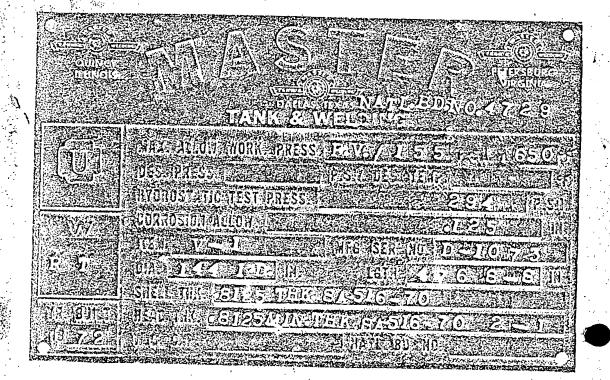
FORM U-1A MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS Alternate Form for Single Chamber Completely Shop Forticated Vessels Only As Required the Provisions of the ASME Code Respection VIII, Division I

1 M-		_			·			
4 . 1912	anufactured by _	MASTER	TANK &	WELDING,	INC., DALL	AS, TEXA	S	·
2. Mr	anufactured for_	F	oster V	Wheeler Co	orporation,	Houston	, Texas	
k.	77 2		n 10m		and address of Purchas			
3. Ty	ype HOrlz (Horiz. or Ve	rt.) Vessel No. (D-10/.	(State & Sta) Natl. Bd. No.	4729	Yr. Built	1972 S/
					Corr 125 AllowIn. Diam.			39 Ft. 8 In.
5. SE	EAMS: Long Db	1.Butt Welle	NO.	R.T. CO	mp Sectioned NO (Yes or	Efficiency No)	, 100 %	If riveted or brazed describe seams fully under
					mp Sectioned No			remarks.
6. ні	EADS: (a) Materi	_{ial} _SA-516-70) T.S	70,000) Material SA-516 ptical Conical atio Apex Angle	-70	T.S. 7	0,000
	(Top, bottom, e.	nds) Thickness .8125	Radius	Radius R	ptical Conical latio Apex Angle 2:1	lemispherical Radius		Side to Pressure (Convex or Concave) Concave
(b)) End	8125			2:1			Concave
If	removable, bolts	s used (Material, Spo	a No TEE	C	Other fastening			
	Fu	ıll Vac. &	cc. No., 1.5., 5	ize, Number)			oe or Attach Sk	etch)
7. Co al	onstructed for ma lowable working	press. ² 155 psi	at max. tem	_{p.} 650 ° _{F.}	Min. temp. (when less than -20°)	°F. C	ydrostatic neumatic or ombination	Test 294 Presspsi.
8. SA	AFETY OR REL	IEF VALVE OUTLE	TS: Number_	1	Size 3 "	Location	n_she	ell
. 9. NO	OZZLES: Purpose (Inlet.	(*Addition		zles list	ed below)	Da:	nforcement	******
anway_	Outlet, Drain)	Number Di	am. or Size	L.W.N.	SW-TRT-T T.	-9/16" S	Material SA-515-7	O Welded
ent _		1	. 2"	S.O.F.	SA-106-B S	Sch, 160		Welded
10. IN:		nholes, No.			Location			
OF		ndholes, No.		ize	Location		· · · · · · · · · · · · · · · · · · ·	
ŕ	10	readed, No.	Si	ize				
<u>É</u>		1	,	ize	Location			
11. SU		1	,	ize		S Attached	Welded	to shell
	JPPORTS: Skiṛt_	NO Lugs	(Number)	.egs (Number)	Location		•	•
12. RE	JPPORTS: Sking	NO Lugs	(Number) Dwg. #	.egs(Number)	Location Location Cher(2) saddle (Describe) Item # V-	l Trea	ter Fee	d Surge Dr
	JPPORTS: Sking EMARKS: S/O Out	NO Lugs	(Number)	.egs (Number)	Location Sther (2) saddle (Describe) Item # V- SA-106-B	l Trea	ter Fee	d Surge Dr Welded
12. RE Ste <u>am</u>	JPPORTS: Sking EMARKS: S/O Out	NO Lugs	(Number) L Dwg. #	.egs (Number) C C-9809 S.O.F. S.O.F.	Location Sther (2) saddle (Describe) Item # V- SA-106-B	l Trea	ter Fee 0 SA-515	d Surge Dr Welded
12. RE Ste <u>am</u> Outlet	JPPORTS: Skint_ EMARKS: S/O Out	NO Lugs	Dwg. # 2" 8" 2"	.egs (Number) C C-9809 S.O.F. S.O.F.	Location	l Trea Sch.16 X-Stg.	ter Fee 0 SA-515	d Surge Dr Welded -70 Welde
12. RE Steam Outlet Dra <u>in</u>	JPPORTS: Skim_ EMARKS: S/O Out	NO Lugs 1 1 2 1	Dwg. # 2" 8" 2" 2" 6"	.egs (Number) C-9809 S.O.F. S.O.F. S.O.F. S.O.F.	Location	Sch.16 X-Stg. Sch.16 Sch.16 X-Stg.	ter Fee 0 SA-515 0 0 SA-515	d Surge Dr Welded -70 Welde Welded Welded -70 Welde
12.RE Ste <u>am</u> Outlet Dra <u>in</u> Ll and	JPPORTS: Skim_ EMARKS: S/O Out	NO Lugs # 9809 1	Dwg. # 2" 8" 2" 6" 3" of purpose of t	.egs (Number) C-9809 S.O.F. S.O.F. S.O.F. S.O.F.	Location	Sch.16 X-Stg. Sch.16 Sch.16 X-Stg.	ter Fee 0 SA-515 0 0 SA-515	d Surge Dr Welded -70 Welde Welded Welded
12.RE Steam Outlet Dra <u>in</u> Ll and Fee d I PSV	JPPORTS: Skim_ EMARKS: S/O Out	NO Lugs	Dwg. # 2" 8" 2" 6" 3" of purpose of t	egs (Number) C-9809 S.O.F. S.O.F. S.O.F. S.O.F. S.O.F.	Location Other (2) saddle (Describe) Item # V- SA-106-B SA-106-B SA-106-B SA-106-B SA-106-B SA-106-B SA-106-B SA-106-B	Sch.16 X-Stg. Sch.16 X-Stg. Sch.16 X-Stg.	ter Fee O SA-515 O SA-515 O SA-515 O SA-515	d Surge Dr Welded -70 Welded Welded Welded -70 Welde 5-70 Welde
