

"ELECTRONICS OPERATION MANUAL"

"DYN-O-MITE"

PIN BALL (#264)

DYNAMITE THEORY OF OPERATION AND TROUBLE SHOOTING GUIDE

SUBJECT: The credit board assembly 264-1-56

Introduction:

The main function of the credit board is to indicate the amount of credits that have been established by coin entry or replay. The adjustment procedures are outlined in the feature adjustment section of this text.

The credit board also contains the circuitry to initialize the system at power turn on and also to lengthen the duration of the fast pulse from the score units when a replay or Add-a-Ball condition has been reached.

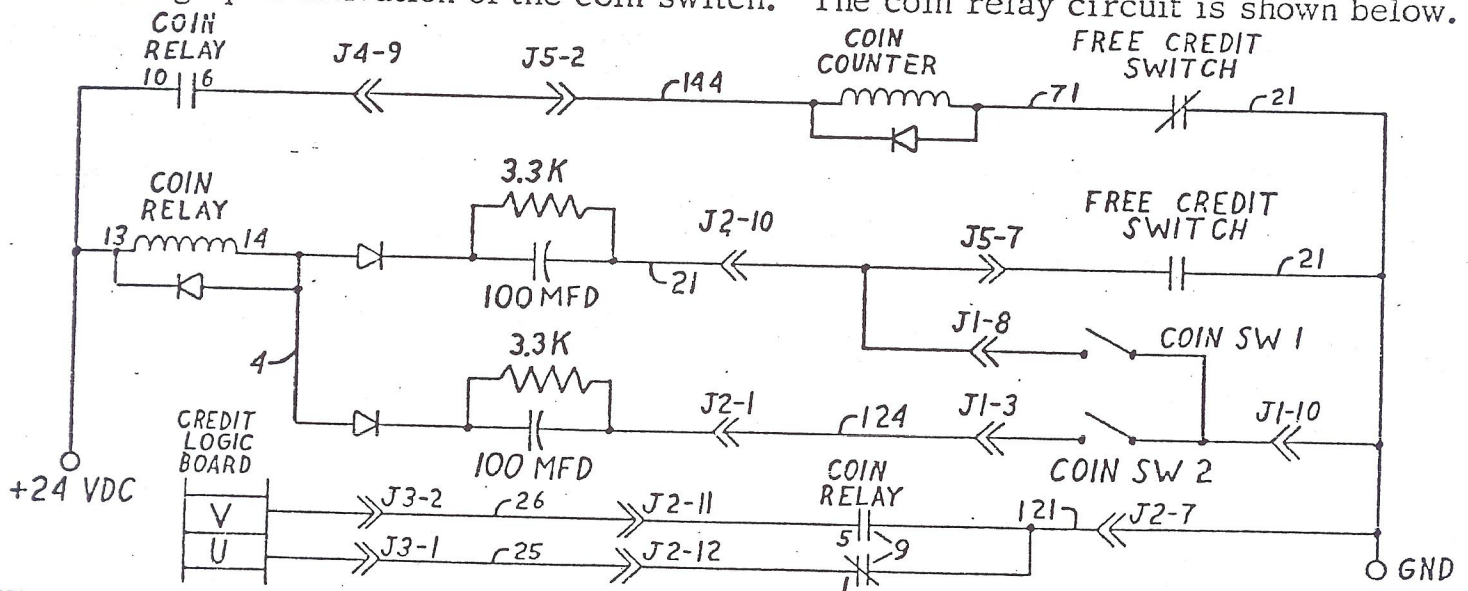
DETAILED DESCRIPTION:

1. Initialization

Whenever power is first applied to the machine, the score and credit displays are automatically reset to zero. This "Initializing" signal is generated on the credit board. Ass'y. #264-1-56. To test for proper initializing signal, momentarily remove power from the machine. When power is reapplied, Led 11 on the credit board should light for approximately $\frac{1}{2}$ second. When Led 11 extinguishes, Led 6 should brighten and remain lit brightly (while Led 11 is lit, Led 6 should be off or dimly lit).

2. Credit Circuitry

When either coin switch is depressed, Led 4 on the credit board should momentarily light. This indicates that the ground signal, from the coin relay has been received at the credit board. If this does not occur, check if the coin relay is momentarily closing upon activation of the coin switch. The coin relay circuit is shown below.



Whenever the signal from the coin relay lights Led 4, the credit indicator should advance providing the following conditions exist:

- The jumper for 1 coin or 2 coins is installed.
- The coinage determining jumper are selected.
- The maximum number of credits has not been reached. (Eight credits has been chosen as the maximum).

- D. That Led 1 is not lit. (This led should light only when the credit is down counted upon the pressing of the credit button on the coin door). Make sure that the credit button is properly adjusted. It is a "C" contact switch that must break the normally closed contacts before making the normally open contacts.
- E. Led 7 should not be lit. This Led should only light when a replay signal is applied to the credit board.

Whenever there is credit indicated on the credit display, Led 2 should be lit. Led 2 indicates that the signal to enable the player up board is being generated at the credit board. The function that the Leds on the credit board indicate are as follows:

- LD1. LD1 monitors pin M. This Led should only light when a signal from the player up board is present to cause the credit indicator to decrease its count by 1. This occurs whenever the credit button is pressed, providing that there is credit available and the maximum number of players has not been reached.
- LD2. LD2 monitors pin T. This Led is on whenever there is a credit available. It must be on to enable the credit button related functions on the player up board.
- LD3. LD3 monitors pin 16. This Led lights whenever credits are accumulated by coin entry. It indicates that the coin sound signal has been generated by the credit board.
- LD4. LD4 monitors pin V. Normally off, goes on when coin relay 1 is closed. (Some machines have 2 coin relays).
- LD5. Led 5 monitors pin Y. Whenever a signal for replay or Add-a-Ball has been generated, LD5 should light indicating that the signal to the relay driver board to pull in the replay kicker has been generated at the credit board.
- LD6. When power is first applied to the machine, LD6 should be off or dimly lit for approximately $\frac{1}{2}$ second. It should then lite brightly until power is again turned off. The period during which the power is on, and LD6 is dimly lit or off is time that the credit circuit is being initialized to the reset state. This condition should also occur if static electricity has been received by the static antenna.
- LD7. LD7 monitors pin P. It should light only when a replay signal is prsent. This signal comes from the replay/Add-a-Ball selector terminal strip.
- LD8. LD 8 monitors pin W. Some machines may have two coin relays, this led indicates that coin relay 2 is activated. (It should never light if the machine has only one coin relay).
- LD9. LD9 monitors pin BB. Whenever a condition from the score units, Line 'em up, or playfield logic existst to give a replay or Add-a-Ball. LD9 should momentarily light. It should be noted that the signal from the score units is very fast and just barely discernable. It should also be noted that the short duration signal of LD9 is expanded into a longer pulse and is indicated by LD5 and LD10. If LD5 and LD10 momentarily light then a quick pulse at LD9 must have been present.
- LD10. LD10 monitors pin 7. LD10 will light to indicate that a replay or Add-a-Ball signal has been generated at the credit board and sent to the replay/Add-a-Ball selector terminal strip.
- LD11. LD11 monitors pin L. Whenever power is turned on, or static electricity has been detected by the static antenna, LD11 should momentarily light indicating that the initializing signal has been generated at the credit board to initialize the other logic boards in the machine.

THEORY OF OPERATION PLAYER UP BOARD ASS'Y. #264-1-62

INTRODUCTION:

The main functions of the player up board are:

1. To determine the number of players.
2. To determine which player is up. This signal enables the proper score unit.
3. To determine what number ball is in play.
4. To determine whether the same player shoots again (Add-a-ball).
5. To reset the score units.
6. Interface with the credit button circuitry and to generate the signal that causes the credit board to decrease by one, the amount of credits displayed each time the credit button is pressed (provided that credit exists and the maximum number of players has not been reached).
7. To determine when to energize the tilt relay.
8. It provides the reset signal to the playfield logic printed circuit board, the bonus board, and the mode sequence board.
9. It also contains the score flash circuitry.
10. It determines when power is given to the playfield by controlling the game on relay.
11. It also contains the slam switch circuitry to put the game to game over when either slam switch opens.

SEQUENCE OF OPERATIONS:

Once credit has been established from the credit board circuitry, the pressing of the credit button will tell the player up board to increase the number of players playing by one, put the first player up, the first ball in play, cause the first players score to flash off and on, reset the score to zero, to reset the playfield logic board, and to send the signal to the relay driver board to energize the game on relay. In addition, a signal is sent to the credit board to decrease by one the amount of credits displayed. At this time, the game on signal and the reset playfield logic signal are sent to the mode sequencer board which will start the mechanical reset sequence (providing that the ball is closing the out hole kicker switch) which resets sequentially the playfield mechanics and ends by kicking the ball into the ball shooter lane. The ball is now ready to be played.

When the ball rolls over the ball shooter switch the score units will stop flashing, and the playfield logic is enabled. When the ball leaves the playfield, the mode sequencer will generate an advance player up signal which will cause the next ball to be in play, or the second player to shoot the same ball depending on the number of players which have been selected. It also resets a tilt, the score unit again flashes, the playfield is reset, and the ball is returned to the ball shooter lane. The game is played until the last player has shot his last ball. At this time the game goes to game over. It should also be noted that if an Add-a-Ball signal was received at the player up board, then the same player will shoot again. The same player shoots again, lamps will flash until the ball rolls over the ball shooter roll over switch.

It should also be noted that if the credit button is pressed after the ball has passed over the ball shooter roll over switch, the game will go to game over, and restart

with one player with the first ball in play. This function, however, is inhibited if no credit is available from the credit board.

The signals which the leds monitor on the player up board are as follows:

- LD1. LD1 monitors the tilt switch input pin A. Whenever the roll tilt or pendulum tilt switches close LD1 should light and the game should go to the tilt mode. If LD1 lights then LD 16 should light energizing the tilt relay. A tilt is reset when an advance player up sign is received.
- LD2. LD2 monitors the score flash signal pin 20. When it is lit, the score units are lit. When it is flashing, the score unit of the player up will flash. This led is also off during a tilt condition.
- LD3. LD3 monitors the Add-a-Ball input; a momentary low signal to pin B should light LD3 and cause an Add-a-Ball condition. If LD3 lights then LD17 should light. This is the same player shoots again lamp signal.
- LD4. LD4 monitors the credit $\neq 0$ input pin 3. This led is lit when the credit board signals the player up board that credit is available.
- LD5. Led 5 monitors pin C. This is the playfield logic reset signal. Led 5 should be lit whenever the score is flashing or a tilt condition exists. This reset signal resets the playfield logic, the bonus board, and in addition, it tells the mode sequencer to start the mechanical reset sequence provided that the game is on and the ball is in the out hole.
- LD6. LD6 monitors the ball in play switch pin 1 located in the ball shooter lane. this led lights when the ball in play switch is closed.
- LD7. LD7 monitors pin 5, the normally open contact of the credit button. When the button is pressed LD7 lights, and LD12 extinguishes. Led 12 relights when the button is returned to its normal position.
- LD8. Led 8 monitors pin H. It lights each time the credit button is pressed, providing that the maximum number of players has not been reached and there is credit available. This signal tells the credit unit to decrease the indicated credit by 1 count.
- LD9. LD9 monitors pin 7. This led lights when the mode sequencer generates the signal which advances the player up. This occurs after the bonus is collected or after the line 'em up, or when a tilt ball leaves the playfield. In addition, the advance player up signal resets a tilt condition.
- LD10. Led 10 monitors pin BB. This is the slam switch input. This led is normally lit and goes out when either slam switch opens. If a slam switch opens, the game goes to game over.
- LD11. Led 11 monitors pin 4. This is the game on signal. This Led is let whenever the game is in play. This signal goes to the relay driver board which energizes the game on relay providing power to the playfield, and shutting off the game over lamp.
- LD12. LD12 monitors the normally closed credit button contacts pin D. This led should be normally lit and extinguish when the credit button is pressed.
- LD13. LD13 is not used.
- LD14. Led 14 monitors the line 'em up selector terminal strip 6/F. Led 14 lights when the line 'em up ball is in play (last ball).
- LD15. LD15 is not used.
- LD16. Led 16 monitors pin 19. This is the signal that goes to the tilt relay driver. Led 16 should light during a tilt condition indicating that the proper signal is being generated to energize the tilt relay driver. This signal also goes to mode sequencer. LD1 indicates the tilt switch input.

