

3204-1  
Sup. 5

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**Crown Metal Products Co.**

WYANO, PA - USA

Telephone 872-8720

Area Code 412



For Compressor  
Stand  
Use TA 13981  
only.

# 10 $\frac{1}{2}$ " Cross Compound Air Compressor

Part Catalog No. 3204-1

Supplement No. 5

May, 1931

(SUPERSEDING TEMPORARY ISSUE OF JANUARY, 1927)





Top Hd  
Shipping  
210

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**10 1/2" CROSS COMPOUND AIR COMPRESSOR**

(For General Data see page 8)

Piece No. 77700 10 1/2" Cross Compound Air Compressor, complete with Type B-3 Automatic Air Cylinder Oil Cup and No. 54 Strainer.

Pc. No.	Ref. No.	Description
72358		Top Head, complete. (Includes 2, 22, 24, 25, 33, 35, 61, 62; four of 34 and 36; two each of 18023 and 33310)
72356	2	Top Head, Bushed (Includes 23, 87, 105 and 107)
79044	3	Steam Cylinder, complete. (Includes 63, 77, 78, 79, 130 and eight of 91)
35072	4	Center Piece, complete. (Includes Pc. 3520 and 35711; two of 37, 39, 43, 44, 46, 47, 64, 70; four of 53, 54 and 55)
71955	5	Air Cylinder, complete. (Includes 41, 42, 49, 50 and 89)
71954	6	Lower Head, complete. (Includes two of 38, 40, 45, 48 and 67)
780199	7	High Pressure Steam Piston and Rod, complete. (Includes 15, 16, 17, 18; two of 11 and three of 19)
180210	8	Low Pressure Steam Piston and Rod, complete. (Includes 15, 16, 17 and two of 12)
180204	9	Low Pressure Air Piston (Includes two of 13)
180210	10	High Pressure Air Piston (Includes two of 14)
79768	11	High Pressure Steam Piston Ring (2 Req'd)
79771	12	Low Pressure Steam Piston Ring (2 Req'd)
79002	13	Low Pressure Air Piston Ring (2 Req'd)
79767	14	High Pressure Air Piston Ring (2 Req'd)
1500	15	Piston Rod Nut (2 Req'd)
1591	16	Piston Rod Jam Nut (2 Req'd)
1589	17	Piston Rod Cotter (2 Req'd)
30816	18	Reversing Valve Plate
12065	19	Reversing Valve Plate Bolt (3 Req'd)
20103	20	Reversing Valve Rod
1706	21	Reversing Valve
50889	22	Reversing Valve Chamber Bush
13302	23	Reversing Valve Chamber Cap
80701	24	Piston Valve, complete. (Includes 30, 117, 118, 119; two of 27, 29 and six of 28)
90494	25	Large Piston Valve Ring (2 Req'd)
90420	26	Exhaust Piston Valve Ring (6 Req'd)
90431	27	Small Piston Valve Ring (2 Req'd)
89234	28	Piston Valve Bolt, complete. (Includes 31 and 123)
87690	29	Piston Valve Bolt Nut
35334	30	Large Piston Valve Cylinder Head
1759	31	Large Piston Valve Cylinder Head Cap Screw (3/4"x1 1/2") (4 Req'd)
30660	32	Small Piston Valve Cylinder Head (Includes 120)
1759	33	Small Piston Valve Cylinder Head Cap Screw (3/4"x1 1/2") (4 Req'd)
29177	34	Upper Inlet Valve (2 Req'd)
29177	35	Lower Inlet Valve (2 Req'd)
24396	36	Upper Intermediate Valve (2 Req'd)
24396	37	Lower Intermediate Valve (2 Req'd)
29177	38	Upper Discharge Valve
29177	39	Lower Discharge Valve
77117	40	Upper Inlet Valve Seat (2 Req'd)
83125	41	Upper Inlet Valve Chamber Cap (2 Req'd)
14445	42	Lower Inlet Valve Cage (2 Req'd)
8430	43	Upper Intermediate Valve Seat (2 Req'd)
83124	44	Upper Intermediate Valve Cap (2 Req'd)
14445	45	Lower Intermediate Valve Cage (2 Req'd)
83125	46	Upper Discharge Valve Cap
14445	47	Lower Discharge Valve Cage
7736	48	Stuffing Box (4 Req'd)
53863	49	Stuffing Box Nut (4 Req'd)
7737	50	Stuffing Box Gland (4 Req'd)
89042	51	Type B-3 Oil Cup, complete, less Bracket, Oil Tubes and Union Connections
35041	52	Upper Steam Cylinder Gasket
35041	53	Lower Steam Cylinder Gasket
35042	54	Upper Air Cylinder Gasket
35042	55	Lower Air Cylinder Gasket
20561	56	Small Piston Valve Cylinder Head Gasket

