FORM U-1 MANUFACTURERS DATA REPORT FOR PRESSURE VESSELS

as required by the provisions of the ASME Code rules, Section VIII, Division 1

E-6220-7

1. Manufactured and certified by FABSCO, INC., 186 NORTH LANSING, TULSA, OKLAHOMA
(name and address of manufacturer)

2. Manufactured for Fluor Daniel, Inc., Greenville, SC #104556
(name and address of purchaser)

3. Location of installation Cape Industries, Wilmington, NC
(name and address)

4. Type: Vertical (horiz. or vert., tank) | 90-5084-5 (mfr's. serial no.) | -- (CRN) | 90-5084-5-1 (drawing no.) | 1982 (Nat'l. Bd. no.) | 1990 (year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction and workmanship conform to ASME Code, Section VIII, Division 1: 1989 (year)

-- (addenda (Date)) | (Code Case no.) | (special service per UG-120(d))

Items 6-11 inclusive to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers.

6. Shell: SA 516-70 (mat'l. (spec. no., grade)) | 1/2 (nom. thickness (in.)) | 1/16 (corr. allow. (in.)) | 4'-9" (dia. ID (ft. & in.)) | 6'-6-1/4" (length (overall) (ft. & in.))

7. Seams: Dbl. Butt (long. (dbl., sngl.)) | Spot (RT (spot or full)) | 85 (eff. (%)) | None (HT temp. (°F)) | -- (time) | Dbl. Butt (girth (dbl., sngl.)) | Spot (RT(spot, partial, or full)) | 2 (no. of courses)

8. Heads: (a) SA 516-70 (mat'l. (spec. no., grade)) (b) SA 516-70 (mat'l. (spec. no., grade))

	Location (top, bottom, ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (convex or concave)
(a)	Intergal	7/16"	1/16"		1-1/2"	71" ID	x 57" ID	x 6" Lg.	Flg.&Flued	Concave
(b)	Intergal	7/16"	1/16"		1-1/2"	71" ID	x 57" ID	x 6" Lg.	Flg.&Flued	Concave

If removable, bolts used (describe other fastenings): (mat'l., spec. no., gr., size, no.)

9. Type of jacket: Proof test:

10. Jacket closure: (describe as ogee & weld, bar, etc.) If bar, give dimensions: If bolted, describe or sketch

11. MAWP: 150* (psi) at max. temp. 375 (°F). Min design metal temp.: -10 (°F) at 150 (psi). Hydro. ~~XXXXXXXXXX~~ test pressure 225 (psi)

Items 12 and 13 to be completed for tube sections.

12. Tubesheets: (2) SA 182-F316 (stationary mat'l. (spec. no., gr.)) | 57 (dia. (in.) (subject to pressure)) | 2-3/4 (nom. thickness (in.)) | 0 (corr. allow. (in.)) | Welded (attachment (welded, bolted)

(floating mat'l. (spec. no., gr.)) | (dia. (in.)) | (nom. thickness (in.)) | (corr. allow. (in.)) | (attachment)

13. Tubes: SA 249-TP316 (mat'l. (spec. no., gr.)) | 1 (OD (in.)) | 16 BWG (nom. thickness (in. or gauge)) | 1794 (no.) | Straight (type (straight or U))

Items 14-17 inclusive to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell: SA 240-316 (mat'l. (spec. no., gr.)) | 3/8 (nom. thickness (in.)) | 0 (corr. allow. (in.)) | 4'-9-1/2" (dia. ID (ft. & in.)) | 1'-8-1/8" (length (overall) (ft. & in.))

15. Seams: Dbl. Butt (long (dbl., sngl.)) | Spot (RT (spot or full)) | 85 (eff. (%)) | None (HT temp. (°F)) | -- (time) | Dbl. Butt (girth (dbl., sngl.)) | Spot (RT (spot, partial, or full)) | 2 (no. of courses)

16. Heads: (a) SA 240-316 (mat'l. (spec. no., grade)) (b) SA 240-316 (mat'l. (spec. no., grade))

	Location (top, bottom, ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (convex or concave)
(a)	Top	3/8"	0	23¼" ID x 57½" ID			x 30½" Lg.	Conc. Cone		Concave
(b)	Bottom	3/8"	0	15½" ID x 57½" ID			x 37-3/4" Lg.	Conc. Cone		Concave

If removable, bolts used (describe other fastenings): 128 - 3/4" SA 193-B7 Studs w/ SA 194-2H Hex Nuts (mat'l., spec. no., gr., size, no.)

