



Cable Operator Mechanism For SK1200 Spectra RMS™ Circuit Breaker

Type SCH2K and SCH2KX Flange-mounted Handle Assemblies, Cable Series SC3H thru SC10H and Type SCOM1K Breaker-mounted Operating Mechanisms

GENERAL

General Electric Cable Operating Mechanisms are suitable for application with GE circuit breakers mounted in a wide variety of flanged enclosure types and sizes.

Flange-mounted handle assemblies are available for NEMA type 1, 3R, 12 or 13-enclosures in 10 inch handle lengths, Model SCH2K. Corresponding assembly, SCH2KX is available for NEMA type 4/4X enclosures. Handle assemblies are suitable for either left or right flange operation.

The handle assembly is combined with one of eight operating cables, with lengths from 3 to 10 feet, to cover a broad range of breaker mounting locations in the enclosure. The cable links the handle assembly to the breaker mounted operating mechanism and transmits the mechanical force and motion of the handle mechanism to the breaker mounted mechanism. The force and motion is transmitted independently of the breaker mounting plane or location relative to the location of

the handle assembly provided only that the bending radius of the cable is not less than 3 inches. No mounting reinforcement of the breaker or enclosure flange is required.

The breaker operating mechanism mounts directly to the face of the breaker and does not involve any mounting interface with the enclosure. Standard breaker mounting screws for tapped holes are furnished with each mechanism to mount the breaker in the enclosure.

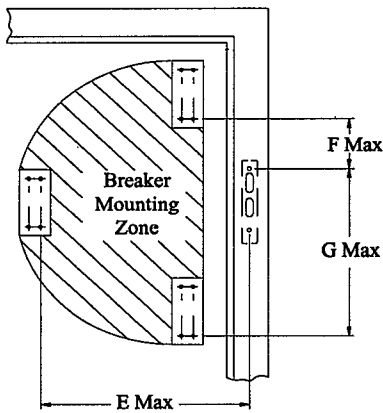
Examine Table 1 below to ensure that the handle assembly, cable, and breaker operating mechanism you have are the correct devices for your job. Use Table 2 below to ensure that the cable being used is long enough to reach the breaker and that the 3 inch bending radius minimum is not violated.

Installation of the handle assembly onto the enclosure flange can be performed independently from installation of the breaker operating mechanism onto the circuit breaker and from installation of the circuit breaker in the enclosure. Installation of the cable between the handle assembly and the breaker mechanism should be the final step. The breaker operating mechanism is to be installed onto the circuit breaker after the breaker has been mounted in the enclosure.

Table 1. Mechanism Selection Guide

Circuit Breaker Type	Handle Operating Mechanism Cat. No.		Breaker Operating Mechanism Cat. No.	Operating Cable Cat. No. Series	Cable Operator Mechanism Installation Instruction No.
	NEMA 1, 3R, 12, 13	NEMA 4/4X			
E150	SCH1 SCH2	SCH1X SCH2X	SCOM1A	SC3L Thru SC10L	GEH-6290
SE150			SCOM1EF		
SF250			SCOM1G		
SG600					
SK1200	SCH2K	SCH2KX	SCOM1K	SC3H Thru SC10H	GEH-6291

Table 2. Circuit Breaker Mounting Zone Dimensions



Maximum Dimensions in Inches

Enclosure Depth	36" Cable			48" Cable		
	E**	F	G	E**	F	G
8"	13.5	4.0	15.0	25.5	16.0	27.0
10"	13.0	5.0	14.8	25.0	17.0	26.8
12"	12.8	6.0	14.5	24.8	17.0	26.5
16"	10.5	4.5	14.2	22.5	16.5	26.2
18"	8.5	3.5	12.6	20.5	15.5	24.6
20"	—	0.5	10.0	22.0	15.0	24.0
24"	—	—	—	19.5	14.0	22.0

**Maximum E Dimension only if F = 4.5"

To determine maximum mounting dimensions for 60 inch thru 120 inch long operating cables, add the respective additional lengths to the 48 inch cable max. dimensions. (example: add 12 inches to E, F, and G dimensions for 60 inch cable length.)

When cable is installed, the minimum cable bend radius should not be less than 3 inches. The minimum cable bending requirement must be met to insure a safe operating environment.

