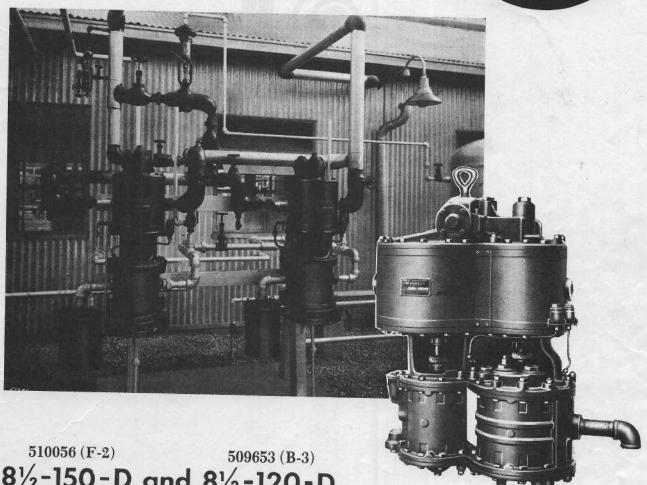
### CROWN METAL PRODUCTS CO.

WYANO, PA. 15695 - U.S.A.

Telephone 872-8720 Area Code 412





8½-150-D and 8½-120-D

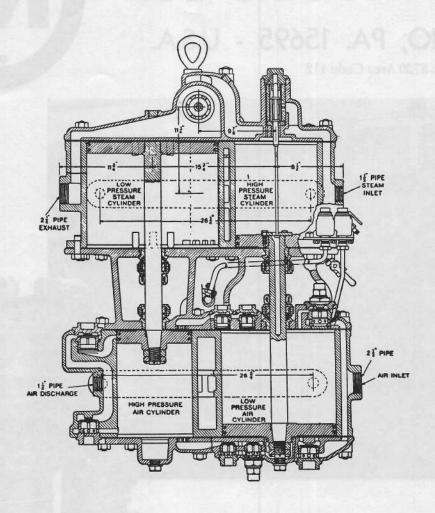
# CROSS COMPOUND AIR COMPRESSORS

Part Catalog No. 3204-1

Supplement No. 8 February, 1969

(Superseding Issues of February, 1938, and June, 1947)

Sup. 8





### 8½"-150-D and 8½"-120-D Cross Compound Air Compressors

Originally built by Westinghouse Air Brake Co. for railroad air brake service where absolute reliability, great durability, and low maintenance expense are essential features, these compressors have also proved to be admirably suited for a wide range of industrial and marine service. Of compact design, they are ideally portable, require a minimum of floor space, and may be fastened to any solid support. The use of a cast iron stand to which the compressor is bolted, however, is recommended for permanent stationary installations.

Generally, the two stage air compressor is recommended wherever there is a continuous demand for compressed air. This is a highly efficient, large capacity compressor with marked economy in steam consumption, due to the compounding of both steam and air.

The single stage air compressor is suitable for installations involving continuous operation only against air pressures not exceeding 100 pounds, also where steam consumption is not of paramount importance or where the exhaust steam can be fully utilized.

Accessories supplied with compressors include Automatic Oil Cups for air cylinder lubrication, Intake Strainer, Drain Cocks for steam cylinders, and a set of wrenches.

Each installation involves the use of a governor to automatically control the air compressor operation, and a lubricator in the steam supply line to lubricate the steam cylinders. These devices as well as other accessories for a complete installation are listed in tabulation on page 10.

Installation diagrams illustrate the items required and indicate in a general way the sequence and arrangement of the apparatus from the steam boiler to the air supply line. A separate publication, covering the installation and maintenance, is included with each compressor shipment.

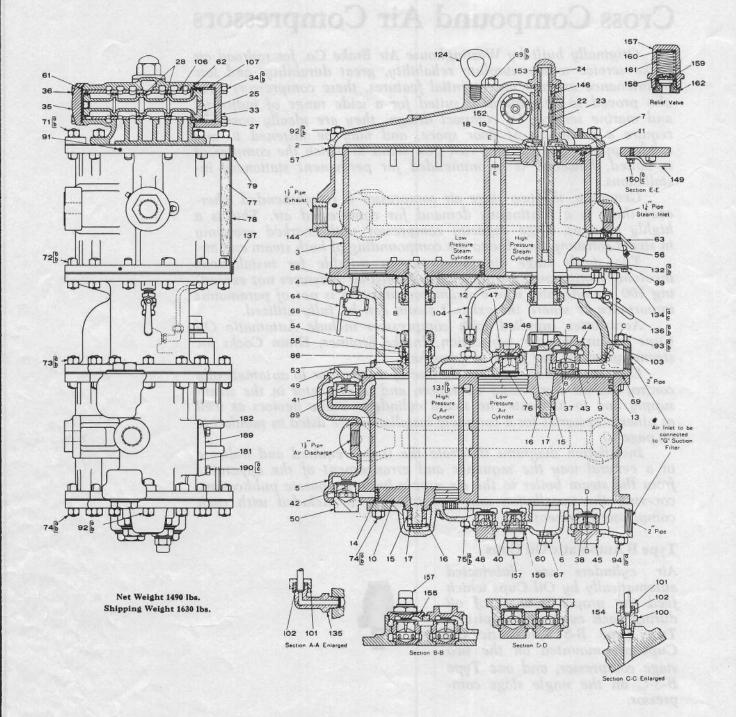
#### Type B Automatic Oil Cups

Air cylinders are lubricated automatically by Oil Cups which feed the proper amount of oil during each cycle of the piston. Two Type B-3 Automatic Oil Cups are mounted on the two stage compressor, and one Type B-3-C on the single stage compressor.

# P

#### **Intake Strainers**

An air strainer or filter is supplied with each compressor to prevent the entrance of dirt into the compressor intake.



The 8½″-150-D Steam Driven Air Compressor is recommended for steam pressures up to 300 lbs., and is designed to operate at approximately 131 single strokes per minute with Saturated Steam Pressure of 200 lbs. When steam pressures above this figure or Superheat steam at any pressure is used the steam supply should be choked to maintain this speed. (See Note H).

