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THE PREMIER NAME IN PINBALL



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Premier® Technology

A Nightmare™ ON ELM STREET

Instruction Manual

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Freddy® A Nightmare™ ON ELM STREET

GAME #744

(INSTALL 4 BALLS IN OUTHOLE)

INSTRUCTION MANUAL

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GAME PROM:	DISPLAY PROM:	SOUND PROM:	
(TYPE 26C512)	(TYPE 27C040-25)	(TYPE 27C256)	(TYPE 27C040-25)
744/GPROM	744/DSPROM	744/DROM1	744/AROM 1
		744/YROM1	(TYPE 27C020-25)
			744/AROM 2

NOTE: ANY PROM CHANGES DURING PRODUCTION WILL BE INDICATED BY A REVISION NUMBER FOLLOWING THE GAME NUMBER. CONSULT YOUR DISTRIBUTOR FOR ANY PROM CHANGE UPDATE.

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SYSTEM 3 OVERVIEW

System 3 contains many new features which improve game play and reliability. Some of these features are as follows:

1) New lithium battery provides data retention for a minimum of 5 years under normal operation and virtually eliminates battery leakage. Also a low battery warning is given in the displays when the voltage drops to the critical level.
2) New interlocking connector system for improved reliability.
3) Use of High Speed CMOS technology for low power consumption and cooler operation.
4) Improved solenoid driver reliability due to simplified circuitry and the use of Rugged Power MOSFETS.
5) Lamp short protection.
6) Switch matrix input protection.
7) Easy line voltage adjustment on location.
8) Improved bookkeeping functions.
9) New 128 x 32 Dot Matrix Display.
10) Capability for operators to enter their own messages in the attract mode.
11) Use of new SMART SWITCH tm technology which eliminates the use of contact points on switches. Therefore the need for cleaning dirty switches is eliminated.
12) Addition of a Tournament Mode switch which allows quick and easy way to replace current adjustment settings with special settings. This switch also provides an easy way to set the game for free play.

This equipment has been found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

DO NOT TRANSPORT GAME WITH LIGHTBOX IN THE UPRIGHT (PLAYING) POSITION.
USE LATCH ONLY TO TEMPORARILY HOLD LIGHTBOX UPRIGHT WHILE ATTACHING THE LIGHTBOX TO THE CABINET.
SECURE THE LIGHTBOX TO THE CABINET WITH THE TWO BOLTS AND LOCKWASHERS PROVIDED.

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I. INSTALLATION

A. SET-UP

1. Bolt the legs to the cabinet.

2. Lift lightbox into an upright position. Be sure none of the cables are crimped in between the lightbox and cabinet.

3. Engage the snap in the rear of the lightbox to the cabinet.

4. To remove the lightbox backglass and gain servicing access to the electronics panel and the insert lamp assembly, proceed as follows:

   UNLOCK THE LIGHTBOX BY TURNING THE KEY A QUARTER TURN CLOCKWISE.

   LIFT UP THE BACKGLASS RETAINING BOTTOM TRIM ABOUT 3/4" TO CLEAR THE "H" RETAINING CHANNEL ON THE TOP EDGE OF THE DISPLAY/SPEAKER PANEL, PIVOT OUT TOWARDS YOU AND SLIDE THE BACKGLASS DOWN AND OUT, CAREFULLY SET ASIDE.

   REMOVE THE "H" RETAINING CHANNEL, SLIDE THE PLEXIGLASS INSERT UP AND OUT, SLIDE UP AND REMOVE THE DISPLAY/SPEAKER PANEL AND LAY FACE DOWN ON THE CABINET.

   UNLOOSEN THE TWO WING NUTS ON THE LEFT SIDE AND PUSH THE LOCK SLIDE UPWARDS, THIS ALLOWS THE LIGHTBOX LAMP INSERT TO SWING OUT AND FOR GAINING ACCESS TO THE ELECTRONICS PANEL.

5. Secure the lightbox to the cabinet with the bolts and washers provided.

   TO REPLACE THE BACKGLASS, INSERT THE DISPLAY/SPEAKER PANEL, ENSURE THAT THE METAL TABS ON THE PANEL MATE INTO THE WOOD RETAINERS, SLIDE IN THE PLEXIGLASS PANEL AND INSERT THE "H" RETAINING CHANNEL.

   SLIDE THE BACKGLASS UP INTO THE LIGHTBOX, PIVOT INWARDS AND SLIDE DOWN INTO THE "H" CHANNEL, TURN THE KEY A QUARTER TURN COUNTER-CLOCKWISE TO LOCK THE LIGHTBOX.

6. Open the cabinet door and loosen the front moulding locking arm.

7. Remove the front moulding from the cabinet.

8. Slide the playfield glass toward you and remove it, carefully set aside.

9. Slide the playfield toward you, pivot upwards and back towards the lightbox, hold in place and insert the prop stick into the countersunk hole on the underside of the playfield.

   CAUTION!

   Use prop stick when servicing under the playfield.

10. Unravel and straighten out the power line cord located at the rear of the cabinet.

11. Proceed to "B. CHECK-OUT".

B. CHECK-OUT

1. Check that all cables are clear of moving parts.

2. Check for any loose wires.

3. Check switches for loose solder or other foreign matter.

4. Be certain all fuses are firmly seated.

5. Check transformer for any foreign matter across terminals.

6. Be sure that the Transformer Panel power input connector A12J5, corresponds to the supply voltage.

7. Check the setting of the normally open tilt switch on the underside of the playfield. One blade should be free-floating with a weight on the end.

8. The plumb-bob tilt can be adjusted by loosening the clip and raising the plumb-bob to increase its sensitivity, or lowering it to decrease its sensitivity.

9. Lower the playfield into the cabinet. Using the leg adjusters, level the playfield. At this point, the pitch of the playfield should be approximately 6 degrees.

10. Plug the line-cord into a properly grounded 3-wire receptacle ONLY!

11. Refer to Section III to make all necessary game adjustments.

12. Re-install the playfield glass, front moulding and lock the cabinet door.

13. CAUTION! If this game has been subjected to extreme cold, allow to warm up to room temperature.

SCANNED

I. INSTALLATION

C. COIN METER (OPTIONAL)

A +12vdc mechanical coin meter may be installed by the operator to count total coins accepted by the machine. The coin meter leads should be soldered to the lugs on the terminal strip mounted inside the front door on the right side (see Figure 1). If the coin meter is polarized, the positive lead (red) should be attached to the lug that has the cathode (banded) side of the diode attached to it otherwise the leads may be attached in any order. The COIN METER adjustment must be set to on and the following four adjustments should be set to the number of pulses (counts) required for each coin denomination used.

NOTE: Make sure that the GAME MODE adjustment is not set to either REPLAY + TICKETS or TICKETS ONLY (see Game Adjustments section).

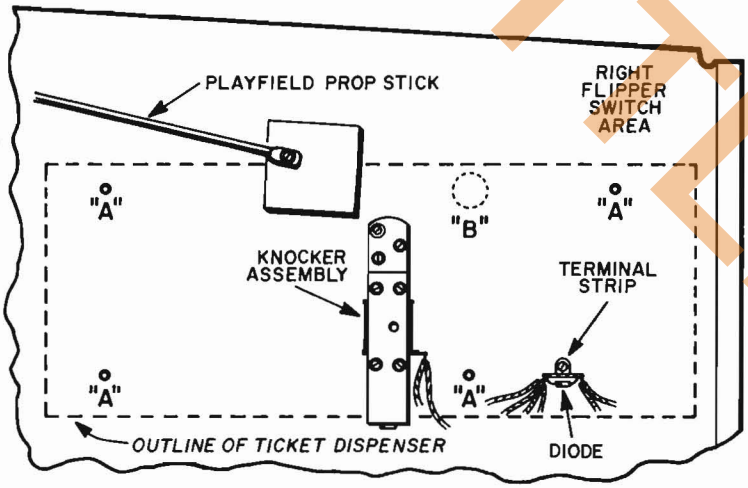


FIGURE 1.

D. TICKET DISPENSER (OPTIONAL)

This machine is equipped to easily interface to the Deltronic Labs TD0M-10-S-S ticket dispenser. To install the dispenser, first locate the five partially drilled holes on the inside of the cabinet on the right side (see Figure 1). The four "A" holes are for mounting the cabinet with #10 X 1-3/4" carriage bolts. The "B" hole is for cable access to the unit. Drill the "A" holes out from the inside of the cabinet using a 13/64" drill bit. Drill the "B" hole out from the inside of the cabinet using a 1" drill bit. In the game envelope you will find template #30213 for a 1/2" plywood spacer to be used between the outside of the game cabinet and the dispenser cabinet so that the dispenser will clear the leg on the game when opened for loading tickets.

The GAME MODE adjustment is used to set whether to dispense a number of tickets along with each replay awarded (REPLAY + TICKETS) or to dispense a number of tickets in place of each replay awarded (TICKETS ONLY). The TICKETS TO AWARD adjustment is used to set the number of tickets to dispense for each replay awarded (see Game Adjustments section).

NOTE: Make sure that the COIN METER adjustment is set to off when using a ticket dispenser.

E. BILL ACCEPTOR (OPTIONAL)

A bill acceptor can be easily interfaced electrically to this machine. The two unused 522 (green-red-red) and 622 (blue-red-red) center chute switch wires should be attached to the switch output of the bill acceptor (see Cabinet/Front Door Schematic Diagram). The line voltage validator outlet located inside the cabinet on the right side can be used for supplying power to the unit. The CHUTE 3 UNITS adjustment can then be used to set the value of the bill being used. The bill acceptor models known to fit the door mechanically are Mars model VFM2 and Tekbilt model NV110. The Tekbilt model also requires an adapter plate.

F. COMMUNICATIONS ADAPTER (OPTIONAL)

A kit (MA-1940) may be purchased through your distributor which will allow the system to output Bookkeeping data to a serial printer.

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II. GAME PLAY AND SCORING



GAME MODE:

THE PLAYER BEGINS PLAY IN THE "AWAKE" STATE WHICH IS THE NORMAL PLAY MODE. WHEN THE PLAYER FALLS ASLEEP, THEY ENTER A NIGHTMARE PLAY MODE. THESE NIGHTMARE PLAY MODES ARE DESCRIBED BELOW. THE PLAYER MAY ENTER A NIGHTMARE (FALL ASLEEP) FROM THE PLUNGER SKILL SHOT, "1... 2..." (MYSTERY) FEATURE, FROM SHOOTING THE BOILER ROOM WHEN LIT, OR FROM THE SLEEP/AWAKE METER TIMING OUT.

NIGHTMARES (GENERAL):

DURING ANY NIGHTMARE THE PLAYER ATTEMPTS TO DEFEAT FREDDY KRUEGER BY SHOOTING ANY OF THE FLASHING "FREDDY" SHOTS. EACH SHOT INCREMENTS THE POWER METER BILLBOARD. COMPLETING THIS METER QUALIFIES THE BOILER SHOT. MAKING THE QUALIFIED BOILER SHOT DEFEATS FREDDY, AWARDS TEN MILLION POINTS TIMES THE NIGHTMARE NUMBER AND RETURNS THE PLAYER TO THE "AWAKE" STATE UNLESS MULTIPLE BALLS ARE STILL IN PLAY. IF MULTIBALL PLAY IS STILL ACTIVE, THEN THE JACKPOT SHOTS ARE QUALIFIED.

WHILE THE PLAYER IS AWAKE, HE CAN EARN ITEMS WHICH CAN HELP HIM OUT DURING ANY NIGHTMARE (EXCEPT NIGHTMARE 7). THESE ITEMS ARE MULTIBALL, EXTRA POWER, AND SET ALARM. IF MULTIBALL IS EARNED, THEN THE NIGHTMARE BEGINS WITH AUTOMATIC MULTIBALL PLAY. IF MORE POWER IS EARNED, THEN DURING THE NEXT NIGHTMARE, EACH FREDDY SHOT INCREMENTS THE POWER METER THREE PLACES INSTEAD OF THE USUAL TWO. IF SET ALARM IS EARNED, THEN FIVE SECONDS BEFORE THE END OF THE NIGHTMARE, THE BOILER SHOT IS QUALIFIED TO GRAB FREDDY. IF THE PLAYER GRABS FREDDY, THEN THE NIGHTMARE CONTINUES INTO THE AWAKE STATE. DURING ANY NIGHTMARE (EXCEPT NIGHTMARE 7) WITH MULTIBALL, THE LOWER LEFT TARGET MAY FLASH TO LAUNCH AN ADDITIONAL BALL INTO PLAY.

NIGHTMARE #1:

* BEGIN WITH MULTIBALL.
* BEGIN WITH ONE "SAVE SOUL" TARGET LIT.

THE FOLLOWING ITEMS ARE GIVEN TO THE PLAYER ONLY THE FIRST TIME THROUGH THIS NIGHTMARE:

* BEGIN WITH MORE POWER.
* BEGIN WITH ALARM SET.
* BEGIN WITH SOME OF POWER METER COMPLETED.

NIGHTMARE #2:

* BEGIN WITH ONE "SAVE SOUL" TARGET LIT.

THE FOLLOWING ITEMS ARE GIVEN TO THE PLAYER ONLY THE FIRST TIME THROUGH THIS NIGHTMARE:

* BEGIN WITH ALARM SET.
* BEGIN WITH SOME OF POWER METER COMPLETED.
* COMPLETING THE DROP TARGETS SCORES THE CURRENT "BIG POINTS" VALUE.

NIGHTMARE #3:

* BEGIN WITH MULTIBALL.
* BEGIN WITH ALL "SAVE SOUL" TARGETS LIT.

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II. GAME PLAY AND SCORING

THE FOLLOWING ITEMS ARE GIVEN TO THE PLAYER ONLY THE FIRST TIME THROUGH THIS NIGHTMARE:

* BEGIN WITH SOME OF POWER METER COMPLETED.

NIGHTMARE #4:

* FLASH THE T. V. (BULLSEYE) TARGET.

* BEGIN WITH FREDDY'S JACKPOT ACTIVE.

* BEGIN WITH ONE "SAVE SOUL" TARGET LIT.

THE FOLLOWING ITEMS ARE GIVEN TO THE PLAYER ONLY THE FIRST TIME THROUGH THIS NIGHTMARE:

* BEGIN WITH MORE POWER.

* BEGIN WITH SOME OF POWER METER COMPLETED.

NIGHTMARE #5:

* BEGIN WITH MULTIBALL.

* FLASH BOTH POP BUMPERS.

* BEGIN WITH ONE "SAVE SOUL" TARGET LIT.

* COMPLETING THE DROP TARGETS SCORES THE CURRENT "BIG POINTS" VALUE.

THE FOLLOWING ITEMS ARE GIVEN TO THE PLAYER ONLY THE FIRST TIME THROUGH THIS NIGHTMARE:

* BEGIN WITH ONE STEP IN THE POWER METER COMPLETED.

NIGHTMARE #6:

* BEGIN WITH FREDDY'S JACKPOT ACTIVE.

* FLASH THE T. V. (BULLSEYE) TARGET.

* BEGIN WITH ALL "SAVE SOUL" TARGETS LIT.

THE FOLLOWING ITEMS ARE GIVEN TO THE PLAYER ONLY THE FIRST TIME THROUGH THIS NIGHTMARE:

* BEGIN WITH ONE STEP IN THE POWER METER COMPLETED.

FINAL NIGHTMARE:

THIS ROUND ALWAYS BEGINS WITH FOUR BALL MULTIBALL. IF THE PLAYER HAS NOT COMPLETED ALL OF THE SHOTS WHEN MULTIBALL ENDS, THEN THEY ARE GIVEN A GRACE PERIOD TO COMPLETE THE SHOTS. THE PLAYER MUST COMPLETE FIVE STROBING SHOTS TO QUALIFY THE BOILER ROOM. IF THE PLAYER SUCCESSFULLY COMPLETES ALL FIVE SHOTS AND THEN COMPLETES THE BOILER SHOT, THEY DEFEAT FREDDY AND RECEIVE THE FOLLOWING AWARDS:

* COLLECT 1,000,000 POINTS FOR EACH SOUL.

* COLLECT 1,000,000 POINTS FOR EACH KRUEGERAND.

* COLLECT 100,000,000 POINTS FOR EACH FREDDY DEFEATED UP TO THIS POINT.

MULTIBALL JACKPOTS:

IF THE PLAYER IS IN MULTIBALL WHEN ANY FREDDY IS DEFEATED, THEN THE FIVE JACKPOT LAMPS FLASH. EACH SHOT AWARDS THE JACKPOT VALUE AND TURNS OFF THE CORRESPONDING LAMP. THIS CONTINUES UNTIL THE PLAYER REACHES THE LAST SHOT WHICH CONTINUES TO REMAIN ACTIVE.

DREAM WARRIORS:

THIS IS A MULTIBALL MODE WHERE SHOOTING THE STROBING SHOT AWARDS SUPER JACKPOT. COMPLETING A STROBING SHOT CHANGES THE STROBING SHOT TO ANOTHER LOCATION. THE LAST SHOT IN THE SEQUENCE IS THE UPPER LEFT SPOT TARGET WHICH REMAINS ACTIVE UNTIL MULTIBALL PLAY IS OVER.

HIDDEN MODE:

THIS IS A MULTIBALL WHERE EACH BOILER SHOT AWARDS 10,000,000 POINTS. THIS FEATURE LASTS UNTIL THE PLAYER LEAVES MULTIBALL. ONLY ONE HIDDEN MODE PER PLAYER IS ALLOWED.

KRUEGERAND MULTIBALL:

THIS IS A MULTIBALL WHERE EACH BOILER DOOR SHOT AWARDS 5 KRUEGERANDS. THIS FEATURE LASTS UNTIL THE PLAYER LEAVES MULTIBALL.

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II. GAME PLAY AND SCORING

SOULS SAVED:

VARIOUS FEATURES AWARD "SOULS" TO THE PLAYER. THESE SOULS ARE A BONUS WHICH MAY BE COLLECTED AT A LATER TIME. IF THE PLAYER EXCEEDS HIGH SOULS TO DATE, A SPECIAL MAY BE AWARDED (SEE GAME ADJUSTMENTS) AND THEY ARE ALSO ABLE TO ENTER THEIR INITIALS.

KRUEGERANDS:

VARIOUS FEATURES AWARD "KRUEGERANDS" TO THE PLAYER. THESE KRUEGERANDS ARE A BONUS WHICH MAY BE TRADED FOR OTHER ITEMS OR COLLECTED AT A LATER TIME.

CLAWSAVE:

COMPLETING C-L-A-W ALLOWS PLAYER TO ACTIVATE THE CLAWSAVE DEVICE BETWEEN THE FLIPPERS. ONCE THIS DEVICE IS ACTIVATED USING THE SPECIAL CABINET BUTTON LOCATED BELOW THE RIGHT FLIPPER BUTTON, IT WILL REMAIN ENABLED FOR A TIME PERIOD.

"TAKE THAT" FEATURE (TOP L. TARGET):

DURING THE AWAKE STATE, IF THE AVERAGE GAME TIME IS LESS THAN THREE MINUTES, THIS TARGET LIGHTS KICK SAVE. IF KICK SAVE IS ALREADY LIT, THEN CLAW SAVE IS LIT. IF CLAW SAVE IS ALREADY LIT, THEN ENABLE THE HURRY-UP EXTRA BALL. IF THE PLAYER HAS ALREADY WON TWO HURRY-UP EXTRA BALLS HOWEVER, THEN SCORE 20,000,000 INSTEAD. IF THE AVERAGE GAME TIME IS GREATER THAN THREE MINUTES, THEN THE FIRST AWARD = 5,000,000, THE SECOND AWARD = 10,000,000, AND THE THIRD AWARD = HURRY-UP EXTRA BALL.

GLOVE FLIPPER:

THIS DEVICE IS POSITIONED NEAR THE LOWER LEFT UPKICKER. IF THE PLAYER HAS THIS DEVICE QUALIFIED WHEN THE BALL ENTERS THIS UPKICKER, THEN THE PLAYER IS ALLOWED TO FLIP THE BALL OFF OF THE RAMP USING THIS DEVICE. IF A PLAYER HITS THE CAPTIVE BALL TARGET, HE WILL RECEIVE A POINT AWARD.

LOW GAME SPECIAL:

IF THE PLAYER BEGINS THE LAST BALL WITH LESS THAN 20,000,000 THEN THE RIGHT OUTLANE SPECIAL WILL BE LIT FOR A TIME PERIOD. (SEE GAME ADJUSTMENTS)

1... 2... (MYSTERY):

GIVE PLAYER A RANDOM AWARD. THERE ARE SEPARATE AWARD TABLES FOR ASLEEP AND AWAKE MODES.

SLEEP/AWAKE METER:

THIS IS A VERTICAL BILLBOARD POSITIONED UPPER CENTER OF PLAYFIELD. THIS METER IS ACTIVE WHILE THE PLAYER IS "AWAKE". TIME DECREMENTS THIS METER TOWARD "ASLEEP". IF A PLAYER COMPLETES A "COFFEE" SHOT, THIS METER IS INCREMENTED TOWARD THE TOP. IF THIS METER REACHES THE BOTTOM, THE PLAYER ENTERS THE NEXT NIGHTMARE. IF THIS METER REACHES THE TOP, THEN THE PLAYER IS CONSIDERED "FULLY AWAKE". WHILE "FULLY AWAKE", THE CAPTIVE BALL TARGET AWARDS THE FREDDY'S BONES FEATURE AND THE CENTER LEFT TARGET ACTIVATES HIDDEN MODE.

FREDDY'S BONES:

AWARD PLAYER ALL THREE "NEXT NIGHTMARE" FEATURES. IF A PLAYER HAS ALREADY EARNED ALL THREE "NEXT NIGHTMARE" FEATURES THEN AWARD TWENTY KRUEGERANDS.

T. V. SET (CENTER BULLSEYE TARGET):

BEGIN FLASHING WHEN LIT. SCORE 10,000,000 TIMES THE HIT NUMBER WHEN FLASHING UNTIL TIMED OUT. COLLECT BONUS WHEN FLASHING DURING A NIGHTMARE.

BONUS:

POP BUMPER HITS ADD 300,000 TO THE END OF BALL BONUS. IF BUMPERS ARE FLASHING, POP BUMPER HITS ADD 1,000,000 TO THIS BONUS.

THREE JACKPOTS:

COMPLETING ANY MULTIBALL JACKPOT TURNS ON ITS CORRESPONDING LAMP. COMPLETING ANY FREDDY JACKPOT TURNS ON ITS CORRESPONDING LAMP. COMPLETING ANY COMBO JACKPOT TURNS ON ITS CORRESPONDING LAMP. COMPLETING ALL THREE LAMPS QUALIFIES THE LOWER LEFT UPKICKER FOR "DREAM WARRIORS".

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II. GAME PLAY AND SCORING

COMBO FEATURE:

THE LEFT RETURN LANE ROLLOVER OR MYSTERY FEATURE QUALIFIES THE CAPTIVE BALL FOR THE COMBO FEATURE. HITTING THE CAPTIVE BALL SPOT TARGET WHEN LIT OPENS THE TOP LEFT GATE AND FLASHES THE CENTER JACKPOT SHOT FOR A SHORT TIME PERIOD. COMPLETING THIS JACKPOT SHOT AWARDS THE COMBO JACKPOT.

TOGGLE FUNCTION:

VARIOUS FEATURES (SEE ADJUSTMENTS) CAN BE PERCENTAGED BY ACTIVATING AND DEACTIVATING THEM. THE TOGGLE CAN TURN SOME OFF AND TURN OTHERS ON.

TRADE KRUEGERANDS:

THIS FEATURE ALLOWS THE PLAYER TO PURCHACE OTHER ITEMS. THE ITEM OFFERED DEPENDS ON THE NUMBER OF KRUEGERANDS THAT THE PLAYER HAS EARNED. ANY UNUSED KRUEGERANDS ARE COLLECTED AS AN END OF GAME BONUS.

PLAYFIELD FEATURES:

OUTHOLE:

* COLLECT END OF BALL BONUS(ES).
* COLLECT END OF GAME BONUS(ES) AFTER PLAYERS LAST BALL.

LEFT OUTSIDE ROLLOVER:

* SCORE 3,000.
* ACTIVATE KICKSAVE WHEN LIT.

RIGHT OUTSIDE ROLLOVER:

* SCORE 3,000.
* AWARD SPECIAL WHEN FLASHING.

LEFT RETURN ROLLOVER:

* SCORE 30,000.
* QUALIFY CAPTIVE BALL FOR COMBO FEATURE WHEN LIT.

RIGHT RETURN ROLLOVER:

* SCORE 30,000.
* ACTIVATE TRADE KRUEGERAND FEATURE WHEN LIT.
* LIGHT GLOVE FLIPPER SHOT.

KICKING RUBBERS:

* SCORE 30.
* PERFORM TOGGLE FUNCTION.

BOTTOM LEFT SPOT TARGET:

* SCORE 30,000.
* QUALIFY KICKSAVE WHEN LIT.
* ADD ANOTHER MULTIBALL WHEN FLASHING.

OUTER BULLSEYE TARGET:

* SCORE 30,000.

INNER BULLSEYE TARGET:

INNER BULLSEYE TARGET:

* START T.V. FEATURE TIMEOUT WHEN LIT.
* SCORE T.V. POINT VALUE WHILE FLASHING.
* COLLECT BONUS WHEN FLASHING (DURING NIGHTMARE #4).

TOP LEFT LANE (OPTO NEAR POP BUMPERS):

* SCORE 5,000.
* ADD KRUEGERANDS WHEN LIT.
* QUALIFY FREDDY'S HEAD UPKICKER FOR JACKPOT WHEN FLASHING.
* QUALIFY FREDDY'S HEAD UPKICKER FOR INCREMENT POWER METER WHEN FLASHING.
* QUALIFY FREDDY'S HEAD UPKICKER FOR INDICATED FEATURE WHEN STROBING.

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II. GAME PLAY AND SCORING

BOTTOM LEFT UPKICKER:

* SCORE 500,000.
* AWARD GLOVE FLIPPER FEATURE WHEN LIT.
* AWARD 1... 2... FEATURE WHEN LIT.
* AWARD DREAM WARRIORS WHEN LIT.
* AWARD INDICATED FEATURE WHEN STROBING.

DROP TARGETS (1-3):

* EACH TARGET SCORES 100,000 AND ADDS BONUS.
* COMPLETING ALL THREE TARGETS AWARDS LIT VALUE AND RESETS DROP TARGET BANK.

POP BUMPERS AND KICKING TARGETS:

* SCORE 50,000.
* ADD BONUS 300,000 WHEN LIT (POP BUMPER LAMPS).
* ADD BONUS 1,000,000 WHEN FLASHING (POP BUMPER LAMPS).
* PERFORM TOGGLE FUNCTION.

FREDDY'S HEAD UPKICKER:

* UNLIT, SCORE 3,000,000.
* IF QUALIFIED BY LEFT OPTO, AWARD THAT FEATURE. (SEE TOP LEFT OPTO)

TOP LEFT SPOT TARGET:

* SCORE 300,000.
* AWARD "TAKE THAT" FEATURE WHEN AWAKE.
* AWARD EXTRA BALL WHEN FLASHING.
* INCREMENT POWER METER WHEN FLASHING.
* AWARD JACKPOT WHEN FLASHING.
* AWARD INDICATED FEATURE WHEN STROBING.
* AWARD HIDDEN MODE WHEN FULLY AWAKE

SOUL TARGETS 1-4 (IN FREDDY'S NECK):

* SCORE 100,000.
* ADD LETTER TO C-L-A-W WHEN CORRESPONDING LAMP IS LIT.
* SCORE 5,000,000 WHEN LIT.
* SAVE ONE SOUL WHEN FLASHING.

TOP LEFT UPKICKER (WIREFORM RAMP):

* SCORE 300,000.
* INCREMENT POWER METER WHEN FLASHING.
* AWARD JACKPOT WHEN FLASHING.

BOILER DOOR (OPTO):

* SCORE 30,000.
* OPEN BOILER DOOR FOR A TIME PERIOD WHEN LIT.
* ADD FIVE KRUEGERANDS DURING KRUEGERAND MULTIBALL.

BOILER TROUGH (OPTO):

* FALL ASLEEP WHEN LIT.
* GRAB FREDDY WHEN LIT.
* INCREMENT POWER METER WHEN FLASHING.
* AWARD JACKPOT WHEN FLASHING.
* AWARD INDICATED FEATURE WHEN STROBING.

CENTER SPOT TARGET (LEFT OF BOILER):

* SCORE 3,000.
* AWARD COFFEE WHEN LIT.

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II. GAME PLAY AND SCORING

TOP RIGHT SPOT TARGET (CAPTIVE BALL):

* SCORE 300,000.
* AWARD COFFEE WHEN LIT.
* ACTIVATE COMBO JACKPOT FOR A TIME PERIOD WHEN LIT.
* QUALIFY GLOVE FLIPPER FEATURE WHEN LIT.
* AWARD GLOVE FLIPPER VALUE WHEN FLASHING.
* INCREMENT POWER METER WHEN FLASHING.
* AWARD JACKPOT WHEN FLASHING.
* AWARD INDICATED FEATURE WHEN STROBING.

CLAWSAVE (RIGHT SIDE CABINET BUTTON):

* ACTIVATE CLAWSAVE UNIT WHEN ALL LETTERS OF C-L-A-W ARE LIT OR FLASHING.

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III. TEST MODE

There are several functions accessible to the operator while in the test mode. These functions are Self-Test, Bookkeeping, Game Adjustments, and Utilities. Each of these functions will be explained in detail later in this section. To enter the test mode, the game must be in the attract mode (game over). Then depress the Test button located just inside the front door of the game. The operator will then be given a choice as to which function he wants to access. Use the left flipper button to choose (highlight) the function desired and then either the Test button or the right flipper button to enter the chosen function.

NOTE: The Test button may be held in to fast forward through the steps of a particular function.

To exit the test mode or change functions the Slam switch (front door) must be activated or the power must be turned off.

I. SELF-TEST

This function will allow the operator to test all the hardware related devices in the game. Each test is described below. In most cases the Credit button can be used to restart each test (see Testmode Flowchart).

A. MEMORY TEST

This function tests all memory devices on the Control Board (A1). If all the devices pass the test an "OK" will be displayed. If a failure occurs, a description of the faulty component will be displayed. Then after a short period of time the Game Prom check sum will be displayed.

B. LAMP CHECK

This function will flash all the controlled lamps and flasher lamps continuously. This will allow the operator to easily check for and replace any burned out light bulbs.

C. LAMP MATRIX TEST

This test will allow an operator to single step through and check the operation of each lamp in the game. The left flipper button will decrement the active lamp number by one while the right flipper button will increment the active lamp number by one. The strobe number and the return number are combined to form the lamp number (strobe,return) which is shown in the display along with a description of the lamp. Only one lamp at a time should flash during this test.

D. RELAY AND SOLENOID TEST

This test will allow an operator to single step through and check the operation of each relay and solenoid driver in the game. The left and right flipper buttons are used to change the active driver number. The selected driver description and number will appear in the display. The Credit button is then used to activate the driver for a short time period. Solenoid #31 ("Q" relay) is always on during this test so as to provide power to devices such as the pop bumpers and kicking rubbers (see Playboard Schematic Diagram).

E. SWITCH MATRIX TEST

The first part of this test will report any switch(s) which have not been operated in the course of the last 15 games (INOPERATIVE SWITCHES). The second part of the test will report any switch(s) which are stuck closed. If no switches are closed when this test is started, the message "ALL SWITCHES OPEN" will be displayed. If any switches are closed, the closed switch(s) name and number will continuously be displayed. The strobe number and the return number are combined to form the switch number (strobe,return). The Credit button can be used to restart this test.

F. SWITCH EDGES TEST

This test will display the name and number of any switch that is actuated. When actuating each switch, a problem exists if either no switch is shown or any switch other than the one actuated is displayed.

G. DISPLAY TEST

This test checks the operation of the 128 x 32 dot matrix display. The right flipper button is used to advance this

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test. The first two steps check the different levels of display intensity. Each block that appears on the display should be of lesser intensity than the one to the left of it. During the next four steps a diagonal pattern is stepped from left to right in the display. While in this part of the test every fourth pixel only in each row of dots should be lit. During the next eight steps another diagonal pattern is stepped from left to right in the display. While in this part of the test every eighth pixel only in each row of dots should be lit.

H. SOUND TEST

This test checks the interface lines from the Control Board (A1) to the Sound Board (A6). Every time the right flipper button is pressed, a different tone should be heard. During each tone, the sound line connection which is being tested will be shown in the display. After the tone stops the sound line which is being tested will still be kept at a low level (<.8v) until the right flipper button is pressed again or the Credit button is used to restart the test.

J. FRONT DOOR TEST

This test checks the operation of the coin chutes used in the game. Utilizing this function will not affect any bookkeeping values. Each coin chute closure is categorized and shown in the display.

II. BOOKKEEPING

The Test button is used to step through bookkeeping. The display will contain a description of each step, the step number, and two different bookkeeping values. The value in the leftmost column represents long term bookkeeping. The value in the rightmost column (in brackets) represents short term bookkeeping. These two values are provided so that the operator may compare recent performance with long term performance and then make any necessary game adjustments.

NOTE: The left column of steps 1 (earnings) and 17-20 (coin chute counts) will not be displayed unless the credit button is pressed during that active step number.

The left flipper button will allow the operator to reset all of the left (long term) and right (short term) bookkeeping values. The right flipper button will allow the operator to reset all of the right (short term) bookkeeping values only. If the R.BOOK AUTO-RESET adjustment is on, the right (short term) bookkeeping will automatically be reset after every 2000 plays (see Game Adjustments). Therefore, the operator does not need to reset the short term bookkeeping himself unless he prefers to follow his own procedure. Also, this feature will aid in adjusting the game payout percentage to the caliber of players in different locations. If there happens to be a major error in a long term bookkeeping value the word ERROR will appear to the right of that bookkeeping value. To correct this error the long term bookkeeping must be reset. A description of each bookkeeping step is given in the test mode flowchart.

III. GAME ADJUSTMENTS

This function allows the operator to make any adjustments to his game as necessary.

A. FACTORY SETTINGS

Upon entering the game adjustment section of bookkeeping, the operator is given a choice to load all factory settings or to single step through the game adjustments and adjust each section individually. If he chooses

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to enter the factory settings by depressing the Credit button, he will also be given a choice of what language to load. By using the right flipper button he may choose the appropriate language and then depress the Credit button again to enter the settings. After the settings are loaded the display should show the message "FACTORY SETTINGS LOADED" for a short time and then proceed to game adjustment step 1. At any time during the previous steps the operator may either exit the test mode or depress the Test button to proceed immediately to game adjustment step 1.

WARNING
Loading the factory settings will affect all previous game adjustment settings. Therefore be careful when selecting this feature.

B. GAME ADJUSTMENT STEPS

Each time the Test button is pressed a description of the next step appears in the display along with the step number and the current status of that step. Unless otherwise specified, the left and right flipper buttons are used to change the possible selections in each step.

1) SCORE REPLAY LEVEL 1
2) SCORE REPLAY LEVEL 2
3) SCORE REPLAY LEVEL 3
Each Score Replay Level may be set by using the left flipper button to decrement the score and the right flipper button to increment the score. The Credit button can be used to load the factory setting for each individual level if desired. If the Auto-Percentaging adjustment is on, Replay Levels 2 & 3 can only be set to on or off. If Replay Level 2 is on, the score level will be set to two times Replay Level 1. If Replay Level 3 is on, the score level will be set to three times Replay Level 1. This allows the operator several combinations of levels in the Auto-Percentaging mode (i.e. 1, 1 & 2, 1 & 3, or 1 & 2 & 3).

4) HIGH GAME TO DATE 1
5) HIGH GAME TO DATE 2
6) HIGH GAME TO DATE 3
7) HIGH GAME TO DATE 4
8) HIGH GAME TO DATE 5
Each High Game To Date may be set by using the left flipper button to decrement the score and the right flipper button to increment the score. The Credit button can be used to load the factory setting for the displayed level and all those below it.
9) GAME PRICING
This step provides a choice of loading a standard setting for a particular country or a custom setting. When a standard setting is selected, the following steps (10-17) are skipped.

10) CHUTE 1 UNITS (L)
11) CHUTE 2 UNITS (R)
12) CHUTE 3 UNITS (C)
13) CHUTE 4 UNITS
14) UNITS REQUIRED FOR CREDIT
15) UNITS REQUIRED FOR BONUS
16) BONUS CREDITS
17) MINIMUM UNITS REQUIRED FOR CREDIT
Steps 10-17 are used if a custom setting is selected in step 9 (GAME PRICING). Steps 10-13 select the number of units that each chute is worth when a coin is dropped into that particular chute. The value entered for step 14 determines how many units must be accumulated for a credit to be issued on the game. Steps 15 and 16 determine how many units must be accumulated for any bonus credits to be issued. A value of zero entered for step 15 will disable the bonus feature. Step 17 indicates the number of units required before any credits are issued (see Coin Chute Setting Table for examples).

18) COIN METER
If set to ON, the pulses to be given for each of the four coin chutes can be defined so that the number of pulses for a given chute are in relation to the currency denomination. If set to OFF, steps 19-22 will be skipped.

19) CHUTE 1 PULSES
20) CHUTE 2 PULSES
21) CHUTE 3 PULSES
22) CHUTE 4 PULSES
The four steps above are used to set

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III. TEST MODE

COIN CHUTE SETTING TABLE															
Country		Coin Chutes Left 1	Right 2	Center 3	4	Plays/Coin(s)	Chute Adjustment Steps 10	11	12	13	14	15	16	17
USA		.25	.25	$1		1/.50, 2/$1	01	01	04	00	02	00	00	00
USA (Custom)						1/.50, 5/$2	01	01	04	00	02	08	01	00
						1/.50, 2/.75, 3/$1	03	03	12	00	04	00	00	00
						1/.50, 3/$1	01	01	04	00	02	04	01	00
						1/.25, 4/$1	01	01	04	00	01	00	00	00
Australia	1	.20	$1	$2	-	1/3x.20, 2/$1, 5/$2	02	10	20	00	05	20	01	00
	2	.20	$1	$2	-	1/5x.20, 1/$1, 3/$2	01	05	10	00	05	10	01	00
	3	.20	$1	$2	-	1/5x.20, 1/$1, 2/$2	01	05	10	00	05	00	00	00
Belgium		5Fr	20Fr	50Fr	-	1/20Fr, 2/40Fr, 3/50Fr	01	04	10	00	04	10	01	00
Canada		.25	$1	-	-	1/.50, 2/$1	01	04	00	00	02	00	00	00
Denmark		1Kr	10Kr	-	-	1/3x1Kr, 4/10 Kroner	01	10	00	00	03	10	01	00
Finland		5Mka	1Mka	-	-	1/3x1 Markka, 2/5 Markkaa	10	02	00	00	05	00	00	00
France	1	1Fr	5Fr	10Fr	20Fr	1/3x1Fr, 2/5Fr, 5/10Fr	02	10	20	40	05	20	01	00
	2	1Fr	5Fr	10Fr	20Fr	2/5Fr, 4/10Fr, 9/20Fr	02	10	20	40	05	40	01	10
	3	1Fr	5Fr	10Fr	20Fr	1/5Fr, 3/10Fr, 7/20Fr	03	15	30	60	10	60	01	15
Germany	1	5DM	2DM	1DM	-	1/1DM, 2/2DM, 6/5 D-Mark	05	02	01	00	01	05	01	00
	2	5DM	2DM	1DM	-	1/2DM,2/3DM,3/4DM,5/5DM	20	08	04	00	05	20	01	00
	3	5DM	2DM	1DM	-	1/2DM, 3/5DM	05	02	01	00	02	05	01	00
Greece		50D	50D	-	-	1/100 Drachma	01	01	00	00	02	00	00	00
Hungary		20F	20F	-	-	1/20 Forint	01	01	00	00	01	00	00	00
Italy		500L	500L	-	-	1/2x500L,2/3x500L,3/4x500L	03	03	00	00	04	00	00	00
Japan		100Y	100Y	-	-	1/100 Yen, 3/2x100 Yen	01	01	00	00	01	02	01	00
New Zealand		$1	$2	-	-	1/$1, 3/$2	01	02	00	00	01	02	01	00
Norway		5Kr	10Kr	-	-	1/5Kr, 2/10 Kroner	01	02	00	00	01	00	00	00
Singapore	1	-	.50	Token	-	1/.50 or 1/Token	00	01	01	00	01	00	00	00
	2	.20	-	-	-	1/2x.20	01	00	00	00	02	00	00	00
Spain		500P	100P	-	-	1/100P, 6/500 Pesetas	05	01	00	00	01	05	01	00
Sweden		10Kr	5Kr	-	1Kr	1/5x1Kr, 1/5Kr, 2/10Kr	10	05	00	01	05	00	00	00
Switzerland		1Fr	5Fr	2Fr	-	1/1Fr, 3/2Fr, 7/5 Francs	01	07	03	00	01	00	00	00
United Kingdom	1	1£	50P	20P	10P	1/3x10P, 2/50P, 4/1 Pound								
	2	1£	50P	20P	10P	1/50P, 3/1 Pound								
Universal		-	-	-	-	1/1 Coin	01	01	00	00	01	00	00	00

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the number of pulses to be issued for each of the four coin chutes.

23) COIN DOOR TYPE
This step provides a choice of loading a standard setting for a particular country or a custom setting. When a standard setting is selected, the following steps (24-28) are skipped.

24) COLLECTION TEXT
25) CHUTE 1 VALUE
26) CHUTE 2 VALUE
27) CHUTE 3 VALUE
28) CHUTE 4 VALUE
Step 24 is used to enter the name of the currency in use. The remaining four steps are used to set the monetary value of each coin chute.

29) GAME BUY-IN BONUS
At the end of a game, if enabled, a 10-second timer is initialized allowing each player that participated in the previous game a chance to purchase 1 credit for either 1 or 2 coins.

30) EXTENDED PLAY
At the end of a player's last ball in play, if enabled, a 10-second timer is initialized allowing the player to continue playing his current game by inserting either 1 or 2 coins for one extra ball.

31) EXTENDED PLAY MAXIMUM
This step sets the maximum number of extra balls a player may purchase in any one game when the EXTENDED PLAY feature is enabled. In a multiple player game, each player can only purchase one ball so this step will have no effect.

32) EXTENDED PLAY CHUTE(S)
This step sets which coin chute(s) will be enabled toward purchasing a game if step 29 is enabled and/or an extra ball if step 30 is enabled. A coin dropped in any other chute will be used toward purchasing a new game.

33) GAME PERCENT PAYOUT
This step is used to set the game payout percentage used when the Auto-Percentaging adjustment is on. The value entered for this step is compared to the value calculated by dividing total replays by total plays (see Bookkeeping section). Total replays include all replays won from beating the score replay level, achieving a new high game to date, winning a playfield special, and all match replays.

When the GAME MODE adjustment is set to Add a Ball this setting refers to extra ball percentage rather than replay percentage. The value entered in this case will be compared to the value calculated by dividing total extra balls won by total plays (see Bookkeeping section).

34) MATCH PERCENT PAYOUT
This step is used to set the match payout percentage. If this step is set to zero, the match will be disabled.

NOTE: The MATCH PERCENT PAYOUT value is included in the value entered for GAME PERCENT PAYOUT (step #33). Therefore in order to retain the same payout percentage for the other payou features in the game such as score level replays, the GAME PERCENT PAYOU will be automatically adjusted by the same amount as this step when changed

35) HIGH GAME REPLAYS
This step is used to set the number of replays to award when the highest game to date has been beaten.

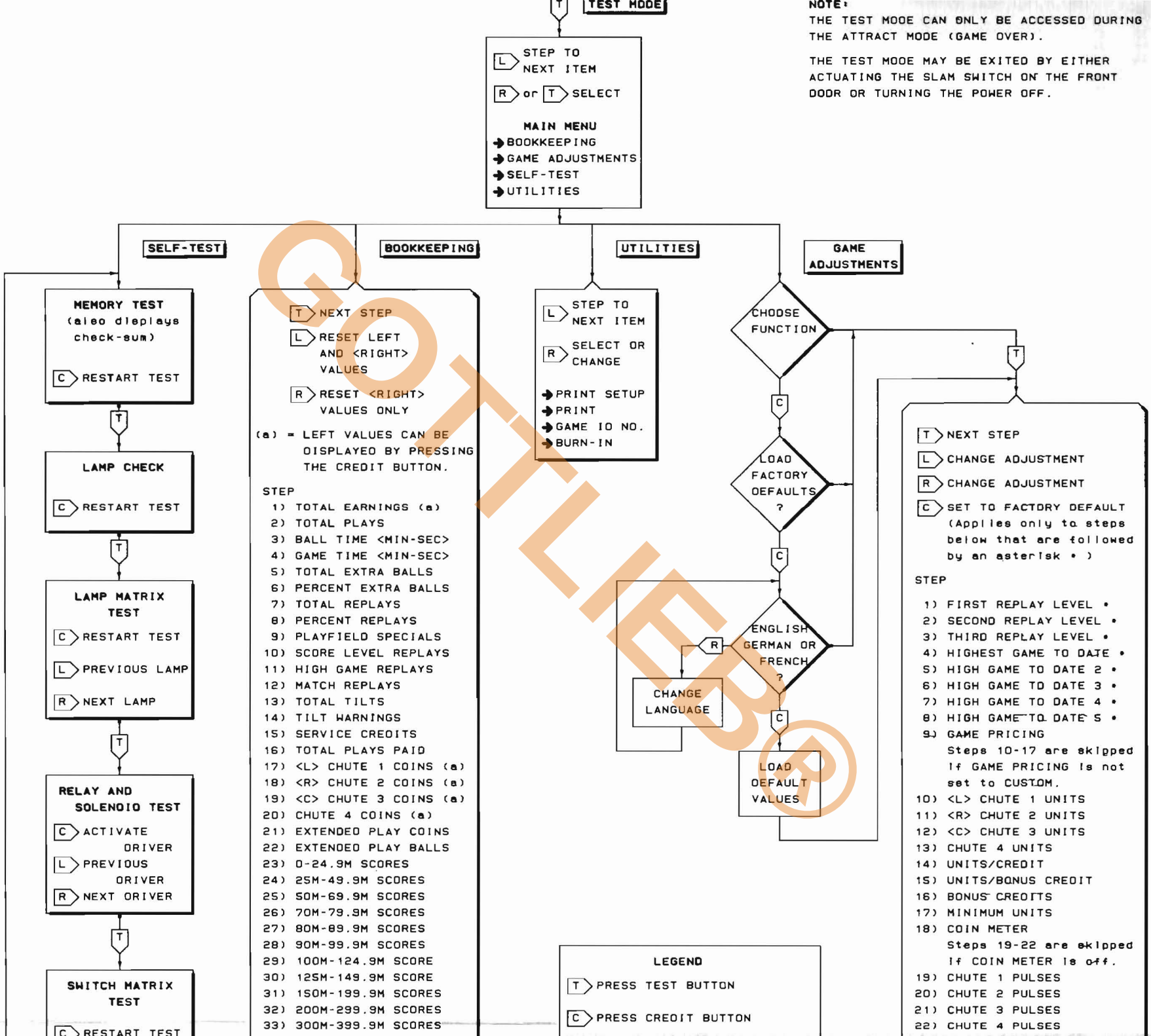
36) MAXIMUM CREDITS
This step sets the maximum number of credits allowed on the game.

