

● **COMMANDO MACHINE GUN** ●

COMMANDO MACHINE GUN
● **TARGET GALLERY**

INSTRUCTION AND
● **SERVICE MANUAL**

manufactured by

chicago coin machine

1725 W. DIVERSEY BLVD. CHICAGO 14, ILLINOIS

Division of
**Chicago Dynamic
Industries, Inc.**

INTRODUCTION TO YOUR

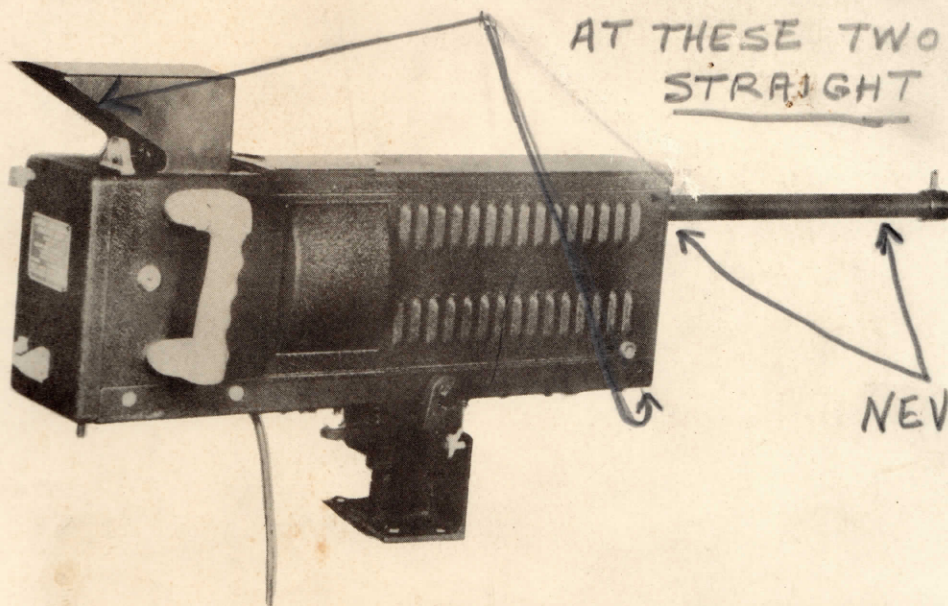
COMMANDO MACHINE-GUN

TARGET GALLERY



CAUTION:

LIFT GUNS OUT OF CRATES
AT THESE TWO POINTS
STRAIGHT UP



WHEN ORDERING PARTS USE NAMES AS IN THIS
MANUAL.

MANUFACTURED BY

CHICAGO COIN MACHINE DIVISION
CHICAGO DYNAMIC INDUSTRIES, INC.

1725 DIVERSEY BOULEVARD • CHICAGO 14, ILLINOIS
WELLINGTON 5-4600

P R E F A C E

This Manual has been prepared with infinite care in order that you may acquaint yourself with the operational maintenance for your COMMANDO MACHINE GUN TARGET GALLERY.

May we suggest that you familiarize yourself with the Manual and keep this guide handy for ready reference. In this manner, you will find it simple and easy to keep your COMMANDO MACHINE GUN TARGET GALLERY in peak operating condition at all times.

From time to time, we will prepare supplementary pages to this Manual. In order to keep this important publication current, we strongly urge that the additional pages be inserted in your book upon receipt.

You will find this Manual invaluable - keep it up-to-date.

OPERATOR:

Your new "Super Commando" machine gun is a precision made piece of equipment carefully designed to give years of profit making service.

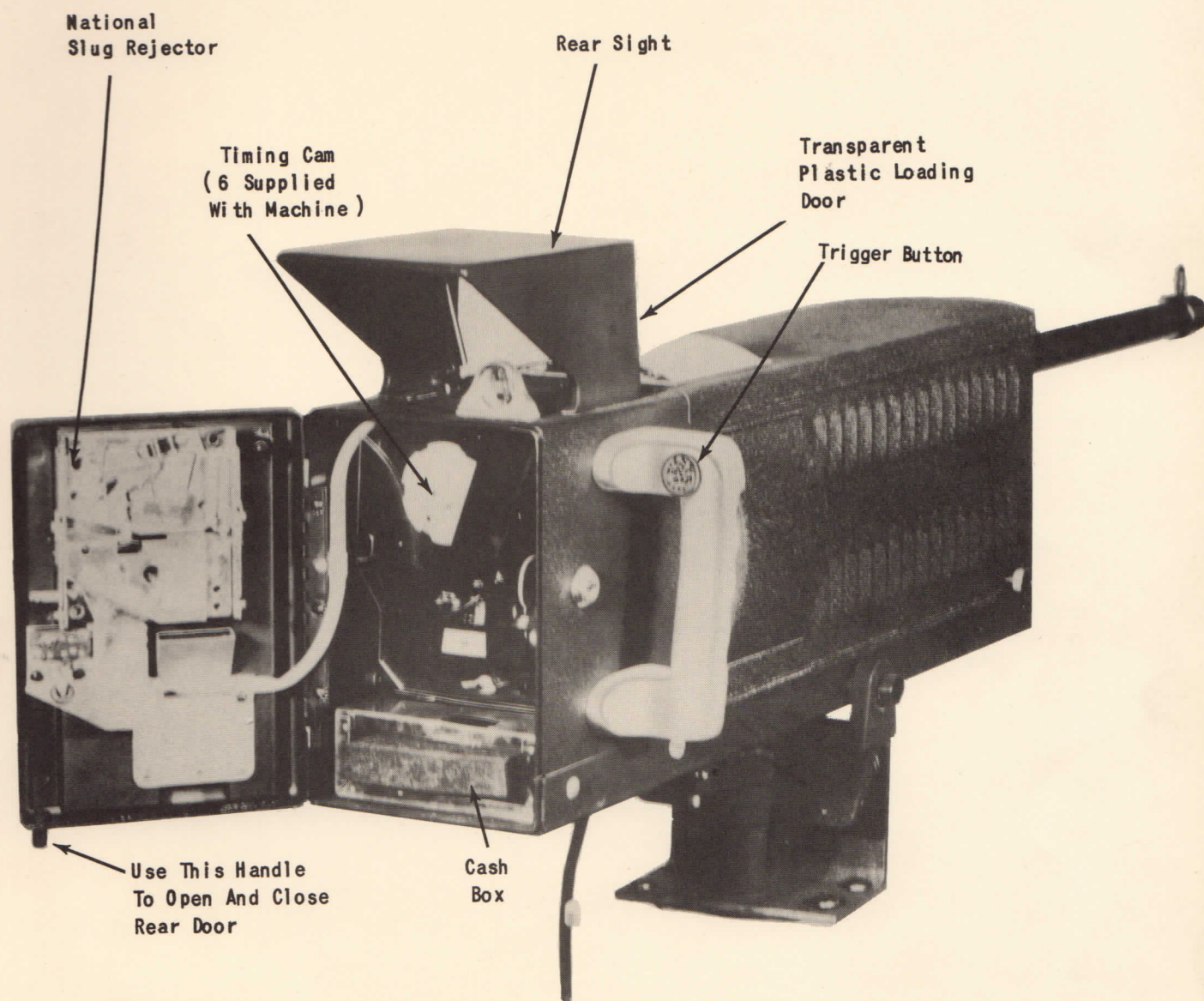
The very best materials and workmanship have gone into this machine, but even with the finest of everything, the equipment can only give the service intended for it, if it is taken care of properly. Be sure to read and understand all the instructions on the following pages.

The shot ball pellets that your Commando Machine Gun uses, have been specially manufactured for this gun. Each ball is held to very close dimensional tolerances in order that they will match precision firing parts within the gun.

It is imperative that only the proper ball pellets be used, otherwise your machine will be damaged, and any guarantees covering firing mechanism will be voided. Ball pellets that are too small or too large can wreck your machine, so be certain that you use the balls we recommend.

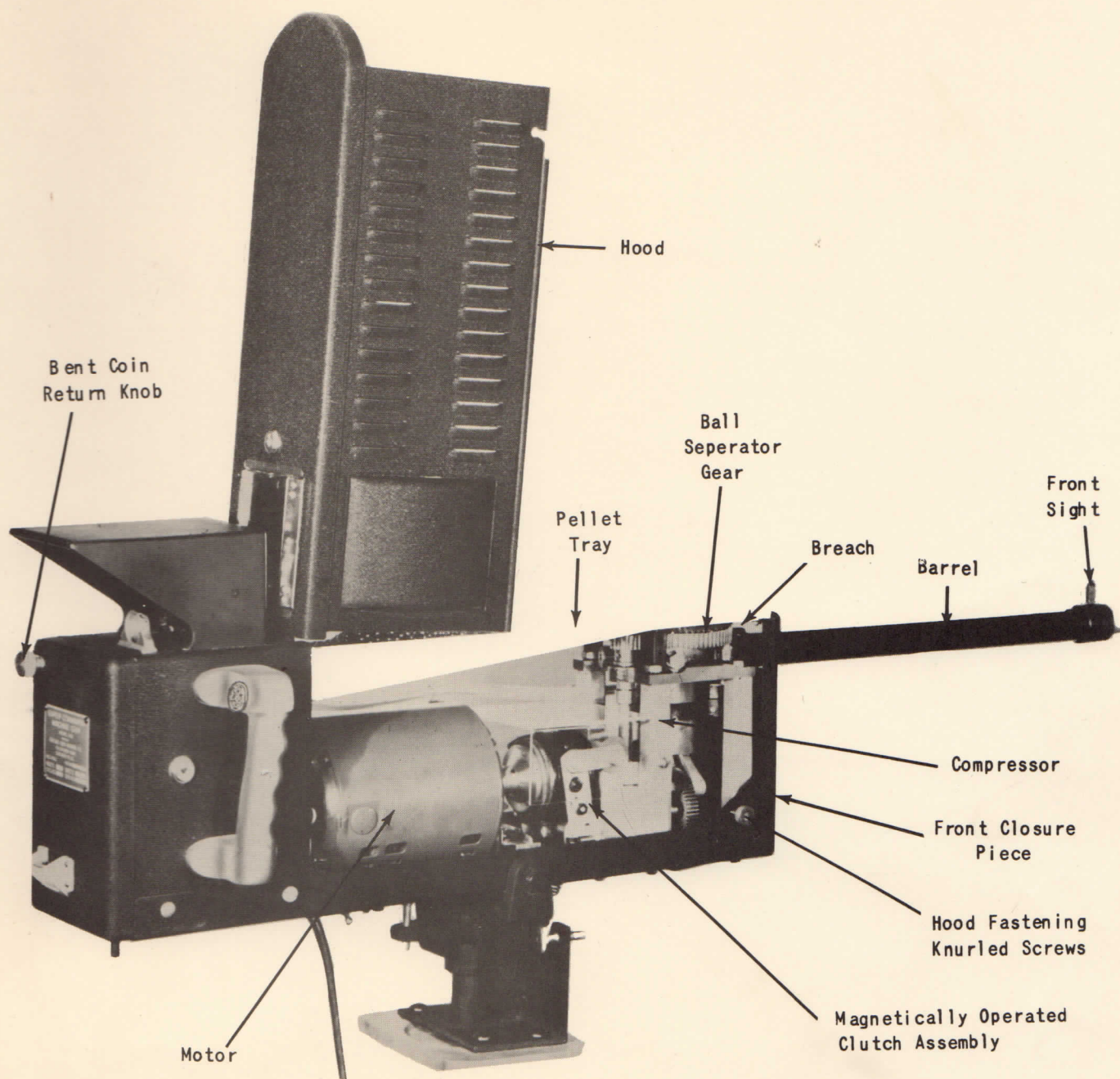
We suggest that you learn and know the functions of your gun, and in this booklet we will endeavor to enlighten you on its operation and service requirements.

Basically your machine gun consists of a powerful motor, a precision built air compressor, a magnetically operated clutch, a shot separating mechanism with associated timing cams, coin start relay, play count meter, slug rejector, fuse, etc. (Fig. 1 and 2)



View shows coin rejector, timing cam, relays, cash box, trigger handle, coin insert, rear sighting device and pellet loading door.

Figure 1



View shows hood raised and held in position by catch bars on each side of hood in contact with the inside of pellet tray. Other important parts are noted.

Figure 2

To keep your gun in a top condition so that it will earn you profits, you will be required to perform certain cleaning and servicing operations at regular intervals. Dirt and foreign objects that find their way into the firing mechanism will be your main cause of temporary trouble.

We have taken this into consideration in designing the gun and have incorporated into the machine a special switch device that will cut the electrical power from the gun if large pieces of unwanted substance do find their way into the machine. Instructions are given later in this booklet telling you what to do when this happens. Fine dirt particles and very small foreign objects will not actuate this device, but can accumulate until it causes misfiring and eventual stoppage of the machine. You alone are the only one who can prevent this, and in a simple way. Keep the gallery floor swept clean, brush out the return troughs, wash and clean all balls before reloading again into gun. Doing these things will keep your equipment taking in coin profits with a minimum of down time.

The shatterproof glass in the gun sight should be kept clean by wiping daily with a piece of lintless cloth slightly dampened in a diluted solution of ammonia or with commercial glass cleaner such as Windex.

The chrome plated handles can also be cleaned in this way.

Caution:

Before starting any service operations, make sure that OFF-ON toggle switch (located on the underside of the gun at right rear) is in the "OFF" position. The "OFF" position is towards the front gun barrel end of the machine. To make doubly sure that electric current is off, PULL SERVICE CORD FROM 110 VOLT OUTLET SOURCE.

Your Commando machine gun mechanism is protected by a strong louvered steel hood that is hinged at the rear. To raise hood loosen knurled screws on each side until shoulder portion under head is clear of slots in hood, then raise by lifting upwards until hood is in a straight upright position. Hood will hold in this position when the small catch bars are within the pellet tray. To close hood, spread sides slightly until catch bars clear tray, then lower and retighten knurled screws on each side of machine. Make certain that shoulder portion of each screw is properly in its female counterpart in sides of hood. (Figure 3)

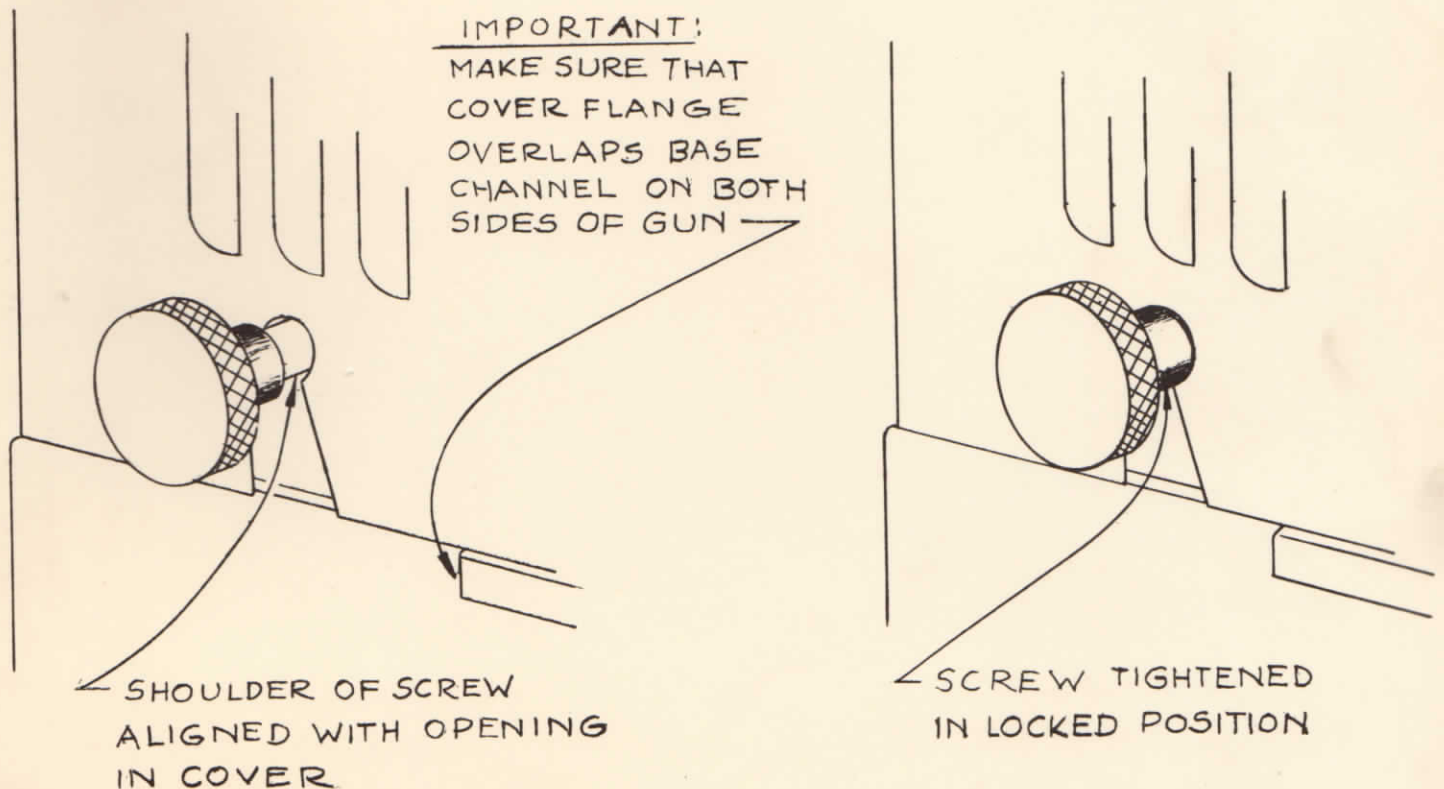


Figure 3

INSTRUCTIONS FOR REMOVING JAMMED PELLETS:

Machine can become jammed or inoperative because of unclean pellet balls, dirt, dust and foreign objects in the hopper tray. First we will talk about ways of preventing such jams and then we'll discuss remedies that will cure jammed conditions and get your machine back in business.

