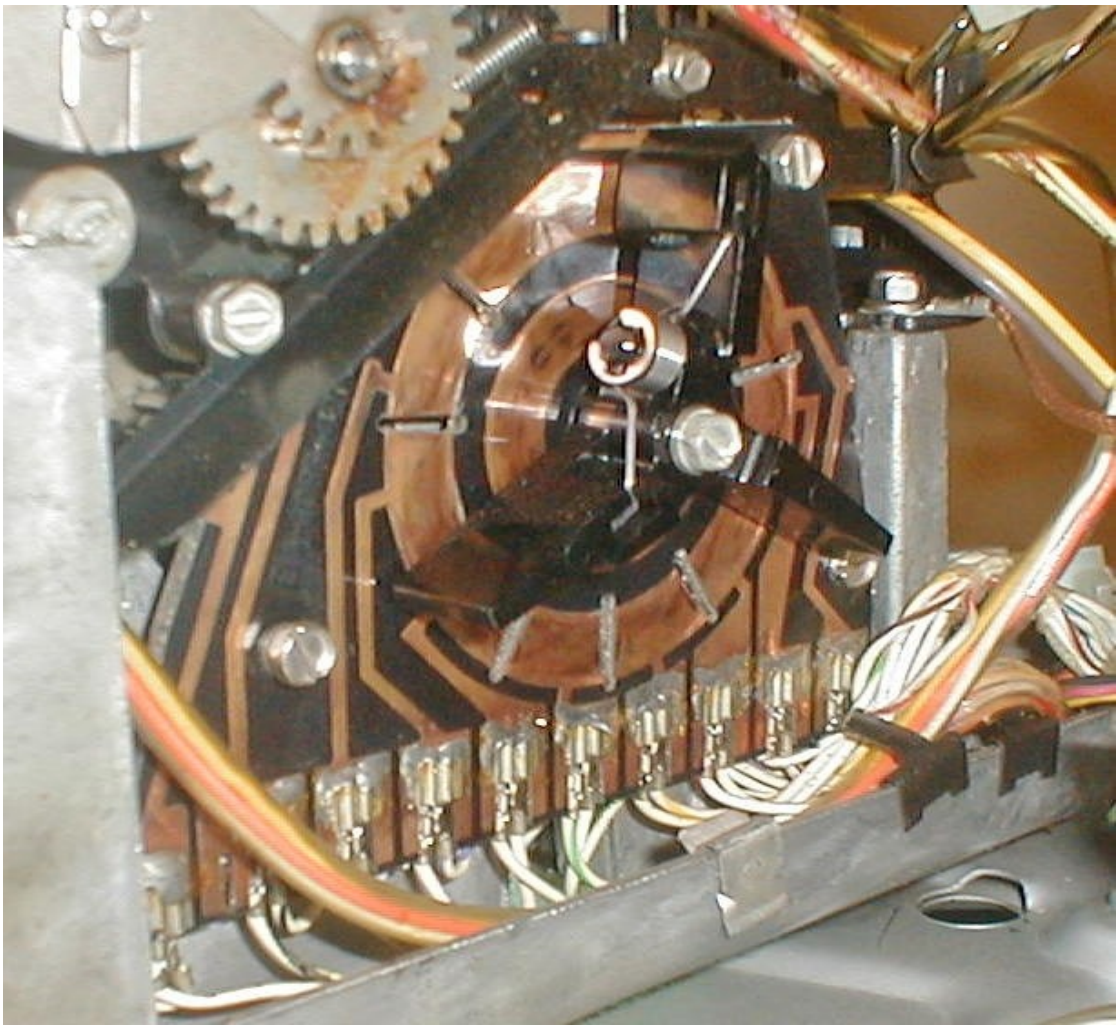
Troubleshooting a 33 ASR that is running open

If everything is working as it should the 33 will run open in Line mode and closed in Local Mode.

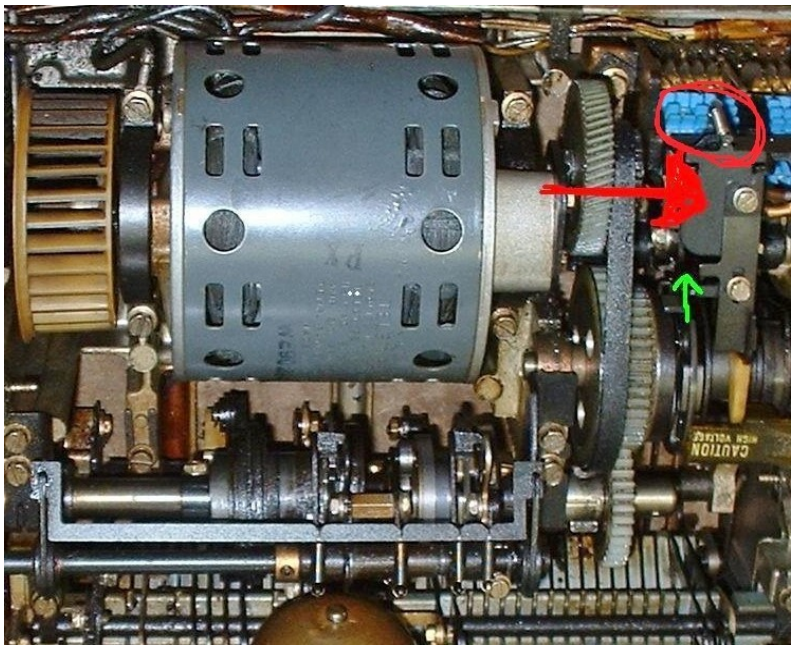
Most all 33 issues can be found by visual means or some simple testing with an ohmmeter or other means such as the 9 volt battery test explained later.

