A-C OR D-C LIMIT SWITCH

TYPES NDH & NDHE

WATERPROOF or EXPLOSIONPROOF ENCLOSURES • DIRECT ACTING

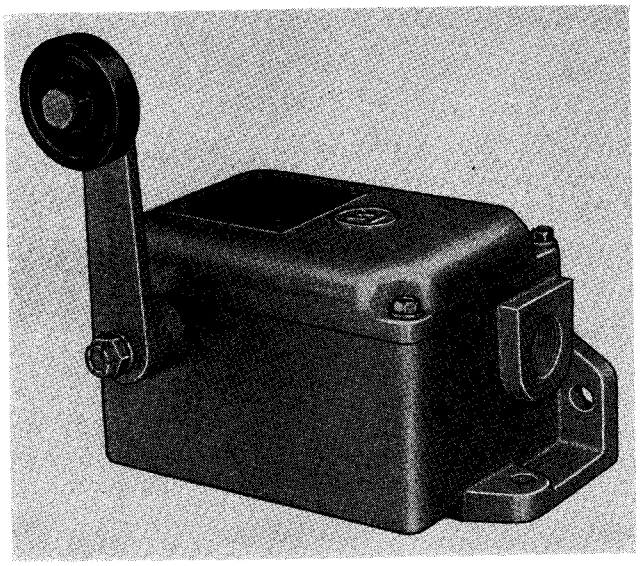

Fig. 1—Type NDH Limit Switch in Waterproof Enclosure

GENERAL DESCRIPTION

The NDH and NDHE Limit Switches are lever-actuated contact mechanisms suitable for a-c or d-c service.

The Type NDH Limit Switch Fig. 1, is supplied in a waterproof aluminum enclosure. It consists essentially of a cam operated contact unit, and an external operating arm or lever with attached roller.

The Type NDHE Limit Switch Fig. 2, is furnished in a bronze explosionproof enclosure. All internal parts except the shaft are identical to and are interchangeable with those of the Type NDH Limit Switch.

Two contacts are supplied in each switch. These may be arranged as both normally open, both normally closed or one normally open and one normally closed.

The operating lever may be arranged on either side of the enclosure. Its position is adjustable through 360° by 24 steps 15° apart.

These switches may be deck mounted or bulkhead mounted.

INSTALLATION AND MAINTENANCE

The Limit Switches are shipped with both contacts set for normally-open operation.

If it is desired to convert either contact to normally-closed operation, the following procedure should be observed:

TYPE NDH—Loosen the 4 cover screws. (These screws are captive in the cover so they cannot be dropped or misplaced). Remove the screw on the appropriate cam. Rotate the cam 180° and replace the screw securely.

TYPE NDHE—The same procedure as above should be followed except remove completely the 6 bronze bolts holding the cover to the case. (These bolts are not captive so care should be taken to stow the cover and bolts in a safe place while working on the internal mechanism.)

It is important that all the cover screws or bolts be replaced on both switches to assure satisfactory performance. It is particularly hazardous to operate the NDHE in an explosive atmosphere with the cover bolts loose or missing.

If it is required to locate the operating lever on the opposite side of the case, proceed as follows: First remove the cover. Then remove the two cam screws and the single screw on top of the pawl carrying the torsion spring. The shaft may now be

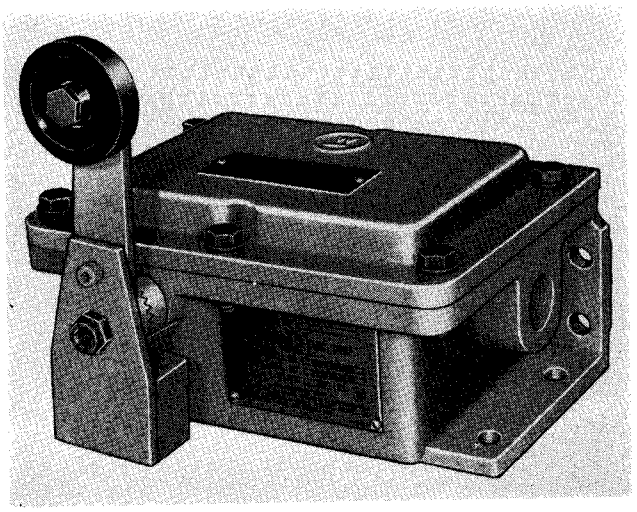

Fig. 2—Type NDHE Limit Switch in Explosionproof Enclosure

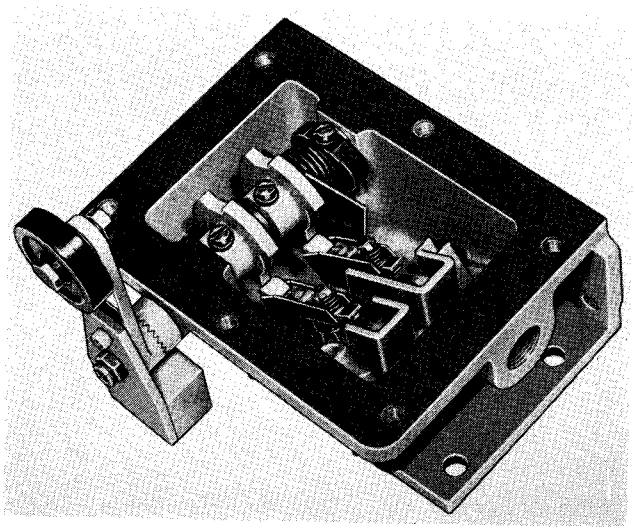

Fig. 3—NDHE Limit Switch with Cover Removed Showing Internal Mechanism

pulled from the enclosure and inserted from the opposite side. All cams, pawls and barriers should be replaced in their original positions.

To locate the lever in the desired position, loosen the lock nut until the mating teeth are disengaged. Rotate the lever to the desired position and tighten the nut securely.

When aligning the switch lever and roller with the operating dog or ramp, maximum life of the switch will be obtained if the dog or ramp is shaped so that a camming action rather than a direct thrust or impact is obtained.

Always locate the switches on a sound flat surface and tighten all mounting bolts securely. Use two 3/8-16 mounting bolts for the type NDH and four 3/8-16 mounting bolts on the type NDHE Limit Switch.

After a period of operation it is advisable to apply a few drops of machine oil to the shaft bearings.

A slight discoloration of the contact faces is not harmful and no filing or dressing of these is necessary.

The contacts should be replaced however, before the silver contact faces become fully burned away.

OPERATION

SHOCK—The occurrance of a severe shock may produce a momentary separation of normally closed contacts. It will not, however, cause the contacts to close from the open position even momentarily.

LEVER TRAVEL—A 6° movement of the operating lever in either direction from a neutral position will open a normally closed contact and a 15-1/2° movement in either direction from a neutral position will close a normally open contact. The operating lever will deflect a total of 45° in either direction from neutral before being mechanically stopped. **Caution: Do not operate with lever hitting the mechanical stop.**

A force of 5 to 6 lbs., at the end of a 4 inch lever is required to operate these switches.

WEIGHT OF LIMIT SWITCH AND SPARE PARTS

DESCRIPTION	WEIGHT	STYLE NUMBER
NDH Limit Switch Complete (Waterproof)	6.875#	569D419G01
NDHE Limit Switch Complete (Explosionproof)	26#	560D496G01

SPARE PARTS DESCRIPTION	NO. PER SWITCH	WEIGHT	STYLE NUMBER
Moving Contact Assembly	2	.25#	298B199G03
Spring	1	.055#	32D2014H01
Stationary Contact	4	.08#	32D2009G01
Retaining Ring	2	.01#	298B199H01