

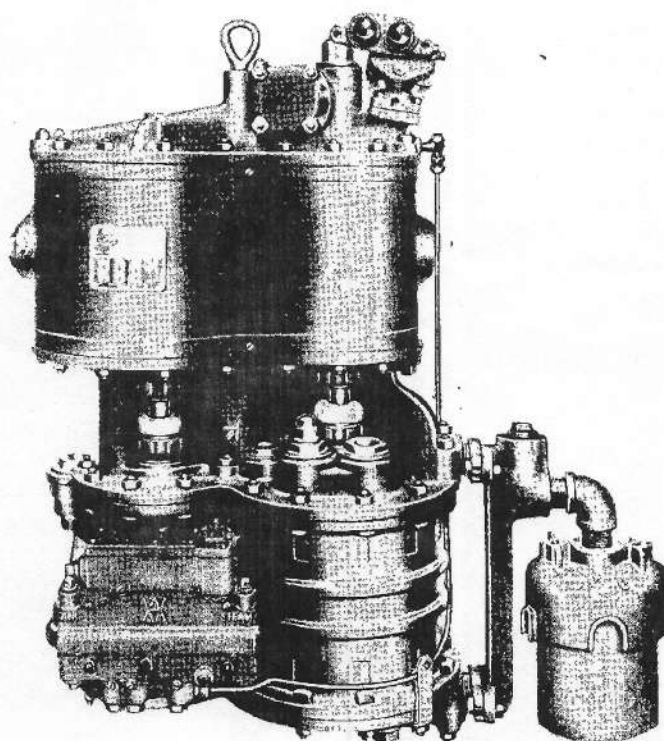
3204-1,  
Sup. 1

# CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E AND 8-1/2 in. - 150E TYPES

Parts Catalog No. 3204-1, Sup. 1

July, 1962



## WABCO



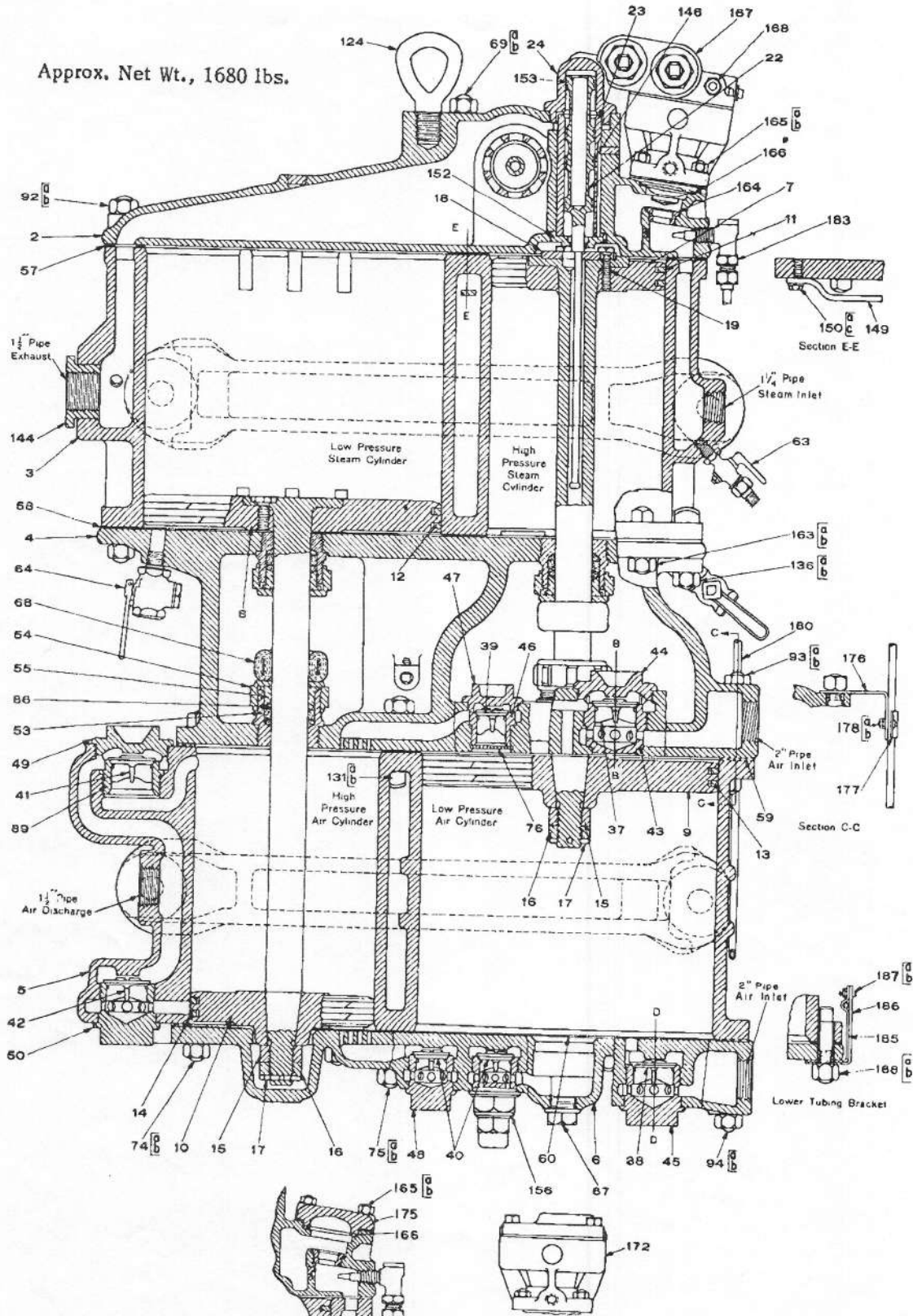
