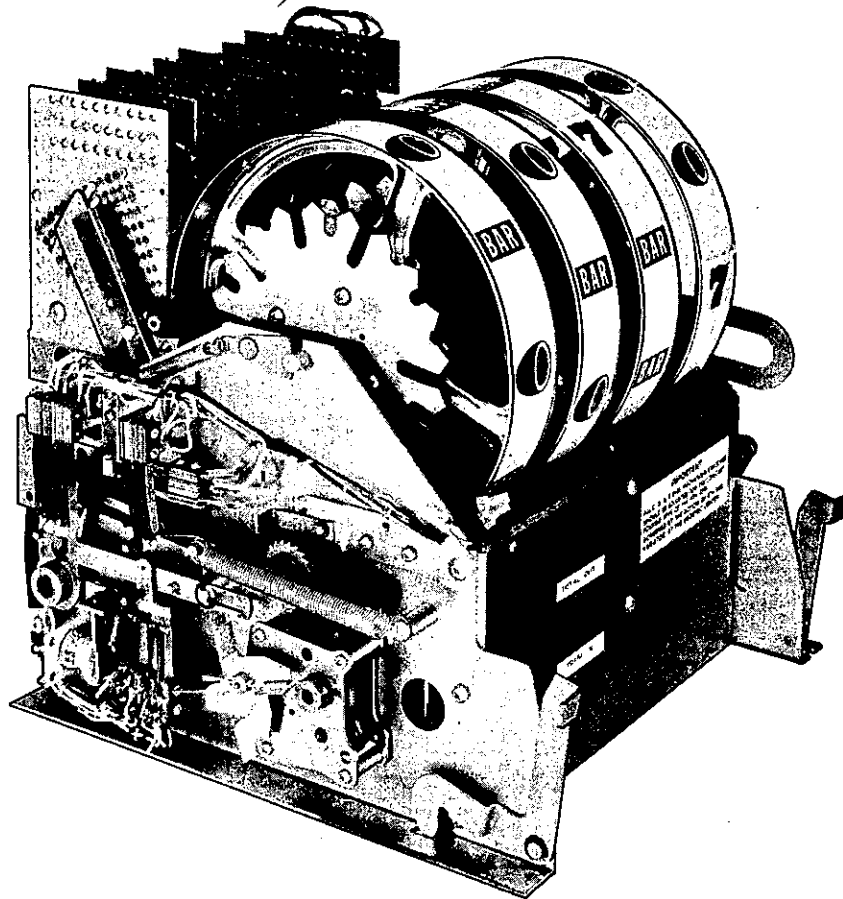


Manual No. 2600
3-4-5 Reel Games

Bally[®] SLOT MACHINES

SERVICE INSTRUCTIONS & PARTS CATALOG

COVERING ALL 3, 4 & 5 REEL SLOT MACHINE MODELS
—Standard & Console Models—



Bally[®]

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INTRODUCTION

This Service, Parts & Operating Instructions Manual is designed to cover the major operating mechanisms in Bally's 3, 4 and 5 Reel Slot Machines. Virtually every Function, Service Procedure, Electrical Circuit & Part is included for your information. This new & up-to-date information is designed to tie-in with other new & upcoming Service Manuals covering Specific Models & their particular feature mechanisms.

Due to a large number of recent engineering

improvements to the basic Reel & Hopper Mechanisms virtually every previous manual must be considered obsolete. Our last major slot manual, No. 2400, covering all Standard 3 Reel Models is accurate with the exception of the Reel Mechanism. Please note the changes made in the exploded views covering the Reel Mech. Center & Right Side. It should be emphasized that virtually all the new engineering changes & improvements can easily adapt to earlier slot mechanisms dating to 1964.

HOPPER PAYOUT UNIT INTRODUCTION

The Hopper Payout Unit is the virtual brain of the Slot Machine controlling the vital banking functions. Some of these functions are the retention & storage of incoming coins (enough to cover repeated jackpot payouts), the flawless payout and accounting of all winners and the diversion of incoming coins to the Cashbox when there is sufficient reserve in the Hopper. In addition a variety of Re-

lays and Switches are mounted in the Unit according to the requirements of the game. Relays normally installed on the Hopper Payout Unit are the Payout Relay, Hopper Mixer Relay (operates Hopper Motor occasionally to level coins), the Delay Relay (Safety Timer System) & "Plum", "Cherry", & "Jackpot" Relays which assist complex win circuits in the Reel Contact Plate Discs.

PAYOUT COUNTER UNIT

The Payout Counter is normally installed just behind the Hopper on the left side of the unit. However, on many of the large Console Slot Machines the Counter Unit (electrically stepped style) is separate from the Hopper Unit & is mounted on a lower electrical unit mounting board.

There are two types of Counters now in use, a coin operated Mechanically Stepped counter (direct drive), and an Electrically Stepped Counter (Solenoid driven via Hopper Pivot Arm Sw. 's).

The great majority of Bally Slot Machines use the Mechanically Stepped Payout Counter. These Units are all basically the same despite the great variety of machines. The biggest differences are the printed circuit on the Contact Plate Disc (different payouts), the Contact Plate Wiper Arm (a double arm is used on the 3 & 5 Line Pay Models), different switching combinations and the use of a Standard or Delay Relay P.O. Safety Timer System.

The Electrically Stepped Payout Counter is used primarily on the 5 Coin Multiplier Models (809, 956 & 972) and a variety of the large Console Type Models (England & Europe export). The electrically stepped unit has circuit advantages when the drum type multipliers are used to determine awards & when a special dual Replay Register & Hopper operation is used.

Both types of Counter Units use a Carriage Unit that is used to record the larger jackpot type payouts (100-200 etc.). This is used because of the Contact Plate circuit limitations and the 100 tooth Ratchet Gear. In addition, the Carriage Unit has the "Open At Zero" Switch & adjustable Zero Stop (counter reset circuit).

To better understand the operation of the Hopper Payout Unit during the payout sequence two Diagrams with an accompanying explanation have been prepared. The first Diagram shows a typical single Coin Slot Machine with a Mechanically Stepped Hopper & a Standard Safety Timer System.

The Second Diagram shows a typical Model 809 "5 Coin Multiplier" payout circuit, employing an Electrically Stepped Payout Counter and a Delay Relay type Safety Timer System.

PAYOUT SAFETY TIMER SYSTEM

The Safety Timer System is designed to protect the Hopper Payout Unit from overpayments, if a malfunction should occur, by shutting down the game. Two types of Timer Systems are used, a standard System & a Delay Relay System. The Standard System is used on the majority of Mechanically Stepped Counters (excluding the "Continental" Slot Machine Models). This Timer is set to cover the top machine payout (usually a 200 payout measured in seconds) then cut-off. The normal factory Timer Setting is 45 Seconds for Nickels & Dimes, and 50 Seconds for Quarters. The Timer is adjustable with a range of 112 seconds.

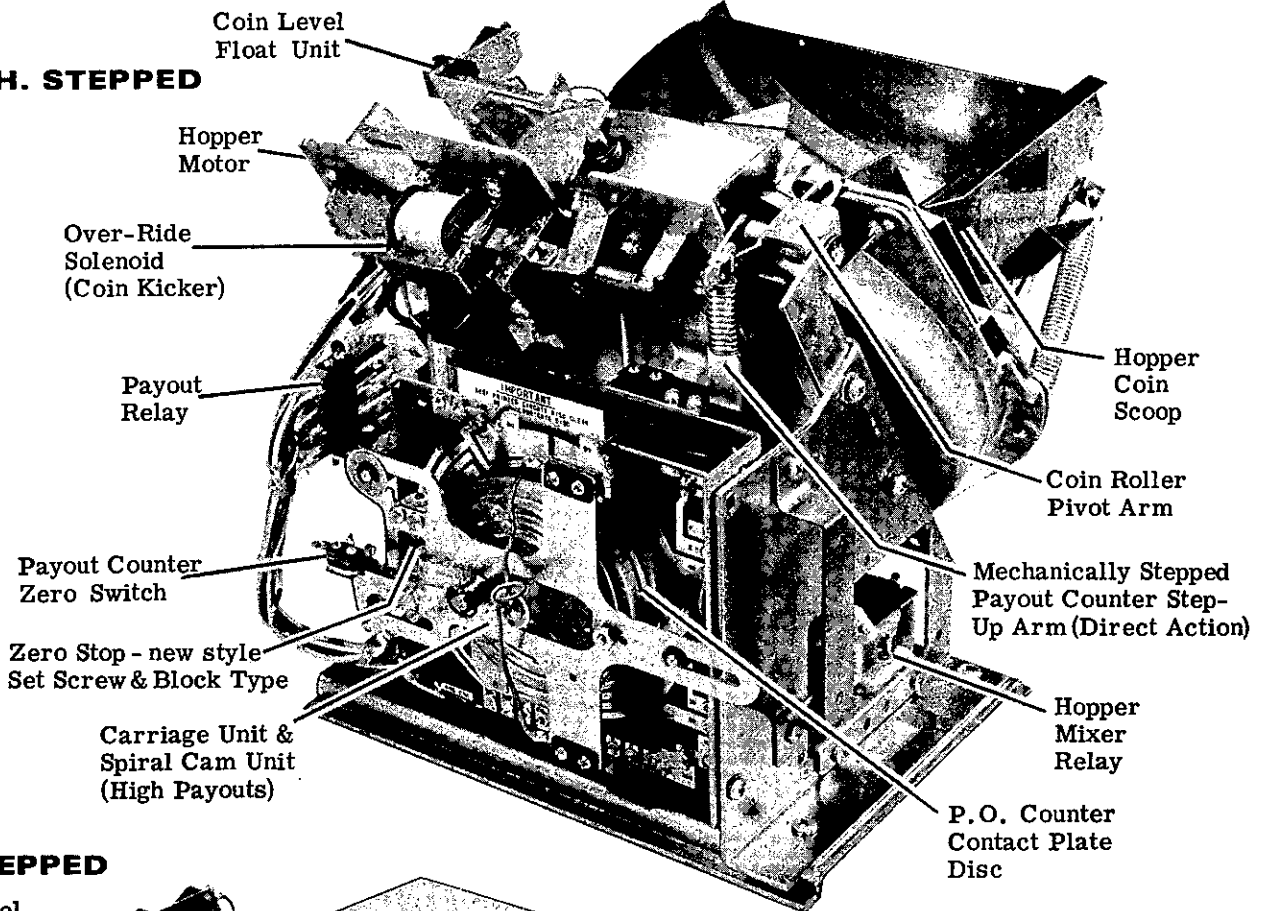
The Delay Relay Safety Timer System is used on both Mechanical and Electrically Stepped P.O. Counters. This system is normally installed on the 5 Coin Multipliers and the "Continental" Models which have many large payout combinations on multiple coin play. The big advantage of this system is that it can catch a payout over-run very quickly and shutoff. Many times a malfunction situation is caught even before the payout is complete. This system uses a constantly repeating timer reset cycle of several seconds in duration during a payout with a factory Timer Setting of only 15 Seconds (adjustable). So the maximum over-run is less than 15 seconds and then only if the malfunction occurred at the end of a payout cycle. Check the included Schematic with the Delay Timer Circuit for further details.

TIMER UNIT OPERATION

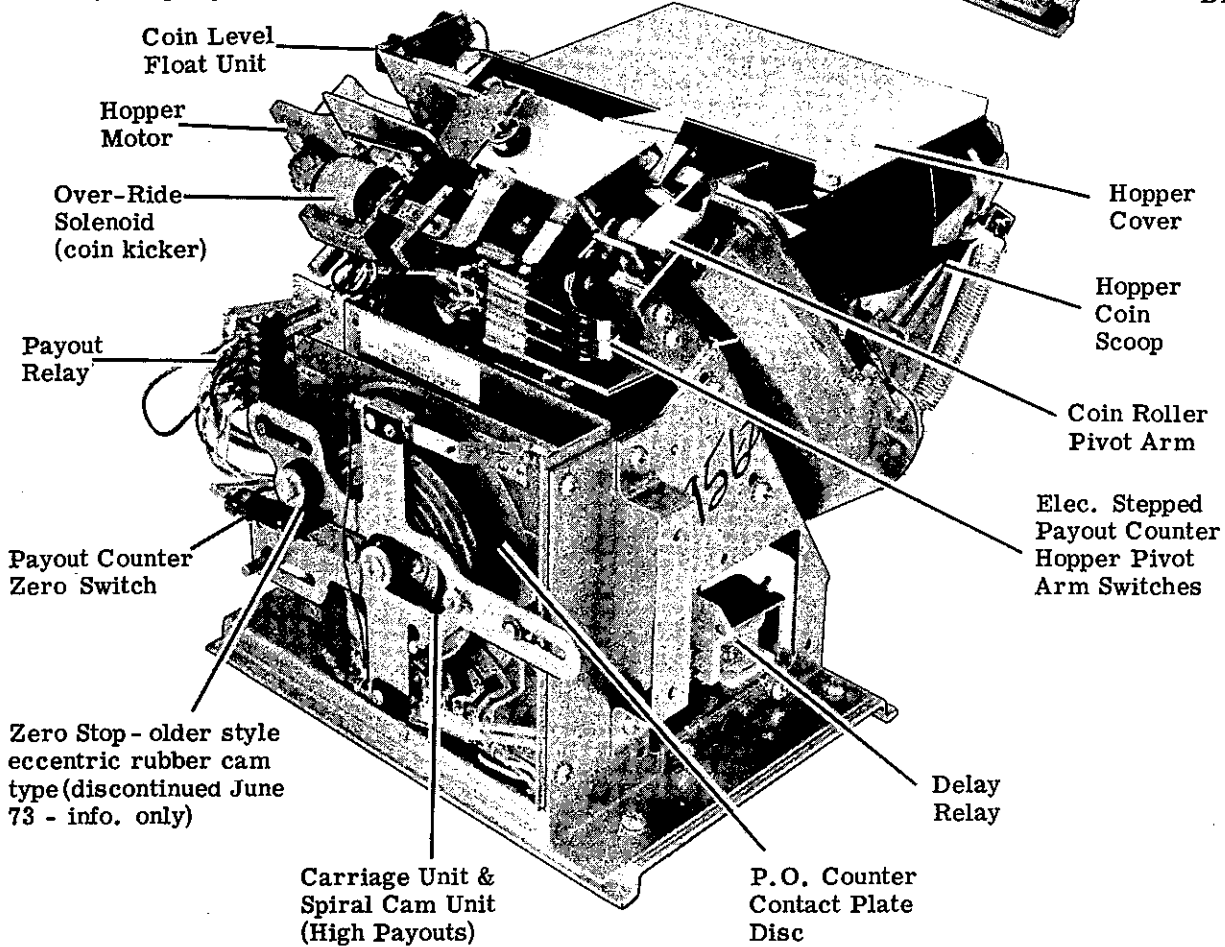
If the Hopper unit runs for a longer time than required to dispense largest payout (plus margin), the cam on the Timer Motor operates the safety sw. which opens the power supply to machine and lights the neon pilot lite indicating "trouble." After correcting the trouble, the machine can be put back in service by manually resetting the safety switch. The time cycle on the safety timer motor can be adjusted by loosening the lock nut holding the cam and setting the pointer to the number of seconds desired, as indicated on the dial under the cam. The time adjustment varies from 5 seconds to 112 seconds. When the desired time setting is made, lock the cam securely and check by cycling cam several times.

HOPPER PAYOUT UNIT INTRODUCTION

MECH. STEPPED



ELEC. STEPPED



HOPPER PAYOUT UNIT FUNCTION

MECHANICALLY STEPPED COUNTER CIRCUIT FUNCTION

This Schematic Diagram shows a standard, Mechanically Stepped Payout Circuit with a three Oranges winner. The Reel mechanism Contact Plate Wipers have completed a winning orange combination circuit on the Contact Plate Discs (Note: Or-Or-Or/Bar = 10). This circuit energizes the 10 pay segment on the Payout Counter's Printed Circuit Disc which is picked up by the Contact Plate Wiper Arm which in turn energizes the Payout Relay. The Payout Relay Switches now complete circuits to the Hopper Payout Motor, Over-Ride Solenoid, Safety Timer Motor & a hold-in circuit to the P. O. Relay. The Unit is now fully conditioned to dispense coins.

As the coins are being dispensed out of the Hopper they ride out under the Pivot Arm Roller. The action of coins riding under the Pivot Arm mechanically steps-up the Payout Counter. When the Wiper Arm moves off the "hot" pay printed circuit segment (10 steps) the entire circuit is de-energized (P.O. Relay) & the Over-Ride Solenoid instantly cuts off the coin flow. The Orange combination win is now complete & the game is ready for further play.

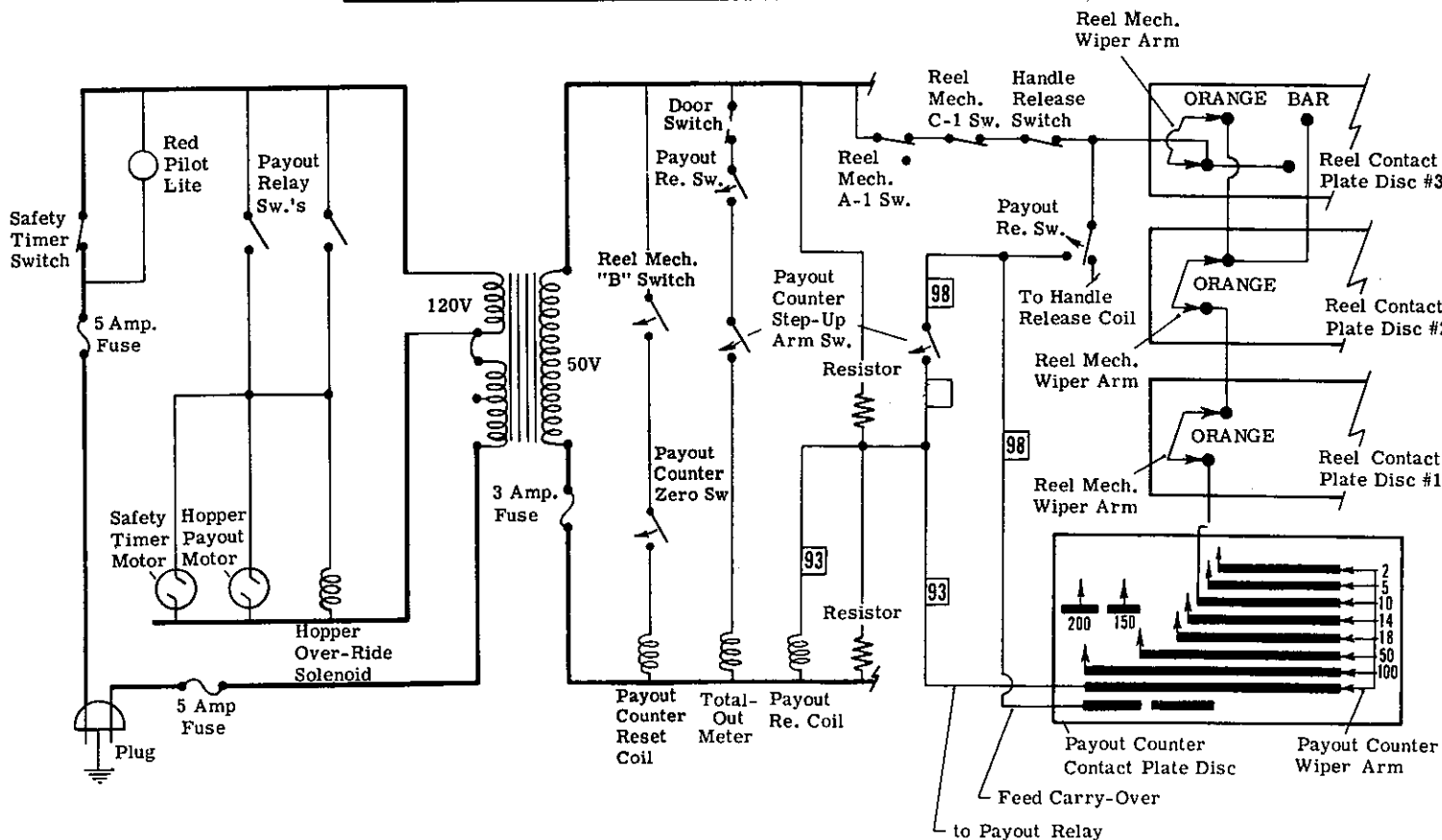
You will notice that the Payout Counter's Zero Sw. (located on Carriage) closes as the Payout Counter Steps-up off zero during the payout. This Zero Switch remains closed until the next play cycle when the Handle is pulled. This action momentarily

closes the Reel Mech.'s "B" Sw. (via Timer Link) which completes the circuit to the Payout Counter reset Coil. This action resets the Counter & opens the Zero Switch, preparing the game for another winner.

The Feed Carry-Over (C.O.) Circuit (98 wire) on the P. O. Counter's Printed Circuit Disc is energized thru a payout Relay Switch during a payout. The Payout Relay Switch circuit (98 wire) to the Carry-Over portion of the Payout Counter's Printed Circuit provides a "hold-in circuit" to the Payout Relay Coil when the Wiper Arm is travelling between the large P. O. printed Circuit Segments. This action assures that the P.O. Counter will step-up & complete the payout.

The Carry-Over Circuit also sustains a smooth current flow to the Payout Counter Disc circuits during the pulsing of the circuit by the Payout Counter Step-Up Arm Switch (98 & 93 wires).

IMPORTANT: It should also be noted the Payout Counter's Step-Up Arm Switch (93 & 98 wire) is adjusted to open AFTER the Wiper has moved off a Printed Circuit segment on the P.O. Counter Disc. An out of adjustment Switch can result in the rapid deterioration of payout segment ends due to arcing caused by high voltage generated by the P. O. Relay when it de-energizes.



HOPPER PAYOUT UNIT FUNCTION

ELECTRICALLY STEPPED COUNTER CIRCUIT FUNCTION

This Schematic (next page) shows a typical Model 809/956 "5 Coin Multiple" winner circuit with an Electrically Stepped Payout Counter, Odds Unit Disc, Drum Type Multipliers (X2, X3, X4, X5) and a Delay Relay Safety Timer.

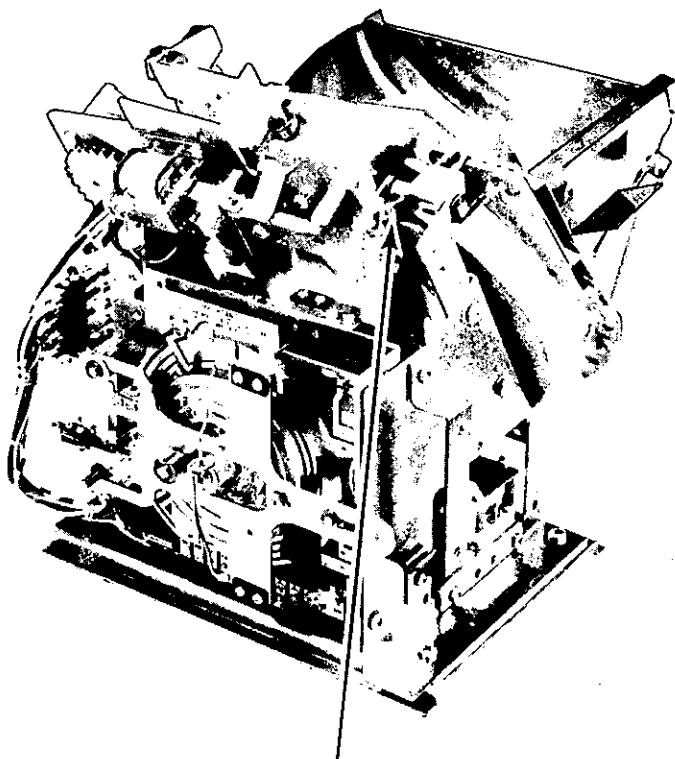
Other multiplier type slot machines are the "Continental" Series (6 coin multipliers) and the "Progressive 5 Coin Multiplier" which use a Mechanically Stepped Counter in conjunction with an Odds Follower Unit & Odds Unit to achieve the multiplication factor. These newer developments are easily understood once the basic system is outlined.

The payout circuit as shown illustrates a three oranges winner. You see the three Reel Mechanism Wipers completing a win circuit on the Reel Mech.'s Contact Plate Discs (Note: Or-Or-Or/Bar = 10) to the P.O. Counter Printed Circuit Disc 10 pay segment. The P.O. Counter Wiper picks up this "hot" circuit & energizes the P.O. Relay. The "hot" P.O. Relay Switches now complete circuits to the Hopper Motor, Over-Ride Solenoid, Safety Timer System and a hold-in circuit to the P.O. Relay. The Unit is now conditioned to dispense coins.

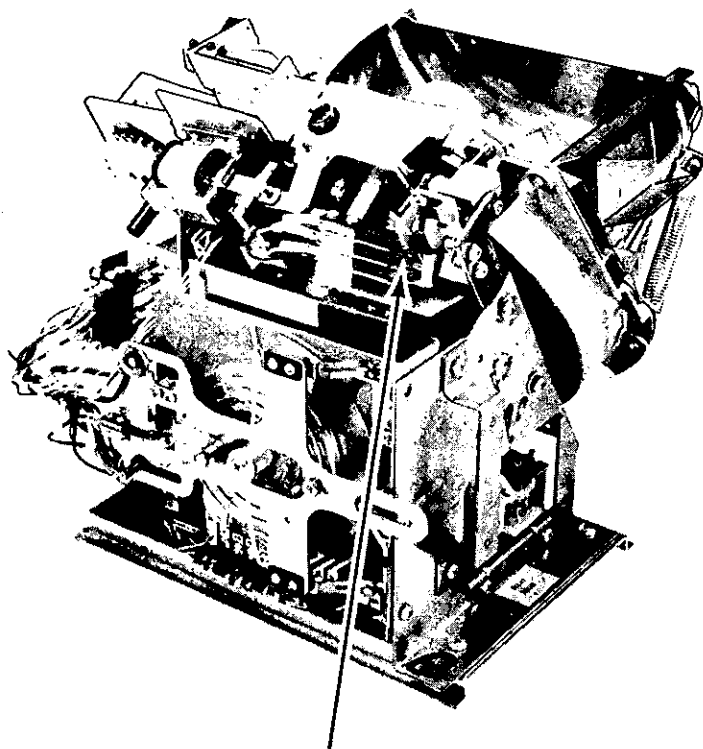
As the coins are being dispensed the action of the coins rolling out under the Pivot Arm pulses the three Pivot Arm Switches. This action in turn completes circuits to the Total-Out Meter & the Payout Unit Step-Up Coil (via the Odds Disc & Multiplier Units). When more than one coin is played (2-5) the Odds Unit advances completing a circuit to one of the Multiplier Units. On a winner the specific Multiplier Unit pulses the Payout Unit Step-Up Coil on a proportional basis. As an example, if 3 coins were played the P.O. Counter advances once for 3 coins dispensed. This action provides the multiplication factor in payout amounts.

When the P.O. Counter advances to a point where it steps off the "hot" 10 pay segment on the P.O. Counter Disc, the payout is complete & the entire circuit is de-energized (P.O. Relay cuts off all circuits & the Over-Ride Solenoid cuts off coin flow). The P.O. Counter is reset on the next pull of handle as the Reel Mech "B" Switch (just as reels kick off) the Reset Coil (via closed Carriage Zero Switch). The Reset Circuit now opens itself & the payout cycle is complete.

