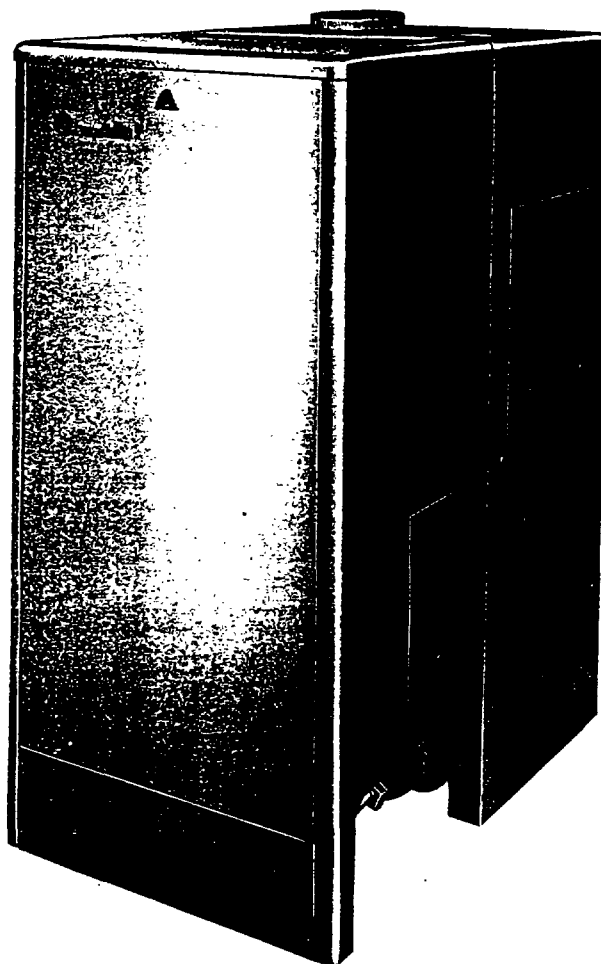


AMERICAN-Standard

A-3

oil-fired boilers

hot water or steam

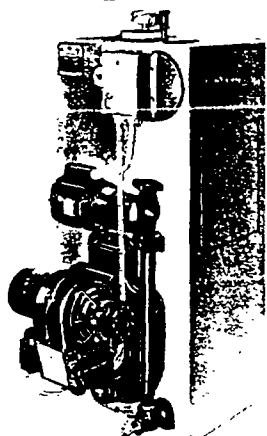


February, 1964

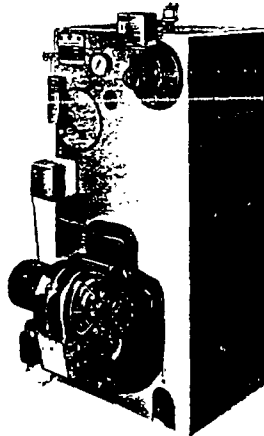
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PLAINTIFF'S EXHIBIT

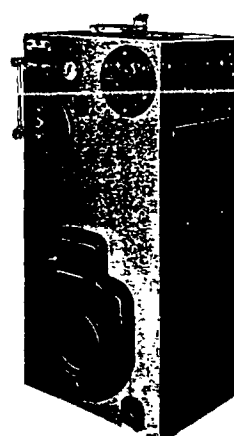
ASI-1131



packaged for forced hot water



all-purpose boiler-burner unit

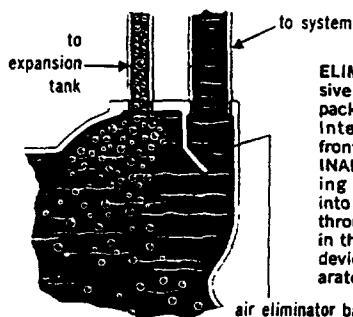


all-purpose boiler

The oil-fired A-3—a versatile new boiler that answers many needs

The oil-fired A-3 is a new boiler developed to meet requirements for forced water, gravity and steam systems—with provision for domestic hot water on forced water and steam boilers. The packaged A-3—available in 3 sizes for forced water only—is ideal for fast, low-cost installation, especially in new homes. All controls are pre-mounted, pre-wired. The all-purpose A-3—available as a boiler-burner unit or boiler only in 5 sizes—

is ideal for forced water, gravity and steam application in new construction, replacement or modernization. Whether packaged or all-purpose, all A-3 boilers bear these big convenience features: factory-assembled cast iron sections, factory-installed combustion chamber, I=B=R approved ratings, wet-base design and front location of all controls and accessories. The A-3 can't be matched for efficiency and versatility!

