



**MORRIS**

# Operator's Manual



**L-225 / L-233  
Challenger II  
Field Cultivator**



**MORRIS**

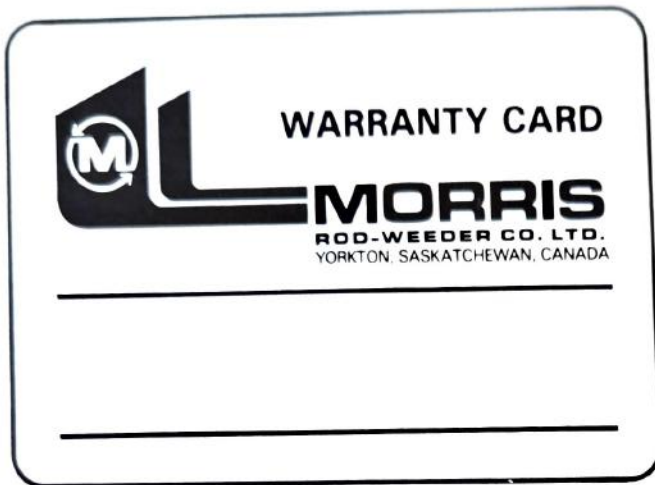
# Operator's Manual



**L-225 / L-233  
Challenger II  
Field Cultivator**

# MORRIS

Warranty ... have you  
received your warranty card?



- A yellow Temporary Warranty Card will be issued upon delivery of the machine.
- Shortly after, you will receive a Plastic Warranty Card in the mail.
- This card, issued direct from Morris, will insure that your purchase has been processed and **validated**.
- Please make sure you receive your card for proof of purchase and the approved warranty period.
- Have your dealer explain the Morris Red Seal Warranty.

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Require a Parts Manual  
for your Cultivator?  
Send \$7.50 to:



Morris Merchandising

**MORRIS**  
ROD-WEEDER CO. LTD.

Drawer 878 - 85 York Road  
Yorkton, Saskatchewan  
S3N 2X2

# Check List 1



Watch for this symbol. It identifies potential hazards to health or personal safety. It points out safety precautions. It means: **ATTENTION - BE ALERT.** Your safety is involved.

Please read the Operator's Manual carefully and become a 'SAFE' operator.

Adopt a good lubrication and maintenance program and we are confident your machine will serve you well.

**NOTE:** WARRANTY IS VOID UNLESS CHECK LIST IS COMPLETED AND SIGNED BY THE DEALER REPRESENTATIVE.

**NOTE:** OWNERSHIP VERIFICATION FORMS MUST BE COMPLETED AND MAILED TO YORKTON AT THE TIME OF SALE. THIS WILL ENSURE PROMPT DELIVERY OF WARRANTY CARDS.

## USE OPERATOR'S MANUAL AS A GUIDE

### [ ✓ ] Lubrication: Grease

- \_\_\_ Axle Pivot
- \_\_\_ Wheel hubs
- \_\_\_ Trip Rocker

### [ ✓ ] Lubrication: Oil

- \_\_\_ Hitch and Wing pivot pins
- \_\_\_ Conn. Strap Pins - automatic trip release
- \_\_\_ Cylinder pins

### [ ✓ ] Tire Pressure

- \_\_\_ See page 21

### [ ✓ ] Depth Control

- \_\_\_ Adjust depth control rod Section 5
- \_\_\_ Level frames
- \_\_\_ Widthwise Section 5
- \_\_\_ Lengthwise Section 5

### [ ✓ ] Transport

- \_\_\_ Lock-up pins should be in place
- \_\_\_ Check if assembled correctly
- \_\_\_ Tighten wheel bolts Section 6
- \_\_\_ Check hose connections
- \_\_\_ Check trip assembly - Section 6
- \_\_\_ The Operator's Manual was delivered to the owner and he has been instructed as to its' contents.

### PLEASE PRINT:

Model \_\_\_\_\_

Serial No. \_\_\_\_\_

Dealer \_\_\_\_\_

Town \_\_\_\_\_ Prov. (State) \_\_\_\_\_

Phone \_\_\_\_\_

Serviced By \_\_\_\_\_

OWNER/OPERATOR \_\_\_\_\_

Date \_\_\_\_\_

# 2 Introduction

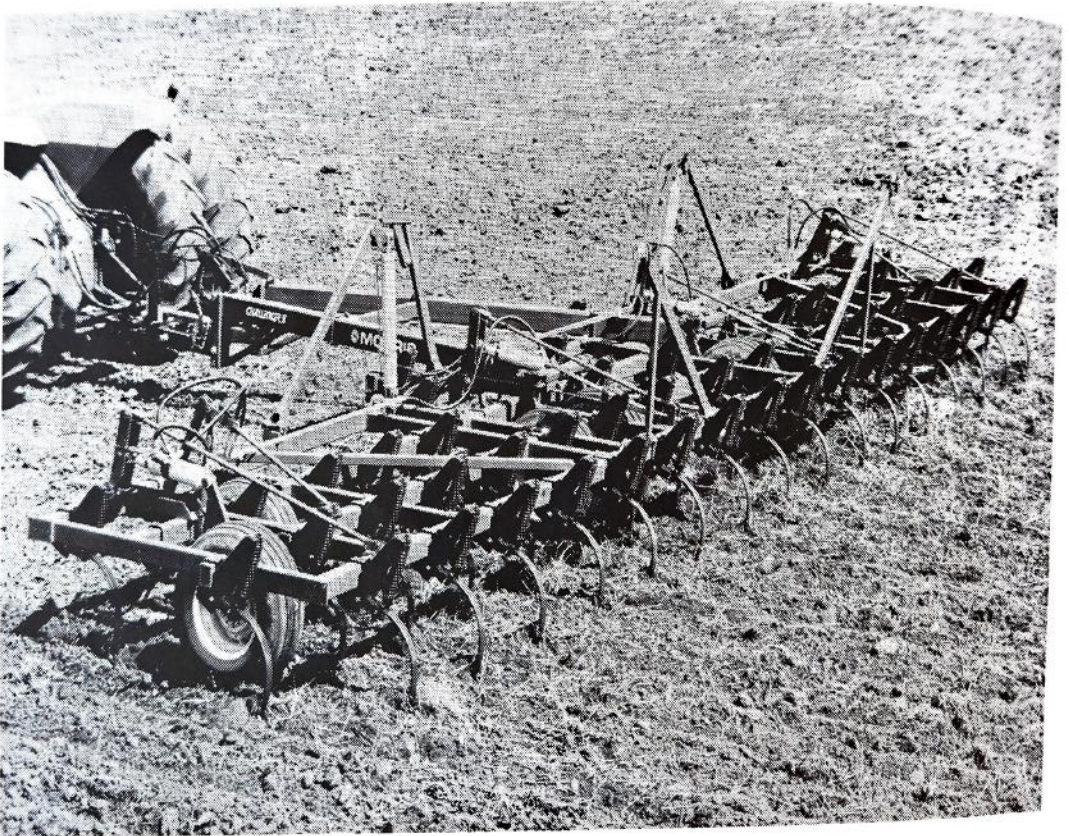
This Operator's Manual has been carefully prepared to provide the necessary information regarding the operation and the adjustments, so that you may obtain maximum service and satisfaction from your new Morris Challenger.

To protect your investment, study your Manual before starting or operating in the field.

If you should find that you require information not covered in this manual, contact your local Morris Dealer. He will be glad to answer any questions that may arise regarding the operation of your cultivator. Our Dealers are kept informed on the best methods of servicing and are equipped to provide prompt efficient service if needed.

Occasionally, your machine may require replacement parts. If you furnish your dealer with the serial number, description and full information of the part replacement required, he will be able to supply you with the necessary part. If the Dealer does not have the necessary part, our Factory will supply him with it promptly.

Your cultivator is designed to give satisfaction even under difficult conditions. A small amount of time and effort spent in protecting it against rust, wear and replacing worn parts will increase the life and trade-in value.



**Keep this book handy for ready reference at all times.** It is the policy of the Morris Rod Weeder Co. Ltd., to improve its products whenever it is possible and practical to do so. We reserve the right to make

changes or add improvements at any time without incurring any obligation to make such changes on machines sold previously.

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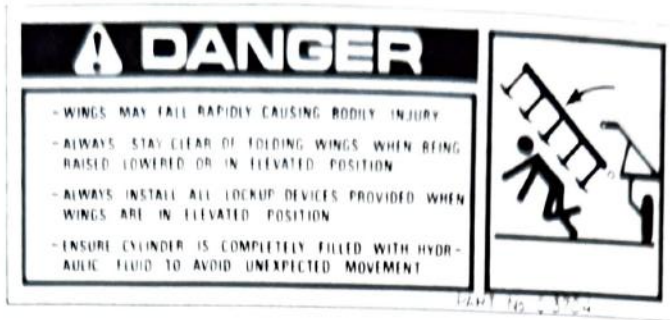


## Challenger II Field Cultivator

- L-225
- L-233

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# 3 Safety



Part No. C13704 — On Front End of Hitch Pole and on Wing Transport Rests.



## Tractor Operation

- Be aware of tractor safety procedures when working with a Cultivator.
- Review tractor manuals.
- Secure hitch pin with a retainer and lock drawbar in centre position.



