

METEOR VICTEUR



STERN

ELECTRONICS, INC.

1725 Diversey Parkway, Chicago, Illinois 60614

(312) 935-4600, Telex 25-4657

Toll Free Service Assistance (800) 621-6424

I. INSTALLATION

Assemble the game as follows:

Bolt legs to cabinet. Using flat washers under bolt heads, bolt back box to cabinet. Feed cable connectors and ground braid through cable port in back box. Screw ground braid to braid in back box. Insert connectors so they are completely seated on printed circuit board assemblies.

On all games there are some items that must be checked after shipment. Making these visual inspections may avoid time consuming service work later. Minor troubles caused by abusive handling in shipment are unavoidable. Cable connectors may be loosened, switches (especially tilt switches) may go out of adjustment. Plumb bob tilt switches should always be adjusted after game is set on location and leg levelers are adjusted.

Visual inspections before plugging in line cord:

1. Check wiring of transformer to correspond to location voltage.
2. Check the transformer for any foreign material shorting across wiring lugs.
3. Check that fuses are firmly seated and making good contact.
4. Check wire on coils for proper soldering. Cold solder connections may not show up in factory inspection, but vibration in shipment may break contact.
5. Check switches for loose solder or other foreign material that may have come loose in shipment and could cause shorting of contacts.
6. Check for any wires that may have become disconnected.
7. Check that all cable connectors are completely seated on printed circuit board assemblies.
8. Check that cables are clear of all moving parts.

Check adjustment of the three (normally open) tilt switches:

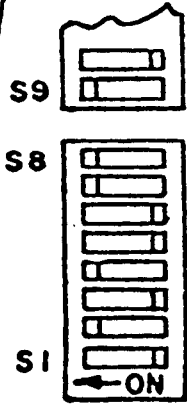
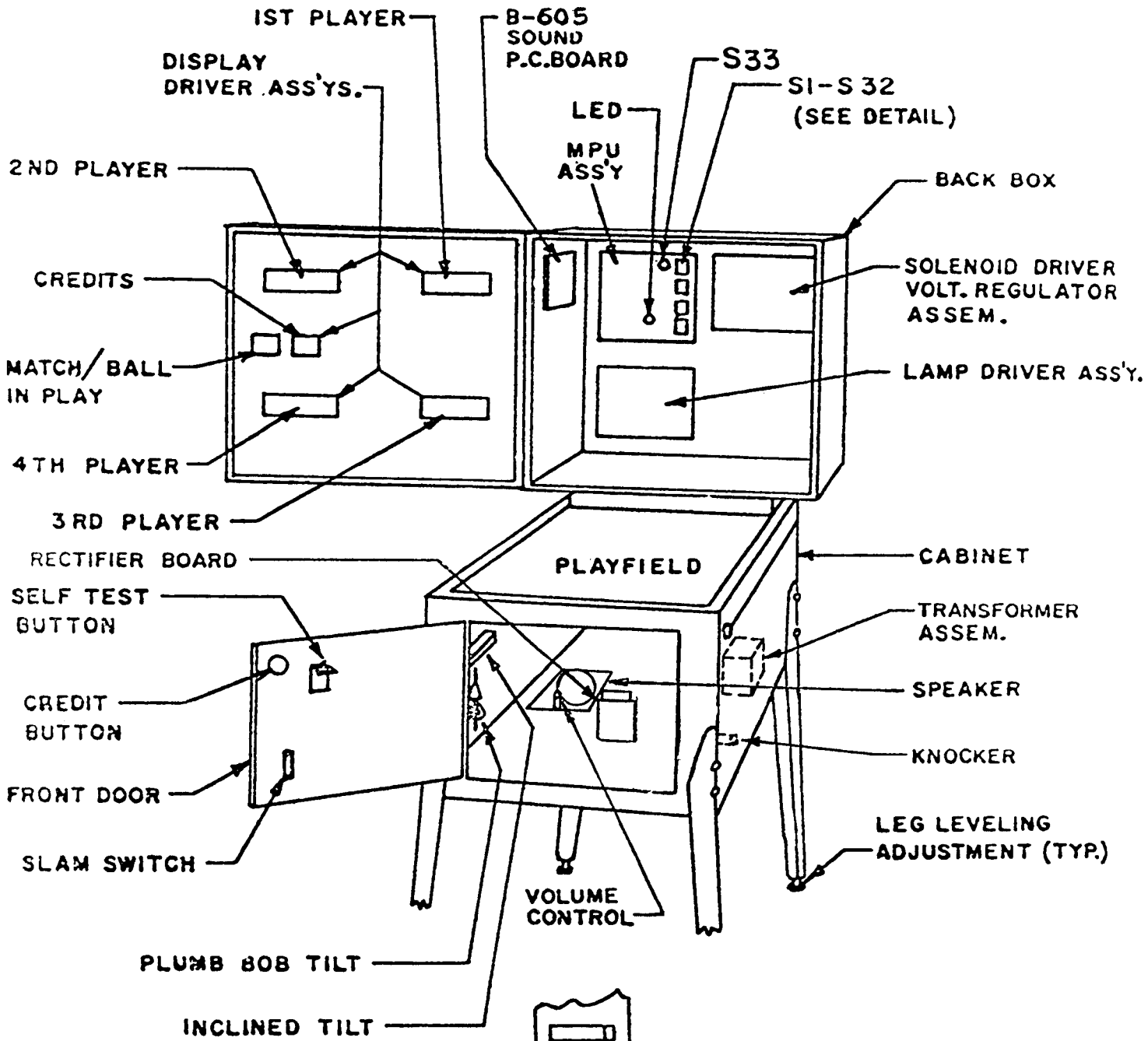
1. Plumb bob tilt on left side of cabinet near front door.
2. Ball tilt above plumb bob tilt. Insert the smaller ball (gold 15/16" dia.) into the ball tilt assembly, and adjust the bracket so the ball will roll free to contact the switch blade, if front of cabinet is raised.
3. Panel tilt on bottom of playfield panel.

NOTE

TO PROTECT SOLID STATE COMPONENTS
BEFORE TOUCHING ANY COMPONENT IN THE
BACK BOX, DISCHARGE ANY POSSIBLE STATIC
BUILD-UP BY TOUCHING ANY GROUND
CIRCUIT, e.g. SIDE ARMOR, GROUND BRAID.

ELECTRONIC PIN BALL GAME

Figure 1



DETAIL SI-S32
MPU ASS'Y.

IV. GENERAL GAME OPERATION

PLACE BALL INTO PLAYFIELD BY OUTHOLE:

COIN GAME. Coin should be rejected. Plug in line cord. For proper game operation grounding circuit must be used. Move power ON-OFF Toggle Switch at bottom right front corner of cabinet to "ON" position. The game will play a tune to announce game-readiness. Drop targets are reset, scores are reset to zero, alternating with the "High Game to Date", and the game is ready for play. Coin Game. The game should accept the coin and post credits* for coins accepted (Adjustable). Pressing the credit button on the door will cause the outhole kicker to move the ball to the shooter lane. The first player display will flash 00. A tune is played to announce play readiness.

One player is registered each time the credit button is pressed (one to four can play). The credits are reduced by one each time the credit button is pressed until the credits are reduced to zero. Credit button is in-operative after 4 players are registered. Shooting the ball initiates play. Thumper Bumper scores 1000 points on 3 Ball. 100 Pts. on 5 Ball. Scoring Bumpers advance Missile No. 1 & 3 when lit. Slingshots score 10 points.

When the ball enters the outhole, the bonus score is added to the player's score. The player-up and/or ball in play on the back box is advanced one position. The bonus score starts at 0 points. The outhole kicker moves the ball to the shooter lane and play is resumed. This continues until each player has played the allowable number of balls per game (adjustable). At this time the "Game Over" light becomes lit. A random "Match" number appears and the "Match" light becomes lit. If the match number is the same as the last two digits in the player's score a free game is awarded.

Extra Ball won during the course of the game is played immediately after the player's regular ball enters the outhole. The player-up and/or ball in play are not advanced for extra ball play. Bonus score is added to the player's score and the bonus is set to 0 points before the game moves the extra ball for play.

At the end of the game, a "High Game to Date" is alternately flashed with all player scores. If the "High Game to Date" is beat, this feature* can award up to 3 free games.

Tilting the game results in loss of the ball in play. The flippers, thumper-bumper, etc., go "dead". Bonus score is not added. The purpose of the tilt penalty is to discourage the player from jostling the machine in an attempt to prolong play. Game action becomes normal after the outhole kicker moves the ball to the shooter lane.

Slamming the machine results in the loss of the game. All feature lights go out and the game becomes "dead" through a built-in time delay circuit. The purpose of the time delay circuit is to discourage abuse of the machine. After the delay, the "Game Over" light lites and the game readiness tune is played. The time delay occurs anytime one of the slam switches is made to contact.

There is a slam switch on the front door, one on the tilt board and one on the playfield. (Any number of slam switches could be installed by the operator, to meet his individual requirement). The switch should be adjusted to have approximately 1/16" gap between the contacts. The weighed blade should be adjusted to attain the desired sensitivity. Decreasing gap between contacts will make the switch more sensitive. Opening the gap will reduce sensitivity.

* Some tunes and features can be disabled by operator if so desired *** See back box adjustments.****

V. A. SELF TEST AND BOOKKEEPING FUNCTIONS

The game is designed to help the operator perform certain diagnostic tests as well as accounting functions as follows:

II. A. SELF TEST

TEST SWITCH PUSH NUMBER	BALL/MATCH DISPLAY	DESCRIPTION
1st		Burn in test - all outputs tested
2nd		Lamp test-all feature lamps on and off
3rd		Display test-all digits display 000000 thru 999999 then an 8 shifts from left to right
4th		Solenoid test-continuous sequence of solenoids pulsed with solenoid driver transistor, "Q" number displayed
5th	Flashing O if all switches open	Switch test-switch I.D. No. displays if closed

V. B. BOOKKEEPING FUNCTIONS

TEST SWITCH PUSH NUMBER	BALL/MATCH DISPLAY	DESCRIPTION	DISPLAYS
6th	01	1st Threshold (High Score)	
7th	02	2nd Threshold (High Score)	
8th	03	3rd Threshold (High Score)	
9th	04	Current High Game Threshold	00 to 40
10th	05	Current Credits	00 to 999999
11th	06	Total Plays	00 to 999999
12th	07	Total Replays	00 to 999999
13th	08	Total times high score is passed	00 to 999999
14th	09	Number of coins thru Chute No. 2	00 to 999999
15th	10	Number of coins thru Chute No. 1	00 to 999999
16th	11	Number of coins thru Chute No. 3	00 to 999999
17th	12	Total balls played	00 to 999999
18th	13	Total free balls awarded	00 to 999999
19th	14	Total special replays	00 to 999999
20th	15	Total wows collected	00 to 999999
21st	16	Total level 1 passed	00 to 999999
22nd	17	Total level 2 passed	00 to 999999
23rd	18	Total level 3 passed	00 to 999999

VI. FRONT DOOR GAME ADJUSTMENTS

HIGH SCORE FEATURE ADJUSTMENTS:

The game is designed to award an extra ball or a free game (option) at three score levels. (See High Score Feature in game book). The recommended levels are on the score card on the game.

Any level from 10,000 or 990,000 can be set, as desired. It is also possible to reset or turn off (00) any or all of the levels, if desired.

1. Push and release Self-Test button at one second intervals six times or until number 01 appears on the Match/Ball in Play display.
2. The number on the Player Score Displays is the first score level*. It can be increased, if desired, by holding the credit button in. To decrease the score level, reset to '00', and then hold the credit button in. Release the credit button when the desired High Score appears. Note that the level changes 10,000 points at a time. If the number '00' is left on the displays, the high score feature is eliminated for that level.
3. Repeat steps 1 and 2 for the second and third high score levels. The number '02' and '03' on the Match/Ball-in-Play display are for the second and third levels, respectively.

NOTE: Only One Extra Ball Can Be Achieved Per Ball In Play.

HIGH GAME TO DATE FEATURE:

The game is designed to award up to 3 free games (option) when "High Game to Date" is beat. **For the recommended, factory present level.**

It is recommended that the level, which will build with game play, be periodically reset to the factory recommended level to encourage game play. The adjustment procedure is the same as for the High Score Feature Adjustment, Steps 1 and 2. Continue pushing the Self-Test button until the number '04' appears on the Match/Ball-in-Play display and then do Step 2.

Any level from '00' to 990,000 can be set as described. It is to be noted that '00' does not turn off the feature, as it does on High Score feature. The feature is turned off by positioning switches to the "OFF" position.

*Can be quickly set to '00' by pressing S33 on the MPU assembly in the back box.

	RECOMMENDED SETTING	
	3 BALL	5 BALL
1st Level -	500,000	600,000
2nd Level -	740,000	900,000
3rd Level —	_____	_____
High Score To Date	800,000	900,000
Instruction Card	12B-2-113-22	12B-2-113-22A

STERN 16B-6 TRANSFORMER WIRING CONNECTION INSTRUCTIONS

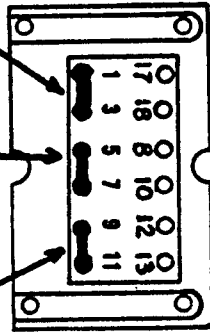
115/120V., 50/60 Cycle Input.

Varistor - Soldered to Line Filter on Left Side of Cabinet
Must Be Stern Part No. 25A-18-1.

Solder Lugs 1 & 3
Together. Solder Heavy
Red Wire To Lug 1

120V
Solder Lugs 5 & 7
Together. Solder Heavy
Yellow Wire To Lug 5

115V
Solder Lugs 9 & 11
Together. Solder Heavy
Yellow Wire To Lug 9



220/240V., 50/60 Cycle Input.

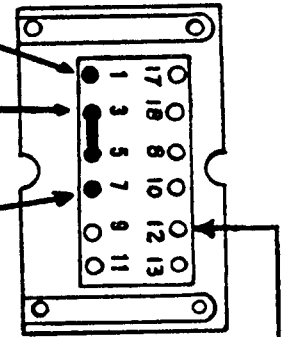
Varistor - Soldered to Line Filter on Left Side of Cabinet
Must be Stern Part No. 25A-18-2.

Solder Heavy Red Wire
To Lug 1

Solder Lugs 3 & 5
Together

240V
Solder Heavy Yellow
Wire To Lug 7

220V
Solder Heavy Yellow
Wire To Lug 12



VII. FEATURE OPERATION & SCORING

BONUS SCORE FEATURE:

A bonus score of 0 to 21,000 may be scored. The game starts with 0 bonus score. A bonus score of 1,000 pts. is awarded for each missile lite advance. The missile lites are advanced by hitting, the Scoring Bumpers when lit, the 3 Bank Drop Targets. The bonus score is collected when the ball enters the outhole. This feature is reset at the start of each ball.

DROP TARGET:

6 BANK (METEOR)

Both end targets score 6000 and lite spinner for additional 600 pts.

Middle targets score 2000 each and lite spinner for additional 200 pts.

Each time all six targets are made the bonus multiplier is advanced (7x Max.). Targets are dropped by hitting the target, rolling over the Star Rollovers when lit, the return lanes when lit, or the center stationary target when lit.

NOTE: 5th or 6th reset (adjustable) will start lites stepping across 6 Bank, when the target is hit when the lite is on an extra ball may be awarded. The status of the target is restored for each player after the ball enters the outhole and the bonus is collected (memory).

3 BANK (MISSLE)

Each Bank controls a row of missle lites, everytime a target is hit, a corresponding lite is advanced in one of the three missle lite rows (for bonus) and corresponding score is awarded.

NOTE: Each time all three missle lites are the same value a rotating WOW (Extra Ball) lites for possible award. Each time the ball enters the outhole the feature resets.

BONUS MULTIPLIER FEATURE:

Every game starts with the 1X bonus multiplier lite lit, each time the 6 Bank Drop Target resets the Bonus Multiplier is advanced.

Starts with 1X

1st time down lites 2X

2nd time down lites 1x & 2x for 3X

3rd time down lites 4X

4th time down lites 1x & 4x for 5X

5th time down lites 2x & 4x for 6X

6th time down lites 1X, 2X, 4X for 7X

All Bonus Multipliers up to 6X are carried over from ball to ball when 7X is reached and the ball enters the outhole, the bonus resets to 3X for the next ball and may be advanced.

STAR ROLLOVERS:

Scores 2000 or 6000 points and spots (drops) one of the 6 Bank (METEOR) Targets when lit or 500 when not lit.

SCORING BUMPERS:

If 0 Bonus, Bumpers score 500 pts. when missle lites have advanced, Bumpers score corresponding value. Bumpers also advance missle lites when lit.

THUMPER BUMPERS:

Scores 1000 points during 3 Ball Games.

Scores 100 points during 5 Ball Games.

STATIONARY TARGET:

Scores 500 points plus 1500 pts. & spots (drops) one of the 6 Bank (METEOR) Target when lit, or awards WOW (Extra Ball) when lit or scores special when lit.

SPINNER:

Scores 200 pts. plus 600 pts. additional for each end of 6 Bank (METEOR) target dropped and additional 200 pts. for each middle target down. Each time entire bank is reset during play the feature is reset.

