

32 AND 33 KEYBOARD

ADJUSTMENTS

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1. GENERAL

1.01 This section is issued to provide adjustment and maintenance information for the 32 and 33 keyboard and to present the information as a separate section. All information included in this section applies equally well to 5- and 8-level keyboards except where noted.

1.02 In the adjustments covered in this section, location of clearances, position of parts, and point and angle of scale applications are illustrated by line drawings. Requirements and procedures are set forth in the several texts that accompany the line drawings.

Note: The configuration of an illustration or line drawing does not necessarily indicate that it and its associated text are exclusively applicable to a particular keyboard.

Required tools, not supplied with 32 or 33 Teletypewriter Sets, are listed in the appropriate maintenance tools publication.

1.03 The sequence in which the adjustments appear is that which should be followed when a complete readjustment of the keyboard is undertaken. No single adjustment should be undertaken without first completely understanding the procedure and knowing the requirements. Therefore, read a procedure all the way through before making an adjustment or checking a spring tension.

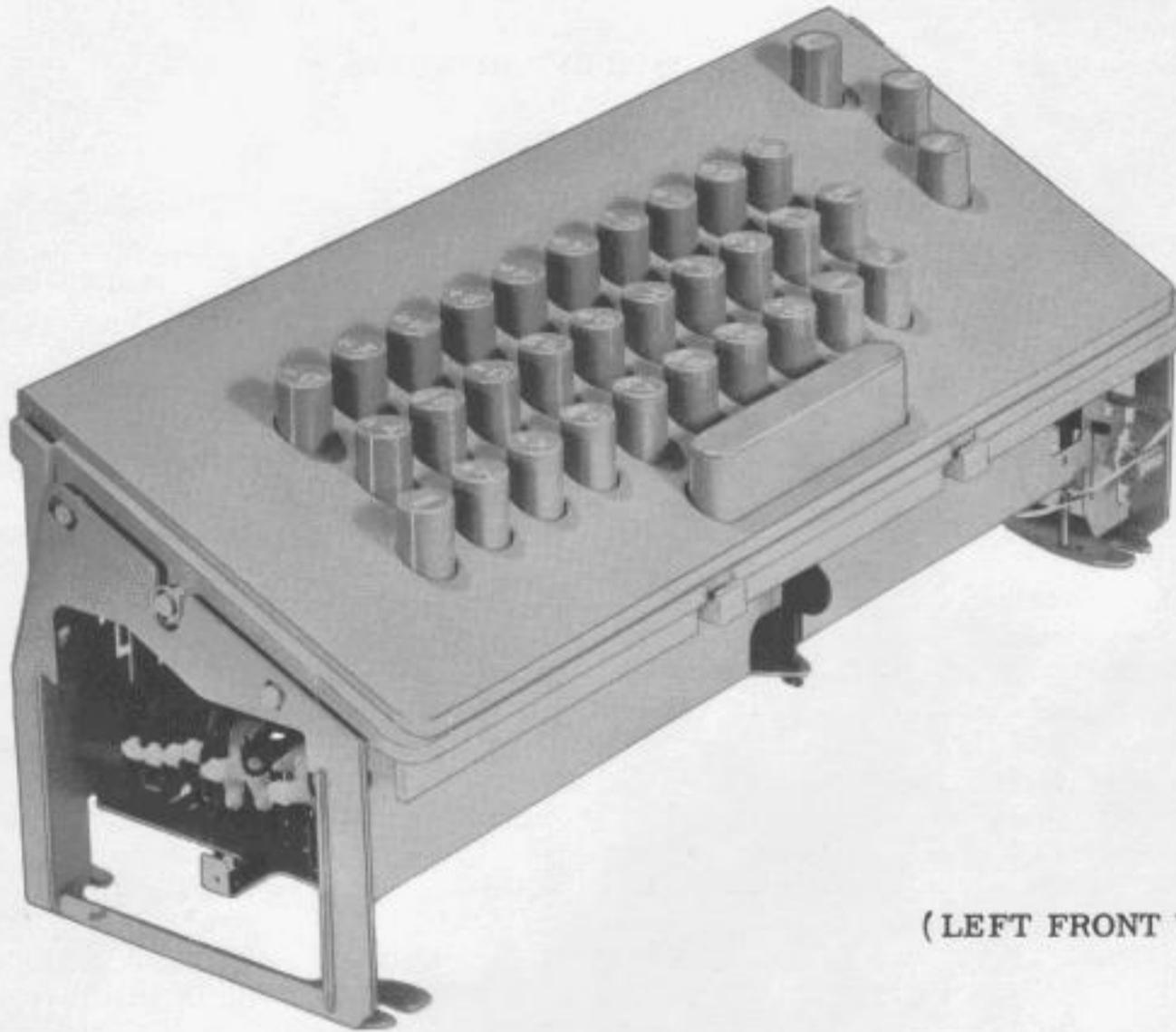
1.04 References to "left," "right," "front," "rear," etc consider the keyboard to be viewed from a position where the spacebar (Figure 3) faces up and the contact mechanism is located to the viewer's right.

1.05 Unless specifically stated otherwise, make screws or nuts friction tight to make an adjustment and tighten them securely once the adjustment has been made.

1.06 When a procedure calls for using pry points or slots to make an adjustment, place a screwdriver between the points or in the slots and pry parts in the proper direction.

1.07 When the keyboard is removed from the subbase to facilitate the making of an adjustment and subsequently replaced, recheck any adjustments that may have been affected. Also, if parts are removed from the keyboard to facilitate the making of an adjustment, be sure that they are subsequently replaced. Recheck any adjustment that may have been affected by the removal of parts.

1.08 Related adjustments are listed with some of the adjustment texts and are primarily intended to aid in trouble shooting the equipment. As an example, suppose that in searching for a trouble it is discovered that Part (2) of CONTACT



(LEFT FRONT VIEW)

Figure 1 — 32 Keyboard

WIRES adjustment does not meet its requirement. Under "Related Adjustment," it is indicated that Part (2) of this adjustment is affected by Part (1). Check Part (1) to see if it is the basic cause of the trouble. Also, note that certain adjustments affect other adjustments. For example, see the DISTRIBUTOR TRIP LINKAGE adjustment. Note that this adjustment affects the TRIP LEVER ENGAGEMENT adjustment. (See the appropriate typing unit section.) If the former adjustment is changed, check the latter adjustment.

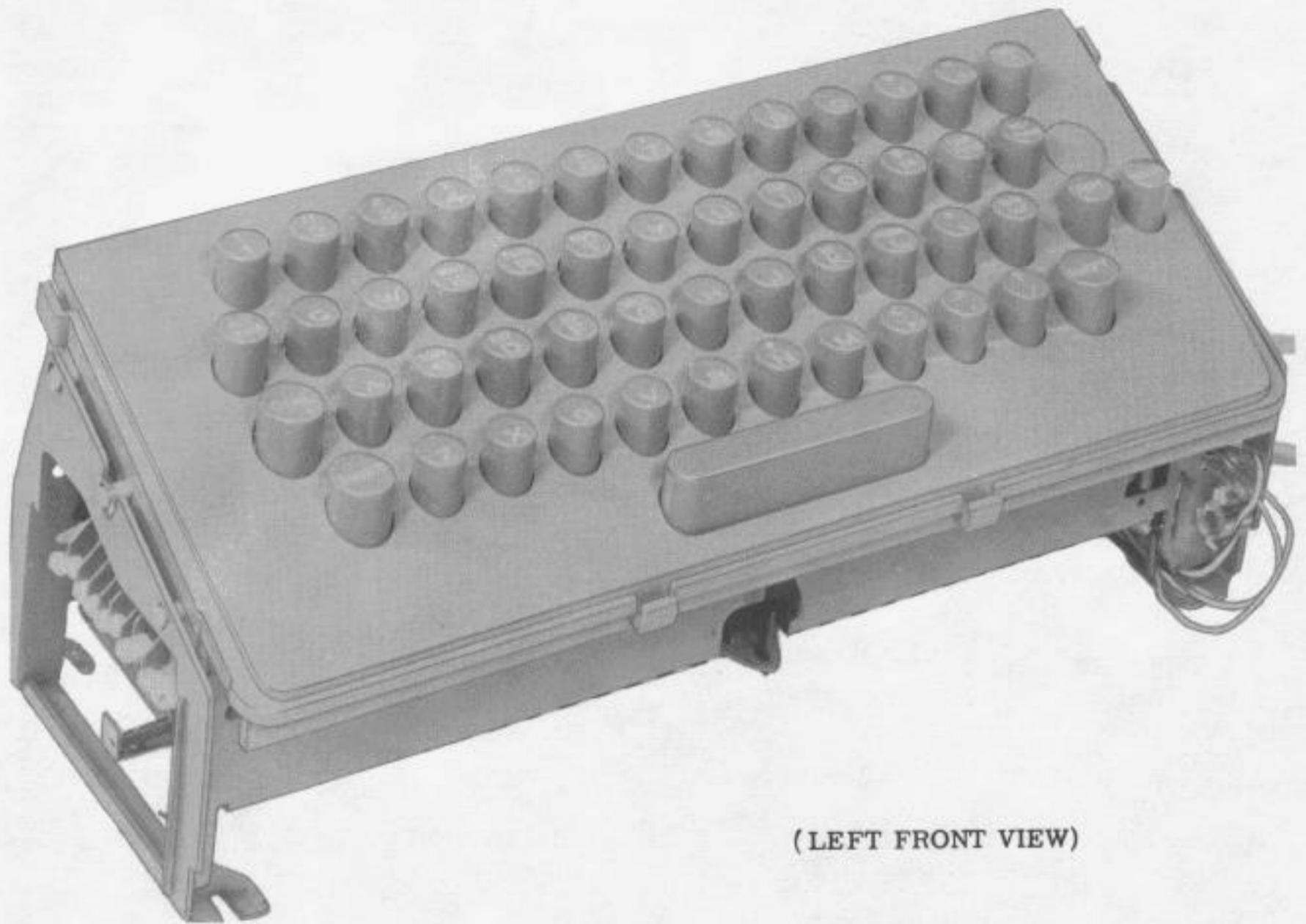
1.09 The spring tensions specified in this section are indications, not exact values. Therefore, to obtain reliable readings, it is important that spring tensions be measured by spring scales placed in the positions shown on pertinent line drawings. Springs that do not meet their requirements shall be replaced by new ones. Only those springs that directly affect the operation of the keyboard are measured, however, others may be measured indirectly