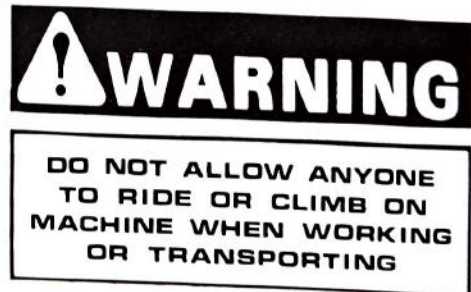
## General Operation

- Do Not Ride! No one should be allowed to ride on the Cultivator when in motion.
- No one but the operator in the driver's compartment!
- Check behind when backing up.
- Reduce speed when working in hilly terrain.
- Never allow anyone within the immediate area when working.
- Stand clear when raising or lowering machine or wings.



## Transporting Operation

- When transporting be aware of length, height and width. Make turns carefully and be aware of obstacles and overhead electrical lines.
- When transporting machine, adhere to recommended safe speeds.
- Do not transport in poor visibility.
- When transporting, be sure transport lock pin is in transport position.
- The slow moving vehicle (SMV) emblem and safety reflectors must be secured on the machine for safe transport.
- Check that wings are firmly seated in transport wing stops and lock pins are installed.
- Avoid soft surfaces, the additional wing weight on the centre wheels could cause the machine to sink.



D13705  
Warning Decal



Part No. C-4637  
On Depth Control Transport Lock  
Caution Decal



## CAUTION

NEVER LIFT WINGS WITHOUT  
USE OF HYDRAULIC SYSTEM  
PROVIDED

Part No. C-4261 On Outer Ends of  
Main Frame



## CAUTION

HYDRAULIC SYSTEM MUST BE FULL  
OF OIL AT ALL TIMES TO PREVENT  
DAMAGE TO EQUIPMENT  
& OPERATORS

Part No. C-4263  
On Front End of Hitch Pole  
Caution Decal



## CAUTION

NEVER REMOVE  
HYDRAULIC COUPLERS  
OR HOSES WITH MACHINE  
IN TRANSPORT POSITION

Part No. C-4262  
On Front End of Hitch Pole  
Caution Decal



### Maintenance

- Shut tractor off before making any adjustments or lubricating the machine.
- Block machine securely when making repairs.
- Wear close-fitted clothing.
- Do not modify the machine.



### Hydraulics

- Do not search for high pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.
- Use cardboard or wood to detect leaks - never your hands!
- Double check that all is clear before operating hydraulics.
- Never remove hoses or hose ends with machine elevated.
- Maintain proper hydraulic fluid levels.
- Keep all connectors clean for positive connections.
- Ensure all fittings and hoses are in good repair.
- Do not stand under wings.



### Storage

- Store Cultivator away from areas of main activity.
- Level Cultivator and block up securely to relieve pressure on jack.
- Do not allow children to play on or around Cultivator.



# Decals



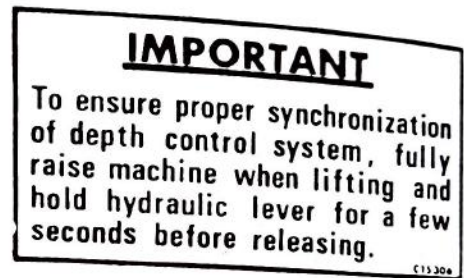
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

## Operation:



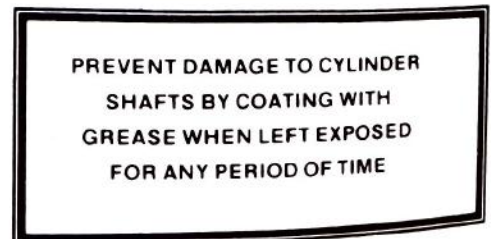
Part No. C-2019  
On All Hydraulic Cylinders

## Maintenance:



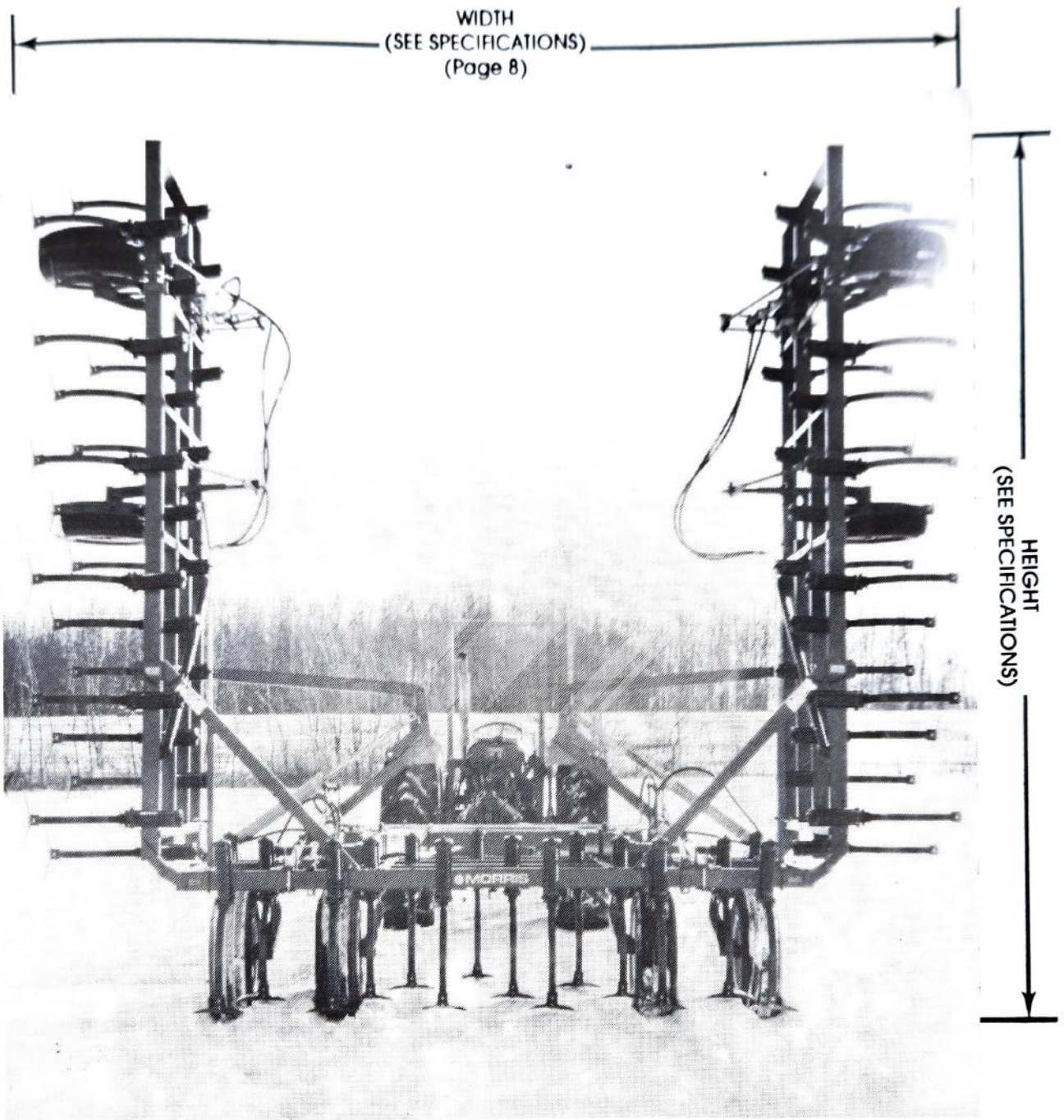
Part No. C15306  
On Front End of Hitch Pole

## Storage:



Part No. C-2218  
On All Hydraulic Cylinders

# Specifications 4



Be aware of your clearance before proceeding under, through or around buildings, power lines, underpasses or bridges.

# Specifications

## Challenger II Field Cultivator L-225 & L-233

|  | L 225  | L 233               |
|--|--|---------------------|
| Working Width - Basic Machine                  | 25'  | 33'                 |
| No. Sections                                   | 3  | 3                   |
| Shank Spacing                                  | 8"   | 8"                  |
| Weight   | 5,200 lbs.   | 6,850 lbs.          |
| Tire Size - Main Frame                         | 9 x 15L T (Highway Service)<br>8 ply                       | 9 5L x 15"<br>6 ply |
| - Wing Frame                                   | 9 5L x 15"<br>6 ply  | 9 5L x 15"<br>6 ply |
| - Outer Wing Frame                             | N/A  | N/A                 |
| - Lead Wheels                                  | N/A  | 7 6Q x 15"<br>4 ply |
| No. Wheels                                     | 4  | 8                   |
| Overall Length                                 | 18' 2 3/4"   | 18' 2 3/4"          |
| Transport Width                                | 18' 2 1/2"   | 18' 2 1/2"          |
| Transport Height                               | 9' 8 1/2"  | 13' 9"              |
| Spring Cushion                                 | Optional   | Optional            |
| Automatic Trip Device                          | Optional   | Optional            |
| Shank Size                                     | 5/8" x 1 3/4"  | 5/8" x 1 1/4"       |
| Sweep - 11"                                    | Standard   | Standard            |
| Sweep To Frame Clearance                       | 24"  | 24"                 |
| Wing Lift Cylinder - Inner Wing                | 2 1/2" x 24"   | 3" x 24"            |
| - Outer Wing                                   | N/A  | N/A                 |
| Depth Control Cylinder - Main Frame Right Side | 3" x 8"  | 3" x 8"             |
| - Main Frame Left Side                         | 2 1/2" x 8"  | 2 1/2" x 8"         |
| - Left Inner Wing                              | 3 1/2" x 8"  | 3 1/2" x 8"         |
| - Right Inner Wing                             | 2" x 8"  | 2" x 8"             |
| - Outer Wing                                   | N/A  | N/A                 |
| Flow Divider                                   | N/A  | N/A                 |
| Gauge Wheels                                   | N/A  | N/A                 |
| Tripping Clearance                             | - Automatic Trip<br>9"<br>- Spring Cushion Trip<br>10 3/4" | 9"<br>10 3/4"       |
| Hitch Pole - 4" x 6" Heavy Wall Tubing         | Standard   | Standard            |
| Extension Kits Optional                        | To 29'   | To 37'              |

# Operation 5

## CAUTION



**BE ALERT**

### **SAFETY FIRST**

**REFER TO SECTION 3 AND REVIEW  
ALL SAFETY RECOMMENDATIONS**

### **Application**

The Challenger is not intended to replace a Chisel Plow for extremely hard conditions. The Challenger was designed as a secondary tillage machine.

