



C B I A Conference
May 25, 2016
Parker Boiler Basics

Bob Johnson

Overview and History of Parker Boiler Company

- Founded in 1919 by Sid E. Parker
- Started out by manufacturing boilers primarily for the Drycleaning Insustry
- We are now involved in a multitude of industries including food processing, metal finishing and biotech, as well as building heating, process heating, and laundry / drycleaning.

Parker Design & Construction

Horizontal Drum, Bent Steel Water Tubes.

Sectional Tubes, Each Section Connected to the Boiler by Unions.

Tubes have access openings for ease of internal inspection.

Drums have access openings on each end.

Parker Design & Construction

We feature bent steel tube design, tubes welded to headers, each tube free to expand and contract independent of other tubes. This flexible design means our boilers are impervious to damage caused by thermal shock.

Parker Product Line

High Pressure Boilers (to 240 PSI)

Low pressure boilers (same design & construction as high pressure boilers)

Hot Water Boilers (to 400°F)

Indirect Water Heaters

Thermal Liquid Heaters to 600°F

Condensing Boilers

Deaerators, Feedwater Systems, Tanks

Trim and Controls

Boiler Burner and Controls are Prewired,
Factory Tested, and in Compliance
with ASME CSD-1.

Burners and Controls

Burner Systems have evolved in order to meet stack emissions limits requirements (Low Nox Burners).

Controls Systems have become more sophisticated to meet an increasing demand for boilers to communicate with building automation systems.

Burners and Controls

In addition to communication of basic data such as status of steam pressure, operation of pumps, flame safeguards, etc., many facilities people want the ability to change setpoints, and some even want to start up and shut down equipment remotely.

In California, THIS COULD BE A PROBLEM!

Burners and Controls

California State Safety Orders do not allow the remote startup on a High Pressure Steam Boilers requiring an attendant.

We have seen specifications from Design Engineers (usually from out of state) calling for remote start/stop of these boilers, also for lead/lag systems using boilers on cold standby.

Questions????





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Vessel Inspection & Repair

Doug Johnson

Our recommendations for a full inspection:

- Thorough internal and external inspection of the Pressure Vessel
- Inspection of Water Column and Boiler External Piping
- Check of all Safety & Operating Controls including Flame Safeguard and Burner System (by Inspector or competent service personnel)

Controls and Safety Devices:

- Verify accuracy and proper range of steam pressure gauge -
- Verify that no safety device has been bypassed or tampered with -
- Consider requiring a new or re-certified Safety Valve be installed at least every three years -