[Continued]



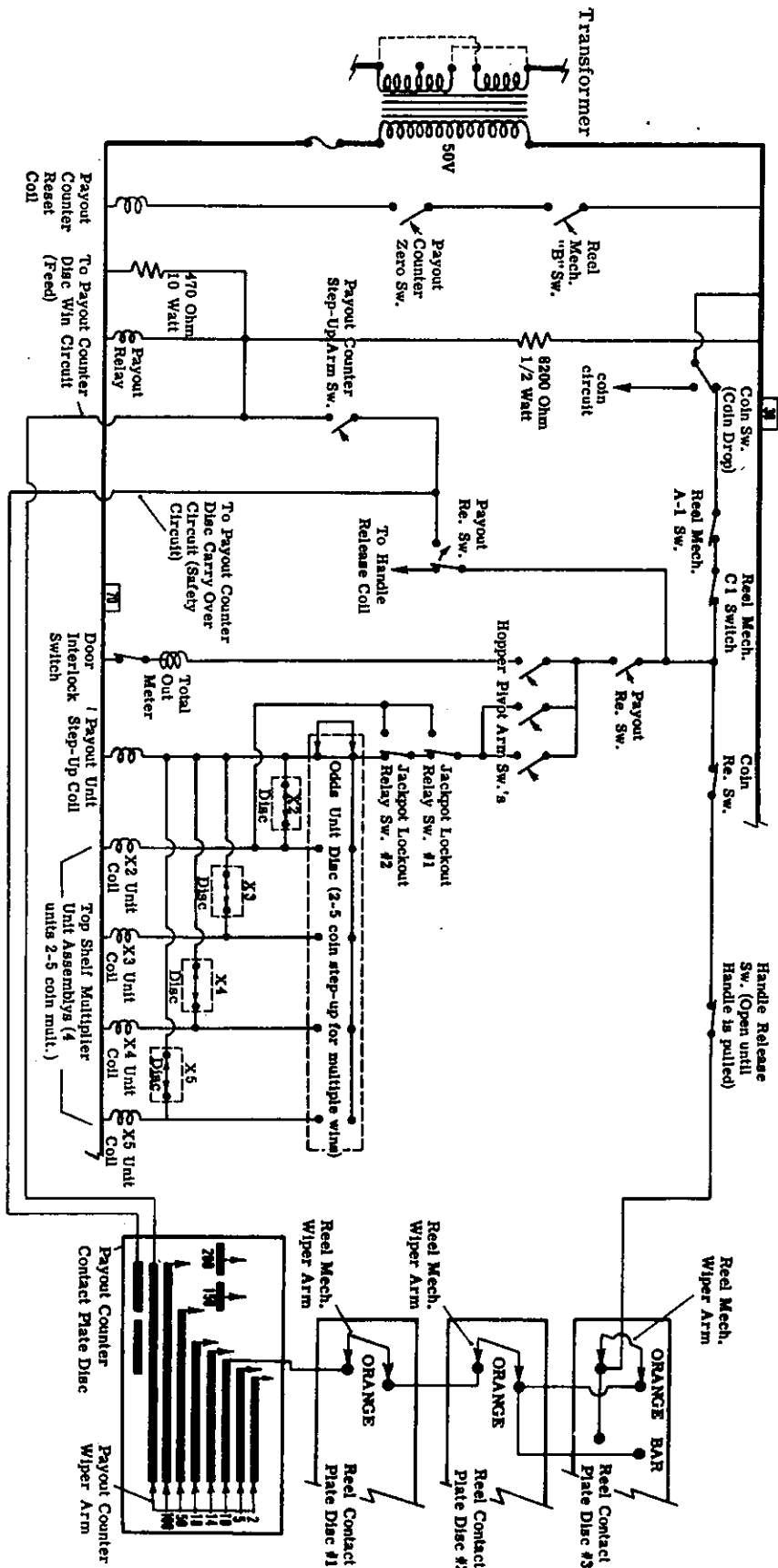
MECH. STEPPED



ELEC. STEPPED

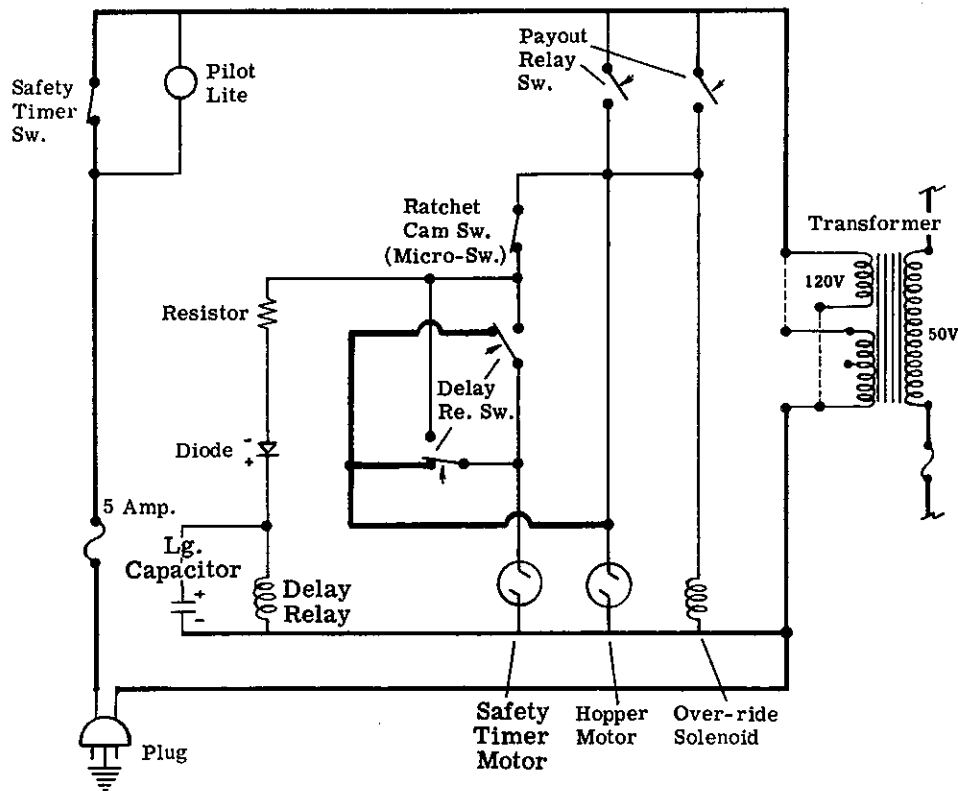
HOPPER PAYOUT UNIT FUNCTION

ELECTRICALLY STEPPED COUNTER CIRCUIT FUNCTION



HOPPER PAYOUT UNIT FUNCTION

DELAY RELAY SAFETY TIMER SYSTEM CIRCUIT FUNCTION



The Delay Relay Timer has the advantage of a very quick coin cut-off if a payout malfunction or over-run situation occurs. This system uses a cam operated Micro Switch Unit installed on the P.O. Counter Ratchet Gear causing the circuit to the Safety Timer to open every few seconds during a payout. This action causes the Timer to constantly reset itself every few seconds (every 5th step) until the payout is complete. Because the timer cycle is only a few seconds in duration the Timer over-run is adjusted to only 15 seconds (factory set-adjustable). This means if a malfunction occurs causing an inability of the counter to step, this fault will be immediately caught (at anytime during payout) and the Timer will quickly run out (15 sec. maximum). In many cases this will cut off the game even before a payout is complete which is in contrast to the 45 - 50 second run of the Standard Timer System.

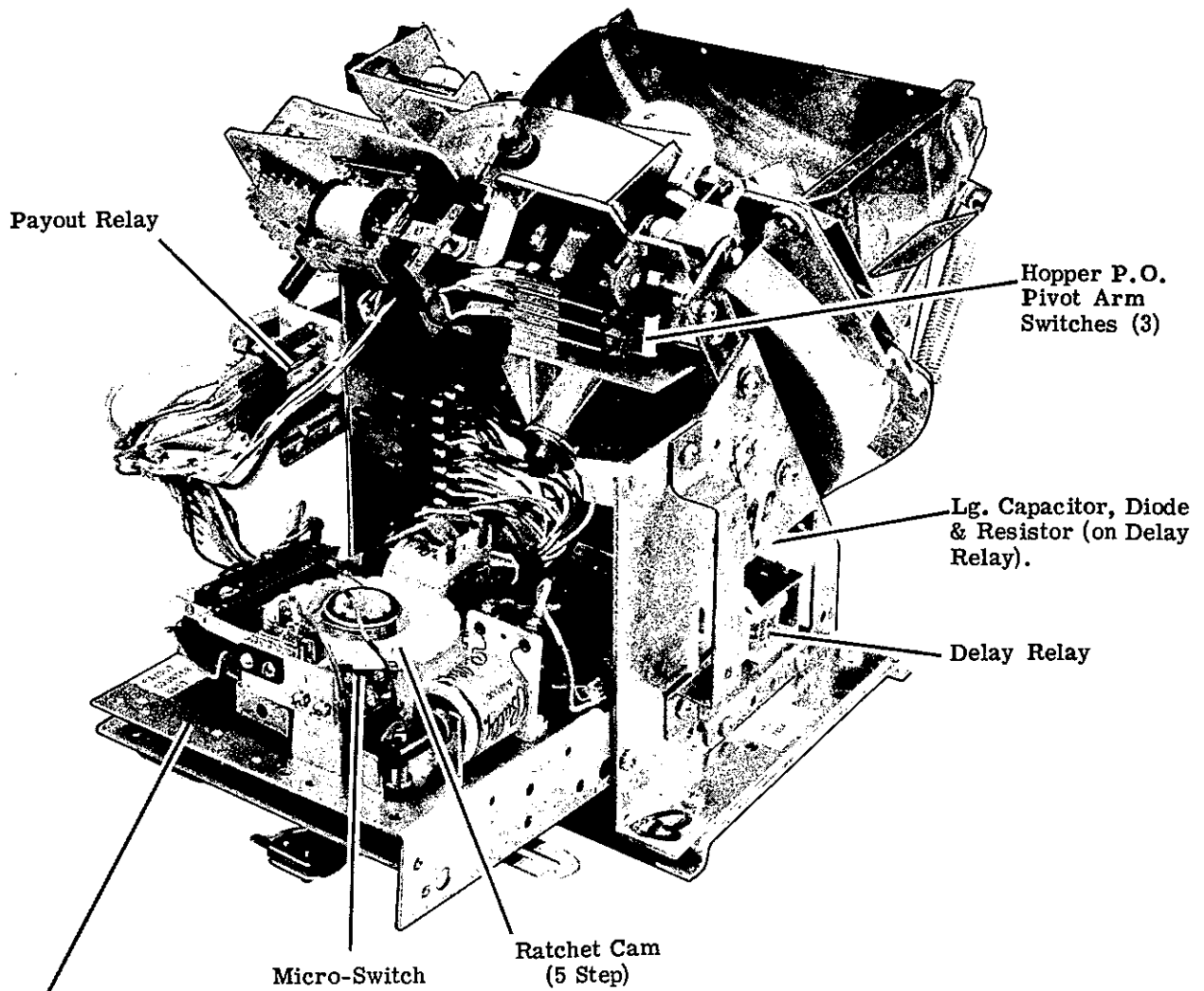
The Delay Relay itself protects the Timer System in two ways. When the P.O. Relay Switches energize the circuit, the Delay Relay Switches (2 for

insurance) complete a circuit from the Ratchet Cam Micro Switch to the Safety Timer. As the Counter steps-up, the Ratchet Cam Micro Switch opens every 5th step causing the Timer circuit to open & reset. The Delay Relay remains energized momentarily (Lg. Capacitor) to allow sufficient time for the timer to reset & at the same time momentarily preventing the second Safety Circuit (heavier line) from connecting into the circuit. If this Micro-Switch Circuit does not pulse (counter does not step) & the Micro Switch does not open, the 15 seconds on the Timer will run out & shut off the game.

If the Micro-Switch is stuck in an open position (Counter not stepping), circuit continuity to this Timer is maintained by a second safety circuit (heav. line). At this time the momentary charge held by the Delay Relay Capacitor will be gone, de-energizing the Delay Relay. Now circuit continuity to the timer will be maintained via the Hopper Motor Feed (heavier line). Again the Timer will be allowed to run out cutting off the game.

HOPPER PAYOUT UNIT FUNCTION

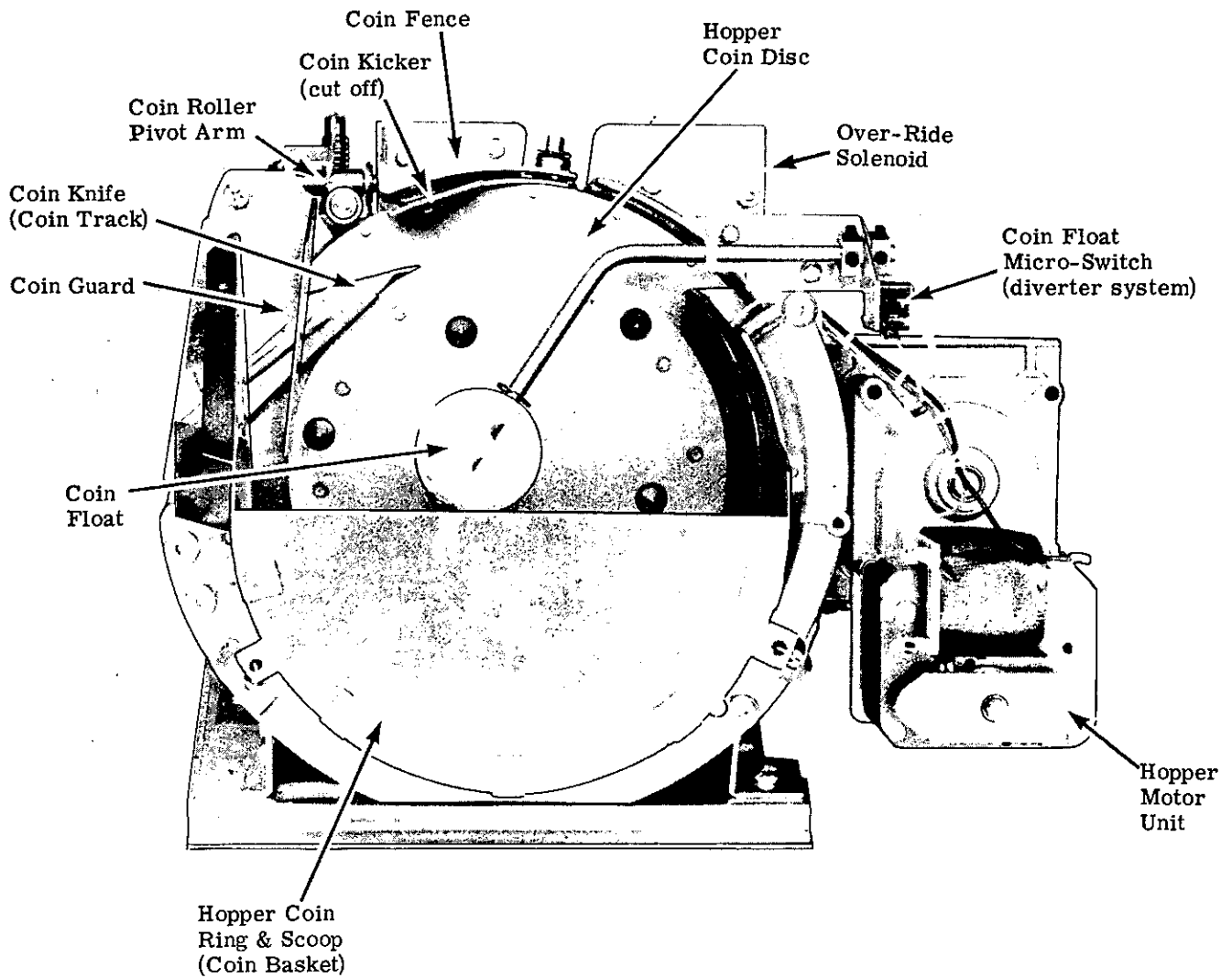
DELAY RELAY SAFETY TIMER SYSTEM CIRCUIT FUNCTION



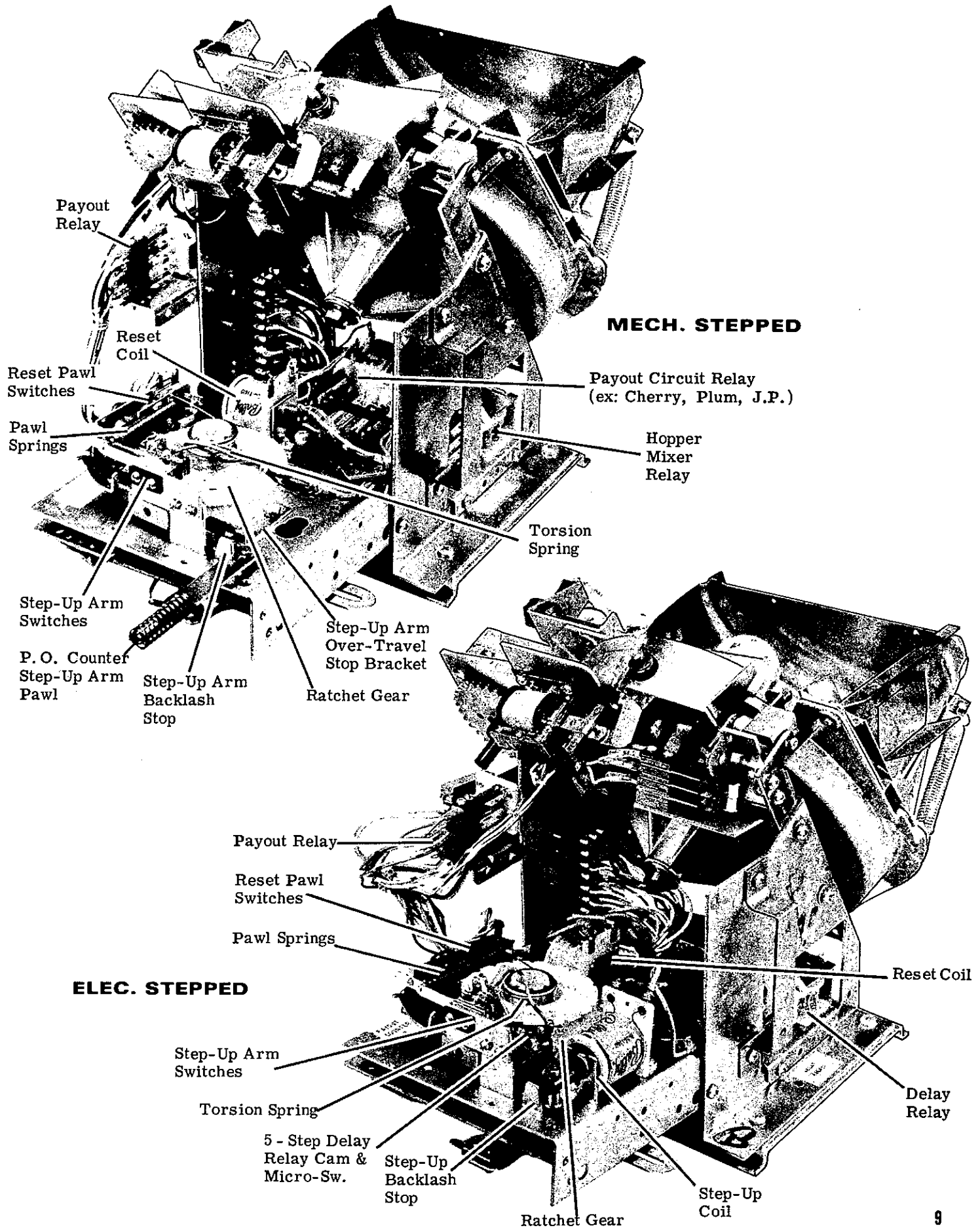
Note: This Electrically Stepped type Payout Counter is swung down in its service position.

HOPPER PAYOUT UNIT SERVICE

FRONT VIEW



HOPPER PAYOUT UNIT SERVICE



HOPPER PAYOUT UNIT SERVICE

COIN DISPENSING ADJUSTMENTS

For a complete service overhaul of the Hopper Payout Unit, remove the unit from the game & disassemble the various protective shields & scoop cover. Also remove the top screw holding the payout counter assembly so it can be pivoted down for service access & cleaning. Now follow the general point by point procedure.

I. First a good cleaning of the unit is in order. An aerosol type de-greaser or contact cleaner can be used, however all parts must be wiped off with a clean cloth to remove any residue & dissolved scum, especially on electrical contacts & printed circuits.

To do a good job it is suggested that you also disassemble the coin fence, hopper support collar & then remove the coin hopper. This area collects a lot of dirt & metallic coin dust which must be cleaned out.

When the cleaning of the hopper unit & coin handling units is complete & the components reassembled, we can inspect & adjust the hopper & coin dispensing units in the following order:

HOPPER COIN SCOOP

- A. Check the Hopper Coin Scoop for good seating in the hopper ring collar (approx. 1/4" away from the coin disc) & lower roll pin guide. The hopper scoop should be able to ride out about 3/8" & snap back with good spring tension.

HOPPER KNIFE

- B. Now check the Hopper Knife (case hardened). The forward edge should fit as close to the disc as possible with no binding. No coin should be able to wedge itself between the blade & the coin disc when being dispensed. The forward point of the knife should ride down as close as possible in the coin channel without binding. Absolutely no grease or oil should be applied to the area or any other area that comes in contact with coins.

OVER-RIDE SOLENOID & COIN KICKER

- C. Now check the Over-Ride Solenoid & Coin Kicker Assembly. This unit is necessary because the forward inertia of the motor & disc would cause coins to be dispensed for several moments after a payout is complete. The quick acting coin kicker simply knocks the coins off the disc's coin track & back into the hopper at the conclusion of a payout which solves this over-ride problem.

To adjust this unit, hold in the solenoid plunger tight against the face of the solenoid (make sure this pressure compresses anti-residual spring) now place a coin of the correct denomination on the disc under the kicker spring. Move the solenoid by slightly forming the Mounting Plate in the direction necessary so that the coin edge is as close as possible to the coin kicker spring without actually touching it. If this adjustment has been made correctly, it should be possible to almost deflect the coins back into the hopper by manually depressing the kicker arm towards the solenoid at the link to the solenoid plunger (this takes out the clearance in the linkage).

The coin fence which is installed above the kicker arm must not be allowed to touch the arm in operation. A slight binding delay could cause a coin to be caught under the roller arm.

MOTOR UNIT

D. Now check the motor unit & disc gear train. The motor unit should operate quietly and smoothly. If the motor unit & its integral transmission shows signs of wear with noise & jerky movements, it is suggested you replace the entire unit. However, there may be instances where you may want to replace single parts, refer to the "Electrical Motor Parts Guide" on Pages 52 & 53.

The gear teeth on the three sprockets should be in good condition & free of excess dirty grease & coin dust. The teeth & bearings should be cleaned off & lightly greased.

COIN ROLLER & PIVOT ARM

E. The next item to be checked & adjusted is the coin roller & pivot arm assembly. This unit does the initial physical counting of the coins as they move out under the roller pivot during payouts. This pivot action either mechanically actuates (steps-up) the payout counter or actuates a switch unit (one pulse per coin) which in turn electrically (coil solenoid) steps-up the payout counter.

The main point in adjusting the pivot arm is to assure that a full stroke is given to the step-up arm or switch unit when a coin passes under the roller. You will notice that the channel holding the pivot arm is adjustable (3 slotted mtg. holes). In this way the unit can be moved up or down to achieve the proper stroke.

On the mechanically stepped counter units the stroke adjustment can be ascertained by placing a coin of the correct denomination under the roller at the point of maximum stroke. There

HOPPER PAYOUT UNIT SERVICE

COIN DISPENSING ADJUSTMENTS

should be approx. $1/32''$ gap at the junction of the step-up arm slot & the top of the pivot arm. If this adjustment is under $1/32''$, overpaying may result due to the stroke not being sufficient to step the Counter. If it is, overpaying may result due to the stroke not being sufficient to step the Counter. If it is over $1/16''$, short paying may result due to excessive snap action from the overtravel of the Arm - or worse coins² may be deflected back into the Hopper after counting. The deflection problem is due to the extra pres-

sure to raise the Roller Arm, thus forcing the coin off the track. As a final check operate the pivot to see if there is any binding at the step-up arm junction, adjust accordingly.

On electrically stepped counter units (coil solenoid actuated), first check the pivot arm return spring for good action. Now check the switch action. Under a full coin actuated stroke all three switches should make simultaneously with a follow through of approx. $1/16''$. Adjust accordingly.

PAYOUT COUNTER ADJUSTMENTS

II. Now the Payout Counter can be adjusted. Remove the top mounting screw, detach the step-up arm spring link (where applic.) & swing the counter down in a service position. Be sure the following adjustments are made in the order presented.

SPRING ADJUSTMENTS

A. First check out the springs for good tension & proper operation. The torsion spring should have enough strength to reset any step-up amount back to zero. This spring is installed with 2 turns on the shaft for proper initial tension (do not allow coils of spring to lap over). When the unit is in a reset position both pawls should be free of the gear teeth & the ratchet should be free to rotate (spring loaded). At this point check out the ratchet teeth for good condition. The ratchet teeth are lightly greased.

PAWL ADJUSTMENTS

B. Now check out the pawls for binding against the frame & for bent or broken parts. The pawls should engage the ratchet gear at a 90° angle & pick up a tooth on the first step (see zero stop & step-up arm stop adjustments). Because the pawls are case hardened bending can easily crack off parts, extreme care in adjusting or replacement is recommended.

The pawl pivot points should be lubricated with our lubriplate #1 oil & the point where the step-up arm rides on the frame (reset pawl engage) should be greased.

STEP-UP ARM STOP

C. The step-up arm has two stop adjustments. One stop (lower stop bracket) controls the amount of overtravel so that only one tooth is picked up at a time. The other stop (top tab) limits the return stroke so that the trailing reset arm picks up its tooth with minimum of backlash.

A correctly adjusted step-up arm pawl has a $1/64''$ to $1/32''$ overtravel beyond the full down stroke. This overtravel is adjusted by moving the bracket up or down. If the overtravel is too much, the unit advances with an uneven or jerky motion (& poss. 2 steps at a time). If there is no overtravel the unit may not pickup teeth on high jackpot amounts (affected by torsion spring pressure).

Note: This stop is not installed on electrically stepped counters.

The return stroke stop (top tab) is adjusted so that there is approx. $1/64''$ overtravel between the reset pawl & the face of the ratchet tooth when it is engaged. This tab is usually formed down to achieve a proper stroke. If there is too much back stroke action, certain amount of backlash can occur & an extra payout step may result. This stop is used on both mechanical & electrically stepped counters.

CONTACT PLATE DISC CLEANING

D. Before we adjust the step-up & zero switch action it is suggested that the contact plate disc spiral cam & wiper be thoroughly cleaned. Probably the biggest single cause of payout malfunctions is a dirty printed circuit on the contact plate disc. For proper access remove the carriage unit, cam & wiper unit. Now clean & wipe off this disc until it is spotless. A very small amount of lubrication is recommended however. Put a drop of fine oil on the tip of your finger & wipe around on the printed circuit & then wipe off with clean cloth - this will leave just enough lubrication to prevent excess wiper friction. Now clean & reassemble the wiper & carriage units. Check the wipers for good even contact plate pressure.

A small amount of grease should also be applied to the spiral cam channel & carriage unit slides.

HOPPER PAYOUT UNIT SERVICE

PAYOUT COUNTER ADJUSTMENTS

CONTACT PLATE DISC ALIGNMENT

E. Now make adjustments to Printed Circuit Disc. Proper position of disc is indicated by resetting the counter unit to zero and manually stepping the unit 9 steps. When this 9th step is completed, the outside finger on the rotating wiper should be centered in the segment identified on the wiring tab at the bottom of the disc by the number 10. On the next step, this finger should move off and clear the segment. This position may be checked at the tabs marked 2-5-10-14 and 18. If the printed circuit disc is not properly positioned, the 2 hex head screws should be loosened slightly to allow the disc to be rotated to the proper position by tapping at a corner. When the proper position is reached the 2 hex head screws should be tightened securely.

ZERO STOP ADJUSTMENT

F. Now we can adjust the carriage unit's zero stop. This adjustable rubber cushioned stop unit performs several functions. First, it controls the position of the ratchet (& wiper) so that the pawls can engage the ratchet gear teeth correctly, picking up the first tooth & stepping-up the unit smoothly during a payout. Secondly, it stops & absorbs the reset action of the wiper & spiral cam after a payout cycle. Third, the stop controls the zero switches. The "open at zero switch" (98 & 78 wires) controls a payout counter reset coil circuit & a "closed at zero switch" (hold & draw machines only) de-energizes the draw relay preventing a second play after a win.

When the printed circuit disc is moved to its proper position relative to the finger wiper (paragraph E), the zero stop adjustment must be checked. This is done to coordinate the action of the step-up pawl & nylon ratchet drive on the reverse side of the Counter unit.

To check the setting of the zero stop, step the unit manually several steps. Now rotate the spiral cam manually until the unit has made 1 rotation of at least 360 degrees or 100 steps. Manually depress the plunger on the reset coil and allow the unit to reset to zero. This will latch both pawls out of the ratchet tooth & insure zero position.

The zero stop is adjusted so that when the counter makes its first step-up stroke from zero the reset pawl falls smoothly in front of a tooth face on the ratchet gear (engaged into the gear & not on a peak). The step-up pawl should then engage into the ratchet gear & make one step-up with the reset pawl trailing. To move the ratchet gear into this correct initial position for a smooth pawl engagement the zero stop is adjusted.

On machines produced before August 1973 the zero stop is a concentric rubber washer which has an adjustable cam effect which can move the zero position. On new post - August 1973 - zero stops, a set screw & lock nut controlled zero stop is adjusted.

FEED CARRY-OVER CIRCUIT

G. Now adjust the Outboard Wipers. To check top wiper which carries the 100 step circuit, step unit to 100 steps position. The top finger of the wiper should be off of the contact segment and have enough clearance so that the circuit stays open when the carriage is moved manually to the extremities of the clearances. If adjustment is necessary, the 2 screws holding the wiper assembly should be loosened sufficiently to allow the wiper assembly to be moved to the proper position and when properly positioned, tightened securely. To check the lower wiper which carries the 200 Steps circuit, repeat the procedure above when the unit is stepped to the 200 step position.

S.U. SWITCH ADJUSTMENT

H. Now adjust Step Up Arm Lower Switch (the N.C. switch with wire colors grey yellow, grey black). This adjustment is very important to the life of the printed circuit disc as this switch takes the arc generated by the collapse of the payout relay coil. Altho this switch is pre-set electrically, the above adjustments change the original setting, therefore the setting is made as follows. Step the payout counter manually to 9 steps; now step once more, but do not release the step-up arm yet; now slowly release the arm and observe that the wiper arm fingers must move off the printed circuit 10 strip before the step up arm switch opens. As a guide, if the switch contacts have moved together to a gap of 1/32 this should take care of the setting.

DELAY RELAY MICRO-SW. ADJUST.

