

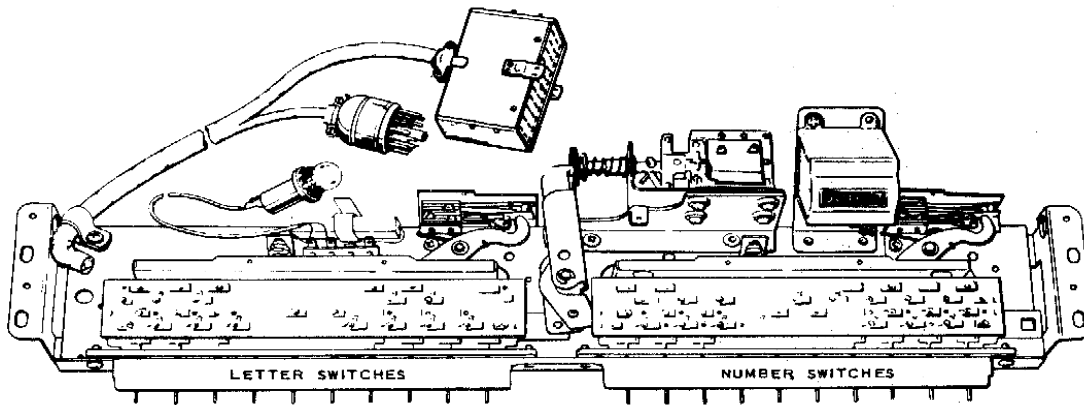
SEEBURG

TORMAT ELECTRICAL SELECTOR

TYPE TES101/102

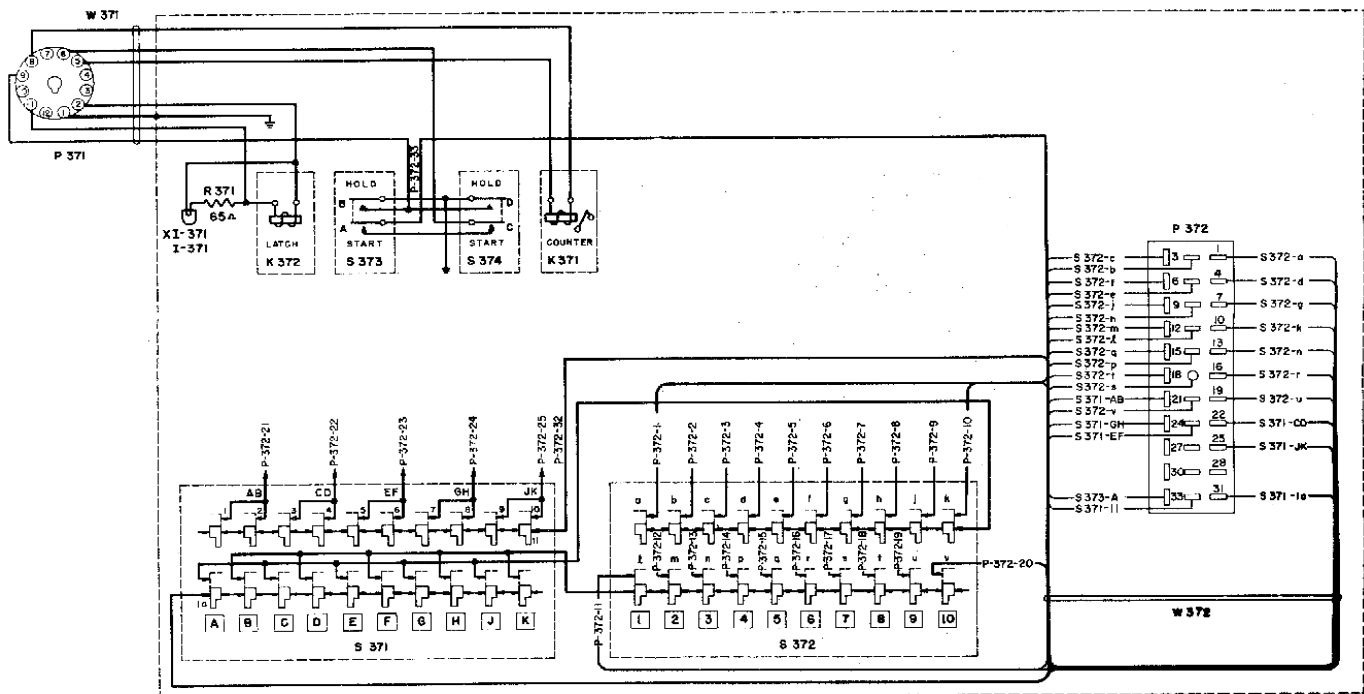
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TORMAT ELECTRICAL SELECTOR TYPE TES102