12. RESteam Steam Outlet Drain Ll and Feed I PSV Recycl	JPPORTS: Skirt EMARKS: S/O Out LR nlet e Inlet we certify that	NO Lugs (Yes or No) # 9809 1 1 2 1 (Brief description of the postweld List other in the statements made in the statement made in the s	Dwg. # 2" 8" 2" 6" 3" of purpose of the attreated. Internal of the special purpose of the attreated of the a	egs (Number) C-9809 S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. rmal pressures with recorrect and that	Location	Sch.16 X-Stg. Sch.16 X-Stg. Sch.16 X-Stg.	ter Fee O SA-515 O SA-515 O SA-515 O SA-515	d Surge Dr Welded -70 Welded Welded Welded -70 Welde 5-70 Welde
12. RESteam Steam Outlet Drain Ll and Feed I PSV Recycl	EMARKS: S/O Out LR nlet e Inlet we certify that m to the ASME Co	NO Lugs (Yes or No) # 9809 1 1 2 1 (Brief description of postweld List other in the statements made in the statement shade in the statement shade for Pressure Vessel	DWg. # 2" 8" 2" 6" 3" of purpose of the at-treated. Internal og gate	egs (Number) C-9809 S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. rnal pressures with recorrect and that I, Division I.	Location (Describe) Item # V- SA-106-B ank, Water Tank, L.P.G coincident time of design, mail details of design, mail	Sch. 16 X-Stg. Sch. 16 X-Stq. Sch. 16 X-Stq. Sch. 16 X-Stq. Sch. 16 x-State c	SA-515 0 SA-515 0 SA-515 0 SA-515 0 SA-51 0 SA-51	Welded Welded Welded Welded Welded Welded -70 Welde 5-70 Welde
12. RE Steam Outlet Drain Ll and Feed I PSV Recycl	EMARKS: S/O Out LR nlet e Inlet we certify that m to the ASME Co	NO Lugs (Yes or No) # 9809 1 1 2 1 (Brief description of the postweld List other in the statements made in the statement made in the s	Dwg. # 2" 8" 2" 6" 3" of purpose of the at-treated. Internal of System is, Section VII	egs (Number) C-9809 S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. And the vessel as Air T real pressures with recorrect and that I, Division I. TER TANK (Manufacture)	Location (Describe) Item # V- SA-106-B ank, Water Tank, L.P.G coincident time of design, mail details of design, mail	Sch. 16 X-Stg. Sch. 16 X-Stq. Sch. 16 X-Stq. Sch. 16 X-Stq. Sch. 16 x-State c	SA-515 0 SA-515 0 SA-515 0 SA-515 0 SA-51 0 SA-51	d Surge Dr Welded -70 Welded Welded Welded -70 Welde 5-70 Welde
12. RE Steam Outlet Drain Ll and Feed I PSV Recycl Conford Date	EMARKS: S/O Out LR nlet e Inlet we certify that m to the ASME Co May 10,	NO Lugs (Yes or No) # 9809 1 1 2 1 (Brief description of postweld List other in the statements made in the statement shade in the statement shade for Pressure Vessel	DWg. # 2" 8" 2" 6" 3" of purpose of the at-treated. Internal og gate	egs (Number) C-9809 S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. And the vessel as Air T real pressures with recorrect and that I, Division I. TER TANK (Manufacture)	Location Other (2) saddle (Describe) Item # V- SA-106-B SA-106-B SA-106-B SA-106-B SA-106-B SA-106-B ank, Water Tank, L.P.G all details of design, m WELDING, I	Sch. 16 X-Stg. Sch. 16 Sch. 16 X-Stq. Sch. 16 X-Stq	SA-515 O SA-51	Welded Welded Welded Welded Welded Welded 5-70 Welded Welded Welded Welded
12. RE Steam Outlet Drain Ll and Feed I PSV Recycl Conford Date	EMARKS: S/O Out LR nlet e Inlet we certify that m to the ASME Co May 10,	NO Lugs (Yes or No) # 9809 1 1 2 1 (Brief description 2 List other in the statements made in defor Pressure Vessel 1972,9	Dwg. # 2" 8" 2" 6" 3" of purpose of the treated, the treated with the section VII Signed MAS	egs (Number) C-9809 S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. S.O.F. Trial pressures with recorrect and that I, Division I. TER TANK (Manufall)	Location Other (2) saddle (Describe) Item # V- SA-106-B SA-106	Sch. 16 X-Stg. Sch. 16 Sch. 16 X-Stq. Sch. 16 X-Stq	SA-515 O SA-51	Welded Welded Welded Welded Welded Welded 5-70 Welded Welded Welded Welded
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V-1 HF-9-6