Piece No. 514896 8½"-150-D Cross Compound Air Compressor, complete with Type "B-3" Automatic Air Cylinder Oil Cup, Type "A" Air Inlet Manifold, G-2 Intake Filter, and Relief Valves.

```
Piece
No.
                                                                                      Ref. *No.
No. Per Pkg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   % "x2½" Bolt and Nut (15 Req'd)
34 "x2½" Bolt and Nut (13 Req'd)
34 "x3½" Bolt and Nut (13 Req'd)
34 "x3½" Bolt and Nut (2 Req'd)
Guard Plate (2 Req'd)
Lagging
Jacket
Upper Jacket Band
Piston Rod Packing (Composition) Set (2 Req'd)
Upper Discharge Valve Seat
Jacket Band Serew (6 Req'd)
4 "x5½" Bolt and Nut (7 Req'd)
4 "x5½" Bolt and Nut (2 Req'd)
4 "x5½" Bolt and Nut (2 Req'd)
54 "x5½" Bolt and Nut (2 Req'd)
55 Type "B-3" Oil Cups, Bracket and Oil Tubes, complete, (Includes 99, 100, 103, 104, 135; two of 56, 101, 102; four of 133 and 134)
Oil Cup Bracket
4" Union Stud Connection, complete, for %"
Copper Tube (Includes 100, 101 and 102)
4" Union Stud Connection to L. P. Air Cylinder, complete, (Includes 100, 101, 102 and 103)
4" Oil Tube and Connection to L. P. Air Cylinder, complete, (Includes 100, 101, 102 and 103)
4" Oil Tube to High Pressure Air Cylinder
Oil Tube and Connection to H. P. Air Cylinder, complete, (Includes 101, 102, 104 and 135)
4" Oil Tube to High Pressure Air Cylinder
Piston Valve Bush
Large Main Valve Bush
Eye Bolt
4" "x3½" Bolt and Nut (3 Req'd)
4" "x3½" Bolt and Nut (3 Req'd)
4" "x3½" Cap Serew (4 Req'd)
4" "x½" Copper Tube, (Includes 101, 102 and 135)
5" Union Ell
Copper Tube, (Includes 101, 102 and 135)
5" Union Ell
Copper Tube, (Includes 101, 102 and 135)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ref. *No.
No. Per Pkg.
                                                                                                                                                                                                Top Head, complete, (Includes 2, 21, 22, 24, 25, 33, 35, 61, 62; two of Pc. 33711; four of 34 and 36)
Top Head (Includes 23, 106 and 152)
Steam Cylinder, complete, (Inc. 63, 77, 78, 79, 137, 144, 149, 150, 151; two of Pc. 33711; and six of 91)
                   93221
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91219
17990
             \begin{array}{c} 502741 \\ 508558 \end{array}
                                                                                                                                                                                      Steam Cylinder, complete, (Inc. 63, 77, 78, 79, 137, 144, 149, 150, 151; two of Pc. 33711; and six of 91)

Center Piece, complete, (Inc. 44, 155, 157, 158, 159, 160, 161, 162, Pc. 3526; two of 37, 39, 43, 46, 47, 76, Pc. 33711 and four of 53, 54 and 55)

Air Cylinder, complete, (Inc. 41, 42, 49, 50, 89, 181, 182; two of 189; four of 190 and 191)

Lower Head, complete, (Includes 48, 67, 156, 157, 158, 159, 160, 161, 162; two of 38, 40 and 45)

H. P. Steam Piston and Rod, complete, (Includes 15, 16, 17, 18; two of 11; and three of 19)

L. P. Steam Piston and Rod, complete, (Includes 15, 16, 17 and two of 12)

L. P. Air Piston, complete, (Includes two of 13)

H. P. Air Piston, complete, (Includes two of 14)

H. P. Air Piston Ring (2 Req'd)

L. P. Air Piston Ring (2 Req'd)

L. P. Air Piston Ring (2 Req'd)

Piston Rod Jam Nut (2 Req'd)

Piston Rod Jam Nut (2 Req'd)

Piston Rod Jam Nut (2 Req'd)

Piston Rod Jaw Sulve Rod, complete, (Includes two of 153 and six of 146)

Reversing Valve Plate

Reversing Valve Bush

Reversing Valve Bush

Reversing Valve Cap Nut

Main Valve Piston, complete, (Includes two of 27 and eight of 28)

Large Main Valve Piston Ring (2 Req'd)

Small Main Valve Piston Ring (8 Req'd)

Front End Cap, complete, (Includes 107)

% "x54" Stud and Nut (4 Req'd)

Rear End Cap

½ "x11" Hex. Hd. Cap Screw (4 Req'd)

Upper Inlet Valve (2 Req'd)

Upper Inlet Valve (2 Req'd)

Lower Intermediate Valve (2 Req'd)

Upper Inlet Valve Cage (2 Req'd)

Upper Inlet Valve Cage (2 Req'd)

Intermediate Valve Cage

Upper Inlet Valve Chamber Cap

Lower Intermediate Valve Cage

Stuffing Box (4 Req'd)

Stuffing Box (4 Req'd)

Stuffing Box (4 Req'd)

Stuffing Box (6 Req'd)

Stuffing Box (7 Req'd)

Stuffing Box (7 Req'd)

Stuffing Box (7 Req'd)

Stuffing Box (7 Req'd)

Stuffing Box (8 Req'd)

Stuffing Box (8 Req'd)

Stuffing Box (8 Req'd)

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             509654
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             198240
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             †98222
†98212
†97401
†97478
†97478
†97436
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†91286
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         †89608
†89607
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Copper Tube, (Includes 101, 102 and 135)

%" Union Ell

%" X33%" Bolt and Nut
Lower Jacket Band
Reducing Bush
1½" Piston Ring (6 Req'd)

%" Lock Nut
Guard for Bolts

%"%" Lock Washer
Stop Nut
1½" Piston Ring (2 Req'd)

%" Lock Washer
Stop Nut
1½" Piston Ring (2 Req'd)

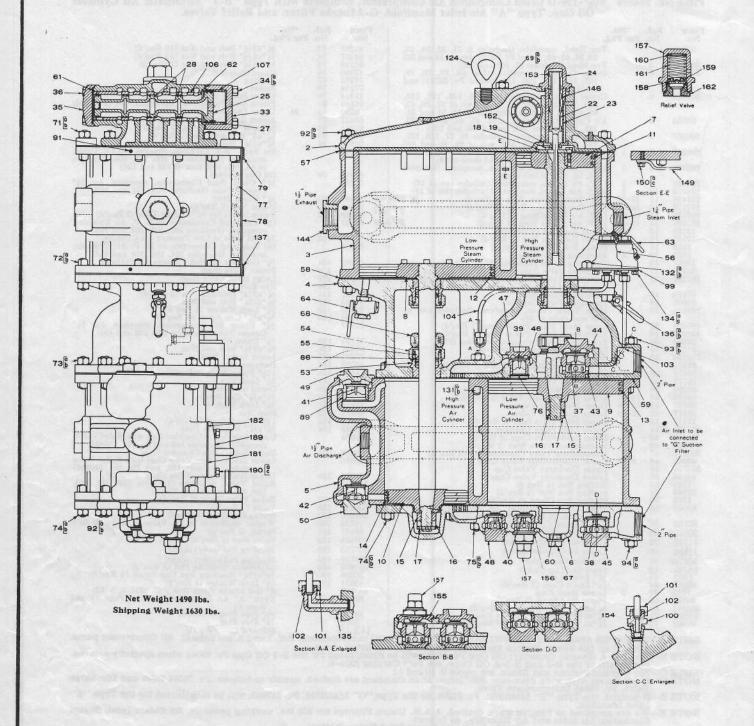
%"*½" Reducing Bush
Upper Inlet Valve Chamber Cap with Relief Valve,
complete, (Includes 155 and Pc. No. 510451)
Upper Inlet Valve Chamber Cap
Lower Intermediate Valve Cage with Relief Valve
complete, (Includes 156, and Pc. No. 510451)
Lower Intermediate Valve Cage
Relief Valve, complete (Includes 157, 158, 159,
160, 161, and 162) (2 Req'd)
Valve (2 Req'd)
Valve (2 Req'd)
Spring Equalizer (2 Req'd)
Washer (Sufficient to Set Valve at 55 to 60 lbs.)
Spring (2 Req'd)
Blanking Pad Gasket (Left)
Blanking Pad Gasket (Left)
Lubricator Blanking Pad (2'Req'd)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              71754
91221
77293
56018
                 91331
29177
29177
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                   24396
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17173
99775
         24396
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29177
77117
505774
44445
8430
505773
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         46806
505774
44445
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510451
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                 1702
51343
                 1703
89042
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18723
                 93105
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                 502686
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509634
                 11310
                                                                                                                                                                                                    Upper Air Cylinder Gasket
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             162
                 11310
                                                                                                                                                                                                  Lower Air Cylinder Gasket
Rear End Cap Gasket
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      520715
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Blanking Pad Gasket (Lett).
Blanking Pad Gasket (Right);
Lubricator Blanking Pad (2' Req'd)
1/2" Lock Washer (4 Req'd)
1/2" Lock Washer (4 Req'd)
2" G-2 Intake Filter (See P.C. 3216-2, S. 12)
Type "A" Air Inlet Manifold (See Page 11 and
Note E)
1/2" Pipe Plug
1/2" Pipe Plug
1/2" Pipe Plug
1/2" Pipe Plug
1/2" Plug (1 Req'd)
1/3" Pipe Plug
1/4" Plug Plug
1/4" Plug Plug
1/4" Plug Plug (1 Req'd)
1/4" Plug Plug (1 Req'd)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      520716
                                                                                                                                                                                                Rear End Cap Gasket
Front End Cap Gasket
7" Drain Cock
12" Drain Cock (2 Req'd)
Lower Head Plug
Piston Rod Swab (2 Req'd)
4"x83%" Bolt and Nut (2 Req'd)
4"x23%" Bolt and Nut (14 Req'd)
4"x2½" Bolt and Nut (17 Req'd)
                 90450
1887
99080
                                                                                            62
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           99080
1919
90785
503911
91207
91207
91207 72 % "x8%" Bolt and Nut (2 Req'd)
91207 72 % "x2½" Bolt and Nut (17 Req'd)
33711 % "Pipe Plug (6 Req'd)
3526 % "Pipe Plug (6 Req'd)
3526 % "Pipe Plug (6 Req'd)
NOTE A—For TAPER ASSEMBLY TYPE STEAM PISTON AND ROD combinations, Ref. 7 and 8, see page 12 All Compressor parts,
NOTE B—The B-3-A (Double Capacity) Oil Cup Pc. 88232 will be substituted for the B-3 Oil Cup Pc. 89042 when specially ordered.
For details of the B-3 and B-3-A Oil Cups. see Part Catalog 3204-5.
NOTE C—For oversize Pistons and Rings, see pages 9, 10 and 11
NOTE D—If Air Valves with wing diameter .025" larger than standard are desired, specify as follows: Pc. 78345 Intermediate Valve.
NOTE E—If desired, the Type "B" Manifold, Pc. 91204, or the Type "C" Manifold, Pc. 517400, will be substituted for the Type "A"
Inlet Manifold.
NOTE F—We are prepared to furnism when desired, A.A.R. Union Fitting 95820 1½ "x1½" Steam or Air Exhaust Union Fitting
95820 1½ "x1½" Steam or Air Exhaust Union Fitting
*NOTE G—Column headed "No. Per Pkg." indicates the items for which standard shipping packages have been established and the number contained in the package. Orders placed in these quantities and multiples thereof will facilitate shipments and provide convenient means for handling in store room stock.

NOTE H—We are prepared to furnish suitable Steam Inlet Choke Fitting for controlling the compressor speed. Orders should Specify size of Choke desired, or the conditions under which the compressor operates.
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\* 87214 / UNION 5540

