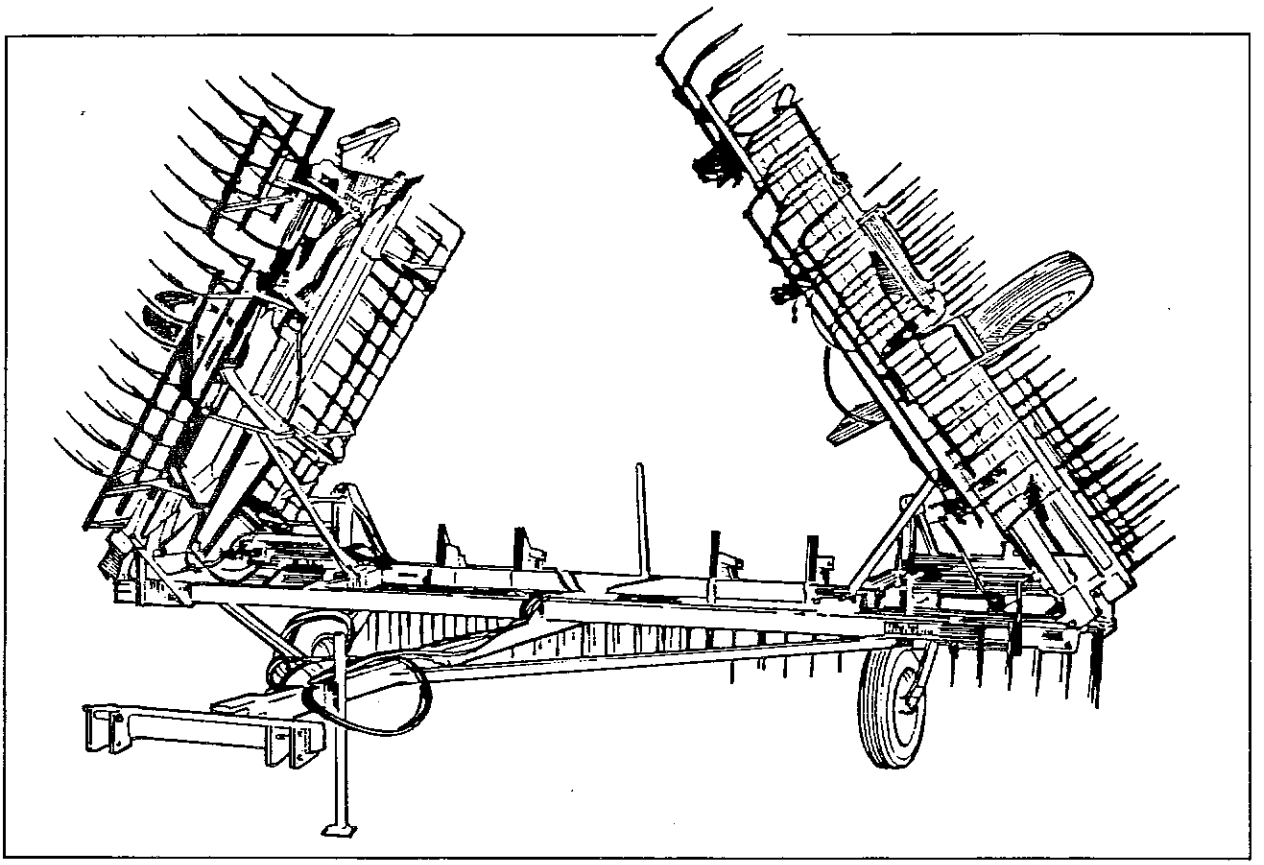
Harriston
INDUSTRIES, INC.



WEEDER

OPERATOR'S MANUAL
AND PARTS BOOK

HARRISTON INDUSTRIES, INC.
WEEDER

WARRANTY

HARRISTON INDUSTRIES, INC. (Harriston) warrants the Harriston Weeder to be free from defects in material and workmanship, under normal use and service. Obligation under this warranty shall extend for a period of 1 year (12 months) following the date of delivery to the original purchaser and shall be limited to, at the option of Harriston, replacement or repair of any parts found, upon inspection by Harriston, to be defective.

WARRANTY CLAIMS

The purchaser claiming under this warranty shall submit a warranty claim in the prescribed form to Harriston or an Authorized Dealer, for inspection by an authorized company representative. Should any part prove defective within one year from date of purchase, the part will be replaced F.O.B. our factory without charge, provided the defective part is returned to us, transportation charges prepaid.

LIMITATIONS OF LIABILITY

This warranty is expressly in lieu of all other warranties expressed or implied and all other obligations or liabilities on our part of any kind or character, including liabilities for alleged representations or negligence. We neither assume nor authorize any other person to assume on our behalf, any liability in connection with the subsequent sale of the Weeder.

This warranty shall not apply to any Weeder which has been altered outside the factory in any way so as, in the judgment of Harriston, to affect its operation or reliability, or which has been subject to misuse, neglect or accident.

This warranty does not cover parts and accessories which are under separate guarantees from the manufacturers and service can be obtained from their service facilities in Canada or the United States. No warranty is extended to regular service items such as lubricants, paint and the like.

OPERATOR'S MANUAL

The Purchaser acknowledges having received training in the safe operation of the Weeder and further acknowledges that Harriston does not assume any liability resulting from the operation of the Weeder in any manner other than described in the Operator's Manual supplied at the time of purchase.

WARRANTY VOID IF NOT REGISTERED

WEEDER

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer's Name _____

Address _____

City, State, Code _____

Phone Number (____) _____

Dealer Name _____

Address _____

City, State, Code _____

Weeder Model _____

Serial Number _____

Delivery Date _____

DEALER INSPECTION REPORT

____ Frame Level
____ Wheel Bolts Tight
____ Fasteners Tight
____ Hydraulic Hoses Free
____ Hydraulic Fitting Tight
____ Tines in Good Condition
____ All Weeder Sections Move Freely
____ Check Tire Pressures
____ Lubricate Machine

SAFETY

____ All Decals Installed
____ Reflectors & Lights Clean
____ Guards and Shields Installed
____ Review Operating and Safety Instructions

I have thoroughly instructed the buyer on the above described equipment which review included the Operator's Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's Rep. Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date _____ Owner's Signature _____

WHITE	YELLOW	PINK
HARRISTON	DEALER	CUSTOMER

WEEDER

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer's Name _____

Address _____

City, State, Code _____

Phone Number (____) _____

Dealer Name _____

Address _____

City, State, Code _____

Weeder Model _____

Serial Number _____

Delivery Date _____

DEALER INSPECTION REPORT

____ Frame Level
____ Wheel Bolts Tight
____ Fasteners Tight
____ Hydraulic Hoses Free
____ Hydraulic Fitting Tight
____ Tines in Good Condition
____ All Weeder Sections Move Freely
____ Check Tire Pressures
____ Lubricate Machine

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____ Reflectors & Lights Clean
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Date _____ Owner's Signature _____

WHITE
HARRISTON

WEEDER

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer's Name _____

Address _____

City, State, Code _____

Phone Number (____) _____

Weeder Model _____

Serial Number _____

Delivery Date _____

Dealer Name _____

Address _____

City, State, Code _____

DEALER INSPECTION REPORT

____ Frame Level
____ Wheel Bolts Tight
____ Fasteners Tight
____ Hydraulic Hoses Free
____ Hydraulic Fitting Tight
____ Tines in Good Condition
____ All Weeder Sections Move Freely
____ Check Tire Pressures
____ Lubricate Machine

SAFETY

____ All Decals Installed
____ Reflectors & Lights Clean
____ Guards and Shields Installed
____ Review Operating and Safety Instructions

I have thoroughly instructed the buyer on the above described equipment which review included the Operator's Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's Rep. Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date _____ Owner's Signature _____

YELLOW
DEALER

WEEDER

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer's Name _____

Address _____

City, State, Code _____

Phone Number (____) _____

Dealer Name _____

Address _____

City, State, Code _____

Weeder Model _____

Serial Number _____

Delivery Date _____

DEALER INSPECTION REPORT

____ Frame Level
____ Wheel Bolts Tight
____ Fasteners Tight
____ Hydraulic Hoses Free
____ Hydraulic Fitting Tight
____ Tines in Good Condition
____ All Weeder Sections Move Freely
____ Check Tire Pressures
____ Lubricate Machine

SAFETY

____ All Decals Installed
____ Reflectors & Lights Clean
____ Guards and Shields Installed
____ Review Operating and Safety Instructions

I have thoroughly instructed the buyer on the above described equipment which review included the Operator's Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's Rep. Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date _____ Owner's Signature _____

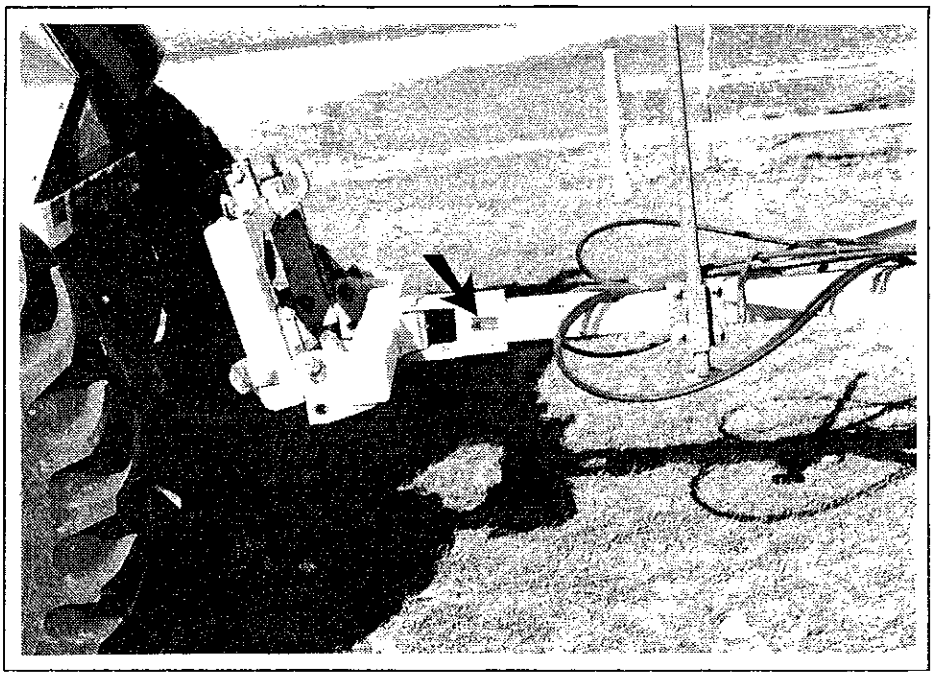
PINK
CUSTOMER

TABLE OF CONTENTS

SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Harriston Weeder when ordering parts or requesting service or other information.

The serial number plates are located where indicated. Please mark the number in the space provided for easy reference.



SERIAL NUMBER LOCATION

Model Number_____

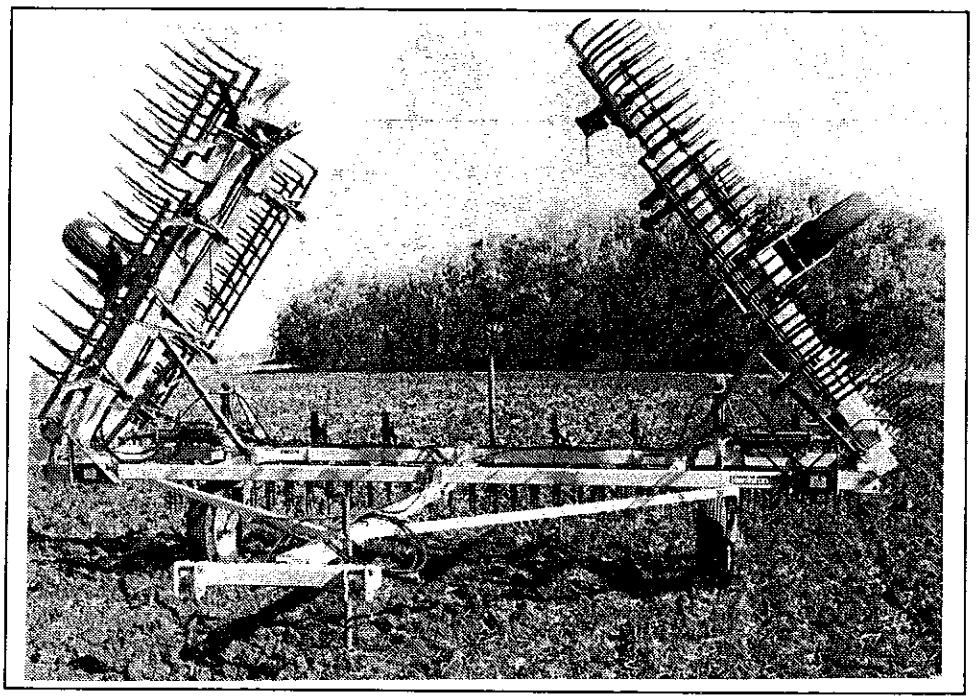
Serial Number_____

Production Year_____

1 INTRODUCTION

Congratulations on your choice of a new Harriston Weeder to complement your farming operation. This equipment has been designed and manufactured to meet the needs of a discerning Agricultural industry for the efficient removal of weeds.

