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50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287
AUTH.NAME AUTHOR AFFILIATION
PARKER,W.O. Duke Power Co.
RECIP.NAME RECIPIENT AFFILIATION
REID,R.W. Operating Reactors Branch 4

50-270

SUBJECT: Forwards responses to NRC 790525 ltr re feedwater lines. Diagrams encl.

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JUN 25 1979

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DUKE POWER COMPANY
POWER BUILDING
422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

TELEPHONE: AREA 704
373-4083

June 18, 1979

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. R. W. Reid, Chief
Operating Reactor Branch, #4

Re: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

With regard to Mr. Stello's letter of May 25, 1979, please find attached the responses to the first four questions concerning feedwater lines at Oconee Nuclear Station.

The responses to the remaining questions will be provided on or before July 27, 1979.

Very truly yours,

William O. Parker, Jr.

SRL/sch

Attachment

A001
S 1/1

WILLIAM O. PARKER, JR., being duly sworn, states that he is Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and provide to the Nuclear Regulatory Commission the information requested; and that all statements and matters set forth therein are true and correct to the best of his knowledge.

William O. Parker, Jr., Vice President

Subscribed and sworn to before me this 18th day of June, 1979.

Susan C. Horton
Notary Public

My Commission Expires December 8, 1982

INFORMATION REQUESTED ON PWR FEEDWATER LINES

Design

Item 1

Provide as-built piping or isometric drawings of the feedwater line to steam generator sprager within containment. Show details of the design such as dimensions, pipe schedule, support type and locations, pipe restraints, and valve(s).

Response

A reduced isometric drawings of a typical feedwater line is included as part of Attachment 1. Also included are a set of typical drawings for the feedwater inlet headers including connections and rozzles. The drawings are arranged as follows:

Attachment 1

Design

Item 2

Provide the results of any stress or fatigue analyses which was performed for this system.

Response

The results of the stress and fatigue analyses for this system are provided in Attachment 2, as outlined below:

Attachment 2

Fabrication History

Item 1

Supply a list of the materials for the steam generator sprager, steam generator feedwater nozzles and feedwater piping within containment.

Response

A typical set of material specifications for the OTSG is included as Attachment 4. The part numbers corresponding to various components which may be of interest is included below. All piping materials for the feedwater lines is ASTM A-106 Grade B and all forgings (i.e. flanges) are ASTM A-105.

Part Nos.	Description
117 through 125, 127	Feedwater Spray Nozzle and Inlet Header Assembly
130 through 135	Feedwater Inlet Header Support Plates and Inlet Connections
137 through 142	Feedwater and Auxiliary Feedwater Inlet Connection Piping
145 through 148	Feedwater and Auxiliary Feedwater Studs and Hex Nuts
151 through 153	Auxiliary Feedwater Gasket and Feedwater Support Plates
170 through 175	Auxiliary Feedwater Piping
178 through 186	Auxiliary Feedwater Piping Supports
396 through 399	Feedwater and Auxiliary Feedwater Header Flexible Gaskets

Fabrication History

Item 2

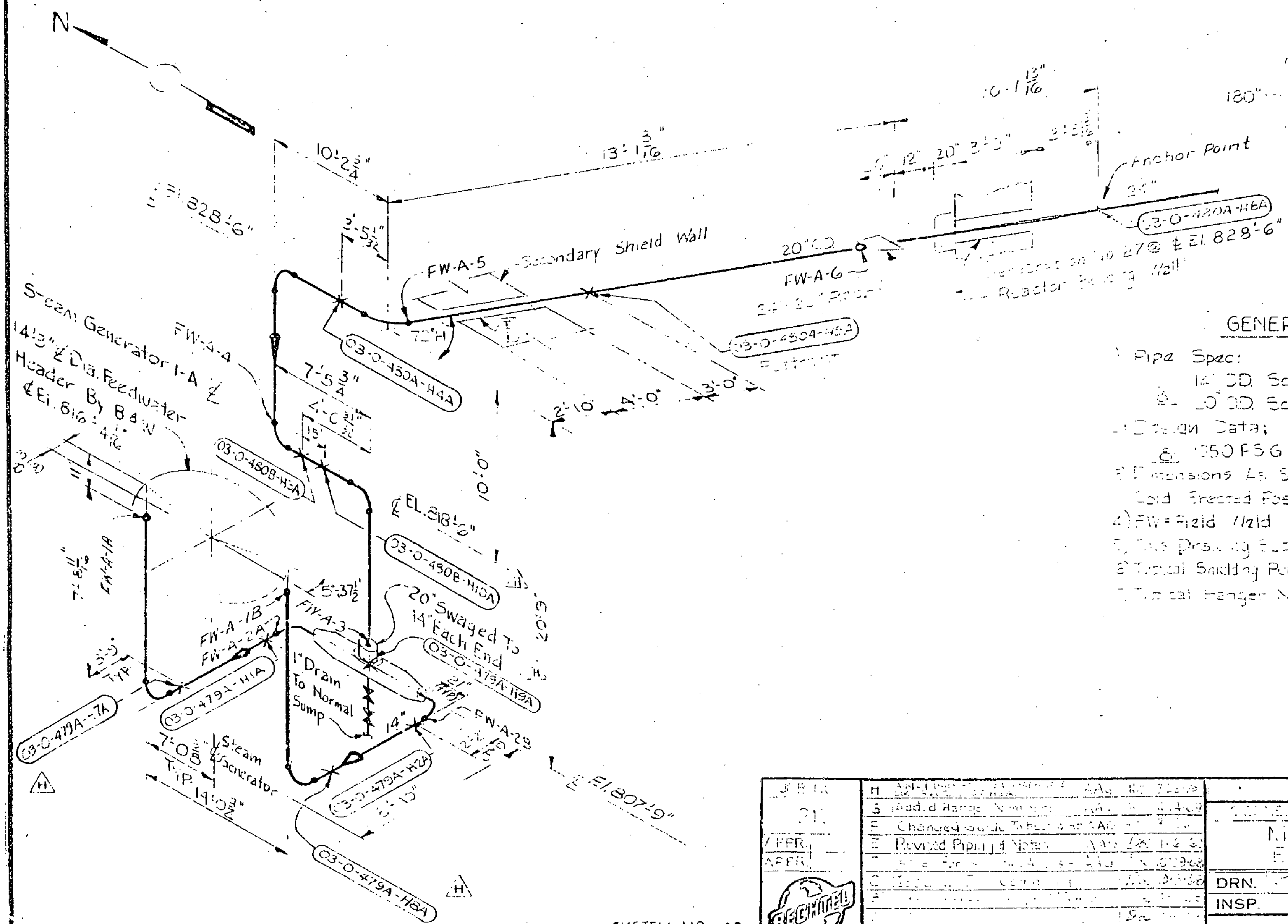
Provide the details of the welding process(es) used to make the nozzle-to-pipe, pipe to sparger and piping welds. Include details of welding such as preheat, joint configuration (include with or without backing ring), and post weld treatment, if any.

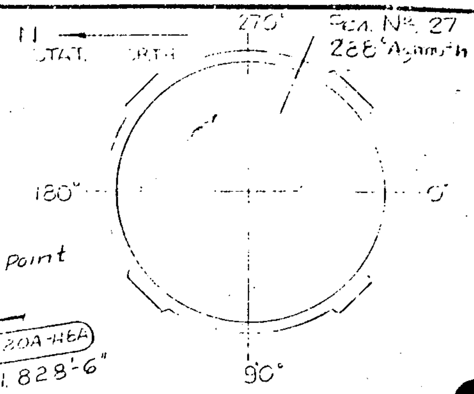
Response

Typical welding details for the components listed above are provided in Attachment 3, as outlined below:

Attachment 3

ATTACHMENT 1





KEY PLAN-UNIT 1
NO SCALE

GENERAL NOTES

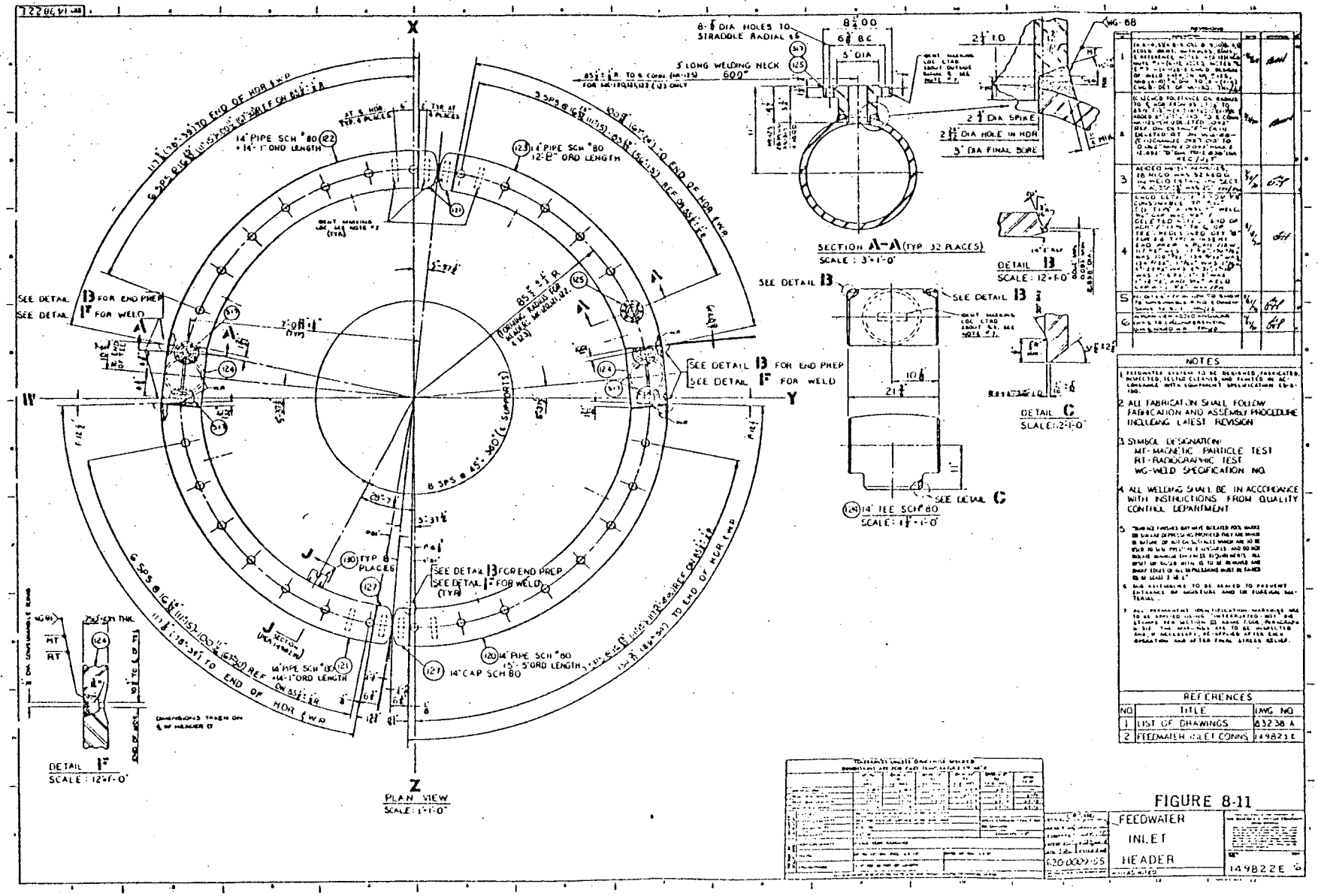
1) Pipe Spec:
   14" O.D. Sch. 80 ASTM-A-106 Gr B
   & 20" O.D. Sch. 80 ASTM-A-106 Gr B.
2) Design Data;
   & 1350 PSG 600°F. Oper. Temp. 460°F.
3) Dimensions As Shown Are For Pipe In The Cold Erected Position.
4) FW = Field Weld
5) This Drawing Supersedes Sketch SK-M-173
6) Typical Shielding Penetration No. (I)
7) Typical Hanger Number (03-0-420A-H4).

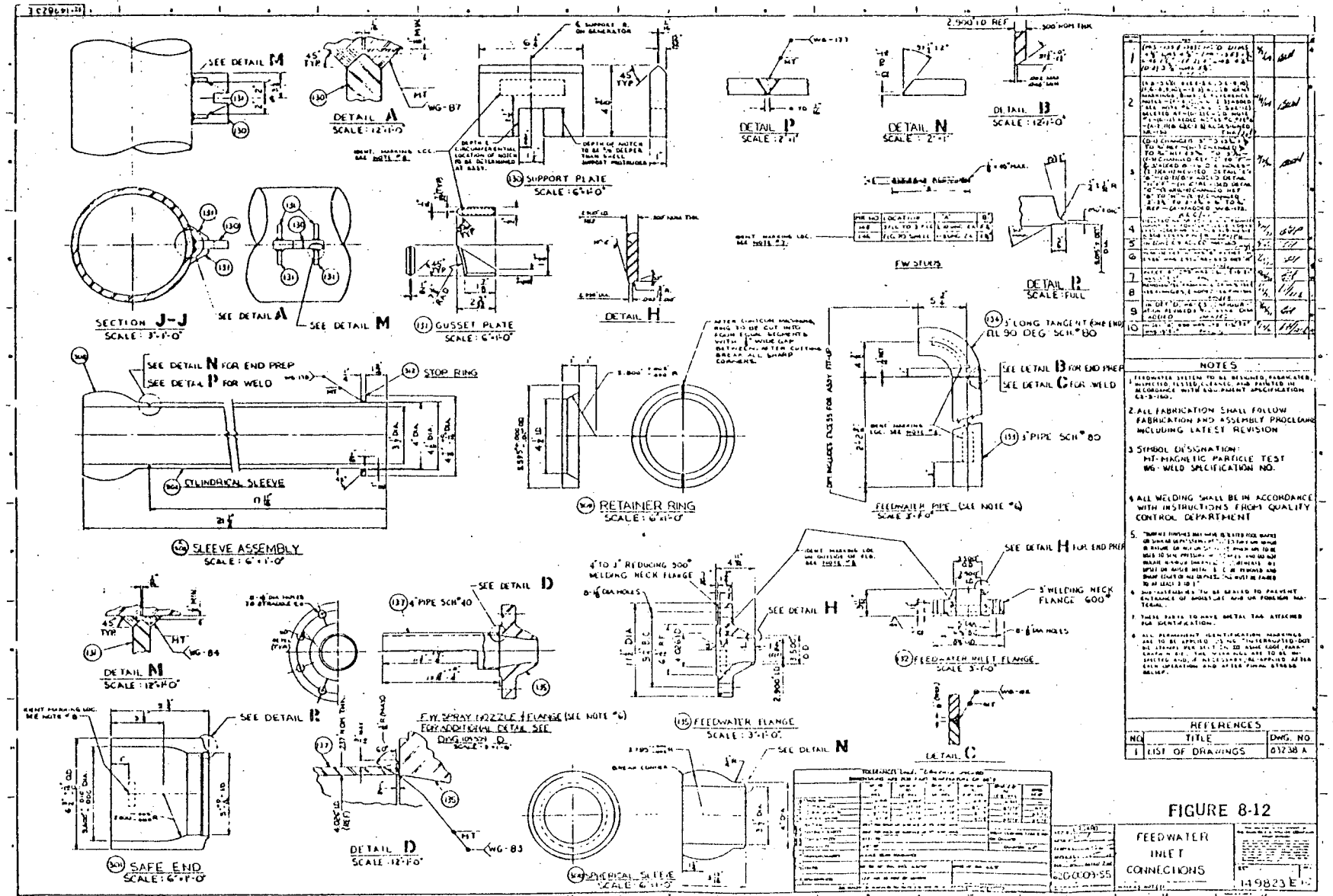
SYSTEM NO. 03

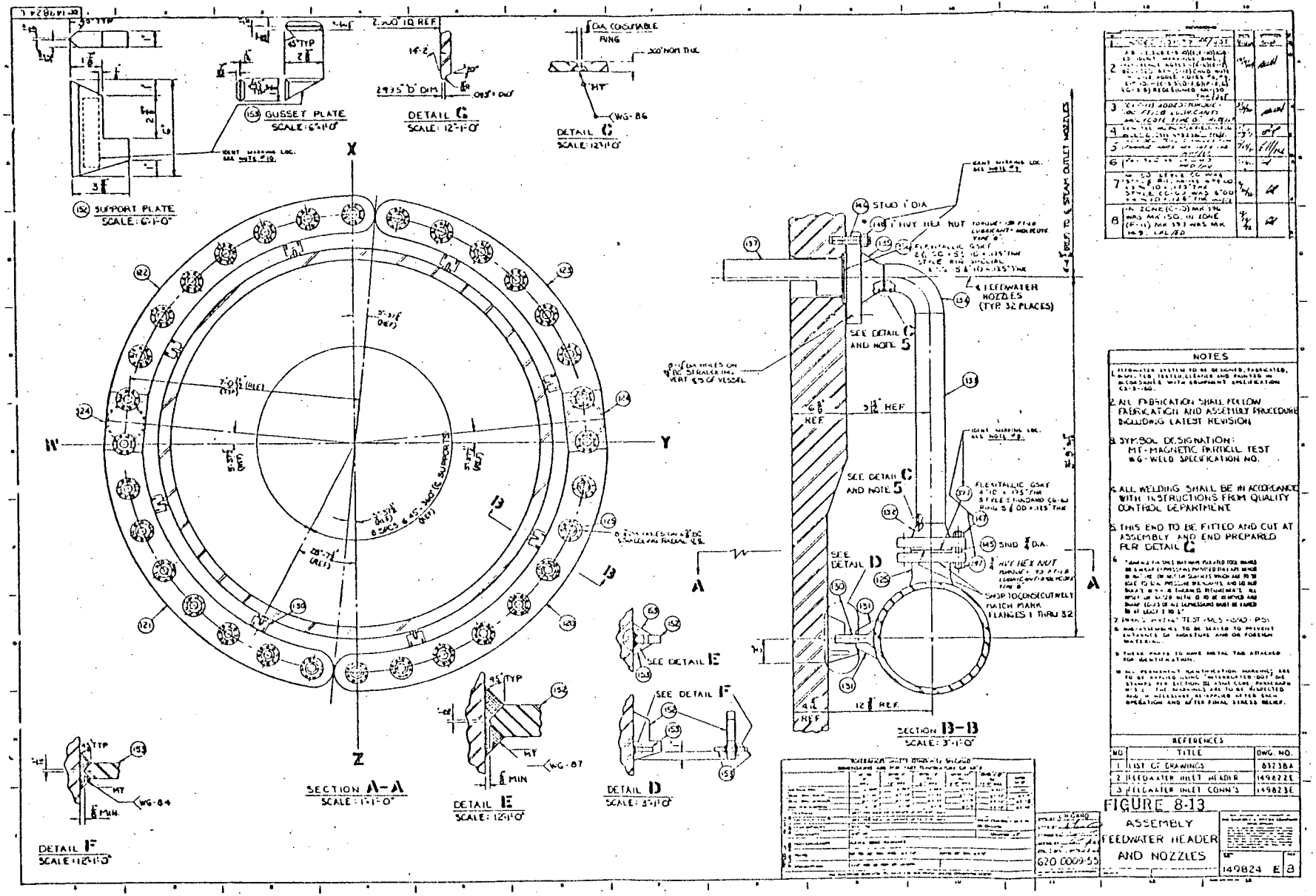
NO.	REVISION	CHKD	APPR.	DATE
H	[illegible]			
G	Added Hanger Numbers			
F	Changed [illegible]			
E	Revised Piping & Notes			
D	[illegible]			
C	[illegible]			
B	[illegible]			
A	[illegible]			

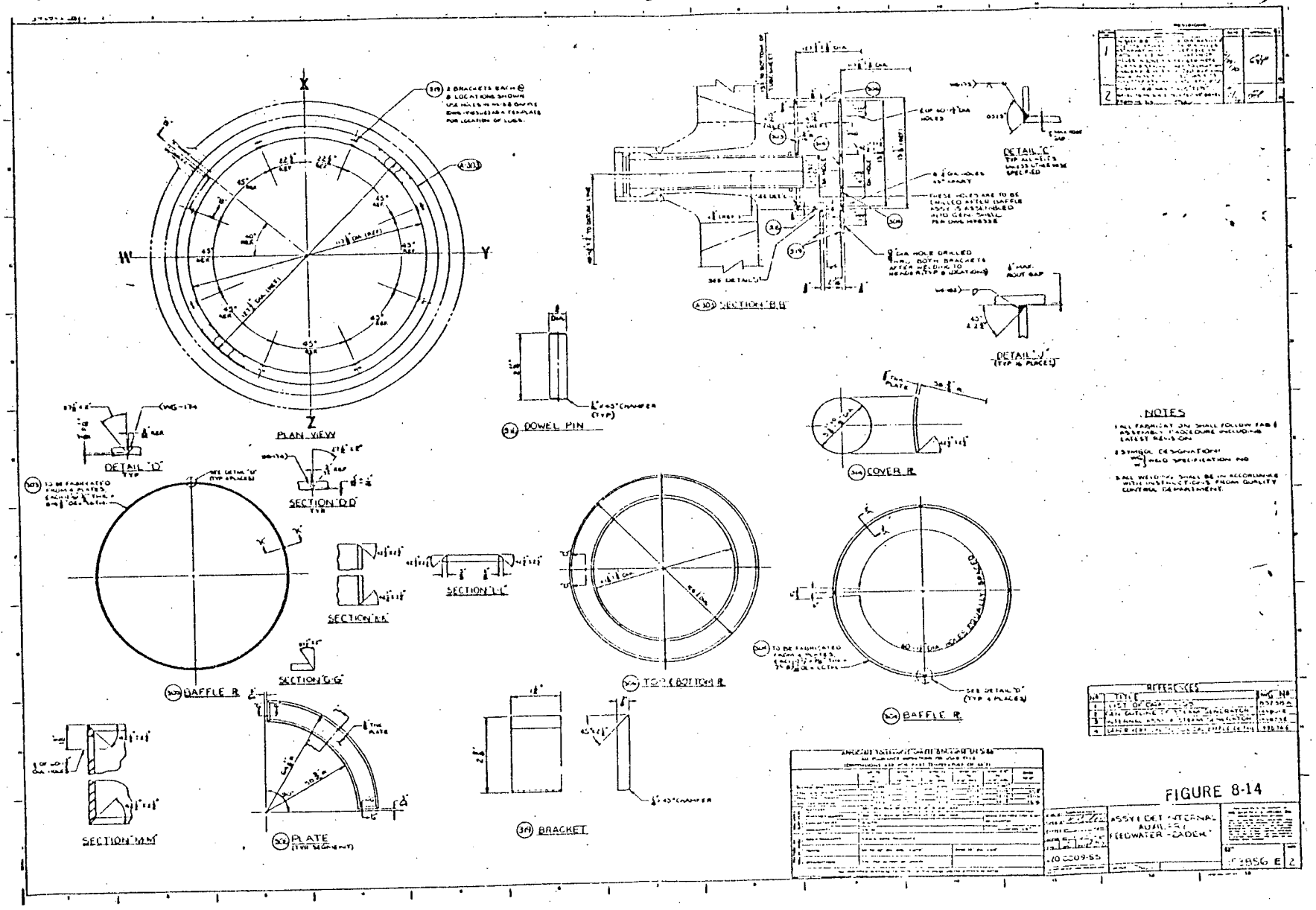
DUKE POWER CO.
[illegible] NUCLEAR STATION UNITS 1 2 & 3
MAIN FEEDWATER
[illegible] GENERATOR

DRN.		6-3-68	CHKD.
INSP.			APPR.
SCALE: NONE		No.	[illegible]


PLAN VIEW
SECTION A-A (TYP 32 PLACES)
DETAIL B
DETAIL C
DETAIL F
14" PIPE SCH "80
14" TEE SCH 80
14" CAP SCH 80
8-1 DIA HOLES TO STRADDLE RADIAL
5" LONG WELDING NECK
2 1/2 DIA SPIKE
5" DIA FINAL BORE
SEE DETAIL B FOR END PREP
SEE DETAIL F FOR WELD
NOTES
REFERENCES
FIGURE 8-11
FEEDWATER INLET HEADER


DETAIL A
SCALE: 12"=1'-0"
SUPPORT PLATE
SCALE: 6"=1'-0"
DETAIL P
SCALE: 2"=1'
DETAIL N
SCALE: 2"=1'
DETAIL B
SCALE: 12"=1'-0"
SECTION J-J
SCALE: 3"=1'-0"
GUSSET PLATE
SCALE: 6"=1'-0"
DETAIL H
FW STUB
DETAIL R
SCALE: FULL
SLEEVE ASSEMBLY
SCALE: 6"=1'-0"
RETAINER RING
SCALE: 6"=1'-0"
FEEDWATER PIPE (SEE NOTE 4)
SCALE: 3"=1'-0"
DETAIL M
SCALE: 12"=1'-0"
DETAIL D
SCALE: 12"=1'-0"
FEEDWATER FLANGE
SCALE: 3"=1'-0"
FEEDWATER INLET FLANGE
SCALE: 3"=1'-0"
DETAIL C
SAFE END
SCALE: 6"=1'-0"
SPHERICAL SLEEVE
SCALE: 6"=1'-0"
NOTES
REFERENCES
FIGURE 8-12
FEEDWATER INLET CONNECTIONS


SUPPORT PLATE
SCALE: 6"=1'-0"
GUSSET PLATE
SCALE: 6"=1'-0"
DETAIL G
SCALE: 12"=1'-0"
DETAIL C
SCALE: 12"=1'-0"
SECTION A-A
SCALE: 1"=1'-0"
DETAIL E
SCALE: 12"=1'-0"
DETAIL D
SCALE: 3"=1'-0"
DETAIL F
SCALE: 12"=1'-0"
SECTION B-B
SCALE: 3"=1'-0"
STUD 1" DIA
1 1/4" HVY HEX NUT
4 FEEDWATER NOZZLES (TYP 32 PLACES)
SEE DETAIL C AND NOTE 5
SEE DETAIL D
SEE DETAIL E
SEE DETAIL F
SHOP TO CONSECUTIVELY MATCH MARK FLANGES 1 THRU 32
STUD 1" DIA.
1 1/4" HVY HEX NUT
NOTES
1. FEEDWATER SYSTEM TO BE DESIGNED, FABRICATED, ERECTED, INSTALLED AND PAINTED IN ACCORDANCE WITH EQUIPMENT SPECIFICATION CS-1-100.
2. ALL FABRICATION SHALL FOLLOW FABRICATION AND ASSEMBLY PROCEDURE INCLUDING LATEST REVISION.
3. SYMBOL DESIGNATION: MT-MAGNETIC PARTICLE TEST WG-WELD SPECIFICATION NO.
4. ALL WELDING SHALL BE IN ACCORDANCE WITH INSTRUCTIONS FROM QUALITY CONTROL DEPARTMENT.
5. THIS END TO BE FITTED AND CUT AT ASSEMBLY AND END PREPARED PER DETAIL C.
REFERENCES
NO | TITLE | DWG. NO.
1 | LIST OF DRAWINGS | 832138A
2 | FEEDWATER INLET HEADER | 1498225
3 | FEEDWATER INLET CONN'S | 1498235
620 0009-55
FIGURE 8-13
ASSEMBLY FEEDWATER HEADER AND NOZZLES
149824 E 8


PLAN VIEW
SECTION B-B
DETAIL 'C'
DETAIL 'D'
DETAIL 'D'
SECTION D-D
SECTION E-E
SECTION K-K
SECTION G-G
SECTION M-M
DOWEL PIN
COVER
BAFFLE
BAFFLE
TOP SECTION
PLATE
BRACKET
NOTES
REFERENCES
ASSY DET INTERNAL AUXILIARY FEEDWATER CADET
FIGURE 8-14

ATTACHMENT 2

SUMMARY PIPING FLEXIBILITY ANALYSIS

ANALYST J. J. M. PANDYA DATE 12-15-71
CHECKER [illegible] DATE 1-8-72

1) TITLE MAIN FEEDWATER - EAST GENERATOR -

SYSTEM NO. 03

2) PROBLEM NO. 010 DATE OF RUN THERMAL: 4-8-70 WEIGHT: 7-16-70 * SEISMIC: 4-3-70 (BDS)

3) MATERIAL ASTM-A-106, GR B

4) PIPE SIZE 20" SCH 80

5) OPERATING PRESSURE 962 PSIG

6) OPERATING TEMPERATURE 460° F

7) THERMAL CONDITION

DUKE DWG. PO-121B

a) Data Point (600) Element Type BEND

b) Actual Expansion Stress 16,680 PSI

c) Allow. Expansion Stress = f(1.25 S_c + 0.25 S_h) = 22,500 PSI

8) DESIGN EARTHQUAKE CONDITION

a) Response Spectra Identification FIG. 2 - DATED 11-19-69

b) Data Point (544) Element Type TGNT

c) Seismic Stress = BDS, JOINT 153 1,240 PSI

d) Long. Weight Stress = 210 PSI

e) Long. Press. Stress = $\frac{Pd^2}{D^2 - d^2} = \frac{PA_{FLOW}}{A_{METAL}} = \frac{(962)(252.7)}{61.44}$ 3,960 PSI

f) Total Stress = 8c + 8d + 8e = 5,410 PSI

g) Allow. Seismic Stress = 1.2 S_h = 18,000 PSI

9) MAXIMUM HYPOTHETICAL EARTHQUAKE

a) Data Point (544) Element Type TGNT

b) Seismic Stress = 2 x 8c = 3,480 PSI

c) Long. Weight Stress = 8d = 210 PSI

d) Long. Press. Stress = 8e = 3,960 PSI

e) Total Stress = 9b + 9c + 9d = 6650 PSI

f) Allow. Max. Seismic Stress = S_y at Oper. Temp. 28,980 PSI

CUSTOMER: DUKE POWER COMPANY

B&W CONTRACTS: 620-0003-55/620-0004-55

SUBJECT: MAIN FEEDWATER ASSEMBLY RESULTS

Local Shell Exempted from Fatigue Analysis

-1*

Avg. Shear Intensity = 37.9 KSI Vs. 92.7 KSI Allow.
Pg. 141**

U = 0.56 Vs. 1.0 Allow.
Pg. B-17-1*

Pri.+Sec. = 42.9 KSI Vs. 53.4 KSI Allow.
Pg. B-16-19*

Pri.+Sec. = 46.9 KSI Vs. 56.7 KSI Allow.
Pg. E-33*** W/Piping Reactions Incl.

port #7*
eedwater Nozzle"

SE = 20.6 KSI, SA = 31.1 KSI
Pg. II.6.4Δ

port #1 **
izing Calculations

SE = 17.8 KSI, SA = 32.5 KSI
Pg. II.6.5Δ

port #13 ***
iping Reactions"

SE = 29.9 KSI, SA = 32.9 KSI
Pg. II.6.6Δ

port #9 Δ
ain and Aux.
Feedwater Header
nalyses"

SE = 20.3 KSI, SA = 35.0 KSI
Pg. II.6.8Δ

SE = 6.7 KSI, SA = 32.7 KSI
Pg. II.6.9 & 10Δ

NOZZLE DESIGN CODE: ASME CODE, SECTION III, 1965 EDITION WITH ADDENDA THRU SUMMER 1967

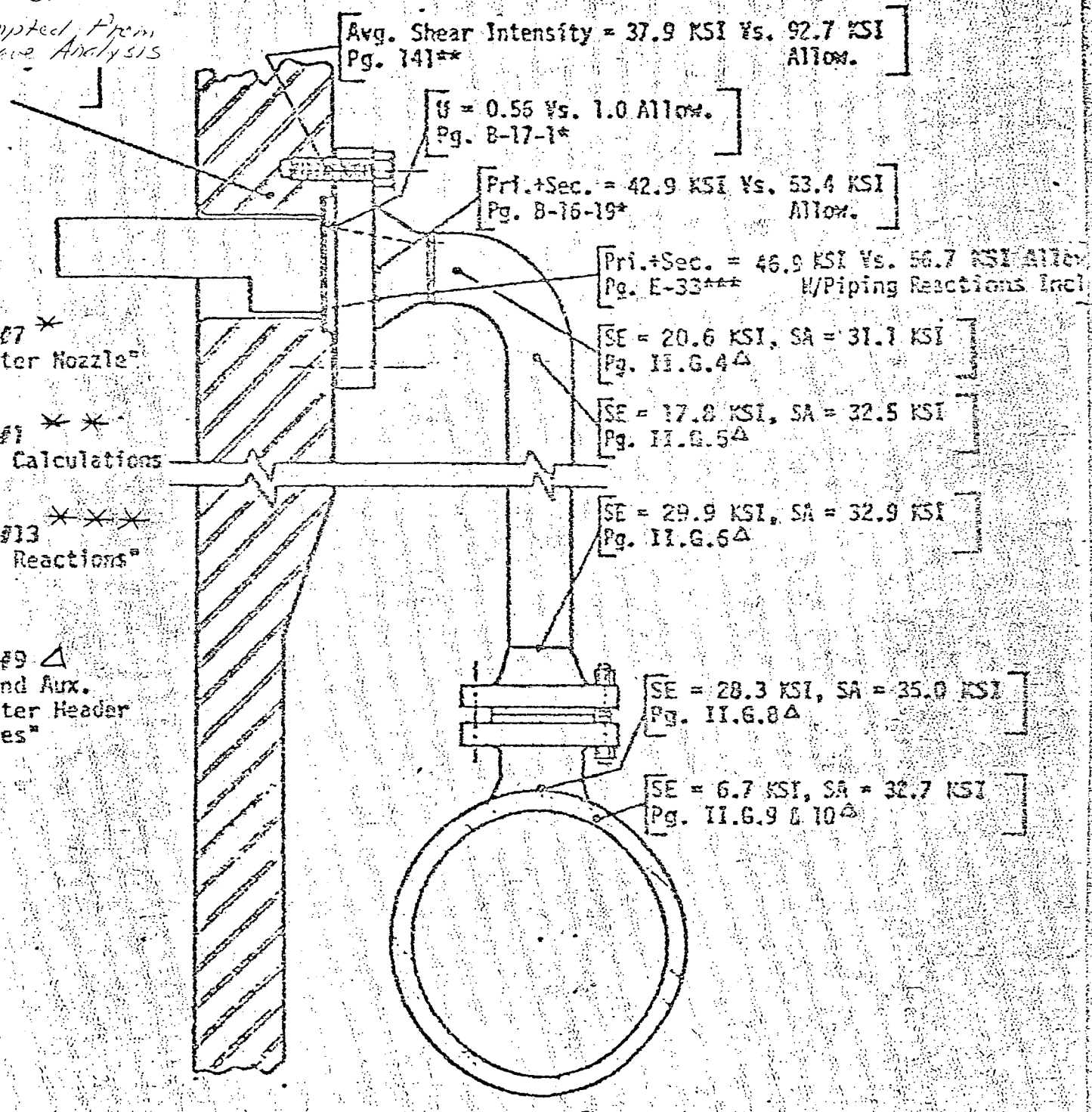
RISER & HEADER DESIGN CODE: POWER PIPING CODE, USAS B31.1.0 - 1967 WITH ERRATA DATED MARCH 1969