The Tormat Electrical Selector, Type TES102, is the same as the Type TES101 except that a 33-prong plug is used for selection circuit connections. All service data beginning on

Page 3107 applying to the Type TES101 applies to the Type TES102 except the symbols on the diagram. The diagram for the Type TES102 is given below.



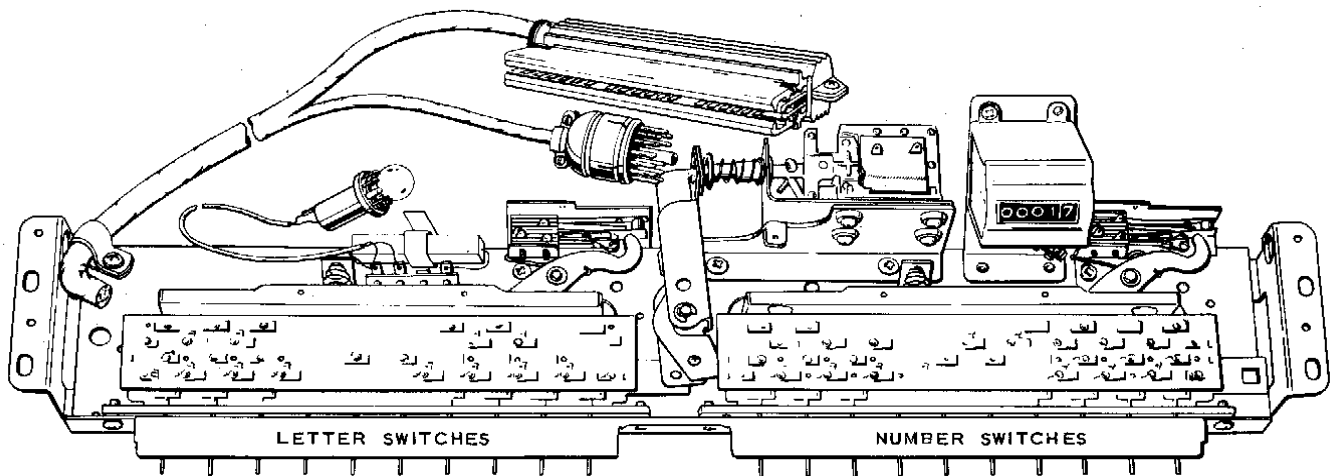
Schematic Diagram

PARTS LIST

Item	Part No.	Part Name	Item	Part No.	Part Name
XI 371	410823	LAMP SOCKET ASSEMBLY	S 371	410806	SELECTOR SWITCH ASSEMBLY
I 371	505173	LAMP NO. 55	S 372	410806	SELECTOR SWITCH ASSEMBLY
K 371	411082	COUNTER	S 373	410818	LEAF SWITCH ASSEMBLY
K 372	410821	SOLENOID (LATCH)	S 374	410818	LEAF SWITCH ASSEMBLY
P 371	410708	PLUG ASSEMBLY (12 PRONG)	W 371	410862	PLUG & CABLE ASSEMBLY (CONTROL)
P 372	410573	SOCKET ASSEMBLY	W 372	410864	PLUG & CABLE ASSEMBLY (MATRIX)
R 371	81178	RESISTOR WIRE WOUND 65 OHMS			

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TORMAT ELECTRICAL SELECTOR TYPE TES101



The Tormat Electrical Selector, Type TES101 is a part of the Seeburg Tormat Selection System and Credit System which includes the Tormat Memory Unit on the Select-O-Matic Mechanism, the Tormat Electronic Unit and Remote Control Unit. It is designed for use with the Select-O-Matic "100", Model L-100 and is operated from a selector key panel having a row of ten lettered keys and a row of ten numbered keys. Its principal functions are to connect a letter and a number circuit of the Tormat Memory Unit into a selection write-in circuit and to complete a circuit that initiates the operational sequence of the system. These functions are performed when two of the selection switches are operated by pressing a lettered selector key and a numbered key.

