



UNIVERSAL

OPERATION MAINTENANCE AND PARTS MANUALS

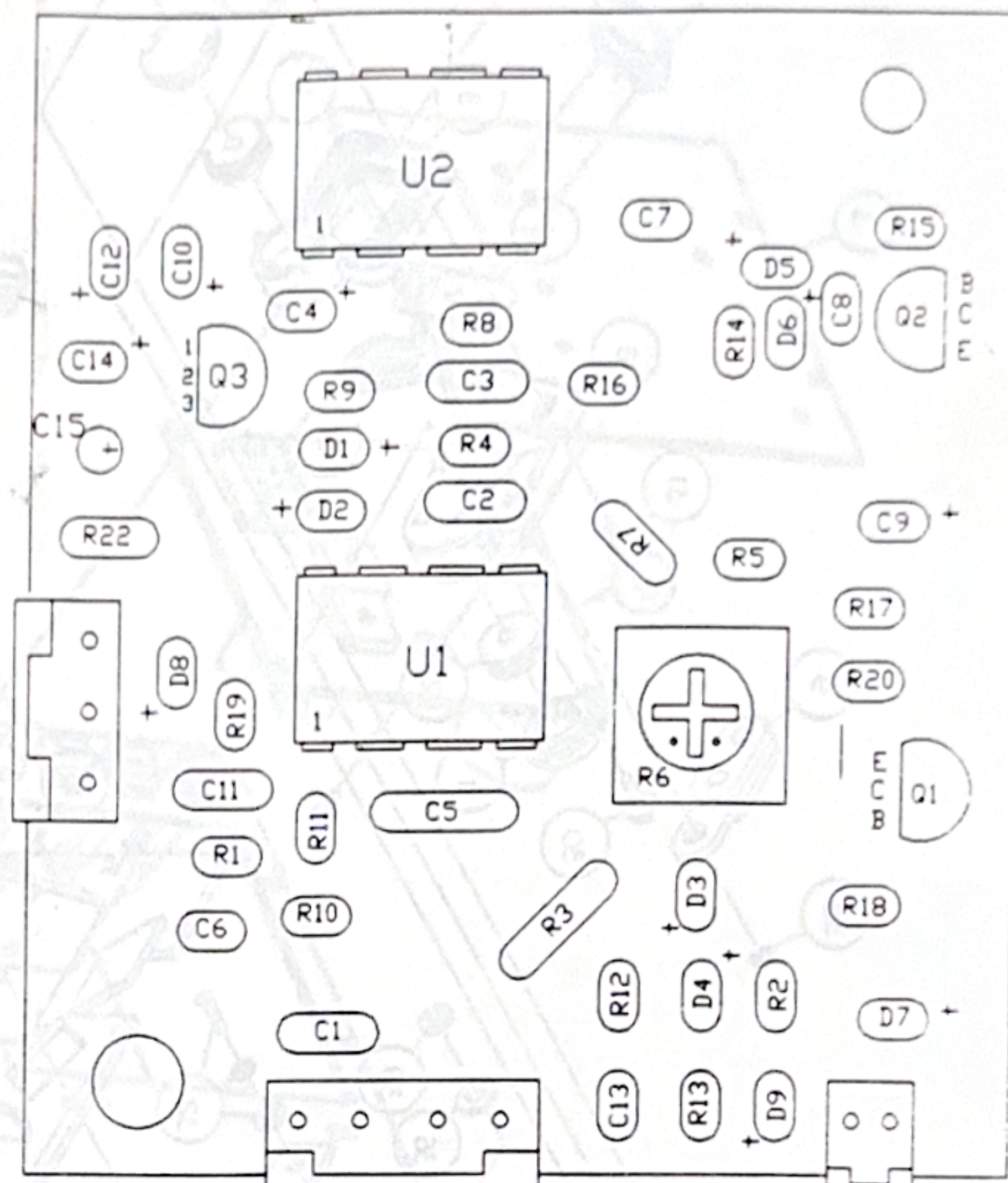
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26. ELECTRONIC DOLLAR ACCEPTOR PARTS LIST

