

**DE DATA  
EAST**

# LAST ACTION HERO



**DATA EAST PINBALL ©**

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## GAME SPECIFIC FEATURES

### 1) Skill Shot

The skill shot is available at the start of each ball. Pull the trigger on the gun to fire the ball into the CRANE drop targets. Hitting the lit CRANE target awards (1 + ball in play) million points. Hitting an unlit CRANE drop target awards (1 + ball in play) thousand points.

### 2) Crane Targets / Crane Lock

Completing the CRANE drop targets lights CRANE READY at the top right VUK and starts CRANE hurry-up. Shooting the crane before the hurry-up value reaches zero awards the value.

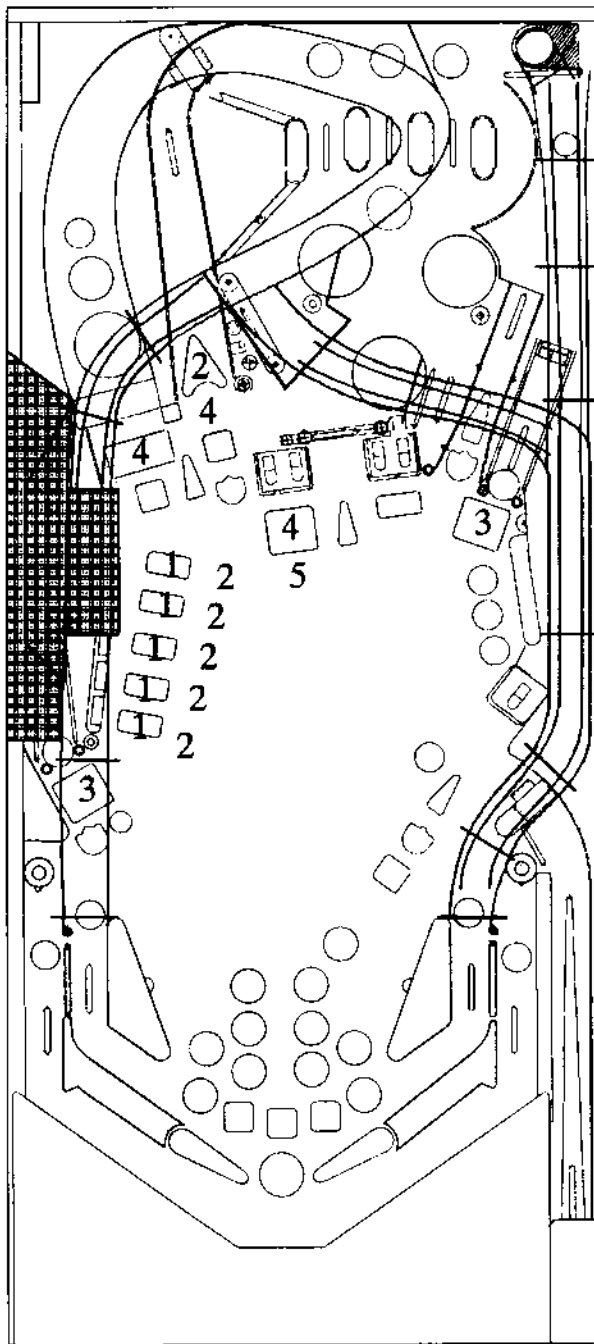
**WARNING:** hitting the DANGER bar behind the drop targets will reset the drop target bank. If difficulty adjustment 47 (Crane Hurry Up) is set to YES, in order to lock a ball in the TAR PIT, the CRANE shot must be made before the hurry up value reaches zero. If difficulty adjustment 47 (Crane Hurry Up) is set to NO, the CRANE shot can be made to lock a ball in the TAR PIT after the hurry up value reaches zero. Locked balls increase the jackpot values during M-BALL. A maximum of two balls can be locked in the tar pit.

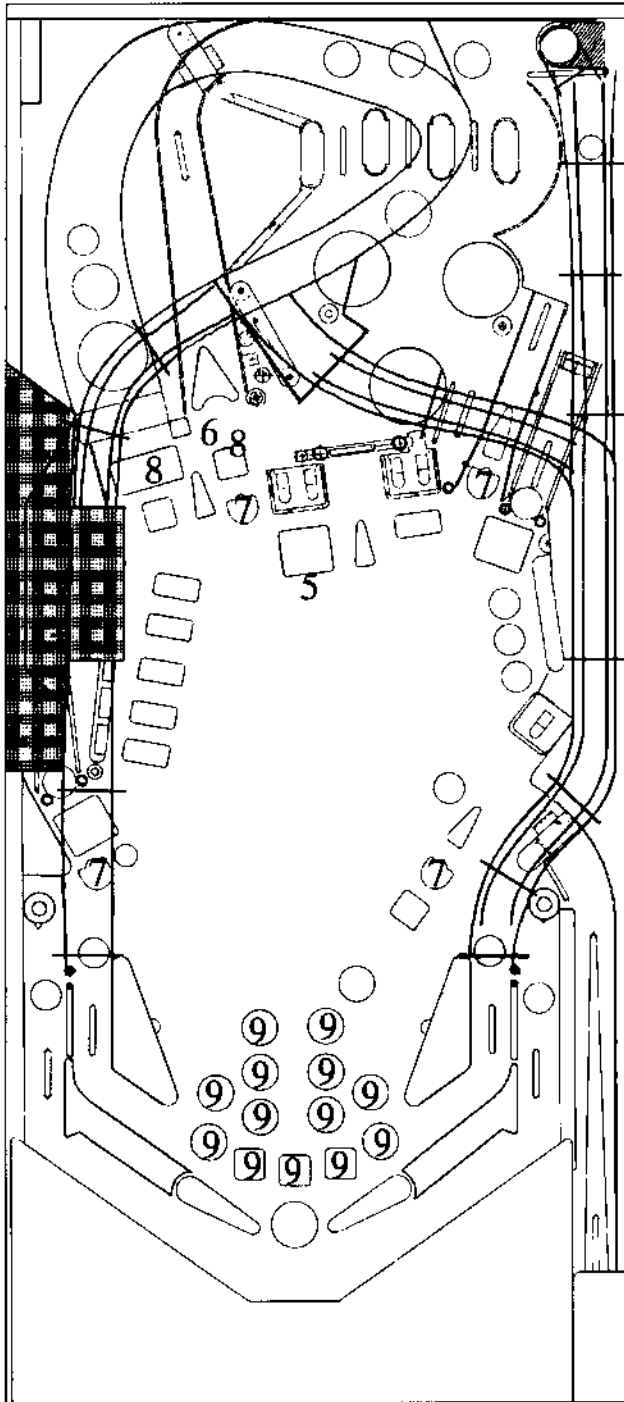
### 3) Advancing to M-BALL

Shoot the captive balls (M-BALL Advance) to advance the M-BALL countdown to zero. Each captive ball shot decrements the count by 1. The left return lane switch (M-BALL advance x2) lights the right captive ball for a time period to score 2 captive ball hits, and the right return lane switch lights the left captive ball for a time period to score 2 captive ball hits. When the counter reaches 0, M-BALL is lit at the left scoop.

