

28 AND 35 ANSWER-BACK UNIT

ADJUSTMENTS

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1. GENERAL

1.01 This section is reissued to add coverage of the 5- and 8-level answer-back unit. The section has been revised to include recent engineering changes and additions and to rearrange the text. Since this is a general revision, marginal arrows ordinarily used to indicate changes and additions are omitted.

1.02 The adjustments in this section are arranged in a sequence that should be followed if a complete readjustment is undertaken. A complete adjusting procedure should be read before attempting to make the adjustment. After an adjustment is made, be sure to tighten any nuts or screws that may have been loosened, unless otherwise instructed.

1.03 The adjustment illustrations indicate tolerances, positions of moving parts, spring tensions, and the angle at which scales should be applied. The tools required to make adjustments and check spring tensions are not supplied with the equipment, but are listed in the appropriate section under separate cover. Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced by new springs.

1.04 Where adjustment instructions call for removal of components, assemblies, subassemblies, or parts, all adjustments which the removal of these parts might facilitate should be made before the parts are replaced, or as the equipment is reassembled. When a part mounted on shims is removed, the number and location of shims should be noted so that the identical pile-up can be made when the part is replaced.

1.05 All electrical contact points should meet squarely. Contacts with the same diameter should not be out of alignment more than 25 per cent of the contact diameter. Check contacts for pitting and corrosion and clean or burnish them before making the specified adjustment or tolerance measurement. Avoid sharp kinks or bends in the contact springs.

Note: Keep all electrical contacts free of oil and grease.

1.06 References made to left or right, up or down, and front or rear apply to the answer-back unit as viewed from the side with

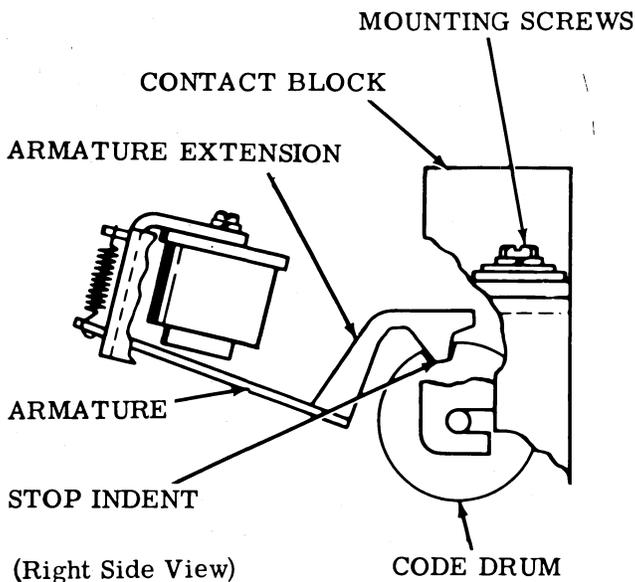
the answer-back mechanism to the left and the motor to the right.

1.07 Unless otherwise specified, where the stop position of the answer-back mechanism is referred to, the lugs of both the clutch release lever and shaft stop lever should be against the armature, with the armature extended.

1.08 Instructions for coding the answer-back drum are not included in this section. Refer to the appropriate section covering installation of the answer-back unit for detailed coding instructions.

2. BASIC UNITS

2.01 Trip Mechanism



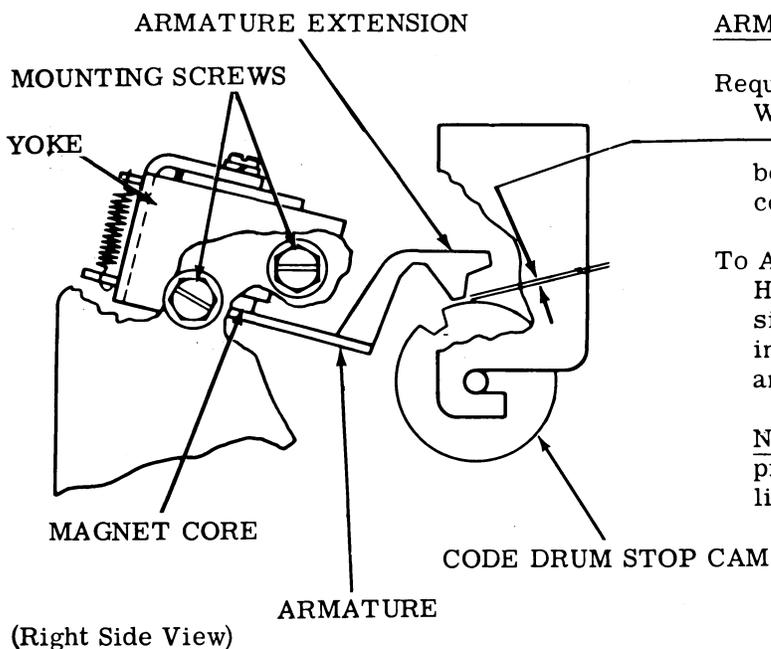
CONTACT BLOCK POSITION (Preliminary)

Requirement

Answer-back in stop position, armature extension must drop into stop indent in code drum stop cam.

