

## Signal Training Bulletin

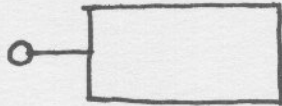
COMMITTEE G: Education & Training  
Communication & Signal Division, AAR

# A10C — Model DA-10 Power Switch Machine

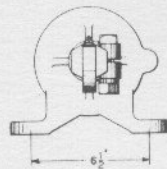
*Approved January 1981*

**Definition:** A device, the complete operation of which performs the functions of operating a switch, moveable point frog or derail.

**Symbol:**



**Figure 1**—Style DA-10 direct acting switch machine.



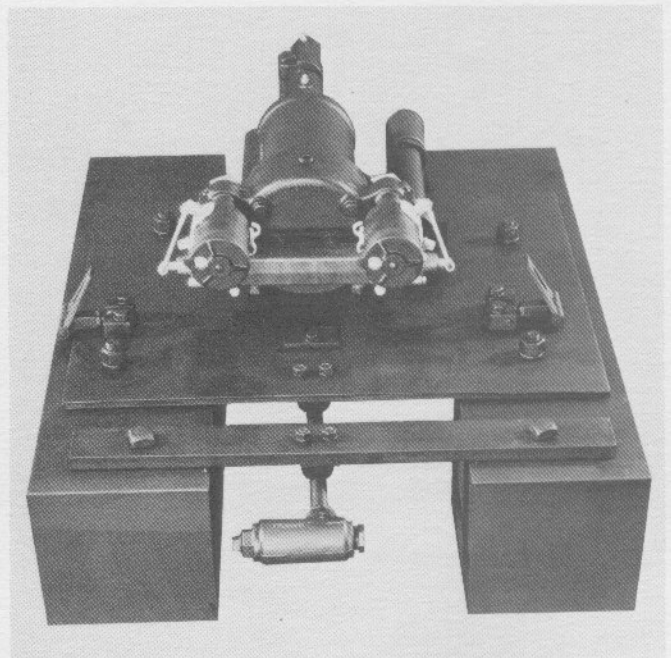
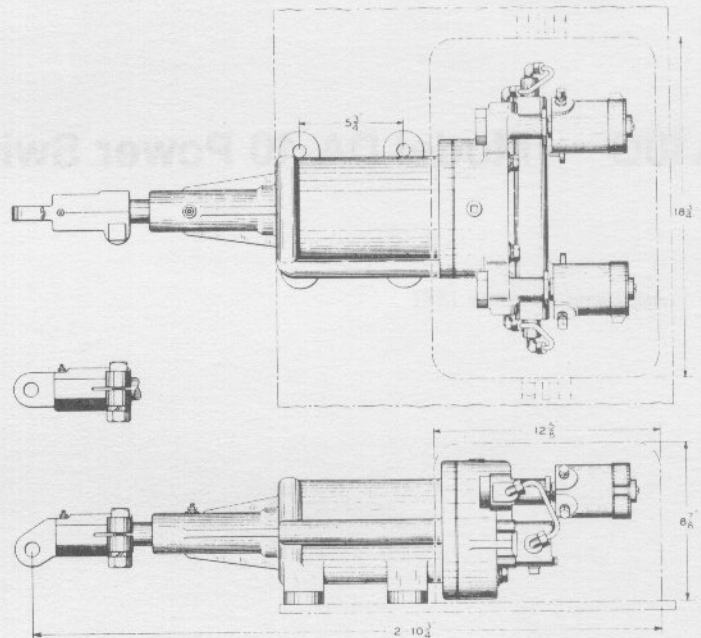
**Description:** The DA-10 is an electro-pneumatic, direct-acting switch machine, consisting primarily of a double-acting, five inch diameter cylinder. One pilot valve and two magnetic valves mounted on the back head subassembly, provides fast piston reaction with a stable pressure level. It operates with 55 to 150 pounds of cylinder air pressure and a 12 to 24 volt supply of magnet operating voltage. (See Figure 1)

**General Information:** The DA-10 has no hand control feature and no switch point locking. With a 100-pound air pressure and a nominal 22-volt supply, it completes one complete operation (switch normal to reverse or reverse to normal) within 0.4 second. It has a 6 inch throw. Installation and maintenance procedures should be obtained from manufacturer's service manual.

**Purpose and Application:** The DA-10 switch machine is used primarily for yard switch operations.

**Detailed Operation:** The control circuits, including a detector track circuit and a switch circuit controller, are generally arranged so that displacement of the switch caused by trailing traffic will reverse the magnet control when the switch reaches mid-stroke. This will drive the switch full stroke reverse for the trailing traffic as long as the detector circuit is occupied. The switch circuit controller also provides indications. The switch to which the machine is applied should have freely-hinged point heels to prevent bending of the point and closure rail when the switch is thrown.

Operation of this machine is by piston which is air actuated by a series of electro-magnetic controlled valves. The Pilotair valve is a five section, two position type "D" valve. Magnets control air pressure to the operating pistons of the Pilotair valve when energized, and when released, vent air from the valve pistons. The detail of the sequence of operation of these valves should be obtained from the manufacturer's service manual.



