SERIES 350A MILLS WATER-TUBE BOILER

INSTALLATION INSTRUCTIONS

FOR AUTOMATIC FIRING
STEAM, OR WATER HEATING

DESIGNED AND TESTED ACCORDING TO A.S.M.E. BOILER AND PRESSURE VESSEL CODE, SECTION IV FOR MAXIMUM ALLOWABLE WORKING PRESSURE.
STEAM - 15 PSIG, WATER - 70 PSIG

TO STEAMFITTER

NOTE: READ THESE INSTRUCTIONS CAREFULLY. THEY WILL SAVE YOU TIME IN ASSEMBLING BOILER PROPERLY.

IMPORTANT: BE SURE TO SEAL ALL JOINTS TO PREVENT AIR LEAKAGE INTO COMBUSTION CHAMBER.

THE SECTIONS IN THIS BOILER **MUST** BE ASSEMBLED IN THE PROPER ORDER. READ THESE INSTRUCTIONS.

SEE SEPARATE BURNER INSTRUCTIONS

THESE INSTRUCTIONS TO BE LEFT WITH THE BOILER FOR REFERENCE PURPOSES.

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SERIES 350A MILLS BOILER
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FIG. NO. 1 FRONT VIEW

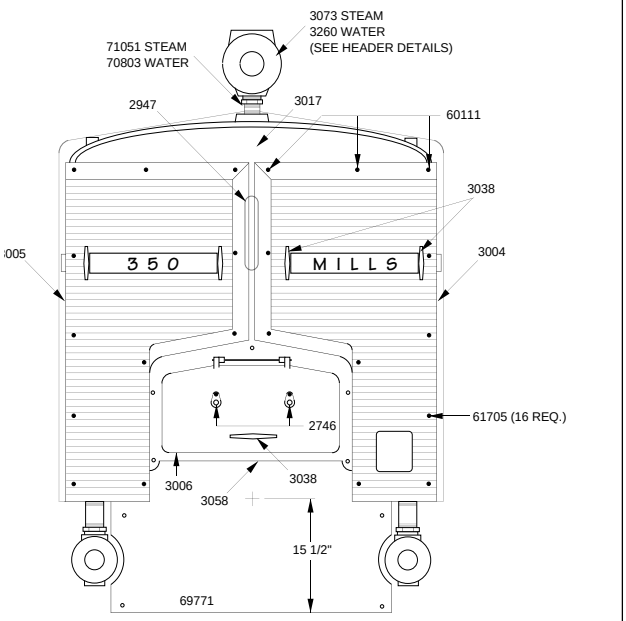


FIG. NO. 2 REAR VIEW

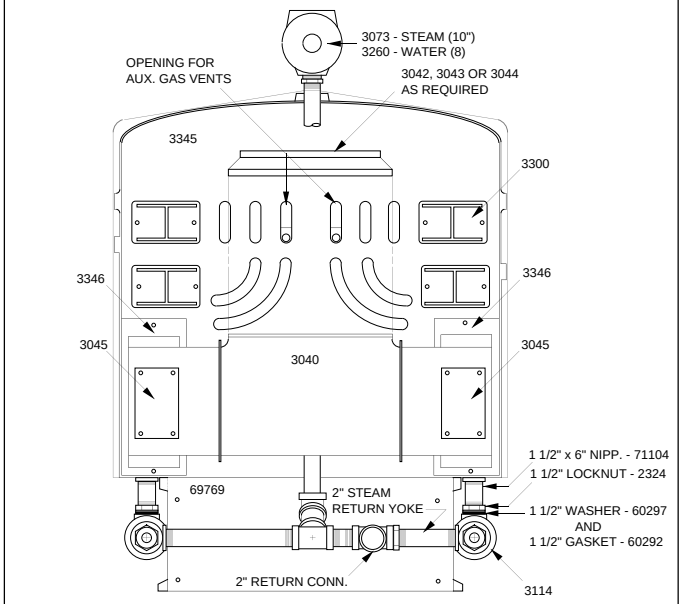
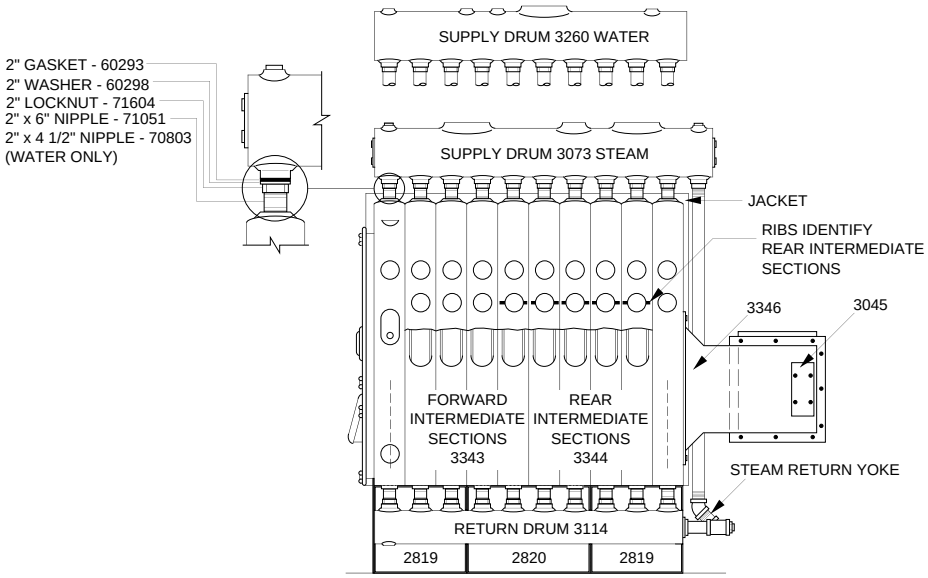


FIG. NO. 3
SIDE VIEW - NATURAL DRAFT
(10 SECTION BOILER ILLUSTRATED)



Extract from *A.S.M.E Boiler* Construction Code

"When feed or make-up water is introduced from a pressure line, it must be connected to the piping system and not directly to the boiler".

The draw-off cock should be connected to the opposite side of the boiler from the feed water connection to assist in removing sediment from the boiler.

*Supply drum for steam is provided with a bottom tapping for equalizing connection in addition to tappings for sections.

3073 10" SUPPLY DRUM (STEAM)*

Suffix	B	C	D	E	F	G	H	I	J
No. Sects.	6	7	8	9	10	11	12	13	14

3260 8" SUPPY DRUM (WATER)

Suffix	A	B	C	D	E	F	G	H	I
No. Sects.	6	7	8	9	10	11	12	13	14

3114 6" RETURN DRUM (WATER AND STEAM)

Suffix	C	D	E	F	G	H	I	J	K
No. Sects.	6	7	8	9	10	11	12	13	14

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COMPUTER NO.	DESCRIPTION
	FOUNDATION
69770	Erecting Bars (2)
2819	Cast Iron Sidewalls - 3 Sect. (16" High)
2820	Cast Iron Sidewalls - 4 Sect. (16" High)
69769	Back End (16" High)
	FRONT
2746	Sight Opening Cover
2947	Cleanout Cover
71007	R.H. Flue Door
71006	L.H. Flue Door
71247	Front Section
3038	Flue Door Handles
69772	Front Plate 9" Dia. Burner Hole
71004	Fire Door, Frame, Handle and Lining
69773	Front Plate 10-1/2 Dia. Burner Hole
69771	Front Plate Plain
60449	Flue Door Lining (Top)
60450	Flue Door Lining (Bottom)
60654	Fire Door Lining
61705	Flue Door Fastening Bolt, 7/16" x 2" lgt. (Washer - 62098 & Palnut - 60884). 8 Per Door.
60111	7/16" x 2-1/2" Stud (Nut -60874 For Top Of Flue Door Fastening) 3 Per Door.
	INTERMEDIATE
3343	Forward Intermediate Section
3344	Rear Intermediate Section
	BACK
3300	Cleanout Covers (Insulation - 72983)
3345	Back Section
	SMOKEHOOD
3040	Center Section
3346	Elbows
3045	Cleanout Covers
	SMOKEHOOD REDUCERS
3042	Outlet Reducer 14" x 14"
3043	Outlet Reducer 16" x 14"
3044	Outlet Reducer 18" x 14"
3119	I.D. Fan Outlet Adapter 14" Rd. - Optional

COMPUTER NO.	DESCRIPTION
	LOCKNUTS AND NIPPLES
70803	2" x 4-1/2" Supply Drum Nipples (Water Only)
71104	1-1/2" x 6" Return Drum Nipples
71051	2" x 6" Supply Drum Nipples (Steam Only)
71603	1-1/2" Locknut
71604	2" Locknut
60292	1-1/2" Hy-Temp Hydronic Gasket
60293	2" Hy-Temp Hydronic Gasket
60301	1-1/2" Washer
60298	2" Washer
71069	2" x 2" x 2" (1 w/spec. run. thd.)
	STANDARD STEAM TRIM
61866	Trim Set Consisting of:
	Gauge Glass Rods
	Gauge Glass (5/8" x 12")
	Gauge Cock (Lower)
	Gauge Cock (Upper)
71633	Locknut (1")
60270	Steam Gauge
60291	Hy-Temp Hydronic Gasket
60296	Gasket Washer
50759	M/M #157RLS Water Column With Pump Control & LWCO
71089	Hydronic Seal Cross 1" x 1" x 1" x 1"
71050	2" Return Yoke
	STANDARD WATER TRIM
71633	Locknut (1")
60291	Hy-Temp Hydronic Gasket (1")
60296	Gasket Washer (1")
71089	Hydronic Seal Cross 1" x 1" x 1" x 1"
60272	Pressure-Altitude Gauge
61923	Thermometer
—	Air Removal Piping & Vent Valve
60857	Dip Tube (4") 6-11 Sections
60858	Dip Tube (5") 12-14 Sections
50757	Low Water Cutoff MM #63 Return Yoke
71001	6-11 Section - 4" Connection
71002	12-4 Section - 5" Connection

NOTE: PIPING & FITTINGS FURNISHED AS SHOWN ON PAGE 12.

THE COMPANY RESERVES THE RIGHT TO SUBSTITUTE COMPONENTS OF EQUAL QUALITY AND PERFORMANCE AND OF COMPARABLE FUNCTION WHEN NECESSARY TO INSURE DELIVERY OF EQUIPMENT.

SEALING MATERIAL

1. #70660, 1/2" dia. rope 12' length required between sections.
2. #60025, 3/8" dia. braided tubing, 20' furnished for adhering to the front section for seal between flue doors and section.
3. #60025, 3/8" dia. braided tubing, 6' cemented to fire door by Smith.
4. #60026, 3/8" braided rope, 5' - 7' length for sealing between fire door frame and front section.
5. #60011 Insulating cement. (See figures 13 & 14)
6. Furnace cement.