### 4) M-BALL / Jackpot Qualification

Shoot the left scoop when lit to start M-BALL. Two balls will be put into play via the plunger lane, and any locked balls in the tar pit area will be released. If difficulty adjustment 46 (Crane Qualifies Jackpot) is set to YES, the ramp Jackpot must be qualified first by shooting the crane. If difficulty adjustment 46 (Crane Qualifies Jackpot) is set to NO, the ramp Jackpot will be available immediately at the start of M-BALL.





### **5) M-BALL / Restart**

If all but one ball drains before a Jackpot has been collected, the M-BALL restart feature will light at the left scoop. Shoot the left scoop within the time period for 2 ball M-BALL restart.

### **6) M-BALL / Double Jackpot**

After the Jackpot has been collected by shooting the left ramp, the double jackpot will be available at the crane for a time period. Shooting the crane during the time period awards the double jackpot and starts 6-ball play with shields lit.

If the double jackpot goes uncollected within the time period, the crane qualification, ramp jackpot, and double jackpot sequence will repeat until either all but one ball drains or until the double jackpot is collected at the crane. The only way to start 6 ball play during M-BALL is to collect the double jackpot at the crane during the time period.

### **7) Shields / M-BALL, M = 6**

After the double jackpot has been collected at the crane, the four shields will be lit. Completing all four shields lights the crane. Shooting the crane qualifies the Super Jackpot at the ramp.

### **8) Super Jackpot**

Shooting the ramp collects the Super Jackpot, and qualifies, for a time period, the Double Super Jackpot at the crane. Shooting the crane during the time period awards the Double Super Jackpot. If the Double Super Jackpot either times out or is collected, and two or more balls remain in play, the M-BALL sequence restarts with all four shields lit. M-BALL play ends when all or all but one ball drains.

### **9) Dynamite Features / World Premiere Jackpot**

There are 13 dynamite features. At the start of each ball, the light above the left scoop will light solid, indicating to the player that a feature is available. Shooting the left scoop will award the flashing dynamite feature on the grid. The Turbo bumpers rotate the lit dynamite grid feature, and the right scoop lights the first unawarded LAST, ACTION, or HERO grid feature. After a dynamite feature has been awarded, a single ramp shot will re-light the left scoop permanently. The left or the right return lane switches re-light the left scoop for a time period.

Dynamite features are denoted in this guide by (DF).

## **10) More Time**

When a dynamite feature is running, the left captive ball is available for more time. Hitting the left captive ball during the feature resets the timer for that feature back to its starting value. More Time can be earned once when a dynamite feature is running.

## **11) Wildcard**

When a dynamite feature is running, both return lane switches light the right scoop (WILDCARD) for a time period. Shooting the scoop when lit awards WILDCARD, which enhances the scoring values for that feature.

WILDCARD can be earned once when a dynamite feature is running. For details on how WILDCARD affects the scoring values of a dynamite feature, see the WILDCARD section in the description of the dynamite feature.

## **12) Completion**

Most dynamite features are timed features with goals. Completing the dynamite feature increases the value of the World Premiere Jackpot by 5 million points and adds 5 seconds to the World Premiere timer. For details on completing a dynamite feature, see the COMPLETION section in the description of the dynamite feature.

## **13) Blowout (DF)**

Blowout is feature in which all switches are worth 250K for a time period.

Completing 10 switches during this mode increases the switch value by 50K.

Wildcard: Doubles the current switch value and doubles the increase value (from 50K to 100K).

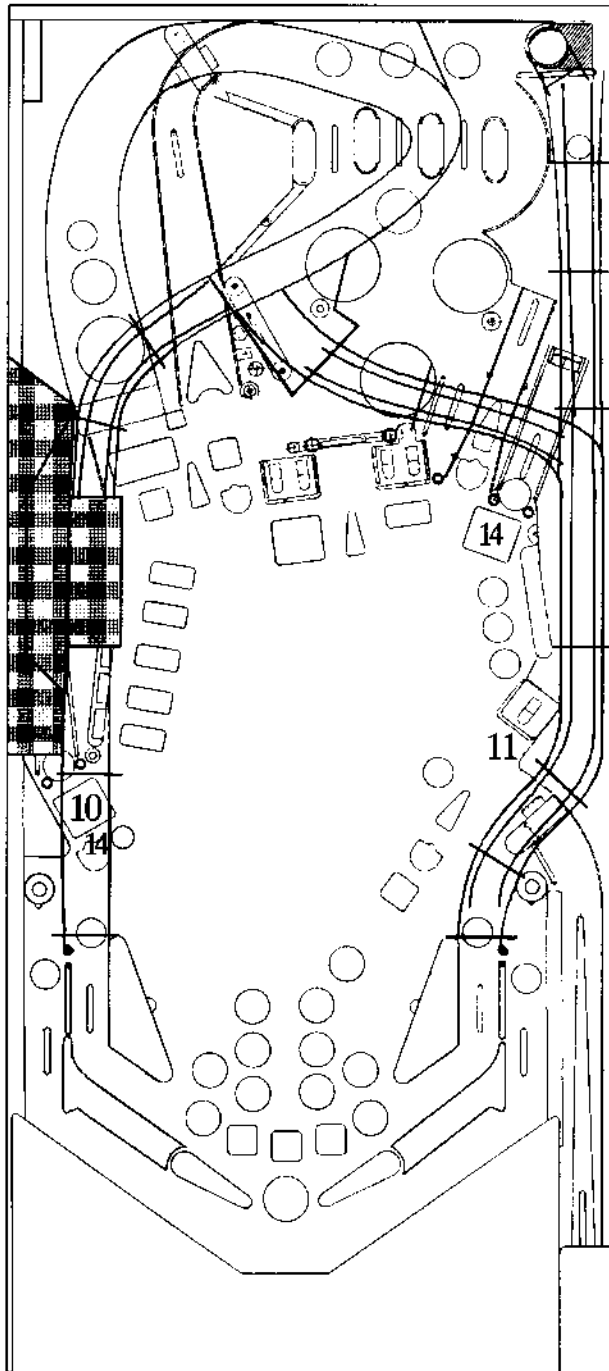
Completion: A total Blowout score of 20M points or more adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