To Adjust

Step code drum to last character. Rotate main shaft further until the motor hold cam allows armature to drop. Position the contact block until armature extension drops into indent with the contact block mounting screws loosened.



ARMATURE EXTENSION GAP

Requirement

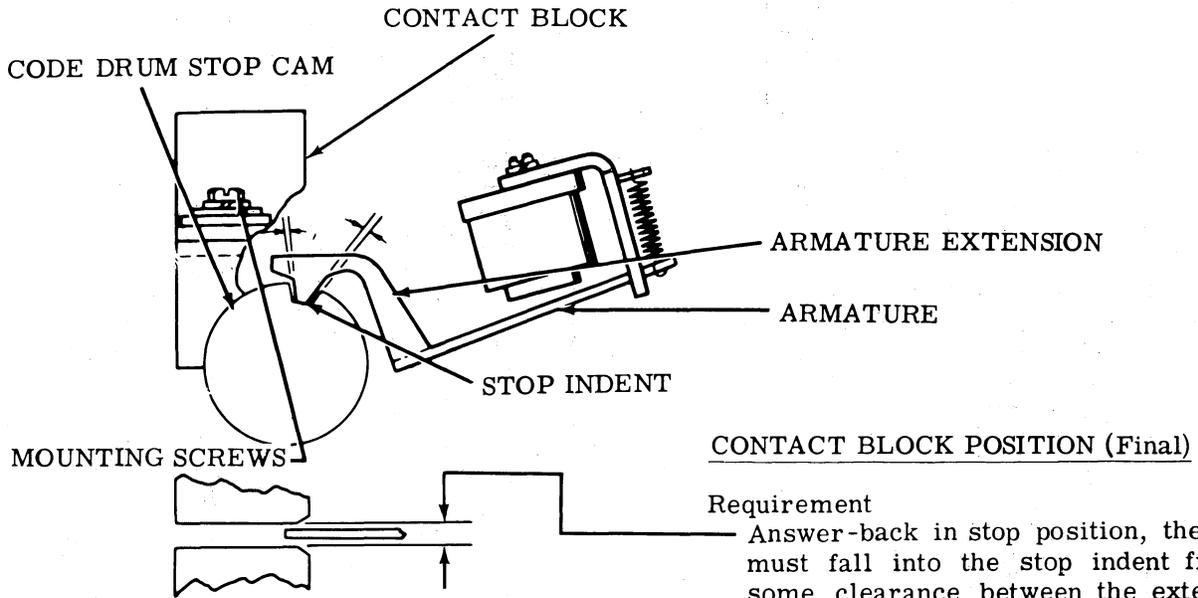
With armature held against magnet core
Min some---Max 0.015 inch
between armature extension and high part of code drum stop cam.

To Adjust

Hold armature against magnet core and position magnet yoke assembly with its mounting screws friction tight. Recheck clearance after tightening screws.

Note: When holding armature against core, press between pivot and core to prevent lifting armature.

2.02 Trip Mechanism (continued)



(Left Side View)

Requirement

Answer-back in stop position, the armature must fall into the stop indent freely with some clearance between the extension and each side of the stop indent. The side to side play of the armature must be limited by the width of the groove in the contact block rather than the edges of the yoke.

To Adjust

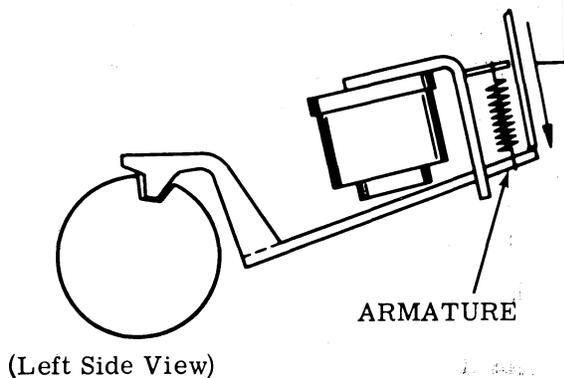
Position the contact block with its mounting screws loosened. Tighten screws.

Note: Keep back of block approximately parallel and in line with back of frame.

CLUTCH TRIP MAGNET ARMATURE SPRING

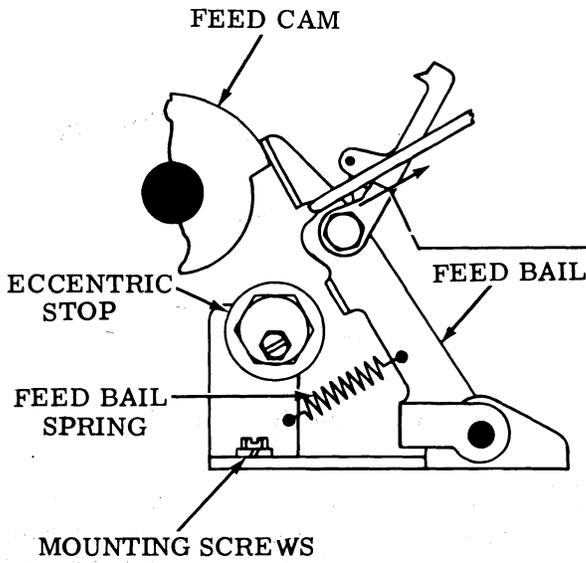
Requirement

Min 7 oz---Max 9 oz
to start heel end of armature moving.



