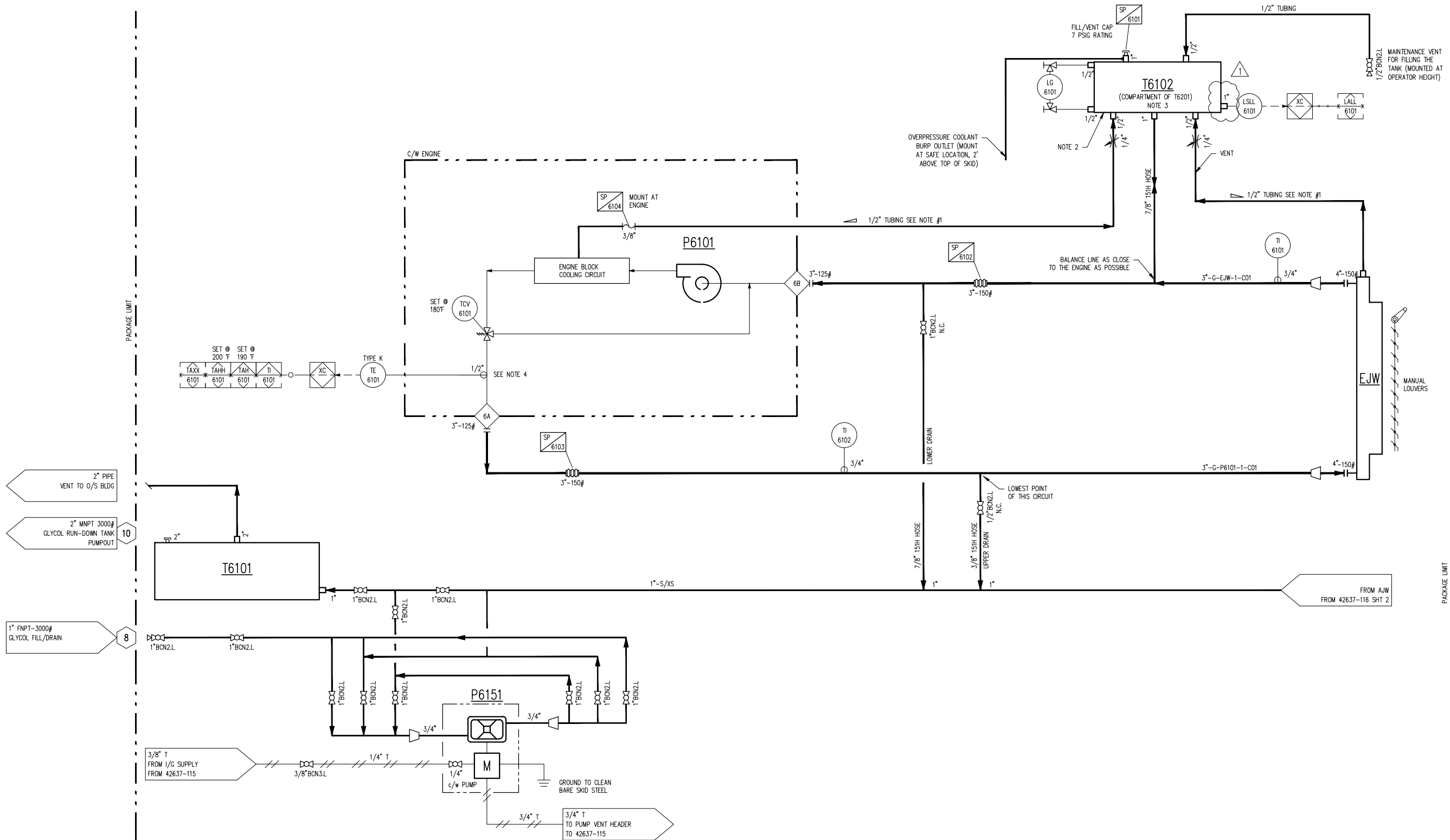
P-6151
GLYCOL TRANSFER PUMP
MFG: YAMADA
MODEL: NDP-20
FLOW: 31.7 GPM
DRIVE: PNEUMATIC

T6101
GLYCOL RUN-DOWN TANK
MFG: EFX

P6101
ENGINE JACKET WATER PUMP
MFG: WAUKESHA
MAX. FLOW: TBC

T6102
GLYCOL (EJW) SURGE TANK
MFG: EFX
MAWP: 7 PSI @ 250 °F

EJW
ENGINE JACKET WATER COOLER SECTION
MFG: AIR-X-LIMITED
MAWP: 102 PSIG @ 300°F
MDMT: -20°F @ 102 PSIG



NOTES:

1. SLOPE ALL VENTS UP & CONNECT TO THE BOTTOM OF THE SURGE TANK, 1/4"-1/2" PER FOOT NO TRAPS.
2. BOTTOM OF SURGE TANK SHALL BE MINIMUM 6" (150mm) ABOVE HIGHEST POINT OF COOLER SECTION FOR PROPER VENTING; 5" (150MM) ABOVE WATER PUMP INLET TO KEEP MINIMUM PRESSURE AT THE WATER PUMP INLET 2.5 PSI.
3. SURGE TANKS FILLED TO 1/3 OF CAPACITY AT START UP.
4. REFER TO WAUKESHA DRAWING "S-07764-58" FOR INSTRUMENT CONNECTIONS

**FINAL
AS BUILT**

NAME: A.ROMERO DATE: AUG 06/13

REV	DESCRIPTION	DATE	BY	APR
2	AS-BUILT	AUG 06/13	AR	
1	REVISED LSSL-6101 CONNECTION SIZE	JUN 24/13	CS	AY
0	ISSUED FOR CONSTRUCTION	MAY 21/13	CS	AY
B	ISSUED FOR PCR APPROVAL	APR 09/13	AT	AY
A	ISSUED FOR APPROVAL	MAR 18/13	NH	AY

DATE	FEB 15/13	SCALE	NTS
DRAWN BY	N.HUANG	CHECKED BY	A.YUEN
PROJECT MANAGER	B.LANGER	PROJECT ENGINEER	A.YUEN
CUST PO			

APEGGA PERMIT No:	P8651	OPER. CODE	490 511 591	WORK ORDER	42637
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ENERFLEX LTD. RENTAL
WAUKESHA F18GSI
ARIEL JGJ/2-1 STD SWEET

