INSTRUCTION MANUAL

THREE SPEED TRANSCRIPTION TURNTABLES

TYPES 12A & 16A

16"— 16A
12"— 12A

COMMONWEALTH ELECTRONICS PTY. LIMITED

Sydney
N.S.W.

Hobart
TAS.

July, [redacted].
1954

INSTRUCTION MANUAL

THREE SPEED
TRANSCRIPTION TURNTABLES

TYPES 12A & 16A

COMMONWEALTH ELECTRONICS PTY. LIMITED

Sydney
N.S.W.

Hobart
TAS.

CONTENTS

Section 1.

GENERAL DESCRIPTION

1.1 APPLICATION.

The type 12A and 16A three speed professional transcription turntables have been produced to satisfy the requirements for 12 and 16 inch turntables of the highest quality for reproductions of recordings made at speeds of 33 1/3, 45 and 78 R.P.M.

1.2 GENERAL DESCRIPTION.

The turntable is of heavy cast aluminium construction. The motor frame is recessed through the motor board to maintain the turntable at the correct height.

Speed selection is by means of a knob conveniently located on the motor frame. There is a "neutral" position between adjacent speed positions and the drive motor is automatically switched off, when in neutral. This prevents "grabbing" and consequent damage to the idler tyre.

The driving motor is a four pole, synchronous type, running at 1500 R.P.M. and the drive is applied to the turntable by means of a neoprene idler wheel which is disengaged when the speed selector passes through "neutral."

The turntable is mounted on a hardened and ground steel centre shaft, running in self lubricating bushes and fitted with a single ball thrust at the base of the shaft. A similar arrangement is used for the idler wheel assembly.

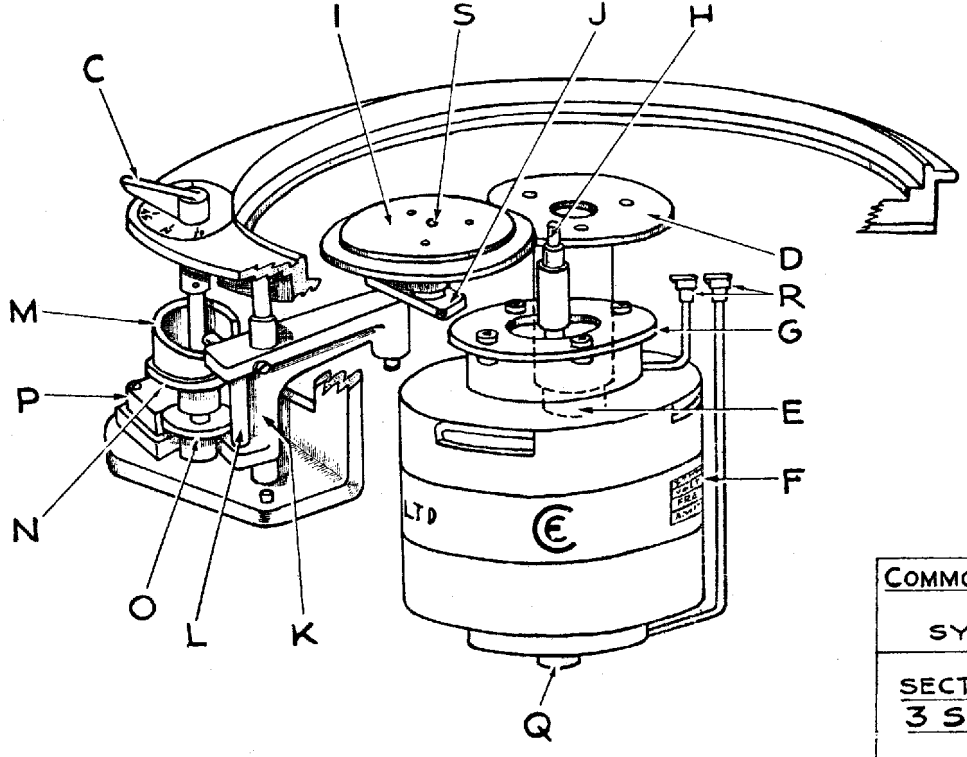
The turntable top is finished in black felt and the turntable rim in polished aluminium, while the base casting is finished in grey brocade and the fittings in bright nickel.