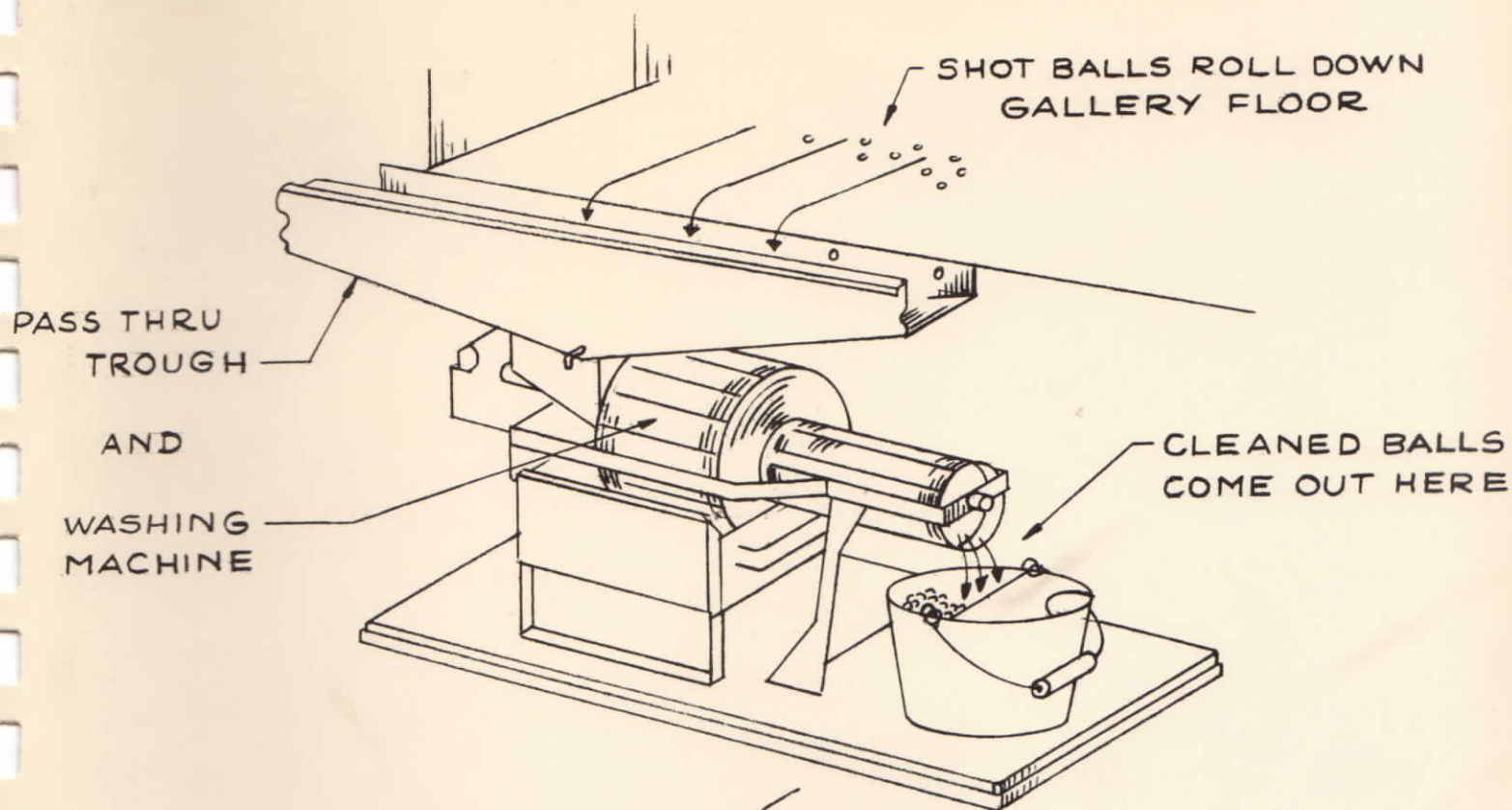
If your gallery setup is such that an inclined floor returns spent pellets to a receiving box, the floor should be swept and wiped clean each day before operations begin. Because each pellet is encased in a light film of oil, dust and small particles of foreign matter will readily adhere to its surface, this condition will cause undue wear on the parts of the gun mechanism if ball pellets are fed into the machine in a dirty condition.

To keep your machine gun operating properly, every pellet load entering the gun should be first washed in a number one fuel oil or kerosene. This liquid serves two purposes, first as a cleaning agent, and secondly as a ball lubricant which will resist rust on the ball pellets and also in the breach and gun barrel.

The manufacturer of your machine gun also makes an automatic ball pellet washing machine that tumble cleans, lubricates and drains excess liquid from the pellets so that they are in perfect condition for reloading into the machine gun just as they come from the washer. If you do not have this equipment, balls can be plunged up and down in a mesh basket immersed in a pail of number one fuel oil or kerosene. (See Figure 4)

Notes

AUTOMATIC SHOT PELLET WASHING MACHINE



HAND METHOD

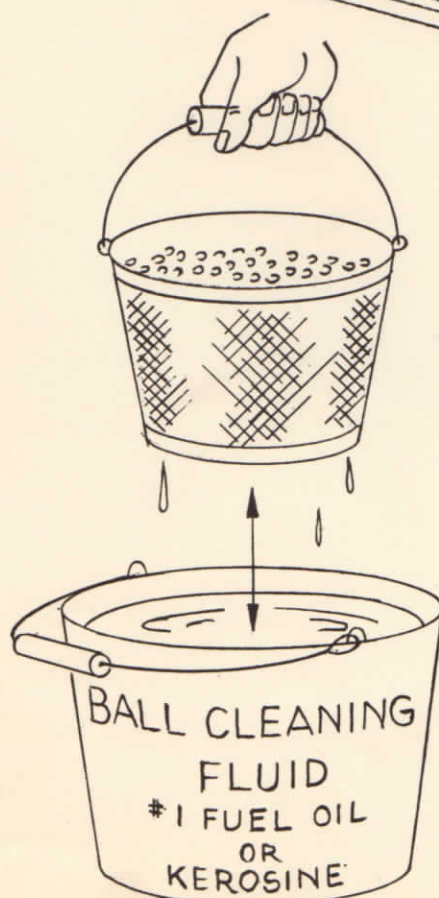


Figure 4

In the event a cracked ball or a piece of foreign material jams the shot gear separator mechanism, the machine will be stopped by means of the jam switch on the left forward end of the gun. The obstruction causes the shot feed gear to raise up slightly and this action breaks the electrical circuit, thus stopping the motor and compressor.

To relieve the above condition, pull service cord from power outlet, raise hood as previously described and perform the following operations: First remove front closure piece by pushing forward with the thumbs as shown in Figure 5.

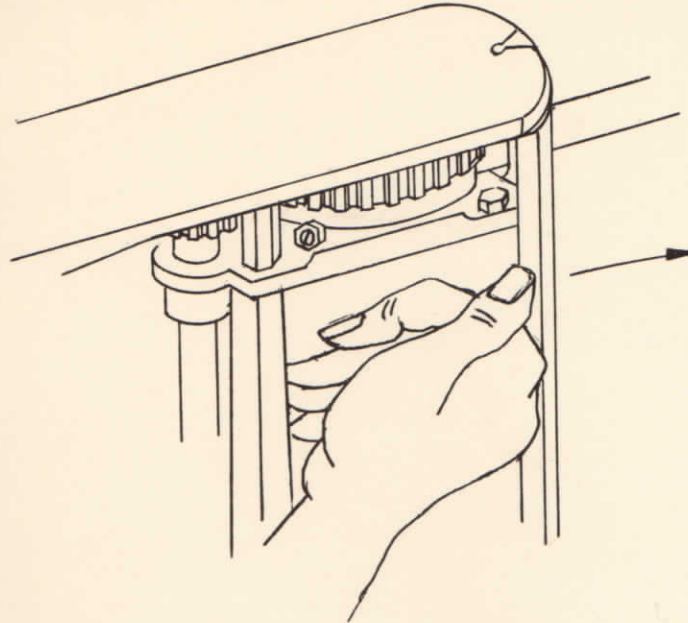
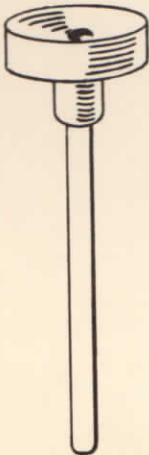
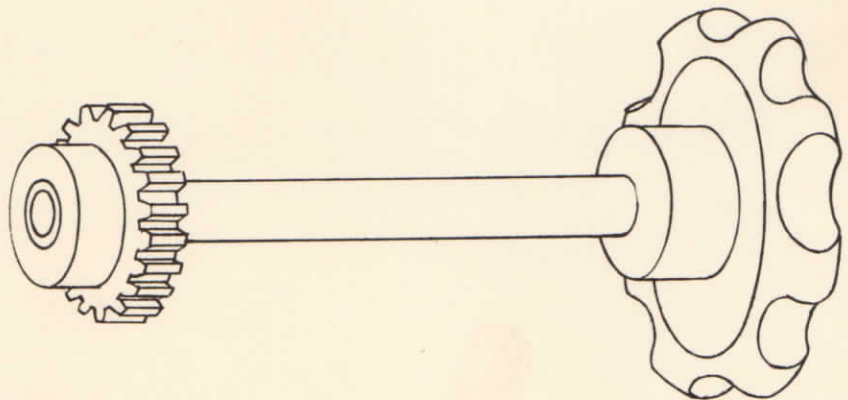


Figure 5



TIMING GAUGE



CRANK HANDLE GEAR TOOL

Figure 6

With each machine a timing gage rod is supplied along with a crank handle gear. The crank handle gear is used as follows:

- (A) IMPORTANT: Disconnect Service Cord From Power Supply.
Failure to do this will result in damage to your machine and possible injury to yourself.
- (B) Insert crank handle gear in right hand (as you face the barrel end of the machine) spindle. (See Figure 6) Because of a disengagement spring built into stem of the crank handle, it will be necessary to push forward on crank handle at all times while using this tool.
- (C) When you are thru using the crank handle gear tool be sure to remove it completely from the machine. To leave the crank gear in the machine will surely cause damage when you turn on the power again.

Now insert crank handle and turn clockwise for about two revolutions, then remove crank handle from machine. Plug in the power cord, turn on machine switch, cycle machine by pulling down on coin switch wire. If motor starts chances are that you have cleared the jam. Press trigger button and fire a few rounds of pellets. If all is well, replace front closure cover and lower and fasten hood with side knurled head screws. Machine is now ready for play. If the above method fails you will be required to do a little additional work. The following is a list of operations in their proper sequence.

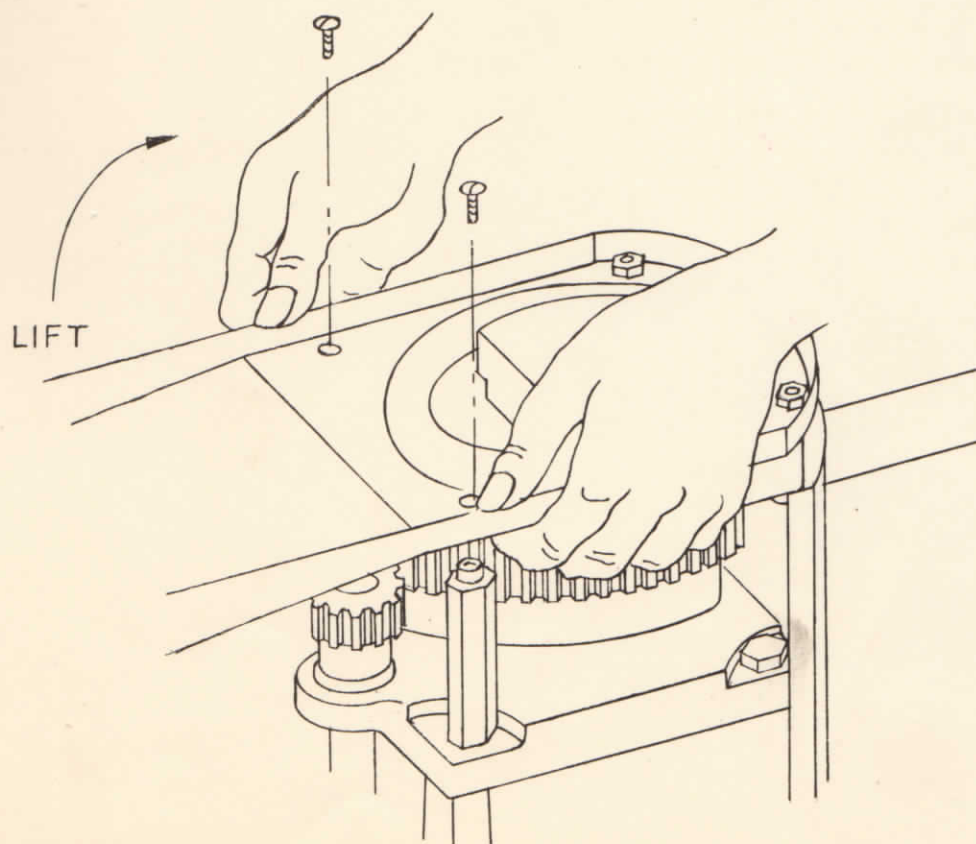


Figure 7

1. Remove front closure piece as previously described.
2. Remove ball pellets from feed gear and tray. (The small magnet supplied will help.) Remove 2 screws that hold tray. Remove tray by lifting up at front end and pulling forward. (See Figure 7)
3. With a screw driver, remove large head screw in center of feed gear. Pressure spring should be removed with the screw.
4. This next operation is very important: The successful operation of the machine depends on accurate timing. Your gun has been accurately timed at the factory and to keep this timing set is of the utmost importance. Mark the teeth of the feed gear and the mating pinion gear at exactly the position of mesh. A grease crayon or pencil can be used. (See Figure 8)

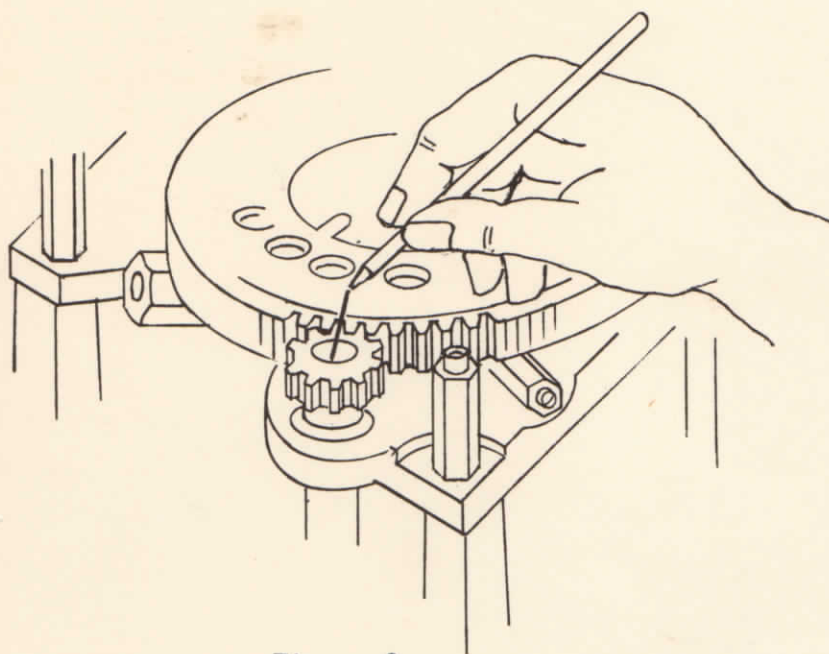


Figure 8

5. Now lift out the shot valve (brass piece) keeping nylon valve piece in place, next lift the feed gear straight upwards and proceed to dislodge the obstruction. Look into the breach hole and make sure that it is clear of pellet balls. Balls in the breach can be cleared by a slightly bouncing downward of the machine on its rubber bumper. This will cause pellets to roll forward and out thru the barrel end. Occasionally insert nylon barrel brush into the barrel to clean out dust or obstructions.

6. Remove ^{NYLON} ~~copper~~ air seal washer and wipe clean along with the top of the cylinder and both sides of the shot gear. Take care not to wipe off gear tooth mark you made. (See Figure 9)

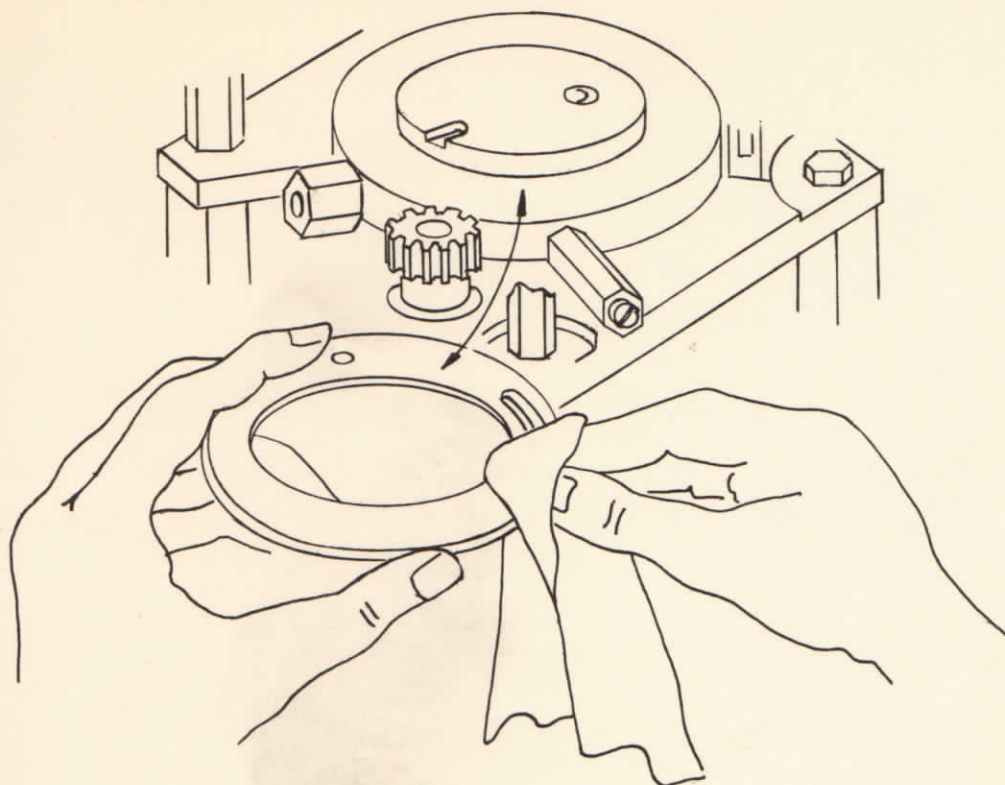


Figure 9

7. Replace parts in their original position making sure that markings you put on gears coincide.
8. Replace spring and pressure screw and tighten securely. Erase marks you put on gears so that there will be no confusion next time gear is removed.
9. Test by placing a few ball pellets in shot gear and plug in power to operate the gun a few cycles.
10. If all works well again, lower hood and secure by tightening the holding screw on each side. The machine is now ready for operation again.

Notes

INSTRUCTIONS FOR RETIMING MECHANISM:

As you have already been advised, it is better that you make every effort to keep your machine in time as set at the factory, but if you miss, here is a simple way of retiming. With each machine gun a timing gage is supplied. (Fig. 6)

To use the gage, remove large head screw in center of the feed gear in the same manner as described in "Instructions For Removing Jammed Pellets". Also remove front metal closure as previously described.