542 FLUE BRUSH HANDLE AND HANDLE EXTENSION AS REQUIRED. **60071 FLUE BRUSH**

Suffix	A	B	C	D	E
Length	3'	4'	5'	6'	7'
No. Sects.	6	7 & 8	9 & 10	11 & 12	13 & 14

CASTING NUMBER	DESCRIPTION	NO. OF SECTIONS IN BOILER								
		6	7	8	9	10	11	12	13	14
3017	Front Section	1	1	1	1	1	1	1	1	1
3343	Foward Intermediate Sect.	2	2	3	3	3	4	4	5	5
3344	Rear Intermediate Sect.	2	3	3	4	5	5	6	6	7
3345	Back Sections	1	1	1	1	1	1	1	1	1

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FIG. NO. 4 BOILER TRIM

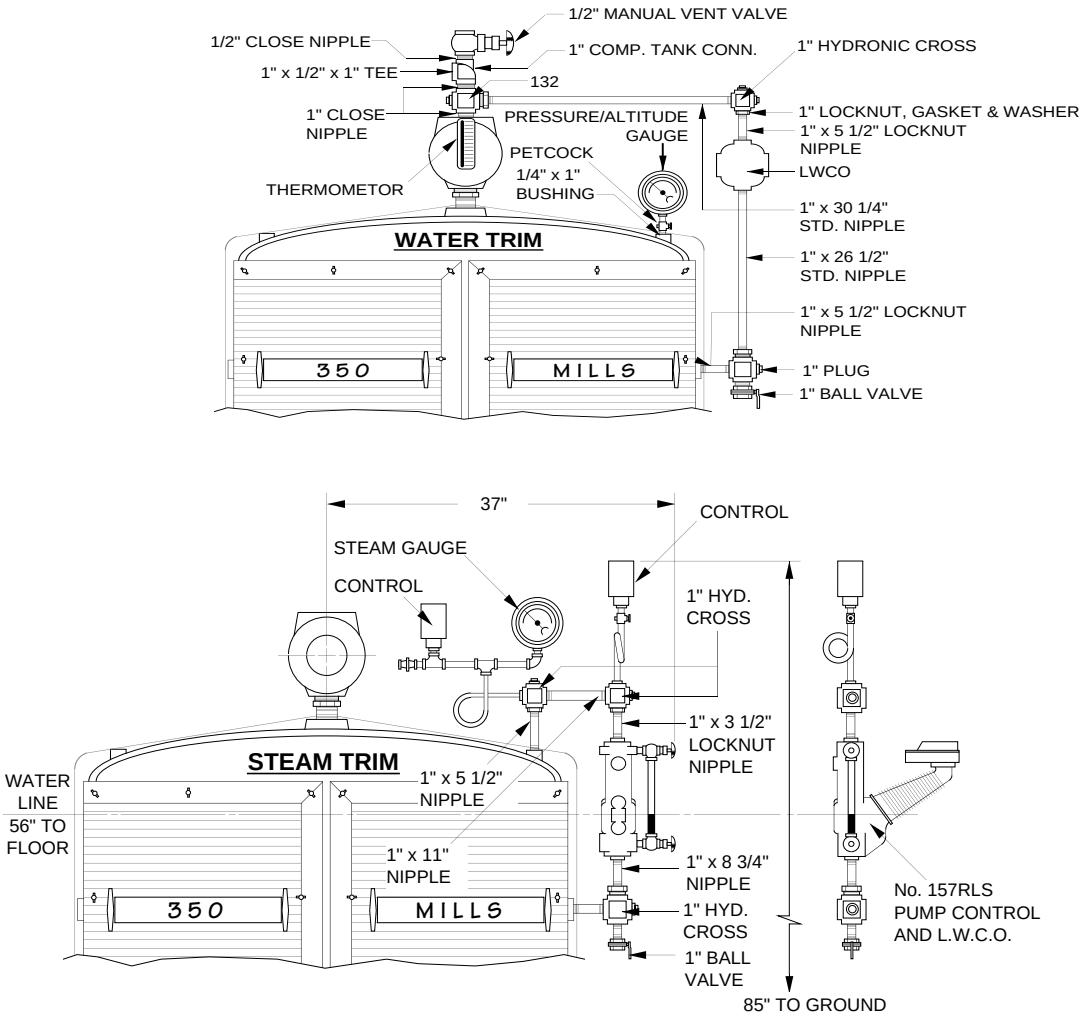


FIG. NO.5 FORWARD INTERMEDIATE SECTION

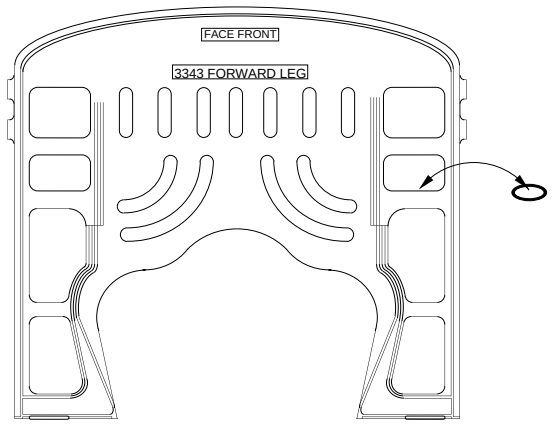
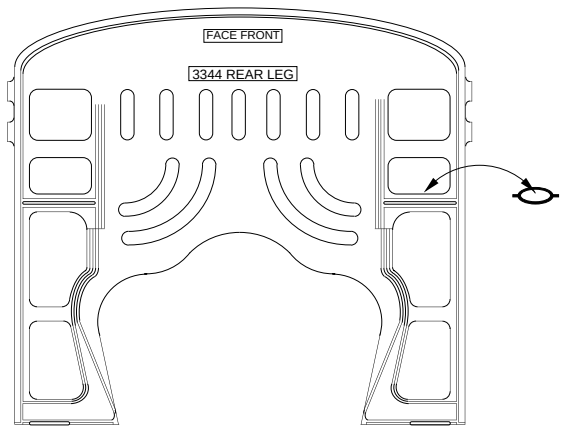


FIG. NO.6 REAR INTERMEDIATE SECTION



SERIES 350A MILLS BOILER
INSTALLATION INSTRUCTIONS

1. GENERAL

The 350A Series Mills Boiler can be either steam or water. Each section is constructed and hydrostatically tested for a maximum working pressure of 70 psi water or 15 psi steam in accordance with “A.S.M.E. Boiler and Pressure Vessel Code, Section IV”.

This manual will assist in the assembly of the boiler. Please take the time to read this manual at least once prior to assembly. This will save you valuable time.

2. CONFORMANCE TO CODES & REGULATIONS

IMPORTANT
The installation and operation of this boiler must meet all local, state and federal codes and requirements of the authorities having jurisdiction.

All work in connection with the boiler, burner and controls must be performed in strict accordance with requirements of state and local authorities having jurisdiction over boiler installations.

In the absence of such local requirements the following should govern:

A.S.M.E. Section IV - “Heating Boilers”
A.S.M.E. Section VI - “Care and Operation of Boilers”
ANSI/NFPA 31 - “Installation of Oil Burning Equipment”
ANSI/Z223.1 - “National Fuel Gas Code”
ANSI/NFPA 70 - “National Electrical Code”

All completed boilers shall satisfactorily pass the hydrostatic tests as prescribed by A.S.M.E., Code Section IV.

1. Steam Boilers – The assembled boiler shall be subjected to a hydrostatic test of not less than 45 psig
2. Water Boilers – The assembled boiler shall be subjected to a hydrostatic test pressure not less than 1-1/2 times the maximum allowable working pressure.
3. The required test shall not exceed the test pressure by more than 10 psi.

3. BOILER LOCATION

The boiler should be installed on a level concrete floor or pad sufficient to support the weight of the boiler and accessory equipment. Allow sufficient time for cement to cure before starting to erect boiler.

Locate boiler close to the chimney to minimize breeching length but allow adequate clearance for piping, service and maintenance.

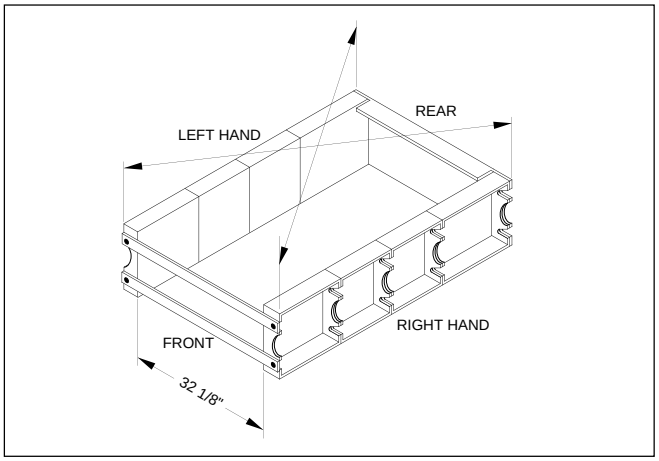
NOTE

If tankless water heaters are to be used, sufficient clearance must be provided for coil replacement.

4. BOILER FOUNDATION

1. Bolt the cast iron sidewalls (2819 and 2820) together in the combinations of 18" and 24" lengths required to suit the boiler (18" lengths equal 3 boiler sections and 24" lengths equal 4 boiler sections) using 7/16" x 2" bolts with two washers and a nut at each bolt hole slot in the sidewall section. Use shims between sidewalls where necessary to insure straight sidewall assembly and be sure the sidewalls are installed with the “top” marking up and the flat side on the inside of the foundation.
2. Bolt steel back end (69769) and erecting bars to sidewalls using 7/16" x 1-3/4" bolts with two washers and a nut at each bolt hole. Check to be sure foundation is level. Be sure sidewalls are parallel and at right angles to back end and erecting bars by adjusting the diagonal measurements of the foundation to be exactly equal using a rigid stick or straight edge as a gauge, figure no. 7.
3. Cement all of the joints in boiler foundation and between foundation and floor with black furnace cement to seal against air leakage into foundation of the boiler.

Figure. No. 7 - Boiler Foundation



5. SECTIONS

Be sure forward and rear intermediate sections are properly located. The assembly of front and back sections can be performed in reverse order if desired. Refer to figures no. 11 and no. 12.

WARNING: The cast iron sections are extremely top heavy. They must be braced properly to prevent them from falling over. Do not leave the sections unattended until the supply and the return drums have been installed per section 8. Failure to comply with this warning may result in extensive property damage, severe personal injury or loss of life!

INSULATING CEMENT

Insulating cement is used to fill the pockets of the sections and the spaces between the section and the boiler foundation. See figures no. 13 and no. 14. Prepare a moderate amount of insulating cement following the manufacture's instructions.

Note: Use pipe joint compound on tapered threads. Do not use compound on running threads.

1. Clean the nipple tapping threads of the back section (3345). Place it on the boiler foundation tipping slightly toward the rear and support securely from the rear. Fill the pocket at the base and firepot side of the section with insulating cement. See figures no. 13 and no. 14.
2. Take the rear intermediate sections (3344) and fill the pockets at the base and firepot side on front and back of each section with insulating cement. Set the sections in position on the boiler foundation and rest them against the back section. Be sure the marking “face front” on each section faces the front of the boiler.

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3. As with the rear intermediate sections, fill the pockets of the forward intermediate sections (3343) with insulating cement front and back and place them in position on boiler foundation. Rest the front intermediate sections against the rear intermediate sections. See figures no. 11 and 12.
4. Fill the pockets on the back of the front section (3017) with insulating cement and place in position on boiler foundation. Position the section so that the flat face of the section measures 1/4" back from the front edge of the foundation sidewall. Set the front section absolutely plumb using a level and secure in place with a substantial brace. Bring intermediate sections and back section forward and upright. Center all sections on the foundation and plumb the back section using a level. Brace the rear section in place.

6. SUPPLY DRUMS

Supply drums (3260) for water boilers have the same number of nipple tappings as there are sections in the boiler. Supply drums (3073) for steam are provided with one extra tapping located at the rear for use as a drip and equalizing connection to the return drums.

The 2" x 6" top steam nipples (71051) or 2" x 4-1/2" top water drum nipples (70803) are shipped with exclusive Hy-Temp hydronic gaskets (60293) and washer (60298) assembled at the factory. Tapered threads are protected by a plastic cap which must be removed before installing.

Clean the threads of each nipple tapping and install the nipples in the drum so that the ends of the nipples for the front and back sections measure 3-inches out from the boss on the drum. Use wood gauge provided for measuring. The remaining nipples between the nipples for the front and back sections should be screwed into the supply drum the full length of the locknut threads. See figure 8 & 9.

