TYPE AT TIMETACTORS, SINGLE POLE

Frames AT-1, AT-2, AT-3, AT-9, AT-14, AT-18 and AT-20

INSTRUCTIONS

Description

The Timetactor is a combination in one self-contained unit, of a contactor and direct-current time limit relay. It is usually used as an accelerating switch on D-C. starters. It is provided with one spring-closed main contact and one or two auxiliary contacts. The arrangement of the main contacts and the frame is the same for all types, the only difference being in the auxiliary contacts.

The main contacts are designed to **close** and carry the current **only** and should under no circumstances be used for current interruption.

500 amp. max. closing capacity;
300 amp. max. 8 hr. current carrying capacity.

The principal types used are as follows:

Type AT-1 is provided with one "Make" Auxiliary Contact.

Type AT-2 is provided with two "Make" Auxiliary Contacts, with a common point.

Type AT-9 is provided with one "Make" and one "Break" Auxiliary Contact with a common point.

Type AT-14 is provided with one "Make" and one "Break" Auxiliary Contact insulated from each other.

Type AT-18 is provided with two "Make" Auxiliary Contacts insulated from each other.

Type AT-20 is provided with two "Make" Auxiliary Contacts with a common point, and one insulated "Break" Auxiliary Contact.

Figure 1 shows the correct position for mounting the Timetactor.

Operation

When the main winding of the coil circuit is open-circuited the magnetic flux will decrease, thereby inducing a heavy current in the copper tube. This current will oppose any change in the field, which consequently will decay very slowly. It will continue to decay until the force of the kickout spring overcomes the magnetic pull, permitting the armature to release. However, by energizing the neutralizing coil in opposition to the main coil winding, the period of decay and drop-out can be controlled to a predetermined value depending on the current passing through the neutralizing coil. Therefore, the time delay is dependent on the neutralizing coil current. By varying the current in this coil a wide range of time can be obtained.

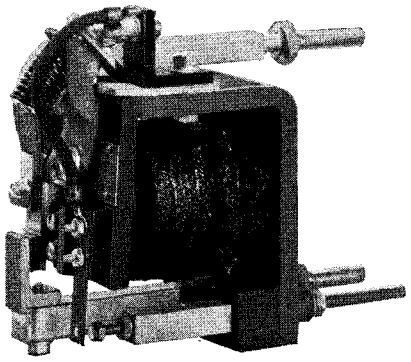


FIG. 1—THE TYPE AT TIMETACTOR

The curve, Figure 2, gives the relation between the time delay and the ampere turns of the neutralizing coil. The time delay can be varied between ½ second and 10 seconds, however 6 seconds should be considered maximum for all practical purposes, as the timing becomes somewhat erratic above 6 seconds.

Maintenance

Operating Coil:

To remove the operating coil, remove the screw which holds the stationary contacts. This will permit the armature to be raised sufficiently to pull the coil from the core. Before removing coil leads, mark each wire with a tag as follows—Main Winding, Plus Side, Minus Side; Neutralizing Winding, Plus Side, Minus Side.

The main winding terminals are on the lower side of the center line. The neutralizing winding terminals are on the upper side of the center line.

Special care should be taken when removing a coil so as not to cause the pole faces of the armature and core to become defective. Any defects or dirt particles will cause an air gap, resulting in changed timing for the Timetactor.

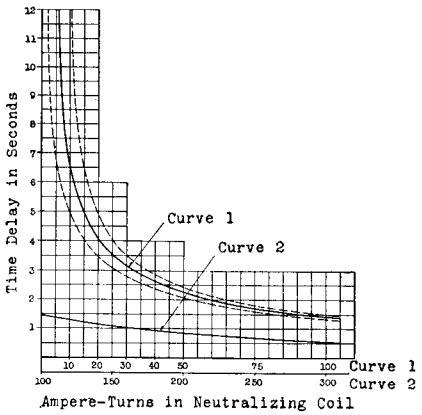


FIG. 2—TYPE AT TIMETACTOR. TIME DELAY AS A FUNCTION OF AMPERE TURNS IN NEUTRALIZING COIL

TABLE OF OPERATING COILS

Intermittent Duty	
Volts	Style No.
115	895672
230	895671
550	895670

Failure to Operate:

Failure to **open** may be caused by any of the following reasons:

1. Operating coil may be open-circuited.
2. Lead wires to operating coil may be disconnected.
3. Mechanical interference.
4. Power off or below normal.

Failure to **close** may be caused by any of the following reasons:

1. Mechanical interference.
2. Coil circuit closed.
3. Broken or weak armature lever spring.
4. Loose stationary contact.
5. Neutralizing coil open-circuited.