The component parts of the Selector are assembled on a steel frame and are protected by a steel cover. All electrical connections to the associated Tormat Memory Unit and to the other parts of the system are made with a 12-contact plug and a 36-contact plug.

The principal component parts of the Selector include, in addition to the two selection switch assemblies, a latch bar operating solenoid, a credit indicating light and two switch groups each of which has two pairs of contacts. There is also a counter which totals the number of selections made in the remote control Wall-O-Matics as well as those made with the Electrical Selector.

The Credit indicating (SELECT) light connects to a credit circuit through the Credit & Cancel Unit and is lighted when a credit switch is closed. It indicates, when lighted, that a selection can be made.

The Letter and Number selector switch assemblies are identical and interchangeable. They each incorporate a latch bar and ten selection switches for connecting the current supply to the desired selection circuits. The latch bar function is to hold a selection switch (and selector key) in the pressed-in position when a selection is being made and to release it when the selection sequence is completed. The bars in both switch assemblies are controlled through levers, by the latch bar solenoid.

The linkage between the latch bar solenoid and the latch bars is spring biased so the bars are in a position that permits free in-and-out movement of the selection switches when the solenoid is not energized. When the solenoid is energized, the bars move to a position in which they will hold a pressed-in switch. The solenoid is energized when a credit switch in the Credit Unit is closed.

The shafts or stems of the selector switches extend through the switch frame. They operate a treadle bar when a selector key is pressed and the treadle bar, in turn, operates a switch group consisting of a spring-leaf switch and a snap-action, over-center switch. One of the two

