

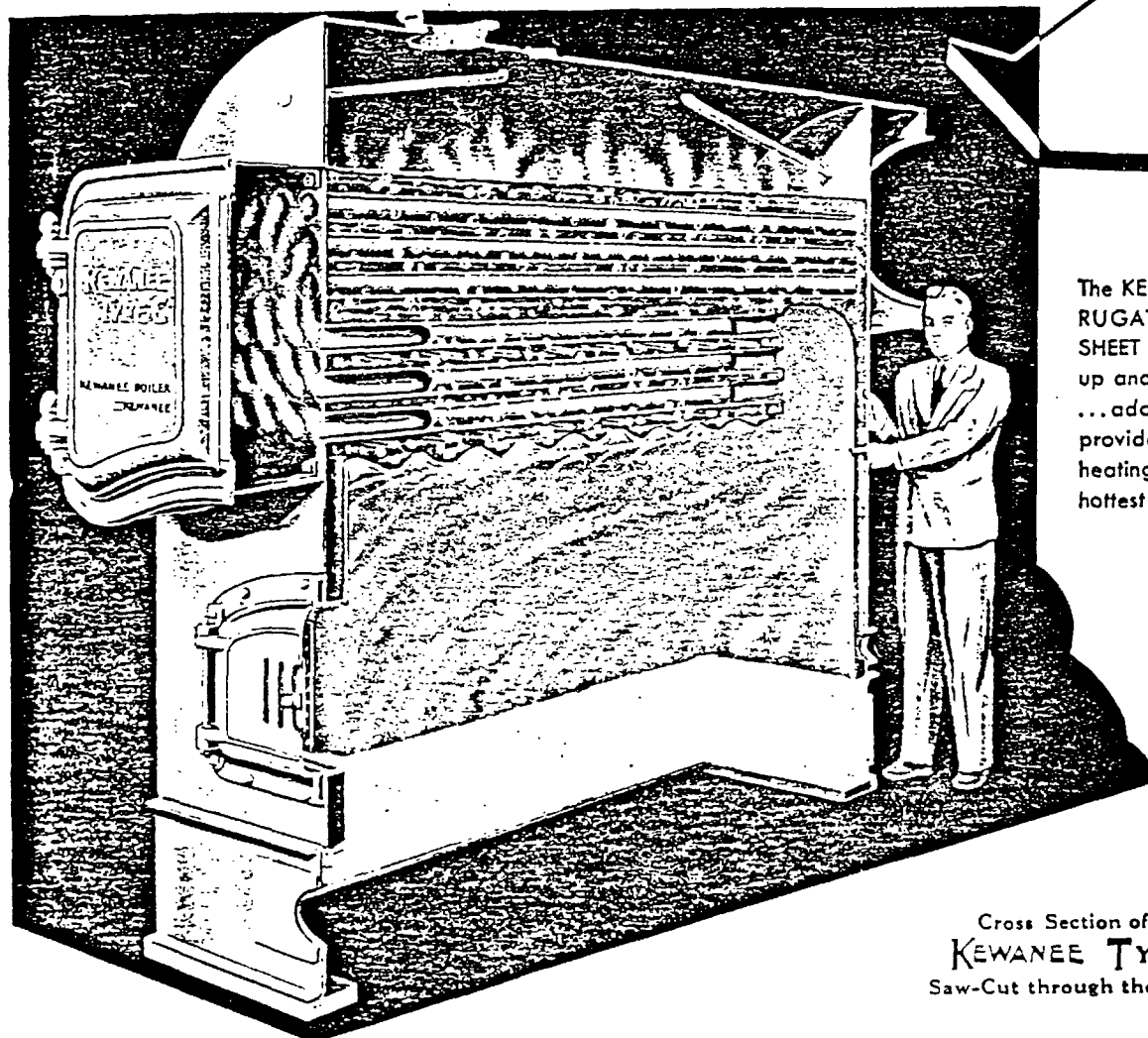
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KEWANEE

TYPE C STEEL BOILER

Largest Selling Steel Boiler for Heating Big Buildings

This sawed-in-two Kewanee Type "C" shows why!



The KEWANEE COR-RUGATED CROWN SHEET . . . right side up and self draining . . . adds strength and provides additional heating surface over hottest part of fire



Cross Section of Actual
KEWANEE TYPE C
Saw-Cut through the center

Ample proportions in the Kewanee Type "C" with everything get-at-able for keeping the boiler at tip top operating efficiency insure life-long economy with every kind of fuel and firing

Corrugated crown sheet has extra strength and heating surface . . . note especially the big high firebox, ideal for complete combustion with either hand or mechanical firing, and it permits converting from one to the other . . . and back again

in the Kewanee Process of Corrugating Type "C" Crown Sheets not even the slightest reduction in metal thickness is discernible by micrometer measurements.

Gas Travel extra length two-pass firetubes gets more heat out of the gases.

Water Content is ample for steady water line and is kept in rapid circulation thru free waterways.