17. MAWP: 100 ** (psi) at max. temp. 400 (°F). Min design metal temp.: -20 (°F) at 100 (psi). Hydro., ~~XXXXXXXXXX~~ test pressure 150 (psi)

This form may be obtained from The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Columbus, OH 43229

[redacted]pose (inlet, [redacted]let, drain, etc.)	Number	Dia. or Size	Type	Mat'l	Nom. Thickness	Reinforcement Material	How Attached	Loca
[redacted]et	1	24"	Welded	SA182-F	316 150	#104556		Top Chann
[redacted]tlet	1	16"	Welded	SA182-F	316 150"			Bott.C
Spray	1	4"	Welded	SA312-TF	316 .237			Top Cha
Inlet	1	6"	Welded	SA106-B	.432			Shell
Outlet	2	1"	Welded	SA106-B	.250			Shell
Outlet	1	10"	Welded	SA106-B	.500			Shell

19. Supports: Skirt No (yes or no) Lugs 4 (no.) Legs _____ (no.) Other _____ (describe) Attached Welded to Shell (where and how)

20. Remarks: Manufacturers' Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for t following items of the report: _____ (name of part, item number, mfr's. name and identifying stamp)

Channels include 2 Girth Flanges - SA 182-F316
P.O. No. 0027-D1-50001 Item No. E-6220-7
Service: Vacuum Stripper Condenser
* 15 PSI External Pressure at 375°F ** 15 PSI External Pressure at 400°F

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction and workmanship of t vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

"U" Certificate of Authorization no. 24,411 expires 10/16, 19 92.

Date 10-11-90 Name FABSCO, INC. PLANT NO.4 (manufacturer) Signed [signature] (representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by FABSCO, INC. PLANT NO. 4 at TULSA, OKLAHOMA

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the state or p vince of OKLAHOMA and employed by COMMERCIAL UNION INSURANCE COMPANY of BOSTON, MA have inspected the pressure vessel described in this Manufacturers' D Report on 10/11, 19 90, and state that, to the best of my knowledge and belief, the manufacturer has constructed t pressure vessel in accordance with ASME Code, Section VIII, Division 1.

By signing this certificate neither the inspector nor his employer makes any warranty, expressed or implied, concerning the pressure ves described in the Manufacturers' Data Report. Furthermore, neither the inspector nor his employer shall be liable in any manner for any p sonal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 10-12-90 Signed [signature] (Authorized Inspector) Commissions OK 258 NB 5298 (Nat'l. Bd. (incl. endorsements) state, prov. and no.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the field assembly construction of all parts of this vessel conforms with the requirements of Section VIII, Division 1 of t ASME BOILER AND PRESSURE VESSEL CODE.

"U" Certificate of Authorization no. _____ expires _____, 19 _____.

Date _____ Name _____ (assembler that certified and constructed field assembly) Signed _____ (representative)