- LD17. Led 17 monitors pin 21. The signal to the same player shoots again lamp drivers. If an Add-a-Ball condition exists, Led 17 should be lit or flashing, to indicate that the proper signal is being sent to the lamp driver board to turn-on or flash the same player shoots again lamps. Led 3 monitors the Add-a-Ball input signal.
- LD18. Led 18 is not used.
- LD19. Led 19 is monitoring a point in the logic signifying that the proper initializing or game over condition exists. It is normally lit when the game is in play. It extinguishes during game over and initialization.
- LD20. LD20 monitors pin 8. When LD 20 is lit no player should be up. Led 20 is lit during game over.
- LD21. Led 21 monitors pin J. Player 1 is up when Ld21 is lit. It signals the lamp driver.
- LD22. Led 22 monitors pin 9. Player 2 is up when Led 22 is lit. It signals the lamp driver.
- LD23. LD23 monitors pin K. When Led 23 is lit player 3 is up. It signals the lamp driver.
- LD24. Led 24 monitors pin 10. When Led 24 is lit player 4 is up. It signals the lamp driver.
- LD25. Monitors player 5 pin L.
- LD26. Monitors player 6 pin 11.
- LD27. Led 27 is lit showing that the number of players = 0. This led is lit during game over.
- LD28. Led 28 monitors pin M. When led 28 is lit, it indicates that the number of players is one. It signals the lamp driver board.
- LD29. LD29 monitors pin 12, it signals the lamp driver that 3 players are playing.
- LD30. Led 30 monitors pin N. It signals the lamp driver that 3 players are playing.
- LD31. Ld 31 monitors pin 13 indicating that the number of player is 4.
- LD32. Ld 32 monitors pin P indicating that the number of players is 5.
- LD33. Ld 33 indicates that the number of players is 6.
- LD34. LD34 monitors pin R, indicating that ball 0 is in play. This led is lit during game over.
- LD35. LD 35 monitors pin 15, indicating to the lamp driver that ball 1 is in play.
- LD36. LD 36 monitors pin S, indicating to the lamp driver that ball 2 is in play.
- LD37. LD 37 monitors pin 16, indicating to the lamp driver that ball 3 is in play.
- LD38. LD 38 monitors pin T, indicating that ball 4 is in play.
- LD39. LD39 monitors pin 17, indicating to the lamp driver that ball 5 is in play.

It should be noted that the jumper in the wiring harness to pin AA determines the maximum number of players.

THEORY OF OPERATION

MODE SEQUENCER INTERFACE BOARD ASS'Y. # 264-1-54

INTRODUCTION:

The mode sequencer interface board determines when to perform the following operations:

1. When to collect the bonus.
2. When to start the line em up feature.
3. When to sequentially reset the playfield.
4. When to generate the advance player up signal that tells the player up board to go to the next player or next ball.

Sequence of events:

Once credit has been established and the credit button has been pressed to select the number of players, the game on signal and the reset playfield logic signal will be generated from the player up board. The mode sequencer receives these signals and the signal from the ball closing the out hole kicker switch. These signals (provided that the game is not tilted) will start the playfield reset sequence which ends when the ball is kicked out of the out hole and into the ball shooter lane. When the ball is shot it passes over the switch in the ball shooter lane. This causes the player up board to discontinue the reset playfield logic signal. The ball now generates score and advances the bonus until it leaves the playfield. When the ball leaves the playfield and closes the out hole kicker switch, the following actions occur:

1. After the last playfield switch has stopped scoring (score busy switch goes out) the bonus will be drained.
2. When the bonus is drained (bonus = 0 LD is on), the advance player up signal is generated provided that this was not the last ball. (Last ball led is not lit). This last ball signal comes from the line em up selector terminal strip.
3. If the last ball is lit, then the start match (start line em up) signal is sent to the line em up board.
4. Once the line em up sequence is complete the line em up board tells the mode sequencer that the match is complete.
5. When the mode sequencer receives the match complete signal, the advance player up signal is sent from the mode sequencer to the player up board.
6. The player up board, once it has received the advance player up signal will in turn generate the reset playfield logic signal which will cause the mode sequencer to start the mechanical reset sequence (providing that the game is not over or tilted, and that the ball is closing the out hole kicker switch).
7. This occurs until the last player shoots his last ball, at which time the game on signal is removed from the mode sequencer board and hence the ball is not kicked into the ball shooter lane.

The signals which the leds on the mode sequencer monitor are as follows:

- LD1. LD1 monitors the score busy signal at pin 1. All sequences which generate from the mode sequencer are inhibited as long as LD1 is lit. When the score busy signal is not lit, then the sequence can properly commence.
- LD2. Lcd 2 monitors pin 3/C. This is the out hole kicker switch which lights LD2 when the ball leaves the playfield.
- LD3. LD3 monitors the bonus = 0 signal at pin 9/K. This led should light when ever the bonus = 0.