AND P.C. BOARD PARTS LAYOUT

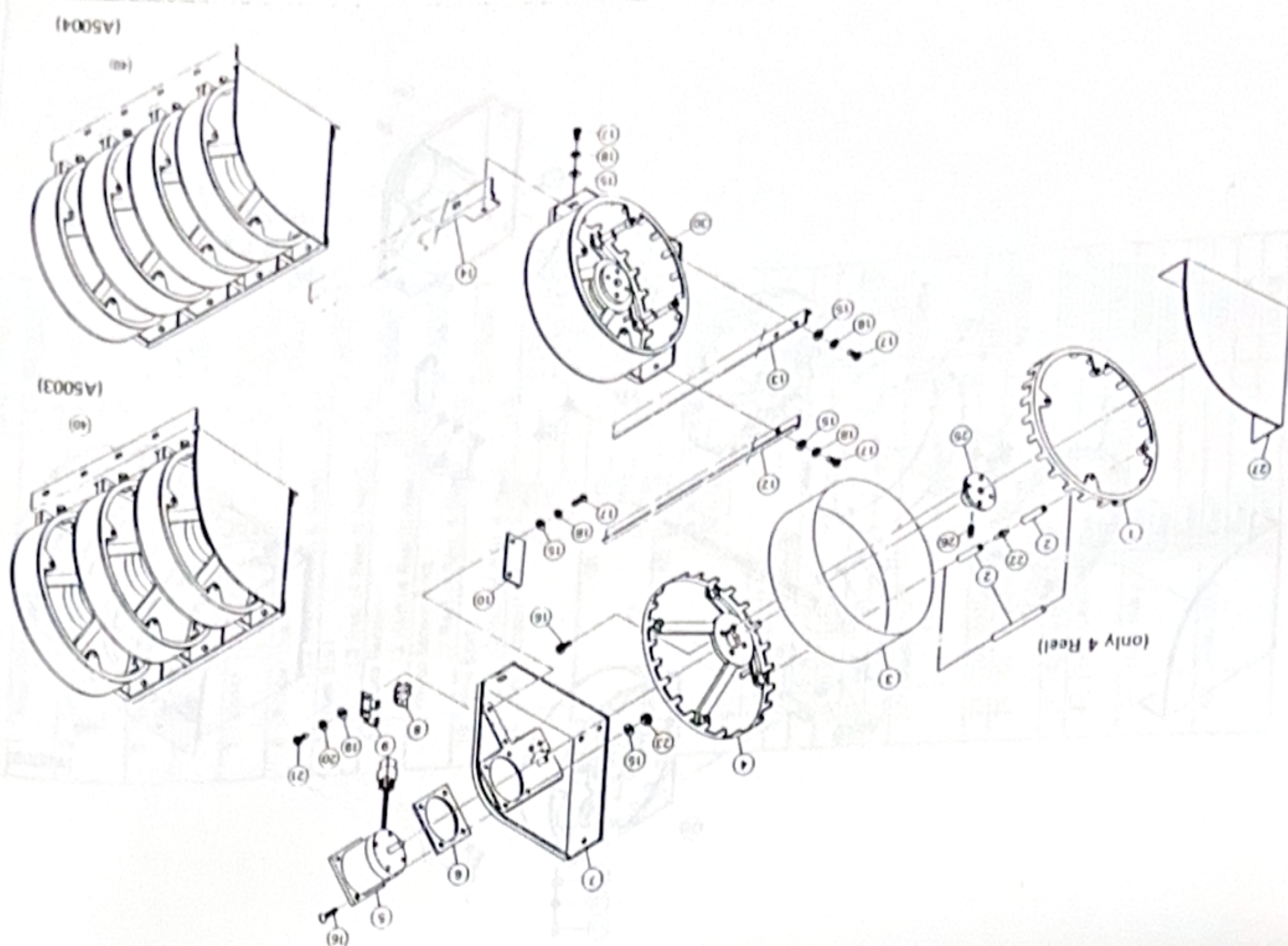
Part Number	Description
R1, R13	1K, 1/4 W resistor
R2, R11, R12, R14, R15, R19	30K "
R3, R10, R16	10K "
R4	220K "
R5, R18	4.7K "
R6	3K P.C. Pot
R7, R17	6.8K 1/4 W resistor
R8	3.3K "
R9	470K "
R20	100K "
R22	300 "
C1, C2, C3, C6, C7	.001 uf Mylar capacitor
C4, C12, C13	1 uf, 25V Tantalum Elect
C5	330 pf Mylar capacitor
C8, C11	.001 uf ceramic capacitor
C9	.68 uf, 35V tantalum electr
C10, C15	1 uf, 35V tantalum elect
C14	4.7 uf, 50V electrolytic
Q1	2SB1116 Transistor
Q2	2SC945 Transistor
Q3	78L12 12 Volt Regulator
U1	IR3F02 Comparator I.C.
U2	IR9393 Comparator I.C.
D1, D5, D6	1N914 or similar
D2, D9	6.2 V Zener diode
D3, D4	4.2 V Zener diode
D7, D8	E5F silicon diode