37) TILT WARNINGS
This step sets the number of tilts allowed before the current player's ball in play is terminated.

38) BALLS PER GAME
This step sets the number of balls per game to 1-5.

39) GAME MODE
This step allows the game to be played in Replay, Replay + Tickets, Tickets Only, Add a Ball, or Novelty mode. In Replay mode all Specials and replays are allowed. Replay + Tickets mode is the same as Replay mode with the addition of one or more tickets to be issued (TICKETS TO AWARD) along

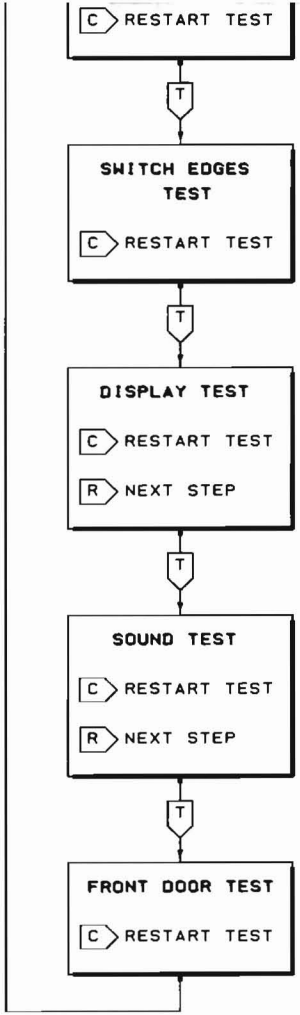
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NOTE:
THE TEST MODE CAN ONLY BE ACCESSED DURING THE ATTRACT MODE (GAME OVER).

THE TEST MODE MAY BE EXITED BY EITHER ACTUATING THE SLAM SWITCH ON THE FRONT DOOR OR TURNING THE POWER OFF.

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33) 300M-399.9M SCORES
34) 400M+ SCORES
35) FIRST REPLAY LEVEL
36) HIGHEST GAME TO DATE
37) 1-15 SEC. BALL TIME
38) 16-30 SEC. BALL TIME
39) 31-45 SEC. BALL TIME
40) 46-60 SEC. BALL TIME
41) 61 SEC.+ BALL TIME
42) % L OUTLANE DRAINS
43) % R OUTLANE DRAINS
44) OUTLANE SPECIALS
45) HURRY-UP EB ACTIVE
46) HURRY-UP EB COLLECTED
47) TOTAL PLAYFIELD EB'S
48) SKILL SHOT NIGHTMARES
49) TIME OUT NIGHTMARES
50) BOILER NIGHTMARES
51) TOTAL NIGHTMARES
52) SOULS SAVED
53) KRUEGERANOS
54) COMBO JACKPOTS
55) FREDDY JACKPOTS
56) MULTIBALL JACKPOTS
57) NIGHTMARE 1 ENTERED
58) NIGHTMARE 2 ENTERED
59) NIGHTMARE 3 ENTERED
60) NIGHTMARE 4 ENTERED
61) NIGHTMARE 5 ENTERED
62) NIGHTMARE 6 ENTERED
63) FINAL NIGHTMARE BEGUN
64) NIGHTMARE 1 COLLECT
65) NIGHTMARE 2 COLLECT
66) NIGHTMARE 3 COLLECT
67) NIGHTMARE 4 COLLECT
68) NIGHTMARE 5 COLLECT
69) NIGHTMARE 6 COLLECT
70) FINAL NIGHTMARE WON
71) HIDDEN MODE
72) BOILER MODE
73) DREAM WARRIOR MODE
74) FULLY AWAKE ACHIEVED
75) CLAW SAVE QUALIFIED
76) KICK SAVE QUALIFIED
77) REGULAR MYSTERIES
78) STH MYSTERIES
79) NIGHTMARE MYSTERIES
80) TRADE SHOTS MADE
81) GRAB FREDDY
82) AWAKE CAPTIVE BALL
83) TV POINTS (M)
84) SOUL POINTS (M)
85) KRUEGERANO POINTS (M)

L PRESS LEFT FLIPPER BUTTON

R PRESS RIGHT FLIPPER BUTTON

22) CHUTE 4 PULSES
23) COIN DOOR TYPE
Steps 24-28 are skipped if COIN DOOR TYPE is not set to CUSTOM.
24) COLLECTION TEXT
25) CHUTE 1 VALUE
26) CHUTE 2 VALUE
27) CHUTE 3 VALUE
28) CHUTE 4 VALUE
29) GAME BUY-IN BONUS
30) EXTENDED PLAY
31) EXTENDED PLAY MAXIMUM
32) EXTENDED PLAY CHUTE(S)
33) GAME PERCENT PAYOUT
34) MATCH PERCENT PAYOUT
35) HIGH GAME REPLAYS
36) MAXIMUM CREDITS
37) TILT WARNINGS
38) BALLS PER GAME
39) GAME MODE
40) TICKETS TO AWARD
41) LANGUAGE
42) AUTO PERCENTAGING
43) REPLAY LIMIT
44) HIGH GAMES 2-5
45) ATTRACT SOUND
46) ATTRACT MESSAGE 1
Use the credit button to enter a message.
47) ATTRACT MESSAGE 2
48) RIGHT BOOK AUTO-RESET
49) PLAYFIELD SPECIAL
50) REPLAY LEVEL BOOST
51) GAME RESTART
52) GAME INACTIVITY TIMER
53) GAME DIFFICULTY
54) NIGHTMARE ROUNDS
55) LOOP SHOT KRUEGERANDS
56) MYSTERY EXTRA BALL
57) HURRY-UP EXTRA BALL
58) MULTIBALL LIMIT
59) KICK SAVE
60) CLAW SAVE
61) MYSTERY
62) FULLY AWAKE TIME
63) LAST BALL SPECIAL
64) PROGRESSIVE JACKPOTS
65) DREAM WARRIORS MODE
66) BALL TIME SAFETY
67) MULTIBALL SAFETY
68) MULTIBALL MODE SAFETY
69) HIGH SOULS SAVED
70) HIGH SOULS SPECIAL
71) REDUCED SCORING
72) KRUEGERANO SHOT

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with each replay. In Tickets Only mode one or more tickets will be issued in place of each replay won. In Add a Ball mode all Score Level Replays and Playfield Specials award an extra ball in place of a replay. Also the Match and High Game To Date awards are disabled. However, after the Add a Ball mode is selected, the PLAYFIELD SPECIAL, MATCH PERCENT PAYOUT, and HIGH GAME REPLAYS adjustments may be individually set to whatever setting may be desired. In Novelty mode all Specials award 50,000,000 points, Extra Balls award 20,000,000 points and the Score Replay Levels, Match, and High Game to Date awards are disabled.

NOTE: If either the Replay + Tickets or Tickets Only setting is selected do not set the COIN METER setting to on.

40) TICKETS TO AWARD
This step allows the operator to set the number of tickets to award when a replay has been won. This setting will only apply when the GAME MODE is set to either Replay + Tickets, or Tickets Only.

41) LANGUAGE
This step allows the Test Mode steps to be displayed in English, German, or French.

42) AUTO-PERCENTAGING
If this step is set to on, the Score Replay Levels will be adjusted periodically so that the Game Percent Payout setting will match the actual Replay Percentage displayed in Bookkeeping.

NOTE: If the GAME MODE is set to Add a Ball, the Extra Ball Percentage in bookkeeping is used in place of the Replay Percentage.

43) REPLAY LIMIT
This step may be set to no limit or one per player per game.

44) HIGH GAMES 2-5
This step will determine if High Games to Date (2-5) will be saved or erased when power is turned off.

45) ATTRACT SOUND
This step determines whether or not sounds are enabled during the attract mode (game over).

46) ATTRACT MESSAGE 1
This step is used to enter, enable, or disable an operator message. The message is permanently stored in memory and will be periodically displayed during the attract mode (game over). To enter a message press the Credit button. The current message will be displayed and the cursor position will be indicated by the flashing character. If the current position is blank, a flashing directional arrow will appear. This type of arrow will indicate which direction the cursor will move if the Credit button is pressed. The characters are chosen using the left and right flipper buttons and then entered into memory by pressing the Credit button.

47) ATTRACT MESSAGE 2
This step is used to enter, enable, or disable an second operator message. See step 43 above for details. When both messages are enabled they will be displayed consecutively.

48) RIGHT BOOKKEEPING AUTO-RESET
If this step is set to on, all the short term bookkeeping steps (in brackets) will reset after 2000 plays. Otherwise they will not reset until 10,000 games have been played on the machine.

49) PLAYFIELD SPECIAL
When a playfield special is won, either a replay or an extra ball is awarded to the player based on the setting of this step.

50) REPLAY LEVEL BOOST
This step may be set anywhere from 0 to 99,000,000 in increments of 1,000,000. If set to zero, the boost is disabled. Otherwise the Replay Level will be increased by the boost value after completing a game where a player has won a replay and his skill level has been determined to be above average. The Replay Level will return back to its base level once all of the replays won have been played.

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51) GAME RESTART
This step is used to enable or disable the credit button from starting a new game while currently in a game. If set to ON, a new game will begin when the credit button is pressed if there are any remaining credits. If set to OFF, a new game cannot be started until the current game has ended.

52) GAME INACTIVITY TIMER
This timer can be used to cause a game to go to game over automatically if there is no activity on the playfield for a specified time period. This period can be set from one to nine minutes. Setting this step to zero disables the timer.

OPERATOR ADJUSTMENT SETTINGS
(*** = ENGLISH & GERMAN FACTORY DEFAULT SETTING)
(** = FRENCH FACTORY DEFAULT SETTING)

53) GAME DIFFICULTY
THE ADJUSTMENTS LISTED IN THE TABLE BELOW ARE AUTOMATICALLY SET AS INDICATED IN THE TABLE UNLESS FINE-TUNE IS SELECTED USING THE RIGHT FLIPPER BUTTON. IF FINE-TUNE IS SELECTED, EACH STEP IN THE TABLE CAN BE ADJUSTED INDIVIDUALLY. OTHERWISE THESE STEPS ARE SKIPPED. WHEN FINE-TUNE IS SELECTED, ALL SETTINGS REVERT BACK TO THE FACTORY DEFAULT SETTINGS AS SHOWN IN THE TABLE BELOW.

STEP				***	**	
53	GAME DIFFICULTY	VERY EASY	EASY	MEDIUM	HARD	VERY HARD
54	NIGHTMARE ROUNDS	EASY	EASY	MEDIUM	MEDIUM	HARD
55	LOOP SHOT KRUEGERANDS	VERY EASY	EASY	MEDIUM	HARD	VERY HARD
56	MYSTERY EXTRA BALL	VERY EASY	EASY	MEDIUM	HARD	VERY HARD
57	HURRY-UP EXTRA BALL	VERY EASY	EASY	MEDIUM	HARD	VERY HARD
58	MULTIBALL LIMIT	EASY	EASY	MEDIUM	MEDIUM	HARD
59	KICK SAVE	EASY	EASY	EASY	MEDIUM	HARD
60	CLAW SAVE	EASY	EASY	EASY	HARD	HARD
61	MYSTERY	EASY	MEDIUM	MEDIUM	MEDIUM	HARD
62	FULLY AWAKE TIME	EASY	EASY	MEDIUM	HARD	HARD

54) NIGHTMARE ROUNDS
Determines the number of meter lamps spotted when entering a nightmare (1st time through).
EASY - Spot the most lamps.
MEDIUM - Spot a few lamps.
HARD - Spot one lamp.

55) LOOP SHOT KRUEGERANDS
Sets the amount of Kruegerands awarded for a lit "Add Kruegerands" shot.
VERY EASY - 5
EASY - 4
MEDIUM - 3
HARD - 2
VERY HARD - 1

56) MYSTERY EXTRA BALL
Filters EXTRA BALL out of the Mystery award when the EB% exceeds the setting below.
VERY EASY - 50%
EASY - 40%
MEDIUM - 30%
HARD - 20%
VERY HARD - 10%

57) HURRY-UP EXTRA BALL
Sets the speed of the flash out timer for the EXTRA BALL lamp.
VERY EASY - Slowest
EASY
MEDIUM
HARD
VERY HARD - Fastest

58) MULTIBALL LIMIT
Sets the maximum amount of additional balls that can be launched by hitting the multiball target during any multiball mode in nightmares one through six.
EASY - No Limit.
MEDIUM - 4
HARD - 2

59) KICK SAVE
Sets the frequency that the "Light Kick Save" lamp is lit. This is done using the toggle function (pop bumpers and kicking rubbers).
EASY - 100%
MEDIUM - 50%
HARD - 20%

60) CLAW SAVE
Sets the maximum number of times that the Claw Save device can be qualified per ball.
EASY - No Limit
HARD - 1 time per ball.

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61) MYSTERY
Sets the frequency that the mystery (1... 2...) lamp is lit. This is done using the toggle function (pop bumpers and kicking rubbers).
EASY - 100%
MEDIUM - 50%
HARD - 33%

62) FULLY AWAKE TIME
Sets the speed of the timer used to time out the Freddy's Bones feature.
EASY - Slowest
MEDIUM
HARD - Fastest

63) LAST BALL SPECIAL
Starts SPECIAL lamp flashing out on the last ball if score is under 20,000,000.
** OFF - No
*** ON - Yes

64) PROGRESSIVE JACKPOTS
Sets whether the Jackpot feature resets after completing the fifth JACKPOT shot.
*** EASY - No
HARD - Yes

65) DREAM WARRIORS MODE
Sets the amount of Kruegerands that the player must accumulate to qualify this mode.
EASY - 50
*** MEDIUM - 70
HARD - 90

66) BALL TIME SAFETY
Should a ball drain very quickly in single ball play, it will be returned to the shooter based upon the setting.
VERY EASY - 20 Seconds
EASY - 15 Seconds
*** MEDIUM - 10 Seconds
HARD - 5 Seconds
** VERY HARD - No safety time

67) MULTIBALL SAFETY
When the player enters any two ball multiball during nightmares one through six, a lost ball will be returned into play based upon this setting
VERY EASY - 15 Seconds
EASY - 10 Seconds
*** MEDIUM - 7 Seconds
** HARD - 4 Seconds
VERY HARD - No safety time

68) MULTIBALL MODE SAFETY
When the player enters any multiball during DREAM WARRIORS, FINAL NIGHTMARE KRUEGERAND MULTIBALL or HIDDEN MODE, a lost ball will be returned into play based upon this setting.
VERY EASY - 20 Seconds
EASY - 15 Seconds
*** MEDIUM - 10 Seconds
** HARD - 7 Seconds
VERY HARD - No safety time

69) HIGH SOULS SAVED
This step adjusts the "HIGH SOULS" saved to date. (1-255). Pressing the credit button while this step is displayed will reset the value to the factory default.

70) HIGH SOULS SPECIAL
Award a special when "HIGH SOULS" has been beaten?
OFF - No
*** ON - Yes

71) REDUCED SCORING
*** OFF - DREAM WARRIORS
Super Jackpot = 100M.
DREAM WARRIORS completed shots = 10M.
SOUL BONUS is collected at the end of each ball.
Multiball jackpot maximum value = 50M.
BIG POINTS maximum value = 60M.
T. V. maximum value = 60M.
ON - DREAM WARRIORS
Super Jackpot = 50M.
DREAM WARRIORS completed shots = 5M.
SOUL BONUS is collected at the end of game only.
Multiball jackpot maximum value = 20M.
BIG POINTS maximum value = 20M.
T. V. maximum value = 20M.

72) KRUEGERAND SHOT
Sets whether the KICK SAVE needs to be off to turn on the "ADD KRUEGERAND" shot.
*** EASY - No
HARD - Yes

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IV. UTILITIES

Use the left flipper button to choose (highlight) a function and then the right flipper button to select or change the value of the function. Each utility is described below.

A. PRINT

Bookkeeping - all values
Short Bookkeeping - first 8 values

B. PRINTER SET-UP

Type - NSM DATA or SERIAL
Baud Rate - 1200, 2400, 4800, 9600
Data - 7 bit or 8 bit
Parity - none, even, or odd

C. ID NUMBERS

Two six digit numbers can be entered in permanent memory during this step. One is a GAME ID and the other is an ARCADE ID. These two ID's appear on all printouts. Also the GAME ID number will appear in the display on power-up. The left and right flipper buttons alter the digit value and the credit button enters the displayed value into memory and then proceeds to the next digit position.

D. BURN-IN

This function can be used to continuously exercise all the lamps and solenoids in the game.

V. TOURNAMENT MODE

The Tournament Mode switch provides a simple way to alter some of the normal game settings in order to provide for tournament play. The switch is located on a circut board just inside the front door of the game to the lower left. The game must be in a game over condition in order to recognize the switch changing states. When the switch is moved to the "ON" position with the front door open, four Tournament Mode adjustments will appear on the display. These adjustments can be altered by using the left flipper button to select the function and the right flipper button to alter the current setting. Once these settings have been chosen they will remain in permanent memory so that all that has to be done each subsequent time that tournament play is desired is to move the switch to the "ON" position. When the Tournament Mode settings are in effect they override the normal Game Adjustment settings. When the switch is moved to the "OFF" position, all the normal Game Adjustment settings are back in effect.

NOTE: Even if the game will not be used for tournament play, this switch can be used to provide an easy way to set the game for FREE PLAY without affecting any other game settings by setting the remaining three Tournament Mode adjustments to "NORMAL".

Each Tournament Mode adjustment is described below.

*** = Factory Default Setting

1) FREE PLAY
*** OFF = Credits are required to start a game.
ON = A game may be started without any credits posted.

2) GAME FEATURES
*** NORMAL = Normal play.
TOURNAMENT =
Various game features are altered as described below in order to provide the same odds for all players.
a) Mystery always awards 5,000,000.
b) No Hidden Mode.
c) No Dream Warriors from "Trade Kruegerands".
d) Dream Warriors shot progression is the same for all players.
e) No "Light Kick Save" or "Light Claw Save" awards from the "Take That" feature.

3) SPECIAL/REPLAY
*** NORMAL = Normal play.
POINTS =
Playfield Special awards 50,000,000 points. Match, High Game to Date, and Score Replay Level payouts are disabled.

4) EXTRA BALL
*** NORMAL = Normal play.
POINTS =
Extra Ball awards 20,000,000 points.

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III. TEST MODE

SERVICE SWITCH

The switch is actuated when the front door is closed. With the front door closed, all bookkeeping steps are incremented normally. When the front door is opened all bookkeeping steps are frozen at their current values. Any credits that are added with the front door open are recorded in the SERVICE CREDITS bookkeeping steps.

SOUND ADJUSTMENTS

The speaker(s) output is controlled by the volume control located on a circuit board just inside the front door of the game to the lower left.

Turning the volume control counter-clockwise will decrease the volume. Turning it clockwise will increase the volume.

AUTO-PRINT FEATURE

If there is a Communications Adapter installed in the game, the printer will immediately begin printing the first eight bookkeeping values as soon as it is plugged in during game over. If a different printout option is required the Test Mode must be entered first before plugging the printer in so that the immediate printout process does not begin.

POST ADJUSTMENTS

The post at the mouth of the right outlane can be positioned for liberal/conservative play. The smaller opening produces a more liberal game.

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IV. THEORY OF OPERATION

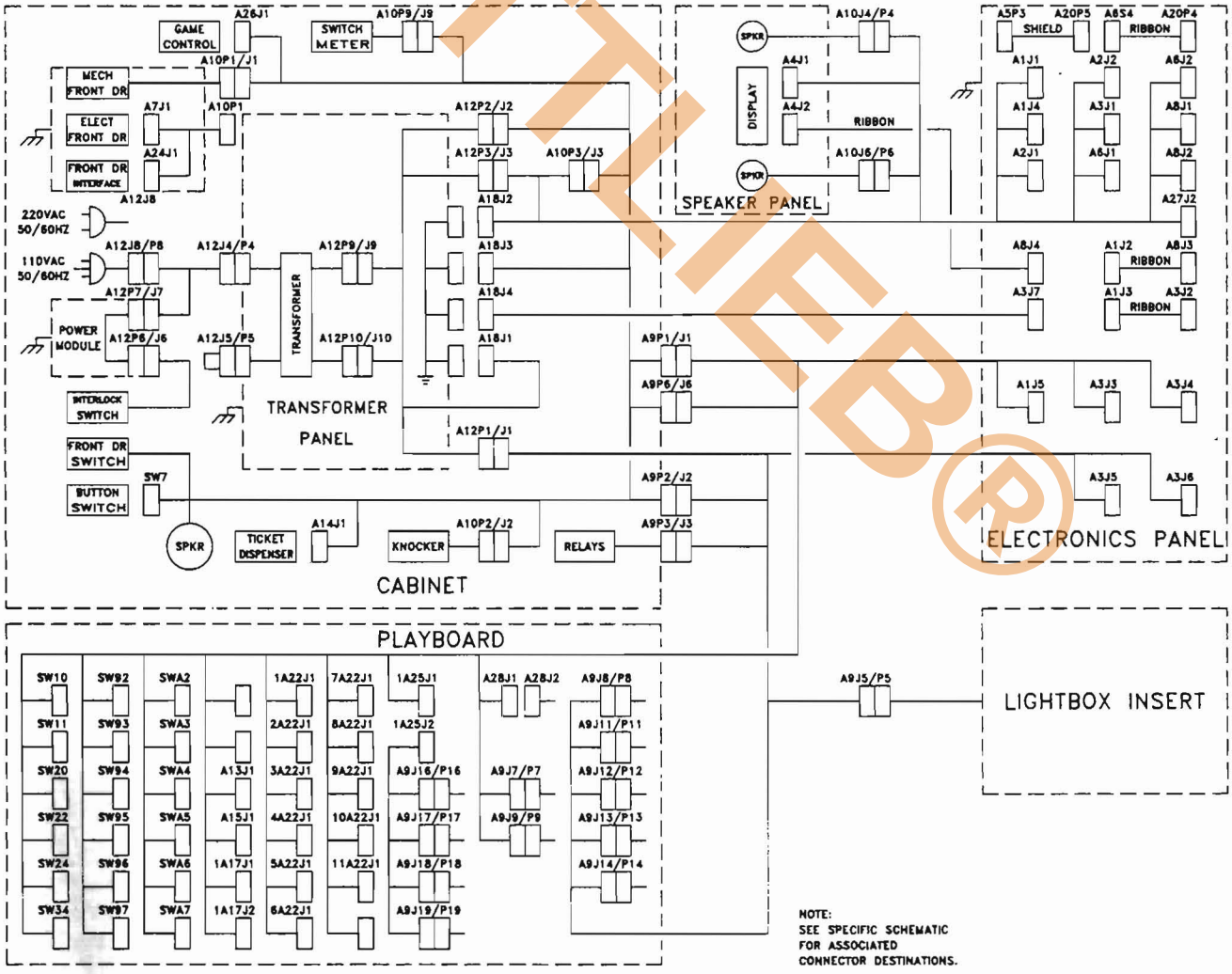
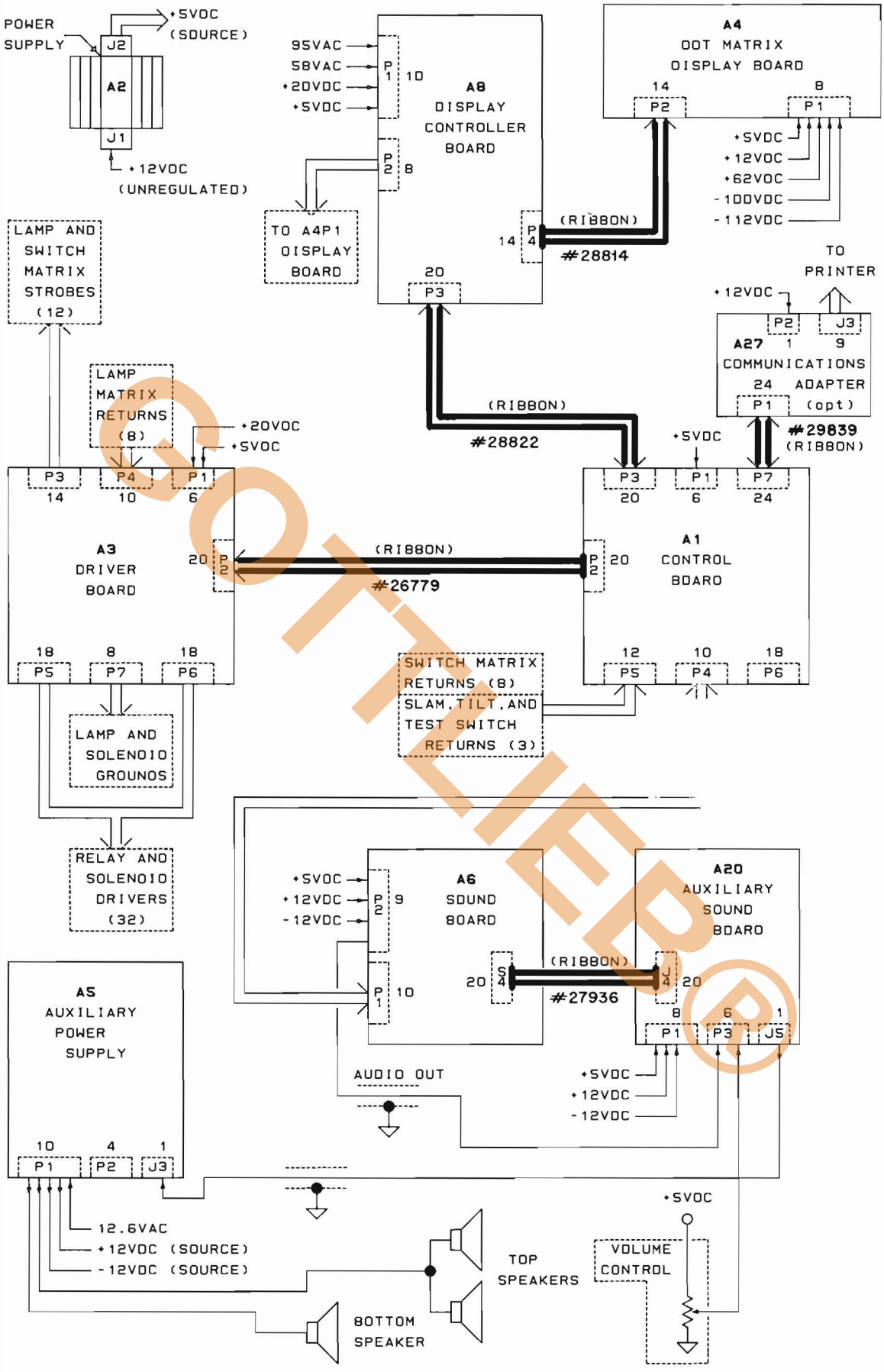


FIGURE 1. INTERCONNECTION DIAGRAM

IV. THEORY OF OPERATION



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FIGURE 2. SYSTEM 3 BLOCK DIAGRAM

IV. THEORY OF OPERATION

A. CONTROL BOARD (A1)

The Control Board is supplied with 5vdc (A1P1) from the Power Supply (A2P2). The data contained in ram (U3) is kept valid when power is turned off by the lithium battery (BAT1) and controller (U6).

NOTE: When replacing either the battery, ram, or the controller there may be a message that appears in the display on power up the first time that indicates a low battery condition. If this occurs, turn the power off and back on again. The board should power up normally this time. If not, there is another problem on the board.

The Control Board can accomodate either a 27512 or a 27256 Eprom. JP1 must be installed for a 27512 or JP2 for a 27256 Game Prom. A 4 Mhz oscillator is configured using U17,R1,R2,C22,C23, and XTAL1. The oscillator output is then divided by 2 to a 2Mhz clock by U18 which is used as the input clock to the 65C02 (U1) microprocessor. The clock output of U1 (pin 39) is used as a sync signal for reading from or writing to the peripheral devices.

Two versatile interface adapters (U4,U5) are used to develop the necessary control signals for the system. The display connector (A1P3) is comprised of several signals. U4-15 and U4-17 are used as inputs to receive data from the Display Controller Board. Data is output to the Display Controller Board by U7 (BD0-BD7) and then latched by pulsing the DS0 line at U9-4. The output at DS1 (U9-5) is used to reset the Display Controller Board if it does not respond to data output by the Control Board.

The Driver Board connector (A1P2) contains all the signals necessary to operate the lamp and switch matrix strobes, the lamp matrix returns, and the solenoids. The lamp clear (LCLR), lamp strobe (LSTB), and lamp strobe data (LDATA) are generated by U4-12,U4-11, and U4-10 respectively. The appropriate lamp return data during each active lamp strobe is output by U7 and latched into U5 on the Driver Board by the lamp return data strobe (LDS). The solenoid data is output by U7 (BD0-BD7) and latched into the appropriate Driver Board device (U1-U4) by the solenoid strobes (SS0-SS3).

The switch matrix returns are input at A1P5, buffered by U19 and U20 and then input to U4. Discrete inputs are provided at A1P5 for the slam, tilt, and test switches.

The connection to the Sound Board (A1P4) is made up of eight sound data lines (SD0-SD7), a return line (SRET), and a reset line (MR).

A reset circuit is configured using U13,U14,R3, and C24. When power is applied to the system, the microprocessor reset pin (U1-40) is held low for approximately 10 milliseconds. The system can also be reset by pressing the switch (SW1) on the board. Whenever a reset occurs the master reset signal (MR) (U18-9) is held low until the display strobe (DSTB) becomes active. At this point the master reset goes high which enables the peripheral IC's on the Display Board and Driver Board to accept data.

A watchdog circuit is employed to monitor both the display digit strobe and the lamp strobe. This circuit is made up of U11,U12,U13,U16,R5,R6,R29, R32,R33,C20,C21,C28, and C29. If either the display strobe (DSTB) or the lamp strobe (LSTB) is missing for 330 milliseconds the system will be reset. The system will also be reset if the supply voltage drops below 4vdc. This voltage monitor is configured using U21,VR1,D1,D2,R34, and R35.

B. POWER SUPPLY (A2)

The transformer panel delivers 12vdc to the input of the power supply. The regulated output voltage should be set to 5vdc by using potentiometer R3. This voltage is then supplied to the Control Board (A1), Driver Board (A3), Display Board (A4), Sound Board

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(A6), Display Controller Board (A8), and any other auxillary board which may require it.

C. DRIVER BOARD (A3)

Two voltages are supplied to this board at A3P1. The 5vdc is supplied from the Power Supply (A2) and the 20vdc is supplied from the transformer panel. The 20vdc is used to source the controlled lamps and the switch matrix. The Driver Board receives its data at A3P2 from the Control Board (A1P2). Solenoid data is latched into U1-U4. Lamp return data is latched into U5. Lamp and switch strobe data is shifted through U6 and U7. The comparators (U10,U11) are used to protect the MOSFETS (Q33-Q49). If a sensed input voltage exceeds the reference voltage (Vref), the corresponding MOSFET is turned off immediately following the lamp clear pulse (LCLR) supplied by U12 thus limiting the duty cycle. If the master reset signal (MR) is held low all lamps and solenoids will be disabled.

D. DISPLAY CONTROLLER (A8)

This board is comprised of the power supply section and the digital section. The power supply is used to generate the necessary voltages that are required to power the Display Board. All voltages are input at A8P1 and then output to the Display Board at A8P2.

The digital section controls the information which appears in the display and also the refresh of the display information. The clock circuit runs at 3.579 MHz and is divided by two through U5 and then fed to the microprocessor (U1-37) as the master clock. The LED on the board will flash if the microprocessor (U1) is running properly. A controller chip (U2) is used to refresh the Display Board independent from the code which is being executed by the microprocessor (U1). U1 uses the data bus during the phase 2 portion of the clock while U2 uses it during the phase 1 portion. The address lines from both U1 and U2 are multiplexed through U9-U11 to determine which device has control of the ram (U4). The necessary data is then output to the Display Board at A8P4. Data is both transmitted and received from the Control Board at A8P3. If the Control Board cannot successfully communicate with the Display Controller Board it will attempt to reset the Controller Board by sending a negative going signal on A8P3-14 (DS1).

E. DISPLAY BOARD (A4)

The Display Board consists of a 128 column X 32 row gas plasma display. The drive electronics located on the backside of the board convert low voltage serial data in to high voltage parallel data out for driving the display. The column drivers contain output latches so that column data for the following row can be entered while the present row is being displayed. All voltages required by the display are input at A4P1. All control signals needed to multiplex the display are input at A4P2. The Display Controller Board sends 128 bits of serial column data on the SDATA line for every row of display information. The data is shifted through the driver IC'c by the dot clock signal (DCLK). The column data for a particular row is then latched by the column latch (CLATCH) signal. The row clock (RCLK) signal is used to clock the row driver data (RDATA) through the row driver IC. There is only one active row at a time. Between rows the display enable (DE) signal is used to prevent the display from flickering.

F. SOUND BOARD (A6)

The Sound Board consists of two 6502 microprocessor systems, a dual DAC, an input port to receive commands from the system Control Board, and a low level audio output at A6P2-9 which is sent to the summing amplifier located on the Auxiliary Sound Board (A20) for amplification.

The Sound Board requires three supply voltages +5vdc, +12vdc, and -12vdc. In addition, a power-up reset signal is required from the Control Board. If a manual reset is desired, pressing SW2 will reset both processors.

SCHEMATIC

A 4MHz oscillator is configured with R11, R12, C14, C15, C22, XTAL1, and T1. This clock is then divided down by S1 into either a 2MHz or 1MHz clock signal for the processors N1 and T3. A 250 KHz clock signal from S1-11 is used by the programmable timer section consisting of N5, H5, T5, and K5.

Eight lines from the Control Board are input at A6P1 on the Sound Board and sent to the two input code latches A3 and B2. When any of these inputs goes low (except for A6P1-9 when JP7 is not installed) A2-8 goes high which causes the input code data to be latched into A3 and B2. Also at the same time the flip-flops contained in A4 are clocked which cause the IRQ input of each microprocessor to go low. The outputs of A4 will remain in the low state until each flip-flop is cleared by a signal from its associated microprocessor after each IRQ is processed.

The Sound Board is designed to accomodate different types of Eproms. Jumpers JP1, JP2, JP3, and JP4 should be set to their proper positions based on the density of the Eproms being used.

G. AUXILIARY SOUND BOARD (A20)

The Auxiliary Sound Board contains a sound generator YM2151 (U9) and a sound/speech generator MSM6295 (U1). Both of these IC's operate under the control of the T3 microprocessor on the master Sound Board (A6). The sound generator YM2151 responds to its commands by sending serial data to the YM3014 DAC (U10). The DAC then converts this data into an analog signal which is filtered through a series of op-amps and then sent to the main summing amplifier (U11).

A 74HCT74 IC (U6) is used to divide the 4 MHz clock signal present at A20P4-9 into both a 1 MHz and 2 MHz signal which is selectable via JP3 (2 MHz) or JP4 (1 MHz). This signal is then used as the master clock for the speech generator (U1). When the speech generator (U1) receives a command, it then retrieves its data from the Eproms (U4, U5). The analog output at pin 36 (DAO) is then sent through an active filter network and then to the main summing amplifier (U11).

The output of the main summing amplifier (U11-7) is input to a voltage controlled amplifier (VCA) (U13). The volume is controlled by a potentiometer located just inside the front door of the game. The potentiometer acts as a resistor divider which supplies a 0 to 5 volt signal to the VCA at U13-2. The output of the VCA is then sent to Auxiliary Power Supply (A5) for amplification.

H. SENSOR BOARD (A15)

This board is used to detect if any flipper is energized and then inputs the data to the Control Board to be processed. This board therefore eliminates the need for a second switch to be used on the flipper assembly itself. U1 is an optocoupler device which converts the input signal from the flipper circuit when energized to a signal which can be recognized by the Control Board as a valid switch closure.

I. OPTICAL INTERFACE (A25)

The optical interface assembly generates and receives the infrared light pulses needed to optically detect the ball breaking an infrared light beam. It also provides a visual indication that the interface assembly is functioning properly.

This method of detection transmits infrared light pulses from an opto LED to an opto phototransistor receiver. The LED light pulses are generated from a switch strobe that is buffered and current amplified by two sections of the LM339 voltage comparitor (output pins 1 & 2) and transistor Q2.

When no ball is present, the light pulses reach the opto receiver which passes the pulses 180 degrees out of phase with the switch strobe on to two additional sections of the comparitor (pins 9 & 10). Because the strobe pulses and receive pulses are out of phase, they cancel at resistors R1 & R3 and keep comparitor

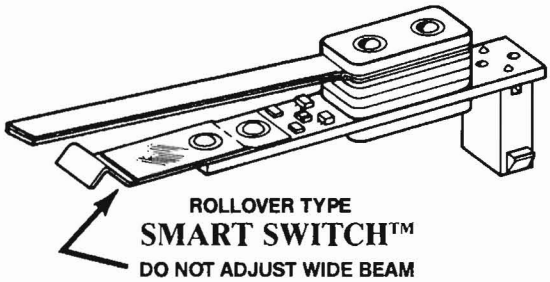
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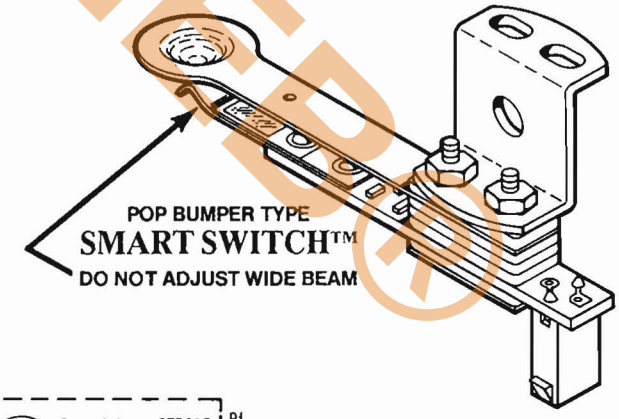
output pin 13 high therefore preventing Q1 from passing strobes on to the switch return line.

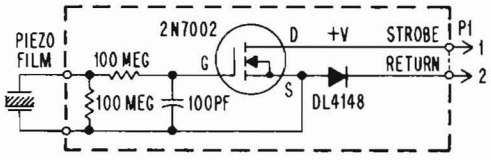
As a ball passes between the opto transmitter and receiver, the light beam is broken. Now, with no out of phase pulses coming from the receiver, the strobe appears at comparitor inputs 9 & 10. Comparitor output pin 13 begins pulsing low and passes the strobes through Q1 to the return line to signal a closed switch. Also positive strobe pulses at output pin 14 of the comparitor turn Q3 on and light LED D2. D2 lit indicates a broken light beam and a closed optical switch.

J. SMART SWITCH™ (Piezo Film Sensor)

These devices take the place of the the normal contact point type switches used for sensing the ball on various different devices in the game. These devices should not require any adjustment. DO NOT ATTEMPT TO ADJUST THE WIDE CANTILEVER BEAM used in a switch assembly. This could cause permanent damage to the device. The lifetime of these switches has been determined to be over 10 million cycles. The main advantage of these switches is the fact that they cannot be contaminated by such elements as moisture, dust, or smoke. Each switch assembly consists of a wide cantilever beam which has a piezo film sensor element laminated to its surface. When this beam is deflected, it induces a strain on the laminated piezo film sensor element. As the beam is returning to its rest position it generates an output voltage which triggers the on board circuit. This circuit then generates a momentary output which resembles that of contact points being closed. The switch design used in rollover and spot target applications generates an output signal as the beam which contains the piezo film returns to its rest position after it is actuated. The switch design used for pop bumpers generates an output signal as the beam is deflected in order to provide an immediate response by the pop bumper solenoid. This immediate response type of switch can be distinguished from the other because either the film itself or the printed circuit board will be colored blue. BE CAREFUL not to interchange these two different types of switches.







SCHEMATIC REPRESENTATION

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NOTES

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V. GENERAL INFORMATION

A. PRINTED CIRCUIT BOARDS ARE DESIGNATED AS FOLLOWS:

A1 - Control Board
A2 - Power Supply
A3 - Driver Board
A4 - Dot Matrix Display
A5 - Auxiliary Power Supply
A6 - Sound Board
A8 - Display Controller
A11 - Auxiliary Driver Board
A13 - Resistor Board
A15 - Sensor Board
A16 - Filter Board
A17 - Diode Board
A20 - Auxiliary Sound Board
A22 - LED Board
A25 - Optical Interface Board
A26 - Game Controls Board
A27 - Communications Adapter (Optional)
A28 - Interface Board (Miscellaneous)

Printed circuit board connectors will be labeled AX-JX. For example, A3-J4 is the connector J4 to the driver board (A3).

B. WIRE COLORS ARE SHOWN AS NUMBERS:

0 Black
1 Brown
2 Red
3 Orange
4 Yellow
5 Green
6 Blue
7 Violet
8 Gray
9 White

For example, 688 is a BLUE-GRAY-GRAY striped wire.

C. FUSE AND COIL INFORMATION

TRANSFORMER PANEL

F1	Line Input	110V AC	8 Amp SLO-BLO
		220V AC	4 Amp SLO-BLO
F2	Primary Power	110V AC	5 Amp SLO-BLO
		220V AC	2-1/2 Amp SLO-BLO
F3	Display		3/8 Amp SLO-BLO
F4	Display		3/8 Amp SLO-BLO
F5	Power Supply		2-1/2 Amp SLO-BLO
F6	Controlled Lamps and Switches		10 Amp SLO-BLO
F7	Solenoids		8 Amp SLO-BLO
F8	Lightbox Illumination		15 Amp
F9	Playfield Illumination		7-1/2 Amp
F10	Auxiliary Power Supply		3 Amp SLO-BLO
F11	Auxiliary Power Supply		3 Amp SLO-BLO

NOTE:
FUSE DESIGNATIONS F12 THRU F14 NOT USED.

