

TANK II

Operation · Maintenance · Service Manual



KEE GAMES

A Subsidiary of Atari

ATARI, INC · 14600 Winchester Blvd · Los Gatos, CA 95030 · 408/374-2440 · Telex 357-488

WARRANTY

Seller warrants that its printed circuit boards and parts thereon are free from defects in material and workmanship under normal use and service for a period of ninety (90) days from date of shipment. Seller warrants that its television monitors are free from defects in material and workmanship under normal use and service for a period of thirty (30) days from date of shipment. None of the Seller's other products or parts are warranted.

If the products described in this manual fail to conform to this warranty, Seller's sole liability shall be, at its option, to repair, replace, or credit Buyer's account for such products which are returned to Seller during said warranty period, provided:

- (a) Seller is promptly notified in writing upon discovery by Buyer that said products are defective;
- (b) Such products are returned prepaid to Seller's plant; and
- (c) Seller's examination of said products discloses to Seller's satisfaction that such alleged defects existed and were not caused by accident, misuse, neglect, alteration, improper repair, installation or improper testing.

In no event shall Seller be liable for loss of profits, loss of use, incidental or consequential damages.

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Introduction

The Motorola TV and Tank Circuit Boards have been designed to give you, the customer, the most trouble free unit possible. The circuits used are all solid state for long life and reliability.

Our games are designed with the customer in mind and we appreciate any and all comments from the field.

In the event your unit does require servicing, this manual will aid your efforts.

This manual consists of the following sections:

- I. Adjustments
- II. Diagnosis and Procedures
- III. Schematics, Drawings, and Parts Lists

PARTS DEPT

I. ADJUSTMENTS

There are two types of adjustments that can be made to your unit: TV & circuit boards.

The controls on the TV monitor work as in any normal TV. Vertical Hold, Brightness, Contrast & Horizontal Hold. These are located on the back side of the monitor chassis. The vertical & horizontal hold controls should be set in the middle of their range. Turn control until picture tears or rolls, turn control back until picture tears or rolls in the opposite direction & then reset control to the middle of the stable range. The brightness & contrast should be set at a point where the mine field in the center of the playfield is clearly visible.

Circuit Board

On Circuit Board I (which is on the left side of the cabinet, looking from the rear of the same) there are three adjustments you may want to make.

Master Volume: These adjustments are located in the upper right area of the board. There is a small tab on each of these pots & when they are set at the same point the volume between the two tanks will be even.

Missile Firing & Explosion Sound: These adjustments are located in the upper left area of the board. Again there are two (2) pots to adjust. Setting the tabs evenly on the pots will set the volume evenly between the two tanks.

Game Time: There is one (1) switch located on Board I and next to this switch is the pot which adjusts the game time. This pot has been preset at the factory so that with the switch in the 25¢ position, one game is available for a quarter and will last for 60 seconds. With the switch in the 50¢ position, one game is available for two (2) quarters and will last for 120 seconds. You may set this switch as you wish and also adjust the time pot to your convenience.

Do not attempt to adjust any other pots located on these boards as they are factory adjustments and tampering with them may have detrimental effects upon the game.

II. DIAGNOSIS

| <u>SYMPTOM</u> | <u>CHECK</u> |
|----------------------------|---|
| No Picture | Fuse, Power Cord, Harness Connections |
| No Sound | Speaker Connections, Volume Adjustments |
| Rolling or Tearing Picture | Re-Adjust TV Controls |
| Game Will Not Start | Coin Mechanism, Harness Connections |
| No Tank Movement | *Joystick Switches (proper alignment), Harness Connections |
| No Firing of Shell | *Joystick Switches, Harness Connections |

*These are simple on/off switches and may be checked with an ohmmeter or continuity tester.

NORMAL GAME OPERATION

Inserting the coins immediately starts the game with one Tank in the upper left area of the playfield and the other Tank in the lower right area.

To move Tank forward, push both joysticks forward. To stop Tank, pull both joysticks back. For turning to the right, pull right joystick back and push left joystick forward.

To turn left, push right joystick forward and pull left joystick back. Silkscreened into the front panel are illustrated instructions for the different motions.

To fire the shells, push the red button on the right joystick down. One point is scored each time a shell hits the other Tank. If a Tank hits a mine, the opponent gains one point and the mine will disappear for the remainder of that game. When a Tank is hit by a shell or encounters a mine, an explosion sound is heard and the Tank flashes. Until this flashing has stopped, his opponent cannot fire another shell. Approximately 20 seconds before the game ends, the score display will begin flashing and continue until the game ends.

TV TROUBLESHOOTING

NO POWER: Check for blown fuses and proper line voltage. Also check to see if the interlock switch is in the on position, either with the rear door closed or with the switch defeated.

NO PICTURE: Check the monitor fuses. If blown, visually check the monitor for shorts. If fuses are OK, look to see if the CRT's choke filament is glowing and if there are any loose wires.

WHITE PICTURE BUT NO DISPLAY: This symptom indicates two problems. Either the PC Board or the TV is malfunctioning. To double check and make certain of the area of trouble, check the PC Boards that making sure power is reaching them and check the edge connectors making sure they are positioned correctly on the PC Boards. Also check the 12-pin Molex connector on the TV, making sure it is correctly connected.

WAVY PICTURE: If this condition exists, check the following two items to be sure they are functioning properly. First check the 5-volt power supply on the two main circuit boards. This can be done by measuring between the two heavy traces on each board with a voltmeter or an oscilloscope. There should be $5 \pm 1/4$ volts on each board. Next, locate pin 32 on the large monitor circuit board. Measure the voltage from this pin to ground. There should be 73 volts at this point. If the voltage is either too high or too low, adjust the 73-volt regulator pot located on the same P.C. board in the upper left-hand corner. DO NOT TURN THIS POT THROUGH THE WHOLE RANGE.

Damage will occur to its associated parts. All that needs to be done is a slight turn to adjust properly.

IMPROPER DISPLAY: Recheck all picture adjustments (brightness, contrast, and etc.) to make sure they are correct.

REMOVAL & REPLACEMENT PROCEDURES

CONTROL PANEL: To achieve easy access to the joystick controls, open the front coin door and remove the two wing nuts mounting the control panel to the cabinet. There is one wing nut on each side. Slide the control panel out far enough to clear the mounting bolts from the cabinet and turn the panel upside down. Set the face of the panel down on the supporting blocks. The joystick controls are now exposed for servicing.

PLEXIGLASS REMOVAL: To remove the plexiglass, open the front coin door and remove the three wing nuts running along the upper frame member of the control panel. Pull the lower aluminum plexiglass anchoring bracket away from the game. The plexiglass should be pushed down and pulled out to remove it from the game.

TV MONITOR REMOVAL: To remove monitor for replacement or repair, first remove plexiglass by following the above plexiglass removal instructions. Also, remove the four screws mounting the plastic bezel. Loosen the two wing nuts by the corners of the CRT by way of the back door. Remove the 10-pin Molex connector from the back side of the TV. By inserting a finger into the two holes on each side of the CRT, the monitor can be pulled out.

TV MONITOR REPLACEMENT: To replace the TV monitor, follow in reverse order the steps for monitor removal.

MOTOROLA MONITOR PC BOARD REMOVAL

POWER, AUDIO PC BOARD: To remove this PC Board, simply locate it on the left side of the monitor in back of the power transformer. Carefully pull up on the board. To replace this board, locate the slot between pins 3 & 4 and put this on your left side, then simply insert into into the edge connector.

MONITOR PC BOARD: To remove the monitor PC board, take a screwdriver or a similiar object and slowly pry the PC board up off of the chassis until it clears the pins. Next, unplug the socket from the yoke and slide board out. To replace this board, follow the above steps in reverse order.

MAIN CIRCUIT BOARDS I & II

REMOVAL: Each board is mounted to the cabinet by two screws located one on each side. Remove the edge connectors first, then remove the four screws. DO NOT TRY TO SEPARATE THE TWO BOARDS. Each set of boards must remain as one unit. After removing boards, carefully follow board shipping procedure in order to reduce the chances of damage to a minimum.

REPLACEMENT: Follow the reverse steps of the removal procedures to replace the PC boards.

PC BOARD SHIPPING PROCEDURES

When packaging PC boards for shipment, make sure the top of each board is facing the other with either bubble wrap or foam rubber them. This interfacing must be thick enough to insure that parts of one board do not come in contact with the other board. DO NOT use small pieces of styrofoam as packing material between the boards. Careful packing is recommended as KEE GAMES, INC. cannot be liable for boards damaged in transit. Also, include a short statement describing the basic problem with the boards.

CABINET MAINTINANCE

Cleaning of the cabinet and plexiglass may be done with any non-abrasive household cleaner. The coin acceptors and lock cylinders should be lubricated periodically with any light oil or silicone aerosol spray.

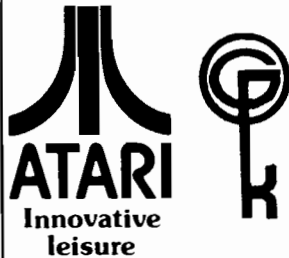
ACCESS DOORS

COIN DOOR: There are two coin mechs in each game. The extra coin mech is there for customer convenience and also as a spare in case of a coin jam in one of the mechs. The coin door provides access to the coin box and to all wing nuts used to secure the monitor, control panel and the bracket for the plexiglass CRT screen.

REAR DOOR: The rear door allows access to the Tank PC board set, the fuse line filter and transformer assembly, Motorola monitor controls and PC board, and the wing nuts securing the control panel, plexiglass and TV monitor.

III. SCHEMATICS, DRAWINGS, AND PARTS LISTS

| <u>Number</u> | <u>Title</u> |
|--------------------|--|
| 003521 | Parts List, Top Assembly |
| A003521 | Top Assembly |
| 002303-01 and -02 | Parts Lists, Joystick Assembly |
| A002303-01 and -02 | Joystick Assembly |
| 003492 | Harness Schematic |
| 003538 | Parts List, Electronics Tray Assembly |
| A003538 | Electronics Tray Assembly |
| 003110 | Tank Board 1 Schematic |
| 003110 | Parts List, Tank Board 1 Assembly |
| A003110 | Tank Board 1 Assembly |
| 003112 | Tank Board 2 Schematic |
| 003112 | Parts List, Tank Board 2 Assembly |
| A003112 | Tank Board 2 Assembly |



PARTS LIST SPECIFICATION

Page 1 of 1

Drawn

Checked

M. J. 5/20/75

Mech. Eng.

Proj. Eng.

P. TAKASHI

Elec. Eng.

REV.

A

| Rev. | Description | Date | Apprv. | Rev. | Description | Date | Apprv. |
|------|-------------|--------|--------|------|-------------|------|--------|
| A | PROD INT. | 5/1/75 | | | | | |
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| Item | Part Number | Qty. | DESCRIPTION |
|------|-------------|------|--|
| 1 | A003522 | 1 | Cabinet Assembly |
| 2 | A003544 | 1 | TV Mount Board Assembly |
| 3 | A003534 | 1 | PC Mount Board Assembly |
| 4 | A003538 | 1 | Electronics Tray Assembly |
| 5 | A003540 | 1 | Control Panel Assembly |
| 6 | 003543 | 1 | Plex Screen W/Artwork |
| 7 | 001573 | 1 | Retainer, Upper Plex. |
| 8 | 002728 | 2 | Panel Mtg. Brackets |
| 9 | 000869 | 2 | Speaker, Grill |
| 10 | * 48-004 | 2 | Speaker, 4" |
| 11 | A003637 | 1 | Coin Door Assembly |
| 12 | 003542 | 1 | "Coin" Decal |
| 13 | 71-2112 | 1 | Lock, Mech., Barrel Cartridge |
| 14 | 75-5120N | 12 | Bolt, Carriage, #10-24 x 1.25" Long |
| 15 | 75-010S | 10 | Washer, Flat, #10 |
| 16 | 75-040 | 12 | Washer, Split-Lock, #10 |
| 17 | 75-911S | 6 | Nut, Hex, #10-24 |
| 18 | 75-931 | 6 | Nut, Wing, #10-24 |
| 19 | 75-035S | 2 | Washer, Flat, 1/4" Wide Pattern |
| 20 | 72-6620 | 4 | Screw, SM, Pan Hd., Phil. #6 x 1.25" Lg. |
| 21 | 72-6812 | 6 | Screw, SM, Pan Hd., Phil. #8 x .75" Lg. |
| 22 | 72-6608 | 8 | Screw, SM, Pan Hd., Phil. #6 x .50 Lg. |
| 23 | 75-5544 | 2 | Bolt, Carriage, #1/4-20 x 2.75" Lg. |
| 24 | 75-015S | 2 | Washer, Flat, 1/4" |
| 25 | 75-045 | 2 | Washer, Split Lock, 1/4" |
| 26 | 75-935 | 2 | Nut, Wing, 1/4-20 |
| 27 | 73-77004 | 8 | Pop Rivet, Alum. 3/16" DIA. x .68 Lg. |
| 28 | 003752 | 1 | Bezel, Cardboard |

* This speaker may be replaced by any speaker previously used on TANK.

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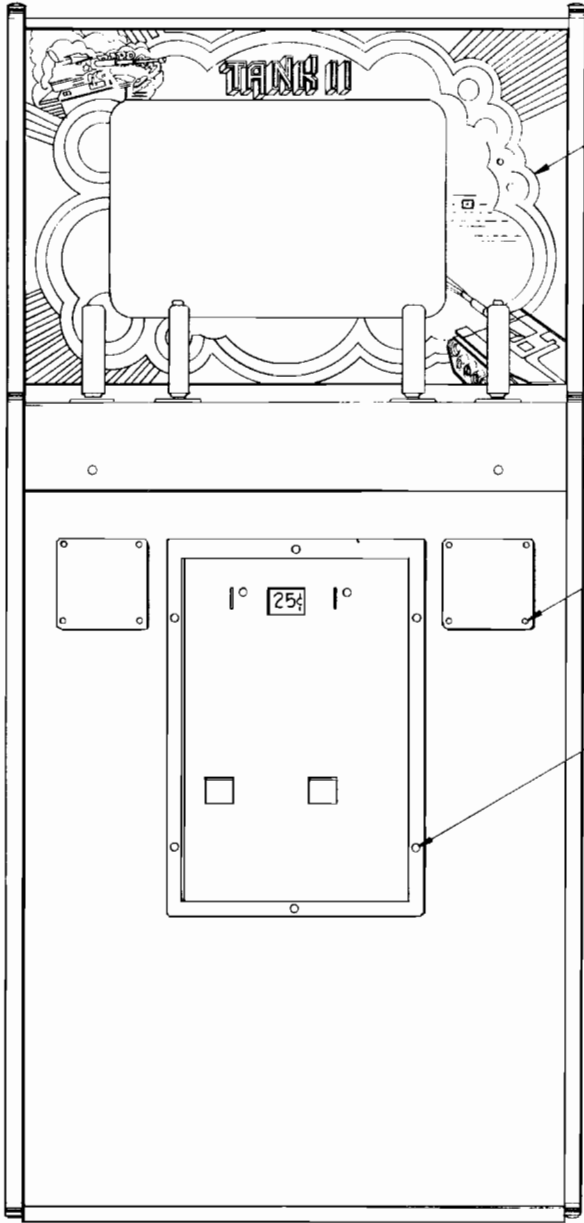
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23 24 25 26 2
2 REQ'D.