Steam Space is proportioned for plenty of dry steam. The boiler shell construction is sound, and above all the fire-side and water-wetted surfaces are accessible.

And that's why over-all efficiencies of 80% and more . . . not uncommon with this fast steaming boiler are maintained continuously in actual practice.



For Oil, Gas, Stoker or Hand Fired Coal

Kewanee Type "C" Welded Boiler was placed on the market in 1928 . . . the first of its kind. No claim to novelty in the compact shape was made at that time since a basic patent covering that general design had been taken out way back in 1873. Early attempts to use welding instead of riveting for this style had not been accorded recognition by Kewanee until improvements engineered and worked out exclusively at the Kewanee plant qualified Type "C" to fill the definite demand for a dependable heating boiler adapted to restricted space.

Backed by eighty years of boiler building experience Type "C" has won and kept first place in the industry as a compact boiler requiring less floor space yet maintaining unrestricted efficiency. It is a real boiler . . . a scientifically designed and skillfully manufactured steam generator built to the ASME code for low pressure heating boilers and conforming with the ratings of the SBI code.

This Type "C" welded model has become the accepted boiler for every operation served by steam of 15 lbs. pressure or less.

7L70 Series Hi-Firebox for Oil, Gas or Stoker

Specification Table and Plan page 4

The Kewanee Hi-Firebox Type "C" is built exactly right for oil, gas or stokers. The long water legs in this 7L70 provide essential height in the firebox to comply with SBI code furnace height requirements for mechanical firing.

Equipment: Steel base assembled with four cast iron corner posts, heavy steel flanged panels have $8\frac{1}{2} \times 11\frac{1}{2}$ " front and rear cleanout opening; insulated flue door; washout plugs; and flue cleaner with handle, socket wrench.

Trimmings for Steam only: Safety valve, steam gauge with syphon and cock; water column with water gauge, glass and cocks. All front smokeboxes have double doors.

Note 1. Manhole furnished on boilers 7L82, 27L82 and larger.

Note 2. Bridgwall omitted on boiler 27L75.

Note 3. Return Connection flanged on 7L38, 89, 90 and 27L83, 89, 90.

FOOTNOTES

For overall clearance add $1\frac{1}{2}$ " for heads or $2\frac{1}{2}$ " for flange hub to Shell Width A—, pages 4 and 5.

Type "C" welded Hi-Firebox Boilers have three-inch tubes. 7L70 and 27L70 Series conform to ASME boiler construction code for 15 lbs. steam and 30 lbs. water, and for rating with the Industry Standard Practice approved by the Steel Boiler Institute in cooperation with U.S. Department of Commerce Recommendation R157.

27L70 Series with Grates for Hand Fired Coal

Specification Table and Plan page 5

Kewanee 27L70 series is rated for hand-fired coal and built with grates in the Hi-Firebox which has the required length of water legs to provide SBI code furnace heights for change-over to oil, gas or stokers using mechanical fired ratings.

Equipment: Steel base fully assembled with heavy rocking (or dumping) grates and cast iron ash pit front, four cast iron corner posts, heavy steel flanged panels have $8\frac{1}{2} \times 11\frac{1}{2}$ " rear cleanout opening, except 36" boilers; refractory bridgwall; insulated flue doors; firedoor with liner; smokebox soot cleanout doors.

Trimmings for Steam only: Safety valve, steam gauge with syphon and cock; draft regulator; water column with water gauge, glass and cocks.

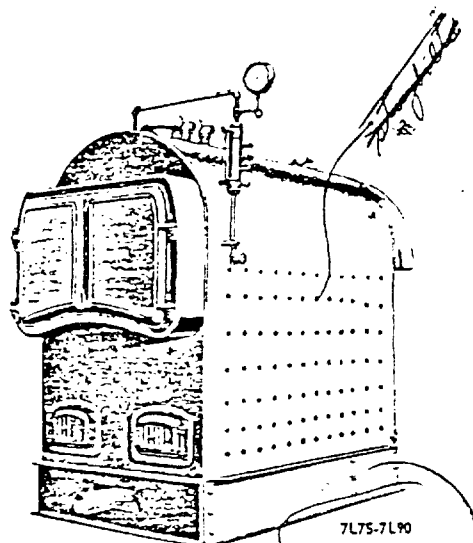
Firing Tools: Hoe, poker, slice bar and flue cleaner with handle, socket wrench.