ENERFLEX
Calgary, Alberta,
Canada

P&I DIAGRAM
ENGINE JACKET WATER SYSTEM

DWG NO 42637-116

SHT 1 OF 2

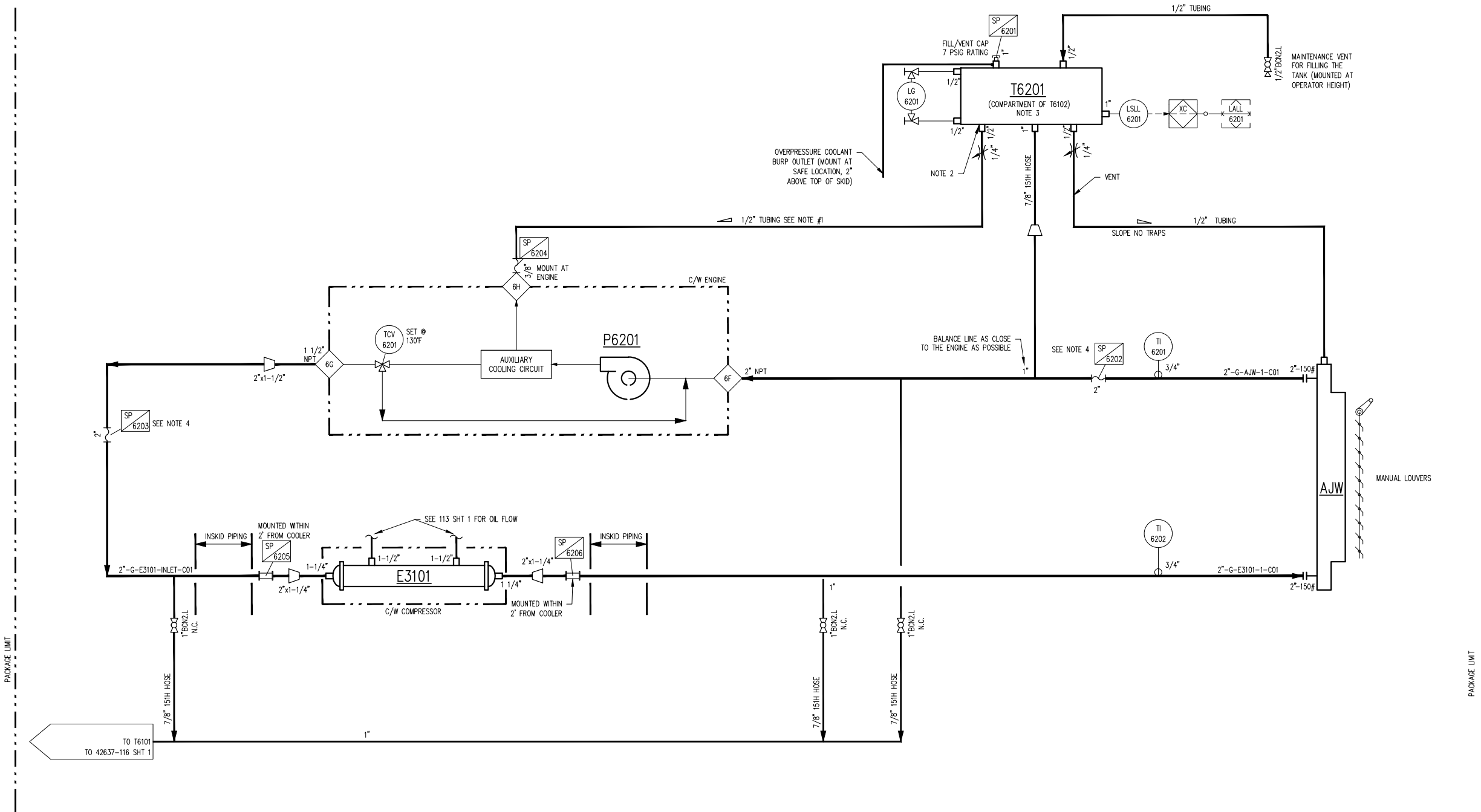
REV 2

E3101
COMP. FRAME OIL COOLER
MFG: ARIEL
MODEL: B-1962
DRAWING: A-4154

P6201
ENGINE AUXILIARY JACKET WATER PUMP
MFG: WAUKESHA
MAX. FLOW: TBC

T6201
GLYCOL (AJW) SURGE TANK
MFG: EFX
MAWP: 7 PSI @ 250 °F

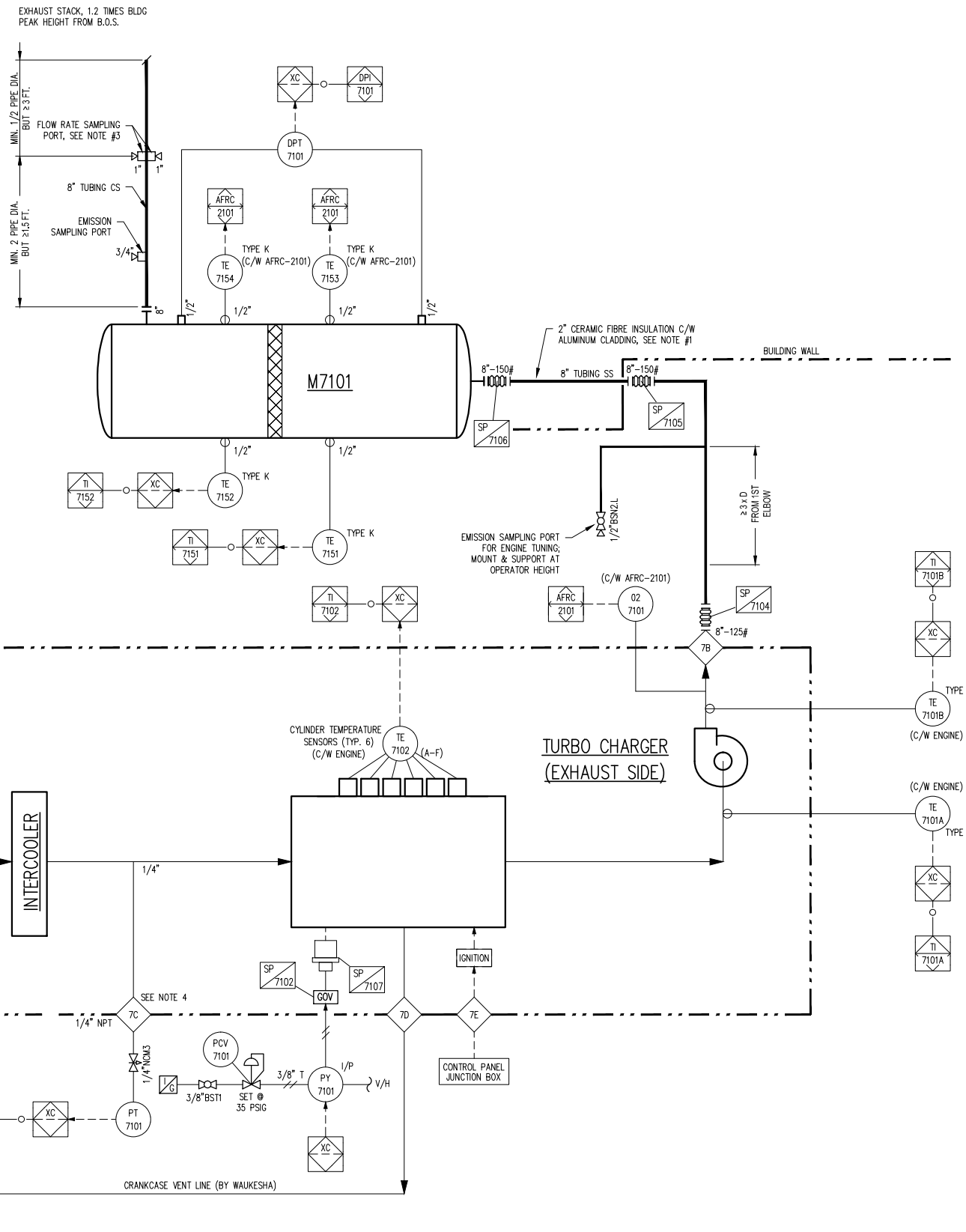
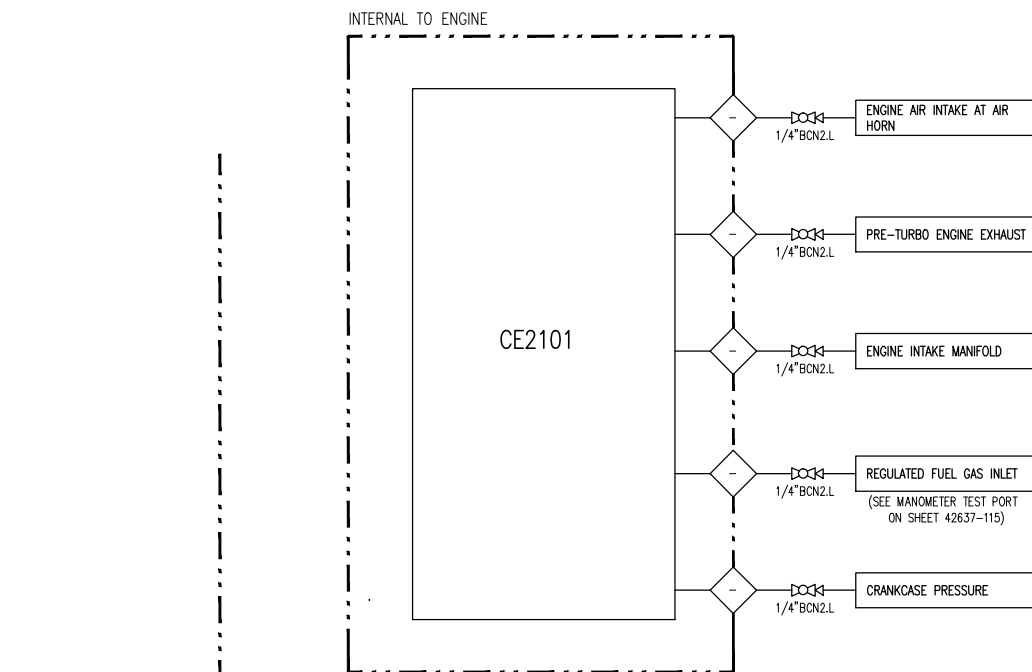
AJW
ENGINE AUXILIARY WATER COOLER SECTION
MFG: AIR-X-LIMITED
MAWP: 102 PSIG @ 300°F
MDMT: -20°F @ 102 PSIG



- NOTES:**
1. SLOPE ALL VENTS UP & CONNECT TO THE BOTTOM OF THE SURGE TANK, 1/4"-1/2" PER FOOT NO TRAPS.
 2. BOTTOM OF SURGE TANK SHALL BE MINIMUM 6" (150mm) ABOVE HIGHEST POINT OF COOLER SECTION FOR PROPER VENTING; 5' (1520MM) ABOVE WATER PUMP INLET TO KEEP MINIMUM PRESSURE AT THE WATER PUMP INLET 2.5 PSI.
 3. SURGE TANKS FILLED TO 1/3 OF CAPACITY AT START UP.
 4. SHOP TO ORDER RUBBER HOSE

						DATE	FEB 15/13	SCALE	NTS	ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET	ENERFLEX Calgary, Alberta, Canada	P&I DIAGRAM AUXILIARY JACKET WATER SYSTEM						
2	AS-BUILT		AUG 06/13	AR		DRAWN BY	N.HUANG	CHECKED BY	A.YUEN						APPROVED BY	B.LANGER		
1	REVISED LSSL-6201 CONNECTION SIZE		JUN 24/13	CS	AY	PROJECT MANAGER	B.LANGER								PROJECT ENGINEER	A.YUEN		
0	ISSUED FOR CONSTRUCTION		MAY 21/13	CS	AY													
B	ISSUED FOR PCR APPROVAL		APR 09/13	AT	AY	CUST PO												
A	ISSUED FOR APPROVAL		MAR 18/13	NH	AY													
REV	DESCRIPTION		DATE	BY	APR	APEGGA PERMIT No:		P8651	OPER. CODE	490 511 591	WORK ORDER	42637	DWG NO	42637-116	SHT	2 OF 2	REV	2

M7101
SILENCER
MFG: EMIT
MODEL: EAH-2150T-0808F-21CE0-C



- NOTE:**
1. INSULATION FROM ENGINE EXHAUST OUTLET TO OUTSIDE OF BUILDING WALL.
 2. SAMPLING PORT TUBINGS AND VALVES SHALL BE POST MOUNTED.
 3. TWO FLOW RATE SAMPLING PORTS SHALL BE PERPENDICULAR.
 4. REFER TO WAKUESHA DRAWING "S-07764-58" FOR INSTRUMENT CONNECTIONS.

FINAL AS BUILT

NAME A.ROMERO DATE AUG 06/13

						DATE FEB 15/13	SCALE NTS	ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET	ENERFLEX Calgary, Alberta, Canada	P & I DIAGRAM AIR / EXHAUST SYSTEMS	
2	AS-BUILT	AUG 06/13	AR			DRAWN BY N.HUANG	CHECKED BY A.YUEN				APPROVED BY B.LANGER
1	REVISED EXHAUST TUBING & ADDED SILENCER INFO	JUN 24/13	CS	AY		PROJECT MANAGER B.LANGER	PROJECT ENGINEER A.YUEN				
0	ISSUED FOR CONSTRUCTION	MAY 21/13	CS	AY							
B	ISSUED FOR PCR APPROVAL	APR 09/13	AT	AY							
A	ISSUED FOR APPROVAL	MAR 18/13	NH	AY							
REV	DESCRIPTION	DATE	BY	APR	APEGGA PERMIT No: P8651		OPER CODE 490 511 591	WORK ORDER 42637	DWG NO 42637-117	SHT 1	REV 2

PLOT DATE: Aug 20, 2013, 9:00am THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF ENERFLEX LTD. AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM ENERFLEX, LTD.