NAME R RUBOFF

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	S/09809 DATE5-10-725
	SER. NO. D-1073-NB# 4729

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SPECIAL DESIGN	1					
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MAX. ALLOW. WORKING PRESS AT TOP MAX. ALLOW. OPE	(CONSULT (INT. 155 psig 16 EXT. 15 psig 16 Psi	DESIGNS ENGI AT <u>650</u> AT <u>650</u> OF AT LO	NEER BEFORE EXC _of Max. Ext. _of Field Tes Limited B Wer Metal Temp	PRESS. (STM. C TAT TOP OF V DES/G	OUT) 15 psi ESSEL META NOT EXCEED	215 ps 7-L TEMPERAT 62 ps
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MAX. ALLOW. WORKING PRESS AT TOP MAX. ALLOW. OPE MIN. PRESSURIZIN PROTECTED BY S. SECTION HEADS	(CONSULT (INT. 155 psig / EXT. 15 psig / EXT. 15 psig / EXT. 15 psig / EXT. 150 psig / EXT. 150 psig / EXT. 150 psig / EXT. 150 psig / EXT. 155	DESIGNS ENGINAT 650 OF FAT LO PSV-5 SET A MUM.THICKNES g) DESI	VEER BEFORE EXC OF MAX. EXT. OF FIELD TEST WER METAL TEMPS T 55 S AND CORROSION GN TEMP (F)	PRESS. (STM. OF AT TOP OF V DES/G S. PRESS. SHAL psig LOC ALLOWANCE (tm (IN.) 0.642	ESSEL N META L NOT EXCEED ATED ON C.A. (IN.) 0 170	215 ps AL TEMPERAT 62 ps SHELL BASIS FOR tm TNTERNAL
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REFER. FW. DWG . 1070-4-11-127