CUSTOMER: DUKE POWER COMPANY

B&W CONTRACTS: 620-0003-55/620-0004-55

SUBJECT: MAIN FEEDWATER ASSEMBLY RESULTS

Local Shell Exempted From Fatigue Analysis C-1*



Report #7 ✶ Feedwater Nozzle*

Report #1 ✶✶ Sizing Calculations

Report #13 ✶✶✶ Piping Reactions*

Report #9 △ Main and Aux. Feedwater Header Analyses*

NOZZLE DESIGN CODE: ASME CODE, SECTION III, 1965 EDITION WITH ADDENDA THRU SUMMER 1967

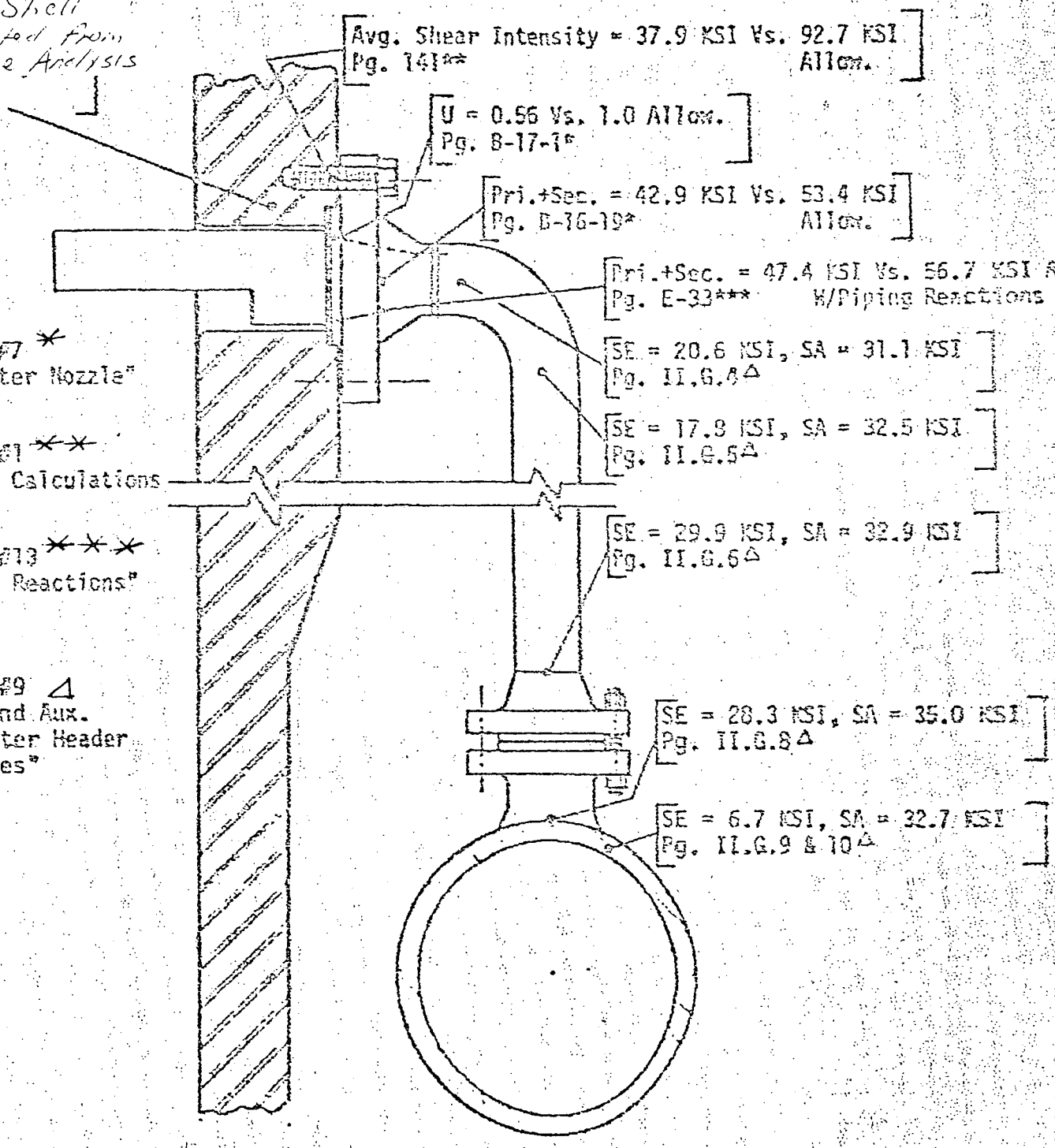
RISER & HEADER DESIGN CODE: POWER PIPING CODE, USAS B31.1.0 - 1967 WITH ERRATA DATED MARCH 1969

CUSTOMER: DUKE POWER COMPANY

B&W CONTRACT: 620-0009-55

SUBJECT: MAIN FEEDWATER ASSEMBLY RESULTS

Local Shell Exempted from Fatigue Analysis C-1*



Report #7 * "Feedwater Nozzle"

Report #1 ** "Sizing Calculations"

Report #13 *** "Piping Reactions"

Report #9 Δ "Main and Aux. Feedwater Header Analyses"

NOZZLE DESIGN CODE: ASME CODE, SECTION III, 1965 EDITION WITH ADDENDA THRU SUMMER 1967

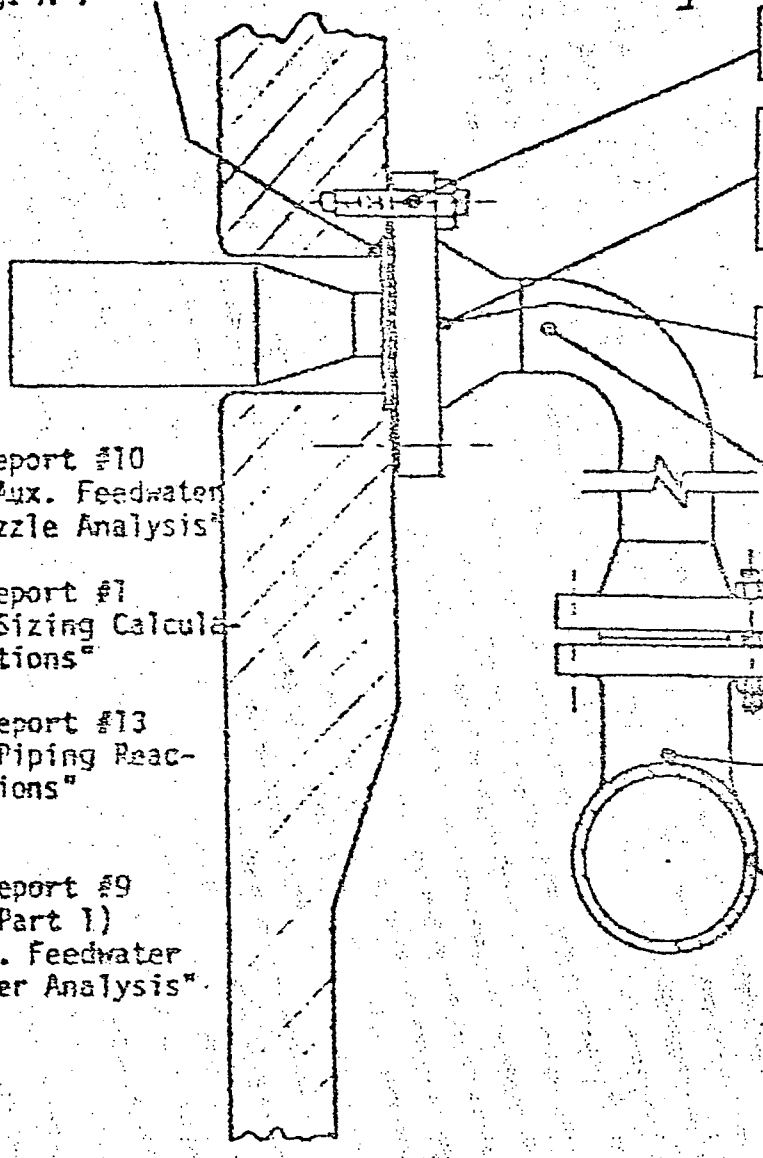
RISER & HEADER DESIGN CODE: POWER PIPING CODE, USAS B31.1.0 - 1967 WITH ERRATA DATED MARCH 1969

CUSTOMER: FLORIDA POWER COMPANY

B&W CONTRACTS: 620-0003-55/620-0004-55

SUBJECT: AUX. FEEDWATER ASSEMBLY RESULTS

Exempted from Analysis for Cyclic Operation
Fig. A-1*



Avg. Shear Intensity = 37.9 KSI
Pg. 139 & 137** Vs. 92.7 KSI Allow.

Pri.+Sec. = 44.5 KSI Vs. 53.4 KSI
Pg. A-1*
U = 0.017 Vs. 1.0 Allow.
Pg. A-1*

Pri.+Sec. = 46.9 KSI Vs. 53.4 KSI Allow.
Pg. F-17 (App. F)***

UTotal = 21.1 KSI, Pg. I.F.1
SA = 34.8 KSI, Pg. I.F.1

UTotal = 29.2 KSI, Pg. I.F.1
SA = 33.6 KSI, Pg. I.F.1

UTotal = 13.8 KSI, Pg. I.F.2
SA = 31.1 KSI, Pg. I.F.2

Report #10
"Aux. Feedwater
ozzle Analysis"

Report #1
"Sizing Calcula-
tions"

Report #13
"Piping Reac-
tions"

Report #9
(Part 1)
x. Feedwater
der Analysis"

*Reference Certification Document Page 2 of 5

NOZZLE DESIGN CODE: ASME CODE, SECTION III, 1965 EDITION WITH ADDENDA THRU SUMMER 1967

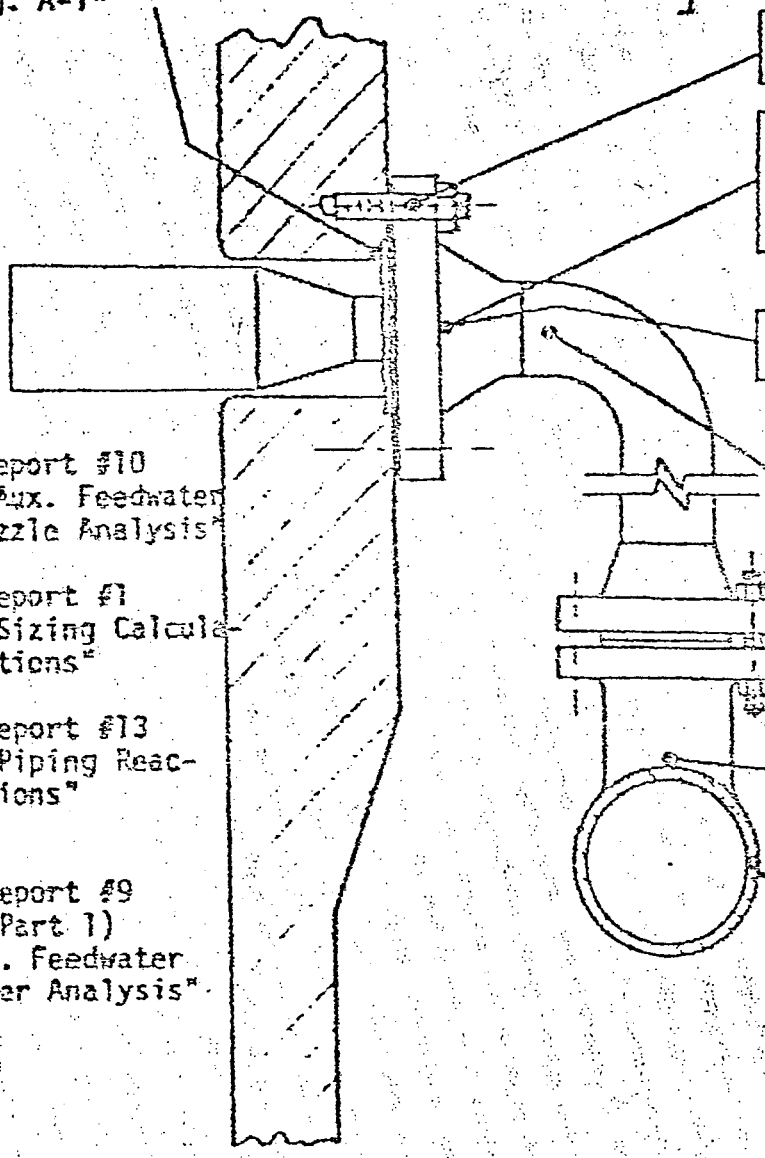
HEADER AND RISER DESIGN CODE: POWER PIPING CODE, USAS B31.1.0 - 1967

CUSTOMER: FLORIDA POWER COMPANY

B&W CONTRACTS: 620-0003-55/620-0004-55

SUBJECT: AUX. FEEDWATER ASSEMBLY RESULTS

Exempted from Analysis for Cyclic Operation
Pg. A-1*



Avg. Shear Intensity = 37.9 KSI
Pg. 139 & 137** Vs. 92.7 KSI Allow.

Pri.+Sec. = 44.5 KSI Vs. 53.4 KSI
Pg. A-1*
U = 0.017 Vs. 1.0 Allow.
Pg. A-1*

Pri.+Sec. = 46.9 KSI Vs. 53.4 KSI Allow.
Pg. F-17 (App. F)***

Report #10
"Aux. Feedwater
ozzle Analysis"

Report #1
"Sizing Calcula-
tions"

Report #13
"Piping Reac-
tions"

Report #9
(Part 1)
x. Feedwater
der Analysis"

UTotal = 21.1 KSI, Pg. I.F.1
SA = 34.8 KSI, Pg. I.F.1

UTotal = 29.2 KSI, Pg. I.F.1
SA = 35.5 KSI, Pg. I.F.1

UTotal = 13.8 KSI, Pg. I.F.2
SA = 31.1 KSI, Pg. I.F.2

‡Reference Certification Document Page 2 of 5

NOZZLE DESIGN CODE: ASME CODE, SECTION III, 1965 EDITION WITH ADDENDA THRU SUMMER 1967

HEADER AND RISER DESIGN CODE: POWER PIPING CODE, USAS B31.1.0 - 1967

CUSTOMER: DUKE POWER COMPANY

B&W CONTRACT: 620-0009-55

SUBJECT: AUXILIARY FEEDWATER NOZZLE RESULTS

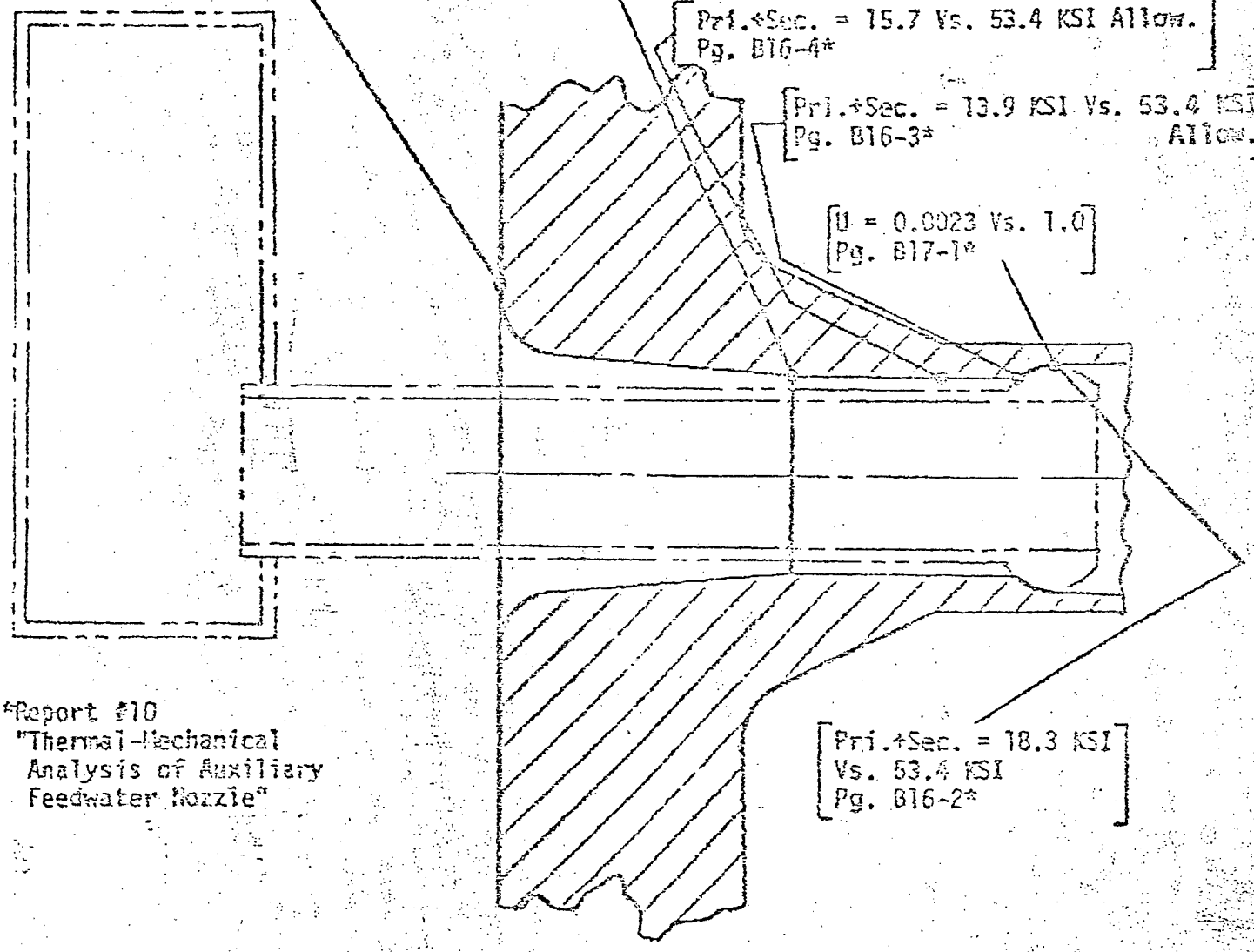
Pri.+Sec. = 6.5 KSI Vs. 53.4 KSI Allow.
Pg. B-16-6*

Pri.+Sec. = 19.3 KSI Vs. 53.4 KSI Allow.
Pg. B16-5*

Pri.+Sec. = 15.7 Vs. 53.4 KSI Allow.
Pg. B16-4*

Pri.+Sec. = 13.9 KSI Vs. 53.4 KSI Allow.
Pg. B16-3*

U = 0.0023 Vs. 1.0
Pg. B17-1*



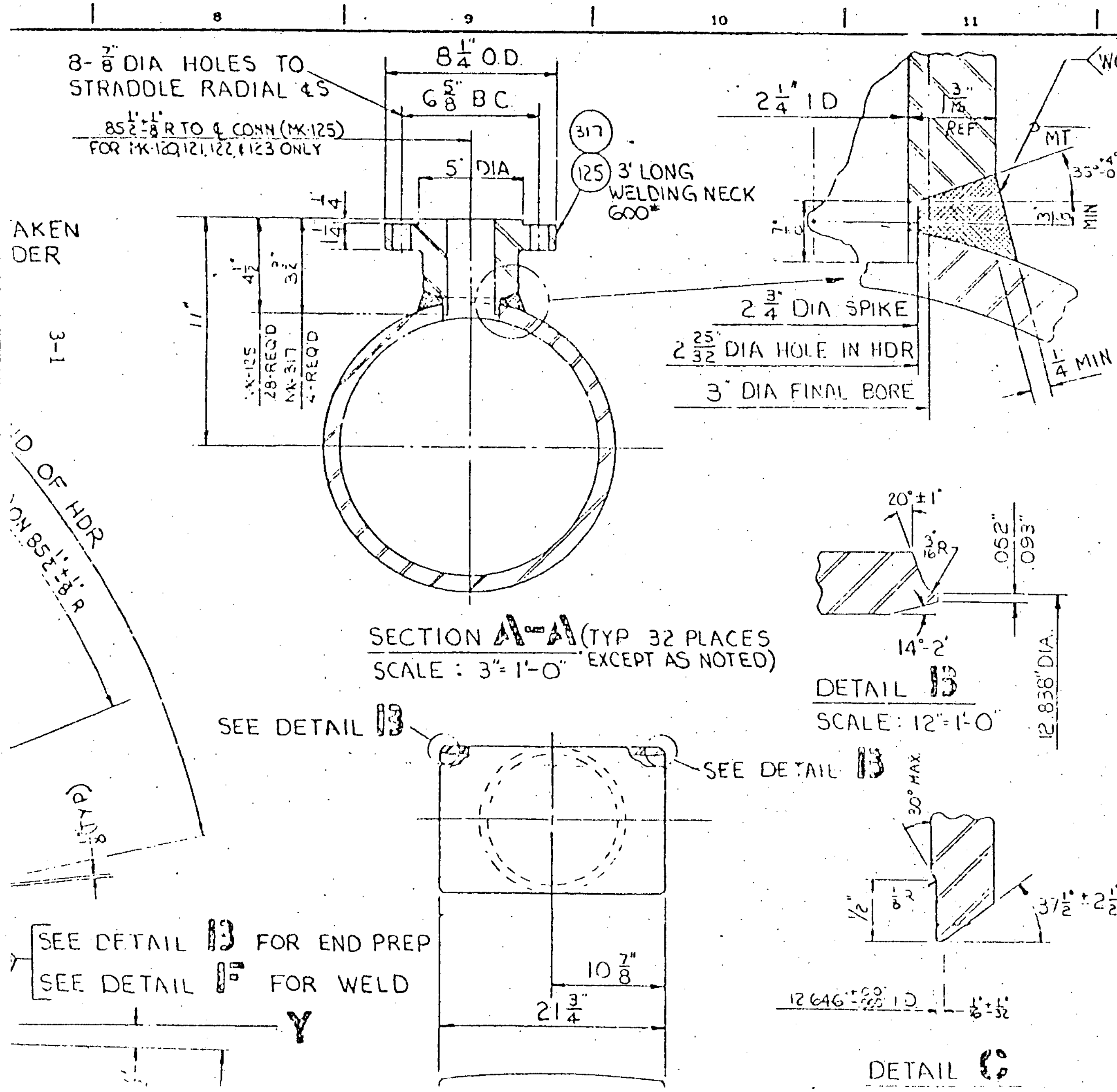
Pri.+Sec. = 18.3 KSI
Vs. 53.4 KSI
Pg. B16-2*

*Report #10
"Thermal-Mechanical
Analysis of Auxiliary
Feedwater Nozzle"

NOZZLE DESIGN CODE: ASME CODE, SECTION III, 1965 EDITION, WITH ADDENDA THRU SUMMER 1967 AND CODE CASE 1332-4

JUN 13 79

ATTACHMENT 3



REVISIONS

REVISION NO.	DESCRIPTION	DATE	APPROVAL
1	REMOVED STRUCTURAL CONNECTION MK-126 (B-5), (G-4), & DETAIL "D" AND "E". ADDED NOTE 5. DPY/[illegible]	[illegible]	[illegible]
2	REMOVED NOZZLES FROM 14" TEE CONN DETAIL (E-10) AND ADDED TO ASSEMBLY (D-2). TJ/[illegible]	[illegible]	[illegible]
3	CHGD LENGTH OF HEADER FROM 140 9/32 TO 140 3/4" (G-7) AND FROM 123 [illegible] TO 123 [illegible] (G-2). REDESIGNED END PLUG MK-127 (I-6), DETAIL "G" & DETAIL "H" TJ/LK	7/21/65	[illegible]
4	CHG'D. HEADER ENDS TO REMOVE THE END PLUGS & ADD [illegible]	[illegible]	[illegible]
5	REMOVED CONTRACT NO 620-0009-55 & 620-0009-55 ADDED UNIT #1 IN TITLE BLOCK TW/ED	11/14/68	[illegible]
6	CHGD.- DET. OF MK NO 130 (F-4). ADDED NOTE #6 (F-12) AND ASSY MK NOS A-122 (I-5)(E-2) & A-123 (I-5)(E-1) LBK/[illegible]	[illegible]	[illegible]
7	CHGD DESIGN OF WELD PREP ON MK 125 (A-11)(B-9) & 3/4" DIM TO [illegible] (A-10), CHGD NOTE #1 KH/[illegible]	9/24/69	[illegible]
8	CHGD TOLERANCE ON RADIUS TO ℄ HDR FROM 85 1/2" ± 1/8" TO 85 1/2" ± 1/2" (C-6) ADDED 85 1/2" ± 1/8" RAD TO ℄ CONN MK-125 (A-8, A-3, C-7, G-3, F-7) KH/CN	12/11/69	[illegible]
9	IN WG-88 DELETED RT TEST. CHANGED DETAIL B. IN DETAIL F DELETED .093" REF. DIM. DKC/PH	1/1/70	[illegible]
10	ADDED MK-317. IN MK-125, 28-REQ'D WAS 32-REQ'D. IN WELD DET. IN SECT "A-A" 35° +4° -0 WAS 20° FPK/ED	6/10/70	[illegible]

NOTES

1. FEEDWATER SYSTEM TO BE DESIGNED, FABRICATED, INSPECTED, TESTED, CLEANED, AND PAINTED IN ACORDANCE WITH EQUIPMENT SPECIFICATION CS-3-150.

2. ALL FABRICATION SHALL FOLLOW FABRICATION AND ASSEMBLY PROCEDURE

W438

THE BABCOCK & WILCOX COMPANY • BARBERTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification W-50

DESCRIPTION OF WELD: MK125 Welding Neck to Feedwater Inlet Heater Pipe	CARBON STEEL / LOW ALLOY / STAINLESS	INCONEL / OTHER	TYPE OF WELD; SPECIAL WELDER QUAL.
QUANTITY PER UNIT: 32	PREHEAT MAY BE DROPPED AFTER WELD IS COMPLETE / RAISED TO 1000°F FOR 2 HRS. & ALL STRESS RAISERS REMOVED		PROCEDURE QUAL: 1020, 1021
WELDING POSITION: All positions	PREHEAT °F MIN.: 60	INTERPASS °F MAX.: 500	WELDING PROGRESSION & SEQUENCE WILL BE FROM BOTTOM OF GROOVE TO THE TOP, LEFT TO RIGHT OR RIGHT TO LEFT UNLESS NOTED IN SKETCH BELOW.
BASE MATERIAL: SA106 Gr. B and A105 Gr. 2	OVERLAP / BEAD WIDTH	BEAD (PITCH) INDEX	

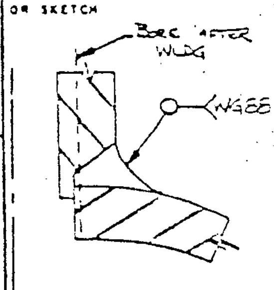
MANUAL METAL ARC	FILLER METAL SPEC.: ASTM A316 E7015/7016/7018	SIZE-DIA. INCH: 3/16 max.	AMPS: 5/32 150-200 160-210; 3/16 200-270 [illegible]
AUTO. SUBMERGED ARC	FILLER METAL SPEC.	FLUX	ELECT. SPACING; LOCATION; AMPS; VOLTS; TRAVEL IPM; NO. OF ARCS; AC/DCRP/DCSP; OSCILL. CY/MIN.; FILLER METAL SIZE-INCH
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.	SHIELDING GAS; TORCH FLOW RATE-CFH; PURGE FLOW RATE-CFH; CUP SIZE I.D.-INCH; ELECTRODE SIZE-INCH; FILLER METAL DIA.-INCH	EXTENSION BEYOND CUP - INCH; SLOPE CONTROL MANUAL/AUTO.; AMPERES; MANUAL / SEMI AUTO.
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.	SHIELDING GAS; TORCH FLOW RATE-CFH; BACK PURGE FLOW RATE-CFH; CUP SIZE I.D.-INCH; ELECTRODE SIZE-INCH; FILLER METAL DIA.-INCH	EXTENSION BEYOND CUP - INCH; SLOPE CONTROL MANUAL/AUTO.; TRAVEL SPEED IPM; WIRE FEED IPM; AMPERES; VOLTS
SEMI & AUTO GAS SHIELDED METAL ARC	FILLER METAL SPEC.	SHIELDING GAS; TORCH FLOW RATE-CFH; CUP SIZE I.D.-INCH; FILLER METAL DIA.-INCH; VOLTS AVG./PEAK; AC/DCRP/DCSP	ELECT. EXTEN. BEYOND CUP-INCH; TRAVEL SPEED IPM; OSCILLATION FREQ. CY/MIN; AMPS
ELECTROSLAG	FILLER METAL SPEC.	FLUX OR GAS; FILLER METAL DIA.-INCH; NO. OF ARCS	AMPS; VOLTS; OSCILLATION

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be inspected by the magnetic particle method in accordance with Quality Control Specification S-1023.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH

SAMPLING INSTRUCTIONS OR SKETCH

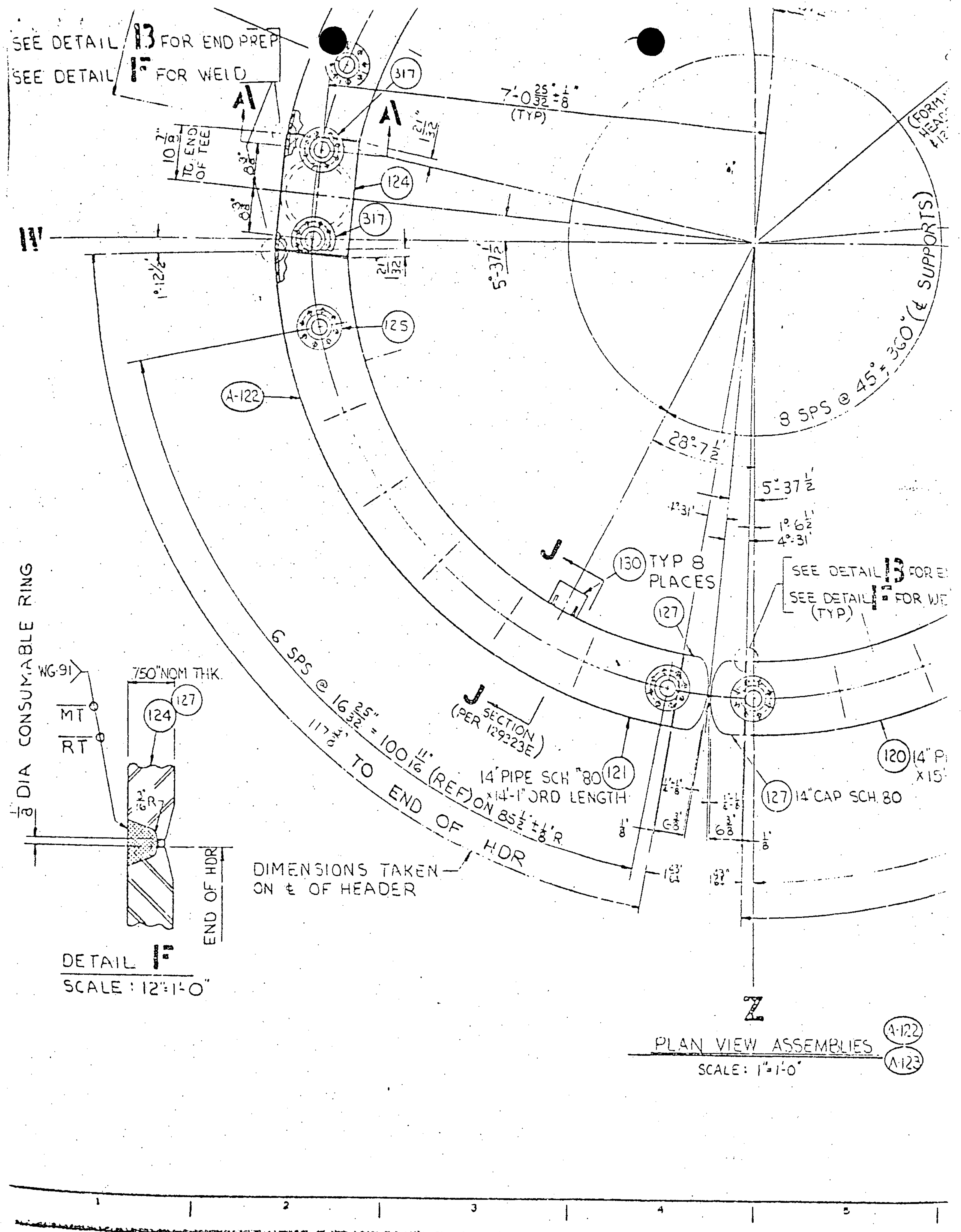


IMMEDIATELY AFTER THE BEAD TO BE SAMPLED HAS BEEN DEPOSITED, IT MUST BE SENT TO QUALITY CONTROL, CHEM. LAB.

CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129322E	
0003#2	146422E	
0004	146472E	
0007	134922E	
0011	139772E	

REVISION: Rev. 3 - NDT; Rev. 4 - Deleted Contract #a; Rev. 5 - NDT; Rev. 6 - NDT, deleted 0006 contract; Rev. 7 - Contracts

ISSUED: [illegible] | REVISED: 3-24-70 | REVISED BY: [illegible] | SALES CLASS: 600 | REVISION NO.: 7 | WELD DATA SHEET NO.: [illegible]


SEE DETAIL 13 FOR END PREP
SEE DETAIL F FOR WELD
7'-0 25/32" ± 1/8"
(TYP)
TO END OF TEE
124
317
125
A-122
5°-37 1/2'
28°-7 1/2'
8 SPS @ 45° = 360° (℄ SUPPORTS)
1°-6 1/2'
4°-31'
130 TYP 8 PLACES
SEE DETAIL 13 FOR E
SEE DETAIL F FOR WE
(TYP)
127
J SECTION (PER 129223E)
6 SPS @ 16 25/32" = 100 11/16" (REF) ON 85 1/2" ± 1/8" R
TO END OF HDR
14" PIPE SCH 80 x 14'-1" ORD LENGTH
121
127 14" CAP SCH 80
120 14" P
DIMENSIONS TAKEN ON ℄ OF HEADER
1/8 DIA CONSUMABLE RING
WG-91
MT
RT
.750" NOM THK.
END OF HDR
DETAIL F
SCALE: 12" = 1'-0"
Z
PLAN VIEW ASSEMBLIES A-122 A-123
SCALE: 1" = 1'-0"

WG91

THE BABCOCK & WILCOX COMPANY · BARBERTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification ...

DESCRIPTION OF WELD		
Feedwater Inlet Header Girth Seams		
QUANTITY PER UNIT: 8		
WELDING POSITION: All Positions	PREHEAT °F MIN.: 60	INTERPASS °F MAX.: 500
BASE MATERIAL: A234 WPB (SA106B) to SA106B		

MANUAL METAL ARC			
FILLER METAL SPEC.	SIZE-DIA. INCH	AMPS	
ASTM A316 E7015/7016/7018-A1	5/32 max.	1/8	110-130
		5/32	150-200

MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC					
FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH
1/8 consumable insert* RACO "EMS"/Page AS-18	Argon	18-22	3-5	7/16	3/32
EXTENSION BEYOND CUP - INCH: 1/4 - 1/2	SLOPE CONTROL: MANUAL	AMPERES: 50-130			

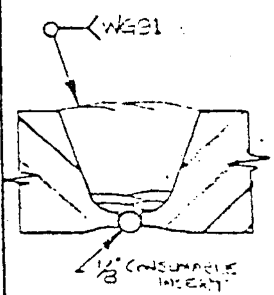
AUTO. SUBMERGED ARC; AUTOMATIC GAS SHIELDED TUNGSTEN ARC; SEMI & AUTO GAS SHIELDED METAL ARC; ELECTROSLAG — not filled in.

NON-DESTRUCTIVE TESTING: Root layer and final layer shall be magnetic particle inspected and completed weld shall be radiographed in accordance with Quality Control Specifications S102B and S102A, respectively.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: 1100-1150F for one hour.

