Keeney's

EL RANCHO

OPERATION AND SERVICE MANUAL

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2600 WEST 50th STREET
CHICAGO 32, ILLINOIS

EL RANCHO

F-4026-ND

IMPORTANT

The Manufacturer has reserved the right to make changes in design or add any improvements on any games without incurring any obligation to install same on games previously purchased. Dealer reserves a similar right.

Further, our warranty shall not apply to any game which shall have been repaired or altered outside of an authorized dealership in any way so as in the judgement of Dealer to affect adversely its performance and reliability, or to any game which has been subject to misuse, negligence or accident.

EL RANCHO
INTRODUCTION

El Rancho challenges a player's skill on the playfield with suspense at various stages of the play cycle. Briefly, the principle of play is as follows:

Inserted coin automatically starts flasher unit which flashes characters that are viewed on the panascope. At end of flash, two balls are played consecutively to obtain a high score. A pre-determined set of hi-score values will advance the column lites accordingly. Column lites plus character combinations on panascope determine possible score register. The player, if he has achieved a minimum score of 190, now may take another ball to achieve an even higher score. This choice is made by pressing the proper button on front molding. If he decides to take the score then the score register will advance to agree with the values on the backglass. However, if he decides to take another ball, then the alternator unit alternately flashes "score" and "no score" on backglass with each playfield score impulse and whichever light is on at the end of playfield action determines the result.

"Total Score" registers one point at high scores of 750-850 and 950.

"Total Score" registers one point at high scores of 750-780-850-880-950 and 980 when star is lighted.

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SECTION I

INSTALLATION

1.1 SPECIFICATIONS

LENGTH	55½" OVERALL
WIDTH	24½" OVERALL
HEIGHT	67 3/4" BACK CABINET
WEIGHT (UNCRATED)	270 LBS.
SHIPPING WEIGHT	
OPERATING VOLTAGE	105-125V. A.C.
OPERATING CURRENT (MAX.)	4 AMP.
TOTAL SCORE UNIT (MAX.)	999
COIN CHUTE	COIN ACCEPTANCE (5-10-25¢) OPTIONAL

SECTION I
INSTALLATION

1.2 ASSEMBLY AND SET UP

The game is packed in two separate cartons; one for back cabinet and one for the playfield cabinet. These two cartons are placed in a master carton to which is added a third small carton for packing the legs, leg levelers, and hardware for final assembly.

Be sure to remove the "shipping block" before assembling. It is plainly marked and is used to insure the safety of the playfield and playfield glass during transit. After bolting the two cabinets together, be sure to use the leg levelers to guarantee proper playfield and slug rejector operation. Insert ball into playfield by pulling glass back through rear door opening.

Be sure all plugs and sockets are properly mated and securely anchored for good contact. Check the game thoroughly for properly lit bulbs and general operation. A card is provided for the customer's use to list all the comments and criticisms on the game as delivered. This is an aid to assure high standards of production, inspection and future improvements.

SECTION II
OPERATION

A complete function of the circuitry would be too elaborate to explain in detail. Refer to wiring diagram at all times. The function of each major component will be explained briefly as an aid to the wiring diagram.

2.1 VOLTAGES

All relay coils, step-up coils and flasher unit coils operate on 50 volts, A.C. All lamps are operated on 6 volts, A.C. All motors are operated on 50 volts, A.C.

2.2 COIN MECHANISM

The coin mechanism in this game is of the single coin type. It will only accept coins of one denomination. A lockout coil is incorporated in the assembly to make the mechanism return coins in the event current is shut off, or when total score and sub-total are unequal. To assure trouble-free operation of coin mechanism, it should be cleaned periodically since coins handled by moist hands will sometimes leave a residue which tends to build up in the mechanism.

2.3 FLASHER UNITS

The flasher units flash and position the characters that appear on the panascope. The "on time" for each flasher unit is determined by the length of time the sequence unit is allowed to make one complete cycle. The coils on the flasher units are energized through contacts on the sequence unit.