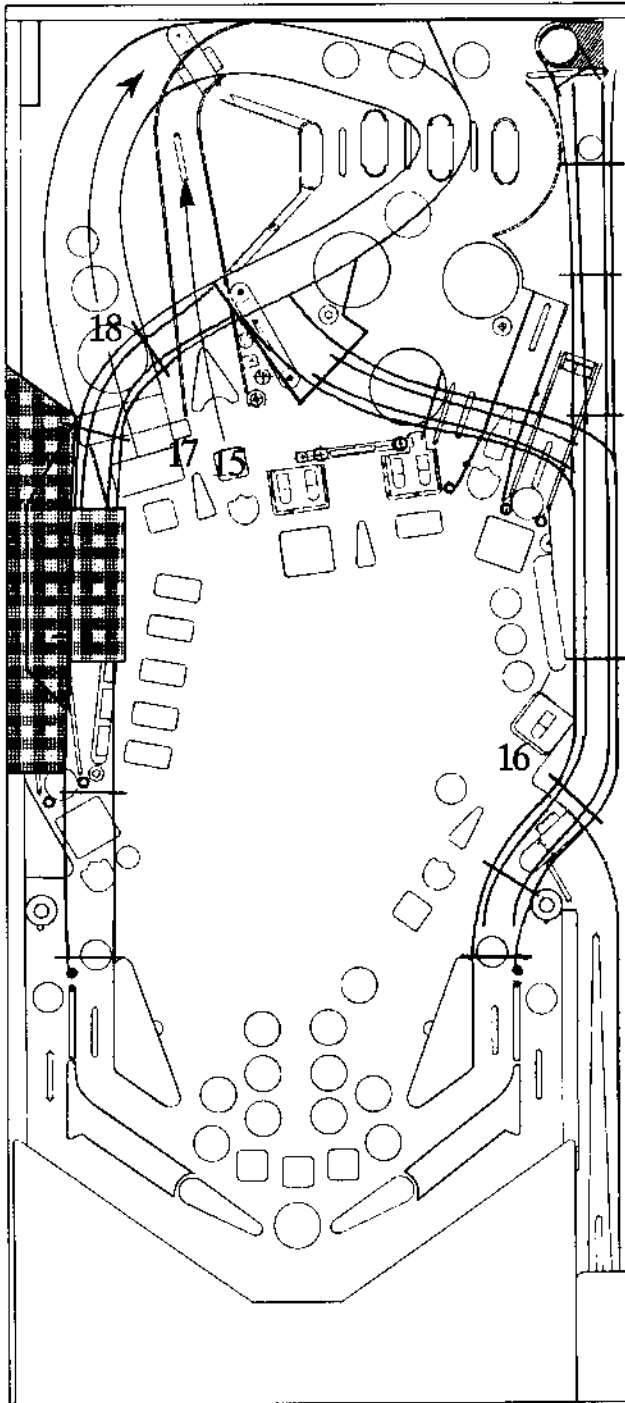
## **14) Go To The Movies (DF)**

Shooting either captive ball during this timed mode adds a ball to the playfield. When the timer expires, if there are two or more balls in play, the captive balls are lit for 5M each.

Wildcard: 2 for 1 Add-A-Ball. Doubles the number of balls added to the playfield for each captive ball shot.

Completion: Left and right captive ball shots made after the timer expires adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.





### **15) Save Danny (DF)**

Save Danny is a countdown feature that is awarded by shooting the crane. The countdown value starts at 20M; the feature ends when either the value reaches zero or is collected.

**Wildcard:** Doubles the current countdown value.

**Completion:** Collecting the countdown value before the value reaches zero adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

### **16) Light Extra Ball (DF)**

This feature lights Extra Ball at the right scoop. Shooting the scoop awards an Extra Ball.

More Time does not apply to this mode. The Extra Ball is available for collection at the scoop for the remainder of the game.

**Wildcard:** Not available.

**Completion:** Collecting the Extra Ball adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

### **17) Cat Millions (DF)**

During this timed mode, hitting the cat target awards the lit value (in millions) shown on the dot-matrix display, and adds another lit value to the display, to a maximum of 3 values.

Subsequent hits on the cat target score the sum of the lit values (in millions) shown on the display.

**Wildcard:** Awards one hit on the cat target, and adds, to a maximum of 3, another lit value to the display.

**Completion:** Three hits on the cat target adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

### **18) To The Roof (DF)**

During this timed mode, the first ramp shot awards 5 million points, the second ramp shot awards 10 million points, and the third ramp shot awards 15 million points. The mode ends when the timer expires or when three ramp shots have been made, whichever comes first.

**Wildcard:** Doubles the point values of any remaining ramp shots.

**Completion:** Three ramp shots within the time period adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

## 19) Redeye (DF)

During this timed mode, the eyeball targets are lit for increasing point values (5M for the first hit, 10M for the second hit, and 15M for the third and subsequent hits).

**Wildcard:** Doubles the eyeball target point values.

**Completion:** Three hits on the eyeball targets during the time period adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

## 20) Big Mistake (DF)

In this timed mode, shoot at least one drop target (scores 5M), then at least one eyeball target (scores 10M), and then the left scoop (scores 15M). **Wildcard:** Doubles all remaining point values that can be awarded during the mode. **Completion:** Shooting the center scoop when lit during the time period adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

## 21) Find the Ticket (DF)

During this timed feature, shoot the left, center, and right scoops to search for the Ticket. Find the Ticket in one of the scoops for 30M points.

