Garrard Moving Coil Pickup

Type GMC-5

Installation and Operation

ASSEMBLY (If not supplied in Pickup Arm)

First remove cartridge from bracket by taking off the knob, depressing switch blade to prevent damage. The bracket should be secured in the pickup case with the two screws provided, the cartridge reassembled, and the bracket moved into position before tightening the screws. In the case of the Garrard Model TPA10 Transcription Pickup Arm, the stylus should be in line with the two notches on the underside of the case and the arm adjusted as instructed. With pickup arms of other manufacture the stylus should normally lie ⅛″ in advance of the fixing screw centres unless specifically stated otherwise by the makers of the arm.

STYLUS PRESSURE

The Garrard GMC-5 pickup has an extremely high compliance and can track at very low pressures. For this reason the record wear with the cartridge properly installed will be very low indeed. In common with all high quality pickups other factors such as the design of arm and stability of floor, etc., largely determine the correct stylus pressure, and we therefore recommend this pressure be set at 5 grammes minimum. The use of a Garrard stylus pressure gauge is recommended.

STYLI:

A .001″ radius diamond stylus for fine groove and a .0025″ radius sapphire stylus for coarse groove records are fitted as standard. Replacement styli available.

INPUT TO AMPLIFIER

The output of the pickup with its transformer equals that of most variable reluctance pickups and any amplifier having sufficient sensitivity for such pickups will work satisfactorily with the Garrard GMC-5 pickup. The pickup is not intended to be used without its special coupling transformer type T.P.1 and the required input impedance of the amplifier should be 0.68 megohm, but this may be reduced without noticeable loss of high frequencies. The frequency response of the pickup is substantially flat from 20-16,000 cps. on fine groove records, no additional equalization is required to that normally provided in the amplifier itself.

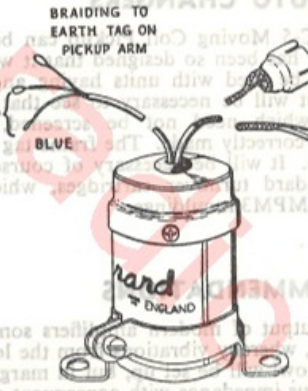


Fig. 1

Whilst a load of 0.68 megohm across the transformer gives the best results and should be adopted wherever possible, some commercial amplifiers have a lower input impedance and the pickup can be used quite successfully with these. A guide to the output voltage across the transformer at 1.2 cm/sec. r.m.s. is given below.

Load Impedance	*Output from Transformer.*
0.68 megohm.	8 millivolts.
500 kilohms.	7 „
250 „	6 „
100 „	3.5 „
50 „	2.3 „

If there is any doubt about the suitability of any particular amplifier for use with this pickup, an enquiry should be made to the amplifier manufacturers.

CONNECTIONS

Fig. 1. The transformer is supplied complete with leads, the braiding of which can be used to earth the arm (but not the motor—see overleaf). The two connections to the pickup are taken to the tag on the switch plate and one of the two red spotted tags on the cartridge.

On the latest model the switch has been discontinued. The connections on this model should be taken to the two unmarked pins - the pins marked with a red spot on the moulding should be ignored.

The following notes give general guidance in installation:—

The hum component which always exists in the screen of the lead should be earthed as directly as possible and care be taken that it is not injected into the other leads. The connections we recommend avoid this.

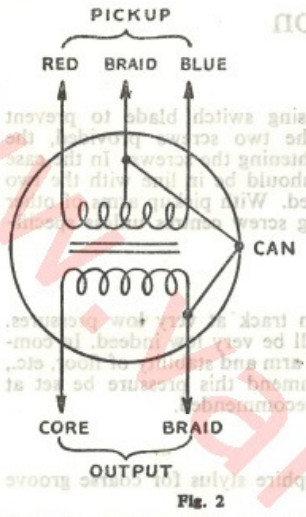


Fig. 2

INTERNAL CONNECTIONS OF TRANSFORMER

The motor should not be earthed via these leads but connected separately to the main amplifier or directly to the mains plug if this has a third earth pin. See that no connection, accidental or otherwise, is made between the motor frame and the pickup earth lead.

