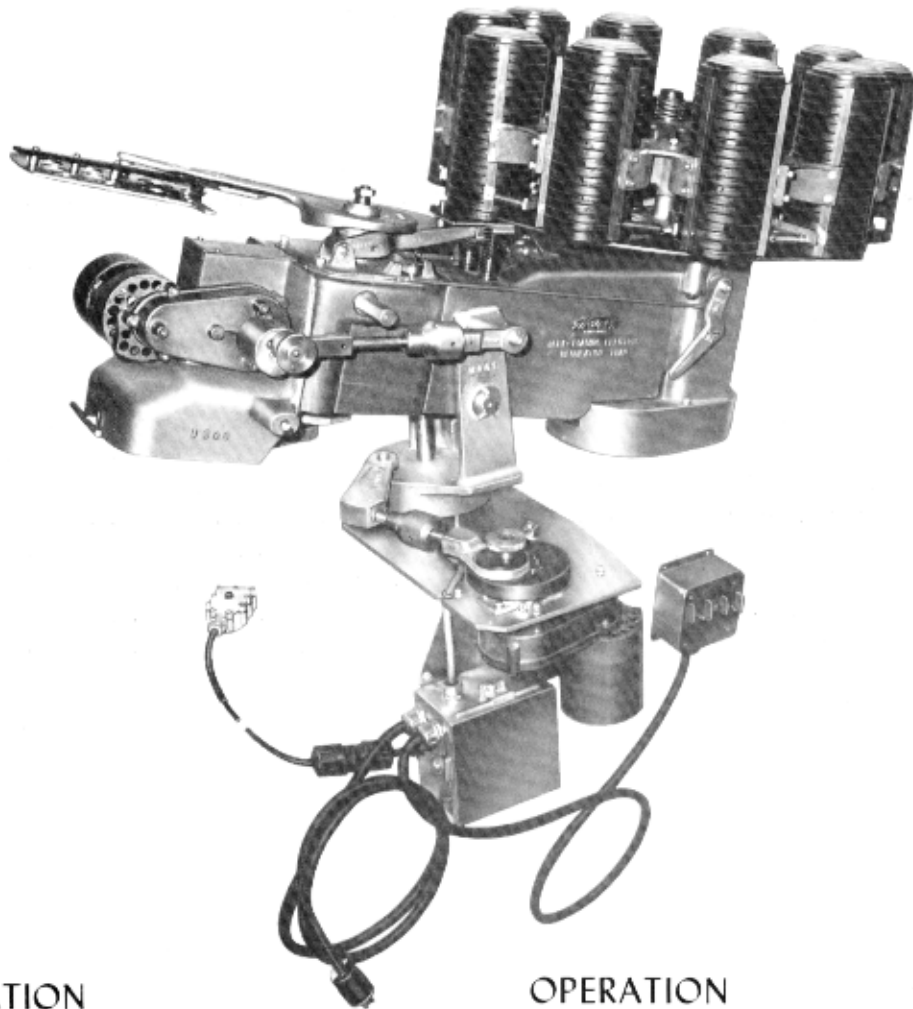


# Western®

AUTOLOADING REGULATION TRAP V1582A  
(MODEL "U")

AUTOLOADING INTERNATIONAL TRAP V1583A  
(MODEL "US" – ILLUSTRATED)



INSTALLATION

OPERATION

ADJUSTMENT

TROUBLESHOOTING



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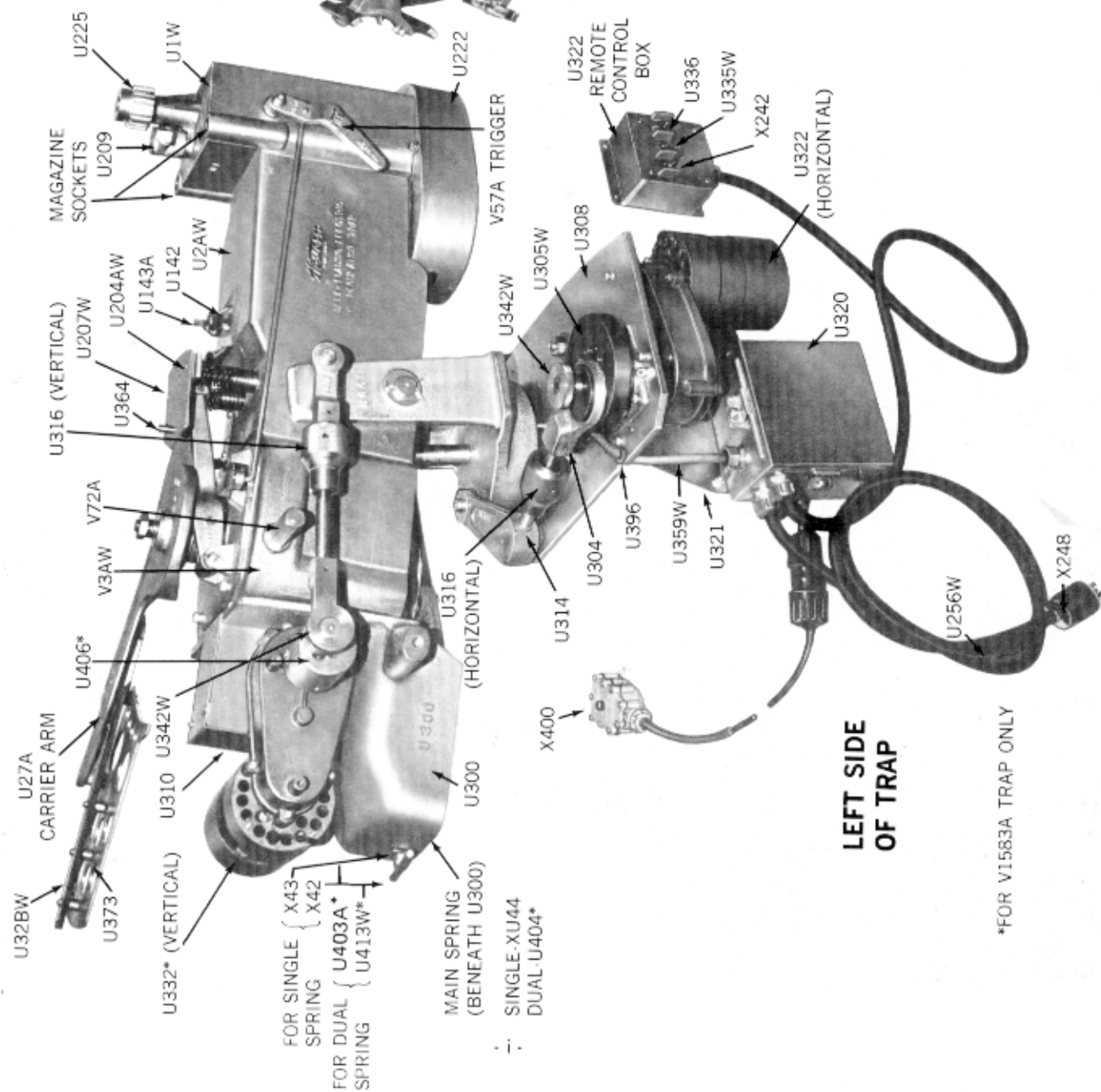
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TOP VIEW OF  
TARGET MAGAZINE