RETURN LANES:

Score 500 points plus Spots (drops) one of the 6 Bank (METEOR) Targets and scores 1500 additional pts. when lit.

OUTLANES

Score 3000 also when lit 1000 points for each missile lite lit.

SLINGSHOTS:

Score 10 points and (adjustable) move WOWS (Extra Ball) Specials, Spot, METEORS, Outlanes and Bumpers.

VIII. GAME ADJUSTMENTS

A. Playfield Post Adjustments:

Posts that control left and right outline openings on playfield can be moved to make access to outlanes conservative or liberal for ball to enter.

Conservative entry will decrease playing time and scoring.
Liberal entry will increase playing time and scoring.

B. Back Box Game Adjustments:

Each game has thirty-two switches located on the MPU module, located in the back box, that allows play to be customized to the location. See Figure 1. Credits per coin, maximum credits, credit display, balls per game, match feature, high game feature, special award and melody are selectable by means of switches. The switches contained in four-sixteen lead packages numbered S1-8, S9-16, S17-24, and S25-32 for easy identification. The "On toggle" position is marked on the assembly. **TURN OFF POWER BEFORE MAKING ADJUSTMENTS. MAKE ADJUSTMENTS BEFORE TURNING POWER BACK ON.**

METEOR SWITCH ASSIGNMENT

31	}	Special Award
32		
14xx		
30	}	Coin Chute #1 Germany or #2 All Others
29		
28		
27	Spot Meteor Lanes	
26	Spot Meteor Rollovers, Return Lanes, Target	
25	Slingshots	
24	Extra Ball Lites on Meteor Bank 7x	
23	Extra Ball Lites on Meteor Bank 6x	
22	Replays Per Ball	
21	Match Feature	
20	Credit Display	
19	}	Max Credits
18		
17		
16	}	High Game To Date Feature
15		
14xx	(Part of Special Award)	
13	}	Coin Chute No. 3
12		
11		
10		
9		
8	Extra Ball On	
7	Ball Per Game	
6	High Score Feature	
5	}	Coin Chute No. 2 Germany or No. 1 All Others
4		
3		
2		
1		

CREDITS/COIN ADJUSTMENTS:

The #1 coin chute (next to hinge) is adjustable by means of switches 28-30 inclusive — Eight different credit ratios are available.

The credits given per coin are selectable by means of switches 1-5 incl. for coin chute #2 and switches 9-13 incl., for coin chute #3. Thirty-one different credit ratios are available for each coin chute. The switch settings and resultant credits/coin are listed below:

CREDITS/COIN ADJUSTMENTS

COIN CHUTE #2 (CENTER CHUTE) OR #3 (RIGHT CHUTE)	SWITCHES					CREDITS/COIN
	5	4	3	2	1	
	13	12	11	10	9	
	OFF	OFF	OFF	OFF	OFF	..... 3/2 COINS**
	OFF	OFF	OFF	OFF	ON	3/2 COINS**
	OFF	OFF	OFF	ON	OFF	1/COIN
	OFF	OFF	OFF	ON	ON	..... 1/2 COINS*
	OFF	OFF	ON	OFF	OFF	2/COIN
	OFF	OFF	ON	OFF	ON	2/2 COINS*
	OFF	OFF	ON	ON	OFF	..... 3/COIN
	OFF	OFF	ON	ON	ON	3/2 COINS*
	OFF	ON	OFF	OFF	OFF	4/COIN
	OFF	ON	OFF	OFF	ON	..... 4/2 COINS*
	OFF	ON	OFF	ON	OFF	5/COIN
	OFF	ON	OFF	ON	ON	5/2 COINS*
	OFF	ON	ON	OFF	OFF	..... 6/COIN
	OFF	ON	ON	OFF	ON	6/2 COINS*
	OFF	ON	ON	ON	OFF	7/COIN
	OFF	ON	ON	ON	ON	..... 7/2 COINS*
	ON	OFF	OFF	OFF	OFF	8/COIN
	ON	OFF	OFF	OFF	ON	8/2 COINS*
	ON	OFF	OFF	ON	OFF	..... 9/COIN
	ON	OFF	OFF	ON	ON	9/2 COINS*
	ON	OFF	ON	OFF	OFF	10/COIN
	ON	OFF	ON	OFF	ON	..... 10/2 COINS*
	ON	OFF	ON	ON	OFF	11/COIN
	ON	OFF	ON	ON	ON	11/2 COINS*
	ON	ON	OFF	OFF	OFF	..... 12/COIN
	ON	ON	OFF	OFF	ON	12/2 COINS*
	ON	ON	OFF	ON	OFF	13/COIN
	ON	ON	OFF	ON	ON	..... 13/2 COINS*
	ON	ON	ON	OFF	OFF	14/COIN
	ON	ON	ON	OFF	ON	14/2 COINS*
	ON	ON	ON	ON	OFF	..... 15/COIN
	ON	ON	ON	ON	ON	15/2 COINS*

* No credits until second coin dropped.
 ** One Credit for first coin. Two Credits for second coin provided that no scoring occurred between 1st and 2nd coin drops. If scoring occurred, second coin gives one credit.

COIN CHUTE #1

CREDITS/COINS

30	29	28	
OFF	OFF	OFF	1/1 Coin
OFF	OFF	ON	1/2 Coins
OFF	ON	OFF	2/1 Coin
OFF	ON	ON	2/2 Coins
ON	OFF	OFF	3/1 Coin
ON	OFF	ON	3/2 Coins
ON	ON	OFF	4/1 Coin
ON	ON	ON	5/1 Coin

1. HIGH SCORE FEATURE:

The game is designed to award an Extra Ball or Free Game at one, two or three high score levels. See Front Door Game Adjustments.

AWARD

Extra Ball
Replay

SWITCH 6

Off
On

2. BALL PER GAME:

No. of BALLS PER GAME

3
5

SWITCH 7

Off
On

3. MISSILE WOWS:

Wow (Extra Ball) lamp comes on when all three missile values are equal.

LAMP ON

1000 thru 6000
1000 thru 7000

SWITCH 8

Off
On

4. HIGH GAME TO DATE FEATURE:

The game is designed to award up to 3 free games as an option of high score to date is beat. Each time this happens, the winning score becomes the new high game score to beat. This score is displayed on all 4 player score displays at the end of each game as an incentive to play.

SWITCH

16 15

Novelty
1 Free Game
2 Free Games
3 Free Games

Off Off
Off On
On Off
On On

5. MAXIMUM CREDITS:

The maximum credits accepted by the machine limits the number of games that can be accumulated by coin-ing, by winning replays or both. The maximum number of credits are adjustable by means of switches 17, 18, and 19. Eight credit limits are available. Switch settings are listed below:

MAXIMUM CREDITS	SWITCHES		
	19	18	17
5	Off	Off	Off
10	Off	Off	On
15	Off	On	Off
20	Off	On	On
25	On	Off	Off
30	On	Off	On
35	On	On	Off
40	On	On	On

6. CREDIT DISPLAY:

CREDITS DISPLAY

Yes
No

SWITCH 20

On
Off

7. MATCH FEATURE:

When the MATCH FEATURE is On, a random number appears in the "MATCH/BALL in PLAY" window and the word MATCH is illuminated. If the number matches the tens digit in a player's score a free game is awarded. The MATCH feature creates an incentive to play.

MATCH

On
Off

SWITCH 21

On
Off

8. SPECIAL REPLAY LIMIT:

The number of replays made per ball can be limited as follows:

REPLAYS PER BALL

1
3

SWITCH 22

Off
On

9. METEOR BANK WOW LITES:

Wow (Extra Ball) lites on Meteor Bank

Wows are lit when multiplier equals 6x
Wows are lit when multiplier equals 7x

SWITCH 23

On

Off

SWITCH 24

Off

On

10. SLINGSHOTS FEATURE:

The Slingshots (Kicking rubbers) move Wows, Specials, Spot Meteors, Out Lanes and Bumpers.

SWITCH 25

No Movement
Movement

On

Off

11. SPOT METEOR:

Spot Meteor Rollover Buttons, Return Lanes and Target Lamps:

NUMBER LIT

6 For 1x or 2x
4 For 3x
2 For 4x
0 For 5x, 6x, or 7x

6 For 1x, 2x, or 3x
4 For 4x
2 For 5x
0 For 6x or 7x

SWITCH 26

Off

On

12. SPOT METEOR LANES FEATURE:

Spot Meteor Lanes can be adjusted:

LANE SETTING

Conservative
Liberal (Stay On)

SWITCH 27

Off

On

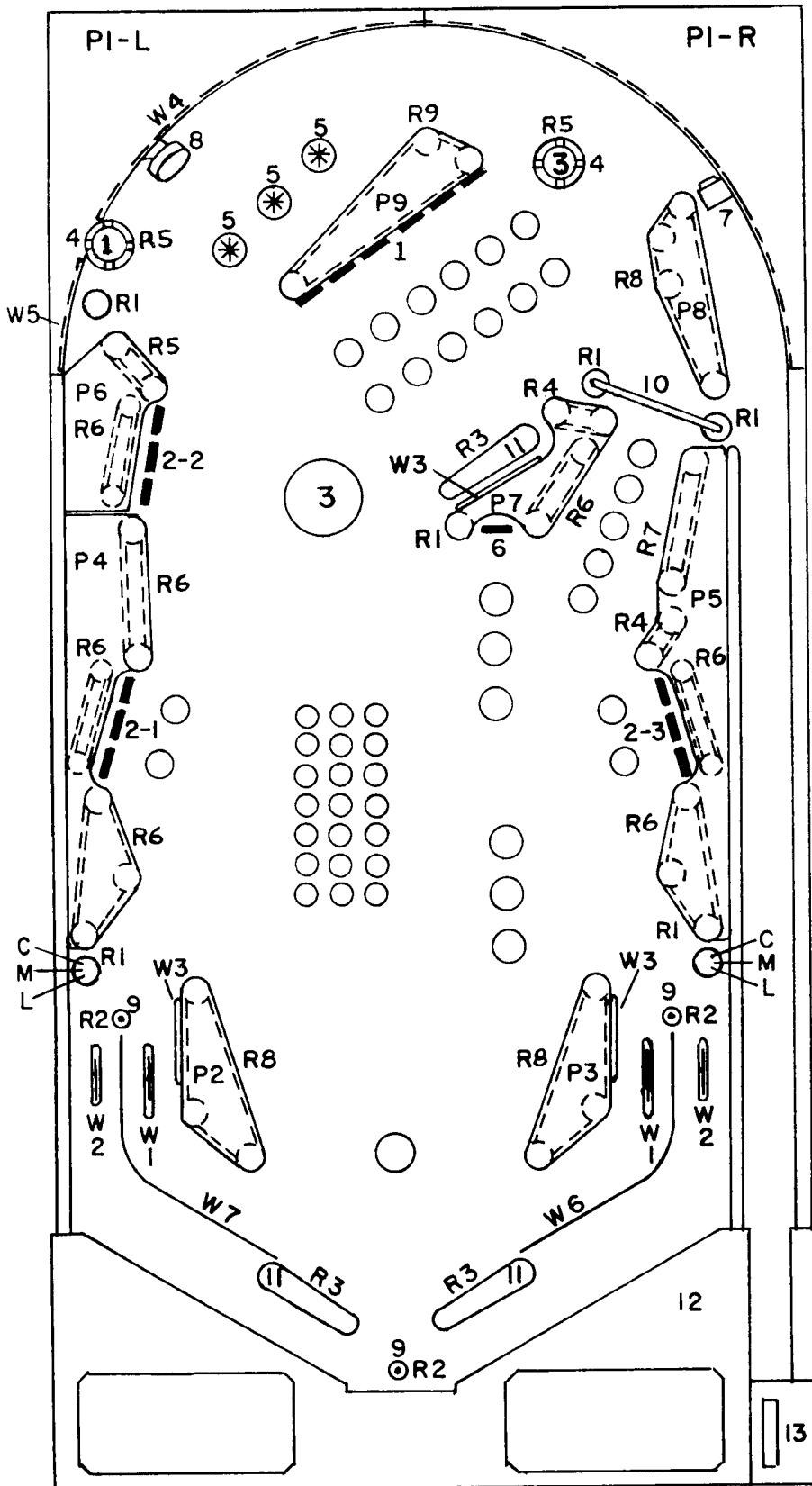
13. SPECIAL AWARD:

Award received when hitting Special on the center of the 3 bank drop targets. Stationary Target can be adjusted as follows:

	AWARD		SWITCHES		
SPECIAL		WOW	14	31	32
	No Award		Off	Off	Off
90,000		Extra Ball	On	Off	Off
130,000		70,000	Off	On	Off
130,000		Extra Ball	On	On	Off
Extra Ball		40,000	Off	Off	On
Extra Ball		70,000	On	Off	On
Replay		70,000	Off	On	On
Replay		Extra Ball	On	On	On

METEOR

PLAYFIELD PARTS



RUBBER RINGS

R1-7A-120-031	R6-7A-120-150
R2-7A-125	R7-7A-120-200
R3-7A-121-W	R8-7A-120-250
R4-7A-120-100	R9-7A-120-300
R5-7A-120-125	

BALL GUIDES & ROLL-OVERS

W1-A-149	W5-A-630
W2-A-383	W6-6A-253-R
W3-6A-101	W7-6A-253-L
W4-C-628	

PLASTIC SHIELDS

TOP ARCH SET 13C-113-1R & 1L
 METEOR SET 13C-113-2- to - 9

MISC. PARTS & ASSEM'S.

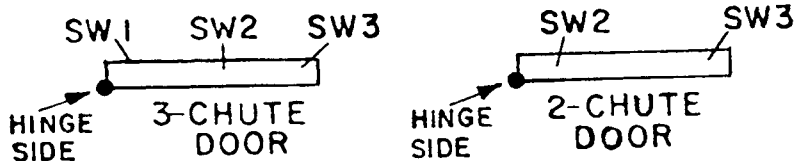
1. 6-BANK TARGET D-548-6A
2. 3-BANK TARGET D-580-1 to 3
3. THUMPER CAP 4A-134-R
4. BUMPER CAP 13A-32-1 & 3
5. ROLL-OVER BUTTON 4B-275
6. TARGET ASS'Y A-461-2Y
7. BALL GATE, RIGHT A-104-R2
8. REBOUND RUBBER A-105
9. BALL GATE POST 2A-200
10. SPIN TARGET A-563-9
TARGET & WIRE ONLY 14A-7-8
11. FLIPPER & SHAFT A-193
12. INSTRUCTION PLATE 14B-3-2
13. SHOOTER GAUGE 14A-2-5

POST ADJUSTMENT:

C-CONSERVATIVE
 M-MEDIUM
 L-LIBERAL

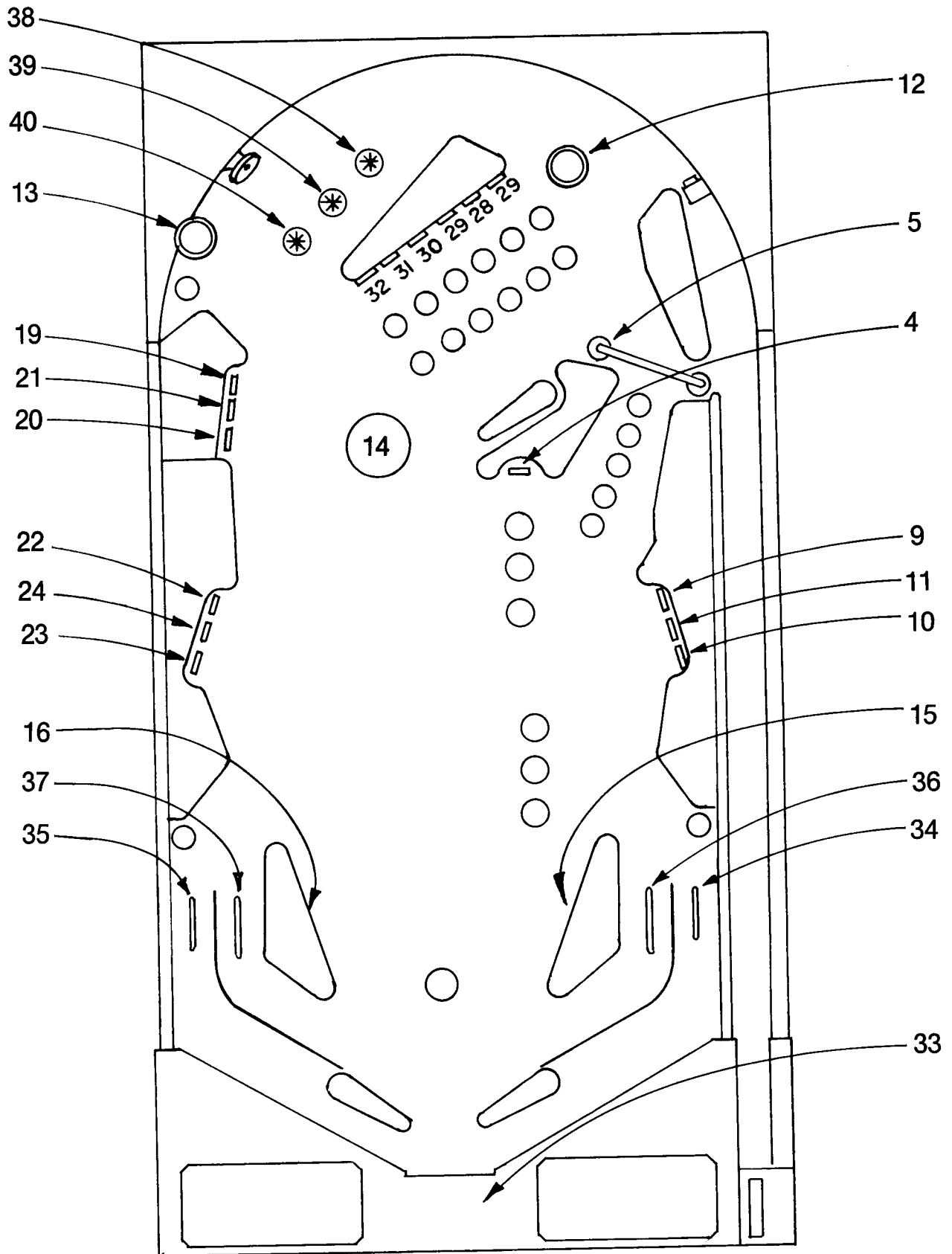
METEOR SWITCH IDENTIFICATION SELF TEST DISPLAY NUMBERS

