



SOUND QUALITY

BYER INDUSTRIES PTY. LTD.
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"BRS" MAGNOFILM TAPE DECK

MODEL TM-1

The Magnofilm Tape Deck, Model TM-1, has been developed to provide a high quality tape recording and playback mechanism at a popular price.

This has been accomplished by utilising as a driving medium the power from a gramophone turntable which provides (in the better types) the very desirable features of constant speed and high kinetic energy. The heavy flywheel action of a "BRS" turntable makes it ideally suited for this purpose.

The Magnofilm Tape Deck comprises a cast chassis of aluminium alloy which accommodates supply and take-up reel spindles, power coupling, capstan, high impedance record/replay head of unique design, and tape guide.

The unit is suspended at three points, two of which are provided by adjustable rear mounting posts, the third being formed by a high traction synthetic rubber power take-off which also carries a stepped pulley. This transmits its rotation to the take-up reel through a moulded plastic belt which is normally located on the smaller step of the pulley to provide forward operating speeds for record and replay.

Clutches, in the normal sense, for tape supply and take-up have been eliminated, the Magnofilm Tape Deck using two friction pads on which both tape reels revolve. These are self-adjusting, their loading being governed by the weight of the tape on each reel. To ensure adequate tape tension, however, a clutch loader, in the form of a chrome plated conical weight, is placed on the take-up spindle for all functions - i.e. in normal forward for record and replay, for fast forward and for rewind.

Bearings for the capstan and take-up shafts are grease-packed ball races, and require no attention.

Erase of recorded tape is carried out by a small separate unit - the Magnofilm Eraser, Model BE-1, which takes the place of a built-in erase head. This low frequency method of erasure has been found to be more efficient than the usual high frequency method and the eraser is not subject to wear or oxide build up, the latter being a frequent source of spoilage in recording due to the poor erasing qualities of an erase head affected by oxide accumulation. The Magnofilm Eraser is simply connected to a 230/240 Volt A.C. power outlet and brought into contact with the sides of the reel of tape to be erased.

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GENERAL SPECIFICATION.

Medium	Standard quarter-inch magnetic tape
Track width	$\frac{1}{4}$ "
Max. useable reel size	7" diameter
No. of tracks	One
Operating Speeds	$7\frac{1}{2}$ " per second at 78 r.p.m. $3\frac{1}{4}$ " " " " 33.1/3 r.p.m.
Playing times*	32 mins. at $7\frac{1}{2}$ " per second) 74 " at $3\frac{1}{4}$ " " " } per 1,200' tape
Frequency Response ϕ	$7\frac{1}{2}$ " per sec. ± 4 db from 50 to 7,000 c.p.s. $3\frac{1}{4}$ " " " ± 4 db from 50 to 2,500 c.p.s.
Record/Replay) Head type)	High impedance
Dimensions	10" x $8\frac{1}{2}$ " x 4"
Weight	3 lbs.

* Magnofilm impregnated recording tape is slightly thinner than the coated variety, and it is possible to spool 1500' on a standard 7" reel, which accommodates only 1200' of coated tape. Maximum playing times, therefore, with Magnofilm Tape are as under:-

$7\frac{1}{2}$ " per sec.	- 40 mins	} per 1500' tape
$3\frac{1}{4}$ " " "	- 90 mins	

ϕ Record/Replay Heads giving a more uniform frequency response are available at extra cost.

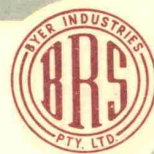
OPERATING INSTRUCTIONS.

NOTE.

These instructions deal only with mechanical operation of the Magnofilm Tape Deck. Circuit details and electronic information on amplifiers suitable for magnetic recording are contained in a separate brochure.

1. TURNTABLE SUITABILITY.

The Magnofilm Tape Deck has been designed for efficient operation with "BRS" 12" turntables and disc recorders (Models T-25, E-12-D, R-12-D and R-33). The satisfactory operation of this unit is directly dependant upon the quality and design of the equipment with which it is used.



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It is necessary, therefore, to ascertain that the turntable used is capable of constant speed under load, and that the platen rotates without weave, as speed irregularity in any form will have the effect of introducing the same "wow" into a tape recording as it would produce on disc.