Type "C" may be fitted at extra cost at the factory with Kewanee Indirect Hot Water Heating Coils. Maximum size and number which can be installed in boilers . . .					
for STORAGE TANK OPERATION			for INSTANTANEOUS FLOW		
CAPACITY of COIL 40"-140" rise—3 hrs.			COIL CAPACITY 40"-140" rise with 180" Boiler water		
Boiler	Coil	Gallons with 212° Boiler water	Boiler	Coil	1 Hr. 1 Min. Gallons in
7L75	SR6-24	90 55	7L75	QON-1	280 4.7
	SR8-24	120 70		QON-2	350 5.8
	DR6-24	180 110		QON-3	420 7.0
	DR8-24	240 145		QON-4	490 8.2
	DR8-30	320 190	7L76	QON-7	600 10.0
7L76	DR8-36	400 240		QON-8	700 11.7
	DR8-42	480 290		7L77-85 two	QON-8 1400 23.4
	DR8-48	560 335		7L86-90 three	QON-8 2100 35.1
	DR8-54	640 385			
7L77	DR8-60	720 430			
	DR8-66	800 480			
7L78	2 DR8-66	1600 960			
	2 DR8-72	1760 1060			
7L79, 80	2 DR8-78	1920 1150			
	2 DR8-84	2080 1250			
7L82	2 DR8-90	1120 670			
	2 DR8-96	2400 1440			
7L83, 84	2 DR8-102	2560 1540			
	3 DR8-102	3840 2310			
7L86	2 DR8-108	1360 815			
	2 DR8-114	2880 1730			
7L87, 88	3 DR8-120	4560 2730			
	3 DR8-120	4560 2730			
7L89, 90	3 DR8-120	4560 2730			
	3 DR8-120	4560 2730			

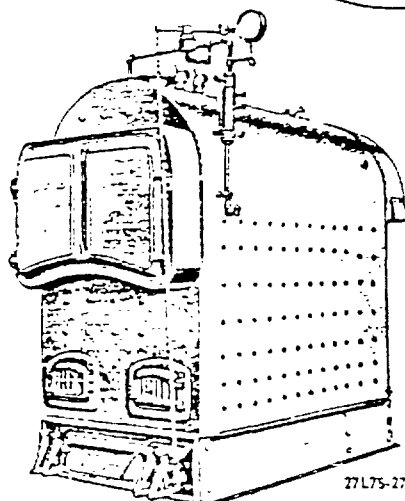
27L70 series boilers take same coil sizes as shown for 7L70 series.

Any coils shorter than maximum lengths listed may be substituted in same boiler for smaller hot water needs.

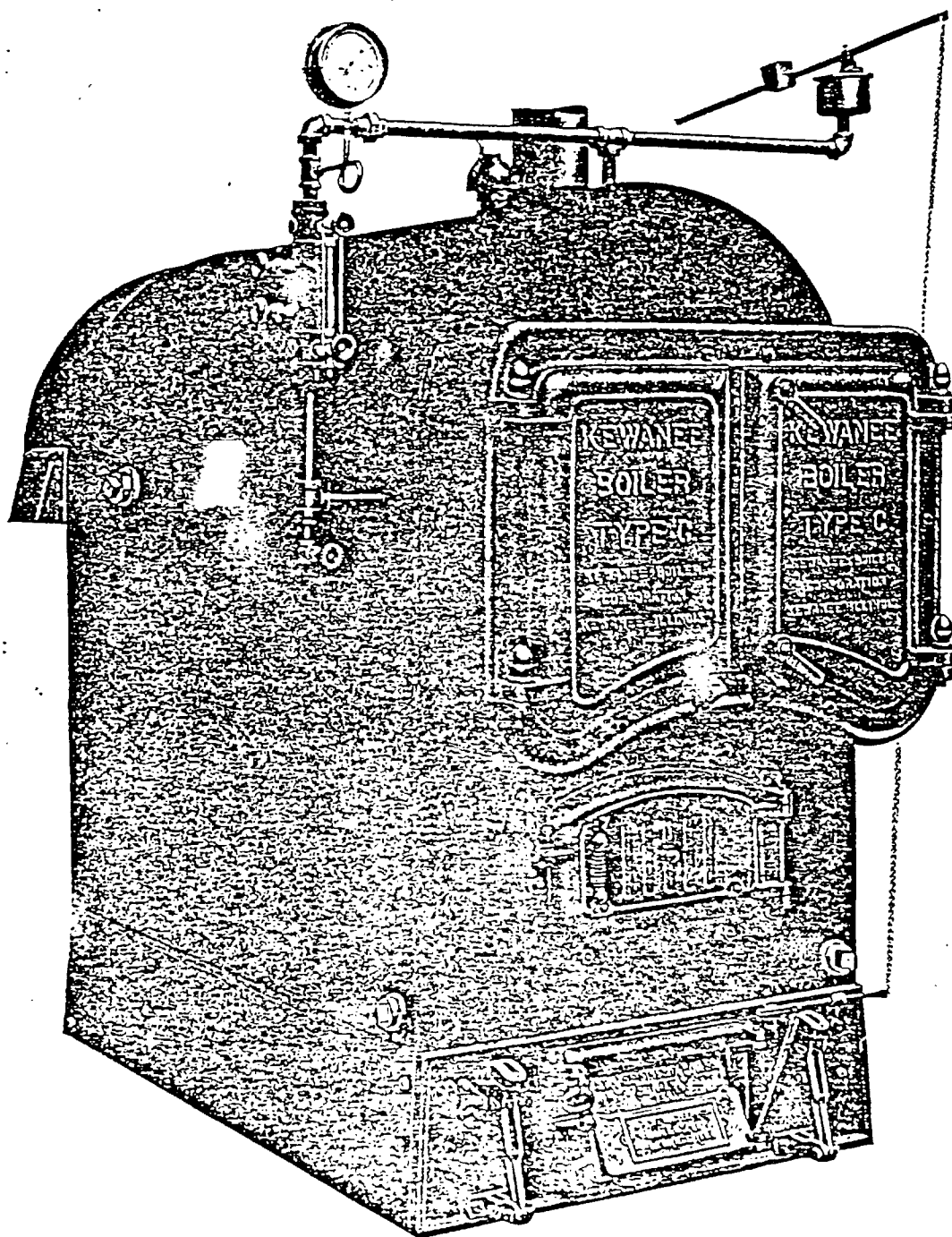
Hot water coil Inlet and Outlet same size iron pipe tap. $1\frac{1}{4}$ " on tankless QON coils; $1\frac{1}{2}$ " on storage DR coils, and 1" on SR coils.



