

CLASS 8509 DRUM TYPE STARTING SWITCH

(EXPLOSION TESTED)

INSTRUCTIONS

Application

The Class 8509 drum type starting switch is designed for use in gaseous mines and other locations where explosive mixtures are present. It has passed all the tests of the U. S. Bureau of Mines for "explosion tested" (or "flame proof") equipment and may be used on "permissible" machines when applied in accordance with the Bureau of Mines regulations.

This switch is designed especially for starting the type RH 230-volt motor but may be used with other motors of equivalent size and ratings which may be started by connecting directly to the line.

Construction

The operating drum and fingers are assembled complete on a bronze base. The drum segments are of cast brass with renewable copper contacts and are mounted on an insulated steel shaft. Copper fingers with renewable tips are used to make contact with the drum segments. Molded arc barriers are provided between each set of fingers.

Maximum accessibility is provided by the method of assembling the drum to the base. The starter can be completely wired before attaching the case. Approved packing glands are provided in the base for the power and motor leads. These glands should be assembled and packed according to the instructions given on the wiring diagram furnished with each starting switch.

A fuse in the positive side of the line is provided for sustained overload and short-circuit protection. This fuse is easily accessible by unscrewing and removing the top coverplate.

The top coverplate is a bronze casting which screws into the case. This cover plate is mechanically interlocked with the top casting of the operating drum



FIG. 1—CLASS 8509 EXPLOSION TESTED STARTING SWITCH

in such a manner that it is impossible to remove it unless the handle is in the off position. This prevents the opening of the case while the power is connected.

Maintenance

All switches should be inspected at regular intervals.

Each contact finger should be adjusted to make contact over its entire width in all positions of the drum contacts with which it engages. In order to do this, the surface of the drum contacts must be in a straight line, parallel to the axis of the shaft and the portion of the finger which makes contact must be straight and in alignment with the moving contact.

The contact finger should be adjusted so that it drops from $\frac{1}{16}$ " to $\frac{1}{8}$ " below

the surface of the drum contact when it leaves the contact. If it drops too far there is danger that the drum will not lift the finger when it approaches the finger in the direction of the support. If the finger is not adjusted to drop far enough below the surface of the drum, there will not be sufficient pressure between the contacts to carry the current.

Contacts which are subject to arcing become rough and portions of the material are burned away. When inspecting the switch, remove all burns and blisters from the contacts with a file and smooth with fine sandpaper. Do not use emery paper or cloth. File the fingers and bevel the approach of the contacts so as to assist the finger in riding over the contact surfaces.

Contact wear can be materially reduced by the use of a little vaseline or oil. Lubrication should be used only when the switch can be kept clean and free from abrasive dust. Otherwise the grease will hold the dust and increase the cutting. Before applying the lubricant, thoroughly clean the contact surfaces with kerosene; see that they are free from burns and blisters and that the contact fingers are properly adjusted. Wipe the contacts clean and dry and spread the lubricant smoothly over the contact surfaces with a cloth or small brush. Operate the switch so that the fingers rub over the contacts a number of times. Afterwards, wipe around the fingers and along the edges of the contacts with a cloth to remove any surplus grease.

In cleaning and adjusting the switch care should be taken that the fingers are not pulled back far enough to give them a permanent set.

