

**Nortronics**  
 COMPANY, INC.  
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YOUR LOCAL DEALER

## MAGNETIC TAPE HEADS

### DESCRIPTION.

NORTRONICS magnetic tape heads are designed to offer highest quality performance and long dependable service. As the chief exponent and largest manufacturer of laminated core heads, NORTRONICS now offers a completely new line, with heads available in either PREMIUM or STANDARD laminated versions. NORTRONICS is also including the new "COMBO" heads which combine Record/Play/Erase into one head.

The STANDARD versions offer improved high frequency performance over that of the conventional solid-core heads, plus the added features of hyperbolic all-metal face and precision deposited quartz gaps.

The PREMIUM series is a fully professional line of tape heads giving unsurpassed performance for broadcast, studio and exacting semi-professional applications. Long life and extended high frequency response at slower tape speeds are among the benefits of the features listed below:

- Fine laminated, precision-lapped, low loss core structures.
- Deposited quartz gaps, resulting in exceptionally clean sharp gap edges.
- Hyperbolic face contour gives intimate tape-to-gap contact without need for pressure pads, but is designed to allow use with pressure pads as well.
- Highly polished all-metal faces, greatly reduce oxide build-up and the need for frequent head cleaning.
- Compatible mechanically and electrically with older model NORTRONICS heads.
- Superbly shielded against external magnetic fields.

The "Combo" series heads combine all of the features of the Premium series above, except the hyperbolic face contour. This series has a Record/Play Head and an Erase Head in one case.

### MOUNTING STYLES.

The wide variety of available mounting styles, track types and impedances make it possible to find a NORTRONICS head to suit almost any audio application. Your new NORTRONICS head is supplied in two basic mounting styles, NO MOUNT and REAR MOUNT. REAR MOUNT heads have a rear mounting stud with 12-inch shielded wires. NO MOUNT heads have no brackets, screws or wires attached to them and are used directly in several popular brands of tape recorders. When required, NO MOUNT heads may be quickly adapted to SIDE MOUNT and BASE MOUNT styles by using the proper NORTRONICS Quik-Kit which is available where you purchased your NORTRONICS tape head. Complete, detailed instructions are included with each Quik-Kit. The six basic Quik-Kits used for adapting NO MOUNT heads are:

- |       |                                                                                                                   |
|-------|-------------------------------------------------------------------------------------------------------------------|
| QK-18 | Adapts all standard No Mount Erase Heads to Side Mount.                                                           |
| QK-19 | Adapts all standard No Mount Erase Heads to Base Mount.                                                           |
| QK-20 | Adapts 3000 thru 3049, 3100 thru 3149, and 3200 thru 3249 No Mount R/P Heads and Record Only Heads to Side Mount. |
| QK-21 | Adapts 3000 thru 3049, 3100 thru 3149, and 3200 thru 3249 No Mount R/P Heads and Record Only Heads to Base Mount. |
| QK-38 | Adapts all other No Mount R/P Heads, Record Only Heads, and Combo Heads to Side Mount.                            |
| QK-66 | Adapts all other No Mount R/P Heads, Record Only Heads, and Combo Heads to Base Mount.                            |

### REPLACEMENT OR CONVERSION.

NORTRONICS heads are the ideal selection for replacement of existing heads, converting to 2 or 4-track stereophonic sound and for installation on new tape equipment. In the majority of cases, replacements will be made on a direct basis. For exam-

ple, a 2-track stereo head will be used to replace a worn 2-track stereo head. It is often possible to interchange head types to modernize equipment or for special applications. An example of this would be substituting a 4-track stereo head for a 2-track stereo head to bring the recorder up to date, or substituting a Full track monophonic head for a 2-track monophonic head to make a recorder suitable for broadcast purposes. In such interchanges, it is important to bear in mind that mechanical and electrical compatibility is required between head types to avoid operating difficulties.

### LAMINATED vs. SOLID CORE HEADS.

Heads for magnetic tape recorders are generally manufactured with either laminated or solid metal cores. Excellent heads can be made in either type and NORTRONICS produces both but specializes in laminated heads because the unexcelled quality and superior performance of this type head is demanded in ever increasing numbers by knowledgeable audiophiles, serious tape enthusiasts, and original equipment manufacturers for use in their best recorders. The NORTRONICS heads featuring professional type laminated core structures with ultra-fine gaps result in magnificent playback frequency response. At a tape speed of 7.5 ips, a flat response from 50 to 15,000 cps is readily attainable, with useful output down to 30 cps and up to 20,000 cps. At a speed of 3.75 ips, the response is flat from 50 to 10,000 cps with useful output down to 30 cps and up to 15,000 cps.

Laminated heads are more expensive to construct because permissible tolerances are considerably tighter, materials used are costlier and rigid tests must be made at each production level. The grinding, lapping and polishing operations require a high degree of skill and equipment of specialized design. After the head is completely finished, it must go through a further series of final checks and tests before it is approved for release. Any head which fails to pass through the stringent checks of Final Testing is automatically rejected. The end result is a laminated head of superior design . . . a superlative product of such exacting quality, it is literally capable of bringing out the best possible performance of any tape recorder with which it is used.

Laminated heads have clearly demonstrable advantages over solid core types which more than justify the extra care and expense required to manufacture them. As stated before, excellent heads can be made in either type and NORTRONICS produces BOTH. The major advantages of laminated design are lower eddy current and hysteresis losses in the core at high audio frequencies during playback. Drop-off in high frequencies is actually due to both the gap effect and core losses. As a result of the reduced core losses in laminated heads, the output at high frequencies is correspondingly greater than that obtained from an equivalent solid core head with the same size gap. Consequently, with the tape speeds in current popular use (7.5 and 3.75 ips), laminated heads can use a wider gap for improved recording characteristics while attaining essentially the same playback frequency response as solid core heads. In addition, because of the improved efficiency and sensitivity of laminated heads, a greater depth of metal can be left on the pole faces of the head. This insures longer operating life before wear makes replacement necessary. Despite anything you might have heard to the contrary, TAPE HEADS DO WEAR OUT!

At the present stage of the tape recording art, the finest heads available are of laminated design. NORTRONICS is continuously engaged in an extensive research program covering a wide area of interest to constantly improve the performance and quality of its products while still maintaining a sensible price structure. Several design concepts utilizing a new approach to materials not presently being used in the production of magnetic tape heads are currently undergoing evaluation. These materials require novel processing techniques and some of them hold great promise for the future. You may be sure that when any improvements either in head design or the materials used in those designs are ready to be moved from Research to Production, NORTRONICS will produce them.