LINE IDENTIFICATION			VALVE IDENTIFICATION			LINE CODE			INSTRUMENT IDENTIFICATION GENERAL REFERENCE (ISA – S5.1)																
A–B–CD–EF–GHIJ–KL,M–N			A"BCDE,F						(MODIFIER)		SUCCEEDING LETTERS		PRIMARY ELEMENT	INDICATOR	RECORDER	CONTROLLER			TRANS–MITTER	CONTROL		CONTROL VALVE OR REGULATOR	SELF–ACTIVATED VALVE	RELAY OR CONVERTOR	
A : NOMINAL LINE SIZE IN INCHES			A : NOMINAL VALVE SIZE IN INCHES						FIRST LETTER								BLIND	INDICATING	RECORDING		SWITCH	ALARM			
B : FLUID / SERVICE			B : TYPE						A	ANALYSIS	ALARM	AE	AI	AR	AC	AIC	ARC	AT	AS()	AA()	AV			AY	
A	AMMONIA	IG	INSTRUMENT GAS	A	ANGLE GLOBE	N	NEEDLE	=====	PRIMARY PROCESS LINE	B	BURNER FLAME														
AM	AMINE	L	LUBE OIL	B	BALL	P	PLUG	=====	SECONDARY PROCESS LINE	C	CONDUCTIVITY	CONTROL OR CLOSE	CE	CI	CR	CC	CIC	CRC	CT	CS()	CA()	CV		CY	
C	CARBON DIOXIDE	N	NITROGEN	C	CHECK	S	START–UP STRAINER	=====	MINOR PROCESS LINE	D	DENSITY OR MASS (DIFFERENTIAL)	DIFFERENTIAL	DE	DI	DR	DC	DIC	DRC	DT	DS()	DA()	DV		DY	
CO	CARBON MONOXIDE	NG	NATURAL GAS	G	GATE	T	TEE STRAINER	=====	AUXILIARY PROCESS LINE	E	VOLTAGE	PRIMARY ELEMENT	EE	EI	ER	EC	EIC	ERC	ET	ES()	EA()	EV		EY	
CW	COOLING WATER	O	OXYGEN	L	GLOBE	U	BUTTERFLY	=====	INSTRUMENT/IMPULSE LINE	F	FLOW (RATIO OR FRACTION)	SHUTDOWN FIRST OUT	FE	FI	FR	FC	FIC	FRC	FT	FS()	FA()	FV	FCV	FY	
F	FREON	P	PROPANE	M	MANIFOLD	Y	Y PATTERN STRAINER	=====		G	GAUGING	GLASS	GE	GI	GR	GC	GIC	GRC	GT	GS()	GA()	GV			
FG	FUEL GAS	PG	PURGE GAS					-----	ELECTRIC SIGNAL	H	HAND	HIGH				HC	HIC	HRC	HT	HS()		HV	HCV	HY	
G	GLYCOL	R	REFRIGERANT					××××××××	FILLED CAPILLARY TUBE	I	CURRENT	INDICATE	IE	II	IR	IC	IIC	IRC	IT	IS()	IA()			IY	
H	HYDROGEN	S	STEAM	B	BRONZE	L	LOW TEMP. CARBON STEEL	///	PNEUMATIC LINE	J	POWER (SCAN)		JE	JI	JR	JC	JIC	JRC	JT	JS()	JA()			JY	
HE	HELIUM	SG	SYNGAS	C	CARBON STEEL	S	STAINLESS STEEL			K	TIME	CONTROL STATION		KI	KR	KC	KIC	KRC	KT	KS()	KA()	KV		KY	
HG	HYDROCARBON GAS	V	PRODUCED WATER	I	CAST IRON			●●●●●●●●	MECHANICAL LINK	L	LEVEL	LOW OR LIGHT	LE	LI	LR	LC	LIC	LRC	LT	LS()	LA()	LV	LCV	LY	
HL	HYDROCARBON LIQUID	W	WATER					○●○●○●○●	INSTRUMENT DATA LINK	M	MOISTURE, HUMIDITY	MIDDLE OR INTERMEDIATE	ME	MI	MR	MC	MIC	MRC	MT	MS()	MA()	MV		MY	
IA	INSTRUMENT AIR							-----	INTERCONNECTING PIPING	N	USER'S CHOICE														
C : EQUIPMENT TYPE / MODIFIER (IF REQUIRED)			D : END CONNECTIONS							O	USER'S CHOICE	ORIFICE OR OPEN													
B	BLOWER OR FAN	H	HEATER	1	FLANGED 150#	B	BUTT WELD	-----		P	PRESSURE OR VACUUM	POINT	PE	PI	PR	PC	PIC	PRC	PT	PS()	PA()	PV	PCV	PY	
C	COMPRESSOR	JB	JUNCTION BOX	3	FLANGED 300#	C	SW BY NPT	-----		Q	QUANTITY OR EVENT (INTEGRATE/TOTALIZE)			QI	QR	QC	QIC	QRC	QT	QS()	QA()	QV		QY	
CPL	CONTROL PANEL	P	PUMP	6	FLANGED 600#	F	NPT BY FLANGE (MANIFOLD)	-----		R	RELIEF OR RESTRICTION OR RADIOACTIVITY	RECORD OR PRINT	RE	RI	RR	RC	RIC	RRC	RT	RS()	RA()			RY	
D	DRIVER (MOTOR/ENGINE)	T	TOWER OR TANK	9	FLANGED 900#	M	NPT MALE BY NPT FEMALE	-----		S	SPEED OR FREQUENCY	SWITCH OR SAFETY		SI	SR	SC	SIC	SRC	ST	SS()	SA()			SY	
E	EXCHANGER	UH	UNIT HEATER	15	FLANGED 1500#	N	NPT (THREADED)	-----		T	TEMPERATURE	TRANSMIT	TE	TI	TR	TC	TIC	TRC	TT	TS()	TA()	TV	TCV	TY	
F	FILTER	V	PRESSURE VESSEL	25	FLANGED 2500#	S	SW (SOCKETWELD)	-----		U	MULTI–VARIABLE	MULTIFUNCTION		UI	UR	UC	UIC	URC						UV	
FS	FLARE STACK					T	TUBE (IE: SWAGelok)	-----		V	VIBRATION OR VISCOSITY	VALVE OR DAMPER	VE	VI	VR	VC	VIC	VRC	VT	VS()	VA()	VV		VY	
D : EQUIPMENT NUMBER:			E : UNIQUE DESCRIPTION							W	WEIGHT OR FORCE	WELL	WE	WI	WR	WC	WIC	WRC	WT	WS()	WA()	WV		WY	
101 TO 999 SEQUENTIAL NUMBERS			REFER TO VALVE DATA SHEETS							X	LIGHT	UNCLASSIFIED (DIAGNOSTIC)	XE	XI	XR	XC	XIC	XRC	XT	XS()	XA()	XV		XY	
CD LINES TO/FROM SKID CALLED UP AS			F : MODIFIER							Y	USER'S CHOICE	RELAY OR COMPUTE												YY	
INLET, OUTLET, HEADER, DRAIN, SUPPLY, ETC.			C CHAIN OPERATOR			O OXYGEN SERVICE/CLEANING				Z	POSITION	DRIVE OR ACTUATE	ZE	ZI	ZR	ZC	ZIC	ZRC	ZT	ZS()	ZA()			ZY	
EF : LINE NUMBER:			E : 1 TO 9 SEQUENTIAL NUMBERS FROM EQUIPMENT			P FULL PORT DESIGN																			
1.1 FOR 1ST BRANCH CONNECTION FROM 1ST LINE			1.2 FOR 2ND BRANCH CONNECTION FROM 1ST LINE			R RTJ FLANGED																			
F : SKID/AREA REFERENCE LETTER (A, B, C,...)			('X' SIGNIFIES OFF SKID/INTERCONNECTING PIPE)			S SPRING HANDLE (CLOSE)																			
GHIJ : PIPING SPECIFICATION			G : MATERIAL GROUP			X SPECIAL SPECIFICATIONS																			
G : MATERIAL GROUP			C CARBON STEEL																						
L LOW TEMPERATURE CARBON STEEL			S STAINLESS STEEL																						
H : ANSI 16.5 FLANGE CLASS			0 NON CODE																						
1 150# 6 600# 15 1500#			3 300# 9 900# 25 2500#																						
I : LINE MATERIAL SPECIFICATION REFERENCE:			PIPING SPECIFICATION NUMBER																						
J : R RECIPROCATING PACKAGE SPECIFICATION			BLANK FOR PROCESS PACKAGE SPECIFICATION																						
KL,M : INSULATION (IF REQUIRED)			K : INSULATION TYPE																						
C COLD HT HEAT TRACING			H HOT PP PERSONAL PROTECTION																						
HC HOT/COLD			L : INSULATION THICKNESS IN MILLIMETERS OR INCHES (")																						
M : TRACING (IF REQUIRED)			ET ELECTRICAL TRACING																						
GT GLYCOL TRACING			ST STEAM TRACING																						
N : PED PIPE IDENTIFICATION SUFFIX (IF REQUIRED)			SEP SOUND ENGINEERING PRACTICE LINE																						
CATI CATEGORY I LINE			CATII CATEGORY II LINE																						
CATIII CATEGORY III LINE																									
EXAMPLE: 3"–HG–V101–1A–C61R–HTXX,ET–CATII																									
3" – NOMINAL LINE SIZE			HG – HYDROCARBON GAS																						
V101 – PRESSURE VESSEL TAG NUMBER			1A – 1 FIRST LINE FROM VESSEL																						
A LOCATED ON SKID/AREA 'A'			C CARBON STEEL LINE																						
6 600# ANSI FLANGE RATING			1 LINE MATERIAL SPECIFICATION REFERENCE																						
R RECIPROCATING PACKAGE PIPE SPEC.																									
HT – HEAT TRACING INSULATION			XX – THICKNESS IN MILLIMETERS OR INCHES (")																						
ET – ELECTRIC TRACING			CATII – PED CATEGORY II LINE																						

