

INSTRUCTIONS FOR INTERCHANGING 110 VOLT
60 CYCLE SYNCHRONOUS AND GOVERNED MOTORS ON
TELETYPE MODEL 15 PRINTERS, MODEL 14 REPERFORATORS
AND MODEL 14 TRANSMITTER DISTRIBUTORS

Where the frequency of the A.C. power supply is regulated within plus or minus 3/4%, the apparatus referred to herein is generally operated by synchronous motors. When frequency variations exceed this value, governed motors should be used.

Section 1 - Model 15 Printer

1.1 Parts to be interchanged

<u>Description</u>	<u>60 Cycle Synchronous</u>	<u>Governed</u>
	<u>Number</u>	<u>Number</u>
1.11 Main shaft drive gear	74913 (30 teeth)	74151 (35 teeth)
1.12 *Motor pinion	74912 (7 teeth)	74505 (7 teeth)
1.13 *Motor unit	MU4 (15D)	MU1 (15A)

*Note: Each pinion should be kept secured to the shaft of its associated motor unit for convenience in making conversions.

1.14 Fusetron 103284 (3.2 amp.) 103286 (1.6 amp.)

1.2 Conversion Procedure

1.21 Remove the typing unit from the base.

1.22 Change main shaft drive gear.

- (a) Remove 74101 oil plug from end of main shaft.
- (b) Remove 74916 gear hub and gear from main shaft.
- (c) Change gear on 74916 gear hub.
- (d) Reinstall 74916 gear hub and gear on main shaft.
- (e) Reinstall 74101 oil plug in end of main shaft.

1.23 Change motor unit (complete with pinion) on base, but do not tighten rear mounting screw until motor plate is adjusted.

1.24 Change fusetron in base receptacle.

1.25 Mount typing unit on base.

CAUTION: BE SURE THAT TEETH OF GEAR AND PINION ARE IN MESH BEFORE TIGHTENING TYPING UNIT THUMB SCREWS.

1.3 Adjustments (See Bulletin 138)

1.31 Motor Unit Slip Connection Springs Adjustment

1.32 Motor Plate Adjustment

1.33 Gear and Pinion Lubrication (grease)

1.34 Speed Setting (for governed motors only)

Section 2 - Model 14 Reperforator

2.1 Parts to be interchanged

<u>Description</u>	<u>60 Cycle Synchronous</u>	<u>Governed</u>
	<u>Number</u>	<u>Number</u>
2.11 Main shaft drive gear	78509 (30 teeth)	73106 (35 teeth)
2.12 *Motor pinion	78510 (7 teeth)	71974 (7 teeth)
2.13 *Motor unit	MU4 (15D)	MU1 (15A)

*Note: Each pinion should be kept secured to the shaft of its associated motor unit for convenience in making conversions.

2.14 Fusetron (in Model 19 table, or elsewhere external to machine)	103284 (3.2 amp.)	103286 (1.6 amp.)
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2.2 Conversion Procedure

- 2.21 Remove motor unit (complete with pinion).
- 2.22 Change main shaft drive gear.

- (a) Remove 86129 hub and gear from main shaft.
- (b) Change gear on 86129 hub.
- (c) Reinstall 86129 hub and gear on main shaft.

2.23 Install correct motor unit (complete with pinion), but do not tighten rear mounting screw until motor plate is adjusted.

2.24 Change fusetron (located in Model 19 table or elsewhere external to machine).

2.3 Adjustments (See Bulletin 147)

- 2.31 Motor Unit Adjustment
- 2.32 Gear and Pinion Lubrication (grease)
- 2.33 Speed Setting (for governed motors only)

Section 3 - Model 14 Transmitter Distributor

3.1 General Information

Transmitter distributors driven by 60 cycle synchronous motors are geared for a motor speed of 1800 r.p.m.; and those driven by governed motors are ordinarily equipped with 10-spot targets and geared for a motor speed of 2102 r.p.m. Thus, interchanging from synchronous to governed motor drive, and vice versa, ordinarily involves an inconvenient gear change.

In order to avoid gear changes when converting, the 103559 governed motor assembly is provided which is equipped with 6-35-spot double target for operation at 1800 r.p.m.

