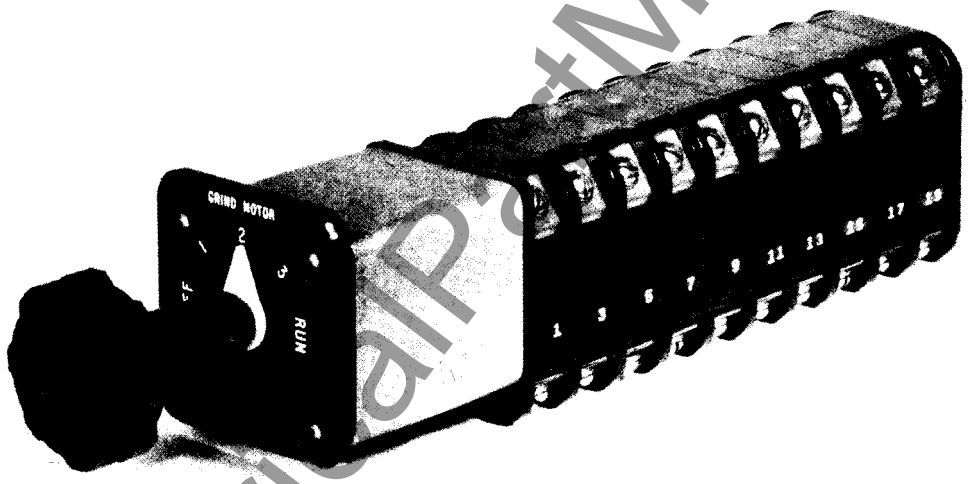
INSTRUCTIONS

CONTROL AND TRANSFER SWITCH

Type SBM



GE Meter and Control
205 Great Valley Parkway
Malvern, PA 19355-0715

TABLE I
INTERRUPTING RATINGS

Circuit Voltage	Non-Inductive Circuit		Inductive Circuit	
	Number of Contacts			
	1	2(in ser)	1	2(in ser)
24 DC	10.0	30.0	8.0	25.0
48 DC	8.0	25.0	6.0	18.0
125 DC	5.0	15.0	4.0	10.0
250 DC	1.0	3.0	1.0	2.5
600 DC	0.4	0.8	0.3	0.7
115AC	40.0	75.0	24.0	50.0
230 AC	25.0	50.0	12.0	25.0
460 AC	12.0	25.0	5.0	15.0
600 AC	10.0	20.0	8.0	12.0

CONSTRUCTION

The Type SBM switch is built up with a series of stages that are nested into each other, an operating shaft, a front support and a rear support.

The complete stack is tied together with two tie bolts threaded into the front support. These tie bolts also act as a bearing for the cam followers in each stage. Each stage consists of two cam follower assemblies made up of two stationary contacts and one moving contact, (double break construction) one cam and one cam follower. The cams are mounted on the operating shaft. When only one contact is required in a stage, one of the cam follower assemblies is omitted.

CONTACT IDENTIFICATION

The contacts are marked for identification, using a standard system. On each side of the switch, midway on the barriers, is a confined marking strip (See Figure 4). These strips are located between the two terminal screws which define a contact. The marking strip on the right side, front view, looking toward the rear, is numbered 1, 3, 5, etc., starting at the panel end. Those on the left side are marked 2, 4, 6, etc. If a contact is omitted, the terminal screws are also omitted for that contact.

ENCLOSURES AND MOUNTING

The basic switch is totally enclosed except for an opening in the bottom to allow for a visual inspection of the contacts. (See Figure 3)

All switches are furnished for mounting in panels 3/32 to 1/4 inch thick. Variation in panel thickness is taken up by the use of two saddle washers mounted between the handle and escutcheon.

INSTALLATION

RECEIVING

Immediately upon receipt of a switch, examine it for any damage sustained in transit. If injury or rough handling is evident, file a damage claim at once

with the transportation company, and promptly notify the nearest General Electric Apparatus Sales Office. The switches are completely assembled and packed in individual cartons before shipment.

If the switches are for stock purposes or not for immediate installation, they should be left in the shipping carton and stored in a clean, dry location.

MOUNTING

For panel-mounted switches, holes should be provided in the panel as shown in Figure 2.

To mount a switch on a panel, first remove the handle and escutcheon, including, where provided, the position-indicating pointer and the curved spring washers (saddle spring). Next, hold the switch in place on the back of the panel and insert the mounting screws through the escutcheon, panel, and spacers (if used) into the switch front support, but do not tighten the mounting screws. Attach the pointer, saddle springs and handle. Align the escutcheon on the panel.

When mounting removable-handle switches, be certain that the shaft of the switch is properly positioned so the handle is easily removed; then tighten the mounting screws.

MAINTENANCE

SERVICING

CONTACT CLEANING

At regular intervals, the switch contacts should be inspected for wear and burning. An opening at the bottom of the switch has been provided for this. (See Figure 3) If the contacts are slightly pitted or coated with sulphide, they should be cleaned with a flexible burnishing tool similar to that included in the XRT relay tool kit.

CAUTION

Since many of the parts of this switch are molded of a policarbonate material, DO NOT use any lubricants and/or cleaning agents in any form (including aerosol sprays commonly available). Hydrocarbons (oils and related products) may chemically attack such parts, resulting in possible switch failure.

REPAIR AND REPLACEMENT

In some cases it is desirable either to replace a contact stage or to add additional contacts.

In such cases, it might be advantageous not to disturb the existing switch, but to add directly to the present switch. In order to do this, the proper contact sequence should be ordered (no more than two stages), noting that this is for adding to an existing switch. These parts will be received assembled with a U-shaped bracket, and a coupling with a square hole will also be received. Figure 4 shows a Type SBM switch with an additional stage already in position.

To install these additional contacts, loosen the two tie bolts at the rear of the switch about 3/32 inch. Slide the new bracket over the shaft and tie bolts so that the inner part of the bracket slot rests on the tie bolts between the tie bolts and nameplate. Tighten the tie bolts. Slide the square-hole coupling over the shaft extension on the present switch, then slide the shaft extension on the new barrier assembly into the coupling, keeping the shaft of the new barriers in the proper position to give the correct contact sequence corresponding to the handle position. This should cause the side holes in the two U-shaped brackets (one attached to the new contact assembly, the other attached, as directed above, to the old switch) to line up. All the inspection openings should be at the bottom of the switch. Fasten the brackets together with the hardware supplied.

If it is desired to disassemble the switch for any reason, the following procedure should be followed: Remove handle and any position pointers and saddle washers. Place an identifying mark on the handle end of the shaft corresponding to a position on the escutcheon such as 12 o'clock. Remove the escutcheon. Remove the three screws fastening the front plate to the front support. If there are stops behind it, in the front support, their position relative to the shaft identification mark should be noted; then remove the stops, spacer and star-shaped positioning wheel if they are present.

Unscrew the tie bolts and remove the front support. If any torsion springs are present, pull one tie bolt back far enough so that one arm of the torsion spring can be sprung away from the spring actuator. Remove any spacers present, the sleeve, the spring, and the spring actuator. Remove the molded barrier/cover plate, exposing the contacts of the first stage.