CLASS 8509 DRUM TYPE STARTING SWITCH (EXPLOSION TESTED) RENEWAL PARTS DATA

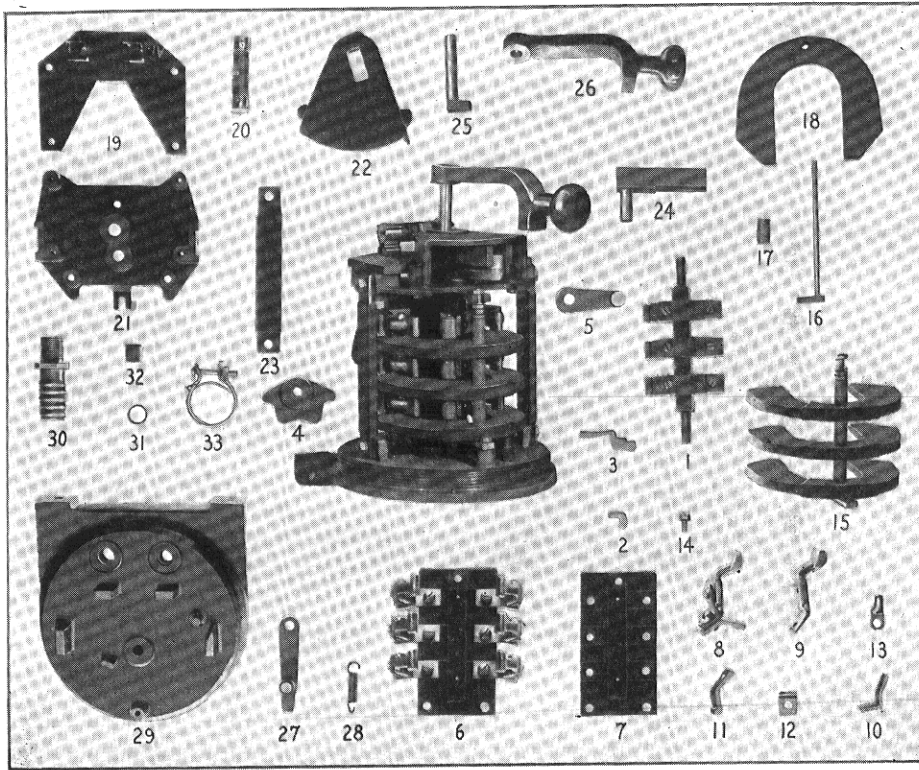


FIG. 2—RENEWAL PARTS FOR CLASS 8509 DRUM TYPE STARTING SWITCH

RECOMMENDED STOCK OF RENEWAL PARTS

Style Number of Complete Switch.....			670851-A		No. Per Switch	Switches in Use		Style Number of Complete Switch.....			670851-A		No. Per Switch	Switches in Use	
Ref. No.	Description of Part	Style Number of Part	No. Per Switch	1 5		Ref. No.	Description of Part	Style Number of Part	1 5						
				Recom- mended For Stock	Recom- mended For Stock				Recom- mended For Stock	Recom- mended For Stock					
1	Drum Complete.....	870899	1	0	0	19	Fuse Board Complete.....	870975	1	0	0				
2	Contact.....	239224	6	3	6	+	Fuse Board Only.....	870976	1	0	0				
+	Contact Screw "190 x 1/2" Flat	**	6	0	3	+	Fuse Clip.....	229300	2	0	0				
3	Hd. B. M. Screw.....	870900	6	0	0	+	Terminal.....	229112	2	0	0				
+	Contact Support.....	**	6	0	0	20	1/16"-18 x 1 1/4" Fil. H. B. M. Sc..	**	2	0	0				
+	Contact Support Screw "190 x 3/4" Fil. Hd. B. M. Screw.....	750626	1	0	0	21	Fuse—40 Amperes.....	37167	1	0	10				
+	Shaft with Insulation.....	378033	1	0	0	22	Upper Bearing.....	870977	1	0	0				
4	Star Wheel.....	**	1	0	0	23	Guard.....	870978	1	0	0				
+	*0 x 1 1/4" Taper Pin for Star Wheel	870901	1	0	0	+	Support Bar.....	850721	2	0	0				
5	Operating Lever.....	**	1	0	0	+	Bolt for Support Bar and Finger Base.....	401225	7	0	0				
+	3/8" x 1 1/4" Groove Pin for Lever..	870972	1	0	0	+	1/4"-20 x 3/4" M. B. Tap Bolt for Upper Bearing.....	**	7	0	0				
6	Finger Base Complete.....	859599	1	0	0	24	Interlock Lever.....	870979	1	0	0				
7	Finger Base Only.....	870981	1	0	0	25	Handle Shaft.....	870980	1	0	0				
+	Baffle.....	**	2	0	0	26	Handle.....	870982	1	0	0				
+	"190-32 x 5/8" Flat Hd. I. M. Screw.....	389689	6	3	6	+	3/8" x 1 1/4" Groove Pin for Handle	**	1	0	0				
8	Finger Complete.....	254755	6	0	3	27	Pawl with Roller.....	389687	1	0	0				
9	Finger Only.....	254753	6	0	0	+	Roller.....	254756	1	0	1				
10	Finger Stop.....	284667	6	0	0	+	Roller Pin.....	254758	1	0	1				
11	Finger Support.....	204901	6	0	0	28	Pawl Spring.....	180753	1	0	1				
12	Finger Lock Washer.....	229112	6	0	0	29	Bottom Casting.....	870965	1	0	0				
13	Terminal.....	374793	6	0	0	+	Pawl Pin.....	594553	1	0	0				
14	Adjusting Screw for Finger.....	**	6	0	0	+	Bolt for Arc Shield Support.....	186529	1	0	0				
+	3/8"-16 x 1 1/2" Fil. Hd. I. M. Sc. for Support.....	**	6	0	0	+	Case.....	870966	1	0	0				
+	1/8"-18 x 1 1/2" Fil. Hd. B. M. Screw for Base.....	15309	18	0	0	+	Switch Support.....	870967	1	0	0				
+	Nut.....	870974	1	0	0	+	Set Screw.....	60988	2	0	0				
15	Arc Shield Complete.....	870973	1	0	0	30	Top Casting.....	870968	1	0	0				
16	Tie Rod with Support.....	481672	3	0	1	31	Packing Gland.....	870969	2	0	0				
17	Spacer.....	203962	3	0	1	32	Bushing.....	870970	2	0	0				
18	Arc Shield.....	**	3	0	0	33	Bushing.....	870971	2	0	0				
+	1/4"-20 Lock Nut.....	**	3	0	0		1" Air Hose Clamp.....	**	2	0	0				

Parts indented are included in the part under which they are indented
 † Purchase from Westinghouse Jobber. ‡ Not illustrated.

§ Not included with finger complete
 **Standard hardware.

Westinghouse Electric & Manufacturing Company
 East Pittsburgh, Pa.

This is a list of the Renewal Parts and the quantities of each that we recommend should be stocked by the user of this apparatus to minimize service interruptions caused by breakdowns. The parts recommended are those most subject to wear in normal operation, or to damage or breakage due to possible abnormal conditions.

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

ORDERING INSTRUCTIONS

Name the part and give the complete nameplate 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.