

DESCRIPTIVE PUBLICATION C28

SECTION 2

LIST 4

“WESTINGHOUSE”



REGISTERED

CR-4A Governor

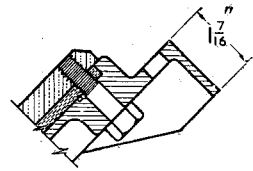
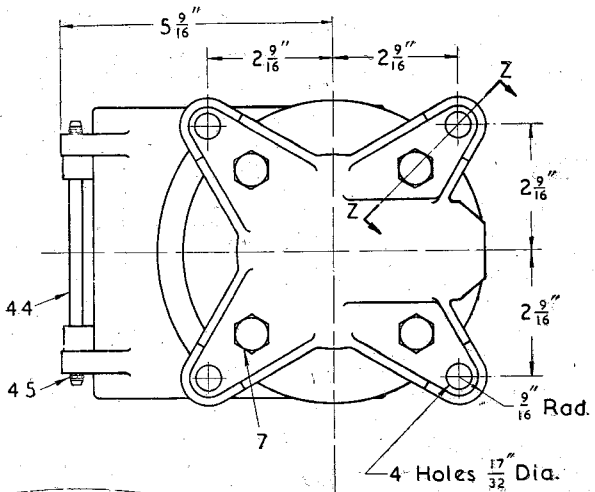
WESTINGHOUSE BRAKE (AUSTRALASIA) PTY. LTD.

HEAD OFFICE AND WORKS:

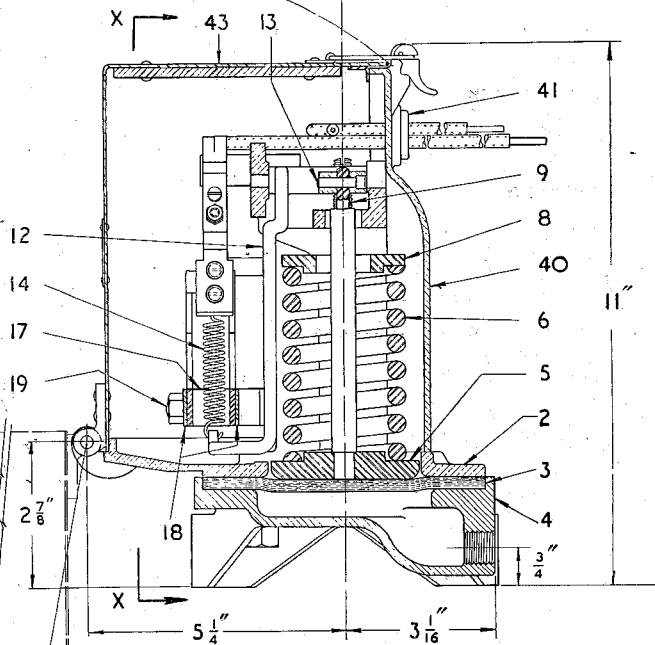
CONCORD WEST, N.S.W.

