

SEEBURG 201-161-101

Tome 2



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SEEBURG

TORMAT SELECTION RECEIVER

TYPE TSR6

The Tormat Selection Receiver, Type TSR6 is the power distribution and control center for operation of the Select-O-Matic mechanism and the Tormat Memory System from the Electrical Selector at the phonograph or by remote control with 3-wire, Wall-O-Matics. Power enters the Receiver through the line cord and main switch and is distributed, at 117 volts or through transformers, to the Electrical Selector, the Select-O-Matic Mechanism, cabinet lighting, program selector, amplifier and the Wall-O-Matics. All connections to the Receiver are made with plugs and connectors of different types and sizes to avoid possibility of incorrect connections.

Included in the Receiver are a Step Switch and Relay Assembly and a pulse amplifier unit. The Step Switch and Relay Assembly and a 2050 thyratron, V504, are for step relay operation for selection from the Wall-O-Matics. The pulse amplifier includes a 12AX7 tube, V501, that amplifies the trip signal from the output loop of the Tormat Memory Unit on the

Select-O-Matic Mechanism. The pulse from the 12AX7 tube controls a 2050 thyratron, V502, which in turn passes current for operation of the trip solenoid of the Select-O-Matic mechanism.

A 6X4 rectifier tube, V503, supplies grounded-positive plate power for the 12AX7 pulse amplifier and, with two OA2 regulator tubes, regulated voltage supply for charging condensers from which are taken power for the write-in and read-out pulses to the Tormat Memory Unit.

A full wave selenium rectifier supplies d. c. at approximately 25 volts for some of the relays of the Step Switch Assembly and a timing relay in the Pricing Unit in the phonograph and for grid bias of the 2050 tubes for the trip solenoid and step relays.

All of the mechanism control circuits, plate and bias supplies and tube heater circuits are supplied from the multiple-secondary transformer, T501.

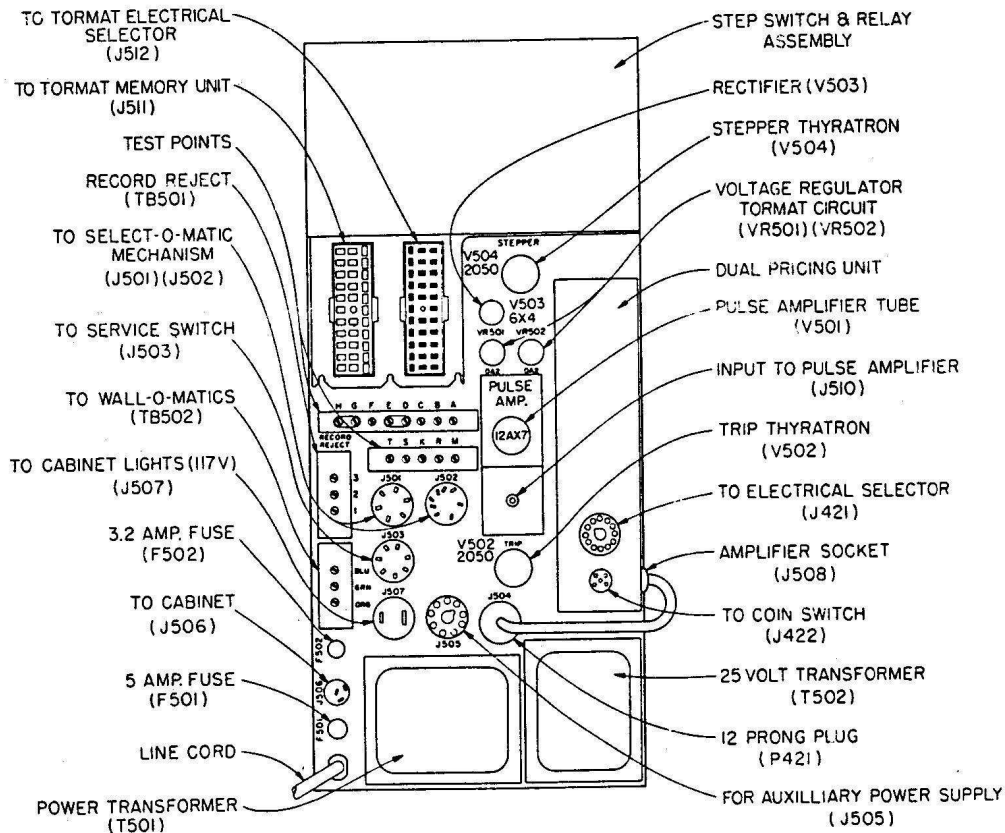
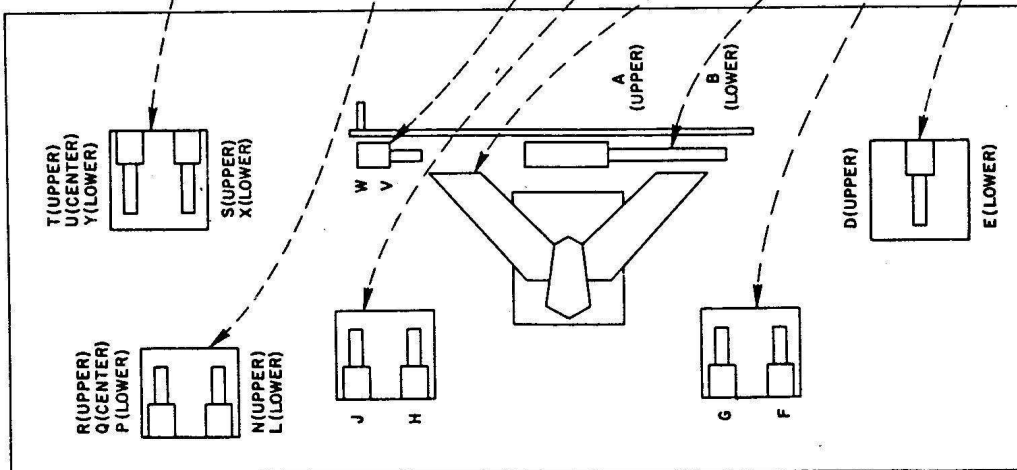


Figure 1.

TORMAT SELECTION RECEIVER, TYPE TSR6

ITEM	OPERATED BY	ARMATURE GAP	CONTACT	CONTACT FUNCTION	GAP	FORCE OUNCES	NORMAL POSITION
TIMING RELAY NO.1 ●	CONTACT J	3/32	S	WRITE-IN TRIGGER	1/64	1	CLOSED
			T	ENERGIZES PLAY CONTROL ADD SOLENOID THRU L	1/64	3/4	CLOSED
			U	ENERGIZES TIMING RELAY NO.2	1/64	1	OPEN
			X	DIRECTS ALL PULSES TO NUMBER STEPPER AFTER 1ST NUMBER PULSE	1/64	1	OPEN
			Y	ENERGIZES RESET MAGNET WHILE NUMBER STEPPER OPERATES	1/64	1	OPEN
TIMING RELAY NO.2 ●	CONTACT U	3/32	R	OPENS ELECTRIC SELECTOR WRITE-IN CIRCUIT WHILE NUMBER STEPPER OPERATES	1/64	3/4	CLOSED
			Q	SWITCHES IN STEPPER WRITE-IN CIRCUIT WHILE NUMBER STEPPER OPERATES	1/64	1	OPEN
			P	WRITE-IN TRIGGER	1/64	1	OPEN
			N	OPENS ELECTRIC SELECTOR WRITE-IN CIRCUIT WHILE NUMBER STEPPER OPERATES	1/64	3/4	CLOSED
			L	ENERGIZES PLAY CONTROL ADD SOLENOID THRU T	1/64	1	OPEN
START SWITCH	CAM ON NUMBER STEPPER		V	OPENS ELECTRIC SELECTOR START CIRCUIT	1/64	1 1/4	CLOSED
			W	DIRECTS 1ST NUMBER PULSE TO NUMBER STEPPER	1/64	1 1/4	CLOSED
NUMBER STEPPER	STEPPER 2050 THRU CONTACTS D, B, W AND H FOR 1ST STEP, THROUGH D, B AND X FOR SUBSEQUENT STEPS.	SEE ADJUSTMENT TEXT	H	CARRY-OVER FOR W ON 1ST PULSE TO NUMBER STEPPER	1/64	1	OPEN
			J	ENERGIZES TIMING RELAY NO.1 WHILE NUMBER STEPPER OPERATES	1/64	1	OPEN
RESET MAGNET	CONTACTS G OR Y	SEE ADJUSTMENT TEXT					
TRANSFER SWITCH	CAM ON LETTER STEPPER		A	DIRECTS 1ST AND EARLY PART OF 2ND LETTER PULSES TO LETTER STEPPER	1/64	3/4	CLOSED
			B	DIRECTS END OF 2ND PULSE AND ALL SUBSEQUENT PULSES TO TRANSFER RELAY CONTACTS D OR E	1/64	1	OPEN
LETTER STEPPER	STEPPER 2050 - THRU CONTACTS A OR B AND E.	SEE ADJUSTMENT TEXT	F	ENERGIZES TRANSFER RELAY WHILE LETTER STEPPER OPERATES	1/64	1	OPEN
			G	ENERGIZES RESET MAGNET WHILE LETTER STEPPER OPERATES	1/64	1	OPEN
TRANSFER RELAY	CONTACT F	3/64	D	2050 PULSES TO NUMBER STEPPER	1/32	1	CLOSED
			E	2050 PULSES TO LETTER STEPPER	1/32	1	OPEN



D.C. COIL RESISTANCE
 ● ——— 500 OHMS
 † ——— 325 OHMS

TAIL SPRING FORCES
 TIMING RELAY NO.1 1-1/4 OZ
 TIMING RELAY NO.2 1-1/2 OZ
 TRANSFER RELAY 1-2/3 OZ



RELAY ADJUSTMENTS

**TORMAT SELECTION RECEIVER, TYPE TSR6
STEP SWITCH ASSEMBLY ADJUSTMENTS**

The Pricing Unit in the phonograph and the pulse amplifier connect to the circuits of the Receiver with plugs and sockets. They may be removed for test or service. Access to the interior wiring of the Receiver is had, while it is operating in normal position, by removing the cover plate on the outside of the rear door of the phonograph. The cover plate can be removed by taking out two screws at the left side of the plate that are accessible when the door is open.

The Selection Receiver may be removed from its mounting by removing the cover plate and loosening the four screws holding the flanges of the unit and the four screws holding the audio amplifier. With the screws loosened, slide the units away from each other to disengage the locating pins and amplifier socket connection between them. It may then be lifted from the mounting frame.

RATCHET RETURN SPRING

The return spring tension for the Letter step switch should require 90 to 115 grams (3-¼ to 4 oz.) tangential force to move the ratchet to the 5th position of the step switch. This force is measured at the point of a ratchet tooth with the switch contact plates removed. It will be approximately correct if the spring is wound one full turn when the switch is in the rest position.

The return spring tension for the Number step switch should require 60 to 75 grams (2 to 2-¾ oz.) tangential force to move the ratchet to the 5th position. The tension will be approximately correct if the spring is wound ¾-turn when the switch is in the rest position.

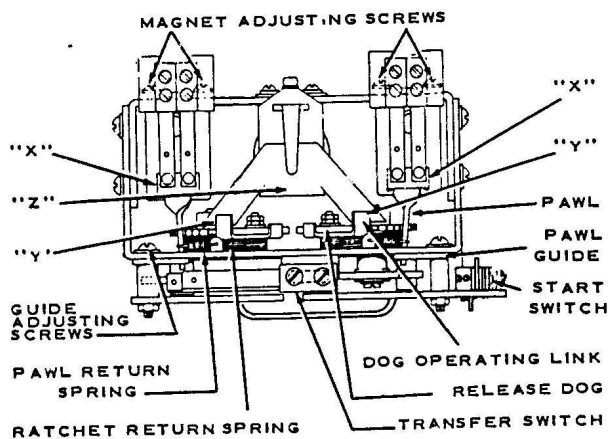


Figure 2.

STEP RELAY MAGNET POSITION

Adjust the step relay magnet vertically so the ratchet wheel tooth will over-ride the end of the release dog .010" to .020" when the armature is seated. *Figure 3.*

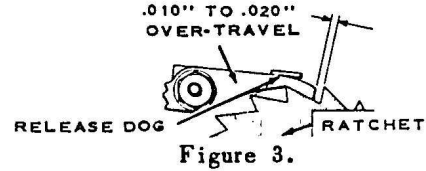


Figure 3.

With the pawl against the upper edge of the pawl guide opening, the clearance between the ratchet teeth and the pawl should not be less than .005".

PAWL GUIDE AND RETURN SPRING

Adjust the pawl guides so the pawls will strike the bottom of the ratchet teeth when the pawl engages the ratchet. *Figure 4.* The adjustment must be made so there will be a .004" to .010" gap between the pawl and the guide at the bottom of the stroke. *Figure 5.*

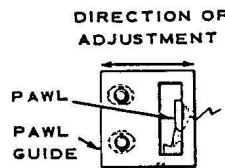


Figure 4.

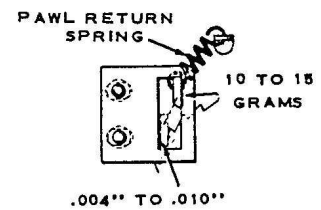


Figure 5.

The pawl return spring tension should require 10 to 15 grams (½ oz.) force to start the pawl from the side of the guide. Measure this force at the spring with the pawl in the rest position.

STEP MAGNET TAIL SPRINGS

The tail spring force, measured at the front of the bridge on the step magnet armature ("X", *Figure 2*) should be 50 to 75 grams (1-¼ to 2-½ oz.) to just close the switch contacts (when the contacts are correctly adjusted).

CONTACT PLATE SWITCH BLADES

The switch blades should have 10 to 35 grams force against the contacts. The force will be approximately correct if the blades are formed so their tips extend 5/32" above the contact assembly when the plates are removed. *Figure 6.*

TORMAT SELECTION RECEIVER, TYPE TSR6

When the contact plates are in position the blades should move freely over the contacts. If the contacts become rough or gummed, they should be cleaned with a clean cloth moistened, slightly, with light oil. Do not use sandpaper or emery cloth and do not lubricate them with vaseline or grease.

CONTACT PLATE POSITION

Each contact plate should be positioned so the outer blade of the step switch is approximately centered on the lowest contact (on the contact plate) when the stud on the side of the ratchet wheel is against the stop on the stepper frame and so the blade is approximately centered on each successive contact as it is advanced, step by step, through its full movement. The mounting holes at the corners of the contact plates are slotted to permit this adjustment.

RESET MAGNET POSITION

Adjust the reset magnet vertically so the release dogs engage the ratchet teeth with the armature extension clearing the dimples ("Y", Figure 2) on the dog operating links $1/64$ " when the magnet is energized. Figure 7.

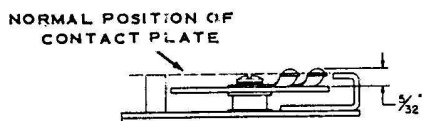


Figure 6.

The armature travel must be sufficient to permit the release dogs to clear the ratchet teeth .010" minimum when the magnet is not energized.

The tabs on the release dog operating links which engage the dogs and couple them to the reset magnet should not bind tightly but should not permit more than .005" free travel between the dogs and the links.

RESET MAGNET TAIL SPRING

The force applied to the end of the reset magnet armature ("Z", Figure 2) to start it from the rest position, should be 100 to 140 grams ($3\frac{1}{2}$ to 5 oz.).

RELEASE DOG SPRINGS

An upward force of 15 to 25 grams ($\frac{1}{2}$ to $\frac{3}{4}$ oz.) applied at the dimple on the release dog operating links ("Y", Figure 2) should start

the dogs from seated position. This force will be approximately correct if the springs are wound $\frac{1}{2}$ to $\frac{3}{4}$ turn.



Figure 7.

TRANSFER SWITCH POSITION

Adjust the position of the switch on the mounting bracket so the roller is in the notch of the contactor assembly disc and the first operation of the step magnet causes no change of the roller blade. The second operation of the step magnet should raise the roller to the outer diameter of the disc. The flanges of the roller should not drag on the disc and the roller bracket should not strike the switch contact plate.

