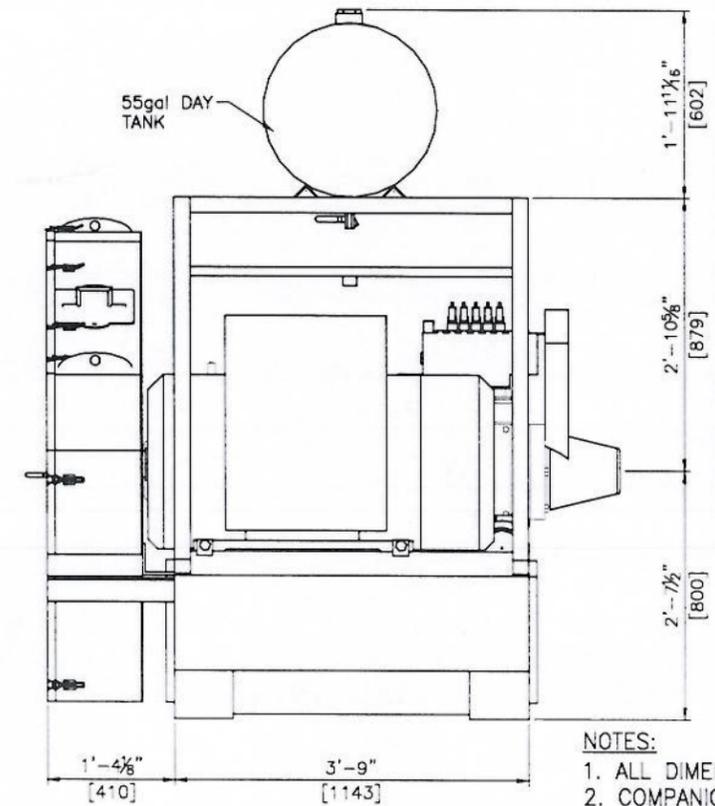
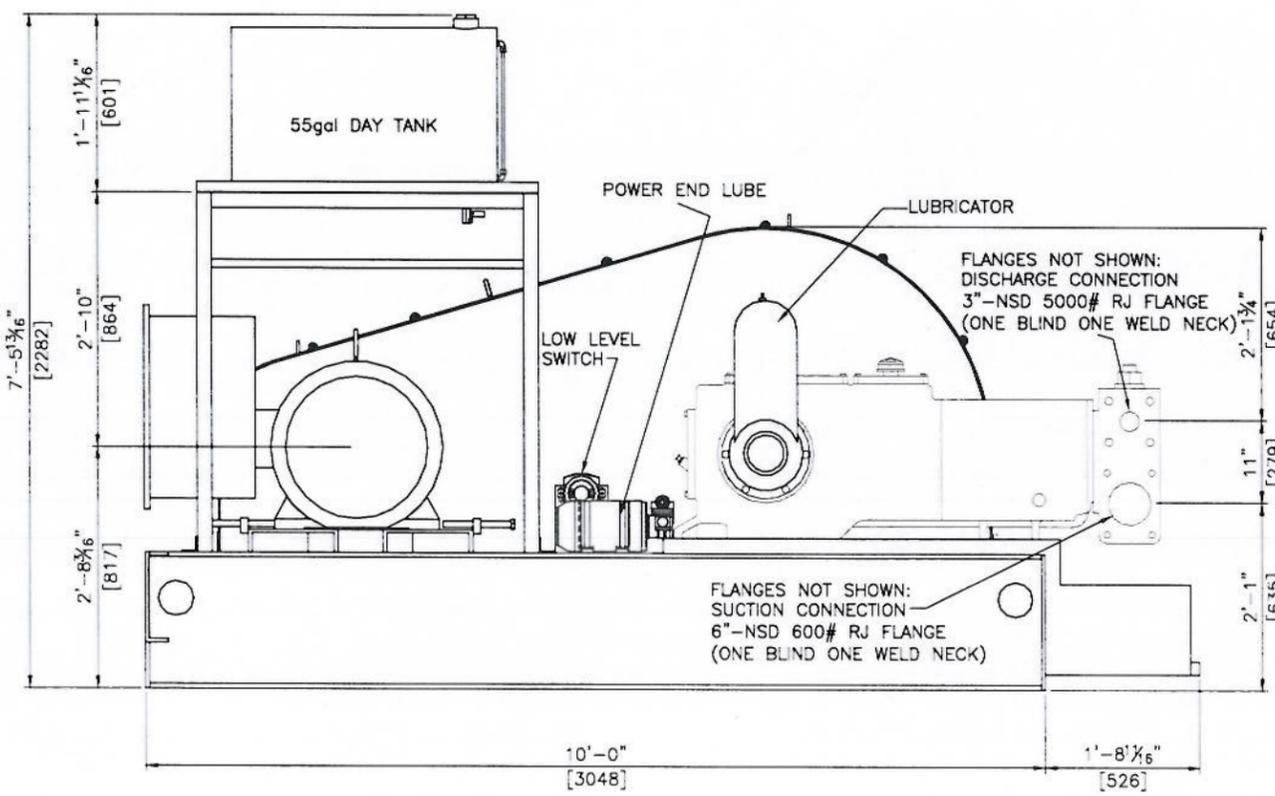


FLANGES NOT SHOWN:  
DISCHARGE CONNECTION  
3"-NSD 5000# RJ FLANGE  
(ONE BLIND ONE WELD NECK)

FLANGES NOT SHOWN:  
SUCTION CONNECTION  
6"-NSD 600# RJ FLANGE  
(ONE BLIND ONE WELD NECK)



NOTES:  
1. ALL DIMENSIONS ARE IN INCHES [mm] ( $\pm \frac{1}{16}$ )  
2. COMPANION FLANGES NOT SHOWN IN UNITIZATION LAYOUT DRAWINGS.  
SEE SEPARATE FLANGE DETAIL DRAWINGS FOR MORE INFO ON NSD FLANGES