7L75-7L90



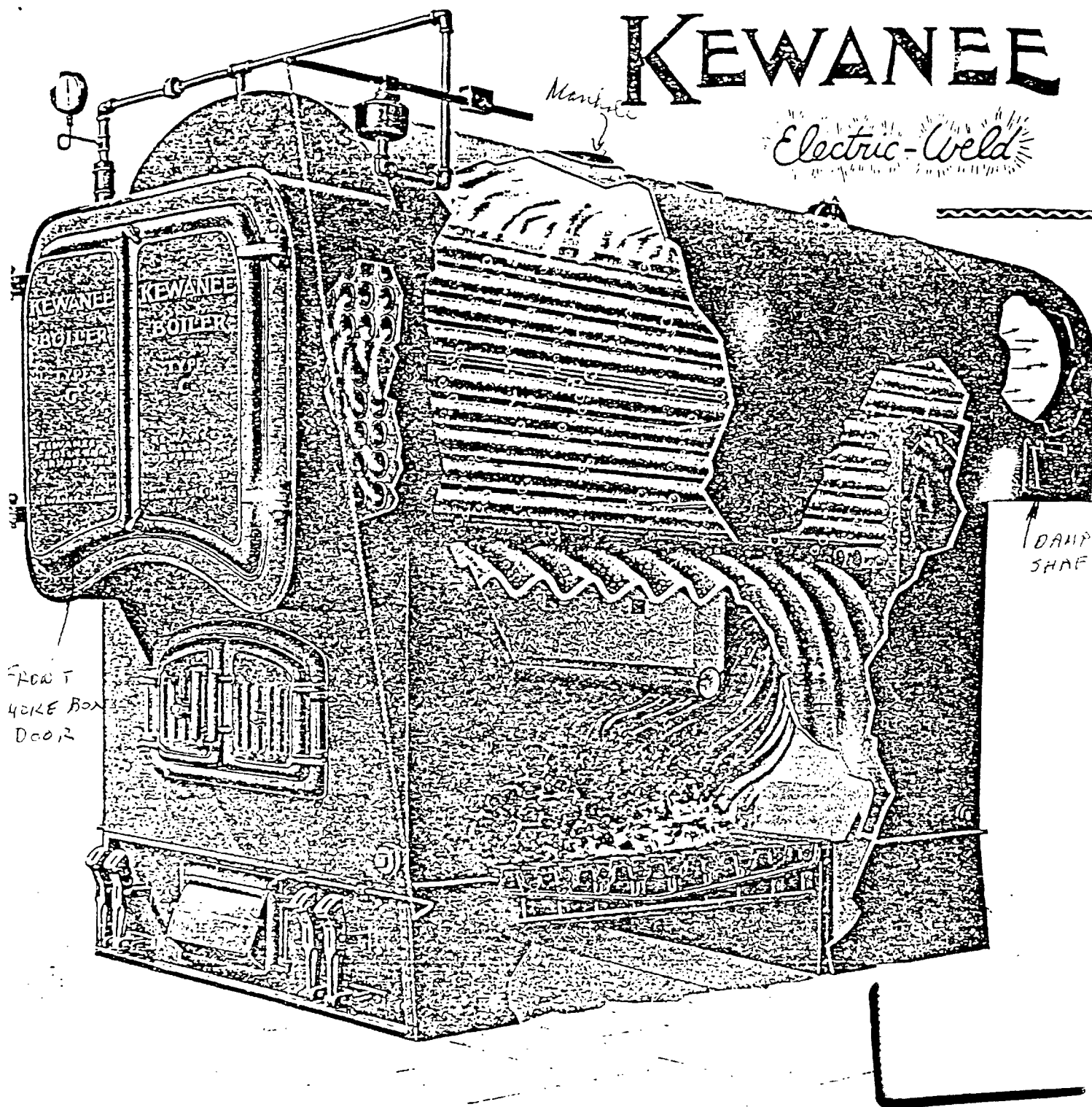
27L75-27L90



KEWANEE Type C boiler exemplifies the latest in expert thought . . . it is built of steel plate . . . seven simple shapes . . . solidly welded into a homogeneous unit by the well-proven electric metallic-arc-puddling process, same as has been used on welded details of Kewanee boilers for the past ten years or more.