NOTES

1. Install tapered threads in section.
2. Install running threads in drum.

Figure No. 8 - Steam Boiler Supply Drum

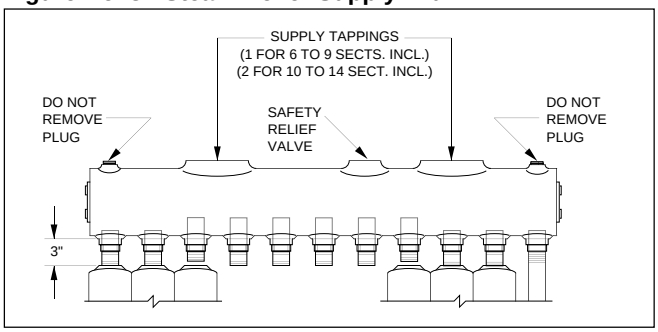
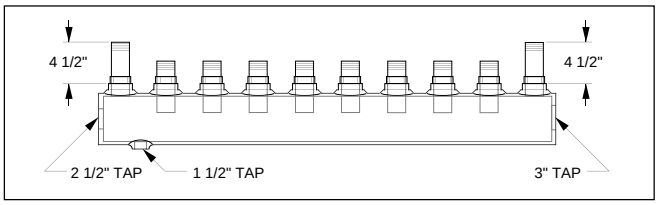


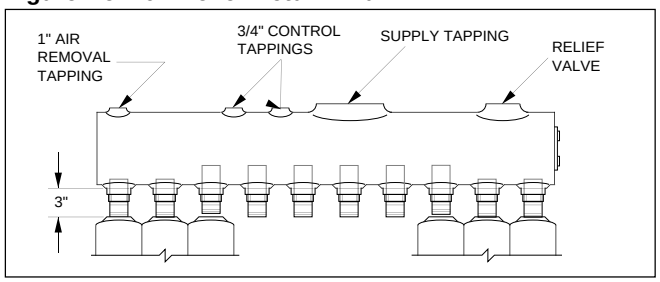
Figure No. 9 - Water Boiler Supply Drum



7. RETURN DRUMS

1. The 1-1/2" x 6" bottom nipples (71104) are shipped with the Hy-Temp hydronic gaskets (60292) and washer (60301) assembled at the factory. Tapered threads are protected by a plastic cap which must be removed before installing
2. Clean the threads of each nipple tapping and install nipples in the drum so that the distance from the drum to the end of the nipple is 4-1/2" for the front and back sections. Other nipples should be screwed into the drum as far as possible. See figure no. 10.

Figure No. 10 - Boiler Return Drum



8. CONNECTING THE DRUMS

1. Place supply drum (3260) for water or (3073) for steam above the boiler. Support drum with a chain hoist from a pipe frame, building structure or other suitable means. Line up nipples with the top tappings of front and back sections. Engage nipples in front and back sections and make up tight using pipe joint compound. Use 3" wood spacing gauge to maintain an ***exact*** 3" space between boss on drum and boss on section. Check to be sure that the front section remains plumb and top of supply drum is level, figure no. 12.

NOTE: Do not tighten locknuts until all supply and return drum nipples are made up tight in the sections. Before starting to seal nipple gaskets and tighten locknuts, read section 10 and follow instructions in every detail.

2. Place return drums (3114) in position with 3" tappings toward the back of the boiler. Line the nipples up with bottom tappings in front and back sections. Engage nipples in front and back sections and make up tight using pipe joint compound. Maintain a 4-1/2" spacing between boss on drum and boss on section, figure no. 13 and 14.
3. Engage the remaining supply and return drum nipples using pipe joint compound and run them into sections a sufficient amount to permit the sections to be lined up and squared. When the boiler is squared, make nipples tight into sections.

9. SEALING THE BOILER

1. The space between the sections must be sealed using the rope furnished with the boiler. Lay the rope over the joint and then pack gently into space between the beads on the sections. Take care not to force the rope past the beads. Apply insulating cement over the rope to fill the space flush with the outside surface of the boiler. See figure no. 14.
2. Take particular care to seal the joints between the bottom of the sections and the top of the foundation on the rear as well as on the sides.
3. Seal openings in back section with insulation and insulating cement. Use up the balance of insulating cement to fill spaces between tubes on the outside of the back section.

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Figure No. 11 - Section Assembly

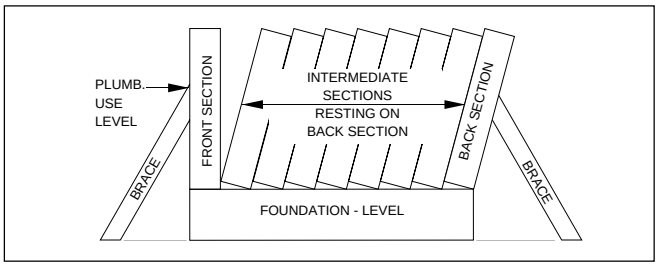


Figure No. 12 - Section Assembly

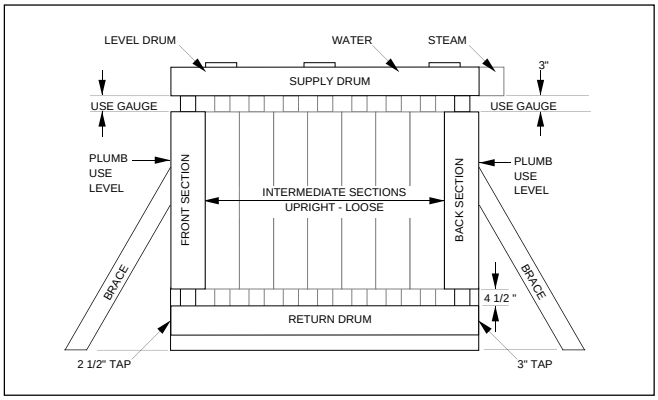


Figure No. 13 - Section Assembly

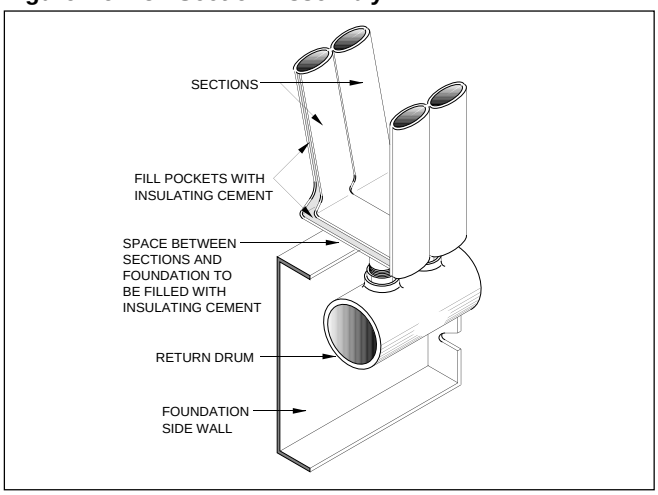
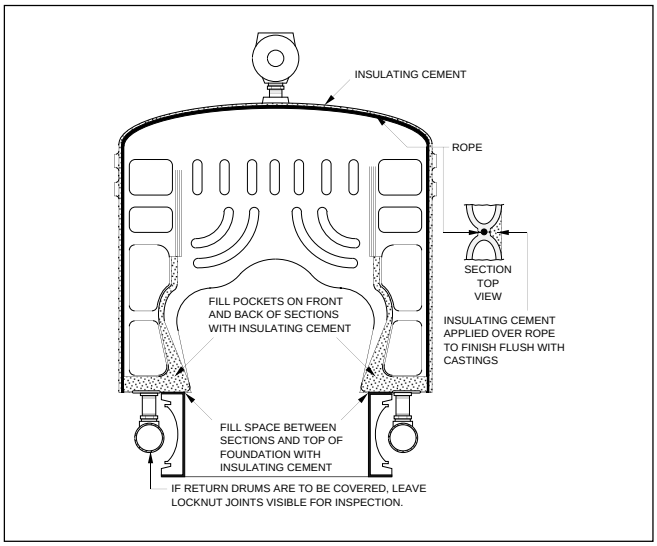


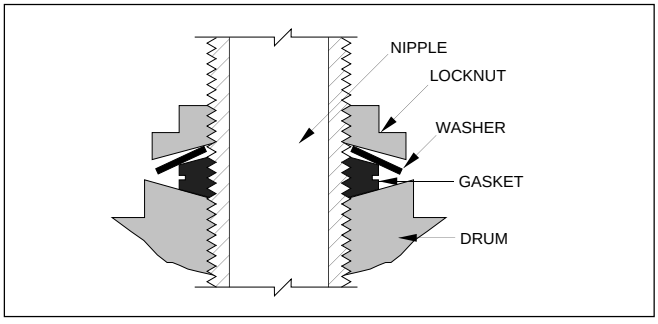
Figure No. 14 - Insulating Cement



10. SEALING GASKETS & TIGHTENING LOCKNUTS

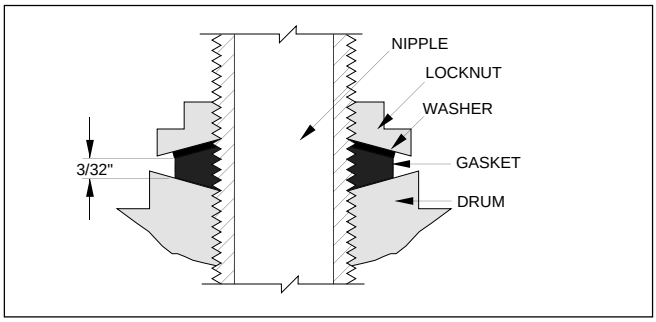
1. When all sections are in place, go over the entire boiler to be sure nipples are tight into the sections.
2. When all nipples have been made up tight into sections, screw each locknut toward nipple boss on drum until it is hand tight and the gasket is tight against the boss, figure no. 15.

Figure No. 15 - Locknut — Untightened



3. Then, using a locknut wrench, tighten each locknut approximately 1-3/4" turns. When distance from the boss to the washer is approximately 3/32" and the outside diameter of the gasket is roughly even with the outside edge of the washer, the seal has been made, figure no. 16.
4. Final inspection - after the boiler has been filled with water and fired, inspect all nipples for leaks, leaks can be stopped at any time by tightening the locknut approx. 1/8 turn until the condition shown in figure no. 16 is obtained.

Figure No. 16 - Locknut — Tightened



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GENERAL

The boiler sections should be completely erected with header nipples made up tight into the sections and with locknuts tightened before beginning the installation of the combustion chamber. Remove erecting bars and work thru the front opening. Study schedules of insulating block and refractory brick carefully. The tile, blocks and bricks must be located properly in order to fit into the boiler. The schedules and diagrams must be used to install the material according to instructions. The front plate is assembled after the combustion chamber has been installed.

350A MILLS-Combustion Chamber Instructions

SCHEDULE OF INSULATION BLOCKS									
DESCRIPTION AND SIZE OF INSULATION BLOCKS	NO. OF BOILER SECTIONS								
	6	7	8	9	10	11	12	13	14
Cross Pieces									
2" x 6" x 30"		1		1				1	
2" x 12" x 30"			1	1	2				1
Lengthwise Pieces									
2" x 6" x 30"						1			
2" x 12" x 30"						2			
2" x 6" x 36"	1	1	1	1	1	1	2	2	2
2" x 12" x 36"	2	2	2	2	2	2	4	4	4
Rear									
2" x 12" x 27-1/2"	2	2	2	2	2	2	2	2	2
Top Rear									
1-1/2" x 4" x 27-1/2"	1	1	1	1	1	1	1	1	1
Rear Lower Corner									
1-1/2" x 2" x 7"	2	2	2	2	2	2	2	2	2
Side									
2" x 6" x 12"		2						2	
2" x 12" x 12"			2		*4				2
2" x 12" x 18"				2					
2" x 12" x 24"					*2				
2" x 12" x 30"						2			
2" x 12" x 36"	2	2	2	2	2	2	4	4	4
Corner									
1-1/2" x 4" x 13-3/4"	2	2	2	2	2	2	2	2	2
For All 350A Boilers B-1625									
2" x 12" x 21"(9" + opng)	2	2	2	2	2	2	2	2	2

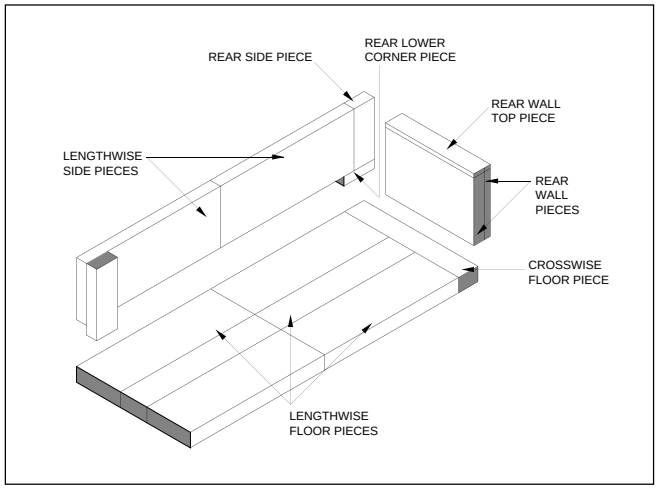
*Optional Size

CATALOG NUMBER AND DESCRIPTION OF BRICK	NO. OF BRICK FURNISHED NO. OF BOILER SECTIONS								
	6	7	8	9	10	11	12	13	14
B-1620 - 12" Hearth	4	2	—	4	2	—	4	2	—
B-1621 - 18" Hearth	—	2	4	2	4	6	4	6	8
B-1618 - L.H. Rear	1	1	1	1	1	1	1	1	1
B-1619 - R.H. Rear	1	1	1	1	1	1	1	1	1
B-1616 - Rear Side	2	2	2	2	2	2	2	2	2
B-1615 - 18" Intermed. Side	—	—	—		2	2	4	4	4
B-1617 - 12" Intermed. Side	—	—	2	2	—	2	—	—	2
B-1613 - 12" Forward Side	2	—	2	—	—	2	2	—	2
B-1614 - 18" Forward Side	—	2	—	2	3	—	—	2	—
For All 350A Boilers with Gun Type Oil or Gas Burners and 3500A with C2-O, C2-G or C2-GO Burners									
B-1609 - L.H. Front	1	1	1	1	1	1			
B-1610 - R.H. Front (9" ϕ Hole)	1	1	1	1	1	1			
For 3500A Boilers with C3-O, C3-G or C3-GO									
B-1611 - L.H. Front							1	1	1
B-1612 - R.H. Front (10-1/2" ϕ Hole)							1	1	1