Job 962

Pc. No.	Ref. No.	Description
31180	62	Large Piston Valve Cylinder Head Gasket
1887	63	1/4" Drain Cock
7716	64	1/2" Drain Cock (2 Req'd)
1919	67	Lower Head Plug (2 Req'd)
17582	68	Piston Rod Swab (2 Req'd)
67610	69	Tee Head Bolt and Nut (3/4"x10 1/2") (2 Req'd)
3661	71	Tee Head Bolt and Nut (3/4"x2 1/2") (13 Req'd)
25078	72	Tee Head Bolt and Nut (3/4"x2 1/2") (21 Req'd)
25078	73	Tee Head Bolt and Nut (3/4"x2 1/2") (11 Req'd)
25078	74	Tee Head Bolt and Nut (3/4"x2 1/2") (14 Req'd)
12150	75	Tee Head Bolt and Nut (3/4"x3 1/2") (11 Req'd)
17900	76	Guard Plate for Upper Intermediate Valve (2 Req'd)
79206	77	Lagging, complete
79201	78	Jacket
35087	79	Jacket Band
15496	82	Packing Nut Wrench
18285	80	Piston Rod Packing (2 Req'd)
31329	87	Reversing Valve Rod Bush
8269	89	Upper Discharge Valve Seat
68421	91	Jacket Band Screw (8 Req'd)
12148	92	Tee Head Bolt and Nut (3/4"x3 1/2") (3 Req'd)
22669	93	Tee Head Bolt and Nut (3/4"x3 1/2") (7 Req'd)
12148	94	Tee Head Bolt and Nut (3/4"x3 1/2") (2 Req'd)
78072		Set Type B-3 Automatic Oil Cups, Brackets and Oil Tubes, complete. (Includes one of 99, 103, 104, 135; two of 56, 100 and four of 101 and 102)
78007	90	Oil Cup Bracket
71756		Union Stud Connection for 3/8" O. D. Tube, complete. (Includes 100, 101 and 102) (2 Req'd)
71755	100	Union Stud
78071		Oil Tube and Connection to L. P. Air Cylinder, complete. (Includes 109, 101, 102 and 103)
78000		Oil Tube and Connections to H. P. Air Cylinder, complete. (Includes 100, 101, 102 and 104)
71757		Union Elbow for 3/4" O. D. Tube, complete. (Includes 101, 102 and 135)
71748	101	Union Nut (4 Req'd)
71727	102	Thimble (4 Req'd)
78070	103	3/4" O. D. Oil Tube to L. P. Air Cylinder
78068	104	3/4" O. D. Oil Tube to H. P. Air Cylinder
50880	106	Piston Valve Bush
50888	107	Large Differential Bush
80080		Large Piston Section, complete, for Main Piston Valve (Includes 117, 28 and two of 27)
35324	117	Large Piston Section (Finished Casting Only)
80691		Exhaust Piston Section, complete, for Main Piston Valve (Includes 118 and four of 28)
35326	118	Exhaust Piston Section (Finished Casting Only) for Main Piston Valve
80696		Small Piston Section, complete, for Main Piston Valve (Includes 110, 28 and two of 29)
35325	110	Small Piston Section (Finished Casting Only) for Main Piston Valve
54893	120	Small Piston Valve Cylinder Bush
25084	121	Tee Head Bolt and Nut (3/4"x4") (6 Req'd)
25080	122	Tee Head Bolt and Nut (3/4"x2 1/2") (2 Req'd)
20536	123	Cotter
71080	124	Eye Bolt
12155	132	Tee Head Bolt and Nut (3/4"x2 1/2") (2 Req'd)
17173	133	3/4" Lock Washer (4 Req'd)
24286	134	3/4"x3/4" Cap Screw (4 Req'd)
71754	135	Union Elbow
79203	136	Lower Jacket Band
66080		No. 54 Air Strainer (See Page 8)
3526		1/2" Pipe Plug
33711		3/4" Pipe Plug
18023		3/4" Pipe Plug (2 Req'd)
33310		1/2" Pipe Plug (2 Req'd)

