TELETYPETE
PRINTING TELEGRAPH SYSTEMS

ADJUSTMENTS AND LUBRICATION
MODEL 28
TRANSMITTER DISTRIBUTOR
LAXD

TELETYPE
CORPORATION
SUBSIDIARY OF
Western Electric Company
CHICAGO, U.S.A.
TELETYPE
PRINTING TELEGRAPH SYSTEMS

BULLETIN 252B

ADJUSTMENTS AND LUBRICATION
MODEL 28
TRANSMITTER DISTRIBUTOR
LAXD

TELETYPE CORPORATION
SUBLIARY OF Western Electric Company
CHICAGO, U.S.A.

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(Pivoted head, multi-contact)
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SECTION I
ADJUSTMENTS

1. GENERAL.

a. The adjustments of the Pivot ed Transmitter Distrib utor are arranged in a sequence that should be followed if a complete readjustment of the unit were undertaken.

b. After an adjustment has been completed, be sure to tighten any nuts or screws that may have been loosened.

c. Tools and spring scales required to perform the adjustments are listed below, but are not supplied as a part of the equipment.

<table>
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d. The adjusting illustrations, in addition to indicating the adjusting tolerances, positions of moving parts and spring tensions, also show the angle at which the scale should be applied when measuring spring tensions.

e. From time to time the requirements and procedures for the various adjustments may change. For this reason, the text of the adjustment in the latest issue should be read through before proceeding to make any readjustment.

f. If a part that is mounted on shims is removed, the number of shims used at each of its mounting screws should be noted so that the same shim pile-up may be replaced when the part is remounted.

g. If parts or assemblies are removed to facilitate readjustment and subsequently replaced, recheck any adjustment that may have been affected by the removal of these parts or assemblies.

h. The spring tensions given in this bulletin are indications (not exact values) and should be checked with proper spring scales in the position indicated. Springs which do not meet the requirement and for which no adjusting procedure is given should be replaced by a new spring.

NOTE

When rotating either the sensing 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 main shaft to rotate freely, apply pressure on a lug of the clutch disk with a screwdriver to cause it to engage its latch lever and thus DISENGAGE the internal expansion clutch shoes from dragging on the clutch drum.

i. References made to left or right denote the attendant's left or right as he faces the front of the unit.

j. When the requirement calls for the clutch to be DISENGAGED, the clutch shoe lever must be fully latched between its trip lever and latch lever 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.

k. The covers may be removed for inspection and minor repair of the unit; however, when more extensive maintenance is to be undertaken, it is recommended that the unit be removed from its sub-base to disconnect the power and to permit the unit to be inverted.
NOTE: REQUIREMENTS A AND B ARE ADJUSTED AT THE FACTORY AND SHOULD NOT BE DISTURBED UNLESS ASSOCIATED MECHANISMS HAVE BEEN REMOVED FOR SERVICING OR THERE IS REASON TO BELIEVE THAT THE REQUIREMENTS ARE NOT MET. THE FOLLOWING REQUIREMENTS APPLY TO BOTH THE SENSING CLUTCH AND DISTRIBUTOR CLUTCH.

(A) CLUTCH SHOE LEVER SPRING

REQUIREMENT
CLUTCH ENGAGED AND CAM DISK HELD TO PREVENT TURNING. SCALE PULLED AT TANGENT TO CLUTCH, MIN. 15 OZS., MAX. 20 OZS., TO MOVE CLUTCH SHOE LEVER IN CONTACT WITH STOP LUG.

(B) CLUTCH SHOE SPRING

NOTE: IT IS NECESSARY TO REMOVE THE CLUTCH FROM THE MAIN SHAFT TO FACILITATE THIS CHECK.

REQUIREMENT
CLUTCH DRUM REMOVED, SCALE APPLIED TO PRIMARY SHOE AT A TANGENT TO THE FRICTION SURFACE, MIN. 3 OZS., MAX. 5 OZS., TO START PRIMARY SHOE MOVING AWAY FROM SECONDARY SHOE AT POINT OF CONTACT.

FIGURE 1-1 CLUTCH MECHANISM
NOTE: THE FOLLOWING REQUIREMENTS APPLY TO BOTH THE DISTRIBUTOR AND SENSING CAM SLEEVES. THESE MECHANISMS SHOULD NOT BE DISTURBED UNLESS THERE IS REASON TO BELIEVE THE REQUIREMENTS ARE NOT MET.

(A) CAM SLEEVE END PLAY
NOTE: THE ADJUSTMENT IS TO BE MADE PRIOR TO ASSEMBLING GEAR.
REQUIREMENT
PLAY BETWEEN SLEEVE AND SPACER, SOME TO 0.010 INCH MAX.
TO ADJUST
REMOVE CLUTCH DRUM DRIVE GEAR AND LOOSEN DRUM MOUNTING SCREW. RELEASE CLUTCH AND POSITION CAM SLEEVE. TIGHTEN CAM SLEEVE MOUNTING SCREW AND RE-INSTALL DRIVE GEAR.

(B) CAM SHAFT BEARING RETAINER
REQUIREMENT
WHEN MOUNTING SHAFT ASSEMBLY, BEARING SHALL SEAT PROPERLY. (NO CLEARANCE PERMISSIBLE BETWEEN BEARING AND MOUNTING SURFACE.)
TO ADJUST
ROTATE BEARING RETAINER 180 DEGREES AND POSITION BY PUSHING DOWNWARD FIRMLY.