in the process. If, at first, the spring tension requirement cannot be met, replace the indicated spring being directly measured. Then, if the requirement is not met, any springs that are indirectly measured in the procedure shall be replaced, one at a time, with the performance of requirement checks each time a spring is replaced.

Note 1: Use spring scales which are recommended by the manufacturer of 32 and 33 Teletypewriter Sets and found in the appropriate maintenance tools publication.

Note 2: The spring tensions may be checked in any sequence.

1.10 With the keyboard and typing unit assembled together on the subbase, all adjustment procedures shall be started with the typing unit in the stop condition. It is in the stop condition when the selector armature is in its attracted



(LEFT FRONT VIEW)

Figure 2 — 33 Keyboard

(frontward) position and all clutches are disengaged. Furthermore, the keyboard universal lever shall be latched in its down position when the typing unit is in the stop condition.

Note: The keyboard is tripped when the universal lever is in its up position.

1.11 To place the typing unit in the stop condition, hold the selector armature in its attracted (frontward) position. Rotate the main shaft clockwise (as viewed from the left) until all clutches are in a stop position. Fully disengage all of the clutches as instructed in 1.12 following.

Note 1: A stop position is that position where a shoe lever contacts a trip lever.

Note 2: The distributor clutch will not disengage unless the answer-back drum is in its

home position, which is the position where the control lever is fully detented into the indent on the answer-back drum.

1.12 When disengaged, a clutch is latched so that a shoe lever is held in its stop position by a trip lever while a corresponding latchlever is seated in a notch of the clutch disc. This allows the clutch shoes to release their tensions on the clutch drum. With all clutches disengaged, the main shaft will turn freely without any clutch shoes dragging.

Note: If the shaft is turned by hand, a clutch will not fully disengage upon reaching a stop position. Where an adjustment procedure calls for disengagement, rotate the clutch to a stop position, apply a screwdriver to the associated stop-lug, and push the clutch disc in the normal direction of main shaft

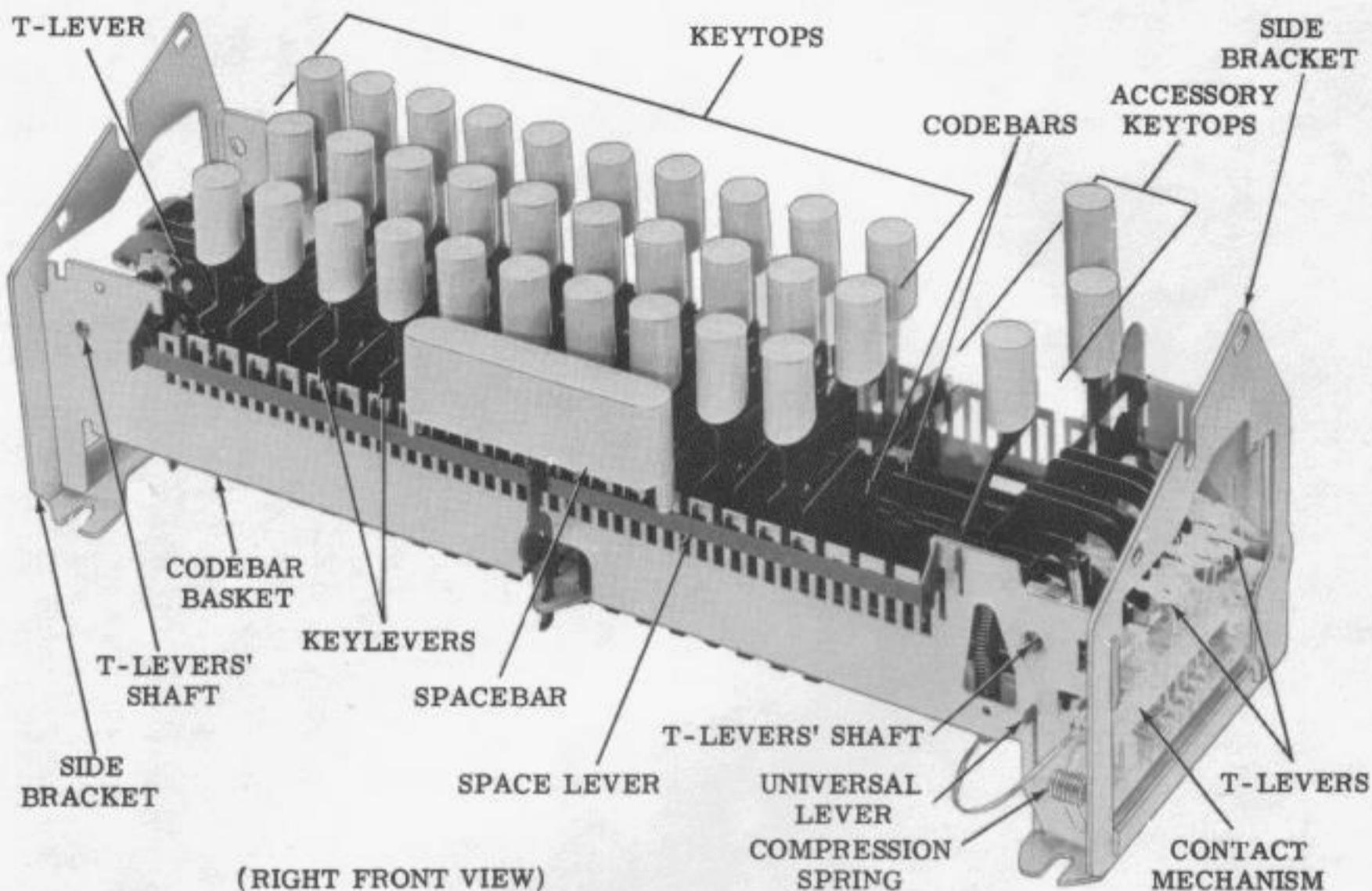


Figure 3 — Keyboard (Cover Removed)

rotation until the corresponding latchlever seats in its clutch disc notch. As a reminder, the word "latched" follows instructions to disengage the clutches.

1.13 A clutch is engaged when a trip lever is moved up so that it no longer holds a shoe lever in its stop position. When this action occurs, the shoe lever and a stop-lug on the clutch disc move apart, and the clutch shoes wedge against the drum, so that when the shaft is turned, the clutch will turn in unison with it.

1.14 General Maintenance Principles.

(a) Lubrication instructions and intervals are given in the appropriate lubrication sections.

