

STRICTLY CONFIDENTIALFOR PHILIPS SERVICE
DEALERS ONLY

COPYRIGHT 1937

PHILIPS

SERVICE MANUAL

FOR RADIO-GRAMOPHONES TYPE 698A - 698U - 699A - 699U

GENERAL.

The type 698A employs a gramophone unit type A.C.8 which is housed under the lid; with the exception of a few small details (indicated in Fig. 2), the chassis is identical with the 747AX.

The type 698U is fitted with gramophone unit U5, chassis 747AX (for differences see Fig. 1), and converter unit 7860 C-15 (for mains voltage 110-145 volt), or converter unit 7861 C-15 (for mains voltage 200-245 volts).

The type 699A has a lower cabinet than the type

698A and employs a gramophone unit type A.C.8 fitted on the left of the top board; the chassis (which is identical with the 747AX, see Fig. 3) is mounted on its side with the control knobs on top. The type 699U is housed in the same type of cabinet as 699A, having a chassis 747AX (for differences see Fig. 4), and converter unit 7860 C-15 (for mains voltage 110-145 volts), or converter unit 7861 C-15 (for mains voltage 200-245 volts).

For operation, fault-finding, trimming, etc., see Service Manuals for 747AX; 7860 C-15; 7861 C-15; AC8; U5.

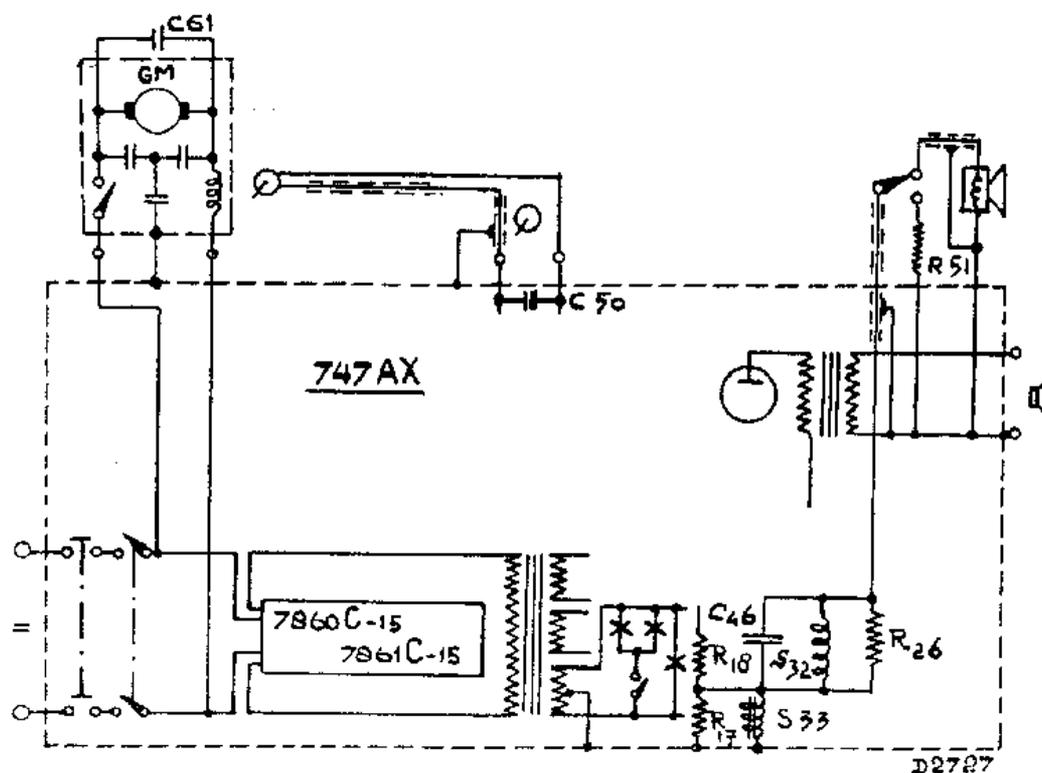


Fig. 1 (698U)

Type 699A & U

TO REMOVE CHASSIS FROM CABINET.

- (1) Remove earth lead from speaker switch at back of cabinet.
- (2) Remove from the speaker transformer, all leads which go up and pass through the baseboard to the chassis, and disconnect earth leads to motor and back screen.
- (3) Remove the two bolts at the back of the cabinet (these two bolts are located above the aerial and earth socket plate and the mains panel). Underneath at the rear of the chassis board, two 4 mm. nuts will be found. These are to be removed. They are screwed on to two pieces of 4 mm. rod which are directly under the chassis, which in turn are screwed and locked into the chassis.
- (4) Remove three screws in the top panel. Release the turntable and take out all screws from the motor plate. When the gram. motor assembly is moved to the left it will be quite easy to lift up the control panel on the right, bringing with it the complete chassis.

Type 698A & U

TO REMOVE CHASSIS FROM CABINET.