11. BLOCK INSULATION AND REFRACTORY

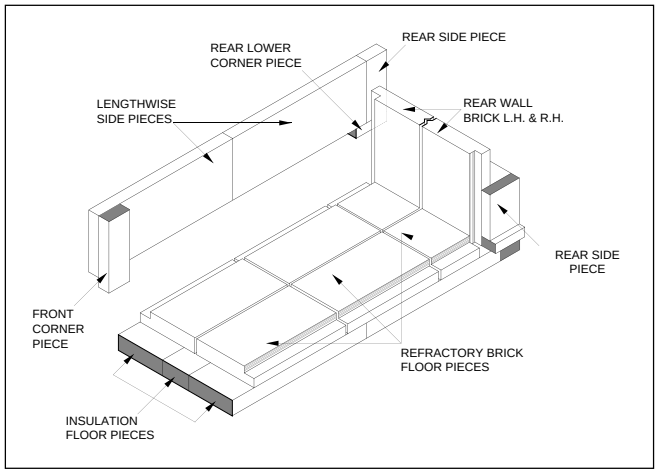
1. Refer to the schedule for the insulating blocks and select the crosswise floor pieces. Place them on the floor at the rear of the boiler against the back plate and center them between the side walls. Install rear wall pieces on the floor pieces against the back plate and center between foundation side walls. Install the rear wall top piece, figure no. 17.
2. Select the 1-1/2" x 2" x 7" rear lower corner pieces and install them in the rear corners of the foundation.
3. Install the remaining crosswise and lengthwise floor pieces. Make joints as snug as possible.

Figure No. 17 - Insulation Block Location



4. Before installing more insulating blocks, install rear wall R.H. and L.H. brick and center them between foundation side walls and against rear wall insulation, figure no. 18. Center the refractory floor between the foundation side walls with care and set tight against the rear wall insulation, see the refractory brick schedule for identification.

Figure No. 18 - Floor and Rear Brick



SERIES 350A MILLS BOILER
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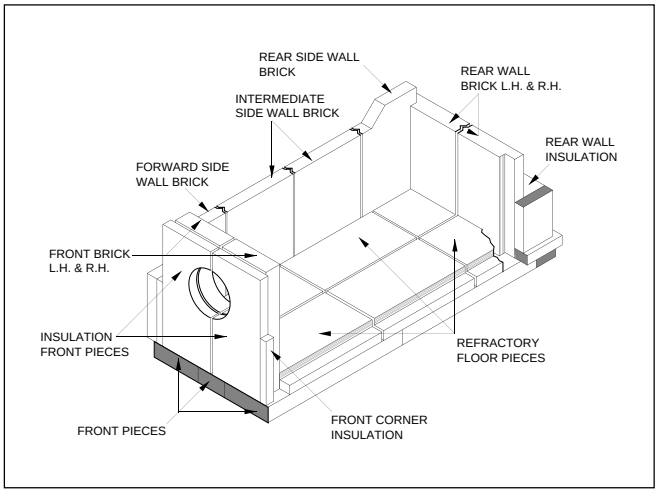
5. Select the appropriate insulating block rear side pieces and lengthwise side pieces and install against the foundation side walls fitting each block under the cast iron boiler sections and fitting tight to the back plate. If the flange of the back plate interferes with the fit, cut out the top edge about three inches from the end to clear the flange.
6. Install rear side wall brick fitting the bottom edge and the rear edge into the appropriate recesses, figure no. 19. Install intermediate side wall brick according to schedule. Fit the grooved joints for the minimum opening without strain.

Figure No. 19 - Front, Side and Rear Walls



7. When both forward side wall bricks have been installed, proceed with the front wall. Construct the front wall as follows:

A. Take up R.H. and L.H. front brick and install 3/8" x 4-1/2" bolts with washers in the upper recessed holes in the brick. Extend the threaded ends outward to match the holes in the front plate. Fill the holes over the bolt heads with insulating cement that's furnished.
B. Set the front brick in position on the floor insulation. Fit the front brick against the floor brick and engage the leading edge of the front side walls into the recess of the front brick.
C. Insert the insulating block front corner pieces in the spaces at the ends of the front bricks.
D. Place the insulating block front pieces over the fastening bolts and push against front bricks.
E. Install foundation front plate.
F. Install burner.
G. Install firedoor frame.
H. Place 23" x 2" x 1/4" steel plate (furnished) on top of front brick.

12. FRONT PLATE

After the combustion chamber installation has been completed, take the can of adhesive cement and apply the cement generously inside the groove of the double bead on the face of the front section where the front plate and fire door frame fit against the boiler. Fit the 3/8 inch diameter braided rope into the groove taking care to avoid kinks or knots in the rope.

Trowel a thin, smooth layer of black furnace cement on the front ends of the foundation sidewalls.

Take the steel front plate with the burner opening cut in and bolt it to the foundation sidewalls using the bolts from the erecting bars. Take care not to disturb the rope seal.

Draw the front plate tight to the foundation sidewalls. Make sure the two top bolt holes line up with the screw seats in the front section.

13. FIRE DOOR AND FRAME

The fire door (3006) and frame (3058) are shipped assembled. Place the frame in position against the front section and install the three 7/16" x 1" hex head machine screws in the top screw seats and two 7/16" x 1-1/4" hex head machine bolts at the top of the front plate. Take care to avoid disturbing the rope seal.

Seal the joint between the frame and the front plate with black furnace cement. Draw the frame tight to the front section taking up on the bolts evenly.

14. FLUE DOORS.

1. Install three of the 7/16"-14 x 2" flue door bolts, with washers, in the top three flue door mounting holes, figure no. 20. Run pal nuts onto each bolt, figure no. 20. Carefully position the flue door against the front section and thread the bolts in the corresponding holes in the front section. Hand tighten the bolts.
2. Insert a 7/16"-14 x 2" bolt, with a washer, into the remaining flue door mounting holes. Run pal nuts onto each bolt before screwing them in the front section, figure no. 21.
3. With all of the bolts hand tight, gradually tighten the door down by turning each bolt 1/2 half turn at a time.
4. If any of the flue door bolts bottom out before the door is tight, remove bolt and add an additional washer under its head.
5. Repeat this procedure for the other flue door.

CAUTION
Do not apply too much torque to bolts. The door can be broken by over-tightening.

SERIES 350A MILLS BOILER
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Figure No. 20 - Fire Door — Hex Head Bolts

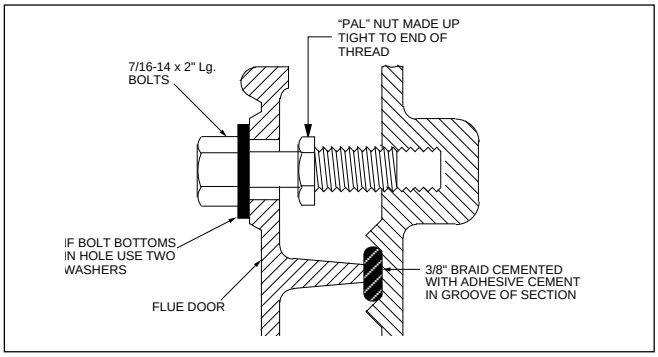


Figure No. 21 - Fire Door — Hex Head Bolts

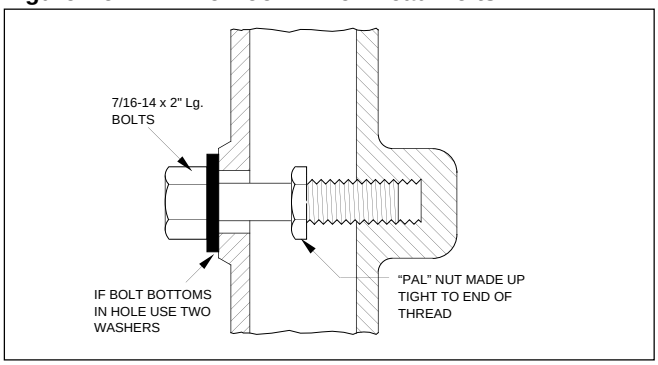


Figure No. 22 - Flue Door

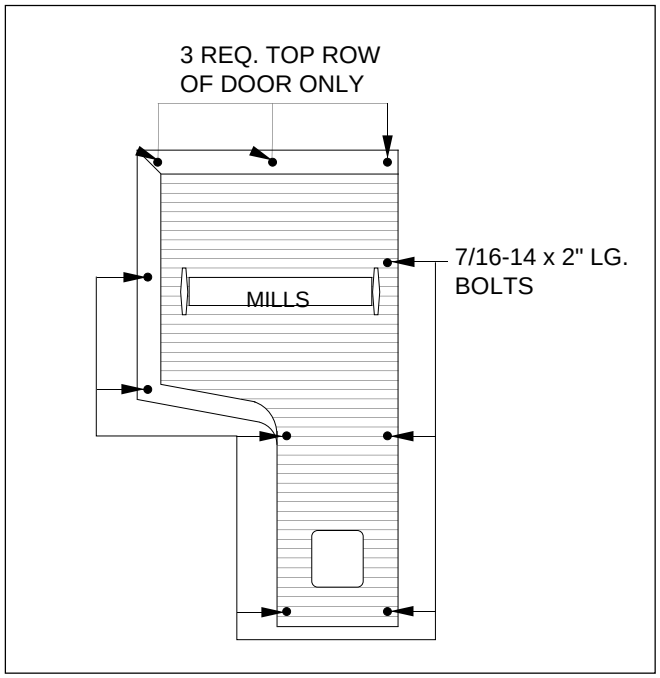


Figure No. 23 - Water Return Yoke Installation

6 TO 11 SECTION

Group "A" and "B" Assembly
– 3" x 6" Locknut Nipple
– 3" Locknut
– 3" Locknut Washer
– 3" Hy-temp Hydronic Seal
– 3" x 3" x 3" Locknut Tee
– 3" Close Nipple
– 3" Cap

Group "C" Assembly
– 3" x 11" Locknut Nipple with 6" Running Thread
– 3" Locknut
– 3" Locknut Washer
– 3" Hy-temp Hydronic Seal