**WESTINGHOUSE AIR BRAKE DIVISION**

WILMERDING, PA. / Westinghouse Air Brake Company

# CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E and 8-1/2 in. 150E TYPES

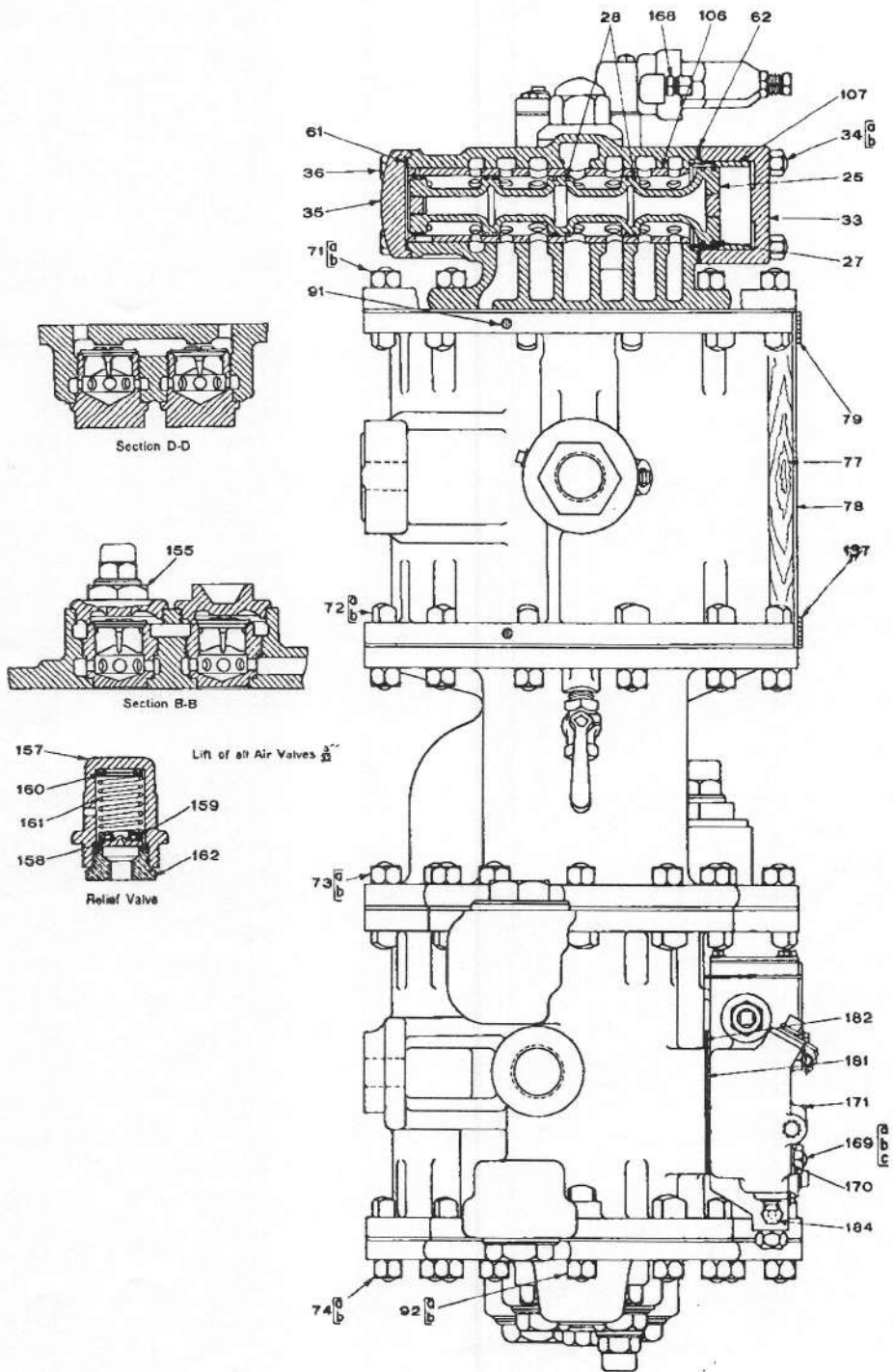
Approx. Net Wt., 1680 lbs.