(b) To maintain the operational effectiveness of the equipment, it is recommended that certain parts be replaced at intervals based upon the speed and operating hours, as indicated below:

Operating Speed (Words per Minute)	Recommended Maintenance Overhaul Interval (Operating Hours*)	Estimated Service Life (Operating Hours*)
60 or 66	2500	7500
100	1500	4500

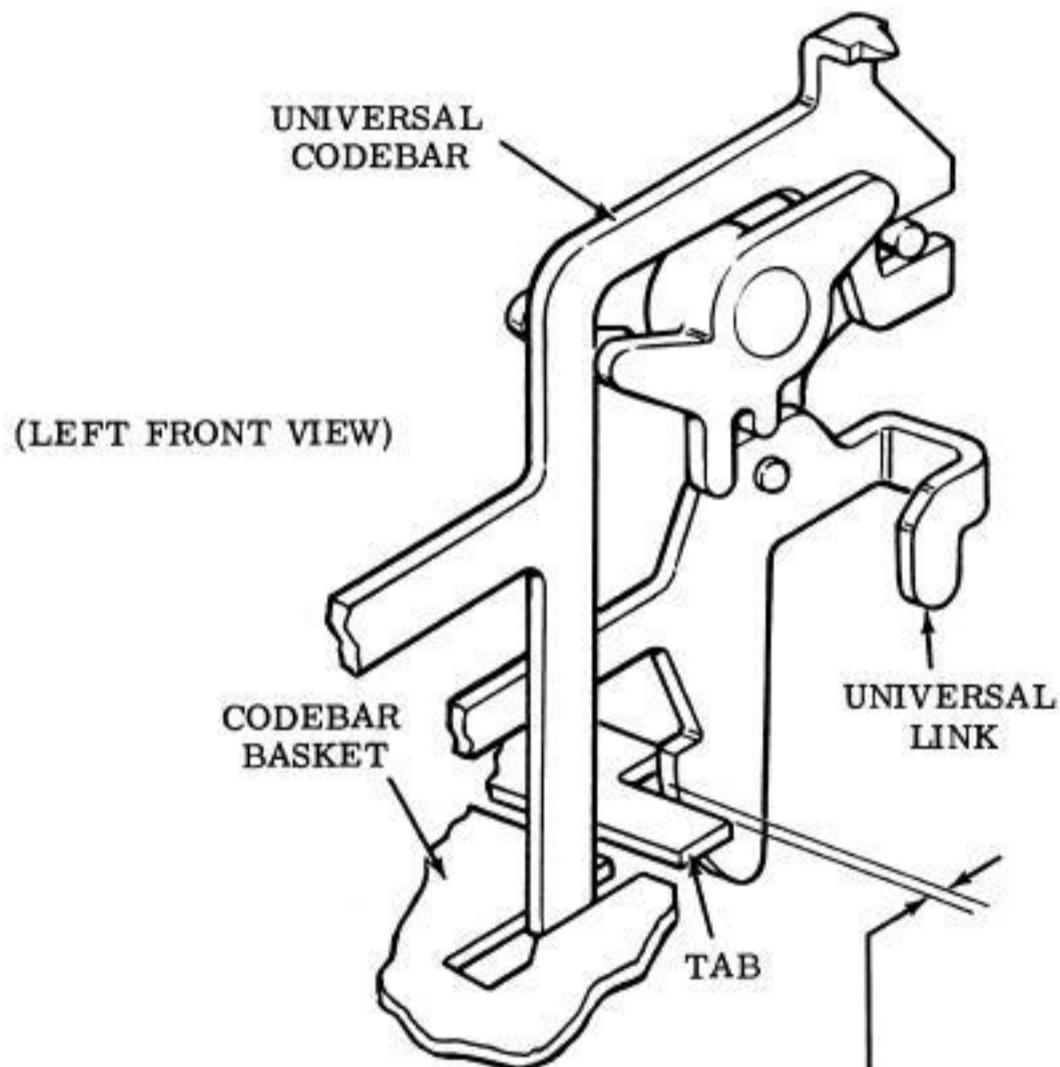
*Typing Unit Operating Hours

The parts are available in overhaul maintenance kits listed in the appropriate parts publications.

2. BASIC UNITS

2.01 Universal Link

Note: This adjustment can be made more easily with the keyboard removed from the subbase. If it has not been previously removed, remove the keyboard and the call control unit now. For instructions, see the appropriate keyboard section.

UNIVERSAL LINKRequirement

With the universal lever latched in its down position

Min 0.089 inch---Max 0.103 inch
between the universal link and the codebar basket.

To Adjust

Place screwdriver through opening and bend tab on codebar basket.

2.02 Distributor Trip Linkage

Note 1: Replace keyboard onto subbase at this point.
For instructions, see the appropriate keyboard section.
Do not replace the call control unit.

DISTRIBUTOR TRIP LINKAGE

To Check

With typing unit in stop condition, depress the RUB OUT key (8-level) or LTRS key (5-level) to trip distributor clutch. Rotate main shaft until the keyboard follower lever is moved to its lowest point by cam roller.

Note 2: Prior to gauging the required gap, push end of universal lever that protrudes through the front of codebar basket to bottom of its guide slot and allow it to snap up.

Requirement

Early design keyboards with universal lever TP180086:
Min 0.010 inch---Max 0.035 inch
between latchlever and universal lever.

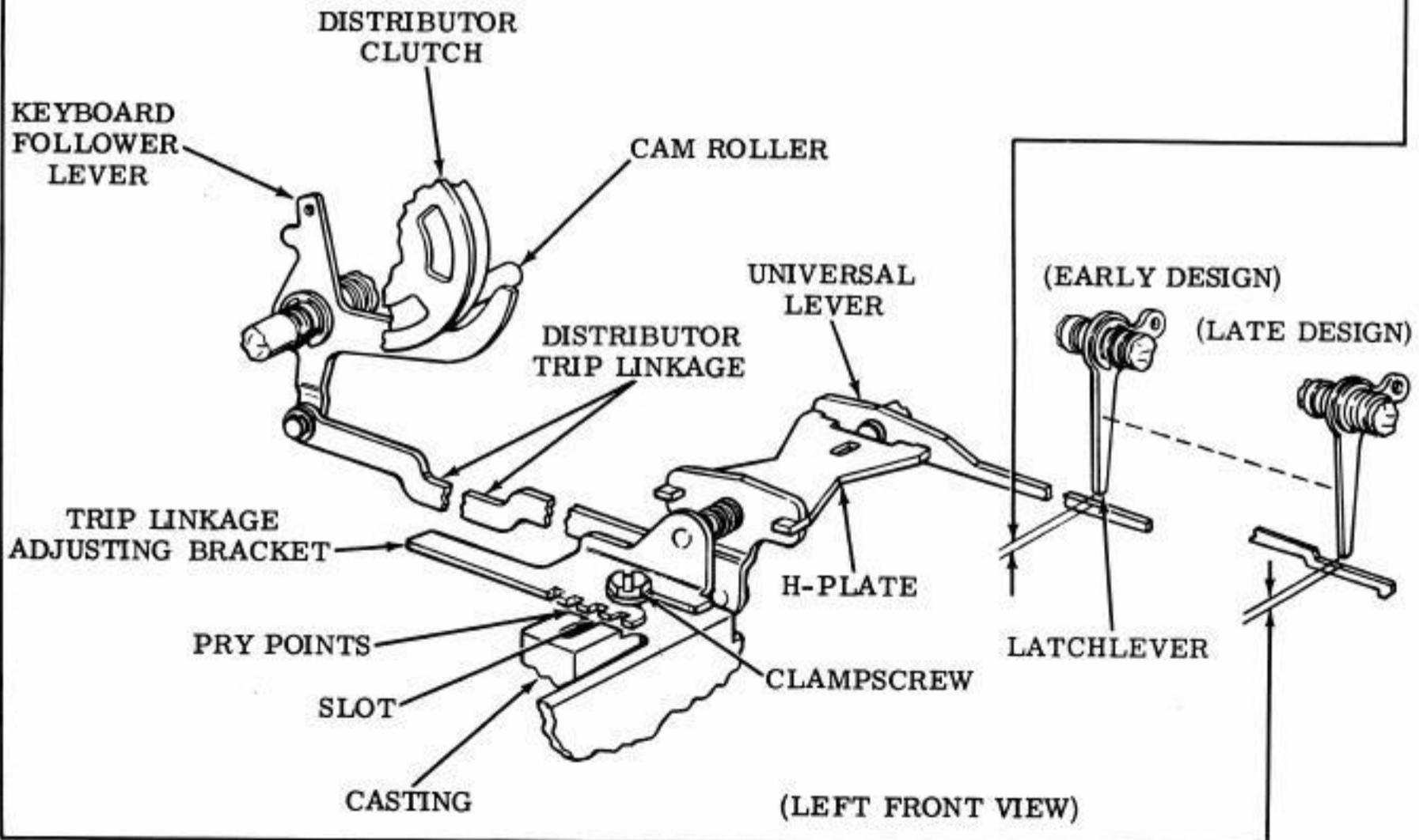
Late design keyboards with universal lever TP182240:
Min 0.010 inch---Max 0.040 inch
between latchlever and universal lever.

To Adjust

With clampscrew loosened, position trip linkage adjusting bracket using slot in casting and pry points.