Group "D" Assembly
– 3" x 3" x 4" Locknut Tee
– 3" x 23-1/2" Pipe Nipple

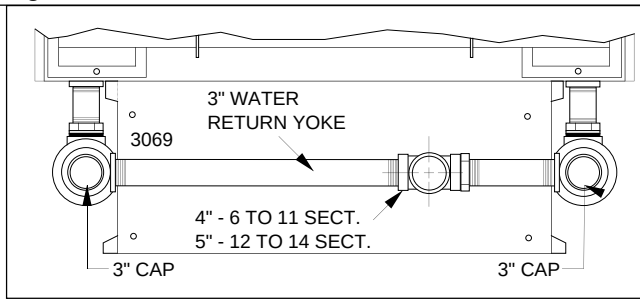
12 TO 14 SECTION

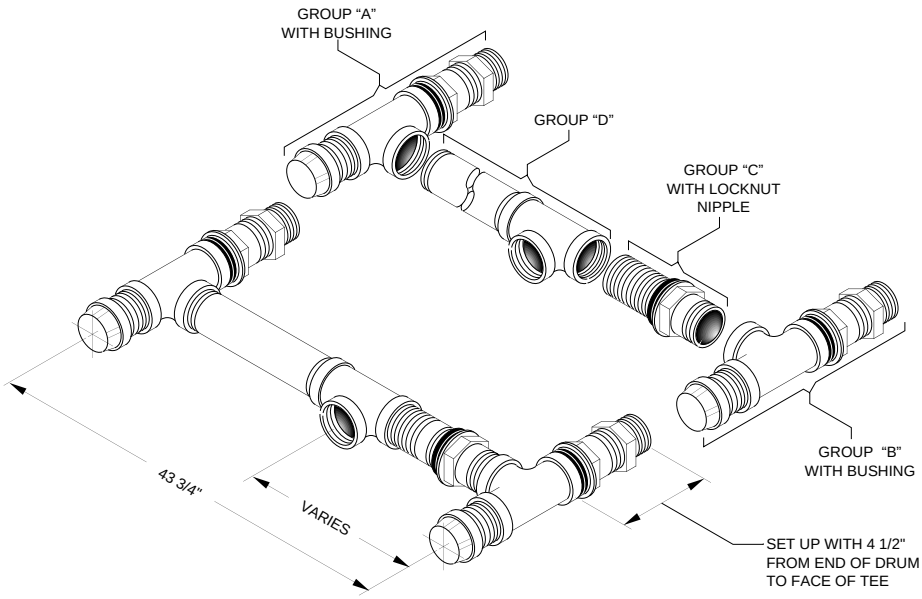
Group "A" and "B" Assembly
– 3" x 6" Locknut Nipple
– 3" Locknut
– 3" Locknut Washer
– 3" Hy-temp Hydronic Seal
– 3" x 3" x 4" Locknut Tee
– 3" Close Nipple
– 3" Cap

Group "C" Assembly
– 4" x 10-1/4" Locknut Nipple with 6" Running Thread
– 4" Locknut
– 4" Locknut Washer
– 4" Hy-temp Hydronic Seal

Group "D" Assembly
– 4" x 4" x 5" Locknut Tee
– 4" x 23" Pipe Nipple

Figure No. 24 - Rear View — Water Yoke





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15. RETURN YOKES

WATER

The field assembled return yoke for water boilers is constructed of 3" or 4" pipe.

The tapered threads should have pipe joint compound applied before being made up. ***Do not*** use compound on straight threads.

See group assemblies figure no. 23 and prepare sub-assemblies as shown, making tapered pipe joints tight. Assemble hydronic seals and locknuts on sub-assemblies.

Thread the 3" x 6" locknut nipples into the special tees until the ends of the nipples extend 4-1/2" out from the face of the tee, groups A and B.

Thread the 3" x 6" locknut nipples into the return drum tappings maintaining the 4-1/2 distance from the face of the tee to the end of the drum.

Thread the 3" x 11" locknut nipple into the special tee until it clears the corner tee, group C.

Line the cross piece assembly up and tighten the thread into the corner tee, group D.

Check the yoke to be sure the pipe is square and level, then make tapered thread joints tight.

Tighten locknuts in the manner described for sealing gaskets and tightening locknuts, page 8, figure no. 15 and 16.

STEAM

The field assembled return yoke for steam boilers is constructed of 2" pipe.

The tapered threads should have pipe joint compound applied before being made up. ***Do not*** use compound on straight threads.

See group assembly figure no. 25 and prepare sub-assemblies as shown making tapered pipe joints tight. Assemble hydronic seals and locknuts on sub-assemblies.

Install 3" x 2" special hex bushings in the rear tappings of the return drums.

Run the straight thread of left hand 2" x 6" locknut nipple into the bushing until the end of nipple extends 4-7/8" out from the face of return drum, group A.

Run the straight thread of the 2" x 56-3/4" locknut nipple into the bottom rear tapping of the supply drum as far as possible, group B.

Tighten tapered thread end of the 2" x 6" locknut nipple into left hand corner tee assembly maintaining a 4-7/8" spacing from the end of drum to face of corner tee. Tighten the nipple into tee of group D.

Install the right hand corner assembly into the hex bushing of the return drum maintaining a 4-7/8" spacing from end of drum to face of tee, group C.

Adjust the 2" x 5-1/4" locknut nipple until the center of the 2" 45° elbow is in the center of the boiler, directly in line with the 2" x 56-3/4" vertical locknut nipple coming from the bottom rear tapping of the supply drum.

Figure No. 25 - Steam Return Yoke Assembly

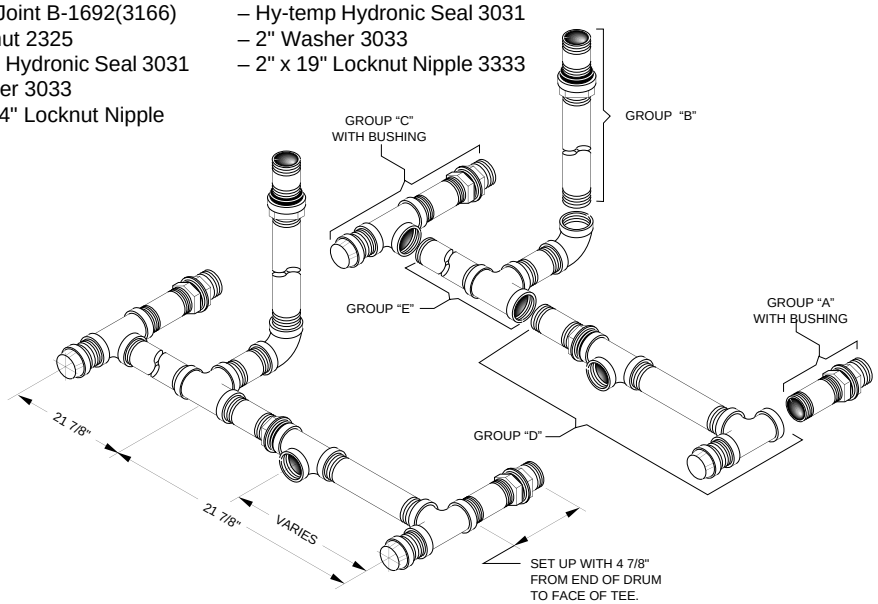
Group "A" Assembly
- Special 3" x 2" Bushing with Inside Straight Thread B-1694(3125)
- Hy-temp Hydronic Seal
- 2" Locknut
- 2" x 6" Locknut Nipple

Group "B" Assembly
- Hy-temp Hydronic Seal
- 2" Locknut
- 2" x 56-3/4" Locknut Nipple with 4-1/2" Running Thread

Group "C" Assembly
- Special 3" x 2" Bushing with Inside Straight Thread B-1694(3125)
- Hy-temp Hydronic Seal
- 2" Locknut B-1690(919)
- 2" x 6" Locknut Nipple B-1408
- 2" x 2" x 2" Tee
- 2" Close Nipple
- 2" Cap

Group "D" Assembly
- 2" x 2" x 2" Tee
- 2" Close Nipple
- 2" Cap
- 2" x 10-1/2" Pipe Nipple
- 2" x 2" x 2" Special Tee for Special Joint B-1692(3166)
- 2" Locknut 2325
- Hy-temp Hydronic Seal 3031
- 2" Washer 3033
- 2" x 5-1/4" Locknut Nipple

Group "E" Assembly
- 2" - 45° Elbow
- 2" x 2-1/2" Pipe Nipple
- 2" x 2" x 2" Special Tee for Special Joint B-1639(3166)
- 2" Locknut 2325
- Hy-temp Hydronic Seal 3031
- 2" Washer 3033
- 2" x 19" Locknut Nipple 3333



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16. SMOKEHOOD FOR NATURAL DRAFT, FIG. NO. 26

Use two 7/16" x 3/4" length machine bolts and washers to assemble each elbow. Place the elbows in position against the back section, one at a time. Install the bolts in the screw seats of the back section. Tighten bolts slightly so the elbows hang loosely in position.

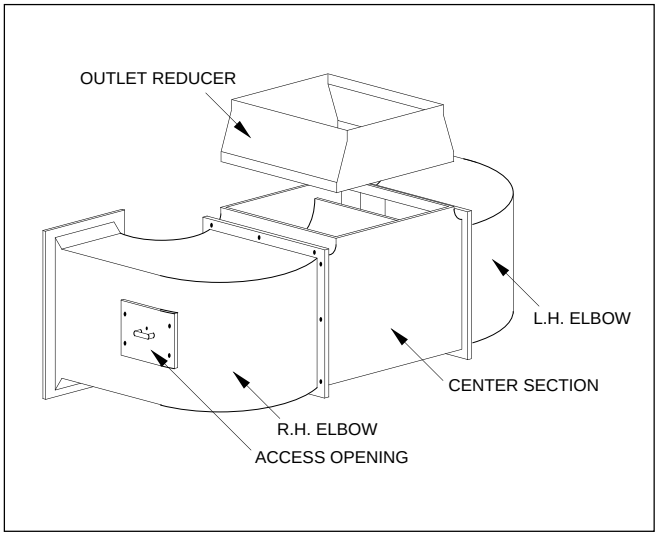
Raise the smokehood center section (3040) into position between the elbows with the outlet facing upwards. Install 1/4" x 3/4" square head machine bolts with square nuts and one washer each to fasten center section to the elbows. Line up the interior openings of the flanges and tighten the nuts to draw the flanges tightly together.

Align the elbow openings with openings in the back section and tighten the bolts to draw the elbows tight to the boiler.

Seal all of the openings between flanges and boiler with black furnace cement.

Where a smokehood outlet reducer is furnished, place the reducer over the smokehood outlet. Drill 9/32" holes in the outlet lip to match the holes in the reducer. Install 1/4" square head bolts and nuts in the holes and tighten. Seal all of the joints with insulating cement.

Figure No. 26 - Smokehood — Natural Draft



17. SMOKEHOOD FOR INDUCED DRAFT (Auburn Axial Fan), FIG. NO. 27

Use two 7/16" x 3/4" machine bolts and washers to assemble each elbow. Place the elbows in position against the back section, one at a time. Install the bolts in the back section screw seats. Tighten bolts slightly so the elbows hang loosely in position.

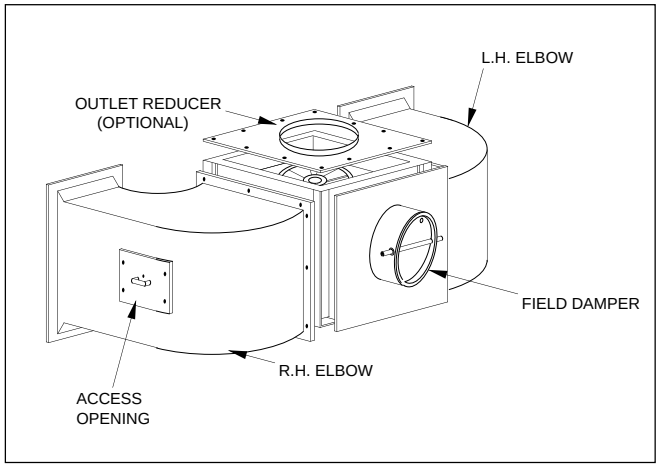
Unpack the induced draft fan and assemble the side panels as required.

Support the induced draft fan between the two elbows. Line up the flanges and install the 1/4" x 3/4" square head machine bolts and square nuts with one washer each. Tighten nuts on fan flanges and seal any openings between flanges with black furnace cement.

When the induced draft fan and elbows are completely assembled and tight, level the assembly and fasten the smokehood elbows to the back section. Seal openings between the back section and elbow flanges with black furnace cement.

The barometric type draft control, when used, is installed on the back side of the induced draft fan assembly using bolts, nuts, washers and adapter, as required.

Figure No. 27 - Smokehood — Induced Draft (Auburn Axial Fan)



18. 350A-3500A MILLS BACK SECTION AUXILIARY GAS VENT

See page 14, fig. no. 28, for details of gas and gas-oil connections of gas vents to round and rectangular breeching.

See fig. no. 29 for connection to back section for gas and gas-oil boilers.

See fig. no. 30 for connection to back section for oil fired only boilers.