I. On machines using a Delay Relay type Safety Timer System an additional micro-switch cam is installed on the counter ratchet gear. This cam operated micro-switch circuit has a five step pulse which energizes the safety timer motor (See the Schematic circuit explanation). The micro-switch position is adjustable. When the counter is at zero the micro-switch should be on the first step of its five step cycle (circuit is closed). On the counters fourth step the micro-switch follower should drop into the gear through which opens the circuit (Fifth Micro-Switch position). As the counter continues to step-up, the micro-switch opens its circuit every fifth step during a payout cycle. Adjust accordingly.

HOPPER PAYOUT UNIT SERVICE

PAYOUT COUNTER ADJUSTMENTS

RELAY UNIT ADJUSTMENTS

J. The Hopper Payout Unit normally mounts the payout Relay. The Hopper Mixer Relay Delay Relay, Plum Relay, Jackpot Relay, etc. are installed as per customer & machine requirements. Check the game schematic for relay & switch functions.

Relay switches should only be adjusted by moving the static blade. Adjusting actuating blades will impart unbalance into the relay during its operation (buzzing, sluggish operation, etc.). Do not use switch bending tool on these blades, gradual pressure in direction necessary is all that is required.

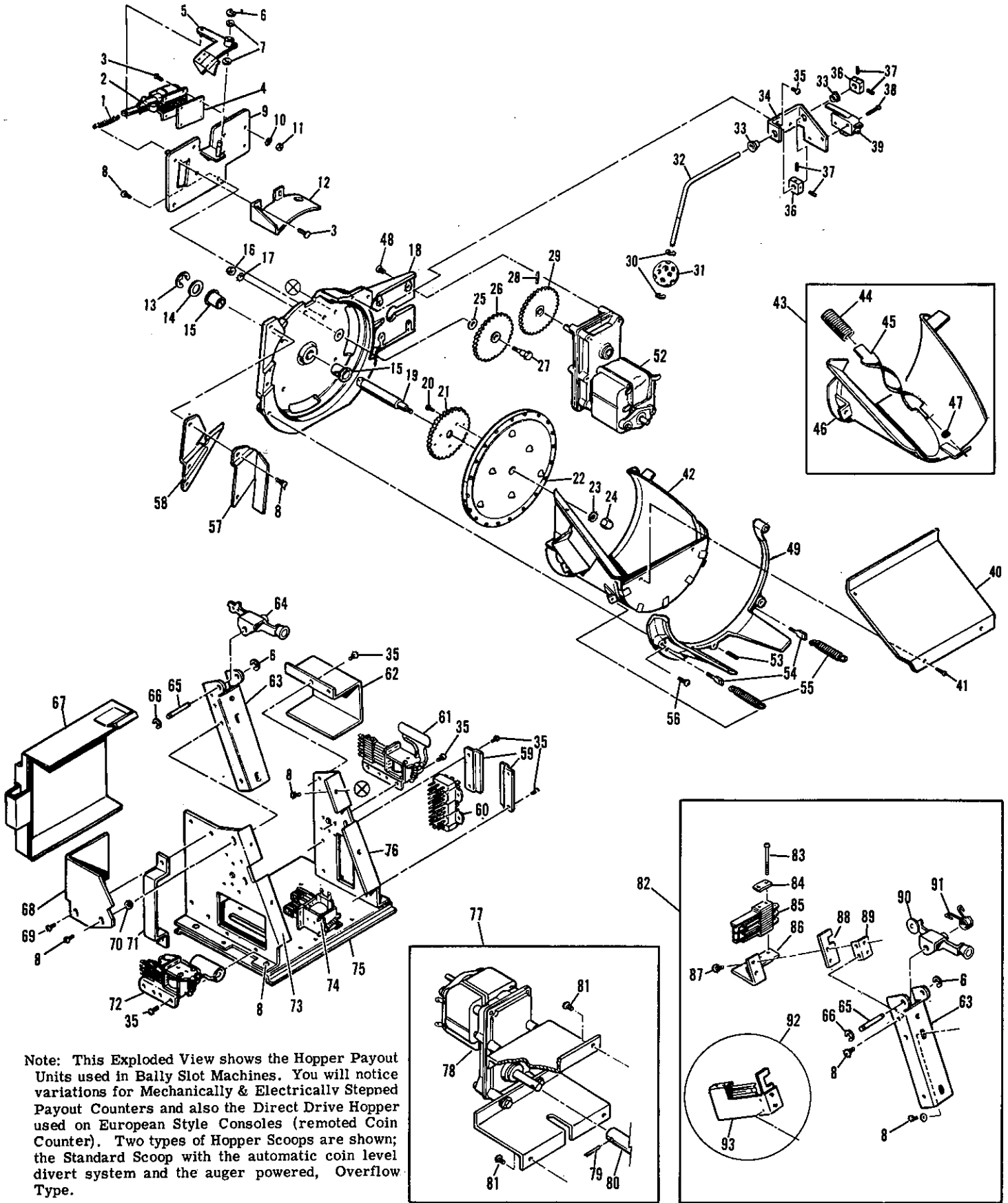
Switch contacts must never be filed as this destroys the seat, and in so doing, causes further arcing which eventually burns out the contact. Especially never file the dome shape contact as this is specifically shaped to burn a good seat in the flat contact. This in turn keeps the contact clean.

Should cleaning be necessary, use crocus cloth or some other very fine abrasive surface rubbed between both contacts.

Carbon need not be removed between contacts as this is a good conductor and prevents oxidation of the silver contacts.

NOTES

HOPPER PAYOUT UNIT - P. I



Note: This Exploded View shows the Hopper Payout Units used in Bally Slot Machines. You will notice variations for Mechanically & Electrically Stepped Payout Counters and also the Direct Drive Hopper used on European Style Consoles (remoted Coin Counter). Two types of Hopper Scoops are shown; the Standard Scoop with the automatic coin level divert system and the auger powered, Overflow Type.

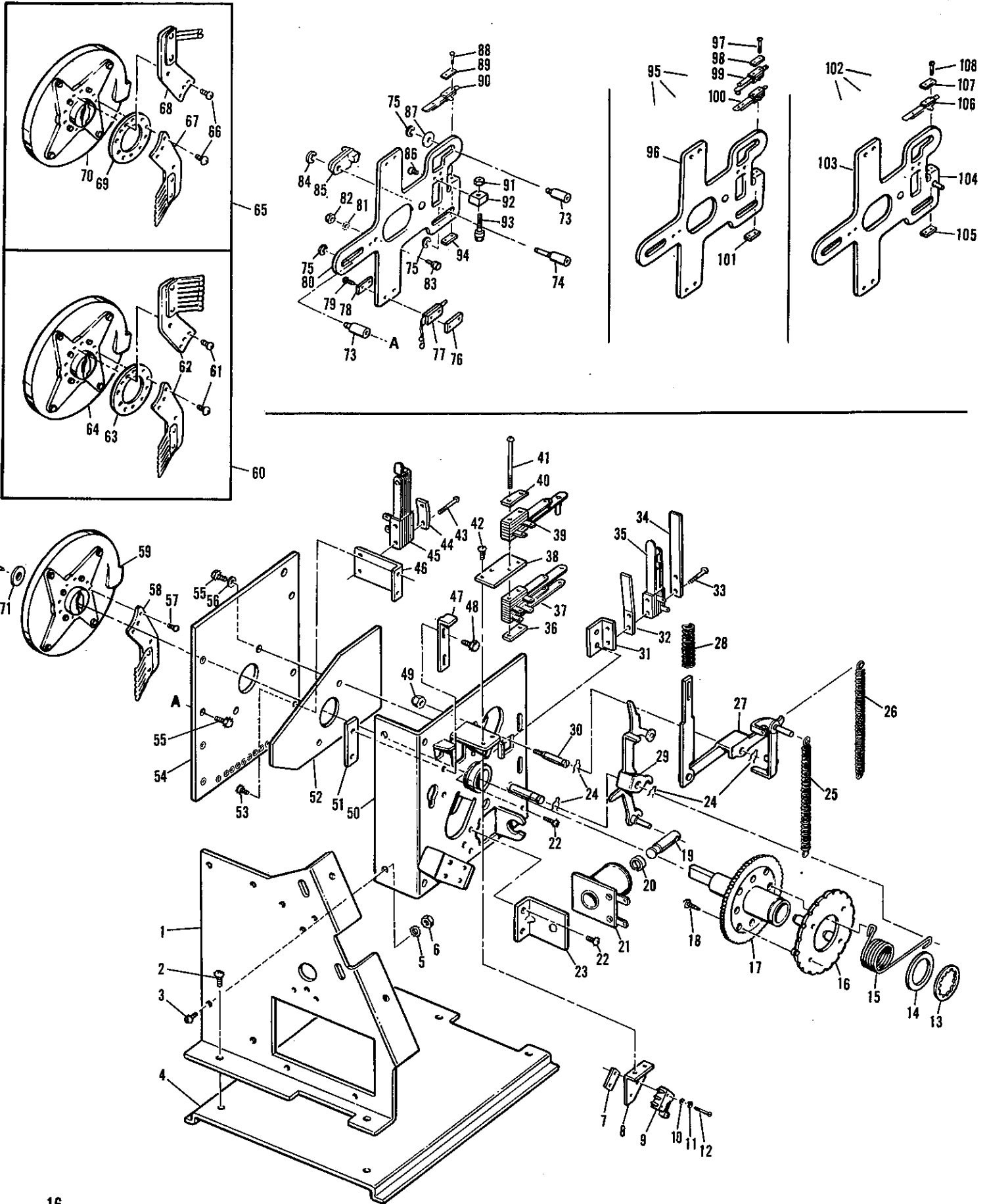
ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

Index No.	Part No.	Description	No. Req'd	Index No.	Part No.	Description	No. Req'd
1	SP-100-7	Extension Spring	1	54	M-1347	Spade Bolt	2
2	A-2885	Override Solenoid & Link Assembly	1	55	SP-100-234	Extension Spring	2
	E-184-198	Solenoid	1	56	LSPT-01032-1108	Screw	3
3	LSPR-00632-1106	Screw	6	57	P-6322	Coin Guard	1
4	P-150-65	Solenoid Pad	1	58	P-6323-Series	Coin Track (Specify Coin Denom & Country)	1
5	A-2895	Coin Kicker & Pin Assy.	1	59	P-6375-1	Plug Retain. Brkt.	2
6	P-2891-6	"E" Ring (1/4" Shaft)	2	60	E-573-1	Beauplug, 24 Pt. Male	1
7	P-801-11	Washer	2		E-573-4	Beauplug, 30 Pt. Male As req'd	
8	LSPR-01032-1106	Screw	15	61	AS-2662-Series	Payout Relay (specify Model Number)	1
9	A-2894	Plate & PIn Assy.	1	62	P-6329-1	Relay Cover	1
10		#6 Lockwasher	4	63	P-6307	Support Channel	1
11	N-00632-2112	Nut	4	64	A-2893	Pivot Roller Assy. (Mechanically stepped counters - w/ roll pin for Model 808)	1
12	P-6331	Coin Fence	1	65	S-439-164	Pivot Pin	1
13	P-6316-10	Retaining Ring	1	66	P-6317-10	Bowed Retaining Ring	1
14	P-801-571	Washer	1	67	A-3178-1	Counter Cover	1
15	C-537-29	Nyliner	2	68	P-7194-1	Rocker Arm Cover - Std.	1
16	N-25020-2112	Nut	1		P-7194-2	Rocker Arm Cover (Model 808) As Req'd	
17		1/4" Lockwasher	1	69	SFPP-00832-1105	Screw	2
18	C-844	Housing Support, Die-Cast (std.)	1	70	P-801-243	Washer	1
	C-844-1	Housing Support (hopper using a direct drive motor as per Index No. 77)	1	71	P-6490	Handle	1
	C-844-2	Housing Support (\$1.00 slot)	1	72	AS-2510	Delay Relay (optional safety timer system) As Req'd	
19	S-1920	Shaft	1		AS-2659-8	Hopper Mixer Relay As Req'd	
20	LSPR-00832-1107	Screw	3	73	P-6312-12	Left Side Mtg. Brkt.	1
21	A-1823-6	Gear Assy.	1	74	AS-Relay-Series	A. Alternate position for Hopper Relay Mixer B. Jackpot, Cherry or Plum Win Relay	
22	AS-2304-Series	Disc Assy. (specify Coin Denom. & Country)	1	75	P-6311	Platform Brkt.	1
23		5/16" Lockwasher	1	76	P-6312-11	Right Side Mtg. Brkt.	1
24	M-296-5	Hex. Cap Nut	1	77		Motor Drive Unit (direct drive). Used on Many Console Type Games where the P.O. Counter (elec. stepped) is mounted elsewhere. Note: different Hopper Disc Drive Shaft.	
25	P-801-504	Washer	1	78	AS-2485	Motor & Mount Assy.	1
26	A-1823-9	Idler Gear Assy.	1		E-119-394	Motor (hopper)	1
27	S-1919	Shoulder Screw	1	79	P-1637-11	Roll Pin	1
28	P-1637-54	Roll Pin	1	80	S-1920-1	Drive Shaft	1
29	A-1823-11	Gear & Hub Assy.	1	81	MSPPT-01032-1108	Screw	4
30	P-2891-6	Retaining Ring (1/4" Shaft)	2	82		Pivot Roller Arm & Sw. Unit.	
31	C-675	Coin Float	1				
32	S-1944	Float Arm	1				
33	C-537-5	Nyliner	2				
34	P-6659	Mtg. Brkt.	1				
35	LSPR-00832-1104	Screw	14				
36	S-1943	Collar	2				
37	KPAO-00832-1104	Set Screw	4				
38	MSSR-00440-1108	Screw	2				
39	E-108-91	Micro-Sw. (coin level)	1				
40	P-6657	Scoop Cover	1				
41	SZSR-00600-1104	Sheet Metal Screw	3				
42	A-2884-7	Hopper Ring & Scoop Assy. (standard)	1				
43		Overflow Type Coin Scoop					
44	SP-461	Auger Drive Spring (fits over Hex. Cap Nut)	1				
45	A-3004	Coin Auger	1				
46	A-2884-3	Hopper Ring & Scoop Assy.	1	83	MSSR-00540-1120	Screw	2
47	C-537-4	Nyliner	1	84	P-137-5	Spring Plate	1
48	LSPR-01032-1108	Screw	5	85	SW-300-71	Switch Unit	1
49	C-845	Hopper Support, Die-Cast	1		ASW-A10-13	Switch - N.O. (top)	1
50	N/A				ASW-A10-12	Switch - N.O. (m)	1
51	N/A				ASW-A10-11	Switch - N.O. (bottom)	1
52	E-119-344	Motor (Fits both Die Cast & older Sand Cast mounting - See Motor Parts Breakdown in rear of book for further information	1	86	P-126-566	Sw. Bracket	1
53	P-1637-2	Roll Pin (scoop align.)	1	87	LSPR-00832-1106	Screw	2
				88	P-6311	Stop Brkt.	1
				89	P-6665-81	Mtg. Bracket	1
				90	A-2893-1	Pivot Roller Arm Assy.	1
				91	SP-405	Torsion Spring	1
				92		The alternate Sw. Mtg. Bracket Unit	
				93	P-126-517	Switch Bracket	1

These Units are used for all electrically stepped Payout Counters. There are two types of Switch Mtg. Brkts. for clearance problems, however switch function is the same.

HOPPER PAYOUT UNIT ASSEMBLY - PART II

MECHANICALLY STEPPED



HOPPER PAYOUT UNIT ASSEMBLY - PART II

Mechanically Stepped P. O. Counter

Index No.	Part No.	Description	No. Req'd	Index No.	Part No.	Description	No. Req'd	Index No.	Part No.	Description	No. Req.
		Note: This Part List covers all Mechanically Stepped P.O. counters. This includes units using either a standard Safety Timer Circuit or a Delay Relay Type Safety Timer Circuit. Because of the tremendous number of customized games the switches on these units can change. The listed switches are normally used on the standard models.								shown). Old & new parts are not interchangeable. Also see Index No.'s 95 & 102 for special Carriage Unit applications. The Old Wiper Carriage Units are shown on Page 112	
1	P-6312-12	Left Side Mtg. Brkt.	1	42	LSPR-00540-1105	Screw	2	76	P-126-154	Retainer Plate	2
2	LSPR-01032-1106	Screw	15			Note: Index No.'s 43-46 & 102 are used on very complex P.O. Units such as Models 922, 952, 962 & 972.		77	A-2462-3	Wiper Arm (top & btm.)	2
3	LSPR-00832-1106	Screw	2	43	MSSR-00540-1110	Screw (1 sw.)	2	78	P-137-5	Spring Plate	2
4	P-6311	Platform Brkt.	1		MSSR-00540-1116	Screw (2 sw.)	2	79	MSSR-00540-1106	Screw	4
5		#8 Lockwasher	2	44	P-137-5	Spring Plate	1	80	A-2463-6	Carriage Frame	1
6	N-00832-2112	Nut	2	45	ASW-U1-17	Sw.-N.C., Inside Pos. (J.P. circuit open after 20/50 etc.)	1	81	M-1700-5	Lockwasher	1
7	P-126-578	Retaining Plate	1		ASW-U2-21	Sw.-N.C. (same as above)	1-2	82	N-00540-2112	Nut	1
8	P-126-579	Bracket	1		ASW-U2-33	Sw.-N.O. (closed after 20/50 etc.)	As Req.	83	A-2465	Pin & Roller Assy.	1
9	E-108-120	Micro Sw. (Delay Relay circuit)	1	46	P-126-637	Sw. Bracket	1	84	P-2891-6	Retaining Ring	1
10	P-801-364	Washer	2	47	P-6665-15	Stop Brkt.	1	85	C-837	Stop Lever	1
11		#2 Split Lockwasher	2	48	LSPR-00832-1104	Screw	2	86	SFPP-00632-1104	Screw	2
12	MSSR-00256-1108	Screw	2	49	M-319-3	Elastic Stop Nut	1	87	P-801-580	Washer	1
13	P-3389	Retaining Ring	1	50	A-1768-44	Base Plate (no provision for step-up coil)	1	88	MSPR-00348-1108	Screw	2
14	P-801-544	Washer	1		A-1768-43	Base Plate (2 coil style)	As Req'd	89	P-137-13	Spring Plate	1
15	SP-370-3	Torsion Spring	1	51	P-1973-150	Mtg. Plate	1	90	ASW-M2-1	Open at Zero Carriage Sw.	1
16	C-784	Microswitch Cam (Delay Relay)	1	52	P-5081-1	Backing Plate	1	91	N-00632-2112	Lock Nut	1
17	C-100	Ratchet & Shaft	1	53	LSPR-00832-1104	Screw	2	92	C-851	Block	1
18	SFPP-00832-1106	Screw	4	54	A-1573-Series	Contact Plate Assy. (specify complete model no.)	1	93	R-522	Rubber Cushion	1
19	S-496-101	Reset Plunger	1		W-923-Series	Wired Contact Plate Assy. (specify complete model no.)	As Req'd		M-1595	On-Sert Fastener	1
20	C-342	Guide Ring	1	55	MSOD-00832-1106	Screw	6	94	FPAO-00632-1810	Set Screw (Allen)	1
21	C-28-1100	Reset Coil	1	56	PW-008-12	Washer	2		P-126-686	Sw. Retaining Plate	1
22	SFPP-00832-1106	Screw	2			Note: Index No.'s 57-59 comprise the std. single arm wiper assy. #AS-1046-714. See Index No.'s 60 & 64 for other special units.		95	AS-982-985	Carriage Unit Assy. (Note: This unit is the same as #AS-982-934 except that it employs an additional "O" Sw. This unit is used on hold & draw type machines.)	1
23	A-613-33	Core Plug Assy.	1	57	SAPB-00400-1106	Screw	2	96	A-2463-6	Carriage Frame	1
24	M-254	Hair Pin Retainer	1	58	A-1400-37	Wiper Arm	1	97	MSSR-00348-1112	Screw	2
25	SP-100-120	Extension Spring (step-up Arm)	1	59	C-245-1	Spiral Cam	1	98	P-137-13	Spring Plate	1
26	SP-100-125	Extension Spring (pawl to pawl - red)	1	60	AS-1046-722	Double Arm Wiper Assy. (Models 873 & 955) As Req.		99	ASW-M1-7	Closed at Zero Carriage Switch	1
27	A-1765-16	Step-Up Arm	1	61	SAPB-00400-1106	Screw	4	100	ASW-M2-1	Open at Zero Carriage Sw.	1
28	SP-100-264	Compression Spring (to pivot arm)	1	62	A-1400-37	Wiper Arm	2	101	P-126-686	Sw. Retaining Plate	1
29	A-1766-1	Reset Arm	1	63	P-801-579	Copper Connect. Washer	1	102	AS-982-988	Carriage Unit Assy. (note: This unit is the same as #AS-982-934 except that an additional sw. actuator post is employed. This unit is used in conjunction with Index No.'s 43-46 - open/closed after 20/50 step J. P. payout circuit. This type unit is used on complex P.O. circuits such as on Models 922, 952, 962 & 972.	1
30	S-737-48	Pivot Pin	1	64	C-245-1	Spiral Cam	1				
31	P-126-612	Reset Sw. Brkt.	1	65	AS-1046-724	Dbl. Arm Wiper Assy. (Models 831 & 889) As Req.		103	A-2463-7	Carriage Frame	1
32	P-126-330	Plate	1	66	SAPB-00400-1106	Screw	4	104	P-126-686	Aux. Sw. Actuator Pin.	1
33	MSSR-00540-1116	Screw	2	67	A-1400-37	Wiper Arm	1	105	ASW-M2-1	Retainer Plate	1
34	P-126-155	Guard Plate	1	68	A-1400-40	Wiper Arm	1	106	P-137-13	Spring Plate	1
35	ASW-U2-13	Reset Pawl Sw. (N.C. - inside pos.)	1	69	P-801-579	Copper Connect. Washer	1	107	MSSR-0348-1106	Screw	2
	ASW-U2-21	Reset Pawl Sw. (N.C. - outside pos.)	As Nec.	70	C-245-1	Spiral Cam	1				
36	P-126-154	Retaining Plate	1	71	P-801-107	Washer	1				
37	ASW-U1-9	Step-Up Arm Sw. (N.O. Inside Pos.)	1	72	SAPR-00800-1106	Screw					
	ASW-U2-12	Step-Up Arm Sw. (N.O. Outside Pos.)	1	73	S-458-16	Post	2				
38	P-126-247	Switch Mtg. Plate	1	74	S-458-18	Post (longer length used as bumper)	1				
39	ASW-A1-19	Step-Up Arm Sw. (N.O.)	As Nec.	75	P-6316-4	Retaining Ring	3				
40	P-137-5	Spring Plate	1			Note: Index No.'s 76 - 94 is the new improved Carriage Unit Assembly, #AS-982-934 (replacing #AS-982-510). This new unit must be used with the new Wiper Arm Unit (as					
41	MSSR-00540-1112	Screw	2								
	MSSR-00540-1122	Screw (w/extra sw.)	2								

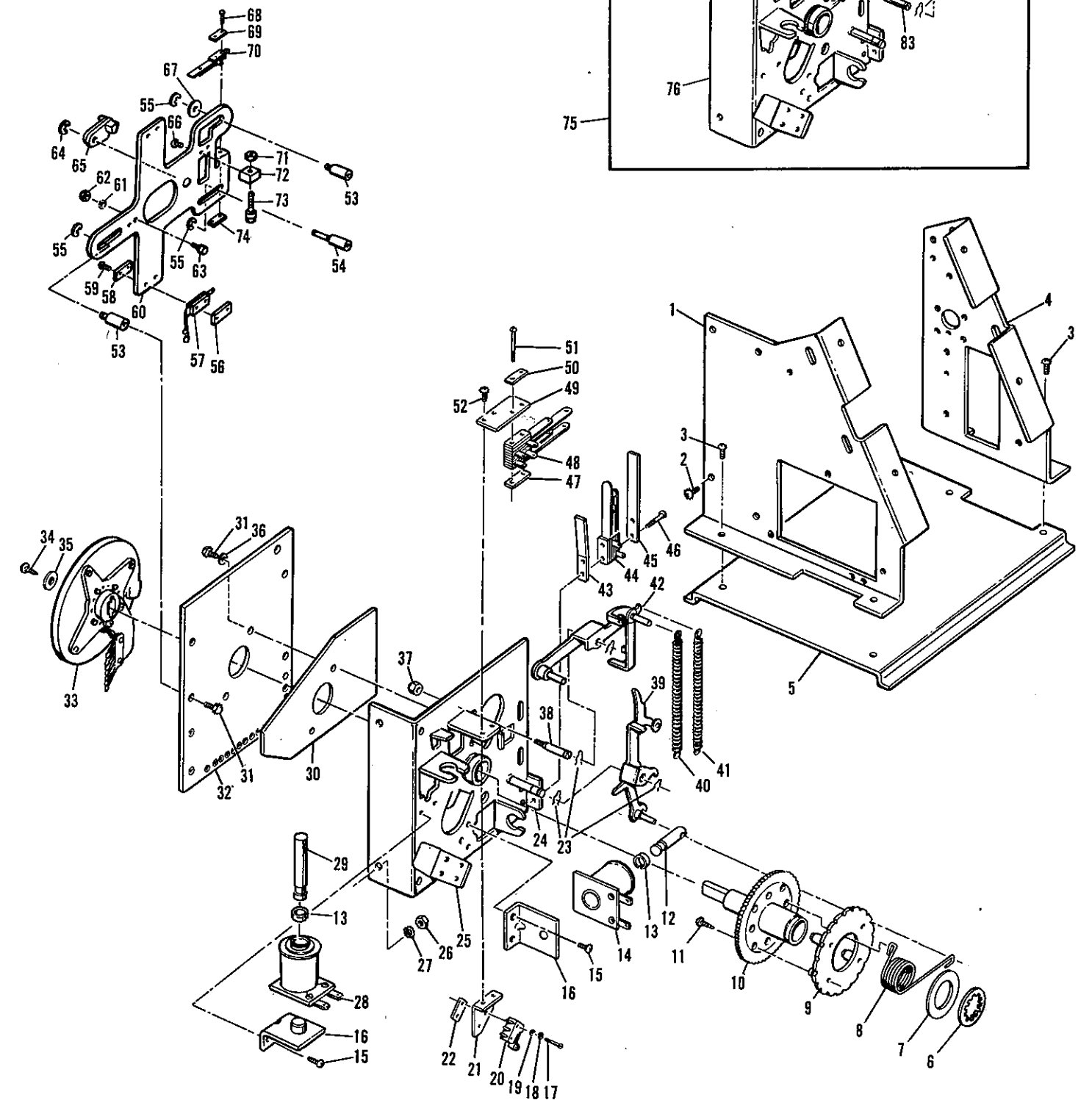
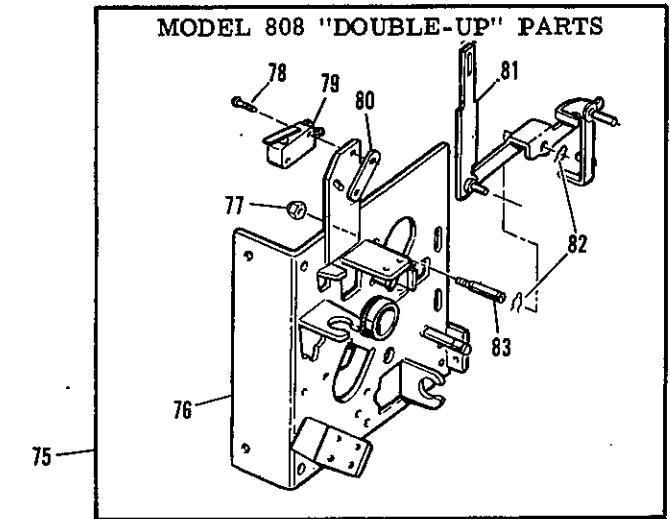
ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

HOPPER PAYOUT UNIT P.II

ELEC. STEPPED

Note: This exploded view & Part List is primarily intended to cover the standard electrically stepped payout counter (i. e. Models 809, 956 etc.). However, the Model 808 unit is included because it uses a step-up coil (holding function) in conjunction with a Mechanical Step-Up.