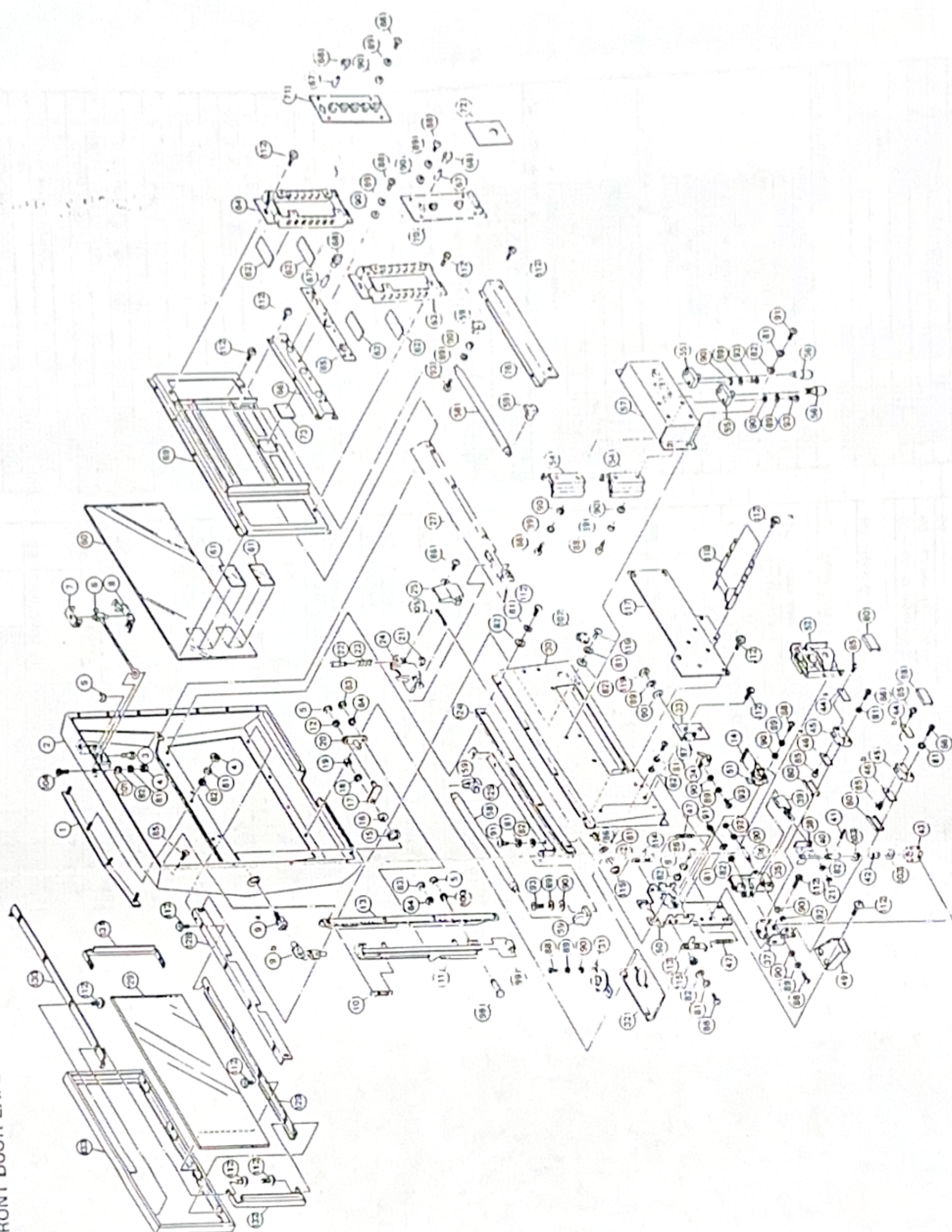
Item No.	Parts Name	Q'ty.	Parts No.
1	Coil Cover	2	S001
2	Coil	1	S002
3	Sensor Base A	1	S003
4	Spacer	1	S004
5	Pendulum	1	S005
6	Sensor Base B	1	S006
9	Weight	1	S007
10	Pin A	1	S008
11	Spring C	1	S009
12	Selector Base A	1	S010
13	Guide	1	S011
14	Mounting Stud	4	S012
15	PCB Cover	1	S013
16	Selector Base B	1	S014
17	Spring A	1	S015
18	PCB Case	1	S016
19	Bushing	2	S017
20	PCB Assy.	1	S018

