71-167

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS
As required by the provisions of the ASME Code Rules, Sec. VIII, Division 1 ITEM E-422-5

1. Manufactured by SOUTHERN HEAT EXCHANGER CORPORATION, TUSCALOOSA, ALABAMA #104078
(Name and address of Manufacturer)

2. Manufactured for HERCULES INC. WILMINGTON DEL. DEST: WILMINGTON, NORTH CAROLINA.
(Name and address of Purchaser)

3. Type HORIZ. (Horiz. or Vert.) Kind HEAT EXCH. (Tank, Jacketed, Heat Exch.) Vessel No. (1462) (Mfrs. Serial) ( ) (State & State No.) Natl. Bd. No. 1462 Yr. Built 1971

Items 4–9 incl. to be completed for single wall vessels (such as air tanks), jackets of jacketed vessels, or shells of heat exchangers.

4. SHELL: Material SA-240 TP 304 (Kind and Spec. No.) T.S. 75000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness 1/4 In. Corrosion Allowance 0 In. Diam. 2 Ft 11½ In. Length 21 Ft. 6 In.

5. SEAMS: Long DOUBLE BUTT (Welded, Dbl., Single, Lap, Butt) H.T. NO (Yes or No)[1] R.T. NO (Spot or Complete) Sectioned NO (Yes or No) Efficiency 70 %

Girth DOUBLE BUTT H.T. NO R.T. NO Sectioned NO No. of Courses 3

If riveted describe seams fully on reverse side of form.

6. HEADS (a) Material SA-240 TYPE 304 T.S. 75000 (b) Material ____ T.S. ____

	Location (Top, bottom, ends)	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	END	.25"			2:1				CONCAVE
(b)									

If removable, bolts used ____ (Material, Spec. No., T.S., Size, Number) Other fastening ____ (Describe or Attach Sketch)

7. STAYBOLTS: NONE (Material) If hollow ____ (Size of Hole) Attachment ____ (Threaded, Welded) Pitch ____ (Horiz.) X ____ (Vert.) Diam. ____ (Nominal)

8. JACKET CLOSURE: NONE
(Describe as ogee & weld, bar, etc. If bar, give dimensions, If bolted, describe or sketch)

9. Constructed for max. allowable working press[2] 75 psi at max. temp. 300° F. Min. temp. (when less than –20°) ____ °F. Hydrostatic ~~Pneumatic~~ ~~Combination~~ Test Press 115 psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material SA-240 TYPE 304 (Kind & Spec. No.) Diam. 35½ In. (Subject to Pressure) Thickness 1½ In. Attachment WELDED (Welded, Bolted)

Floating. Material ____ (Kind & Spec. No.) Diam. ____ In. Thickness ____ In. Attachment ____

11. TUBES: Material SA-249 TP 304 (Kind & Spec. No.) O.D. 3/4 In. Thickness 16 (0.065") Inches or Gage Number 538 Type "U" (Straight or U)

Items 12–15 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.

12. SHELL Material SA-285 GR C (Kind and Spec. No.) T.S. 55000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness ½ In. Corrosion Allowance 0 In. Diam. 3 Ft. 0 In. Length 1 Ft. 6½ In.

13. SEAMS: Long DOUBLE BUTT (Welded, Dbl., Single, Lap, Butt) H.T. NO (Yes or No)[1] R.T. NO (Spot or Complete) Sectioned NO (Yes or No) Efficiency 70 %

Girth UW-13.2(d) H.T. NO R.T. NO Sectioned NO No. of courses 1

If riveted describe seams fully on reverse side of form.

14. HEADS (a) Material SA-515 GR 70 T.S. 70000 (b) Material ____ T.S. ____ (c) Material ____ T.S. ____

	Location	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	~~Top, bottom~~, ends	2.125"						40.125	FLAT
(b)	Channel								
(c)	Floating								

If removable, bolts used (a) (36) 5/8"-11 SA-193 GR B7/SA-194-2H (b) ____
(Material, Spec. No., T.S., Size, Number)

(c) ____ Other fastening ____ (Describe or Attach Sketch)

15. Constructed for max. allowable working press[2] 100 psi at max. temp. 300° F. Min. temp. (when less than –20°) ____ °F. Hydrostatic ~~Pneumatic~~ ~~Combination~~ Test Press 150 psi.