2 REQ'D 19 14 15 16 18 5
4 REQ'D

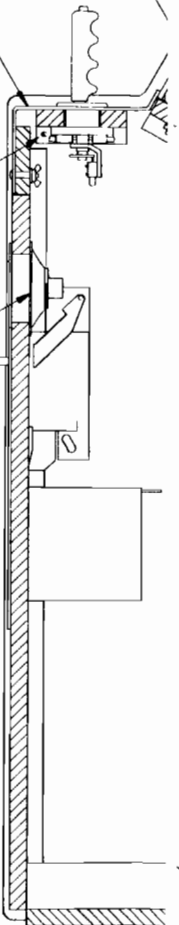
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9 2 REQ'D
27 8 REQ'D

2 REQ'D 8
21 6 REQ'D

2 REQ'D 10
22 8 REQ'D

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6 REQ'D



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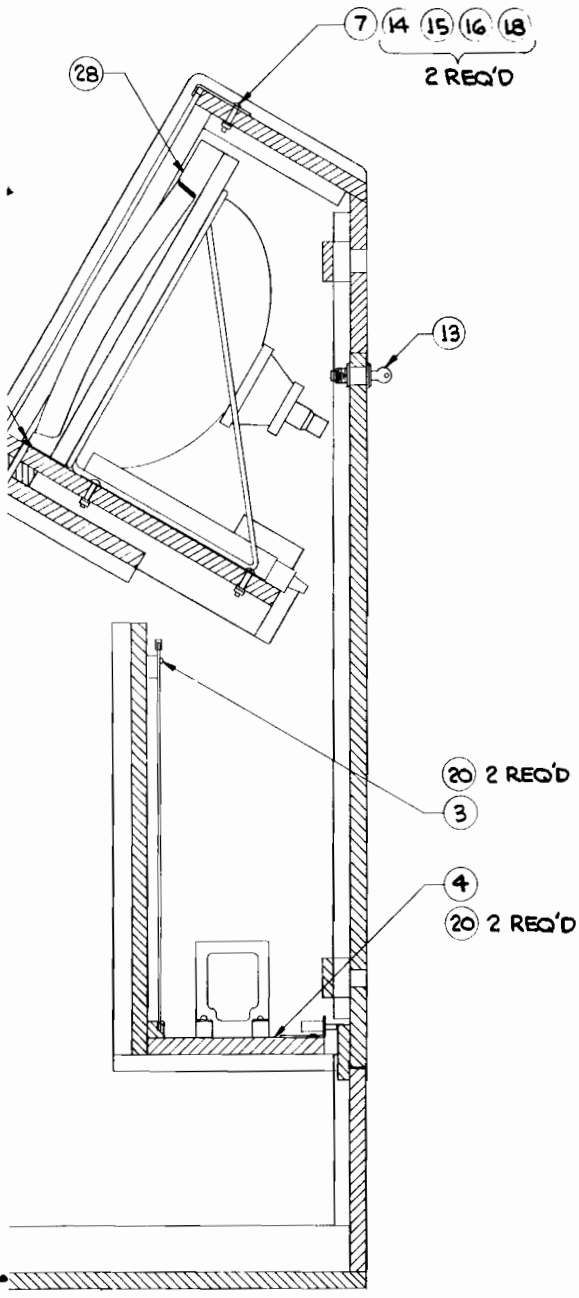
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| REVISIONS | | | | |
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| SYM | DESCRIPTION | INITIALS and DATE | | |
| | | DWG | CHECK | ENGR |
| A | PRODUCTION REL | 5-21 | PLT | PLT |



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DRAWING NO
A003521

SHEET
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REV
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| TANK II | |
| NEXT ASSY | USED ON |
| APPLICATION | |

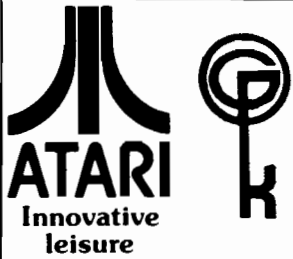
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| INTERPRET THIS DRAWING PER USASI Y14.5 | DRAWN BY PETE | DATE 5-21-75 |  ATARI ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030 |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON | CHECKED | DESIGN ENGINEER P. TAKAICHI | |
| FRACTIONS = +1/16 x = ±.1 ANGLES = ±1° .xx = ±.03 SURFACE FINISH ✓ .xxx = ±.010 | PROJECT ENGINEER | DOCUMENT CONTROL <i>MP</i> | TITLE TOP ASSEMBLY |
| MATERIAL SEE P/LO03521 | APPROVED <i>P. Takachi</i> | SIZE D | DRAWING NO A003521 |
| | | SCALE | REV A |

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ASSEMBLY TITLE / JOYSTICK ASSY (UP, DOWN & FIRE) P/L 002303-01

PARTS LIST SPECIFICATION Page 1 of 1

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|-----------------------------|-------------------------------|
| Drawn | |
| Checked <i>M.J. 5/20/75</i> | Mech. Eng. <i>[Signature]</i> |
| Proj. Eng. | Elec. Eng. <i>[Signature]</i> |
| | REV. E |

| Rev. | Description | Date | Apprv. | Rev. | Description | Date | Apprv. |
|------|------------------|---------|--------------------|------|-------------|------|--------|
| A | PROD REL | 4-3-75 | <i>[Signature]</i> | | | | |
| B | Rev per ECN 1285 | 4-3-75 | <i>[Signature]</i> | | | | |
| C | Rev per ECN 1333 | 4/21/75 | <i>[Signature]</i> | | | | |
| D | Rev per ECN 1470 | 6/6/75 | <i>[Signature]</i> | | | | |
| E | Rev per ECN 1503 | | <i>[Signature]</i> | | | | |

| Item | Part Number | Qty. | DESCRIPTION |
|------|-------------|------|------------------------------------|
| 1 | 002299 | 1 | Button |
| 2 | | | |
| 3 | 002302 | 1 | Spring Return |
| 4 | | | |
| 5 | 002298 | 1 | Rod |
| 6 | 002294 | 1 | Bushing |
| 7 | 002296 | 2 | Washer, Return |
| 8 | 002293 | 1 | Hub |
| 9 | 002297 | 1 | Spacer Ring |
| 10 | 003207 | 1 | Switch Plate 11 |
| 11 | 002301 | 1 | Bracket, Switch |
| 12 | 002300 | 1 | Actuator |
| 13 | A003583-01 | 1 | Handle Assy |
| 14 | 75-2412S | 2 | Screw, Mach, Rd Hd, Phil #4-40x3/4 |
| 15 | 75-044 | 2 | Washer, Split Lock, #4 |
| 16 | 75-914S | 2 | Nut, Hex #4-40 |
| 17 | 75-991202 | 1 | Nut, Hex 1/4-28 |
| 18 | 75-019S | 1 | Washer, Flat, 5/16 |
| 19 | 75-06003 | 2 | Washer, Belleville Spring |
| 20 | 72-6410 | 4 | Screw, Sheet Metal, Phil. #4 x 5/8 |
| 21 | 72-6412 | 4 | Screw, Sheet Metal, Phil. #4 x 3/4 |
| 22 | **65-081A | 3 | Micro Switch |
| 23 | | | |
| 24 | 75-912S | 2 | Nut, Hex, #2-56 |

Notes:
 * Optional Handle Grip See DWG No. 003092
 ** Acceptable Substitutes
 65-091A, 65-101A, 65-111A.



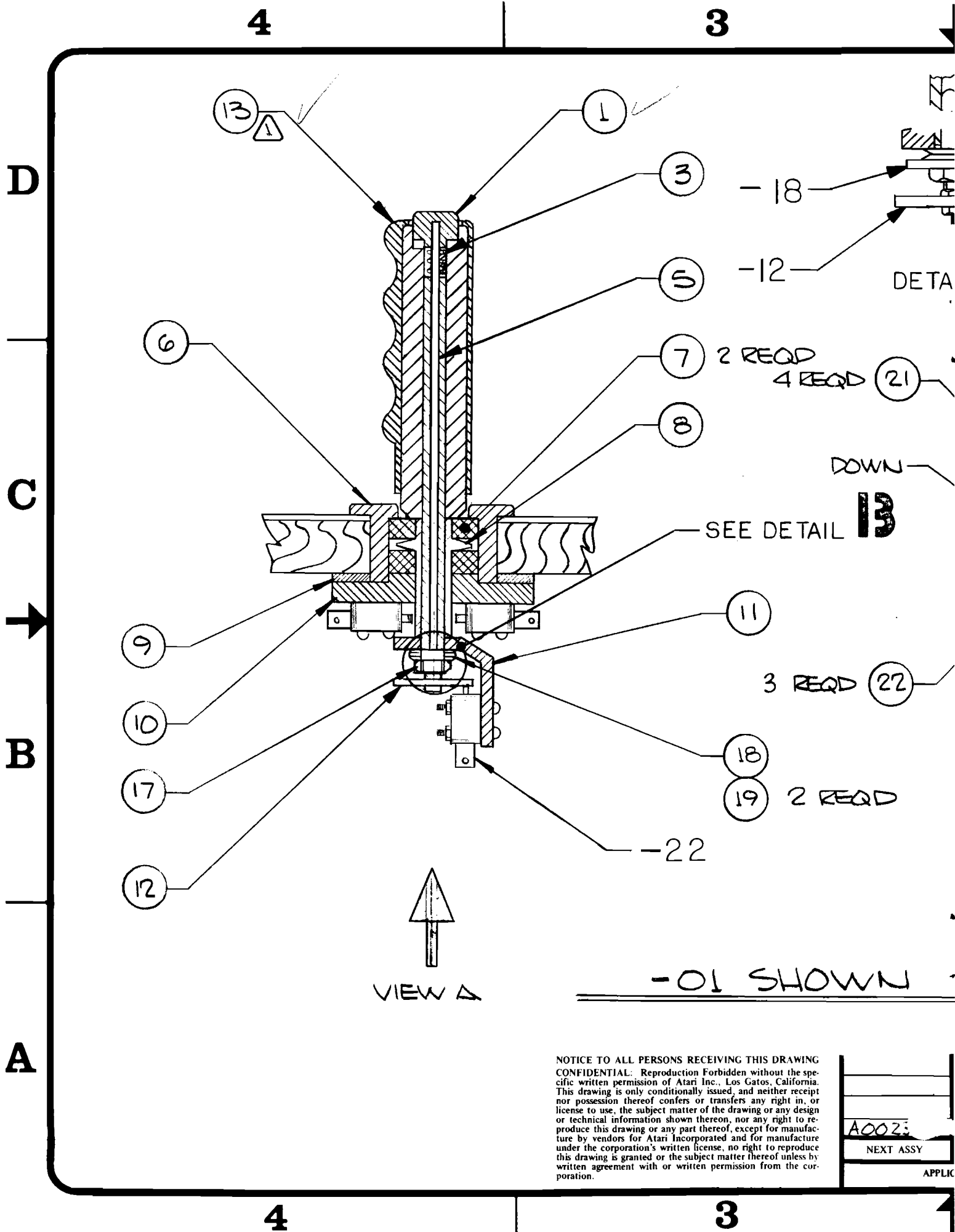
ASSEMBLY TITLE / JOYSTICK ASSY (DUMMY BUTTON) P/L 002303-02

PARTS LIST SPECIFICATION Page 1 of 1

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| Proj. Eng. | | Elec. Eng. | |
| | | | REV. E |

| Rev. | Description | Date | Apprv. | Rev. | Description | Date | Apprv. |
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| B | Prod Rel/ECN 1285 | 4-3-75 | <i>[Signature]</i> | | | | |
| C | Rev per ECN 1333 | 4/21/75 | <i>B.R.</i> | | | | |
| D | Rev per ECN 1470 | 6/6/75 | <i>B.R.</i> | | | | |
| E | Rev per ECN 1503 | | <i>B.R.</i> | | | | |
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| Item | Part Number | Qty. | DESCRIPTION |
|---|-------------|------|------------------------------------|
| 1 | | | |
| 2 | 002294 | 1 | Bushing |
| 3 | 002296 | 2 | Washer, Return |
| 4 | 002293 | 1 | Hub |
| 5 | 002297 | 1 | Spacer Ring |
| 6 | 003207 | 1 | Switch Plate 11 |
| 7 | A003583-02 | 1 | Handle Assy |
| 8 | 75-991202 | 1 | Nut, Hex, 1/4-28 |
| 9 | 75-019S | 2 | Washer, Flat, 5/16 |
| 10 | 72-6410 | 4 | Screw, Sheet Metal, Phil. #4 x 5/8 |
| 11 | 72-6412 | 4 | Screw, Sheet Metal, Phil. #4 x 3/4 |
| 12 | **65-081A | 2 | Switch |
| Notes: * Optional Handle Grip See DWG No. 003082 ** Acceptable Substitutes 65-091A 65-110A 65-111A | | | |



VIEW A

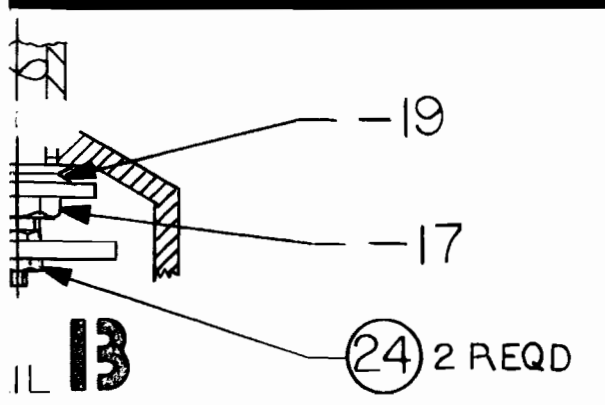
-01 SHOWN

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| NEXT ASSY |
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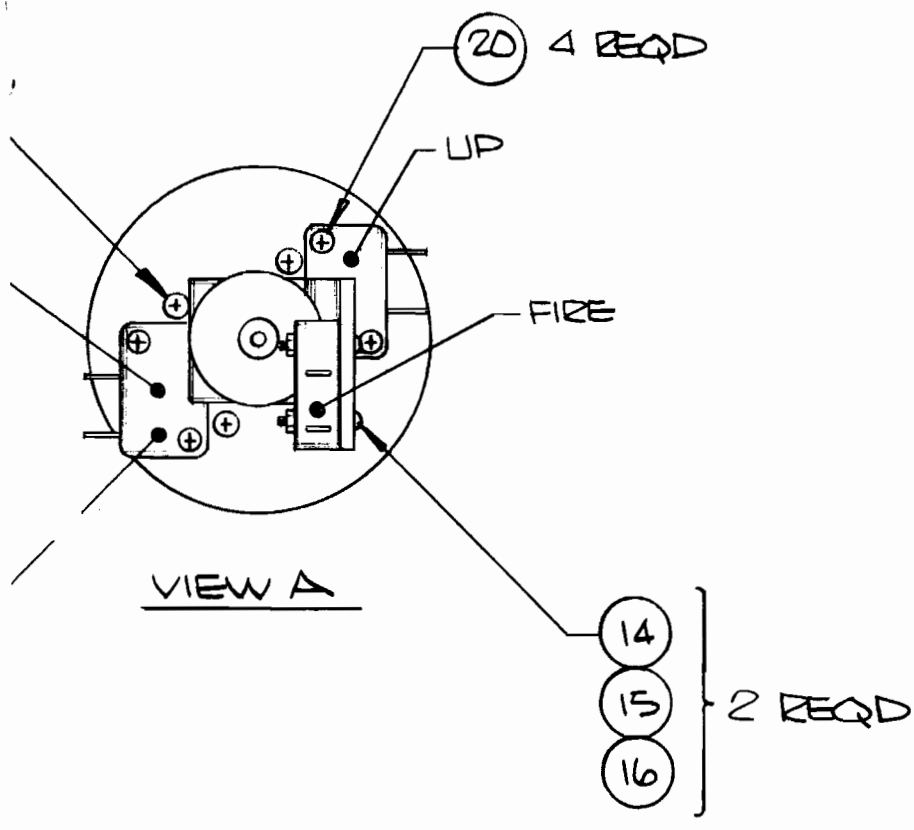
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| REVISIONS | | | | |
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| | | DRFTG. | CHECK | ENGRG |
| A | PROD REL | 1-14-75 | DE | 7/8 |
| B | REV PER ECN 1285 | 4-3-75 | TEW | REJ |
| C | REV. PER ECN.1333SH.1 | TEW | 4/17/75 | Z.T. |
| D | REV. PER ECN 1470 | 6-6-75 | BRK | WS |
| E | REV PER ECN 1503 | 6-19-75 | BR | DL |

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NOTES:

⚠ HANDLE ASSY IS NOT TO BE TIGHT AFTER TOTAL ASSY. HANDLE ASSY SHOULD ROTATE.

