

# **ATTACK**

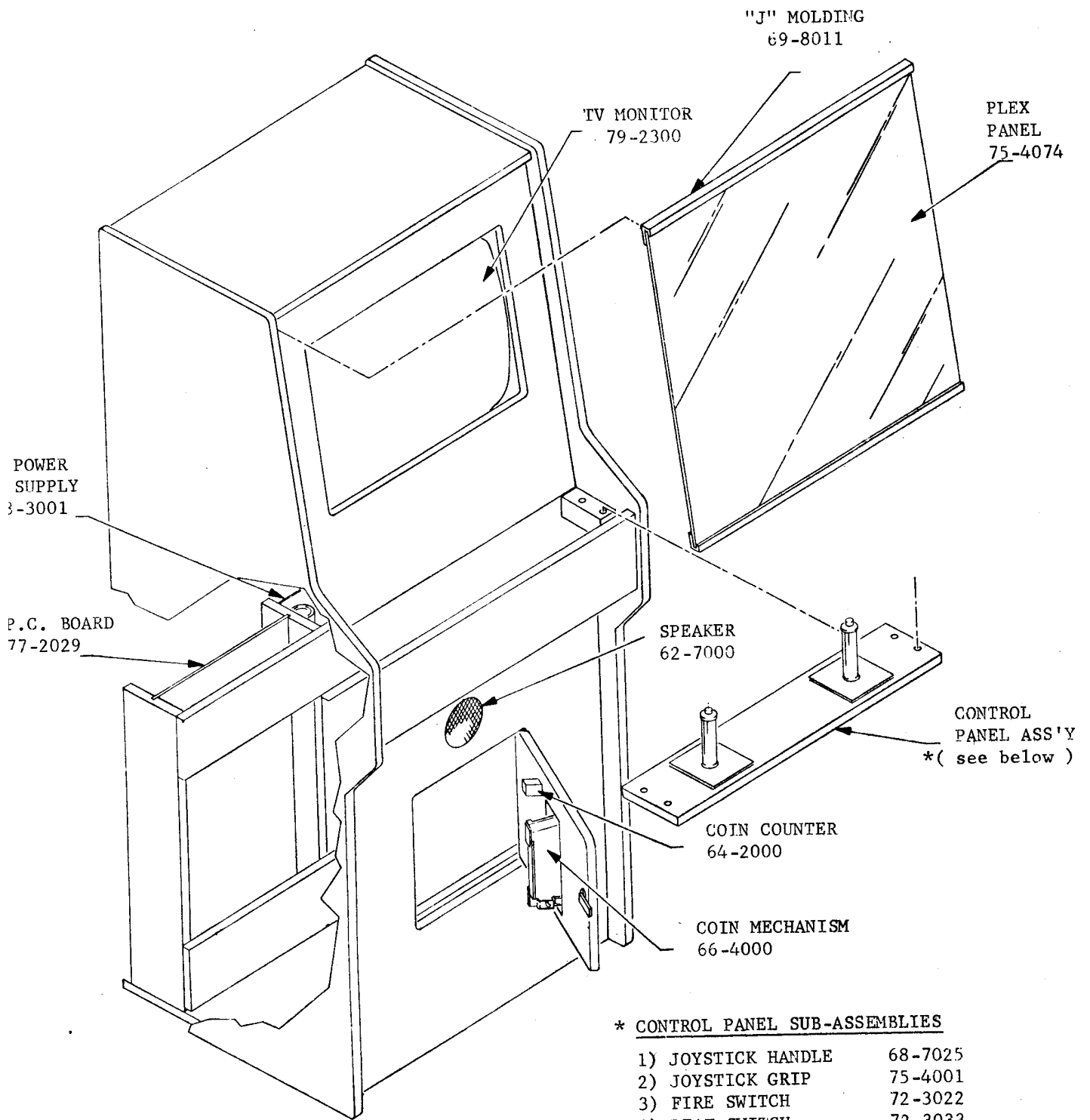
BY *Exidy*

**SERVICE MANUAL**

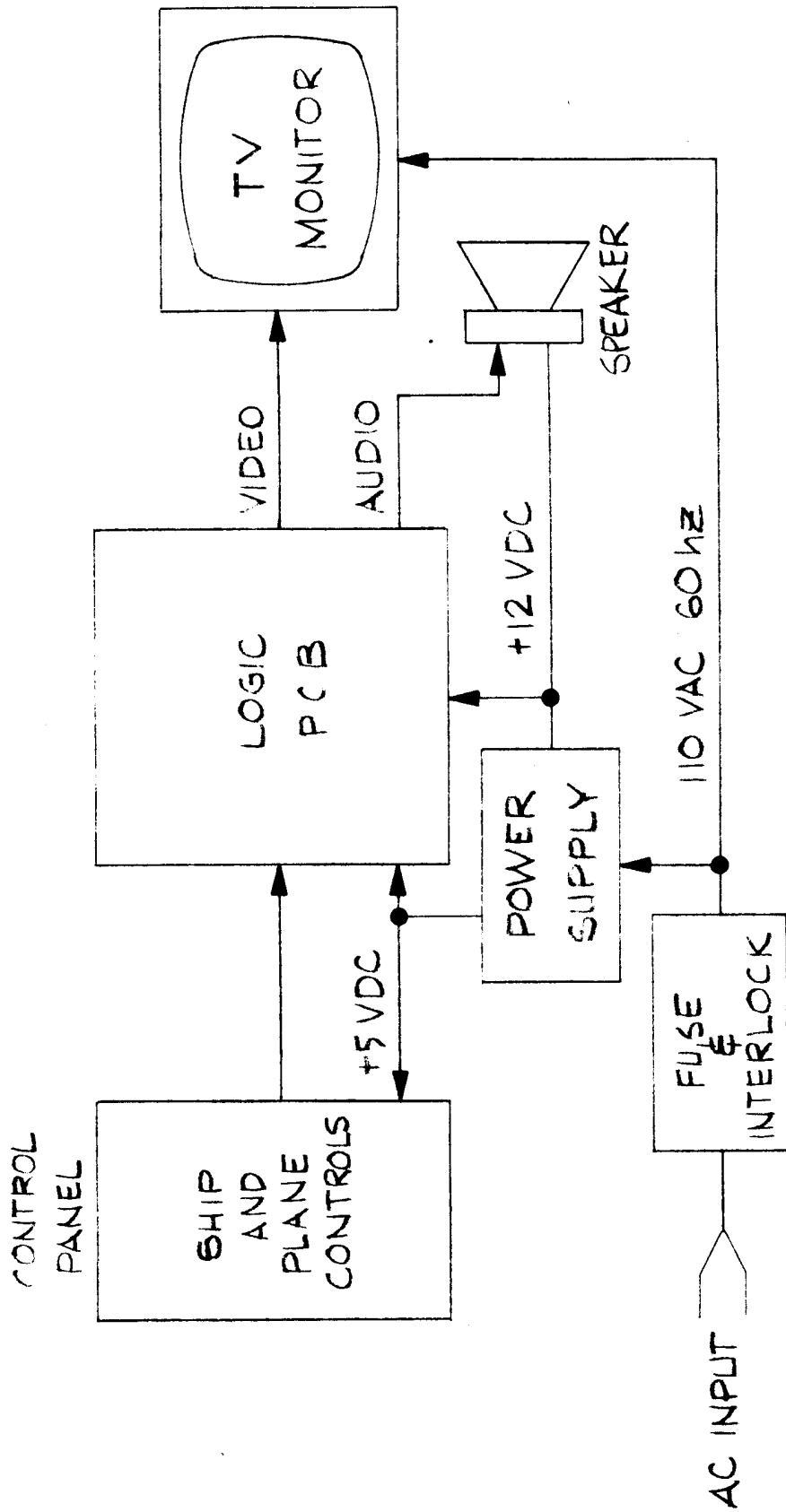
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SYSTEM BLOCK DIAGRAM



## ATTACK

### I. Adjustments

#### A. Power Supply Adjustment

Proper operation of this game is absolutely dependent on proper adjustment of the +5vdc power supply.

Before attempting to operate or troubleshoot this game, measure and adjust, as necessary, the +5vdc power supply voltage.

Measure voltage with meter leads contacting +5vdc and ground traces on P.C.B., near the 6 pin connector.

The power supply voltage is set at the factory, but shocks due to shipping and handling may cause this setting to vary.

#### B. Volume Adjustment

Sound volume is adjustable using the pot on the P.C.B. nearest the 22 pin connector.

#### C. Game Time Adjustment

Game time (length of game) is adjustable using the pot on the P.C.B. nearest the 6 pin connector.

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Troubleshooting Tips

<u>SYMPTOM</u>	<u>POSSIBLE CAUSE</u>	<u>SOLUTION</u>
<u>Nothing happens</u>	<u>Blown fuse</u>	<u>Replace</u>
	<u>Interlock switch not closing</u>	<u>check switch alignment</u>
<u>Game blows fuses</u>	<u>Bad TV Monitor</u>	<u>Repair or replace</u>
	<u>Bad power supply</u>	<u>Repair or replace</u>
<u>Game has sound but no picture</u>	<u>Bad P.C.B.</u>	<u>Repair or replace</u>
	<u>Bad TV Monitor</u>	<u>Repair or replace</u>
	<u>No +5vdc</u>	<u>Check output of power supply for +5vdc. If not present, replace power supply.</u>
<u>Game has picture but no sound</u>	<u>Bad P.C.B.</u>	<u>Repair or replace</u>
	<u>No +12vdc</u>	<u>Check power supply harness. Wire attached to cap should have +12vdc.</u>
<u>Game does not start with coin</u>	<u>Bad speaker</u>	<u>Replace</u>
	<u>Bad P.C.B.</u>	<u>Repair or replace</u>
<u>All controls completely inoperative</u>	<u>Bad coin mechanism</u>	<u>Check microswitch and mechanism.</u>
	<u>Bad P.C.B.</u>	<u>Repair or replace</u>
<u>Some controls inoperative</u>	<u>Ground wire to control harness open (disconnected)</u>	<u>Repair</u>
	<u>Bad P.C.B.</u>	<u>Repair or replace</u>
<u>Game is erratic. Seems to work OK sometimes, other times not.</u>	<u>Bad leaf switches in control panel</u>	<u>Replace (even if just bent). Once bent, switch is unreliable.</u>
	<u>Low +5vdc power</u>	<u>Adjust power supply. Measure voltage with test leads on P.C.B. (near 6 pin connector).</u>
<u>Game is static sensitive</u>	<u>Bad P.C.B.</u>	<u>Repair or replace</u>
	<u>Carpet</u>	<u>Solder 12" long 22 awg. insulated wire to pin 20 of J2 (P.C.B. 22 pin connector). Leave one end hanging loose, taking care that wire is properly insulated. If game shuts off too easily then, trim the wire shorter as necessary.</u>
	<u>Weather</u>	
	<u>Nearby devices generating high voltages and/or high frequencies.</u>	