REV. DATE BY

MADE BY WB

DESCRIPTION

DATE 12-3-73

& CHIEL		CALCULA	HON SII		
BES			, ,	CALC. NO	REV. NO
ORIGINATOR_	35P	DATE	10/22/91	CHECKED	DATE
PROJECT	515			JOB NO	
SUBJECT	DEATER	EED SURGE	Daum	SHEET NO.	2/4

	SHELL LENGTH $= 39'-8'' = 476 IN$
	SHELL DIAMETER, Internal
=	144 IN
R =	SHIL RADIUS = 144/2
	72 / N
ts =	Actual Minimum or Niminal Shell Thickness
	Actual Minimum or Nominal Head Thickness
	13/16" (0.8125 IN) - TOP & BOTTOM Heads
C =	Corroson Allowance
	10 (0.12) IN
	M mules Allewable stress at land (SA Elizal
	Maximum Allowable stress at 100°F (SA-516-70)
	17 500 011
5 =	Maximum allowable stress at 650 of (Design Temp)
5 = 5 = E =	Maximum allowable stress at 650 of (Design Temp) 17500 psi Joint Efficiency
5 = 5 = E =	Maximum allowable stress at 650 of (Design Temp) 17500 psi Joint Efficiency
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SFP-22530

& SUTEL	CALCULATION	A SHEET	
BELLI		CALC. NO.	REV. NO
DRIGINATORB5	DATE	CHECKED	DATE
PROJECT		JOB NO	
SUBJECT TREATER	FEED SURGE DE	RUM_ SHEET NO	3/4

	MINIMUM THICKNESS (+m)
SHELL	
$t_m = -$	$\frac{P(R+C)}{SE-0.6P} = \frac{155(72+0.125)}{17500 \times 1.0 - 0.6 \times 155}$
= 0	6422 IN
HEADS	
$t_{\rm m} = 1$	$\frac{O(D+21)}{SE-0.2P} = \frac{155(144+2\times0.125)}{2\times17500\times1-0.2\times155}$
= 0	.6417 IN
	FIELD TEST PRESSURE AT TOP OF VESSEL
	= 15 x Design Press - Hydrostatic test head
	$= 15 \times 155 - \left[39 \frac{8}{12} \times 0.4331 \times 10 \right]$
	= 215.3 psi > Design Press.
	= 215 ps16

A SUTEL	● CA	LCULATION S	HEET	
BEUN			CALC. NO	REV. NO
ORIGINATOR	BSP	DATE 10/22/90	CHECKED	DATE
PROJECT 5/5			JOB NO	
SUBJECT TREATE	R FEED	SURGE DRUM	SHEET NOA	1/4

MAX ALLOWABLE PRESS.	NEW & COLD (PN+c)
SHELL	
$P_{NH} = \frac{S_A E t_S}{R + 0.6 t_S} = \frac{17500 \times 1.0 \times 0.8}{72 + 0.6 \times 0.812}$ $= 196 . psi$	<u>- 196.15</u>
HEADS - TOP & BOT.	
Parc = 2 SA Eth = 2 × 17500 × 1.0 × 0 D + 0.2 th = 144 + 0.2 × 0.812	0.812 = 197.26 5
= 137 ps1	



CUSTOMER:

Foster Wheeler Corporation

LOCATION:

Houston, Texas

P. O. NO.

PH-2-114-1070

ITEM NO.

V-1

MFG. SERIAL NO.

D-1073

MFG. S/O NO.

9809

NATL. BD. NO.

4729

DESCRIPTION:

Treater Feed Surge Drum

1600 SINGLETON BOULEVARD, DALLAS, TEXAS, U.S.A. 75222

PHONE 747-2441 P. O. BOX 5146

BETHLEHEM	STEEL	CORPORATION
	-	

				METALLURGICAL DEPARTMENT		20671 (Rev.D 6-70)
	DATE SHIPPED	SHIPMENT NO.	CARRIER: INITIAL AND NO.			PLANT
		673-72	TRUCK			SPARROWS POINT
	Γ.	••		7		
SOLD TO	easter ta	NK AND WEIDING INC		SHIPPED TO	HOUSTON TEXAS	#102