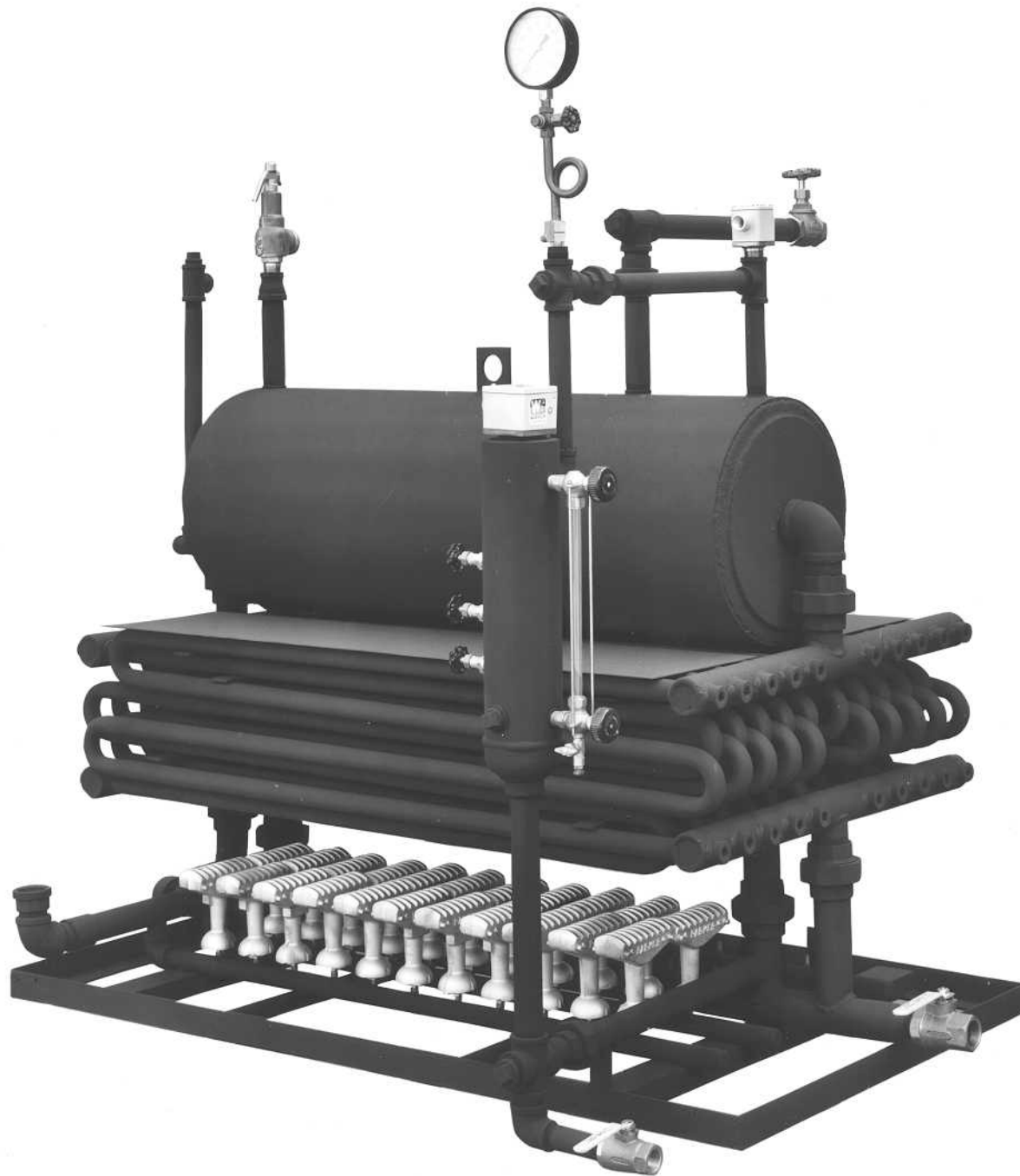
Pressure Vessel Inspection Points

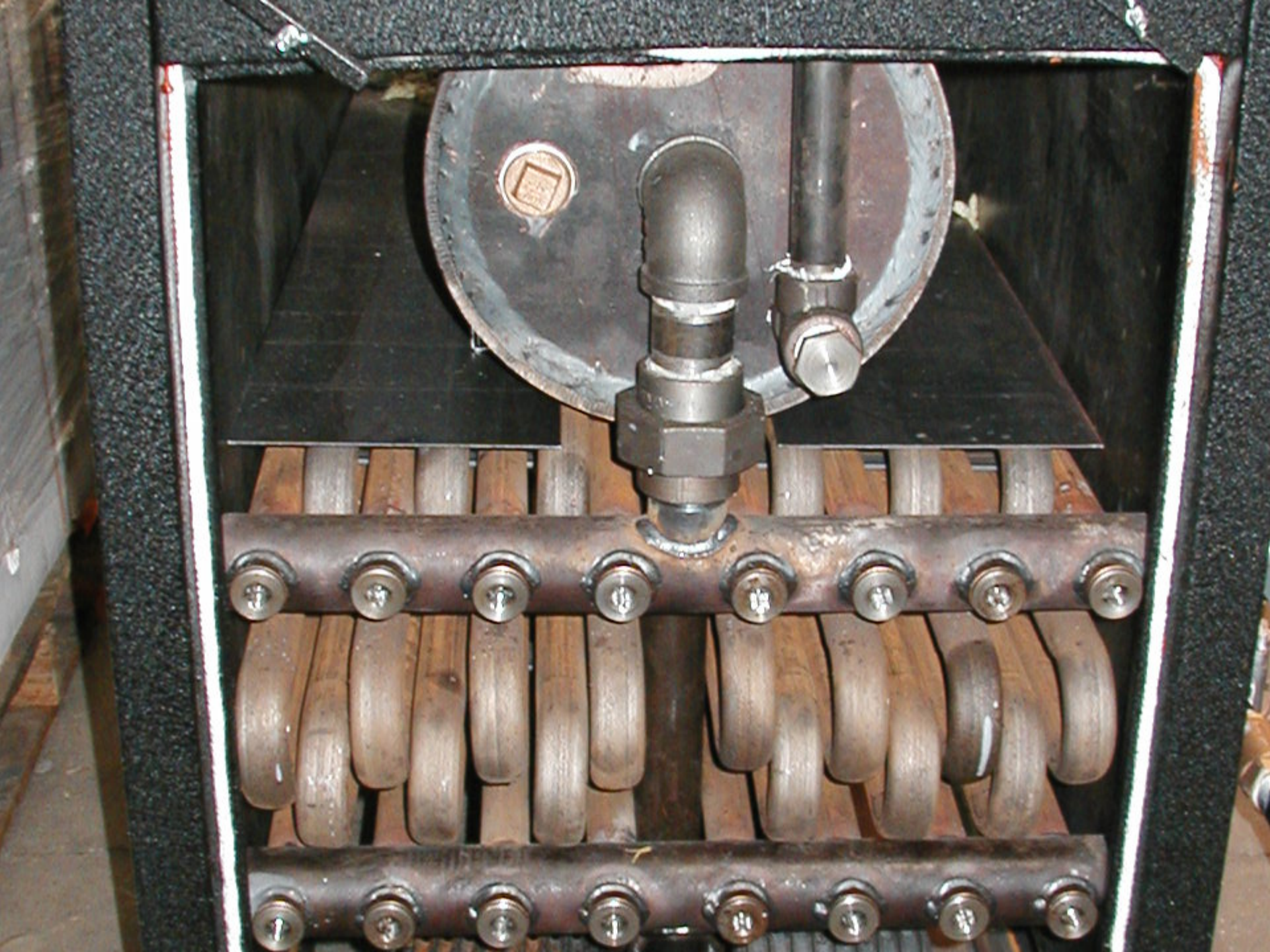
Boiler Drum and Drum Legs
(Downcomers)