The threaded hole through the cylinder head can now be used to time machine by allowing a passage into the cylinder for the timing gage rod. Place the rod through this hole and turn adjustment crank until the collar of the gage is down flush with the metal of the cylinder head. (See Figure 10) Piston connecting rod should be on the downward stroke. (to your right as you face front end of machine) (See Figure 11)

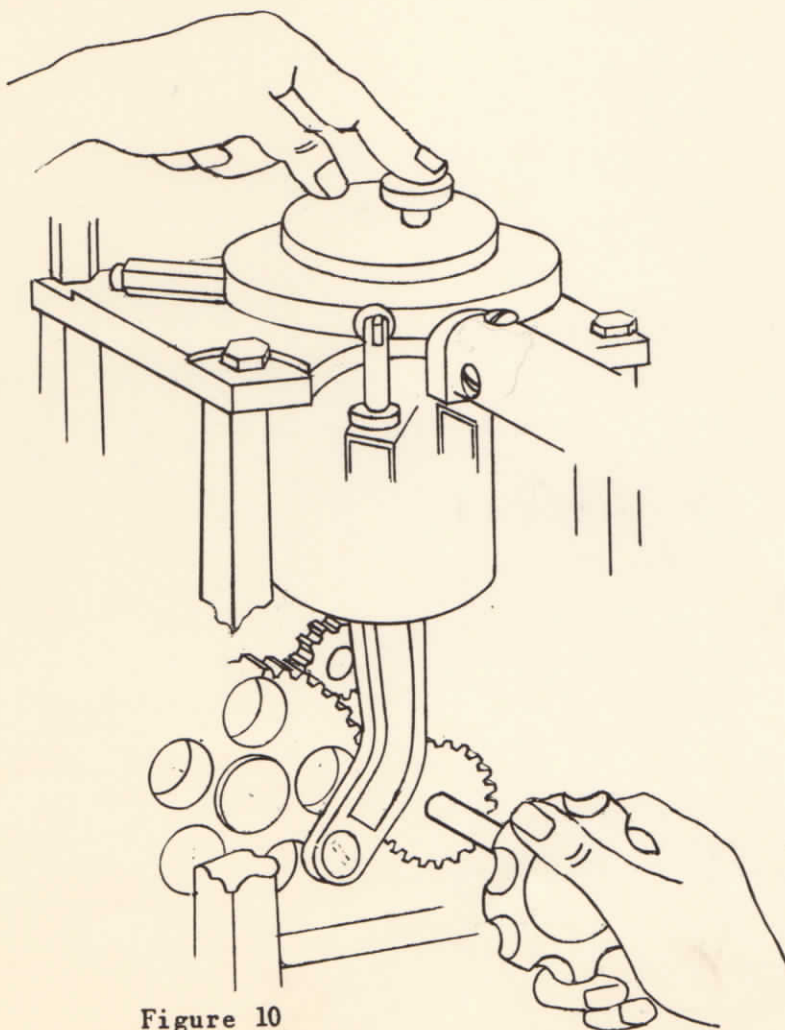


Figure 10

Do not remove crank handle until later when timing operation is completed.

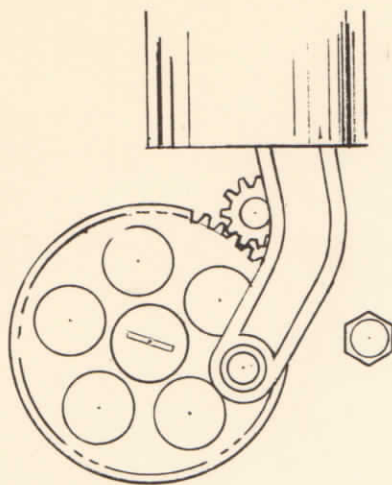


Figure 11

The next operation will require quite a few minutes of your time, and so that you will understand the mechanics of this operation we will explain the design of the shot gear. The gear contains 67 teeth and 12 shot holes. Because of the uneven number of teeth in relation to the even number of shot holes, it is possible to obtain 67 different settings or positions of holes. For the gun to be in correct time, a shot hole must be in a position nearly directly above the breach hole in the cylinder casting.

Now for the actual timing operation:

1. Position the piston by using the crank handle gear and the gage through the top of the cylinder casting as previously described.
2. Place the shot gear on its hub on top of the cylinder block and in mesh with the pinion. Looking straight downwards, move gear tooth by tooth (do not turn gear while in mesh with the pinion, lift up and out of engagement each trial time) until one of the holes in the shot gear is over the breach hole with just a little of the ~~copper~~ ^{NYLON} air seal washer showing (about 1/16") as is pictured in Figure 12.

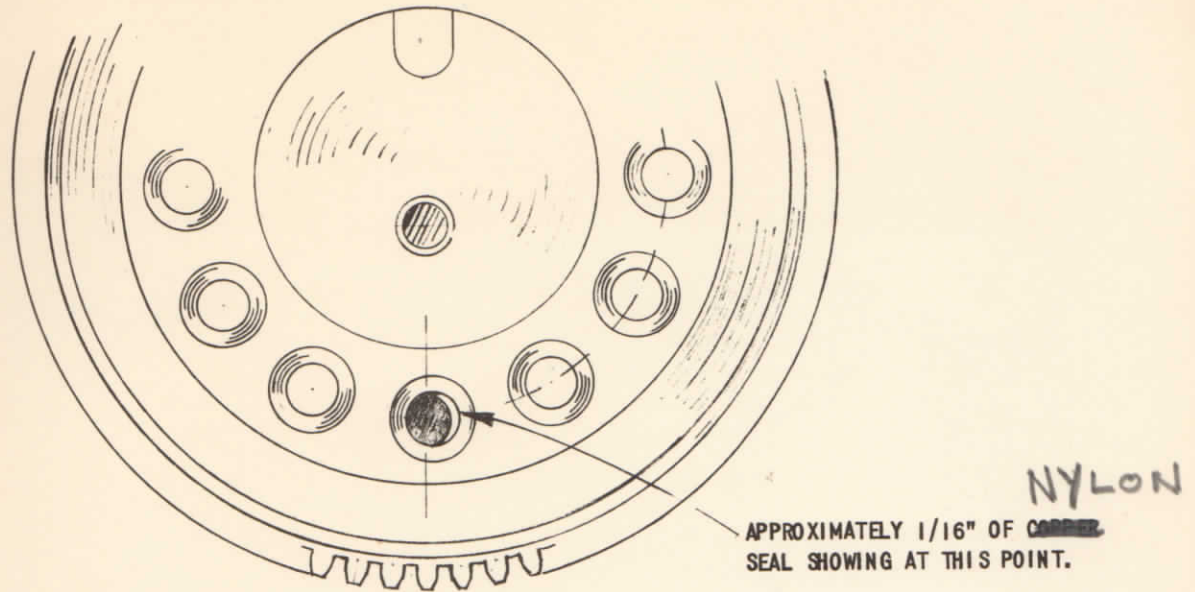


Figure 12

When this position is obtained, the mechanism should be in proper time. Turn crank handle and remove. Reassemble brass shot valve and nylon piece, insert center screw with spring.

CUT-AWAY VIEW OF BRASS HOLDING PIECE

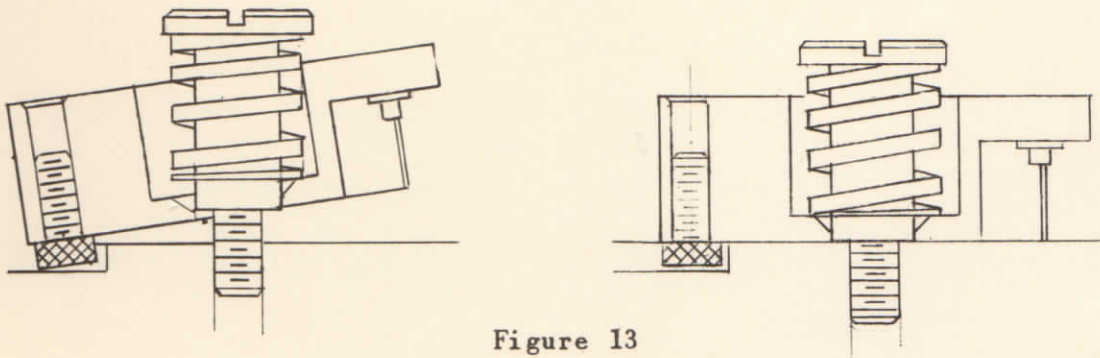


Figure 13

WRONG ASSEMBLY

RIGHT ASSEMBLY

Figure 13 shows how shoulder edge on bottom of this screw should fit freely through hole in brass piece so that no bind or clinch will exist. After tightening, test correctness by placing screwdriver between feed gear and frame as shown in Figure 14 and pry down slightly. This should lift gear a small amount if you have installed screw properly. If gear does not lift readily, loosen screw again and retighten. This portion of the machine is so designed to allow the feed gear to tilt upwards slightly if a damaged ball pellet or some foreign objects enters between feed gear and air seal. This tilting action causes switch to break all electrical current to machine until trouble is corrected.

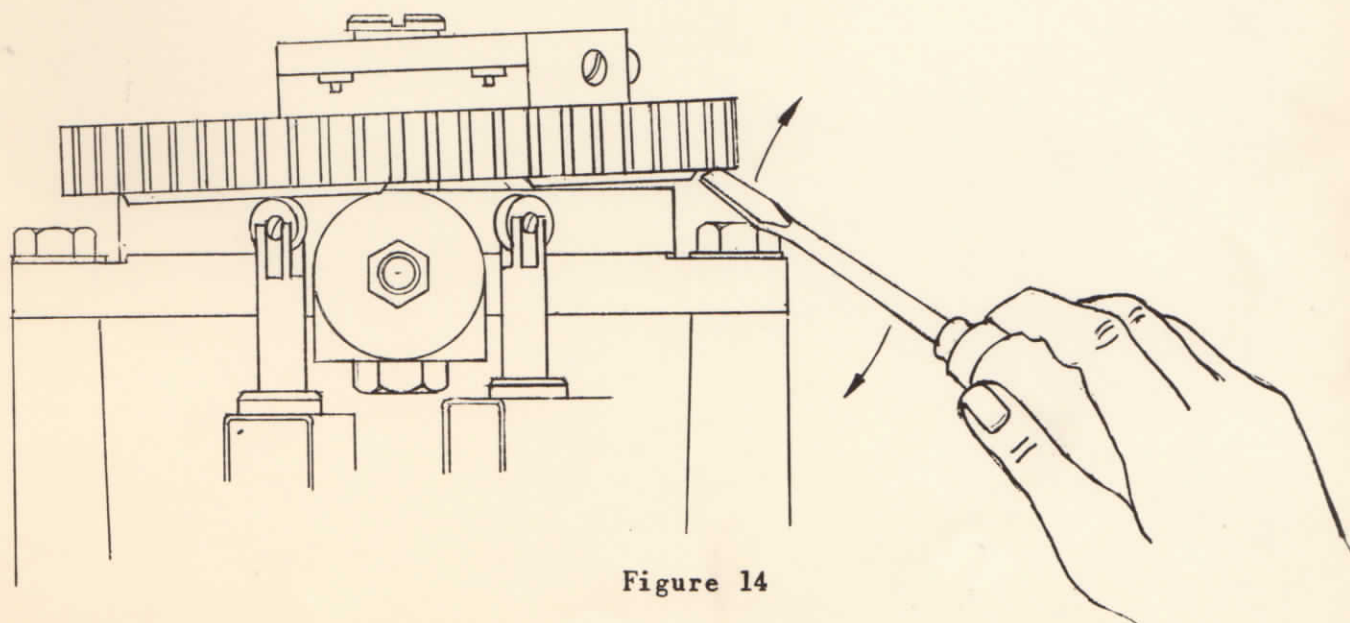
The principal of timing is this: As the shot gear rotates, the ball holes containing the pellets move over the breach hole in the cylinder casting, each ball dropping by gravity as its carrier passes the breach hole.

At this precise instant the piston should be near the bottom of its downward stroke, and it will be if you have followed instructions in timing the machine.

To explain further the operating cycle, after the ball has dropped into the breach, the shot gear moves to a blank position between holes which closes the breach airtight as the piston moves upwards on its compression stroke. The air is compressed and finds its way out through the gun barrel, propelling the shot pellet at a high velocity thru the barrel as it goes.

This cycle is repeated over and over approximately four hundred and thirty six times per minute.

A word of caution is in order at this time. The velocity of the shot pellets is considerable, enough to pierce thru a quater inch thick plywood board, so don't take chances by standing in front of the muzzle. You can never be sure if there isn't a stray pellet under the nylon valve seat or in the breach. Always disconnect service cord from wall outlet before servicing machine.



Replace pellet tray with its two screws and test machine. If you have followed instructions, everything should now be in good operating order.

VELOCITY ADJUSTMENT:

Your Super Commando machine gun is equipped with a velocity control valve that regulates the amount of air compression that propels the shot pellets.

The machine has been designed for high compression which in turn gives a powerful thrust to the pellets. When the gun is used in galleries that are short in length, it is advisable to reduce the amount of compression so that ricochet can be reduced to a minimum. This is accomplished by turning screw valve with a screw driver counterclockwise until desired velocity is obtained (right side of cylinder casting as you stand behind gun) Figure 15.

Make sure that locking nut is retightened when you have the velocity set as you want it.

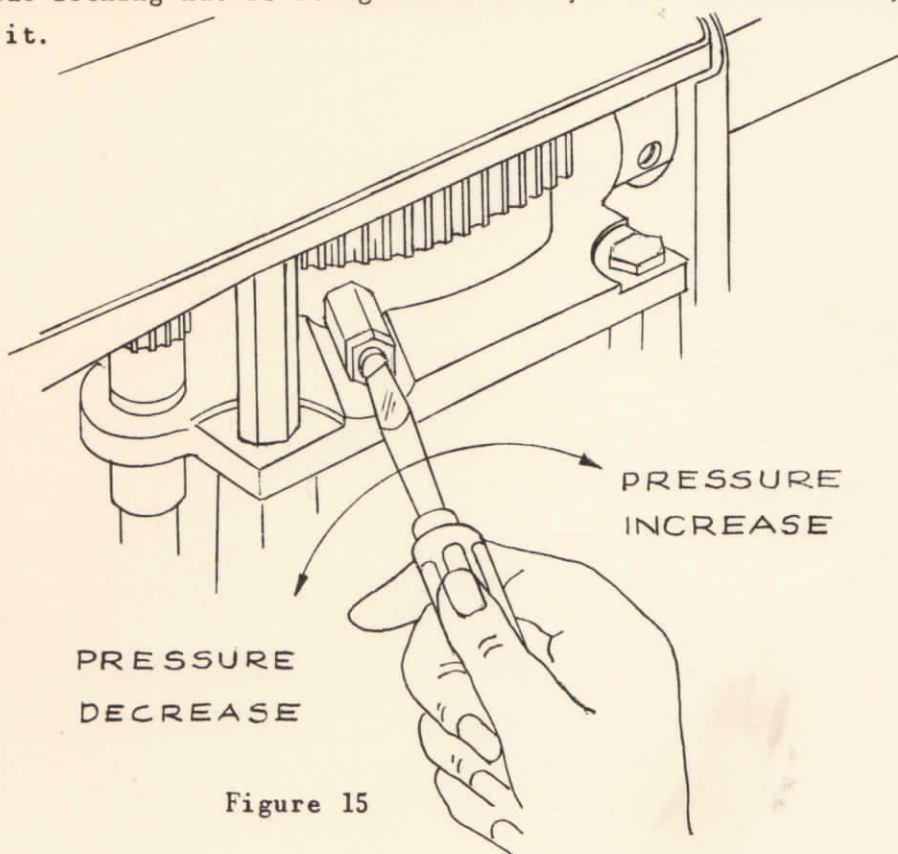


Figure 15

LUBRICATION:

Particular emphasis must be placed on proper lubrication of all gears and moving parts. A special type of paste lubricant is furnished with each machine.

IMPORTANT: Absolutely no other substitute should ever be used. Failure to heed this advise will result in damage to your machine. The lubricant should be applied daily to all joints in Figure 16, and more frequently if machine is in constant use.

Continued:

LUBRICATION: Continued

It is best to apply lubricant with a stiff bristled brush of the type commonly used in soldering operations. Machine should not be in operation during greasing and oiling operations. Service cord should always be pulled out for the sake of safety and also possible damage to the mechanism.

The worm and worm gear are two of the most critical insofar as proper lubrication is concerned. You will note that there is a metal splash cover around both these gears, for the purpose of containing the grease that is thrown off by centrifugal force during the running of the machine.

Surplus grease is caught and builds up a deposit on the splash covers and eventually redeposits it on the gears.

When applying the special lubricating grease to these gears, pack in a sufficient amount so that the gears are almost completely covered.

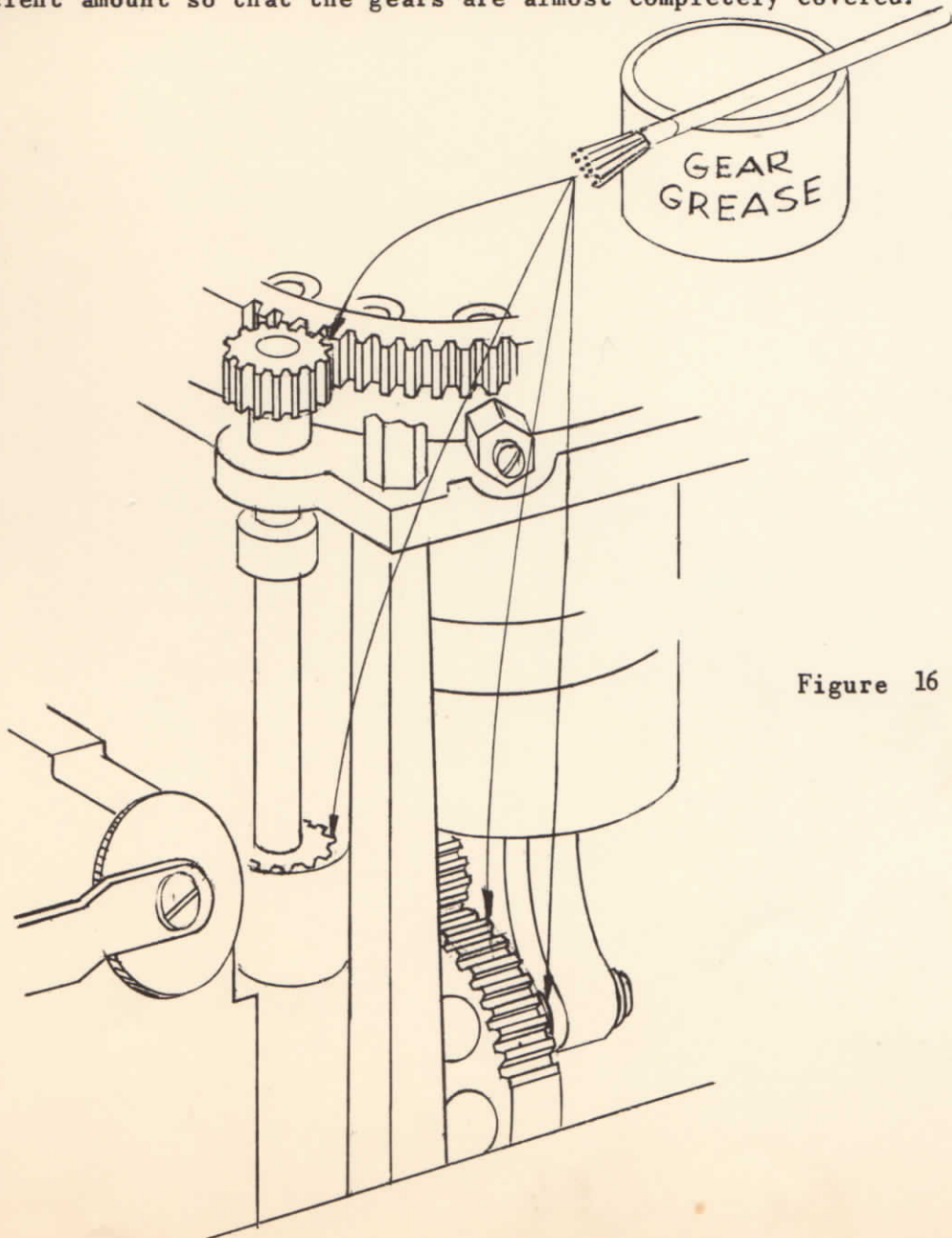


Figure 16

We cannot stress to greatly the need of lubrication on these and other gears in the machine and we suggest that you set up a definite lubrication schedule and adhere to it. If you do this you will enjoy years of trouble free service from your gun.

A number S.A.E. 20 motor oil in a long spout oil can should be used for oiling clutch operating levers and solenoid pull bars. See Figure 17.