<u>SWITCH NO.</u>	<u>SWITCH LOCATION</u>	<u>SWITCH NO.</u>	<u>SWITCH LOCATION</u>
1	COIN CHUTE	22 THRU 24	3-BANK DROP TARG. (LEFT CENTER)
2	COIN CHUTE		
3	COIN CHUTE		
4	STAND-UP TARGET		
5	SPIN-TARGET	25	OPEN
6	CREDIT BUTTON	26	OPEN
7	TILTS	27 THRU 32	6-BANK DROP TARGETS
8	SLAM & VIB. TILTS		
9 THRU 11	3-BANK DROP-TARGETS (RIGHT)		
12	BUMPER (UPPER RIGHT)		
13	BUMPER (UPPER LEFT)	33	OUT-HOLE
14	THUMPER-BUMPER	34	RIGHT OUT-LANE
15	RIGHT SLING-SHOT	35	LEFT OUT-LANE
16	LEFT SLING-SHOT	36	RIGHT RETURN LANE
17	OPEN	37	LEFT RETURN LANE
18	OPEN	38	ROLL-OVER BUTTON (UPPER)
19 THRU 21	3-BANK DROP-TARG. (TOP LEFT)	39	ROLL-OVER BUTTON (CENTER)
		40	ROLL-OVER BUTTON (LOWER)



NOTE: 1. Flipper Button Cabinet Switches Do Not Appear On Test.

**SWITCHES
METEOR**



SWITCHES NOT ON PLAYFIELD:

- 1 * LEFT CHUTE
- 2 * CENTER CHUTE
- 3 * RIGHT CHUTE
- 6 CREDIT BUTTON

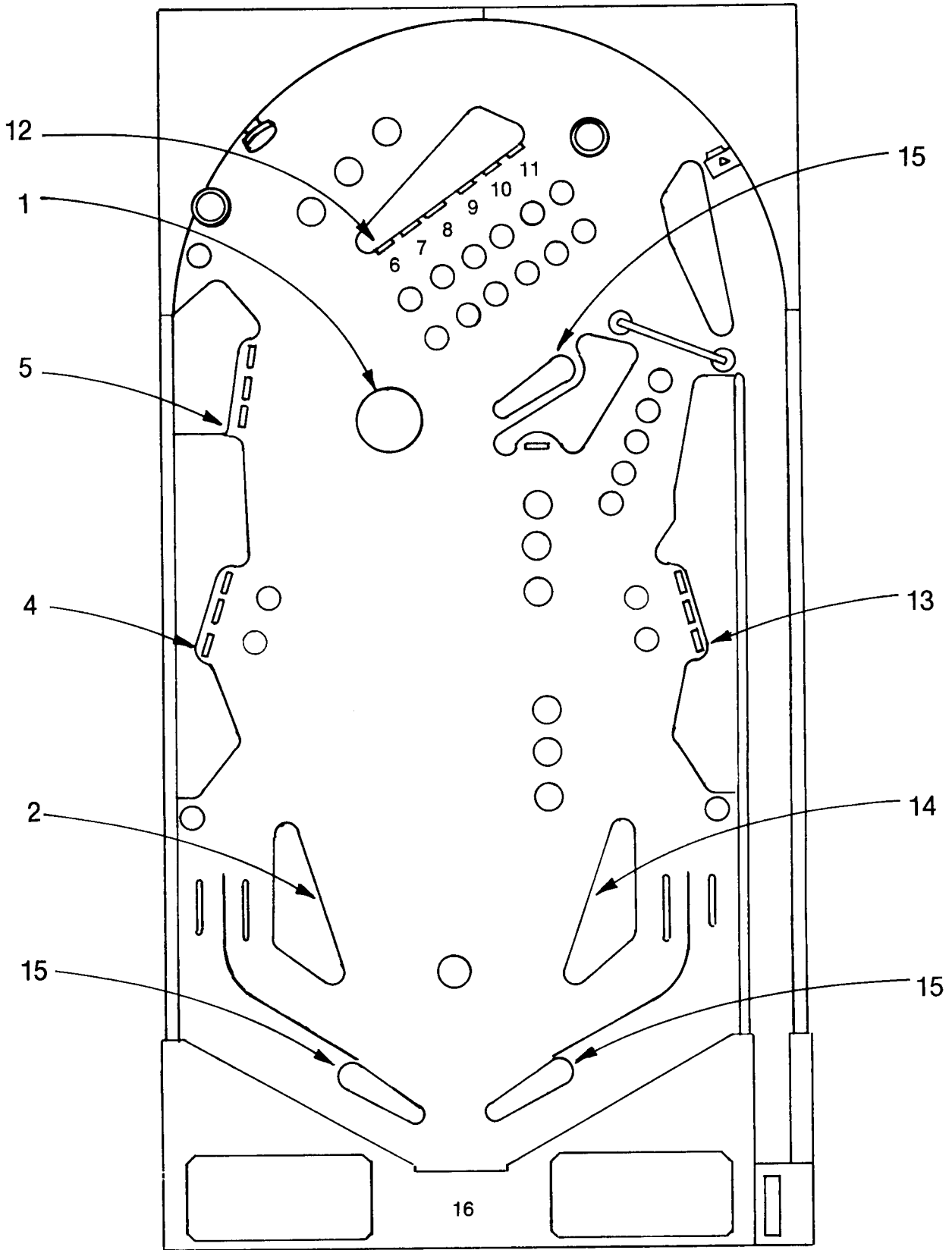
- 7 ROLL-TILT
- 7 PENDULUM
- 8 TILT BOARD
- 8 DOOR & PLAYFIELD VIB.

* SEE DRWG. ON SWITCH IDENTIFICATION PAGE

METEOR
SOLENOID IDENTIFICATION
SELF TEST DISPLAY NUMBERS

<u>SOLENOID NO.</u>	<u>SOLENOID LOCATION</u>
1	THUMPER-BUMPER
2	LEFT SLING-SHOT
3	KNOCKER
4	3-BANK DROP TARGET (L. BOTTOM)
5	3-BANK DROP TARGET (L. TOP)
6 THRU 11	6-BANK DROP TARGETS
12	6-BANK DR. TARGET (RESET)
13	3-BANK DR. TARGET (RIGHT)
14	RIGHT SLING-SHOT
15	FLIPPERS
16	OUT-HOLE
19	COIN LOCK-OUT
20 THRU 29	SOUND

SOLENOIDS
METEOR



SOLENOIDS NOT ON PLAYFIELD:

3- KNOCKER

19- LOCKOUT

VIII. PARTS LIST GAME #113 METEOR

MISCELLANEOUS	PART NUMBER
Transformer (Domestic or Export)	16B-6
Transformer & Rectifier Board	B-438-2
Bulbs, #44	8A-101

ASSEMBLY COILS	
Coin Lockout (1)	C-36-5300
Flipper Left & Right (2)	J-25-500/34-4500
Flipper Top	J-25-600/34-4500
Knocker (1)	N-26-1200
Outhole Kicker (1)	J-26-1100
Thumper Bumper (1)	J-26-1200
Slingshot (2)	J-27-1700
Drop Target Reset (4)	B-27-2300
Drop Target Reset (Each Target) 6	C1-34-3400

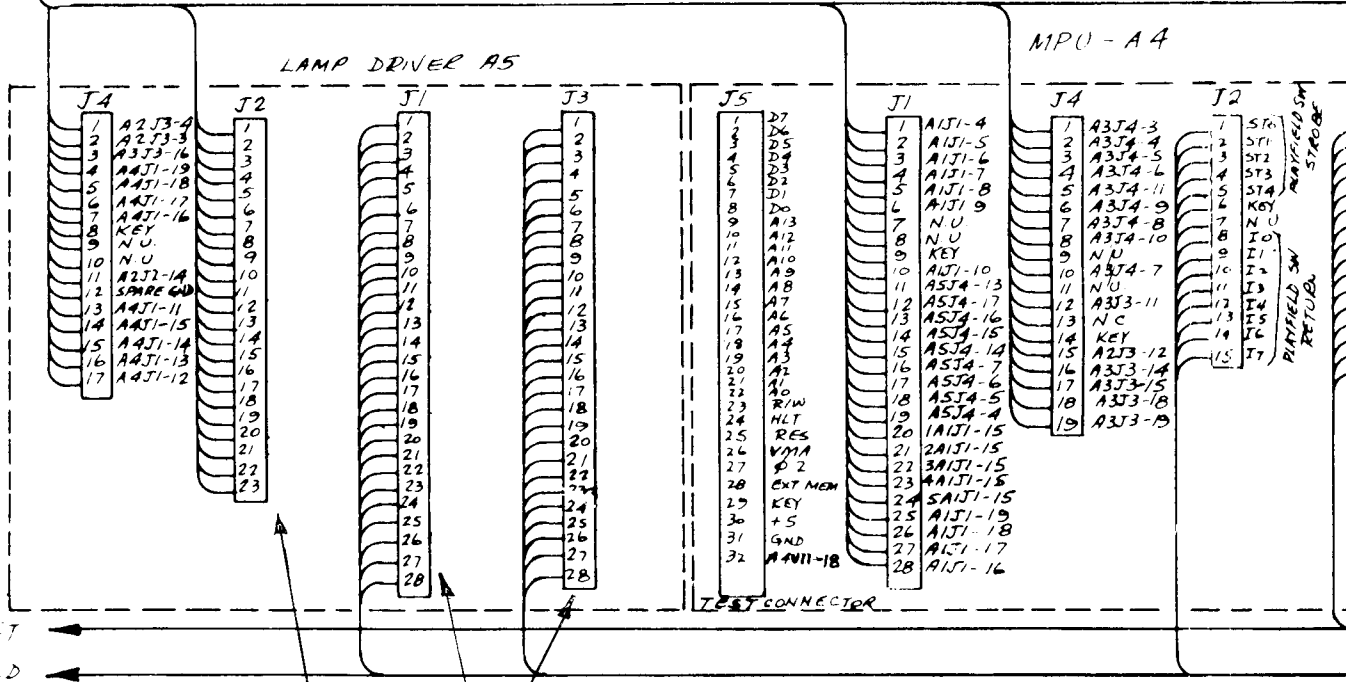
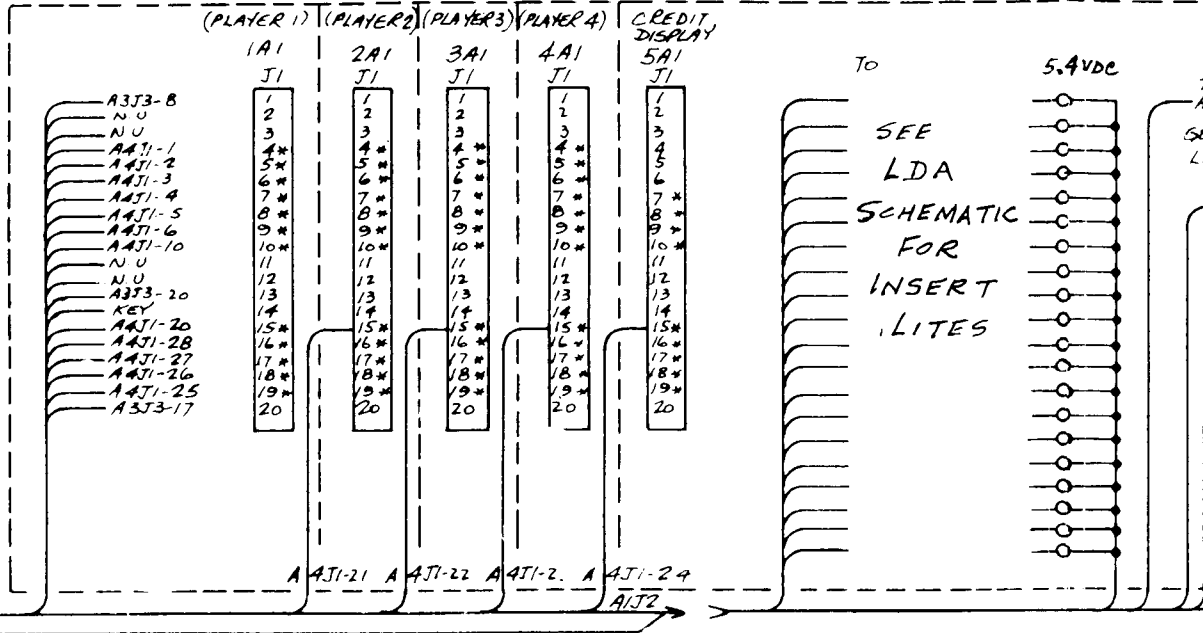
MODULES	
Lamp Driver	B-431
Display Driver (5 Used)	A-434
Solenoid Driver/Voltage Regulator	B-432
MPU	C-602-113
Rectifier Board	A-430
Sound Module	C-605

PLAYFIELD PARTS

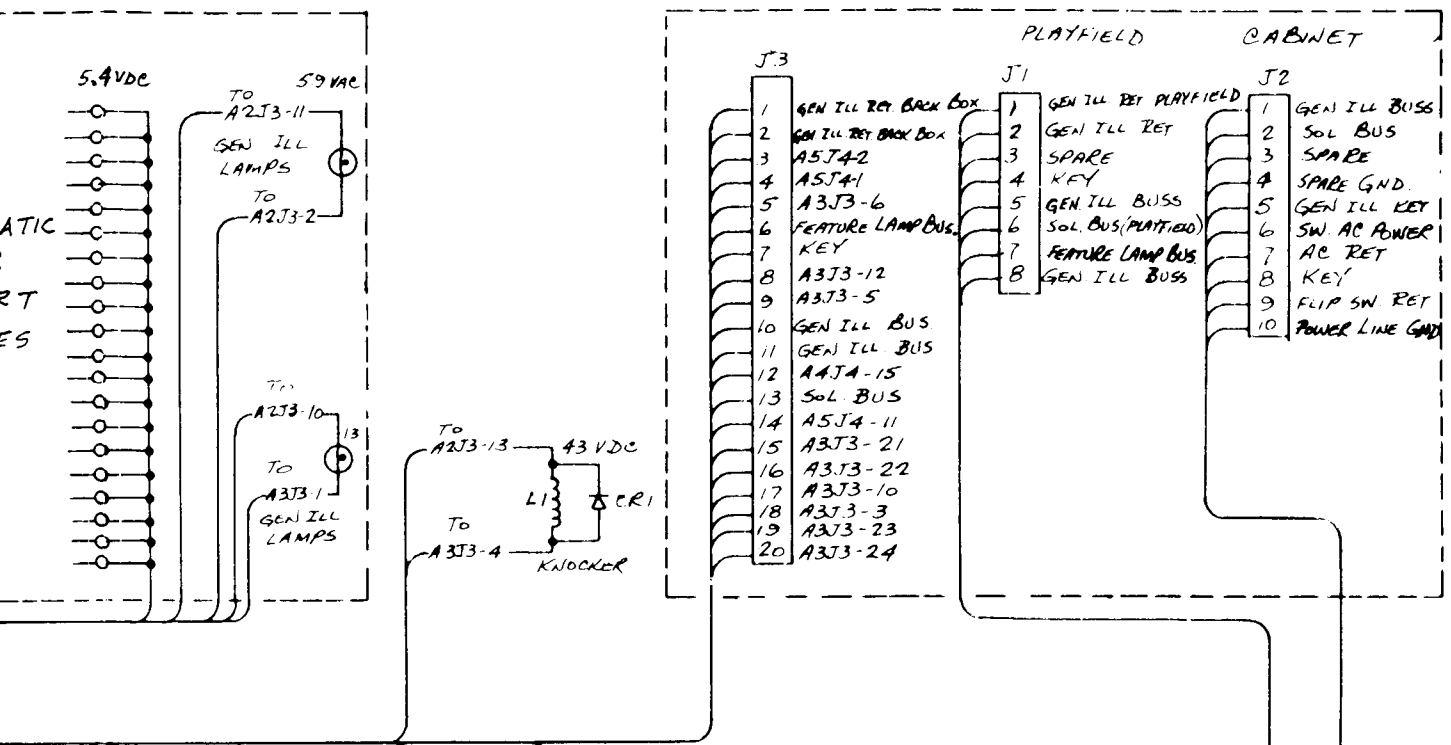
SEE PLAYFIELD DIAGRAM

AI INSERT

FROM	AITS PIN
A2J3-6	1
A5J2-14	2
A2J3-2	3
A2J3-11	4
A5J2-23	5
A5J2-15	6
A5J2-22	7
A5J2-8	8
A5J2-1	9
A5J2-2	10
A5J2-11	11
A5J2-10	12
A5J2-7	14
A5J2-6	15
A5J2-20	16
A5J2-16	17
A2J3-10	18
A2J3-1	19
	20
	21
	22
	23