Where the T-25 turntable is used it may be found that the tension of the drive pulley upon the tyre is insufficient to operate the Tape Deck although it may be perfectly satisfactory for disc reproduction. If necessary, therefore, adjust the speed selector stop at the "78 position" to provide additional tension. This will ensure positive drive for the Tape Deck.

2. SETTING UP.

The complete unit is despatched from the factory in a shock-proof template package containing six items:-

1. Magnofilm Tape Deck, Model TM-1
2. Plastic drive belt
3. Clutch loader
4. Adaptor plate
5. 4-ozs Shell G.960
6. Magnofilm Eraser, Model BE-1

After unpacking it is necessary only to place the plastic drive belt in position between the grooved pulley above the power take-off and the take-up spindle pulley, as shown in Fig. 1. (Refer to para 8 for correct operating positions.)

3. HEIGHT ADJUSTMENT.

The capstan must at all times run true with the turntable centre pin, and in view of the variation in height between turntable and baseboard in the many types of turntable units available, it has been necessary to provide a means of adjusting the height of the Tape Deck. This is accomplished as follows:-

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- (i) Place the synthetic rubber power take-off over the turntable centre pin, and loosen both knurled locking rings on the two rubber based rear mounting posts.
- (ii) Rotate the knurled portions joining the rubber feet until the top of the Tape Deck is parallel with the turntable.
- (iii) Now apply light pressure to the larger pulley to ensure that the power take-off is fully seated, and readjust both rear mounting posts if necessary.
- (iv) Tighten both locking rings against the Tape Deck chassis.
- (v) Now switch on the turntable. If the unit has been levelled correctly there should be no movement between the Tape Deck and the turntable baseboard.

NOTE:

Where the Tape Deck is to be used with and without a disc on the turntable, the height should be adjusted to a compromise.

4. TAPE THREADING.

It is essential that the tape be threaded on to the Magnofilm Tape Deck with the coated or dull side facing outwards in order to contact the head. It will be found, however, that most brands of tape are spooled with the shiny or uncoated side facing outwards. Where this is so, it is necessary for the reel to be rewound on to an empty reel with dull side out. This has the advantage of enabling a new recording to be made over an erased tape without the need for rewinding.

5. THREADING - RECORD AND REPLAY (Fig. 2.)

- (i) Place full reel on supply spindle (1) so that the tape (3) will unwind from the bottom of the reel in a clockwise direction. Place the clutch loader in position over the take-up spindle.



- (ii) Thread tape over guide (4) and record/replay head (7) around capstan (5) and across to empty take-up reel (8) so that the tape winds on in a clockwise direction.

NOTE:

As an alternative the tape may be threaded directly from the supply reel to the take-up reel, and then pulled down in a half-loop towards the capstan. The tape may now be slipped into the threaded path shown in Fig.2.

6. REWINDING.

At the completion of a recording it is necessary to rewind the recorded portion of a tape before replay. Similarly, after replay the tape must be rewound on to the supply reel for subsequent replay. This is accomplished as follows :-

- (i) Lift the tape from its threaded path so that it passes directly from the supply reel to the take-up reel, as shown in Fig. 3. Remove clutch loader.
- (ii) Grasp the take-up reel in the right hand and the supply reel in the left hand. Now reverse the positions of both reels as indicated in Fig. 3 (Step 1) and turn both reels over (Step 2) so that the tape runs from the bottom of the reel on the take-up spindle to the bottom of the reel on the supply spindle. Replace clutch loader on take-up spindle.
- (iii) Take up any slack tape between the reels and switch on turntable. The tape will now wind back on to the supply reel.

7. FAST FORWARD.

The operator may require to by-pass a portion of a recording. For fast forward operation, therefore, proceed as follows :-

- (i) Slip the tape from its threaded path so that it passes directly from the supply reel to the take-up reel.
- (ii) Switch on turntable.



NOTE:

In fast forward operation the plastic drive belt should at all times be slipped over the larger power take-off pulley.

8. DRIVE BELT.

Two grooved pulleys are provided above the power take-off on which the plastic drive belt runs. The smaller pulley is to be used in normal forward speeds for record and replay. For fast forward operation and rewind the belt should be slipped on to the larger pulley.