### **Tractor**

#### **Tires:**

- Proper ballast and tire pressure are required when pulling heavy implements.
- Consult your tractor operator's manual and follow all recommended procedures.

#### **Hydraulics:**

- Wipe all hydraulic fittings and couplers with a clean cloth to avoid contaminating the system.
- Check the hydraulic reservoir is filled to the proper level.

#### **Drawbar:**

- Centre and pin in a fixed position for easier hitching and greater stability.



**Do not permit smoking, sparks or an open flame where combustible fuels are being used. Keep the work area well ventilated.**

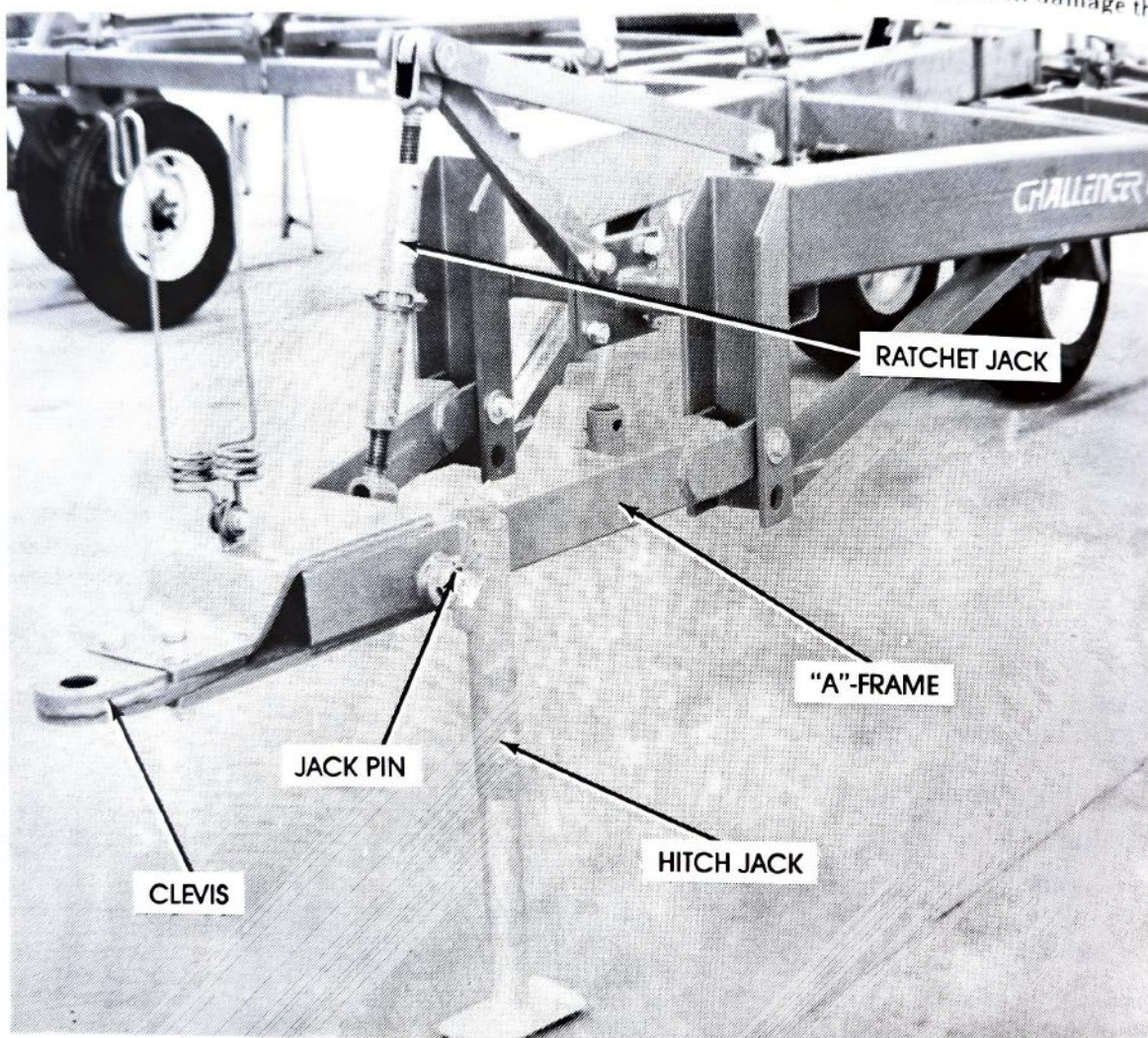


**Do not search for high pressure hydraulic leaks without a hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.**

# Operation

## Hitching Cultivator

- Insure your draw pin is in good condition.
- Position "A" Frame to correct drawbar height.
- Level cultivator clevis with tractor drawbar using hitch jack.
- After tractor to plow connection is made, relieve pressure off the jack.
- Pull jack pin. Remove jack and place on top of "A" Frame.
- Re-pin jack.
- Do not raise or lower the machine with the hitch weight on the jack, as this will damage the jack.



Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure!

## Connect Hydraulics

- Ensure quick couplers are dirt free.
- Inspect all fittings and hoses for leaks, bends or kinks.
- Connect the four hydraulic lines, be sure the wing and depth hoses are coupled to the correct lines.

## From Transport to Field Working Position

- As a precaution, check surrounding area to be sure it is safe to lower wings.
- Remove Wing Transport Lock Pins. Do not walk under the wings when removing the pin.
- Operate hydraulics until wings are lowered and the cylinder shafts are completely contracted to allow wings to float when working in uneven land.
- Extend depth cylinders. Remove two transport lock wedges.
- Fully cycle depth cylinders several times to remove air from the system.



**CAUTION** – Lock up devices provided must be installed when wings are in elevated position, to ensure operator safety.

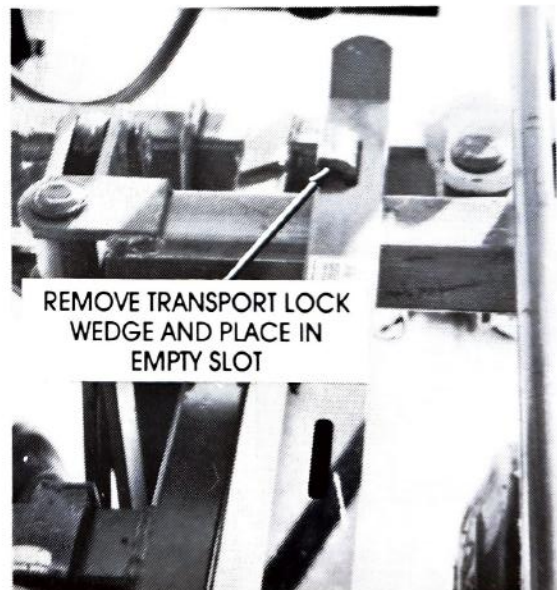
## Levelling Adjustment for the Challenger Cultivator

### Step 1.

The first step in levelling the Challenger Cultivator is an initial levelling which is done before the Cultivator gets taken to the field. **Final levelling and adjustment must be done and can only be done in the field.**

- Check that tires are properly inflated.
- Set the Cultivator on a flat level surface, similar to that of a concrete floor. Next, adjust the cylinder control rods such that all control rods are just snug when tires and Cultivator Sweeps are on the floor.
- Next, adjust the hitch such that at this point the hitch and frame are level.

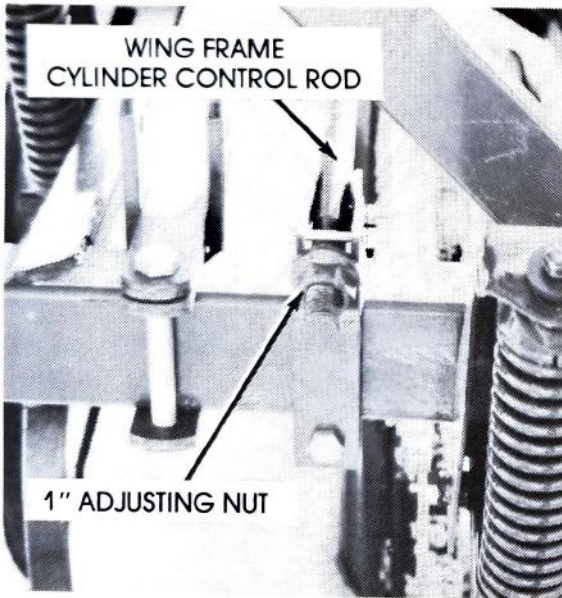
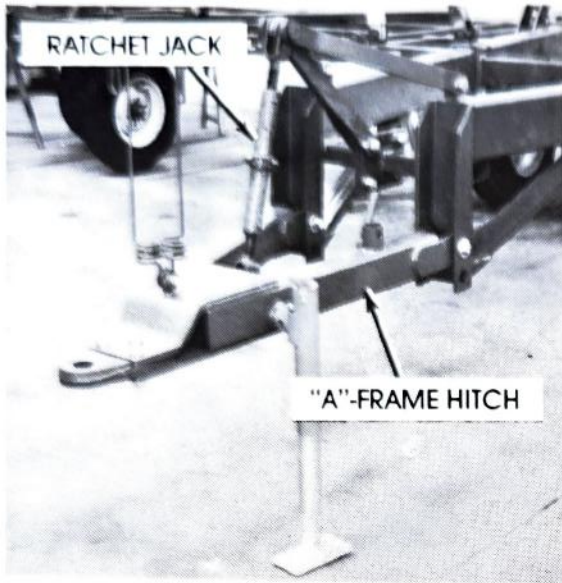
It should be noted that the hitch level has to be finally set in the field at the **required operating depth.**



**CAUTION** – Transport Locks are provided on the Depth Control Cylinders for use when transporting machine to reduce strain on Cylinders and Control Rods.