Qty.	PUMP	
2	<b>NATIONAL OILWELL MODEL 300Q-5M QUINTUPLEX PLUNGER PUMP</b>	
	FLUID END:	NICKEL ALUMINUM BRONZE
	PLUNGER:	2.125" TUNGSTEN CARBIDE
	PACKING:	838 "U" UTEX PACKING
	VALVES:	NITRONIC 50 SPHERICAL VALVES WITH INCONEL VALVE SPRINGS
<b>DESIGN CONDITIONS</b>		
	FLUID:	CLEAN BOILER FEEDWATER
	TEMPERATURE:	5-80°C
	VISCOSITY:	0.35-1.52 cP
	H2S:	NONE
	SOLIDS:	MINIMAL
	CONTAMINANTS:	MINIMAL
	VOLUMETRIC EFFICIENCY:	95%
	MECHANICAL EFFICIENCY:	90%
	DISCHARGE PRESSURE:	2463 psig / 16982 kPag
	SUCTION PRESSURE:	3.63 psig / 25kPag
	NPSH:	21' @ 251 RPM WITH 2.125" PLUNGERS
	PLUNGER DIAMETER:	2.125" (Max. Working Pressure = 3000 psig)
	PUMPING RATE:	5.19-20.8m <sup>3</sup> /hr
	REQUIRED HP @ DESIGN POINT:	154 HP (SUPPLIED MOTOR IS 200 HP)
	DESIGN PUMP SPEED:	251 RPM (63% OF MAXIMUM PUMP SPEED)
	MAX. RATED PUMP SPEED:	400 RPM
<b>MOTOR</b>		
2	TECO WESTINGHOUSE IEE841 PREMIUM EFFICIENCY MODEL APH2006-841 200 HP, 1200 RPM, 449T FRAME, 3PH/60HZ/460V, TEFC ENCLOSURE SUITABLE FOR 10:1 CONSTANT TORQUE VFD APPLICATION CLASS I DIV II	
<b>V-BELT DRIVE</b>		
2	DRIVER SHEAVE	QD8/5V10.90
2	DRIVEN SHEAVE	QD8/5V50.00
4	BELTS	2-4/SVP2120 PREDATOR PO'WERBAND
2	DRIVER BUSHING	F 3-3/8
2	DRIVEN BUSHING	M 4-7/8
C.D. 54.63, 1.5 SF BASED ON 200HP, BELT DEFLECTION= 0.80" @ 22-24lbf		
<b>ACCESSORIES</b>		
2	FLUID END DRIP TRAY FOR THE NATIONAL OILWELL PUMP SKID	
2	PLUNGER PACKING LUBRICATOR SYSTEM	
2	METRIX VIBRATION TRANSMITTER MODEL #: ST5484E-121-020-00	
2	MURPHY COMBINATION LIQUID LEVEL GAUGE AND LOW LEVEL SWITCH MODEL #: EL-150-EX COORSTEK SUCTION DAMPENERS, MODEL NUMBER T-1506-F-HNBR, 600 CUBIC INCH HNBR BLADDER 6.0" ANSI 150# FLANGE (RATED FOR A MAX PRESSURE OF 150 PSI) INTERNALLY COATED WITH SCOTCH KOTE 134, C/W CRN REGISTRATION NUMBER TO BE SUPPLIED BY OTHERS	
2	COORSTEK DISCHARGE DAMPENERS, MODEL NUMBER T-35403-F-HNBR, 600 CUBIC INCH HNBR BLADDER 3.0" ANSI 1500# FLANGE (RATED FOR A MAX PRESSURE OF 3540 PSI) INTERNALLY COATED WITH SCOTCH KOTE 134, C/W CRN REGISTRATION NUMBER TO BE SUPPLIED BY OTHERS	
2	KENCO OR REN PLUNGER LUBRICATOR OIL SUPPLY SYSTEM INCLUDING LCE-9 AND 507L LEVEL CONTROLLERS	
2	ALBERTA STRAINER BFS150N-6, C/W CRN REGISTRATION	
<b>WEIGHT (lbs)</b>		
2	SKID	2450
2	MOTOR	2580
2	PUMP	6750
	TOTAL	11780
<b>OTHER</b>		
	PUMP TAG NUMBERS:	P-7010 UNIT 1 OR 2
	PUMP SERIAL NUMBERS:	TBA
	PUMP MOTOR TAG NUMBERS:	PV-7010 UNIT 1 OR 2