The purchaser who is figuring on a simple, economical boiler that will make plenty of steam efficiently, with low expense for fuel and repairs in the actual operation OF HEATING ALL THE RADIATION LOAD SHOWN BY ITS CAPACITY, will find in this compact Type C boiler the reliable solution of his problem.

Particular attention is directed to an exclusive Kewanee improvement—the CORRUGATED CROWN SHEET shown on opposite page.



SMOKELESS TYPE C WITH ARCH AND DRUM For Burning Coal

Numbers 749 to 770—to Heat 2300 to 33,070 Sq. Ft. of Equivalent Direct Radiation

EQUIPMENT—Base Complete including Ash Pit Door with Balanced Draft Door and Rear Cleanout Opening; Heavy Rocking Grates; Bridge Wall Firebrick; Refractor for Header, Fire Door, Frame and Liner, Refractory Lined Flue Door, and Frame; Smoke Box Soot Cleanout Doors, Firing Tools consisting of Hoe, Poker, Bar and Tube Scraper.

Trimings for Steam Boiler—Water Column with Water Gauge and two or three Compression Gauge Cocks; Steam Gauge with Syphon and Corks; Pop Safety Valve; and Automatic ARCO Draft Regulator with Levers, Weights, Pulleys and Chains. No trimmings of any kind furnished with water boilers.

STEEL BOILER TYPE C

DESIGN AND CONSTRUCTION CHARACTERISTICS

Material:

The component parts consist of only seven simple shapes compacted together so as to limit the bulk and shorten the seams.

Flange steel plate, extra thickness is used. Tensile strength 50,000 to 60,000 pounds per square inch. This boiler plate is of homogeneous quality with high ductility and low carbon content (not exceeding 0.20%) as required for sound arc fusion welds.

Construction:

The requirements of the A. S. M. E. Code for low pressure heating boilers are fully complied with.

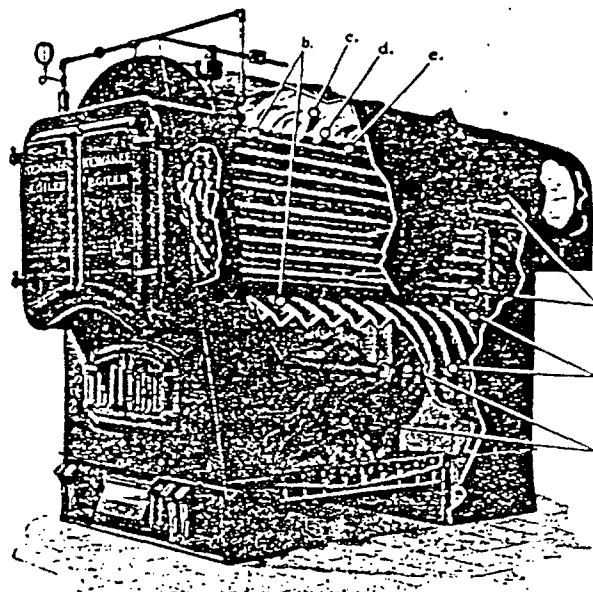
In building Type C boilers there is applied all the skill in manufacture and all the approved procedure evolved by expert boiler makers throughout forty years of continuous practical experience. Fanciful and untried kinks are eliminated and a high degree of workmanship is assured with no unnecessary shop expense. Contact surfaces on door castings are ground to dust-proof finish.

Performance:

Positive proof of actual performance beyond the specified duty is to be found in the figures derived from extended tests on the Type C boiler series made at Kewanee Boiler Corporation laboratory under practical operating conditions. The knowledge gained from this research has been so well applied in the design that the completed product carries handily all radiation loads up to the full catalog rating *plus*, for each size, with high efficiency.

Backing:

The name KEWANEE means as much on the new Type C boiler as it has meant for nearly half a century on all Kewanee boilers. That is, the dependable heating service of Type C boilers is guaranteed by Kewanee.



Design:

Distribution of the materials of construction is so arranged to concentrate most of the effective heating surface around the hot fire zone with a consequent quick transfer of more heat to the water.