Each cam has one number and seven letters around the shaft opening on one side of the cam and eight letters on the other side of the cam. When removing cams, mark the letter of the cam which corresponds to the shaft identification mark. Cam and cam followers are removed in succession, marking the position of each cam in turn. This is done to each succeeeding barrier.

When reassembling, it is only necessary to stack the cams back onto the shaft in the same order as taken off, keeping the proper cam letter lined up with the shaft identification mark.

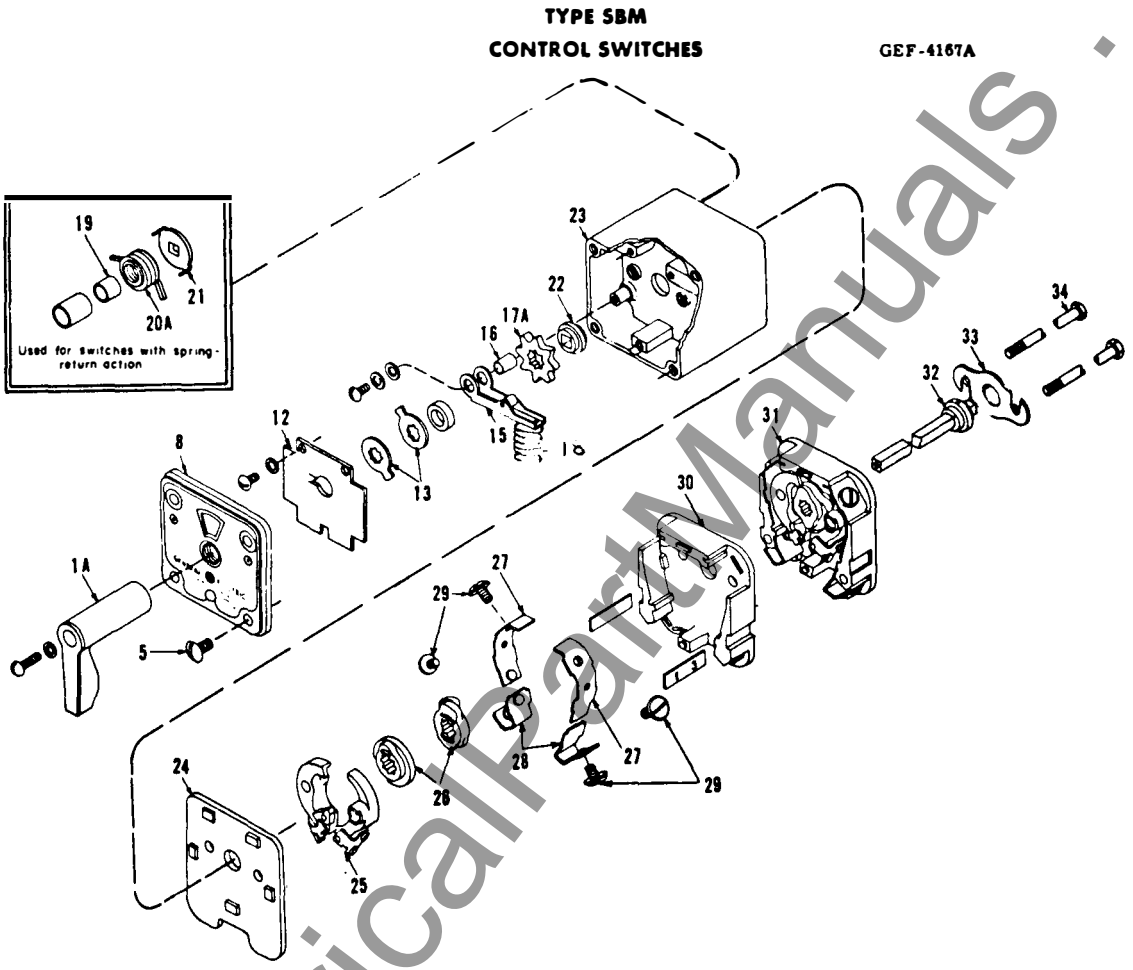
Before tightening the tie bolts into the front support, make sure that all the barriers are properly nested.

The parts which fit into the front support may now be assembled, placing the stops, if present, in their proper position with respect to the shaft identification mark.

RENEWAL PARTS

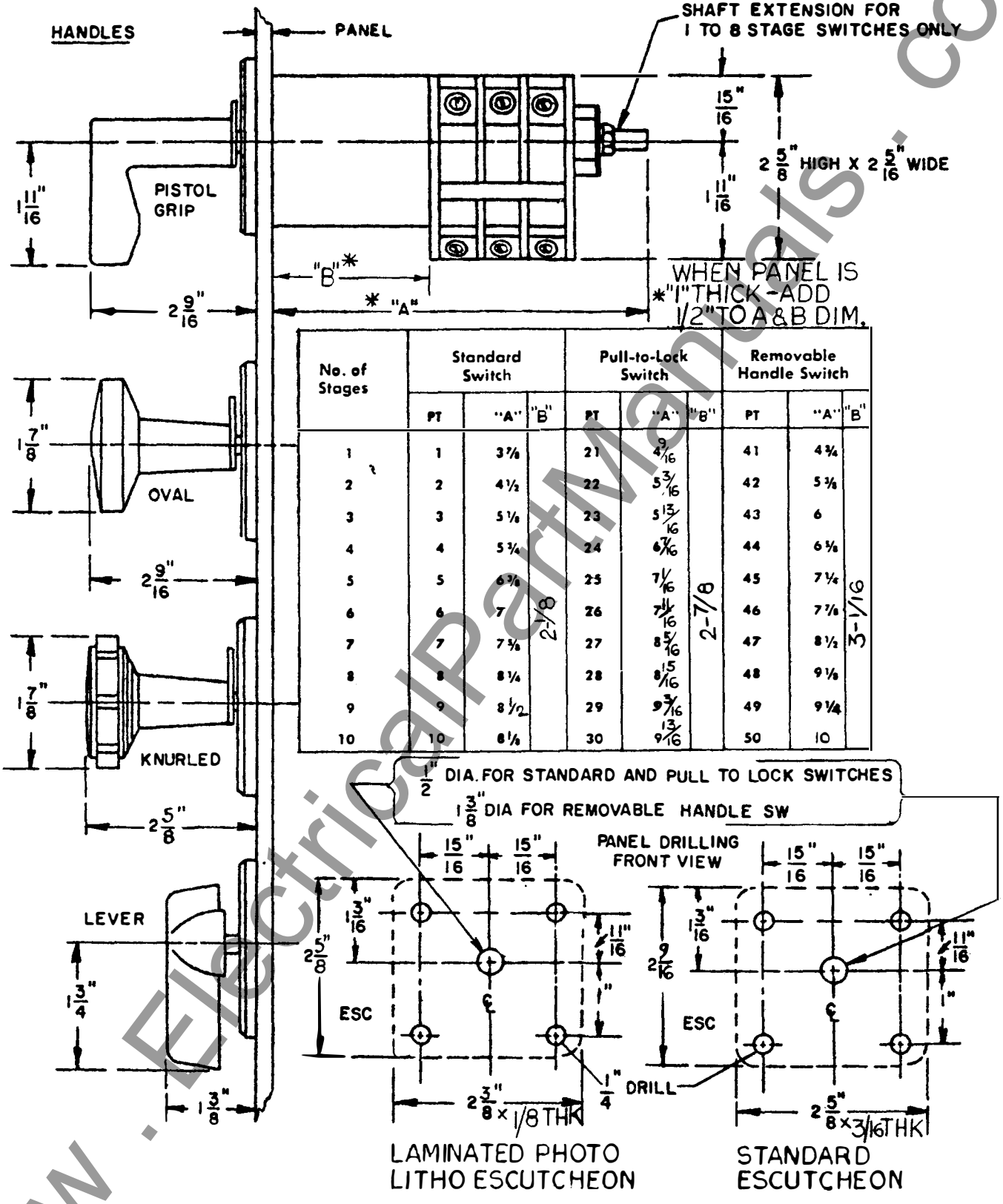
It is recommended that sufficient quantities of renewal parts be carried in stock to enable the prompt replacement of any that are worn, broken or damaged.

