PLAINTIFF'S EXHIBIT

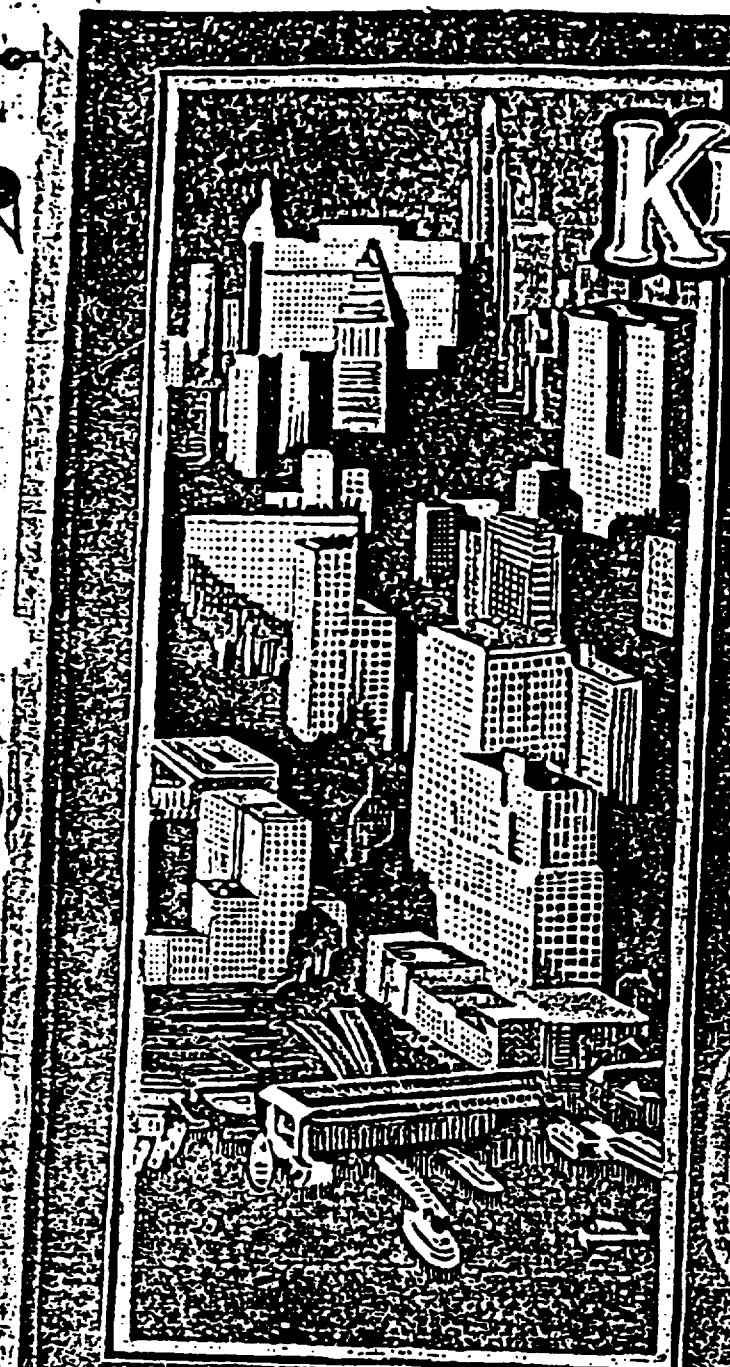
ASI-154

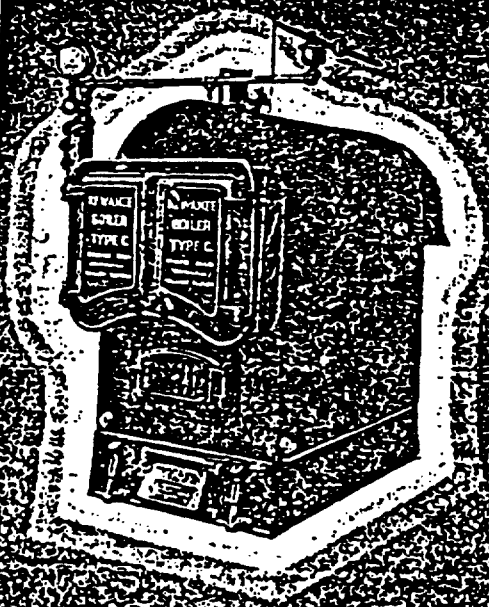
KEWANEE

TYPE C

BOILER

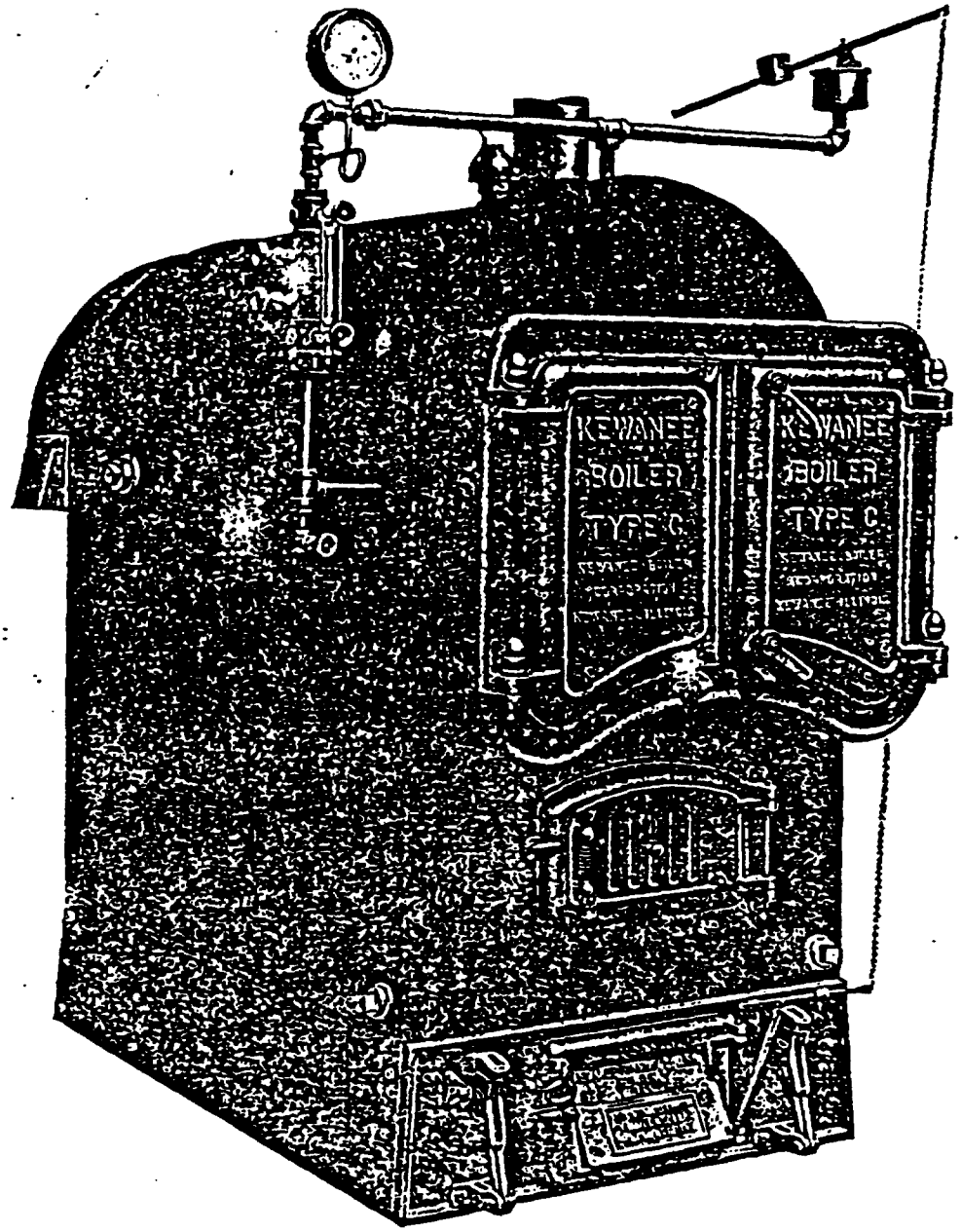
CATALOG 84





A HIGHLY PERFECTED STEEL HEATING BOILER SERIES

FROM MR MILOSKY (COAST GUARD WITNESS) (#11)



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.

