

# **28 REPERFORATOR-TRANSMITTER UNIT AND SET REQUIREMENTS AND ADJUSTMENTS**

<b>CONTENTS</b>	<b>PAR. NO.</b>
<b>1. GENERAL</b> .....	1.01-1.06
<b>2. REQUIREMENTS AND ADJUSTMENTS OF 28 REPERFORATOR-TRANSMITTER UNIT</b>	2.01-2.14
Code Hole and Sensing Pin Alignment .....	2.14
Gear Mechanisms .....	2.07-2.10
Fixed Speed Gear Alignment (Receiving End) .....	2.08
Idler—Cross Shaft Driven Gear Mesh ....	2.08
Idler Gear—Motor Pinion Mesh .....	2.09
Shaft Gear Alignment (Transmitting and Receiving Ends) .....	2.07
Shift Gear Key Alignment .....	2.07
Transmitter Driving and Distributor Shaft Driven Gear Mesh .....	2.10
Horizontal Alignment of Pivoted Sensing Head and Punch .....	2.11
Last Character Contact Switch .....	2.12(C)
Motor of Unit .....	2.05
Oil Shield .....	2.13
Rear Tape Guide Bracket .....	2.12(A)
Rear Tape Guide Roller .....	2.12(B)
Single-magnet Nontyping Reperforator of Unit So Equipped .....	2.03
Tape Depressor .....	2.11
Transmitter-Distributor of Unit .....	2.04
Typing Reperforator of Unit So Equipped ....	2.02

**28 REPERFORATOR-  
TRANSMITTER**

**P34.635**

**UNIT  
AND  
SET**

## CONTENTS (Contd)

## PAR. NO.

Variable Features of Unit .....	2.06
Vertical Alignment of Pivoted Sensing Head and Punch .....	2.10
<b>3. REQUIREMENTS AND ADJUSTMENTS OF 28 REPERFORATOR-TRANSMITTER SET ....</b>	<b>3.01-3.02</b>
A. Reperforator-Transmitter Unit .....	3.01
B. Reperforator-Transmitter Stand .....	3.02
<b>4. ASSOCIATED BELL SYSTEM PRACTICE ....</b>	<b>4.01</b>

**1. GENERAL**

1.01 This section contains the specific requirements and adjustments for the 28 reperforator-transmitter unit and set. The material herein, together with the section containing the general requirements on teletypewriter apparatus, provides the complete adjusting information necessary for maintenance.

1.02 This section is reissued to revise various requirements adjustments so as to bring the section generally up to date. Since this is a general revision, the marginal arrows ordinarily used to indicate changes have been omitted.

1.03 The 28 reperforator-transmitter set consists of a reperforator-transmitter unit and a reperforator-transmitter stand. The reperforator-transmitter unit is made up of a typing or a single-magnet nontyping reperforator, a pivoted-head multicontact transmitter-distributor, a motor, and drive gears assembled on a casting. The reperforator-transmitter stand provides the tape-handling facilities and the framework to hold the unit. A detailed description is given in the section containing the list of units and auxiliary features for the 28 reperforator-transmitter set.

1.04 Where a requirement calls for the clutch to be **disengaged**, the clutch-shoe lever must be fully latched between its triplever and latchlever so that the clutch shoes release their tension on the clutch drum. When **engaged**, the clutch-shoe lever is unlatched and the clutch shoes are wedged firmly against the clutch drum.

**Note:** When rotating either the sensing shaft or distributor shaft by hand, the clutch does not fully disengage upon reaching its stop position. In order to relieve the drag on the clutch and permit the shaft to rotate freely, apply pressure on the lug of the clutch disc with a screwdriver to cause it to engage its latchlever, and thus dis-

engage the internal-expansion clutch shoes from the clutch drum.

1.05 When rotating the drive-shaft gear by hand, rotate in a counterclockwise direction as viewed from the exposed side of the drive-shaft gear.

1.06 In this practice, all references to direction apply to the unit in its normal operating position with the viewer facing the tape-storage bin.

## 2. REQUIREMENTS AND ADJUSTMENTS OF 28 REPERFORATOR-TRANSMITTER UNIT

2.01 The following figures show the adjusting tolerances, positions of moving parts, and spring tensions. The illustrations are arranged so that the adjustments are in the sequence that would be followed if a complete readjustment of the apparatus were being made. In some cases where an illustration shows interrelated parts, the sequence that should be followed in checking the requirements and making the adjustments is indicated by the letters (A), (B), (C), etc.

2.02 **Typing Reperforator of Unit So Equipped:** Refer to the requirements specified herein and those in the section containing the requirements and adjustments for the 28 typing reperforator.

