

technical catalog b



oil/stoker/hand-fired

hot water or steam

PLAINTIFF'S EXHIBIT

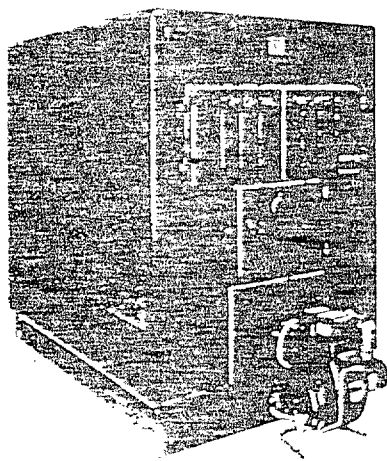
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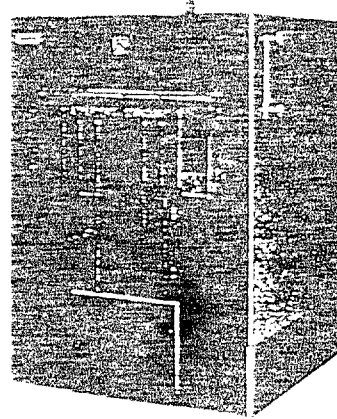
the A-7 boiler—expertly engineered for use with all fuels

The A-7 is a compact, high capacity, cast iron boiler developed by American Standard for use with all fuels. Oil burner units, coal-fired boilers, and stoker-fired models are available in ten sizes, hand-fired models in four sizes. A-7 models are readily converted to gas-burned. The A-7 is designed for hot water or steam heating in all commercial and industrial buildings. It may be

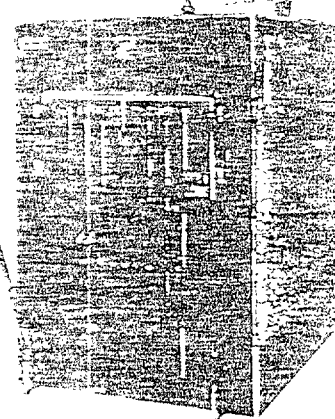
installed singly or in battery to cover a wide range of heating requirements. Outstanding features include: cast iron construction, low section design, full automatic, approved by ASME, unique feed sub-base for improved circulation, and American Standard design built to cover 25 years or more of efficient, economical, and dependable heating performance in low