TORMAT ELECTRICAL SELECTOR, TYPE TES101

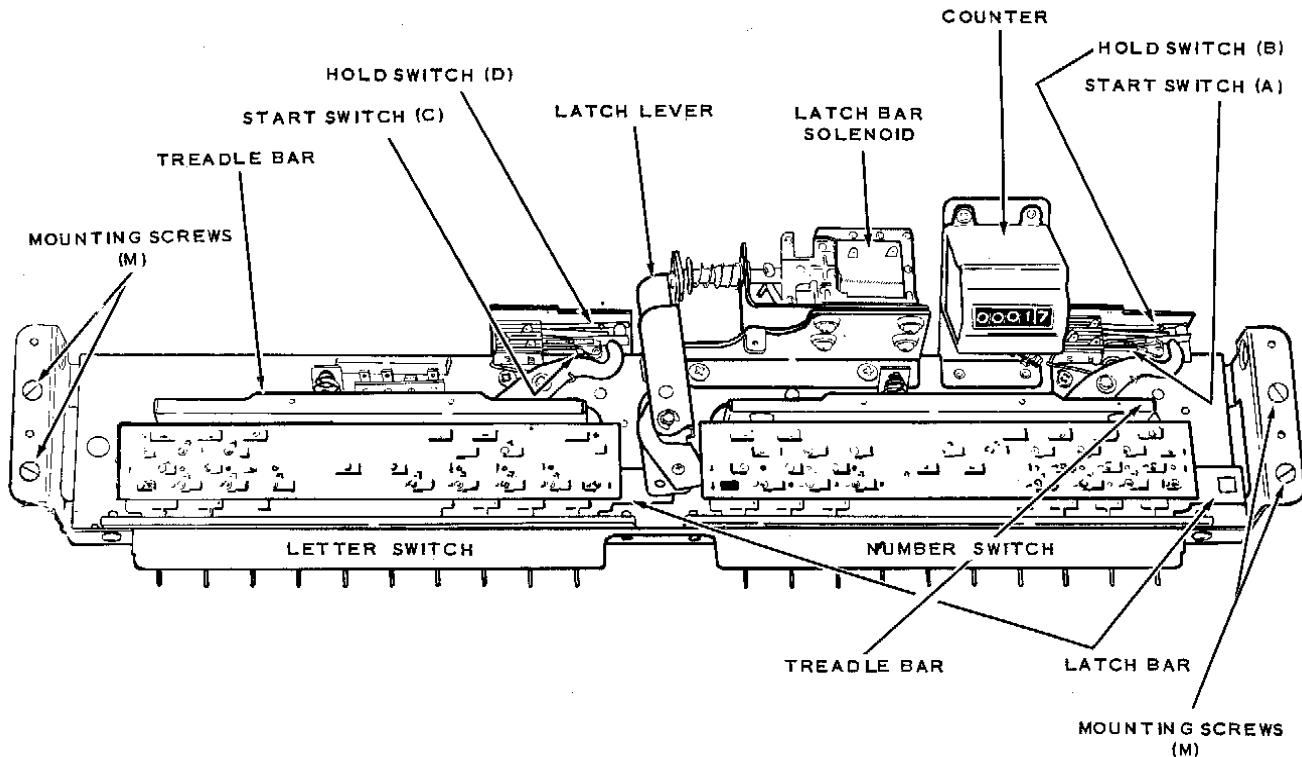


Figure 2.

switch groups is associated with the numbered switches and operates when any numbered selector key is pressed. The other operates when any lettered key is pressed.

The two spring-leaf switches in the two switch groups are parallel connected and are part of a timing relay holding circuit that is completed through interlocking contacts on the relay when any one of the thirty selector keys is pressed. These switches are the Hold Switches, contacts B and D.

The snap-action switches are the Starting Switches, contacts A and C. They are series connected and, together, are part of a circuit that includes a Cancel or Subtract Solenoid in the Credit Unit. When a letter key and a number key are pressed, the starting switches complete the circuit to the solenoid which, when energized, closes switch contacts that control the power to the Tormat Memory Unit, the selection counter and the timing relay. They also close, momentarily, the circuit for a play control add solenoid that, in turn, controls, through a play control switch, the power to the phonograph amplifier and the mechanism motor.

REMOVAL OF SELECTOR

All adjustments of the mechanical linkage,

all switch adjustments and all circuits of the Selector are accessible for inspection and service without removing it from the cabinet. The entire unit may, however, be removed by pulling out the two connecting plugs at the end of the cable and taking out three screws that are at the back edge of the selector frame. These screws are identified at (M) in Figure 2.