- With the step switch in the rest position so the roller is in the notch of the contactor disc, adjust the lower blade for $\frac{1}{2}$ to $\frac{3}{4}$ oz.
- Adjust contact "B" gap $1/64$ ".

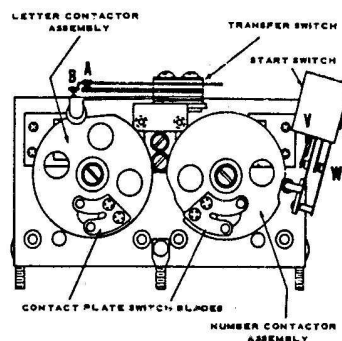


Figure 8.

- Adjust contact "A" force 1 oz.
- The second operation of the step magnet should result in closing contact "B" with 1 oz. force and opening contact "A" $1/64$ " to $1/32$ " gap.

LUBRICATION

Lubricate with a drop of Seeburg No. 53014 Special Purpose Oil:

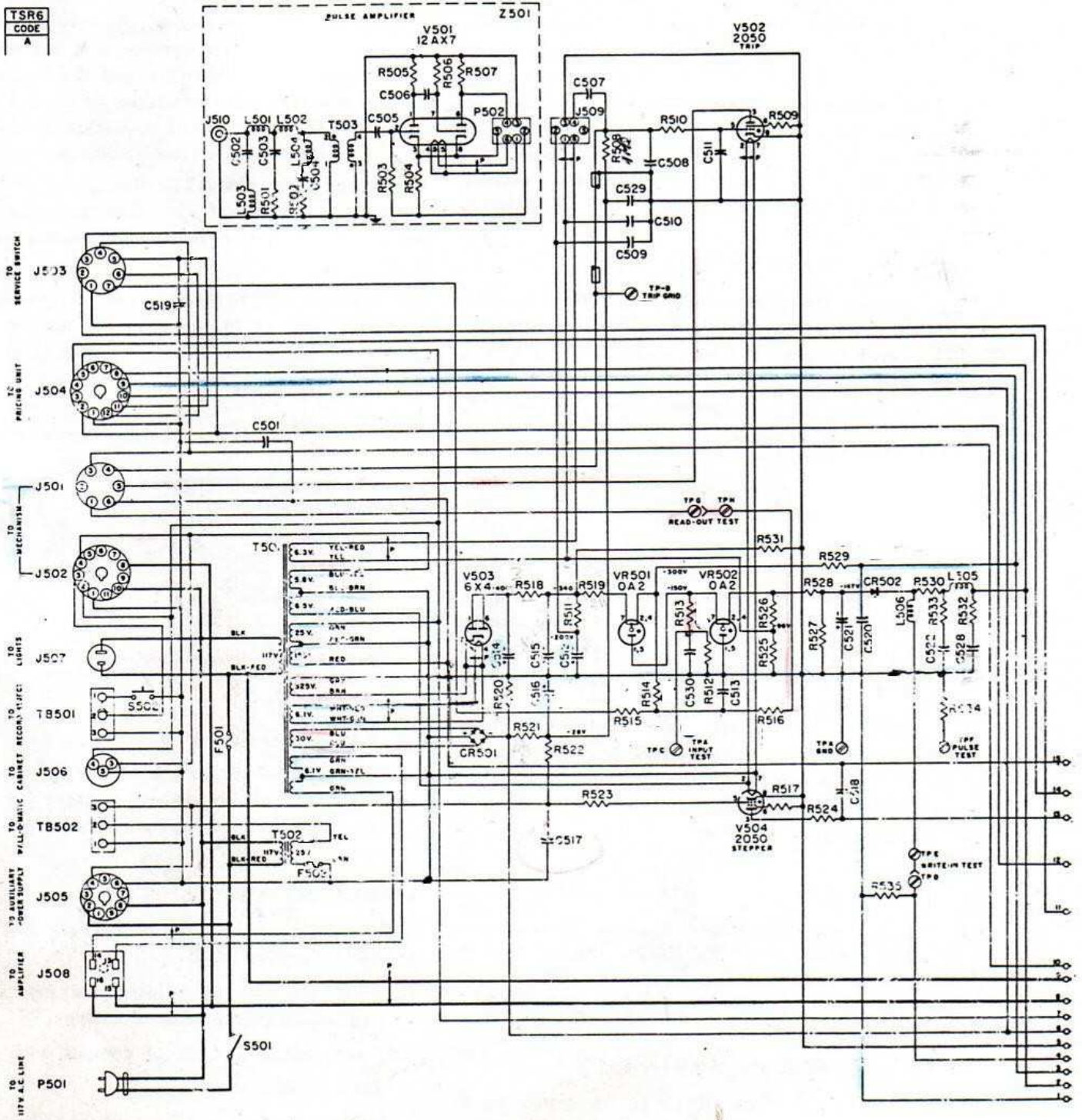
- Pawl Pivots and sliding surfaces of the pawls on the step relay armatures.
- Pawl guides at area of contact with pawls.
- Step switch shaft bearings.
- Roller on roller blade of transfer switch.
- Relay hinges.

TORMAT SELECTION RECEIVER, TYPE TSR6

NOTE:

1. ALL SOCKETS AS VIEWED FROM SOLDERED END.
2. ALL PLUGS AS VIEWED FROM CABLE END.
3. LUGS 1 THRU 30 OF J511 & J512 ARE CONNECTED IN PARALLEL.
4. "P" INDICATES TWISTED LEADS.

TSR6
CODE
A

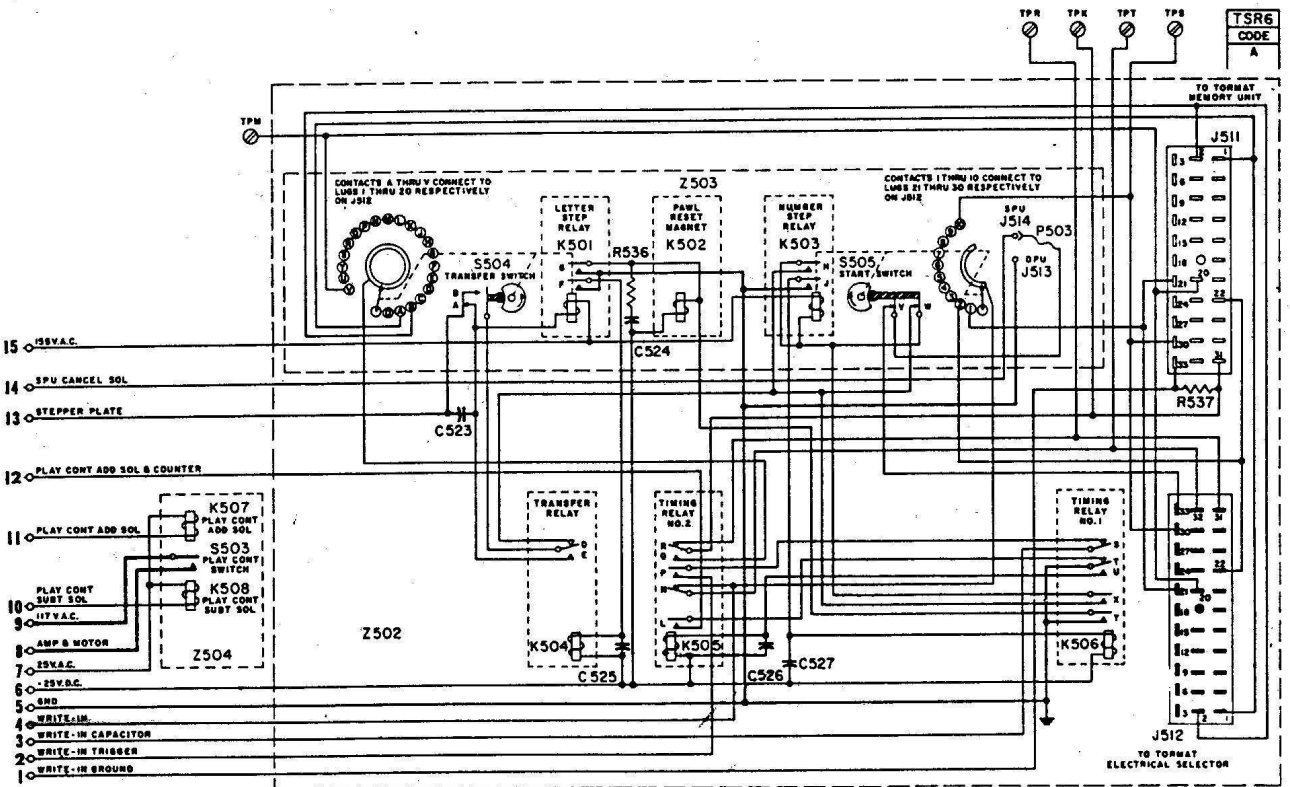


Schematic Diagram

TORMAT SELECTION RECEIVER, TYPE TSR6

PARTS LIST

Item	Part No.	Part Name	Item	Part No.	Part Name	Item	Part No.	Part Name
C501	86154	.02 Mfd. 600 V. Paper	J508	301020	4 Prong Socket	R518	81194	3,300 Ohm Fuse Resistor ±10% 5 W.
C502	86253	360 Mmf. ±10% 500 V. Ceramic	J509	301034	6 Prong Socket (Small)	R519	82836	2,700 Ohm ±10% 2 W.
C503	86252	1200 Mmf. ±10% 500 V. Ceramic	J510	300152	Single Prong Socket	R520	82432	4,700 Ohm ±10% ½ W.
C504	86253	360 Mmf. ±10% 500 V. Ceramic	J511	303528	33 Prong Socket	R521	82456	470,000 Ohm ±10% ½ W.
C505	86251	3000 Mmf. 500 V. Ceramic	J512	303529	33 Prong Plug	R522	82448	100,000 Ohm ±10% ½ W.
C506	86030	.05 Mfd. ±10% 400 V. Paper	J513	940311	Taper Tab Lug	R523	82436	10,000 Ohm ±10% ½ W.
C507	86248	.15 Mfd. ±10% 200 V. Paper	J514	940311	Taper Tab Lug	R524	82838	100 Ohm ±10% 2 W.
C508	86235	.05 Mfd. 200 V. Paper	K501	303941	Letter Step Relay	R525	82454	330,000 Ohm ±10% ½ W.
C509	86251	3000 Mmf. 500 V. Ceramic	K502	303944	Pawl Reset Magnet	R526	82451	180,000 Ohm ±10% ½ W.
C510	86313	.01 Mfd. 500 V. Ceramic	K503	303940	Number Step Relay	R527	82698	150,000 Ohm ±5% ½ W.
C511	86255	2000 Mmf. 500 V. Ceramic	K504	303074	Transfer Relay	R528	82611	3000 Ohm ±5% ½ W.
C512	87637	10 Mfd. 450 V. Lytic	K505	303764	Timing Relay No. 2	R529	82998	270,000 Ohm ±10% 1 W.
C513	86296	.15 Mfd. ±10% 600 V. Paper	K506	303762	Timing Relay No. 1	R530	82617	47 Ohm ±5% ½ W.
C514	87635	15 Mfd. 450 V. Lytic	K507	303739	Play Control Add Solenoid	R531	82660	1 Meg ±10% ½ W.
C515	87635	15 Mfd. 450 V. Lytic	K508	303743	Play Control Subtract Solenoid	R532	82617	47 Ohm ±5% ½ W.
C516	87571	25 Mfd. 50 V. Lytic	L501	303602	16 _{ab} Choke ±5%	R533	82617	47 Ohm ±5% ½ W.
C517	86235	.05 Mfd. 200 V. Paper	L502	303602	16 _{ab} Choke ±5%	R534	82437	12,000 Ohm ±10% ½ W.
C518	11076	5 Mfd. 300 V. Paper	L503	303600	11 _{ab} Choke ±5%	R535	82439	18,000 Ohm ±10% ½ W.
C519	86142	.1 Mfd. 200 V. Paper	L504	303600	11 _{ab} Choke ±5%	R536	82403	18 Ohm ±10% ½ W.
C520	86296	.068 Mfd. ±10% 600 V. Paper	L505	303603	13 _{ab} Choke ±5%	R537	82439	18,000 Ohm ±10% ½ W.
C521	87636	10 Mfd. 150 V. Lytic	L506	303702	100 _{ab} Choke ±5%	S501	303112	Toggle Switch, S.P.S.T.
C522	86313	.01 Mfd. 500 V. Ceramic	P501	303985	Line Cord and Plug Assembly	S502	410486	Reject Switch
C523	86250	5000 Mmf. 1000 V. Ceramic	P502	303599	6 Prong Plug	S503	303749	Play Control Switch
C524	87611	300 Mfd. 50 V. Lytic	P503	246933	Taper Tab Receptacle	S504	303547	Transfer Switch
C525	86235	.05 Mfd. 200 V. Paper	R501	82409	56 Ohm ±10% ½ W.	S505	303794	Start Switch
C526	86235	.05 Mfd. 200 V. Paper	R502	82409	56 Ohm ±10% ½ W.	T501	306986	Power Transformer
C527	86235	.05 Mfd. 200 V. Paper	R503	82444	47,000 Ohm ±10% ½ W.	T502	309210	25 V. Transformer
C528	86313	.01 Mfd. 500 V. Ceramic	R504	82610	6200 Ohm ±5% ½ W.	T503	303457	Pulse Transformer
C529	86251	3000 Mmf. 500 V. Ceramic	R505	82456	470,000 Ohm ±10% ½ W.	TB501	305447	Terminal Board Assembly
C530	86252	1200 Mmf. ±10% 500 V. Ceramic	R506	82469	5.6 Megohm ±10% ½ W.	TB502	305309	Terminal Board
CR501	400587	Selenium Rectifier	R507	82640	27,000 Ohm ±5% ½ W.	V501	308120	12AX7 Vacuum Tube
CR502	303696	IN368 Germanium Diode	R508	82460	1.0 Megohm ±10% ½ W.	V502	308003	2050 Thyatron
F501	602411	5 Amp. Fuse, Type MTH	R509	82440	22,000 Ohm ±10% ½ W.	V503	308626	6X4 Vacuum Tube
F502	303697	3.2 Amp. Fuse Type N-3 2/10	R510	82456	470,000 Ohm ±10% ½ W.	V504	308003	2050 Thyatron
J501	84223	6 Prong Socket	R511	82695	56,000 Ohm ±5% ½ W.	VR501	308005	0A2 Voltage Reg. Tube
J502	303253	11 Prong Socket	R512	82449	120,000 Ohm ±10% ½ W.	VR502	308005	0A2 Voltage Reg. Tube
J503	84282	7 Prong Socket	R513	82464	2.2 Megohm ±10% ½ W.	Z501	303590	Pulse Amplifier Unit
J504	201275	12 Prong Socket	R514	82837	56,000 Ohm ±10% 2 W.	Z502	303760	Relay Step Switch Assembly
J505	84244	9 Prong Socket	R515	82432	4,700 Ohms ±10% ½ W.	Z503	303765	Stepper Assembly
J506	303555	3 Prong Min. Socket	R516	82993	36 Ohm ±5% ½ W.	Z504	303720	Play Control Assembly
J507	11401	2 Prong Socket A.C.	R517	82440	22,000 Ohm ±10% ½ W.			