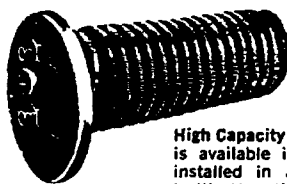


air eliminator baffle

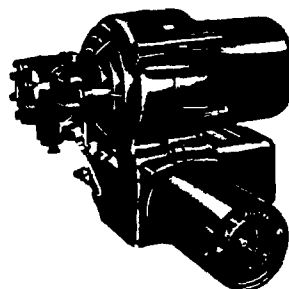
ELIMINAIRE is an exclusive cost-saving feature on packaged A-3 units only. Integrally cast into the front section, the **ELIMINAIRE** baffle deflects rising air bubbles directly into the expansion tank through a special tapping in the section. No external device is needed to separate air and water.



Cast Iron Section features vertical flue design with finned surface area to extract maximum heat from combustion gases. Wet base construction eliminates need for special base. Two 5" nipple ports on all-purpose A-3 boiler allow flexibility in location of tankless water heater.



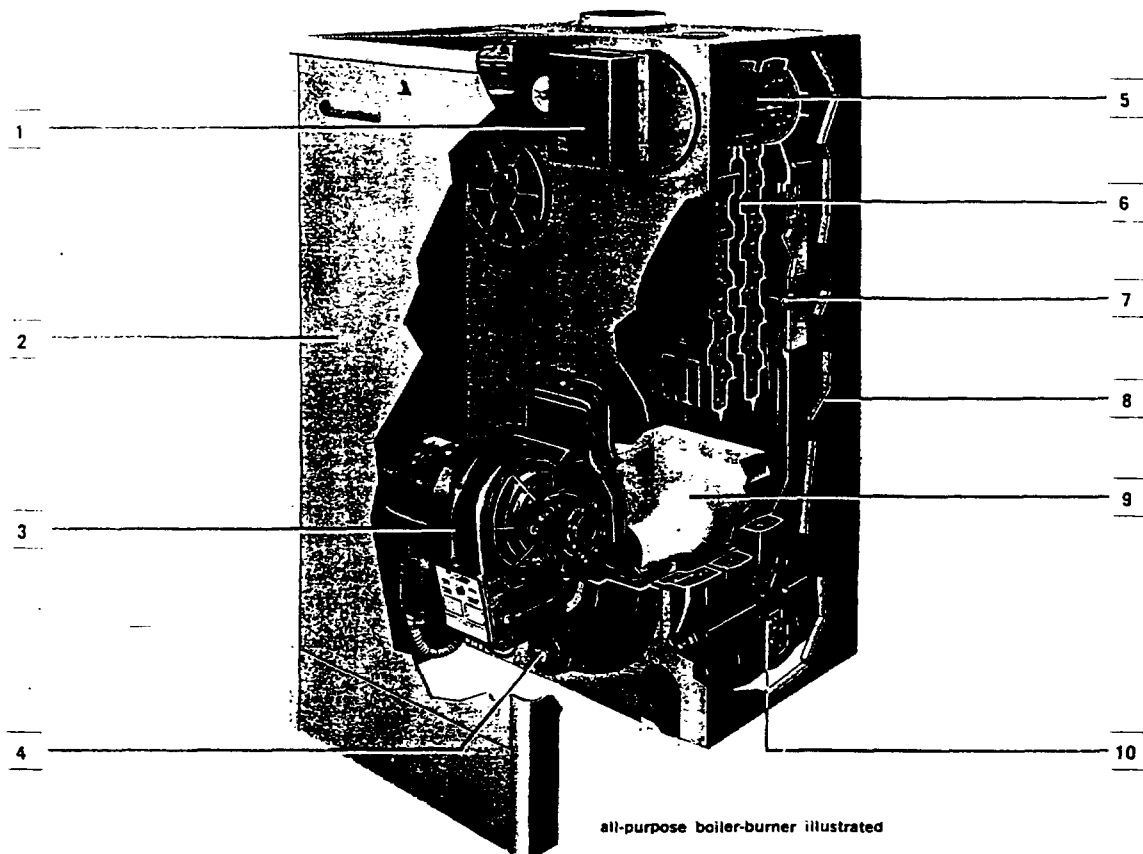
High Capacity Tankless Water Heater is available in four sizes, factory-installed in all A-3 boilers. High I=B=R ratings are obtained by actual test of the heater in the boiler. The tankless heater coil is inserted into upper nipple port on hot water installations, lower nipple port on steam installations.