Prices will be quoted upon application

Orders should give PIECE NUMBER and NAME of part wanted



The  $8\frac{1}{2}$ "-120-D Steam Driven Air Compressor is suitable for steam pressures up to 300 lbs., and is designed to operate at approximately 131 single strokes per minute with Saturated Steam Pressure of 160 lbs. When steam pressures above this figure or Superheat steam at any pressure is used the steam supply should be choked to maintain this speed. (See Note H).

Piece No. 518973 8½"-120-D Cross Compound Air Compressor, complete, with Type "B-3" Automatic Air Cylinder Oil Cup, Type "A" Air Inlet Manifold, G-2 Intake Filter, and Relief Valves.

Piece No.	Ref. No.	*No. Per Pk	4.	Piece No.	Ref. No.	*No. Per Pk	g.
93221			Top Head, complete, (Includes 2, 22, 24, 25, 33, 35, 61, 62, two of Pc. 33711, and four of 34 and	91207 91207 91219	73 74 75		34"x2½" Bolt and Nut (15 Req'd) 34"x2½" Bolt and Nut (13 Req'd) 34"x3½" Bolt and Nut (2 Req'd)
502741	2		36) Top Head (Includes 23, 106 and 107)	17990	76		Guard Plate (2 Req'd)
508560	3		Steam Cylinder, complete, (Inc. 63, 77, 78, 79,	77295	77		Lagging Jacket
			137, 144, 149, 150, 151, two of Pc. 33711 and six of 91)	77294 11314	78 79		Upper Jacket Band
509654	4		Center Piece complete (Includes 44, 155, 157,	91353	86		Upper Jacket Band Piston Rod Packing (Composition) set (2 Req'd)
			158, 159, 160, 161, 162, Pc. 3526; two of 37, 39, 43, 46, 47, 76, Pc. 33711 and four of 53,	8269 68421	89 91	24	Upper Discharge Valve Seat Jacket Band Screw (6 Req'd)
			54 and 55)	91211	92		34"x31/8" Bolt and Nut (7 Req'd)
75254	5		Air Cylinder, complete, (Inc. 41, 42, 49, 50, 89,	91215	93		34"x316" Bolt and Nut (7 Req'd) 34"x5" Bolt and Nut (2 Req'd) 34"x514" Bolt and Nut (2 Req'd)
509655	6		181, 182, two of 189, four of 190 and 191) Lower Head, complete, (Inc. 48, 67, 156, 157, 158,	91217 77290	94		Set Type "B-3" Oil Cups, Brackets and Oil
303033	0		159, 160, 161, 162, two of 38, 40 and 45)	11200			Tubes, complete, (Includes 99, 100, 103, 104,
†98246	7	1	H. P. Steam Piston and Rod, complete, (Includes	01919	99		135; two of 56, 101, 102; four of 133 and 134) Oil Cup Bracket
†98234	8	1	15, 16, 17, 18; two of 11 and three of 19) L. P. Steam Piston and Rod, complete, (Includes	91812 71756	99		1/4" Union Stud Connection, complete, for 3/4"
West was			15 10 15 145 10)				4" Union Stud Connection, complete, for 36" O. D. Copper Tubing (Inc. 100, 101 and 102)
†98256 †98251	9	1	L. P. Air Piston (Includes two of 13)	926 <del>71755</del> 927 <del>71748</del>	100		1/4" Union Stud Union Nut (2 Req'd)
197401	11	12-25		927 <del>71748</del> 214 <del>71727</del>	102		Union Thimble for %" O. D. Copper Tubing
†97818	12	12-25 12-25	H. P. Steam Piston Ring (2 Req'd) L. P. Steam Piston Ring (2 Req'd) L. P. Air Piston Ring (2 Req'd) H. P. Air Piston Ring (2 Req'd) H. P. Air Piston Ring (2 Req'd)	717			(2 Req'd)
†97782 †97553	13 14	12-25 $12-25$	L. P. Air Piston Ring (2 Req'd)	77287			Oil Tube and Connection to L. P. Air Cylinder, complete, (Includes 100, 101, 102 and 103)
12136	15	42	Piston Rod Nut (2 Red d)	77286	103		3%" O. D. Oil Tube to Low Pressure Air Cylinder
12137	16 17	42	Piston Rod Jam Nut (2 Req'd)	77289			Oil Tube and Connection to H. P. Air Cylinder,
1018 1688	18	3	Piston Rod Cotter (2 Req'd) Reversing Valve Plate	77288	104		complete, (Includes 101, 102, 104 and 135) 38" O. D. Oil Tube to High Pressure Air Cylinder
12065	19		Reversing Valve Plate Bolt (3 Req'd)	89589	106		Piston Valve Bush
93217	21 22		Reversing Valve Rod, complete, (Inc. 147 and 148)	92674 71080	107 124		Large Main Valve Bush Eve Bolt
131200			Reversing Valve, complete, (Includes two of 153 and six of 146)	91221	131		Eye Bolt Tee Hd. Bolt and Nut (3 Req'd) 34 "23 34" Tee Hd. Bolt and Nut (3 Req'd) 34 "22 34" Tee Hd. Bolt and Nut (4 Req'd) (4 Req'd) (4 Req'd)
95173	23		Reversing Valve Bush Reversing Valve Cap Nut	91223 17173	132 133		%"x2%" Tee Hd. Bolt and Nut
89600 †89595	24 25		Main Valve Piston, complete, (Includes two of 27	24286	134		%"X%" nex. nd. Cap Screw (4 neq d)
			and eight of 28)	71757			38" Union Ell Connection, complete, for 38" U. D.
†89608 †89607	27 28		Large Main Valve Piston Ring (2 Req'd) Small Main Valve Piston Ring (8 Req'd)	71754	135		Copper Tubing (Includes 101, 102 and 135)
89598	33		Front End Cap, complete, (Includes 107)	91221	136		3/4" Union Ell 3/4"x3 3/4" Tee Hd. Bolt and Nut Lower Jacket Band
91317	34		%"x5¼" Stud and Nut (4 Req'd)	77293	137		Lower Jacket Band Reducing Bush
502736 91331	35 36		Rear End Cap %"x1 %" Hex. Hd. Cap Screw (4 Reg'd)	56018 †74276	144 146		1½" Piston Ring (6 Req'd) ¾" Lock Nut
29177	37	12-36 12-36	%"x11/2" Hex. Hd. Cap Screw (4 Req'd) Upper Inlet Valve (2 Req'd) Lower Inlet Valve (2 Req'd)	527413	147		38" Lock Nut
29177 24396	38	12-36 12-36	Upper Intermediate Valve (2 Req'd)	50216 24286	149 150		Guard for Bolts % "x 7%" Cap Screw
24396	40	12-36	Lower Intermediate Valve (2 Req'd)	17173	151		%" Lock Washer
29177	41	12-36 12-36	Upper Discharge Valve	99775	152 153		Stop Nut
29177 77117	42	12-36 12	Lower Discharge Valve Upper Inlet Valve Seat (2 Req'd)	†88351 39952	154		1 11" Piston Ring (2 Req'd) 38"x14" Reducing Bush
505774	44	2	Unper Inlet Valve Chamber Can	508979			Upper Inlet Valve Chamber Cap with Relief
44445 8430	45 46	6 12	Unner Intermediate Valve Seat (2 Reg'd)	BASEA B			Valve, complete, (Includes 155, and Pc. No. 510451)
505773	47	1	Lower Inlet Valve Cage (Steel) (2 Req'd) Upper Intermediate Valve Seat (2 Req'd) Upper Intermediate Valve Cap (2 Req'd)	509638	155		Upper Inlet Valve Chamber Cap
46806	48	6-12	Lower Intermediate valve Cage (Steel)	508976			Lower Intermediate Valve Cage with Relief Valve, complete, (Inc. 156 and Pc. No. 510451)
505774 44445	49 50	6	Upper Discharge Valve Cap Lower Discharge Valve Cage (Steel)	509637	156		Lower Intermediate Valve Cage
1702	53	ĭ	Stuffing Box (4 Req'd) Stuffing Box Nut (4 Req'd)	510451			Relief Valve, Complete, (Includes 157, 158, 159, 160, 161, and 162) (2 Req'd) Relief Valve Body (2 Req'd)
51343	54	6	Stuffing Box Nut (4 Req'd)	509564	157		160, 161, and 162) (2 Req d) Relief Valve Body (2 Req'd)
1703 89042	55 56	1	Stuffing Box Gland (4 Req'd) Type "B-3" Automatic Air Cylinder Oil Cup,	509635			Valve (2 Red d)
	200		complete, (2 Req'd) (See Note B)	509636	159		Spring Equalizer (2 Req'd) Washer (Sufficient to set Valve at 55 to 60 lbs.)
93105 502686	57 58		Upper Steam Cylinder Gasket Lower Steam Cylinder Gasket	18723 99157	160 161		Spring (2 Rea'd)
11310			Upper Air Cylinder Gasket	509634	162		Spring (2 Req'd) Valve Seat (2 Req'd)
11310			Upper Air Cylinder Gasket Lower Air Cylinder Gasket	520715			Blanking Pad Gasket (Left) Blanking Pad Gasket (Right)
502740 90450	61 62		Rear End Cap Gasket Front End Cap Gasket	520716 521933			Lubricator Blanking Pad (2 Req'd)
1887	63		1/4" Drain Cock 1/2" Drain Cock (2 Req'd)	20805	190		1/2"x1%" Blanking Pad Cap Screw (4 Red d)
99080 1919	64 67	6	½" Drain Cock (2 Req'd) Lower Head Plug	15951 525663			1/2" Lock Washer (4 Req'd) 2" G-2 Intake Filter (See P.C. 3216-2, S. 12)
90785	68	U	Piston Rod Swab (2 Req'd)	63917			Type "A" Air Inlet Manifold (See Page 11 and
503911	69		3/"x83/" Bolt and Nut (2 Reg'd)	20514			Note E)
91207 91207	71 72		34"x2'%" Bolt and Nut (14 Req'd) 34"x2'/2" Bolt and Nut (17 Req'd)	33711 3526			34" Pipe Plug (6 Req'd) 14" Pipe Plug

NOTES A, B, C(†), D, E, F, G(\*) and H, see Page 5

NOTE I—Air Cylinders (Ref. 5, Pc. 68954 for 150-D and Pc. 75254 for 120-D Compressor) are now furnished with Mounting Pads for the F-2 Lubricator. If it is desired to install the Lubricator on such Air Cylinders, the following material is required (see Part Catalog 3204-5. Sup. 9 for details of the Lubricator and Terminal Elbow Fitting):

Fait Catalog 3204-0, Sup. 9 101 details 0	i die Taniicado	and reminar moon rivers.	
1—F-2 Lubricator, Complete 1—4" Union Stud, Complete, for 14" O.D. Tube 1—Terminal Elbow Fitting, Complete 1—Gasket (Left) 1—Gasket (Right)	Pc. 524587 Pc. 525623 Pc. 525624 Pc. 520715 Pc. 520716	4—1/2" Lock Washer 1—Upper Tubing Clamp and Bracket, Complete 1—Lower Tubing Bracket, Complete 1—1/4" O.D. Tube (Length as Required) 1—Special Fitting, for locating Terminal Elbow Fitting in Steam Line	Pc. 15951 Pc. 522656 Pc. 525403 Pc. 526867
4—1/4"x5" Stud and Nut	Pc. 522153	Fitting in Steam Line	

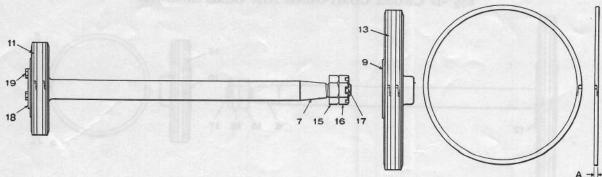
Pistons and Rings for Rebored Cylinders

The most modern development in packing rings for steam driven air compressors is now available and involves an improved form of lap joint for the ring somewhat similar to the lap joint rings which have proven so successful in triple valves.

These Lap Joint rings are made from a special mixture of metal to give what long experience has indicated as the most desirable wearing and friction qualities in conjunction with the metal in the cylinder walls. Ring gap and its attendant leakage is eliminated through the medium of a special lap joint at the ring ends that closes the rings in a complete circle. With the ring closed in its groove this joint seals on both the cylinder wall and one wall of the ring groove, forming a double leakage barrier which prevents blow-by between cylinder wall and ring. The joint maintains the sealing function of the ring throughout its entire circumference and thereby effectively eliminates the ring gap as a chief source of blow-by losses. Very careful attention has been given in design and manufacture to provide uniform wall pressure of the proper amount, the inside diameter of the ring being left intact to preserve this characteristic pressure over a long period of service. The sides of the ring are accurately ground to the proper width, permitting a close fit in the ring groove. No filing or fitting is required.