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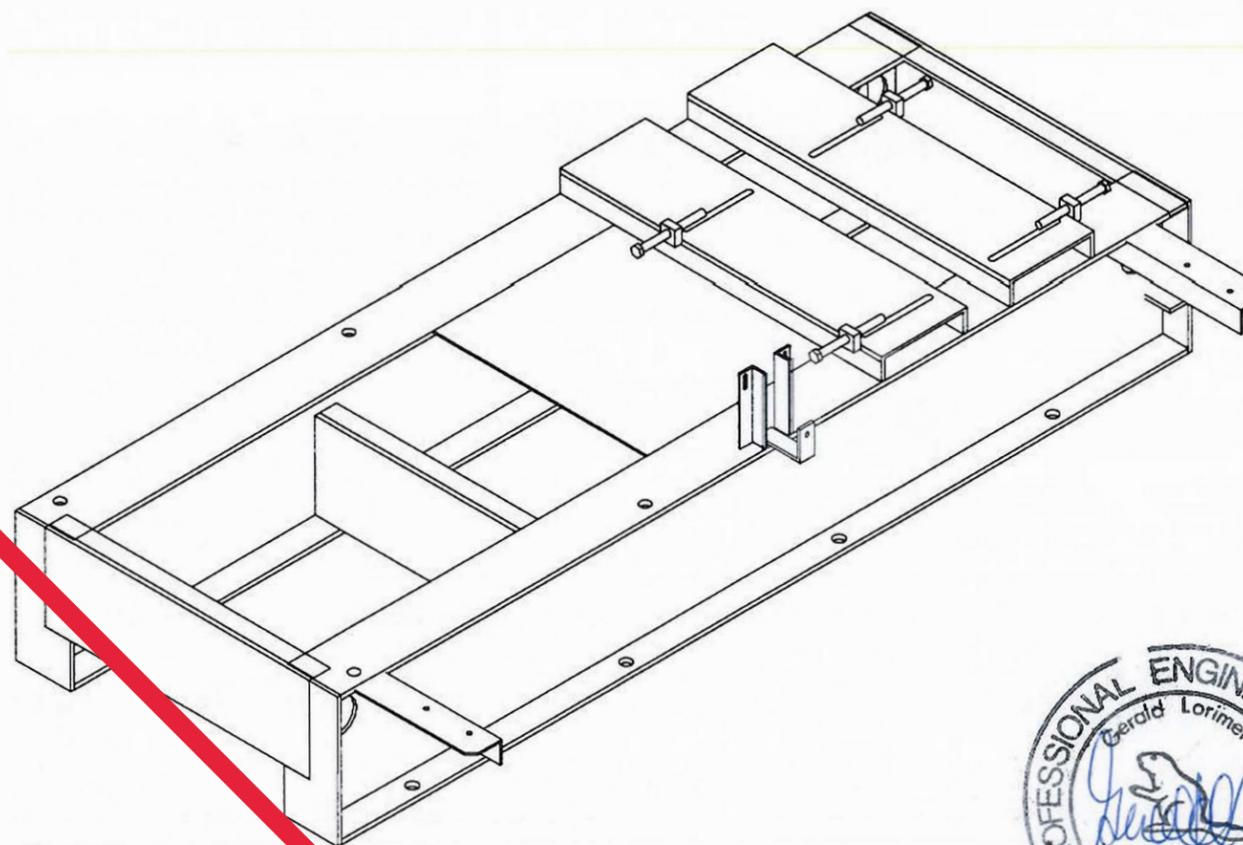
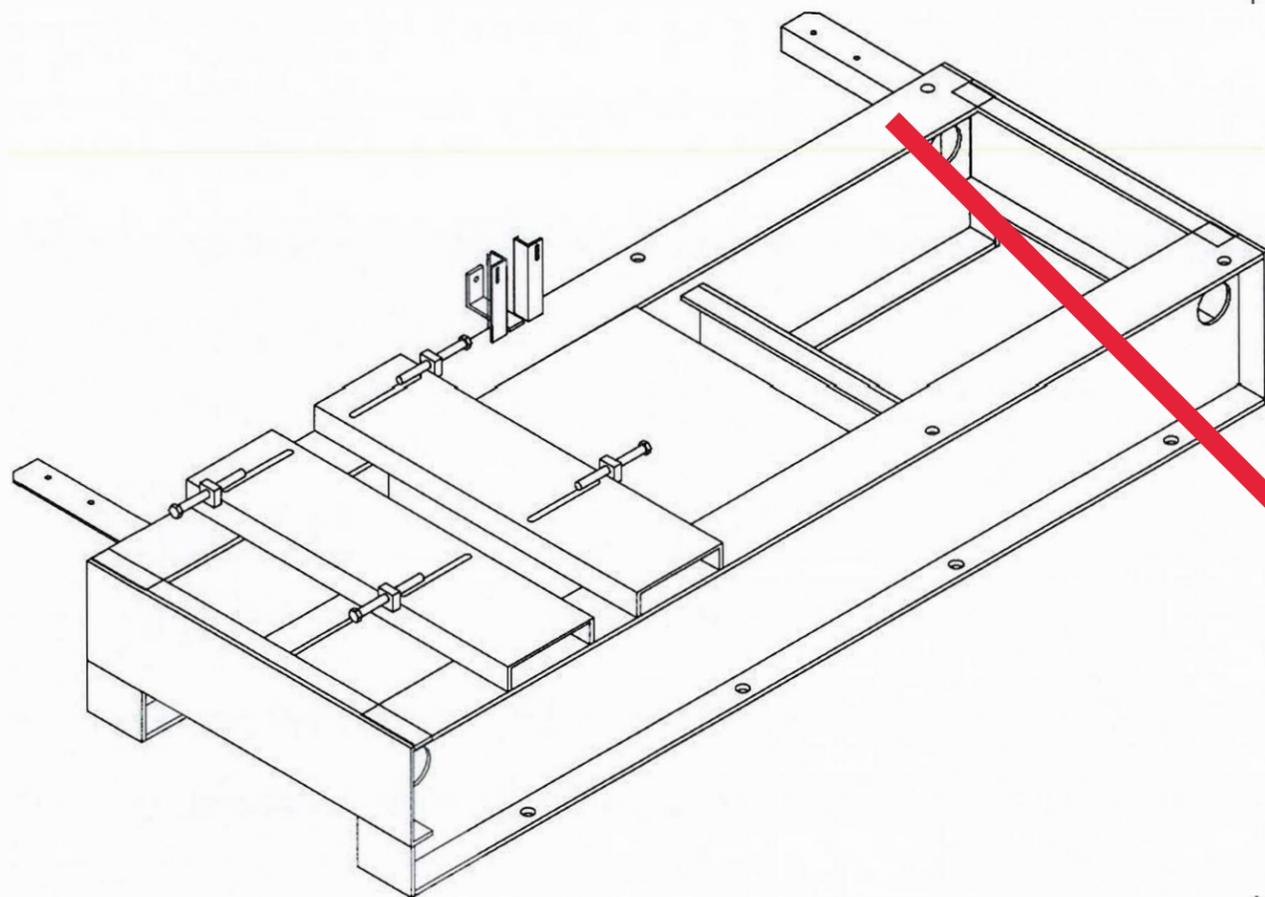
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**UNITIZATION LAYOUT ASSEMBLY**  
INNOVATIVE STEAM TECHNOLOGIES  
BOILER FEEDWATER PUMP  
300Q-5M REAR MOUNT LHD

QUOTE: 2012-334 JOB #: 27894 DRAWN: SAR DATE: 11/12/2012  
DRAWING N°: 2012-334-1 LSD: - REV: 3  
SHT: 1 of 7 SCALE: N.T.S.





June 7, 2013

**NOTES:**

1. USE SPREADER BARS AND SLINGS PLACED THROUGH LIFTING HOLES TO PICK UP SKID
2. UNITIZATION SKID SHOULD BE STITCH WELDED TO A MAIN SKID OR ANCHOR BOLTED DOWN TO SECURE PLACEMENT
3. UNITIZATION CAN BE PAD OR PILE MOUNTED. IT IS RECOMMENDED THAT PILES BE ALIGNED WITH ANCHOR BOLTS SHOULD THIS OPTION BE USED.

