

1. Manufactured and certified by  
(Name and address of Manufacturer)

Southern Heat Exchanger Corporation  
6100 Old Montgom. Hwy. Tuscaloosa, Al 35405

2. Manufactured for  
(Name and address of Purchaser)

Glitsch Technology Corp. Parsippany, NJ

3. Location of installation  
(Name & address)

Cape Industries Wilmington, NC

4. Type  
(Horiz,vert,sphere)

Vertical

Heat Exchanger

94-020

None

SB-1633-3

7785

1994

(Tank,separator,jkt. vessel,heat exh,etc.)

(mfg. ser. no.)

(CRN)

(Dwg. No.)

(Natl. Bd. No.)

(Yr. built)

5. ASME Code, Section VIII,Div. 1

1992, A92

None

None

Edition and Addenda(date)

Code Case No.

Special service per UG-120(d)

Items 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels

6. Shell

(a) No. of course(s): 2

(b) Overall length (ft & in): 9' - 9.125"

(OD) Course(s)			Material		Thickness		Long Joint (Cat. A)			Circum.Joint(Cat. A,B,&C)			Heat Treat.	
No.	Diameter, in.	Length (ft & in)	Spec/Grade or Type		Nom.	Corr.	Type	Full,Spot,None	Eff.	Type	Full,Spot,None	Eff.	Temp.	Time
1	36"	1'-0"	SA-516 70		.500"	.062"	1	Spot	85%	1	None	-	NA	
1	26"	8'-0"	"		.375"	"	1	"	"	1	"	-	"	

7. Heads:

(a) SA-516 70

(b)

(Mat'l Spec. No., Grade or Type) H.T.- Time & Temp

(Mat'l Spec. No., Grade or Type) H.T.- Time & Temp

	Location	Thickness		Radius		Elliptical	Conical	Hemisph.	Flat	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full,Spot,None	Eff.
(a)	Center	.375"	.062"	(2) 36" OD flanged and flued heads										
(b)														

If removable, bolts used (describe other fastening) Welded

(Mat'l. Spec. No., Grade, size, no.)

8. Type of jacket

None

Jacket closure

(Describe as ogee & weld, bar, etc.)

If bar, give dimensions

NA

If bolted, describe or sketch.

WP 175 FV

psi at max. temp.

400

-

° F.

Min. design metal temp.

20

° F. at 175/FV

psi

(internal)

(external)

(internal)

(external)

10. Impact test

No UG-20(f)

(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press.

265 Hydro

Proof test

NA

Items 12 and 13 to be completed for tube sections

12. Tubesheet:

SA-240-316L

26"

1.375"

.125"

Welded

Stationary (Mat'l. Spec. No.)

Dia., in. (subject to pressure)

Nom. thk., in.

Corr. Allow., in.

Attachment (welded or bolted)

NA

Floating (Mat'l. Spec. No.)

Dia., in.

Nom. thk., in.

Corr. Allow., in.

Attachment

13. Tubes

SA-249-317L

3/4"

14 BWG

604

Straight

Mat'l. Spec. No., Grade or Type

O.D., in.

Nom. thk., in. or gauge

Number

Type (Straight or U)

Items 14 - 18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell

(a) No. of course(s): 2

(b) Overall length (ft & in): 3'-10.625"

(OD) Course(s)			Material		Thickness		Long Joint (Cat. A)			Circum.Joint(Cat. A,B,&C)			Heat Treat.	
No.	Diameter, in.	Length (ft & in)	Spec/Grade or Type		Nom.	Corr.	Type	Full,Spot,None	Eff.	Type	Full,Spot,None	Eff.	Temp.	Time
1	26"	2-4.75"	SA-240-316L		.375"	.125"	1	Spot	85%	-	-	-	NA	
1	26"	1'-5.875"	"		"	"	1	"	"					

15. Heads:

(a) SA-516 70 (lined w / .25" thk. SA-240 316L)

(b)

(Mat'l Spec. No., Grade or Type) H.T.- Time & Temp

(Mat'l Spec. No., Grade or Type) H.T.- Time & Temp

	Location	Thickness		Radius		Elliptical	Conical	Hemisph.	Flat	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full,Spot,None	Eff.
(a)	Top / Btm.	1.75"	0						30.75"					

If removable, bolts used (describe other fastening) SA-193-B7 (28) ea. 3/4" - 10

(Mat'l. Spec. No., Grade, size, no.)