**Wildcard:** Doubles the point value awarded when the Ticket is found.

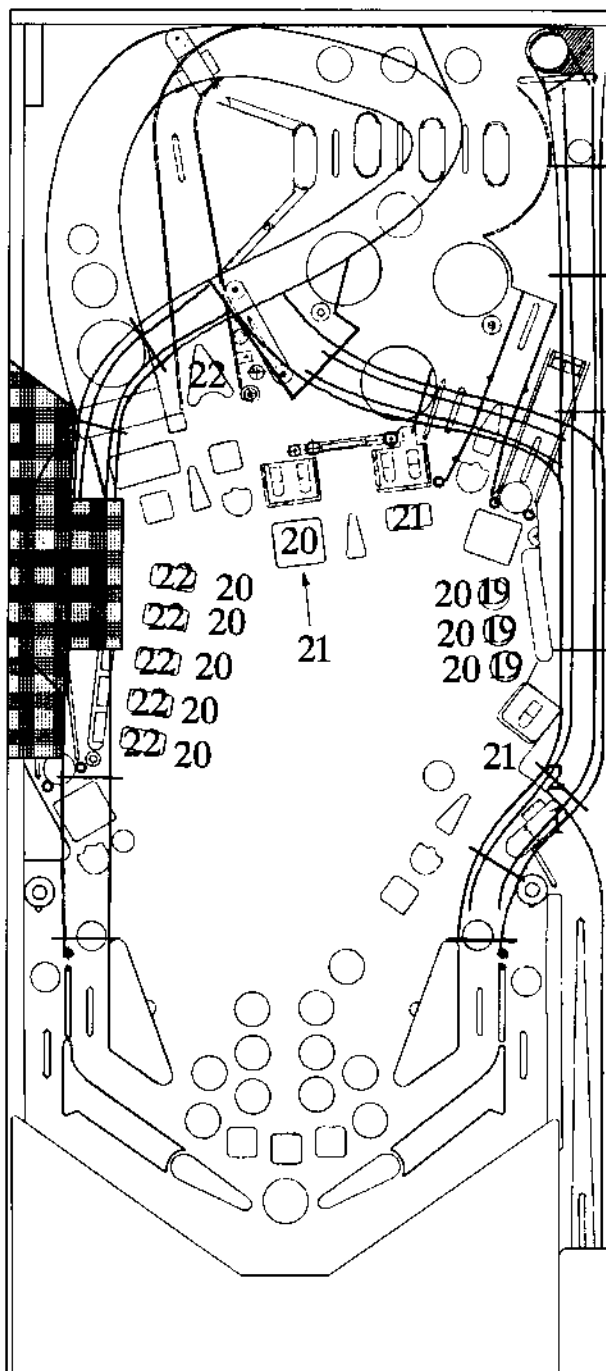
**Completion:** Finding the Ticket during the timed period adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

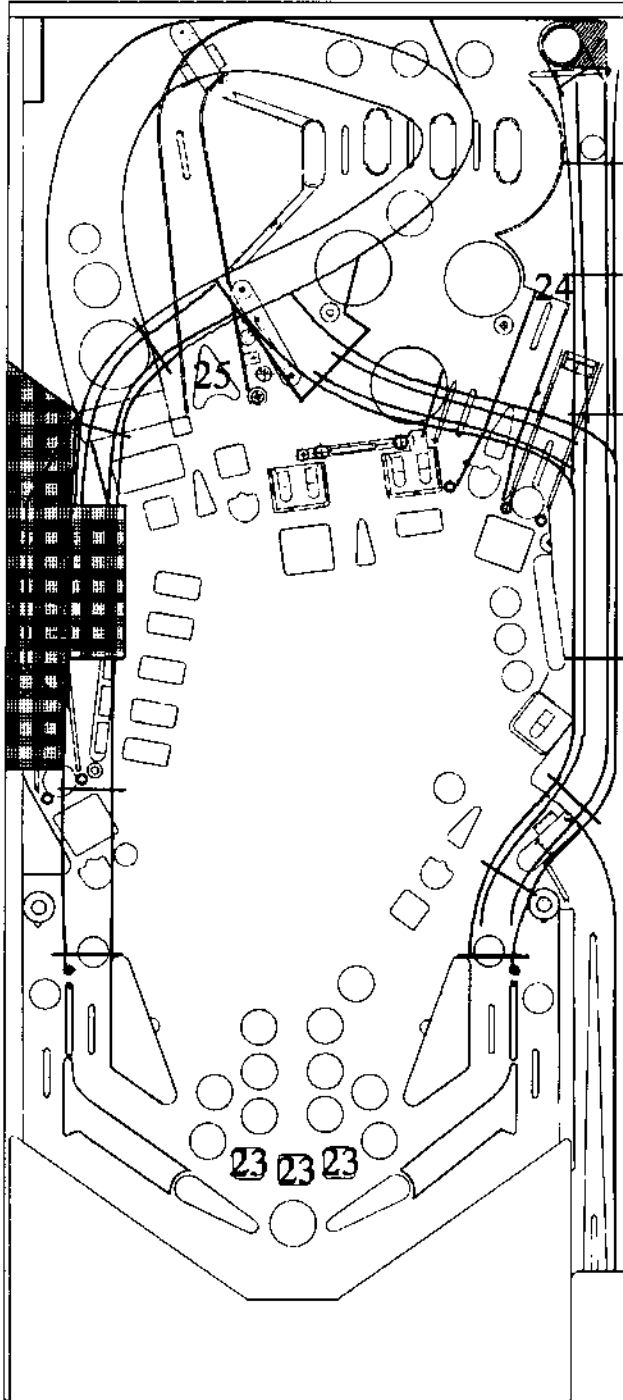
## 22) Super Crane (DF)

During this timed event, 6 balls are put into play. After the sixth ball is put into play, the crane is lit for a time period. Shoot the crane as many times as possible during the time period to collect crane jackpots. The first jackpot is 5M, the second is 10M, the third is 15M, etc. At the end of the time period, if two or more balls are still in play, shoot the drop targets to re-light the crane for the crane jackpot. Collect the crane jackpot by shooting the crane.

