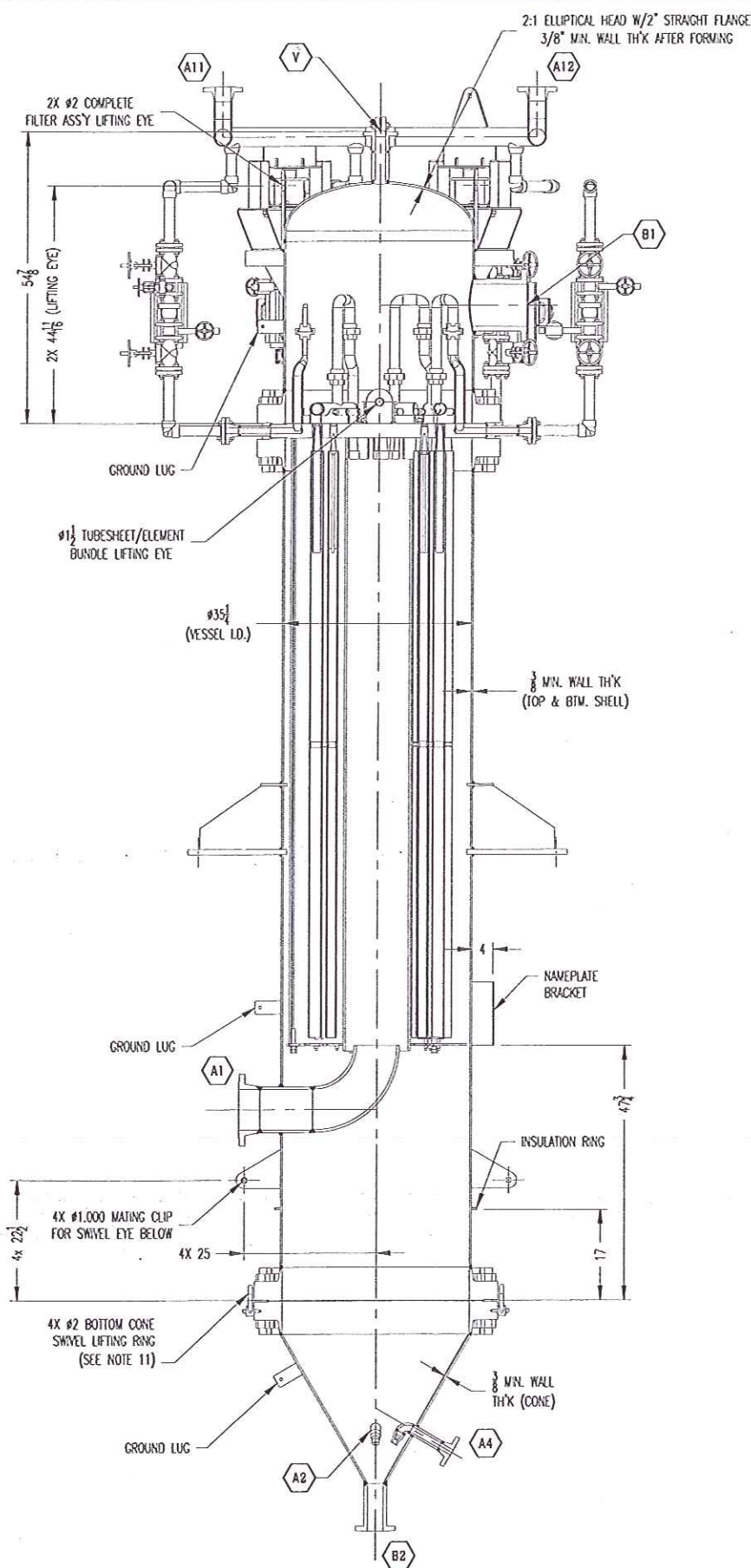
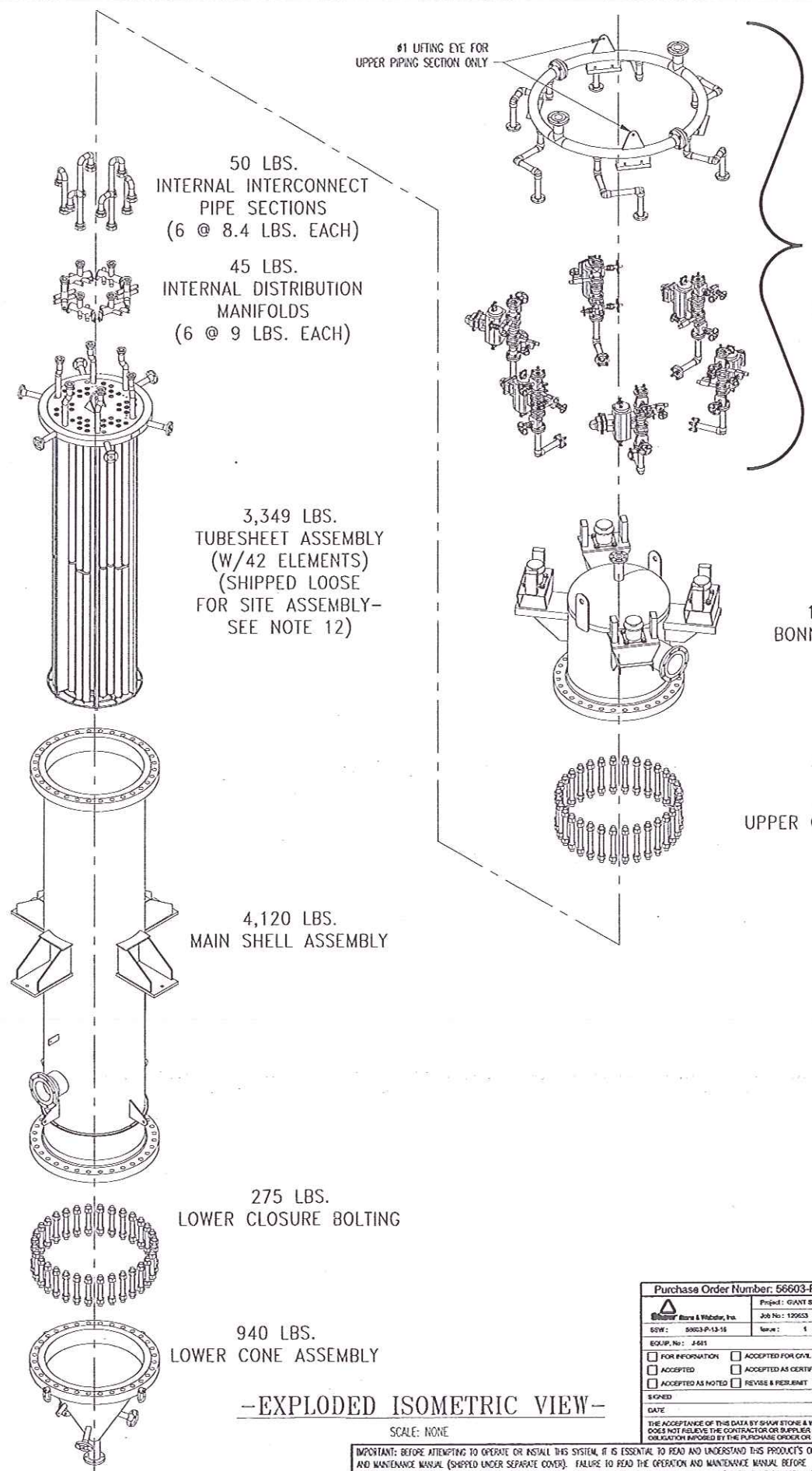


#105781

SEE SHEET 1 FOR REVISIONS



-FULL SECTION-
(SOME ITEMS SHOWN ROTATED/REMOVED FOR CLARITY)
SCALE: 1/15



-EXPLODED ISOMETRIC VIEW-

SCALE: NONE

IMPORTANT: BEFORE ATTEMPTING TO OPERATE OR INSTALL THIS SYSTEM, IT IS ESSENTIAL TO READ AND UNDERSTAND THIS PRODUCT'S OPERATION AND MAINTENANCE MANUAL (SHIPPED UNDER SEPARATE COVER). FAILURE TO READ THE OPERATION AND MAINTENANCE MANUAL BEFORE ATTEMPTING TO OPERATE ANY PALL CORPORATION EQUIPMENT MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE, AND MAY VOID ANY AND/OR ALL WARRANTIES.

1,700 LBS.
EXTERNAL BLOWBACK
PIPING MANIFOLD
(SHIPPED LOOSE
FOR SITE ASSEMBLY-
SEE NOTE 12)

1,970 LBS.
BONNET ASSEMBLY

FABRICATOR NOTE:
DRILL MATING BOLT HOLES AT ASSEMBLY,
USE WASHERS TO SHW AS REQUIRED

325 LBS.
UPPER CLOSURE BOLTING

Purchase Order Number: 56603-P-13-16

Project: GIANT S 2048	DATE: 11/02/06
Job No: 100000	Rev: 1
Equip. No: J-681	
FOR INFORMATION	ACCEPTED FOR CIVIL & PIPING ETC
ACCEPTED	ACCEPTED AS CERTIFIED
ACCEPTED AS NOTED	REVISE & PERMIT
SIGNED	
DATE	

CODE IDENT. NO. 17238	NAME	DATE
PROJECT ENGINEER	E. JAMES	11/02/06
ENGINEER		
ENGINEER		
ENGINEER		
CHECKER	D. COOK	06/02/06

UNLESS OTHERWISE SPECIFIED, THE FOLLOWING DIMENSIONS PERTAIN ONLY TO THIS SHEET			
DIMENSIONS ARE IN INCHES ONLY			
SIZE	FRAC	1/4	
1/2			
3/4			

PALL Pall Corporation	
© Pall Advanced Separations Systems Cortland, New York	
SHIPPING NUMBER	REASON
10000011095	02
TAG # J-681 D-COK/GIANT YORKTOWN PROJECT	
SCALE	SHEET 2 OF 3
AS NOTED	

03.00143, REGENERATOR FILTER ASS'Y J-681
TAG # J-681 D-COK/GIANT YORKTOWN PROJECT

THIRD ANGLE
PROJECTION

DESIGN CONDITIONS:
 DESIGN CODE: 2004 ASME CODE, SECTION VII, DIVISION 1 WITH 2006 ADDENDA
 CODE STAMP: YES
 NATIONAL BOARD REGISTRATION: YES
 TYPE OF SERVICE: NON-LETHAL
 DESIGN PRESSURE: 50 PSIG (INTERNAL)
 DESIGN TEMPERATURE: 500F (INTERNAL)
 MINIMUM DESIGN METAL TEMPERATURE: 0F
 CORROSION ALLOWANCE: 0.125 IN.
 DESIGN DIFFERENTIAL PRESSURE ACROSS TUBESHEET: 50 PSD MAX.
 MAXIMUM ALLOWABLE WORKING PRESSURE (MAWP): 170 PSIG @ 500F, LIMITED BY NOZZLE FLANGES (FLANGE RATING FOR 150#)
 MAXIMUM ALLOWABLE PRESSURE, NEW & COLD (MAPNC): 285 PSIG (100F FLANGE RATING)
 HYDROSTATIC TEST PRESSURE: 221 PSIG @ 60F (SHOP) WITH 50 PPM (MAXIMUM) CHLORIDE CONTENT WATER $\{1.3 \times \text{MAWP} \times \text{Ssteel} / \text{Sdesign}\}$
 RADIOGRAPHY: RTI FULL
 ULTRASONIC INSPECTION (UT): NONE
 LIQUID PENETRANT INSPECTION (PT): FILTER ELEMENTS TO TUBESHEET WELDS. SEE NOTE #15
 MAGNETIC PARTICLE INSPECTION (MT): SEE NOTE #15
 HARDNESS TESTS: PER APPENDIX 'O' OF SPECIFICATION PS-U-086.
 PMI: NONE
 IMPACT TEST: NONE
 PREHEAT: PER APPENDIX L OF SPECIFICATION PS-U-086.
 POST WELD HEAT TREATMENT: NONE
 INSULATION: 2" FOR HEAT CONSERVATION (BY OTHERS)
 EMPTY VESSEL VOLUME: 127 FT³

1. ALL NOZZLE FLANGE BOLT HOLES TO STRADDLE PRINCIPAL CENTERLINES.
2. ALL SEALING SURFACES TO BE PROTECTED FROM DAMAGE DURING FABRICATION WITH DUCT TAPE, AS A MINIMUM.
3. DO NOT OVERLAP WELD METAL OVER ONTO GASKET SEALING SURFACES.
4. TUBESHEET ASSEMBLY SHALL BE FUNCTIONALLY CHECKED FOR FITUP BY INSTALLATION INTO THE MATING FLIGHT VESSEL AND EXTERNAL BLOWBACK GAS MANFOLD.
5. SURFACE PREPARATION:
ALL SURFACES TO BE FREE OF ALL PAINT, MARKER, DYES, ADHESIVES AND OTHER FABRICATION MARKINGS. WIRE BRUSH ALL WELDS TO REMOVE WELD SPATTER AND DISCOLORATION FROM HEAT EFFECTED AREAS.
6. BREAK AND DEBURR ALL SHARP EDGES AND CORNERS.
7. DISTRIBUTION MANFOLD HOLES TO BE MARKED AND DRILLED (0.297" DIA.) USING ELEMENT HOLES AS A GUIDE. HOLES TO BE LOCATED WITHIN 0.03" OF ELEMENT HOLE CENTERS. SEE ALSO NOTE #14.
8. TUBESHEET ASSEMBLY TO BE LIFTED VERTICALLY, BY MEANS OF LIFTING LUG PROVIDED. TO TRANSFER TUBESHEET ASSEMBLY FROM A VERTICAL TO HORIZONTAL POSITION (FOR PACKAGING/SHIPMENT AND ERECTION AT SITE), USE THE LIFTING EYE PROVIDED AND PIVOT THE BASE ON TWO (2) OF THE FEET (ITEM 10). AVOID ANY CONTACT WITH UPPER MANFOLD PIPING OR FILTER ELEMENTS.
9. DO NOT USE TUBESHEET NOZZLES OR MANFOLD PIPING FOR LIFTING PURPOSES.
10. DO NOT USE TUBESHEET NOZZLES OR MANFOLD PIPING TO SUPPORT TUBESHEET ASSEMBLY HORIZONTALLY, FOR PACKAGING/SHIPPING. BLOCK AND CHOCK TUBESHEET DISC AND BOTTOM GUIDE PLATE DISC ONLY.
11. MATCH MARK ALL TUBESHEET NOZZLES AND DISTRIBUTION SECTION LOCATIONS AT FINAL ASSEMBLY. MATCH MARK THE TUBESHEET NOZZLES ('A5' THROUGH 'A10') AND THEIR RESPECTIVE PIPING SECTIONS AND DISTRIBUTION MANFOLDS AT FINAL ASSEMBLY.
12. MACHINED SURFACES SUCH AS FLANGE FACES, BOLTS, NUTS, STUDS, AND THREADED COUPLINGS SHALL BE COATED WITH RUST PREVENTIVE, EQUAL TO RUST-BAN 335.
13. ELEMENTS TO TUBESHEET WELDS SHALL BE PERFORMED IN ONE PASS. CARE MUST BE TAKEN WHEN PERFORMING THE LIQUID PENETRANT TEST, TO AVOID ANY FT MATERIALS CONTAMINATING THE INSIDE OR OUTSIDE OF THE FILTER ELEMENTS.
14. TUBESHEET HYDROTEST TO BE PERFORMED PRIOR TO WELDING IN THE ELEMENTS & WITHOUT INTERNAL MANFOLDS IN PLACE. INTERNAL MANFOLDS TO BE TESTED WITH 15 PSIG AIR & SOAP SOLUTION. ORIFICE HOLES IN THE MANFOLDS TO BE DRILLED AFTER THE COMPLETION OF AIR TEST.
15. PT OR MT: 100% ON NOZZLES TO TUBESHEET WELDS. IF ARC STRIKES ON PRESSURE PART OCCURS, THE SURFACE SHALL BE PROPERLY CONDITIONED AND RE-EXAMINED WITH MT OR PT.
16. MAJOR MATERIALS OF FABRICATION SHALL ORIGINATE ONLY FROM USA, CANADA, WESTERN EUROPE, OR JAPAN.
17. ALL NDE PERSONNEL (INCLUDING THOSE INTERPRETING AND REPORTING RESULTS) SHALL BE QUALIFIED IN ACCORDANCE WITH ASNT RECOMMENDED PRACTICE NO. SNT-1C-1A.
18. MATERIAL INSPECTION REQUIREMENTS (CERTIFIED MILL TEST REPORTS, CERTIFICATE OF COMPLIANCE, ETC.) SHALL FOLLOW THE REQUIREMENTS OF SECTION 1.5 OF SPECIFICATION PS-H-003.
19. ALL FLANGE AND TUBESHEET SEALING SURFACES SHALL HAVE 125-250 MICRO-INCH SURFACE FINISH.
20. FLANGED OPENINGS SHALL BE COVERED WITH FULL SIZE 1/2" THICK WOOD WITH RUBBER GASKETS AND MINIMUM OF 4 BOLTS. ALL PREPARATION OF SHIPMENT REQUIREMENTS PER SECTION 7 OF SPECIFICATION PS-H-A003 SHALL BE FOLLOWED.