MODEL 808 "DOUBLE-UP" PARTS



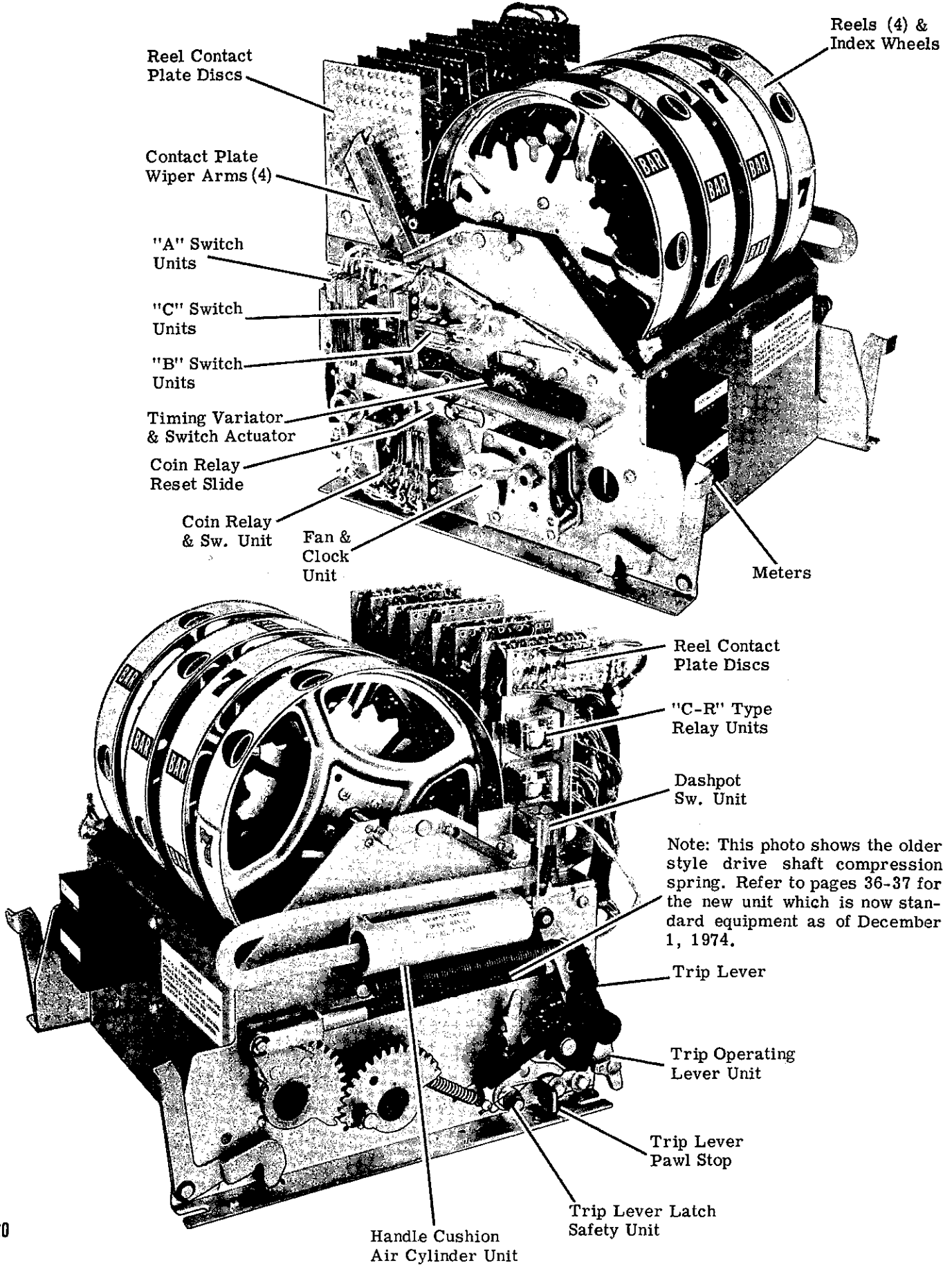
HOPPER PAYOUT UNIT - P. II

Electrically Stepped Counter

Index No.	Part No.	Description	No. Req.	Index No.	Part No.	Description	No. Req.
1	P-6312-12	Left Side Mtg. Brkt.	1	42	A-1765-8	Step-Up Arm	1
2	LSPR-00832-1106	Screw (Counter mtg. w/nut)	1	43	P-126-330	Plate	1
3	LSPR-01032-1106	Screw	15	44	ASW-U2-13	Reset Pawl Sw. - N.C.	1
4	P-6312-11	Right Side Mtg. Brkt.	1		ASW-U2-21	Reset Pawl Sw. - N.C. (#2, outside pos.)	As Nec.
5	P-6311	Platform Bracket	1	45	P-126-155	Sw. Protect Plate	1
6	P-3389	Retaining Ring	1	46	MSSR-00540-1112	Screw	2
7	P-801-544	Washer	1	47	P-126-154	Retaining Plate	1
8	SP-370-3	Torsion Spring	1	48	ASW-U1-9	Step-Up Arm Sw. (N.O. Inside Pos.)	1
9	C-784	Cam	1		ASW-U2-12	Step-Up Arm Sw. (N.O. outside pos.)	1
10	C-100	Ratchet & Shaft	1				
11	SFPP-00832-1106	Screw	4				
12	S-496-101	Plunger	1				
13	C-342	Guide Ring	1				
14	C-28-1100	Reset Coil	1				
15	SFPP-00832-1106	Screw	4				
16	A-613-33	Core Plug Assy.	2				
	A-613-89	Core Plug Assy. (rubber cushion)	Optional				
17	MSSR-00256-1108	Screw	2				
18		#2 Split Lockwasher	2				
19	P-801-364	Washer	2				
20	E-108-120	Micro switch (delay relay circuit).	1				
21	P-126-579	Bracket	1				
22	P-126-578	Retaining Plate	1				
23	M-254	Hair Pin Retainer	4				
24	P-126-612	Bracket - Reset Sw.	1				
	SFPP-00832-1106	Screw	2				
25	A-1768-43	Base Plate Assy.	1				
26	N-00832-2112	Nut	2				
27		#8 Lockwasher	2				
28	B-25-925	Step-Up Coil (std.)	1				
	B-26-1100	Step-Up Coil (Model 808)	1				
29	S-496-108	Plunger	1				
30	P-5081-1	Backing Plate	1				
31	MSOD-00832-1106	Screw	6				
32	A-1573-Series	Contact Plate Assy. (specify complete model no.)	1				
	W-923-Series	Contact Plate Assy. - wired (specify complete model no.)	As Req.				
		Note: The following improved Wiper Assy., #AS-1046-714 (replacing #AS-1046-431), must be used with the new Carriage Unit (illustrated).					
33	AS-1046-714	Wiper Assy. (single Arm)	1				
	C-245-1	Spiral Cam	1				
	A-1400-37	Wiper Arm	1				
	SAPB-00400-1106	Screw	2				
34	SZPR-00800-1110	Screw	1				
35	P-801-107	Washer	1				
36	PW-008-12	Washer	2				
37	M-319-3	Elastic Stop Nut	1				
38	S-737-48	Pivot Pin	1				
39	A-1766-1	Reset Pawl	1				
40	SP-100-120	Extension Spring (S.U. Arm).	1				
41	SP-100-125	Extension Spring - Red (Pawl - Pawl)	1				
		Note: The following Single Sw. is used on Model 808.					
		ASW-A2-47	Start of Stroke Sw. (N.O.)	1			
49	P-126-247	Sw. Mtg. Brkt.	1				
50	P-137-5	Spring Plate	1				
51	MSSR-00540-1116	Screw	2				
52	LSPR-00540-1105	Screw	2				
53	S-458-16	Post	2				
54	S-458-18	Post	1				
55	P-6316-4	Retaining Ring	3				
		Note: The following unit is the new improved Carriage Unit Assy., #AS-982-934 (replacing #AS-982-510). This new unit must be used with the new wiper arm unit (old & new parts are not interchangeable).					
56	P-126-154	Retainer Plate	2				
57	A-2462-3	Wiper Arm (top & bottom)	2				
58	P-137-5	Spring Plate	2				
59	MSSR-00540-1106	Screw	4				
60	A-2463-6	Carriage Frame	1				
61	M-1700-5	Lock Washer	1				
62	N-00540-2112	Nut	1				
63	A-2465	Pin & Roller Assy.	1				
64	P-2891-6	Retaining Ring	1				
65	C-837	Stop Lever	1				
66	SFPP-00632-1104	Screw	2				
67	P-801-580	Washer	1				
68	MSPR-00348-1108	Screw	2				
69	P-137-13	Spring Plate	1				
70	ASW-MZ-1	Open at Zero Carriage Switch (N.O.)	1				
71	N-00632-2112	Lock Nut	1				
72	C-851	Block	1				
73	R-522	Rubber Cushion	1				
	M-1595	On-Sert Fastener	1				
	FPAO-00632-1810	Set Screw (Allen)	1				
74	P-126-686	Sw. Retaining Plate	1				
75		These parts are used exclusively on Model 808 "Double-Up".					
76	A-1768-38	Base Plate Assy.	1				
77	M-319-3	Elastic Stop Nut	1				
78	MSSR-00440-1109	Screw	2				
79	E-108-110	Microswitch (total-out meter)	1				
80	P-1973-133	Retaining Link	1				
81	A-1765-23	Step-Up Arm (combin- ation Step)	1				
82	M-254	Hair Pin Retainer	2				
83	S-737-48	Pivot Pin	1				

REEL MECHANISM INTRODUCTION

4 REEL GAME SHOWN



Note: This photo shows the older style drive shaft compression spring. Refer to pages 36-37 for the new unit which is now standard equipment as of December 1, 1974.

REEL MECHANISM FUNCTION

INTRODUCTION

The purpose of this Chapter is to acquaint you with the General Reel Mechanism electro-mechanical switch functions & sequence of switch operation.

On the Reel Mechanism's left side you will notice the Coin Relay Unit, "A" Switches, "B" Switches and "C" Switches. When the Game is coined it is the Coin Relay which initially releases a trip arm which actuates Coin Relay Switches (& in-turn the Handle Release Unit). The Game is now ready to play. On the downward stroke of the Handle the Trip Shaft Lever operates the "A" Switches. The Timer Link (with "B" & "C" Switch actuation & Timer Shaft activation) & the Coin Unit Reset Lever. Also on the downward handle stroke the Handle Mech. resets the Handle Release Unit.

As the reels kickoff the Trip Shaft Lever closes the "A" Switches. The spring loaded Timer Shaft which is Clock controlled now resets the Timer Link (note Variator) which pulses the "B" Switch and closes the "C" Switches.

Note: On all new Schematics the "C-1", "C-2" & "C-3" Switches correspond to the "C", "D" & "E" Switches. This is just a change in nomenclature. the Number 1 indicates this Sw. is closest to the Actuator, then "C-2", "C-3" etc. This also indicates they are part of the same switch unit.

On the Right Side of the Reel Mechanism is the Reel's start motion & trip system operated via the Handle Mechanism. You will also notice the Air Cylinder Pump which cushions the shock of hard handle pulls and gives a smooth handle return. The Dashpot Switch is also operated via the Air Cylinder Pump.

Toward the rear of the Reel Mechanism you notice the Reel Contact Plate Discs & Wiper Arm Units. It is the position of the Wipers that bridge win contact circuit patterns in the Contact Plate Disc which determines winners. The position of the Wiper on the Disc is determined by its engagement in the different Reel Index Plate slotted stops. These stops have a specific slot depth which correspond to each symbol on the Reel.

SWITCH FUNCTION SEQUENCE

The sequence of Reel Mechanism related switch operations from the initial coin deposit thru the Handle pull to the reel index is as follows:

1. Game is Coined.
 - A. Coin Relay Unit is energized & actuated.
 - B. Handle Release Unit is energized & actuated.
2. Initial Handle Pull
 - A. Dashpot Switch opens.

- B. "A" Switches Open.
 - C. "C" Switches Open.
 - D. Coin Relay Unit Resets.
 - E. Handle Release Unit Resets.
3. Reels Kick & Spin
 - A. "B" Switch(es) are pulsed.
 - B. "A" Switches close.
 4. Reels Index
 - A. "C" Switches close.
 5. Handle Return
 - A. Dashpot switch closes.

COIN RELAY UNIT OPERATION

The Coin Relay Unit is a major coil operated (trip arm) switching unit on the left side of the Reel Mech. This unit is energized by a pulse from the Coin Drop Sw. & is mechanically reset by a Timer Shaft Lever as the Reels trip off.

When the Coin Relay Unit is activated the the switch functions are as follows:

1. The circuit to the Coin Relay Coil is de-energized after tripping the switches.
2. The circuit to the "Insert Coin" Lite is transferred to "Coin Accepted" Lite.
3. The Feed Circuit to the Reel Mech. Contact Plate Discs is instantly opened to prevent any possibility of the Payout Relay from being energized (P.O. Counter malfunction) before the play cycle has been completed.
4. After the initial coin has been deposited (single coin game) the Coin Lockout Coil is de-energized to return any further deposited coins until the play cycle is complete. Multi-coin games use additional Odds/Line Coin Limit Switches & Jackpot Lock-Up Switches in this circuit.
5. The circuit to the Handle Release Coil & Total-In Meter is now energized. The handle Release Coil releases a spring loaded Armature Latch & actuates its Switches which perform the following functions:
 - A. The released Armature Latch acts against the Handle Mech. Lock Pawl allowing the Handle to be pulled.
 - B. A Handle Rel. Sw. de-energizes the Handle Release Coil after the Latch Arm is released.
 - C. A Feed Circuit to the Reel Mech. Contact Plate Discs is opened until the Reels trip off (payout safety circuit).

Note: The Handle Release Unit is mechanically reset by the Handle Mech. just as the reels kickoff.

REEL MECHANISM FUNCTION

DASHPOT SWITCH OPERATION

At the onset of the game it should be noted until the Handle is fully back in a reset position the Dashpot Switch will prevent the Handle Lockout Coil & Handle Release Coil from being energized. This feature forces a Player to complete a full Handle stroke in either direction (in conjunction with Handle Mech. full stroke features).

A, B & C SWITCH OPERATION

The detailed functions of the various Dashpot, "A", "B" & "C" Switches as the Handle is being pulled is as follows (in sequence):

1. As the Handle is initially pulled the Dashpot Sw. opens, dropping out the Coin Lockout Circuit & assuring that the Handle Release Coil is de-energized.
2. As the Handle movement engages the Reel Mech. (first click) the Trip Shaft Lever opens the "A" Switches assuring that all Reel Disc & Payout Circuits are Open. The "A" Switches then reset when the Reels kickoff.
3. A few more inches into the Handle Pull (second click) & the Timer Link Lever opens the "C" Switches. The "C" Switches remain open until a moment after the Reels have indexed. This action assures that the Reel Disc Feed remains open ("C-1" with brown & gray-red Wires), until the Reel Mech Wipers have come to a rest on the Disc Contacts & after all other Reel Sw. Units have completed their tasks. At this time the Game is conditioned for a possible payout cycle. Other "C" Switches have closed a Handle Release Circuit & closed a "Insert Coin" Lite Circuit (multiple coin games only) conditioning the Game for another play cycle.
4. The "B" Sw. is pulsed by the Timer Link Lever just as the Reels kickoff. This action resets the Payout Counter back to zero if there was a winner on the previous Games play cycle. As you remember on a win the P.O. Counter steps-up until its Wiper steps off the "hot" printed circuit segment on the Disc. The "Open at Zero" Carriage Sw. also closes as the Counter steps-up. It is the action of the "B" Sw. which energizes the Counter Reset Coil, resetting the previous winner & opening this circuit again. This entire action is completed before the reel spin is complete, so that the P.O. Counter is conditioned for another win cycle as the reels index.
5. Upon completion of the play cycle & the return of the Handle, the Dashpot Sw. closes. This action closes a circuit to the Coin Lockout Coil which allows a deposited coin to be accepted for a new game.

ANTI-CHEAT RELAY OPERATION

On many new Slots there is an additional Anti-Cheat Relay Safety Switch installed on the Feed Circuit to the Reel Mech. Contact Plate Discs (not shown on the illustrated Schematic). This Anti-Cheat Relay is energized via a pulse from a Reel Mech. "A-1" Transfer Switch. A lock-in circuit keeps this Relay continuously energized until shut-off or its Tilt-Switch circuit is disturbed.

The main reason for this Tilt Switch Anti-Cheat Circuit (sensitive 3-way Tilt action) is to prevent vigorous handle pounding pulls and general abuse to the Machine. If the Tilt-Switch causes the Relay to de-energize the Feed Circuit to the Reel Mech. Contact Plates is opened ending any payout possibilities instantly. At this time the Machine must be re-coined & a new game initiated. This circuit is reset on the next pull of the Handle when the "A-1" Switch re-energizes the Relay.

SCHEMATIC INTERPRETATION

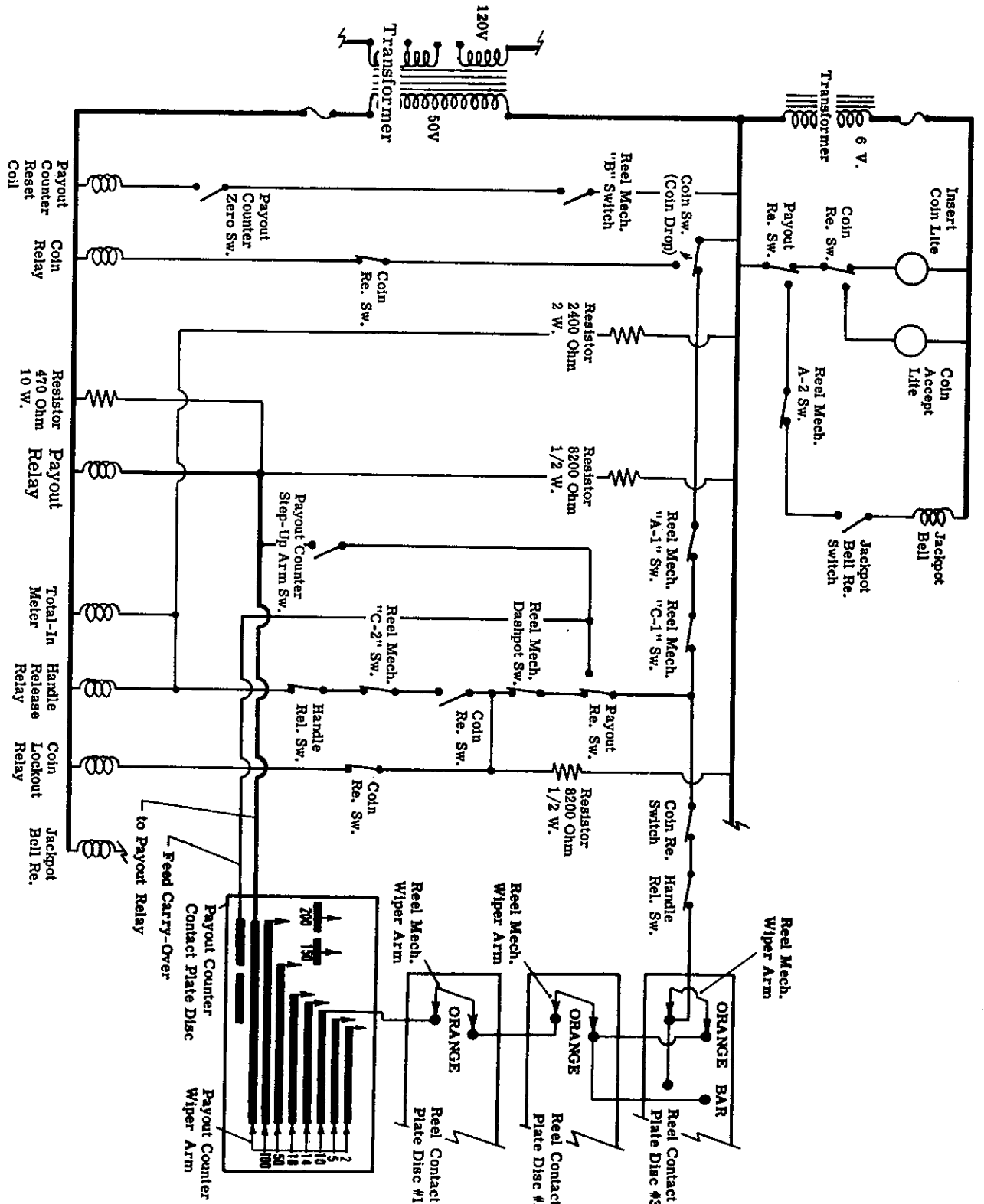
The Schematic shows a simplified 3 Reel, single coin game, showing the various Reel Mechanism Switch Functions. Assume that you are looking at the game the moment the Reels have indexed, the 10 pay "Orange" win has not yet energized the payout circuit. All Relays, Coils & Switches are in their normal de-energized or reset position.

Also assume that this Game has a Mechanically Stepped P. O. Counter & that all jackpots are machine paid (50, 100, 150, 200 - no lock-ups). This Jackpot Circuit is also tied into a Jackpot Bell Relay, which when energized completes a circuit to the Jackpot Bell. The Bell in this instance rings until the jackpot has been paid & P.O. Relay drops out. Bell operation is usually custom ordered per casino requirements so check your Schematic for specialized circuitry. You will find many games set to ring on 20 coin winners & up. On multiplier type slots a Jackpot Lock-Up System is used on large jackpot wins (400 & up). In these games a common set-up has the J.P. Bell set to ring until the Attendant releases the Game Lock-Up & the Player pulls off the winner.

The biggest circuit difference between the single coin game as shown & a multiple coin game (multiplier on 3- 5 Line Pay type) is the addition of a Line or Odds Stepping Unit. This Line/Odds Unit conditions the game for multiple coin play, with Limit Sw. action on the Coin Lockout & "Insert Coin" Light. In addition the Total-In circuit is altered & the Line/Odds Unit Disc provides additional payout circuitry.

REEL MECHANISM FUNCTION

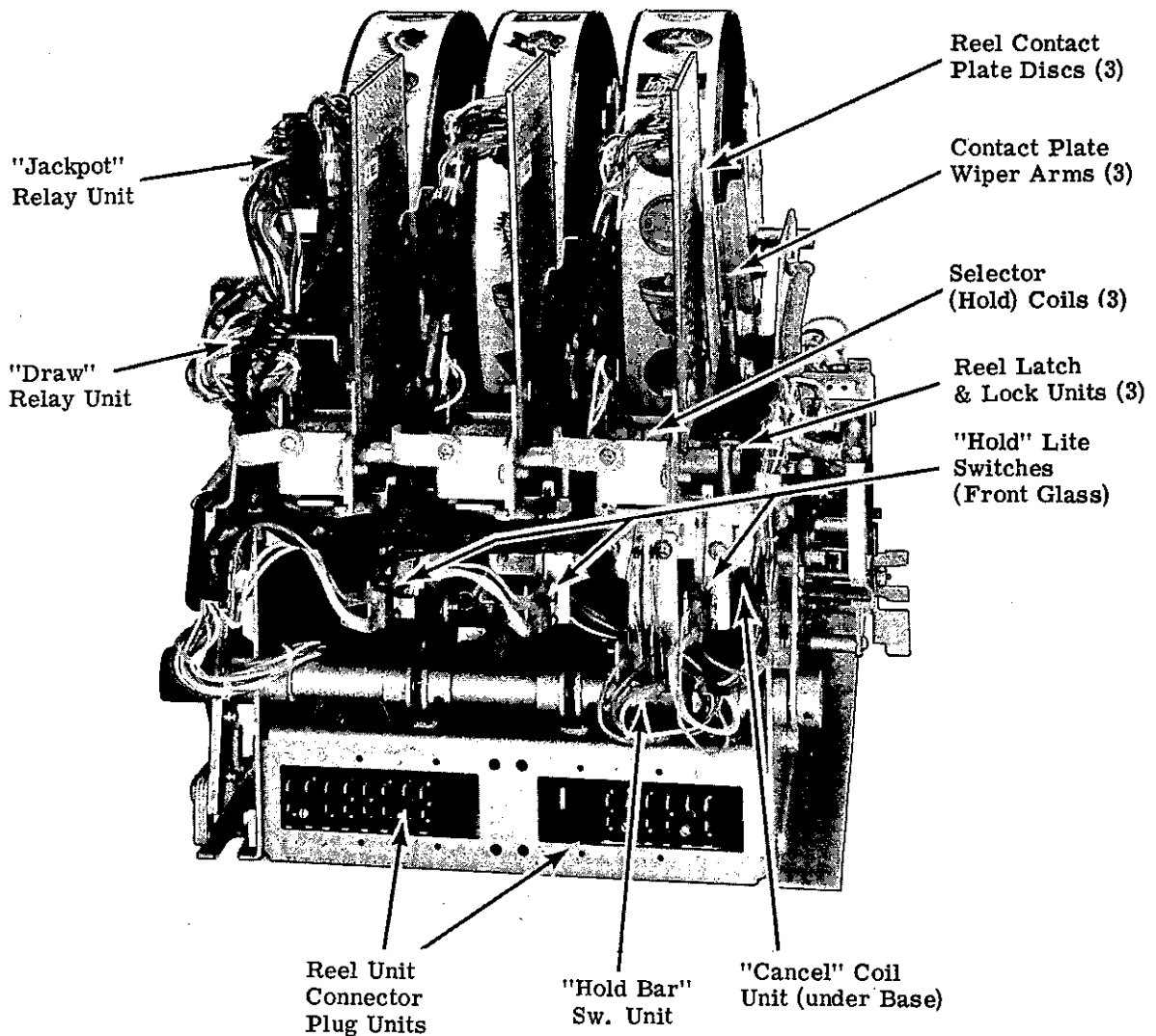
SCHEMATIC INTERPRETATION



MECHANICALLY STEPPED COUNTER

REEL MECHANISM FUNCTION

HOLD & DRAW OPERATION



INTRODUCTION

The ability of the Reel Mechanism to hold selected Reels when the Handle is pulled as the result of a unique spring loaded "knee-action" design built into the Kicker & Stop Units. This action acts like a shock absorber to cushion the kickoff action when a Reel is held during Hold & Draw Play.

The Hold & Draw Unit is simply a coil operated latch & lock arm arrangement which prevents a selected Index Lever Arm from cocking back to

release the Reel Index Wheel when the Handle is pulled. Notice the spring loaded "knee action" of the Index Lever Arm which absorbs the movement of the Trip Shaft Toggle Levers when that arm is held. With the Index Lever Arm locked into a Reel Index Wheel stop the Driver Lever Kicker only deflects off the Index Wheel instead of spinning it. The deflection of the Drive Lever Kick is made possible by the spring loaded Trip Arm Drive Link (Note: slotted slide) which acts as a shock absorber.

REEL MECHANISM FUNCTION

HOLD & DRAW OPERATION

ELECTRO-MECHANICAL FUNCTIONS

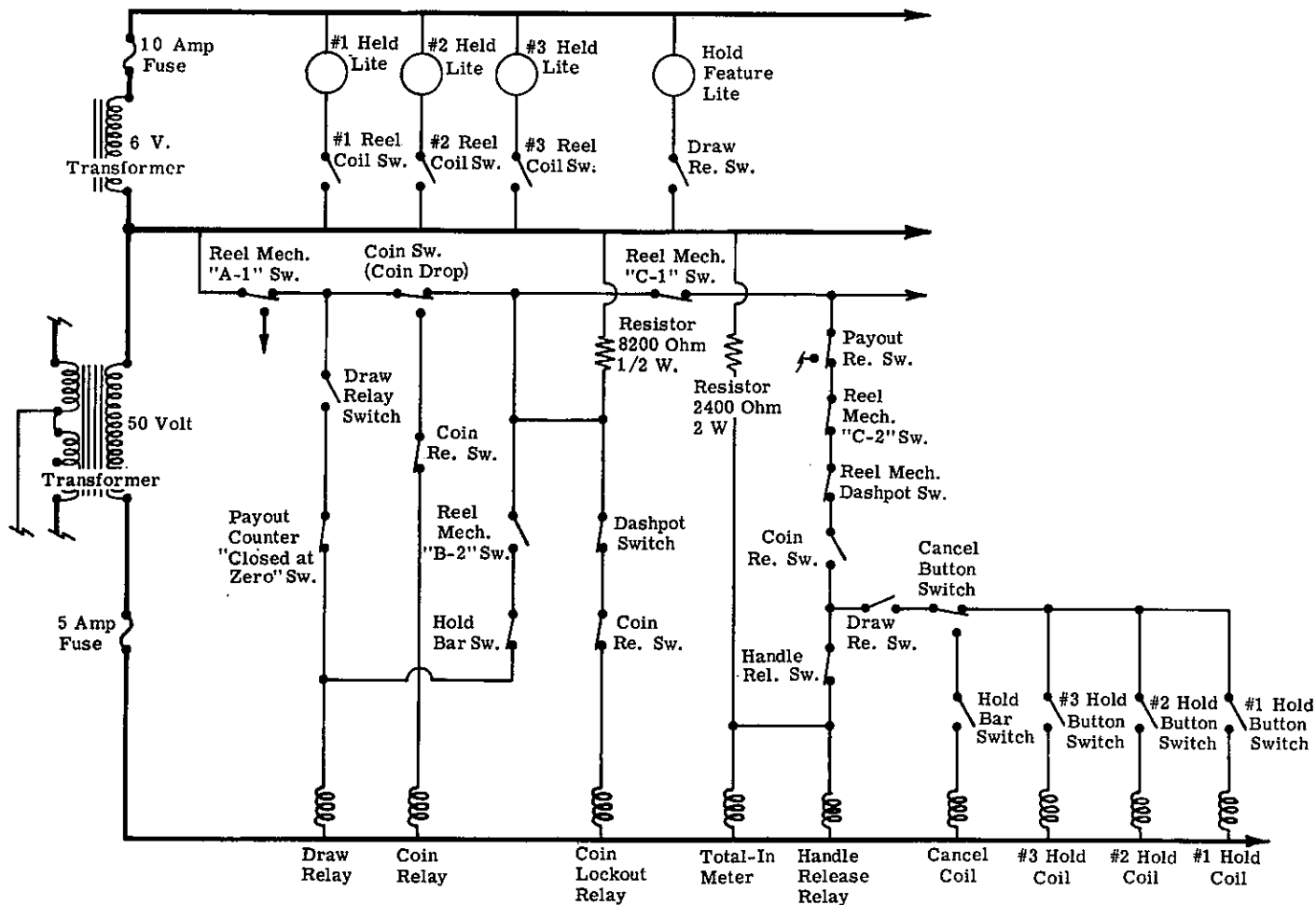
The Hold & Draw Mechanism consists of 3 "Hold" Coils which operate a Reel Latch & Lock Arm System, a Cancel Coil & Reset Unit, & the Switching Units. The Reel "Hold" Coils & the "Cancel" Coil are player actuated via a Button & Switch Unit on the Game's front. In viewing the Reel Mechanism from the rear you will notice that each "Hold" Coil mechanically actuates a Reel "Held" Lite Sw. in addition to operating the Reel Latch & Lock Arms the "Hold" Coils also mechanically actuate the two "Hold Bar Switches" via an Actuator Slide Bar. The Hold Bar Switches have the function of preventing two successive holds by de-energizing the Draw Relay (Draw Re. Sw. opens Button circuit) & also to complete a circuit to the Cancel Coil. The Cancel Coil actuates a Reset Slide Bar which resets the held coils Latch & Lock Arms if necessary.