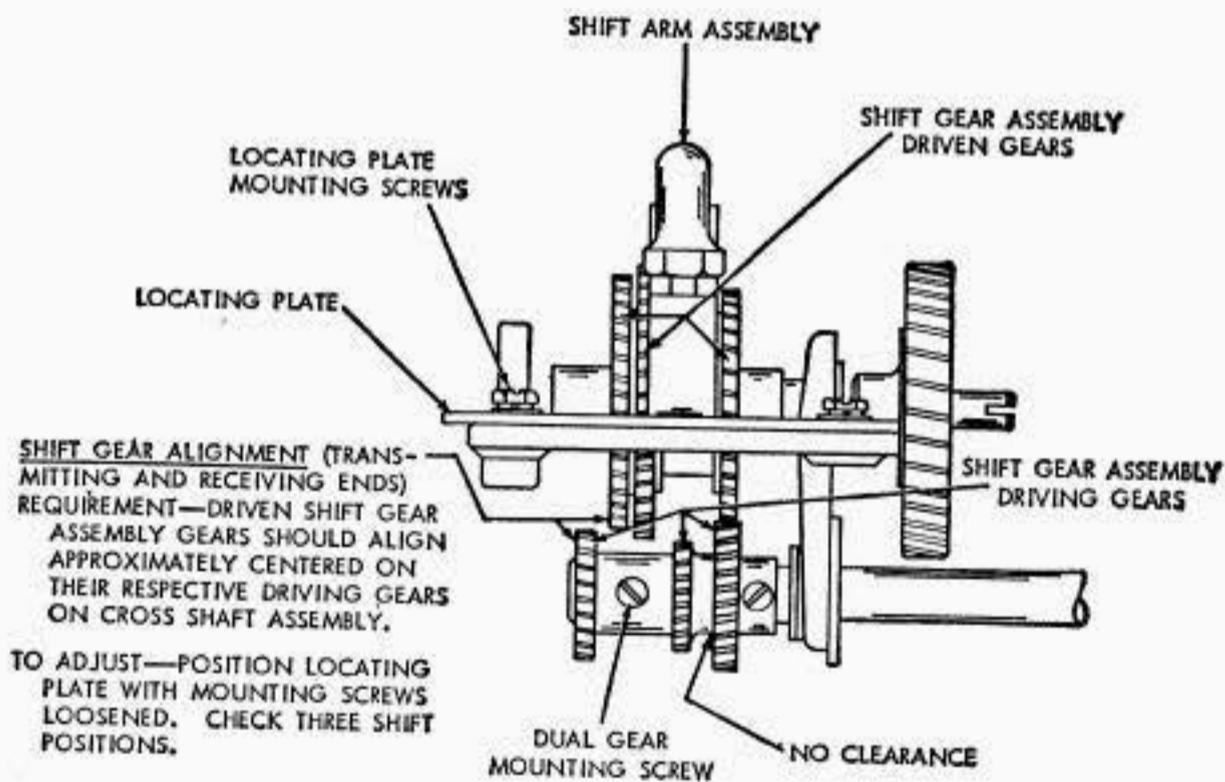
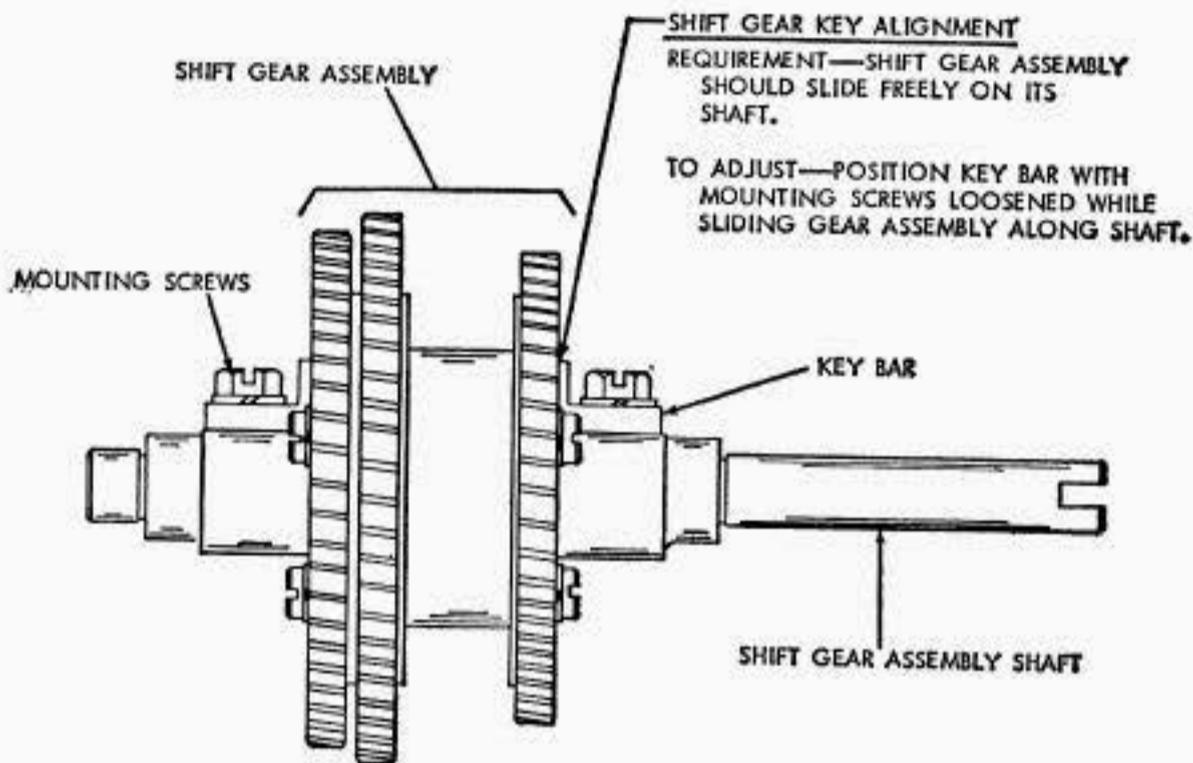
2.03 **Single-magnet Nontyping Reperforator of Unit So Equipped:**  
Refer to the requirements specified herein and those in the section containing the requirements and adjustments for the 28 nontyping reperforator.

2.04 **Transmitter-Distributor of Unit:** Refer to the requirements specified herein and those in the section containing the requirements and adjustments for the 28C transmitter-distributor unit.

2.05 **Motor of Unit:** Refer to the section containing the requirements and adjustments for the 28 motor units.