ESTIMATED WEIGHTS:

TUBESHEET ASSEMBLY LESS ELEMENTS:	2,767 LBS.
TUBESHEET ASSEMBLY WITH (42) ELEMENTS:	3,349 LBS.

[illegible]

DESIGN CONDITIONS (VESSEL & TUBESHEET):
DESIGN CODE: 2004 ASME CODE, SECTION VIII, DIVISION 1 WITH 2006 ADDENDA
CODE STAMP: YES
NATIONAL BOARD REGISTRATION: YES
TYPE OF SERVICE: NON-LETHAL
DESIGN PRESSURE: 50 PSIG (INTERNAL)
DESIGN TEMPERATURE: 500°F (INTERNAL)
MAXIMUM DESIGN METAL TEMPERATURE: 0°F
CORROSION ALLOWANCE: 0.125 IN.
DESIGN DIFFERENTIAL PRESSURE ACROSS TUBESHEET: 50 PSD MAX.
MAXIMUM ALLOWABLE WORKING PRESSURE (MAWP): 170 PSIG @ 500°F, LIMITED BY NOZZLE FLANGES (FLANGE RATING FOR 150#)
MAXIMUM ALLOWABLE PRESSURE, NEW & COLD (MAFNC): 285 PSIG (100°F FLANGE RATING)
HYDROSTATIC TEST PRESSURE: 221 PSIG @ 60°F (SHOP) WITH 50 PPM (MAXIMUM) CHLORIDE CONTENT WATER (1.3 x MAWP x S_{test} / S_{design})
RADIOGRAPHY:
ULTRASONIC INSPECTION (UI): } SEE PALL'S INSPECTION AND TEST PLAN FOR DETAILS
LIQUID PENETRANT INSPECTION (PI): }
MAGNETIC PARTICLE INSPECTION (MT): }
HARDNESS TESTS: PER APPENDIX 'Q' OF SPECIFICATION PS-U-086.
PWI: NONE
IMPACT TEST: NONE
PREHEAT: PER APPENDIX L OF SPECIFICATION PS-U-086.
POST WELD HEAT TREATMENT: NONE
INSULATION: 2" FOR HEAT CONSERVATION (BY OTHERS)
EMPTY VESSEL VOLUME: 127 FT³

DESIGN CONDITIONS (EXTERNAL MANIFOLD & PIPING):
DESIGN CODE: ASME B31.3-2004 EDITION
DESIGN PRESSURE: 95 PSIG (INTERNAL)
DESIGN TEMPERATURE: 500°F (INTERNAL)
HYDROSTATIC TEST PRESSURE: 171 PSIG @ 60°F (SHOP)
PIPE CLASS: STONE & WEBSTER PIPE CLASS #A33A
NDE: PER ASME B31.3
INSULATION: 1-1/2" FOR HEAT CONSERVATION AND PERSONNEL PROTECTION. ALL FLANGES ARE NOT INSULATED. (BY OTHERS)

CUSTOMER CONNECTION SCHEDULE:
A1 - PROCESS GAS INLET, 8 INCH ASME B16.5 CLASS 150 LB. (SCH. XS BORE), RF WN FLANGE
A2 THRU A4 - AERATION GAS SUPPLY, 1-1/2 INCH ASME B16.5 CLASS 300 LB. (SCH. XXS BORE), RF WN FLANGE
A11 - BLOWBACK GAS SUPPLY, 3 INCH ASME B16.5 CLASS 150 LB. (SCH. STD. BORE), RF WN FLANGE
A12 - BLOWBACK GAS M/N FLOW, 3 INCH ASME B16.5 CLASS 150 LB. (SCH. STD. BORE), RF WN FLANGE
B1 - PROCESS GAS OUTLET, 8 INCH ASME B16.5 CLASS 150 LB., RF LWN FLANGE
B2 - SOLIDS OUTLET, 3 INCH ASME B16.5 CLASS 150 LB., RF LWN FLANGE
V - VENT COWL, 2 INCH ASME B16.5 CLASS 300 LB., RF LWN FLANGE

MATERIALS OF CONSTRUCTION:
PLATES (PRESSURE BOUNDARY): SA516 GR 70
PLATES (NON-PRESSURE BOUNDARY): SA516 GR 70
NOZZLE FORGINGS & FLANGES: SA105
TUBESHEET: SA105/SA516 GR70
GASKETS (BODY FLANGES): KAMMPROFILE 316 SST WITH GRAPHITE FACING AND NON-INTEGRAL (FLOATING) OUTER CENTERING RING, FLEXITALUC "FLEXPRO" OR EQUAL (GASKET FACTORS M=2.0 AND Y=2,500 PSIG).
BOLTS & NUTS: SA193 GR B7 / SA194 GR 2H
EXTERNAL MANIFOLD PIPING: ASTM A106 GR B
EXTERNAL MANIFOLD FITTINGS: ASTM A105 / A234 GR WPB
INTERNAL: SA516 GR 70 / SA106 GR B
ELEMENTS: 316L POROUS MEDIA W/316L SST HARDWARE

PAINTING:
EXTERIOR SURFACES: NO SURFACE PREPARATION OR PAINTING IS REQUIRED FOR INSULATED AREAS INCLUDING EXTERNAL PIPING/MANIFOLDS, NOZZLES, CLIPS, ETC. PROTRUDING FROM INSULATION SHALL COMPLY WITH THE FOLLOWING: SURFACE PREPARATION PER SSPC-SP-10; 0.75-1.0 MILS EACH OF HIGH TEMPERATURE SILICONE PRIME COAT AND FINISH COAT (1.5-2.0 MILS DFT TOTAL).
INTERIOR SURFACES: UNMACHINED AND NON-SEALING SURFACES, SOLVENT CLEAN PER SSPC SP-1.
MACHINED AND SEALING SURFACES, NONE.

ESTIMATED WEIGHTS:
1. FILTER HOUSING (AS FABRICATED): 7,630 LBS
2. FILTER HOUSING DURING HYDROTEST (WEIGHT #1 + FULL OF WATER): 16,350 LBS
3. FILTER HOUSING (WEIGHT #1 + TUBESHEET/ELEMENT BUNDLE & INTERNALS): 10,975 LBS
4. FILTER HOUSING (WEIGHT #3 + EXTERNAL PIPING/MANIFOLD): 12,675 LBS
5. MAXIMUM EMPTY (WEIGHT #4 + INSULATION): 14,175 LBS
6. MAXIMUM OPERATING (WEIGHT #5 + SORBENT): 16,795 LBS

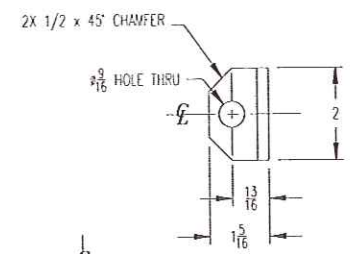
- GENERAL NOTES:
- ALL NOZZLE FLANGE BOLT HOLES STRADDLE NORMAL VESSEL CENTERLINES OR THEIR PARALLELS.
 - MAJOR MATERIALS OF FABRICATION SHALL ORIGINATE ONLY FROM USA, CANADA, WESTERN EUROPE, OR JAPAN.
 - ALL NDE PERSONNEL (INCLUDING THOSE INTERPRETING AND REPORTING RESULTS) SHALL BE QUALIFIED IN ACCORDANCE WITH ASNT RECOMMENDED PRACTICE NO. SNT-TC-1A.
 - MATERIAL INSPECTION REQUIREMENTS (CERTIFIED MILL TEST REPORTS, CERTIFICATE OF COMPLIANCE, ETC.) SHALL FOLLOW THE REQUIREMENTS OF SECTION 1.5 OF SPECIFICATION PS-H-003.
 - ALL FLANGE AND TUBESHEET SEALING SURFACES SHALL HAVE 125-250 MICRO-INCH SURFACE FINISH.
 - FLANGED OPENINGS SHALL BE COVERED WITH FULL SIZE 1/2" THICK WOOD WITH RUBBER GASKETS AND MINIMUM OF 4 BOLTS. ALL PREPARATION OF SHIPMENT REQUIREMENTS PER SECTION 7 OF SPECIFICATION PS-H-A003 SHALL BE FOLLOWED.
 - MACHINED SURFACES SUCH AS FLANGE FACES, BOLTS, NUTS, STUDS, AND THREADED COUPLINGS SHALL BE COATED WITH RUST PREVENTIVE, EQUAL TO RUST-BAN 385.
 - WELDING, PREHEAT, PWHT, NDE, HARDNESS REQUIREMENTS AND INSPECTION AND TESTING OF SHOP-FABRICATED PIPING SHALL COMPLY WITH REQUIREMENTS IN SPECIFICATION PS-U-086.
 - SPARES: A TOTAL OF TWO SETS OF GASKETS (QUANTITY: 6) AND 20% BOLTING SHALL BE SUPPLIED FOR (2) SETS OF BODY FLANGES BY PALL'S FABRICATOR. THIS IS IN ADDITION TO ONE SET OF GASKETS (QUANTITY: 3) AND FULL SET OF BOLTS & NUTS SUPPLIED FOR (2) SETS OF BODY FLANGES BY PALL'S FABRICATOR FOR INSTALLATION. (6) AUTOMATED BALL VALVE ASSEMBLIES SHALL BE PROVIDED BY PALL AS SPARES.
 - ALL INTERNAL WELD SURFACES SHALL BE GROUND SMOOTH AND FREE OF BURRS & SHARP EDGES, FOR MAIN SHELL AND LOWER CONE ASSEMBLY.
 - FILTER VESSEL ASSEMBLY SHOULD NOT BE LIFTED IN THE HORIZONTAL POSITION WITH EXTERNAL PIPING AND TUBESHEET ASSEMBLY IN PLACE. TWO OF THE SWIVEL HOIST RINGS CAN BE USED AS TAILING LUGS WHEN USED WITH A SPREADER BAR TO LIFT THE EMPTY FILTER HOUSING (WITHOUT ANY EXTERNAL PIPING AND INTERNALS/TUBESHEET ASSEMBLY).
 - THE EXTERNAL BLOWBACK PIPING ALONG WITH TUBESHEET ASSEMBLY AND FILTER HOUSING SHALL BE FABRICATED, TESTED AND TRIAL-ASSEMBLED FOR CORRECT FIT-UP BY PALL'S FABRICATOR. PRIOR TO SHIPMENT, THE ASSEMBLY SHALL BE DISASSEMBLED AND SHIPPED LOOSE AS INDICATED IN THE EXPLODED VIEWS ON SHEET 2 (INTERNAL PREHEAT COIL SECTIONS & EXTERNAL PIPING WOULD BE DAMAGED IF THEY WERE SHIPPED IN THE ASSEMBLED CONDITION). FIELD ASSEMBLY BY CUSTOMER SHALL INCLUDE-INSERTION OF TUBESHEET ASSEMBLY (USING SPREADER BAR) INTO THE FILTER HOUSING, INSTALLATION OF INTERNAL PREHEAT COIL SECTIONS, CLOSURE OF THE TOP BONNET AND ASSEMBLY OF THE EXTERNAL PIPING. ALL UNIONS ON THE INTERNAL PIPING TO BE TACK-WELDED (AFTER TIGHTENING) IN THE FIELD.

IMPORTANT: BEFORE ATTEMPTING TO OPERATE OR INSTALL THIS SYSTEM, IT IS ESSENTIAL TO READ AND UNDERSTAND THIS PRODUCT'S OPERATION AND MAINTENANCE MANUAL (SHIPPED UNDER SEPARATE COVER). FAILURE TO READ THE OPERATION AND MAINTENANCE MANUAL BEFORE ATTEMPTING TO OPERATE ANY PALL CORPORATION EQUIPMENT MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE, AND MAY VOID ANY AND/OR ALL WARRANTIES.

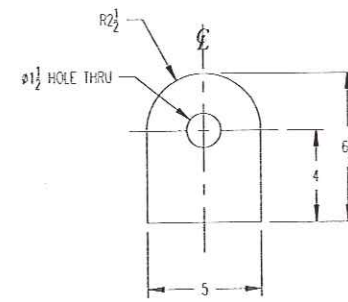
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Customer: Stone & Webster, Inc.		Job No: 130533	
S/W: 50003-P-13-16		Rev: 1	
Equip. No: 2461			
☐ FOR INFORMATION ☐ ACCEPTED FOR CIVIL & PIPING PC			
☐ ACCEPTED ☐ ACCEPTED AS CERTIFIED			
☐ ACCEPTED AS NOTED ☐ REVISE & RESUBMIT			
SIGNED _____			
DATE _____			
THE ACCEPTANCE OF THIS DATA BY STONE & WEBSTER DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER FROM THE OBLIGATION IMPOSED BY THE PURCHASE ORDER OR CONTRACT			
CODE IDENT. NO. 17238	NAME K. LORNS	DATE 10/02/06	-- DO NOT SCALE DRAWING -- UNLESS OTHERWISE SPECIFIED, THE FOLLOWING INFORMATION PERTAINS ONLY TO THIS SHEET DIMENSIONS ARE IN INCHES ONLY TOLERANCE C ± .005 D ± .005 F ± .005 H ± .005 K ± .005 L ± .005 M ± .005 N ± .005 P ± .005 R ± .005 S ± .005 T ± .005 U ± .005 V ± .005 W ± .005 X ± .005 Y ± .005 Z ± .005
PROJECT ENGINEER R. ASHBY-PM	DATE 08/02/06		
ENGINEER			
ENGINEER			
ENGINEER			
CHECKER D. COOKE	DATE 08/02/06		
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DRAWING NAME 03.00143, REGENERATOR FILTER ASS'Y. J-681 TAG # J-681 D-COK/GIANT YORKTOWN PROJECT			
SCALE NONE		INTERNAL NUMBER 36971	REVISION 02 SHEET 3 OF 3



SEE SHEET 1 FOR REVISIONS

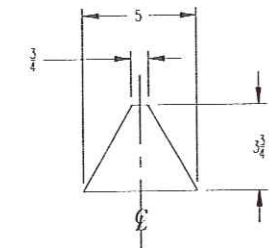


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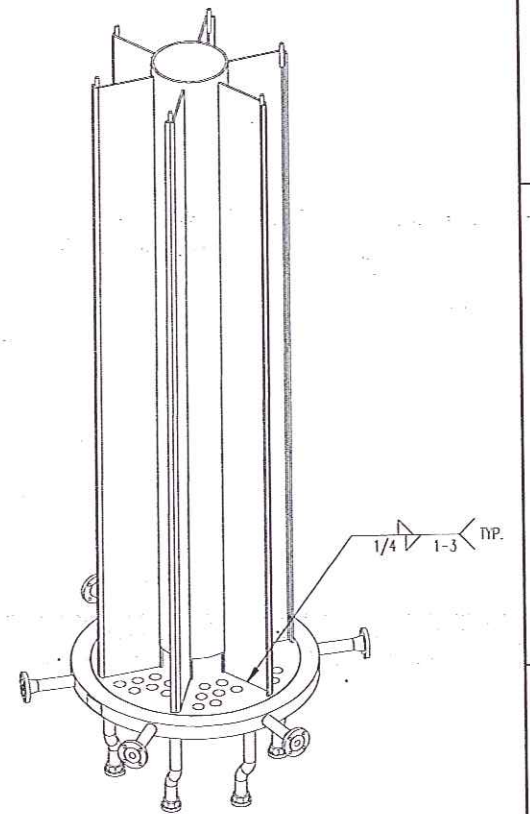
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SCALE: 1/2