NB-26

Rev. 10



16. MAWP 50 FV psi at max. temp. 400 ° F. Min. design metal temp. 20 ° F. at 50 / FV psi

(Internal) (external) (Internal) (external)

17. Impact test No UHA-51(a)

(Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. 75 psig hydro Proof test NA

19. Nozzles, inspection, and safety valve openings: (UW-16.1)

Purpose (inlet, Outlet, Drain, etc.)	No.	Diameter or size	Flange Type	Material		Nozzle Thk.		Reinforcement Material	How Attached		Loc. (Insp. Opn.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
In	1.	6"	150#	SA-106 B	SA-105	.280"	.062"	Inherent	e	RFWN	
Out	1	3"	"	"	"	.300"	"	"	e	"	
Vent-drain	1-1	*	6000	-	"	-	"	"	bb	Thd. Cpg.	
Vapor	1	18"	150#	SA-240 316L	"	.375"	.125"	"	e	LJ	
Bottoms	1	10"	"	SA-312 316L	"	.365"	"	"	e	LJ	
Vent-drain	1-1	*	"	"	SA182F316L	.250"	"	"	^	RFWN	
* Vent - 3/4" Drain- 1"				^ Vent - e Drain- j							

20. Supports: Skirt No Lugs 2 Legs Others Attached Shell, welded

(Yes or No) (No.) (No.) (Describe) (Where and How)

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:  
(List the name of part, item number, mfg's. name and identifying number)

22. Remarks: UG-46(a)

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 this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1,

U Certificate of Authorization No. 7037 Expires 11/29, 1996

Date 8/31/94 Name Southern Heat Exchanger Corporation Signed (Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of NY and employed by Commercial Union Insurance Company of Boston, MA have inspected the pressure vessel described in this Manufacturer's Data Report on 8/31 19 94, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this 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 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 8/31/94 Signed (Authorized Inspector) Commissions NB 5446A NY2182 (Nat'l Board incl. endorsement, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1,

U Certificate of Authorization No. Expires , 19

Date Name Signed (Assembler) (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 Province of and employed by 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 to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. 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 Signed (Authorized Inspector) Commissions (Nat'l Board incl. endorsement, State, Province and No.)



# 104352

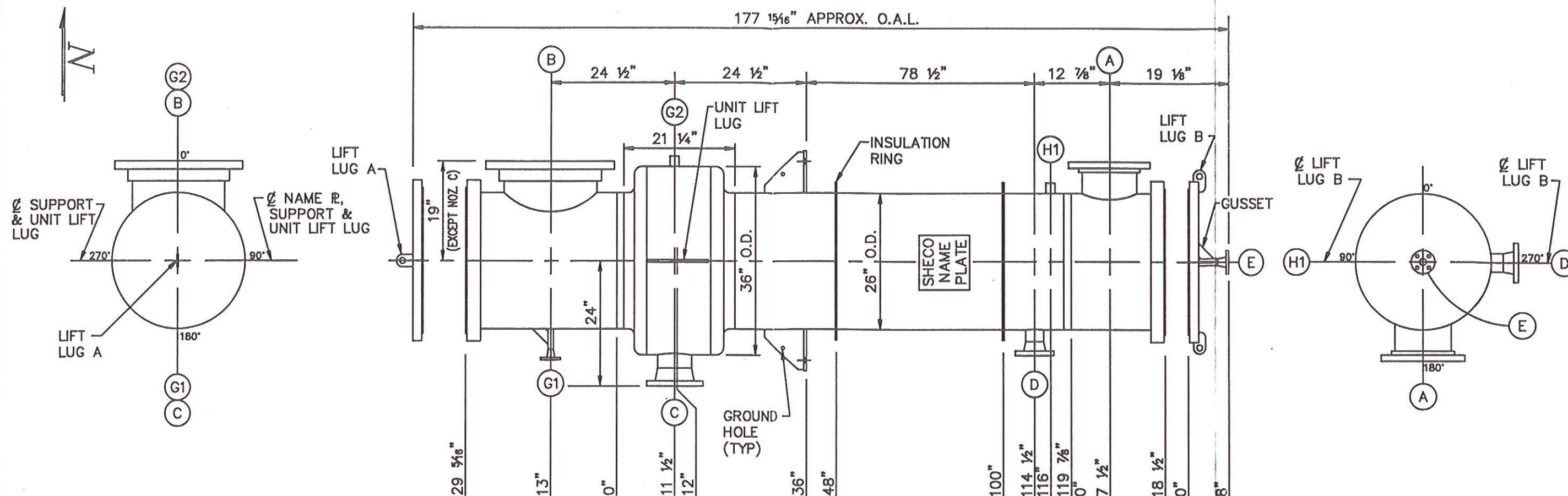
	NATIONAL BOARD NO. 7785	
	CERTIFIED BY	
	<b>SOUTHERN HEAT EXCHANGER CORP.</b>	
	TUSCALOOSA, ALABAMA	
SHELL SIDE		
MAWP	175 / EV	PSI AT 400 °F.
MDMT	20	°F. AT 175 / EV PSI
TUBE SIDE		
MAWP	50 / EV	PSI AT 400 °F.
MDMT	20	°F. AT 50 / EV PSI
SHECO SER. NO.	94-020	YEAR 1994
CUST. ORDER	106971	
CUST. ITEM	1-12 13-5	