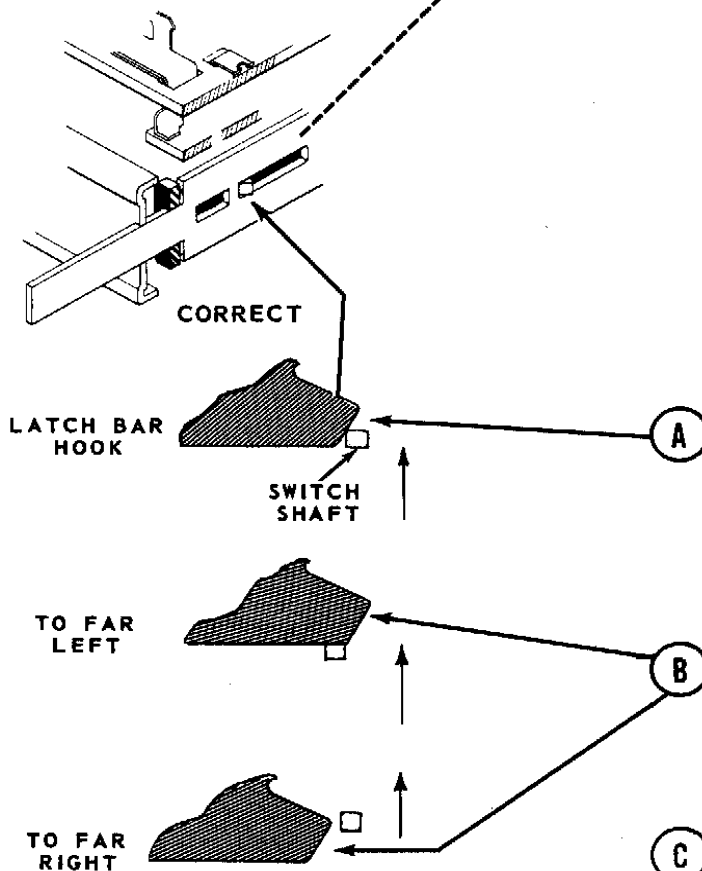
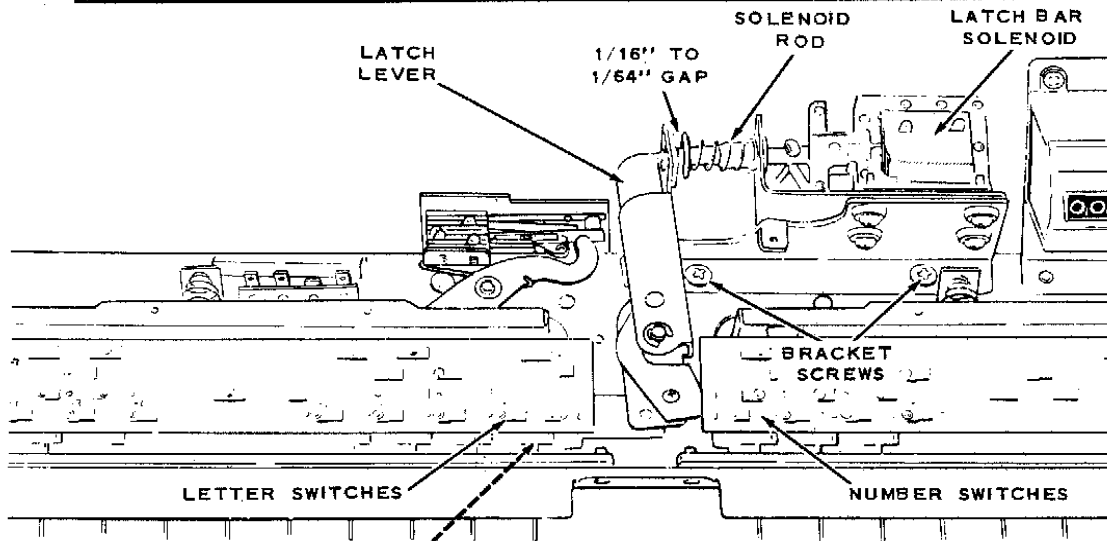
When replacing the Selector in the cabinet it should be fastened securely with the mounting screws. It should be positioned so there is a little clearance between the ends of the selection switch shafts and the back of the selector keys. If it is too far toward the keys the selection switches may not return far enough to the released position to open the timing relay circuit.

LUBRICATION

Oil all pivots with one drop of Seeburg No. 53014 Select-O-Matic Special Purpose Oil. Use Aero Lubriplate sparingly at the ends of the latch bars and at the point of contact of the latch bar solenoid plunger with the latch lever. (*Aero Lubriplate and No. 53014 Oil is available from your Seeburg Distributor.*)

TORMAT ELECTRICAL SELECTOR, TYPE TES101
ADJUSTMENT NO. 1 - LETTER SWITCH

This adjustment positions the latch bar in the LETTER selector switch so that when credits are established, the selector switches will latch in the pressed-in position but permit change of selection by operating another switch.



NOTE: When making this adjustment the latch bar solenoid must be in the energized position, all linkage and bars must be free to move without binding and there should be a 1/64" to 1/16" gap between the latch lever and the solenoid rod.