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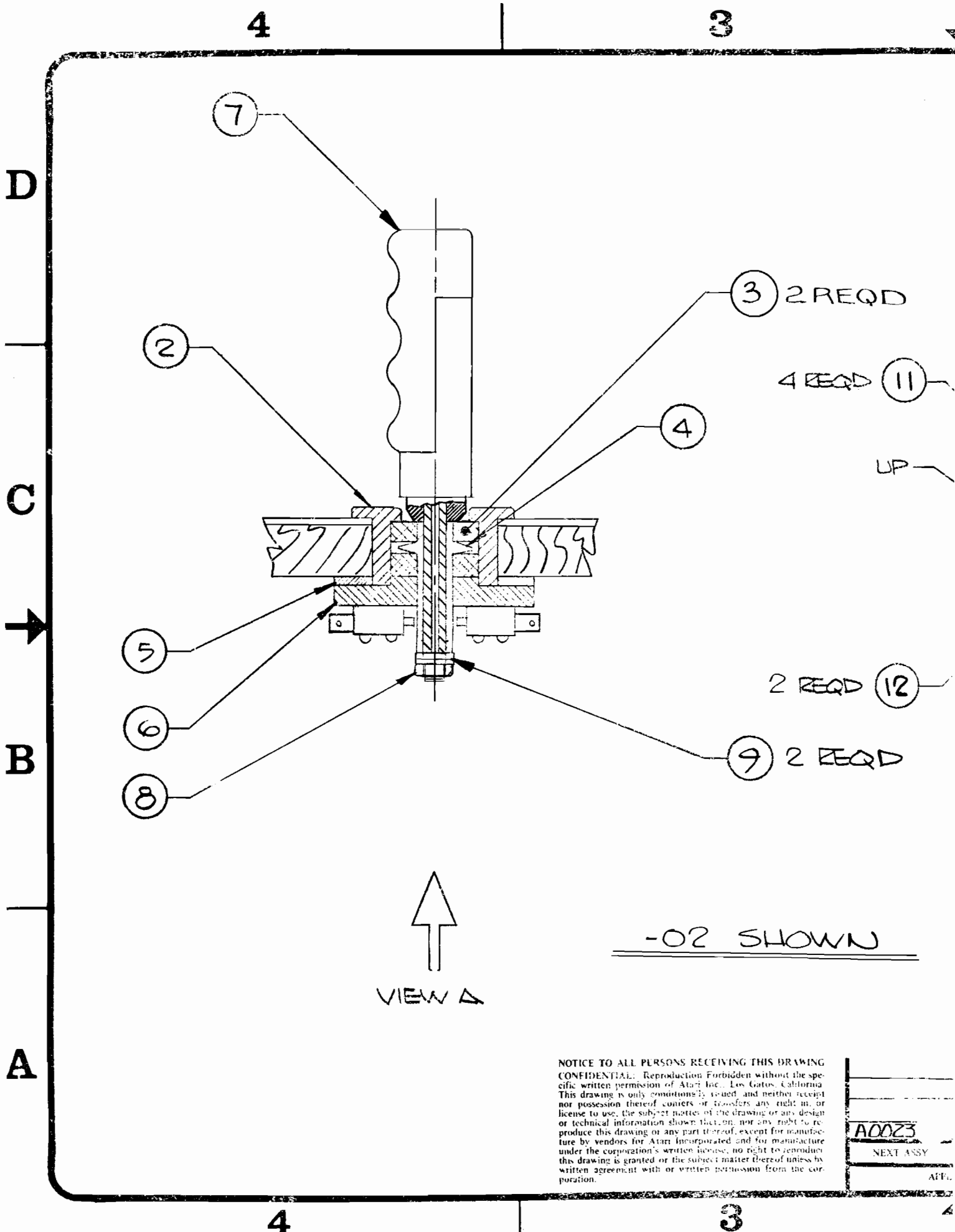
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|--|--|--|---|
| INTERPRET THIS DRAWING PER USASI Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS = +1/16 .x = +.1 ANGLES = ±1° .xx = ± .03 SURFACE FINISH ✓ .xxx = ± .010 | DRAWN BY <i>COOK</i> | DATE 1-14-75 | ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030 |
| | CHECKED DESIGN ENGINEER <i>[Signature]</i> | TITLE ASSY, JOYSTICK (UP, DOWN & FIRE) | |
| MATERIAL: SEE PL 002303-01 | PROJECT ENGINEER <i>[Signature]</i> | DOCUMENT CONTROL <i>[Signature]</i> | SIZE B |
| APPROVED <i>[Signature]</i> | DRAWING NO. Δ002303-01 | REV E | SCALE: |
| USED ON NK | SHEET 1 OF | | CATION |

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VIEW A

-02 SHOWN

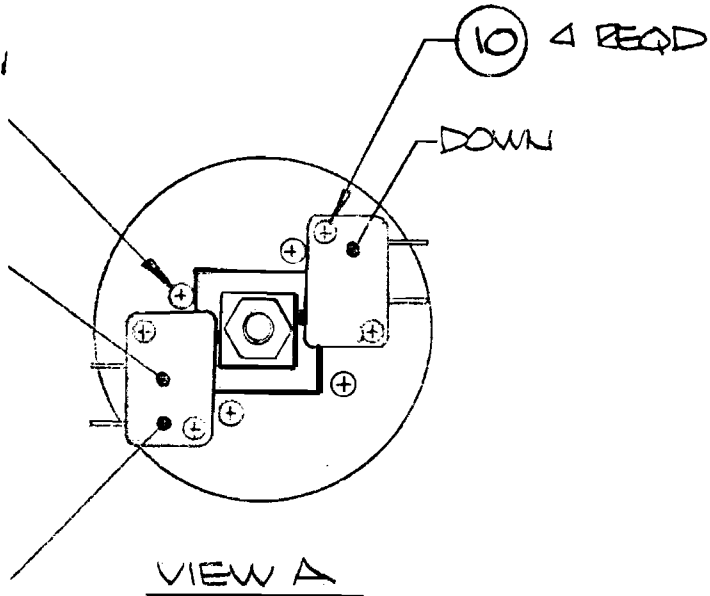
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| A0023 |
| NEXT ASSY |
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| REVISIONS | | | | |
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| SYM | DESCRIPTION | INITIALS and DATE | | |
| | | DRAFTG. | CHECK | ENGR. |
| B | SEE SHT 1 | - | - | - |
| C | REV. PER ECN. 1333 SH.2 | TEW. | 4/21/75 | B.K. |
| D | REV. PER EC N 1470 | 66-75 | TEW | WS |
| E | REV PER ECN 1503 | 6-19-75 | TEW | DC |



NOTES :

- ⚠ HANDLE ASSY IS NOT TO BE TIGHT AFTER TOTAL ASSY. HANDLE ASSY SHOULD ROTATE.

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| INTERPRET THIS DRAWING PER USASI Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS = ±1/16 .x = ±.1 ANGLES = ±1° .xx = ±.03 SURFACE FINISH ✓ .xxx = ±.010 | DRAWN BY <u>COOL</u> DATE <u>1-14-75</u> |  ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030 |
| | CHECKED DESIGN ENGINEER <u>[Signature]</u> PROJECT ENGINEER | |
| MATERIAL: <u>SEE PL 002303-02</u> | DOCUMENT CONTROL <u>[Signature]</u> APPROVED <u>[Signature]</u> | SIZE <u>B</u> DRAWING NO <u>Δ002303-02</u> REF <u>E</u> |
| INK USED ON LOCATION | | SHEET <u>2</u> OF |

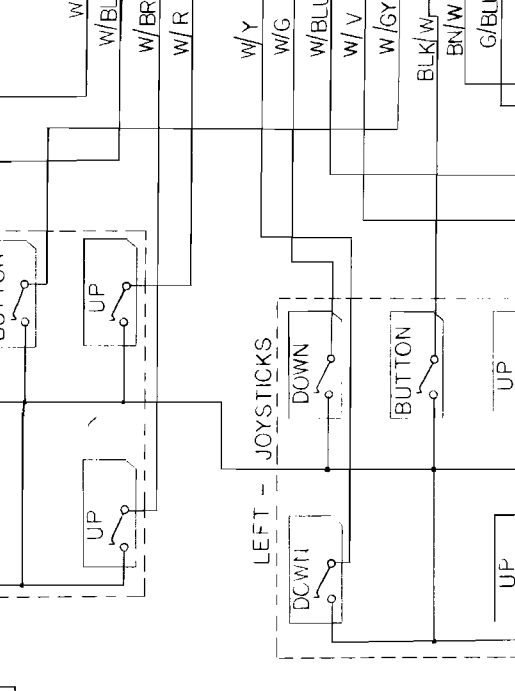
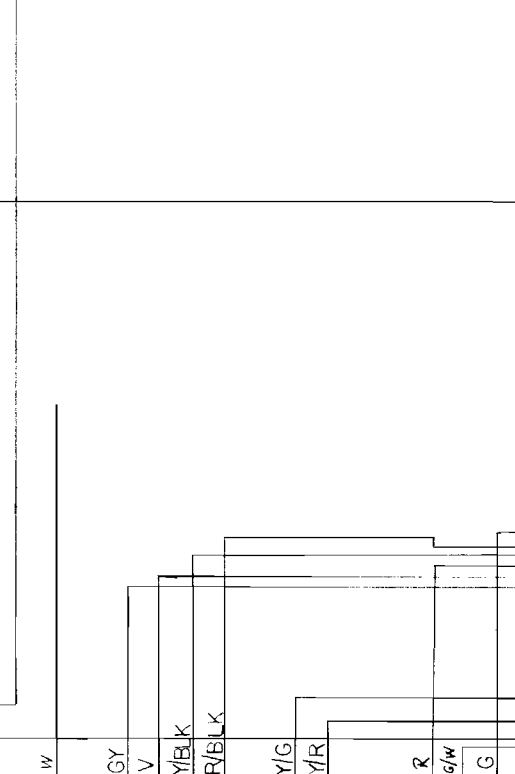
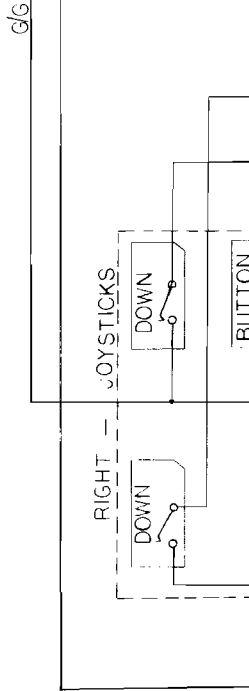
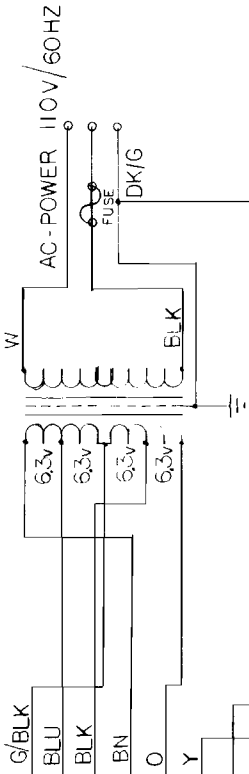
2

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J-3

| | |
|----|-----------|
| 1 | GND |
| 2 | LO - AC |
| 3 | LO - AC |
| 4 | HI - AC |
| 5 | HI - AC |
| 6 | GND |
| 7 | GND |
| 8 | |
| 9 | ANT |
| 10 | +5V |
| 11 | COIN 2-NC |
| 12 | COIN 2-NO |
| 13 | COIN 1-NC |
| 14 | COIN 1-NO |
| 15 | -12V |
| 16 | AUDIO - 2 |
| 17 | AUDIO - 1 |
| 18 | |
| 19 | |
| 20 | |
| 21 | |
| 22 | GND |