(Left Side View)

2.03 Feed Mechanism



(Right Side View)

FEED BAIL SPRING

Requirement

With code drum removed and feed bail on high part of its cam
Min 15 oz---Max 17 oz
to start bail moving.

To Adjust

With bracket mounting screws friction tight, position bracket to increase or decrease tension. Tighten screws.

Note: When new code drum is installed, refine spring tension toward 17 ozs.

FEED PAWL

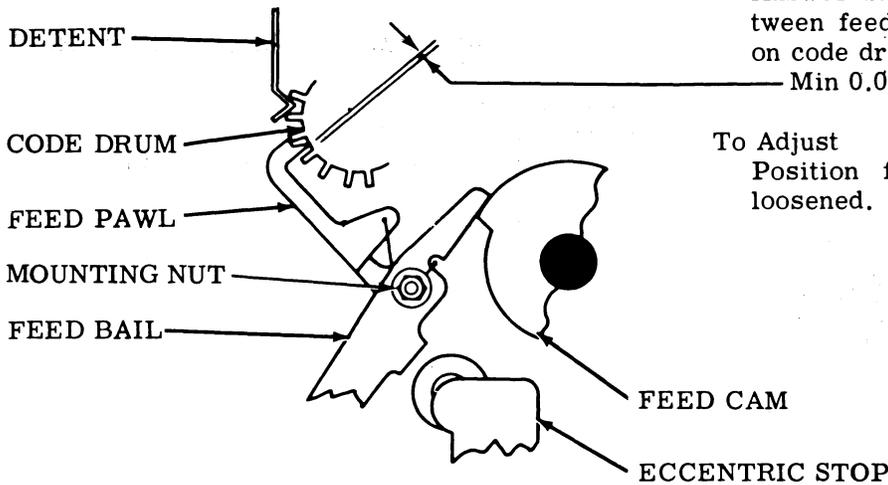
Requirement

Answer-back in stop position, clearance between feed pawl engaging surface and tooth on code drum.

Min 0.005 inch---Max 0.015 inch

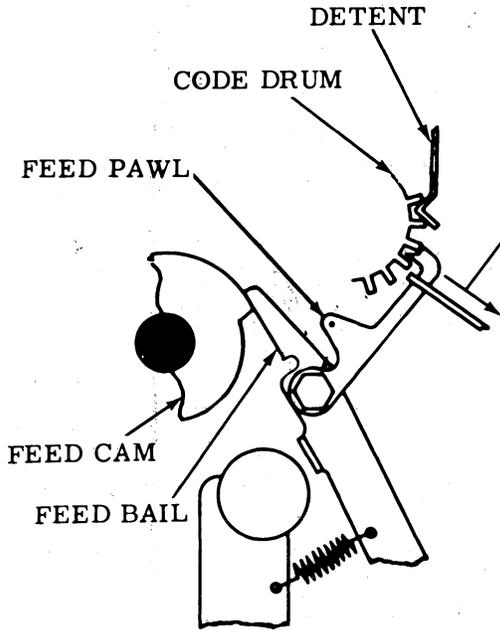
To Adjust

Position feed pawl with its mounting nut loosened. Tighten nut and recheck.



(Left Side View)

2.04 Feed Mechanism (continued)



(Right Side View)

FEED PAWL SPRING

Requirement

With answer-back in stop position and code drum in place

Min 1/2 oz---Max 1-1/2 oz
to start pawl moving.

ECCENTRIC STOP POSITION

Requirement

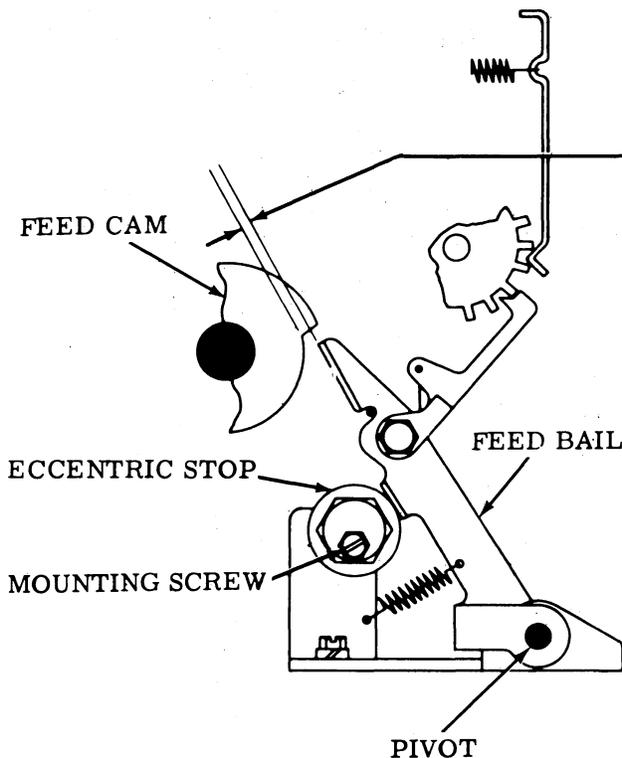
With feed bail in lowest position of its travel opposite low part of its cam resting on eccentric stop, clearance between feed cam and feed bail.