VALVE CONNECTIONS (COMBINATIONS MAY BE USED)			VALVE TYPES			CONTROL VALVES			
	THREADED		INLINE FLANGE SET		BALL CHECK VALVE		DIAPHRAGM SEAL		VORTEX BREAKER
	SOCKET WELDED		SPECTACLE BLIND (LINE OPEN)		THROTTLE BLOCK		RUPTURE DISC FOR PRESSURE RELIEF		RUPTURE DISC FOR VACUUM RELIEF
	BUTT WELDED		SPECTACLE BLIND (LINE CLOSED)		PIG LAUNCHER / RECEIVER		EYE WASH		SAFETY SHOWER
	FLANGED		UNION (NPT)		METER RUN		SKID TIE–POINTS		INSTRUMENT AIR
			ORIFICE FLANGE W/ SPACER		FLOW INDICATOR		INSTRUMENT GAS		CURRENT/PRESSURE
			PADDLE BLIND		CONTINUOUS LIQUID DRAINER OR STEAM TRAP		SPRAY NOZZLE		VENT CAP
			BLEED RING		SPEC BREAK		BEVELED PIPE END		END CAP
			BASKET STRAINER		OPEN DRAIN		PLUG		LINE BREAK
			CONE STRAINER						
			CONCENTRIC REDUCER						
			ECCENTRIC REDUCER						
			EXPANSION JOINT						
			FLEXIBLE HOSE						
			FLEXIBLE COUPLING						
			TEE STRAINER						
			Y–PATTERN STRAINER						
			MAGNETIC METER						
			VENTURI						
			SIGHT GLASS						
			SONIC FLOW METER						
			POSITIVE DISPLACEMENT METER						
			TURBINE OR PROPELLOR METER						
			VORTEX METER						

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

INSTRUMENTS			
	LOCAL MOUNTED		INTERLOCK
	LOCAL PANEL MOUNTED		ELECTRICAL INTERLOCK (HARDWIRE)
	LOCAL PANEL MOUNTED BEHIND OR INSIDE		THERMOWELL (THREADED)
	MAIN PANEL MOUNTED		THERMOWELL (SOCKET WELDED)
	MAIN PANEL MOUNTED BEHIND OR INSIDE		THERMOWELL (FLANGED)
	BY OTHERS		PILOT LIGHT
	HUMAN MACHINE INTERFACE HMI (DCS)		* COLOUR (A) AMBER (B) BLUE (C) GREEN (O) ORANGE (R) RED (W) WHITE
	HUMAN MACHINE INTERFACE HMI (PLC)		
	ENGINE CONTROL		
	PROGRAMMABLE LOGIC CONTROLLER (PLC)		
	XC REPRESENTS GENERAL LOGIC		

FOR REFERENCE NAME G.Pohl DATE APR 09/13			
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DATE APR 09/13				SCALE NTS			
DRAWN BY G.PAHL		CHECKED BY A.YUEN		APPROVED BY B.LANGER			
PROJECT MANAGER B.LANGER		PROJECT ENGINEER A.YUEN					
CUST PO							
B ISSUED FOR REFERENCE				APR 09/13 GP TH			
REV				DESCRIPTION DATE BY APR			
APEGA PERMIT No: P8651				STEP 490 511 591		WORK ORDER 42637	

ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2–1 STD SWEET		
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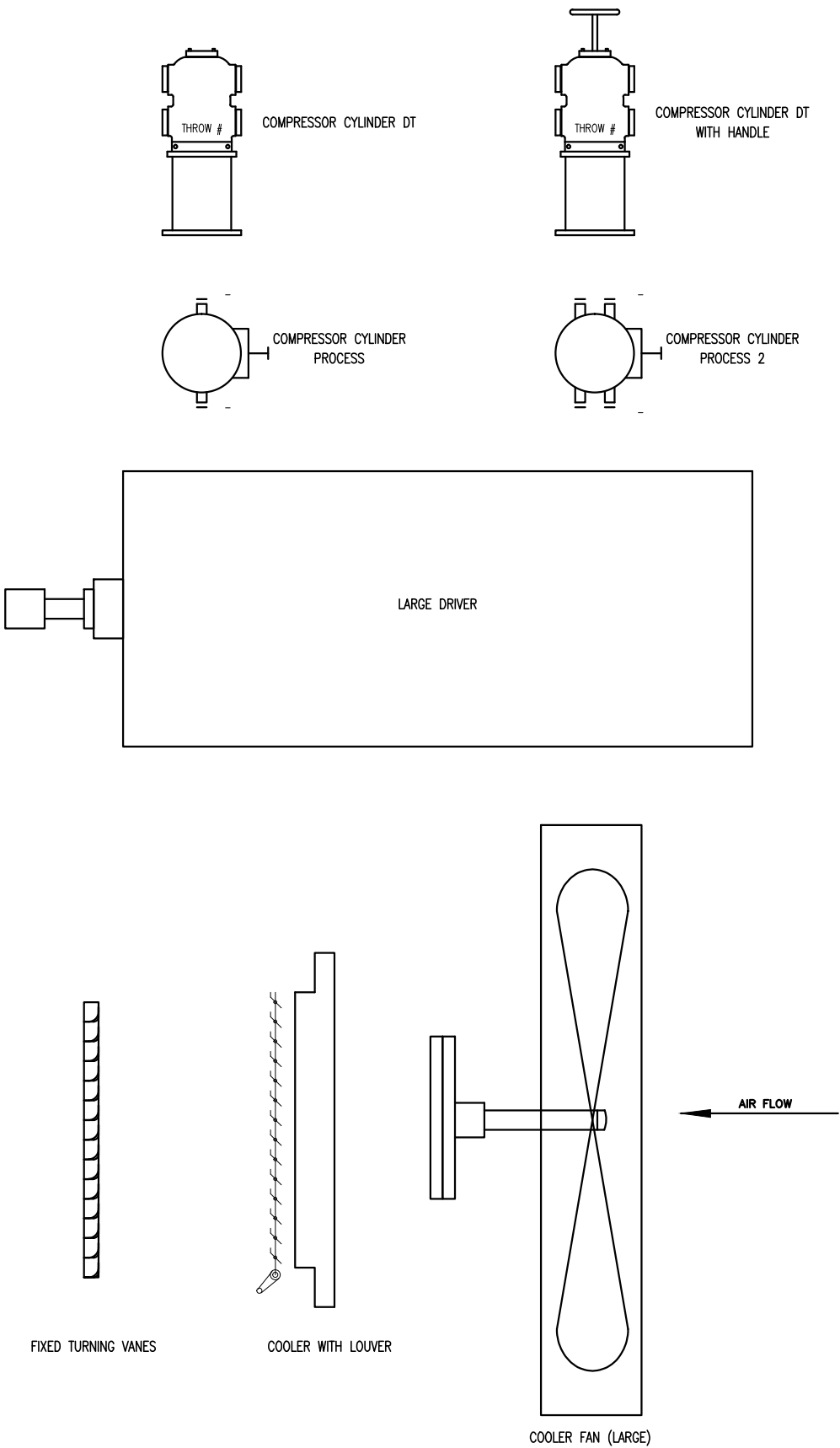
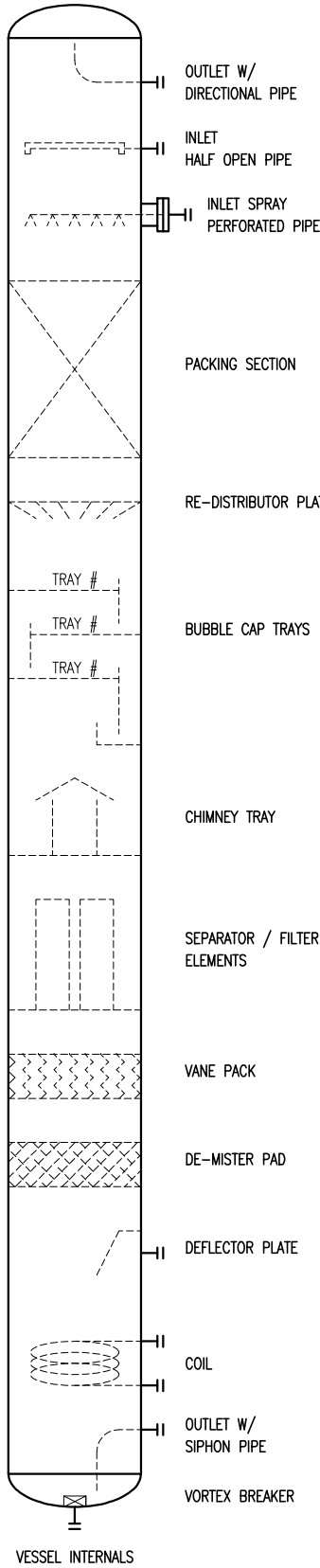
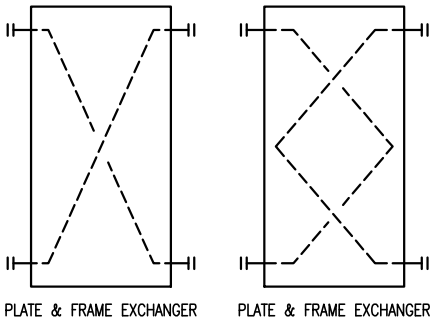
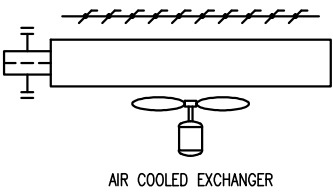
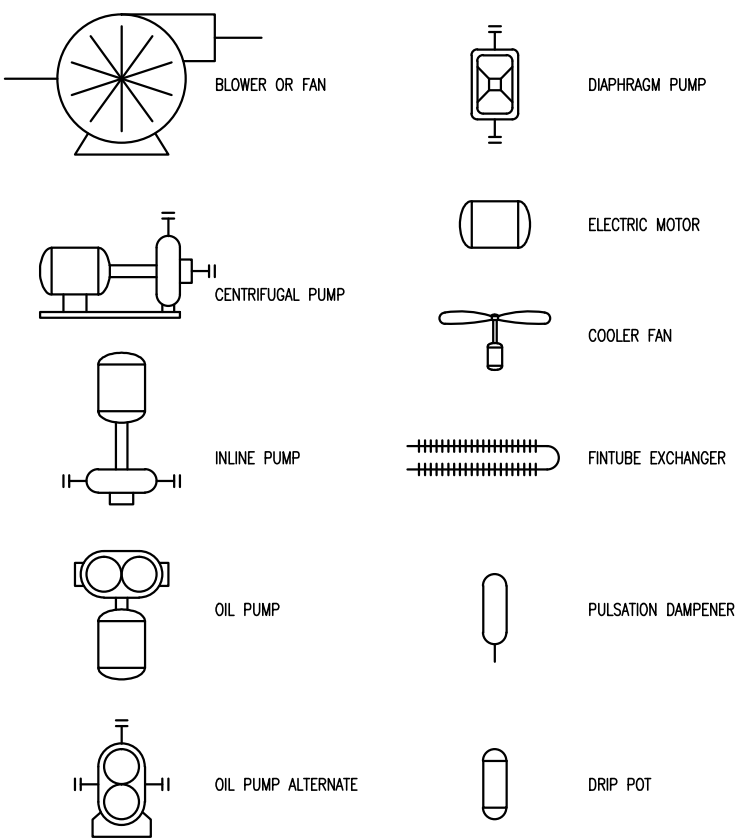
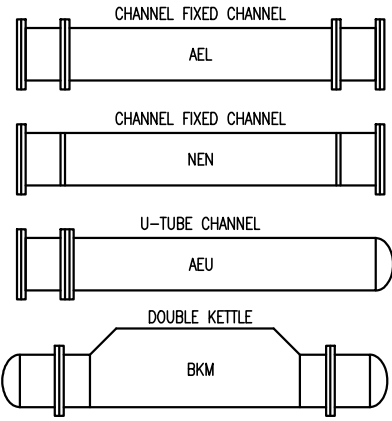
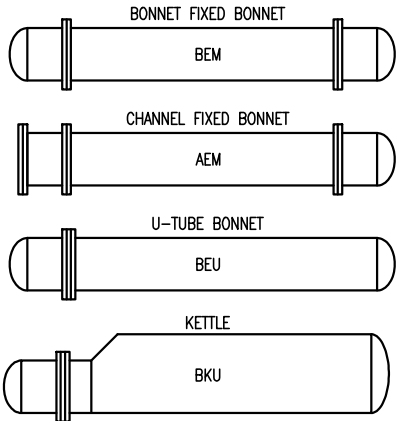
ENERFLEX Calgary, Alberta, Canada		P&i DIAGRAM LEGENDS & SYMBOLS	
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DWG NO 42637–199	SHT 1	REV B
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ABBREVIATIONS