AD-H Governor Steam Portion  
Governor Blanking Plate  
Pc. 524398  
Complete Pc. 520843

# CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E and 8-1/2 in. 150E TYPES



CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E and 8-1/2 in. 150E TYPES

Ref. No.	Pc. No.			Parts Name	No. Req'd
526893				8-1/2-120E CROSS COMPOUND STEAM DRIVEN AIR COMPRESSOR, ASY., with "F-2" Lubricator and Governor	
	526894			8-1/2-120E CROSS COMPOUND STEAM DRIVEN AIR COMPRESSOR, ASY., with "F-2" Lubricator and Governor and B-1 Manifold	
	526895			8-1/2-120E CROSS COMPOUND STEAM DRIVEN AIR COMPRESSOR, ASY., with "F-2" Lubricator and Governor and "C" Manifold	
		556861		8-1/2-120E CROSS COMPOUND STEAM DRIVEN AIR COMPRESSOR, ASY., Governor Blanked	
			533252	8-1/2-150E CROSS COMPOUND STEAM DRIVEN AIR COMPRESSOR, ASY., with "F-2" Lubricator and "AH" Governor	
			537115	8-1/2-150E CROSS COMPOUND STEAM DRIVEN AIR COMPRESSOR, ASY., with "F-2" Lubricator and Governor Blanked	
523825	524504	556862	524501	537116	. AIR COMPRESSOR, Less Accessories . . . 1
520763	§524502	524450	524502	524450	. . TOP HEAD, ASY., with Governor, (Includes Ref. Nos. 2, 22, 24, 25, 27, 28, 33, 36, 35, 61, 62, 146 and 166), Pc. No. 524450 also requires Ref. Nos. 172 & 175) 1
2		520745			. . . HEAD, Top (Includes Ref. Nos. 23, 34, 106, 152, 164, 165 and Pc. No. 523437). 1
	506311	506311	97095	97095	. . STEAM CYLINDER, ASSEMBLY, (Includes Ref. Nos. 3, 149 and 150). . . 1
3	64105	64105	†66560	†66560	. . . BODY, Cylinder (Includes Ref. No. 144 and Pc. No. 33711) . . . . . 1
	509654	509654	509654	510098	. . CENTER PIECE, ASSEMBLY, (Includes Ref. Nos. 4, 37, 39, 43, 44, 46, 47, 53, 54, 55, 76, and Pc. Nos. 33310, 33711, 39952, 3526 and 508979) . . . 1
4		20502			. . . BODY, Center Piece. . . . . 1
	523808	523808	520749	520749	. . AIR CYLINDER, Assembly (Includes Ref. Nos. 5, 41, 42, 49, 50, 89 and 169). 1
5	523792	523792	520750	520750	. . . BODY, Air Cylinder . . . . . 1
		509655			. . LOWER, HEAD, Assembly (Includes Ref. Nos. 6, 38, 40, 45, 48, 67 and Pc. No. 508976) . . . . . 1
6		20631			. . . HEAD, Lower . . . . . 1
7	39711	39711	39711	† 81819	. . PISTON and ROD (H.P.) (Includes Ref. Nos. 15 and 16). . . . . 1
8	63572	63572	39712	††82107	. . .PISTON and ROD (L.P.) (Includes Ref. Nos. 15 and 16). . . . . 1
9	63353	63353	39708	39708	. . PISTON, Air (L.P.) . . . . . 1