With the machine in Local mode, first step is to see if the distributor is spinning and if it is look for an armature out of place in the distributor area. Red arrow points to tape reader armature in distributor area.

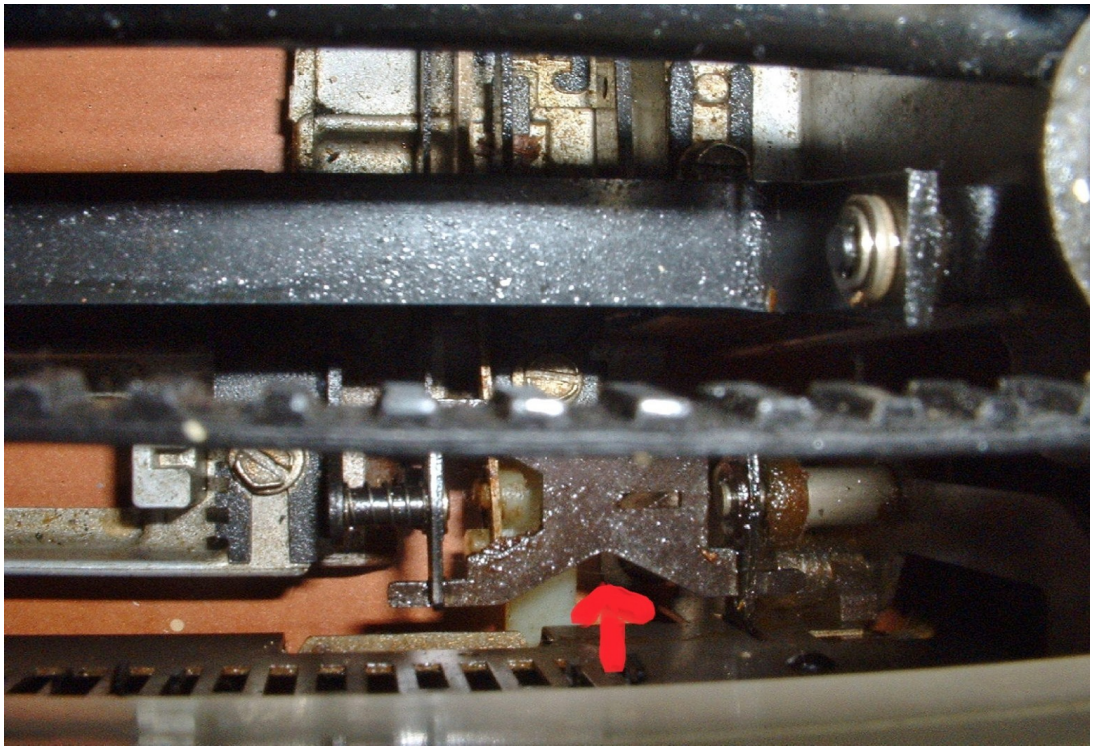
distributor



distributor armature (red arrow)

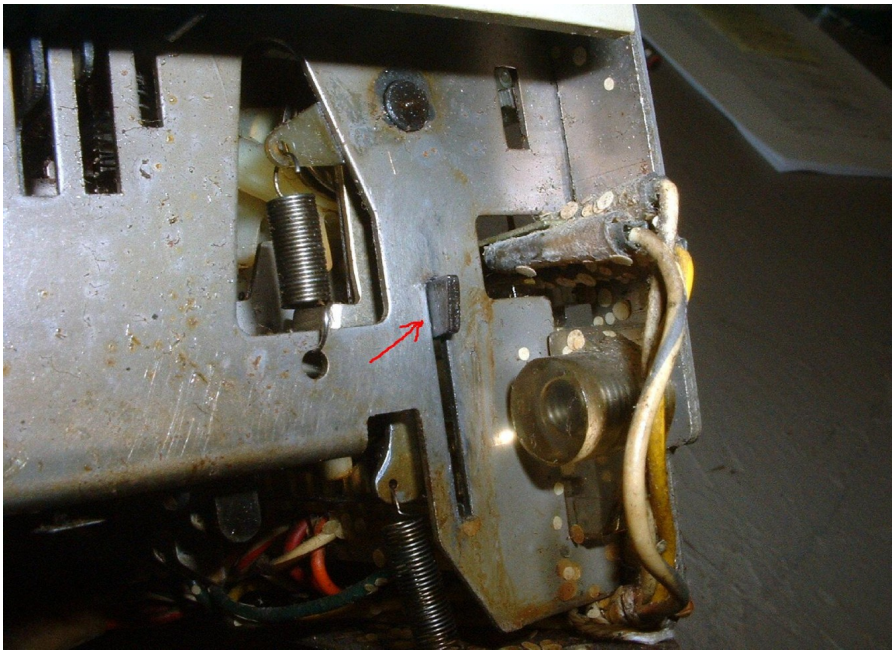


Also check to see if the H plate is installed between the printer and keyboard.