Oil burner



Coal-fired



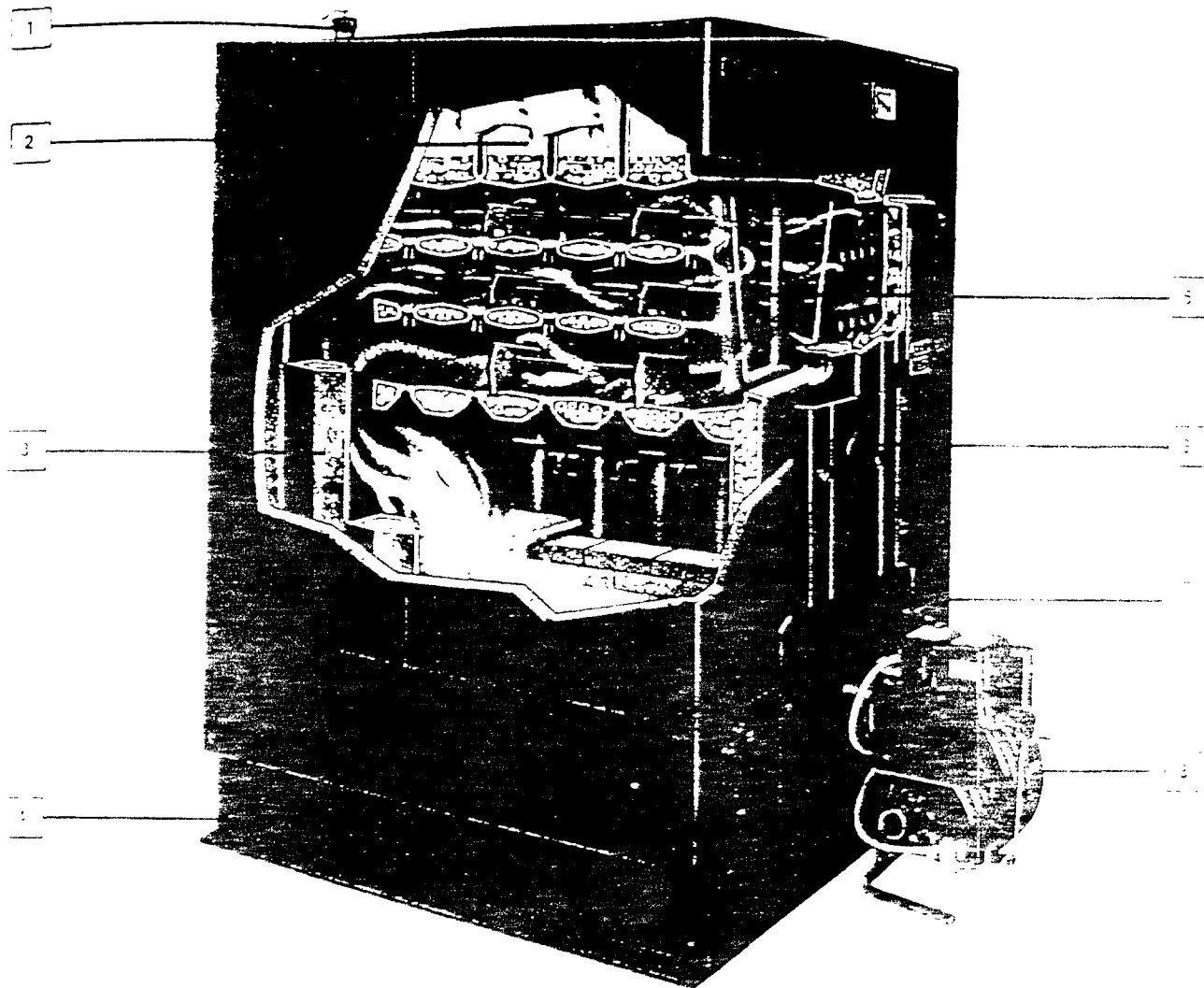
Hand-fired

highly efficient cast iron sections feature downward and upward flow of waterways to vs. partially submerged upper sections to insure unobstructed return and upward peak heating performance. Multiple firing and low heat from automatic oil usage.

Exclusive steel pedestal base provides the boiler no base and unit combustion area needed for oil and stoker firing. There is no need to waste time or money installing a special base. Base is standard 8 in. and 10 in. heights.

Oil burner models are available with 100,000 Btu/hr. per standard burner, 100,000 and 200,000 Btu/hr. for use with the A-7 boiler pedestal base. Hand-fired is available in four models with ratings ranging from 8 to 23 gph to cover all requirements of the A-7.

High output ratings make the compact A-7 the largest boiler in its class. Gross ASME approved output range from 266,000 to 2,532,000 Btu/hr. The A-7 is available in ten sizes (8 1/4 sections) for automatic oil and gas (5 1/2 sections) for hand firing.



1—safety valve—100 P.S.I. rated and furnished as required on certain models of the A-7.

2—extra large mud port—permits free interior circulation of water between sections. High Water level port also provides for filling of steam boilers. Tappings provided for water sampling and the only ones needed for external water heater connection.

3—sections—longitudinally ribbed cast iron and factory tested at 200 P.S.I. for normal operating pressure to assure positive performance.

4—optional steel pedestal base—provides additional height and support when necessary for oil and stoker firing equipment. Pedestal and support of piping is foot print of construction required as base.

5—splendidly engineered flue—curves upward through outside flues, rearward through boiler, and provides maximum extraction of heat from combustion.

6—observation port—for observation of burner operation. Viewing without opening boiler. Controls and control adjustment. The boiler is equipped with a wide opening plate—removable for inspection of burner installation of oil burner. Fitted for automatic firing. Hand-fired models equipped with regular cast iron hand door.