§NOTE: Also includes Ref. Nos. 167.

† NOTE: Also Includes Pc. 1635.

†NOTE: Also includes Ref. Nos. 18 & 19.

†† NOTE: Includes Pc. 81746.

# CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E and 8-1/2 in. 150E TYPES

(Continued)

Ref. No.	Pc. No.				Parts Name	No. Req'd
10	63354	63354	63354	39707	39707	.. PISTON, Air (H.P.) . . . . . 1
11			97401			.. RING, Piston (Steam H.P.) . . . . . 2
12	97818	97818	97818	97478	97478	.. RING, Piston (Steam L.P.) . . . . . 2
13	97782	97782	97782	97478	97478	.. RING, Piston (Air L.P.) . . . . . 2
14	97553	97553	97553	97436	97436	.. RING, Piston (Air H.P.) . . . . . 2
15			12136			.. NUT, Hex, 1-1/4 in. . . . . 2
16			12137			.. NUT, Jam, 1-1/4 in. . . . . 2
17			1018			.. COTTER, 1/4 x 1-1/2 in. . . . . 2
18	1688	1688	1688	1688	81736	.. PLATE, Reversing Valve . . . . . 1
19	12065	12065	12065	12065	81743	.. BOLT, Plate . . . . . 3
22			527215			.. ROD, Reversing Valve . . . . . 1
23			96018			.. BUSH, Rev. V. . . . . 1
24			89600			.. NUT, Cap . . . . . 1
25			89594			.. PISTON, Main V. . . . . 1
27			89608			.. RING, Piston (3-1/4 in. Main V.) . . . . . 2
28			89607			.. RING, Piston, (2-7/16 in. Main V.) . . . . . 8
33			89598			.. CAP, Front End (Includes Ref. No.107) . . . . . 1
34a			91316			.. STUD, 5/8 x 5-11/32 in. . . . . 4
34b			27009			.. NUT, Hex, 5/8 in. . . . . 4
35			502736			.. CAP, Rear End . . . . . 1
36			91331			.. SCREW, Cap, 5/8 x 1-1/2 in. . . . . 4
37			1705			.. VALVE, Upper, Inlet . . . . . 2
38			1705			.. VALVE, Lower, Inlet . . . . . 2
39			1905			.. VALVE, Upper, Inter. . . . . 2
40			1905			.. VALVE, Lower, Inter. . . . . 2
41			1705			.. VALVE, Upper, Disch. . . . . 1
42			1705			.. VALVE, Lower, Disch. . . . . 1
43			77117			.. SEAT . . . . . 2
44			505774			.. CAP . . . . . 1
45			44445			.. CAGE . . . . . 2
46			8430			.. SEAT, Inter. V. . . . . 2
47			505773			.. CAP, Chamber, C. Piece . . . . . 2
48			46806			.. CAGE, Lower Head . . . . . 1
49			505774			.. CAP, Air Cyl. . . . . 1
50			44445			.. CAGE, Air Cyl. . . . . 1
53			1702			.. BOX, Stuffing . . . . . 4
54			51343			.. NUT, Box . . . . . 4