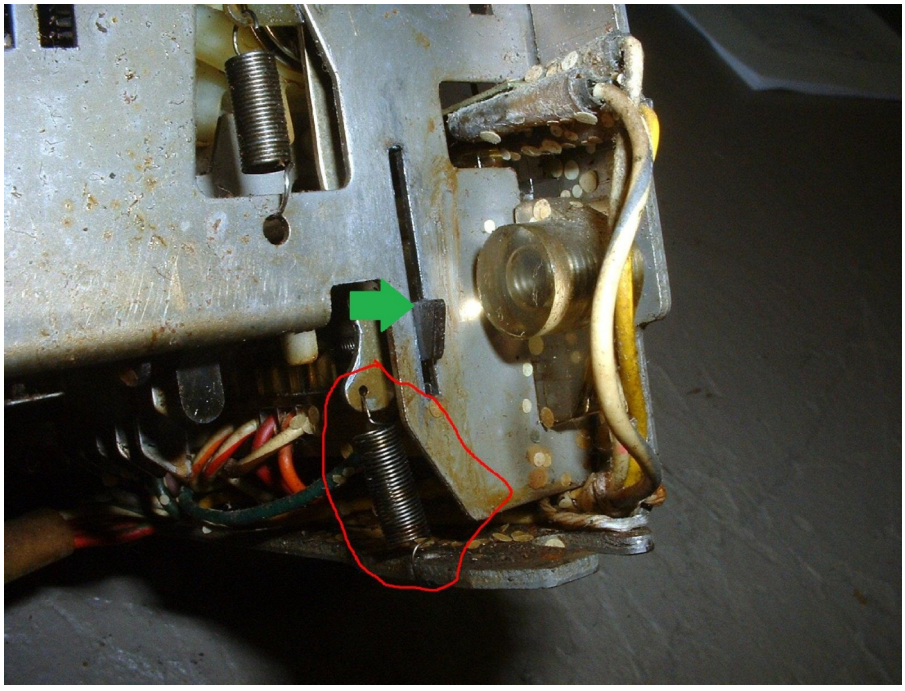


Lastly, check to see if the keyboard is resetting or if the reset lever is moving up and down.