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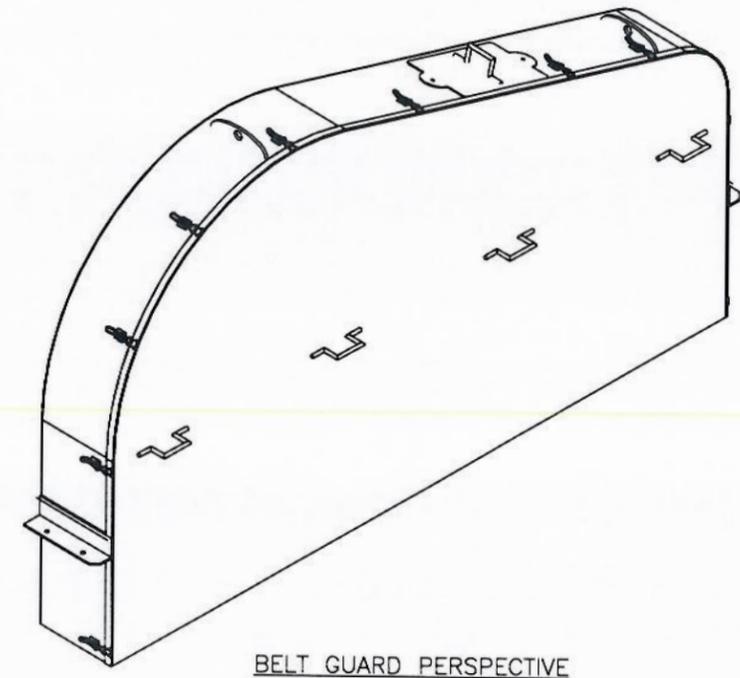
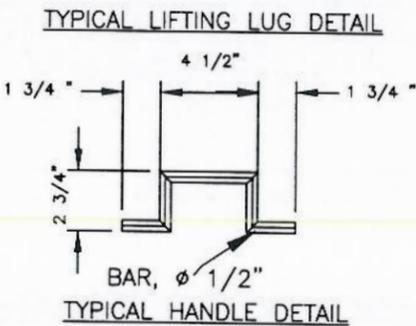
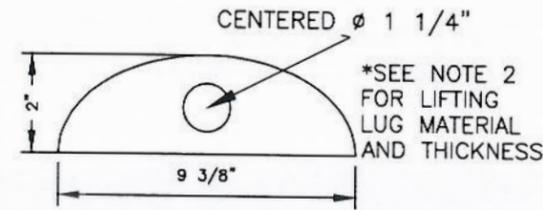
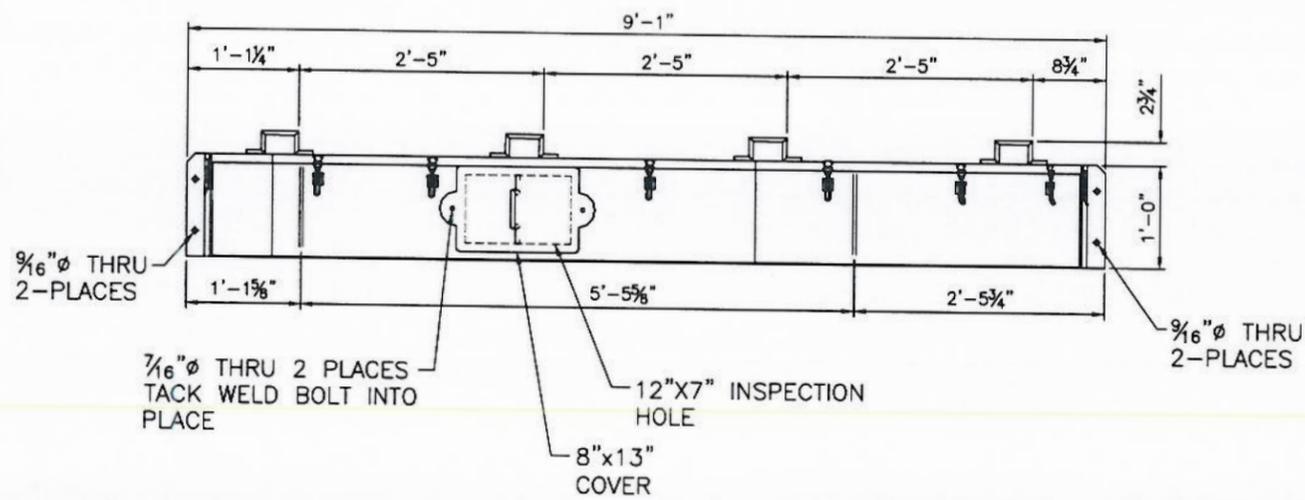


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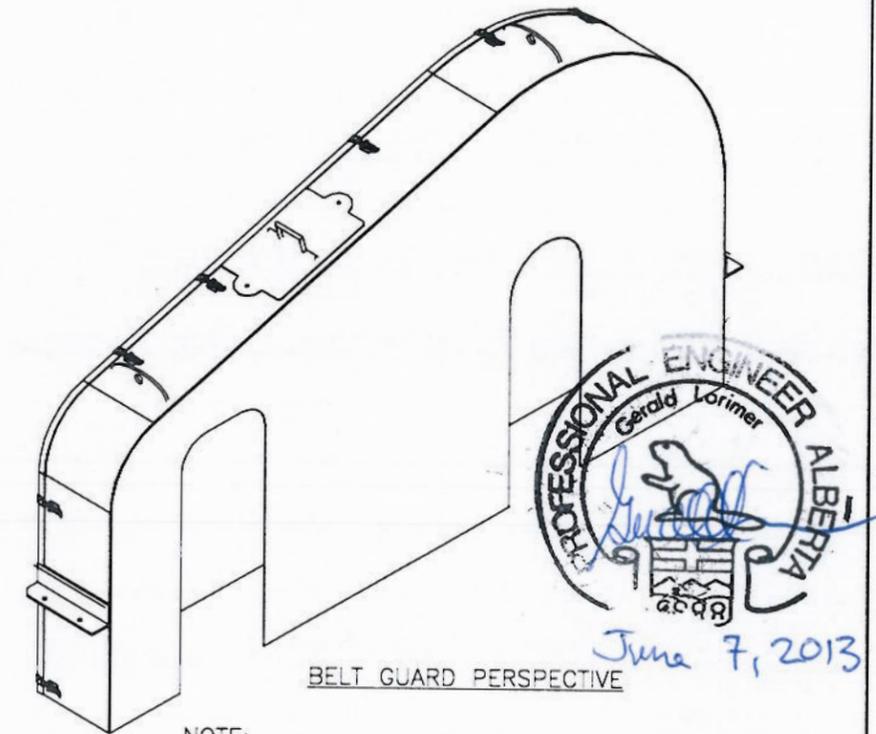
