

ON TARGET

Gottlieb

TECHNICAL NEWSLETTER

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MARCH 1982

SYSTEM 80A ENHANCEMENTS (PART ONE)

Commencing with "Devils Dare" pinball and "Caveman" pin-video, Gottlieb has introduced System 80A. Permanently replacing System 80 in all future games, System 80A has improved bookkeeping and self-test capabilities, permits the use of seven-digit displays,

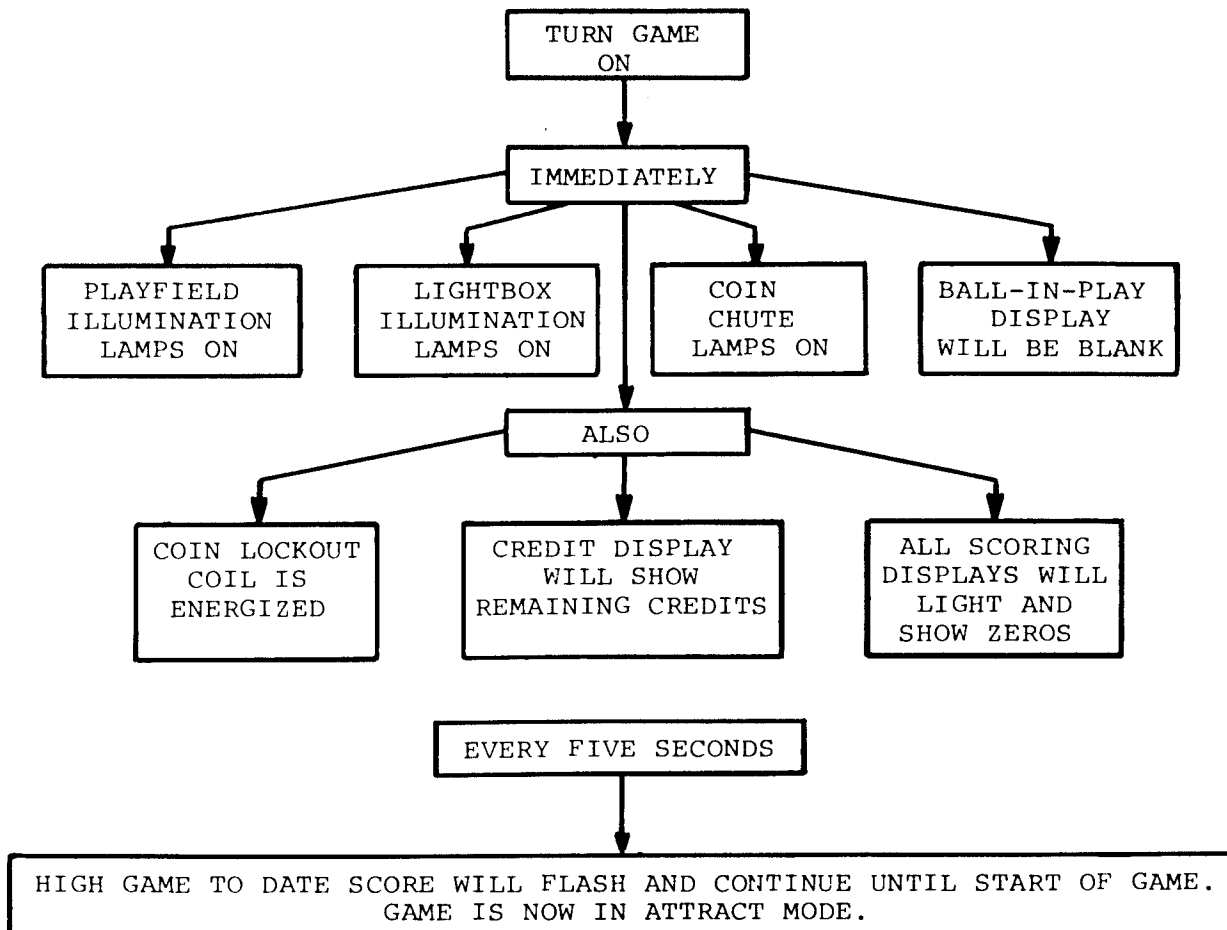
and allows for greater coin/credit combination flexibility.

The control board's ROM memory chips, U2 and U3, have been reprogrammed for System 80A. For ease of troubleshooting and fast interchangeability, U2 and

U3 have been socketed. In doing so, there is no need to keep on hand dedicated control boards for two systems. By using the appropriate sets of ROM's, our D107 control board can be used in either system. The ROM's have been marked for easy identification.

| <u>System</u> | <u>U2</u> | <u>U3</u> |
|---------------|-----------|-----------|
| 80 | R-3273-12 | R-3272-12 |
| 80A | X0-326 | X0-327 |

INITIALIZATION



GAME ADJUSTMENTS

CONTROL BOARD SWITCH ADJUSTMENTS

NOTE: The following switch adjustments pertaining to system 80A only. There are 32 switches on the control board which permit adjustment of the game parameters. These switches are contained in four packages of eight switches each, as shown below.