Prices will be quoted upon application  
Orders should give PIECE NUMBER and NAME of part wanted



## CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E and 8-1/2 in. 150E TYPES

(Continued)

Ref. No.	Pc. No.				Parts Name	No. Req'd
55	1703	1703	1703	1703	-----	.. GLAND, Box . . . . . 4
55	-----	-----	-----	-----	No.Pc.No.	.. PACKING, Metallic . . . . . 1
57			93105			.. GASKET, Upper, S. Cyl. . . . . 1
58			502686			.. GASKET, Lower, S. Cyl. . . . . 1
59			11310			.. GASKET, Upper, A. Cyl. . . . . 1
60			11310			.. GASKET, Lower, A. Cyl. . . . . 1
61			502740			.. GASKET, Rear End, Cap. . . . . 1
62			90450			.. GASKET, Front End, Cap. . . . . 1
63		‡	33185			.. COCK, Drain, 1/4 in. (See Parts Catalog No. 3216-4, Sup. 7) . . . . . 1
64		‡	99080			.. COCK, Drain, 1/2 in. (See Parts Catalog No. 3216-4, Sup. 7) . . . . . 2
67			1919			.. PLUG, Lower, Hd. . . . . 1
68			90785		-----	.. SWAB, Piston Rod . . . . . 2
69a			550875			.. BOLT, T. Hd., 3/4 x 8-1/2 in. . . . . 2
69b			92309			.. NUT, Hex, 3/4 in. . . . . 2
71	-----	-----	-----	-----	91212	.. BOLT, T. Hd., 3/4 x 3-1/4 in. . . . . 2
71a	544588	544588	544588	544588	544588	.. BOLT, T. Hd., 3/4 x 2-1/2 in. . . . . 14
71b			92309			.. NUT, Hex . . . . . 14
72	-----	-----	-----	533382	-----	.. BOLT, T. Hd., 3/4 x 2-5/8 in. . . . . 1
72a			544588	§	x	.. BOLT, T. Hd., 3/4 x 2-1/2 in. . . . . 17
72b			92309			.. NUT, Hex, 3/4 in. . . . . 17
73a			544588			.. BOLT, T. Hd., 3/4 x 2-1/2 in. . . . . 15
73b			92309			.. NUT, Hex, 3/4 in. . . . . 15
74	-----	-----	-----	-----	91212	.. BOLT, T. Hd., 3/4 x 3-1/4 in. . . . . 2
74a			544588	††		.. BOLT, T. Hd., 3/4 x 2-1/2 in. . . . . 12
74b			92309	x		.. NUT, Hex 3/4 in. . . . . 12
75	-----	-----	-----	91912	-----	.. BOLT, T. Hd., 3/4 x 3-1/4 in. . . . . 1
75a			544589			.. BOLT, T. Hd., 3/4 x 3-1/2 in. . . . . 2
75b			92309	*†		.. NUT, Hex, 3/4 in. . . . . 2
76			17990			.. PLATE, Guard . . . . . 2
77			77295			.. LAGGING . . . . . 1
78			77294			.. JACKET, Steam Cyl. . . . . 1
79			11314			.. BAND, Jacket . . . . . 2
86		‡	91353		-----	.. PACKING, Set (P. Rod) . . . . . 2
89			8269			.. SEAT, Air Cyl. (Disch.) . . . . . 1
91			68421			.. SCREW, Band, 5/16 x 3/8 in. . . . . 6