1.3 DETAILED DESCRIPTION.

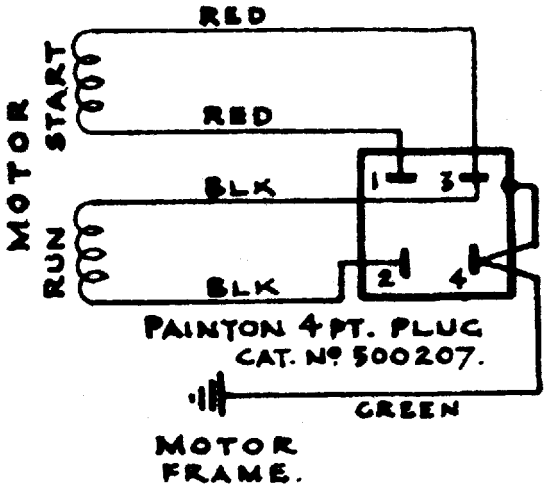
The following description should be read in conjunction with the attached Drawing (A384), showing the turntable mechanism with the turntable removed.

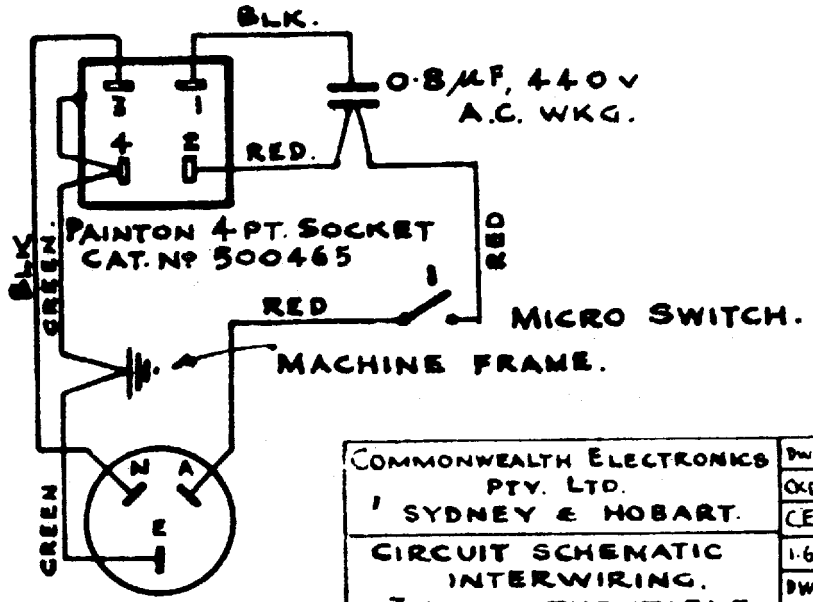
The base plate "A" is a heavy steel plate to provide some measure of magnetic shielding and its large mass assists in suppressing rumble and vibration from the drive mechanism. The base plate is bolted to a cast aluminium surround "B" which provides a mounting flange for the assembly and also mounts the speed change lever "C". The turntable spindle runs in self lubricating bronze bushes located in the bearing housing "D" which is bolted to the base plate. An adjustable plug "E" is attached at the base of the bearing housing and fitted with a steel thrust ball to carry the weight of the turntable.

The synchronous drive motor "F" is mounted on a bakelite heat insulating plate "G" which in turn is mounted on the base plate by means of rubber shock mounts. The drive motor shaft protrudes through the base plate and is fitted with a 3 step



COMMONWEALTH ELECTRONICS PTY. LTD. SYDNEY & HOBART	DWN.	BVS 8/3
	CK'D.	
	CH. ENG.	
SECTIONAL DRAWING. 3 SPEED TURNTABLE TYPE 12A & 16A.	DATE	19/8/54
	DWG. No	A384





NOTE:
PAINTON 4PT. PLUG & SOCKET WIRING FACES SHOWN.