Adjustments

All Timetactors mounted on panels at the Works are carefully adjusted for correct time setting and should not need any changing when ready for service. However, there may arise conditions which may make it necessary for customer to change the time delay value. This change can be made by changing the resistance value in the neutralizing coil circuit only. Beyond this point, there should be no adjustment necessary and **operators should be instructed not to tamper with the Timetactor at any time.**

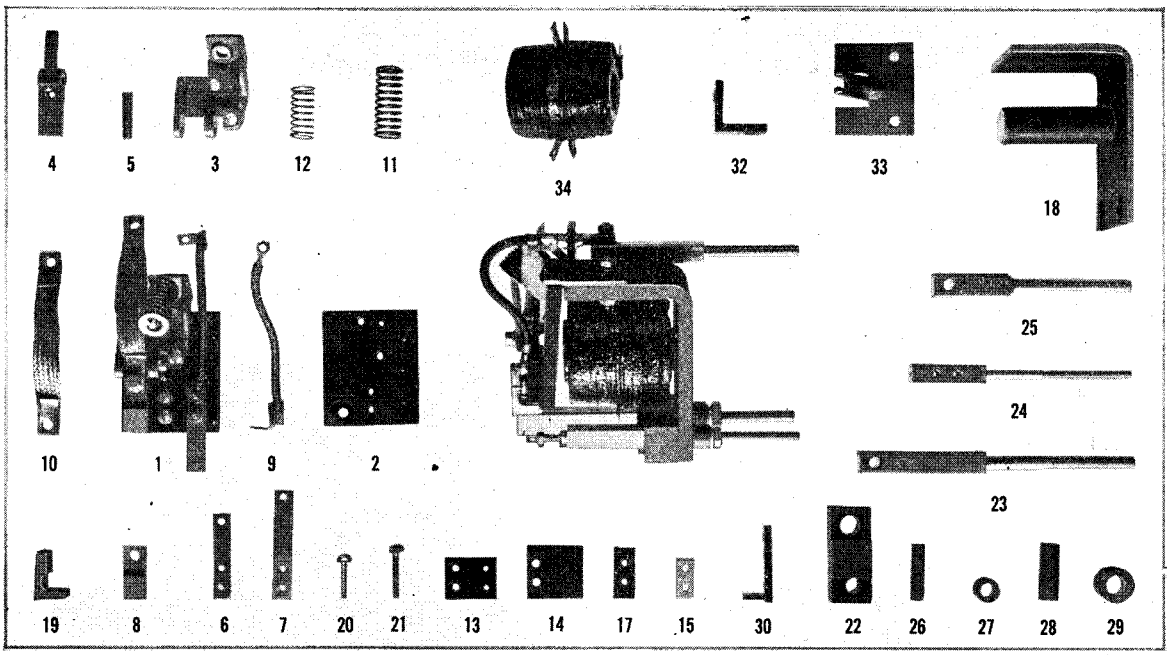
To adjust the auxiliary contact gap, turn the stationary contact stud until the contacts just touch when the armature is in the closed position, then turn one full turn and tighten the lock nut.

***To be filed as an Instruction Leaflet and as Renewal Parts Data; for Renewal Parts Data, see reverse side of this sheet.**