SECTION II
OPERATION

2.4 VARIATOR

The switch on the variator unit energizes the sequence solenoid when the sequence release arm is at rest in one of the mixing dwells on sequence cam. The irregular spaced dwells on the variator cam vary the time length of sequence cycle. The variator motor runs when game-on relay is energized.

2.5 COMMUTATOR

The commutator unit determines the amount of total score. Each scoring combination has its own section of rivets tied together. The commutator advances at a different rate dependent upon the column lit.

2.6 SEQUENCE

The sequence solenoid is energized thru a switch on the start relay. An arm switch on the sequence solenoid energizes the motor relay, thereby starting the flash cycle. The sequence unit then travels through a series of starts and stops, a full 360 degrees, during which time it varies the "on time" of the flasher units to produce a mixing action.

SECTION II
OPERATION

2.7 START RELAY

This relay starts the flasher play cycle when it is pulsed by the coin switch or button. It is locked in by its own switch and falls off when commutator reset relay is energized

2.8 HOLD RELAY

This relay is energized the entire time power is turned on. It is initially energized by a contact on the impulse disc. When power is interrupted this relay actuates the impulse unit to reset the sub-total and total score units.

2.9 MOTOR RELAY

This relay is energized by the sequence arm switch except during mixing dwell period. During this time it is kept energized by the sequence disc. It energizes all flasher motors.

3.0 GAME-ON RELAY

It is energized first by the ball unit disc and secondly by the ball rest switch, also by the "take ball" relay for the extra ball delivery. Energizes variator motor during play cycle. Completes circuit to score motor to insure delivery of ball to shooting position. Completes circuit from the No. 1 score disc to win relay. Completes circuit to "score" lite when alternating relay is energized. Completes circuit to "game over" lite when win relay is deenergized.

SECTION II
OPERATION

3.1 COMMUTATOR RESET RELAY

It is pulsed by the sequence unit disc at the beginning of the play cycle. It in turn advances the control unit. Resets commutator and No. 1 and No. 2 score units. It also pulses the play relay or the coin unit S.U. dependent upon condition of the even relay. It breaks the start relay lock-in.

3.2 COMMUTATOR ADVANCE RELAY

Pulsed by total score advance relay or the impulse disc as dictated by the position of the No. 1 or No. 2 score disc, and in turn advances the commutator unit.

3.3 TOTAL SCORE ADVANCE RELAY

Pulsed by impulse disc when win relay is energized and in turn advances the total score register unit. Pulses the control unit return coil. It also pulses the commutator advance relay dependent upon position of the No. 1 score disc when the win relay is energized.

3.4 TOTAL SCORE RESET RELAY

Resets total and sub-total units through the impulse disc.

SECTION II
OPERATION

3.5 HI-SCORE IMPULSE RELAY

Pulsed by the score motor disc, (through the energized 5-count or 2-count relays), or by the bumper or roll-over switches. Advances both number 1 and 2 score units.

3.6 2-COUNT RELAY

Energized by 2-count roll-over switches and lower ring switches. Locked in by its own switch. When energized it runs the score motor so it can pulse the hi-score impulse relay. It falls off when the score motor cam No. 2 breaks the lock-in.

3.7 5-COUNT RELAY

Energized by 5-count roll-over switches and locked in by its own switch. When energized it cycles the score motor so it can pulse the hi-score impulse relay. It falls off when the score motor cam No. 2 breaks the lock-in.

3.8 WILD RELAYS

These relays provide an alternate, (or wild) circuit when they appear in combination with other scoring characters.

3.9 THUMPER BUMPER RELAYS

Each thumper bumper has its own relay. This is activated by the bumper switch when contacted by the ball. It locks itself in to guarantee a full stroke for the bumper solenoid. The relay drops off through its own bumper "end of stroke" break switch.