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P.C. BOARD CONNECTOR PINOUT

- 1. } GND
- 2. }
- 3. } +5V
- 4. }
- 5. } GND
- 6. }

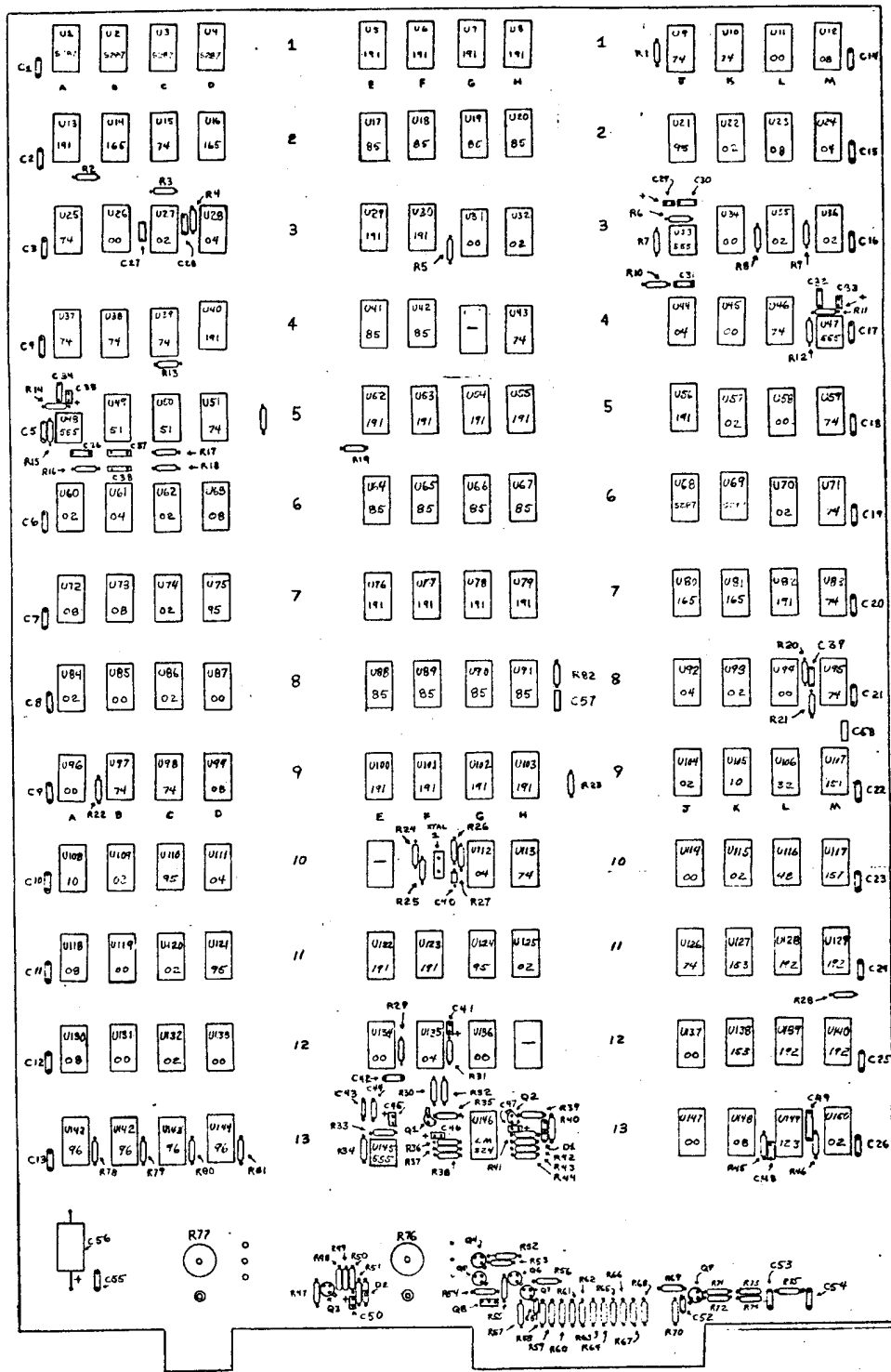
- 1. +12v (and one side of SPKR)
- 2. SPKR (direct)
- 3. GND
- 4.
- 5.
- 6.
- 7. \*SML.....(ship move left)
- 8. \*SMR.....(ship move right)
- 9. \*SHP GR.....(ship gun right)
- 10. \*SHP GL.....(ship gun left)
- 11. \*SBF NO.....(ship button fire)
- 12. SBF NC.....(ship button fire)
- 13. \*PBF NO.....(plane button fire)
- 14. \*PBF NC.....(plane button fire)
- 15. \*PLN SPD FST...(plane speed fast)
- 16. \*PLN RCCW.....(plane rotate counter-clockwise)
- 17. \*PLN RCW.....(plane rotate clockwise)
- 18. COIN.....(coin drop)
- 19. GND
- 20. ANT.....(anti-static antenna)
- 21. VIDEO RETURN
- 22. TV VIDEO

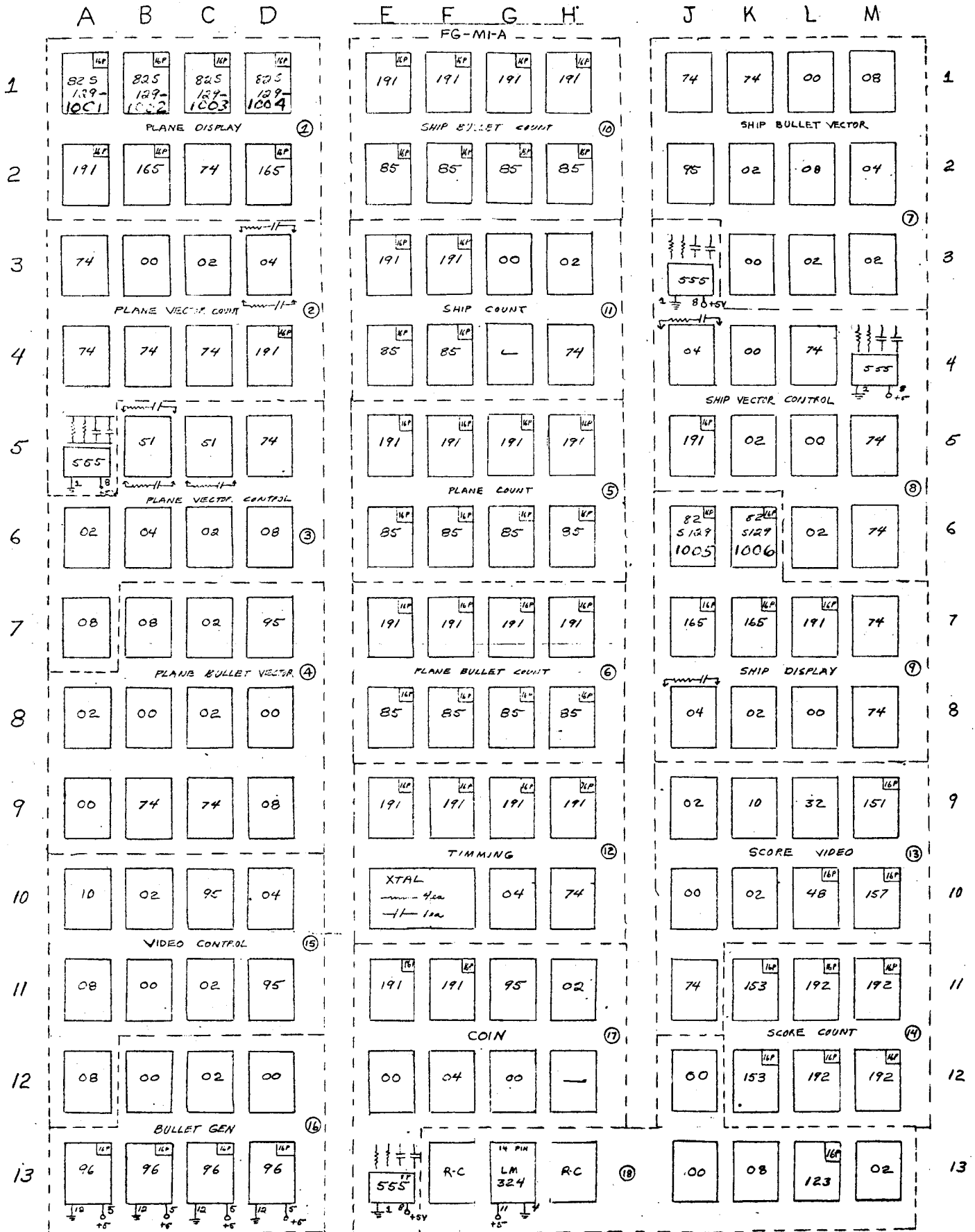
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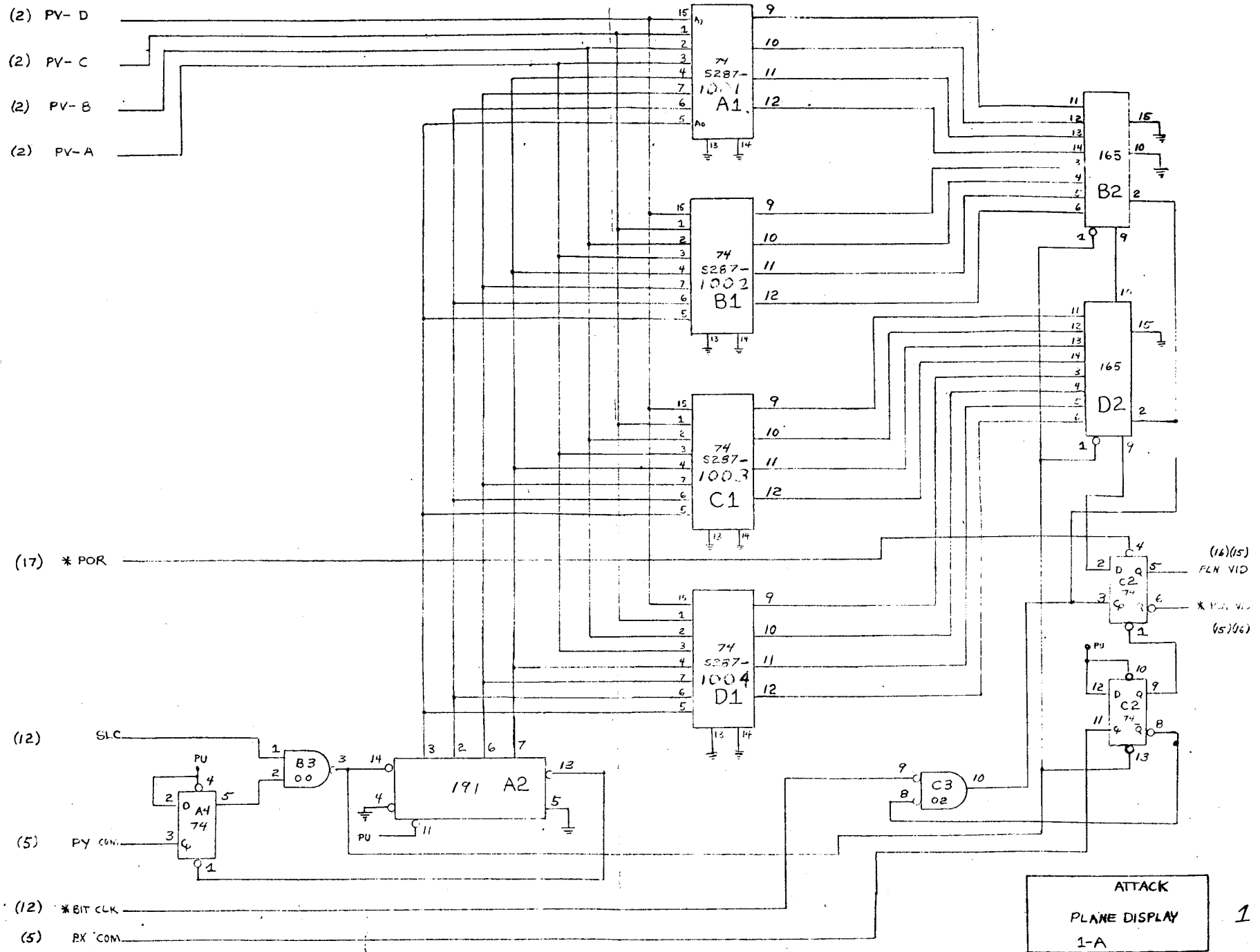
LOGIC DIAGRAM 1A