**Wildcard:** Doubles the crane jackpot value.

**Completion:** Collecting one crane jackpot at the end of the time period (a drop target / crane jackpot sequence) adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.





## **23) LAST ACTION HERO (DF)**

Completing Last, Action, and Hero on the grid starts a timed, 6 ball event where 100 switch closures must be made during a time period. If the required number of switch closures are made within the time period, 50M is awarded, the required number of switch closures increases by 25, and 10 seconds are added to the amount of time remaining at the point of completion. Additional completions of the required number of switches score 50M.

More Time: Not available

Wildcard: Not available. Completion: Each completion of the required number of switches during the time period adds 5M to the World Premiere Jackpot and adds 5 seconds to the World Premiere timer.

## **24) Ripper Jackpot**

The ripper jackpot starts at 7.5M points. Each shot to the ripper kickback adds 500K to the jackpot and spots 1 letter in RIPPER.

Completing RIPPER collects the jackpot and resets the RIPPER jackpot value to 7.5M.

The RIPPER jackpot value increases ball to ball, player to player, and game to game.

Hitting the RIPPER kickback flashes the RIPPER light. Shooting the RIPPER kickback while flashing spots an extra letter in RIPPER.

A ball freeze will be enabled while the RIPPER light is flashing. If the ball drains while the light is flashing, the ball will be returned to play.

## **25) Crane Looping**

Shooting the Crane shot during single ball play, when the crane is not lit to lock a ball in the tar pit awards 250K. Subsequent consecutive crane shots award 500K, 750K, 1M, 2M, 3M, 4M, 5M (the point cap on consecutive crane shots is 5M). If there are less than 2 Balls locked, the sixth consecutive crane shot lites crane ready for a lock.

## **26) Combo Shots**

There are two combo shots in Last Action Hero: CRANE - RAMP - RAMP - RIGHT CAPTIVE BALL will award 4 advances toward M-BALL and 10M points. CRANE - RAMP - RAMP - RIPPER KICKBACK will award 3 letters in RIPPER and 10M points.

## **27) End Of Ball Bonus**

The end of ball bonus is worth 1M at the start of each ball and increases by 10K with every switch closure during single ball play.

Completing the eyeball targets during single ball play increases the switch closure value by 10K. The bonus value is awarded at the end of the ball.

## **28) Double Your Bonus**

Completing the three top rollover lanes (DOUBLE YOUR BONUS) doubles the current bonus value.

## **29) Ramp Escrow**

The ramp escrow starts at 1M points and increases by 100K with each ramp shot. Shooting two ramps in a row qualifies the center scoop to collect the ramp escrow. The ramp escrow increases ball to ball, player to player, and game to game.

## **30) Dekker Super Spinner**

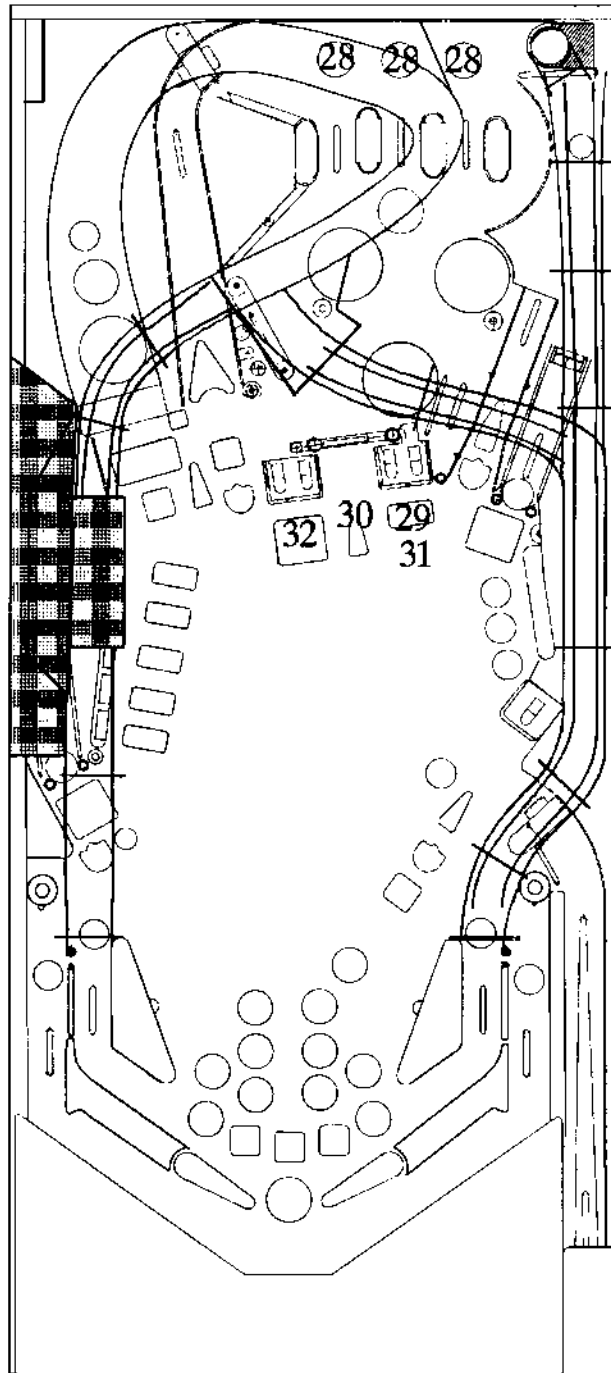
Shooting a RAMP RAMP combination 5 times lights the Dekker spinner for 1M points per spin. As soon as the spinner stops, the feature is disabled, and the spinner points are awarded.

## **31) Chicken**

The chicken feature is available at the center scoop when the scoop is not lit for any other feature. The first chicken award is 10M points and requires 3 shots into the chicken scoop. The second chicken award is Light Extra Ball and requires 5 additional shots into the chicken scoop. The third chicken award is Light Special and requires 7 additional shots into the chicken scoop. If Audit 15 (Actual Extra Ball Percent) meets or exceeds Adjustment 38 (Desired Extra Ball Percent), the second chicken award will be 10M instead of Light Extra Ball. If Audit 2 (Actual Free Game Percentage) meets or exceeds Adjustment 1 (Desired Replay/Manual), the third chicken award will be 10M instead of light Special.

