SEEBURG

REMOTE CONTROL STEPPER UNIT, Type RCSU2

The Remote Control Stepper Unit type RCSU2 is part of the Seeburg Remote Control system for making selections from Remote Wall-O-Matics. It becomes a part of the Format Selector Units types TSU1 and TSU2 whenever Electrical Selector and/or Remote Control operation is employed. It includes service test points and Pricing Unit connections, the steppers, Wall-O-Matic power supply and stepper control circuits necessary for full remote control selection. The Stepper Unit is mounted on the Selector Unit chassis with screws and all interconnections are made with 3-prong and 12-prong plugs and sockets.

STEP SWITCH ASSEMBLY ADJUSTMENTS

RATCHET RETURN SPRING

The return spring tension for the Letter step switch will be correct if the spring is wound three full turns when the switch is in the rest position.

The return spring tension for the Number step switch will be correct if the spring is wound two full turns when the switch is in the rest position.

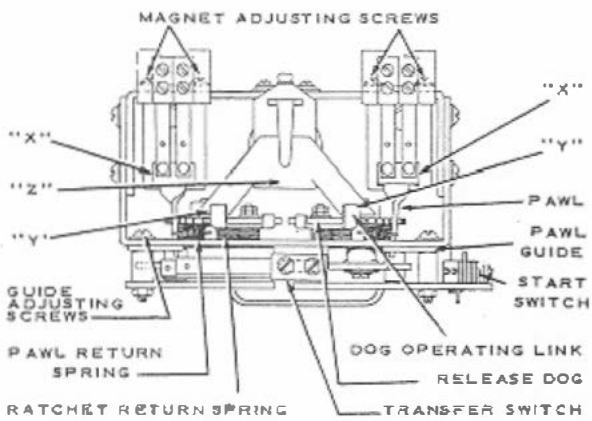


Figure 1.

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 2*

Figure 2.

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 3.* 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 4.*

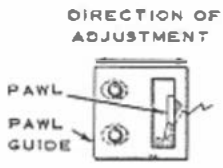


Figure 3.

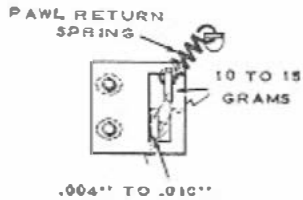


Figure 4.

The pawl return spring tension should require 10 to 15 grams (1/2 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 MAGENT TAIL SPRINGS

The tail spring force, measured at the front of the bridge on the step magnet armature ("X", *Figure 1*) should be 50 to 75 grams (1-3/4 to 2-1/2 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 5.*

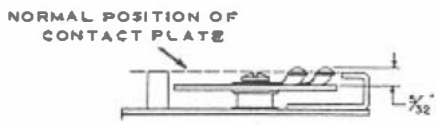


Figure 5.

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 1*) on the dog operating links 1/64" when the magnet is energized. *Figure 6.*

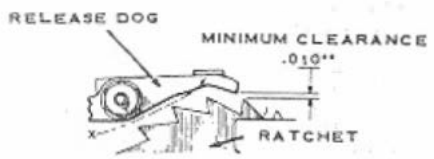


Figure 6.

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 1*) to start it from the rest position should be 100 to 140 grams (3-1/2 to 5 oz.)

RELEASE DOG SPRINGS

An upward force of 15 to 25 grams (1/2 to 3/4 oz.) applied at the dimple on the release dog operating links ("Y", *Figure 1*) should start the dogs from seated position. This force will be approximately correct if the springs are wound 1/2 to 3/4 turn.

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.

(a) With the step switch in the rest position so the roller is in the notch of the contactor disc, adjust the lower blade for 1/2 to 3/4 oz.

(b) Adjust contact "B" gap 1/64".

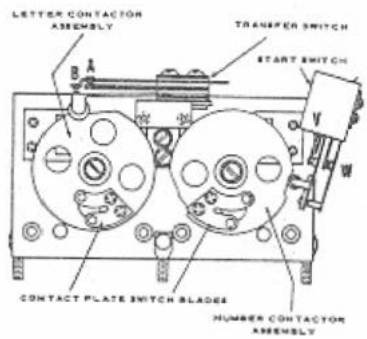


Figure 7.