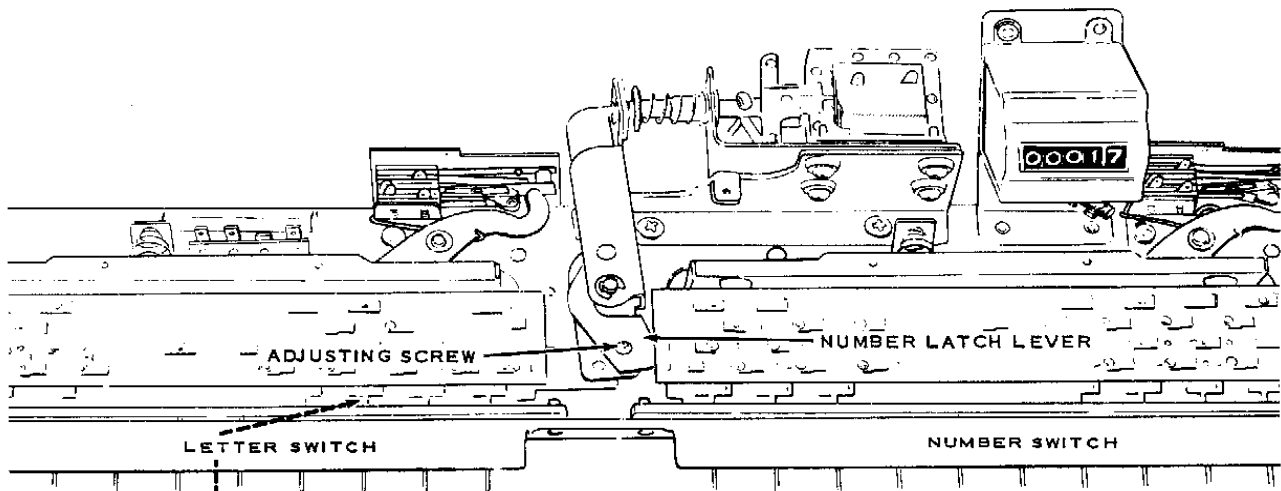
A Loosen the two bracket screws holding the Latch Bar Solenoid Bracket and position the Solenoid so the shaft of a letter selector switch, when pressed in will engage the latch bar at the mid-point of the sloping edge of the latch bar hook.

B If the Latch Bar Solenoid is too far to the right, the selector keys will be locked. If the Solenoid is too far to the left, the selector keys will not latch or the latching will be erratic.

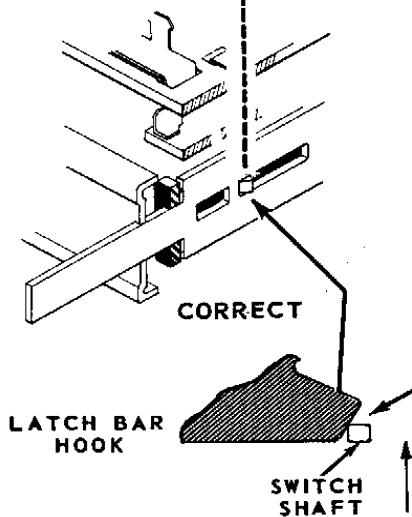
C After the correct position of the Latch Bar Solenoid has been made, the bracket holding screws must be securely tightened.

TORMAT ELECTRICAL SELECTOR, TYPE TES101
ADJUSTMENT NO. 2 - NUMBER SWITCH

This adjustment positions the latch bar of the NUMBER SWITCH so the selector switches will operate in the same manner provided for the lettered switches in Adjustment No. 1.

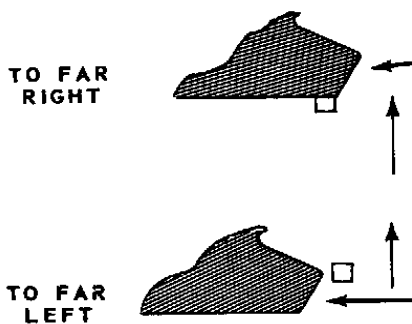


NOTE: Before making this adjustment, the Letter Switch adjustment must be correct, the latch bar solenoid must be in the energized position, the latch bars must be free to move without binding and there should be 1/64" to 1/16" gap between the latch lever and the solenoid rod.



A Loosen the screw in the latch lever that is between the Number and Letter Switches and, holding the latch bar at the right of the Number Switch, position it so the lettered switch shafts (L to V), when pressed in, engage the latch bar at the mid-point of the latch bar hook.