Model DH-5 Arcoflame Oil Burner provides efficient firing with an exceptionally clean flame. It's easy to adjust the new **EXACT-AIRE** slide damper for perfect air-oil mixture—the only adjustment needed! Lightweight, rugged die-cast aluminum housing insures lasting alignment of fan, motor, fuel unit.

A-3

oil-fired boilers



all-purpose boiler-burner illustrated

1—**controls**—all controls (including primary control) are mounted on front for easy service and adjustment. Controls are factory-mounted and pre-wired on packaged units. Primary control features light-sensing detector for instant response to ignition and shutdown.

2—**access panel**—(optional) has removable panels for ready access to burners and controls.

3—**burner**—is engineered to provide top operating efficiency. Sling mount and EXACTAIRE control simplify installation and adjustment.

4—**air inlet**—allows for adjustment of secondary air whenever it's required.

5—**water vector**—large, copper coil tankless type, with 1=W=H approved ratings, is inserted into upper 5" nipple port on forced water boiler, lower nipple port on steam boiler. A-3 packaged boiler furnished with upper tankless heater opening only.

6—**boiler sections**—are designed with vertical flue passages and constructed of durable cast iron. Sections are tested at 2½ times normal operating pressure.

7—**cleanout panel**—one-piece panel permits cleaning of all flue surfaces from right side without dismantling jacket or disturbing burner, controls and accessories.

8—**jacket**—smartly-styled of sturdy steel in sparkling gray finish with modern radius corners. Jacket is assembled with boiler at factory for packaged models.

9—**combustion chamber**—is made of high-temperature stainless steel. It provides even heat distribution to combustion area and is factory-installed.

10—**wet base construction**—provides an extra heat-absorbing bottom surface. Waterways completely surround combustion area and extend beneath the boiler, making the A-3 ideal for first-floor utility room, as well as basement installation.



A-3 ratings

boiler number		gross I=B=R output (Btu/hr)	net I=B=R ratings =		I=B=R burner capacity • (gph)	chimney		water content full (gallons)
steam	water		water & steam (Btu/hr)	steam (sq.ft.)		size (inches)	height (feet)	
packaged units (forced water only)								
—	A-33-P(T)	100,000	75,000	—	0.95	8 x 8	15	25.0
—	A-34-P(T)	136,000	102,000	—	1.35	8 x 8	15	23.8
—	A-35-P(T)	173,000	129,800	—	1.70	8 x 8	15	27.1
boiler-burner units								
A-33-SB(T)	A-33-WB(T)	100,000	75,000	313	0.95	8 x 8	15	25.0
A-34-SB(T)	A-34-WB(T)	136,000	102,000	425	1.35	8 x 8	15	23.8
A-35-SB(T)	A-35-WB(T)	173,000	129,800	541	1.70	8 x 8	15	27.1
A-36-SB(T)	A-36-WB(T)	208,000	156,000	650	2.00	8 x 8	15	30.5
A-37-SB(T)	A-37-WB(T)	244,000	183,000	763	2.30	8 x 12	15	33.8
boiler only								
A-33-S(T)	A-33-W(T)	100,000	75,000	313	0.95	8 x 8	15	25.0
A-34-S(T)	A-34-W(T)	136,000	102,000	425	1.35	8 x 8	15	23.8
A-35-S(T)	A-35-W(T)	173,000	129,800	541	1.70	8 x 8	15	27.1
A-36-S(T)	A-36-W(T)	208,000	156,000	650	2.00	8 x 8	15	30.5
A-37-S(T)	A-37-W(T)	244,000	183,000	763	2.30	8 x 12	15	33.8

• The ratings for these boilers represent the net loads that may be connected to the boilers. Allowances have been made for normal piping and pick up loads. American-Standard should be consulted before selecting a boiler for installations having unusual piping and pick up requirements.