- LD4. LD4 monitors pin 7/H. LD4 indicates the last ball. Actually, this signal comes from the line em up selector terminal strip. When LD4 is lit, the mode sequencer will start the line em up after the bonus is collected.
- LD5. Led 5 monitors pin 5/E. LD 5 tells the bonus unit to drain. LD 5 should light when LD1 and LD2 are lit.
- LD6. Led 6 being lit indicates that the playfield mechanical sequence is in progress provided that LD 12 is not lit. LD 6 is monitored by 15/S. LD6 is lit when LD7, LD 2 and the game on signal are present.
- LD7. Led 7 monitors pin 14/R. This led indicates that the reset playfield logic signal has been received from the player up board.
- LD8. Led 8 monitors pin 16/T. This is the initialize signal. LD8 should momentarily light at power turn on indicating that the mode sequencer has received the initialize signal from the credit board.
- LD9. Led 9 monitors pin 18/V. This is the advance player up signal which tells the player up board to go to the next ball or the next player depending on the number of players selected. This signal also resets a tilt condition. The tilt is controlled by the player up board.
- LD10. Led 10 monitors pin 17/U. When LD10 is lit, the match (line up) sequence should start.
- LD11. Led 11 monitors pin 24/BB. This is the match complete signal. LD11 momentarily lights indicating that the match is complete. When LD11 lights, LD9 should light, giving an advance player up signal to the player up board.
- LD12. Led 12 monitors pin 2/B. This is the tilt input. If led 12 is lit, then the player up board is telling the mode sequencer that a tilt condition exists and inhibits the mechanical reset sequence.

INTRODUCTION:

The bonus drain board is responsible for accumulating the bonus pulses from the playfield logic board. These bonus pulses are derived from the various playfield features. The bonus score is added to the player's score when the mode sequencer signals the bonus board to drain. The bonus board has three outputs. The signals which occur during the draining of the bonus can be controlled to go to any of these three outputs. In this manner, we could use 1 output for a regular bonus value, and either of the other two for a double bonus or any multiple. The outputs go to the playfield scoring logic, and hence the value of each output is controlled by that board.

Sequence of events;

Once the ball is in play, there are various playfield switches which cause the playfield logic board to generate an advance bonus signal. These signals, when received at the bonus board will cause the bonus display to advance on unit. - The bonus lights on the playfield are driven by the lamp driver board which receives its inputs from the bonus board. When the ball leaves the playfield, the mode sequencer board will signal the bonus board to drain the bonus. At this time, the bonus will down count and send pulses to the playfield scoring board. The output which sends these pulses is controlled by whether a regular or multiple bonus is indicated. A multiple bonus, such as a double bonus, will occur if the double bonus input is triggered. At this time the bonus board will signal the lamp driver board to light the double bonus lamp. Once the bonus has completely drained, the bonus = 0 signal is sent to the mode sequencer board. At this time, the mode sequencer will advance the player up or start the line em up depending on the number of balls in play..

The signals which the leds monitor on the bonus board are as follows:

- LD1. Led 1 monitors pin 2/B. This is the advance bonus signal.
- LD2. Led 2 monitors pin 4/D. This is the "multiply bonus by A" signal (double bonus).
When LD2 is pulsed, the double bonus LD 6 should light. When the bonus is collected LD9 should julse.
- LD3. LD3 monitors pin E/5. This is the "multiply bonus by B" signal (it is not used in Dynamite).
- LD4. Led 4 is the bonus busy signal (it is not used in Dynamite).
- LD5. Led 5 monitors pin 6. This is the lite bonus x B signal (it is not used in Dynamite).
- LD6. Led 6 monitors pin 7. This signal tells the lamp driver to turn on the double bonus lamp. If the ball is in play, lighting LD2 will light LD6. -
- LD7. Led 7 monitors pin J. This is the bonus = 0 signal. This Led is lit whenever the bonus is fully drained.
- LD8. Led 8 monitors pin 21. This is the input signal from the mode sequencer to drain the bonus.
- LD9. Led 9 monitors pin 19/W. This is the bonus count output pulse for bonus x A (double bonus). This should pulse as the double bonus down counts.
- LD10. Led 10 monitors pin X. This is the regular bonus output. LD 10 should pulse as a regular bonus is down counted.

- LD11. Led 11 monitors pin Y. This is the bonus out x B signal (it is not used in Dynamite).
- LD12. Led 12 monitors pin Z. This is the signal that tells the relay driver board to energize the playfield lamps. This led is normally on and flashes off during a bonus down count.

THEORY OF OPERATION - - LINE 'EM UP BOARD ASS'Y. # 264-1-57

The line em up board replaces the match feature in the conventional pin ball game. It provides the player with a sense of anticipation which has been over looked in past games.

The display consists of two rows of 10 led's each. While the game is being played, score pulses cause the top row of leds to advance from left to right. When the last ball has been played, and the bonus has been collected, the mode sequencer board will tell the line em up feature to start. At this time, the bottom row of leds will flash left and right, slow down and finally stop. If the lit led in the top row is over the lit led in the bottom row, then a match condition exists. This will then give a replay or Add-a-Ball condition. There is a slight pause, and then the line em up unit tells the mode sequencer that the match is over. At this time, the mode sequencer will generate an advance player up signal.

It should be noted that the bottom led will stay lit until a ball enter playfield signal is received when the ball rolls over the ball shooter lane switch.

The signals which the leds on the line 'em up board monitor are as follows:

LD21. Ld21 monitors pin 1, the internal voltage controlled oscillator output. This led should constantly flicker, but come to a momentary stop when the bottom row of leds stop.

LD22. Ld22 monitors pin 4. It is the match end signal. When the match sequence is completed, LD 22 should momentarily light. This signals the mode sequence to generate the advance player up signal.

LD23. Once the match has started, LD 23 stays lit until the bottom row stops moving. It is the signal monitored by LD 23, that stops the bottom row.