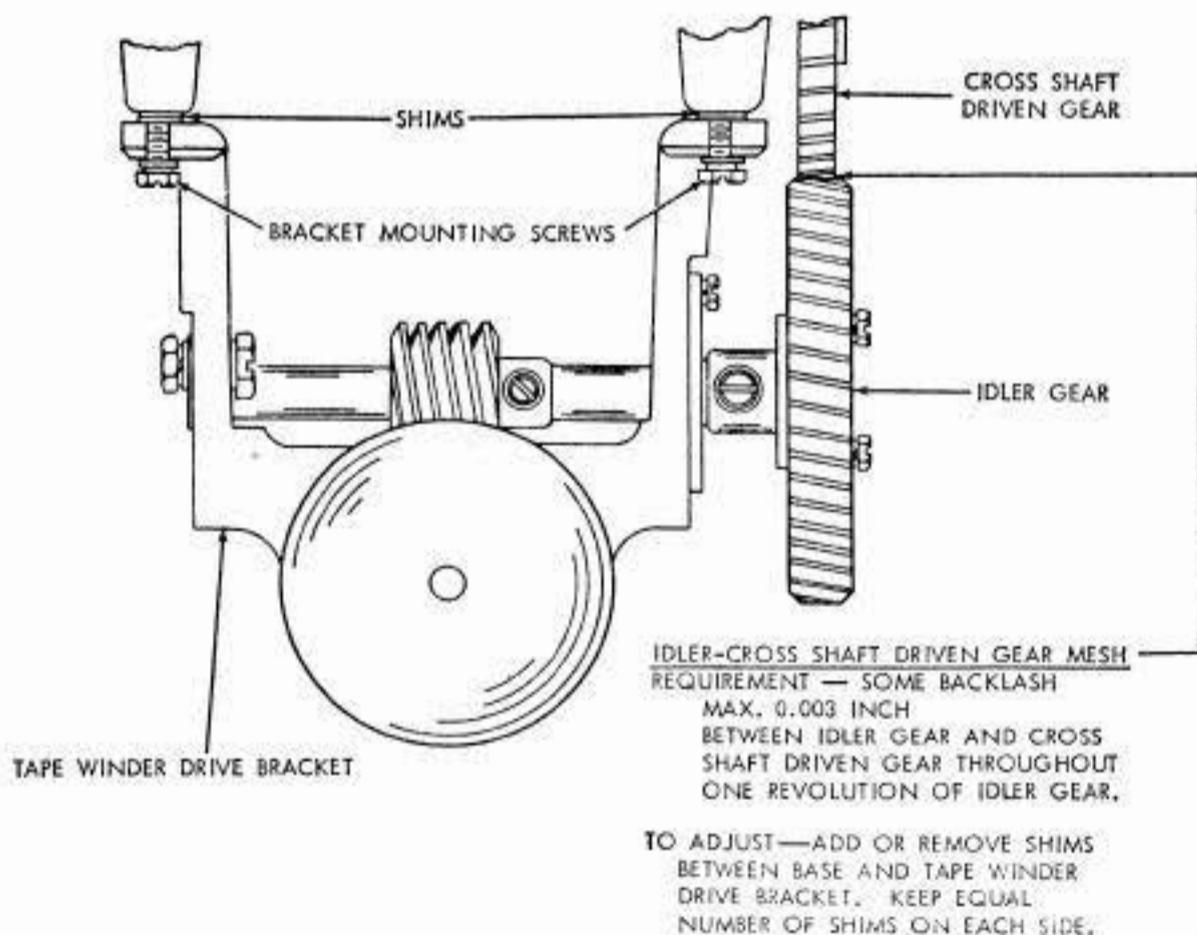
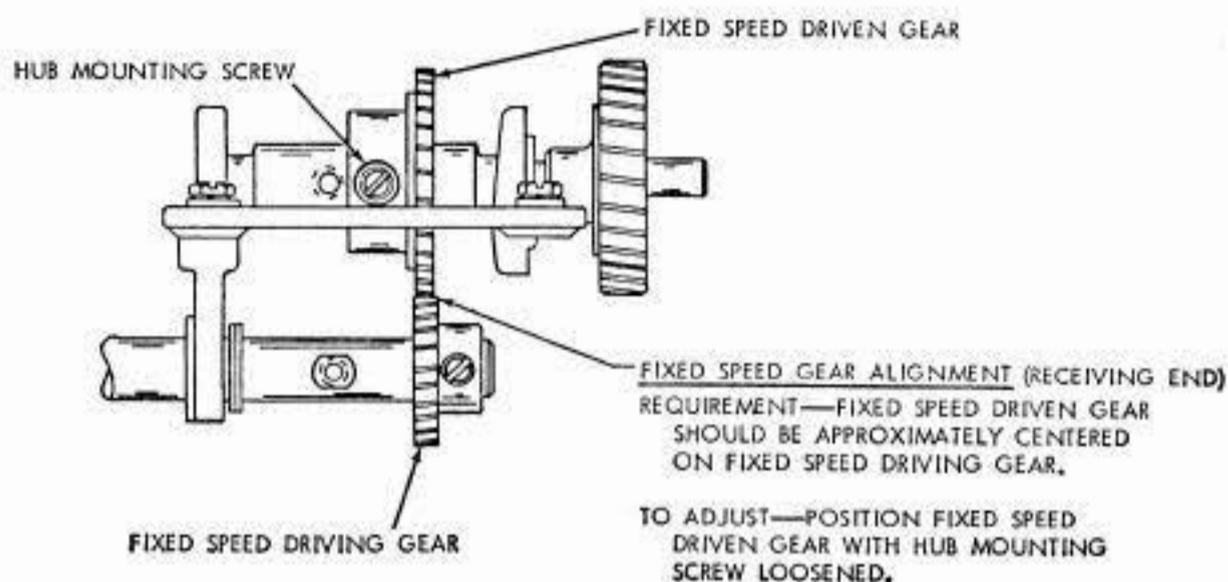
2.06 **Variable Features of Unit:** Requirements and adjustments for the variable features are as specified in the sections containing the requirements and adjustments for the previously mentioned components of the 28 reperforator-transmitter unit.

## 2.07 Shift Gear Mechanism



**NOTE**  
 MAKE CERTAIN THAT THE TWO PORTIONS OF THE SHIFT GEARS ON THE CROSS SHAFT ASSEMBLY ARE MOUNTED WITH NO CLEARANCE BETWEEN THEM. IF THERE IS CLEARANCE, LOOSEN DUAL GEAR MOUNTING SCREW AND ELIMINATE CLEARANCE BEFORE MAKING ABOVE ADJUSTMENT.

