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General Electric Company

Schenectady, N.Y.

RAILWAY DEPARTMENT

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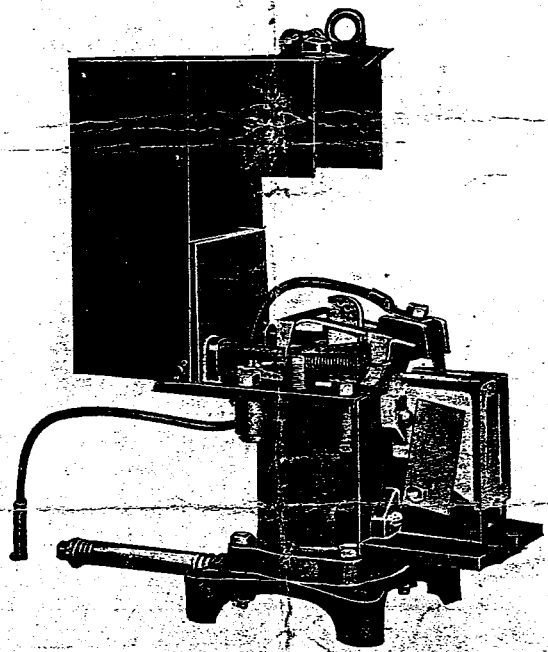
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* Bulletin No. 44590

TYPE ML GOVERNOR FOR MOTOR-DRIVEN AIR COMPRESSORS

The function of the Type ML governor is to automatically control the operation of either stationary or railway motor-driven air compressors in order to maintain air pressure in a storage reservoir between predetermined limits.

tion of this governor is such that air does not pass through, or come in contact with the operating mechanism, but is restricted to a chamber below the diaphragm, hence troubles resulting from moisture due to condensation are eliminated.



TYPE ML FORM A GOVERNOR

This governor is essentially a single-pole switch of the contactor type, operated by means of a rubber diaphragm, a piston, and a set of levers. The operating mechanism is simple, compact and reliable. The construction

The essential points of advantage in this type of governor are:

- Interrupting switch provided with an arc chute of highly refractory material, an effective magnetic blowout, and easily renewable

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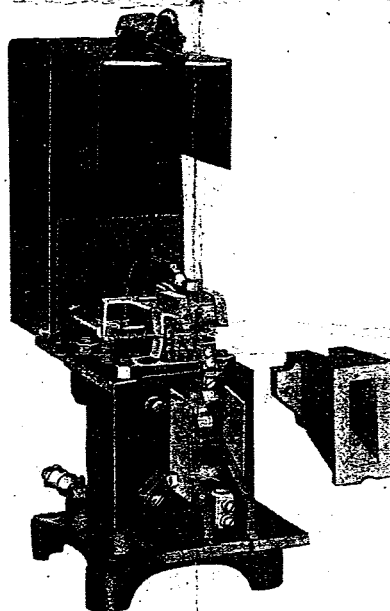
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44590-2 Type ML Governor for Motor-Driven Air Compressors

contacts. Arc chute can be quickly removed for inspection or repairs without disturbing any other part or any electrical connections.

Operating mechanism arranged so as to maintain constant pressure on contact tips until point of tripping is reached, insuring a quick break of the contacts when opening the circuit.

The first number indicates the lowest and the second number the highest opening pressures at which the governor can be set to operate. An accurate adjustment can be obtained by means of two adjusting screws which are located in an accessible place. The difference between the opening and closing pressures can be adjusted for 8, 10, 12 or 15



TYPE ML FORM A GOVERNOR WITH ARC CHUTE REMOVED

A wiping action takes place between the contact tips when the compressor circuit is opened or closed. This action prevents pitting and materially increases the life of the tips.

All principal bearings are provided with hardened knife edges to reduce friction and to insure a quick snap action.

Provision is made for quickly changing the range or difference between opening and closing pressures.

The following are standard governors of this type:

- ML-40- 60 Form A
- ML-65-100 Form A
- ML-100-140 Form A.

lb., as desired, by changing the location of a pin in the fulcrum punching.

The ML governor can be relied upon to maintain air pressure in a storage reservoir between the maximum and minimum pressures at which it is set and to operate as often as necessary without frequent adjustment or other attention.