‡ NOTE: Indicates details of Accessories Group.  
† NOTE: 12 Required                      † NOTE: 10 Required  
§ NOTE: 16 Required                      x NOTE: 13 Required  
†† NOTE: 13 Required                      \*† NOTE: 1 Required

Prices will be quoted upon application  
Orders should give PIECE NUMBER and NAME of part wanted

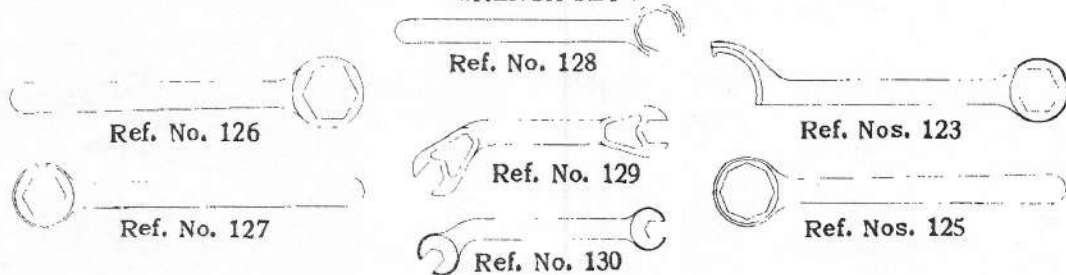
# CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E and 8-1/2 in. 150E TYPES

(Continued)

Ref. No.	Pc. No.	Parts Name	No. Req'd
92a	91212 §§	.. BOLT, T. Hd., 3/4 x 3-1/4 in.	6
92b	92309 §§	.. NUT, Hex, 3/4 in.	6
93a	91214	.. BOLT, T. Hd., 3/4 x 5 in.	2
93b	92309	.. NUT, Hex, 3/4 in.	2
94a	550874	.. BOLT, T. Hd., 3/4 x 5-1/2 in.	2
94b	92309	.. NUT, Hex, 3/4 in.	2
106	96020	.. BUSH, P. Valve	1
107	92674	.. BUSH, Lg., Main V.	1
123	----- † 2482	.. WRENCH, Packing and C. Nut.	1
124	71080	.. BOLT, Eye	1
	----- † 509303	.. WRENCH, Set (Includes Ref. Nos. 123, 125, 126, 127, 128, 129 and 130)	1
125	----- † 2485	.. WRENCH, Inlet and Disc. Valve Seat	1
126	----- † 2483	.. WRENCH, Inlet and Disc. Valve Cage	1
127	----- † 1937	.. WRENCH, Inter Valve Cage	1
128	----- † 1936	.. WRENCH, Inter Valve Seat	1
129	----- † 2481	.. WRENCH, T. Bolt Nut	1
130	----- † 1938	.. WRENCH, Cap Screw	1
131a	544589	.. BOLT, T. Hd., 3/4 x 3-1/2 in.	2
131b	92309	.. NUT, Hex, 3/4 in.	2
136a	91212	.. BOLT, T. Hd., 3/4 x 3-3/4 in.	2
136b	92309	.. NUT, Hex, 3/4 in.	2
144	56018	.. BUSHING, Red. 2-1/2 x 1-1/2 in.	1
146	74276	.. RING, Piston, 1-1/2 in.	6
149	50216	.. GUARD, Bolt	1
150a	24286	.. SCREW, Cap, 3/8 x 7/8 in.	1
150c	17173	.. WASHER, Lock, 3/8 in.	1
152	99775	.. NUT, Stop	1
153	88351	.. RING, Piston 1-31/64 in.	2

WRENCH SET †



† NOTE: Indicates details of Accessories Group.  
 §§ NOTE: 7 Required

Prices will be quoted upon application  
 Orders should give PIECE NUMBER and NAME of part wanted

CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E and 8-1/2 in. 150E TYPES

(Continued)