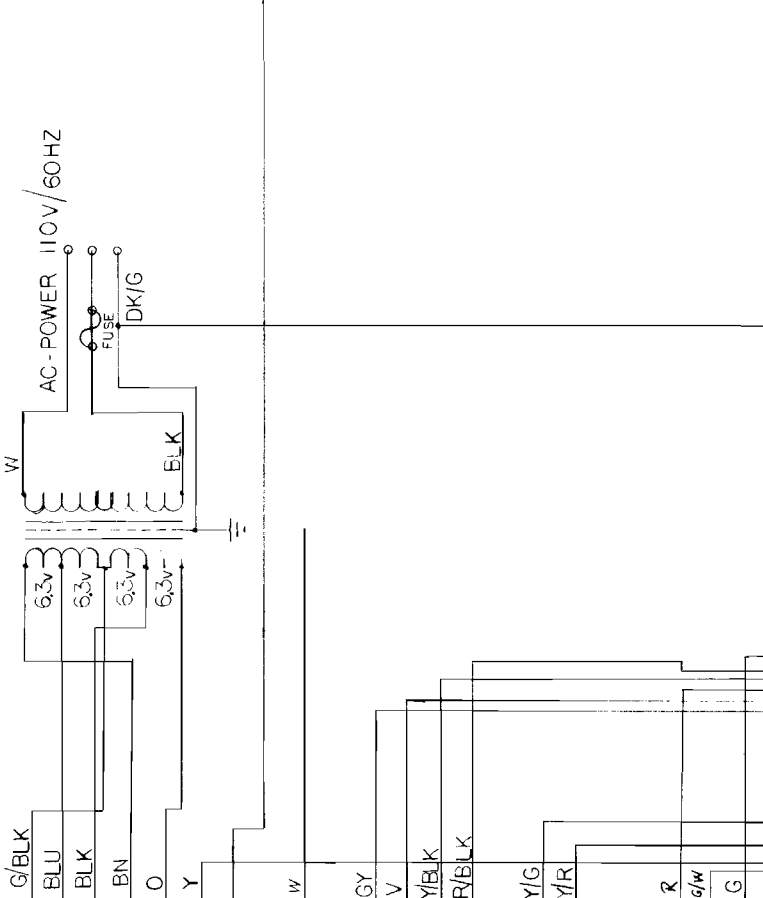
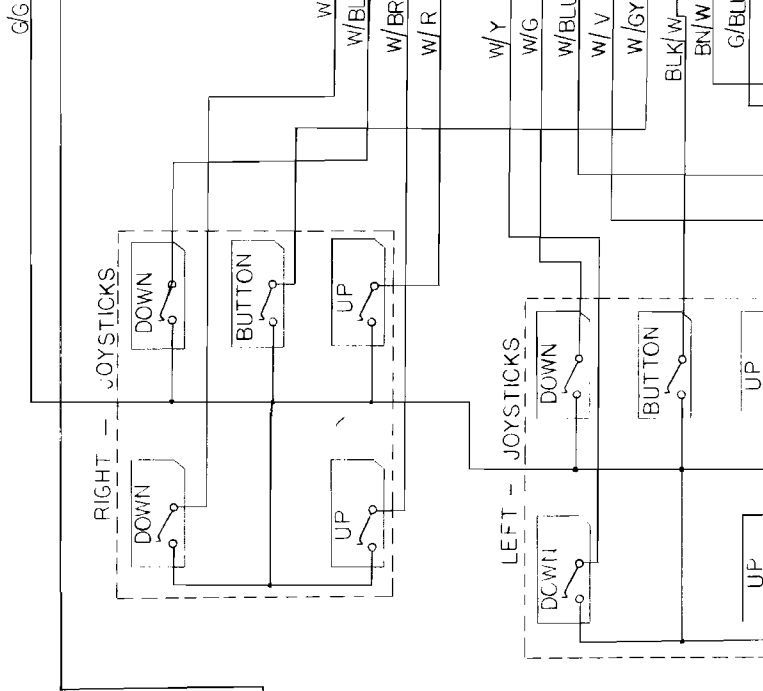
BD-I EDGE CONNECTOR



J-6

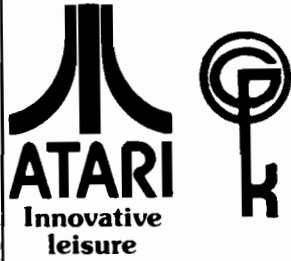
| | |
|----|------------|
| 1 | GND |
| 2 | ANALOG GND |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | RL.D.JS |
| 11 | RR.D.JS |
| 12 | RL.U.JS |
| 13 | RR.U.JS |
| 14 | |
| 15 | L.L.D.JS |
| 16 | L.R.D.JS |
| 17 | L.L.U.JS |
| 18 | L.R.U.JS |
| 19 | R.BUTTON |
| 20 | L.BUTTON |
| 21 | VIDEO |
| 22 | GND |

BD-II EDGE CONNECTOR



KEE GAMES, INC.
330 MATHEW ST.
SANTA CLARA, CALIF. 95050
(408) 249-6090

| REVISIONS | |
|--------------------|-------------|
| NO. | BY |
| 1 | 8.20.74 ELI |
| 2 | REV = C |
| 3 | D #1033 |
| 4 | |
| 5 | |
| TANK HARNESS | |
| K5T - ELECTRIC DWG | |
| SCALE | |
| DATE 8.20.74 | |
| DRAWN BY ELI.S | |
| CHECKED | |
| APPROVED | |
| MATERIAL | |
| DRAWING NO. 003992 | |



ASSEMBLY TITLE

ELECTRONICS TRAY ASSEMBLY

P/L 003538

PARTS LIST SPECIFICATION

Page 1 of 1

Drawn

Checked *M.J. 9/11/75*

Mech. Eng. *[Signature]*

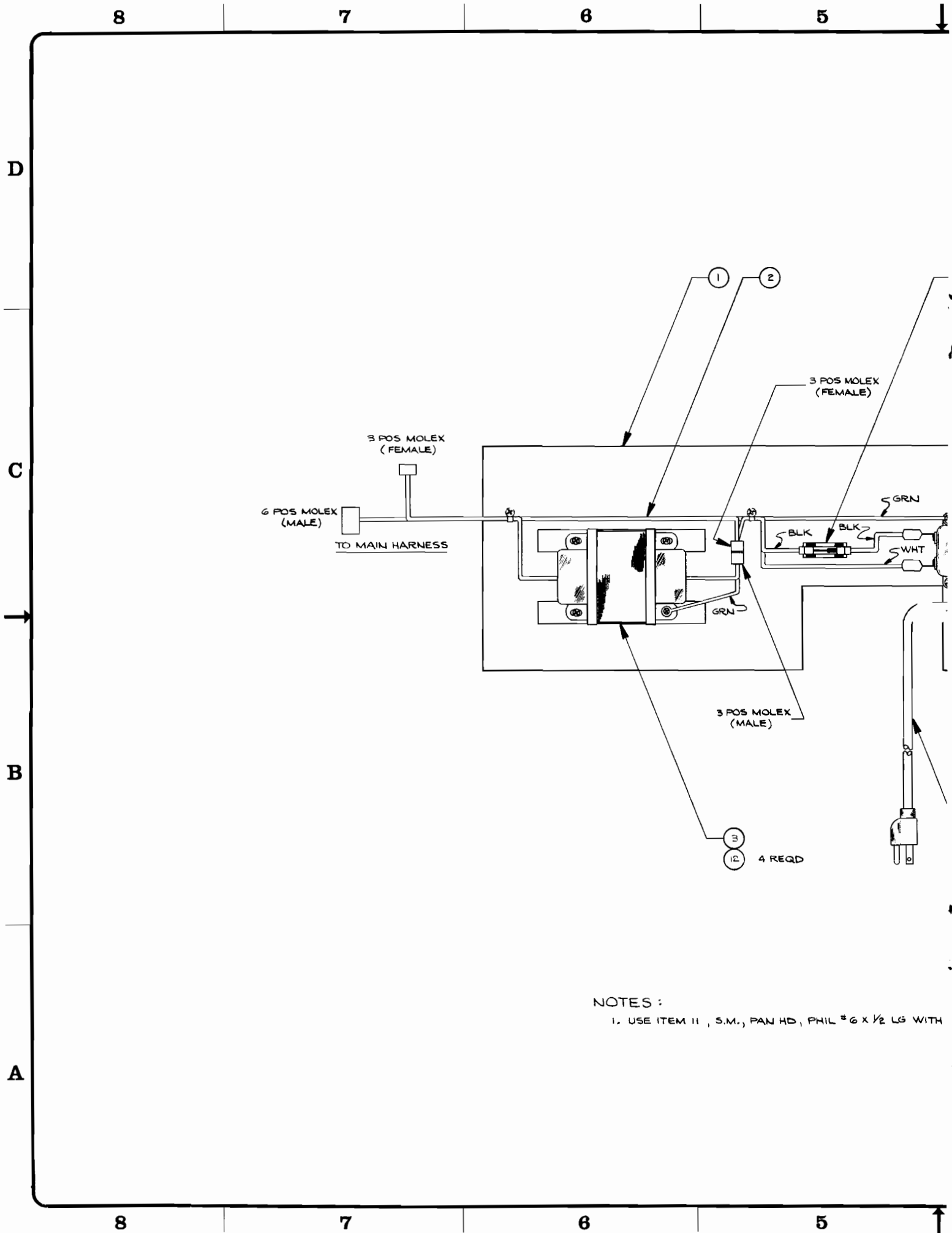
Proj. Eng. *[Signature]*

Elec. Eng. *[Signature]*

REV.
B

| Rev. | Description | Date | Apprv. | Rev. | Description | Date | Apprv. |
|------|------------------|---------|--------------------|------|-------------|------|--------|
| A | PROD REL | 5-1-75 | <i>[Signature]</i> | | | | |
| B | Rev per ECN 1616 | 9-11-75 | <i>[Signature]</i> | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Item | Part Number | Qty. | DESCRIPTION |
|------|-------------|------|--|
| 1 | 003539 | 1 | Electronics Tray |
| 2 | A003492 | 1 | Main Harness Assy. (K5-T) |
| 3 | A003560-01 | 1 | Transformer Assy. |
| 4 | A003460 | 1 | AC Power Harness Assy. |
| 5 | A004244 | 1 | 8" Power Cord Assy |
| 6 | 46-202202 | 1 | Fuse |
| 7 | 90-3001 | 1 | Filter, Power Line |
| 8 | 68-001 | 1 | A.C. Power Interlock Switch |
| 9 | 000268 | 1 | Bracket, Switch MTG. |
| 10 | 78-25002 | 2 | Screw Down, Tie Wrap |
| 11 | 72-6608 | 8 | Screw, SM, Pan Hd, Phil #6 x 1/2" Lg. |
| 12 | 72-6824 | 4 | Screw, SM, Pan Hd, Phil #8 x 1 1/2 Lg. |



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| REVISIONS | | | | |
|-----------|---------------------------|-------------------|--------------------|--------------------|
| SYM | DESCRIPTION | INITIALS and DATE | | |
| | | DRFTG | CHECK | ENGRG |
| B | REVISED PER ECN 1616 M.S. | B-20-75 | <i>[Signature]</i> | <i>[Signature]</i> |

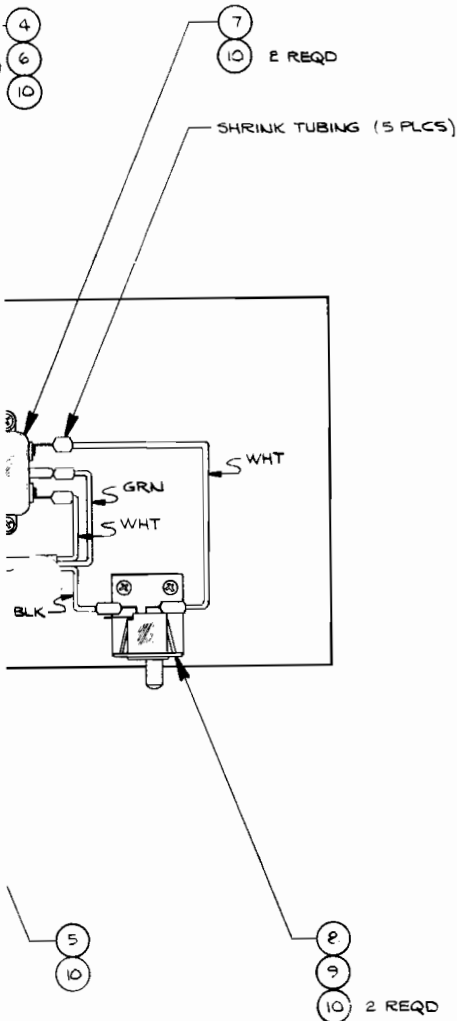
D

C

B

DRAWING NO
SHEET
REV

A



HARNES TIE DOWNS

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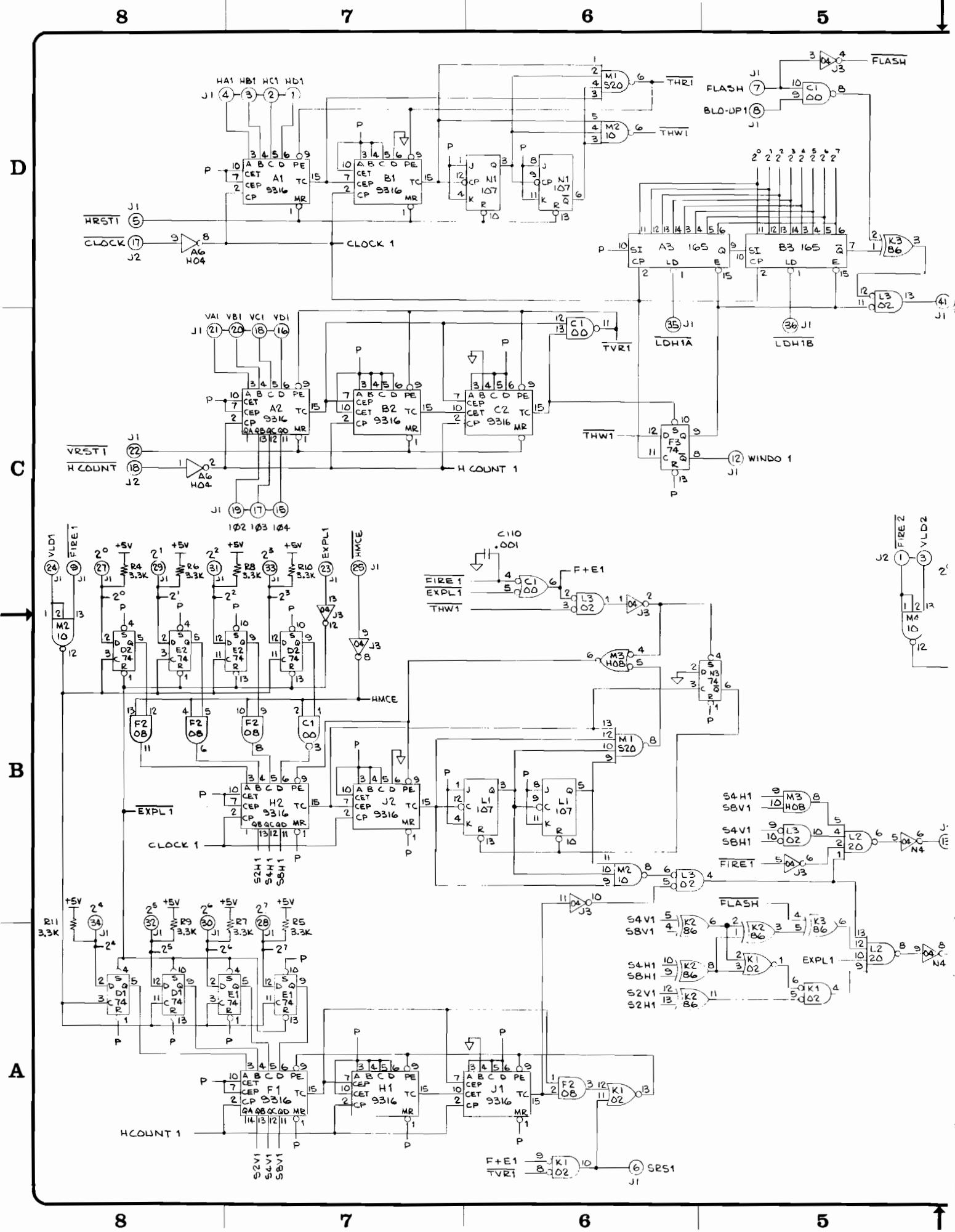
| | |
|-------------|---------|
| A003521 | TANK II |
| NEXT ASSY | USED ON |
| APPLICATION | |

| | | | |
|--|--------------------------------|---------------------------------------|---|
| INTERPRET THIS DRAWING PER ISASI Y14.5 | DRAWN BY M. STEELE | DATE AUG 20, 75 | ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030 |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS = +1/16 x = ±.1 ANGLES = ±1° xx = ±.03 SURFACE FINISH ✓ .xxx = ±.010 | CHECKED | DESIGN ENGINEER <i>[Signature]</i> | |
| MATERIAL SEE P/L 003538 | PROJECT ENGINEER | DOCUMENT CONTROL | SIZE D |
| | APPROVED <i>[Signature]</i> | | DRAWING NO A003538 |
| | | | REV B |
| | | SCALE 1 : 2 | SHEET OF 1 |