(C) IDLER GEAR ASSEMBLY
REQUIREMENT
CLEARANCE BETWEEN IDLER GEAR AND SENSING SHAFT GEAR AND BETWEEN IDLER GEAR AND DISTRIBUTOR SHAFT GEAR AT POINT WHERE BACKLASH IS MINIMUM, SOME TO 0.003 INCH MAX.
TO ADJUST
POSITION IDLER GEAR ASSEMBLY WITH LOCK NUT LOOSENED, RECHECK GEAR PLAY THROUGH ONE REVOLUTION OF GEARS.

FIGURE 1-2 CAM SHAFTS
NOTE: REQUIREMENTS APPLY TO BOTH CLUTCH TRIP MECHANISMS.

(A) CLUTCH TRIP MAGNET ARMATURE HINGE
REQUIREMENT
AIR GAP BETWEEN ARMATURE AND MAGNET ASSEMBLY BRACKET WITH ARMATURE FLUSH AGAINST MAGNET CORE, MIN. 0.004 - MAX. 0.008 INCH
TO ADJUST
REMOVE ARMATURE EXTENSION SPRING, POSITION HINGE WITH SPRING POST AND HINGE MOUNTING SCREW LOOSENED. RECHECK AIR GAP AND REPLACE SPRING.

(B) CLUTCH TRIP ASSEMBLY MOUNTING PLATE
REQUIREMENT
CLEARANCE BETWEEN END OF ARMATURE BAIL AND LATCHING SURFACE OF CLUTCH TRIP LEVER LOWER EXTENSION WITH CLUTCH TRIP LEVER RESET EXTENSION ON HIGH PART OF CAM. (TAKE-UP PLAY IN PARTS FOR MINIMUM CLEARANCE.)
MIN. 0.020 INCH
MAX. 0.030 INCH
TO ADJUST
POSITION PLATE WITH SCREWDRIVER IN LOWER ADJUSTING SLOT WITH PLATE ADJUSTING SCREW AND PLATE MOUNTING SCREW LOOSENED. (TAKE-UP PLAY IN TRIP LEVER IN DIRECTION OF CAM.)

(C) ARMATURE BAIL SPRING
REQUIREMENT
TRIP LEVER RESET EXTENSION ON HIGH PART OF CAM. SCALE APPLIED TO LATCHING END OF ARMATURE BAIL.
MIN. 2-1/2 OZS.
MAX. 4-1/2 OZS.
TO START ARMATURE BAIL MOVING.

FIGURE 1-3 CLUTCH TRIP MECHANISM
NOTE: REFER TO REQUIREMENTS IN PRECEDING PAGE.

(A) CLUTCH LATCH LEVER SPRING

REQUIREMENT
CLUTCH LATCH LEVER ON LOW PART OF CLUTCH DISK
AND UNIT UPRIGHT. SCALE APPLIED TO BENT EAR OF
LATCH LEVER HORIZONTALLY.
MIN. 1/2 OZ.
MAX. 1-1/2 OZS.
TO START LATCH LEVER MOVING.

(B) CLUTCH TRIP LEVER SPRING

REQUIREMENT
WITH CLUTCH JUST TRIPED,
HOLD ARMATURE AGAINST
CORE. SCALE APPLIED TO TRIP
LEVER LOWER EXTENSION IN
LINE WITH SPRING.
MIN. 2 OZS.
MAX. 3 OZS.
TO START TRIP LEVER LOWER
EXTENSION MOVING.

(C) MAGNET BRACKET

REQUIREMENT
CLEARANCE BETWEEN ARMATURE BAIL
AND TOP EDGE OF TRIP LEVER LOWER
EXTENSION WITH CLUTCH TRIP LEVER
RESET EXTENSION ON HIGH PART OF
CAM AND ARMATURE FLUSH AGAINST
CORE. (TAKE-UP PLAY FOR MINIMUM
CLEARANCE.)
MIN. 0.030 INCH
MAX. 0.040 INCH

TO ADJUST
INSERT SCREWDRIVER IN UPPER SLOT
AND PIVOT BRACKET, WITH BRACKET
MOUNTING SCREW AND CLAMP
SCREW LOOSENED.

FIGURE 1-4 CLUTCH TRIP MECHANISM
NOTE: REQUIREMENTS A AND B APPLY TO BOTH CLUTCHES.

(A) CLUTCH TRIP LEVER UPPER EXTENSION

(1) REQUIREMENT
CLUTCH TRIP LEVER LATCHED (CLUTCH IN STOP POSITION). CLUTCH TRIP LEVER UPPER EXTENSION SHALL FULLY ENGAGE CLUTCH SHOE LEVER.

TO ADJUST POSITION UPPER EXTENSION, WITH CLUTCH TRIP LEVER CLAMPING SCREW LOOSENED.

NOTE
WITH ARMATURE IN ATTRACTED POSITION, THE CLEARANCE BETWEEN CLUTCH TRIP LEVER UPPER EXTENSION AND THE SHOE LEVER OR STOP LUG SHOULD BE AT LEAST 0.010 INCH. REFINE ABOVE ADJUSTMENT IF NECESSARY.

(B) CLUTCH SHOE LEVER

REQUIREMENT
GAP BETWEEN CLUTCH SHOE LEVER AND ITS STOP LUG SHOULD BE 0.050 INCH TO 0.080 INCH GREATER WHEN CLUTCH IS ENGAGED THAN WHEN CLUTCH IS DISENGAGED.

TO CHECK DISENGAGE CLUTCH, HOLD LATCH LEVER AWAY AND MEASURE GAP. APPLY A 64 OZ. SCALE TO THE SHOE LEVER WITH A FORCE OF 32 OZS. AGAIN MEASURE GAP WITH CLUTCH THUS ENGAGED.