LEFT SIDE  
OF TRAP

\*FOR V1583A TRAP ONLY

**DANGER**

VIEWING TRAP FROM THIS  
DIRECTION IS HAZARDOUS  
UNLESS MAINSPRING  
HAS BEEN REMOVED!

U190W. NOTE: V192W CAM  
ROLL ROTATES NEAR  
CENTER OF U190W,  
V194W AT REAR.

U364 LATCH  
DOWN FOR  
DOUBLES

U27A

U207W

SINGLE  
TARGET

U143A

DOUBLES

U373

U183CW

U32BW

V51A

U150

U149B

U363

U185W

U226

U155 SHIMS  
(LOCATED BETWEEN  
CASTINGS AT  
THIS LOCATION)

OVERLOAD  
BUTTON

XU129

X130B

V196W

X133 FILLING  
PLUG

V3A

X133 GAUGE  
PLUG

X241

U220W

RIGHT SIDE OF TRAP SHOWING TARGET FEED MECHANISM

# *Western* V1582A & V1583A AUTOLOADING TRAPS

**DANGER – THESE MACHINES CAN CAUSE SERIOUS INJURY!**

**READ INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING  
TO INSTALL OR OPERATE!**

## **SPECIFICATIONS:**

1. **DESCRIPTION:** The V1582A is a non-readable all-electric trap designed to automatically feed and throw targets for regulation 50 yard Trap. With the assistance of a loader it will also provide targets for "Doubles" events. It incorporates several new features including a low voltage release system, increased target capacity, wider horizontal throwing angles, and improved target feeding. The V1583A combines interrupted vertical motion and increased throwing distance with the features of the V1582A for International style shooting events. In addition to the 50 yard events listed above, the V1583A will automatically provide targets for "A.T.A. Modified Clay Pigeon", and I.S.U. (U.I.T.) 75 Meter "Automatic Trap". A V1582A may be field-converted to V1583A specifications by purchasing and installing the U400 conversion kit.
2. **ELECTRICAL POWER REQUIREMENTS:** 115 volts, 11 amps (V1582A), 14 amps (V1583A), 60 hertz. NEMA L5-15R receptacle required (two pole, three wire, locking, grounding type). See Plate L dated 1-1-76 for wiring diagram and schematic.
3. **MAGAZINE CAPACITY:** 190 targets. Larger diameter targets can be accommodated by removing the washers from behind the ten outer right hand magazine guide rails.
4. **THROWING RANGE:**

Single Spring	65 Yards
Dual Spring	100 Yards (V1583A only)

Important: To prolong service life of trap main-spring(s) and other components, and minimize target breakage, do not adjust trap for throwing distance in excess of that specified by rules governing the game of Trap.
5. **HORIZONTAL SPREAD:** Tapped holes #1 thru #6 on the horizontal angle change disk will provide throwing zones of 32°, 38°, 44°, 62°, 75°, and 88°, respectively. Motion is interrupted (non-readable), and a windage adjustment is provided.

6. **VERTICAL SPREAD:** (V1583A only) Four labeled ranges of vertical motion are available. Motion is interrupted and a windage adjustment provided.

"P"	(Practice) oscillates vertically thru 8°
"I"	(I.S.U.) 1.5 to 3.5 meters @ 10 meters, 11°
"A"	(A.T.A.) 4 to 11 feet @ 10 yards, 12° 40'
"IM"	(I.S.U. Max.) 1.0 to 4.0 meters @ 10 meters, 15°

## **TRAP HOUSES – ATA**

**NEW CONSTRUCTION** – Suggested construction shown on Plate L dated 1-1-76. It is recommended that the maximum trap house width and height allowed by ATA rules be used to obtain necessary target clearance. This is especially important if International style events are anticipated. Always check for compliance with current ATA rules before building trap houses or laying out shooting fields!

**EXISTING TRAP HOUSES** – Alterations to existing trap houses may or may not be necessary. Note space required for electrical hardware alongside trap pillar. A longer trap plank and pillar (than shown on Plate L) will not require modification for the V1582A trap. Simply redrill existing 14" plank for bolt pattern shown on Plate L. V1583A traps with vertical motion will probably require that existing 14" plank be cut immediately behind trap base for clearance. Additional brackets to firmly hold rear of plank to pillar may be necessary depending on rigidity of installation. Be sure to check for trap clearance before supplying power.

Clearance for High, right angle targets may require that hinged or removable sections be installed on forward edge of right sidewall or forward right edge of roof, depending on dimensions of existing trap houses and range of oscillation desired.