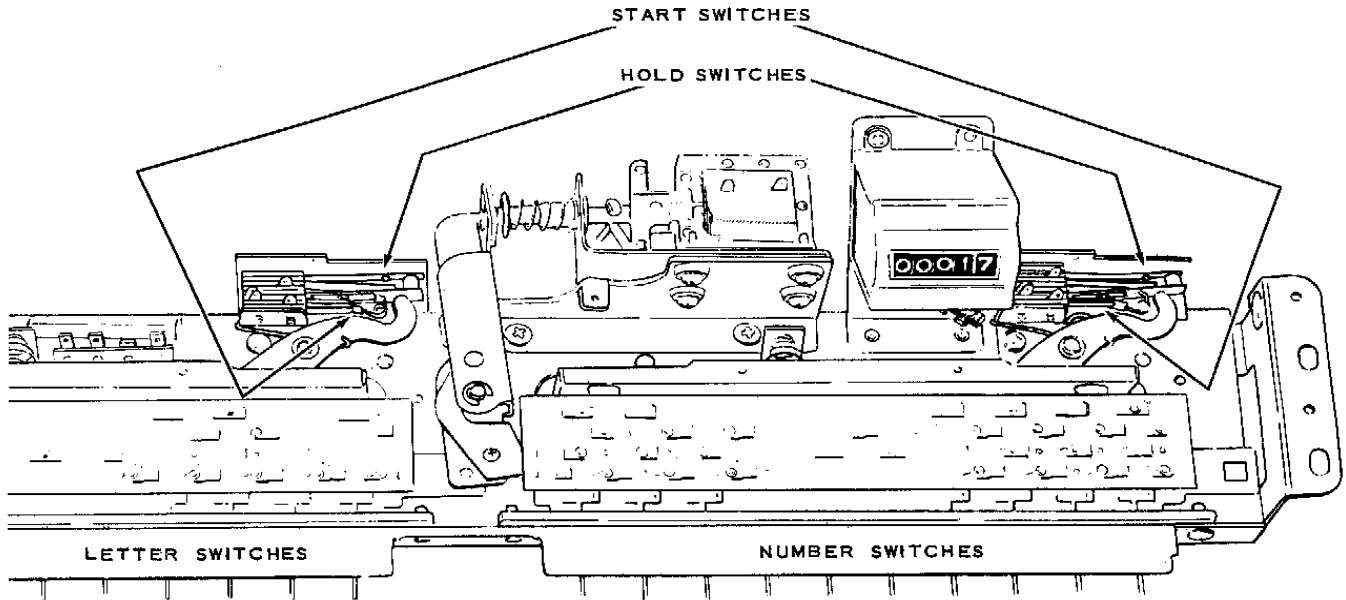
B Move the Number Latch Lever against the latch bar and securely tighten the adjusting screw.



C Check this adjustment by pressing a number and letter selector switch while manually holding the latch bar solenoid in the energized position, then slowly release the solenoid. The lettered and the numbered switches should release at the same time. If the number latch lever is too far to the right, the number switch will release before the lettered switch; if the number latch lever is too far to the left, the number switch will release after the letter switch.

ELECTRICAL SELECTOR, TYPE TES101
HOLD SWITCH AND START SWITCH ADJUSTMENT

The Hold Switches are open $1/32''$ in the at-rest position and close when an associated selection switch shaft is pressed in.
 The Starting Switches are open in the at-rest position and close when an associated letter or number switch is pressed to almost the fully operated position.



NOTE: Before making switch adjustments, each treadle bar and lock plate should be checked for free and smooth operation. There should be some end-play on both. The treadle bars, when slowly released by the selection switches, should have complete return to the at-rest position with their rubber bumpers against the selector switch frames.

The timing of operation of the snap action Start Switches is adjusted by positioning the brackets for the entire switch assembly. **DO NOT ADJUST BY BENDING THE SNAP ACTION SWITCH BLADES.**

A. Loosen the bracket holding screws and position the switches so the Start Switch contacts close when the selector switches have approximately $1/16''$ more travel before latching by latch bars.

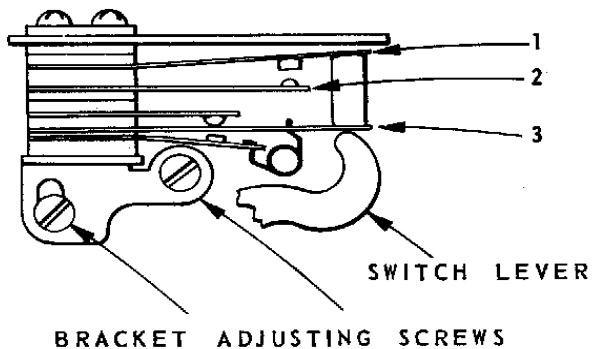
With all selector switches released and the treadle bar bumpers against the selector switches -