Safe, efficient and trouble free operation of your Weeder requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.



This manual covers all Weeder models manufactured by Harriston. Differences are covered and explained where appropriate. Use the Table of Contents as a guide to locate required information.

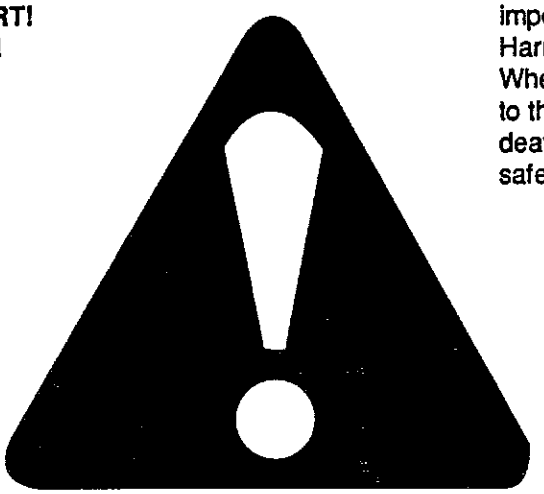
Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Harriston dealer or distributor if you need assistance, information or additional copies of the manuals.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout the manual, are as seen from the driver's seat and facing in the direction of travel.

2 SAFETY

SAFETY ALERT SYMBOL

This Safety Alert symbol means
ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!



The Safety Alert symbol identifies important safety messages on the Harriston Weeder and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words **DANGER, WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines:

DANGER - An immediate and specific hazard which WILL result in severe personal injury or death if the proper precautions are not taken.

WARNING - A specific hazard or unsafe practice which COULD result in severe personal injury or death if proper precautions are not taken.

CAUTION - Unsafe practices which COULD result in personal injury if proper practices are not taken, or as a reminder of good safety practices.

SAFETY

YOU are responsible for the SAFE operation and maintenance of your Harriston Weeder. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Weeder be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the Weeder.

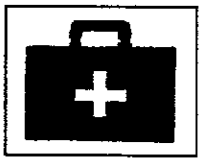
Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Weeder owners must give operating instructions to operators or employees before allowing them to operate the Weeder, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow them. All accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Think SAFETY! Work SAFELY!

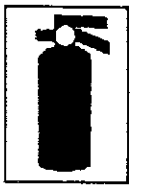
2.1 GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or unplugging the Weeder.

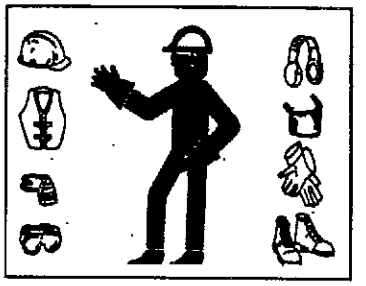
2. Have a first-aid kit available for use should the need arise and know how to use it.



3. Have a fire extinguisher available for use should the need arise and know how to use it.

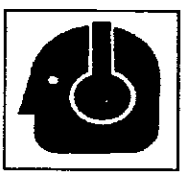


4. Wear appropriate protective gear. This list includes but is not limited to:



   - Protective shoes with slip resistant soles
   - Protective glasses or goggles
   - Heavy gloves
   - Wet weather gear
   - Hearing protection

5. Install and secure all guards before starting.
6. Do not allow riders.
7. Wear suitable ear protection for prolonged exposure to excessive noise.



8. Lower machine to the ground, place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
9. Clear the area of people, especially small children, before starting the unit.
10. Review safety related items annually with all personnel who will operating or maintaining the Weeder.

2.2 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or unplugging.
2. Do not allow riders.
3. Install and secure all guards and shields before starting or operating.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Lower machine to the ground, place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Place all tractor and machine controls in neutral before starting.
7. Clear the area of bystanders, especially small children, before starting.
8. Stay away from machine when raising or lowering wings. Keep others away.
9. Keep all hydraulic lines, fittings and couplers tight and free of leaks before using.
10. Clean reflectors and lights before transporting.
11. Use hazard flashers of tractor when transporting.
12. Stay away from overhead electrical wires. Electrocution can occur without direct contact.
13. Review safety instructions with all operators annually.

2.3 MAINTENANCE SAFETY

1. Follow ALL the operating, maintenance and safety information in the manual.
2. Support the machine with blocks or safety stands when changing tires or working beneath it.
3. Follow good shop practices
   - Keep service area clean and dry.
   - Be sure electrical outlets and tools are properly grounded.
   - Use adequate light for the job at hand

4. Use only tools, jacks and hoists of sufficient capacity for the job.
5. Lower machine to the ground, place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Make sure all guards are in place and properly secured when maintenance work is completed.
7. Before applying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good condition.
8. Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.
9. Keep hands, feet, hair and clothing away from moving or rotating parts.
10. Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.

2.4 HYDRAULIC SAFETY

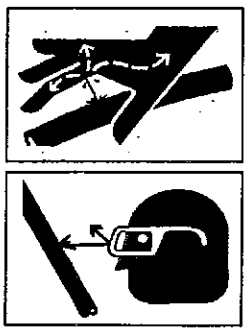
1. Make sure that all components in the hydraulic system are kept in good condition and are clean.

2. Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.

3. Relieve pressure before working on hydraulic system.

4. Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.

5. Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.



6. If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.

7. Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.

- Think SAFETY! Work SAFELY!

2.5 TRANSPORT SAFETY

1. Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.

2. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.

3. Do not allow anyone to ride on the Weeder or tractor during transport.

4. Do not exceed 32 km/h (20 mph). Reduce speed on rough roads and surfaces.

5. Always use hazard flashers on the tractor when transporting unless prohibited by law.

2.6 STORAGE SAFETY

1. Store the unit in an area away from human activity.

2. Do not permit children to play on or around the stored machine.

3. Store the unit in a dry, level area. Support the base with planks if required.

2.7 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.

2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.

3. Have a qualified tire dealer or repair service perform required tire maintenance.

2.8 SAFETY DECALS

1. Keep safety decals and signs clean and legible at all times.

2. Replace safety decals and signs that are missing or have become illegible.

3. Replaced parts that displayed a safety sign should also display the current sign.

4. Safety decals or signs are available from your Dealer Parts Department or the factory.

How to Install Safety Decals:

- Be sure that the installation area is clean and dry.

- Decide on the exact position before you remove the backing paper.

- Remove the smallest portion of the split backing paper.

- Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.

- Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.

- Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.

2.9 SIGN-OFF FORM

Harriston Industries follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Weeder must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator's Manual and have been instructed in the operation of the equipment.

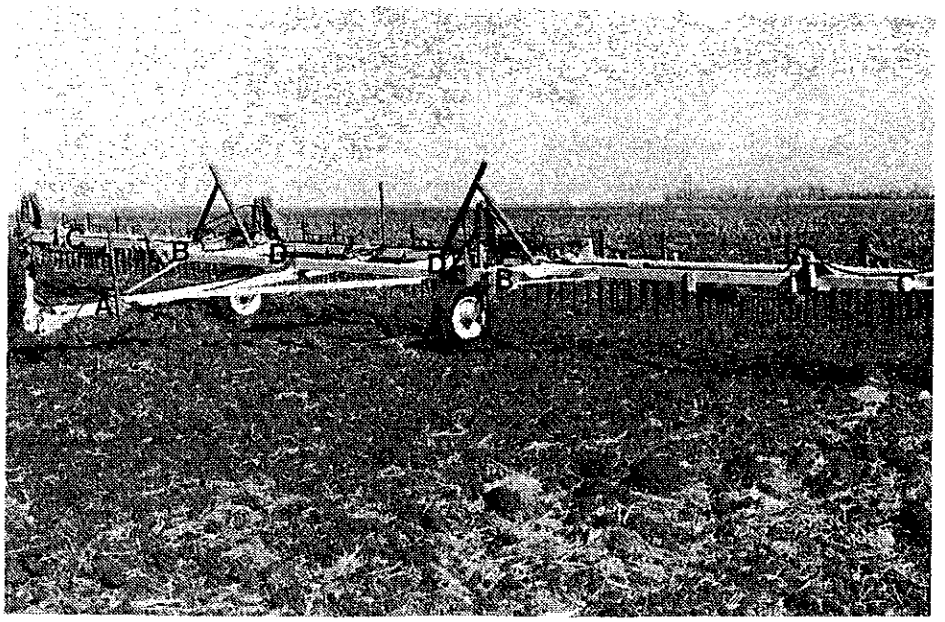
SIGN-OFF FORM

DATE	EMPLOYEES SIGNATURE	EMPLOYERS SIGNATURE

3 SAFETY DECAL LOCATIONS

The types of decals and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various Safety Decals, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



A

CAUTION

1. Read Operator's Manual before starting.
2. Do not allow riders.
3. Install and secure guards before operating.
4. Stop engine, set park brake and remove ignition key before servicing, adjusting, repairing or unplugging.
5. Keep hands, feet, hair and clothing away from moving parts.
6. Clean reflectors, SMV and lights before transporting.
7. Install lock pin through wings before transporting.
8. Keep away from overhead electrical lines. Electrocution can occur without direct contact.
9. Do not exceed a safe transport speed.
10. Use hazard flashers on tractor when transporting.
11. Review safety instructions annually.

93017

B

WARNING

OVERHEAD WING HAZARD

To prevent serious injury or death:

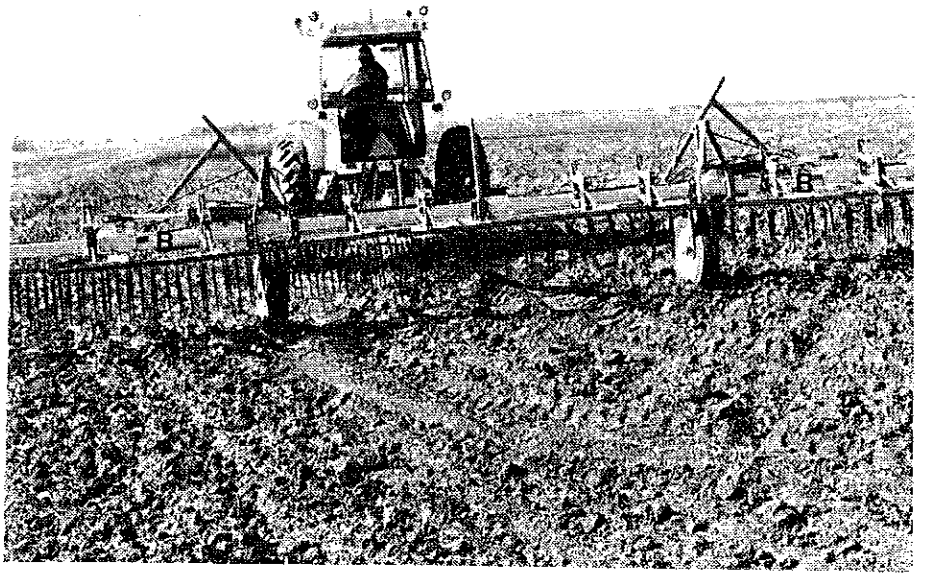
1. Stay away from beneath wings when they are in the raised position or are being lowered.
2. Keep others away.

93012

REMEMBER - If Safety Decals have been damaged, removed, become illegible or parts replaced without decals, new decals must be applied. New decals are available from your authorized dealer.