- (1) Remove the knobs.
- (2) Remove bottom back panel and then unsolder all leads from the speaker transformer that pass up through the baseboard.
- (3) Next remove the two leads connected to the small connecting strip on the left-hand side of the cabinet, then remove the leads from the speaker switch and from the clip at the side of the cabinet.
- (4) Remove mains leads from gram. motor. Two 4 mm. screws will be found on the left-hand side of the baseboard and two on the right. Remove these four screws and the chassis and baseboard will be free of the cabinet.
- (5) Remove the three screws from each side of the escutcheon on the inside of the cabinet, lay the escutcheon down on top of the chassis and carefully withdraw the whole from the cabinet.

Note.—Care should be taken not to lose any of the felt washers and springs that are located in the cabinet at each end of the escutcheon, as these act as brakes for the escutcheon.

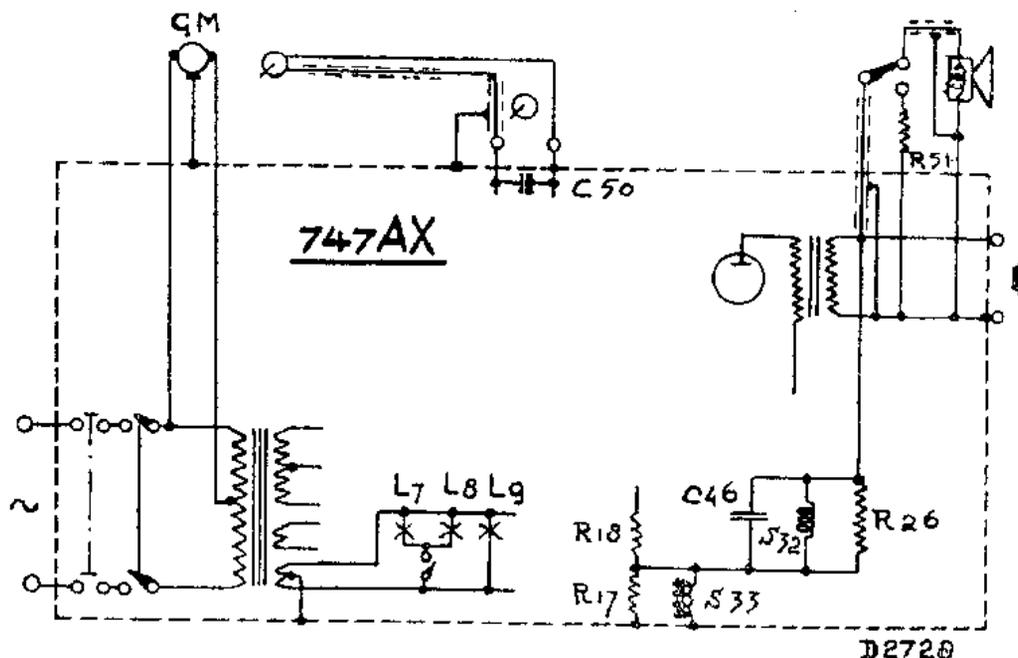


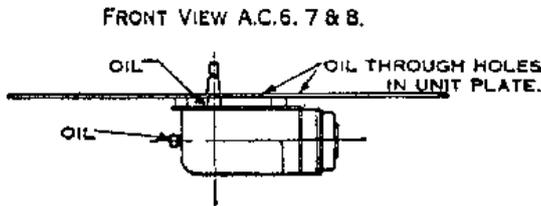
Fig. 2 (698A)

THE GRAMOPHONE UNIT

Maintenance.

The rotor bearings are of the self-lubricating type and require very little attention. After 1,000 hours' run all that is necessary to re-charge these bearings is to place a few drops of oil in the hole in the phosphor bronze bearing at one end and in the hole in casting at the other end.

The felt pads in the Governor Regulating Brake should be kept oiled and not allowed to become dry. The oiling points are shown in Fig. 5.



TOP VIEW 202A, A.C.4.
A.C.6, A.C.7, A.C.8

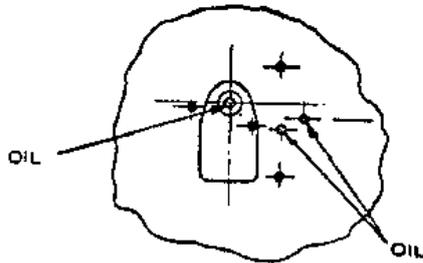


Fig. 5.

Speed Regulation.

The motor has wide speed range so that tempo of record can be quickened or retarded to suit all requirements.

As despatched from the factory the electric motor is set to run at correct speed of 78 r.p.m. when the pointer indicates 78 on the Regulator Plate. This is the correct speed for the majority of present-day gramophone records. The speed of the motor, however, may vary slightly with different voltage supplies, and should be checked by counting the number of revolutions over a full minute. Should adjustment be found necessary, this can be very simply effected—move the Regulating Lever until correct speed as timed by watch or by using stroboscopical speed-testing disc supplied is obtained. Next remove turntable, loosen quadrant screw in Speed Adjusting Quadrant and place Regulating Lever on the "78" mark, taking particular care to hold the quadrant—tighten screw and the speed should then be set correctly.