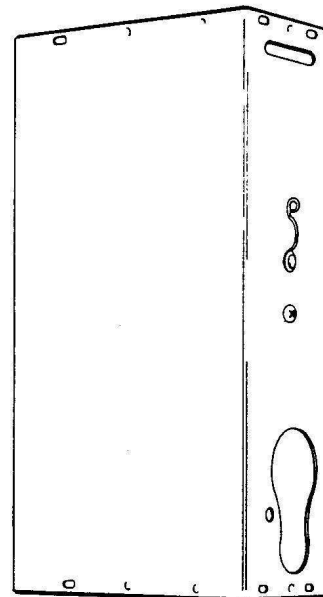
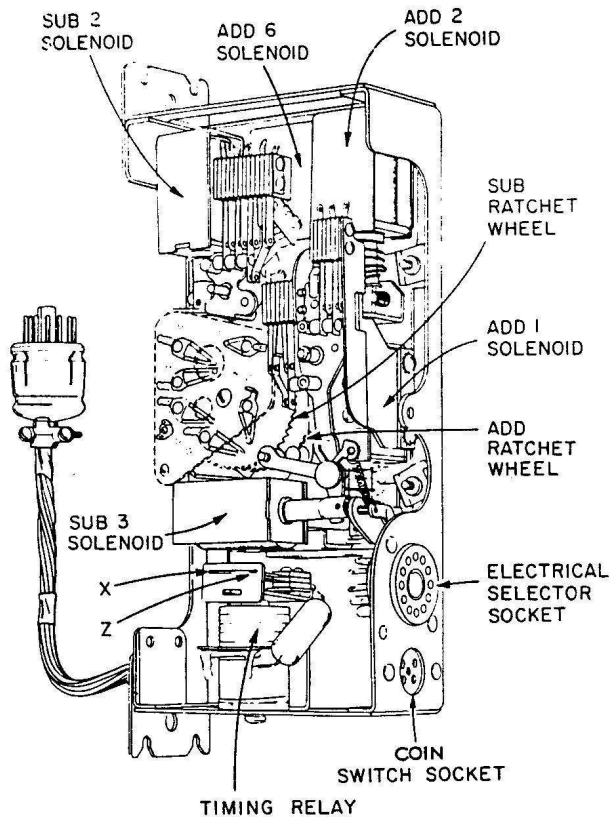


Schematic Diagram

SEEBURG

DUAL PRICING UNIT

TYPE DPUI and DPU5



Credit Unit Cover

The Dual Pricing Units are part of the Tormat Memory System for making selections at either of two pricing rates for coins deposited at the phonograph. Their function is to store credit for the coins deposited, cancel the credit as it is used for selections and to control the selection system write-in current pulse. They include an add-and-subtract credit switch, three credit solenoids, two subtract solenoids, a timing relay and two switch groups that are operated by the subtract solenoids. Power for operation is taken from a Selection Receiver or Power and Control Unit with which it is associated and to which it is connected with a cable and plug.

The credit switch is a rotary, wafer type having two switch sections and two ratchets. The credit solenoids add credits by driving the switch counter-clockwise with pawls that engage the back ratchet when the solenoids are energized. The credit solenoids are energized through the nickel, dime and quarter coin switches (in the phonograph cabinet) and add, respectively, one, two and six credits. A

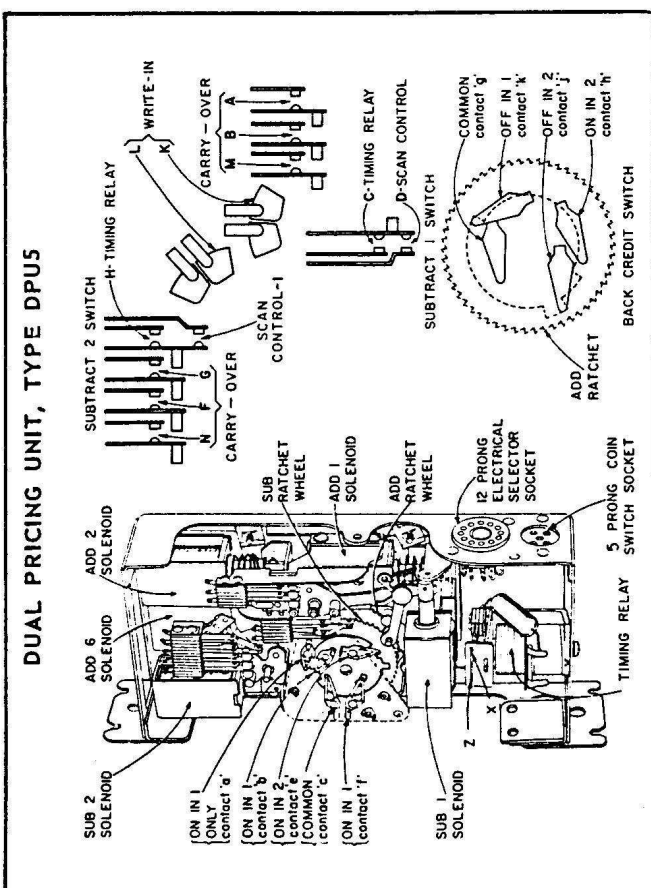
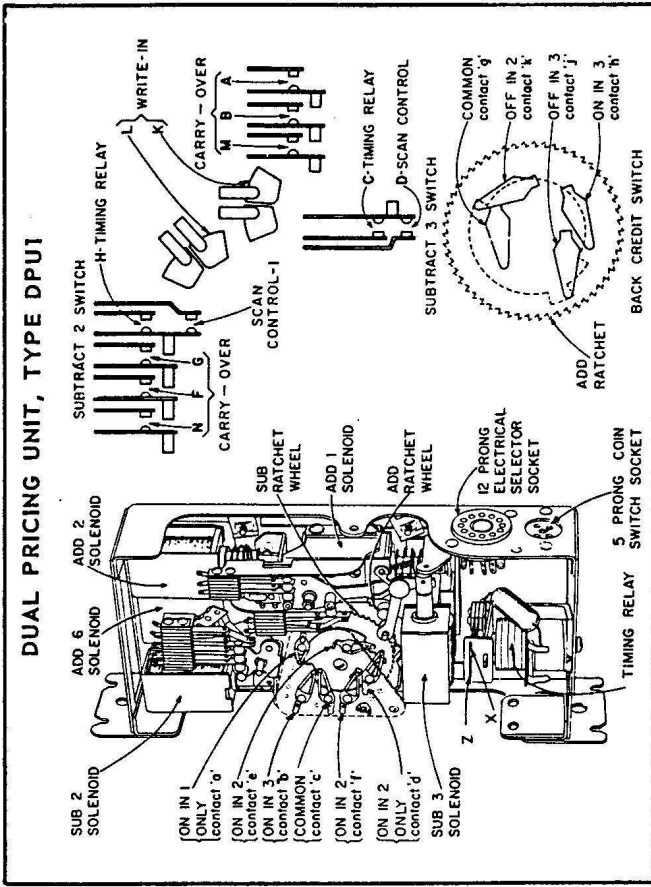
total of twenty-four credits may be accumulated. A $\frac{1}{2}$ ampere slo-blo fuse, included in some units, fuses the credit coils for overload protection in event that a credit solenoid is continuously energized.

Operation of either subtract solenoid drives the credit switch clockwise with one or the other operating each time a selection is made. The DPUI has subtract-2 and subtract-3 solenoids that cancel, respectively, two and three credits; the DPU5 has subtract-2 and subtract-1 solenoids that cancel, respectively, two and one credits. The credit switch is moved one, two or three credits toward the "no-credit" position canceling the equivalent credits. Whether the subtract-2 or -3 (or the subtract-1 or -2) solenoid operates for a particular selection is determined by the arrangement of connections at a pricing terminal board in the electrical selector of the phonograph.

The switch groups associated with the two subtract solenoids operate a selection counter, complete the selection write-in circuit of the Memory System, and interlock the solenoid operation to assure full operating strokes. The timing relay controls the duration of solenoid operation by interrupting the power after a predetermined time interval.

16001

DUAL PRICING UNIT, TYPE DPU1 and DPU5



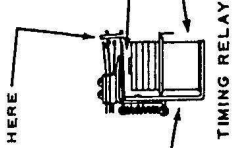
CONTACT	PRESSURE WHEN CLOSED	CONTACT GAP	NORMAL POSITION
A	1 OZ. MIN.	.010 - .015	OPEN
B	1 OZ. MIN.	.010 - .015	OPEN
C	7/8 OZ. MIN.	.004 - .007	OPEN
D	7/8 OZ. MIN.	.025 - .035	OPEN
F	1 OZ. MIN.	.010 - .015	OPEN
G	1 OZ. MIN.	.010 - .015	OPEN
H	1 OZ. MIN.	.008 - .012	OPEN
I	1 OZ. MIN.	.025 - .035	OPEN
K	7/8 OZ. MIN. AGAINST PLATE	NONE	OPEN
L	7/8 OZ. MIN. AGAINST PLATE	NONE	OPEN
M	2/3 OZ.	.008	OPEN
N	2/3 OZ.	.008	OPEN
X	1-1/2 OZ.	1/32"	CLOSED
Z	1-1/2 OZ.	1/32"	OPEN

• Contacts C and H must be closed when respective pawl arm drive pin bottoms in credit wheel tooth.

CONTACT ADJUSTMENTS

NOTE: Credit switch contacts should have approximately 3/4 oz. pressure and will be correct if, WITH THE BAKELITE CONTACT MOUNTING PLATE REMOVED FROM THE UNIT, the blades are formed so their tips are 9/32" to 5/16" from the surface of the plate.

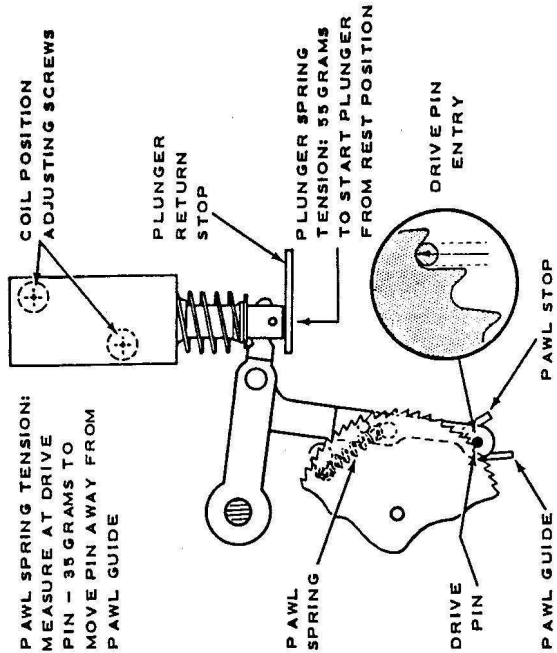
3/4 OZ. FORCE TO START ARMATURE FROM REST POSITION AS INDICATED HERE



CONTACT	PRESSURE WHEN CLOSED	CONTACT GAP	NORMAL POSITION
A	1 OZ. MIN.	.010 - .015	OPEN
B	1 OZ. MIN.	.010 - .015	OPEN
C	7/8 OZ. MIN.	.004 - .007	OPEN
D	7/8 OZ. MIN.	.025 - .035	OPEN
F	1 OZ. MIN.	.010 - .015	OPEN
G	1 OZ. MIN.	.010 - .015	OPEN
H	1 OZ. MIN.	.008 - .012	OPEN
I	1 OZ. MIN.	.025 - .035	OPEN
K	7/8 OZ. MIN. AGAINST PLATE	NONE	OPEN
L	7/8 OZ. MIN. AGAINST PLATE	NONE	OPEN
M	2/3 OZ.	.008	OPEN
N	2/3 OZ.	.008	OPEN
X	1-1/2 OZ.	1/32"	CLOSED
Z	1-1/2 OZ.	1/32"	OPEN

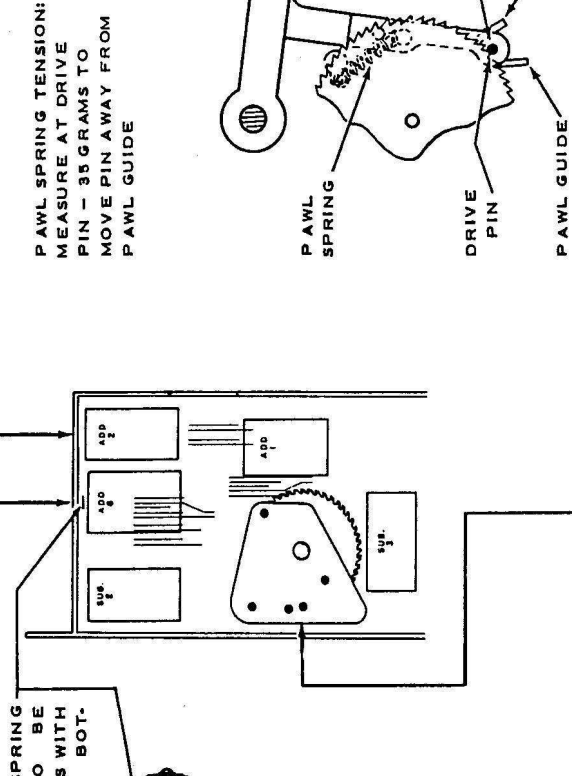
• Contacts C and H must be closed when respective pawl arm drive pin bottoms in credit wheel tooth.

ADD 2 (10¢) DRIVE ADJUSTMENT



- A. Adjust pawl guide so drive pin enters ratchet without striking or rubbing the sides of the teeth.
- B. Loosen the two screws holding the coil.

ADD 6 (25¢) DRIVE ADJUSTMENT

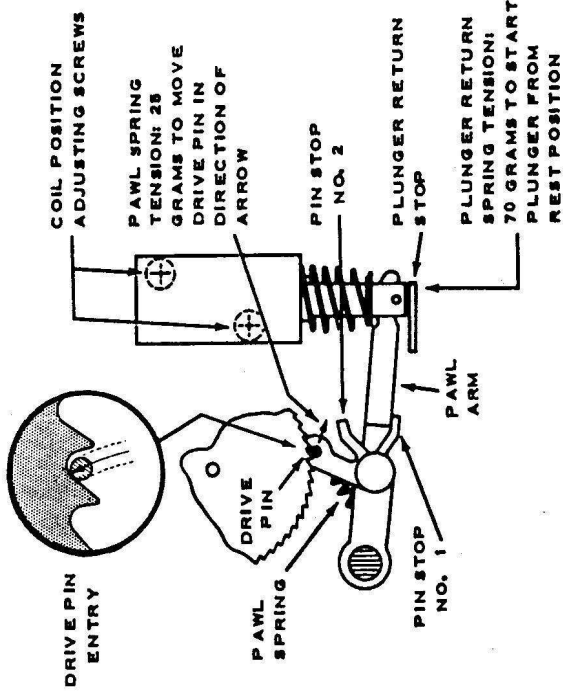


- A. With wheel stop against stop pin, adjust stop pin position so ADD 6 drive pin enters ratchet without striking or rubbing the sides of the teeth.
- B. Loosen the two screws holding the coil.
- C. Operate the plunger manually by applying force at the end of the plunger (not the levers) so it is fully seated.
- D. Position the coil so the plunger operation will move the wheel six teeth and be fully detented. Tighten screws holding the coil.
- E. Adjust pawl stop for minimum play in wheel when plunger is fully seated.
- F. Adjust plunger return stop position for clearance between the drive pin and the tips of the ratchet teeth. The tips should pass without rubbing but the clearance must not be more than .010".

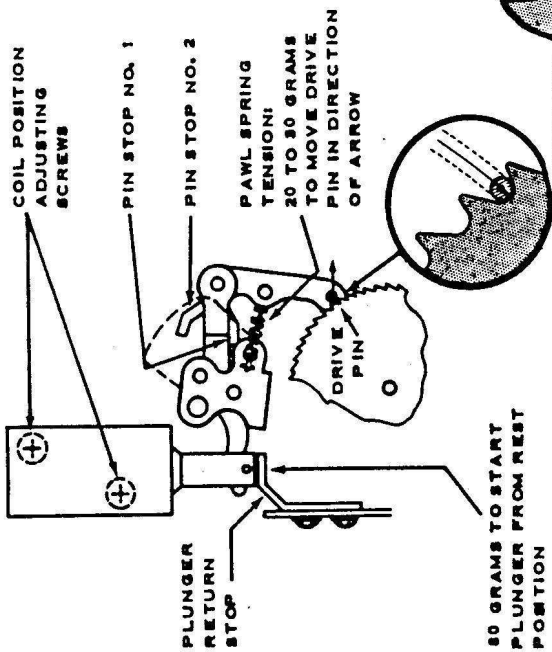
WHEEL STOP AND DETENT ADJUSTMENT

- A. With wheel stop against stop pin, adjust stop pin position so ADD 6 drive pin enters ratchet without striking or rubbing the sides of the teeth.
Entry of all drive pins and the detent spring position adjustments are effected by the stop pin position and should be checked if a change is made.
- B. Adjust position and force of detent spring so roller is in full detent when wheel stop is against stop pin and roller pressure against wheel is 150 to 160 grams (5 1/2 oz.).