Tripped

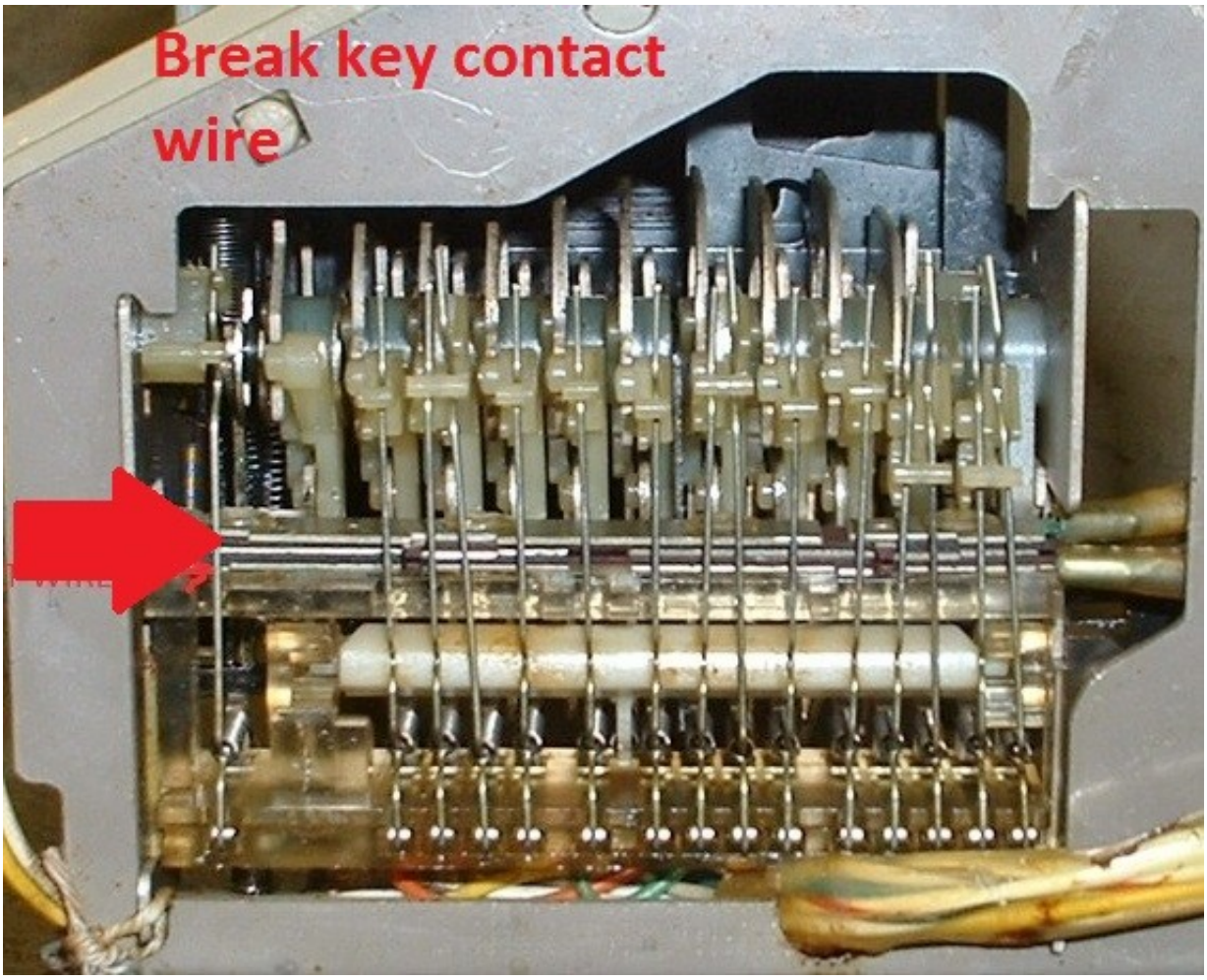


Reset

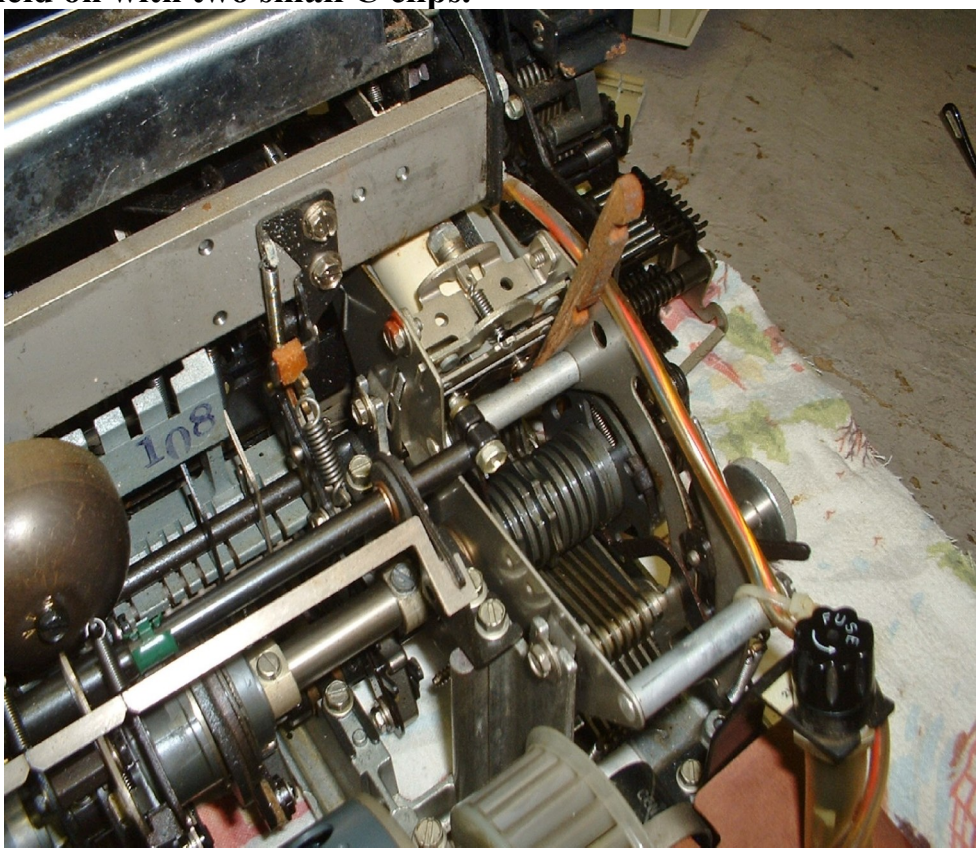


You can hold the lever down and see if that stops the distributor from spinning and clears the running open problem. If so, the H plate may need adjusting or the printer may not be fully in the 4 rubber mounts it sits in. Lots of visual checks before doing the H plate adjustment.

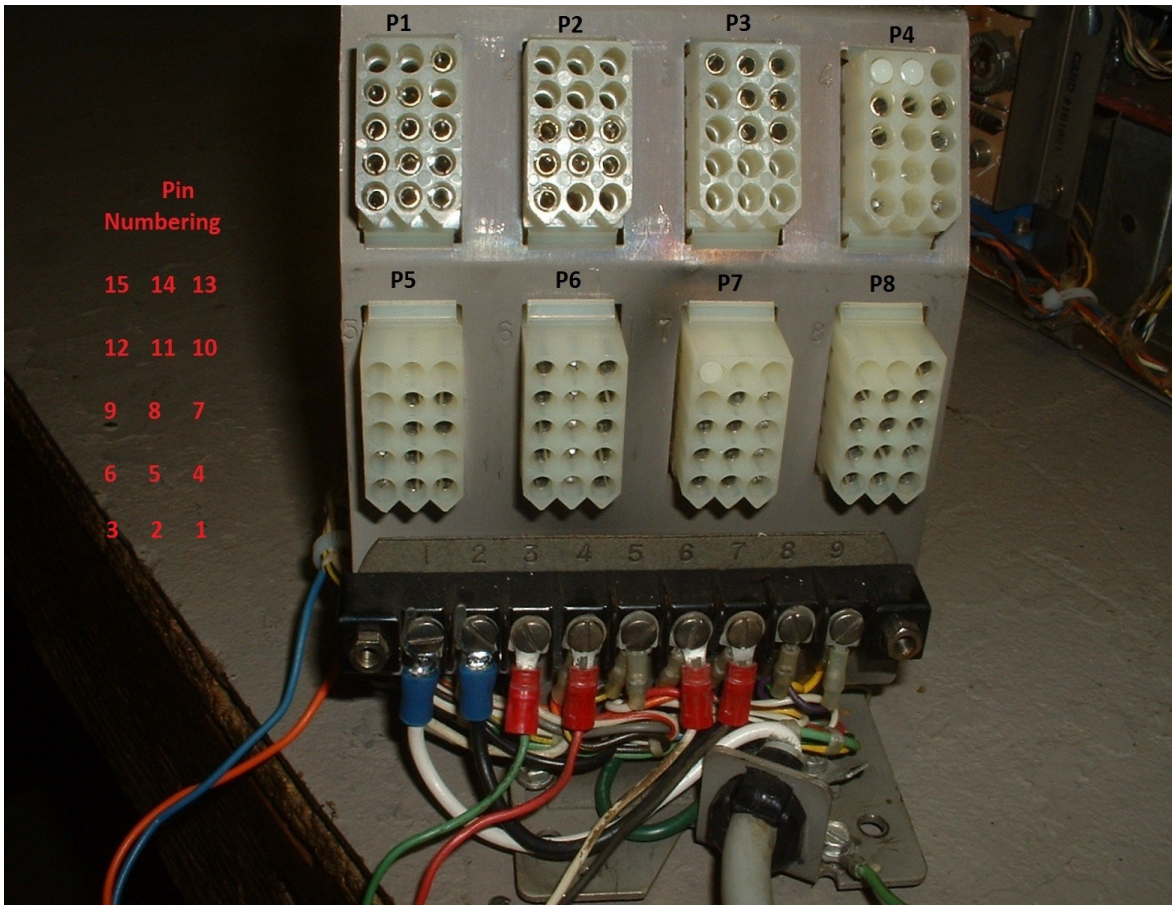
If the distributor is not spinning, check all three fuses in the UCC-6 fuse bank. If all are good, exercise the keyboard Break key a few times. Also check to see if the keyboard Break vertical contact wire is out of place or dirty where it touches the horizontal bar. It should touch the bar when the Break key is not depressed.