The types of decals and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various Safety Decals, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



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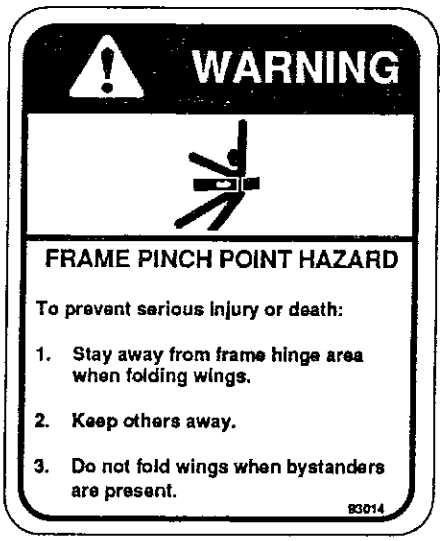

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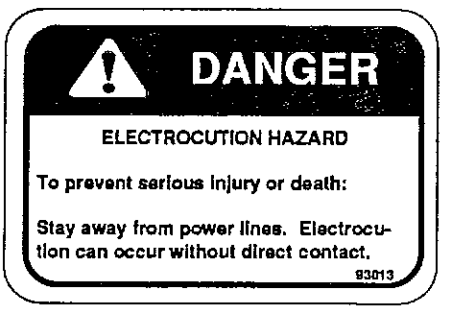


REMEMBER - If Safety Decals have been damaged, removed, become illegible or parts replaced without decals, new decals must be applied. New decals are available from your authorized dealer.

4 OPERATION

OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or unplugging.
2. Do not allow riders.
3. Install and secure all guards and shields before starting or operating.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Lower machine to the ground, place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Place all tractor and machine controls in neutral before starting.
7. Clear the area of bystanders, especially small children, before starting.
8. Stay away from machine when raising or lowering wings. Keep others away.
9. Keep all hydraulic lines, fittings and couplers tight and free of leaks before using.
10. Clean reflectors and lights before transporting.
11. Use hazard flashers of tractor when transporting.
12. Stay away from overhead electrical wires. Electrocution can occur without direct contact.
13. Review safety instructions with all operators annually.

4.1 TO THE NEW OPERATOR OR OWNER

The Harriston Weeder is designed to pull the tines through the top layer of soil to remove and kill the small weeds. Be familiar with the machine before starting.

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions exactly. Safety is everyones business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency. By following the operating instructions in conjunction with a good maintenance program, your Weeder will provide many years of trouble-free service.

4.2 MACHINE COMPONENTS

The Harriston Weeder consists of a large foldable frame for mounting weeder sections. The tines on the sections go through the top layer of soil to kill the small weeds.

Wheels on the center frame and gauge wheels on the wings maintain a constant depth on the tines. The machine attaches to the lower arms of a 3 point hitch.

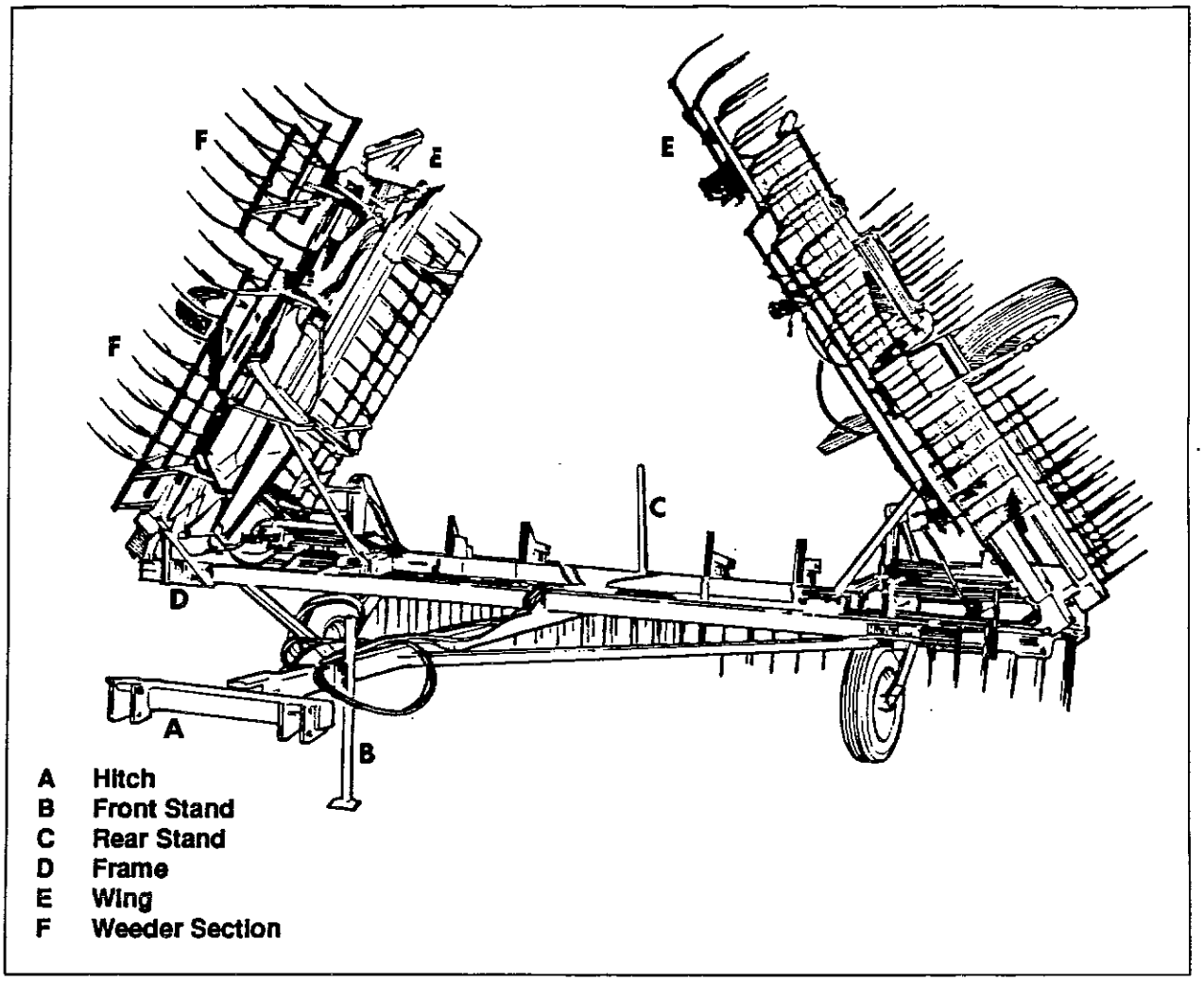


Fig. 1 MACHINE COMPONENTS

4.3 MACHINE BREAK-IN

Although there are no operational restrictions on the Weeder when used for the first time, it is recommended that the following mechanical items be checked:

A. After operating for 1/2 hour or after completing 5 acres:

   1. Check all nuts, bolts and other fasteners. Tighten to their specified torque level.

   2. Tighten wheel bolts to their specified torque levels.

   3. Check that the weeder sections and tines are in good condition and move freely.

   4. Lubricate all grease points.

B. After operating for 5 hours and 10 hours:

   1. Repeat items 1 through 3 of Section A.

   2. Then go to the regular service schedule as defined in Section 5.

4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Weeder requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both the personal safety and maintaining the good mechanical condition of the Weeder that this checklist is followed.

Before operating the machine and each time thereafter, the following areas should be checked off:

1. Lubricate the machine per the schedule outlined in Section 5 Service and Maintenance.

2. Use only a tractor of adequate power and weight to pull the machine.

3. Check that the machine is properly attached to the tractor. Be sure retainers are used on the mounting pins.

4. Check the tire pressure. Bring to the specified level.

5. Check the tines. Be sure they are not damaged or broken. Repair or replace as required.

6. Inspect all hydraulic lines, hoses, couplers and fittings. Tighten, repair or replace any leaking or damaged components.

7. Install and secure all guards, doors and covers before starting.

4.5 EQUIPMENT MATCHING

To insure the safe and reliable operation of the Weeder, it is necessary to use a tractor with the correct specifications. Use the following list as a guide in selecting a tractor to use on the machine.

1. **Horsepower:**
   Use Table 1 as a guide in selecting the tractor horsepower class appropriate for your width of machine.

   Increase the power level by 25% when operating in hilly, soft or wet conditions.

Table 1 Horsepower vs Width

Model	Width	Horsepower
825	25 feet	60
1240	40 feet	80
1860	60 feet	100

2. **Tractor Weight:**
   By following the recommendations for the tractor power, the tractor will have sufficient weight to provide stability for the unit during field operation or when transporting. It is also recommended that each tractor be equipped with a full complement of suitcase weights on the front of the tractor. This will provide the required weight on the front for turning and extra traction if equipped with front wheel assist.

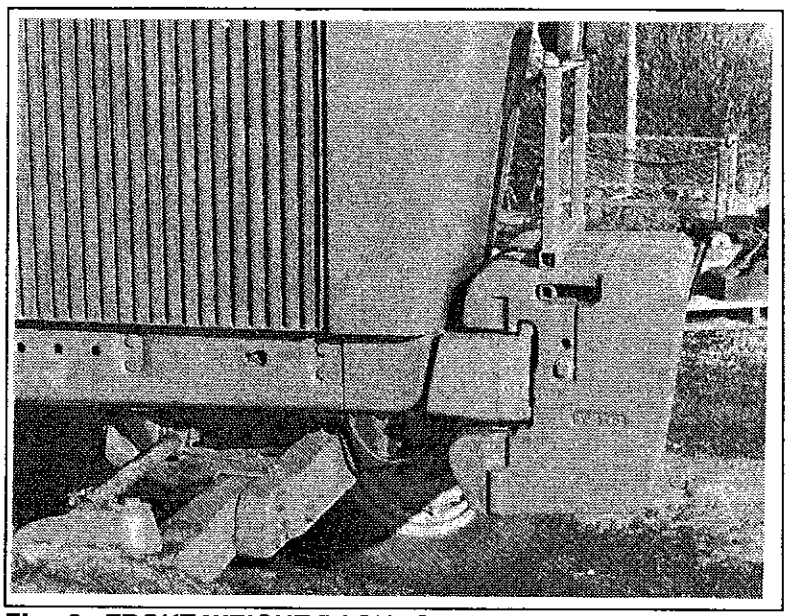


Fig. 2 FRONT WEIGHT PACKAGE

3. **Tire Configuration:**
   Weeders can be used on a tractor that is equipped with singles or duals. The only restriction is when operating in a row crop application. Then the tractor and Weeder tires should be set to run between the rows.

4. **3 Point Hitch:**
The 3 point hitch models require the tractor to be equipped with a Category II or Category III 3 point hitch. If the hitch is convertible from one to the other, it is recommended that the Category III be used to provide a wider stance and more stability.

It is also recommended that a Quick Hitch be used on the tractor to allow for easier attachment.

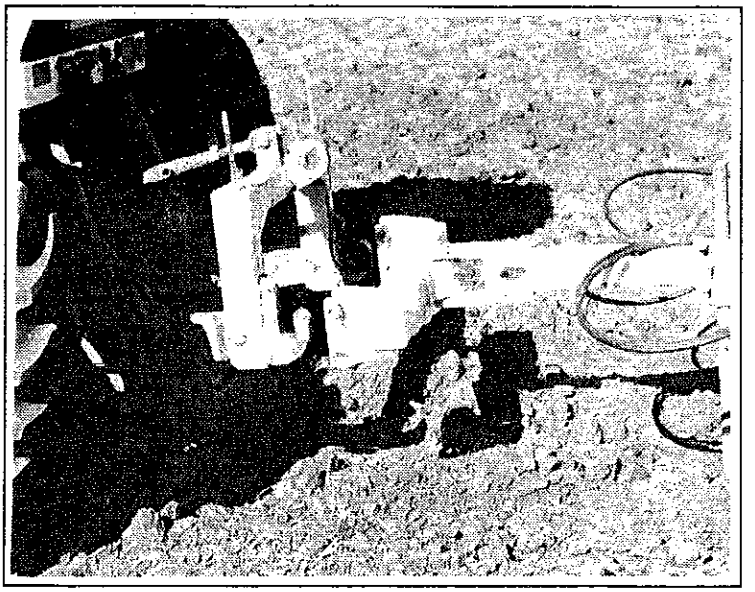


Fig. 3 3 POINT HITCH

5. **Hydraulic Circuit:**
The tractor hydraulic system must be capable of 8 gpm (30 lpm) at 1500 psi (10,335 kPa). Either closed-center or open-centered systems can be used.

6. **Load Sensing Hydraulics (3 Point Models Only):**
Many newer tractors are equipped with "Load Sensing" hydraulics. It is the responsibility of the operator to set the tractor hydraulic system to provide "float" on the 3 point hitch. Refer to the tractor manual for details.

The float feature will allow the machine to follow the ground contours during operation. This applies to 3 point mounted machines only.

