



MAINTENANCE INSTRUCTION

AUXILIARY RELAYS -- 6 POLE

DESCRIPTION

The auxiliary relays, Fig. 1, covered in this instruction are of the same basic construction, and are used in a wide variety of applications. Differences occur only in number and contact arrangement.

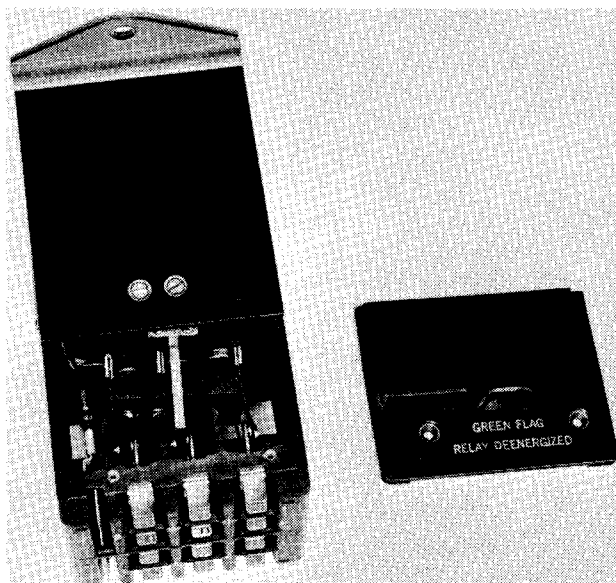


Fig. 1 - Typical Auxiliary Relay

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The coils operate off 74 volt control circuits, and the contact arrangements are designed to set up a variety of control circuits for product operation. The individual wiring diagrams indicate relay function.

MAINTENANCE

Simplicity of construction with a minimum of moving parts, gold diffused contacts, and a dust free enclosure provide satisfactory service life. Therefore, maintenance consists primarily of periodic inspections to qualify relays for continued service.

INSPECTION

Remove the relay covers and check contacts for pitting or burning. Use a low pressure stream of dry, compressed air, and blow out any dust or dirt accumulation. If contacts are badly burned or pitted, remove and overhaul relay.

Do not file or dress relay contacts. Relay contacts will turn black (tarnish) in time with normal operation. This will not impair relay operation or indicate a need for servicing.

Inspect the electrical connections for tightness and electrical contact. Inspect the operating coil for burns or discoloration. Check coil resistance and relay pickup and dropout, using the values given in the Service Data.

Movable mechanical parts should be checked for proper operation. Do not apply lubrication of any type to these relays.

DISASSEMBLY, (Fig. 2)

Remove the two screws and lockwashers holding each cover to the contact housing assembly. Remove the three screws and lockwashers holding the contact housing assembly to the coil and frame housing. Using long nose pliers, slowly remove the contact housing assembly just far enough to permit removal of coil leads from terminals. Remove contact housing assembly completely, being careful not to bend or damage indicator tab or contact arms.

Carefully remove the carrier assembly which is mounted to the armature and frame assembly with two screws and lockwashers.

To remove the coil and frame assembly, first remove the two spacer pads, which are held to the relay housing with two screws and lockwashers in each pad. The nameplate can be

*This bulletin is revised and supersedes previous issues of this number.

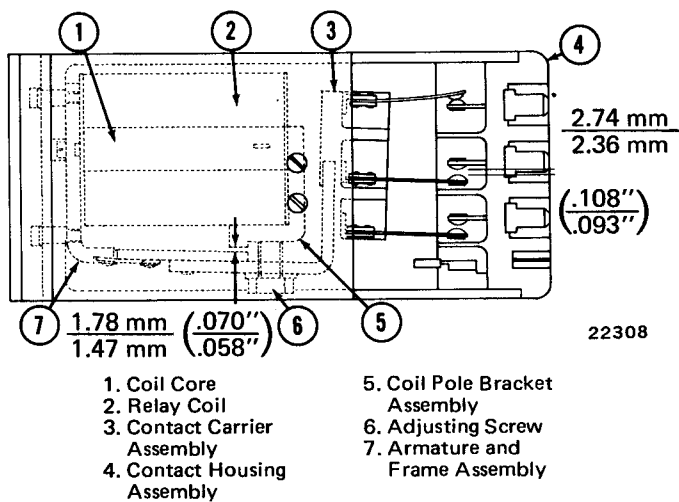


Fig. 2 - Cutaway View Of Relay

removed to permit a better view of the adjusting screw clearance. On the mounting plate side of the relay, remove two screws and lockwashers towards the center of the mounting plate. This will free the coil and frame assembly for removal.