REMARKS OR SKETCH:
*MTIG- Fuse insert & first two layers
MMA - Balance

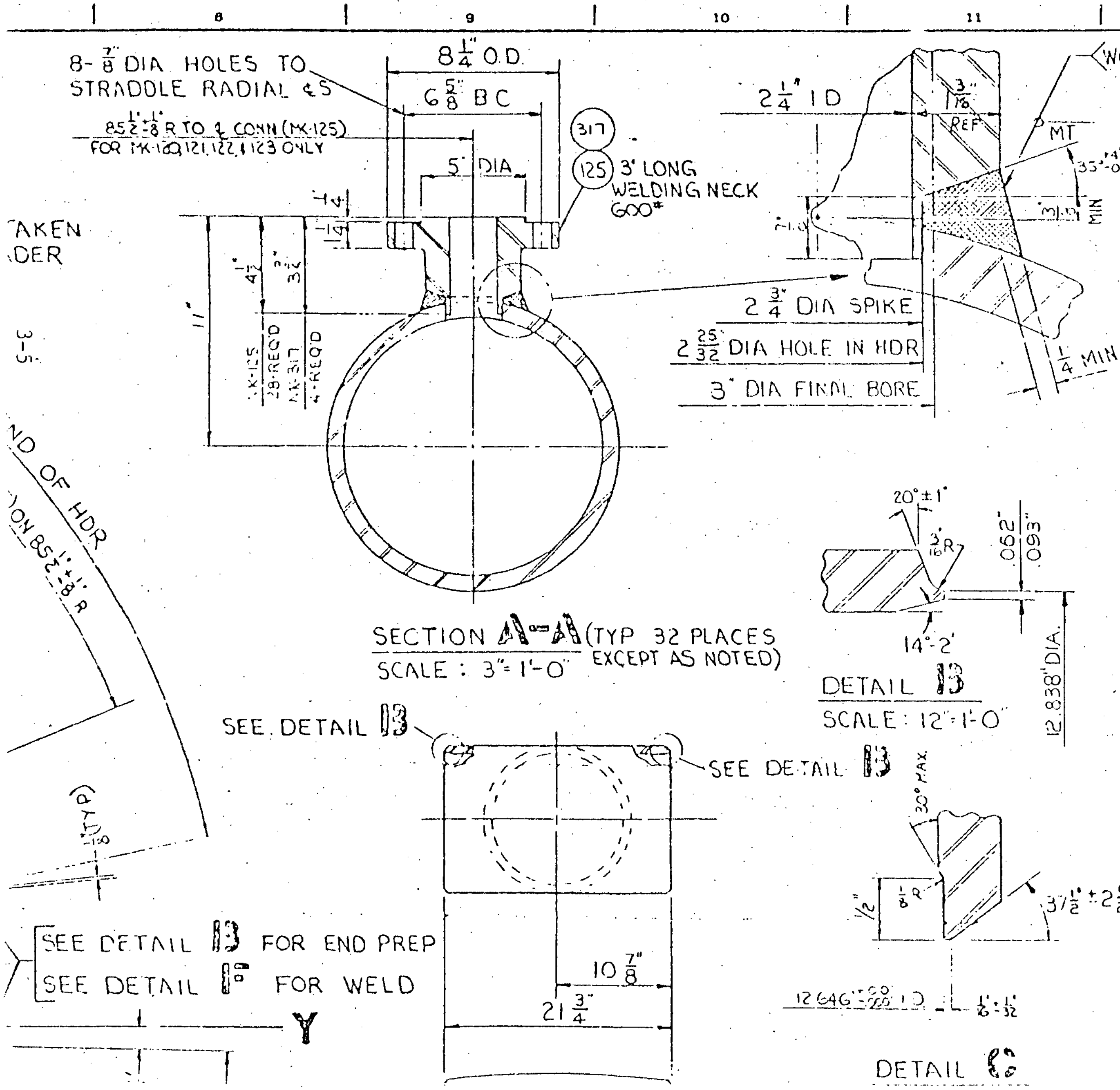
SAMPLING INSTRUCTIONS OR SKETCH:



CONTRACT NO.	DWG. NO.
0003#1	129322E
0003#2	146422E
0004	146742E
0005	131122E
0006	134982E
0007	134922E
0008	135042E
0009	149522E

REVISION: Rev. 4 - PQ, IR, Remarks, Deleted WG-91 from WG32,36,91 Rev. 3
Rev. 5-deleted contract #s

ISSUED: 1-20-68 | REVISED: 7-23-69 | SALES CLASS: 520 | REVISION NO.: 5 | WELD DATA SHEET NO.: WG-91



12 13

REVISIONS

REVISION NO.	DESCRIPTION	DATE	APPROVAL
1	REMOVED STRUCTURAL CONNECTION MK-126 (B-5), (G-4), & DETAIL "D" AND "E". ADDED NOTE 5. DPY/[illegible]	[illegible]	[illegible]
2	REMOVED NOZZLES FROM 14" TEE CONN DETAIL (E-10) AND ADDED TO ASSEMBLY (D-2). TJ/CJ	[illegible]	[illegible]
3	CHGD LENGTH OF HEADER FROM 140 [illegible] TO 140 [illegible] (G-7) AND FROM 123 [illegible] TO 123 [illegible] (G-2). REDESIGNED END PLUG MK-127 (I-6), DETAIL "G" & DETAIL "H" T.J./LK	2/21/65	C. Neal
4	CHG'D. HEADER ENDS TO REMOVE THE END PLUGS & ADD [illegible] [illegible]	[illegible]	J. Peck
5	REMOVED CONTRACT NO 620-0004-55 & 620-0009-55 ADDED UNIT #1 IN TITLE BLOCK TW/ED	[illegible]	J. Peck
6	CHGD.- DET. OF MK Nº 130 (F-4). ADDED NOTE #6 (F-12) AND ASSY MK NºS A-122 (I-5)(E-2) & A-123 (I-5)(E-7) LBK/[illegible]	[illegible]	J. Peck
7	CHGD DESIGN OF WELD PREP ON MK 125 (A-11)(B-4) & 3/4" DIM TO 7/32" (A-6), CHGD NOTE #1 KH/[illegible]	9/29/69	C. Neal
8	CHGD TOLERANCE ON RADIUS TO ℄ HDR FROM 85 1/2" ± 1/8" TO 85 1/2" ± 1/2" (C-6) ADDED 85 1/2" ± 1/8" RAD TO ℄ CONN MK-125 (A-8, A-3, C-7, G-3, F-7) KH/CN	12/11/69	C. Neal
9	IN WG-88 DELETED RT TEST. CHANGED DETAIL B. IN DETAIL F DELETED .093" REF. DIM. DKC/PH	1/1/70	[illegible]
10	ADDED MK-317. IN MK-125, 28-REQ'D WAS 32-REQ'D. IN WELD DET. IN SECT. "A-A" 35° +4° -0 WAS 20° FPK/ED	6/10/70	C.H./H.E.L.

NOTES

1. FEEDWATER SYSTEM TO BE DESIGNED, FABRICATED, INSPECTED, TESTED, CLEANED, AND PAINTED IN ACORDANCE WITH EQUIPMENT SPECIFICATION CS-3-150.
2. ALL FABRICATION SHALL FOLLOW FABRICATION AND ASSEMBLY PROCEDURE

W638 E BABCOCK & WILCOX COMPANY · BARBET HIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification W-60

DESCRIPTION OF WELD	MK125 Welding Neck to Feedwater Inlet Header Pipe
QUANTITY PER UNIT	32
PROCEDURE QUAL.	1020, 1021
WELDING POSITION	All positions
PREHEAT °F MIN.	60
INTERPASS °F MAX.	500
BASE MATERIAL	SA106 Gr. B and A105 Gr. 2
OVERLAP / BEAD WIDTH	
BEAD (STITCH) INDEX	Qualification filler [illegible]

MANUAL METAL ARC

FILLER METAL SPEC.	SIZE-DIA. INCH	AMPS
ASTM A316 E7015/7016/7018	3/16 max.	5/32 150-200 160-210; 3/16 200-270 [illegible]

AUTO. SUBMERGED ARC

FILLER METAL SPEC.	FLUX	ELECT. SPACING

LOCATION	AMPS	VOLTS	TRAVEL IPM	NO. OF ARCS	AC / DCRP / DCSP	OSCILL. CY/MIN.	FILLER METAL SIZE-INCH

MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER METAL DIA.-INCH

EXTENSION BEYOND CUP - INCH	SLOPE CONTROL MANUAL / AUTO.	AMPERES	MANUAL / SEMI AUTO.

AUTOMATIC GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	BACK PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER METAL DIA.-INCH

EXTENSION BEYOND CUP - INCH	SLOPE CONTROL MANUAL / AUTO.	TRAVEL SPEED IPM	WIRE FEED IPM	AMPERES	VOLTS

SEMI & AUTO GAS SHIELDED METAL ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	CUP SIZE I.D.-INCH	FILLER METAL DIA.-INCH	VOLTS AVG. / PEAK	AC / DCRP / DCSP

ELECT. EXTEN. BEYOND CUP-INCH	TRAVEL SPEED IPM	OSCILLATION FREQ. CY/MIN	AMPS

ELECTROSLAG

FILLER METAL SPEC.	FLUX OR GAS	FILLER METAL DIA.-INCH	NO. OF ARCS

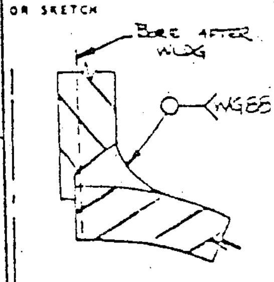
AMPS	VOLTS	OSCILLATION

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be inspected by the magnetic particle method in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH:

SAMPLING INSTRUCTIONS OR SKETCH

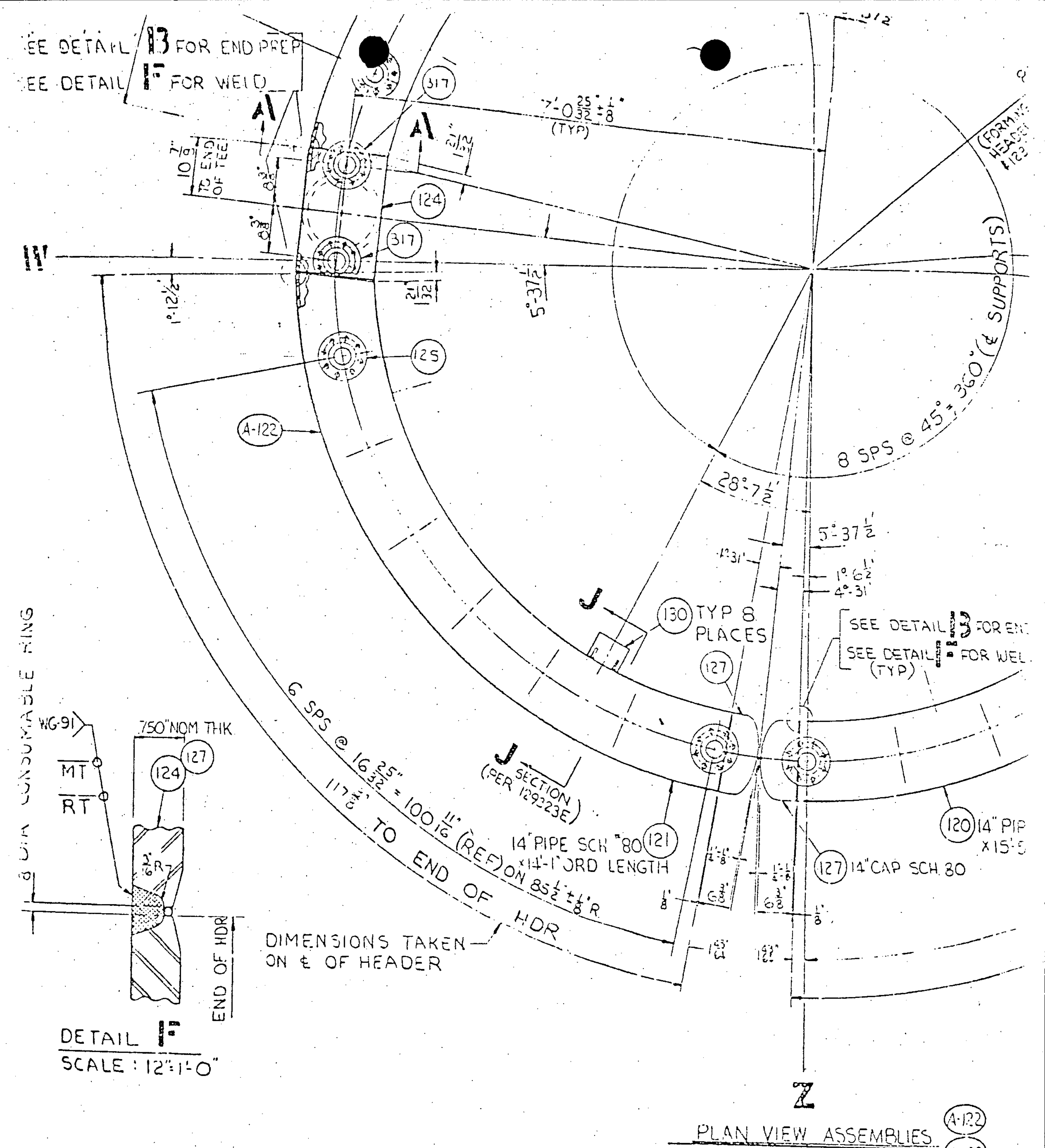


IMMEDIATELY AFTER THE BEAD TO BE SAMPLED HAS BEEN DEPOSITED, IT MUST BE SENT TO QUALITY CONTROL, CHEM. LAB.

CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129322E	
0003#2	146422E	
0004	146472E	
0007	134922E	
0011	139772E	

REVISION: Rev. 3 - NDT Rev. 7 - Contracts
Rev. 4 - Deleted Contract #s
Rev. 5 - NDT Rev.6-NDT, deleted 0006 contract

ISSUED	2-5-68
REVISED	8-24-70
REVISED BY	
SALES CLASS	620
REVISION NO.	7
WELD DATA SHEET NO.	[illegible]



PLAN VIEW ASSEMBLIES (A-122) (A-123)

SCALE: 1" = 1'-0"

WG91

THE BABCOCK & WILCOX COMPANY · BARB. TOW., OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification [illegible]

DESCRIPTION OF WELD: Feedwater Inlet Header Girth Seams	CARBON STEEL P-1 ☐ LOW ALLOY P-3 ☐ STAINLESS P-8 ☐	OTHER	SPECIAL WELDER QUAL.
QUANTITY PER UNIT: 8	MATERIAL FURNISHED BY [illegible]		PROCEDURE QUAL.
WELDING POSITION: All Positions	PREHEAT °F MIN.: 60	INTERPASS °F MAX.: 500	
BASE MATERIAL: A234 WP9 (SA106B) to SA106B	L OVERLAP / A BEAD WIDTH		

MANUAL METAL ARC	FILLER METAL SPEC.: ASTM A316 E7015/7016/7018-A1	SIZE-DIA. INCH: 5/32 max.	AMPS: 1/8 120-150; 5/32 150-200; 3/16 200-250						
AUTO. SUBMERGED ARC	FILLER METAL SPEC.	FLUX							
	LOCATION	AMPS	VOLTS	TRAVEL IPM	NO. OF ARCS	AC ☐ DCRP ☐ DCSP ☐			
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.: 1/8 consumable insert* RACO "EMS"/Page AS-18	SHIELDING GAS: Argon	TORCH FLOW RATE-CFH: 18-20	PURGE FLOW RATE-CFH: 7-8	CUP SIZE I.D.-INCH: 7/16	ELECTRODE SIZE-INCH: 3/32			
	EXTENSION BEYOND CUP - INCH: 1/4 - 1/2	SLOPE CONTROL: MANUAL ☒ AUTO. ☐	AMPERES: 80-130	MANUAL ☒ SEMI AUTO. ☐ DCSP					
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	BACK PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH			
	EXTENSION BEYOND CUP - INCH.	SLOPE CONTROL: MANUAL ☐ AUTO. ☐	TRAVEL SPEED IPM	WIRE FEED IPM	AMPERES	VOLTS			
SEMI & AUTO GAS SHIELDED METAL ARC	FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	CUP SIZE I.D.-INCH	FILLER METAL DIA.-INCH	VOLTS: AVG. / PEAK	AC ☐ DCRP ☐ DCSP ☐		
	ELECT. EXTEN. BEYOND CUP-INCH	TRAVEL SPEED IPM	OSCILLATION FREQ. CY/MIN	AMPS					
ELECTROSLAG	FILLER METAL SPEC.	FLUX OR GAS	FILLER METAL DIA.-INCH	NO. OF ELEC.					
	AMPS	VOLTS	OSCILLATION						

NON-DESTRUCTIVE TESTING: Root layer and final layer shall be magnetic particle inspected and completed weld shall be radiographed in accordance with Quality Control Specifications S102B and S102A, respectively.

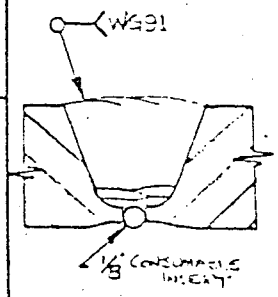
MINIMUM REQUIRED POSTWELD HEAT TREATMENT

1100-1150F for one hour.

REMARKS OR SKETCH

*GTAC- Fuse insert & first two layers
SMA - Balance

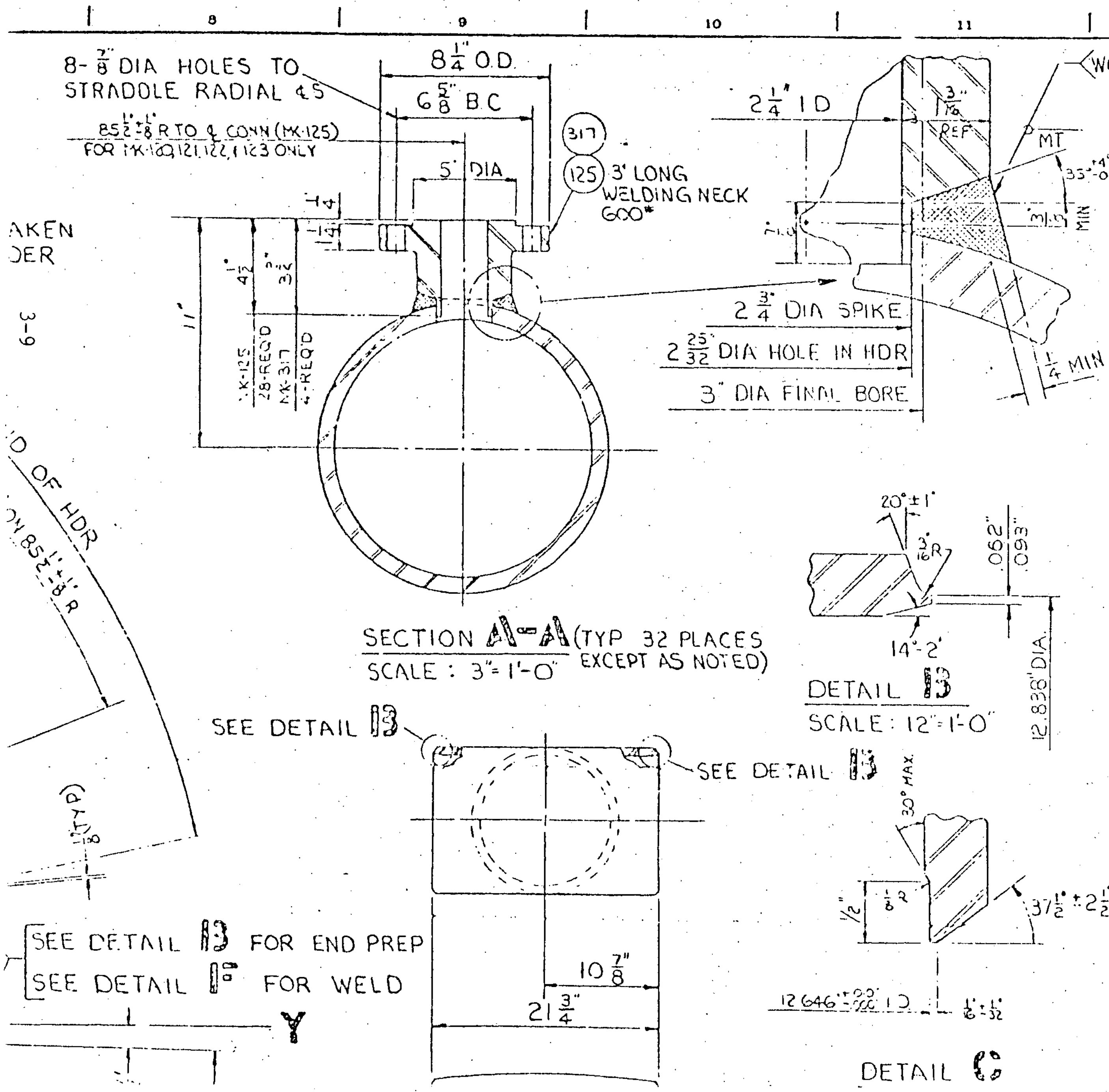
SAMPLING INSTRUCTIONS OR SKETCH



CONTRACT NO.	DRG. NO.	DRG. NO.
0003#1	129322E	
0003#2	146422E	
0004	146742E	
0005	131122E	
0006	134922E	
0007	134922E	
0008	135042E	
0009	149822E	

REVISION: Rev. 4 - FQ, ER, Remarks, Deleted WG-91 from WG32,36,91 Rev. 3 / Rev. 5-deleted contract #3

ISSUED 1-[illegible]-68	SALES CLASS 620	COMP. NO. 00	
REVISED 7-[illegible]-69	REVISION NO. 5		
REVISED 3-[illegible]-70	WELD DATA SHEET NO.	WG-91	



REVISIONS

NO.	DESCRIPTION	DATE	APPROVAL
1	REMOVED STRUCTURAL CONNECTION MK-126 (B-5), (G-4), & DETAIL "D" AND "E". ADDED NOTE 5. DPY/LK	[illegible]	[illegible]
2	REMOVED NOZZLES FROM 14" TEE CONN DETAIL (E-10) AND ADDED TO ASSEMBLY (D-2). TJ/CJ	[illegible]	[illegible]
3	CHGD LENGTH OF HEADER FROM 140 5/32" TO 140 3/4" (G-7) AND FROM 123 [illegible]" TO 123 [illegible]" (G-2). REDESIGNED END PLUG MK-127 (J-6), DETAIL "G" & DETAIL "H" TJ/LK	7/21/65	[illegible]
4	CHG'D. HEADER ENDS TO REMOVE THE END PLUGS & ADD PIPE CAPS [illegible] [illegible]	[illegible]	[illegible]
5	REMOVED CONTRACT NO. 620-0004-55 & 620-0009-55 ADDED UNIT #1 IN TITLE BLOCK TW/ED	[illegible]	[illegible]
6	CHGD.- DET. OF MK Nº 130 (F-4). ADDED NOTE #6 (F-12) AND ASSY MK NºS A-122 (I-5)(E-2) & A-123 (I-5)(E-7) [illegible]	[illegible]	[illegible]
7	CHGD DESIGN OF WELD PREP ON MK 125 (A-11)(B-9) & 3/4" DIM TO 7/32" (A-6), CHGD NOTE #1 KH/[illegible]	3/27/67	[illegible]
8	CHGD TOLERANCE ON RADIUS TO ℄ HDR FROM 85 1/2" ± 1/8" TO 85 1/2" ± 1/2" (C-6) ADDED 85 1/2" ± 1/8" RAD TO ℄ CONN MK-125 (A-8, A-3, C-7, G-3, F-7) [illegible]	12/11/69	[illegible]
9	IN WG-68 DELETED RT TEST. CHANGED DETAIL B. IN DETAIL F DELETED .093" REF. DIM. DKC/PH	1/9/70	[illegible]
10	ADDED MK-317. IN MK-125, 28-REQ'D WAS 32-REQ'D. IN WELD DET. IN SECT. "A-A" 35° +4° -0° WAS 20° FPN/ED	6/10/70	[illegible]

NOTES

1. FEEDWATER SYSTEM TO BE DESIGNED, FABRICATED, INSPECTED, TESTED, CLEANED, AND PAINTED IN ACORDANCE WITH EQUIPMENT SPECIFICATION CS-3-150.

2. ALL FABRICATION SHALL FOLLOW FABRICATION AND ASSEMBLY PROCEDURE

WG38 — [illegible]E BABCOCK & WILCOX COMPANY · BARBE[illegible] OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification W-60

Description of weld: MK125 Welding Neck to Feedwater Inlet Heater Pipe

Carbon steel P-1 / Low alloy P-3 / Stainless P-8 / Inconel P-43 / Other

Type of weld: [illegible]

Special requirements: Test [illegible]

Quantity per unit: 32

Maintain preheat as specified [illegible] — Drop preheat [illegible]

Preheat may be dropped after weld is completed & preheat is held for [illegible] or raised to 400°F for 2 hrs. & all stress raisers removed. ☐

Procedure qual.: 1030, 1031

Welding position: All positions

Preheat °F min.: 60

Interpass °F max.: 500

Welding progression & sequence will be from bottom of groove to the top, left to right or right to left unless noted in sketch area.

Base material: CA106 Gr. B and A105 Gr. 2

L overlap / A bead width / Bead (stringer) [illegible] / Oscillation width

Manual Metal Arc

Filler metal spec.	Size-dia. inch	Amps		
ASTM A316 E7015/7016/7018	3/16 max.	5/32	150-200	160-220
		3/16	200-270	[illegible]

Auto. Submerged Arc

Filler metal spec. / Flux / Elect. spacing / Location / Amps / Volts / Travel IPM / No. of arcs / AC ☐ DCRP ☐ DCSP ☐ / Oscill. cy/min. / Filler metal size-inch

Manual & Semi-Auto Gas Shielded Tungsten Arc

Filler metal spec. / Shielding gas / Torch flow rate-CFH / Purge flow rate-CFH / Cup size I.D.-inch / Electrode size-inch / Filler metal dia.-inch / Extension beyond cup - inch / Slope control: Manual ☐ Auto. ☐ / Amperes / Manual ☐ Semi auto. ☐

Automatic Gas Shielded Tungsten Arc

Filler metal spec. / Shielding gas / Torch flow rate-CFH / Back purge flow rate-CFH / Cup size I.D.-inch / Electrode size-inch / Filler metal dia.-inch / Extension beyond cup - inch / Slope control: Manual ☐ Auto. ☐ / Travel speed IPM / Wire feed IPM / Amperes / Volts

Semi & Auto Gas Shielded Metal Arc

Filler metal spec. / Shielding gas / Torch flow rate-CFH / Cup size I.D.-inch / Filler metal dia.-inch / Volts avg., peak / AC ☐ DCRP ☐ DCSP ☐ / Elect. exten. beyond cup-inch / Travel speed IPM / Oscillation freq. cy/min / Amps

Electroslag

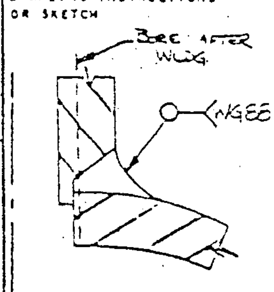
Filler metal spec. / Flux or gas / Filler metal dia.-inch / No. of arcs / Amps / Volts / Oscillation

Non-destructive testing: Root layer and final surface shall be inspected by the magnetic particle method in accordance with Quality Control Specification S-102B.

Minimum required postweld heat treatment: None

Remarks or sketch:

Sampling instructions or sketch:

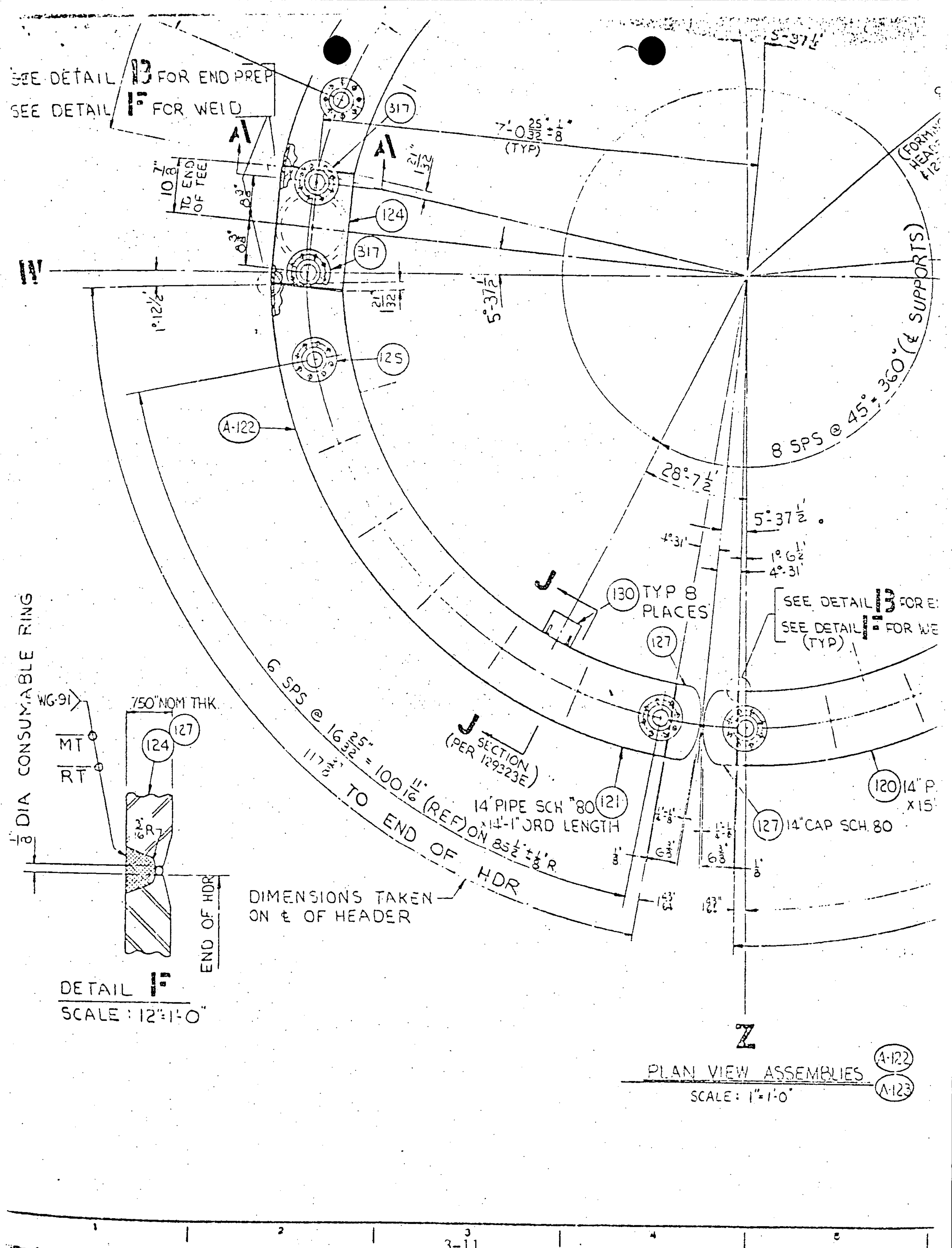


Immediately after the bead to be sampled has been deposited, it must be sent to Quality Control, Chem. Lab.

Contract no.	Dwg. no.	Dwg. no.
0003#1	129322E	
0003#2	146422E	
0004	146472E	
0007	134922E	
0011	139772E	

Revision: Rev. 3 - NDT; Rev. 4 - Deleted Contract #s; Rev. 5 - NDT; Rev. 6 - NDT, deleted 0006 contract; Rev. 7 - Contracts

Issued: [illegible] · Revised: 3-24-70 · Revised by: [illegible] · Sales class: [illegible] · Comp. no.: [illegible] · Revision no.: 7 · Field data sheet no.: [illegible]



SEE DETAIL B FOR END PREP
SEE DETAIL F FOR WELD
A
A
317
124
317
125
A-122
7'-0 25/32" ± 1/8"
(TYP)
10 7/8" TO END OF TEE
8 3/4"
8 3/4"
21/32"
21/32"
W
1°-12 1/2'
5°-37 1/2'
8 SPS @ 45° = 360° (℄ SUPPORTS)
28°-7 1/2'
5°-37 1/2'
4°-31'
1°-6 1/2'
4°-31'
J
130 TYP 8 PLACES
SEE DETAIL B FOR E
SEE DETAIL F FOR WE
(TYP)
127
J SECTION (PER 129323E)
6 SPS @ 16 25/32" = 100 11/16" (REF) ON 85 1/2" ± 1/8" R
117 TO END OF HDR
14" PIPE SCH "80" x 14'-1" ORD LENGTH
121
120 14" P x 15
127 14" CAP SCH. 80
DIMENSIONS TAKEN ON ℄ OF HEADER
6 3/8"
6 3/8"
1/8"
1/8"
1/8 DIA CONSUMABLE RING
WG-91
MT
RT
.750" NOM THK.
124
127
3/16" R
END OF HDR
DETAIL F
SCALE: 12"=1'-0"
Z
PLAN VIEW ASSEMBLIES A-122 A-123
SCALE: 1"=1'-0"

WG41

THE BABCOCK & WILCOX COMPANY · BARB[illegible], OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification [illegible]

DESCRIPTION OF WELDS	CARBON STEEL / LOW ALLOY / STAINLESS	OTHER	TYPE OF WELD / SPECIAL WELDER QUAL.
Feedwater Inlet Header Girth Seams			[illegible]

QUANTITY PER UNIT	PREHEAT NOTES	
8	[illegible]	[illegible]

WELDING POSITION	PREHEAT °F MIN.	INTERPASS °F MAX.	WELDING PROGRESSION & SEQUENCE
All Positions	60	500	[illegible]

BASE MATERIAL	OVERLAP / BEAD WIDTH
A234 WPB (SA106B) to SA106B	[illegible]

MANUAL METAL ARC

FILLER METAL SPEC.	SIZE-DIA. INCH	AMPS
ASTM A316 E7015/7016/7018-A1	5/32 max.	1/8 110-150 [illegible]; 5/32 150-200 [illegible]

AUTO. SUBMERGED ARC

FILLER METAL SPEC.	FLUX					
LOCATION	AMPS	VOLTS	TRAVEL IPM	NO. OF ARCS	AC / DCRP / DCSP	

MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER WIRE DIA.
1/8 consumable insert* B&CO "[illegible]"/Para AS-18	Argon	15-22	3-5	3/16	3/32	[illegible]

EXTENSION BEYOND CUP - INCH	SLOPE CONTROL	AMPERES	MANUAL / SEMI AUTO.
1/4 - 1/2	MANUAL X AUTO. ☐	50-130	MANUAL X

AUTOMATIC GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	BACK PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER WIRE DIA.-INCH
EXTENSION BEYOND CUP - INCH	SLOPE CONTROL MANUAL ☐ AUTO. ☐	TRAVEL SPEED IPM	WIRE FEED IPM	AMPERES	VOLTS	

SEMI & AUTO GAS SHIELDED METAL ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	CUP SIZE I.D.-INCH	FILLER METAL DIA.-INCH	VOLTS AVG. / PEAK	
ELECT. EXTEN. BEYOND CUP-INCH	TRAVEL SPEED IPM	OSCILLATION FREQ. CY/MIN	AMPS			

ELECTROSLAG

FILLER METAL SPEC.	FLUX OR GAS	FILLER METAL DIA.-INCH	NO. OF ARCS
AMPS	VOLTS	OSCILLATION	

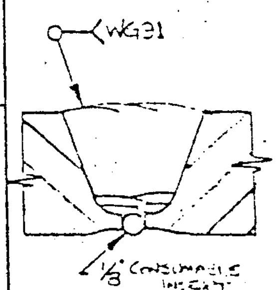
NON-DESTRUCTIVE TESTING: Root layer and final layer shall be magnetic particle inspected and completed weld shall be radiographed in accordance with Quality Control Specifications S102B and S102A, respectively.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: 1100-1150F for one hour.