\*NOTE A—If repairs for compressors equipped with old style Air Cylinder Oil Cups are desired, order should specify as follows:

Pc. No.	Ref. No.	Description
39107		Oil Cups, Bracket and Pipe Connections, complete. (Includes 99, 103, 104; two of 56; four of 100, 101 and 102)
21414	56	Air Cylinder Oil Cups (2 Req'd)
35021	99	Lubricator Bracket
21505		Oil Pipe Union Connection, complete. (Includes 100, 101 and 102)

Pc. No.	Ref. No.	Description
20470	100	Union Stud (4 Req'd)
2001	101	Union Nut (4 Req'd)
1892	102	Union Swivel (4 Req'd)
35020	103	Oil Pipe to Low Pressure Air Cylinder
53900	104	Oil Pipe to High Pressure Air Cylinder

For details of old style Oil Cup, see Part Catalog 3204-5.

If repairs for Type "B" Automatic Air Cylinder Oil Cup mounted on the Top Head, are desired, see Part Catalog 3204-5.

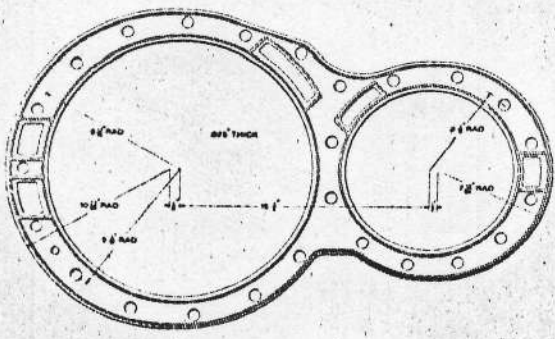
- NOTE B—For details of Type "B-3" Automatic Air Cylinder Oil Cup, see Page 8.
- NOTE C—For repair sizes, see Pages 5 and 6.
- NOTE D—Valve Cages regularly supplied as standard with compressor are steel. If brass cage is required, specify as follows: Pc. 1708 Lower Inlet and Discharge Valve Cages—Pc. 1902 Lower Intermediate Valve Cage.
- NOTE E—For repair sizes, see Page 7.
- NOTE F—If repair Air Valves with wing diameter .025" longer than standard are desired, specify as follows: Pc. 78344 Inlet and Discharge Valve—Pc. 78345 Intermediate Valve.
- NOTE G—We can supply the taper assembly of steam piston and rod, as an alternate to our standard method of assembly, when so desired.

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

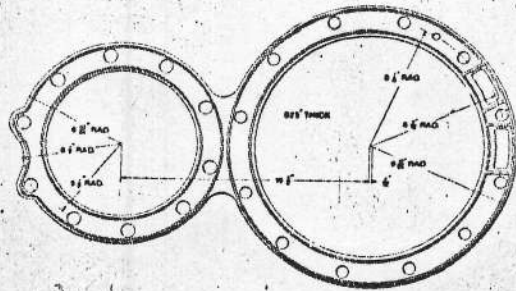
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## 10 1/2" CROSS COMPOUND AIR COMPRESSORS