AS 000018

KEWANEE STEEL BOILER Electric Weld TYPE C

KEWANEE presents in this catalog its recent series of steel heating boilers of the more compacte shape. This particular design of boiler is not new in itself—a basic patent having been taken ou in 1873—but several modifications have been brought to the front during the last few years in an attemp to fill a definite demand in the heating business for a boiler of limited bulk which may be adapted t restricted accommodations.

The Kewanee Boiler Corporation has developed some processes of manufacture through the adoptio of which the inherent weaknesses of earlier models on the market have been overcome and Kewane improvements now make it permissible to sponsor this line of the fore-shortened type of boiler fortifie with the guarantee of the Kewanee name.

Type C boiler is built to the A. S. M. E. Code for low pressure heating boilers, it is a *real* boiler in construction—a scie tifically designed steam generator:—

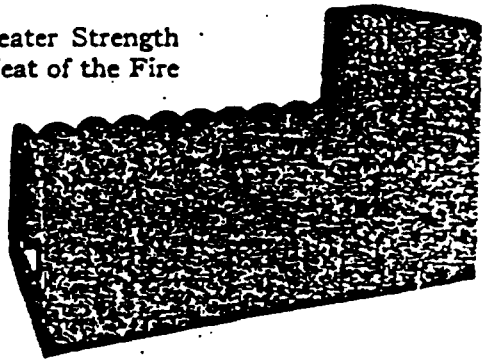
The furnace has extra width and height. In the smokeless type an arch is arranged to promote complete combustion. T space is proportioned to handle the expanded volume of the products of combustion.

Long travel back and forth for the flue gases prevents them escaping up the stack at too high a temperature.

The water content is ample to absorb all the useful heat without undue disturbance, and rapid circulation sweeps the stea bubbles through FREE WATER WAYS provided by improved design. The water line remains steady.

Another improved factor keeps the top flues under the water line—in other makes the water line would be 3 or 4 inch higher under like conditions. In Type C, the disengaging area is unbroken. There is no priming and the liberati of steam is unimpeded. The steam space above has unusual height to insure a continuous flow of dry steam in the heating system.

CORRUGATED CROWN SHEET has Much Greater Strength and More Heating Surface Concentrated where the Intense Heat of the Fire is put to Most Effective use for Quick Steaming.



KEWANEE TYPE C BOILERS all have corrugated crown sheets. This is a feature improvement in the heating boiler field evolved exclusively by Kewanee. Its practical value is not equalled by any other development on the market. In fact its application to the heating boiler firebox is one of the outstanding accomplishments in the past decade of steel boiler building.

The main advantages of the corrugated crown sheet are obvious:—

More heating surface is placed exactly where that surface is most effective in transmitting the radiant heat of t blazing fire to the water in the boiler. Quick steaming results from this greater heat absorption.

Corrugating gives much greater strength to resist the crushing effect of steam pressure; that means fewer stay bo are needed. This extra strength makes it possible for the crown sheet to be installed right-side-up instead of invert as has been usual in this style of boiler. That superseded practice of inverting the crown sheet is objectionable that mud and sediment collect in the bagged bottom where the greatest heat is applied, and there is very *ineffec* heating surface around the dead corner pockets at the top edges where soot is deposited from the fire on one side a circulation of water is interfered with on the other side.

The corrugated arched crown sheet installed right-side-up as in the Kewanee Type C boiler gives greater height better combustion . . . . . is self draining and cleaning . . . . . the sediment falls to the bottom of the water legs av from the hottest zone where it may readily be washed out.

Another advantage of the corrugated surface is the ease with which it takes up expansion from the heat of the furn and contraction caused by the rush of cold air when fire door is opened. The sinuous curves of the corrugations l to break-up and dislodge any scale which might tend to adhere to the crown sheet.

The corrugations of the crown sheet, the wide water legs and the large taper rounded corners at the top of the C *Piece Rear Combustion Chamber* draw a larger water volume to protect the hottest parts, make for more and ea circulation and consequently insure better steaming.

AS 000019

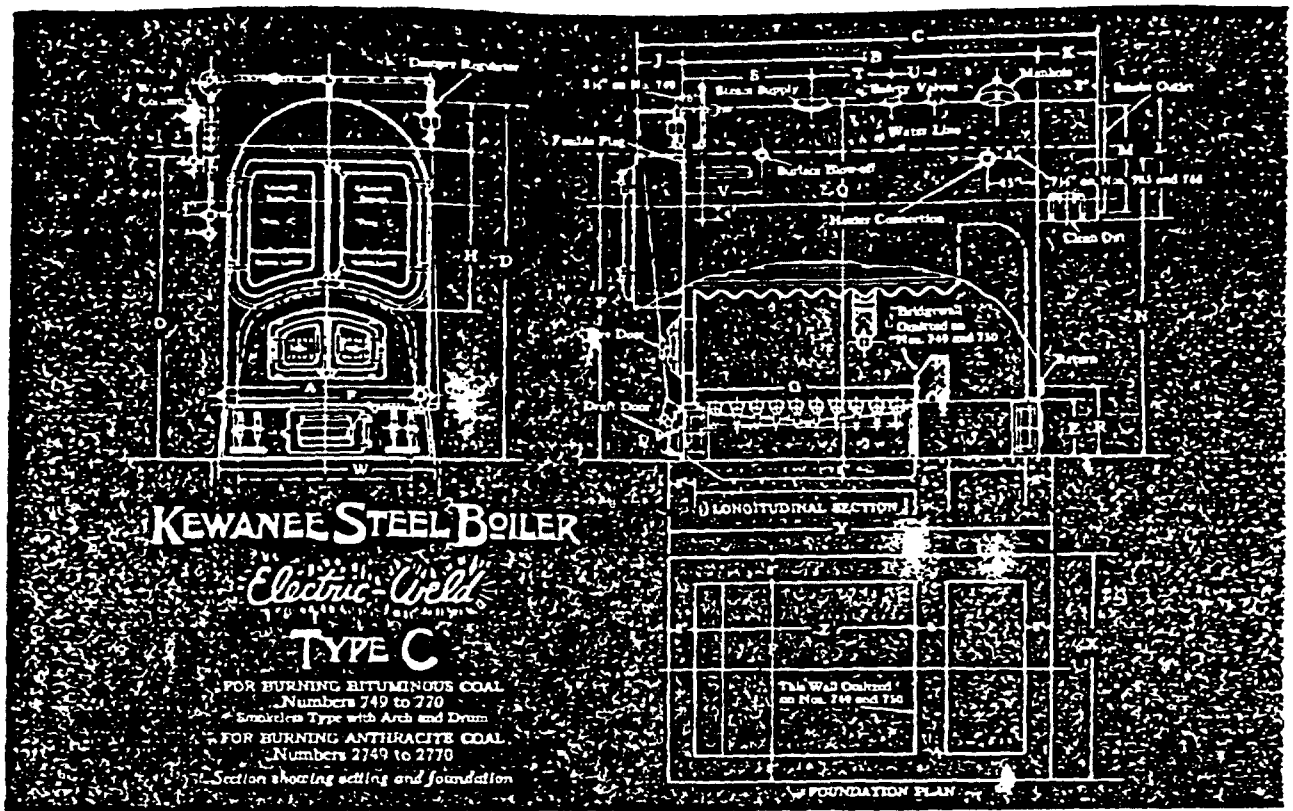
KEWANEE STEEL BOILER Electric-Weld TYPE C