4.6 ATTACHING/UNHOOKING TRACTOR

The Weeder should always be located on a level, dry area that is free of debris and other foreign objects. When attaching the machine to a tractor, follow this procedure:

1. Clear the area of bystanders, especially small children.

2. Make sure there is enough room and clearance to safely back up to the Weeder.

WARNING

Do not allow anyone to stand between the tractor and Weeder when backing up to the machine.

3. **On the 3 point :**

   a. Set the height of the 3 point hitch so the Quick Hitch claws are lower than the mounting pins.

   b. Be sure the lower links on the tractor are set in the free float position (See tractor manual for details).

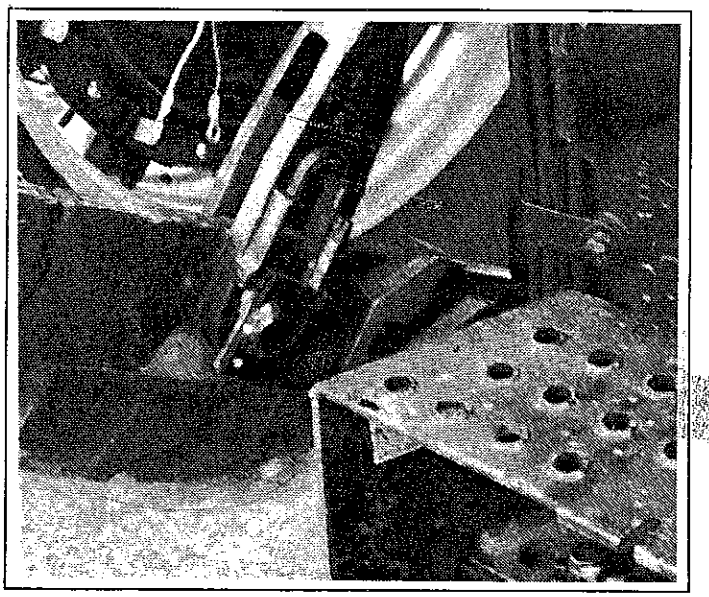


Fig. 4 FREE FLOAT POSITION

   c. Be sure the 3 point hitch is set in the non-sway position (See tractor manual for details).

   d. Align the claws under the mounting pins while backing up.

   e. When the claws are under the pins, slowly raise the 3 point hitch. Be sure each of the mounting pins seat in their respective claw.

   f. Release the claw retainer locks to secure the mounting pins in the claws.

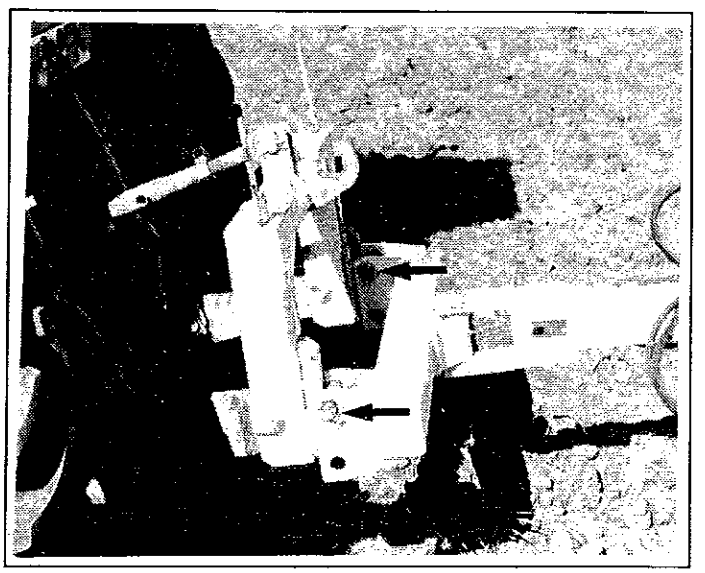


Fig. 5 MOUNTING PINS

4. **Attach the hydraulics:**

   a. Use a clean cloth or paper towel to clean the tips on the end of the hoses and the area around the couplers on the tractor.

   b. Insert the male ends into the couplers on the tractor. Be sure they are locked in place.

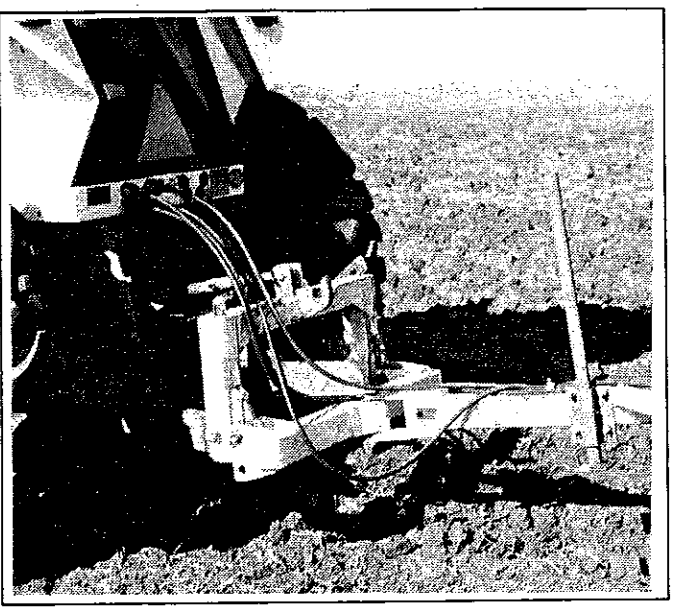


Fig. 6 ATTACHED

Use extreme care when working around a high-pressure hydraulic system. Make sure all connections are tight and all components are in good repair. Wear hand and eye protection when searching for suspected leaks.

   c. Route the hoses along the hitch and secure in position with clips, tape or plastic ties. Provide sufficient slack for turning.

5. Use the 3 point hitch to raise the front of the machine.

6. Unpin the front frame stand. Raise and pin in its storage position.

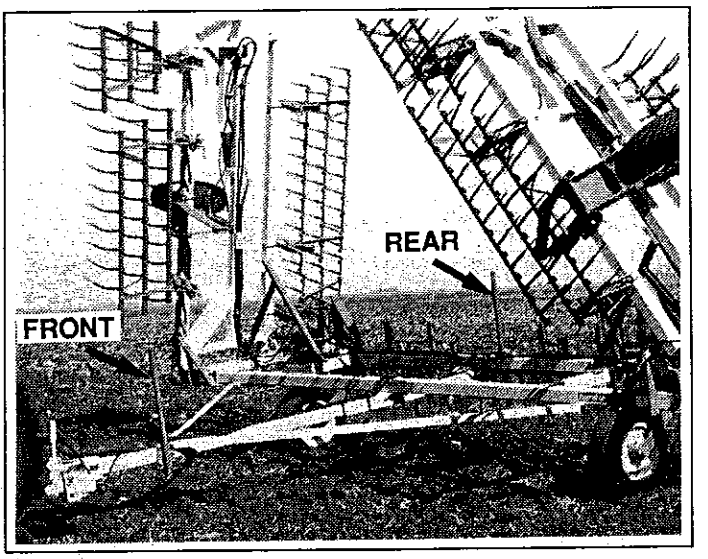


Fig. 7 STANDS

7. Lower the front of the machine.

8. Unpin the rear stand. Raise and pin in its storage position.

9. Reverse the above procedure when unhooking from the tractor.

4.7 FIELD OPERATION

OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or unplugging.
2. Do not allow riders.
3. Install and secure all guards and shields before starting or operating.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Lower machine to the ground, place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Place all tractor and machine controls in neutral before starting.
7. Clear the area of bystanders, especially small children, before starting.
8. Stay away from machine when raising or lowering wings. Keep others away.
9. Keep all hydraulic lines, fittings and couplers tight and free of leaks before using.
10. Clean reflectors and lights before transporting.
11. Use hazard flashers of tractor when transporting.
12. Stay away from overhead electrical wires. Electrocution can occur without direct contact.
13. Review safety instructions with all operators annually.

Harriston Weeders are designed with the inherent flexibility of operating well in almost any kind of soil and terrain conditions. However, the operator has the responsibility of being familiar with all operating and safety procedures and following them.

Each operator should review this section of the manual at the start of the season and as often as required to be familiar with the machine. When using, follow this procedure:

1. Review and follow the Pre-Operation Checklist.
2. Attach the tractor to the machine (see Section 4.6).
3. Before going to the field review Section 4.8 Transporting.
4. Pull into the field and position the machine in a level area.
5. Lower and extend into working position.
6. **Level the machine:**
   The frame should always be level when the machine is in the working position.

   Install spacers around the cylinder rams to set the height of the frame. The wheels carry the weight of the machine.

IMPORTANT

To start with, use the same number of spacers on the cylinder ram. Add or remove spacers as required to maintain a level frame while operating.

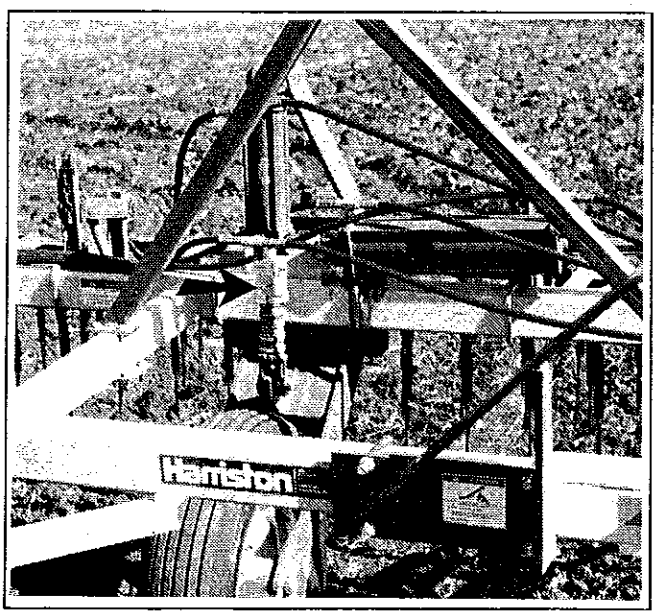


Fig. 8 CYLINDER RAM SPACERS

7. **Setting the Weeder Section Spring Tension:**
Each section is attached to the frame through a parallel linkage to keep the tines penetrating the soil evenly.

The frame is supported by a spring that controls the amount of weight to push the tines into the ground.

The spring tension is set by the chain on the end of the spring and determines the angle of the parallel linkage.

Always install the lock pin to hold the link in the slot.

Shorten the chain to give more lift to the section for shallow soil penetration.

Lengthen the chain for deeper soil penetration.

The best, most consistent results are obtained when all chains are set evenly and the linkage angle is between 15° and 25°.