Starting Motor.

The action of lifting the pick-up head off the rest and moving slightly towards the right releases the brake and switches the current on. When the end of the record (with run-off or eccentric groove) is reached, the motor is automatically stopped and the current switched off.

Automatic Stop Principle of Action and Adjustment.

As the needle travels towards the centre of the record, the pick-up arm moves Friction Plate A (see Fig. 6) which, through the friction pad and spring, carries with it the Main Lever B and Trip Lever C.

This Main Lever moves in towards the turntable spindle on which is mounted the Striker, which gently wipes against the rubber bush on end of Trip Lever C, at every revolution, thus tapping back the Main Lever B (the friction between Lever A and Lever B allows this).

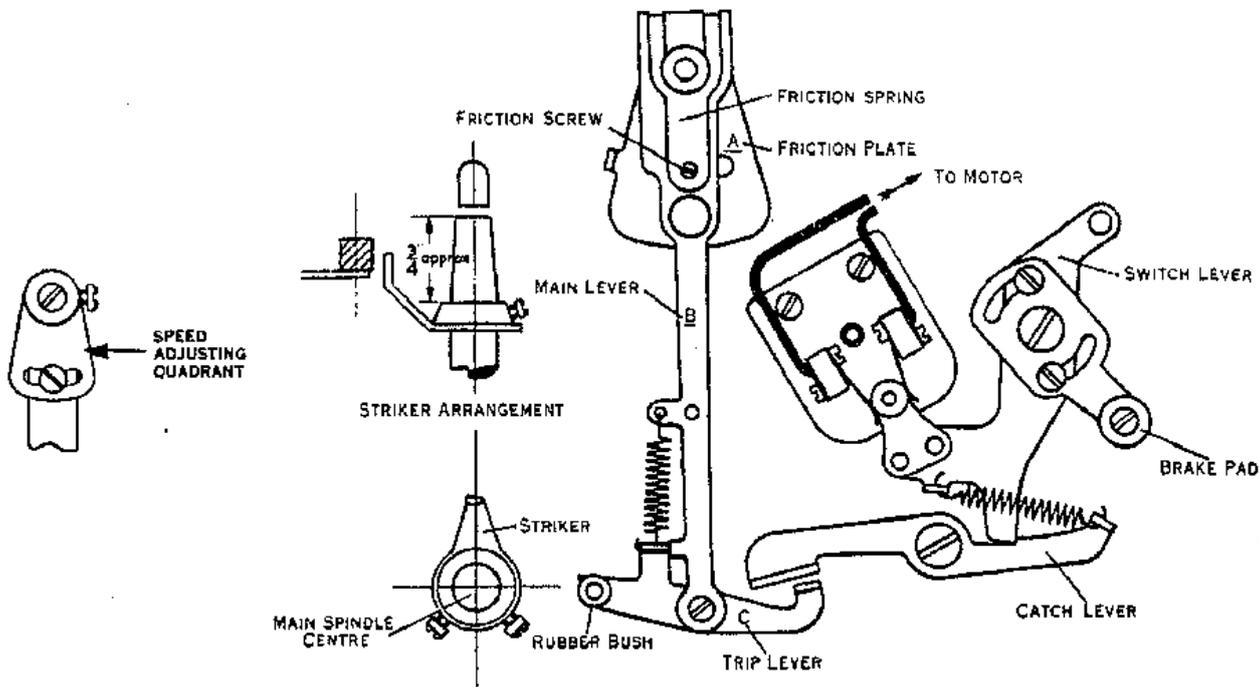


Fig. 6.

This "tapping back" process continues until the needle reaches the "run-in" groove in centre of record, when the Trip Lever is moved forward into the path of the Striker which strikes the side of the Lever, thus tripping the Stop mechanism.

The Stop and Switch is fully automatic.

If Stop fails to operate at finish of record, the cause is probably insufficient friction between Lever A and Lever B.

If friction is at fault this may be increased by screwing the Friction Screw in Lever B upwards (anti-clockwise).

If Stop fails to operate at finish of record, the cause is probably insufficient friction between Lever A and Lever B.

If friction is at fault this may be increased by screwing the Friction Screw in Lever B upwards (anti-clockwise).

If Stop operates early, i.e., before the needle reaches the end of the record, the trouble is due either to excessive friction or to the Rubber Bush on Trip Lever being worn.

Friction can be reduced by screwing the Friction Screw downwards (clockwise).

As the friction adjustment is very sensitive, the screw should not be turned more than a quarter of a turn at a time. Excessive friction may cause a knocking sound in amplifier and cause wear on records.

If Rubber Bush is worn this may be turned round on its pin to expose a new face to striker.

Should Leather Brake Pad require adjustment at any time it is important to see that the switch breaks contact sufficiently before turntable is stopped by pad.

Note.—Should it be required to stop motor by hand, lift Pick-up and move arm in towards centre of record, when the Stop mechanism will operate.