9. CAPSTAN CLEANER.

The Magnofilm Tape Deck does not employ the usual capstan/pressure roller combination for transporting the tape over the head at constant speed. In place of this arrangement, advantage is taken of the natural adhesion of plastic base material to synthetic rubber. However, it is necessary for the capstan to be kept free of foreign matter for this principle to be effective. A small reservoir is therefore mounted close to the capstan and contains a felt pad to which has been applied a small quantity of Shell G.960. The pad is arranged to collect dust deposited on to the capstan surface by statically charged tape. If dust is allowed to build up, the natural affinity of the tape to the capstan will be destroyed and may result in tape slip. To obviate any possibility of tape slip, it is recommended that the pad be lubricated with one drop of Shell G.960 for every ten reels of tape passed over the capstan. Apply one drop to a fingertip and hold finger against capstan whilst it is revolving with tape unthreaded. Do not re-thread tape until surplus oil has been absorbed by the felt pad.

10. ADAPTOR PLATE.

It may be found with velvet or rubber-covered turntables that the power take-off has insufficient grip on these materials. The adaptor plate is provided for use with such turntable units and is placed over the centre pin between turntable and power take-off to increase traction where required.



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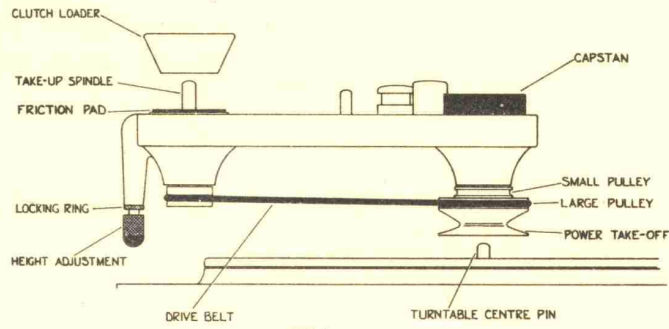


FIG. 1

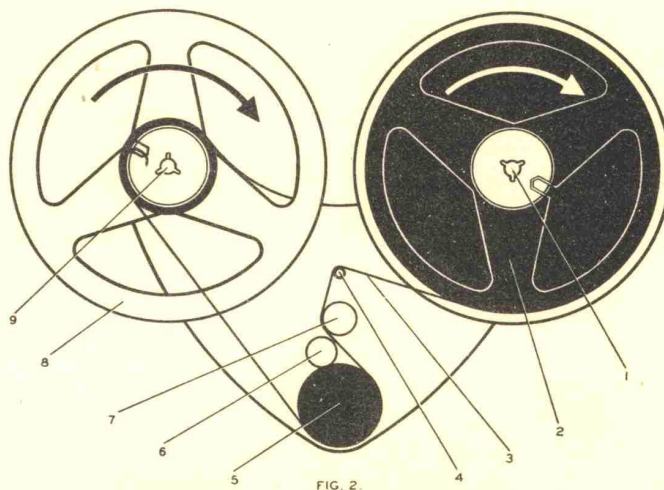


FIG. 2

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|--------------------|------------------------|
| 1. Supply spindle. | 6. Capstan cleaner. |
| 2. Supply reel. | 7. Record/replay head. |
| 3. Tape. | 8. Take-up reel. |
| 4. Guide. | 9. Take-up spindle. |
| 5. Capstan. | |

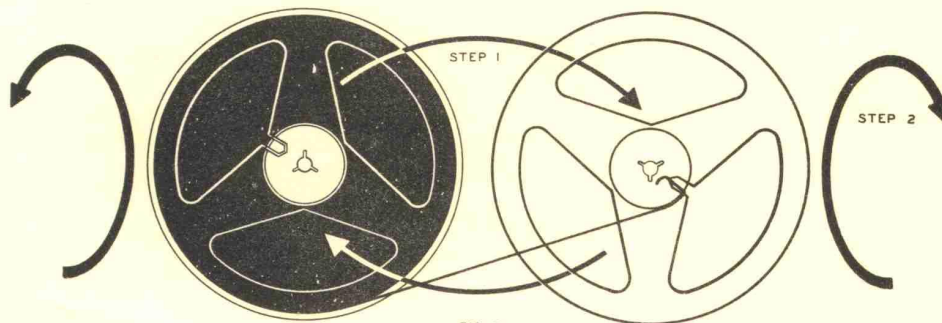


FIG. 3