Item No.	Parts Name	Q'ty.	Parts No.
21	Flopper A	1	S019
22	Flopper B	1	S020
23	Spring	1	S021
24	Solenoid	1	S022
25	Solenoid Base	1	S023
26	Spring B	1	S024
27	Pin B	1	S025
28	Cancel Lever B	1	S026
29	Cancel Lever A	1	S027
30	Fastener (M3x 4 TP)	1	E 1
31	Fastener (M3x10 TP)	2	E 6
32	Fastener (M3x 4 3P)	3	E 50
33	Fastener (M3x 6 3P)	2	E 41
34	Fastener (M3x 6 2P)	2	E 27
35	FW (M 2.5)	3	E 17
36	FW (M4x10x0.8)	1	W 19
37	E-Ring (M 2.5)	3	R 2
38	E-Ring (M 3)	1	R 3
39	E-Ring (M 4)	1	R 4

7.3 AND 4 REEL MECHANISM EXPLODED VIEW



FRONT DOOR EXPLODED VIEW



Item No.	Parts Name	Qty	Parts No.
66	Lamp Housing (C)	1	M114068
67	Miniature Lamp 28V	10	E1402803
68	Lamp Socket	10	E9302000
69	Upper Frame	1	M114067
70	Lamp PC Board (A)		
	[3 Reel Non Credit]	1	A61421
	[5 Reel Credit]	1	A61422
	[3 Reel Credit]	1	A61423
71	Lamp PC Board (B)	1	F6143
72	Film	1	R544001
73	Denomination Sign	1	Refer to Glass List
76	Fluorescent Lamp Guard	1	M1140036
80	Photo Sensor Cover	4	R510016
81	S.W. (M4)		F31004
82	F.W. (M4)		F32004
83	E Ring (M6)	3	F61006
84	F.W. (M8)	3	F31008
85	Screw (M4x6 Flat)		F120406
86	(M4x12 Flat)		F120412
87	(M4x8)		F110408
88	(M3x6)		F110306
89	S.W. (M3)		F32003
90	F.W. (M3)		F31003
91	Screw (M4x6)		F110406
92	E Ring (M2.5)	2	F610025
93	Screw (M3x14)		F110314
98	Pivot Pin	2	M114061
99	Collar	2	M114062
100	F.W. (M7)		F31007
101	Restraining Brkt. (C)	1	M114063
103	Washer	2	M114064
104	Bolt (M4x10)	2	F140410
105	Coin Spacer [US5¢]	1	M124101
	[US10¢]	1	M124102
	[US25¢]	1	M124103
			F110406
112	Screw (M4x6 TP)	1	M114071
113	Coin Acceptor Latch (L)	1	M114072
114	(R)	2	M114069
115	Collar		F110412
116	Screw (M4x12)	1	M1140040
117	Lower Frame Cover	1	M1140041
118	Cansel Shute [Regular Size Coin]	1	M1140042
		1	M1140042
			F21003
119	Nut (M3)	1	M1140043
124	Bottom Glass Case Hook (A)	1	M1140044
125	Fluorescent Lamp Holder	1	M1140045
128	Bottom Glass Case Hook (B)	1	M1140046
129	Bottom Glass Stopper (B)	1	M1140047
	(A)	1	M1140048
130	Shield Brkt. (L)	1	M1140049
132	(R)	1	M1140050
133	Bottom Glass Case	1	M1140050