Min 0.055 inch---Max 0.075 inch

To Adjust

Rotate eccentric with its mounting screw loosened. Tighten screw.

Note: Keep high part of eccentric away from pivot point of feed bail to insure that eccentric stop bears against flat surface of bail extension and not on its lower edge.



(Right Side View)

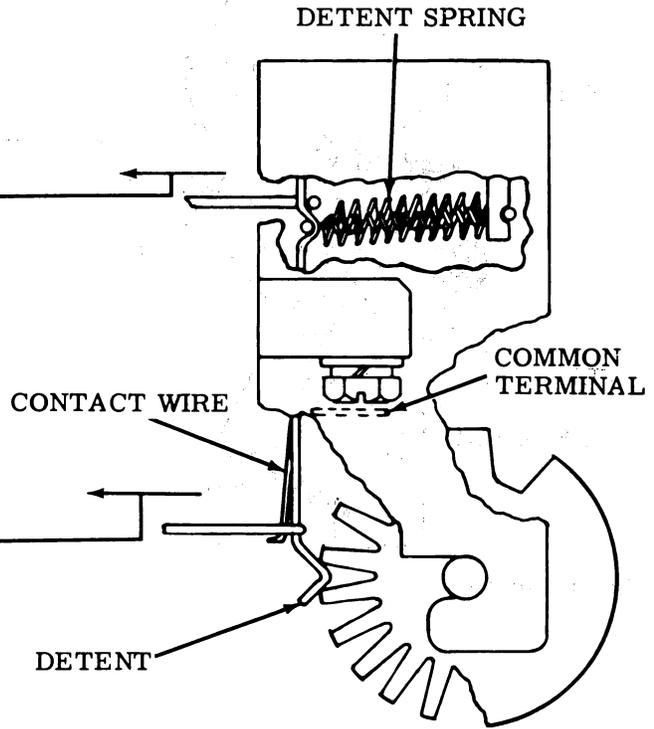
2.05 Feed Mechanism (continued)

CODE DRUM CONTACT WIRE SPRING

Requirement
 Min 1 oz---Max 2 oz
 to start contact wire moving away from
 common terminal.

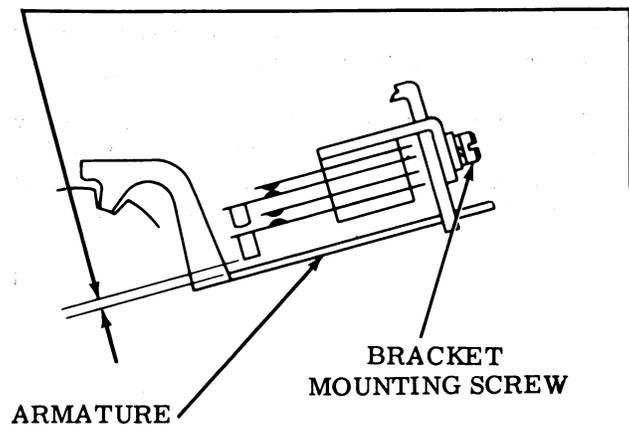
CODE DRUM DETENT SPRING

Requirement
 Min 9 oz---Max 11 oz
 to start detent moving.



(Left Side View)

2.06 Relay Brackets and Contacts



(Left Side View)

MOTOR HOLD AND RELAY PULL-UP CON-
 TACT BRACKET

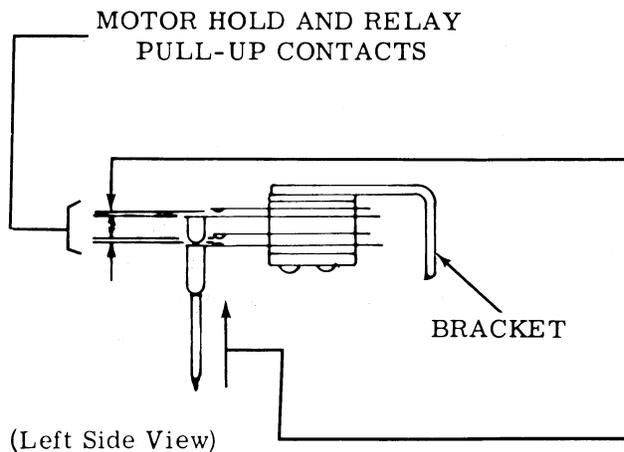
Requirement
 Trip magnet armature released clearance
 between insulator on contact and armature
 Min 0.015 inch---Max 0.030 inch

To Adjust
 Position contact bracket with its mounting
 screws loosened. Tighten screws.