REMARKS OR SKETCH:

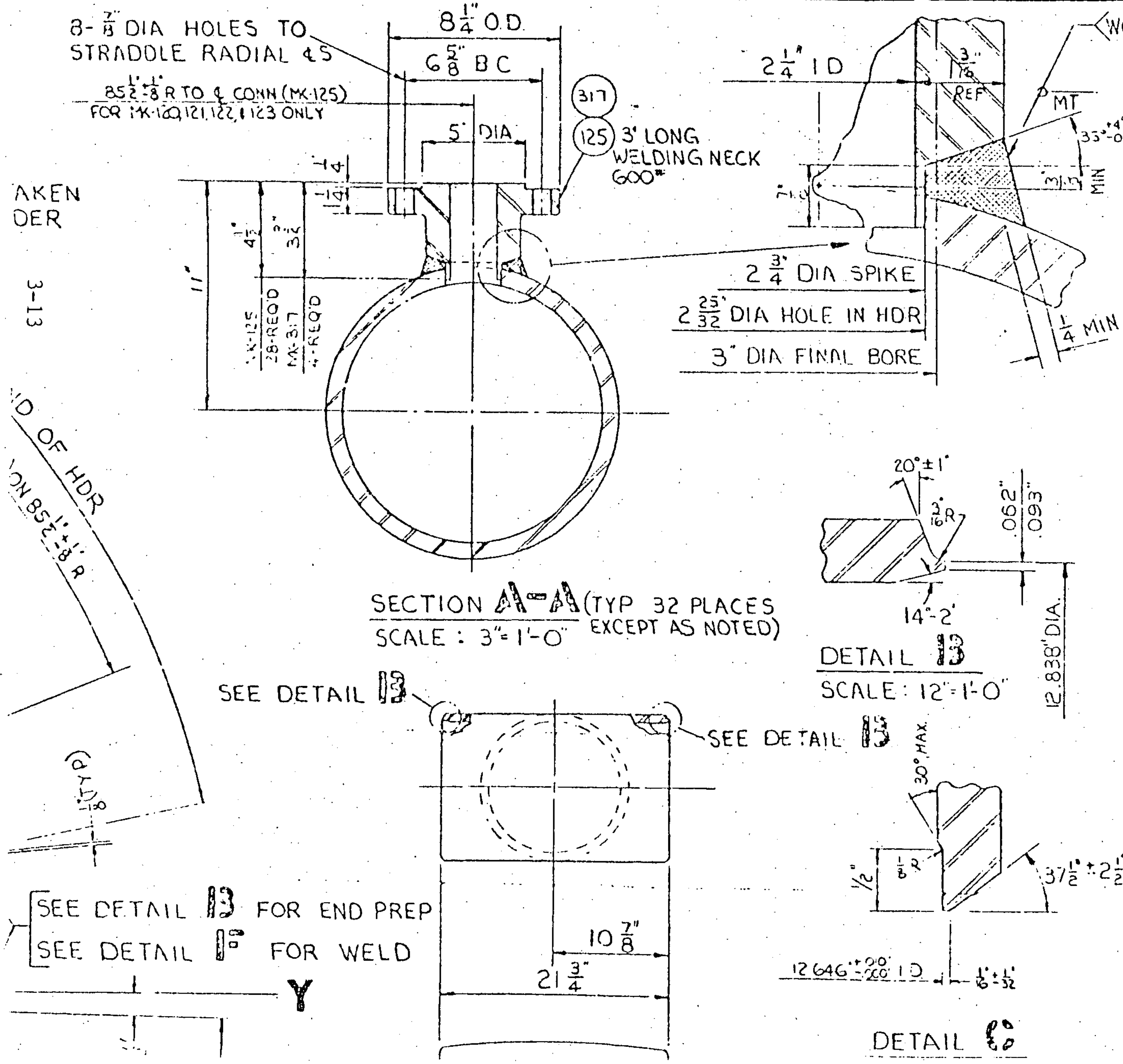
*MTIG - Fuse insert & first two layers
MMA - Balance

SAMPLING INSTRUCTIONS OR SKETCH:



CONTRACT NO.	DWG. NO.
0003#1	129322E
0003#2	146422E
0004	146742E
0005	131122E
0006	134982E
0007	134922E
0008	135042E
0009	149322E

REVISION	ISSUED	SALES CLASS	COMP. NO.
Rev. 4 - PQ, SR, Remarks, Deleted WG-91 [illegible] SC22,36,91 Rev. 3 [illegible] Rev. 5-deleted contract #s	1-2[illegible]-88	6[illegible]0	[illegible]
	REVISED 7-2[illegible]-8[illegible]	REVISION NO. 5	
	REVISED BY [illegible]	WELD DATA SHEET NO. WG-91	



REVISIONS

REVISION NO.	DESCRIPTION	DATE	APPROVAL
1	REMOVED STRUCTURAL CONNECTION MK-126 (B-5), (G-4), & DETAIL "D" AND "E". ADDED NOTE 5. DPY/	[illegible]	[illegible]
2	REMOVED NOZZLES FROM 14" TEE CONN DETAIL (E-10) AND ADDED TO ASSEMBLY (D-2). TJ/CJ	[illegible]	[illegible]
3	CHGD LENGTH OF HEADER FROM 140 [illegible] TO 140 3/4" (G-7) AND FROM 123 [illegible] TO 123 11/12" (G-2). REDESIGNED END PLUG MK-127 (J-6), DETAIL "G" & DETAIL "H" TJ/LK	7/21/65	C. Neal
4	CHGD. HEADER ENDS TO REMOVE THE END PLUGS & ADD PIPE CAPS [illegible]	[illegible]	J. Peck
5	REMOVED CONTRACT NO. 620-0004-55 & 620-0009-55 ADDED UNIT "1" IN TITLE BLOCK TW/ED	9/16/68	J. Peck
6	CHGD.- DET. OF MK. No 130 (F-4). ADDED NOTE #6 (F-12) AND ASSY MK NOS A-122 (I-5)(E-2) & A-123 (I-5)(E-7) LBK/CN	[illegible]	J. Peck
7	CHGD DESIGN OF WELD PREP ON MK 125 (A-11)(B-9) & 3/4" DIM TO 7/32" (A-10), CHGD NOTE #1 KH/CN	9/29/69	C. Neal
8	CHGD TOLERANCE ON RADIUS TO ℄ HDR FROM 85 1/2" ± 1/8 TO 85 1/2" ± 1/2 (C-6) ADDED 85 1/2" ± 1/8" RAD TO ℄ CONN MK-125 (A-8, A-3, C-7, G-3, F-7) KH/CN	12/11/69	C. Neal
9	IN WG-88 DELETED RT TEST. CHANGED DETAIL B. IN DETAIL F DELETED .093" REF. DIM. DKC/PH	1/9/70	[illegible]
10	ADDED MK-317. IN MK-125, 28-REQ'D WAS 32-REQ'D. IN WELD DET. IN SECT. "A-A" 35° +4° -0 WAS 20° FPK/ED	6/10/70	C.F./H.E.L.

NOTES

1. FEEDWATER SYSTEM TO BE DESIGNED, FABRICATED, INSPECTED, TESTED, CLEANED, AND PAINTED IN ACORDANCE WITH EQUIPMENT SPECIFICATION CS-3-150.

2. ALL FABRICATION SHALL FOLLOW FABRICATION AND ASSEMBLY PROCEDURE

W638

E BABCOCK & WILCOX COMPANY · BARBER OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification N-60

DESCRIPTION OF WELD: MK125 Welding Neck to Feedwater Inlet Heater Pipe	CARBON STEEL P-1 / LOW ALLOY P-11 / STAINLESS P-8	INCONEL P-43 / OTHER	TYPE OF WELD / SPECIAL WELDER QUAL. YES / NO
QUANTITY PER UNIT: 32	MAINTAIN PREHEAT TO FURNACE / SEE REMARKS BELOW / STOP PREHEAT WHEN WELD IS COMPLETED / PREHEAT MAY BE DROPPED AFTER WELD IS COMPLETE & PREHEAT IS HELD FOR 2 HRS. OR RAISED TO 400°F FOR 2 HRS. & ALL STRESS RELIEVED REMOVED		PROCEDURE QUAL.: 1660, 1661
WELDING POSITION: All positions	PREHEAT °F MIN. 60	INTERPASS °F MAX. 500	WELDING PROGRESSION & SEQUENCE WILL BE FROM BOTTOM OF GROOVE TO THE TOP, LEFT TO RIGHT OR RIGHT TO LEFT UNLESS NOTED IN SKETCH BELOW.
BASE MATERIAL: SA106 Gr. B and A105 Gr. 2	OVERLAP / BEAD WIDTH	BEAD (STRINGER) INDEX / OSCILLATION WIDTH	

MANUAL METAL ARC	FILLER METAL SPEC.: ASTM A316 E7015/7016/7018	SIZE-DIA. INCH: 3/16 max.	AMPS: 5/32 150-200 160-210; 3/16 200-270 [illegible]	AC / DCRP

AUTO. SUBMERGED ARC

FILLER METAL SPEC.	FLUX	ELECT. SPACING

LOCATION	AMPS	VOLTS	TRAVEL-IPM	NO. OF ARCS	AC ☐ DCRP ☐ DCSP ☐	OSCILL. CY/MIN.	FILLER METAL SIZE-INCH

MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER METAL DIA.-INCH

EXTENSION BEYOND CUP - INCH	SLOPE CONTROL MANUAL ☐ AUTO. ☐	AMPERES	MANUAL ☐ SEMI AUTO. ☐

AUTOMATIC GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	BACK PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER METAL DIA.-INCH

EXTENSION BEYOND CUP - INCH	SLOPE CONTROL MANUAL ☐ AUTO. ☐	TRAVEL SPEED IPM	WIRE FEED IPM	AMPERES	VOLTS

SEMI & AUTO GAS SHIELDED METAL ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	CUP SIZE I.D.-INCH	FILLER METAL DIA.-INCH	VOLTS AVG. PEAK	AC ☐ DCRP ☐ DCSP ☐

ELECT. EXTEN. BEYOND CUP-INCH	TRAVEL SPEED IPM	OSCILLATION FREQ. CY/MIN	AMPS

ELECTROSLAG

FILLER METAL SPEC.	FLUX OR GAS	FILLER METAL DIA.-INCH	NO. OF ARCS

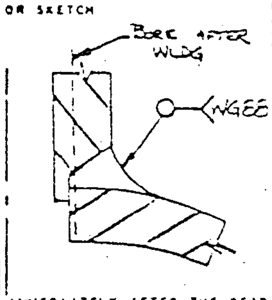
AMPS	VOLTS	OSCILLATION

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be inspected by the magnetic particle method in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH:

SAMPLING INSTRUCTIONS OR SKETCH

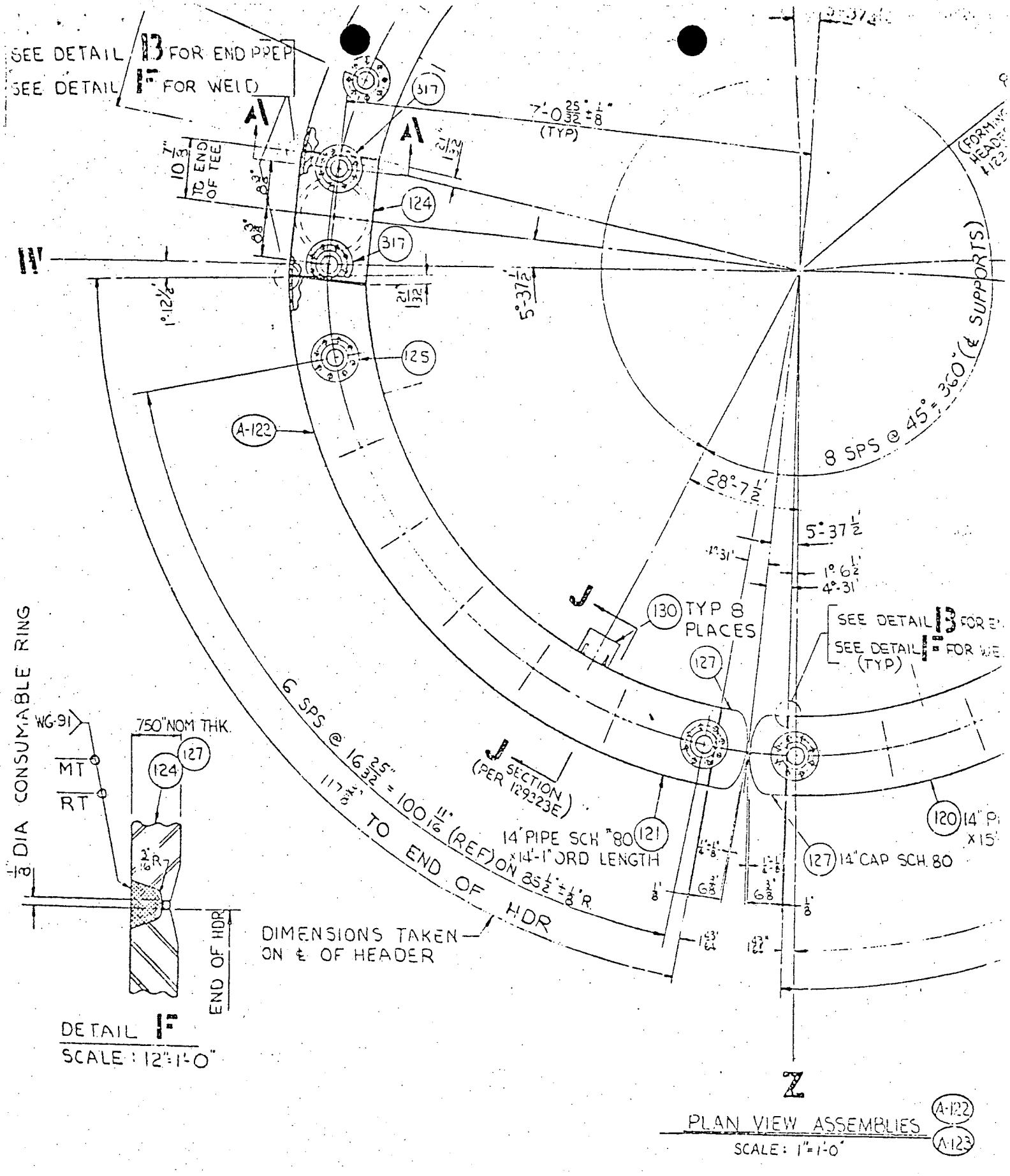


IMMEDIATELY AFTER THE BEAD TO BE SAMPLED HAS BEEN DEPOSITED, IT MUST BE SENT TO QUALITY CONTROL, CHEM. LAB.

CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129322E	
0003#2	146422E	
0004	146472E	
0007	134922E	
0011	139772E	

REVISION: Rev. 3 - NDT Rev. 7 - Contracts
Rev. 4 - Deleted Contract #s
Rev. 5 - NDT Rev.6-NDT, deleted 0006 contract

ISSUED: 2-5-69	SALES CLASS: 620
REVISED: 8-24-70	REVISION NO.: 7
REVISED BY:	FIELD DATA SHEET NO.:



DETAIL F
SCALE: 12"=1'-0"

PLAN VIEW ASSEMBLIES A-122 A-123
SCALE: 1"=1'-0"

WG91

THE BABCOCK & WILCOX COMPANY • BARBERTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification

DESCRIPTION OF WELD: Feedwater Inlet Header Girth Seams	CARBON STEEL / LOW ALLOY / STAINLESS	OTHER	SPECIAL WELDER QUAL.
QUANTITY PER UNIT: 8			
WELDING POSITION: All Positions	PREHEAT °F MIN.: 60	INTERPASS °F MAX.: 500	
BASE MATERIAL: A234 WPB (SA106B) to SA106B	OVERLAP / BEAD WIDTH		

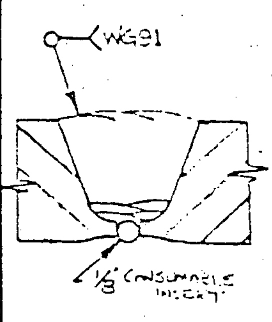
MANUAL METAL ARC	FILLER METAL SPEC.: ASTM A316 E7015/7016/7018-A1	SIZE-DIA. INCH: 5/32 max.	AMPS: 1/8 110-150 [illegible]; 5/32 150-[illegible] [illegible]
AUTO. SUBMERGED ARC	FILLER METAL SPEC.	FLUX	LOCATION / AMPS / VOLTS / TRAVEL IPM / NO. OF ARCS / AC / DCRP / DCSP
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.: 1/8 consumable insert* RACO "H2S"/Page AS-16	SHIELDING GAS: Argon; TORCH FLOW RATE-CFH: 18-22; PURGE FLOW RATE-CFH: 3-5; CUP SIZE I.D.-INCH: 7/16; ELECTRODE SIZE-INCH: 3/32; 1/2 max.	EXTENSION BEYOND CUP - INCH: 1/4 - 1/2; SLOPE CONTROL: MANUAL ☒ AUTO. ☐; AMPERES: 50-130; MANUAL ☒ SEMI AUTO. ☐
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.	SHIELDING GAS / TORCH FLOW RATE-CFH / BACK PURGE FLOW RATE-CFH / CUP SIZE I.D.-INCH / ELECTRODE SIZE-INCH	EXTENSION BEYOND CUP - INCH / SLOPE CONTROL MANUAL ☐ AUTO. ☐ / TRAVEL SPEED IPM / WIRE FEED IPM / AMPERES / VOLTS
SEMI & AUTO GAS SHIELDED METAL ARC	FILLER METAL SPEC.	SHIELDING GAS / TORCH FLOW RATE-CFH / CUP SIZE I.D.-INCH / FILLER METAL DIA.-INCH / VOLTS AVG. PEAK / AC DCRP DCSP	ELECT. EXTEN. BEYOND CUP-INCH / TRAVEL SPEED IPM / OSCILLATION FREQ. CY/MIN / AMPS
ELECTROSLAG	FILLER METAL SPEC.	FLUX OR GAS / FILLER METAL DIA.-INCH / NO. OF ARCS	AMPS / VOLTS / OSCILLATION

NON-DESTRUCTIVE TESTING: Root layer and final layer shall be magnetic particle inspected and completed weld shall be radiographed in accordance with Quality Control Specifications S102B and S102A, respectively.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: 1100-1150F for one hour.

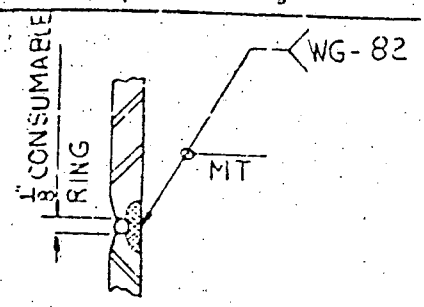
REMARKS OR SKETCH:
*MTIG- Fuse insert & first two layers
MMA - Balance

SAMPLING INSTRUCTIONS OR SKETCH

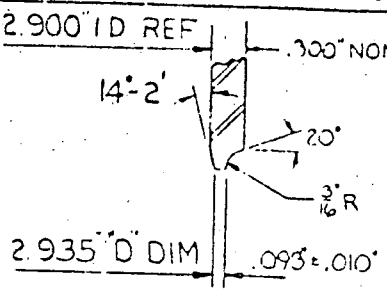


CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129322E	
0003#2	146422E	
0004	146742E	
0005	131122E	
0006	134982E	
0007	134922E	
0008	135042E	
0009	149322E	

REVISION: Rev. 4 - PQ, WR, Remarks, Deleted WG-91 from WG82,86,91 Rev. 3 Rev. 5-deleted contract #s	ISSUED: 1-22-68	SALES CLASS: 620	COMP. NO. 55
	REVISED: 7-23-[illegible]	REVISION NO. 5
	REVISED BY: [illegible]	WELD DATA SHEET NO. WG-91

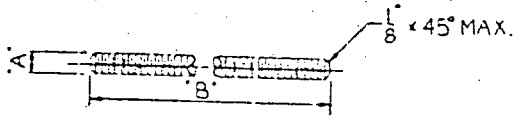


DETAIL C



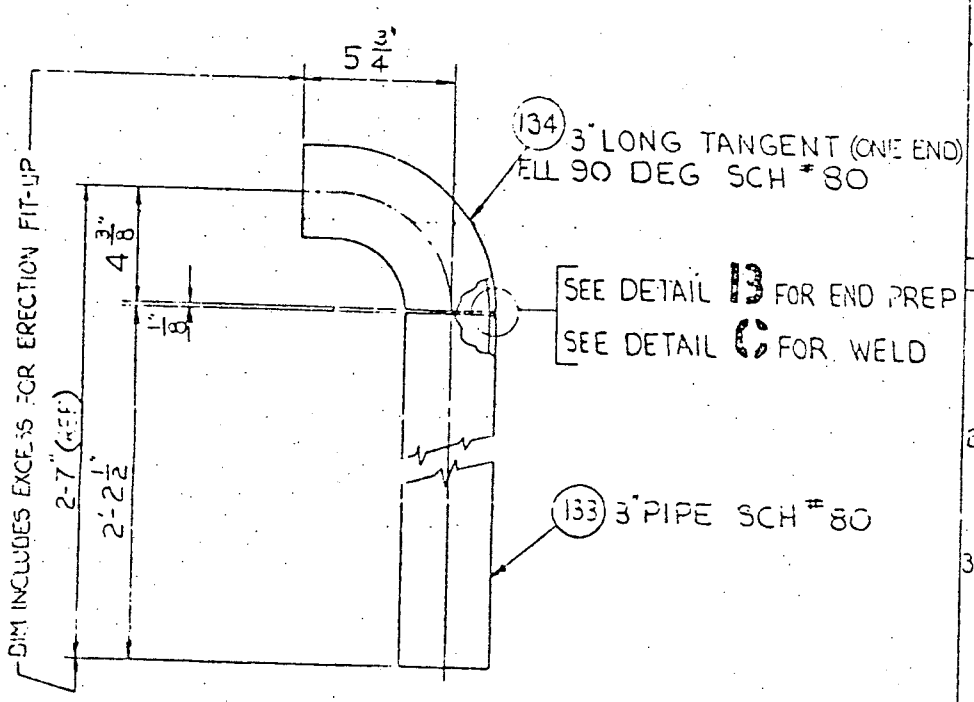
DETAIL B

SCALE: 12"=1'-0"



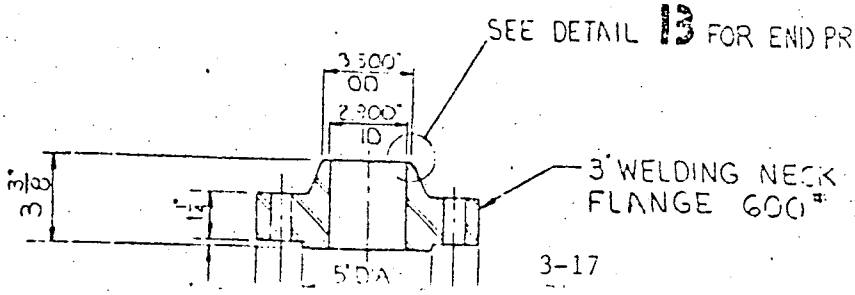
MK. NO.	LOCATION	"A"	"B"
145	3" FLG. TO 3" FLG.	3/4"-10 UNC-2A	5 1/2"
146	FLG. TO SHELL	1"-8 UNC-2A	4 3/4"
178	6" FLG. TO 6" FLG.	1"-8 UNC-2A	7"

F.W. STUDS



(A-134) FEEDWATER PIPE (SEE NOTE #6)

SCALE: 3"=1'-0"



SEE DETAIL B

L .154" NOM THK

5/8" R

12 13" ± .010"

C

1'-0"

	REVISIONS
	DESCRIPTION
1	CHG'D 'B' DIM OF MK #145 FROM 5" TO 5 1/2" AND MK #178 FROM 6 1/2" TO 7" (C-10) ADD NOTE #5. TJ/LK
2	DETAILED MK-137 CHG'D LGTH MK-142 11 1/2" TO 13" KH/TSR
3	REMOVED CONTRACT NO 620-0004-55 & 620-0009-55 ADDED NOTE UNIT #1 IN TITLE BLOCK TW/ED
4	CHG'D DIMS 4 3/8" WAS 4 5/8" (F-8, D-5), 1 3/4" WAS 1 3/8" (G-8), 4" WAS 4 1/4" (F-2), AND 4 7/8" WAS 5 1/8" (D-2). DRS/LK
5	CHG'D LGTH OF AUX FEEDWATER SLEEVE MK-139 FROM 4 1/8" TO 3 3/8" TSR/LK
6	ADDED—ASSY. NOS A-133 (F-3), A-170 (E-1), A-135 (H-4), & A-139 (F-1), NOTE #6 (F-10), DIMS - 2'-7" (E-2), 18 3/4" (G-5), & 20 3/8" (F-1), AND ORIENTATION OF BOLT HOLES TO A-135 (G-3); CHG'D NOTE TO READ "SECTION" INSTEAD OF "ASSY" FIT-UP (E-2 & D-3), DELETED "RT" FROM NOTE #3 (E-10), WG-82 (A-9), & MS-83 (H-4). REDESIGNED MK-150 (B-6 & A-7 & C-2). LGK/CN
7	CHG'D ASSY MK NOS A-133 TO A-134 & A-135 TO A-137 (F-9 & H-4) TSR/CN
8	CHG'D NOTE #1 KH/CN
9	CHG'D MK-A-170; ADDED MK-338 AND DELETED MK-132, IN ZONE (A-10) 2.935" WAS 2.976" WO/ED

NOTES

1. FEEDWATER SYSTEM TO BE DESIG INSPECTED, TESTED, CLEANED, AND ACCORDANCE WITH EQUIPMEN CS-3-150.
2. ALL FABRICATION SHALL FO FABRICATION AND ASSEMBL INCLUDING LATEST REVIS
3. SYMBOL DESIGNATION: MT-MAGNETIC PARTICLE WG-WELD SPECIFICATIO
4. ALL WELDING SHALL BE IN A WITH INSTRUCTIONS FROM CONTROL DEPARTMENT
5. "SURFACE FINISHES MAY HAVE ISOLATED TOOL M OR SIMILAR DEPRESSIONS PROVIDED THEY ARE M IN NATURE, OR NOT ON SURFACES WHICH ARE TO USED TO SEAL PRESSURE BOUNDARIES, AND DO VIOLATE MINIMUM THICKNESS REQUIREMENTS. UPSET OR RAISED METAL IS TO BE REMOVED AND T EDGES OF ALL DEPRESSIONS MUST BE FAIRED T LEAST 3 TO 1."
6. SUB-ASSEMBLIES TO BE SEAL ENTRANCE OF MOISTURE AND MATERIAL.

THE BABCOCK & WILCOX COMPANY · BARBERTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification W-66

- Description of weld: Auxiliary and regular ... pipe girth welds
- Carbon steel P-1 [ ] Low alloy P-3 [ ] Stainless P-8 [ ] Inconel P-43 [ ] Other
- Type of weld: Piping
- Special welder qual.: Yes [ ] No [ ]
- Maintain preheat to 1000°F [ ] See remarks below [ ]
- Preheat may be dropped after weld is completed & preheat is held for 1 hr./inch thickness [ ]
- Preheat only for attachment/tacking only for ... to 600 for 1 hrs., all stress relief required
- Procedure qual.: 1093
- Passes per unit: 10
- Preheat °F min.: 60
- Interpass °F max.: 500
- Welding progression & sequence shall be from bottom of groove to the top, left to right or right to left unless noted in sketch below.
- Welding position: flat, vertical, overhead
- Base material: SA-106 Gr. 2 and SA-106 Gr. B
- Overlap & bead width
- Bead (pitch) index, oscillation width

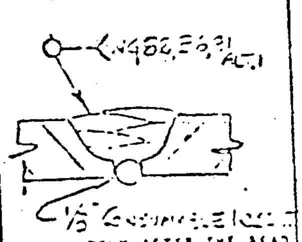
Process	Data
MANUAL METAL ARC	Filler metal spec.: — ; Size-dia., inch: — ; Amps: — ; AC / DCRP
AUTO. SUBMERGED ARC	Filler metal spec.: — ; Flux: — ; Elect. spacing: — ; Location: — ; Amps: — ; Volts: — ; Travel IPM: — ; No. of arcs: — ; AC [ ] DCRP [ ] DCSP [ ] ; Oscill. cy/min.: — ; Filler met. size-inch: —
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	Filler metal spec.: RACO-H21S Page AS-18 ; Shielding gas: Argon ; Torch flow rate-CFH: 20 ; Purge flow rate-CFH: 5 ; Cup size I.D.-inch: 5/16-7/16 ; Electrode size-inch: 3/32 ; Filler met. dia.-inch: 1/16 ; Extension beyond cup - inch: 3/8 ; Slope control: Manual [x] Auto. [ ] ; Amperes: 70-150 ; Manual [ ] Semi auto. [ ] ; DCSP
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	Filler metal spec.: — ; Shielding gas: — ; Torch flow rate-CFH: — ; Back purge flow rate-CFH: — ; Cup size I.D.-inch: — ; Electrode size-inch: — ; Filler met. dia.-inch: — ; Extension beyond cup - inch: — ; Slope control: Manual [ ] Auto. [ ] ; Travel speed IPM: — ; Wire feed IPM: — ; Amperes: — ; Volts: —
SEMI & AUTO GAS SHIELDED METAL ARC	Filler metal spec.: — ; Shielding gas: — ; Torch flow rate-CFH: — ; Cup size I.D.-inch: — ; Filler metal dia.-inch: — ; Volts avg. / peak: — ; AC [ ] DCRP [ ] DCSP [ ] ; Elect. exten. beyond cup-inch: — ; Travel speed IPM: — ; Oscillation freq. cy/min: — ; Amps: —
ELECTROSLAG	Filler metal spec.: — ; Flux or gas: — ; Filler metal dia.-inch: — ; No. of arcs: — ; Amps: — ; Volts: — ; Oscillation: —

Non-destructive testing: Root layer and final surface shall be inspected by the magnetic particle method and completed weld shall be radiographed in accordance with Quality Control Specification S-1023 and S-102A, respectively.

Minimum required postweld heat treatment: None

Remarks or sketch

Sampling instructions or sketch

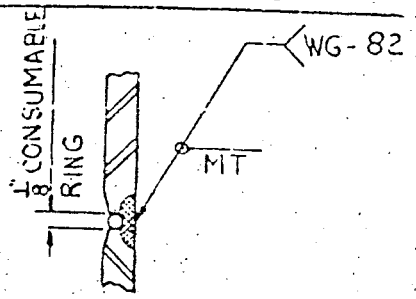


Immediately after the bead to be sampled has been deposited, it must be sent to Quality Control, Chem. Lab.

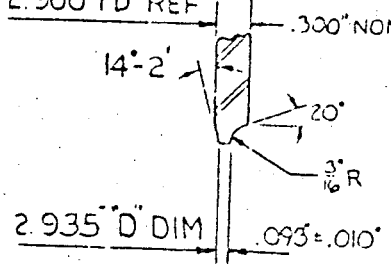
Contract No.	Dwg. No.
0003 #1	129322/23/24E
0003 #2	146422/23/24E
0004	146472/73/74E
0005	131122/23/24E
0006	134922/33/34E
0007	134922/23/24E
0008	135042/43/44E
0009	149322/23/24E
0011	139772/73/74E
0012	140322/23/24E
0013	143872/73/74E

Revision

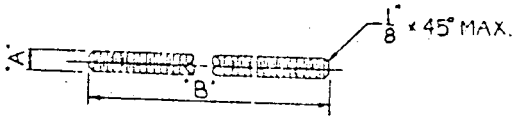
- Issued: 12-10-68
- Revised:
- Revised by:
- Sales class: 523
- Revision No.: 0
- Comp. No.: 5
- Alt. 1
- Weld data sheet No.: WG-82...



DETAIL C

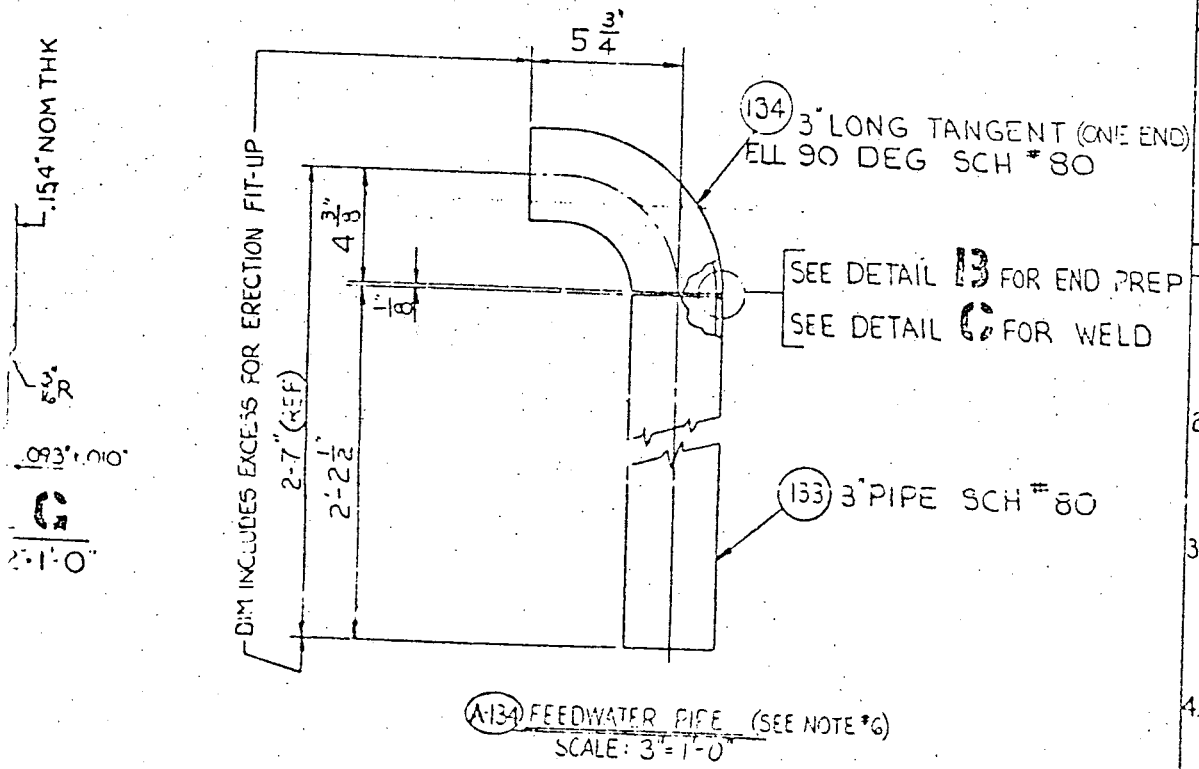


DETAIL B
SCALE: 12"=1'-0"

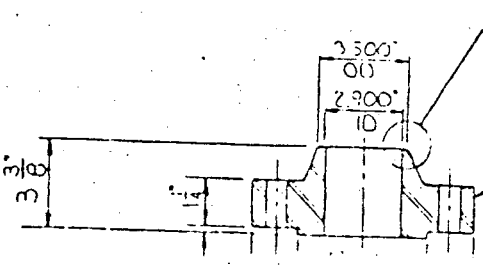


MK. NO	LOCATION	"A"	"B"
145	3"FLG. TO 3"FLG	1/4-10UNC-2A	5 1/4"
146	FLG TO SHELL	1"-8UNC-2A	4 3/4"
178	6"FLG. TO 6" FLG.	1"-8UNC-2A	7"

F.W. STUDS



(A-134) FEEDWATER PIPE (SEE NOTE "6)
SCALE: 3"=1'-0"



MARK NO.	REVISIONS DESCRIPTION
1	CHG'D 'B' DIM OF MK "145 FROM 5" TO AND MK "178 FROM 6½" TO 7" (C-10). NOTE "5. TJ/LE
2	DETAILED MK-137 KH/TS CHG'D LGTH MK-142 11⅝" TO 13.
3	REMOVED CONTRACT N 620-0004-55 & 620-0009- ADDED NOTE UNIT "1 TITLE BLOCK TW/ED
4	CHG'D DIMS-4⅜" WAS 4¾" (F-8, D-9), WAS 1⅝" (G-8), 4" WAS 4⅛" (F-2), AND 4⅛" 5⅛" (D-2). DRS/LE
5	CHG'D LGTH OF AUX FEEDWATER SC MK-139 FROM 4⅜" TO 3⅜" TSP/
6	ADDED-ASSY. NOS A-133(F-3), A-137 A-135(H-4), & A-139(F-1)., NOTE "6(F- DIMS-2'-7"(E-3), 18¾"(G-3), & 20" AND ORIENTATION OF BOLT HOLES A-135(G-3). CHG'D-NOTE TO READ "ERECTION" INSTEAD OF "ASSY" (F-2)(D-3). DELETED "AT" FROM NOTE (E-13), WG-82 (A-9), & MT-85(H-4). REDESIGNED MK-130(B-6)(A-2,7)(C-2,7) LSK/
7	CHG'D ASSY NOS A-133 TO A-134 A-135 TO A-137 (F-9 & H-4) TSP/
8	CHG'D NOTE "1 KH/
9	CHG'D MK-A-170; ADDED MK-338 AND DELETED MK-132, IN ZONE (A-9) 2.935" WAS 2.976"

NOTES

1. FEEDWATER SYSTEM TO BE DES INSPECTED, TESTED, CLEANED, AN ACCORDANCE WITH EQUIPME CS-3-150.
2. ALL FABRICATION SHALL FABRICATION AND ASSEM INCLUDING LATEST REV
3. SYMBOL DESIGNATION: MT- MAGNETIC PARTICLE WG-WELD SPECIFICATIO
4. ALL WELDING SHALL BE IN WITH INSTRUCTIONS FRO CONTROL DEPARTMENT
5. "SURFACE FINISHES MAY HAVE ISOLATED TOOL OR SIMILAR DEPRESSIONS PROVIDED THEY ARE IN NATURE, OR NOT ON SURFACES WHICH ARE USED TO SEAL PRESSURE BOUNDARIES, AND D VIOLATE MINIMUM THICKNESS REQUIREMENTS. UPSET OR RAISED METAL IS TO BE REMOVED AND EDGES OF ALL DEPRESSIONS MUST BE FAIRED LEAST 3 TO 1."
6. SUB-ASSEMBLIES TO BE SEA ENTRANCE OF MOISTURE AND MATERIAL.