Postal Address: P.O. Box 21, Burwood, New South Wales

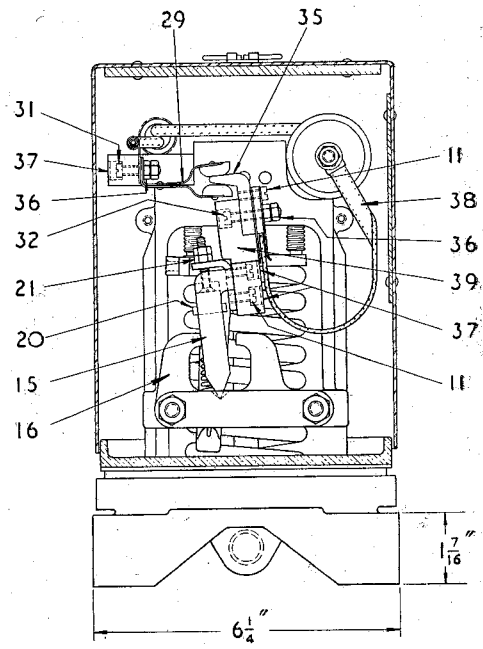
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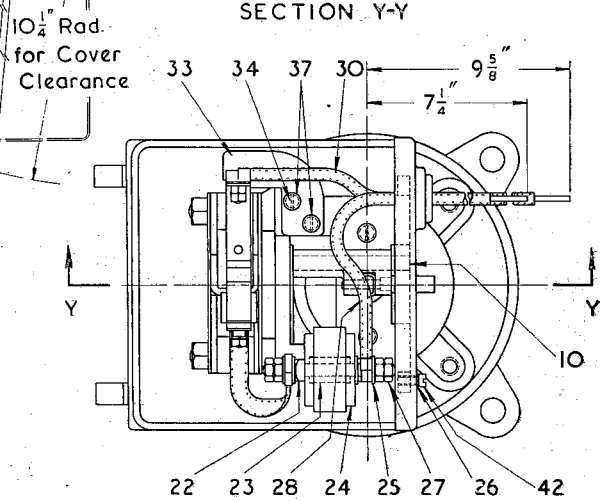
PART SECTION Z-Z



SECTION Y-Y



SECTION X-X



PLAN VIEW
(With Cover Removed)

CR-4A GOVERNOR

DESCRIPTION: This is a diaphragm type governor having a quick action, single pole, single break, switch portion suitable for low voltage pilot governor service. It is, therefore, not connected in the main circuit but serves to control a starter, contactor, or relay, which in turn carries out the necessary switching operations.

OPERATION: Assuming that the electrical and pneumatic connections have been correctly made, when no pressure is present in the base 4 under diaphragm 3 the switch contacts 29 and 35 are closed. As the pressure underneath diaphragm 3 increases, the diaphragm carrying the piston and rod 5 is forced upward against the force exerted by the piston spring 6. The upper end of the piston rod is connected to an arm of the lever 12 by lever pin 13 and, as the piston and rod move upward, the lower end of lever 12 is forced to move about its fulcrum pin 10 from left to right (section xx) carrying with it the lower end of the toggle spring 14. When the lever has nearly completed its arc of movement, the toggle spring having passed its central position, a point is reached where the whole of the moveable contact assembly consisting of link 15, adjusting block 20, moveable contact 35 and insulation block 39, will snap over to the right, pivoting about the twin knife edges at the lower end of the link 15, and thus opening the switch.

In reverse, as the pressure falls and the piston and rod move downward under the force exerted by piston spring 6 the lever swings from right to left and the toggle spring wedges the moveable contact 35 between the jaws of the fixed contacts 29, thus closing the switch.

ADJUSTMENT: The cutting out pressure is increased by screwing down (clockwise rotation) the two headless setscrews 9, which thus force the spring plate 8 down and increase the force exerted by the piston spring 6 upon the diaphragm 3. Conversely, slackening off the setscrews 9 (anti-clockwise rotation) will reduce the cutting out pressure. Care should be exercised to see that the two screws are adjusted uniformly so that the spring plate 8 is maintained in a level position, or binding and erratic action may occur.

Variation in range (difference between cutting in and cutting out pressures) may be effected by increasing or decreasing the tension on the toggle spring 14. This is achieved by raising or lowering the adjusting block 20 by means of the two nuts 21. Increasing the spring tension by raising the adjusting block increases the range and vice versa. No attempt should be made to achieve less than 12 lbs. range or erratic operation may result.

The contacts 29 and 35 should be inspected periodically for signs of burning or erosion and also to see that the moveable contact is accurately positioned between the upper and lower fixed contacts. When closed, the moveable contact 35 should engage the stationary contacts 29 by at least $\frac{5}{16}$ " and when open, the minimum clearance between the moveable and stationary contacts should be $\frac{7}{16}$ ".

GENERAL: In normal operation the toggle spring 14 will cause the contacts to open as already described, but if for any reason the resistance to movement of the moveable contact assembly is such that the toggle spring cannot provide sufficient power to open the contacts, a small abutment provided on the lever 12 will engage the top of the link 15 and force the contacts to open.

