



STYLES "OR-10" AND "OR-11" OVERLOAD RELAYS

Styles "OR-10" and "OR-11" Relays are used as an effective element in a simple scheme providing overload protection for d-c. switch machines. One of these relays is placed in the motor operating circuit and picks up when excessive current flows, to deenergize another relay (or relays) controlling the supply of energy to operate the motor.

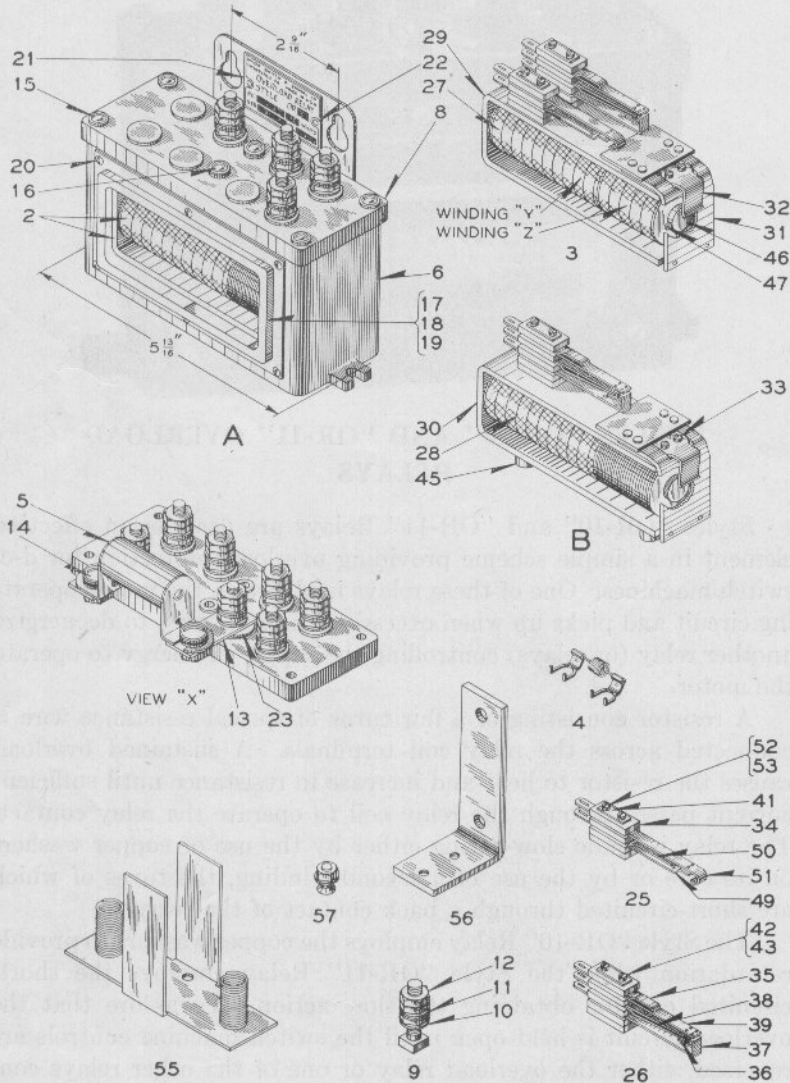
A resistor consisting of a few turns of special resistance wire is connected across the relay coil terminals. A sustained overload causes the resistor to heat and increase in resistance until sufficient current passes through the relay coil to operate the relay contact. The relay is made slow-acting either by the use of copper washers on its core or by the use of a second winding, the turns of which are short-circuited through a back contact of the relay.

The Style "OR-10" Relay employs the copper washers to provide retardation while the Style "OR-11" Relay employs the short-circuited coil for obtaining the slow action. To assure that the overload circuit is held open until the switch machine controls are reversed, either the overload relay or one of the other relays controlled by it, must be of the "stick" type. The Style "OR-11" Relay is a "stick" relay and combines the functions of an overload relay and a "stick" relay into one unit.

See Style "OR-20" Overload Relay (Plate C-2893) for a-c. control of Switch Machines.

UNION SWITCH & SIGNAL CO.

Zachary C. Gillihan 2008



STYLES "OR-10" AND "OR-11" OVERLOAD RELAYS

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STYLES "OR-10" AND "OR-11" OVERLOAD RELAYS

For Overload Protection of D. C. Low Voltage Switch Machines

Order by Plate, Piece, Reference and Abbreviated Description Given in
Heavy Face Type Only

Piece	Ref.	Description	Drawing Reference
195969	A	Style "OR-10" D.C. Overload Relay mounted in Case, with one continuity contact and Resistor Ref. 4 (non-stick Type)	B-12739-2
192910	Aa	Style "OR-11" D.C. Overload Relay mounted in Case, with Resistors Refs. 4 and 5 (Per View "X") and one back and one continuity contacts (Stick Type)	B-12739-2
	B	Style "OR-10" D.C. Overload Relay Unit (Non-stick Type) with one continuity contact and Resistor Ref. 4a, for use with contactor Controller. (Specify whether contactor is for wall mounting, Plate C-2870, or in cast iron box, Plate C-2869)	B-12739-
	Ba	Material Necessary for Replacing TA-2 Thermal Relays with OR-10 Relay for use with contactor controller. (Specify whether contactor is for wall mounting, Plate C-2870, or in cast iron box, Plate C-2869) (Includes 1-B, 1-4a, 1-55, 1-56 and 2-57)	B-12739-
196147	2	Style "OR-10" Relay Unit with one continuity contact (non-stick Type) for Ref. A	B-12739-3
192909	3	Style "OR-11" Relay Unit with one back and one continuity contacts (Stick Type) for Ref. Aa	B-12739-1
193214	4	Resistor (.035 Ohms Resistance) for Refs. A and Aa	9065-257
191805	4a	Resistor (.011 Ohms Resistance) for Ref. B (straight wire)	9065-253
193213	5	Resistor (35 Ohms Resistance) for Ref. Aa	9065-227
192908	6	Case Complete	B-12674-3
	7	Machine Screw No. 8-36x $\frac{7}{16}$ " Flat Hd. Br. (N.P.) for attaching Relay Unit to Case (Not shown)	
178104	8	Terminal Board	9968-1071