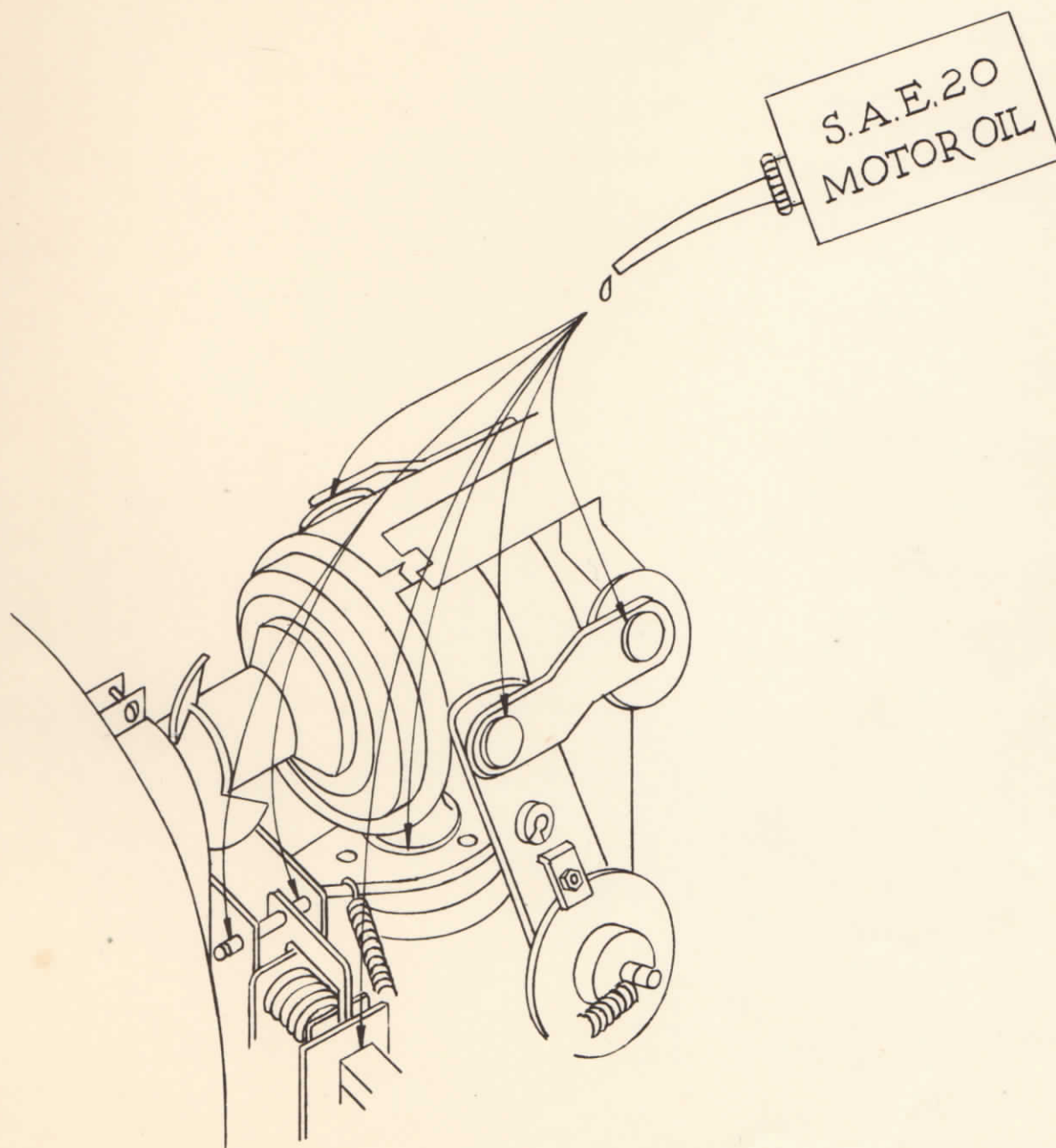


Figure 17

SWITCH ADJUSTMENT:

The relay and switch adjustments have been carefully made and inspected at the factory and should give a long period of service before any service is required, however as time goes on it will be necessary to clean contact points. To clean contact points on cam switch it is necessary to first remove plexi-glass shield by turning off wing nut, then remove metal cover over switch. Two screws hold this part.

When cleaning contact points use a fine grade of emery cloth (never sandpaper) and use sparingly so as not to remove too much of the silver points. The normal position of the relay and the cam timing switch is shown in Figure 18.

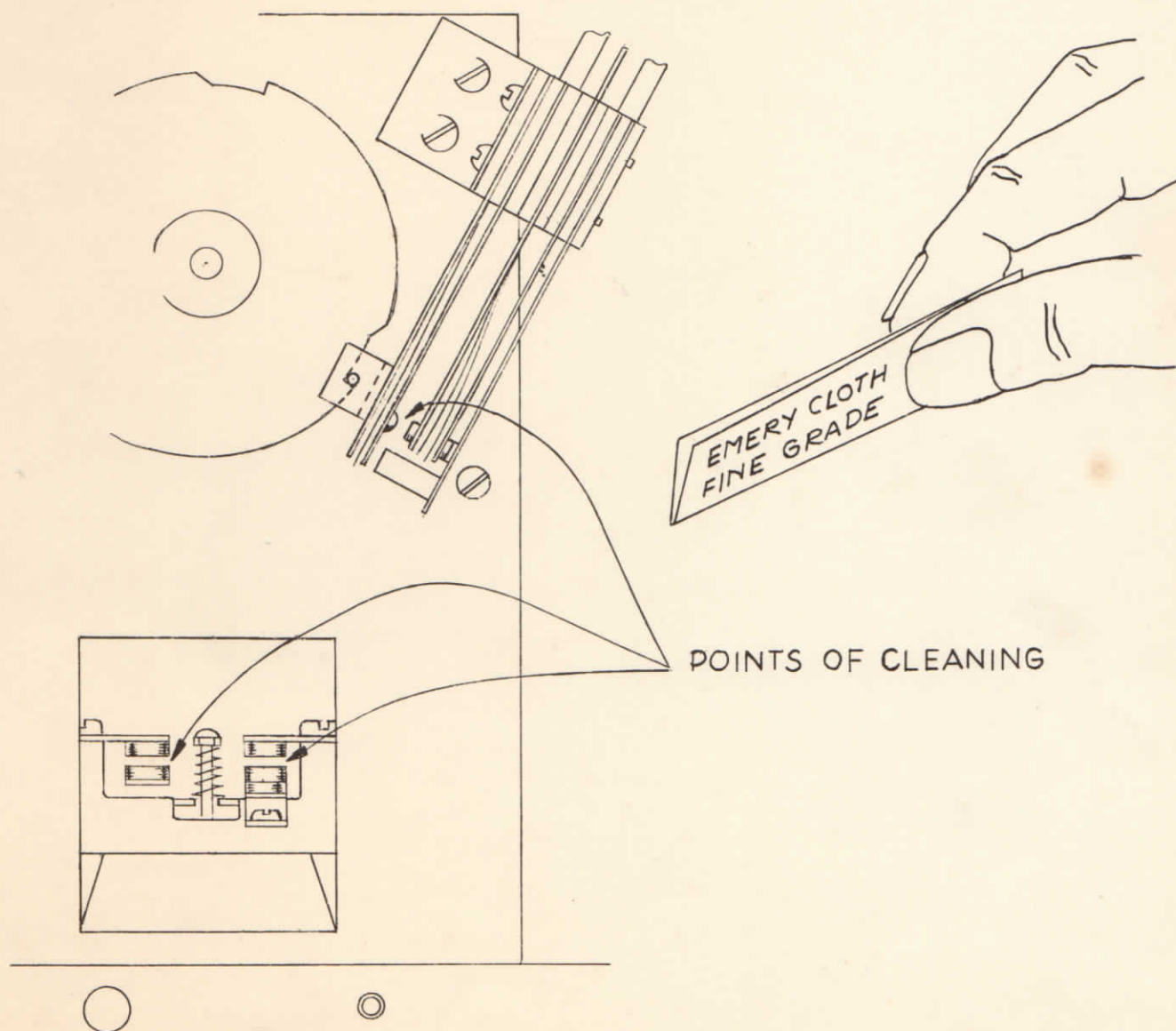


Figure 18

All cleaning and adjustment should be made when the switches are in these positions. The wiring diagram shown elsewhere in this manual shows the positions of the contact switches as they are when the machine is at rest. (Directly after a playing cycle has been completed).

A small amount of coin machine grease should be applied to the rim of timing cam occasionally.

Proper spring tension of leafs is essential in the timer switch assembly.

SUGGESTION: 1" wide (380-400 grade) emery paper.

LOADING SHOT PELLET BALLS:

The transparent plastic loading door cover on the top of the Commando Machine Gun, serves two purposes. First it affords visual means of knowing when the gun's hopper needs refilling, and secondly it keeps persons from removing the balls or depositing unwanted and harmful objects into the reservoir.

The cover has a key lock which keeps it secure and tight. All loading doors on your installation will open with a single key, as they are keyed alike.

There is a little trick in opening and closing the door which we will explain now.

The plastic is flexible and must be distorted or twisted slightly each time door is opened or closed.

First unlock with key, then place fingers under forward part of door as shown in Figure 19 and pull upwards.

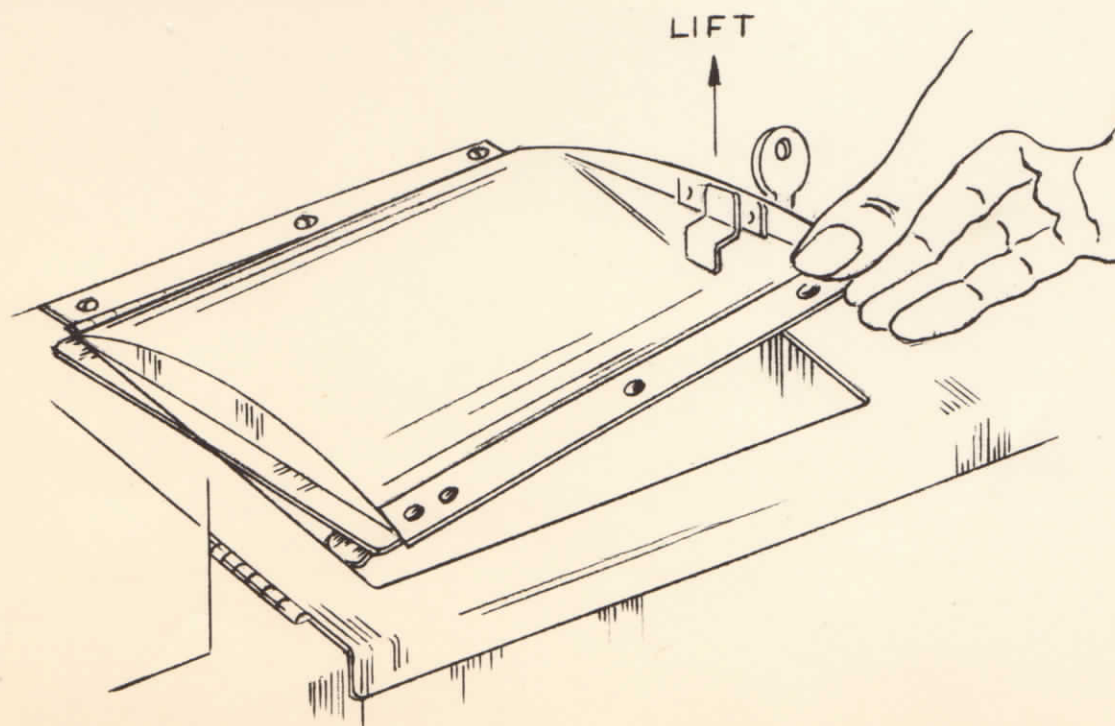


Figure 19

You will note that plastic will twist until rear metal tongue has disengaged itself from underside of hood opening. To close door, first twist plastic sufficiently so that metal tongue can be inserted in the hood opening, then release your grip and door will spring closed. Turn key in lock and remove. door is now securely fastened.

In operating several guns, it is a good and time saving practice to fill all guns at one time, as soon as one or two guns show that they need feeding. In other words, your guns will operate better when they are up to capacity in shots and you also will minimize the risk of a gun running out of shot in the middle of a play. Remember, the shot pellet tray holds about 8000 balls and this amount weighs approximately 13 lbs. The machine has been designed to properly balance itself when loaded with between 4000 and the full capacity of 8000 shot balls.

When an operator neglects to keep at least the minimum amount of 4000 shots in the machine, then he is upsetting the balance which affects accurate shooting and he is risking a skipping or missing type of shooting operation. Keep the hopper loaded to capacity is our advice, it doesn't cost anything more as you use all balls over and over again with your Commando Machine Gun.

When you look through the plastic door and the balls are far down in the tray, fill it up.

SHOT TIMING CAMS:

The number of shots given per coin is controlled by the timing cam within the machine gun. (Figure 1, Page 2) Five different cams are supplied with each gun and can be identified by the number of notches as follows:

- 2 Notches - 525 Shots
- 3 Notches - 350 Shots
- 4 Notches - 260 Shots
- 6 Notches - 175 Shots
- 8 Notches - 130 Shots

The timing cam is changed in a few minutes in the following manner:

Pull power cord from wall service outlet.

Open back door (door locked by key) and remove cash box.

Remove thumb screw and take out clear plastic protection cover.

Remove metal cover over cam switch by taking out two screws.

Cam is removed by loosening set screw in hub with allen wrench supplied with machine.

Before pulling cam from shaft, gently lift switch leafs away so that cam wheel can be slid from shaft without injuring switch leafs.

Install new cam and make sure that switch leafs are held again until cam is in proper position on shaft. Care should be taken in positioning cam wheel on shaft so that the screw will seat directly on the small flat area of shaft. Another point to check is the position of the edge of the cam wheel. Make sure that it is riding in the center of the cam roller as in Figure 20.

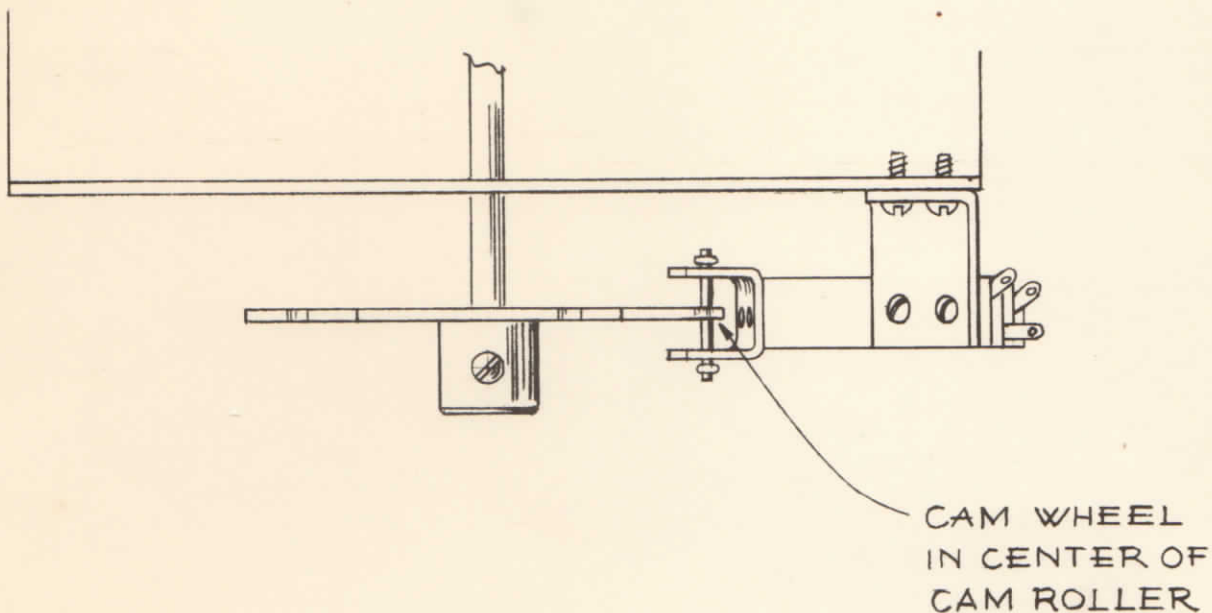


Figure 20

Tighten set screw and replace metal cover with its two screws, replace plastic cover and tighten with wing nut, replace cash box, connect power cord and test machine by firing a full time round of shot. Close and lock back door and the operation is complete.

CHANGING SLUG REJECTOR

Your Commando Machine Gun is designed to accept dimes or quarters with only a few simple things to be done.

If you have been operating at 175 shots for 10¢, for example, and you desire to change to a quarter play with 350 or 525 shots: remove slug rejector by lifting side holding levers (Figure 21) and lift rejector from its channel as shown

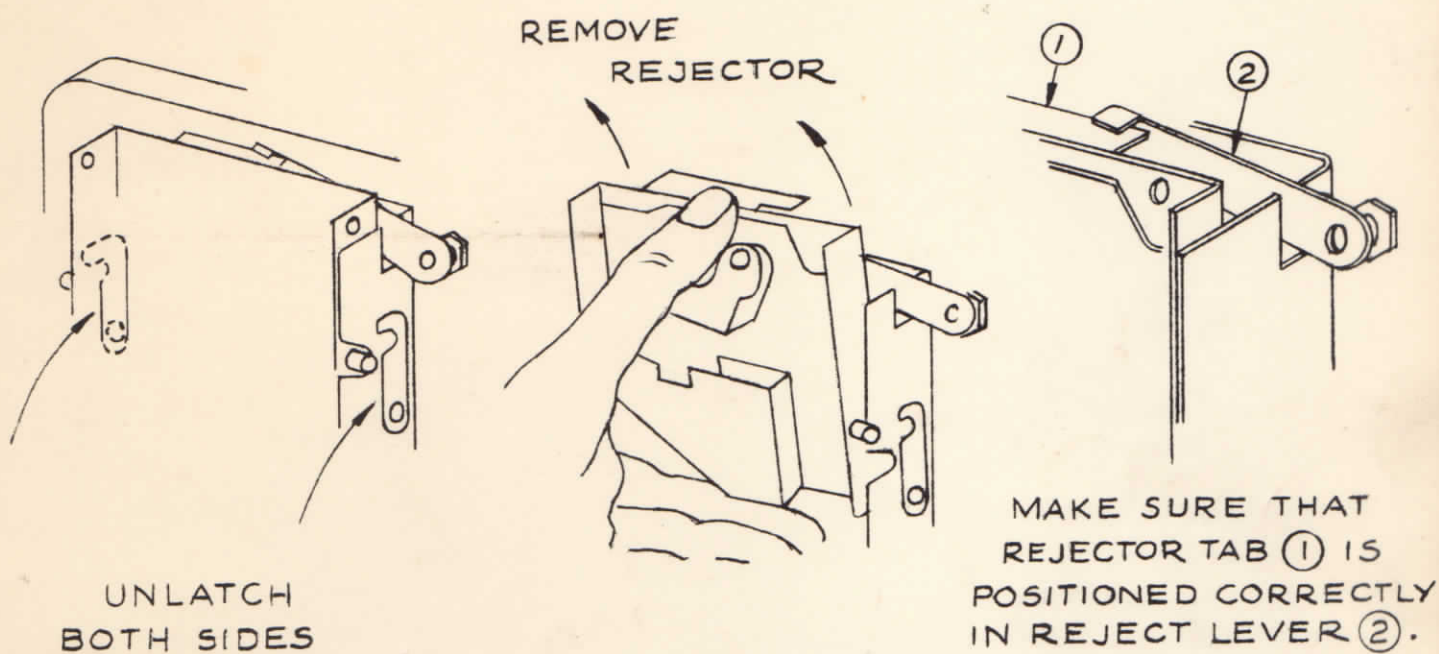


Figure 21

Replace with 25¢ rejector and pull holding levers on each side to a locking position. Make sure that the bent coin lever is in its correct position when rejector is inserted. (See Illustration) Next, the wire form on the coin switch below the rejector must now be pushed to the left into its last notch. Make sure that wire end moves freely and does not touch edge of curved slot, Figure 23 gives additional information.