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Figure No. 28 - Gas Venting

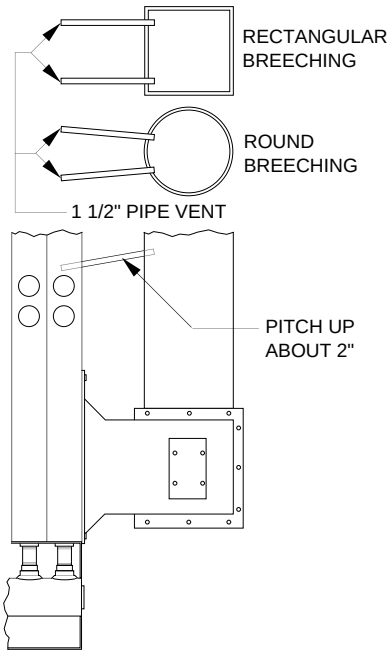


Figure No. 29 - Back Section — Gas

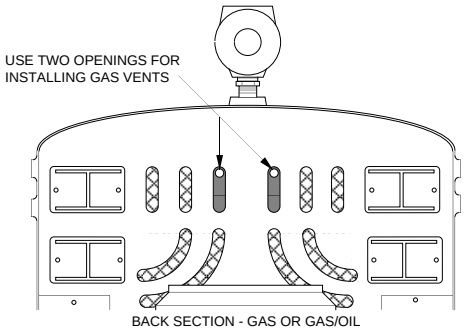
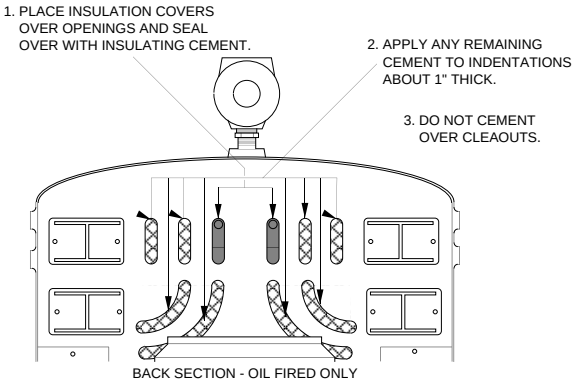


Figure No. 30 - Back Section — Oil



* Place pipes in position temporarily and cement into opening in section. Then remove pipe for jacket assembly. After jacket is assembled, replace the pipes and reseal pipes through knockout openings.

19. AUBURN FAN INSTALLATION

1. Use two 7/16" x 3/4" machine bolts and washers to assemble each elbow. Place elbows in position against the back section, one at a time. Install the bolts in the back section screw seats. Tighten bolts slightly so the elbows hang loosely in position.
2. Raise the smokehood center section (3040) into position between the elbows with the outlet facing upwards. Install 1/4" x 3/4" square head machine bolts with square nuts and one washer each to fasten center section to the elbows. Line up the interior openings of the flanges and tighten all of the nuts to draw the flanges tightly together.
3. Align the elbow openings with openings in the back section and tighten the bolts to draw the elbows tight to the boiler.
4. Seal the openings between flanges and boiler with black furnace cement.
5. Place the smokehood outlet over the smokehood center section, drill holes and assemble using self tapping screws.
6. Support the fan housing and motor unit in position as shown in figure no. 32 with the flexible connector fitting between the smokehood outlet and fan housing using hardware furnished, then tighten hardware.
7. Prepare the 2" pipe stand leg, not furnished, and attach it to the coupling prior to sliding the plate under the motor base supports, figure no. 31. Slide stand leg plate in position and install the bolts and nuts, then tighten. Adjust pipe to support weight of the units.

Figure No. 31 - Pipe Stand

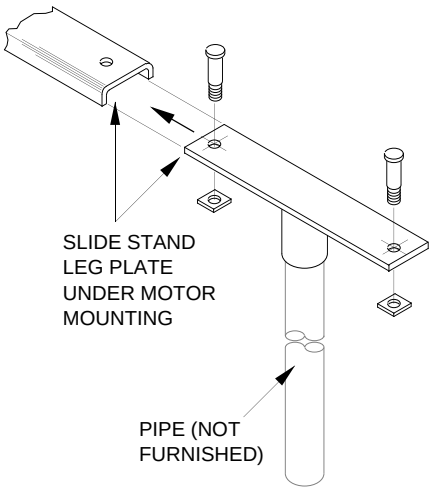


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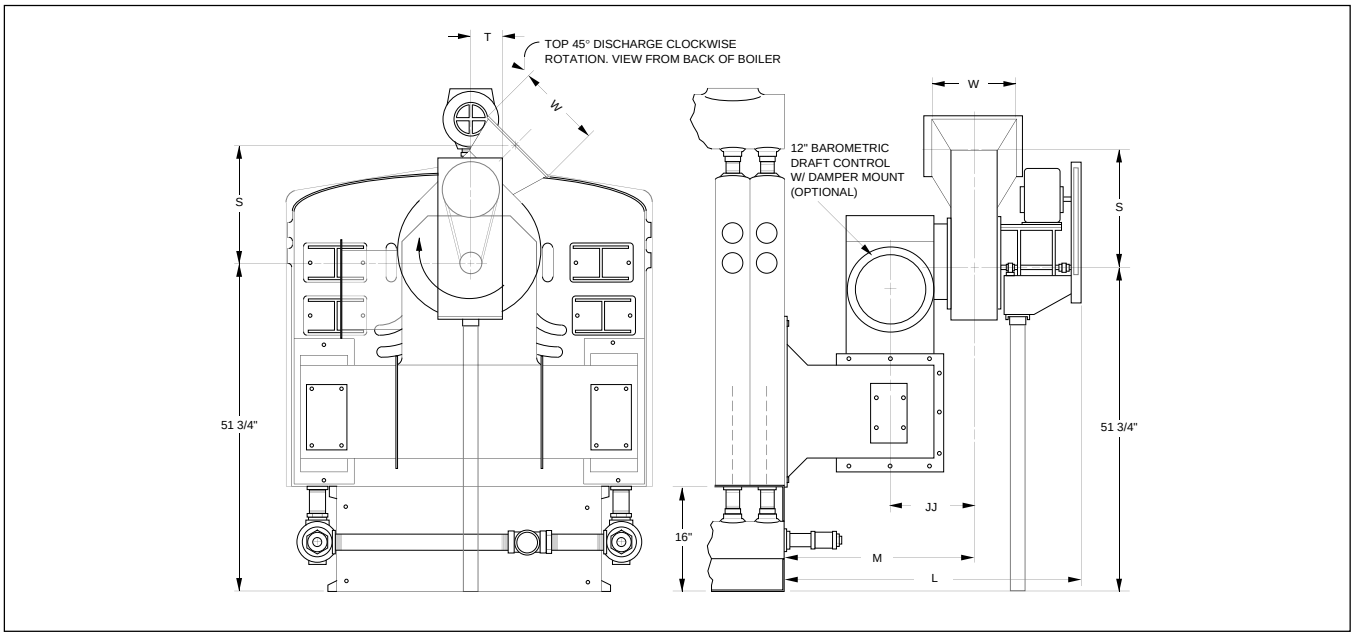
Figure No. 32 - Auburn Induced Draft Fan Installation



AUBURN FAN DIMENSIONS

FAN	J	L	M	S	T	W	EE	JJ
9P	8-1/2	47	30-1/2	17-1/4	5-1/4	12	16	19
10P	9-1/2	50-3/4	31	19	5-3/4	14	17-1/2	19-3/4

350A AUBURN FAN SIZES		
BOILER SIZES	AUBURN FAN NO.	MOTOR H.P.
6-7-8	12A-25	1/4
9-10	12A-33	1/3
11-12	12A-50	1/2
13-14	14A-50	1/2

3500A AUBURN FAN SIZES		
BOILER SIZES	AUBURN FAN NO.	MOTOR H.P.
6-7	12A-25	1/4
8-9	12A-33	1/3
10-11	12A-50	1/2
12	14A-50	1/2
13-14	14A-75	3/4

IMPORTANT
The opening for the barometric dampers must face away from the fan.

Figure No. 33 - Optional Position

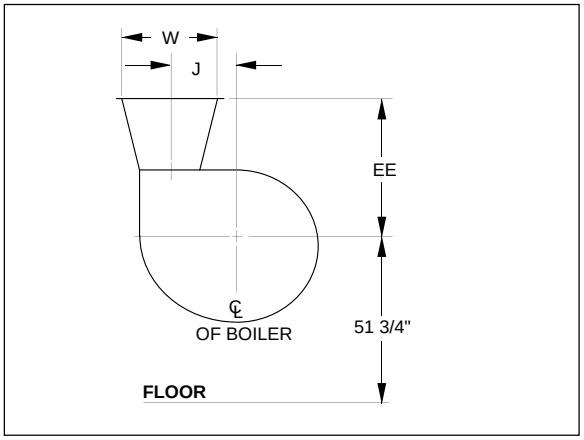
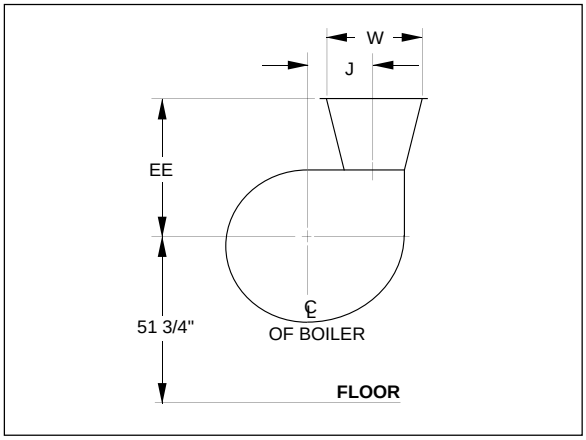


Figure No. 34 - Optional Position



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20. STEAM TRIM

Standard trim for steam boilers consist of: a steam gauge, two or three pressure controls, 1/4" pipe tree for controls and a 15 PSIG A.S.M.E. side outlet safety valve, figure no. 4.

WARNING: The safety valve discharge piping must be directed to a location where hot liquid or vapor will not contact personnel. Failure to comply with this warning may result in severe personal injury!

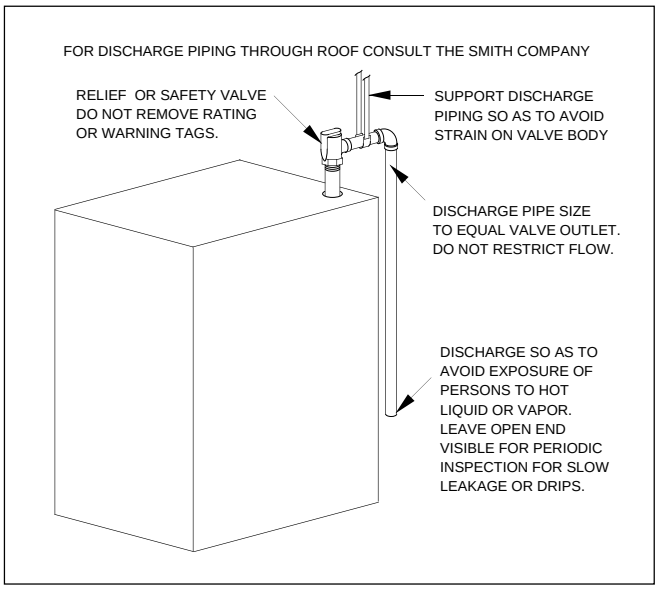
WATER TRIM

Standard trim for water boilers consists of: a pressure-altitude gauge, remote reading dial thermometer, two or three temperature controls, dip tube, air removal fittings, manual vent valve and a 40 PSI A.S.M.E. relief valve.

A low water cutoff is also standard equipment along with pre-cut ferrous piping and special hydronic fittings for ease of assembly and alignment. The correct location of these hydronic crosses also allow complete access to all piping for cleaning purposes. See fig. no. 4 for correct location of trim, page 5.

WARNING: The relief valve discharge piping must be directed to a location where hot liquid or vapor will not contact personnel. Failure to comply with this warning may result in severe personal injury!

Figure No. 35 - Relief/Safety Valve Installation



21. CLEANING BOILER WATERWAYS

A. STEAM BOILERS: Assembly of boiler must be complete before cleaning. The burner must be installed and made operational with operating, limit and safety controls functional. The burner should be adjusted to prevent sooting of boiler flues. Final burner adjustments should be made after cleaning.

CAUTION
System piping should not be connected prior to cleaning and all unused boiler tappings must be plugged.