SPECIFICATIONS AND DATA
for burning coal

Number of Boiler	749 2749	750 2750	751 2751	752 2752	753 2753	754 2754	755 2755	756 2756	757 2757	758 2758	759 2759	760 2760	761 2761	762 2762	763 2763	764 2764	765 2765	766 2766	767 2767	768 2768	769 2769	770 2770
Code Steam Boiler	Cabby	Cabde	Cabem	Cabyz	Cabey	Cabur	Carem	Carly	Carbe	Carer	Carez	Cadem	Cadey	Cadge	Cadir	Cadeu	Cadut	Cabu	Cabit	Cagar	Cabac	Cabet
Capacity, Steam Boiler . sq. ft.	2300	2690	3250	3630	4060	4550	5250	5950	6470	7900	8280	9610	10850	12110	14300	16380	18660	20750	22550	25530	28780	33070
Heating Surface . . . sq.ft.	164	192	232	262	290	325	375	425	462	498	591	686	775	865	1025	1170	1333	1482	1608	1824	2056	2362
Area of Grate . . . . sq. ft.	9.1	10.3	11.0	11.6	12.4	13.9	15.5	18.0	19.7	21.5	22.4	24.3	24.7	26.9	27.6	30.1	32.9	35.6	36.0	38.9	42.1	45.2
Width of Boiler . . . . in.	36	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72	78	78	84	84
Length of Boiler . . . . in.	50	56	68	76	70½	78½	90	73	79	85	89½	103	96½	107	115	130	118½	131	130	146½	131	149
Overall Height, Floor to Top of Shell . . . . . in.	77½	77½	77½	77½	83½	83½	83½	97	97	97	99	99	108½	108½	111½	111½	117½	117½	123½	123½	135	135
Overall Length of Boiler . . . . . ft. in.	5-10	6-4	7-4	8-0	7-10½	8-6½	9-6	8-3	8-9	9-3	9-8½	10-10	10-4½	11-3	11-11	13-2	12-8½	13-9	13-8	15-0½	13-9	15-3
.eight of Water-line . . in.	69	69	69	69	72	72	72	82	82	82	85	85	94	94	95	95	101	101	103	103	114	114
Approx. Weight, Pounds . .	4300	4700	5200	5500	6000	6500	7100	8000	8500	9000	10600	11700	12900	14000	16300	17900	19800	21300	22600	24700	28400	31300
Length of Firebox . . . in.	43	49	62	70	64	72	84	67	73	79	83	97	89	100	107	122	111	122	123	139	123	141
dth of Firebox . . . in.	30	30	30	30	36	36	36	42	42	42	47½	47½	52½	52½	58½	58½	64	64	70	70	76	76
eight of Firebox . . . in.	26	26	26	26	29	29	29	32	32	32	34	34	36	36	38	38	40	40	42	42	42	42
Size of Steam Opening . . in.	6	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8	8	8	8	10	10	10
Size of Return Opening. . in.	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6
Size of Safety Valve Opening . . . . . in.	2	2	2	2	2	2	2½	2½	3	3	3	3½	3½	3½	3½	4	4	2-2½	2-2½	2-3	2-3	2-3
meter of Breeching me Boiler . . . . . in.	20	22	22	22	24	24	24	26	26	26	28	28	32	32	34	34	36	36	40	40	42	42
Diameter of Stack, One Boiler . . . . . in.	18	20	20	20	22	22	22	24	24	26	26	26	30	30	..	32	34	34	38	38	40	40
Min. Height of Stack, One Boiler . . . . . ft.	45	50	50	55	53	55	60	60	60	65	65	65	70	70	70	70	80	90	90	90	100	100
Diameter of Breeching, Two Boilers . . . . . in.	26	30	30	30	34	34	34	38	38	40	40	44	46	46	50	50	52	52	54	56	56	56
Diameter of Stack, Two Boilers . . . . . in.	26	28	28	28	31	31	31	34	34	36	36	40	42	42	46	46	48	48	52	54	54	54
Min. Height of Stack, Two Boilers . . . . . ft.	55	60	60	65	65	65	70	70	70	75	75	75	80	80	80	80	90	100	100	100	110	110
Outside Surface to Cover . . . . . sq. ft.	62	68	80	89	93	102	115	116	124	132	145	165	172	187	210	234	231	252	265	294	294	328

Boiler Numbers 2749 to 2770 are for Anthracite Coal.
Rated Capacity for Water Boiler is 60% Greater than Capacity of Steam Boiler.
For Water add word to code; example: Ship today one CABEM WATER complete.

