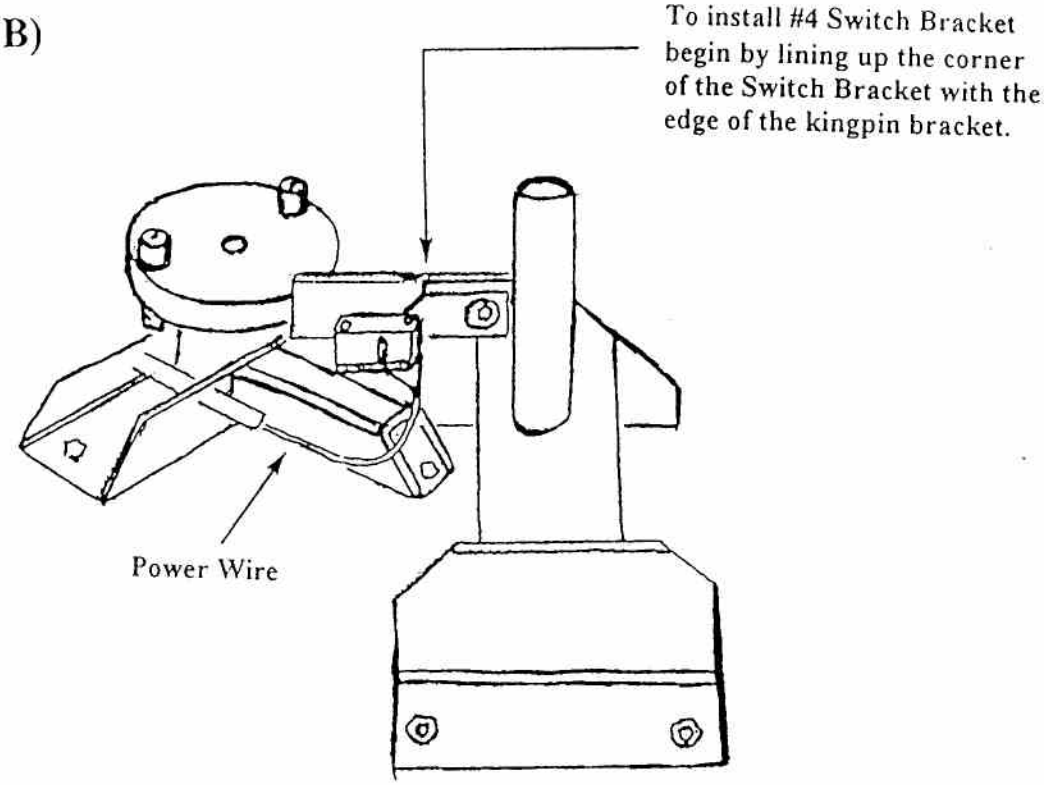
ADJUSTING THE #4 SWITCH
(New Roller Switch Style)

(Diagram 25B)



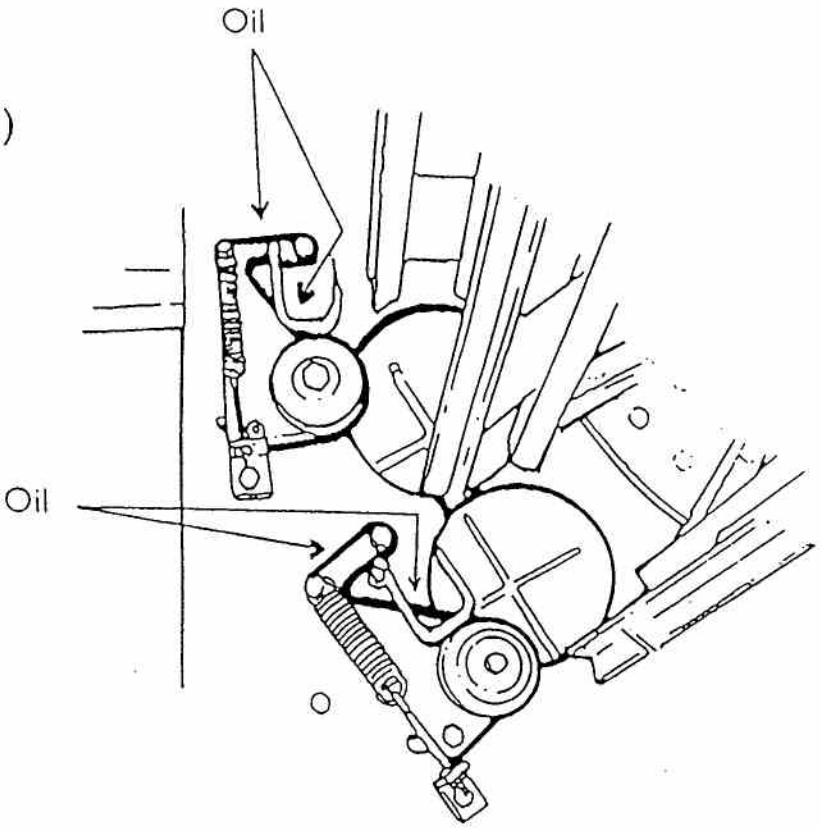
Turn the power off to the machine. Disconnect the power wires to the roller switch. Use an ohm meter (or continuity tester) to check when the switch is activated. Rotate the pinion wheel by turning the clutch by hand. The gap between the end of the plastic and the notch in the pinion wheel *must be* 1/8" when the switch is activated (when the switch closes). Use a 1/8" hex key as a feeler gauge to set the gap. See Diagram 26.

Slide the switch bracket *toward* the pinion wheel to close the gap; slide *away* from the pinion to open the gap. If there is not enough slot to adjust for the 1/8" gap, the bracket can be bent: bend *IN* toward the flat spring to close the gap. Bend *AWAY* from the flat spring to open the gap.

NOTE: **You can hear this switch "click" when it closes while setting the 1/8" gap.**

ROLLER PLATE MAINTENANCE

(Diagram 20)



PROBLEM:

1. Dropping Doubles while in Singles mode.
2. Breaking Targets

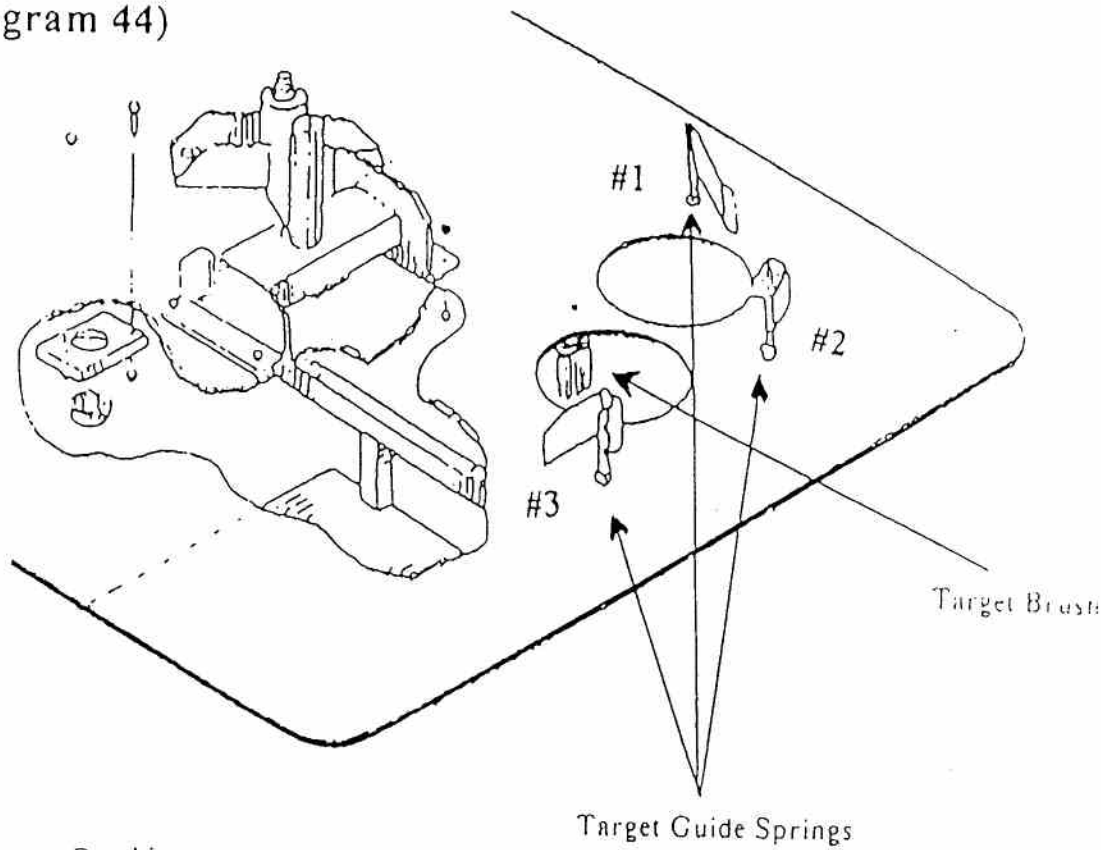
SOLUTION:

Place a ***few*** drops of light oil under the top edges of the roller plate. Be sure to inspect the roller plates every three weeks by pulling back and forth on the wheel to see that they slide smoothly. Any excessive oil will drop down onto the throw arm and brake causing the machine to cycle.

DO NOT USE sprays such as RemOil, WD-40 or other such oils as they may dissolve the clay target dust. Super Lube is okay.

TARGET BRUSH
MAINTENANCE

(Diagram 44)



PROBLEM:

1. Breaking targets
2. Targets being thrown further to the right

SOLUTION:

It may be time to change the target brush. When the target brush becomes worn out, the target can be bumped ahead *and/or* slide down the throw plate. This can cause either the target to break or be thrown further to the right.

PURPOSE:

The purpose of the target brush is to hold the target against the throw arm when the throw arm advances to the cocked position.