• Nozzle sizes, gph, furnished with A-3 boiler-burner units: A-33, 0.90-60° H; A-34, 1.25-60° H; A-35, 1.50-60° S; A-36, 1.75-60° S; and A-37, 2.25-60° S.

Note: Suffix letters denote the following: P—packaged unit for forced circulation; B—boiler-burner unit; T—with tankless heater; S—for steam; W—for water.

tankless heater ratings

boiler number	I=B=R burner capacity (gph)	heater number •	I=W=H ratings (gph) Δ	
			water	steam
A-33	0.95	222	4	3½
A-34	1.35	230	4	3½
A-35	1.70	328	4¾	4¼
A-36	2.00	335	5½	4¾
A-37	2.30	335	5¾	5¼

Δ Gallons of water per minute heated from 40°F to 140°F with 200°F boiler water temperature.

• Domestic hot water connection size for all heaters is ½" I.P.S.

optional controls

for non-packaged units

For forced circulation less heater: No. 4 control set consisting of CB-52502 thermostat, L4062B Aquastat limit and circulator control, plus a No. R8184A light-sensing constant ignition primary control available instead of R8182C combination control.

For forced circulation with tankless heater: No. 5 control set consisting of CB-52502 thermostat, L4042A Aquastat, limit, reverse and operating circulator relay plus a No. R8184A light-sensing constant ignition primary control available instead of R8182A combination control.

Add-on No. 5-Z control set is available for use with A-3 all-purpose non-packaged boiler-burner units with tankless heater.

American-Standard hydronic zone valve packages are available for water units and boilers. See current price book for details and prices.

equipment furnished

packaged boiler for forced circulation

standard equipment

Model DH-5 Arcoflame oil burner with sling mounting and factory installed cad cell, bracket and leads. CB-52502 thermostat. Nozzle. Draft regulator. High temperature steel combustion chamber. Pressure and temperature gauge. ASME relief valve. 1¼" circulator with piping. Wiring harness. Flush jacket. Drain valve.

with tankless heater:

Factory-installed built-in tankless heater (as shown in heater rating table above). R8182A combination Aquastat-relay, high limit, low limit and circulator control, light-sensing constant ignition primary control.

less heater:

R8182C combination Aquastat, limit and circular control, light-sensing constant ignition primary control. Heater opening cover plate.

Note: Packaged units are shipped with flush jacket, all electrical controls (except thermostat), circulator and piping, factory installed and wired. DH-5 oil burner shipped separately. Draft regulator, relief valve and thermostat are packed inside boiler crate.

optional equipment

Jacket extension: if desired, specify on order. Jacket extension, shipped in separate carton, extends 15¾" in front to conceal burner and controls. Approximate shipping weight: 35 lbs. Two-stage fuel unit is furnished when specified on order.

all-purpose boiler-burner units

standard equipment

Model DH-5 Arcoflame oil burner with sling mounting and factory installed cad cell, bracket and leads. CB-52502 thermostat. Nozzle. Draft regulator. High temperature steel combustion chamber. Pressure and temperature gauge. ASME relief valve with water units; ASME safety valve with steam units. Flush jacket. Drain valve.

with tankless heater:

Factory installed built-in tankless heater (as shown in heater rating table above). Heater is installed in upper nipple port on water boilers and in lower nipple port on steam boilers.

water: R8182A combination Aquastat-relay, high limit, low limit and circulator control, light-sensing constant ignition primary control.

steam: PA404A Pressuretrol, L4006A Aquastat operating control and R8184A light-sensing constant ignition primary control.

less heater:

water: R8182C combination Aquastat limit and circular control, light-sensing constant ignition primary control.

steam: PA404A Pressuretrol and R8184A light-sensing constant ignition primary control.

optional equipment

Jacket extension—same as for packaged units. External low water cut-off for steam boilers.