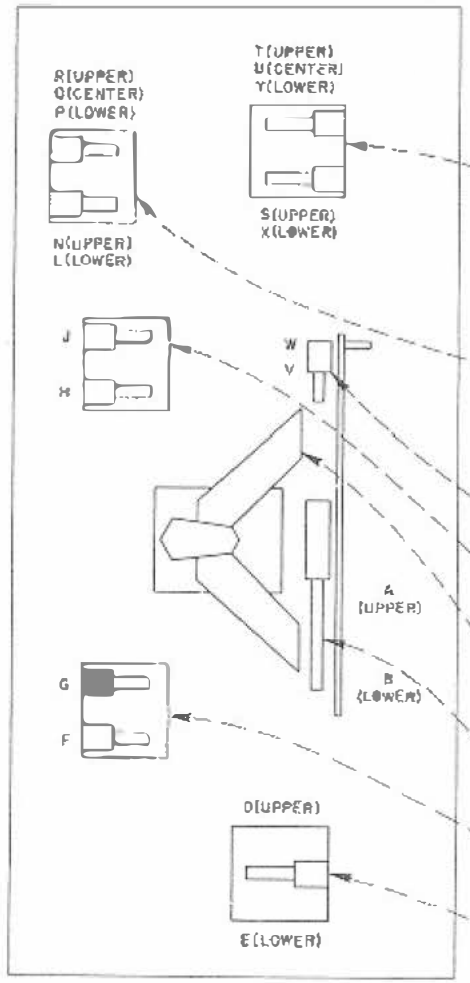
(c) Adjust contact "A" force 1 oz.

(d) 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.

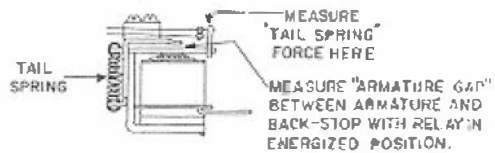
LUBRICATION

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

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



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, Q, W AND H FOR 1ST STEP; THROUGH D, B AND K 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



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

D.C. COIL RESISTANCE

● —— 500 OHMS

† —— 325 OHMS

RELAY ADJUSTMENTS

REMOTE CONTROL STEPPER UNITS, Type RCSU2 & RCSU3

Parts List

Item	Part No.	Description	Item	Part No.	Description	Item	Part No.	Description
C551	86235	0.05 Mfd. 200 V. Paper	K551	303941	Letter Step Relay	R554	82638	100 Ohms ±10% ½ Watt
C552	86320	5 Mfd. 300 V. Paper	K552	303944	Pawl Reset Magnet	R555	82403	18 Ohms ±10% ½ Watt
C553	86250	5000 Mmfd. 1000 V. Ceramic	K553	303940	Number Step Relay	R556	82439	16,000 Ohms ±10% ½ Watt
C554	87611	300 Mfd. 50 V. Lytic	K554	303074	Transfer Relay	S551	303547	Transfer Switch
C555	86235	0.05 Mfd. 200 V. Paper	K555	303764	Timing Relay No. 2	S552	303794	Start Switch
C556	86235	0.05 Mfd. 200 V. Paper	K556	303762	Timing Relay No. 1	T551	307074	25 V. Transformer
C557	86235	0.05 Mfd. 200 V. Paper				TB551	305309	Terminal Board
F551	* 303713	3.2 Amp. Fuse Type GMQ 3-2/10	P551	307049	3 Contact Plug			
J551	303528	33 Prong Socket	P552	307048	12 Contact Plug	V551	308003	2050 Thyratron
J552	303529	33 Prong Plug	P553	▲ 246933	Taper Tab Receptacle	W551	▲ 307047	Cable Assembly
J553	84244	9 Prong Socket	R551	82448	100,000 Ohms ±10% ½ Watt	W551	† 307327	Cable Assembly
J554	▲ 940311	Taper Tab Lug	R552	82436	10,000 Ohms ±10% ½ Watt	Z551	▲ 303765	Stepper Assembly
J555	▲ 940311	Taper Tab Lug	R553	82440	22,000 Ohms ±10% ½ Watt	Z551	† 307021	Stepper Assembly

▲ used on RCSU2 * Part No. 303697 used on RCSU2, Code A † used on RCSU3