MAINTENANCE:

When the brush begins to "flair out", loosen the screw and turn the brush 180 degrees The brush(s) needs to be aligned within it's slot. Replace the brush when needed

COLD WEATHER ADJUSTMENT
TEMPERATURE/RELEASE TIME

In very cold weather, the pump motor should be turned on one-half to one hour ***before*** operating time to warm up the hydraulic oil. If the On/Off/Release switch is turned on too soon, the machine will keep cycling.

Extreme temperature changes may affect the stopping position of the throw arm. Very cold temperature may cause the machine to keep cycling by itself. Very warm weather may stop the throw arm too soon and cause slow pulls. Refer to the figure of the throw arm brake assembly for proper stopping position of the throw arm. See Diagram 32.

ADJUSTING RELEASE TIME & CORRECTION OF CYCLING PROBLEM

There are two switches on the left side of the trap machine which are mounted on a bracket. With a hex key, loosen the set screw. Move the switch bracket by increments of 1/16" to the left (toward the front of the trap house) to ***stop*** cycling --- or lengthen the throw time. To ***shorten*** the throw time, move the switch bracket to the right --- toward the back of the trap house. See Diagram 27. For proper stopping position of the throw arm on the brake, please refer to Diagram 35.

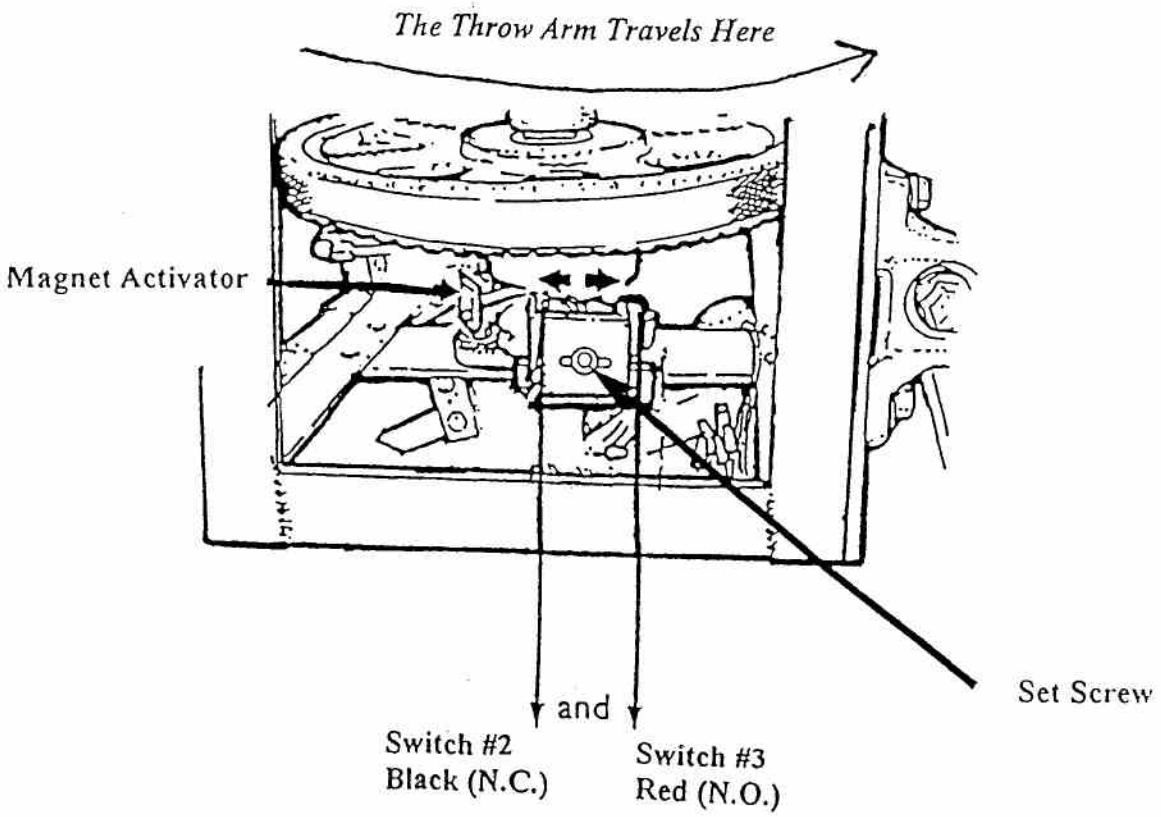
CAUTION

When the machine is turned ON the throw arm will travel forward to the cocked position through the danger zone.

When the throw arm is FIRED, the arm will travel through the indicated danger area.

The throw arm can be fired by pushing the pullcord button. It can also be fired by hand, by pushing the arm forward off the brake when the machine is either ON *or* OFF.

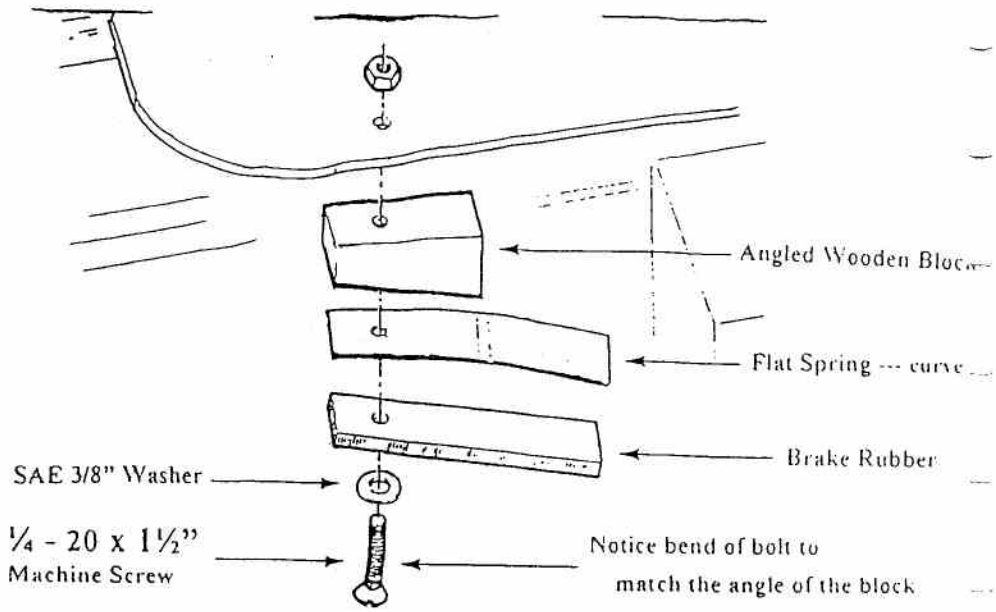
DANGER



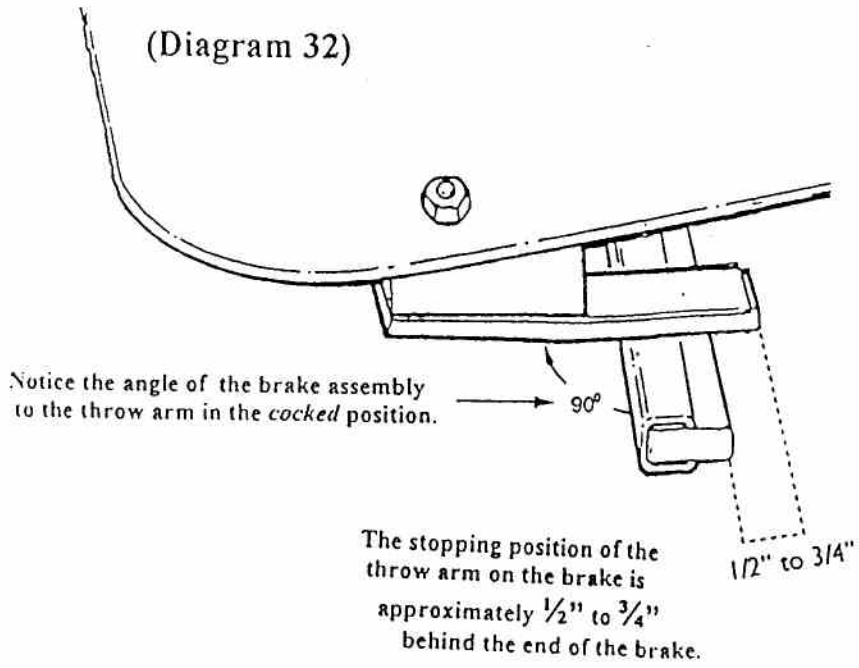
(Diagram 27)

ASSEMBLY
OF
THROW ARM BRAKE

(Diagram 31)



(Diagram 32)



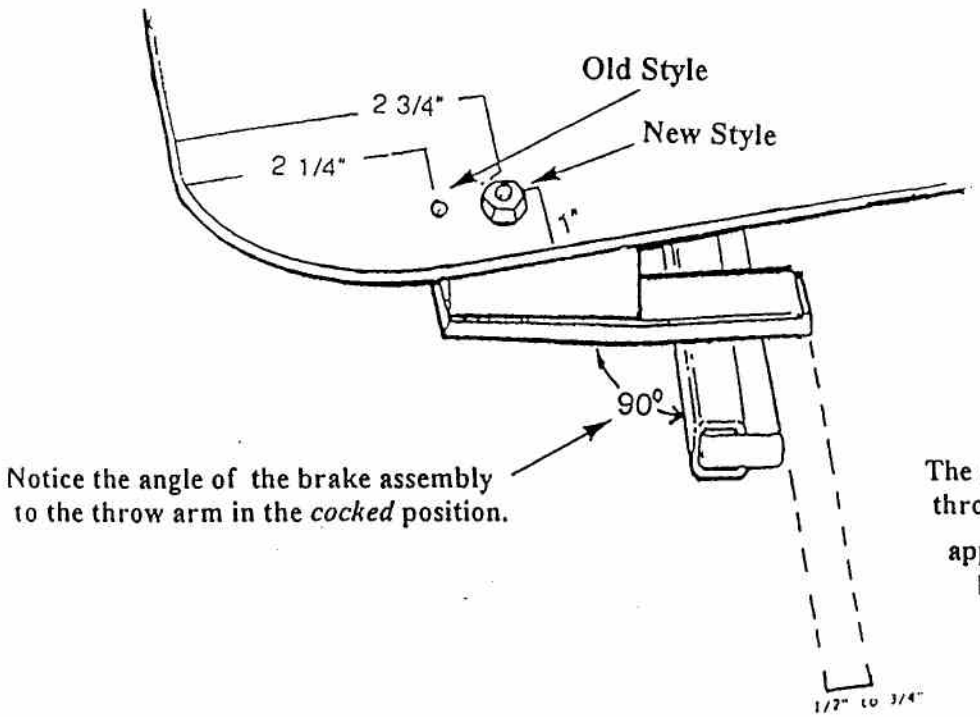
Keep surfaces dry where the throw arm contacts the brake rubber.
Replace the brake rubber when it begins to wear out.