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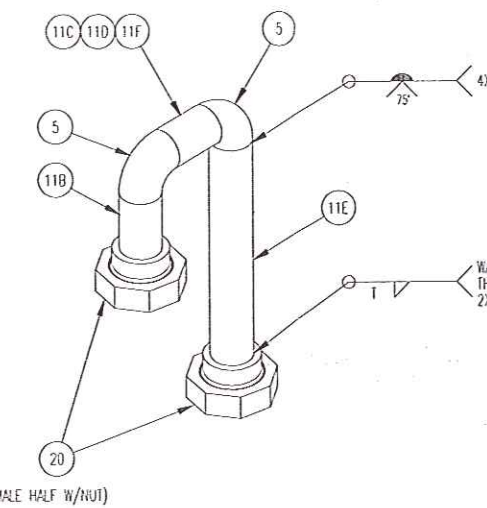


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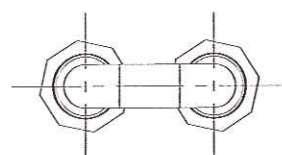
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(TUBESHEET WELDMENT) SCALE: NONE

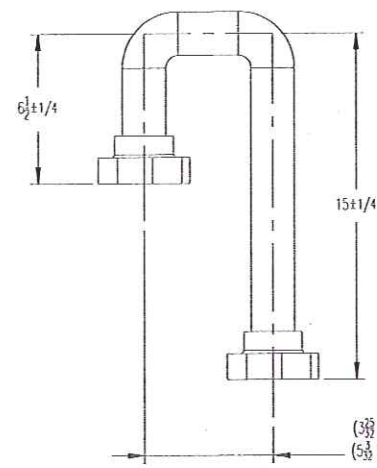


-ISOMETRIC VIEW-

(MALE HALF W/NUT)



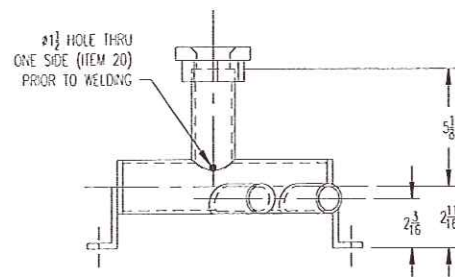
-PLAN VIEW-



-SIDE ELEVATION-

-BLOWBACK INTERNAL INTERCONNECT PIPING-

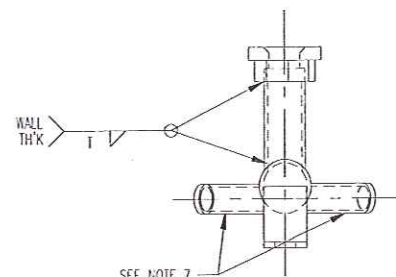
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-SIDE ELEVATION-

-BLOWBACK DISTRIBUTION MANIFOLD-

(6) ASSEMBLIES REQ'D

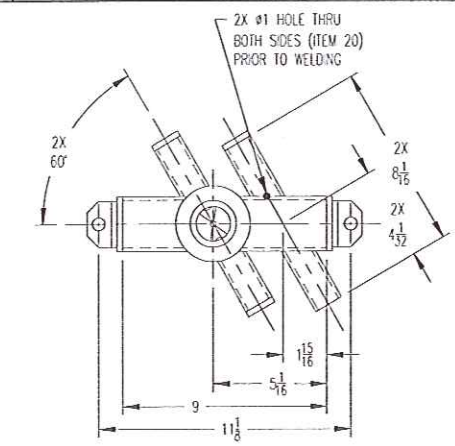


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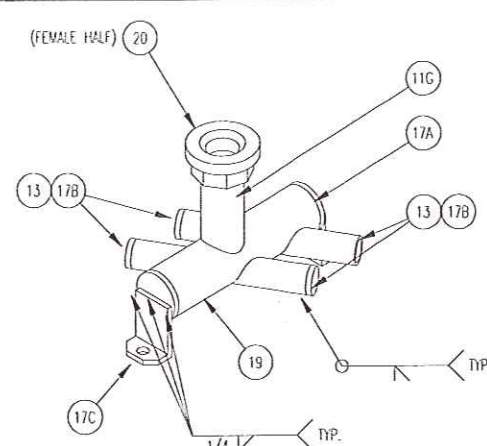
SEE NOTE 7

-ISOMETRIC VIEW-

-PLAN VIEW-

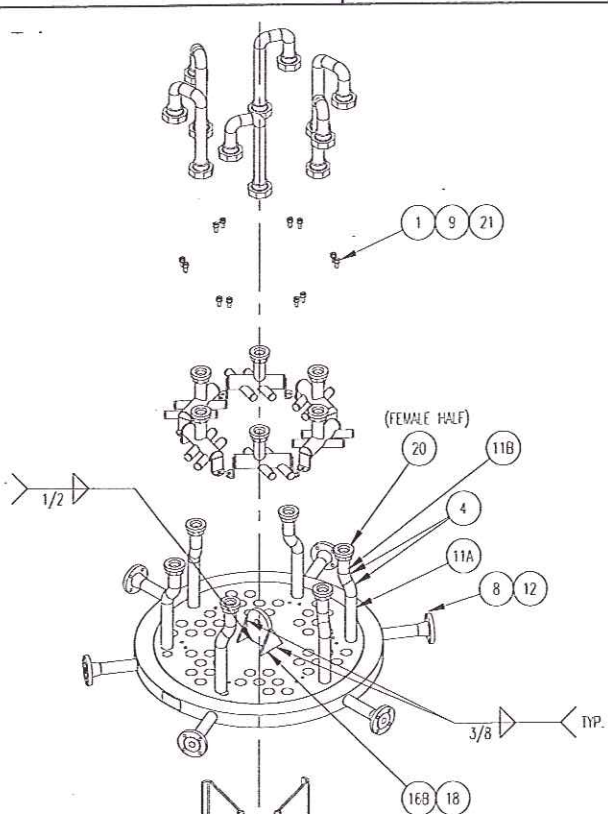


-PLAN VIEW-



-ISOMETRIC VIEW-

(FEMALE HALF)



-EXPLODED ISOMETRIC VIEW-

(SOME ITEMS REMOVED FOR CLARITY) SCALE: NONE

Purchase Order Number: 56603-P-13-16	
Shaw Stone & Webster, Inc.	Project: COX/ST/2003
EQUP. No.: 56603-P-13-16	Job No.: 120033
Rev. No.: 1	Rev. No.: 1
☐ FOR INFORMATION ☐ ACCEPTED FOR CIVIL & PIPING ETC. ☐ ACCEPTED ☐ ACCEPTED AS CERTIFIED ☐ ACCEPTED AS NOTED ☐ REVISE & PRESUBMIT SIGNED: _____ DATE: _____	
THE ACCEPTANCE OF THIS DATA BY SHAW STONE & WEBSTER DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER FROM THE OBLIGATION IMPOSED BY THE PURCHASE ORDER OR CONTRACT.	

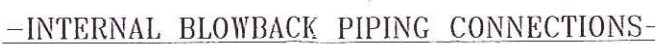
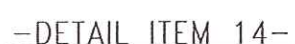
CODE IDENT. NO. 17338	NAME	DATE
DRAWN BY	D. WETTER	05/02/2007
PROJECT ENGINEER	R. ADAMS	05/02/2007
ENGINEER	---	---
ENGINEER	---	---
ENGINEER	---	---
CHECKER	D. COX	05/02/2007

-- DO NOT SCALE DRAWING --	
UNLESS OTHERWISE SPECIFIED, THE FOLLOWING INFORMATION APPLIES ONLY TO THIS SHEET	
DIMENSIONS ARE IN INCHES ONLY	TOLERANCE
FINISH	AS SHOWN
SCALE	1:4
ANGLE	1/2

PALL Pall Corporation Pall Advanced Separations Systems Cortland, New York	
DRAWING NUMBER	10000011096
REVISION	01
DATE	05/02/2007

03.00143, REGENERATOR TUBESHEET ASS'Y	
TAG # J-681 D-COX/GIANT YORKTOWN PROJECT	
SCALE	1:4
MATERIAL NUMBER	39317
SHEET	2 OF 3

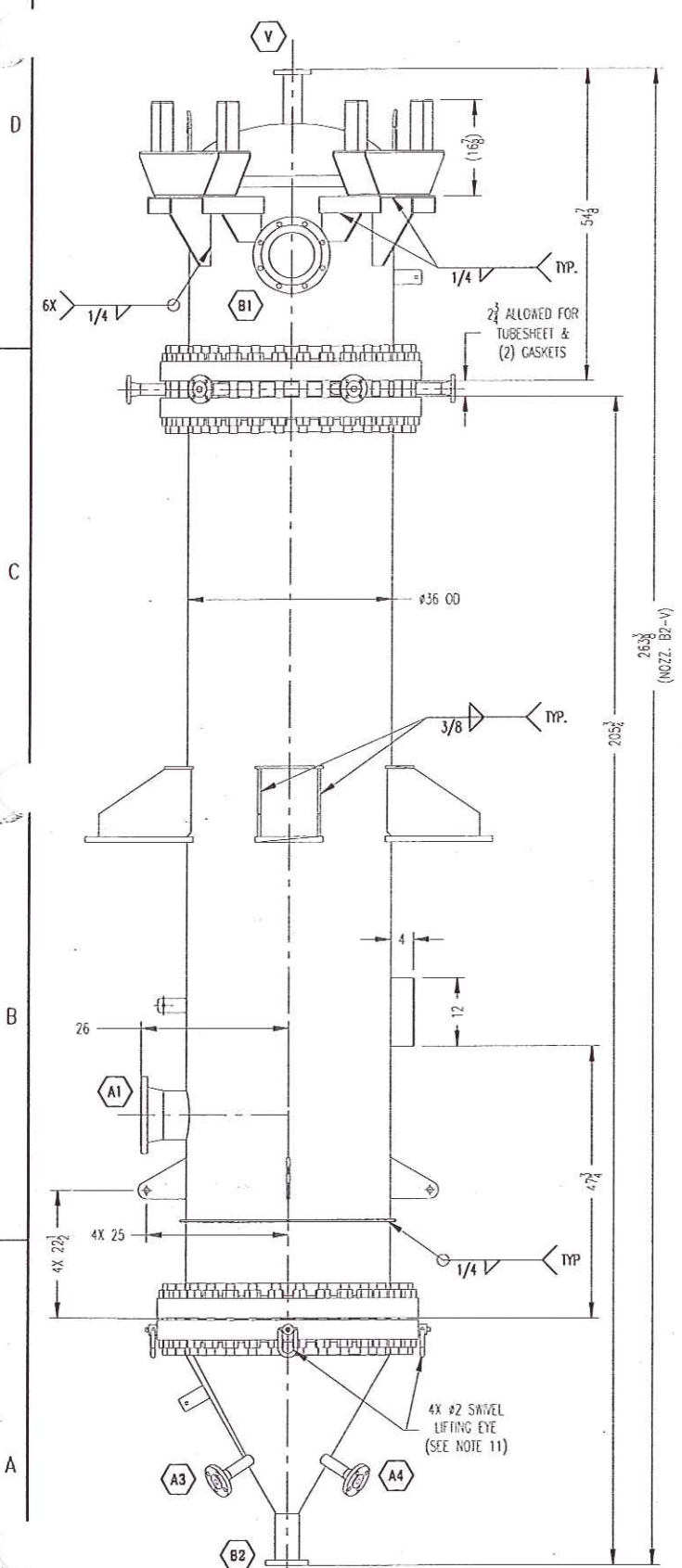
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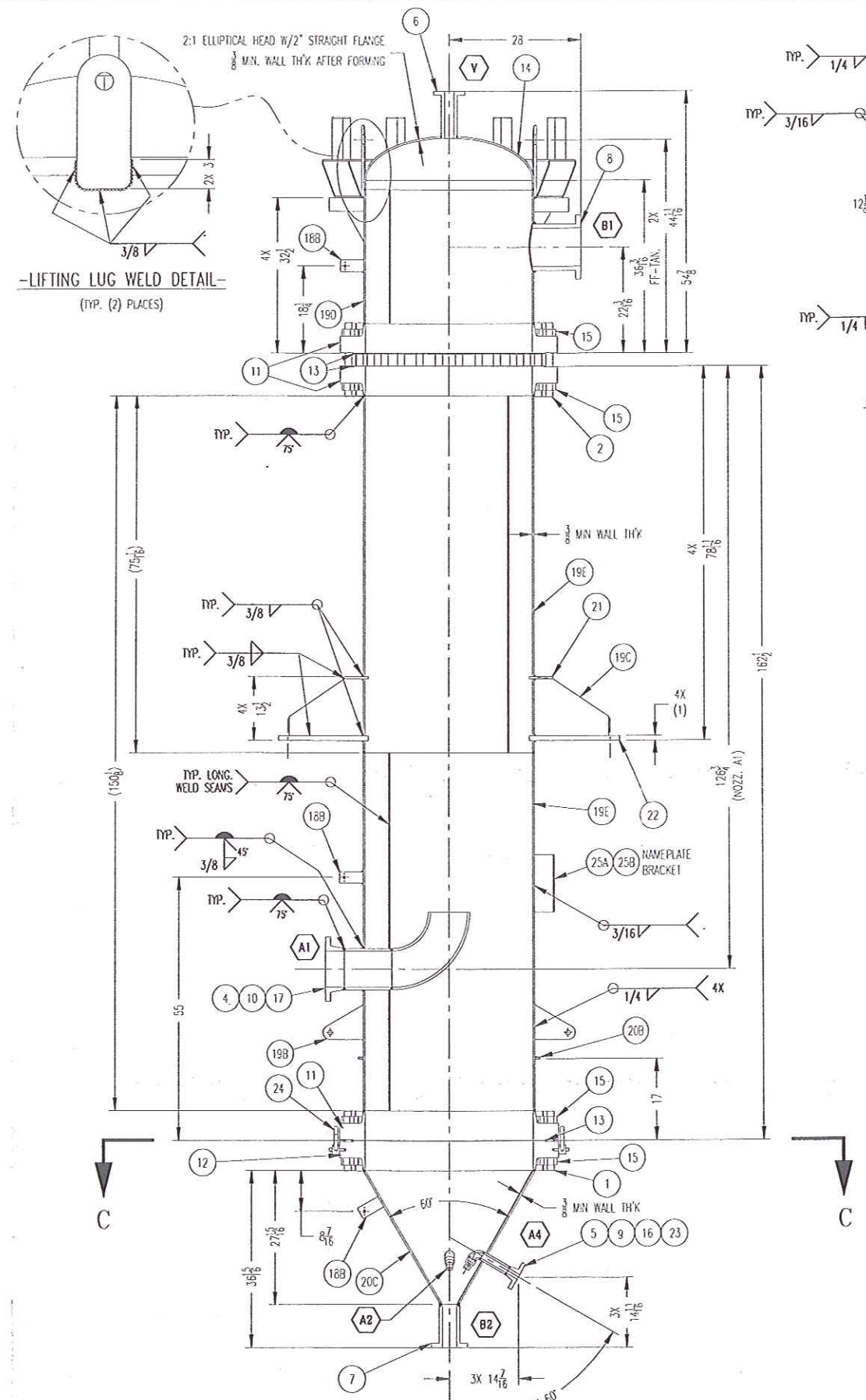
(TUBESHEET WELDMENT) SCALE: NONE

IMPORTANT: BEFORE ATTEMPTING TO OPERATE OR INSTALL THIS SYSTEM, IT IS ESSENTIAL TO READ AND UNDERSTAND THIS PRODUCT'S OPERATION AND MAINTENANCE MANUAL (SHIPPED UNDER SEPARATE COVER). FAILURE TO READ THE OPERATION AND MAINTENANCE MANUAL BEFORE ATTEMPTING TO OPERATE ANY PALL CORPORATION EQUIPMENT MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE, AND MAY VOID ANY AND/OR ALL WARRANTIES.