- a. The water content is sub-divided so that there is ample volume at all the hottest parts, and aided by the header all the water is kept in active circulation, sweeping steam bubbles from the heating surfaces as fast as they are formed thus permitting the absorption of more of the useful heat of combustion.
- b. Although the circulation is rapid it is so orderly that the water level remains steady. There is no danger of a dry crown sheet. No moisture or slugs of water are carried over into the steam main.
- c. With the high and wide steam space which is provided, there is plenty of room for a reserve supply of dry steam.
- d. The disengaging area at the surface of the water line is unbroken and large enough to prevent priming which otherwise might be caused by crowding the expanded bubbles at the moment steam is liberated. In other words the flues interfere with the liberation of steam as the water line is artificially lowered below the upper flues which in consequence cannot even make steam.
- e. But in the Type C boiler the top rows of flues are under water, all the flues are effective in making steam.
- f. Grouping the flues in banks not only permits free circulation of water around them, but it also offsets any tendency for sediment to become deposited and lodged thereon. The expanded gases are thoroughly strained through these nests of flues so that as much heat as possible is sifted off during their travel to and fro their full length.
- g. In order to promote perfect combustion, there is extra width and height both in the furnace and in the rear combustion chamber. This gives time for enough air to penetrate the fuel and mingle with the products of combustion. An arch is arranged to deflect any unburnt gases over the glowing fuel bed at the rear. In this way combustion is completed and smoke eliminated at all loads.

Uniform Rating

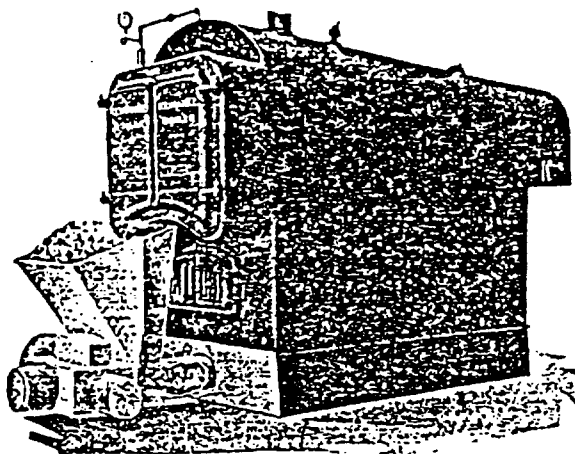
"The ratings published in this catalog are in conformity with the Steel Heating Boiler Institute's Code for Rating Low Pressure Heating Boilers."

Type C rating is Total Radiation Load at boiler outlet expressed in equivalent surface of cast iron radiators emitting 240 units of heat or B. T. U.'s per square foot per hour for Steam, at 2 lbs. pressure and 150 B. T. U. for Water at 18 degrees temperature.

Total Radiation Load corresponds with the estimated design load which is the sum of 3 items—

1. Normal heat emission of connected radiation required to heat the building to 70 degrees.
2. Maximum heat required for water heaters and other apparatus.
3. Heat emission of all mains and piping connections.

Provided the stack and breeching connections are in accordance with the manufacturer's specification, each Type C Boiler will carry all the radiation load listed as its capacity, and in addition will easily handle large overloads with long firing periods and with low stack temperatures.



Type C Boiler with Typical Stoker attachment
Numbers 1749 to 1770—to Heat 2790 to 40,200 Sq. Ft.
of Equivalent Direct Radiation

KEWANEE STEEL BOILER

Electric-Weld TYPE C

BURNS ANY KIND OF COAL, OIL OR GAS

The question what fuel to use may be paramount for the users of other makes of boilers but not so for the purchaser of Type C.

The owner of a Kewanee Compact Style Heating Unit has no difficulty with any fuel. The most available will serve best. Even a change-over from one fuel to another presents no complications.

With this wide adaptability in reserve, the customer may choose any of the Solid Fuels in various grades. Bituminous Soft Coals either for Hand Firing or with modern Stoker feed attachments. Powdered coal, briquettes, coke or processed fuels may be provided for as also may Anthracite Hard Fuel.

For Liquid Fuel any oil burner on the market will perform at its best with Type C.

Wherever Gaseous Fuel is practicable, Natural Gas or the manufactured and synthetic varieties have been used for years with outstanding results under Kewanee Boilers. Those performances are not mere claims. The highly economical results are deduced from careful observations in elaborate tests.