THROW ARM BRAKE INSTALLATION

NOTE: Proper installation of your throw arm brake depends upon the style of the throw arm being installed. The "new style" throw arm rubber is ½" further ahead than the "old style". You may need to drill a new hole. Please refer to the diagram below.

1. Stand back from the machine. Release the target and turn off the machine.
2. Remove the brake assembly.
3. Measure the placement of the hole, if necessary. Drill a new hole using a ¼" drill bit.
4. Install the brake assembly.

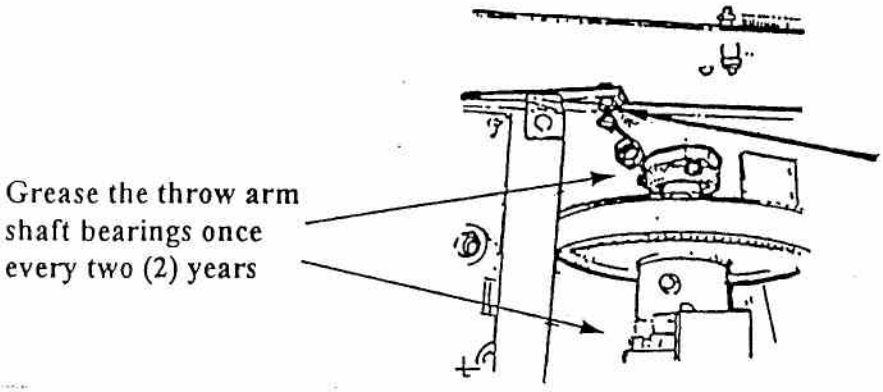
(Diagram 35)



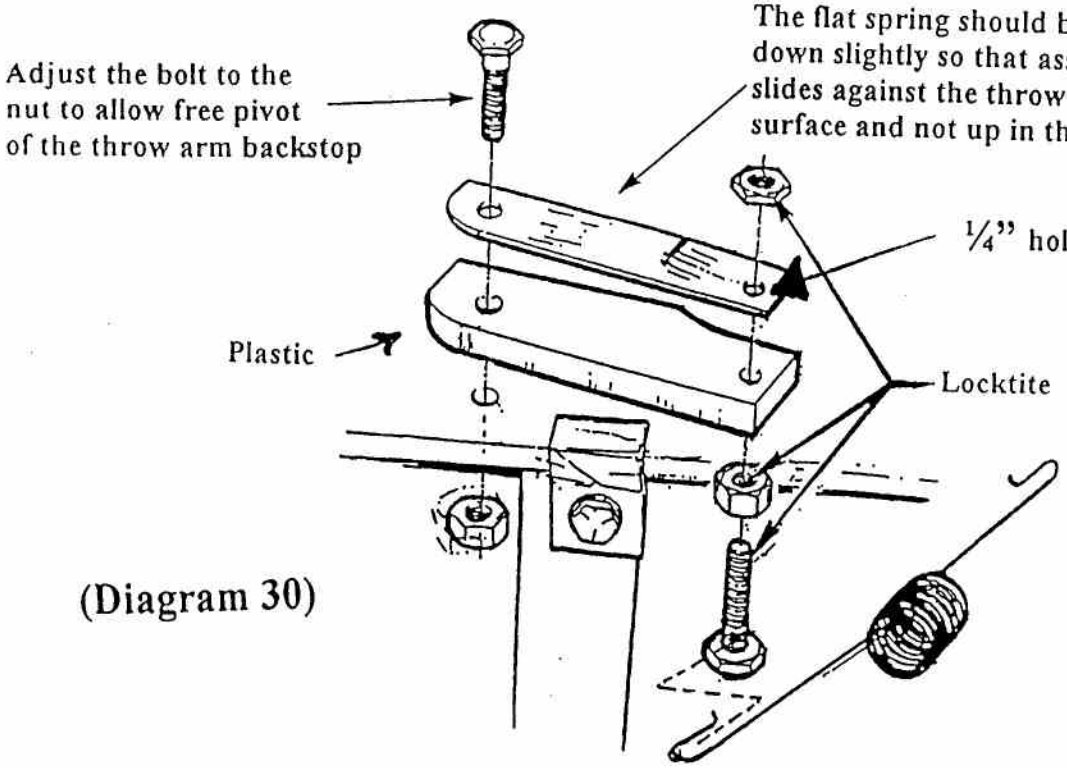
MAINTENANCE

Keep surfaces dry where the throw arm contacts the brake rubber.
Replace the brake rubber when it begins to wear out.

THROW ARM BACKSTOP



(Diagram 29)



(Diagram 30)

If you are only replacing the "plastic", align the flat spring so that it is 1/16" inside the edge of the plastic. Use a vise grip to clamp the two together onto the throw plate and drill with a ¼" drill bit.

When assembling the throw arm backstop, LOCKTITE glue must be used as pictured above. See Diagram 30

The purpose of the throw arm backstop is to minimize the cycle-time for the loading of targets for SINGLES.

INSTALLATION
OF
THROW ARM

1. Release the throw arm. ***Never*** **attempt to work on your machine while it is in the cocked position.**

2. Turn off the machine and "drop" the machine to the lowest elevation for easier working conditions.

3. Disconnect the main spring ***before*** working with the throw arm. Refer to page 34 for guidelines to disconnect the main spring.

With the main spring disconnected, check to see that the height of the bottom of the throw arm rubber is ½" above the throw plate. (This measurement allows for 1/32" clearance between the lip of the target and the throw arm rubber.) Set a target on the throw plate against the throw arm and check the clearance between the two. The best place to check this is the area where the target leaves the throw plate. The nut on the throw arm can be torqued a maximum of 15 ft/lbs.

Check to see that the throw arm has clearance where it passes by the "doubles" finger. If necessary, the "doubles" finger can be bent down using a pair of water pump pliers. A screwdriver can be used between the "doubles" finger and the throw plate to pry it up.

INSTALLATION
of the
"X" DOUBLES FINGER

1. Release the throw arm and turn off the machine.

2. Remove the old Doubles Finger and replace with the "X" Doubles Finger.

3. Set the "X" Doubles Finger so that the right-hand end measurers 7/8" up from the bottom edge of the throw plate. Tighten the bolt. This is the approximate position of the Doubles Finger for level double targets. See Diagram 34.

4. Loosen the nut on the Singles Finger and move the Singles Finger downwards so that the right-hand tip of the Singles Finger measures 4 3/8" from the left-hand end of the "X" Doubles Finger. When tightening the nut, hold back on the Singles Finger so that it does not rotate upwards.

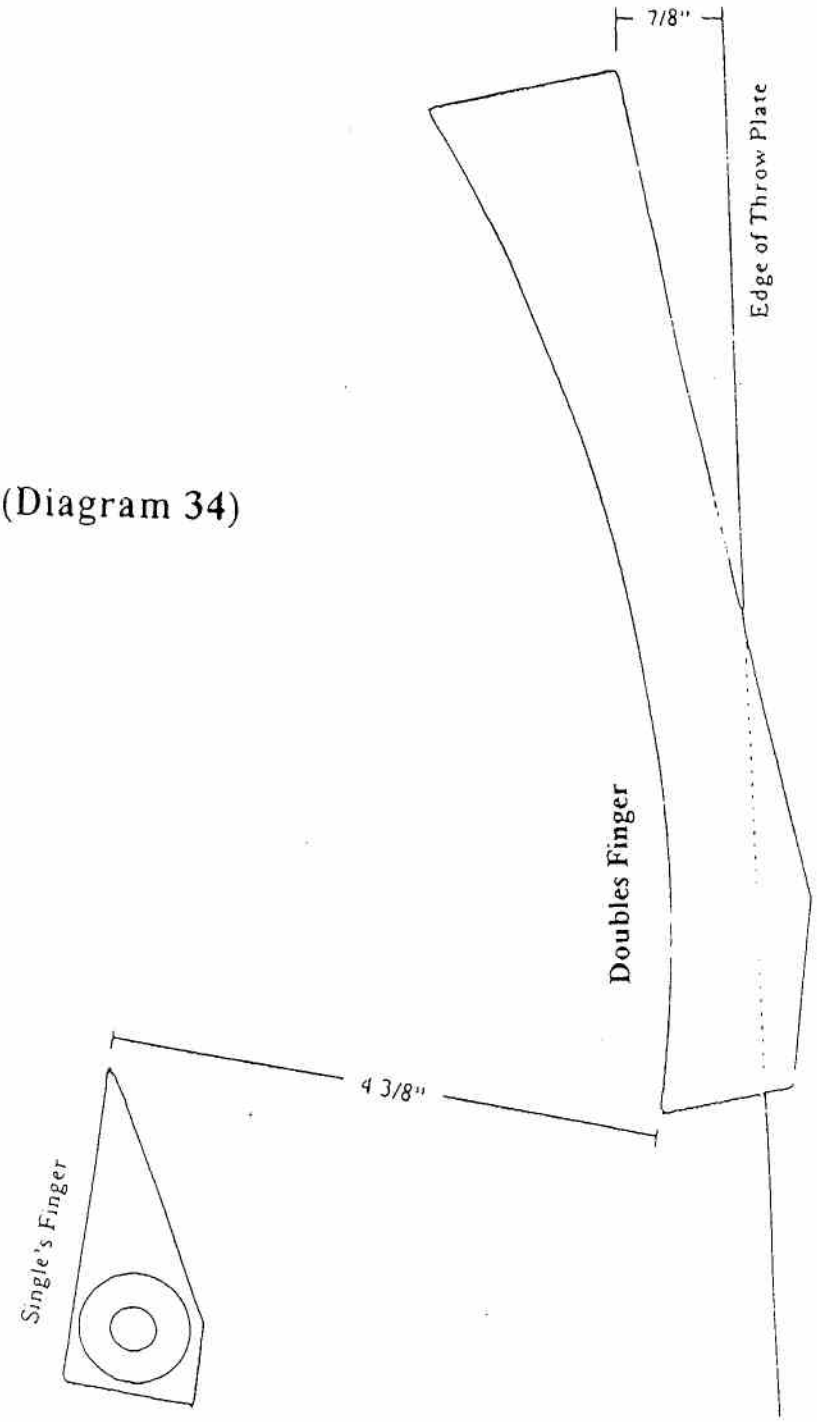
5. Check to see that the throw arm clears the "X" Doubles Finger.