OPERATION

The action of this governor in opening and closing the motor circuit of the compressor is as follows:

When the compressor operates, thereby increasing the pressure of air in the reservoir, the pressure in the chamber below the dia-

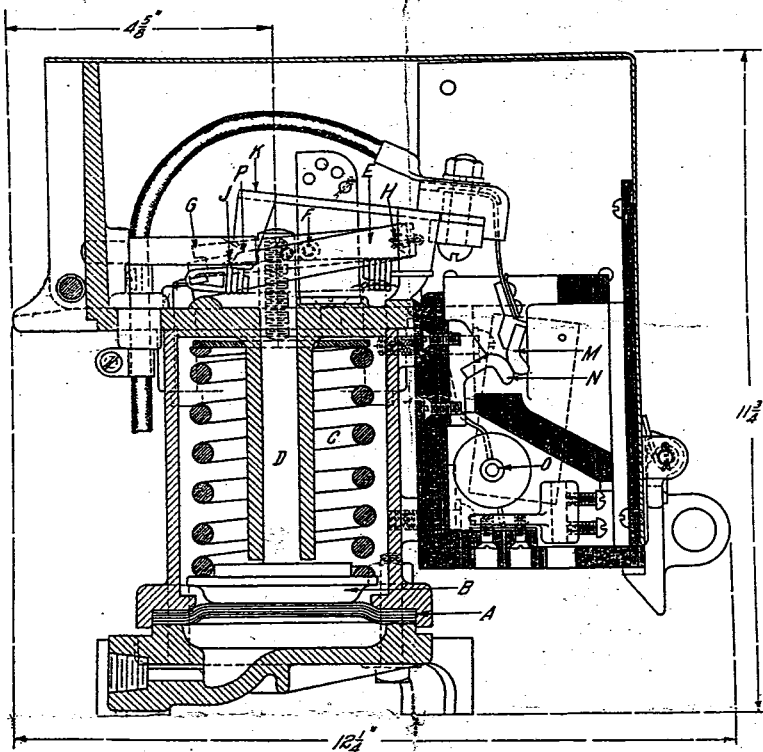
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Type ML Governor for Motor-Driven Air Compressors 44590-3

When the pressure in the reservoir A rises and forces the piston rod D upward against the action of the operating ring C, turning the lever G around its pivot F. This brings the pivot H below the center line of the tension springs J which connect the intermediate lever E with the contact carrying lever K. The action of these springs then pulls the end of the

intermediate lever upward. This movement quickly carries the center line of the springs past the knife edge pivot P, thus reversing the action of these springs on the contact carrying lever K and causing the free end of this lever to be drawn upward, separating the contacts M and N with a quick snap. The object of this double system of

levers is to maintain a constant pressure between the contacts until the tripping point is reached, thus preventing the possibility of burning at the contacts. As the pressure in the reservoir is reduced, the piston rod D lowers the back end of the lever G, the projection of which engages with the intermediate lever E. This carries the



SECTIONAL VIEW OF TYPE ML GOVERNOR

intermediate lever upward. This movement quickly carries the center line of the springs past the knife edge pivot P, thus reversing the action of these springs on the contact carrying lever K and causing the free end of this lever to be drawn upward, separating the contacts M and N with a quick snap. The object of this double system of

center line of the tension springs J below the pivot of the contact carrying lever K and thereby pulls the contact finger downward, quickly closing the circuit.

This type of governor can be relied upon to maintain the pressure between predetermined limits and to operate as frequently as necessary without adjustment or other attention.

