

M9164/M9174 Modutrol IV Motors

Reversing, proportional motors used to operate dampers and valves.

- \* Replace M934 Motors.
- \* Electronic drive circuit.
- \* Can drive up to six Modutrol motors using 4074BYK Resistor Bag Assembly or 221508A Resistor Board Kit (see Accessories section).
- \* Interface modules available for series 70 (electronic) control.
- \* Internal actuator motor and circuitry operate from 24 Vac. Line voltage models shipped with internal transformers. Separate transformer may be required for 24V models for proper system operation.
- \* Double-ended, 3/8 in. (10 mm) square crankshaft.



Product Specifications

Type of Control	Electric
Voltage	120 Vac
Spring Return	No
Control signal	Proportional Control, 135 ohm
Feedback	No
Torque/Force (Nm, N)	8.5 Nm
Fixed Stroke	Yes
Stroke Max (deg, in)	90
Timing Max (sec)	30
Aux Switches	1
External Aux Switches Available	Yes
Frequency (Hz)	50/60 Hz
Power Consumption	27 VA
Electrical connections (in)	Quick connect terminals
Electrical connections (mm)	Quick connect terminals
Motor shafts	2
Shaft Dimensions (mm)	9.5
Shaft Shape	square
Mounting Type	Foot mounted
Comments	Modutrol Motor
Adapter Bracket Included	No
Manual operation	None
Weight (lb)	8.04
Dimensions (in)	6.45 in high, 5.5 in wide, 7.3 in deep
Dimensions (mm)	164 mm high, 140 mm wide, 185 mm deep
Ambient Temperature Range (C)	-40 to +66 C
Ambient Temperature Range (F)	-40 to +150 F
Underwriters Laboratories Inc	Listed: file E4436, guide XAPX
Canadian Standards Ass	File: LR1620, Guide:400-E
CE Standard	EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)
Torque/Force (lb-in, lb)	75 lb-in

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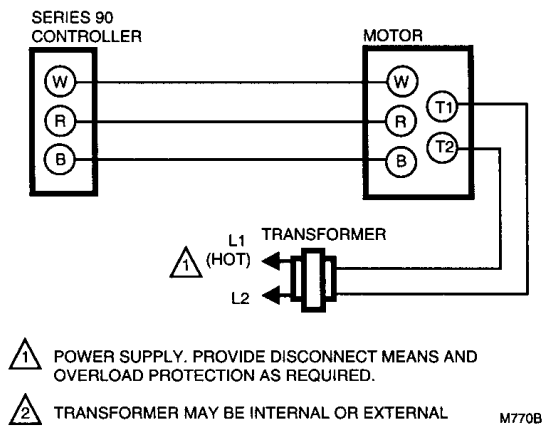


Fig. 6. Typical Series 90 wiring.

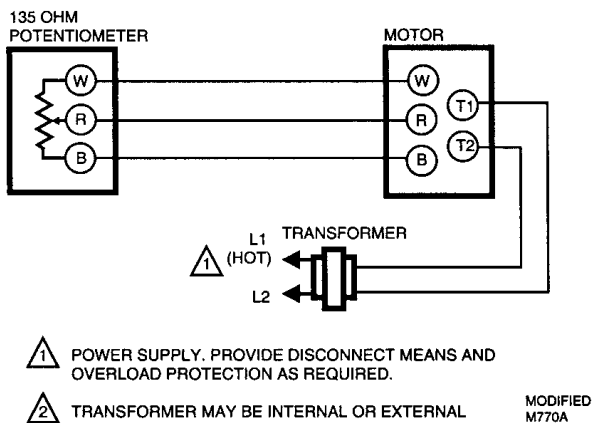


Fig. 7. Wiring for potentiometer control.

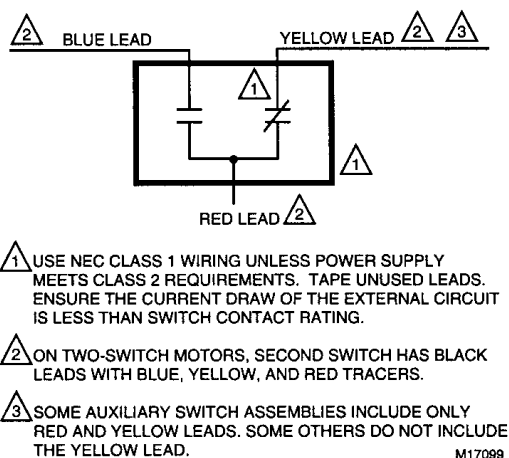


Fig. 8. Auxiliary switch schematic.

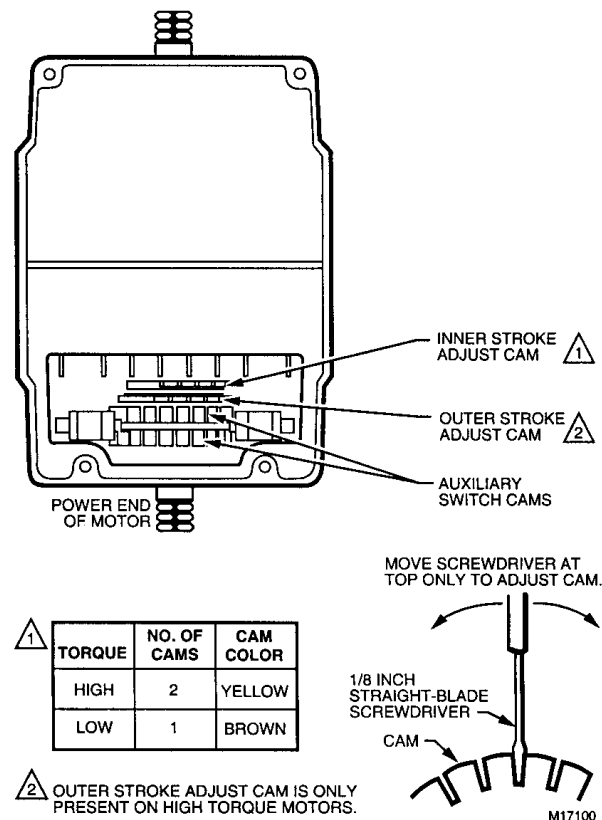


Fig. 9. Stroke adjustment setup for non-spring return models.

## Auxiliary Switches

Adjustable cams actuate the auxiliary switches. These cams can be set to actuate the switches at any angle within the stroke of the motor. Select switch differential of 1° or 10°.

Motors with factory-added auxiliary switches are shipped in the closed position (fully counterclockwise, as viewed from the power end). Auxiliary cam default actuates the switches 30° from full open with a 1° differential. With the motor in the closed (fully counterclockwise) position, the auxiliary switch breaks contacts R-B. See Fig. 8 (or the auxiliary switch Instruction Sheet) for auxiliary switch wiring.

**NOTE:** Auxiliary switches can only be added to motors that include auxiliary switch cams. (These cams cannot be field-added.)

TRADELINe motors are shipped with auxiliary switch cams that permit acceptance of 220736A,B Internal Auxiliary Switch Kits. Refer to form 63-2228 for 220736A,B installation instructions.