    A. Reduce the main spring tension --- unwind the crank handle
    B. Disconnect the main spring --- see page 34
    C. Move the throw arm manually past the brake and through the area of the "Doubles Finger" to check clearance. Water-pump pliers can be used if the Doubles Finger needs to be bent downwards. A long screwdriver can be used if the "Doubles Finger" needs to be pried upwards.

Presuming the machine is sitting on a level platform, with no wind; these directions should yield a level pair of DOUBLES.

DOUBLES
"X"
FINGER

(Diagram 34)



DISCONNECTING
THE
MAIN SPRING

RELEASE THE TARGET <u>BEFORE</u> ENTERING THE TRAP HOUSE. NEVER ATTEMPT TO MAKE ANY ADJUSTMENT WHEN THE ARM IS COCKED. NEVER STAND IN FRONT OF A COCKED TRAP MACHINE.

1. Release the throw arm and turn off the machine.

2. Reduce the main spring tension (unwind the crank handle).

3. Move the throw arm forward (by hand) to the throw arm brake.

4. Loop a cord or rope around the end of the throw arm. While holding tension on the cord, against the throw arm, ***slowly*** guide the throw arm around to the front of the machine. Be aware that the throw arm is being pulled by the main spring as soon as the throw arm goes past the brake. A pair of gloves is recommended to prevent the cord from slipping through your hands. Remove the cord when finished. The intention here is to move the arm to opposite the cocked position; which is the short point of the throw (or neutral).

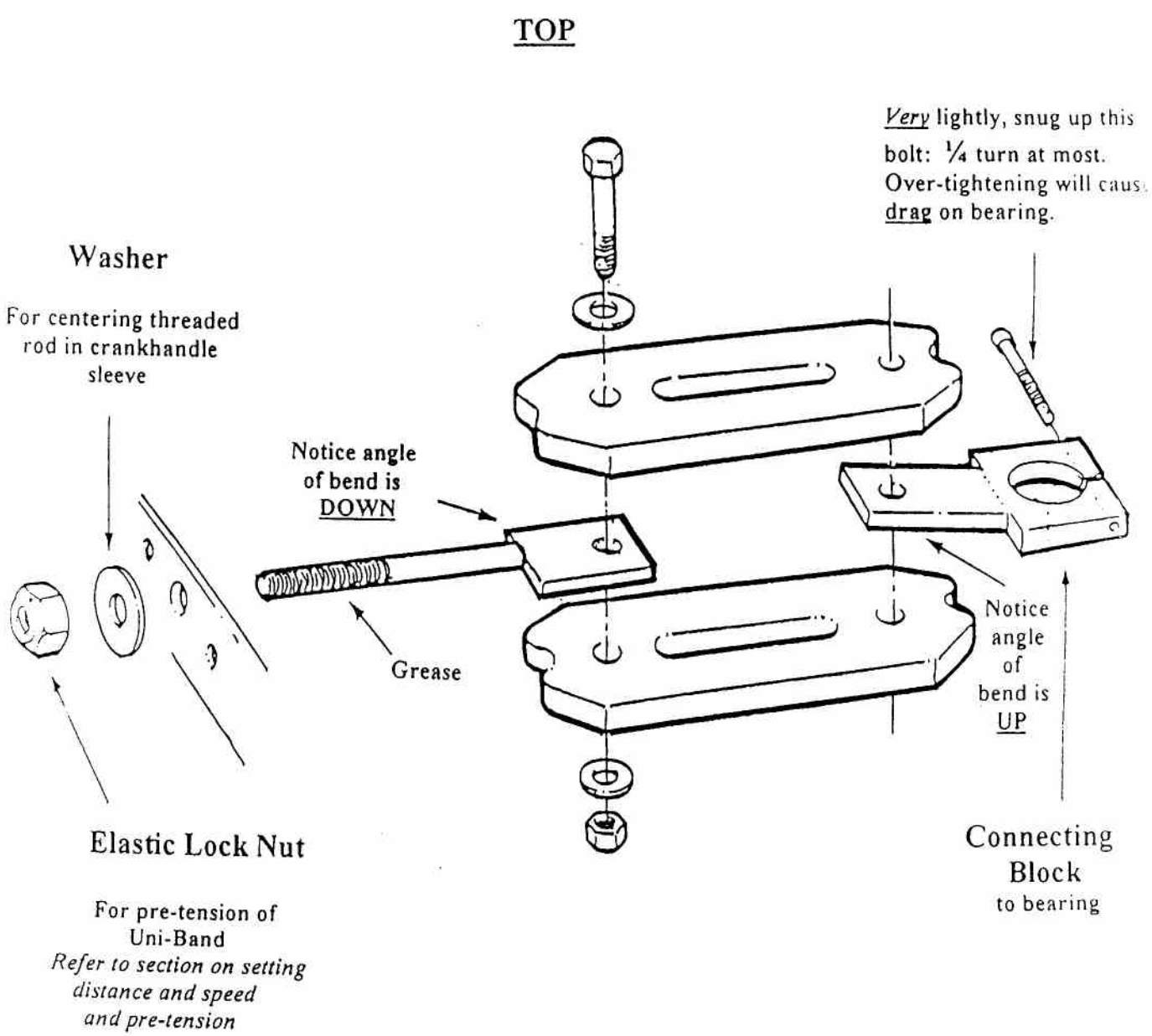
5. If your machine has a ***Uni-Band***, you can now loosen the set screw on the connecting block. Pull back and down on the Uni-Band to remove it from the bearing. See Diagram 28.

6. The throw arm can now be freely moved around the throw plate.

7. If your machine has a ***coil spring***, you can pull the coil end over the hook with a large screwdriver. ***Or*** you loosen the elastic lock nut on the threaded rod to create some slack.

8. Refer to pages 15/35 and diagrams 21/28, respectively, for re-assembly directions.

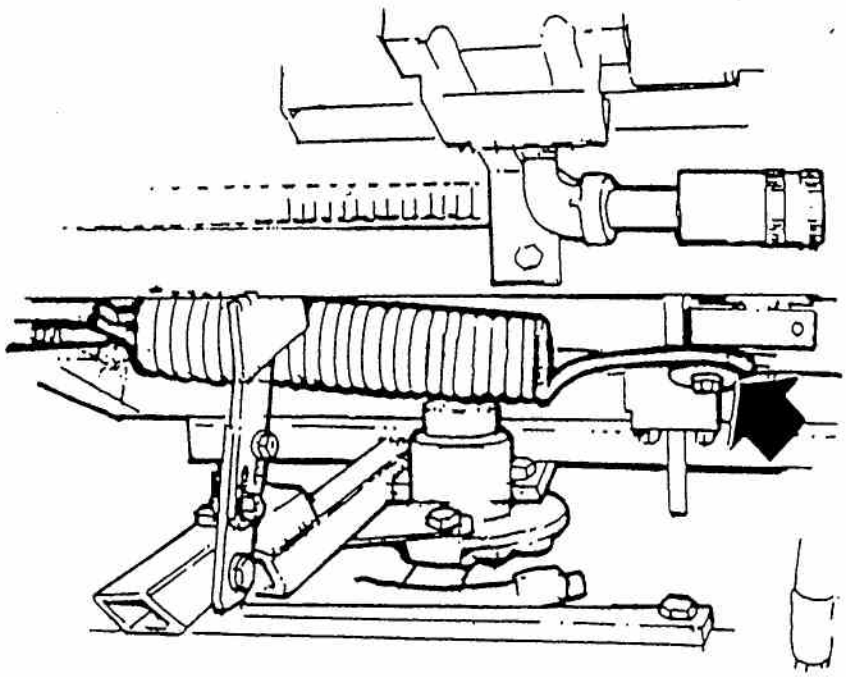
ASSEMBLY/INSTALLATION OF THE UNI-BAND (Main Spring)



(Diagram 28)

INSTALLATION
OF
COIL SPRING

(Diagram 36)



Place the long hook-end around the throw block bearing with the ***coils facing up*** so that the top of the coils are higher than the long hook-end, and the long hook-end is open toward the back of the machine.