Built-in tankless heaters can be ordered for separate shipment with units less factory-installed tankless heater. Optional control sets are available on order. (See current price book.)

Two-stage fuel unit available on order.

Motors and controls regularly furnished with A-3 packaged and boiler-burner units are for 115 volt 60 cycle current.

all-purpose boiler only

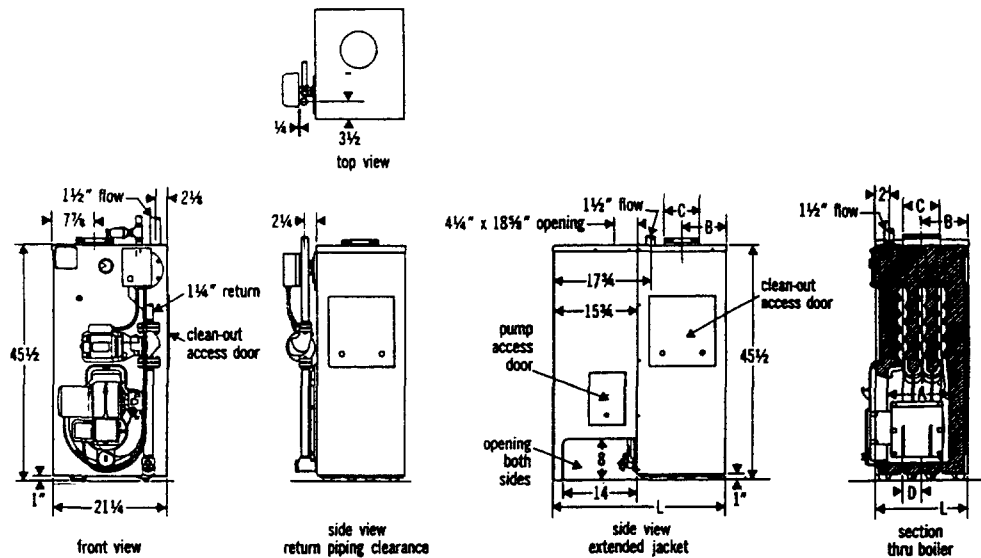
standard equipment

Flush jacket, ASME relief valve with water boilers, ASME safety valve with steam boilers. High temperature steel combustion chamber. Water heater cover plate, and tankless heater, when specified on order.

optional equipment

Jacket extension. Built-in tankless heaters are available for separate shipment.

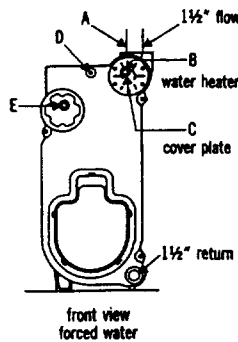
**dimensions and tappings
packaged A-3 boiler**



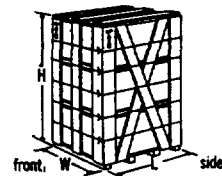
boiler number	number and size of tappings (inches)		dimensions (inches)						assemblage of sections	legend
			A	B	C	D	L			
	flow	return					flush jacket	extended jacket		
A-33-P	1-1½	1-1½	10¾	8¾	6	6	16%	31%	F, CW, B	F—front connecting section
A-34-P	1-1½	1-1½	11¾	8¾	7	3½	17%	32%	F, C, C, B	CW—wide center section
A-35-P	1-1½	1-1½	14¾	10¾	7	3½	20%	36%	F, C, C, C, B	C—center section B—back section

control tappings—packaged boiler

location on boiler	size (inches)	control used
A	3/4	relief valve
B	3/4	R8182A combination Aquastat, relay and primary control (for installations with tankless heater).
C	3/4	R8182C combination Aquastat and primary control (for installations without tankless heater).
D	1/4	pressure and temperature gauge
E	3/4	auxiliary control tapping