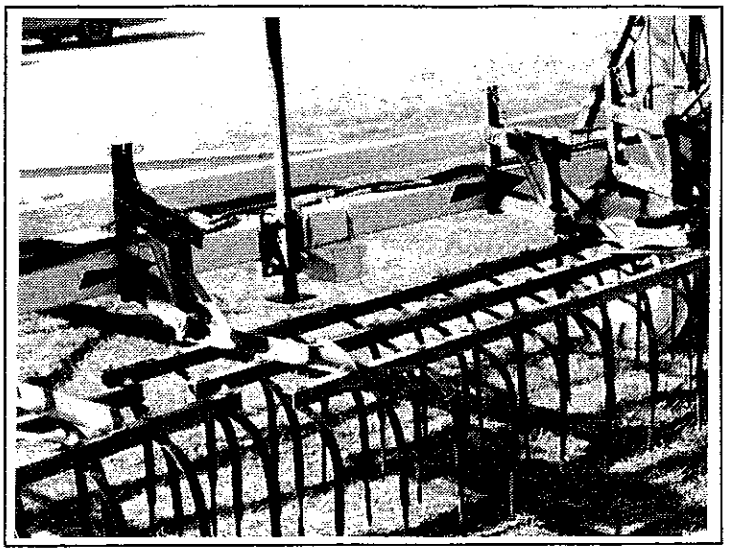


Fig. 9 WEEDER SECTION SPRINGS

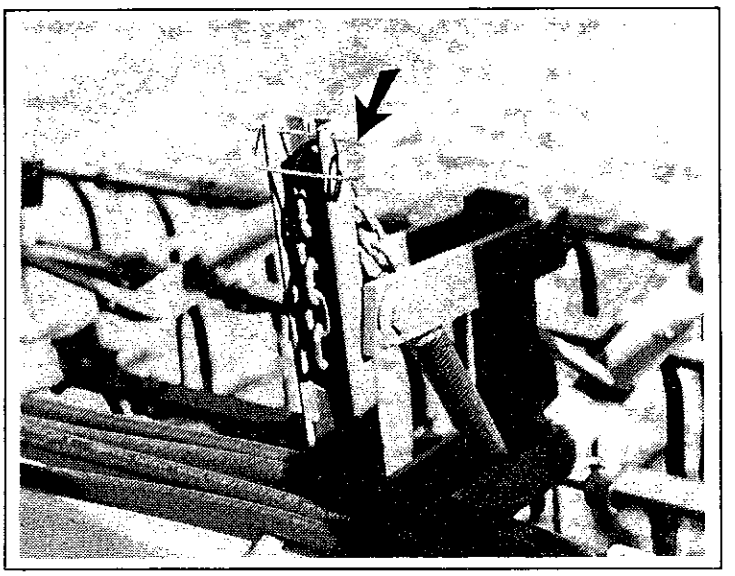


Fig. 10 CHAIN PINS

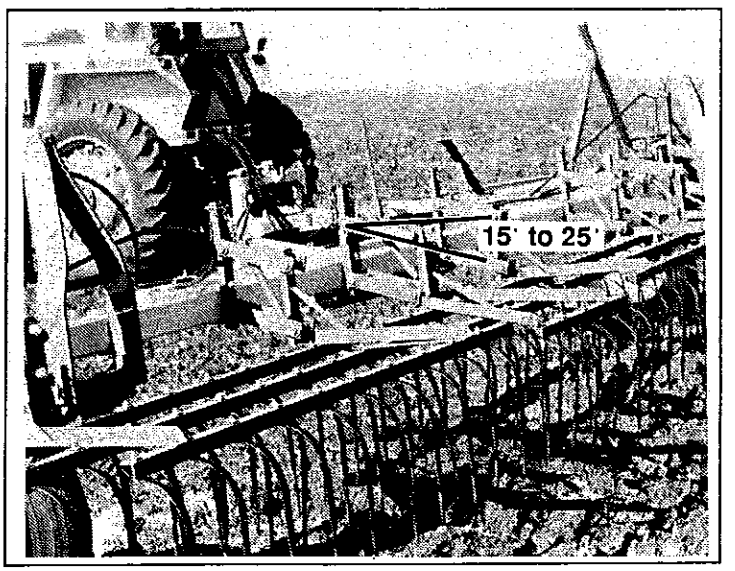


Fig. 11 PARALLEL LINKAGE ANGLE

8. **Tine Depth:**
The best results are obtained when the tines penetrate the soil from 1 to 2 inches (25 to 50 mm). This will produce a stirring action in the top layer of soil and kill a substantial portion of the small weeds that are just starting to grow. Little damage will be done to an established crop.

Tine depth is controlled by a combination of wheel setting (cylinder spacers) and section spring tension. It is the responsibility of the operator to set these two factors to give the desired tine depth. Monitor the condition of the weeds after the pass to determine if further adjustment is required.

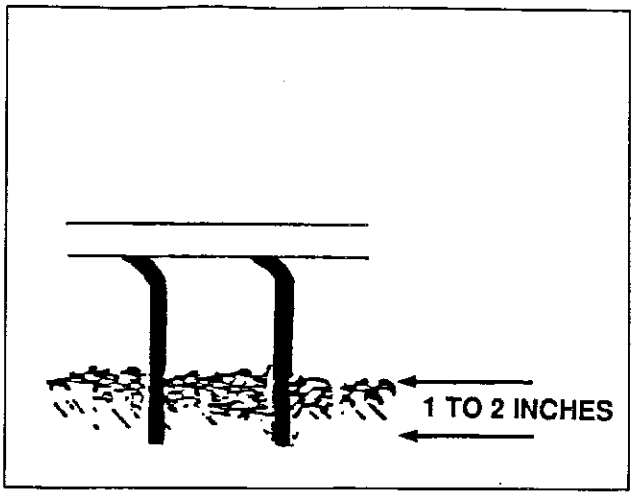


Fig. 12 TINE DEPTH

9. **3 Point Hitch Setting:**
Set the hitch arms in the non-sway position.

10. Be sure the wheels are set to follow in the center of a row if operating in a row crop condition.

In non-row crop conditions, the wheels can be set in any convenient position.

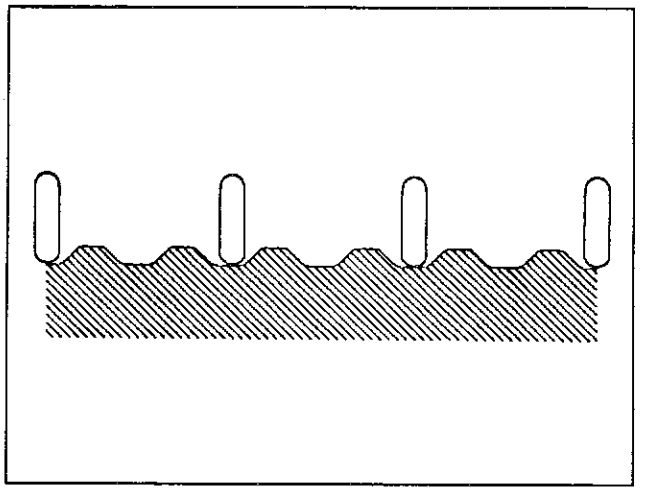


Fig. 13 WHEELS

11. Align the unit with the working area.

12. Set the 3 point hitch so that the frame is level or parallel to the ground. Keep the 3 point hitch in this position at all times during operation. Use the wheels to raise and lower the tines when turning or at the ends of the field. Refer to the tractor manual on how to set the 3 point hitch height.

13. **Ground Speed:**
Travel speed can vary between 4 and 8 mph (6 and 13 km/h) depending on the crop and terrain conditions. It is the responsibility of the operator to note the condition of the job being done and set the speed to obtain a quality weeding job. Ground speed produces the stirring action of the soil that removes the roots of the weeds.

The speed can be decreased if a good job is being done.

Try increasing the speed if some weeds remain.

Fig. 14 WEEDS

14. **Turning:**
Although the machine can be left in the ground when making gradual turns, it is recommended that the tines be lifted when making 90° or 180° turns.

Work the headlands before or after doing the field.

Use the hydraulics to raise the sections and always leave the 3 point hitch at its preset height.

15. **Operating Hints:**

a. Determine the moisture content of the soil before starting. Soil that is too wet will "ball up" in the tines and could cause plugging. If it is too wet, the soil does not break apart easily to expose the roots of the weeds. Give the soil more time to dry before starting.

b. The Weeder can be used effectively when the crop is up to 2 inches (50 mm) high. Crop damage increases significantly when the plant height is over 2 inches.

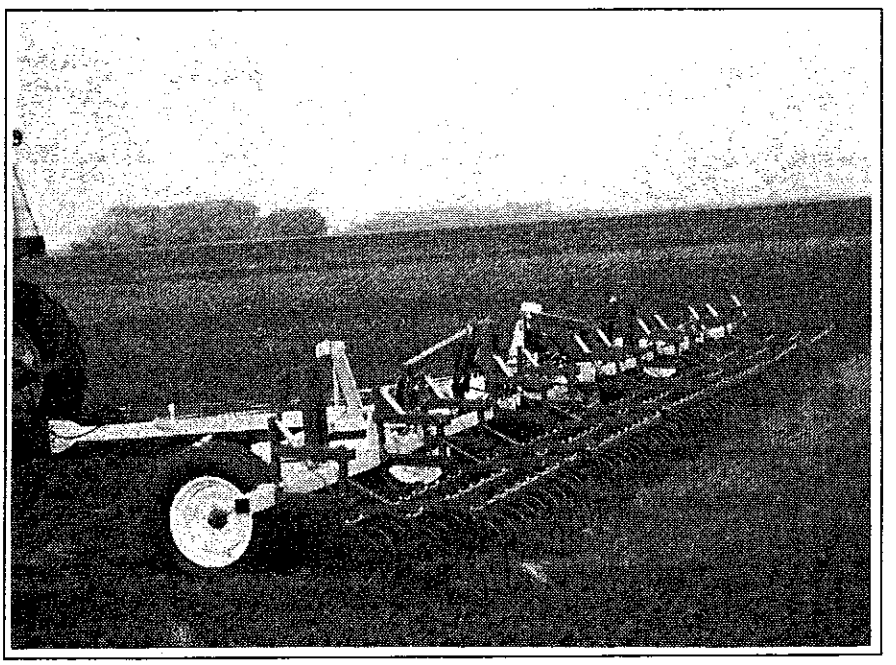


Fig. 15 FIELD

16. **Transport Conversion:**

a. Move the machine into an open area away from overhead power lines.

DANGER

Stay away from overhead power lines. Electrocution can occur without direct contact.

b. Slowly feather the hydraulic control lever to the fold circuit.

c. All cylinders are plumbed in parallel. The operation with the least resistance will move first.

WARNING

Stay away from booms and wings when folding or raising. Keep others away.

i. When converting into transport, each boom will fold forward in turn. Then each wing will raise one after the other.

ii. When converting into field, one wing will lower and then its boom will extend. Then the second wing will lower and its boom extend.

d. Raise and lower the 3 point hitch to clear the front and rear frame stands. Raise or lower and pin each stand as appropriate.

e. Always lower the rear stand when unhooking the machine with the unit in field configuration.

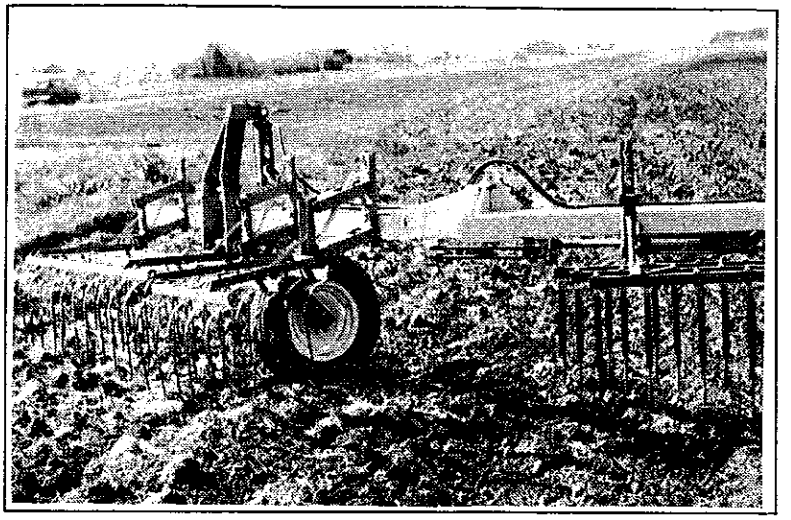


Fig. 16 BOOM FOLD

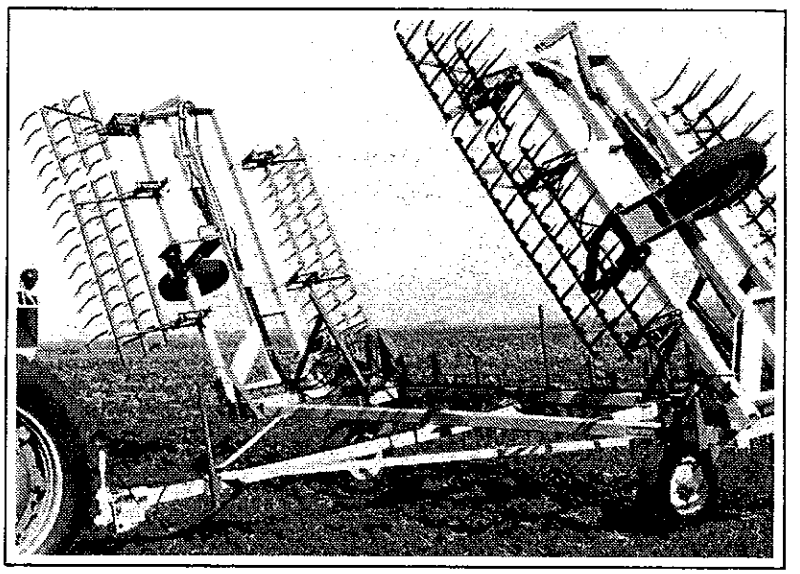


Fig. 17 WING RAISE

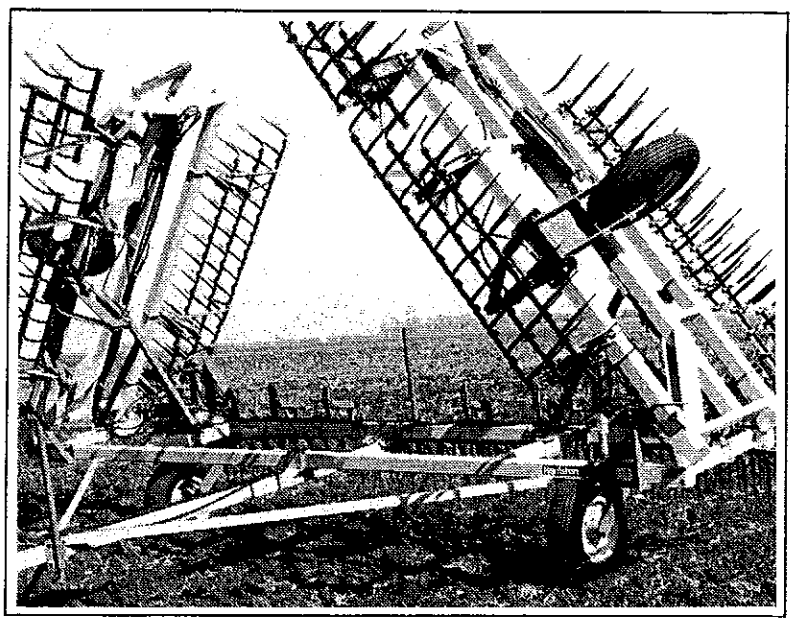


Fig. 18 TRANSPORT

4.8 TRANSPORTING

TRANSPORT SAFETY

1. Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
2. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
3. Do not allow anyone to ride on the Weeder or tractor during transport.
4. Do not exceed 32 km/h (20 mph). Reduce speed on rough roads and surfaces.
5. Always use hazard flashers on the tractor when transporting unless prohibited by law.