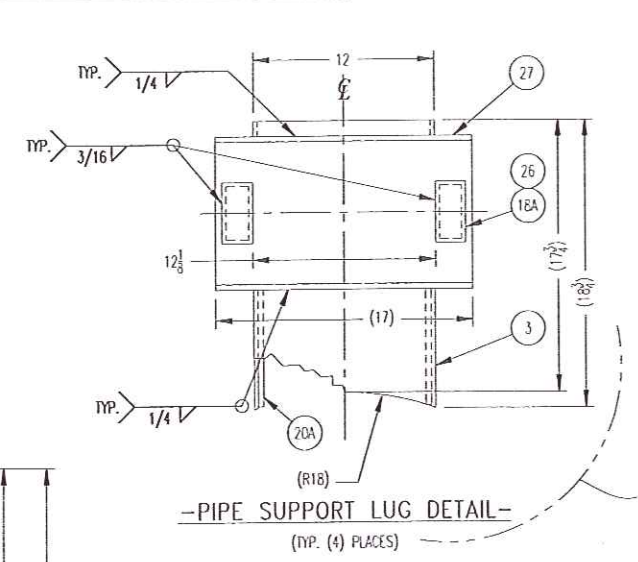
REGION	REGION DESCRIPTION	DIC BY	PGL ENG	ENG/NG	DIC/NG	ENG/NG	CHG/NG
01	CHANGED ELEVATION OF SUPPORT LIVES FROM 36" TO 78-11/16" ADDED INSULATION SUPPORTS CHANGED IEM 21 FROM 8-3/16 TO 5". CHANGED IEM 19C FROM 3-7/8 TO 4-11/16". UPDATED ESTIMATED HEIGHTS. RELATED AS TO 247 FROM 210.	RLH 15APR2001	JWG 02NOV2001	----	----	----	KROH 06MAY2003



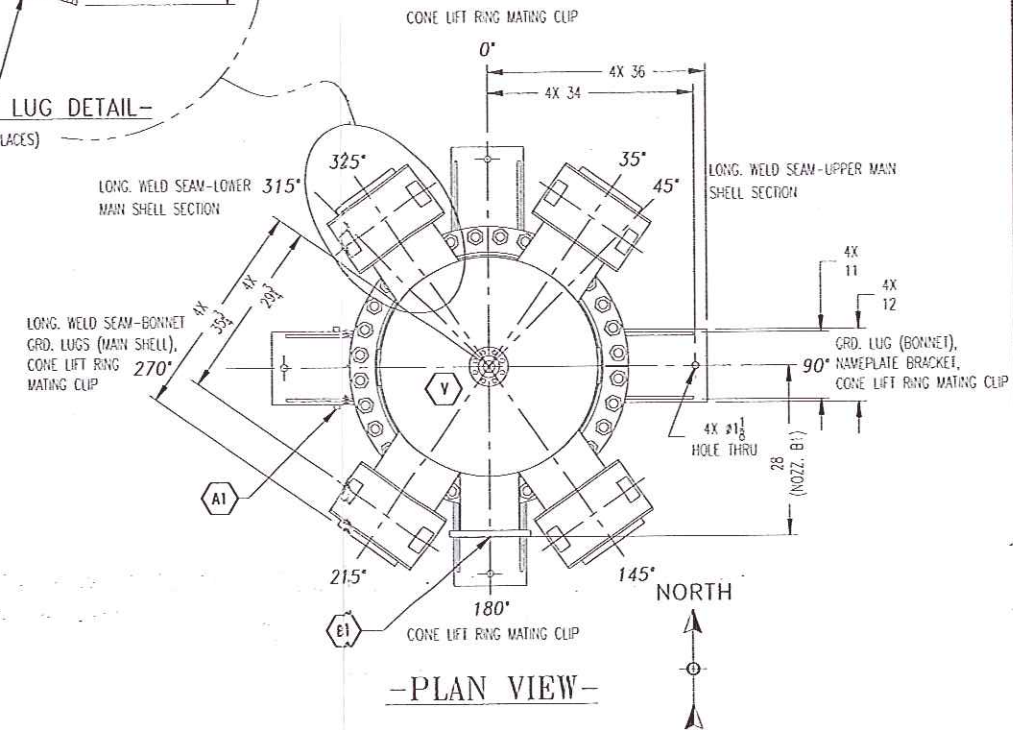
—SOUTH ELEVATION—
(TUBESHEET & NOZZLES SHOWN FOR REFERENCE ONLY)



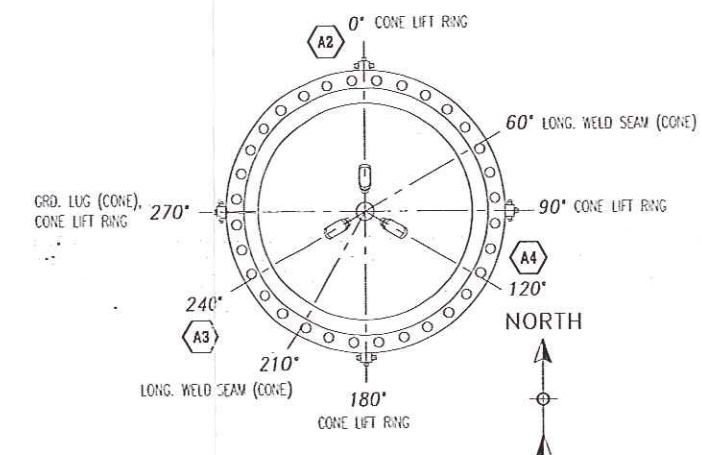
-FULL SECTION-
(SOME ITEMS SHOWN ROTATED FOR CLARITY)



-PIPE SUPPORT LUG DETAIL-
(TYP. (4) PLACES)



-PLAN VIEW-



VIEW C-C

Purchase Order Number: 56603-P-13-16		Project: GIANT & DODD	
Pall Corporation 500 W. 56th St. New York, NY 10019 Tel: 212-512-2000 Fax: 212-512-2001		Job No.: 130533 Equip.: 5603-P-13-16 Invoice #: 1	
SOFT: _____ DRAWN BY: JMM PROJECT ENGINEER: D. HOFFER ENGINEER: R. KENNEDY CHECKER: B. SHOOT		DATE: 01/29/07 DATE: 01/29/07 DATE: 01/29/07 DATE: 01/29/07	
☐ FOR INFORMATION ☐ ACCEPTED ☐ ACCEPTED AS NOTED SIGNED _____ DATE _____		☐ ACCEPTED AS REVISED ☐ REVISE & RESUBMIT SIGNED _____ DATE _____	

DESIGN CONDITIONS:

DESIGN CODE: 2004 ASME CODE, SECTION VIII, DIVISION 1 WITH 2006 ADDENDA
CODE STAMP: YES
NATIONAL BOARD REGISTRATION: YES
TYPE OF SERVICE: NON-LETHAL
DESIGN PRESSURE: 50 PSIG (INTERNAL)
DESIGN TEMPERATURE: 500°F (INTERNAL)
MINIMUM DESIGN METAL TEMPERATURE: 0°F
CORROSION ALLOWANCE: 0.125 IN.
DESIGN DIFFERENTIAL PRESSURE ACROSS TUBESHEET: 50 PSID MAX.
MAXIMUM ALLOWABLE WORKING PRESSURE (MAWP): 170 PSIG @ 500°F, LIMITED BY NOZZLE FLANGES (FLANGE RATING FOR 150#)
MAXIMUM ALLOWABLE PRESSURE, NEW & OLD (MAFNC): 285 PSIG (100°F FLANGE RATING FOR 150#)
HYDROSTATIC TEST PRESSURE: 221 PSIG @ 60°F (SHOP) WITH 50 PPM (MAXIMUM) CHLORIDE CONTENT WATER [1.3 x MAWP x Steel / Sdesign]
RADIOGRAPHY: RT1, FULL
ULTRASONIC INSPECTION (UI): NONE
LIQUID PENETRANT INSPECTION (PI): SEE NOTE #12
MAGNETIC PARTICLE INSPECTION (MT): SEE NOTE #12
HARDNESS TESTS: PER APPENDIX 'O' OF SPECIFICATION PS-U-086.
PW: NONE
IMPACT TEST: NONE
PREHEAT: PER APPENDIX L OF SPECIFICATION PS-U-086.
POST WELD HEAT TREATMENT: NONE
INSULATION: 2" FOR HEAT CONSERVATION (BY OTHERS)
EMPTY VESSEL VOLUME: 127 FT³

CUSTOMER CONNECTION SCHEDULE:

A1 - PROCESS GAS INLET, 8 INCH ASME B16.5 CLASS 150 LB. (SCH. XS BORE), RF WN FLANGE
A2 THRU A4 - AERATION GAS SUPPLY, 1-1/2 INCH ASME B16.5 CLASS 300 LB. (SCH. XXS BORE), RF WN FLANGE
B1 - PROCESS GAS OUTLET, 8 INCH ASME B16.5 CLASS 150 LB., RF LWN FLANGE
B2 - SOLIDS OUTLET, 3 INCH ASME B16.5 CLASS 150 LB., RF LWN FLANGE
V - VENT CONN., 2 INCH ASME B16.5 CLASS 300 LB., RF LWN FLANGE

MATERIALS OF CONSTRUCTION:

PLATES (PRESSURE BOUNDARY): SA516 GR 70
PLATES (NON-PRESSURE BOUNDARY): SA516 GR 70
NOZZLE FORINGS & FLANGES: SA105
GASKETS (BODY FLANGES): KAMMPROFILE 316 SST WITH GRAPHITE FACING AND NON-INTEGRAL (FLOATING) OUTER CENTERING
RING, FLEXITALLIC "FLEXPRO" OR EQUAL (GASKET FACTORS M=2.0 AND Y=2,500 PSIG).
BOLTS & NUTS: SA193 GR B7 / SA194 GR 2H

PAINTING:

EXTERIOR SURFACES: NO SURFACE PREPARATION OR PAINTING IS REQUIRED FOR INSULATED AREAS.
NOZZLES, CLIPS, ETC. PROTRUDING FROM INSULATION SHALL COMPLY WITH THE FOLLOWING: SURFACE PREPARATION PER SSPC-SP-10; 0.75-1.0 MILS EACH OF HIGH TEMPERATURE SILICONE PRIME COAT AND FINISH COAT (1.5-2.0 MILS DFT TOTAL).
INTERIOR SURFACES: UNMACHINED AND NON-SEALING SURFACES, SOLVENT CLEAN PER SSPC SP-1.
MACHINED AND SEALING SURFACES, NONE.

ESTIMATED WEIGHTS (W/O INSULATION):

FILTER HOUSING (AS FABRICATED): 7,630 LBS.
FILTER HOUSING DURING HYDROTEST (FULL OF WATER): 16,350 LBS.

GENERAL NOTES:

- ALL NOZZLE FLANGE BOLT HOLES STRADDLE NORMAL VESSEL CENTERLINES OR THEIR PARALLELS.
- MAJOR MATERIALS OF FABRICATION SHALL ORIGINATE ONLY FROM USA, CANADA, WESTERN EUROPE, OR JAPAN.
- ALL NDE PERSONNEL (INCLUDING THOSE INTERPRETING AND REPORTING RESULTS) SHALL BE QUALIFIED IN ACCORDANCE WITH ASNT RECOMMENDED PRACTICE NO. SNT-TC-1A.
- MATERIAL INSPECTION REQUIREMENTS (CERTIFIED MILL TEST REPORTS, CERTIFICATE OF COMPLIANCE, ETC.) SHALL FOLLOW THE REQUIREMENTS OF SECTION 1.5 OF SPECIFICATION PS-H-003.
- ALL FLANGE AND TUBESHEET SEALING SURFACES SHALL HAVE 125-250 MICRO-INCH SURFACE FINISH.
- FLANGED OPENINGS SHALL BE COVERED WITH FULL SIZE 1/2" THICK WOOD WITH RUBBER GASKETS AND MINIMUM OF 4 BOLTS. ALL PREPARATION OF SHIPMENT REQUIREMENTS PER SECTION 7 OF SPECIFICATION PS-H-003 SHALL BE FOLLOWED.
- MACHINED SURFACES SUCH AS FLANGE FACES, BOLTS, NUTS, STUDS, AND THREADED COUPLINGS SHALL BE COATED WITH RUST PREVENTATIVE, EQUAL TO RUST-BAN 355.
- WELDING, PREHEAT, PWHT, NDE, HARDNESS REQUIREMENTS AND INSPECTION AND TESTING OF SHOP-FABRICATED PIPING SHALL COMPLY WITH REQUIREMENTS IN SPECIFICATION PS-U-086.
- SPARES: A TOTAL OF TWO SETS OF GASKETS (QUANTITY: 6) AND 20% BOLTING SHALL BE SUPPLIED FOR (2) SETS OF BODY FLANGES BY PALL'S FABRICATOR. THIS IS IN ADDITION TO ONE SET OF GASKETS (QUANTITY: 3) AND FULL SET OF BOLTS & NUTS SUPPLIED FOR (2) SETS OF BODY FLANGES BY PALL'S FABRICATOR FOR INSTALLATION.
- ALL INTERNAL WELD SURFACES SHALL BE GROUND SMOOTH AND FREE OF BURRS & SHARP EDGES, FOR MAIN SHELL AND LOWER CONE ASSEMBLY.
- TWO OF THE SWIVEL HOIST RINGS (LOCATED ON BOTTOM CONE CLOSURE FLANGE) CAN BE USED AS TAILING LUGS WHEN USED WITH A SPREADER BAR TO LIFT THE EMPTY FILTER HOUSING.
- PT OR ME: 100% ON NOZZLES TO SHELL/HEAD WELDS. IF ARC STRIKES ON PRESSURE PART OCCURS, THE SURFACE SHALL BE PROPERLY CONDITIONED AND RE-EXAMINED WITH MT OR PT.

* SPARE & HYDROTEST QUANTITIES ARE NOT INCLUDED IN BOM QUANTITIES. PALL'S FABRICATOR IS RESPONSIBLE FOR SUPPLYING SPARES (SEE NOTE #9) AND HYDROTEST QUANTITIES.