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number NONE Size ____ Location ____

17. NOZZLES

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
IN/OUT	2	12"	FLANGED	SA-53 GR B SMLS.	SCH. 30		WELDED
IN	2	12"	"	SA-240 TP 304	3/16"		"
OUT	1	6"	"	SA-312 TP 304	SCH. 40		"
VENT/DRAIN	3	2"	"	"	SCH. 40		"

[1] If postweld heat-treated. [2] List under remarks other internal or external pressures with coincident temperature when applicable.

(Over)

P.O. 026-19527-FCD 026019 E-422-5

FORM U-1 (back)

18. INSPECTION OPENINGS: Manholes, No. NONE Size _____ Location _____
Handholes, No. 11 Size _____ Location _____
Threaded, No. " Size _____ Location SHELL

19. SUPPORTS: Skirt YES (Yes or No) Lugs _____ (Number) Legs 2 (Number) Other _____ (Describe) Attached WELDED (Where & How)

20. REMARKS: HEAT EXCHANGER, CONTENTS CONFIDENTIAL, NOT LETHAL.

(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part.)

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

Date Nov. 29, 1971 Signed SOUTHERN HEAT EXCHANGER CORP. (Manufacturer) By J. W. Pyle J.W.PYLE

Certificate of Authorization Expires DECEMBER 31, 1972

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY SOUTHERN HEAT EXCHANGER CORP. at TUSCALOOSA, ALABAMA

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province OHIO and employed by HARTFORD STEAM BOILER INSP. AND INS. CO. of HARTFORD, CONN. have inspected the pressure vessel described in this manufacturer's data report on 12/22 1971, and state that to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 12/22 19 71

James Dennis Watkins Commissions #6795
Inspectors Signature JAMES DENNIS WATKINS. Nat'l Board, State, or Province and No.