LD24. Ld 24 monitors pin 7 & 8. If a match condition exists, LD 24 should momentarily light, telling the credit board that a replay/Add-a-Ball condition exists.

LD25. Ld 25 monitors pin 9. This is the ball enter field signal from the ball shooter lane switch. When the ball shooter lane switch closes, LD 25 should light, resetting the bottom row of leds.

LD 26. LD 26 monitors pin 10. This led should light when the match sequence is in operation. This signal tells the line em up lamp driver to turn on the line em up lamps.

LD27. Ld 27 monitors pin 11 and test point 2. Connecting a ground to test point 2 lights Ld 27. This signal prevents the bottom row of leds from advancing. Hence, the line em up feature can be controlled to give a match and thus it is a useful tool to verify proper line em up operation.

LD28. LD 28 monitors pin 13. This is the start match sequence signal from the mode sequencer board.

LD29. Ld 29 monitors pin 12. This is the initializing signal. Ld 29 should momentarily light whenever the machine is powered up.

LD 30. Ld 30 monitors pin 14. This score pulse signal comes from the playfield score logic board. Every time a score pulse is received at pin 14, LD30 lights. This signal advances the top row of leds on the line em up display.

LD31. Led 31 monitors pin 15. This signal would inhibit the top row of leds from advancing. It was decided, however, to not use this inhibit pin.

DYNAMITE THEORY OF OPERATION AND TROUBLE SHOOTING GUIDE

SCORE UNIT ASS'Y. #264-1-60

The main function of the score unit is to maintain and display the players score. Another function of the score unit is to determine whether a score that would generate a replay/Add-a-Ball condition has been reached. There are three programable replay/Add-a-Ball scores.

All score units used in the pin ball are identical. All score units are simultaneously pulsed by the scoring signals from the playfield logic. All score units are simultaneously flashed from the player up board. However, the player up signal from the player up board enables the proper score unit to score or flash.

The signals that the leds on the score unit monitor are as follows:

- LD1. LD1 should light whenever a replay/Add-a-Ball score has been reached. When LD1 lights, a momentary low signal is generated at pins 3 and 2. This signal tells the credit unit that a replay/Add-a-Ball score has been reached.
- LD2. LD2 monitors the initialize signal. When power up occurs, pin T goes momentarily low. When pin T returns to its normal high state, LD2 should light and remain lit.
- LD3. LD3 monitors pin 5. This is the player enable signal from the player up board. LD3 must be lit in order for the score unit to count or flash.
- LD4. LD4 monitors pin 6. This is the score unit reset signal. This signal resets the score units whenever the credit button is pressed, provided that credits exist. This signal comes from the player up board.
- LD5. LD5 monitors pin 4. This is the tens counter input signal. Whenever LD5 momentarily lights, the tens digit should advance one count. Provided that LD3 is lit.
- LD6. LD6 monitors pin 8. This is the score flash signal input from the player up board. Whenever LD6 is lit, the score display will be lit. If the score unit is enabled by led 3, and LD6 is not lit, then the score will not be displayed. During a tilt condition, LD6 should not be lit. LD6 should flash before a new player up shoots his ball over the ball in play switch.
- LD7. LD7 monitors pin 9. This is the hundreds count input. Whenever LD7 momentarily lights, the hundreds digit should advance provided that LD3 is lit.
- LD8. LD8 monitors pin 10. This is the thousands input. Whenever LD8 momentarily lights, the thousands digit should advance, provided that LD 3 is lit.

DYNAMITE THEORY OF OPERATION

PLAYFIELD SCORING LOGIC PRINTED CIRCUIT ASS'Y. #264-1-61

The main function of the playfield scoring board is to interface the playfield switches with the score units. The playfield scoring logic board generates the proper score pulses which go to all of the score units. The player up board enables the proper score unit to count the scoring pulses. The playfield scoring logic board also generates the advance bonus signal and the special signal which tells the credit unit to give a replay/Add-a-Ball signal. The playfield logic board also controls the 10, 100, and 1000 point chime sounds.

The signals which the leds on the playfield scoring board monitor are as follows:

LD1 thru LD8 - These leds monitor the 8 bull's eye target switches on P1B pins 24, 22, 21, 20, 19, 18, 17, 16. When a ball in play condition exists, the closing of the target switches will light the lamps in front of each of the bull's eye switches. When each of the above switches are momentarily closed, the following leds light indicating on the corresponding pins a signal to the lamp driver board to turn on the proper lamp.

Switch pin P1B	24	22	21	20	19	18	17	16
Switch led	1	2	3	4	5	6	7	8
Output led	9	10	11	12	13	14	15	16
output pin P1B	9	8	10	11	12	13	15	14

LD17. LD17 monitors the ball in play switch pin P1B-3.

LD18. LD18 monitors pin P1B2 - this pin is not used in Dynamite.

LD19. LD19 monitors pin P1B-6. This is the left hand top rollover switch.

LD20. LD20 monitors pin P1B-5. This is the middle top roll over switch.

LD21. LD21 monitors pin P1B-7. This is the right hand top roll over switch.

The following leds, when lit by the different # ball in play will cause the following top rollover switches to light giving 500 points instead of 50 points:

LED	22	23 -	24 -	25	26
PIN	P1B-E	P1B-D	P1B-B	P1B-C	P1B-4
BALL #	1	4	2	5	3
LITES SWITCH #	1	1	2	2	3
OUTPIN PIN #	P1B K	P1B K	P1B H	P1B H	P1B J

LD27. LD27 should momentarily light whenever any of the bull's eye target switches are closed.

LD28. LD28 lights when all 8 of the bull's eye targets are lit.

LD29. LD29 monitors pin P1A-22. This monitors the closure from the thumper bumper relay. This led being lit, tells the score section to generate 100 points.

LD30. LD30 monitors pin P1A-R. This is the drop target 2 down switch. Whenever, LD30 lights, the score section should generate 500 points.