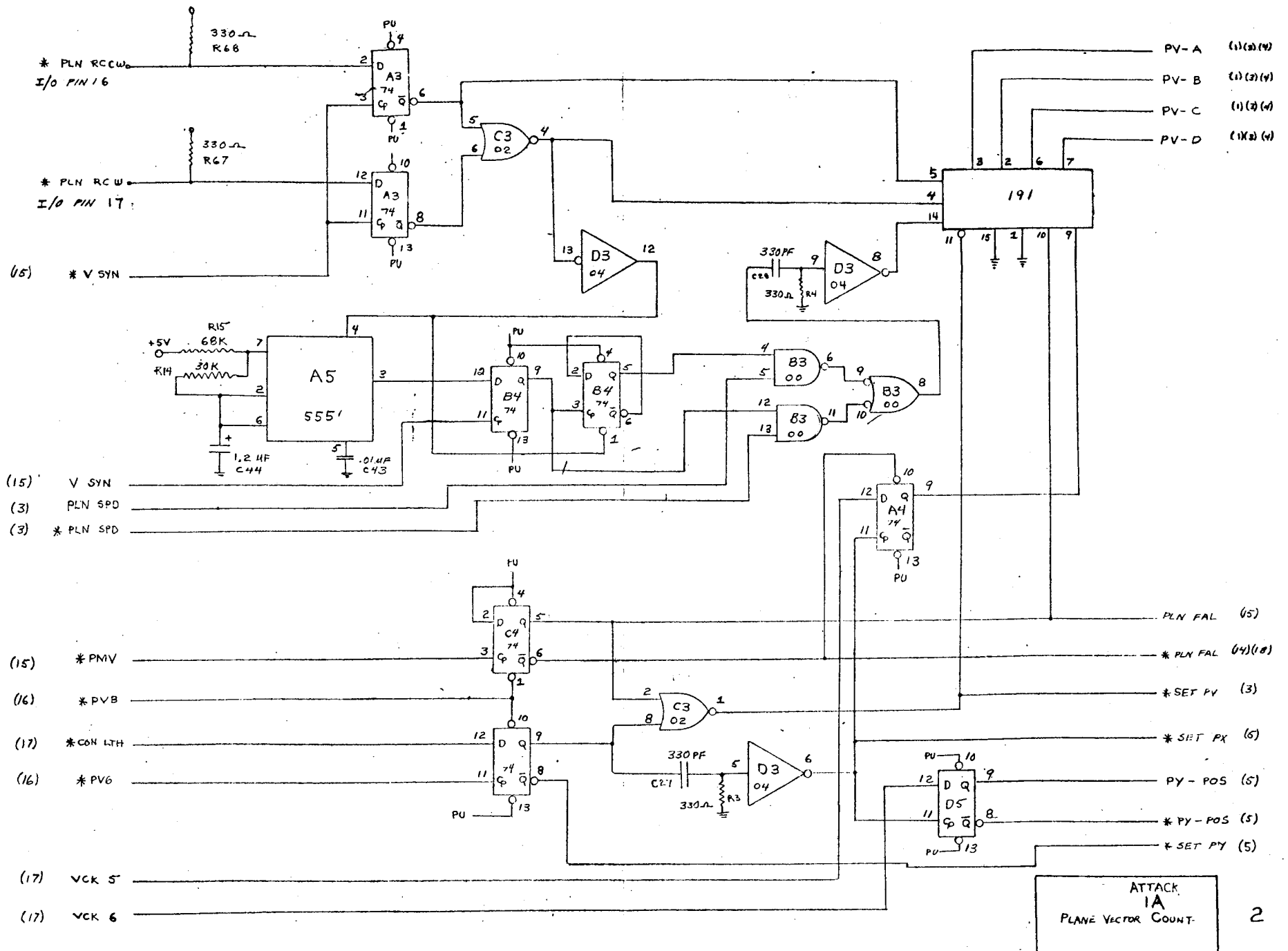


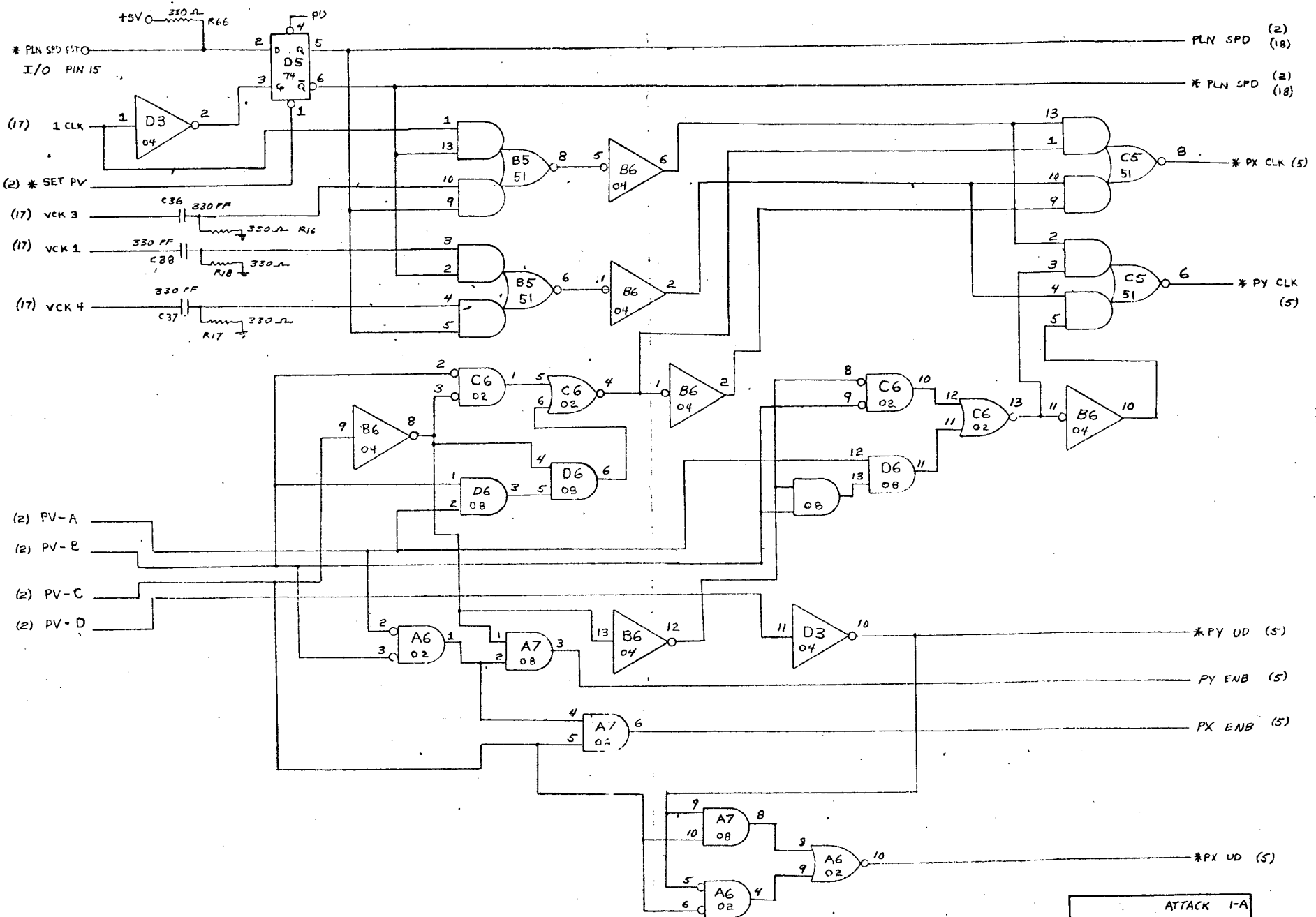




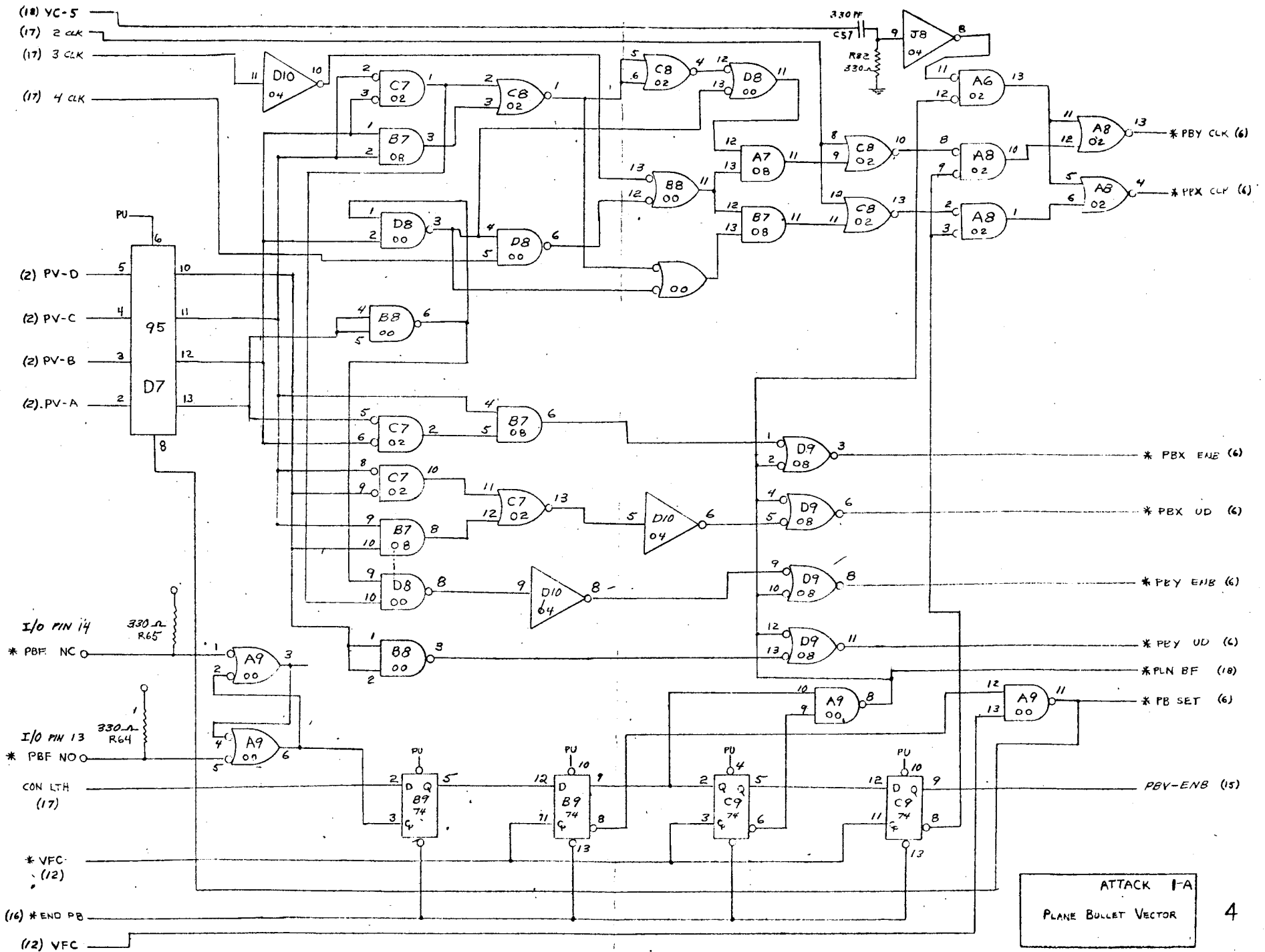
1-A  
ATTACK IC LOCATION

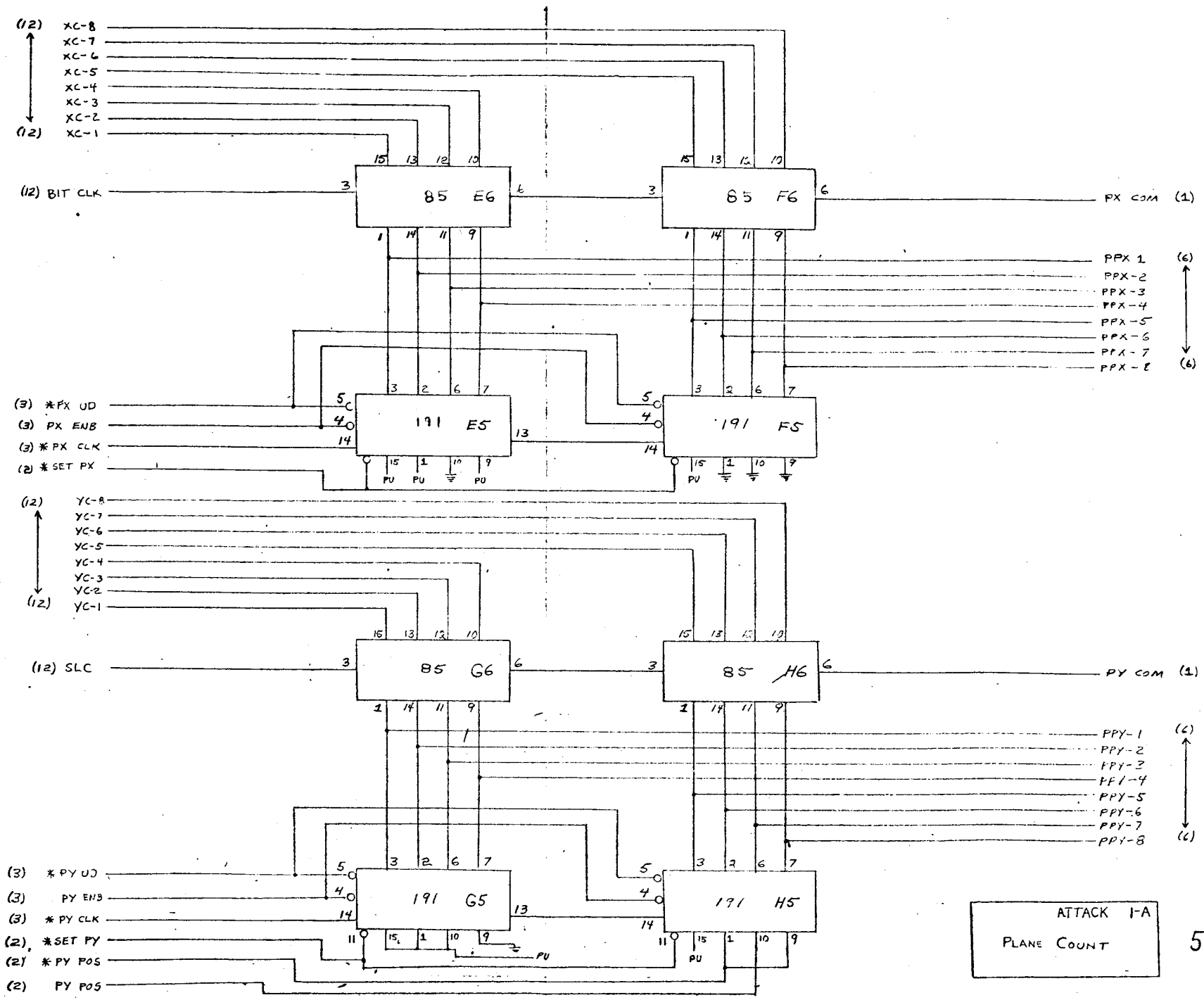




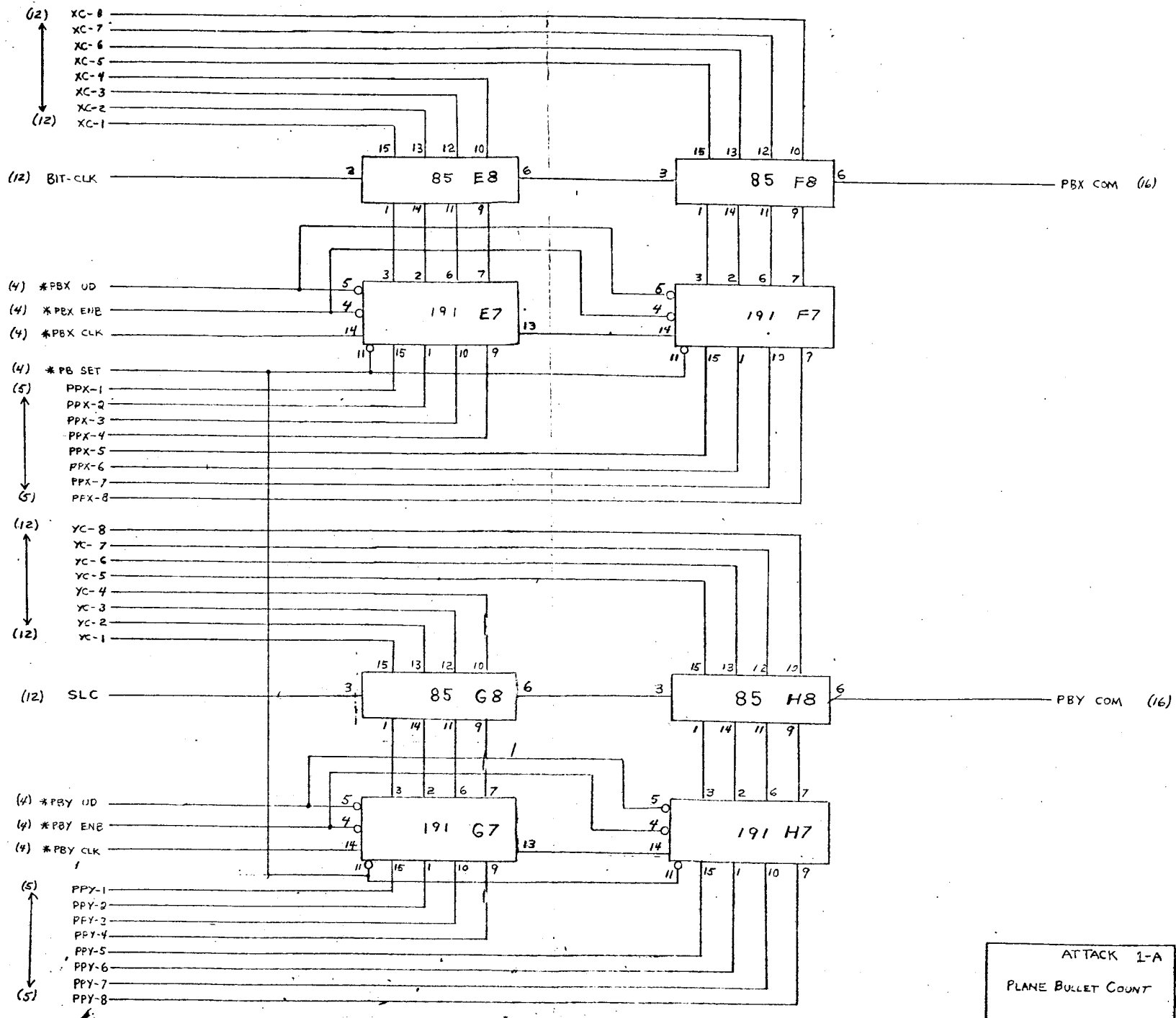