REMOVAL
OF THE
THROW ARM/TURRET VALVE

RELEASE THE TARGET <u>BEFORE</u> ENTERING THE TRAP HOUSE. NEVER ATTEMPT TO MAKE ANY ADJUSTMENT WHEN THE ARM IS COCKED. NEVER STAND IN FRONT OF A COCKED TRAP MACHINE.

1. Release the throw arm and turn off the machine.

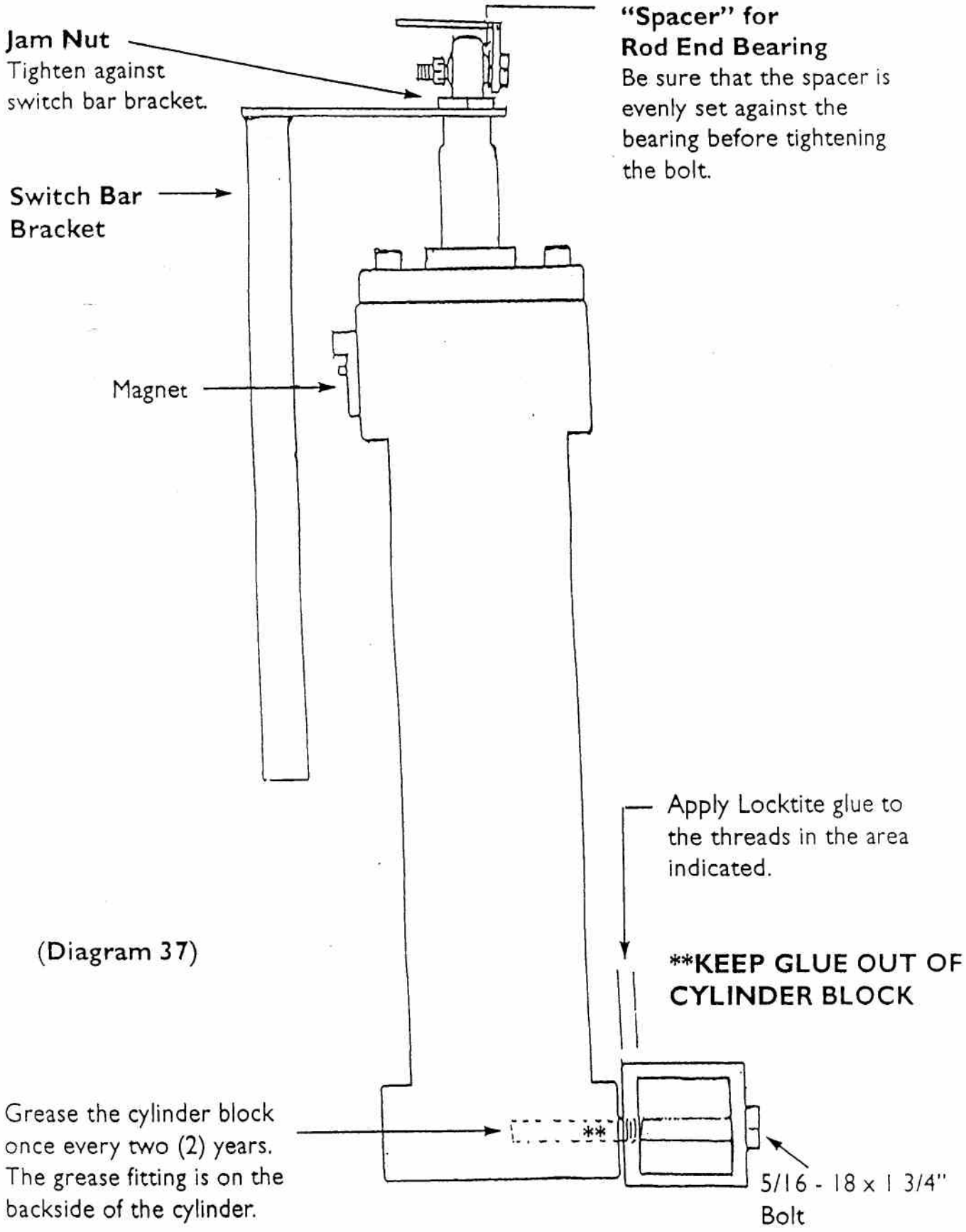
2. Reduce the main spring tension (unwind the crank handle).

3. Move the throw arm forward (by hand) to the throw arm brake.

4. Loop a cord or rope around the end of the throw arm. While holding tension on the cord, against the throw arm, ***slowly*** guide the throw arm around to the front of the machine. **Be aware** that the throw arm is being pulled by the main spring as soon as the throw arm goes past the brake. A pair of gloves is recommended to prevent the cord from slipping through your hands. Remove the cord when finished. The intention here is to move the arm to opposite the cocked position; which is the short point of the throw (or neutral).

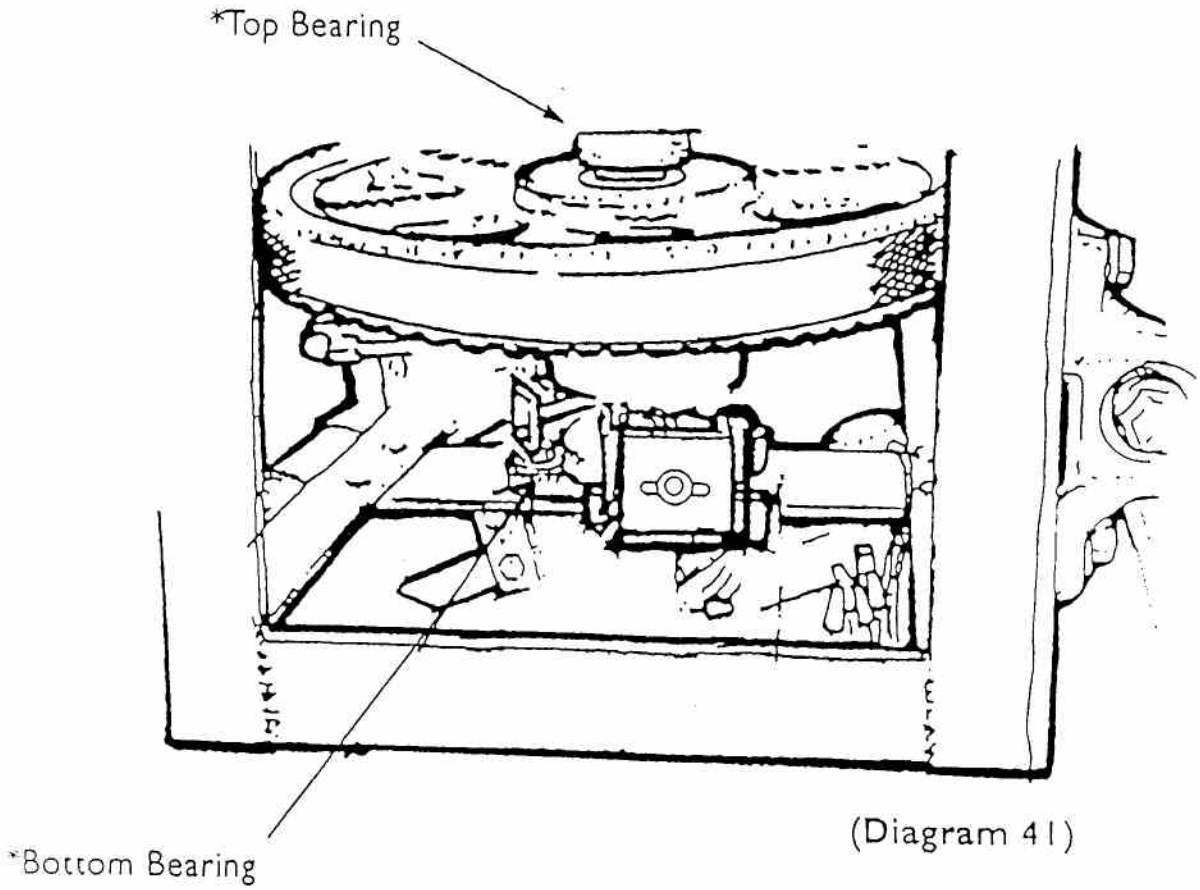
5. The valve can now be removed with minimal loss of oil.

HYDRAULIC CYLINDER FOR WOBBLE



(Diagram 37)