27	4	TUBING, STRUCTURAL	10 x 8 x 1/4 THK x 17' LG., MBE	(SEE DETAIL)	SA36
26	8	TUBING, RECTANGULAR	2" x 4" x 1/4" THK x 8-5/8' LG., PBE		SA36
25B	1	SHEET, STOCK	7" x 12" x 3/16" THK	(SEE DETAIL)	SA240 GR304
25A	1	SHEET, STOCK	4" x 12" x 3/16" THK	(SEE DETAIL)	SA240 GR304
24	4	RING, HOIST	1/2-13UNC-2A x 1" THK LENGTH, HWY. DUTY SWIVEL, 2500# RATED, AMERICAN DRILL BUSHING PART # 33515		ALLOY STEEL/BLACK OXIDE
23	3	REDUCER, CONCENTRIC	1-1/2" x 1"-SCH. XXS, BUTT WELD		SA234 GRWPB
22	4	PLATE, STOCK	12" x 19" x 1" THK	(SEE DETAIL)	SA516 GR70
21	4	PLATE, STOCK	12" x 5" x 1/2" THK	(SEE DETAIL)	SA516 GR70
20C	2	PLATE, STOCK	33" x 51" x 3/8" THK; ROLL TO FORM CONE SECTION	(SEE DETAIL)	SA516 GR70
20B	1	PLATE, STOCK	27-1/4 x 6-3/4 x 3/8 THK	(SEE DETAIL)	SA516 GR70
20A	8	PLATE, STOCK	12" x 12" x 3/8" THK	(SEE DETAIL)	SA516 GR70
19E	2	PLATE, STOCK	75-1/16" x 111-15/16" x 3/8" THK; ROLL TO FORM 36" OD SHELL SECTION		SA516 GR70
19D	1	PLATE, STOCK	28" x 111-15/16" x 3/8" THK; ROLL TO FORM 36" OD SHELL SECTION		SA516 GR70
19C	8	PLATE, STOCK	12" x 16-3/8" x 1/2" THK	(SEE DETAIL)	SA516 GR70
19B	4	PLATE, STOCK	7-1/4" x 8-1/2" x 1/2" THK	(SEE DETAIL)	SA516 GR70
19A	2	PLATE, STOCK	6" x 15" x 1/2" THK	(SEE DETAIL)	SA516 GR70
18B	3	PLATE, STOCK	2-1/2" x 5" x 1/4" THK	(SEE DETAIL)	SA240 GR304
18A	8	PLATE, STOCK	2" x 4" x 1/4" THK		SA516 GR70
17	1	PIPE, SEAMLESS	8"-SCH. XS x 10' LG., BBE		SA106 GRB
16	3	PIPE, SEAMLESS	1-1/2"-SCH. XXS x 6-3/16" LG., BBE		SA106 GRB
* 15	128	NUT, HEAVY HEX	1-1/2"-BUN, SEMI-FINISHED		SA194 GR2H
14	1	HEAD, ELLIPTICAL 2:1	36" OD x 3/8" MIN. WALL THK W/2" STRAIGHT FLANGE		SA516 GR70
* 13	3	GASKET, FLANGE	38-1/2" ID x 40" OD x 1/8" THK W/OUTER CENTERING RING, FLEXITALLIC FLEXPRO STYLE "ZA"		316SST/GRAPHITE
12	1	FLANGE, WELDNCK	36"-150#, RF, 35.25" BORE, SERIES A, 125-250 MICRO-INCH SURFACE FINISH	(SEE DETAIL)	SA105
11	3	FLANGE, WELDNCK	36"-150#, RF, 35.25" BORE, SERIES A, 125-250 MICRO-INCH SURFACE FINISH		SA105
10	1	FLANGE, WELDNCK	8"-150#, RF, SCH. XS BORE, 125-250 MICRO-INCH SURFACE FINISH		SA105
9	3	FLANGE, WELDNCK	1-1/2"-300#, RF, SCH. XXS BORE, 125-250 MICRO-INCH SURFACE FINISH		SA105
8	1	FLANGE, LONG WELDNCK	8"-150#, RF, XS, 11-1/16" LG, RF, 125-250 MICRO-INCH SURFACE FINISH		SA105
7	1	FLANGE, LONG WELDNCK	3"-150#, RF, 9" O.A.L., RF, 125-250 MICRO-INCH SURFACE FINISH		SA105
6	1	FLANGE, LONG WELDNCK	2"-300# x 9-29/32" O.A.L., RF, 125-250 MICRO-INCH SURFACE FINISH		SA105
5	3	ELBOW, WELD	1-1/2"-SCH. XXS, 90° L.R., BW		SA234 GRWPB
4	1	ELBOW, WELD	8"-SCH. XS, 90° L.R., BW		SA234 GRWPB
3	4	CHAMNEL, FORMED	12" WD. x 2-15/16" DP. x 1/4" THK x 18-3/4" LG., COE x POE	(SEE DETAIL)	SA516 GR70
* 2	32	BOLT, STUD	1-1/2"-BUN x 15-1/2" LG., FULL THREAD/CHAMFERED ENDS		SA193 GRB7
* 1	32	BOLT, STUD	1-1/2"-BUN x 12-1/2" LG., FULL THREAD/CHAMFERED ENDS		SA193 GRB7

ITEM Q'TY	NAME	SIZE / DESCRIPTION	MATERIAL
-----------	------	--------------------	----------

Purchase Order Number: 56603-P-13-16

Project: GRANT S 2008

Job No: 125633

Drawn By: D. HEDDER

Project Engineer: R. KISHOR

Engineer: D. HEDDER

Engineer: D. HEDDER

Engineer: D. HEDDER

Checker: D. HEDDER

Date: 12/22/2007

THE ACCEPTANCE OF THIS DATA BY SHAW STONE & WEBSTER DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER FROM THE OBLIGATION IMPOSED BY THE PURCHASE ORDER OR CONTRACT.

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DRAWINGS ARE IN INCHES ONLY

SCALE: 1" = 1'-0"

DATE: 12/22/2007

BY: D. HEDDER

CHECKED: D. HEDDER

APPROVED: D. HEDDER

PALL Pall Corporation

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Corlton, New York

DRAWING NUMBER: 10000011097

REVISION: 01

SHEET SIZE: D

03.00143, REGENERATOR FLTR HOUSING

TAG # J-681 D-COK/GIANT YORKTOWN PROJECT

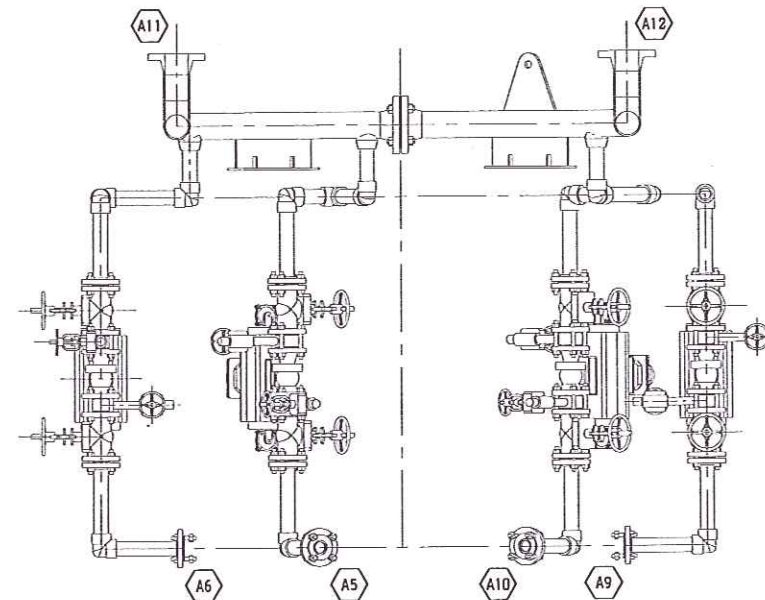
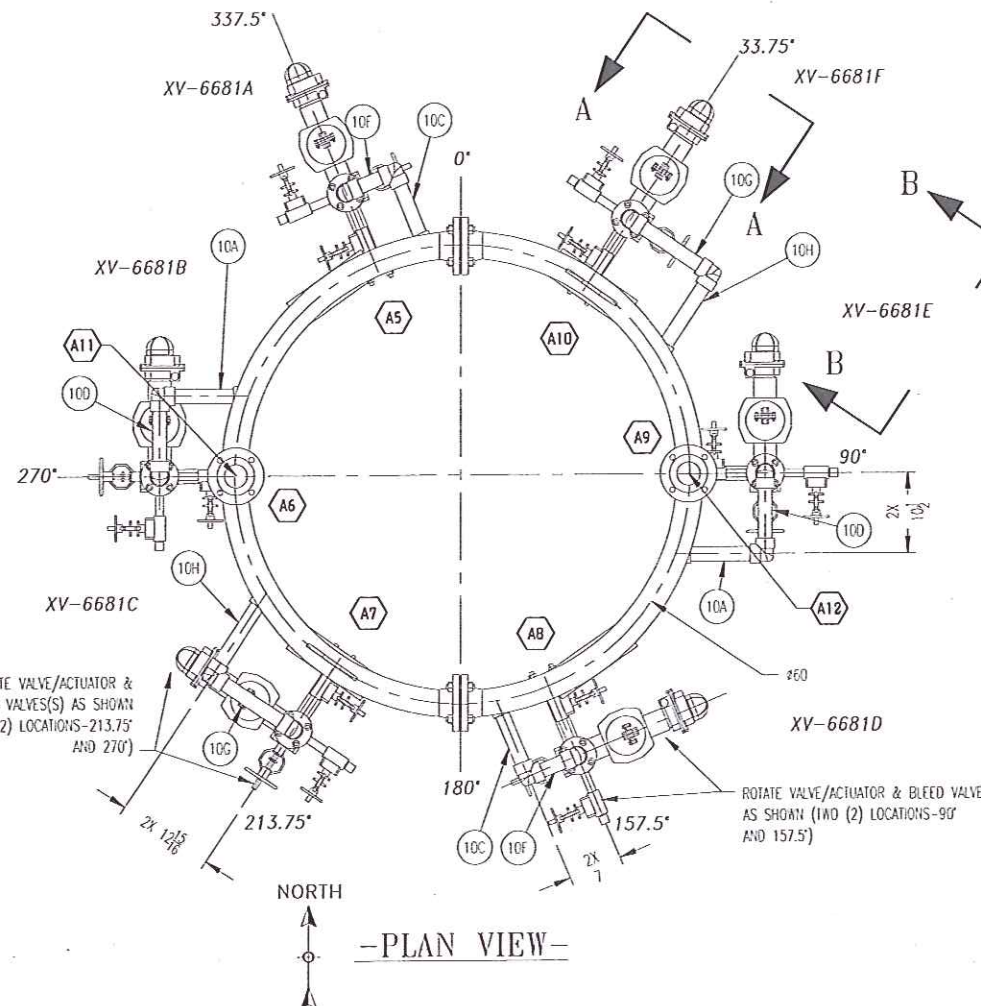
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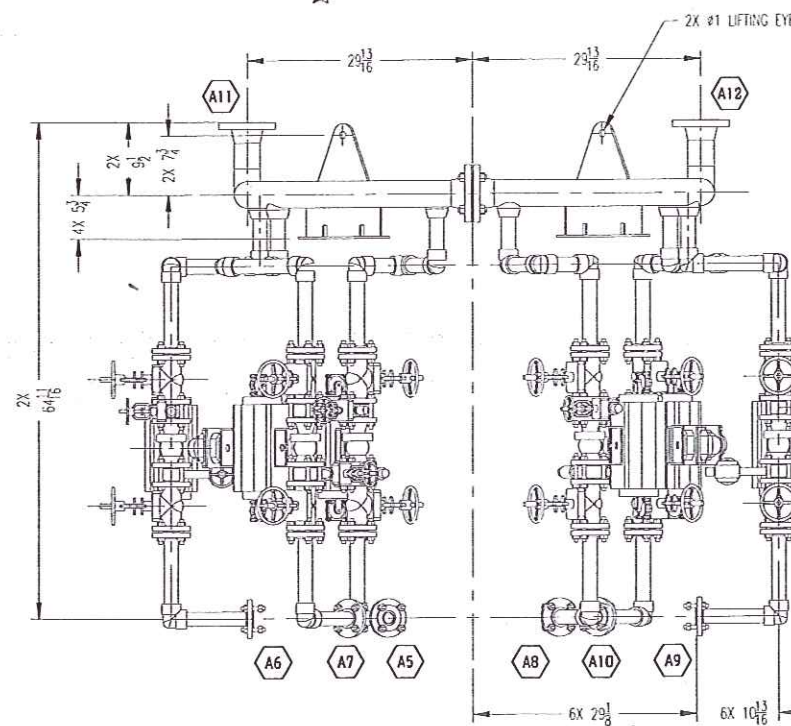
SHEET 3 OF 3

IMPORTANT: BEFORE ATTEMPTING TO OPERATE OR INSTALL THIS SYSTEM, IT IS ESSENTIAL TO READ AND UNDERSTAND THIS PRODUCT'S OPERATION AND MAINTENANCE MANUAL (SHIPPED UNDER SEPARATE COVER). FAILURE TO READ THE OPERATION AND MAINTENANCE MANUAL BEFORE ATTEMPTING TO OPERATE ANY PALL CORPORATION EQUIPMENT MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE, AND MAY VOID ANY AND/OR ALL WARRANTIES.

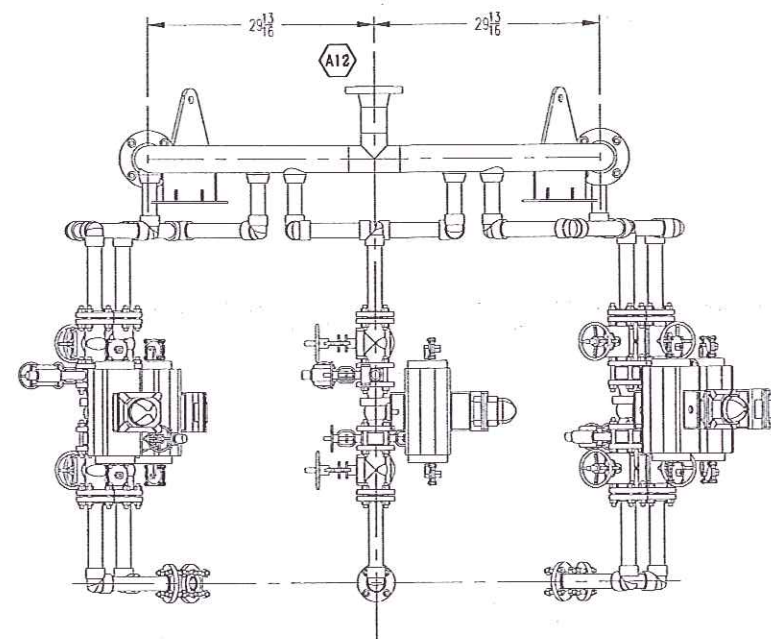
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01	REDRAWN ACTUATORS TO MATCH ACTUAL DESIGNS. RENAMED NOZZLE CALLOUTS.	RLH 18APR2007	RA 20APR2007	----	----	----	JWG 27APR2007



-FULL SECTION-
(SOME ITEMS SHOWN ROTATED FOR CLARITY)



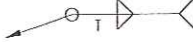
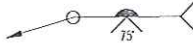
-SOUTH ELEVATION-



-EAST ELEVATION-

DESIGN CONDITIONS:
 DESIGN CODE: ASME B31.3-2004 EDITION
 DESIGN PRESSURE: 95 PSIG (INTERNAL)
 DESIGN TEMPERATURE: 500°F (INTERNAL)
 HYDROSTATIC TEST PRESSURE: 171 PSIG @ 60°F (SHOP)
 PIPE CLASS: STONE & WEBSTER PIPE CLASS #A33A
 NDE: PER ASME B31.3
 INSULATION: 1-1/2" FOR HEAT CONSERVATION AND PERSONNEL PROTECTION. ALL FLANGES ARE NOT INSULATED. (BY OTHERS)

GENERAL NOTES: (TYPICAL ALL SHEETS)

1. ALL PIPING TO BE FABRICATED/INSPECTED/EXAMINED/TESTED IN ACCORDANCE WITH ASME B31.3-2004 EDITION. WELDING, NDE & INSPECTION REQUIREMENTS PER SPECIFICATION PS-U-086, SHALL BE FOLLOWED.
2. REFER TO BLOWBACK ASSEMBLY (G.A) DRAWING (10000011095-SEE NOTES & DESIGN CONDITIONS) AND PALL INSPECTION & TEST PLAN FOR ADDITIONAL REQUIREMENTS PERTAINING TO MATERIALS, INSPECTION, NDE TESTING, SURFACE PREPARATION AND PAINTING/MARKING.
3. DIMENSIONS PROVIDED WITHIN THIS DRAWING SET ARE FOR REFERENCE ONLY. PRIOR TO MAKING FINAL WELDS, PIPING SHALL BE FITTED UP TO EQUIPMENT TO ENSURE PROPER ALIGNMENT OF PIPING, FLANGE BOLT HOLES, ETC. FOR FINAL DIMENSIONS AND TOLERANCES CONCERNING CUSTOMER CONNECTIONS, REFER TO THE BLOWBACK ASSEMBLY (G.A) DRAWING (10000011095).
4. REFER TO THE FOLLOWING DRAWINGS FOR ADDITIONAL SYSTEM INFORMATION:
10000011095---GENERAL ASSEMBLY
10000011096---TUBESHEET ASSEMBLY
10000011097---FILTER HOUSING
10000011057---PROCESS & INSTRUMENT DIAGRAM
5. ALL SOCKET WELD FILLET SIZES SHALL BE EQUAL TO "T" (WALL THICKNESS OF PIPE), AS SHOWN:

6. ALL BUTT WELDS SHALL BE AS SHOWN:

7. DEVIATIONS FROM OR ERRORS FOUND (BY THE FABRICATOR) ON THIS DRAWING SET SHALL BE BROUGHT TO THE ATTENTION OF THE PALL PROJECT ENGINEER.
8. PROTECT ALL GASKEIT SEALING SURFACES FROM DAMAGE (DURING FABRICATION), WITH DUCT TAPE AS A MINIMUM.
9. ALL FLANGE BOLT HOLES TO STRADDLE HORIZONTAL & VERTICAL CENTERLINES, UNLESS OTHERWISE SHOWN.
10. NO ALLOWANCES HAVE BEEN MADE WITH REGARDS TO ANY WELD GAPS. PIPING SPOOL FABRICATOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DIMENSIONAL VERIFICATION OF INDIVIDUAL PIPE LENGTHS.
11. ALL STEAM TRACING, INSULATION AND JACKETING BY OTHERS.
12. ALL HYDROSTATIC TESTING OF SPOOL PIECES TO BE PERFORMED USING SERVICE GASKETS.
13. MAJOR MATERIALS OF FABRICATION SHALL ORIGINATE ONLY FROM USA, CANADA, WESTERN EUROPE, OR JAPAN.
14. ALL NDE PERSONNEL (INCLUDING THOSE INTERPRETING AND REPORTING RESULTS) SHALL BE QUALIFIED IN ACCORDANCE WITH ASNT RECOMMENDED PRACTICE NO. SNT-TC-1A.
15. MACHINED SURFACES SUCH AS FLANGE FACES, BOLTS, NUTS, STUDS, AND THREADED COUPLINGS SHALL BE COATED WITH RUST PREVENTIVE, EQUAL TO RUST-BAN 355.
16. CERTIFIED MATERIAL TEST REPORT (CMTR) SHALL BE PROVIDED FOR ALL PIPING COMPONENTS (EXCEPT FOR BOLTS, NUTS, & GASKETS), INCLUDING THE PRESSURE RETAINING COMPONENTS OF THE VALVES (BODY AND BONNET). CERTIFICATES OF COMPLIANCE SHALL BE PROVIDED FOR BOLTS, NUTS, & GASKETS.

PAINTING AND SURFACE PREPARATION:

PIPE AND WELDED ATTACHMENTS:
 EXTERIOR SURFACES-NO SURFACE PREPARATION OR PAINTING IS REQUIRED FOR INSULATED AREAS. LIFTING LUGS & PIPE SHOES PROTRUDING FROM INSULATION SHALL COMPLY WITH THE FOLLOWING: SURFACE PREPARATION PER SSPC-SP-10, 0.75-1.0 MILS EACH OF HIGH TEMPERATURE SILICONE PRIME COAT AND FINISH COAT (1.5-2.0 MILS DFT TOTAL) COLOR: ALUMINUM.
 INTERIOR SURFACES-UNMACHINED AND NON SEALING SURFACES, SOLVENT CLEAN PER SSPC SP-1 MACHINED AND SEALING SURFACES, NONE

NOZZLE CONNECTIONS:

NOZZLE CONNECTIONS:
 A11 - BLOWBACK GAS SUPPLY, 3 INCH ANSI B16.5 CLASS 150 LB. (SCH. STD. BORE), RF WN FLANGE
 A12 - BLOWBACK GAS VLN. FLOW, 3 INCH ANSI B16.5 CLASS 150 LB. (SCH. STD. BORE), RF WN FLANGE
 A5 THROUGH A10 - 1-1/2 INCH ANSI B16.5 CLASS 150 LB. (SCH. XS BORE), RF SW FLANGE

ESTIMATED WEIGHTS:

PIPING ASSEMBLY AS SHOWN: 1,569 LBS.

Purchase Order Number: 56603-P-13-16					
	Project : GIANT S ZPHS Job No : 130553 SW# : 56603-P-13-16 Name : E				
EQUIP. NO. : A681					
☐ FOR INFORMATION ☐ ACCEPTED ☐ ACCEPTED AS NOTED ☐ ACCEPTED FOR CIVIL & PIPING INFO ☐ ACCEPTED AS CERTIFIED ☐ REVISE & RESUBMIT					
SIGNED _____ DATE _____					
THE ACCEPTANCE OF THIS CONTRACT BY SHAW STONE & WEBSTER DOES NOT RELIEVE THE CONTRACTOR OR SUBCONTRACTOR FROM ANY OBLIGATION IMPOSED BY THE PURCHASE ORDER OR CONTRACT.					
ESSENTIAL TO READ AND UNDERSTAND THIS PRODUCT'S OPERATION BEFORE THE OPERATION AND MAINTENANCE MANUAL BEFORE SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE, AND MAY VOID WARRANTY IF USED WITHOUT PROPER TRAINING.					

CODE REVT. NO. 17258 NAME DATE --> DO NOT SCALE DRAWING <--

DRAWN BY D. HOFMANN 07/08/2007
PROJECT ENGINEER R. KOSOVSKI 10/02/2007

ENGINEER -----
ENGINEER -----
ENGINEER -----
CHECKER D. CONDT 10/02/2007

UNLESS OTHERWISE SPECIFIED, THE FOLLOWING INFORMATION APPLIES ONLY TO THIS SHEET.
INCHES ARE IN FRACTIONS
FRACTIONS ARE IN INCHES ONLY
DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE
SCALE: 1" = 1'-0" (AS NOTED)
TOLERANCES:
FINISH SURFACE ± .005"
OTHER SURFACES ± .010"

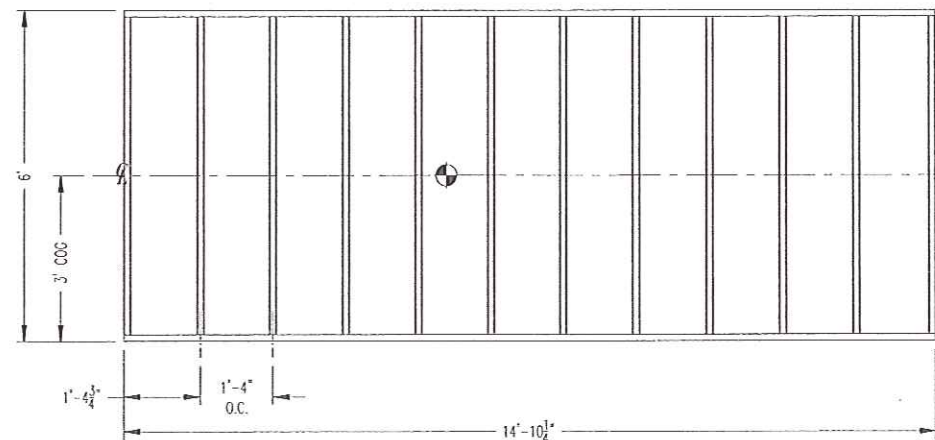
SPACING ANGLE

03.00143, REGENERATOR FLTR MANIFOLD ASS'Y
TAG #G-681
D-COK/GIANT YORKTOWN PROJECT

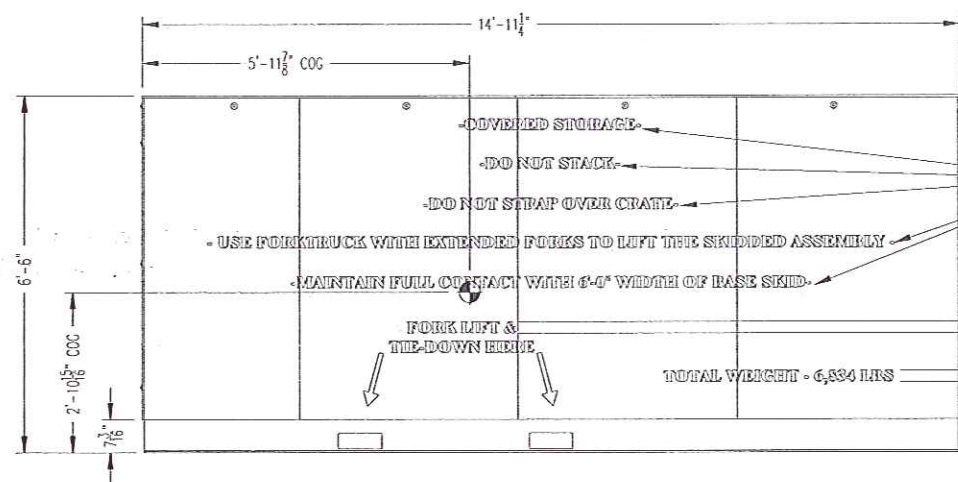
PIED ANGLE
SCALE: 1:12
WATER MAIN: 39319
SHEET 1 OF 2

(PALL) Pall Corporation
© Pall Advanced Separations Systems
Cortland, New York
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Revision: 01
Sheet Size: D

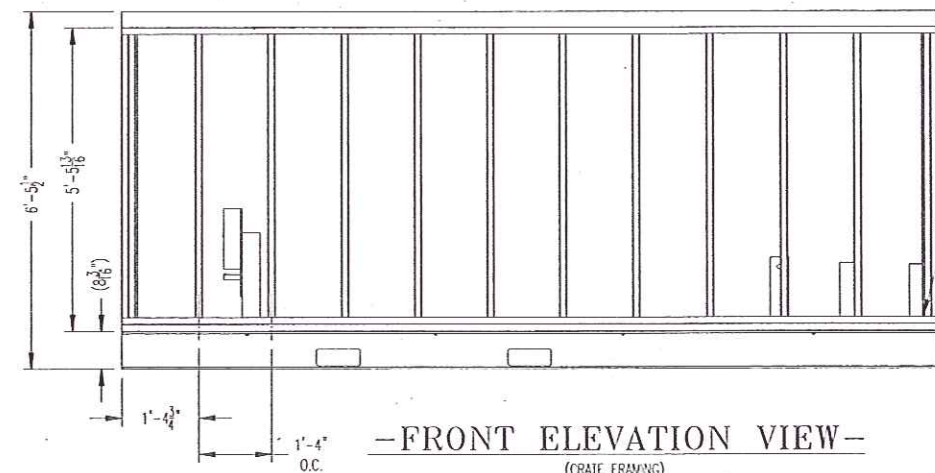
IMPORTANT: BEFORE ATTEMPTING TO OPERATE OR INSTALL THIS SYSTEM, IT IS ESSENTIAL TO READ AND UNDERSTAND THIS PRODUCT'S OPERATION AND MAINTENANCE MANUAL (SHIPPED UNDER SEPARATE COVER). FAILURE TO READ THE OPERATION AND MAINTENANCE MANUAL BEFORE ATTEMPTING TO OPERATE ANY FALL CORPORATION EQUIPMENT MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE, AND MAY VOID ANY AND/OR ALL WARRANTIES.



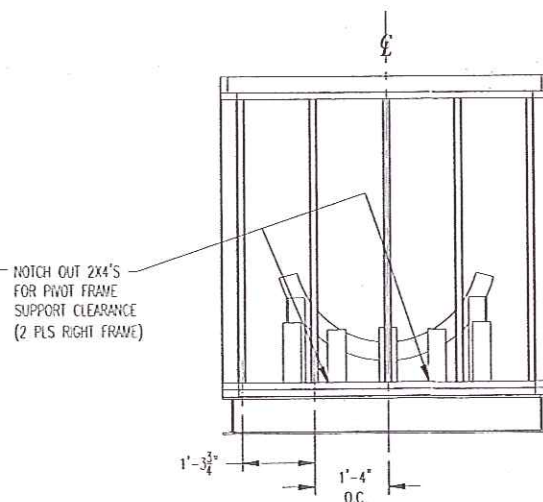
-PLAN VIEW-
(CRATE TOP FRAMING)



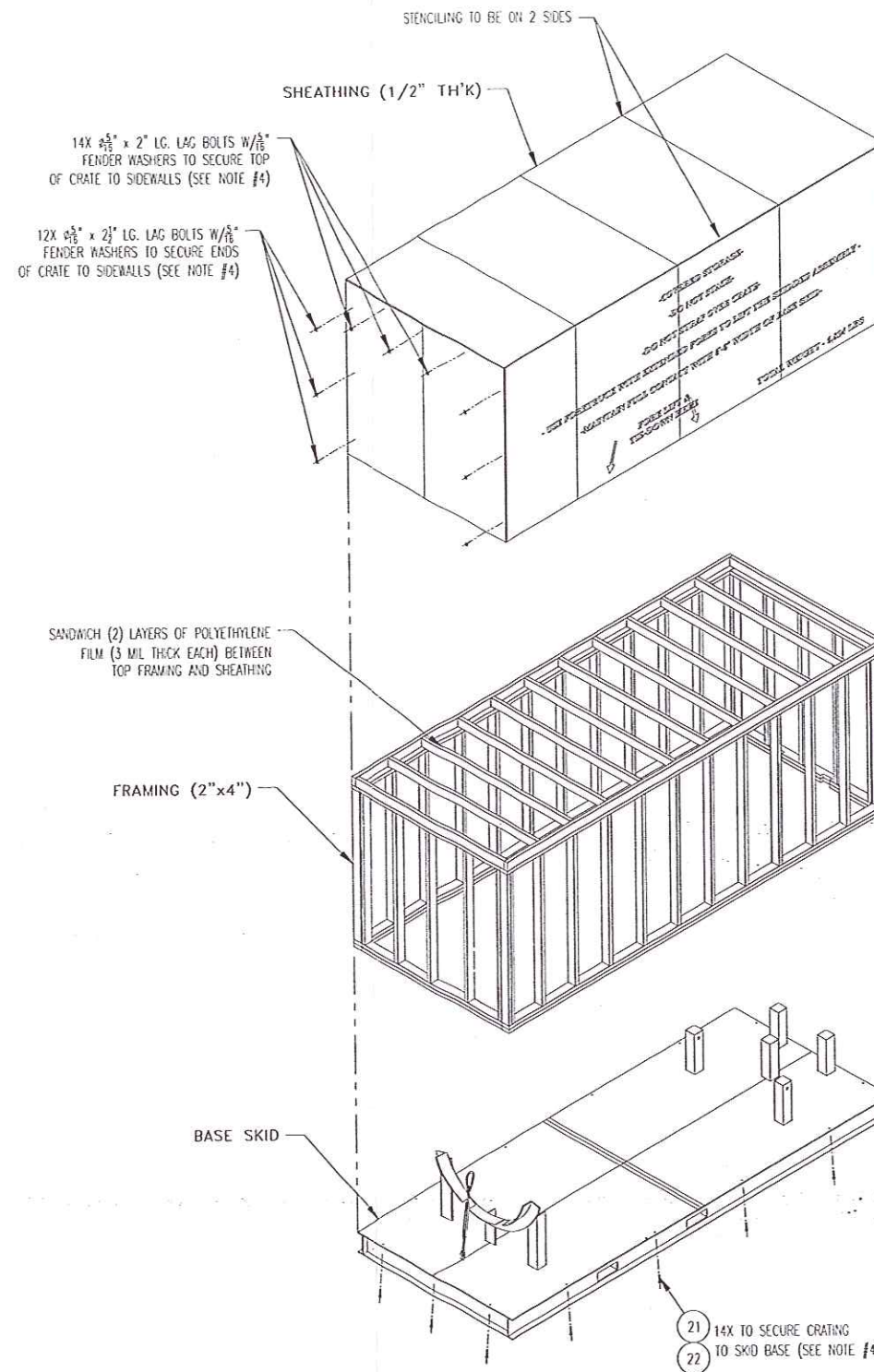
-FRONT ELEVATION VIEW-
(SHEATHING PENETRATIONS/MARKINGS)



-FRONT ELEVATION VIEW-
(CRATE FRAMING)



-END ELEVATION VIEW-
(CRATE FRAMING)