TO ADJUST ENGAGE A WRENCH OR SCREWDRIVER ON A SCREW ON ADJUSTING DISK AND ROTATE DISK, WITH CLAMP SCREWS LOOSENED AND CLUTCH DISENGAGED.

NOTE: AFTER ADJUSTMENT, DISENGAGE CLUTCH, REMOVE DRUM MOUNTING SCREW AND ROTATE DRUM IN ITS NORMAL DIRECTION OF ROTATION TO MAKE CERTAIN THAT IT DOES NOT DRAG ON SHOE. IF DRUM DRAGS, REFINE ABOVE ADJUSTMENT.

FIGURE 1-5 CLUTCH MECHANISM
NOTE: REMOVE OIL RESERVOIR AND DISTRIBUTOR BLOCK ASSEMBLY FOR REQUIREMENTS A, B AND C.

DISTRIBUTOR CAM FOLLOWER GUIDE

REQUIREMENT
AT LEAST ONE CAM FOLLOWER
SHOULD ENGAGE CAM BY FULL
THICKNESS OF THE FOLLOWER
AS FOLLOWER IS MOVED FROM
SIDE TO SIDE IN ITS GUIDE SLOT.
OTHER CAM FOLLOWERS SHOULD
ENGAGE BY 90 PER CENT IN
SAME MANNER. ALL CAM FOLLOWERS SHALL MOVE FREELY
IN GUIDE SLOTS.

TO ADJUST
POSITION GUIDE WITH CAM
FOLLOWER GUIDE MOUNTING
SCREWS LOOSENED, RECHECK
REQUIREMENT.

PUSHER STRIPPER BAIL SPRING

REQUIREMENT
WITH UNIT UPRIGHT, SELECT BLANK
COMBINATION, TRIP CLUTCH AND
ROTATE SHAFT TO STOP POSITION.
32 OZ SCALE APPLIED TO POINT JUST
BELOW SPRING ANCHOR.
MIN. 7 OZS.
MAX. 11 OZS.
TO START BAIL MOVING AWAY FROM
CAM.

DISTRIBUTOR ROCKERS COMPRESSION SPRING - PRELIMINARY

NOTE
THIS ADJUSTMENT SHOULD BE MADE ONLY WHEN THE
DISTRIBUTOR BLOCK HAS BEEN REMOVED FROM THE UNIT
AND REINSTALLED.
REQUIREMENT
32 OZ. SCALE APPLIED TO ROCKER LEVER HORIZONTALLY
MIN. 6-1/2 OZS.
MAX. 9-1/2 OZS.
TO ADJUST
ROTATE CONTACT SCREWS

FIGURE 1-6 DISTRIBUTOR CONTACT MECHANISM
NOTE: REINSTALL OIL RESERVOIR

(B) DISTRIBUTOR CONTACT GAP

REQUIREMENT
CONTACT GAP WITH CAM FOLLOWER LEVER ON HIGH PART OF CAM,
MIN. 0.025 INCH
MAX. 0.030 INCH
TO ADJUST
TRIP CLUTCH MANUALLY TO POSITION CAM, TURN CONTACT SCREW TO ADJUST. CHECK ALL CONTACTS.

(A) DISTRIBUTOR BLOCK ASSEMBLY

REQUIREMENT
ROCKERS SHOULD FULLY ENGAGE INSULATED PORTION OF RESPECTIVE CAM FOLLOWER LEVERS.
TO ADJUST
POSITION BLOCK WITH DISTRIBUTOR BLOCK MOUNTING SCREWS LOOSENED.

(C) CAM FOLLOWER LEVER SPRING

REQUIREMENT
CAM FOLLOWER LEVER ON HIGH PART OF CAM. SCALE APPLIED JUST BELOW SLIDING SURFACE OF LEVER HORIZONTALLY.
MIN. 1/2 OZ.
MAX. 1-1/2 OZS. TO START EACH LEVER MOVING.

FIGURE 1-7 DISTRIBUTOR CONTACT MECHANISM
(A) **FEED LEVER SET COLLAR**

**REQUIREMENT**
FEED LEVER SHOULD MOVE FREELY WITHOUT BINDING AT GUIDE OR SET COLLARS.
TO ADJUST POSITION FEED LEVER, WITH SET COLLAR SCREWS LOOSENED.

---

(b) **FEED LEVER SPRING**

**REQUIREMENTS**
SENSING CLUTCH TRIPPED AND FEED ROLLER OFF FEED CAM. SCALE APPLIED TO FEED LEVER.
MIN. 30 OZS.
MAX. 40 OZS.
TO START FEED ROLLER MOVING AWAY FROM CAM.

---

**FIGURE 1-8 FEED LEVER**
(A) STORING SWITCH CONTACTS
(PRELIMINARY)
NOTE: STORING SWITCH ASSEMBLY
SHOULD BE REMOVED.
REQUIREMENT
CONTACT LEVER EXTENSIONS SHOULD
BE PERPENDICULAR TO STORING BLOCK.
TO ADJUST
TURN EACH CONTACT SCREW WITH
ALLEN WRENCH TO ADJUST. GAUGE
BY EYE.

(B) STORING SWITCH CONTACT LEVER EXTEN-
SION SPRING
REQUIREMENT
SCALE APPLIED TO END OF CONTACT
LEVER EXTENSION,
MIN. 2 OZS. CONTACT LEVER
MAX. 3 OZS. EXTENSION
MIN. 1/2 OZ. TAPE-OUT (6TH)
MAX. 1 OZ. LEVER EXTEN-
SION ONLY
TO START LEVER EXTENSION MOVING.