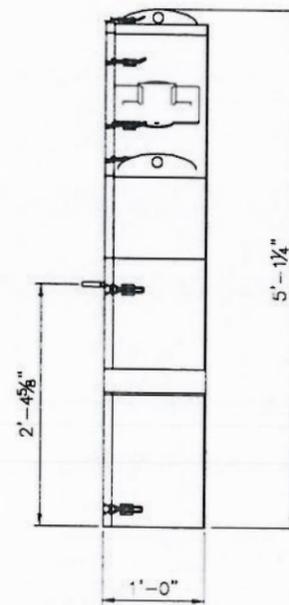
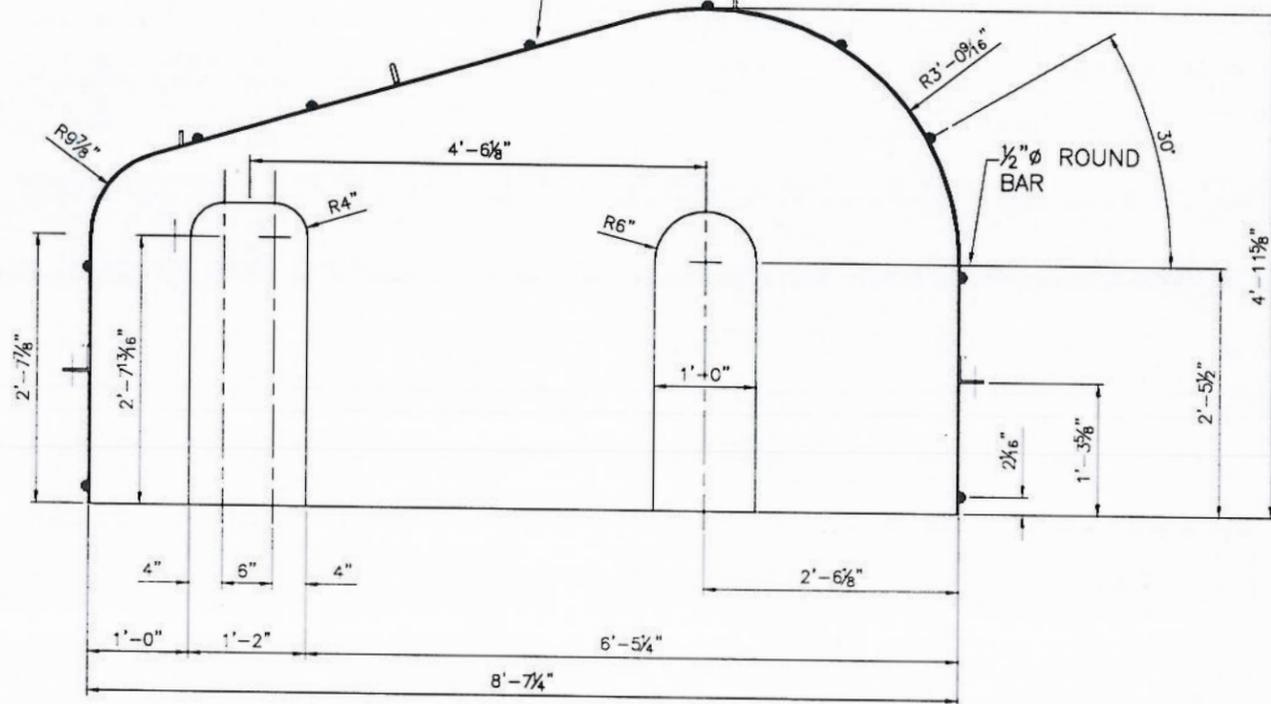
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**SKID ASSEMBLY VIEWS**  
INNOVATIVE STEAM TECHNOLOGIES  
BOILER FEEDWATER PUMP  
300Q-5M REAR MOUNT LHD