REPORT OF MECHANICAL AND CHEMICAL TESTS

	· ,			K	EPORT	Jr MEC	HANICAL	AND CHEM	ICAL	15213	· ·						
Customer's Order No.	Section Slab	Heat No.	Pcs.	Gauge	Width	Length	Yield Point	Tensile Strength	Elong.	Red. %	Bends	CHEMICAL ANALYSIS			Specifications or Remarks		
Order No.	Mill Order No.						Point	Strength	Elong. SI%	%	Joenas	С	Mn	Р	s	Si	or Remarks
A1423	H133	421E7641	1	13/16 MIN.	144"	D	49800 .	79400	23		OK	.24	1.03	.015	.018	.25	ASME SA516 GR 70 PVQ
•	E7051 H132	421E1481 421E7641	1	" 7/8 MI	11		49700 50700	74000 79500	25 25		ok ok	.19 .24	1.01		.025 .018	.24 .25	
FD124-55870	FC QUAID	HN TEST G			-8 BOT	HEATS											
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#600

BETHLEHEM STEEL CORPORATION

Master Tank and Welding Inc.

SHIPPED TO Houston, Texas

				R	EPORT	OF MEC	CHANICAL	AND CHE	MICAL	TESTS	Grad	le 70	PVQ	Stee]	l Plat	tes	
C Section Slab											Bends	,		AICAL ANA			Specifications or Remarks
Order No.	or Mill Order No.	nesi 140.		Cuoge	***************************************	i cingiii	Point	Strength	Elong. 8 [%]	%	50.163	с	Мn	Р	s	Si	<u> </u>
49114	B59740	480B1941	1	5/8	103	489½	51600	76400	26		ok	.20	1.13				ASME SA 516
	B55772	479B1181	1	13	33	11	45700	80600	27		#	.23			.019		GRADE 70
	B56870	411B6821	1	11	#	111	53000	80300	23		11	.24	1.06		.019		Pressure
	B55771	479B1181	1	n	11	111	54600	79500	22		n	.23	1.08	.009	.019	.24	Vessel
	B55773	h	2	n	n	n	55200	80700	24		11		1	ĺ			Quality
.24-4517A	B56794	421B2811	1	19	n	10	52500	76200	25		n	.19	1.10	.012	.018	.22	To A300 CLI
57-052601	B56795	11	1	n	n	#	52900	75000	24		11				_		
		EHN GRAIN	\$IZE	4801			479B1181		11B68;		7–8		[B 281 .1	}	7–8		
	PLATES & '	TEST PCS.	NORMAI	LIZED	AT 165	фог & :	HELD FOR	/2 HOUR	PER II	ICH OF	THIC	KNES	P				
	LONGITIDI	NAL CHARPY	V NO:	CH I	PACT T	ests to		FT. LB.	AT PLU	IS 304	F						Spec-to meet
		ł			#1	#2	#3	Avg.		Test							Long. V Notch
: -	B59740	480B1941	5/8		73	75	79	75-2/3		10 1							of 35 Ft. Lbs.
	B55772	479B1181	11		69	68	79	72		10 1							at +30°F
•	B56870	411B6821	11		92	93	84	90		10 1		15.1	180,7				
	B55771	479B1181	11		83	90	83	85-1/3		10 1		(91)	1011	《》			
	B55773	479B1181	11		84	89	88	85-2/3		10 1	m (S	V 5 4	<i>'\\</i>	V .'	A		
	B56794	421B2811	n		99	94	99	97-1/3		10 1		Jec.Ell	191	E	?\		
	B56795	11	н		92	101	107	100	10 2	10 1	$\Gamma_{\rm M}$	Hrr.	24	s t			,
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I certify the above results to be correct as contained in the records of the company.

BETHLEHEM	STEEL	CORPORATION
		DED A DELLEVIE

				STEEL CORPORATION URGICAL DEPARTMENT		, • 20571 (Rev.D 6-70)
	DATE SHIPPED	SHIPMENT NO.	CARRIER: INITIAL AND NO.			PLANT
	· · ·	673-72	TRUCK		•	SPARROWS POINT
			٦			
SOLD TO			•	SUIDED TO		Hopal
	MASTEF	TANK AND WELDING INC	ı	SHIPPED TO	HOUSTON TEXAS	#102