In reconditioning air compressors, it is our recommended practice to rebore the steam and air cylinders in steps of ½" and the main valve cylinders in steps of ½"; the maximum rebored diameter not to exceed that specified in the accompanying tables. We have provided pistons in the above oversize and piston rings of our latest improved manufacture in corresponding oversize diameters. The indicated diameter of the rings in each case is exact (a few thousandths large to take care of normal variations in reboring) so that when the ring is installed in the cylinder it will remain a true circle, thus insuring an even bearing at all points on the circumference and a tight fit against leakage. In addition to the oversize in diameter, the steam and air piston rings can all be obtained in widths greater than standard for use in ring grooves that have become wider than standard through wear. They range in overwidths of .006", .012", .018", .025", .030" and .036".

The wide variety of combinations in diameter and widths of rings should be sufficient to meet all normal requirements with the minimum of expense.



#### HIGH-PRESSURE STEAM PISTON

REF. No.	No. PER PKG. ††	Minks of the second second		CYLINDER	DIAMETERS .	AND PIECE N	VUMBERS	
		Marie Children Change Committee Committee	8½"	817"	8 18 "	85/8"	811"	834"
7	1	†*High-Pressure Steam Piston and Rod, complete (includes 15, 16, 17, 18, two of 11 and three of 19)	98246	504725	98247	98248	98249	98250
11	12-25	*High-Pressure Steam Piston Ring (Standard width #\". Dimension "A") (2 Req'd)	97401	98935	97408	97415	97422	97429
11	12-25	*High-Pressure Steam Piston Ring (.006" wider than standard) (2 Req'd)	97402	98936	97409	97416	97423	97430
11	12-25	*High-Pressure Steam Piston Ring (.012" wider than standard) (2 Req'd)	97403	98937	97410	97417	97424	97431
11	12-25	*High-Pressure Steam Piston Ring (.018" wider than standard) (2 Req'd)	97404	504151	97411	97418	97425	97432
11	12	*High-Pressure Steam Piston Ring (.025" wider than standard)	97405	504152	97412	97419	97426	97433
11	12	*High-Pressure Steam Piston Ring (.030" wider than standard) (2 Req'd)	97406	504153	97413	97420	97427	97434
11	12	*High-Pressure Steam Piston Ring (.036" wider than standard) (2 Req'd)	97407	504154	97414	97421	97428	97434

#### LOW-PRESSURE AIR PISTON

REF.	No. PER				CYLINDER	DIAMETER	S AND PIEC	E NUMBER	3	
No.	PKG.	Crowner Dukuman see Date Ween's	8½″-150	141/2"	1417"	14 9 "	145/8"	14 11 "	143/4"	14 18"
		Land Development Control	8½″-120	131/8"	135"	13 4 "	131/4"	13 ♣ "	133/8"	13 1 "
9	1	*Low-Pressure Air Piston, complete, (Includes two of 13)	8½″-150 8½″-120	98222 98256	504727 504726	98224 98257	98226 98258	98228 98259	98230 98260	98232 98261
13	12-25	*Low-Pressure Air Piston Ring (standard width	8½″-150 8½″-120	97478 97782	99049 99019	97485 97788	97492 97794	97499 97800	97471 97806	97889 97812
13	12-25	*Low-Pressure Air Piston Ring (.006" wider than standard) (2 Req'd)	8½″-150 8½″-120	97479 97783	99050 99020	97486 97789	97493 97795	97500 97801	97472 97807	97890 97813
13	12-25	*Low-Pressure Air Piston Ring (.012" wider than standard) (2 Req'd)	8½″-150 8½″-120	97480 97784	99051 99021	97487 97790	97494 97796	97501 97802	97473 97808	97891 97814
13	12-25	*Low-Pressure Air Piston Ring (.018" wider than standard) (2 Req'd)	816"-150	97481 97785	504194 504185	97488 97791	97495 97797	97502 97803	97474 97809	97815
13	12	*Low-Pressure Air Piston Ring (.025" wider than standard) (2 Req'd)	81/4"_150	97482 97786	504195 504186	97489 97792	97496 97798	97503 97804	97475 97810	97816
13	12	*Low-Pressure Air Piston Ring (.030" wider than standard) (2 Req'd)	816"-150	97483 504184	504196 504187	97490	97497	97504	97476	97892
13	12	*Low-Pressure Air Piston Ring (.036" wider than standard) (2 Req'd)	816"-150	97484 97787	504197 504188	97491 97793	97498 97799	97505 97805	97477 97811	97817

\*NOTE A—Pistons and Rings are designated by the diameter of the cylinder for which they are suitable.

NOTE B—Above sizes of pistons and rings are carried in stock. Should orders be received for other sizes, we will substitute nearest standard size unless specific instructions are received to the contrary.

Standard size unless specific instructions are received to the contrary.

NOTE C—If maximum oversize High-Pressure Steam Piston and Rod or Low Pressure Air Piston (less Rings and having ring grooves cut to standard caliper) suitable for turning to bore of cylinder is desired, specify:

Pc. No. 59091

8 % High-Pressure Steam Piston and Rod

Pc. No. 59094

14 Hy Low-Pressure Air Piston for 8 % 150

Pc. No. 89499

13 % Low-Pressure Air Piston for 8 % 150

Pc. No. 89499

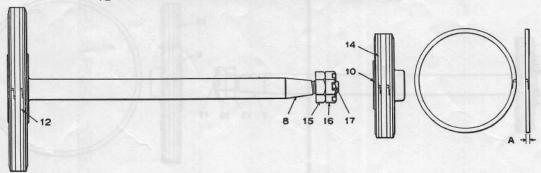
13 % Low-Pressure Air Piston for 8 % 150

Pc. No. 89499

15 % Pressure Steam Pistons with Tener Assembly of Steam Piston Head and

†NOTE D—For Piece Number Combinations of High-Pressure Steam Pistons with Taper Assembly of Steam Piston Head and Rod, see page 12

Column headed "No. Per Pkg." indicates the items for which standard shipping packages have been established and the number contained in the package. Orders placed in these quantities and multiples thereof will facilitate shipments and provide convenient means for handling in store room stock. THOTE E



#### LOW-PRESSURE STEAM PISTON

D	M. D	A RESOURCE DISTRICTOR STREET, ST.	10		CYLINDER	DIAMETER	AND PIEC	E NUMBER	8	
REF. No.	No. PER PEG.††		81/2"-150	141/2"	1411"	14 👯 "	145%"	14 11 "	14%"	14 118"
			814"-120	14"	141 "	14 👬 "	141/8"	14 %"	141/4"	14 ♣ "
8	1	†*Low-Pressure Steam Piston and Rod, complete includes 15, 16, 17 and two of 12)	8½″-150 8½″-120	98240 98234	504731 504730	98241 98235	98242 98236	98243 98237	98244 98238	98245 98239
12	12-25	*Low-Pressure Steam Piston Ring (standard width # ", Dimension "A") (2 Req'd)	8½″-150 8½″-120	97478 97818	99049 99034	97485 97824	97492 97830	97499 97836	97471 97842	97839 97848
12	12-25	*Low-Pressure Steam Piston Ring (.006" wider than standard) (2 Req'd)	8½″-150 8½″-120	97479 97819	99050 99035	97486 97825	97493 97831	97500 97837	97472 97843	97890 97849
12	12-25	*Low-Pressure Steam Piston Ring (.012" wider than standard) (2 Req'd)	8½″-150 8½″-120	97480 97820	99051 99036	97487 97826	97494 97832	97501 97838	97473 97844	97891 97850
12	12-25	*Low-Pressure Steam Piston Ring (.018" wider than standard) (2 Req'd)	8½″-150 8½″-120	97481 97821	504194 504190	97488 97827	97495 97833	97502 97839	97474 97845	9785
12	12	*Low-Pressure Steam Piston Ring (.025" wider than standard) (2 Req'd)	8½″-150 8½″-120	97482 97822	504195 504191	97489 97828	97496 97834	97503 97840	97475 97846	97852
12	12	*Low-Pressure Steam Piston Ring (.030" wider than standard) (2 Req'd)	8½″-150 8½″-120	97483 504189	504196 504192	97490	97497	97504	97476	97892
12	12	*Low-Pressure Steam Piston Ring (.036" wider than standard) (2 Req'd)	8½″-150 8½″-120	97484 97823	504197 504193	97491 97829	97498 97835	97505 97841	97477 97847	9785

#### HIGH-PRESSURE AIR PISTON

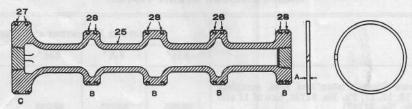
D	N. D.			CYL	INDER DIAM	ETERS AND I	TECE NUMB	ers	
REF. No.	No. PER PEG.††	Charles the last the same	8½"-150	9"	917	9 16"	91/8"	9 16"	91/4"
			81/2"-120	81/4"	817	8 4 "	83/8"	818"	81/2"
10	1	*High-Pressure Air Piston, complete, (Includes two of 14)	8½″-150 8½″-120	98212 98251	504733 504732	98214 98252	98216 98253	98218 98254	98220 98255
14	12-25	*High-Pressure Air Piston Ring (standard width	8½″-150 8½″-120	97436 97553	98947 98923	97443 97559	97450 97565	97457 97571	97464 97401
14	12-25	*High-Pressure Air Piston Ring (.006" wider than standard) (2 Req'd)	8½″-150 8½″-120	97437 97554	98948 98924	97444 97560	97451 97566	97458 97572	97465 97402
14	12-25	*High-Pressure Air Piston Ring (.012" wider than standard) (2 Req'd)	8½″-150 8½″-120	97438 97555	98949 98925	97445 97561	97452 97567	97459 97573	97466 97403
14	12-25	*High-Pressure Air Piston Ring (.018" wider than standard) (2 Req'd)	8½″-150 8½″-120	97439 97556	504155 504147	97446 97562	97453 97568	97460 97574	97467 97404
14	12	*High-Pressure Air Piston Ring (.025" wider than standard) (2 Req'd)	8½″-150 8½″-120	97440 97557	504156 504148	97447 97563	97454 97569	97461 97575	97468 97408
14	12	*High-Pressure Air Piston Ring (.030" wider than standard) (2 Req'd)	8½″-150 8½″-120	97441 504146	504157 504149	97448	97455	97462	97469 97406
14	12	*High-Pressure Air Piston Ring (.036" wider than standard) (2 Req'd)	8½″-150 8½″-120	97442 97558	504158 504150	97449 97564	97456 97570	97463 97576	97470 97407

\*NOTE A—Pistons and rings are designated by the diameter of the cylinder for which they are suitable.

NOTE B—Above sizes of pistons and rings are carried in stock. Should orders be received for other sizes, we will substitute nearest standard size unless specific instructions are received to the contrary.

NOTE C—If maximum oversize Low-Pressure Steam Piston and Rod or High-Pressure Air Piston (less rings and having ring grooves cut to standard caliper), suitable for turning to bore of cylinder is desired, specify:

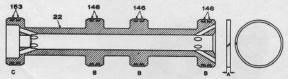
Pc. No. 59093 14¼\* Low-Pressure Steam Piston and Rod, for 8 ½\*-150
Pc. No. 59092 9 ½\* Air Piston, for 8 ½\*-150
Pc. No. 59092 9 ½\* Air Piston, for 8 ½\*-150
Pc. No. 59498 8 ½\* Air Piston, for 8 ½\*-150
Pc. No. 59498 8 ½\* Air Piston, for 8 ½\*-150
Pc. No. 59498 8 ½\* Air Piston, for 8 ½\*-150
Pc. No. 59498 8 ½\* Air Piston, for 8 ½\*-150
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Pc. No. 59498 8 ½\* Air Piston, for 8 ½\*-150
Pc. No. 59498 8 ½\* Air Piston, for 8 ½\*-150
Pc.



See table below showing by B and C the cylinder diameter for which above pistons and rings are suitable.

MAIN VALVE PISTON

Ref.		CYL	INDER DIAM	ETERS AND	PIECE NUME	BERS
No.	AND STRAM PURTOR IN	B-2 <sup>7</sup> / <sub>16</sub> " C-3 <sup>1</sup> / <sub>4</sub> "	B-2 <sup>15</sup> / <sub>32</sub> " C-3 <sup>9</sup> / <sub>32</sub> "	B-2½" C-35"	B-2 <sup>17</sup> / <sub>32</sub> " C-3 <sup>11</sup> / <sub>32</sub> "	B-2 16 C-3 3/8"
25	Main Valve Piston, complete, (includes two of 27 and eight of 28)	89595	98435	98436	98437	98438
27	Large Main Valve Piston Ring (standard width, Dimension "A" .136") (2 Req'd)	89608	97174	97177	97180.	97183