Note: Keep bottom bracket parallel with
 armature pivot axis.

2.07 Relay Brackets and Contacts (continued)

MOTOR HOLD AND RELAY PULL-UP CONTACT

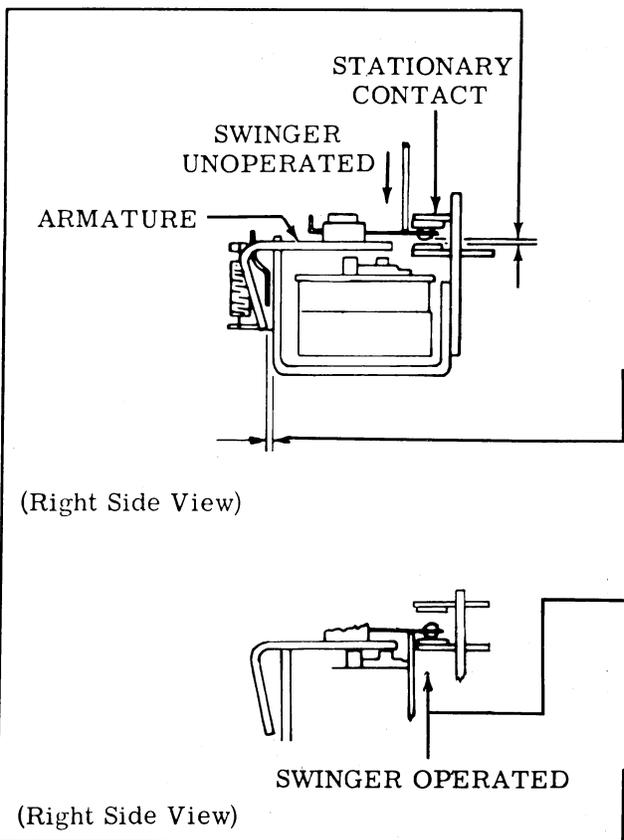


Note: The adjustments are made before installation into the unit and should be checked or remade only in case of malfunction attributed to maladjustment of the contacts. If it should become necessary to remake the adjustment, the following procedure should be followed. Remove contact assembly with bracket from magnet yoke.

- (1) Requirement
The gap between the contacts in the unoperated position should be
Min 0.020 inch---Max 0.030 inch
- (2) Requirement
Min 25 grams---Max 50 grams
to close both contacts.

To Adjust
Bend contacts to meet requirements.

NONREPEAT RELAY

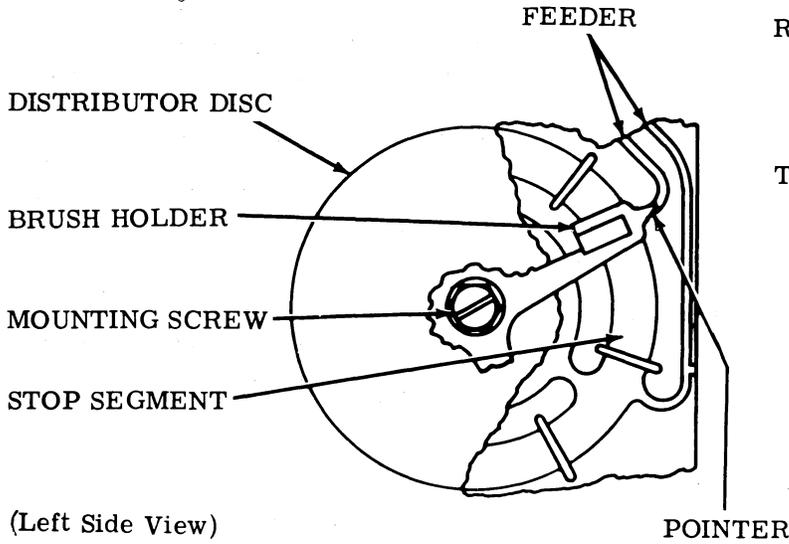


Note: These adjustments are made before installation into the unit and should be checked or remade only in case of malfunction attributed to maladjustment. If it should become necessary to remake the adjustment, the following procedure should be followed:

- (1) Requirement
With armature released, clearance between armature stops and frame
Min 0.015 inch---Max 0.025 inch
- (2) Requirement
The make contact (double) should close a minimum of 0.003 inch before the break (single) contact opens.
- (3) Requirement
Minimum of 15 grams to move the swinger away from the stationary contacts when the armature is in either the operated or unoperated position.
- (4) Requirement
The minimum contact gap should be 0.012 inch.

To Adjust
Bend armature stops, stationary contacts, and contact springs to meet requirements.

2.08 Distributor Brushes



DISTRIBUTOR BRUSH HOLDER

Requirement

With answer-back in stop position, the pointer on the brush holder should point to the feeder of the stop segment.