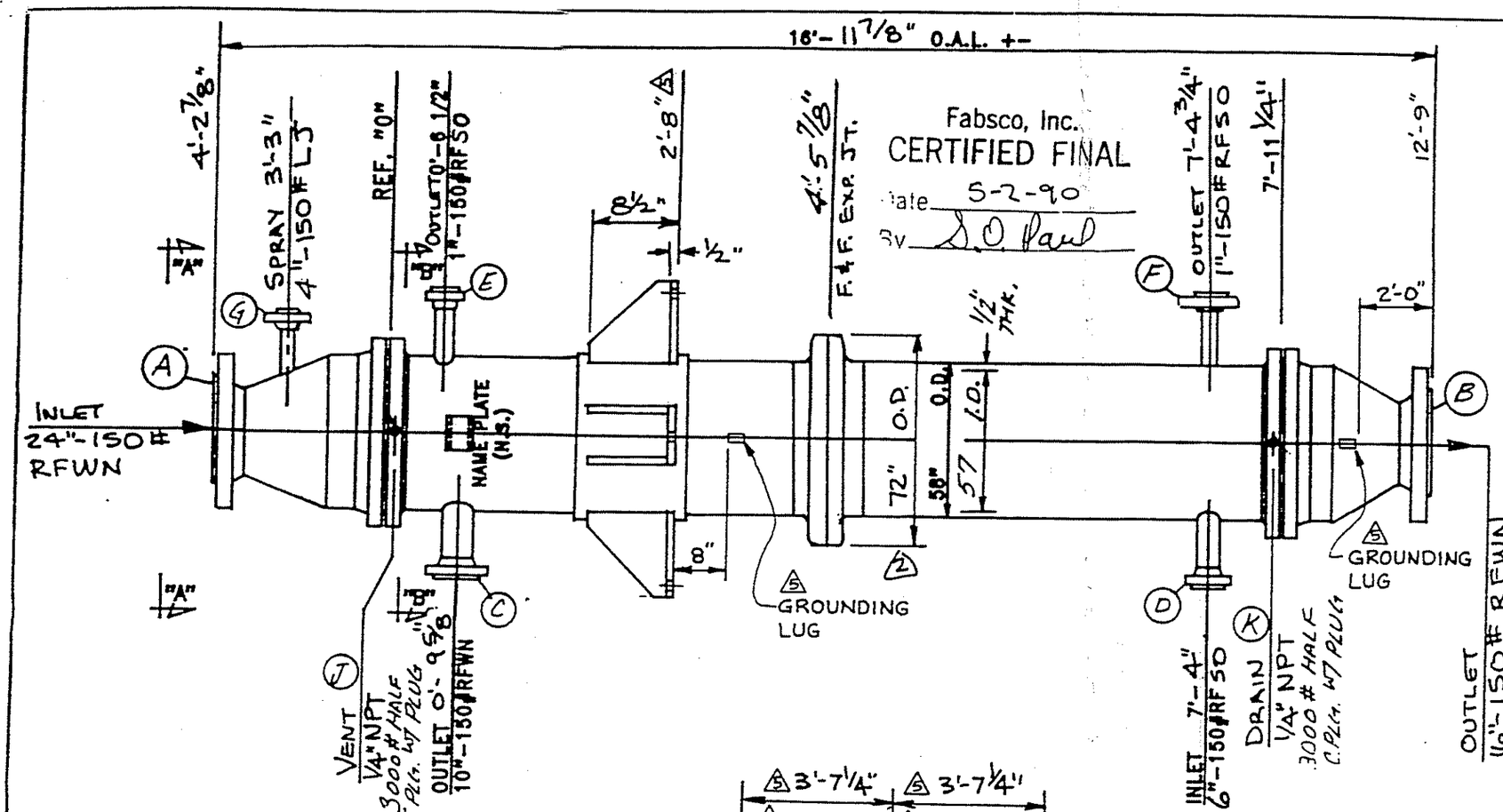
CERTIFICATE OF FIELD ASSEMBLY INSPECTION

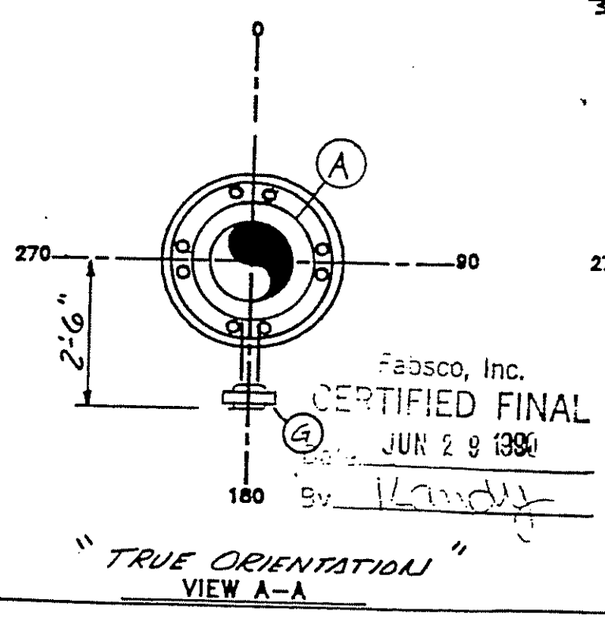
I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the state or pr vince of _____ and employed by _____ of _____ have compared the statements in this Manufacturers' D Report with the described pressure vessel and state that parts referred to as data items _____, not included in t certificate of shop inspection, have been inspected by me and that to the best of my knowledge and belief, the manufacturer has co structed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspect and subjected to a hydrostatic test of _____ psi.

By signing this certificate neither the inspector nor his employer makes any warranty, expressed or implied, concerning the pressure ves described in the Manufacturers' Data Report. Furthermore, neither the inspector nor his employer shall be liable in any manner for any p sonal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date _____ Signed _____ (Authorized Inspector) Commissions _____ (Nat'l. Bd. (incl. endorsements) state, prov. and no.)