## HEAT EXCHANGER SPECIFICATION SHEET

1 E-1213-5 ACID SPLITTER REBOILER 104352  
2 GLITSCH JOB NO. 5F-1096  
3  
4  
5  
6 Size 25-120 Type NEN Ver Connected in 1 Parallel 1 Series  
7 Surf/Unit(Eff) 1169 ft2; Shells/Unit 1 Surf/Shell(Eff) 1169 ft2  
8 PERFORMANCE OF ONE UNIT  
9 Fluid Allocation  
10 Fluid Name Shell Side Tube Side  
11 Fluid Quantity, Total STEAM ACETIC ACID  
12 Vapor (In/Out) lb/h 5589 159014  
13 Liquid lb/h 5589 28034  
14 Noncondensable lb/h 159014 130980  
15 Temperature (In/Out) F 250 250 162.2 163  
16 Dew Point/Bubble Point F 250 162.2  
17 Density lb/ft3 0.071 58.789 0.032  
18 Viscosity cp 0.013 0.24 0.59 0.01  
19 Molecular Weight, Vapor 60.49 60.49  
20 Molecular Weight, Noncondensable  
21 Specific Heat BTU/(lb\*F) 0.52 1.006 0.528 0.295  
22 Thermal Conductivity BTU/(ft\*h\*F) 0.397 0.087 0.008  
23 Latent Heat BTU/lb 942 186  
24 Inlet Pressure psia 30 2.8  
25 Velocity ft/s 18.0 109.0  
26 Pressure Drop, Allow./Calc. psi 5 / 0.283 2.102 / 2.083  
27 Fouling Resist. (Min.) ft2\*h\*F/BTU 0.0005 0.001  
28 Heat Exchanged 5265990 BTU/h; MTD (Corrected) 72.1 F  
29 Transfer Rate, Service 63 Dirty 91 Clean 108 BTU/(ft2\*h\*F)  
30 CONSTRUCTION OF ONE SHELL Sketch  
31 Shell Side Tube Side  
32 Design/Test Pressure psig 175&FV/Code 50&FV/Code  
33 Design Temperature F 400 400  
34 No. Passes per Shell 1 1  
35 Corrosion Allowance in 0.0625 0.125  
36 Connections In in 6 / 150 10 / 150  
37 Size / Out in 3 / 150 18 / 150  
38 Rating /  
39 Tube No. 604 OD 0.75 ;Thk-Avg 0.083 in;Length 10 ft;Pitch 0.9375 in  
40 Tube Type Plain Material SS317L Pattern 30  
41 Shell CS ID 25.375 OD 26 in Shell Cover  
42 Channel or Bonnet SS316L Channel Cover CS/316LSS Clad  
43 Tubesheet-Stationary SS316L Tubesheet-Floating  
44 Floating Head Cover Impingement Protection In Dome  
45 Baffles-Cross CS Type SSEG Cut (%d) 44 H;Spacing: c/c 23.25 in  
46 Baffles-Long Seal Type Inlet 17.5 in  
47 Supports-Tube U-Bend Type  
48 Bypass Seal Arrangement Tube-Tubesheet Joint Welded  
49 Expansion Joint Calculate Type Flanged & Flued  
50 Rho\*V2-Inlet Nozzle 883 Bundle Entrance 131 Bundle Exit  
51 Gaskets-Shell Side Spiral Wnd 316SS TFE Fill Tube Side Spiral Wnd 316SS-  
52 TFE Fill  
53 Code Requirements ASME Code Sec VIII Div 1 TEMA Class B  
54 Weight/Shell 6564 Filled with Water 9512 Bundle 4214 lb  
55 Remarks See Engineering Notes  
56 Tubes to be seamless. Tubes may be welded if they are cold drawn with no  
57 more than 15% reduction in wall thickness. Spot radiograph required on butt  
58 welds. Paint external SS surfaces per 11CS-674.