LD31. LD31 monitors pin P1A-18. This is the drop target 4 input. Whenever LD31 lights, the score section should generate 500 points.

LD32. LD32 monitors pin P1A-7. This is the drop target 1 input. Whenever LD32 lights, the score section should generate 500 points.

LD33. LD33 monitors pin P1A-AA. This signal comes from the raise drop target relays which are controlled by the raise drop target rollover switches. A signal at LD33 should cause the score section to generate 50 points.

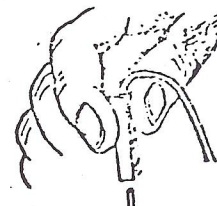
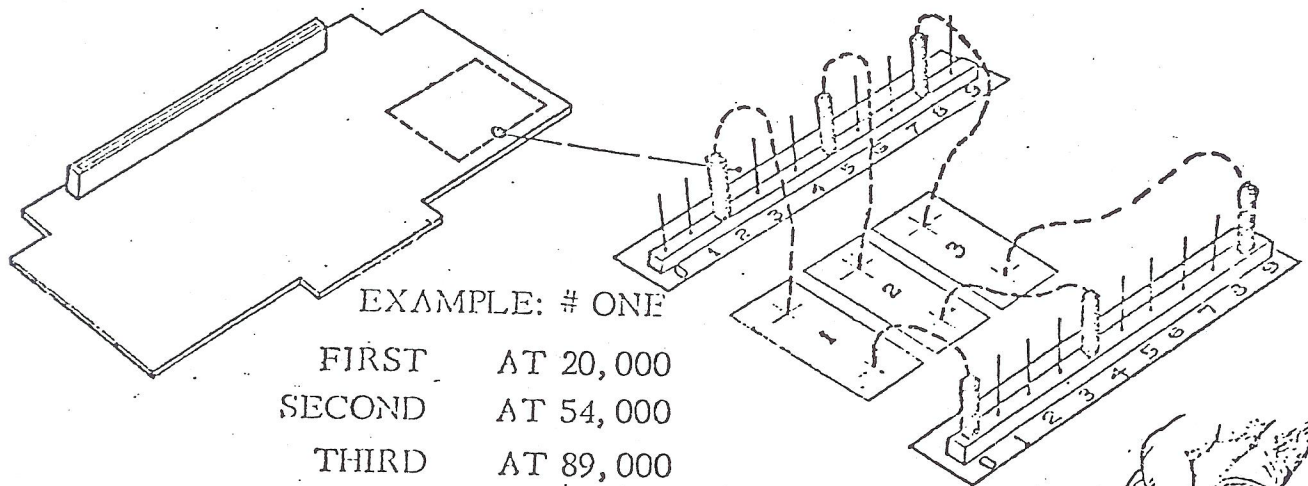
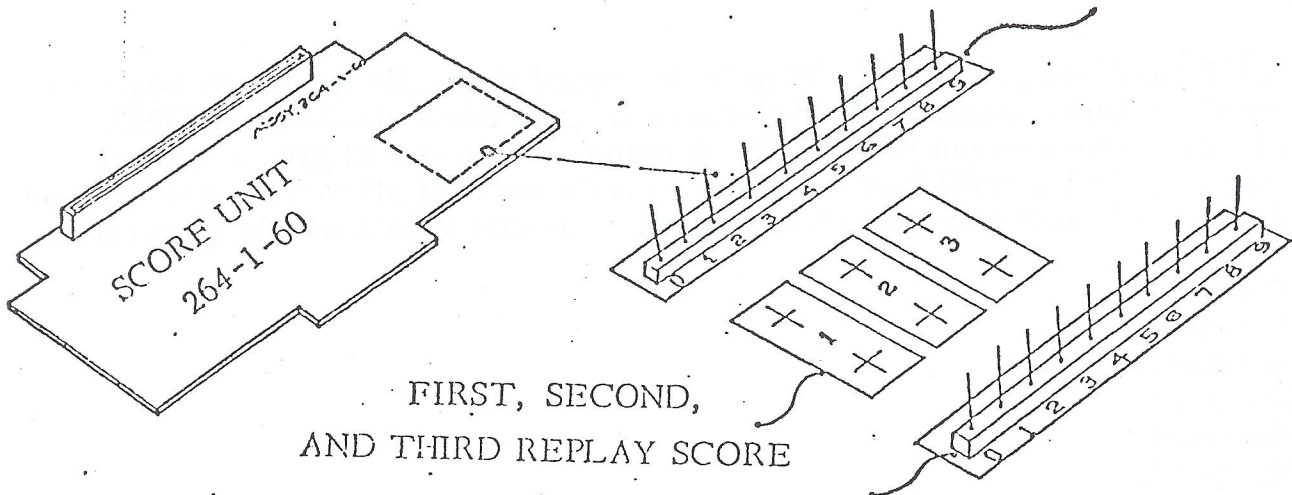
- LD34. LD34 monitors pin P1A-25. A low signal at LD34 from the raise target A or D relays will cause the gates to open (The gate open output signal is LD 43 P1A-17)
- LD35. LD35 monitors pin P1B-A. This is the gate close roll over button switch input. A signal on LD 35 will close the gates if they are open and will cause the scoring section to generate 10 points.
- LD36. LD36 monitors the 10 point score signal from the gate close switch to the score section.
- LD37. LD37 monitors pin P1A-M. This is the advance bonus output signal. The top rollovers and each of the 8 bull's eye targets will generate an advance bonus signal at P1A-M. This signal goes to the bonus board.
- LD38. LD38 monitors the signal from the thumper bumper input to the score section to generate 100 points.
- LD39. LD39 monitors pin P1A-20. This is the rail hit input. All of the rails and sling shot switches are connected to pin P1A-20. A low signal at this point will cause the scoring section to generate 10 points.
- LD40. LD40 monitors pin P1A-21. This is the drop target 3 switch input. A low signal at this point will cause the scoring section to generate 500 points.
- LD41. LD41 monitors the signal from the drop target raise section to the scoring section
- LD42. LD42 monitors the ball-leave playfield switch at pin P1A-CC.
- LD43. LD43 monitors pin P1A-17. When LD43 is lit, the relay driver is told to close the gate relay, thus opening the gates.
- LD44. LD44 monitors pin P1A-14. This is the special roll over switches input. A signal at LD44 will give a special provided that the special lamps (LD 28) are lit. A signal at LD44 will also cause the scoring section to generate 500 points.
- LD45. LD45 monitors the 10 pt. signal from the rail hit to the scoring section.
- LD46. LD46 monitors all signals which generate 10 points. 17 is at the input to the scoring section.
- LD47. LD47 monitors all signals which generate 50 points. It is at the input to the scoring section.
- LD48. LD48 monitors all inpkts which generate 500 points. LD48 is at the input of the scoring section.
- LD49. LD49 monitors pin P1A-J. This signal would inhibit any scoring output. It, however, is not used in Dynamite.
- LD50. LD50 monitors pin P1A-24. This is the score busy signal. LD50 lights whenever the scoring section is busy scoring. This signal goes to the mode sequencer board.
- LD51. LD51 monitors pin P1A-BB/6. This signal input if used would inhibit the score busy signal. It is not used in Dynamite.
- LD52. LD52 monitors the reset playfield logic signal. This led should be lit in order for the playfield logic board to function. When pin P1A-K goes low LD52 extinguishes and the playfield logic is reset. This signal comes from the player up board and goes low during tilt and whenever the score is flashing. The score flashes until the ball goes over the ball enter playfield switch.
- LD53. LD53 monitors the score count pulses. These pulses occur with each score signal when LD53 lights, output pin P1A-12 goes low. This signal tells the top line of the line 'em up to advance.
- LD54. Not used.
- LD55. LD55 monitors pin P1A-8. This is the 100 count pulse output. It goes to the score units.
- LD56. LD56 monitors pin P1A-9. This is the tens count output to the score units.