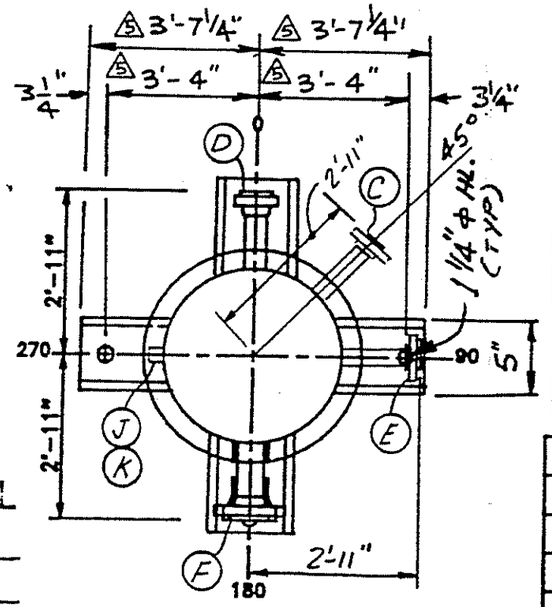
#104556





Fabsco, Inc.
CERTIFIED FINAL
JUN 29 1990
By

"TRUE ORIENTATION"
VIEW A-A



"TRUE ORIENTATION"
SECTION B-B

MK.	PROCESS	SIZE-TYPE
A	INLET	24"-150# RFWN
B	OUTLET	16"-150# RFWN
C	OUTLET	10"-150# RFWN
D	INLET	6"-150# RFSO
E	OUTLET	1"-150# RFSO
F	OUTLET	1"-150# RFSO
G	SPRAY	4"-150# LJ
J	VENT	¼"-3000# HALF CPLG W/P
K	DRAIN	¼"-3000# HALF CPLG W/P

NO.	DATE	REVISIONS
6	6/14/90	REV TUBESHEET MATL CWR/
5	6/5/90	REV/CUST CWR/
4	5/3/90	/CUST. DON
3	4/10/90	REV. /CUST. DON
2	3-21-1990	REV/CUST.
1	3-16-1990	REV/CUST REDRAWN

DESIGN DATA	SHELL	TUB
DESIGN PRESSURE P.S.I.G.	150/FV	100/F
TEST PRESSURE P.S.I.G.	225	150
DESIGN TEMPERATURE DEG. F. /MDMT	375/-10	400/-
CORROSION ALLOWANCE	.0625"	.0000"
NUMBER OF PASSES	1	1
RADIOGRAPHIC EXAMINATION	SPOT	SPOT
HEAT TREAT REQUIRED	NO	NO

ESTIMATED WEIGHTS, LBS.

DRY: 19600 BUNDLE: 0 WET: 28500

SPECIFICATIONS

A.S.M.E. SEC.VIII DIV.1 1989 EDITN. STAMP YES
TEMA CLASS B
NATIONAL BOARD REGISTRATION REQUIRED
5DE-451G INSUL. CLIPS

MATERIAL

CHANNEL: SA-240-316
SHELL: SA-516-70
TUBESHEETS: SA-182-F316 (6)
BAFFLES: SA-516-70 (5)
TUBES: SA-249TP316
(1794) 1" O.D.X .065" Avg. x 8'-0" L
TUBE PITCH 1 1/4" ▷ SURFACE 3542 SQ.F

GENERAL NOTES

ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES.
STRENGTH WELD & ROLL TUBES
2½" INSUL BY OTHERS

JUN 18 1990
FLUOR DANIEL ENGINEERING

GASKETS: .175" THK. S.S. FLEXITALLIC W/ 1/8" C.G.
1 SET OF SPARE GASKETS REQUIRED.
PAINT: SEE JOB NOTE SHEET.

CUST: FLUOR DANIEL INC.
P.O. NO.: 0027-D1-50001
ITEM NO.: E-6220-7
SERVICE : VACUUM STRIPPER CONDENSER
SHIP TO :