Related Adjustment

Affects
TRIP LEVER ENGAGEMENT
(See appropriate typing unit section.)



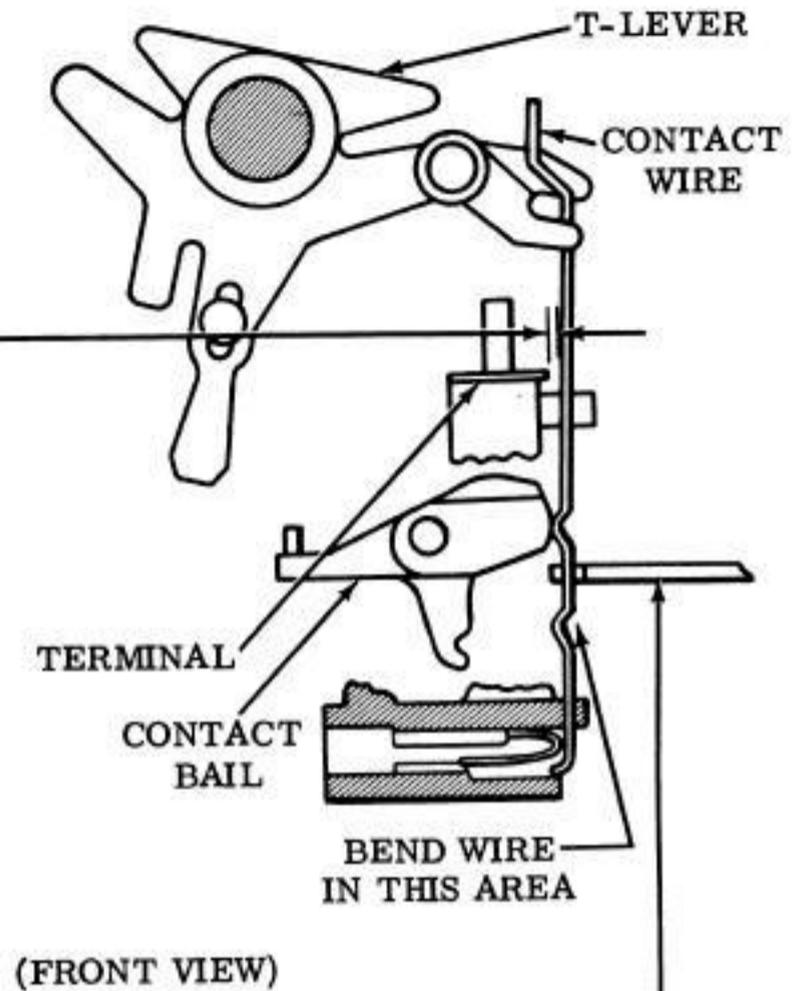
2.03 Contact Wires

CONTACT WIRES

- (1) To Check
Place typing unit in stop condition and T-levers down in marking position.

Requirement
Min 0.008 inch---Max 0.027 inch
between terminal and each contact wire.

To Adjust
Bend contact wire with bending tool
no. TP 98055.

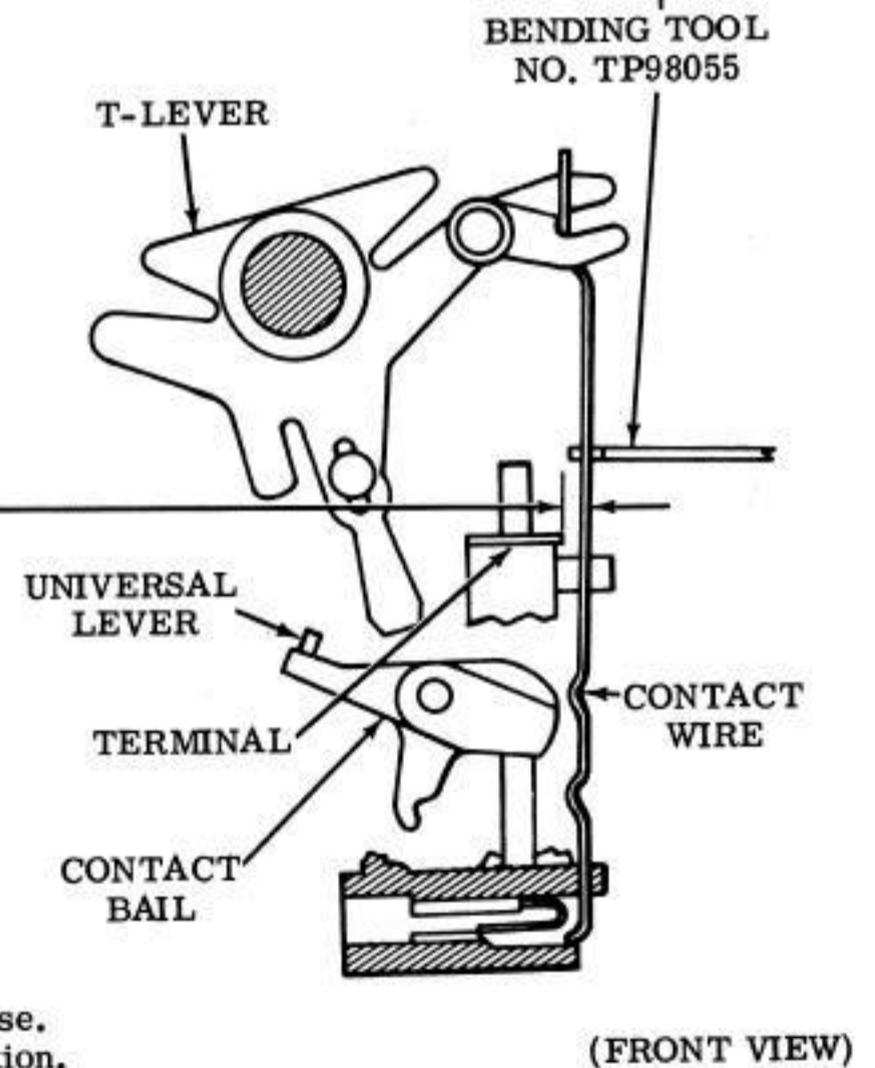


- (2) To Check
With typing unit in stop condition, place T-levers up in spacing position. Place universal lever in up position by depressing universal codebar.

Requirement
Min 0.020 inch---Max 0.040 inch
between terminal and each contact wire.

To Adjust
Bend contact wire with bending tool
no. TP98055.

Related Adjustment
Affected By
Part (2) of this adjustment is affected
by Part (1).



Note: If necessary, to facilitate the bending of the contact wires, remove the keyboard from the subbase. For instructions, see the appropriate keyboard section. After bending contact wires, replace keyboard onto subbase and recheck DISTRIBUTOR TRIP LINKAGE adjustment.

2.04 Nonrepeat Lever Spring, Latchlever Spring, Contact Block Spring, and Contact Wire Spring

NONREPEAT LEVER SPRING

Requirement

With keyboard cover removed and typing unit in stop condition

Min 3/4 oz---Max 1-1/2 oz
to start nonrepeat lever moving.

Note 1: To facilitate making NONREPEAT LEVER SPRING adjustment, remove keyboard cover. (For instructions, see the appropriate keyboard section.)