When ordering renewal parts, address the nearest Utility Sales Office of the General Electric Company, specifying quantity required and name of part wanted, and giving complete nameplate data.



1A	Handle	22	Front Bearing
5	Mounting Screw	23	Front Support
8	Target Escutcheon	24	Barrier Cover
12	Front Plate	25	Cam Follower and Moving Contact Assembly
13	Stops	26	Cams for Contacts
15	Rocker Arm	27	Upper Stationary Contact
16	Sleeve	28	Lower Stationary Contact
17A	Positioning Wheel	29	Terminal Screw
18	Positioning Spring	30	Barrier
19	Sleeve	31	Barrier Assembly
20A	Torsion Spring	32	Rear Bearing
21	Spring Actuator	33	Bearing Retainer
		34	Tie Bolt

Figure 1 - (0184B5484) Exploded View of Type SBM Switch



No. of Stages	Standard Switch			Pull-to-Lock Switch			Removable Handle Switch		
	PT	"A"	"B"	PT	"A"	"B"	PT	"A"	"B"
1	1	3 7/8	2-1/8	21	4 9/16	2-7/8	41	4 3/4	3-1/16
2	2	4 1/2		22	5 3/16		42	5 3/8	
3	3	5 1/8		23	5 13/16		43	6	
4	4	5 3/4		24	6 7/16		44	6 5/8	
5	5	6 3/8		25	7 1/16		45	7 1/4	
6	6	7		26	7 11/16		46	7 7/8	
7	7	7 5/8		27	8 5/16		47	8 1/2	
8	8	8 1/4		28	8 15/16		48	9 1/8	
9	9	8 1/2		29	9 3/16		49	9 1/4	
10	10	8 1/8		30	9 13/16		50	10	

* Figure 2 - (127A6779 [8]) Outline and Panel Drilling of Type SBM Switch

* Revised since last issue

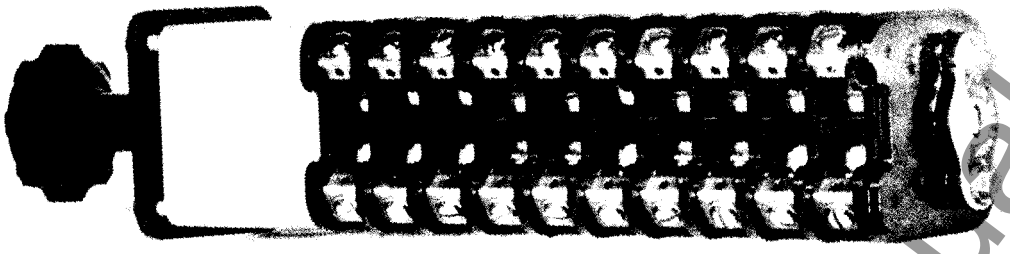


Figure 3 - (8027023) Bottom View of Type SBM Switch

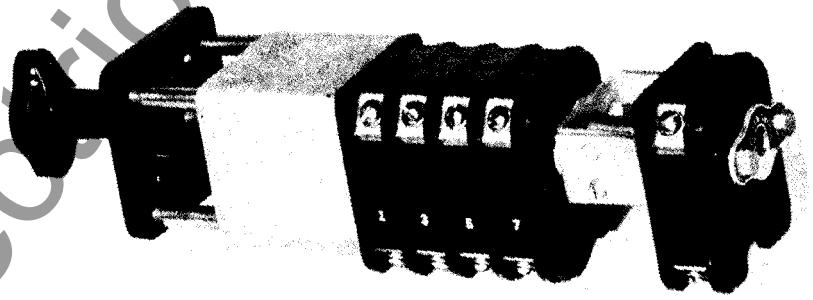


Figure 4 - (8027022) View of Type SBM Switch with Additional Stage in Position

Meter and Control
Business Department

(9/91) (3000)

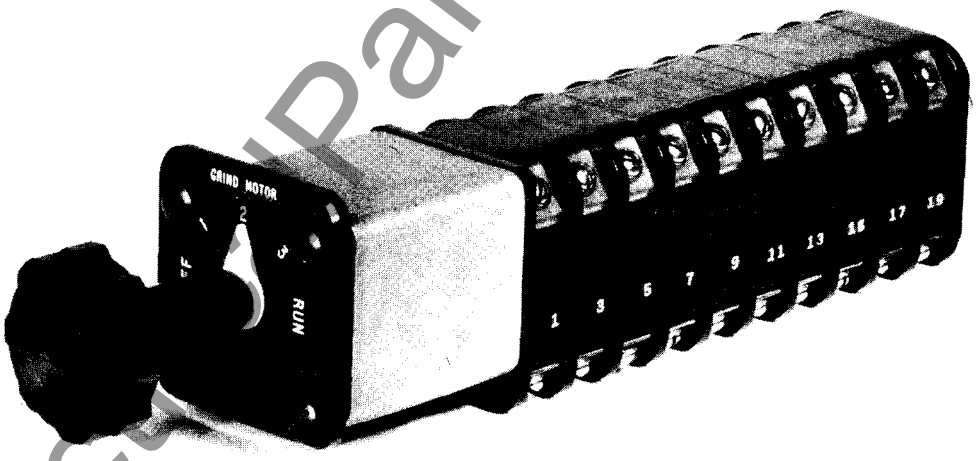
General Electric Company
Protection and Control
205 Great Valley Parkway
Malvern, Pennsylvania 19355-0715

INSTRUCTIONS

GEH-2038A
SUPERSEDES GEH-2038

CONTROL AND TRANSFER SWITCH

Type SBM



SWITCHGEAR DEPARTMENT

GENERAL ELECTRIC

PHILADELPHIA, PA.

