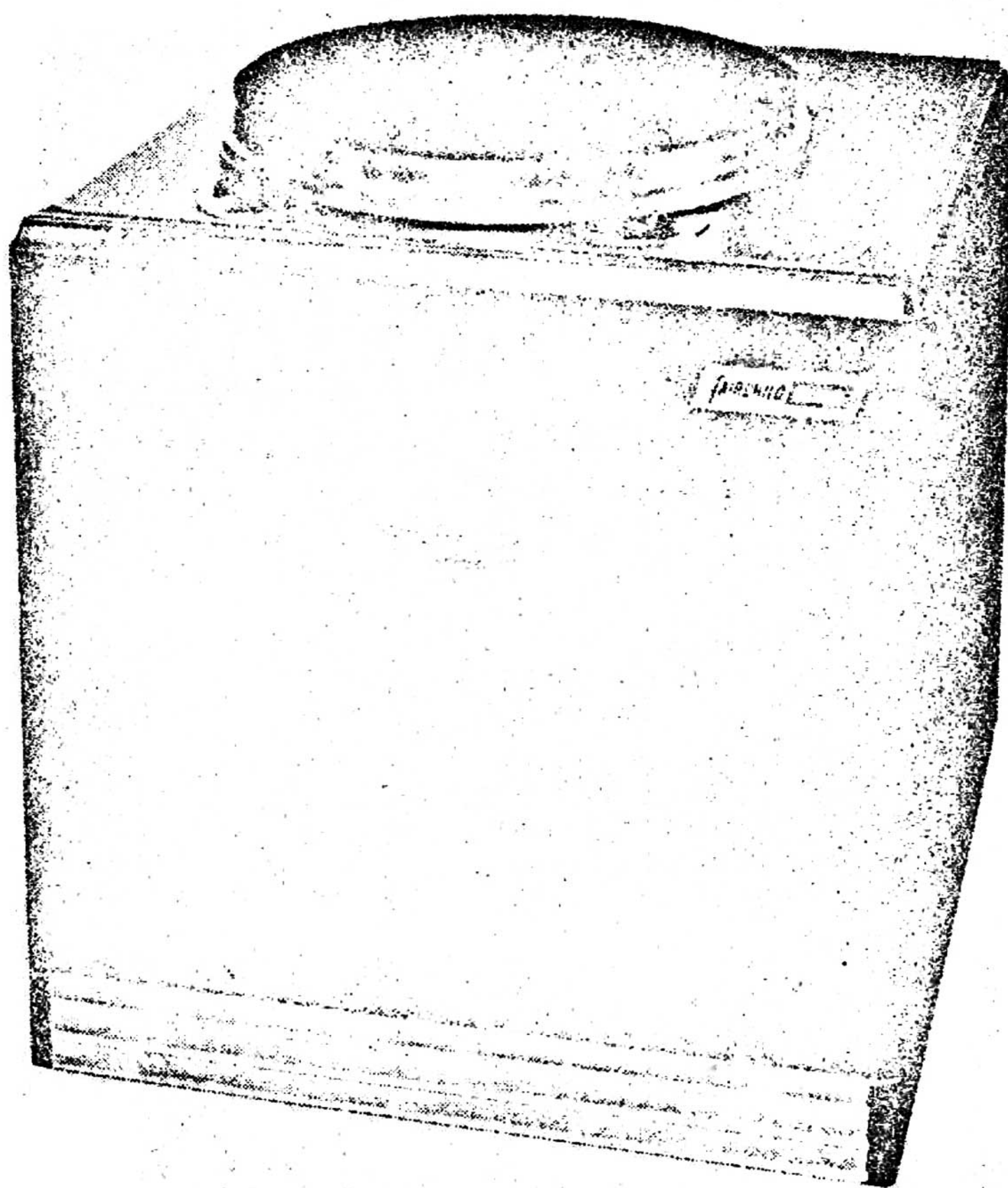


# **FAIRCHILD** RECORDING EQUIPMENT

## **Operation and Maintenance Manual**



### **Model 530 3-Speed Turntable**

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154 STREET AND POWELLS COVE BOULEVARD  
WHITESTONE 57, NEW YORK

# I — DESCRIPTION

Model 530 is a professional quality 3-speed transcription turntable providing synchronous speeds at  $33\frac{1}{3}$ , 45 and 78 rpm. It meets or better NARTB specifications in all respects.