## **TRAP HOUSES – ISU (UIT)**

Check current ISU "Automatic Trap" regulations for trap house and field layout requirements. Note that

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the ISU house shown on Plate L does not meet ATA requirements, nor the reverse.

## **SAFETY FIRST**

Before installing trap, connecting power, lubricating, loading, or making any adjustments be sure that carrier arm is in the safe uncocked position (as shown on cover of this booklet) and that both toggle switches on Remote Control unit are in the center "OFF" position. If cocked, fire trap by moving the V57A Trigger at rear counterclockwise (in direction of arrow) being careful to stand at rear of trap well clear of carrier. Note that both target and carrier arm are capable of inflicting serious injury!

After electrical power has been connected the remote control unit may be used to uncock trap. Place both toggle switches in "OFF" position. While depressing "FIRE" button, momentarily move Master Switch to "MOMENTARY ON" position and quickly release, before trap re-cocks. Never turn Master Switch back on before carrier comes to rest. The carrier arm may rotate in reverse direction and damage target feed mechanism. When using remote control unit inside trap house, stand well to the rear away from carrier arm and magazine rotation. When using Remote Control unit outside trap house stand on left side of house (as viewed from shooting positions) and well to the rear, out of sight of trap house entrance.

In event that trap is left cocked through power failure, turn off both remote control switches and fire with Trigger V57A, being careful to stay in the clear at rear of trap. Also be sure both control switches remain off to prevent unintentional restarting when power is restored.

In the interest of safety a number of rules should be strictly enforced:

1. All personnel required to operate trap should read instruction manual and subsequently be "checked-out" by someone knowledgeable as to its safe operation.
2. Keep away from trap house entrance unless trap is off and uncocked. Never enter or leave trap house unless trap is in this safe condition.
3. Do not leave trap cocked when not in use. Not only is practice very hazardous, the useful life of the mainspring will be shortened by the high stresses imposed.
4. Do not operate trap if more than one person is present, nor from outside house when anyone is inside.

5. Make sure entire field forward of trap is clear before operating.

## **INSTALLATION**

1. **UNPACKING THE TRAP** — Unbolt and remove Magazine from shipping box, being careful to avoid damage to feed finger on underside. Remove Transmission Fluid and carton containing parts from Magazine pockets. Unbolt Trap and other components from box. Note that some accessory components are permanently wired to trap and must be lifted with it. Lift rear of trap with housing U222 and front with Mainspring Housing U300 to avoid damaging carrier arm.
2. **MOUNTING** — Prepare hardwood trap plank as shown on Plate L. Check plank hole locations with U308 Trap Base and for proper fit over two anchor bolts cast in concrete pier. Insert four X79 carriage bolts from bottom side of plank. Bolt plank securely to concrete, shimming if necessary to level. Align holes in trap base with X79 bolts and carefully place trap on plank. Install washers and nuts and tighten securely. Make sure adequate clearance exists alongside trap pier for installing Master Electrical Box U320, Electrical Box Bracket U321, and Horizontal Angle Change Motor U322.
3. **HORIZONTAL ANGLE CHANGE MOTOR** — Remove tape holding key in shaft of motor and carefully slide shaft into underside of U308W Horizontal Angle Change Disk, rotating disk if necessary for keyway alignment. Attach motor to underside of U308 Trap Base with two 1/4-20 x 7/8 long and one 1/4-20 x 3/4 long socket head capscrews, two helical lockwashers and one internal tooth "grounding" lockwasher. Shortest screw is used at rear of trap base in counter-bored hole. Do NOT overtighten. Locate lockwashers under screw heads, above U308 Trap Base. Check for proper alignment by rotating disk by hand. Note that disk can't rotate completely free due to reduction gears in gearmotor. If binding exists loosen three motor mounting screws, carefully realign, and re-tighten. Motor damage may result if improperly aligned.
4. **MASTER ELECTRICAL BOX** — Attach U321 Bracket and U320 Electrical Box (assembled) to underside of trap base with two 1/4-20 x 3/4 long socket head cap screws, one lockwasher, one internal tooth "Grounding" lockwasher, and two nuts. Again make sure grounding lockwasher is above and against U308 Trap Base. Replace U359W Supply Cable (leading to center of trap) in cable clamps provided, and snap Cable Bushing U396 into place.
5. **TARGET MAGAZINE** — To install magazine, turn its

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base so that the large opening in edge of loading disk is toward carrier hub (being sure that carrier is in fired position) and swing magazine up over rear of trap to engage the U175 Mounting Posts with sockets in the U1W Magazine Support Bracket. As magazine slides down into position, and before engaging the gears, turn the U180AW Magazine Spider Assembly to place one of the target pockets approximately in line with large opening in loading disk. Then engage gears and slide magazine rest of way to bottom.

6. **CLEARANCE** — A minimum clearance of two feet must be maintained between trap and any obstruction. Areas less than two feet should be fenced off to prevent entry or otherwise guarded to prevent operator injury.

### **LUBRICATION** —

Always see that trap is uncocked, and electrical power disconnected before lubricating trap. (Refer to illustrations for location of points to be lubricated described below.) Before operating trap and periodically between shoots, squirt a few drops of oil on upper edges of U142 Target Stop Finger Bracket, on V198 Feed Shelf Guide Rods, and at top of X43 (or U403) Swivel in socket in U300 Mainspring Housing. Also occasionally lubricate threaded ends of U316 Housings. A little cup grease must be applied occasionally to the inner ends of ten Target Escapement Levers U185W which are contacted by U178 Escapement Push Rod spring when magazine turns, and some oil should be used at both bearings of the U177 Escapement Push Rod. The U225 Magazine Drive Pinion and U226 Magazine Drive Gear do not require lubrication and will stay cleaner if left dry. Occasionally oil faces of U305W Horizontal Disk and U406 Elevation Disk.