Ref. No.	Pc. No.	Parts Name	No. Req'd
	508979	.. IN, V. Chamber Cap (50 lb.) (Includes Ref. No. 155 and Pc. No. 510451)	1
155	509638	.. CAP, Chamber	1
	508976	.. CAGE, Inter V. (50 lb.)	1
156	509637	... CAGE, A.V.	1
	510451	... RELIEF VALVE, Assembly	2
157	509564	.... BODY, Valve	2
158	509635	.... VALVE	2
159	509636	.... EQUALIZER, Spring.	2
160	18723	.... WASHER, Shim	10
161	* 99157	.... SPRING	2
162	509634	.... SEAT, Valve	2
163a	553382	.. BOLT, T. Hd., 3/4 x 2-5/8 in.	1
163b	92309	.. NUT, Hex, 3/4 in.	1
164	520748	.. SEAT, S. Valve	1
165a	15073	.. STUD, 1/2 x 13/16 in.	4
165b	2505	.. NUT, Hex, 1/2 in.	4
166	88605	.. GASKET	1
167	-----   524495   -----   524495   -----	.. "AH" TYPE STEAM GOVERNOR, (See Parts Catalog No. 3205-1)	1
169a	522152	.. STUD, 1/2 x 5 in.	4
169b	2505	.. NUT, Hex, 1/2 in.	4
169c	15951	.. WASHER, Lock, 1/2 in.	4
	524948	.. "F-2" LUBRICATOR, Assembly, (Includes Ref. Nos. 171, 180 through 184, Pc. Nos. 522656 and 525403)	1
171	524587	.. "F-2" LUBRICATOR (See Parts Catalog No. 3204-5, Sup. 9)	1
172	‡ 520843   -----   -----   -----	.. GOVERNOR, Piston Body	1
175	-----   -----   -----   -----	.. PLATE, Blanking	1
	524398	.. CLAMP and BRACKET, Copper Tubing.	1
176	522656	.. BRACKET	1
177	525127	.. CLAMP	1
178a	525224	.. SCREW, Machine, No. 10	2
178b	14403	.. NUT, Hex, No. 10	4
180	17152	.. OIL TUBE with Swivel and Nuts	1
181	525188	.. GASKET, L. Lub.	1
	520715		
		529923	
		528718	

\*NOTE: For Spring Identification Table, see page 10

‡ NOTE: See Parts Catalog No. 3205-1, page 12.

Prices will be quoted upon application  
Orders should give PIECE NUMBER and NAME of part wanted



# CROSS COMPOUND STEAM DRIVEN AIR COMPRESSORS

8-1/2 in. - 120E and 8-1/2 in. 150E TYPES

(Continued)

3204-1,  
Sup. 1  
Page 9

Ref. No.	Pc. No.					Parts Name	No. Req'd
182	520716					.. GASKET, Lubricator . . . . .	1
183	525189					.. FITTING, with C.V. Elbow (See Parts Catalog No. 3204-5, Sup. 9) . . . . .	1
184	521935					.. STUD, Fitting, 1/4 in. . . . .	1
	525403					.. TUBE BRACKET, Lower . . . . .	1
185	525400					... BRACKET, Inner Tube . . . . .	1
186	525401					... BRACKET, Outer Tube . . . . .	1
187a	17194					... SCREW, Mach, No. 10 . . . . .	1
187b	17152					... NUT, Hex, No. 10 . . . . .	2
188a	91222					.. BOLT, T. Hd., 3/4 x 2-3/4 in. . . . .	1
188b	92309					.. NUT, Hex, 3/4 in. . . . .	1
‡	517400	517400	517400	517400	517400	.. "C" TYPE MANIFOLD, See page 11	1
‡	-----	531255	-----	-----	-----	.. "B-1" TYPE MANIFOLD, See page 11	1
‡	525663	525663	525663	525663	-----	.. 2 in. "G2" FILTER ‡‡ . . . . .	1
‡	-----	-----	-----	-----	529461	.. 2 in. "GW-2" FILTER ‡‡ . . . . .	1
‡			1892			.. SWIVEL, Union, 1/4 in. . . . .	1
‡			1893			.. NUT, Union . . . . .	1
‡	-----	84157	-----	84157	-----	.. UNION STUD, Compression . . . . .	2
			3526			.. PLUG, Pipe, 1/8 in. . . . .	1
			33711			.. PLUG, Pipe, 3/8 in. . . . .	4
			33310			.. PLUG, Pipe, 1/2 in. . . . .	2
	523437	523437	523437	523437	-----	.. PLUG, Socket Pipe, 1/8 in. . . . .	1
	-----	-----	-----	-----	51309	.. PLUG, Headless Pipe, 1/2 in. . . . .	1
	-----	-----	-----	-----	526867	.. FITTING, Inlet, Steam . . . . .	1
			39952			.. REDUCER, 3/8 to 1/4 in. . . . .	1
	-----	-----	-----	-----	81746	.. BOLT, H. Hd., 5/8 x 1-7/16 in. . . . .	3
	-----	-----	-----	1635	1635	.. PLUG, Pipe, 1/4 in. . . . .	1