- LD 57 LD57 monitors pin P1A-5. This is the signal that tells the bonus board to enable a double bonus. All of the drop targets down should light LD57.
- LD 58. LD58 monitors output pin P1A-2. A signal at P1A-2 will give a special (replay / Add-a-Ball) condition to the credit unit. If all targets are lit, and the special roll over switch is closed, a special signal will be generated.
- LD59. Not used.
- LD60. Not used.
- LD61. Not used.
- LD62. Not used.
- LD63. Not used.
- LD64. Not used.
- LD65. LD65 monitors the score count pulses from the score pulse clock.
- LD66. LD66 monitors output pin P1A-3. This is the thousands point count signal that goes to the score units.

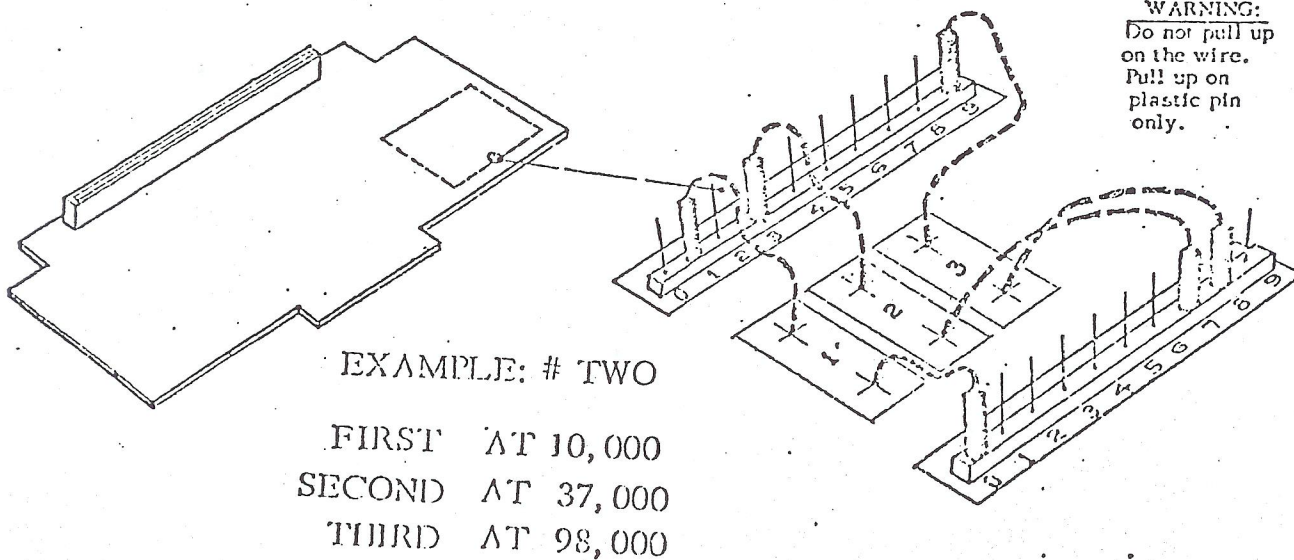
REPLAY SCORE ADJUSTMENT:

204-10-31

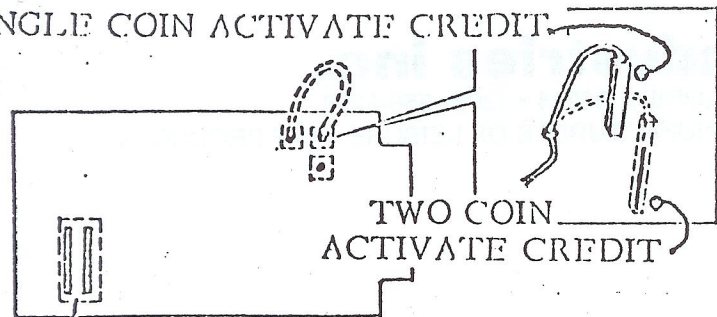
TEN THOUSAND REPLAY PROGRAMMER



WARNING:
Do not pull up
on the wire.
Pull up on
plastic pin
only.