4

3

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D

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B

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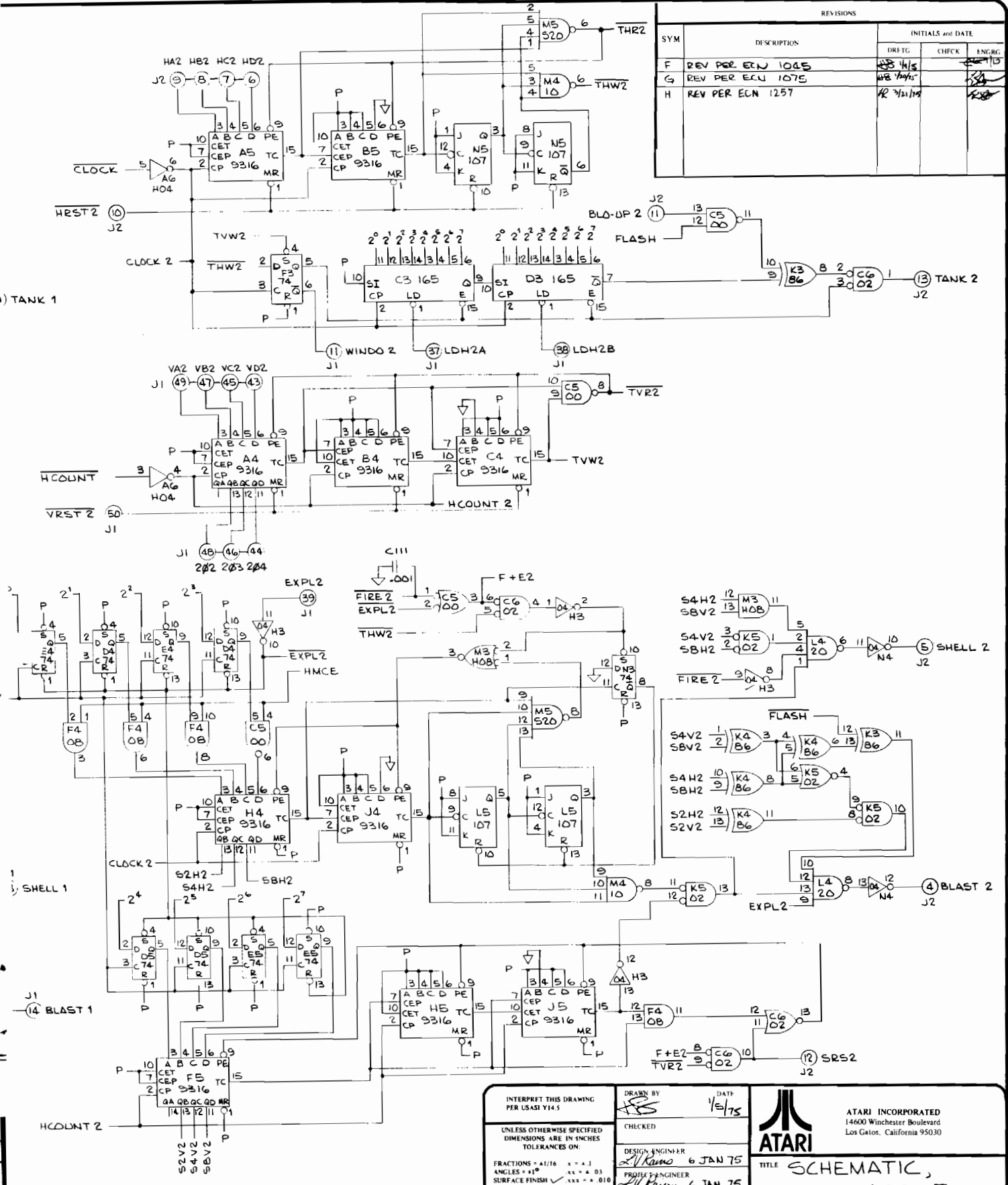
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2

1

| REVISIONS | | | | |
|-----------|------------------|-------------------|-------|------|
| SYM | DESCRIPTION | INITIALS and DATE | | |
| | | DRAWN | CHECK | ENGR |
| F | REV PER ECN 1045 | WBS 4/15 | | |
| G | REV PER ECN 1075 | WBS 7/4/75 | | |
| H | REV PER ECN 1257 | WBS 7/21/75 | | |



D

C

B

A

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| | | |
|--|----------------------------------|-----------------|
| INTERPRET THIS DRAWING PER USASI Y14.5 | DRAWN BY WBS | DATE 1/15/75 |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: | CHECKED | |
| FRACTIONS - 1/16 x + .1 | DESIGN ENGINEER A. V. KRAMER | 6 JAN 75 |
| ANGLES - 45° x ± .4 | PROJECT ENGINEER A. V. KRAMER | 6 JAN 75 |
| SURFACE FINISH - XXX - A .010 | DOCUMENT CONTROL | |
| MATERIAL: | APPROVED WBS 7/1/75 | |
| NEXT ASSY | USED ON | |
| APPLICATION | | |

| | | |
|----------------------------------|----------------------|---|
| | | ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030 |
| TITLE SCHEMATIC, TANK BOARD I | | |
| SIZE D | DRAWING NO 003110 | REV H |
| SCALE NONE | SHEET 1 | OF 2 |

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2

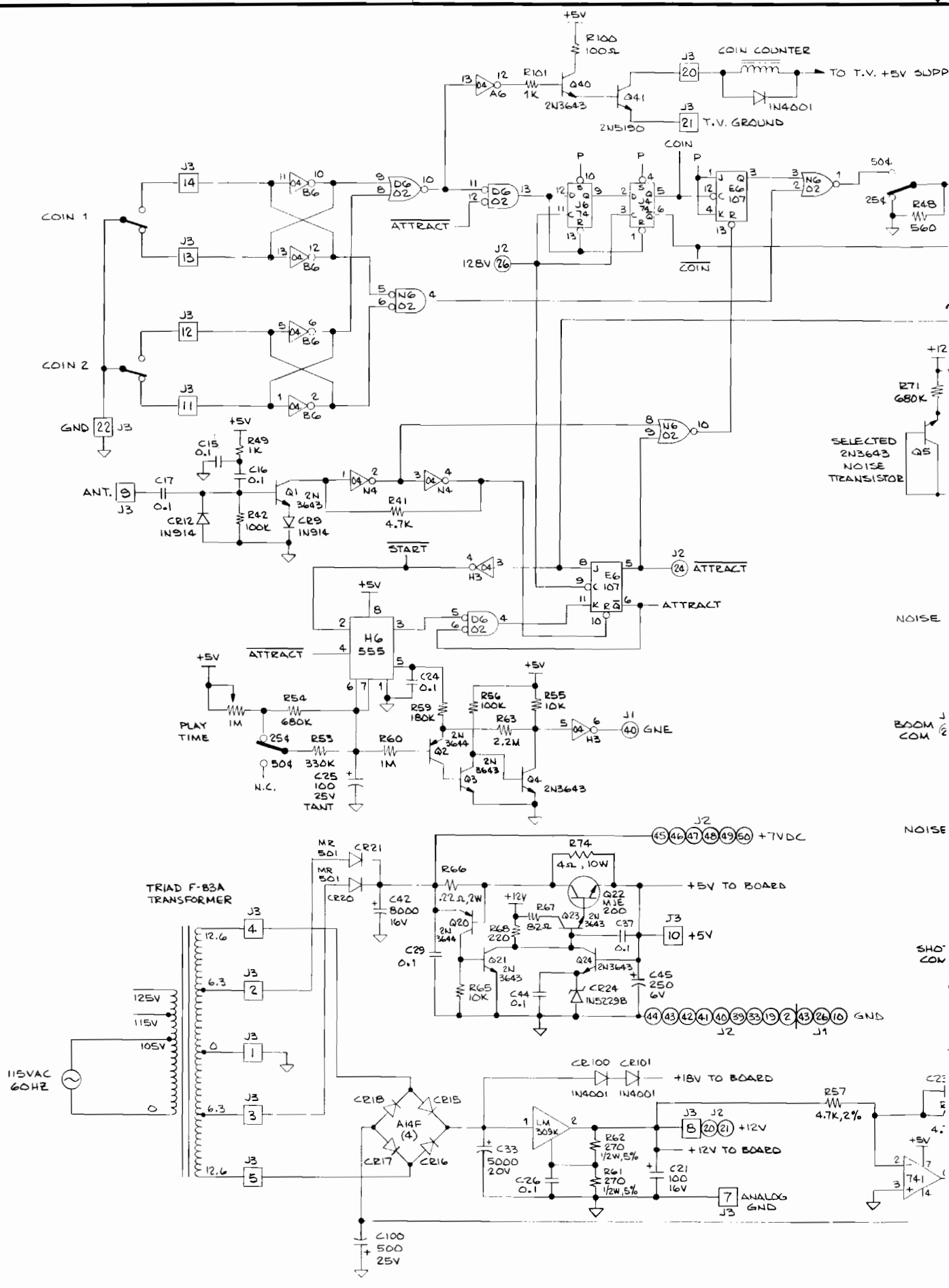
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D

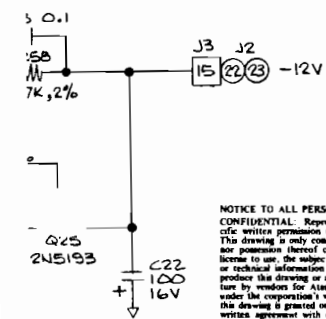
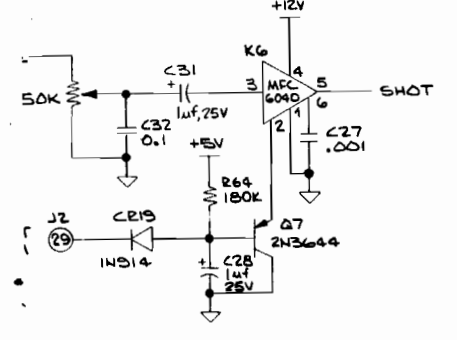
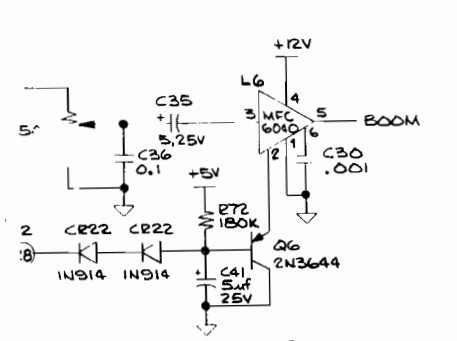
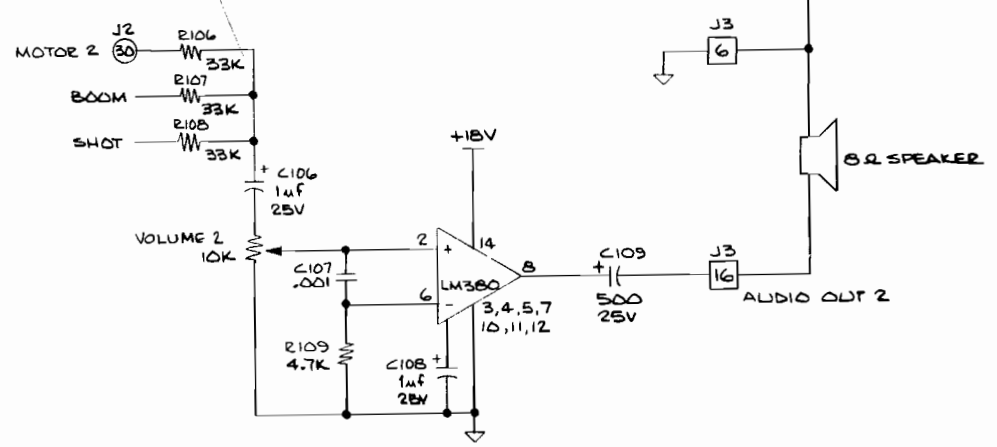
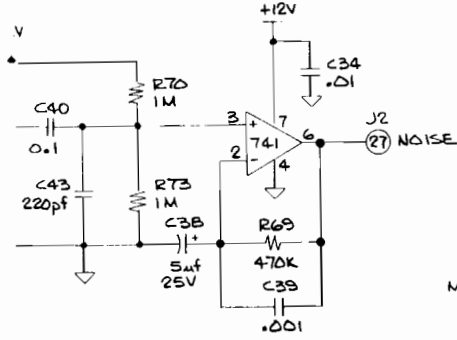
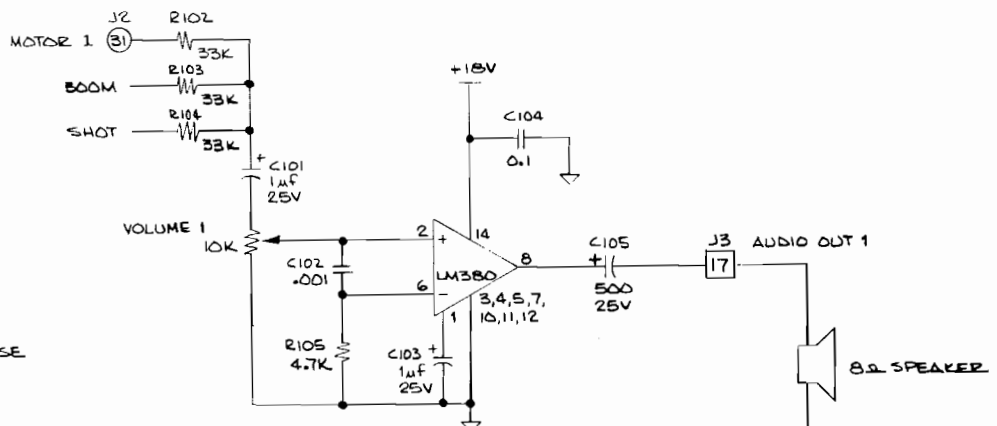
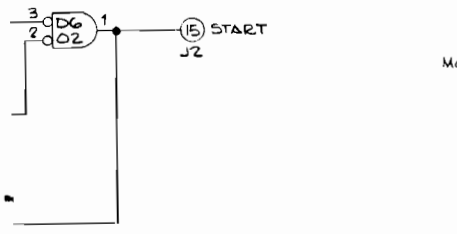
C

