

MAGNETIC PARTICLE INSPECTION

L-10 Coil - Operating Instructions P/N 050650

The L-10 Coil is a portable, general purpose A.C. Coil, providing a means of creating magnetic fields for the detection of surface indications in small parts. The coil has a durable, wear-resistant black coating and a convenient foot switch used to energize the coil.

L-10 Coil Specifications

L-10 - 115v Part Number	050650
230 VAC Transformer (for L-10 Coil) Part Number	521485
Weight (Coil Only)	15 ½ lbs.
Dimensions	10 ¼ - 15" O.D.
Power Source	115 Volt, 60 Hz. 1 p.H.
Line Current	12 Amperes
Ampere-Turns	2,860 (empty)
Cord Length	10' (flexible line) Cable
Parts Size	10" in overall diameter

Electrical Power Source: The L-10 Coil is constructed for use on 110 – 120 V, 60 Hz. *alternating line current ONLY in normal use.* A 12 Volt battery or generator may be used. A 6-Volt battery, resulting in reduced field strength in the coil, may also be used.

Current Draw: 110 – 120v, 60 Hz. - 12 Amperes when operating from a 115 VAC line, energized and with no metal in its field. **Note:** An optional transformer (P/N 521485) allows the L-10 Coil to be used in areas with 230 VAC line current.

Choosing Materials to use with L-10 Coil

- Because of its portability, the MAGNAVIS[®] dry powders (MAGNAVIS[®] #1 Gray, #2 Yellow, #3A Black and #8A Red) are generally used, especially with A.C. Operation. Dry powder is particularly good for application to rough or unfinished surfaces such as forgings or castings.
- Materials such as the MAGNAVIS[®] 7HF Black, pre-mixed and packaged in aerosol cans, has greater sensitivity for locating fine indications.

MAGNETIC PARTICLE INSPECTION

Choosing Materials to use with L-10 Coil (continued)

- For extremely sensitive detection, MAGNAGLO[®] Fluorescent Magnetic Particles are available in aerosols. 14A Aqua-Glo (14A Powder + Water Based Medium) and 14AM (14A Powder + Carrier II Oil) are available.
- When using Fluorescent particles, an Ultraviolet Black Light (such as the Magnaflux ZB-12 Hands- Free Black Light or the ZB-100F – Fan-Cooled Black Light) must be used to detect indications.

L-10 General Operating Instructions

1. Prior to testing, parts should be dry and free of grease, oil and dirt.
2. Plug the line cord into any convenient source of 110 -120 VAC, 60 hz. Or 230 VAC if equipped with the optional transformer (p/n 50650).
3. To energize the coil, depress the foot switch. Releasing the foot switch will de-energize the coil.
4. To check the operation of the coil, energize the coil and position a lightly held screwdriver or ferrous-magnetic rod inside the coil close to the inner wall. A very pronounced pull should be in evidence as the screwdriver is moved in and out of the coil.

Instructions when using MPI Powders - MagnaVis[®] Visible Dry Powder – #1 Gray, #2 Yellow, #3A Black or #8A Red

1. Orient the part that you wish to inspect within the coil and place it close to the inner wall. The long axis of the part should be essentially parallel to the axis of the coil.
2. Turn the coil on (by depressing the footswitch) and apply the Magnaflux MagnaVis[®] magnetic particle powder, by applying the powder onto the part using our powder spray bulb (MX P/n 501232). For proper application, the perforated head should be inclined at a (slightly) downward angle. A shaking action (similar to applying salt) in combination with a slight squeeze is required to direct the powder to the area of interest on the part.
3. Inspections are best accomplished, as the powder is being applied since the indications or other magnetic discontinuities will form immediately.
4. Small parts can be manipulated within the coil with one hand, while powder is being applied with the other.

If the inspection is to be carried out after the part has been removed from the coil, the coil should be de-energized PRIOR to removal of the part to prevent demagnetization.

MAGNETIC PARTICLE INSPECTION

Instructions if using *MagnaVis®7HF* or *Magnaglo® 14 AM* or *14A Aqua-Glo* - The inspection procedure when using *7HF*, *14A Aqua-Glo* or *14AM* in an aerosol can is similar to the steps for dry powder. In general, particles suspended in a liquid are applied to the entire surface area of a part. It should be noted that aerosol type dispensers must be shaken to get the magnetic particles in suspension just prior to an application. With the part properly positioned within the coil, the coil is energized and the inspection medium is applied. After a delay of approximately 1-2 seconds, the coil is to be turned off, the part is to be removed from the coil and inspected.

Demagnetization

To demagnetize a small part, turn the coil on and insert the part into the coil, close to the inner wall.

- Withdraw the part from the coil, approximately two feet before turning off the coil. Just as in the magnetization, the long axis of the part should be essentially parallel to the axis of the coil.
- To demagnetize larger parts, it may be more convenient to move the coil over the part. In such cases, the coil can be timed on and moved to the far end of the part and then withdrawn. Again, the coil should not be turned off until it is approximately two feet from the part.