When transporting the machine, review and follow these instructions:

1. Be sure all bystanders are clear of the machine.
2. Be sure that the machine is securely attached to the tractor, check that all retainers are installed on the pins and the 3 point claw locks are the locked position.
3. Place the machine into transport configuration (See Section 4.7 # 20).

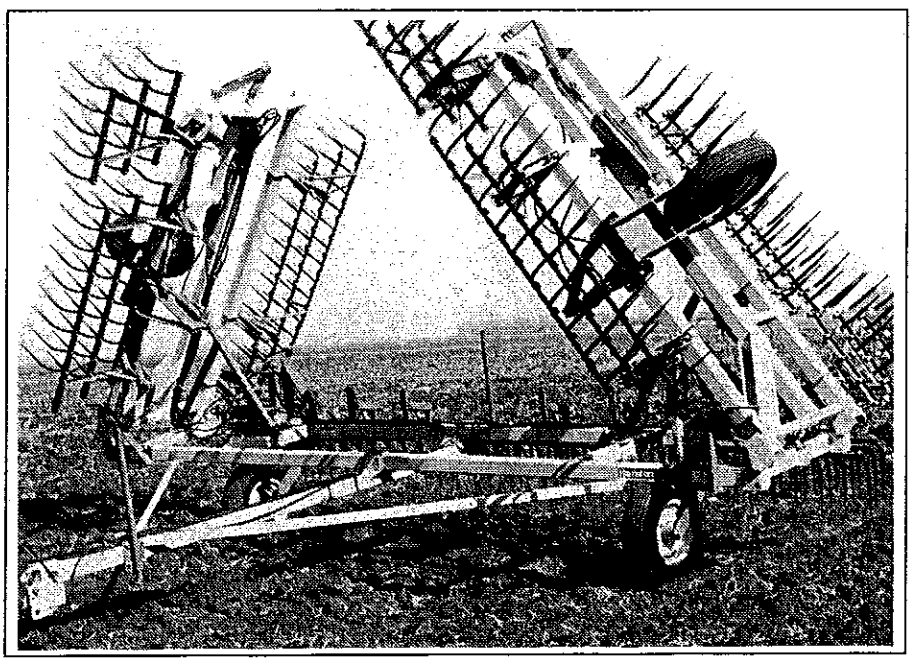


Fig. 19 TRANSPORT

4. Clean the SMV emblem, lights and reflectors and be sure they are working.

5. Be sure you are in compliance with all applicable lighting and marking regulations when transporting. Check with your local authorities.

6. Stay away from overhead electrical lines. Electrocution can occur without direct contact.

7. Be sure your machine can clearly be seen by overtaking and oncoming traffic.

8. Check the tire pressure in the tires. Be sure they are to their specified pressure.

9. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder if permitted by law.

10. Do not allow riders.

11. Always use hazard flashers on the tractor when transporting unless prohibited by law.

12. Use pilot vehicles front and rear when transporting during times of limited visibility.

13. Do not transport during darkness hours.

14. Never disengage tractor drivetrain and coast down hills. Always keep tractor in gear.

15. Never transport the machine faster than 20 mph (32 kph). The ratio of the tractor weight to the Weeder weight plays an important role in defining acceptable travel speed. Table 2 summarizes the recommended travel speed to weight ratio.

Table 2 Speed vs Weight Ratio

Road Speed	Weight of fully equipped or loaded implement(s) relative to weight of towing machine
Up to 32 km/h (20 mph)	1 to 1, or less
Up to 16 km/h (10 mph)	2 to 1, or less
Do not tow	More than 2 to 1

4.9 STORAGE

STORAGE SAFETY

1. Store the unit in an area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Store the unit in a dry, level area. Support the base with planks if required.

After the season's use, the machine should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at the start of next season. To insure a long, trouble free life, this procedure should be followed when preparing the unit for storage:

1. Clear the area of bystanders, especially small children.
2. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris and residue.
3. Inspect the sections and tines for damage or entangled material. Repair or replace damaged parts. Remove all entangled material.
4. Inspect all hydraulic hoses, lines, couplers and fittings. Tighten any loose fittings. Replace any hose that is badly cut, nicked, abraded or is separating from the crimped end of a fitting.
5. Lubricate all grease fittings. Make sure that all grease cavities have been filled with grease to remove any water residue from the washing.
6. Touch up all paint nicks and scratches to prevent rusting.
7. Move to storage area.
8. Select an area that is dry, level and free of debris.
9. Place blocks under the skid plates.
10. Unhook from tractor (See Section 4.7).
11. Place planks under the stands and tires if required.
12. The machine can be stored in the field or transport configuration.
13. Store the machine in an area away from human activity.
14. Do not allow children to play on or around the stored machine.

5 SERVICE AND MAINTENANCE

MAINTENANCE SAFETY

1. Follow ALL the operating, maintenance and safety information in the manual.
2. Support the machine with blocks or safety stands when changing tires or working beneath it.
3. Follow good shop practices
   - Keep service area clean and dry.
   - Be sure electrical outlets and tools are properly grounded.
   - Use adequate light for the job at hand
4. Use only tools, jacks and hoists of sufficient capacity for the job.
5. Lower machine to the ground, place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Make sure all guards are in place and properly secured when maintenance work is completed.
7. Before applying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good condition.
8. Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.
9. Keep hands, feet, hair and clothing away from moving or rotating parts.
10. Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. Grease
   Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multi-purpose lithium based grease.
2. Storing Lubricants
   Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

5.1.2 GREASING

Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

1. Use a hand-held grease gun for all greasing.
2. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

5.1.3 SERVICING INTERVALS

The period recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication or oil changes.