MORRIS ROD WEEDER CO LTD WILL NOT BE RESPONSIBLE FOR ANY DAMAGE OR OPERATOR INJURY RESULTING FROM NON-USE OR IMPROPER USE OF TRANSPORT LOCKS.

# Operation



## Levelling Adjustment for the Challenger Cultivator

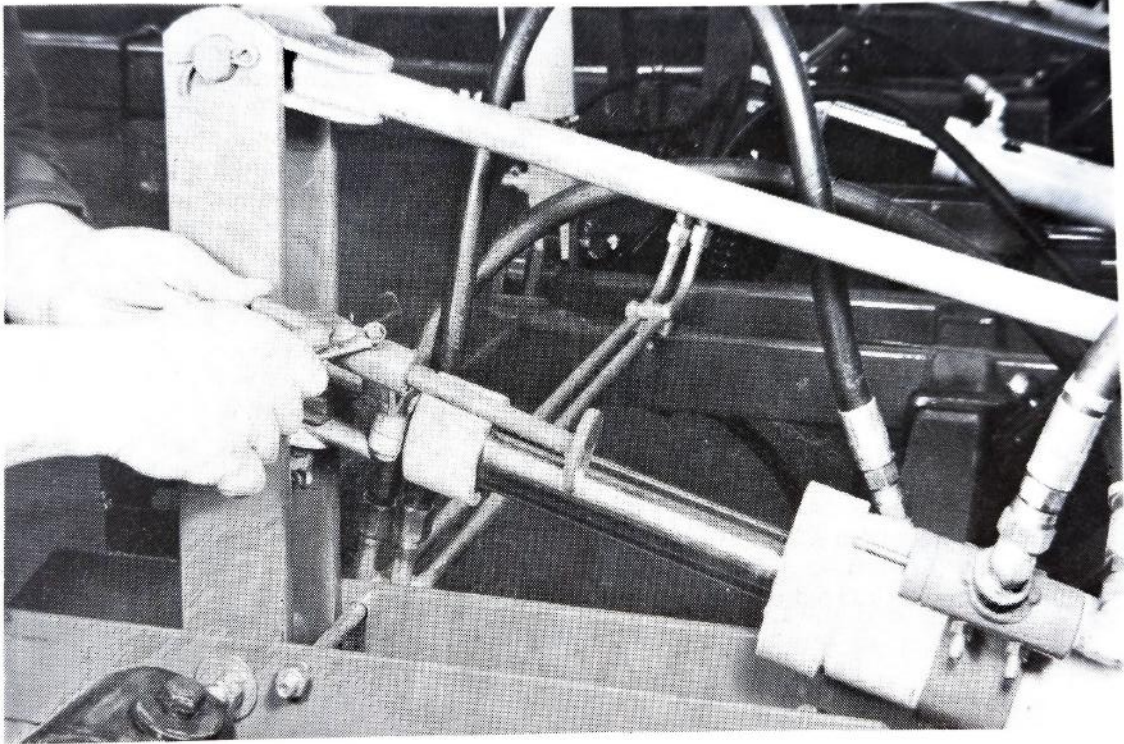
### Step 2.

The final level adjustment of the cultivator has to be done in the field.

- Set machine at required operating depth.
  - Check for consistent depth across the rear of machine. If not consistent, adjust control rods accordingly.
  - Level the main frame front to back by adjusting the hitch ratchet jack. This can be confirmed by checking the depth of adjacent shanks on the main frame of the cultivator, one on the front row and one on the rear row, ensuring that they are both running at the same depth.
- 
- Pull the machine for a short distance and check the depth of two adjacent shanks, one front one, rear row. Adjust if necessary and re-check depth of adjacent shanks, one front one, rear row and adjust again if necessary.
  - Pull machine a short distance and check whole machine for even depth.

## Depth Stop Adjustment

- To increase or decrease the working depth, move the depth control rod as desired so that the depth stop plunger will be depressed when the desired working depth is acquired.
- **DO NOT OVERTIGHTEN ROD TIGHTENER** -the depth valve operates hydraulically and very little pressure is required on the poppet to stop oil flow.



## Oil Level

The hydraulic system draws its oil supply from the tractor reservoir.

- Check the oil level after the Challenger system has been filled.

## Rephasing

- Raise depth control cylinders, fully hold 3 to 4 seconds, then lower machine.
- This will maintain equal pressure and cylinder stroke.



# Operation

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## Automatic Trip Assembly

THE FAMOUS MORRIS automatic trip release is standard equipment on all Morris Challengers. The automatic trip release is designed to hold the sweep and shank in a forward position up to a force of approximately 325 lbs. (1445 N) to 350 lbs. (1557 N). This results in lighter draft, better trash clearance, less ridging and longer sweep wear. When the force exceeds 325 lbs. (1445 N) to 350 lbs. (1557 N) the trip will release and the sweep will smoothly pass over the obstruction at a greatly reduced force of 150 lbs. (667 N) and then return to its' normal working position. This action greatly minimizes or reduces strain and breakage of shanks and sweeps allowing the remaining sweeps to operate at the normal working depth and permitting uniform cultivation throughout, even in very stony conditions.



## Spring Cushion Assembly

The Spring Cushion Trip requires no maintenance and provides excellent soil agitation and maximum trash clearance.

- The Morris shank stem has a 1 $\frac{3}{4}$ " spacing for  $\frac{3}{8}$ " bolts to fit a 47° sweep.
- Tripping force starts 160 lbs. (712 N) increasing to 250 lbs. (1112 N) at 4" tripping height, remaining at this load to maximum tripping height of 10 $\frac{3}{4}$ ".
- Soil conditions change from year to year which could affect:
  - (1) Shovel penetration,
  - (2) Type of shovel,
  - (3) Cultivation procedure.



# Operation

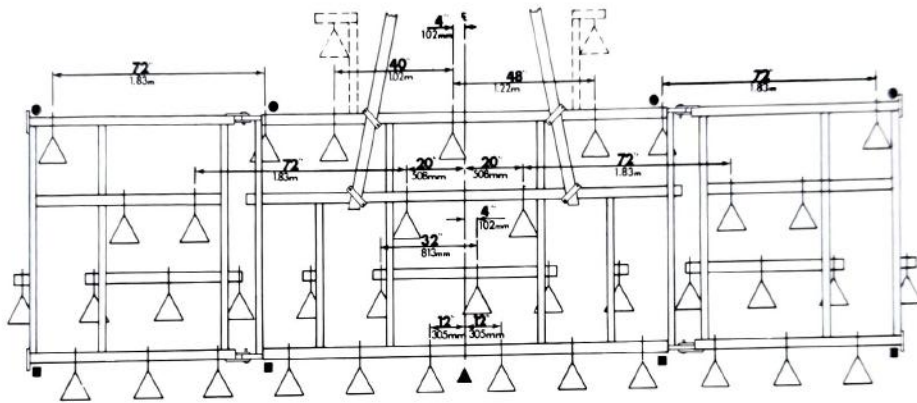
## Challenger II Field Cultivator Shank and Reflector Locations

**NOTE:** All Shank Assemblies are Spaced at 24" (609.6 mm) Except Where Specified.

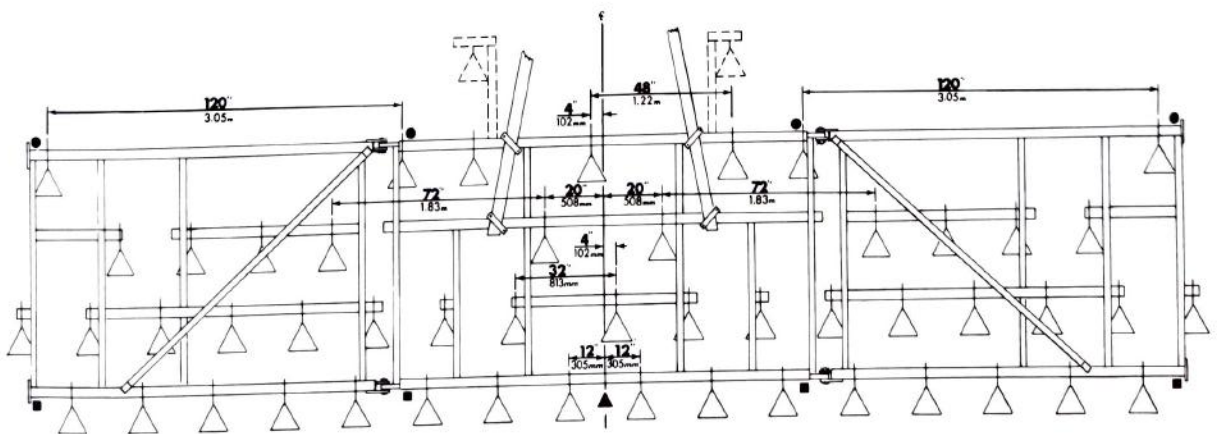
- C12602 AMBER REFLECTOR
- C12603 RED REFLECTOR
- ▲ S M V EMBLEM

