

OPERATING INSTRUCTIONS

The Bartol "Mag-Probe" is an Instrument for sensing magnetic fields.

CAUTION: Damage may result if the "Mag-Probe" is dropped.

General applications

All voltages (AC & DC)
Solenoids, Solenoid valves, Relays, Reed relays, Coils, Rotary solenoids, Stepper switches, Detecting residual magnetism, Coils, Transient current pulses, Identifying North & South poles, etc.

The white magnetic shield on the "Mag-Probe's" tip reduces the chance of magnetic fields turning it on during storage and must be removed before using. Replace the magnetic shield after using.

DO NOT STORE THE "MAG-PROBE" NEAR A PERMANENT MAGNET OR MAGNETIC FIELD.

A "Mag-Probe" will not detect devices enclosed in a magnetic shield. (most devices aren't shielded.)

You may self test the "Mag-Probe" with the High/Low sensitivity ring supplied with each unit.

TESTING AC & DC DEVICES WITHOUT USING THE HIGH/LOW SENSITIVITY RING

STANDARD
SOLENOIDS & RELAYS
BEING TESTED

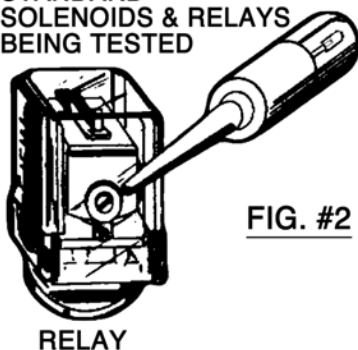


FIG. #2



1. Hold the "Mag-Probe" as shown in figure 2.
2. Place the tip close to or on the shaft that projects through the device's coil.
3. Observe the LED in the "Mag-Probe's" handle.
4. If the LED is on, the solenoid or relay is energized.
5. If the LED is off, the solenoid or relay is de-energized.
6. If the LED turns on and off, and flow through the solenoid valve under test is not interrupted, or power through a relay's contacts don't turn on and off, a mechanical failure has occurred.
7. If the LED remains off during machine operation, two possible problems exist:
 - A. No power to the solenoid or relay.
 - B. An open coilTo locate the problem, first test the power source, then the solenoid or relay coil.
8. If transit pulses are suspected, hold the Probe tip close to or on the solenoid or relay and observe the LED during a machine cycle. If transit pulses are present during the time the solenoid or relay should be off, the LED will flash on and off.

With a little practice, you'll know when to use the high/low sensitivity ring in order to test sub-miniature and smaller devices.

If you need the added sensitivity, install the high/low sensitivity ring according to the following instructions.

INSTALLING THE HIGH/LOW SENSITIVITY RING

Note - When testing extremely small magnetic fields such as sub-miniature solenoids and relays, the high sensitivity ring must be used.

1. Hold the high sensitivity ring between the index finger and thumb with the white dot on the ring toward the palm of your left hand. (see figure 3)

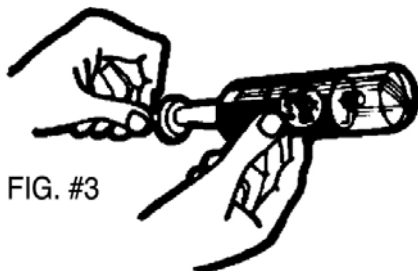


FIG. #3

2. Slide the ring onto the tip toward the body of the "Mag-Probe" until the red LED goes out the first time. (see figure 4)

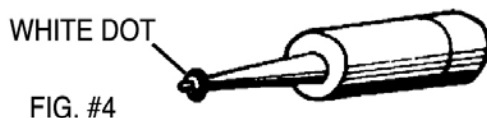


FIG. #4

3. Continue sliding the ring toward the "Mag-Probe" body until the LED turns on and then off for the second time (See figure 5). Now the "Mag-Probe" is adjusted for high sensitivity. To be sure you have the highest sensitivity obtainable, slide the ring back until the light immediately turns on. Then with the tip of the index finger and thumb pressed against the ring (figure 3), use a slight pinching motion to move the ring toward the body of the "Mag-Probe". Release immediately as soon as the LED turns off. Remember, figure 5 is the correct position.

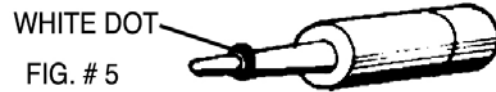


FIG. #5

Note: Any movement of the ring after the LED goes out will decrease the sensitivity.

Caution:

To avoid false indications when using the high sensitivity ring, the ring must not touch a metal surface, but you may touch a metal surface with the mag probes tip.

Remember:

First try your "Mag-Probe" without the high sensitivity ring. Then, if you need the high sensitivity to detect the device under test, slip on the ring.

TESTING AC POWERED DEVICES WITH THE HIGH/LOW SENSITIVITY RING INSTALLED

You won't have any problems testing any AC powered device regardless of which end or side you test just as long as the field strength is within the "Mag-Probe's" sensitivity range.

TESTING DC POWERED DEVICES WITH THE HIGH/LOW SENSITIVITY RING INSTALLED

When using the high/low sensitivity ring, the “Mag-probe” becomes sensitive to north and south poles. White dot toward the “Mag-Probe’s” tip detects North. When the ring is removed and installed with the white dot on the ring towards the “Mag-Probe’s” LED, you’ll detect only south poles.

DC powered devices can be connected to a power source two ways.
(See figure 6A and 6B)

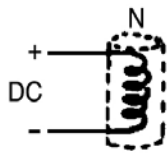


FIG. # 6A

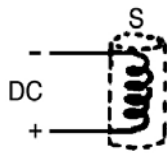
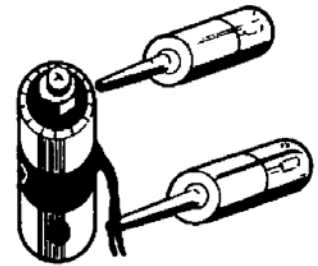


FIG. # 6B

In figure 6A, assume that a north pole occurs at the coils upper end when a DC voltage is applied as shown. If the polarity of the applied voltage is reversed as shown in figure 6B, A South Pole is generated at the upper end. Try both ends of an operating solenoid, relay, reed relay, or DC device. Once you establish which end of the relay or DC device causes the “Mag-Probe” to operate, the other relays or DC devices installed in the instrument under test should respond at the same end. (See figure 7)

PHOTO SHOWING TESTS ON BOTH ENDS OF DC SOLENOID

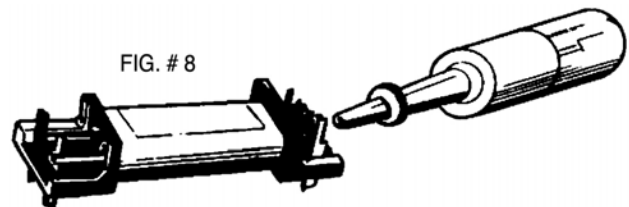
FIG. # 7



As shown in figure 8, reed relays are DC powered, you must follow the instructions for testing DC powered devices.

If a reed relay is mounted in such a way that you are unable to reach the normally tested end, reverse the high/low sensitivity ring and test the accessible end “opposite”.
(see fig. 8)

FIG. # 8



TESTING REED RELAYS
MODEL “HS” ONLY