AS000020



SETTING AND BOILER MEASUREMENTS

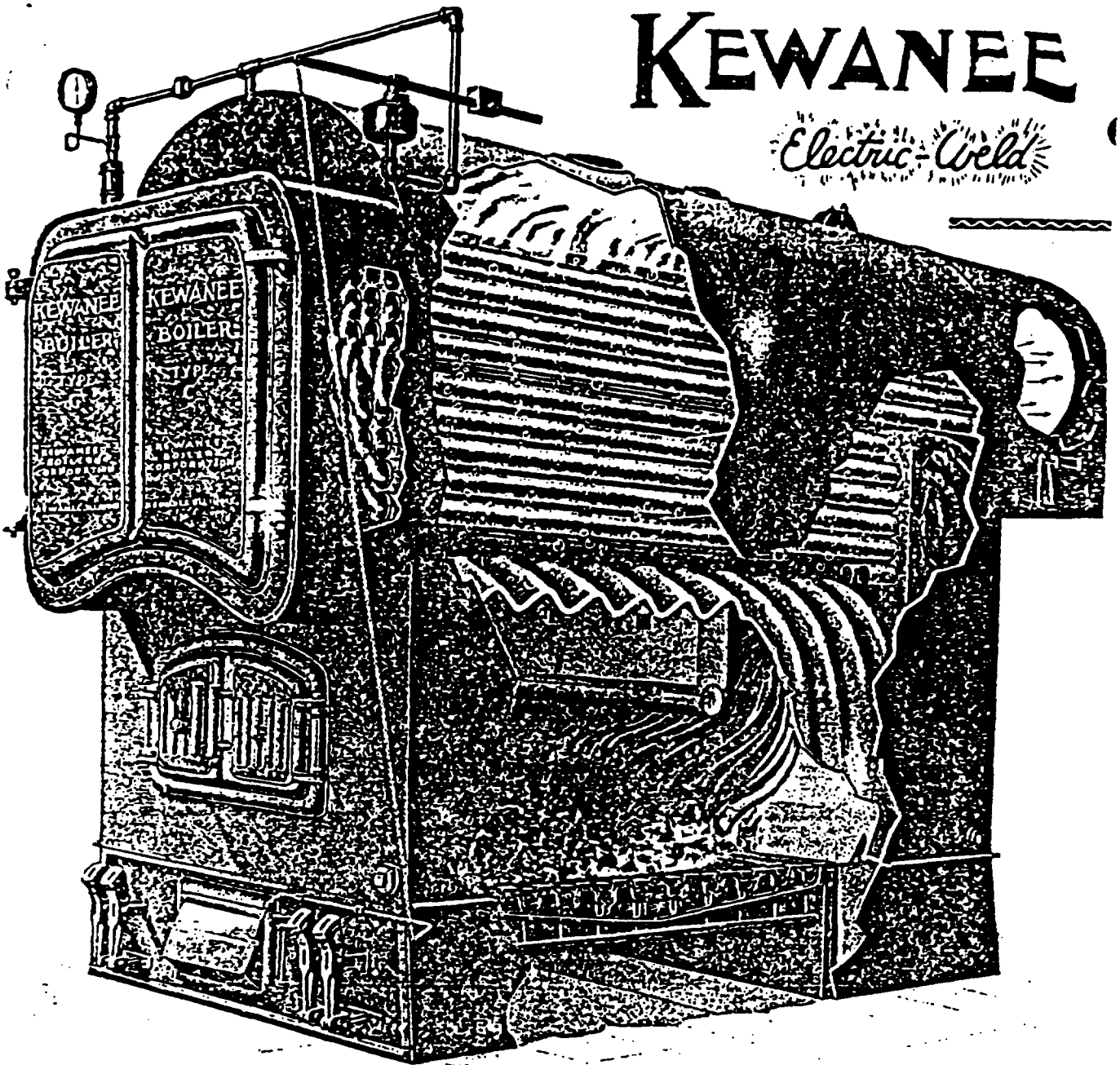
for burning c

Number of Boiler	749 2749	750 2750	751 2751	752 2752	753 2753	754 2754	755 2755	756 2756	757 2757	758 2758	759 2759	760 2760	761 2761	762 2762	763 2763	764 2764	765 2765	766 2766	767 2767	768 2768	769 2769
A—Width of Boiler . . . . . in.	36	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72	78	78	84
B—Length of Boiler . . . . ft. in.	4–2	4–8	5–8	6–4	5–10½	6–6½	7–6	6–1	6–7	7–1	7–5½	8–7	8–0½	8–11	9–7	10–10	9–10½	10–11	10–10	12–2½	10–11
C—Overall Length of Boiler . ft. in.	5–10	6–4	7–4	8–0	7–10½	8–6½	9–6	8–3	8–9	9–3	9–8½	10–10	10–4½	11–3	11–11	13–2	12–8½	13–9	13–8	15–0½	13–9
D—Overall Height of Boiler . . in.	77½	77½	77½	77½	83½	83½	83½	97	97	97	99	99	108½	108½	111½	111½	117½	117½	121½	121½	135
E—Height of Ash-Pit Base . . in.	14	14	14	14	14	14	14	14	14	14	14	14	17	17	17	17	17	17	17	17	21
F—Width of Grates and Ash-Pit in.	30	30	30	30	36	36	36	42	42	42	47½	47½	52½	52½	58½	58½	64	64	70	70	76
G—Length of Grates . . . . . in.	43	49	56	56	50	56	62	62	68	74	68	74	68	74	68	74	74	80	74	80	80
H—Height of Front Smokebox . in.	34	34	34	34	34	34	34	42	42	42	42	42	48	48	48	48	51	51	52	52	61
I—Top of Front Smoke-box to Top of Boiler . . . . . in.	10	10	10	10	13	13	13	16	16	16	16	16	16	16	18	18	17	17	19	19	21
J—Depth of Front Smoke-box . in.	9	9	9	9	10	10	10	11	11	11	12	12	12	12	12	12	14	14	14	14	14
K—Depth of Rear Smokebox . . in.	11	11	11	11	14	14	14	15	15	15	15	15	16	16	16	16	20	20	20	20	20
L—Height of Rear Smoke-box in.	26	26	26	26	29	29	29	35½	35½	35½	35	35	36	36	39	39	43	43	45½	45½	49½
M—Diameter of Smoke Outlet . in.	22	22	22	22	24	24	24	26	26	26	28	28	32	32	34	34	36	36	40	40	42
N—Height Smoke Outlet Above Floor . . . . . in.	64½	64½	64½	64½	69	69	69	79	79	79	81½	81½	90½	90½	93	93	96	96	99	99	110
O—Height of Water Column . in.	67	67	67	67	70	70	70	80	80	80	82	82	91	91	92½	92½	98	98	100	100	111½
P—Height of Water Line . . . in	69	69	69	69	72	72	72	82	82	82	85	85	94	94	95	95	101	101	103	103	114
Q—Height of Steam Supply . . in.	79½	79½	79½	79½	85½	85½	85½	99	99	99	101	101	110½	110½	113½	113½	119½	119½	123½	123½	137
R—Height of Return . . . . in.	18	18	18	18	18	18	18	19	19	19	19	19	22	22	22	22	22	22	22	22	26
S—Location of Steam Supply . in.	10½	14	14	16	14	16	18	16	18	21	18	21	18	21	18	21	21	21	21	21	21
T—Location of 1st Safety Valve. in.	8½	10	10	10	10	10	11	12	13	14	13	14	13	14	13	14	14	14	14	14	14
U—Location of 2nd Safety Valve in.																		10	10	11	11
V—Location of Surface Blow-off in.	12	12	12	12	12	12	12	12	12	12	18	24	24	24	24	24	24	24	24	24	24
W—Width of Base . . . . . in.	38½	38½	38½	38½	44½	44½	44½	50½	50½	50½	56½	56½	63	63	69	69	75	75	81	81	87½
X—Width of Foundation . . in.	46	46	46	46	52	52	52	58	58	58	63½	63½	68½	68½	74½	74½	80	80	86	86	93
Y—Length of Foundation . in	59	65	77	85	80	88	99	82	88	94	99	112	106	115	123	138	127	140	138	154	139
Z—Length of Ash-pit . . in.	43	49	56	56	50	56	62	62	68	74	68	74	68	74	68	74	74	80	74	80	80

AS 000021

KEWANEE

Electric-Weld



SMOKELESS TYPE C WITH ARCH AND DRUM For Burning Coal

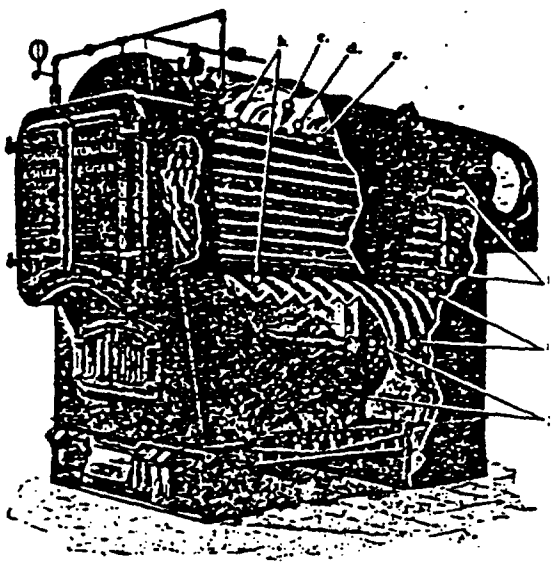
Numbers 749 to 770—to Heat 2300 to 33,070 Sq. Ft. of Equivalent Direct Radiation

EQUIPMENT—Base Complete including Ash Pit Door with Balanced Draft Door and Rear Cleanout Opening; Heavy Rocking Grates; Bridge Wall Firebrick; Refrac-tory Filler 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.