8—oil burner—four pedestal mounted models are available for clean, efficient burning. The A-7 boiler burns oil, kerosene, and gas. The boiler is designed for burning units, firing ranges from 100,000 to 1,000,000 Btu per hour. All boilers furnished with 10 stage fuel unit.



A 7 ratings

boiler number		gross I=B=R output (btu/hr)	net I=B=R ratings				I=B=R burner capacity	chimney		water cont. (gallons)		
water	steam		water (btu/hr)	steam (sq. ft.)	steam (btu/hr)	piping & pick-up factor		size (in.)	height (ft.)	water boiler	at temp.	
						water						steam

oil-fired boiler-burner units and boilers.

4073 W 1 B	A 7 1 B	B 1 A	1,480,000	1,033,000	2707	1,049,000	1.15	1,033	12	1	1
4074 W 1 B	A 7 1 B	B 1 A	1,512,000	1,040,000	2763	1,049,000	1.15	1,033	12	1	1
4075 W 1 B	A 7 1 B	B 1 A	1,536,000	1,040,000	2775	1,049,000	1.15	1,033	12	1	1
4076 W 1 B	A 7 1 B	B 1 A	1,576,000	1,136,500	2840	1,041,600	1.15	1,031	12	1	1
4077 W 1 B	A 7 1 B	B 1 A	1,570,000	1,146,000	2851	1,033,000	1.15	1,035	12	1	1
4078 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4079 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4080 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4081 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4082 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4083 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1

oil-fired

4084 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4085 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4086 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4087 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4088 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4089 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4090 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4091 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4092 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4093 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1

oil-fired

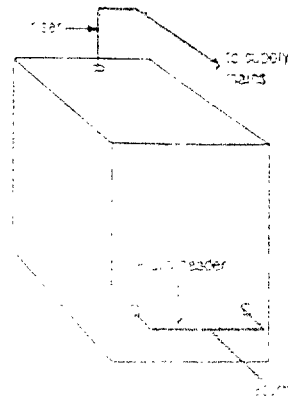
4094 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4095 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4096 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4097 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4098 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4099 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4100 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4101 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4102 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1
4103 W 1 B	A 7 1 B	B 1 A	1,570,000	1,000,000	2770	1,033,000	1.15	1,033	12	1	1

- Notes: A 7 sizes and models of the A 7 boiler have tapings for external type 304 stainless steel headers on rear section.
 * Burner capacity denotes maximum capacity of oil-fired. B 1 burner-burner unit and B 2 burner-fired.
 * For complete information on burners and boilers furnished with A 7 boiler-burner units, refer to chart on page 1.
 * Drawn sheet refractory tank, installed on 5-section oil-fired boilers only. Fuel gas lines furnished with boilers only.
 * The net I=B=R ratings shown are based on piping and pick-up factors shown in the column next to the net I=B=R rating. They should be consulted in selecting a boiler for installation, making a piping diagram and pick-up requirements.

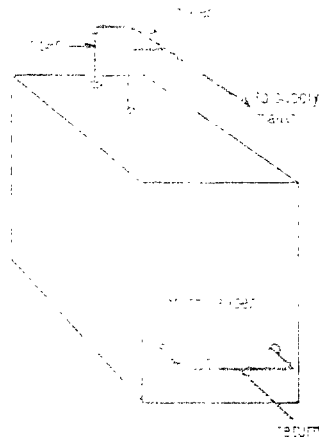
Some non-standard A 7 boilers have ratings approved by the Institute of Boiler and Burner Manufacturers, and are constructed of ductile cast iron to the specifications of the American Society of Mechanical Engineers.

minimum piping recommendations

hot water (forced circulation only)