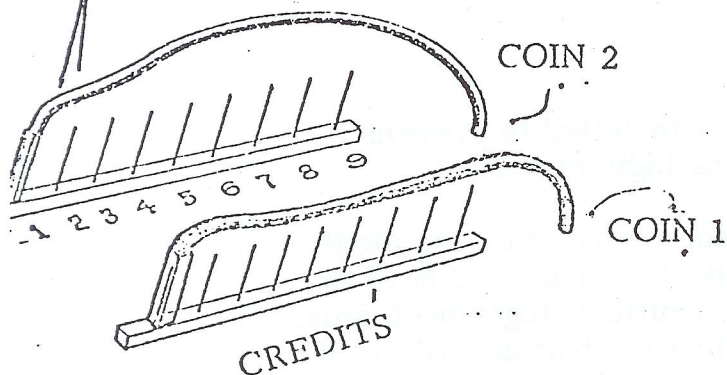
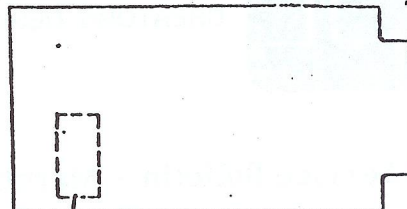
ANGLE COIN ACTIVATE CREDIT



TP-11

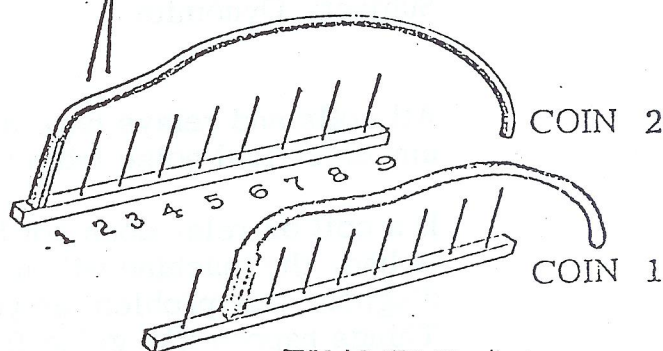
TP-12

JUMPERS DETERMINE COINAGE



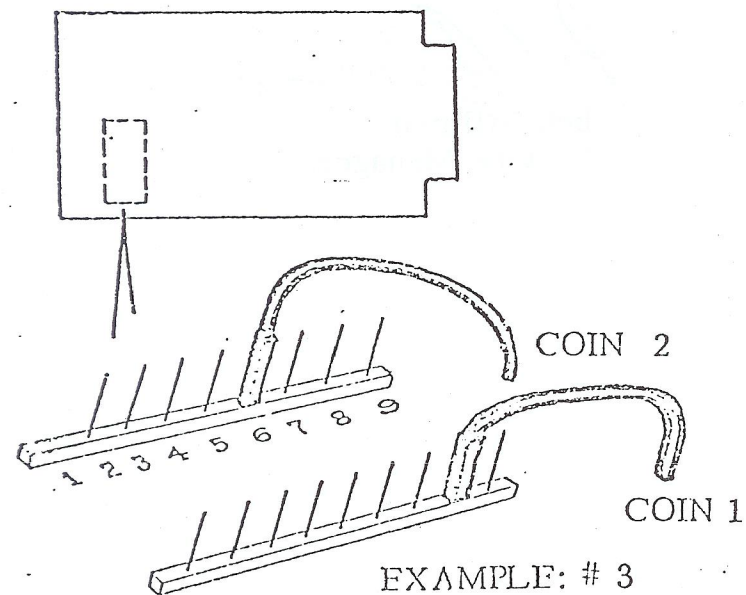
EXAMPLE: # 1

COIN 2 = ONE CREDIT PER COIN
COIN 1 = ONE CREDIT PER COIN



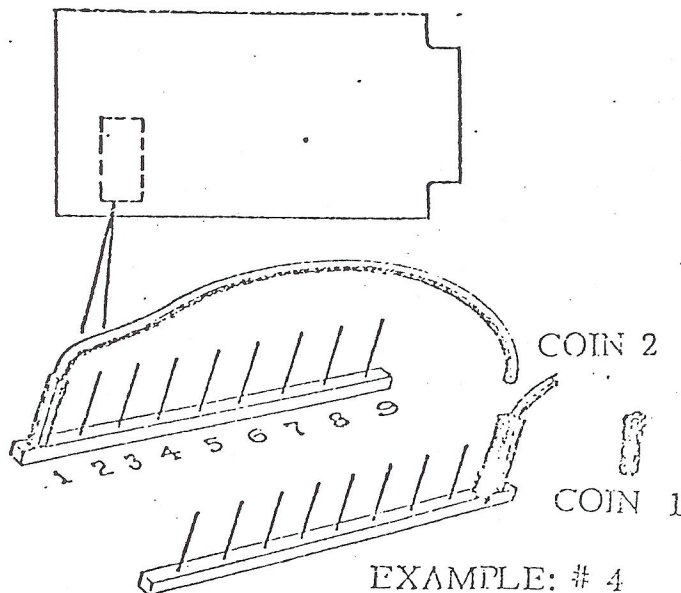
EXAMPLE: # 2

COIN 2 = ONE CREDIT PER COIN
COIN 1 = TWO CREDITS PER COIN



EXAMPLE: # 3

COIN 2 = SIX CREDITS PER COIN
COIN 1 = EIGHT CREDITS PER COIN



EXAMPLE: # 4

COIN 2 = ONE CREDIT PER COIN
COIN 1 = NINE CREDITS PER COIN

NOTE:

THE DYN-O-MITE MACHINE USES ONLY
"COIN - 1" PROGRAMMING