Table 3. Circuit Breaker Mounting Dimensions

Breaker Type	A	B	C	D	Tap Size
SK1200	2.75	14.25	.625	15.50	5/16-18

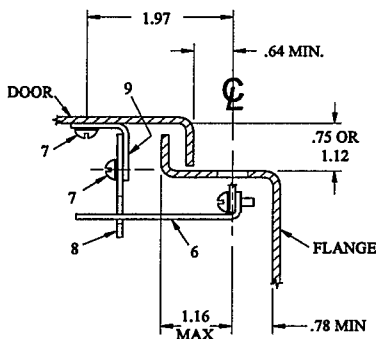
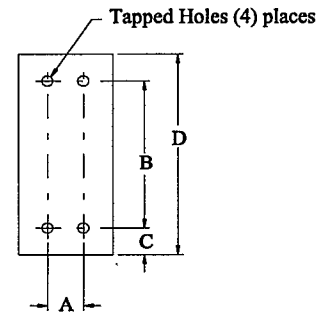


Figure 1.
End view of flange and cover.
(Right hand shown.)

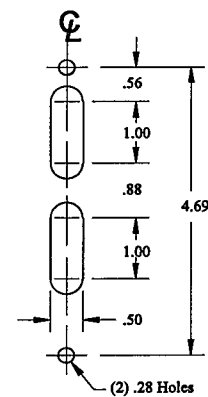


Figure 2.
Flange details

Table 4. Handle Dimensions, See Figure 3.

Nema 12 Handle Cat. No.	Nema 4/4X Handle Cat. No.	"L"	"H"
SCH2, SCH2K	SCH2X, SCH2KX	9.38	3.00

WARNING: Danger of electrical shock or injury. Turn OFF power ahead of the device before accessory installation. Do Not remove circuit protective devices until power is turned OFF.

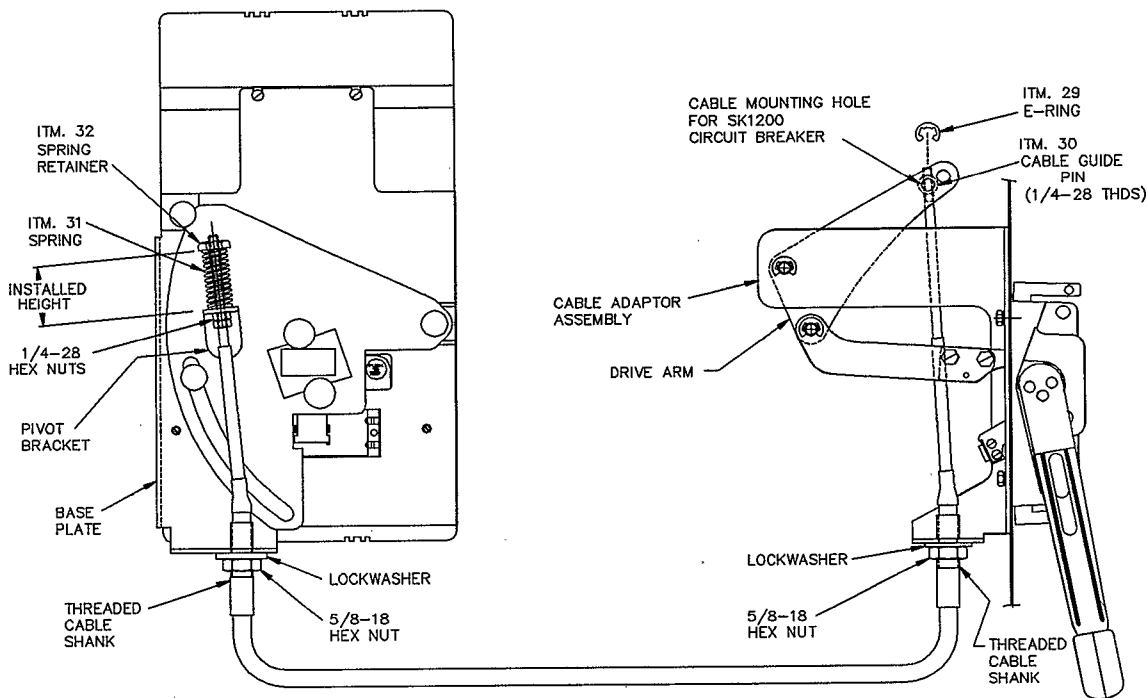


Figure 7.