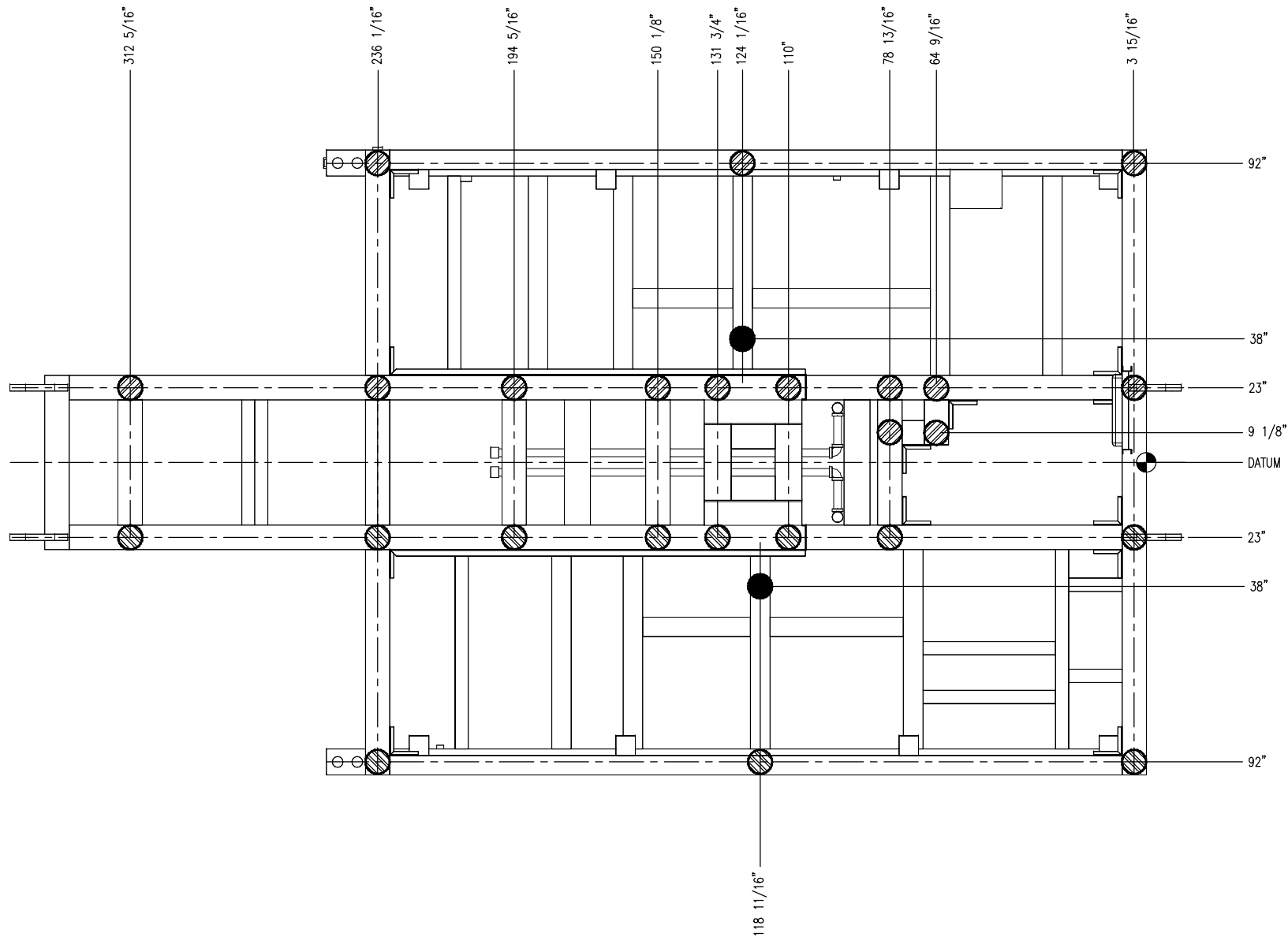
AMB	AMBIENT	M2	SQUARE METERS
ATM	ATMOSPHERE	M3	CUBIC METERS
BW	BUTT WELD	MAX	MAXIMUM
BOP	BOTTOM OF PIPE	MAWP	MAXIMUM ALLOWABLE WORKING PRESSURE
CA	CORROSION ALLOWANCE	MCC	MOTOR CONTROL CENTER
CC	CORROSION COUPON	MDMT	MINIMUM DESIGN METAL TEMPERATURE
CS	CARBON STEEL	MIN	MINIMUM
CSC	CAR SEAL CLOSED	MM	MILLIMETER
CSO	CAR SEAL OPEN	NB	NATIONAL BOARD
CUST	CUSTOMER	NC	NORMALLY CLOSED
DB	DEADBAND	NLL	NORMAL LIQUID LEVEL
Δ	DELTA (DIFFERENTIAL)	NO	NORMALLY OPEN
DBB	DOUBLE BLOCK & BLEED	NPT	NATIONAL PIPE THREAD
DEG.C	DEGREES CELSIUS	OAL	OVERALL LENGTH
DEG.F	DEGREES FARENHEIT	OD	OUTSIDE DIAMETER
DIR	DIRECT ACTING	PB	PUSH BUTTON
EL	ELEVATION	PL	PILOT LIGHT
ESD	EMERGENCY SHUTDOWN	PLC	PROGRAMMABLE LOGIC CONTROLLER
ESDV	EMERGENCY SHUTDOWN VALVE	PPD	PINTS PER DAY
FC	FAIL CLOSED	PSIA	POUNDS / SQUARE INCH ABSOLUTE
FF	FLAT FACED	PSID	POUNDS / SQUARE INCH DIFFERENTIAL
FL	FAIL LAST	PSIG	POUNDS / SQUARE INCH GAUGE
FLG	FLANGED	REV	REVERSE ACTING
FO	FAIL OPEN	RF	RAISED FACE
FOB	FLAT ON BOTTOM	RFLX	REFLEX GAUGE
FOT	FLAT ON TOP	RO	RESTRICTION ORIFICE
FT2	SQUARE FEET	RTD	RESISTANCE TEMPERATURE DEVICE
FT3	CUBIC FEET	RTJ	RING TYPE JOINT
FV	FULL VACUUM	SCFM	STANDARD CUBIC FEET PER MINUTE
FVCP	FIXED VOLUME CLEARANCE POCKET	SCR	SILICON CONTROLLED RECTIFIER
FX	FROST EXTENSION	S/F	SEAM TO FACE OF FLANGE
HI	HIGH	SO	SLIP ON
HLL	HIGH LIQUID LEVEL	SP	SETPOINT
HP	HIGH POINT	SPC	CALCULATED SETPOINT
HPV	HIGH POINT VENT	SS	SELECTOR SWITCH
HTR	HEATER	S/S	SEAM TO SEAM
ID	INSIDE DIAMETER	SVU	SUCTION VALVE UNLOADER
KGS	KILOGRAMS	SW	SOCKET WELD
KPAA	KILOPASCAL ABSOLUTE	TC/K	THERMOCOUPLE / (TYPE)
KPAD	KILOPASCAL DIFFERENTIAL	T/L	TUBE LENGTH
KPAG	KILOPASCAL GAUGE	TS/TS	TUBESHEET TO TUBESHEET
KW	KILOWATTS	VB	VORTEX BREAKER
LBS	POUNDS	V/H	VENT HEADER
LC	LOCKED CLOSED	VTA	VENT TO ATMOSPHERE
LLL	LOW LIQUID LEVEL	VTH	VENT TO HEADER
LO	LOCKED OPEN	WCP	VARIABLE VOLUME CLEARANCE POCKET
LP	LOW POINT	W/	WITH
LPD	LOW POINT DRAIN	W/O	WITHOUT