COIN CHUTE COMBINATIONS SYSTEM 80A

| SWITCHES | | | | | COIN CHUTE ADJUSTMENTS | |
|----------|-----|-----|-----|-----|------------------------|--|
| S1 | S2 | S3 | S4 | S5 | Left Coin Chute | |
| S9 | S10 | S11 | S12 | S13 | Right Coin Chute | |
| S17 | S18 | S19 | S20 | S21 | Center Coin Chute | |
| SWITCHES | | | | | CREDITS/COINS | |
| OFF | OFF | OFF | OFF | OFF | 1/1 | |
| OFF | OFF | OFF | OFF | ON | 2/1 | |
| OFF | OFF | OFF | ON | OFF | 3/1 | |
| OFF | OFF | OFF | ON | ON | 4/1 | |
| OFF | OFF | ON | OFF | OFF | 5/1 | |
| OFF | OFF | ON | OFF | ON | 6/1 | |
| OFF | OFF | ON | ON | OFF | 7/1 | |
| OFF | OFF | ON | ON | ON | 8/1 | |
| OFF | ON | OFF | OFF | OFF | 9/1 | |
| OFF | ON | OFF | OFF | ON | 10/1 | |
| OFF | ON | OFF | ON | OFF | 1/2 | |
| OFF | ON | OFF | ON | ON | 2/2 | |
| OFF | ON | ON | OFF | OFF | 3/2 | |
| OFF | ON | ON | OFF | ON | 4/2 | |
| OFF | ON | ON | ON | OFF | 5/2 | |
| OFF | ON | ON | ON | ON | 6/2 | |
| ON | OFF | OFF | OFF | OFF | 7/2 | |
| ON | OFF | OFF | OFF | ON | 8/2 | |
| ON | OFF | OFF | ON | OFF | 9/2 | |
| ON | OFF | OFF | ON | ON | 10/2 | |
| ON | OFF | ON | OFF | OFF | 1/3 | |
| ON | OFF | ON | OFF | ON | 2/3 | |
| ON | OFF | ON | ON | OFF | 1/4 | |
| ON | OFF | ON | ON | ON | 3/4 | |
| ON | ON | OFF | OFF | OFF | 1/5 | |

* All of the above do not give credits until the last coin is inserted.

SWITCHES 6, 7 AND 8 _____ SPARES

SWITCH 14 _____ COIN CHUTE 1 & 2 CONTROL
 ON Same
 OFF Separate

SWITCHES 15 16 _____ MAXIMUM CREDITS
 OFF OFF 8
 OFF ON 10
 ON OFF 15
 ON ON 25

SWITCH 22 _____ PLAYFIELD SPECIAL
 ON Extra Ball
 OFF Special

SWITCHES 23 24 _____ HIGH GAME TO DATE AWARDS
 OFF OFF None
 OFF ON None
 ON OFF 2 Replay
 ON ON 3 Replay

SWITCH 25 _____ BALLS/GAME
 ON 3
 OFF 5

SWITCH 26 _____ MATCH
 ON On
 OFF Off

SWITCH 27 _____ REPLAY LIMIT
 ON 1
 OFF No Limit

SWITCH 28 _____ NOVELTY
 ON Yes
 OFF Normal

SWITCH 29 _____ GAME MODE
 ON Extra Ball
 OFF Replay

SWITCH 30 _____ 3RD COIN CHUTE CREDIT CONTROL
 ON Add 9
 OFF No Effect

SWITCHES 31 32 _____ LIBERAL/CONSERVATIVE
 Not Used

ADDITIONAL COIN CHUTE COMBINATIONS CREDIT INCENTIVES

ALL OF THE BELOW CANNOT HAVE 9 CREDITS ADDED BASED ON SWITCH 30

| SWITCHES | | | | | |
|----------|-----|-----|-----|-----|-------------------|
| S1 | S2 | S3 | S4 | S5 | Left Coin Chute |
| S9 | S10 | S11 | S12 | S12 | Right Coin Chute |
| S17 | S18 | S19 | S20 | S21 | Center Coin Chute |