## **32) World Premiere**

Collecting all dynamite features flashes all grid features and the left scoop. Shooting the left scoop starts the World Premiere sequence. World Premiere is an event in which the left scoop is lit to collect the World Premiere count-up value. The value starts at 10M and increases proportionally during the time period to the value of the World Premiere Jackpot. Shooting the left scoop collects the current value.





## Switches

Switches are configured in an 8 x 8 matrix of columns (switch drives) and rows (switch returns) with up to 64 switches possible. The switch tests include three parts; switch test, active switches, and bad switches. Row and column wire colors are indicated in each test using corresponding resistor color code numbers.

### Switch Test

From the Laser Kick test, operate STEP push-button switch. Player 1 and 2 displays indicate SWITCH TEST. Close each switch and observe the displays. The Player 1 and 2 displays will indicate the switch name, the Player 3 display indicates the row and column wire colors, and the Player 4 display indicates the switch number. When a switch is released, the name and number disappear until another switch is closed or the test is exited.

### Active Switches

Operate the STEP push-button switch from the Switch Test. Player 1 and 2 Displays indicate ACTIVE SWITCHES. If any switches are stuck closed (or made from the presence of a ball), the Player 1 and 2 displays sequence through switch names, the Player 3 display indicates the row and column wire colors, and the switch numbers are indicated in the Player 4 display. This cycle continues until all switches are cleared or until the STEP push-button switch is depressed.

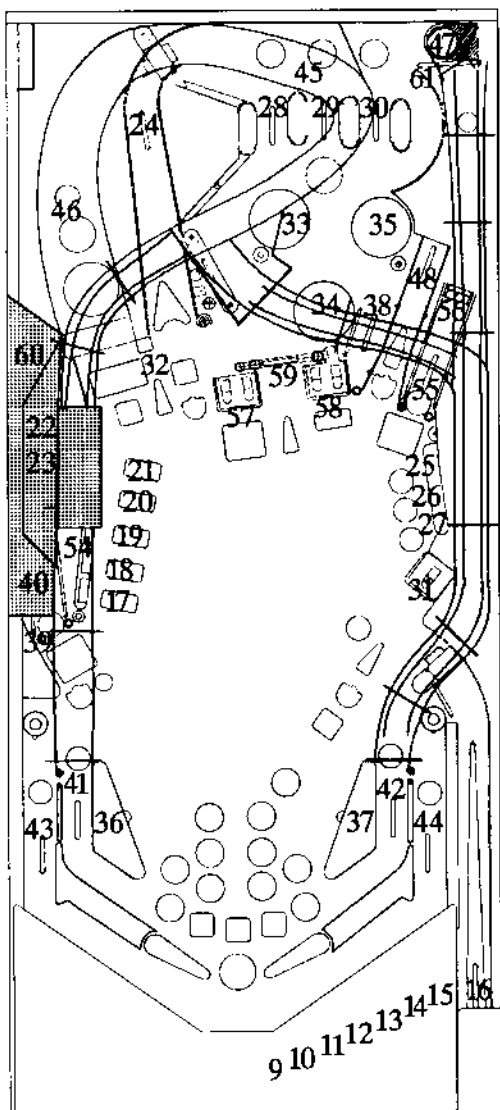
## SWITCH MATRIX CHART

ROW \ COLUMN	1 Q55 GRN-BRN CN8-1	2 Q54 GRN-RED CN8-2	3 Q53 GRN-ORN CN8-3	4 Q52 GRN-YEL CN8-4	5 Q51 GRN-BLK CN8-5	6 Q50 GRN-BLU CN8-7	7 Q49 GRN-VIO CN8-8	8 Q48 GRN-GRY CN8-9
1 WHT-BRN CN10-9	Plumb Tilt 1	Trough #1 Left 9	Drop Target C 17	Right StandUp Top 25	Left Turbo Bumper 33	Left Return 41	Not Used 49	Middle Scoop Left 57
2 WHT-RED CN10-8	4th Coin 2	Trough #2 10	Drop Target R 18	Right StandUp Middle 26	Bottom Turbo Bumper 34	Right Return 42	Not Used 50	Middle Scoop Right 58
3 WHT-ORN CN10-7	Credit Button 3	Trough #3 11	Drop Target A 19	Right StandUp Bottom 27	Right Turbo Bumper 35	Left Outlane 43	Not Used 51	Scoop Spinner 59
4 WHT-YEL CN10-6	Right Coin 4	Trough #4 12	Drop Target N 20	Top Rollover Left 28	Left Slingshot 36	Right Outlane 44	Not Used 52	Crane Left Limit 60
5 WHT-GRN CN10-5	Center Coin 5	Trough #5 13	Drop Target E 21	Top Rollover Middle 29	Right Slingshot 37	Left Ramp Exit 45	Not Used 53	Crane Right Limit 61
6 WHT-BLU CN10-3	Left Coin 6	Trough #6 14	Left Lock Top 22	Top Rollover Right 30	Right Scoop R.O. 38	Left Ramp Enter 46	Drop Target Bar (2) 54	Smart Missile 62
7 WHT-VIO CN10-2	Siam Tilt 7	Trough #7 Right 15	Left Lock Bottom 23	Right Scoop Assem. 31	Left Captive Rollover 39	VUK 47	Right Captive Rollover 55	Left Flipper 63
8 WHT-GRY CN10-1	Launch Trigger 8	Shooter Lane 16	Single Left Rollover 24	Animated Cat Target 32	Left Captive Ball Target 40	Ripper Kickback 48	Right Captive Target 56	Right Flipper 64

## Last Action Hero - Switch Part Numbers

Switch Number	Description	Part No.
01*	Plumb Tilt	See Cabinet
02*	4th Coin	-
03*	Credit Button	500-5097-02
04*	Right Coin	180-5024-00
05*	Center Coin	180-5024-00
06*	Left Coin	180-5024-00
07*	Slam Tilt	180-5022-00
08*	Launch Trigger	180-5111-00
09	Trough #1 Left	180-5119-00
10	Trough #2	180-5119-00
11	Trough #3	180-5119-00