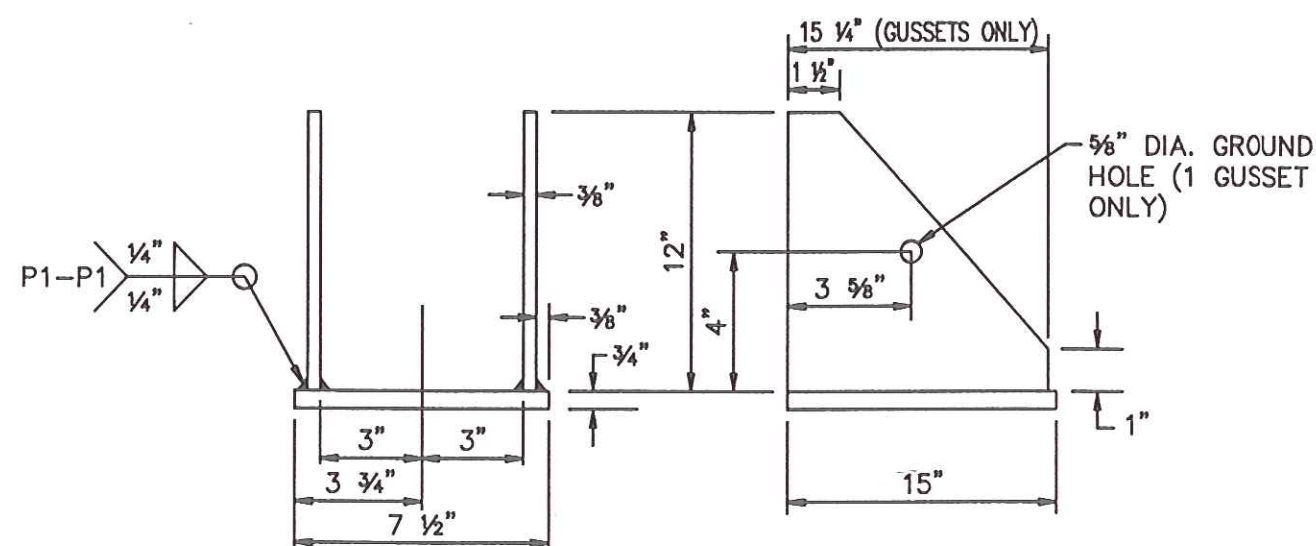




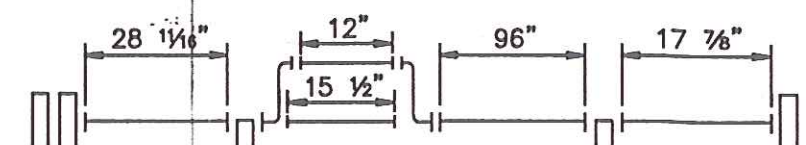
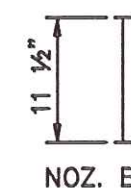
ORIENTATION

ELEVATION

ORIENTATION



SUPPORT DETAIL  
(2) REQ'D.



THEORETICAL COURSE LENGTH

- C.ST'L
- 316L S.ST'L
- 317L S.ST'L

CERTIFIED	ENG. <b>MASWIS</b>	
CUSTOMER	GLITSCH TECHNOLOGY CORP.	
CUSTOMER P.O. NO.	21697	
ITEM NO.	E-1213-5	PROJ. NO. 6K-1512
PLANT	WILMINGTON, NC	
TEMA SIZE AND TYPE		
(1) 25-120 NEN ACID SPLITTER REBOILER		
SOUTHERN HEAT EXCHANGER CORP.		
P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 02/11/94	ORDER NO.	DWG. NO. SB-1633-4
BY T.E.M.	94-020	SHEET 2 OF 5

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