**Figure 5**—DA-10 switch machine with cover removed.

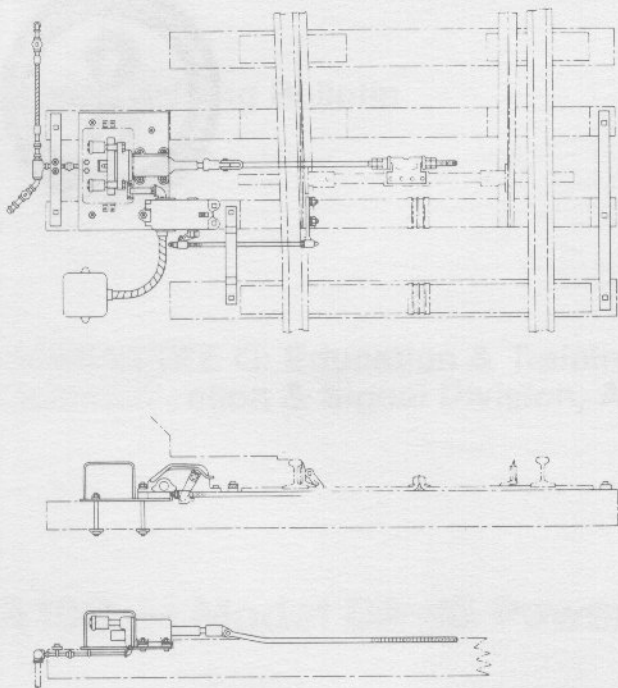


Figure 2—Typical layout of a DA-10 switch machine.

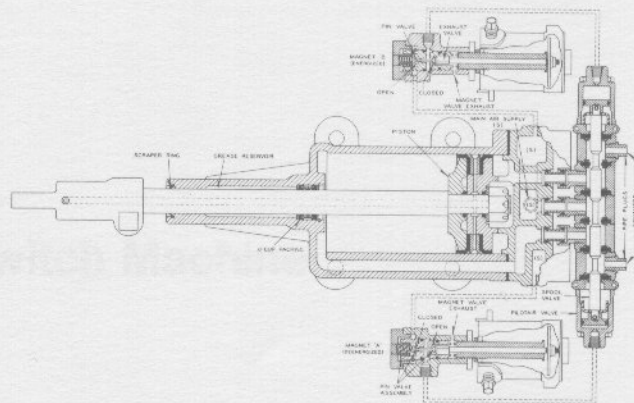


Figure 3—Operation of the DA-10 switch machine.

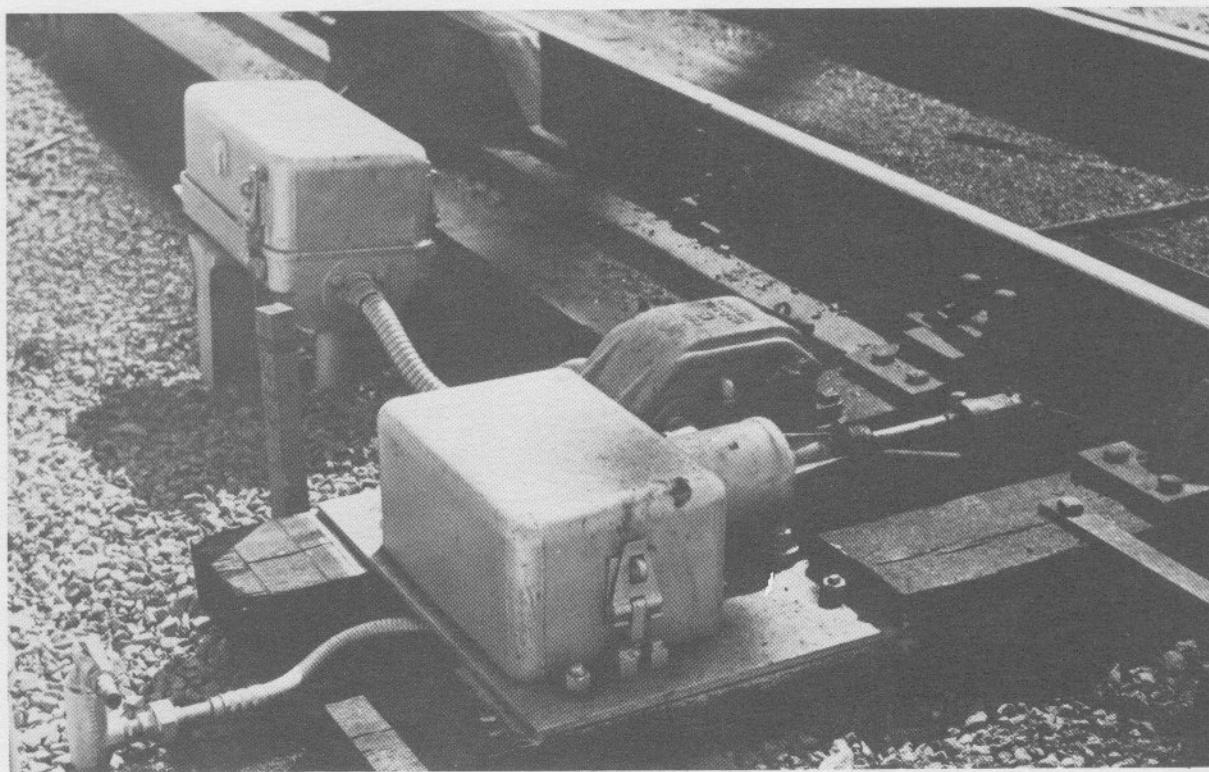


Figure 4—DA-10 switch machine in service.

**Note:** This Signal Training Bulletin is for general information only. For specific application consult the rules, standards and instructions published by your railroad.