How to change number of shot cams is explained elsewhere in this booklet.

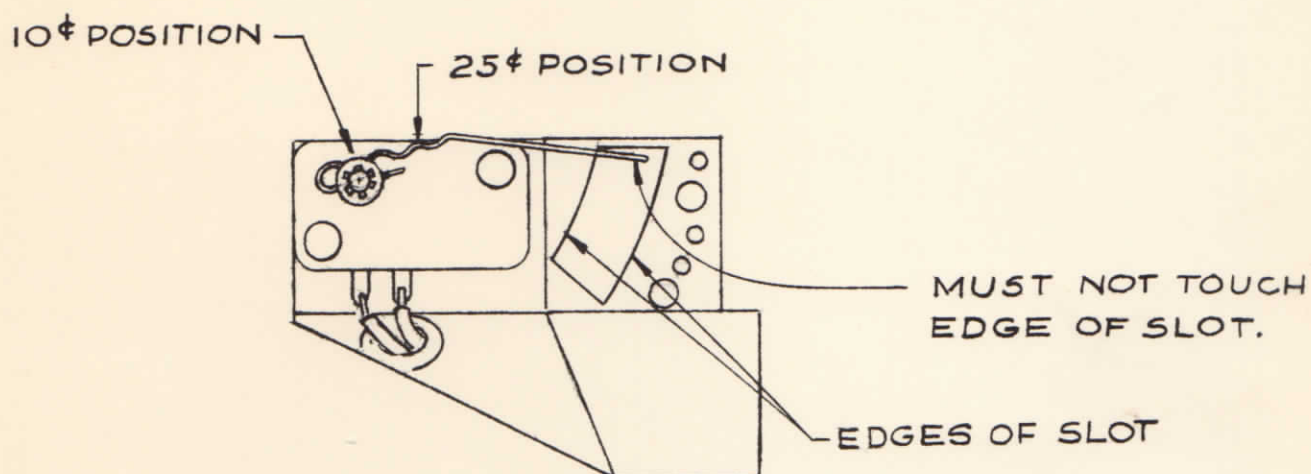


Figure 22

MOUNTING SAFETY CHAIN

Your Commando Machine Gun comes equipped with a hardened steel link chain, padlock and mounting bracket.

The purpose of this chain is to discourage and prevent theft of the machine.

For shipping purposes the mounting brackets is secured to the underside of the gun base by means of a small machine screw that normally secures the switch plate in place.

Before setting up your machine gun, remove the small screw to release the chain and bracket, and then replace screw and tighten.

The chain bracket is mounted by means of the same bolts that you will use to secure the angle base of the gun bracket. We suggest that 5/16" diameter carriage bolts of sufficient length to extend through the metal parts of the base and the thickness of the platform on which the guns will set. Figure 23 shows a typical installation.

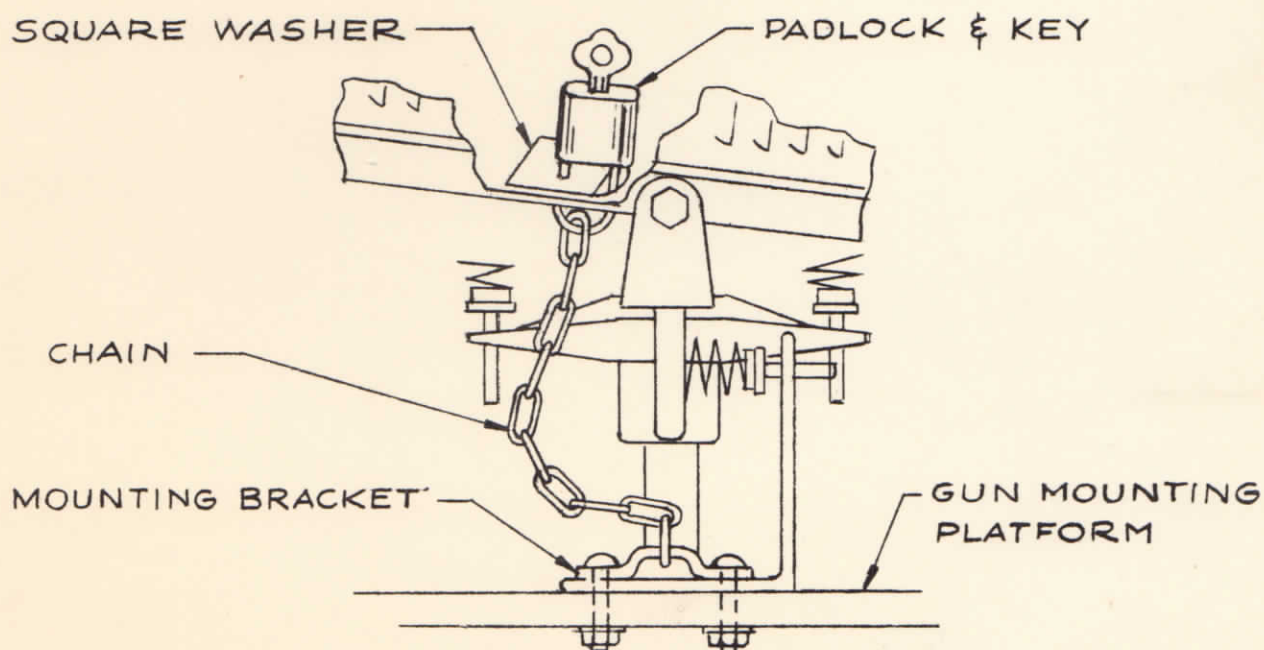
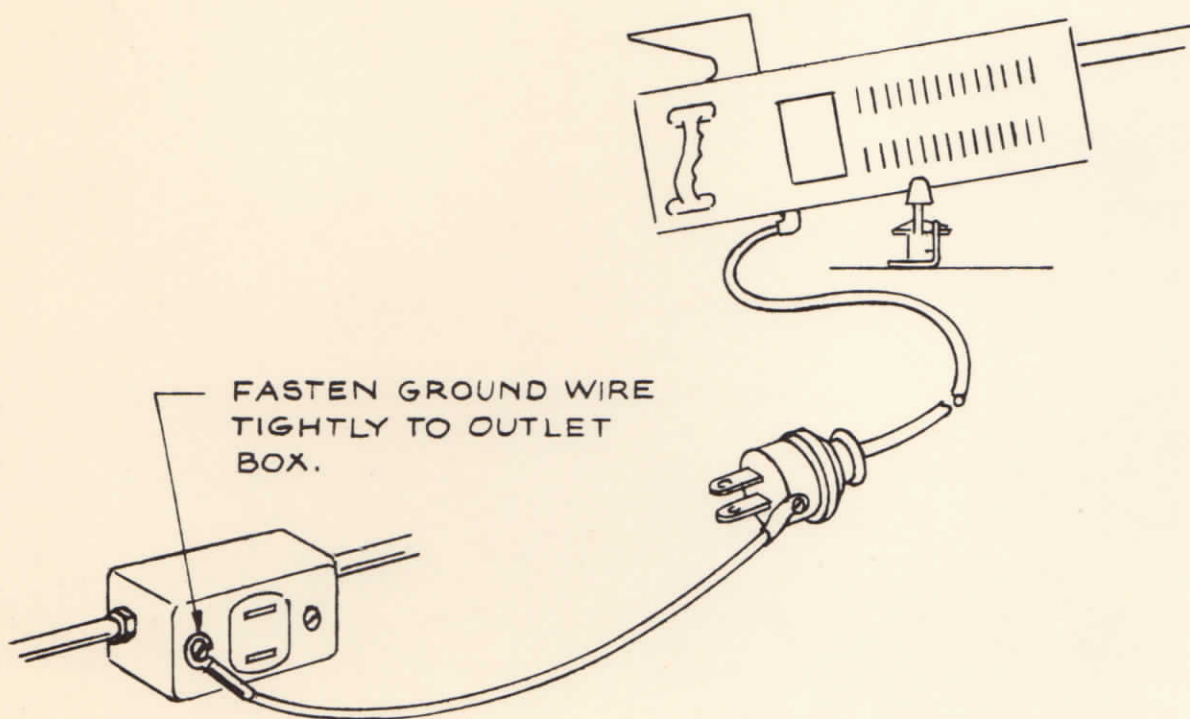


Figure 23

WIRING DIAGRAM

A wiring diagram including wire colors is shown on the following page. It is absolutely imperative that the green wire lead from the service cord plug adaptor be tightly fastened under screw head of outlet box as shown in figure 24.



This grounds the entire frame and exterior parts of the machine gun and is necessary for safety for you and your patrons.

TO ADJUST CLUTCH

The solenoid operated clutch is carefully adjusted and tested before leaving the factory, however transportation handling sometimes causes clutch to loosen its adjustment.

To readjust clutch is a relatively simple operation and is performed as follows:

1. Remove plastic cover by loosening one screw on each side and sliding cover out. (Figure 25)

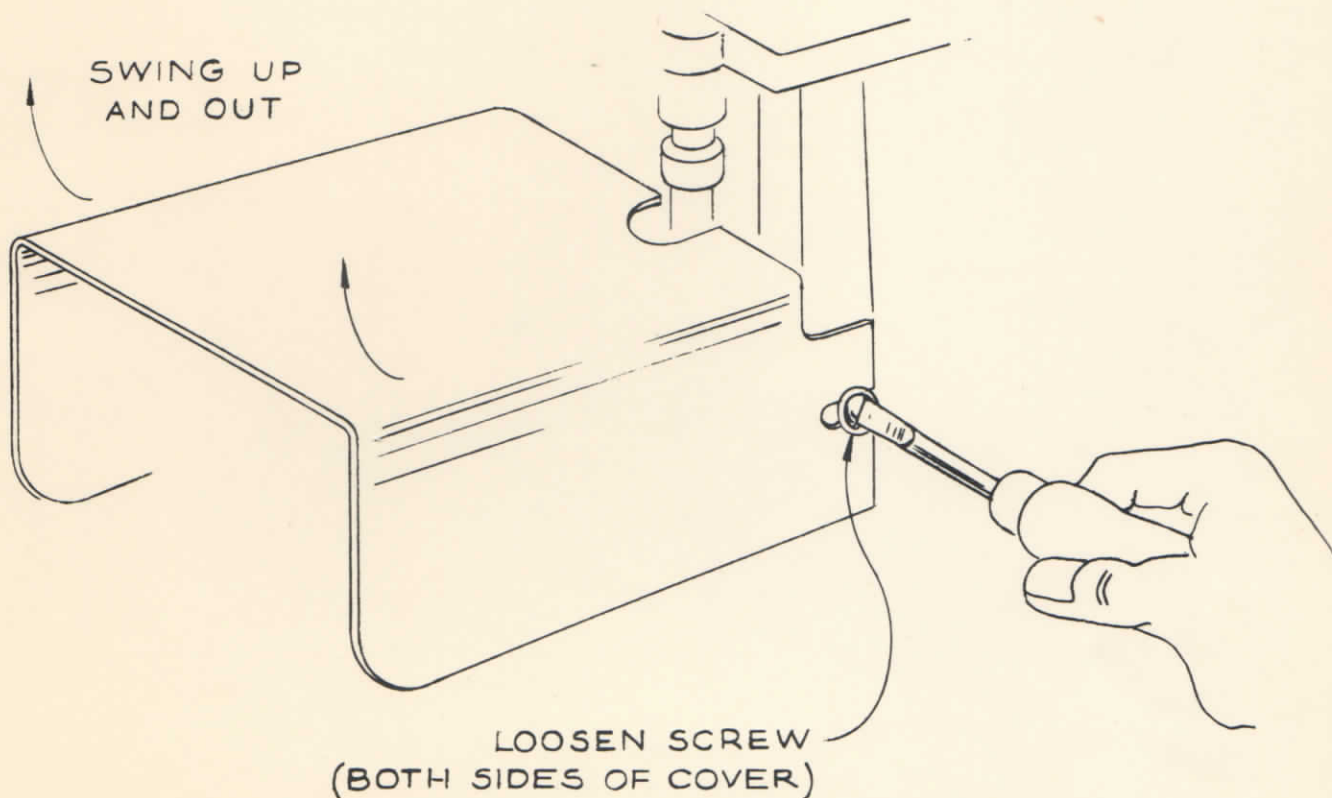


Figure 25

2. With a pliers, loosen nut that locks knurled adjustment wheel. (Figure 26)

TO ADJUST CLUTCH: Continued

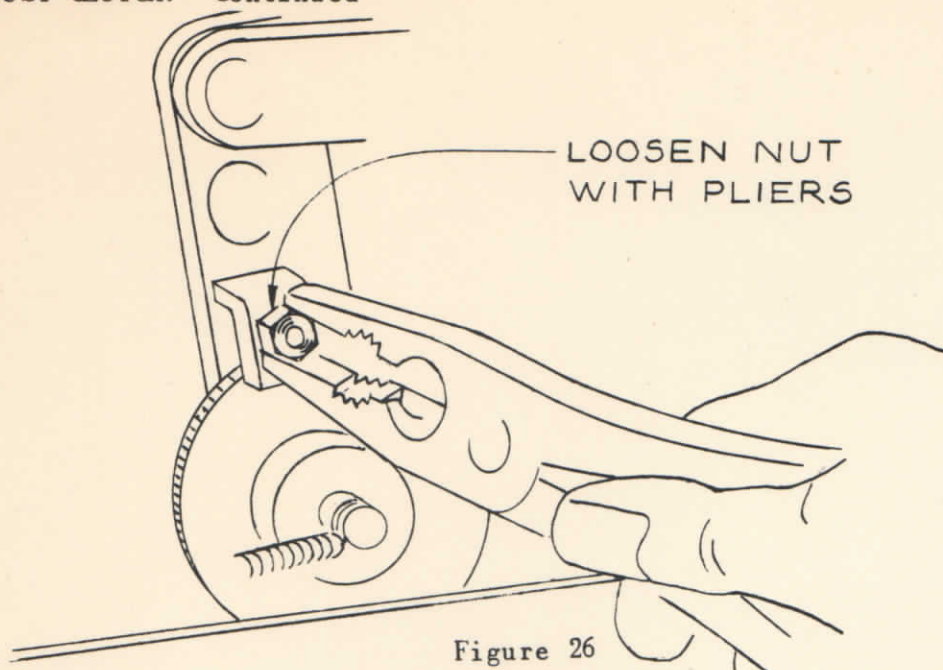


Figure 26

3. Drop coin to start motor, DO NOT PUSH TRIGGER BUTTON.
4. Turn knurled adjustment wheel clockwise slowly until compressor starts operating, now reverse the rotation of the wheel in a counter clockwise direction very slowly and carefully until compressor stops. It is exactly at this point that the clutch is in proper adjustment. (Figure 27)