27	Large Main Valve Piston Ring (.006" wider than standard) (2 Req'd)	97172	97175	97178	97181	97184
27	Large Main Valve Piston Ring (.012" wider than standard) (2 Req'd)	97173	97176	97179	97182	97185
28	Small Main Valve Piston Ring (standard width, Dimension "A" .136") (8 Req'd)	89607	97160	97163	97166	97169
28	Small Majn Valve Piston Ring (.006" wider than standard) (8 Req'd)	97158	97161	97164	97167	97170
28	Small Main Valve Piston Ring (.012" wider than standard) (8 Req'd)	97159	97162	97165	97168	97171



See table below showing by B and C the cylinder diameter for which pistons and rings are suitable.

#### REVERSING VALVE

Ref.		CYL	INDER DIAM	ETERS AND	PIECE NUMI	BERS
No.		B-1½" C-1 <sup>31</sup> / <sub>64</sub> "	B-1 <sup>17</sup> / <sub>32</sub> " C-1 <sup>33</sup> / <sub>64</sub> "	B-1 <sup>9</sup> / <sub>16</sub> " C-1 <sup>35</sup> / <sub>64</sub> "	B-1 <sup>19</sup> / <sub>32</sub> " C-1 <sup>37</sup> / <sub>64</sub> "	B-15/8" C-139 "
22	Reversing Valve, complete, (includes two of 153 and six of 146)	91286	98443	98444		
146	Large Reversing Valve Ring (standard width, Dimension "A" .124") (6 Req'd)	74276	97648	97703	97715	97731
146	Large Reversing Valve Ring (.006" wider than standard) (6 Req'd)	97646	97649	97707	97719	97735
146	Large Reversing Valve Ring (.012" wider than standard) (6 Req'd)	97647	97650	97711	97723	97739
153	Small Reversing Valve Ring (standard width, Dimension "A" .124") (2 Req'd)	88351	507538	507635		
153	Small Reversing Valve Ring (.006" wider than standard) (2 Req'd)	507631	507633	507636		
153	Small Reversing Valve Ring (.012" wider than standard) (2 Req'd)	507632	507634	507637		

NOTE A—Piston and Rings are designated by the diameter of the cylinder for which they are suitable.

NOTE B—Above sizes of pistons and rings, and no other sizes, are made and carried in stock. Should orders be received for other sizes, we will substitute nearest standard size, unless specific instructions are received to the contrary.

#### HIGH-PRESSURE STEAM PISTON

Ref. No.		CYLINDER DIAMETERS AND PIECE NUMBERS							
		8½"	8 9 16	85%"	811 "	83/4"			
7	*High-Pressure Steam Piston and Rod, complete (includes 15, 16, 17, Pc. No. 81736, two of 11 and three of Pc. No. 81743) Reversing Valve Plate Reversing Valve Plate Bolt (3 req'd)	98296 81736 81743	98297 81736 81743	98298 81736 81743	98299 81736 81743	98300 81736 81743			

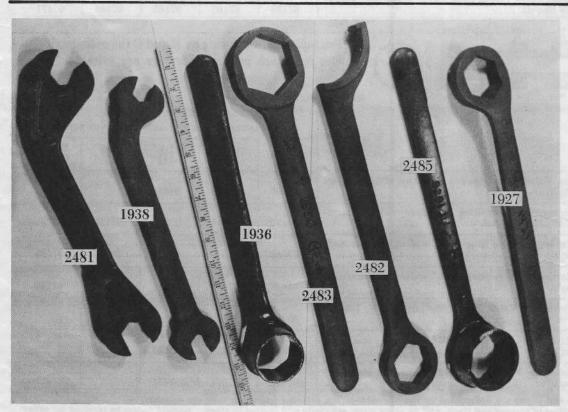
#### LOW-PRESSURE STEAM PISTON

Ref. No.	The same of the sa	8½″-150 8½″-120	Cylinder Diameters and Piece Numbers							
			14½" 14"	14 ½ ″ 14 ½ ″	1456" 14½"	14 <sup>11</sup> / <sub>16</sub> " 14 <sup>3</sup> / <sub>16</sub> "	14¾" 14¼"	14 13 " 14 16 "		
8	*Low-Pressure Steam Piston and Rod, complete (includes 15, 16, 17 and two of 12 and three of Pc. No. 81746) Piston Bolt (3 req'd)	8½″-150 8½″-120	98307 98301 81746	98308 98302 81746	98309 98303 81746	98310 98304 81746	98311 98305 81746	98312 98306 81746		

\*NOTE A-For Lap Joint Piston Rings, see pages 7 and 8.

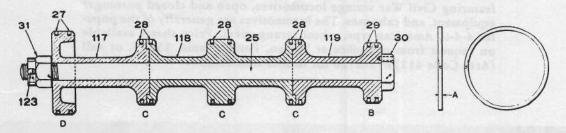
NOTE B—If maximum oversize High-Pressure or Low-Pressure Steam Piston and Rod (less Rings and having ring grooves cut to standard caliper) suitable for turning to bore of cylinder is desired, specify:

Pc. No. 88569 8 ½" High-Pressure Steam Piston and Rod Pc. No. 88570 1417" Low-Pressure Steam Piston and Rod



Wrenches; Order by number.

#### LAP JOINT PISTON PACKING RINGS For 8½-INCH CROSS COMPOUND AIR COMPRESSORS



See table below showing by B, C and D the cylinder diameter for which above pistons and rings are suitable.

#### \*MAIN VALVE PISTON

(Packing Rings-See Foreword)

Ref.		Cyl	INDER DIAM	TETERS AND	PIECE NUM	BERS
No.		B-2 ½ " C-2 ½ " D-3 ¼ "	B-2 <sup>11</sup> / <sub>32</sub> " C-2 <sup>17</sup> / <sub>32</sub> " D-3 <sup>9</sup> / <sub>32</sub> "	B-238" C-216" D-356"	B-2 <sup>13</sup> " C-2 <sup>15</sup> " D-3 <sup>11</sup> "	B-2 <sub>16</sub> 6 C-25 8 D-33 8
25	Main Valve Piston, complete (includes 30, 117, 118, 119, two of 27, 29 and six of 28	502051	502052	502053	502054	502055
27	Large Main Valve Piston Ring (standard width, Dimension "A," .136") (2 Req'd)	501097	501998	501999	502000	502001
27	Large Main Valve Piston Ring (.006" wider than standard (2 Req'd)	502002	502003	502004	502005	502006
27	Large Main Valve Piston Ring (.012" wider than standard) (2 Req'd)	502007	502008	502009	502010	502011
28	Exhaust Piston Valve Ring (standard width, Dimension "A," .136") (6 Req'd)	501982	501983	501984	501985	501986
28	Exhaust Piston Valve Ring (.006" wider than standard (6 Req'd)	501987	501988	501989	501990	501991
28	Exhaust Piston Valve Ring (.012" wider than standard) (6 Req'd)	501992	501993	501994	501995	501996
29	Small Piston Valve Ring (standard width, Dimension "A," .136") (2 Req'd)	501967	501968	501969	501970	501971
29	Small Piston Valve Ring (.006" wider than standard) (2 Req'd)	501972	501973	501974	501975	501976
29	Small Piston Valve Ring (.012" wider than standard) (2 Req'd)	501977	501978	501979	501980	501981

#### REPAIR PISTON VALVE BUSH

Pc. No.	Ref. No.	
65803	106	Piston Valve Bush (.01" larger than standard)
65804	106	Piston Valve Bush (12 larger than standard)

\*NOTE A-Pistons and rings are designated by the diameter of the cylinder for which they are suitable.

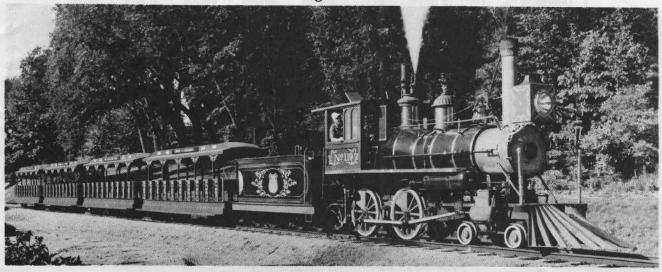
NOTE B—Above sizes of pistons and rings, and no other sizes, are made and carried in stock. Should orders be received for other sizes, we will substitute nearest standard size, unless specific instructions are received to the contrary.

#### Crown Metal Products Steam Locomotives and Rolling Stock

In recent years the Crown Metal Products Co. has become the nation's Number One manufacturer of narrow gauge park type railroads, featuring Civil War vintage locomotives, open and closed passenger equipment, and cabooses. The locomotives are generally of the popular 4-4-0, American type, wheel arrangement. Price sheets available on request from our office at Wyano, Pennsylvania, 15695, or call (Area Code 412) 872-8720 for further information.



36" Gauge Locomotives



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### Westinghouse Air Brake Company

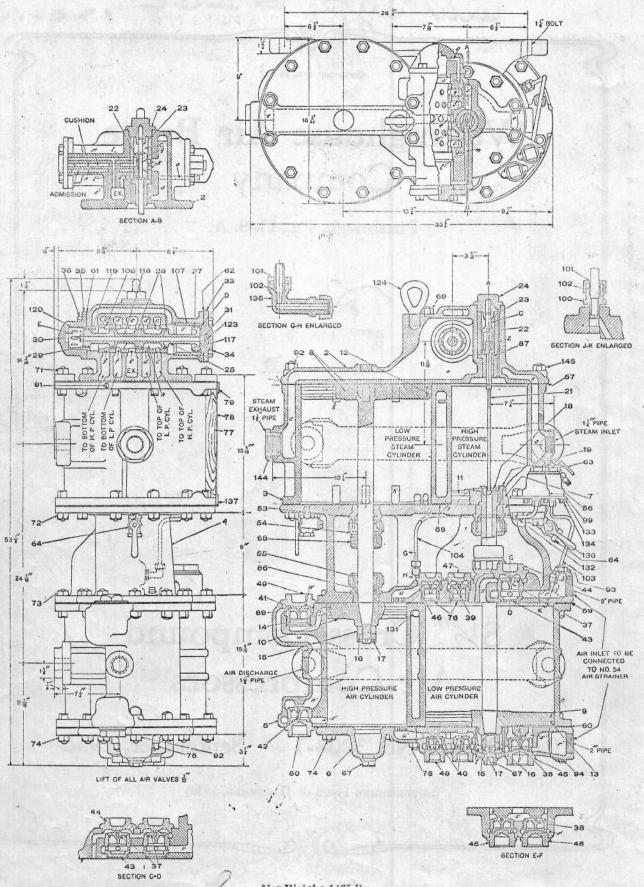
Pittsburgh, Pa., U.S.A.



### 8½" Cross Compound Air Compressors

Part Catalog No. 3204-1 September, 1936

(Superseding Issue of December, 1930)



Net Weight 1475 lbs. Shipping Weight 1625 lbs.

#### 8½"-150 CROSS COMPOUND AIR COMPRESSOR

Piece No. 73513 8½"-150 Cross Compound Air Compressor, complete with Type "B-3" Automatic Air Cylinder Oil Cup and No. 54 Strainer

	Piece No.		*No Per P		Piece	Ref.	*No	
	40332	110.	A CL I		No.		Per P	kg.
	23616	2		Top Head, complete, (Includes 2, 22, 24, 25, 33, 35, 61, 62 and four of 34 and 36)	81172 81176	61 62		Small Cylinder Cover Gasket Large Cylinder Cover Gasket
	91894	3		Top Head, bushed (Includes 23, 87, 106 and 107) Steam Cylinder, complete, (Includes 63, 77, 78,	1887	.63		1/4" Drain Cock
W.				79, 137 and six of 91)	99080 1919	64 67	6	/5" Drain Cock (2 Req'd) Lower Head Plug (2 Req'd) Piston Rod Swab (2 Req'd)  3" **83' " Bolt and Nut (2 Req'd)  4" *23' " Bolt and Nut (13 Req'd)  4" *22' " Bolt and Nut (15 Req'd)  4" *22' " Bolt and Nut (15 Req'd)  4" *22' " Bolt and Nut (17 Req'd)  4" *23' " Bolt and Nut (18 Req'd)  4" *32' " Bolt and Nut (18 Req'd)  4" *33' " Bolt and Nut (18 Req'd)  Lagring
	64288	4	Total Control	Center Piece, complete, (Includes Pcs. 3526 and	17582	68	0	Piston Rod Swab (2 Reg'd)
				Center Piece, complete, (Includes Pcs. 3526 and 33711, two of 37, 39, 43, 44, 46, 47, 64, 76 and	66790	69		3/"x83/" Bolt and Nut (2 Reg'd)
	68954	5		10ur of 53, 54 and 55)	25078	71 72		34"x21/2" Bolt and Nut (13 Reg'd)
-	00001			Air Cylinder, complete, (Includes 41, 42, 49, 50 and 89)	25078	72		34"x21/2" Bolt and Nut (18 Req'd)
	68955	30		Lower Head complete (Includes two of 20 tot	25078 25078	73 74		% "x2½" Bolt and Nut (15 Req'd)
	198246	7		40, 40, 400 07)	21922	75		3/"x31/" Bolt and Nut (2 Reg'd)
	100210		1	H. P. Steam Piston and Rod, complete (Nickel Chrome Steel) (Includes 15, 16, 17, 18, two of	17990	76		Guard Plate (2 Req'd)
	togara			it and three of 19)	77296 77294	77		Lagging Jacket
	198240	8	1	L. P. Steam Piston and Rod complete (Nieka)	11314	79		Upper Jacket Band
				Chrome Steel) (Includes 15, 16, 17 and two	4862	86		Piston Rod Packing (Composition) set (2 Regul)
	198222	0	1	of 12) L. P. Air Piston (Includes two of 13) H. P. Air Piston (Includes two of 14)	31320 8269	87 89	24	Reversing valve Rod Bush
	198212	10	1	H. P. Air Piston (Includes two of 14)	68421	91	24	Upper Discharge Valve Seat Jacket Band Seron (6 Realt)
	*97401 *97478	11	12-25	H. C. Steam Piston Ring (2 Regist)	12148	92		Jacket Band Screw (6 Req'd) ½"x3½" Bolt and Nut (9 Req'd) ½"x5½" Bolt and Nut (2 Req'd) ¾"x5¼" Bolt and Nut (2 Req'd)
	*97478	13	12-25	L. P. Steam Piston Ring (2 Req'd) L. P. Air Piston Ring (2 Req'd)	12152	93		%"x5" Bolt and Nut (2 Req'd)
	497436	14	12-25	H. P. Air Piston Ring (2 Rea'd)	25092 77290	94		% "x5½" Bolt and Nut (2 Req'd)
	12136	15	42	H. P. Air Piston Ring (2 Req'd) Piston Rod Nut (2 Req'd)	11200			Set Type "B-3" Oil Cups, Brackets and Oil Tubes complete, (Includes 99, 100, 103, 104, 135, two
	12137	16	42	Tiston Rod Jam Nut (2 Reg'd)		91		of 56, 101, 102, four of 133 and 134)
	1688	18	3	Piston Rod Cotter (2 Req'd) Reversing Valve Plate	91812 71756	99		Oil Cup Bracket
	12065	19		Reversing Valve Plate Bolt (3 Revid)	11100		9	M" Union Stud Connection, complete, for 38" O. D. Copper Tubing (Includes 100, 101 and
	20103	21 22	10	Reversing Valve Rod Reversing Valve				
	31328	23	2	Reversing Valve Chamber Bush	71755 71748	100		14" Union Stud
	13302	24	2	Reversing Valve Chamber Cap	71727	102		Union Nut (2 Req'd) Union Thimble for 36" O. D. Copper Tubing
	*502051	25	1	Piston Valve, complete, (Includes 30, 117, 118, 119, two of 27, 29 and six of 28)			11.00	(2 Reg (1)