ATTACK 1-A  
PLANE VECTOR CONTROL



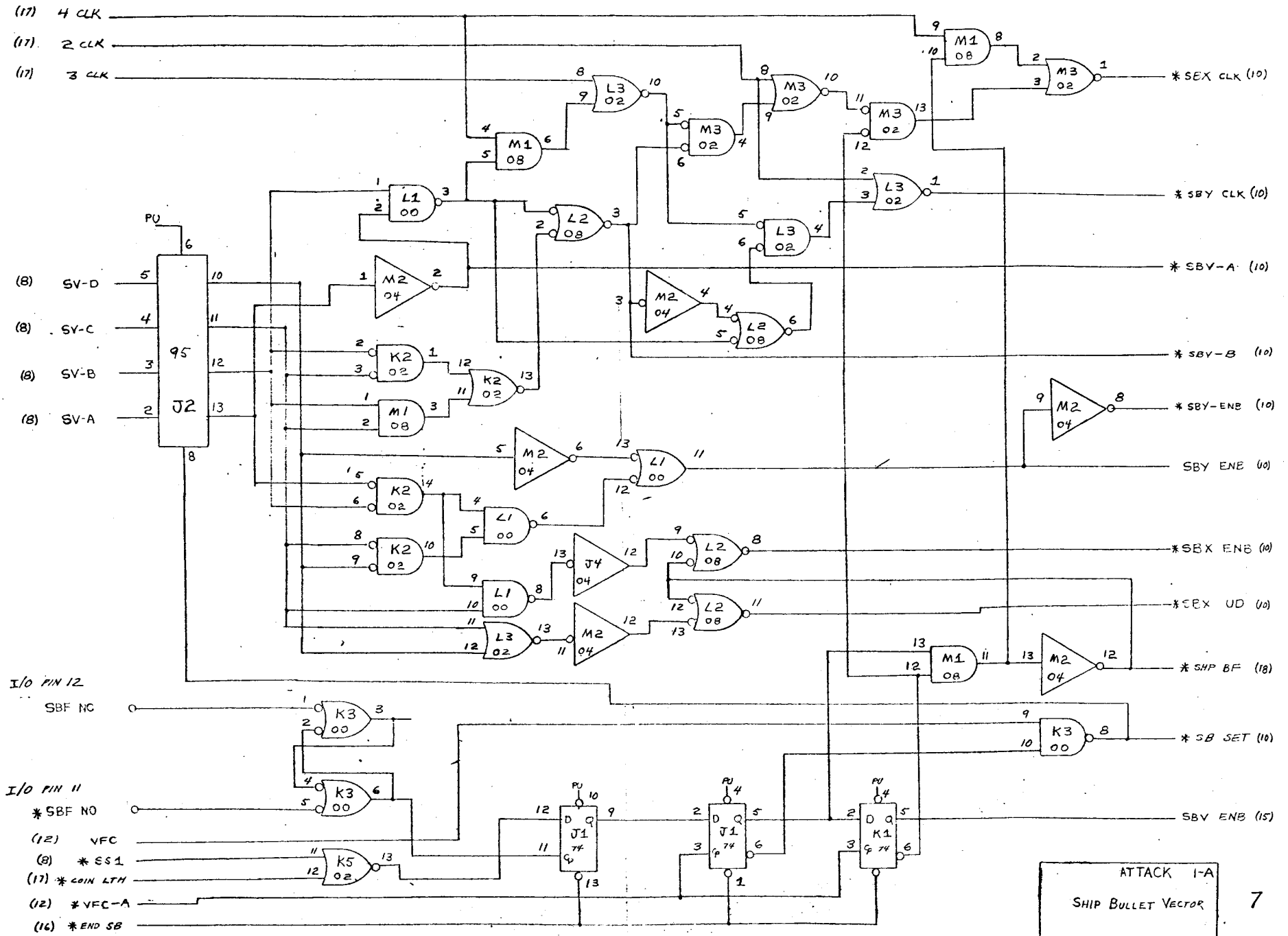


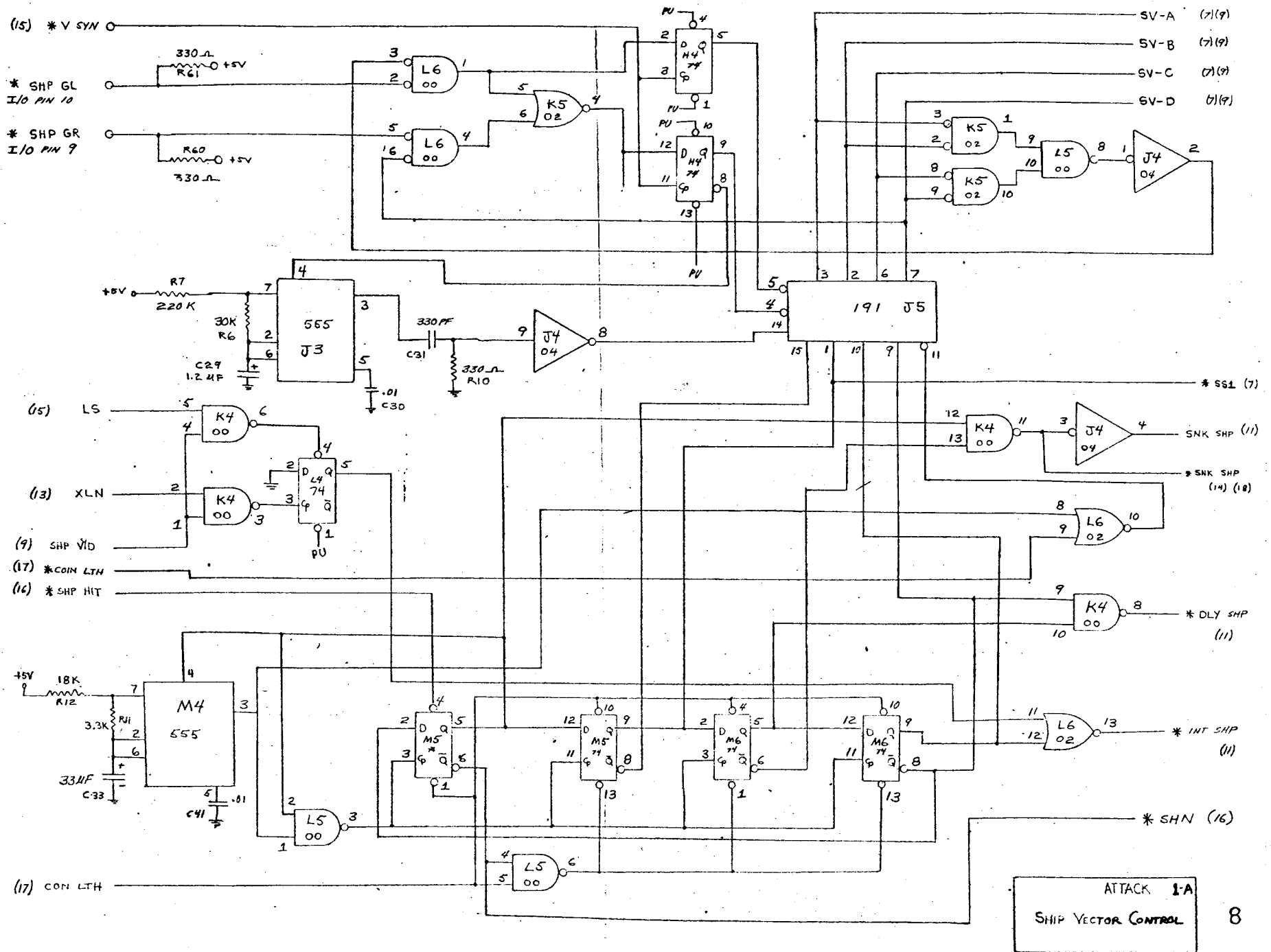
ATTACK I-A  
PLANE COUNT

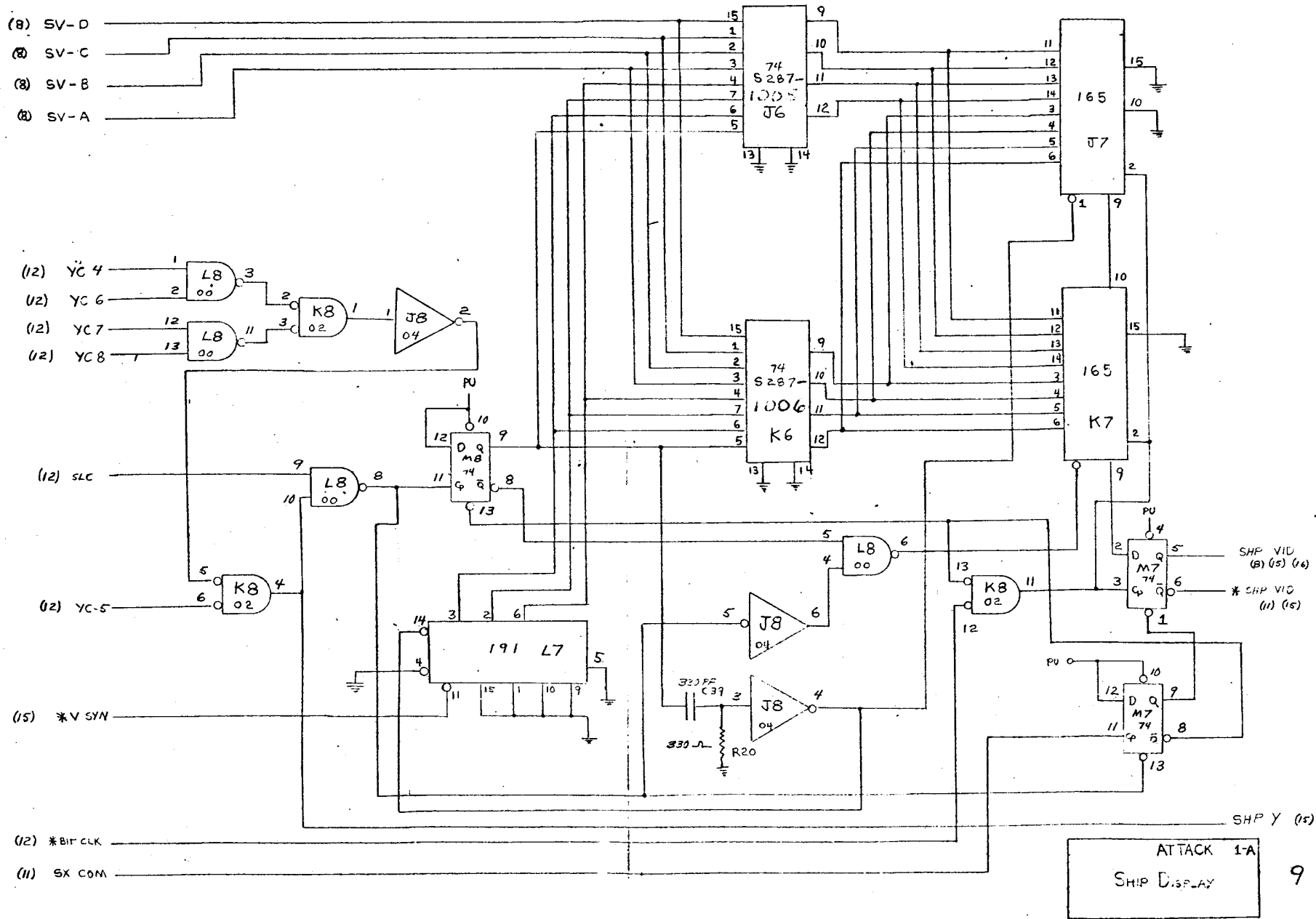


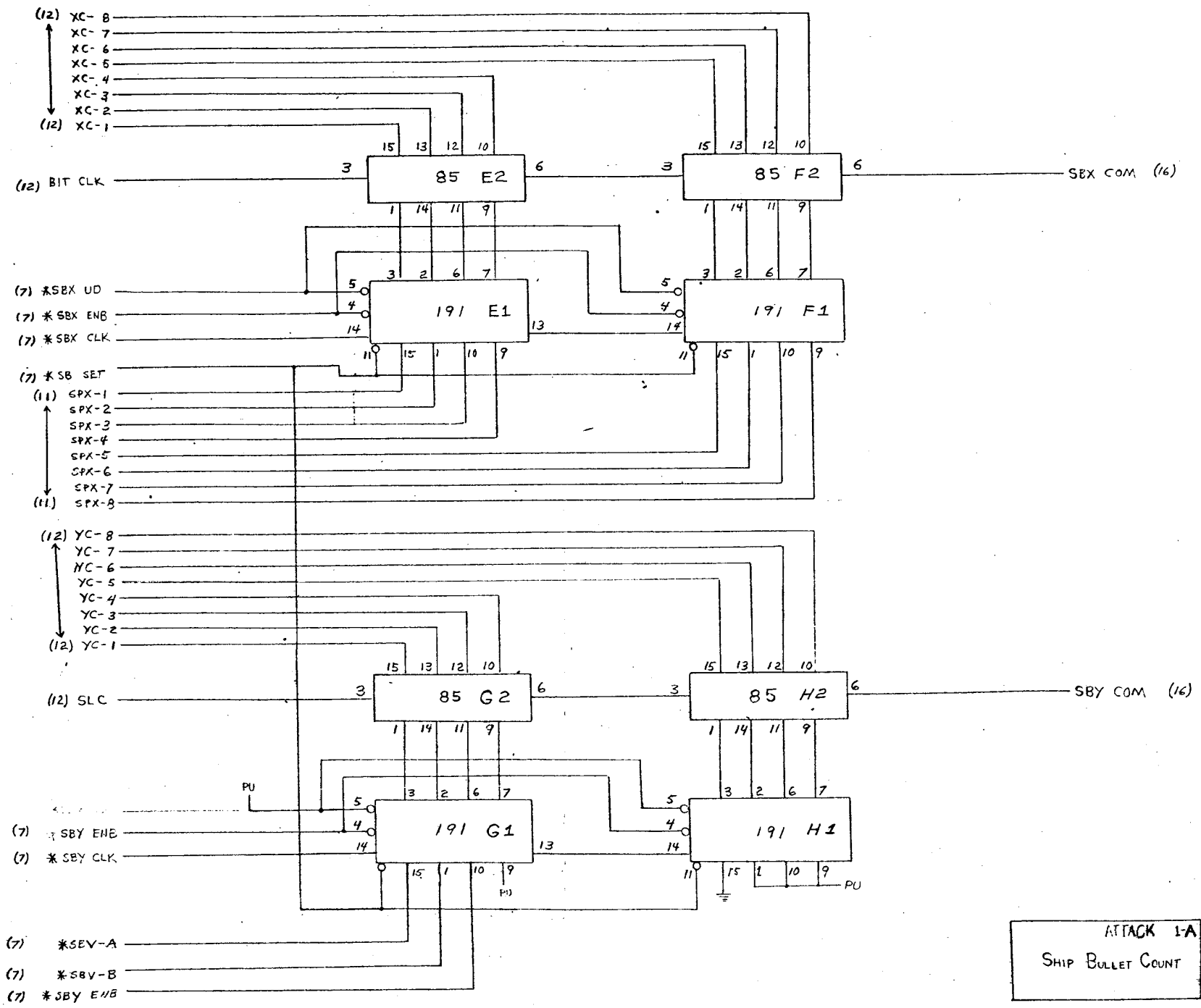