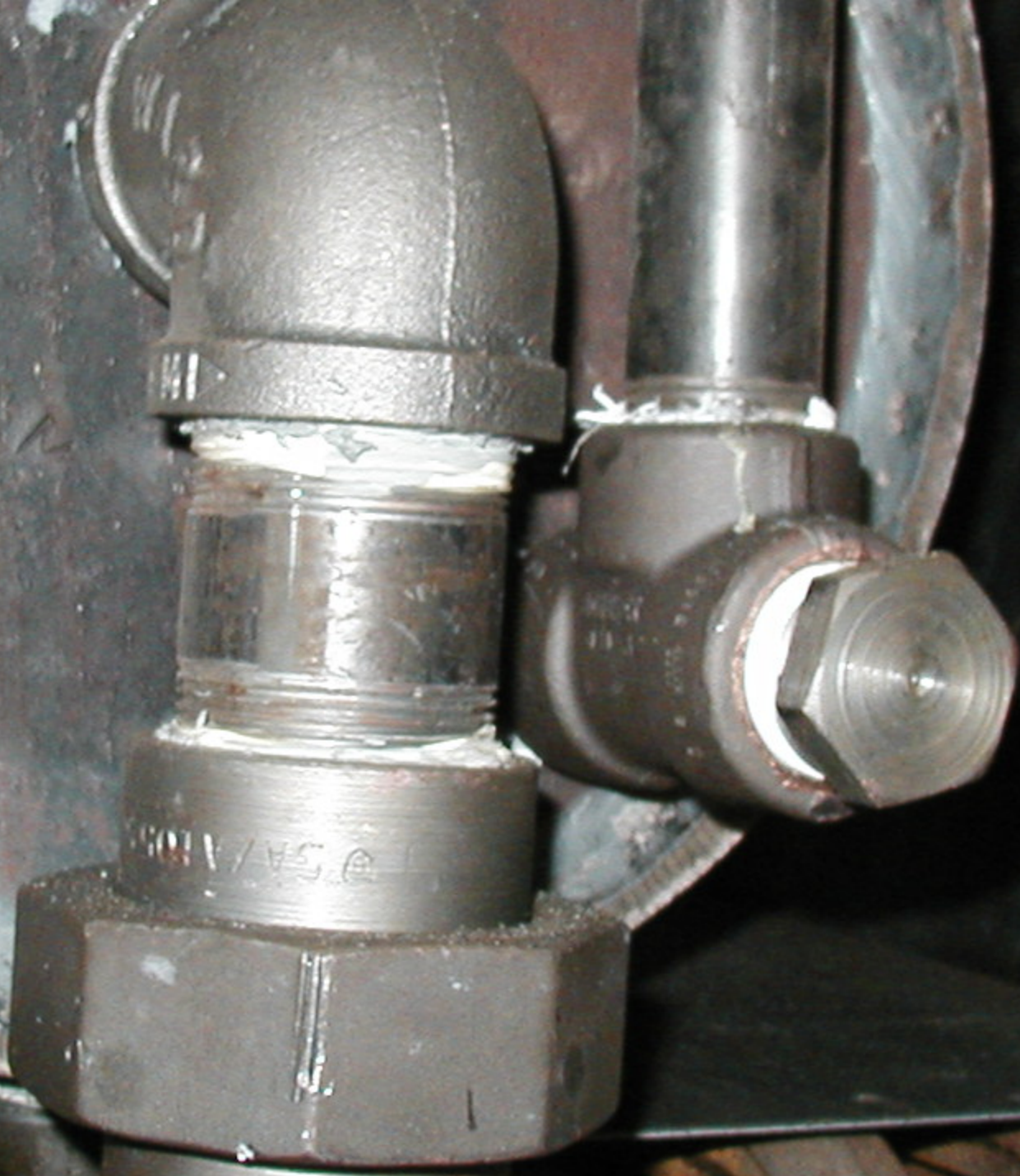
Mud Legs, Blowdown Legs
(capped openings)