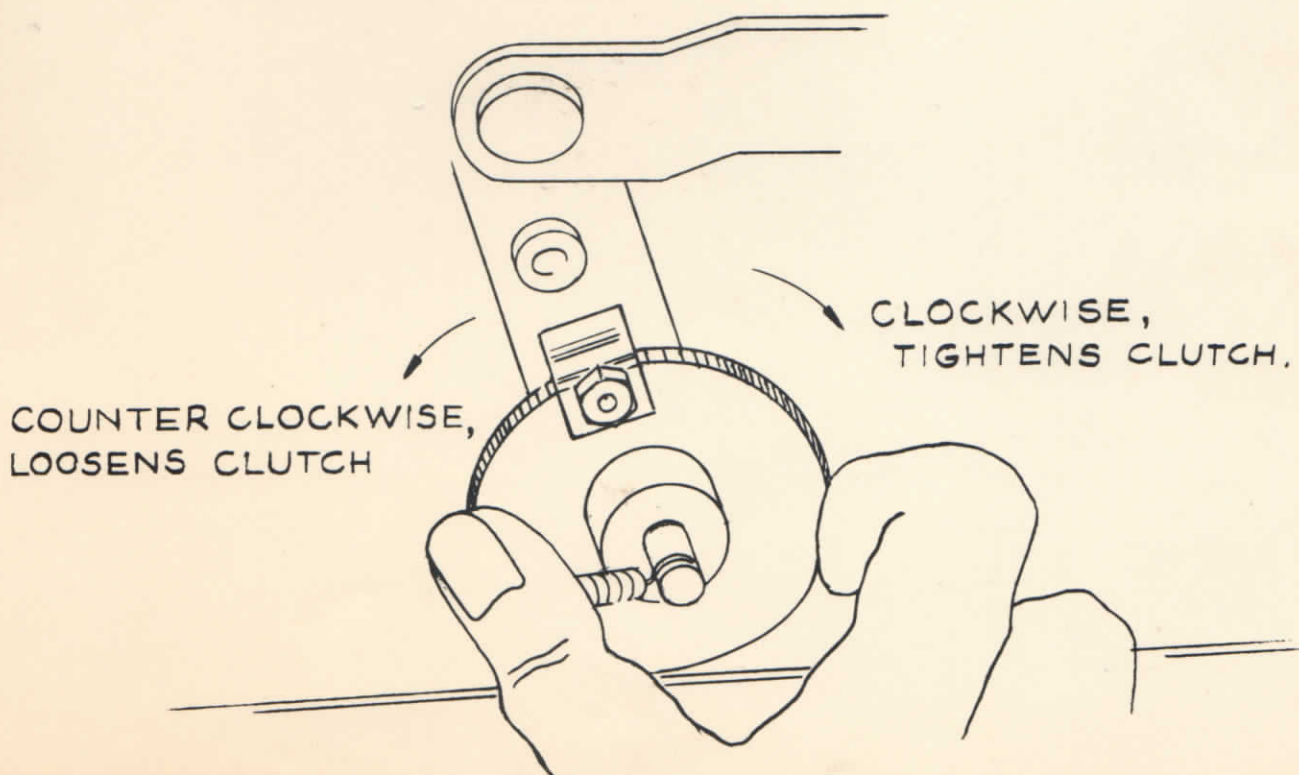


Figure 27

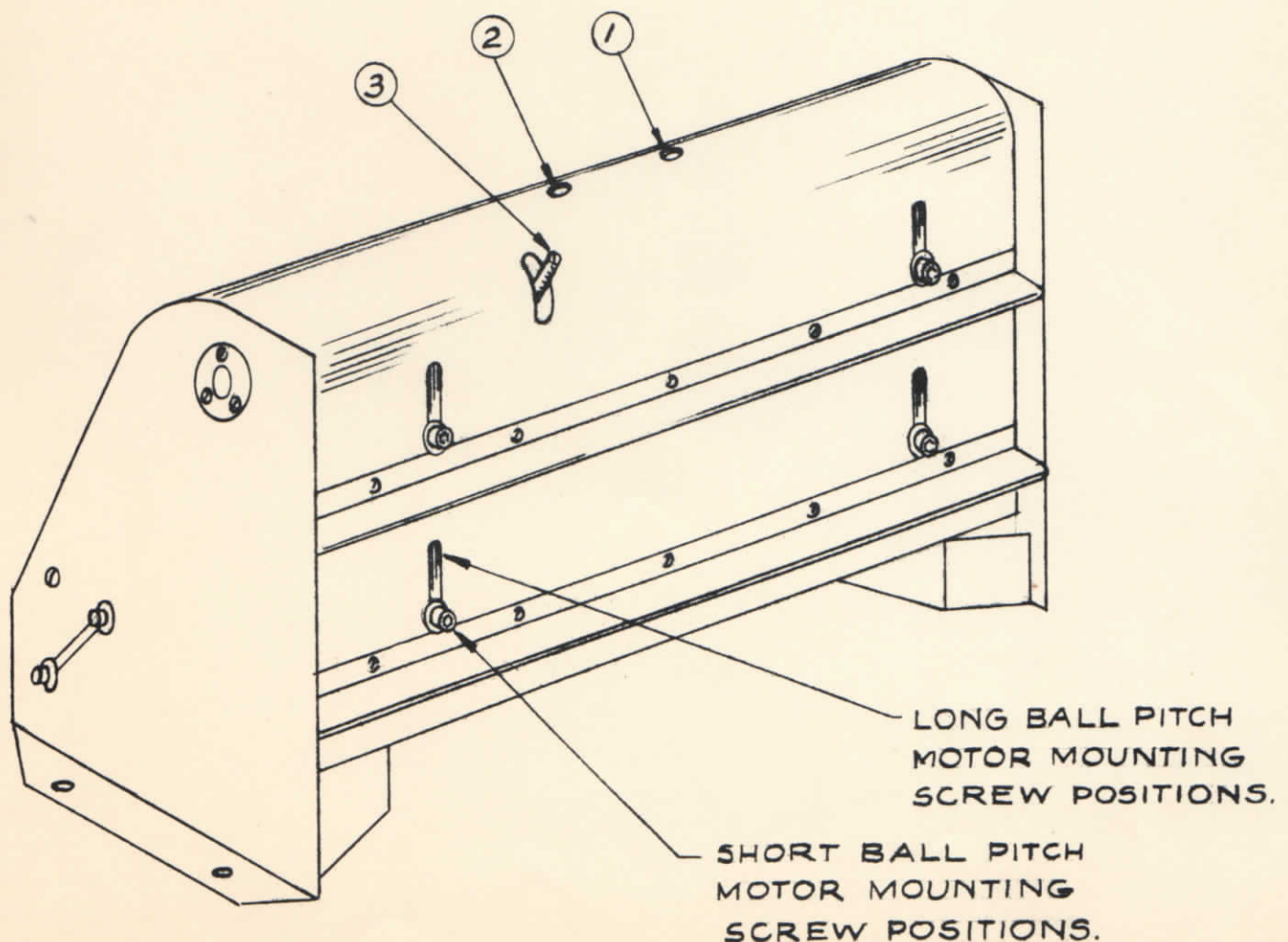
TO ADJUST CLUTCH: Continued

5. Retighten nut and clutch adjustment wheel will be locked in position.
6. Test operation of gun by pressing trigger button a few times.
If clutch is still too tight, gun will continue to cycle even though your finger is released from trigger button. In this event it will be necessary to loosen locking nut again and turn adjustment wheel just a little more in a counter clockwise direction which will loosen clutch plates slightly. Retighten locking nut and retest machine.

The ping pong ball pitching machine can be adjusted for different lengths of pitch, simply by loosening the four socket head screws, indicated in the illustration below, and moving motor up or down. The greatest force which accounts for the longest pitch of the balls, is when the motor socket head screws are at the top of their individual slots. Likewise the smallest force, or shortest pitch occurs when the screws are at the lower part of their slots. Intermediate positions will pitch the balls to your own choosing.

Occasional oiling of the motor is necessary and access holes in metal cover have provided so that a thin necked oil can spout can be inserted in the proper oil holes. A number 20 oil should be used.

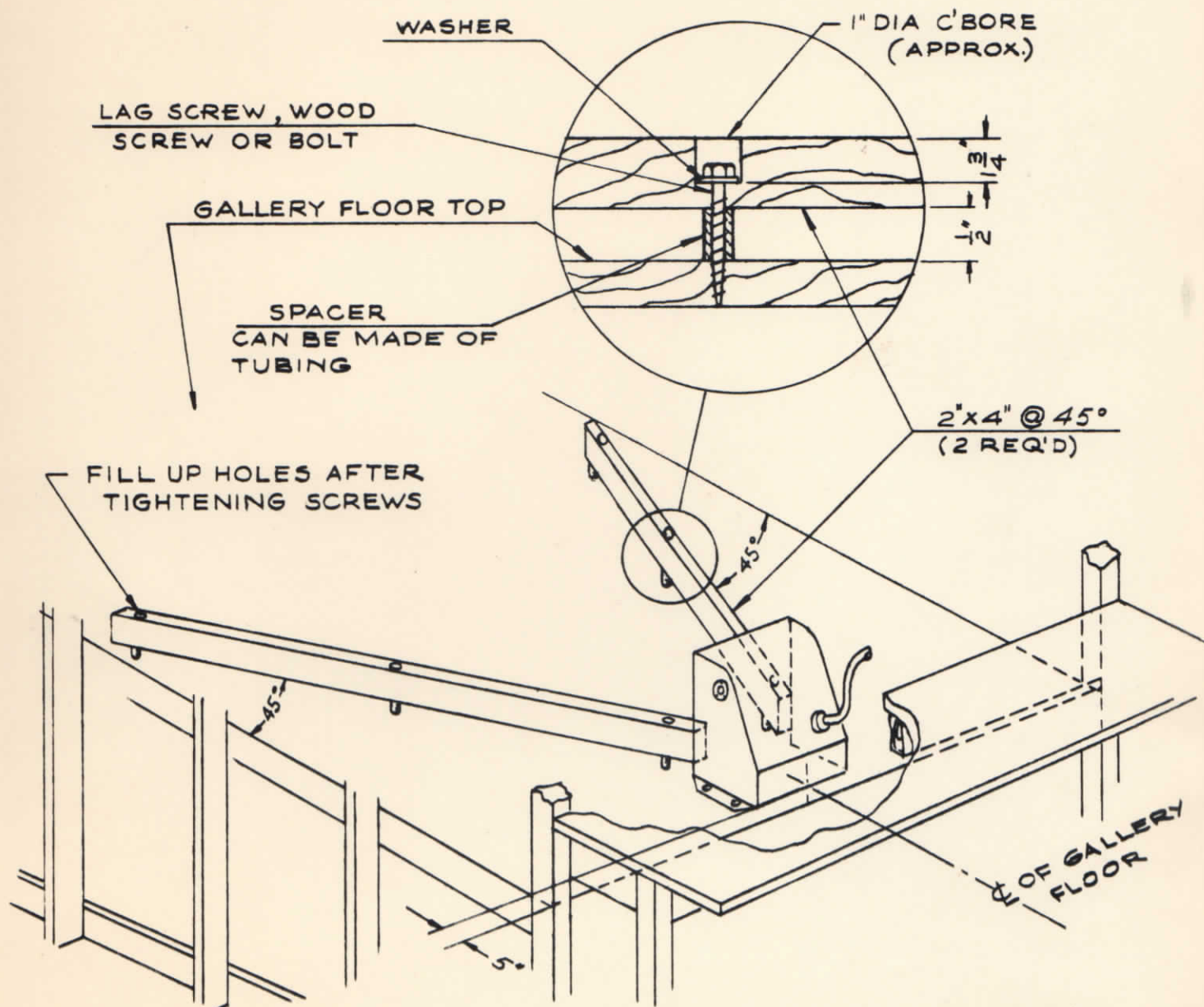
A few drops every week in the motor shaft oiling holes (No. 1 & 2 in the illustration) is sufficient. The gear case should be oiled once a month. This is done by removing long plug (No. 3 in the illustration) and spouting in sufficient oil until it overruns the hole. Then replace plug and tighten.



BALL PITCHING MACHINE

INSTALLATION INSTRUCTIONS AND SUGGESTIONS

The ball pitching chime will enhance your gallery play by presenting many challenging action targets in the form of moving balls defying the patron to pepper them with shot.



Installation of the machine is simple. Bolt or screw base to floor. The illustration above shows the position of the machine along with suggested installation of side rails that channel returning balls to the pitching machine.

MOUNTING BRACKET INSTALLATION

The mounting bracket and accessories for each machine gun are packed in in a separate carton within the shipping crate.

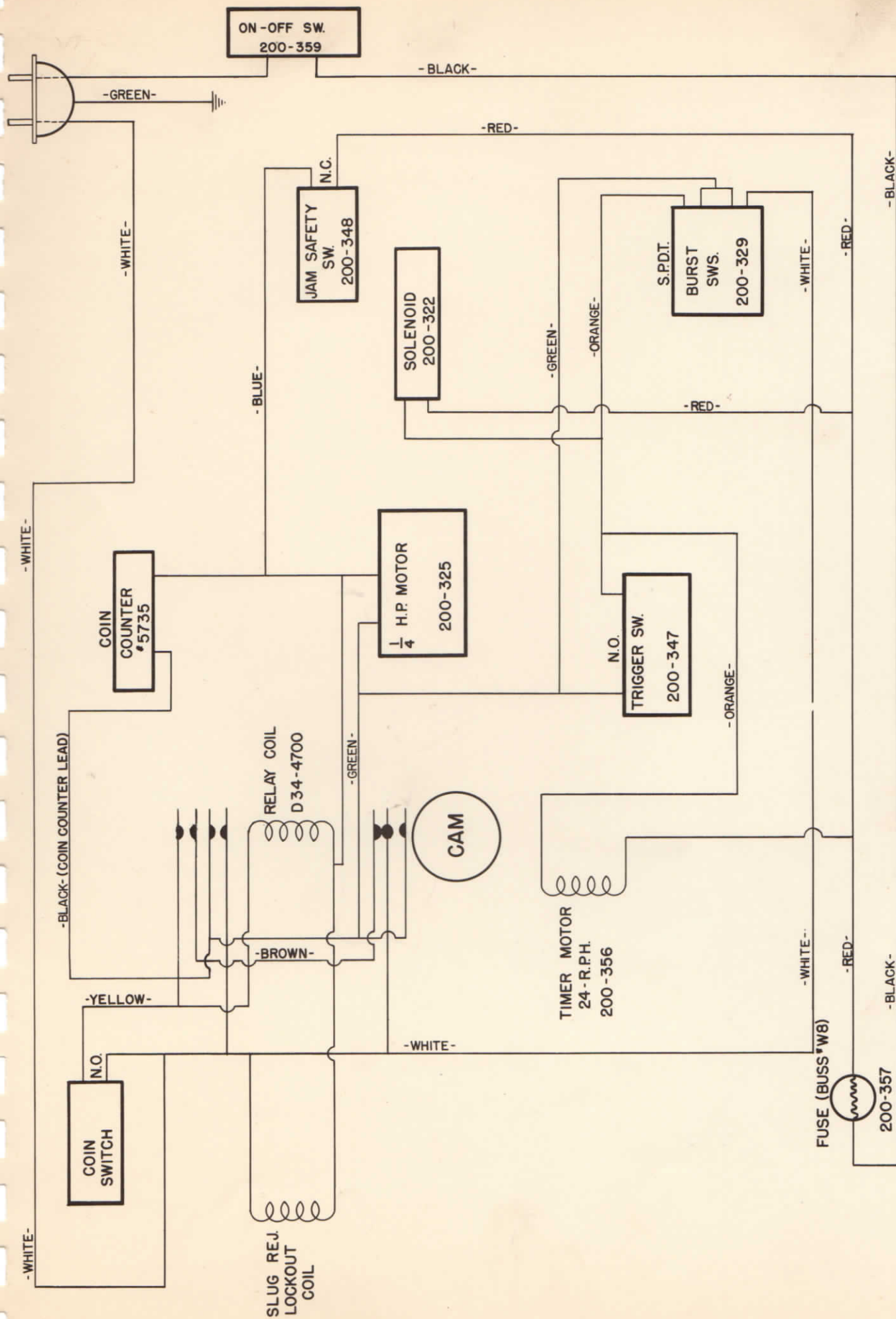
The angle bracket should be mounted to a strong and well built platform or counter, by means of four 5/16" carriage bolts of sufficient length to accommodate a flat washer and a lock washer on the underside of the platform.

The coiled spring wires are to be fastened to the underside of the gun by means of the small screws furnished in bottom plate of the gun.

The purpose of these springs are for protection of your patrons fingers, they prohibit entry of fingers or hand between the stops of the gun carriage.

The front rubber bumper stop (nearest to targets) should be turned down all the way so that when gun is in the rest position, the muzzle should be pointing downward. This is necessary in order that the pellets will roll forward in the tray and fill for the next play.

As we have mentioned before, the gun holds approximately 8000 pellets. Each time the gun is tilted downwards (in its rest position) about 600 pellets load into the separator gear. It is a good practice to have attendant occasionally, during none play periods of the gun, bounce gun once or twice down on the forward rubber bumper stop. This action releases any ball jam that may be keeping pellets from rolling forward to firing position. (See Page 25, Figure 23 For Additional Instructions On Mounting Bracket And Safety Chain.)



SUPER COMMANDO MACHINE GUN
SCHEMATIC

Notes

INSTRUCTIONS
FOR

INSTALLING
T A R G E T S

You have received a set of drawings that suggest how your gallery housing should be built. It isn't absolutely necessary that you adhere strictly to these suggested plans, in so far as the wall sections and roof are concerned, but it is imperative that the floor sections be slanted at the pitch shown, in order that the spent pellets will return to the trough and ball washing machine.

In the event you desire to extend the length of your gallery to other than the suggested length, make sure to continue the floor slant (pitch 4 degrees for main front section of flooring) as shown on the construction drawing sheet No. 1. The only difference will be that it will require more structural truss sections depending upon the length you choose. (Figure 1)

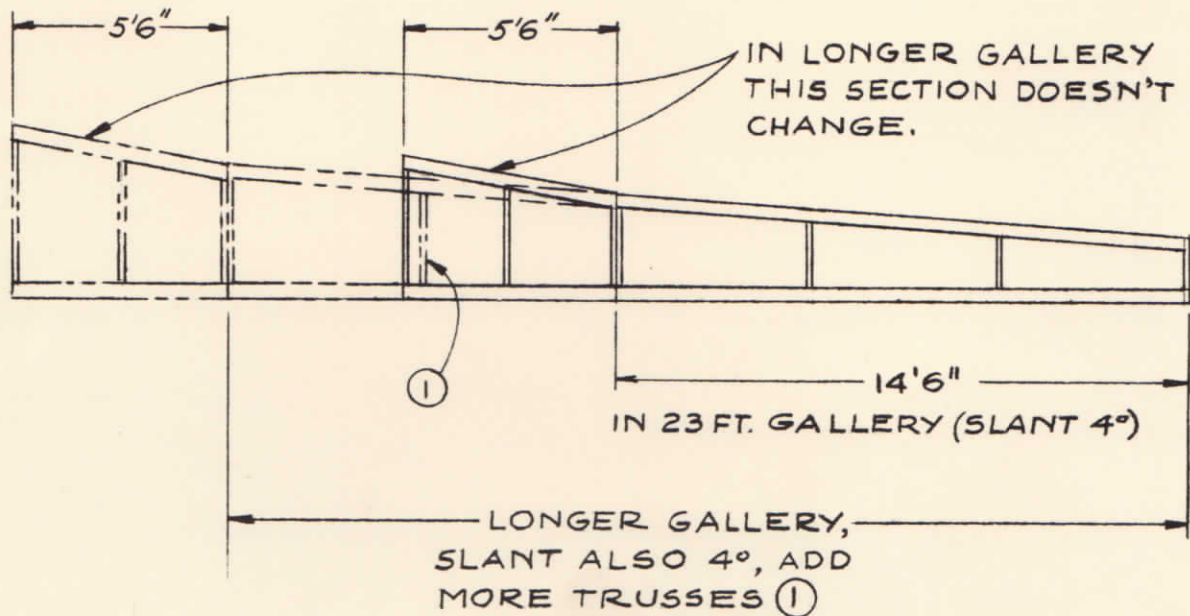


Figure 1

Before starting to install any of the target equipment, all electrical outlets should be installed. (A pictorial schematic wiring diagram is furnished) After the electrical work is complete, a good grade of inlaid linoleum is laid over entire floor area (can be secured by tacks or cement.)

The main animal target is packed in large wooden case complete with the exception of the side covering fenders which are packed in a cardboard carton.

The best way to open the large wooden crate is to set it up on its end with label indicating "this end up". The contents of this crate is of considerable weight (500 lbs.) and no less than four men should handle its removal. (Figure 2)

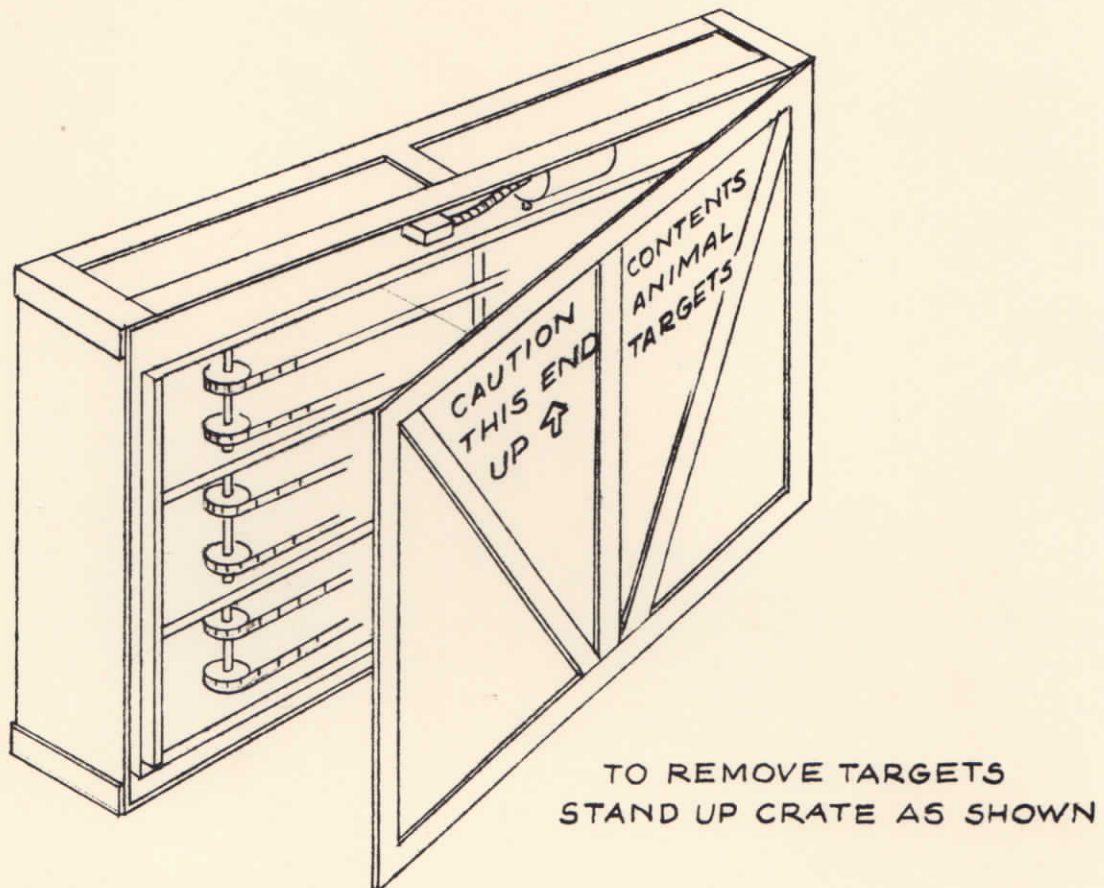


Figure 2

The target has four metal legs which are fastened to the sides of the target frame with one bolt in each leg for shipping purposes. Do not remove this bolt, merely loosen slightly and pull down each leg until the two or more other holes in leg correspond with the mating holes in the frame. Fasten each leg securedly by screws, nuts and washers furnished, (in bag) and make tight. The two tubular supports mounted on the rear channel are also moved so that they connect with each of the rear legs, and then bolted in a secured position. (Figure 3)