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V. GENERAL INFORMATION

PLAYBOARD FUSES, COILS/COLORS/SLEEVES

FUSE	RATING	PART NO.	USAGE	COIL/COLOR	SLEEVE
F15	1-1/2 AMP SLO-BLO	EL-24	TOP POP BUMPER (Q1)	16570 (GREEN)	5064
F16	1-1/2 AMP SLO-BLO	EL-24	BOTTOM POP BUMPER (Q2)	16570 (GREEN)	5064
F17	1-1/2 AMP SLO-BLO	EL-24	LEFT KICKING RUBBER (Q3)	5195 (WHITE)	5064
F18	1-1/2 AMP SLO-BLO	EL-24	RIGHT KICKING RUBBER (Q4)	5195 (WHITE)	5064
F19	1-1/2 AMP SLO-BLO	EL-24	LEFT KICKING TARGET (Q5)	5195 (WHITE)	5064
F20	1-1/2 AMP SLO-BLO	EL-24	RIGHT KICKING TARGET (Q6)	5195 (WHITE)	5064
F21	2-1/2 AMP SLO-BLO	EL-21	BOTTOM LEFT FLIPPER	25959 (RED)	5065
F22	2-1/2 AMP SLO-BLO	EL-21	GLOVE FLIPPER	25959 (RED)	5065
F23	2-1/2 AMP SLO-BLO	EL-21	BOTTOM RIGHT FLIPPER	25959 (RED)	5065
F24	2 AMP SLO-BLO	EL-7	TOP RIGHT FLIPPER	26646 (BLUE)	5065
F25	1/2 AMP SLO-BLO	EL-20	BALL RELEASE (Q28)	26451 (YELLOW)	5065
			OUTHOLE (Q29)	26451 (YELLOW)	5065
F26	1 AMP SLO-BLO	EL-6	3 POSITION BANK RESET (Q16)	26926 (BLUE)	25605
F27	1/2 AMP SLO-BLO	EL-20	FREDDY'S JAW (Q15)	26451 (YELLOW)	5065
F28	1/2 AMP SLO-BLO	EL-20	BOTTOM RIGHT BALL GATE (Q11)	27926 (BLUE)	5064
F29	1-1/2 AMP SLO-BLO	EL-24	TOP LEFT BALL GATE (Q10)	27642 (YELLOW)	5064
F30	2 AMP SLO-BLO	EL-7	KICK SAVE (Q7)	19300 (ORANGE)	5064
F31	2 AMP SLO-BLO	EL-7	CENTER CLAW KICKER (Q8)	19300 (ORANGE)	5064
F32	2 AMP SLO-BLO	EL-7	SHOOTER LANE KICKER (Q9)	19300 (ORANGE)	5064
F33	2 AMP SLO-BLO	EL-7	TOP LEFT UPKICKER (Q12)	16570 (GREEN)	5064
			FREDDY'S HEAD UPKICKER (Q13)	5195 (WHITE)	5064
F34	1 AMP SLO-BLO	EL-6	BOTTOM LEFT UPKICKER (Q14)	17876 (TAN)	5064

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D. COIL CHART

SOLENOID COILS					
PART NUMBER	WHERE USED	RESISTANCE (OHMS)	NUMBER OF TURNS	WIRE GAUGE	WRAPPER COLOR
A-19300	GENERAL PURPOSE	7.8	1075	#25	ORANGE
A-5195	GENERAL PURPOSE	12.3	1305	#26	WHITE
A-16570	GENERAL PURPOSE	15.5	1450	#27	GREEN
A-17876	GENERAL PURPOSE	24	1750	#28	TAN
A-26450	GENERAL PURPOSE	42	2400	#29	PINK
A-26451	GENERAL PURPOSE	65.8	3000	#30	YELLOW
A-30297	GENERAL PURPOSE	66.5	2750	#30	BLUE
A-26926	3-BANK RESET	32.8	2650	#27	BLUE
A-29876	FLIPPER (NEW UNIT)	2.36/202	560/3325	#23/#33	ORANGE
A-25959	FLIPPER (NEW UNIT)	3.85/202	720/3325	#24/#33	RED
A-26646	FLIPPER (NEW UNIT)	4.57/201	725/3470	#25/#33	BLUE
A-28740	FLIPPER (NEW UNIT)	6.02/207	790/3600	#26/#33	TAN
A-27642	FLIPPER (NEW UNIT)	9.1/203	950/3700	#27/#33	YELLOW
A-27643	FLIPPER (OLD UNIT)	11.4/202	960/3670	#28/#33	GREEN
A-30468	FLIPPER (OLD UNIT)	11.59/269	960/4700	#28/#33	WHITE
A-27926	GENERAL PURPOSE	64.7	3475	#29	BLUE
RELAY COILS					
PART NUMBER	WHERE USED	RESISTANCE (OHMS)	NUMBER OF TURNS	WIRE GAUGE	WRAPPER COLOR
A-26452	DROP TAR. TRIP	137	2450	#35	PINK
A-16890	GENERAL PURPOSE	231	4000	#35	ORANGE

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VI. WIRING AND SCHEMATIC DIAGRAMS, PARTS LISTS

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COMPONENT LOCATION AND PARTS LIST.....56

TRANSFORMER PANEL
SCHEMATIC DIAGRAM.....57,58

LIGHTBOX/PLAYBOARD
SCHEMATIC DIAGRAM.....59,60

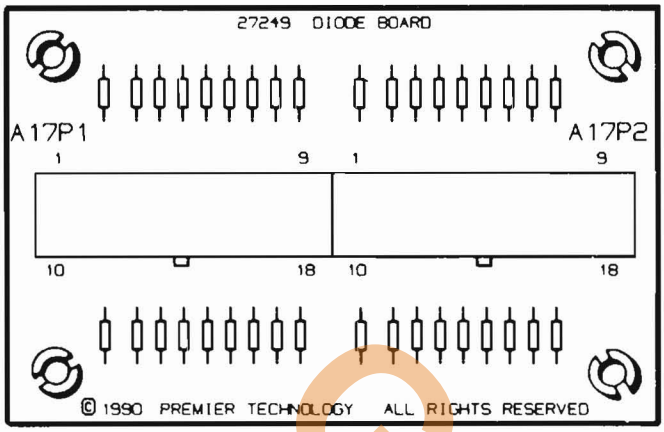
CABINET/FRONT DOOR
SCHEMATIC DIAGRAM.....61,62

ELECTRONIC FRONT DOOR
SCHEMATIC DIAGRAM.....62

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VI. WIRING AND SCHEMATIC DIAGRAMS, PARTS LISTS

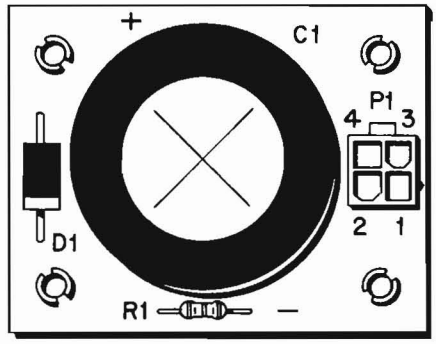
DIODE BOARD (A17) COMPONENT LOCATION



DIODE BOARD (A17) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
1A17	Diode Matrix Assembly	MA-1448
D1-D32	Diode, 1N4148	XO-261
P1, P2	Header, 18 Position	XO-916
R1-R4	Resistor, 220 OHM, 5%, 1/4W	XO-21
	Circuit Board Support (4)	23984

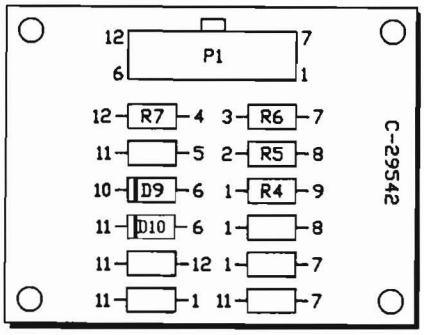
FILTER BOARD (A16) COMPONENT LOCATION



FILTER BOARD (A16) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	FILTER BOARD ASSEMBLY	MA-1745
C1	CAPACITOR, 2200UF, 100V	XO-923
D1	DIODE, 1N5401	XO-263
R1	RESISTOR, 24K OHM, 5%, 1/4W	XO-10
P1	HEADER, 4 POSITION	XO-909
	CIRCUIT BOARD SUPPORT (4)	23984

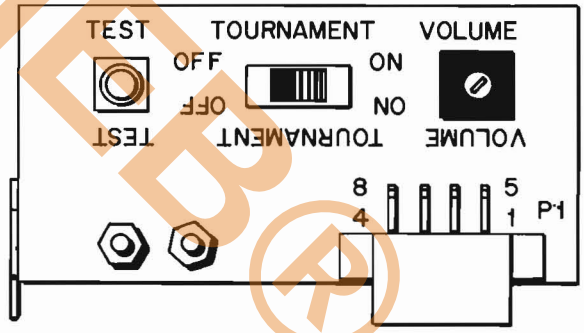
RESISTOR BOARD (A13) COMPONENT LOCATION



RESISTOR BOARD (A13) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	RESISTOR BOARD (A13)	30987
D9, D10	DIODE, 1N4004	XO-254
R4-R7	RESISTOR, 220 OHM,5%,1/4W	XO-21
P1	HEADER, 12 POSITION	XO-913
	SPACER,(4)	23984

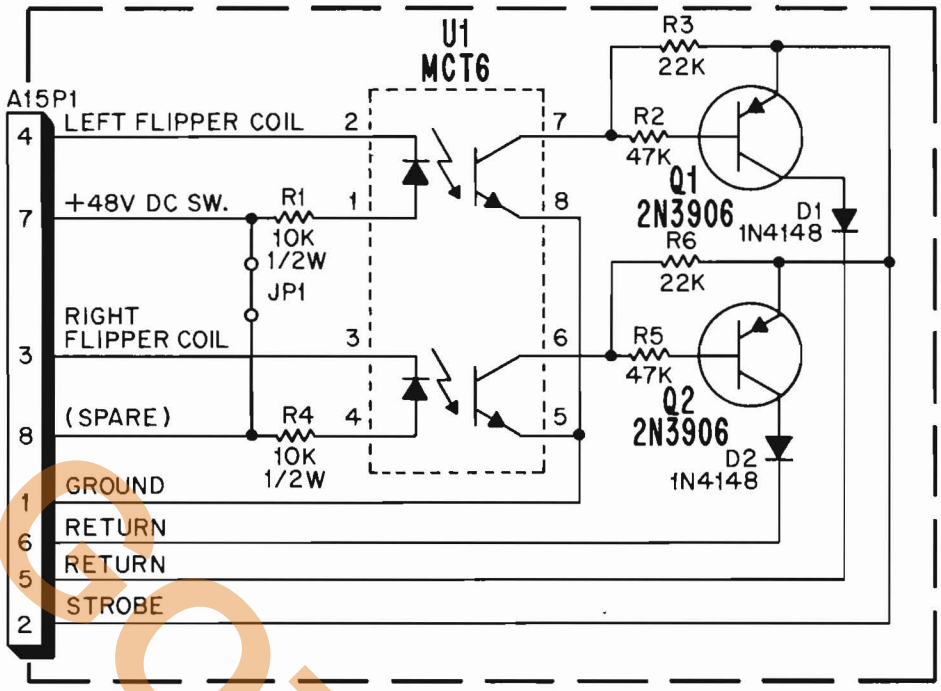
GAME CONTROLS BOARD (A26) COMPONENT LOCATION



GAME CONTROLS BOARD (A26) PARTS LIST

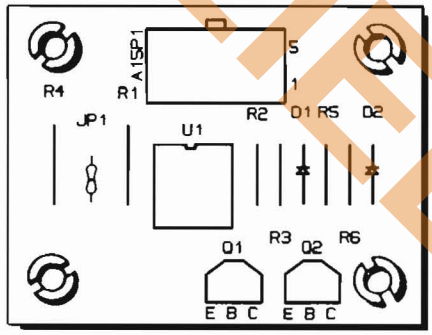
DESCRIPTION	PART NUMBER
Game Controls Board (A26)	MA-1851
Potentiometer, 10K OHM, 20%,15W	XO-1194
Pushbutton Switch	XO-897
Slide Switch	XO-1193
Header, 8 Position	XO-920
Mounting Bracket	28619
Key Cap, Yellow	XO-1198

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TITLE: SENSOR BOARD (A15) SCHEMATIC DIAGRAM			
DRAWN	APPROVED	DATE	E-27041
	RHM	10-12-89	

SENSOR BOARD (A15) COMPONENT LOCATION



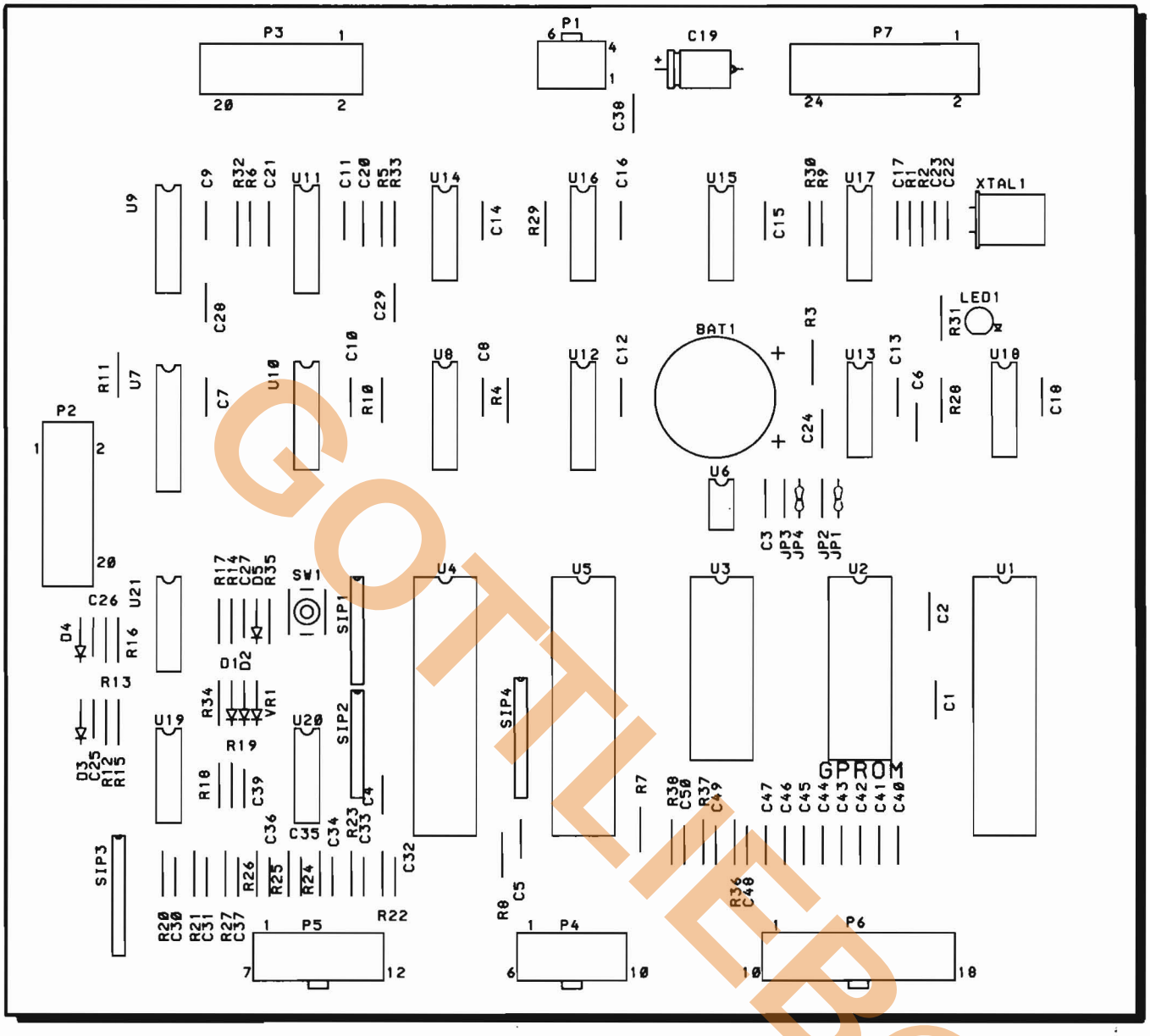
SENSOR BOARD (A15) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	Sensor Board Assembly (A15)	MA-1334
D1,D2	Diode, 1N4148	XO-261
JP1	Jumper, Resistor, 0 OHM	XO-469
Q1,Q2	Transistor, 2N3906 (PNP)	XO-588
R1,R4	Resistor, 10K Ohm, 5%, 1/2W	XO-62
R2,R5	Resistor, 47K Ohm, 5%, 1/4W	XO-30
R3,R6	Resistor, 22K Ohm, 5%, 1/4W	XO-42
U1	IC, Optocoupler, MCT6	XO-1000
A15P1	Header, 8 Position	XO-911
	Spacer (4)	23984

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VI. WIRING AND SCHEMATIC DIAGRAMS, PARTS LISTS

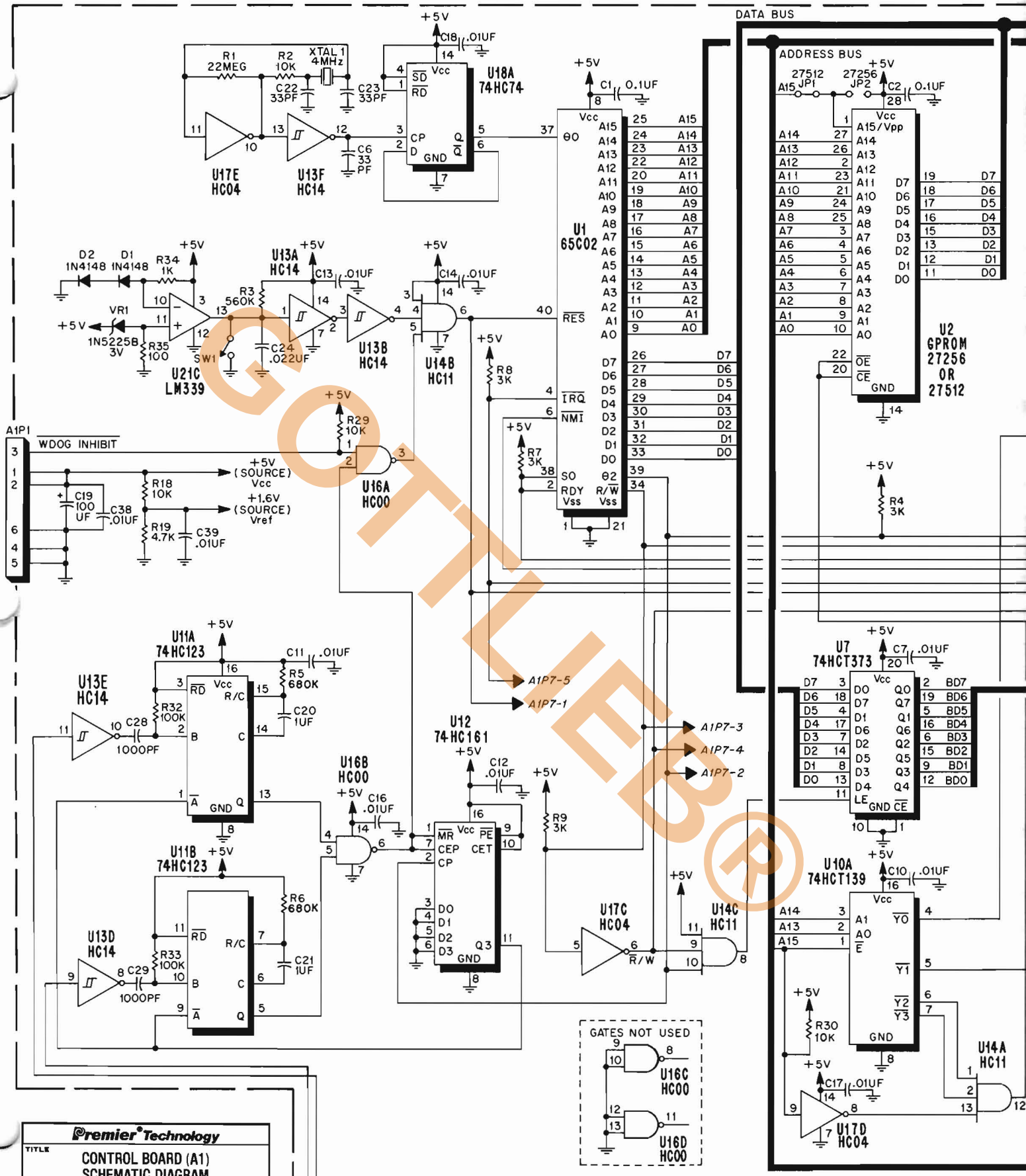
CONTROL BOARD (A1) COMPONENT LOCATION



CONTROL BOARD (A1) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	Control Board Assembly (A1)	MA-1934
BAT 1	Lithium Battery, LM2430, 3V	X0-925
C3, C7-C18, C30-C50	Capacitor, .01UF, +80% -20%, 50V	X0-229
C1,C2,C4 C5,C25,C27	Capacitor, 0.1UF, +80% -20%, 50V	X0-230
C6,C22,C23	Capacitor, 33PF, 10%, 100V	X0-896
C19	Capacitor, 100UF, +80% -20%, 10V	X0-211
C20,C21	Capacitor, 1UF, 20%, 50V	X0-746
C24	Capacitor, .022UF, 10%, 50V	X0-873
C28,C29	Capacitor, 1000PF, 10%, 100V	X0-296
D1-D5	Diode, 1N4148	X0-261
LED 1	LED, MV5752 (Red)	X0-270
R1	Resistor, 22 MEGOHM, 5%, 1/4W	X0-74
R2,R10,R11 R18,R28,R30	Resistor, 10K OHM, 5%, 1/4W	X0-18
R3	Resistor, 560K OHM, 5%, 1/4W	X0-169
R5,R6	Resistor, 680K OHM, 5%, 1/4W	X0-669
R4,R7-R9	Resistor, 3K OHM, 5%, 1/4W	X0-23
R12-R14	Resistor, 2.2K OHM, 5%, 1/4W	X0-27
R15-R17	Resistor, 3.3K OHM, 5%, 1/4W	X0-38
R19-R27, R36-R38	Resistor, 4.7K OHM, 5%, 1/4W	X0-7
R31	Resistor 330 OHM, 5%, 1/4W	X0-34
R32-R33	Resistor, 100K OHM, 5%, 1/4W	X0-45
R34	Resistor, 1K OHM, 5%, 1/4W	X0-5
R35	Resistor, 100 OHM, 5%, 1/4W	X0-28
SIP1,SIP2	Resistor Pack, 10K OHM X 7, 5%, 1/4W	X0-926
SIP3,SIP4	Resistor Pack, 4.7K OHM X 8	X0-161
SW1	Switch, N.O.	X0-897
U1	IC, 65C02P2, CPU, 2MHZ	X0-927
U3	IC, 6264LP, 8K X 8, Static Ram	X0-781
U4,U5	IC,6522AP, Versatile Interface Adaptor (VIA)	X0-929
U6	IC, DS1210, Non-Volatile Controller	X0-930
U7	IC, 74HCT373, Octal Latch	X0-931
U8	IC, 74HCT138, Decoder	X0-932
U9,U10	IC, 74HCT139, Dual Decoder	X0-933
U11	IC, 74HC123, Dual Multivibrator	X0-934
U12	IC, 74HC161, Binary Counter	X0-935
U13	IC, 74HC14, Schmitt Hex Inverters	X0-936
U14	IC, 74HC11, Triple "And" Gates	X0-937
U15,U16	IC, 74HC00, Quad "Nand" Gates	X0-782
U17	IC, 74HC04, Hex Inverters	X0-888
U18	IC, 74HC74, Dual "D" Flip-Flop	X0-939
U19,U20,U21	IC, LM339, Quad Comparators	X0-583
VR1	Zener Diode, 1N5225B, 3V, 5%	X0-269
XTAL1	Crystal, 4MHZ	X0-366
A1P1	Header, 6 Position	X0-910
A1P2,A1P3	Header, 20 Position (Ribbon)	X0-940
A1P4	Header, 10 Position	X0-912
A1P5	Header, 12 Position	X0-913
A1P6	Header, 18 Position	X0-916
A1P7	Header, 24 Position	X0-1201
	Jumper, Resistor, 0 OHM (2)	X0-469
	Socket, 28 Pin Dip	X0-536

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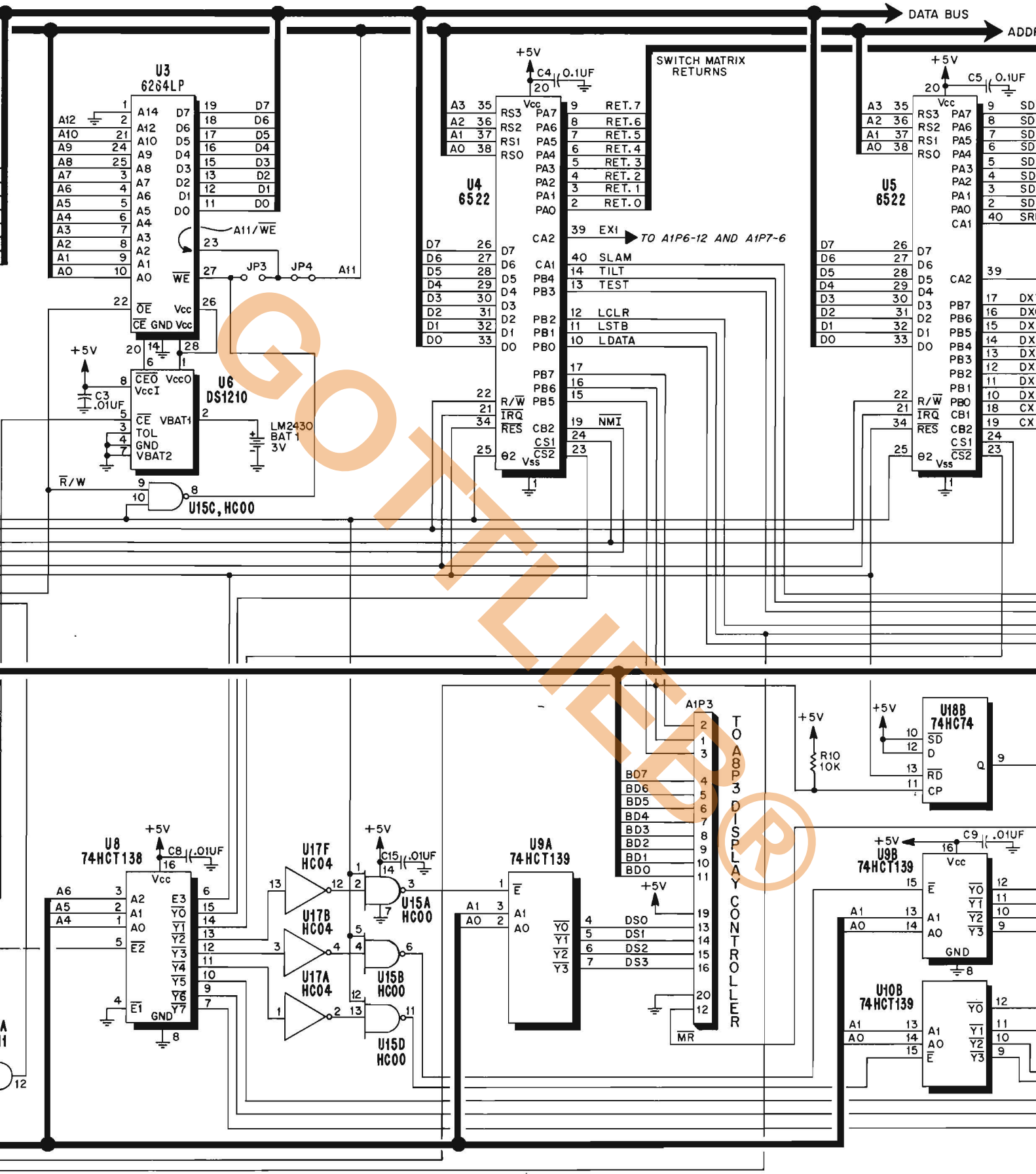


GOTTLIEB®

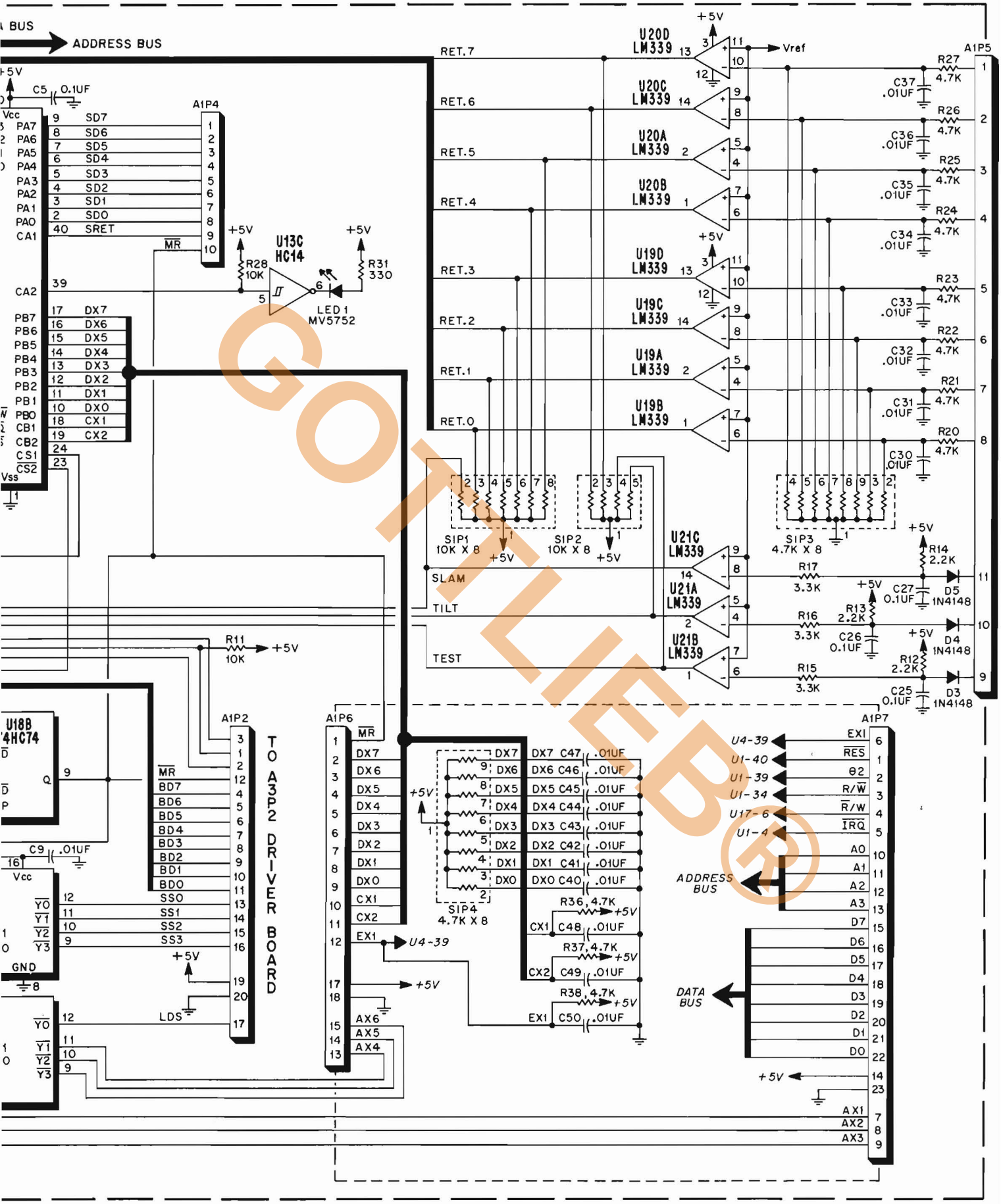
Premier Technology

TITLE
CONTROL BOARD (A1)
SCHEMATIC DIAGRAM

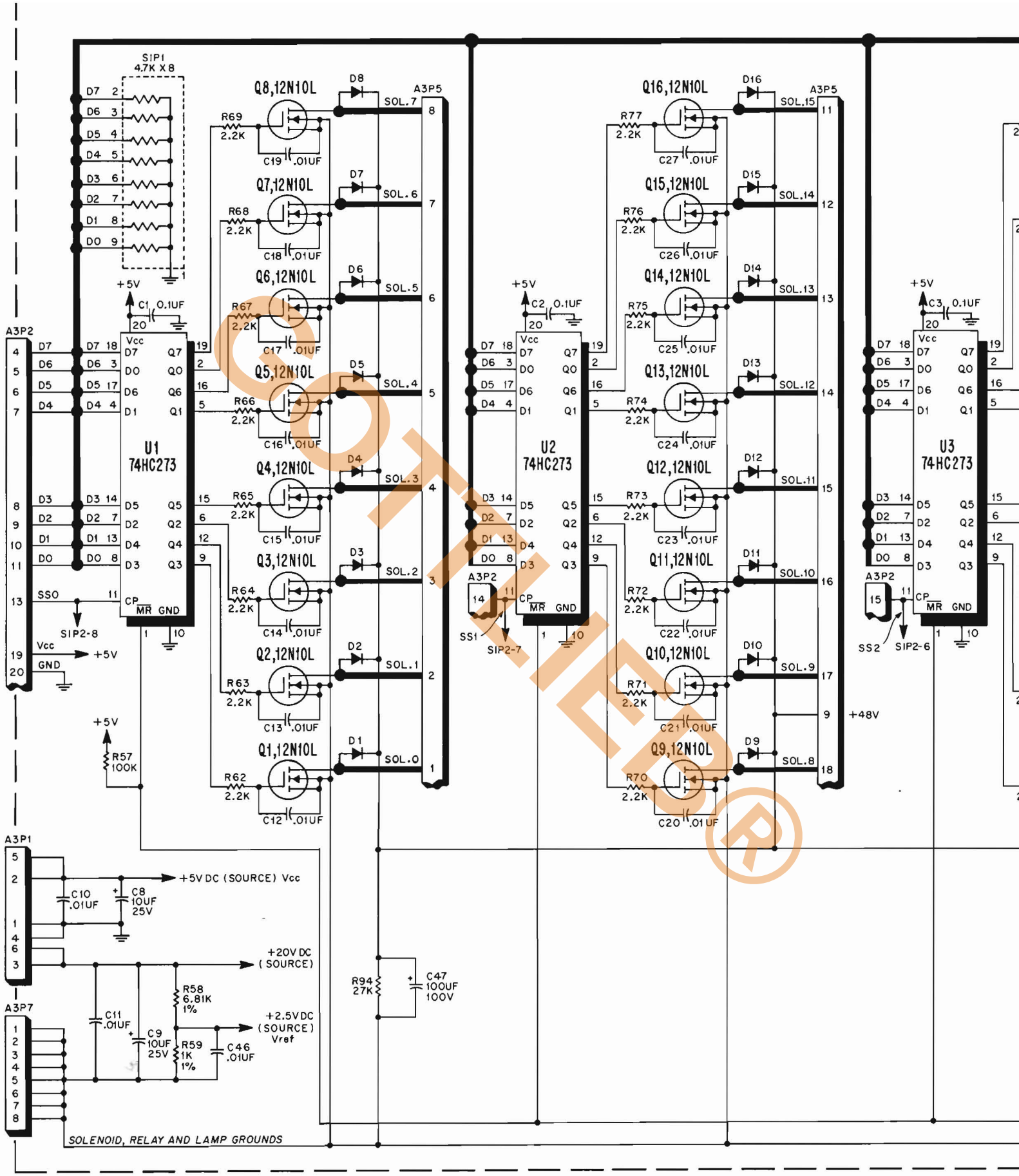
DRAWN	APPROVED	DATE	E-27033
	RHM	10-12-89	


DATA BUS
U3
6264LP
A11/WE
JP3
JP4
A11
+5V
C3
.01UF
U6
DS1210
LM2430
BAT 1
3V
R/W
U15C, HC00
U4
6522
SWITCH MATRIX
RETURNS
RET.7
RET.6
RET.5
RET.4
RET.3
RET.2
RET.1
RET.0
EX1
TO A1P6-12 AND A1P7-6
SLAM
TILT
TEST
LCLR
LSTB
LDATA
NMI
U5
6522
U8
74HCT138
U17F
HC04
U17B
HC04
U17A
HC04
U15A
HC00
U15B
HC00
U15D
HC00
U9A
74HCT139
A1P3
BD7
BD6
BD5
BD4
BD3
BD2
BD1
BD0
DS0
DS1
DS2
DS3
MR
TO A8P3 DISPLAY CONTROLLER
R10
10K
U18B
74HCT74
U9B
74HCT139
U10B
74HCT139
GND
Vcc

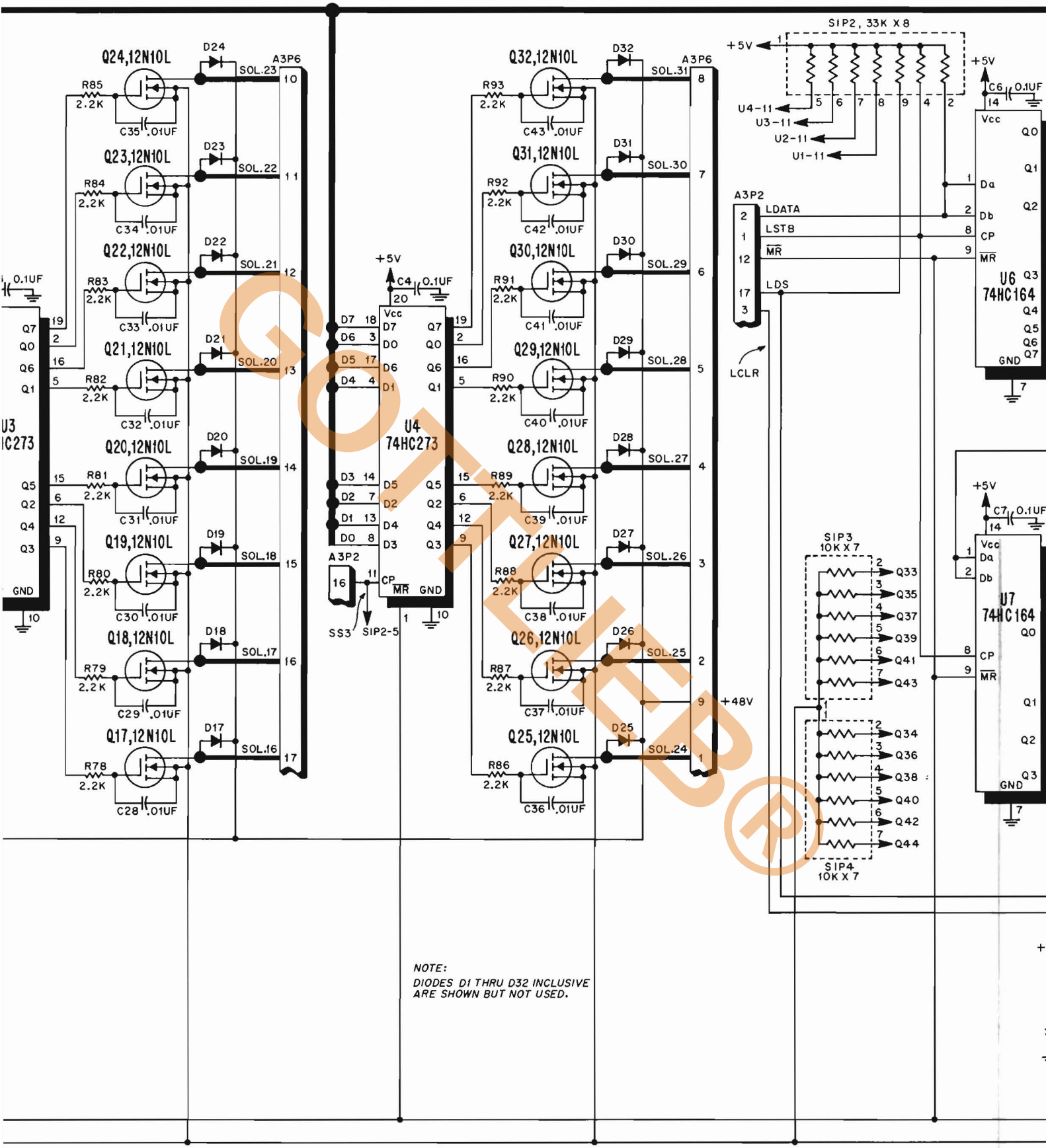
GOTTLIEB®


ADDRESS BUS
A1P4
A1P5
A1P2
A1P6
A1P7
U13C HC14
U20D LM339
U20C LM339
U20A LM339
U20B LM339
U19D LM339
U19C LM339
U19A LM339
U19B LM339
U21C LM339
U21A LM339
U21B LM339
U18B 74HC74
SIP1 10K X 8
SIP2 10K X 8
SIP3 4.7K X 8
SIP4 4.7K X 8
LED1 MV5752
Vref
SLAM
TILT
TEST
TO A3P2 DRIVER BOARD
ADDRESS BUS
DATA BUS
LDS
GND
Vcc
Vss

GOTTLIEB®

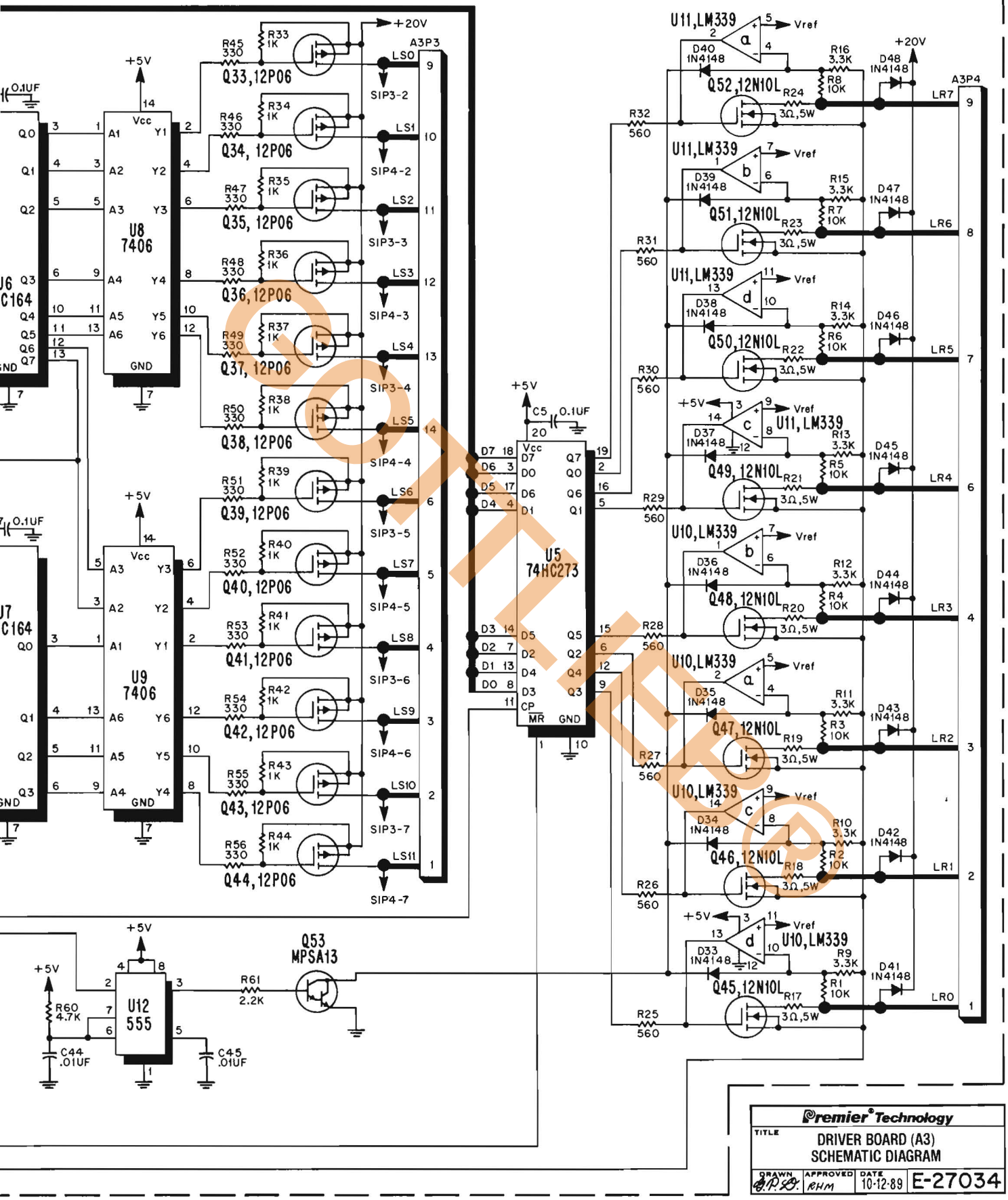

SIP1
4.7K X 8
A3P2
A3P5
U1
74HC273
U2
74HC273
U3
74HC273
Q8,12N10L
Q7,12N10L
Q6,12N10L
Q5,12N10L
Q4,12N10L
Q3,12N10L
Q2,12N10L
Q1,12N10L
Q16,12N10L
Q15,12N10L
Q14,12N10L
Q13,12N10L
Q12,12N10L
Q11,12N10L
Q10,12N10L
Q9,12N10L
+5V
+48V
SOL.7
SOL.6
SOL.5
SOL.4
SOL.3
SOL.2
SOL.1
SOL.0
SOL.15
SOL.14
SOL.13
SOL.12
SOL.11
SOL.10
SOL.9
SOL.8
SIP2-8
SIP2-7
SIP2-6
SS1
SS2
A3P1
A3P7
+5V DC (SOURCE) Vcc
+20V DC (SOURCE)
+2.5VDC (SOURCE) Vref
SOLENOID, RELAY AND LAMP GROUNDS

SOLD-IER®



NOTE:
DIODES D1 THRU D32 INCLUSIVE ARE SHOWN BUT NOT USED.