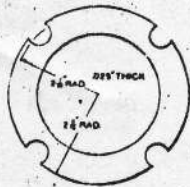
### GASKETS



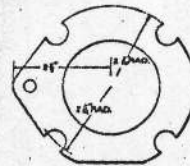
Steam Cylinder Gasket



Air Cylinder Gasket



Large Piston Valve  
Cylinder Head Gasket



Small Piston Valve  
Cylinder Head Gasket

### Pistons and Rings for Rebored Cylinders

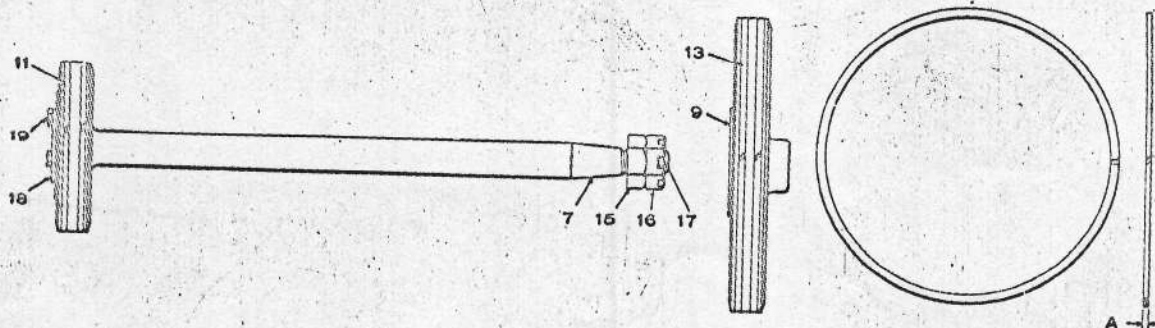
In re-conditioning air compressors, it is our recommended practice that the steam and air cylinder be re-bored in steps of  $\frac{1}{16}$ " and main valve cylinders in steps of  $\frac{1}{32}$ "; the maximum re-bored diameter not to exceed that specified in the accompanying tables. We have provided repair pistons in the above oversizes and also piston rings, of our latest improved manufacture, in corresponding oversize diameters. The exact ring diameter is actually a few thousandths larger than the nominal cylinder bore to take care of nominal variations in re-boring of cylinders. In addition to the oversize in diameter, the steam and air piston rings are also available in widths greater than standard so as to take care of ring grooves wider than standard. These over-widths are—.006", .012", .018", .025", .030" and .036" greater than standard.

This wide variety of combinations in diameter and width should take care of every conceivable repair condition and with the very minimum in fitting on the part of the repair man, which is an important item in keeping the repair cost down. Because of the small amount of fitting required, the bearing of the ring in the cylinder remains as nearly as possible the true circle it was when manufactured.

These rings are made from a special mixture of metal to give them what long experience has indicated as the most desirable wearing and friction qualities in conjunction with the metal in the cylinder walls. Very careful attention has been given in design and manufacture to provide uniform wall pressure of the proper amount, the inside surface of the ring being left intact to preserve this characteristic over a long period of service. The sides of the rings are accurately ground to the proper width, permitting a close fit in the ring groove, which combined with the continuous bearing of the ring against the cylinder wall, afforded by making the ring substantially the diameter of the re-bored cylinder, insures the maximum seal against air passage by the piston.



10 1/2" CROSS COMPOUND AIR COMPRESSOR



\*HIGH-PRESSURE STEAM PISTON

REF. No.		CYLINDER DIAMETERS AND PIECE NUMBERS				
		10 1/2"	10 1/8"	10 3/8"	10 1/4"	10 3/4"
7	High-Pressure Steam Piston and Rod, complete, (Includes 15, 16, 17, 18, two of 11 and three of 19).....	98269 80199	98270 80200	98271 80201	98272 80202	98273 80203
11	High-Pressure Steam Piston Ring (standard width 1/8" Dimension "A").....	97720 80120	97724 80124	97728 80128	97732 80132	97736 80136
11	High-Pressure Steam Piston Ring (.006" wider than standard).....	97721 80221	97725 80340	97729 80344	97733 80342	97737 80343