	*501997	27	50		77287			Oil Tube and Connection to L. P. Air Cylinder
	*501982 *501967	28 29	100	Exhaust Piston Valve Ring (2 Red d) Small Piston Valve Ring (2 Red d) Small Piston Valve Bolt, complete, (Includes 31 and 123) Piston Valve Bolt Nut Large Piston Valve Col.	77286	103		complete, (Includes 100, 101, 102 and 103) %"O. D. Oil Tube to Low Pressure Air Cylinder
	89233	30	100	Piston Valve Ring (2 Req'd)	77289			Oil Tube and connection to H. P. Air Cylinder.
	87690	31		Piston Valve Bolt, complete, (Includes 31 and 123)	77288	104		Oil Tube and connection to H. P. Air Cylinder, complete, (Includes 101, 102, 104 and 135) § O. D. Oil Tube to High Pressure Air Cylinder Piston Value Duck
	20565	33	1		**25848	106	1-4	Piston Valve Bush
	39669	34	1	56"x135" Cap Screw (4 Req'd) Small Piston Valve Cyl. Cover, bushed (Includes	25847	107	2	Large Piston Bush
				120) Unive Cyl. Cover, bushed (Includes	**502771		1	Large Piston Portion with Rings (Includes 28,
	1759 29177	36 37	10.00	%"X11/2" Cap Screw (4 Req'd) Upper Inlet Valve (2 Req'd) Lower Inlet Valve (2 Req'd)	20583	117	1	117 and two of 27) Large Piston Portion, less Rings
	29177		$\frac{12-36}{12-36}$	Lower Inlet Valve (2 Req'd)	**502766		1	Exhaust Piston Portion with Rings (Includes 118
	24396	39	12-36		20585	118	1	and four of 28)
	24396 29177	40	12-36 12-36	Lower Intermediate Valve (2 Reg'd)	**502761	110	i	Exhaust Piston Portion, less Rings Small Piston Portion with Rings (Includes 28, 119
	29177	42	12-36	Upper Discharge Valve Lower Discharge Valve	, too.			and two of 29)
	77117	43	12	Upper Inlet Valve Seat (2 Req'd) Upper Inlet Valve Chamber Cap (2 Req'd) Lower Inlet Valve Cage (Steel) (2 Req'd) Upper Intermediate Valve Seat (2 Req'd) Upper Intermediate Valve Seat (2 Req'd)	45201 54693	119	1 2	Small Piston Portion, less Rings
	1697	44	2	Upper Inlet Valve Chamber Cap (2 Reg'd)	20556	123	-	Small Cyl. Cover Bush 78"x7%" Cotter Eye Bolt
	\$44445 8430	45 46	12	Upper Intermediate Valve Cage (Steel) (2 Req'd)	71080	124		Eye Bolt
	1906	47	1	Upper Intermediate Valve Can (2 Req'd)	12150 12155	131 132	1.	24 "x33%" Tee Hd. Bolt and Nut (3 Rea'd)
	\$46806 1607	48	6-12	Upper Intermediate Valve Cap (2 Req'd) Lower Intermediate Valve Cage (Steel) (2 Req'd)	17173	133		24"X224" Tee Hd. Bolt and Nut
	1697 ‡44445	49 50	6	Upper Discharge Valve Cap. Lower Discharge Valve Cage (Steel)	24286	134		38"x38" Hex. Hd. Cap Screw (4 Reg'd)
	1702	53	1	Stuffing Box (4 Req'd)	71757		X3 67	34 "x234" Tee Hd. Bolt and Nut 5" Lock Washer (4 Req'd) 54 "Lock Washer (4 Req'd) 54 "Vinion Ell Connection, complete, for 34" O. D. Copper Tubing (Includes 101, 102 and
	51343	54	6	Stuffing Box Nut (4 Req'd)				O. D. Copper Tubing (Includes 101, 102 and
	1703	55	1	Stuffing Box Gland (4 Reg'd)	71754	135		%" Union Ell
	89042	56		Type "B-3" Automatic Air Cylinder Oil Cup, complete (2 Req'd)	12150	136		%" Union Ell %" "x3%" Tee Hd. Bolt and Nut Lower Jacket Band
	93105	57		complete (2 Req'd)	77293 56018	137 144		Lower Jacket Band
	502686	58		Upper Steam Cylinder Gasket		145		34"x314" Tee Hd. Bolt and Nut. (2 Reo'd)
	11310	59		Lower Steam Cylinder Gasket Upper Air Cylinder Gasket	51426			Reducing Bush 34"x314" Tee Hd. Bólt and Nut (2 Req'd) No. 54 Air Strainer (See page 6)
	11310	60.		Lower Air Cylinder Gasket	33711 3526			%" Pipe Plug %" Pipe Plug
					0020			78" Pipe Piug

NOTE A—Repair parts for the 8½'-150 Compressor, having Taper Assembly of Steam Pistons and Rods, complete Pc. 81407, are the same as listed above except the Steam Piston and Rod combinations. For repair sizes of Steam Piston and Rod combinations, see page 11.

NOTE B—For details of Type "B-3" Automatic Air Cylinder Oil Cup, see Page 6,

NOTE C—The B-3-A (Double Capacity) Oil Cup Pc. 88232 will be substituted for the B-3 Oil Cup Pc. 89042 when specially ordered. For details of the B-3-A.Oil Cup, see Part Catalog 3204-5.

NOTE D-See Note C on pages 8 and 9.

tNOTE E—Valve Cages regularly supplied as standard with the compressor are steel. If brass cage is required, specify as follows:
Pc. 1708 Lower Inlet and Discharge Valve Cages. Pc. 1904 Lower Intermediate Valve Cage.

\*\*NOTE F-For Repair sizes, see page 10.

\*NOTE F—For Repair sizes, see page 10.

NOTE G—If repair Air Valves with wing diameter .025" larger than standard are desired, specify as follows: Pc. 78344 Inlet and Discharge Valve. Pc. 78345 Intermediate Valve.

NOTE H—Single Air Inlet Fitting, complete, Pc. 63917, will be furnished if desired. This Manifold fitting provides a convenient means of connecting the two inlet openings for piping to the strainer. For details, see page 6.

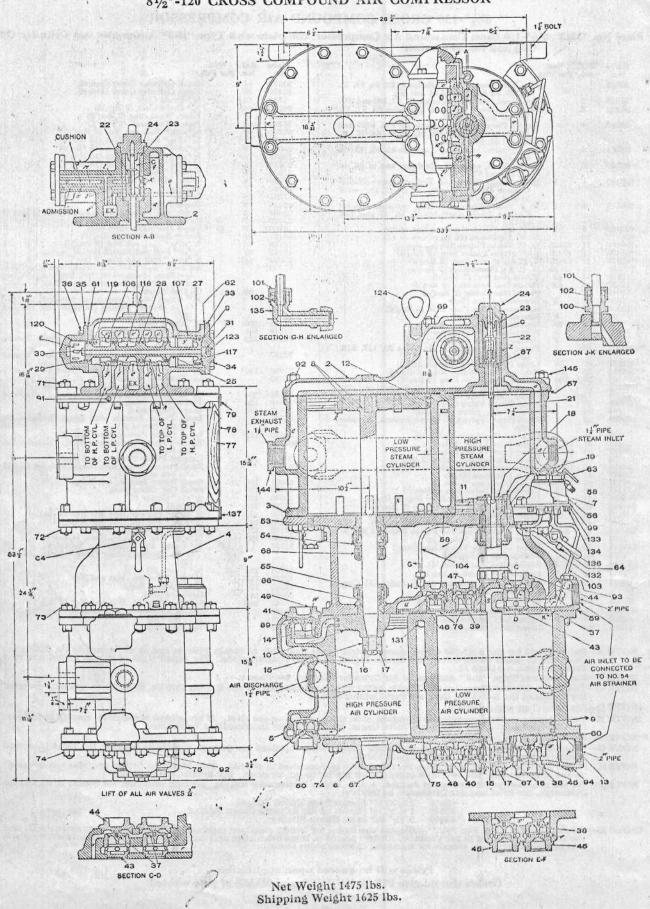
NOTE J—We are prepared to furnish when desired, A.A.R. Union Fittings for 300 lbs. working pressure, for Steam Inlet, Steam Discharge, Air Inlet and Air Discharge, as follows:

95810

1 1/2\*x1 1/2\* Steam Inlet Union Fitting
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I 1/2"x1 1/4" Steam Inlet Union Fitting
1 1/2 "x1 1/2" Steam or Air Exhaust Union Fitting
2 "x2" Air Inlet Union Fitting 93365

\*NOTE K—Column headed "No. Per Pkg." indicates the items for which standard shipping packages have been established and the number contained in the package. Orders placed in these quantities and multiples thereof will facilitate shipments and provide convenient means for handling in store room stock.



Piece No. 75180 8½"-120 Cross Compound Air Compressor, complete with Type "B-3" Automatic Air Cylinder Oil Cup and No. 54 Strainer

Piece	Ref.	*No.	O MANUAL PRO RES. PROMERON DE LA SESE	Piece	Ref.	*No.	
No.		Per Pk	g.	No.		Per Pk	
40332			Top Head, complete, (Includes 2, 22, 24, 25, 33,	81172	61		Small Cylinder Cover Gasket
-23616	2		35, 61, 62 and four of 34 and 36)	81176	62	100	Large Cylinder Cover Gasket
91893	3		Top Head, bushed (Includes 23, 87, 106 and 107) Steam Cylinder, complete, (Includes 63, 77, 78,	1887 99080			4" Drain Cock 2" Drain Cock (2 Req'd)
, 0,000		100	79, 137 and six of 91)	1919	67	. 6	Lower Head Plug (2 Req'd)
.64288	4		Center Piece, complete, (Includes Pes. 3526 and	17582	68		
			33711, two of 37, 39, 43, 44, 46, 47, 64, 76 and	66790 25078	69 71		%"x8%" Bolt and Nut (2 Req'd)
75254	5		four of 53, 54 and 55) Air Cylinder, complete, (Includes 41, 42, 49, 50	25078	72		%"x216" Bolt and Nut (18 Reg'd)
			and 89)	25078	73		34 "x2½" Bolt and Nut (2 Req'd) 34 "x2½" Bolt and Nut (13 Req'd) 34 "x2½" Bolt and Nut (18 Req'd) 34 "x2½" Bolt and Nut (18 Req'd) 34 "x2½" Bolt and Nut (15 Req'd) 34 "x2½" Bolt and Nut (13 Req'd) 34 "x2½" Bolt and Nut (2 Req'd)
68955	- 0, 6		Lower Head, complete, (Includes two of 38, 40,	25078	74		34"x21/2" Bolt and Nut (13 Req'd)
198246	7	1	45, 48 and 67) H. P. Steam Piston and Rod, complete (Nickel	21922 17990	75 76		Guard Plate (2 Req'd)
10010			Chrome Steel) (Includes 15, 16, 17, 18, two of	77296	77		Lagging
Jonan I			11 and three of 19)	77294	78		Jacket
†98234	8	1	L. P. Steam Piston and Rod, complete (Nickel Chrome Steel) (Includes 15, 16, 17 and two of	11314 4862	79 86		Upper Jacket Band Piston Rod Packing (Composition) set (2 Req'd)
			12)	31329	87	2	Reversing Valve Rod Bush
198256	0	1	L. P. Air Piston (Includes two of 13)	8269	89	24	Upper Discharge Valve Seat
198251	10	12 -25	H. P. Air Piston (Includes two of 14) H. P. Steam Piston Ring (2 Req'd)	68421	91		Jacket Band Screw (6 Req'd)
**07818	12	12-25	L. P. Steam Piston Ring (2 Rea'd)	12148 12152	. 0:4		% "x3 %" Bolt and Nut (9 Req'd) % "x5" Bolt and Nut (2 Req'd)
**97782	13	12-25	L. P. Steam Piston Ring (2 Req'd) L. P. Air Piston Ring (2 Req'd)	25092	94		34"x534" Boit and Nut (2 Req'd) Set Type "B-3" Oil Cups, Brackets and Oil Tubes,
**07553 12136	14	12-25	H. P. Air Piston Ring (2 Req'd)	77290			Set Type "B-3" Oil Cups, Brackets and Oil Tubes,
12137	15 16	42	Piston Rod Nut (2 Req'd) Piston Rod Jam Nut (2 Req'd)				complete, (Includes 99, 100, 103, 104, 135, two of 56, 101, 102, four of 133 and 134)
1018	1 17		Piston Rod Cotter (2 Reg'd)	91812	99		Oil Cup Bracket.
1688	18	3	Reversing Valve Plate	71750			14" Union Stud Connection, complete for 38"
12065 20103	19 21	- 5	Reversing Valve Plate Bolt (3 Req'd) Reversing Valve Rod				O. D. Copper Tubing (Includes 100, 101 and 102)
1706	22	10	Reversing Valve	71755	100		102)
31328	23	2	Reversing Valve Chamber Bush	71748	101		Union Nut (2 Req'd)
13302 **502051	24 25	2	Reversing Valve Chamber Cap	71727	102		Union Thimble for %" O. D. Copper Tubing (2
	. 20	A	Piston Valve, complete, (Includes 30, 117, 118, 119, two of 27, 29 and six of 28)	77287			Req'd) Oil Tube and Connection to L. P. Air Cylinder,
**501997	27	50	Large Piston Valve Ring (2 Reg'd)				complete, (Includes 100, 101, 102 and 103)
**501982 **501967	28 29	100	Exhaust Piston Valve Ring (6 Req'd) Small Piston Valve Ring (2 Req'd)	77286 77289	103		%" O. D. Oil Tube to Low Pressure Air Cylinder Oil Tube and connection to H. P. Air Cylinder,
89233	30	6	Piston Valve Bolt, complete. (Includes 31 and 123)	11200			complete. (Includes 101, 102, 104 and 135)
87690	31		Piston Volve Bolt Nut	77288	104		complete, (Includes 101, 102, 104 and 135) 36" O. D. Oil Tube to High Pressure Air Cylinder
20565 1759	33 34	1	Large Piston Valve Cyl. Cover 5%"x115" Cap Screw (4 Req'd) Small Piston Val. Cyl. Cover, bushed (Inc. 120)	**25848 25847	106	1-4	Piston Valve Bush
39669	35	1	Small Piston Val. Cvl. Cover, bushed (Inc. 120)	**502771	107	2	Large Piston Bush Large Piston Portion with Rings (Includes 28, 117
1759	36		%"x1½" Cap Screw (4 Req'd) Upper Inlet Valve (2 Req'd) Lower Inlet Valve (2 Req'd)				and two of 27)
29177	37 38	12-36	Upper Inlet Valve (2 Req'd)	20583	117	. 1	Large Piston Portion, less Rings
29177 24396	39	12-36 12-36	Upper Intermediate Valve (2 Req'd)	**502766		1	Exhaust Piston portion with Rings (Includes 118 and four of 28)
24396	40	12-36	Lower Intermediate Valve (2 Req'd)	20585	118	1	Exhaust Piston Portion, less Rings
29177	41	12-36	Upper Discharge Valve	**502761		1	Small Piston Portion with Rings (Includes 28, 119