The U220W Magazine Indexing Chain and associated mechanism normally receives adequate lubrication from gear housing. However, if this chain is found dry, both it and mechanism inside of U222 Indexing Gear Housing should be oiled.

**IMPORTANT** — To avoid spillage, the V3A Gear Housing was drained before shipment. To fill Gear Housing, remove X133 Filling Plug from top right rear corner of housing and pour in the quart of Automatic Transmission Fluid, Type A, packed in magazine of trap.

At end of first season, and each season thereafter, remove X241 Magnetic Drain Plug (lower plug on right side of gearbox), drain oil, clean and replace plug. Remove filler plug and add one quart Automatic Transmission Fluid, Type A to bring to level of gauge plug (upper plug on right side of gearbox). Do NOT

remove plugs on underside of V3AW. Instructions for lubricating the XU129 Cocking Motor are contained on its label. All other rotating parts on the trap are equipped with permanently lubricated bearings and should not require oiling. Check rotating parts periodically, however, and oil as necessary. When oiling, do not use an excessive amount as it will collect dust and dirt from targets. Oil sparingly and wipe off excess.

### **POWER SUPPLY**

Refer to wiring diagram for details of trap electrical system. Note that non current carrying metal parts of trap are grounded by means of third (green) wire of U356W Power Cord which is terminated with an approved grounding type connector cap. The connector cap, part No. X248, is of NEMA L5-15P configuration and will mate with an L5-15R two pole, three wire, locking, grounding type receptacle. For safety reasons it is recommended that receptacle be installed on trap pillar behind and to left of trap (viewed from rear).

Trap power requirements are listed under Specifications. Malfunctions may occur if supply voltage is not within 10% of rating.

**IMPORTANT:** Electrical installations must be made in accordance with National Electrical Code and applicable local codes!

### **CONNECTIONS**

Make sure X242 Master Switch and U336 Angle Switch are in center "OFF" position. Plug X248 Power Cord Connector Cap into receptacle and rotate to lock. Plug X400 Release Assembly into U358 Release Connector and rotate to lock.

### **OPERATION**

Review SAFETY FIRST. To prevent trap from being fired unexpectedly and possibly causing injury, always bring button portion of X400 Release Assembly and Remote Control unit into trap house when setting up, making adjustments, etc.

After moving to the safe loading position at rear of trap base on left side of trap, push X242 Master Switch lever to the "ON" position. Carrier Arm will revolve counter-clockwise approximately 180° to the "cocked" position. Firing trap by depressing button on the X400 Release Assembly will cause Carrier arm to rotate counter-clockwise rapidly under the influence of mainspring. Carrier will continue in same direction, stopping in "cocked" position. Note that release button must not be held depressed, but should be given a quick press and release for each target to be

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thrown. Trap may also be fired by depressing "FIRE" button on Remote Control unit, or by using V57A Trigger.

Angle Switch U336 controls horizontal trap motion and, on the V1583A trap, vertical motion. Note that "FIRE" button and Angle Switch have no effect if Master Switch is off.

When not in use, X400 Release and Remote Control unit should be stored in trap house. When using trap for automatic throwing of single targets, place Remote Control Unit outside at corner of trap house where it can be reached to fire and stop trap without dangerous exposure to mechanism or to a thrown target. When loading double targets manually, Control Unit should hang from nail on plank within easy reach of loader while keeping clear of carrier path. Remember to always leave trap uncocked and all switches in "OFF" position before moving from the loading position at left rear of trap, to make adjustments, or for any other reason.

As tested and shipped from factory, trap will throw single targets but may require further adjustments depending upon prevailing wind conditions. Also, the trap frame is locked against oscillation, as it should remain until following adjustments are checked.

### ADJUSTMENT OF TRAP FOR SINGLE 50 YARD TARGETS (Single XU40W Mainspring)

1. Be sure carrier is in fired position and Remote Control switches turned off as described under "Safety First". Bring Remote Control and X400 Release into trap house to prevent operation by another person. On V1583A trap equipped with elevation motor, make sure elevation drive rod is secured to boss on U300 Mainspring Housing - NOT to U406 Elevation Disk.
2. Place a stack of 19 targets in each pocket of the magazine, pressing outer end of each U185W Escapement Lever toward each pocket while lowering stacks to rest on U174BW Magazine Base Assembly and U204AW Target Feed Shelf. Do not mix different brands of targets.
3. Always place Spread Adjusting Screw U342W in center hole "D" of Angle Changing Disk U305W to lock frame in straight-away position before making following adjustments. Make sure lockwasher U370 remains on adjusting screw.
4. See that Target Stop Finger U143A nearest U204AW Target Feed Shelf is in its upper position, and that the Stop Finger farthest from Feed Shelf is latched in its lower position. Also that the U364 Stop Plunger is in raised position above surface of Feed Shelf.

5. Place Remote Control unit outside left corner of trap house and X400 Release nearby.
6. Move X242 Master Switch to "ON" position. Press button on X400 Release and note target flight. (Note that the release button should never be held down — just use a quick press and release. Target may also be thrown by momentarily depressing "FIRE" button on Remote Control Unit.)
7. See that target flight 10 yards from trap is 9 feet above level of shooting stations, and that target reaches a point 50 yards from trap at same level. Important: To prolong service life of trap mainspring and other components, do not adjust trap for throwing distance in excess of that specified for game of Trap.
8. If correction is required, first turn off and uncock trap with Remote Control unit while keeping safely away from trap house opening. Rotate U316 Elevation Windage Housing as necessary to correct elevation. Note that U316 latches every 180° and should be left in latched position.
9. Turn Mainspring Adjusting Screw X42 a half turn at a time, clockwise to increase distance, counter-clockwise to decrease. Always turn off and uncock trap before making this or further adjustments after rechecking target flight.
10. If targets lean or curve to the right, loosen four screws securing Carrier Rail Assembly U32BW, move outer end of Rail about 1/8" toward leading edge of carrier, and retighten screws while supporting carrier with one hand to prevent springing. If targets lean or curve left, move Rail in opposite direction. Recheck flight and correct as needed for straightness, but not for direction.
11. Now that target path is adjusted for proper height, distance and levelness, it may be found to end at the right or left of field center due to a side wind or other conditions. Bring back to center by rotating and latching U316 Horizontal Windage Housing as required.
12. Turn off and uncock trap. Remove Spread Adjusting Screw U342W from central hole "D" in Angle Changing Disk U305W and relocate in one of the #3 holes which will cause extreme right and left targets to be thrown in line with shooting stations #1 and #5 under normal light wind conditions. Be sure lockwasher remains on screw and tighten securely. If head wind tends to widen the field, use #2 or #1 hole.
13. Do not adjust right and left angles by shifting Rail U32BW, as such action may upset target distribution. Make adjustments only in sequence described above with Spread Adjusting Screw U342W in central hole "D".