## 2.08 Fixed Speed, Idler, and Cross Shaft Driven Gear Mechanisms



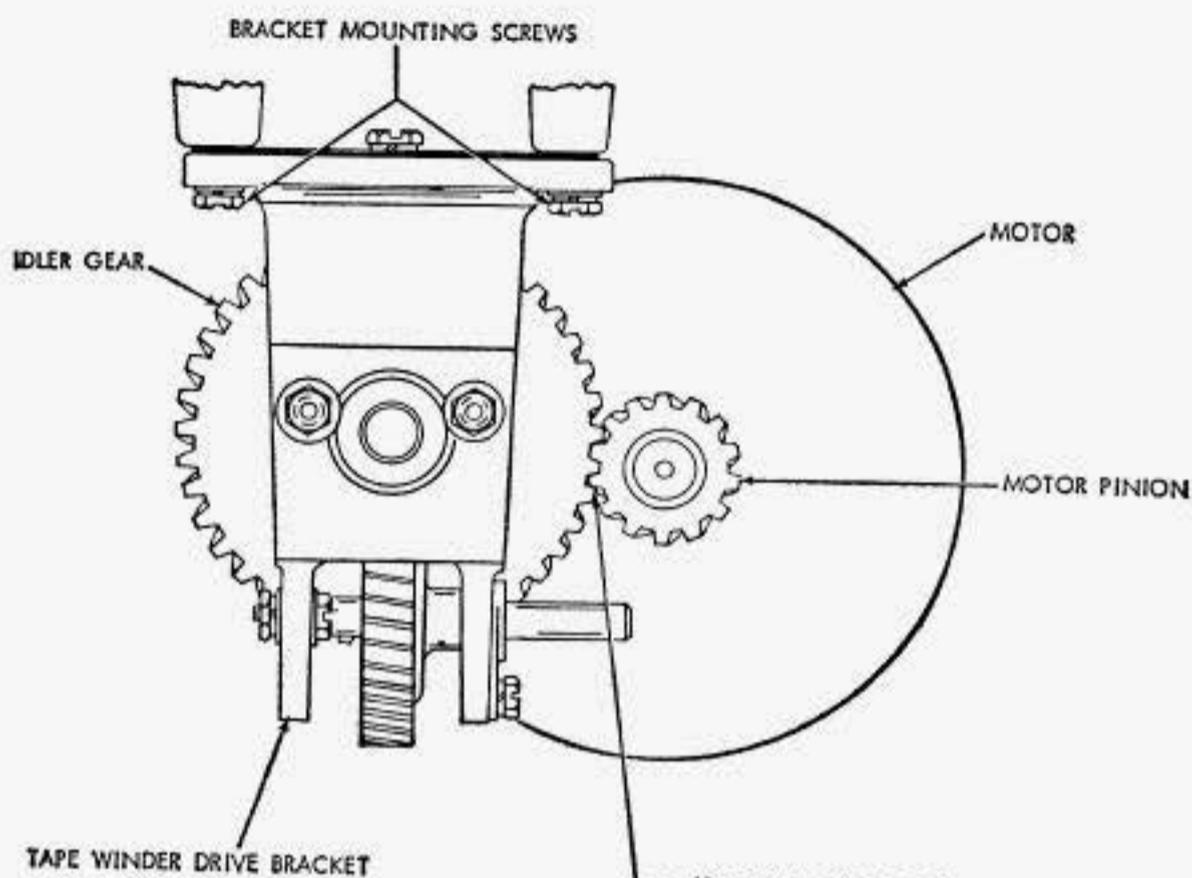
28 REPERFORATOR-  
 TRANSMITTER

P34.635

Page 5

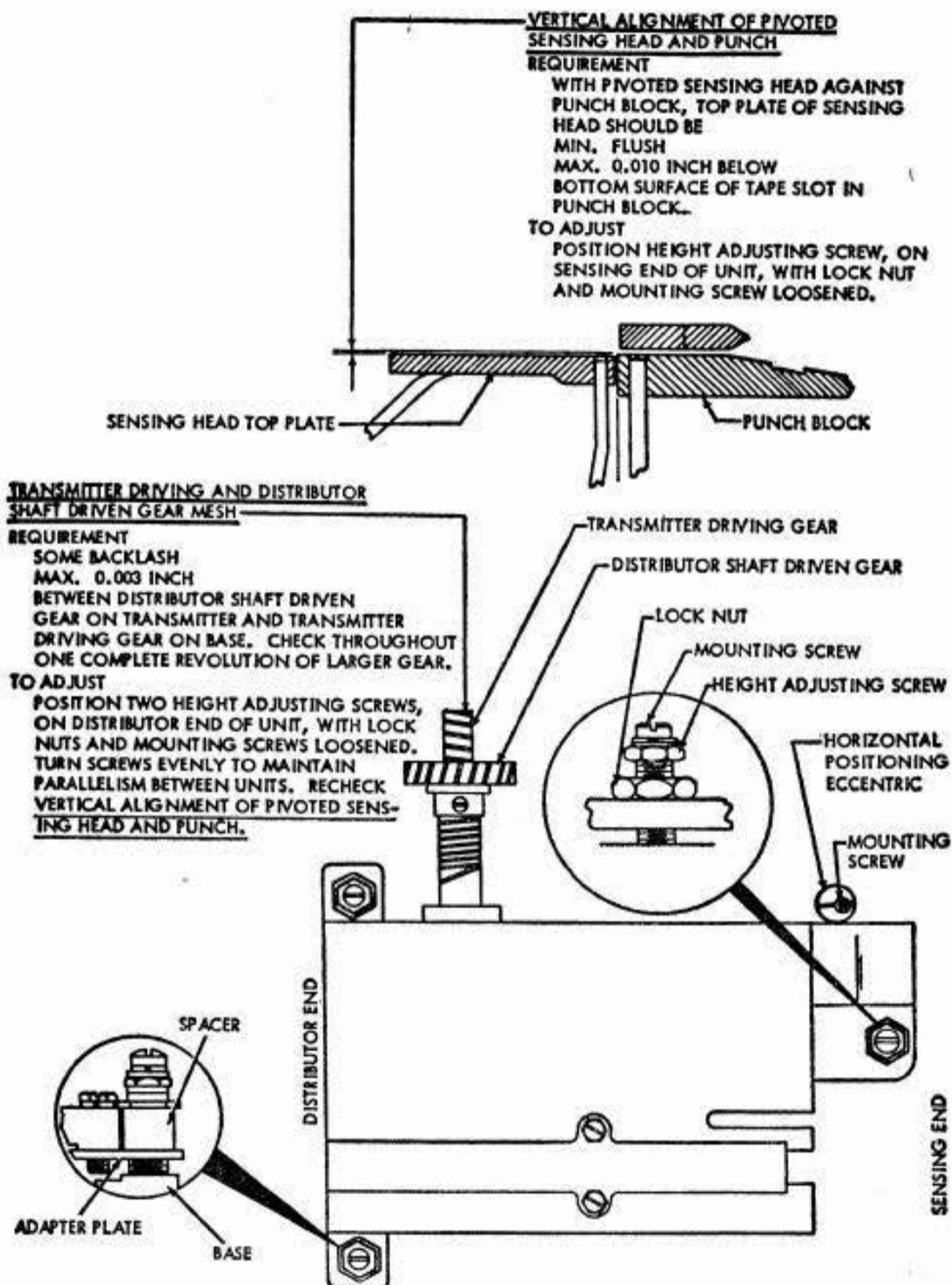
UNIT  
 AND  
 SET

## 2.09 Idler Gear—Motor Pinion Mesh



IDLER GEAR—MOTOR PINION MESH  
REQUIREMENT — SOME BACKLASH  
MAX. 0.003 INCH  
BETWEEN IDLER GEAR AND  
MOTOR PINION THROUGHOUT ONE  
REVOLUTION OF IDLER GEAR.  
TO ADJUST—POSITION TAPE WINDER  
DRIVE BRACKET WITH MOUNTING  
SCREWS LOOSENED.

## 2.10 Vertical Alignment of Pivoted Sensing Head and Punch and Transmitter Driving and Distributor Shaft Driven Gear Mesh



28 REPERFORATOR-  
 TRANSMITTER

P34.635

UNIT  
 AND  
 SET

## 2.11 Horizontal Alignment of Pivoted Sensing Head and Punch and Tape Depressor

### HORIZONTAL ALIGNMENT OF PIVOTED SENSING HEAD AND PUNCH REQUIREMENT

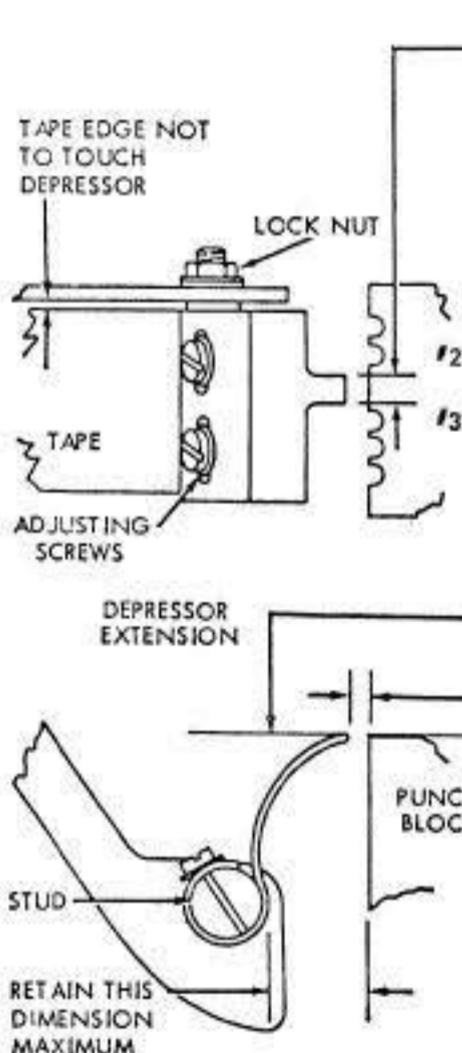