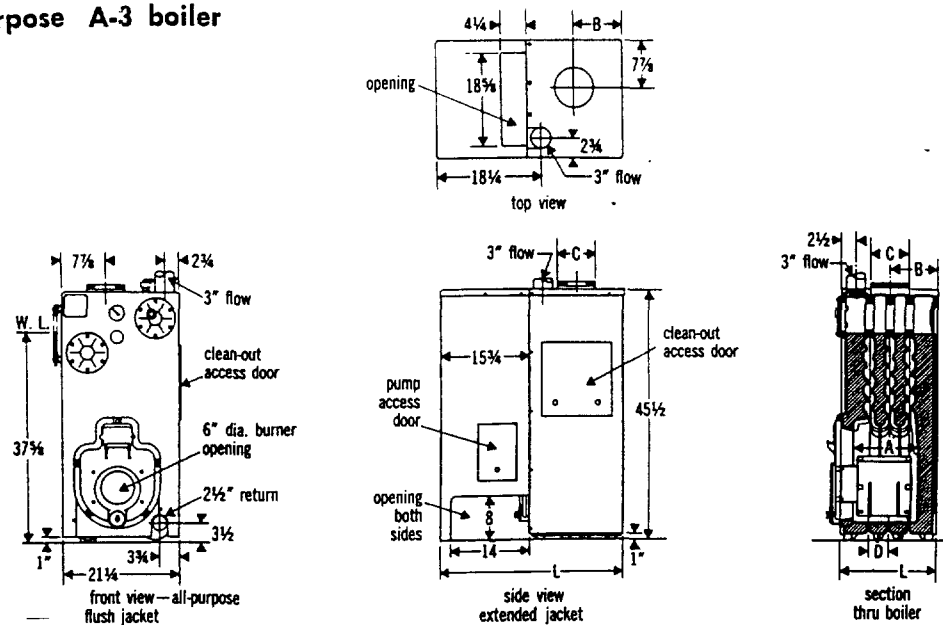


crated dimensions



packaged boiler number	dimensions (inches)			approx. shipping weight (pounds)
	H	W	L	
A-33-P	48 1/8	25 3/8	27 1/8	735
A-34-P	48 1/8	25 3/8	27 1/8	818
A-35-P	48 1/8	25 3/8	30 3/8	956

dimensions and tapings all-purpose A-3 boiler



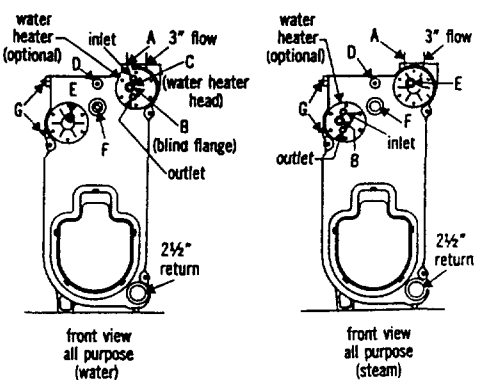
boiler number	number and size of tapings (inches)		dimensions (inches)						assemblage of sections
			A	B	C	D	L		
	flow	return					flush jacket	extended jacket	
A-33	1-3	1-2½	10¾	8¾	6	6	16¾	31¾	F,CW,B
A-34	1-3	1-2½	11¾	8¾	7	3½	17¾	32¾	F,C,C,B
A-35	1-3	1-2½	14¾	10¾	7	3½	20¾	36¾	F,C,C,C,B
A-36	1-3	1-2½	18¾	12¾	8	3½	24¾	39¾	F,C,C,C,C,B
A-37	1-3	1-2½	21¾	13¾	9	3½	27¾	43¾	F,C,C,C,C,C,B

legend

F—front connecting section
 CW—wide center section
 C—center section
 B—back section
 Sections for all A-3 boilers shipped factory-assembled.