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14. Turn off and uncock trap before leaving trap house. Turn on only when safely clear, alongside trap house. Turn on both Remote Control switches and place X400 Release unit at scoring position to start shoot.
15. After each squad, turn off and uncock trap before entering trap house to refill magazine.
16. At end of shoot, be sure to turn off and uncock trap.
11. Fire trap and note relative heights of target paths. Before adjusting, turn off and uncock trap.
12. If the right target is lower, loosen four screws holding Carrier Rail Assembly U32BW and move Rail about 1/8" toward leading edge of Carrier; if left target is lower, move in opposite direction. Support Carrier with one hand to prevent springing while tightening screws. Turn on Master Switch and recheck relative heights of targets.

### **ADJUSTMENT OF TRAP FOR "DOUBLES" (Single XU40W Mainspring)**

1. Be sure trap is off and uncocked. Bring Remote Control and X400 Release inside trap house.
2. Place Spread Adjusting Screw U342W in center hole "D" of Angle Changing Disk to lock frame for "Doubles".
3. Unload target magazine to facilitate handling, pressing outer ends of Escapement Levers U185W toward each target stack to release stack for lifting.
4. To remove magazine, stand directly behind trap and place hands under the U174BW Magazine Base Assembly close to the sockets on each side of the U1W Magazine Support Bracket. Push upward in line with sockets and with equal pressure on Magazine Base at each side. After removal, place Magazine with its U175 Mounting Posts and one edge resting on a flat surface, or set it on edge where it will not be knocked over, to protect the U149B Target Feed Finger on underside.
5. Raise elevation with approximately two revolutions of Elevation Housing U316.
6. Tighten Mainspring Adjusting Screw X42 about fourteen 180° turns or "clicks" from the "Singles".
7. Push the singles Target Stop Finger U143A (nearest Feed Shelf U204AW) to its lower latched position. Pull the doubles Stop Finger U143A (farthest from Feed Shelf) toward edge of frame to unlatch and allow it to assume upper position.
8. Push the Target Stop Plunger U364 to below flush in Feed Shelf U204AW and turn handle on its lower end 90° to lock.
9. While in safe loading position at left rear of trap, place X242 Master Switch in ON position.
10. Place one target against Carrier Rail U32BW and against front corner of rearward Target Stop Finger U143A. Place second target in contact with first and against carrier rail. (Note that Carrier Rail U32BW is formed with an off-center bend and must be used with side marked "TOP" uppermost.)
13. With both targets at same height, center field with U316 Horizontal Windage Housing.
14. Make adjustment to achieve 50 yard distance by tightening or loosening Mainspring after turning off and uncocking trap.
15. Recheck height of targets and adjust elevation if necessary in similar safe manner.

### **RETURNING TO A SETTING FOR SINGLE TARGETS**

1. Leave Spread Adjusting Screw U342W in center hole "D" until all adjustments are made.
2. See that trap is off and uncocked. Slack off Mainspring about fourteen 180° turns, and lower elevation about two complete revolutions.
3. Push U364 Target Stop Plunger slightly lower, turn its handle 90° and allow it to return to its upper position. Retract and latch the doubles Stop Finger U143A and raise the singles Stop Finger (nearest Feed Shelf).
4. Reinstall the magazine as described under "Target Magazine".
5. Move Remote Control unit outside trap house and proceed as indicated under "Adjustment Of Trap For Single 50 Yard Targets".

### **ADJUSTMENT OF V1583A TRAP FOR INTERNATIONAL STYLE EVENTS**

1. The V1583A is similar to the V1582A except that it is equipped with Elevation Changing Motor U332 and Dual Mainspring Assembly U404 for greater throwing distance. Note that (single) Mainspring XU40W must be used for 50 yard events as dual spring will not adjust down to this distance. Also, Dual Mainspring Swivel U403 and Dual Mainspring Adjusting Screw U413W are used with dual spring. (To prevent loss of components the spring-swivel-adjusting screw assemblies should be screwed together when not in use.)
2. Make sure trap is off and uncocked before proceeding. Bring Remote Control unit and X400 Trap Release into trap house. To install dual spring unscrew X42

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Adjusting Screw and pull Hitch Pin U390 (located below bearing on mainspring assembly). Replace with Dual Mainspring U404, Swivel U403, and Adjusting Screw U413W. Replace washer and hitch pin. Follow instructions under "Adjustment of Trap for Single 50 Yard Targets" except that target distance and height should be adjusted as follows.