During a hold & draw type play the "Hold" Coil and Latch & Lock Arm Units are mechanically reset (Reset Slide Bar) by the return action of the Timer Link just as the Reels index (note cam action on end of Timer Link).

SCHEMATIC INTERPRETATION

The Draw Relay is located on the right side of the Reel Mechanism Contact Plate Disc. It is the function of the Relay to determine if a hold & draw game can be played & then energize circuits to the Button & Lite Units. The Draw Relay is energized (via Reel Mech. "B-2" Sw. on previous games index - Note hold-in circuit) at the onset of every game which qualifies for hold & draw action.

At the onset of a hold & draw game the selected "Hold" Button is pressed energizing the "Hold" Coil circuit which latches & locks in the selected Reel. As the Handle is initially pulled the Reel Mech. "A-1" Sw. de-energizes the Draw Relay (via hold-in circuit). As the reels index the Reel "Hold" Coil Units are reset (via Timer Link). The Game is now ready for another Play cycle (1 reg., 1 hold & draw). As the Reels index on the conclusion of the first regular game the Reel Mech "B-2" Sw. re-energizes the Draw Relay (if no winner) setting up another potential hold & draw type play.



Bally

NOTES



REEL MECHANISM SERVICE

INTRODUCTION

Adjusting the Switches is facilitated by a good knowledge of the Schematic, the Switch & Coil functions and the sequence of electro-mechanical operation. The various Switches & Coils can easily be identified thru Schematic wire color code information & labels on the machine itself.

With the Reel Mechanism out of the Game, operate it with the auxiliary Service Handle (avail. thru Bally Service Dept.). Now watch the action of the Switches for correct actuation good contact follow through & reset action (hold the fan to control reset speed). Adjust the switches accordingly. Also clean the Contacts (if necessary) using a fine bur-nishing tool & wipe clean with soft paper.

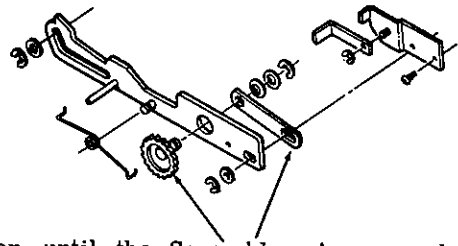
The Switch Actuating Arms & Bars should be free of grime & excess grease and move freely with good reset action (check springs). The slides & pivot points should be lightly greased with our new Hydrotex Lub #651.

As a final check look over the Mechanism to see if the Wires are properly tied down as not to interfere with moving levers & arms (note rear Plug Wires). Also check for good soldered switch connections.

REEL MECH. SWITCH ADJUSTMENTS

The next series of adjustments deals with the various Switches on the Reel Mechanism.

- A. On the right side of the Reel Mech. is the Dash-pot Switch. The preliminary adjustment of this Switch can be done with the unit outside of the machine but the final adjustment must be made when the Reel Mech is installed into the cabinet. When in rest position, Dashpot Switch is normally closed and the Link Assembly Arm is approximately 3/16" from the Stop Plate.
- B. The next set of Switches to adjust are on the left side of the Reel Mech. First, there is the "A" Switch Stack. With Index Arm in deepest Reel Index Slot (which causes wiper arm to make last row of rivets on contact plate). The "A" Switch should be open.
- C. Perpendicular to the "A" Switch stack are the "B" Switches. To adjust, set the timer link to its longest stroke by turning the Variator Counterclockwise until the Scrambler Arm reaches its shortest length. Hold the Fan and trip out Reel Mech. "B" Switch should make. The "B" Switch should make clean and stay made until it is off the Timer Link ramp. Now turn the var-



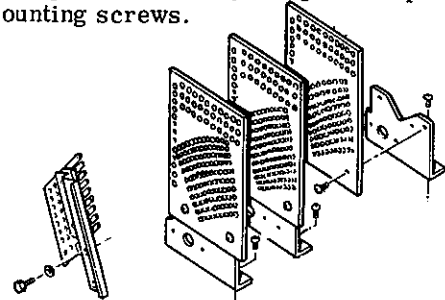
iator until the Scrambler Arm reaches its longest length. Hold the Fan and trip out Reel Mech. Again "B" Switch should make. Now turn Variator to longest length. Repeat procedure as a double check. If the Switches are properly adjusted in the first case, they will automatically be adjusted in the second case.

- D. To adjust the "C" Switch located just opposite of the "A" Switch you turn the 3rd Reel Variator to its shortest length. While holding the Variator Latch away from the Variator, pull Handle slightly. The Latch will now stay clear of Variator. Hold Fan and trip out Mech., allow the Clock to run slowly until the last reel indexes. At that exact point stop the Fan, the "C" Switch must be open. This Switch should be made only after the clock has been released & the Clock Unit has come to a complete stop.

CONTACT PLATES & WIPER ARMS

Probably the biggest problem with the Contact Plate Disc & Wiper Units is dirt & grease deposits which foul up the payout circuits. If there is a payout malfunction of any kind check the Contact Plates first. For proper operation the Contacts must be perfectly clean & shiny with very small amount of a good non-conductive lubricant (Bally LB550X lube) wiped in over the face. The Wipers must center on the contact rows in all positions with even finger pressure. Tough corrosion on the Contacts can be removed with a Plastic Scouring Pad designed for Teflon surfaces.

Centering the Wiper Fingers on the Contacts can be accomplished thru adjusting the Wiper Arm via the mounting screws.



It is very important not to put too much Wiper Pressure on the Contact Plate Discs. Too much wiper drag can prevent the Index Lever Arms from disengaging from the Reel Index Wheels causing erratic Reel "holds" during game play.

REEL MECHANISM SERVICE

CLOCK UNIT OPERATION

The Clock controls the timed return action of the Timer Shaft after the Reels kick off. Its the Timer Shaft Lever Action which drops out the Reel Trip Pawls (Toggle Levers are released). This Clock controlled action allows the Index Lever Arms to index back into the Reel Stops to halt the spin. The Clock is precision engineered to take heavy duty use but it must be cleaned & lubricated occasionally (use our Lubriplate No. 1 Oil).

Complete Clock Unit Parts Information is shown in the Reel Mech. Left Side Exploded View. Also note the new anti-magnetic Brass Fan & Anti-Wiring shield. These new parts are also available from Bally Parts & Service.

SPRING IMPROVEMENTS

The included Reel Mechanism Exploded Views show the latest (March '74) improvements in play operation via new spring developments. All of the included Spring changes can be incorporated on earlier models.

Refer to the Reel Mech. Center Exploded View. The following important changes have been made (Jan. 74):

- A. A new stronger Toggle Spring is now used for improved Index & Wiper Lever Arm return action. See Index No. 34.
- B. The Timer Idler - Latch Pawl Extension Springs are now all the same (all Reels - applies to 3, 4 & 5 reel games). See Index No. 19.
- C. The Index Lever Extension Spring on "Hold & Draw" Games is stronger to prevent reel bounce on "holds". See Index No. 37.

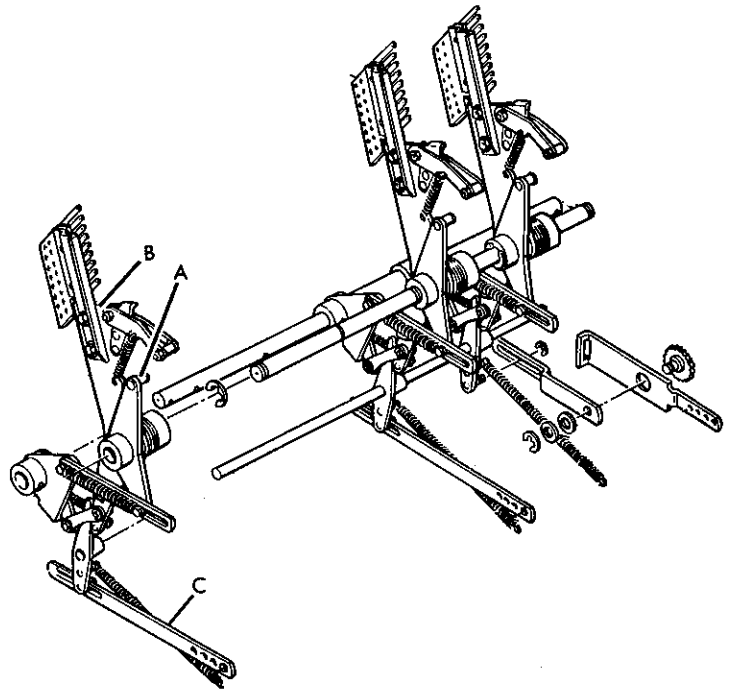
Now refer to the Reel Mech. - Right Side Exploded View. The following important changes have been made (Jan. 74):

- A. The Trip Lever Extension Spring is now stronger for a better reel spring. See Index No. 23.
- B. The Drive Shaft Compression Spring is also stronger to compensate for the heavier Trip Spring, install as a pair. See Index No. 33 & 34
- C. The Drive Gear Return Torsion Spring has now been replaced by a more accessible & reliable Extension Spring. To convert older machines simply order the new Spring Bushing & longer Screw - fits on old gear (old Torsion Spring can be released & left on shaft). See Index No.'s 17 - 19.

REEL MECH. INTERNAL SERVICE & ADJUSTMENTS

For good service access to the internal working parts, remove the Reel Unit. Now wipe off excess grease & grime. The Unit can now be lightly lubricated with our lubriplate #1 Oil. Slides & units with heavy duty loads can be lightly greased using our Hydrotex Lube #651.

The only internal part variations are different Drive Lever Arms (20, 22, & 25 stop units) Contact Wipers, Index Arms for 22 & 25 "Hold & Games" & Timer Latch Arms Links. The Timer Latch Links have slightly different length adjustments (longer to shorter) so that the Index Lever Arms can release in a timed 1 - 2 - 3 (-4) (-5) reel stop sequence. See the exploded view for adjustments.



With the Reel Unit out of the mechanism you can easily see if the Trip Operating Lever is tripping off the Stop Bracket at the correct moment (Note: Reel Mech-Right Side Stop Brkt. Adjust. Illustration). The stop Bracket Adjustment can be checked by observing the action of the Toggle Levers as the Handle is slowly pulled.

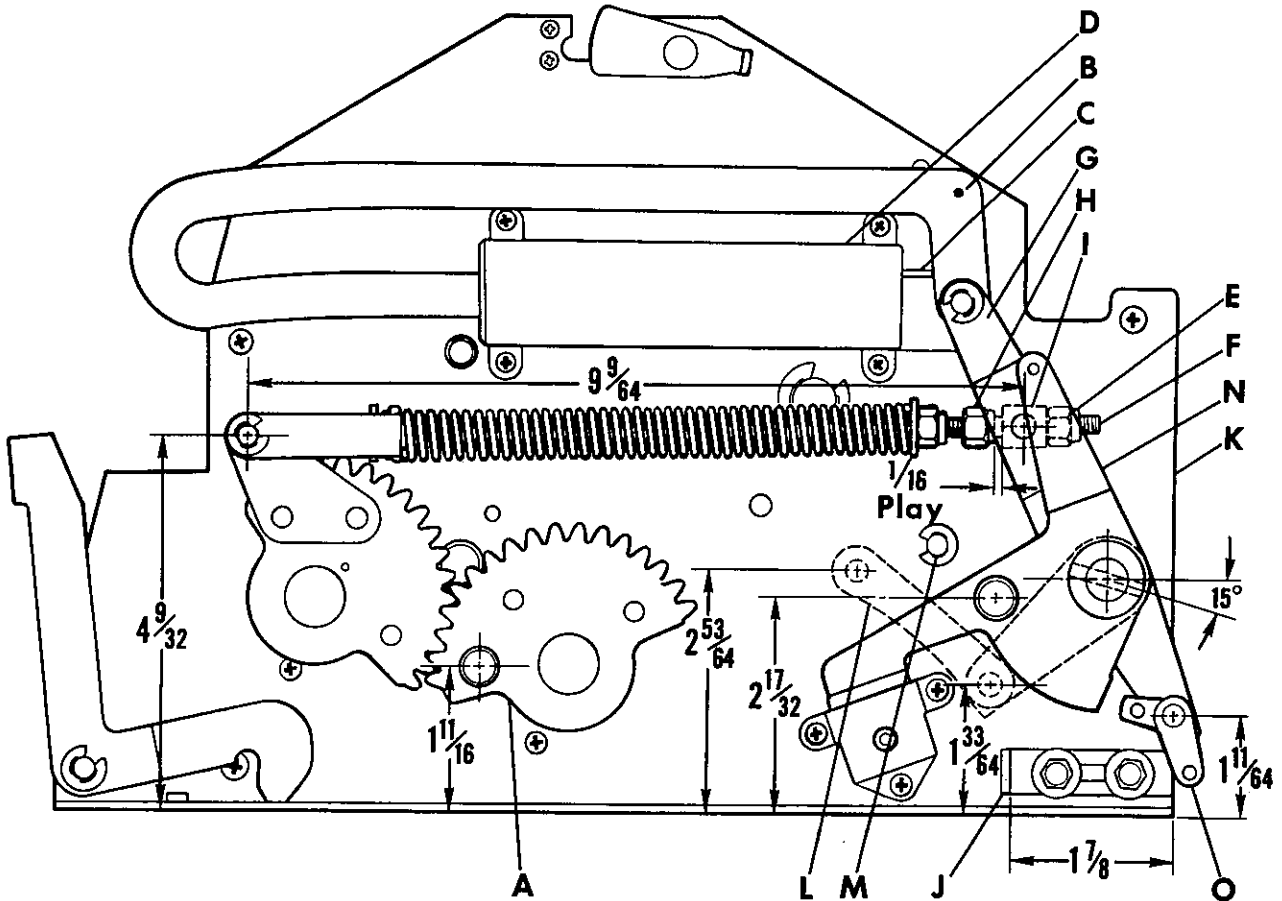
Observe the Toggle Levers as they rise up to the point where they almost touch the Toggle Stop Shaft (M). At this time the Latching Pawls will move under the Toggles, latching them in place (making a clicking sound as they latch up). At this exact moment the Trip Arm should be ready to trip off the Stop Bracket to fire off the Reels. See the Right Side Reel Mech. Adjustments.

REEL MECHANISM SERVICE

RIGHT SIDE REEL TRIP & SPIN ADJUSTMENTS

The following Illustrations show the Right Side of the Reel Mechanism in the 3 positions prior to Kick-off. These Illustrations show the factory standard average settings of the Trip Arm Stop Bracket (J) & Trip Arm Drive Shaft (G). Also shown

are the center line dimensions & operating distances of various levers & Shafts (as per engineering design). It should also be noted that because of variations in tolerances, these given dimensions are a general guide & may need calibrating when working on an individual machine.



REST POSITION ADJUSTMENT

The illustration of the Reel Mechanism is shown in a rest position with all adjustments completed for a proper operating mechanism. The dimensions shown are reference points for checking an adjusted unit.

Set the reel mechanism on a flat surface. The first setting to be made is the height of the Roller Stud on the 1/2 Gear Assembly "A". When checking the dimension be sure Link Assembly "B" is against Stop Plate "C" at rear of Cylinder "D".

To make this adjustment, turn the outer nut "E" on the threaded Drive Shaft "F" of the Trip Operating Lever "G" to obtain a 1-11 1/16" dimension shown.

The inner nut "H" is now adjusted to give a minimum of 1/16" to a maximum of 3/32" of play between nut and coupling "I" as shown.

These figures are dependent on the Trip Arm Stop Bracket "J" being adjusted exactly as described above.

REEL MECHANISM SERVICE

RIGHT SIDE REEL TRIP & SPIN ADJUSTMENTS

STOP BRACKET ADJUSTMENT

The next setting to be made is the Stop Bracket "J". This is done by moving the bracket to a position when measured, that should read approximately 1-7/8" from the end of the Side Plate "K" to the inside form of bracket (see previous page).

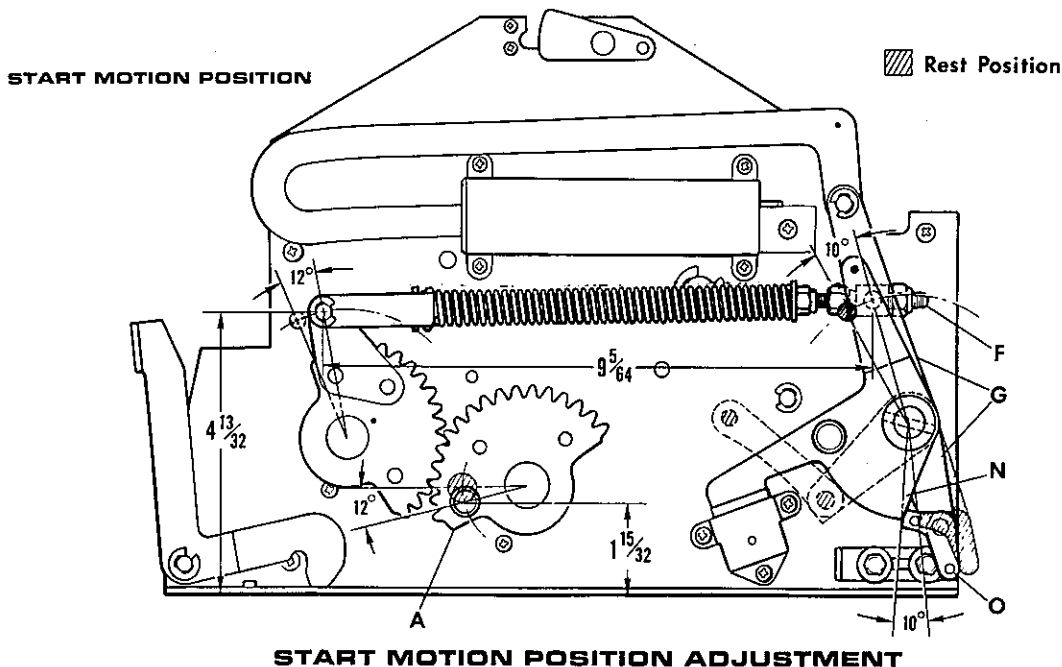
If the Stop Bracket is set in too far the Trip Arm will fire off before the Toggles are locked up (Latch Pawl) causing a uncoordinated reel spin. If the Stop Bracket is set out too far the Trip Operating Lever Pawl cannot trip off the Stop Bracket because the Handle is in a full "down" position (full stroke limit). At this time the Handle will stick in a down position until a Service Man opens the Machine & manually releases the Trip Pawl.

The setting of the Trip Arm Stop Bracket is extremely critical for a proper kick-off & spin. As you see in the Reel Mechanism's Trip Position Illustration the Toggle Levers (L) are in a "full up" position against the Toggle Stop Rod (M) & the Timer Latch Pawl (P) has moved under the Toggle Levers almost against the Toggle Stop Rod Locking the Toggles in a "up" position (in-turn cocking back the Index Levers which releases the Reels). Also notice that the Trip Operating Lever Pawl (O) is against the Stop Bracket & ready to fire off. This is the correct Stop Bracket adjustment position.

TRIP ARM DRIVE SHAFT ADJUSTMENT

The Trip Arm Drive Shaft Adjust. "F" is factory set according to the dimensions shown in the First Illustration. This setting gives a full stroke to the Trip Arm Levers & aligns the roller stud (actuating Gear) with the Handle Mech. Actuating Arm. The alignment into the Handle Mech. Actuating Arm is essential so that the Handle Mechanism's full stroke actuation corresponds to the Trip Operating Levers full stroke actuation & trip-off. When installing a Reel Mech. back into the Cabinet see that the Roller Stud aligns perfectly with the Handle Mech. Actuating Arm.

If a Reel Mech. is malfunctioning & it appears the trip-off timing is off, first check the Trip Arm Stop Bracket. If the Stop Bracket adjustment appears correct checkout the Trip Arm Drive Shaft Adjustment. Many times a half turn on the Nuts solves the problem. It should be noted that a mal-adjusted Stop Bracket or Drive Shaft cause similar problems. If a Drive Shaft is adjusted too long the Trip Operating Lever will trip off too soon (Toggles not latched up) causing an uncoordinated Reel spin. If the Drive Shaft is adjusted too short the Trip Operating Lever cannot trip off the Stop (too long stroke) causing the Handle to lock in a "down" position (Reels still cocked). However, the essential Drive Shaft Adjustment is the proper engagement into the Handle Mech. Actuator for co-ordinated full stroke action.

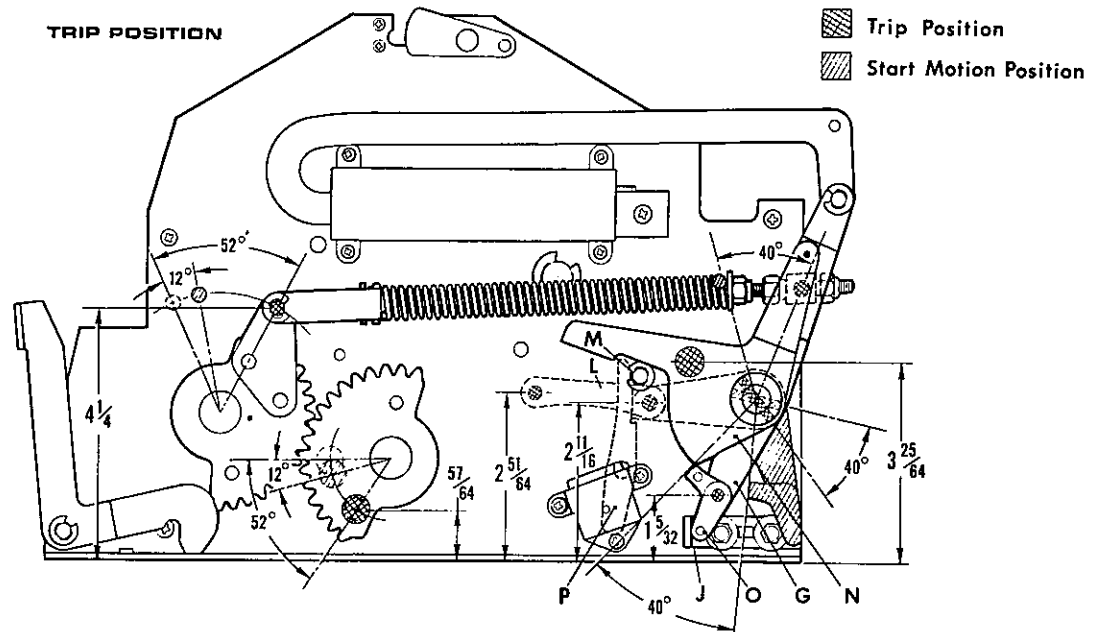


This illustration shows the starting movement of the 1/2 Gear Assembly "A", Threaded Shaft Assembly "F" and Trip Operating Lever Assembly Pawl "O"

until making contact with Trip Lever Assembly "N". At this point the internal mechanism's cycle begins its motion for cocking the Reels.

REEL MECHANISM SERVICE

RIGHT SIDE REEL TRIP & SPIN ADJUSTMENTS



TRIP POSITION ADJUSTMENT

This illustration shows the cocked mechanism just at the time of tripping the Trip Operating Lever Pawl "O" which in turn fires the Drive Lever (not

shown) to spin the Reels and unlatch the Latch Pawl Assembly "P".

AIR CYLINDER OPERATION & SERVICE

The Air Cylinder Unit cushions the Reel Mechanism from stress caused by hard & fast Handle pulls (in conjunction with the Drive Shaft Compression Spring) and also provides a smooth Handle return. If it appears there is undue resistance to a Handle Pull check to see if the tiny hole in the end of Cylinder (center) is plugged (causing compression resistance. If it appears there is no delay action to cushion hard, fast handle pulls, you may need a new Piston Cup Seal. The Piston Cylinder should be greased occasionally.

It is very important that this Unit function correctly to prevent undue strain on the Trip Shaft's Levers & Arms, and also to prevent erratic Reel motion during repeated fast, jerking Handle pulls.

REEL UNIT OPERATION & SERVICE

The Reel Units should spin smoothly and freely on the Shaft with no resistance. They should also spin straight & true with no warpage or wobble.

The Reel Hubs are equipped with Needle Bearings for top performance & long life. Lubricate this Hub Unit (note Hole) occasionally with a drop

our Lubriplate No. 1 Oil, then wipe the Unit off to prevent any oil spin-off on the Reel Tapes.

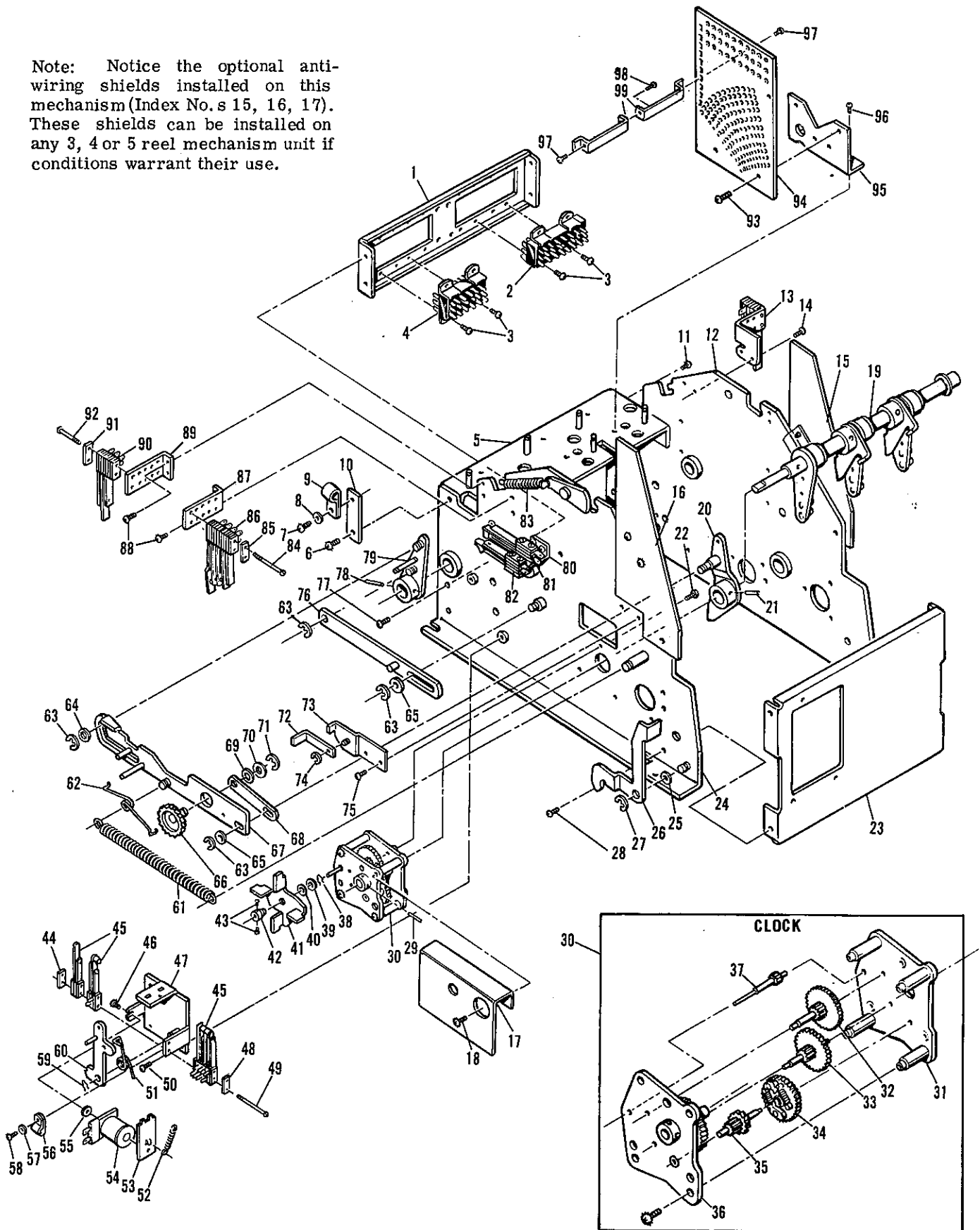
You will also notice a Screw Operated Brake on the Hub. At the present time factory adjusted machines do not use the Brakes. It is felt that a good spin gives the best reel symbol mix. However the Breaking Screw has certain applications where an excess Reel Speed must be controlled. A high speed Reel spin is difficult to index without excessive Reel bounce & noise. In this case a small amount of breaking pressure is advised.