To Adjust

Turn brush holder clockwise with its mounting screw loosened. Tighten screw.

CAUTION: DO NOT TURN BRUSH HOLDER COUNTERCLOCKWISE. DAMAGE TO BRUSHES MAY RESULT.

BRUSH HOLDER SPRING

Requirement

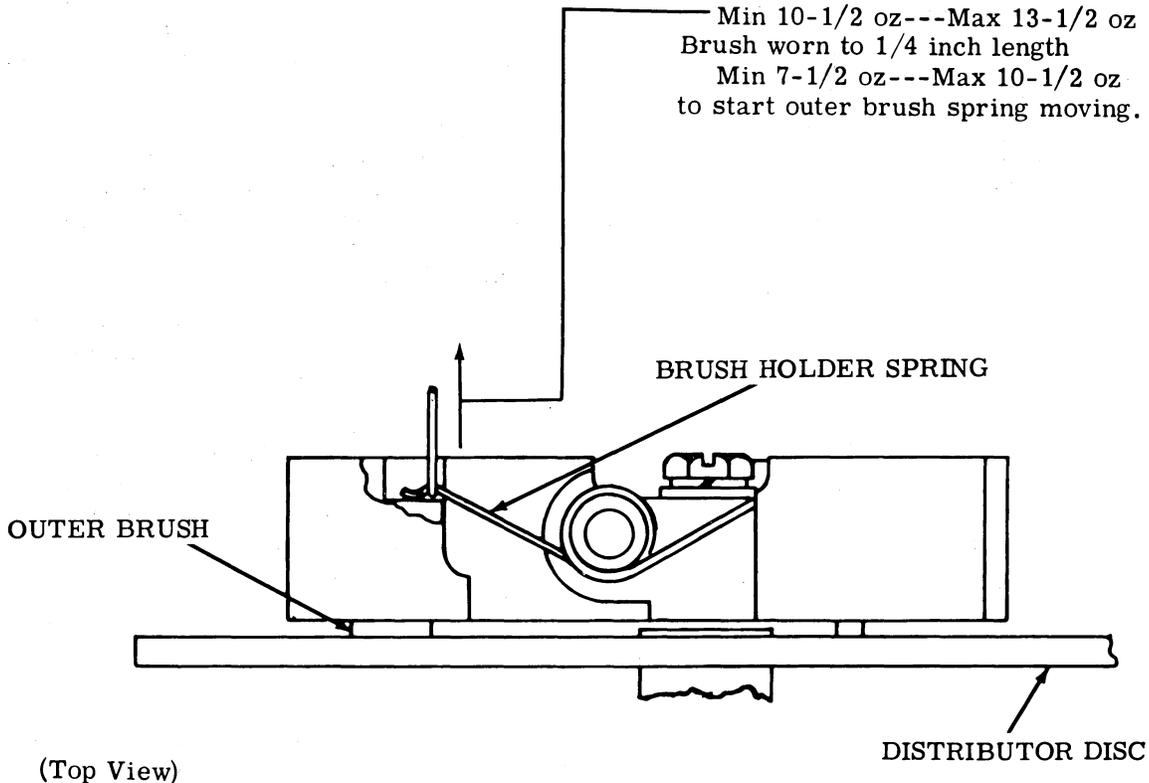
New brush

Min 10-1/2 oz---Max 13-1/2 oz

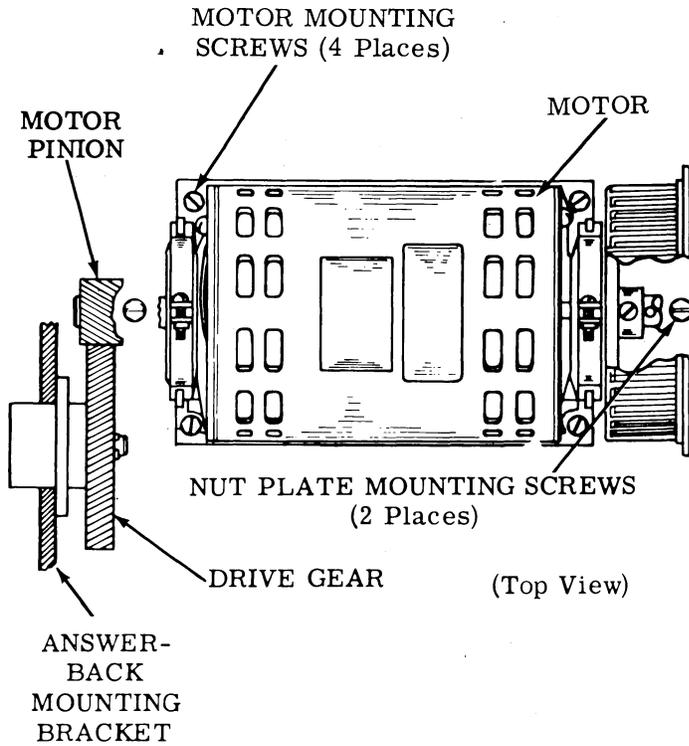
Brush worn to 1/4 inch length

Min 7-1/2 oz---Max 10-1/2 oz

to start outer brush spring moving.