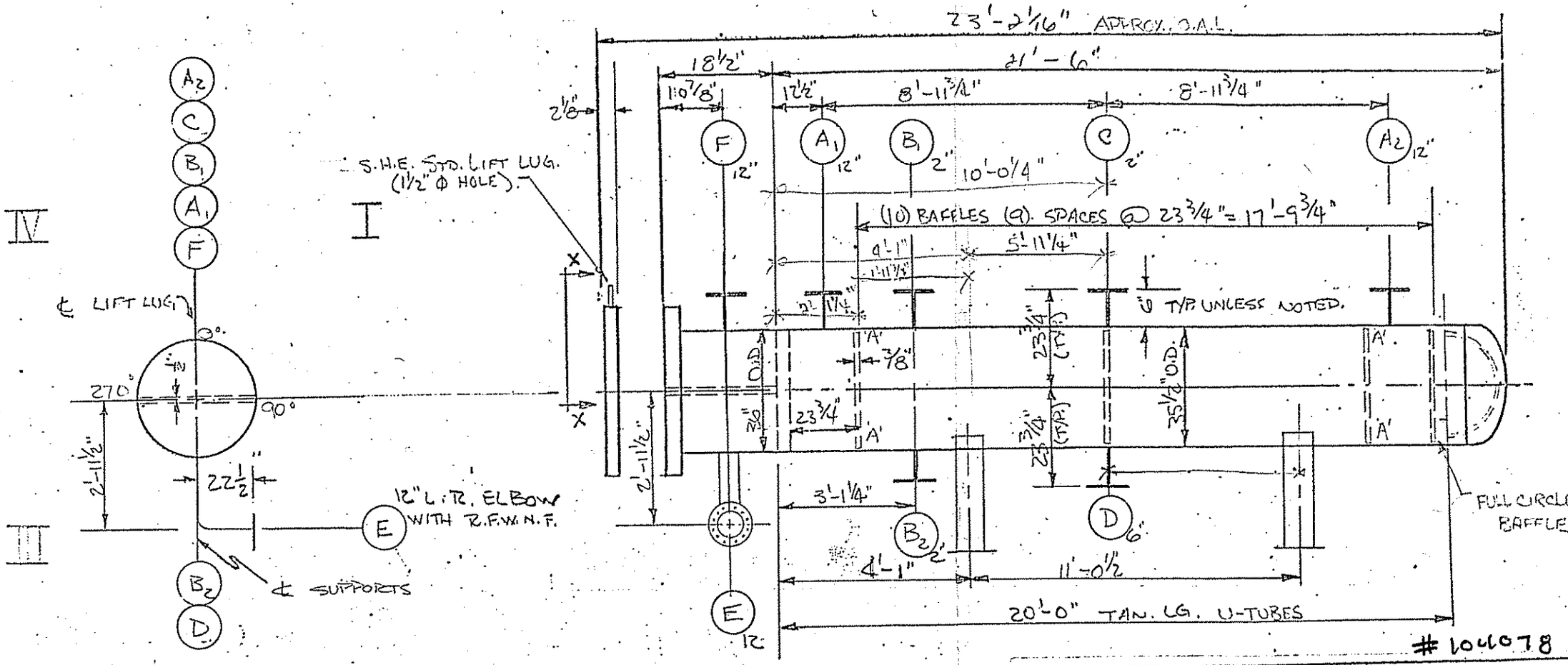
CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province _____ and employed by _____ of _____ have compared the statements in this manufacturer's data report with the described pressure vessel and state that parts referred to as data items _____, not included in the certificate of shop inspection have been inspected by me and that to the best of my knowledge and belief the manufacturer has constructed and assembled this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code. The described vessel was inspected 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 vessel described in this manufacturer's data report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date _____ 19 ____

_____ Commissions _____
Inspector's Signature Nat'l Board, State, or Province and No.



FOR SUPPORTS DETAILS SEE SHEET 1A.

#1046078

3	GEN. REV.		
2	CHANGED NOZZLE 'E' TO R.F.W.N.F. W/ 90° L.R. ELL		
1	ADDED DYE CHECK - SHEET 3		

B.P.F. NO. 42196 DATE 12-28-71

SHEET 2 APPARATUS NO. E-422-5

PROJECT & ACCOUNT 026019 2003

ORDER NO. 336-026-19527

PLANT Hanover

APPROVED Jones Lee 3/10/72

CUSTOMER: HERCULES INCORPORATED

CUST. P.O. NO. 336-026-19527-08-000-F

ITEM NO. E-422-5 PROJ. NO.

