



### **HOW RECORDER COMPONENTS BECOME MAGNETIZED**

Magnetism is everywhere. It is often found as residual magnetism in iron or steel objects. Magnetic tape recorder components such as heads, steel capstans, and tape guides generally become magnetized through use and sometimes from accidental exposure to external magnetic field sources such as loud speakers, transistor radios, or meter type photometers, all of which contain strong permanent magnets. Heads, normally made of magnetically “soft” material, pick up magnetism readily but are easily demagnetized. Capstans and guides are made of harder steels, which are more difficult to magnetize, but retain such magnetism, making them much harder to demagnetize.

### **WHY DEMAGNETIZING IS NECESSARY**

The magnetic coat on recording tape is very sensitive to extraneous magnetism since the recorded signal itself is only a modulation of the residual magnetism retained in the thin layer of magnetic coating compound. Exposure to subsequent magnetic fields of any consequence degrades the recorded signal. Such degradation is noticeable as a loss or attenuation of the higher recorded frequencies, as well as an increase in unwelcome “hiss” or background noise, which can amount to several dB. Unless offending tape transport components are demagnetized, the condition worsens each time the tape is played. The only way to correct this condition effectively is to measure magnetism levels regularly, and then demagnetize offending components whenever necessary.

### **HOW TO MEASURE MAGNETISM IN COMPONENTS**

The lower (test) edge of the Annis Pocket Magnetometer is placed in contact with the component being tested. If troublesome magnetism is present, the pointer will instantly deflect, showing magnetic polarity and a scale reading proportional to the level of magnetism in the component at that point. The higher the reading, the stronger the magnetic field is. Magnetometer scale readings relate to magnetic field strength, in gauss, at the staff of the instrument, which has been calibrated in a standard, uniform field source traceable to National Bureau of Standards. Use of the Clip-On Probe in recessed components but does reduce the Magnetometer reading as compared to direct contact. Additional details on Magnetometers may be found in our “Pocket Magnetometers” bulletin.

### **HOW TO DEMAGNETIZE**

**FIRST:** Turn off the recorder. Make sure all tapes are at least 12” away from the energized Demagnetizer.

**SECOND:** Plug the Han-D-Mag into any convenient 115 V A.C. outlet.

THIRD: Approach the component to be demagnetized with the plastic jacketed probe. It is rarely necessary to actually touch the part. Just bring the probe tip within 1/8" or \_", wave sideways slightly, then withdraw slowly, while still energized, at a rate no faster than 3" to 4" per second; to a distance of at least 12".

FOURTH: Disconnect the Han-D-Mag from its power source. For maximum demagnetizing efficiency, the Han-D-Mag is rated for practical intermittent duty. It may be left connected to power for six to eight minutes at a time without overheating. If, by accident, one should forget to disconnect this powerful Demagnetizer, an internal calibrated thermal protector will permanently open the circuit, thus eliminating a fire hazard. Such "forgotten" units can be repaired at a modest cost. VU meters, etc. are safe as long as the energized Han-D-Mag is not brought closer than 1" distance to the meter movement. After demagnetizing is completed, you may use your Magnetometer again to check your proficiency.

**HAN-D-MAG Can Also Be Used for Occasional Bulk Erasing of Tapes**

The opposite, flush pole end of the Han-D-Mag has a demagnetizing field strength of over 800 oersteds at \_" wide, if a regular bulk eraser is not available.

**Magnetometer Models Offered for Tape Recorder Use**

Our experience has shown that the 5-0-5 gauss Pocket Magnetometer is the optimum range for Audiophile use, though a number of other ranges are available.

**PRICES OF AUDIOPHILE HAN-D-KITS AND INDIVIDUAL COMPONENTS \* F.O.B. Indianapolis**

	Shipping Wt.	Price
Deluxe Han-D-Kit Model K25/S5 For operation on 115 V. 50/ 60Hz.	2 _ Lbs.	
Deluxe Jewelled Pocket Magnetometer Model 25/S5 Scale Range 5-0-5 Gauss	9 oz.	
Clip-On Extension Probe	4 oz.	
Audiophile Han-D-Mag Model 115 For operation on 115 V. 50/ 60Hz.	2 Lbs.	
Set of hard and soft steel sensor strips for experiments	2 oz.	

NOTE: Special Export Kits and Han-D-Mags (Model 220) available for operation on 220 V. 50/ 60 Hz. Add to above prices.

NOTE: Special, long Probe "8 track" Model Han-D-Mag available extra.

Every Unit is 100% tested and is guaranteed to perform as described. If you are not completely satisfied, return in 15 days for full refund. Quality First - Always.

**R.B. Annis Instruments, Inc.**  
1101 N. Delaware Street  
Indianapolis, IN 46202  
Ph. / Fx. (317) 637-9282