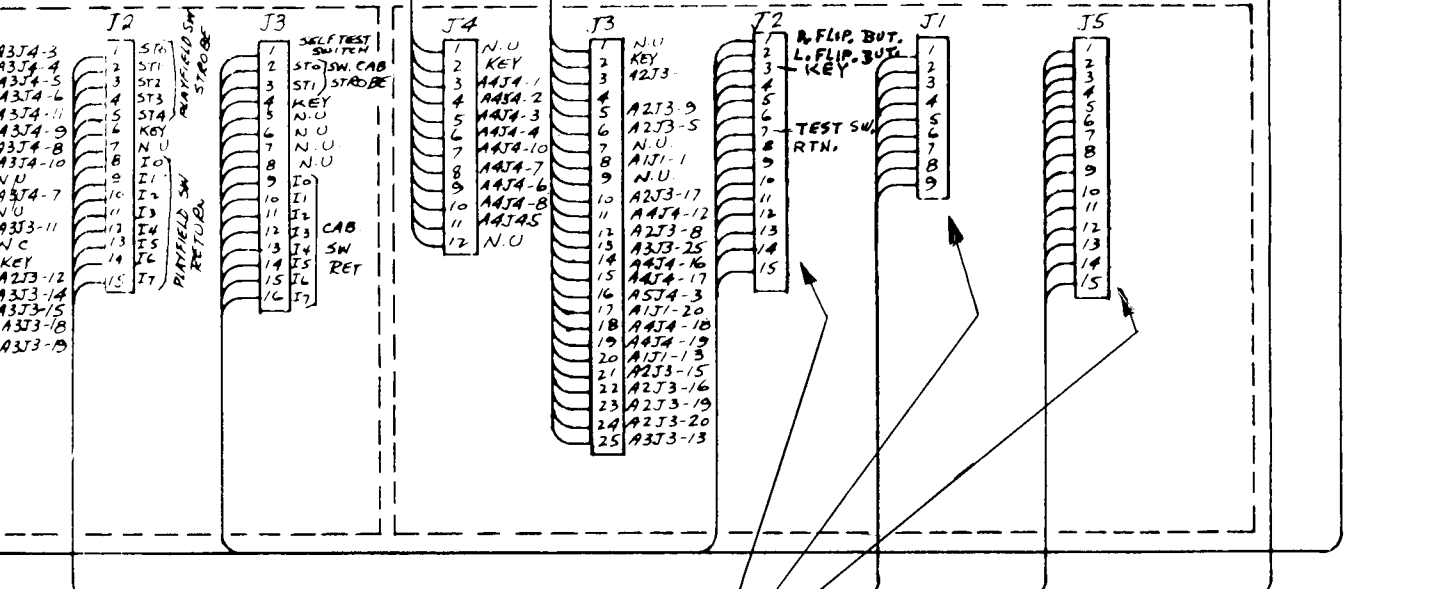


A2 TRANSFORMER



- A4

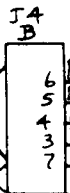
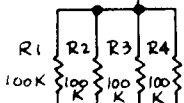
VOLTAGE REGULATOR / SOLENOID DRIVER A3



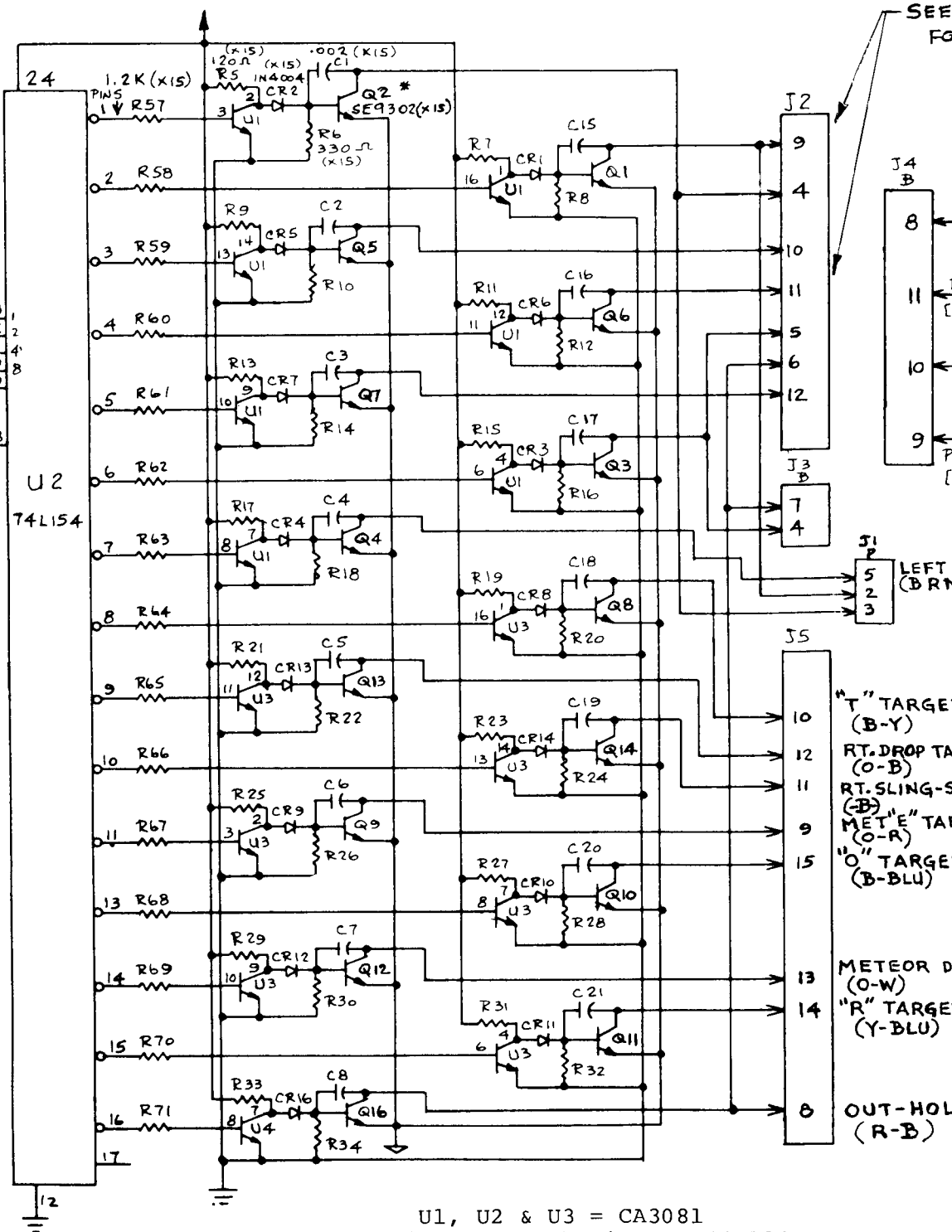
DRAWINGS FOR WIRE COLORS.
SEE SDU SCHEMATIC FOR SOLENOID PIN OUTS.

STERN ELECTRONICS INC.		
1725 DIVERSEY BLVD. CHICAGO 60614		
WIRING DIAGRAM		
FOR SOLID STATE		
DRN. CW.	ATE	AM'T
MAT. LAD	FIN. LAD	APPR.

PINS 3, 4, 5 & 6
MOMENTARY
SOLENOID DATA



PIN 7
SOLENOID BANK SELECT
LOW WHEN SELECTED



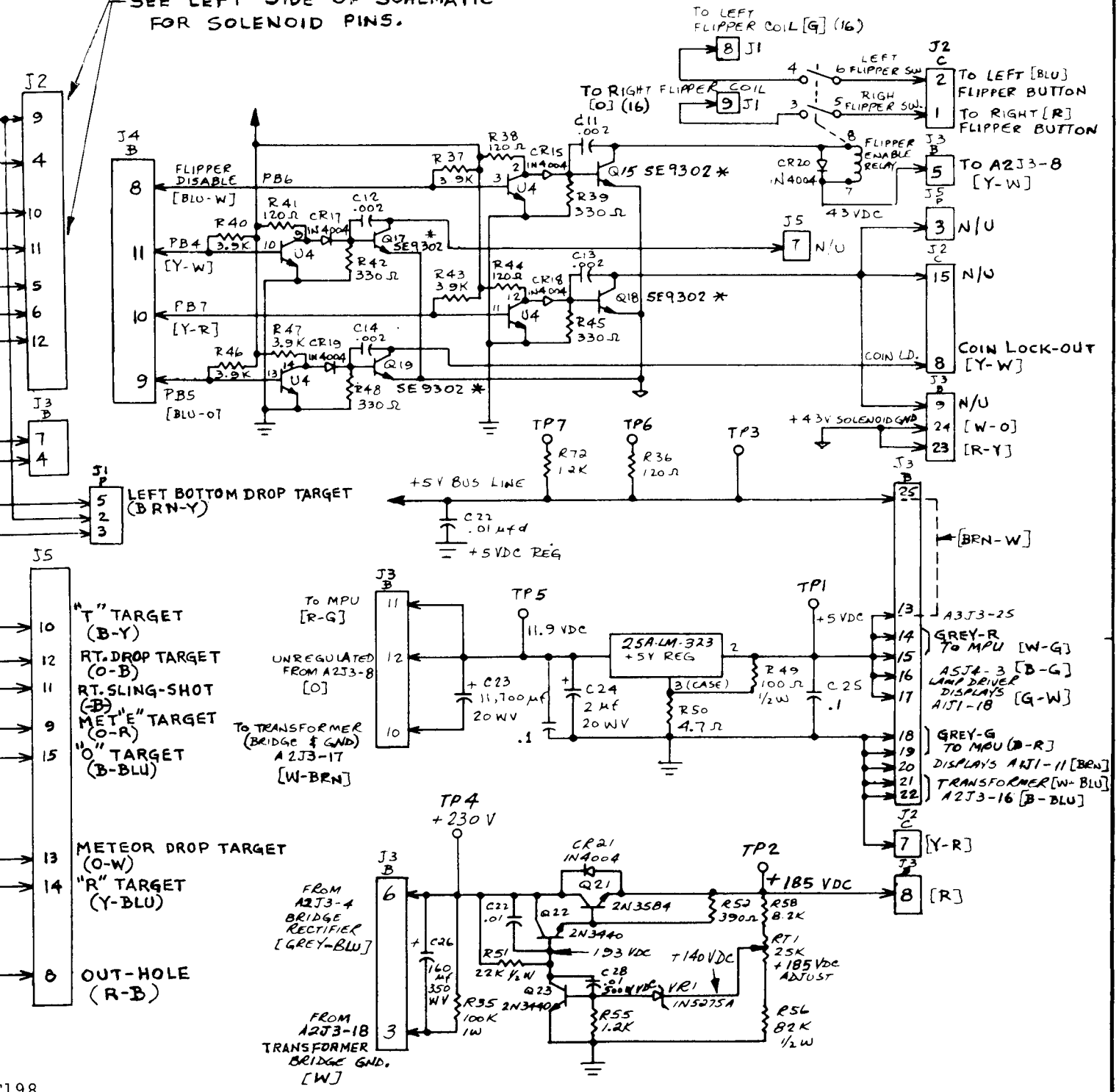
- J2
- 9 CENTER THUMPER (PUR-W)
 - 4 LEFT SLING-SHOT (BRN)
 - 10 LEFT TOP DROP TARGET (G-R)
 - 11 "M" TARGET (GREY)
 - 5 KNOCKER (B-Y)
 - 12 "E" TARGET (Y-B)

- J5
- 10 "T" TARGET (B-Y)
 - 12 RT. DROP TARGET (O-B)
 - 11 RT. SLING-SHOT (B)
 - 9 "E" TARGET (O-R)
 - 15 "O" TARGET (B-BLU)
 - 13 METEOR DR (O-W)
 - 14 "R" TARGET (Y-BLU)
 - 8 OUT-HOLD (R-B)

U1, U2 & U3 = CA3081
*SE9302 Substitute X44E198
Solenoid Test Display No.
is Drive Transistor (Q)
Position on SDU

ISSUE	CHANGE

SEE LEFT SIDE OF SCHEMATIC FOR SOLENOID PINS.

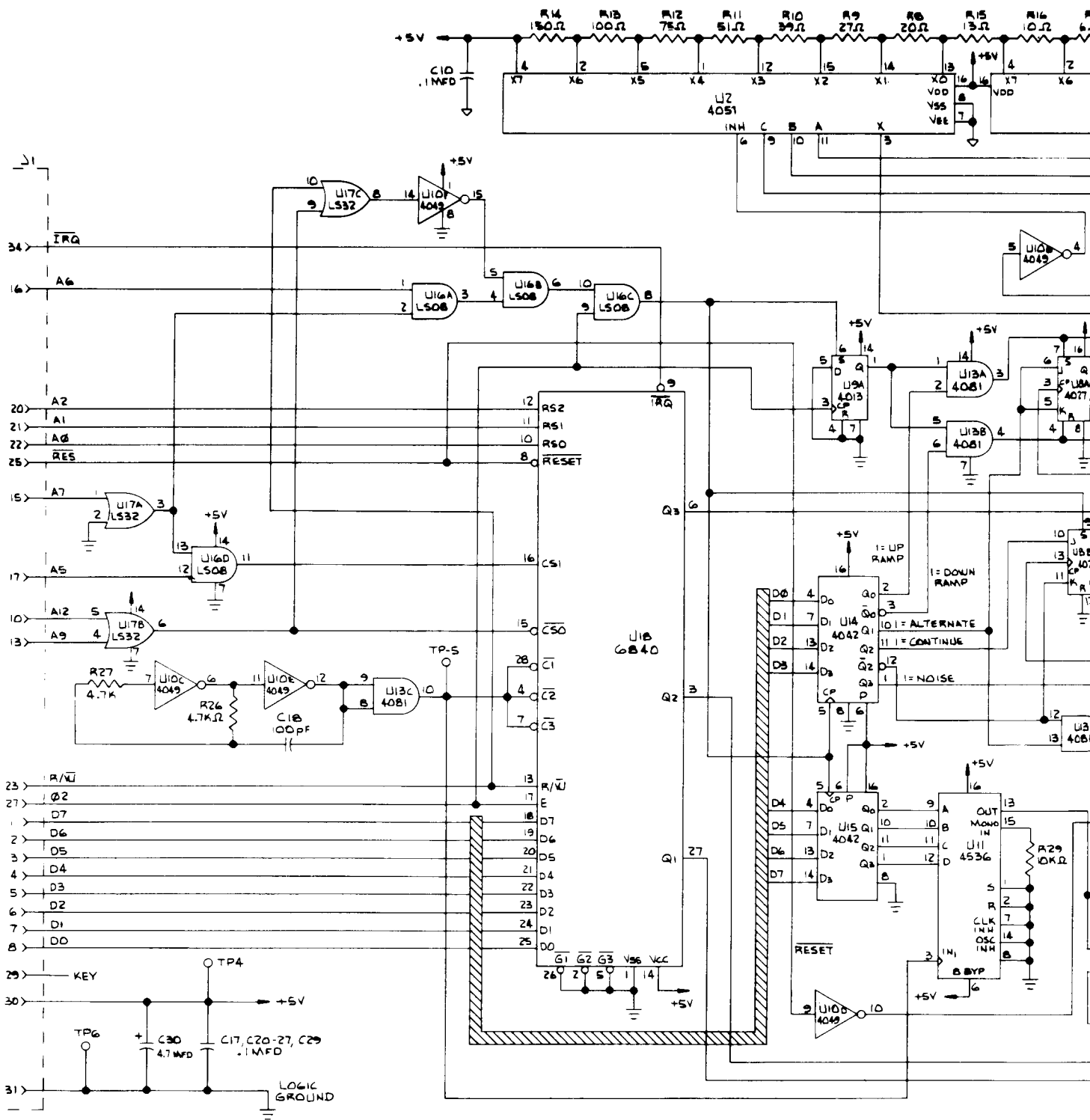


198
10.

STERN ELECTRONICS INC.		
1725 DIVERSEY BLVD. CHICAGO 60614		
SOLENOID DRIVER VOLTAGE REGULATOR SCHEMATIC		
FO: METEOR, SOLID STATE		
DRN. J.J.	DATE 8-21-79	AM'T <i>CS</i>
MAT <i>CS</i>	FIN. <i>CS</i>	APPR.