3. Select the range of vertical motion desired by referring to "Specifications". While balancing trap with one hand unscrew U342W Adjusting Screw from boss on U300 Mainspring Housing. Attach vertical drive rod assembly to selected tapped hole in U406 Elevation Disk with U342W Screw. Make sure lockwasher U370 is in place against U406 Disk and tighten securely.
4. A.T.A. Modified Clay Pigeon — The "65 yard minimum" throwing distance required can be achieved with single or dual springs. The latter is recommended in the interest of spring service life. Set dual spring tension to provide approximately 1 1/2" clearance between inside end of U300 Mainspring Housing and front edge of Spring Frame U402 (which joins forward ends of springs).
5. Temporarily lock trap in center "D" hole of U305W Horizontal Disk with U342W Screw.
6. Turn on Master Switch. Place Angle Switch in "Horizontal & Vertical" position but be prepared to turn off instantly if it appears that either end of trap may bottom. "Jog" switch if necessary to check clearance. If bottoming appears likely turn off and uncock trap. Adjust U316 Elevation Housing as required to obtain clearance.
7. Turn on trap and stop elevation motor (with angle switch) at position of maximum elevation. Adjust U316 Elevation Housing (with trap OFF and uncocked) to provide maximum target height of 11 feet (above level of shooting stations) at point 10 yards in front of trap. Trap should now provide target height range of 4 to 11 feet at this distance.
8. Check throwing distance (65 yard min.) and correct with mainspring adjustment after lowering target height to approximately 9 1/2 feet (at 10 yards) with elevation motor. Distance should be measured in still air over level ground. Remove U342W Spread Adjusting Screw from "D" hole in U305W Horizontal Disk and reinstall in # 4, 5 or 6 as desired (see Specifications). Note that size of trap house may restrict use of widest angles.
9. I.S.U. Automatic Trap (75 Meter) — Follow procedure as in "A.T.A. Modified Clay Pigeon" (above) except throwing distance is to be 75 ± 5 meters with throwing elevation of 2 meters at point 10 meters

forward of the trap. Initially set clearance between inside end of U300 Mainspring Housing and front edge of Spring Frame U402 to 1 3/16". Select hole in U406 Elevation Disk and adjust U316 Elevation Housing to provide vertical range of 1 1/2 to 3 1/2 meters, or 1 to 4 meters (10 meters from trap) as desired. See "Specifications". Note that trap houses for I.S.U. Automatic Trap are larger than A.T.A. houses and will accommodate the wider horizontal oscillation settings. The A.T.A. specifies that external trap house width shall be 8 feet ± 6 inches. The I.S.U. Automatic Trap house internal width is 3 to 4 meters (approximately 10 to 13 feet). Also, the roof of the I.S.U. house is level with the shooting stations; A.T.A. houses project 30 ± 4 inches above them. The vertical opening of the I.S.U. house is also greater to accommodate higher angles of elevation.

Instructions for adjusting the trap for larger diameter targets are given under "Specifications".

### TRAP MAINTENANCE

If worn spots occur on Escapement Cushions U363 due to non-rotation, they may be rotated by hand to present new contact surfaces. The Target Feed Finger U149B on underside of Magazine must operate freely. Sometimes vibration of this finger may be amplified by the target loading disk which does no harm. The lower end of Feed Finger U149B should hang about 9/16" above surface of Carrier Plate U373 in cocked position to clear top of target rim 1/16" to 1/8", which should be checked only with Mainspring disconnected, as described (at 5) below. In replacing a Target Feed Finger U149B the Pivot Pin U145 should be inserted with its open side toward the long end of Bracket U150. Use temporary shims between finger and inside of bracket to avoid distortion while driving pin in place. Be sure to mount the U150 Target Feed Finger Bracket so that the Pivot Pin U145 will be to the right when viewing the notched edge of the U174BW Magazine Base Assembly with Magazine right side up.

Should it become necessary to replace a U143A Target Stop Finger, proceed as follows:

1. Lay Stop Finger on flat surface having clearance hole for pin. Start each U145 Finger Guide Pin with its open side turned away from end of U143A Stop Finger which is provided with hole for attaching U145 Spring, and drive Pin to project same amount on each side of Finger. If turned opposite, Finger may become latched down by catching of pin in guide slot.
2. Place Finger on outside surface of U142 Bracket with Pins projecting through guide slot. Place U144 Collar on inner end of each Pin and press on with small vise or pliers. Continue pressing until Pin projects equally

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at each end beyond Finger and Collar.

3. Provide temporary bridge (such as a 3/8" or 7/16" nut covered with a 1/4" washer) in turn, over each U144 Collar to bear on inner surface of U142 Bracket. Apply squeezing pressure over this bridge and outer end of Pin to move Pin and Collar sufficiently to provide operating clearance. This clearance should permit two thicknesses of writing paper to be placed between Collars and inside surface of Bracket.
4. Connect U146 Spring by hooking into Finger from underside. Test Fingers for free operation and oil the sliding surfaces.
5. Remove X42 (or U413W) Mainspring Adjusting Screw and operate Master Switch to move Carrier toward cocked position. If Carrier stops moving, turn off motor and move Carrier rest of way by hand. (To move Carrier to fired position when mainspring is disconnected, lift up on Trigger V57A and move Carrier counter-clockwise by hand).
6. Mount U142 Stop Finger Bracket on Frame U2AW, adjusting its position so that both upright stop fingers U143A will stand 1/32" to 1/16" from edge of U373 Carrier Plate in cocked position, and project about 7/32" above its surface.
7. Lift Trigger V57A and push Carrier to its normal fired position. Then reconnect Mainspring with X42 or U413W Adjusting Screw.

**AVOID INJURY** — Alignment of Target Feed Shelf U204AW with Carrier Plate U373 must be checked with Mainspring disconnected and Carrier moved to cocked position as described (at 5) above. Under these conditions, top of Feed Shelf U204AW should be at about same level or slightly lower than U373 Carrier Plate, and the flat portion of Target Guide Shelf U207W the same level as Target Feed Shelf. (See trap photographs).