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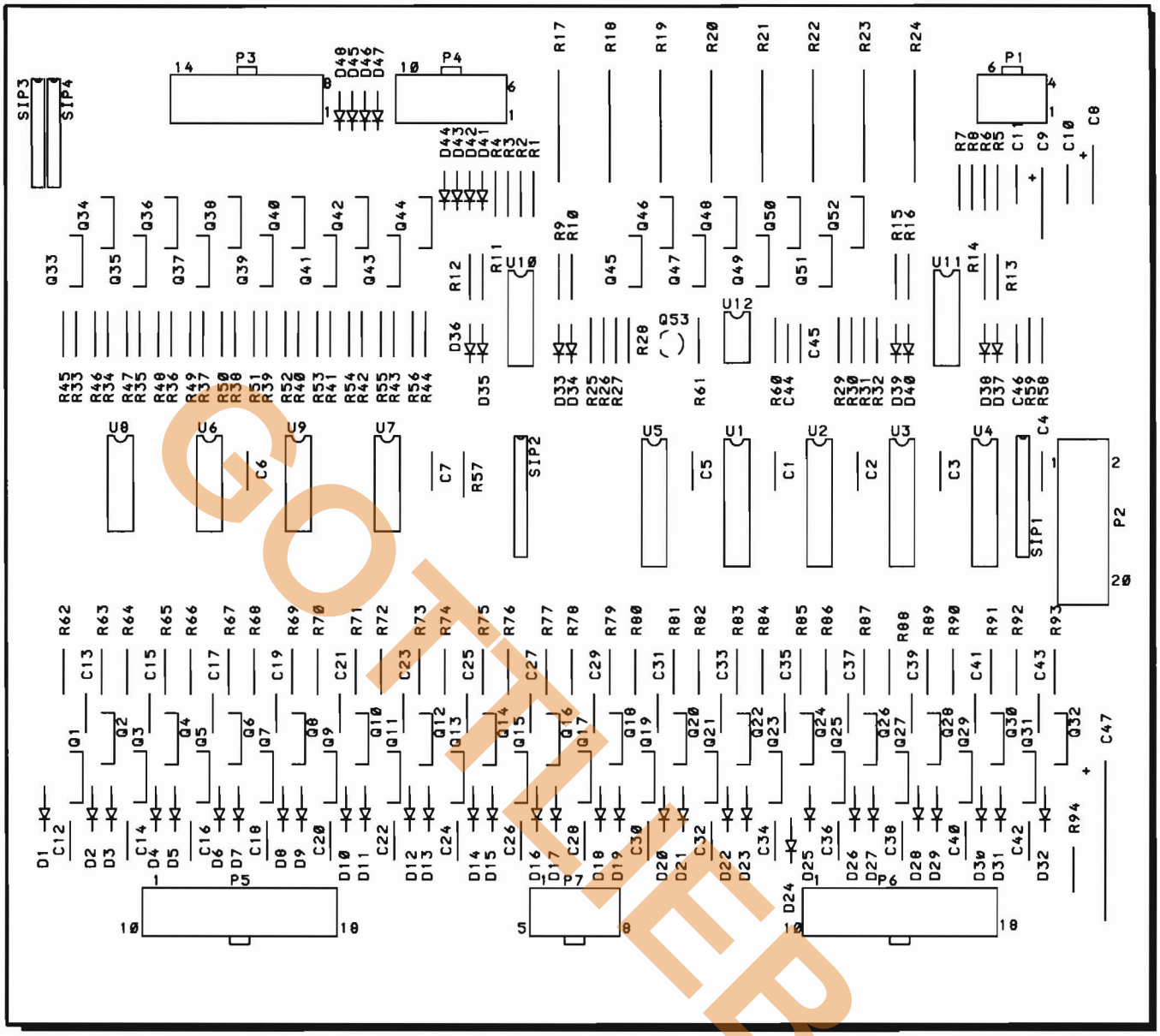
Premier Technology

TITLE: DRIVER BOARD (A3) SCHEMATIC DIAGRAM

DRAWN	APPROVED	DATE	
A.P.D.	RHM	10-12-89	E-27034

VI. WIRING AND SCHEMATIC DIAGRAMS, PARTS LISTS

DRIVER BOARD (A3) COMPONENT LOCATION

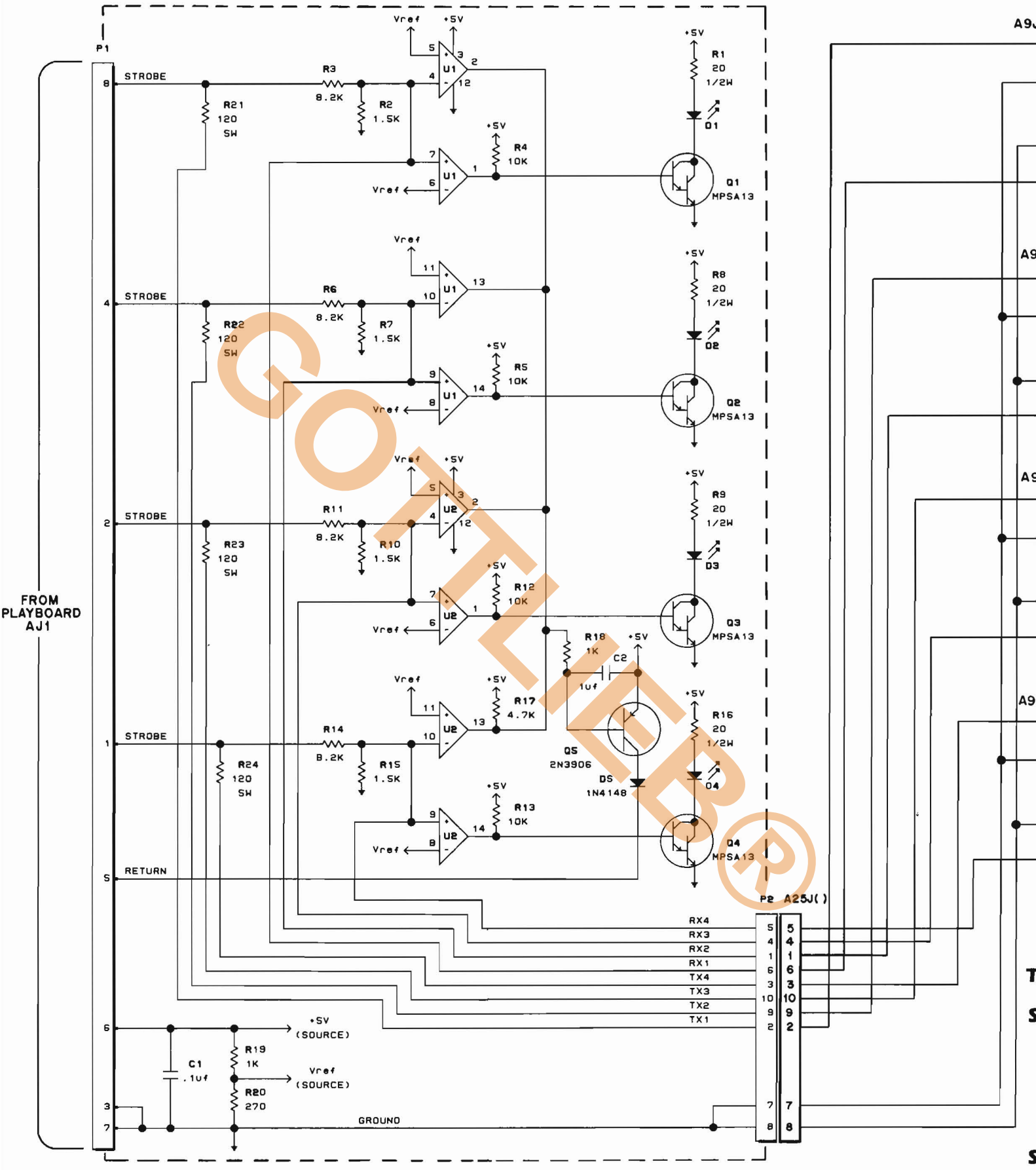


DRIVER BOARD (A3) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	Driver Board Assembly (A3)	MA-1358
C1-C7	Capacitor, 0.1 UF, +80% -20%, 50V	XO-230
C8	Capacitor, 10UF, 20%, 25V	XO-127
C9	Capacitor, 10UF, +80% -20%, 25V	XO-225
C10,C11	Capacitor, .01UF, +80% -20%, 50V	XO-229
C45,C46		
C12-C44	Capacitor, .01UF, 10%, 50V	XO-696
C47	Capacitor, 100UF, 20%, 100V	XO-958
D33-D48	Diode, 1N4148	XO-261
Q1-Q32, Q45-Q52,Q54	Transistor, RFP12N10L, OR IRL530, N-Channel MOSFET	XO-947
Q33-Q44	Transistor, RFP12P06, IRF9531 OR MT2955 P-Channel MOSFET	XO-948
Q53	Transistor, MPSA13, Darlington	XO-304
R1-R8	Resistor, 10K Ohm, 5%, 1/4W	XO-18
R9-R16	Resistor, 3.3K Ohm, 5%, 1/4W	XO-38
R17-R24	Resistor, 3 Ohm, 5%, 5W	XO-942
R25-R32	Resistor, 560 Ohm, 5%, 1/4W	XO-36
R33-R44	Resistor, 1K Ohm, 5%, 1/4W	XO-5
R45-R56	Resistor, 330 Ohm, 5%, 1/4W	XO-34
R57	Resistor, 100K Ohm, 5%, 1/4W	XO-45

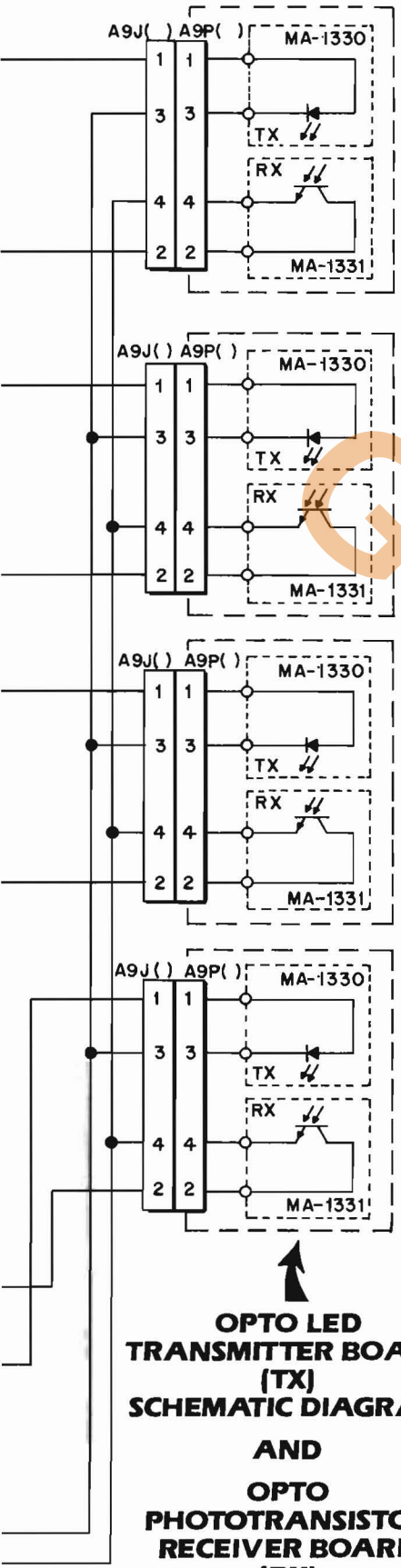
REFERENCE	DESCRIPTION	PART NUMBER
R58	Resistor, 6.81K Ohm, 1%, 1/4W	XO-943
R59	Resistor, 1K Ohm, 1%, 1/4W	XO-944
R60	Resistor, 4.7K Ohm, 5%, 1/4W	XO-7
R61-R93	Resistor, 2.2K Ohm, 5%, 1/4W	XO-27
R94	Resistor, 27K Ohm, 5%, 1/4W	XO-11
SIP1	Resistor Pack, 4.7K Ohm X 8,5%, 1/4W	XO-161
SIP2	Resistor Pack, 33K Ohm X 8,5%, 1/4W	XO-945
SIP3	Resistor Pack, 10K Ohm X 7,5%, 1/4W	XO-926
SIP4		
U1-U5	IC, Octal "D" Flip-Flops, 74HC273	XO-949
U6-U7	IC, Shift Register, 74HC164	XO-950
U8-U9	IC, Buffer, 7406	XO-85
U10-U11	IC, Quad Comparator, LM339	XO-583
U12	IC, Timer, NE555	XO-631
A3P1	Header, 6 Position	XO-910
A3P2	Header, 20 Position (Ribbon)	XO-940
A3P3	Header, 14 Position	XO-914
A3P4	Header, 10 Position	XO-912
A3P5	Header, 18 Position	XO-916
A3P6		
A3P7	Header, 8 Position	XO-911

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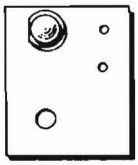


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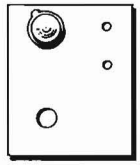
QUAD OPTICAL INTERFACE BOARD SCHEMATIC DIAGRAM



OPTO LED TRANSMITTER BOARD COMPONENT LOCATION



OPTO PHOTOTRANSISTOR RECEIVER BOARD COMPONENT LOCATION



OPTO LED TRANSMITTER BOARD PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	Opto LED Transmitter Assembly	MA-1330
TX	Plastic Transmitter LED	XO-994

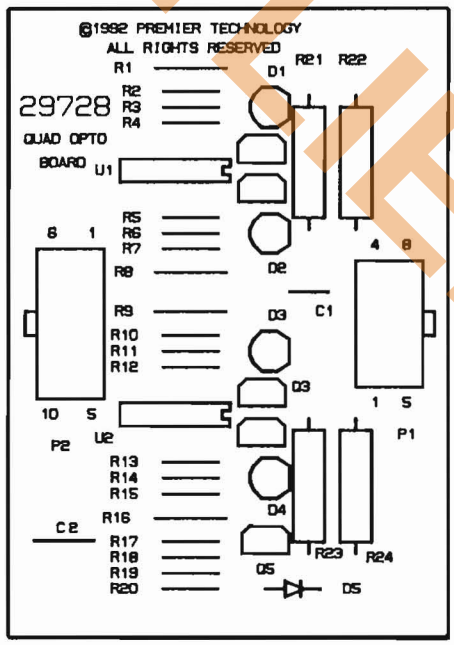
OPTO PHOTOTRANSISTOR RECEIVER BOARD PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	Opto Phototransistor Receiver Assembly	MA-1331
RX	Plastic Phototransistor	XO-993

BRACKET AND OPTIC BOARD ASSEMBLIES REFERENCE			
ASSEMBLY	CONNECTOR NO.	BRACKET NO.	LOCATION
MA2092	1A25J1-8	30461	FREDDY'S HEAD
30978	1A25J1-4	30977	TOP LEFT LANE
30435	1A25J1-2	30460	TOP TROUGH
30942	1A25J1-1	-----	BOILER DOOR

NOTE: BRACKET AND OPTIC BOARD ASSEMBLY DOES NOT INCLUDE WIRING HARNESS.

QUAD OPTICAL INTERFACE BOARD COMPONENT LOCATION



QUAD OPTICAL INTERFACE BOARD PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	QUAD OPTICAL INTERFACE BOARD (A25)	MA-1925
C1	CAPACITOR, 0.1UF, +80%-20%, 50V	XO-230
C2	CAPACITOR, 1UF, NON-POLAR, 50V	XO-746
D1-D4	DIODE, MV5752 (LED,RED)	XO-270
Q1-Q4	TRANSISTOR, NPN, MPS-A13	XO-304
Q5	TRANSISTOR, PNP, 2N3906	XO-588
R1,R8,R9,R16	RESISTOR,20 OHM,5%, 1/2W	XO-65
R2,R7,R10,R15	RESISTOR,1.5K OHM,5%,1/4W	XO-20
R3,R6,R11,R14	RESISTOR,8.2K OHM,5%,1/4W	XO-589
R4,R5,R12,R13	RESISTOR,10K OHM,5%,1/4W	XO-18
R17	RESISTOR,4.7K OHM,5%,1/4W	XO-7
R18,R19	RESISTOR, 1K OHM,5%,1/4W	XO-5
R20	RESISTOR, 270 OHM,5%,1/4W	XO-68
R21,R24	RESISTOR, 120 OHM,10%,5W	XO-1042
U1,U2	IC,QUAD COMPARITOR,LM339	XO-583
P1	HEADER,8 POSITION	XO-911
P2	HEADER,10 POSITION	XO-912
	SUPPORT,SRS-8-6N,(4)	23984

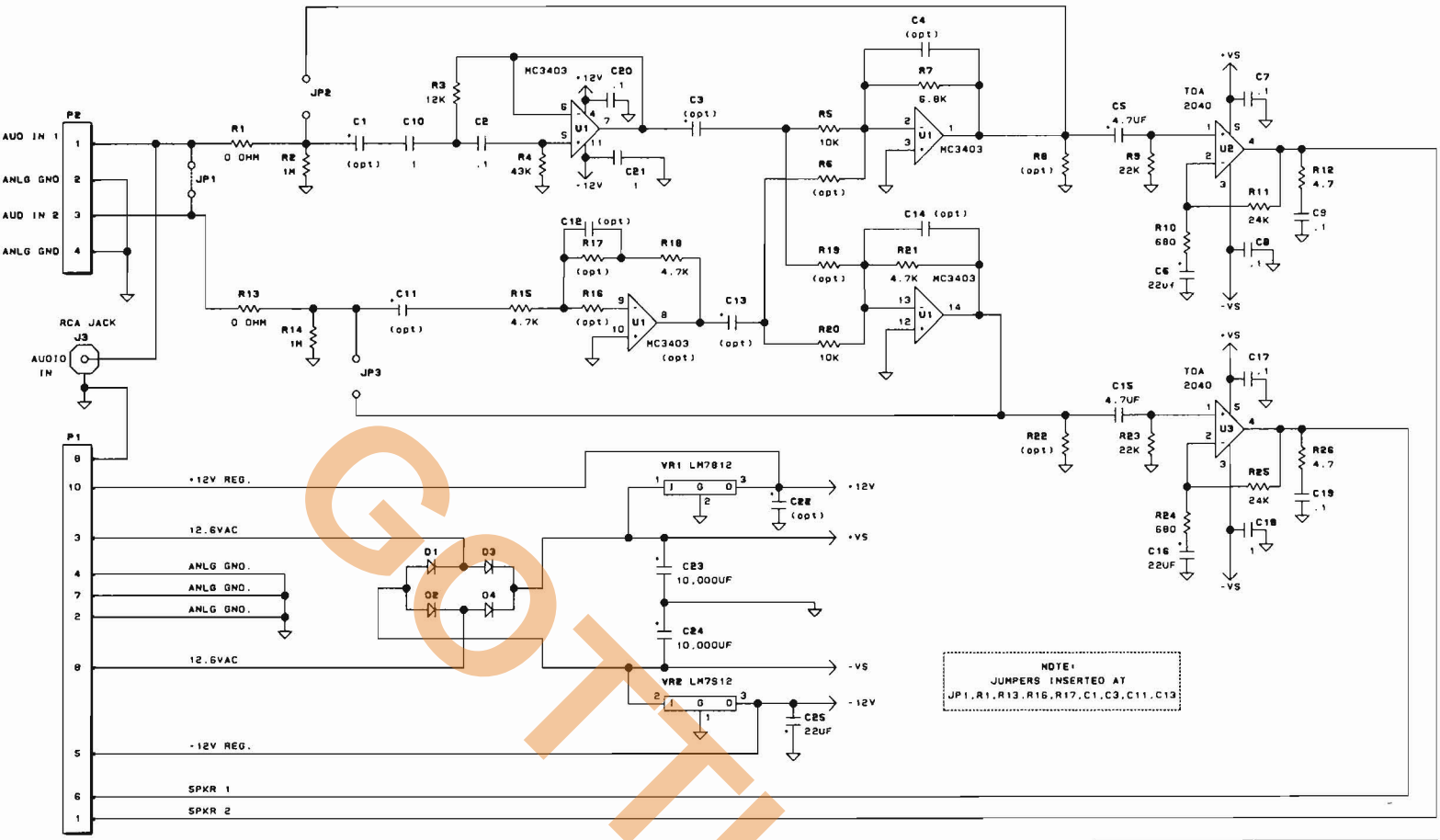
OPTO LED TRANSMITTER BOARD (TX) SCHEMATIC DIAGRAM

AND

OPTO PHOTOTRANSISTOR RECEIVER BOARD (RX) SCHEMATIC DIAGRAM

GOTTLIEB

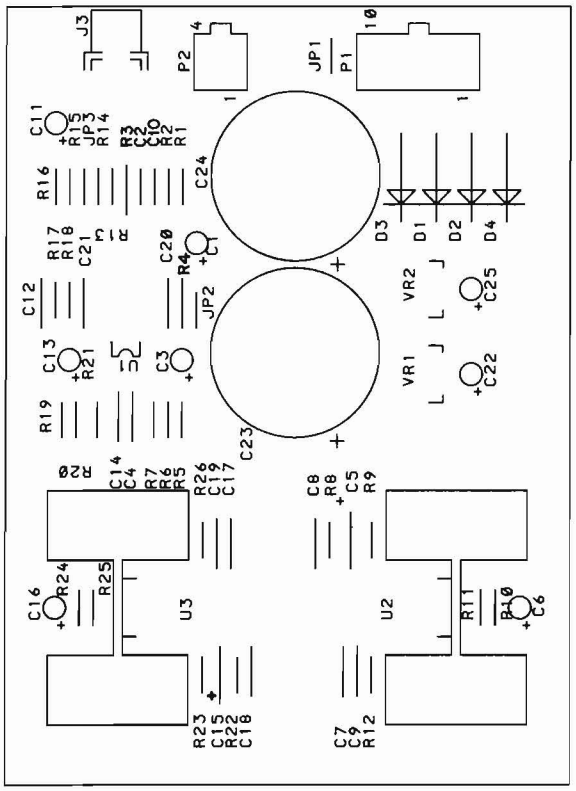
VI. WIRING AND SCHEMATIC DIAGRAMS, PARTS LISTS



GOTLIEB®

Premier® Technology			
TITLE: AUXILIARY POWER SUPPLY (A5) SCHEMATIC DIAGRAM			
DRAWN: J.B.	APPROVED: RHM	DATE: 4-8-92	MA-1772

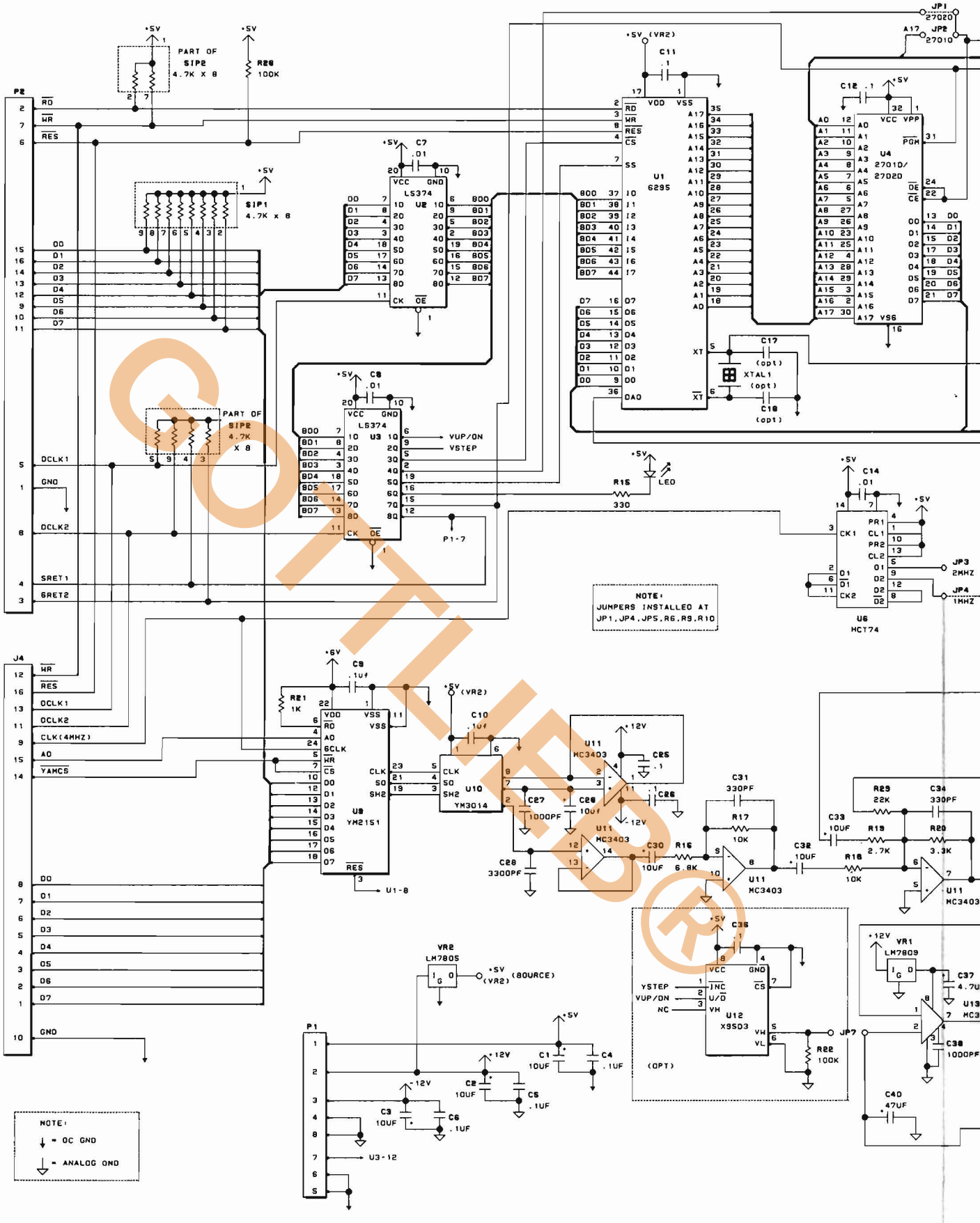
AUXILIARY POWER SUPPLY (A5) COMPONENT LOCATION



AUXILIARY POWER SUPPLY (A5) PARTS LIST

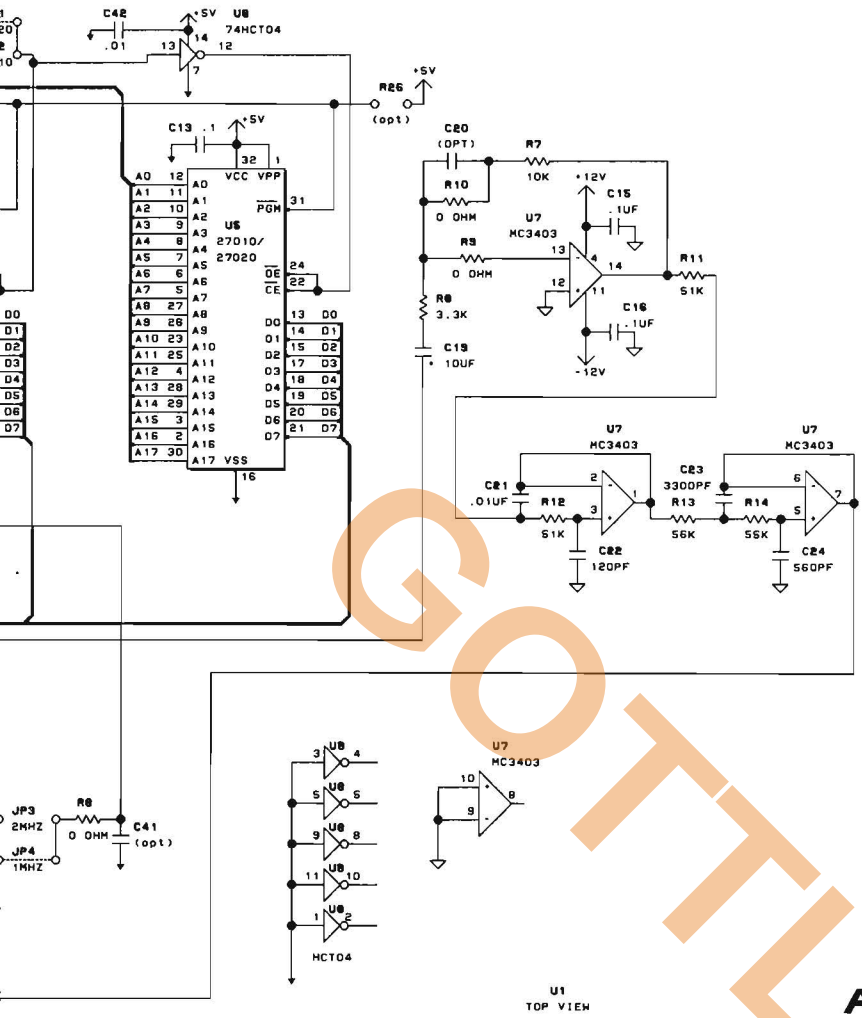
REFERENCE	DESCRIPTION	PART NUMBER
A5	AUXILLIARY POWER SUPPLY	MA-1772
C1,C3,C11, C13	CAPACITOR, 4.7UF, 10%, 10V	XO-469A
C2,C10	CAPACITOR, 0.1UF, 10%, 100V	XO-784
C5,C15	CAPACITOR, 4.7UF, 10%, 10V	XO-226
C6,C16,C25	CAPACITOR, 22UF, +80%-20%, 16V	XO-293
C7,C8,C9, C17,C18,C19, C20,C21	CAPACITOR, 0.1UF, +80%-20%, 50V	XO-230
C23,C24	CAPACITOR, 10,000UF, +80%-20%, 25V	XO-830
D1-D4	DIODE, 1N5401	XO-263
R1,R13,JP1, R16,R17	RESISTOR, 0 OHM, JUMPER	XO-469
R2,R14	RESISTOR, 1 MEGOHM, 5%, 1/4W	XO-604
R3	RESISTOR, 12K OHM, 5%, 1/4W	XO-9
R4	RESISTOR, 43K OHM, 5%, 1/4W	XO-15
R5,R20	RESISTOR, 10K OHM, 5%, 1/4W	XO-18
R7	RESISTOR, 6.8K OHM, 5%, 1/4W	XO-8
R8	RESISTOR, 2.2K OHM, 5%, 1/4W	XO-27
R9,R23	RESISTOR, 22K OHM, 5%, 1/4W	XO-42
R10,R24	RESISTOR, 680 OHM, 5%, 1/4W	XO-139
R11,R25	RESISTOR, 24K OHM, 5%, 1/4W	XO-10
R12,R26	RESISTOR, 4.7 OHM, 5%, 1/4W	XO-800
R15,R18,R21	RESISTOR, 4.7K OHM, 5%, 1/4W	XO-7
U1	IC, QUAD AMP, MC3403P	XO-953
U2,U3	IC, AUDIO AMPLIFIER, TDA2040	XO-1038
VR1	REGULATOR, +12V, LM7812CT	XO-1039
VR2	REGULATOR, -12V, LM7912CT	XO-130
J3	CONNECTOR, RCA	XO-1035
P1	HEADER, 10 POSITION	XO-912
	HEAT SINK	XO-1040

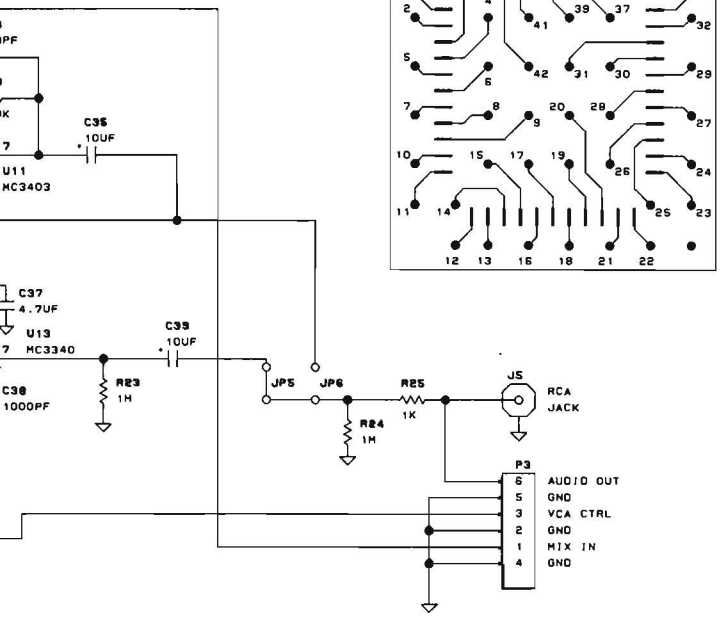
9"/8272B"U39470"



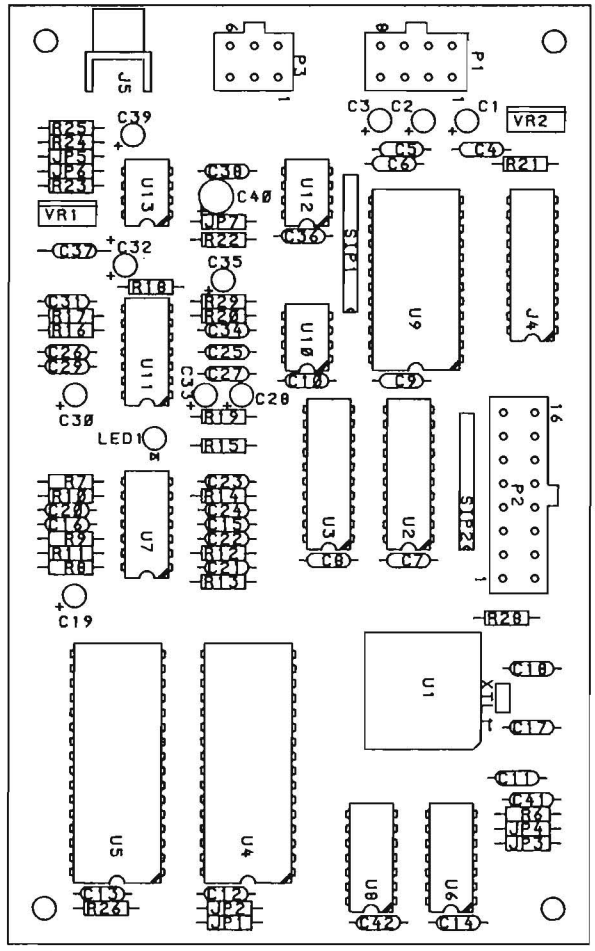
GOTTLIEB®

Premier Technology			
TITLE: AUXILIARY SOUND BOARD (A20) SCHEMATIC DIAGRAM			
DRAWN: J.B.	APPROVED: RHM	DATE: 4-8-92	MA-1770





AUXILIARY SOUND BOARD (A20) COMPONENT LOCATION

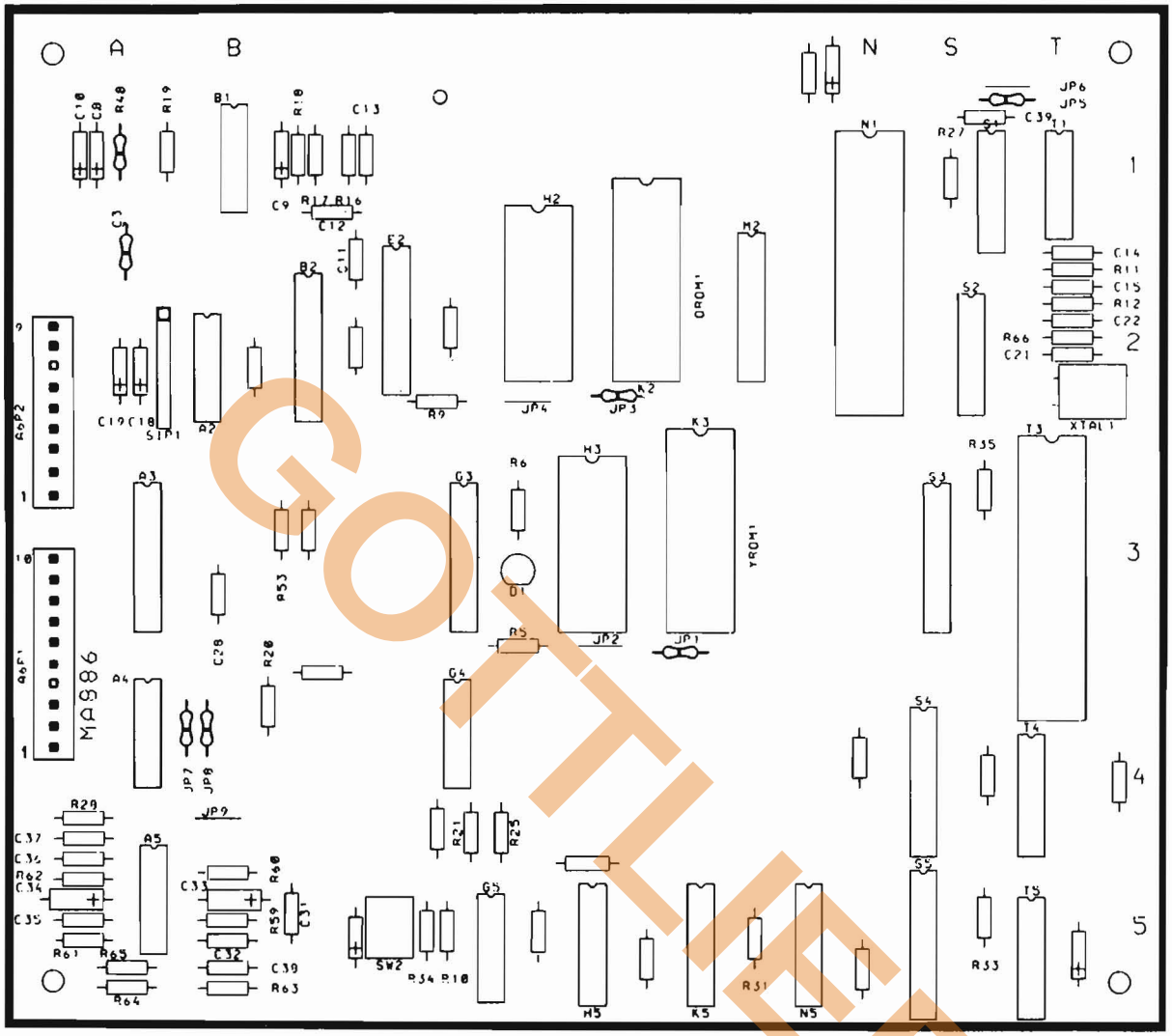


AUXILIARY SOUND BOARD (A20) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
A20	AUXILIARY SOUND BOARD	MA-1770
C1, C2, C3, C19, C28, C30, C32, C33, C35, C39	CAPACITOR, 10UF, +80%-20%, 16V	XO-1030
C4-C6, C9-C13 C15, C16, C25, C26, C36	CAPACITOR, 0.1UF, +80%-20%, 50V	XO-230
C7, C8, C14, C42	CAPACITOR, .01UF, +80%-20%, 50V	XO-229
C21	CAPACITOR, .01UF, 10%, 50V	XO-696
C22	CAPACITOR, 120PF, 10%, 50V	XO-1032
C23, C29	CAPACITOR, 3300PF, 10%, 100V	XO-600
C24	CAPACITOR, 560PF, 10%, 50V	XO-681
C31, C34	CAPACITOR, 330PF, 10%, 50V	XO-1033
C37	CAPACITOR, 4.7UF, 10%, 10V	XO-226
C38	CAPACITOR, 1000PF, 10%, 100V	XO-296
C40	CAPACITOR, 47UF, 10V	XO-227
LED	DIODE, MV5752, RED	XO-270
R7, R17, R18	RESISTOR, 10K OHM, 5%, 1/4W	XO-18
R8, R20	RESISTOR, 3.3K OHM, 5%, 1/4W	XO-38
R6, R9, R10, JP1, JP4, JP5	RESISTOR, 0 OHM, JUMPER	XO-469
R11, R12	RESISTOR, 51K OHM, 5%, 1/4W	XO-44
R13, R14	RESISTOR, 56K UHM, 5%, 1/4W	XO-771
R15	RESISTOR, 330 OHM, 5%, 1/4W	XO-34
R16	RESISTOR, 6.8K OHM, 5%, 1/4W	XO-8
R19	RESISTOR, 2.7K OHM, 5%, 1/4W	XO-6
R21, R25	RESISTOR, 1K OHM, 5%, 1/4W	XO-5
R23	RESISTOR, 1MEGOHM, 5%, 1/4W	XO-604
R28	RESISTOR, 100K OHM, 5%, 1/4W	XO-45
R29	RESISTOR, 22K OHM, 5%, 1/4W	XO-42
U1	IC, MSM6295, SPEECH CHIP	*XO-1023
U2, U3	IC, 74LS374, OCTAL "D" FLIP-FLOP	XO-96
U4, U5	IC, 27C010 (SPECIFIED PER GAME)	
U6	IC, 74HCT74, "D" FLIP-FLOP	XO-889
U7, U11	IC, MC3403P, QUAD AMP	XO-953
U8	IC, 74HCT04, HEX INVERTER	XO-1026
U9	IC, YM2151, SOUND CHIP	XO-882
U10	IC, YM3014, SERIAL DAC	XO-883
U13	IC, MC3340P, VCA, AMPLIFIER	XO-1028
J4	SOCKET, 20 PIN	XO-491
J5	JACK, RCA	XO-1035
P1	HEADER, 8 POSITION	XO-911
P3	HEADER, 6 POSITION	XO-910
U4, U5	SOCKET, 32 PIN	XO-1036
U9	SOCKET, 24 PIN	XO-529
	PCB ASSEMBLY, P/O *XO-1023	27922
VR1	IC, LM7809CT, REGULATOR	XO-1037
VR2	IC, 5V REGULATOR	XO-663

GOTTLIEB

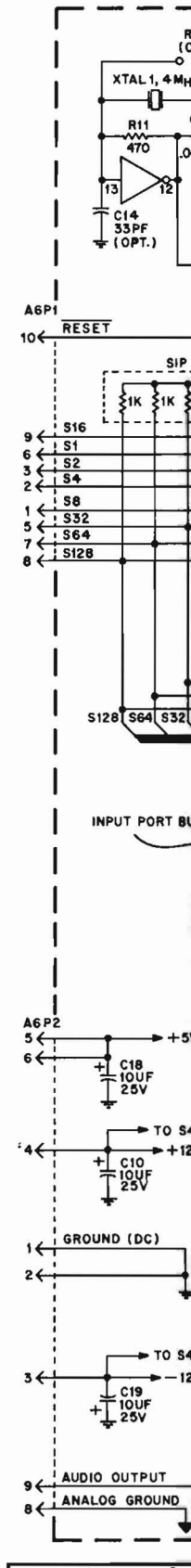
SOUND BOARD (A6) COMPONENT LOCATION



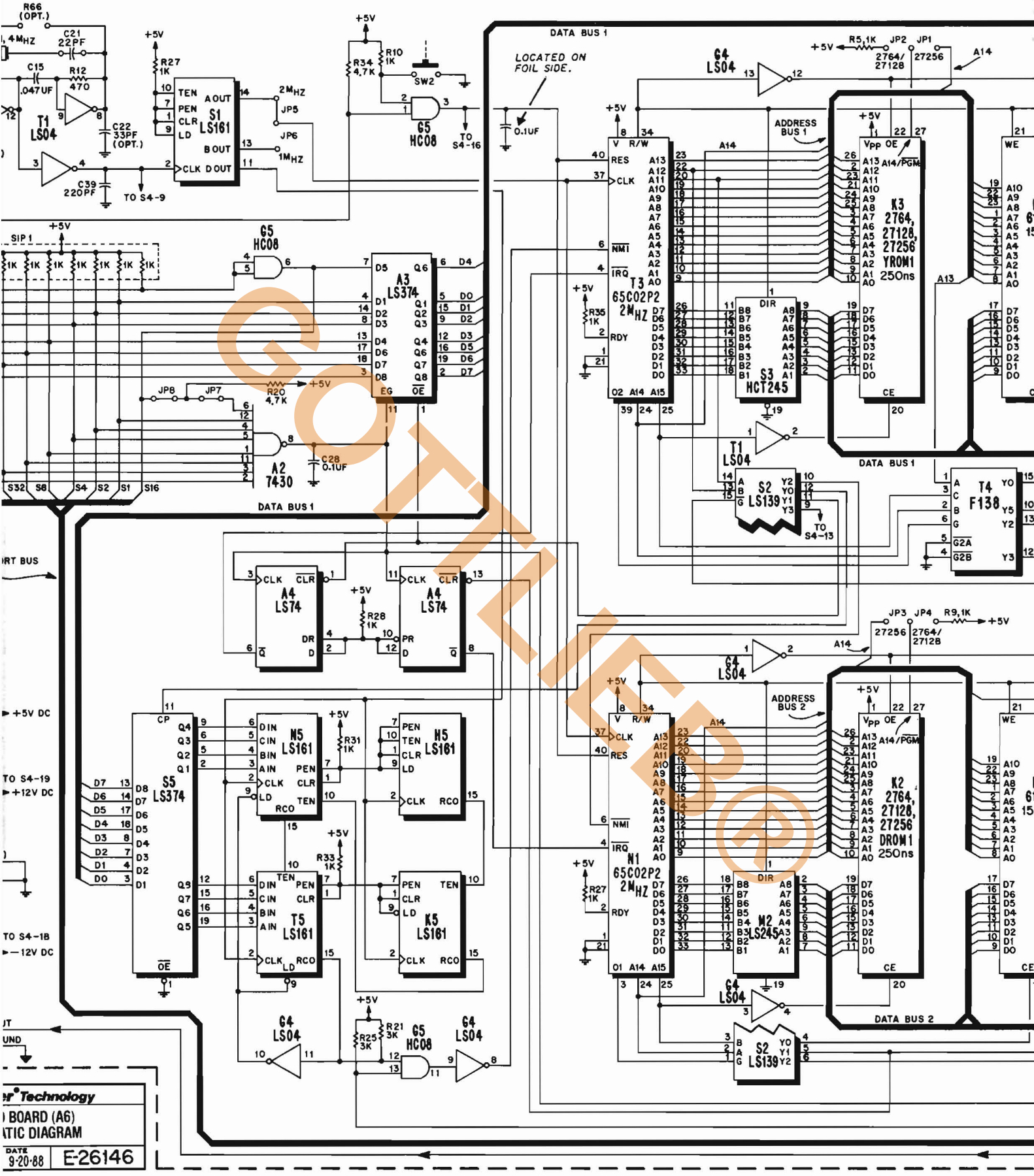
SOUND BOARD (A6) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	Sound Board Assembly (1A6)	MA-1629
C13,C37	Capacitor, 1UF, 20%, 50V (Non-polar)	XO-746
C8,C9,C10, C18,C19, C33,C34 AND THREE UNMARKED CAPACITORS	Capacitor, 10UF, 20%, 25V (Tantalum)	XO-127
C11,C12	Capacitor, 10PF, +80%-20%, 50V	XO-635
C14,C22	Capacitor, 33PF, 10%, 100V	XO-896
C15	Capacitor, .047UF, 20%, 50V	XO-638
C21	Capacitor, 22PF, 10%, 50V	XO-633
C28 AND FIFTEEN UNMARKED CAPACITORS	Capacitor, 0.1UF, +80%-20%, 50V	XO-230
C31,C32	Capacitor, 0.1UF, 10%, 100V	XO-784
C35	Capacitor, 1000PF, 10%, 100V	XO-296
C36	Capacitor, 2200PF, 10%, 100V	XO-289
C38	Capacitor, .0033UF, 10%, 100V	XO-600
C39	Capacitor, 220PF, 10%, 100V	XO-694
D1	Diode, MV5752, (LED, Red)	XO-270
R5,R9,R10, R27,R28,R31, R33,R35	Resistor, 1K Ohm, 5%, 1/4W	XO-5
R6	Resistor, 240 Ohm, 5%, 1/4W	XO-173
R11,R12	Resistor, 470 Ohm, 5%, 1/4W	XO-35
R21, R25	Resistor, 3K Ohm, 5%, 1/4W	XO-23
R16,R17	Resistor, 10K Ohm, 5%, 1/4W	XO-18
R18	Resistor, 6.8K Ohm, 5%, 1/4W	XO-8

REFERENCE	DESCRIPTION	PART NUMBER
R20,R34	Resistor, 4.7K Ohm, 5%, 1/4W	XO-7
R61-R64	Resistor, 33K Ohm, 5%, 1/4W	XO-43
R59,R60	Resistor, 100K Ohm, 5%, 1/4W	XO-45
R65	Resistor, 27K Ohm, 5%, 1/4W	XO-11
A2	IC, 7430, 8 Input NAND Gate	XO-643
A3,B2,B5	IC, 74LS374, Octal "D" Flip Flop	XO-96
A4	IC, 74LS74, Dual "D" Flip Flop	XO-434
A5, B1	IC, MC3403P, Quad Op-Amp	XO-953
E2	IC, AD7528J, Multiplier DAC	XO-647
G3	IC, 74LS377, Octal "D" Flip Flop	XO-97
G4,T1	IC, 74LS04, Hex Inverter	XO-418
G5	IC, 74HC08, Quad 2 Input "AND" Gate	XO-872
H2,H3	IC, 6116LP-15, 2K X 8 RAM	XO-928
H5,K5,N5	IC, 74LS161, Synchronous Presettable Binary Counter	XO-440
S1,T5	IC, Specified Per Game	
K2,K3	IC, 74LS245, Octal Bus Transceiver	XO-79
M2	IC, 65C02P2 or 6502A, CPU XO-927 or	XO-893
N1,T3	IC, 74LS139, Dual 1 of 4 Decoder	XO-419
S2	IC, 74HCT245, Octal Bus Tranceiver	XO-891
S3	IC, 74F138 , 1 of 8 Decoder	XO-1041
T4	Resistor Pack 1K Ohm X 8	XO-493
SIP 1	Switch, Pushbutton	XO-897
SW2	Crystal, 4 MHZ	XO-366
XTAL 1	Connector (2)	XO-879
A6P1,A6P2		
	28 Pin Dip Socket (2)	XO-536
	Jumper, Resistor, 0 OHM (7)	XO-469
	20 Pin Dip Socket	XO-491