ADD 1 (5¢) CREDIT SOLENOID



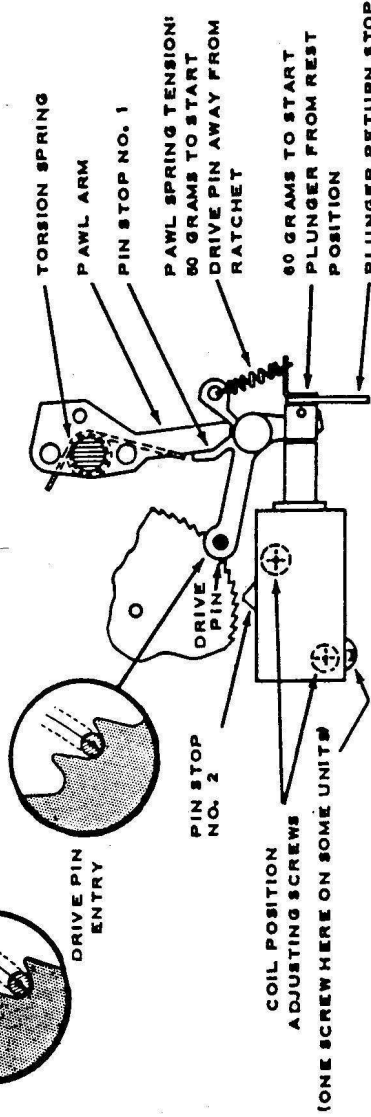
SUBTRACT 2 SOLENOID



SUBTRACT 3 SOLENOID USED ON DPU1

OR

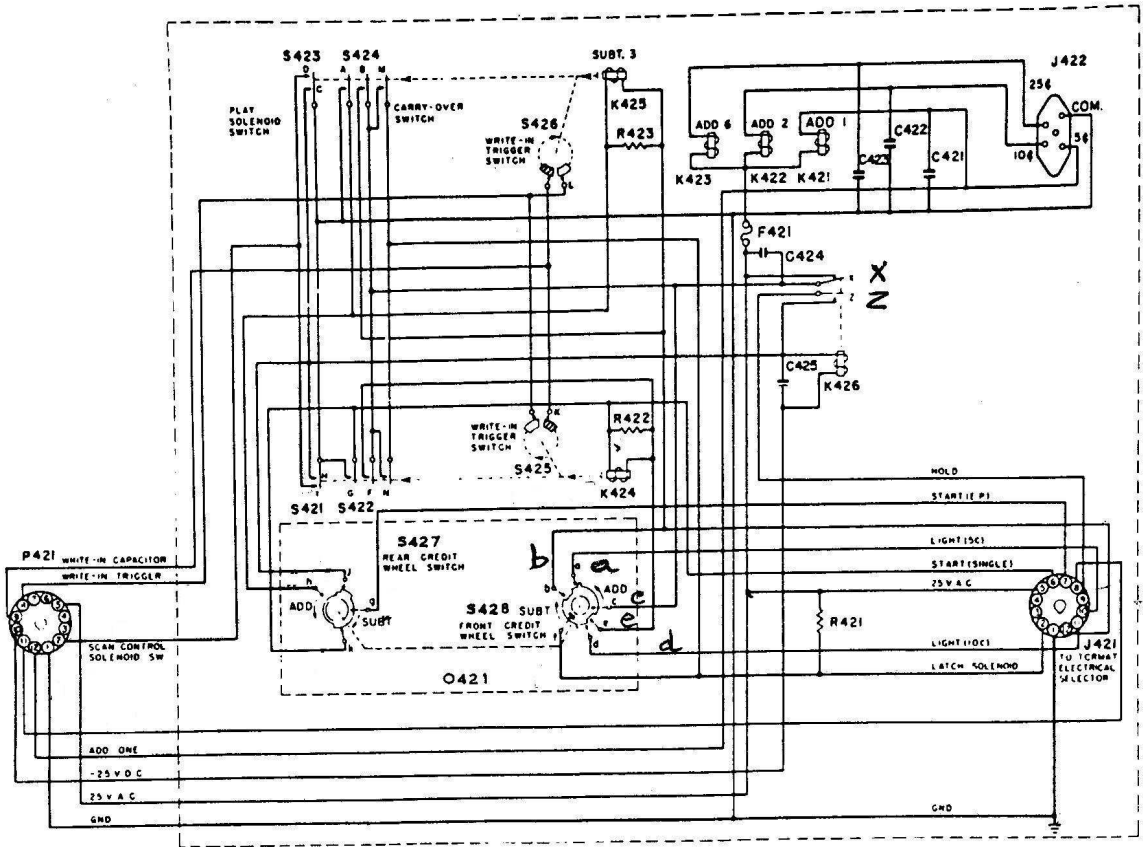
SUBTRACT 1 SOLENOID USED ON DPU5



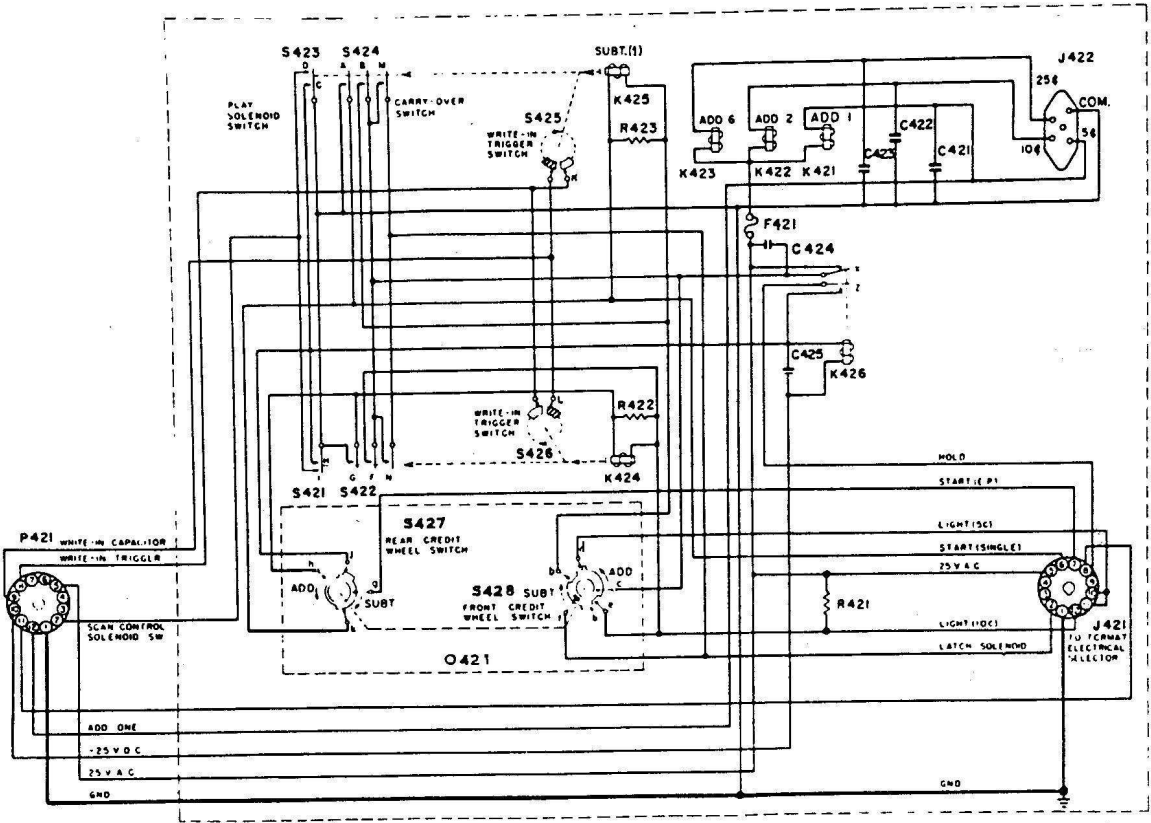
SUBTRACT 2; SUBTRACT 3 OR SUBTRACT 1; ADD 1 DRIVE ADJUSTMENTS

- A. Adjust pin stop No. 1 so the drive pin enters the ratchet without striking or rubbing the sides of the teeth.
- B. Adjust the plunger return stop position for clearance between the drive pin and the tips of the ratchet teeth. The tips should pass without rubbing but the clearance must not be more than .010".
- C. Loosen the two screws holding the coil.
- D. Operate the plunger manually by applying force at the end of the plunger (not the levers) so it is fully seated.
- E. Position the coil so the plunger operation will move the wheel the required number of teeth and will be in full detent. Tighten screws holding the coil.
- F. Adjust pin stop No. 2 for minimum play in wheel when plunger is fully seated.

DUAL PRICING UNIT, TYPE DPU1 and DPU5



Schematic Diagram - DPU1



Schematic Diagram - DPU5

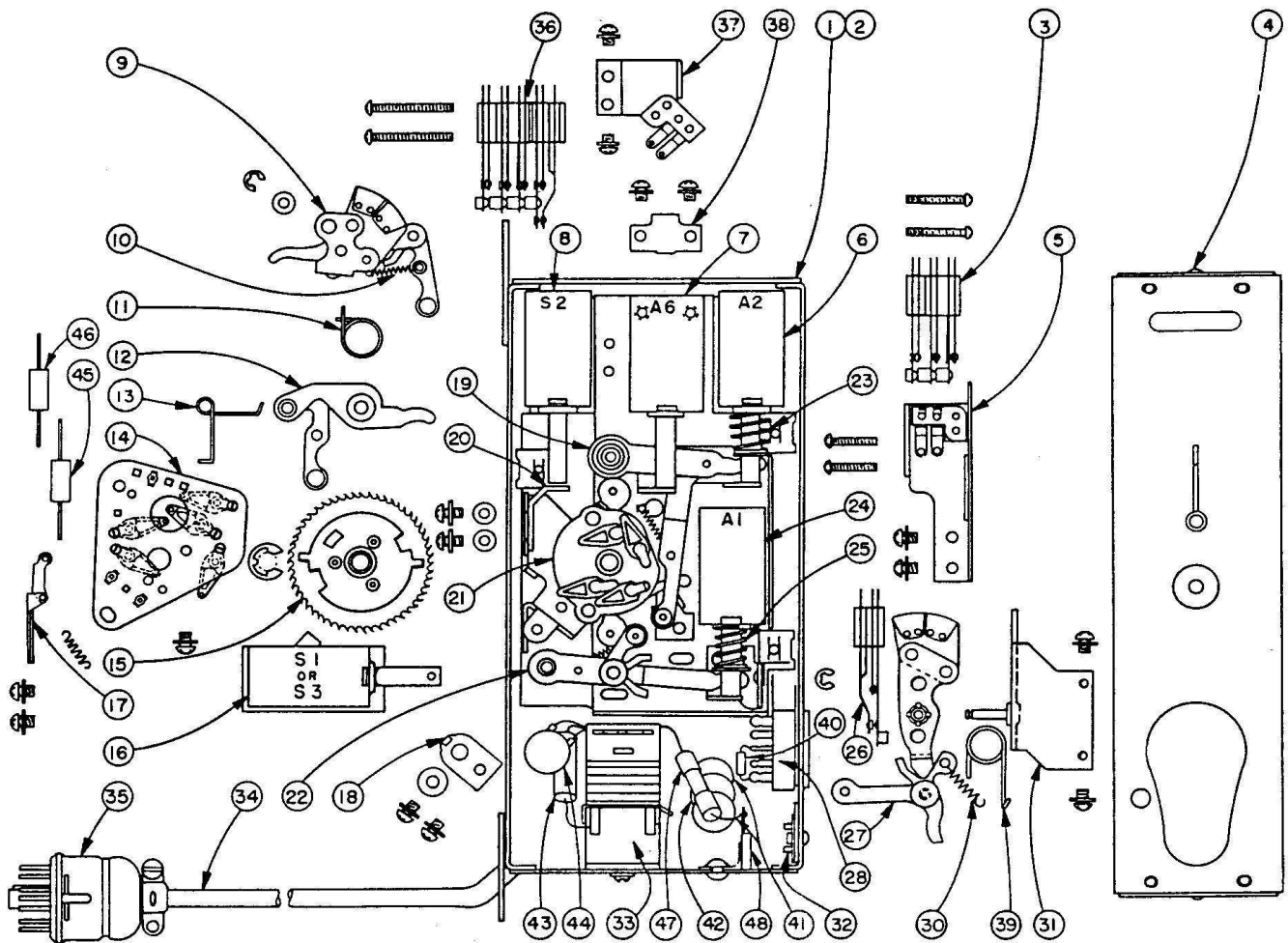
PARTS LIST
on Reverse Side 

DUAL PRICING UNIT, TYPE DPU1 and DPU5

PARTS LIST for DPU1 and DPU5

Item	Part No. (DPU1)	Part No. (DPU 5)	Part Name
C421	86258	86258	.04 Mfd. 500 v. Ceramic
C422	86259	86259	.02 Mfd. 500 v. Ceramic
C423	86258	86258	.04 Mfd. 500 v. Ceramic
C424	86259	86259	.02 Mfd. 500 v. Ceramic
C425	86142	86142	.1 Mfd. 200 v. Paper
F421	450683	450683	Fuse (½ Amp. Slo-Blow)
J421	201275	201275	12 Prong Socket
J422	450735	450735	5 Prong Socket (Small)
K421	450184	450184	Add One (1) Solenoid
K422	450182	450182	Add Two (2) Solenoid
K423	450186	450186	Add Six (6) Solenoid
K424	450190	450190	Subtract Two (2) Solenoid
K425	450288	-	Subtract Three (3) Solenoid
	-	450158	Subtract One (1) Solenoid
K426	450280	450280	Timing Relay
P421	410707	410707	12 Prong Plug
R421	82707	82707	1200 Ohm ± 10% 1 w.
R422	82838	82838	100 Ohm ± 10% 2 w.
R423	82838	82838	100 Ohm ± 10% 2 w.
S421	450628	450628	Scan Solenoid Switch
S422	450150	450150	Carry-Over Switch
S423	450628	450630	Switch
S424	450150	450211	Carry-Over Switch
S425	450255	450255	Write-In Switch
		450339	Contact Segment Assembly
S426	450255	450272	Write-In Switch
	-	450132	Contact Segment Assembly
S427	450089	450334	Rear Credit Wheel Switch Assembly
S428	450140	450342	Front Credit Wheel Switch Assembly
O421	450562	450562	Credit Wheel Assembly