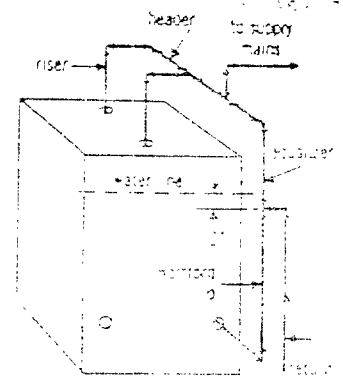


boiler number	riser (in.)	return (in.)	header (in.)	return header (in.)
A-705	3	3	3	3
A-706	4	4	4	4
A-707	4	4	4	4
A-708	4	4	4	4
A-709	4	4	4	4

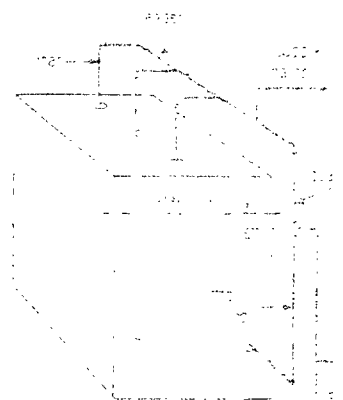


boiler number	riser (in.)	return (in.)	header (in.)	return header (in.)
A-710	(2)-3	3	3	3
A-711	(2)-4	4	4	4
A-712	(2)-4	4	4	4
A-713	(2)-4	4	4	4
A-714	(2)-4	4	4	4

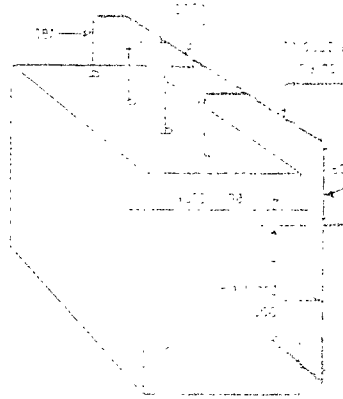
steam



boiler number	riser (in.)	return (in.)	header (in.)	equalizer (in.)
A-705	(2)-4	4	4	2 1/2
A-706	(2)-4	4	4	2 1/2
A-707	(2)-4	4	4	2 1/2



boiler number	riser (in.)	return (in.)	header (in.)	equalizer (in.)
A-708	(3)-4	4	4	3
A-709	(3)-4	2 1/2	4	3
A-710	(3)-4	2 1/2	4	3



boiler number	riser (in.)	return (in.)	header (in.)	equalizer (in.)
A-711	(3)-4	2 1/2	4	4
A-712	(4)-4	2 1/2	4	4
A-713	(4)-4	2 1/2	4	4
A-714	(4)-4	3	4	4