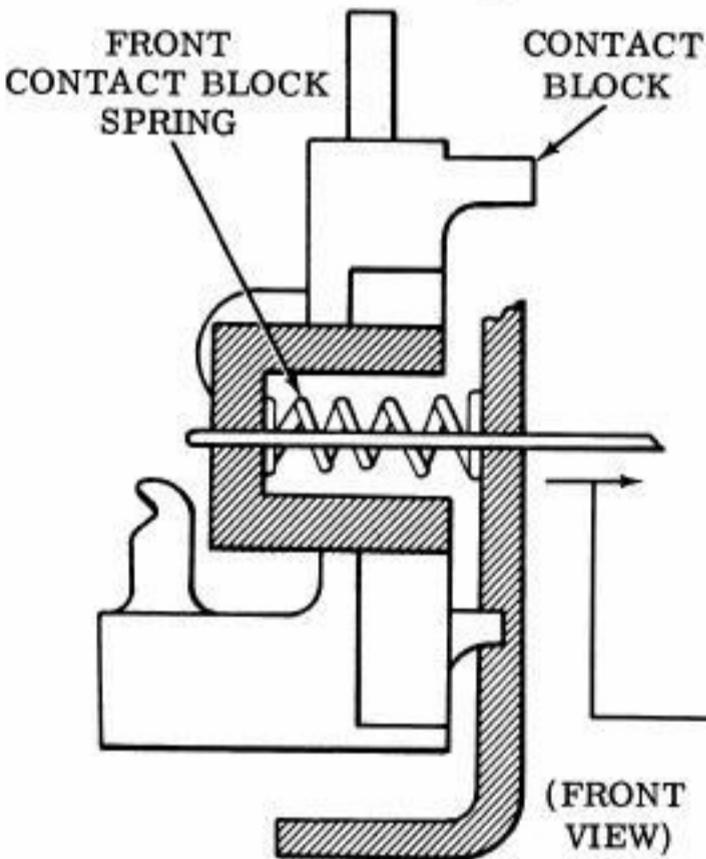
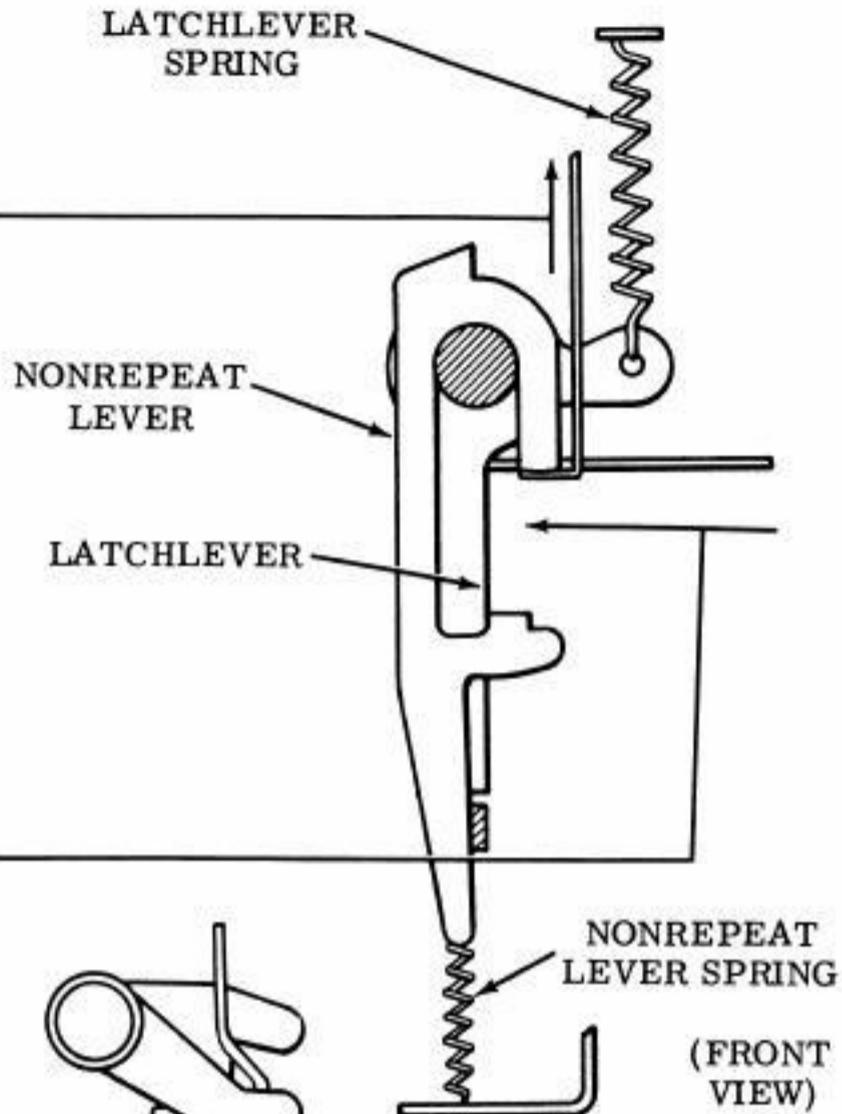
LATCHLEVER SPRING

To Check

With call control unit removed, trip distributor clutch and rotate main shaft until keyboard follower lever is moved by cam roller to its lowest point.

Requirement

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

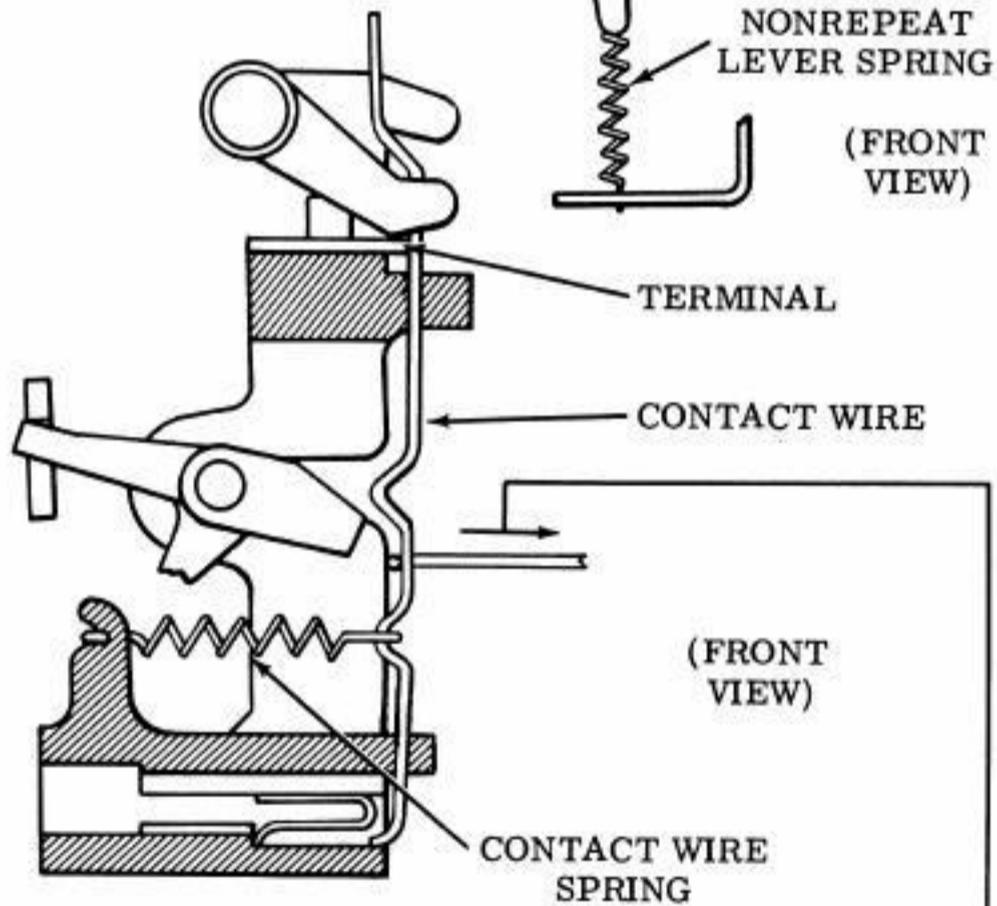


CONTACT BLOCK SPRING

Requireme.

With call control unit removed
Min 18 oz---Max 42 oz
to start contact block moving.

Note 2: Check both front and rear contact block springs.



CONTACT WIRE SPRING

To Check

With call control unit removed, place T-levers in down (marking) position. Trip keyboard by depressing universal codebar.

Requirement

Min 3/4 oz---Max 1-1/4 oz
to start each contact wire moving away from terminal.

2.05 Reset Bail Spring and Universal Link Spring

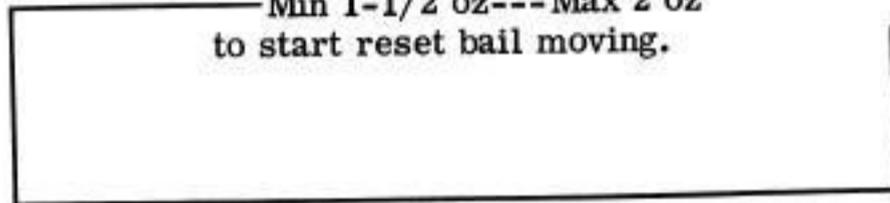
RESET BAIL SPRING

To Check

With keyboard cover removed, trip keyboard by depressing LTRS (5-level) or RUB OUT (8-level) keytop.