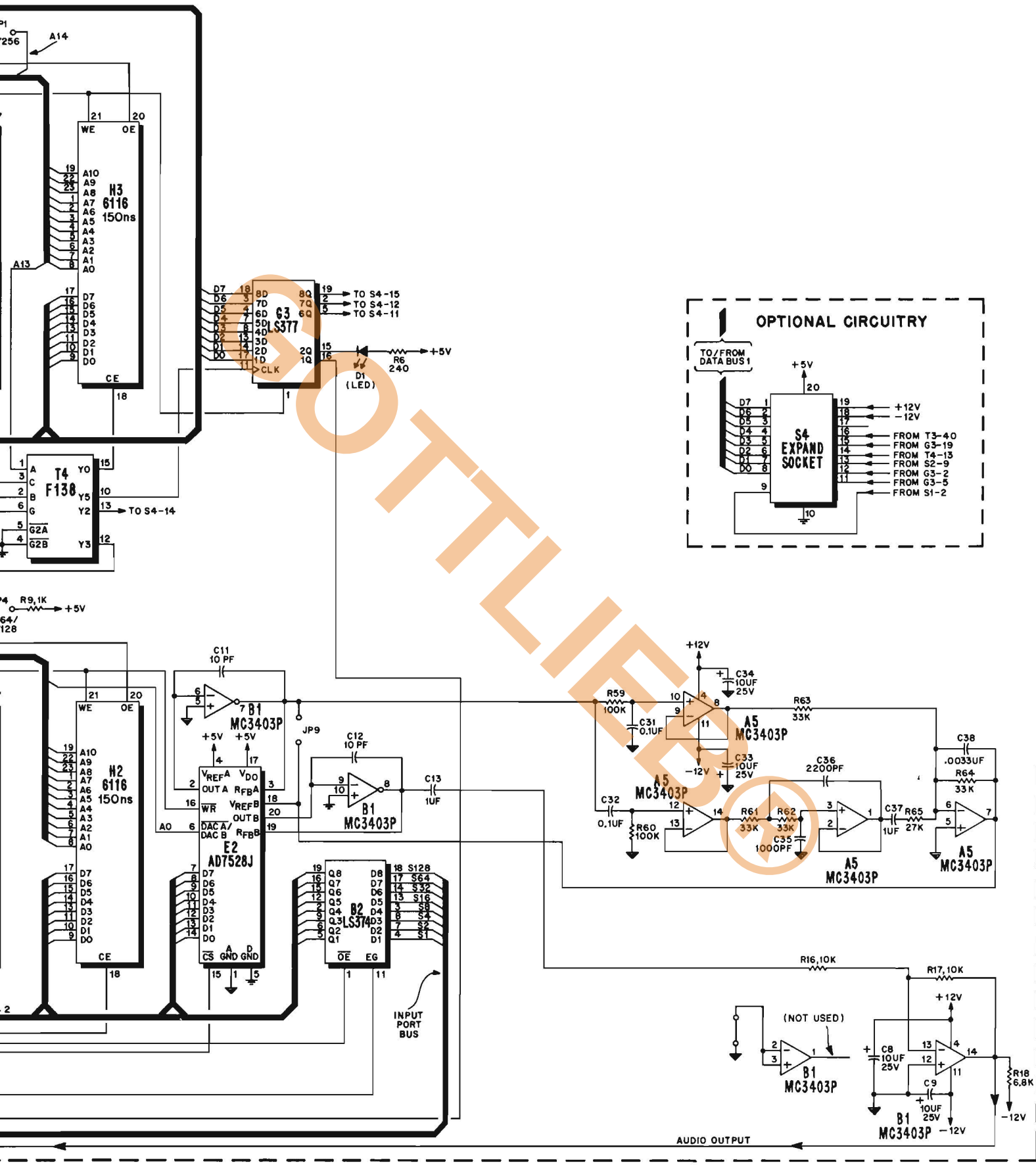


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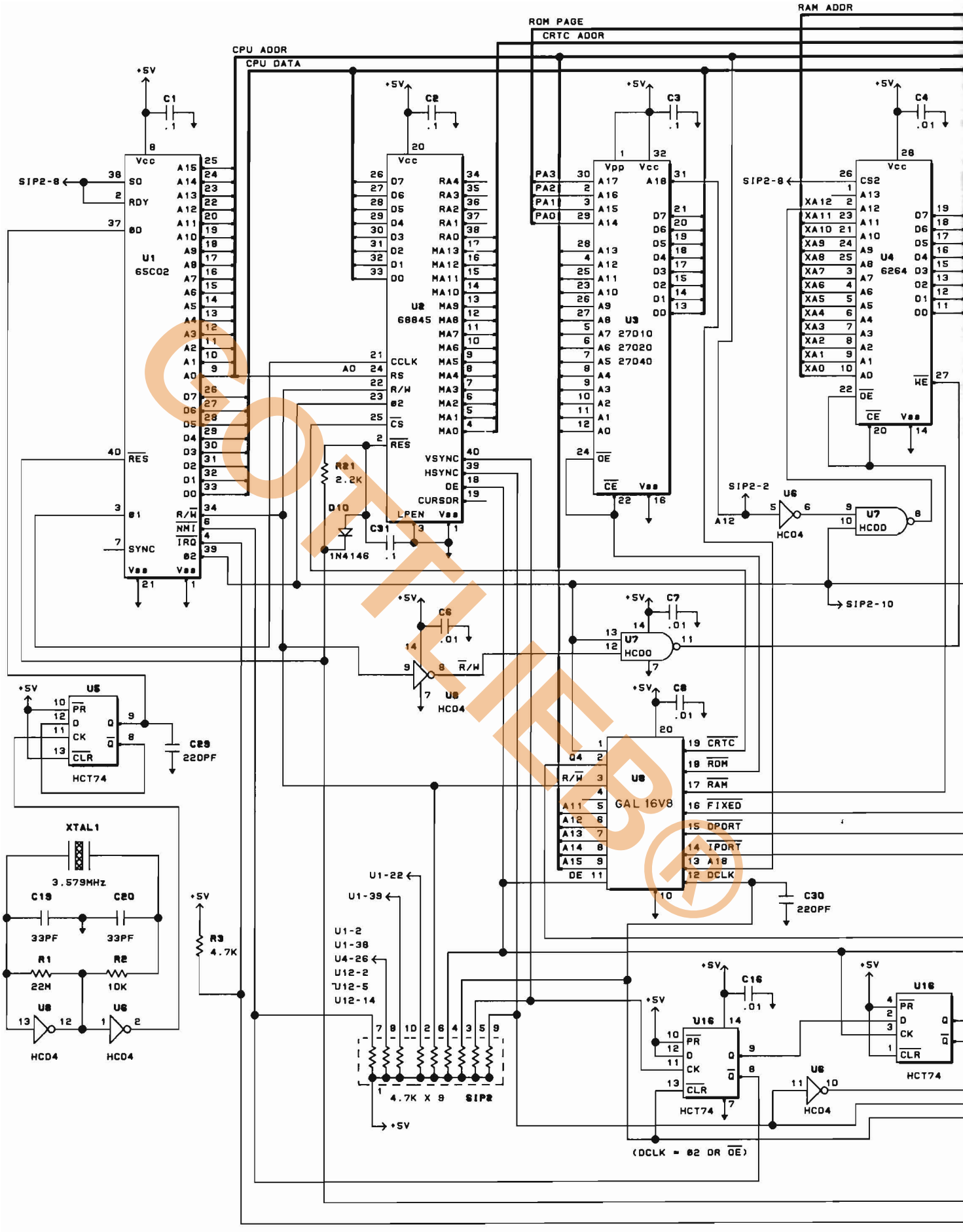


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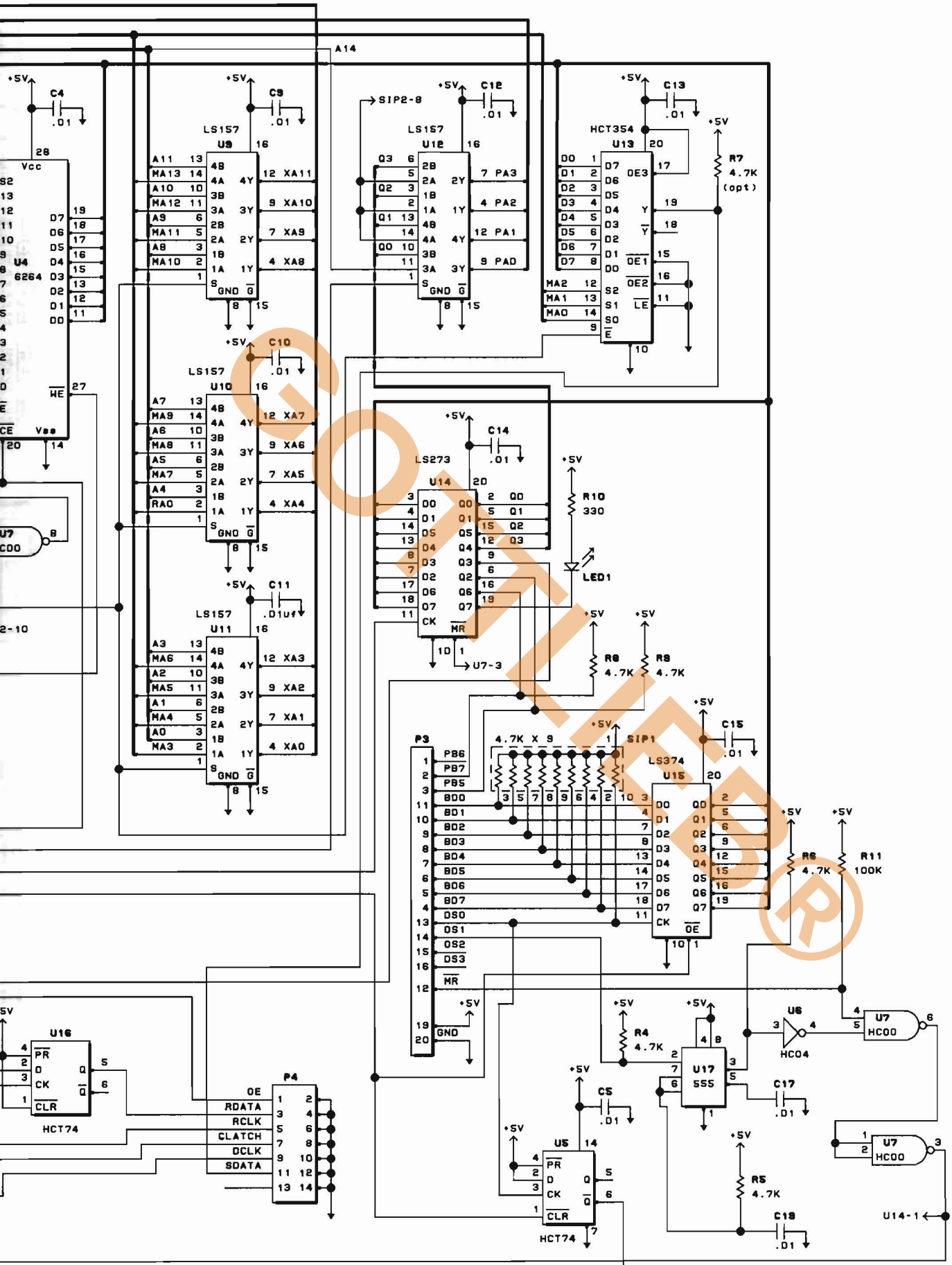
Technology	
BOARD (A6)	
ATIC DIAGRAM	
DATE 9-20-88	E-26146


A14
A13
H3
6116
150ns
WE
OE
CE
G3
LS377
TO S4-15
TO S4-12
TO S4-11
+5V
R6
240
D1
(LED)
T4
F138
TO S4-14
R9,1K
+5V
H2
6116
150ns
C11
10 PF
B1
MC3403P
JP9
C12
10 PF
C13
1UF
E2
AD7528J
B2
LS374
INPUT
PORT
BUS
OPTIONAL CIRCUITRY
TO/FROM
DATA BUS 1
S4
EXPAND
SOCKET
+12V
-12V
FROM T3-40
FROM G3-19
FROM T4-13
FROM S2-9
FROM G3-2
FROM G3-5
FROM S1-2
R59
100K
C31
0.1UF
C34
10UF
25V
R63
33K
A5
MC3403P
C33
10UF
25V
C32
0.1UF
R60
100K
C36
2200PF
R61
33K
R62
33K
C35
1000PF
C37
1UF
R65
27K
C38
.0033UF
R64
33K
R16,10K
R17,10K
(NOT USED)
C8
10UF
25V
C9
10UF
25V
R18
6.8K
AUDIO OUTPUT

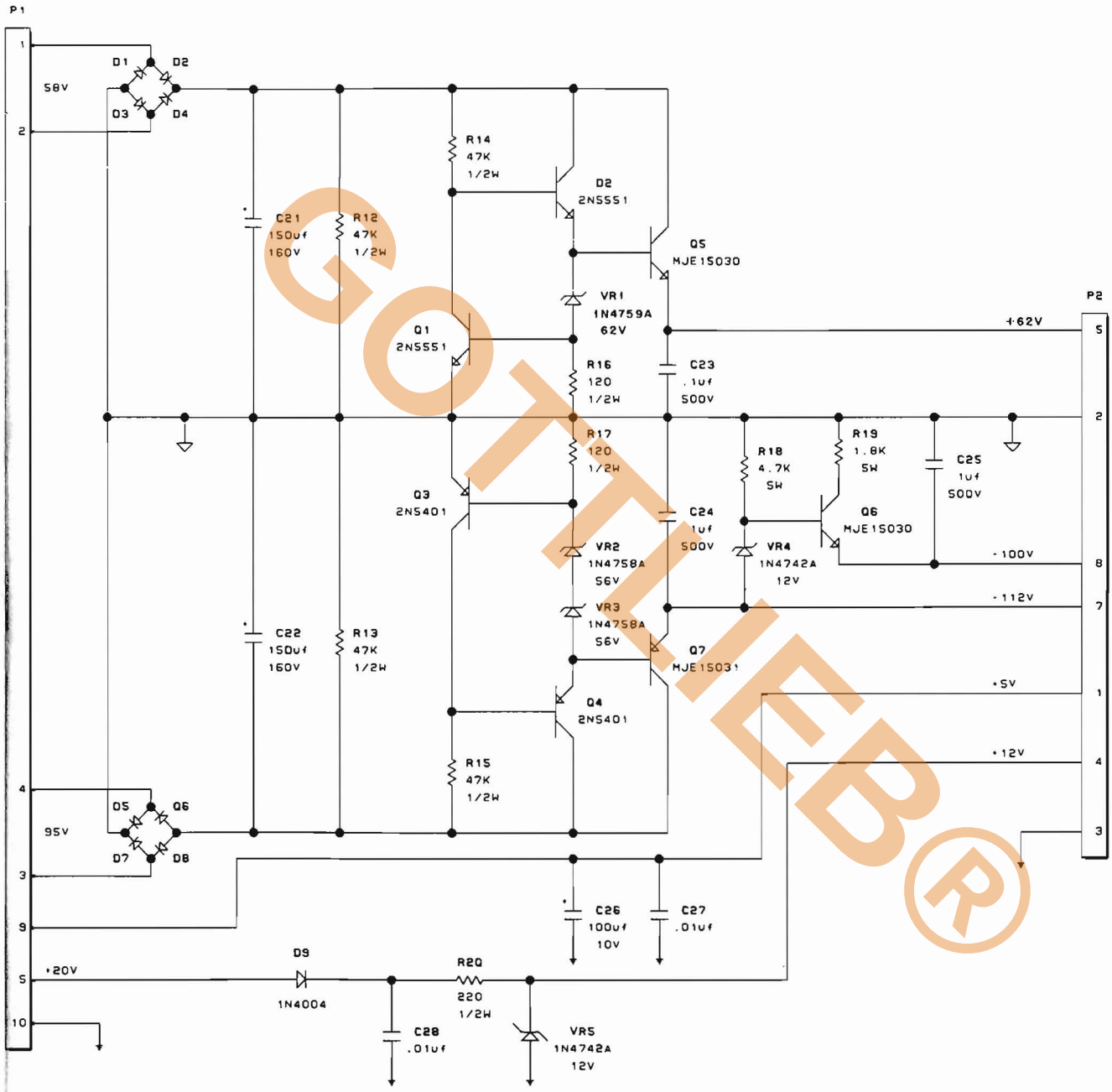
GOTTLIEB®


RAM ADDR
ROM PAGE
CRTC ADDR
CPU ADDR
CPU DATA
+5V
C1
.1
U1
6502
SIP2-8
RDY
RES
SYNC
R/W
NMI
IRQ
Vcc
Vss
U2
6845
CCLK
RS
R/W
CS
RES
VSYNC
HSYNC
DE
CURSOR
LPEN
R21
2.2K
D10
1N4146
C31
U3
27010
27020
27040
Vpp
OE
CE
U4
6264
WE
SIP2-2
U6
HC04
U7
HC00
SIP2-10
C6
C7
C8
U5
HCT74
PR
CK
CLR
C29
220PF
XTAL1
3.579MHz
C19
C20
33PF
R1
22M
R2
10K
R3
4.7K
U8
GAL 16V8
CRTC
ROM
RAM
FIXED
DPORT
IPORT
DCLK
C30
U1-22
U1-39
U1-2
U1-38
U4-26
U12-2
U12-5
U12-14
4.7K X 9
SIP2
C16
U16
HCT74
(DCLK = Φ2 OR OE)

COMPUTE!


A14
+5V
C4
.01
C9
C10
C11
C12
C13
C14
C15
LS157
U9
U10
U11
U12
HCT354
U13
LS273
U14
LS374
U15
U4
6264
R7
4.7K
(opt)
R10
330
LED1
R8
R9
R6
R11
100K
R4
R5
SIP1
SIP2-8
4.7K X 9
P3
P4
U16
HCT74
U5
U6
HC04
U7
HC00
U17
555
C5
C17
C18
OE
RDATA
RCLK
CLATCH
DCLK
SDATA
U14-1
U7-3

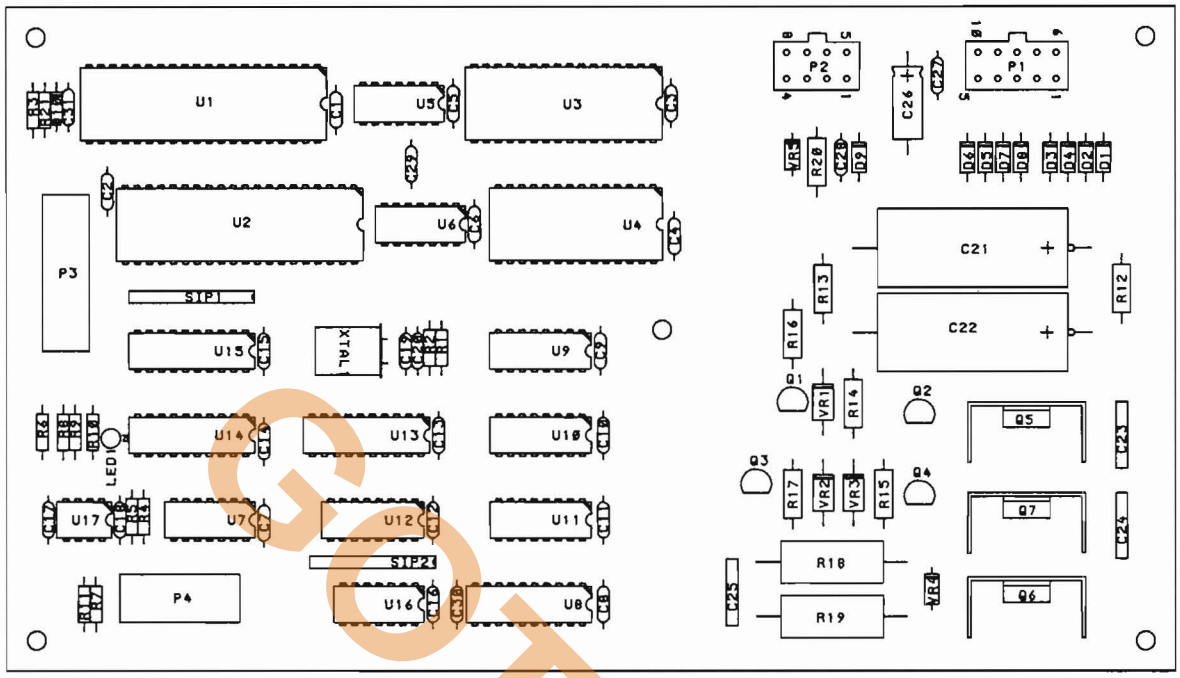
GO FIELD®



GOTTIEB®

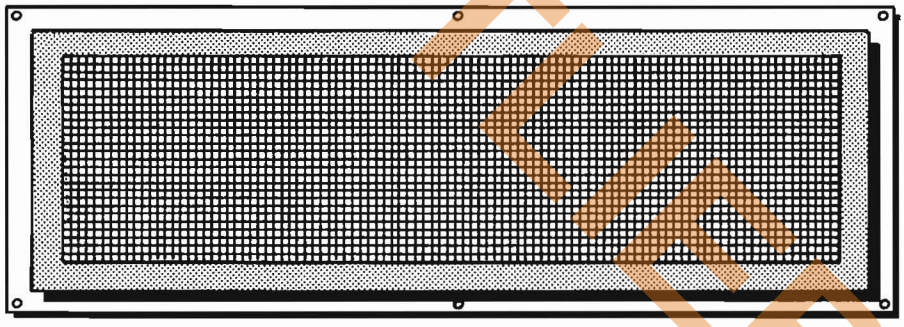
Premier Technology			
TITLE: DISPLAY CONTROLLER (A8) SCHEMATIC DIAGRAM			
DRAWN: C.B.	APPROVED: RHM	DATE: 4-8-92	MA-1739

DISPLAY CONTROLLER (A8) COMPONENT LOCATION

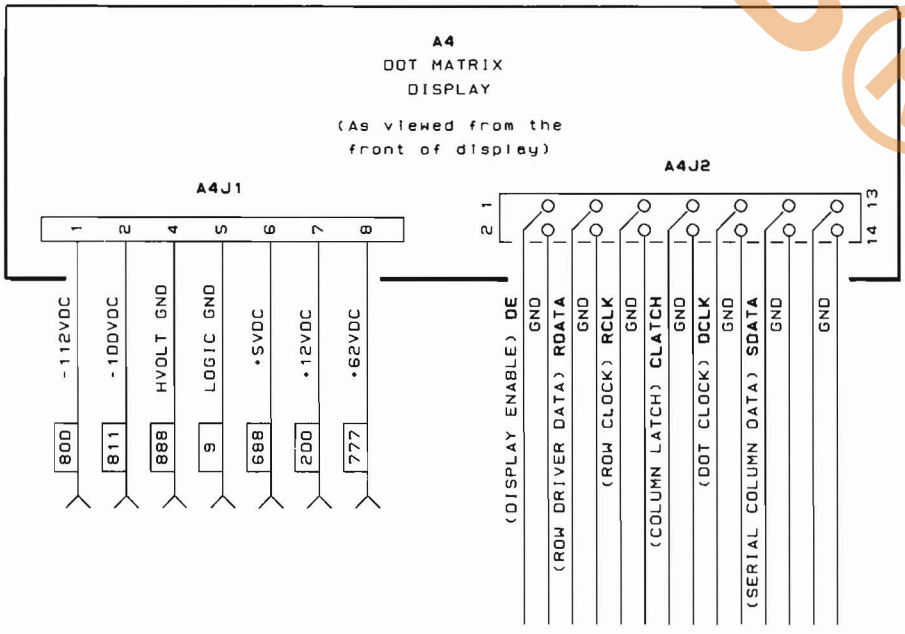


REFERENCE	DESCRIPT
A8	DISPLAY
C1-C3	CAPACITO
C4-C18	CAPACITO
C27, C28	
C19, C20	CAPACITO
C21, C22	CAPACITO
C23, C25	CAPACITO
C26	CAPACITO
C29, C30	CAPACITO
C31	CAPACITO
D1-D9	DIODE, 1
D10	DIODE, 1
LED 1	DIODE, L
Q1, Q2	TRANSIST
Q3, Q4	TRANSIST
Q5, Q6	TRANSIST
Q7	TRANSIST
R1	RESISTOR
R2	RESISTOR
R3-R6, R8, R9	RESISTOR
R10	RESISTOR
R11	RESISTOR
R12-R15	RESISTOR
R16-R17	RESISTOR
R18	RESISTOR
R19	RESISTOR
R20	RESISTOR
R21	RESISTOR
SIP1, SIP2	RESISTOR
U1	IC, 65C0
U2	IC, 68B4
U4	IC, 6264
U5,U16	IC, 74HC
U6	IC, 74HC
U7	IC, 74HC
U8	IC, GAL1
U9-U12	IC, 74LS
U13	IC, 74HC
U14	IC, 74LS
U15	IC, 74LS
U17	IC, NE55
VR1	DIODE, 5
VR2,VR3	DIODE, 5
VR4,VR5	DIODE, 5
XTAL1	CRYSTAL
P1	HEADER,
P2	HEADER,
P3	HEADER,
P4	HEADER,
	HEATSINK
	SOCKET,
	SOCKET,

DOT MATRIX DISPLAY (A4)



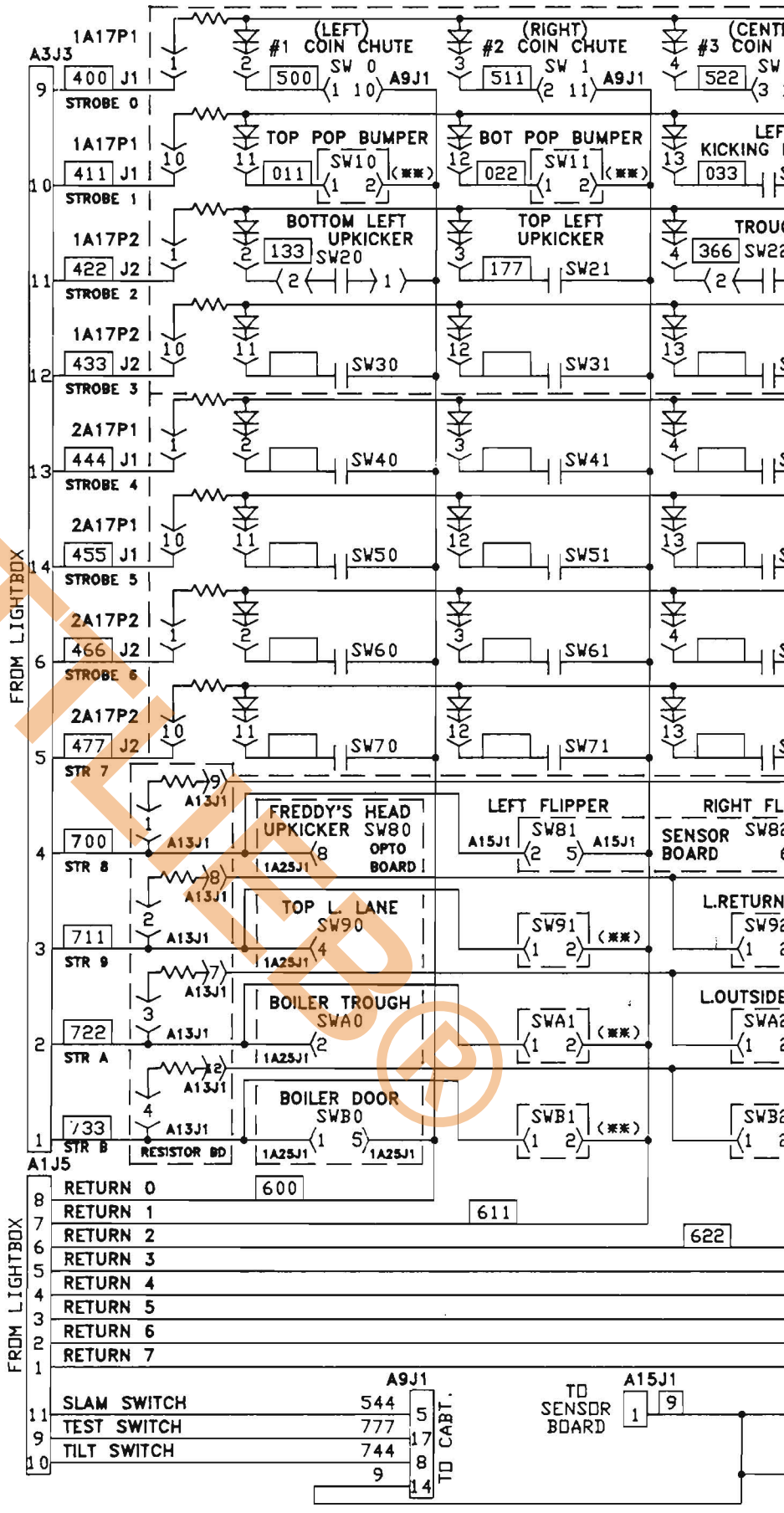
DESCRIPTION	PART NUMBER
DOT MATRIX DISPLAY	29151



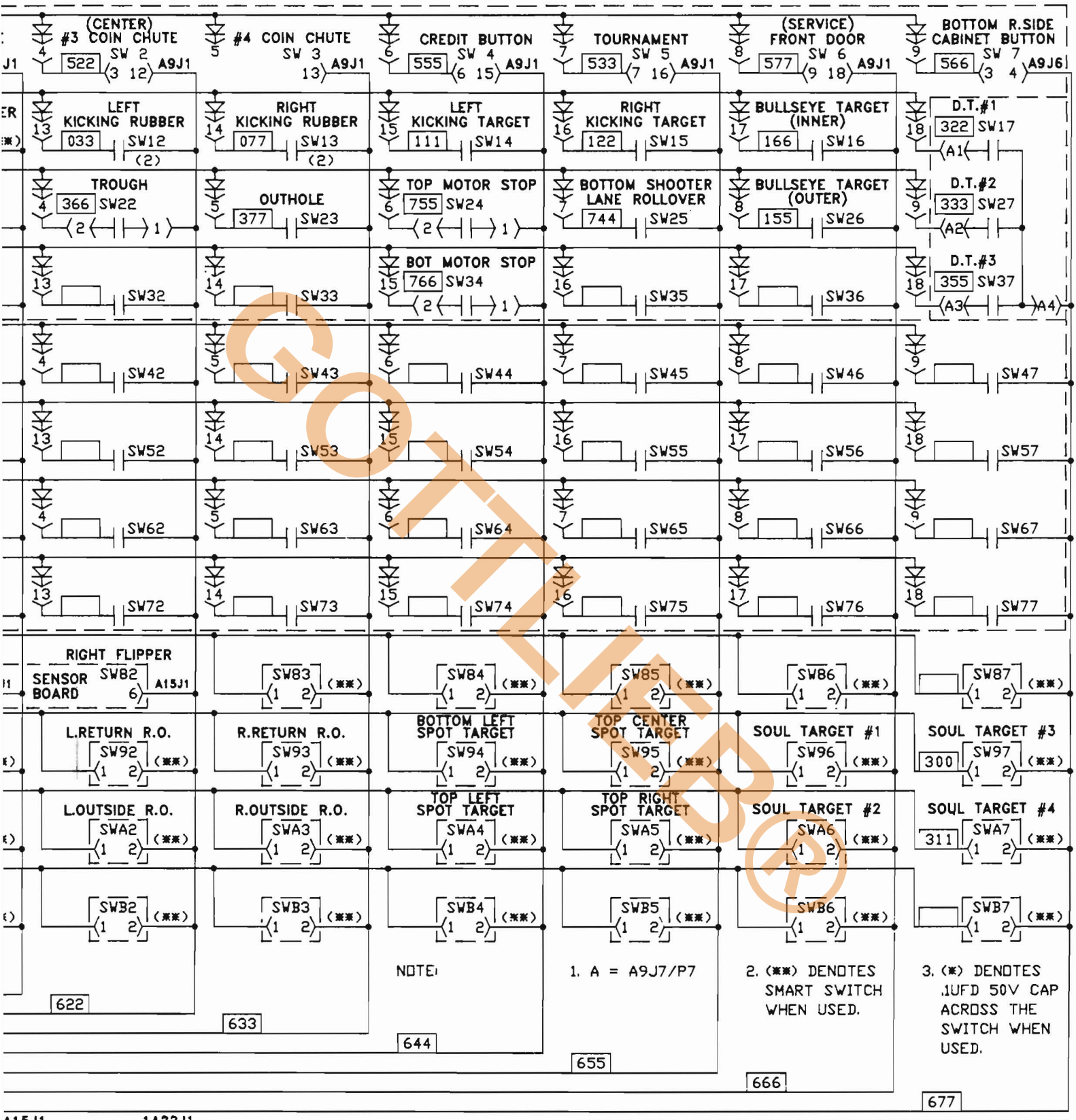
GOTEK®

SPLAY CONTROLLER (A8)
PARTS LIST

RIPTION	PART NUMBER
LAY CONTROLLER	MA-1739
CITOR, 0.1UF, +80%-20%	XO-230
CITOR, .01UF, +80%-20%	XO-229
CITOR, 33PF, 10%, 100V	XO-896
CITOR, 150UF, 160V	XO-1133
CITOR, 0.1UF, 500V	XO-886
CITOR, 100UF, 10V	XO-211
CITOR, 220PF, 10%, 100V	XO-694
CITOR, 0.1UF, 100V	XO-784
E, 1N4004	XO-254
E, 1N4148	XO-261
E, LED, RED, MV5752	XO-270
SISTOR, NPN, 2N5551	XO-1141
SISTOR, PNP, 2N5401	XO-1142
SISTOR, NPN, MJE15030	XO-1143
SISTOR, PNP, MJE15031	XO-1144
STOR, 22 MEGOHM, 5%, 1/4W	XO-74
STOR, 10K OHM, 5%, 1/4W	XO-18
STOR, 4.7K OHM, 5%, 1/4W	XO-7
STOR, 330 OHM, 5%, 1/4W	XO-34
STOR, 100K OHM, 5%, 1/4W	XO-45
STOR, 47K OHM, 5%, 1/4W	XO-1135
STOR, 120 OHM, 5%, 1/4W	XO-1136
STOR, 4.7K OHM, 5%, 5W	XO-1137
STOR, 1.8K OHM, 5%, 1/4W	XO-1138
STOR, 220 OHM, 5%, 1/4W	XO-185
STOR, 2.2K OHM, 5%, 1/4W	XO-27
STOR PACK, 4.7 OHM	XO-906
5C02P2, CPU, 2MHZ	XO-927
8B45, CONTROLLER	XO-1139
5264LP, RAM STAT 8K X 8	XO-781
4HCT74, DUAL "D" FLIP-FLOP	XO-889
4HC04, INVERTER	XO-888
4HC00, QUAD "NAND" GATES	XO-782
AL16V8-25L	U8-G
4LS157, QUAD 1 OF 2 MULTIPLEXER	XO-390
4HCT354, 1 OF 8 MULTIPLEXER	XO-1140
4LS273, OCTAL DATA LATCH	XO-94
4LS374, OCTAL "D" FLIP-FLOP	XO-96
E555, TIMER	XO-631
E, ZENER, 1N4759A, 62V, 5%	XO-267
E, ZENER, 1N4758A, 56V, 5%	XO-1164
E, ZENER, 1N4742A, 12V, 5%	XO-257
TAL, 3.579MHZ	XO-1166
ER, 10 POSITION	XO-912
ER, 8 POSITION	XO-911
ER, 20 POSITION, RIBBON	XO-940
ER, 14 POSITION, RIBBON	XO-1134
SINK, 6038	XO-472
CT, 32 PIN	XO-1036
CT, 20 PIN	XO-491



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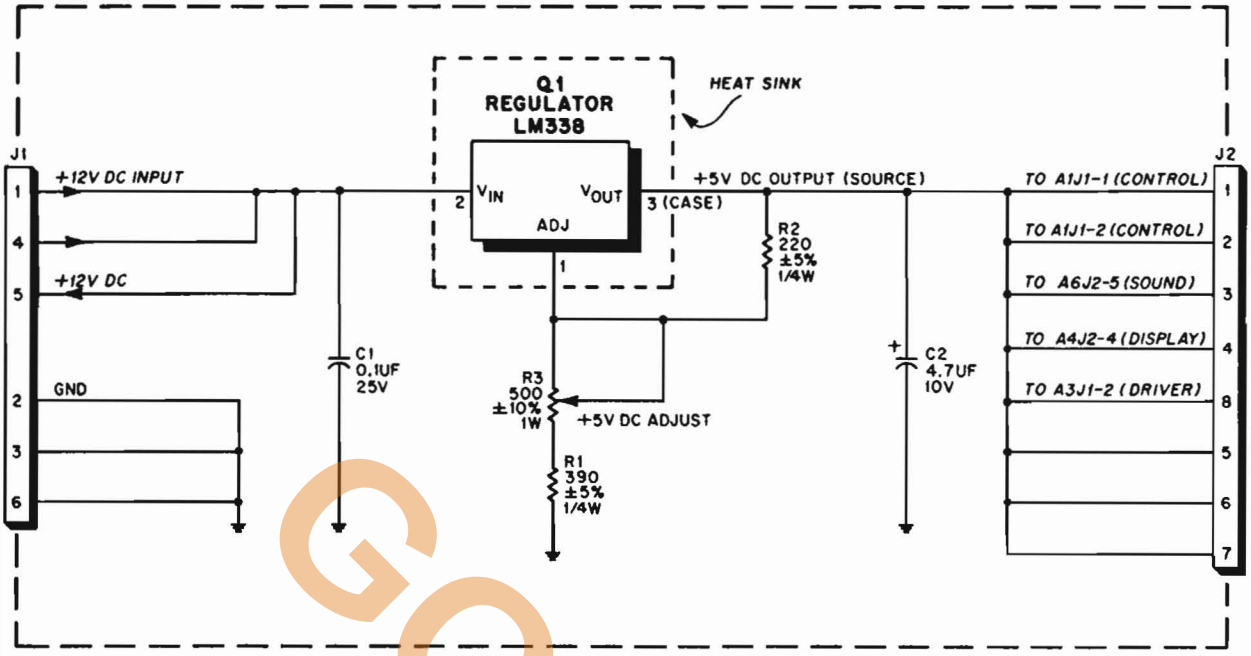


COLOR CODE			
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2	RED	7	VIOLET
3	ORANGE	8	GRAY
4	YELLOW	9	WHITE

Premier Technology

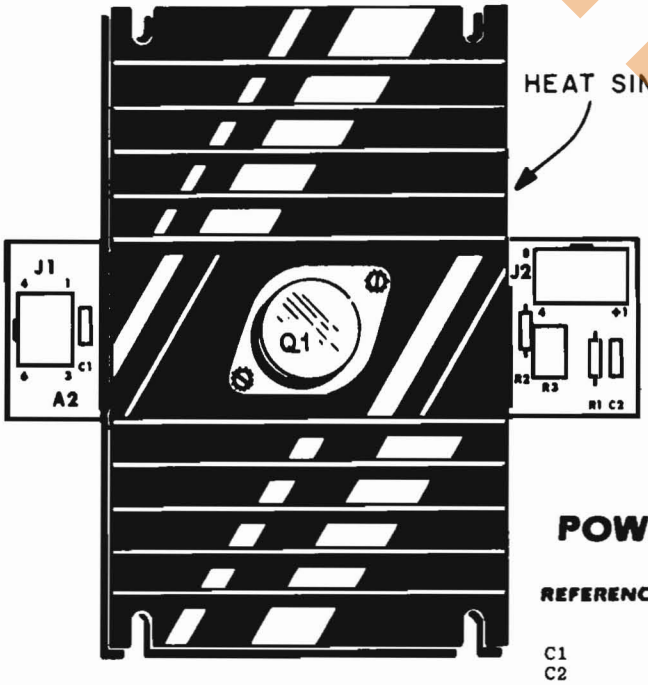
TITLE			
SWITCH MATRIX SCHEMATIC DIAGRAM			
USED ON	DRAWN	DATE	
#744	RLM	07-20-94	30953

GOTTLIEB®



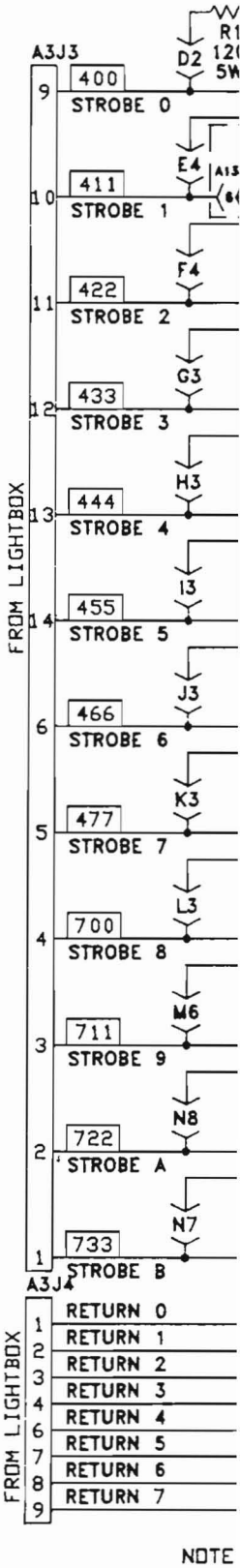
Premier Technology			
TITLE: POWER SUPPLY (A2) SCHEMATIC DIAGRAM			
DRAWN: A.P.B.	APPROVED: RHM	DATE: 12 FEB 85	E-24441

POWER SUPPLY (A2) COMPONENT LOCATION



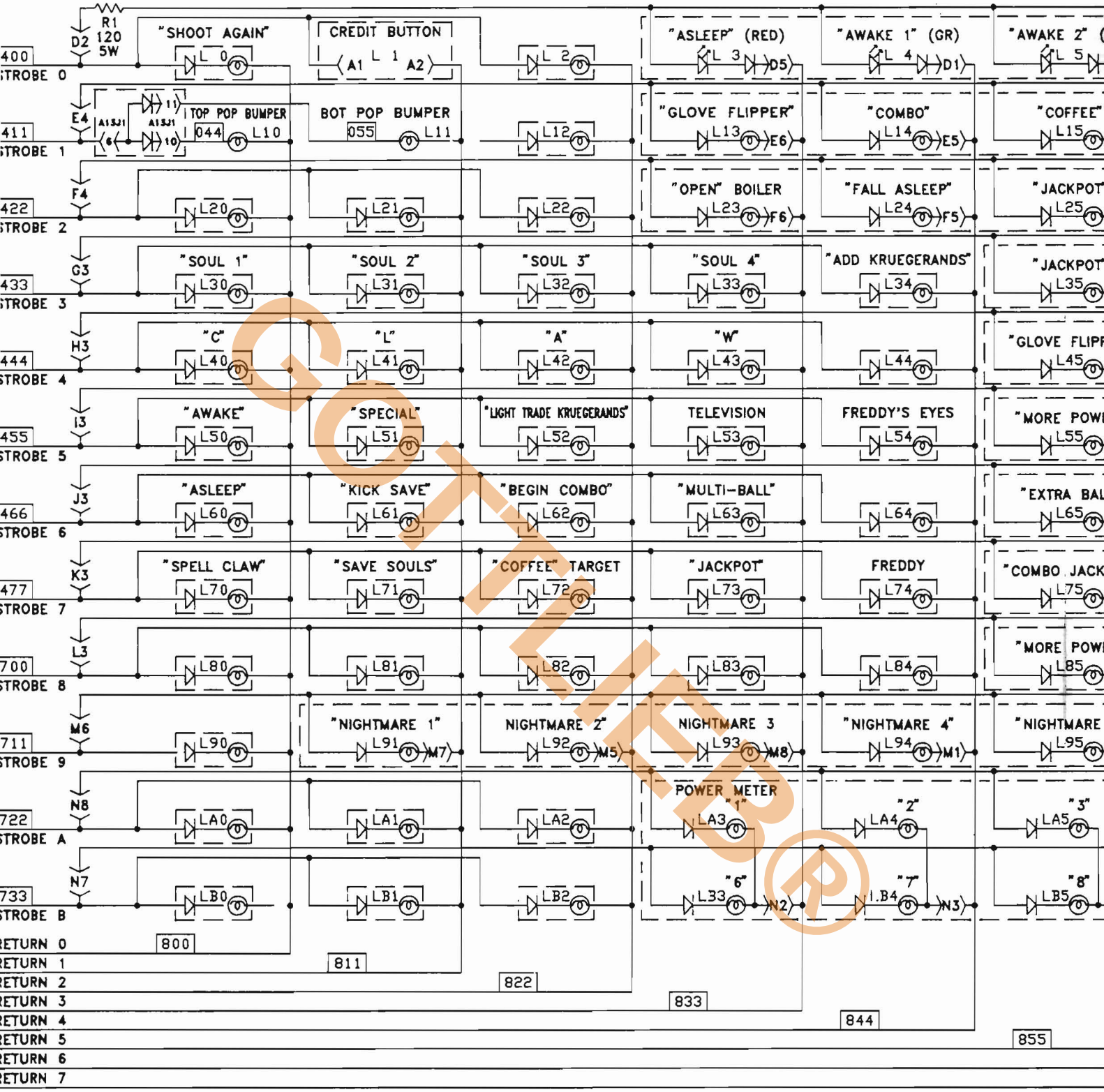
POWER SUPPLY (A2) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	Power Supply (A2)	MA-1359
C1	Capacitor, 0.1UF, +80% -20%, 50V	XO-230
C2	Capacitor, 4.7UF, 10% 10V	XO-226
J1	Header, 6 Position	XO-910
J2	Header, 8 Position	XO-911
Q1	Regulator, LM338, (5 Amp)	XO-839
R1	Resistor, 390 Ohm, 5%, 1/4W	XO-845
R2	Resistor, 220 Ohm, 5%, 1/4W	XO-21
R3	Resistor, (Pot) 500 Ohm, 10%, 1W	XO-112
	Heat Sink	XO-534
	Insulator (Regulator)	XO-522
	Insulator (Regulator)	XO-523



NOTE

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NOTE: 1. ALL LAMP DIODES ARE TYPE 1N4004.