Cable Installation

First install one end of the operating cable to the operating handle as follows:

1. Thread $5/8$ -18 hex nut on the end of the cable with $1/4$ -28 x 1" long thread length. Install onto threaded cable shank beyond groove at mid-point of threaded shank. Install $5/8$ " lockwasher to hex nut. Screw cable guide pin, item 30, onto same end of cable ($1/4$ -28 thds.) all the way. Do not tighten.
2. Place operating handle in off position. Position cable behind handle drive arm linkages. Insert groove of cable (midpoint of cable shank threads) into slot at bottom of cable adaptor assembly. Tighten $5/8$ " hex nut against cable adaptor assembly until snug. Insert cable guide pin, item 30, into the proper mounting hole in drive arm, as shown in Fig. 7. Snap E-ring, item 29, into groove of guide pin, item 30, using pliers.
3. Next install cable to breaker operating mechanism by installing $5/8$ -18 hex nut over cable end with $1/4$ -28 x 4" long thread length. Thread onto cable shank beyond groove at mid-point of threaded shank. Install $5/8$ " lockwasher to hex nut. Thread (2) $1/4$ -28 hex nuts onto threaded end of cable, approximately $3\ 3/4$ ". **NOTE:** rotate pivot bracket into position as shown in Fig. 7, and insert end of cable thru pivot bracket. Insert groove of cable into slot on base plate. Tighten $5/8$ -18 hex nut against base plate flange until snug. With breaker in OFF position move $1/4$ -28 hex nut up on cable shaft against pivot bracket. (Note position of pivot bracket.)
4. **CAUTION**, be sure that power to the circuit breaker has been turned off. Move operating handle and circuit breaker to the ON position. Place spring, item 31, over cable end. Thread spring retainer, item 32, onto end of cable and tighten to the installed height of $2\ 7/16$ ". **DO NOT OVERTIGHTEN RETAINER.**
5. Move operating handle ON and OFF. If breaker does not turn ON, with handle in OFF position, adjust 10-32 hex nut toward pivot bracket until breaker turns ON.
6. Trip the circuit breaker by pushing the "trip" button. Move the operating handle to OFF/RESET, then to ON position. If the breaker resets, tighten the spring retainer to the installed height of $2\ 7/16$ ". Lock both $1/4$ -28 hex nuts together against pivot bracket.
7. If breaker does not reset, back off $1/4$ -28 hex nuts, tighten spring retainer and repeat steps 5, 6 and 7.