TYPE AT TIMETACTORS, SINGLE POLE

Frames AT-1, AT-2, AT-3, AT-9, AT-14, AT-18 and AT-20

RENEWAL PARTS DATA



RECOMMENDED STOCK OF RENEWAL PARTS

Ref No.	Name of Part	No. Per Timetactor	Recommended for Stock 1	Recommended for Stock 5	Style Number of Part							
Type of Timetactor					AT-1	AT-1	AT-2 & 3††	AT-2 & 3††	AT-9	AT-14	AT-18	AT-20
Style Number of Timetactor					793008,A,B	816889, A	793009,A,B 793010 A,B	816890,A,B 816891	825268,A,B	845831	860011, A	918174
Timetactors in use up to and including			1	5								
1	Armature Complete	1	0	0	882212	830328	882213	831535	830510	882216	970344	970349
2	Bare Armature	1	0	0	829691	830335	829691	830335	830335	830335	830335	830335
3	Armature Bracket	1	0	0	829686	829686	829686	829686	829686	829686	829686	829686
4	Armature Lever	1	0	0	829687	829687	829687	829687	829687	829687	829687	829687
5	Armature Lever Pin	1	0	0	830297	830297	830297	830297	830297	830297	830297	830297
6	Auxiliary Moving Contact—Short	1	1	2	793013	793013	793013	793013	793013(2)	793013 (2)	793013 (2)	793013 (2)
7	Auxiliary Moving Contact—Long	1	1	2	.....	.....	793014	793014	.....	.....	.....	793014
8	Main Moving Contact	1	1	2	793016	816937	793016	816937	816937	816937	816937	816937
9	Auxiliary Moving Contact Shunt	1	0	1	830329	830329	830329	830329	830329	830329(2)	830329(2)	830329(2)
10	Main Moving Contact Shunt	1	0	1	808972	808972	808972	838972	808972	808972	808972	808972
11	Armature Spring	1	0	1	793017	816888	793017	816888	816888	816888	816888	816888
x	Armature Spring Pin	1	0	0	597713	842792	597713	842792	842792	842792	842792	842792
x	Spring Seat	1	0	0	569658	569658	569658	569658	569658	569658	569658	569658
x	Groove Pin	1	0	0	.....	842793	.....	842793	842793	842793	842793	842793
12	Contact Spring	1	0	1	793018	793018	793018	793018	793018	793018	793018	793018
13	Auxiliary Moving Contact Base	1	0	0	882211	830330	882211	830330	830330	882214	869531	882214
14	Auxiliary Moving Contact Base Shield	1	0	0	829692	829692	829692	829692	829692	882215	.....	882215
15	Auxiliary Moving Contact Spacer	1	0	0	.....	.....	809417	809417	809417	809417	.....	809417 (2)
17	Auxiliary Moving Contact Insulation Channel	1	0	0	830508	.....	830508	.....	.....	830508	.....	.....
18	Frame with Coil	1	0	0	829690	830334	829690	830334	830334	830334	830334	830334
19	Main Stationary Contact	1	1	2	793015	793015	793015	793015	793015	793015	793015	793015
20	Auxiliary Stationary Contact	1	1	2	755077	755077	755077(2)	755077(2)	755077(2)	755077(2)	755077(2)	755077 (3)
22	Stationary Contact Stud Spacer	1	0	0	829693	829693	829693	829693	829693	829693	896618	829693
23	Main Stationary Contact Stud	1	0	0	829688	829688	829688	829688	829688	829688	829688	829688
24	Auxiliary Stationary Contact Stud	1	0	0	829694	829694	829694	829694	829694	829694	829694 (2)	970346
25	Main Moving Contact Shunt Stud	1	0	0	829689	829689	829689	829689	829689	829689	829689	829689
26	Insulation Tube, 1⅝" long, ⅜" O.D.	1	0	0	830338	830338	830338	830338	830338	830338	830338 (2)	830338
27	Insulation Tube, 7/16" long, 5/8" O.D.	1	0	0	830339	830339	830339	830339	830339	830339	830339	830339
28	Insulation Tube, 1⅝" long, ½" O.D.	1	0	0	830340	830340	830340	830340	830340	830340	830340	830340
29	Insulation Tube, 7/16" long, 15/16" O.D.	1	0	0	830341	830341	830341	830341	830341	830341	830341	830341
x	Insulation Tube, 13/16" long, 5/8" O.D.	1	0	0	.....	.....	.....	.....	.....	.....	970334	.....
30	Auxiliary Stationary Contact Brkt.	1	0	0	.....	.....	809416	809416	830507	830507	.....	970347
30	Auxiliary Stationary Contact Brkt.	1	0	0	.....	.....	.....	.....	.....	.....	.....	809416
32	Auxiliary Contact Shunt Bracket	1	0	0	830505	830505	830505	830505	830505	850093	850093	850093
33	Armature Support	1	0	0	597541	597541	597541	597541	597541	597541	597541	597541
34	Operating Coil	1	1	1	‡	‡	‡	‡	‡	‡	‡	‡

This list of Renewal Parts is given only as a guide. When continuous operation is a primary consideration, additional insurance against shutdowns is desirable. Under such conditions more renewal parts stock should be carried, considering the severity of service and the time required to secure replacements.

ORDERING INSTRUCTIONS

Name the part and give its style number. Give the complete name plate reading. State whether shipment is desired by express, freight or by parcel post. Send all orders or correspondence to nearest Sales Office of the Company. Small orders should be combined so as to amount to a value of at least $1.00 net. Where the total of the sale is less than this, the material will be invoiced at $1.00.

x Not illustrated.
() Figures in Parentheses indicate the Number per Timetactor.
‡ When ordering coils give identification number stamped on coil. See table for commonly used coils.
†† Style No. 793009 and 816890 are Type AT-2 Timetactors and Style No. 793010 and 816891 are Type AT-2 Timetactors.
Parts indented are included in the part under which they are indented.

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Westinghouse Electric & Manufacturing Company
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