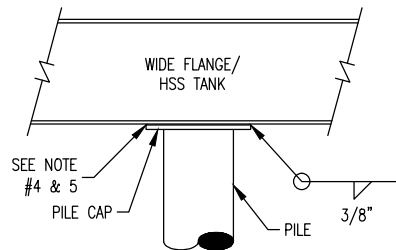
FOR
REFERENCE
ONLY
NAME: G.Pohl DATE: APR 09/13

										DATE	APR 09/13	SCALE	NTS	ENERFLEX LTD. RENTAL WAUKESHA F18GSI ARIEL JGJ/2-1 STD SWEET			ENERFLEX Calgary, Alberta, Canada		P&I DIAGRAM LEGENDS & SYMBOLS					
										DRAWN BY	G.PAHL	CHECKED BY	A.YUEN	APPROVED BY	B.LANGER									
										PROJECT MANAGER	B.LANGER	PROJECT ENGINEER	A.YUEN											
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B	ISSUED FOR REFERENCE					APR 09/13	GP	AY	APEGGA PERMIT No: P8651					STEP CODE	490 511 591	WORK ORDER	42637	DWG NO	42637-199		SHT	2	REV	B
REV	DESCRIPTION					DATE	BY	APR																

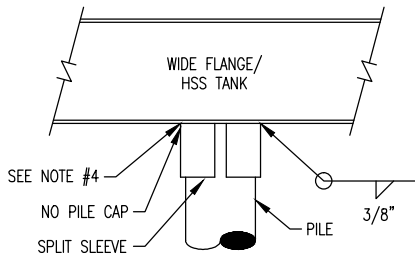
PLOT DATE: Aug 29, 2013, W:\turcios P:\0000 Projects\40_42600-42699\42637 EFX Cooper Rental - F18GSI JS2-1\4. Drafting\42637-MODEL-AS-BUILT.dwg



PLAN VIEW



SUGGESTED PILE CAP DETAIL
(TYPICAL - ALL)



ALTERNATE
SUGGESTED PILE SLEEVE DETAIL
(TYPICAL - ALL)

PLEASE READ CAREFULLY

USE OF THIS DIAGRAM INDICATES OWNER'S/OPERATOR'S ACCEPTANCE OF THE FOLLOWING PROVISIONS NOT WITHSTANDING ANY OTHER AGREEMENT OR PROVISION BETWEEN ENERFLEX LTD. ("EFX") AND THE OWNER/OPERATER ("O/O").

1. THE DESIGN OF THE FOUNDATION FOR THIS COMPRESSOR PACKAGE IS NOT IN THE SCOPE OF SUPPLY BY EFX. AS SUCH, THE DESIGN AND ADEQUACY OF THE FOUNDATION IS ENTIRELY THE RESPONSIBILITY OF THE O/O AND/OR ITS ENGINEERING FIRM AND THEIR REPRESENTATIVES.
2. THE RECOMMENDATIONS SHOWN ON THE DIAGRAM AT LEFT ARE BASED UPON ACTUAL FIELD EXPERIENCE ONLY. THESE FOUNDATION RECOMMENDATIONS HAVE NOT BEEN SPECIFICALLY DESIGNED BY A QUALIFIED CIVIL ENGINEER FOR THIS PROJECT. EFX AND ITS REPRESENTATIVES SHALL NOT BE HELD LIABLE FOR ANY COSTS INCURRED RESULTING FROM THE USE OR MISUSE OF THE RECOMMENDATIONS.
3. THIS DRAWING INDICATES THE MINIMUM SUGGESTED NUMBER OF SUPPORT POINTS. THE ACTUAL NUMBER AND LOCATION REQUIRED MAY BE MORE, DEPENDING ON SOIL CONDITIONS, PILE DEPTH OF REFUSAL, FIELD EXPERIENCE, ENGINEERING OPINION, LOCAL CODES OR LAWS, ETC.. EFX DOES NOT AND CANNOT WARRANT THIS SUGGESTED DESIGN AND IT IS STRONGLY RECOMMENDED THAT A CIVIL ENGINEER FAMILIAR WITH PACKAGED RECIPROCATING COMPRESSORS OF THIS HP MAGNITUDE BE CONSULTED TO DESIGN THE FOUNDATION FOR THIS COMPRESSOR PACKAGE. EFX IS NOT AN EXPERT IN FOUNDATION DESIGN, IS NOT BEING PAID TO DESIGN THE FOUNDATION AND, IN CONSIDERATION OF EFX EXPENDING THE TIME AND RESOURCES ON THIS DIAGRAM TO ASSIST THE O/O, THE O/O HEREBY RELEASES EFX, AND THEIR REPRESENTATIVES FROM ANY LIABILITY, OF ANY NATURE, WHATSOEVER, WITH RESPECT TO THE ADEQUACY, USEFULNESS, OR FITNESS FOR PURPOSE, OF THE DIAGRAM OR RESULTING FOUNDATION.
4. ALL PILE CAPS/SLEEVES MUST BE SHIMMED LEVEL AND WELDED TO THE SKID WITH CONTINUOUS WELDMENTS USING GOOD INDUSTRY WELDING PRACTICES. STITCH WELDING IS NOT ACCEPTABLE. STEP SHIMMING IS NOT ACCEPTABLE. EFX DOES NOT WARRANT VIBRATION ISSUES RELATING TO POOR PILE TO SKID CONNECTIONS.
5. AS A MINIMUM, (3) SIDES OF THE PILE CAP SHALL BE WELDED TO THE SKID MEMBER.
6. PACKAGES INCORPORATING ENVIRONMENTAL PANS (DRIP) IN THE WINGS WILL RESTRICT ACCESS TO SUPPORTS BELOW. IT WILL BE NECESSARY TO CUT THE SEAL PAN TO GAIN ACCESS TO THESE AREAS FOR WELDING PURPOSES.
7. A RECIPROCATING COMPRESSOR IS CAPABLE OF PRODUCING VERY HIGH HORIZONTAL COUPLES ABOUT THE CENTERLINE OF THE CRANKCASE. SPECIAL ATTENTION MUST BE GIVEN TO ALL TWO THROW AND HIGH ROD LOAD RATED FRAMES. CAREFUL CONSIDERATION MUST BE GIVEN TO THE LOCATION OF SUPPORT BELOW THE CYLINDER CROSSHEAD AREA OF THE SKID. A SINGLE POINT OF SUPPORT BELOW THE CENTERLINE OF EACH THROW IS NOT SUFFICIENT. SUPPORT SHOULD STRADDLE EACH THROW.
8. IT IS ALWAYS RECOMMENDED TO PERFORM A GEO-TECHNICAL INVESTIGATION OF THE SUB-SURFACE CONDITIONS OF THE SOIL AT THE INSTALLATION SITE.
9. IT IS THE END USER'S RESPONSIBILITY TO HAVE THE PILES PLACED AS RECOMMENDED BY A QUALIFIED CIVIL ENGINEER.
10. SKID DEFLECTION CAN CAUSE EQUIPMENT ALIGNMENT PROBLEMS, PIPE STRAIN AND VIBRATION. ONCE EQUIPMENT HAS BEEN PLACED ON THE FOUNDATION, IT MUST BE CHECKED FOR ALIGNMENT AND PIPE STRAIN. ALIGN AS REQUIRED TO MEET ROTATING EQUIPMENT MANUFACTURER'S SPECIFICATIONS.
11. REFERENCE DRAWING 42637-201 FOR LOCATION OF MAJOR EQUIPMENT.

MAJOR COMPONENT WEIGHTS

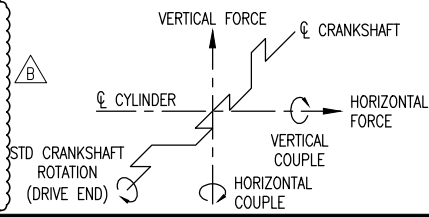
DESCRIPTION	WEIGHT (LBS.)
COMPRESSOR FRAME:	2,027
ENGINE: (c/w FLUIDS)	5,955
COOLER: (DRY)	9,050
SUCTION SCRUBBER	1,483
THROW #1 CYLINDERS & BOTTLES:	1,696
THROW #2 CYLINDER & BOTTLES:	1,696
SKID BASE: (w/o CONCRETE)	10,500
SKID BASE: (w/ CONCRETE)	18,990
BUILDING:	7,100
MISCELLANEOUS COMPONENTS	15,007
TOTAL PACKAGE: (LESS COOLER)	53,954
TOTAL PACKAGE: (c/w ON-SKID COOLER)	63,004

NOTE:
ALL TAIL DIMENSIONS ARE TAKEN
FROM REFERENCE POINT

FOR
REFERENCE
ONLY
NAME: Wilber Turcios DATE: AUG.28.2013

FRAME: JGJ/2		MAX. RPM: 1800				
THROW #	1	2	3	4	5	6
CYL. BORE (in.)	4.625	4.625	-	-	-	-
UNBALANCED FORCES & COUPLES						
HORIZONTAL	PRIMARY		SECONDARY			
FORCE, KIP AT MAX. lmb: 1.00 lbs	0.161		0.028			
FORCE, KIP (ACTUAL WEIGHTS)	0.016		0.002			
COUPLE, KIP-ft	2.898		1.209			
VERTICAL	PRIMARY		SECONDARY			
FORCE, KIP	0.000		-			
COUPLE, KIP-ft	4.185		-			

COMPRESSOR INERTIAL FORCE & TORQUE REACTIONS



REV	DESCRIPTION	DATE	BY	APR	A.Y.	W.T.	AUG.28.13	B	REVISED UNBALANCED FORCES AND COUPLES
REV	DESCRIPTION	DATE	BY	APR	A.Y.	W.T.	MAY.29.13	A	ISSUED FOR INFORMATION