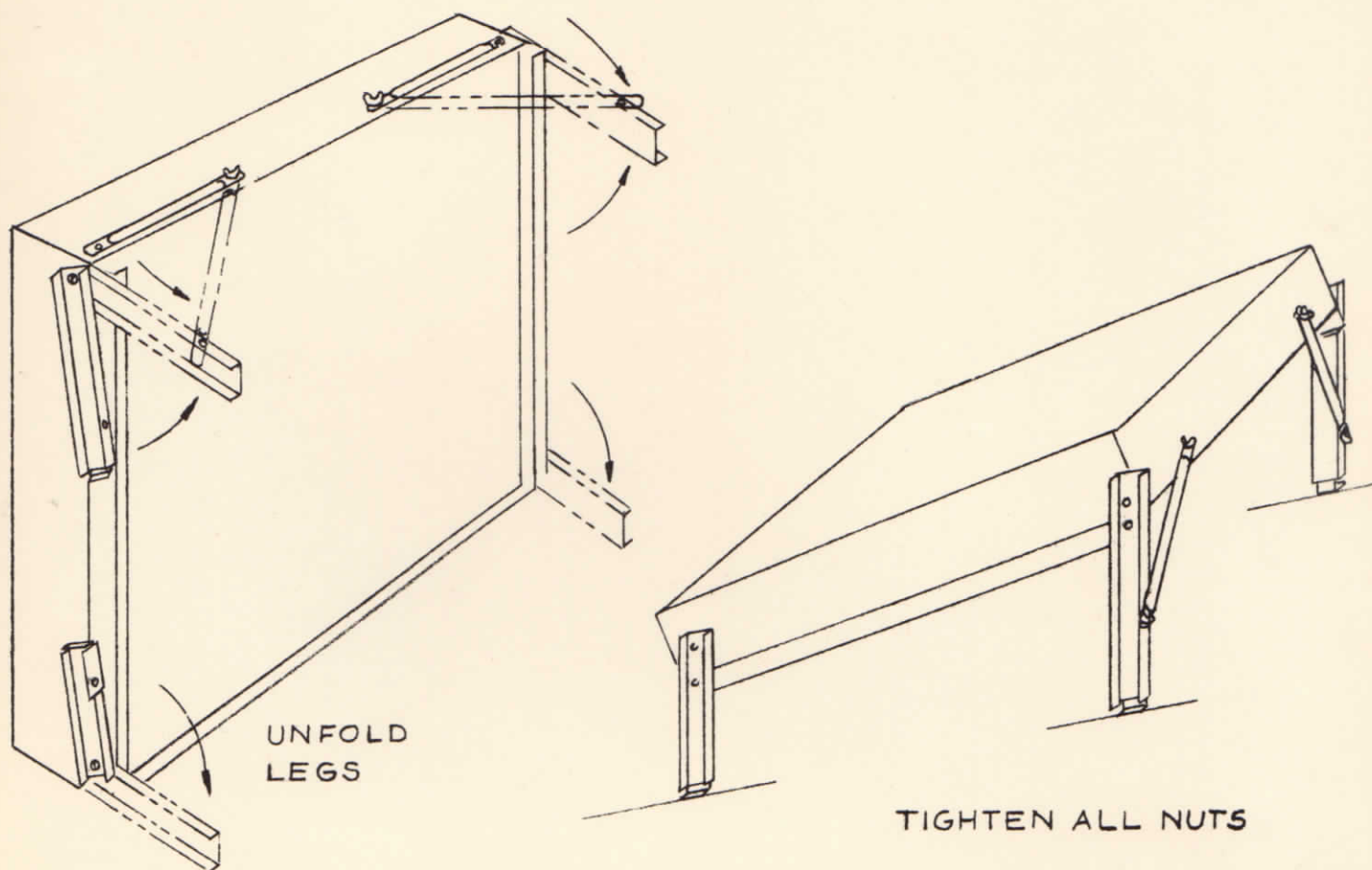


Figure 3

Animal target can now be set down on its four legs in rear of gallery. After positioning this target correctly according to blueprint, it should be fastened to gallery floor by lag screws, ($1/4"$ or $5/16"$) or machine bolts with nuts and washers can be used if desired.

You will note that on each of the two forward legs there is a strip of neolite material held by a screw. Turn this strip downwards so that it covers leg at lower end. The purpose of these strips are for the protection of the metal legs against pellet shots. Tighten screw. (Figure 4)

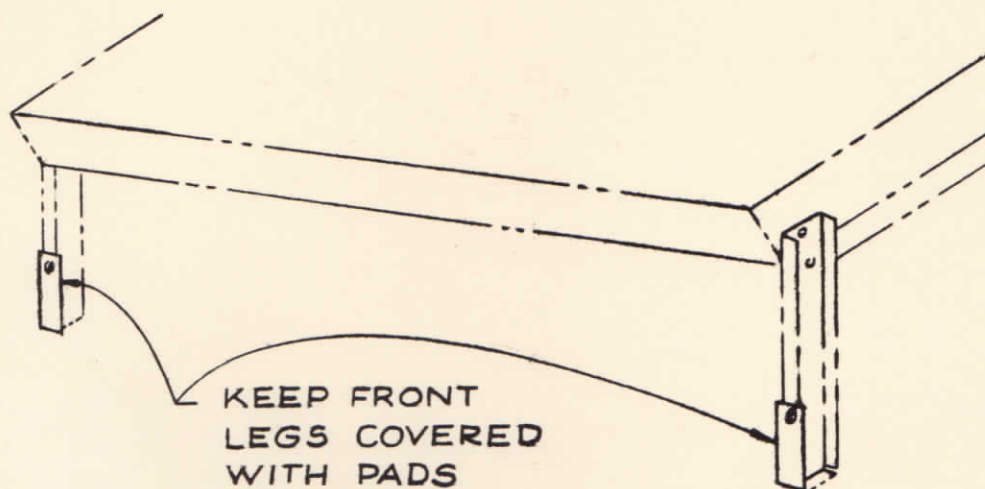


Figure 4

The target animals are taped or tied together for shipping purposes and all tape or wire used should be cut and entirely removed from targets and gallery. Electrical connections can now be made and target mechanism run tested.

The neolite material of which all the target characters are made is fairly plyable and may appear to be bent out of shape when you receive them due to shipping. To restore to original shape merely straighten by bending with fingers.

The next target to be installed is the moving man. You will find our suggestion for the location of this target on blueprint No. 4 of the set we have sent you. The exact location of this target isn't too critical just so long as it hangs over the rear section of the main target area. The target can be bolted directly to the ceiling panels if your installation is of the construction we suggest on the blueprint, or it can be suspended by extension pieces from the ceiling if your ceiling is higher than the eight feet shown on the drawing.

There are two holes for mounting the target and we suggest using 1/4" diameter bolts with nuts and lockwashers to hold target securely in place. (Figure 5)

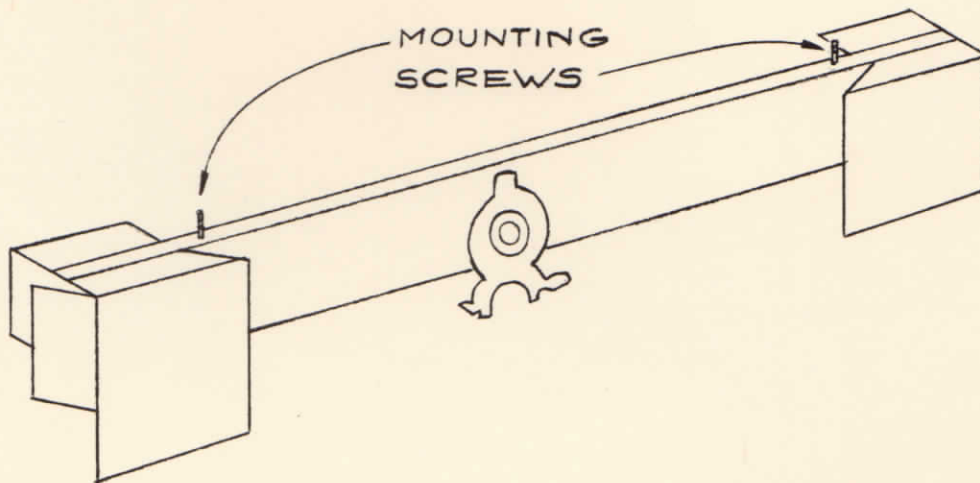


Figure 5

The operation of the moving man target is such that when a pellet hits the center of the character, the direction of travel is instantly reversed.

When no pellets are scoring their mark, the moving man continues to traverse the width of the target, his direction of travel is reversed each time he enters the "Jailhouse" at each end of his travel.

The "Prisoner" character can be readily replaced when after continued play his color details are worn off. This replacement is simple, merely lift upwards and unhook from holding studs on moving bracket, then replace with new character. (Figure 6)

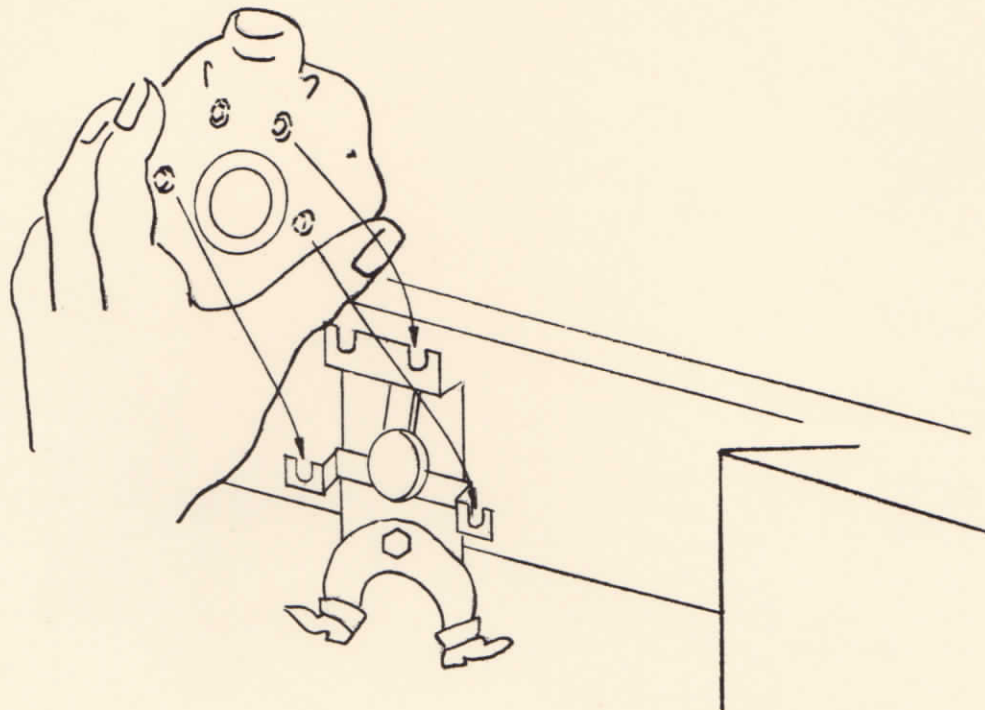


Figure 6

A safety switch is installed at each end, and in the event the switch on the moving "man" fails to trip properly, the safety switch takes over and cuts all electrical current from the motor. To start "man" in motion again, use a pencil or thin stick to trip switch on "man" twice. This will start him moving and minor adjustments on trip lever can be made.

The next piece of target equipment to be installed are the side protective pieces which we call fenders. These are packed in the cardboard carton and are complete but partially "knock down" for shipping and crating purposes. (Fig. 7)

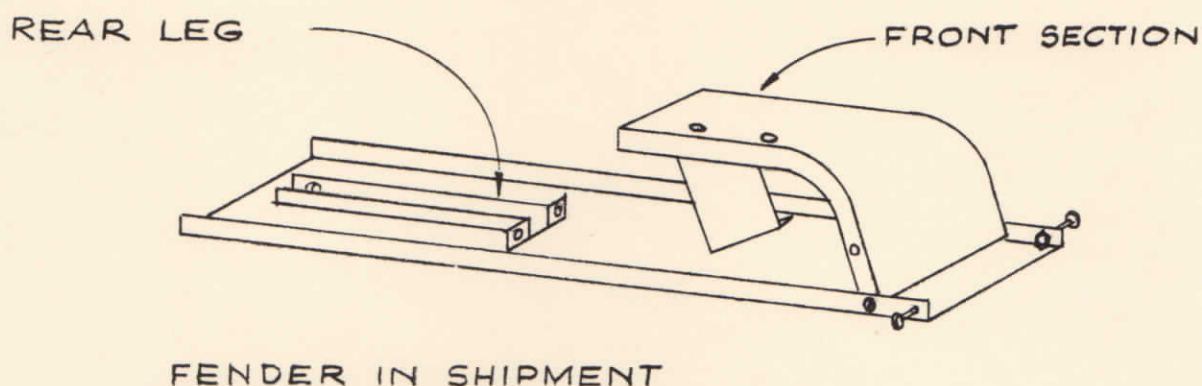


Figure 7

To assemble: remove two front screws and nuts, (one on each side) unfold front curved section by pulling upwards and revolving about the bolts that hold it to the long straight section. When it is in place, insert the two machine screws furnished in the holes provided and tighten all four securely.

The rear leg of each fender is bolted to flat section for shipping. Remove nut that is holding it in place and place on studs in an upright position. There are two sets of threaded studs on each long flat section of the fender and we will attempt to explain how to determine the right and left hand fenders (as you face targets) so that you will install the rear channel leg properly.

The right hand fender can be recognized if the two holes thru the front curved section of neolite are on the right hand side as you face the curved surface.

The rear leg then should be fastened to the set of two studs that are on the same side as these holes. (Figure 8)

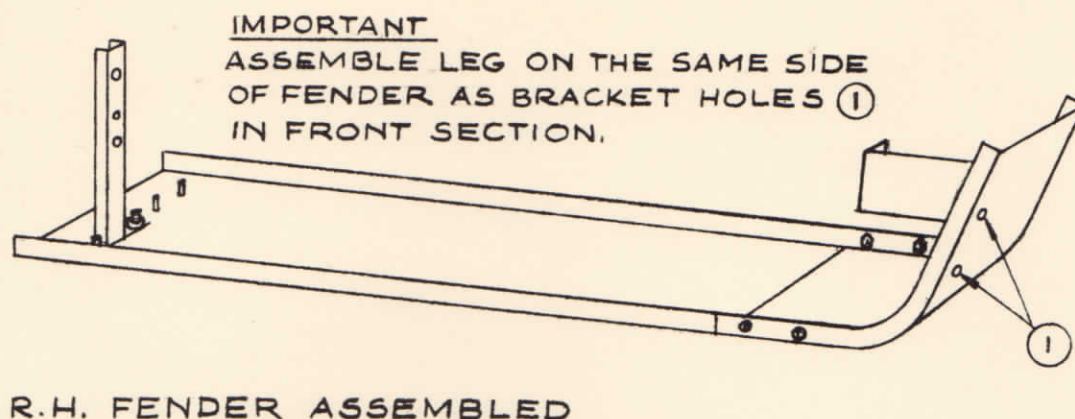


Figure 8

The open side of the channel leg should be towards the rear. Fasten leg securely with the nuts and washers provided on the threaded studs. The fenders are now ready for installation on the main target assembly. Holes are provided on the rear target frame that will match with the holes on the rear leg of each fender. Likewise there are two holes on the front of the main target frame that match the holes in the bracket that is attached to the front end of each fender. Bolts are supplied in a bag attached to target, for this purpose.

The next target to be installed is the "rabbits". (number 8 on blueprint, sheet number 4) Move entire rabbit target in contact with main target frame. The upper metal flange of the rabbit target is placed upon upper metal flange of the main target frame so that the three small holes in each of these flanges will be in line. Three sheet metal screws are furnished and are used for securing these two flanges together. (Figure 9)

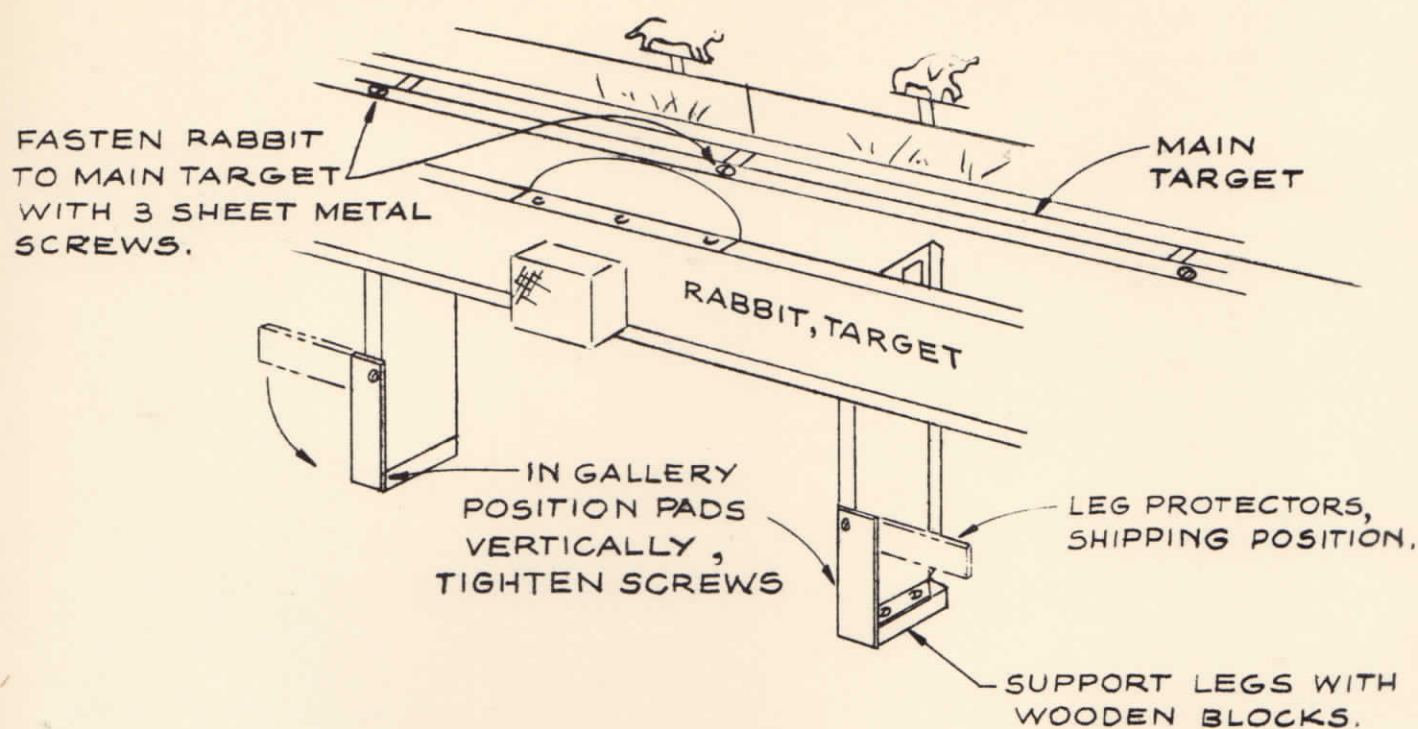


Figure 9

You will note at this point that the two rabbit target legs are about $\frac{3}{4}$ " away from the floor of your gallery. We have provided two wood blocks to be used under the legs to fill up this space. It may be necessary to plane these thinner in some cases or in others, an additional shim of wood may be needed in conjunction with the blocks we have supplied.