The sheet steel front cover 43 is hinged to the body 2 and retained in the closed position by a toggle action self-locking clip. This cover when open swings clear of all the working parts, providing maximum accessibility for inspection, maintenance, and adjustment. When installing the governor, sufficient clearance should be provided to enable the cover to be opened for inspection purposes.

The flexible connections are brought out through an insulated bush 41 screwed into the back cover 40, but in the event that a conduit connection is desired the bush may be removed and conduit screwed direct into the cover, the thread being $\frac{3}{4}$ " dia., 16 threads per inch.

CR-4A GOVERNOR

Piece No. C11616 High Pressure Governor Complete (Double Spring)
 Piece No. C4117 High Pressure Governor Complete (80 to 150 lbs. pressure range)
 Weight 26 lbs.

Piece No. C8663 Low Pressure Governor Complete (20 to 90 lbs. pressure range)
 Weight 26 lbs.

Piece No.	Ref. No.	Description.	NOTE: Complete Part C11616 requires both an inner & an outer spring Ref.6. These are:- Inner Spring C3184 Outer Spring C11618 Ref.6 Pce.No.C4369 is not required.
C6598	2	Body Studded (includes two of 19)	
C3601	3	Diaphragm	
C3179	4	Base	
C3181	5	Piston and Rod Complete	
C4369	6	High Pressure Piston Spring	
C3184	6	Low Pressure Piston Spring	
C3552	7	$\frac{3}{8}$ " B.S.W. Setscrew (four required)	
C3185	8	Spring Plate	
C3186	9	Headless Setscrew (two required)	
C3190	10	Pin	
C1798	11	$\frac{3}{8}$ " B.S.W. Cheese Head Screw (three required)	
C3187	12	Lever Complete	
C3191	13	Pin for Lever	
C3195	14	Toggle Spring	
C3199	15	Link	
C3193	16	Bracket (two required)	
C3194	17	Spacer (two required)	
C3192	18	Guide Plate (two required)	
C3019	19	$\frac{5}{8}$ " B.S.W. Stud and Nut (two required)	
C3200	20	Adjusting Block Complete (includes two of 21)	
C3210	21	$\frac{3}{8}$ " B.S.W. Nut (two required)	
C4076	22	Moving Contact Cable Terminal	
C8087	23	Terminal Insulating Bush	
C8088	24	Insulating Washer (two required)	
A8379/3	25	Washer (five required)	
C718	26	$\frac{3}{8}$ " Lockwasher (four required)	
C594	27	$\frac{1}{4}$ " B.S.W. Nut (five required)	
C4085	28	Cable and Terminal Flag Complete	
C3207	29	Stationary Contact Complete	
C3214	30	Stationary Contact Cable and Terminal Flag Complete	
C3218	31	$\frac{3}{8}$ " B.S.W. Cheese Head Screw	
C3205	32	$\frac{3}{8}$ " B.S.W. Cheese Head Screw	
C3217	33	Insulation Bracket	
C3219	34	$\frac{3}{8}$ " B.S.W. Cheese Head Screw (two required)	
C3196		Moveable Contact Complete (includes three of 11, 15, 20, 32, 35, two of 36, three of 37, 39)	
C3197	35	Moveable Contact	
C3203	36	$\frac{3}{8}$ " B.S.W. Nut (four required)	
C3206	37	Rubber Plug (six required)	
C7612	38	Moveable Contact Cable and Terminal Flags Complete	
C3198	39	Insulation Block	
C3240		Rear Cover Complete (includes 40, 41)	
C3241	40	Rear Cover	
C3311	41	Bushing for Cable	
C3242	42	$\frac{3}{8}$ " B.S.W. Cheese Head Screw (four required)	
C3243	43	Front Cover Complete	
C3251	44	Hinge Pin	
C3252	45	$\frac{3}{32}$ " dia. Split Pin (two required)	

Orders should state PIECE NUMBER and NAME of Part.