29177 77117	42	12-36 12	Lower Discharge Valve Upper Inlet Valve Seat (2 Req'd)	45201	119	1	and two of 29) Small Piston Portion, less Rings
1697	44	2	Upper Inlet Valve Chamber Can (2 Rea'd)	54693	120	2	Small Cvi, Cover Bush
‡44445	45	6	Lower Inlet Valve Cage (Steel) (2 Req'd) Upper Intermediate Valve Seat (2 Req'd) Upper Intermediate Valve Cap (2 Req'd)	20556	123		Small Cyl. Cover Bush
8430 1906	46	12	Upper Intermediate Valve Seat (2 Req'd)	71080 12150	124 131		
\$46806	48	6-12	Lower Intermediate Valve Cage (Steel) (2 Req'd)	12155	132		34 "x334" Tee Hd. Bolt and Nut (2 Req'd) 34 "x234" Tee Hd. Bolt and Nut 36" Lock Washer (4 Req'd)
1697	49	2	Upper Discharge Valve Cap	17173	133		3/8" Lock Washer (4 Req'd)
144445	50	6	Lower Discharge Valve Cage (Steel)	24286	134	-	%"x'%" Hex. Hd. Cap Screw (4 Reg'd)
1702 51343	53 54	6	Stuffing Box (4 Req'd) Stuffing Box Nut (4 Req'd)	71757		-	%" Union Ell Connection, complete, for 3%" O. D. Copper Tubing (Includes 101, 102 and 135)
1703	55	1	Stuffing Box Gland (4 Req'd)	71754	135		3%" Union Ell
89042	56	A STATE	Type "B-3" Automatic Air Cylinder Oil Cup,	12150	136		%" Union Ell 44"x33%" Tee Hd. Bolt and Nut
			complete (2 Req'd)	77293 56018	137 144		Lower Jucket Band
93105	57		Upper Steam Cylinder Gasket	3662	145		Reducing Bush 34"x314" Tee Hd. Bolt and Nut (2 Req'd) No. 54 Air Strainer (See page 6)
502686	58		Lower Steam Cylinder Gasket	51426	4		No. 54 Air Strainer (See page 6)
11310 11310	59 60		Upper Air Cylinder Gasket Lower Air Cylinder Gasket	33711 3526			%" Pipe Plug %" Pipe Plug
11010	00		same an ogunder chaker	0020		2.00	78 Tipe Tiug

NOTE A—Repair parts for the 8). '-120 Compressor, having Taper Assembly of Steam Pistons and Rods, complete Pc. No. 81411, are the same as listed above, except the Steam Piston and Rod combinations. For repair sizes of Steam Piston and Rod combinations, see page 11.

NOTE B—For details of Type 'B-3' Automatic Air Cylinder Oil Cup, see Page 6.

NOTE C—The B-3-A (Double Capacity) Oil Cup Pc. 88232 will be substituted for the B-3 Oil Cup Pc. 89042 when specially ordered. For details of the B-3-A Oil Cup, see Part Catalog 3204-5.

†NOTE D—See Note C on pages 8 and 9.

‡NOTE E—Valve Cages regularly supplied as standard with the compressor are steel. If brass cage is required, specify as follows: Pc. 1708 Lower Inlet and Discharge Valve Cages. Pc. 1904 Lower Intermediate Valve Cage.

\*\*NOTE F-For Repair sizes, see page 10.

# 3 3" 48 16 - Th'ds. U.S.S. O. D. Copper Tubing To Air Cylinder

#### TYPE B-3 AUTOMATIC AIR CYLINDER OIL CUP

Piece No. 89042 Type B-3 Automatic Air Cylinder Oil Cup, complete, less Bracket and Oil Tubes

> Ref. No. Pc. No.

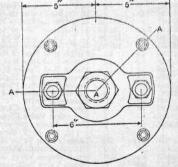
Body with Valve Bushing 2 89043

Sleeve 70883

5 Cap Nut 88418

Sleeve for 3/8" Copper Tubing 71727 9

79927 471748 Union Nut



#### No. 54 AIR STRAINER

Piece No. 51426 No. 54 Air Strainer, complete

Pc. No. Ref. No.

Head, tapped for 2" Pipe, complete (includes two of 5) 53693

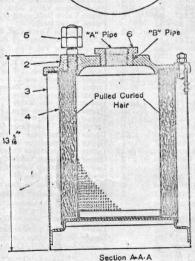
Shell, complete 87839

Strainer Case, complete 87842

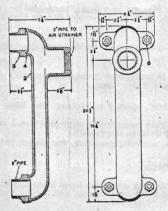
Net Weight 23/8 lbs.

3/4"x27/8" Stud and Nut (2 Req'd) 502146

Carton Pulled Curled Hair 88790



Net Weight 201/2 lbs.



Net Weight 25 lbs.

#### SINGLE AIR INLET

Piece No. 63917 Single Air Inlet, complete

Pe. No. Ref. No.

2 63308 Tee

Studs (2 Req'd) 63307 3

Gaskets (2 Req'd)

63306 4

Sq. Hd. Mch. Bolt with Hex. Nut (4 Req'd) 23350

Pistons and Rings for Rebored Cylinders

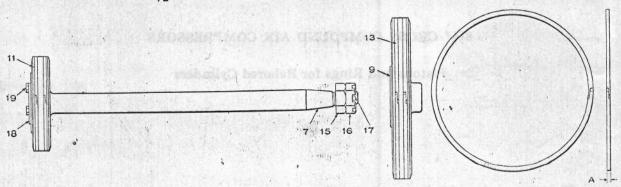
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The most modern development in packing rings for steam driven air compressors is now available and involves an improved form of lap joint for the ring somewhat similar to the lap joint rings which have proven so successful in triple valves.

These Lap Joint rings are made from a special mixture of metal to give what long experience has indicated as the most desirable wearing and friction qualities in conjunction with the metal in the cylinder walls. Ring gap and its attendant leakage is eliminated through the medium of a special lap joint at the ring ends that closes the rings in a complete circle. With the ring closed in its groove this joint seals on both the cylinder wall and one wall of the ring groove, forming a double leakage barrier which prevents blow-by between cylinder wall and ring. The joint maintains the sealing function of the ring throughout its entire circumference and thereby effectively eliminates the ring gap as a chief source of blow-by losses. Very careful attention has been given in design and manufacture to provide uniform wall pressure of the proper amount, the inside diameter of the ring being left intact to preserve this characteristic pressure over a long period of service. The sides of the ring are accurately ground to the proper width, permitting a close fit in the ring groove. No filing or fitting is required.

In reconditioning air compressors, it is our recommended practice to rebore the steam and air cylinders in steps of  $\frac{1}{16}$ " and the main valve cylinders in steps of  $\frac{1}{32}$ "; the maximum rebored diameter not to exceed that specified in the accompanying tables. We have provided repair pistons in the above oversize and piston rings of our latest improved manufacture in corresponding oversize diameters. The indicated diameter of the rings in each case is exact (a few thousandths large to take care of normal variations in reboring) so that when the ring is installed in the cylinder it will remain a true circle, thus insuring an even bearing at all points on the circumference and a tight fit against leakage. In addition to the oversize in diameter, the steam and air piston rings can all be obtained in widths greater than standard for use in ring grooves that have become wider than standard through wear. They range in overwidths of .006", .012", .018", .025", .030" and .036".

The wide variety of combinations in diameter and widths of rings should be sufficient to meet all normal repair requirements with the minimum of expense.



#### HIGH-PRESSURE STEAM PISTON

REF.	No. Pen	μ·;ι		CYLINDE	R DIAMETE	S AND PLEC	n Numbers	
No.	Pko.††		814"	811"	8,%"	85%"	811"	834"
7	1	†*High-Pressure Steam Piston and Rod, complete, (Includes 15, 16, 17, 18, two of 11 and three of 19)	98246	504725	98247	98248	98249	98250
11	12-25	*High-Pressure Steam Piston Ring (Standard width %", Dimension "A") (2 Req'd)	97401	98935	97408	97415	97422	97429
11	12-25	*High-Pressure Steam Piston Ring (.006" wider than standard) (2 Req'd)	97402	98936	97409	97416	97423	97430
11	12-25.	*High-Pressure Steam Piston Ring (.012" wider than standard) (2 Req'd)	97403	98937	97410	97417	97424	97431
11	12-25	*High-Pressure Steam Piston Ring (.018" wider than standard) (2 Req'd)	97404	504151	97411	97418	97425	97432
11	12	*High-Pressure Steam Piston Ring (.025" wider than standard) (2 Req'd)	97405	504152	97412	97419	97426	97433
11	12	*High-Pressure Steam Piston Ring (.030" wider than standard) (2 Req'd)	97406	504153	97413	97420	97427	97434
11	12	*High-Pressure Steam Piston Ring (.036" wider than standard) (2 Req'd).	97407	504154	97414	97421	97428	9743

#### LOW-PRESSURE AIR PISTON

			e its		CYLINDE	R DIAMETE	R AND PIE	CE NUMBEI	tis .	
REF. No.	No. PER PKG.		81/2"-150	141/4"	1457"	1416"	145/8"	1418"	14%"	1410"
	11	<b>医体理型的阻性 的现在分词</b> 。Laboration	81/2"-120	131/8"	1352"	1376"	131/4"	13 %"	133/8"	1376"
9	1	*Low-Pressure Air Piston, complete, (Includes two of 13)	8½″-150 8½″-120	98222 98256	504727 504726	98224 <sup>*</sup> 98257	98226 98258	98228 98259	98230 98260	98232 98261
13	12-25	*Low-Pressure Air Piston Ring (standard width	8½″-150 8½″-120	97478 97782	99049 99019	97485 97788	97492 97794	97499 97800	97471 97806	97889 97812
13	12-25	*Low-Pressure Air Piston Ring (.006" wider than standard) (2 Req'd)	8½″-150 8½″-120	97479 97783	99050 99020	97486 -97789	97493 97795	97500 97801	97472 97807	97890 97813
13	12-25	*Low-Pressure Air Piston Ring (.012" wider than standard) (2 Req'd)	8½″-150 8½″-120	97480 97784	99051 99021	97487 97790	97494 97796	97501 97802	97473 97808	97891 9781
13	12-25	*Low-Pressure Air Piston Ring (.018" wider than standard) (2 Req'd)	8½″-150 8½″-120	97481 97785	504194 504185	97488 97791	97495 97797	97502 97803	97474 97809	97817
13	12	*Low-Pressure Air Piston Ring (.025" wider than standard) (2 Req'd)	-	97482 97786	504195 504186	97489 97792	97496 97798	97503 97804	97475 97810	9781
13	12	*Low-Pressure Air Piston Ring (.030" wider than standard) (2 Req'd)	816"-150	97483	504196 504187	97490	97497	97504	97476	9789
13	12	*Low-Pressure Air Piston Ring (.036" wider than standard) (2 Req'd)	8½"-150	97484	504197 504188	97491 97793	97498 97799	97505 97805	97477 97811	9781

\*NOTE A—Pistons and Rings are designated by the diameter of the Cylinder for which they are suitable.

"NOTE A—Pistons and Rings are designated by the diameter of the Cylinder for which they are suitable.

NOTE B—Above sizes of Pistons and rings are carried in stock. Should orders be received for other sizes, we will substitute nearest standard size unless specific instructions are received to the contrary.

NOTE C—If maximum repair size High-Pressure Steam Piston and Rod or Low-Pressure Air Piston (less Rings and having ring grooves cut to standard caliper) suitable for turning to bore of cylinder is desired, specify:

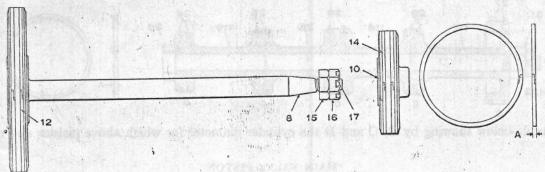
Pc. No. 59091 8 % High-Pressure Steam Piston and Rod
Pc. No. 59094 /14 % Low-Pressure Air Piston for 8 ½ -150
Pc. No. 59094 /14 % Low-Pressure Air Piston for 8 ½ -120

†NOTE D—For Piece Number Combinations, of High-Pressure Steam Pistons with Taper Assembly of Steam Piston Head and Rod, see page 11.

Column headed "No. Per Pkg." indicates the items for which standard shipping packages have been established and the number contained in the package. Orders placed in these quantities and multiples thereof will facilitate shipments and provide convenient means for handling in store room stock.

