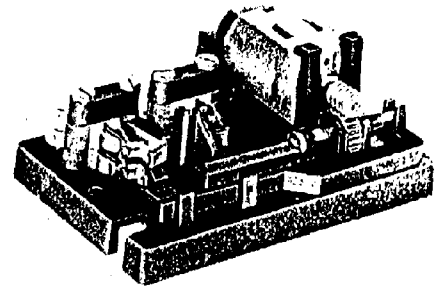




# Switchmotor



## Technical data and maintenance

Supply voltage	6-14 DC depending on load
Current-consumption	100-200 mA depending on load
Max. switch-current	5 Amp per microswitch
Maintenance	Once or twice annually grease the gears and the drive rod with some graphite grease.

## Electrical operation

The electrical installation of the Lemaco switchmachine is simple. You need a 6-14 volt DC source and a 2 pole toggle switch. (See figure 1).

**Warning:** The machine must only be operated with DC. We recommend the following circuits:

A. With a 2 Amp bridge rectifier (Walthers 942-458) and a 2 pole toggle switch (figure 2). With this arrangement, you can power up to 10 switch machines simultaneously provided that the transformer can deliver a maximum of 2 Amps.

B. With a single pole toggle switch and 2 diodes type 1N4001 (Walthers 942-455) as in figure 3.

Both methods A and B can be powered from the AC outputs of commercially available model railroad transformers. Set the toggle switch in one of the two positions which will set the switch motor in operation and the actuating lever will move to the corresponding direction. At the end of travel the motor current is switched off by one of the installed micro switches. When the toggle switch is pushed in the opposite position, the actuating lever will move in the other direction and is likewise disconnected by a microswitch.

On the base plate of the unit, two groups of microswitches are mounted. Both serve to control the motor. Both the upper switches are free for individual use eg polarisation of a frog/crossing point, signal power and feedback to a switch board. Should these require replacement, they are available under catalog number 415-11.

## Mechanical assembly

The switch machine is delivered with everything necessary for assembly. Not included are 3 wood screws. It is recommended to mount the motor under the layout with the following directions:

1. Drill a 1,6 mm diameter hole in the layout board 19 mm (3/4") from the hole in the switch throwbar. From the 4 positions illustrated in figure 4 (A, B, C, D) choose the one best suited in the given situation.
2. Place the brass tubing in this hole, which should have its top edge poking 0,4 mm over the steeper surface of the switch.
3. Secure the switch blades in their halfway position with a piece of adhesive tape.
4. Place the bent brass wire in the brass tube and fit the short end into the hole of the throwbar as shown in figure 5.
5. Turn the worm of the motor by hand until the actuating lever is exactly in its middle position.
6. Place the switch machine under the layout so that the hole of the actuating pole is 20 mm from the center of the brass tube. (Figure 5 and 6). Fasten the motor in place with 3 wood screws. We recommend to silence the unit by fitting 3 rubber «O» rings between the layout and the unit.
7. Make sure that the switch blades are still in their mid position as described in step 3. Bend the end of the brass wire extending underneath the layout at a right angle so that the end lies over the hole in the actuating rod. Bend the end of the wire with flat nose pliers so that it passes through the actuating rod and cut the wire 4 mm below this point.
8. Use the plastic packaging as a dust cover for the switch machine.
9. The assembly of the switch motor is complete. It can be used for either HO, HO<sub>N3</sub> and HO<sub>m</sub> switches. The actuating lever has a sprung tension so the forks will remain in place.

## REFERENCE

### Misc. notes

For changing the switch motor to adapt it for O gauge, compensate by replacing the brass tube with a tube of 2 x 1 mm and the brass wire with a steel wire of 1 mm diameter.

The Lemaco switch machine is not only for actuating switches, but also for such things as powering switch signals, flying signals, barriers, doors of engine houses, even the rising / falling of the water tower spout.

Switch motor	catalog nr. 415-1 (Lemaco ACC-001)
Microswitch	catalog nr. 415-11 (Lemaco ACC-001/1)

Fig. 1

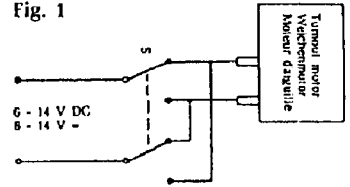


Fig. 2

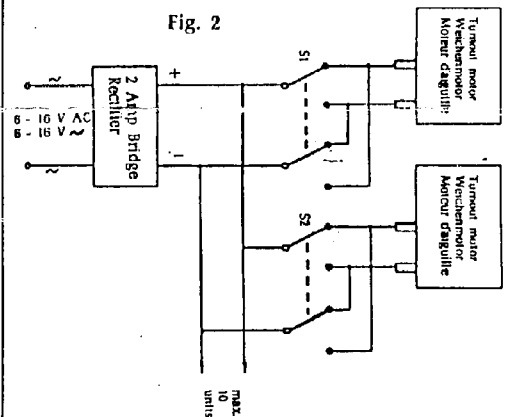


Fig. 3

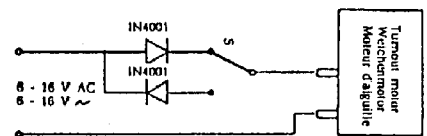


Fig. 4

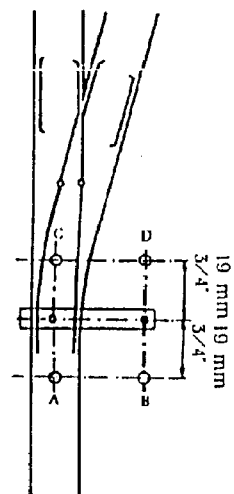


Fig. 5

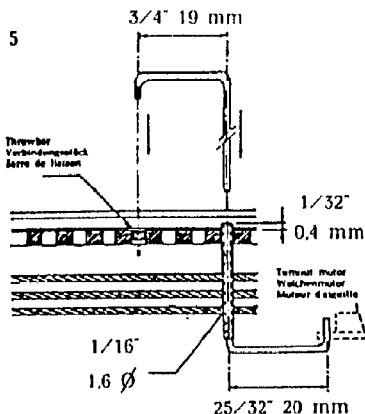


Fig. 6