**NOTE** – Always replace missing or damaged reflectors

### L-225



### L-233

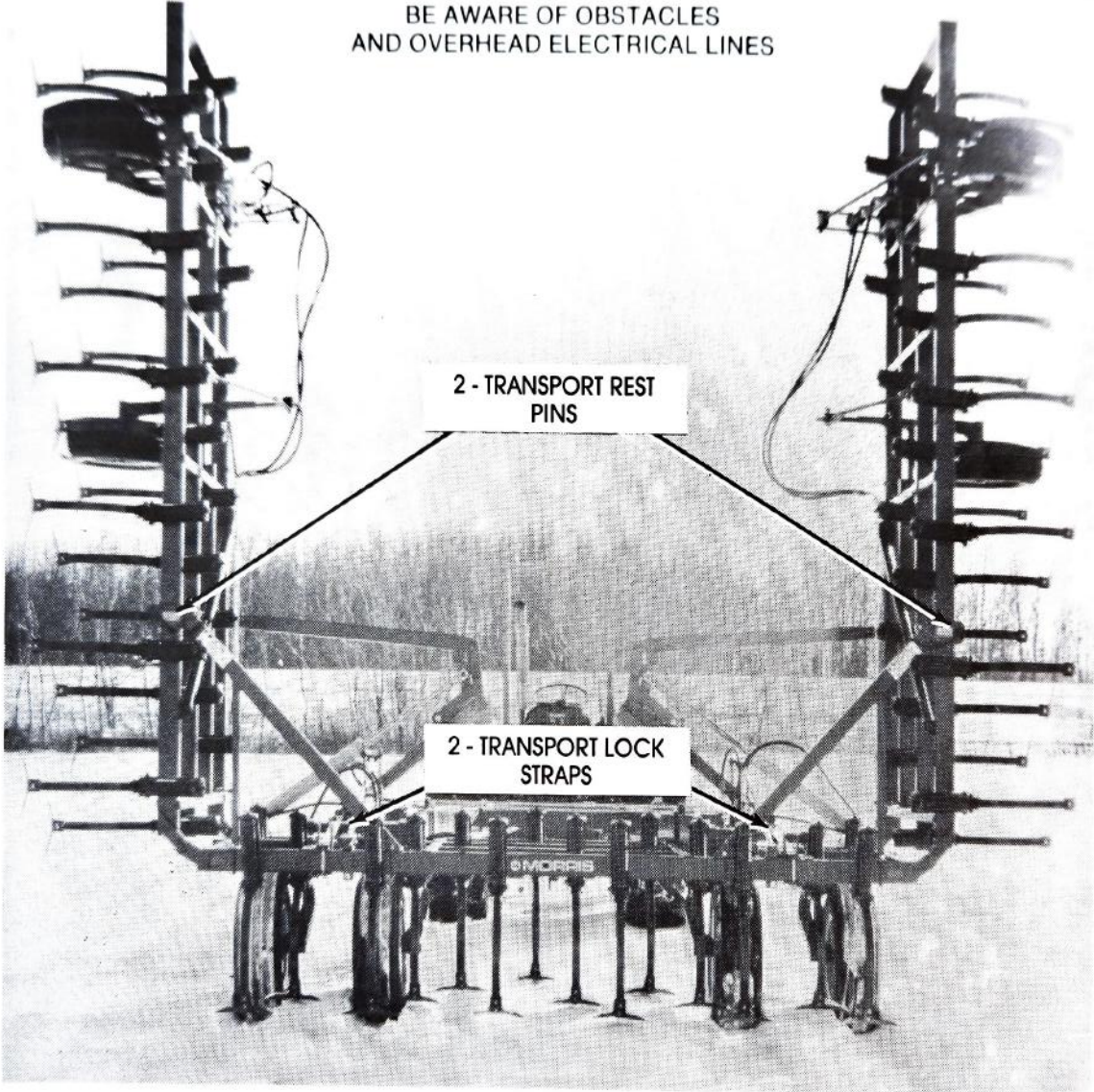


# Operation

## Transport



BE AWARE OF OBSTACLES  
AND OVERHEAD ELECTRICAL LINES



2 - TRANSPORT REST  
PINS

2 - TRANSPORT LOCK  
STRAPS



### ROAD TRANSPORT

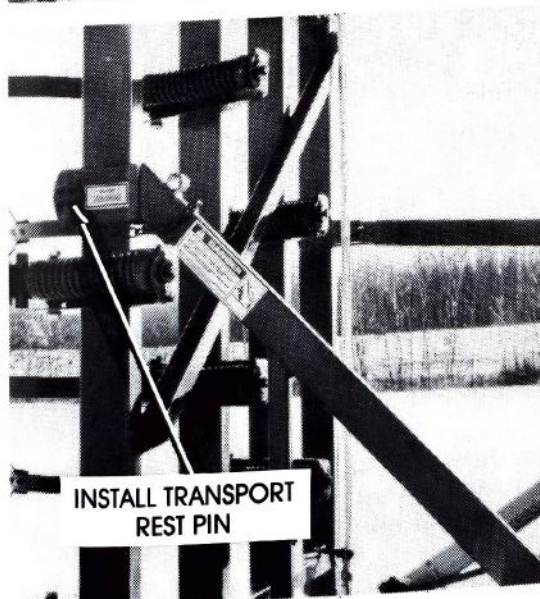
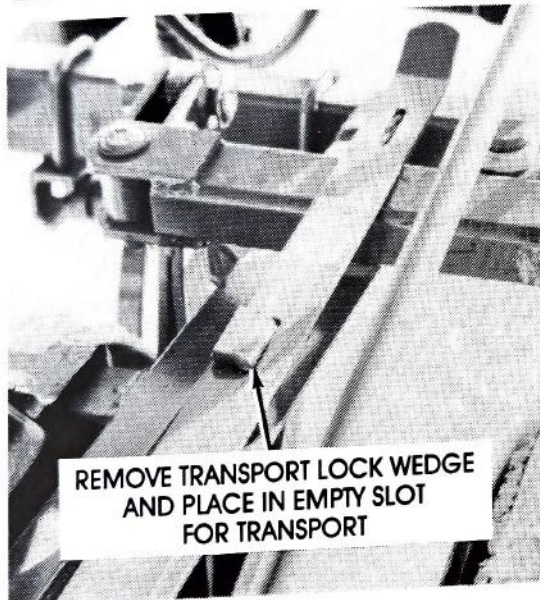
Secure Upright Wings together with a safety  
chain for an extra safety precaution.

# Operation

## From Field Working To Transport Position

Observe all applicable safety precautions under transport heading in general safety, Section 3.

- Refer to specification, Section 4, for weight, transport height and width.
- Transport with tractor only!
- Raise Hydraulic Depth Control Cylinders to highest position and place Transport Lock wedges in-front slot for Transport. — See Photo.



**CAUTION** - Transport Locks are provided on the Depth Control Cylinders for use when transporting machine for safety and to reduce strain on Cylinders and Control Rods.

MORRIS ROD WEEDER CO. LTD. WILL NOT BE RESPONSIBLE FOR ANY DAMAGE OR OPERATOR INJURY RESULTING FROM NON-USE OR IMPROPER USE OF TRANSPORT LOCKS.

- Release hydraulics slightly to seat cylinder against the stops.
- Inspect tires for any serious cuts or abrasions. If such has occurred, tire should be replaced.
- Hydraulically Raise Wings. Always stay clear of folding wings being raised, lowered, or in elevated position. Ensure cylinders are completely filled with hydraulic fluid — Wings may fall rapidly causing injury.
- Install Wing Transport Rest Pins in Transport Rests. — Photo.

## Speed

- Implement tire manufacturers recommended maximum safe speed on a loaded implement tire is 20 M.P.H. (32 km/h.)

## Lights

- Ensure proper reflectors are in place on the cultivator.
- Reflector location, refer to Page 17.
- Be familiar with and adhere to local laws.

# Maintenance

## Lubrication

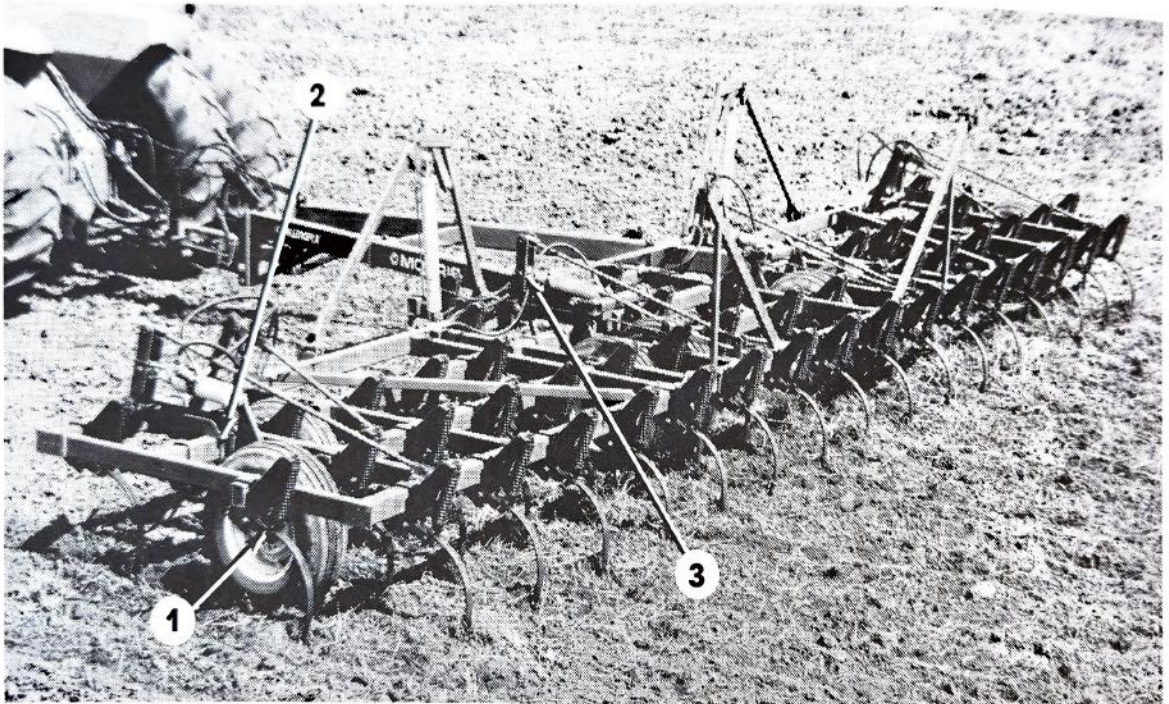
Greasing pivot points prevents wear and helps restrict dirt from entering.