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

AS000022

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 concentrat most of the effective heating surface around the hot fire zone with a conse quent quick transfer of more heat to the water.

a. The water content is sub-divided so that there is ample volume at all th hottest parts, and aided by the header all the water is kept in active circula tion, sweeping steam bubbles from the heating surfaces as fast as they ar formed thus permitting the absorption of more of the useful heat of com bustion.

b. Although the circulation is rapid it is so orderly that the water level remain steady. There is no danger of a dry crown sheet. No moisture or slugs o water are carried over into the steam main.

c. With the high and wide steam space which is provided, there is plenty o room for a reserve supply of dry steam.

d. The disengaging area at the surface of the water line is unbroken and l large enough to prevent priming which otherwise might be caused by crowc ing the expanded bubbles at the moment steam is liberated. In other makes the flues interfere with the liberation of steam as the wate line is artificially lowered below the upper flues which in consequence cannc even make steam.

e. But in the Type C boiler the top rows of flues are under water, all the flue are effective in making steam.

f. Grouping the flues in banks not only permits free circulation of water a around them, but it also offsets any tendency for sediment to become de posited and lodged thereon. The expanded gases are thoroughly straine through these nests of flues so that as much heat as possible is sifted ou during their travel to and fro their full length.

g. In order to promote perfect combustion, there is extra width and heigh both in the furnace and in the rear combustion chamber. This gives tim for enough air to penetrate the fuel and mingle with the products of com bustion. An arch is arranged to deflect any unburnt gases over the glowin fuel bed at the rear. In this way combustion is completed and smoke i 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."

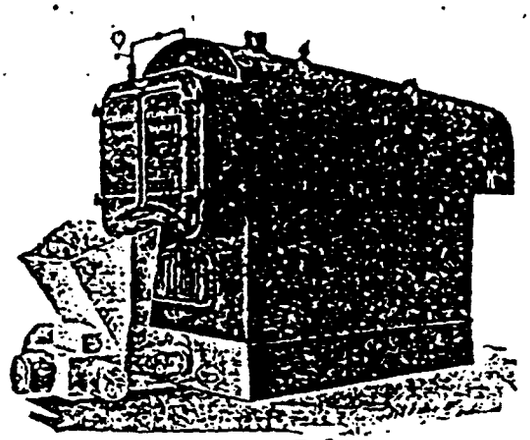
Type C rating is Total Radiation Load at boiler outlet expressed in equivalent surface of cast iron radiators emitting 240 units of heat or B. T. U.'s per square foot per hour for Steam, at 2 lbs. pressure and 150 B. T. U. for Water at 18(degrees temperature.

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.

AS 000023



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.

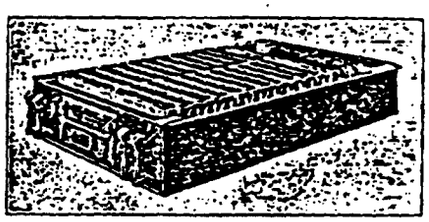
The owner of a Kewanee Compact Style Heating Unit has no difficulty with any fuel. The most available will serve best. Even a change-over from one fuel to another presents no complications.

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

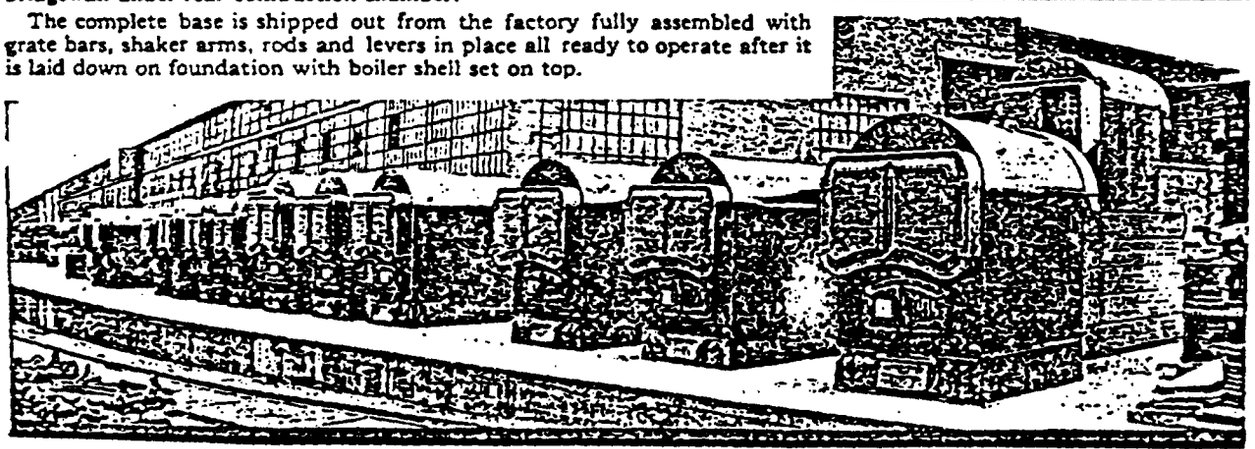


Type C base consists of four substantial cast iron corner posts which take the weight of the boiler. The front plate is cast iron with balanced draft door and hinged frame which swings open to facilitate cleaning out the ash pit.

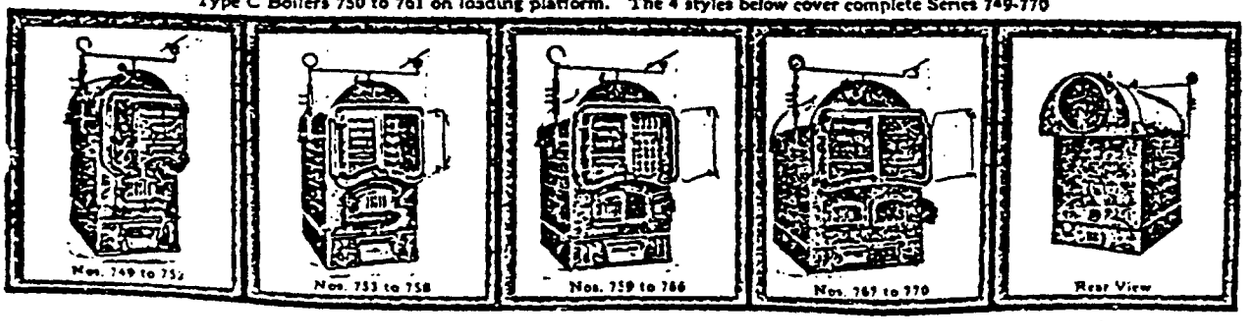
The sides and back are heavy steel plate flanged over at top to hold boiler cover.

Opening at rear has removable cover plate to permit cleaning out back of bridgewall 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