| COIN/CREDIT GIVEN | COIN/CREDIT GIVEN | COIN/CREDIT GIVEN | COIN/CREDIT GIVEN | COIN/CREDIT GIVEN | TOTAL COIN/TOTAL CREDIT |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|
| ON ON OFF OFF ON | 1st/1 | 2nd/2 | | | = 2/3 |
| ON ON OFF ON ON | 1st/0 | 2nd/1 | 3rd/1 | 4th/1 | = 4/3 |
| ON ON OFF ON ON | 1st/0 | 2nd/1 | 3rd/0 | 4th/2 | = 4/3 |
| ON ON ON OFF OFF | 1st/1 | 2nd/1 | 3rd/1 | 4th/2 | = 4/5 |
| ON ON ON OFF ON | 1st/1 | 2nd/2 | 3rd/1 | 4th/3 | = 4/7 |
| ON ON ON ON OFF | 1st/1 | 2nd/2 | 3rd/2 | 4th/2 | = 4/7 |
| ON ON ON ON ON | 1st/0 | 2nd/0 | 3rd/1 | 4th/0 | = 5/2 |

7 DIGIT DISPLAY

Shown below is a schematic diagram of a 7 digit display. A comparison of this schematic with that of a six digit display, located in the instruction manual, will reveal that there are very few differences. The primary difference is the use of Z3 by the 7 digit display. Z3 is a SN7432N OR gate used to enable each of the two commas at the proper time. A second difference would be the use of a 24 pin connector by

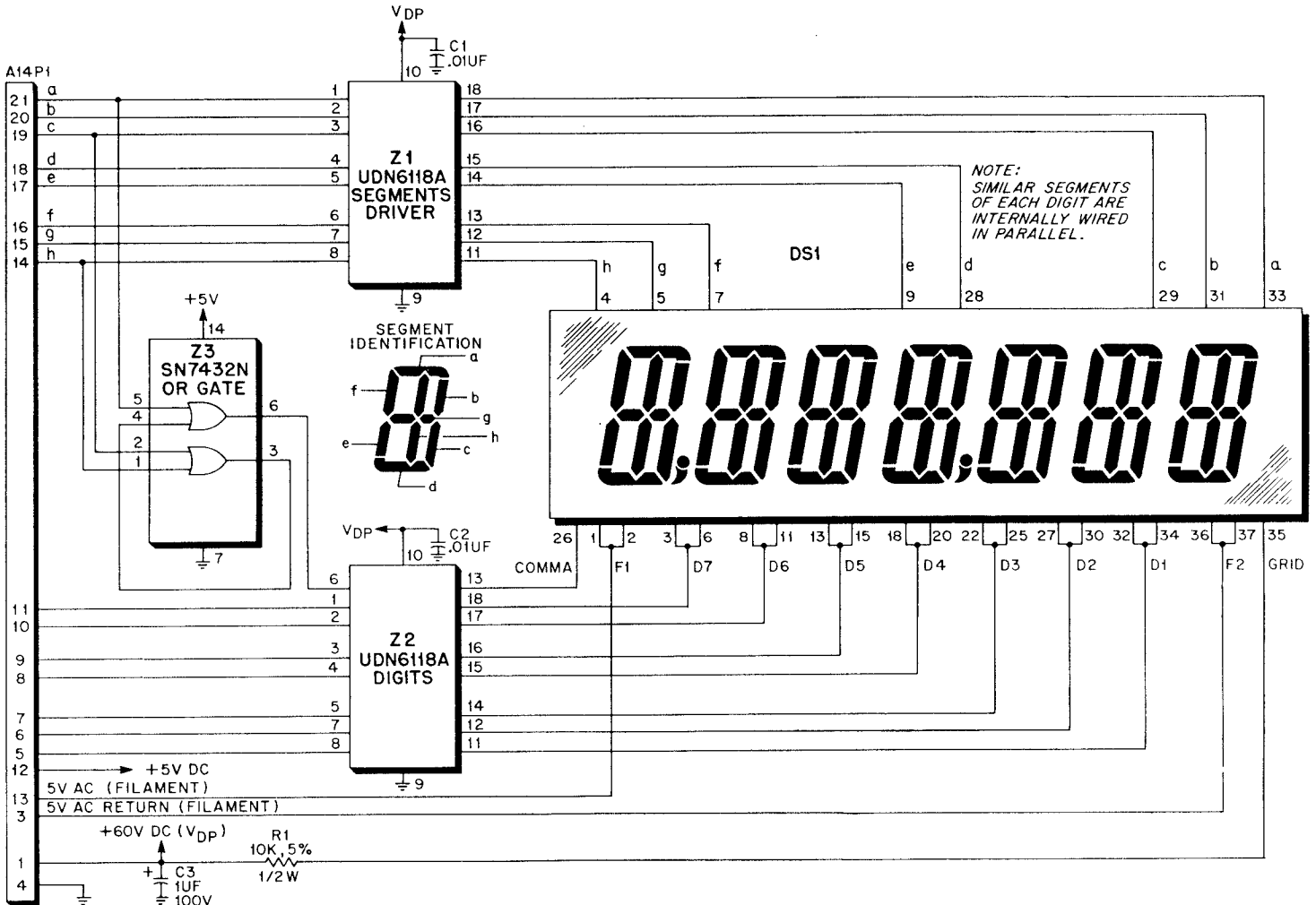
the 7 digit display as opposed to the 19 pin connector used by the 6 digit display.