(C) STORING SWITCH GUIDES
(1) REQUIREMENT
CLEARANCE BETWEEN EDGE OF THE TWO
END CONTACT LEVER SLIDES AND BOTTOM
OF RESPECTIVE GUIDE SLOTS. (SOME
CLEARANCE ON ALL OTHER SLIDES)
MIN. 0.005 INCH
MAX. 0.012 INCH
TO ADJUST
POSITION GUIDE, WITH GUIDE MOUNT-
ING SCREWS LOOSENED.
(2) REQUIREMENT
CONTACT LEVER SLIDES SHOULD BE FREE
IN GUIDE SLOTS AND PARALLEL TO SIDE
PLATES.
TO ADJUST
REFINE REQUIREMENT NO. 1

(D) CONTACT SLIDE LEVER SPRINGS
REQUIREMENT
SELECT BLANK COMBINATION, TRIP
SENSING CLUTCH AND ROTATE SHAFT
TO STOP POSITION. SCALE APPLIED TO
SLIDE LEVER.
MIN. 3-1/2 OZS. SLIDE LEVER
MAX. 5-1/2 OZS. SPRING
MIN. 2 OZS. TAPE-OUT (6TH)
MAX. 3 OZS. SLIDE LEVER SPRING
ONLY
TO START SLIDE LEVER MOVING.

FIGURE 1-9 STORING SWITCH MECHANISM
NOTE: REINSTALL STORING SWITCH ASSEMBLY.

STORING SWITCH ASSEMBLY

REQUIREMENT
STORING SWITCH ASSEMBLY SHOULD ALIGN WITH LATCH LEVERS SO THAT LATCH LEVERS AND SLIDES FUNCTION WITHOUT BINDING.

TO CHECK
MANUALLY PUSH LATCH BAIL FOLLOWER AWAY FROM CAM UNTIL LATCHES ARE FREE FROM GUIDE, RELEASE LATCH BAIL FOLLOWER AND NOTE IF LATCHES FALL INTO THEIR RESPECTIVE SLOTS.

TO ADJUST
PIVOT STORING SWITCH WITH STORING SWITCH MOUNTING SCREWS LOOSENED, RECHECK REQUIREMENT.

STORING CONTACT BLOCK

SLIDE AND LATCH LEVER GUIDE

GUIDE ADJUSTING SCREWS

STORING SWITCH MOUNTING SCREWS

PIVOT ABOUT THIS POINT

STORING CONTACT BLOCK

MOUNTING SCREWS

OIL WICK RETAINER

OIL WICK

DISTRIBUTOR CAM SLEEVE

OIL WICK RETAINER

OIL WICK

SENSING CAM SLEEVE

OIL WICK RETAINER

OIL RESERVOIR ASSEMBLY

REQUIREMENT
OIL WICKS SHALL REST LIGHTLY ON CAM SLEEVES AND BE PARALLEL TO CAM SLEEVE. DEFLECTION OF WICK SHOULD NOT EXCEED 1/64 INCH.

TO ADJUST
POSITION OIL RESERVOIR ASSEMBLY, WITH FOUR RESERVOIR BRACKET MOUNTING SCREWS LOOSENED, GUAGE DEFLECTION VISUALLY, MAKE ADJUSTMENT ON INDIVIDUAL CAMS BY BENDING TEETH ON OIL WICK RETAINERS.

FIGURE 1-10 STORING SWITCH MECHANISM
(A) SENSING PINS

REQUIREMENT
IN STOP POSITION, HIGHEST SENSING PIN SHOULD BE FLUSH TO 0.005 INCH BELOW SURFACE OF TOP GUIDE PLATE.

TO ADJUST
WITH CLUTCH LATCHED AND YOKE IN LOCKED POSITION, LOOSE NUT ON ECCENTRIC SHAFT AND ADJUST ECCENTRIC SHAFT WITH HIGH PART OF ECCENTRIC TOWARD RIGHT OF UNIT. TIGHTEN NUT, ROTATE SHAFT AND RECHECK. CHECK THOROUGHOUT SENSING HEAD TRAVEL. FOR TWO-CYCLE OPERATION, CHECK BOTH HALVES OF CAM SLEEVE.

NOTE: HIGH PART OF ECCENTRIC IS MARKED ON FRONT END OF SHAFT BY A SMALL INDENTATION.

(C) AUXILIARY LEVER SPRING

REQUIREMENT
EACH AUXILIARY LEVER ON LOW PART OF ITS CAM. SCALE APPLIED TO LEVER JUST AHEAD OF SPRING.
MIN. 1-1/2 OZS.
MAX. 3 OZS.
TO START AUXILIARY LEVER MOVING.

(B) PUSH LEVER

REQUIREMENT
WITH FIRST ONE AND THEN THE OTHER OF THE TWO PUSH LEVERS ON THE LOW PART OF CAM, THE AUXILIARY LEVER WITH THE LEAST CLEARANCE SHOULD CLEAR THE TIP OF ITS PUSH LEVER BY
MIN. 0.025 INCH
MAX. 0.040 INCH
TO ADJUST
WITH PUSH LEVER ECCENTRIC SHAFT LOCK NUT (FRONT PLATE) LOOSENED AND HIGH PART OF ECCENTRIC LOCATED TOWARD THE UPPER RIGHT, ROTATE ECCENTRIC TOWARD RIGHT OR LEFT.