B

A



| REVISIONS | | | | |
|-----------|-------------|-------------------|-------|-------|
| SYM | DESCRIPTION | INITIALS and DATE | | |
| | | DRFTL | CHECK | ENGRG |
| | | | | |



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| APPLICATION | USED ON | NEXT ASSY |
|-------------|---------|-----------|
| | | |

| | | |
|---|---|---|
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| MATERIAL | DESIGN ENGINEER <i>[Signature]</i> 10 JAN 75 | TITLE SCHEMATIC, TANK BOARD I |
| | PROJECT ENGINEER <i>[Signature]</i> 10 JAN 75 | SIZE D DRAWING NO 003110 R1V H |
| | DOCUMENT CONTROL <i>[Signature]</i> | SCALE |
| | APPROVED <i>[Signature]</i> 1/12/75 | SHEET 2 OF 2 |

D

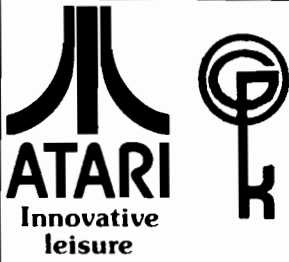
C

B

DRAWING NO
 SHEET
 REV

A

TANK



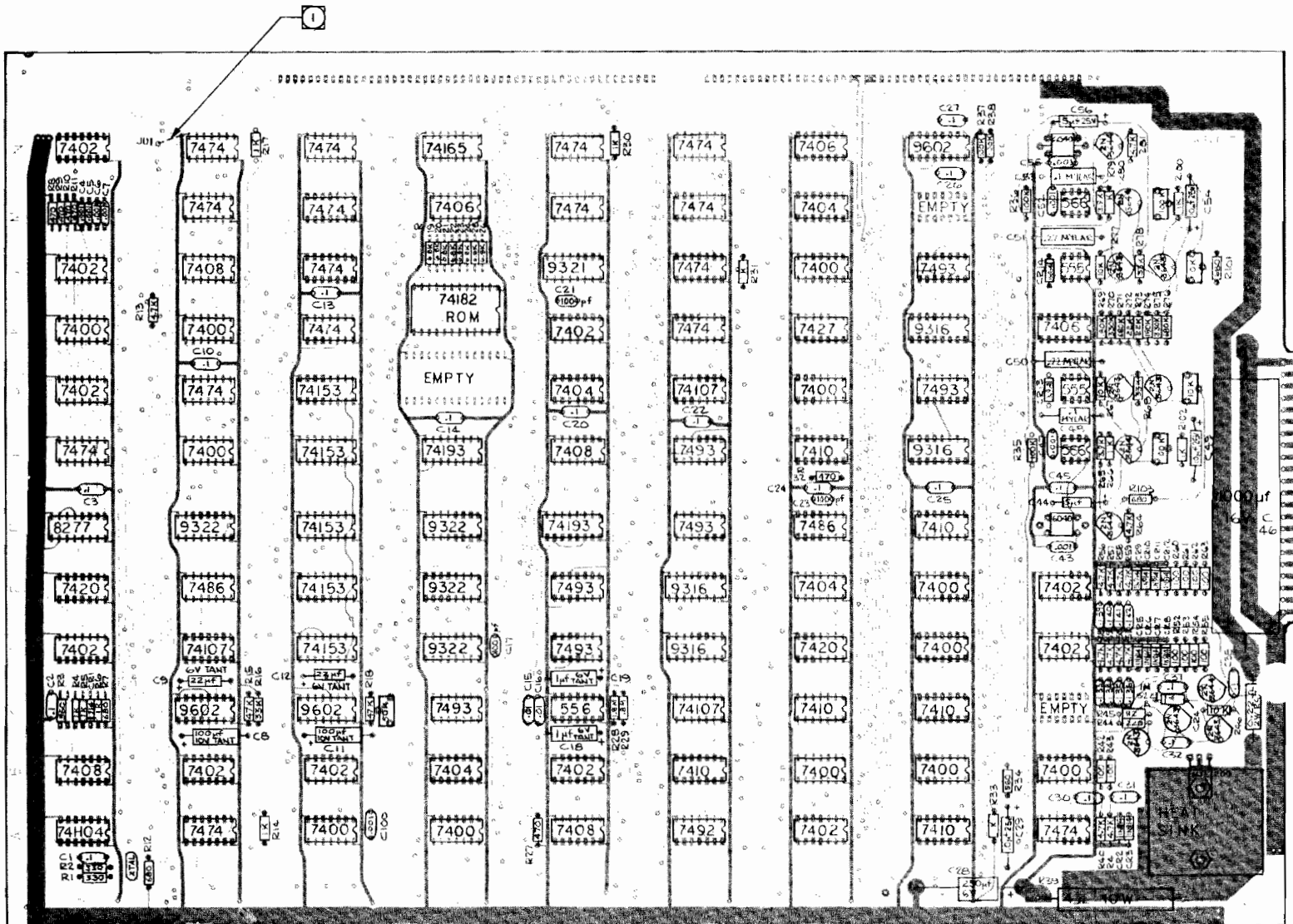
ASSEMBLY TITLE / TANK - BOARD 1 P/L003110

| | | |
|-------------------------------------|-------------------------------------|-------------|
| PARTS LIST SPECIFICATION | | Page 1 of 2 |
| Drawn | | |
| Checked <i>MJ. 4-15-75</i> | Mech. Eng. | |
| Proj. Eng. <i>L. Rains</i> 2 JAN 75 | Elec. Eng. <i>L. Rains</i> 3 JAN 75 | REV. H |

| Rev. | Description | Date | Apprv. | Rev. | Description | Date | Apprv. |
|------|-------------------------|---------|-----------|------|-------------|------|--------|
| D | PROD REV | 11-22 | <i>KR</i> | | | | |
| D | Incorporates ECN 74-120 | 11-26 | <i>KR</i> | | | | |
| D | Incorporates ECN 74-124 | 12-14 | <i>KR</i> | | | | |
| F | REV PER ECN 1045 | 1/13/75 | <i>KR</i> | | | | |
| G | REV PER ECN 1075 | 1/20/75 | <i>KR</i> | | | | |
| H | Rev per ECN 1257 | 3/21/75 | <i>KR</i> | | | | |

| Item | Part Number | Qty. | DESCRIPTION |
|------|-------------|------|---|
| 1 | 37-7400 | 2 | Integrated Circuit, 7400 |
| 2 | 37-7402 | 6 | " " 7402 |
| 3 | 37-7404 | 4 | " " 7404 |
| 4 | 37-74H04 | 1 | " " 74H04 |
| 5 | 37-7408 | 2 | " " 7408 |
| 6 | 37-74H08 | 1 | " " 74H08 |
| 7 | 37-7410 | 2 | " " 7410 |
| 8 | 37-7420 | 2 | " " 7420 |
| 9 | 37-74S20 | 2 | " " 74S20 |
| 10 | 37-7474 | 11 | " " 7474 |
| 11 | 37-7486 | 3 | " " 7486 |
| 12 | 37-74107 | 5 | " " 74107 |
| 13 | 37-74165 | 4 | " " 74165 |
| 14 | 37-9316 | 20 | " " 9316 |
| 15 | 37-555 | 1 | " " 555 |
| 16 | 37-741 | 2 | " " 741 |
| 17 | 37-LM380 | 2 | " " LM380 |
| 18 | 37-MFC6040 | 2 | " " MFC 6040 |
| 19 | 37-LM309 | 1 | LM 309 K, Voltage Regulator |
| 20 | 10-5101 | 1 | Resistor, Carbon, 5%, 1/4 Watt, 100 ohm |
| 21 | 10-5102 | 10 | " " " " 1K ohm |
| 22 | 10-5103 | 2 | " " " " 10K ohm |
| 23 | 10-5104 | 3 | " " " " 100K ohm |
| 24 | 10-5105 | 3 | " " " " 1Meg ohm |
| 25 | 10-5221 | 1 | " " " " 220 ohm |
| 26 | 10-5225 | 1 | " " " " 2.2M ohm |
| 27 | 10-5333 | 6 | " " " " 33K ohm |
| 28 | 10-5472 | 3 | " " " " 4.7K ohm |
| 29 | | | |
| 30 | 10-5474 | 1 | " " " " 470K ohm |
| 31 | 10-5561 | 1 | " " " " 560 ohm |
| 32 | | | |
| 33 | | | |
| 34 | 10-5684 | 2 | " " " " 680K ohm |
| 35 | 10-5820 | 1 | " " " " 82 ohm |
| 36 | | | |
| 37 | 10-5334 | 1 | " " " " 330K ohm |
| 38 | 14-2472 | 2 | " " 2% " 4.7K ohm |
| 39 | 11-5271 | 2 | Resistor, Carbon, 5%, 1/2 Watt, 270 ohm |

| ASSEMBLY TITLE | | TANK - BOARD 1 | | P/L 003110 | |
|--------------------------|-------------|----------------|---|-------------|---|
| PARTS LIST SPECIFICATION | | | | Page 2 of 2 | |
| Item | Part Number | Qty. | DESCRIPTION | Rev | H |
| 40 | | | | | |
| 41 | 13-5P22 | 1 | Resistor, Carbon, 5%, 1/2 Watt, .22 ohm | | |
| 42 | 19-808W4PO | 1 | Resistor, Wirewound, 20%, 10 Watt, 4 ohm | | |
| 43 | 31-1N914 | 5 | Diodes, 1N 914 | | |
| 44 | 31-1N4001 | 2 | Diodes, 1N 4001 | | |
| 45 | 32-1N5229 | 1 | Diodes, Zener, 1N 5229B, 4.3V, 5%, Motorola | | |
| 46 | 31-MR501 | 2 | Diodes, MR 501 | | |
| 47 | 34-2N3643 | 8 | Transistor, 2N 3643 | | |
| 48 | 33-2N3644 | 4 | Transistor, 2N 3644 | | |
| 49 | 34-2N5190 | 1 | Transistor, 2N 5190 | | |
| 50 | 34-2N5193 | 1 | Transistor, 2N 5193 | | |
| 51 | 34-MJE200 | 1 | Transistor, MJE 200 | | |
| 52 | 19-311503 | 2 | Trimpot, 50K | | |
| 53 | 19-311103 | 2 | Trimpot, 10K | | |
| 54 | 19-311105 | 1 | Trimpot, 1 Meg | | |
| 55 | 27-120104 | 19 | Capacitor, Ceramic Disc Bypass, .1 uf | | |
| 56 | 27-101102 | 7 | " " " .001 uf | | |
| 57 | 24-250105 | 6 | " Electrolytic, 1 uf, 25V | | |
| 58 | 24-250505 | 3 | " " 5 uf, 25V | | |
| 59 | 24-160107 | 2 | " " 100 uf, 16V | | |
| 60 | 24-060257 | 1 | " " 250 uf, 6V | | |
| 61 | 24-250478 | 1 | " " 4700 uf, 25V | | |
| 62 | 24-200808 | 1 | " " 8000 uf, 16V | | |
| 63 | 28-101221 | 1 | " Dipped Mica, 220 pf | | |
| 64 | 29-001 | 1 | " Tantalum, 100 uf, 10V | | |
| 65 | 69-001 | 1 | Switch, DPDT | | |
| 66 | 78-06002 | 1 | Heatsink, Thermalloy #6111B-66 | | |
| 67 | 78-06003 | 2 | HEATSINK, THERMALLOY #6011B | | |
| 68 | 72-1610S | 2 | Screw, Machine, , Pan Hd., Phil., 6-32 x 5/8" | | |
| 69 | 75-056 | 2 | Washer, Lock, Internal Star, #6 | | |
| 70 | 75-916S | 2 | Nut, Machine, Hex, 6-32 | | |
| 71 | 72-1412S | 2 | Screw, Machine, , Pan Hd., Phil., 4-40 x 3/4" | | |
| 72 | 75-044 | 2 | Washer, Split Lock, #4 | | |
| 73 | 75-914S | 2 | Nut, Hex, 4-40 | | |
| 74 | 003111 | 1 | Printed Circuit Board, #90124 | | |
| 75 | 10-5184 | 2 | Resistor, Carbon, 5%, 1/4W, 180K ohm | | |
| 76 | 27-101103 | 1 | Capacitor, Ceramic Disc, .01 uf | | |
| 77 | 24-250507 | 3 | Capacitor, Electrolytic, 500uf, 25V | | |
| 78 | 10-5332 | 8 | RESISTOR, CARBON, 5%, 1/4W, 3.3K OHM | | |
| 79 | 31-A14F | 4 | Diode, G.E. Type A14F | | |



NOTES :

- ① JUI IS AN OPTIONAL JUMPER FOR ALTERNATE PLAYFIELD (± 30 AWG, INSULATED)


| SYM | DESCRIPTION | DFTG | APPV |
|-----|------------------|-------|-------|
| F | REV PER ECN 1045 | 12/74 | 12/75 |
| G | REV PER ECN 1075 | 12/74 | 12/75 |
| H | REV PER ECN 1257 | 12/74 | 12/75 |

67 EPOXY HEATSINKS ON
TOP OF LM380'S

N3643

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| APPLICATION | USED ON |
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|---|----------------------------|-------------------------------|--|
| INTERPRET THIS DRAWING PER USAS 914 | DRAWN BY P.C.S. | DATE 12/74 |  ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030 |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON | CHICAGO | DESIGN BY P.C.S. | |
| FRACTIONS = 1/16 1/8 1/4 1/2 1 | DATE OF ISSUE 10 JAN 75 | DATE OF REVISION 10 JAN 75 | TITLE ASSEMBLY TANK BD. I |
| ANGLES = 15 30 45 60 90 120 150 180 | MATERIAL | DOCUMENT CONTROL | SIZE D |
| SURFACE FINISH = 125 150 200 250 320 400 500 | | | DRAWING NO. A003110 |
| NEXT ASSY | | | REV H |
| APPLICATION | | | SHEET 1 OF 1 |