NOTE: A 7 digit display will not fit into the 19 pin connector. And the 6 digit display will not fit into a 24 pin connector.

A third difference would be the +5V DC required by Z3 and the use of 2 additional Data Strobes, D16 for players 1 and 3 and D13 for players 2 and 4. These additional strobes are need-

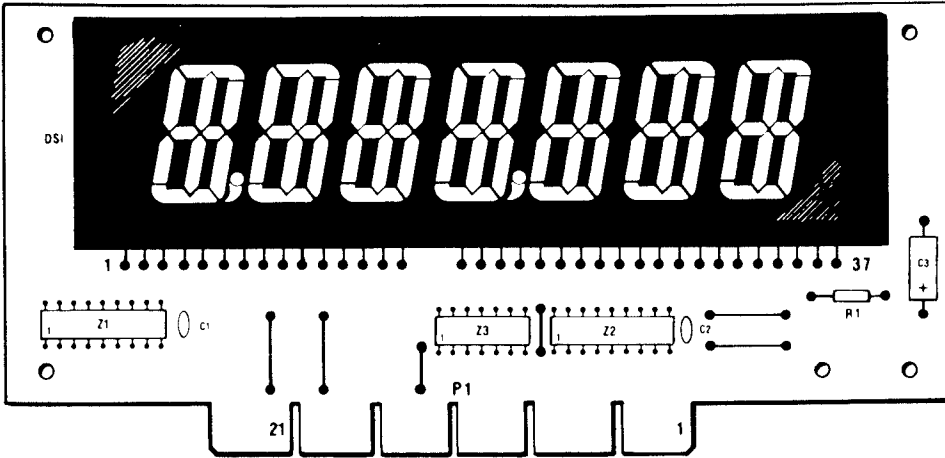
ed for seventh digit. D1-D7, shown on the following schematic each represent the specific digit that they control. The D1-D6, D13 and D16 shown on the lightbox schematic diagram, located in your instruction manual, indicate DIGIT STROBES From the control board. The digit strobes will not correspond to the D1-D7 designations on the display schematic diagram. EXAMPLE: Data Strobe 7 is used by Digit 1 (D1) on the display.

7-DIGIT DISPLAY (A14) SCHEMATIC DIAGRAM



| | |
|-------------------|-----------------------|
| D. GOTTLIEB & CO. | |
| TITLE | 7 DIGIT DISPLAY (A14) |
| USED ON | |
| DRAWN | APPROVED: GATE |
| 1-28-82 | E-21831 |

7-DIGIT DISPLAY (A14) COMPONENT LOCATION



7-DIGIT DISPLAY (A14) PARTS LIST

| REFERENCE | DESCRIPTION | PART NUMBER |
|-----------|---|-------------|
| C1, C2 | Capacitor .01 mfd. 100V Kemet | X0-202 |
| C3 | Capacitor 1 mfd 100V Sprague | X0-206 |
| DS1 | 7 Digit Display Tube - FUTABA | X0-477 |
| R1 | Resistor, 10K ohm, 5%, 1/2W | X0-62 |
| Z1, Z2 | IC - Fluorescent Display Driver - Sprague | X0-415 |
| Z3 | IC Quad or Gate | X0-407 |

Next Month:

System 80A Part Two:
Enhanced bookkeeping and
self-test capabilities.

Notice

The Pinball/Video Service Hotlines are now the same. Call 800-323-9121, in Illinois 800-942-1620 from 8:00 a.m. to 4:30 p.m. CST for any Gottlieb pinball or video game assistance.

MAILING LIST: Get ON TARGET every month by sending your name and mailing address to:

ON TARGET
GOTTLIEB AMUSEMENT GAMES
165 W. LAKE STREET
NORTHLAKE, IL 60164

FLASHBACK

The name REGISTER was the only one used three times by Gottlieb. The first time was in May 1934, a pre-electrical game; the next REGISTER was in April 1938, and this had a large dial pointer in the short lightbox; the last, in October 1956, was a conventional 4-player flipper game whose name referred to the social register.

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