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Piece	Ref.	Description	Drawing Reference
	9	Terminal Post with Nuts and Washers (Inc. 1-9b, 1-10, 2-11 and 3-12).....	12451-
	9a	Terminal Post with Nuts and Washers (Inc. 1-9b, 2-11 and 3-12).....	12451-
123633	9b	Terminal Post Only, for Refs. 9 and 9a.....	8094-1192
29104	10	Washer.....	7828-138
29102	11	Washer.....	7828-139
29103	12	Nut.....	8109-194
193149	13	Resistor Mounting Plate.....	12538-145
	14	Machine Screw, No. 14-24x $\frac{1}{2}$ " Rd. Hd. Br. (N.P.) with two Washers Ref. 11, Nut Ref. 12 and $\frac{1}{4}$ " Pl. S. Lock Washer ($\frac{1}{16}$ "x $\frac{1}{16}$ ") (Cad. Pl.)	
	15	Machine Screw, No. 8-36x $\frac{3}{4}$ " Rd. Hd. Br. (N.P.) with Washer Ref. 15a	
44618	15a	Washer for Refs. 15 and 16.....	7828-184
	16	Machine Screw, No. 10-30x $\frac{5}{8}$ " Rd. Hd. Br. (N.P.) with two Washers Ref. 15a and Nut Ref. 16a	
26942	16a	Nut.....	8109-184
154843	17	Glass Retainer.....	11893-449
154840	18	Glass Shield.....	8163-294
154939	19	Gasket.....	8078-1460
	20	Machine Screw, No. 4-48x $\frac{3}{16}$ " Rd. Hd. Br. (N.P.)	
185391	21	Name Plate.....	8225-459

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(Continued)

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Piece	Ref.	Description	Drawing Reference
	22	Drive Screw, No. 4x $\frac{3}{16}$ " Rd. Hd. Hardened (Cad. Pl.)	
142777	23	Tag (Orders should specify marking desired)	8988-75
	24	Black Varnished Cambric Tubing, .097" I.D. x .157" O.D. (Orders should specify length desired) (Not shown)	
	25	One Back Contact Stack Assembly Complete	B-12660-27
	26	One Continuity Contact Stack Assembly Complete	B-12660-27
193054	27	Magnet Coil Complete with Core, Winding "Y"-5.0 Ohms and Winding "Z"-65.0 Ohms (Stick Type) for Ref. 3	8133-458
191797	28	Magnet Coil Complete with Core and Copper Washers 5.0 Ohms (Non-stick type) for Refs. 2 and B	8133-433
192906	29	Back Strap for Refs. 2 and 3	8162-259
191798	30	Back Strap for Ref. B	8162-254
166135	31	Armature Complete	8157-381
152756	32	Armature Stop	11893-432
	33	Machine Screw, No. 6-40x $\frac{5}{32}$ " Fil. Hd. S. (N.P.)	
174235	34	Insulation	8750-2503
182145	35	Contact Spring Stop	8385-2344
182150	36	Contact Spring Complete	8385-2347
182207	37	Contact Spring Complete	8385-2348
182146	38	Contact Spring Stop	8385-2345

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PLATE E-5090

UNION SWITCH & SIGNAL CO.

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Piece	Ref.	Description	Drawing Reference
182148	39	Contact Spring Complete	8385-2346
	40	Machine Screw, No. 10-30x $\frac{5}{8}$ " Flat Hd. S. (N.P.) for Refs. 2 and 3. For attaching Coil to Back Strap (Not shown)	
152720	41	Washer	7828-275
160279	42	Ins. Bushing, $\frac{23}{32}$ " long	B-10266-1
	43	Machine Screw, No. 3-56x $\frac{15}{16}$ " Fil. Hd. S. (N.P.)	
	44	Machine Screw, No. 10-30x $\frac{3}{4}$ " Fil. Hd. S. (N.P.) with No. 10 Pl. S. Lock Washer ($\frac{1}{16}$ "x $\frac{3}{64}$ ") (N.P.) For Ref. B. For attaching Magnet Coil to Back strap (Not shown)	
191895	45	Stud	8114-875
193058	46	Magnet Core Complete	8101-377
	47	Cotter Pin, $\frac{1}{16}$ "x $\frac{3}{4}$ " S. (N.P.)	
175630	48	Spring Washer (Not shown) (Used between back- strap and coil)	7828-374
152725	49	Contact Spring Complete	8385-2166
152726	50	Contact Spring Stop	8385-2166
152728	51	Contact Spring Complete	8385-2167
161846	52	Ins. Bushing, $\frac{35}{64}$ " long	B-10266-1
	53	Machine Screw, No. 3-56x $\frac{3}{4}$ " Fil. Hd. S. (N.P.)	
170857	54	Jumper (Not shown) (Used between + and - Terminal Posts when testing Movements)	8064-711

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Piece	Ref.	Description	Drawing Reference
191803	55	Shock Absorber Spring (Used when Relay Ref. B is attached to Contactor Circuit Controller) (If desired, orders should so state).....	12404-33
191802	56	Support for attaching Shock Absorber Spring Ref. 55 to Contactor Controller.....	10914-659
	57	Machine Screw, No. 10-30x $\frac{3}{8}$ " Flat Hd. S. with No. 10 Lock Washer and Hex. Nut for attaching Ref. 55 to 56.	