DATE	MAY.06.13	SCALE	NTS
DRAWN BY	W.TURCIOS	CHECKED BY	K.OXFORD
PROJECT MANAGER	BRIAN LANGER	APPROVED BY	A. YUEN
CUST PO	P.O.	PROJECT ENGINEER	ALLEN YUEN
APEGA PERMIT No:	P8651	STEP CODE	400
WORK ORDER	42637		

ENERFLEX INC. RENTAL
WAUKESHA F18GSI
ARIEL JGJ/2-1 STD SWEET

ENERFLEX
Calgary, Alberta,
Canada

SUGGESTED SUPPORT
LOCATION
(< 800 BHP)

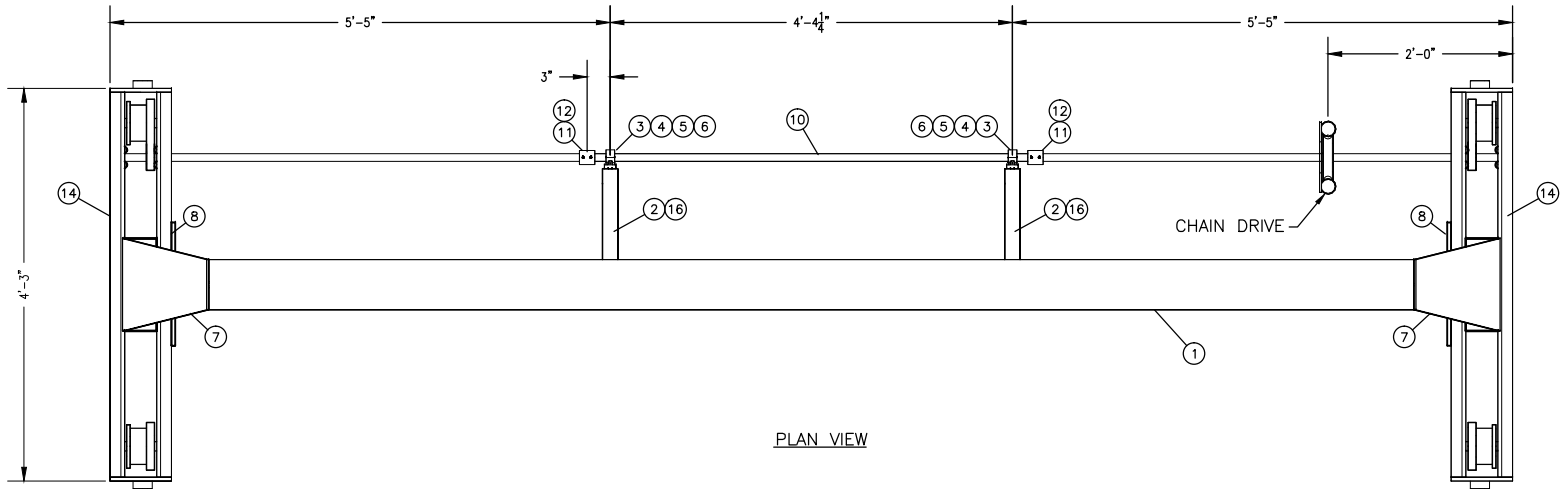
DWG NO 42637-351

SHT 1

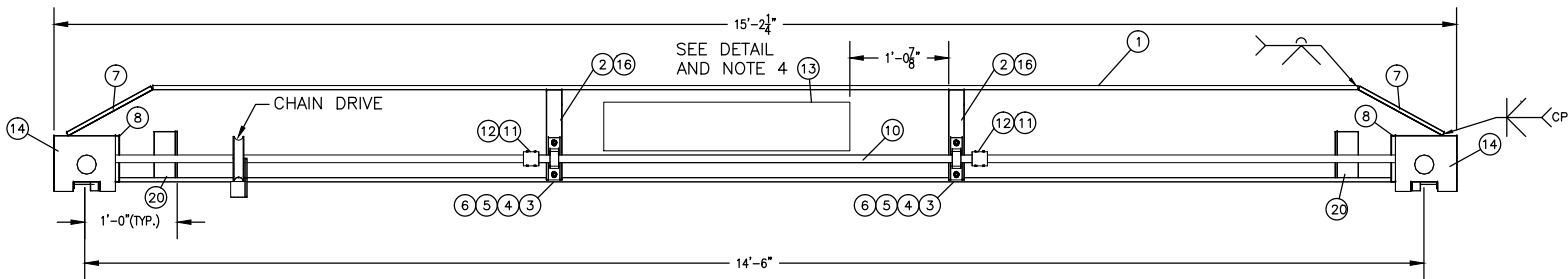
REV B

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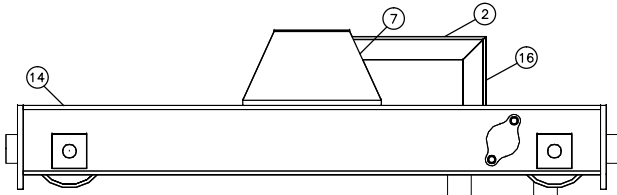
PLOT DATE May 29, 2013, Wturcios P:\40000 Projects\40_22600-42637 EFX Casper Rental - F18GSI_621-1V4_Drafting\Bridge Crane 3 Tonne-C.dwg



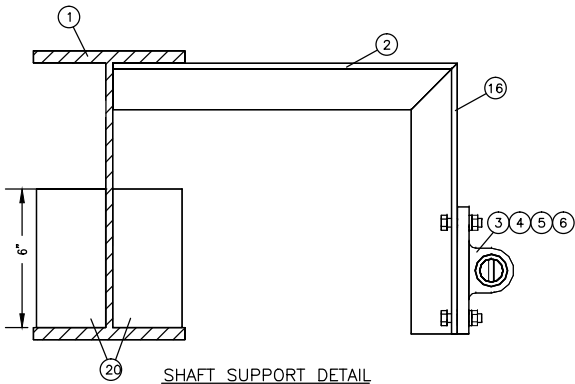
PLAN VIEW



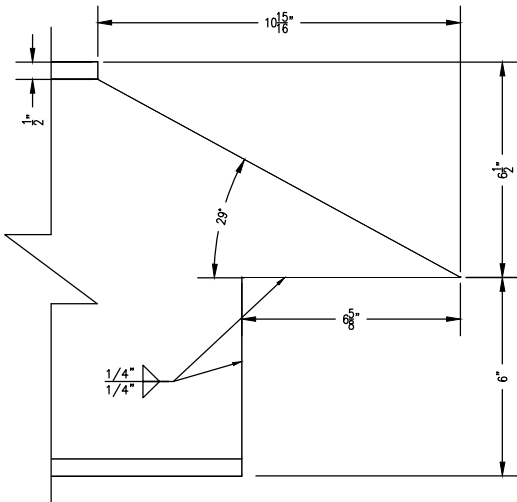
FAR SIDE VIEW



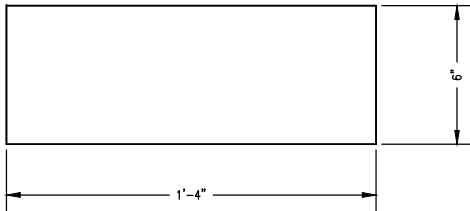
RIGHT END VIEW



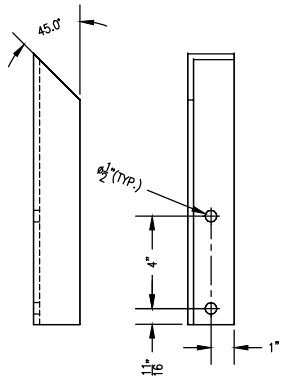
SHAFT SUPPORT DETAIL



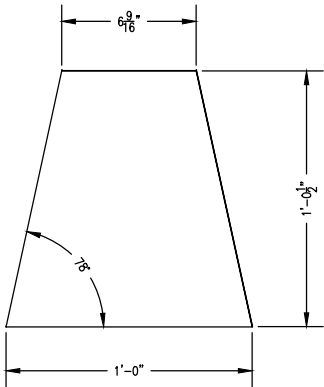
MAIN BEAM (#1) COPING DETAIL
(TYP. BOTH ENDS)



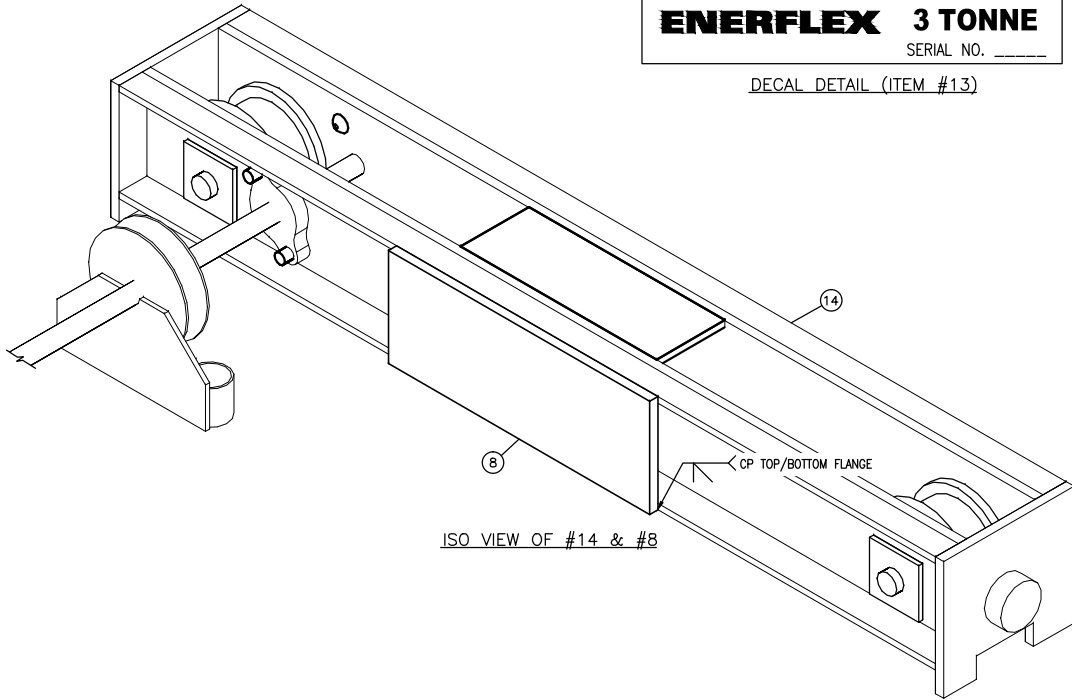
DETAIL OF #8



DETAIL OF #16



DETAIL OF #7



ISO VIEW OF #14 & #8

IMPORTANT NOTE
CENTER TO CENTER RAILS
DIMENSION PERMITTED
14'-0" TO 25'-6"