Prices will be quoted upon application

Orders should give PIECE-NUMBER, NAME and CYLINDER DIAMETER for part wanted



#### LOW-PRESSURE STEAM PISTON

	No de la color	laterative in the second of th			CYLINDE	R DIAMETE	RS AND PH	CE NUMBE	HS .		
REF.	No. PER		814"-150	1416"	1411"	14%"	1456"	1418"	34%4"	14 [], "	
240.	1.80,11		814"-120	14"	1417	14 16 "	141/3"	14 ½"	1434"	14 %"	
8	1	†*Low-Pressure Steam Piston and Rod, complete, (Includes 15, 16, 17 and two of 12)	814″-150 812″-120	98240 98234	504731 504730	98241 98235	98242 98236	98243 98237	98244 98238	98245 98239	
12	12-25	*Low-Pressure Steam Piston Ring (standard width &", Dimension "A") (2 Req'd)	81/2"-150	97478 97818	99049 99034	97485 97824	97492 97830	97499 97836	97471 97842	97889 97848	
12	12-25	*Low-Pressure Steam Piston Ring (.006" wider than standard) (2 Req'd)	8½"-150	97479 97819	99050 99035	97486 97825	97493 97831	97500 97837	97472 97843	97890 97849	
12	12-25	*Low-Pressure Steam Piston Ring (.012" wider than standard) (2 Req'd)	81/4"-150	97480 97820	99051 99036	97487 97826	97494 97832	97501 97838	97473 97844	9789 9785	
12	12-25	*Low-Pressure Steam Piston Ring (.018" wider than standard) (2 Req'd)	81/2"-150	97481 97821	504194 504190	97488 97827	97495 97833	97502 97839	97474 97845	9785	
12	12	*Low-Pressure Steam Piston Ring (.025" wider than standard) (2 Req'd)	81/2"-150	97482 97822	504195 504191	97489 97828	97496 97834	97503 97840	97475 97846	9785	
12	12	*Low-Pressure Steam Piston Ring (.030" wider than standard) (2 Req'd)	81/2"-150	97483 504189	504196 504192	97490	97497	97504	97476	9789	
12	12	*Low-Pressure Steam Piston Ring (.036" wider than standard) (2 Req'd)	814"-150	97484	504197 504193	97491 97829	97498 97835	97505 97841	97477 97847	9785	

#### HIGH-PRESSURE AIR PISTON

EVE .				CY	LINDER DIA	METERS AND	PIECE NUM	BERS	
REF.	No. PER PKG. ††	104 (E. DESELUI) SERLICO (CARTON )	81/2"-150	9"	944"	916"	91/4"	9 3 "	9¼"
110.	1 80.11		8½″-120	8¼"	817"	8 14"	83/8"	8 16"	81/2"
10	1	*High-Pressure Air Piston, complete, (Includes two of 14)	8½"-150 8½"-120	98212 98251	504733 504732	98214 98252	98216 98253	98218 98254	98220 98255
14	12-25	*High-Pressure Air Piston Ring (standard width	8½"-150 8½"-120	97436 97553	98947 98923	97443 97559	97450 97565	97457 97571	9746- 9740
14	12-25	*High-Pressure Air Piston Ring (.006" wider than standard) (2 Req'd)	8½"-150 8½"-120	97437 . 97554	98948 98924	97444 97560	97451 97566	97458 97572	9746 9740
14	12-25	*High-Pressure Air Piston Ring (.012" wider than standard) (2 Req'd)	8½″-150 8½″-120	97438 4 97555	98949 98925	97445 97561	97452 97567	97459 97573	9746 9740
14	12-25	*High-Pressure Air Piston Ring (.018" wider than standard) (2 Req'd)	8½″-150 8½″-120	97439 97556	504155 504147	97446 97562	97453 97568	97460 97574	9746 9740
14	12	*High-Pressure Air Piston Ring (.025" wider than standard) (2 Req'd)	8½″-150 8½″-120	97440 97557	504156 504148	97447 97563	97454 97569	97461 97575	9746 9740
14	12	*High-Pressure Air Piston Ring (.030" wider than standard) (2 Req'd)	8½″-150 8½″-120	97441 504146	504157 504149	97448	97455	97462	9746 9740
14	12	*High-Pressure Air Piston Ring (.036" wider than standard) (2 Req'd)		97442 97558	504158 504150	97449 97564	97456 97570	97463 97576	9747 9740

\*NOTE A—Pistons and rings are designated by the diameter of the cylinder for which they are suitable.

NOTE B—Above sizes of pistons and rings are carried in stock. Should orders be received for other sizes, we will substitute nearest standard size unless specific instructions are received to the contrary.

NOTE C—If maximum repair size Low-Pressure Steam Piston and Rod or High-Pressure Air Piston (less rings and having ring grooves cut to standard caliper), suitable for turning to bore of cylinder is desired, specify:

Pc. No. 59993 14 ½\* Low-Pressure Steam Piston and Rod, for 8 ½\*-150

Pc. No. 89570 14 ½\* Low-Pressure Steam Piston and Rod, for 8 ½\*-120

Pc. No. 59992 9 ½\* Air Piston, for 8 ½\*-120

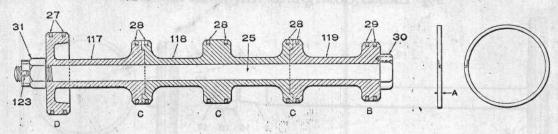
Pc. No. 89498 8 ½\* Air Piston, for 8 ½\*-120

\*\*Por Piece Number Combinations, of Low-Pressure Steam Pistons with Taper Assembly of Steam Piston Head and Rod, see page 11.

\*\*TNOTE E—Column headed "No. Per Pkg." indicates the items for which standard shipping packages have been established and the number contained in the package. Orders placed in these quantities and multiples thereof will facilitate shipments and provide convenient means for handling in store room stock.

Prices will be quoted upon application

Orders should give PIECE NUMBER, NAME and CYLINDER DIAMETER for part wanted



See table below showing by B, C and D the cylinder diameter for which above pistons and rings are suitable.

#### \*MAIN VALVE PISTON

Rer.	No. Per	Eller Carlotte Carlot	Cyl	INDER DIAM	ETERS AND	PIECE NUM	BICRIS
No.	PKG.		B-2 % " C-2 ½ " D-3 ¼ "	B-211 " C-211 " D-332 "	B-23/8" C-21/6" D-316"	B-2 \frac{13}{32} " C-2 \frac{32}{32} " D-3 \frac{11}{32} "	B-278 C-258 D-338
25	1	Main Valve Piston, complete (includes 30, 117, 118, 119, two of 27, 29 and six of 28)	502051	502052	502053	502054	. 502058
	1.	Large Piston Section, complete, for Main Piston Valve (includes 28, 117 and two of 27)	502771	502772	∖ 502773	502774	502775
27	50	Large Main Valve Piston Ring (standard width, Dimension "A," .136") (2 Req'd)	501997	501998	501999	502000	502001
27	50	Large Main Valve Piston Ring (.006" wider than standard) (2 Req'd)	502002	502003	502004	502005	502006
27	50	Large Main Valve Piston Ring (.012" wider than standard) (2 Req'd)	502007	502008	502009	502010	50201
	1	Exhaust Piston Section, complete, for Main Piston Valve (includes 118 and four of 28)	502766	502767	502768	502769	502770
28	100	Exhaust Piston Valve Ring (standard width, Dimension "A," .136") (6 Req'd)	501982	501983	501984	501985	501986
28	100	Exhaust Piston Valve Ring (.006" wider than standard) (6 Req'd)	501987	501988	501989	501990	50199
28	100	Exhaust Piston Valve Ring (.012" wider than standard) (6 Req'd)	501992	501993	501994	501995	501990
	1	Small Piston Section, complete, for Main Piston Valve (includes 28, 119 and two of 29)	502761	502762	502763	502764	50276
29	100	Small Piston Valve Ring (standard width, Dimension "A," .136") (2 Req'd)	501967	501968	501969	501970	50197
29	100	Small Piston Valve Ring (.006" wider than standard) (2 Req'd)	501972	501973	501974	501975	50197
29	100	Small Piston Valve Ring (.012" wider than standard) (2 Req'd)	501977	501978	501979	501980	50198

#### REPAIR PISTON VALVE BUSH

Pc. No.	Ref. No.	
65803	106	Piston Valve Bush (.01" larger than standard)
65804	106	Piston Valve Bush ( 1 larger than standard)

\*NOTE A—Pistons and rings are designated by the diameter of the cylinder for which they are suitable.

NOTE B—Above sizes of pistons and rings, and no other sizes, are made and carried in stock. Should orders be received for other sizes, we will substitute nearest standard size, unless specific instructions are received to the contrary.

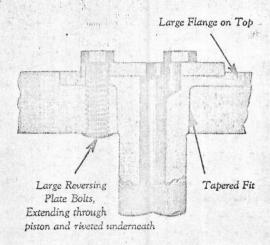
THOOTE C—Column headed "No. Per Pkg." indicates the items for which standard shipping packages have been established and the number contained in the package. Orders placed in these quantities and multiples thereof will facilitate shipments and provide convenient means for handling in store room stock.

Prices will be quoted upon application

Orders should give PIECE NUMBER, NAME and CYLINDER DIAMETER for part wanted

#### TAPER ASSEMBLY OF STEAM PISTON HEAD AND ROD

(Supplied when specified)



#### HIGH-PRESSURE STEAM PISTON

7		C	YLINDER DIA	METERS AND I	PIECE NUMBE	RS
No.		8½"	8 16 "	. 85/8"	811"	83/4"
7	*High-Pressure Steam Piston and Rod, complete (includes 15, 16, 17, 18, two of 11 and three of 19)	98296	98297	98298	98299	98300

#### LOW-PRESSURE STEAM PISTON

Down				CYLINDER 1	DIAMETERS	AND PIECE	E NUMBERS	
Ref. No.		8½"-150 8½"-120	14½″ 14″″	14½″ 14¼″	14 <sup>5</sup> / <sub>8</sub> " 14 <sup>1</sup> / <sub>8</sub> "	14 <sup>11</sup> / <sub>16</sub> " 14 <sup>3</sup> / <sub>16</sub> "	1434"	14 18 " 14 16 "
8	*Low-Pressure Steam Piston and Rod, complete (includes 15, 16, 17 and two of 12)	8½″-150 8½″-120	98307 98301	98308 98302	98309 98303	98310 98304	98311 98305	98312 98306

\*NOTE A-For Repair Size Lap Joint Piston Packing Rings, see pages 8 and 9.

NOTE B—If maximum repair size High-Pressure or Low-Pressure Steam Platon and Rod (less Rings and having ring grooves cut to standard caliper) suitable for turning to bore of cylinder is desired, specify:

Pc. No. 88569
Pc. No. 88570

8 4 High-Pressure Steam Platon and Rod
14 1 Low-Pressure Steam Platon and Rod

Prices will be quoted upon application Orders should give PIECE NUMBER, NAME and CYLINDER DIAMETER for part wanted

### Westinghouse Air Brake Company

Pittsburgh, Pa., U. S. A.

Works at Wilmerding, Pa.

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		8	2. 17.													*	-		-		- Candler Building
ATLANTA -	1	2.77		d.																	Monks Building
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	1												-		-				-		<ul> <li>Denver National Building</li> </ul>
LIERVEN																					Sterling Building
HOUSTON, Tex.						,,,															- Pacific Electric Building
Los Angeles	-				41		-		*		*		*		-					2	
MEXICO CITY, N	iex	CICC	)			-				-		*		-		*		-		)	a Puente de Alvarado, No. 67
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St. Louis -		-		-						18											Endicott Building
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SEATTLE .				112			-														
																					- Columbian Building
TOPEKA				-								11/4									Munsey Building
WASHINGTON, D	). (	<b>C.</b>			*				•				-		-						



#### ASSOCIATED COMPANIES

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> SAFETY CAR DEVICES COMPANY St. Louis, Mo.

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