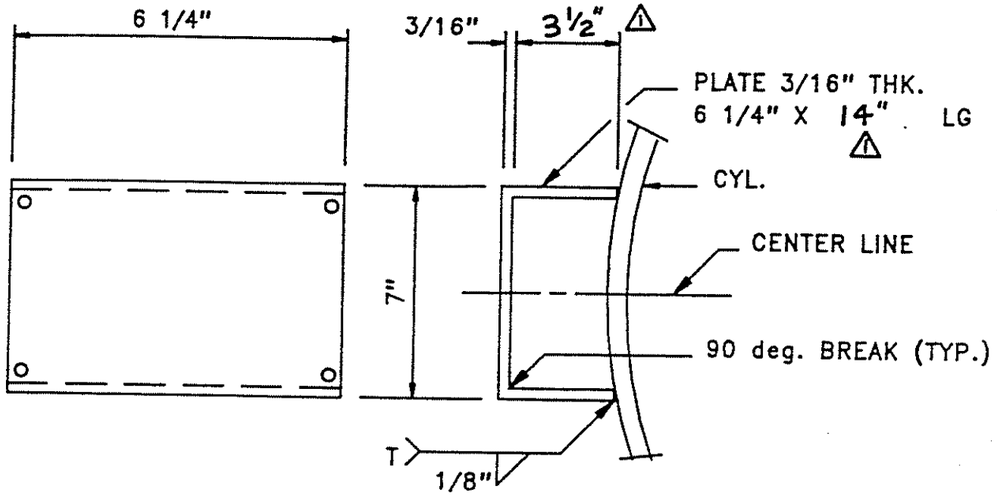
JUL 2 3 1990

ASSEMBLY AND SPECIFICATIONS FOR
ONE 57-96 B E M

DWN. BY	GOP
DATE	2-24-90
CKD. BY	DG
DWG.NO.	90-5084-E-1

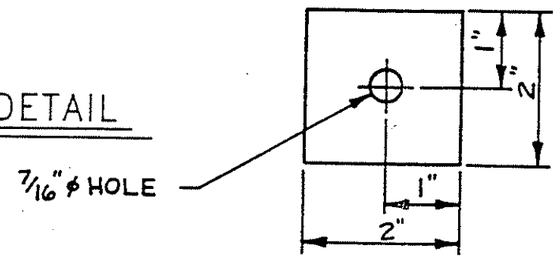
FABSCO, INC.
SAPULPA, OKLAHOMA

#104556

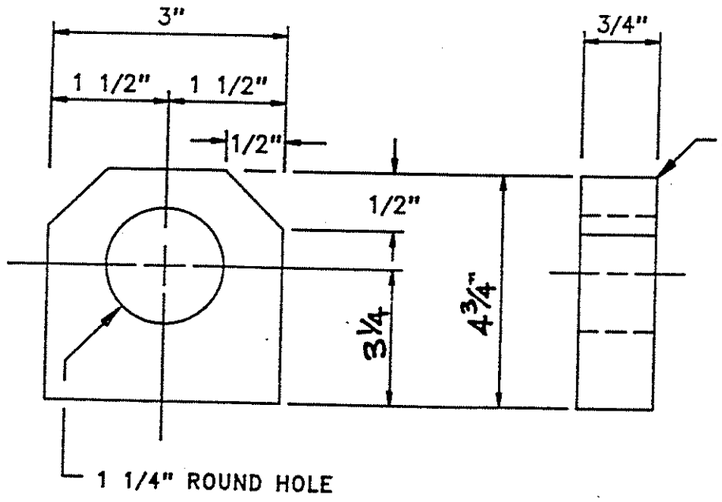


(ONE) REQ'D.

NAME PLATE BRACKET DETAIL



⚠ GROUNDING LUG



NO. REQUIRED: (2)

LIFTING LUG DETAIL

MATERIAL: 18-8 STN. STL.(16 GA)

NATL. BD. NO. *

CERTIFIED BY

FABSCO INC.

SAPULPA, OKLAHOMA

		MAWP		TEMP	
W					
RT-3	SHELL SIDE	150 ⊛	PSI AT	375	°F
		MDMT		PRESS.	
	SHELL SIDE	-10	°F AT	150	PSI
		MAWP		TEMP	
	TUBE SIDE	100 ⊛	PSI AT	400	°F
		MDMT		PRESS.	
	TUBE SIDE	-20	°F AT	100	PSI

SERIAL NO.	YEAR BUILT	HEATING SURFACE
90-5084-5	1990	3542 SQ.FT.

P.O. NO.		SHELL SIDE	TUBE SIDE
0027-D1-50001	TEST PRESS.	225 PSI	150 PSI

ITEM NO.	SIZE	TEMA TYPE
E-6220-7	57- 96	B E M

SERVICE: VACUUM STRIPPER CONDENSER

⊛ & IS PSI EXTERNAL PRESS.