3.2 Parts to be interchanged

<u>Description</u>	<u>60 Cycle Synchronous</u>	<u>Governed</u>
	<u>Number</u>	<u>Number</u>
3.21 Stop arm spring	55669	*4703
3.22 Synchronous motor assembly, complete with fan and cable.	X	
*3.23 Governed motor assembly, complete with fan, 6-35 spot double target, governor contact filter, cable with 86960 contact assembly, including two 1159 screws, two 3640 lock washers, and two 41675 washers.		X
<p>*Note: Teletype number 103559 identifies the governed motor assembly per section 3.23 plus the 4703 spring.</p>		
3.24 Fusetron (in Model 19 table, or elsewhere external to machine)	103284 (3.2 amp.)	103287 (1.25 amp.)

3.3 Conversion Procedure

- 3.31 Remove 77068 base plate.
- 3.32 Disconnect motor leads from screw terminals 5 and 6 of the slip connection strip.
- 3.33 Change motor assembly. When making this change it is necessary to transfer the motor pinion from one motor shaft to the other.
- (a) When mounting the synchronous motor assembly, four 6035 screws and four 2846 washers are required.
- (b) When mounting the governed motor assembly, three 6035 screws and three 2846 washers are required. Attached to the governed motor cable is an 86960 contact assembly used to cut out a resistor in the motor circuit when the tape stop magnet armature is in the unoperated position. Mount this contact assembly on the lower front extension of the 77082 main shaft bracket, using the two 1159 screws, two 3640 lock washers, and two 41675 washers provided. Position it so that the bakelite extension on the contact spring makes contact with the stop arm when the stop magnet armature is held against the magnet core.
- 3.34 Change stop arm spring.
- 3.35 Connect motor leads to screw terminals 5 and 6 of the slip connection strip.
- (a) When connecting the synchronous motor assembly, the leads

should be threaded through the hole in the base under the motor near the pinion end.

- (b) When connecting the governed motor assembly, the leads should be threaded through the hole in the base below the main shaft lower bearing cap front mounting screw. The leads should then be directed toward the rear of the unit so as not to touch the start magnet resistor, avoiding interference with all moving parts.

3.36 Reinstall 77068 base plate.

3.37 Change fusetron (located in Model 19 table, or elsewhere external to unit).

3.4 Adjustments

3.41 Stop Arm Contact Spring Tension Adjustment - (Governed Motors Only)

Hook an 8 oz. scale over the bakelite extension on the contact spring and pull toward the front of the unit. It should require 2 to 2-3/4 oz. to separate the contacts.

Note: When checking this adjustment, the bakelite extension on the spring must not touch the stop arm. Shift the contact bracket as necessary.

To adjust, bend the thin contact spring.

3.42 Stop Arm Contact Gap Adjustment - (Governed Motors Only)

There should be a clearance of .015" to .020" between the contacts when the stop arm is held against the magnet core.

To adjust, loosen the contact bracket mounting screws and position the bracket. Tighten the screws.

3.43 Stop Arm Spring Tension - (All Units)

With the stop arm resting on the low part of the stop cam, hook an 8 oz. scale over the end of the stop arm and pull at a right angle to the stop arm. The following tension should be required to start the stop arm moving away from the stop cam:

For synchronous motors 5 to 7 ounces

*For governed motors. 1 to 1-3/4 ounces

*Note: The bakelite extension of the contact spring must not touch the stop arm when this measurement is made.

3.44 Motor Position - (All Units)

There should be a minimum amount of backlash between the motor pinion and the main shaft gear throughout a complete revolution of the gear.

To adjust, loosen the 6035 mounting screws and position the motor assembly. Tighten the screws.

3.45 Motor Speed Adjustment - (Governed Motors Only)

The 6-35-spot double target is provided to facilitate correct adjustment of motor speed. When the governor is adjusted so that the motor is running at the correct speed (1800 r.p.m.), the 35-spot target will appear to be stationary and the 6-spot target will appear to be moving in the direction of motor rotation, when the double target is viewed through the vibrating shutters of an 87.6 V.P.S. fork.

If this condition does not exist, stop the motor and turn the governor adjusting wheel in one direction or the other a little at a time checking the speed after each adjustment until the correct speed is obtained.

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