			٠.	R	EPORT (OF MEC	HANICAL	AND CHE	MICAL	TEST:	5						1 J
Customer's Order No.	Section Slab or Mill Order No.	Heat No.	Pcs.	Gauge	Width	Length	Yield Point	Tensile Strength	Elong. S!%	Red.	Bends		CHE/	MICAL ANA	TASI2		Specifications or Remarks
	Mill Order No.	 		 		ļ	roint	Strength	81%	%	-	С	Mn	P	S	Si	or Remarks
1423	н133	421E7641	1	13/16 MIN.	144" :	D	49800	79400	23		ok	.24	1.03	.015	.018	•25	ASME SA516 GR 70 PVQ
	E7051	421E1481	1	11	n .		49700	74000	25		ок	.19	1.01	.021	.025	.24	GIL 70 1VQ
	H132	421E7641	1	7/8 MI.	11 .		50700	79500	25		OK	.24	1.03	.015	.018		
D124-5587C			1	frika.													
	MC QUAID	THN TEST G	AIN S	IZE 7	-8 BOT	HEATS											
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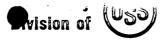
production department – metallurgical United States Steel Corporation

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PRODUCTION DEPARTMENT — METALLURGICAL SINITED STATES STEEL CORPORATION

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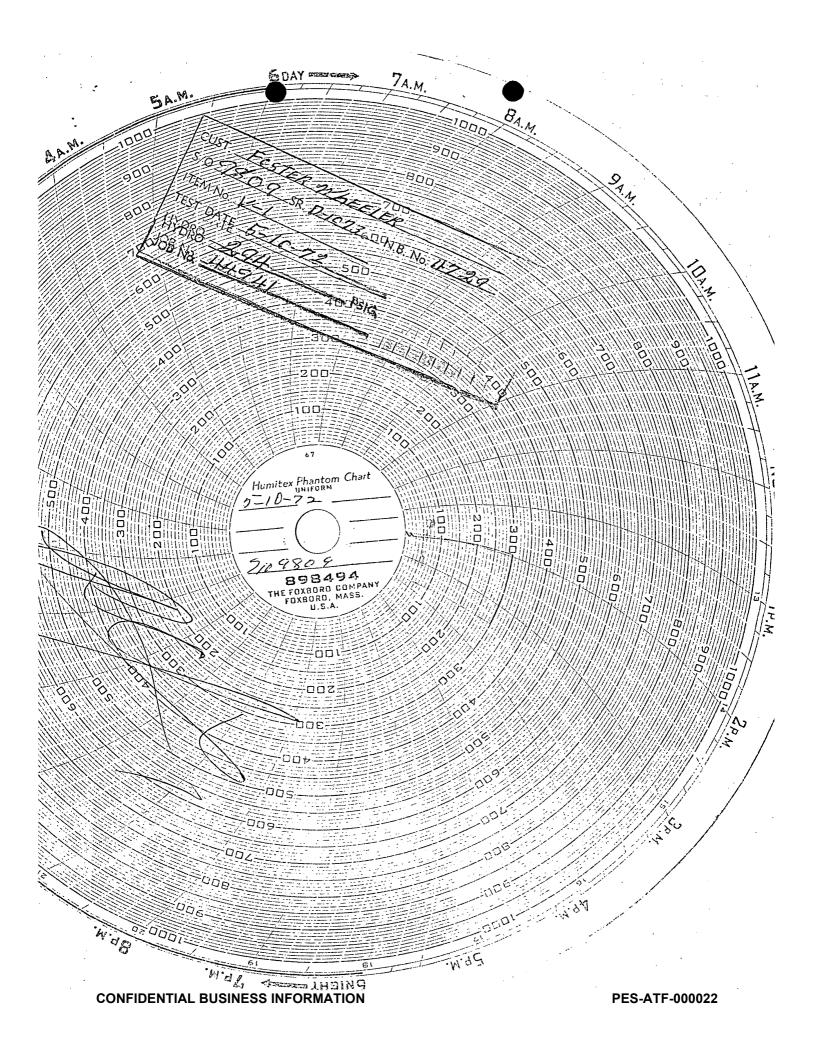


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TEST REPORT

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AS INTERIOR WALL THOROUGHLY CLEA	NED FOR IN	SPECTION1	yes		
SHELLS—GENERAL CONDITION	OK L CORROSIO	WERE ANY O	RACKS NOTEDI_	No	
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Joints—Condition of Welding Were any Cracks noted!	* OK	CONDITI	ON OF RIVETS	Kone	·
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