Switch Number	Description	Part No.
12	Trough #4	180-5119-00
13	Trough #5	180-5119-00
14	Trough #6	180-5119-00
15	Trough #7 Right	180-5118-00
16	Shooter Lane	180-5100-01
17	Drop Target C	180-5092-01
18	Drop Target R	180-5092-01
19	Drop Target A	180-5092-01
20	Drop Target N	180-5092-01
21	Drop Target E	180-5092-01
22	Left Lock Top	180-5128-00
23	Left Lock Bottom	180-5128-00
24	Single Left Rollover	500-5706-00
25	Right Stand-Up Top	180-5130-00
26	Right Stand-Up Middle	180-5130-01
27	Right Stand-Up Bottom	180-5130-02
28	Top Rollover Left	500-5706-00
29	Top Rollover Middle	500-5706-00
30	Top Rollover Right	500-5707-00
31	Right Scoop Assembly	500-5057-00
32	Animated Cat Target	180-5125-02
33	Left Turbo Bumper	180-5015-01
34	Bottom Turbo Bumper	180-5015-01
35	Right Turbo Bumper	180-5015-01
36	Left Slingshot	180-5054-00
37	Right Slingshot	180-5054-00
38	Right Scoop Rollover	500-5707-00
39	Left Captive Rollover	500-5706-00
40	Left Captive Target	180-5114-08
41	Left Return	500-5706-00
42	Right Return	500-5707-00
43	Left Outlane	500-5706-00
44	Right Outlane	500-5707-00
45	Left Ramp Exit	180-5090-00
46	Left Ramp Entrance	180-5090-00
47	VUK	180-5116-00
48	Ripper Kickback	500-5707-00
49	Not Used	-
50	Not Used	-
51	Not Used	-
52	Not Used	-
53	Not Used	-
54	Drop Target Bar (2)	180-5129-00
55	Right Captive Rollover	500-5707-00
56	Right Captive Tgt.	180-5114-08
57	Middle Scoop Left	180-5116-00
58	Middle Scoop Right	500-5700-00
59	Scoop Spinner	180-5010-04
60	Crane Left Limit	180-5093-00
61	Crane Right Limit	180-5093-00
62	Smart Missile	180-0028-00
63	Left Flip. Cab	180-5048-01
64	Right Flip. Cab	180-5048-01



**Switch Locations**

## LAMP TESTS

Controlled lamps are configured in an 8 x 8 matrix of columns (lamp drives) and rows (lamp returns) with up to 64 lamps possible. The lamp tests include four parts, all lamps, lamp return (row), lamp drive (column), and discrete (individual) lamps. Row and column wire colors are indicated in the discrete lamp test using corresponding resistor color code numbers.

### All Lamps

From the Active Switch test, operate the STEP push-button switch. Player 1 and 2 displays indicate ALL LAMPS and all controlled lamps will light.

### Lamp Returns

From the ALL LAMPS test, depress the STEP push-button switch. The top display indicates LAMP RETURNS and the Bottom display indicates wire color and the LAMP RETURN driver transistor. All controlled lamps in row 1 should be lit. Operating the Game Start push-button switch cycles through each of the rows separately.

### Lamp Drives

From the LAMP RETURNS test, depress the STEP push-button switch. The Top display indicates LAMP COLUMNS and the bottom display indicates wire color and the LAMP DRIVES driver transistor. All controlled lamps in column 1 should be lit. Operating the Game Start push-button switch, cycles through each of the columns separately.

### Single Lamp

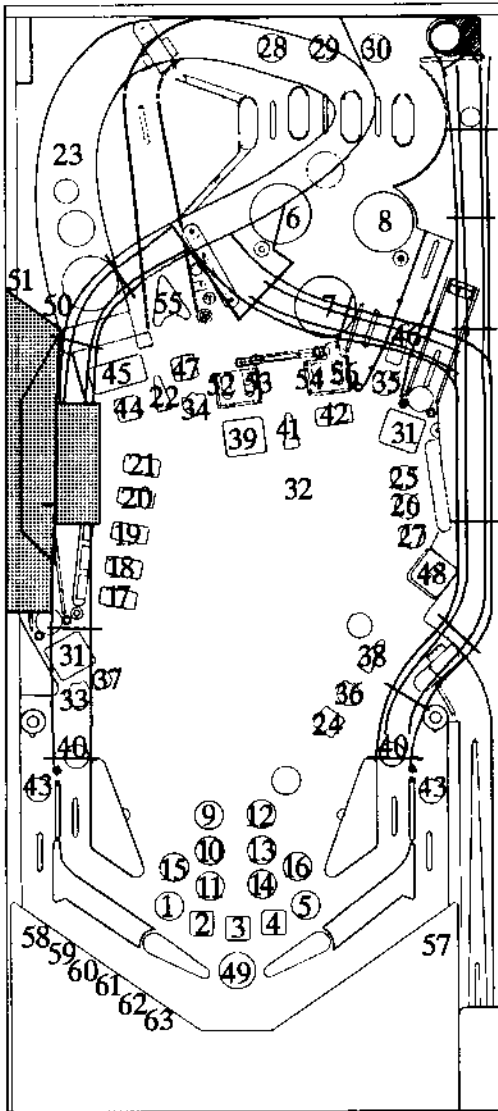
From the LAMP DRIVES test, depress the STEP push-button switch. The top display indicates lamp name. The bottom display indicates the row and column wire colors and the lamp matrix number. Lamp 01 should light. With the FORWARD/REVERSE push-button switch in the FORWARD (up) position, operating the Game Start push-button switch selects higher-numbered lamps; with it in the REVERSE (down) position, Game Start selects lower-numbered lamps.