FIGURE 1-11 SENSING MECHANISM
(A) SENSING BAIL SPRINGS

REQUIREMENT
WITH BLANK TAPE UNDER TAPE LID, TRIP CLUTCH MAGNET AND MANUALLY ROTATE SHAFT UNTIL SENSING BAIL IS IN UPPERMOST POSITION. SCALE APPLIED TO BAIL BETWEEN SPRINGS, MIN. 1/4 OZ., MAX. 1 OZ., TO START SENSING BAIL MOVING.

(C) TAPE-OUT (6TH) PIN SPRING

REQUIREMENT
SENSING HEAD IN LOCKED POSITION, TAPE-OUT PIN IN UPPERMOST POSITION, APPLY SCALE IN LINE WITH PIN, MIN. 3 OZS., MAX. 5 OZS., TO MOVE SENSING PIN FLUSH WITH TOP GUIDE PLATE.

NOTE
WHEN CHECKING THIS SPRING ALLOW THE PUSH LEVER TO REMAIN UNDER THE TRANSFER LEVER.

(B) SENSING PINS SPRINGS

REQUIREMENT
SENSING HEAD IN LOCKED POSITION, TRIP SENSING CLUTCH AND ROTATE SENSING SHAFT UNTIL SENSING PINS ARE IN UPPERMOST POSITION, WHILE HOLDING PUSH LEVERS AWAY FROM TRANSFER LEVERS, APPLY SCALE IN LINE WITH PIN, MIN. 2 OZS., MAX. 3 OZS., TO MOVE SENSING PINS FLUSH WITH TOP GUIDE PLATE.

FIGURE 1-12 SENSING MECHANISM SPRINGS
(A) **PUSH LEVER SPRING**

**REQUIREMENT**
Clutch tripped and shaft rotated until sensing pins are in uppermost position. Apply scale at right angle to extreme lower end of push lever (sensing push levers only).

Min. 1 oz.,
Max. 2 ozs.
To start push lever moving.
Note: Be sure contact slides do not interfere with movement of push levers.

(B) **LATCH LEVER SPRING**

**REQUIREMENT**
Select blank combination, trip sensing clutch and rotate shaft to stop position. Scale applied at right angle to top of latch lever.

Min. 1 oz.,
Max. 2-1/2 ozs.
To start latch lever moving.
Note: Take care not to damage push lever springs in checking requirement.

(D) **LATCH STRIPPER BAIL SPRING**

**REQUIREMENT**
Trip clutch, rotate shaft so latch bail follower roller is on low part of cam. Scale applied to top of latch stripper bail.

Min. 2-3/4 ozs.,
Max. 5 ozs.
To start latch stripper bail moving.

**FIGURE 1-13 SENSING MECHANISM SPRINGS**
(A) CONTACT SLIDE LEVER

REQUIREMENT
CLEARANCE BETWEEN CLOSEST PUSH LEVER AND CONTACT LEVER SLIDE WITH SENSING PINS IN UPPERMOST POSITION, PUSH LEVERS SELECTED AND LATCH LEVERS STRIPPED.
MIN. 0.005 INCH
MAX. 0.012 INCH
TO ADJUST
SENSING SHAFT CLUTCH TRIPPED AND SHAFT ROTATED UNTIL SENSING PINS ARE IN UPPERMOST POSITION. TRIP LATCH LEVERS MANUALLY. POSITION ECCENTRIC SHAFT TOWARD THE RIGHT WITH LOCKING NUTS LOOSENED.

(B) STORING SWITCH CONTACT

(1) REQUIREMENT
NOTE
TO GAUGE TAPE-OUT (6th) PIN ROTATE SHAFT UNTIL SENSING PINS ARE IN UPPERMOST POSITION
BLANK COMBINATION SELECTED, CLUTCH TRIPPED AND SHAFT ROTATED ONE RESOLUTION TO STOP POSITION. GAP BETWEEN EACH CONTACT LEVER EXTENSION AND ITS CONTACT SCREW.
MIN. 0.015 INCH
MAX. 0.020 INCH
TO ADJUST
ROTATE INDIVIDUAL CONTACT SCREW

(2) REQUIREMENT
CLEARANCE BETWEEN CONTACT SLIDE AND CONTACT LEVER EXTENSION (CODE READING CONTACTS ONLY)
MIN. 0.010 INCH
TO ADJUST
REFINE REQUIREMENT (1).

FIGURE 1-14 DISTRIBUTOR MECHANISM
(B) TAPE DEFLECTOR

REQUIREMENT
SENSING PINS 1-2 AND 4-5 SHALL PASS FREELY VERTICAL EARS ON TAPE DEFLECTOR WITH PIVOTED SENSING HEAD IN LOCKED POSITION.

TO ADJUST
POSITION TAPE DEFLECTOR WITH FRONT PIVOT SCREW,

(A) SENSING HEAD PIVOT SCREWS

(1) REQUIREMENT
SENSING YOKE SHALL BE FREE OF BINDS
TO ADJUST
POSITION REAR PIVOT SCREW FOR MINIMUM END PLAY WITHOUT BINDING.

(2) REQUIREMENT
SENSING PINS SHALL MOVE FREELY IN TOP PLATE
TO ADJUST
REFINE REQUIREMENT NO. 1 ADJUSTMENT.

(C) TAPE DEFLECTOR BRACKET

REQUIREMENT
ARMS OF DEFLECTOR BRACKET SHALL CONTACT EARS ON TAPE DEFLECTOR SIMULTANEOUSLY WITH SENSING YOKE IN FIXED POSITIONS.

TO ADJUST
POSITION DEFLECTOR BRACKET WITH MOUNTING SCREWS LOOSENED.