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WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification W-00

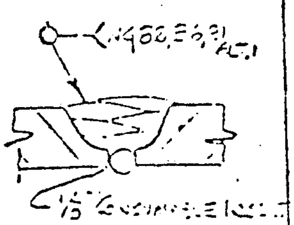
Description of weld: Auxiliary and regular [illegible] pipe girth welds	Carbon steel P-1 [ ] / Low alloy P-[ ] [ ] / Stainless P-[ ] [ ]	Inconel P-43 [ ] / Other	Type of weld: Piping / Special welder qual. Yes [ ] No [ ]
Quantity per unit: 60	Maintain preheat to [illegible] [ ] See remarks below [ ] / Preheat may be dropped after weld is complete & preheat is held for 1 hr. [illegible] [ ] / Attachments [illegible] only for raised to 400 for 1 hrs. all stress raisers removed [ ]		Procedure qual.: 1003
Welding position: flat, vertical, overhead	Preheat °F min.: 60	Interpass °F max.: 600	Welding progression & sequence will be from bottom of grooves to the top, left to right or right to left unless noted in sketch below.
Base material: SA-106 Gr. B and SA-106 Gr. B	Overlap / Bead width		Head (pitch) index / Oscillation width

Process	Data
MANUAL METAL ARC	Filler metal spec.: / Size-dia. inch: / Amps: / AC / DCRP
AUTO. SUBMERGED ARC	Filler metal spec.: / Flux: / Elect. spacing: / Location: / Amps: / Volts: / Travel IPM: / No. of arcs: / AC [ ] DCRP [ ] DCSP [ ] / Oscill. cy/min.: / Filler metal size-inch:
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	Filler metal spec.: RACO-HIS Page AS-18 / Shielding gas: Argon / Torch flow rate-CFH: 20 / Purge flow rate-CFH: 5 / Cup size I.D.-inch: 5/16-7/16 / Electrode size-inch: 3/32 / Filler metal dia.-inch: 1/16 / Extension beyond cup - inch: 3/8 / Slope control: Manual [x] Auto. [ ] / Amperes: 70-130 / Manual [ ] Semi auto. [ ] / DCSP
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	Filler metal spec.: / Shielding gas: / Torch flow rate-CFH: / Back purge flow rate-CFH: / Cup size I.D.-inch: / Electrode size-inch: / Filler metal dia.-inch: / Extension beyond cup - inch: / Slope control: Manual [ ] Auto. [ ] / Travel speed IPM: / Wire feed IPM: / Amperes: / Volts:
SEMI & AUTO GAS SHIELDED METAL ARC	Filler metal spec.: / Shielding gas: / Torch flow rate-CFH: / Cup size I.D.-inch: / Filler metal dia.-inch: / Volts avg. / peak: / AC / DCRP / DCSP / Elect. extn. beyond cup-inch: / Travel speed IPM: / Oscillation freq. cy/min: / Amps:
ELECTROSLAG	Filler metal spec.: / Flux or gas: / Filler metal dia.-inch: / No. of arcs: / Amps: / Volts: / Oscillation:

Non-destructive testing: Root layer and final surface shall be inspected by the magnetic particle method and completed weld shall be radiographed in accordance with Quality Control Specification S-102B and S-102A, respectively.

Minimum required postweld heat treatment: None

Sampling instructions or sketch



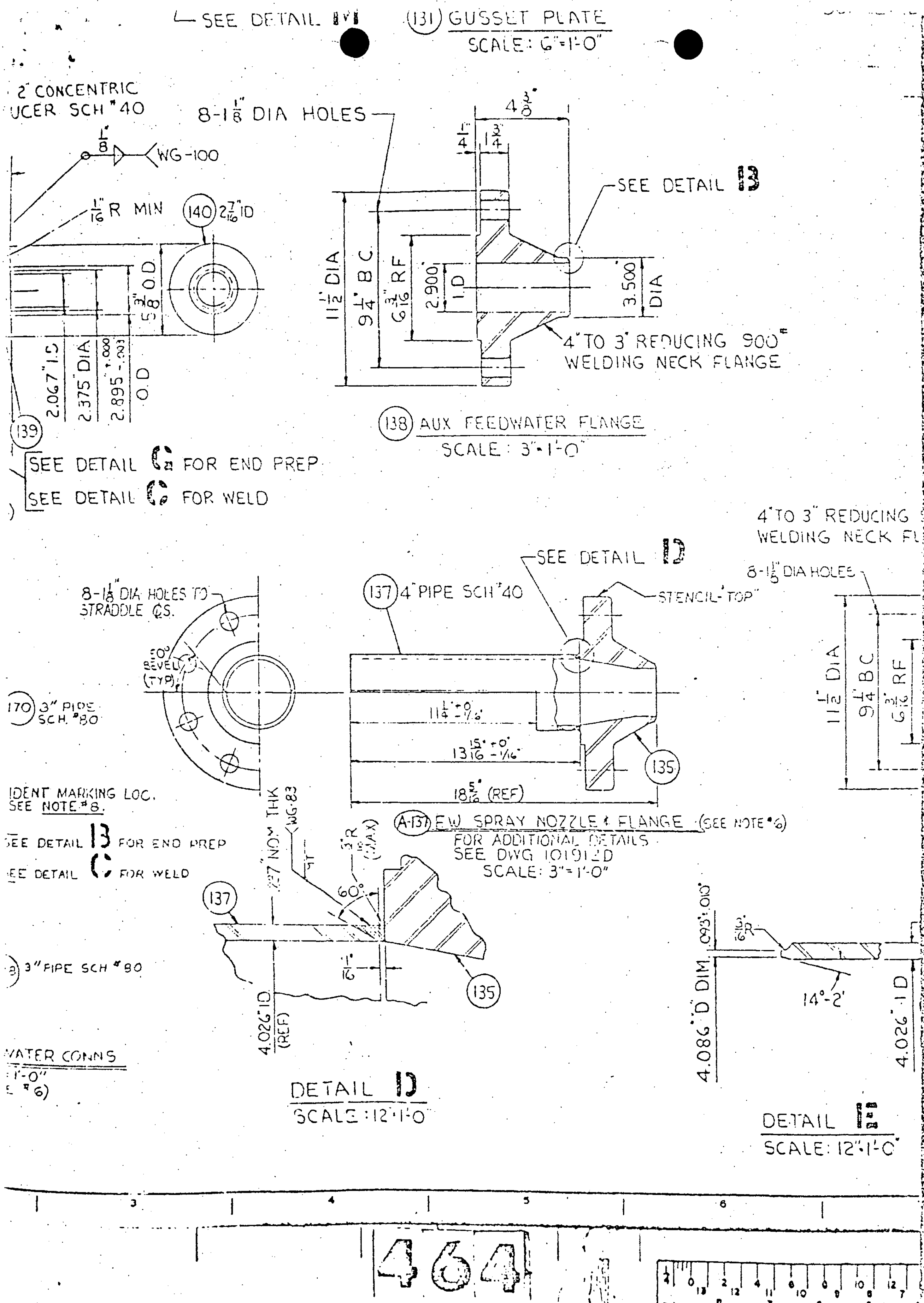
Immediately after the bead to be sampled has been deposited, it must be sent to Quality Control, Chem. Lab.

Contract No.	Dwg. No.
0003 #1	129322/23/24E
0003 #2	146422/23/24E
0004	146472/73/74E
0005	131122/23/24E
0006	134932/33/34E
0007	134922/23/24E
0008	135042/43/44E
0009	149322/23/24E
0011	139772/73/74E
0012	140322/23/24E
0013	143372/73/74E

Remarks or sketch

Revision

Issued: 12-10-68	Sales class: 200 / Comp. No.: [illegible]
Revised:	Revision No.: 0 / Alt. 1
Revised by: [illegible]	Weld data sheet No.: WG-82.[illegible]



SEE DETAIL
(131) GUSSET PLATE
SCALE: 6"=1'-0"
2" CONCENTRIC
UCER SCH #40
8-1 1/8" DIA HOLES
1/8"
WG-100
1/16" R MIN
(140) 2 7/16" ID
5 3/8" O.D
2.067" I.D
2.375" DIA
2.895" +.000 -.003
O.D
(139)
SEE DETAIL C FOR END PREP
SEE DETAIL C FOR WELD
4 3/8"
1/4"
1 3/4"
SEE DETAIL B
11 1/2" DIA
9 1/4" B C
6 3/16" RF
2.900" I.D
3.500" DIA
4" TO 3" REDUCING 900#
WELDING NECK FLANGE
(138) AUX FEEDWATER FLANGE
SCALE: 3"=1'-0"
4" TO 3" REDUCING
WELDING NECK FL
8-1 1/8" DIA HOLES TO
STRADDLE ℄S.
50° BEVEL (TYP)
(170) 3" PIPE SCH. #80
SEE DETAIL D
(137) 4" PIPE SCH #40
STENCIL "TOP"
11 1/4" +0 -1/16"
13 15/16" +0 -1/16"
18 5/16" (REF)
(135)
8-1 1/8" DIA HOLES
11 1/2" DIA
9 1/4" B C
6 3/16" RF
IDENT MARKING LOC.
SEE NOTE #8.
(A-137) E.W. SPRAY NOZZLE & FLANGE (SEE NOTE #6)
FOR ADDITIONAL DETAILS
SEE DWG 101912D
SCALE: 3"=1'-0"
SEE DETAIL B FOR END PREP
SEE DETAIL C FOR WELD
.237" NOM THK
WG-83
3/16" R (MAX)
60°
(137)
1/16"
(135)
4.026" I.D (REF)
3" PIPE SCH #80
WATER CONNS
1'-0"
#6)
DETAIL D
SCALE: 12"=1'-0"
.093" ±.010
1/16" R
14°-2'
4.086" I.D DIM.
4.026" I.D
DETAIL E
SCALE: 12"=1'-0"
3
4
5
6
464

THE [illegible]CK WILCOX COMPANY • BARBE[illegible] OHIO

[illegible] DATA SHEET

[illegible] data sheet shall be used in conjunction with Quality Control Specification N-66

[illegible] AK135 Flange to [illegible] | CARBON STEEL P-1 / LOW ALLOY P-[illegible] / STAINLESS P-8 | INCONEL P43 / OTHER | TYPE OF WELD: Fabrication | SPECIAL REQUIR. QUAL. YES [ ] NO [ ]

[illegible] Nozzle — [illegible] — PROCEDURE QUAL. 1430

PREHEAT °F MIN. 60 — INTERPASS °F MAX. 600

WELDING PROGRESSION & SEQUENCE WILL BE FROM BOTTOM OF GROOVE TO THE TOP, LEFT TO RIGHT OR RIGHT TO LEFT UNLESS NOTED IN SKETCH BELOW.

POSITION: Flat, Vertical

MATERIAL: SA 105 to A105 Gr. 2

OVERLAP / BEAD WIDTH — BEAD (PITCH) TRUCK / OSCILLATION WIDTH

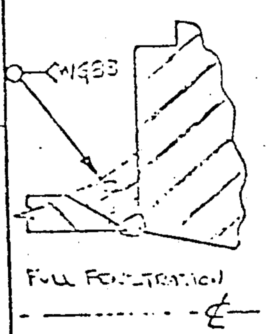
Process	Data
MANUAL METAL ARC	FILLER METAL SPEC. / SIZE-DIA. INCH / AMPS / AC / DCRP
AUTO. SUBMERGED ARC	FILLER METAL SPEC. / FLUX / ELECT. SPACING / LOCATION / AMPS / VOLTS / TRAVEL IPM / NO. OF ARCS / AC / DCRP / DCSP / OSCILL. CY/MIN. / FILLER METAL SIZE-INCH
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.: RACO "EMS" Page AS-18 / SHIELDING GAS: Argon / TORCH FLOW RATE-CFH: 20 / PURGE FLOW RATE-CFH: 5 / CUP SIZE I.D.-INCH: 5/16-7/16 / ELECTRODE SIZE-INCH: 3/32 / FILLER METAL DIA.-INCH: 1/8 max. / EXTENSION BEYOND CUP - INCH: 1/4 - 1/2 / SLOPE CONTROL MANUAL [ ] AUTO. [ ] / AMPERES: 70-150 / MANUAL, SEMI AUTO. [ ] DCSP
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / BACK PURGE FLOW RATE-CFH / CUP SIZE I.D.-INCH / ELECTRODE SIZE-INCH / FILLER METAL DIA.-INCH / EXTENSION BEYOND CUP - INCH / SLOPE CONTROL MANUAL [ ] AUTO. [ ] / TRAVEL SPEED IPM / WIRE FEED IPM / AMPERES / VOLTS
SEMI & AUTO GAS SHIELDED METAL ARC	FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / CUP SIZE I.D.-INCH / FILLER METAL DIA.-INCH / VOLTS AVG. PEAK / AC / DCRP / DCSP / ELECT. EXTEN. BEYOND CUP-INCH / TRAVEL SPEED IPM / OSCILLATION FREQ. CY/MIN / AMPS
ELECTROSLAG	FILLER METAL SPEC. / FLUX OR GAS / FILLER METAL DIA.-INCH / NO. OF ARCS / AMPS / VOLTS / OSCILLATION

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be magnetic particle inspected in accordance with Quality Control Specification S102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None Required

REMARKS OR SKETCH

SAMPLING INSTRUCTIONS OR SKETCH



CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129323E	
0003#2	146423E	
0004	146473E	
0005	131123E	
0006	134983E	
0007	134923E	
0008	135043E	
0009	149823E	
0011	139773E	

REVISION: Rev. 4 - NDT, PQ

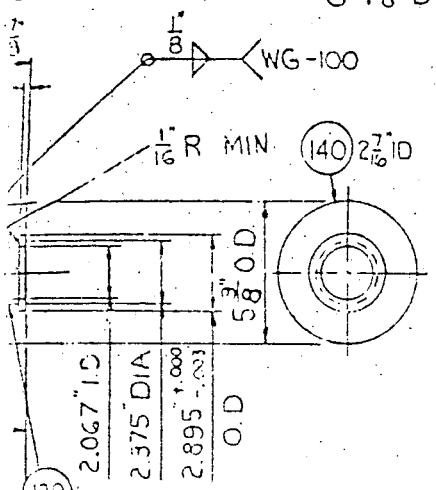
ISSUED 1-30-63 — SALES CLASS 620 — COMP. NO. 55

REVISED 3-12-69 — REVISION NO. 4

REVISED BY [illegible] — WELD DATA SHEET NO. WS-83 A14.1

SCALE: 6"=1'-0"

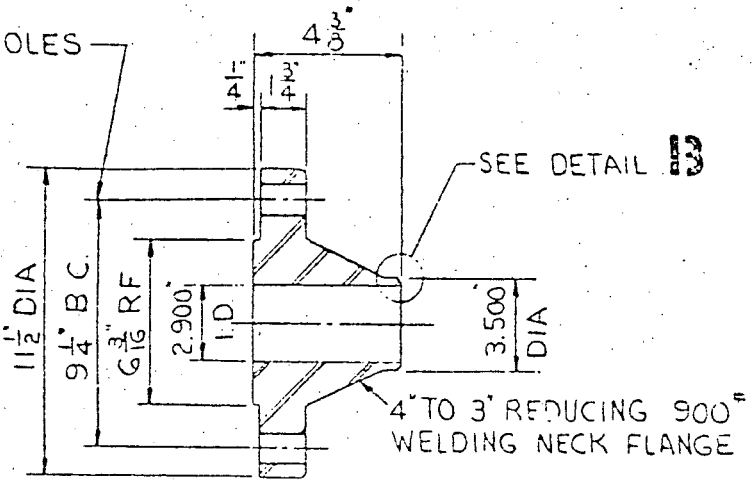
O 2" CONCENTRIC
DUCER SCH "40



139

SEE DETAIL FOR END PREP

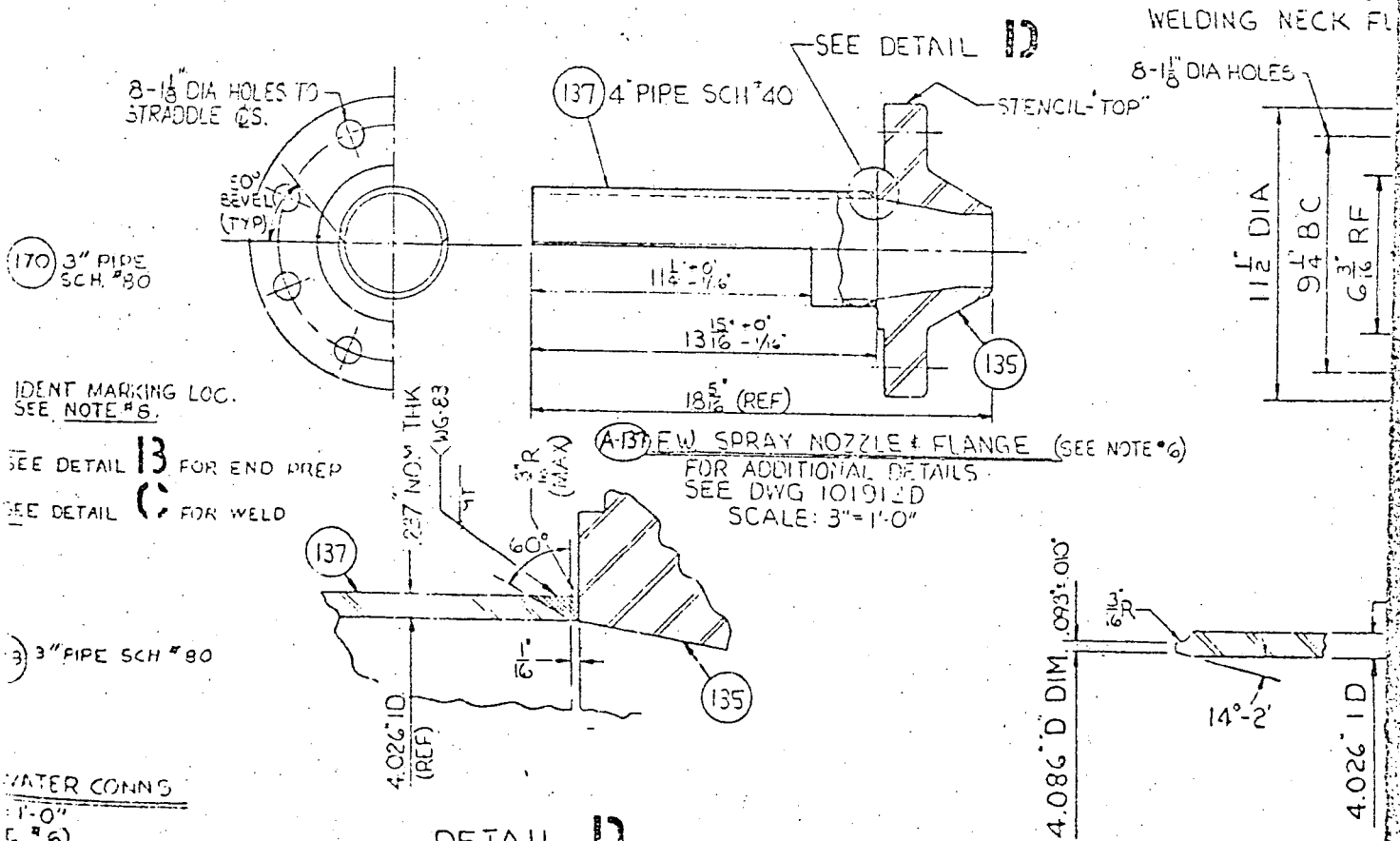
SEE DETAIL FOR WELD



138 AUX FEEDWATER FLANGE

SCALE: 3"=1'-0"

4" TO 3" REDUCING
WELDING NECK FL



IDENT MARKING LOC.
SEE NOTE "8.

SEE DETAIL FOR END PREP

SEE DETAIL FOR WELD

A-137 EW SPRAY NOZZLE & FLANGE (SEE NOTE "6)

FOR ADDITIONAL DETAILS
SEE DWG 101912D

SCALE: 3"=1'-0"

3) 3" PIPE SCH "80

WATER CONNS
1'-0"
E "6)

DETAIL

SCALE: 12"=1'-0"

DETAIL

SCALE: 12"=1'-0"

THE [illegible]CK & WILCOX COMPANY • BARBE[illegible] OHIO

[illegible]DING DATA SHEET

[illegible] data sheet shall be used in conjunction with Quality Control Specification N-6C

[illegible] MK135 Flange to MK137

CARBON STEEL P-1	INCONEL P-43	TYPE OF WELD	Fabrication
LOW ALLOY P-3	OTHER	SPECIAL WELDER QUAL.	YES [ ] NO
STAINLESS P-8			

PROCEDURE QUAL. 1430

PREHEAT °F MIN. 60

INTERPASS °F MAX. 600

WELDING PROGRESSION & SEQUENCE WILL BE FROM BOTTOM OF GROOVE TO THE TOP, LEFT TO RIGHT OR RIGHT TO LEFT UNLESS NOTED IN SKETCH BELOW.

[illegible] POSITION: [illegible], Vertical

[illegible] MATERIAL: SA-106B to A105 Gr. 2

OVERLAP / BEAD WIDTH — HEAD (PITCH) INDEX / OSCILLATION WIDTH

MANUAL METAL ARC

FILLER METAL SPEC.	SIZE-DIA. INCH	AMPS	AC / DCRP

AUTO. SUBMERGED ARC

FILLER METAL SPEC.	FLUX	ELECT. SPACING

LOCATION	AMPS	VOLTS	TRAVEL IPM	NO. OF ARCS	AC / DCRP / DCSP	OSCILL. CY/MIN.	FILLER METAL SIZE-INCH

MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER METAL DIA.-INCH
RACO "T2S" Page AS-18	Argon	20	5	5/16-7/16	3/32	1/8 max.

EXTENSION BEYOND CUP - INCH	SLOPE CONTROL	AMPERES	MANUAL / SEMI AUTO.	
1/4 - 1/2	MANUAL [ ] AUTO. [ ]	70-150		DCSP

AUTOMATIC GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	BACK PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER METAL DIA.-INCH

EXTENSION BEYOND CUP - INCH	SLOPE CONTROL	TRAVEL SPEED IPM	WIRE FEED IPM	AMPERES	VOLTS
	MANUAL [ ] AUTO. [ ]				

SEMI & AUTO GAS SHIELDED METAL ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	CUP SIZE I.D.-INCH	FILLER METAL DIA.-INCH	VOLTS AVG. / PEAK	AC / DCRP / DCSP

ELECT. EXTEN. BEYOND CUP-INCH	TRAVEL SPEED IPM	OSCILLATION FREQ. CY/MIN	AMPS

ELECTROSLAG

FILLER METAL SPEC.	FLUX OR GAS	FILLER METAL DIA.-INCH	NO. OF ARCS

AMPS	VOLTS	OSCILLATION

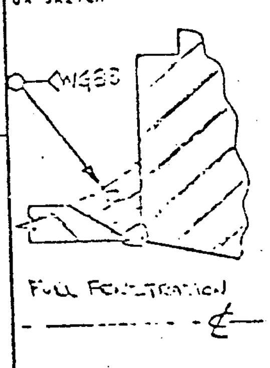
NON-DESTRUCTIVE TESTING: Root layer and final surface shall be magnetic particle inspected in accordance with Quality Control Specification S1023.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT

None Required

REMARKS OR SKETCH

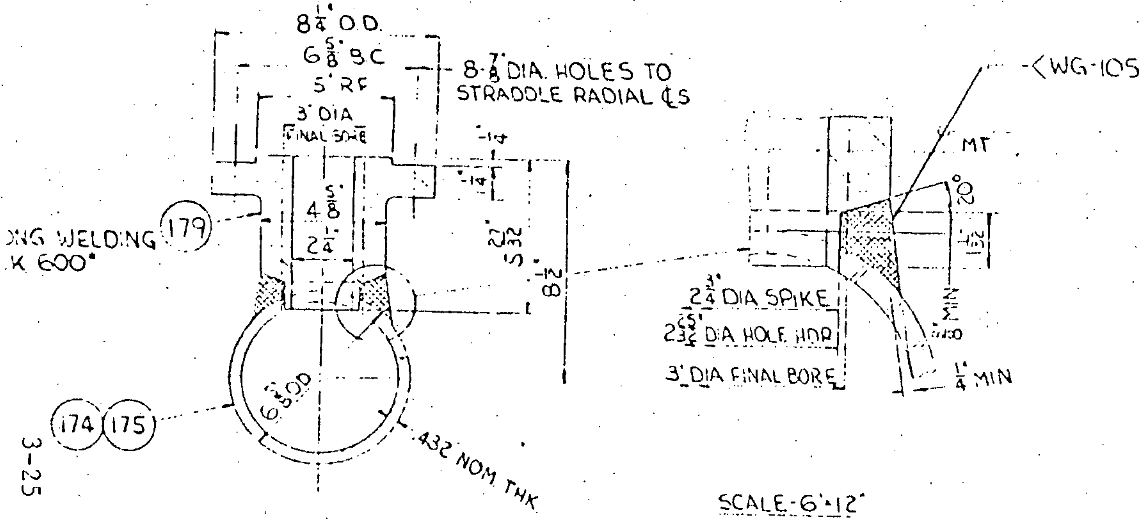
SAMPLING INSTRUCTIONS OR SKETCH



CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129323E	
0003#2	146423E	
0004	146473E	
0005	131123E	
0006	134983E	
0007	134923E	
0008	135043E	
0009	149823E	
0011	139773E	

REVISION: Rev. 4 - NDT, PQ

ISSUED	1-30-68	SALES CLASS	620	COMP. NO.	55
REVISED	3-12-69	REVISION NO.	4		
REVISED BY	[illegible]	WELD DATA SHEET NO.	WG-33 Alt.1		



SECTION 'A-A'
(TYPICAL SEVEN CONNS)
SCALE 3"=12"

3-25

3. SYMBOL DESIGNATION:
   WG-WELD SPECIFICATION NO
   MT-MAGNETIC PARTICLE TEST

4. ALL WELDING SHALL BE IN ACCORDANCE WITH INSTRUCTIONS FROM QUALITY CONTROL DEPARTMENT

5. CIRCULAR DIMENSIONS TAKEN ON ℄ OF HEADER.

6. "SURFACE FINISHES MAY HAVE ISOLATED TOOL MARKS OR SIMILAR DEPRESSIONS PROVIDED THEY ARE MINOR IN NATURE, OR NOT ON SURFACES WHICH ARE TO BE USED TO SEAL PRESSURE BOUNDARIES, AND DO NOT VIOLATE MINIMUM THICKNESS REQUIREMENTS. ALL UPSET OR RAISED METAL IS TO BE REMOVED AND SHARP EDGES OF ALL DEPRESSIONS MUST BE FAIRED TO AT LEAST 3 TO 1."

7. SUB-ASSEMBLIES TO BE SEALED TO PREVENT ENTRANCE OF MOISTURE AND OR FOREIGN MATERIAL.

REFERENCES

NO	TITLE	DWG NO.
1	LIST OF DRAWINGS	73222A
2	ASSY AUX. F.W. HDR. & NOZZLES	129325 E

TOLERANCES UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE FOR PART TEMPERATURE OF 68° F

		UP TO 6" INCL.	OVER 6" TO 12" INCL.	OVER 12" TO 24" INCL.	OVER 24" TO 6'-0" INCL.	OVER 6'-0" TO 14'-0" INCL.	OVER 14'-0"
	DECIMAL DIM.	±.003"	±.005"	±.005"	±.010"	±.031"	—
	FRAC. DIM. MACH.	±1/64"	±1/32"	±1/32"	±1/16"	±1/16"	±1/8"
	FRAC. DIM. UNMACH.	±1/16"	±1/16"	±3/32"	±1/8"	±3/16"	±3/16"
	DIA. FOR BURNING	[illegible]	±1/8"	±1/32"	±1/8"	±3/16"	±3/16"
MACHINED SURFACES	FLATNESS	.001 PER INCH OF SURFACE UP TO .020 MAX.					
MACHINED SURFACES	PERPENDICULARITY	.002 PER INCH OF DISTANCE UP TO .020 MAX.				BREAK CORNERS 1/64 R MIN OR CHAMFER	
MACHINED SURFACES	CONCENTRICITY	.015 TIR					
MACHINED SURFACES	ANGULARITY	±0°-30'				CHAMFERS ±5°	
PRESSED OR ROLLED SHELL	NON-CIRCULARITY	A.S.M.E. CODE TOLERANCE					
PRESSED OR ROLLED SHELL	TRAVEL	UP TO 42" DIA. INCL. ±3/16"			OVER 42" DIA. ±3/8"		
PRESSED OR ROLLED SHELL	STRAIGHTNESS	1/4" PER 20 FEET OF LENGTH					

ALL MACHINED SURFACES TO HAVE 250, RHR FINISH UNLESS OTHERWISE NOTED

DWN BY HETRICK
CHKD BY [illegible]
PASSED BY [illegible]
APPVD BY [illegible]
DATE [illegible]
STD / SPL
620-0003-55
UNIT #1
DO NOT SCALE - USE DIMENSIONS ONLY

AUXILIARY FEEDWATER INLET HEADER

SCALE NOTED

DWG. NO. 129326E REV 6

8 9 10 11 12 13

WG105 AUTO

THE BABCOCK & WILCOX COMPANY · BA[illegible]RTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification [illegible]

DESCRIPTION OF WELD	MK173 Welding Neck to [illegible] & 125 Pipe
CARBON STEEL / LOW ALLOY / STAINLESS / OTHER	[illegible]
QUANTITY PER UNIT	Seven
PREHEAT MAY BE DROPPED AFTER WELD IS COMPLETE & PREHEAT IS HELD FOR [illegible] OR RAISED TO 400°F FOR 2 HRS. & ALL STRESS RAISERS REMOVED	
PROCEDURE QUAL.	[illegible]
WELDING POSITION	All positions
PREHEAT °F MIN.	60
INTERPASS °F MAX.	300
WELDING PROGRESSION & SEQUENCE	[illegible]
BASE MATERIAL	SA105 Gr 2 & SA105 Gr B
OVERLAP / BEAD WIDTH	[illegible]

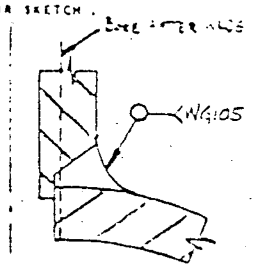
MANUAL METAL ARC	FILLER METAL SPEC.: ASTM A316 E7015/7016/7018	SIZE-DIA. INCH: 3/16 max.	AMPS: 5/32 [illegible]; 3/16 [illegible]
AUTO. SUBMERGED ARC	FILLER METAL SPEC.	FLUX	ELECT. SPACING; LOCATION; AMPS; VOLTS; TRAVEL IPM; NO. OF ARCS; AC ☐ DCRP ☐ DCSP ☐; OSCILL. CY/MIN.; FILLER METAL SIZE-INCH
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.; SHIELDING GAS; TORCH FLOW RATE-CFH; PURGE FLOW RATE-CFH; CUP SIZE I.D.-INCH; ELECTRODE SIZE-INCH; FILLER METAL DIA.-INCH	EXTENSION BEYOND CUP - INCH; SLOPE CONTROL MANUAL ☐ AUTO. ☐; AMPERES	MANUAL ☐ SEMI AUTO. ☐
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC.; SHIELDING GAS; TORCH FLOW RATE-CFH; BACK PURGE FLOW RATE-CFH; CUP SIZE I.D.-INCH; ELECTRODE SIZE-INCH; FILLER METAL DIA.-INCH	EXTENSION BEYOND CUP - INCH; SLOPE CONTROL MANUAL ☐ AUTO. ☐; TRAVEL SPEED IPM; WIRE FEED IPM; AMPERES	VOLTS
SEMI & AUTO GAS SHIELDED METAL ARC	FILLER METAL SPEC.; SHIELDING GAS; TORCH FLOW RATE-CFH; CUP SIZE I.D.-INCH; FILLER METAL DIA.-INCH	ELECT. EXTEN. BEYOND CUP-INCH; TRAVEL SPEED IPM; OSCILLATION FREQ. CY/MIN; AMPS	VOLTS AVG. PEAK; AC ☐ DCRP ☐ DCSP ☐
ELECTROSLAG	FILLER METAL SPEC.; FLUX OR GAS; FILLER METAL DIA.-INCH; NO. OF ARCS	AMPS; VOLTS; OSCILLATION	

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be magnetic particle inspected in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH

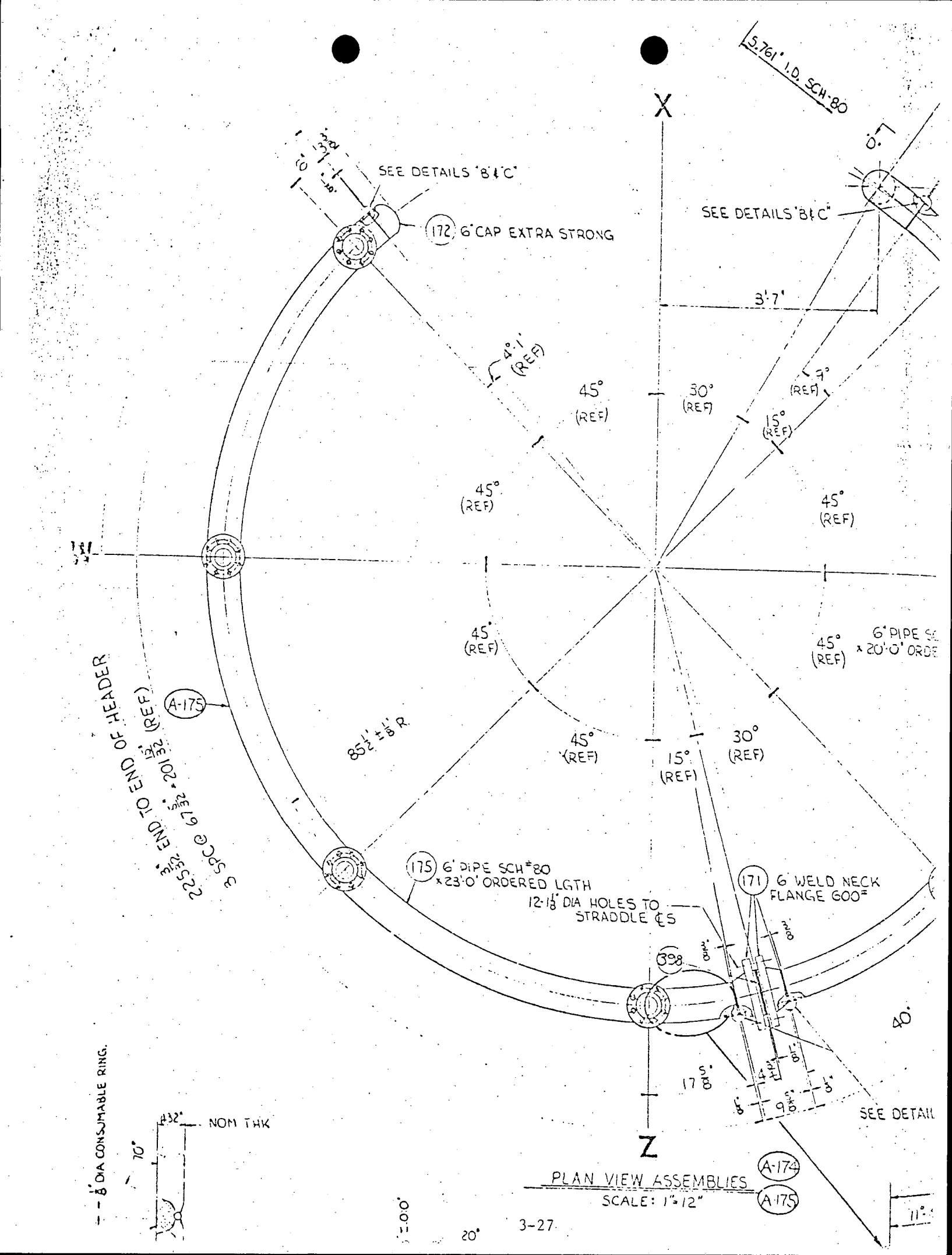
SAMPLING INSTRUCTIONS OR SKETCH:

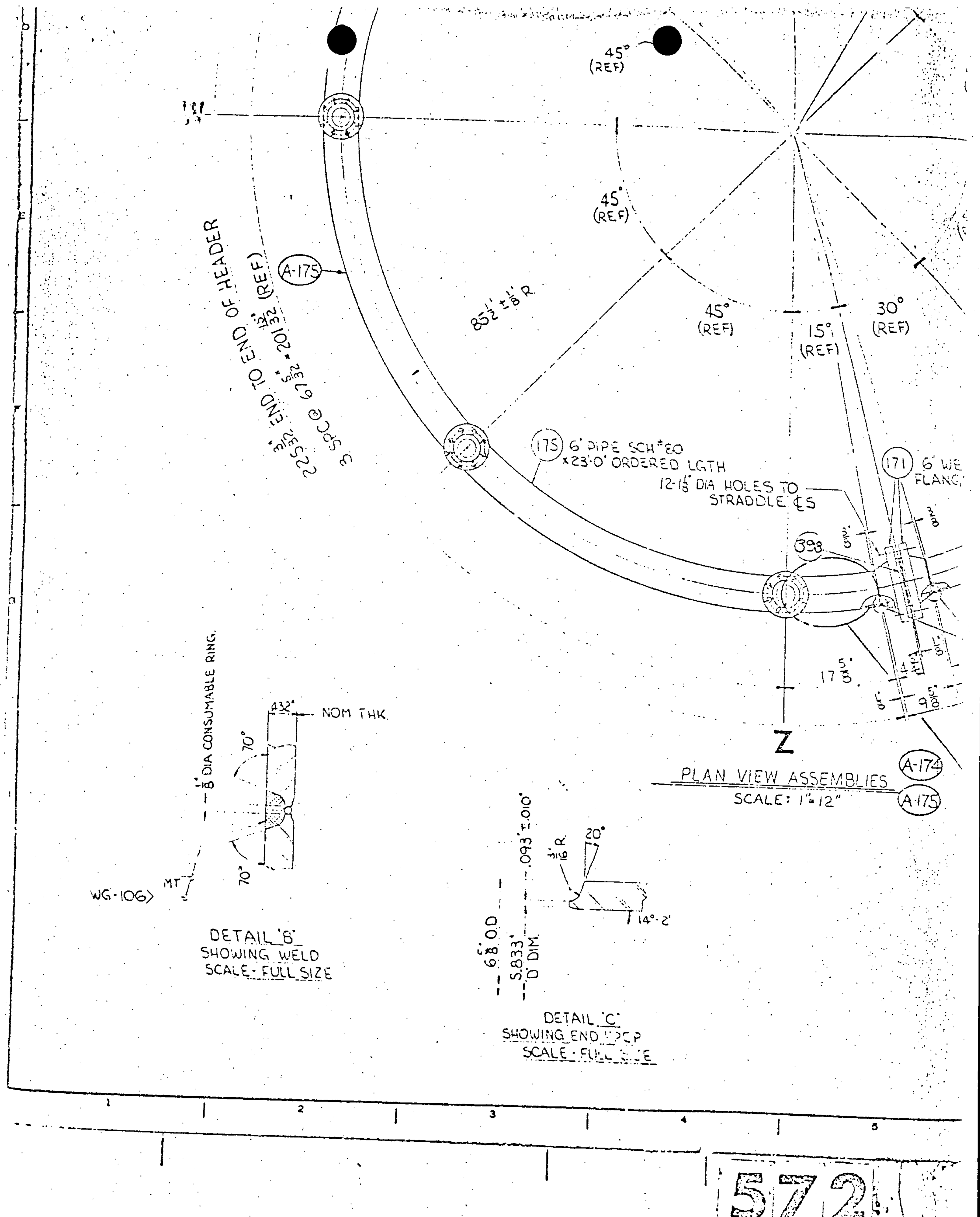


CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129326E	
0003#2	146426E	
0004	146476E	
0005	131126E	
0006	134986E	
0007	134926E	
0008	135046E	
0009	149826E	
0011	139776E	

REVISION: Rev. 1 - Contract & Dwg #s
Rev. 2 - NDT
Rev. 3 - NDT

ISSUED	[illegible]
REVISED	1-15-70
REVISED BY	[illegible]
SALES CLASS	600
REVISION NO.	3
COMP. NO.	55
WELD DATA SHEET NO.	[illegible]-105 [illegible]


5.761" I.D. SCH-80
X
SEE DETAILS 'B' & 'C'
172 6" CAP EXTRA STRONG
SEE DETAILS 'B' & 'C'
3'-7"
45° (REF)
30° (REF)
15° (REF)
45° (REF)
45° (REF)
45° (REF)
45° (REF)
45° (REF)
30° (REF)
15° (REF)
A-175
3 SPCS @ 67½° = 202½°
22½° END TO END OF HEADER
175 6" PIPE SCH 80 x 23'-0" ORDERED LGTH
171 6" WELD NECK FLANGE 600#
12-1⅛" DIA HOLES TO STRADDLE ℄S
398
40°
17½°
SEE DETAIL
Z
PLAN VIEW ASSEMBLIES
SCALE: 1"=12"
A-174
A-175
⅛" DIA CONSUMABLE RING.
NOM THK
70°
20°


225 3/32 END TO END OF HEADER
3 SPC @ 67 5/32 = 201 15/32 (REF)
A-175
85 1/2 ± 1/8 R
45° (REF)
45° (REF)
45° (REF)
15° (REF)
30° (REF)
175 6" PIPE SCH #80
x 23'-0" ORDERED LGTH
12-1 1/8" DIA HOLES TO
STRADDLE ℄S
171 6" WE FLANG
393
17 5/8
Z
PLAN VIEW ASSEMBLIES
SCALE: 1" = 12"
A-174
A-175
1/8" DIA CONSUMABLE RING.
.432" NOM THK.
70°
70°
WG-106
MT
DETAIL 'B'
SHOWING WELD
SCALE - FULL SIZE
6 5/8" O.D
5.833" 'D' DIM.
.093" ± .010"
3/16" R
20°
14°-2'
DETAIL 'C'
SHOWING END PREP
SCALE - FULL SIZE
572

THE BABCOCK & WILCOX COMPANY • BA[...]ON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification Q-56, Q-60

Field	Entry
Description of weld	Auxiliary and Regular Feedwater Pipe Girth Welds
Quantity per unit	Two
Procedure qual.	1701
Welding position	Flat, vertical, overhead
Preheat °F min.	60
Interpass max. °F	500

WELDING PROGRESSION & SEQUENCE WILL BE FROM BOTTOM OF GROOVE TO THE TOP, LEFT TO RIGHT OR RIGHT TO LEFT UNLESS NOTED IN SKETCH BELOW.

Dia.		70/80/15-16		70/80/11018	Stainless	
3/32		75-110		90-115	[illegible]	[illegible]
1/8	X	110-150	X	120-155	[illegible]	[illegible]
5/32	X	150-200	X	160-210	[illegible]	[illegible]
3/16	X	200-270	X	220-280	[illegible]	[illegible]
1/4				325-425		

MANUAL METAL ARC — Filler metal spec.: ASTM A316 E7015/16/18

AUTO: SUBMERGED ARC — (blank)

MANUAL OR SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

Filler metal spec.	Shielding gas	Torch flow rate-CFH	Purge flow rate-CFH	Cup size I.D.-inch	Electrode size-inch	Filler metal dia.-inch
RACO HMS Page AS-18 *	Argon	20	5	5/16-7/16	3/32	1/8 max.

Extension beyond cup - inch: 1/4 - 1/2; Slope control: Manual X; Amperes: 70-150; Manual X; DCSP

PLASMA OR AUTOMATIC GAS SHIELDED TUNGSTEN ARC — (blank)

SEMI-AUTO OR AUTO. GAS METAL ARC — (blank)

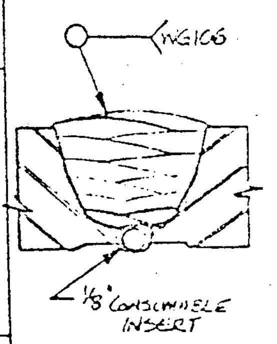
ELECTROSLAG — (blank)

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be inspected by the magnetic particle in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH:
*Root pass and 1st layer MTIG
balance MMA

SAMPLING INSTRUCTIONS OR SKETCH



Contract No.	Dwg. No.	Dwg. No.
0003 #1	129326E	
0003 #2	146426E	
0004	146476E	
0005	131126E	
0006	134986E	
0007	134926E	
0008	135046E	
0009	149826E	
0011	139776E	

REVISION: Rev. 2 - new form

Issued 6-12-68	Sales class 620	Comp. No. 55
Revised 1-12-70	Revision No. 2	
Revised by	Weld data sheet No.	[illegible]-106

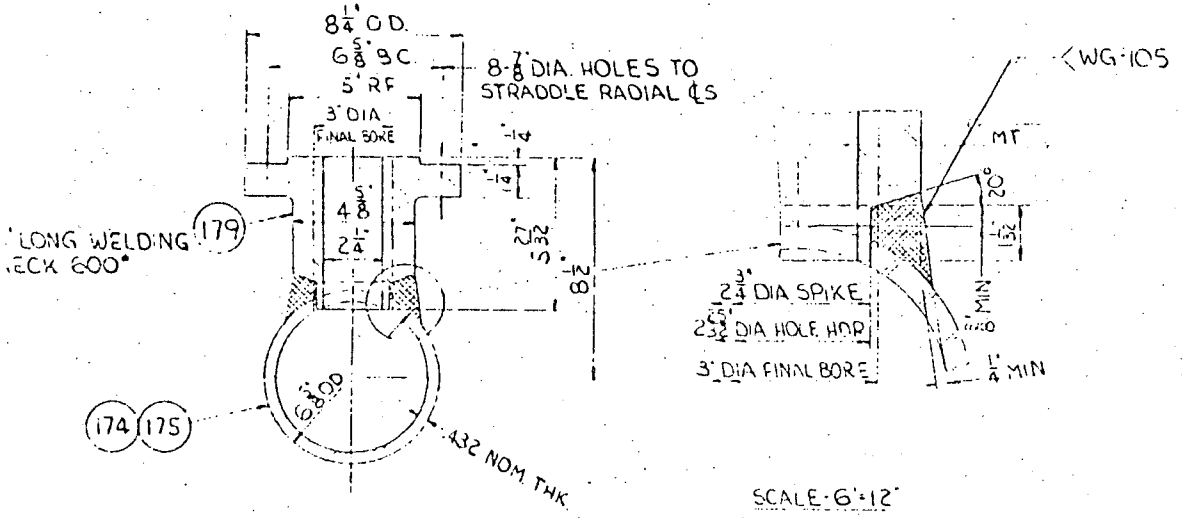
3. SYMBOL DESIGNATION
WG-WELD SPECIFICAT
MT-MAGNETIC PARTIC

4. ALL WELDING SHALL BE IN
ANCE WITH INSTRUCTION
QUALITY CONTROL DEPAR

5. CIRCULAR DIMENSIONS
ON ℄ OF HEADER.

6. "SURFACE FINISHES MAY HAVE ISOLATED TO
OR SIMILAR DEPRESSIONS PROVIDED THEY
IN NATURE, OR NOT ON SURFACES WHICH
USED TO SEAL PRESSURE BOUNDARIES, A
VIOLATE MINIMUM THICKNESS REQUIREME
UPSET OR RAISED METAL IS TO BE REMOVED
EDGES OF ALL DEPRESSIONS
LEAST 3 TO 1."

7. SUB-ASSEMBLIES TO BE SEAL
ENTRANCE OF MOISTURE AN
MATERIAL.



SECTION 'A-A'
(TYPICAL SEVEN CONNS)
SCALE: 3"=12"

SCALE: 6"=12"

REFERENCES

NO	TITLE
1	LIST OF DRAWINGS
2	ASSY AUX. F.W. HDR. & NOZZ

TOLERANCES UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE FOR PART TEMPERATURE OF 63° F

		UP TO 6" INCL.	OVER 6" TO 12" INCL.	OVER 12" TO 24" INCL.	OVER 24" TO 6'-0" INCL.	OVER 6'-0" TO 14'-0" INCL.	OVER 14'-0"
MACHINED SURFACES	DECIMAL DIM.	± .005"	± .005"	± .005"	± .010"	± .031"	—
	FRAC. DIM. MACH.	± 1/64"	± 1/32"	± 1/32"	± 1/16"	± 1/16"	± 1/8"
	FRAC. DIM. UNMACH.	± 1/32"	± 1/16"	± 3/32"	± 1/8"	± 3/16"	± 3/16"
	DIA. FOR BURNING	± 1/16"	± 1/8"	± 1/8"	± 1/8"	± 3/16"	± 3/16"
	FLATNESS	.001" PER INCH OF SURFACE UP TO .020" MAX.					
	PERPENDICULARITY	.002" PER INCH OF SURFACE UP TO .020" MAX.				BREAK CORNERS 1/64 R MIN OR CHAMFER	
	CONCENTRICITY	.015" TIR					
	ANGULARITY	± 0°-30'				CHAMFERS ±5°	
PRESSED OR ROLLED SHELL	NONE ROUNDNESS	A.S.M.E. CODE TOLERANCE					
	TRAVEL	UP TO 42" DIA. INCL. ±3/16"		OVER 42" DIA. ±3/8"			
	STRAIGHTNESS	1/4" PER 20 FEET OF LENGTH					

ALL MACHINED SURFACES TO HAVE 250 RMS FINISH UNLESS OTHERWISE NOTED

DWN BY	HETRICK
CHKD BY	
PASSED BY	
APPVD BY	
STD. SPEC.	DATE 10-30-68
620-0003-55	
UNIT # 1	
DO NOT SCALE - USE DIMENSIONS ONLY	

AUXILIARY FEEDWATER INLET HEADER

SCALE NOTED

THE BA

8 9 10 11 12

B&W 10888-4 WG105 ALT. THE BABCOCK & WILCOX COMPANY · BA[illegible]RTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification [illegible]

DESCRIPTION OF WELD	MK170 Welding Hook to [illegible] & 175 Pipe
CARBON STEEL / LOW ALLOY / STAINLESS / OTHER	[illegible]
QUANTITY PER UNIT	Seven
WELDING POSITION	All positions
PREHEAT °F MIN.	60
INTERPASS °F MAX.	300
BASE MATERIAL	SA105 Gr 2 & SA106 Gr B
HEAD (TYPICAL) INDEX	[illegible]

MANUAL METAL ARC	
FILLER METAL SPEC.	ASTM A316 E7015/7016/7018
SIZE-DIA. INCH	3/16 max.
AMPS	5/32 [illegible]; 3/16 [illegible]

AUTO. SUBMERGED ARC — FILLER METAL SPEC. / FLUX / ELECT. SPACING / LOCATION / AMPS / VOLTS / TRAVEL IPM / NO. OF ARCS / AC / DCRP / DCSP / OSCILL. CY/MIN. / FILLER METAL SIZE-INCH

MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC — FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / PURGE FLOW RATE-CFH / CUP SIZE I.D.-INCH / ELECTRODE SIZE-INCH / FILLER METAL DIA.-INCH / EXTENSION BEYOND CUP - INCH / SLOPE CONTROL MANUAL / AUTO. / AMPERES / MANUAL / SEMI AUTO.

AUTOMATIC GAS SHIELDED TUNGSTEN ARC — FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / BACK PURGE FLOW RATE-CFH / CUP SIZE I.D.-INCH / ELECTRODE SIZE-INCH / FILLER METAL DIA.-INCH / EXTENSION BEYOND CUP - INCH / SLOPE CONTROL MANUAL / AUTO. / TRAVEL SPEED IPM / WIRE FEED IPM / AMPERES / VOLTS

SEMI & AUTO GAS SHIELDED METAL ARC — FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / CUP SIZE I.D.-INCH / FILLER METAL DIA.-INCH / VOLTS AVG. PEAK / AC / DCRP / DCSP / ELECT. EXTEN. BEYOND CUP-INCH / TRAVEL SPEED IPM / OSCILLATION FREQ. CY/MIN / AMPS

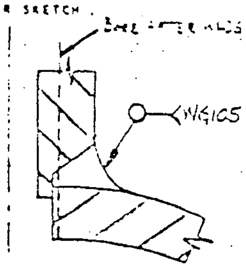
ELECTROSLAG — FILLER METAL SPEC. / FLUX OR GAS / FILLER METAL DIA.-INCH / NO. OF ARCS / AMPS / VOLTS / OSCILLATION

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be magnetic particle inspected in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH:

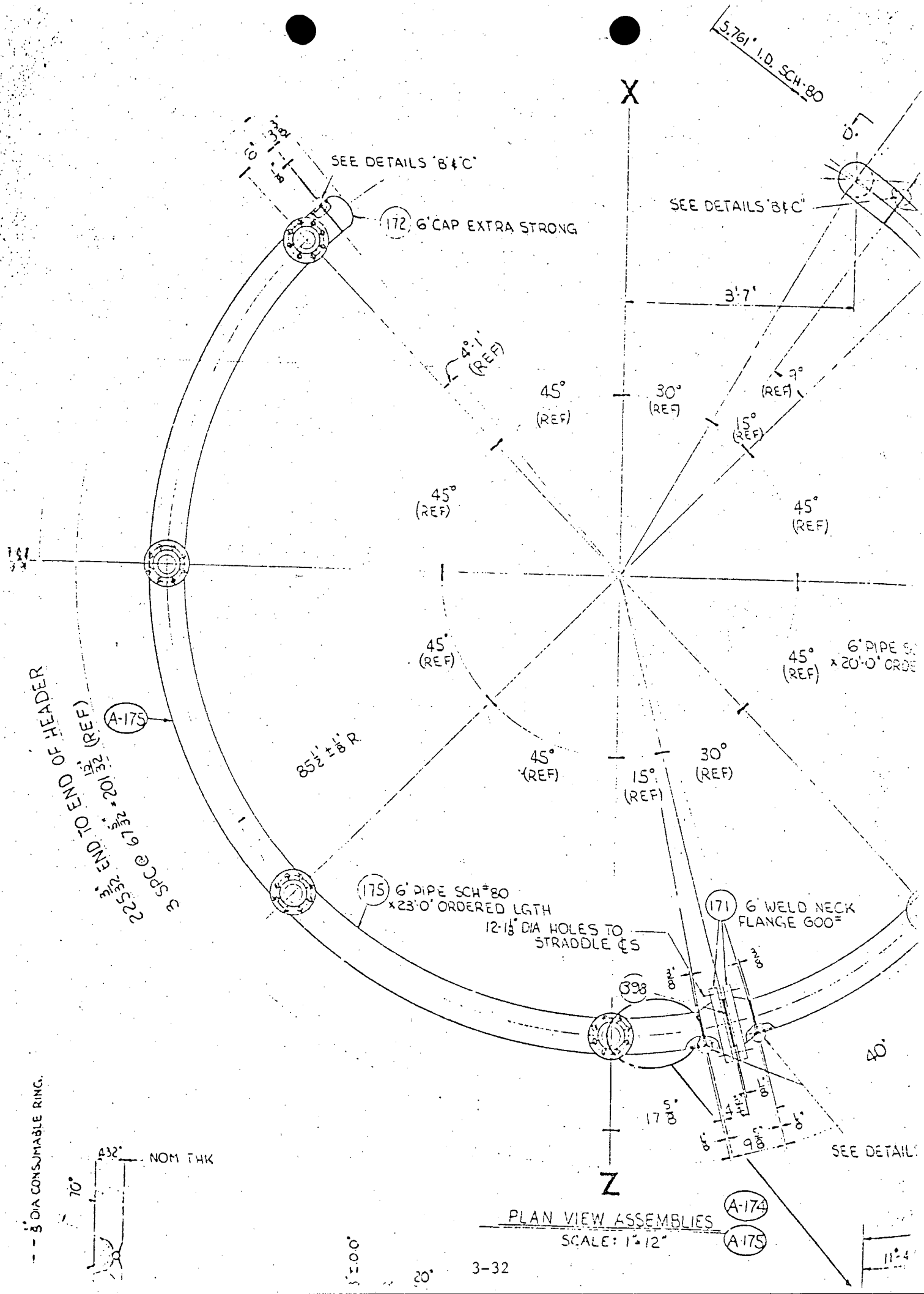
SAMPLING INSTRUCTIONS OR SKETCH:

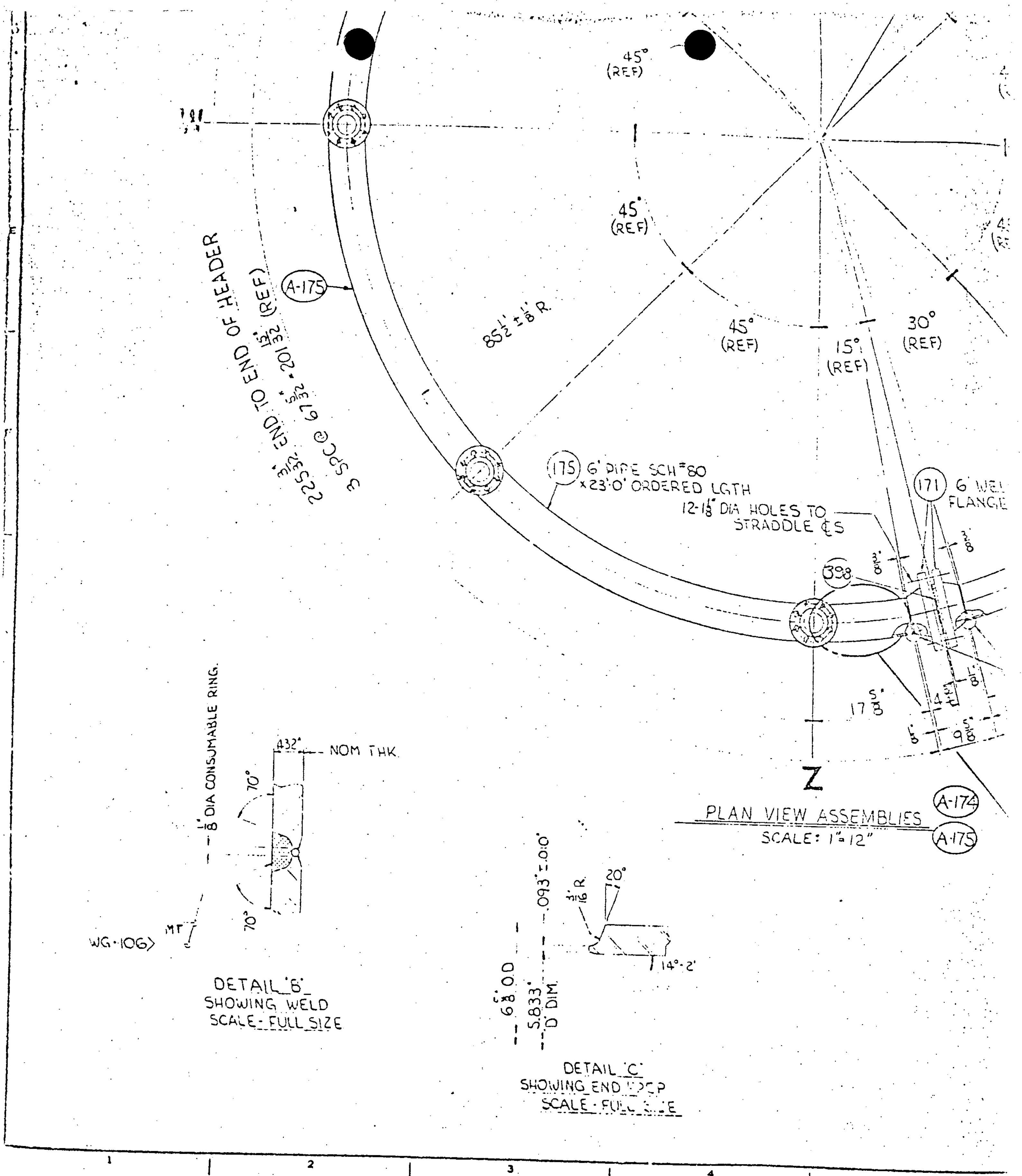


CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129326E	
0003#2	146426E	
0004	146476E	
0005	131126E	
0006	134936E	
0007	134926E	
0008	135046E	
0009	149826E	
0011	139776E	

REVISION: Rev. 1 - Contract & Dwg #s
Rev. 2 - NDT
Rev. 3 - NDT

ISSUED	[illegible]
REVISED	1-15-70
REVISED BY	[illegible]
SALES CLASS	[illegible]
COMP. NO.	[illegible]
REVISION NO.	3
WELD DATA SHEET NO.	[illegible]


X
Z
SEE DETAILS 'B & C'
172 6" CAP EXTRA STRONG
SEE DETAILS 'B & C'
3'-7"
45° (REF)
30° (REF)
15° (REF)
45° (REF)
45° (REF)
45° (REF)
45° (REF)
45° (REF)
30° (REF)
15° (REF)
A-175
85½" ± ⅛" R
3 SPC @ 67½" = 202½" END-TO-END OF HEADER
175 6" PIPE SCH 80 x 23'-0" ORDERED LGTH
12-1⅛" DIA HOLES TO STRADDLE ℄S
171 6" WELD NECK FLANGE 600#
398
40°
17 5/8°
SEE DETAILS
A-174
A-175
PLAN VIEW ASSEMBLIES
SCALE: 1"=12"
⅜" DIA CONSUMABLE RING.
.432" NOM THK
70°
20°



45° (REF)
45° (REF)
45° (REF)
15° (REF)
30° (REF)
225 3/32 END TO END OF HEADER
3 SPC @ 67 5/32 = 201 15/32 (REF)
A-175
85 1/2 ± 1/8 R.
175 6" PIPE SCH #80 x23'-0" ORDERED LGTH
12-1 1/8" DIA HOLES TO STRADDLE ℄S
171 6" WEL FLANGE
398
17 5/8"
Z
PLAN VIEW ASSEMBLIES
SCALE: 1" = 12"
A-174
A-175
1/8" DIA CONSUMABLE RING.
.432" NOM THK.
70°
70°
WG-106
MT
DETAIL 'B'
SHOWING WELD
SCALE - FULL SIZE
6 5/8" O.D.
5.833" 'D' DIM.
.093" ±.010"
3/16" R.
20°
14°-2'
DETAIL 'C'
SHOWING END PREP
SCALE - FULL SIZE
1
2
3
4
5

572

THE BABCOCK & WILCOX COMPANY • BA[illegible]N, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification 4-56, 4-60

Description of Weld	Auxiliary and Regular Foedwater Pipe Girth Welds
Quantity per Unit	Two
Procedure No.	1791
Welding Position	Flat, vertical, overhond
Preheat °F Min.	60
Interpass Max. °F	500
Base Material	

Welding progression & sequence will be from bottom of groove to the top, left to right or right to left unless noted in sketch below.

MANUAL METAL ARC

Filler Metal Spec.: ASTM A316 E7015/16/18

Dia.				
3/32	75-110	80-110	45-75	45-75
1/8 X	110-150 X	120-155	90-115	[illegible]
5/32 X	150-200 X	140-210	110-135	[illegible]
3/16 X	200-270 X	220-290	135-170	145-175
1/4		325-425		

AUTO: SUBMERGED ARC

Filler Metal Spec.: — Flux: — Location: — Amps: — Volts: — Travel IPM: — No. of Arcs: —

MANUAL OR SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

Filler Metal Spec.	Shielding Gas	Torch Flow Rate-CFH	Purge Flow Rate-CFH	Cup Size I.D.-Inch	Electrode Size-Inch	Filler Metal Dia.-Inch
RACO HMS Page AS-18 *	Argon	20	5	5/16-7/16	3/32	1/8 max.

Extension Beyond Cup - Inch: 1/4 - 1/2 — Slope Control: Manual X — Amperes: 70-150 — Manual X — DCSP

PLASMA OR AUTOMATIC GAS SHIELDED TUNGSTEN ARC

(blank)

SEMI-AUTO OR AUTO. GAS METAL ARC

(blank)

ELECTROSLAG

(blank)

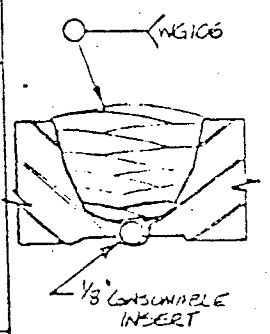
Non-Destructive Testing: Root layer and final surface shall be inspected by the magnetic particle in accordance with Quality Control Specification S-102B.

Minimum Required Postweld Heat Treatment: None

Remarks or Sketch:

*Root pass and 1st layer MTIG
balance MMA

Sampling Instructions or Sketch:



Contract No.	Dwg. No.
0003 #1	129326E
0003 #2	146426E
0004	146476E
0005	131126E
0006	134986E
0007	134926E
0008	135046E
0009	149826E
0011	139776E

Revision: Rev. 2 - new form

Issued 6-12-[illegible] — Sales Class [illegible] — Comp. No. [illegible]

Revised 1-12-80 — Revision No. 2

PROC. NUMBER WG105 ALT. THE BABCOCK & WILCOX COMPANY • BA[illegible]TON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification [illegible]

DESCRIPTION OF WELD: MK179 Welding Neck to [illegible] & 125 Pipe	CARBON STEEL / LOW ALLOY / STAINLESS	INCONEL / OTHER	TYPE OF WELD [illegible]; SPECIAL WELDER QUAL. [illegible]
QUANTITY PER UNIT: Seven	[illegible] PREHEAT MAY BE DROPPED AFTER WELD IS COMPLETED & PREHEAT IS HELD FOR [illegible] RAISED TO 400°F FOR 2 HRS. & ALL STRESS RELIEVED [illegible]		PROCEDURE QUAL. [illegible]
WELDING POSITION: All positions	PREHEAT °F MIN.: 60	INTERPASS °F MAX.: 300	WELDING PROGRESSION & SEQUENCE [illegible] OF GROOVE TO THE TOP, LEFT TO RIGHT [illegible] LEFT UNLESS NOTED IN SKETCH [illegible]
BASE MATERIAL: SA105 Gr 2 & SA106 Gr B		OVERLAP / BEAD WIDTH	HEAD (INITIAL) [illegible]

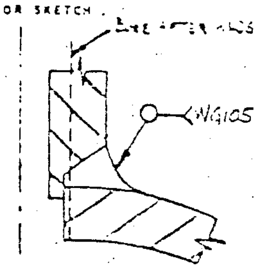
Process				
MANUAL METAL ARC	FILLER METAL SPEC.: ASTM A316 E7015/7016/7018	SIZE-DIA. INCH: 3/16 max.	AMPS: 5/32 [illegible]–[illegible] [illegible]; 3/16 [illegible]	[illegible]
AUTO. SUBMERGED ARC	FILLER METAL SPEC. / FLUX / ELECT. SPACING / LOCATION / AMPS / VOLTS / TRAVEL IPM / NO. OF ARCS / AC ☐ DCRP ☐ DCSP ☐ / OSCILL. CY/MIN. / FILLER METAL SIZE-INCH			
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / PURGE FLOW RATE-CFH / CUP SIZE I.D.-INCH / ELECTRODE SIZE-INCH / FILLER METAL DIA.-INCH / EXTENSION BEYOND CUP - INCH / SLOPE CONTROL MANUAL ☐ AUTO. ☐ / AMPERES / MANUAL ☐ SEMI AUTO. ☐			
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / BACK PURGE FLOW RATE-CFH / CUP SIZE I.D.-INCH / ELECTRODE SIZE-INCH / FILLER METAL DIA.-INCH / EXTENSION BEYOND CUP - INCH / SLOPE CONTROL MANUAL ☐ AUTO. ☐ / TRAVEL SPEED IPM / WIRE FEED IPM / AMPERES / VOLTS			
SEMI & AUTO GAS SHIELDED METAL ARC	FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / CUP SIZE I.D.-INCH / FILLER METAL DIA.-INCH / VOLTS AVG. PEAK / AC ☐ DCRP ☐ DCSP ☐ / ELECT. EXTEN. BEYOND CUP-INCH / TRAVEL SPEED IPM / OSCILLATION FREQ. CY/MIN / AMPS			
ELECTROSLAG	FILLER METAL SPEC. / FLUX OR GAS / FILLER METAL DIA.-INCH / NO. OF ARCS / AMPS / VOLTS / OSCILLATION			

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be magnetic particle inspected in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH:

SAMPLING INSTRUCTIONS OR SKETCH



CONTRACT NO.	DWG. NO.	DWG. NO.
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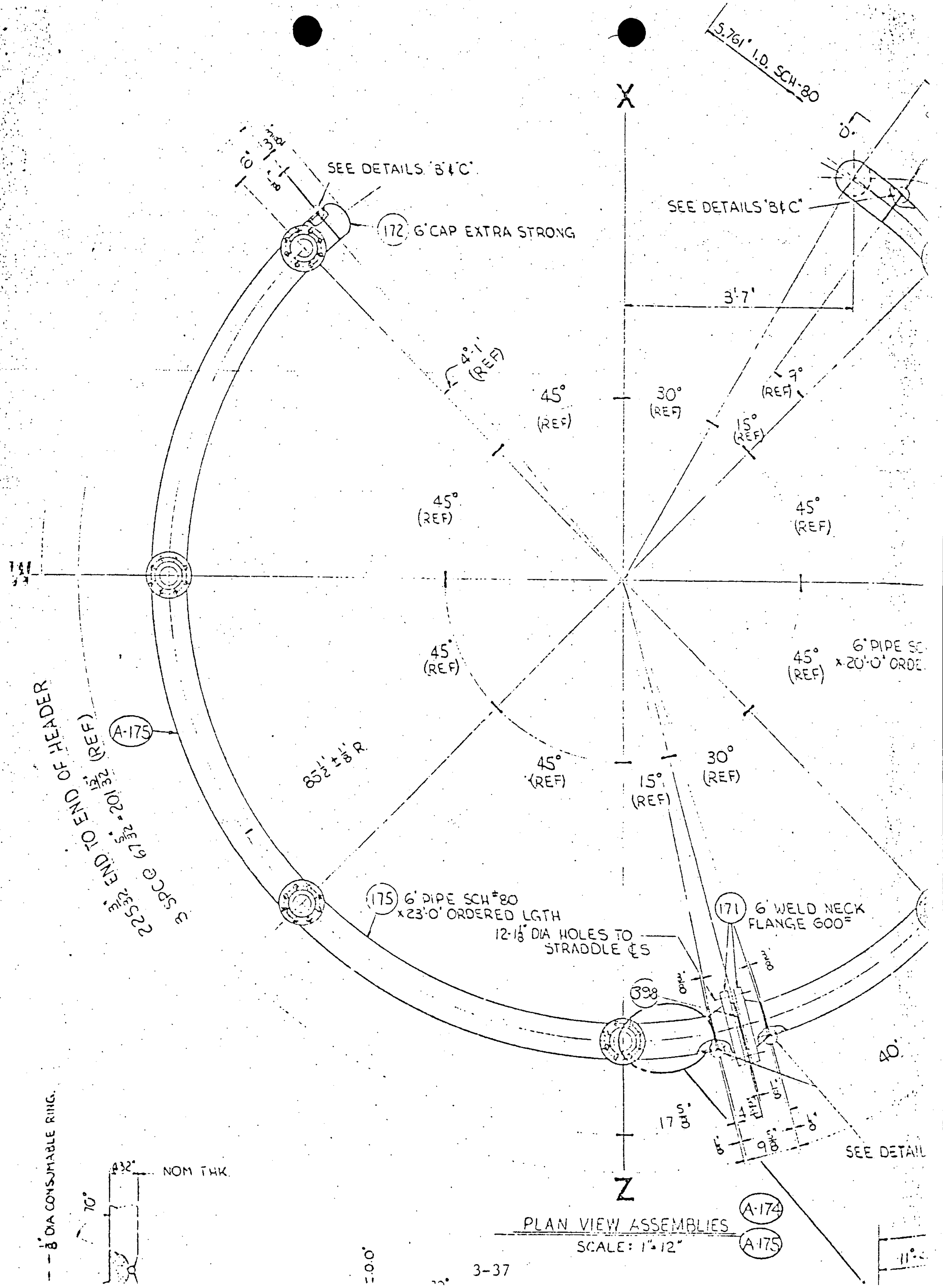
0008	135046E	
0009	149826E	
0011	139776E	

REVISION: Rev. 1 - Contract & Dwg #s
Rev. 2 - NDT
Rev. 3 - [illegible]

ISSUED: [illegible]	SALES CLASS: [illegible]	COMP. NO.: [illegible]
REVISED: 1-15-70	REVISION NO.: 3	
REVISED BY: [illegible]	WELD DATA SHEET NO.: [illegible]	



5.761" I.D. SCH-80
X
SEE DETAILS 'B & C'
172 6" CAP EXTRA STRONG
SEE DETAILS 'B & C'
3'-7"
4'-1" (REF)
45° (REF)
30° (REF)
7° (REF)
15° (REF)
45° (REF)
45° (REF)
45° (REF)
45° (REF)
6" PIPE SC
x 20'-0" ORDE
A-175
3" END TO END OF HEADER 225 3/32" (REF)
3 SPC @ 67 5/32" = 201 15/32"
85 1/2" ± 1/8" R.
45° (REF)
15° (REF)
30° (REF)
175 6" PIPE SCH #80 x 23'-0" ORDERED LGTH
12-1 1/8" DIA HOLES TO STRADDLE ℄S
171 6" WELD NECK FLANGE 600#
398
40°
17 5/8"
SEE DETAIL
Z
1/8" DIA CONSUMABLE RING.
.032" NOM THK.
70°
PLAN VIEW ASSEMBLIES A-174 A-175
SCALE: 1" = 12"

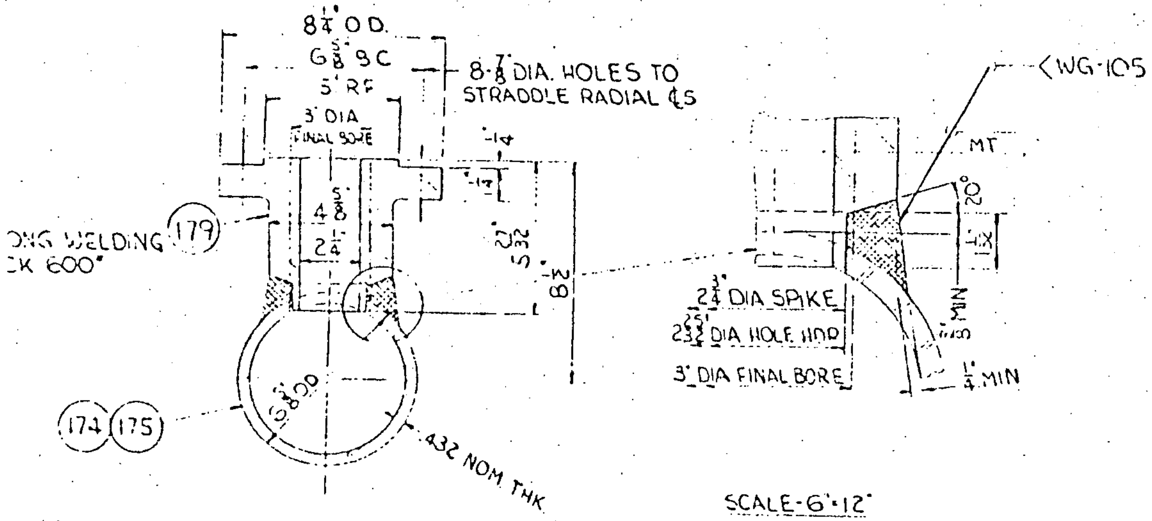
3. SYMBOL DESIGNATION
   WG- WELD SPECIFICATION NO
   MT- MAGNETIC PARTICLE TEST

4. ALL WELDING SHALL BE IN ACCORDANCE WITH INSTRUCTIONS FROM QUALITY CONTROL DEPARTMENT

5. CIRCULAR DIMENSIONS TAKEN ON ℄ OF HEADER.

6. "SURFACE FINISHES MAY HAVE ISOLATED TOOL MARKS OR SIMILAR DEPRESSIONS PROVIDED THEY ARE MINOR IN NATURE, OR NOT ON SURFACES WHICH ARE TO BE USED TO SEAL PRESSURE BOUNDARIES, AND DO NOT VIOLATE MINIMUM THICKNESS REQUIREMENTS. ALL UPSET OR RAISED METAL IS TO BE REMOVED AND SHARP EDGES OF ALL DEPRESSIONS MUST BE FAIRED TO AT LEAST 3 TO 1."