The transformer can is connected to the primary centre tap and is insulated from the fixing clip. This must not be altered. The transformer should be mounted in the position of least hum. Magnetic hum can be picked up from the mains transformer in the amplifier and from the gramophone motor. 2 ft. away from the former is usually effective and 8-10" from the latter is normally sufficient, but each installation will have to be set up individually. Electrostatic hum can also be picked up from the power supply lead, e.g., to the motor, but no difficulty should be experienced in spacing the transformer and leads sufficiently far away.

A logical method of finding the best position for the transformer is to make the secondary and earth connections exactly as recommended but leave the three pickup connections unmade. The red and blue leads on the transformer should be joined together temporarily; it is then a simple matter to find the best position for the transformer by listening to the hum through the amplifier with the motor running.

USE WITH AUTO CHANGERS

The Garrard GMC-5 Moving Coil Pickup can be used on Automatic Record Changers and Single Record Players. It has been so designed that it will operate at a stylus pressure of 8 grammes, which we recommend to be used with units having an automatic trip or stop at the end of the record. On existing units it will be necessary to see that the single screened pickup lead, if fitted, is changed to a twin lead, which need not be screened, so that the balanced connection between pickup and transformer is correctly made. The frame tag on the connecting plate should be earthed separately as described above. It will be necessary of course to make sure that the pickup arm is suitable to accommodate standard turnover cartridges, which will be the case if it is a Garrard unit fitted with MPM1, MPM2 or MPM3 mouldings.

OTHER RECOMMENDATIONS

The high power output of modern amplifiers sometimes gives rise to what is generally known as Acoustic Feedback, whereby vibrations from the loudspeaker are transmitted to the pickup. In extreme cases a continual howl will be set up, but in marginal cases the worst effect is to cause an apparent increase of the stylus impedance with consequent groove jumping and increased record wear, as well as impaired reproduction. This condition can easily be verified, for the trouble will disappear when the volume is reduced. The remedy lies in suitable placing of the loudspeaker and pickup relative to each other, or resiliently mounting the motor and pickup, or other means of preventing vibrations being transmitted from the loudspeaker to the pickup.

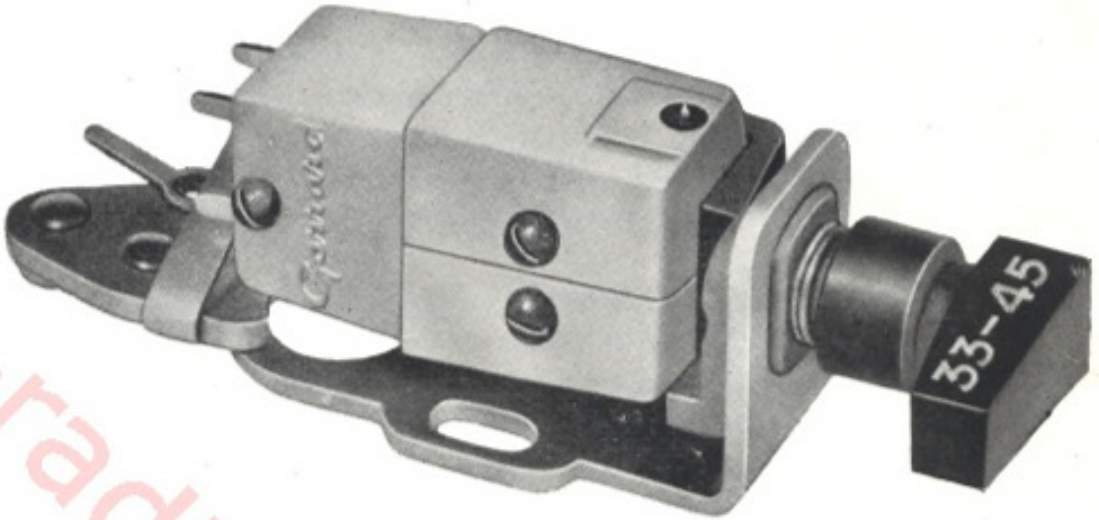
THE GARRARD ENGINEERING AND MANUFACTURING COMPANY, LIMITED.
SWINDON WILTSHIRE ENGLAND