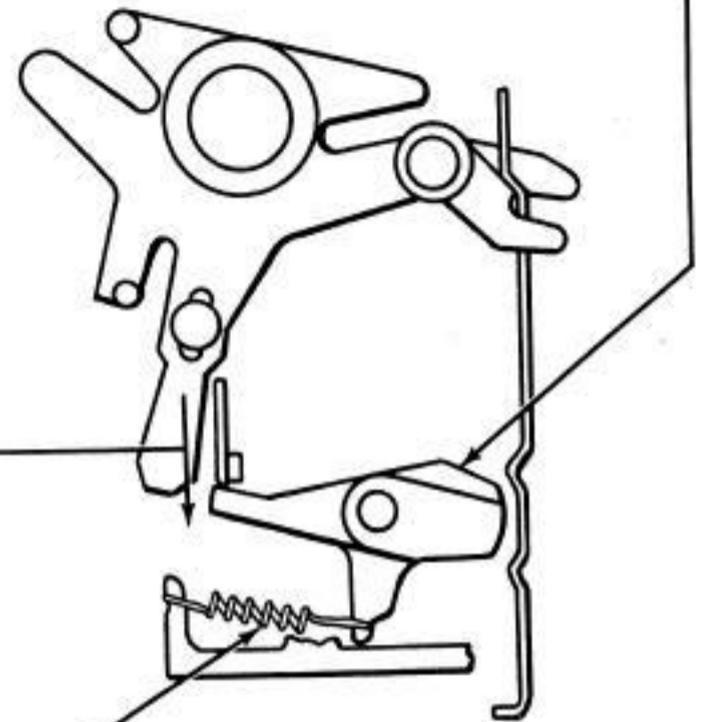
Requirement

Min 1-1/2 oz---Max 2 oz
to start reset bail moving.



RESET BAIL SPRING

RESET BAIL



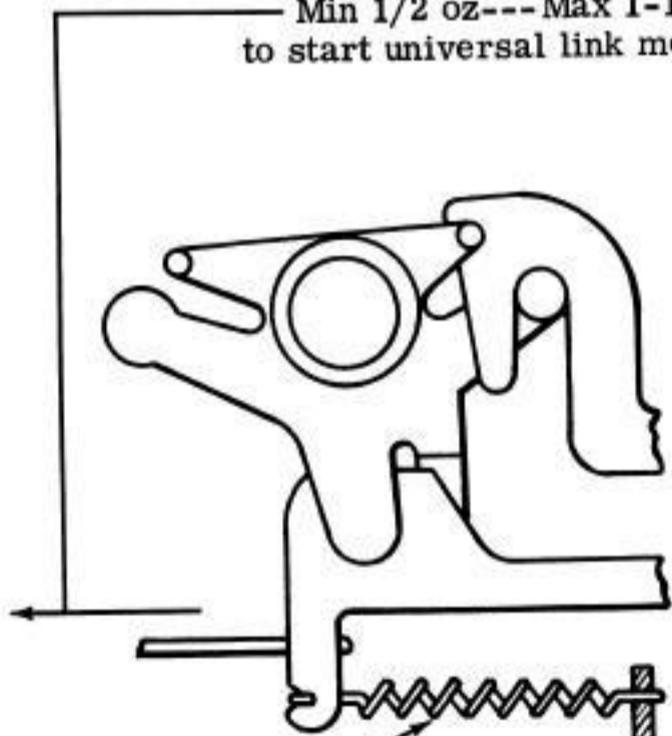
(FRONT VIEW)

UNIVERSAL LINK SPRING

Requirement

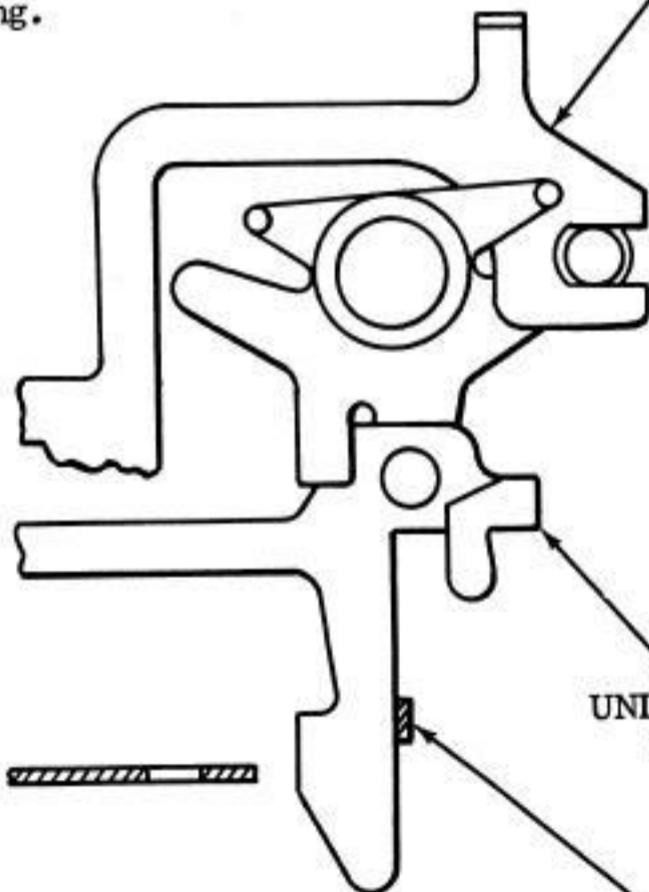
With keyboard tripped (universal lever in up position)

Min 1/2 oz---Max 1-1/4 oz
to start universal link moving.



UNIVERSAL LINK SPRING

UNIVERSAL CODEBAR



UNIVERSAL LINK

UNIVERSAL LEVER

(FRONT VIEW)

2.06 Universal Lever Spring

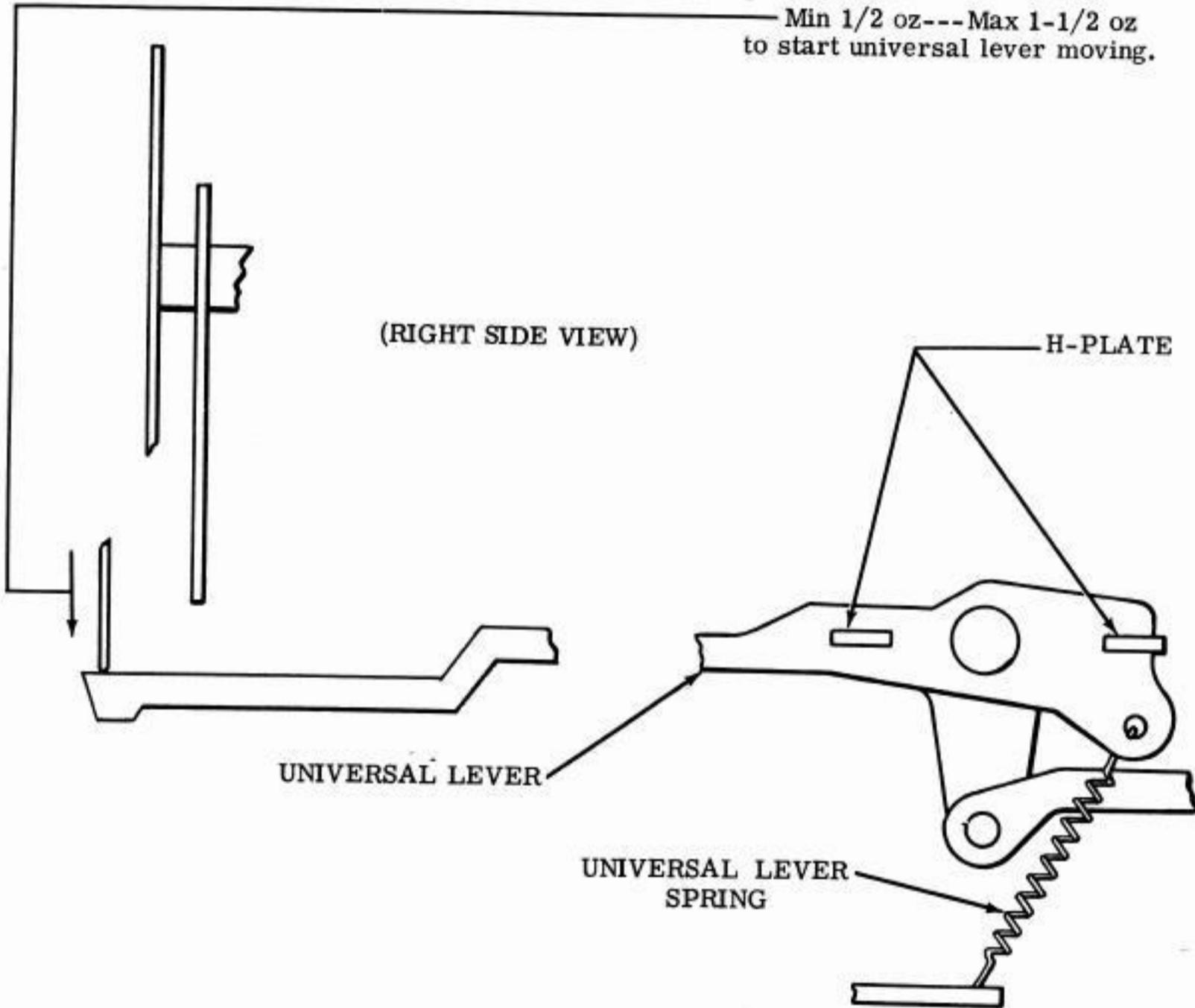
UNIVERSAL LEVER SPRING

To Check

With keyboard cover removed, place typing unit in stop condition. Remove H-plate. (See the appropriate keyboard section.)