If the machine is still running open, insert a screwdriver or a wooden clothespin half split to about 1/3 its size as show in pic. If the machine is still running open there is a problem in the mainshaft. The clothespin or screwdriver simulates current holding the selector armature closed. If the running open stops, the problem is electrical. Be careful not to dislodge the little copper leaf spring on the armature held on with two small C clips.



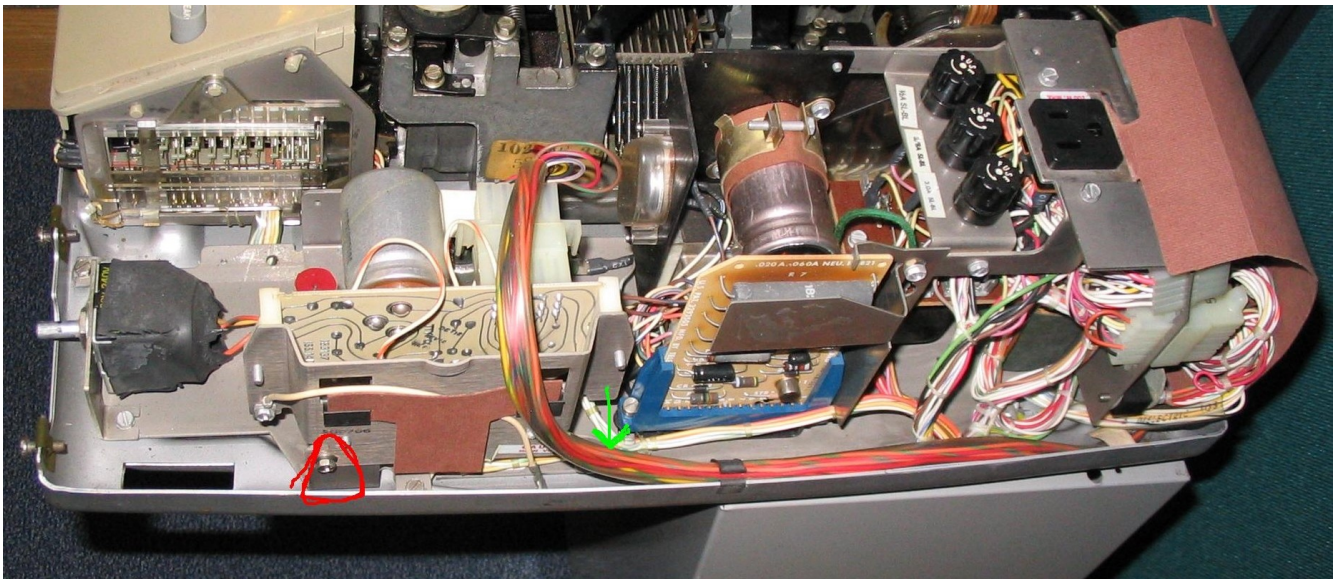
One more test to isolate the running open issue. Place the machine in Line mode and apply a 9 volt battery to pins 7 and 8 of P2 in the Molex bank of the UCC-6. If the printer still runs open reverse the polarity of the battery leads. If the running open stops, the electrical issue is in the Local Loop supply. The SMD card and power transistor are good and the likely problem is the large flat green resistor in the UCC-6.