8 Hours or Daily

1. Lubricate parallel linkage pivots on each weeder section (4 locations on each linkage).

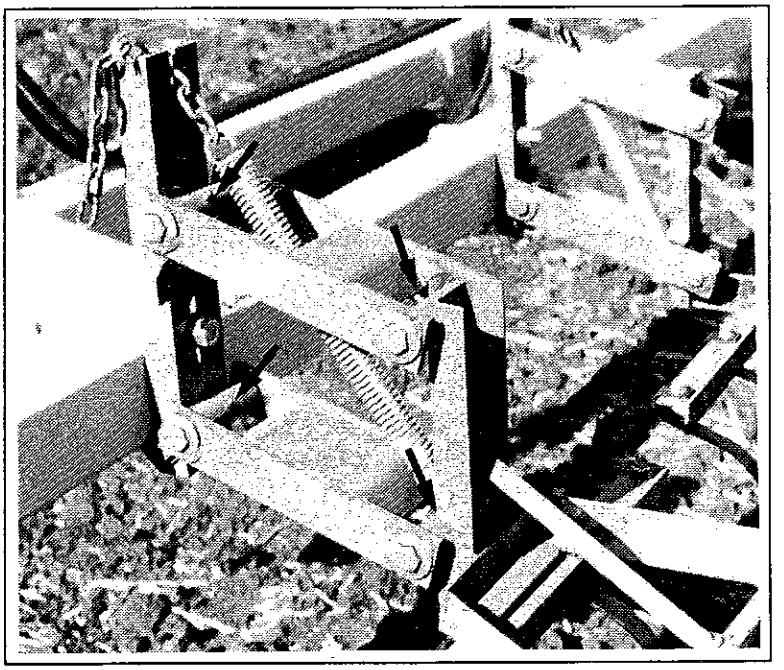


Fig. 20 LINKAGE PIVOTS

2. Lubricate hitch pivot (1 location).

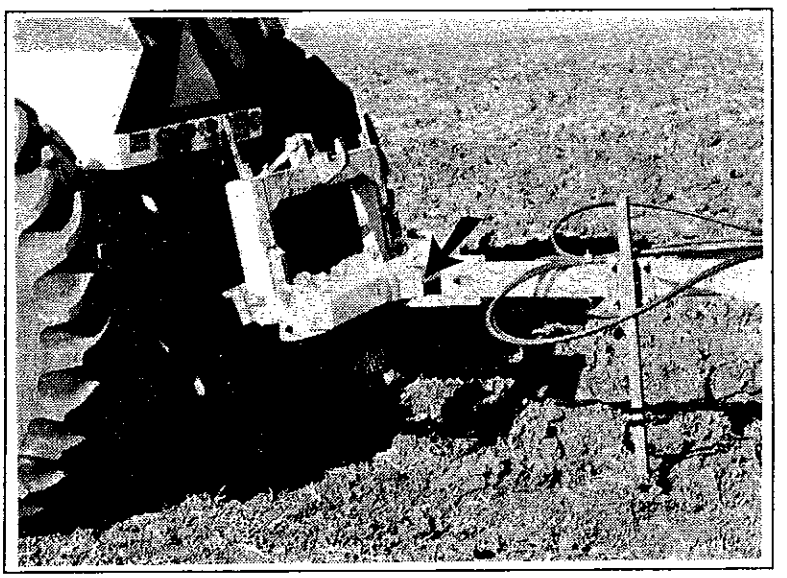


Fig. 21 HITCH PIVOT

100 Hours or Annually

1. Lubricate boom pivots (2 locations each boom).

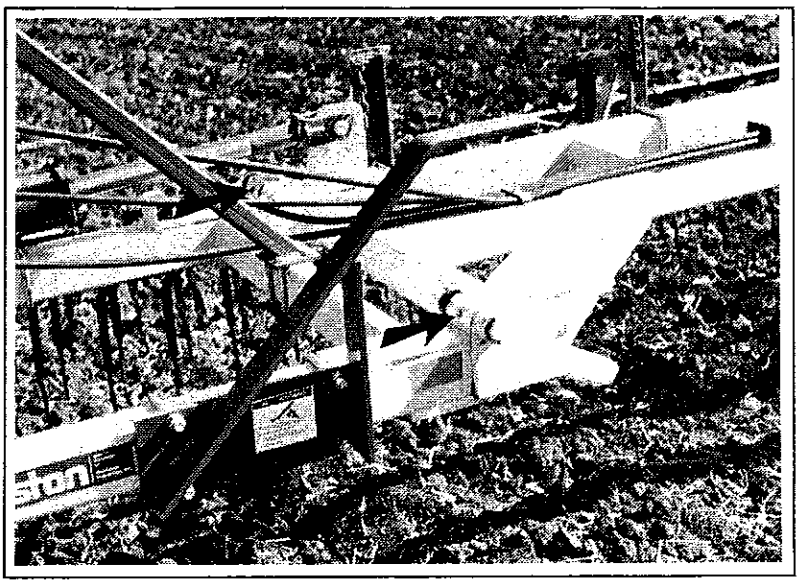


Fig. 22 BOOM PIVOTS

2. Lubricate wing hinge pivots (2 locations each wing).

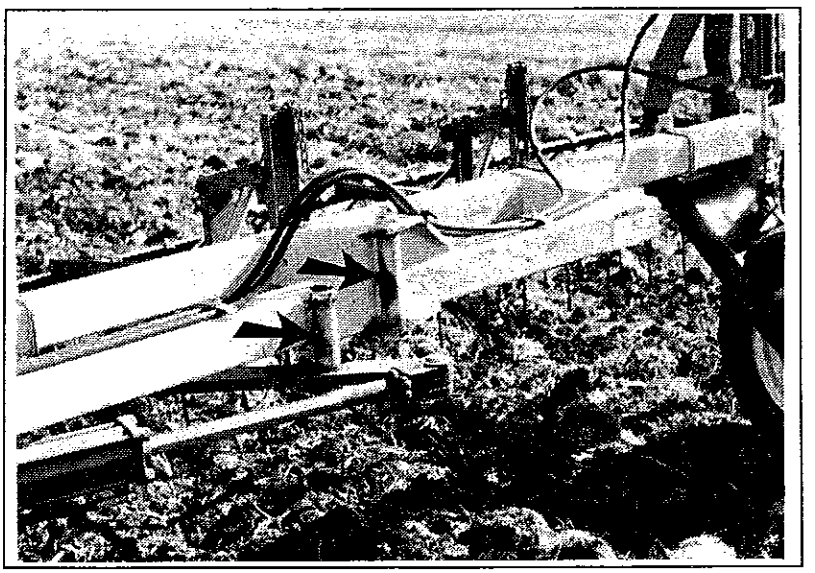


Fig. 23 WING HINGE PIVOTS

3. Lubricate wheel assembly pivots (1 location each wheel).

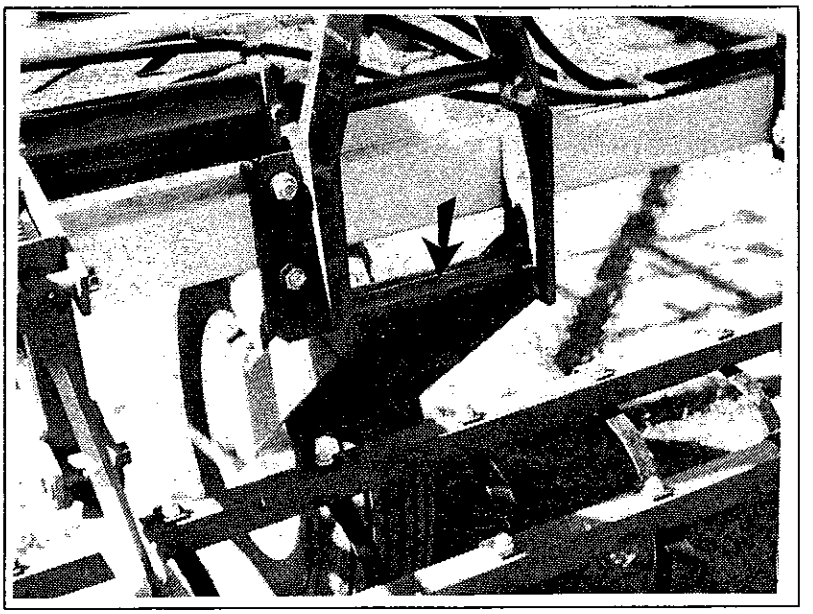


Fig. 24 WHEEL ASSEMBLY PIVOTS

4. Repack wheel bearings.

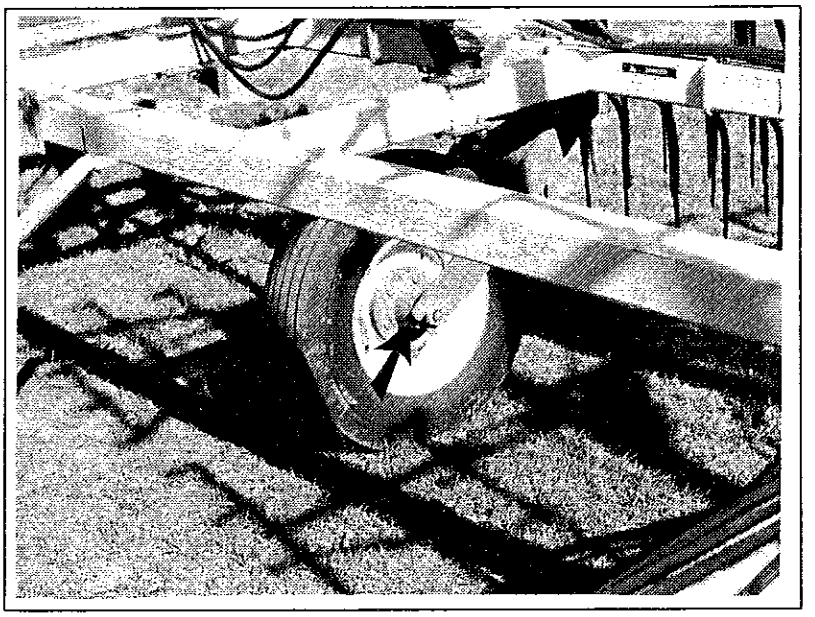


Fig. 25 WHEELS

5. Wash machine.

5.1.4 SERVICE RECORD

See Lubrication and Maintenance sections for details of service. Copy this page to continue record.

ACTION CODE:

✔	CHECK	C	CHANGE	CL	CLEAN
L	LUBRICATE	R	REPACK	D	DISINFECT

HOURS / SERVICED BY / MAINTENANCE																		
8 Hours or Daily																		
L Parallel Linkage Pivots (4)																		
L Hitch Pivot (1)																		
100 Hours or Annually																		
L Boom Pivots (2)																		
L Wing Hinge Pivots (2)																		
L Wheel Assembly Pivots (1 ea.)																		
R Wheel Bearings																		
CL Machine																		

5.2 MAINTENANCE

5.2.1 WHEEL HEIGHT

The wheel height is set by installing spacers on the wheel lift cylinder rams. Add or remove spacers as required.

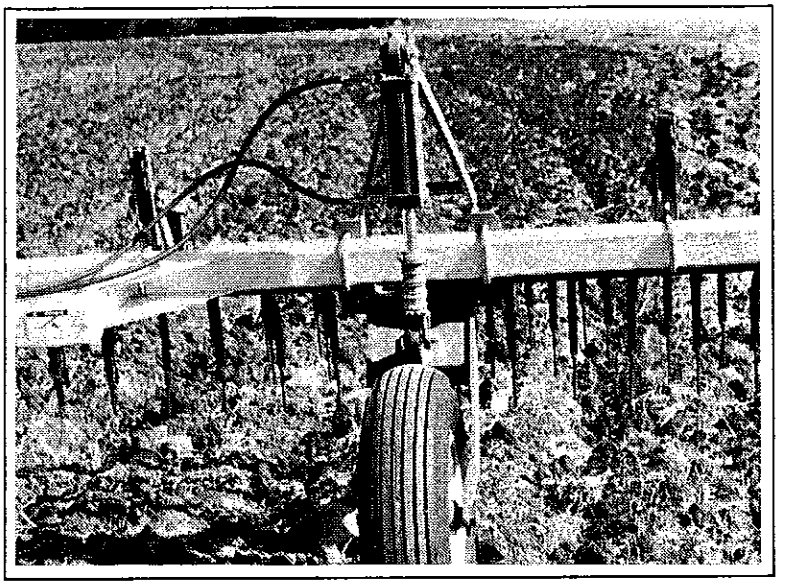


Fig. 26 LIFT CYLINDER SPACERS

5.2.2 BOOM AND WING WHEEL HEIGHT

The boom and wing wheel height is set by installing spacers on the wheel lift cylinder rams. Set all wheels at the same height. Add or remove spacers as required.

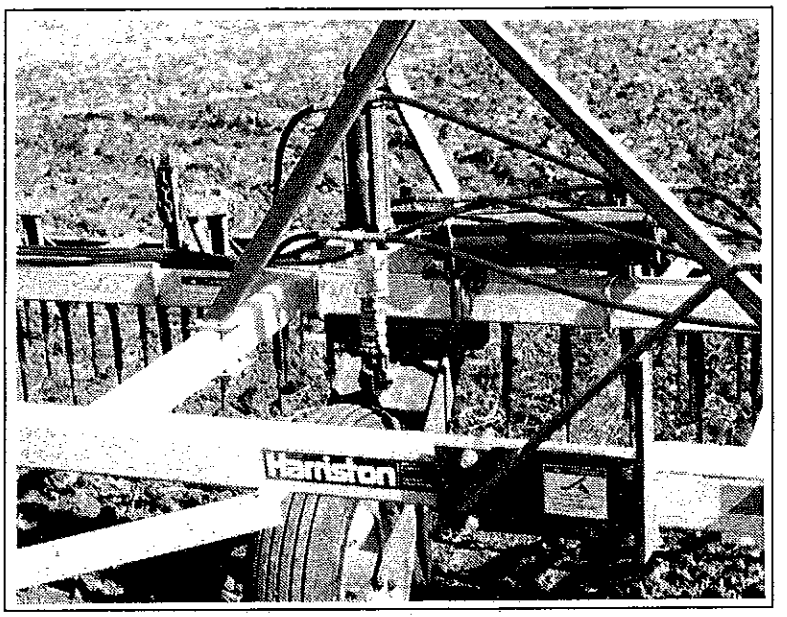


Fig. 27 BOOM/WING WHEEL HEIGHT

5.2.3 WHEEL SPACING

The wheel assemblies are bolted in position along the frame. When moving the wheels to obtain the desired spacing, follow this procedure:

1. Raise machine to its maximum height.
2. Place safety stands under frame.
3. Lower machine to take the load off the wheels.
4. Loosen wheel assembly mounting bolts.
5. Tap or slide assembly to the desired position.

NOTE

Measure from the center of the machine to determine wheel spacing.

6. Tighten mounting bolts to their specified torque.
7. Remove safety stands.

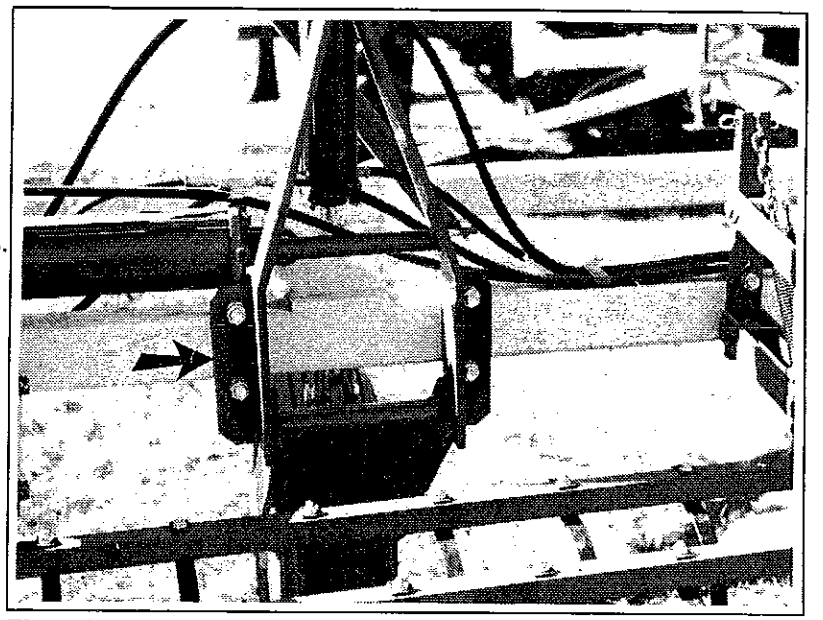


Fig. 28 WHEEL ASSEMBLY MOUNTS

5.2.4 TINE DEPTH

Each weeder section is supported by springs on a chain. Change the link of the chain in its slot to change the depth of tine penetration. Be sure to install the link retainer through the bracket.