ATTACK 1-A  
PLANE BULLET COUNT



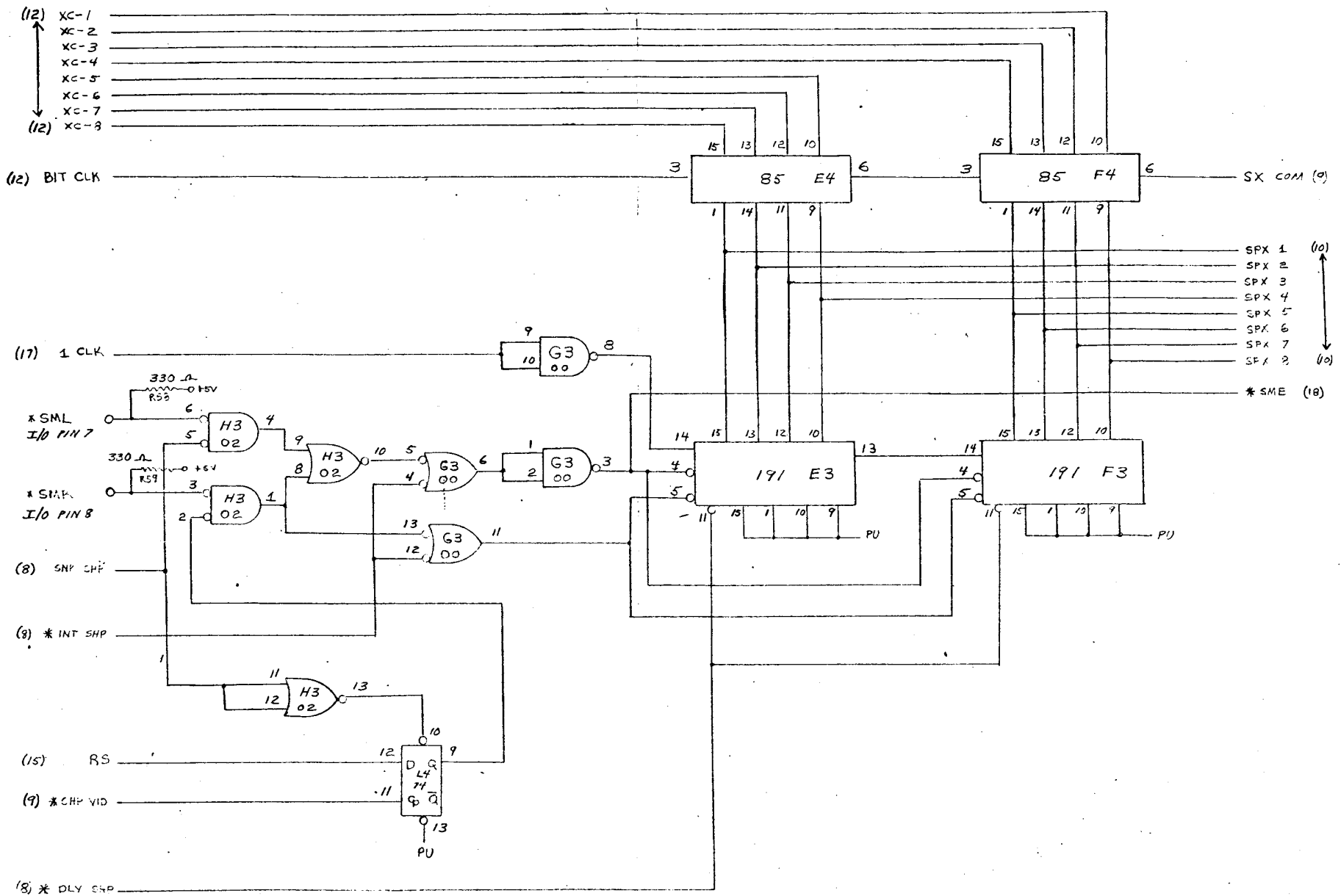




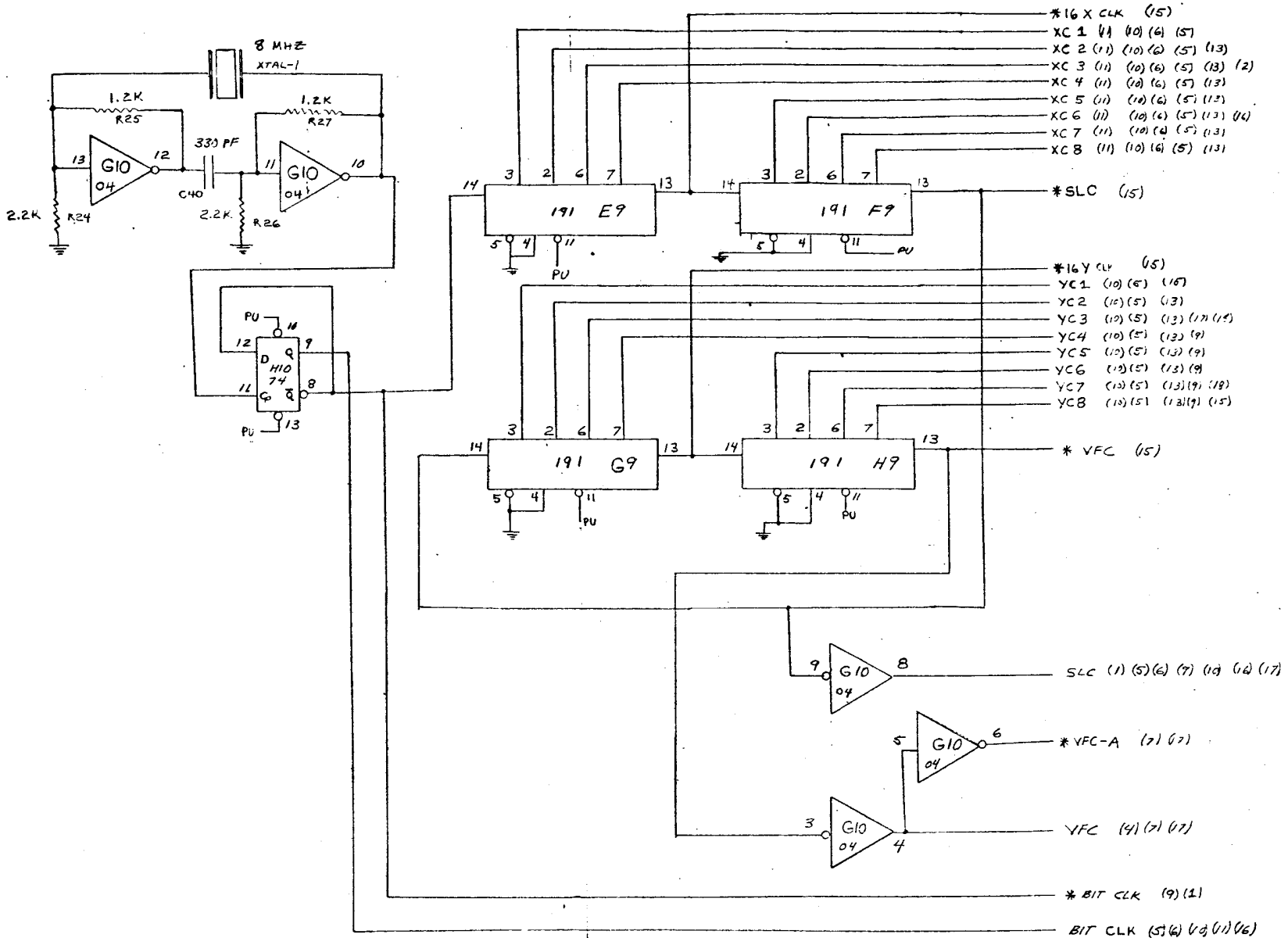




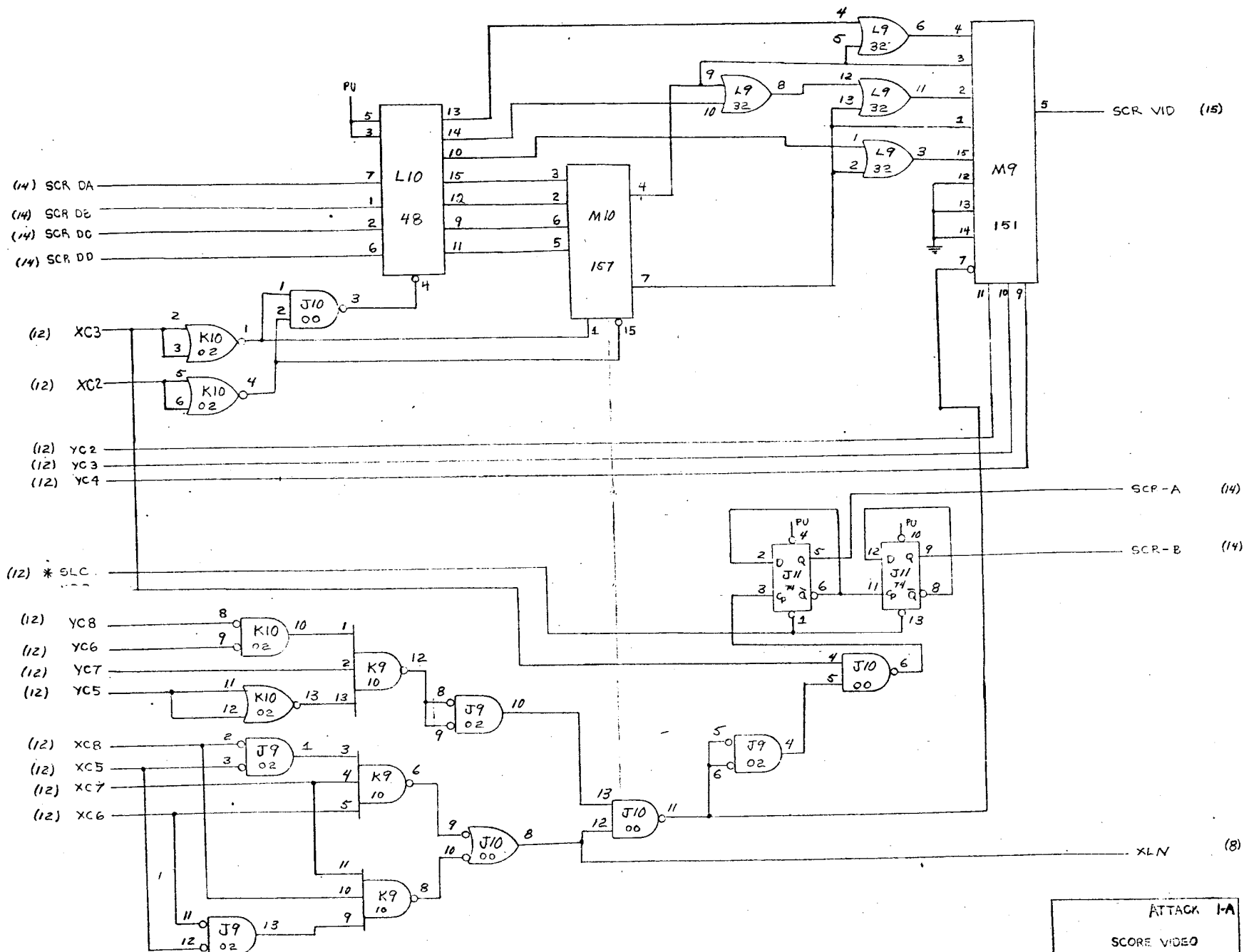
ATTACK 1-A  
SHIP BULLET COUNT