Tube Sections
(through tube access openings)

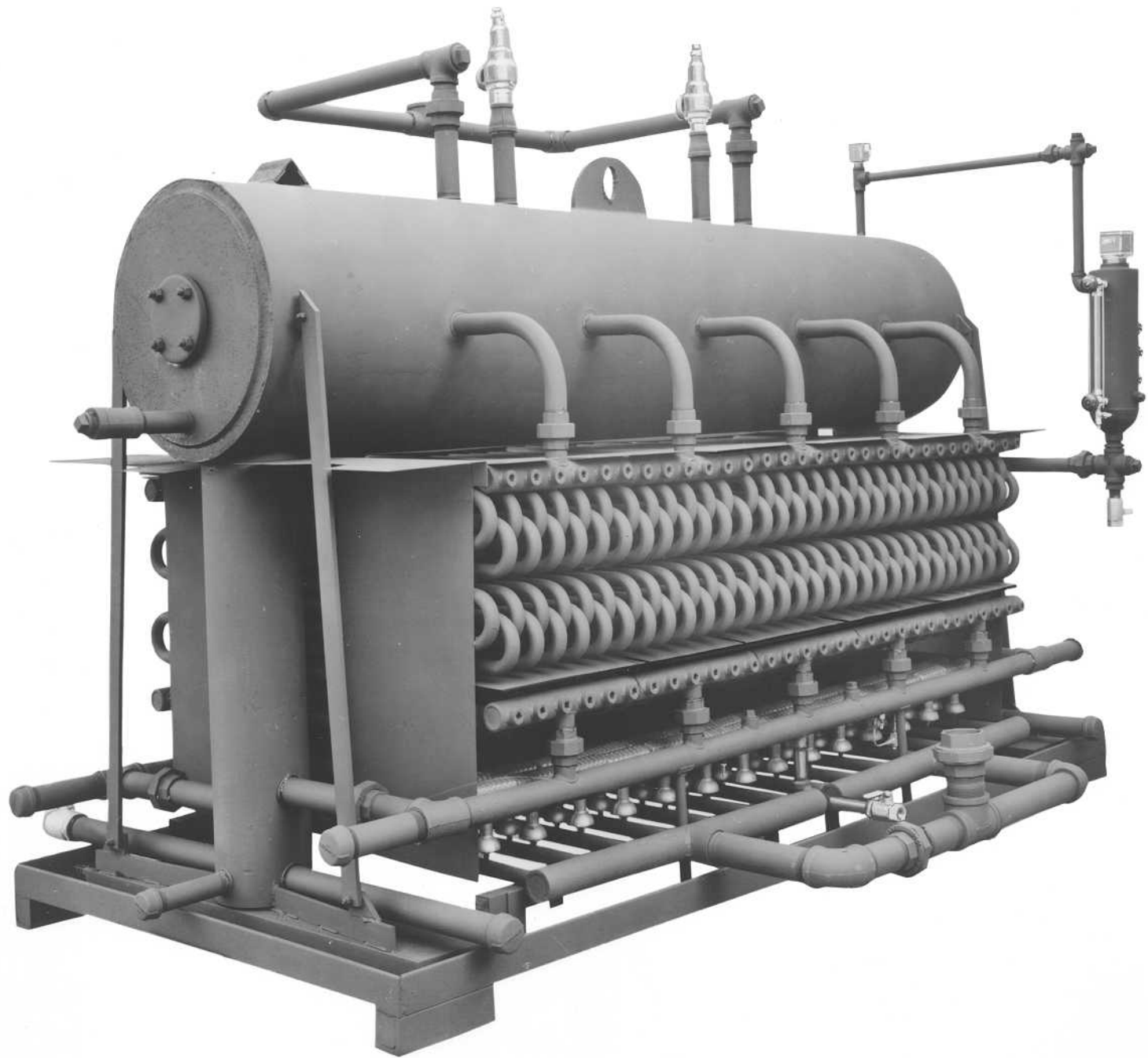
Water Column and Piping











Parker Tube Access Plugs – Description:

$\frac{3}{4}$ " Straight Pipe Thread with Flanged Head for Gasket Seal

$\frac{1}{2}$ " Square Inset for Wrench

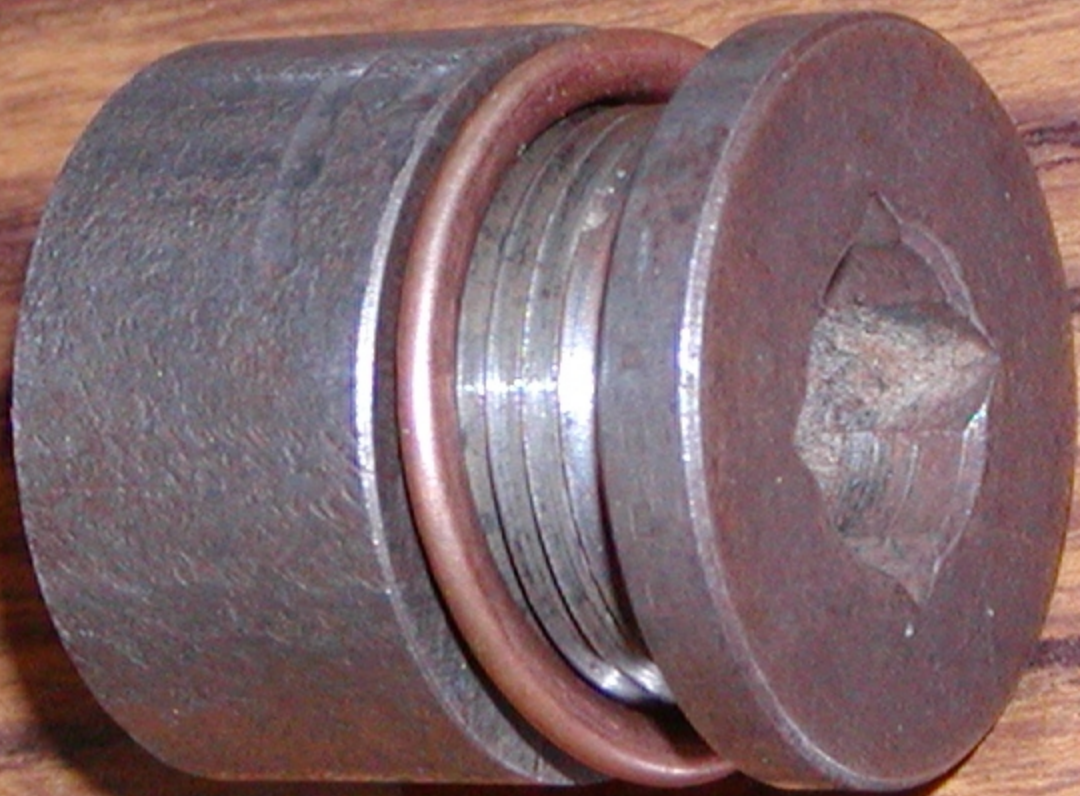
Copper Gasket Provides Seal between Plug and Tube Header Opening

Plug can be re-used after removing for tube inspection (if threads not damaged)

Always use a new gasket on plug when installing.

Always use a good steam-rated anti-seize thread joint compound on plug threads prior to installing (either new or used plug).

Tighten plug to compress the gasket (typically approx. 75 to 85 lb/ft.)



Typical Repairs:

When any part of the vessel fails, we typically recommend replacing that item due to the likely general condition throughout. This is also due to the relatively low cost of the replacement item.

Most controls are not Proprietary components and are available off the shelf.

Common failures are: pilot burner, flame sensor, level sensor, pump and check valve. These can sometimes be resolved by cleaning that item or replacing a corroded wire connector.

Typical Repairs:

Tube Section Replacement:

On our Series 103 boilers (7 to 25 HP), the boiler boiler cabinet should be disassembled to provide access to the tube sections.

On our series 104 & 105 boilers (30 HP to 150 HP), the tube sections can be replaced through the cabinet door openings.

Boiler Drum Replacement:

Requires cabinet removal and disassembly of boiler. Can normally be done in place. Tube sections can be re-used if they check out OK.



Questions????