Model 530 is available for operation in 50 cycle power (Model 530-50). Since the only difference between 50 and 60 cycle versions is the ratio in the precision gear reduction, these instructions apply to both versions.

The unique drive mechanism used in Model 530 operates with 3 cogged belts. These cogged belts provide smooth, positive direct drive without the tooth ripple and noise of gears.

The drive mechanism is mounted on a sturdy metal plate which is in turn mounted to the cabinet base on vibration-isolating mounts. The drive mechanism is coupled to the turntable shaft through flexible couplings and a friction clutch which protects the drive mechanism if the turntable is manually stopped.

Instantaneous shifting of speeds is provided in Model 530 by means of a speed selector lever on the top panel. This lever is connected to the drive mechanism by means of a flexible shaft, through the gear reduction unit.

Starting and stopping of the drive motor is accomplished by a mercury ON-OFF switch on the top panel.

The precision reduction gear in the drive mechanism consists of a worm and worm wheel. This gear reduction is operated in oil for long life and quiet operation.

There is sufficient space in the turntable cabinet to mount equalizers, switches and a preamplifier if desired. The power cable may be passed through a hole in the cabinet rear.

The picture on the cover page shows this table with the Fairchild Turret Head Arm, Cartridges, and Equalizer mounted on it. Write for further information.

# II — SPECIFICATIONS

## **Turntable Speeds**

78.26, 33.33, and 45.00 rpm.

## **Speed Regulation**

All 3 speeds are synchronous.

## **Turntable Diameter**

16 inches.

## **Drive Motor**

Hysteresis Synchronous type, 1/20 h.p.

## **Wow and Flutter**

Better than .4% peak-to-peak.

## **Rumble**

At 78 rpm better than minus 40 db. as measured in accordance with NARTB specification. At 45 rpm and  $33\frac{1}{3}$  rpm the rumble is correspondingly lower.

## **Power Requirement**

100 watts at 115 volts 50 or 60 cycles. See "Description" above.

## **Cabinet Dimensions**

$23\frac{3}{4}$  x  $23\frac{1}{2}$  x  $26\frac{3}{8}$  inches high. Turntable height of 28 inches is NARTB standard. Adjustable feet permit leveling of the cabinet.

## Cueing Time

On starting, turntable reaches stable speed within  $\frac{3}{4}$  revolution at all speeds. Practically instantaneous starts

possible by holding record. The separate felt pad provided facilitates this operation.

# III — INSTALLATION AND OPERATION

## A. Unpacking

Proceed carefully in removing from case. Note any evidence of rough handling or damage and take necessary action at once.

Check shipment carefully against packing list and report any discrepancies immediately.

## B. Setting Up

Unscrew leveling feet about  $\frac{1}{2}$  inch at the front corners of cabinet. Level by adjusting each as needed. Use spirit level 8 or 10 inches long placed on table parallel to front of cabinet and again at a 90 degree angle.

NOTE: Blocks under rear corners must not touch the floor. Shim up the center foot if necessary on an un-level floor.

Remove front door of cabinet. Inspect mechanism for any damage in shipment, loose parts, etc.

Remove three bolts and three wood blocks which hold drive in fixed position for shipment. Motor and carriage must float freely on the resilient mounts when in operation.

Save the blocks and bolts for re-shipment.

Before shipment, the oil was removed from both gear box and turntable bearing. Note lubrication instructions (in Section IV Paragraph

A) and oil before placing in operation. Be sure that the oil in the gear box is at the proper level. Oil for the initial installation is packed with the equipment.

Connect line cord from rear of the cabinet to 115 volts AC line.

Put selector switch successively in 78,  $33\frac{1}{3}$  and 45 rpm positions and let the turntable run as a preliminary test at each speed.

Install pickup and arm in accordance with the manufacturer's instructions. Connect output of pickup to amplifying system. Play test record and check performance.

## C. Operating

When possible, especially at the beginning of the day, operate the table at 78 rpm for 5 to 10 minutes prior to actual use.

While the speed selector switch may be turned to a new position with the motor running, it is advisable when time permits, to shut off the motor before shifting speed even though it does not come to a full stop. The momentary change in momentum of the table and motor results in less wear on the moving shift pins in the gear reduction mechanism. This is especially desirable in shifting the speed upward from  $33\frac{1}{3}$  to 78. If necessary to make this particular

shift with the motor running, snap the shift switch quickly.