DUAL PRICING UNIT, TYPE DPUI and DPU5



Dual Credit Unit Assemblies

PARTS LIST

Item	Part No.	Part Name	Item	Part No.	Part Name
1	* 450510	COMPLETE UNIT	20	450102	PLUNGER STOP BRACKET (SUB 2)
1	† 450512	COMPLETE UNIT		912839	SEMS
2	450022	MOUNTING PLATE STAKED ASSEMBLY	21	450089	TERMINAL BOARD ASSEMBLY
3	* 450150	CARRY-OVER SWITCH	22	450085	CREDIT ARM ASSEMBLY (ADD 1)
3	† 450211	CARRY-OVER SWITCH		450096	SPRING
	450259	TAPPED PLATE	23	450329	SPRING
	450260	TENSION PLATE	24	450184	COIL & BRACKET ASSEMBLY (ADD 1)
4	* 450617	3-48 X 5/8 PHILLIPS R.H.M.S.		450075	SOLENOID PLUNGER ASSEMBLY
4	† 450636	COVER ASSEMBLY		912882	SEMS
5	* 450254	COVER ASSEMBLY	25	450329	SPRING
		SWITCH MOUNTING BRACKET	26	* 450628	SWITCH
		ASSEMBLY (SUB 3)		† 450630	SWITCH
	† 450344	SWITCH MOUNTING BRACKET		450259	TAPPED PLATE
		ASSEMBLY (SUB 1)		450260	TENSION PLATE
	912882	SEMS		911011	3-48 X 3/4 PHILLIPS R.H.M.S.
6	450182	COIL & BRACKET ASSEMBLY (ADD 2)	27	* 450105	CANCEL ARM ASSEMBLY (SUB 3)
	450075	SOLENOID PLUNGER ASSEMBLY		† 450339	CANCEL ARM ASSEMBLY (SUB 1)
	912882	SEMS	28	201275	12 PRONG SOCKET
7	450186	CREDIT COIL & BRACKET ASSEMBLY	30	450129	SPRING
		(ADD 6)	31	* 450037	PIVOT BRACKET ASSEMBLY
	450074	SOLENOID PLUNGER ASSEMBLY		† 450332	PIVOT BRACKET ASSEMBLY
	912882	SEMS		912882	SEMS
8	450190	CANCEL COIL & BRACKET ASSEMBLY	32	450735	5 PRONG SOCKET
		(SUB 2)	33	450280	TIMING RELAY
	450075	SOLENOID PLUNGER ASSEMBLY	34	914225	SEMS
	912882	SEMS	35	450612	CABLE ASSEMBLY
9	450132	CANCEL ARM ASSEMBLY (SUB 2)	36	410708	12 PRONG PLUG ASSEMBLY
	125448	RETAINING RING		450150	SWITCH (CARRY-OVER)
	921112	WASHER		450630	SWITCH
10	450096	SPRING		911073	3-48 X 1-1/4 PHILLIPS R.H.M.S.
11	450130	TORSION SPRING		450261	SWITCH MOUNTING BRACKET ASSEMBLY
12	450121	CREDIT ARM ASSEMBLY (ADD 6)			(SUB 2)
13	450131	SPRING - TORSION	38	912882	SEMS
14	* 450140	CONTACT PLATE ASSEMBLY		450318	RESIDUAL SPRING
	† 450342	CONTACT PLATE ASSEMBLY		912810	6-32 X 1/8 PHILLIPS R.H.M.S.
	912968	SEMS		450317	RESIDUAL PIN
15	450562	CREDIT WHEEL ASSEMBLY		925342	FLAT WASHER
	125403	RETAINING RING	39	450281	TORSION SPRING
16	* 450188	COIL & BRACKET ASSEMBLY (SUB 3)	40	82707	1200 OHM 1 W RESISTOR
	† 450336	CANCEL COIL & BRACKET ASSEMBLY	41	86259	.02 CERAMIC CONDENSER
		(SUB 1)	42	86258	.04 CERAMIC CONDENSER
	912882	SEMS	43	86142	.1 MFD. 200 V CONDENSER
	450075	SOLENOID PLUNGER ASSEMBLY	44	86259	.02 MFD. CERAMIC CONDENSER
	† 450348	SOLENOID PLUNGER ASSEMBLY	45		
17	450465	DETENT ROLLER ASSEMBLY	46	82838	100 OHM 2 W. RESISTOR
	450464	DETENT SPRING ONLY			
	910821	3-48 X 3/16 PHILLIPS P.H.M.S.	47	450683	1/2 AMP. SLO-BLO FUSE
18	450566	STOP PIN PLATE ASSEMBLY	48	400697	TERMINAL STRIP
	920739	FLAT WASHER		940420	TERMINAL LUG
	912968	SEMS		980650	.125" DIA. TUBULAR RIVET
19	450111	CREDIT ARM ASSEMBLY (ADD 2)			
	450129	SPRING			

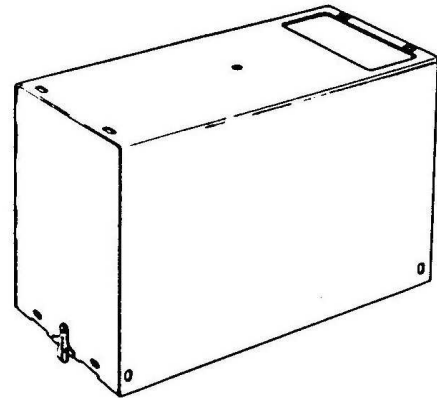
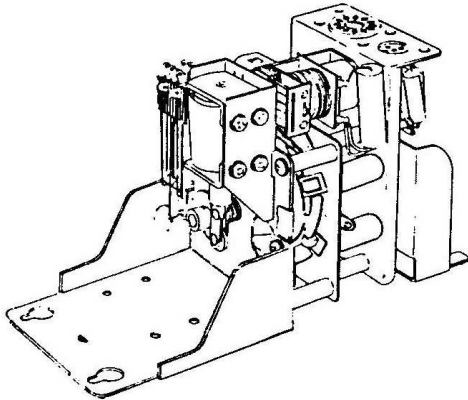
* USED ON TYPE DPUI

† USED ON TYPE DPU5

SEEBURG

SINGLE PRICING UNIT

Type SPU1



Pricing Unit Cover

The Single Pricing Unit, Type SPU1, is a part of the Tormat Selection System for making selections for nickels, dimes and quarters deposited at the phonograph. Its function is to store credit for coin deposited, cancel the credit as it is used for selections and to control the selection system write-in current pulse. Power for operation is taken from a Selection Receiver or Power and Control Unit with which it is associated and to which it is connected with a cable and plug.

The principle parts of the unit are three credit solenoids, a cancel solenoid, two cam operated switch groups and a timing relay. These may be identified in *Figure 2*.

The credit switch is a "wheel" supporting six equally spaced snap-action switches which are parallel connected and terminate at a collector ring and the grounded frame of the unit. The snap-action switches are closed by the plungers of the credit solenoids. Closing any one of them establishes "credit" so selections can be made. Each time a selection is made, the cancel solenoid in the Unit advances the credit switch one sixth turn. It is advanced, therefore, one position — the distance between the snap-action switches — for each selection made.

A reset bracket is mounted on the assembly so a snap-action switch moves past it each time a selection is made. When a snap-action switch that has been turned "on" (by a credit solenoid plunger) passes the bracket, it is engaged by the bracket and reset to the "off" position.

A Pricing Unit associated with selection pricing of one play for five cents, two plays for ten cents, and six plays for a quarter will have a credit coil connected to a 5-cent, a 10-cent and a quarter coin switch in the phonograph so there is a "5¢ solenoid", a "10¢ solenoid" and a "25¢ solenoid".

The 5¢ solenoid is mounted so its plunger turns on the snap-action switch which is one position from the reset bracket. Because the switch will be opened with one operation of the cancel solenoid, one credit is set up when a 5¢ coin is deposited.

The 10¢ solenoid turns on the snap-action switch which is two positions from the reset bracket allowing two selections to be made before the switch is reset.

The 25¢ solenoid is six positions from the reset bracket and will turn on a snap-action switch permitting six selections to be made.

If selection pricing other than described above, the credit coils may be shifted to other positions with respect to the reset bracket. The unit is designed so the coil positions and the reset bracket position can be arranged for any combination of credits, up to six, for any of the three coins.

The cancel solenoid plunger is linked to one of the switch cams so the cam is rotated approximately 60 degrees when the solenoid is energized. This cam is pinned to a shaft which drives the other of the two switch cams.

SINGLE PRICING UNIT, TYPE SPU1

A pawl on the second cam engages a ratchet on the credit switch and moves it one position each time the solenoid plunger operates.

The timing relay operates at approximately 25 volts d.c. and is loaded with copper slugs that delay starting of its armature from the rest position. The delay is introduced to control the time the contacts in the switch groups are closed.

The switch contact functions are detailed in the table on Page 16011.

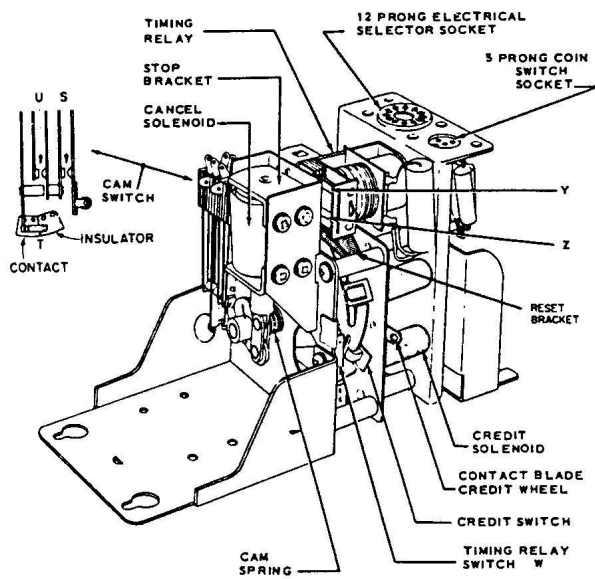


Figure 2.

MECHANICAL ADJUSTMENTS

1. The Pawl Arm Stop limits the rotation of the credit switch when the Cancel Solenoid plunger returns to normal rest position. It should be adjusted so the credit switch rotates far enough to allow the Lock Pawl to fall into the ratchet and have approximately $1/64''$ overtravel. The adjustment must

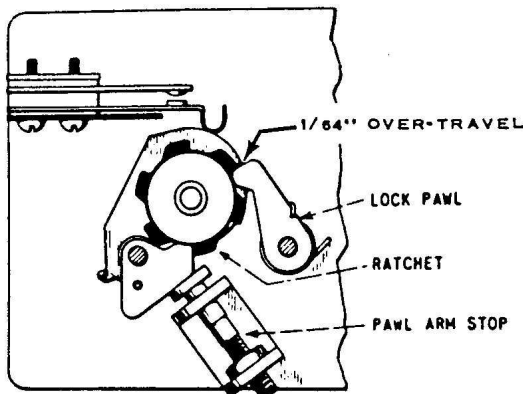


Figure 3.

be checked at all six positions of the credit wheel and the ratchet. After adjustment, set the locknut tight. See Figure 3.

2. Adjust the position of the Cancel Solenoid Stop Bracket so the Cancel Pawl over-travels the ratchet teeth approximately $1/32''$ when the solenoid plunger bottoms against the Stop. Set the Stop mounting screws firmly after adjustment. See Figure 4.

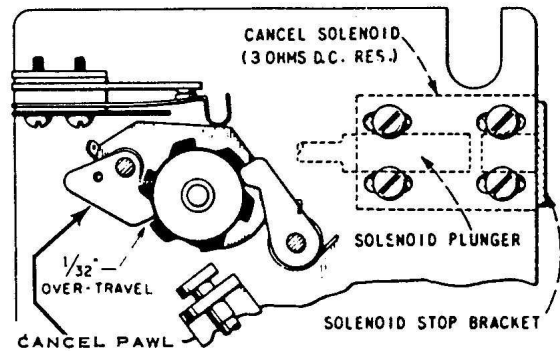


Figure 4.

3. Set the end of the Cam Spring in the first hole in the panel. The Cam Spring may be identified in Figure 2. Check operation by closing all snap-action credit switches and allow the Cam Spring to rotate the switches past the reset bracket. This should be checked slowly to determine if the Spring pressure is adequate to reset the switches without benefit of inertia. If more spring pressure is required, move to the second hole and repeat the test. Use the lowest spring pressure (consistent with positive operation) to insure minimum wear and optimum low voltage operation.
4. The pressure of the credit wheel contact blade against the ring on the credit switch should be approximately $2\frac{1}{2}$ oz. Excessive pressure will result in excessive wear and sluggish rotary action of the credit switch.

PRESSURE REQUIRED TO START FROM REST POSITION IS MEASURED AT THIS POINT, 65 GRAMS MINIMUM.

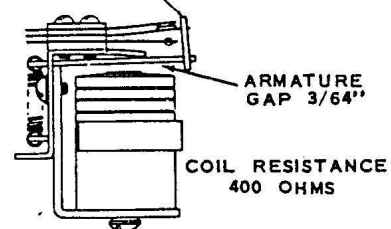
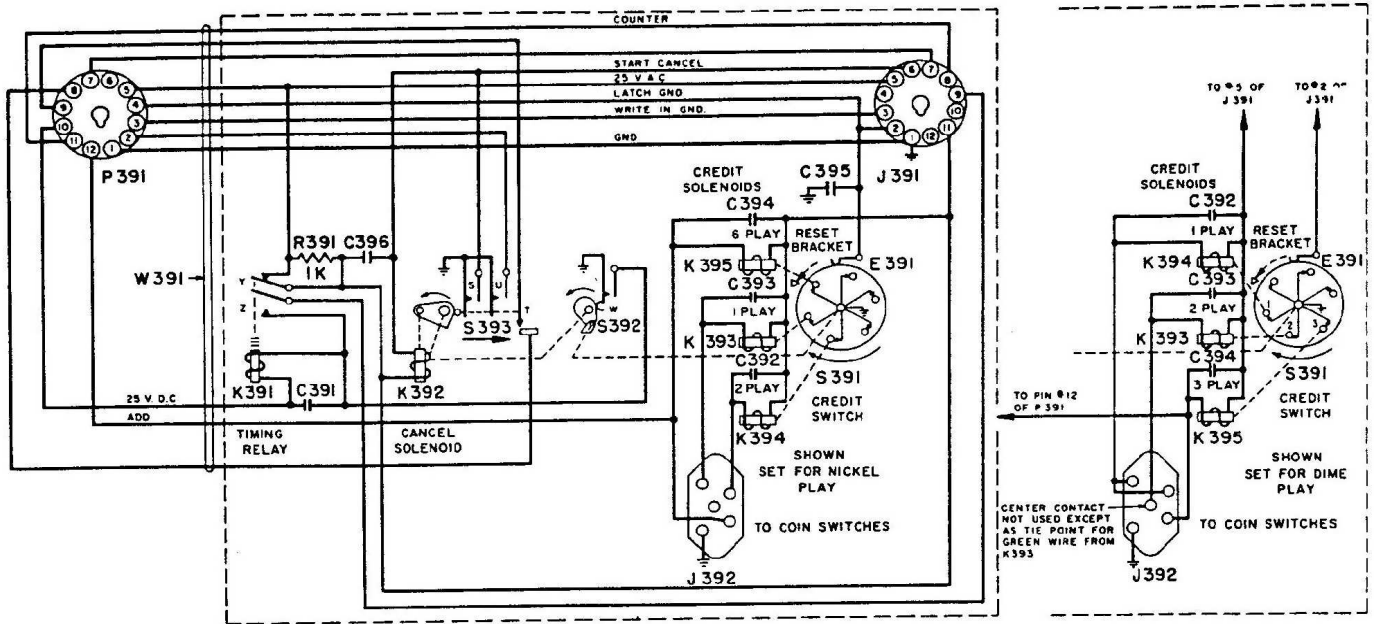


Figure 5.