Under normal wear conditions, Target Feed Shelf U204AW will gradually get higher and require removal of one of the Shims V206 from under feed shelf. When all shims have been removed, and feed shelf is still high, replace Target Feed Arm Assembly U180W and Target Feed Cam Roll Assembly V192W. The height of Target Guide Shelf U207W will normally not require adjustment, but can be adjusted by removal or addition of shims. Before adjusting Target Feed Shelf U204AW, check for bent Carrier Plate U373. This plate should be level or slightly lower on the leading edge. If bent, it may be straightened by releasing Carrier and supporting Carrier Arm U27A with one hand while moving leading edge of Carrier Plate up or down. If Carrier Plate is badly bent, replace.

With a pencil, mark a center line full length on Carrier Plate

parallel to, and 1 1/2" from its leading edge. Release Trigger and push Carrier slowly in normal throwing direction while holding a scale or other straightedge on pencil mark to extend over the U207W Guide Shelf during movement. The curved surface of Guide Shelf should be aligned approximately with path swept over by extended straightedge. If Guide Shelf has been forced more than 1/16" out of alignment by damage, it can be brought back to shape by careful bending after removal from U208W Guide Shelf Bracket Assembly. Also see that edge of Guide Shelf does not touch edge of Carrier Plate at any point during its travel. The proper clearance of 1/16" can be restored by shifting U208W Guide Shelf Bracket Assembly on Frame U2AW to which it is held with V82W Guide Shelf Bracket Bolts. Protect your trap's Carrier — do not use it as a handle or as a bracket upon which to hang a heavy coil of wire, etc.

### **INDEXING CHAIN AND TIMING**

Indexing Chain U220W must operate with a reasonable amount of slack. To check slack, have Carrier in fired position and squeeze chain strands toward each other close behind U301W Swivel Base. At this mid point, a measurement over outside of squeezed strands should be no more than 2 5/8" nor less than 1 5/8". Correction may be made by adding or removing Shims U155, which may be done without disconnecting chain. Should this measurement become less than 1 5/8" after long use, chain should be replaced and indexing mechanism timed as follows:

1. Remove the U222 Indexing Gear Housing. The following items may be identified by reference to the photos in Trap Parts Price List.
2. With Carrier in fired position as held by mainspring, and with chain disconnected, turn Indexing Gear Driver U214AW until arrow on its underside is pointing directly toward center of Magazine Indexing Gear U223. Then assemble chain without moving sprockets. (Note that U218 Main Shaft Sprocket must be installed with large hub upward, and with running clearance between it and V3AW Gear Housing.)
3. A more critical check of timing may be made by disconnecting mainspring and moving carrier to cocked position as described in 5 under "Trap Maintenance". In this position, center of Indexing Gear Drive Roll V192W should be in line (or slightly inside) outer edges of slot in Indexing Gear U223 which is pointed toward Cocking Motor XU129.

### **TROUBLESHOOTING**

Review "SAFETY FIRST" on page 2.

**PROBLEM:** Trap fails to cock when master switch is turned on.

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### CORRECTION:

1. Check to see if XU129 Cocking Motor is running.  
IF NOT:
  - A. Check power supply to trap house.
  - B. Check to see if power cord is plugged into receptacle.
  - C. Press in red overload button on motor; overload may have shut motor off due to low voltage or trap being jammed.
  - D. With master switch off revolve motor coupling one or two turns to be sure motor revolves freely.
2. IF MOTOR IS RUNNING:
  - A. Check to see if carrier is in neutral position (just to right of forward uncocked position). If it is, move carrier to forward position (counter clockwise) by hand. DO NOT attempt to completely cock trap by hand, just move carrier to most forward position and motor will cock trap.
  - B. Check for failure or slippage of Motor Coupling X130B. Tighten or replace as indicated.

PROBLEM: Trap cocks but fails to release when release button is pressed. DANGER — Stay well clear of carrier arm path and thrown targets when performing any of the following checks!

### CORRECTION:

1. Pull up on mechanical release Trigger V57A at left rear of trap. IF TRAP RELEASES MECHANICALLY:
  - A. Check X400 Release by trying on another field. Replace or repair if indicated.
  - B. Check Release Relay U331 and Transformer U330. Note extra set of relay contacts (see wiring diagram on Plate "L" dated 1-1-76).
  - C. Turn off trap and fire with Trigger V57A. Remove mainspring. Check Release Solenoid X127 by removing U310 Solenoid Cover at front of trap. Turn on master switch only (trap will cock — stay clear of carrier arm). Press and release electrical release button. If solenoid is not activated when power is applied replace solenoid.
2. IF TRAP DOES NOT RELEASE MECHANICALLY OR ELECTRICALLY:
  - A. Check for broken mainspring. If spring is broken, remove broken parts, then release carrier by pulling up on Trigger V57A and manually rotating carrier counter clockwise to the forward uncocked position. Install new spring.
  - B. Check to see if carrier is blocked by targets or target fragments. Danger — Always stand at rear left (trigger) side of trap when clearing jams! Use

long bar or stick to prevent possible injury! After clearing jam it may be necessary to push carrier arm into its full cocked position.

PROBLEM: Carrier continues to revolve without stopping in cocked position.

### CORRECTION:

- A. Check to see if person pressing release button is holding button depressed after target has been thrown.
- B. With master switch on and release cord unplugged attempt to fire trap two or three times with trigger. If trap works properly check for short in release cord or switch. If carrier continues to revolve check for short in release relay or U335W Fire Switch. A simple way to check release unit is to try it on another field.
- C. Check Release Solenoid X127 in manner described under "Trap cocks but fails to release when release button is pressed." Before replacing Solenoid Cover U310 check for free movement of Firing Pin V66. This is the pin that is pressed by solenoid when trap is released.
- D. Remove Sear Plunger Bushing V72A on left front of gear box (being careful not to drop Sear Plunger V70 inside gear housing) and check for broken Spring V71.
- E. Check for flat on end of V70 Sear Plunger that bears against V68 Firing Bar. (The end that was inside gear box). If a flat is worn on that end reverse pin or replace. A worn pin may be repaired by putting in lathe and polishing flat out.