SECTION II
OPERATION

4.0 WIN RELAY

When energized it completes circuit through the energized "take score" relay to the impulse release solenoid. It also completes the circuit to the "take score" and "take ball" buttons. Closes circuit to "take ball" and "take score" lites on playfield. When deenergized completes circuit to game-over lite when game-on relay also deenergized.

4.1 TAKE SCORE RELAY

Energized through the win relay when "take score" button is pressed. Locked in by its own switch. When energized it opens circuit to "take ball" relay. Completes circuit to impulse solenoid through win relay. Opens circuit to playfield switches. Breaks lock-in when commutator reset relay pulsed.

4.2 TAKE BALL RELAY

Energized through the win relay when the "take ball" button is pressed. Locked in by its own switch. When energized opens circuit to "insert coin" or "press button" lites. Initially energizes the "game on" relay for playing extra ball feature.

4.3 ALTERNATING RELAY

Energized by alternator disc contacts. Alternates "score" and "no score" lites on backglass. Closes circuit to win relay when alternator is in a "score position".

4.4 ZERO CONTROL RELAY

Energized by play relay and locked in by its own switch through the impulse disc. Breaks lock-in for hold relay. Resets total and sub-total units to zero position on next coin when both total and sub-total units become equal.

4.5 PLAY RELAY

Pulsed by commutator reset relay through even relay. It energizes the zero control relay. Advances the sub-total units.

4.6 EVEN RELAY

Energized when the scores of the total score and sub-total units become equal. Energizes hold relay thru impulse disc. Closes circuit to coin lockout, "insert coin" lite and coin unit step up when energized. Falls off when scores of sub-total and total score units are unequal. It then closes circuit to start relay through replay button, also to "press button" lite and play relay.

4.7 TILT RELAY

Under normal play this relay is latched in a "set up" position. In this condition it closes the circuit to the game-on relay, the "take ball" relay, and the win relay and the 6 volt circuit. When a tilt situation occurs the trip tilt coil is energized, and above circuits are opened.

4.8 FEATURE RELAY

Energized by disc contact on fraction unit. When energized it completes circuit to total score advance relay from hi-score scoring positions of #2 score unit. Lites star on backglass.

4.9 SCORE MOTOR UNIT

Motor is energized by the game-on relay through the ball rest switch. During this cycle it triggers the ball release thru cam No. 1 switch. Motor also runs when the five-count or two-count relay is energized. Cam No. 2 breaks lock-in to five-count or two-count relay.

5.0 BALL UNIT

It receives its first, third and fifth step-up pulse from the arch gate switch, and its second, fourth and sixth pulse from the hi-score impulse relay. It is reset through the commutator reset relay.

5.1 NO. 1 SCORE UNIT

This unit is advanced by the pulsing of the hi-score impulse relay when the No. 2 score unit disc is in "0" position. It advances the score and arrow lites on the backglass.

5.2 NO. 2 SCORE UNIT

When score unit No. 1 has advanced to a score of 490 the No. 2 unit then takes over the scoring.

SECTION II
OPERATION

5.3 ALTERNATOR UNIT

This unit alternates the "score" and "no score" lites on the backglass through its disc contacts to the alternating relay. It is advanced by the hi-score impulse relay when the player options to play extra ball feature.

5.4 ADJUSTMENTS

A. COIN DIVIDER ADJUSTMENT

The coin unit is mounted just inside the front door of the playfield cabinet. Mounted on the disc is a 5-way jack and a single plug.

Insert plug in desired position as identified by card mounted on cabinet. This will determine the division of coins to be deposited in each cash box.

B. FRACTION UNIT

Mounted on the fraction unit is a 4-way socket and a 4-way plug which permits the frequency of wild arrows on the left and center flasher units to be adjusted. By moving the socket as indicated by the instruction card the frequency can be varied.

C. SELECTOR SWITCH

This unit is mounted just inside front door. It can be adjusted to the desired condition to suit the location. Refer to note on schematic diagram.

SECTION III
MAINTENANCE

3.1 MAINTENANCE INSTRUCTIONS

Like any other piece of equipment, this machine requires maintenance and periodic lubrication. By following the instructions listed below, operating troubles will be greatly minimized.