## LAMP MATRIX CHART

COLUMN \ ROW	1 Q71 YEL-BRN CN7-1	2 Q70 YEL-RED CN7-2	3 Q69 YEL-ORN CN7-3	4 Q68 YEL-BLK CN7-4	5 Q67 YEL-GRN CN7-6	6 Q66 YEL-BLU CN7-7	7 Q65 YEL-VIO CN7-8	8 Q64 YEL-GRY CN7-9
1 Q72 RED-BRN CN6-1	Grid: Find Benedict1	Grid: Fast Scoring9	C 17	Benedicts Eyeball Top	Shield Left 33	Spinner 41	Shoot Again 49	Smart Missile 57
2 Q73 RED-BLK CN6-2	Grid: Last 2	Grid:Go To The Movies10	R 18	Benedicts Eyeball Middle26	Shield Left Center34	Chicken 42	Lock Bottom (Right)50	R 58
3 Q74 RED-ORN CN6-3	Grid: Action 3	Grid: Save Danny 11	A 19	Benedicts Eyeball Bottom 27	Shield Right Center35	Outlanes X2 43	Lock Top (Left)51	I 59
4 Q75 RED-YEL CN6-5	Grid: Hero 4	Grid: LightExtra Ball 12	N 20	Top Rollover Left 28	Shield Right 36	The Roof 44	● Middle Scoop 52	P 60
5 Q76 RED-GRN CN6-6	Super Crane Chaos 5	Grid: Cat Millions13	E 21	Top Rollover Middle29	More Time 37	Jackpot 45	● Middle Scoop 53	P 61
6 Q77 RED-BLU CN6-7	Left Turbo Bumper 6	Grid: ToThe Roof 14	Animated Cat Target 22	Top Rollover Right30	Extra Ball 38	Ripper 46	● Middle Scoop 54	E 62
7 Q78 RED-VIO CN6-8	Top Turbo Bumper 7	Grid: Red Eye 15	Ramp 23	Captive Ball X2 31	M- Ball 39	Save Danny 47	Shoot The Crane 55	R 63
8 Q79 RED-GRY CN6-9	Right Turbo Bumper 8	Grid: Big Mistake16	Wild Card 24	Ticket 32	Return Lanes X2 40	Right Scoop 48	● Middle Scoop 56	Credit Button 64



Lamp Number	Description
01	Find the Ripper
02	Grid:Last
03	Grid:Action
04	Grid:Hero
05	Grid:Super Crane
06	Left Turbo Bumper
07	Top Turbo Bumper
08	Right Turbo Bumper
09	Grid:Fast Scoring
10	Grid:Go to The Movies
11	Grid:Save Danny



Lamp Locations

**Note:**  
See page 36 for lamp part numbers

12	Grid:Light Extra Ball
13	Grid:Cat Millions
14	Grid:To The Roof
15	Grid:Redeye
16	Grid:Big Mistake
17	C
18	R
19	A
20	N
21	E
22	Animated Cat Target
23	Left Ramp
24	Wild Card
25	Benedict's Eye Top
26	Benedict's Eye Middle
27	Benedict's Eye Bottom
28	Top Rollover Left
29	Top Rollover Middle
30	Top Rollover Right
31	Captive Ball X2
32	Ticket
33	Shield Left
34	Shield Left Center
35	Shield Right Center
36	Shield Right
37	More Time
38	Extra Ball
39	M-Ball
40	Return Lanes (2 Bulbs)
41	Spinner
42	Chicken
43	Outlanes (2 Bulbs)
44	The Roof
45	Jackpot
46	Ripper
47	Save Danny
48	Right Scoop
49	Shoot Again
50	Lock Bottom (Right)
51	Lock Top (Left)
52	Middle Scoop
53	Middle Scoop
54	Middle Scoop
55	Shoot the Crane
56	Middle Scoop
57	Smart Missile
58	R
59	I
60	P
61	P
62	E
63	R
64	Credit Button

## FLASH LAMP / COIL TESTS

Twenty-Two regular (pulsed under microprocessor control) coil drivers are provided to switch ground to coils. The Left/Right relay is used in conjunction with drives 1 through 8 to switch +32 volts between coils or flash lamps; these sets are termed "left" and "right". This relay is located on the PPB board which provides isolation diodes and current limiting resistors. This effectively provides 29 regular coils.

### Flash Lamp

From the Single Lamp test, depress the STEP push-button switch. All Flash lamps will fire randomly. This allows the Technician to easily spot any burned out bulbs and replace them without stepping through the tests below.

### Automatic Test

From the Flash Lamps test, depress the STEP push-button switch. Player 1 and 2 displays indicate ALL COILS. The test pulses each regular solenoid or flash lamp sequentially with the coil/flash lamp name indicated in the Player 1 and 2 displays and the wire colors in the Player 3 and 4 displays.

### Select Coil

From the Coil Test, depress the STEP push-button switch. Player 1 and 2 displays indicate SELECT COIL and then the name of 1st drive, the wire colors are indicated in the Player 3 and 4 displays. Operate either Flipper push-button switch to select the coil or flash lamp to be tested. With the desired drive number indicated in the Player 4 display, depress the START push-button switch to cause it to be pulsed repeatedly.

### RETURN TO GAME OVER

From the Select Coil test, depress the STEP push-button switch once. The game returns to the game-over mode.

### CPU Controlled Auxillary Solenoids

Coil Number	Coil Description	Control Line (CPU to Coil)	Power Line (PS to Coil)	Drive Transistor	Coil Type
17	Left Turbo Bumper	BLU-BRN CPU CN19-7	RED PS CN3-6	Q11	23-800
18	Center Turbo Bumper	BLU-RED CPU CN19-4	RED PS CN3-6	Q9	23-800
19	Right Turbo Bumper	BLU-ORN CPU CN19-3	RED PS CN3-6	Q8	23-800
20	Left Slingshot	BLU-YEL CPU CN19-6	RED PS CN3-6	Q10	23-800
21	Right Slingshot	BLU-GRN CPU CN19-8	RED PS CN3-6	Q12	23-800
22	Ripper Kickback (See Schematic)	WHT-VIO CPU CN19-9	VIO-YEL PPB J7-3	Q13	23-800

### Flipper Solenoids

Coil Description	Flipper GND CPU to Flip Sw. to Flip.PCB	Flipper GND CPU to Flip Sw. to Flip.PCB	Power Lines FlipPc toCoil	Coil Type	Power Input To Flip PCB
Left Flipper 090-5020-30	ORN-GRY CPU CN19-2	BLU-GRY CN1-10	GRY-YEL CN2-1,2	23-900	BLK-WHT 50VDC
Right Flipper 090-5020-30	ORN-VIO CPU CN19-1	BLU-VIO CN1-7	BLU-YEL CN2-4,5	23-900	GRY, GRY-GRN 8VAC

