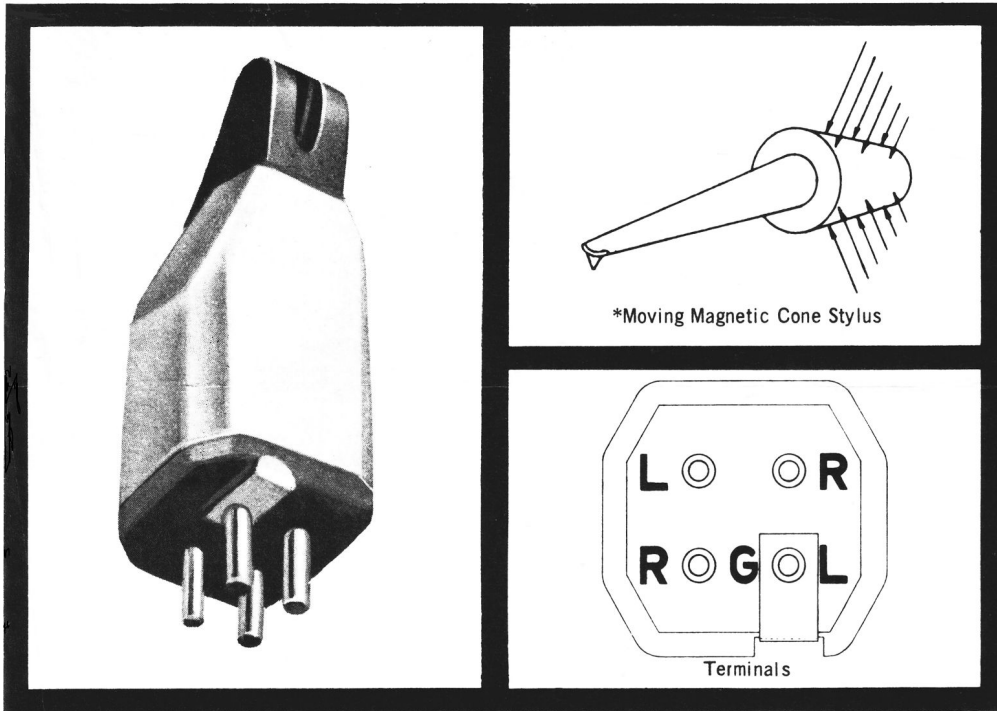


# INSTRUCTIONS FOR OPERATING AND INSTALLATION

*Featuring*  
15 DEGREE VERTICAL  
TRACKING ANGLE

## EMPIRE CARTRIDGE 888/888P/888PE

WITH EXCLUSIVE "MOVING MAGNETIC CONE" STYLUS



**EMPIRE**

World's Most Perfect  
Mono-Stereo Cartridge  
EMPIRE SCIENTIFIC CORP.

Garden City, N.Y.  
Mfg. in U.S.A.

\*U.S. Patent 2875282

### SPECIAL FEATURES:

15 Degree Vertical Tracking Angle  
Exclusive \*Moving Magnetic Cone Stylus  
Fully compatible for stereo or mono  
Complete freedom from hum pickup  
Replaceable Stylus assembly  
Lowest dynamic mass  
Outstanding stereo channel separation  
Very low tracking force required  
No magnetic attraction to steel turntables  
Low needle talk  
Highest stylus compliance

### MONOPHONIC USE

To use the Empire cartridge in monophonic high fidelity systems, make the same physical installation as described for stereo, and connect the two G pins to each other, and the L and R pins to each other.

### OPERATION OF THE EMPIRE CARTRIDGE

The design of the Empire cartridge is based on the "Moving Magnetic Cone" principle. The superiority of this type of design lies in the extremely light and flexible stylus assembly it permits, in the unusually smooth frequency response and the high electrical output of the cartridge. The Empire cartridge works in the following manner. The stylus, a precision polished diamond tip, is moved by ripples in the record groove. The movement swings the stylus lever from side to side at the same time moving a small conical magnetic element attached to the stylus lever. Four coils mounted inside the cartridge are fed the changes in magnetic field generated by the flux cone. The direction of the movement of the magnetic element by the stylus determines whether the resulting sound will come from one channel or the other; the amount of movement determines the loudness of the sound.