\*LOW-PRESSURE AIR PISTON

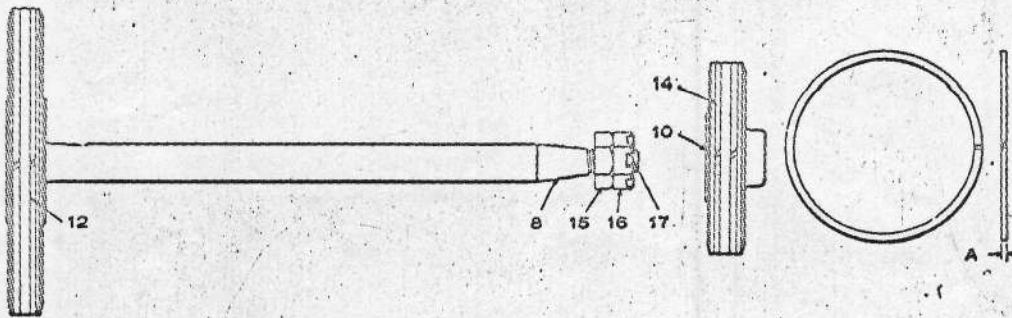
REF. No.		CYLINDER DIAMETERS AND PIECE NUMBERS					
		14 1/2"	14 1/8"	14 3/8"	14 1/4"	14 3/4"	14 1/2"
9	Low-Pressure Air Piston, complete (includes two of 13)	80204	80205	80206	80207	80208	80209
13	Low-Pressure Air Piston Ring (standard width 1/8", Dimension "A").....	97485 79602	97486 80105	97487 80100	97488 80107	97489 80108	97490 80109
13	Low-Pressure Air Piston Ring (.006" wider than standard).....	97479 80251	97480 80252	97483 80253	97500 80254	97472 80255	97890 80256
13	Low-Pressure Air Piston Ring (.012" wider than standard).....	97480 80273	97481 80274	97484 80277	97501 80278	97473 80279	97891 80280
13	Low-Pressure Air Piston Ring (.018" wider than standard).....	97481 80004	97488 80005	97495 80008	97502 80011	97474 80014	
13	Low-Pressure Air Piston Ring (.025" wider than standard).....	97482 80107	97489 80007	97496 80104	97503 80012	97475 80109	
13	Low-Pressure Air Piston Ring (.030" wider than standard).....	97483 80202	97490 80203	97497 80206	97504 80209	97476 80201	97892 80208
13	Low-Pressure Air Piston Ring (.036" wider than standard).....	97484 80003	97491 80005	97498 80010	97505 80013	97477 80015	

\*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 cylinder sizes, we will substitute nearest standard cylinder size, unless specific instructions are received to the contrary. See page 4 for information in regard to steam and air piston rings that will be furnished in widths greater than standard.  
 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:  
 P.C. No. 73548 10 1/2" High-Pressure Steam Piston and Rod  
 P.C. No. 73551 14 1/2" Low Pressure Air Piston

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

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10 1/2" CROSS COMPOUND AIR COMPRESSOR



\*LOW-PRESSURE STEAM PISTON

REF. No.		CYLINDER DIAMETERS AND PIECE NUMBERS					
		16 3/4"	16 1/2"	16 1/8"	16 1/4"	17"	17 1/8"
8	Low-Pressure Steam Piston and Rod, complete (includes 15, 16, 17 and two of 12).....	98274 80210	98275 80211	98276 80212	98277 80213	98278 80214	98279 80215
12	Low-Pressure Steam Piston Ring (standard width 1/4" Dimension "A").....	97893 80131	97896 80133	97899 80134	97902 80135	97905 80136	97908 80137
12	Low-Pressure Steam Piston Ring (.006" wider than standard).....	97894 80221	97897 80222	97900 80223	97903 80224	97906 80225	97909 80226

.012 wider 97895 97898 97901 97904 97907 97910  
 .018 504198  
 .025 504199  
 .030 504200  
 \*HIGH-PRESSURE AIR PISTON  
 .036 504201 505874 516779

REF. No.		CYLINDER DIAMETERS AND PIECE NUMBERS				
		9 1/2"	9 1/8"	9 1/4"	9 1/2"	9 3/4"
10	High-Pressure Air Piston, complete (includes two of 14).....	98280 80216	98281 80217	98282 80218	98283 80219	98284 80220
14	High-Pressure Air Piston Ring (standard width 1/4" Dimension "A").....	97700 80130	97704 80133	97708 80130	97712 80140	97716 80141
14	High-Pressure Air Piston Ring (.006" wider than standard).....	97701 80373	97705 80374	97709 80375	97713 80376	97717 80377
14	High-Pressure Air Piston Ring (.012" wider than standard).....	97702 80530	97706 80542	97710 80546	97714 80547	97718 80551

.018 504163 516864  
 .025 504164  
 .030 504165  
 .036 504166 519306

\*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 cylinder sizes, we will substitute nearest standard cylinder size, unless specific instructions are received to the contrary. See page 4 for information in regard to steam and air piston rings that will be furnished in widths greater than standard.