COMMONWEALTH ELECTRONICS PTY. LTD. SYDNEY & HOBART.	Drawn by: O.K.D. C.E.
CIRCUIT SCHEMATIC INTERWIRING. 3 SPEED TURNTABLE TYPE 12A & 16A.	1·6·55 DWG. Nº CD284

ISSUE 2ª.

pulley "H". The drive from this pulley is transferred to the inner rim of the turntable via the neoprene idler wheel "I". The idler wheel runs on a ground steel pin attached to the link "J" which is pivoted on the end of the arm "K". The arm pivots and slides on the guide rod "L" and is fitted with two rollers which engage with cams "M" and "N". Rotation of the cams by the speed lever "C" causes the idler wheel to engage with any one of the three steps on the motor pulley.

The cam "O" actuates the microswitch "P" which switches off the power to the motor when the speed control lever is in either of the two neutral positions.

The screwed plug "Q" at the base of the drive motor is fitted with a thrust pad to carry the armature end thrust.

Section 2.

INSTALLATION

A paper template is provided, from which the necessary cut-out in the desk or table can be made. The dotted line on the template should be marked through and the cut-out made accurately.

The turntable flange is drilled for $\frac{3}{16}$" dia. metal thread or wood screws; the positions of these should be marked through the holes in the flange, after the desk is cut out.

Electrical connections to the unit are brought out in a short length of cab tyre flex, fitted with a three pin plug. It is recommended that a three pin receptacle be fitted to the underside of the desk and wired in the standard manner, complete with earth connection. The earth pin of the three pin plug is wired to the turntable base plate.

The unit is supplied fully lubricated and ready for use.

Section 3.

OPERATING INSTRUCTIONS

Switching of the mains supply to the drive motor should be carried out by means of the internal microswitch (controlled by the speed control knob). This will avoid the possibility of the speed selector remaining "in gear" whilst the unit is stationary and consequent flat on the tyre.

Such flats can cause noisy operations, but if the turntable is allowed to run for an hour or so, they should disappear.

Any of the usual methods of starting or cueing discs may be employed. **Do not attempt to stop the turntable by holding the rim—it will damage the idler wheel.** Stop the disc itself, if desired, and allow the turntable to revolve.

Section 4.
MAINTENANCE

4.1 LUBRICATION.

The only points requiring lubrication are the following:—

Drive motor bearings via lubricators at "R".
Idler bearings via oil hole at "S".
Turntable bearings at "D".
Cam mechanism at "M", "N", "O".

The drive motor is fitted with porous bronze bushes surrounded by felt oil retainers. Very little lubrication is necessary and a few drops of oil will suffice (see recommended lubricants) at intervals of approximately 500 running hours. At the same time a drop of oil should be applied to the oil hole "S" in the idler wheel, after which any surplus oil should be carefully wiped off.

While the turntable is off, smear a little oil on the turntable spindle before replacing. It is most important that this spindle be kept clean and free of dirt, also care should be taken that the thrust ball does not fall out of its seating in the end of the spindle. A little grease may be used to secure the ball in position before replacing. The cam mechanism should be lightly smeared with grease to ensure free operation. A spot of oil should be applied to the guide rod "L" at the same time. The cams should be cleaned of dirt and dust.

Recommended Lubricants:—

Motor Lubricators—"Vactra" Medium Heavy Oil.
Idler Bearing Hole— „ „ „ „
Turntable Bearings— „ „ „ „
Cam Mechanism—Shell Retinax "A" Grease.
Thrust Balls— „ „ „ „

4.2 REPLACEMENT OF PARTS.

4.2.1 Turntable.

To remove Turntable:—

Place speed control lever in neutral.

Carefully lift turntable with both hands spaced at 180°. Be careful not to place excessive side loads on the bearings, especially when the spindle is almost out of the top bearing.

To replace Turntable:—

Place speed control lever in neutral—**this is most important, as failure to do so will cause the turntable rim to strike the edge of the idler tyre with almost certain damage.**

Lower the assembly carefully into the bearing.