QUOTE: 2012-334 JOB: 27894 DRAWN: SAR DATE: 11/12/2012  
DRAWING N°: 2012-334-3 SHT: 3 of 7 SCALE: N.T.S. REV.: 3



FAUCHER #772-0544 (KEEPER PLATE) c/w  
 FAUCHER #772-1058 (DRAW CATCH)



NOTE:  
 1. BELT GUARD FABRICATED FROM 11 GAUGE PLATE.  
 2. LIFTING LUGS FABRICATED FROM 3/8" STEEL PLATE

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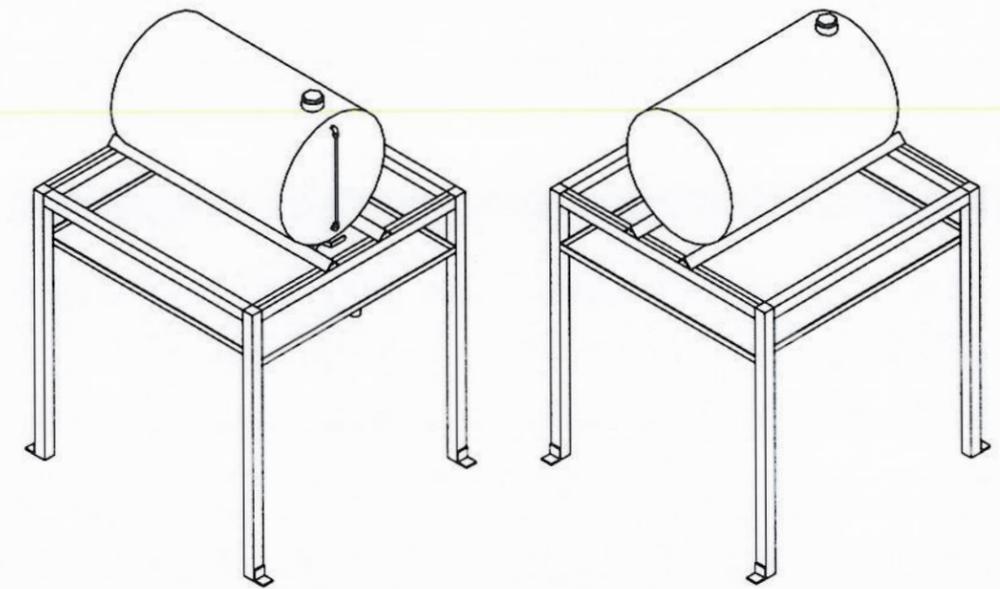
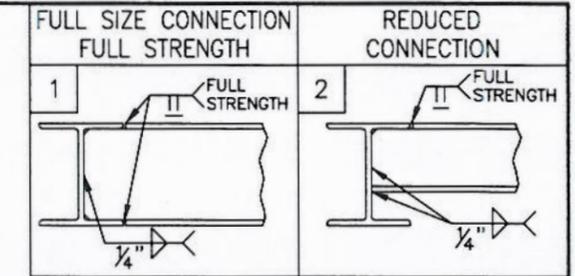
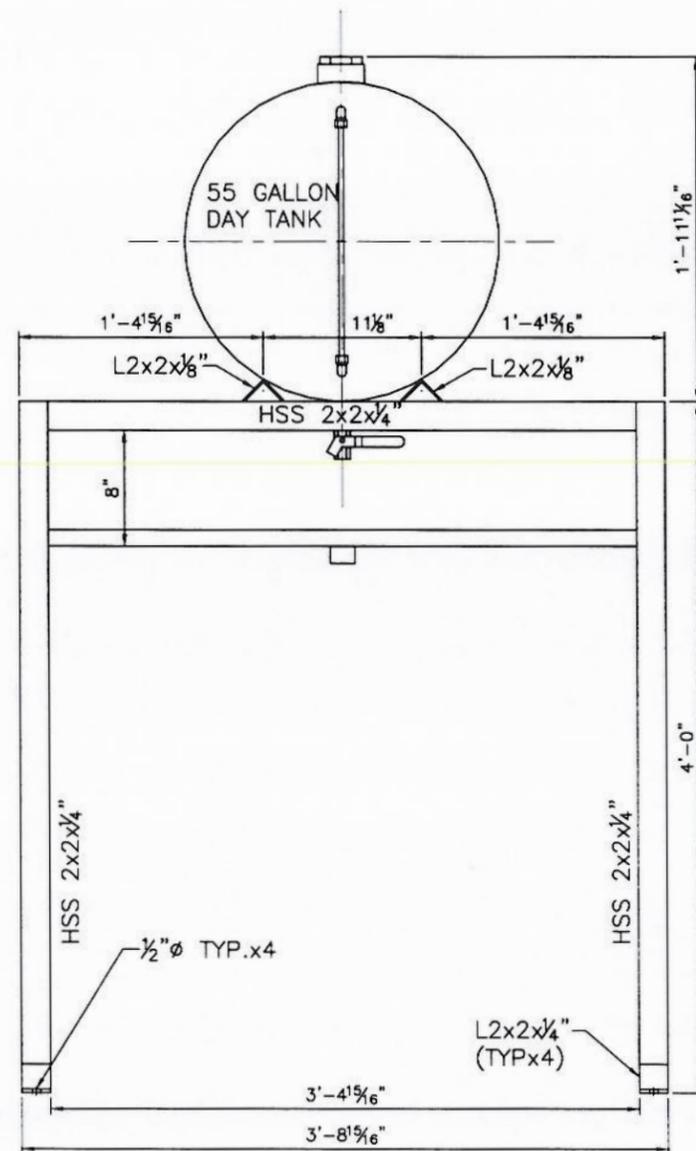
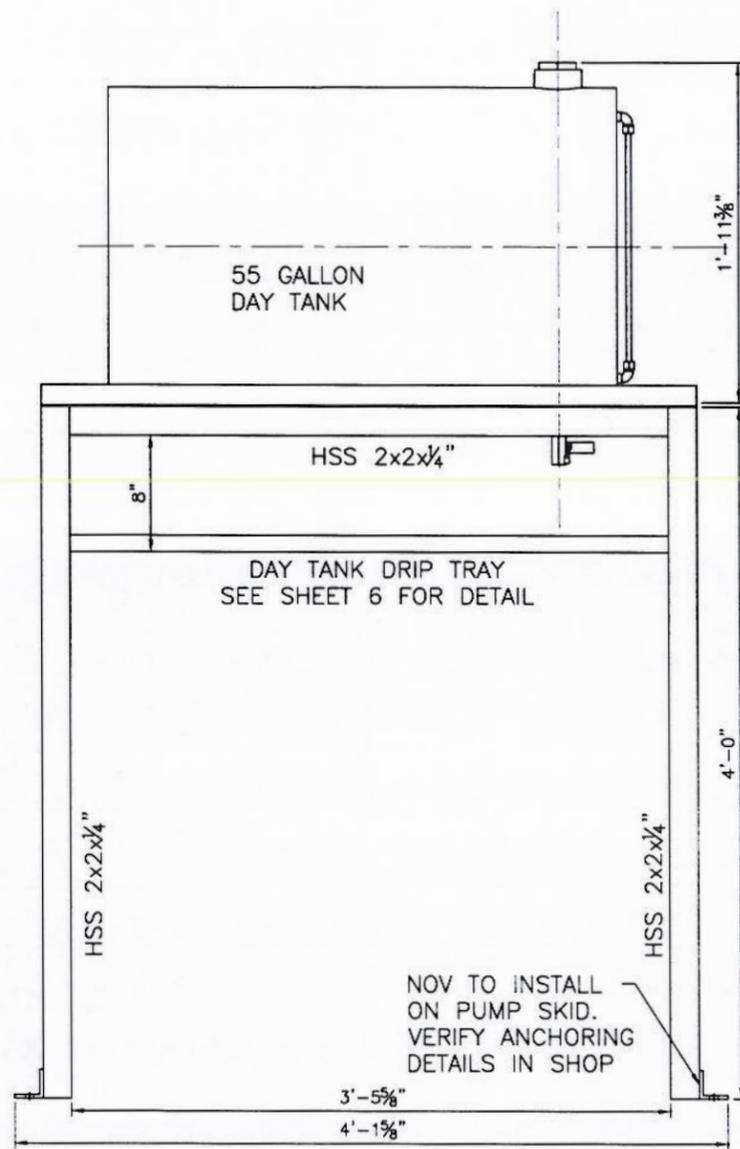
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**GAURD ASSEMBLY DETAILS**  
 INNOVATIVE STEAM TECHNOLOGIES  
 BOILER FEEDWATER PUMP  
 300Q-5M REAR MOUNT LHD

QUOTE: 2012-334 JOB #: 27894 DRAWN: SAR DATE: 11/12/2012  
 DRAWING N°: 2012-334-4 LSD: - REV.: 3  
 SHT.: 4 of 7 SCALE: N.T.S.



DAY TANK SUPPORT PERSPECTIVES



June 7, 2013

NOTES:

1. MATERIALS TO MEET REQUIREMENTS OF CSA G40.21.
2. ALL WELDS 1/4" FILLET UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS ARE IN INCHES [mm] (±1/16").
4. WELDS SHALL BE COMPLETE, CONTINUOUS, AND FREE OF POROSITY & FUSION DEFECTS OR DISCONTINUITIES:
  1. LARGER THAN 1/16"
  2. SPACED CLOSER THAN 3/4"