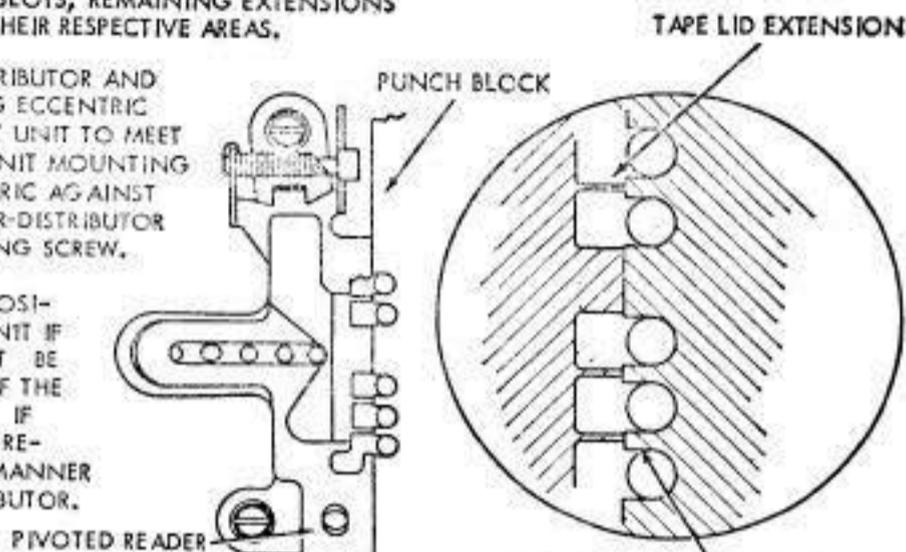
WHEN ONE TAPE LID EXTENSION IS CENTERED ON RESPECTIVE AREA BETWEEN PUNCH PIN SLOTS, REMAINING EXTENSIONS SHOULD BE FULLY WITHIN THEIR RESPECTIVE AREAS.

#### TO ADJUST

LOOSEN TRANSMITTER-DISTRIBUTOR AND HORIZONTAL POSITIONING ECCENTRIC MOUNTING SCREWS. SHIFT UNIT TO MEET REQUIREMENT. TIGHTEN UNIT MOUNTING SCREWS. POSITION ECCENTRIC AGAINST REAR PLATE OF TRANSMITTER-DISTRIBUTOR AND TIGHTEN ITS MOUNTING SCREW.

#### NOTE

IT MAY BE NECESSARY TO POSITION THE REPERFORATOR UNIT IF THE REQUIREMENT CANNOT BE MET BY THE ADJUSTMENT OF THE TRANSMITTER-DISTRIBUTOR. IF NECESSARY, POSITION THE REPERFORATOR IN THE SAME MANNER AS THE TRANSMITTER-DISTRIBUTOR.