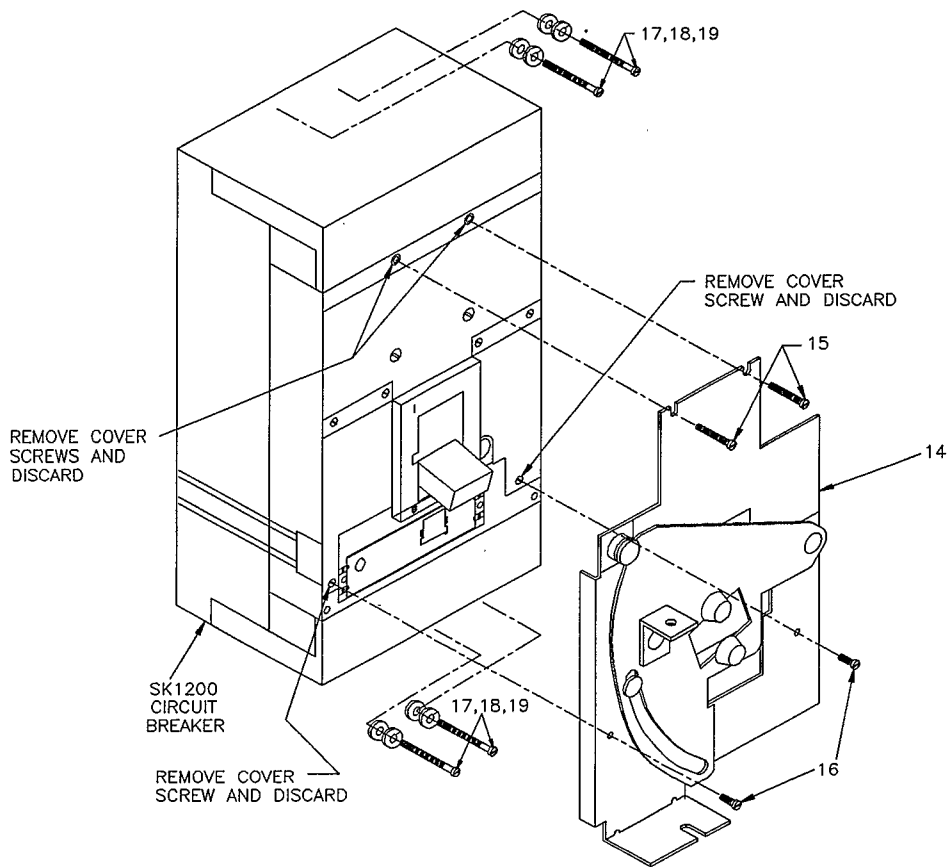


Figure 4. Installation of SCOM1K

Install circuit breaker in panel using (4) $\frac{5}{16} \times 1 \frac{1}{4}$ " long screws, lockwashers, and flat washers, Itms. 17, 18 and 19.

Remove (4) breaker cover screws on Line and Load ends of breaker, as shown. With circuit breaker in OFF position, place breaker operating mechanism, item 14, on top of breaker cover with breaker handle extending thru mechanism pivot plate. Secure operating mechanism to breaker on Line end with (2), M5 x 65mm long screws, item 15. Secure mechanism on Load side with (2) M4 x 14mm long screws, Itm. 16, threading them into the circuit breaker cover.

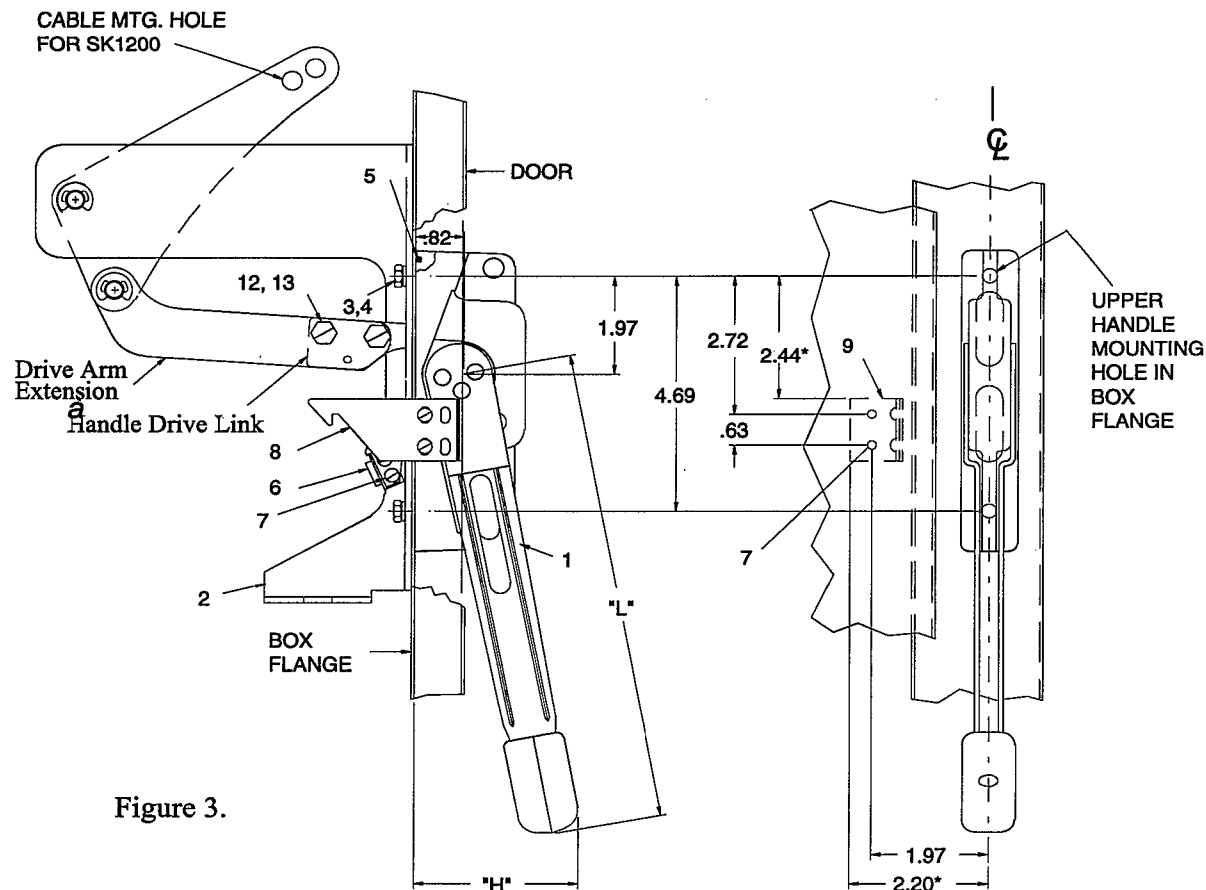


Figure 3.