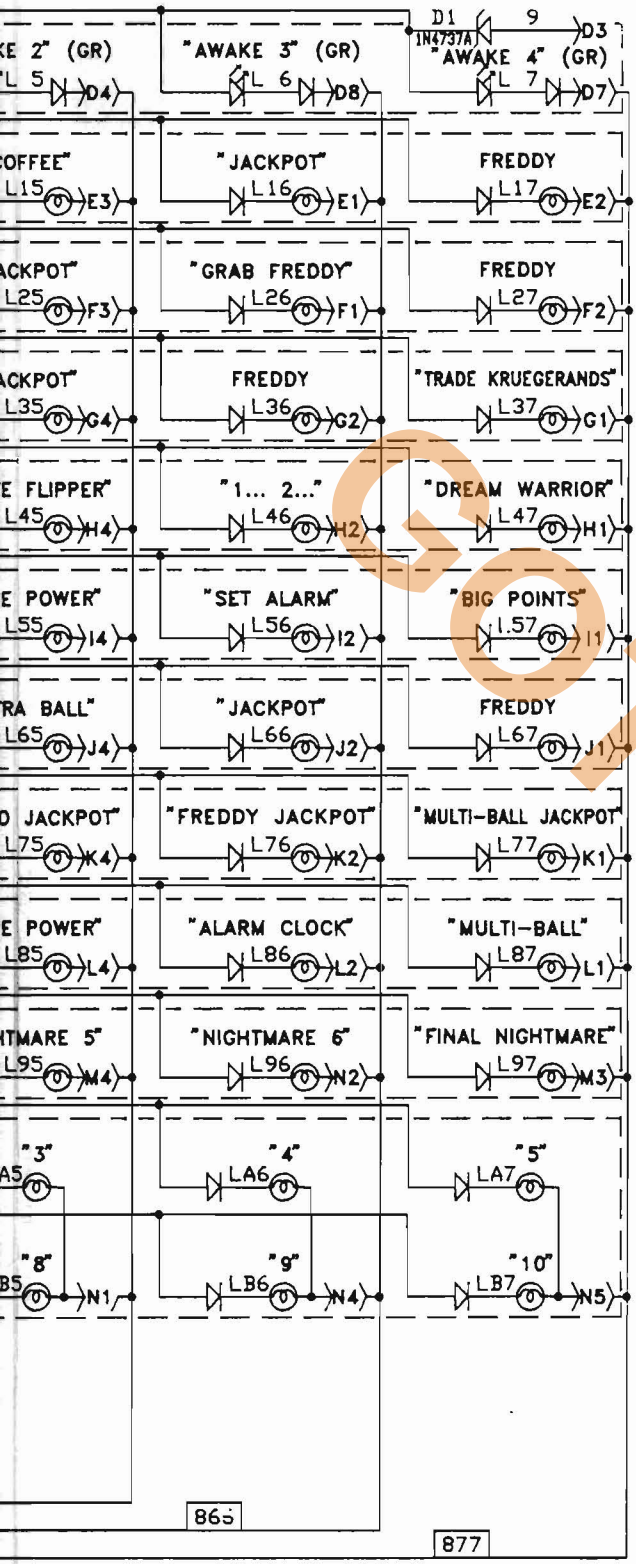
2. ALL LAMPS ARE TYPE #44.

2. A = A9J6

D = 1A22J1 H = 5A22J1 L = 9A22J1
E = 2A22J1 I = 6A22J1 M = 10A22J1
F = 3A22J1 J = 7A22J1 N = 11A22J1
G = 4A22J1 K = 8A22J1

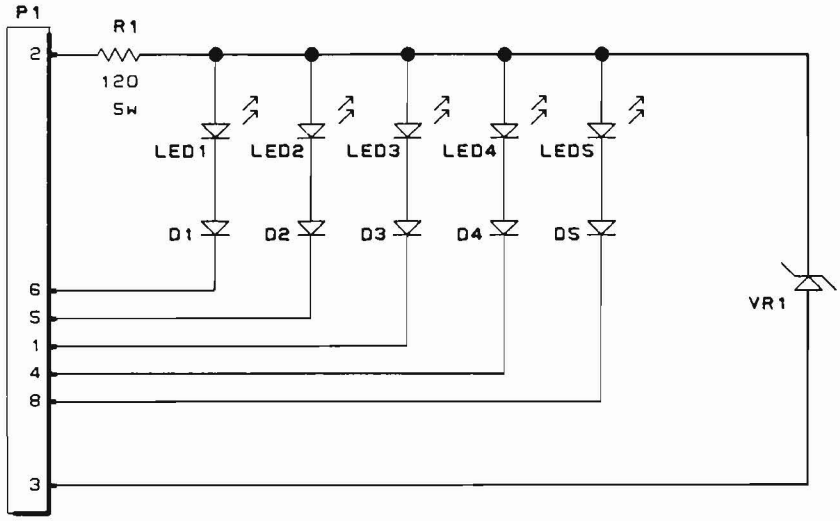
COLOR	
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1	BROWN
2	RED
3	ORANGE
4	YELLOW

GOTTLIEB®



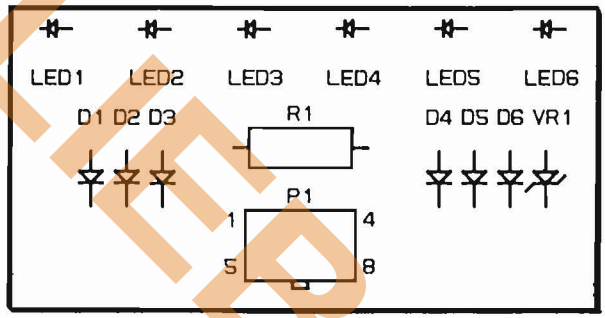
COLOR CODE			
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BROWN	6	BLUE
RED	7	VIOLET
ORANGE	8	GRAY
YELLOW	9	WHITE

Premier Technology			
TITLE: LAMP MATRIX SCHEMATIC DIAGRAM			
USED ON: #744	DRAWN: RLM	DATE: 07-20-94	30954



Premier Technology			
TITLE: LED BOARD (A22) SCHEMATIC DIAGRAM			
DRAWN: R.W.	APPROVED: R.W.	DATE: 7-15-92	MA-2094

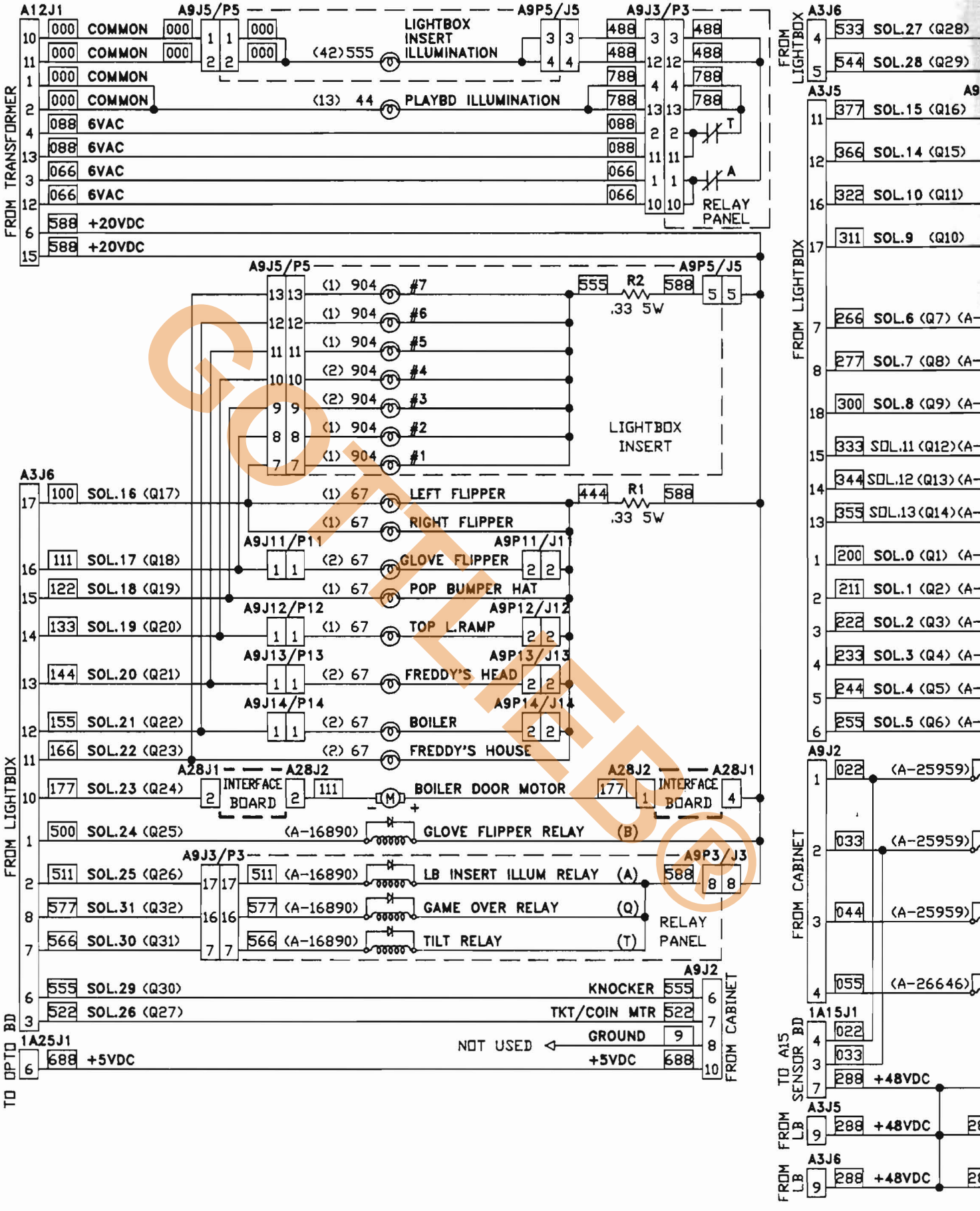
LED BOARD (1A22) COMPONENT LOCATION



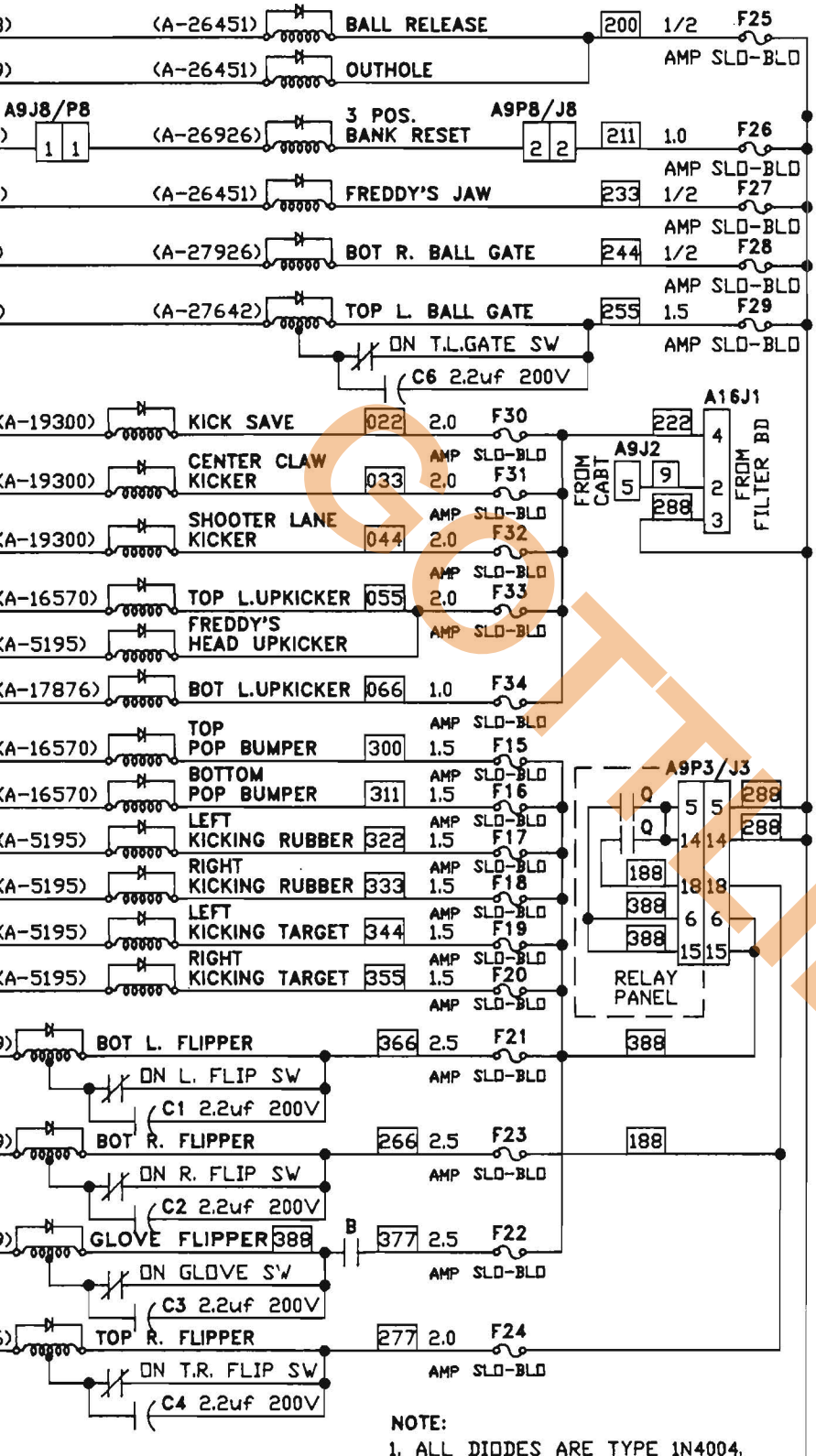
LED BOARD (1A22) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	LED Board Assembly (1A22)	MA-2094
D1-D5	Diode, 1N4004	XO-254
LED 1	Diode, LED, Red	XO-865
LED 2-5	Diode, LED, Green	XO-866
R1	Resistor, 120 OHM, 5%, 5W	XO-1042
VR1	Diode, Zener, 1N4737A, 7.5V	XO-844
P1	Header, 8 Position	XO-911

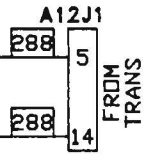
GOTTLIEB®


A12J1
A9J5/P5
A9P5/J5
A9J3/P3
FROM TRANSFORMER
COMMON
6VAC
+20VDC
LIGHTBOX INSERT ILLUMINATION
PLAYBD ILLUMINATION
RELAY PANEL
LIGHTBOX INSERT
LEFT FLIPPER
RIGHT FLIPPER
GLOVE FLIPPER
POP BUMPER HAT
TOP L.RAMP
FREDDY'S HEAD
BOILER
FREDDY'S HOUSE
BOILER DOOR MOTOR
GLOVE FLIPPER RELAY
LB INSERT ILLUM RELAY
GAME OVER RELAY
TILT RELAY
KNOCKER
TKT/COIN MTR
GROUND
NOT USED
+5VDC
A28J1
A28J2
INTERFACE BOARD
A9J11/P11
A9P11/J11
A9J12/P12
A9P12/J12
A9J13/P13
A9P13/J13
A9J14/P14
A9P14/J14
A9J2
A3J6
A3J5
FROM LIGHTBOX
FROM CABINET
TO OPTO BD
1A25J1
TO A15 SENSOR BD
1A15J1
FROM LB

GOTEK®

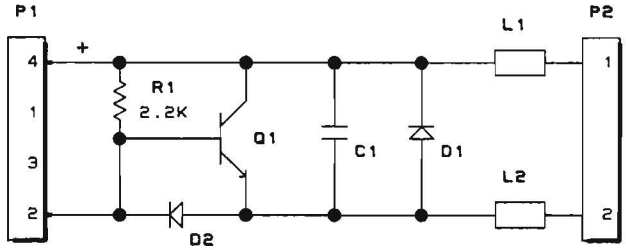


NOTE:
1. ALL DIODES ARE TYPE 1N4004.



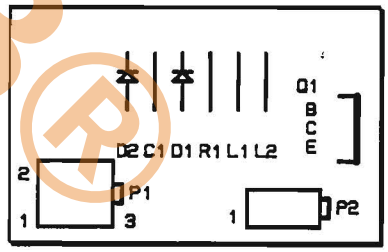
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1	BROWN	6	BLUE
2	RED	7	VIOLET
3	ORANGE	8	GRAY
4	YELLOW	9	WHITE

Premier Technology			
TITLE: PLAYBOARD SCHEMATIC DIAGRAM			
USED ON #744	DRAWN RLM	DATE 07-20-94	30955



Premier Technology			
TITLE: MOTOR INTERFACE BOARD (A28) SCHEMATIC DIAGRAM			
DRAWN J.B.	APPROVED J.B.	DATE JAN.9'94	MA-2026

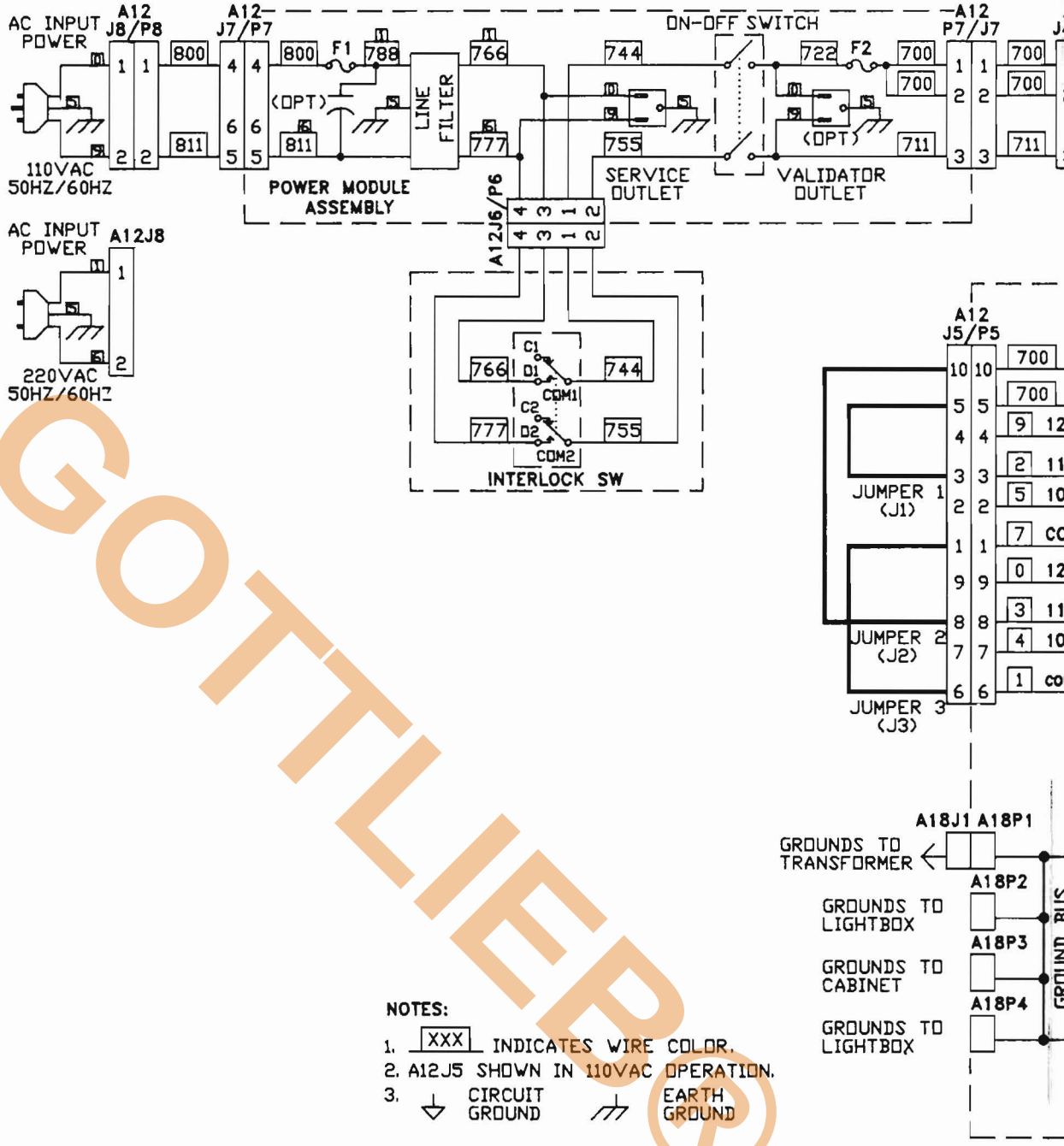
MOTOR INTERFACE BOARD (A28) COMPONENT LOCATION



MOTOR INTERFACE BOARD (A28) PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER
	MOTOR INTERFACE BOARD	MA-2026
C1	CAPACITOR, .01UF, 50V	XO-229
D1,D2	DIODE, 1N4004	XO-254
L1,L2	FERRITE BEAD	XO-338
P1	HEADER, 4 POSITION	XO-909
P2	HEADER, 2 POSITION	XO-908
Q1	TRANSISTOR, NPN, TIP120	XO-1084
R1	RESISTOR, 2.2K OHM, 5%, 1/4W	XO-27
	SPACER, (3)	23984

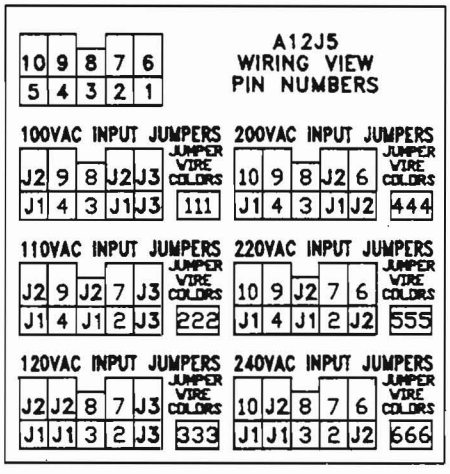
GOTTLIEB®



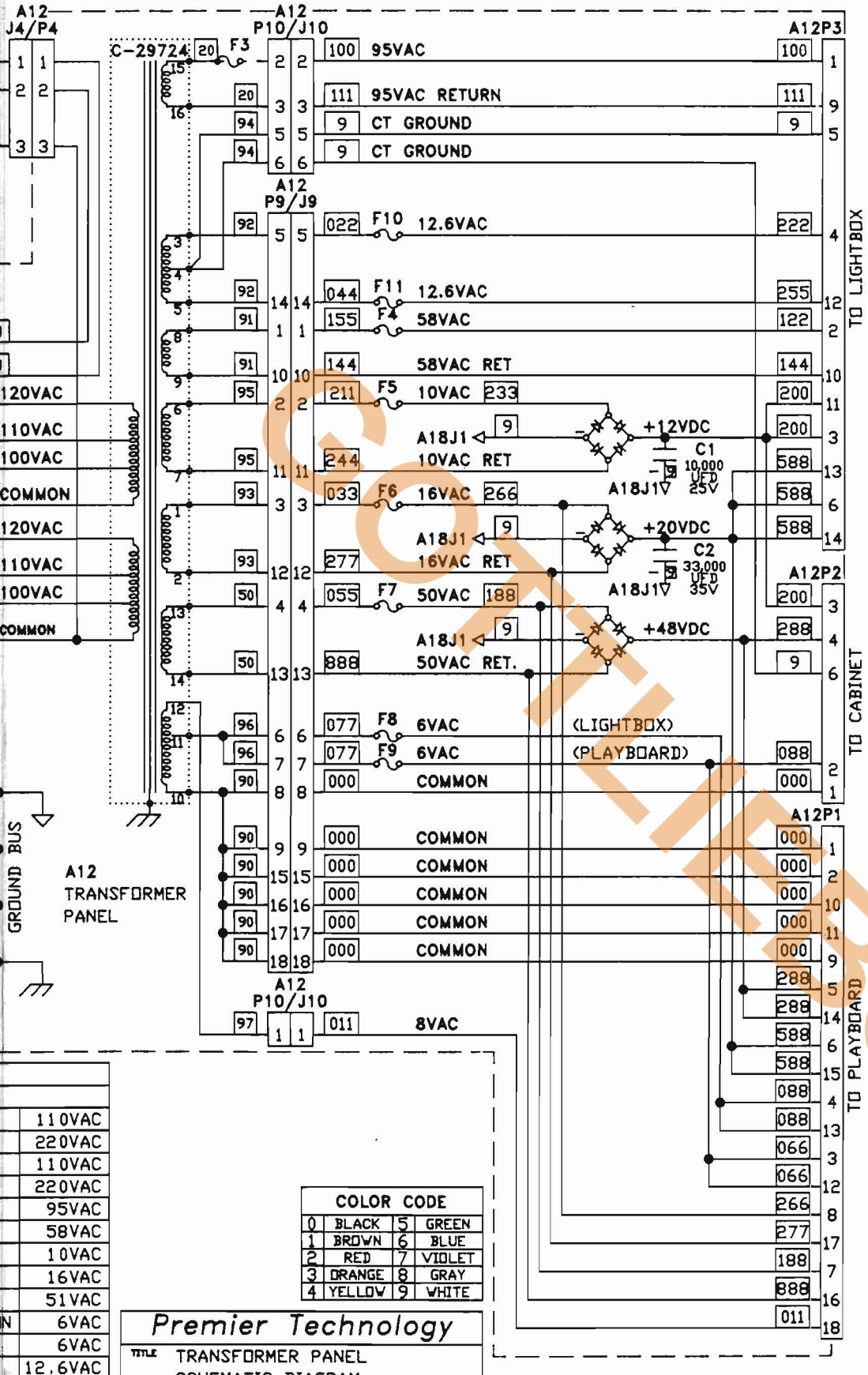
NOTES:

1. XXX INDICATES WIRE COLOR.
2. A12J5 SHOWN IN 110VAC OPERATION.
3. CIRCUIT GROUND, EARTH GROUND

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FUSE DESIGNATIONS TABLE			
FUSE	RATING	PART NO.	USAGE
F1	8.0A SLO-BLO	EL26	LINE INPUT
	4.0A SLO-BLO	EL33	LINE INPUT
F2	5.0A SLO-BLO	EL 8	PRIMARY POWER
	2.5A SLO-BLO	EL21	PRIMARY POWER
F3	3/8A SLO-BLO	EL31	DISPLAY
F4	3/8A SLO-BLO	EL31	DISPLAY
F5	2.5A SLO-BLO	EL21	POWER SUPPLY
F6	10 A SLO-BLO	EL36	CONTROLLED LAMPS
F7	8.0A SLO-BLO	EL26	SOLENOIDS
F8	15 A	EL25	LIGHTBOX INSERT ILLUMINATION
F9	7.5A	EL22	PLAYBOARD ILLUMINATION
F10	3.0A SLO-BLO	EL 9	AUXILLIARY POWER SUPPLY
F11	3.0A SLO-BLO	EL 9	AUXILLIARY POWER SUPPLY
F12			



	110VAC
	220VAC
	110VAC
	220VAC
	95VAC
	58VAC
	10VAC
	16VAC
	51VAC
N	6VAC
	6VAC
	12.6VAC
	12.6VAC

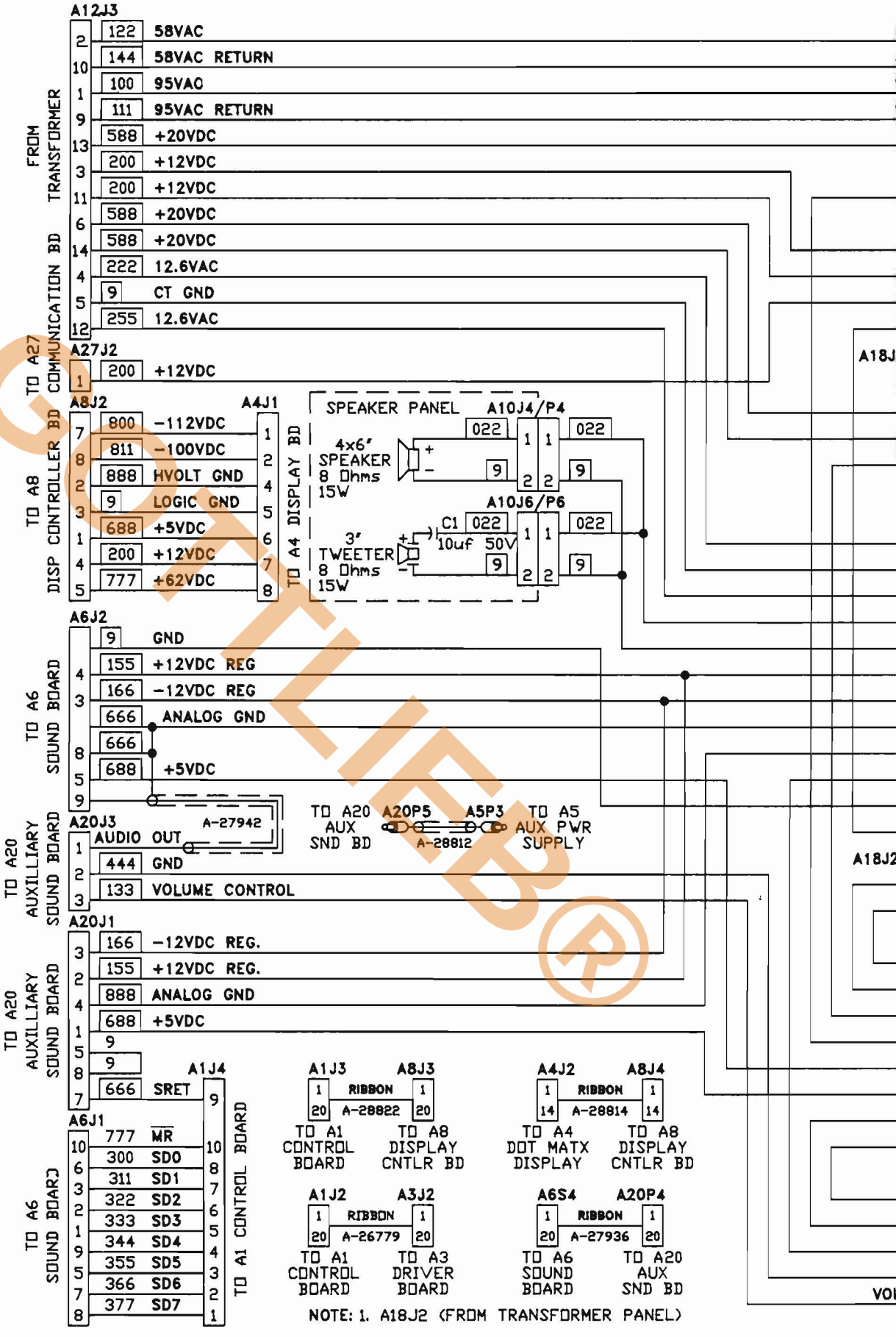
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1	BROWN	6	BLUE
2	RED	7	VIOLET
3	ORANGE	8	GRAY
4	YELLOW	9	WHITE

Premier Technology

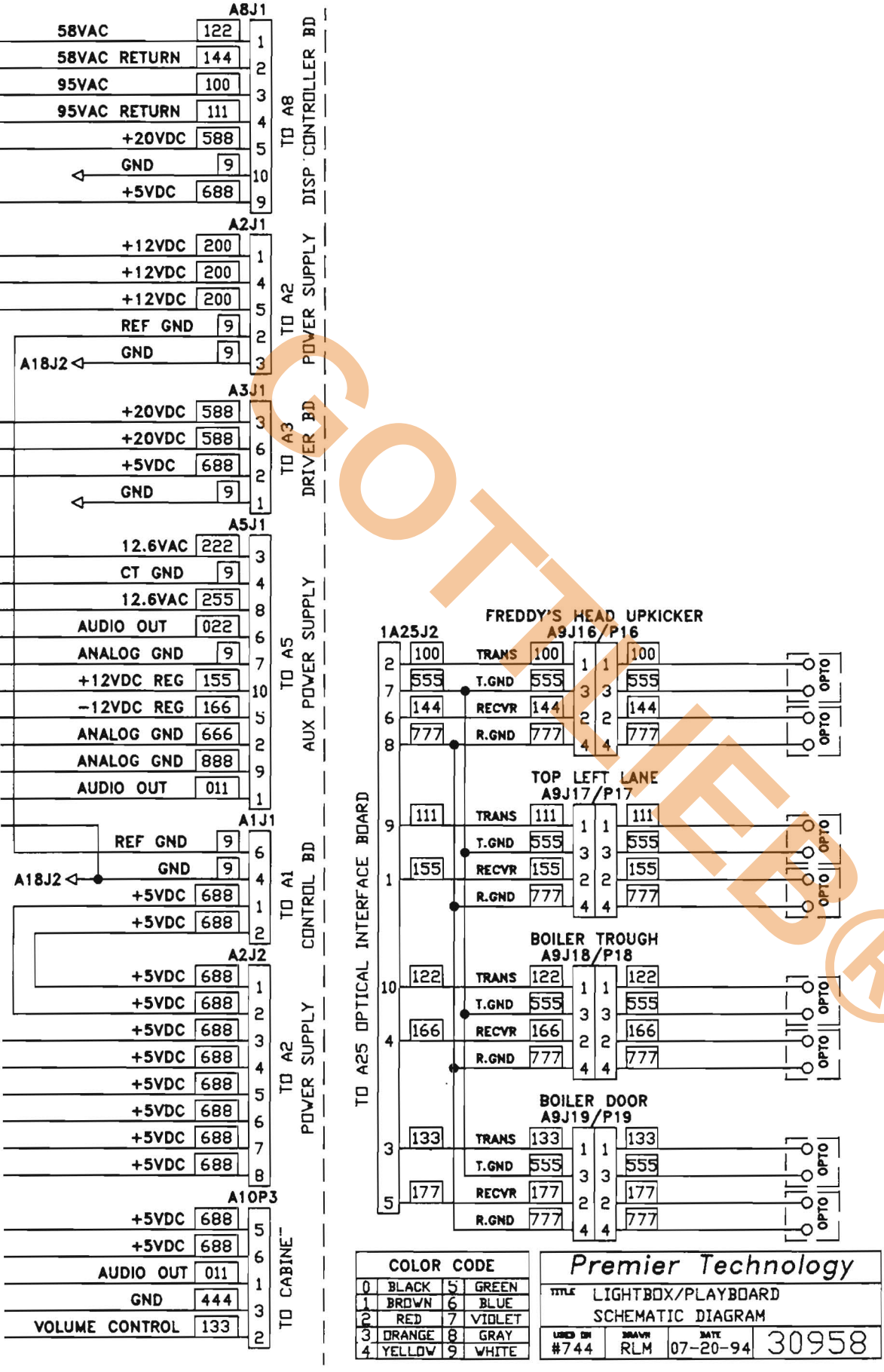
TITLE TRANSFORMER PANEL SCHEMATIC DIAGRAM

USED ON	DRAWN	DATE	
#744	RLM	07-20-94	30956

SOFTLIFER®


A12J3
FROM TRANSFORMER
122 58VAC
144 58VAC RETURN
100 95VAC
111 95VAC RETURN
588 +20VDC
200 +12VDC
200 +12VDC
588 +20VDC
588 +20VDC
222 12.6VAC
9 CT GND
255 12.6VAC
TO A27 COMMUNICATION BD
A27J2
200 +12VDC
TO A8 DISP CONTROLLER BD
A8J2
800 -112VDC
811 -100VDC
888 HVOLT GND
9 LOGIC GND
688 +5VDC
200 +12VDC
777 +62VDC
A4J1
TO A4 DISPLAY BD
SPEAKER PANEL
A10J4/P4
4x6" SPEAKER 8 Ohms 15W
A10J6/P6
3" TWEETER 8 Ohms 15W
C1 10uf 50V
022
9
TO A6 SOUND BOARD
A6J2
9 GND
155 +12VDC REG
166 -12VDC REG
666 ANALOG GND
666
688 +5VDC
TO A20 AUXILLIARY SOUND BOARD
A20J3
AUDIO OUT
A-27942
444 GND
133 VOLUME CONTROL
TO A20 AUX SND BD
A20P5
A-28812
A5P3
TO A5 AUX PWR SUPPLY
A20J1
166 -12VDC REG.
155 +12VDC REG.
888 ANALOG GND
688 +5VDC
9
9
666 SRET
A1J4
TO A1 CONTROL BOARD
TO A6 SOUND BOARD
A6J1
777 MR
300 SD0
311 SD1
322 SD2
333 SD3
344 SD4
355 SD5
366 SD6
377 SD7
A1J3
A8J3
RIBBON
A-28822
TO A1 CONTROL BOARD
TO A8 DISPLAY CNTLR BD
A4J2
A8J4
RIBBON
A-28814
TO A4 DOT MATX DISPLAY
TO A8 DISPLAY CNTLR BD
A1J2
A3J2
RIBBON
A-26779
TO A1 CONTROL BOARD
TO A3 DRIVER BOARD
A6S4
A20P4
RIBBON
A-27936
TO A6 SOUND BOARD
TO A20 AUX SND BD
NOTE: 1. A18J2 (FROM TRANSFORMER PANEL)
A18J
A18J2
VOL

GOTLIEB®



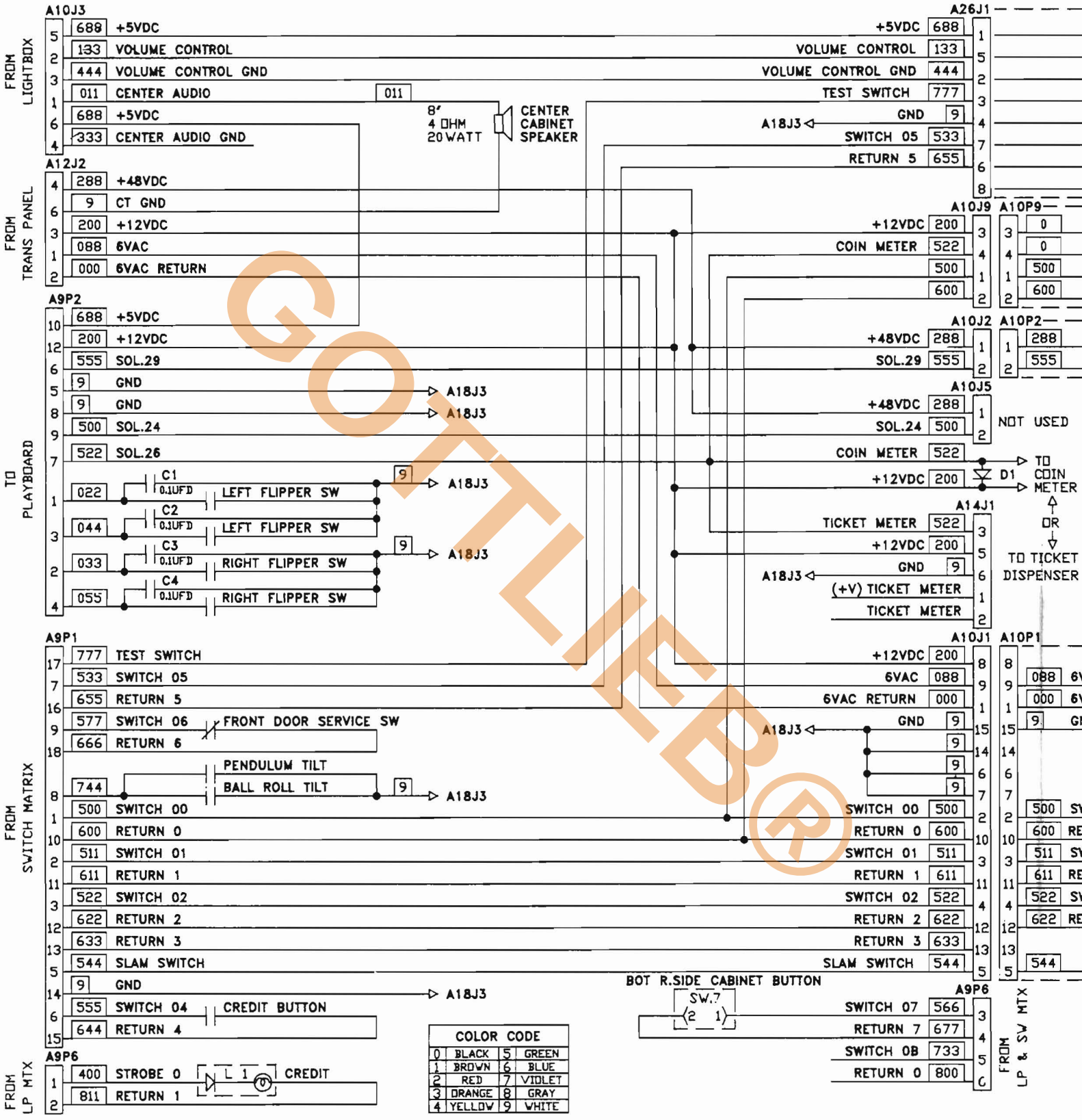
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1	BROWN	6	BLUE
2	RED	7	VIOLET
3	ORANGE	8	GRAY
4	YELLOW	9	WHITE

Premier Technology

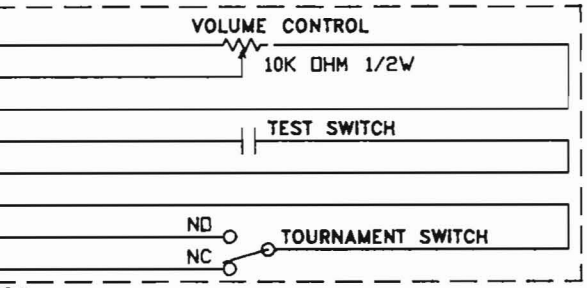
TITLE: LIGHTBOX/PLAYBOARD SCHEMATIC DIAGRAM

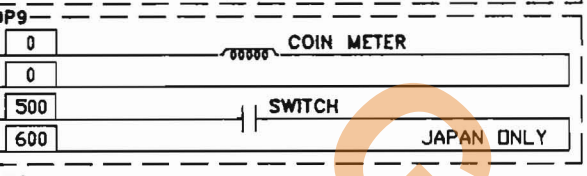
USED ON	DRAWN	DATE	
#744	RLM	07-20-94	30958

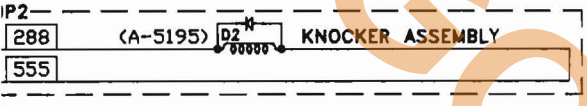
SCOTTED®


A10J3
FROM LIGHTBOX
688 +5VDC
133 VOLUME CONTROL
444 VOLUME CONTROL GND
011 CENTER AUDIO
688 +5VDC
333 CENTER AUDIO GND
011
8" 4 OHM 20 WATT
CENTER CABINET SPEAKER
A12J2
FROM TRANS PANEL
288 +48VDC
9 CT GND
200 +12VDC
088 6VAC
000 6VAC RETURN
A9P2
TO PLAYBOARD
688 +5VDC
200 +12VDC
555 SOL.29
9 GND
9 GND
500 SOL.24
522 SOL.26
C1 0.1UFD 022 LEFT FLIPPER SW
C2 0.1UFD 044 LEFT FLIPPER SW
C3 0.1UFD 033 RIGHT FLIPPER SW
C4 0.1UFD 055 RIGHT FLIPPER SW
9 A18J3
9 A18J3
A9P1
FROM SWITCH MATRIX
777 TEST SWITCH
533 SWITCH 05
655 RETURN 5
577 SWITCH 06
FRONT DOOR SERVICE SW
666 RETURN 6
PENDULUM TILT
744
BALL ROLL TILT
9 A18J3
500 SWITCH 00
600 RETURN 0
511 SWITCH 01
611 RETURN 1
522 SWITCH 02
622 RETURN 2
633 RETURN 3
544 SLAM SWITCH
9 GND A18J3
555 SWITCH 04
CREDIT BUTTON
644 RETURN 4
A9P6
FROM LP MTX
400 STROBE 0
CREDIT
811 RETURN 1
A26J1
+5VDC 688
VOLUME CONTROL 133
VOLUME CONTROL GND 444
TEST SWITCH 777
A18J3 GND 9
SWITCH 05 533
RETURN 5 655
A10J9
A10P9
+12VDC 200
COIN METER 522
500
600
A10J2
A10P2
+48VDC 288
SOL.29 555
A10J5
+48VDC 288
SOL.24 500
NOT USED
COIN METER 522
TO COIN METER
+12VDC 200
D1
OR
A14J1
TICKET METER 522
+12VDC 200
A18J3 GND 9
(+V) TICKET METER
TICKET METER
TO TICKET DISPENSER
A10J1
A10P1
+12VDC 200
6VAC 088
6VAC RETURN 000
A18J3 GND 9
SWITCH 00 500
RETURN 0 600
SWITCH 01 511
RETURN 1 611
SWITCH 02 522
RETURN 2 622
RETURN 3 633
SLAM SWITCH 544
BOT R.SIDE CABINET BUTTON
SW.7
A9P6
SWITCH 07 566
RETURN 7 677
SWITCH 0B 733
RETURN 0 800
FROM LP & SW MTX
COLOR CODE
0 BLACK 5 GREEN
1 BROWN 6 BLUE
2 RED 7 VIOLET
3 ORANGE 8 GRAY
4 YELLOW 9 WHITE

GOTLIEB®



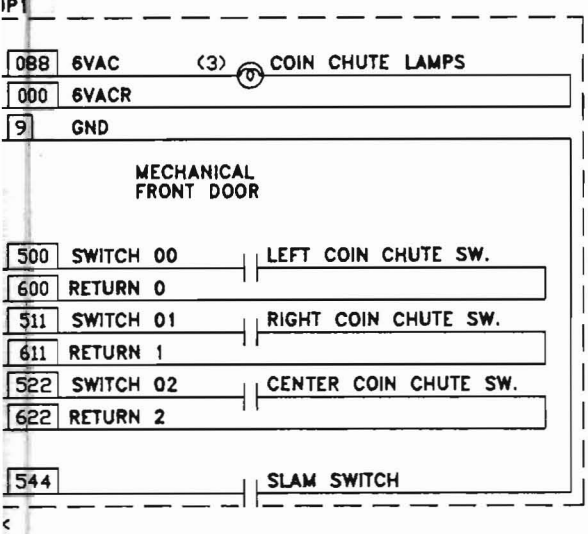


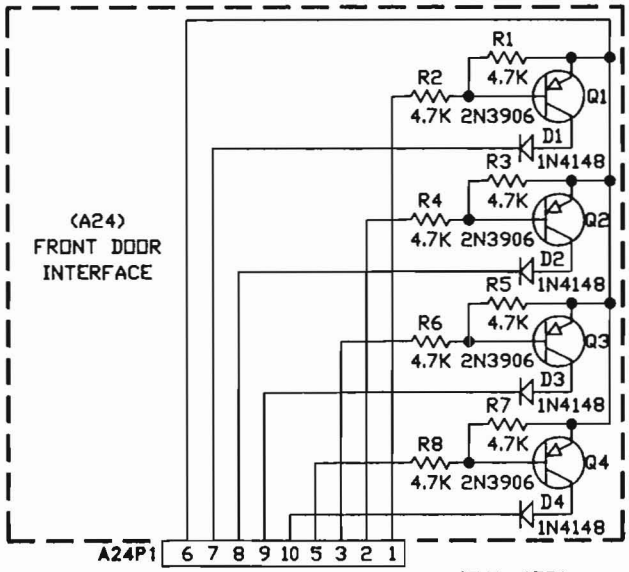


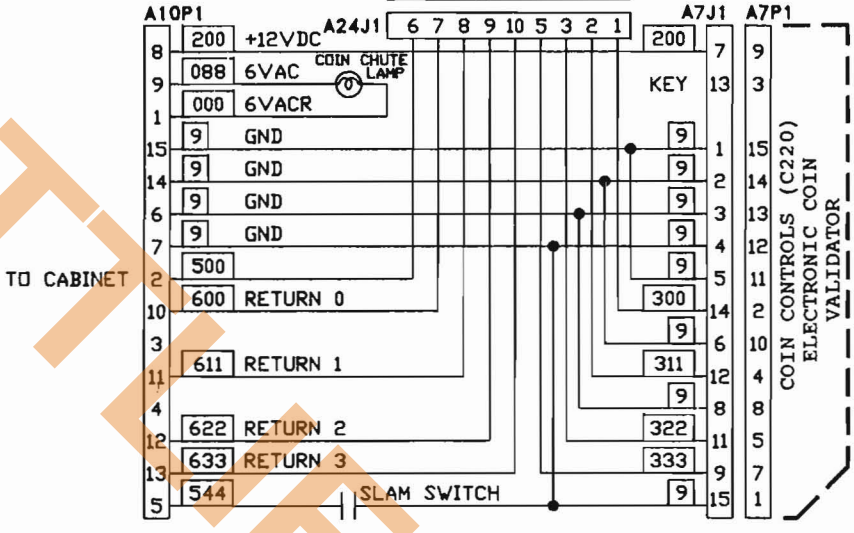
USED

TO COIN METER OR TICKET DISPENSER

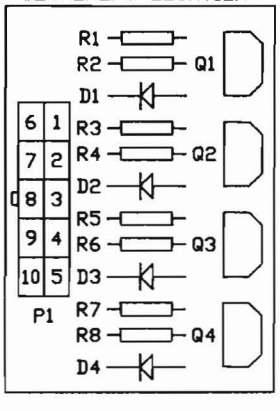
NOTE:
1. AMOUNT OF PARTS VARIES PER GAME.
2. ALL DIODES ARE TYPE IN4004.
3. A18J3 (FROM TRANSFORMER PANEL).