1. A periodic check of the entire machine for any parts which may require slight adjustments.
2. A periodic check of female sockets by crimping slightly with fingers to insure a positive contact with male portion of same socket.
3. All relay and switch stacks may occasionally require tightening.
4. After tightening relay and switch stacks, all relay and switch contacts should be reinspected for proper contact and gap.

   A minimum of 1/32 inch follow thru is required for proper relay and switch contact operation. If necessary to clean relay and switch contacts, a burnishing tool or crocus cloth may be used. Under no circumstances use a file of any type to clean contacts.
5. Fuse clips may occasionally be tightened to insure proper fuse contact.

SECTION III
MAINTENANCE

NOTE:-

Clutch spring tension adjustments should be made only after clutch leather washers are lubricated as per instructions under Lubrication Instructions.

3.2 LUBRICATION INSTRUCTIONS

CAUTION:- Over lubrication is sometimes more harmful than too little lubrication. All lubricants should be used sparingly for proper operation. Never under any circumstances use vaseline as a lubricant.

1. All contact discs should be cleaned periodically with a suitable solvent (carbon tetrachloride is considered excellent for this purpose.)
   After contact discs are cleaned of all residue, a very light film of coin machine grease should be applied to contact disc. A tube is furnished with each game.
2. Shafts and levers of step-up units and all other levers and linkages should be sparingly lubricated with an oil of the three-in-one type.
3. Ratchets of step-up units should be lubricated slightly with coin machine grease.
4. Leather washers on units utilizing slip clutches should be soaked in neatsfoot oil as a lubricant.
5. All linkages should be lubricated with oil.

3.2 LUBRICATION INSTRUCTIONS (CONTINUED)

CAUTION:- Never lubricate a plunger or a solenoid. A periodic disassembly of solenoid and plunger, after which both units should be wiped clean is all that is required.

6. Contact wipers on step-up units and all other units utilizing wiper fingers should be occasionally checked for finger tension. The proper amount of tension can be noted if the disc is moved away from the wiper. This wiper should follow the disc for approximately 1/32 inch before the wiper leaves the disc. On slightly warped discs, tension of fingers may be slightly increased. Discs that are extremely warped should be replaced.

NOTE:- Too much wiper tension will cause unit to operate very sluggishly and fail to reset properly.
Too light tension will cause intermittent failure of some portion of circuit which it operates.

7. Units utilizing a slip clutch should be checked for clutch spring tension occasionally.
   (a) A clutch spring tension that is too tight will cause a strain on the motor which will eventually become weak and cause failures.
   (b) A clutch spring that is too loose will not allow fingers to rotate due to extreme slippage and will not function properly.

SECTION IV
REPAIR PARTS LIST

WHEN ORDERING REPLACEMENT PARTS ALWAYS MENTION TYPE OF GAME, SERIAL NUMBER, DESCRIPTION OF DEFECTIVE PART AND PART NUMBER.

ITEM	DESCRIPTION	PART NUMBER
SOLENOIDS		
TOTALIZER	20 OHM	1326-B4-19
ALTERNATOR	10 OHM	1326-B4-49
BALL STEP-UP	10 OHM	1326-B4-49
BALL RESET	15 OHM	1326-B4-51
CONTROL UNIT STEP-UP	50 OHM	1326-B3-25
CONTROL UNIT RESET	50 OHM	1326-B3-25
NO. 1 SCORE UNIT STEP-UP	10 OHM	1326-B4-49
NO. 1 SCORE UNIT RESET	15 OHM	1326-B4-51
NO. 2 SCORE UNIT STEP-UP	10 OHM	1326-B4-49
NO. 2 SCORE UNIT RESET	15 OHM	1326-B4-51
COMMUTATOR STEP-UP	6.0 OHM	1326-B4-52
COMMUTATOR RESET	6.0 OHM	1326-B4-47
SEQUENCE	44 OHM	1326-B4-50
IMPULSE	44 OHM	1326-B4-50
FRACTION	44 OHM	1326-B4-50
LEFT FLASHER	44 OHM	1326-B4-50
CENTER FLASHER	44 OHM	1326-B4-50
RIGHT FLASHER	44 OHM	1326-B4-50
COIN UNIT STEP-UP	10 OHM	1326-B4-49
COIN DIVIDER	110 OHM	1326-B3-24
THUMPER BUMPER	8.3 OHM	1326-B4-39
BALL RETURN	6.0 OHM	1326-B4-53