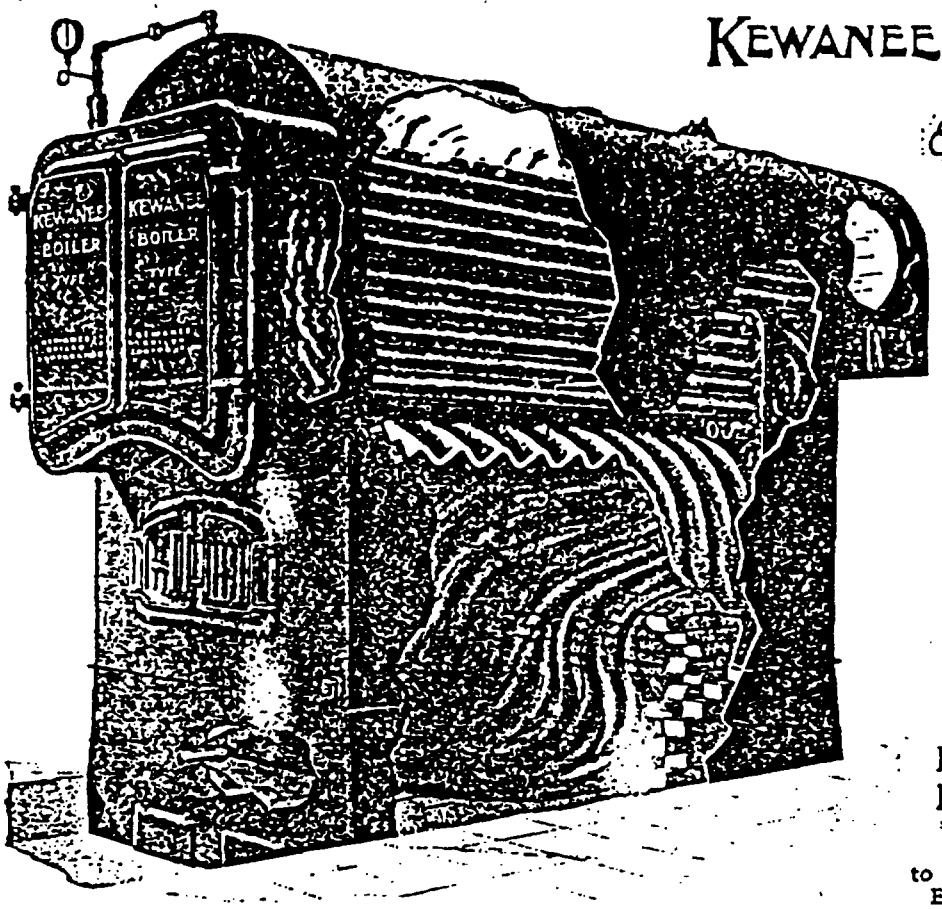


A5000024

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); firedoor(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 dampered hearth openings not furnished by K. B. Corp.

Trimmings 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 trimmings of any kind furnished with water boilers.

DIRECT DRAFT
For Burning Oil

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

THE same predominant qualities which make the Kewanee Type C Boiler so well adapted for burnin 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 year with the purpose of developing ideal conditions as to boiler settings, furnace requirements, etc., fo burning oil with satisfactory results under all types and sizes of Kewanee boilers when equipped wit leading commercial oil burners.

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

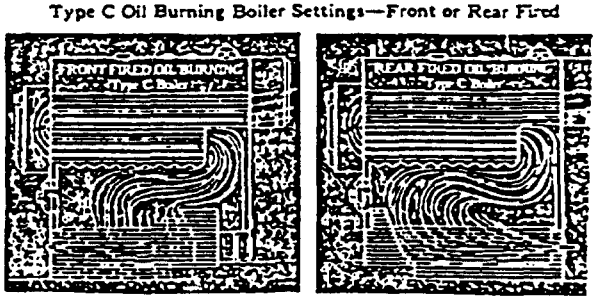
It has become an axiom with experts in heating that "if you burn oil and expect to get steam, you must have a boil that will steam just as well with coal or any other fuel." That is precisely what the Type C steel boiler will do. It wi give very high figures for efficiency with any kind of fuel.

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 skimped 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



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KEWANEE STEEL BOILER Electric-Weld TYPE C

SPECIFICATIONS AND DATA
for burning oil

Number of Boiler	1749	1750	1751	1752	1753	1754	1755	1756	1757	1758	1759	1760	1761	1762	1763	1764	1765	1766	1767	1768	1769	1770
Code Steam Boiler	Cobby	Cobdo	Cobem	Cobgj	Cobop	Cobur	Cocem	Cocip	Cocbr	Cocor	Cocus	Codon	Codey	Codpe	Codfr	Codbo	Codut	Cofa	Colot	Cogor	Cohas	Cohot
Capacity, Steam Boiler. sq. ft.	2790	3360	3940	4430	4930	5520	6370	7220	7850	8360	10040	11670	13180	14700	17420	19880	22650	25200	27300	31000	34900	40200
Heating Surface . . . sq. ft.	164	192	232	262	290	325	375	425	462	492	591	686	775	865	1025	1170	1333	1482	1608	1824	2056	2362
Furnace Volume. . . . cu. ft.	24.0	26.8	31.1	35.7	44.0	47.6	52.1	61.8	67.0	72.2	86.7	96.0	113.1	174.8	151.1	168.8	185.9	201.0	230.6	256.0	275.7	309.6
Width of Boiler . . . . in.	36	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72	78	78	84	84
Length of Boiler . . . . in.	50	56	68	76	70½	78½	90	73	79	85	89½	103	96½	107	115	130	118½	131	130	146½	131	149
Overall Height, Floor to Top of Shell . . . . . in.	77½	77½	77½	77½	83½	83½	83½	97	97	97	99	99	108½	108½	111½	111½	117½	117½	121½	121½	135	135
Overall Length of Boiler . . . . . ft. in.	5–10	6–4	7–4	8–0	7–10½	8–6½	9–6	8–3	8–9	9–3	9–8½	10–10	10–4½	11–3	11–11	13–2	12–8½	13–9	13–8	15–0½	13–9	15–3
Height of Water-line . . in.	69	69	69	69	72	72	72	82	82	82	85	85	94	94	95	95	101	101	103	103	114	114
Approx. Weight, Pounds . .	3600	3800	4200	4600	5000	5400	5900	6600	7000	7300	8800	9600	10600	11500	13700	15100	16600	17800	19700	21100	24300	27000
Length of Firebox . . . in.	43	49	62	70	64	72	84	67	73	79	83	97	89	100	107	122	111	122	123	139	123	141
Width of Firebox . . . . in.	30	30	30	30	36	36	36	42	42	42	47½	47½	52½	52½	58½	58½	64	64	70	70	76	76
Height of Firebox . . . . in.	26	26	26	26	29	29	29	32	32	32	34	34	36	36	38	38	40	40	42	42	42	42
Size of Steam Opening . . in.	6	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8	8	8	10	10	10	
Size of Return Opening . in.	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6
Size of Safety Valve Opening . . . . . in.	2	2	2	2	2	2	2½	2½	3	3	3	3½	3½	3½	3½	4	4	2–2½	2–2½	2–3	2–3	2–3
Diameter of Breeching, One Boiler . . . . . in.	20	22	22	22	24	24	24	26	26	26	28	28	32	32	34	34	36	36	40	40	42	42
Diameter of Stack, One Boiler . . . . . in.	18	20	20	20	22	22	22	24	24	26	26	28	30	30	32	32	34	34	38	38	40	40
Min. Height of Stack, One Boiler . . . . . ft.	45	50	50	55	55	55	60	60	60	65	65	65	70	70	70	70	80	90	90	90	100	100
Diameter of Breeching, Two Boilers . . . . . in.	28	30	30	30	34	34	34	38	38	40	40	44	46	46	50	50	52	52	54	56	56	56
Diameter of Stack, Two Boilers . . . . . in.	26	28	28	28	31	31	31	34	34	36	36	40	42	42	46	46	48	48	52	54	54	54
Min. Height of Stack, Two Boilers . . . . . ft.	55	60	66	65	65	65	70	70	70	75	75	75	80	80	80	80	90	100	100	100	110	110
Number of Fire Brick Required	290	320	350	390	450	470	490	460	490	520	610	640	720	770	800	850	920	960	990	1050	1270	1300
Outside Surface to Cover . . . . . sq. ft.	62	68	80	89	93	102	115	116	124	132	145	165	172	187	210	234	231	252	265	294	294	328

Rated Capacity for Water Boiler is 60% Greater than Capacity of Steam Boiler

For Water add word to code; example: Ship today one COBEM WATER complete.