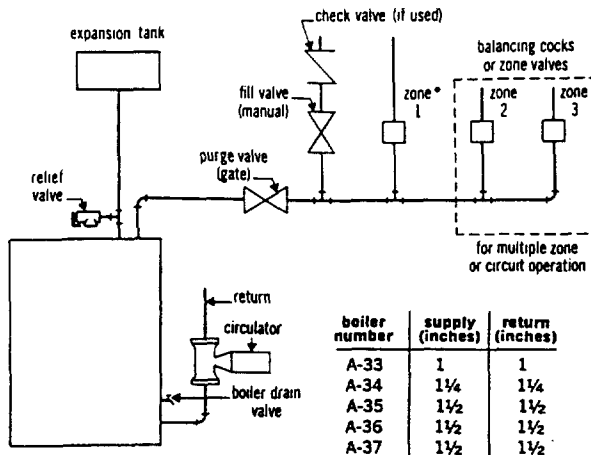
control tapings — all purpose boiler

location on boiler	size (inches)	water control used	steam control used
A	3/4	relief valve	safety valve
B	3/4	R8182A combination Aquastat, relay and primary control (for installations with tankless water heater)—or optional controls	L4006A Aquastat operating control (for installations with tankless water heater)—or optional controls
C	3/4	R8182C combination Aquastat and primary control (for installations without tankless water heater)—or optional controls	—
D	1/4	pressure and temperature gauge	steam gauge
E	3/4	auxiliary control tapping	PA404A Pressuretrol— or optional controls
F	1 1/2	not used	blow off
G	1/2	not used	gauge glass and low water cut-off



minimum piping recommendations

forced hot water



*on a single circuit job balancing cocks and zone valves not needed

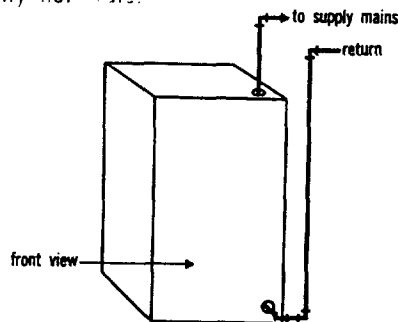
Procedure for filling series loop Heatrim System:

1. Close all zone valves except zone to be purged.
2. Open boiler drain valve.
3. Open fill valve.
4. Close purge valve.
5. Vent air from boiler by manually opening relief valve.
6. Open second valve to be purged. Close first zone. After second zone is purged, open third zone valve and close second zone. Repeat for as many zones as in system. (Note: Always have one zone valve open.)
7. When all zones have been purged, close boiler drain cock.
8. When water appears at relief valve, release lever and allow to close.
9. Continue filling until pressure gauge reads approximately 12 lbs./sq. in. Close fill valve.
10. Open purge valve.

Note 1: Where multiple circuits are used without zone valves, square head cocks should be installed for balancing. These square head cocks can be shut off to purge each circuit in turn.

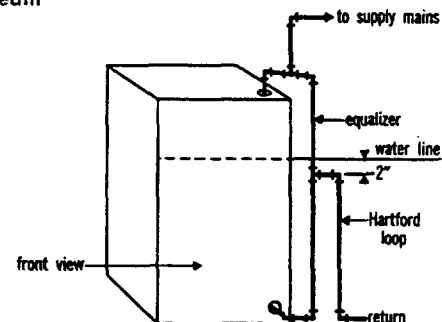
Note 2: For a single loop Heatrim System, no additional vents, cocks, valves, drains, or other accessories are required—with one exception. If tankless heater is used and Heatrim is above the boiler outlet, a flow check valve must be installed to prevent gravity circulation.

gravity hot water



boiler number	supply (inches)	return (inches)
A-33	1 1/2	1 1/2
A-34	1 1/2	1 1/2
A-35	2	2
A-36	2	2
A-37	2 1/2	2 1/2

steam



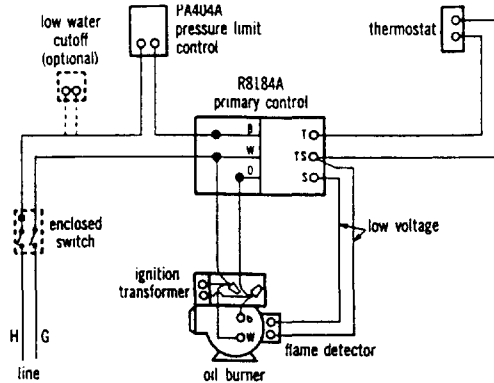
boiler number	supply (inches)	return (inches)	equalizer (inches)
A-33	1 1/2	1	1 1/2
A-34	2	1	1 1/2
A-35	2	1	1 1/2
A-36	2 1/2	1	1 1/2
A-37	3	1 1/4	1 1/2