‡ NOTE: Indicates details of Accessories Group.

‡‡ NOTE: See Parts Catalog No. 3216-12, Sup. 2.

Prices will be quoted upon application  
Orders should give PIECE NUMBER and NAME of part wanted

8 1/2 - 150 CENTER CASTING ORIGINAL DIMENSION 10.625 +.000 - .006 (WABCO)

TABLE SHOWING RE-BORED DIAMETERS OF COMPRESSOR CYLINDERS

Kind of compressor	Cylinders to be rebores	Diameter new Inches	Diameter after first rebores Inches	Diameter after second rebores Inches	Diameter after third rebores Inches	Diameter after fourth rebores Inches
9 1/2"	Steam Cylinder	9 1/2"	9 9/16	9 5/8	9 11/16	9 3/4
9 1/2"	Air Cylinder	9 1/2"	9 9/16	9 5/8	9 11/16	9 3/4
11"	Steam Cylinder	11	11 1/16	11 1/8	11 3/16	11 1/4
11"	Air Cylinder	11	11 1/16	11 1/8	11 3/16	11 1/4
8 1/2" CC.	H.P.S. Cylinder	8 1/2	8 9/16	8 5/8	8 11/16	8 3/4
	L.P.S. Cylinder	14 1/2	14 9/16	14 5/8	14 11/16	14 3/4
	L.P.A. Cylinder	14 1/2	14 9/16	14 5/8	14 11/16	14 3/5
	H.P.A. Cylinder	9	9 1/16	9 1/8	9 3/16	9 1/4

PISTON CYLINDER CLEARANCE - 1/64"

Piston rods with taper fit, should have new parts so machined that when the air piston is pushed onto the rod by hand and (air piston end up) its own weight, there must be full bearing over the entire service that should be in contact, meaning that the tapers on the rod and in the piston must be the same and smoothly machined. To prevent up-setting of the material in the air piston when drawn tight with nuts, it is necessary that the metal in the piston at the rod fit be chilled, as are all pistons furnished by the brake manufacturers. The standard draw for taper pistons in different size compressors is as follows:

TABLE SHOWING DIMENSIONS BETWEEN HEADS AND DRAW ON PISTONS

Kind Compressor	Draw Inches	Standard dimensions between heads Inches	Minimum dimensions between heads Inches
9 1/2"	3/64	18 11/16 18.688	18 43/64 18.672
11"	1/32	21 3/16 21.188	21 11/64 21.172
8 1/2" C.C.	1/32	22 11/16 22.688	22 43/64 22.672

Piston packing rings for steam and air cylinders to be condemned when rings ends do not come together when placed in the smallest part of the cylinder.

Combinations of packing rings and far pistons should not be used when the difference between the thickness of the rings and the width of the groove is .005" or more. When the ring grooves in the air and steam pistons are badly worn they should be trued up and rings .006", .012" or .025" thicker than standard should be applied. When using new material the ring should be a fit in the groove and the fit should be obtained