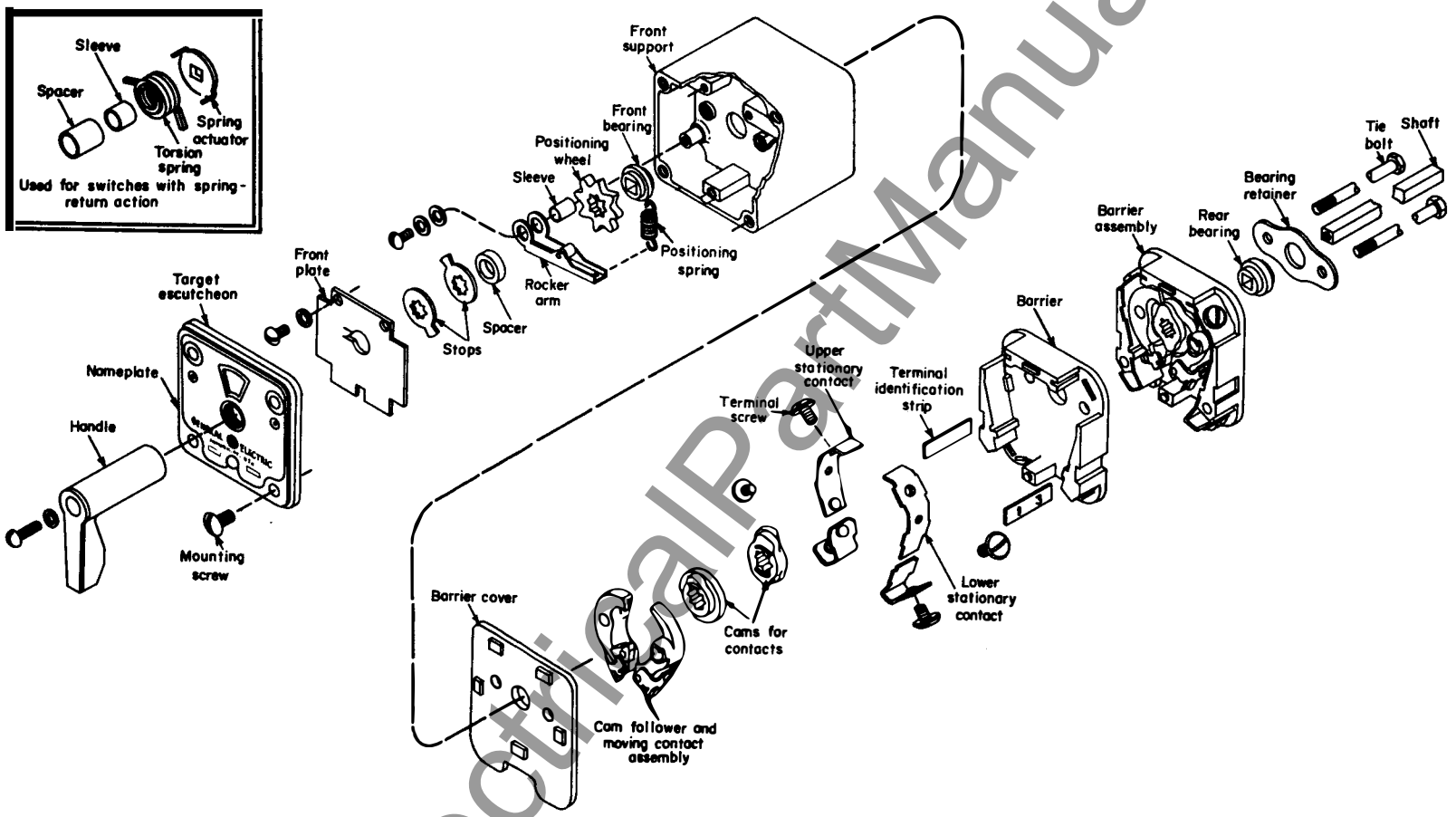


Fig. 1 Exploded View of Type SBM Switch

Fig. 1 (8913283)

Cover (8027024)

CONTROL AND TRANSFER SWITCH TYPE SBM

DESCRIPTION

INTRODUCTION

The Type SBM switches are cam operated devices having two mechanically and electrically separate contacts per stage. The switch is totally enclosed, having no cover. The contact terminals are brought out to the corners, allowing screw connections to be made over a large angle. The switch is so constructed so as to allow the addition of 1 or 2 extra stages to the switch with a minimum of effort.

APPLICATION

The Type SBM switches are intended primarily for the control of electrically operated devices such as circuit breakers, small motors and magnetic switches, and for the transfer of meters, instruments and relays.

OPERATION

The Type SBM switches are rotary cam operated switches. Rotation of the shaft causes contacts to open or close, depending upon the shape and setting of the cams. Each stage consists of two mechanically and electrically separate contacts. This is accomplished by means of two cams and two cam followers, assembled with moving contacts.

Each cam is constructed so as to have two operating surfaces. These surfaces operate on the cam follower. The cam follower has two tips which are located in offset horizontal planes lining up with the two cam operating surfaces. Thus, as the cam is rotated, one surface operates against the closing cam follower tip, while the opening cam follower tip is relieved. Both cam follower tips are always in contact with the cam surfaces. This allows for a positive closing and opening action not dependent upon springs.

Each cam follower has a spring loaded moving contact assembled to it. The compression spring acts to give adequate contact pressure when a contact is closed. The moving contact is held to the cam follower by a pin passing through a hole in the cam follower and angled slot in the moving contact. As the contacts close, the moving contact slides along this slot while compressing the spring thus causing relative motion or "wipe" between moving and stationary contacts.

Some applications, particularly of momentary contact switches, which have a torsion spring to return the switch to a central-neutral position, require a contact action which lags behind the switch motion (lost motion or slip contacts). Such contacts use cams with a special loose fit on the shaft. When the shaft has turned far enough to close or open these contacts, it can be rotated 45 degrees in the reverse direction without moving the cams, but beyond this point, the cam moves with the shaft and the contacts either open or close as the case may be.

Momentary contact switches have a torsion spring that returns the switch to a central or neutral position when the handle is released after operation to a side position or positions. This torsion spring is designed for maximum of 90 degrees operation to each side of the central position. The torsion spring may have one end cut off or tied back in such a manner as to be effective on one side of the central position only. That is, the switch may have momentary contact to one side of the central position and maintaining contacts to the other side.

In some momentary contact (spring return) switches, a locking device is provided by which the shaft may be held against the action of the torsion spring by pulling out the handle when the switch is turned to one of the side positions.

POSITIONING

A detent wheel, mounted on the square shaft and acted upon by a spring loaded roller arm, gives positive positioning action to the switch.

REMOVABLE HANDLES

The removable handle option may be obtained with up to 3 keyways in the escutcheon. The keyway locations are at the discretion of the customer. The handle is removable in one position. Any style handle can be used for this operation.

ADD-A-STAGE

A shaft extension is provided to enable an additional stage to be coupled to the existing switch in the event that more contacts are required when the switch is in the hands of the customer.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

RATINGS

The switch is rated for a mechanical life of 500,000 operations. The electrical rating is 600 volts, 20 amperes continuous. The interrupting rating depends on several factors; namely, voltage, current and inductance of the circuit. It may be necessary to use two or more contacts in series to insure adequate interrupting ability on highly inductive circuits. The interrupting ratings are shown in Table I.