Requirement

Min 1/2 oz---Max 1-1/2 oz
to start universal lever moving.



Note: Replace call control unit onto subbase. Also replace keyboard cover and H-plate. For instructions, see the appropriate keyboard section.

2.07 Spacebar Spring and Keylever Spring

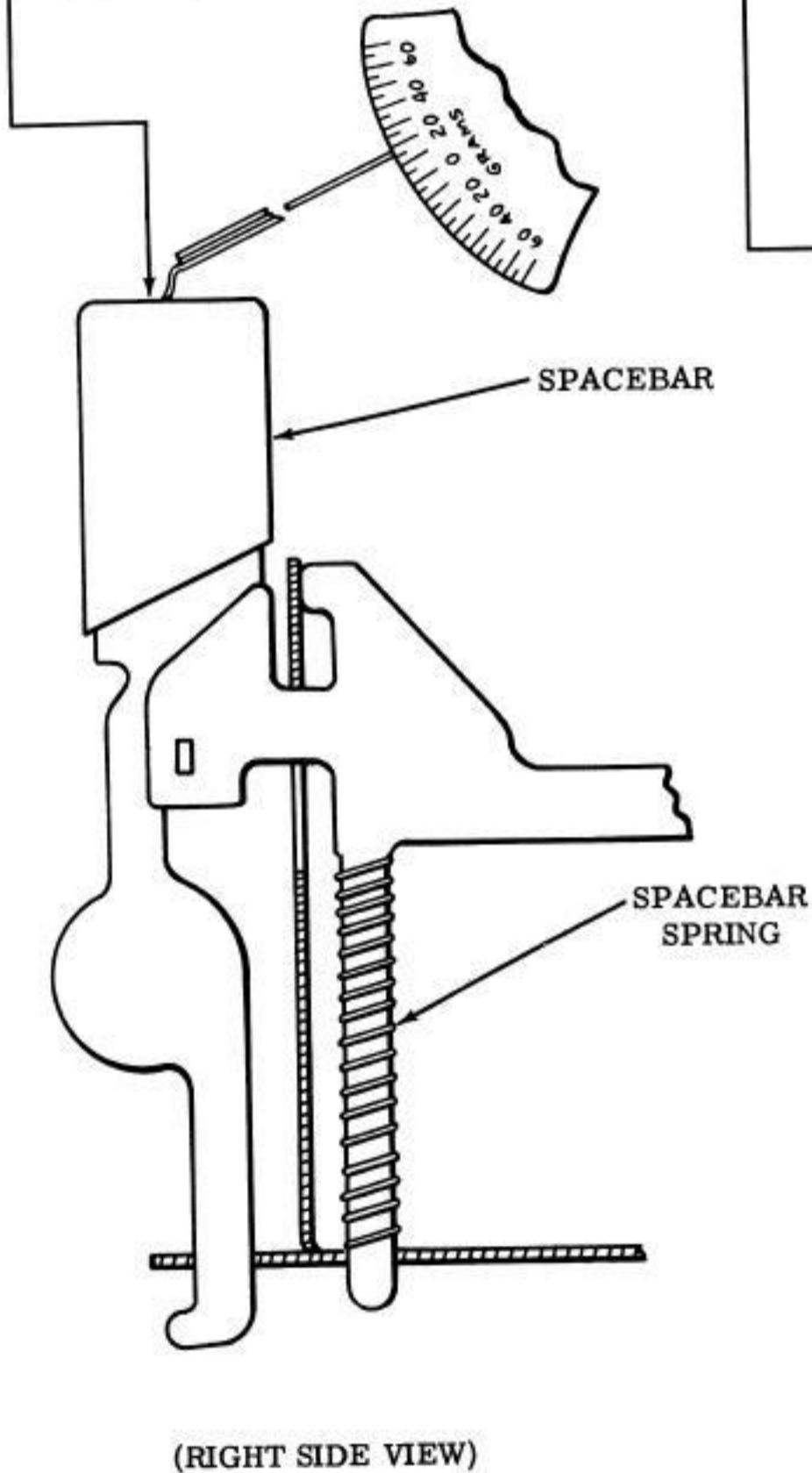
SPACEBAR SPRING

To Check

With universal lever down, depress spacebar and then release.

Requirement

Min 5 grams---Max 25 grams to start spacebar moving.



KEYLEVER SPRING

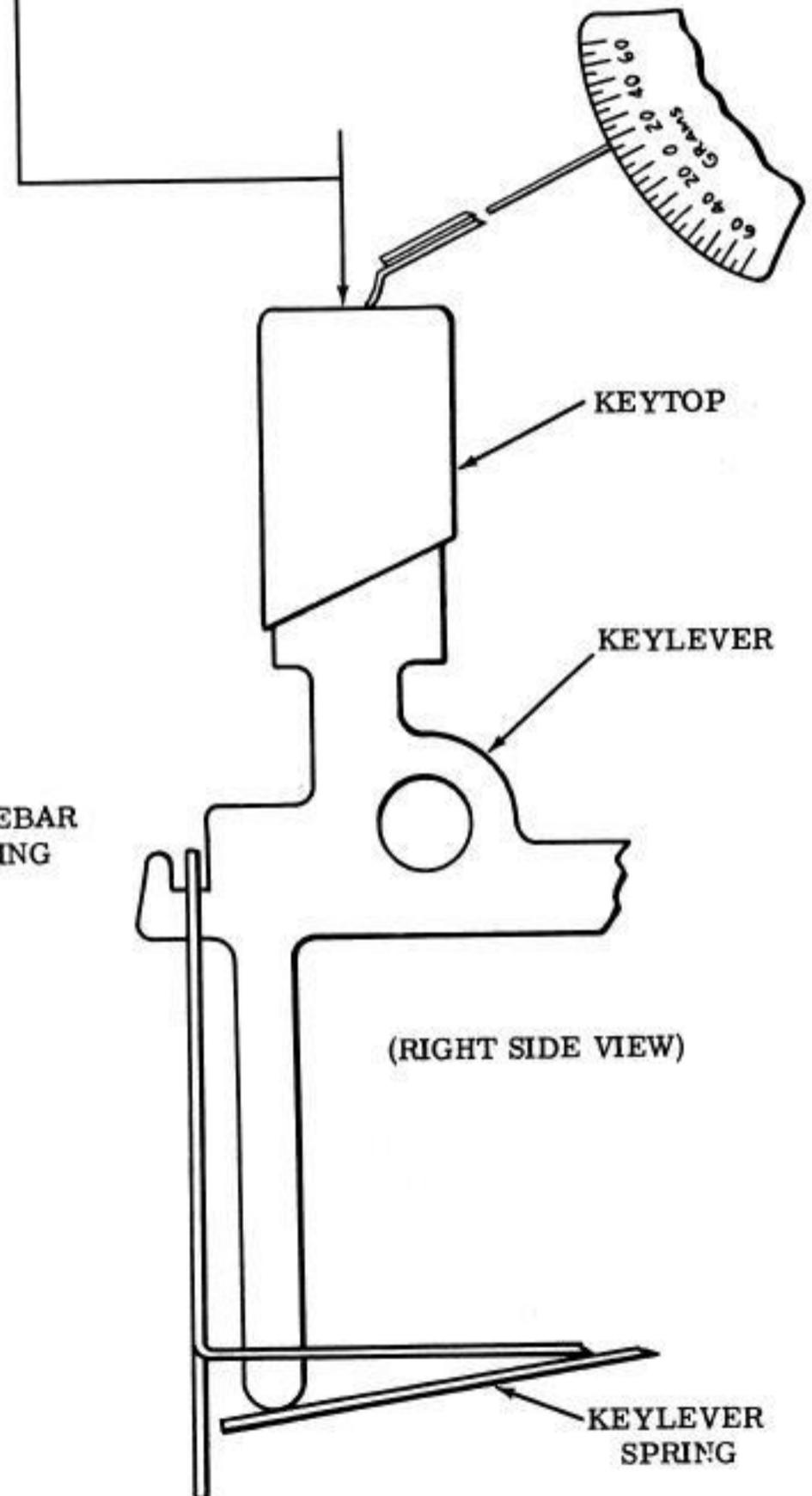
To Check

With universal lever down, select any keytop and depress. Release keytop.

Requirement

Min 5 grams---Max 25 grams to start selected keytop moving.

Note: Check each keylever spring.



2.08 HERE IS, BREAK, CTRL,
and REPT Keylever Springs

"BREAK" KEYLEVER SPRING

Requirement

5-level:

Min 12 oz---Max 18 oz

8-level:

Min 4-1/2 oz---Max 10 oz

to start keytop moving.