### FACTS ABOUT THE ELLIPTICAL STYLUS

The elliptical stylus dimensions of .2 mil radius x .9 mil radius on axis permits the smaller .2 mil radius to provide far greater groove resolution especially on inner grooves. This produces a marked improvement in high frequency response of the cartridge system. Tracing distortion is lowered to a minimum allowing for greater stereo separation. Monophonic recordings exhibit unusual clarity of sound. The above is accomplished without the disadvantages of small stylus tip radius on spherical diamonds. The .9 mil axis prevents the stylus from bottoming in the stereo or mono groove while effectively tracking as though it were a .2 mil diamond. Because of the smaller radius of engagement of stylus with record on a .2 x .9 mil diamond, the elliptical stylus should not be used with tracking forces that exceed 3 grams. Any Empire 888 or 888P cartridge can be converted to an elliptical stylus system by the change to stylus assembly S888 PE/ERD.

.9 mil Radius .2 mil Radius



ELLIPTICAL DIAMOND IN GROOVE

### HUM PREVENTION

The Empire cartridge incorporates a complete mu-metal shield to prevent stray hum in the cartridge. Should any excessive hum exist in your system, it will most likely be because of errors in wiring the rest of the high fidelity system. Observe the following precautions:

1. Twist audio cables from pickup arm or changer to amplifier. Often, moving the cables slightly will greatly reduce hum.
2. Connect one point on the amplifier chassis to a good ground connection, like a cold water pipe.
3. Try reversing the a.c. power plugs for each piece of equipment in the system, one at a time.
4. Keep audio cables from pickups or tuners as far from power transformers as possible.

To prevent ground loops and hum in your stereo system, it is advisable where possible to use a four wire system.

Where three wire arrangements must be used, connect the common lead to both ground terminals at the cartridge. It may be necessary to remove the ground strap connecting the LG pin of the cartridge to its shield in three wire systems or if the arm is separately grounded. Do not use any other common ground connection to the pickup in the three wire system.

### STYLUS REPLACEMENT

The Empire cartridge moving magnetic cone system permits the use of an easily replaceable stylus assembly. To remove stylus assembly, simply pull stylus nose piece out of cartridge body and replace with a new stylus assembly. The Empire cartridge 888/888P/888PE utilizes the same structure and design for all models and the replacement stylii for interchangeable.

### TECHNICAL SPECIFICATIONS

MODEL	888	888P	888PE
Frequency Response	10-24,000* cps.	8-28,000* cps.	6-30,000* cps.
Output Voltage	8.0 mv. per channel	8.0 mv. per channel	8.0 mv. per channel
Channel Separation	more than 30 DB	more than 30 DB	more than 30 DB
Compliance	10 x 10 <sup>-6</sup> cm/dyne	15 x 10 <sup>-6</sup> cm/dyne	20 x 10 <sup>-6</sup> cm/dyne
Tracking Force	¾ to 6 grams	½ to 4 grams	½ to 3 grams
Stylus	.7 mil radius	.6 mil radius hand polished diamond	.2 x .9 bi-radial elliptical hand polished diamond
Terminating Impedance	47,000 ohms	47,000 ohms	47,000 ohms
Stylus Replacement	S888/7RD Brown	S888P/6RD Orange	S888PE/ERD Yellow

\*Dynamic capacity to 40,000 cps.

920-A-416

### INSTALLATION

The Empire stereo cartridge has a four terminal output arrangement (see exploded view). Pin R and its complementary G pin (ground) produce output from the right channel (outside groove wall). Pin L and its complementary G terminal produce output from the left channel (inside groove wall). Terminal jacks are provided in your hardware envelope. The leads from your arm shell are to be soldered to these jacks which can then be pushed on to the terminals of the cartridge. Do NOT solder the arm shell leads directly to the terminals of the cartridge. The Empire cartridge is designed to mount in shells with either 1/2 inch or 7/16 inch in mounting hole spacing. Two pairs of mounting screws and spacers are provided in the hardware assortment.

In professional pickup arms (for example the Empire 980) operating stylus pressures below 1 gram may be used with most recordings.

The Empire cartridge is the finest stereo-mono cartridge ever developed. Assembled under carefully controlled conditions, the Empire cartridge is inspected at each phase of its manufacture. Experienced, skilled American workmanship and design are responsible for its superior performance. The stereo performance of the Empire cartridge sets a new standard in listening quality. The Empire cartridge gives new meaning to the word "compatible". For, in playing monophonic records, it outperforms the finest monophonic cartridges previously available.