FIGURE 1-15 PIVOTED SENSING HEAD
(A) FEED PAWL (PRELIMINARY)

REQUIREMENT
FEED LEVER FOLLOWER ROLLER SHALL BE OFF CAM WHEN FEED PAWL RESTS AGAINST ITS UPWARD STOP.

TO ADJUST
TRIP CLUTCH AND ROTATE SHAFT UNTIL FEED PAWL IS IN ITS UPPER POSITION AND BOTTOMED ON ITS STOP. POSITION ROLLER WITH LOCK NUT LOOSENED.

NOTE: FOR 2-CYCLE OPERATION CHECK BOTH SIDES OF FEED CAM.

(B) CHECK PAWL

(1) REQUIREMENT
CHECK PAWL SHALL ENGAGE BOTH TEETH ON RATCHET WITH FEED PAWL IN ITS UP POSITION.

TO ADJUST
ROTATE CHECK PAWL ECCENTRIC STUD. NOTE: GROOVE ON ECCENTRIC STUD (HIGH PART OF ECCENTRIC) MUST BE ON LEFT SIDE DURING ADJUSTMENT.

(2) REQUIREMENT
FEED WHEEL SHALL NOT MOVE WITH SENSING CLUTCH IN STOP POSITION (FEED PAWL DOWN FULLY).

NOTE: CHECK REQUIREMENT AROUND ENTIRE PERIPHERY OF RATCHET.

TO ADJUST
REFINE REQUIREMENT NO. 1

NOTE: USE SLIGHT PRESSURE ON FEED WHEEL TO PREVENT FALSE INDICATION DUE TO OVER-RIDING CHECK PAWL SPRING.

(D) CHECK PAWL SPRING

REQUIREMENT
SENSING CLUTCH IN STOP POSITION. SCALE APPLIED TO CHECK PAWL.

MIN. 7 OZS.
MAX. 11 OZS.

TO START CHECK PAWL MOVING.

(C) FEED PAWL (FINAL)

REQUIREMENT
CLEARANCE BETWEEN FEED PAWL AND FEED RATCHET TOOTH WITH CLUTCH IN STOP POSITION.

MIN. 0.030 INCH
MAX. 0.035 INCH

TO ADJUST
REFINE FEED PAWL PRELIMINARY ADJUSTMENT (A).

FIGURE 1-16 PIVOTED SENSING HEAD
(B) TAPE RETAINING LID LATCH

(1) REQUIREMENT
TENSION REQUIRED TO START
TAPE RETAINING LID LATCH
SPRING AWAY FROM TOP PLATE.
MIN. 1-1/2 OZS,
MAX. 2-1/2 OZS.

TO ADJUST
BOW LID LATCH SPRING WITH
FINGERS. DO NOT REMOVE
SPRING FROM YOKE.

(2) REQUIREMENT
WHEN LATCHED, NO PLAY BE-
TWEEN TAPE RETAINING LID AND
TOP PLATE.

TO ADJUST
POSITION LID LATCH SPRING WITH
ADJUSTING SCREW LOOSENED.
NOTE: BE SURE LID LATCH SPRING
ALIGNS WITH LID ON TAPE RE-
TAINING LID.

(A) TOP PLATE

(1) REQUIREMENT
SPACING BETWEEN VERTICAL FEED WHEEL
PIN AND SENSING PINS. = 0.300 INCH

TO ADJUST
WITH PIVOTED SENSING HEAD AGAINST
ITS BACKSTOP, TRIP CLUTCH AND ROTATE
SHAFT UNTIL SENSING PINS ARE IN UP-
PERMOST POSITION. WITH TOP PLATE
MOUNTING SCREWS LOOSENED, PLACE
GAUGE 159133 ON TOP PLATE AND PO-
SITION TOP PLATE. RECHECK REQUIRE-
MENT.

(2) REQUIREMENT
TAPE RETAINING LID MUST CENTER OVER
TOP PLATE (GAUGE VISUALLY).

TO ADJUST
REFINE REQUIREMENT NO. 1

FIGURE 1-17 PIVOTED SENSING HEAD
(A) TAPE DEPRESSOR

(1) REQUIREMENT
CLEARANCE BETWEEN TAPE DEPRESSOR AND DEPRESSOR BRACKET, SOME TO 0.002 INCH
TO ADJUST POSITION ADJUSTING SCREW AND DEPRESSOR WITH LOCK NUT LOOSENED.

(2) REQUIREMENT
WITH TAPE DEPRESSOR LOCKED ON TOP PLATE, AND PIVOTED YOKE AGAINST ITS STOP, CLEARANCE BETWEEN TAPE DEPRESSOR AND TOP PLATE
MIN. 0.005 INCH
MAX. 0.012 INCH
TO ADJUST POSITION TAPE DEPRESSOR WITH MOUNTING SCREWS LOOSENERED.

(3) REQUIREMENT
CLEARANCE BETWEEN DEPRESSOR BRACKET AND TAPE LID
MIN. 0.010 INCH
MAX. 0.030 INCH
TO ADJUST REFINE REQUIREMENT (2).

(b) LAST CHARACTER SWITCH SPRING LEAF

REQUIREMENT
TENSION REQUIRED TO JUST OPEN CONTACTS,
MIN. 1/4 OZ.
MAX. 1/2 OZ.
TO ADJUST WITH COVER REMOVED, BEND LONG CONTACT SPRING.

NOTE
SEE INSTALLATION SPECIFICATION FOR FINAL ADJUSTMENT OF LAST CHARACTER SWITCH.