The table attains stable speed almost instantaneously when the cued record is released on the rotating table.

## IV — CARE AND

**NOTE:** The Fairchild Unit 530 Transcription Table is precision equipment, worthy of careful handling. It should be given regular inspection at least once a month, with lubrication and any minor adjustments that may be necessary.

### A. LUBRICATION

Lubrication points are shown in Fig. 1. Use Esso No. 1 or similar best quality motor oil, SAE grade No. 10.

#### 1. Motor

Five drops in each oil hole on top of the motor, once a month, or after each 100 hours of running time.

#### 2. Gear Box

Maintain the oil at the level of the upper plug on the side of the gear housing. Fill through the filler hole in the top of the housing.

#### 3. Speed Shifting Assembly

(a) The bearing on the sprocket shaft toward the front of the drive is lubricated by a felt pad (not visible from outside the cabinet). Check this pad monthly and keep it saturated with oil.

(b) Maintain a film of oil on the sprocket shaft in the region of the sliding wheel.

(c) Apply special grease (Lubriplate 630AA) monthly on the speed-shifting cam bearing surface; also on the plunger pin at opposite end of lever.

When this method is not practical the record may be cued by first selecting the desired speed and then turning motor on with mercury ON-OFF switch.

### WARNING

This turntable has a special nylon thrust bearing assembly under the turntable. Therefore do not oil as per paragraph IV in the instruction book. For proper lubrication 3 or 4 drops of oil every 4 months should be used.

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#### 5. Clutch

If clutch squeaks on starting and stopping, apply a few drops of oil to the felt pads.

### B. OPERATION DIFFICULTIES AND REMEDIES

#### 1. Vibration

There should be little measurable vibration on the turntable with either vertical or lateral pickup. If excessive, it may come from one of the following four causes:

##### (a) Building Vibration

If building vibration is excessive mount the entire cabinet on shock absorbent material, until the noise is reduced to a satisfactory point.

##### (b) Low Line Voltage

If the line voltage is considerably below normal, the motor will not pull into synchronization. Use a "booster" in the AC line to bring the voltage up to 115 volts.

### (c) Lubrication

Check all lubrication points.

### (d) Low Temperature

Oil in the drive and other moving parts thickens in cold weather and increases the load on the motor. It may require a warm-up run at 78 rpm of 5 minutes or more.

## 2. Wows

Wows or lesser fluctuations in turntable speed may result from any of the causes listed above under "Vibration," except building vibration. Proceed as directed. Check clutch adjustment—see below.

## 3. Non-Operation

If the instrument does not operate, check AC line connections and make sure cogged belts have not been slipped off the sprockets.

Check set screw at top of drive shaft assembly to see that it is firmly secured on the flat of the turntable shaft.

## 4. Clutch Adjustment

The friction clutch couples the turntable shaft to the flexible drive coupling. The clutch is correctly adjusted at the factory and should not require readjustment. After long use, wear may necessitate adjustment. It is easily adjusted by means of two machine screws. Its adjustment is not critical; however if it is too tight, it will not protect the precision gear reduction if the turntable is manually stopped. If adjustment is too loose, wow and slipping may result.

The clutch should be adjusted to just slip at a torque of 250 inch-ounces. This is easily checked with a 5 lb. spring scale as follows:

(a) Tie a 2 foot piece of string to the hook of the spring scale.

(b) Attach the other end of the string to the turntable rim with a 6 inch piece of Scotch Tape.

(c) Support the scale to hold string taut and horizontal.

(d) Start table (45 rpm) and read scale force to hold table from rotating.

(e) Adjust clutch to obtain reading of 2 lbs. (32 oz.). Clutch screws should be adjusted equally to maintain even pressure.

## C. REPLACEMENTS

To remove drive shaft assembly, complete drive unit or gear box, disconnect from AC source and proceed as follows:

### 1. Drive Shaft Assembly

Loosen the upper set screw of the drive shaft assembly. Grasp the turntable at opposite sides, and lift carefully straight up and out. Loosen the lower set screw of the drive shaft and remove.