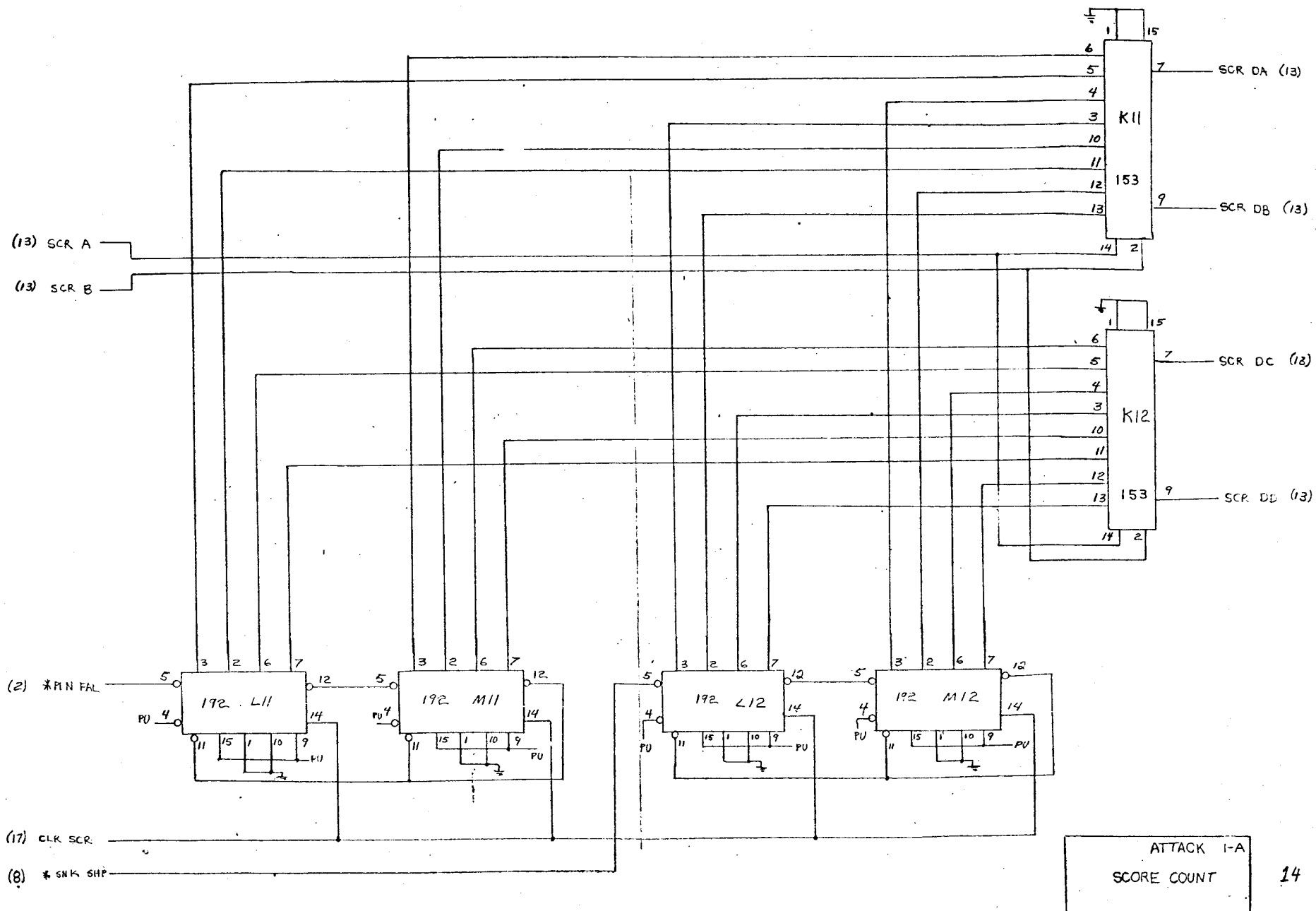
ATTACK 1-A  
 SHIP X COUNT



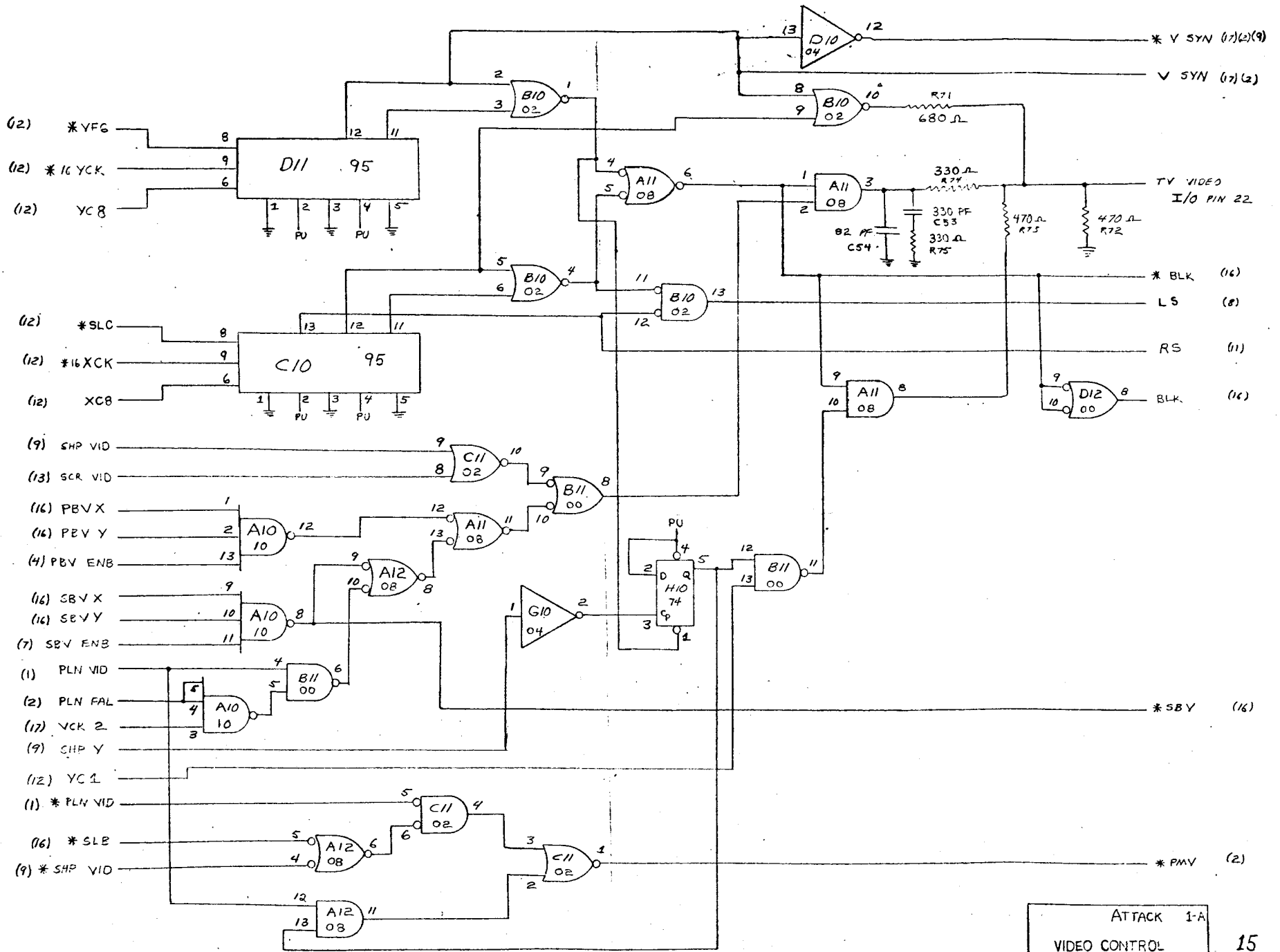
ATTACK 1-A  
 TIMING



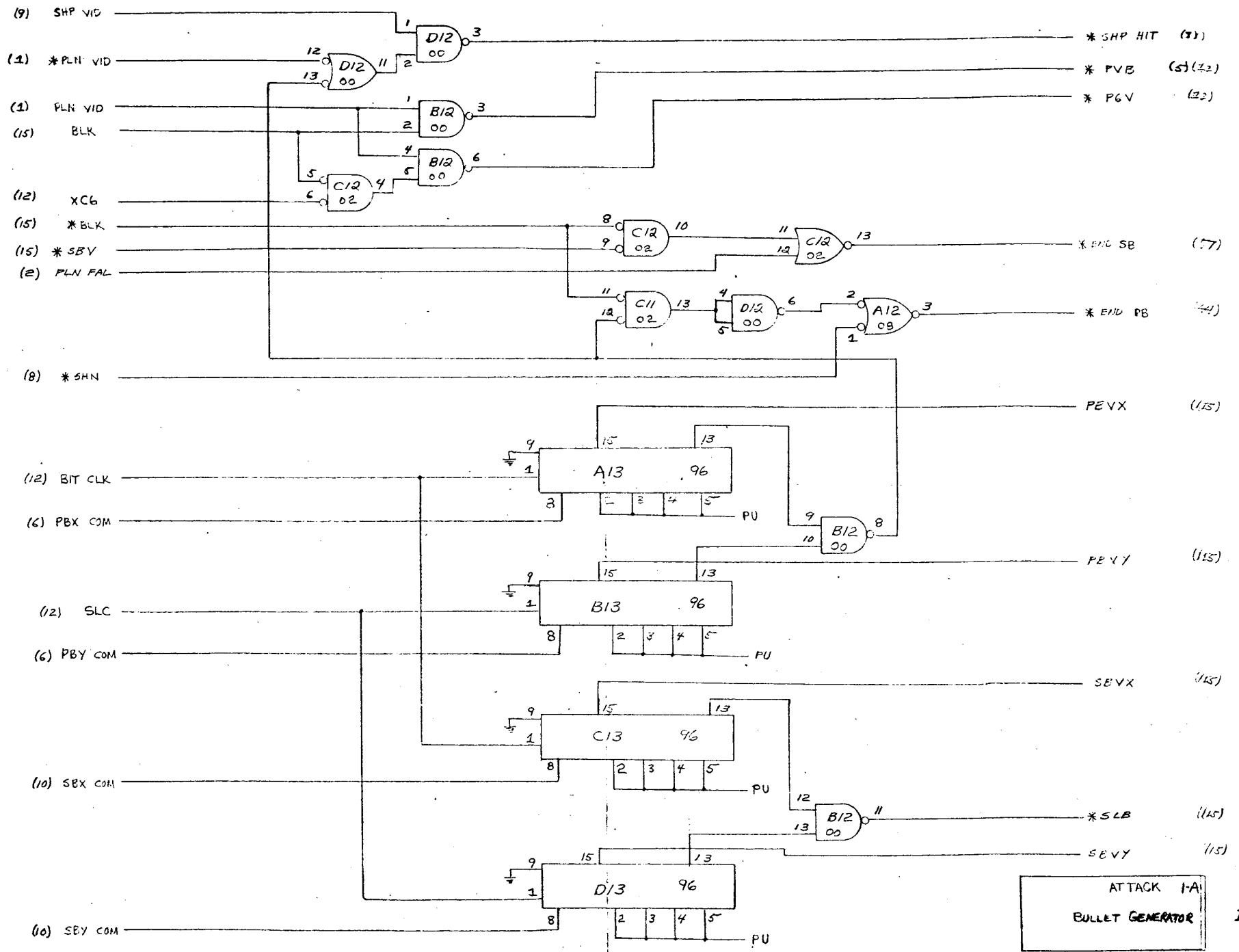
ATTACK 1-A  
SCORE VIDEO





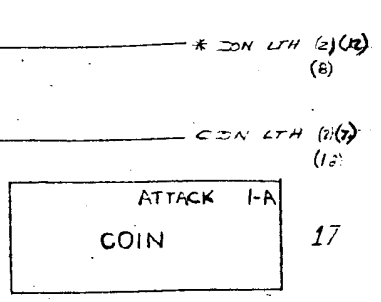