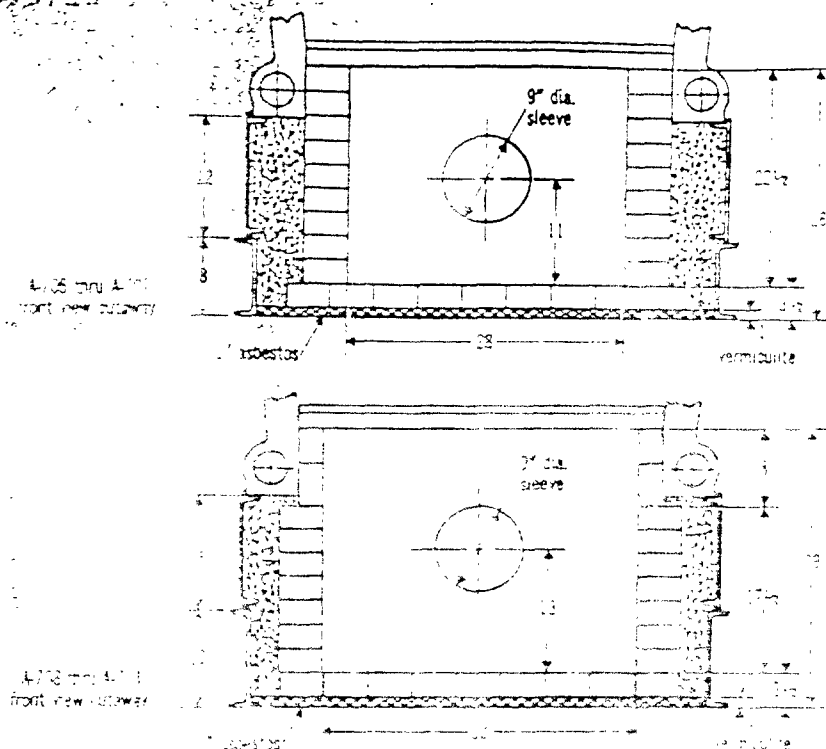
stoker installation dimensions

The minimum distance between top of the stoker hearth and crown sheet should be governed by dimensions in the chart at the right.

firing rates ^a (lbs/hr)	minimum distance (inches)
0-20	18
21-30	20
31-40	24
41-100	28
101-200	30
201-300	36

^aThe firing rates (lbs/hr) for B&B burner capacity are based on the use of good No. 2 15000 Btu per pound heat value.

refractory combustion chamber dimensions



boiler number	inside chamber length (inches)
A-705	27 1/4
A-706	32 1/4
A-707	37 1/4
A-708	38
A-709	41
A-710	44
A-711	47
A-712	50
A-713	53
A-714	56

boiler horsepower and shipping weight

water	steam	boiler horsepower	approx. boiler weight (lbs.)
oil-fired (boiler-burner units and boilers):			
A-705-WO(B)	A-705-WO(B)	25.9	4054
A-706-WO(B)	A-706-WO(B)	30.2	4693
A-707-WO(B)	A-707-WO(B)	35.7	5332
A-708-WO(B)	A-708-WO(B)	41.1	5929
A-709-WO(B)	A-709-WO(B)	46.9	6545
A-710-WO(B)	A-710-WO(B)	52.5	7209
A-711-WO(B)	A-711-WO(B)	58.4	7817
A-712-WO(B)	A-712-WO(B)	64.1	8306
A-713-WO(B)	A-713-WO(B)	69.9	8782
A-714-WO(B)	A-714-WO(B)	75.6	9285
stoker-fired			
A-705-WC	A-705-WC	25.9	4054
A-706-WC	A-706-WC	30.2	4693
A-707-WC	A-707-WC	35.7	5332
A-708-WC	A-708-WC	41.1	5929
A-709-WC	A-709-WC	46.9	6545
A-710-WC	A-710-WC	52.5	7209
A-711-WC	A-711-WC	58.4	7817
A-712-WC	A-712-WC	64.1	8306
A-713-WC	A-713-WC	69.9	8782
A-714-WC	A-714-WC	75.6	9285
hand-fired			
A-705-W	A-705-S	33.5	4466
A-706-W	A-706-S	38.8	5181
A-707-W	A-707-S	45.1	5921
A-708-W	A-708-S	51.0	6601
A-709-W	A-709-S	57.0	7334
A-710-W	A-710-S	62.9	8077
A-711-W	A-711-S	68.3	8767
A-712-W	A-712-S	72.7	9229

furnished equipment

standard equipment for A-705 boilers and boiler-burner units:

steam: steam gauge, A.S.M.E. safety valve, gauge glass and controls.

water: pressure and temperature gauge, A.S.M.E. relief valve for 10 lbs.

controls furnished for A-705 boiler-burner unit:

steam: PA404A Pressuretrol, 100 lbs.

water: L4080 Aquastat, 100 control, nozzles.