In 1973 Bally introduced a new stainless steel, anti-magnetic reel as standard equipment. This Reel is now available as a replacement part from Bally Parts & Service. When re-installing or replacing Reel Tapes be sure they are securely fastened. The Reel Tapes are plastic laminated & have a very tough smooth surface which is virtually stain proof & indestructible. Because of the very slick surface, the Tape must be properly clamped down in the Reel gripping edge or slippage can occur. Any slippage can throw off the relationship of the Symbol to the Index Wheel causing a confused payout pattern.

It should also be noted that there is a slight difference in the 20, 22 & 25 stop index wheel diameters. The correct 20, 22 or 25 stop drive lever must be used for proper engagement & kick-off. Note exploded view parts list.

REEL MECH. ASSEMBLY - LEFT SIDE

Note: Notice the optional anti-wiring shields installed on this mechanism (Index No. s 15, 16, 17). These shields can be installed on any 3, 4 or 5 reel mechanism unit if conditions warrant their use.



ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

REEL MECHANISM ASSEMBLY-CENTER

Index No.	Part No.	Description	No. Req.
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This Exploded View & Part List covers all 3, 4, & 5 Reel Games. The illustration shows a typical 3 Reel Mechanism, all differences in timing & trip arm adjustments are fully explained in the Parts List. Part requirement differences between the 3, 4 & 5 reelers are shown in the "No. Required" column.

1	A-2874	Side Plate Assy.-Right . . .	1
2	P-2891-6	"E" Ring (1/4" Shaft) . . .	10
3	P-2891-10	"E" Ring (1/2" Shaft) . . .	8-9-10
4	LSPR-01032-1106	Screw	21
5	C-537-20	Nyliner (trip shaft-right) . .	1
6	P-2891-5	"E" Ring (3/16 shaft) 22-28-34	

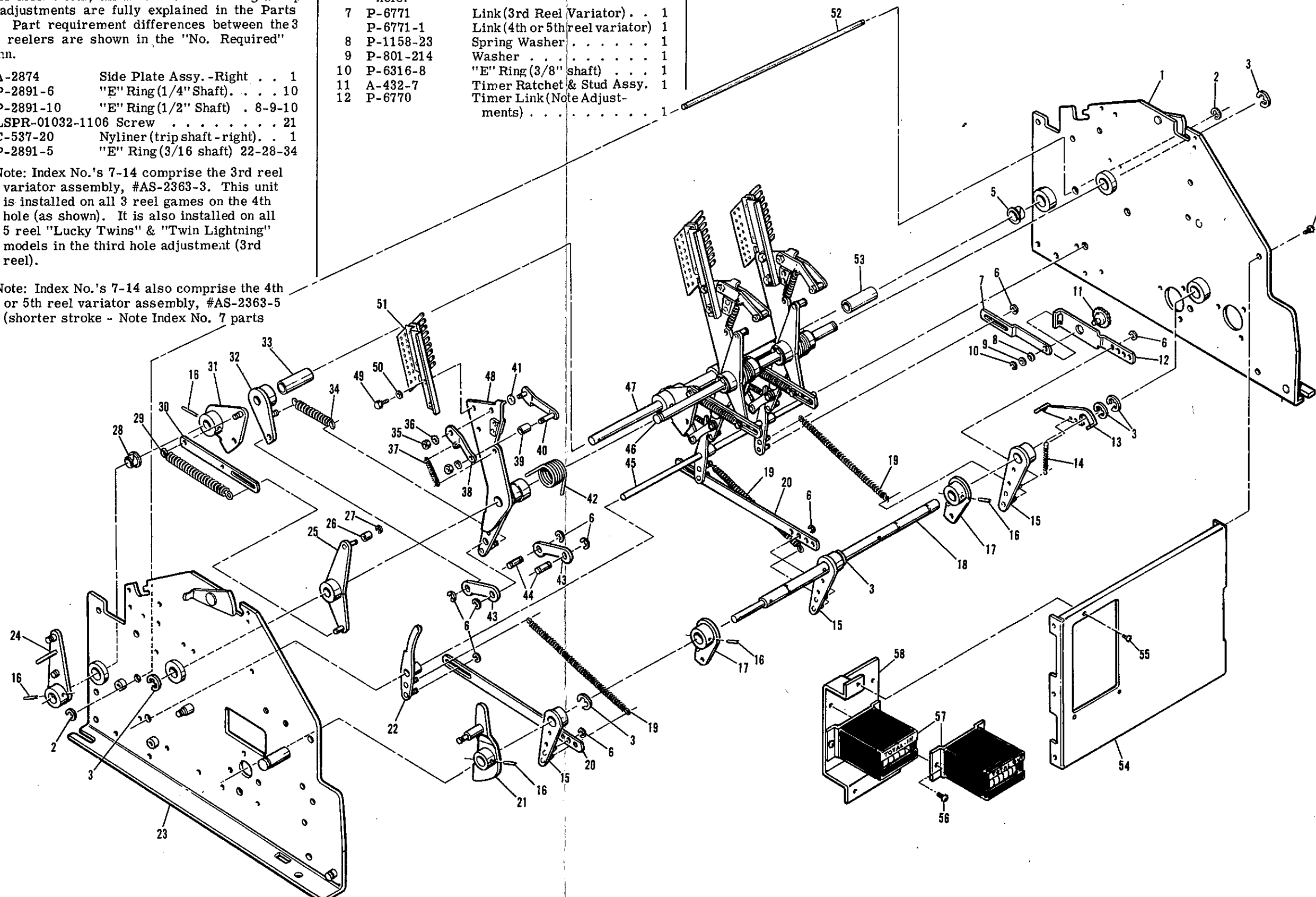
Note: Index No.'s 7-14 comprise the 3rd reel variator assembly, #AS-2363-3. This unit is installed on all 3 reel games on the 4th hole (as shown). It is also installed on all 5 reel "Lucky Twins" & "Twin Lightning" models in the third hole adjustment (3rd reel).

Note: Index No.'s 7-14 also comprise the 4th or 5th reel variator assembly, #AS-2363-5 (shorter stroke - Note Index No. 7 parts

Index No.	Part No.	Description	No. Req.
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list change). This unit is standard on 4 & 5 Reel Games & is installed in the 4th hole.

7	P-6771	Link (3rd Reel Variator) . . .	1
	P-6771-1	Link (4th or 5th reel variator)	1
8	P-1158-23	Spring Washer	1
9	P-801-214	Washer	1
10	P-6316-8	"E" Ring (3/8" shaft) . . .	1
11	A-432-7	Timer Ratchet & Stud Assy.	1
12	P-6770	Timer Link (Note Adjustments)	1



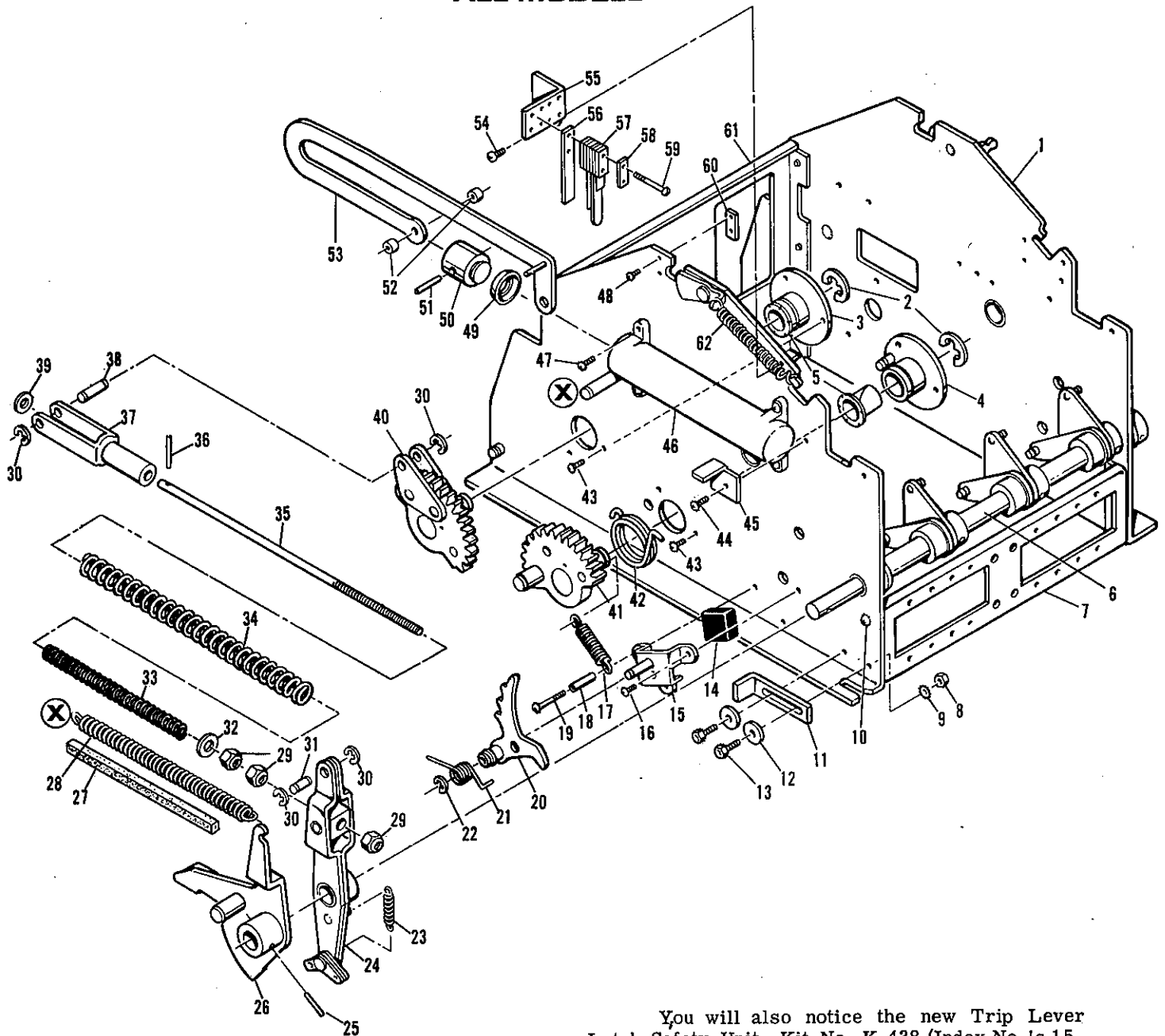
REEL MECHANISM ASSEMBLY - CENTER

Index No.	Part No.	Description	No. Req.	Index No.	Part No.	Description	No. Req'd.
13	P-6769	Ratchet Pawl(variator actuation)	1	32	A-168-1	Toggle Lever & Link Assembly	3-4-5
14	SP-100-248	Extension Spring(variator actuation)	1	33	S-231-11	Trip Shaft Bushing	2-3-4
15	A-2861	Timer Link Idler Assy.	3-4-5	34	SP-100-311	Extension Spring(new - Index Return)	3-4-5
16	P-1637-53	Roll Pin	7-9-11	Note: If installing this heavier spring on an older mechanism (prior Feb. 74) use a #P-2891-5, "E" ring (5/16 shaft) to retain it.			
17	A-194-7	Crank(timer index lever release)	2-3-4	Note: Index No.'s 35-44, 48-50 comprise the standard Index Lever Assy., #AS-2717-13 (all games except hold & draw 22 & 25 stop models). Hold & Draw 22 & 25 Stop Units use a #AS-2317-14 Assembly.			
18	S-1912	3 Reel Timer Shaft(clock)	1	35	N-00632-2112	Nut	6-8-10
	S-1912-1	4 Reel Timer Shaft(clock)	1	36		#6 Lockwasher	6-8-10
	S-1912-2	5 Reel Timer Shaft(clock)	1	37	SP-100-231	Extension Spring(Std. Index Arm)	3-4-5
19	SP-100-240	Extension Spring(Latch Pawls)	3-4-5		SP-100-292	Extension Spring(Hold & Draw type)	3-4-5
20	P-917-2	1st Reel, Timer Latch Link - 3 & 4 Reel Games (adjusted in 2nd hole)	1	38	P-491-5	Index Lever Arm	3-4-5
	P-917-6	1st Reel Timer Latch Link 5 Reel Games	1	39	S-231-43	Bushing(Index Stop)	3-4-5
	P-917-2	2nd Reel, Timer Latch Link - 3 & 5 Reel Games (Adj. in 3rd hole for 3 Reel Games & in 2nd Hole for 5 Reel Games)	1	40	A-332	Index Lever Arm Assy.	3-4-5
	P-917-3	2nd Reel, Timer Latch Link - 4 Reel Games	1	41	P-1158-22	Spring Washer	3-4-5
	P-917-4	3rd Reel, Timer Latch Link 4 Reel Games	1	42	SP-311	Torsion Spring	3-4-5
	P-917-3	3rd Reel, Timer Latch Link - 5 Reel Games (except "Lucky Twin" & "Twin Lightning", see variator notes)	1	43	P-471	Toggle Link	6-8-10
	P-917-4	4th Reel, Timer Latch Link - 5 Reel Games	1	44	S-739-158	Pivot Pin	6-8-10
	P-917-2	5th Reel, Timer Latch Link - 5 Reel Games ("Lucky Twin" & "Twin Lightning" only - adjusted in 4th hole)	1	45	S-413-19	3 Reel, Latch Pawl Shaft	1
		Note: P-917-3, P-917-4 & P-917-6 are not adjustable to eliminate confusion.			S-413-395	4 Reel, Latch Pawl Shaft	1
21	A-2860	Timer Lever Assy.	1		S-413-432	5 Reel, Latch Pawl Shaft	1
22	A-174-2	Latch Pawl Assy.(new)	3-4-5	46	S-181-47	3 Reel, Index Lever Shaft	1
23	A-2874-2	Side Plate Assy. - Left	1		S-181-59	4 Reel, Index Lever Shaft	1
24	A-205-7	Switch Operating Lever (trip shaft)	1		S-181-67	5 Reel, Index Lever Shaft	1
25	A-167-2	Drive Lever Assy. - 20 Stop	3-4-5	47	S-164-52	3 Reel, Trip Shaft	1
	A-167-6	Drive Lever Assembly - 22 Stop	3-4-5		S-164-56	4 Reel, Trip Shaft	1
	A-167-3	Drive Lever Assembly - 25 Stop	3-4-5		S-164-57	5 Reel, Trip Shaft	1
26	S-231-43	Bushing(kicker)	3-4-5	48	A-193-1	Wiper Lever Assy. (std.)	3-4-5
27	P-6316-4	Retaining Ring	3-4-5		A-193-2	Wiper Lever Assy. (Hold & Draw 22 & 25 Stop Models)	3-4-5
28	C-537-21	Nyliner(trip shaft - left)	1	49	LSOD-01032-1106	Hex. Hd. Screw	6-8-10
29	SP-100-21	Extension Spring(drive lever)	3-4-5	50	P-801-35	Washer	6-8-10
30	P-466-1	Drive Link	3-4-5	51	A-3013-Series	Contact Wiper Assy.	3-4-5
31	A-194-6	Crank - Trip Shaft	3-4-5	52	S-739-159	3 Reel, Toggle Stop Rod	1
					S-739-178	4 Reel, Toggle Stop Rod	1
					S-739-190	5 Reel, Toggle Stop Rod	1
				53	S-231-698	Trip Shaft Bushing(right side)	1
				54	P-704-6	3 Reel Front Plate	1
					P-704-9	4 Reel Front Plate	1
					P-704-14	5 Reel Front Plate	1
				55	LSPR-00632-1104	Screw	3
				56	LSPR-00632-1103	Screw	4
				57	AS-2746	Counter & Brkt. Assy.	2
					E-130-30	Counter(new type - Veeder Root)	2
					P-551	Bracket	2
					LSPR-00440-1104	Mtg. Screw	4
				58	P-6286	Counter Bracket	1

REEL MECHANISM - RIGHT SIDE DETAIL

REEL START MOTION AND TRIP MECHANISM

ALL MODELS



Note: This Exploded View shows many of the new improvements incorporated into the Bally Reel Mechanism (Nov. 1974). You will notice new Springs shown at Index No.'s 17, 23, 28, 33 & 34. These new Springs are designed to give the Reel Unit a better reel spin, added performance & longer life. Also note that Index No. 42 has been replaced with Index No.'s 17 - 19.

The new Springs can be installed on older 3, 4 & 5 reelers (1964-) if Index No.'s 18, 19, 26, 32, & 35 (new) are also installed.

You will also notice the new Trip Lever Latch Safety Unit, Kit No. K-438 (Index No.'s 15, 18-23). This new safety unit gives added full stroke anti-cheat protection to the Reel Unit as the Handle is being pulled. In operation the spring loaded Safety Latch Ratchet engages the Trip Lever in three stages as the handle is pulled prior to the reel kick-off & spin. This ratchet action assures effective one-way, full stroke handle motion & thus ends handle pounding & trick manipulations.

The new Trip Lever Latch Safety Unit can also be installed on all Bally slots manufactured since 1964. It's an easy five minute installation (no drilling), Order Kit No. K-438.

ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

REEL MECHANISM - RIGHT SIDE DETAIL

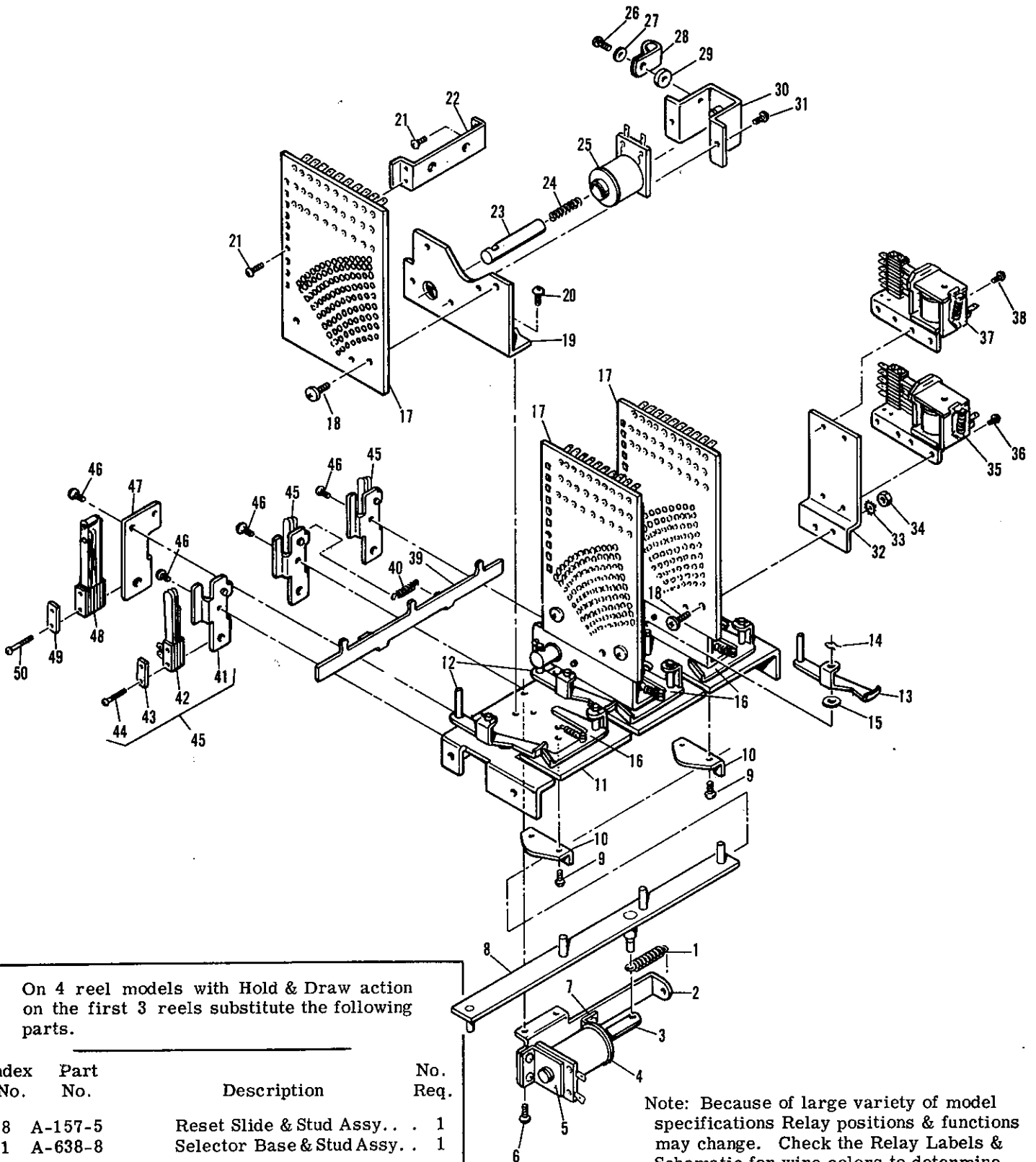
REEL START MOTION AND TRIP MECHANISM

Index No.	Part No.	Description	No. Req.	Index No.	Part No.	Description	No. Req.
Note: This Parts List covers all 3, 4, & 5 Reel Machines.				29	M-319-10	Elastic Stop Nut	3
1	A-2874-2	Side Plate Assy.	1	30	P-2891-6	"E" Ring (1/4" shaft)	4
2	P-2891-11	"E" Ring (5/8" Dia. Shaft)	2	31	S-739-160	Coupling Pin	1
3	A-2903	Gear Plate Assy. (shown w/Nyliner in place)	1	32	P-801-589	Washer (new).	1
4	A-2903-1	Gear Plate & Pin Assy.	1	33	SP-214-4	Inner Compression Spring - Left Hand Wound (new).	1
5	C-537-31	Nyliner	2	34	SP-214-5	Outer Compression Spring - Ring Hand Wound(new)	1
6	AS-2294-1	Trip Shaft Assy.(3 reel).	1	35	S-2033-1	Drive Shaft (new)	1
	AS-2294-5	Trip Shaft Assy.(4 reel).	1	36	P-1637-11	Roll Pin	1
	AS-2294-7	Trip Shaft Assy.(5 reel).	1	37	A-171-1	Overtravel Fork Unit	1
7	P-6373-3	Tie Bar Brkt.(3 reel)	1	38	S-739-157	Coupling Pin	1
	P-6373-4	Tie Bar Brkt.(4 reel)	1	39	P-800-2	Washer	1
	P-6373-5	Tie Bar Brkt.(5 reel)	1	40	A-2865-1	Cam Gear Assy.	1
8	N-01032-2112	Nut	2	41	A-2865	Gear Assembly	1
9		#10 Lockwasher	2	42	SP-399-6	Torsion Spring (Obsolete - replaced by Index No. 17 April 1974)	As Req.
10	LSPR-01032-1104	Screw	2	43	LSPR-00832-1104	Screw	6
11	P-6287	Trip Lever Stop Brkt.	1	44	LSPR-01032-1106	Screw	1
12	P-800-6	Washer	2	45	P-6451	Stop Bracket	1
13	LSOD-01032-1168	Screw	2	46	C-112	Air Cylinder	1
14	R-116	Rubber Bumper	1	47	LSPR-00832-1106	Screw	4
Note: Index No.'s 15, 18-23 comprise the Trip Lever Safety Latch Assy., Kit No. K-438 (Standard Equipment as of April 1974.)				48	LSPR-00540-1103	Screw	2
15	A-3048-1	Bumper Housing & Latch Pivot Shaft Assy.	1	49	R-121-1	Neoprene Piston Cup Seal	1
16	LSPR-00832-1103	Screw	2	50	S-369	Piston	1
17	SP-100-312	Gear Return Spring	1	51	S-1071-83	Coupling	1
Note: This Extension Spring replaces the less accessible Torsion Spring (Index No. 42). For easy installation on older models simply release the Torsion Spring from the Gear Pin (can be left on shaft) & install the Extension Spring on the same Gear Pin & Index No.'s 18-19.				52	S-231-41	Bushing	2
18	M-1481-27	Bushing	1	53	A-2931-	Link & Pin Assembly	1
19	LSPR-00832-1116	Screw	1	Note: Index No.'s 54-59 comprise the Dashpot Switch Assy. #AS-982-516 (Single N. C. Unit) or #AS-982-623 (two N. C. Sw. Units).			
20	A-3757	Latch Lever Spring	1	54	LSPR-00632-1103	Screw	2
21	SP-341	Return Spring	1	55	P-126-512	Sw. Bracket	1
22	P-6316-5	Retaining Ring	1	56	P-126-513	Sw. Plate	1
23	SP-100-12	Trip Pawl Extension Spring (new - stronger)	1	57	ASW-A1-34	Dashpot Sw. (Single Type)	1
24	A-199-2	Trip Operating Lever Assy.	1		ASW-A1-52	Dashpot Sw. (Double Type Inside Sw.)	1
25	P-1637-56	Roll Pin	1		ASW-A1-51	Dashpot Sw. (Double Type, Outside Sw.)	1
26	A-178-3	Trip Lever Assy. (new)	1	58	P-137-5	Spring Plate	1
27	M-331-1	Felt Plug (fits inside spring)	1	59	MSPR-00540-1112	Screw	2
28	SP-100-268	Extension Spring (new - faster Reel Spin)	1	60	P-126-541	Reel Shaft Lock Plate	1
				61	P-704-6	Front Plate - 3 Reel Unit.	1
					P-704-9	Front Plate - 4 Reel Unit.	1
					P-704-14	Front Plate - 5 Reel Unit.	1
				62	SP-100-266	Extension Spring (Reel Shaft Lock)	1

ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

REEL MECH. - HOLD & DRAW UNIT

STANDARD



On 4 reel models with Hold & Draw action on the first 3 reels substitute the following parts.

Index No.	Part No.	Description	No. Req.
8	A-157-5	Reset Slide & Stud Assy. . .	1
11	A-638-8	Selector Base & Stud Assy. . .	1

Note: Because of large variety of model specifications Relay positions & functions may change. Check the Relay Labels & Schematic for wire colors to determine a positive I.D.

ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

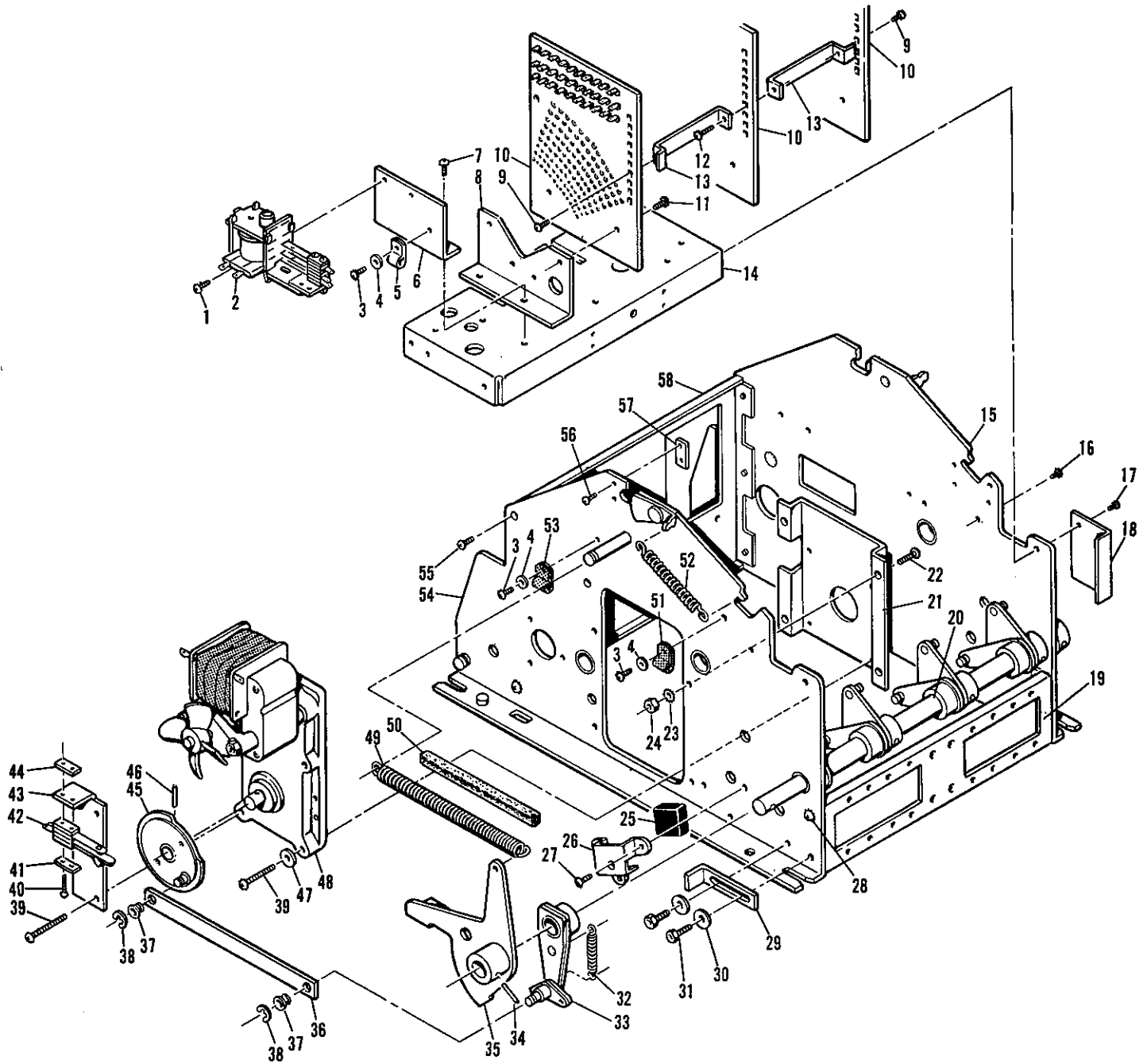
REEL MECH. - HOLD & DRAW UNIT

STANDARD

Index No.	Part No.	Description	No. Req'd	Index No.	Part No.	Description	No. Req'd
1	SP-100-269	Extension Spring	1	25	J-28-1100	Coil (Selector or "Hold" coil)	3
2	P-7573	Coil Mounting Bracket	1	26	LSPR-00632-1106	Screw	3
3	S-496-186	Plunger	1	27	PW-008-11	Washer	3
4	B-27-1300	Coil (Cancel unit)	1	28	C-271-10	Clip	3
5	A-613-67	Core Plug & Plate Assy.	1	29	S-231-106	Spacer	3
	SFPP-00832-1106	Screw, #8-32 x 3/8" Lg. Parker Swage Form	2	30	A-613-87	Coil Strap Assembly	3
6		Screw, #10-32 x 3/8" Lg. Parker Swage Form	2	31	SFPP-00832-1106	Screw #8-32 x 3/8" Lg. Parker Swage Form	6
7	P-108-53	Solenoid Bracket	1	32	P-6442-39	Relay Mounting Bracket	1
	SFPP-00832-1106	Screw, #8-32 x 3/8" Lg. Parker Swage Form	2	33		#10 Lockwasher	2
8	A-157-2	Reset Slide & Stud Assy.	1	34	N-00832-2112	Nut	2
9	SFPP-00832-1106	Screw, #8-32 x 3/8" Lg. Parker Swage Form	4	35	AS-2659-9	Draw Relay	1
10	P-7511	Reset Slide Retainer	2		G-33-2800	Coil	1
11	A-638-5	Selector Base & Stud Assy.	1	36	LSPR-00832-1104	Screw	2
12	A-188	Latch Arm & Pin Assy. (Reels 1 & 2)	2	37	AS-2659-32	J.P. Relay (Specify Model NO.)	As Req'd
	M-254-2	Hair Pin Retainer	2		G-32-2500	Coil	1
	P-801-8	Washer	2	38	LSPR-00832-1104	Screw	2
13	A-188-1	Latch Arm & Pin Assy. (Reel No. 3)	1	39	P-7572	Switch Actuator Slide	1
14	M-254-2	Hair Pin Retainer	1	40	SP-100-276	Extension Spring	1
15	P-801-8	Washer	1			Note: Index No. 's 41-44 comprise the "Switch & Bracket Assembly", #AS-982-715	
16	A-187	Reel Lock Assembly	3	41	P-7574	Switch Bracket	3
	SP-100-271	Extension Spring	3	42	ASW-A1-32	Switch (Hold 1, 2, 3 reels)	3
	M-254-2	Hair Pin Retainer	3	43	P-137-5	Spring Plate	3
	P-801-8	Washer	3	44	MSPR-00540-1108	Screw	6
17	A-184-46	Contact Plate Assembly (Reels 1, 2 & 3)	3	45	AS-982-715	Switch & Bracket Assy.	3
18	MSPT-01032-1106	Screw	7	46	LSPR-00832-1104	Screw	5
19	P-494-6	Contact Plate Bracket	3	47	P-7574-1	Switch Bracket	1
20	SFPP-01032-1106	Screw, #10-32 x 3/8" Lg. Parker Swage Form	6	48	ASW-A10-18	Switch (hold bar) - Bottom	1
21	LSPR-00632-1104	Screw	3		ASW-A20-14	Switch (hold bar) - Top	1
22	P-6635-2	Bracket Stiffener	2	49	P-137-5	Spring Plate	1
23	S-496-187	Plunger	3	50	MSPR-00540-1114	Screw	2
24	SP-200-11	Compression Spring	3				

MOTORIZED REEL MECHANISM

AUTOMATIC START MOTION AND TRIP MECHANISM



ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

MOTORIZED REEL MECHANISM

AUTOMATIC START MOTION AND TRIP MECHANISM

The "Motorized Automatic" Slot Mechanism is essentially the standard Bally 742A Model without the handle mech. gearing & safety timing kick-off features. An "Automatic" kicks-off for a spin coin is deposited. There are also models with a button start once a coin is deposited. The "Automatic" offers the advantage of effortless, smooth operation & a fast play cycle. The game also offers a remarkably long service free life as the problem of the hard pulling, "handle pounder", type player has been eliminated.

Index No.	Part No.	Description	No. Req.
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The following part list is the complete automatic start motion & kick off mechanism.

1	LSPR-00832-1104	Screw	2
2	AS-2649-8	"Motor Relay" Assy.	1
	G-31-1800	Coil	1
3	LSPR-00832-1105	Screw	3
4	PW-008-12	Washer	3
5	C-271-6	Cable Clip	1
6	P-6665-2	Relay Mtg. Brkt.	1
7	SFPB-00832-1106	Screw	6
8	P-494-6	Contact Plate Brkt.	3
9	LSPR-00632-1104	Screw	2
10	A-184-39	Contact Plate Disc Assy.	1
Note: For a complete WIRED Contact Plate Disc (#W-1041 - Series) specify "Wired" & give complete Model No. & Reel No..			
11	MSPT-01032-1106	Screw	6
12	LSPR-00632-1105	Screw	1
13	P-6635-2	Bracket Stiffener	2
14	P-495-12	Selector Base	1
15	A-2874-2	Side Plate Assy. -Left Side	1
16	LSPR-01032-1104	Screw(selector base)	3
17	LSPR-01032-1106	Screw(selector base)	1
18	P-6683	Cable Shield	1
19	P-6373-3	Tie Bar Bracket	1
20	AS-2294-1	Trip Shaft Assy. (see reel mech. assy. - center)	1
21	P-6264-10	Motor Mtg. Brkt.	1

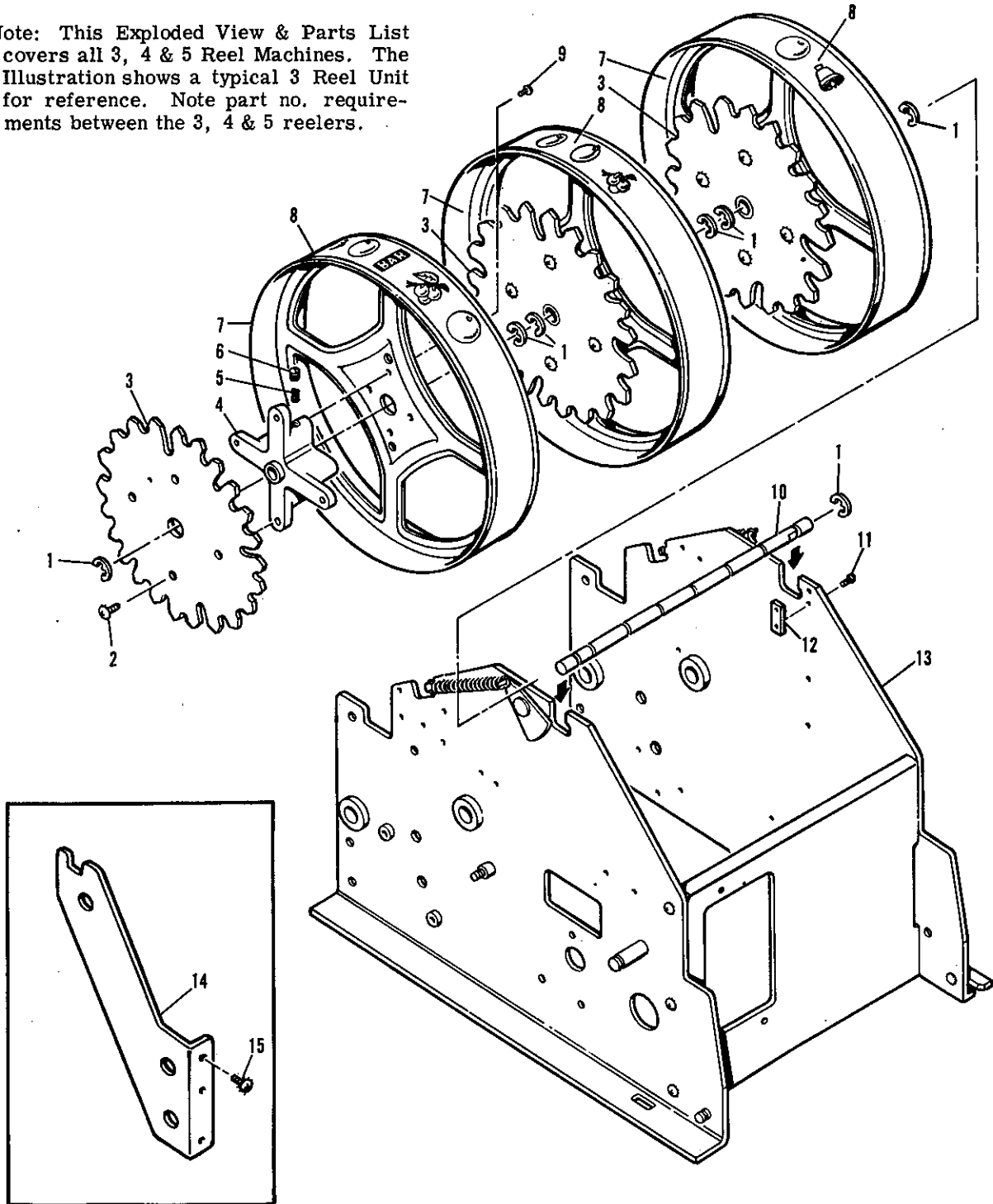
Index No.	Part No.	Description	No. Req.
22	LSPR-01032-1106	Screw	4
23		#10 Lockwasher	4
24	N-01032-2112	Nut	4
25	R-116	Rubber Bumper	1
26	P-474	Bumper Housing	1
27	LSPR-00832-1103	Screw	3
28	LSPR-01032-1104	Screw (tie bar)	3
29	P-6287	Trip Stop	1
30	P-800-6	Washer	2
31	LSOD-1032-1110	Screw	2
32	SP-100-8	Extension Spring	1
33	A-199-3	Trip Operating Lever Assembly	1
34	P-1637-56	Roll Pin	1
35	A-178-2	Trip Lever	1
36	P-1973-166	Trip Link	1
37	C-537-5	Nyliner	1
38	P-2891-6	"E" Ring(1/4" Shaft)	2
39	LSPR-01032-1120	Screw	4
40	MSSR-00540-1108	Screw	2
41	P-137-5	Spring Plate	1
42	ASW-C1-21	Switch	1
43	P-126-553	Mounting Bracket	1
44	P-126-154	Retaining Plate	1
45	A-800-142	Cam & Hub Assy.	1
46	P-1637-10	Roll Pin	1
47	P-801-107	Washer	2
48	E-119-360	Motor - 115V, 50/60 Cycle 30 RPM	1
Note: Motor & Transmission Parts are covered on a separate Page on the rear of this Manual.			
49	SP-100-241	Extension Spring	1
50	M-331-1	Felt Plug	1
51	C-271-4	Cable Clip	1
52	SP-100-266	Extension Spring	2
53	C-271-2	Cable Clip	1
54	A-2874-8	Side Plate Assy. - Right Side	1
55	LSPR-01032-1104	Screw(front plate)	5
56	LSPR-00540-1103	Screw	2
57	P-126-541	Lock Plate (reel shaft).	1
58	P-704-6	Front Plate	1

ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

REEL ASSEMBLY

REELS, INDEX PLATES, AND REEL TAPES

Note: This Exploded View & Parts List covers all 3, 4 & 5 Reel Machines. The Illustration shows a typical 3 Reel Unit for reference. Note part no. requirements between the 3, 4 & 5 reelers.



ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

REEL ASSEMBLY

REELS, INDEX PLATES, AND REEL TAPES

Important: When ordering Index Wheels & Reel Tape Sets give the COMPLETE Model No. of your machine (ex.809-ZZB) or the original Part No. on the Reel Strip & Index Wheel.

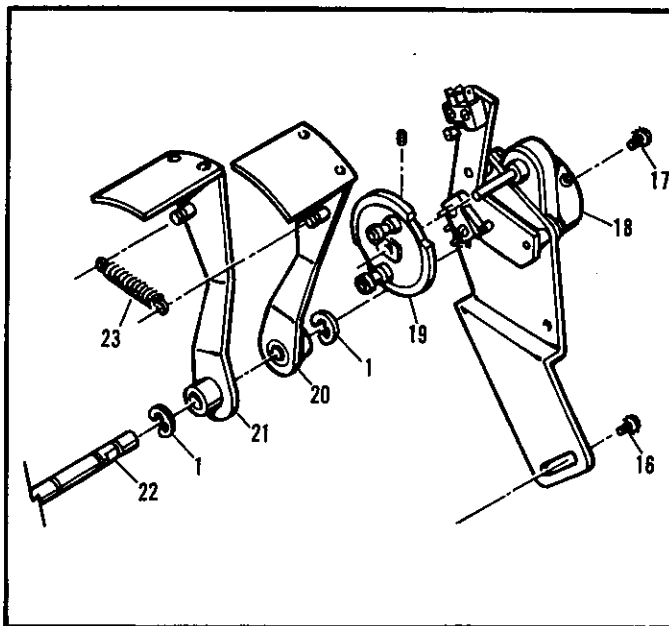
Index No.	Part No.	Description	No. Req.
1	P-2891-8	"E" Ring (3/8" shaft) As Req'd	
2	LSPR-01032-1106	Screw	12
3	P-484-Series	20 Stop Index Wheel - (Specify Model No. & Reel No.)	3-4-5
	P-684-Series	22 Stop Index Wheel - (Specify Model No. & Reel No.)	3-4-5
	P-584-Series	25 Stop Index Wheel - (Specify Model No. & Reel No.)	3-4-5
4	A-631-2	Hub & Bearing Assy.	3-4-5
5	SP-200-165	Compression Spring (brake)	3-4-5
6	M-1517	Set Screw (Brake adj.)	3-4-5
7	A-372-3	Reel Assy. (stainless steel, anti-magnetic)	3-4-5
8	M-220-Series	20 Stop, Reel Tape (specify model no. & reel no.)	3-4-5
	M-222-Series	22 Stop, Reel Tape (specify model no. & reel no.)	3-4-5
	M-225-Series	25 Stop, Reel Tape (specify model no. & reel no.)	3-4-5
9	MSPB-00832-1104	Binder Hd. Screw	As Req.
10	S-181-46	3 Reel Shaft	1
	S-181-58	4 Reel Shaft	1
	S-181-68	5 Reel Shaft	1
11	LSPR-00540-1103	Screw	2
12	P-126-541	Shaft Lock Plate	1
13		Reel Mech. Framework	1
<p>Note: Index No.'s 14-15 is the Reel Shaft support used on 4 & 5 reel games.</p>			
14	P-7726	Reel Shaft Support	1
15	LSPR-01032-1104	Screw	2

Note: Index No.'s 16-26 comprise the "4th Reel Mystery Odds Unit". This special feature unit is an elec. operated (Button) Shutter which opens & closes to expose a 4th Reel "Mystery Symbol" controlling additional payout odds.

Index No.	Part No.	Description	No. Req.
16	LSPR-01032-1105	Mtg. Screw	1
17	MSPR-00632-1108	Mtg. Screw (reel shaft end)	1

Note: Index No.'s 18-19 comprise the Shutter Motor Unit #AS-2752.

18	P-563	Motor Brkt.	1
	E-119-426	Motor (50 V. - 50 cycle)	1
	MSPR-00632-1108	Screw (motor & micro-sw. brkt. mtg.)	2
	M-1514-6	Spacer	2
	AS-982-969	Micro-Sw. & Brkt.	1
	E-108-120	Micro-Sw.	2
19	A-3295	Cam Assy.	1
	M-1369-1	Set Screw	
	S-2016	Roller	2
	P-2891-2	Retaining Ring (1/8" shaft)	2
20	A-3294-1	Shutter Assy. - Bottom	1
21	A-3294	Shutter Assy. - Top	1
22	S-181-72	4 Reel Shaft (special tapped end)	1
23	SP-100-240	Shutter Spring	1

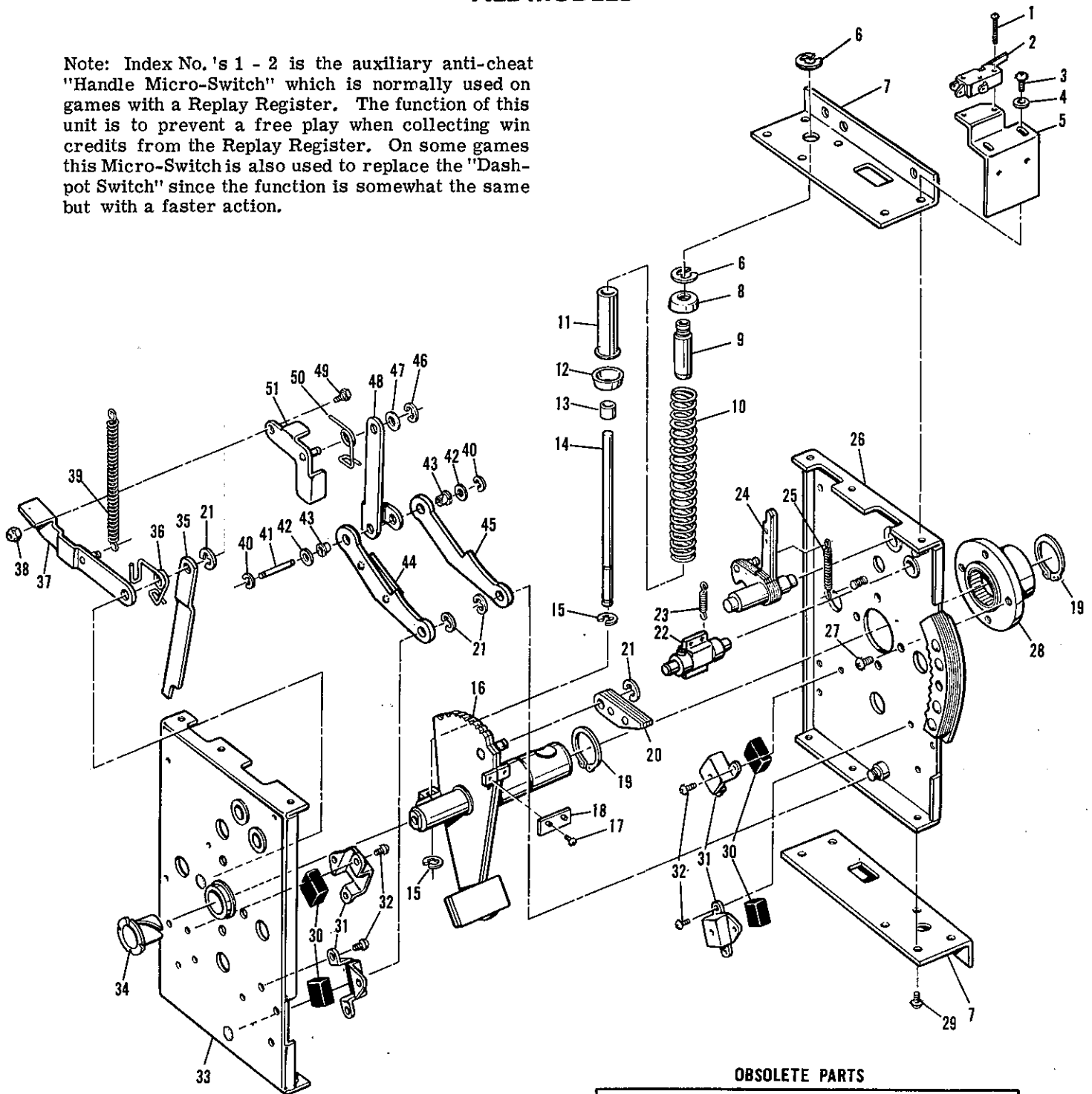


ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

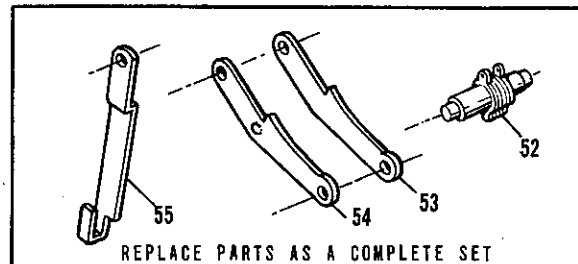
HANDLE MECHANISM ASSEMBLY

ALL MODELS

Note: Index No. 's 1 - 2 is the auxiliary anti-cheat "Handle Micro-Switch" which is normally used on games with a Replay Register. The function of this unit is to prevent a free play when collecting win credits from the Replay Register. On some games this Micro-Switch is also used to replace the "Dash-pot Switch" since the function is somewhat the same but with a faster action.



OBsolete PARTS



Note: The Handle Mechanism has recently received engineering improvements to the Full Stroke Pawl (Index #22) & the Lock Links Units (Index No. 's 35, 44 & 45). These new design changes give the Unit extra strength & a more positive locking action. These new parts are interchangeable with the older parts & are now available from the Bally Service Dept.

ORDER AS A COMPLETE SET ONLY

HANDLE MECHANISM ASSEMBLY

ALL MODELS

Index No.	Part No.	Description	No. Req.	Index No.	Part No.	Description	No. Req.
1	MSPR-00440-1108	Screw	2	27	LSPR-25020-1106	Screw	4
2	E-108-91	Micro-Switch	1	28	A-2904	Handle Bearing Assy.	1
3	LSPR-01032-1106	Screw	2	29	LSPR-01032-1105	Screw	10
4	PW-010-10	Washer	2	30	R-116	Rubber Bumper	4
5	P-7242-1	Mtg. Brkt. & Shield	1	31	P-474	Bumper Housing	4
6	P-2891-8	"E" Ring (3/8" Shaft)	2	32	LSPR-00832-1103	Screw	12
7	P-6279	Angle Mtg. Brkt.	2	33	A-203-2	Bearing Stop Plate Assy.	1
8	P-2293-6	Cup Washer	1	34	C-537-30	Nyliner	1
9	S-475-11	Sleeve Shaft	1	35	P-6535-1	Pawl (new)	1
10	SP-200-163	Compression Spring	1	36	SP-399-10	Return Spring	1
11	C-662	Sleeve	1	37	A-3060	Actuating Link Assy.	1
12	P-2293-7	Cup Washer	1	38	M-319-2	Elastic Stop Nut	1
13	S-231-665	Spacer	1	39	SP-100-1	Extension Spring	1
14	S-475-12	Shaft	1	40	P-6316-4	"E" Ring (3/16" Shaft)	2
15	P-2891-6	"E" Ring (1/4" Shaft)	2	41	S-739-192	Pin	1
16	A-3410	Rack Lock Lever & Shaft Assembly	1	42	P-801-528	Washer	2
17	LSPR-00632-1103	Screw	2	43	C-537-24	Nyliner	2
18	P-1973-243	Plate (fast pull adjustment)	1	44	A-2873-6	Lock Link Assy. (new)	1
19	P-712-2	Retaining Ring (1" true arc)	2	45	P-1972-15	Lock Link	1
20	A-3412	Latch Pawl Assy. (anti-fast pull unit)	1	46	P-2891-6	"E" Ring (1/4" Shaft)	1
21	P-2891-7	"E" Ring (5/16" Shaft)	4	47	P-800-10	Washer	1
22	AS-2766	Full Stroke Pawl Assy. (new)	1	48	P-6737	Support Link	1
				49	S-1784-3	Hex. Stud	1
				50	SP-399-21	Return Spring	1
				51	A-3059	Pivot Link Assembly	1
				52	A-182-2	Full Stroke Pawl Assy. (replaced by Index No. 22)	1
				53	P-1972-12	Lock Link (replaced by Index No. 45)	1
				54	A-2873-5	Lock Link Assy. (replaced by Index No. 44)	1
				55	P-6535	Pawl (replaced by Index No. 35)	1

Note: This super strong unit replaces index No. 52.

23	SP-100-12	Extension Spring (pawl)	1
24	A-181-1	Lock Pawl Assy.	1
25	SP-100-7	Extension Spring	1
26	A-3411	Front Plate Assembly	1

HANDLE MECHANISM SERVICE

It is the Handle Mechanism which initially receives the impact of a hard Handle pull. Because of the tough service requirements, this unit must be of the strongest construction. As a safety factor the Handle Mechanism is built to specifications ten times the necessary strength to protect the Reel Mechanism from the most aggressive player.

There have been several new developments designed to strengthen & protect the Handle Mech. First an anti-fast pull Speed Lock (note Ratchet) was added in 1970. In mid-1973 the Full Stroke Pawl & Locking Links were redesigned & strengthened. If you check the Exploded View Parts List,

you will notice that these improvements can be incorporated on Older Machines. It is also suggested that the new front, Anti-Wiring Shield be in place at all times.

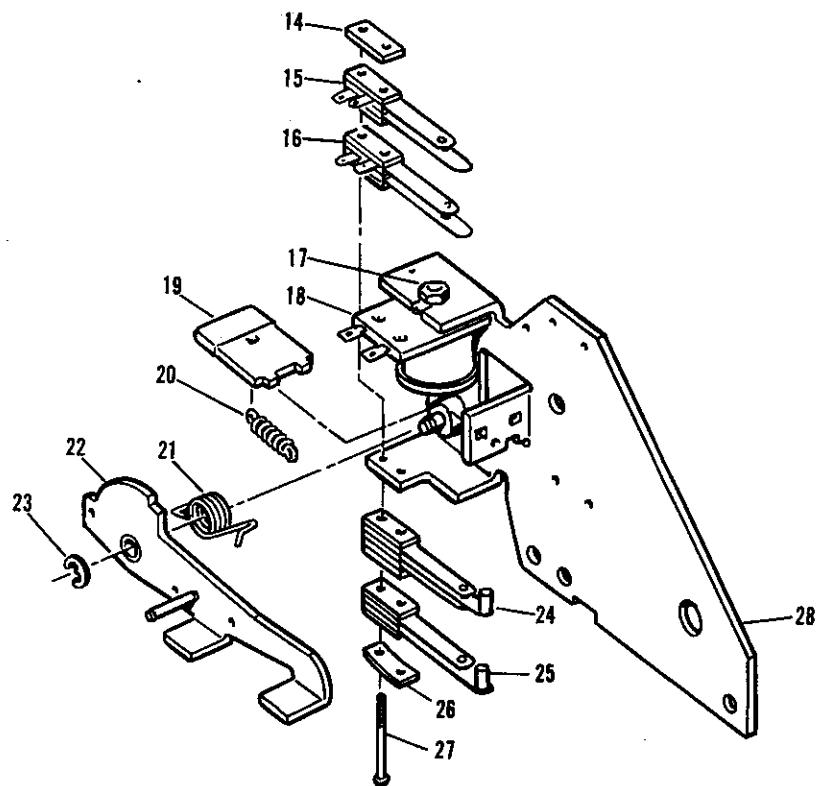
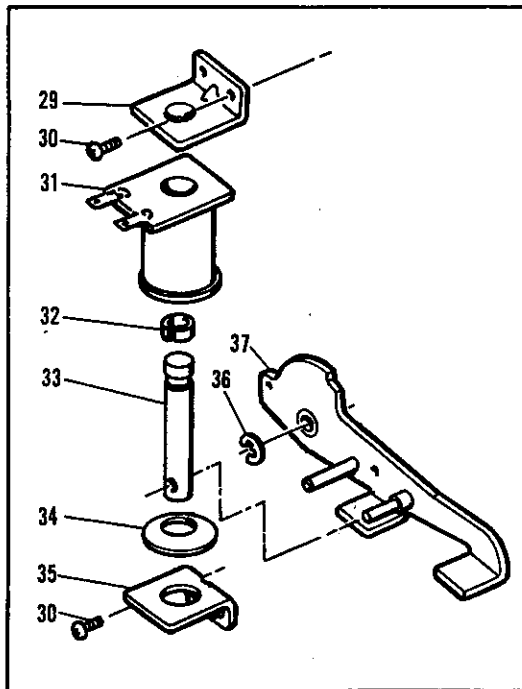
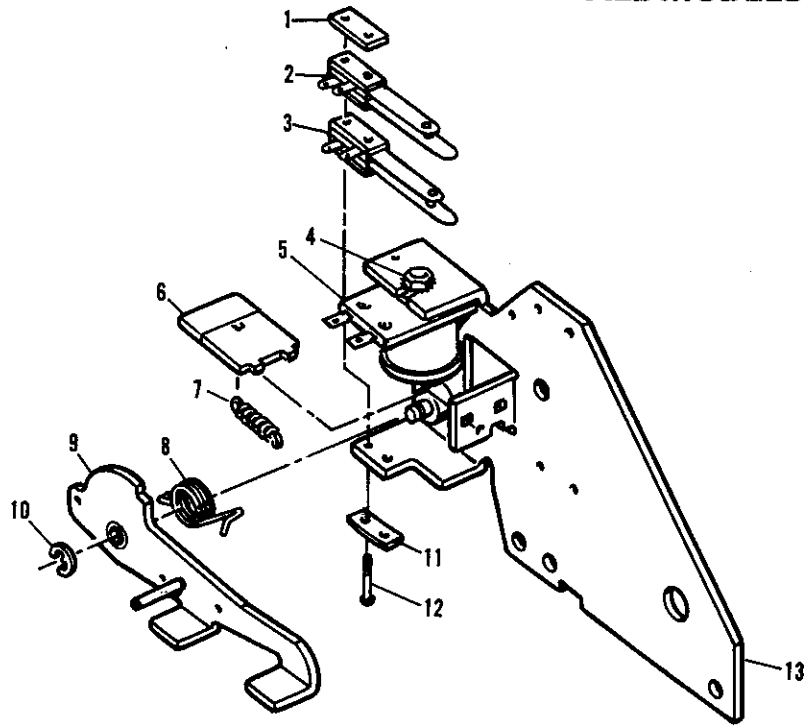
Because of the heavy duty use, the Handle Mech. should be lubricated periodically. Use our Lubriplate No. 1 Oil on the light duty pivot points & our Hydrotex Lube #651 on points of heavy stress & sliding parts.