When you have properly filled the space between the rabbit target legs and the gallery floor, fasten with machine bolts long enough to go through metal leg flange, wood blocks and the floor thickness. (these you must furnish) use washers on the underside of the floor and turn nuts on tightly. Turn Neolite protective pads to cover lower portion of legs. (Figure 9) Make electrical connections and test.

The next step in your gallery setup is the installation of the "Bulls Eye" targets. This entire assembly is placed ahead of the rabbit targets and is held in place by means of the bracket at each of its ends. These brackets are to be attached to the front curved portions of the fenders. Bolts, nuts and washers were furnished for this purpose. (Figure 10)

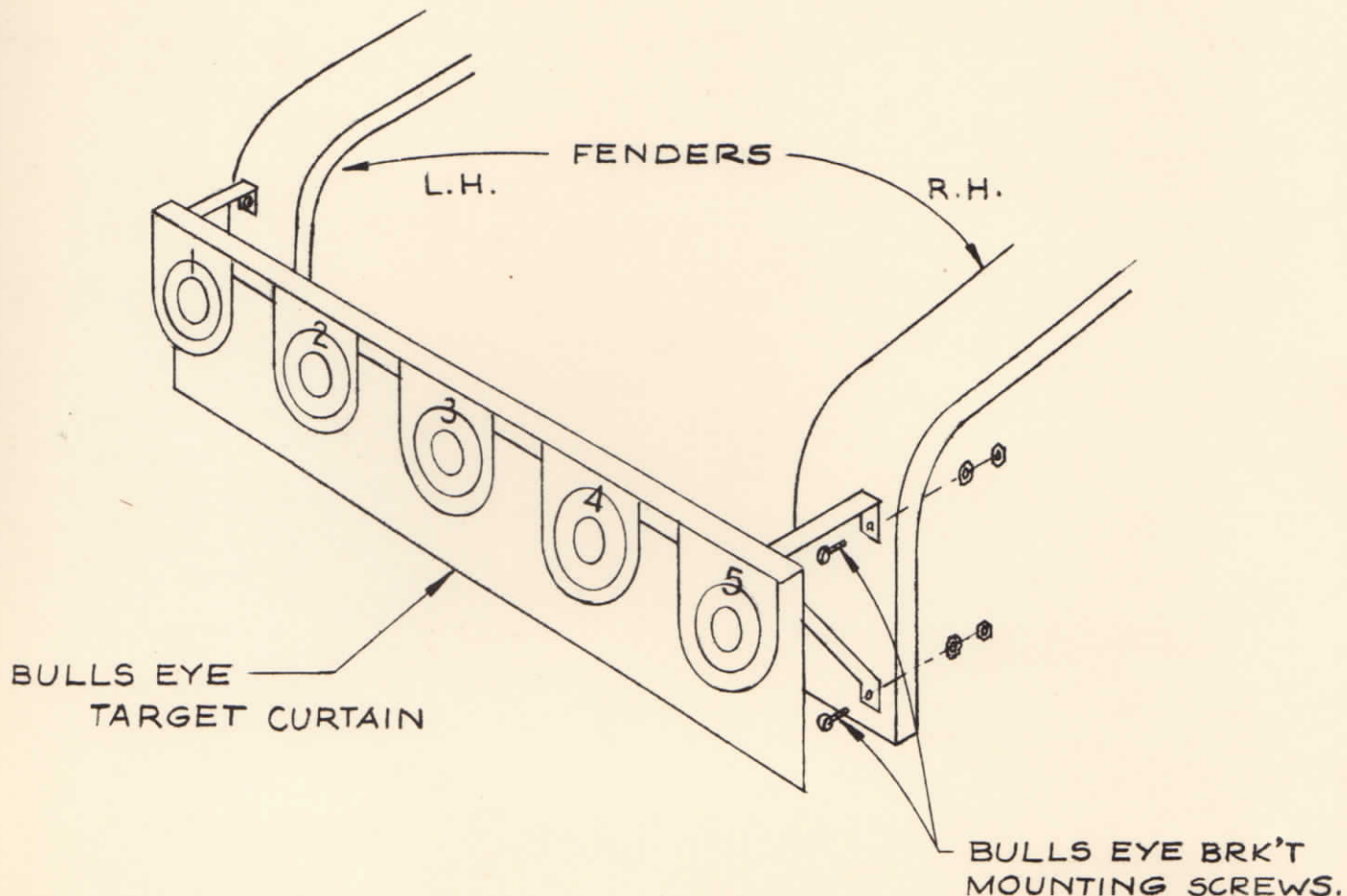


Figure 10

It will be necessary for your electrician to obtain five different colored wires (No. 18, or, No. 20 stranded) to correspond to the five leads emitting from the bulls eye target, and of sufficient length to reach front upper portion of your gallery where the relay box is to be located.

The voltage through the bulls eye switches is only 30 volts so therefore insulated wires, bundled and taped together should suffice unless your particular location's electrical code calls for the wires to be inclosed in conduit. The curtain behind the bulls eye targets should be rolled down where it will set in place behind the bulls eye targets. This just about completes the installation of the target equipment insofar as the rear section of your gallery is concerned.

Various plastic toys and trinkets can be suspended from the ceiling by using thin fishing line. These make very effective targets to augment your moving targets and they can be purchased very reasonably from your local 5 & 10¢ stores.

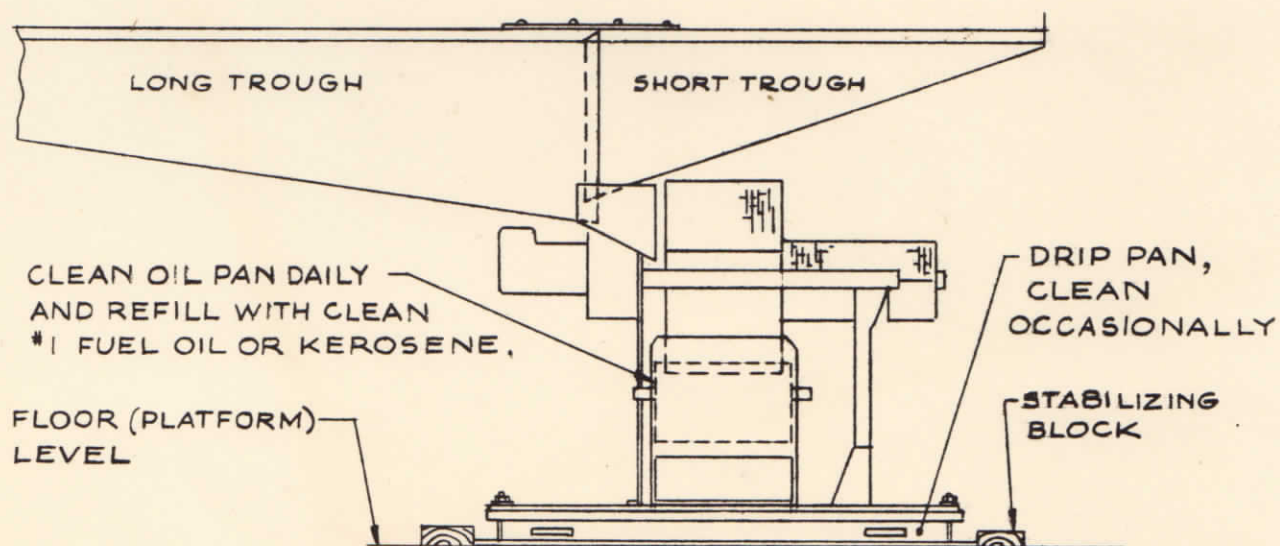
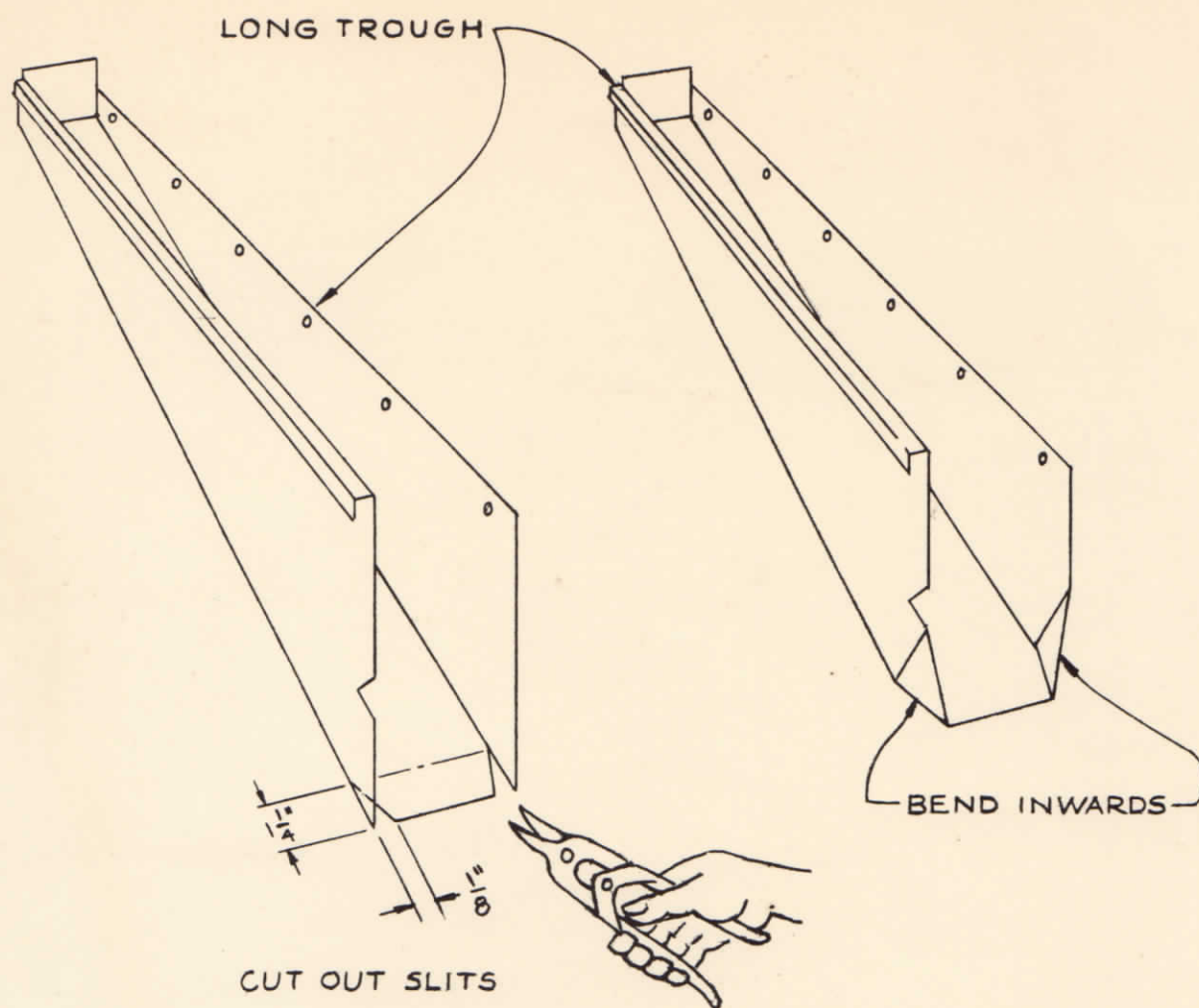
Plastic drinking cups can make very attractive shooting targets and can be suspended with fish line threaded through a small punctured hole in bottom of cup and then knotted.

Placement of lights for illumination of your targets is very important. We have shown on the installation drawings our suggestion for spotlights over the main targets and we can supply these at a nominal cost. You can however use your own ideas and equipment in achieving good lighting effects if you so desire. Keep in mind however that any and all light bulbs within the gallery must be protected with 3/16" to 1/4" clear Plexiglass, otherwise ricochet pellets will cause breakage of bulbs.

Also suggested on the installation blueprint are three adjustable flood lights that can be mounted up front near the guns, and their beams of light directed on the bulls eye and rabbit targets.

Good illumination of your targets will pay off in added business for you.

Installation of plexiglass protection for gallerys of short lengths (22 feet to 30 feet). We supply panes of clear plexiglass 27-1/8" x 36", with proper size openings for gun barrels. These come in sets and are marked for proper placement positions. (shown on blueprint sheet No. 6)



INSTALLATION OF TROUGHS AND BALL WASHING MACHINE

Figure 11

The construction of your gallery front should be such that a lower and upper channel will hold the panes at a slanted position as shown on the blueprint. The upper channel should be at least twice as deep as the lower one, so that the sections of the plexiglass can be pushed up into the top channel thus allowing the bottom edge to be removed from the lower channel. Each plexiglass pane is marked.

The round circular plexiglass shields are placed over the barrels of the guns after the latter have been properly fastened to the mounting platforms or counter, and the gun barrels are protruding through the openings in each plexiglass window pane. Blueprint sheet No. 4, item 12 and 19 shows position of plexiglass protection pieces.

The circular plexiglass shields differ from each other only to extent that two of the five shields furnished for each set of five guns, have shorter holding hardware pieces. The proper sequence for placement of the shields is as follows: Starting from the left, place the shield marked "number 1 - front-side" then "number 2 front-side" and so on.

The shields are held in place by two thin steel piano wires that must be installed according to the installation blueprints furnished. (sheet No. 6)

These wires are threaded through the guide rods on each plexiglass shield and then attached to the clamping levers as shown on blueprint sheet No. 6.

The brackets that hold the steel guide wires should be securely attached to the walls of your gallery by means of bolts that will extend through the side walls. Keep in mind that there exist considerable tension when the wires are drawn taunt, therefore your mountings must be substantial.

To clean your plexiglass inside the gallery, unhook both tension levers by pushing downwards and slightly away from the guide wires. (visual examination of the levers will tell you which way to release them) when both levers have been released, plexiglass shields will be loose enough to allow you to get in between the shields and the plexiglass rectangular panes so that cleaning operations can be accomplished.

The ball return troughs are fastened by screws to end of the slanted gallery floor along with the deflector plate. Details of this installation are explained graphically on construction blueprint sheet No. 4, item 25.

Figure 11 shows the preparation of the metal troughs and the installation of the ball washing machine.

The side walls and back wall of your gallery should be protected from pellet shots that ricochet off the targets or make direct hits on the wall behind the main targets.

Each gun has screw devices that will limit the amount of swing of the gun in in all directions. By proper adjustment, direct fire power can be kept from the side walls but the rear wall must take every shot that misses its mark on the target.

Draperies should be hung from ceiling, and about three to six inches away from walls.

Extra effectiveness in stopping ricocheting pellets can be achieved by rolling or fluting the material as suggested in Figure 12.

Where the back drape touches gallery floor is a vulnerable spot for pellets to escape under and strike the solid rear wall. In time this escapage will damage the wall and even pierce through it.

To eliminate this hazard, we suggest that the lower section of the wall laying behind the drapery be reinforced with some form of thick belting or leather strips as shown on blueprint sheet No. 4, item 23.

These strips of material should be from eight to twelve inches in width for maximum protection.

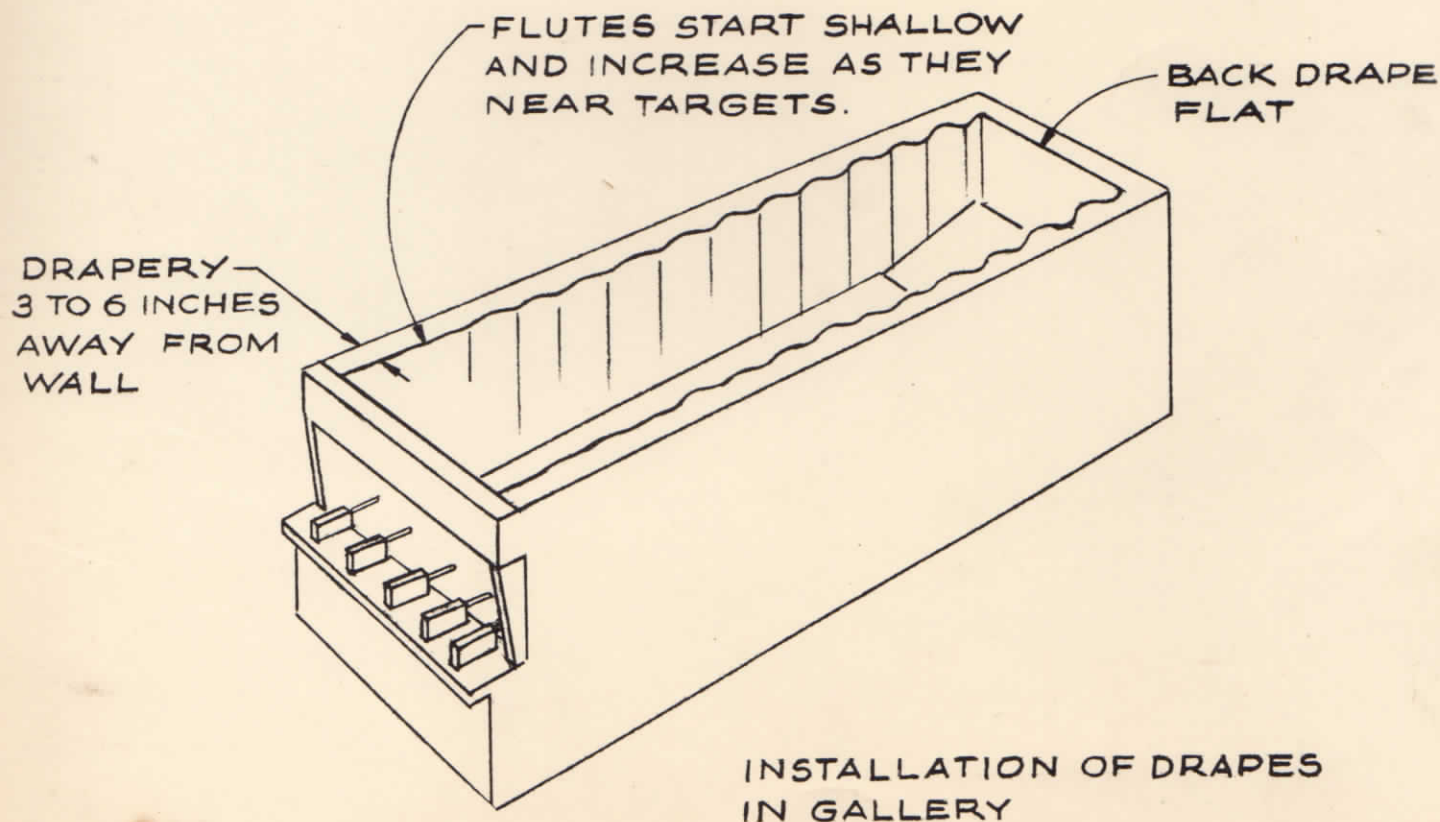


Figure 12