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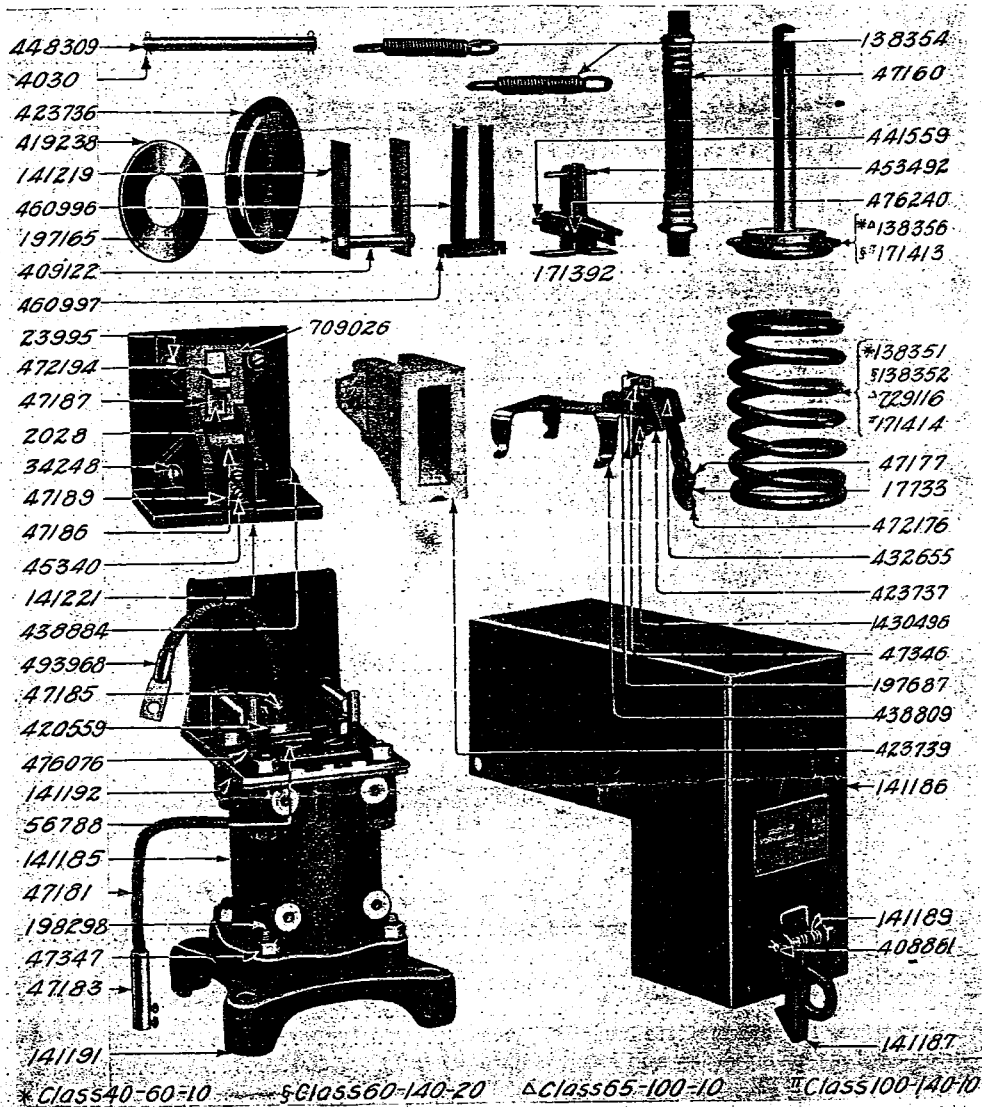
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SUPPLY DEPARTMENT

April, 1917

* Bulletin No. 54533

PARTS OF TYPE ML FORMS A1, A2, A3 AND A4 AIR COMPRESSOR GOVERNORS



TYPE ML FORM A1 AIR COMPRESSOR GOVERNOR

Data subject to change without notice.
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2-54533 Parts of Type ML Forms A1, A2, A3 and A4 Air Compressor Governors

Cat. No.	Description
129972	Type ML, Class 40-60-10, Form A1 governor, complete.
129973	Type ML, Class 60-140-20, Form A1 governor, complete.
124593	Type ML, Class 65-100-10, Form A1 governor, complete.
129974	Type ML, Class 100-140-10, Form A1 governor, complete.
135912	Type ML, Class 40-60-10, Form A2 governor, complete.
132702	Type ML, Class 60-140-20, Form A2 governor, complete.
135913	Type ML, Class 65-100-10, Form A2 governor, complete.
135914	Type ML, Class 100-140-10, Form A2 governor, complete.
135915	Type ML, Class 40-60-10, Form A3 governor, complete.
132703	Type ML, Class 60-140-20, Form A3 governor, complete.
135916	Type ML, Class 65-100-10, Form A3 governor, complete.
135917	Type ML, Class 100-140-10, Form A3 governor, complete.
198322	Type ML, Class 40-60-10, Form A4 governor, complete.
198323	Type ML, Class 60-140-20, Form A4 governor, complete.
198324	Type ML, Class 65-100-10, Form A4 governor, complete.
198325	Type ML, Class 100-140-10, Form A4 governor, complete.