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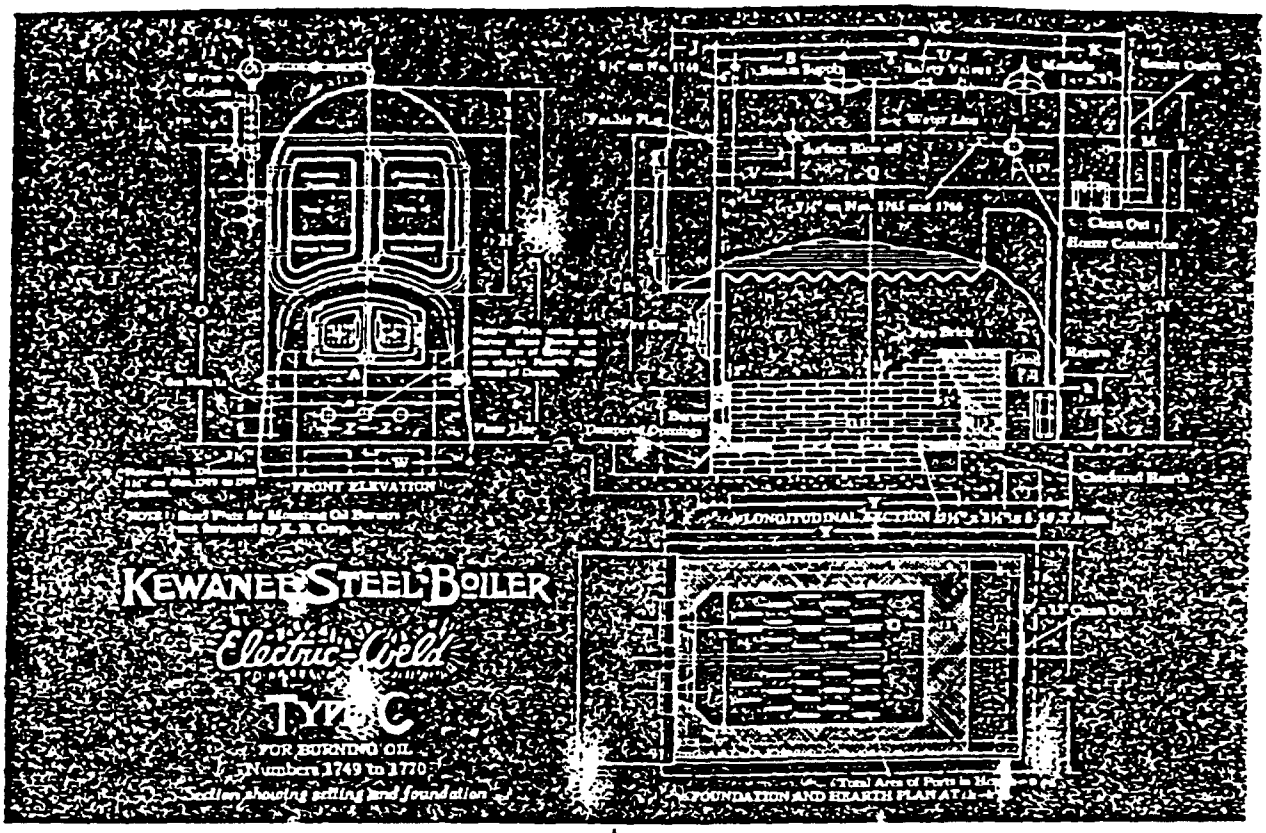

SETTING AND BOILER MEASUREMENTS — for burni

Number of Boiler	1749	1750	1751	1752	1753	1754	1755	1756	1757	1758	1759	1760	1761	1762	1763	1764	1765	1766	1767	1768	176
A—Width of Boiler . . in.	36	36	36	36	42	42	42	48	48	48	54	54	60	60	66	66	72	72	78	78	84
B—Length of Boiler . ft. in.	4–2	4–8	5–8	6–4	5–10½	6–6½	7–6	6–1	6–7	7–1	7–5½	8–7	8–0½	8–11	9–7	10–10	9–10½	10–11	10–10	12–2½	10–1
C—Overall Length of Boiler . . . ft. in.	5–10	6–4	7–4	8–0	7–10½	8–6½	9–6	8–3	8–9	9–3	9–8½	10–10	10–4½	11–3	11–11	13–2	12–8½	13–9	13–8	15–0½	13–9
D—Overall Height of Boiler . . . in.	77½	77½	77½	77½	83½	83½	83½	97	97	97	99	99	108½	108½	113½	113½	117½	117½	121½	121½	135
E—Height of Base . . . in.	14	14	14	14	14	14	14	14	14	14	14	14	17	17	17	17	17	17	17	17	21
F—Width of Furnace . . in.	18	18	18	18	24	24	24	30	30	30	36	36	42	42	48	48	54	54	60	60	66
G—Length of Furnace . in.	37	43	50	60	54	58	62	57	63	69	68	74	68	76	72	81	85	93	88	98	98
H—Hgt. of Front Smokebox in.	34	34	34	34	34	34	34	42	42	42	42	42	48	48	48	48	51	51	52	52	61
I—Top of Front Smokebox to Top of Boiler . . . in.	10	10	10	10	13	13	13	16	16	16	16	16	16	16	18	18	17	17	19	19	21
J—Depth of Front Smokebox . . . . in.	9	9	9	9	10	10	10	11	11	11	12	12	12	12	12	12	14	14	14	14	14
K—Depth of Rear Smokebox . . . in.	11	11	11	11	14	14	14	15	15	15	15	15	16	16	16	16	20	20	20	20	20
L—Hgt. of Rear Smokebox in.	26	26	26	26	29	29	29	35½	35½	35½	35	35	36	36	39	39	43	43	45½	45½	49½
M—Diam. of Smoke Outlet in.	22	22	22	22	24	24	24	26	26	26	28	28	32	32	34	34	36	36	40	40	42
N—Height Smoke Outlet Above Floor . . . in.	64½	64½	64½	64½	69	69	69	79	79	79	81½	81½	90½	90½	93	93	96	96	99	99	110
O—Height of Water Col. . in.	67	67	67	67	70	70	70	80	80	80	82	82	91	91	92½	92½	98	98	100	100	111
P—Height of Water Line in.	69	69	69	69	72	72	72	82	82	82	85	85	94	94	95	95	101	101	103	103	114
Q—Height of Steam Supply . . . . in.	79½	79½	79½	79½	85½	85½	85½	99	99	99	101	101	110½	110½	113½	113½	119½	119½	123½	123½	137
R—Height of Return . . in.	18	18	18	18	18	18	18	19	19	19	19	19	22	22	22	22	22	22	22	22	26
S—Location of Steam Supply . . . . in.	10½	14	14	16	14	18	18	16	18	21	18	21	18	21	18	21	21	21	21	21	21
T—Location of 1st Safety Valve . . . . in.	8½	10	10	10	10	10	11	12	13	14	13	14	13	14	13	14	14	14	14	14	14
U—Location of 2nd Safety Valve . . . . in.																		10	10	11	11
V—Location of Surface Blow-off . . . in.	12	12	12	12	12	12	12	12	12	12	18	24	24	24	24	24	24	24	24	24	24
W—Width of Base . . . in.	38½	38½	38½	38½	44½	44½	44½	50½	50½	50½	56½	56½	63	63	69	69	75	75	81	81	87
X—Width of Foundation. in.	46	46	46	46	52	52	52	58	58	58	63½	63½	68½	68½	74½	74½	80	80	86	86	92
Y—Length of Foundation. in.	59	66	77	85	80	88	99	82	88	94	99	112	106	115	123	138	127	140	138	154	137
Z—Location of Burners . in.											8½	8½	9½	9½	11	11	12½	12½	14	14	15
a—Bolt Centers in Front Plate . . . . in.	31½	31½	31½	31½	37½	37½	37½	43½	43½	43½	49½	49½	55½	55½	61½	61½	67½	67½	73½	73½	79
e—Total Area of Ports in Hearth . . . . in.	42	49	59	67	74	83	93	108	118	128	150	175	198	220	260	300	340	378	410	465	52
f—Depth of Pit . . . in.	9	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	12	12	12	12	13
g—Bolt Centers in Front Plate . . . . in.	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	5½	5½	5½	5½	5½	5½	5½	5½	7
Size of Dampered Opening in.	No Openings				6x11	6x12	6x14	6x16	7x15	7x17	7x18	7x21	7x25	2-7x14	2-7x16	2-8x16	2-8x19	2-9x19	2-9x21	2-9x23	2-9x26	2-10