SCALE: *CS* PART MUST BE FREE OF BURRS

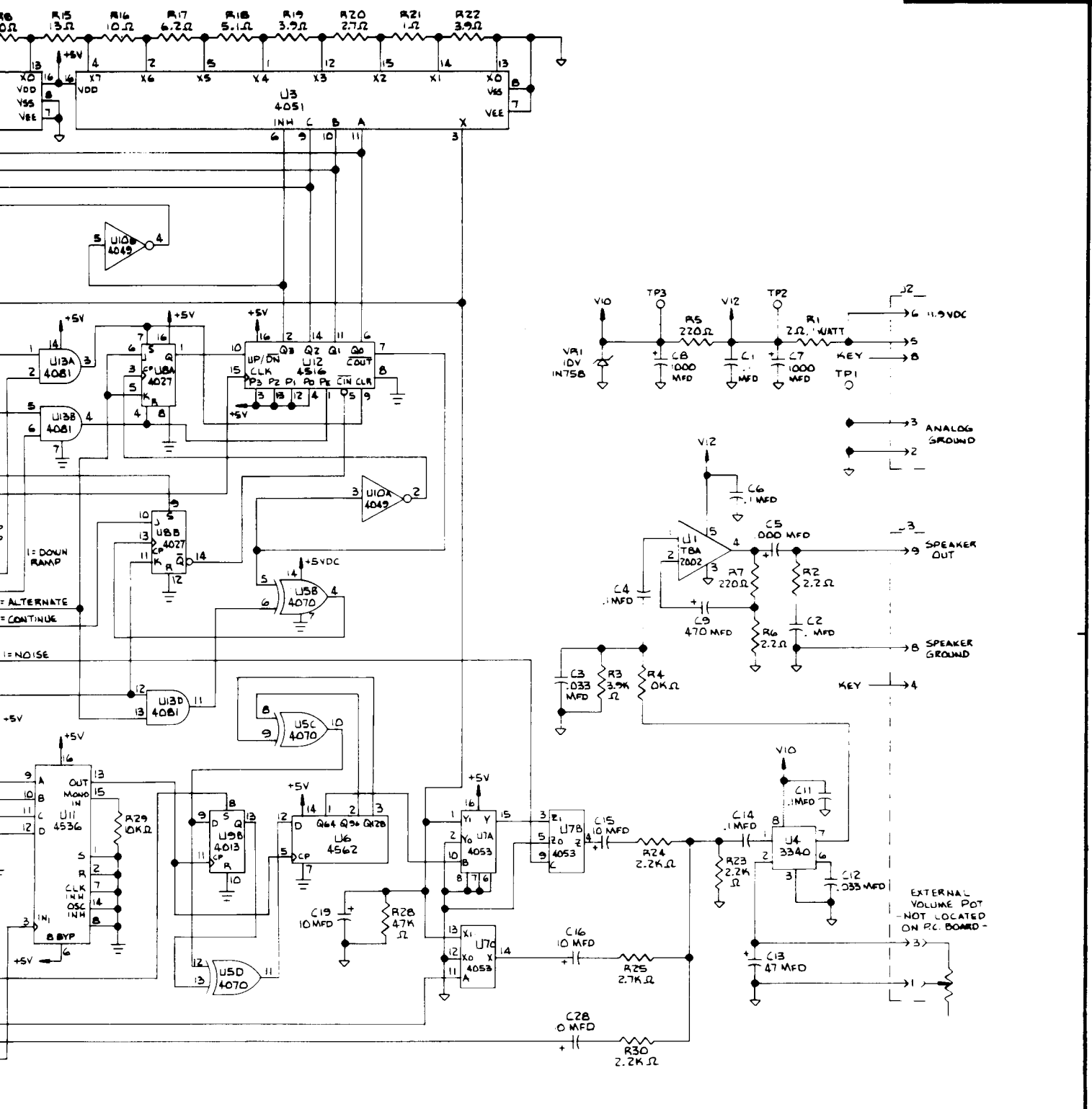
Unless otherwise specified, all fractional dimensions carry tolerances of plus and minus .010. All decimal dimensions plus and minus .005. Exceptions: Drilled holes plus .003 minus .001. Die casting fractional plus and minus .005; Decimal plus and minus .003. Decimal dimensions on tools plus and minus .001. Angles ± 30° unless otherwise specified.



NO. 12B-605-S

DIETZGEN NO. 198M AGEPROOF

ISSUE	CHANGE	DATE



STERN ELECTRONICS INC.
 1725 DIVERSEY BLVD. CHICAGO 60614

SCHEMATIC, ELECTRONIC SOUNDS

FOR **SOLID STATE**

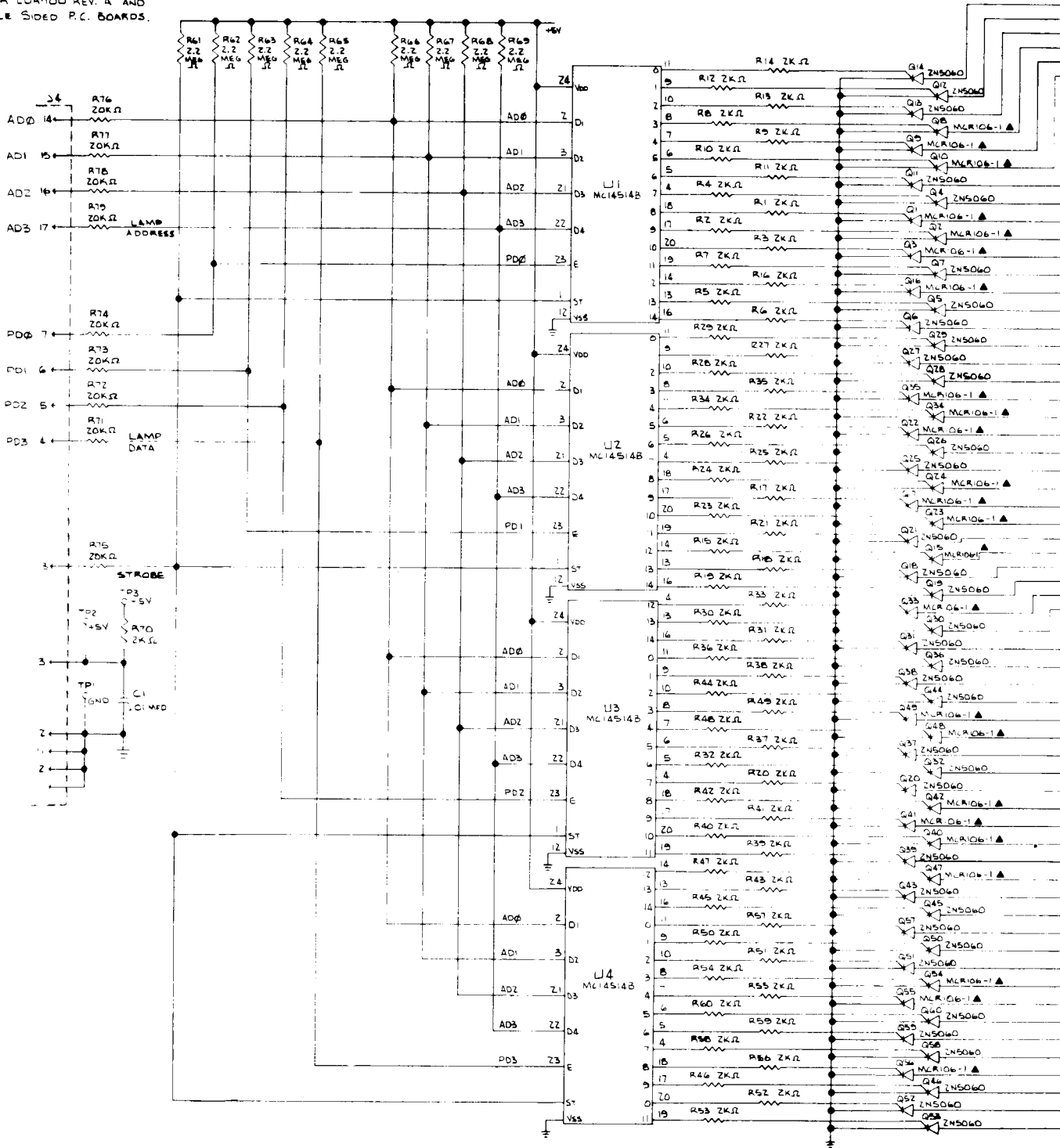
DRN. 2W.	DATE 8-21-79	AM'T
MAT	FIN.	APPR.

SCALE: PART MUST BE FREE OF BURRS

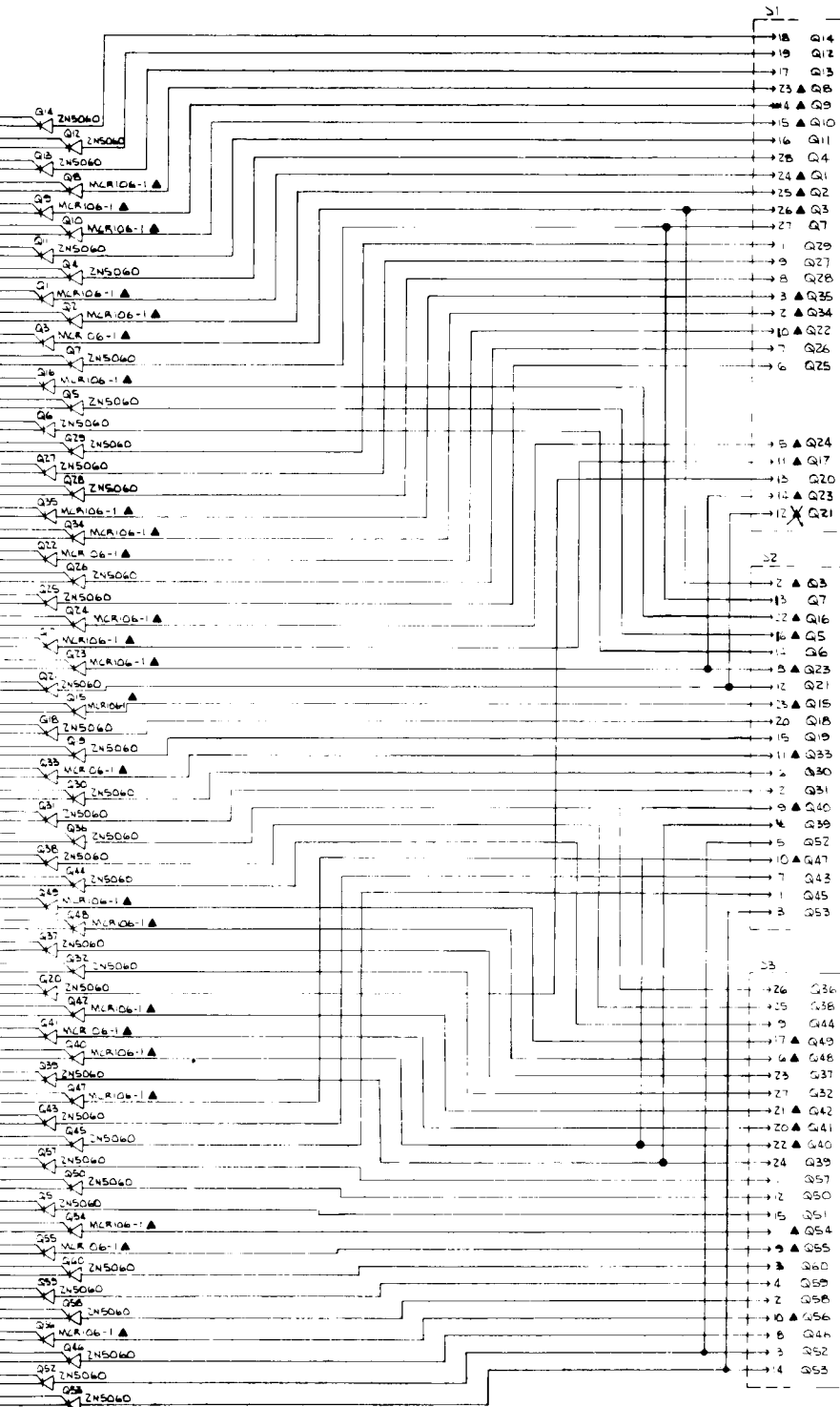
Unless otherwise specified, all fractional dimensions carry tolerances of plus and minus .010: All decimal dimensions plus and minus .005. Exceptions: Drilled holes plus .003 minus .001. Die casting fractional plus and minus .005: Decimal plus and minus .003. Decimal dimensions on tools plus and minus .001. Angles ± 30° unless otherwise specified.

NOTES:

1. ▲ INDICATES MCR106-1 TRANSISTOR.
2. THIS DOCUMENT FOR LDA-100 REV. A AND LDA-REV. B SINGLE SIDED P.C. BOARDS.



ISSUE	DATE	BY



DESCRIPTION	METEOR		
	WIRE COLOR	JACK "A" WAVE	PIN NO.
BOT. LT. BANK "WOW"	R-G	J-2	7
BOT. LT. D.T. SPECIAL	BRN-B	J-1	18
GAME OVAR	GRY-W	J-2	11
HIGH SCORE TO DACK	GRY-O	J-2	22
LT. OUT LANE & RT. BUMPER	B-BLU	J-2	23
LT. R/O & RETURN LANE P.T.	BRN-BLU	J-1	24
MATCH	GRY-Y	J-2	1
METEOR "DROP" E	PUR-B	J-1	25
METEOR "DROP" #LE	W-O	J-3	20
METEOR "DROP" R	B-G	J-3	21
METEOR "DROP" T	B-O	J-1	11
METEOR "DROP" M	R-BLU	J-3	18
METEOR "DROP" O*	GRY-B	J-3	10
METEOR "WOW" E	W-BLAE	J-1	26
METEOR "WOW" EK	W-W	J-3	2
METEOR "WOW" O	Y-O	J-3	4
METEOR "WOW" R	R-W	J-3	4
METEOR "WOW" T	O-W	J-3	27
METEOR "WOW" T	BRN-R	J-1	6
#1 (L) ROCKET 1K	O-R	J-3	12
#1 (L) ROCKET 2K	R-Y	J-3	25
#1 (L) ROCKET 3K	GRY	J-1	9
#1 (L) ROCKET 4K	GRY-O	J-1	19
#1 (L) ROCKET 5K	O-R	J-3	13
#1 (L) ROCKET 6K	B	J-3	26
#1 (L) ROCKET 7K	BLU-R	J-1	1
1K	BLU-R	J-2	14
#8 (M) ROCKET 1K	V	J-3	11
#2 (M) ROCKET 2K	Y-BLUE	J-3	17
#2 (M) ROCKET 3K	R-O	J-1	3
#2 (M) ROCKET 4K	BLU-W	J-1	23
#2 (M) ROCKET 5K	W-B	J-3	15
#2 (M) ROCKET 6K	B-R	J-3	19
#2 (M) ROCKET 7K	O-B	J-1	8
2K	O-B	J-3	15
#3 (R) ROCKET 1K	W-BLU	J-3	3
#3 (R) ROCKET 2K	W-GRY	J-3	25
#3 (R) ROCKET 3K	GRY-BLU	J-1	10
#3 (R) ROCKET 4K	GRY-Y	J-1	15
#3 (R) ROCKET 5K	W-R	J-3	9
#3 (R) ROCKET 6K	R-B	J-3	16
#3 (R) ROCKET 7K	PUR-W	J-1	2
4K	R-BLU	J-2	2
RT. BANK SPECIAL	Y-O	J-1	7
RT. BANK "WOW"	Y-B	J-2	20
RT. OUT-LANE & LT. BUMPER	PUR-Y	J-1	4
RT. R/O & LT. RETURN LANE	BLU-O	J-1	5
W. R/O TAR. & S.U. SPOT METEOR	GRY-O	J-1	14
SPOT AGAIN (INSERT)	GRY-R	J-2	21
SPIN #1	B-W	J-3	14
SPIN #2	GRY-W	J-3	24
SPIN #3	W-Y	J-1	18
SPIN #4	GRY-B	J-1	27
SPIN #5	B-Y	J-3	13
SPIN #6	GRY	J-3	28
S.P.S.A.	GRY-R	J-1	26
S.U. TAR. SPECIAL	B	J-1	16
S.U. TAR "WOW"	Y-BLU	J-2	16
BOX LT. BANK "WOW"	B-B	J-3	9
TOP LT. BANK "WOW"	BLU-W	J-2	6
TOP LT. D.T. SPECIAL	-PUR-	J-1	17