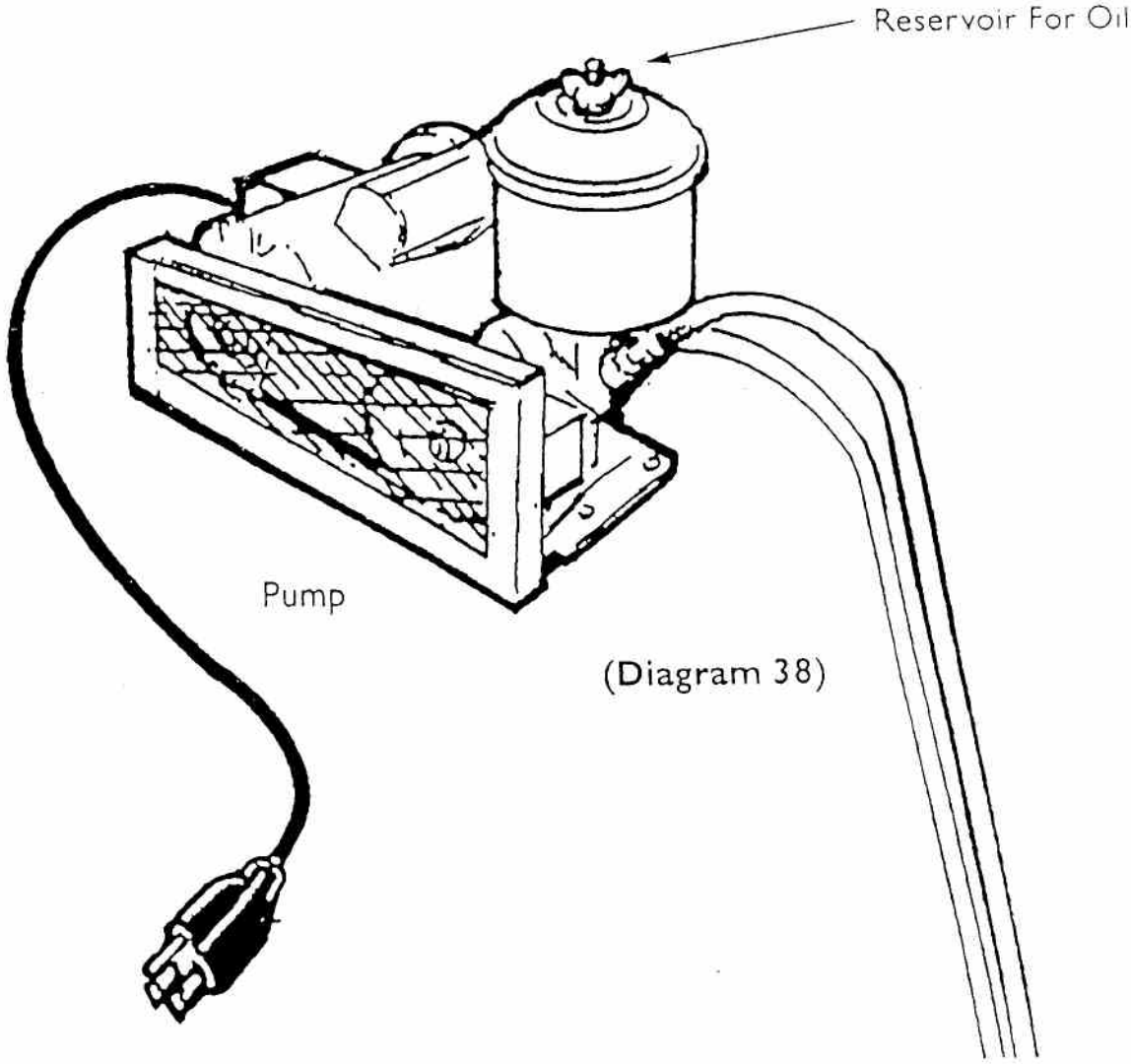
THROW ARM SHAFT BEARING MAINTENANCE



(Diagram 41)

*Grease ***both*** the top and bottom throw arm shaft bearings every one and one half to two years.

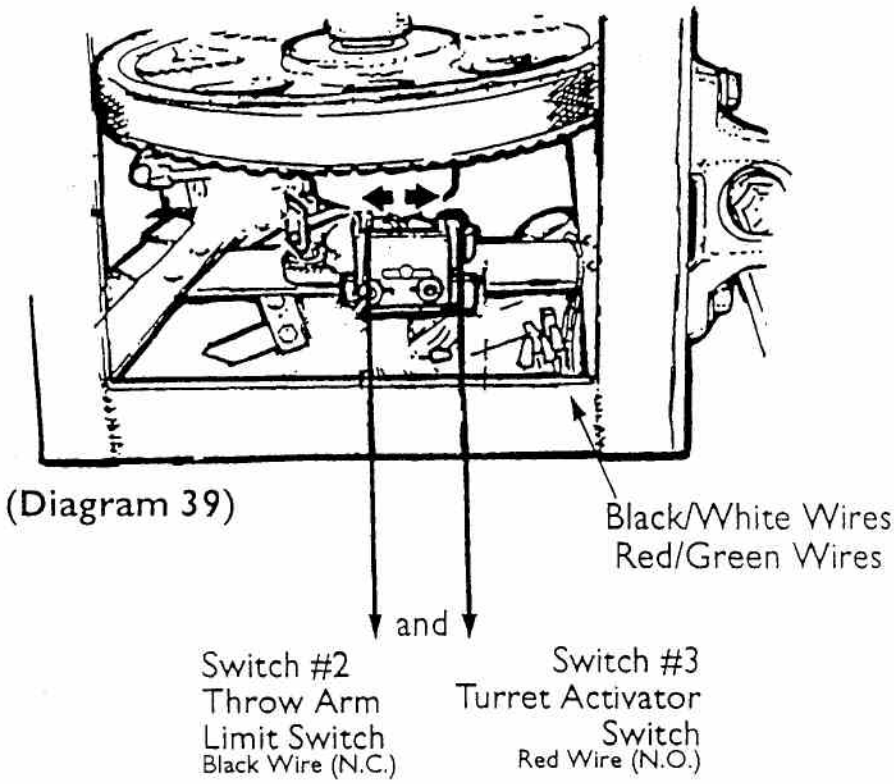
PUMP MOTOR MAINTENANCE



(Diagram 38)

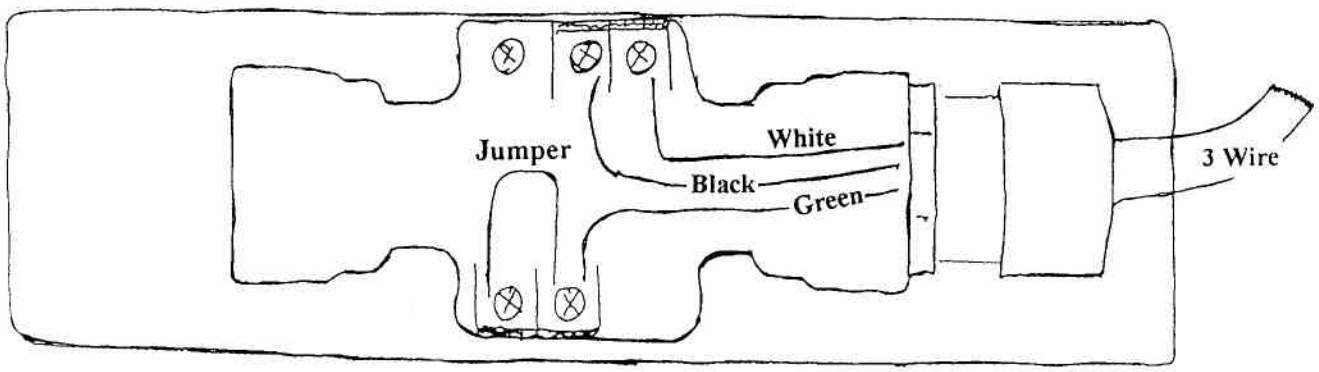
For pump motor fluid *use:* **MOBIL 1: OW-30**

WIRING GUIDE
FOR
#2 and #3 SWITCHES



1. The #2 switch *black wires* go to the Black and White Wires.
2. The #3 switch *red wires* go to the Red and Green Wires.

WIRING GUIDE
FOR
REXROTH VALVE

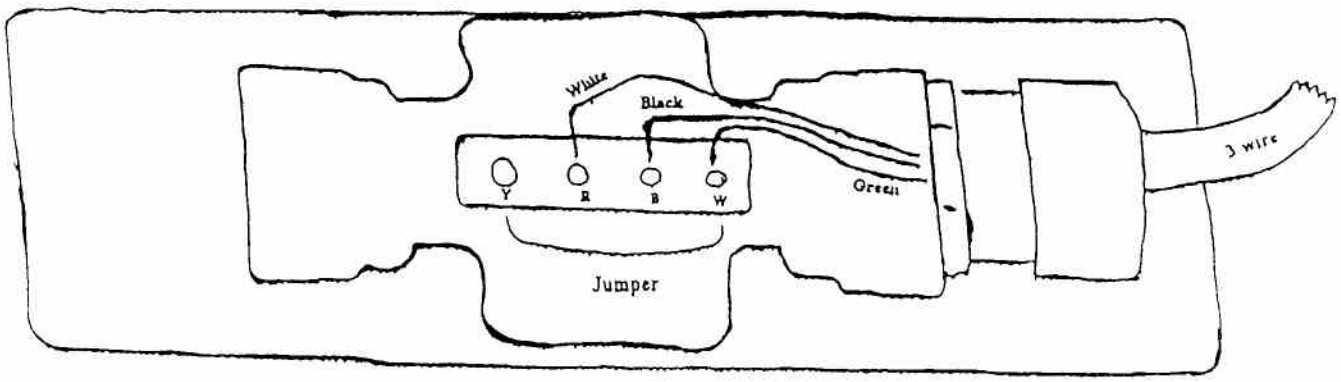


(Diagram 43)

OSCILLATION SOFT SHIFT VALVE
WIRING GUIDE

The top valve on a standard PAT-TRAP®
The top *and* bottom valves on a PAT-TRAP® WOBBLE
(The middle valve on the Wobble *is NOT* a soft shift valve)

The guide for wiring the Parker Soft Shift Valve on a standard **PAT-TRAP®** is as pictured:

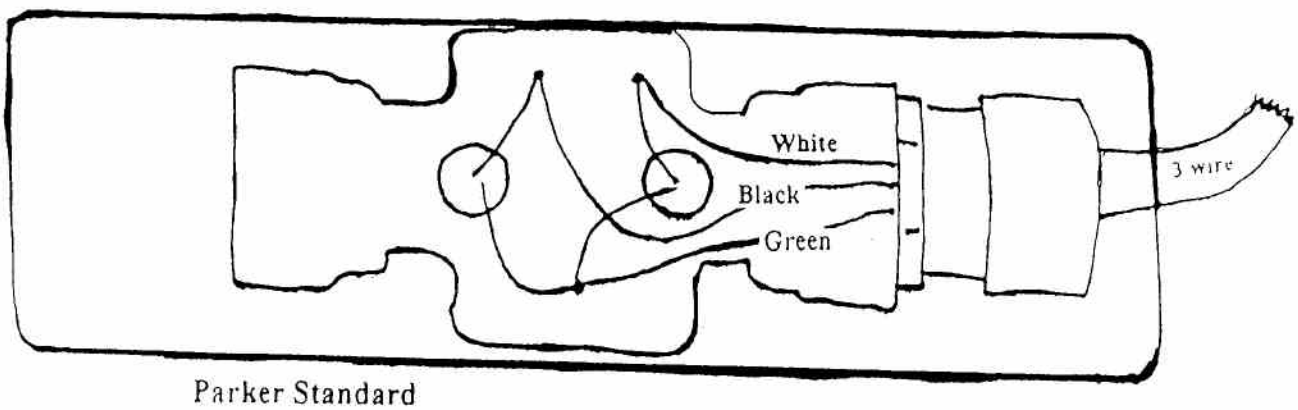


The guide for wiring the Parker Soft Shift Valve on a **PAT-TRAP®** ***WOBBLE*** is as follows:

1. The Black Wire goes to the Red terminal
2. The White Wire goes to the Black terminal
3. The Green Wire goes to the Yellow terminal

WIRING GUIDE
FOR
THROW ARM/TURRET VALVE

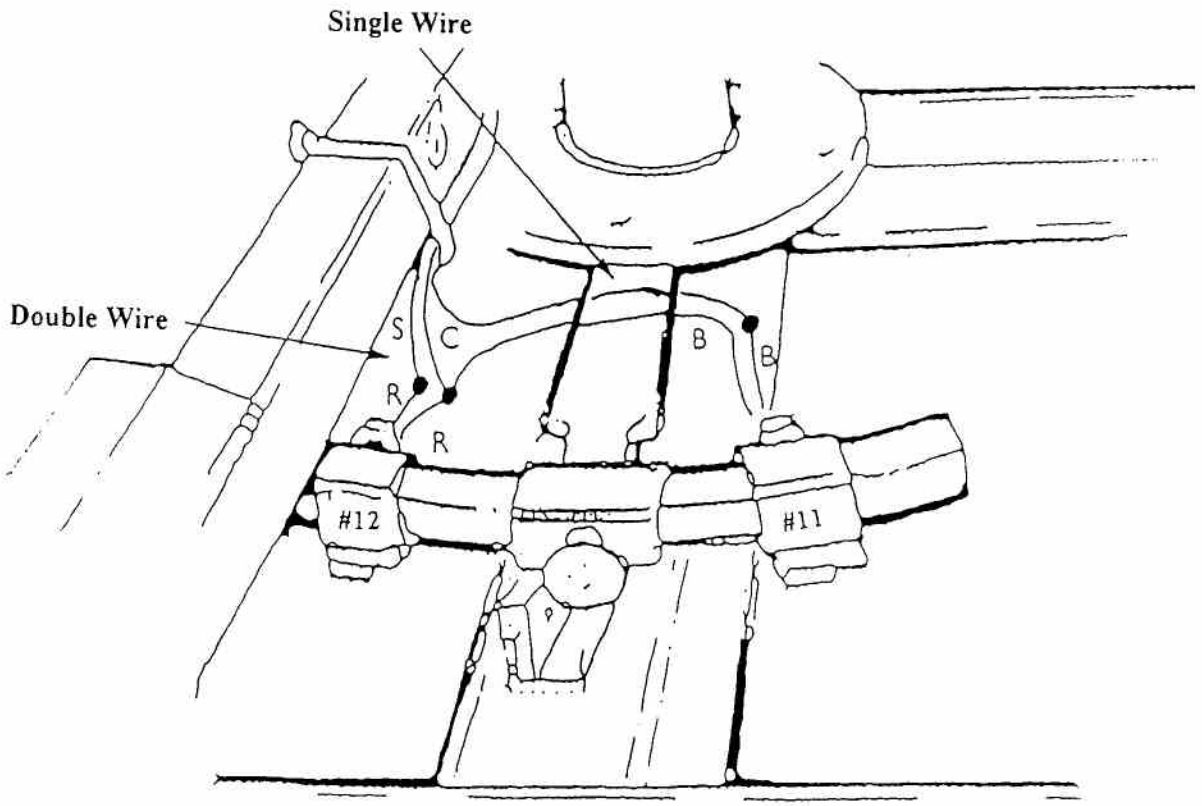
The bottom valve on a standard PAT-TRAP®
The middle valve on a PAT-TRAP® WOBBLE



Parker Standard

NOTE: Release the throw arm and turn off the machine.

WIRING GUIDE
FOR
#11 and #12 SWITCHES



(Diagram 40)

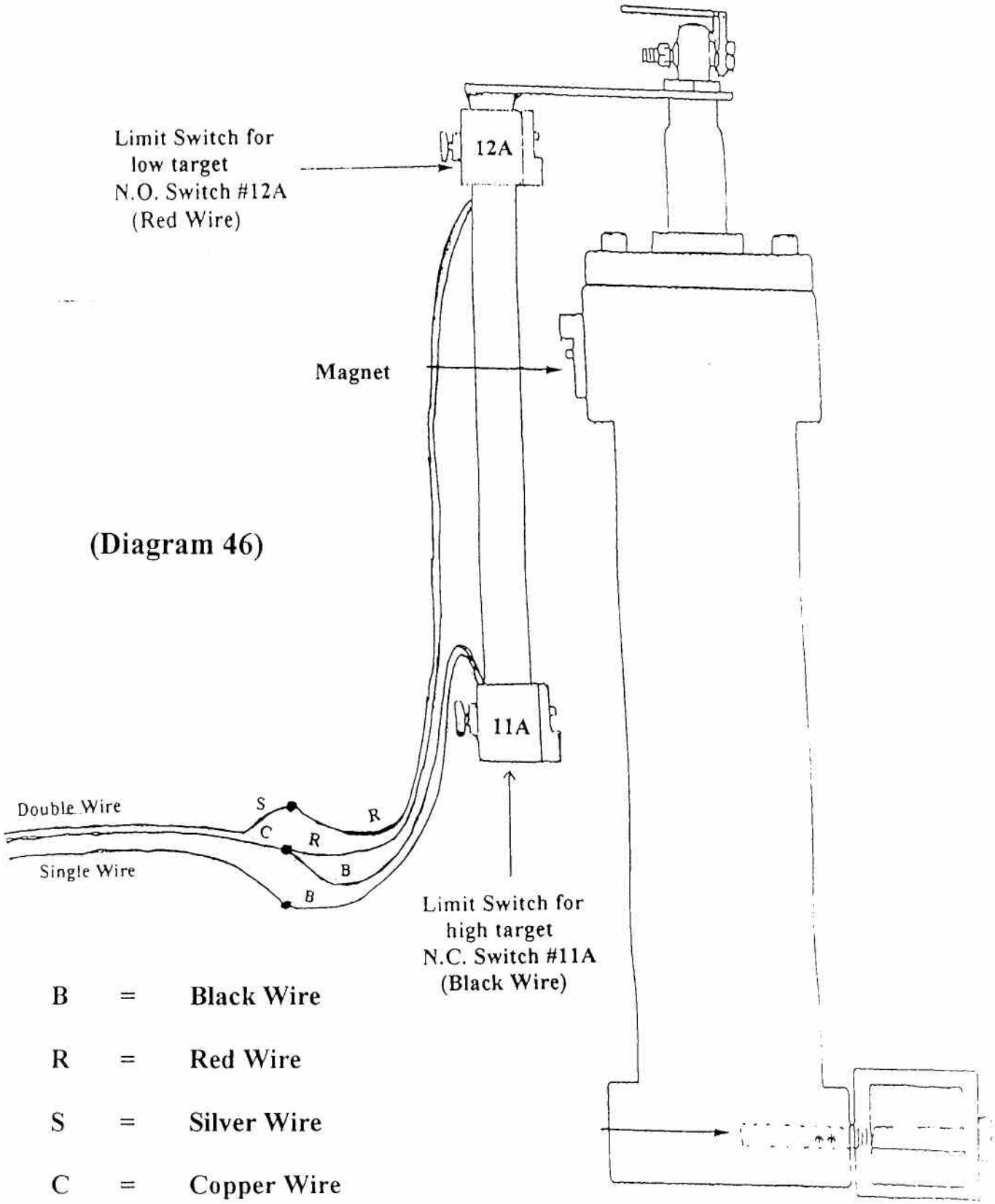
B = Black Wire

R = Red Wire

S = Silver Wire

C = Copper Wire

HYDRAULIC CYLINDER FOR WOBBLE WIRING GUIDE



(Diagram 46)