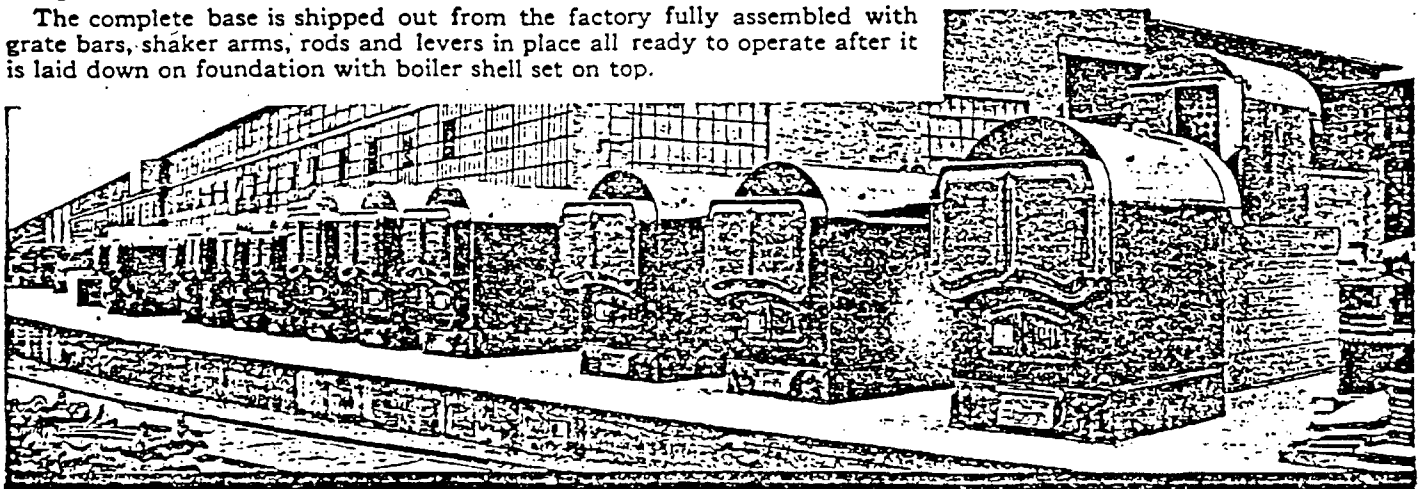
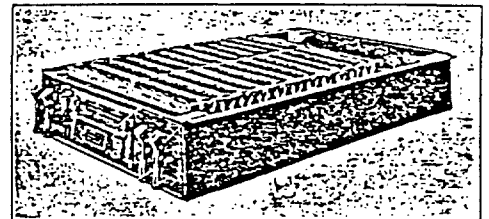
BASE GOES INTO BASEMENT ALL READY ASSEMBLED

Type C base consists of four substantial cast iron corner posts which take the weight of the boiler. The front plate is cast iron with balanced draft door and hinged frame which swings open to facilitate cleaning out the ash pit.

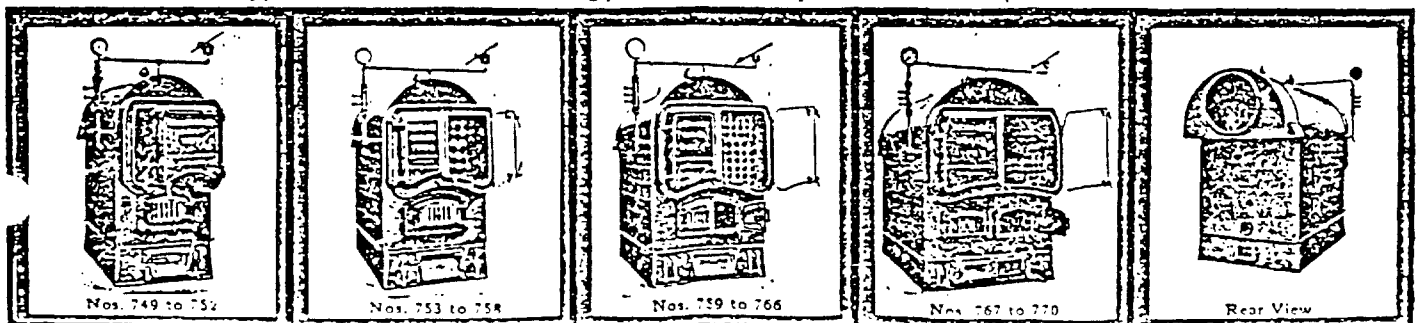
The sides and back are heavy steel plate flanged over at top to hold boiler cover.