Tilt grey-blk J-2 10

STERN ELECTRONICS INC.
 1725 DIVERSEY BLVD. CHICAGO 60614

LAMP DRIVER SCHEMATIC

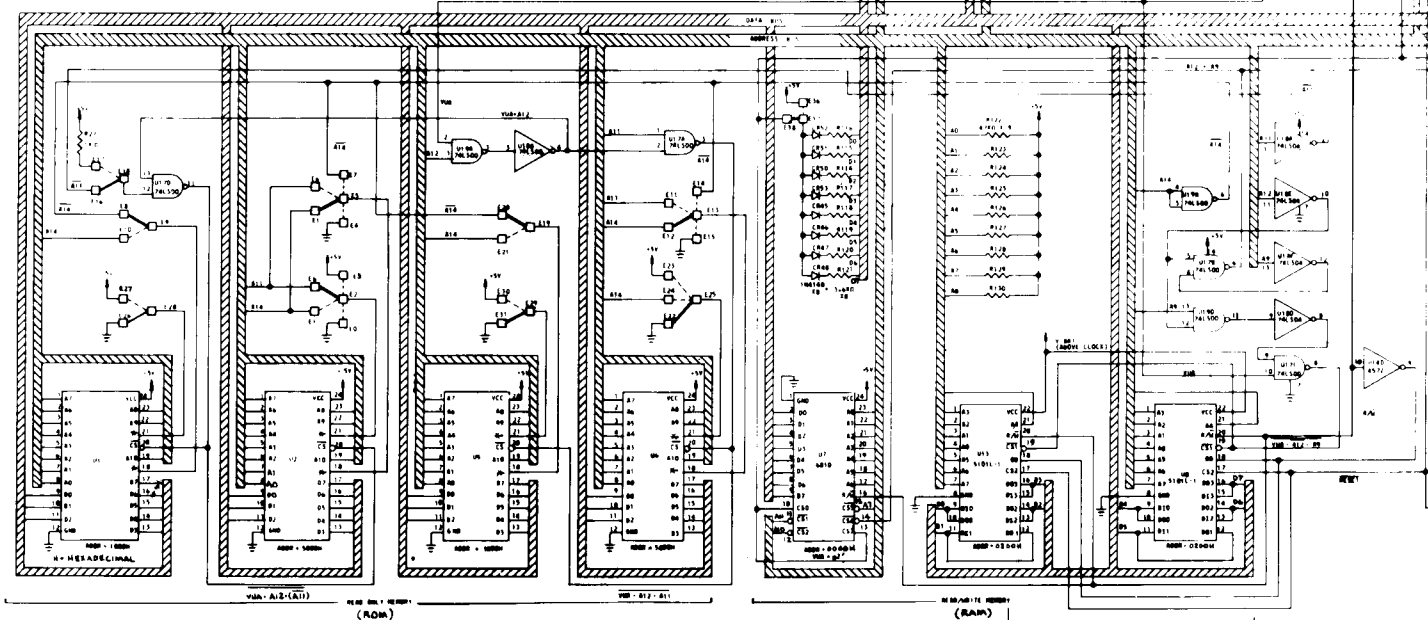
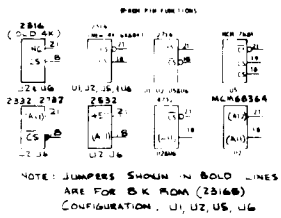
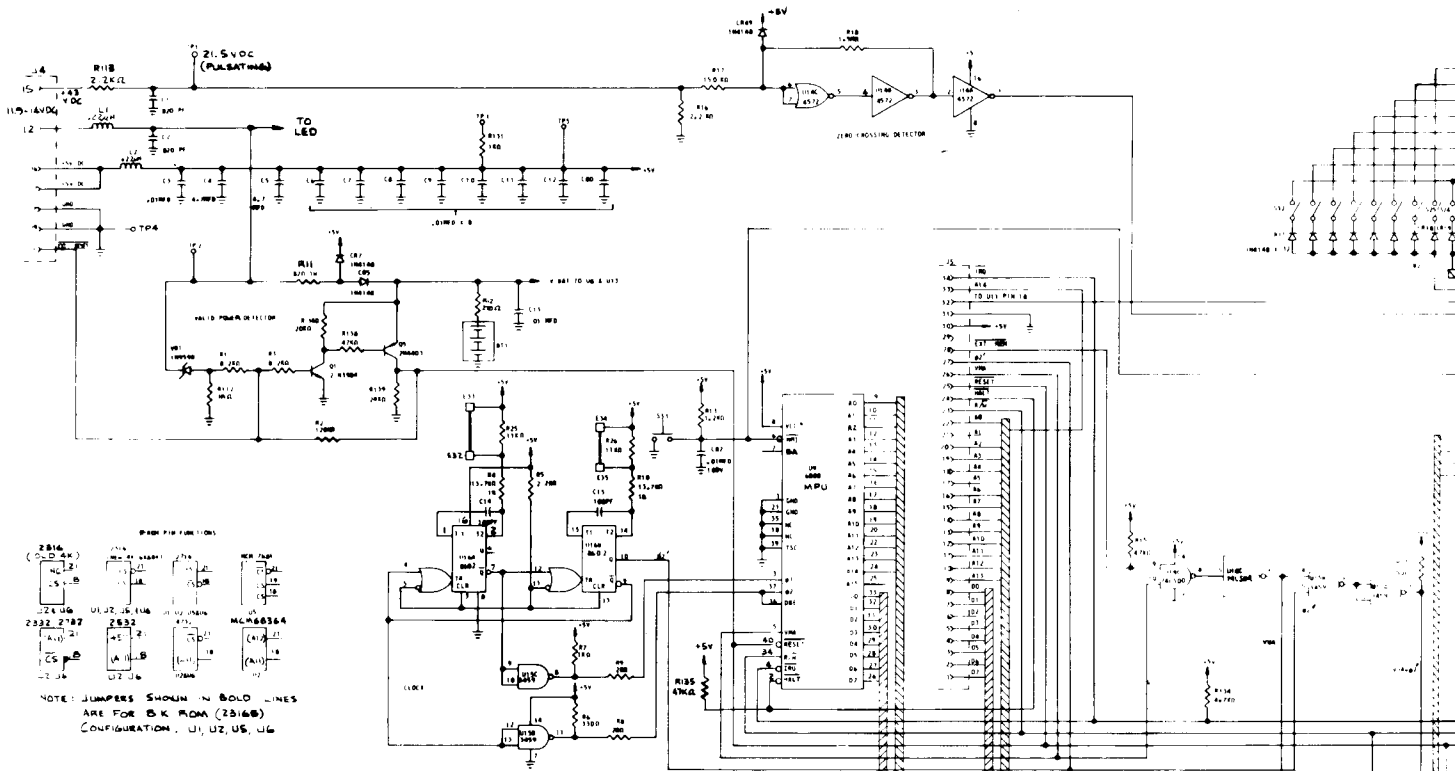
FOR **METEOR**

REV. **C.W.** DATE **8-21-79** AMT

MAT FIN. A-1-P.R.

SCALE: PART MUST BE FREE OF BURRS

Unless otherwise specified, all fractional dimensions carry tolerances of plus and minus .010: All decimal dimensions plus and minus .005. Exceptions: Drilled holes plus .003 minus .001. Die casting fractional plus and minus .005: Decimal plus and minus .003. Decimal dimensions on tools plus and minus .001. Angles ± 30' unless otherwise specified.



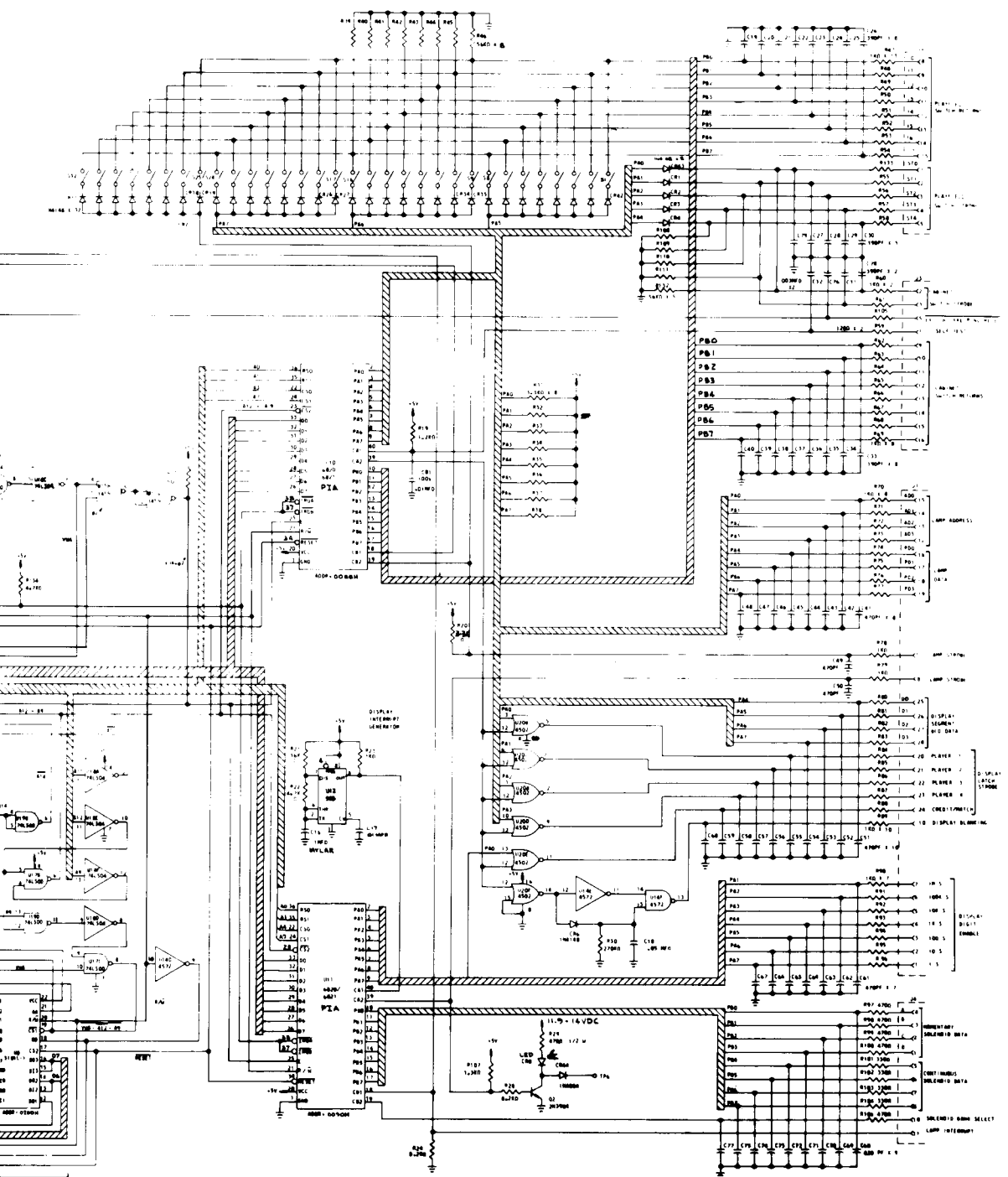
BK E-PROM (2716 INTEL)
JUMPER COMBINATIONS

E2 - E3	E23 - E25
E5 - E7	E27 - E28
E9 - E10	E29 - E30
E13 - E14	E32 - E33
E16 - E18	E34 - E36
E19 - E21	

NO. 12B-602-S

DIETZEN NO. 198M AGEPROOF

ISSUE	CHANGE	CAT



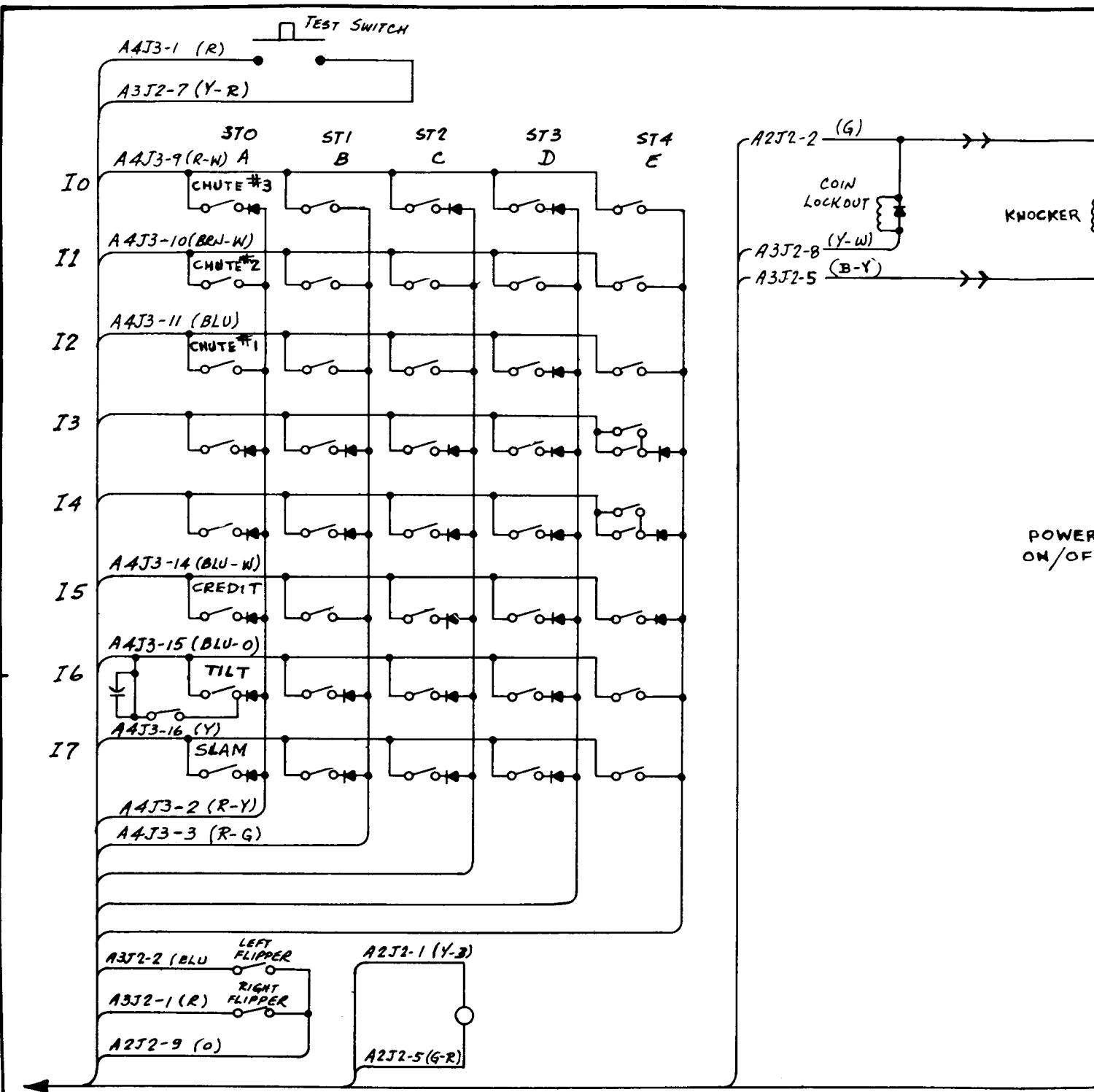
Handwritten notes and signatures on the right side of the schematic, including a large signature at the top and several smaller marks and initials below.

STERN ELECTRONICS INC.		
1725 DIVERSEY BLVD. CHICAGO 60614		
MPU 200 SCHEMATIC		
FOR SOLID STATE		
DRN. <i>ew</i>	DATE 8-21-79	AM'T
MAT	FIN.	APPR.

SCALE: PART MUST BE FREE OF BURRS

Unless otherwise specified, all fractional dimensions carry tolerances of plus and minus .010: All decimal dimensions plus and minus .005. Exceptions: Drilled holes plus .003 minus .001. Die casting fractional plus and minus .005: Decimal plus and minus .003. Decimal dimensions on tools plus and minus .001. Angles $\pm 30'$ unless otherwise specified.