* TO BE ASSIGNED AT TIME OF SHIPMENT

RECEIVED
JUN 18 1990
FLUOR DANIEL
ENGINEERING

JUL 20 1990

PO# 0027-D1-50001
ITEM# E-6220-7

Fabsco, Inc.
CERTIFIED FINAL
Date JUN 29 1990
By

NO.	DATE	REVISIONS	
⚠	6/5/90	REV/CUST	CWR/MM

NAME PL., BRKT. & LIFT LUGS

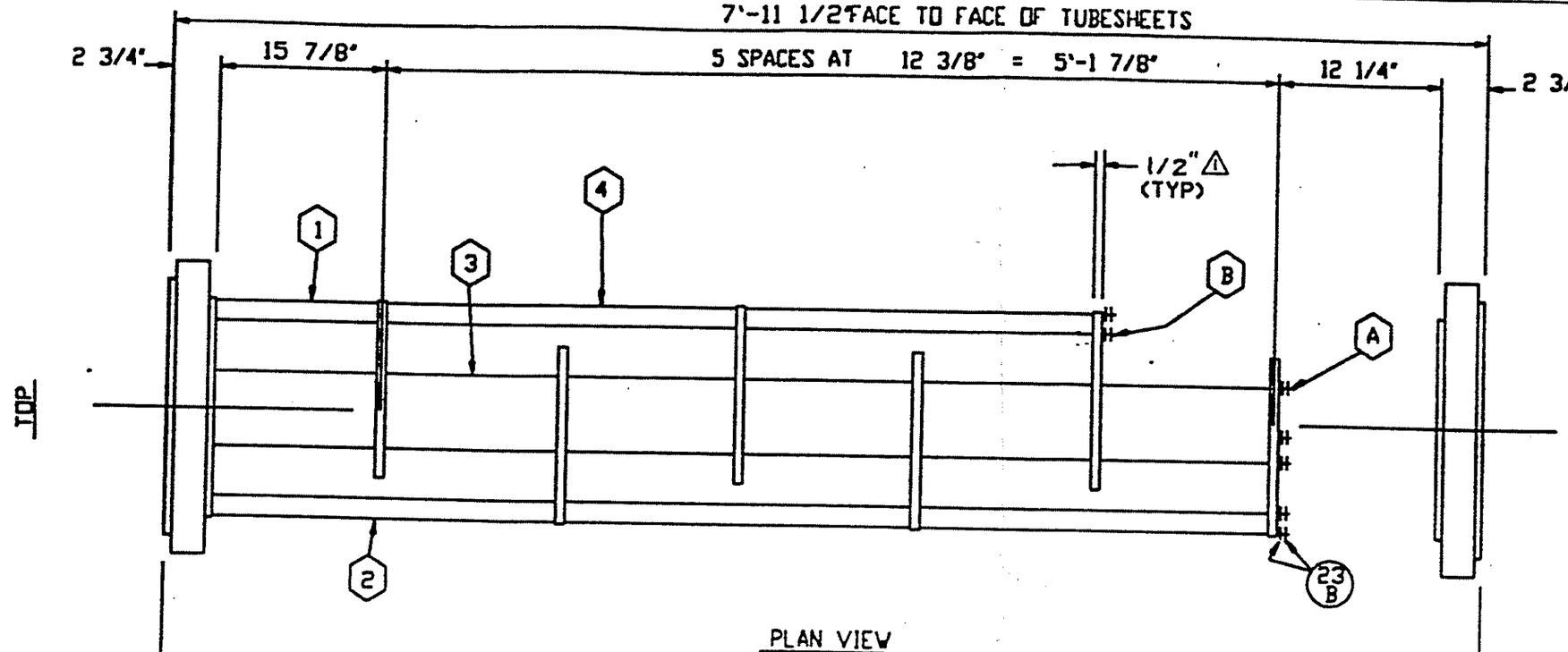
DWN. BY SDG
DATE 4-29-90
CKD. BY DM

FABSCO, INC.
SAPULPA, OKLAHOMA

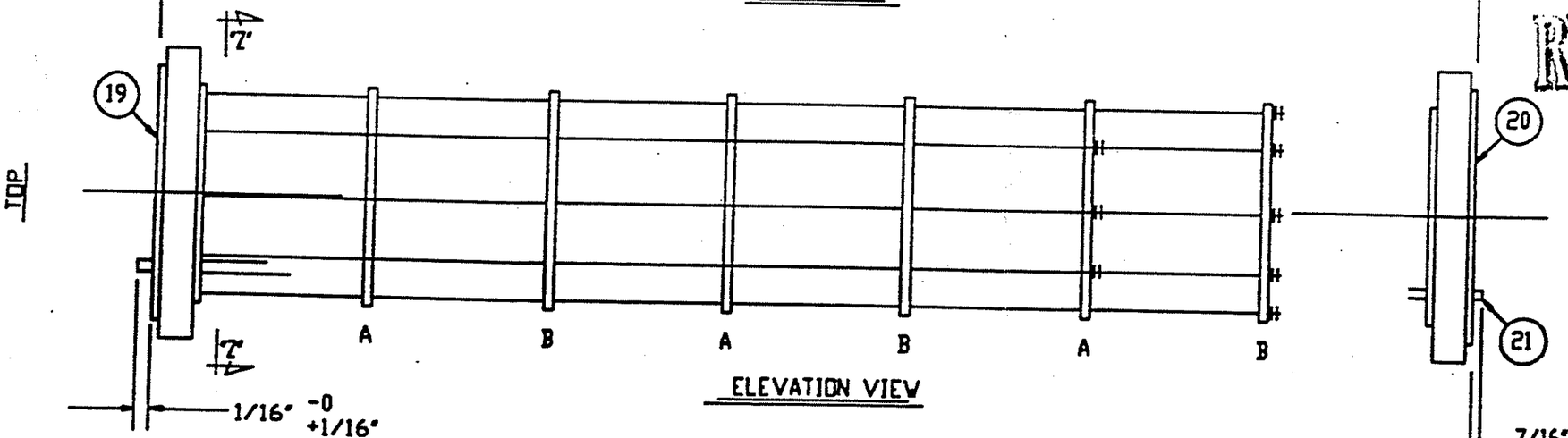
DWG.NO. 90-5084-5-11

RE 1

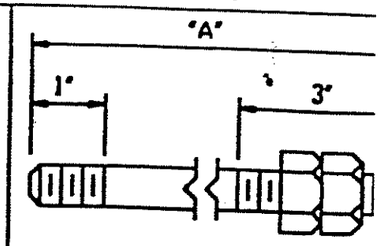
#104556



PLAN VIEW

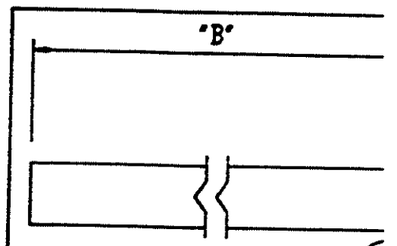


ELEVATION VIEW



1/2" O.D. TIE RODS

	REQ'D.	"A"
⚠ A	7.	6'-8 5/16"
⚠ B	3.	5'-7 15/16"
C		
D		



3/4" O.D. SPACER TUBING

	REQ'D.	"B"
⚠ 1	7.	15 5/8"
⚠ 2	3.	28"
⚠ 3	20.	11 7/8"
⚠ 4	12.	24 1/4"
5		
6		
7		

RECEIVED
JUN 18 1990
FLUOR DANIEL ENGINEERING

JUL 20 1990

Fabsco, Inc.
CERTIFIED FINAL
Date JUN 29 1990
By

NOTES:
1) SEE DWG. NO. 90-5084-5-8 FOR SECTION AND VIEW DETAILS.
2) TUBES ARE STRENGTH & ROLLED TO TUBESHEET.