HANDLE INSTALLATION

1. Referring to Figure 1, Figure 2, and Figure 3 determine location of handle on flange of enclosure. Handle can be mounted either on the right or left side of enclosure.
2. If flange is not provided with handle holes and slots, drill per Figures 1 and 2, and remove burrs.
3. Position o-ring, item 5, in groove in handle and assemble handle, item 1, and cable adaptor assembly, item 2, to flange of enclosure using (2) $\frac{1}{4}$ -20 x $\frac{5}{8}$ " long hex head screws and lockwashers, items 3 and 4. Torque screws to 35-45 in. lb.
4. Assemble interlock blade, item 6, to handle using (2) 8-32 sems screws, item 7, as shown in Fig. 1.
5. Assemble drive arm extension to handle drive link using (2) $\frac{1}{4}$ -20 x $\frac{3}{8}$ " long slotted hex hd. screws, item 12, and lockwashers, item 13, as shown in Fig. 3. Torque to 35-45 in. lbs.
6. Drill and tap (2) 8-32 holes in cover per Fig. 1 and Fig. 3 and assemble interlock bracket, item 9, to cover using (2) 8-32 sems screws, item 7. Assemble screws from inside the door. Alternatively, bracket may be welded to cover using dimensions noted with asterisk (*) to locate upper left-hand corner of bracket, as shown in Fig. 1.
7. Assemble interlock hook, item 8, to interlock bracket, item 9, using (2) 8-32 sems screws, item 7. Use lower set of holes in hook for $\frac{3}{4}$ inch turned edge door (as shown) or upper set of holes if door has $1\frac{1}{8}$ inch turned edge.
8. With handle in OFF position attempt to close door. If interlock blade interferes with interlock hook, DO NOT force door closed. Loosen (2) 8-32 screws, item 7, and move interlock hook upward. Door should close without interference. Attempt to turn handle ON; If handle will not turn ON, loosen (2) 8-32 screws, item 7, securing interlock hook and move hook downward (toward bottom of enclosure) to provide more depression of interlock blade, thus not allowing handle interlock to engage.
9. As the handle is moved into the "ON" position, interlock hook should engage interlock blade and door should be prevented from being opened unless the handle interlock is manually disengaged by rotating, clockwise, the interlock defeat button with a flat-blade screwdriver on handle, item 1. If door can be opened with handle in "ON" position, without defeating interlock blade, readjust interlock hook downward and repeat steps 9 and 10.
10. Turn handle to "OFF" position. Door should be capable of being opened. **NOTE:** If vault type interlock hardware, GE Cat. No. TDV1 or similar assembly has been installed, door hardware must first be defeated.
11. Now proceed with installation of drive cable and breaker operating mechanism per instructions.

Parts List for SCH2K and SCH2KX

Item No.	Description
1	Handle Assembly
2	Cable Adaptor Assembly
3	1/4"-20 x 5/8" Lg. Hex Hd. Screw
4	1/4" Lockwasher
5	O-Ring
6	Interlock Blade
7	#8-32 Sems Screws
8	Interlock Hook
9	Interlock Bracket
12	1/4"-20 x 5/8" Lg. Hex Hd. Screw
13	1/4" Lockwasher
29	E-Ring (3/8" Shaft Dia.)
30	Cable Guide Pin (1/4"-28 Thds.)

Parts List for SCOM1K

Item No.	Description
14	SK1200 Breaker Operating Mechanism
15	M5 x 65 Metric Pan Hd. Screw
16	M4 x 14 Metric Pan Hd. Screw
17	5/16-18 x 1 1/4" Lg. Hex Hd. Screw
18	5/16" Lockwasher
19	5/16" Flat Washer
31	Spring
32	Spring Retainer

Replacement Kits

Description	Part Number	Quantity
O-Ring	343L889G15	1
Interlock Blade	343L889G2	1
Interlock Hook	343L889G3	1
Interlock Bracket	343L889G4	1

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 GE Company.

GE Electrical Distribution & Control