8. MAIN LOGIC BOARD

At the heart of the Universal main logic board is a Z-80A microprocessor. The Z-80A CPU is a MOSLSI 40-Pin package which operates at a 4 MHz clock rate. This clock rate is provided by X1, an 8.2 MHz crystal and a divide-by-two counter (I.C. 2F). The Z-80A receives its instructions from two (2) EPROMS which are located at 2A and 4A. Input multiplexers 6A, 6B, 7A and 7B are constantly monitored by the CPU for changes in status. Monitoring frequency can vary from 4msec to 20 msec per in-port. If a change in status is detected, the CPU then refers to the EPROMS for further instructions. If the program has determined that an action needs to be taken in response to the change in status of an in-port, the appropriate signals are generated which enable the output latches 6F // 7M which in turn enable the appropriate output port.

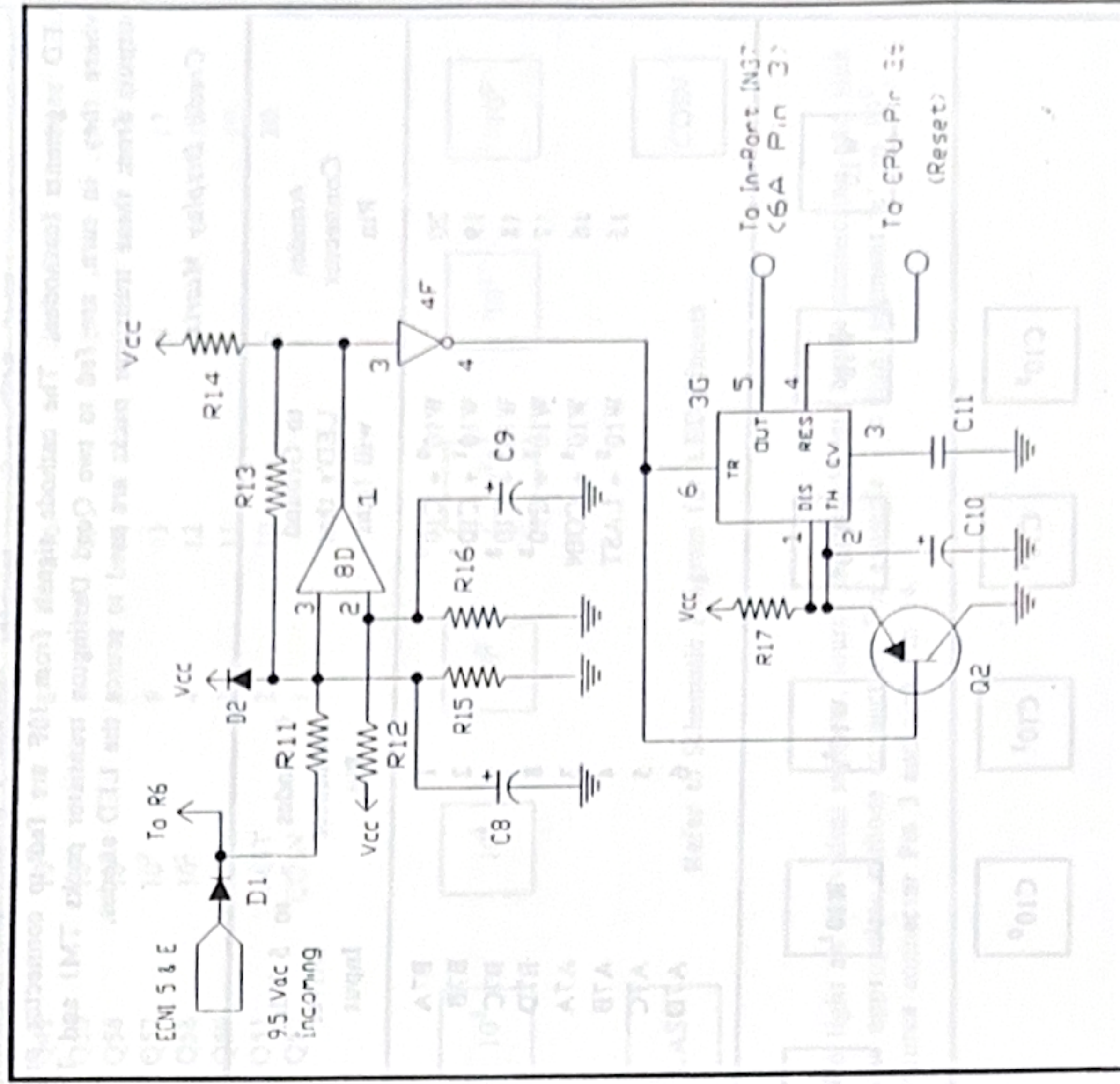
Example : Sequence of events for maximum coin-in. As the coin is inserted, the coin-up optic is activated, then the coin-down optic. The coin-up switching transistor, Q63 and coin-down transistor, Q65, which were on showing a logic LO at IN07 (I.C. 6A Pin 6) and IN17 (I.C. 6A Pin 5) now turn off, putting a logic HI at those in-ports. The program, sensing a change in status in these in-ports, takes the information from 6A at data-bus line D6 and D7 and issues new orders to the CPU to enable latches 6F (Port E4, Pin 11 - Lockout Coil De-Energize), 7H (Port B7, Pin 3 - Turn off Insert Coin Lamp and Port E7, Pin 11 - Increment Coin-In Electromechanical Meter), 6M (Port 32, Pin 7 - Increment Coin Lamp) and