(A24)
FRONT DOOR INTERFACE
COMPONENT LOCATION



(A24)
FRONT DOOR INTERFACE
PARTS LIST

REFERENCE	DESCRIPTION	PART NO.
	FRONT DOOR INTERFACE ASSEMBLY	MA1645
D1-D4	DIODE, 1N4148	XD-261
Q1-Q4	TRANSISTOR, PNP, 2N3906	XD-588
R1-R8	RESISTOR, 4.7K OHM, 1/4W, 5%	XD-7
A24P1	HEADER,10 POSITION	XD-912
	SPACER (4)	23984

Premier Technology			
TITLE CABINET/FRONT DOOR SCHEMATIC DIAGRAM			
USED ON #744	DRAWN RLM	DATE 07-20-94	30957

COLOR CODE			
0	BLACK	5	GREEN
1	BROWN	6	BLUE
2	RED	7	VIOLET
3	ORANGE	8	GRAY
4	YELLOW	9	WHITE

Premier Technology			
TITLE SCHEMATIC DIAGRAM ELECTRONIC FRONT DOOR-4 OUTPUT			
USED ON	DRAWN RLM	DATE 09-20-91	28541

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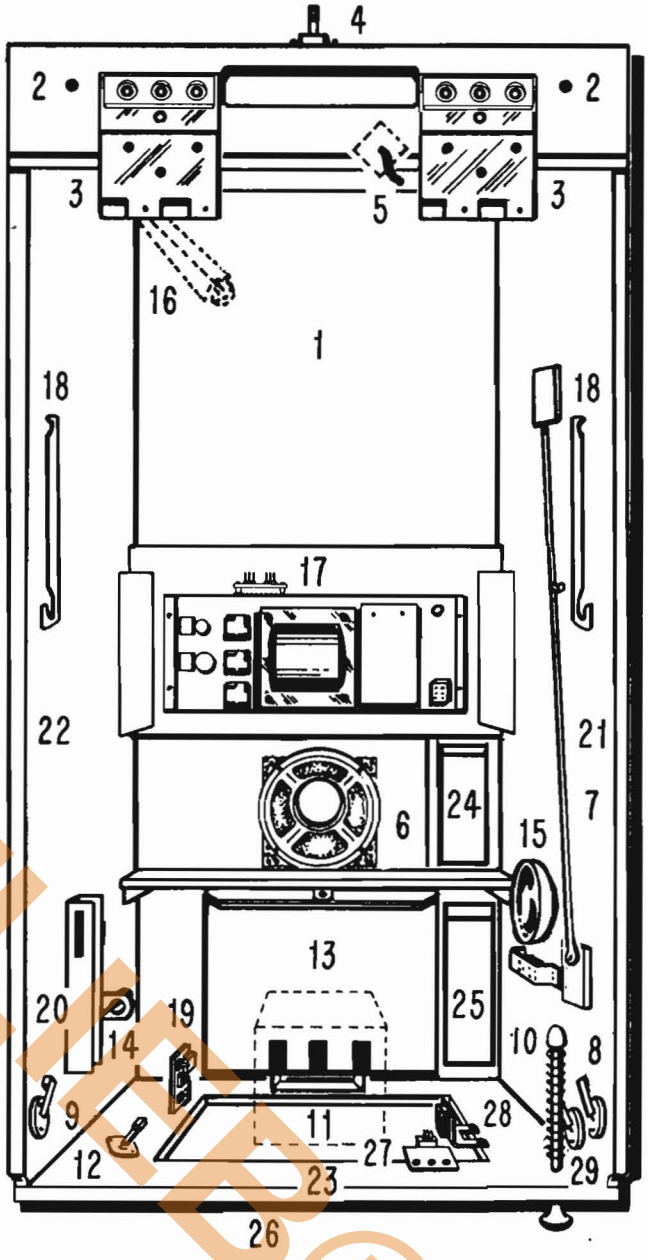
UNIQUE PARTS.....78

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VII. PARTS INFORMATION

CABINET PARTS

ITEM	DESCRIPTION	PART NO.
1	Cabinet	31047-744
2	Lightbox Mounting Thumb Screw (2)	FA-162
	(Not Shown for Reference Only, Part of Lightbox Assembly)	
3	Butt Hinge (2)	26449
	(Attached to Lightbox)	
4	"U" Bolt (P/O Lightbox)	24659
	Latch Assembly (P/O Cabinet)	21969
5	Line Cord (Domestic)	23365
	Line Cord Cover Plate	23364
6	Speaker, 4 Ohm, 8"	28934
	Speaker Grille	28935
7	Prop Stick, Playfield	23940
8	Right Flipper Switch Assembly	
	(Switch with Bracket)	28693
	(Switch Only)	28668
9	Left Flipper Switch Assembly	
	(Switch with Bracket)	28973
	(Switch Only)	28962
10	Ball Shooter Assembly	31009
11	Front Door Assembly (Universal)	29106
	Cable Assembly	MA-1938
	Slam Switch (N/O)	26130
	6V DC Lamp, Wedge Base, #555	LA-2
	Lampholder	FD-24
12	Replay Switch Assembly	18092
13	Cashbox	28032
	Cover	*SEE NOTE
14	Plumb Bob Tilt Switch Assembly	
	Strike Plate	358
	Carbon, Tilt Bob	MH-30
	Rod, Tilt	357
	Bracket	22043
	Clip	14653
15	Knocker Assembly	MA-12
	5" Bell Assembly (When Used)	27591
16	Cabinet Leg (4), 31"	3768
	Leg Bolt (8)	3775
	1-1/2" Leg Adjuster (4)	30121
	3/8-16", Jam Nut (8)	FA-665
17	Transformer Panel Assembly	MA-2080
	Bridge Rectifier (3)	EL-42
	Capacitor, (10,000UF), 25V	XO-830
	Capacitor, (33,000UF), 35V	XO-957
	Fuse Holder and Cap	EL-78
	Fuse Block (8 Pole)	EL-10
	F3, 3/8 Amp, SLO-BLO	EL-31
	F4, 3/8 Amp, SLO-BLO	EL-31
	F5, 2.5 Amp, SLO-BLO	EL-21
	F6, 10 Amp, SLO-BLO	EL-36
	F7, 8 Amp, SLO-BLO	EL-26
	F8, 15 Amp	EL-25
	F9, 7-1/2 Amp	EL-22
	F10, 3 Amp, SLO-BLO	EL-9
	F11, 3 Amp, SLO-BLO	EL-9
	Transformer	29724
18	Cabinet Pivot Bracket (Left)	25658
	Cabinet Pivot Bracket (Right)	25657
19	Game Controls Board (A26)	MA-1851
20	Ball Roll Tilt	
	Housing and Switch Assembly	24394
	Switch	24393
21	Right Moulding (Not Shown)	28700
22	Left Moulding (Not Shown)	28701
23	Front Moulding (Not Shown)	16951
24	Relay Strip Assembly	MA-1872
	"Q" Relay	MA-1172
	"T" Relay	MA-25
	"A" Relay	MA-1021
25	Power Module Assembly (110V AC)	MA-1928
	Double Throw Switch	23799
	Fuse Holder And Cap (2)	EL-78
	Line Filter	EL-50
	Power Module Assembly (FRANCE)	30255A
	Power Module Assembly (GERMANY)	30255B
	Power Module Assembly (JAPAN)	30255C
	Power Module Assembly (220V AC)	30255D
	F1, 8 Amp SLO-BLO, 110V AC	EL-26
	4 Amp SLO-BLO, 220V AC	EL-33
	F2, 5 Amp SLO-BLO, 110V AC	EL-8
	2.5 Amp SLO-BLO, 220V AC	EL-21



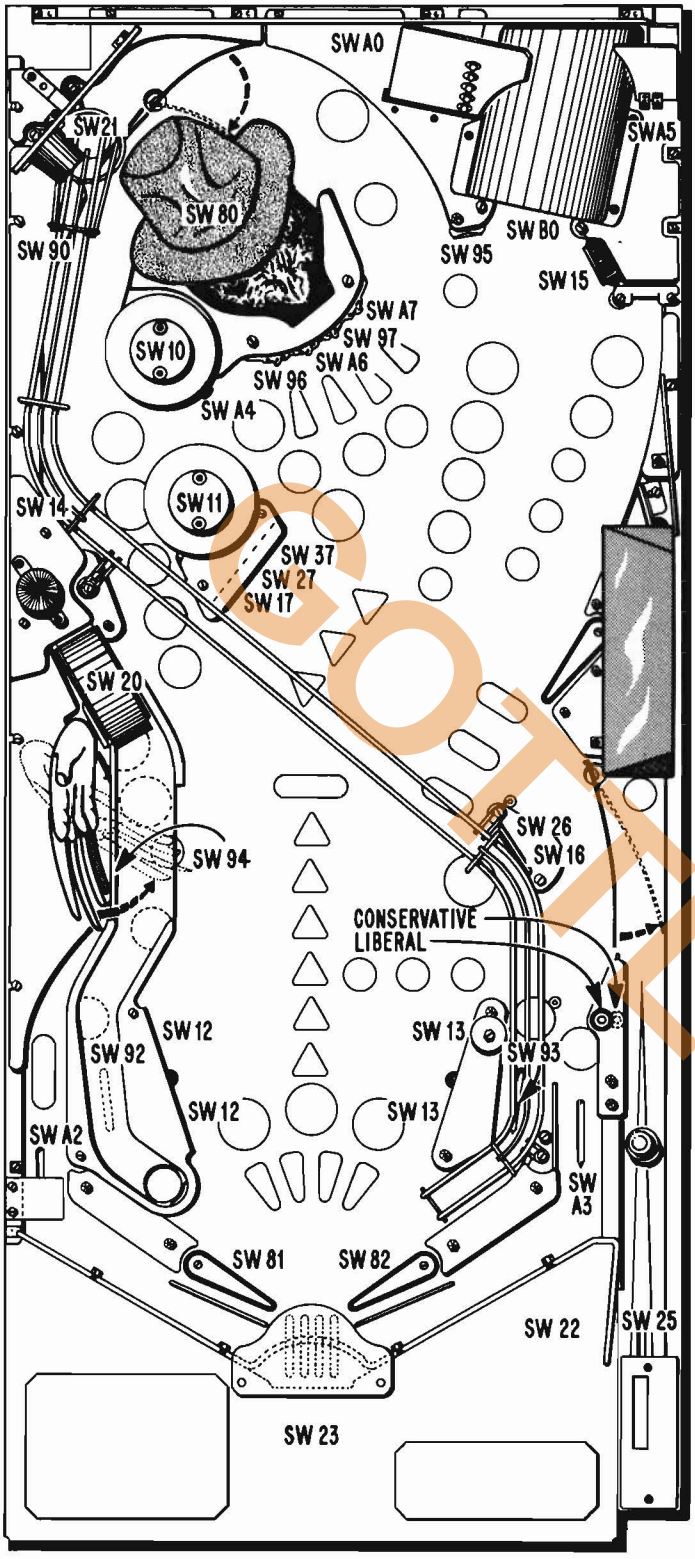
ITEM	DESCRIPTION	PART NO.
26	Lock Bar (Not Shown)	29759
	Lock Bracket (Not Shown)	29760
	Lock Bar Bracket (Not Shown)	29761
27	Front Door Service Switch Assembly	
	Switch Bracket	29451
	Switch	29305
28	Interlock Switch Assembly	
	Switch Bracket	29148
	Switch Cover	29145
	Switch	EL-66
	Insulator	24145
29	Button Switch Assembly (Piezo)	31016

*NOTE:
COVER USED WITH ELECTRONIC DOOR OR 3 CHUTE DOOR, PART NO. 28062

COVER USED WITH 2 CHUTE DOOR WITH $1.00 ACCEPTOR SLOT, PART NO. 30002

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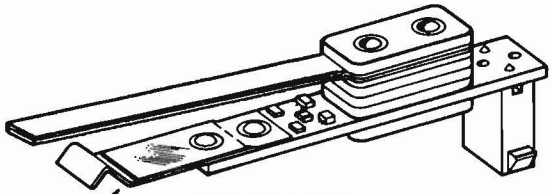
VII. PARTS INFORMATION



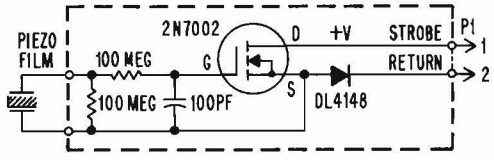
PLAYBOARD SWITCH ASSIGNMENTS

SWITCH MATRIX NUMBER	SWITCH ASSIGNMENT	PART NO.
SW 0	LEFT COIN CHUTE (#1)	P/O FRONT DOOR
SW 1	RIGHT COIN CHUTE (#2)	P/O FRONT DOOR
SW 2	CENTER COIN CHUTE (#3)	P/O FRONT DOOR
SW 3	COIN CHUTE (#4)	P/O ELECTRONIC DOOR
SW 4	START (CREDIT) BUTTON	18092
SW 5	TOURNAMENT	X0-1193
SW 6	FRONT DOOR (SERVICE)	29305
SW 7	BOTTOM RIGHT SIDE CABINET BUTTON	31016 31017 ON BRACKET
* SW 10	TOP POP BUMPER	29819
* SW 11	BOTTOM POP BUMPER	29819
SW 12	LEFT KICKING RUBBER (2)	27702
SW 13	RIGHT KICKING RUBBER (2)	27702
SW 14	LEFT KICKING TARGET	28511
SW 15	RIGHT KICKING TARGET	28511
SW 16	BULLSEYE TARGET (INNER)	P/O 27544
SW 17	DROP TARGET #1	18094
SW 20	BOTTOM LEFT UPKICKER	27667A
SW 21	TOP LEFT UPKICKER	28549
SW 22	TROUGH	29346
SW 23	OUTHOLE	26927
SW 24	TOP MOTOR STOP	27667A
SW 25	BOTTOM SHOOTER LANE ROLLOVER	25824
SW 26	BULLSEYE TARGET (OUTER)	P/O 27544
SW 27	DROP TARGET #2	18095
SW 30 THRU SW 33	(NOT USED)	
SW 34	BOTTOM MOTOR STOP	27667A
SW 35	(NOT USED)	
SW 36	(NOT USED)	
SW 37	DROP TARGET #3	18093
SW 40 THRU SW 77	(NOT USED)	
SW 80	FREDDY'S HEAD UPKICKER (OPTICAL INTERFACE)	P/O MA-1925
SW 81	LEFT FLIPPER (SENSOR BOARD A15)	P/O MA-1334
SW 82	RIGHT FLIPPER (SENSOR BOARD A15)	P/O MA-1334
SW 83 THRU SW 87	(NOT USED)	
SW 90	TOP LEFT LANE (OPTICAL INTERFACE)	P/O MA-1925
SW 91	(NOT USED)	
* SW 92	LEFT RETURN ROLLOVER	28625
* SW 93	RIGHT RETURN ROLLOVER	28625
* SW 94	BOTTOM LEFT SPOT TARGET (YELLOW)	31015T
* SW 95	TOP CENTER SPOT TARGET (WHITE)	31034Z
* SW 96	SOUL TARGET #1 (RED)	31036U
* SW 97	SOUL TARGET #3 (RED)	31036U
SW A0	BOILER TROUGH (OPTICAL INTERFACE)	P/O MA-1925
SW A1	(NOT USED)	
* SW A2	LEFT OUTSIDE ROLLOVER	28625
* SW A3	RIGHT OUTSIDE ROLLOVER	28625
* SW A4	TOP LEFT SPOT TARGET (RED)	29099U
* SW A5	TOP RIGHT SPOT TARGET (RED)	31036U
* SW A6	SOUL TARGET #2 (RED)	31036U
* SW A7	SOUL TARGET #4 (RED)	31036U
SW B0	BOILER DOOR (OPTICAL INTERFACE)	P/O MA-1925
SW B1 THRU SW B7	(NOT USED)	

* SMART SWITCH™

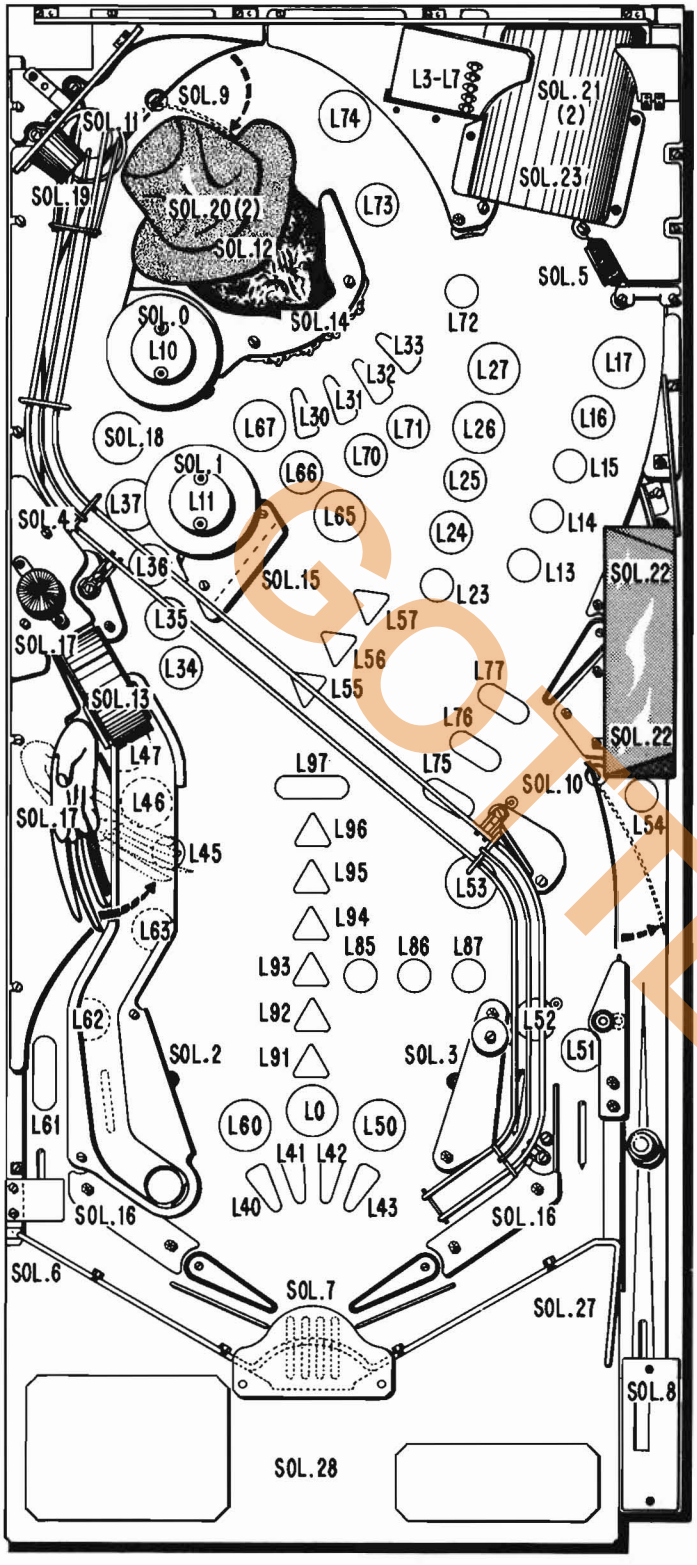


ROLLOVER TYPE
SMART SWITCH™
DO NOT ADJUST WIDE BEAM
SEE PAGE 22



SCHEMATIC REPRESENTATION

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SOLENOID FUNCTIONS/LOCATIONS

SOL. 0	TOP POP BUMPER	SOL. 18	POP BUMPER HAT, #67 *LIGHTBOX 3, #904 (2)
SOL. 1	BOTTOM POP BUMPER	SOL. 19	TOP LEFT RAMP, #67; *LIGHTBOX 4, #904 (2)
SOL. 2	LEFT KICKING RUBBER	SOL. 20	FREDDY'S HEAD, #67 (2); *LIGHTBOX 5, #904
SOL. 3	RIGHT KICKING RUBBER	SOL. 21	BOILER, #67 (2); *LIGHTBOX 6, #904
SOL. 4	LEFT KICKING TARGET	SOL. 22	FREDDY'S HOUSE, #67 (2); *LIGHTBOX 7, #904
SOL. 5	RIGHT KICKING TARGET	SOL. 23	BOILER DOOR MOTOR
SOL. 6	KICK SAVE	SOL. 24	GLOVE FLIPPER RELAY (B)
SOL. 7	CENTER CLAW KICKER	SOL. 25	LIGHTBOX ILLUM. RELAY (A)
SOL. 8	SHOOTER LANE KICKER	SOL. 26	TICKET/COIN METER ENABLE
SOL. 9	TOP LEFT BALL GATE	SOL. 27	BALL RELEASE
SOL. 10	BOTTOM RIGHT BALL GATE	SOL. 28	OUTHOLE
SOL. 11	TOP LEFT UPKICKER	SOL. 29	KNOCKER
SOL. 12	FREDDY'S HEAD UPKICKER	SOL. 30	TILT RELAY (T)
SOL. 13	BOTTOM LEFT UPKICKER	SOL. 31	GAME OVER RELAY (Q)
SOL. 14	FREDDY'S JAW		
SOL. 15	3 POSITION BANK RESET		
SOL. 16	L. FLIPPER, #67; R. FLIPPER #67; *LIGHTBOX 1, #904		
SOL. 17	GLOVE FLIPPER, #67 (2); *LIGHTBOX 2, #904		

PLAYBOARD LAMP ASSIGNMENTS

LAMP NUMBER	LAMP ASSIGNMENT
L0	"SHOOT AGAIN"
L1	Credit Button
L2	(Not Used)
L3	"ASLEEP" (Red)
L4	"AWAKE 1" (Green)
L5	"AWAKE 2" (Green)
L6	"AWAKE 3" (Green)
L7	"AWAKE 4" (Green)
L10	Top Pop Bumper
L11	Bottom Pop Bumper
L12	(Not Used)
L13	"GLOVE FLIPPER"
L14	"COMBO"
L15	"COFFEE"
L16	"JACKPOT"
L17	Freddy
L21	(Not Used)
L22	(Not Used)
L23	"OPEN" Boiler
L24	"FALL ASLEEP"
L25	"JACKPOT"
L26	"GRAB FREDDY"
L27	Freddy
L30	"SOUL 1"
L31	"SOUL 2"
L32	"SOUL 3"
L33	"SOUL 4"
L34	"ADD KRUEGERANDS"
L35	"JACKPOT"
L36	"FREDDY"
L37	"TRADE KRUEGERANDS"
L40	"C"
L41	"L"
L42	"A"
L43	"W"
L44	(Not Used)
L45	"GLOVE FLIPPER"
L46	"1...2..."
L47	"DREAM WARRIOR"
L50	"AWAKE"
L51	"SPECIAL"
L52	"LIGHT TRADE KRUEGERANDS"
L53	Television
L54	Freddy's Eyes
L55	"MORE POWER"
L56	"SET ALARM"
L57	"BIG POINTS"
L60	"ASLEEP"
L61	"KICK SAVE"
L62	"BEGIN COMBO"
L63	"MULTI-BALL"
L64	(Not Used)
L65	"EXTRA BALL"
L66	"JACKPOT"
L67	Freddy
L70	"SPELL CLAW"
L71	"SAVE SOULS"
L72	"COFFEE" Target
L73	"JACKPOT"
L74	Freddy
L75	"COMBO JACKPOT"
L76	"FREDDY JACKPOT"
L77	"MULTI-BALL JACKPOT"
L80 THRU L84	(Not Used)
L85	"MORE POWER"
L86	"ALARM CLOCK"
L87	"MULTI-BALL"
L90	(Not Used)
L91	"NIGHTMARE 1"
L92	"NIGHTMARE 2"
L93	"NIGHTMARE 3"
L94	"NIGHTMARE 4"
L95	"NIGHTMARE 5"
L96	"NIGHTMARE 6"
L97	"FINAL NIGHTMARE"
LA0	(Not Used)
LA1	(Not Used)
LA2	(Not Used)
LA3	Power Meter "1"
LA4	Power Meter "2"
LA5	Power Meter "3"
LA6	Power Meter "4"
LA7	Power Meter "5"
LB0	(Not Used)
LB1	(Not Used)
LB2	(Not Used)
LB3	Power Meter "6"
LB4	Power Meter "7"
LB5	Power Meter "8"
LB6	Power Meter "9"
LB7	Power Meter "10"

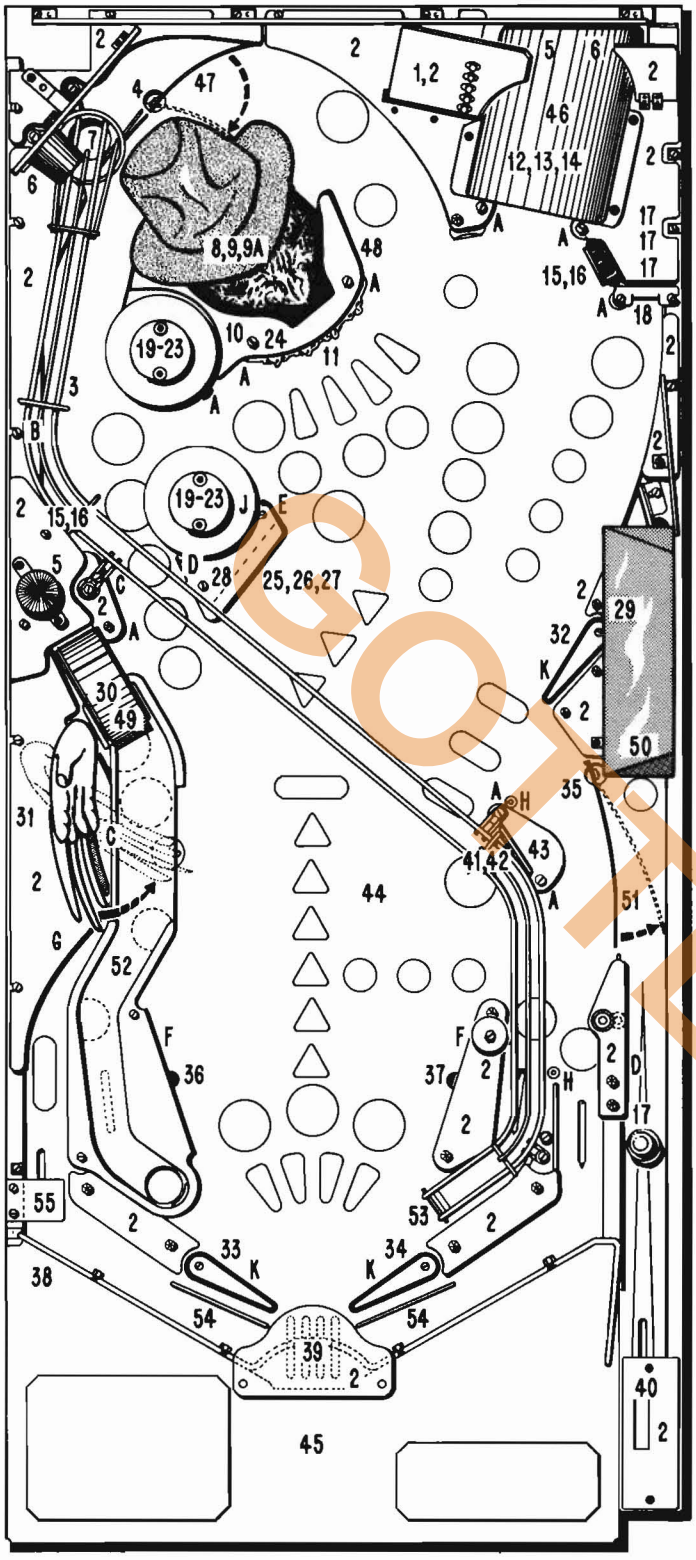
LAMP SOCKETS WITH DIODE BOARD

TYPE	PART NO.
1-1/8" BRACKET	26621
1/2" BRACKET	26622
LAYDOWN	26623

NOTE:
*LAMPS MOUNTED ON LIGHTBOX INSERT,
SEE PAGE 76 FOR LOCATION.

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VII. PARTS INFORMATION



PLAYBOARD PARTS INFORMATION

PARTS LIST

ITEM	DESCRIPTION	PART NO.
1	LED BOARD ASSEMBLY	MA-2094
2	PLASTIC SHIELD SET	31040
3	WIREFORM RAMP	30904
4	BALL GATE ASSEMBLY	MA-1791B
5	PLASTIC DOME, 1-1/4", AMBER (2)	25147N
6	PLASTIC DOME, 1-1/4", RED (2)	25147U
7	UPKICKER ASSEMBLY	MA-1627
	(SEE EXPLODED VIEW ILLUSTRATION)	
	LEAF SWITCH	28549
8	UPKICKER ASSEMBLY	MA-2092
	(SEE EXPLODED VIEW ILLUSTRATION)	
9	MOLDED HEAD	30910
9A	PLASTIC RED LENS (2)	31033
10	NECK COVER PLATE	31035
11	MOLDED TARGET SHROUD	30868
12	VACUUM FORM BOILER	30937
13	MOTOR AND MICRO SWITCH ASSEMBLY	30940
13A	MOTOR, 24RPM, 20V DC	30882
14	SLIDING DOOR ASSEMBLY	30942
15	KICKING TARGET ASSEMBLY (2)	MA-1485
	(SEE EXPLODED VIEW ILLUSTRATION)	
16	TARGET DECAL (2)	31012
17	STEEL BALL, 1-1/16" DIAMETER	21864
18	CAPTIVE BALL SHIELD	26448
19	POP BUMPER BRACKET AND COIL ASSEMBLY (3)	MA-1375
	(SEE EXPLODED VIEW ILLUSTRATION)	
20	POP BUMPER COIL AND DIODE (2)	16570
21	POP BUMPER BODY, WHITE (2)	26860Z
22	POP BUMPER SWITCH AND BRACKET (2)	29818
23	POP BUMPER TRIM PLATTER (2)	25732
24	JAW MOVER PLUNGER AND COIL ASSEMBLY	30926
	(SEE PARTS ILLUSTRATION)	
25	TARGET BANK ASSEMBLY, 3 POSITION	MA-1481
	(SEE EXPLODED VIEW ILLUSTRATION)	
26	DROP TARGET ARM, NYLON, BLACK (3)	11905Y
27	DROP TARGET DECAL (3)	30992
28	BALL DEFLECTOR	30889
29	VACUUM FORM HOUSE	30936
30	UPKICKER ASSEMBLY	MA-1789
	(SEE EXPLODED VIEW ILLUSTRATION)	
31	GLOVE UNIT ASSEMBLY	MA-2088
	(SEE PARTS ILLUSTRATION)	
32	TOP RIGHT FLIPPER ASSEMBLY	MA-1791A
	FLIPPER COIL AND DIODE ASSEMBLY	26646
	FLIPPER SWITCH	26439
	(SEE EXPLODED VIEW ILLUSTRATION)	
33	BOTTOM LEFT FLIPPER ASSEMBLY	MA-1790
	FLIPPER COIL AND DIODE ASSEMBLY	25959
	FLIPPER SWITCH	26439
34	BOTTOM RIGHT FLIPPER ASSEMBLY	MA-1791
	FLIPPER COIL AND DIODE ASSEMBLY	25959
35	BALL GATE ASSEMBLY	MA-2085
36	KICKER ASSEMBLY	MA-1083
37	KICKER ASSEMBLY	MA-1373
38	KICK SAVE ASSEMBLY	MA-1413
39	BALL STOP ASSEMBLY (4 FINGERS)	30931
40	BALL SHOOTER ASSEMBLY	30972
41	TARGET AND SWITCH ASSEMBLY	29714
42	TARGET DECAL	30998
43	BALL DEFLECTOR	30967
44	MYLAR OVERLAY	31041
45	CARDHOLDER ASSEMBLY	30935
46	BALL SNUBBER	27451
47	BALL GATE AND SHAFT ASSEMBLY	31000
48	BALL DEFLECTOR	21158
49	BALL SCOOP-SHROUD ASSEMBLY	30975
50	METAL RUNWAY RAMP	30963
51	BALL GATE AND SHAFT ASSEMBLY	30969
52	RAMP AND BRACKET ASSEMBLY	30966
53	CELLULAR BUMPER	31018
54	SNUBBER RAIL (2)	13798
55	BALL SNUBBER	27180

RUBBER RINGS

ITEM	DESCRIPTION	PART NO.
A	BUMPER, TAPERED (BLK)	30003Y
B	2"	10221
C	3/4"	10218
D	5/16"	10217
E	1-1/2"	10220
F	2-1/2"	10222
G	7/16"	17493
H	MINI-POST, LARGE	15705
J	MINI-POST, SMALL	14793
K	FLIPPER, BLACK	28546

MISCELLANEOUS PARTS

DESCRIPTION	PART NO.
RUBBER GROMMET	5240
HAIRPIN CLIP	6947
PLASTIC POST, 1" (RED)	11561U
PLASTIC POST, 1-3/16" (RED)	11562U
MINI-POST SCREW	14792
SIAMESE POST (RED)	17492U
HEX POST WITH GRIP	26531
PLASTIC RIVET	MP-10
PLASTIC SUPPORT POST (CLEAR)	20635P

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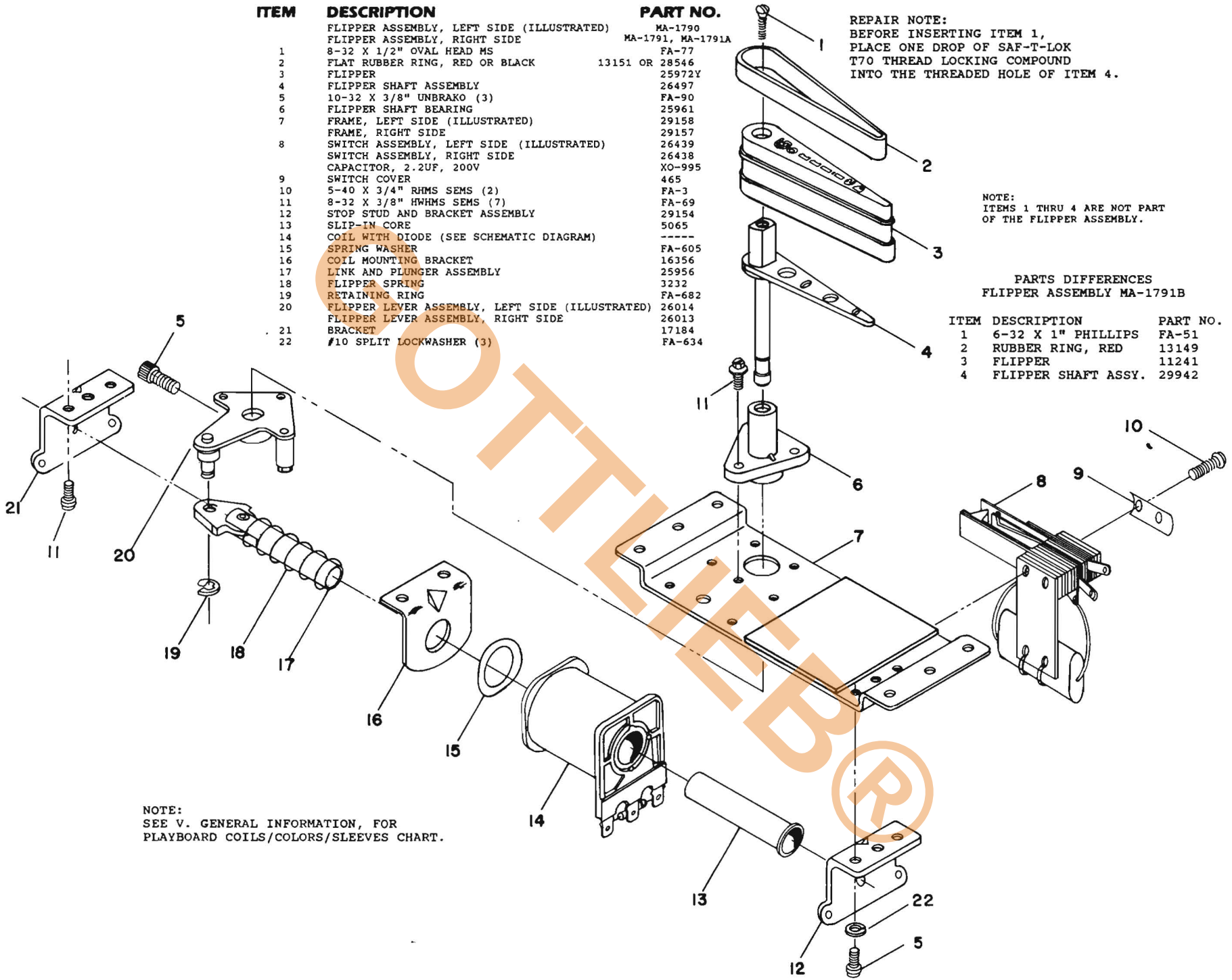
ITEM	DESCRIPTION	PART NO.
	FLIPPER ASSEMBLY, LEFT SIDE (ILLUSTRATED)	MA-1790
	FLIPPER ASSEMBLY, RIGHT SIDE	MA-1791, MA-1791A
1	8-32 X 1/2" OVAL HEAD MS	FA-77
2	FLAT RUBBER RING, RED OR BLACK	13151 OR 28546
3	FLIPPER	25972Y
4	FLIPPER SHAFT ASSEMBLY	26497
5	10-32 X 3/8" UNBRAKO (3)	FA-90
6	FLIPPER SHAFT BEARING	25961
7	FRAME, LEFT SIDE (ILLUSTRATED)	29158
	FRAME, RIGHT SIDE	29157
8	SWITCH ASSEMBLY, LEFT SIDE (ILLUSTRATED)	26439
	SWITCH ASSEMBLY, RIGHT SIDE	26438
	CAPACITOR, 2.2UF, 200V	XO-995
9	SWITCH COVER	465
10	5-40 X 3/4" RHMS SEMS (2)	FA-3
11	8-32 X 3/8" HWHMS SEMS (7)	FA-69
12	STOP STUD AND BRACKET ASSEMBLY	29154
13	SLIP-IN CORE	5065
14	COIL WITH DIODE (SEE SCHEMATIC DIAGRAM)	-----
15	SPRING WASHER	FA-605
16	COIL MOUNTING BRACKET	16356
17	LINK AND PLUNGER ASSEMBLY	25956
18	FLIPPER SPRING	3232
19	RETAINING RING	FA-682
20	FLIPPER LEVER ASSEMBLY, LEFT SIDE (ILLUSTRATED)	26014
	FLIPPER LEVER ASSEMBLY, RIGHT SIDE	26013
21	BRACKET	17184
22	#10 SPLIT LOCKWASHER (3)	FA-634

REPAIR NOTE:
BEFORE INSERTING ITEM 1,
PLACE ONE DROP OF SAF-T-LOK
T70 THREAD LOCKING COMPOUND
INTO THE THREADED HOLE OF ITEM 4.

NOTE:
ITEMS 1 THRU 4 ARE NOT PART
OF THE FLIPPER ASSEMBLY.

PARTS DIFFERENCES
FLIPPER ASSEMBLY MA-1791B

ITEM	DESCRIPTION	PART NO.
1	6-32 X 1" PHILLIPS	FA-51
2	RUBBER RING, RED	13149
3	FLIPPER	11241
4	FLIPPER SHAFT ASSY.	29942



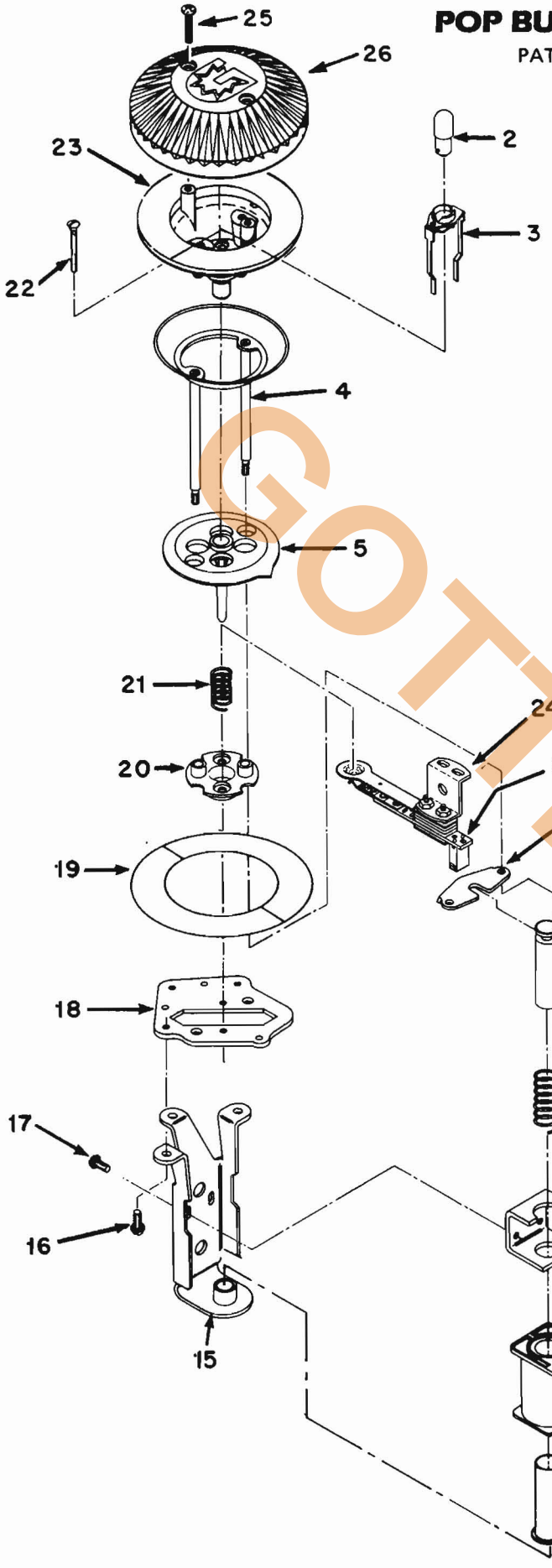
NOTE:
SEE V. GENERAL INFORMATION, FOR
PLAYBOARD COILS/COLORS/SLEEVES CHART.