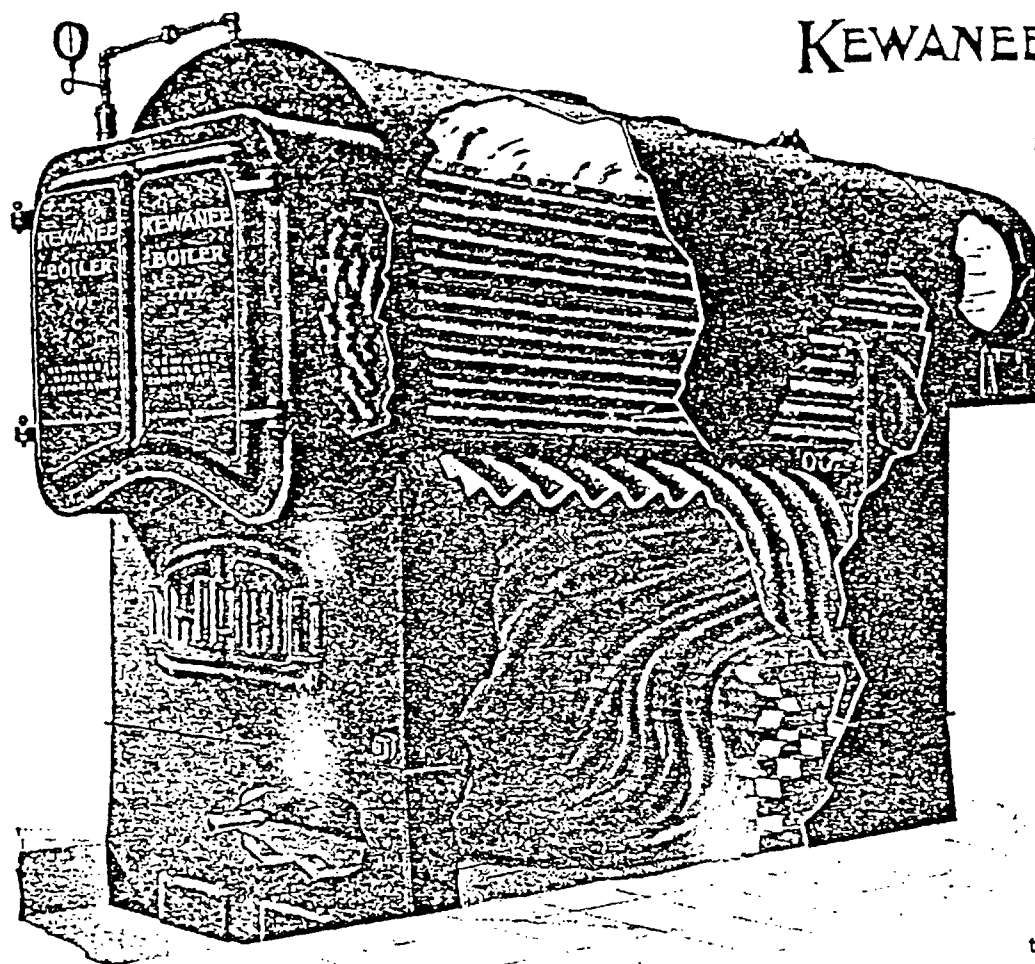
Opening at rear has removable cover plate to permit cleaning out back of bridgwall under rear combustion chamber.

The complete base is shipped out from the factory fully assembled with grate bars, shaker arms, rods and levers in place all ready to operate after it is laid down on foundation with boiler shell set on top.



Type C Boilers 750 to 761 on loading platform. The 4 styles below cover complete Series 749-770





KEWANEE STEEL BOILER

Electric-Weld

TYPE C

EQUIPMENT—Base with four cast-iron corner posts, heavy steel flanged sides with rear cleanout opening; cast-iron front plate (not shown); fire-door(s), frame and Liner(s); Refractory lined flue door(s) and frame; smokebox and soot cleanout doors, tube scraper. Steel plate for mounting oil burners and for dampened hearth openings not furnished by K. B. Corp.

Trimnings for Steam Boiler—Water column with water gauge and three (or 2) compression gauge cocks; steam gauge with syphon and cock; pop safety valve(s). No trimnings of any kind furnished with water boilers.

DIRECT DRAFT For Burning Oil

Numbers 1749 to 1770—
to Heat 2790 to 40,200 Sq. Ft.
Equivalent Direct Radiation

THE same predominant qualities which make the Kewanee Type C Boiler so well adapted for burning coal, apply just as emphatically in making this boiler suitable for burning oil.

Extensive tests have been carried on in the laboratory at Kewanee during the last five or six years with the purpose of developing ideal conditions as to boiler settings, furnace requirements, etc., burning oil with satisfactory results under all types and sizes of Kewanee boilers when equipped with leading commercial oil burners.

In view of the remarkably high efficiencies attained in numerous instances, we feel that Kewanee is well qualified to give expert advice to customers regarding the methods of installing any oil burners of recognized standing, for either front or rear firing. As a matter of fact, blue prints will be cheerfully furnished showing foundation and setting plan recommended in each particular instance.

It has become an axiom with experts in heating that "if you burn oil and expect to get steam, you must have a boiler that will steam just as well with coal or any other fuel." That is precisely what the Type C steel boiler will do. It gives very high figures for efficiency with any kind of fuel.

And whatever fuel may be under consideration, the purchaser is sure of an economical "buy" in the Kewanee Type C steel boiler. That is to say the first cost will be moderate and the upkeep cost which includes both fuel bill and repairs will be low. Every dollar expended for fuel will produce a high percentage of heat units.

The strong steel plate construction consisting of simple shapes compactly united by the electric-weld method is done in the same shops where the well known Kewanee boilers have been made for 40 years. This is a guarantee that nothing is skimmed in workmanship on Type C boilers.

The well balanced features which make Type C a real boiler, designed on the scientific principles enumerated on previous pages, of the coal burning section in this catalog, also hold good for the oil burning boiler, proving its ability to fulfill a definite demand in the heating business for a boiler of minimum advisable dimensions for handling the load for which it is rated.

Type C Oil Burning Boiler Settings—Front or Rear Fired