Boilout solution should be mixed as follows:

(1) Lb. caustic soda
(1) Lb. trisodium phosphate] 50 gallons water

Fill the boiler to it's normal water line level. See table no. 1 for the boiler water content.

Remove the relief valve and add the boilout solution to the boiler.

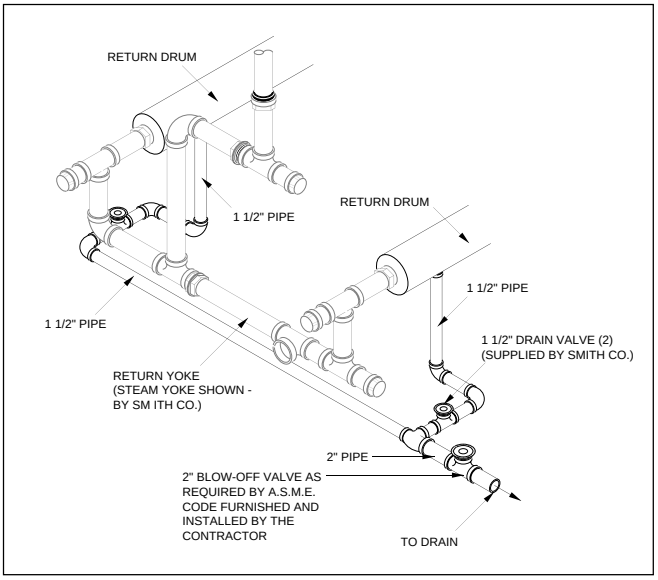
Install a discharge pipe from the relief valve tapping in the supply drum to a suitable drain. Size the pipe the same as the tapping. A full size ball valve should be installed to control the process.

Fire the boiler until steam pressure is detected. Open the valve in the discharge line. Slowly raise the water line while maintaining the boil to purge the boiler of contaminants. Once the discharge water runs clear, shut the boiler down, remove the discharge piping and replace the safety valve and it's discharge piping, fig. no. 35.

WARNING: Avoid all direct skin contact with the boilout chemicals. If eye contact occurs flush with clear water and consult a physician. Failure to comply with this warning may result in severe personal injury!

Replace the safety valve and fire boiler intermittently for at least (5) hours. Maintain (0-2) PSIG steam pressure during boilout. Blow down boiler intermittently through lower drain valves to remove any sediment, fig. no. 36. Maintain water level at normal water line, 69-1/2" from floor, fig. no. 4.

Figure No. 36



CAUTION
Monitor boiler pressure constantly during boilout. Do not allow pressure to exceed (15) PSIG. Failure to comply with this caution may result in damage to the boiler!

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Stop firing burner and allow boiler to cool below 120° F and drain. Flush the boiler interior with clean water introduced by a hose into the top header. When the flushing is complete, close drain valves and fill boiler with clean water.

If boiler is not clean, repeat cleaning procedure or clean boiler using a skimmer tapping as follows:

Connect temporary piping to the 2" rear tapping on the left hand side supply drum.

WARNING: This discharge piping must be directed to a location where hot liquid or vapor will not contact personnel. Failure to comply with this warning may result in severe personal injury!

Fill the boiler until water reaches the top of the gauge glass. Add the same chemical solution as previously described.

Start the burner and operate sufficiently to boil water without producing steam pressure for about (5) hours. Add water to boiler at a rate which allows a steady trickle of water to flow from the skimmer piping. Continue this slow boiling and trickle of overflow for several hours or until discharge water is clear.

Stop firing the burner and allow the boiler to cool to 120° then drain the boiler. Wash the water side of boiler thoroughly using a high-pressure water stream.

Remove temporary piping and fill boiler with clean water to normal water level. Replace safety valve and connect permanent piping, fig no. 35.

Table No. 1

BOILER WATER CONTENT		
NUMBER SECTIONS	STEAM (GALS.)	WATER (GALS.)
6	72	110
7	84	128
8	95	146
9	107	163
10	118	179
11	129	197
12	141	215
13	152	232
14	164	249

B. WATER BOILERS: Normally, cleaning of water boilers is unnecessary unless boiler or system contamination is known to be unusually heavy.

If cleaning is necessary it should be performed as outlined under “Steam Boilers” with the following changes:
1. Include system water when determining amount of boilout solution.
2. Operate circulator during boilout.
3. Maintain system temperature between 160° and 200° F.
4. If portions of heating system are non-drainable, refill system with water and operate circulator to flush those sections. Drain and refill system with clean water.

CAUTION
Monitor the boiler pressure constantly during the boilout. Do not allow the pressure in the boiler to exceed 40 psi. Failure to comply with this caution may result in damage to the boiler!

22. JACKET ASSEMBLY INSTRUCTIONS

1. GENERAL
These instructions are written to insure a quick, easy and perfectly fitted jacket assembly. The procedures have been tested and have proven to be most effective in obtaining the desired results.

The jacket components are designed to permit installation on a fully erected boiler with complete piping connection and accessories in place except manifolds. Controls should be mounted with separable wells to permit the jacket to be installed without draining the boiler. Heater manifolds should not be installed until jacket side panels are in place.

This feature allows hydrostatic testing, operation for cleaning the piping system or for temporary heat without using the jacket. When the work of other trades in the boiler room has been completed, the jacket can be installed without exposure to dirt and damage.

Before assembling the jacket, all hy-temp hydronic seals should be checked and made tight. The sealing of exterior joints between sections and at the top of the foundation should be checked and pointed up.

SERIES 350A MILLS BOILER
INSTALLATION INSTRUCTIONS

2. JACKET PACKAGING
Jacket components are shipped in marked packages as follows:

Package no. 350J-1- -- Tag
(The blank space will contain the appropriate number of boiler sections.)

NOTE: This package can be used only with the boiler having the proper number of section.

2 - Support Angles	A
3 or 4 - Top Straps	B
2 - Top Corners	C
2 - Tie Bars	D
6 or 8 - Nipple Clamps	F
Bag of nuts, bolts and screws	
Assembly instructions	

Package no. 350J-2 Tag
(Typical for all boiler sizes)

2 - Top Front Panels	J
1 - R.H. Front Corner Panel	K_R
1 - L.H. Front Corner Panel	K_L
1 - Front Panel	L
1 - Back Tie Angle	N
1 - Back Panel	O
1 - Back Panel Leg R.H.	P
1 - Back Panel Leg L.H.	P
1 - Back Lower Panel	Q
2 - Cleanout Covers	R
1 - Front Door Strip	G

Packages no. 350J-3, 350J-4 and 350J-5 (3 and 4 sections)
(Supplied in various combinations to suit the boiler length.)

1 - Set 2 Side and 2 Top Panels (18")	S
1 - Set 2 Side and 2 Top Panels (24")	T
1 - Set 2 Side and 2 Top Panels (12")	U

3. ASSEMBLY OF TOP FRAME (see fig. No. 37)
(Open package no. 350J-1- -- and remove the contents)

Place tie bars (D) on top of the boiler on both sides of the supply drum. The flange face must be up and against the nipples. Insert the top straps (B) under the tie bars so that the holes in both pieces match. Fasten pieces together using sheet metal screws.

Position top corners (C) over the outboard ends of the top straps and fasten pieces together with sheet metal screws.

This assembly constitutes the top frame and should be adjusted to rest firmly on the boiler with all supporting legs bearing on the cast iron sections.

4. ASSEMBLY OF BOTTOM FRAMES (see fig. No. 38 & 39)
Install nipple clamps (F) on the front and back bottom drum nipples and clamp them tight against the boss of the section with the clamp leg engaged in the nipple thread.

Place supports angles (A) on the clamps and thread the bolts into weld nuts on nipple clamps.

Install additional nipple clamps on bottom drum nipples corresponding to the bolt holes in the support angles. Thread the bolts through support angles into the weld nuts on the nipple clamps.

Install back tie angle (N) to join the support angles. Place the tie angle under the support angles and thread the bolts into weld nuts.

5. BOILER FRONT (see fig. no. 38)
(Open package no. 350J-2 and remove the contents.)
Take the front panel (L) and place it in position with the flange under the tie bars and over the flange of the top corners. Align the holes and fasten it with sheet metal screws. The bottom edge of the front panel should be behind the flue doors with notches positioned over flue door studs.

Remove one flue door and install front door strip (G) behind the other flue door with the bottom flange resting on the fire door frame and the top edge outside of the front panel. Replace the flue door.

Install R.H. and L.H. front corner panels (K_R and K_L) with the top ends fitted into the grooves of the respective top corners and the bottom edges into the support angles. If water column or low water cutoff piping is required, remove knockouts and slit insulation to fit around pipe. The open end of notches should face both ways. Slide panels tight to front panel.

6. BOILER BACK END (see fig. no. 39)
Place lower back panel (O) in position resting on back tie angle. Place backlegs R.H. and L.H. (P) in position. Assemble the three parts with sheet metal screws. The upper back panels, R.H. and L.H. (O) can be pre-assembled before placing in position or the L.H. panel placed in position first. Remove knock-out opening if required for draft sample tube assembly. Align the holes in the flange with the holes in the top frame and fasten with sheet metal screws.

Take up the R.H. and L.H. back panel legs (P_R and P_L), insert the top ends under the back panel, slide up until the bottom edges clear the top of the back tie angle, then drop the pieces to rest on the angle. Align holes and fasten to the back panel and to the back lower panel with sheet metal screws.

Install side panels (S and T) by sliding the top edges up into the grooves of the top corners until the bottom edge clears the support angles. Then slide each panel down to rest on the support angle. Slide panels forward and backward to obtain a snug fit. For uniform appearance it is suggested that 3 section and 4 section side panels be installed to match the corresponding top panels.

7. TOP AND SIDE PANELS
(Open package no. 350J-3 and 350J-4 and remove the contents.)
Install top panels (S and T) by sliding the notched ends around the top drum nipples, then drop the other ends on to the flanges of the top corners and slide the panels away from the supply drum until they rest firmly in the grooves of the top corners. Slide panels forward or backward to obtain a snug fit.