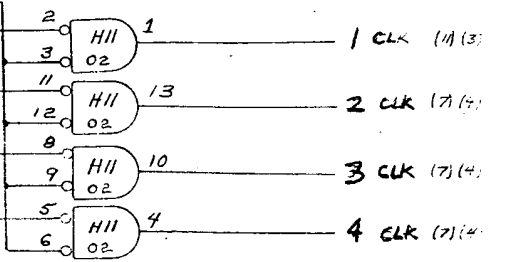
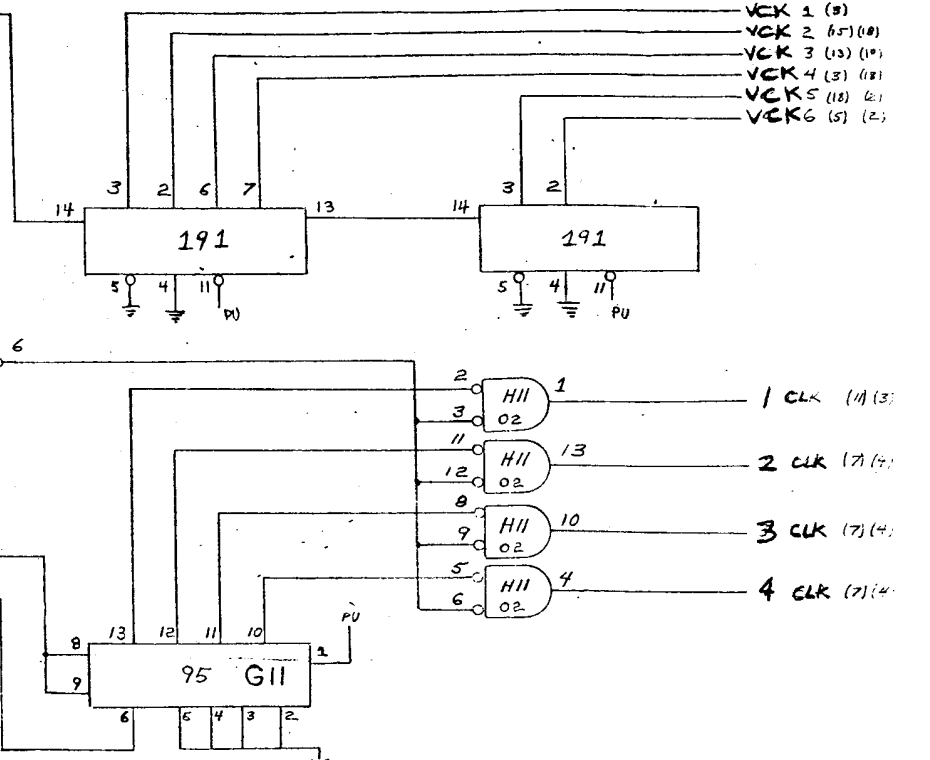
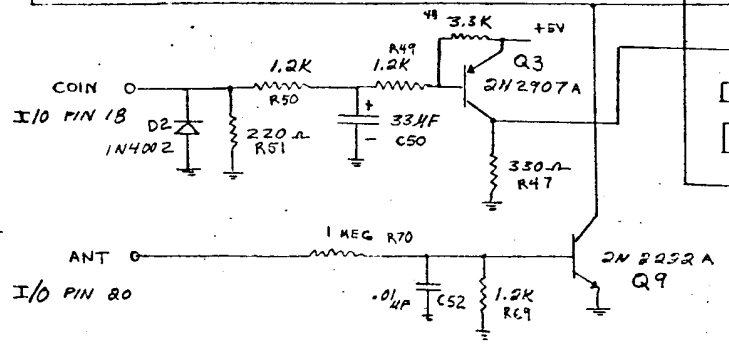
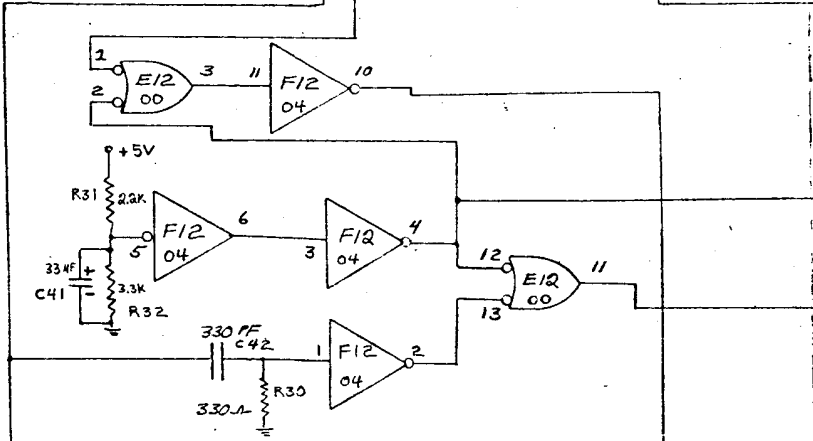
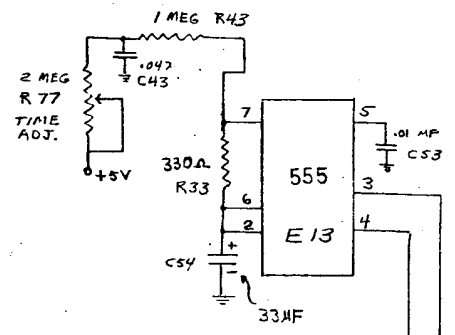


ATTACK 1-A  
VIDEO CONTROL