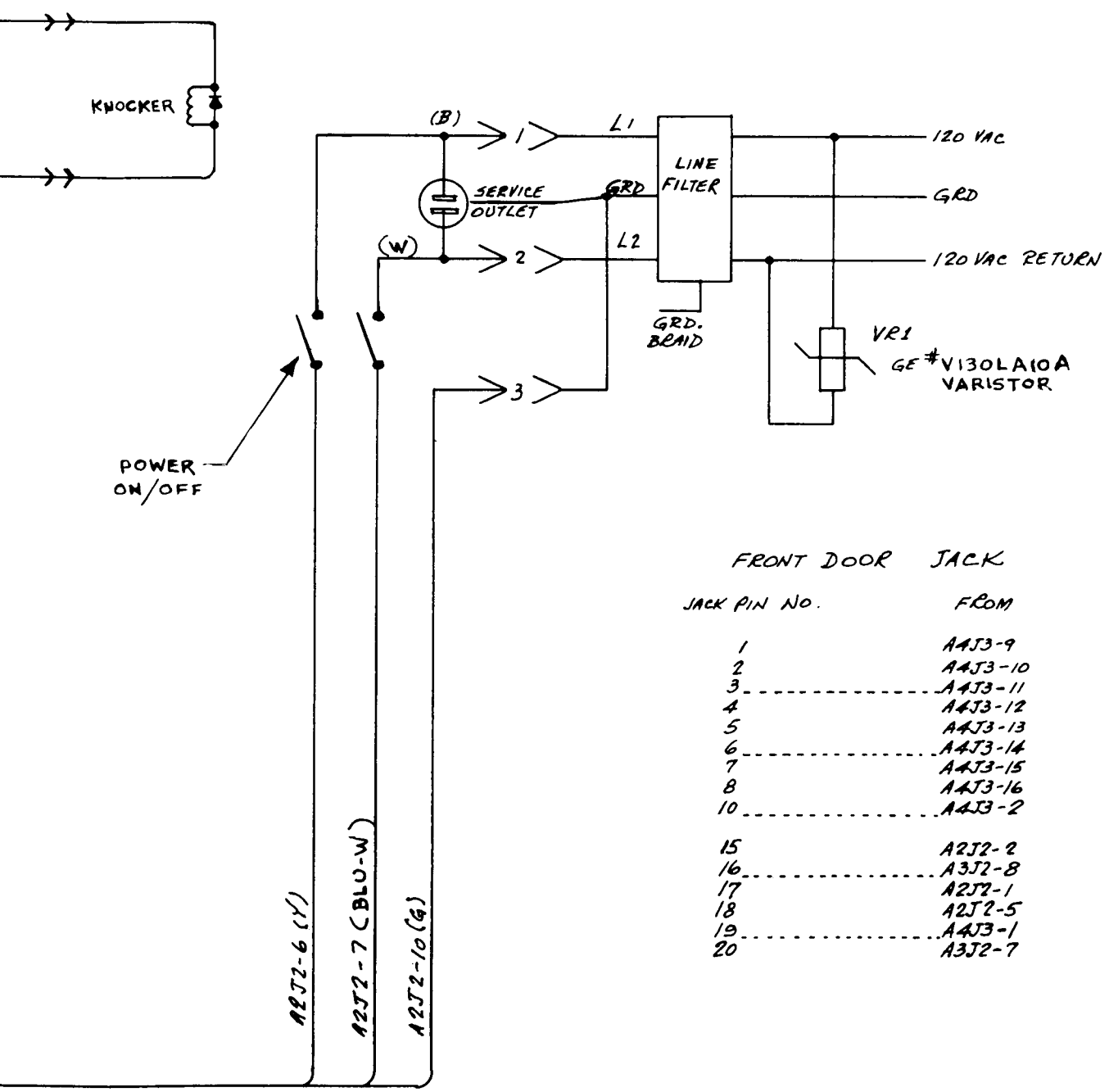
DATE



N/U = NOT USED
 ALL DIODES ARE 1N-4004

NO.

ISSUE	CHANGE



FRONT DOOR JACK

JACK PIN NO.	FROM
1	A4J3-9
2	A4J3-10
3	A4J3-11
4	A4J3-12
5	A4J3-13
6	A4J3-14
7	A4J3-15
8	A4J3-16
10	A4J3-2
15	A2J2-2
16	A3J2-8
17	A2J2-1
18	A2J2-5
19	A4J3-1
20	A3J2-7

CHANGE	DATE
--------	------

SCALE:

PART MUST BE FREE OF BURRS

Unless otherwise specified, all fractional dimensions carry tolerances of plus and minus .010: All decimal dimensions plus and minus .005. Exceptions: Drilled holes plus .003 minus .001. Die casting fractional plus and minus .005: Decimal plus and minus .003. Decimal dimensions on tools plus and minus .001. Angles ± 30° unless otherwise specified.

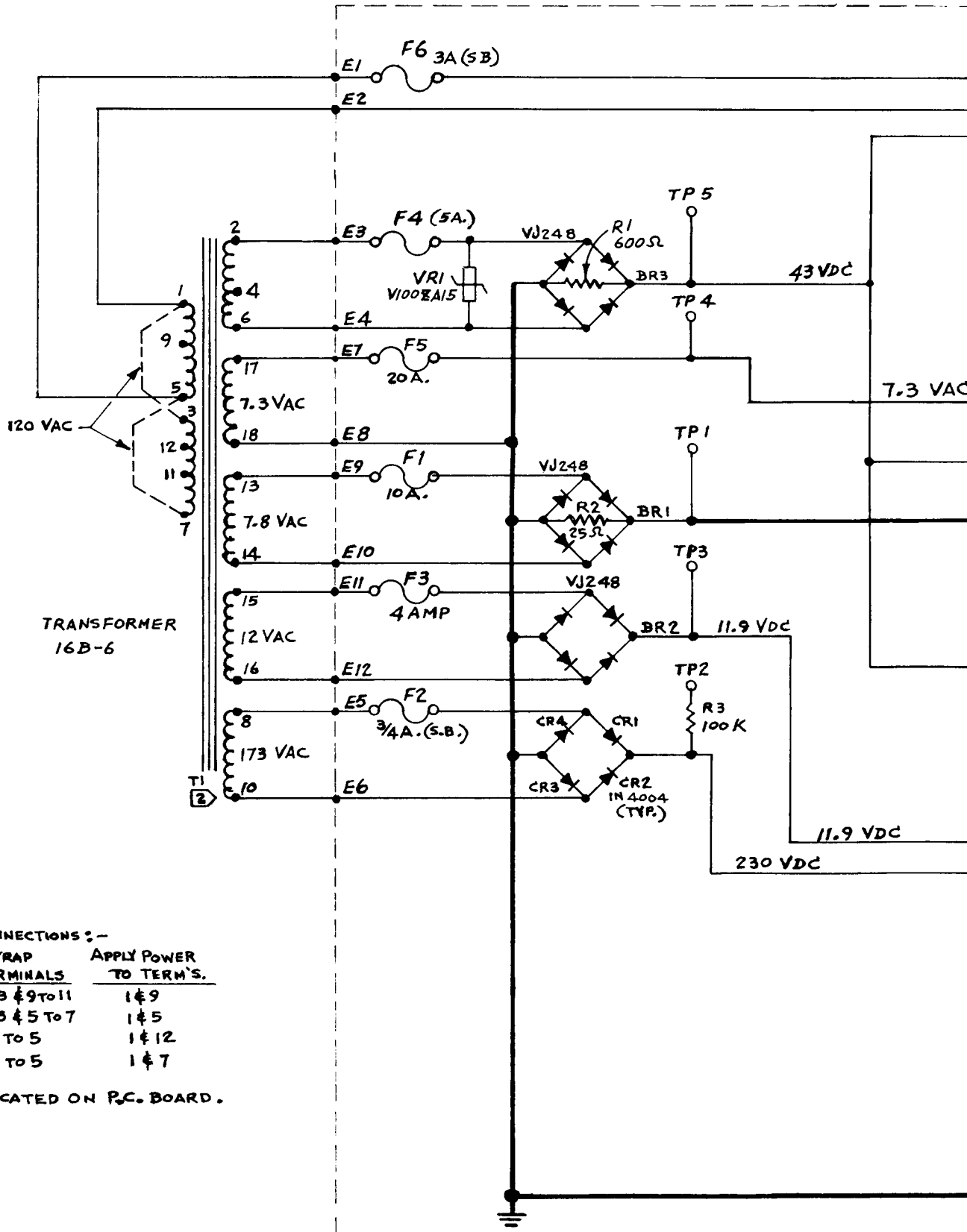
STERN ELECTRONICS INC.
 1725 DIVERSEY BLVD. CHICAGO 60614

CABINET AND FRONT DOOR WIRING

FOR **STANDARD**

DRN. J.J.	DATE 2-6-79	AM'T 44
MAT 44	FIN. 44	APPR.

TA-100
P.C. BOARD

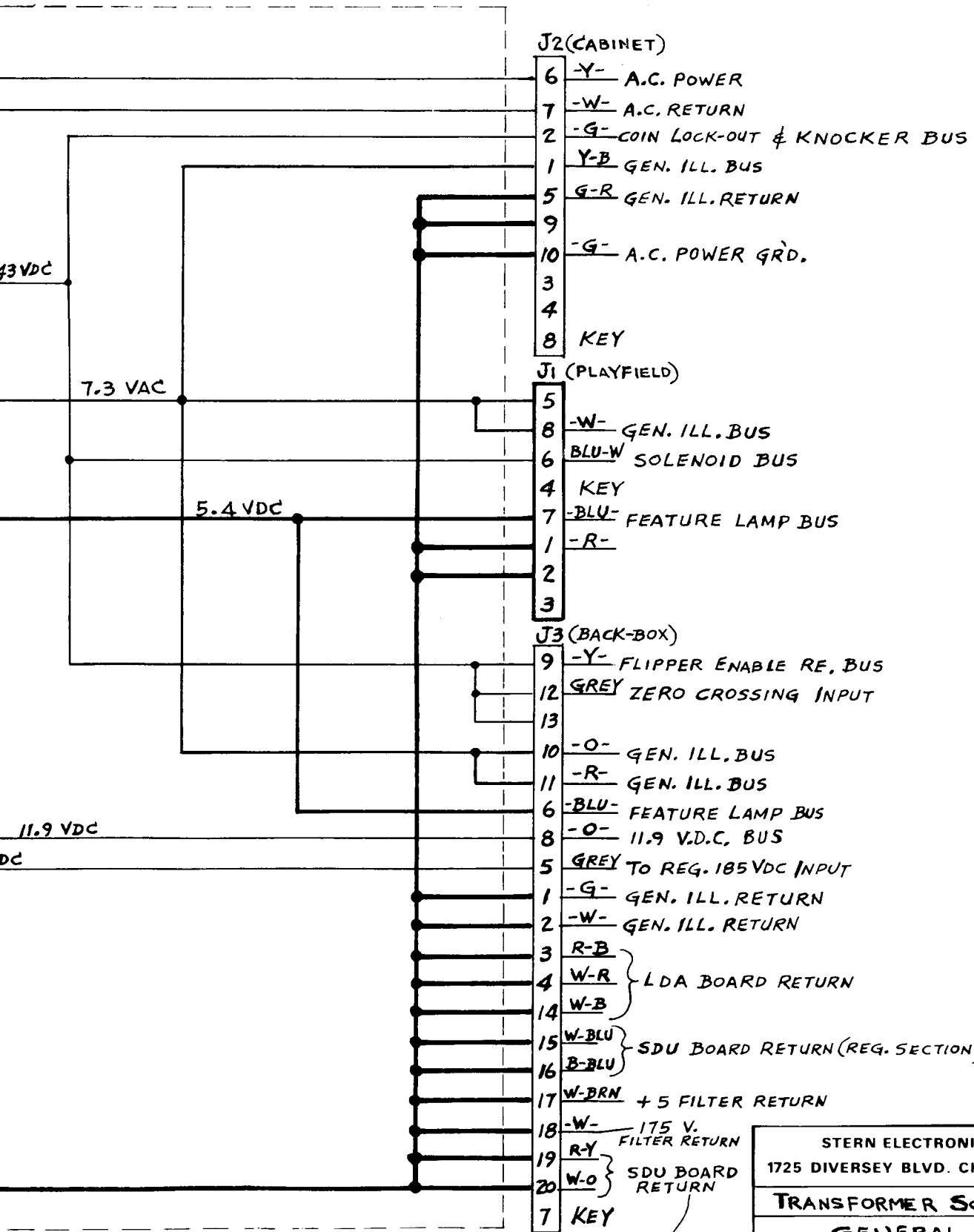


NOTES:

1. POWER LINE CONNECTIONS:-

AC LINE VOLTAGE	STRAP TERMINALS	APPLY POWER TO TERM'S.
115	1 to 3 & 9 to 11	1 & 9
120	1 to 3 & 5 to 7	1 & 5
220	3 to 5	1 & 12
240	3 to 5	1 & 7

② T1 IS NOT LOCATED ON P.C. BOARD.



J2 (CABINET)

- 6 -Y- A.C. POWER
- 7 -W- A.C. RETURN
- 2 -G- COIN LOCK-OUT & KNOCKER BUS
- 1 -Y-B GEN. ILL. BUS
- 5 -G-R GEN. ILL. RETURN
- 9 -G- A.C. POWER GRD.
- 3
- 4
- 8 KEY

J1 (PLAYFIELD)

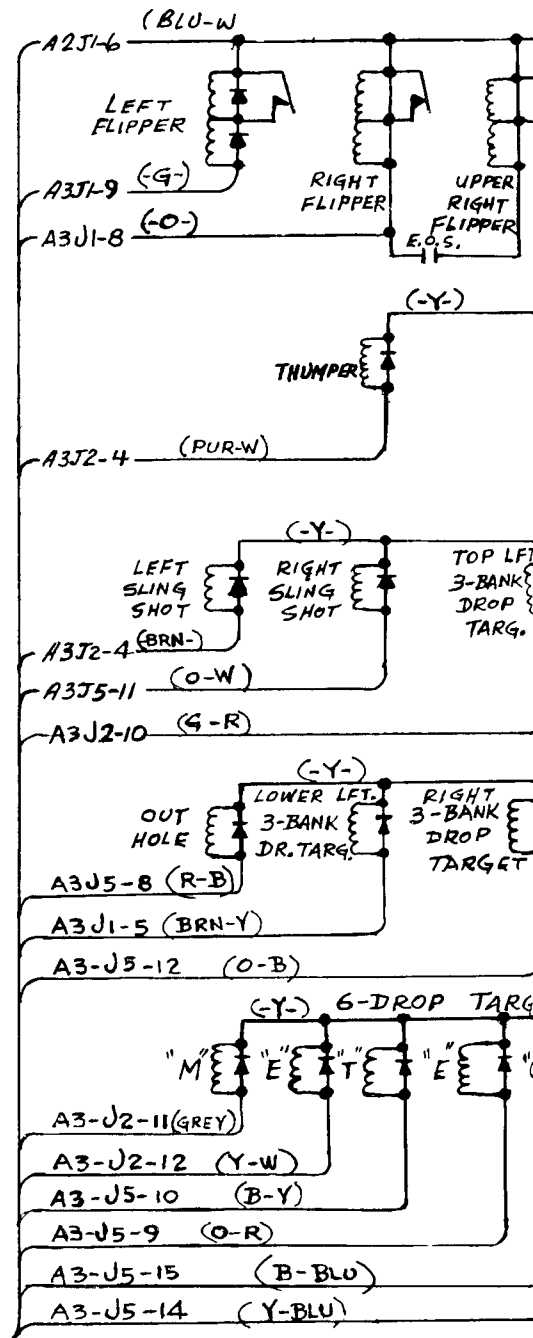
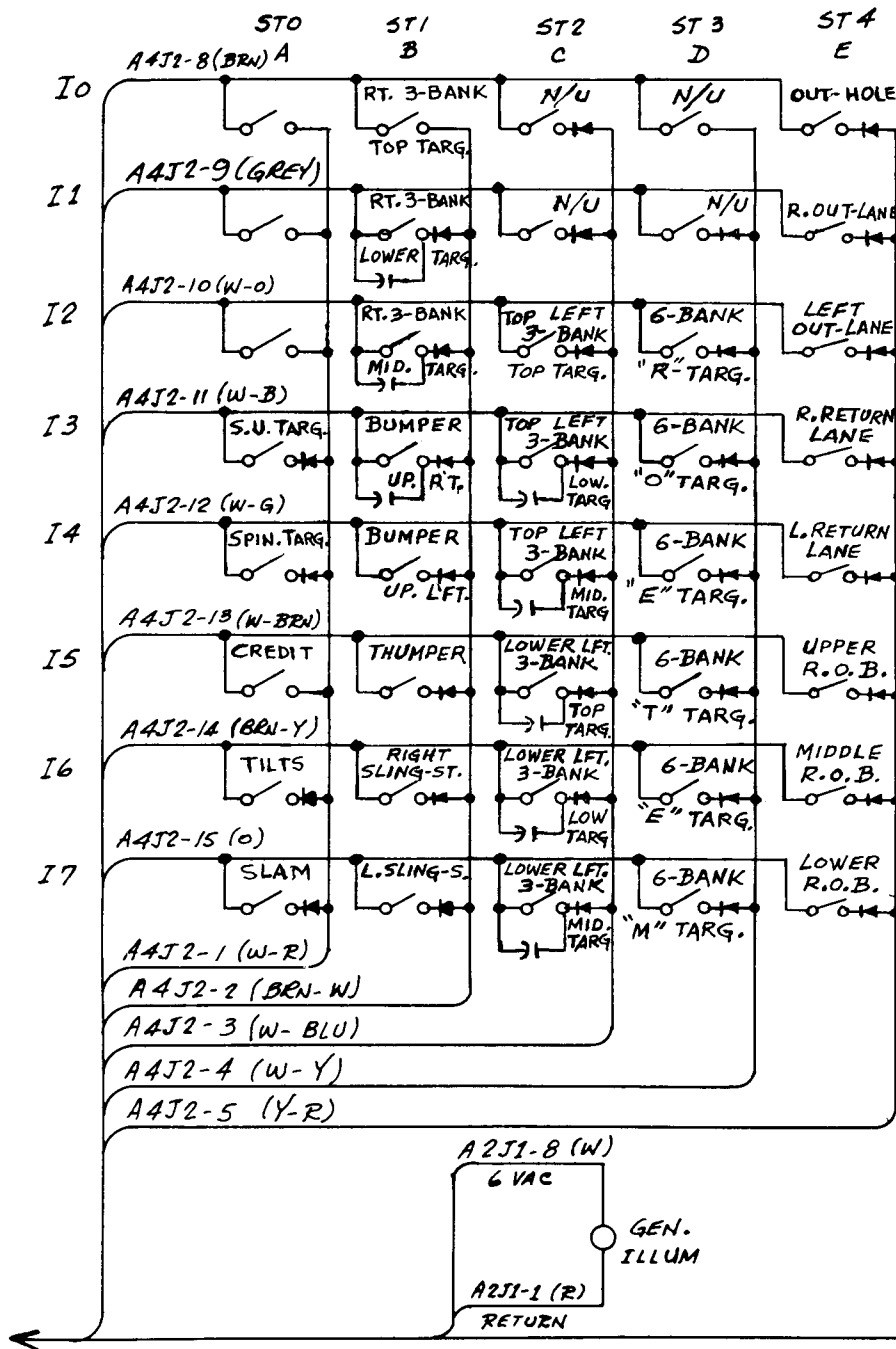
- 5
- 8 -W- GEN. ILL. BUS
- 6 -BLU-W SOLENOID BUS
- 4 KEY
- 7 -BLU- FEATURE LAMP BUS
- 1 -R-
- 2
- 3