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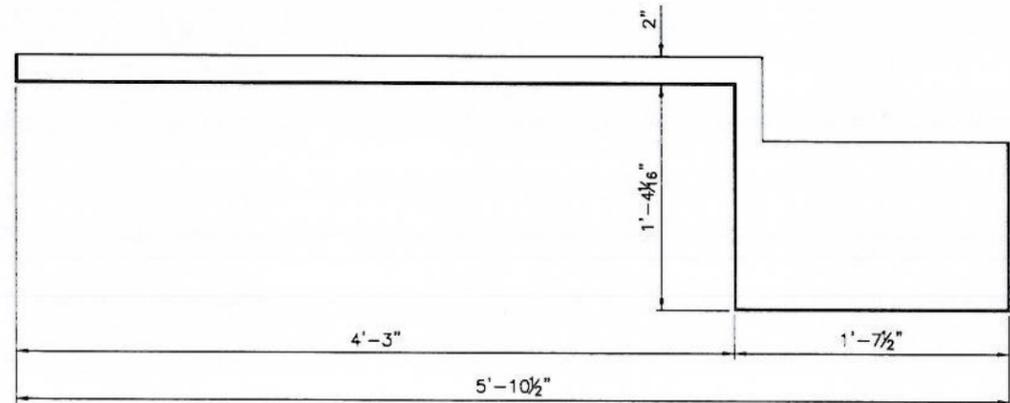
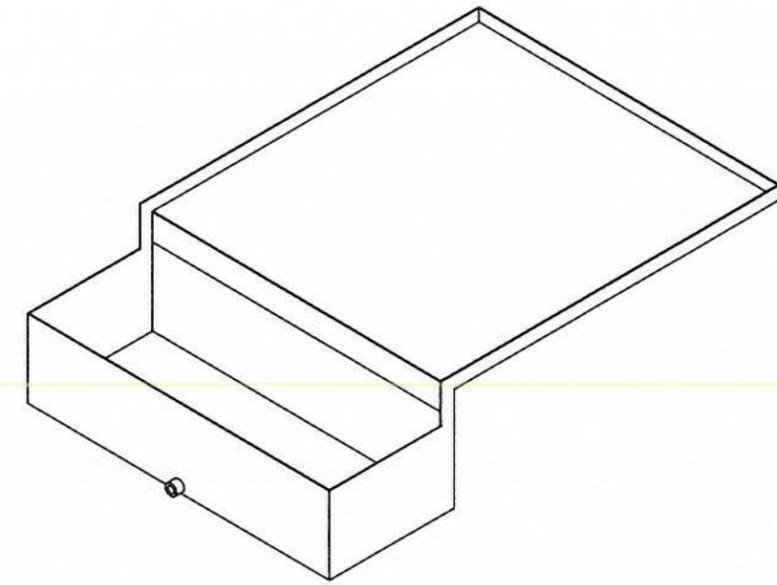
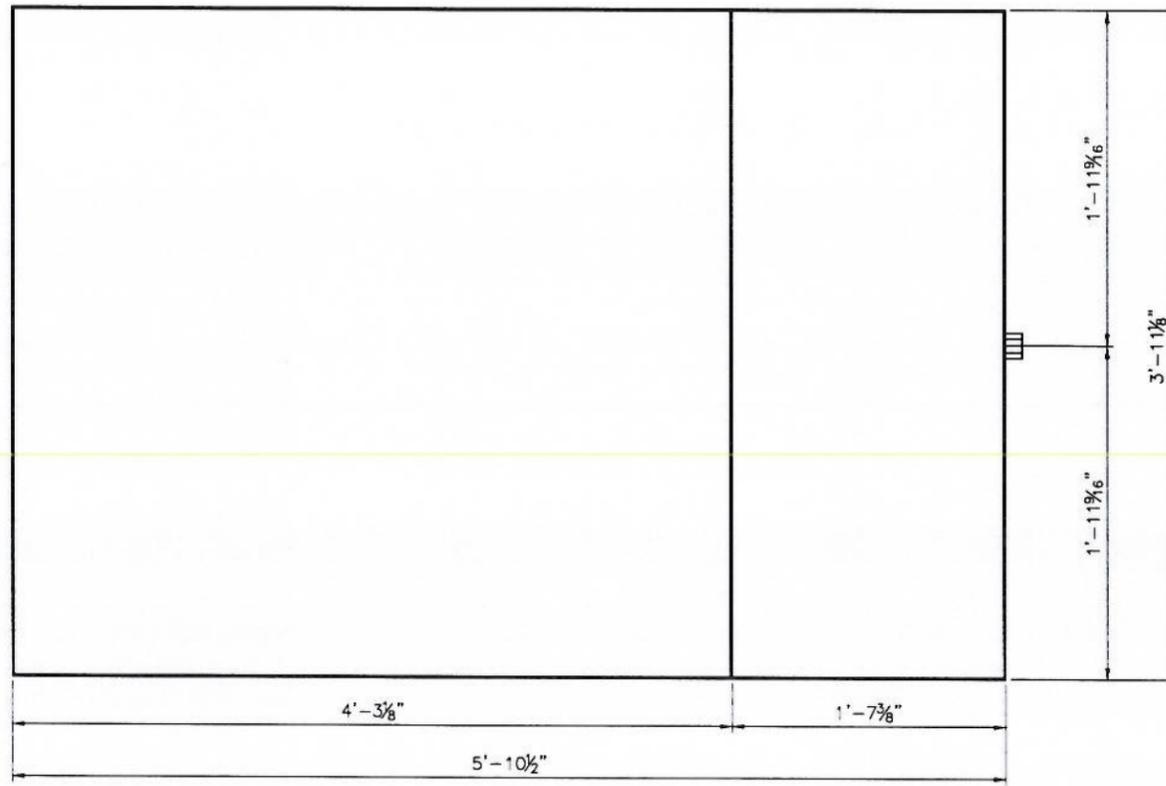


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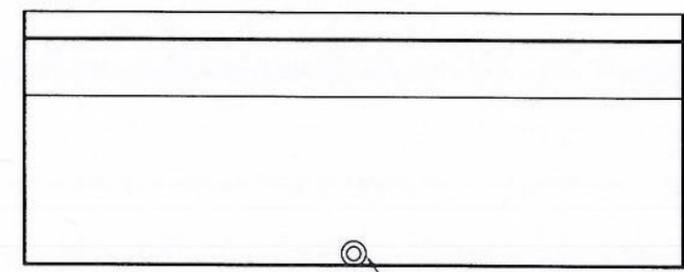
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**DAY TANK STAND DETAILS**  
INNOVATIVE STEAM TECHNOLOGIES  
BOILER FEEDWATER PUMP  
300Q-5M REAR MOUNT LHD

QUOTE: 2012-334	JOB #: 27894	DRAWN: SAR	DATE: 11/12/2012
DRAWING NO: 2012-334-5	LSD: -	REV: 3	SHT: 5 of 7 SCALE: N.T.S.



1" NPT HALF COUPLING  
c/w INTERNAL THREAD  
WELDED IN FLUSH  
WITH BOTTOM OF TRAY



1" NPT HALF COUPLING  
c/w INTERNAL THREAD  
WELDED IN FLUSH  
WITH BOTTOM OF TRAY



June 7, 2013

- NOTES:  
 1. MATERIAL 1/8" STEEL  
 2. DIMENSIONS IN INCHES [mm] ±1/16"