TABLE I

Circuit Voltage	Non-Inductive Cir.		Inductive Circuit	
	Number of Contacts			
	1	2(in ser)	1	2(in ser)
24 DC	10.0	30.0	8.0	25.0
48 DC	8.0	25.0	6.0	18.0
125 DC	5.0	15.0	4.0	10.0
250 DC	1.0	3.0	1.0	2.5
600 DC	0.4	0.8	0.3	0.7
115 AC	40.0	75.0	24.0	50.0
230 AC	25.0	50.0	12.0	25.0
460 AC	12.0	25.0	5.0	15.0
600 AC	10.0	20.0	8.0	12.0

CONSTRUCTION

The Type SBM switch is built up with a series of stages which are nested into each other, an operating shaft, a front support and a rear support.

The complete stack is tied together with two tie bolts threaded into the front support. These tie bolts also act as a bearing for the cam followers in each stage. Each stage consists of four stationary contacts and two moving contacts, (double break construction) two cams and two cam followers. The cams are mounted on the operating shaft. In case only one contact is required in a stage, a cam follower assembly is omitted.

CONTACT IDENTIFICATION

The contacts are marked for identification using a standard system. On each side of the switch midway on the barriers, is a confined marking strip. These strips are located between the two screws which define a contact. The marking strip on the right side, front view, looking toward the rear is numbered 1, 3, 5, etc. starting at the panel end. Those on the left side are marked 2, 4, 6, etc. If a contact is omitted the terminal screws are also omitted for that contact.

ENCLOSURES AND MOUNTING

The basic switch is totally enclosed except for an opening in the bottom to allow for a visual inspection of the contacts.

All switches are furnished for mounting in panels 3/32 to 1/4 inch thick. Variation in panel thickness is taken up by the use of two saddle washers mounted between the handle and escutcheon.

INSTALLATION

RECEIVING

Immediately upon receipt of a switch, examine it for any damage sustained in transit. If injury or rough handling is evident, file a damage claim at once with the transportation company and promptly notify the nearest General Electric Apparatus Sales Office. The switches are completely assembled and packed in individual cartons before shipment.

If the switches are for stock purposes or not for immediate installation, they should be left in the shipping carton and stored in a clean dry location.

MOUNTING

For panel mounted switches, holes should be provided in the panel as shown in Fig. 2.

To mount a switch on a panel, first remove the handle and escutcheion, including where provided, the position-indicating pointer and the curved spring washers (saddle spring). Next, hold the switch in place on the back of the panel and insert the mounting screws through the escutcheon, panel, and spacers (if used) into the switch front support, but do not tighten the mounting screws. Attach the pointer, saddle springs and handle. Align the escutcheon on the panel.

When mounting removable-handle switches be certain that the shaft of the switch is properly positioned, so the handle is easily removed before the mounting screws are tightened.

MAINTENANCE

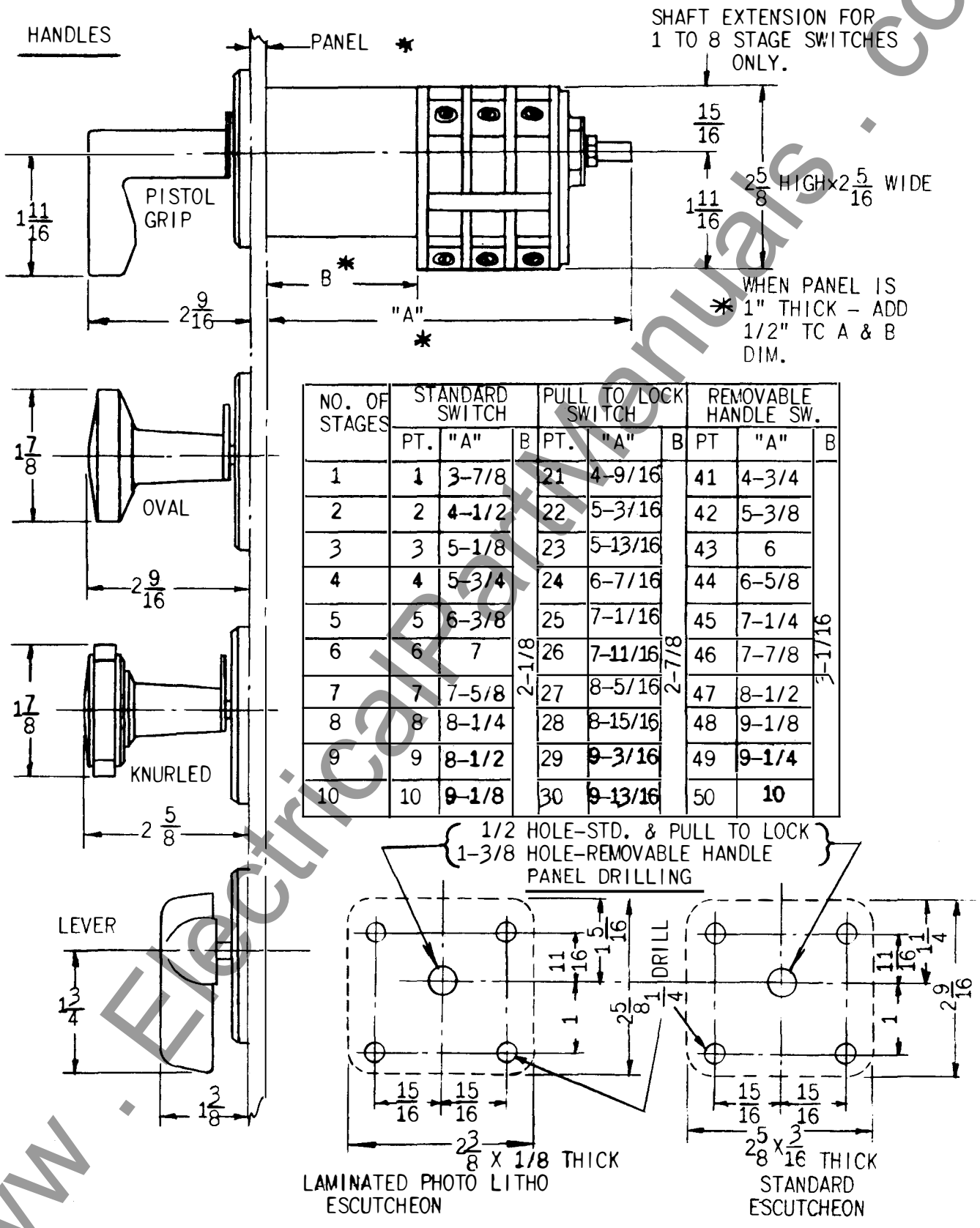
SERVICING

CONTACT CLEANING

At regular intervals, the switch contacts should be inspected for wear and burning. An opening at the bottom of the switch has been provided for this. (See Fig. 3) If the contacts are slightly pitted or coated with sulphide, they should be cleaned with a flexible burnishing tool similar to that included in the XRT relay tool kit.