P.O.# 0027-D1-50001
ITEM# E-6220-7

⚠	6/5/90	REV/CUST. CWR/KM

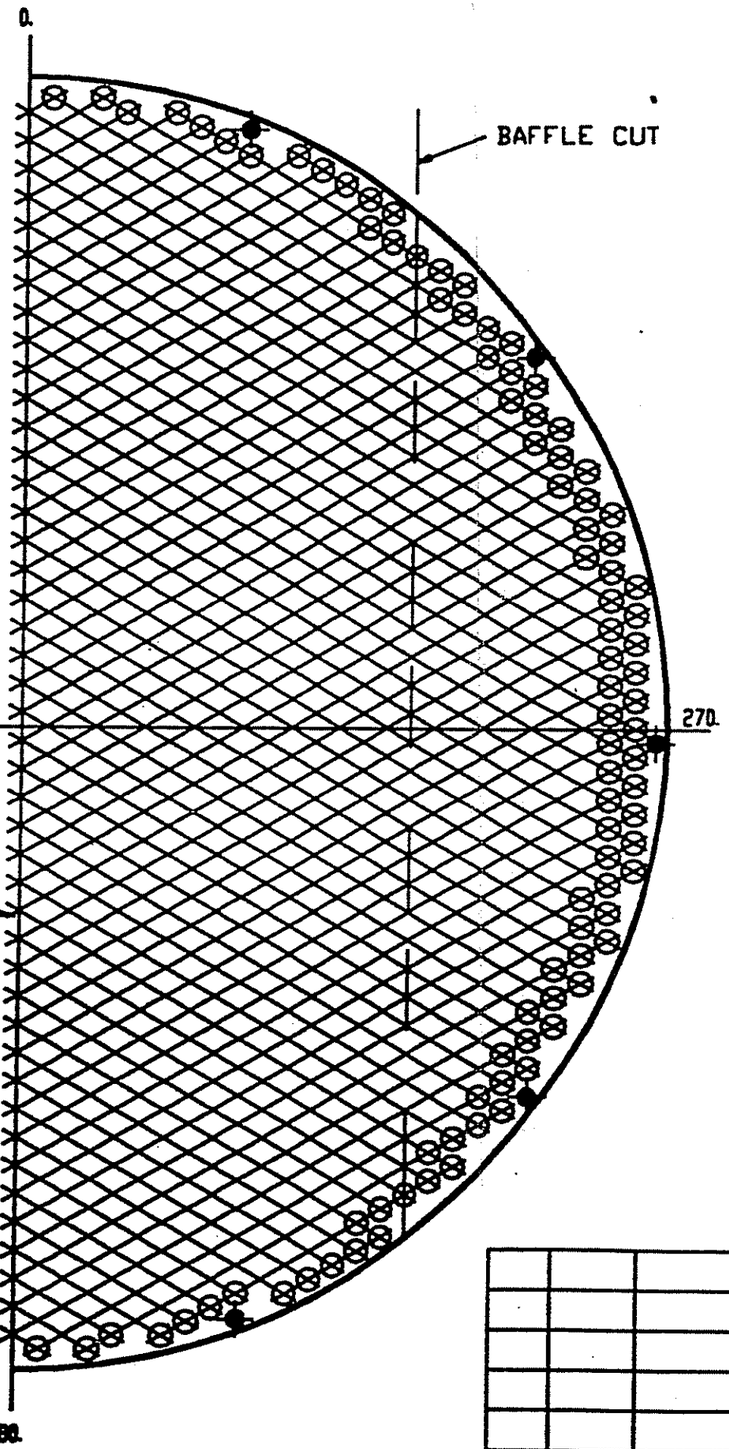
BUNDLE DETAILS

DWN. BY S.D.G.
DATE 4-24-90
CKD. BY
DWG NO.

FABSCO, INC.
SAPULPA, OKLAHOMA

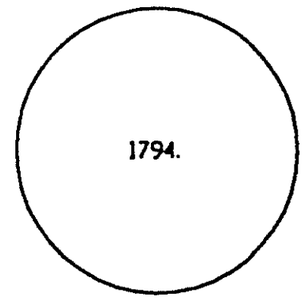
#104556

TIE RODS.
1/2" O.D.
10 REQD. TOTAL



LAYOUT SYMMETRICAL
ABOUT VERTICAL
CENTER LINE.

VIEW LOOKING AT SHELL SIDE OF NO. 19 TUBESHEET



TUBE DISTRIBUTION

RECEIVED
JUN 18 1990
FLUOR DANIEL
ENGINEERING

NOTES:
1) DRILL AND REAM TUBE HOLES IN TUBESHEETS TO 1.0100" +- .002" DIA. FOR 1794 - 1" O.D. TUBES.
2) TUBE PITCH = 1 1/4" ROT. TRIANGLE.
3) NUMBER OF PASSES = 1
4) SEE DRAWING 90-5084-5-5 FOR TUBE GROOVING DETAILS.
5) BAFFLE O.D. = 56 3/4"
6) O.T.L. = 56 9/16"

RECEIVED
JUL 20 1990
Fabsco, Inc.

P.O.# 0027-D1-50001
ITEM# E-6220-7

CERTIFIED FINAL
Date JUN 29 1990
By Randy

NO.	DATE	REVISIONS

TUBE LAYOUT

DWN. BY S.D.G.
DATE 4-24-90
CKD. BY D.L.

FABSCO, INC.
SAPULPA, OKLAHOMA

DWG NO. 90-5084-5-6
REV. 0