Garrard

AUDIO PERFECTION

MODEL GMC5

MOVING COIL PICKUP



ACTUAL SIZE

PRICE (in M.P.M.2, 3 or 4 moulding) with TP1 transformer £7 2 6 P/T £2 6 4

Moving Coil Pickup Model GMC5

THE GARRARD MOVING COIL PICKUP gives the highest possible standard of reproduction from gramophone records.

The stylus is rigidly coupled to the coil, thereby faithfully transferring the modulation of the record groove to the coil; the cantilever suspension allows the stylus to move freely in a vertical direction, so reducing needle talk to the minimum.

A further feature of the design is the damping arrangements, which are designed to give independent control of the vertical and horizontal compliances.

The stylus is extremely small but can easily be removed and replaced without dismantling the pickup.

The pickup is of the turnover pattern with two independent moving coil systems. The appropriate coil is brought into circuit by a switch at the rear of the pickup.

This pickup with its transformer, Type TP1, has approximately twice the output of variable reluctance types, therefore hum and noise in the amplifier are correspondingly lower.

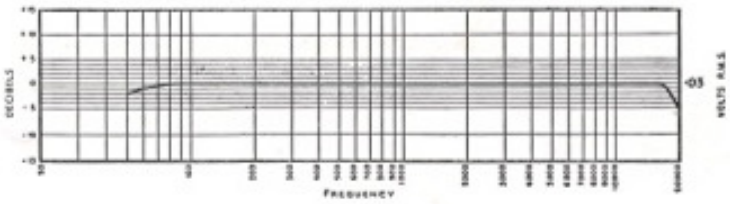
The transformer designed for this pickup is of a special hum bucking construction and encased in a substantial Mumetal screening box. The primary of the transformer is centre tapped to earth, thus balancing out any hum in the leads of the pickup.

TECHNICAL DATA

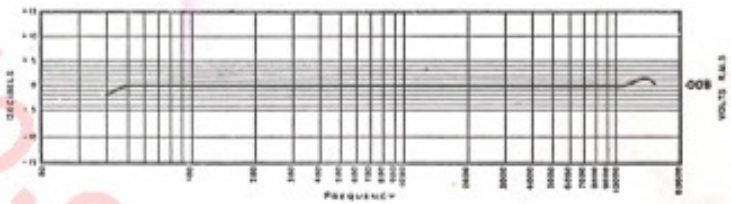
Response—20–16,000 cps. constant velocity on microgroove records.
Compliance—Better than 6×10^{-6} cm/dyne.
Stylus Pressure—5 grammes.
Output from transformer—8 millivolts at 1·2 cm/sec. rms.
Load across transformer—0·5 megohm minimum.
Styli—Diamond ·001″ radius for Microgroove records, Sapphire ·0025″ radius for 78 r.p.m. records.

RESPONSE CURVES

Garrard GMC 5 Moving coil pickup at 78 r.p.m.



Garrard GMC 5 Moving coil pickup at 33⅓ r.p.m.



Response Curves taken with Transformer Type TP1 *and* 1 *megohm load.*

THE GARRARD ENGINEERING AND MANUFACTURING CO. LTD.

Factory and Registered Office: NEWCASTLE STREET - SWINDON - WILTSHIRE *Tel.:* SWINDON 5381 (5 lines) Telex 44-316
Service and Spares Dept.: RADNOR STREET - SWINDON - WILTSHIRE *Tel.:* SWINDON 2606

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