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VII. PARTS INFORMATION

POP BUMPER PARTS

PAT. NO. 213,981

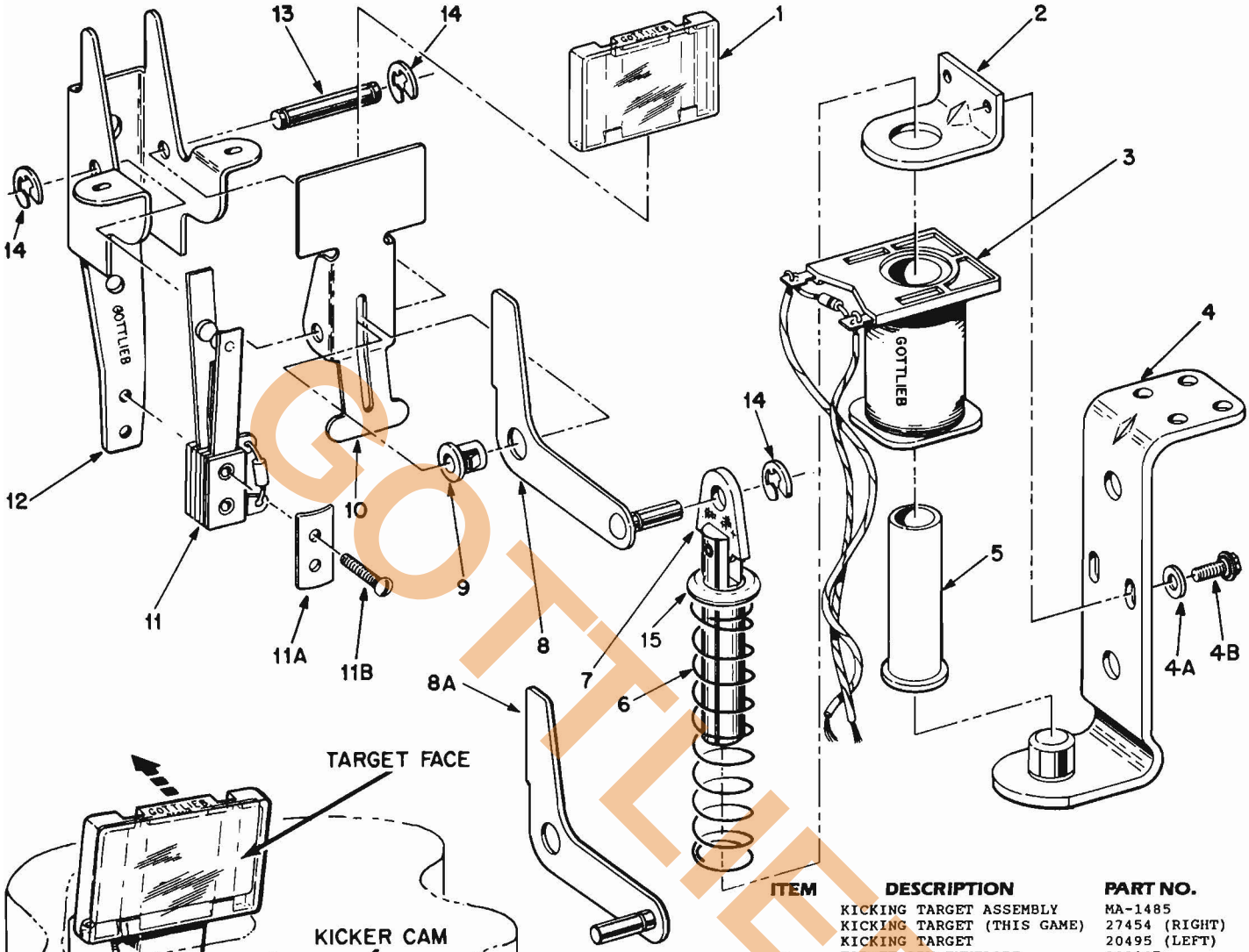


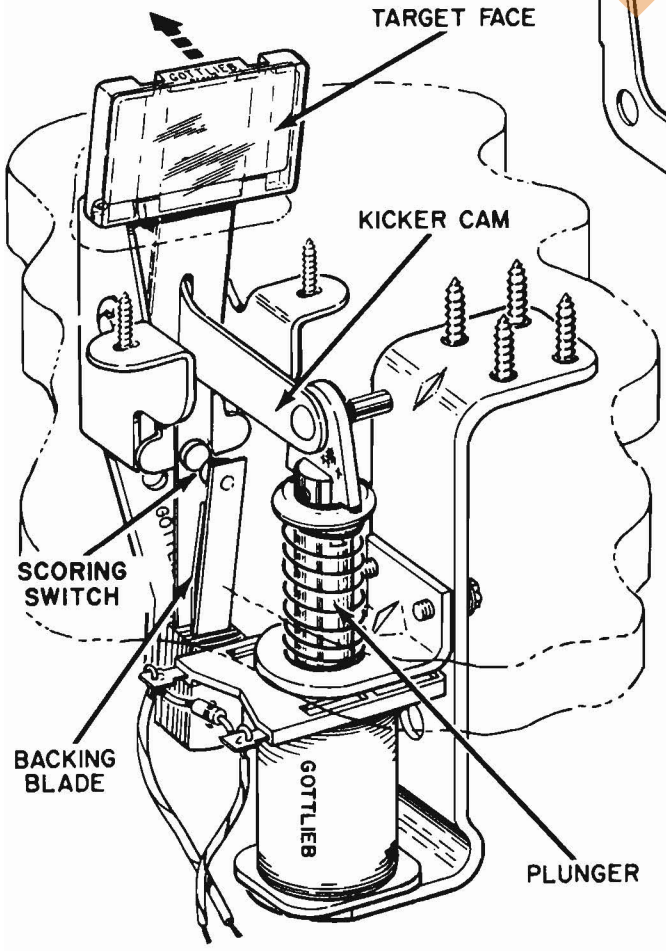
ITEM	DESCRIPTION	PART NO.
	Pop Bumper Assembly	Specify Game
1	(NOT USED)	
2	Lamp, #44	LA-0
3	Socket	PS-0
4	Tie Rods And Ring	16634
5	Pop Bumper Skirt (Specify Color)	10433
6	Switch Assembly	Specify Game
7	Slotted Yoke	12149
8	Plunger	2663
9	Insulating Yoke	2662
10	Elastic Stop Nut, 6-32	FA-660
11	Kicker Return Spring	21643
12	Stop Bracket	8571
13	Coil	Specify Game
14	Coil Sleeve	5064
15	Coil Mounting Bracket and Stop	17906
16	8-32 x 1/4 HHMS SEMS	FA-64
17	6-32 x 1/4 HHMS SEMS	FA-53
18	Pop Bumper Pad	16632
19	Pop Bumper Trim Platter	25732
20	Pop Bumper Base	10432
21	Pop Bumper Spring	10430
22	6-32 x 1-1/8 Oval HMS	FA-43
23	Pop Bumper Body(Specify Color)	26860
24	Bracket and Switch Assembly	29819 (ILLUSTRATED) 29818 (OPPOSITE BRACKET)
25	4-40 x 1/2 Pan Head Phillips	FA-108
26	Pop Bumper Cap, Clear, (Specify Color)	26635

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VII. PARTS INFORMATION

KICKING TARGET ASSEMBLY





ITEM	DESCRIPTION	PART NO.
	KICKING TARGET ASSEMBLY	MA-1485
	KICKING TARGET (THIS GAME)	27454 (RIGHT)
	KICKING TARGET	20495 (LEFT)
1	TARGET ARM ENVELOPE	20210P
2	MOUNTING BRACKET	15409
3	COIL	5195
4	COIL STOP AND MTG. BRACKET	20597
4A	WASHER, #8 STANDARD (2)	FA-617
4B	8-32 X 5/16" HWHMS SEMS (2)	FA-67
5	COIL SLEEVE	5064
6	RETURN SPRING	1636
7	LINK AND PLUNGER ASSEMBLY	22425
8	TARGET KICKER CAM	20209 (RIGHT)
8A	TARGET KICKER CAM	20494 (LEFT)
9	SNAP BRUSHING	MP-15
10	TARGET ARM	20207
11	SCORING SWITCH ASSEMBLY	28511
11A	SWITCH COVER	465
11B	5-40 X 5/8" RHMS (2)	FA-2
12	TARGET HOUSING	20206
13	TARGET SHAFT	20211
14	E-RING (3)	FA-682
15	SPRING RETAINING WASHER	22233
	DECAL (NOT SHOWN)	31012

KICKING TARGET ADJUSTMENT

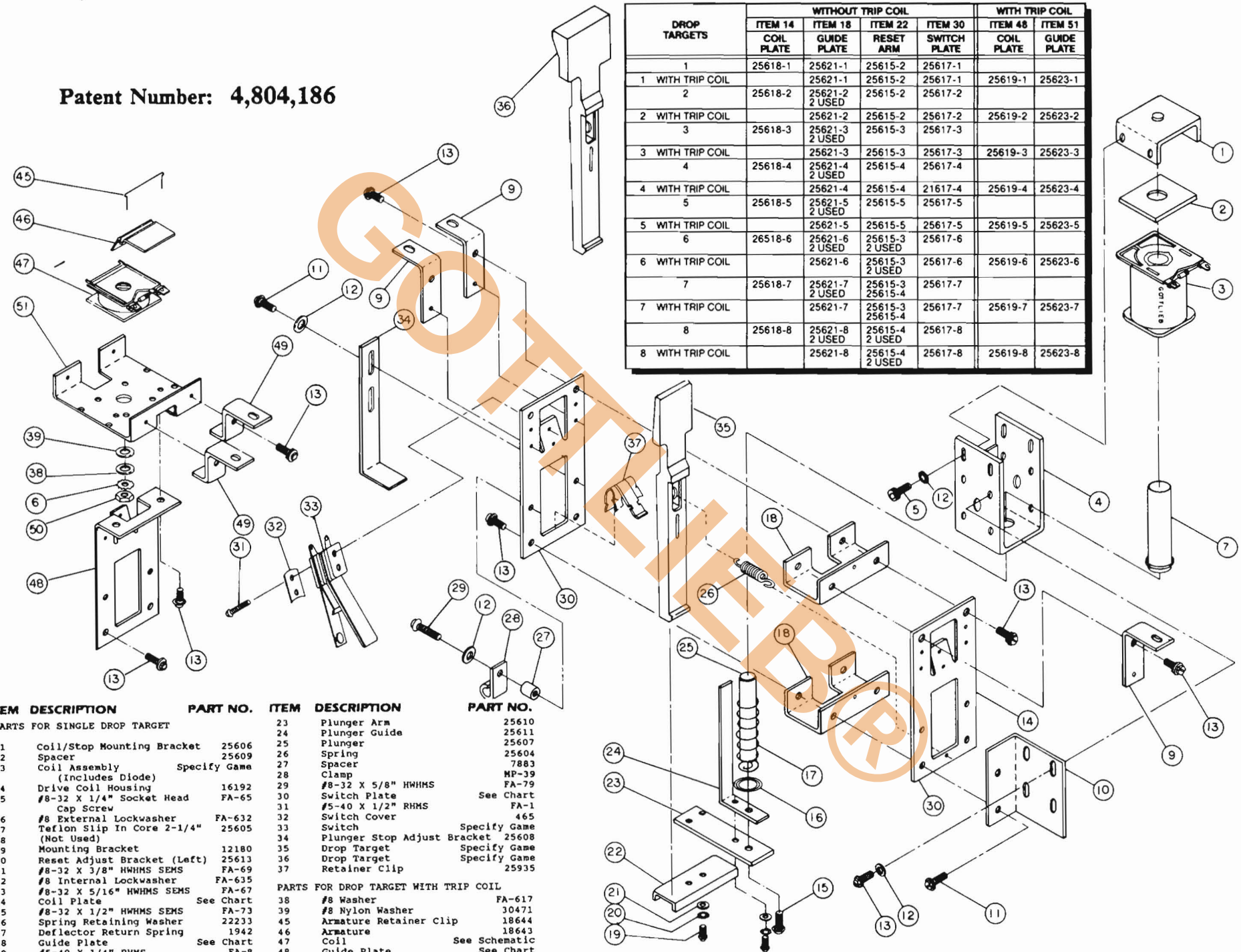
Push the PLUNGER down until it "bottoms out" in the coil HOUSING. Push the TARGET FACE in the direction of the arrow shown until it makes contact with the vertical leg of the KICKER CAM. The vertical leg of the cam is located behind the kicking target and is not shown.

Observe that the gap between the SCORING SWITCH contacts is at least 1/32nd of an inch. If not, bend the switch's BACKING BLADE in the proper direction.

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Patent Number: 4,804,186

DROP TARGETS	WITHOUT TRIP COIL				WITH TRIP COIL	
	ITEM 14 COIL PLATE	ITEM 18 GUIDE PLATE	ITEM 22 RESET ARM	ITEM 30 SWITCH PLATE	ITEM 48 COIL PLATE	ITEM 51 GUIDE PLATE
1	25618-1	25621-1	25615-2	25617-1		
1 WITH TRIP COIL		25621-1	25615-2	25617-1	25619-1	25623-1
2	25618-2	25621-2 2 USED	25615-2	25617-2		
2 WITH TRIP COIL		25621-2	25615-2	25617-2	25619-2	25623-2
3	25618-3	25621-3 2 USED	25615-3	25617-3		
3 WITH TRIP COIL		25621-3	25615-3	25617-3	25619-3	25623-3
4	25618-4	25621-4 2 USED	25615-4	25617-4		
4 WITH TRIP COIL		25621-4	25615-4	21617-4	25619-4	25623-4
5	25618-5	25621-5 2 USED	25615-5	25617-5		
5 WITH TRIP COIL		25621-5	25615-5	25617-5	25619-5	25623-5
6	26518-6	25621-6 2 USED	25615-3 2 USED	25617-6		
6 WITH TRIP COIL		25621-6	25615-3 2 USED	25617-6	25619-6	25623-6
7	25618-7	25621-7 2 USED	25615-3 25615-4	25617-7		
7 WITH TRIP COIL		25621-7	25615-3 25615-4	25617-7	25619-7	25623-7
8	25618-8	25621-8 2 USED	25615-4 2 USED	25617-8		
8 WITH TRIP COIL		25621-8	25615-4 2 USED	25617-8	25619-8	25623-8



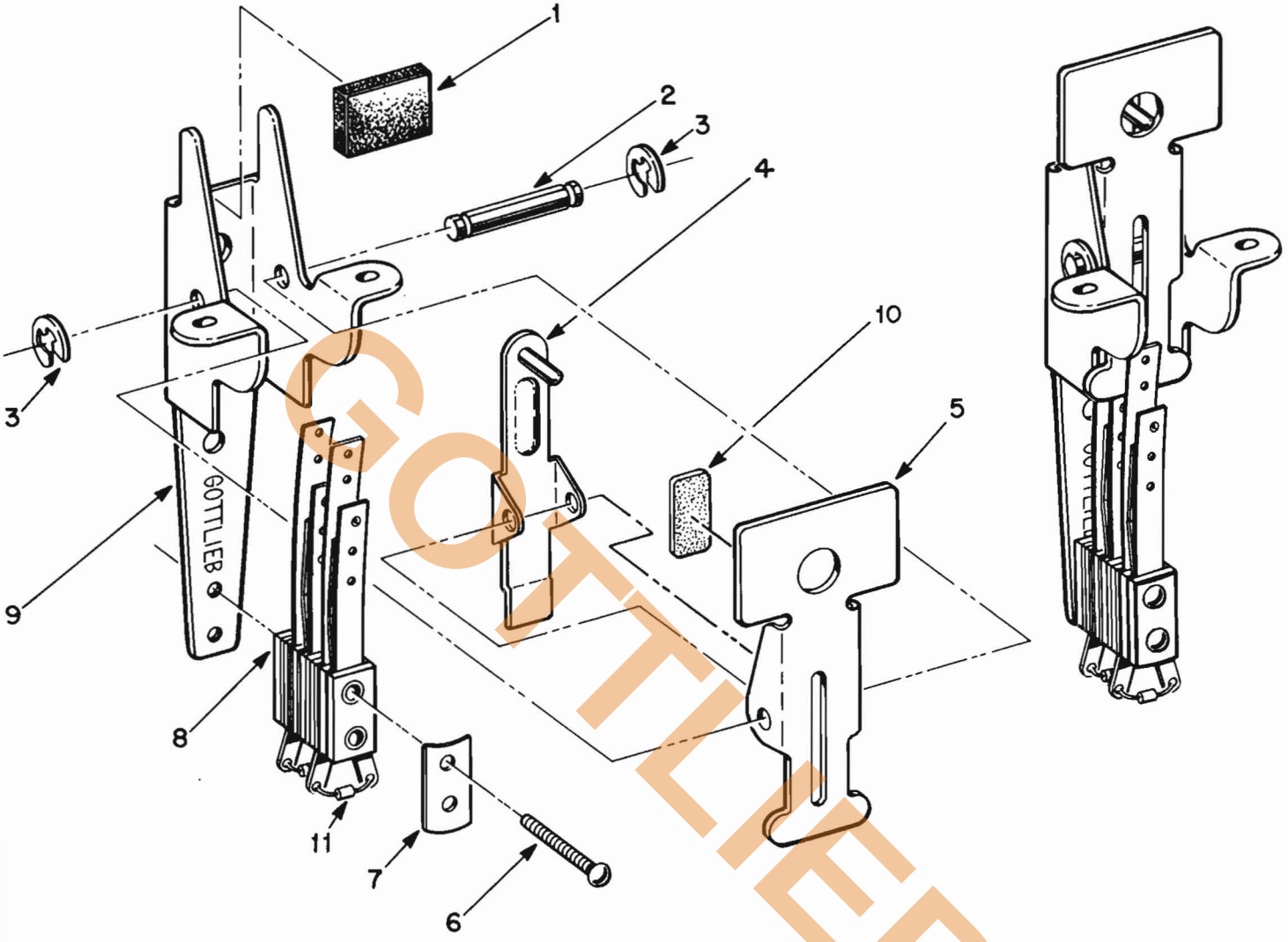
ITEM	DESCRIPTION	PART NO.
	PARTS FOR SINGLE DROP TARGET	
1	Coil/Stop Mounting Bracket	25606
2	Spacer	25609
3	Coil Assembly (Includes Diode)	Specify Game
4	Drive Coil Housing	16192
5	#8-32 X 1/4" Socket Head Cap Screw	FA-65
6	#8 External Lockwasher	FA-632
7	Teflon Slip In Core 2-1/4"	25605
8	(Not Used)	
9	Mounting Bracket	12180
10	Reset Adjust Bracket (Left)	25613
11	#8-32 X 3/8" HWHMS SEMS	FA-69
12	#8 Internal Lockwasher	FA-635
13	#8-32 X 5/16" HWHMS SEMS	FA-67
14	Coil Plate	See Chart
15	#8-32 X 1/2" HWHMS SEMS	FA-73
16	Spring Retaining Washer	22233
17	Deflector Return Spring	1942
18	Guide Plate	See Chart
19	#5-40 X 1/4" RHMS	FA-8
20	#5 External Lockwasher	FA-630
21	#5 Washer	FA-622
22	Reset Arm	See Chart

ITEM	DESCRIPTION	PART NO.
23	Plunger Arm	25610
24	Plunger Guide	25611
25	Plunger	25607
26	Spring	25604
27	Spacer	7883
28	Clamp	MP-39
29	#8-32 X 5/8" HWHMS	FA-79
30	Switch Plate	See Chart
31	#5-40 X 1/2" RHMS	FA-1
32	Switch Cover	465
33	Switch	Specify Game
34	Plunger Stop Adjust Bracket	25608
35	Drop Target	Specify Game
36	Drop Target	Specify Game
37	Retainer Clip	25935
	PARTS FOR DROP TARGET WITH TRIP COIL	
38	#8 Washer	FA-617
39	#8 Nylon Washer	30471
45	Armature Retainer Clip	18644
46	Armature	18643
47	Coil	See Schematic
48	Guide Plate	See Chart
49	Mounting Bracket (Formed)	25612
50	#8-32 Hex Nut	FA-652
51	Coil Plate	See Chart

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VII. PARTS INFORMATION

TARGET ASSEMBLY

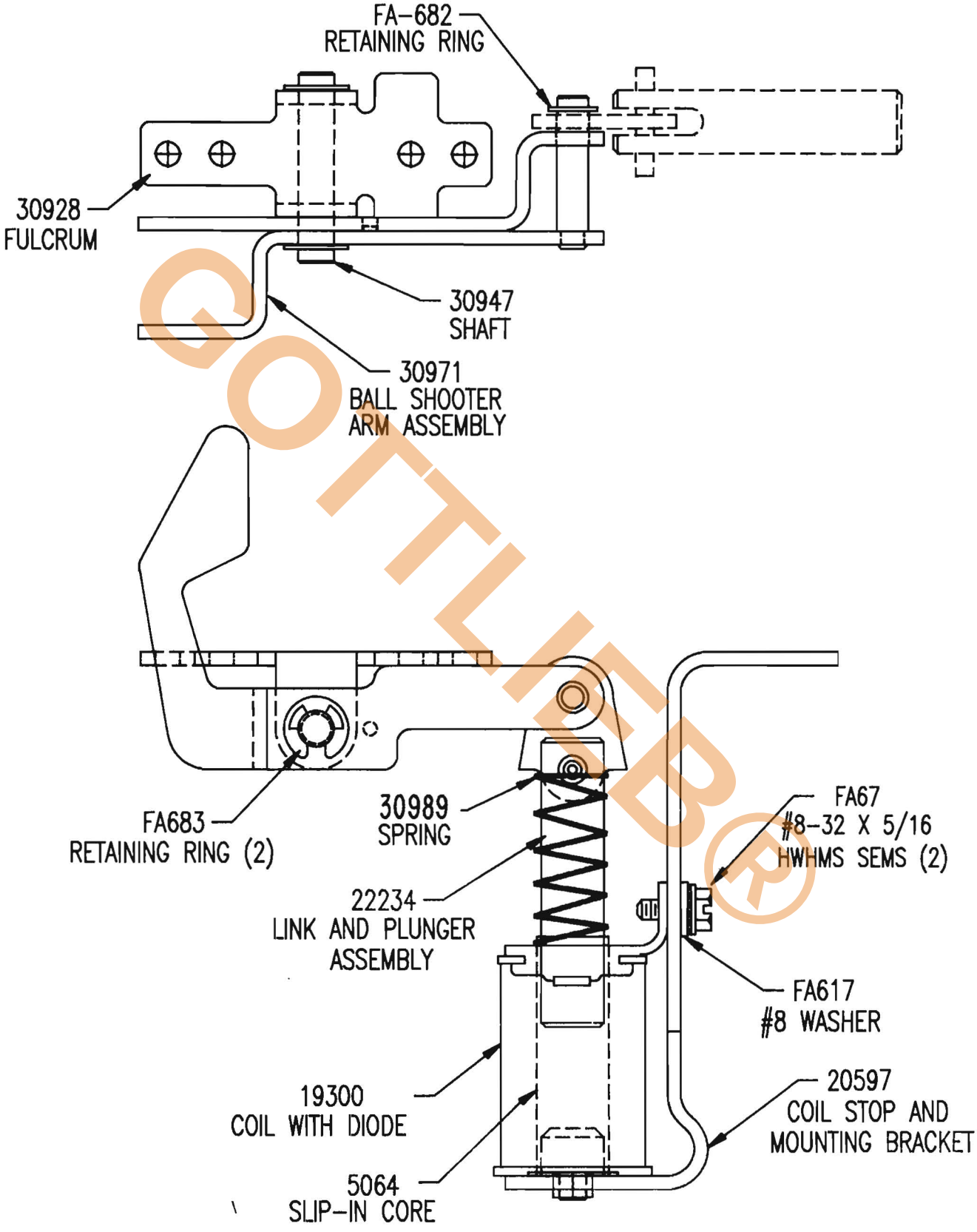


ITEM	DESCRIPTION	PART NO.
	TARGET ASSEMBLY	29714
1	RUBBER STRIP	24290B
2	TARGET SHAFT	20211
3	E-RING (2)	FA-682
4	TARGET ARM SUB-ASSEMBLY	27443
5	TARGET ARM	27444
6	SCREW, #5-40X 1" RHMS, (2)	FA-4
7	SWITCH COVER	465
8	SWITCH ASSEMBLY	27544
9	TARGET HOUSING	29712
10	URETHANE BUMPER (2)	29758
11	CAPACITOR, 0.1UF, +80-20%, 50V,(2)	XO-230
	DECAL (NOT SHOWN)	30998

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VII. PARTS INFORMATION

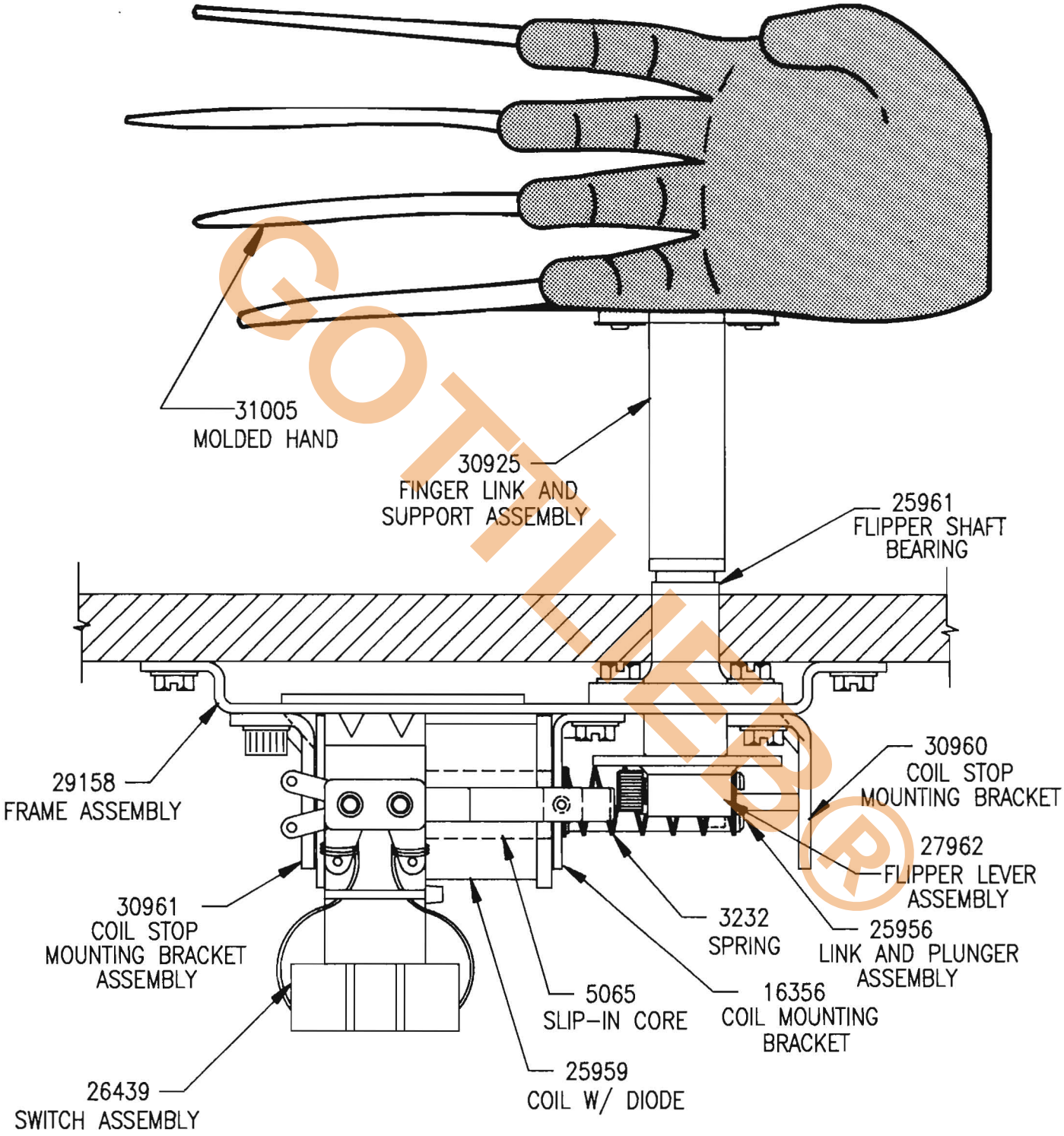
BALL SHOOTER ASSEMBLY, 30972



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VII. PARTS INFORMATION

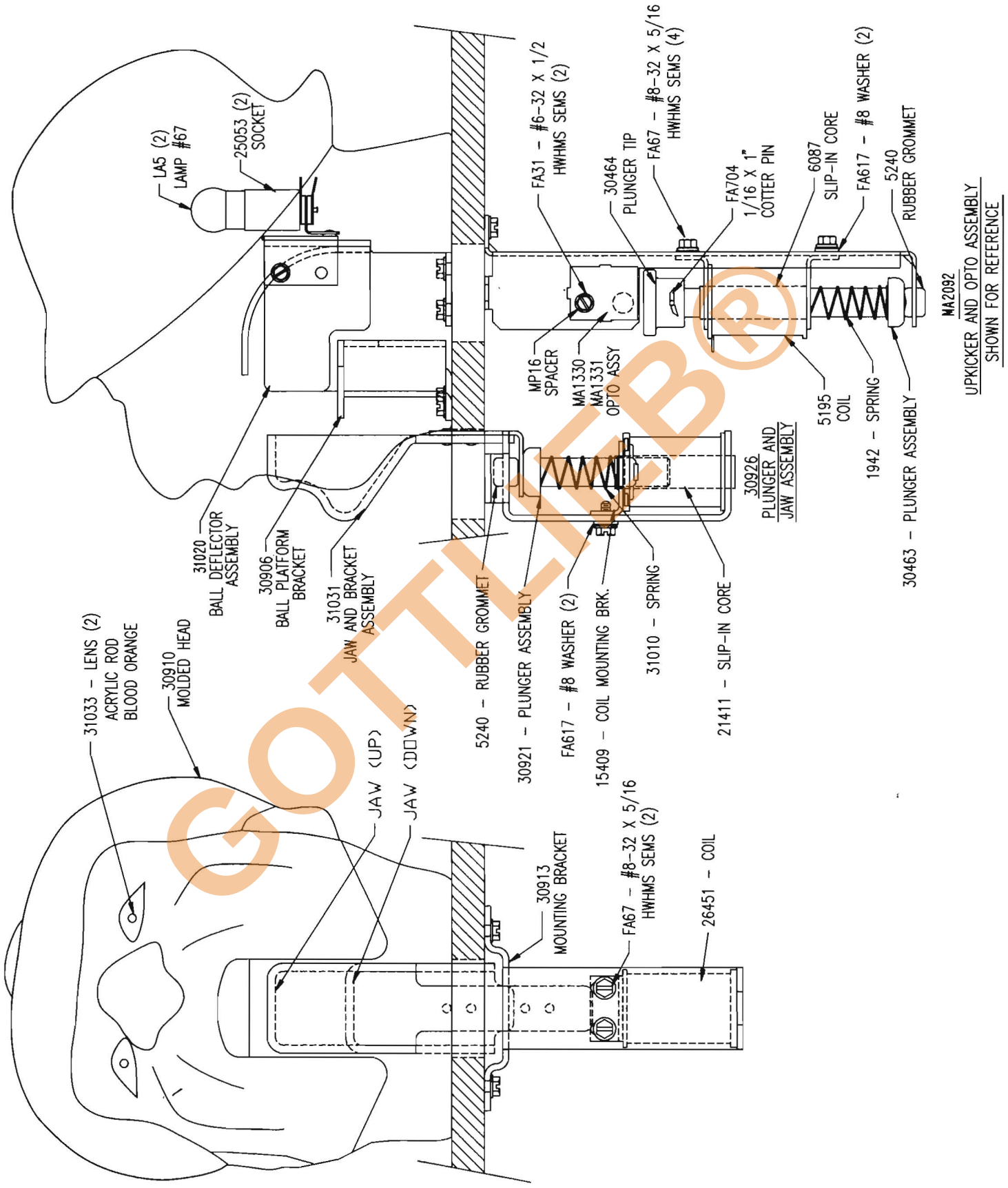
GLOVE UNIT ASSEMBLY



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VII. PARTS INFORMATION

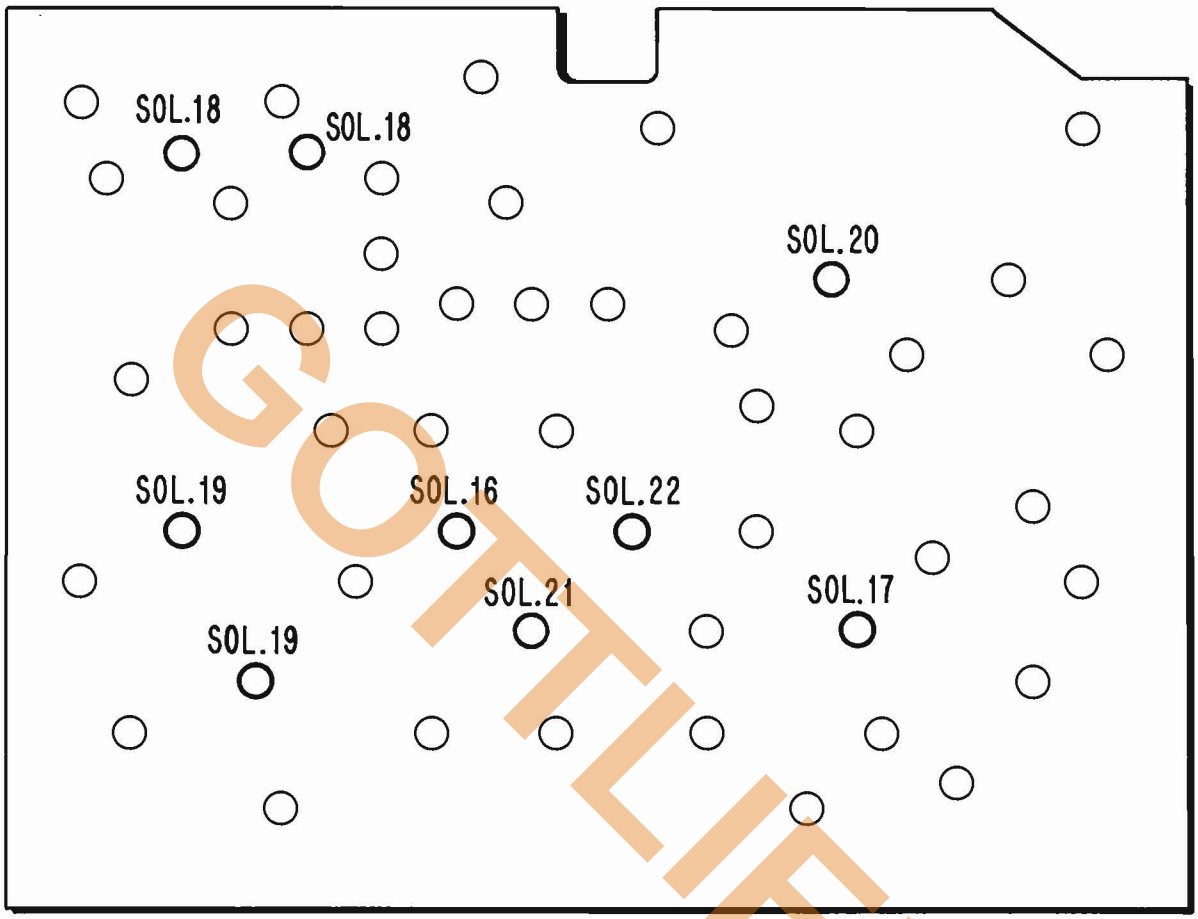
HEAD/JAW MECHANISM



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VII. PARTS INFORMATION

LIGHTBOX INSERT LAMP IDENTIFICATION



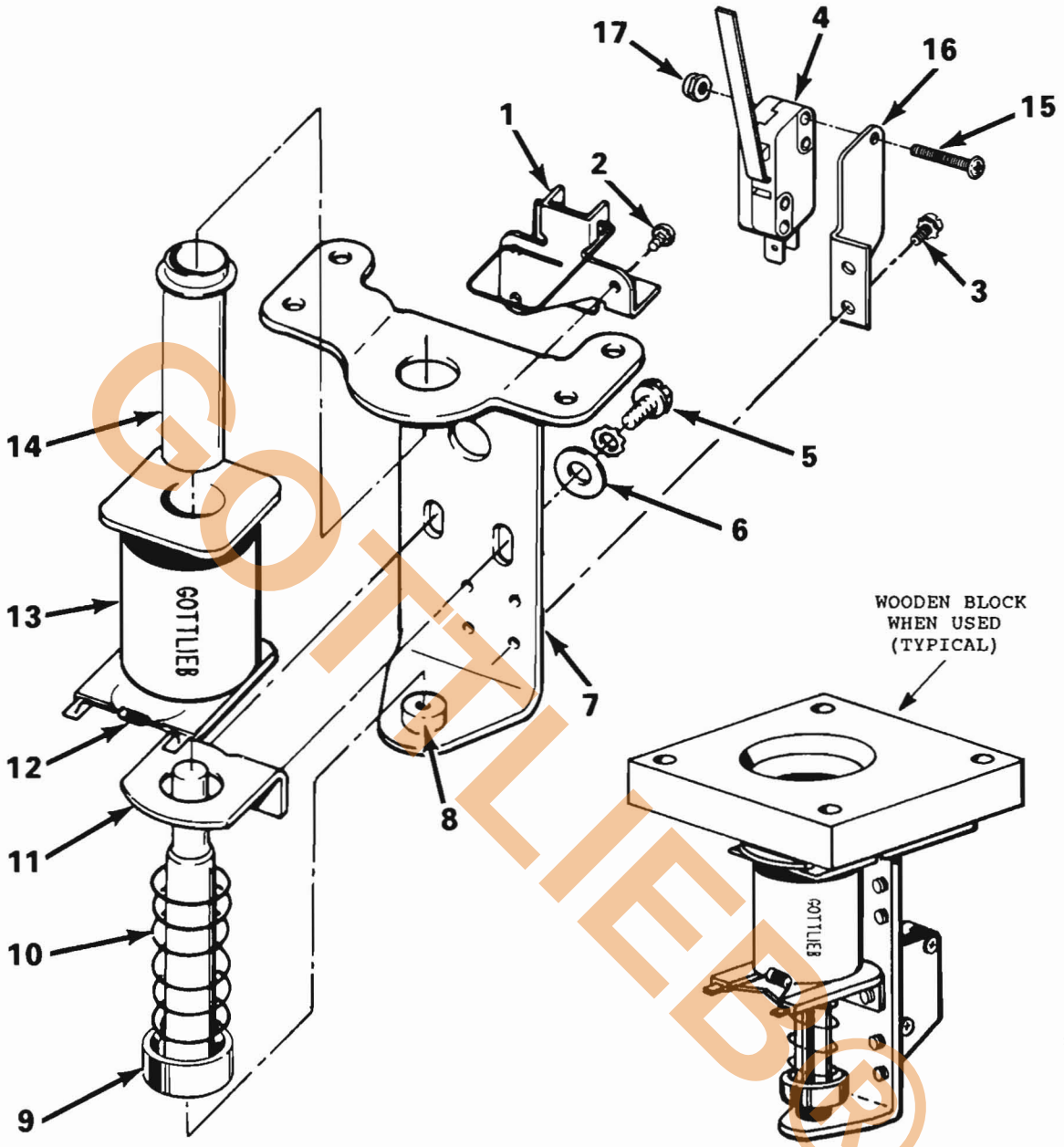
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NOTE:

1. DESIGNATED LAMPS ARE TYPE #904 WEDGE BASE, LAMPS NOT DESIGNATED ARE GENERAL ILLUMINATION, TYPE #555 WEDGE BASE.

VII. PARTS INFORMATION

UPKICKER PARTS



ITEM	DESCRIPTION	PART NO.
	UPKICKER ASSEMBLIES WITH ASSOCIATED COILS	MA-1743, 16570 COIL MA-1747, 26450 COIL MA-1789, 17876 COIL
1	WIREFORM AND BRACKET	28953
2	RHMS-SEMS 6-32 X 3/16" (3)	FA-30
3	RHMS 5-40 X 1/4" SEMS (2)	FA-10
4	MICROSWITCH WITH ACTUATOR	27667A
5	HWHMS-SEMS 8-32 X 5/16"(2)	FA-67
6	#8 WASHER (2)	FA-617
7	FRAME	21416
8	RUBBER GROMMET	5240
9	PLUNGER AND TIP ASSEMBLY	21412
10	SPRING	26739
11	COIL MOUNTING BRACKET	15409
12	DIODE, 1N4004	XO-254
13	COIL	(SEE SCHEMATIC)
14	SLIP-IN-CORE	21411
15	PAN HEAD 4-40 X 5/8"(2)	FA-107
16	MICROSWITCH MOUNTING BRACKET	27870
17	ELASTIC STOP NUT, 4-40 (2)	FA-648

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VII. PARTS INFORMATION

UNIQUE PARTS

The following denotes new parts and assemblies unique to FREDDY, A NIGHTMARE ON ELM STREET, GAME #744. Part numbers prefixed with an asterisk (*) will be illustrated or can be located on pages 28 thru 77. Numbers in parenthesis ( ) indicates multiple quantities.

PLAYBOARD

ITEM/DESCRIPTION	PART NO.
MOLDED TARGET SHROUD	*30868
MOTOR, 24RPM, 20V DC	*30882
BALL DEFLECTOR	*30889
WIREFORM RAMP	*30904
MOLDED HEAD	*30910
JAW MOVER PLUNGER AND COIL ASSEMBLY	*30926
BALL STOP ASSEMBLY, 4 FINGERS	*30931
CARDHOLDER ASSEMBLY	*30935
VACUUM FORM HOUSE	*30936
VACUUM FORM BOILER	*30937
MOTOR AND MICROSWITCH ASSEMBLY	*30940
SLIDING DOOR ASSEMBLY	*30942
METAL RUNWAY RAMP	*30963
RAMP AND BRACKET ASSEMBLY	*30966
BALL DEFLECTOR	*30967
BALL GATE AND SHAFT ASSEMBLY, 5-3/4"	*30969
BALL SHOOTER ASSEMBLY	*30972
BALL SCOOP-SHROUD ASSEMBLY	*30975
DROP TARGET DECAL (3)	*30992
TARGET DECAL	*30998
BALL GATE AND SHAFT ASSEMBLY, 3-3/4"	*31000
TARGET DECAL (2)	*31012
PLASTIC RED LENS (2)	*31033
NECK COVER PLATE	*31035
PLASTIC SHIELD SET	*31040
MYLAR OVERLAY	*31041
BALL GATE ASSEMBLY	*MA-2085
GLOVE UNIT ASSEMBLY	*MA-2088
UPKICKER ASSEMBLY	*MA-2092

CABINET

BALL SHOOTER ASSEMBLY	*31009
BUTTON SWITCH ASSEMBLY (PIEZO)	*31016
CABINET SCREENED	*31047-744
TRANSFORMER PANEL	*MA-2080

LIGHTBOX

LIGHTBOX SCREENED	28750-744
SPEAKER PANEL, PLEXI SCREENED	28827-744
STYRENE (BACKGLASS ART)	28833-744

DATA EAST®

BASIC TROUBLESHOOTING GUIDE

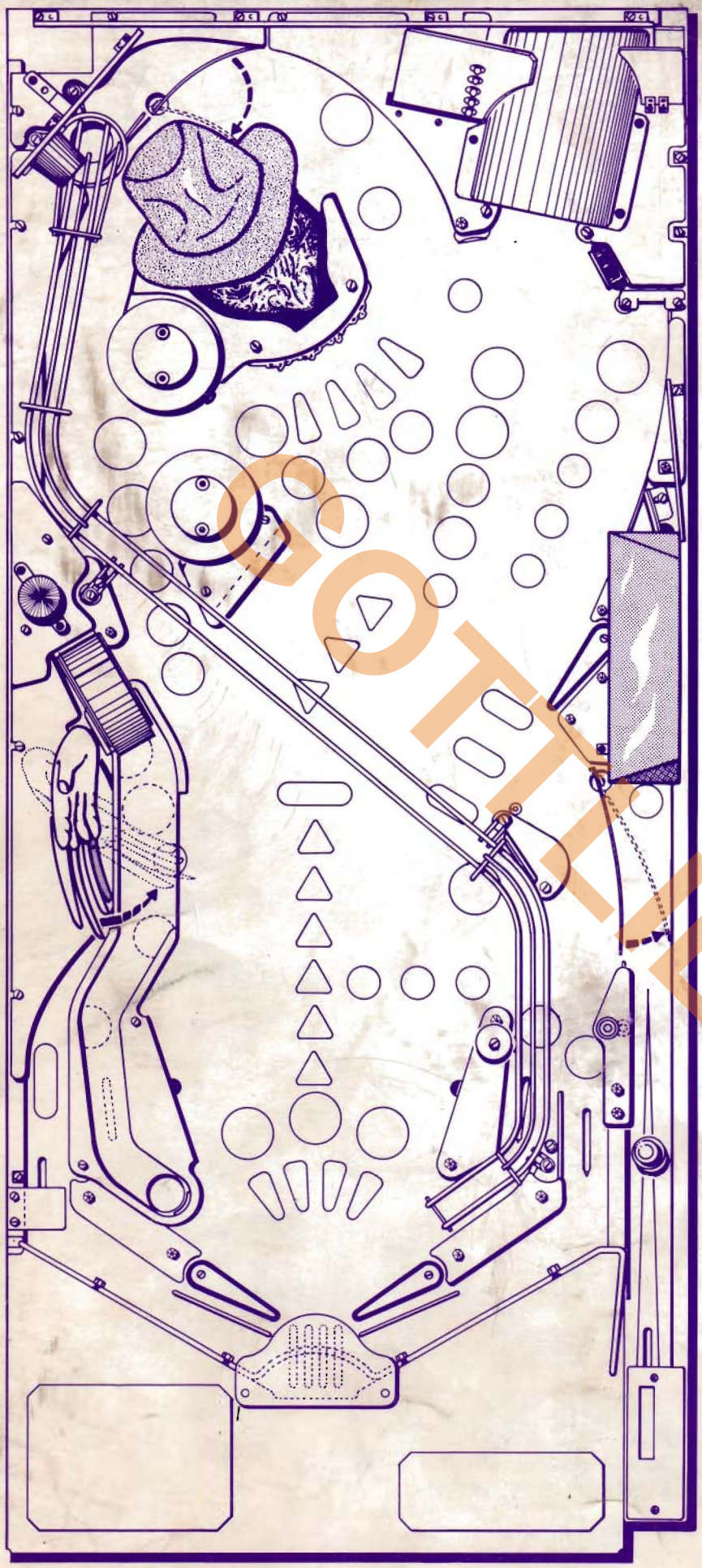
CONDITION	POSSIBLE CAUSE
Game does not power up	* Line fuse (F1) blown * Primary fuse (F2) blown
Game does not power up but general illumination lamps light	* Power supply fuse (F5) blown
SWITCH SHORT message appears in display on power up	* Check for a voltage >0v shorted to switch return number shown in display * Bad Control Board (A1) * Bad Driver Board (A3)
Lightbox illumination lamps do not light	* Fuse (F8) blown
Playfield illumination lamps do not light	* Fuse (F9) blown
All controlled lamps, flash lamps, relays, and switches not working	* Fuse (F6) blown * Bad Driver Board (A3)
All controlled lamps work but some switches do not work	* Bad diode associated with the switch (contact point type switch only)
Some controlled lamps and some switches do not work	* Short circuit on associated strobe line on playfield * Bad Driver Board (A3)
Display not working (blank) but LED on Dot Matrix Controller Board (A8) is flashing	* Display fuse (F3) or (F4) blown * Bad Dot Matrix Display Board (A4) * Bad Display Controller Board (A8)
Display not working and LED on Control Board is flickering rapidly	* Bad Dot Matrix Controller Board (A8) * Bad Control Board (A1)
Display not working and LED on Dot Matrix Controller Board (A8) is glowing bright to dim	* Bad Dot Matrix Controller Board (A8)
A solenoid operated device does not work. (Pop Bumper, Kicker, etc.)	* Associated fuse on playfield is blown * Bad Driver Board (A3)
All flippers and solenoids do not work	* Solenoid fuse (F7) blown
A flipper coil overheats and burns or fuse keeps blowing	* End of stroke switch on flipper unit not opening when the flipper button is held in. * Shorted capacitor on flipper unit
Flipper chatters when flipper button is held in	* Open hold winding (small diameter wire) on flipper coil
No sound or speech	* Bad Auxiliary Power Supply fuse (F10 or F11) * Bad Auxiliary Power Supply Board (A5) * Bad Auxiliary Sound Board (A20) * Bad Sound Board (A6)
Some sounds or speech missing	* Bad Auxiliary Sound Board (A20) * Bad Sound Board (A6)
An optical switch does not work or works intermittently	* Misalignment of LED transmitter to receiver * Bad LED transmitter and/or receiver * Bad Optical Interface Board (A25)

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IMPORTANT NOTICE

THIS SHIPMENT HAS BEEN CAREFULLY INSPECTED AND PROPERLY PACKED BEFORE LEAVING THE FACTORY.

WE CANNOT ASSUME RESPONSIBILITY FOR BREAKAGE THAT MAY OCCUR IN TRANSPORTATION. IF THIS SHIPMENT IS DAMAGED IN ANY WAY, IMMEDIATELY NOTIFY THE CARRIER AND FILE DAMAGE REPORT SO THAT A SATISFACTORY ADJUSTMENT CAN BE MADE BY THEM.



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