PROBLEM: Target fails to drop from Magazine onto Target Feed Shelf U204AW.

### CORRECTION:

- A. Check magazine for bent or broken Escapement Push Rod U177. (See photo).
- B. Check magazine for broken Escapement Push Rod Spring U178. This is the flat spring at the end of the escapement push rod. (See photo).
- C. If magazine has previously been removed, check to be sure that target pocket is in line with large opening in loading disc, also that magazine is all the way down.
- D. Check escapement assembly for broken roll pins, by removing Magazine and Index Gear Housing U222. With one hand grasp Escapement Push Rod Operator U209, and with other hand grasp Escapement Roller Arm U211W (inside U222 — see parts list) and check for broken pins by twisting. Play of parts U211W or U209 on shaft indicate broken Roll Pin X90.

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- E. Check face of Escapement Push Rod Operator U209 where it contacts Escapement Push Rod U177. If badly worn, replace. Using two U178 Springs instead of one is a frequently successful method of compensating for escapement system wear until worn parts can be replaced.

**PROBLEM:** Targets double feed (more than one target drops from magazine onto Trap Feed Shelf U204AW causing broken targets when carrier is released).

### CORRECTION:

- A. Release one or more targets from each magazine position and note which position is double feeding.
- B. Check for broken Escapement Lever Spring V51A on position that is double feeding.
- C. Check for worn (rubber) Escapement Cushions U363. On position that is double feeding, turn cushion to present new surface in contact with targets or replace if badly worn.
- D. Check for free movement of Escapement Push Rod U177, by unloading magazine. Remove from trap, and check movement of rod. If rod does not move freely, unscrew U183CW Magazine Mounting Stud Assembly and remove Magazine Base U174BW, Push Rod Spring Holder U179W, and Escapement Push Rod Spring U178. Remove escapement push rod, polish with emery cloth, check for free movement, oil and reassemble. If rod is bent or badly rusted, replace with new rod.
- E. Check to be sure bolts holding trap to plank are tight; also, that bolts holding plank to concrete are tight.
- F. Check for sluggish movement of Target Feed Shelf U204AW. With master switch off and carrier in fired position, press down on shelf and release. Shelf must return briskly to its highest position. If upward motion is sluggish, loosen and retighten shelf mounting screws while shelf is held in its depressed position. Also check for broken Shelf Lifting Springs V196W and clean and lightly oil guide rods and bronze bushings. Recheck for proper movement.

**PROBLEM:** Trap throws continuous broken targets.

### CORRECTION:

- A. Check to be sure that front Target Stop Finger U143A is in its upper position. If not, place in upper position, clean around finger, and be sure finger moves up and down freely.
- B. Check for broken or incorrectly adjusted front target stop finger or broken finger spring. When

replacing or adjusting finger, follow instructions under "Trap Maintenance". When stop finger is properly adjusted, target is not held rigid when resting on Target Feed Shelf U204AW, but can be moved slightly.

- C. Check for broken Target Feed Finger U149B on underside of magazine. Also check to be sure finger moves up and down freely.
- D. Check for targets double feeding. See previous instructions for correction.
- E. Check to see that Target Stop Plunger U364 located in Target Feed Shelf U204AW, is in up position. If not, push plunger slightly lower, turn its handle (located on bottom end) 1/4 turn, allowing it to return to its upper position.
- F. Check for loose screws in Target Feed Shelf U204AW or Target Guide Shelf U207W which, if loose, will project above feed shelf breaking target when released. While mainspring is disconnected, check to insure that no part of carrier arm or targets contact finger brackets or other hardware as carrier revolves.
- G. Check for proper relationship of Carrier Plate U373, Target Feed Shelf U204AW, and Target Guide Shelf U207W per instructions under "Trap Maintenance".

**PROBLEM:** Trap throws large percentage of broken targets.

### CORRECTION:

- A. Check targets being loaded for cracks or breaks. Instruct people handling cartons of targets of the importance of careful handling. Check to be sure targets are not being re-used.
- B. Check for sluggish feed shelf movement as described under "F" of "Targets Double Feed" problem.
- C. Check position of Target Feed Shelf U204AW and correct as described under "Trap Maintenance".
- D. Check for double feeding; this condition may only exist in one or two magazine positions. Correct as described under previous problem on double feeding.
- E. Check for badly worn Carrier Rail U32BW. This rail is not straight, and, when replacing, be sure to install with side marked "top" up.

**PROBLEM:** Trap operates but magazine does not index.

### CORRECTION:

- A. Check for sheared pin in Magazine Drive Pinion U225 (see photo) by grasping U225 and turning back and forth, noting if there is any play either in shaft or gears. If play is noted, replace U85 Roll Pins.

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- B. Check for broken Index Chain U220W. Have trap in fired position, reach under trap and check for broken chain. Adjust for correct slack or replace chain as described under "Indexing Chain and Timing".

**PROBLEM:** Trap operates but angle does not change when U336 Angle Switch is activated.

**CORRECTION:**

- A. Check to be sure Angle Change Motor U332 is running. If motor is running, but angle changing disc is not turning check for sheared U391 Angle Change Motor Key.
- B. Check to be sure Spread Adjusting Screw U342W is screwed in one of the numbered holes, and not in center hole marked "D".
- C. If motor is not running refer to Wiring Diagram on Plate "L" dated 1-1-76 and check related electrical hardware. Note that failure of U278B Timing Motor or U279 Interrupter Switch will affect Angle Change Motor(s).
- D. Check for broken Angle Changing Link Spring U270A which is located within Shock Link U304.

**PARTS AND SERVICE**

Refer to the Western V1582A—V1583A Trap Parts Price List for replacement parts. Order by name and number from Product Service Department, Winchester-Western Division, Olin Corporation, East Alton, Illinois, 62024, being sure to give serial number of trap. The parts list also contains a listing of qualified trap repair stations.