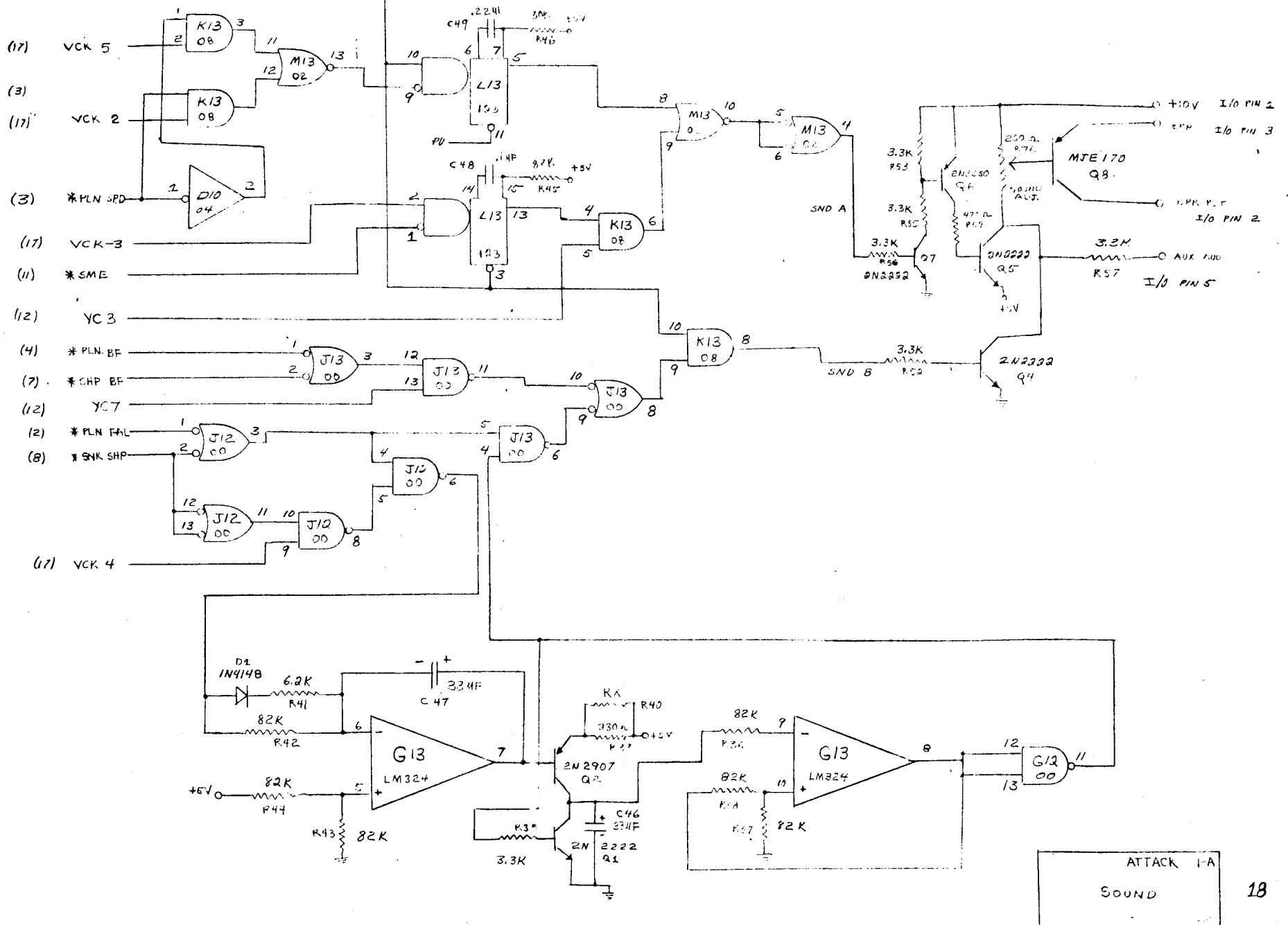


(12) \*VFC  
 (62) SLC  
 (15) V 5YC  
 (55) \*V 5YC

VCK 1 (8)  
 VCK 2 (5)(10)  
 VCK 3 (13)(10)  
 VCK 4 (3)(18)  
 VCK 5 (18)(2)  
 VCK 6 (5)(2)



(17) CON LTH



ATTACK I-A  
SOUND