SINGLE PRICING UNIT, TYPE SPU 1



Schematic Diagram

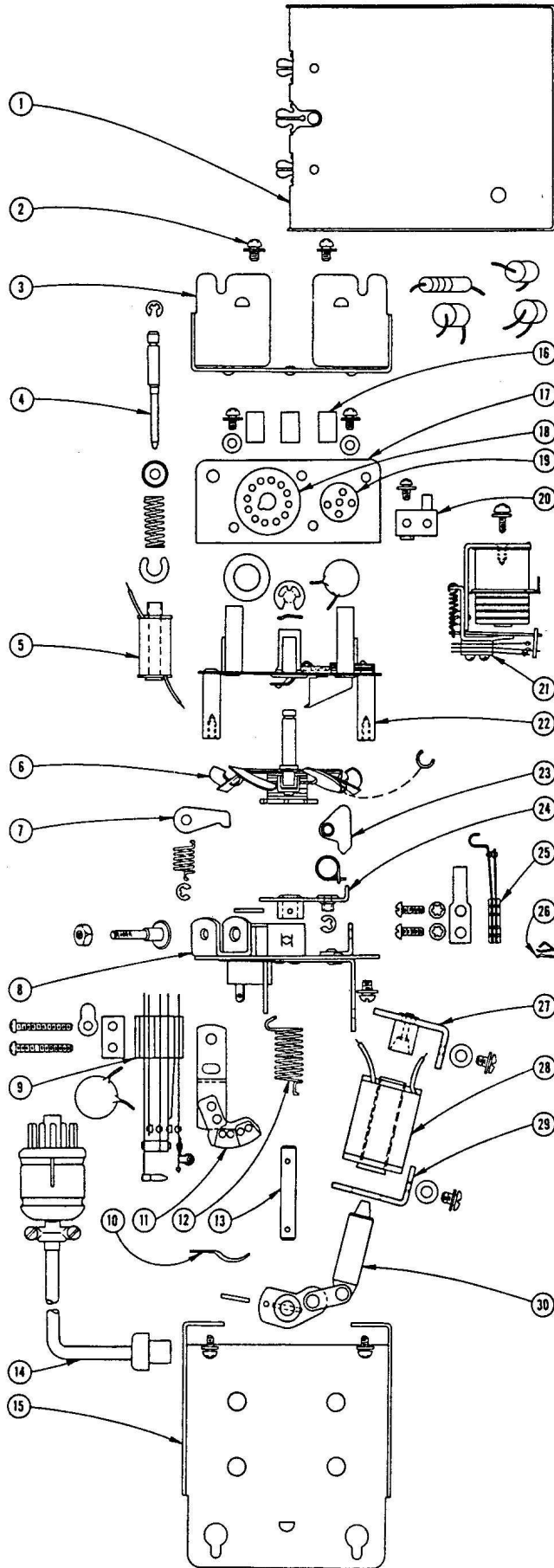
PARTS LIST (For Schematic Diagram)

Item	Part No.	Part Name	Item	Part No.	Part Name
C391	86235	Condenser .05 - 200 V.	K393	400484	Credit Solenoid 5¢
C392	86236	Condenser .01 - 200 V.	K394	400485	Credit Solenoid 10¢
C393	86236	Condenser .01 - 200 V.	K395	400486	Credit Solenoid 25¢
C394	86236	Condenser .01 - 200 V.	O391	400548	Pawl Assembly
C395	86314	Condenser, Ceramic .05 100 V.	O392	400932	Cam Assembly
C396	86258	Condenser, Ceramic .04	P391	410707	Plug Assembly 12 Prongs
E391	400507	Wiper Switch Assembly	R391	82746	Resistor 1 W. 1000 Ohms
E392	400460	Write-In Segment Assembly	S391	400665	Rotary Credit Switch Assembly
J391	201275	Socket (12 Prong)	S392	400589	Timing Relay Switch
J392	450735	Socket (5 Pin)	S393	400472	Cam Switch
K391	450280	Relay Assembly	W391	400481	Cable & Plug Assembly
K392	400685	Cancel Solenoid			

SWITCH	CONTACT	PRESSURE	CONTACT GAP	NORMAL POSITION	FUNCTION
CAM SWITCH	S	3½ oz.	1/64"	OPEN	Carry-Over Contact For Cancel Solenoid.
	T	2/3 oz.	.040" ON INSULATOR	OPEN	Selection Write-In Pulse Trigger Switch.
	U	1 oz.	1/64"	OPEN	Operates Phonograph Selection Counter And Play-Control Add Solenoid.
TIMING RELAY	Y	1-1½ oz.	1/32"	CLOSED	Completes 25-Volt Circuit To Cancel And Credit Solenoids And Electrical Selector Latch Bar Solenoid.
	Z	1-1½ oz.	1/32"	OPEN	Timing Relay Interlock.
SWITCH	W	2/3 oz.	3/64"	OPEN	Operates Timing Relay.

Contact Operation & Gap Adjustment

SINGLE PRICING UNIT, TYPE SPUI

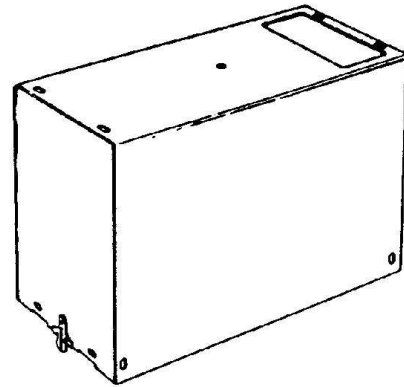
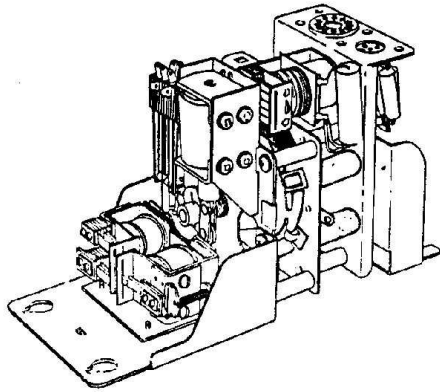


PARTS LIST

Item	Part No.	Part Name
1	400597	Tension Plate
2	914110	Sems
3	400470	Mounting Bracket Riveted Assem.
4	400672	Solenoid Plunger Assembly
	400673	Plunger Core
	505239	Solenoid Pin
	400658	Compression Spring
	400603	Cup Washer
	R-231163	Retaining Ring
5	400485	Credit Solenoid
6	400665	Rotary Credit Switch Assembly
7	400682	Lock Pawl & Shaft Assembly
	400543	Lock Pawl
	400683	Lock Pawl Shaft
	400545	Lock Pawl Spring
	R-231163	Retaining Ring
8	400677	Front Panel Riveted Assembly
9	400472	Cam Switch Assembly
	912653	5-40 x 1" Phillips R.H.M.S.
	400597	Tension Plate
10	F-1960	Cable Clamp
11	400460	Write-In Segment & Bracket Assem.
	450262	Insulator
	450263	Contact Segment
	450295	Insulating Segment
	940030	Lug
	980171	Tub. Rivet
12	400557	Cam Spring
13	400929	Rotary Switch Shaft
14	400481	Cable & Plug Assembly
15	400482	Mounting Bracket - Top
	914110	Sems
16	400670	Spacer
17	400467	Socket Panel Assembly
18	201275	Socket (12 Contact)
19	450735	5 Pin Socket
20	400657	Terminal Strip
21	450280	Relay Assembly
22	400466	Coin Solenoid Panel Assembly
23	400553	Pawl & Pin Assembly
24	400549	Pawl Arm & Hub Assembly
25	400589	Timing Relay Switch
26	400972	Spring Clip
27	400958	Solenoid Bracket & Stop Assem.
28	400685	Solenoid Cancel
29	400570	Solenoid Bracket
30	400931	Cam & Plunger Assembly

SEEBURG

SINGLE PRICING UNIT Type SPU1H



Pricing Unit Cover

The Single Pricing Unit, Type SPU1H, is a part of the Tormat Selection System for making selections for nickels, dimes, quarters and half dollars deposited at the phonograph. Its function is to store credit for coins deposited, cancel the credit as it is used for selections and to control the selection system write-in current pulse. Power for operation is taken from a Selection Receiver or Power and Control Unit with which it is associated and to which it is connected with a cable and plug.

The principle parts of the unit are three credit solenoids, a cancel solenoid, two cam operated switch groups, a timing relay, an a.c. operated "50¢ relay" and a d.c. operated "slow release relay". These may be identified in *Figure 2*.

The credit switch is a "wheel" supporting six equally spaced snap-action switches which are parallel connected and terminate at a collector ring and the grounded frame of the unit. The snap-action switches are closed by the plungers of the credit solenoids. One solenoid is operated by the nickel and dime operated coin switches, one by the quarter coin switch, one by the 50-cent switch. Closing any one of the snap-action switches establishes "credit" so selections can be made. Each time a selection is made, the cancel solenoid in the Unit advances the credit switch one sixth turn. It is advanced, therefore, one position — the distance between the snap-action switches — for each selection made.

A reset bracket is mounted on the assembly so a snap-action switch moves past it each time a selection is made. When a snap-action switch that has been turned "on" (by a credit solenoid plunger) passes the bracket, it is

engaged by the bracket and reset to the "off" position.

The "nickel and dime" is mounted so its plunger turns on the snap-action switch which is one position from the reset bracket. Because the switch will be opened with one operation of the cancel solenoid, one credit is set up when a 10¢ coin or two nickels are deposited. (The slug rejector in the phonograph is equipped with a tilting lever that permits only alternate nickels to operate the "nickel coin switch".)

The "quarter solenoid" is three positions from the reset bracket and will turn on a snap-action switch permitting three selections to be made.

The "half dollar solenoid" is four positions from the reset bracket and is parallel connected to the a.c. operated "50-cent relay". It turns on the snap-action switch that is four positions from the reset bracket permitting four selections to be made. When the fourth selection has been made, the snap-action switch is opened but the 50¢ relay and the slow release relay then operate to energize the quarter solenoid to permit three additional selections so there are a total of seven for the 50-cent coin.

The cancel solenoid plunger is linked to one of the switch cams so the cam is rotated approximately 60 degrees when the solenoid is energized. This cam is pinned to a shaft which drives the other of the two switch cams. A pawl on the second cam engages a ratchet on the credit switch and moves it one position each time the solenoid plunger operates.

The timing relay operates at approximately 25 volts d.c. and is loaded with copper slugs that delay starting of its armature from the

SINGLE PRICING UNIT, TYPE SPUIH

rest position. The delay is introduced to control the time the contacts in the switch groups are closed.

The switch groups contact functions are detailed in the table on Page 16017.

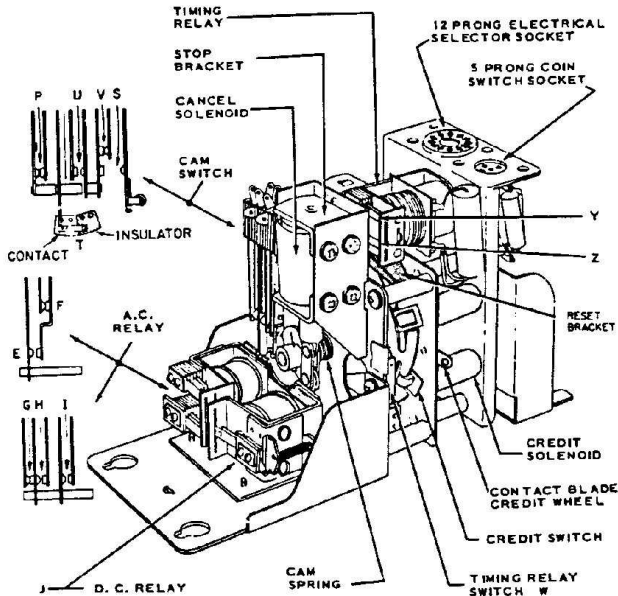


Figure 2.

MECHANICAL ADJUSTMENTS

1. The Pawl Arm Stop limits the rotation of the credit switch when the Cancel Solenoid plunger returns to normal rest position. It should be adjusted so the credit switch rotates far enough to allow the Lock Pawl to fall into the ratchet and have approximately 1/64" overtravel. The adjustment must be checked at all six positions of the credit wheel and the ratchet. After adjustment, set the locknut tight. See Figure 3.
2. Adjust the position of the Cancel Solenoid Stop Bracket so the Cancel Pawl overtravels the ratchet teeth approximately 1/32" when the solenoid plunger bottoms against the Stop. Set the Stop mounting screws firmly after adjustment. See Figure 4.

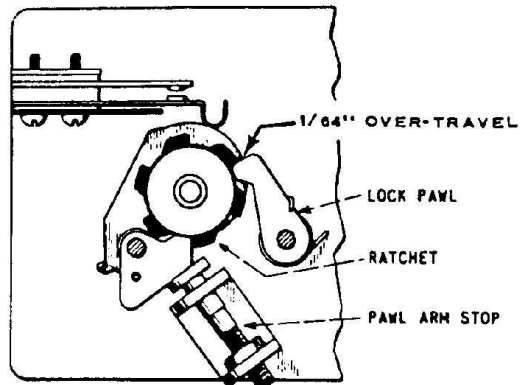


Figure 3.

3. Set the end of the Cam Spring in the first hole in the panel. The Cam Spring may be identified in Figure 2. Check operation by closing all snap-action credit switches and allow the Cam Spring to rotate the switches past the reset bracket. This should be checked slowly to determine if the Spring pressure is adequate to reset the switches without benefit of inertia. If more spring pressure is required, move to the second hole and repeat the test. Use the lowest possible spring pressure (consistent with positive operation) to insure minimum wear and optimum low voltage operation.

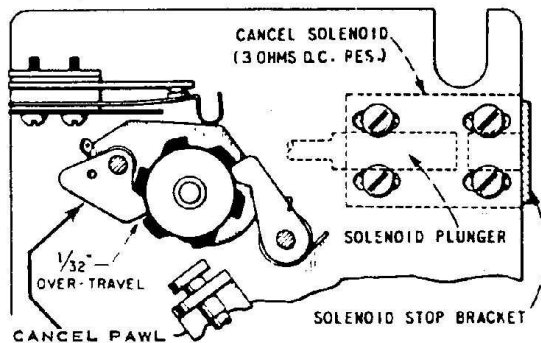
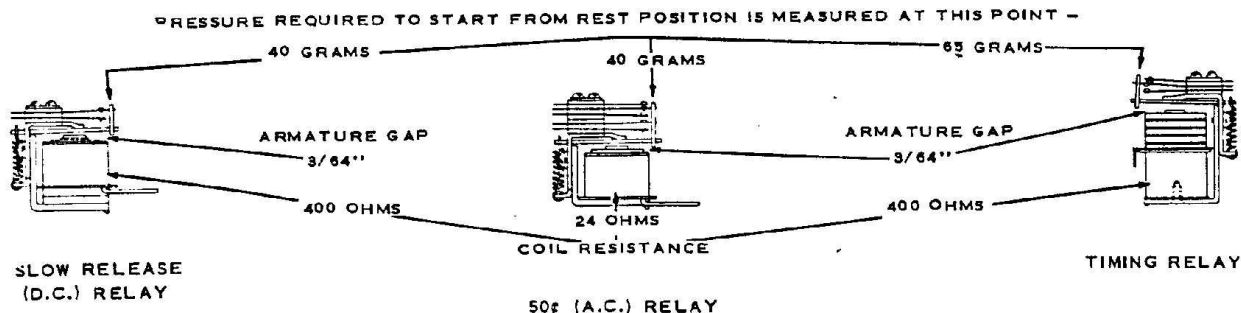
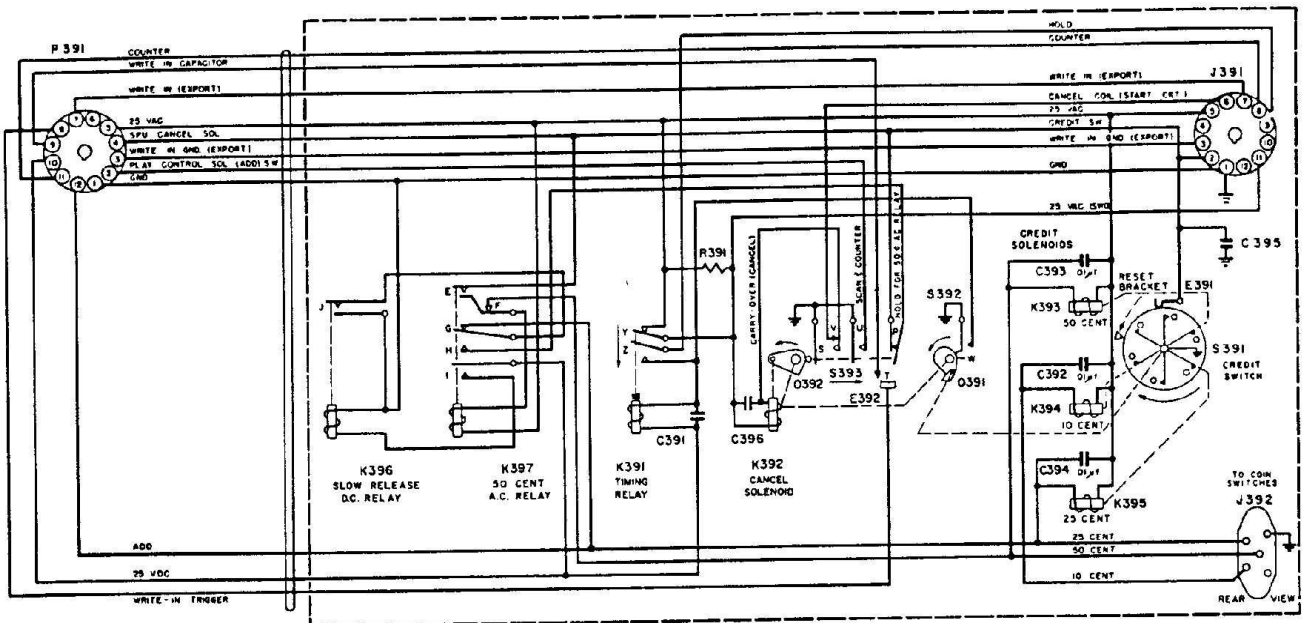


Figure 4.

4. The pressure of the credit wheel contact against the ring on the credit switch should be approximately 2 1/2 oz. Excessive pressure will result in excessive wear and sluggish rotary action of the credit switch.