Following are the parts:

141185	FRAME
141186	Cover with latch
141187	Latch for cover
408861	Hinge pin for latch ($\frac{1}{4}$ in. by $2\frac{1}{16}$ in.)
3839	Spring cotter for hinge pin ($\frac{3}{16}$ in. by $\frac{3}{8}$ in.)
141189	Spring for latch
448309	Hinge pin for cover ($\frac{3}{8}$ in. by $4\frac{1}{8}$ in.)
4030	Spring cotter for No. 448309 ($\frac{3}{16}$ in. by $\frac{3}{8}$ in.)
141191	Frame head
141192	Mechanism base with fulcrum pins
198298	Bolt fastening Nos. 141191, 141192 to frame ($\frac{3}{8}$ in.-16, 2 in. Tee h. rough)
47347	Nut for No. 198298 ($\frac{3}{8}$ in.-16, hex. st'd)
47160	Insulated pipe coupling for frame head
138356	Piston with rod, for classes 40-60-10 and 65-100-10
171413	Piston with rod, for classes 60-140-20 and 100-140-10
423736	Diaphragm
138351	OPERATING SPRING, class 40-60-10
138352	Operating spring, class 60-140-20
729116	Operating spring, class 65-100-10
171414	Operating spring, class 100-140-10
419238	Adjusting ring for operating spring
476076	Adjusting screw for No. 419238 ($\frac{3}{8}$ in.-16, $1\frac{1}{8}$ in. headless, sp'l)
171392	Operating lever (sherardized) with brackets and pins
441559	Knife edge pin for operating and intermediate levers
453492	Adjusting pin for yoke ($\frac{1}{8}$ in. by $1\frac{1}{2}$ in.)
13954	Spring cotter for Nos. 441559, 453492 ($\frac{1}{16}$ in. by $\frac{1}{2}$ in.)
476240	Pin for operating lever and piston rod
56788	Screw fastening operating lever brackets to frame ($\frac{5}{16}$ in.-18, $\frac{3}{4}$ in. f. h.)
460996	Intermediate lever
438809	Yoke for contact finger
138354	Tension spring for intermediate lever and yoke
460997	Spring bar for tension spring and intermediate lever
47177	CONTACT FINGER with contact tip
472176	Contact tip
17733	Screw for contact tip (14-24, $\frac{1}{2}$ in. f. h. blued, sp'l)
432655	Finger stop
423737	Insulation block for contact finger
197687	Screw fastening Nos. 47177, 432655, 423737 to yoke ($\frac{1}{8}$ in.-18, $1\frac{5}{8}$ in. r. h.)

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Parts of Type ML Forms A1, A2, A3 and A4 Air Compressor Governors 54533-3

No.	Description
0496	Collar for No. 197687.
7346	Nut for No. 197687 ($\frac{5}{16}$ in.-18, hex. st'd)
4195	Spring lock washer for No. 47346 ($\frac{21}{64}$ in. by $\frac{21}{64}$ in. by $\frac{3}{8}$ in. thick)
7181	Connection cable with terminal and two-way connector (20 in. long, 50 No. 25 B.&S. wire)
3968	Punched copper tube cable terminal
7183	Two-way connector with two screws No. 893
0559	Soft rubber bushing for use with cable
7185	Clamp for connection cable with screw No. 10199 and nut No. 46874
7186	BLOWOUT COIL for Form A1 governor
2705	Blowout coil for Form A2 governor
2706	Blowout coil for Form A3 governor
17765	Blowout coil for Form A4 governor
7187	Contact base with contact tip
2194	Contact tip
7733	Screw for contact tip (14-24, $\frac{1}{2}$ in. f. h. blued, sp'l)
2028	Screw fastening No. 47187 in position (14-24, $\frac{5}{8}$ in. f. h.)
30865	Washer plate for No. 2028
17189	Terminal for blowout coil, with binding screws
15340	Binding screw for terminal (10-32, $\frac{1}{2}$ in. r. h.)
14246	Screw fastening No. 47189 in position (10-32, $\frac{5}{8}$ in. f. h.)
30866	Washer plate for No. 14246
11219	POLE PIECE, two parts, sherardized, with blowout coil core and nut
37165	Blowout coil core (14-24, $2\frac{1}{4}$ in. hex. h. cap screw)
25725	Nut for No. 197165 (14-24, $\frac{1}{4}$ in. thick, $\frac{1}{2}$ in. across flats, hex. cham. one side)
39122	Insulation sleeve for No. 197165
23739	ARC CHUTE
41221	Arc chute base with mica insulation
09026	Mica insulation between arc chute base and blowout coil
38884	Insulation plate between arc chute base and frame
23995	Screw fastening Nos. 423739, 141221, 438884 to frame ($\frac{5}{16}$ in.-18, $1\frac{3}{4}$ in. r. h.)
34248	Screw fastening Nos. 141221, 438884 to frame ($\frac{5}{16}$ in.-18, $1\frac{1}{4}$ in. r. h.)
54195	Spring lock washer for Nos. 23995, 34248 ($\frac{21}{64}$ in. by $\frac{21}{64}$ in. by $\frac{3}{8}$ in. thick)