A-7

oil/stoker/hand-fired boilers

oil burner specifications

oil burner specifications					I=B=R burner capacity (gph)	80° solid cone nozzles are furnished with A-7 units		diameters (inches)		diameters of chokes (inches)		motor h.p.
boiler number	burner number*			nozzle data		choke	disc	outer	inner			
	(1) with cad cell standard equipment	(2) with electronic equipment	(3) with F.M. electronic equipment	number required						gph each		
A-705	36-7506-1	36-7508	36-7509	11.15	two	4.00	5	3 1/4	—	—	—	
A-706	36-7506-1	36-7508	36-7509	11.55	two	4.40 4.50	5	3 1/4	—	—	—	
A-707	36-7506-1	36-7508	36-7509	11.65	two	4.40	5	3 1/4	—	—	—	
A-708	36-7506-1	36-7508	36-7507	12.20	three	4.40 4.50	—	—	—	—	—	
A-709	36-7506-1	36-7508	36-7507	14.65	three	4.40 4.50	—	—	—	—	—	
A-710	36-7506-1	36-7508	36-7507	16.00	three	4.40 4.50	—	—	—	—	—	
A-711	36-7506-1	36-7508	36-7507	18.00	three	4.40	—	—	—	—	—	
A-712	36-7506-1	36-7508	36-7507	19.00	three	4.40	—	—	—	—	—	
A-713	—	36-7508	36-7507	19.00	three	4.40 4.50	—	—	—	—	—	
A-714	—	36-7508	36-7507	20.00	three	4.40 4.50	—	—	—	—	—	

* 1, 2, 3, and 36 burners are furnished with factory installed and cad cell second safety switch from gas solenoid and shutoff in pilot with 4-second flame failure protection.

• 2, 3, 36 and 36 burners are available at extra cost with electronic flame safeguard equipment. (A-7500A Protective Flame Safeguard base unit, 37114 protective relay and 37115 second flame failure shut-off 5-second flame failure shut-off).

• 2, 3, 36 and 36 burners are available at extra cost with electronic second flame safeguard equipment. (A-7500A Protective Flame Safeguard base unit, 37114 protective relay and 37115 second flame failure shut-off).

Mutual Approval and is states and is the only one of its kind in the world. It

- * 1, 2, 3, and 36 burners are furnished with factory installed and cad cell standard equipment. Switching from gas to oil is done with a Release button on the control panel. Switching from oil to gas is done with a Release button on the control panel.
- * 2, 3, 36, and 36 burners are available with extra cost with electronic equipment. Flame safeguard equipment (ASG) is provided with a base unit (36-7504) and a relay (36-7505). The ASG is provided with a 5 second flame failure timeout.
- * 2, 3, 36, and 36 burners are available with extra cost with oil only. The ASG is provided with a base unit (36-7504) and a relay (36-7505). The ASG is provided with a 5 second flame failure timeout.

Mutual Approval and in states and jurisdictions where required, more stringent than U.S. requirements, ASG is provided with a base unit (36-7504) and a relay (36-7505). The ASG is provided with a 5 second flame failure timeout.

Note: 36-7504 Flame Guard relay on 36-7505. The ASG is provided with a base unit (36-7504) and a relay (36-7505). The ASG is provided with a 5 second flame failure timeout.

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sample specification for A-7

Contractor shall furnish and install, as indicated on plans, having a firing rate of 11.15, 11.55, 11.65, 12.20, 14.65, 16.00, 18.00, 19.00, and an I=B=R rating of 11.15, 11.55, 11.65, 12.20, 14.65, 16.00, 18.00, 19.00. Boilers shall be constructed of cast iron in accordance with A.S.M.E. requirements for low pressure heating boilers and bear the A.S.M.E. symbol. Each section shall be factory tested at 2 1/2 times maximum working pressure of 50 lb./sq. in. water. Boilers shall have I=B=R ratings. Contractor shall furnish 8" or 10" channel steel pedestal base under regular 12" cast iron base as manufactured and recommended by boiler manufacturer for oil (or stoker) firing. Boiler sections shall be constructed so that the water line for steam boilers shall be above the

bottom of the flue ports to insure proper water circulation between sections. Rear section shall have external water heater connections as provided by boiler manufacturer. Boiler flue passages shall be horizontal, turned type, baffled as recommended by manufacturer, with no flues along both side passages from rear to front and back through center passages to rear and smoke outlet connection. Oil burner (or stoker) shall include controls as recommended. (Note: include description of controls as recommended and other burner or stoker features). Combustion chamber will be hand built on the job site in accordance with burner manufacturer's recommendations.



AMERICAN
STANDARD

PLUMBING & HEATING DIVISION

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