FIGURE 1-18 TAPE DEPRESSOR AND LAST CHARACTER CONTACT
(A) TAPE DEPRESSOR SPRING
REQUIREMENT
TAPE DEPRESSOR IN LOCKED POSITION. SCALE APPLIED TO LIP AT EXTREME RIGHT END OF DEPRESSOR VERTICALLY.
MIN. 1/4 OZ.
MAX. 3/4 OZ.
TO START TAPE DEPRESSOR MOVING.

(B) TAPE DEFLECTOR SPRING
REQUIREMENT
PIVOTED SENSING HEAD AGAINST BACKSTOP. SCALE APPLIED TO TAPE DEFLECTOR HORIZONTALLY.
MIN. 1/2 OZ.
MAX. 1-1/2 OZ.
TO START TAPE DEFLECTOR MOVING.

FIGURE 1-19 TAPE DEPRESSOR AND TAPE DEFLECTOR
SECTION 2

DISASSEMBLY AND REASSEMBLY

1. GENERAL

a. In order to replace parts it will often necessitate disassembly of portions of the pivoted transmitter distributor. The disassembly procedures in this section break the machine into its various subassemblies. Further disassembly procedures are not described but may be undertaken by maintenance personnel as necessary. For detailed illustrations of parts which are discussed in the following text, refer to the Teletype Model 28 Pivoted Transmitter Distributor (LAXD) Parts Bulletin.

b. Perform any necessary adjustments after reassembly of the unit.

2. DISASSEMBLY AND REASSEMBLY

a. Idler Gear Assembly

(1) To remove idler gear assembly, remove feed lever spring (82727) and latch stripper ball spring (125252).

(2) Remove bar assembly by removing four screws (152893) and lock washers (3640).

(3) Pull out idler gear oil retainer plug (158789) and remove leather washer (85318).

(4) Remove idler gear bearing stud lock nut (3595), lock washer (158622) and flat washer (76081).

(5) Remove idler gear bearing stud (158790), idler gear assembly (158791) and spacer (158792) as a unit.

(6) To install idler gear assembly, reverse disassembly procedure.

b. Sensing Shaft Assembly

(1) To remove sensing shaft assembly, remove idler gear (see paragraph 2a).

(2) Remove the front bearing clamp (156788) by removing three screws (151630) and lock washers (2191).

(3) Remove the rear bearing clamp (158847) by removing two screws (151722) and lock washers (2191).

(4) Remove sensing shaft assembly.

(5) To install sensing shaft assembly, reverse the disassembly procedure.

c. Distributor Shaft Assembly. Follow the sensing shaft procedure in step b. above.

d. Clutch Trip Assembly

(1) To remove the clutch trip assembly, disconnect wires leading to the clutch magnet (252M).

(2) Remove the plate mounting screw (151630), lock washer (2191) and flat washer (76099) and the plate adjusting screw (151630), lock washer (2191) and flat washer (7002).

(3) Withdraw clutch trip assembly from bottom side of unit.

(4) To install clutch trip assembly, reverse disassembly procedure.

e. Pivot Shaft

(1) To remove the pivot shaft, remove the sensing shaft assembly (paragraph b. above).

(2) Remove two ring retainers (119652) (one is hidden under a felt washer).

(3) Loosen the collar set screws (158852).

(4) Remove pivot shaft nut (3599) and lock washer (3640).

(5) Remove the pivot shaft (158819) by pushing it toward the rear plate, being careful not to lose the feed lever collars and felt washers (156515).

(6) To install pivot shaft, reverse disassembly procedure.
f. Pivoted Sensing Head

(1) To remove sensing head and tape deflector, remove the last character contact assembly. The contact assembly is secured into two screws (153799), lock washers (3640) and flat washers (2034).

(2) Remove check pawl spring (45104).

(3) Remove tape deflector spring (82999).

(4) Loosen rear pivot screw lock nut (76474) and run the rear pivot screw (158801) as far as possible into the casting.

(5) Pull the sensing pins down and free from the top plate (159153).

(6) Loosen front pivot screw lock nut (112626).

(7) Turn front pivot screw (158800) until deflector (159158) is free from the pivot screw.

(8) Remove sensing head and tape deflector.

(9) To install sensing head and tape deflector, reverse disassembly procedure.

g. Storing Switch Assembly

(1) To remove the storing switch assembly, disconnect cable (159809).

(2) Remove four mounting screws (151631), lock washers (2191) and flat washers (7002).

(3) Remove storing switch assembly.

(4) To install storing switch assembly, reverse disassembly procedure.

h. Distributor Block Assembly

(1) To remove the distributor block assembly, disconnect cable (159809).

(2) Remove three mounting screws (153839), lock washers (2191) and flat washers (7002).

(3) Remove distributor block assembly.

(4) To install distributor block assembly, reverse disassembly procedure.

Figure 2-1. Components and Mechanisms
SECTION 3
LUBRICATION

1. GENERAL

a. The pivoted transmitter distributor should be lubricated before being placed in service or prior to storage. After a few weeks of service re-lubricate to make certain that all specified points receive lubrication. Thereafter, the lubrication schedule shall be followed:

<table>
<thead>
<tr>
<th>OPERATING SPEED</th>
<th>LUBRICATION INTERVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 W.P.M.</td>
<td>3000 hours or 1 year*</td>
</tr>
<tr>
<td>75 W.P.M.</td>
<td>2400 hours or 1 year*</td>
</tr>
<tr>
<td>100 W.P.M.</td>
<td>1500 hours or 6 months*</td>
</tr>
<tr>
<td>200 W.P.M.</td>
<td>1000 hours or 4 months*</td>
</tr>
</tbody>
</table>

*Whichever occurs first.

b. Teletype KS7470 oil should be used for the lubrication of all points where oil is specified. KS7471 grease should be used at all points where grease is specified. All felt lubricating washers and all moving surfaces should be thoroughly lubricated. However, over-lubrication which would allow oil to drip or grease to be thrown on other parts should be avoided. Special care should be exercised to avoid getting oil or grease on any contact point face.

c. The following general instructions will supplement the specific points of lubrication which are illustrated on subsequent pages.