#### TAPES DEPRESSOR (1) REQUIREMENT

TIP OF DEPRESSOR EXTENSION SHOULD BE CENTERED BETWEEN #2 AND #3 PUNCH PIN SLOTS IN PUNCH BLOCK.

#### TO ADJUST

POSITION DEPRESSOR EXTENSION WITH ITS TWO ADJUSTING SCREWS LOOSENED.

#### (2) REQUIREMENT

DEPRESSOR EXTENSION SHOULD BE POSITIONED  
MIN. FLUSH  
MAX. .060 BELOW  
TOP SURFACE OF PUNCH BLOCK.

#### REQUIREMENT

CLEARANCE BETWEEN TAPES DEPRESSOR EXTENSION AND PUNCH BLOCK  
MIN. 0.040 INCH  
MAX. 0.080 INCH

#### TO ADJUST

POSITION BY MOVING TAPES DEPRESSOR EXTENSION ANGULARLY AND/OR HORIZONTALLY WITH LOCK NUT ON DEPRESSOR LOOSENED.

#### NOTE

IF REQUIREMENT (2) IS STILL NOT MET, ROTATE BAR AT TOP OF TRANSMITTER-DISTRIBUTOR (TO WHICH DEPRESSOR BRACKET IS SECURED) WITH FOUR MOUNTING SCREWS OF BAR ASSEMBLY LOOSENED. MAKE SURE CLEARANCE BETWEEN PUNCH BLOCK AND DEPRESSOR EXTENSION (AT MOUNTING STUD) IS MAXIMUM POSSIBLE WHILE STILL MEETING REQUIREMENT.

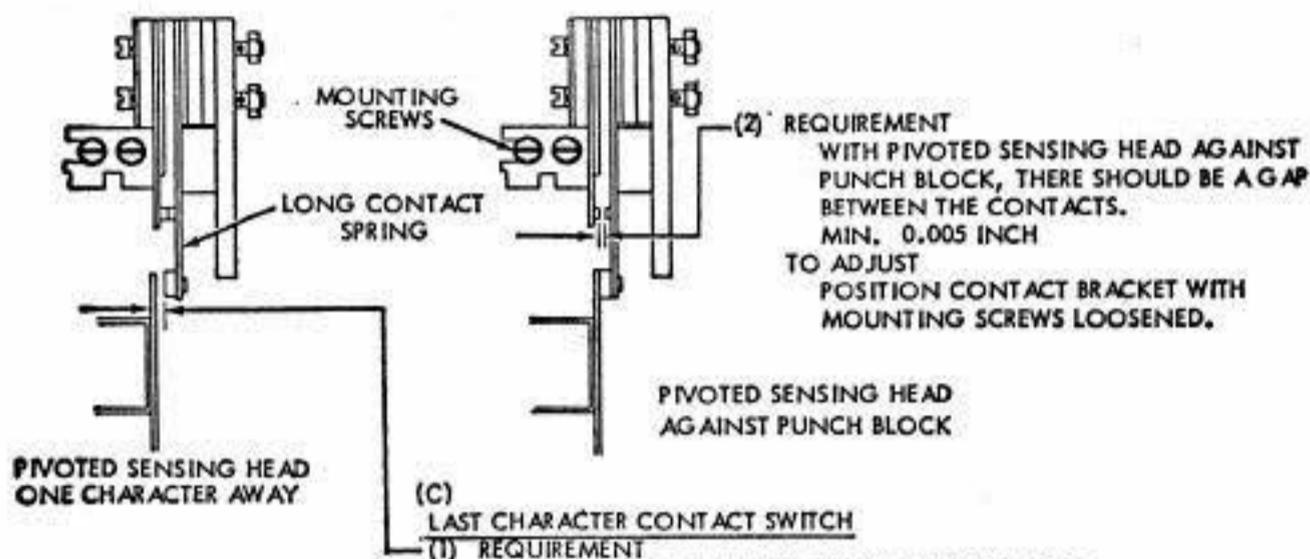
#### (3) REQUIREMENT

WITH TAPES FOLLOWING NORMAL PATH, AND PIVOTED HEAD APPROXIMATELY 15 CHARACTERS FROM PUNCH BLOCK, TAPES EDGE SHOULD NOT TOUCH DEPRESSOR.

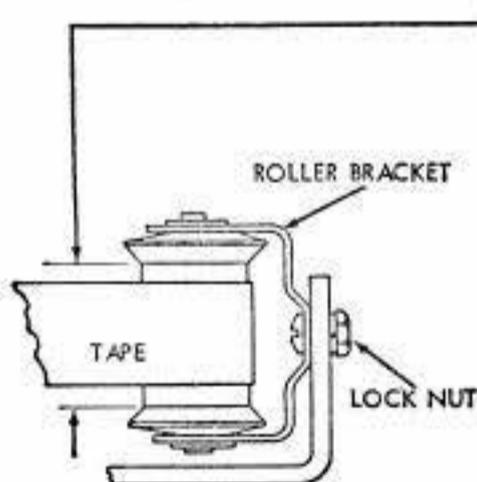
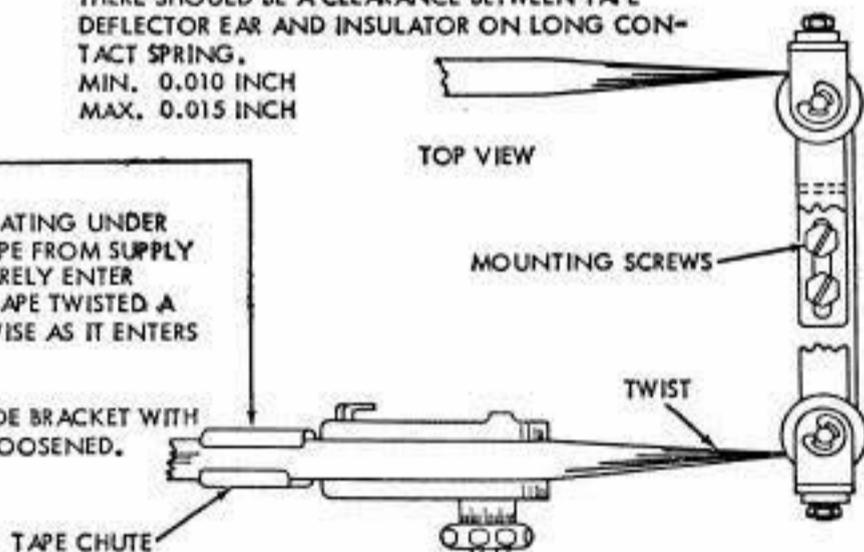
#### TO ADJUST

REFINE TAPES DEPRESSOR ADJUSTMENT AS SPECIFIED IN THE SECTION CONTAINING THE REQUIREMENTS AND ADJUSTMENTS FOR THE 28C TRANSMITTER-DISTRIBUTOR UNIT.