REPAIR AND REPLACEMENT

In some cases, it is desirable to either replace a contact stage or to add an additional amount of contacts.



NO. OF STAGES	STANDARD SWITCH			PULL TO LOCK SWITCH			REMOVABLE HANDLE SW.		
	PT.	"A"	B	PT.	"A"	B	PT	"A"	B
1	1	3-7/8	2-1/8	21	4-9/16	2-7/8	41	4-3/4	3-1/16
2	2	4-1/2		22	5-3/16		42	5-3/8	
3	3	5-1/8		23	5-13/16		43	6	
4	4	5-3/4		24	6-7/16		44	6-5/8	
5	5	6-3/8		25	7-1/16		45	7-1/4	
6	6	7		26	7-11/16		46	7-7/8	
7	7	7-5/8		27	8-5/16		47	8-1/2	
8	8	8-1/4		28	8-15/16		48	9-1/8	
9	9	8-1/2		29	9-3/16		49	9-1/4	
10	10	9-1/8		30	9-13/16		50	10	

Fig. 2 (127A6779-6)

Fig. 2 Outline and Panel Drilling of Type SBM Switch

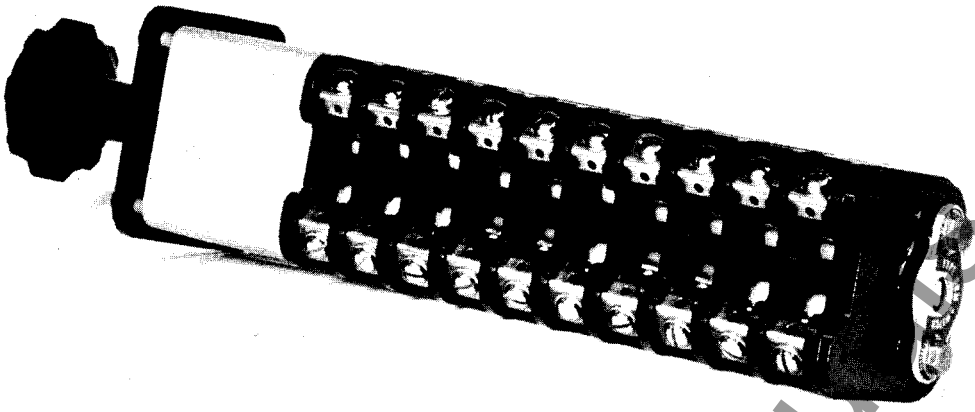


Fig. 3 (8027023)

Fig. 3 Bottom View of Type SBM Switch

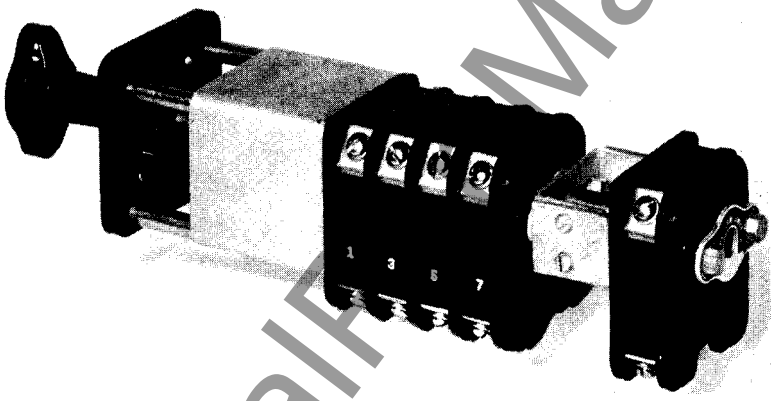


Fig. 4 (8027022)

Fig. 4 View of Type SBM Switch with Additional Stage in Position

In such cases, it might be advantageous not to disturb the existing switch but to add directly to the present switch. In order to do this, the proper contact sequence should be ordered (no more than two stages) noting that this is for adding to an existing switch. These parts will be received assembled with a U-shaped bracked and a coupling with a square hole will also be received. Fig. 4 shows a Type SBM switch with an additional stage already in position.

To install these additional contacts, loosen the two tie bolts at the rear of the switch about 3/32 inch. Slide the loose bracket over the shaft and tie bolts so that the inner part of the bracket slot rests on the tie bolts between the tie bolts and nameplate. Tighten the tie bolts. Slide the coupling over the shaft extension on the present switch, then slide the shaft extension on the new barrier assembly into the coupling, keeping the shaft of the new contact barriers in the proper position to give the correct contact sequence corresponding to the handle position. This should cause the side holes in the two U-shaped brackets to line up. Fasten the brackets together with the hardware supplied.

If it is desired to disassemble the switch for any reason, the following procedure should be followed: Place an identifying mark on the handle end of shaft corresponding to a position on the escutcheon such as 12 O'clock. Remove the escutcheon. Remove the three screws fastening the front plate to the front support. If there are stops in the front support, the position relative to the shaft identification mark should be noted. Remove the stops, spacer and star wheel if they are present.

Unscrew the tie bolts and remove the front support. If any torsion springs are present, pull one tie bolt back far enough so that one arm of the torsion spring can be sprung away from the spring actuator. Remove the spring actuator, spring, and any spacers present. Remove the molded cover plate exposing the contacts of the first stage.

Each cam has one number and seven letters around the shaft opening on one side of the cam and eight letters on the other side of the cam. When removing cams, mark the letter of the cam which corresponds to the shaft identification mark; thus cam and cam followers are removed in succession. This is done to each succeeding barrier.

When reassembling, it is only necessary to stack the cams back into the shaft in the same order as taken off, keeping the proper cam letter lined up with the shaft identification mark.

Before tightening the tie bolts into the front support, make sure that all the barriers are properly nested.

The parts which fit into the front support may now be assembled, placing the stops, if present, in their proper position with respect to the shaft identification mark.

RENEWAL PARTS

It is recommended that sufficient quantities of renewal parts be carried in stock to enable the prompt replacement of any that are worn, broken or damaged.

When ordering renewal parts, address the nearest Sales Office of the General Electric Company, specify quantity required, name of part wanted, and give complete nameplate data.

GENERAL ELECTRIC SALES OFFICE

READY TO ASSIST YOU . . . When You Have Electrical Problems . . . Need Further Information . . . Require Ordering Instructions

KEY TO SALES OPERATIONS
- **C—Components Sales**
- **I—Industrial Sales**
- **M—Marine & Defense Facilities Sales**
- **U—Electric Utility Sales**

ALABAMA
- C I U Birmingham 35205..2151 Highland Ave.
- I Mobile 36602.....704 Government St.
- I Montgomery 36105....25 S. Haardt Dr.

ARIZONA
- C I U Phoenix 85012....3550 N. Central Ave.
- I U Tucson 85716.....151 S. Tucson Blvd.