the appropriate latches for 7-Segment display. By activating these latches, the ports E4, B7, E7 and 32 are sent logic HI turning on transistors Q41, Q35, Q53 and Q14 resp. (omitting the LED signals). The CPU will now wait for further input action, either handle pull or spin button activation.

9. POWER-UP DELAY CIRCUIT

Upon initial power-up, the CPU does not receive its 5 Vdc supply until the power supply has stabilized voltage available. This occurs only after the 5 Vdc filter capacitor has fully charged and the 5 Volt regulator can supply the necessarily regulated 5Vdc. Looking at the circuitry, timer 2G requires a trigger at pin 2 to 'turn on' and this trigger is supplied by Q3. Q3, through voltage divider R23-R24, will turn on only when Vcc reaches 5 Vdc. The CPU then receives the soft-reset signal at pin 26.

10. LOW-VOLTAGE LINE SENSING

The 9.5 Vac winding on the secondary of the transformer in the power supply is connected directly to the main logic board at ECN-1 pins 5 and E. If the incoming voltage drops below proper operating level - to approximately 92 Vac - the change will be felt on Pin 3 of Voltage Comparator 8D. The imbalance at the comparator results in a trigger signal sent to I.C. 3G / 1 (Pin 6). The output (Pin 5) is then felt as an input signal on the 6A decoder (Port IN37) which then forwards this in-port status change to the CPU. Upon receiving this particular in-port signal, the CPU shuts down operation and displays the appropriate "11" code and goes into TILT mode.



Line Voltage Sensing Circuitry (for component values, refer to main schematic)