A-3 oil-fired boilers are designed and built to comply with the American Society of Mechanical Engineer's Code, and bear their approval symbol. Ratings have been approved by the Institute of Boiler and Radiator Manufacturers. The Model DH-S Arco-flame Oil Burner is listed by the Underwriters' Laboratories, Inc. for No. 1 and No. 2 fuel oil; complies with Commercial Standard CS-75; and is approved by the New York City Board of Standards and Appeals, by the State Fire Marshal of the Commonwealth of Massachusetts, and by the Department of State Police, State of Connecticut.

A-3

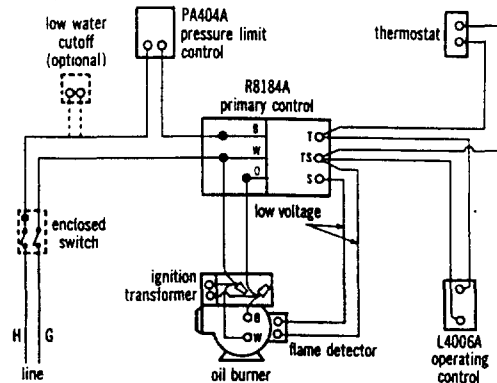
oil-fired boilers

control sets No. 1 (steam) & No. 3 (gravity)
— without tankless heater

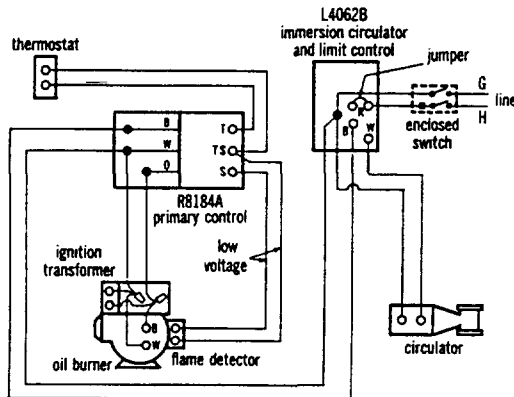


wiring diagrams

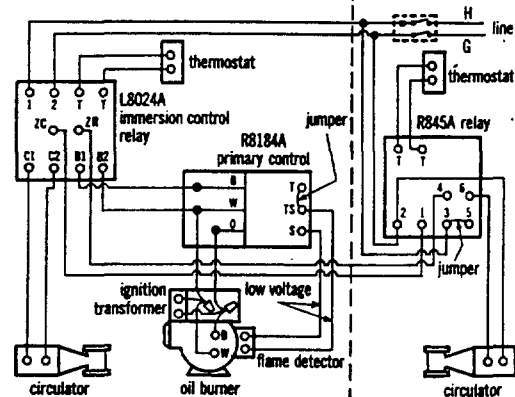
control set No. 2 (steam)
— with tankless heater



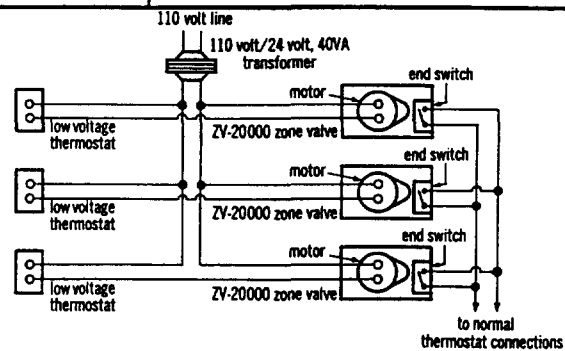
control set No. 4 (constant circulation)
— without tankless heater



control set No. 5-Z
— "add on" zone control set
for use with No. 5 control set



American-Standard
Hydronic Zone Valve
Manifold Package
(3 zones shown)



AMERICAN-Standard

PLUMBING AND HEATING DIVISION

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
40 WEST 40TH STREET • NEW YORK, N.Y. 10018

12341