ARKANSAS
- C I N. Little Rock 72114.1900 E. Washington
- U Pine Bluff 71602.....P.O. Box 1033

CALIFORNIA
- C Burlingame 94010.....1675 Rollins Rd.
- I Emeryville 94608..5000 Shellmound St.
- I Fresno 93728.....1532 N. West Ave.
- C Los Angeles 90015.1543 W. Olympic Blvd.
- I M U Los Angeles 90012..212 N. Vignes St.
- I U Sacramento 95816.....2407 "J" St.
- I M U San Diego 92103.....2560 First Ave.
- I M U San Francisco 94104.235 Montgomery St.
- I Santa Clara 95050..1400 Coleman Ave.

COLORADO
- C I U Denver 80206.....201 University Blvd.

CONNECTICUT
- I U Hamden 06514.....2905 Dixwell Ave.
- C I U Hartford 06105.....764 Asylum Ave.

DISTRICT OF COLUMBIA
- I M U Washington 20005..777—14th St., N.W.

FLORIDA
- I M Cocoa Beach 32931.1325 N. Atlantic Ave.
- I Coral Gables 33146.....250 Bird Rd.
- I U Jcaksonville 32207..4040 Woodcock Dr.
- U Miami 33134.....4100 W. Flagler St.
- I Orlando 32801....211 E. Robinson St.
- U Pensacola 32503.....First Bonk Bldg.
- C I U Tampa 33609.....2106 S. Lois Ave.

GEORGIA
- C I U Atlanta 30309..1860 Peachtree Rd. N.W.
- I Macon 31201.....682 Cherry St.
- I U Savannah 31405.....5002 Paulsen St.

HAWAII
- I Honolulu 96801..American Factors, Ltd. P.O. Box 3230

IDAHO
- I U Boise 83701.....1524 Idaho St.

ILLINOIS
- C I M U Chicago 60680.....840 S. Canal St.
- I U Peoria 61603.....2008 N.E. Perry Ave.
- I Rockford 61108.....4223 E. State St.
- U Springfield 62701....607 E. Adams St.

INDIANA
- C I U Evansville 47714.2709 Washington Ave.
- C Fort Wayne 46804.....1635 Broadway
- I U Fort Wayne 46807..3606 S. Calhoun St.
- C I U Indianapolis 46207.3750 N. Meridian St.
- C I Sauth Bend 46601..430 N. Michigan St.

IOWA
- U Cedar Rapids 52401.210 Second St., S.E.
- C I Davenport .....(1039 State St., Bettendorf 52722)
- I U Des Moines 50310..3839 Merle Hay Rd.
- U Sioux City 51101.....520 Pierce St.

KANSAS
- C Overland Park 66204..7219 Metcalf St.
- I U Wichita 67211..820 E. Indianapolis Ave.

KENTUCKY
- I U Lexington 40508.....465 E. High St.
- C I U Louisville 40218.....2300 Meadow Dr.

LOUISIANA
- I U Alexandria 71302...2001 MacArthur Dr.
- I Baton Rouge 70815..633 Oak Villa Blvd.
- I Lake Charles 70601.....1424 Ryan St.
- I New Orleans 70125..4747 Earhart Blvd.
- M U New Orleans 70112....837 Grovier St.
- I U Shreveport 71101.....400 Travis St.
- I West Monroe 71291.500 Notchitoches St.

MAINE
- U Augusto 04330.....152 State St.
- I Bangor 04402.....77 Central St.

MARYLAND
- C I U Baltimore 21201.....1 N. Charles St.
- U Hagerstown 21740...49 E. Franklin St.
- I Salisbury 21801.....P.O. Box 424

MASSACHUSETTS
- C I M U Boston 02117.....31 St. James Ave.
- I Springfield 01103.....120 Maple St.
- I Worcester 01605.....288 Grove St.

MICHIGAN
- C I U Detroit 48202.....700 Antoinette St.
- I Flint 48503.....316½ W. Court St.
- C I Grand Rapids 49508 .....2821 Madison Ave., S.E.
- I U Jackson 49201.....210 W. Fronklin St.
- I Kalamazoo 49003....927 S. Burdick St.
- I Saginaw 48607. 2nd Notional Bank Bldg.

MINNESOTA
- I U Duluth 55802.....14 W. Superior St.
- U Fergus Falls 56537.106 E. Washington St.
- C Minneapolis 55424...4018 W. 65th St.
- I U Minneapolis 55402.....12 S. Sixth St.

MISSISSIPPI
- U Gulfport 39502.....P.O. Box 33
- I Jackson 39206....33 North Mart Plaza
- U Jackson 39201.....210 S. Lamar St.

MISSOURI
- I Joplin 64801.....310 Wall St.
- I U Kansas City 64105.....106 W. 14th St.
- C I U St. Louis 63101.....1015 Locust St.

MONTANA
- I Billings 59101.....303 N. Broadway
- I U Butte 59701.....103 N. Wyoming St.

NEBRASKA
- I U Omaha 68102.....409 S. 17th St.

NEVADA
- U Las Vegas 89105.....1711 S. 8th St.

NEW HAMPSHIRE
- U Manchester 03104.....46 Bay St.

NEW JERSEY
- C I U East Orange 07017..26 Washington St.

NEW MEXICO
- I U Albuquerque 87108.120 Madeira Dr. N.E.

NEW YORK
- I M U Albany 12206.....8 Colvin Ave.
- I U Binghamton 13902.....40 Front St.
- C I U Buffalo 14202.....625 Delaware Ave.
- I Elmira 14901.....100 Woodlawn Ave.
- I M U New York 10022....641 Lexington Ave.
- C Rochester 14618.....890 Winton Rd.
- I U Rochester 14604.....339 East Ave.
- C Syracuse 13206.....2360 James St.
- I U Syracuse 13206.....3532 James St.
- C Waverly 14892.....P.O. Box 308

NORTH CAROLINA
- C I U Charlotte 28202.....129 W. Trade St.
- I Greensboro 27405....801 Summit Ave.
- I U Raleigh 27603.....120 N. Boylan Ave.

NORTH DAKOTA
- U Bismarck 58501.....418 Rosser Ave.

OHIO
- I U Akron 44313.....2858 W. Market St.
- I Akron 44313 (Agency & Distributor) .....2855 W. Market St.
- I U Canton 44703.....515 Third St., N.W.
- C I U Cincinnati 45206....2621 Victory Pkwy.
- C Cleveland 44116.20950 Center Ridge Rd.
- I M U Cleveland 44114....1020 Lakeside Ave.
- C Columbus 43212.....937 Burrell Ave.
- I U Columbus 43215.....395 E. Broad St.
- C Dayton 45402....11 W. Monument Ave.
- I U Dayton 45439.....3430 S. Dixie Hwy.
- C Mansfield 44902....166 Park Ave., W.
- C I U Toledo 43606.....3125 Douglas Rd.
- I Youngstown 44507.272 E. Indianola Ave.

OKLAHOMA
- I U Oklahoma City 73106. 2000 Classen Blvd.
- I Tulsa 74114.....2651 E. 21st St.
- U Tulsa 74103.....420 S. Main

OREGON
- I U Eugene 97401.....1170 Pearl St.
- I U Medford 97501.....107 E. Main St.
- C I U Portland 97210...2929 N.W. 29th Ave.