4.2.2 IDLER WHEEL ASSEMBLY.

This is the part most likely to need attention after extended service. The tyre is precision ground and no attempt should be made to retrue it without proper grinding equipment. It is strongly

recommended that in the event of the tyre becoming worn or damaged it be replaced with a replacement assembly, which will be supplied on request; the old assembly may then be returned for regrinding.

To remove the Idler Wheel:—

Place speed control in neutral.

Remove Turntable. (See 4.2.1).

Place speed control in 33 R.P.M. position.

Loosen screw in boss of idler wheel with small screwdriver and lift idler wheel off the pin.

To replace Idler Wheel:—

See that the bearings of the new wheel are clean and that the thrust ball is in place in the top plate of the wheel. If by any chance the ball is lost in transit, it may be replaced by a standard $\frac{1}{8}$" steel ball, held in place with a dab of grease.

See that the screw in the boss of the wheel is unscrewed a few turns.

Replace idler wheel on pin.

Tighten screw in boss.

Check that wheel revolves freely.

Put speed control in 45 R.P.M. and check that the tyre lines up centrally on the middle step of the motor pulley. If it does not, this may be corrected by adjustment of the end thrust plug "Q" at the base of the motor. (See 4.2.4).

Replace turntable. (See 4.2.1).

In the event of damage to the idler mechanism, it is possible that the idler may become thrown out of alignment.

The top face of the idler wheel should remain parallel with the base plate at all times. If it is not parallel, "scrubbing" of the tyre may occur with excessive noise and possibly rapid wear. A special jig is used at the Factory for this adjustment, but a straight edge placed on the top of the idler and sighted against the top edge of the turntable surround is quite satisfactory. Adjustment to correct any error may be made by carefully bending the "dural" link "J" until parallelism is restored. After this, the idler tyre should be checked for alignment with the 45 R.P.M. pulley step as already described.

4.2.3 MICROSWITCH.

In the event of failure of the microswitch, replace as follows:

Remove the two 4BA screws securing the metal switch block to the casting.

Remove leads from switch.

Remove switch from block.

Screw new switch on block after fitting the nickel silver cam follower.

Reconnect leads.

Replace assembly on casting by means of the 4BA screws.

Move switch assembly until operation of the switch is satisfactory, then tighten the screws firmly.

4.2.4 DRIVE MOTOR.

To change Drive Motor.

Place speed control in "neutral".

Remove turntable. (See 4.2.1).

Remove four pin plug from socket on underside of base plate.

Remove 4BA nuts surrounding the 3 step drive pulley at the same time taking the weight of the motor. Motor may then be removed downwards clear of the base plate.

To replace Motor:—

Reverse the above operations.

In the event of serious motor trouble such as bearing failure or electrical faults, it is recommended that a Factory replacement be fitted and the old motor returned for service. The steel thrust ball at the bottom end of the motor shaft may be easily replaced by a standard $\frac{3}{16}$ steel ball, when wear takes place

To replace Thrust Ball:—

Remove drive motor from base plate if necessary.

Remove screwed plug "Q".

Remove old ball from end of shaft.

Fit new ball with a dab of grease to retain it.

Replace screwed plug.

Adjust idler alignment at 45 R.P.M. as already described. (See 4.2.2).

Tighten locknut on screwed plug.

In the event of serious wear of the self lubricating bronze pad against which the thrust ball runs, a new screwed plug complete with the pad can be supplied.

4.3 ADJUSTMENTS.

4.3.1. Idler Wheel Pressure.

The idler wheel pressure may be measured with a gramme gauge on the end of the idler arm "K" and should be between 90 and 110 grammes when the idler is in the 45 R.P.M. position.

4.3.2 TURNTABLE CLEARANCE.

The Turntable should run with a clearance of approximately 1/32" from the top lip of the turntable surround. Loosen locknut on screwed plug "E" at the base of the turntable bearing.

Adjust screwed plug until clearance is correct.

Tighten locknut.