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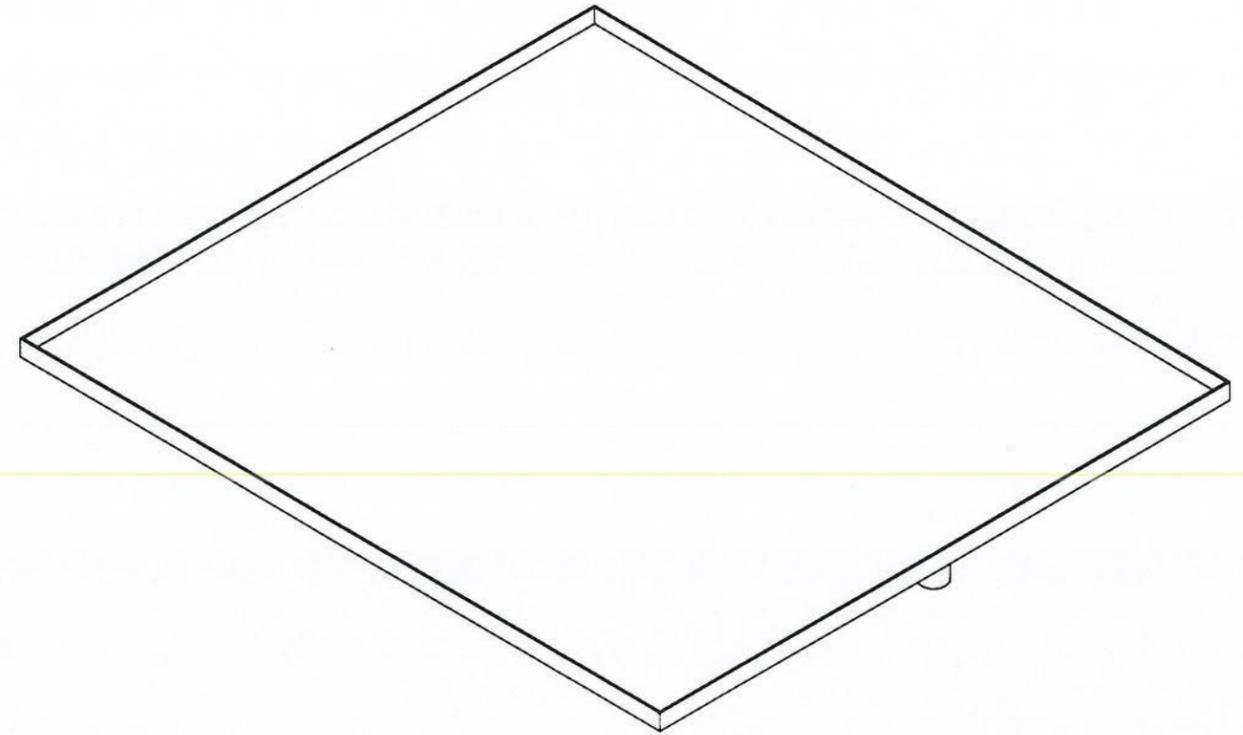
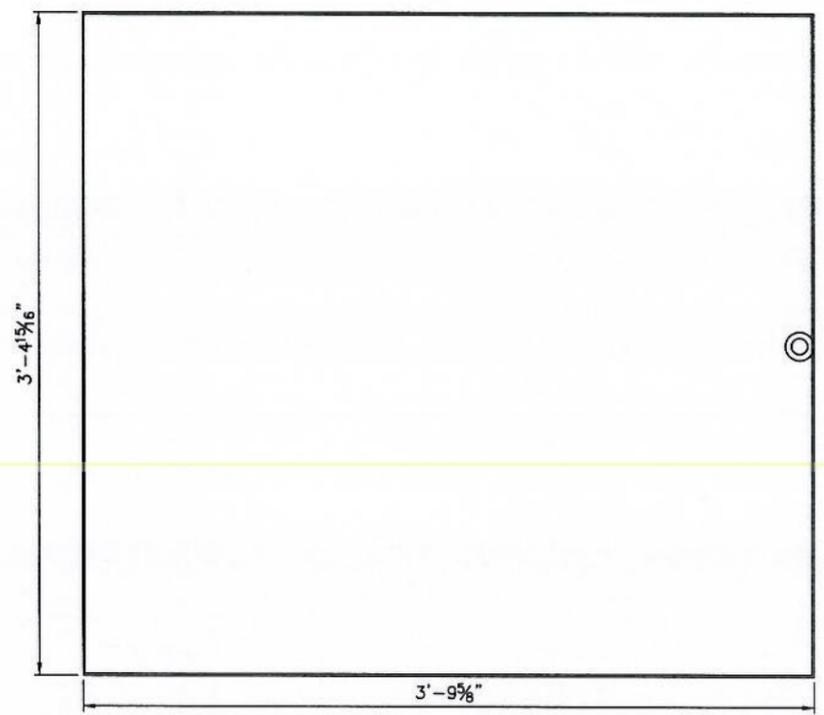
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**DRIP TRAY DETAILS**  
 INNOVATIVE STEAM TECHNOLOGIES  
 BOILER FEEDWATER PUMP  
 300Q-5M REAR MOUNT LHD

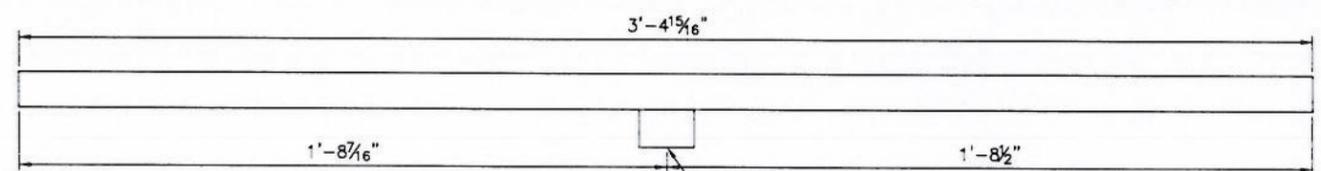
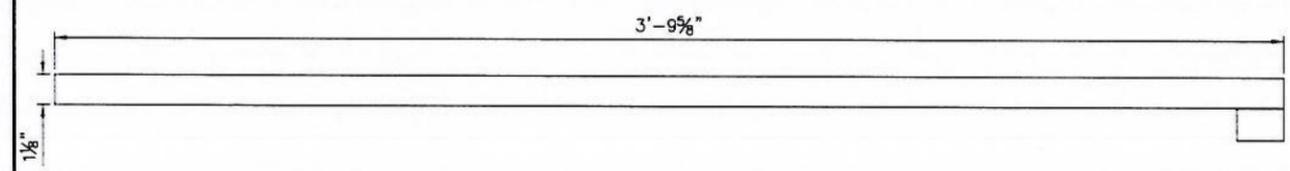
QUOTE: 2012-334    JOB #: 27894    DRAWN: SAR    DATE: 11/12/2012

DRAWING N°: 2012-334-6    LSD: -    REV.: 3

SHT.: 6 of 7    SCALE: N.T.S.



PROFESSIONAL ENGINEER ALBERTA  
 Gerald Lorimer  
  
 June 7, 2013



1" NPT HALF COUPLING  
 c/w INTERNAL THREAD  
 WELDED IN FLUSH  
 WITH EDGE OF TRAY  
 WILL BE PLUGGED UPON SHIPMENT

- NOTES:  
 1. MATERIAL 1/8" STEEL  
 2. DIMENSIONS IN INCHES [mm] ±1/16"

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**DAY TANK DRIP TRAY DETAILS**  
 INNOVATIVE STEAM TECHNOLOGIES  
 BOILER FEEDWATER PUMP  
 300Q-5M REAR MOUNT LHD

QUOTE: 2012-334    JOB #: 27894    DRAWN: SAR    DATE: 11/12/2012

DRAWING N°: 2012-334-7    LSD: -    REV.: 3

SHT.: 7 of 7    SCALE: N.T.S.