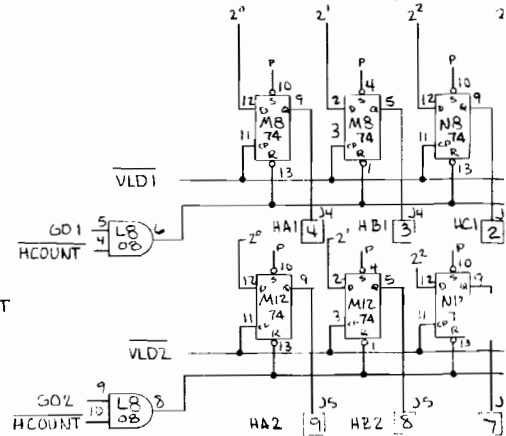
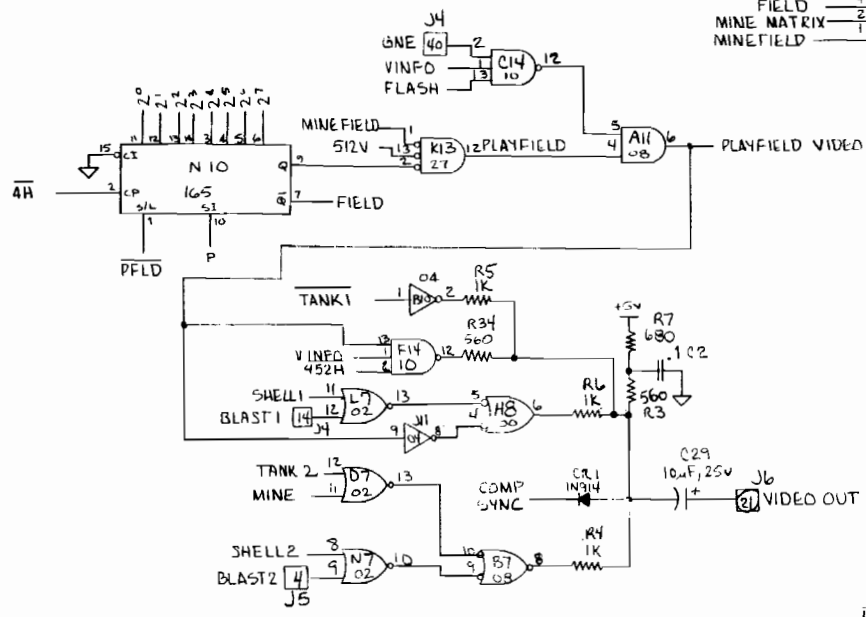
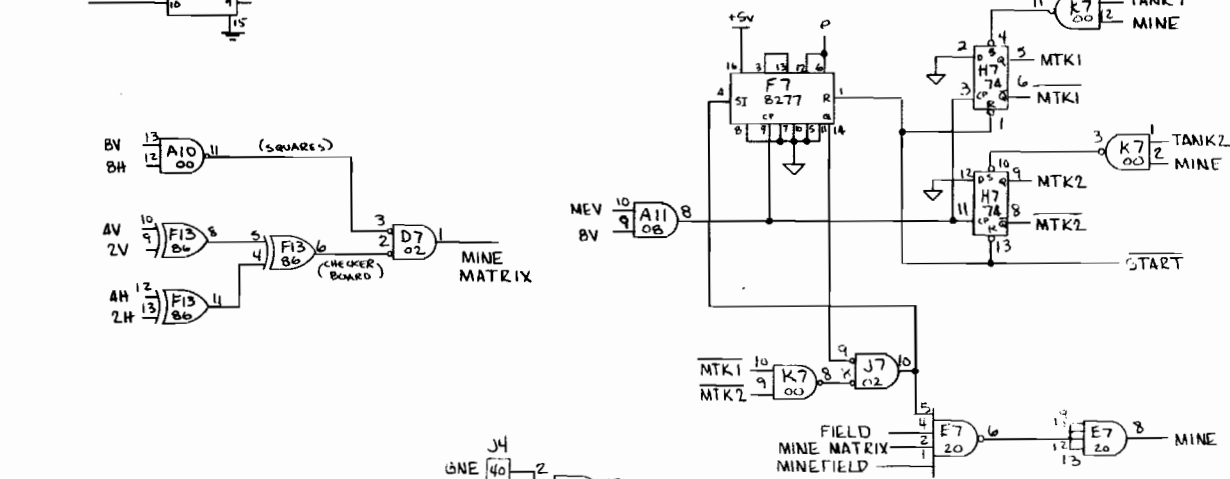
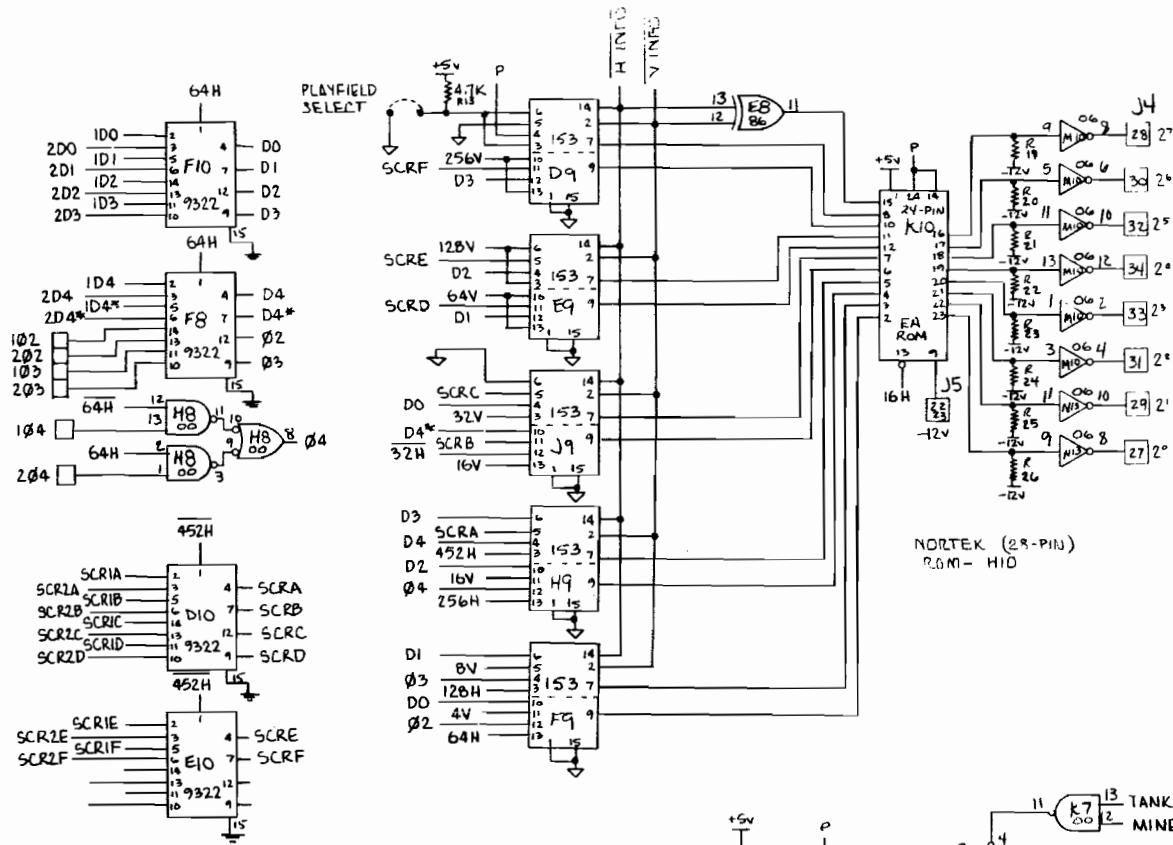
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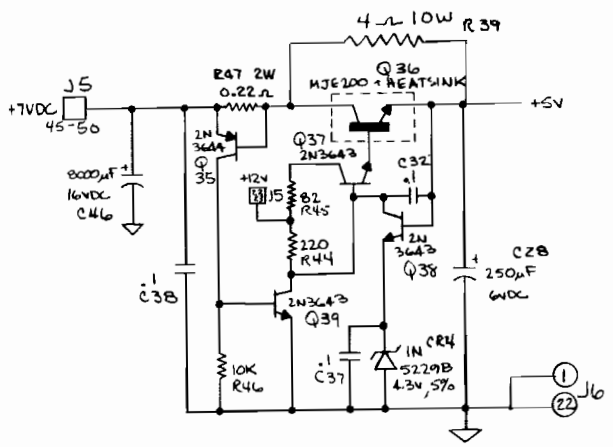
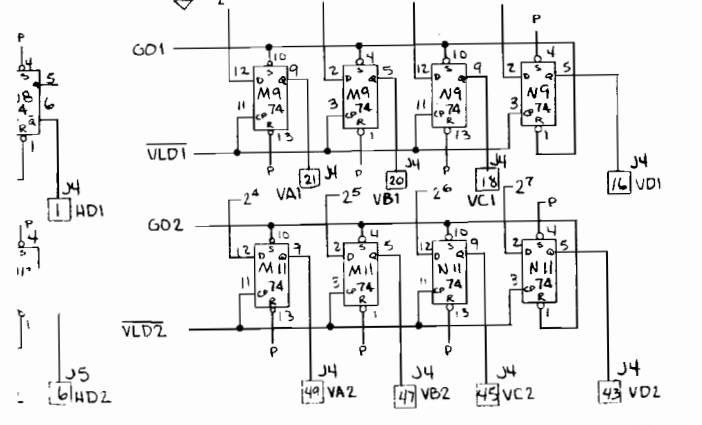
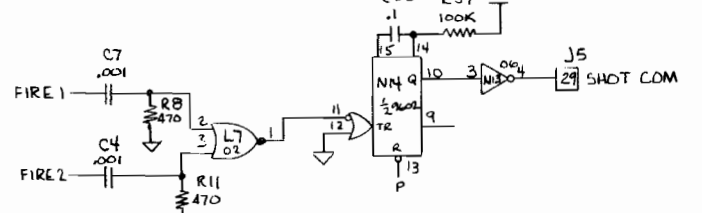
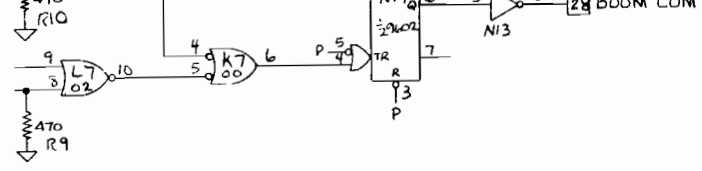
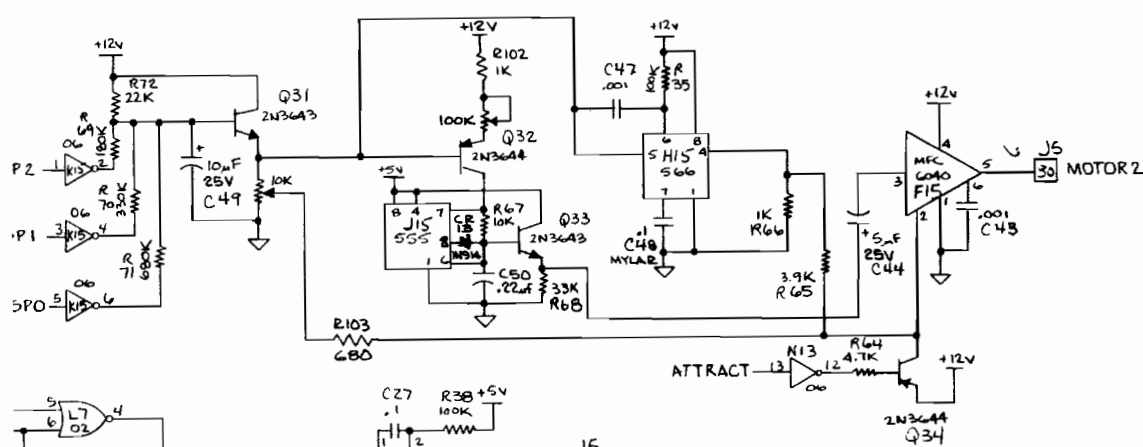
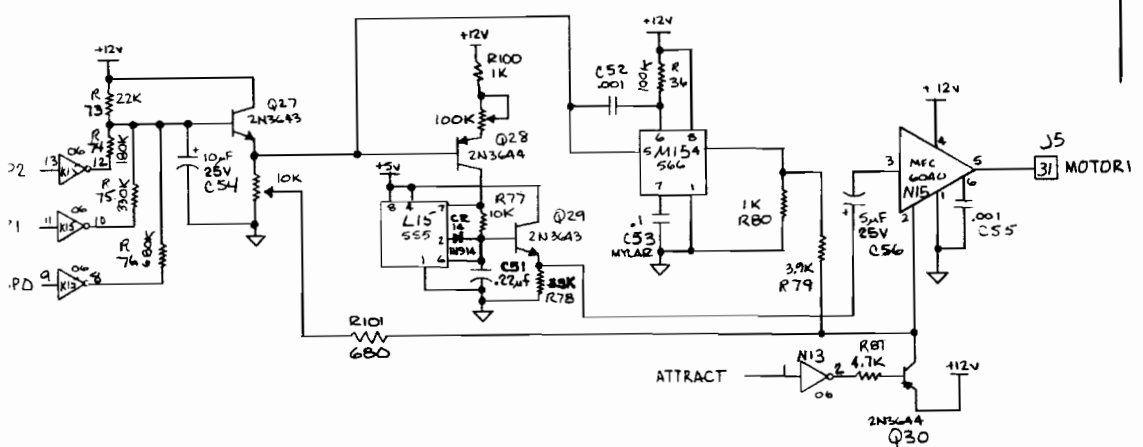
1

B

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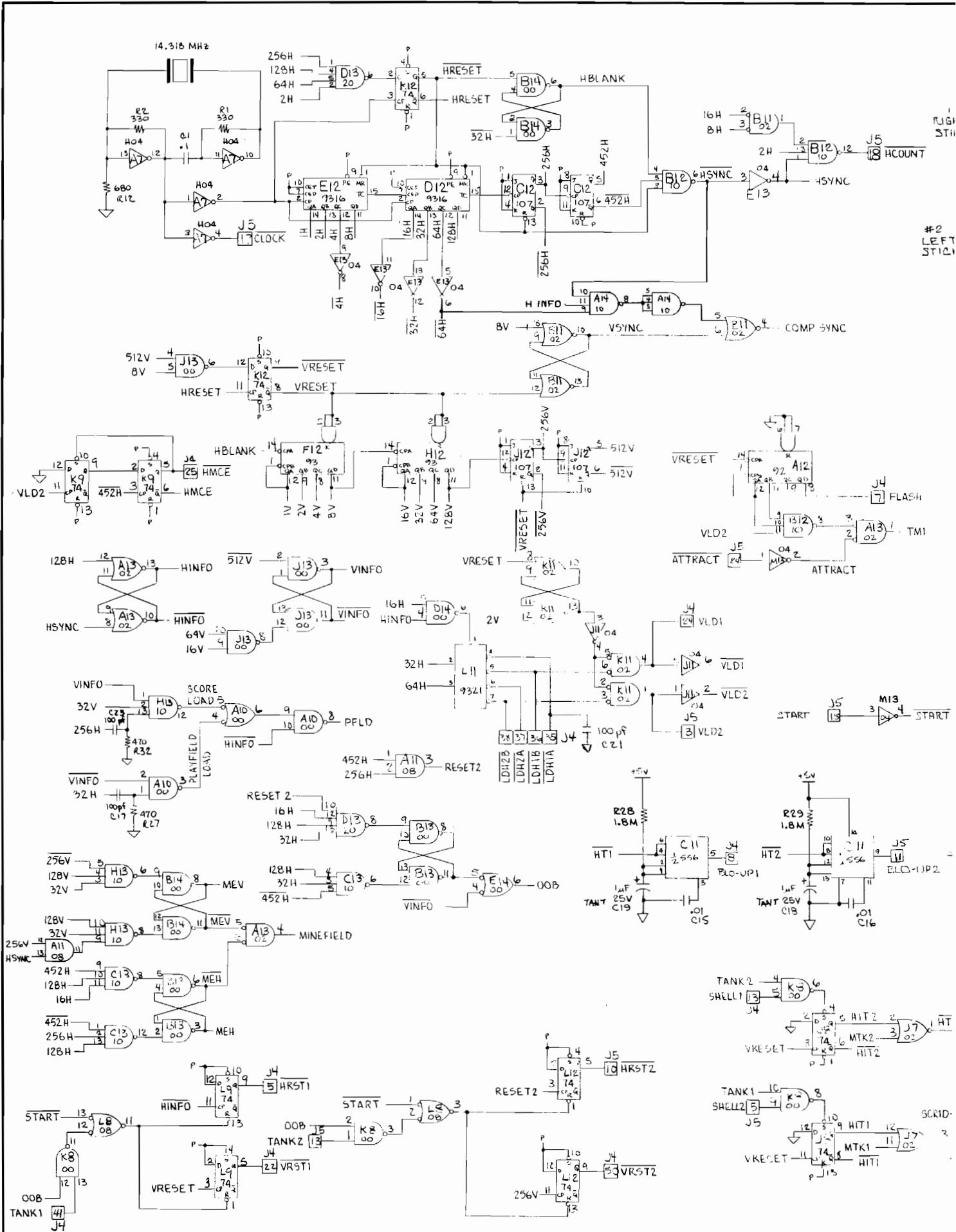