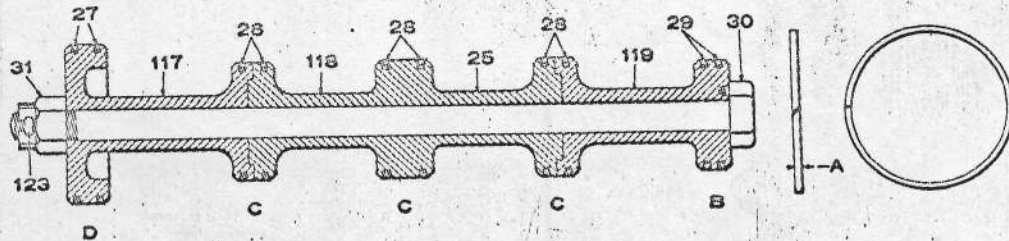
\*NOTE C—If maximum repair size Low-Pressure Steam Piston and Rod or High-Pressure Air Piston (less rings and having ring grooves cut to standard caliber) suitable for turning to bore of cylinder is desired, specify:  
 Pc. No. 73549 17 1/8" Low-Pressure Steam Piston and Rod  
 Pc. No. 73550 9 3/4" High-Pressure Air Piston

Prices will be quoted upon application

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



10 1/2" CROSS COMPOUND AIR COMPRESSOR



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

\*MAIN VALVE PISTON

REF. No.		CYLINDER DIAMETERS AND PIECE NUMBERS				
		B-2 1/4" C-2 1/4" D-3 1/8"	B-2 1/4" C-2 1/4" D-3 1/8"	B-2 3/8" C-2 1/4" D-3 1/8"	B-2 1/2" C-2 1/4" D-3 1/8"	B-2 1/2" C-2 3/8" D-3 1/2"
25	Main Valve Piston, complete (includes 30, 117, 118, 119, 123, two of 27, 29 and six of 28).....	504623 80701	504624 80702	504625 80703	504626 80704	504627 80705
	Large Piston Section, complete, for Main Piston Valve (includes 28, 117 and two of 27).....	504618 80686	504619 80687	504620 80688	504621 80689	504622 80690
27	Large Main Valve Piston Ring (standard width, Dimension "A," .136") (2 Req'd).....	502001 90494	502615 90533	502616 90534	502617 90535	502618 90536
	Exhaust Piston Section, complete, for Main Piston Valve (includes 118 and four of 28).....	504613 80692	504614 80692	504615 80693	504616 80694	504617 80695
28	Exhaust Piston Valve Ring (standard width, Dimension "A," .136") (6 Req'd).....	501982 90429	501993 90430	501984 90523	501985 90524	501986 90525
28	Exhaust Piston Valve Ring (.006" wider than standard) (6 Req'd).....	501987 90722	501988 90723	501989 90724	501990 90725	501991 90726
28	Exhaust Piston Valve Ring (.012" wider than standard) (6 Req'd).....	501992 90730	501993 90731	501994 90732	501995 90733	501996 90734
	Small Piston Section, complete, for Main Piston Valve (includes 28, 119 and two of 29).....	504608 80696	504609 80697	504610 80698	504611 80699	504612 80700
20	Small Piston Valve Ring (standard width, Dimension "A," .136") (2 Req'd).....	501967 90431	501968 90432	501969 90520	501970 90521	501971 90522
20	Small Piston Valve Ring (.006" wider than standard) (2 Req'd).....	501972 90717	501973 90718	501974 90719	501975 90720	501976 90721
20	Small Piston Valve Ring (.012" wider than standard) (2 Req'd).....	501977 90731	501978 90732	501979 90733	501980 90734	501981 90735

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

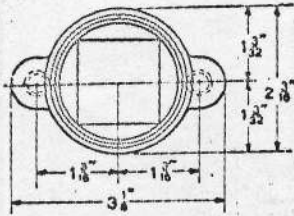
NOTE B—Above sizes of pistons and rings are carried in stock. Should orders be received for other sizes, we will substitute nearest standard size, unless specific instructions are received to the contrary.