To remove the coil from the frame assembly, remove the screw on the bottom side of the coil and frame assembly or the end opposite the contact carrier end. Do not remove the screw on the carrier end as the coil core was permanently cemented to the coil pole bracket assembly when the relay was manufactured. When the bottom screw has been removed, the frame assembly can be rotated to permit the coil to slide off the core. If the armature and frame assembly, coil pole bracket assembly, or the coil core are in need of repair, these items should be replaced as a matched assembled set and not replaced individually.

REASSEMBLY

To reassemble the relay, follow the reverse order of disassembly. Ensure all parts are cleaned thoroughly.

When replacing the coil, make certain the leads are brought up on either side of the coil toward the contact carrier end, and the rounded portion of the coil insulators are facing outward. Apply a screw locking material to the threads of the screw and start it into the coil core. Make certain the core end is located in the rectangular slot of the coil frame before tightening the screw securely into the coil core.

With the armature in a de-energized position, the stop nut and hex nut must be adjusted to provide 1.47 mm - 1.78 mm (.058" - .070") gap between

the coil pole bracket assembly and the armature and frame assembly, Fig. 3.

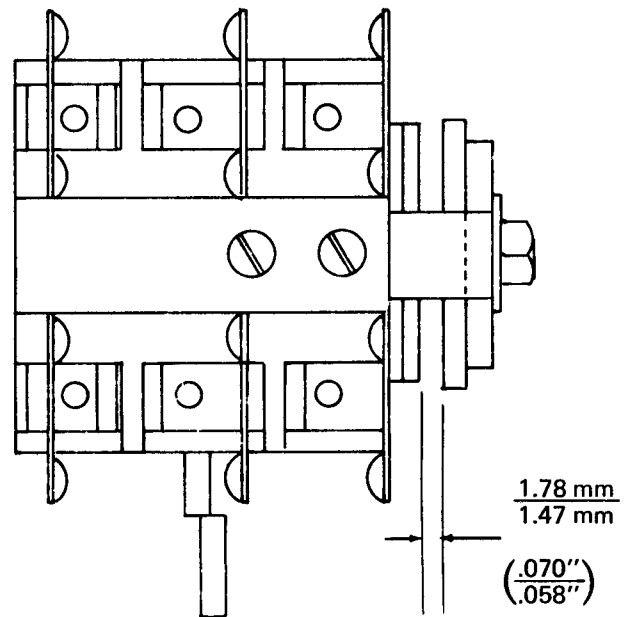


Fig. 3 - Armature Frame And Coil Pole Bracket Gap

When replacing the coil and frame assembly within the relay housing, make certain that the locating pins on the bottom of the frame are properly seated within the holes at the base of the relay housing. Observe whether the adjusting stop nut is located within the hole in the relay housing. Do not tighten the mounting screws in the relay housing and coil and frame assembly until the spacer pads are in place and secure.

When replacing the contact housing assembly, first attach the coil leads to the coil terminals. Manually position the carrier assembly for proper placement of the contact housing to the relay housing, being careful not to bend or damage the indicator tab or contact arms. Arrange the coil leads so they will not interfere with the movement of the armature during normal operation of the relay.