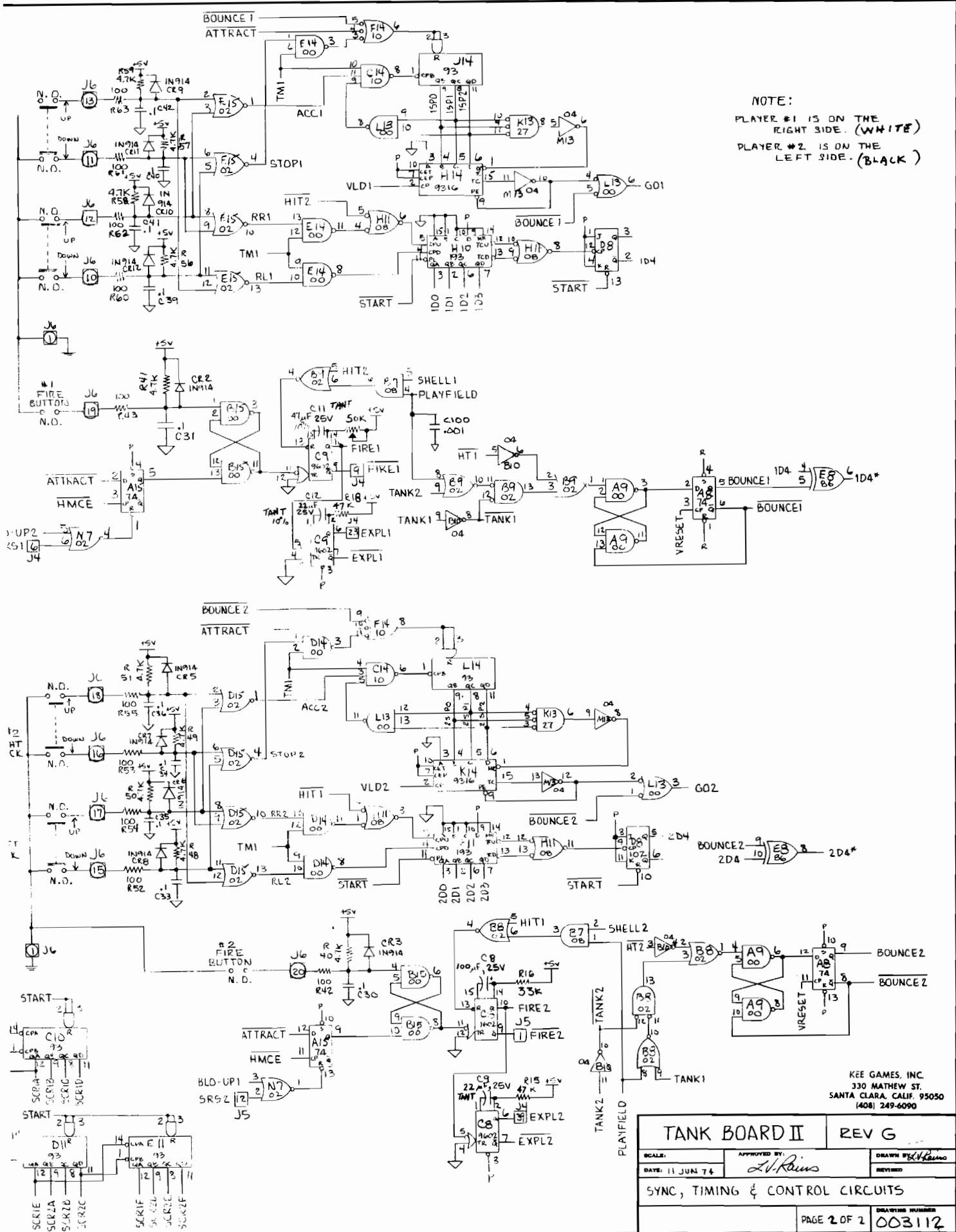
| SYN | DESCRIPTION | DATE | APPV |
|-----|------------------|-------|-------------|
| F | REV PER ECN 10A7 | 10/74 | [Signature] |
| G | REV PER ECN 14B2 | 12/82 | [Signature] |



KEE GAMES, INC.
330 MATHEW ST.
SANTA CLARA, CALIF. 95050
(408) 249-6090

| TANK BOARD II | | REV G | |
|---|--------------|------------------------|--|
| SCALE: | APPROVED BY: | DRAWN BY: [Signature] | |
| DATE: 10 JUNE 74 | [Signature] | REVISED: | |
| ROM MUXING, PLAYFIELD, MINEFIELD, SOUND | | | |
| PAGE 1 OF 2 | | DRAWING NUMBER: 003112 | |





NOTE:
 PLAYER #1 IS ON THE
 RIGHT SIDE. (WHITE)
 PLAYER #2 IS ON THE
 LEFT SIDE. (BLACK)

| | | |
|---------------------------------|-----------------------------------|----------------------------------|
| TANK BOARD II | | REV G |
| SCALE: | APPROVED BY: <i>L.V. Rains</i> | DRAWN BY: <i>L.V. Rains</i> |
| DATE: 11 JUN 74 | REVISED: | |
| SYNC, TIMING & CONTROL CIRCUITS | | |
| | PAGE 2 OF 2 | DRAWING NUMBER: 003112 |

TANK



ASSEMBLY TITLE

TANK - BOARD 2

P/L 003112

PARTS LIST SPECIFICATION

Page 1 of 2

| | |
|---------------------------------------|---------------------------------------|
| Drawn | |
| Checked <i>M.G. 8/25/75</i> | Mech. Eng. |
| Proj. Eng. <i>L.V. Raine 3 JAN 75</i> | Elec. Eng. <i>L.V. Raine 3 JAN 75</i> |
| | REV. G |

| Rev. | Description | Date | Apprv. | Rev. | Description | Date | Apprv. |
|------|-------------------------|---------|-----------|------|-------------|------|--------|
| D | PROD REL | 11-22 | <i>SR</i> | | | | |
| D | Incorporates ECN 74-120 | 11-26 | <i>SR</i> | | | | |
| D | Incorporates ECN 74-122 | 12-11 | <i>SR</i> | | | | |
| F | PER ECN 1047 | 1/13/75 | <i>SR</i> | | | | |
| G | PER ECN 1482 | 6/1/75 | <i>SR</i> | | | | |

| Item | Part Number | Qty. | DESCRIPTION |
|------|-------------|------|---|
| 1 | 37-7400 | 12 | Integrated Circuit, 7400 |
| 2 | 37-7402 | 11 | " " 7402 |
| 3 | 37-7404 | 4 | " " 7404 |
| 4 | 37-74H04 | 1 | " " 74H04 |
| 5 | 37-7406 | 3 | " " 7406 |
| 6 | 37-7408 | 4 | " " 7408 |
| 7 | 37-7410 | 6 | " " 7410 |
| 8 | 37-7420 | 2 | " " 7420 |
| 9 | 37-7427 | 1 | " " 7427 |
| 10 | 37-7474 | 16 | " " 7474 |
| 11 | 37-7486 | 2 | " " 7486 |
| 12 | 37-7492 | 1 | " " 7492 |
| 13 | 37-7493 | 7 | " " 7493 |
| 14 | 37-74107 | 3 | " " 74107 |
| 15 | 37-74153 | 5 | " " 74153 |
| 16 | 37-74165 | 1 | " " 74165 |
| 17 | 90-2006 | 1 | 16K Tank Rom E.A. #4800SD |
| 18 | 37-74193 | 2 | Integrated Circuit, 74193 |
| 19 | 37-8277 | 1 | " " 8277 |
| 20 | 37-9316 | 4 | " " 9316 |
| 21 | 37-9321 | 1 | " " 9321 |
| 22 | 37-9322 | 4 | " " 9322 |
| 23 | 37-9602 | 3 | " " 9602 |
| 24 | 37-555 | 2 | " " 555 |
| 25 | 37-556 | 1 | " " 556 |
| 26 | 37-566 | 2 | " " 566 |
| 27 | 37-MFC6040 | 2 | " " MFC 6040 |
| 28 | 10-5101 | 10 | Resistor, Carbon, 5%, 1/4 Watt, 100 ohm |
| 29 | 10-5102 | 12 | " " " " 1K ohm |
| 30 | 10-5103 | 3 | " " " " 10K ohm |
| 31 | 10-5104 | 4 | " " " " 100K ohm |
| 32 | 10-5221 | 1 | " " " " 220 ohm |
| 33 | 10-5223 | 2 | " " " " 22K ohm |
| 34 | 10-5331 | 2 | " " " " 330 ohm |
| 35 | 10-5333 | 3 | " " " " 33K ohm |
| 36 | 10-5334 | 2 | " " " " 330K ohm |
| 37 | 10-5392 | 2 | " " " " 3.9K ohm |
| 38 | 10-5471 | 6 | " " " " 470 ohm |


PARTS LIST SPECIFICATION

| Item | Part Number | Qty. | DESCRIPTION | Rev | 6 |
|------|-------------|------|--|-----|---|
| 39 | 10-5472 | 14 | Resistor, Carbon, 5%, $\frac{1}{4}$ Watt, 4.7K ohm | | |
| 40 | 10-5473 | 1 | " " " " 47K ohm | | |
| 41 | 10-5561 | 2 | " " " " 560 ohm | | |
| 42 | 10-5681 | 4 | " " " " 680 ohm | | |
| 43 | 10-5682 | 8 | " " " " 6.8K ohm | | |
| 44 | 10-5820 | 1 | " " " " 82 ohm | | |
| 45 | 10-5184 | 2 | " " " " 180K ohm | | |
| 46 | 10-5185 | 2 | " " " " 1.8M ohm | | |
| 47 | 13-5P22 | 1 | " " " 2 Watt, .22 ohm | | |
| 48 | 19-808W4PO | 1 | " Wirewound, 20%, 10W, 4 ohm | | |
| 49 | 31-1N914 | 13 | Diode, 1N 914 | | |
| 50 | 32-1N5229 | 1 | Diode, Zener, 1N 5229B, 4.3V, 5%, Motorola | | |
| 51 | 34-2N3643 | 7 | Transistor, 2N 3643 | | |
| 52 | 33-2N3644 | 5 | Transistor, 2N 3644 | | |
| 53 | 34-MJE200 | 1 | Transistor, MJE 200 | | |
| 54 | 19-311103 | 2 | Trimpot, 10K | | |
| 55 | 19-311503 | 1 | Trimpot, 50K | | |
| 56 | 90-101 | 1 | Crystal, 14.31818 mhz | | |
| 57 | 27-120104 | 26 | Capacitor, Ceramic Disc Bypass, .1 uf | | |
| 58 | 27-101103 | 2 | " " " .01 uf | | |
| 59 | 27-250105 | 9 | " " " .001 uf | | |
| 60 | 28-101101 | 3 | " Dipped Mica, 100 pf | | |
| 61 | 29-004 | 2 | " Tantalum, 1 uf, 6V | | |
| 62 | 29-003 | 2 | " " 22 uf, 6V | | |
| 63 | 29-001 | 2 | " " 100 uf, 10V | | |
| 64 | 21-101224 | 2 | " Mylar, .22 uf | | |
| 65 | 24-250505 | 2 | " Electrolytic, 5 uf, 25V | | |
| 66 | 24-250106 | 3 | " " 10 uf, 25V | | |
| 67 | 24-060257 | 1 | " " 250 uf, 6V | | |
| 68 | 24-200808 | 1 | " " 8000 uf, 16V | | |
| 69 | 79-42424 | 1 | Socket, 24 pin | | |
| 70 | 78-06002 | 1 | Heatsink, Thermalloy #6111B-66 | | |
| 71 | 55-6125 | 4 | Flex Strip Jumper, 25 Conductor, Ansley #FSN-23A | | |
| 72 | 72-1412S | 2 | Screw, Machine, , Pan Hd., Phil., 4-40 x 3/4" | | |
| 73 | 75-044 | 2 | Washer, Split Lock, #4 | | |
| 74 | 75-914S | 2 | Nut, Hex 4-40 | | |
| 75 | 003113 | 1 | Printed Circuit Board, #90125 | | |
| 76 | 10-5684 | 2 | Resistor, Carbon, 5%, $\frac{1}{4}$ W, 680K ohm | | |
| 77 | 19311104 | 2 | Trimpot, 100K ohm | | |
| 78 | 21-101104 | 2 | Capacitor, Mylar .1 uf | | |
| 79 | _____ | 1 | Jumper, (30 AWG, Insulated) | | |

| SYM | DESCRIPTION | DATE | APPV |
|-----|------------------|----------|-------------|
| F | REV PER ECN 1047 | 12/19/75 | [Signature] |
| G | REV PER ECN 1482 | 12/19/75 | [Signature] |

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| DATE | BY | REVISION |
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| INTERPRET THIS DRAWING PER USASI V14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS +.010 .1 - .4 J ANGLES ±.1° .5 - 4.0 J SURFACE FINISH ✓ .000 - .010 | DRAWN BY: P.C.S. DATE: 12/74 |  ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030 |
| | CHECKED: DESIGN ENGINEER: [Signature] 10 JAN 75 PROJECT ENGINEER: [Signature] 10 JAN 75 DOCUMENT CONTROL: [Signature] | |
| MATERIAL: | SIZE: D DRAWING NO: A003112 | REV: G |
| NEXT ASSY: USED ON: APPLICATION: | SCALE: SHEET: 1 OF 1 | 3 2 1 |

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A