7. SUB-ASSEMBLIES TO BE SEALED TO PREVENT ENTRANCE OF MOISTURE AND OR FOREIGN MATERIAL.



SECTION "A-A"
(TYPICAL SEVEN CONNS)
SCALE 3"=12"

SCALE 6"=12"

3-35

REFERENCES

NO	TITLE	DWG NO.
1	LIST OF DRAWINGS	73222A
2	ASSY AUX. F.W. HDR. & NOZZLES	129325 E

TOLERANCES UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE FOR PART TEMPERATURE OF 68° F

	UP TO 6" INCL.	OVER 6" TO 12" INCL.	OVER 12" TO 24" INCL.	OVER 24" TO 6'-0" INCL.	OVER 6'-0" TO 14'-0" INCL.	OVER 14'-0"
DECIMAL DIM.	±.003"	±.005"	±.005"	±.010"	±.031"	—
FRAC. DIM. MACH.	±1/64"	±1/32"	±1/32	±1/16"	±1/16"	±1/8"
FRAC. DIM. UNMACH.	[illegible]	±1/16	±3/32"	±1/8"	±3/16"	±3/16"
DIA. FOR BURNING	[illegible]	±1/8	±1/8"	±1/8"	±3/16"	±3/16"
MACHINED SURFACES: FLATNESS	.001 PER INCH OF SURFACE UP TO .020" MAX.					
MACHINED SURFACES: PERPENDICULARITY	.002 PER INCH OF DISTANCE UP TO .020" MAX.				BREAK CORNERS 1/64 R MIN OR CHAMFER	
MACHINED SURFACES: CONCENTRICITY	.015 TIR					
MACHINED SURFACES: ANGULARITY	±0°-30'				CHAMFERS ±5°	
PRESSED OR ROLLED SHELL: NON-CIRCULARITY	A.S.M.E. CODE TOLERANCE					
PRESSED OR ROLLED SHELL: TRAVEL	UP TO 42" DIA. INCL. ±3/16"			OVER 42" DIA. ±3/8"		
PRESSED OR ROLLED SHELL: STRAIGHTNESS	1/4" PER 20 FEET OF LENGTH					

ALL MACHINED SURFACES TO HAVE 250 RHR FINISH UNLESS OTHERWISE NOTED

DWN BY HETRICK
CHKD BY [illegible]
PASSED BY [illegible]
APPVD BY [illegible]
DATE 10-08
620-0003-55
UNIT #1
DO NOT SCALE - USE DIMENSIONS ONLY

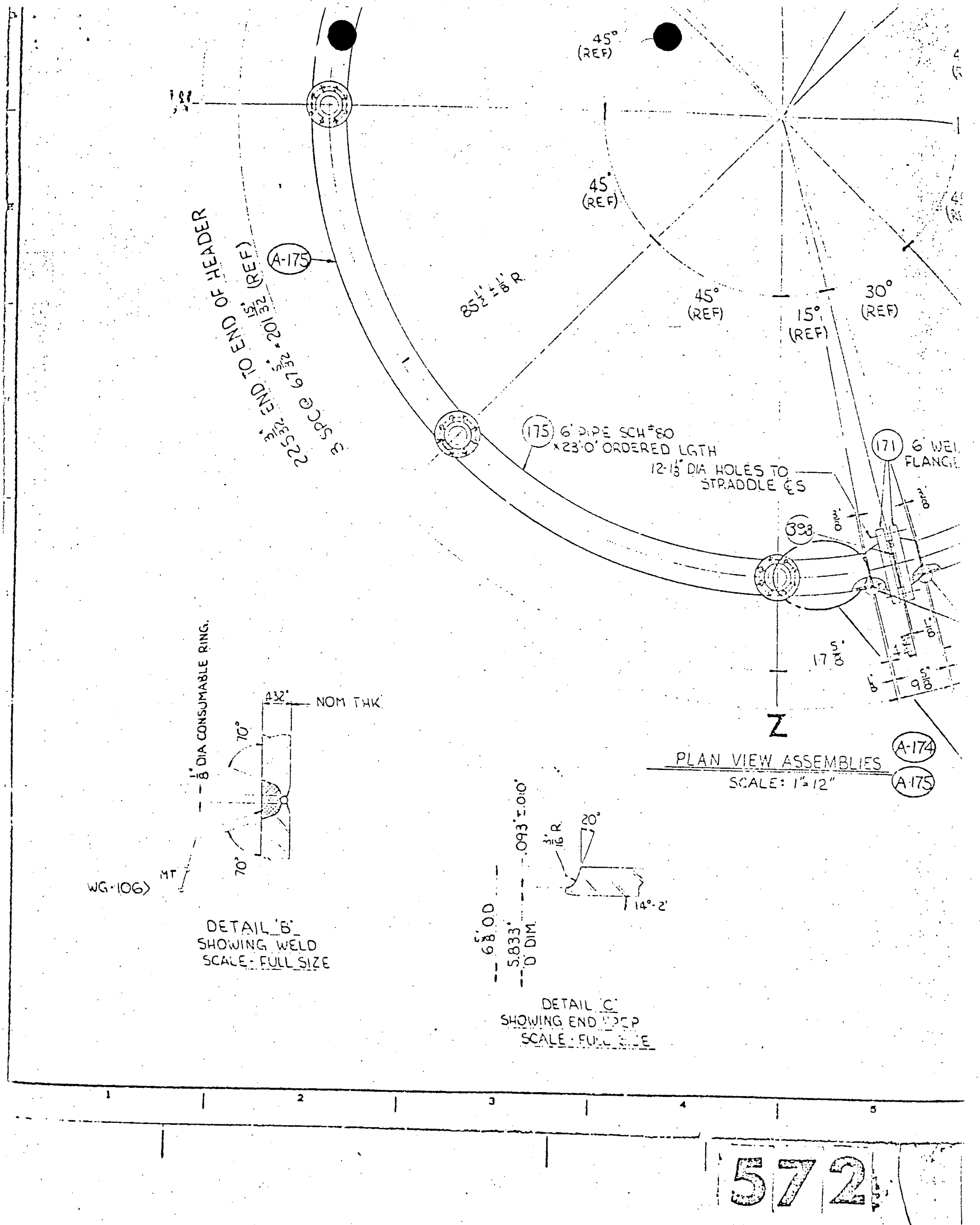
AUXILIARY FEEDWATER INLET HEADER

SCALE NOTED

THIS DRAWING IS THE PROPERTY OF THE BABCOCK & WILCOX COMPANY BOILER DIVISION

DWG. NO. 129326E REV 6

8 9 10 11 12 13


45° (REF)
45° (REF)
45° (REF)
15° (REF)
30° (REF)
A-175
$85\frac{1}{2}" \pm \frac{1}{8}"$ R.
$225\frac{31}{32}"$ END TO END OF HEADER
3 SPC @ $67\frac{5}{32}" = 201\frac{15}{32}"$ (REF)
175 6" PIPE SCH #80 x 23'-0" ORDERED LGTH
12-$1\frac{1}{8}"$ DIA HOLES TO STRADDLE ℄S
171 6" WEL FLANGE
398
Z
PLAN VIEW ASSEMBLIES
SCALE: 1"=12"
A-174
A-175
$\frac{1}{8}"$ DIA CONSUMABLE RING
.432" NOM THK
70°
70°
WG-106
MT
DETAIL 'B' SHOWING WELD SCALE: FULL SIZE
.093" ± .010"
$\frac{3}{16}"$ R
20°
14°-2'
$6\frac{5}{8}"$ O.D.
5.833" 'D' DIM
DETAIL 'C' SHOWING END PREP SCALE: FULL SIZE
572

THE BABCOCK & WILCOX COMPANY • BARBERTON, OHIO

WELDING DATA SHEE[redacted]

DESCRIPTION OF WELD	Auxiliary and Regular Feedwater Pipe Girth Welds
QUANTITY PER UNIT	Two
PROCEDURE NUMBER	1701
WELDING POSITION	Flat, vertical, overhead
PREHEAT °F MIN.	60
INTERPASS MAX. °F	500

WELDING PROGRESSION & SEQUENCE WILL BE FROM BOTTOM OF GROOVE TO THE TOP, LEFT TO RIGHT OR RIGHT TO LEFT UNLESS NOTED IN SKETCH BELOW.

MANUAL METAL ARC

FILLER METAL SPEC.	ASTM A316 E7015/16/18

DIA.					
3/32		75-110		80-110	
1/8	X	110-150	X	120-155	
5/32	X	150-200	X	160-210	
3/16	X	200-270	X	220-280	
1/4				325-425	

MANUAL OR SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC. *	SHIELDING GAS	TORCH FLOW RATE-CFH	PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER METAL DIA.-INCH
RACO HMS Page AS-18	Argon	20	5	5/16-7/16	3/32	1/8 max.

EXTENSION BEYOND CUP - INCH	SLOPE CONTROL	AMPERES	
1/4 - 1/2	MANUAL X	70-150	MANUAL X DCSP

AUTO: SUBMERGED ARC

PLASMA OR AUTOMATIC GAS SHIELDED TUNGSTEN ARC

SEMI-AUTO OR AUTO. GAS METAL ARC

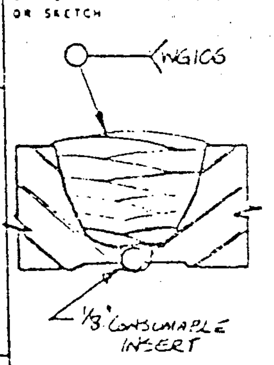
ELECTROSLAG

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be inspected by the magnetic particle in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH:
*Root pass and 1st layer MTIG
balance MMA

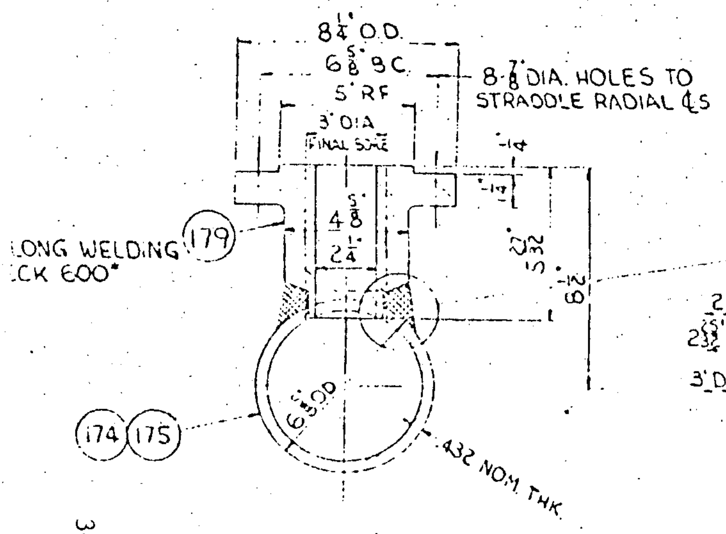
SAMPLING INSTRUCTIONS OR SKETCH



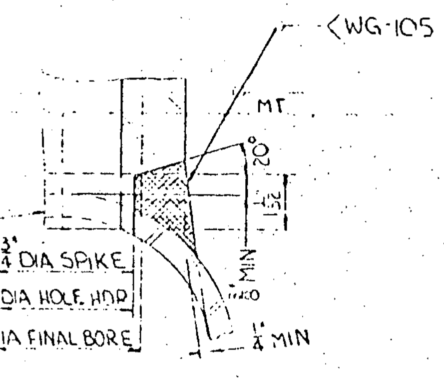
CONTRACT NO.	DWG. NO.	DWG. NO.
0003 #1	129326E	
0003 #2	146426E	
0004	146476E	
0005	131126E	
0006	134986E	
0007	134926E	
0008	135046E	
0009	149826E	
0011	139776E	

REVISION: Rev. 2 - new form

ISSUED 6-12-68	SALES CLASS 670	COMP. NO. 55
REVISED 1-12-70	REVISION NO. 2	



SECTION 'A-A'
(TYPICAL SEVEN CONNS)
SCALE-3"=12"



SCALE-6"=12"

3-40

3. SYMBOL DESIGNATION:
   WG-WELD SPECIFICATION NO
   MT-MAGNETIC PARTICLE TEST
4. ALL WELDING SHALL BE IN ACCORDANCE WITH INSTRUCTIONS FROM QUALITY CONTROL DEPARTMENT
5. CIRCULAR DIMENSIONS TAKEN ON ℄ OF HEADER.
6. "SURFACE FINISHES MAY HAVE ISOLATED TOOL MARKS OR SIMILAR DEPRESSIONS PROVIDED THEY ARE MINOR IN NATURE, OR NOT ON SURFACES WHICH ARE TO BE USED TO SEAL PRESSURE BOUNDARIES, AND DO NOT VIOLATE MINIMUM THICKNESS REQUIREMENTS. ALL UPSET OR RAISED METAL IS TO BE REMOVED AND SHARP EDGES OF ALL DEPRESSIONS MUST BE FAIRED TO AT LEAST 3 TO 1."
7. SUB-ASSEMBLIES TO BE SEALED TO PREVENT ENTRANCE OF MOISTURE AND OR FOREIGN MATERIAL.

REFERENCES

NO	TITLE	DWG NO.
1	LIST OF DRAWINGS	73222A
2	ASSY AUX. F.W. HDR. & NOZZLES	129325 E

TOLERANCES UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE FOR PART TEMPERATURE OF 60° F

	UP TO 6" INCL.	OVER 6" TO 12" INCL.	OVER 12" TO 24" INCL.	OVER 24" TO 6'-0" INCL.	OVER 6'-0" TO 14'-0" INCL.	OVER 14'-0"
DECIMAL DIM.	±.003"	±.005"	[illegible]	±.010"	±.011"	—
FRAC. DIM. MACH.	±1/64"	±1/32"	±1/32	±1/16"	±1/16"	±1/8"
FRAC. DIM. UNMACH.	±1/16"	±1/16	±3/32"	±1/8"	±3/16"	±3/16"
DIM. FOR BURNING	[illegible]	±1/8	±1/8"	±1/8"	±3/16"	±3/16"
MACHINED SURFACES: FLATNESS	[illegible] PER INCH OF SURFACE UP TO .020" MAX.					
MACHINED SURFACES: PERPENDICULARITY	.002 PER INCH OF SURFACE UP TO .020" MAX.				BREAK CORNERS 1/64 R MIN OR CHAMFER	
MACHINED SURFACES: CONCENTRICITY	.015 TIR					
MACHINED SURFACES: ANGULARITY	±0°-30'				CHAMFERS ±5°	
PRESSED OR ROLLED SHELL: NON CIRCULARITY	A.S.M.E. CODE TOLERANCE					
PRESSED OR ROLLED SHELL: TRAVEL	UP TO 42" DIA. INCL. ±3/16"		OVER 42" DIA. ±3/8"			
PRESSED OR ROLLED SHELL: STRAIGHTNESS	1/4" PER 20 FEET OF LENGTH					

ALL MACHINED SURFACES TO HAVE 250, FHR FINISH UNLESS OTHERWISE NOTED

DWN BY HETRICK
CHKD BY [illegible]
PASSED BY [illegible]
APPVD BY [illegible]
DATE 6-20-68
620-0003-55
UNIT #1

AUXILIARY FEEDWATER INLET HEADER

SCALE NOTED

DWG NO. 129326E REV 6

WDS NUMBER WG105 ALT.1 — THE BABCOCK & WILCOX COMPANY · BARBERTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification

DESCRIPTION OF WELD: MK170 Welding Neck to MK174 & 175 Pipe

CARBON STEEL / LOW ALLOY / STAINLESS / OTHER / TYPE OF WELD / SPECIAL WELDER QUAL.

QUANTITY PER UNIT: Seven

MAINTAIN PREHEAT TO NORMAL ... PREHEAT MAY BE DROPPED AFTER WELD IS COMPLETE ... RAISED TO 400°F FOR 2 HRS. & ALL STRESS RAISERS REMOVED

PROCEDURE QUAL.

WELDING POSITION: All positions

PREHEAT °F MIN.: 60

INTERPASS °F MAX.: 300

WELDING PROGRESSION & SEQUENCE ...

BASE MATERIAL: SA105 Gr 2 & SA106 Gr B

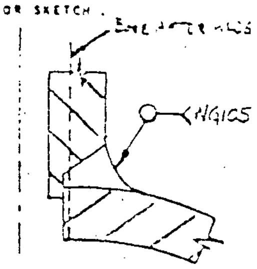
OVERLAP / BEAD WIDTH

Process	Fields
MANUAL METAL ARC	FILLER METAL SPEC.: ASTM A316 E7015/7016/7018 · SIZE-DIA. INCH: 3/16 max. · AMPS: 5/32 [illegible]; 3/16 [illegible]
AUTO. SUBMERGED ARC	FILLER METAL SPEC. · FLUX · ELECT. SPACING · LOCATION · AMPS · VOLTS · TRAVEL IPM · NO. OF ARCS · AC / DCRP / DCSP · OSCILL. CY/MIN. · FILLER METAL SIZE-INCH
MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC. · SHIELDING GAS · TORCH FLOW RATE-CFH · PURGE FLOW RATE-CFH · CUP SIZE I.D.-INCH · ELECTRODE SIZE-INCH · FILLER METAL DIA.-INCH · EXTENSION BEYOND CUP - INCH · SLOPE CONTROL MANUAL / AUTO. · AMPERES · MANUAL / SEMI AUTO.
AUTOMATIC GAS SHIELDED TUNGSTEN ARC	FILLER METAL SPEC. · SHIELDING GAS · TORCH FLOW RATE-CFH · BACK PURGE FLOW RATE-CFH · CUP SIZE I.D.-INCH · ELECTRODE SIZE-INCH · FILLER METAL DIA.-INCH · EXTENSION BEYOND CUP - INCH · SLOPE CONTROL MANUAL / AUTO. · TRAVEL SPEED IPM · WIRE FEED IPM · AMPERES · VOLTS
SEMI & AUTO GAS SHIELDED METAL ARC	FILLER METAL SPEC. · SHIELDING GAS · TORCH FLOW RATE-CFH · CUP SIZE I.D.-INCH · FILLER METAL DIA.-INCH · VOLTS AVG. / PEAK · AC / DCRP / DCSP · ELECT. EXTEN. BEYOND CUP-INCH · TRAVEL SPEED IPM · OSCILLATION FREQ. CY/MIN · AMPS
ELECTROSLAG	FILLER METAL SPEC. · FLUX OR GAS · FILLER METAL DIA.-INCH · NO. OF ARCS · AMPS · VOLTS · OSCILLATION

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be magnetic particle inspected in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

SAMPLING INSTRUCTIONS OR SKETCH

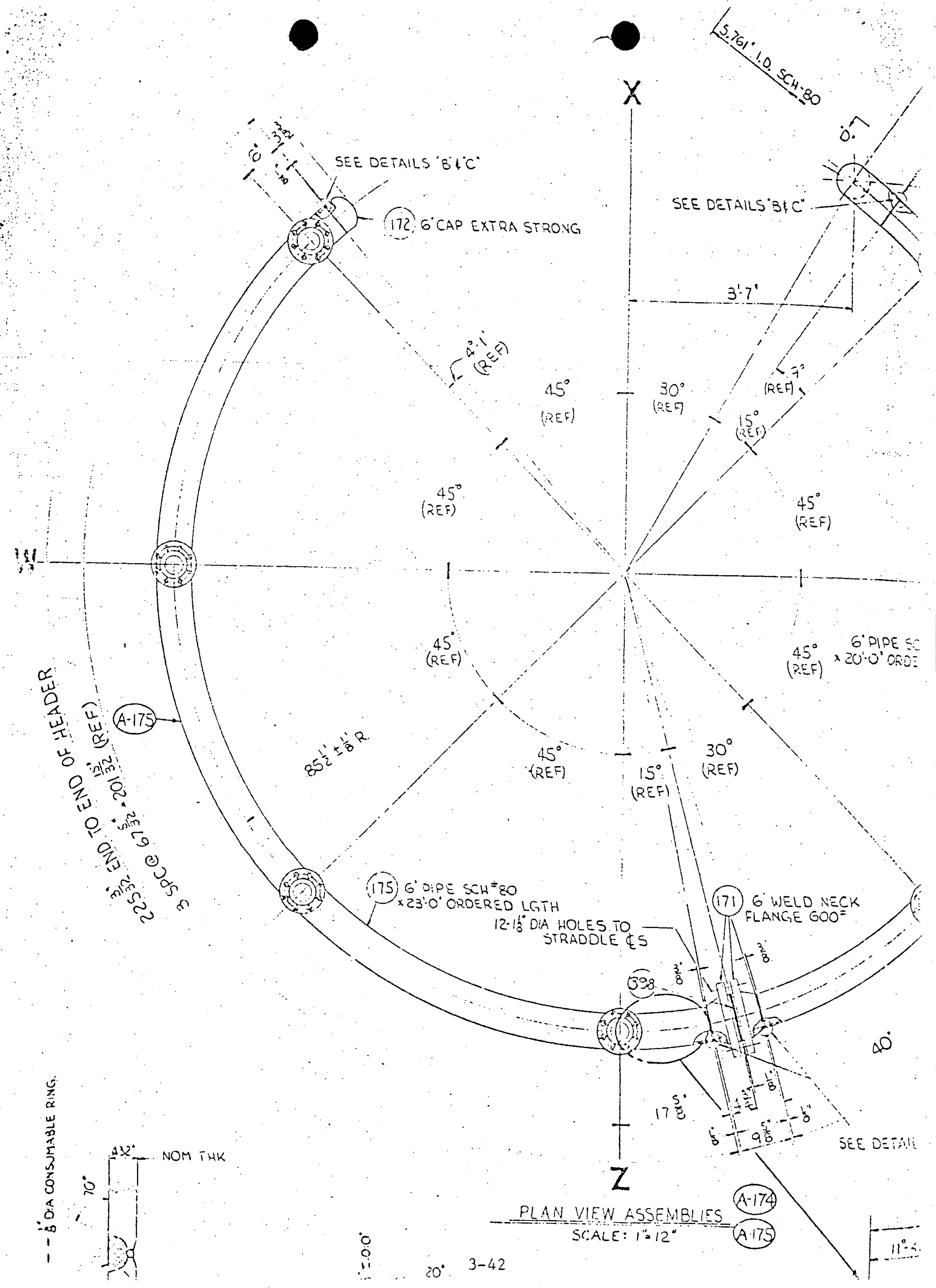


CONTRACT NO.	DWG. NO.	DWG. NO.
0003#1	129326E	
0003#2	146426E	
0004	146476E	
0005	131126E	
0006	134936E	
0007	134926E	
0008	135046E	
0009	149826E	
0011	139776E	

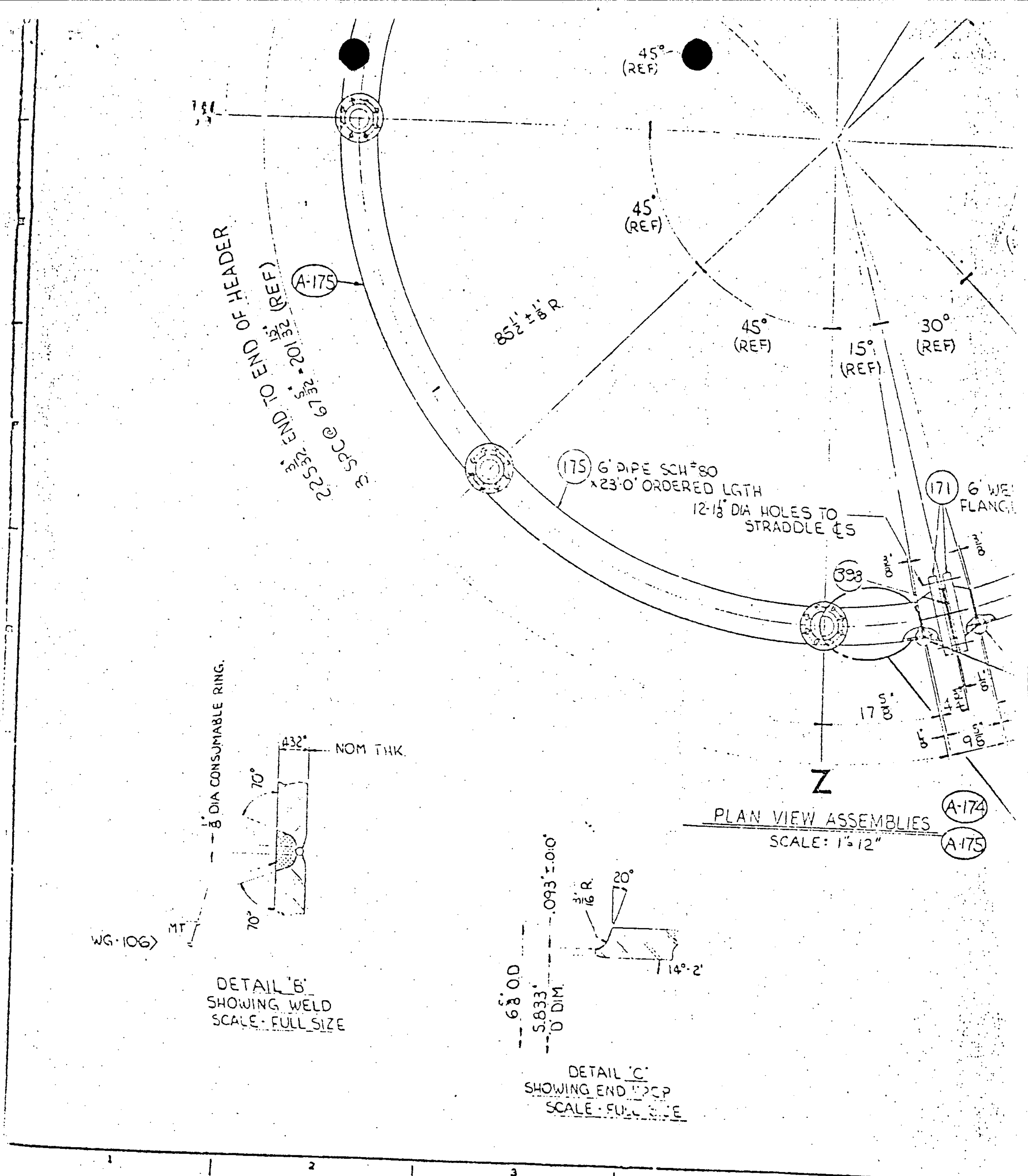
REMARKS OR SKETCH

REVISION: Rev. 1 - Contract & Dwg #s; Rev. 2 - NDT; Rev. 3 - NDT

ISSUED: 2-5-63 · SALES CLASS: 620 · REVISED: 1-15-70 · REVISION NO.: 3 · REVISED BY · WELD DATA SHEET NO.



5.761" I.D. SCH-80
X
SEE DETAILS 'B & C'
172 6" CAP EXTRA STRONG
SEE DETAILS 'B & C'
3'-7"
4'-1" (REF)
7° (REF)
45° (REF)
30° (REF)
15° (REF)
45° (REF)
45° (REF)
45° (REF)
45° (REF)
6" PIPE SC
x 20'-0" ORD
A-175
85½" ± ⅛" R.
45° (REF)
15° (REF)
30° (REF)
225 3/32" END TO END OF HEADER
3 SPC @ 67 5/32" = 201 15/32" (REF)
175 6" PIPE SCH 80
x 23'-0" ORDERED LGTH
12-1⅛" DIA HOLES TO STRADDLE ℄S
171 6" WELD NECK FLANGE 600#
598
40°
Z
SEE DETAIL
⅛" DIA CONSUMABLE RING
.432" NOM THK
70°
PLAN VIEW ASSEMBLIES
SCALE: 1" = 12"
A-174
A-175



225 3/32" END TO END OF HEADER
3 SPC @ 67 5/32" = 201 15/32" (REF)
A-175
85 1/2" ± 1/8" R.
45° (REF)
45° (REF)
45° (REF)
15° (REF)
30° (REF)
175 6" PIPE SCH #80 x 23'-0" ORDERED LGTH
12-1 1/8" DIA HOLES TO STRADDLE ℄S
171 6" WE FLANG
398
17 5/8"
9 5/8"
Z
PLAN VIEW ASSEMBLIES
SCALE: 1" = 12"
A-174
A-175
1/8" DIA CONSUMABLE RING.
.432" NOM THK.
70°
70°
WG-106
MT
DETAIL 'B'
SHOWING WELD
SCALE - FULL SIZE
6 5/8" O.D
5.833" 'D' DIM.
.093" ± .0:0"
3/16" R.
20°
14°-2'
DETAIL 'C'
SHOWING END PREP
SCALE - FULL SIZE

572

THE BABCOCK & WILCOX COMPANY • [illegible] ERTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification U-46, U-50

DESCRIPTION OF WELD: Auxiliary and Regular Feedwater Pipe Girth Welds	CARBON STEEL / LOW ALLOY / STAINLESS	INCONEL / OTHER	TYPE OF WELD / SPECIAL WELDER QUAL.
QUANTITY PER UNIT: Two	MAINTAIN PREHEAT TO FURNACE / SEE REMARKS BELOW / STOP PREHEAT WHEN WELD COMPLETE / PREHEAT MAY BE DROPPED AFTER WELD IS COMPLETE & [illegible]		PROCEDURE QUAL. 1701
WELDING POSITION: Flat, vertical, overhead	PREHEAT °F MIN. 60	INTERPASS MAX. °F 500	OVERLAP / HEAD TRAVEL

BASE MATERIAL

WELDING PROGRESSION & SEQUENCE WILL BE FROM BOTTOM OF GROOVE TO THE TOP, LEFT TO RIGHT OR RIGHT TO LEFT UNLESS NOTED IN SKETCH BELOW.

DIA.		[illegible]		[illegible]	STAINLESS	INCONEL
3/32		75-110		90-110	65-75	[illegible]
1/8	X	110-150	X	120-155	[illegible]	[illegible]
5/32	X	150-200	X	160-210	110-135	[illegible]
3/16	X	200-270	X	220-290	135-170	[illegible]
1/4				325-425		

MANUAL METAL ARC — FILLER METAL SPEC.: ASTM A316 E7015/16/18

AUTO: SUBMERGED ARC — FILLER METAL SPEC. / FLUX / ELEC. SPEC. / LOCATION / AMPS / VOLTS / TRAVEL IPM / NO. OF ARCS / AC ☐ DCRP ☐ DCSP ☐ / OSCILL. CY/MIN. / FILLER METAL SIZE-INCH

MANUAL OR SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

FILLER METAL SPEC.	SHIELDING GAS	TORCH FLOW RATE-CFH	PURGE FLOW RATE-CFH	CUP SIZE I.D.-INCH	ELECTRODE SIZE-INCH	FILLER METAL DIA.-INCH
RACO HMS Page AS-18 *	Argon	20	5	5/16-7/16	3/32	1/8 max.