SINGLE PRICING UNIT, TYPE SPUI-H



Schematic Diagram

PARTS LIST (Schematic Diagram)

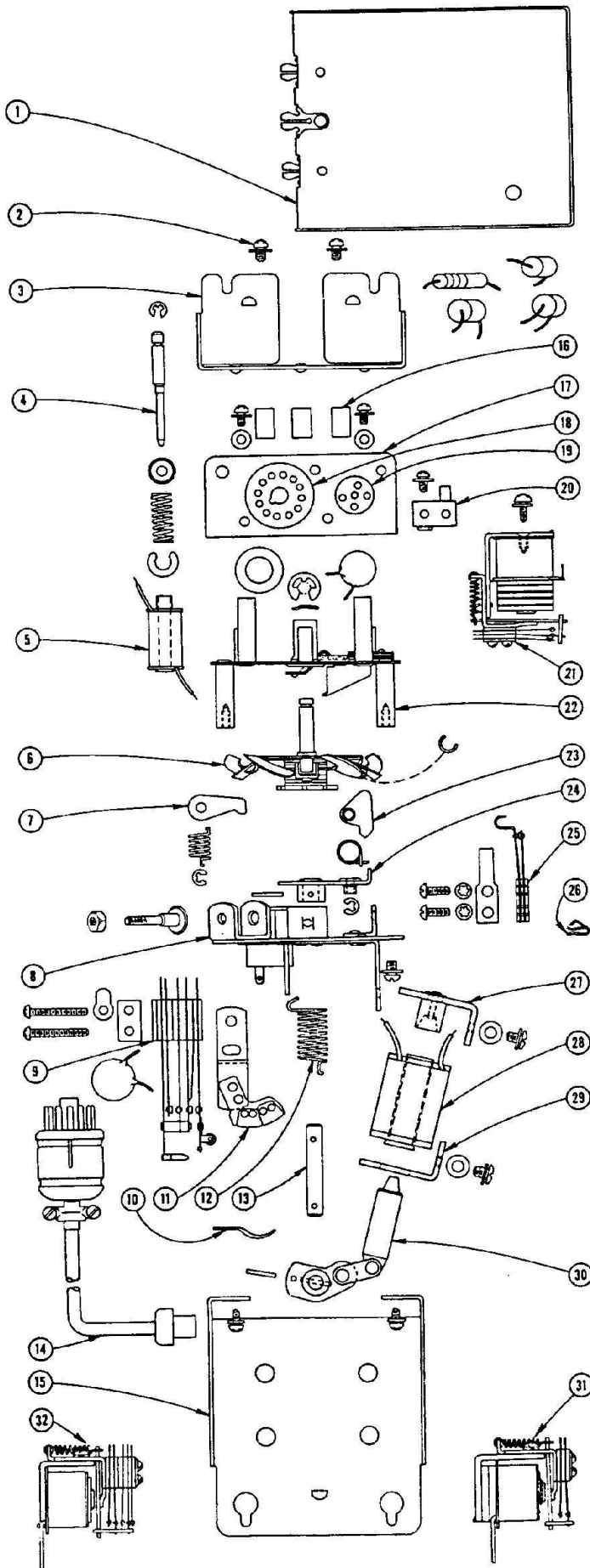
Item	Part No.	Part Name	Item	Part No.	Part Name
C391	86235	CONDENSER .05 - 200 V.	K393	400484	CREDIT SOLENOID
C392	86236	CONDENSER .01 - 200 V.	K394	400485	CREDIT SOLENOID
C393	86236	CONDENSER .01 - 200 V.	K395	400486	CREDIT SOLENOID
C394	86236	CONDENSER .01 - 200 V.	K396	400448	RELAY (D.C.)
C395	86314	CONDENSER, CERAMIC .05 MFD. 100 V.	K397	400446	RELAY (A.C.)
C396	86258	CONDENSER, CERAMIC .04	O391	400548	PAWL ASSEMBLY
E391	400507	WIPER SWITCH ASSEMBLY	O392	400932	CAM ASSEMBLY
E392	400460	WRITE-IN SEGMENT ASSEMBLY	P391	410707	PLUG ASSEMBLY
J391	201275	SOCKET (12 PRONG)	R391	82746	RESISTOR 1W. 1000 OHM
J392	450735	SOCKET (5 PIN)	S391	400665	ROTARY CREDIT SWITCH ASSEMBLY
K391	450280	RELAY ASSEMBLY	S392	400589	TIMING RELAY SWITCH ASSEMBLY
K392	400685	CANCEL SOLENOID	S393	400435	CAM SWITCH

SWITCH	CONTACT	PRESSURE	CONTACT GAP	NORMAL POSITION	FUNCTION
CAM SWITCH	S	3½ oz.	1/64"	OPEN	Carry-Over Contact For Cancel Solenoid.
	T	2/3 oz.	.040" ON INSULATOR	OPEN	Selection Write-In Pulse Trigger Switch.
	U	1 oz.	1/64"	OPEN	Operates Phonograph Selection Counter And Play Control Add Solenoid.
	V	1 oz.	.010"	CLOSED	Completes Circuit To Cancel Solenoid From Electrical Selector Starting Switches.
	P	3/4 oz.	1/64"	CLOSED	Hold Contact For 50¢ Relay. In Series With H.
TIMING RELAY	Y	1-1½ oz.	1/32"	CLOSED	Completes 25-Volt Circuit To Cancel And Credit Solenoids And Electrical Selector Latch Bar Solenoid.
	Z	1-1½ oz.	1/32"	OPEN	Timing Relay Interlock. In Series With Hold Switches In Electrical Selector.
SWITCH	W	2/3 oz.	3/64"	OPEN	Operates Timing Relay.
50¢ A. C. RELAY	G	2/3 oz.	1/64"	CLOSED	In Series With J On Slow Release Relay. Operates 25¢ Credit Solenoid.
	H	2/3 oz.	1/64"	OPEN	Hold Contact For 50¢ Relay. In Series With P.
	I	2/3 oz.	1/64"	OPEN	Operates Slow Release Relay.
	E	2/3 oz.	.010"	OPEN	Hold Contact For 50¢ Relay.
	F	1 oz.	.008"	CLOSED	Completes Circuit From 50¢ Coin Switch To 50¢ Relay Coil.
SLOW RELEASE D. C. RELAY	J	1 oz.	1/32"	OPEN	In Series With G On 50¢ Relay. Operates 25¢ Credit Solenoid.

Contact Operation & Gap Adjustment

SINGLE PRICING UNIT, TYPE SPUIH

PARTS LIST

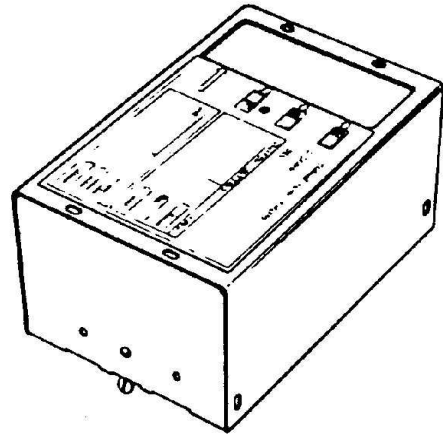
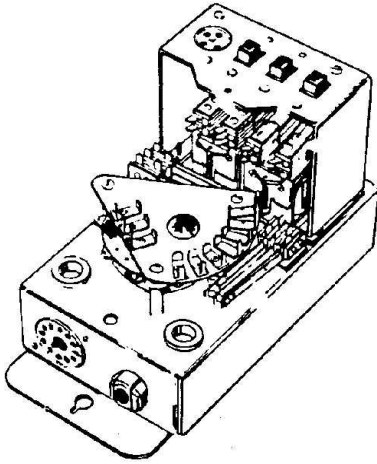


Item	Part No.	Part Name
1	400597	Tension Plate
2	914110	Sems
3	400470	Mounting Bracket Riveted Assem.
4	400672	Solenoid Plunger Assembly
	400673	Plunger Core
	505239	Solenoid Pin
	400658	Compression Spring
	400603	Cup Washer
	R-231163	Retaining Ring
5	400485	Credit Solenoid
6	400665	Rotary Credit Switch Assembly
7	400682	Lock Pawl & Shaft Assembly
	400543	Lock Pawl
	400683	Lock Pawl Shaft
	400545	Lock Pawl Spring
	R-231163	Retaining Ring
8	400677	Front Panel Riveted Assembly
9	400472	Cam Switch Assembly
	912653	5-40 x 1" Phillips R.H.M.S.
	400597	Tension Plate
10	F-1960	Cable Clamp
11	400460	Write-In Segment & Bracket Assem.
	450262	Insulator
	450263	Contact Segment
	450295	Insulating Segment
	940030	Lug
	980171	Tub. Rivet
12	400557	Cam Spring
13	400929	Rotary Switch Shaft
14	400481	Cable & Plug Assembly
15	400482	Mounting Bracket - Top
	914110	Sems
16	400670	Spacer
17	400467	Socket Panel Assembly
18	201275	Socket (12 Contact)
19	450735	5 Pin Socket
20	400657	Terminal Strip
21	450280	Relay Assembly
22	400466	Coin Solenoid Panel Assembly
23	400553	Pawl & Pin Assembly
24	400549	Pawl Arm & Hub Assembly
25	400589	Timing Relay Switch
26	400972	Spring Clip
27	400958	Solenoid Bracket & Stop Assem.
28	400685	Solenoid Cancel
29	400570	Solenoid Bracket
30	400931	Cam & Plunger Assembly
31	400448	Slow Release D. C. Relay
32	400446	50¢ A. C. Relay

SEEBURG

HALF DOLLAR UNIT

Type HDU1



Half Dollar Unit Cover

The Half Dollar Unit, Type HDU1, is designed for use with 5-10-25-cent Single or Dual Pricing Units to add half-dollar coin operation to these Units and provide for convenient flexibility of selection pricing. It does not alter, in any way, the selection operation or credit storage principle of the Pricing Unit with which it is associated; it supplements only the coin switch operation by setting up in the Pricing Unit, credits having value more than that given by two quarters, when a 50-cent coin switch is operated.

The Half Dollar Unit connections in a phonograph are made with cables and plugs as indicated in *Figure 2*. A coin switch plug and a 12-prong plug and cables attached to the Half Dollar Unit are used to replace, respectively, the phonograph coin switch plug and electrical selector plug in the Pricing Unit. The phonograph coin switch plug and electrical selector plug, then, are inserted in the sockets in the Half Dollar Unit.

The fundamental operation of the Half Dollar Unit is associated with a motor driven switch.

The switch makes contact with six individual contacts that can be connected to the credit

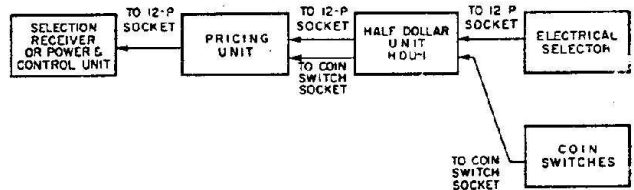


Figure 2.

coils in the associated Pricing Unit. The motor is started by closing a 50-cent or 25-cent coin switch and the subsequent operation results in establishing the desired credits. The credit coils that are energized in the operation are determined by the positions of three switches on the Half Dollar Unit (*Figure 3*) and by leads that are part of the pricing terminal board in the Unit. There are also two relays — a 25-cent relay and a 50-cent relay that function for control of the motor and are associated with the 25 and 50-cent coin switches of the phonograph. The operation of these relays, like the motor, is determined by the positions of the three switches.

HALF DOLLAR UNIT, TYPE HDU1

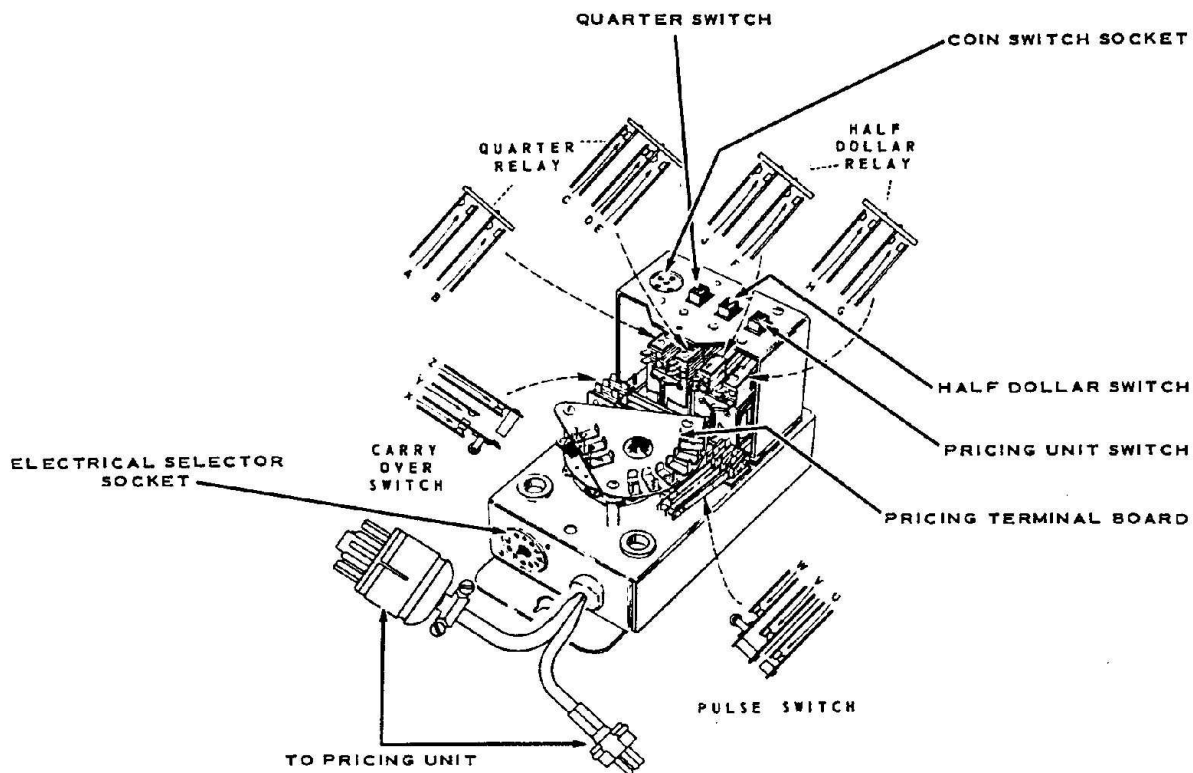


Figure 3.

TYPICAL CREDIT OPERATION WITH VARIOUS SWITCH POSITIONS ARE AS FOLLOWS:

OPERATION WITH DUAL PRICING UNIT, TYPE DPUI

1. Selection Pricing:

Singles 10-cents/3 for quarter/7 for half
EP Albums 15-cents/2 for quarter/4 for
half plus one single

Switch positions on Half Dollar Unit:

Pricing Unit switch on position DPUI
Half Dollar switch on position 2
Quarter switch on position 3

In this arrangement and with these switch positions, the 5-cent, 10-cent and 25-cent credit solenoids of the Pricing Unit connect through the Half Dollar Unit to, respectively, the 5-cent, 10-cent and quarter coin switches and their operation is not altered by the use of the Unit. Operation with a 50-cent coin results in operation of the 50-cent relay and the HDU motor and

totaling in the DPU credits for seven 10-cent selections or any combination of selections equal to a 70-cent credit.

If the Half Dollar switch is set to position 1 (instead of 2), the total half-dollar credit will be equal to 65 cents instead of 70 cents.

2. Selection Pricing:

Singles 10-cents/4 for quarter/9 for half
EP Albums 15-cents/2 (plus 1 single) for
quarter/6 for half

Switch positions on Half Dollar Unit:

Pricing Unit switch on DPUI
Half Dollar switch on 2
Quarter switch on 4

The 5-cent and 10-cent credit solenoids of the DPU connect through the HDU to, respectively, the 5-cent and 10-cent coin switches. Their operation is not modified in any way by

HALF DOLLAR UNIT, TYPE HDU1

HDU. Operation with a quarter energizes the 25-cent relay, starts the HDU motor and results in a total credit in the DPU for four 10-cent selections or any combination of selections equal to a 40-cent credit. Operation with a half dollar energizes the 50-cent relay, starts the motor and results in a total credit in the DPU for nine 10-cent selections or any combination of selections equal to a 90-cent credit.