PENNSYLVANIA
- I U Allentown 18102.....732 N. 16th St.
- I Erie 16501.....1001 State St.
- I U Johnstown 15902.....841 Oak St.
- C Philadelphia 19124....1020 E. Erie Ave.
- I M U Philadelphia 19102.3 Penn Center Plaza
- C Pittsburgh 15234.300 Mt. Lebanon Blvd.
- I U Pittsburgh 15222. Oliver Bldg., Mellon Sq.
- C I York 17403.....56 N. Harrison St.

RHODE ISLAND
- I Providence 02904..1006 Charles St., N.

SOUTH CAROLINA
- I U Columbia 29205.....2728 Devine St.
- I Greenville 29607.....1403 Laurens Rd.

TENNESSEE
- C I U Chattanooga 37402...832 Georgia Ave.
- I Kingsport 37664..1170 N. Eastman Rd.
- I U Knoxville 37921.1301 Hannah Ave., N.W.
- I U Memphis 38104.....1420 Union Ave.
- C I U Nashville 37203....1717West End Ave.
- M Oak Ridge 37830....253 Main St., East

TEXAS
- U Abilene 79601.....442 Cedar St.
- U Amarillo 79101.....303 Polk St.
- I U Beaumont 77701.....1385 Calder Ave.
- U Corpus Christi78401.205 N. Chaparral St.
- C I U Dallas 75247..8101 Stemmons Freeway
- I U El Paso 79901.....215 N. Stanton St.
- U Fort Worth 76102.....408 W. 7th St.
- C I M U Houston 77027....4219 Richmond Ave.
- I Lubbock 79404.....500 E. 50th St.
- I Midland 79704.....122 N. "N" St.
- I U San Antonio 78204....419 S Main Ave.

UTAH
- I U Salt Lake City 84101.431 S. Third E St.

VERMONT
- U Rutland 05702.....38½ Center St.

VIRGINIA
- I M Newport News 23601....311 Main St.
- I U Richmond 23230..1508 Willow Lane Dr.
- I U Roanoke 24016....920 S. Jefferson St.

WASHINGTON
- U Pasco 99301.....824 W. Lewis St.
- I M U Seattle 98188.....112 Andover Park, E.
- I U Spokane 99220.....E. 1805 Trent St.

WEST VIRGINIA
- I Charleston 25328 .....306 MacCorkle Ave., S.E.
- I U Fairmont 26555.....310 Jacobs Bldg.
- I Huntington 25701.....1401 Sixth Ave.
- I Wheeling 26002.....40 14th St.

WISCONSIN
- I U Appleton 54912....510 W. College Ave.
- U Madison 53703.340 W. Washington Ave.
- C Milwaukee 53218.....4701 N. 76th St.
- I U Milwaukee 53202..615 E. Michigan St.

CANADA
- Canadian General Electric Company, Ltd., Toronto

GENERAL ELECTRIC SERVICE SHOPS

WHEN YOU NEED SERVICE . . . These G-E service shops will repair, recondition, and rebuild your electric apparatus. The facilities are available day and night, seven days a week, for work in the shops or on your premises. Latest factory methods and genuine G-E renewal parts are used to maintain peak performance of your equipment. For full information about these services, contact your nearest service shop or sales office.

ALABAMA
- Birmingham 35211. 1500 Mims Ave., S.W.

ARIZONA
- (Phoenix) Glendale 85301 .....4911 West Colter St.

CALIFORNIA
- Los Angeles 90001..6900 Stanford Ave.
- Oakland 94608.....3400 Wood St.
- Sacramento 95814....99 North 17th St.
- San Francisco 94103..1098 Harrison St.

COLORADO
- Denver 80205.....3353 Larimer St.

CONNECTICUT
- (Southington) Plantsville 06479 .....370 Atwater St.

FLORIDA
- Jacksonville 32203..2020 W. Beaver St.
- (Miami) Hialeah 33010.1062 E. 28th St.
- Tampa 33601.....P.O. Box 1245

GEORGIA
- (Atlanta) Chamblee 30005 .....5035 Peachtree Industrial Blvd.

ILLINOIS
- Chicago 60632.....4360 W. 47th St.

INDIANA
- Ft. Wayne 46803.....1731 Edsall Ave.
- Indianapolis 46222.1740 W. Vermont St.

IOWA
- (Davenport) Bettendorf 52722 .....1025 State St.

KENTUCKY
- Louisville 40209..3900 Crittenden Drive

LOUISIANA
- New Orleans 70114..1115 De Armas St.

MARYLAND
- Baltimore 21230.....920 E. Fort Ave.

MASSACHUSETTS
- (Boston) Medford 02155 .....3960 Mystic Valley Parkway

MICHIGAN
- Detroit 48202.....5950 Third St.
- Flint 48505.....1506 E. Carpenter Rd.

MINNESOTA
- Minneapolis 55430..2025—49th Ave., N.

MISSOURI
- Kansas City 64120..3525 Gardner Ave.
- St. Louis 63110.....1115 East Road

NEW YORK
- Albany 12205.....1097 Central Ave.
- Buffalo 14211.....318 Urban St.
- North Bergen, N. J. 07047 .....6001 Tonnelle Ave.
- Schenectady 12305 ..(Instrumentation Service) 1 River Road
- Syracuse 13208..1015 E. Hiawatha Blvd.

NORTH CAROLINA
- Charlotte 28208.....2328 Thrift Road

OHIO
- Cincinnati 45202....444 W. Third St.
- Cleveland 44125....4477 East 49th St.
- Columbus 43223.....2128 Eakin Rd.
- Toledo 43605.....405 Dearborn Ave.
- Youngstown 44507.272 E. Indianola Ave.

OREGON
- Portland 97210....2727 N.W. 29th Ave.

PENNSYLVANIA
- Allentown 18103....668 E. Highland St.
- Johnstown 15902.....841 Oak St.
- Philadelphia 19124..1040 E. Erie Ave.
- (Pittsburgh) West Mifflin, Po. 15122 ..4930 Buttermilk Hollow Rd., R.D. #1
- York 17403.....54 N. Harrison St.

TEXAS
- Corpus Christi 78401....115 Waco St.
- Dallas 75235.....3202 Manor Way
- Houston 77020..5534 Harvey Wilson Dr.
- Midland 79704.....704 S. Johnston St.

UTAH
- Salt Lake City 84110.301 S. 7th West St.

VIRGINIA
- Richmond 23224....1403 Ingram Ave.
- Roanoke 24007.115 Albermarle Ave., S.E.

WASHINGTON
- Seattle 98134.....3422 First Ave., S.
- Spokane 99211....E. 4323 Mission St.

WEST VIRGINIA
- Charleston 25328 .....306 MacCorkle Ave., S.E.

WISCONSIN
- Appleton 54910.....P.O. Box 83
- Menasha, Wisc.....664 Valley Rd.
- Milwaukee 53207. 235 W. Oklahoma Ave.

PRINTED IN U.S.A.