Be sure the anti-fast pull, Speed Lock Pawl swings freely on its pivot, since it engages the Ratchet on a centrifugal force principle (do not lubricate).

ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

HANDLE LOCKOUT ASSEMBLY

ALL MODELS



ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

HANDLE LOCKOUT ASSEMBLY

ALL MODELS

Index No.	Part No.	Description	No. Reqd	Index No.	Part No.	Description	No. Reqd.
<p>Note: The top exploded view illustrates the Standard Lockout Unit used on most single coin slot machines.</p> <p>The lower right exploded view (Index No.'s 14-28) illustrates a typical unit used on most multiple coin games (no Replay Register).</p> <p>The double coil unit (Index No.'s 29-37) is used on machines using a Replay Register & Collect Button. The additional "Reset Coil" is energized (prevents the Armature Latch Arm from releasing) when a person pushes the Collect Button to collect win credits on the Replay Register. This action prevents the Handle from being released during a Replay Register payout cycle. When the register reaches zero the Reset Coil is de-energized which allows a new play cycle to be initiated. The entire purpose of this unit is to insure that all win credits are collected at one time with no intermediate play.</p>				7	SP-100-38	Extension Spring	1
				8	SP-341	Return Spring	1
				9	A-2867-5	Armature Latch Arm	1
				10	P-2891-5	Retaining Ring	1
				11	P-137-5	Spring Plate	1
				12	MSSR-00540-1112	Screw	2
				13	A-636-19	Relay Frame & Mtg. Assy.	1
				14	P-126-154	Retaining Plate	1
				15-16	ASW-Series	Switch (Specify: Handle Release & Function)	As Req.
				17	MSOD-00832-1106	Screw	1
					P-801-15	Washer (coil side)	1
				18	F-31-2100	Handle Release Coil	1
				19	A-637-5	Armature	1
				20	SP-100-38	Extension Spring	1
				21	SP-341	Return Spring	1
				22	A-2867-5	Armature Latch Arm	1
				23	P-2891-5	Retaining Ring	1
				24-25	ASW-Series	Switch	As Req.
				26	P-137-5	Spring Plate	1
				27	MSSR-00540-1120	Screw	2
				28	A-636-19	Relay Frame & Mtg. Assy.	1
				29	A-613-33	Core Plug & Brkt. Assy.	1
				30	LSPR-00832-1104	Screw	4
				31	B-27-1300	Handle Release Reset Coil	1
				32	C-342	Guide Ring	1
				33	S-496-100	Plunger	1
				34	P-1158-6	Spring Washer	1
				35	P-108-35	Coil Bracket	1
				36	P-2891-5	Retaining Ring	1
				37	A-2867-4	Armature Latch Arm	1

1	P-126-154	Retaining Plate	1
2-3	ASW-Series	Switch (Specify handle release & function)	As Req.
4	MSOD-00832-1106	Screw	1
	P-801-15	Washer (coil side)	1
5	F-31-2100	Handle Release Coil	1
6	A-637-5	Armature	1

OPERATION & SERVICE

On your Slot Machine Schematic the Handle Lockout Unit components are usually referred to as the "Handle Release Coil & Switches".

The Handle Lockout Unit is activated by a pulse from a Coin Relay Switch (via the Coin Drop's Coin Switch). At this time the energized Handle release Coil releases the Armature Latch Lever which drops in front of the Handle Mechanism's top Lock Pawl. With the Handle Mech. Lock Pawl thus engaged the Handle can now be pulled. Also at this time the Released armature latch lever has operated the Handle Release Switches whose various functions

are described in the previous Reel Mech. Function Section.

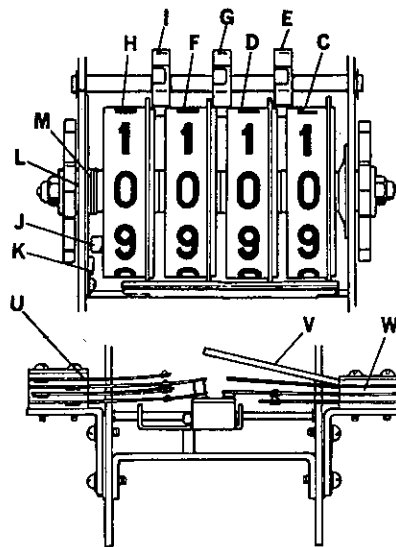
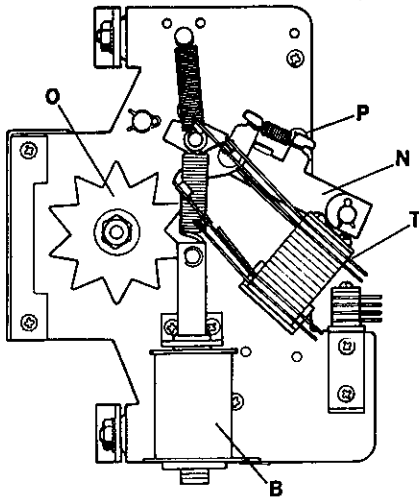
As the Handle is pulled to initiate play the Handle Mechanism's Reset Shaft mechanically resets the Armature Latch Lever just prior to the Reels kick-off & spin. At this time the Handle Lockout & Switch Units are reset & ready for another play cycle.

The Lockout Unit needs very little service except for occasional switch cleaning and spring, coil and latch inspection.

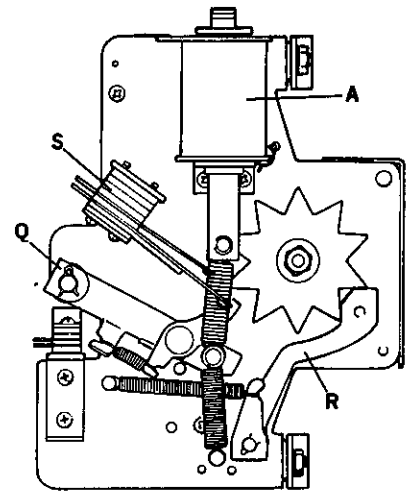
ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

REPLAY REGISTER ADJUSTMENT

RIGHT SIDE



LEFT SIDE



The following information is a general function & trouble shooting guide for the Replay Register Unit.

1. General Part Identification & Function Reference.

- A. Step-Up Coil (#A-27-1400 - Old No.: E-184-207, interchangeable)
- B. Subtract Coil (#A-27-1100 - Old No.: E-184-56A, interchangeable)
- C. Wheel No. 1 - Right Side (#C-339-2B) is keyed on the Shaft.
- D. Wheel No. 2 - Center (#C-339-1B) is actuated by Wheel No. 1 & Pinion "E" (#C-175-5A)
- F. Wheel No. 3 - Center (#C-339-1B) is actuated by Wheel No. 2 & Pinion "G".
- H. Wheel No. 4 - Left (#C-339B) is actuated by wheel No. 3 & Pinion "T".

(Note: Inspect Stud "J" on Wheel No. 4 & Stop "K" for any damage - This can cause run-overs)

- L. #P-801-157B Washer.
- M. The four Reels should have little lateral movement. Looseness can cause Reel skipping & failure to center under fast operation. The following Shim Washers are installed on the left side for proper Reel control: #P-801-351B (.031, Thickness) & #P-801-157B (.042 Thickness). Generally a combination of Three Washers are used.
- N. Actuator Arm (Subtract). This Arm should be centered on the Ratchet "O" & operate freely & smoothly. Slow or sporadic reel action indicates the Arm is not engaging the

Ratchet or is binding. A light Grease should also be applied to the sliding & rotating parts.

- P. See that the Screw (#6-32 x 3/16" Lg. Binder Hd. Screw) is not interfering with the Actuator Arm.
- Q. Actuator Arm (Add). This Arm should operate freely & be centered on the Ratchet "O". Slow or sporadic Reel action means the Arm is not fully engaging the Ratchet or is binding. A light grease should also be applied to the sliding & rotating parts.
- R. Index Hold Pawl. This Arm keeps the unit operating one digit at a time. The Arm should operate freely & be centered on the Ratchet "O". Multiple digit fast operation, skipping & failure of the First Reel to center can mean the Pawl Arm is not engaging the Ratchet.
- S. This Switch is installed on some units as a special counter circuit in conjunction with an auxilliary meter.
- T. This Switch is installed on some units as a special Hopper Payout Safety Timer Circuit & Game Cut-Off.
- U. Zero & Coin Circuit Switch. If this Switch is binding it can cause the Unit to have an inability to reset to Zero.
- V. Watch for any interference of this Guard Plate on any of the rear Switches. Keep it bent up to prevent any binding.
- W. Coin Lockout Switch. If this Switch is binding it can cause an uncontrolled clattering of the Unit & an inability to reset to zero.

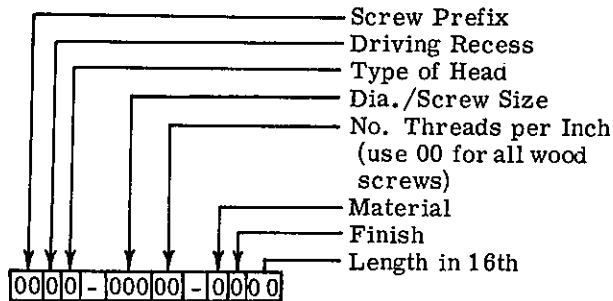
SCREWS & FASTENERS

the new computerized hardware procurement, inventory & assembly system, the part numbers for all screws, bolts, washers, nuts etc. had to be changed. Although the old part numbers used the easily un-

derstood American standard system it could not be used in the complex computer card system. The following conversion tables will give you the data on how the new computerized hardware system is made up.

SCREWS & BOLTS

Screws & bolts are now described by a 13 letter group. This is the set-up:



CODE	SCREW PREFIX
CB	Carriage Bolt
CP	Set Screw - Cup Pt.
CS	Cap Screw
FP	Set Screw - Flat Pt.
KP	Set Screw - Knurled
LS	Mach. Screw w/Lock Wash.
MF	Mach. Thd. - Type F
MS	Mach. Screw
PC	Set Screw - Cone Pt.
RL	Rolok Screw
SA	Sheet Metal - Type A
SB	Sheet Metal - Type B
SF	Swage Form
SL	Sheet Metal - Type L
SW	Mach. Thd. Scr. Type 23
SY	Sheet Metal - Type 25
SZ	Sheet Metal Type Z
WP	Set Screw - W Point
WQ	Wood Screw - Type 17
WS	Wood Screw
LS	Mach. Scr.

CODE	DRIVING RECESS
O	None
A	Allen
P*	Phillips
S	Slotted
H	Holt
*Pozi	can be sub. for Phillips in Europe

Code	Type of Head
A	Washer Hd. - Round
B	Binding Hd.
C	Washer Hd. - Hex
D	Hex Hd. - Indent
E	Knurled Cap. Hd.
F	Flat Hd.
H	Hex Hd.
L	Fillister Hd.
O	None
P	Pan Hd.
R	Round Hd.
T	Truss Hd.
U	Binding Hd. - Undercut
Z	Oval Hd.

CODE	Diameter or Screw Size
002	2
003	3
004	4
005	5
006	6
008	8
010	10
250	1/4
312	5/16
375	3/8
437	7/16
500	1/2

No. of Threads per Inch
13
14
16
18
20
24
28
32
36
40
48
56

Code	Material
1	Steel
2	Brass
3	Stainless Steel
4	Aluminum
5	Plastic
6	Nylon

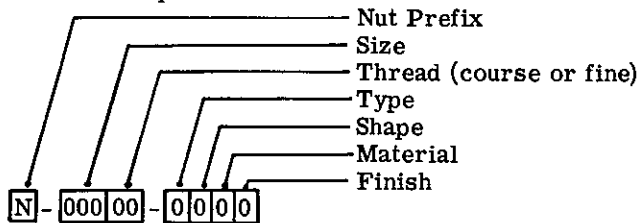
SCREWS & BOLTS

Code	Finish
0	None
1	Zinc
2	Cad Plate
3	Nickel
4	Chromium
5	Zinc Waxed
6	Nickel Waxed
7	Blued
8	Black Oxide
9	Waxed

Code	Length
02	1/8
03	3/16
04	1/4
05	5/16
06	3/8
07	7/16
08	1/2
09	9/16
10	5/8
11	11/16
12	3/4
13	13/16
14	7/8
15	15/16
16	1 Inch
etc	etc

NUTS

Nuts are now described by a 10 letter group. This is the set-Up:

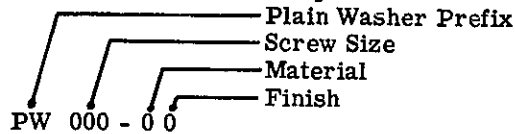


SIZE: Std. Dim. of Mach. Scr. Nuts					
Code	Size	Course Thread	Fine Thread	Width Across Flats	Thickness
002	2	56	64	3/16	1/16
003	3	48	56	3/16	1/16
004	4	36		1/4	3/32
004	4	40	48	1/4	3/32
005	5	40	44	5/16	7/64
006	6	32	40	5/16	7/64
008	8	32	36	11/32	1/8
010	10	24	32	3/8	1/8
012	12	24	28	7/16	5/32
250	1/4	20	28	7/16	3/16
312	5/6	18	24	9/16	7/32
375	3/8	16	24	5/8	1/4

Code	Type	Shape	Material	Finish
0	No chamfer			None
1	Sgle. "	Hex	Steel	Cadium
2	Dbl. "	Square	Brass	Zinc
3	Jam		Stainless Steel	Nickel
4	Slotted			Chromium
5				Copper
6				Tin
7				Blued
8				Black Oxide
9				Lacquered

WASHERS

Plain Washers now are described by a 7 letter group. This is the set-up:



Code	Inside Dia.	Outside Dia.	Thickness	Screw & Bolt Size
002	3/32	1/4	1/32	2
003	7/64	1/4	1/32	3
004	1/8	9/32	1/32	4
005	9/64	3/8	1/32	5
006	5/32	3/8	1/32	6
008	11/64	3/8	1/32	8
010	13/64	7/16	1/32	10
012	7/32	1/2	3/64	12
250	17/64	9/16	3/64	1/4
312	21/64	3/4	1/16	5/16
375	25/64	7/8	1/16	3/8
437	1/2	1-1/4	5/64	7/16
500	9/16	1-3/8	7/64	1/2

Code	Material	Finish
0		None
1	Steel	Cadmium
2	Brass	Zinc
3		Nickel
4		Chromium
5		Copper
6		Tin
7		Blued
8		Black Oxide
9		Lacquered

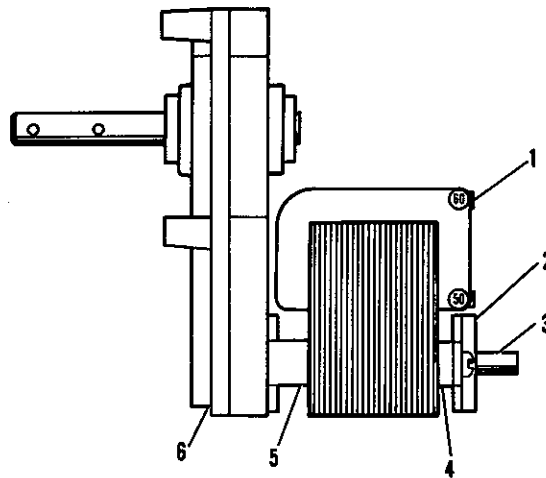
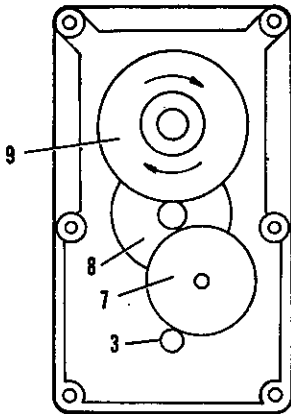
NEW COIL NUMBERS

This Conversion Chart shows Bally's new computerized Coil Part Numbers. This list covers all Coils in current use.

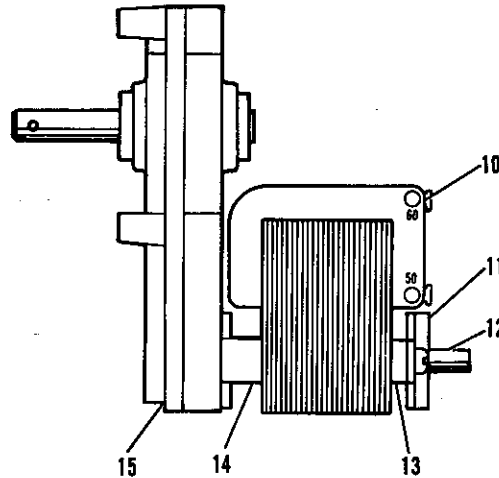
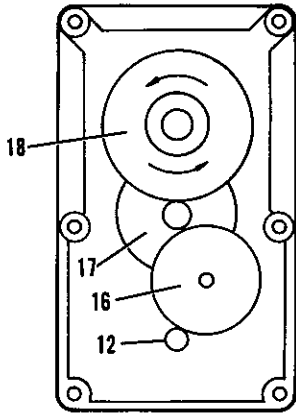
Old Coil Number	New Bally Coil Number	Old Coil Number	New Bally Coil Number
CO-25A-7	A-25-1050	E-184-213	A-27-1300
CO-25GG-7	B-25-925	E-184-218	F-31-1500
CO-25H-7	BC-25-925	E-184-224	F-31-2100
CO-26A-9	A-26-1100	E-184-225	G-31-1500
CO-26GG-9	B-26-1100	E-184-231	CA-29800-900
CO-27R-11	C-27-1000	E-184-235	AK-25-1050
CO-28R-15	C-28-1100	E-184-236	J-28-1100
CO-28ZZ-15	CF-28-1100	E-184-237	BA-26-1040
E-184-41	BF-27-1250	E-184-241	AF-25600-1000
E-184-46	EA-30-1150	E-184-243	A-26-1200
E-184-47	EA-32-1550	E-184-248	FC-30-1300
E-184-55	B-29-1200	E-184-249	BF-28-1500
E-184-56	A-27-1100	E-184-250	D-30-700
E-184-74	CF-28-1025	E-184-252	BB-26655-1245
E-184-75	E-32-1700	E-184-254	FC-30-1400
E-184-112	EA-29-950	E-184-257	AP-25-1050
E-184-121	B-25-750	E-184-260	B-28-1600
E-184-130	EB-35-3200	E-184-261	AP-31-3000
E-184-135	BA-25-925	E-184-262	A-26-1200
E-184-137	AP-26-1200	E-184-263	AF-27775-861
E-184-149	B-30-2645	E-184-264	A-28-1900
E-184-155	D-27-425	E-184-265	AF-25600-1000
E-184-156	D-28-500	E-184-266	D-29-675
E-184-160	B-25-750	E-184-267	L-24-875
E-184-175	AP-27-1300	E-184-268	AF-26750-800
E-184-180	CE-33-4800	E-184-269	FC-33-2600
E-184-190	AF-25600-1000	E-184-270	AB-31-3000
E-184-204	AF-27100-1300	E-184-271	AK-24-750
E-184-205	B-27-1300	E-184-272	A-25-1000
E-184-206	CD-29-1600	E-184-274	FC-32-2100
E-184-207	A-27-1400	E-101-58	AS-2517-14a
E-184-212	A-31-3000	E-101-72	AS-2517-1a

ELECTRIC MOTOR PARTS GUIDE

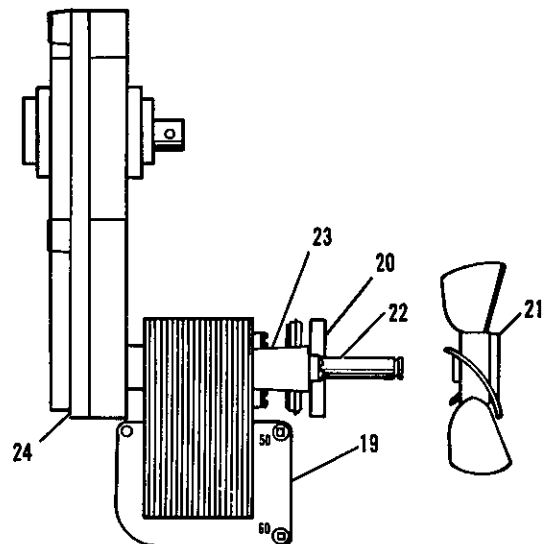
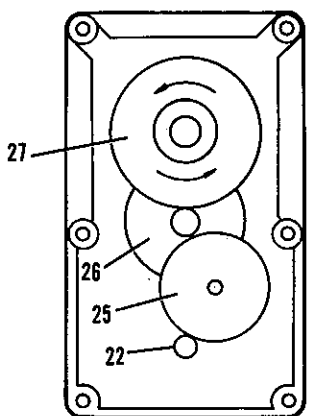
STD. HOPPER MOTOR, #E-119-344



DIRECT DRIVE HOPPER MOTOR, #E-119-394



REEL MECH.DRIVE MOTOR, #119-360



ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

ELECTRIC MOTOR PARTS GUIDE

Index No.	Part No.	Description	No. Req.	Index No.	Part No.	Description	No. Req.
1	AS3-6020-1	Stator & Coil Assy. . .	1	15	GC3-6020-2	Transmission Unit Assy.	1
2	ABB-1010-00	Bearing & Brkt. Assy.	1	Note: Index No.'s 16-18 are component parts of Index No. 15.			
3	AR3-6020-1	Rotor & Gear Shaft Unit	1	16	V-6312-20	Gear	1
4	W-1016-09	Spacer (rotor shaft) . .	1	17	V-6712-30	Gear	1
5	W-1016-15	Spacer (rotor shaft) . .	2	18	VS3-6020-2	Output Gear & Drive Shaft	1
6	GC3-6020-1	Transmission Unit Assy.	1	19	AS3-5030-2	Stator & Coil Assy. . .	1
Note: Index No.'s 7-9 are component parts of Index No. 6				20	ABB-1013-01	Bearing & Brkt. Assy.	1
7	V-6312-20	Gear	1	21	F-1010-01	Fan	1
8	V-6712-30	Gear	1	22	AR3-5030-2	Rotor & Gear Shaft . .	1
9	VS3-6020-1	Output Gear & Drive Shaft	1	23	J-1012-120	Rotor Shaft Braking Spring	1
10	AS3-6020-2	Stator & Coil Assy. . .	1		W-1016-15	Spacer	3
11	ABB-1010-00	Bearing & Brkt. Assy.	1	24	GC3-5030-2	Transmission Unit Assy.	1
12	AR3-6020-2	Rotor & Gear Shaft . .	1	Note: Index No.'s 25-27 are component parts of Index No. 24.			
13	W-1016-12	Spacer (rotor shaft) . .	1	25	V-6316	Gear	1
14	W-1016-15	Spacer (rotor shaft) . .	2	26	V-6313	Gear	1
				27	VS3-5030-1	Output Gear & Drive Shaft	1

Note: The individual transmission gears & motor parts in the Molon & Bally O. E. M. Units are interchangeable.

It should also be noted that when the sealed (riveted) transmission cases are opened the 6 month guarantee is no longer valid.

ALWAYS GIVE MODEL AND PART NO. WHEN ORDERING SERVICE PARTS

LUBRICATION GUIDE

HOPPER PAYOUT ASSEMBLY

	Lubriplate #1 Oil	Heavy Duty Hyrotex Lube #651
(A) PAYOUT HOPPER UNIT		
1. Teeth of all drive gears.		X
2. Oil hole in housing support.	X	
3. Point on pivot arm assembly that connects with step-up arm of payout counter unit.		X
4. Stud of roller on pivot arm assembly.	X	
5. Pivot pin on pivot arm assembly.		X
6. Override solenoid plunger.		X
7. Spring stud and shoulder bushing of coin kicker assembly.		X
8. Pivot of coin kicker assembly.		X
(B) PAYOUT COUNTER ASSEMBLY		
1. Contact plate segments.	None	
2. Ratchet shaft.	X	
3. Reset pawl pivot points.	X	
4. Step-up arm pivot points.	X	
5. Step-up pawl.		X
6. Slots of carriage assembly that travel on studs on contact plate.		X
7. "O" switch arm pivot.	X	
8. Pivot of step-up arm and connecting link.		X

HANDLE MECHANISM ASSEMBLY

1. Oil hole in handle shaft bearing (left).	X	
2. Between ratchet bearing and side plate (right).	X	
3. On teeth of rack lock lever assembly.		X
4. On sleeve shaft.		X
5. On guide spring shaft.		X
6. On point where lock lever engages rack lock lever.		X
7. On both ends of shaft of lock pawl assembly that come thru bushings in side plates.		X
8. On both ends of shaft of full stroke pawl assembly that come thru bushings in side plates.		X
9. On point where full stroke assembly engages rack lock lever.		X
10. On shaft of full stroke pawl where anti-cheat bar rotates.		X
11. On ear of anti-cheat bar where it contacts full stroke pawl assembly.		X

REEL MECHANISM ASSEMBLY

(A) CLOCK ASSEMBLY		
1. All pinions and gears (1-drop)	X	
2. Points where shafts come thru (1-drop) Cover and Base Assemblies	X	
(B) COIN RELAY ASSEMBLY		
1. Point where armature latch assembly latches to armature.		X
2. Points (2) where armature is staked to relay frame.		X
(C) REEL ASSEMBLY		
1. Oil hole in bearing and hub assembly.	X	
(D) TIMER SHAFT ASSEMBLY		
1. On shaft where it rotates in bushing of right side plate.		X
2. On shaft where timer idler levers rotate.		X
3. On bushing of timer lever where timer link connects.		X
4. On spring studs where latch links connect.		X

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REEL MECHANISM ASSEMBLY

	Lubriplate #1 Oil	Heavy Duty Hyrotex Lube #651
(E) TRIP SHAFT ASSEMBLY		
1. On shaft where it rotates in bushings on left and right side plates.		X
2. On shaft where toggle and link assemblies rotate.		X
3. On spring studs of crank levers where drive link connects.		X
(F) INDEX LEVER AND WIPER ASSEMBLIES		
1. On index lever pins and roller pins of index lever arms.		X
2. On index levers where they fall into selector base.		X
3. On all wipers - 1 drop only. Use LB-550X.		
(G) 3RD REEL VARIATOR (TIMER LINK ASSEMBLY)		
1. On inside of timer ratchet and stud assembly.		X
(H) CONNECTING ROD AND OPERATING LEVER ASSEMBLY		
1. On pin that connects connecting rod assembly to universal coupling.		X
2. On universal coupling where it rotates in trip operating lever.		X
3. On stud connecting trip pawl to trip operating lever assembly.		X
4. On trip pawl where it contacts trip lever assembly.		X
5. On connecting rod.		X
(I) LEFT SIDE OF REEL MECHANISM		
1. On stud of switch operating lever where reset link connects.		X
2. On reset link where it travels on stud in left side plate.		X
3. On timer link where it travels on stud of switch operating lever.		X
4. Pin on left side plate that holds ratchet arm and ratchet.		X
(J) RIGHT SIDE OF REEL MECHANISM		
1. In teeth of both gear assemblies.		X
2. In roller on gear assembly.	X	
3. In roller of trip lever assembly.	X	
4. On trip lever assembly where it is actuated by trip pawl.		X
5. On pin that connects air cylinder link to trip operating lever.		X
6. On shaft going thru trip operating lever.		X
7. In pin hole at back of air cylinder.	X	
8. On pin between connecting rod and gear assembly.		X
9. In air cylinder when piston is fully in.		X
(K) REEL MECHANISM - GENERAL		
1. Slots of selector base where the index levers travel.		X
2. On index lever shaft where the index levers and driving levers rotate.		X
3. On the spring studs of driving levers and slots of drive links.		X
4. On pins that connect toggle links to index levers and toggle levers.		X
5. On shaft where latch pawls rotate.		X
6. On latch pawls where they latch to toggle levers.		X
7. In slots of latch links that travel on spring studs of latch pawls.		X
8. Shafts on (2) gear assemblies.		X

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REEL MECHANISM ASSEMBLY

(L) HOLD AND DRAW MECHANISM	Heavy Duty Hyrotex Lube
1. Switch Actuator Slide	X
2. Reset Slide & Stud Assy.	X
3. At all three Reel Lock Assy.'s (A-187) & the three Latch Arm Assemblies (A-188).	X

NOTES