- However, once dirt does enter a bearing it combines with the lubricant and becomes an abrasive grinding paste, more destructive than grit alone.
- Apply new lubricant frequently during operation to flush out old contaminated lubricant.
- Use a good grade of grease and machine oil.
- Clean grease fittings and lubricator gun before applying lubricant.

## Grease Locations

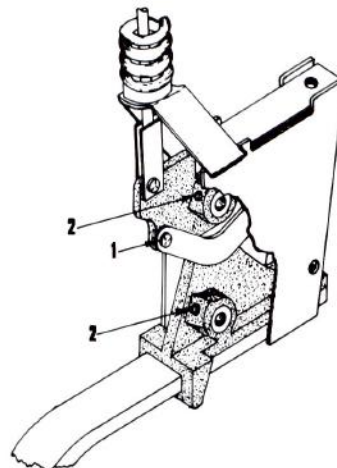
Refer to the photo below for grease fitting locations.

1. Hubs (2 fittings)
  - Grease enough to keep moist, do not over grease (repack annually).
2. Axle Pivot Bearings (4 fitting)
  - Every 10 hours.
3. Oil
  - Cylinder Pins.
  - Hinge Pins.
4. Trip Assemblies (See below)

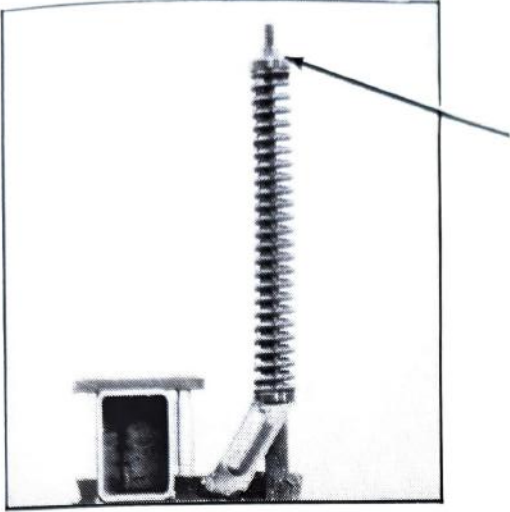


## TRIP LUBRICATION

1. Oil\*
2. Grease



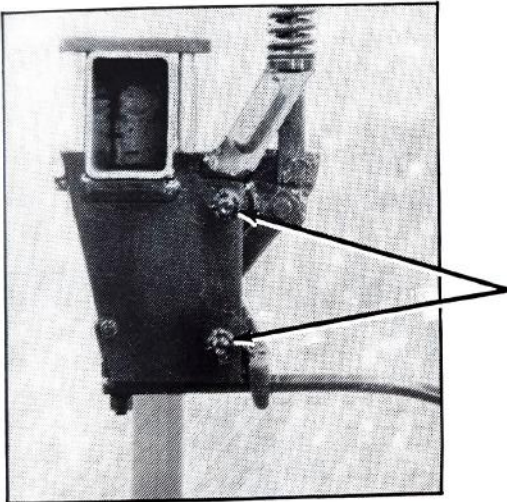
# Maintenance



## Automatic Trip Adjustment

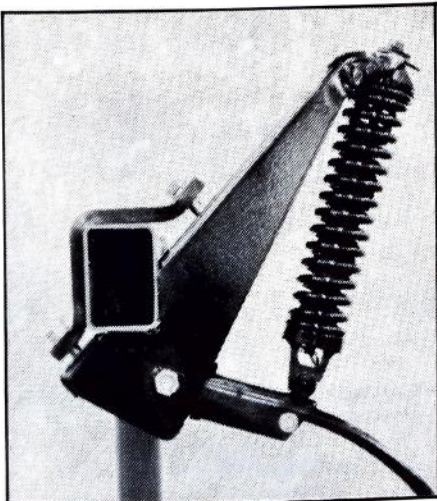
The Trip is preset at the factory, and normally needs no further attention.

Normal tension is with Spring Tension nut tightened to end of threads.

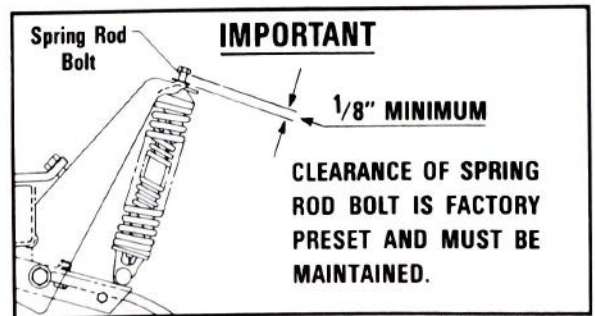


## IMPORTANT:

It is important that the Trip is not tripping back unless it strikes a rock or some solid object. Unnecessary tripping will cause excessive wear on the mechanism of the trip assembly. Torque on slotted nuts on trip side plate should be 150 lbs. (667 N).



## Spring Cushion Trip Adjustment



Part No. F13738

# Maintenance

## Wheels

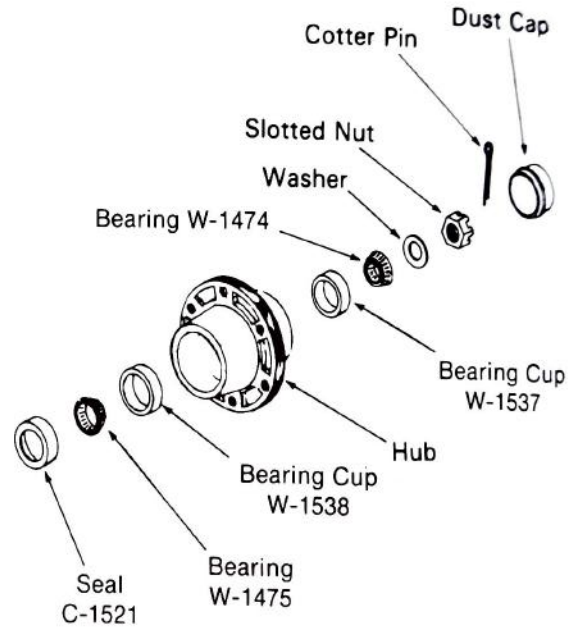
- Inspect wheel for tread wear and sidewall abrasions, replace if necessary.
- Tighten wheel bolts - refer to the Bolt Torque Chart.
- Check tire pressure.



**Tire replacement requires trained personnel and proper equipment.**

## Bearings

- Lower the cultivator and raise the wheels enough to clear the surface.
- Shut tractor off and remove key.
- Block wheels on tractor.
- Remove the Dustcap Cotter Pin and the slotted nut and washer.
- Be careful when pulling the hub off as not to drop the outer bearing.
- Clean spindle and bearing components with solvent.
- Inspect for wear on bearings, spindle and cups, replace if required.
- Do not reuse old seals. Use only new seals when reassembling.
- Pack inner hub with bearing grease.
- Be sure bearing and cup are dry and your hands are clean.
- Place grease in the palm of your hand and work grease into the bearing rollers, rotating the bearing as you go.
- Install inner bearing and cup first, then press new seals in place.

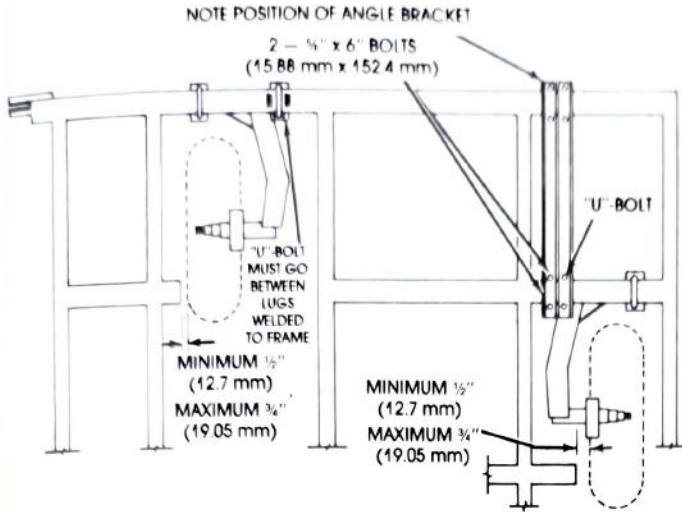


- Place hub on spindle.
- Install outer bearing, washer and slotted nut.
- Tighten Nut while turning the wheel until a slight drag is felt.
- Back Nut off one slot and install a cotter pin. Then bend up around Nut.
- Pack grease inside the dust cap and tap into position.