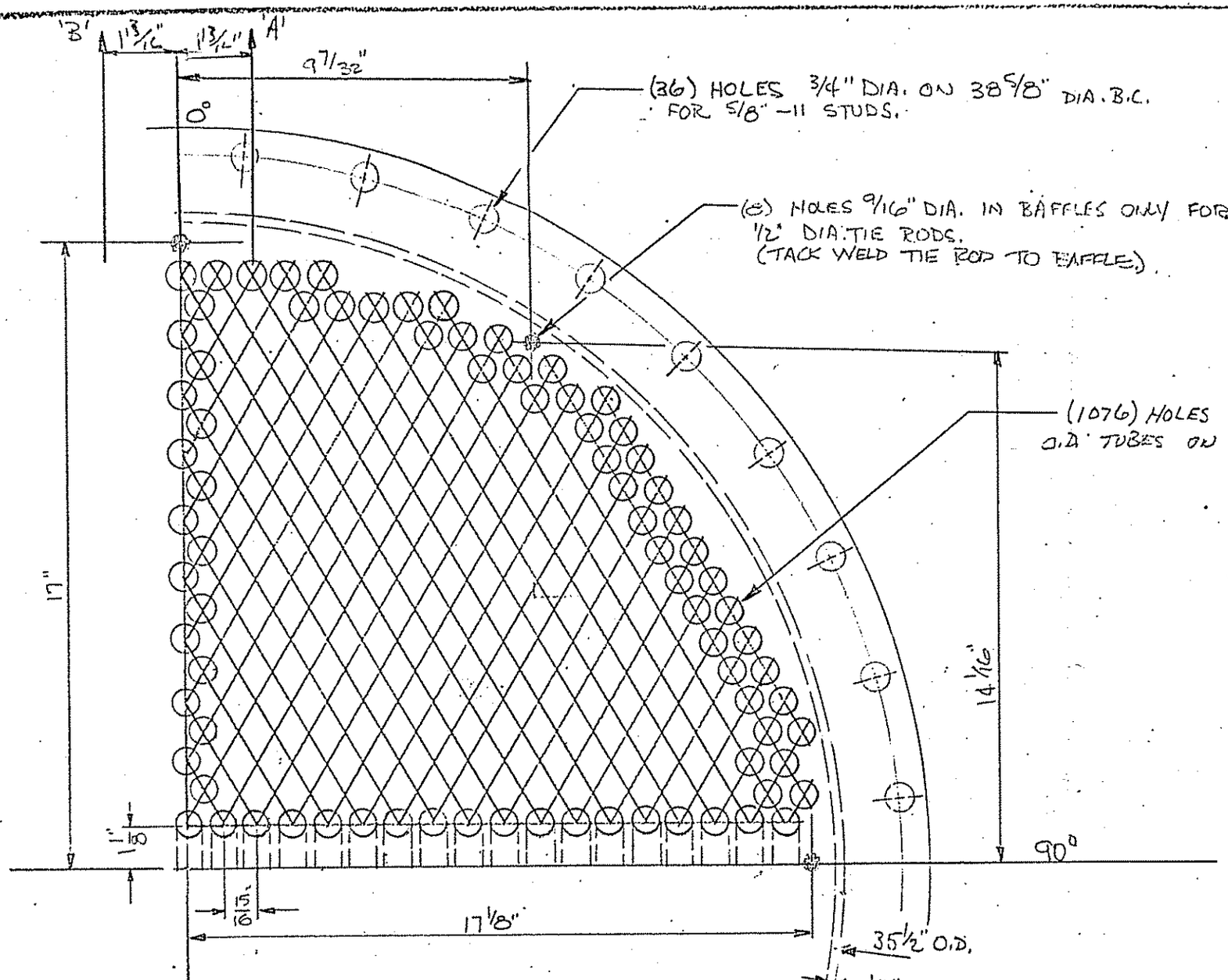
PLANT WILMINGTON, NORTH CAROLINA

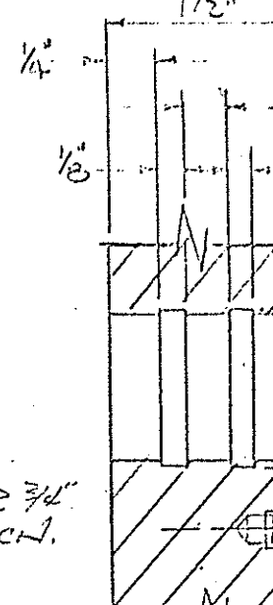
TEMA SIZE AND TYPE

35-240 CHU MECH DRAFT EVAP. CONDENSER

SOUTHERN HEAT EXCHANGER CORP.
P. O. BOX 2400
TUSCALOOSA, ALABAMA 35401

DATE	9-28-71	ORD. NO.	DWG. SE-12
BY:	D. NOLAND	71-167	SHEET 1





(8) 7/16" DIA
TAP 1/2" -
FOR TIE

TUBE HOLE

304 S.S.

VIEW X-X

FFLE CUT ALTERNATES A-A, B-B - LAST BAFFLE IS FULL CIRCLE.
FFLE DIA. = 34.825"
T.L. = 34.37164"
BE HOLE DIA. IN BAFFLES = 25/32"