-EXPLODED ISOMETRIC VIEW-

Purchase Order Number: 56603-P-13-16
SEW: 56603-P-13-16
EQUIP. NO.: 3441
Project: GIANT S SKID
Job No: 120553
Issue: 1

FOR INFORMATION	ACCEPTED FOR CIVIL & PIPING
ACCEPTED	ACCEPTED AS CERTIFIED
ACCEPTED AS NOTED	REVISE & RESUBMIT

SIGNED: _____
DATE: _____

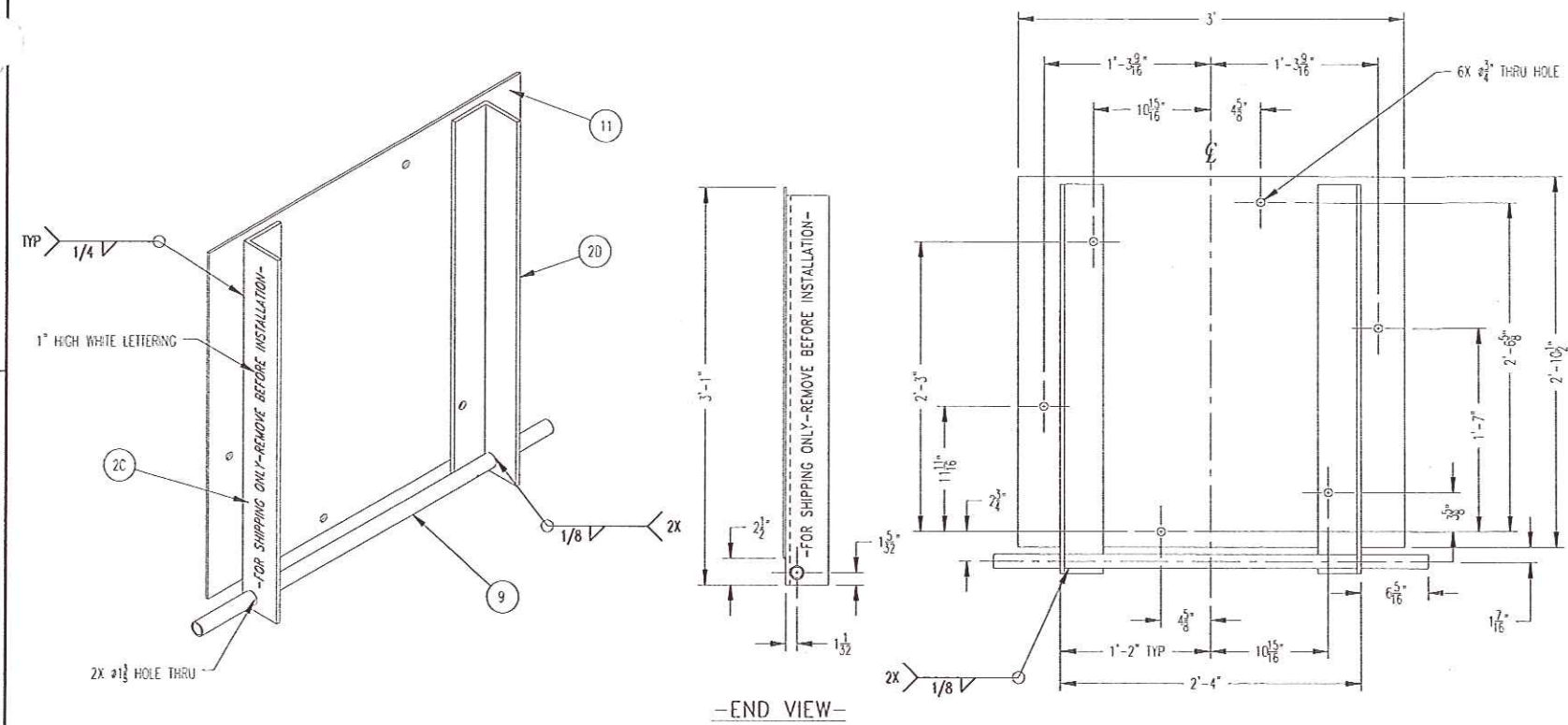
THE ACCEPTANCE OF THIS DATA BY SHAW STONE & WEBSTER DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER FROM THE OBLIGATION IMPOSED BY THE PURCHASE ORDER OR CONTRACT.

CODE	IDENT. NO.	NAME	DATE	DO NOT SCALE DRAWING			
DRWN BY	D. WATFORD	15/06/07					
PROJECT ENGINEER	A. CPTM	21/07/07					
ENGINEER							
ENGINEER							
ENGINEER							
CHECKER	D. CROFT	21/07/07					

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03.00143, REGENERATOR TS SHIPPING SKID
TAG # J-681
D-COK/GIANT YORKTOWN PROJECT

SCALE: AS NOTED
DRAWING NUMBER: 10000011108
REVISION: 00
SHEET 3 OF 3



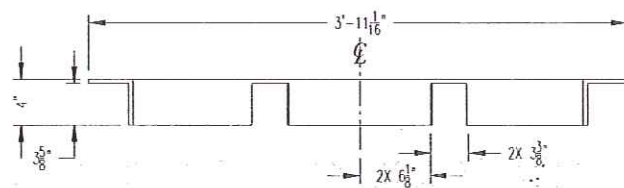
-ISOMETRIC VIEW-

SCALE: NONE

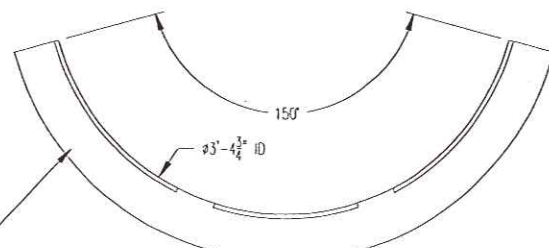
-PIVOT FRAME ASSEMBLY DETAIL-

-PLAN VIEW-

22	14	WASHER, PLAIN	3/8", TYPE A, SERIES W	C'SIL/ZINC PLATED
21	14	BOLT, LAG	ø 3/8" x 3" LG.	A193 GRB7/ZINC PLATED
20	20	WASHER, PLAIN	5/8", TYPE A, SERIES W	C'SIL/ZINC PLATED
19	2	WASHER, PLAIN	1", TYPE A, SERIES W	C'SIL/ZINC PLATED
18	6	WASHER, LOCK	5/8", HELICAL SPRING	C'SIL/ZINC PLATED
17	2	WASHER, LOCK	1", HELICAL SPRING	C'SIL/ZINC PLATED
16	1	TURNBUCKLE, JAW & JAW	5/8 x 18-3/42" CLSD. X 9 TAKE UP	M-MASTER-CARR # 3001158
15C	2	TUBE, SQUARE	4" x 4" x 1/4" THK x 22-1/2" LG., P.B.E.	A36
15B	1	TUBE, SQUARE	4" x 4" x 1/4" THK x 22-7/8" LG., P.B.E.	A36
15A	2	TUBE, SQUARE	4" x 4" x 1/4" THK x 24" LG., P.B.E.	A36
14	2	TUBE, RECTANGULAR	10" x 4" x 1/4" THK x 67-5/16" LG., P.B.E.	A36
13	1	THREADED CHAIN CONNECTOR	1/2" PEAR SHAPED	M-MASTER-CARR # 3712126
12	1	ROD, THREADED	1-BUNC-2A x 53" LG., FULL THREAD	A193 GRB7/ZINC PLATED
11	1	PLATE, STOCK	34-1/2" x 36" x 1/2" THK	A36
10G	1	PLATE, STOCK	3" x 21-9/16" x 3/16" THK	A36
10F	2	PLATE, STOCK	3" x 36" x 3/16" THK	A36
10B-10E	4	PLATE, STOCK	36" x 89-1/8" x 3/16" THK	A36
10A	5	PLATE, STOCK	4" x 4" x 3/16" THK	A36
9	1	PIPE, SEAMLESS	1"-STD. WT. x 40-9/16" LG., P.B.E.	A105 GRB or A53 GRB
8	5	NUT, ROD COUPLING	5/8-11UNC-2B x 2-1/8" LG.	C'SIL
7	2	NUT, HEAVY HEX	1-BUNC-2B, SEMI-FINISHED	A194 GR2H/ZINC PLATED
6	1	NUT, HEAVY HEX	5/8-11UNC-2B, SEMI-FINISHED	C'SIL/ZINC PLATED
5	1	EYEBOLT	5/8-11UNC-2A x 1-3/4" SHANK	M-MASTER-CARR # 30141531
4C	5	CHANNEL, STRUCTURAL	C8 x 13.75# x 67-5/16" LG., P.B.E.	A36
4B	1	CHANNEL, STRUCTURAL	C8 x 13.75# x 178-1/4" LG., P.B.E.	A36
4A	1	CHANNEL, STRUCTURAL	C8 x 13.75# x 178-1/4" LG., P.B.E.	A36
3	6	BOLT, HEAVY HEX HEAD	5/8-10UNC-2A x 1-3/4" LG.	A193 GRB7/ZINC PLATED
2E	1	ANGLE, STRUCTURAL	4" x 4" x 3/8" THK x 58-19/32" LG., P.B.E. ROLLED TO 40-3/4" ID (SEE DETAIL)	A36
2D	1	ANGLE, STRUCTURAL	4" x 4" x 3/8" THK x 36-1/4" LG., P.B.E.	A36
2C	1	ANGLE, STRUCTURAL	4" x 4" x 3/8" THK x 36-1/4" LG., P.B.E.	A36
2B	1	ANGLE, STRUCTURAL	4" x 4" x 3/8" THK x 19" LG., P.B.E.	A36
2A	2	ANGLE, STRUCTURAL	4" x 4" x 3/8" THK x 29-1/2" LG., P.B.E.	A36
1	2	ANGLE, STRUCTURAL	2-1/2" x 2-1/2" x 1/4" THK x 67-5/16" LG., P.B.E.	A36
ITEM	Q'TY	NAME	SIZE / DESCRIPTION	MATERIAL



-PLAN VIEW-

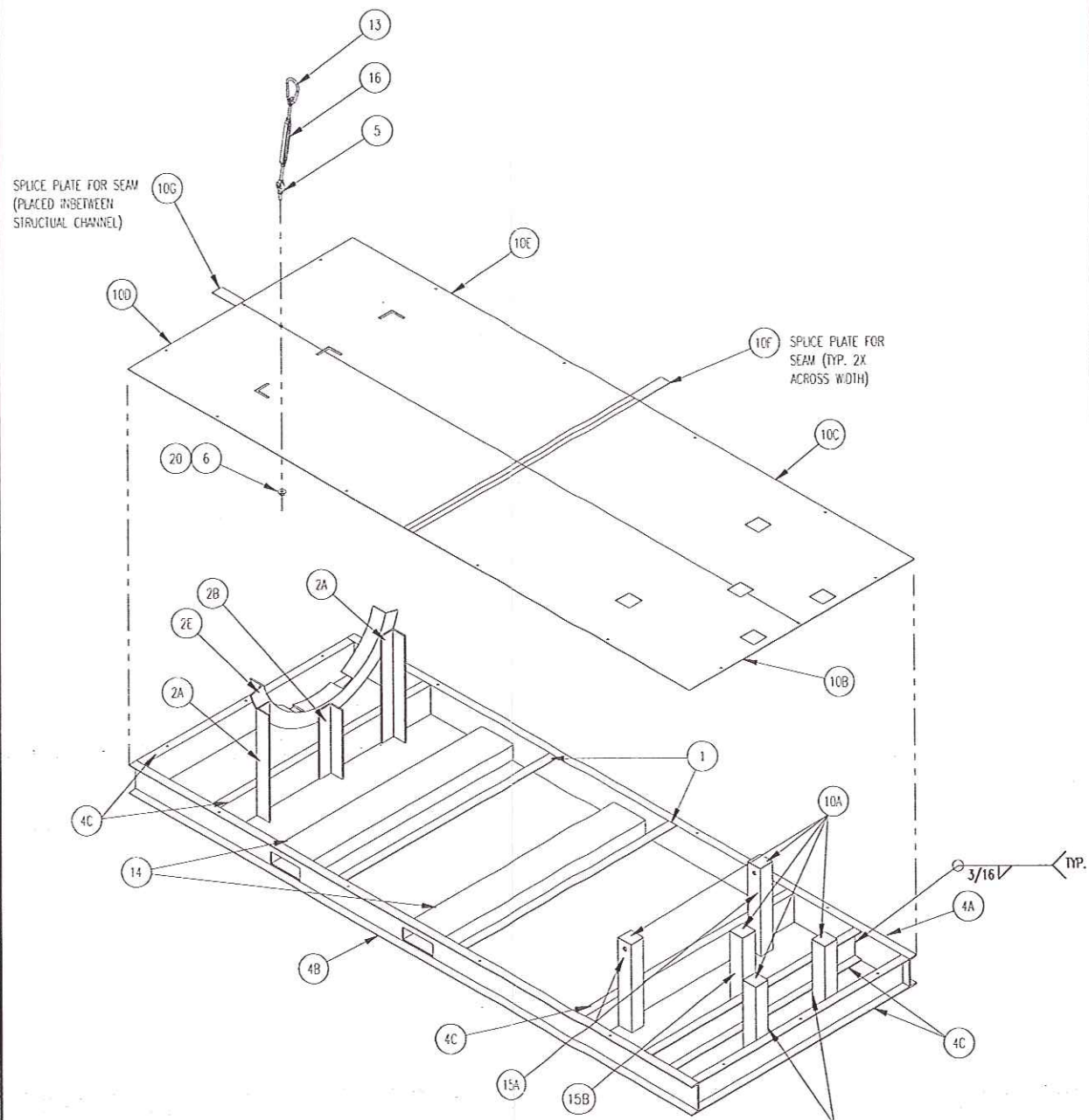


-FRONT VIEW-

-CRADLE DETAIL 2E-

NOTE: ALTERNATE MAY BE
(2) PIECE PLATE, WELDED
CONSTRUCTION

IMPORTANT: BEFORE ATTEMPTING TO OPERATE OR INSTALL THIS SYSTEM, IT IS ESSENTIAL TO READ AND UNDERSTAND THIS PRODUCT'S OPERATION AND MAINTENANCE MANUAL (SHIPPED UNDER SEPARATE COVER). FAILURE TO READ THE OPERATION AND MAINTENANCE MANUAL BEFORE ATTEMPTING TO OPERATE ANY PALL CORPORATION EQUIPMENT MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE, AND MAY VOID ANY AND/OR ALL WARRANTIES.