MANUFACTURED BY CAPACITY
ENERFLEX 3 TONNE
SERIAL NO. _____

DECAL DETAIL (ITEM #13)

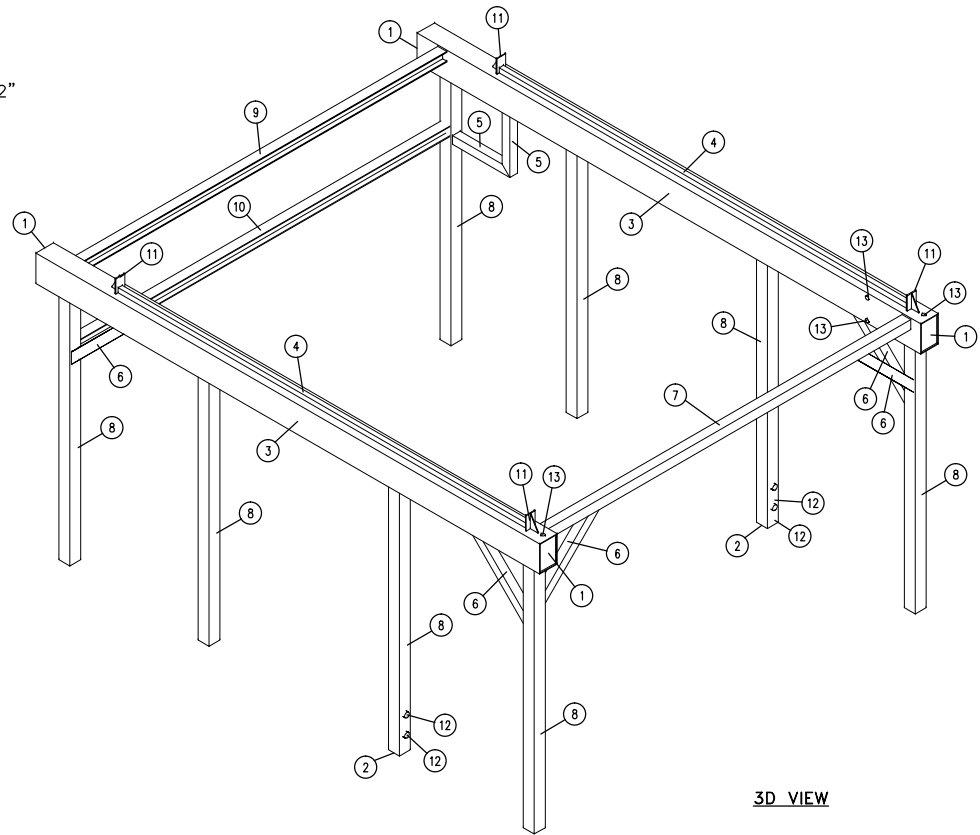
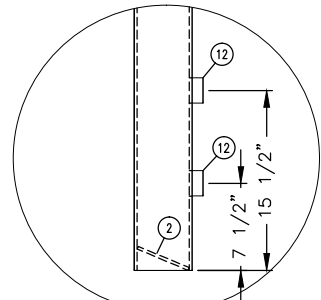
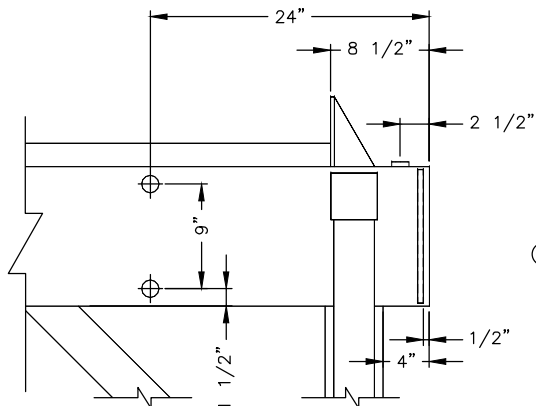
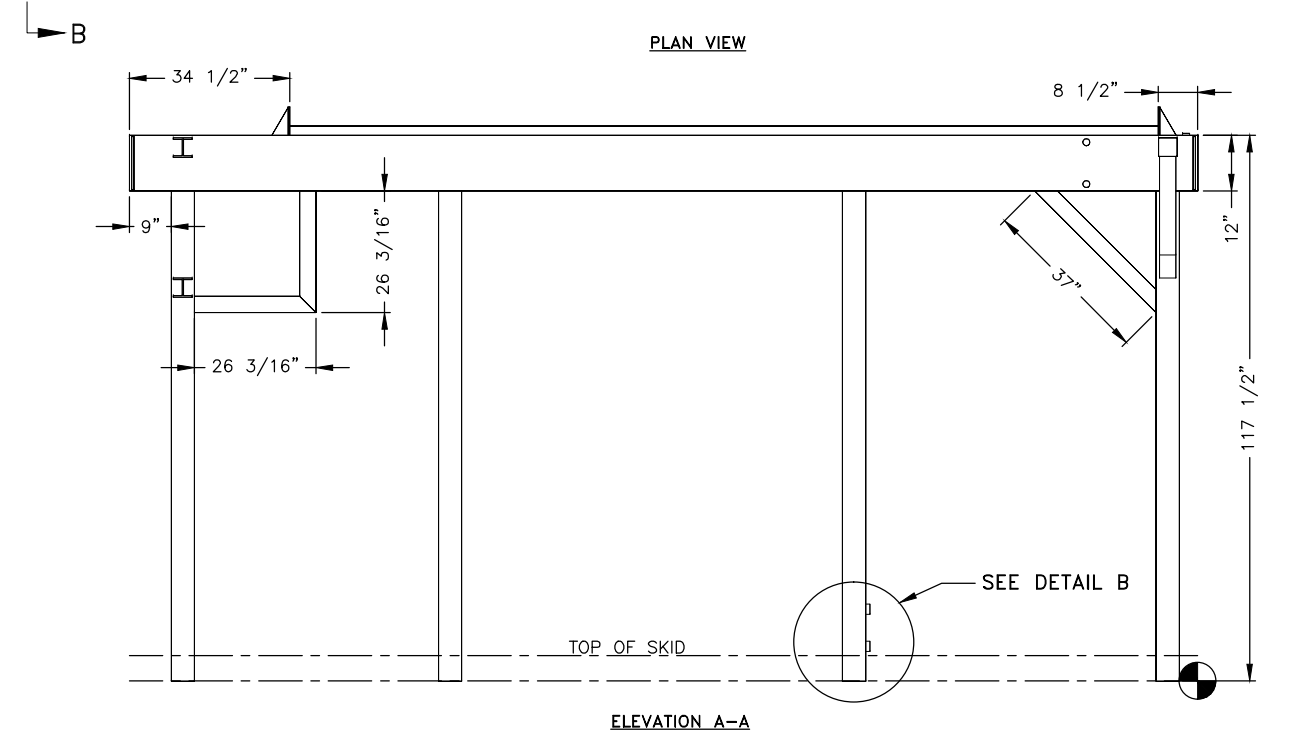
- NOTES:
- ALL WELDS TO BE 1/4" FILLET WELDS [UNO].
 - WELDING AS PER CSA/CAN W59.1.
 - DESIGNED TO CSA S16-01 AND CMAA SPEC. #74.
 - STAMP SERIAL NO. (PROJECT NO.) ON DECAL.

ISSUED FOR CONSTRUCTION

NAME Wilber Turcios DATE May.29.2013

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**ISSUED FOR
CONSTRUCTION**

NAME Wilber Turcios DATE Aug.24.2013

										DATE	MAY.24.13	SCALE	NTS	ENERFLEX INC. RENTAL WAUKESHA F18GS ARIEL JGJ/2-1 STD SWEET	ENERFLEX Calgary, Alberta, Canada	<div>⚠</div> <u>STRUCTURAL STEEL</u> CRANE RAILS FOR 3-TONNE (6613 LBS) CRANE			
								DRAWN BY	W.TURCIOS	CHECKED BY	K.OXFORD	APPROVED BY	A. YUEN						
								PROJECT MANAGER	BRIAN LANGER	PROJECT ENGINEER	ALLEN YUEN								
								CUST PO	P.O.										
1	TITLE BLOCK, DIMENSION UPDATED						AUG.24.13	W.T.	A.Y.										
0	ISSUED FOR CONSTRUCTION						MAY.29.13	W.T.	A.Y.										
REV	DESCRIPTION						DATE	BY	APR	APEGA PERMIT No: P8651		STEP CODE 415		WORK ORDER 42637		DWG NO 42637-CRANE		SHT 1	REV 1

HARRINGTON

HOISTS AND CRANES

Harrington Hoists, Inc.
401 West End Avenue
Manheim, PA 17545
Phone: (717) 665-2000

Harrington Hoists, Inc.
2341 Pomona Rd #103
Corona, CA 92880
Phone: (951) 279-7100

www.harringtonhoists.com

Certificate of Inspection and Test

Overhead Hoist

This certifies that the following Harrington product:

- Conforms to the latest version of ASME B30.16.
- Was thoroughly inspected.
- Was subjected to a load test in accordance with the latest version of ASME B30.16.

HARRINGTON HOISTS AND CRANES	
CF030	
3	TON CHAIN HOIST
LOT(MODEL)/SN:	
	15 FT. LIFT
CF402538009938	12 FT. H/C DROP
Product Code:	
	
CF030	MHH Test Date: 01/30/13

Load Applied: ☒ Not less than 125 % of rated capacity

Scott D Miller

Scott Miller
Quality Manager

Chris Hess

Chris Hess
Manager of Engineering