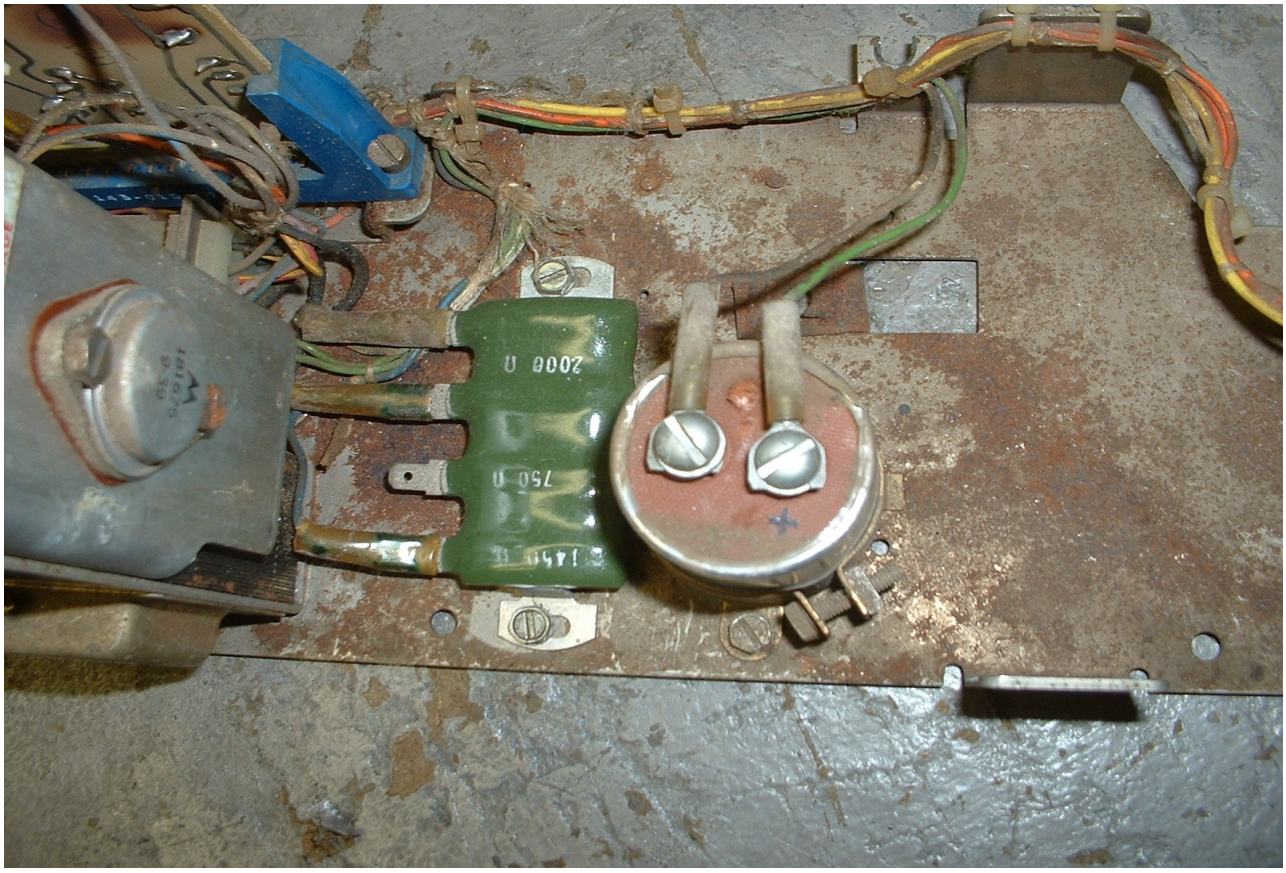
If the machine is still running open, the issue is in the UCC-6 and you can resume testing in Local mode. It may be a bad solder joint on the vertical SMD card, defective SMD card, or the power transistor that sends current to the printer selector magnet may be defective.

Check the SMD card for bad solder joints and more troubleshooting in the UCC-6

UCC-6



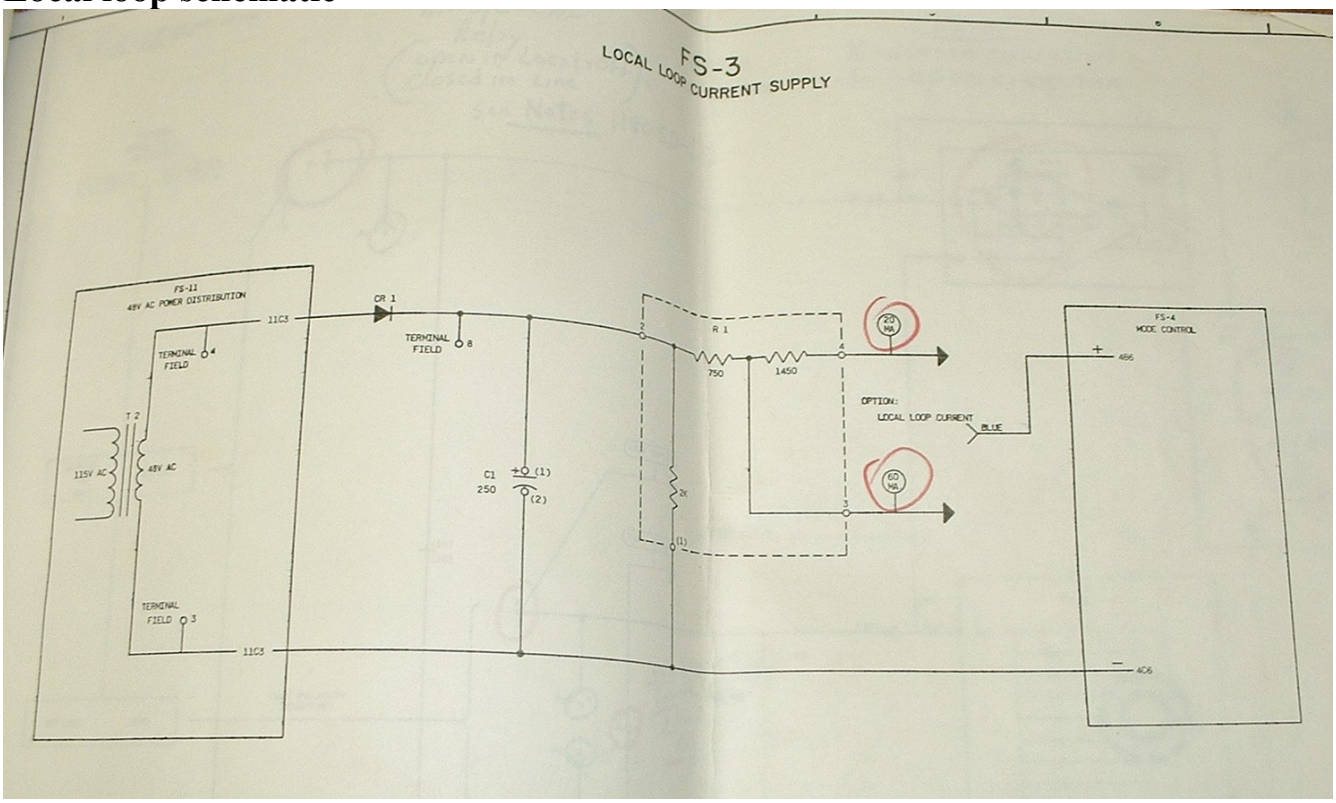
Green resistor, Local loop capacitor and power transistor hidden in UCC-6 pic.