### 2. Complete Drive Unit

Remove drive shaft assembly as above. Disconnect plug from AC source. Disconnect the leads coming from the mercury switch, from the terminal strip on the base. Disconnect the flexible shaft at the cam shaft of the drive unit. Remove the nuts that hold the base unit to the vibration mount studs. The complete drive unit may now be carefully lifted out.

### 3. Gear Box Assembly

Remove drive shaft assembly as above. Remove the circular front plate from the gear box assembly. Slide the 3 cogged belts off their sprockets and remove through opening.

These belts need never be replaced unless they show signs of fraying.

When removing or replacing belts, note that no two belts are the same; longest belt is closest to motor, shortest is in the center.

Remove the 3 bolts which hold the gear box assembly to the base plate and carefully lift out.

#### Note:

In replacing gear box or motor, three points should be watched:

(a) The motor pulley assembly must line up with its associated cogs on gear box. Adjust by set screw on motor pulley assembly. Be sure set screw seats on flat of motor shaft.

(b) Motor shaft and gear box cog shaft must be parallel. If not parallel, the geared belts will tend to ride off the cogs.

(c) The belts must be at proper tension. If too tight, vibration may result. If too loose, turntable flutter may be introduced.

(d) Adjustments for (b) and (c) above may be made by loosening the motor mounting bolts slightly, and lightly tapping the motor into correct position. The motor mounting slots are oversize to allow for this. In making such adjustments with complete drive unit installed in cabinet, it is much easier if the drive shaft assembly is removed as in (1) above.

## V — PACKING FOR SHIPMENT

In addition to customary good packing practice, the following steps should be taken in preparing the instrument for shipment. Drain the oil from the drive unit through the lower drain plug on the side of the drive. Remove the turntable, by loosening the set screw at the top of the drive shaft, and remove the oil from the

well. Dry the well thoroughly. Replace the turntable and tighten set screw on the shaft. Replace the wooden blocks and bolts to hold the drive assembly in fixed position.

When packing the drive unit for shipment, drain oil, and use an oversized carton well padded with packing.

## VI — SPECIFIC CAUTIONS

The flexible coupling between the drive and the turntable shaft is precisely aligned at the factory. Do not adjust the compression screws through rubber disk for this reason; the entire coupling can be replaced, but not the disk alone.

If it is suspected that the rubber disk needs replacement, order a complete shaft assembly No. 20324-1 from the factory. Remove old assembly and install the new one in accordance

with instructions under IV, "Replacements." Return old unit for appropriate credit.

It is likely that the only reason for replacement would be deterioration of the rubber due to oil reaching it from the turntable bearing. Therefore, **DO NOT OVERFILL TURNTABLE BEARING.**

For best results, always operate Model 530 with turntable level as per **SETTING UP** instructions above.

## VII—PARTS LIST

In ordering parts, always specify model and serial number given on nameplate inside cabinet at left, and give Fairchild stock number of parts required. Fig. 1 shows the replaceable parts of Model 530.

Quantity per 530	Part Number	Name
1	A 20374	Spring
1	B 20323	Slide Assembly
1	D 20324-1	Drive Shaft Assembly
2	A 20325	Band Assembly, Slip Clutch
1	B 20322	Cog Assembly, 20 Grooves
1	B 20321	Cog Assembly, 23 Grooves
1	170F02	Spring, Helical (Closed Ends)
1	A 20239	Washer, Felt
1	G 20301	Motor, Item 18
1	G 20301	Belt, No. 9251, Item 22
1	G 20301	Belt, No. 9253, Item 21
1	A 125-106	Belt
1	A 20868	Detent (Specify Model No.)
1	B 20302	Ball, Item 16
1	B 524-92	Pad
1	A 20372	Slug
1	B 20320	Cog Assembly, 27 Grooves
1	B 20305	Motor Pulley Assembly
1	D 20307-1	Gear Box Assembly (60 cycle)
1	D 20307-2	Gear Box Assembly (50 cycle)
1	283F02	Switch, Mercury (SPST)—Modified
1	G 20306	Ball, Item 23
1	A 21025	Push Rod, Inner
1	A 21026	Push Rod, Outer
1	A 20709	Pin
1	B 21458	Flywheel

The 3-speed table is available in Kit form - everything except the cabinet for installation in consoles when desired.

Conversion Kits are also available for Fairchild 524 Tables and 523 Recorders.

Also 3-speed drive units for application to turntables of other manufacturers.