-SKID BASE ASSEMBLY DETAIL-

SCALE: NONE

Purchase Order Number: 56803-P-13-16

DATE: 12/20/07

ISSUED BY: 12/20/07

ISSUED TO: 12/20/07

ISSUED FOR: 12/20/07

ISSUED BY: 12/20/07

ISSUED TO: 12/20/07

ISSUED FOR: 12/20/07

ISSUED BY: 12/20/07

ISSUED TO: 12/20/07

ISSUED FOR: 12/20/07

CODE IDENT. NO. 17238

DATE: 12/20/07

ISSUED BY: 12/20/07

ISSUED TO: 12/20/07

ISSUED FOR: 12/20/07

ISSUED BY: 12/20/07

ISSUED TO: 12/20/07

ISSUED FOR: 12/20/07

ISSUED BY: 12/20/07

ISSUED TO: 12/20/07

ISSUED FOR: 12/20/07

UNLESS OTHERWISE SPECIFIED, THE FOLLOWING INFORMATION APPLIES ONLY TO THIS SHEET

INCHES ONLY

INCHES ONLY

INCHES ONLY

INCHES ONLY

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INCHES ONLY

INCHES ONLY

INCHES ONLY

INCHES ONLY

INCHES ONLY

PALL Pall Corporation

Pall Advanced Separations Systems

Cortland, New York

10000011108

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03.00143, REGENERATOR TS SHIPPING SKID

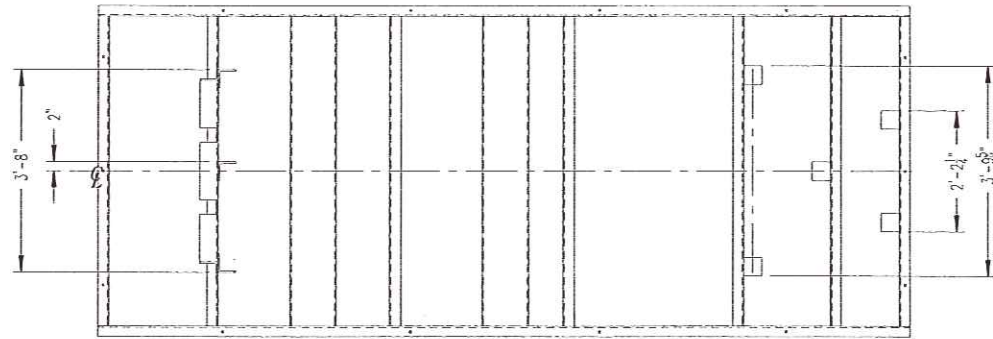
TAG # J-681

D-COK/GIANT YORKTOWN PROJECT

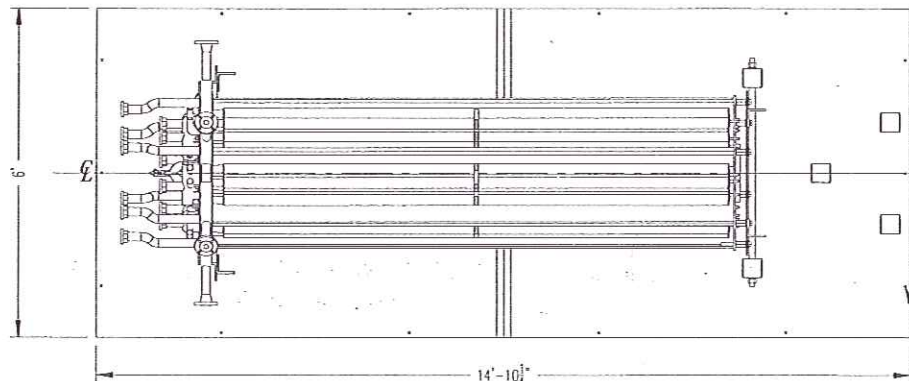
SCALE: 1:8

41133

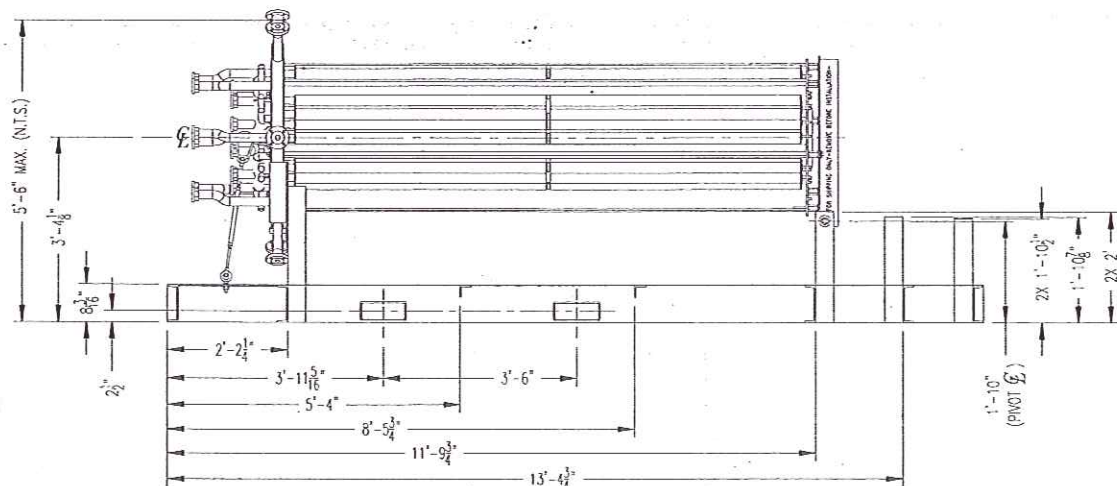
2 of 3



—PLAN VIEW—
(SKID ONLY W/DECKING REMOVED FOR CLARITY)



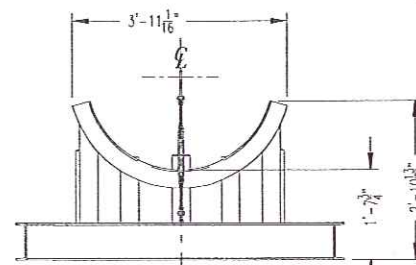
—PLAN VIEW—
(CRADLED FOR TRANSPORT)



—FRONT ELEVATION VIEW—
(CRADLED FOR TRANSPORT/FRONT BASE CHANNEL REMOVED FOR CLARITY)

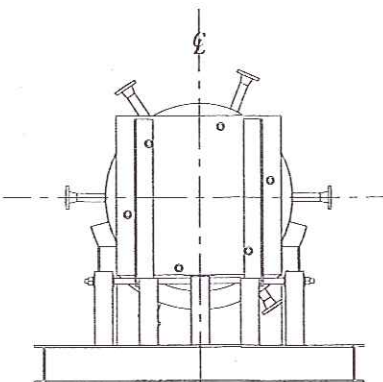
GENERAL NOTES:

- ESTIMATED WEIGHTS:
BASE SKID & HARDWARE: 2,192 LBS.
CRATE SIDES (4) & TOP: 1,073 LBS.
PIVOT FRAME & HARDWARE: 188 LBS.
TUBESHEET/ELEMENT BUNDLE ASSEMBLY: 3,349 LBS.
SKIDDED & CRATED TUBESHEET/ELEMENT BUNDLE ASSEMBLY: 6,802 LBS.
- REFER TO PASS DRAWING NUMBER 10000011096 FOR ADDITIONAL INFORMATION REGARDING THE TUBESHEET/ELEMENT BUNDLE ASSEMBLY.
- BASE SKID AND PIVOT FRAME TO BE CARBON STEEL OF WELDED CONSTRUCTION. STITCH WELD DECKING TO BASE SKID MEMBERS (ANGLE AND CHANNEL) AND AT ALL DECK SEAMS. FOLLOWING FABRICATION BLAST BOTH TO SSPC-SP-10 (NEAR WHITE FINISH) AND APPLY ONE (1) COAT OF INORGANIC ZINC RICH PRIMER. STENCIL PIVOT FRAME AS NOTED IN DETAIL (SHEET 2).
- UPPER CRATE ((4) SIDEWALLS & TOP) TO BE CONSTRUCTED OF 2" x 4" PINE OR SPRUCE FRAMING WITH 1/2" THICK EXTERIOR GRADE PLYWOOD SHEATHING. USE GALVANIZED DECK SCREWS AND ZINC PLATED LAG BOLTS AND WASHERS TO ASSEMBLE THE UPPER CRATE AND ATTACH TO BASE SKID. DRILL PILOT HOLE FOR ALL LAG BOLTS TO PREVENT FRAME MEMBERS FROM SPLITTING.
- NO SKID HARDWARE OR WOOD CRATING (OTHER THAN ATTACHMENT BOLTING), IS TO COME IN CONTACT WITH THE FINISHED TUBESHEET/ELEMENT BUNDLE ASSEMBLY.
- REFER TO PASS DRAWING NUMBER 10000011095 FOR ADDITIONAL INFORMATION REGARDING PROTECTION OF SEALING SURFACES AND COVERING FLANGED OPENINGS.
- USE FORKTRUCK WITH EXTENDED FORKS TO LIFT THE SKIDDED ASSEMBLY & MAINTAIN FULL CONTACT WITH 6"-0" WIDTH OF BASE SKID.
- SKIDDED TUBESHEET TO BE SHRUNK WRAPPED WITH POLYETHYLENE FILM. CRATED ASSEMBLY SHALL BE SHIPPED TARPED AND STORED INDOORS OR UNDER COVER TO PREVENT ENVIRONMENTAL CONTAMINATION OF ELEMENTS.
- DO NOT USE NAILS OR STAPLES FOR ANY PART OF THE UPPER CRATE ASSEMBLY.
- PRIOR TO LOWERING THE TUBESHEET/ELEMENT BUNDLE ASSEMBLY HORIZONTALLY ONTO THE SKID CRADLE, THE SHIPPER (TUBESHEET FABRICATOR) SHALL LINE THE CRADLE SURFACE WITH SUITABLE MATERIAL (I.E.: POLYETHYLENE FOAM PACKING) TO CUSHION AND PROTECT THE PAINTED TUBESHEET DISC SURFACE FROM DAMAGE.
- THE FOLLOWING INSTRUCTIONS SHALL BE FOLLOWED TO MOVE THE TUBESHEET ASSEMBLY FROM HORIZONTAL TO VERTICAL POSITION: REMOVE THREADED CHAIN CONNECTOR (ITEM #13) AT THE SKID CRADLE END. LIFT THE TUBESHEET FROM THE CRADLE END USING THE LIFT LUG ATTACHED TO THE TUBESHEET. DURING THE ENTIRE MOVEMENT FROM HORIZONTAL TO VERTICAL, CARE SHOULD BE TAKEN NOT TO PROVIDE EXCESSIVE FORCE ON THE PIVOT END. ONCE IT HAS REACHED FULL VERTICAL POSITION, REMOVE ITEM #3, 18, AND 20 AT THE PIVOT ASSEMBLY END. LIFT TUBESHEET ASSEMBLY VERTICALLY USING LIFT LUG. REMOVE THE COUPLING NUTS (ITEM #8) AND PLAIN WASHER (ITEM #20). REINSTALL (12) HEAVY HEX NUTS AND (6) PLAIN WASHERS TO EACH OF THE (6) LEGS.



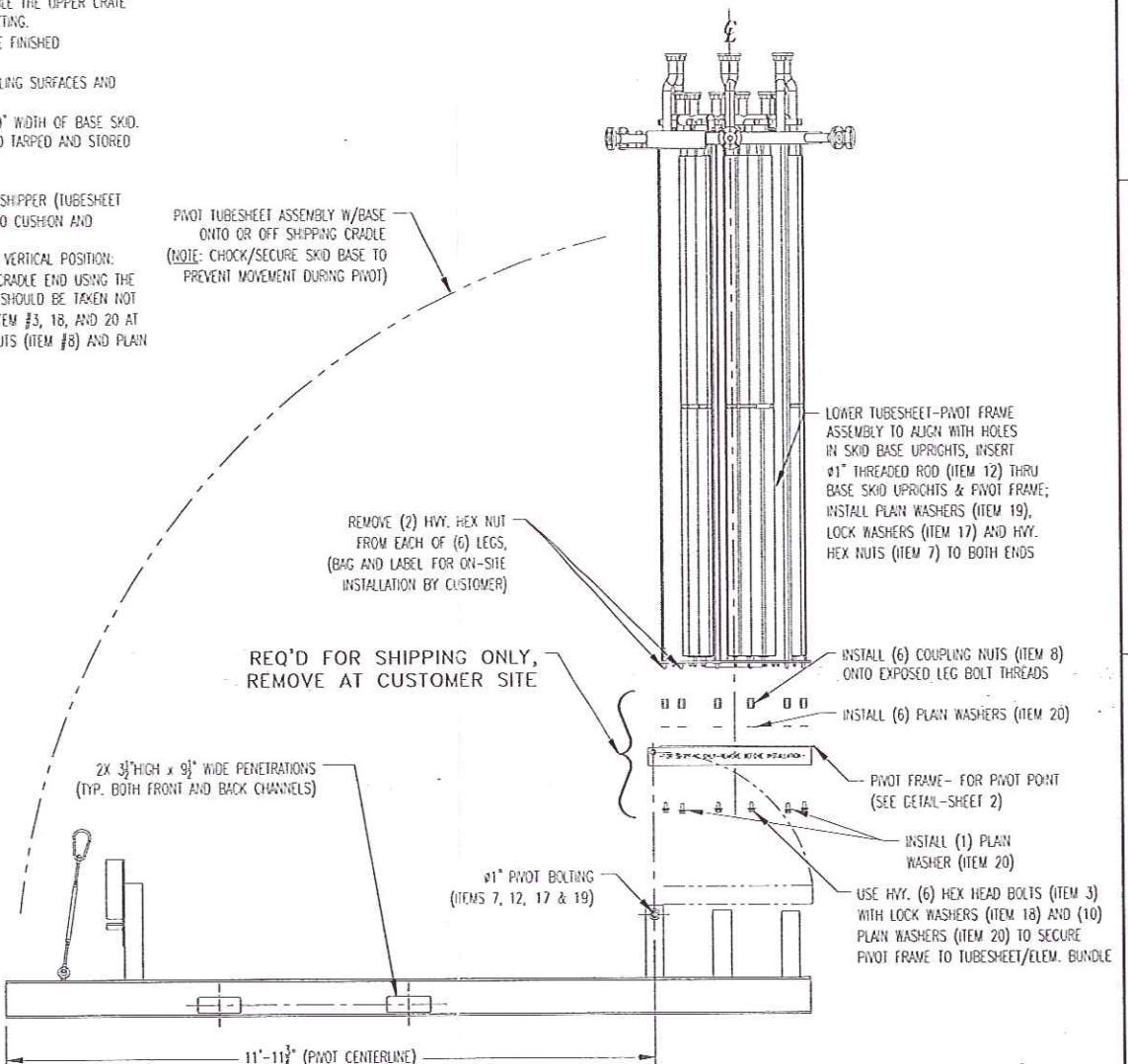
—LEFT ELEV. VIEW—
(SKID ONLY)

14X 1/2" HOLE THRU DECK AND PERIMETER CHANNEL FOR USE WITH LAG BOLTS TO SECURE UPPER CRATE



—RIGHT ELEVATION VIEW—
(CRADLED FOR TRANSPORT)

PIVOT TUBESHEET ASSEMBLY W/BASE ONTO OR OFF SHIPPING CRADLE (NOTE: CHOCK/SECURE SKID BASE TO PREVENT MOVEMENT DURING PIVOT)



—ELEVATION VIEW—
(LOADING/OFFLOADING)

Purchase Order Number: 56603-P-13-16
Product: GIANT S 2000B
Job No: 120653
Name: S
DATE: 1/24/2007
DRAWN BY: J. CRYSTIN
PROJECT ENGINEER: J. CRYSTIN
ENGINEER: J. CRYSTIN
ENGINEER: J. CRYSTIN
CHECKER: J. CRYSTIN
DATE: 1/24/2007

—SEE SHEET 2 FOR BASE SKID & PIVOT FRAME B.O.M.—

CODE IDENT. NO. 17238	NAME	DATE	-- DO NOT SCALE DRAWING --	
0.181010	0.181010	1/24/2007	UNLESS OTHERWISE SPECIFIED, THE FOLLOWING INFORMATION APPLIES ONLY TO THIS SHEET	
PROJECT ENGINEER	ENGINEER	ENGINEER	ENGINEER	ENGINEER
INCHES ONLY	TOLERANCE	INCHES ONLY	TOLERANCE	INCHES ONLY
1/8"	1/8"	1/8"	1/8"	1/8"
1/16"	1/16"	1/16"	1/16"	1/16"
1/32"	1/32"	1/32"	1/32"	1/32"
1/64"	1/64"	1/64"	1/64"	1/64"
DRAWING NUMBER			REVISION	DWG SIZE
10000011108			00	D
03.00143, REGENERATOR TS SHIPPING SKID				
TAG # J-681				
D-COK/GIANT YORKTOWN PROJECT				
SCALE			1/20	1 OF 3
SHEET			41133	1 OF 3

IMPORTANT: BEFORE ATTEMPTING TO OPERATE OR INSTALL THIS SYSTEM, IT IS ESSENTIAL TO READ AND UNDERSTAND THIS PRODUCT'S OPERATION AND MAINTENANCE MANUAL (SHIPPED UNDER SEPARATE COVER). FAILURE TO READ THE OPERATION AND MAINTENANCE MANUAL BEFORE ATTEMPTING TO OPERATE ANY PALL CORPORATION EQUIPMENT MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE, AND MAY VOID ANY AND/OR ALL WARRANTIES.