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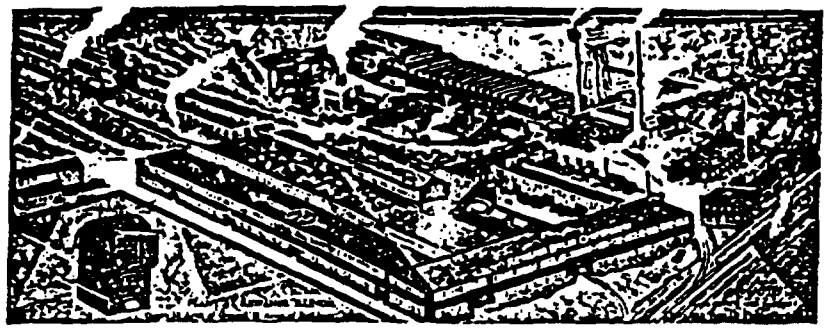

KEWANEE STEEL BOILERS

CATALOG 84 *Steel Boilers Electric-Weld*

Pages	Numbers	Type of Boiler	Sq. Ft. Radiation
2- 8	749— 770	Type C Portable.....	Coal 2300—33070
9-11	1749—1770		Oil 2790—40200

ALL TYPES OF KEWANEE BOILERS LISTED BELOW MAY ALSO BE SHIPPED FROM STOCK—CATALOGS GIVE THE DETAILS

CATALOG 90 *Steel Firebox Boilers Riveted*

		Brickset Types		
4-7	0— 20	Up-Draft Firebox.....	Coal	510—18610
			Oil	1440—26600
20-21	104—112	Down-Draft Smokeless Firebox.....	Coal	1650— 7490
			Oil	3500— 9100
		Portable Types		
8-11	307—324	Down-Draft Smokeless Firebox.....	Coal	3390—36810
			Oil	5050—44700
12-15	407—424	Up-Draft Firebox.....	Coal	2550—33980
			Oil	4730—40480
30-32	524—544	Up-Draft Firebox—"500" Series.....	Coal	7060—28880
			Oil	10110—35070
28-29	832—843	Up-Draft Firebox—"800" Series	Coal	7920—35170
			Oil	9620—42700
26 27	932—943	Down-Draft Smokeless—"900" Series	Coal	7560—36790
			Oil	10060—44670
22-25	0K—20K	Up-Draft Firebox—Type K.....	Coal	510—15810
			Oil	1040—19190
18-19	104K—112K	Down-Draft Smokeless—Type K ...	Coal	1650— 5950
			Oil	2670— 7220

CATALOG 87 *All Types for Burning Oil*

CATALOG 88 *Steel Residence Boilers Electric-Weld*

2-7	740— 748	Residence Type R.....Bituminous	Coal	370— 1960
	2740—2748	Anthracite	Coal	430— 1960
8-9	1740—1748		Oil	450— 2380

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Dominion Kewanee Boiler Company, Ltd., Toronto, Ontario

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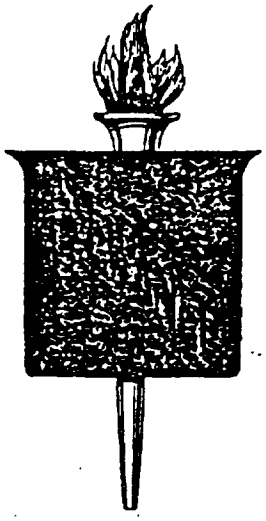

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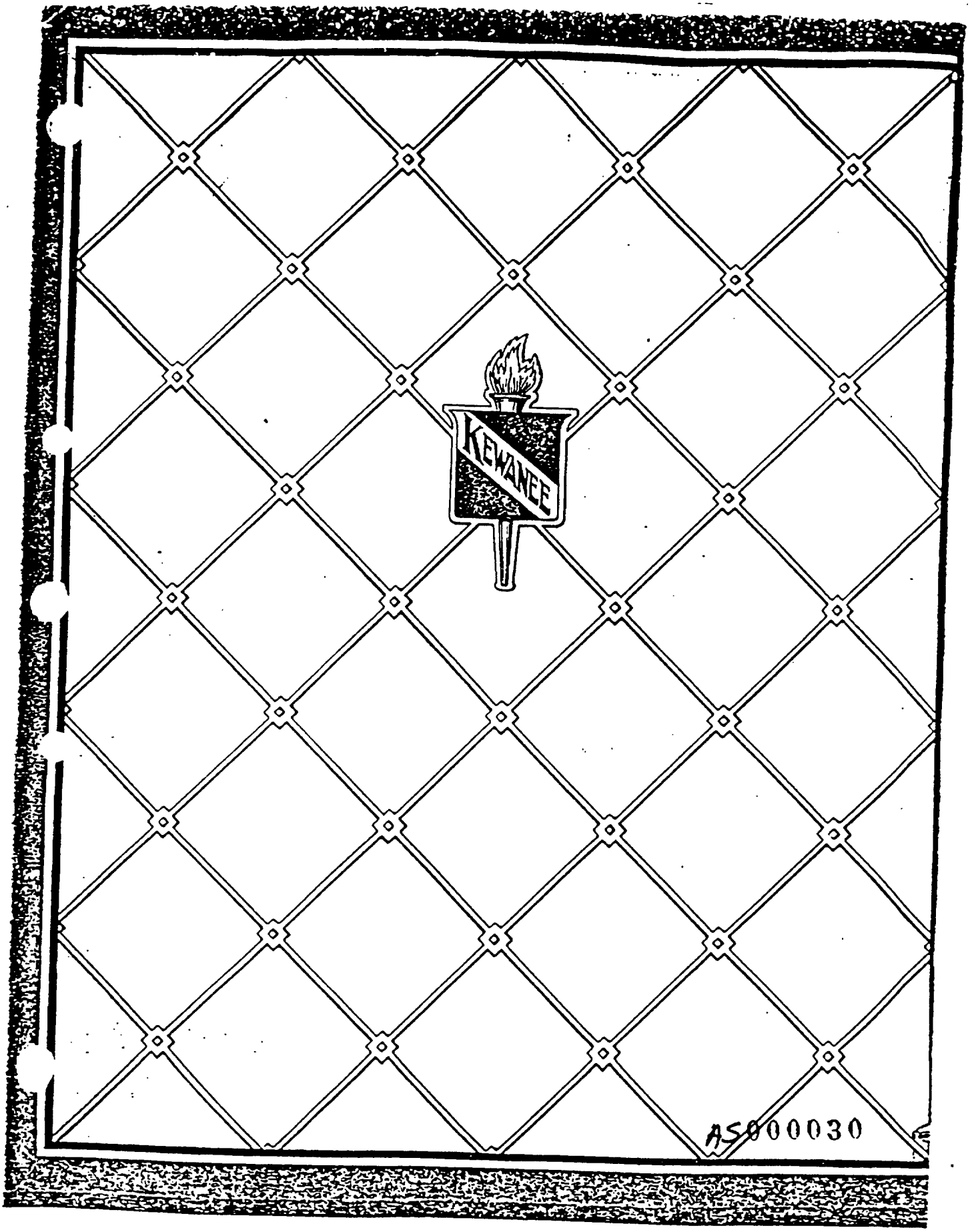

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