Prices will be quoted upon application

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

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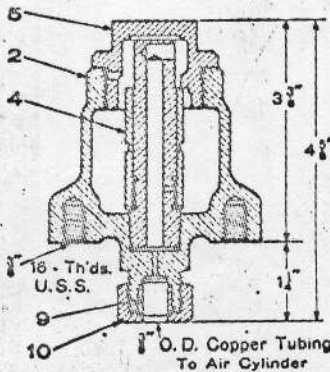
10 1/2" CROSS COMPOUND AIR COMPRESSOR  
TYPE "B-3" AUTOMATIC AIR CYLINDER OIL CUP



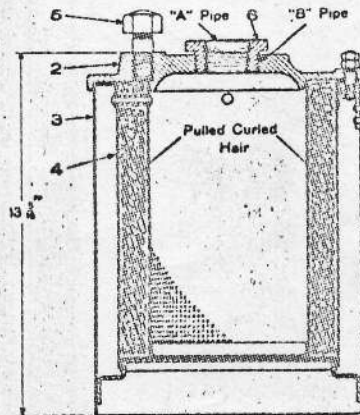
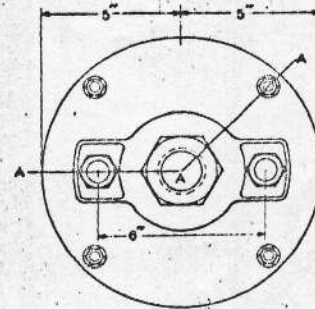
Piece No. 89042 Type "B-3" Automatic Air Cylinder Oil Cup, complete less Brackets and Oil Tubes

Pc. No.	Ref. No.	Description
89043	2	Body with Valve Bushing
70883	4	Sleeve
88418	5	Cap Nut
81214	9	Sleeve for 3/8" O. D. Copper Tubing
71718	10	Union Nut

79927



Net Weight 2 1/2 lbs.



Section A-A  
Net Weight 20 1/2 lbs.

No. 54 AIR STRAINER

Piece No. 66680 No. 54 Air Strainer, complete

Pc. No.	Ref. No.	Description
58695	2	Head, tapped for 3" Pipe, complete (Includes 6 and two of 5)
87839	3	Shell, complete
87842	4	Strainer Case, complete
27906	5	3/4"x2 1/4" Stud and Nut (2 Req'd)
66679	6	3"x2 1/2" Bushing
88790		17 1/2 oz. Pulled Curled Hair

COMPRESSOR DATA

The 10 1/2" Compressor, which is of the compound type having cylinder dimensions and stroke as shown below, has a displacement of 150 cubic feet of free air when operating at the rate of 131 single strokes per minute.

Net Weight 1800 lbs.

Shipping Weight 2150 lbs.

	DIAMETER	DIAMETER
High Pressure Steam Cylinder.....	10 1/2"	Low Pressure Steam Cylinder..... 16 3/4"
High Pressure Air Cylinder.....	9 1/2"	Low Pressure Air Cylinder..... 14 1/2"

Length of Stroke 12"

	DIAMETER	DIAMETER
Steam Admission Pipe.....	1 1/2"	Steam Exhaust Pipe..... 2 1/2"
Air Admission Pipe.....	2 1/2"	Air Delivery Pipe..... 1 1/2"

Size of Governor required, 1 1/2"

Designed for Steam Pressure of 100 lbs.  
Working against Air Pressure of 80 lbs.

APPROXIMATE OVER-ALL DIMENSIONS

HEIGHT	WIDTH	DEPTH
55 3/4"	38"	21"

Prices will be quoted upon application

Orders should give PIECE NUMBER and NAME of part wanted