SECTION IV
REPAIR PARTS LIST

LAMPS		
DISPLAY	#51	
PANASCOPE	#44	
TOTALIZER	#47	
MOTORS		
SEQUENCE & IMPULSE	20 RPM 50 V.	E-2926-A
FRACTION & LEFT	20 RPM 50 V.	E-2926-A
CENTER & RIGHT	20 RPM 50 V.	E-2926-A
VARIATOR	4 RPM 50 V.	E-2749-A
SCORE MOTOR	36 RPM 50 V.	E-2719-A
COIN MECHANISM		
5¢ COIN		
10¢ COIN	OPTIONAL AS REQUIRED	
25¢ COIN		
TRANSFORMER		
POWER	PRI. 115V.	
	SEC. #1-50V.	TR-1003
	SEC. #2-6V.	
FUSES		
115V. CIRCUIT	7½ AMP.	118-K-110
50V. CIRCUIT	10 AMP.	118-K-106
6V. CIRCUIT (PLAYFIELD)	7½ AMP.	118-K-110
6V. CIRCUIT (BACK BOX)	10 AMP.	118-K-106

SECTION IV
REPAIR PARTS LIST

RELAYS	PART NO.	DESCRIPTION	COIL PT. NO.
COMMUTATOR ADV.	E-2827-A	50 OHM	1326-B3-14
LEFT WILD #1	E-2754-A	100 OHM	1326-B3-16
LEFT WILD #2	E-2754-A	100 OHM	1326-B3-16
CENTER WILD #1	E-2754-A	100 OHM	1326-B3-16
CENTER WILD #2	E-2754-A	100 OHM	1326-B3-16
RIGHT WILD #1	E-2754-A	100 OHM	1326-B3-16
RIGHT WILD #2	E-2881-A	100 OHM	1326-B3-16
WIN	E-2756-A	100 OHM	1326-B3-16
2-COUNT RELAY	E-2618-A	80 OHM	1326-B3-15
5-CCUNT RELAY	E-2618-A	80 OHM	1326-B3-15
COMMUTATOR RESET	E-2732-A	80 OHM	1326-B3-15
HOLD	E-2964-A	100 OHM	1326-B3-16
GAME ON	E-2989-A	100 OHM	1326-B3-16
MOTOR	E-2410-A	80 OHM	1326-B3-15
START	E-2402-A	80 OHM	1326-B3-15
HI-SCORE IMP.	E-2991-A	50 OHM	1326-B3-14
THUMPER BUMPER	E-2786-A	50 OHM	1326-B3-14
TOTAL SCORE RESET	E-2409-A	50 OHM	1326-B3-14
TOTAL SCORE ADV.	E-2787-A	50 OHM	1326-B3-14
PLAY	E-2602-A	50 OHM	1326-B3-14
EVEN	E-2724-A	100 OHM	1326-B3-16
ZERO CONTROL	E-2653-A	100 OHM	1326-B3-16
FEATURE	E-2690-A	100 OHM	1326-B3-16
LATCH RELAY ASS'Y.	AS-3199-ND	SET UP 15 OHM TRIP 17 OHM	1326-B4-51 1326-B3-13
TAKE SCORE	E-2941-A	100 OHM	1326-B3-16
TAKE BALL	E-2838-A	100 OHM	1326-B3-16
ALTERNATING	E-2405-A	100 OHM	1326-B3-16