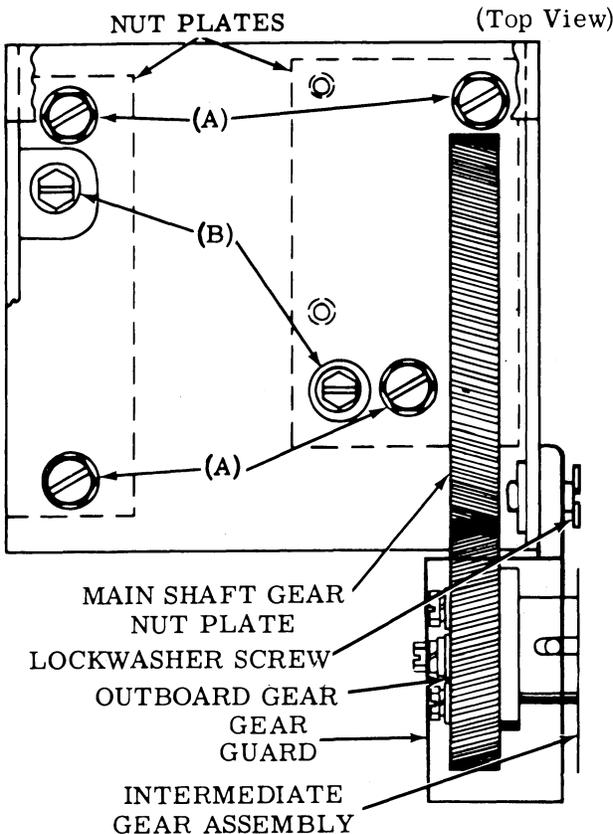
2.09 Gear Backlash



GEAR BACKLASH — SELF-CONTAINED UNIT

- (1) Requirement
Backlash between motor pinion and drive gear should be
Min 0.004 inch---Max 0.008 inch
- (2) Requirement
Adjust for minimum noise.

To Adjust
With motor mounting and nut plate screws friction tight, position motor until requirements are met. Tighten motor screws and nut plate screws.



Note: The following adjustment is made after intermediate gear assembly to typing unit gear and motor pinion gear adjustments have been made.

GEAR BACKLASH — RO, KSR

- Requirement
Backlash, at point of minimum clearance between answer-back main shaft gear and outboard gear of intermediate gear assembly on base
Min 0.004 inch---Max 0.008 inch gauge by feel.

To Adjust
With two nut plate screws (B) friction tight, loosen four answer-back mounting screws (A). Move answer-back all the way toward front in mounting holes. Tighten four answer-back mounting screws to friction tight and loosen two nut plate screws. Position assembly. Tighten all screws.

2.10 Gear Backlash (continued)

GEAR BACKLASH — ASR (Transmitter Base)