CHECKING AND ADJUSTING RELAY CONTACT PRESSURE

Check the pressure required to open all normally closed contacts with a gram gauge (50 to 250 range). This check can be made by connecting the normally closed contacts in series with a simple low voltage (6 volt) lamp circuit. The reading should be taken at the position the lamp is de-energized. Place the probe of the gauge over the small hole located between each set of contacts on the contact brush assembly, see Fig. 4. A

Location of gauge probe for proper measurement of relay contact pressure

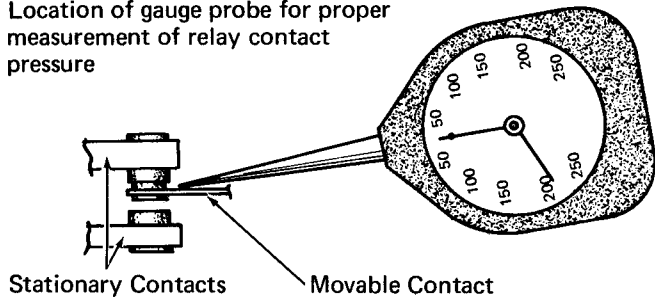


Fig. 4 - Location Of Gauge Probe

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minimum reading of 100 grams pressure and a maximum of 150 grams pressure is acceptable before contact opening.

With a DC voltage of approximately 2 to 3 volts above the rated pick-up voltage, energize the relay coil. Check the pressure required to open all contacts which close when coil is energized. A minimum reading of 100 grams should be obtained on this test.

If the minimum reading of 100 grams is not obtained, the contact brush assembly will have to be adjusted. Using an adjusting tool, Fig. 5, make gradual adjustments along the length of the contact brush assembly.

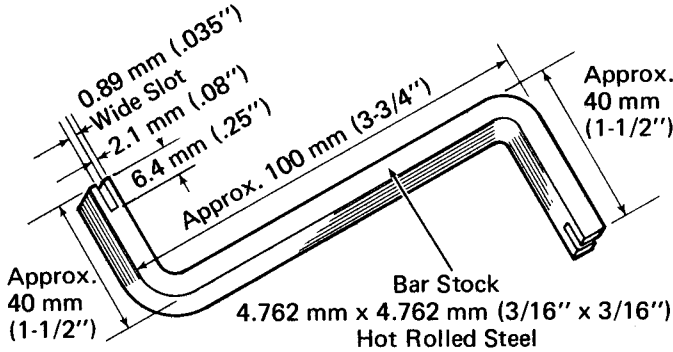


Fig. 5 - Typical Relay Adjusting Tool

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Do not make any sharp creases or bends in the assembly. Since each brush assembly has two contacts, each contact should be checked to be sure they are on the same plane, and make contact with the stationary contacts at the same time. If they do not, twist the assembly very

slightly with adjusting tool, then readjust the assembly for proper pressure. After making any adjustments, recheck the contact pressures to be sure they are within the minimum or maximum pressure range.

All normally open contacts, when the relay is energized, should have a minimum of 2.380 mm (.0937") air gap.

PICKUP AND DROPOUT VOLTAGE TEST

To perform pickup and dropout checks, connect a variable DC voltage supply to the relay coil as shown in Fig. 6. Set the 50 watt potentiometer to maximum resistance; gradually increase the voltage to the coil.

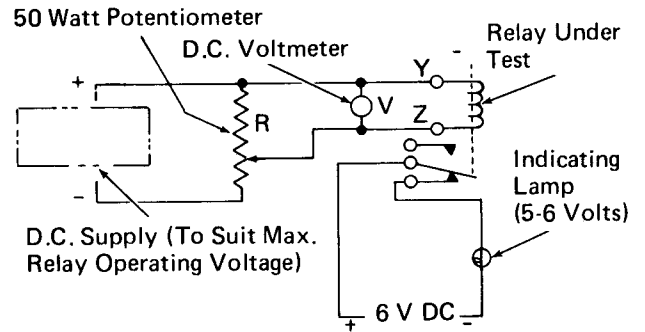


Fig. 6 - Suggested Test Setup

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An indicating lamp (connected across the contacts) will mark the pickup or dropout points by coming on or going off. Slowly reduce the applied voltage to determine the dropout point.

If the pickup and dropout points are not obtained as outlined in the Service Data, check lead arrangement, contact pressure, and carrier travel gap. Readjust if necessary.

After adjustments have been completed, replace the side covers with two screws and lockwashers, and cycle the relay 25 to 50 times with a 5 to 5-1/2 volt, 1/2 ampere load (test lamp) connected across each set of contacts. Positive contact should be accomplished on each cycle, or the relay must be reworked.