If the Half Dollar switch is set to position 1, there will be a total credit equal to 35 cents instead of 40 cents when a quarter coin is used but 50-cent operation is not affected because the switch is not used in the cycle of operation in which a 50-cent coin is involved.

OPERATION WITH SINGLE PRICING UNIT, TYPE SPUI

3. Selection Pricing:

All selections 10-cents/3 for quarter/7 for half

Pricing Unit credit solenoid positions:

10-cent coil in 1-credit position
25-cent coil in 3-credit position

Coin switch connections (in SPUI):

25-cent coin switch terminal to 25-cent coil
5-cent and 10-cent terminals of coin switch socket connected together and to 10-cent coil. (Diverter used on slug rejector so alternate nickels operate 5-cent coin switch.)

Switch positions on Half Dollar Unit:

Pricing Unit switch on SPUI
Half Dollar switch on 1
Quarter switch on 3

The 5-cent, 10-cent and quarter coin switches connect to their associated credit solenoids in the SPUI. Their operation is not modified by connection through the HDU. Operation with half-dollar coin energizes the 50-cent relay and starts the HDU motor. The motor operates until the rotary switch closes its first contact at which time a 25-cent credit is set up in the SPU. When the credit is established, the motor stops and remains idle until the credits have been used (three 10-cent selections). On completion of the third selection, the 50-cent relay again operates, the motor starts and drives the switch to another contact. When the switch is at this contact, three more credits are set up in the SPU. Again the relay releases and the

motor stops to remain idle until the second group of three selections has been made. When these selections have been made, the motor and relay again operate and the switch moves to another contact. In this third operation of the motor, one more credit is set up, bringing the total of 10-cent selection credits to seven (three-plus-three-plus-one) for a half dollar.

4. Selection Pricing:

All selections 10-cents/4 for quarter/9 for half

Single Pricing Unit credit solenoid positions:

10-cent coil in 1-credit position
25-cent coil in 4-credit position

Coin switch connections (in SPUI) same as in 3.

Switch positions on Half Dollar Unit:

Pricing Unit switch on SPUI
Half Dollar switch on 1
Quarter switch on 3

Operation with all coins is the same as for 10-cents/3 for quarter/7 for half as detailed in 3 except that the 25-cent credit solenoid in the SPUI is in the 4-credit position and will give 4 credits each time it is energized. This results in 4 credits for a quarter and 9 for a half dollar.

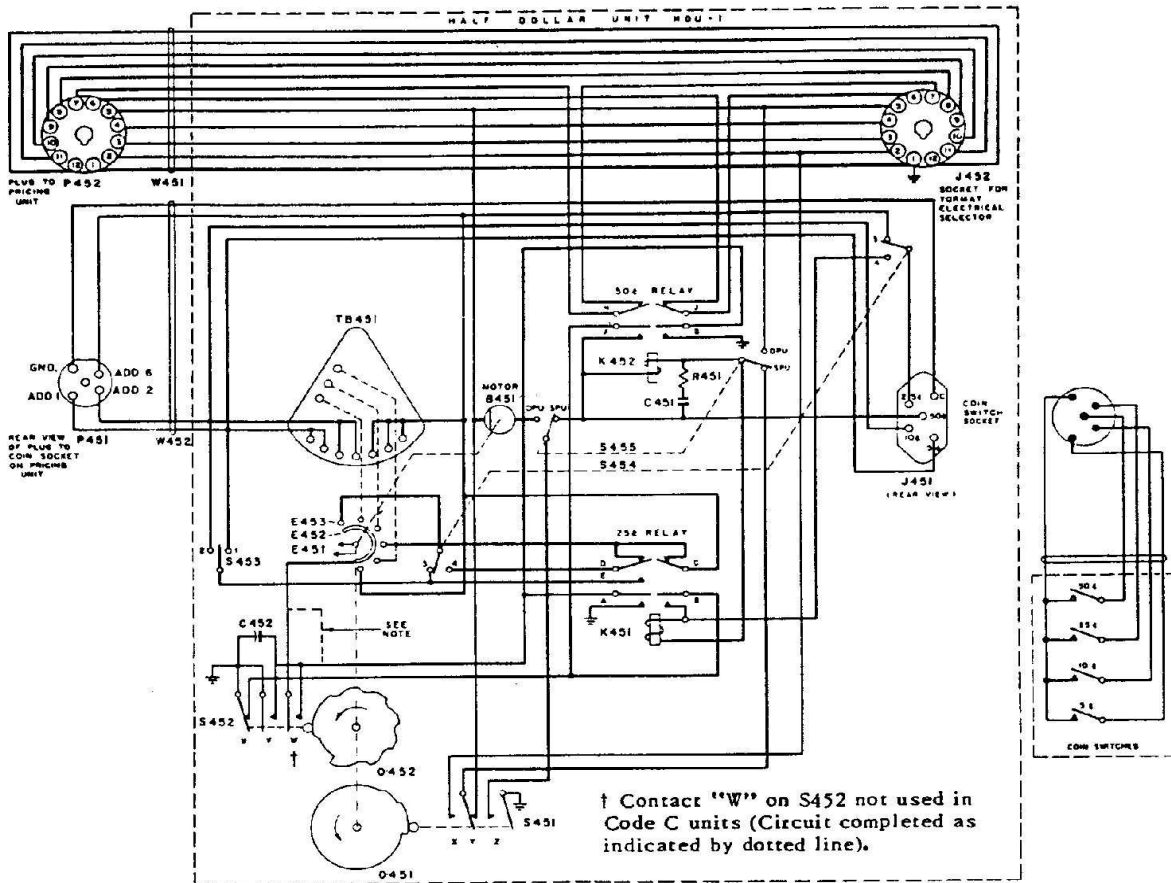
Additional bonus credits for half-dollar operation may be established by using connecting leads at the terminal board in the Unit. There are three flexible leads and seven connecting terminals that are identified by color. Two of the terminals are marked green and connect to the add-1 credit solenoid of a Dual Pricing Unit; to the 5-cent credit solenoid of a Single Pricing Unit. Two terminals are yellow and connect to the add-2 credit solenoid of a DPU; to the 10-cent credit solenoid of an SPU. Three terminals are marked with red and connect to the add-6 solenoid of the DPU; to the 25-cent credit solenoid of an SPU. If one of the three leads is connected to a "green terminal", one additional credit will be established each time the motor drives the rotary switch through a cycle of operation. If a lead is connected to a "red terminal", an additional 25-cent credit will be set up with each operation of the HDU motor. The leads and terminals may be used in any desired combination of credits.

CONTACT GAP ADJUSTMENT

RELAY CONTACTS	RELAY PULLED IN	RELAY DROPPED OUT	CONTACT FUNCTIONS ON HDU-1
A	CLOSED 20 GRAMS	OPEN .015 MIN.	MOTOR CIRCUIT
B	CLOSED 20 GRAMS	OPEN .015 MIN.	RELAY INTERLOCK IN SERIES WITH "U" ON PULSE SWITCH
C	OPEN .015 MIN.	CLOSED 20 GRAMS	ADD 6 CIRCUIT CONNECTS 25¢ CREDIT COIL OF PRICING UNIT TO "W" (PULSE SWITCH)
D	OPEN .015 MIN.	CLOSED 20 GRAMS	ADD 6 CIRCUIT (FINAL 6 CREDITS)
E	CLOSED 20 GRAMS	OPEN .015 MIN.	ADD 2 CIRCUIT CONNECTS 10¢ OR 5¢ CREDIT COIL OF PRICING UNIT THRU QUARTER SWITCH TO "W" CONTACT
F	CLOSED 20 GRAMS	OPEN .015 MIN.	RELAY INTERLOCK IN SERIES WITH "U" ON PULSE SWITCH
G	CLOSED 20 GRAMS	OPEN .015 MIN.	MOTOR CIRCUIT
H	OPEN .015 MIN.	CLOSED 20 GRAMS	OPENS EP CIRCUIT DURING 50¢ CREDIT OPERATION
J	OPEN .015 MIN.	CLOSED 20 GRAMS	OPENS SINGLES CIRCUIT DURING 50¢ CREDIT OPERATION
SWITCH CONTACTS	ON LOW PART OF CAM	ON INTERMEDIATE PART OF CAM	ON HIGH POINT OF CAM
U	CLOSED 15 GRAMS (MIN)	CLOSED 15 GRAMS	OPEN .010 GAP
V *	CLOSED 15 GRAMS (MIN)	OPEN .005 GAP (MIN)	OPEN
W *	CLOSED 15 GRAMS (MIN)	OPEN .015 GAP	OPEN
X	CLOSED 25 GRAMS (MIN)	OPEN 1/64 GAP	OPEN 1/32 TO 3/64 GAP
Y	OPEN 3/64 GAP	OPEN 1/64 GAP	CLOSED 15 GRAMS
Z	CLOSED 10 GRAMS (MIN)	CLOSED 10 GRAMS (MIN)	OPEN 3/64 GAP
U	INTERLOCK CIRCUIT FOR 50¢ AND 25¢ RELAYS (OPENS ONLY BY LOBE "A" ON PULSE CAM)		
V *	MOTOR CIRCUIT		
W *	OPERATES CREDIT COILS IN PRICING UNIT (IN CONJUNCTION WITH MOTOR DRIVEN SWITCH IN HDU)		
X	COMPLETES 25 V. TO 50¢ RELAY ON SPU OPERATION		
Y	IN 25 V. CIRCUIT TO 25¢ AND 50¢ RELAYS		
Z	GROUND CIRCUIT FOR 25¢ AND 50¢ RELAYS PARALLELS "G" IN 50¢ AND "A" CONTACTS IN 25¢ OPERATION ENABLES MOTOR TO COMPLETE CYCLE		

* NOTE: 'W' MUST OPEN BEFORE 'V'.

HALF DOLLAR UNIT, TYPE HDUI



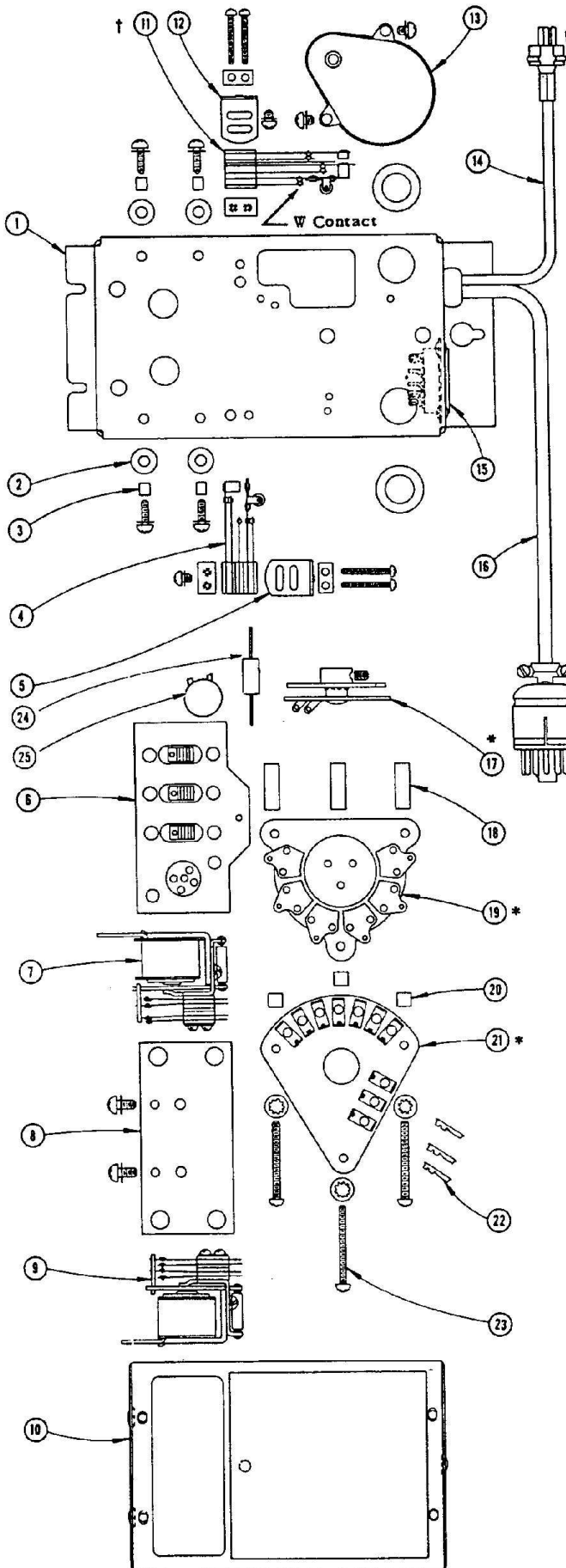
Schematic diagram

PARTS LIST

Item	Part No.	Part Name
B451	450710	Timing Motor
C451	86259	Condenser .02 $\pm 20\%$ 500 V. Ceramic
C452	86259	Condenser .02 $\pm 60\%$ 500 V. Ceramic
E451	450715	Contact Finger Assembly
E452	450721	Contact Ring
E453	450719	Contact Segment *
J451	450735	Coin Switch Socket
J452	201275	Socket (12 Pin)
K451	450729	Relay (Quarter)
K452	450730	Relay (Half Dollar)
O451	Carry-Over Cam	} Part No. 450712-Rotor Assy-Code A Units
O452	Pulse Cam	
P451	450736	Coin Switch Plug
P452	410707	Plug (12 Pin)
R451	82403	Resistor 18 $\pm 10\%$ $\frac{1}{2}$ W.
S451	450726	Carry Over Switch
S452	450727	Pulse Switch-Code A & B Units
	† 450789	Pulse Switch-Code C Units
S453	450733	Slide Switch
S454	450734	Slide Switch
S455	450734	Slide Switch
T B451	450722	Terminal Board Assembly*
W451	450753	Cable Assembly
W452	450737	Cable Assembly (Coin)

*See Notes
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HALF DOLLAR UNIT, TYPE HDU1



Item	Part No.	Part Name
1	450706	Mounting Base Riveted Assembly
	988325	Grommet
	602828	Strain Relief Clamp
	988161	Grommets
2	450738	Spacer
	450726	Carryover Switch Assembly
	450259	Tapped Plate
	450260	Tension Plate
	911031	3-48 x 7/8 Phillips R.H.M.S.
5	450709	Switch Mounting Bracket
	912882	Sems
	450731	Switch Bracket Riveted Assembly
6	450733	Slider Switch
	450734	Slider Switch
	450735	5 Pin Socket
7	450730	Relay (50¢)
	914225	Sems
	450728	Relay Mounting Plate
9	450729	Relay (25¢)
	914225	Sems
	450743	Cover Assembly
10	912959	Sems
	450727	Pulse Switch-Code A & B Units
	450789	Pulse Switch-Code C Units
11 †	450259	Tapped Plate
	450260	Tension Plate
	911031	3-48 x 7/8 Phillips R.H.M.S.
	450709	Switch Mounting Bracket
	912882	Sems
12	450710	Motor
	450737	Coin Cable & Plug Assembly
	450736	5 Prong Plug
14	201275	12 Pin Socket
	450739	Power Cable Assembly
15	410708	12 Prong Plug
	450712	Rotor Assembly-Code A Units
16	450782	Rotor Assembly-Code B Units
	918341	6-32 x 1/4 Socket H. Cup Point Set Scre
17 *	450724	Spacer (Long)
	450718	Segment Plate Assembly-Code A Unit
18	450784	Segment Plate Assembly-Code B Unit
	450725	Spacer (Short)
19 *	450722	Terminal Board Assembly
	246933	Taper Tab Connector
20	913715	6-32 x 1-3/8 Phillips R.H.M.S.
	925342	1206 Lockwasher
21 *	82403	18 Ohm ± 10% 1/2 W.
	86259	.02 MFD 500 V. Ceramic Condenser
22	400697	Terminal Strip (Not Shown)

* Item 17; Code A Pulse Cam has 7 Lobes
Code B & C Pulse Cam has 4 Lobes
Item 19; Code A Units have 6 Contact Segments
Code B & C Units have 3 Contact Segments
Item 21; Not used in Code B & C Units
† Item 11; Code A & B switches have 3 pairs of contacts
Code C switches have 2 pairs of contacts
(W Contact omitted)