EXTENSION BEYOND CUP - INCH: 1/4 - 1/2; SLOPE CONTROL: MANUAL ☒ AUTO. ☐; AMPERES: 70-150; MANUAL ☒ SEMI AUTO. ☐; DCSP

PLASMA OR AUTOMATIC GAS SHIELDED TUNGSTEN ARC — FILLER METAL SPEC. / SHIELDING GAS / TORCH FLOW RATE-CFH / BACK PURGE FLOW RATE-CFH / CUP SIZE I.D.-INCH / ELECTRODE SIZE-INCH / FILLER METAL DIA.-INCH / EXT. BEYOND CUP / CUP TO WORK-DIST. / SLOPE CONTROL MANUAL ☐ AUTO. ☐ / TRAVEL SPEED IPM / WIRE FEED IPM / WIRE [illegible] / VOLTS / AMPS / AC ☐ DCSP ☐

SEMI-AUTO OR AUTO. GAS METAL ARC — FILLER METAL SPEC. / POLARITY: AC, DCSP, DCRP / FILLER METAL INCH / FLOW RATE CFH / CUP SIZE I.D. INCH / ELEC. EXT. / AMPS / VOLTS / SHIELDING GAS: ARGON, CO_2, C_{25} / TRAVEL SPEED I.P.M. / OSC. FREQ. CY/MIN.

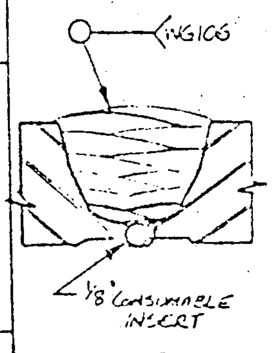
ELECTROSLAG — FILLER METAL SPEC. / FLUX OR GAS / FILLER METAL DIA.-INCH / NO. OF ARCS / AMPS / VOLTS / OSCILLATION

NON-DESTRUCTIVE TESTING: Root layer and final surface shall be inspected by the magnetic particle in accordance with Quality Control Specification S-102B.

MINIMUM REQUIRED POSTWELD HEAT TREATMENT: None

REMARKS OR SKETCH:
*Root pass and 1st layer MTIG
balance MMA

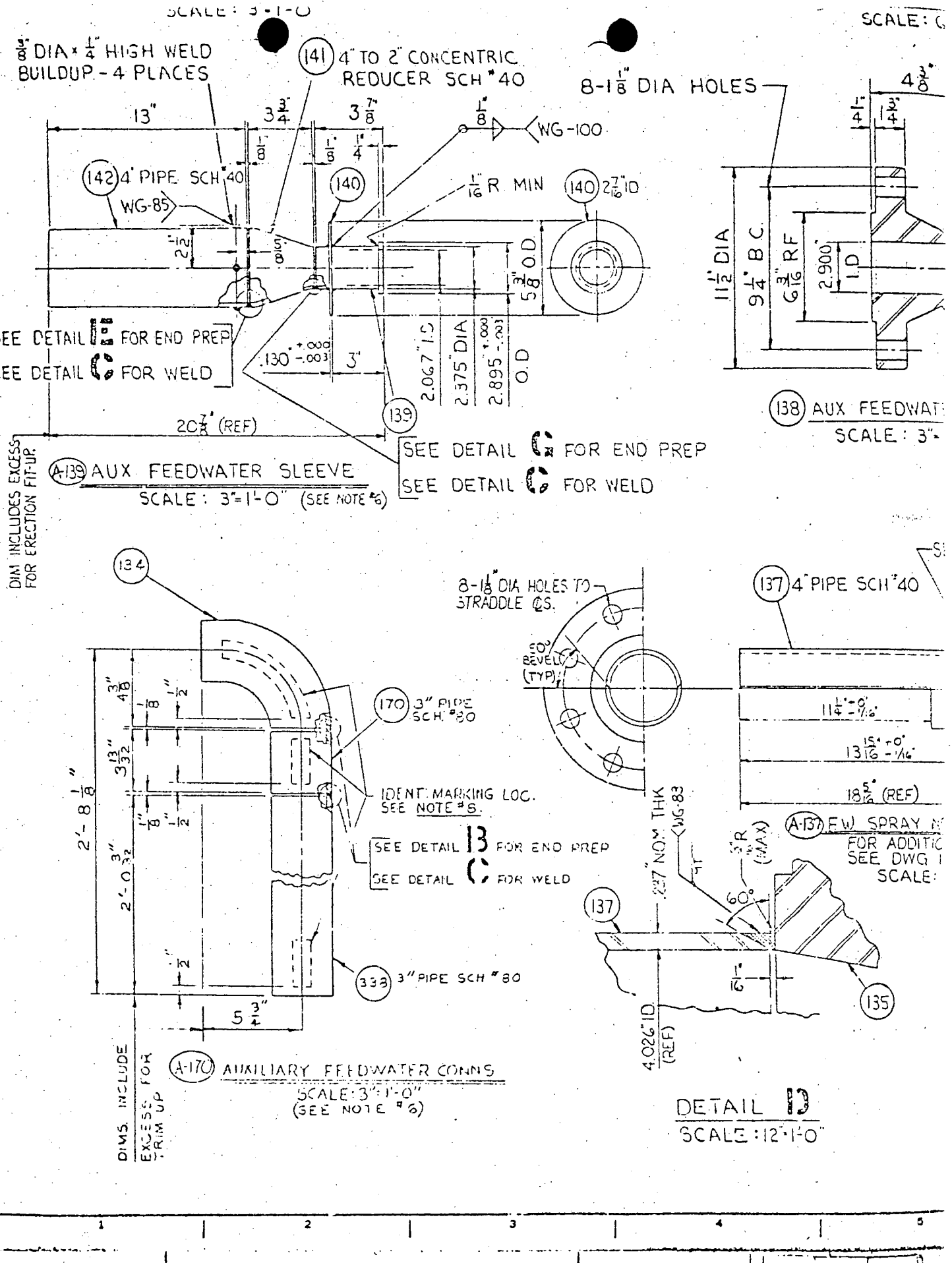
SAMPLING INSTRUCTIONS OR SKETCH



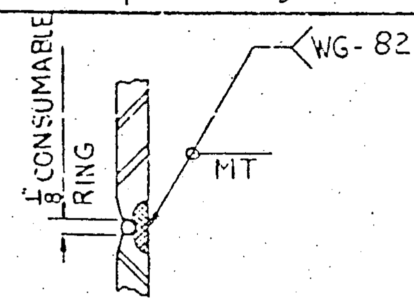
CONTRACT NO.	DWG. NO.	DWG. NO.
0003 #1	129326E	
0003 #2	146426E	
0004	146476E	
0005	131126E	
0006	134986E	
0007	134926E	
0008	135046E	
0009	149826E	
0011	139776E	

REVISION: Rev. 2 - new form

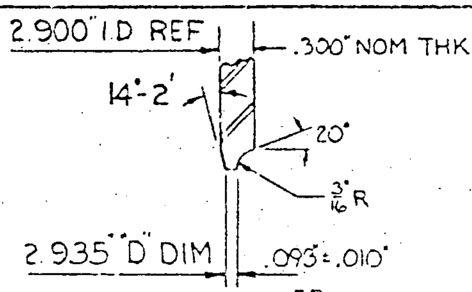
ISSUED 6-12-68 | SALES CLASS 620 | COMP. NO. 55
REVISED 1-12-70 | REVISION NO. 2
[illegible] | WELD DATA SHEET NO. [illegible]-166


SCALE: 3-1-0
SCALE: 6
3/8" DIA x 1/4" HIGH WELD BUILDUP - 4 PLACES
141 4" TO 2" CONCENTRIC REDUCER SCH "40
8-1 1/8 DIA HOLES
13"
3 3/4
3 7/8
1/8
WG-100
142 4" PIPE SCH "40
WG-85
140
1/16 R MIN
140 2 7/16 ID
2 1/2
5/8
5 3/8 O.D
3" O.D
SEE DETAIL FOR END PREP
SEE DETAIL FOR WELD
.130 +.008 -.003
3"
2.067" I.D
2.375" DIA
2.895 +.000 -.003
20 7/8 (REF)
139
A-139 AUX FEEDWATER SLEEVE
SCALE: 3"=1'-0" (SEE NOTE #6)
DIM INCLUDES EXCESS FOR ERECTION FIT-UP.
SEE DETAIL FOR END PREP
SEE DETAIL FOR WELD
4 3/8"
1 1/4
1 3/4
11 1/2" DIA
9 1/4" B.C.
6 3/16" RF
2.900"
I.D
138 AUX FEEDWAT
SCALE: 3"
134
8-1 1/8" DIA HOLES TO STRADDLE ℄S.
137 4" PIPE SCH "40
60° BEVEL (TYP)
11 1/4" -0 -1/16
13 15/16 +0 -1/16
18 5/16 (REF)
A-137 F.W. SPRAY N
FOR ADDITIC
SEE DWG
SCALE:
170 3" PIPE SCH "80
IDENT. MARKING LOC. SEE NOTE #8.
SEE DETAIL B FOR END PREP
SEE DETAIL FOR WELD
2'-8 1/8"
2'-0 3/32"
3 3/8"
3 13/32"
1/8"
1/2"
333 3" PIPE SCH "80
5 3/4"
DIMS. INCLUDE EXCESS FOR TRIM UP
A-170 AUXILIARY FEEDWATER CONNS
SCALE: 3"=1'-0"
(SEE NOTE #6)
.237" NOM. THK WG-83
3/8" R (MAX)
60°
6 1/4"
135
4.026" I.D (REF)
DETAIL B
SCALE: 12"=1'-0"
1
2
3
4
5

8	9	10	11	12



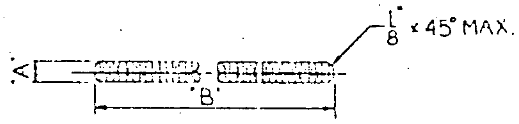
DETAIL C



DETAIL B

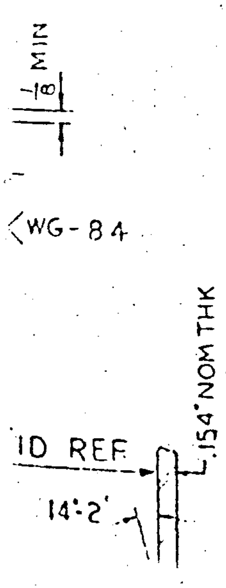
SCALE : 12"=1'-0"

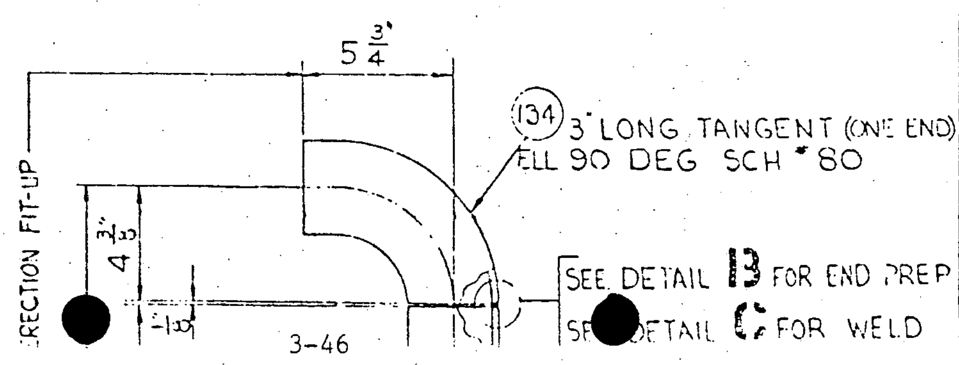
REV	DESCRIPTION
1	CHG'D 'B' DIM OF ... AND MK*176 FROM NOTE *5.
2	DETAILED MK- ... CHG'D LGTH MK-1...
3	REMOVED C... 620-000... ADDED NOT... TITLE BLOC...
4	CHG'D DIMS 4 ... WAS ... 5½" (D2).
5	CHG'D LGTH OF ... MK-139 FROM 4 ...
6	ADDED-ASSY ... A-135(... DIMS-2'-7" ... AND ORIENTATION ... REDESIGNED MK-...
7	CHG'D ASSY MK ... A-135 TO A-137 ...
8	CHG'D NOTE ...
9	CHG'D MK- ... MK-338 AND MK-132, IN ... 2.935" WAS ...



MK. NO.	LOCATION	'A'	'B'
145	3" FLG. TO 3" FLG.	3/4-10 UNC-2A	5¼"
146	FLG TO SHELL	1"-8 UNC-2A	4½"
178	6" FLG. TO 6" FLG.	1"-8 UNC-2A	7"

F.W. STUDS





NO...
1. FEEDWATER SY... INSPECTED, TESTE... ACCORDANCE ...

THE BABCOCK & WILCOX COMPANY • BARBERTON, OHIO

WELDING DATA SHEET

This data sheet shall be used in conjunction with Quality Control Specification W-66

Location of weld: Auxiliary and regular header pipe girth welds	Carbon steel P-1 [ ] / Low alloy P-3 [ ] / Stainless P-8 [ ]	Inconel P43 [ ] / Other	Type of weld: Fusion / Special welder qual.: Yes [ ] No [ ]
Welds per unit: 60	Maintain preheat to PWHT [ ] / See remarks below [ ] / Preheat may be dropped after weld is complete & preheat is held for 1 hr/inch [ ] / Attachment welds & tacking only for raised to 600 for 1 hr — all stress raisers removed [ ]		Procedure qual.: 1003
Welding position: Flat, vertical, overhead	Preheat °F min.: 60	Interpass °F max.: 600	Welding progression & sequence will be from bottom of groove to the top, left to right or right to left unless noted in sketch below.
Base material: A-106 Gr. B and SA-106 Gr. B	Overlap / Bead width		Head (pitch) index / Oscillation width

MANUAL METAL ARC

Filler metal spec.	Size-dia. inch	Amps	AC / DCRP

AUTO. SUBMERGED ARC

Filler metal spec.	Flux						Elect. spacing
Location	Amps	Volts	Travel IPM	No. of arcs	AC [ ] DCRP [ ] DCSP [ ]	Oscill. cy/min.	Filler metal size-inch

MANUAL & SEMI-AUTO GAS SHIELDED TUNGSTEN ARC

Filler metal spec.	Shielding gas	Torch flow rate-CFH	Purge flow rate-CFH	Cup size I.D.-inch	Electrode size-inch	Filler metal dia.-inch
RACO-MIS Page AS-18	Argon	20	5	5/16-7/16	3/32	1/16

Extension beyond cup - inch	Slope control	Amperes	Manual / Semi auto.	
3/8	Manual [x] Auto. [ ]	70-150	Manual [x] Semi auto. [ ]	DCSP

AUTOMATIC GAS SHIELDED TUNGSTEN ARC

Filler metal spec.	Shielding gas	Torch flow rate-CFH	Back purge flow rate-CFH	Cup size I.D.-inch	Electrode size-inch	Filler metal dia.-inch

Extension beyond cup - inch	Slope control	Travel speed IPM	Wire feed IPM	Amperes	Volts
	Manual [ ] Auto. [ ]				

SEMI & AUTO GAS SHIELDED METAL ARC

Filler metal spec.	Shielding gas	Torch flow rate-CFH	Cup size I.D.-inch	Filler metal dia.-inch	Volts avg. / peak	AC [ ] DCRP [ ] DCSP [ ]

Elect. exten. beyond cup-inch	Travel speed IPM	Oscillation freq. cy/min	Amps

ELECTROSLAG

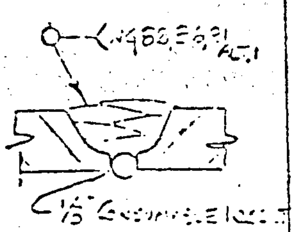
Filler metal spec.	Flux or gas	Filler metal dia.-inch	No. of arcs
Amps	Volts	Oscillation	

Non-destructive testing: Root layer and final surface shall be inspected by the magnetic particle method and completed weld shall be radiographed in accordance with Quality Control Specification S-102B and S-102A, respectively.

Minimum required postweld heat treatment: None

Remarks or sketch:

Sampling instructions or sketch:



Immediately after the bead to be sampled has been deposited, it must be sent to Quality Control, Chem. Lab.

Contract no.	Dwg. no.	Sht. no.
0003 #1	129322/23/24E	
0003 #2	146422/23/24E	
0004	146472/73/74E	
0005	131122/23/24E	
0006	134932/33/34E	
0007	134922/23/24E	
0008	135042/43/44E	
0009	149322/23/24E	
0011	139772/73/74E	
0012	140322/23/24E	
0013	145872/73/74E	

Revision	Issued: 12-10-68	Sales class: 500	Comp. no.
	Revised	Revision no.: 0	Alt. 1
	Revised by	Weld data sheet no.: WG-82	

ATTACHMENT 4

LIST OF MATERIAL FOR ONE (1) UNIT

QTY REQD	PART Nº	DWG Nº	DESCRIPTION	MATERIAL	SPECIFICATION	MATERIAL RECORD	UNIT WEIGHT	REMARKS
1	1	146461E	SHELL SECTION	CARBON STEEL	SA-212-B	2,3,4,9		
2	2					2,3,4,9		
1	3					2,3,4,9		
1	4					2,3,4,9		
1	5					2,3,4,9		
1	6					2,3,4,9		
1	7	146464E	LOWER HEMI HEAD	MN MO	SA-302-B	2,3,4,9		
1	8	146464E	UPPER HEMI-HEAD	MN-MO	SA-302-B	2,3,4,9		
	9							
	10							
	11							
1	12	94961C	NAME PLATE	BRONZE	CAST BRONZE	5		
4	13	146451E	[illegible]	BRASS	COMM	5		
2	14	103215D	24" STEAM OUTLET NOZ	FORGED STEEL	A-508-64 CL-1	2,4,7,10,16		
2	15	103215D	BACKING RING	CARBON STEEL	15-25C	*		
2	16	146478E	1" PIPE SCH 80		SA-106 GR-B	2,3,4		
2	17		END PLUG		SA-105 GR-2	2,4,6,7		
6	18		2" OD CONN (NOZ BODY)	FORGED ALLOY	A-508-64 CL-1	2,4,6,7,10,15		
4	19		1" PIPE SCH 80	CARBON STEEL	SA-106 GR-B	2,3,4		
	20							
	21							
1	22	146478E	1" DRAIN CONN @ LOWER HEAD	INCONEL	SB-166	2,4,6,7,11		
1	23		1½" VENT & LEVEL SENSING CONN	FORGED STEEL	A-508-64 CL-1	2,4,6,7,10,15		
4	24		1½" DRAIN CONN	FORGED STEEL	A-508-64 CL-1	2,4,6,7,10,15		
2	25		1½" DRAIN CONN	CARBON STEEL	SA-106 GR-B	2,3,4		
2	26		1" LOWER LOW LEVEL	CARBON STEEL	SA-106 GR-B	2,3,4		
	27							
3	28	146478E	1½" TEMP SENSING CONN	INCONEL	SB-166	2,4,11,18,19		[illegible]
2	29	146178E	1" UPPER LOW LEVEL SENSING CONN	CARBON STEEL	SA-106 GR-B	2,3,4		
8	30	146485E	BAFFLE PLATE LOWER		SA-515 GR-70	2,4		
1	31					2,4		
1	32					2,4		
1	33					2,4		
1	34		BASE RING			2,4		
1	35		ELLIPTICAL COVER			2,4		
1	36		STUD HANDLE		A-CB [illegible]	2		
1	37		BAR		M-1020	2		
4	38		½" HEX BOLT		A-307 GR-A	2		
1	39	146486E	BAFFLE PLATE UPPER		SA-515 GR-70	2,4		
1	40		BAFFLE PLATE UPPER			2,4		
1	41		SUPPORT RING			2,4		
1	42		CLOSURE RING			2,4		
56	43		ALIGNMENT PIN		SA-306 GR-70	2		
162	44		WEDGE		AISI-1015	2		
30	45		KEY		SA-515 GR-70	2,4		
[illegible]	46	[illegible]	BACKING STRIP		M-1020	*		
1	47	146485E	ORIFICE PLATE		SA-515 GR-70	2,4		
2	48	146486E	WEDGE		AISI-1015	2		
	49							
1	50	146455E	LOWER TUBE SHEET	MN-MO	A-508-64 CL-2	2,4,7,10,17		
1	51	146457E	UPPER TUBE SHEET	MN-MO	A-508-64 CL-2	2,4,7,10,17		
	52							
	53							
	54							
	55							
	56							
[illegible]	57	[illegible]	BACKING RING	CARBON STEEL	M-1020	*		
	58							
	59							
14	60	146487E	LOWER SUPPORT PL	CARBON STEEL	SA-212-B	2,4		
1	61	146489E	UPPER SUPPORT PL			2,4		
14	62	146488E	LOWER MANWAY COV			2,4		
1	63	146488E	UPPER MANWAY COV			2,4		
90	64	[illegible]	[illegible] CAP SCREW [illegible]		ASA-B18.6.2	5		
2	65	103214D	28" PRIM. OUTLET NOZ	FORGED STEEL	A-508-64 CL-1	2,4,7,10,16		
2	66	146467E	BACKING RING	CARBON STEEL	15-25C	*		
	67							
	68							
	69							
1	70	103213D	36" PRIM INLET NOZ	FORGED STEEL	A-508-64 CL-1	2,4,7,10,16		
1	71	146466E	BACKING RING	CARBON STEEL	15-25C	*		
168	72	146486E	SUPPORT PL SPACERS		SA-210 GR-A1	2		
42	73					2		
84	74					2		
84	75					2		
42	76					2		
84	77					2		
126	78					2		
42	79		SUPPORT ROD	CARBON STEEL	SA-306 GR-70	2		
42	80		SPT ROD SAFE END	INCONEL	SB-166	2,4,6,7,16		
42	81	146483E	SPECIAL WASHER	CARBON STEEL		2		
16	82		1½" HEX BOLT		A-307 GR-A	2		
42	83		⅞" HVY HEX NUT		A-307M	2		
[illegible]	84		GENERATING TUBES	NI-CR-FE	SB-163	2,3,4,6,11,12		
[illegible]	85	146462E	BACKING RING	CARBON STEEL	M-1020	*		
[illegible]	86	146462E	BACKING RING		M-1020	*		
1	287	146493D	HYDRO CAP	FORGED STEEL	SA-105 GR-II	2,4,21		REMOVE AFTER ERECTION RETURN TO B&W
2	88	146493D	LUGS (FOR HYDRO CAP)	CARBON STEEL	SA-516 GR-70	2,3,4,9,13		
1	89	146466E	BACKING RING		M-1020	*		
	90							
	91							
4	92	146494E	BOLT HEX TAP RH	STAINLESS STEEL	TP-304	2		
4	93		WASHER			2		
4	94		LOCKWIRE	NI-CR-FE	CD INCONEL	2		
1	95	146480E	TRANSITION RING	MN-MO	SA-302 GR-B	2,3,4,9		
1	96		SUPPORT SKIRT	MN-MO	SA-302 GR-B	2,4		
1	97		BASE PLATE	CARBON STEEL	SA-515 GR-70	2,4		
48	98		GUSSET PLATE		SA-515 GR-70	2,4		
[illegible]	99		BACKING STRIP		M-1020	*		

*MATERIAL FOR SHOP USE ONLY - NOT PART OF COMPLETED VESSEL

LIST OF MATERIAL FOR ONE (1) UNIT

QTY REQD	PART Nº	DWG Nº	DESCRIPTION	MATERIAL	SPECIFICATION	MATERIAL RECORD	UNIT WEIGHT	REMARKS
	100							
7LF	101	146450E	BACKING STRIP	CARBON STEEL	M-1020	*		
1	102	146470E	PRIM MANWAY COVER	CARBON STEEL	SA-516 GR-70	2,3,4,9,13		
1	103		MANWAY			2,3,4,9,13		
2	104		INSPECTION			2,3,4,9,13		
2	105		MANWAY BACKING PLATE	STAINLESS STEEL	SA-240 TP-304	2,3,4,9		
2	106		INSPECTION BACK PLATE		SA-240 TP-304	2,3,4,9		
	107							
	108							
32	109	146470E	2" HVY HEX NUT FOR MANWAY	C-MO	SA-194 GR-4	2,4,6,7,13		
24	110		1" HVY HEX NUT FOR INSPECTION	C-MO	SA-194 GR-4	2,4,6,7,13		
32	111		2" STUD FOR MANWAY	NI-CR-MO	[illegible]	2,4,6,7		
24	112		1" STUD FOR INSPECTION	NI-CR-MO	[illegible]	2,4,6,7		
16	113		NUT LOCK FOR MANWAY	CARBON STEEL	C-1010 C.R.S	2		
12	114		NUT LOCK FOR INSPECTION	CARBON STEEL	C-1010 C.R.S	2		
2	115	146480E	GROUNDING PLATE	STAINLESS STEEL	SA-240 TP-304	2,4		
	116							
32	117	103216D	FEEDWATER SPRAY NOZZLE	CARBON STEEL	A-283 D	2		
32	118					2		
32	119					2		
1	120	146472E	14" FEEDWATER INLET HDR		SA-106 GR-B	2,3,4		
1	121					2,3,4		
1	122					2,3,4		
1	123					2,3,4		
2	124		14" TEE SCH 80		A-234-WPB [illegible]	2,3,4,20		
28	125		3" LG WELDING NECK	FORGED STEEL	A-105 GR-2	2,4,7,13		
	126							
4	127	146472E	14" END CAP INLET HDR	CARBON STEEL	A-234-WPB [illegible]	2,3,4,20		
	128							
	129							
8	130	146473E	SUPPORT PLATE	CARBON STEEL	SA-516 GR-70	2,3,4,9,13		
32	131		GUSSET PLATE	CARBON STEEL	SA-516 GR-70	2,3,4,9,13		
39	132		3" WELD NECK FLG	FORGED STEEL	A-105 GR-2	2,4,7,13		
32	133		3" PIPE SCH 80	CARBON STEEL	SA-106 GR-B	2,3,4		
39	134		3" LONG TAN 90° ELL	CARBON STEEL	A-234-WPB [illegible]	2,3,4,20		
32	135		4" TO 3" WELD NECK FLG	FORGED STEEL	A-105 GR-2	2,4,7,13		
	136							
32	137	146473E	4" PIPE SCH 40 FW SYS	CARBON STEEL	SA-106 GR-B	2,3,4		
7	138		4" TO 3" WELD NECK FLG AUX FW SYS	FORGED STEEL	A-105 GR-2	2,4,7,13		
7	139		SLEEVE AUX FW SYS	CARBON STEEL	SA-210 A1 CF	2		
7	140		COLLAR AUX FW SYS	FORGED STEEL	SA-105 GR-II	2,4,6,7		
7	141		4" TO 2" RED SCH 40 AUX FW SYS	CARBON STEEL	A-234-WPB [illegible]	2,3,4,20		
7	142		4" PIPE SCH 40 AUX FW SYS	CARBON STEEL	SA-106 GR-B	2,3,4		
	143							
	144							
312	145	146473E	¾" STUD FW & AUX FW SYS	CR-MO	SA-193 B14	2,4,6,7,13		
312	146	146473E	1" STUD FW & AUX FW SYS	CR-MO	SA-193 B14	2,4,6,7,13		
624	147	[illegible]	¾" HVY HEX NUT FW & AUX	CARBON STEEL	SA-194-2H	2,4,6,7,13		
356	148	[illegible]	1" HVY HEX NUT FW & AUX FW SYS	CARBON STEEL	SA-194-2H	2,4,6,7,13		
	149							
	150							
7	151	146475E	6 9/16" OD GASKET AUX FW SYS	STAINLESS STEEL	TYPE 304 & ASB	5		FLEXITALLIC STYLE [illegible]
8	152	146474E	HDR SUPPORT PL FW SYS	CARBON STEEL	SA-516 GR-70	2,3,4,9,13		
16	153	146474E	HDR GUSSET PL FW SYS	CARBON STEEL	SA-516 GR-70	2,3,4,9,13		
	154							
	155							
2	156	146471E	SEC MANWAY COVER	CARBON STEEL	SA-516 GR-70	2,3,4,9,13		
15	157		SEC HANDHOLE COV	CARBON STEEL	SA-516 GR-70	2,3,4,9,13		
	158							
	159							
40	160	146471E	1¼" HVY HEX NUT FOR MANWAY	C-MO	SA-194 GR-4	2,4,6,7,13		
120	161		1" HVY HEX NUT FOR HANDHOLE	C-MO	SA-194 GR-4	2,4,6,7,13		
40	162		1¼" STUD FOR MANWAY	NI-CR-MO	[illegible]	2,4,6,7		
120	163		1" STUD FOR HANDHOLE	NI-CR-MO	[illegible]	2,4,6,7		
20	164		NUT LOCK FOR MANWAY	CARBON STEEL	C-1010 C.R.S	2		
60	165		NUT LOCK FOR HANDHOLE		C-1010 C.R.S	2		
8	166	146494E	BACKING STRIP		M-1020	*		
4	167	146494E	BACKING STRIP		M-1020	*		
5	168	146471E	LIFTING LUG FOR [illegible]		SA-516 GR-70	2,3,4,9,13		
	169							
7	170	146473E	3" SCH 80 PIPE AUX FW SYS	CARBON STEEL	SA-106 GR-B	2,3,4		
2	171	146476E	6" WELD NECK FLG AUX FW	FORGED STEEL	A-105 GR-2	2,4,7,13		
1	172		6" CAP WELD END AUX FW	CARBON STEEL	A-234 WPB [illegible]	2,3,4,20		
1	173		6" 90° ELL L.R. AUX FW		A-234 WPB [illegible]	2,3,4,20		
1	174		6" SCH 80 PIPE AUX FW SYS		SA-106 GR-B	2,3,4		
1	175		6" SCH 80 PIPE AUX FW SYS		SA-106 GR-B	2,3,4		
	176							
	177							
12	178	146473E	1" STUD AUX FW SYS	CR-MO	SA-193 B-14	2,4,6,7,13		
7	179	146476E	3" LG WELDING NECK AUX FW	FORGED STEEL	A-105 GR-2	2,4,7,13		
3	180	146475E	GRINNELL 6" PIPE CLAMP	CARBON STEEL	COMM	5		FIG-295
3	181		WELDLESS [illegible]	FORGED STEEL		5		FIG-290 [illegible]
1	182		DOUBLE [illegible]			5		FIG-98 [illegible]
2	183		DOUBLE [illegible]			5		FIG-98 [illegible]
3	184		CLEVIS	FORGED STEEL		5		FIG-299 [illegible]
3	185		⅝" ROD TOC	CR-MO	SA-193 B-16	2		
3	186		⅝" ROD T.F.L.	CR-MO	SA-193 B-16	2		
	187							
	188							
	189							
	190							
	191							
1	192	146495E	ADJUSTABLE ORIFICE PL.	CARBON STEEL	SA-515 GR-70	2		
4	193		SKIRT BAR		M-1020	2		
4	194		LOCKING PLATE		A-283-D	2		
4	195		LOCKING BAR		M-1020	2		
4	196		SPECIAL NUT		SA-306 GR-70	2		
4	197		LUG		M-1020	2		
1	198		ORIFICE PLATE LEVER	TOOL STEEL	REX MZ	2		

*MATERIAL FOR SHOP-USE ONLY - NOT PART OF COMPLETED VESSEL

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
5	FOR REVISIONS 1-4 SEE [illegible] CARD. REVISED [illegible] MKS 101 [illegible] 111 [illegible]	[illegible]	[illegible]
6	DELETED MKS 107, 108, 149, 150, 158, 159, 176, 177. ADDED MK'S 392 THRU 399 [illegible]	[illegible]/72	[illegible]

LIST OF MATERIAL FOR ONE (1) UNIT

QTY REQD	PART Nº	DWG Nº	DESCRIPTION	MATERIAL	SPECIFICATION	MATERIAL RECORD	UNIT WEIGHT	REMARKS
4	206	146494E	¾" HEX BOLT	CARBON STEEL	A-307 GR-A	2		
16 LF	207	146494E	NYLON CORD ⅛" DIA.	NYLON				
1	214	146499E	⅝" HEX BOLT [illegible]	CARBON STEEL	A307	2		
1	215		1" HEX BOLT [illegible]		A307	2		
2	216		PULLEY 20-PT BAR [illegible]		M1020	2		
2	217		HINGE LUG [illegible]			2		
1	218		LIFTING LUG [illegible]			2		
1	219		WIRE ROPE ¼" DIA [illegible]		COMM	2		
1	220		[illegible] SOCKET [illegible]		COMM	2		
1	221		⅝" HEX BOLT [illegible]	CARBON STEEL	A307	2		
1	222	39335B	PULLEY [illegible]	C.I.		2		
2	223	146499E	HINGE LUG [illegible]	CARBON STEEL	M1020	2		
2	299	146466E	RAIL SHIPPING LUGS	MN-MO-NI	A-533-67 CL-1 GR-B	2		TO BE REMOVED IN FIELD
4	391	146[illegible]E	3" LG WELDING NECK [illegible]	FORGED STEEL	A-105 GR-2	2,4,7,13		
15	392	146471E	FLEXITALLIC GSKT [illegible]	STAINLESS STEEL	TYPE 304 & ASB	5		[illegible]
2	393	146470E	FLEXITALLIC GSKT [illegible]			5		SPECIAL STYLE [illegible]
2	394	146471E	FLEXITALLIC GSKT [illegible]			5		SPECIAL STYLE [illegible]
2	395	146470E	FLEXITALLIC GSKT [illegible]			5		SPECIAL STYLE [illegible]
32	396	146474E	FLEXITALLIC GSKT [illegible]			5		[illegible]
32	397	146474E	FLEXITALLIC GSKT [illegible]			5		[illegible]
1	398	146475E	FLEXITALLIC GSKT [illegible]			5		[illegible]
7	399	146475E	FLEXITALLIC GSKT [illegible]			5		[illegible]

NOTES

1. FOR GENERAL NOTES SEE LONGITUDINAL SECTION DRAWING.
2. THIS MATERIAL MUST HAVE CERTIFIED TEST REPORTS
3. THIS MATERIAL TO BE ULTRASONICALLY TESTED IN ACCORDANCE WITH ASME CODE SECT. III.
4. BEFORE ORDERING MATERIAL REFER TO APPLICABLE CONTRACT REQUIREMENTS.
5. FOR ALL MATERIAL NOT COVERED BY NOTE #2 CERTIFIED TEST REPORTS ARE NOT REQ'D. AND SUBSTITUTION OF MATERIAL OF EQUAL OR BETTER GRADE MAY BE MADE FOR THE SPECIFICATION LISTED
6. THIS MATERIAL TO BE ULTRASONICALLY TESTED IN BAR FORM.
7. THIS MATERIAL TO BE ULTRASONICALLY TESTED IN ACCORDANCE WITH ASME CODE CASE 1359-1.
8. THE DESIRABLE COBALT CONTENT SHALL BE .10 PERCENT MAX. HOWEVER IT SHALL NOT EXCEED .20 PERCENT.
9. THIS MATERIAL TO BE ULTRASONICALLY TESTED IN ACCORDANCE WITH ASME CODE CASE 1338-5 ALTERNATE #1
10. THE VANADIUM CONTENT SHALL BE 0.05 PERCENT MAX.
11. THIS MATERIAL TO BE LIQUID PENETRANT INSPECTED IN ACCORDANCE WITH ASME CODE SECT. III.
12. ~~THIS MATERIAL TO BE EDDY CURRENT TESTED [illegible]~~ INCO QCP-50 REV-2 OR EQUIVALENT.
13. THIS MATERIAL TO BE MAGNETIC PARTICLE INSPECTED IN ACCORDANCE WITH ASME CODE [illegible]
14. ASME CODE CASE 1339-1.
15. ASME CODE CASE 1332-4
16. ASME CODE CASE 1332-3
17. ASME CODE CASE 1332-2
18. ASME CODE CASE 1336
19. THIS MATERIAL TO BE ULTRASONICALLY TESTED IN ACCORDANCE WITH MIL-STD-271D.
20. WELDS TO BE 100 PERCENT RADIOGRAPHICALLY INSPECTED PER ASME CODE SECT. III.
21. THIS MATERIAL TO BE ULTRASONICALLY TESTED PER B&W SPECIFICATION S-102 K REV.-2.

APPROVED
THIS APPROVAL COVERS GENERAL ARRANGEMENT AND OVERALL DIMENSIONS ONLY AND DOES NOT RELATE TO DETAILED DIMENSIONS EXCEPT AS OTHERWISE APPROVED
DUKE POWER COMPANY
By [illegible]

REFERENCES

NO	TITLE	DWG NO.
1	LIST OF DRAWINGS	83908 A

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[illegible] 1201-986

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LIST OF MATERIAL
STEAM GENERATOR

146454 E 6