J3 (BACK-BOX)

- 9 -Y- FLIPPER ENABLE RE. BUS
- 12 GREY ZERO CROSSING INPUT
- 13
- 10 -O- GEN. ILL. BUS
- 11 -R- GEN. ILL. BUS
- 6 -BLU- FEATURE LAMP BUS
- 8 -O- 11.9 V.D.C. BUS
- 5 GREY TO REG. 185 VDC INPUT
- 1 -G- GEN. ILL. RETURN
- 2 -W- GEN. ILL. RETURN
- 3 R-B
- 4 W-R } LDA BOARD RETURN
- 14 W-B }
- 15 W-BLU } SDU BOARD RETURN (REG. SECTION)
- 16 B-BLU }
- 17 W-BRN + 5 FILTER RETURN
- 18 -W- 175 V. FILTER RETURN
- 19 R-Y
- 20 W-O } SDU BOARD RETURN
- 7 KEY

(SOL. DR. SECTION)

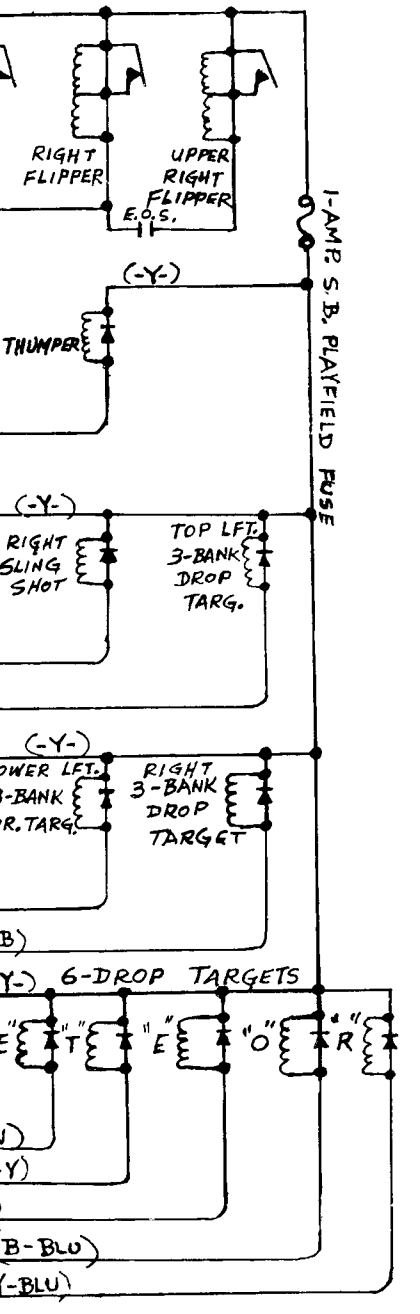
STERN ELECTRONICS INC.		
1725 DIVERSEY BLVD. CHICAGO 60614		
TRANSFORMER SCHEMATIC		
FOR GENERAL USE		
URN.	DATE 8-24-79	AM'T



PLAYFIELD

N/U = NOT USED
 ALL DIODES ARE IN-4004.
 ROB = ROLL-OVER BUTTON.
 DT = DROP TARGET
 SU = STAND-UP TARGET

STERN ELECTRONICS
 1725 Diversy Parkway, Chicago
 (312) 935-4600, Telex 25-4657
 Toll Free Service Assistance (800)



DESCRIPTION	WIRE COLOR	JACK "A" LDA-J1	PIN NO.
BOT. LT. BANK "WOW"	R-G	J-2	7
BOT. LT. D.T. SPECIAL	BRN-B	J-1	18
GAME OVER	GREY-W	J-2	11
HIGH SCORE TO DATE	GREY-O	J-2	22
LT. OUT LANE & RT. BUMPER	B-BLU	J-2	23
LT. R/O & RETURN LANE	BRN-BLU	J-1	24
MATCH	GREY-Y	J-2	1
METEOR "DROP" E	PUR-B	J-1	25
METEOR "DROP" #1E	W-O	J-3	20
METEOR "DROP" R	B-G	J-3	21
METEOR "DROP" T	B-O	J-1	11
METEOR "DROP" M	R-BLU	J-3	18
METEOR "DROP" "O"	GREY-B	J-3	10
METEOR "WOW" E	W-BLUE	J-1	13
METEOR "WOW" 2E	B-W	J-1	28
METEOR "WOW" M	Y-G	J-3	2
METEOR "WOW" O	R-W	J-3	4
METEOR "WOW" R	O-W	J-3	27
METEOR "WOW" T	BRN-R	J-1	6
#1 (L) ROCKET 1K	O-R	J-3	12
#1 (L) ROCKET 2K	R-Y	J-3	25
#1 (L) ROCKET 3K	GREY	J-1	9
#1 (L) ROCKET 4K	GREY-G	J-1	19
#1 (L) ROCKET 5K	G-R	J-3	1
#1 (L) ROCKET 6K	-B-	J-3	26
#1 (L) ROCKET 7K	BLU-R	J-1	1
1X	BLU-R	J-2	14
#2 (M) ROCKET 1K	-W-	J-3	11
#2 (M) ROCKET 2K	Y-BLUE	J-3	17
#2 (M) ROCKET 3K	R-G	J-1	3
#2 (M) ROCKET 4K	BLU-W	J-1	23
#2 (M) ROCKET 5K	W-B	J-3	15
#2 (M) Rocket 6K	B-R	J-3	19
#2 (M) ROCKET 7K	G-B	J-1	8
2X	O-B	J-3	15
#3 (R) ROCKET 1K	W-BLU	J-3	3
#3 (R) ROCKET 2K	W-GREY	J-3	23
#3 (R) ROCKET 3K	GREY-BLU	J-1	10
#3 (R) ROCKET 4K	GREY-Y	J-1	15
#3 (R) ROCKET 5K	W-R	J-3	9
#3 (R) ROCKET 6K	R-B	J-3	16
#3 (R) ROCKET 7K	PUR-W	J-1	2
4X	R-BLU	J-2	2
RT. BANK SPECIAL	Y-G	J-1	7
RT. BANK "WOW"	Y-B	J-2	20
RT. OUT-LANE & LT. BUMPER	PUR-Y	J-1	4
RT. R/O & LT. RETURN LANE	BLU-O	J-1	5
M. R/O TAR. & S.U. SPOT METEOR	GREY-O	J-1	14
SHOOT AGAIN (INSERT)	GREY-R	J-2	21
SPIN #1	B-W	J-3	14
SPIN #2	GREY-W	J-3	24
SPIN #3	W-Y	J-1	12
SPIN #4	GREY-B	J-1	27
SPIN #5	B-Y	J-3	13
SPIN #6	GREY	J-3	22
S.P.S.A.	GREY-R	J-1	26
S.U. TAR. SPECIAL	-B-	J-1	16
S.U. TAR. "WOW"	Y-BLU	J-2	16
BOT LT. BANK "WOW"	R-G	J-3	7
TOP LT. BANK "WOW"	BLU-W	J-2	6
TOP LT. D.T. SPECIAL	-PUR-	J-1	17

FIELD

ELECTRONICS, INC.

5 Diversey Parkway, Chicago, Illinois 60614
 (312) 935-4600, Telex 25-4657
 Free Service Assistance (800) 621-6424

NOTES:

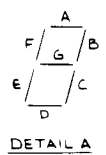
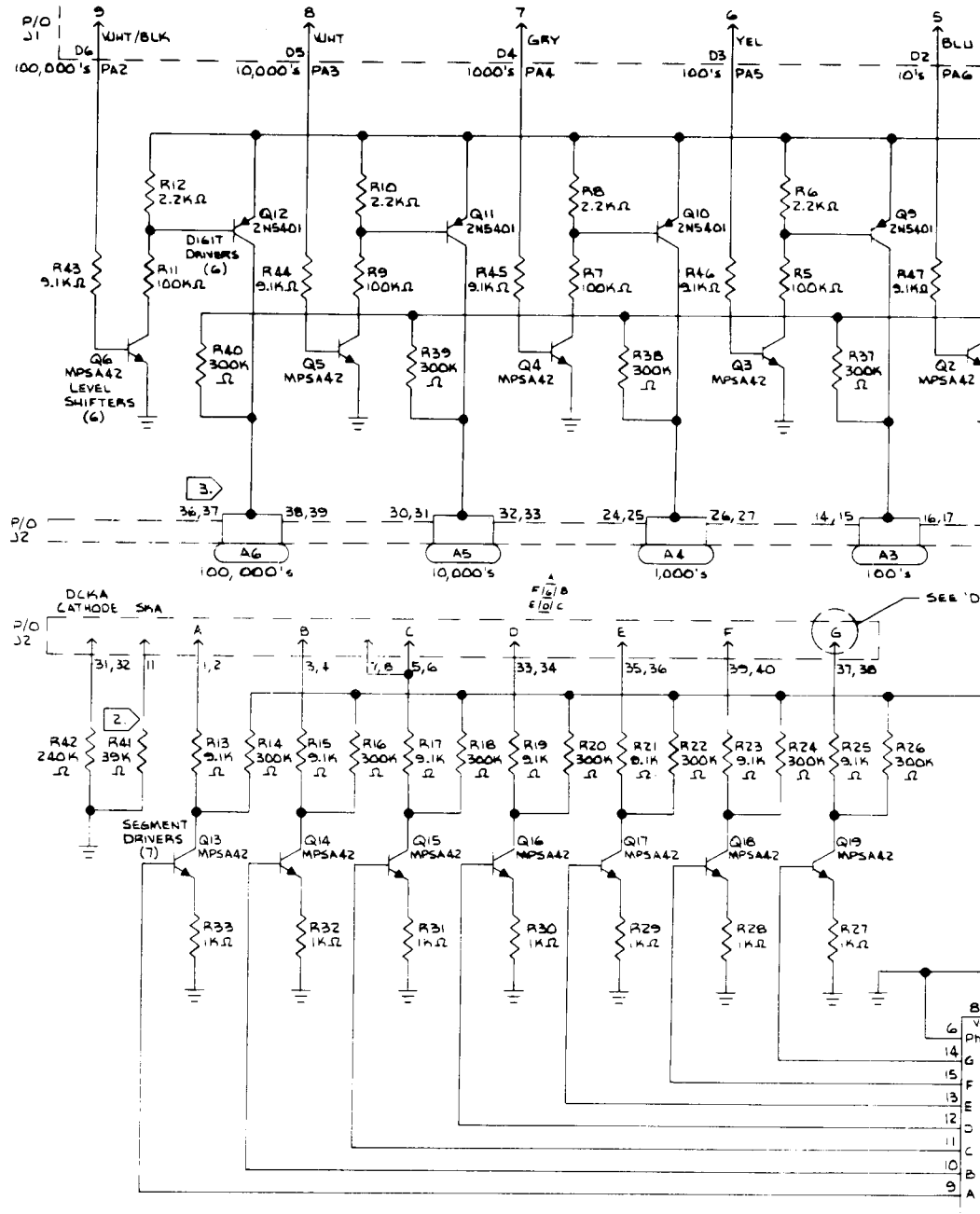
1. PIN'S WIRE COLOR

PLAYER #1 BLK/WHT
 PLAYER #2 ORG/BLU
 PLAYER #3 RED/YEL
 PLAYER #4 BRN/ORG
 MATCH/BALL RED/BLK

2. OMIT FOR BECKMAN DISPLAYS

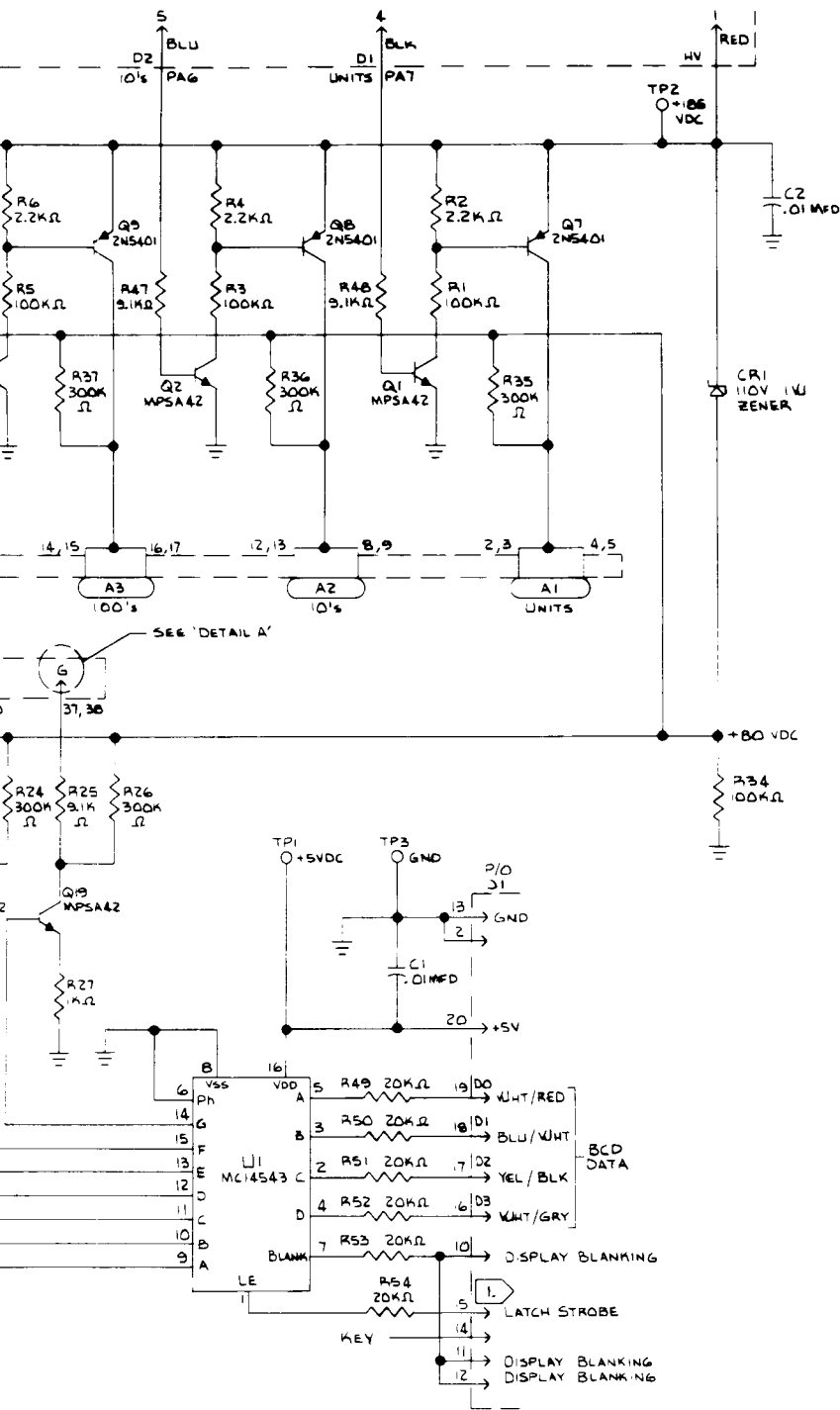
3. 36, 37 DENOTES

BECKMAN DISPLAY TERMINAL #, PANTEX DISPLAY TERMINAL



NO. 12B-434-S1

ISSUE	CHANGE



STERN ELECTRONICS INC.		
1725 DIVERSEY BLVD. CHICAGO 60614		
SCHEMATIC, DISPLAY - P.C. BOARD		
FOR GEN. USE		
DRN. <u>20</u>	DATE <u>5-25-79</u>	AM'T <u>4</u>
MAT <u>11</u>	FIN. <u>11</u>	APPR.

SCALE: <u>1/8"</u>	PART MUST BE FREE OF BURRS
GE	DATE

Unless otherwise specified, all fractional dimensions carry tolerances of plus and minus .010: All decimal dimensions plus and minus .005. Exceptions: Drilled holes plus .003 minus .001. Die casting fractional plus and minus .005: Decimal plus and minus .003. Decimal dimensions on tools plus and minus .001. Angles ± 30° unless otherwise specified.

M
E
T
E
O
R



ELECTRONICS, INC.

1725 Diversey Parkway, Chicago, Illinois 60614

(312) 935-4600, Telex 25-4657

Toll Free Service Assistance (800) 621-6424