B.P.F. NO.	42196
DATE	1
SHEET	3
APPARATUS NO.	E
PROJECT & ACCOUNT	026019
ORDER NO.	336-026-19527
PLANT	Hanover
APPROVED	Louis Lee 3/1

DATE:	9-24-71	ORD. NO.	DWG
BY:	D. NOLAND	71-167	SHE

NOZZLE SCHEDULE

	RATING	FACING	NOZZLE NECK	SERVICE
	150#	R.F.W.N.F.	SCH. 30	TUBE IN
		R.F.S.O.	SCH. 30	TUBE OUT
	150#	L.J.	3/16 THK. 304 S.S.	SHELL IN
			3/16" THK.	SHELL IN
			SCH. 40	SHELL VENT
			SCH. 40	COND. OUTLET
				GA. GLASS
				GA. GLASS

B.P.F. NO. 42196 DATE 12-28-71

APPARATUS NO. E-422-5

SHEET 5

PROJECT & ACCOUNT 026019 2003

ORDER NO. 336-026-19527

PLANT Hanover

APPROVED Louis Lee 3/10/72

NOTES

. WT. EMPTY: 16,720# FULL: 26,520

BOLT HOLES STRADDLE NORMAL ℄

WOOD COVERS ON ALL OPEN NOZZLES.

MAIN GASKET SURFACES, SERRATED.

NOT! SANDBLAST O.S. - PAINT CARBOLINE

EEL OUTSIDE (1) COAT RED LEAD PRIMER

IDE (1) SET SPARE GASKETS.

MATERIALS OF CONSTRUCTION

TUBES: SA-249 TYPE 304 WELDED, AVG. WALL

U's NO. 538 O.D. 3/4" BWG 16 LG. 20'-0" TAN. TAN. LG.

TUBESHEETS: SA-240 TYPE 304

PART	SHELL SIDE	TUBE SIDE
SHELL, CHANNEL	SA-240 TYPE 304	SA-285 GR C
SHELL COVER		
FORMED HEADS	SA-240 TYPE 304	
BODY FLANGES		SA-515 GR 70
NOZZLE FLANGES	SA-181 GR 1	SA-181 GR 1
NOZZLE PIPE	SA-312 TYPE 304 SA-240 TYPE 304	SA-53 GR B SMLS.
STUDS	SA-193-B7	SA-193-B7
NUTS	SA-194-2H	SA-194-2H
GASKETS		.175" SPIRAL WOUND 316 S.S. WITH ASB. FILLER & 3/16" COMP. ASB. PASS RIB.
PACKING		
FLTG BARREL		
FLTG. HD. COVER		
FLTG. HD. FLG.		
CHANNEL COVER	SA-515-GR. 70	

NON PRESSURE PARTS

SUPPORTS	C. ST'L.
BAFFLES/SUPPORTS	304 S.S.
TIE RODS	304 S.S.
PASS PARTITIONS	C. ST'L.

ASME CODE REQUIREMENTS

	SHELL SIDE
DES. PRES. PSI	75
DES. TEMP. °F	300
HYDR. TEST PRES. PSI	115
	:
CORROSION ALLOWANCE	0
POSTWELD HEAT TREATMENT	NONE
RADIOGRAPHIC EXAMINATION	NONE

ASME CODE STAMP & NAT'L. BD. REGISTRATION

CUST. INSPECTION IS REQ'D.

SPECIFICATIONS: 1971 ASME CODE SEC

DIV. I.

NAME PLATE DATA

U

W

SHELL YR.

MADP 75 PSI

MADT 300 F.

TUBE

MADP 100 PSI

MADT 300 F

SHE ORD. 71-167

CUST. ORD. 336-026-19527-05-0

EQUIP. NO. E-422-5

SOUTHERN HEAT EXCHANGER C

P.O. BOX 2400, TUSCALOOSA, ALA.

TEL. 205/345-5335 TWX 810-729

DATE:	9-28-71	ORD. NO.	DWG.
BY:	D. NOLAND	71-167	SHEET