# Maintenance

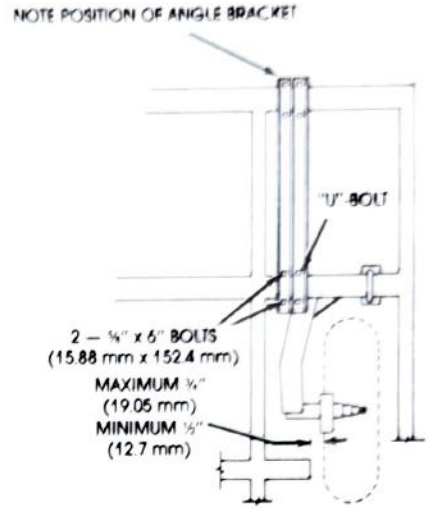
## WING FRAMES — Axle and Tire Placement

**NOTE:** TIRES DAMAGED DUE TO IMPROPER SET UP ARE NOT COVERED BY MORRIS WARRANTY



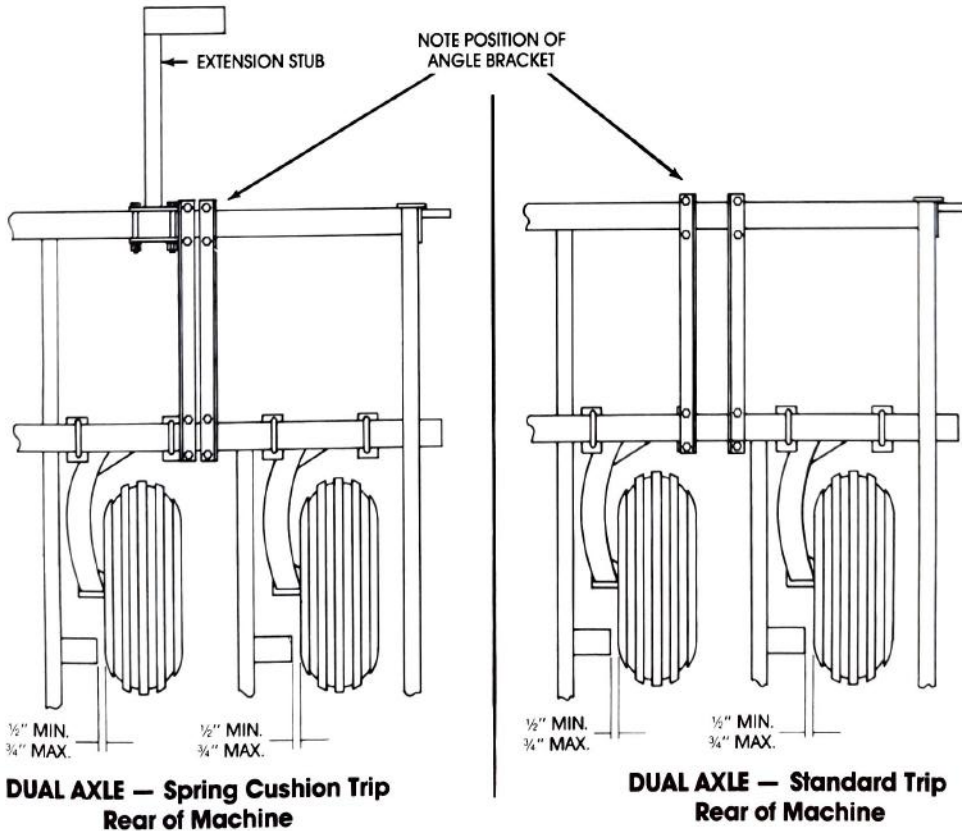
L-233 ONLY

Rear of Machine



L-225 SINGLE AXLE

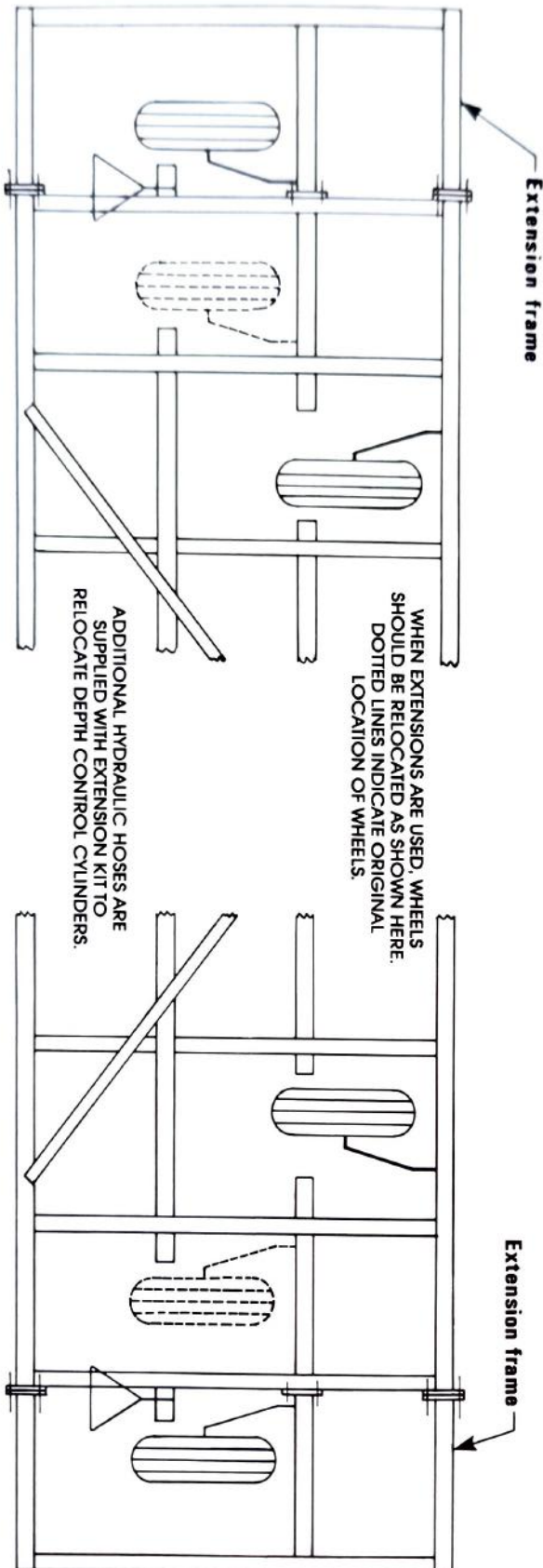
## MAIN FRAME — Axles, Tires and Axle Bracket Placement



Right Side Illustrated — Left Side Assembled Similarly



## Wheel Location with Extensions L-225 & L-233



# Maintenance

## Hydraulics

Refer to Section 3 regarding hydraulic safety.

- Inspect hydraulic system for leaks, damaged hoses and loose fittings.
- Hose and hydraulic tubing can only be repaired by replacement. Do Not Attempt Repairs With Tape or Cements. High pressure will burst such repairs and cause system failure and possible injury.
- Leaking cylinders — install a new seal kit.
- Fittings — use Teflon seal tape on all NPT hydraulic joints. Do not over-tighten.
- Do not use Tape or Hydraseal on JIC Fittings.
- Hydraulic Hose Connections — when connecting the hoses to the cylinders, tubing, etc., always use one wrench to keep the hose from twisting and another wrench to tighten the union. Excessive twisting will shorten hose life.
- Keep fittings and couplers clean.
- Check the hydraulic reservoir is filled to the proper level.
- Check the Tractor Manual for proper filter replacement schedule.
- Refer to the Trouble Shooting Section.



Contact your nearest Dealer for genuine repair parts. Dealers carry ample stocks and are backed by the manufacture and regional associations.



**Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure!**

**NOTE:** Extreme care must be taken to maintain a clean hydraulic system. USE ONLY NEW HYDRAULIC FLUID WHEN FILLING RESERVOIR.

# Maintenance



**DO NOT ALLOW CHILDREN TO PLAY  
ON OR AROUND THE MACHINE.**



## Storage

- To insure longer life and satisfactory operation, store the Cultivator in a shed.
- If building storage is impossible, store away from areas of main activity.
- Clean machine thoroughly.
- Inspect all parts for wear or damage.
- Avoid delays - if parts are required, order at the end of the season.
- Lubricate grease fitting (Refer to Lubricating Section).
- Tighten all bolts to proper specifications (Refer to Bolt Torque Chart).
- For a safer storage, lower the wings down and release the hydraulic pressure.
- If wings must be stored in raised position, ensure that wings are properly seated in clevis stops and secured with lock pins.
- Level Cultivator using hitch jack and block up.
- Relieve pressure from jack.
- Raise main frame, block up and relieve weight from the tires.
- Cover tires with canvass to protect them from the elements when stored outside.
- Coat Sweeps with oil or grease.
- Coat exposed cylinder shafts with grease to prevent rust.
- Oil and grease all automatic trip assemblies.
- Paint any surfaces that have become worn.