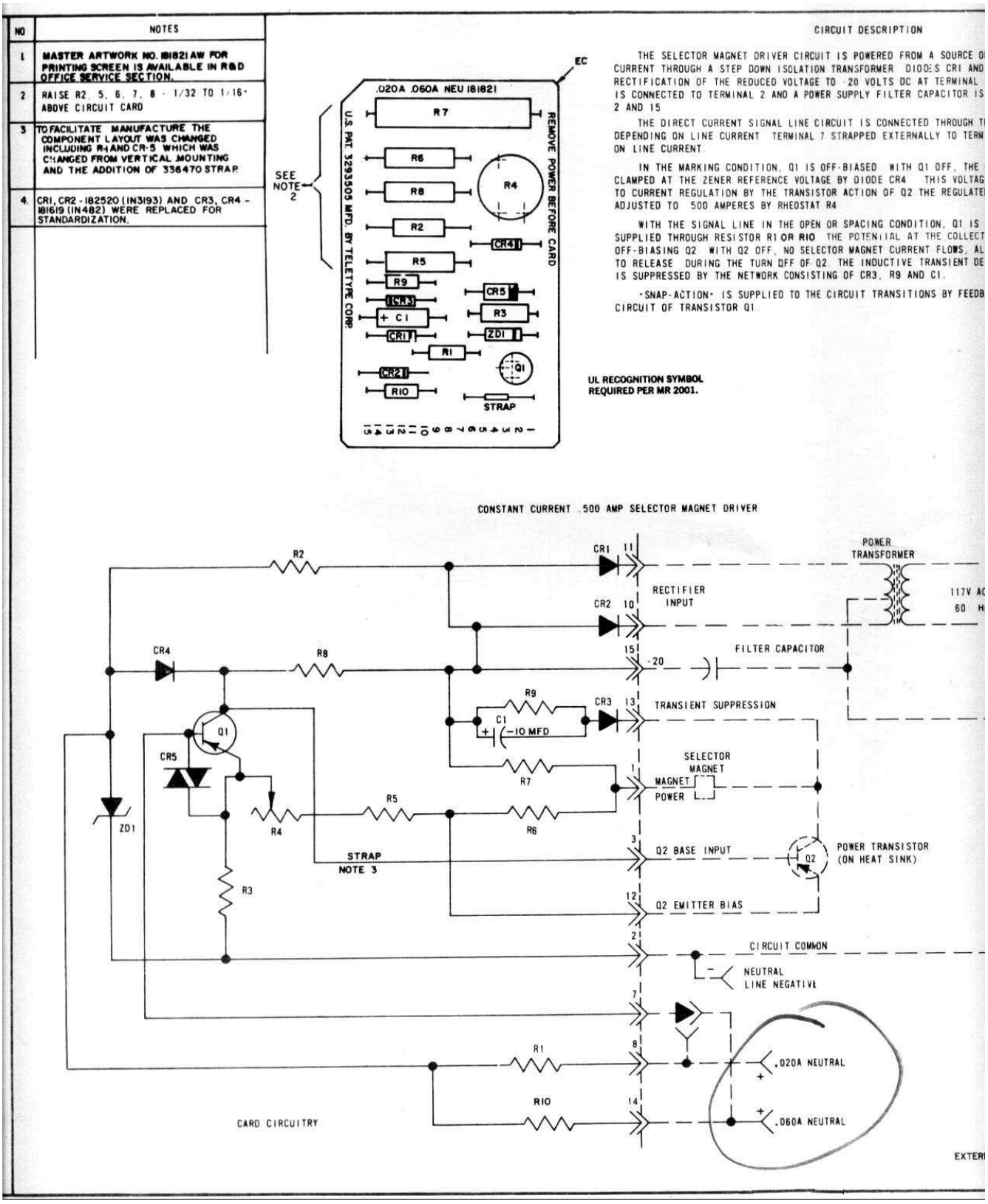
The above work is probably good 95% of the time but anything that can go wrong will.

Some schematics to help below.