B. Adjust Blade No. 1 so its fibre lift bears against Blade No. 3 approximately 2 oz. (50 grams).

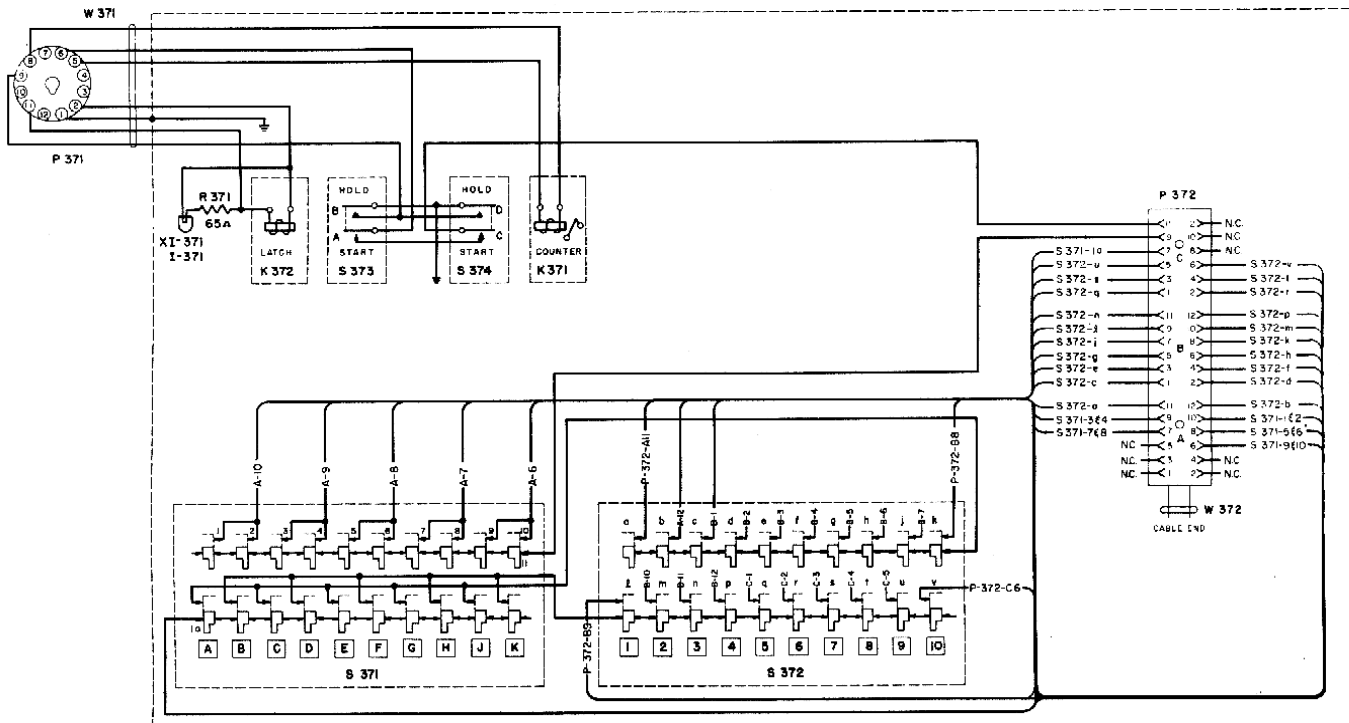
C. Adjust Blade No. 2 for $1/32''$ contact gap.

D. Readjust force of Blade No. 1 against Blade No. 3 so Blade No. 2 moves approximately blade thickness ($1/64''$) when contacts close.

E. Check operation: Hold Switch must close before Start Switch closes and open after Start Switch opens.



TORMAT ELECTRICAL SELECTOR, TYPE TES101



Schematic Diagram

PARTS LIST

Item	Part No.	Part Name
XI-371	410823	Lamp Socket Assembly
I-371	505173	Lamp No. 55
J 371	410836	Connector Board
K 371	410903	Counter
K 372	410821	Solenoid (Latch)
P 371	410707	Plug Assembly (12 Prong)
P 372	604094	Socket Assembly
R 371	81178	Resistor Wire Wound 65 Ohms
S 371	410806	Selector Switch Assembly
S 372	410806	Selector Switch Assembly
S 373	410818	Leaf Switch Assembly
S 374	410818	Leaf Switch Assembly
W 371	410824	Plug & Cable Assembly
W 372	410844	Plug & Cable Assembly