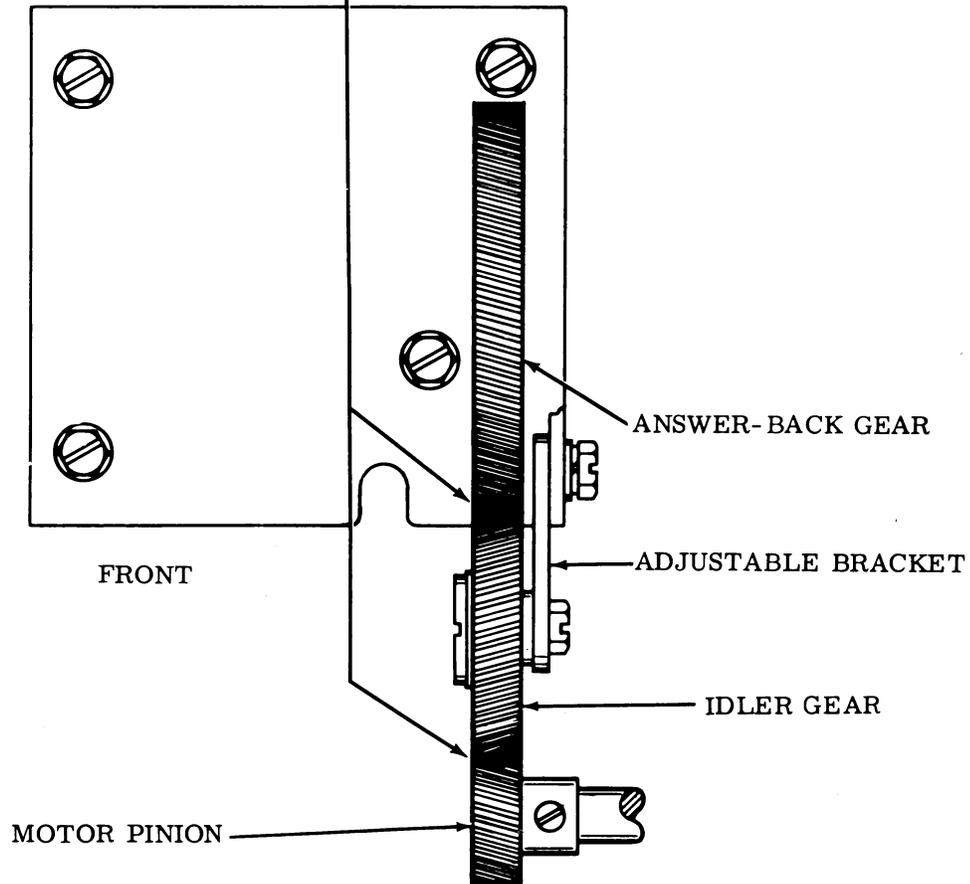
Requirement

Backlash between idler gear and both the answer-back gear and the motor pinion
 Min 0.004 inch---Max 0.008 inch—
 gauge by feel.

To Adjust

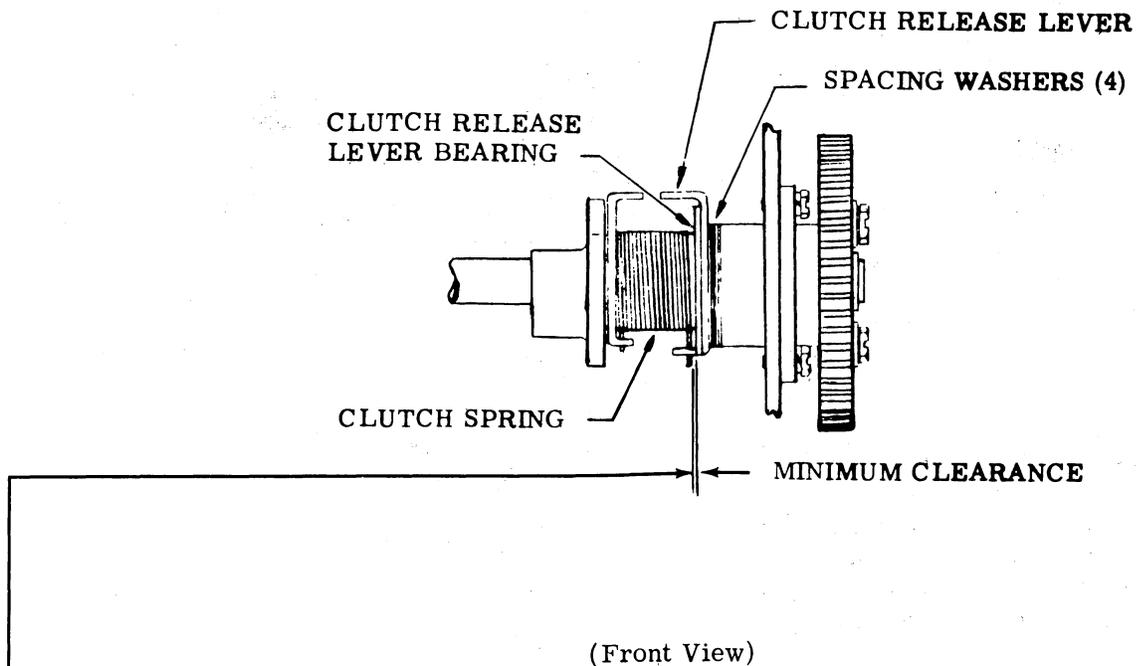
With answer-back assembly moved all the way toward front and mounting screws tight, loosen two screws which secure idler gear adjustable bracket to frame and position idler gear to provide the required backlash. Tighten screws. The answer-back assembly may be removed from the base and replaced without remaking the adjustment by taking up all the play in the mounting holes in the same manner.

Note: (For applicable units only.) The mechanical clearance between the multiple wire distributor and the answer-back on the transmitter base is quite critical. The possibility exists of a mechanically produced electrical short circuit if the clutch disc stop lug on the distributor clutch contacts the answer-back distributor card. If this occurs, the fourth and fifth levels will be dropped whenever the answer-back distributor card is in the signal circuit (on-line KT and K modes). Check this clearance before performing the station tests. Trip the distributor solenoid and rotate the fan until the clutch disc stop lug is closest to the answer-back distributor card. There should be a minimum of 0.040 inch between the clutch disc stop-lug and the distributor card. To adjust, loosen the four answer-back mounting screws and move the answer-back away from the distributor clutch to meet requirement. Make sure the gear backlash is not excessive and then tighten the mounting screws.



(Top View)

2.11 Trip Mechanism (continued)

**LATERAL CLUTCH SPRING**

(This adjustment need only be made when the clutch and drive gear assembly has been dismantled.)

Requirement

There should be a minimum amount of lateral play between the clutch spring and clutch release lever bearing when all play is taken up.

To Adjust

During assembly, add the proper number of spacing washers to meet the requirement. The nominal amount is four. Check assembly to be sure that the clutch spring has no overriding loops when taking up the play.