(1) Lubricate all spring eyes with one drop of oil.

(2) Cam surfaces are to be lightly oiled.

(3) The gears are to be covered with a light coat of grease.

(4) All felt oil retainers are to be saturated with oil.

(5) All pivot points are to be oiled.

(6) All sliding surfaces are to be lightly oiled.

d. The illustration symbols indicate the following lubrication directions:

- **O**: Apply 1 drop of oil
- **O2**: Apply 2 drops of oil
- **O3**: Apply 3 drops of oil
- **O20**: Apply 20 drops of oil
- **G**: Apply thin film of grease
- **SAT**: Saturate with oil
4.01 CLUTCH TRIP ASSEMBLIES

- 0 HOOKS - EACH END
- ANTI-BACKLASH SPRING
- SAT FELT WASHERS
- CLUTCH TRIP LEVER
- O2 PIVOT POINTS
- CLUTCH TRIP LEVER
- ANTI-BACKLASH LEVER
- ARMATURE BAIL SPRING
- SAT FELT WASHERS
- ARMATURE SHAFT
- O PIVOT POINTS
- ARMATURE SHAFT
- O HOOKS - EACH END
- CLUTCH TRIP LEVER SPRING
- SAT OIL WICK
- CLUTCH TRIP LEVER SPRING
4.03 DISTRIBUTOR BLOCK ASSEMBLY

- G PIVOT POINTS
- G CONTACT POINTS
- O HOOKS - EACH END
- O2 PIVOT POINT

- CONTACT LEVERS
- CONTACT LEVERS
- CAM FOLLOWER LEVER SPRINGS
- CAM FOLLOWER LEVER

4.04 CLUTCH ASSEMBLIES

- O HOOKS - EACH END
- SAT FELT WICK (2 PLACES)
- O HOOKS - EACH END

- CLUTCH SHOE LEVER SPRING
- CLUTCH SHOE
- CLUTCH SHOE SPRING
4.05 CAM SLEEVE ASSEMBLIES

SAT FELT WASHERS CAM SLEEVE
G GEAR CLUTCH
O2 BEARING (2) CLUTCH SHAFT
SAT FELT WICKS IDLER GEAR SHAFT
O3 OIL HOLE (OPPOSITE SIDE) CAM SLEEVE
G GEAR CLUTCH

4.06 OIL RESERVOIR ASSEMBLY

SAT LEATHER WICK CAM SLEEVES
SAT FILL HOLE OIL RESERVOIR
4.07 PIVOTED SENSING HEAD

- O2 PIVOT POINT
- TAPE DEPRESSOR
- O HOOKS - EACH END
- TAPE DEPRESSOR SPRING
- O HOOK - EACH END
- TAPE DEFLECTOR SPRING
- O2 PIVOT POINTS
- YOKE AND TAPE DEFLECTOR
- O2 PIVOT POINT
- TAPE LID
4.08 CHECK PAWL AND FEED WHEEL

- PIVOT POINTS
- FELT WASHERS
- FEED WHEEL
- FEED WHEEL RATCHET
- TEETH
- CHECK PAWL
- HOOKS - EACH END
- CHECK PAWL SPRING

4.09 SENSING MECHANISM

- SLIDING SURFACES
- SENSING PINS
- SAT
- FELT WASHER
- CAM FOLLOWER ROLLER
- HOOKS - EACH END
- AUXILIARY LEVER SPRING
- HOOKS - EACH END
- SENSING BAIL SPRING
- O2 PIVOT POINT
- SENSING PIN
- O2 PIVOT POINT
- SENSING BAIL
- SENSING PINS

ORIGINAL
4.10 SENSING MECHANISM

- HOOKS - EACH END
- PUSHER STRIPPER BAIL SPRING
- O2 PIVOT POINT
- PUSHER STRIPPER BAIL
- SAT FELT WASHER
- CAM FOLLOWER ROLLER
- O HOOKS - EACH END
- LATCH STRIPPER BAIL SPRING
- SAT FELT WASHER
- CAM FOLLOWER ROLLER
- O2 PIVOT POINT
- LATCH STRIPPER BAIL

4.11 SENSING MECHANISM

- O2 PIVOT POINTS
- AUXILIARY LEVERS
- O HOOKS - EACH END
- AUXILIARY LEVER SPRING
- O SLIDING SURFACES
- PUSH LEVERS
- O HOOKS - EACH END
- PUSH LEVER SPRINGS
- O2 PIVOT POINTS
- PUSH LEVERS
- O SLIDING SURFACES
- LATCH LEVERS
- O HOOKS - EACH END
- LATCH LEVER SPRING
- O PIVOT POINTS
- PUSH LEVERS
4.12 FEED MECHANISM

- SAT FELT WASHERS
- SAT FELT WASHER
- O SLIDING SURFACE
- O HOOKS - EACH END
- SAT FELT WASHER
- O2 PIVOT POINT

- PIVOT SHAFT
- FEED LEVER
- FEED LEVER
- FEED LEVER SPRING
- CAM FOLLOWER ROLLER
- FEED LEVER

ORIGINAL 3-9