## 2.12 Last Character Contact Switch, Rear Tape Guide Bracket and Roller

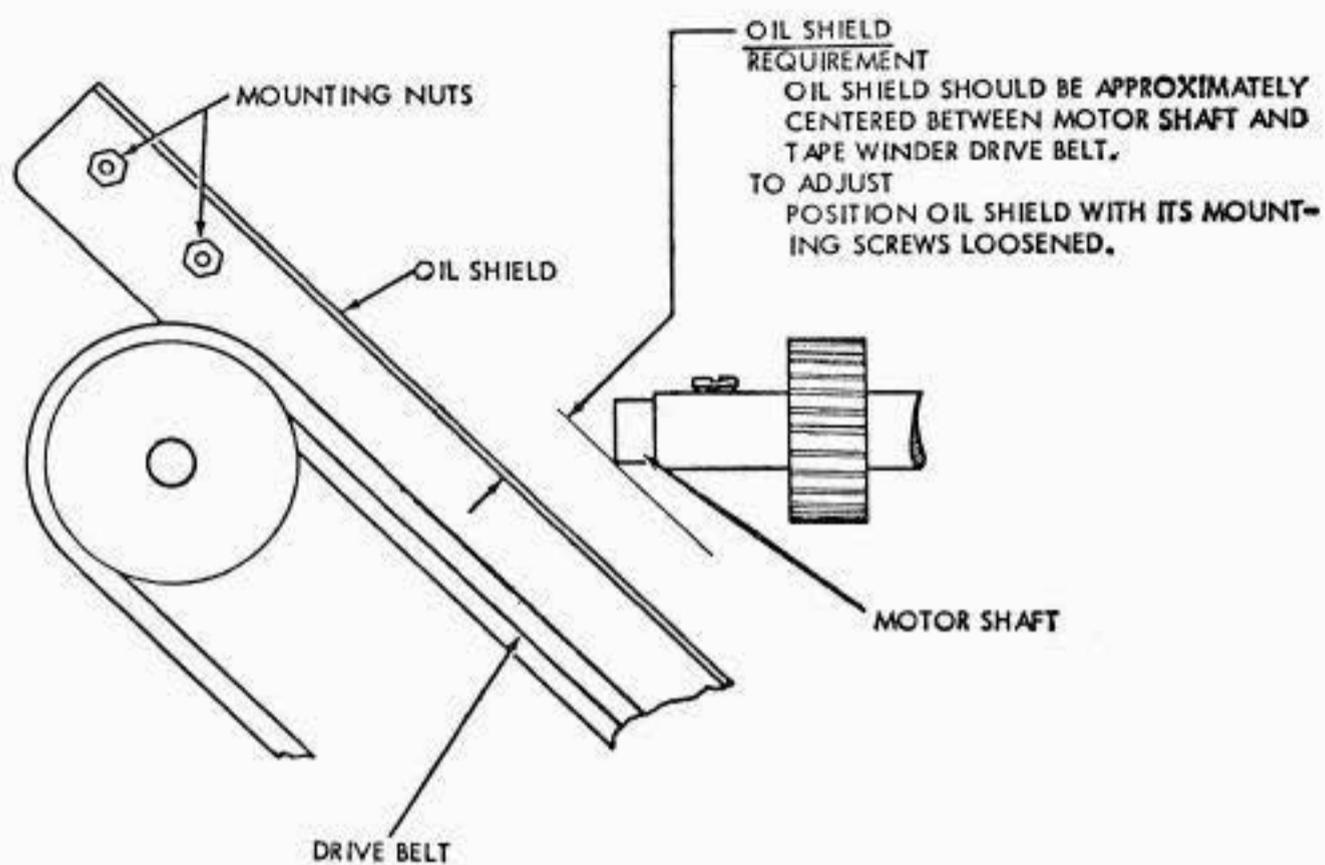


- (A) REAR TAPE GUIDE BRACKET  
REQUIREMENT  
WITH REPERFORATOR OPERATING UNDER POWER AND DRAWING TAPE FROM SUPPLY REEL, TAPE SHOULD SQUARELY ENTER CENTER OF TAPE CHUTE (TAPE TWISTED A QUARTER - TURN CLOCKWISE AS IT ENTERS CHUTE).  
TO ADJUST  
POSITION REAR TAPE GUIDE BRACKET WITH ITS MOUNTING SCREWS LOOSENED.



- (B) REAR TAPE GUIDE ROLLER  
REQUIREMENT  
TAPE SHOULD RIDE APPROXIMATELY CENTERED ON TAPE ROLLERS WHEN REPERFORATOR IS OPERATING UNDER POWER AS IN (A).  
TO ADJUST  
LOOSEN ROLLER BRACKET LOCK NUT AND POSITION BRACKET WHILE TAPE IS IN MOTION.  
NOTE  
RECHECK REAR TAPE GUIDE BRACKET ADJUSTMENT.