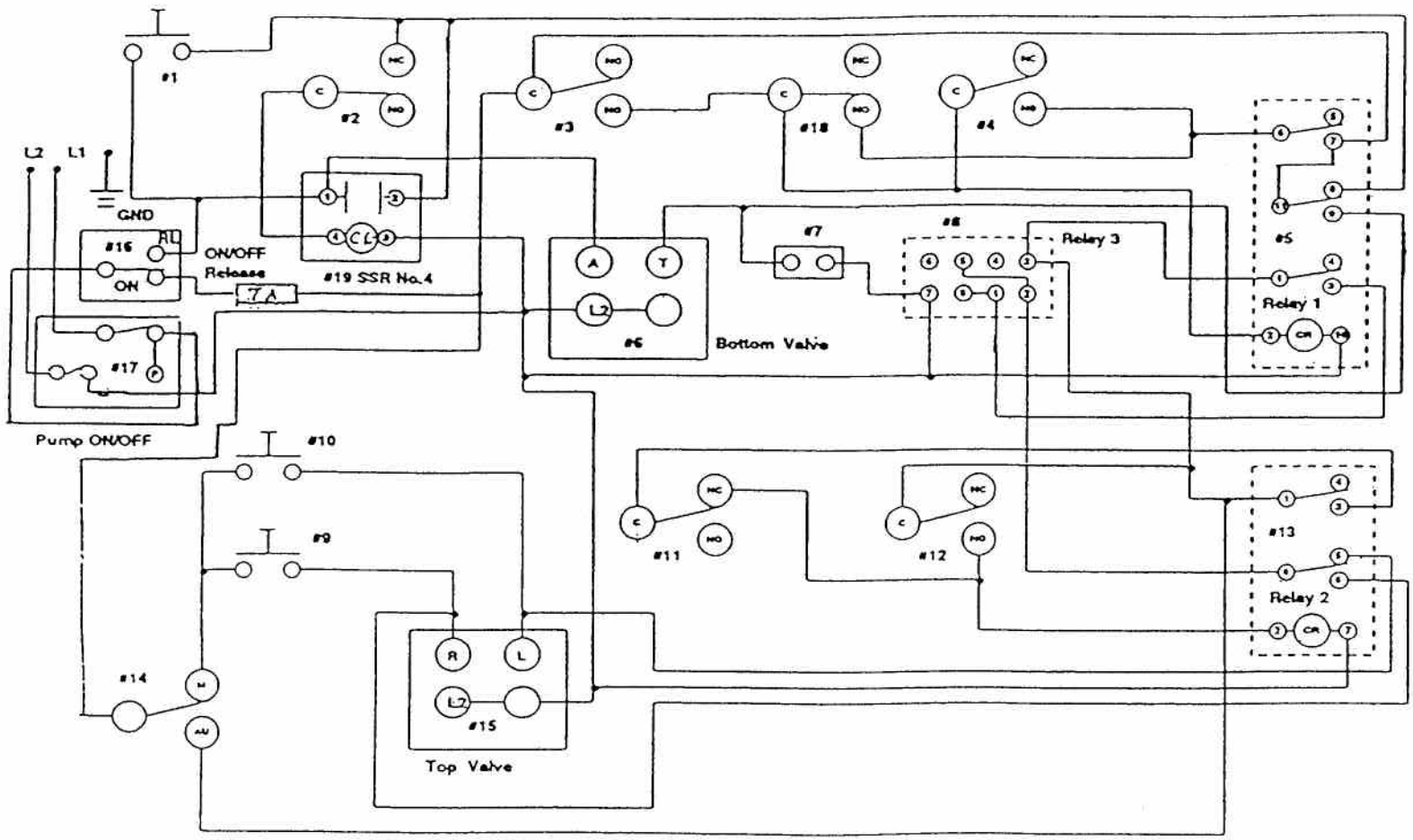
B = Black Wire

R = Red Wire

S = Silver Wire

C = Copper Wire

Pullcord Switch



Machine is on and ready to throw:

#1 pullcord switch #1
#2 throw arm limit switch #2
#3 turret activator switch #3
#4 turret deactivator switch #4
#5 throw arm turret relay Relay #1
#6 throw arm turret valve
#7 counter
#8 interrupter/timer Relay 3
#9 manual right-angle
#10 manual left-angle
#11 right-angle limit switch #7
#12 left-angle limit switch #8
#13 right/left relay RELAY 2
#14 manual/automatic angle switch
#15 right/left angle valve
#16 on/off/release switch
#17 master switch
#18 switch #5 on elevator that holds relay closed until turret switch #4 has time to close
#19 solid state relay RELAY 4
RL release throw arm
ON activates machine
P pump motor
L1 line one
L2 line two
AU automatic
M manual
R right
L left
A throw arm
T turret

PAT TRAP® - Wiring Diagram

PAT-TRAP, INC., 110 Western Avenue, Henniker, New Hampshire 03242

Rev. 11/01

PAT-TRAP PRICE LIST — October 1, 2001

***PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE/PRICE DOES NOT INCLUDE SHIPPING.

PART #		DESCRIPTION	RETAIL
PT9012		OSCILATING CYLDR HYDROLINE, COMPLETE	$185.00
PT9013		WOBBLE OSCILATION CYL. HYD, COMPLETE	$246.00
PT9017		1/4 HYDRAULIC HOSE	$10.00
PT9023		SINGLES FINGER, PLASTIC	$6.00
PT9024		ELEVATION COG	$28.00
PT9025		X DOUBLES FINGER	$28.00
PT9026		THROW ARM	$128.00
PT9026A		THROW ARM THROW RUBBER	$15.00
PT9026B		TO REBUILD THROW ARM	$20.00
PT9027		THROW ARM BRAKE RUBBER	$6.00
PT9027A		THROW ARM BRAKE FLAT SPRING	$6.00
PT9027B		BRAKE, COMPLETE	$24.00
PT9028		MAIN SPRING/WIRE	$33.25
PT9030		MAIN SPRING ANCHOR BOLT (threaded rod)	$24.00
PT9031		MAIN SPRING CRANK	$33.25
PT9032		UNI-BAND/Pair (Mainspring)	$33.25
PT9033		MAIN SPRING CHANGE OVER (wire to uni-band)	$125.00
PT9039		THROW ARM BACKSTOP, COMPLETE	$35.00
PT9040		THROW ARM BACKSTOP SPRING	$6.00
PT9040A		THROW ARM BACKSTOP BOLT W/NUT 1/4-28	$6.00
PT9040B		THROW ARM BACKSTOP PLASTIC	$6.00
PT9040C		THROW ARM BACKSTOP FLAT SPRING	$3.00
PT9041		TARGET BRUSH	$6.00
PT9048		HYDRAULIC MOTOR	$225.00
PT9060		HYDRAULIC VALVE	$145.00
PT9061		SOFT SHIFT VALVE	$178.00
PT9075		HYD CYLINDER TARGET ELEVATOR	$130.00
PT9076		ELEVATOR GUIDE ROD	$45.00
PT9095		TARGET GUIDE, SPRING MOUNT	$14.00
PT9096		SET OF 3 TARGET SPRINGS	$30.00
PT9097		TARGET GUIDE SPRING #1	$10.00
PT9098		TARGET DROP GUIDE SPRING #2	$10.00
PT9099		TARGET DROP GUIDE SPRING #3	$10.00
PT9100		EXTENSION SPRING/ROLLER PLATES	$3.00
PT9101		EYE BOLT	$1.00
PT9102		EYE BOLT ANCHOR BRACKET	$3.00
PT9104		O RING/ROLLER	$0.50
PT9105		SINGLE ROLLER PLATE	$100.00
PT9106		DOUBLE ROLLER PLATE	$125.00
PT9107		DOUBLES ROLLER	$95.00
PT9107A		SINGLES ROLLER	$95.00
PT9108		BRONZE ROLLER BUSHING	$4.45
PT9123A		PINON BACKSTOP SPRING (L-SHAPE)	$6.00
PT9123B			
PT9123C		PLASTIC PINON BACKSTOP	$6.00
PT9124		#4 Snap Action Switch/Interrupter Switch	$6.00
PT9125		#4 SWITH BRACKET, New Roller Style (micro), Complete	$33.25

PART #		DESCRIPTION	RETAIL
PT9127		#5 SWITCH BRACKET	$4.00
PT9129		PUMP, VICKERS VTM 42	$285.00
PT9129A		PUMP FILTER	$22.50
PT9130		PULLEY FOR PUMP	$5.00
PT9131		ELECTRIC MOTOR	$138.00
PT9132		PULLEY FOR ELECTRIC MOTOR	$4.50
PT9133		V-BELT	$7.50
PT9138		PUMP UNIT, COMPLETE	$725.00
PT9139		HYDRAULIC HOSE	$25.00
PT9140		HYDRAULIC HOSE RETURN, 3/8"	$10.00
PT9142		O-RING FOR COUPLING	$1.00
PT9144		HYDRAULIC COUPLING, FEMALE	$14.50
PT9145		HYDRAULIC COUPING, MALE	$8.00
PT9198		VALVE WIRE (3-Wire)	$1.50
PT9199			
PT9200		COUNTER	$30.00
PT9201		HUBBLE MALE CONNECTOR	$15.25
PT9202		HUBBLE FEMALE LOCK CAP	$20.50
PT9207		FUSE (7 AMP)	$1.00
PT9208		RELAY #2 10 AMP (8-Pin)	$13.00
PT9209		DOUBLE MAGNET	$12.00
PT9209A		NEW #2 & #3 SWITCH BRACKET	$133.00
PT9210		ACTIVATOR BOLT FOR PT9209	$8.00
PT9211		PROX SENSOR (N/C Black Wires)	$8.50
PT9212		PROX SENSOR (N/O Red Wires)	$8.50
PT9212A		PROX SENSOR 3-WIRE	$11.75
PT9213		ROLLER SWITCH #2 and #3 with wire leads	$8.00
PT9214		RELAY #1 (11-Pin)	$22.50
PT9215		MAGNET (Hamlin)	$4.50
PT9216		TIMER/INTERRUPTER	$48.00
PT9217		RELAY, SOLID STATE	$31.25
PT9218		PUSH BUTTON MANUAL FOR LEFT/RIGHT	$6.00
PT9219		TOGGLE SWITCH AUTO/MANUAL	$6.00
PT9220		SWITCH ON/OFF	$6.75
PT9221		SWITCH ON/OFF MOMENTARY	$10.00
PT9300		TURRET, COMPLETE	$925.00
PT9301		UPRIGHT	$24.00
PT9302		SIDE LOADER, UPRIGHT	$49.00
PT9303		SIDE LOADER, UPRIGHT TOP PIECE	$24.00
PT9304		TURRET BUSHING CAP	$1.00
PT9305		SWITCH BRACKET FOR ANGLE LIMIT SWITCH	$33.25
PT9320		PULLCORD, COMPLETE	$100.00
PT9321		PULLCORD HANDLE	$34.00
PT9322		PULLCORD SWITCH	$10.00
PT9400		MANUAL	$8.00
PT9425		SINGLES SCORE PADS (50 sheets)	$3.00
PT9430		DOUBLES SCORE PADS (50 sheets)	$3.00
9146		ELBOW LONG HYD CYL.	

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