SERIES 350A MILLS BOILER
INSTALLATION INSTRUCTIONS

Figure No. 37

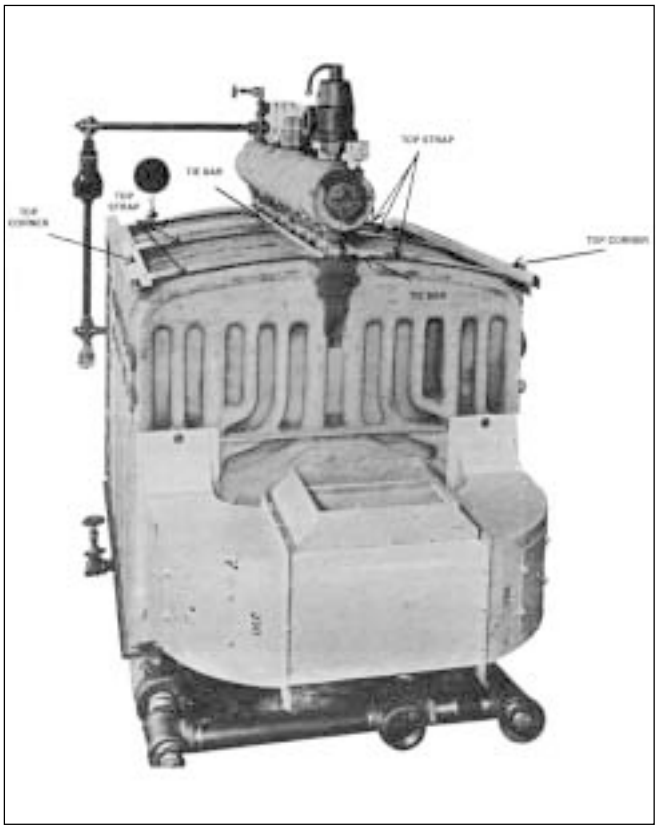


Figure No. 38

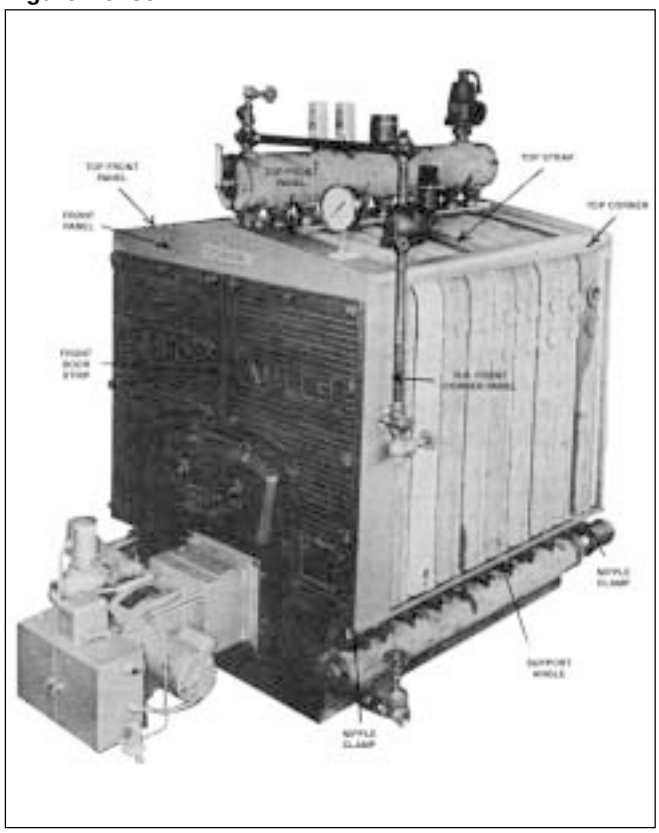
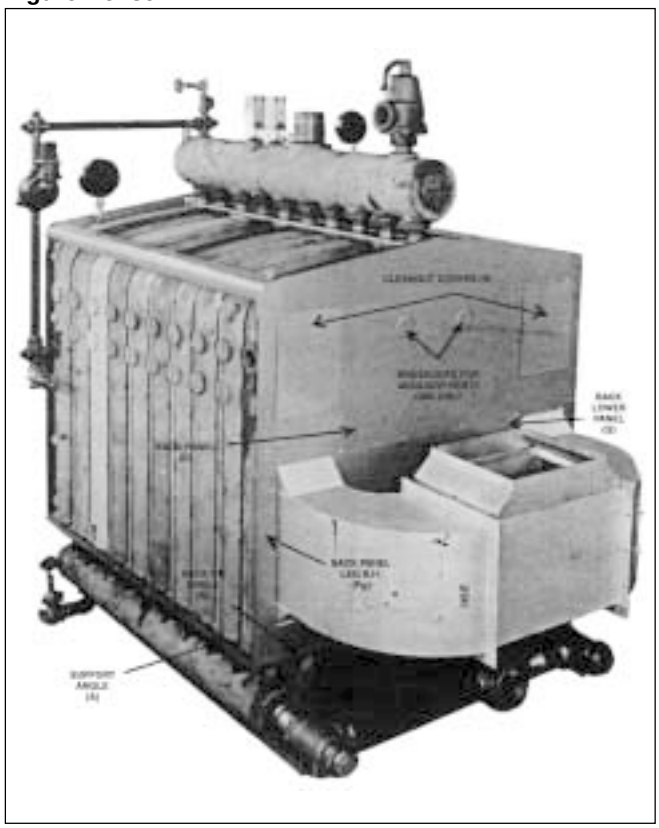


Figure No. 39



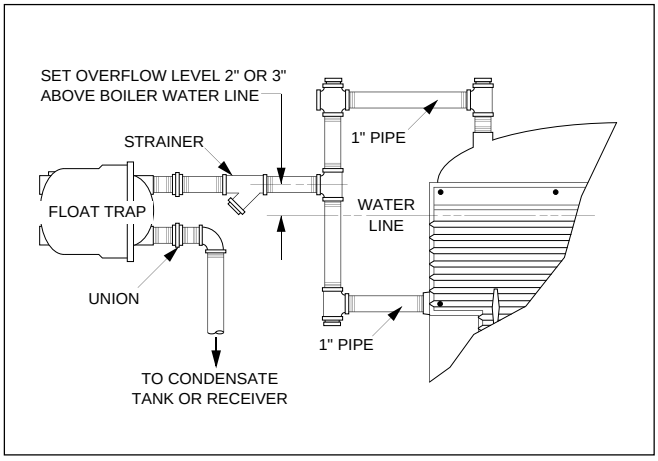
SERIES 350A MILLS BOILER
INSTALLATION INSTRUCTIONS

23. PUTTING COLD BOILER INTO SERVICE OR CHANGING WATER LEVEL UNDER STEAM PRESSURE

The following procedure will prevent "Steam Hammer" caused by the introduction of system steam into the piping and steam space of a cold boiler:

1. Close valves on supply, return and equalizing piping so as to isolate the cold boiler from the system.
2. If water level adjustment is necessary, add or draw off water to desired level.
3. Start the burner and allow steam pressure to build up to equal system pressure.
4. Open return valve to allow feed water to enter the boiler. Then open the supply valve slowly until boiler pressure and system pressure are equal and the valve fully open. Then open equalizing valve, if one has been supplied.
5. The boiler is now "On Line" and should be allowed to operate on automatic control.

Figure No. 40



SUGGESTED PIPING FOR OVERFLOW TRAP TO PREVENT FLOODING OF IDLE BOILERS IN MULTIPLE BOILER INSTALLATIONS WITH INDIVIDUAL WATER LEVEL CONTROL AND NO EQUALIZING CONNECTIONS.

24. MAINTENANCE SCHEDULE

The following instructions are offered for best performance of the boiler and burner:

A. Keep boiler fireside surfaces clean. Cleaning should be done at least once annually. Flue temperatures above 600° F indicate cleaning may be necessary.
B. An unstable waterline or system steam hammer indicates contaminated boiler water. Blow down boiler to remove contamination. Excessive blow down should be avoided since this can reintroduce contamination to the boiler. Contaminated boiler water eventually leads to scaling, pluggage and possible section damage.
C. Refer to TABLE 2 for recommended check list.

25. SAFETY

Steam Boilers

CAUTION
Do not place a cold boiler in service by opening any live steam lines connected to it. Keep the cold boiler valved off line. Fire the boiler to bring it up to operating temperature. For boilers not valved off, the system should have an overflow installed to prevent the boiler from flooding. If this is not done, the water in the cold boiler must be heated to near steaming condition and the water level lowered to the normal level. Failure to comply with this caution may result in damage to the boiler!

Water Boilers

CAUTION
To avoid thermal shock to the boiler, circulate water through the boiler before firing the burner. Where hot standby is required, your Smith representative should be consulted for the necessary special piping and operation procedures. Failure to comply with this caution may result in damage to the boiler!

SERIES 350A MILLS BOILER
INSTALLATION INSTRUCTIONS

PERIODIC TESTING
RECOMMENDED CHECK LIST
(See Manufacturer's Instruction)

Table No. 2

Item	Frequency	Accomplished By	Remarks
Gauges, Monitors, & Indicators	Daily	Operator	Make visual inspection and record readings in log
Instruments & Equipment Settings	Daily	Operator	Make visual check against factory recommended specifications
Firing Rate Control	Weekly Semi-annual	Operator Service Technician	Visual inspection Verify factory settings — check with combustion test instruments
Igniter Fuel Valves			
1. Pilot Valves	Weekly	Operator	Make visual inspection, check flame signal strength if meter fitted (see Comb. saf. Con.)
2. Main Gas Valves	Monthly	Operator	Open limit switch — make audible and visual check — check valve position indicators — check fuel meters
3. Main Oil Valves	Annual	Service Technician	Perform leakage tests — refer to manufacturer's instructions
Combustion Safety Controls			
1. Flame Failure	Weekly	Operator	Close manual fuel supply for (1) pilot (2) main fuel cock and /or valve(s) — check safety shutdown timing — log
2. Flame Signal Strength	Weekly	Operator	If flame signal meter installed read and log —for both pilot and main flames, notify service organization if readings are very high, very low or fluctuating — Refer to manufacturer's instructions
3. Pilot Turn Down Tests	As required/Annual	Service Technician	Required after any adjustments to flame scanner mount or piot burner — verify annually
4. Refactory Hold in	As required/Annual	Service Technician	See Pilot Turn Down Test
LowWater Fuel Cutoff and Alarm	Daily/Weekly	Operator	Refer to manufacturer's instruction
High Limit Safety Control	Annual	Service Technician	Refer to manufacturer's instruction
Operating Control	Annual	Service Technician	Refer to manufacturer's instruction
Low Draft, Fan & Air Perssure interlocks	Monthly	Operator	Refer to manufacturer's instruction
Atomizing Air/Steam interlock	Annual	Service Technician	Refer to manufacturer's instruction
High & Low Gas Pressure interlocks	Monthly	Operator	Refer to manufacturer's instruction
High & Low Oil Pressure interlocks	Monthly	Operator	Refer to manufacturer's instruction
High & Low Oil Temperature interlocks	Monthly	Operator	Refer to manufacturer's instruction
Fuel Valve interlock Switch	Annual	Service Technician	Refer to manufacturer's instruction
Purge Switch	Annual	Service Technician	Refer to manufacturer's instruction
Burner Position interlock	Annual	Service Technician	Refer to manufacturer's instruction
Low Fire Start interlock	Annual	Service Technician	Refer to manufacturer's instruction
Automatic Charge Over Control (Dual Fuel)	At lest Annual	Service Technician	Refer to manufacturer's instruction
Safety Valves	As required	Operator	In accordance with procedure in Section VI A.S.M.E. Boiler Code Recommended Rules for Care and Operation of Heating Boilers
Inspect Burner Components	Semi-annual	Service Technician	Refer to manufacturer's instruction

BOILER SERVICE LOG

DATE	SERVICE PERFORMED

WARNING

Any appliance that burns natural gas, propane gas, fuel oil, wood or coal is capable of producing carbon monoxide (CO).

Carbon Monoxide (CO) is a gas which is odorless, colorless and tasteless but is very toxic.

If your Smith boiler is not working properly, or is not vented properly, dangerous levels of CO may accumulate. CO is lighter than air and thus may travel throughout the building. **BRIEF EXPOSURE TO HIGH CONCENTRATIONS OF CO, OR PROLONGED EXPOSURE TO LESSER AMOUNTS OF CO MAY RESULT IN CARBON MONOXIDE POISONING.**

EXPOSURE CAN BE FATAL AND EXPOSURE TO HIGH CONCENTRATIONS MAY RESULT IN THE SUDDEN ONSET OF SYMPTOMS INCLUDING UNCONSCIOUSNESS.

Symptoms of CO poisoning include the following:

dizziness	vision problems	shortness of breath
headaches	loss of muscle control	unclear thinking
nausea	weakness	unconsciousness

The symptoms of CO poisoning are often confused with those of influenza, and the highest incidence of poisoning occurs at the onset of cold weather or during flu season. A victim may not experience any symptoms, only one symptom, or a few symptoms. Suspect the presence of carbon monoxide if symptoms tend to disappear when you leave your home.

The following signs may indicate the presence of carbon monoxide:

- Hot gases from appliance, venting system, pipes or chimney, escaping into the living space.
- Flames coming out around the appliance.
- Yellow colored flames in the appliance.
- Stale or smelly air.
- The presence of soot or carbon in or around the appliance.
- Very high unexplained humidity inside the building.

If any of the symptoms of CO poisoning occur, or if any of the signs of carbon monoxide are present, **VACATE THE PREMISES IMMEDIATELY AND CONTACT A QUALIFIED HEATING SERVICE COMPANY OR THE GAS COMPANY OR THE FIRE DEPARTMENT.**

To reduce the risk of CO poisoning, have your heating system “tuned up” by a licensed heating contractor or the gas company -- preferably before each heating season. Also have the service company check your chimney or vent pipes for blockage.

Your home should also be adequately ventilated, particularly if you have insulated your home.

ONLY QUALIFIED, LICENSED SERVICE CONTRACTORS SHOULD PERFORM WORK ON YOUR SMITH BOILER.

WARNING

Install, operate and maintain unit in accordance with manufacturer's instructions to avoid exposure to fuel substances or substances from incomplete combustion which can cause death or serious illness. The State of California has determined that these substances may cause cancer, birth defects, or other reproductive harm. Also, install and service this product to avoid exposure to airborne particles of glasswool fibers and/or ceramic fibers known to the State of California to cause cancer through inhalation.

Smith
CAST IRON BOILERS

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