## 2.13 Oil Shield



## 2.14 Code Hole and Sensing Pin Alignment

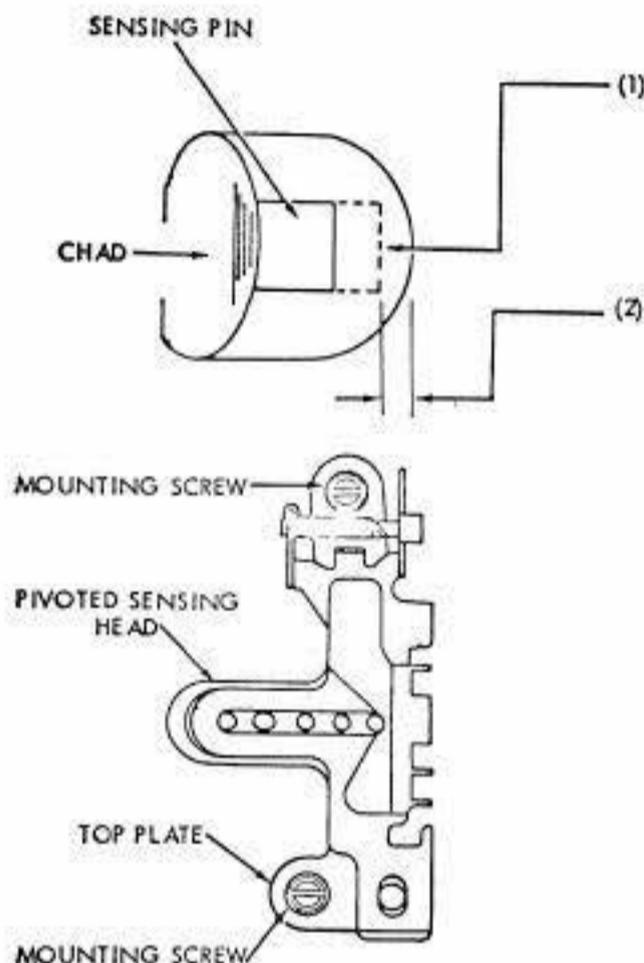
### CODE HOLE-SENSING PIN ALIGNMENT

#### NOTE

ALL PRECEDING ADJUSTMENTS BETWEEN TRANSMITTER-DISTRIBUTOR AND TYPING OR NON TYPING REPERFORATOR SHOULD BE COMPLETED AND REQUIREMENTS MET BEFORE PROCEEDING WITH FOLLOWING FINAL ADJUSTMENTS.

#### TO CHECK

WITH A LOOP OF LTRS TAPE (PERFORATED UNDER POWER BY THE REPERFORATOR) BETWEEN REPERFORATOR AND TRANSMITTER-DISTRIBUTOR, AND PIVOTED SENSING HEAD RESTING AGAINST ITS BACKSTOP, MANUALLY TRIP SENSING SHAFT CLUTCH AND ROTATE SHAFT UNTIL SENSING PINS ARE IN THEIR UPPERMOST POSITION.



- (1) REQUIREMENT  
THE SENSING PINS SHOULD BE APPROXIMATELY CENTERED LATERALLY ON CODE HOLES.

#### TO ADJUST

REFINE PUNCH FEED HOLE LATERAL ALIGNMENT AS SPECIFIED IN SECTION CONTAINING THE REQUIREMENTS AND ADJUSTMENTS FOR THE 28 TYPING REPERFORATOR.

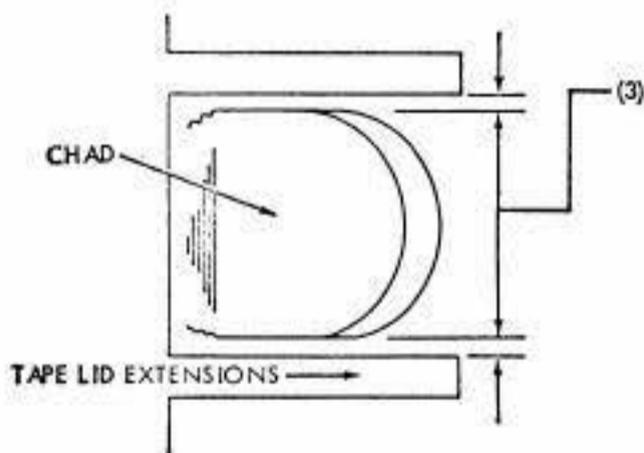
- (2) REQUIREMENT  
SENSING PINS SHOULD BE POSITIONED TOWARD REAR EDGE OF CODE HOLE  
MIN. 0.008 INCH  
CLEARANCE BETWEEN PIN AND REAR EDGE,  
CHECK FIVE PLACES.

#### TO ADJUST

CHECK TAPE QUALITY FOR COMPLIANCE WITH TP156011 TAPE GAUGE AND, IF NECESSARY, RE-FINE DETENT ADJUSTMENT AS SPECIFIED IN THE SECTION CONTAINING THE REQUIREMENTS AND ADJUSTMENTS FOR THE 28 TYPING REPERFORATOR.

#### NOTE

IF REQUIREMENT STILL IS NOT MET, POSITION PIVOTED SENSING HEAD TOP PLATE IN REQUIRED DIRECTION WITH ITS MOUNTING SCREWS LOOSENED. RECHECK LAST CHARACTER CONTACT SWITCH ADJUSTMENT.



- (3) REQUIREMENT  
AS CODE HOLES ARE OPENED BY SENSING PINS, THERE SHOULD BE SOME CLEARANCE BETWEEN SIDES OF CHAD AND TAPE LID EXTENSIONS. CHECK TEN PLACES.

#### TO ADJUST

POSITION PIVOTED SENSING HEAD TOP PLATE LATERALLY WITH ITS MOUNTING SCREWS LOOSENED. RECHECK (2).

### **3. REQUIREMENTS AND ADJUSTMENTS OF 28 REPERFORATOR-TRANSMITTER SET**

#### **A. Reperforator-Transmitter Unit**

3.01 Refer to Part 2 of this section for the requirements and adjustments for 28 reperforator-transmitter unit.

#### **B. Reperforator-Transmitter Stand**

3.02 Refer to the section containing the requirements and adjustments for 28A reperforator-transmitter stand.

### **4. ASSOCIATED BELL SYSTEM PRACTICE**

4.01 The following Bell System Practice provides additional information that may be required in connection with this section.

<u>Subject</u>	<u>Section</u>
Alphabetical Index of 28-type Equipment, Bell System Practices, and Associated 28 ASR Station Drawings	P34.001