## Morris Paint

### Spray Cans:

| Part # | Description            |
|--------|------------------------|
| W-4647 | Red Morris Spray Can   |
| W-4648 | Blue Morris Spray Can  |
| W13762 | White Morris Spray Can |

### Litre Cans:

| Part # | Description              |
|--------|--------------------------|
| Z-10   | Red Paint/Litre          |
| Z-11   | Blue Paint/Litre         |
| Z-79   | Clover White Paint/Litre |

# Troubleshooting 7

| Problem                             | Cause  | Correction   |
|-------------------------------------|--|--|
| Machine not operating straight.     | Not levelled.  | Adjust cylinder control rods. Use optional spacer washers part No. C-4339 if required.<br>Refer to Operation Section.<br>Rephase cylinders. Adjust Gauge wheels.<br><br>Check tire pressure.<br>Refer to Maintenance Section.                    |
| Lack of penetration.                | Not levelled.<br>Sweeps worn.<br>Sweep angle.  | Refer to Operation Section for levelling procedure.<br>Replacement necessary.<br><b>Morris Sweeps are at 47°.</b>  |
| Sweeps wearing unevenly.            | Frame not levelled front to rear.<br>Tire tracks.<br>Front row always wears more than the others.      | Adjust ratchet jack or move "A"-Frame to alternate hole on bridle up or down as required.<br>Alternate sweeps from one side to the other.  |
| Depth control not working.          | Cylinder not phased.<br><br>Leaks.<br>Low oil level.<br>Hydraulics clogged.<br>Line Lock doesn't hold. | Activate cylinder, hold 3-4 seconds then lower.<br><br>Use hand and eye protection - check for external leaks.<br>Fill tractor reservoir.<br>Replace filter.<br>Clean or replace.  |
| Wing lifting too slowly.            | Tractor hydraulic pressure.<br>Hydraulic breakaways.<br><br>Hose restriction.<br>Check valve C-957.    | Repair pump. Pressure relief valve needs resetting.<br>Foreign material or sticking.<br>Check compatibility.<br>Cylinder linkage binding.<br><br>Clean.<br>Make sure arrow points in direction of flow when lowering wings.<br>Clean or replace. |
| One wing will lift, other will not. | Binding.<br><br>Assembly.<br><br>Restriction in line.  | Hinge joints.<br><br>Hoses reversed at cylinder.<br>See set up instructions.<br><br>Clean.   |

# Troubleshooting

| Problem                                    | Cause  | Correction  |
|--|--|---|
| Depth control not working - continued.     | <p>Internal leaks</p> <p>Depth control valve not seating properly</p>  | <p>Raise the machine and level off. Run the machine at operating depth for 50 feet. Stop with machine in ground and mark cylinder shafts with felt marker. Run at operating depth, observing the cylinder movement and direction. The leaking cylinder will normally be the first in the series that is moving.</p> <p>If only one cylinder does not hold, check that cylinder piston O-ring and barrel are not damaged.</p> <p>Remove poppet valve and check for damage. Shaft could be bent. Check that the cylinder shaft lever pushes directly on depth valve poppet.</p> |
| Trips not tripping freely (Automatic Trip) | <p>Adjustment</p> <p>Lack of lubrication</p>   | <p><b>Trip Spring may be adjusted too tight.</b></p> <p><b>Oil all pivot points. Grease every 50 hours.</b></p>   |
| Trips show rapid wear. (Automatic Trip)    | <p>Adjustment</p>  | <p><b>Tighten tension spring on Trip Assembly. See Maintenance Section. Check if Bushings in shank holder castings and Trip rocker are seizing.</b></p>   |
| Side play in shanks. (Automatic Trip)      | <p>Adjustment</p>  | <p><b>Torque on slotted side. Plate nuts should be at 150 ft. lbs. (667 N). Make sure the rubber block is installed on the crossbolt.</b></p>   |
| Tire damage                                | <p>Sweeps too close to tires</p>   | <p>Check shank spacing. Readjust axles to provide adequate clearance. Refer to Maintenance Section for correct axle placement diagram.</p>  |
| Oil accumulation                           | <p>Crack in pipes</p> <p>Twisted hose caused a leak</p> <p>Loose fittings</p>  | <p>Check for leaks using cardboard. See Safety Section.</p> <p>Always use one wrench to keep the hose from twisting and another wrench to tighten.</p> <p>Apply thread sealer to NPT connections. Do not over-tighten.</p>  |
| Oil accumulation on hydraulic cylinder     | <p>Side pressure</p> <p>Damaged seal</p> <p>Loose fittings</p> <p>Scored cylinder shaft will damage shaft seal</p> <p>Normal</p> | <p>Align linkage.</p> <p>Replace seals.</p> <p>Tighten hose and pipe connections.</p> <p>Replace.</p> <p>Slight seepage from seal is normal.</p>  |



# MORRIS

## METRIC CONVERSION

| APPLICATION                        | OLD UNIT            | MULTIPLY BY | METRIC UNIT       |
|------------------------------------|---------------------|-------------|-------------------|
| LENGTH                             | in.                 | 25.4        | mm                |
|                                    | ft.                 | 0.3048      | m                 |
|                                    | yd.                 | 0.9144      | m                 |
| AREA                               | in. <sup>2</sup>    | 6.4516      | cm <sup>2</sup>   |
|                                    | ft. <sup>2</sup>    | 0.09290     | m <sup>2</sup>    |
|                                    | acre                | 0.4047      | ha                |
| MASS                               | lb.                 | 0.4536      | kg                |
|                                    | ton                 | 0.9072      | t                 |
| VOLUME                             | 1 qt. (Imp.)        | 1.1365      | L                 |
|                                    | 1 gal. (Imp.)       | 4.546       | L                 |
|                                    | 1 qt. (U.S.)        | 0.9464      | L                 |
|                                    | 1 gal. (U.S.)       | 3.7854      | L                 |
|                                    | bu. (Can.)          | 0.03637     | m <sup>3</sup>    |
|                                    | bu. (U.S.)          | 0.03524     | m <sup>3</sup>    |
|                                    |                     |             |                   |
| CROP YIELD                         | lbs./acre           | 1.1209      | kg/ha             |
|                                    | ton/acre            | 2.2417      | t/ha              |
| FERTILIZER & SEED APPLICATION RATE | lb./acre            | 1.1209      | kg/ha             |
| PESTICIDE APPLICATION RATE         | fl. oz./acre (Imp.) | 70.2102     | mL/ha             |
|                                    | gal./acre (Imp.)    | 11.2336     | L/ha              |
| VEHICLE SPEED                      | mph                 | 1.6093      | km/h              |
| POWER                              | hp.                 | 0.7457      | kW                |
| PRESSURE                           | psi.                | 6.895       | kPa               |
| FORCE                              | lb. (force)         | 4.4482      | N                 |
| TORQUE                             | lbf · in.           | 0.1130      | N-m               |
|                                    | lbf · ft.           | 1.3558      | N-m               |
| AIR FLOW (VOLUME)                  | ft. <sup>3</sup> /s | 0.02832     | m <sup>3</sup> /s |
| FUEL CONSUMPTION                   | gal./h (Imp.)       | 4.546       | L/h               |
|                                    | gal./h (U.S.)       | 3.7854      | L/h               |

mm – millimetre  
 m – metre  
 cm<sup>2</sup> – square centimetre  
 m<sup>2</sup> – square metre  
 ha – hectare  
 kg – kilogram  
 t – tonne  
 L – litre  
 m<sup>3</sup> – cubic metre  
 kg/ha – kilogram per hectare  
 mL/ha – millilitre per hectare  
 L/ha – litre per hectare  
 km/h – kilometre per hour  
 kW – kilowatt  
 kPa – kilopascal  
 N – newton  
 N-m – newton-meter  
 m<sup>3</sup>/s – cubic metre per second  
 L/h – litre per hour

### DID YOU KNOW??

**LAND AREA:**  
 ¼ SECTION OF LAND  
 IS EQUAL TO  
 64.75 ha (hectare)

**VOLUME:**  
 TO CONVERT  
 U.S. GALLONS  
 TO IMP. GALLONS  
 MULTIPLY BY 0.83267  
 Example:  
 500 U.S. Gal.  
 x 0.83267 =  
 416 Imp. Gal.

### CONVERSION TABLE BASED ON STATUTORY WEIGHTS OF GRAINS

| Bushels | Tonnes |        |       |       |
|---------|--------|--------|-------|-------|
|         | Wheat  | Barley | Oats  | Corn  |
| 10      | 0.27   | 0.22   | 0.15  | 0.25  |
| 20      | 0.54   | 0.44   | 0.31  | 0.51  |
| 30      | 0.81   | 0.65   | 0.46  | 0.76  |
| 40      | 1.09   | 0.87   | 0.62  | 1.02  |
| 50      | 1.36   | 1.09   | 0.77  | 1.27  |
| 60      | 1.63   | 1.31   | 0.92  | 1.52  |
| 70      | 1.90   | 1.52   | 1.08  | 1.78  |
| 80      | 2.18   | 1.74   | 1.23  | 2.03  |
| 90      | 2.45   | 1.96   | 1.39  | 2.29  |
| 100     | 2.72   | 2.18   | 1.54  | 2.54  |
| 200     | 5.44   | 4.35   | 3.08  | 5.08  |
| 300     | 8.16   | 6.53   | 4.63  | 7.62  |
| 400     | 10.88  | 8.71   | 6.17  | 10.16 |
| 500     | 13.60  | 10.88  | 7.71  | 12.70 |
| 600     | 16.33  | 13.06  | 9.25  | 15.24 |
| 700     | 19.05  | 15.24  | 10.80 | 17.78 |
| 800     | 21.77  | 17.42  | 12.34 | 20.32 |
| 900     | 24.49  | 19.59  | 13.88 | 22.86 |
| 1000    | 27.22  | 21.77  | 15.42 | 25.40 |
| 2000    | 54.43  | 43.54  | 30.84 | 50.80 |
| 3000    | 81.65  | 65.32  | 46.27 | 76.20 |



# MORRIS

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DRAWER 878 TELEX: 074-21510

The policy of Morris is one of continuing improvements. We are constantly attempting to upgrade our products with new manufacturing techniques or materials. The company therefore reserves the right to change any specifications without notice.