"CTRL" KEYLEVER SPRING

Requirement

8-level:

Min 1-1/2 oz---Max 3-1/2 oz

to start keytop moving.

"HERE IS" KEYLEVER SPRING

Requirement

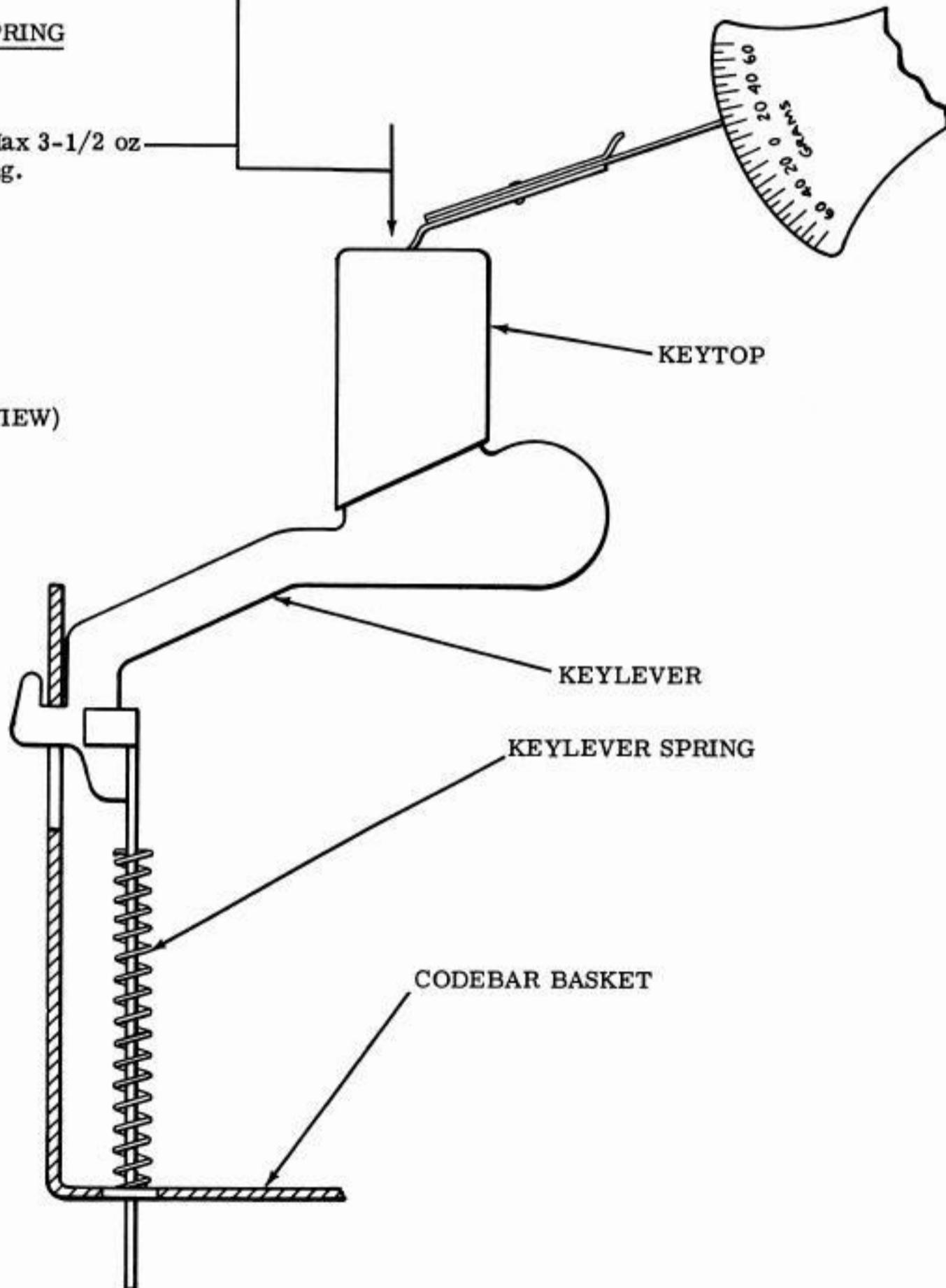
Min 18 grams---Max 35 grams
to start keytop moving.

"REPT" KEYLEVER SPRING

Requirement

Min 15 grams---Max 30 grams
to start keytop moving.

(RIGHT SIDE VIEW)

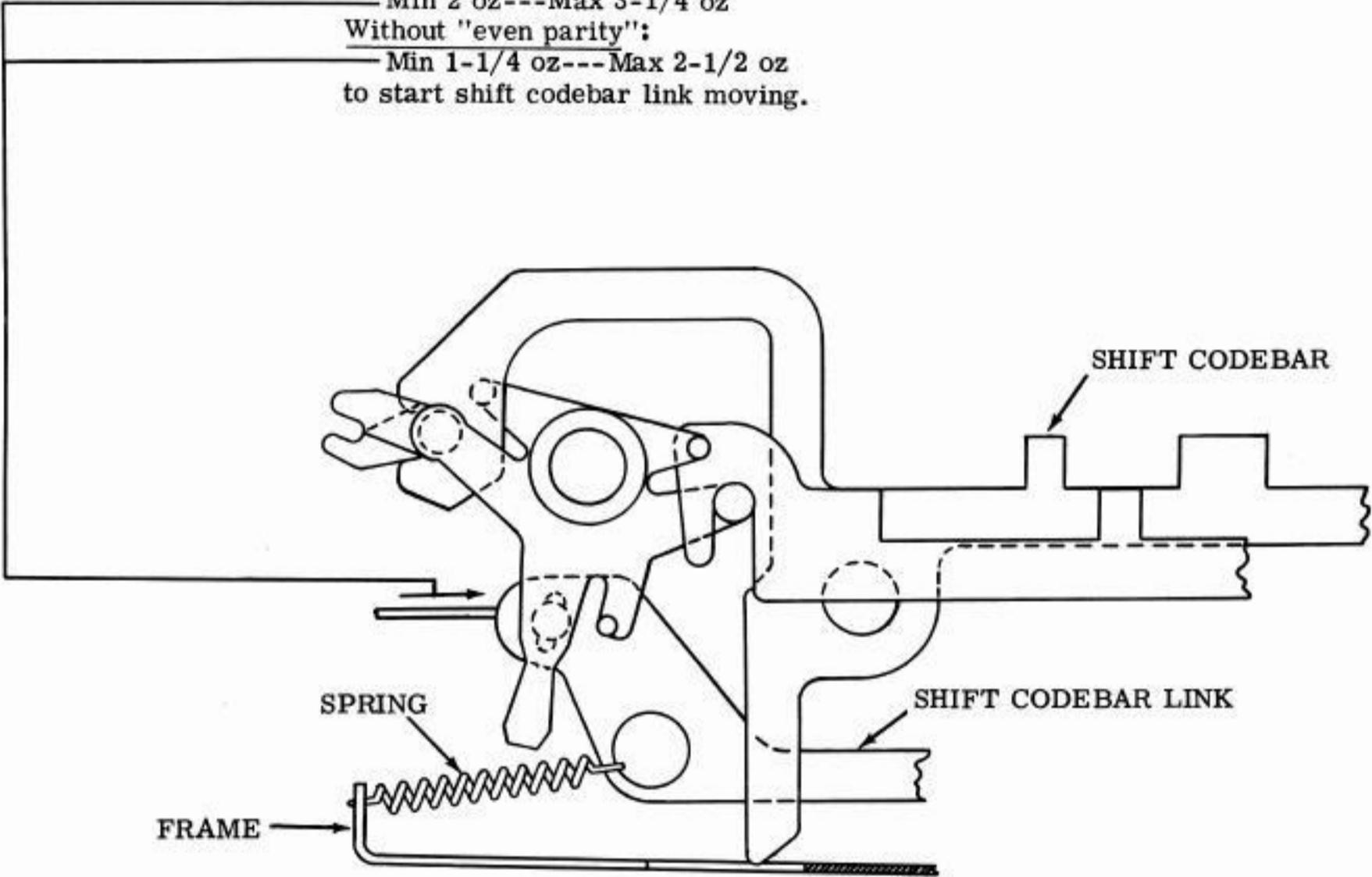


2.09 Shift Codebar Spring

Note: The SHIFT CODEBAR SPRING adjustment applies only to 8-level keyboards.

SHIFT CODEBAR SPRING

Requirement
With "even parity":
 Min 2 oz---Max 3-1/4 oz
Without "even parity":
 Min 1-1/4 oz---Max 2-1/2 oz
 to start shift codebar link moving.



(FRONT VIEW)