Local loop schematic



SMD card schematic



SMD schematic #2

CIRCUIT DESCRIPTION

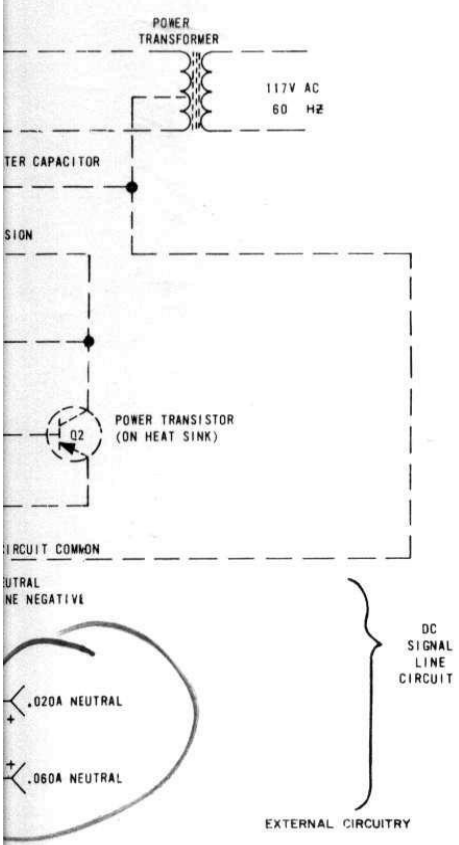
DRIVER CIRCUIT IS POWERED FROM A SOURCE OF 117 VOLT ALTERNATING
DOWN ISOLATION TRANSFORMER. DIODES CR1 AND CR2 PROVIDE FULL WAVE
DUCED VOLTAGE TO -20 VOLTS DC AT TERMINAL 15. THE CIRCUIT COMMON
L 2 AND A POWER SUPPLY FILTER CAPACITOR IS CONNECTED BETWEEN TERMINALS

SIGNAL LINE CIRCUIT IS CONNECTED THROUGH TERMINALS 14 OR 8 AND 2
NT. TERMINAL 7 STRAPPED EXTERNALLY TO TERMINAL 14 OR 8, DEPENDING

ITION, Q1 IS OFF-BIASED. WITH Q1 OFF, THE BASE OF Q2 WILL BE
FERENCE VOLTAGE BY DIODE CR4. THIS VOLTAGE CLAMP IS THEN TRANSLATED
Y THE TRANSISTOR ACTION OF Q2 THE REGULATED MAGNET CURRENT IS
S BY RHEOSTAT R4.

E IN THE OPEN OR SPACING CONDITION, Q1 IS TURNED ON BY BASE CURRENT
OR R1 OR R10. THE POTENTIAL AT THE COLLECTOR OF Q1 WILL BE NEAR ZERO
OFF, NO SELECTOR MAGNET CURRENT FLOWS, ALLOWING THE MAGNET
TURN OFF OF Q2. THE INDUCTIVE TRANSIENT DEVELOPED AT THE COLLECTOR
TWORK CONSISTING OF CR3, R9 AND C1.

PPLIED TO THE CIRCUIT TRANSITIONS BY FEEDBACK IN THE EMITTER
1.



CIRCUIT BOARD EC

REF DESIG.	TELETYPE PART NO	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	182779	1	RESISTOR 420 OHMS 1/2W	010 AMP. SWITCHING - FOR 020A NEUTRAL LINE
R10	182797	1	RESISTOR 135 OHMS 1/2W	030 AMP SWITCHING - FOR 060A NEUTRAL LINE
R2	181669	1	RESISTOR 330 OHMS 2 5W	ZENER CURRENT LIMITING
R3	182778	1	RESISTOR 0.82 OHMS 1/2W	COMMON EMITTER BIAS
R4	182773	1	RHEOSTAT 3 OHMS 2 5W	OUTPUT CURRENT ADJUST
R5	181717	1	RESISTOR 8 OHMS 5W	Q2 EMITTER BIAS
R6	182770	1	RESISTOR 270 OHMS 4 W	Q2 EMITTER BIAS
R7	182772	1	RESISTOR 14 OHMS 10W	Q2 COLLECTOR LOAD
R8	182627	1	RESISTOR 390 OHMS 4W	Q1 COLLECTOR LOAD
R9	182776	1	RESISTOR 150 OHMS 1/2W	Q2 COLLECTOR — TRANSIENT LIMITING
CR1	171541	2	DIODE (NOTE 4)	POWER RECTIFIER
CR2			SAME AS CR1	POWER RECTIFIER
CR3	197464	2	DIODE (NOTE 4)	COLLECTOR TRANSIENT LIMITING
CR4			SAME AS CR3	VOLTAGE CLAMPING
CR5	178844	1	VARISTOR 100A	INPUT PROTECTION
ZD1	182774	1	DIODE, ZENER 4.7V 5% 1W	REFERENCE
C1	182628	1	CAPACITOR, 10 MFD 25W VDC	COLLECTOR TRANSIENT LIMITING
Q1	181671	1	TRANSISTOR, HIGH GAIN	INPUT SWITCH
	336470	1	STRAP	NOTE 3
EC	181823	1	CIRCUIT BOARD, ETCHED	

181821

REVISIONS

ISSUE	DATE	AUTH. NO.
- 2	4-19-65	86501
- 3	9-19-66	88816
4	11-25-66	88816-1
- 5	5-5-67	93502
- 6	4-2-68	95450
- 7	7-5-68	95948
- 8	11-6-68	96521
- 9	12-20-68	98266
- 10	3-3-71	-320
11	3-29-72	236
- 12	3-29-72	236-1

REVISIONS		AUTH. NO.
		10728
CONFORMANCE DATE		
DRAWING ISSUE	13	
ASSOCIATED NOTE	4	
MFG. VERSION	8	
CUSTOMER IDENTIFICATION ISSUE	12	

WDP

APPROVALS

R AND D	E OF M
H.J.K.	

E-NUMBER

PROD NO. 181821

DATE 4-28-67 (7-20-63)

R&D FILE 2-30.152/153AA

DRAWN JER-CG	CHKD. N.A.J.
ENGD. A.S.-PRS	APPD. J.W.

TELETYPE