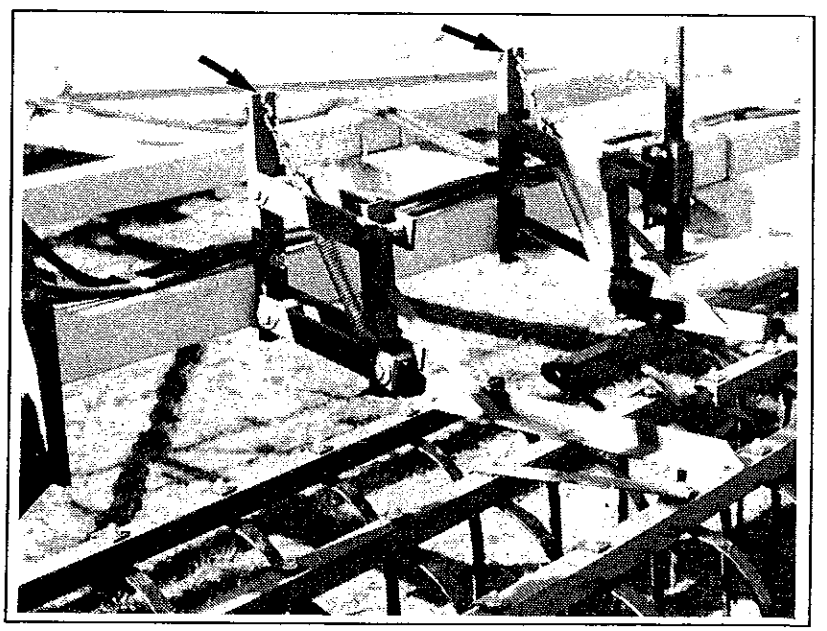


Fig. 29 SUPPORT CHAIN

6 TROUBLE SHOOTING

The Harriston Weeder is a set of vertical tines that move through the soil to kill small weeds. It is a simple and reliable system that requires minimal maintenance.

In the following section, we have listed many of the problems, causes and solutions to the problems that you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please call your local Harriston dealer. Before you call, please have this Operator's Manual and the serial number from your Weeder ready.

PROBLEM	CAUSE	SOLUTION
Tine penetration uneven.	Frame not level.	Set 3 point hitch frame to level. Adjust spacer on cylinder rod.
	Sections not set evenly.	Set sections evenly on hard level surface.
Uneven section penetration.	Boom or wing wheels at different heights.	Set wheels to same height.
Sections move from side-to-side.	Gang mounts loose.	Tighten gang mounting clamps.
	Bushings worn out.	Replace bushings.
Poor weed kill.	Soil too wet.	Wait for soil to dry.
	Travel speed too slow.	Increase ground speed.
	Tines not penetrating soil enough.	Lengthen spring support chains.
		Lower frame.
Pulling out crop.	Plants too large.	Start when plants are smaller.

7 SPECIFICATIONS

7.1 MECHANICAL

		CULTIVATOR MOUNT		12 ROW	18 ROW
		4 ROW	6 ROW		
HEIGHT	NON FOLDED	3' 2"	3' 2"	4' 6"	5' 0"
	FOLDED	N/A	N/A	12' 6"	11' 9"
WIDTH	NON FOLDED	14' 8"	21' 8"	40' 0"	60' 0"
	FOLDED	N/A	N/A	17' 4"	22' 4"
LENGTH	FRONT TO REAR	8' 8"	8' 8"	5' 6"	16' 10"
WEIGHT	(EST.)	420 lbs.	678 lbs.	2200 lbs.	3200 lbs.
TIRES		N/A	N/A	P205 x 15 Gen Imp. 32 psi	760 x 15 6 Ply Farm Imp.
WEEDER TEETH REQUIRED		66	99	198	291
SPEED		2.5 to 4 mph			

7.2 BOLT TORQUE

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque * SAE 2 N.m	(lb-ft)	SAE 5 N.m	(lb-ft)	SAE 8 N.m	(lb-ft)
1/4"	8	(6)	12	(9)	17	(12)
5/16"	13	(10)	25	(19)	36	(27)
3/8"	27	(20)	45	(33)	63	(45)
7/16"	41	(30)	72	(53)	100	(75)
1/2"	61	(45)	110	(80)	155	(115)
9/16"	95	(70)	155	(115)	220	(165)
5/8"	128	(95)	215	(160)	305	(220)
3/4"	225	(165)	390	(290)	540	(400)
7/8"	230	(170)	570	(420)	880	(650)
1"	345	(225)	850	(630)	1320	(970)

Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and capscrews are identified by their head markings.

7.3 HYDRAULIC FITTING TORQUE

TIGHTENING FLARE TYPE TUBE FITTINGS*

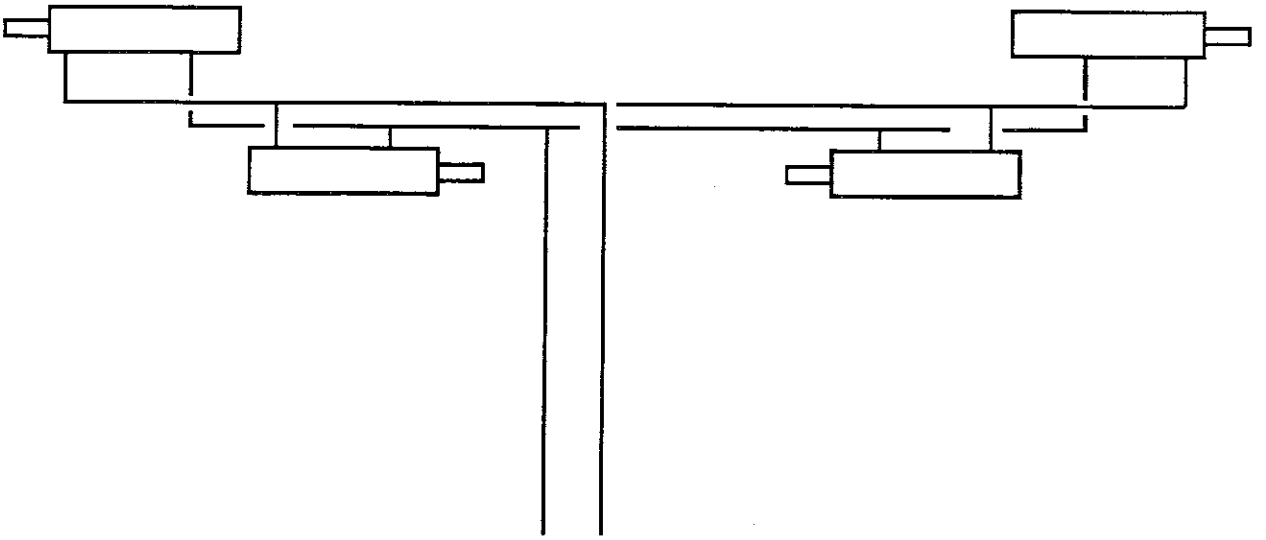
1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.

* The torque values shown are based on lubricated connections as in reassembly.

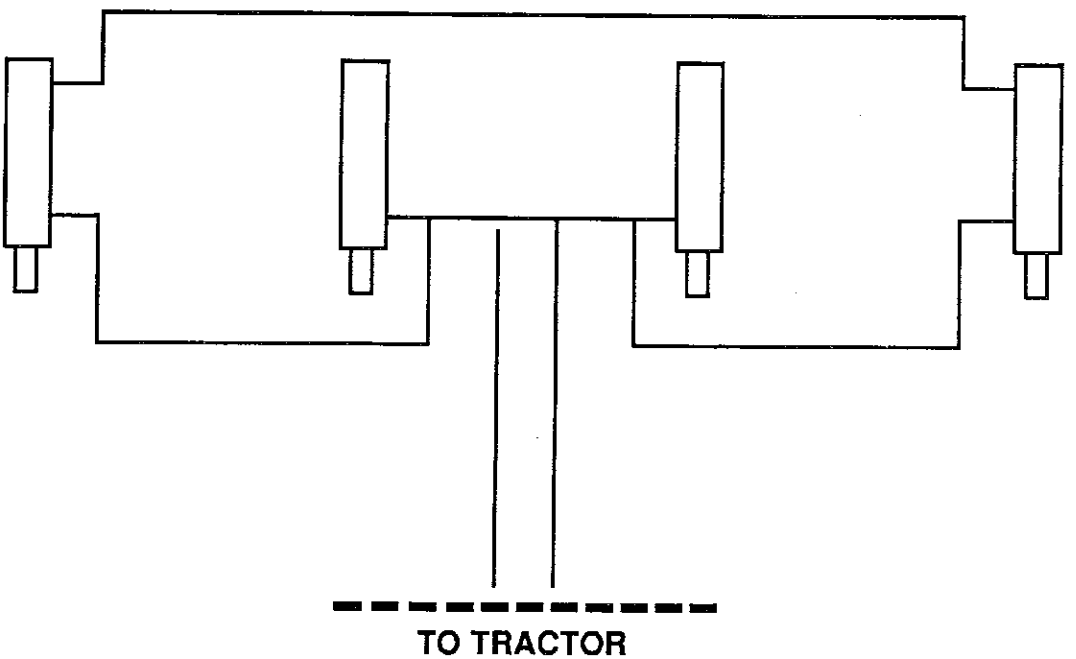
Tube Size OD (in.)	Nut Size Across Flats (in.)	Torque Value* (N.m)	(lb-ft)	Recommended Turns to Tighten (After Finger Tightening) (Flats)	(Turns)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1 1/4	102	75	3/4	1/8
7/8	1 3/8	122	90	3/4	1/8

7.4 HYDRAULIC SCHEMATIC

7.4.1 FOLDING HYDRAULICS

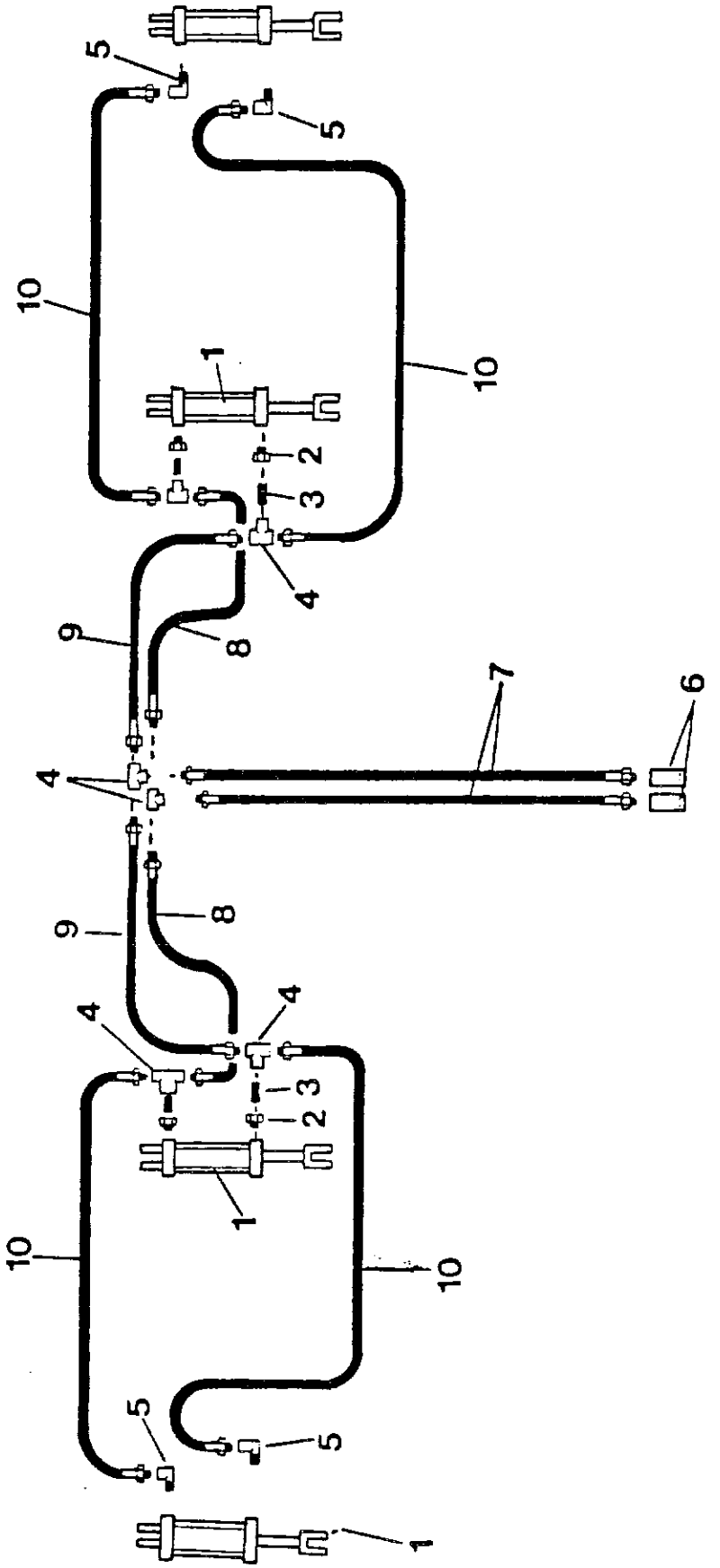


7.4.2 GAUGE WHEEL HYDRAULICS



8 PARTS LIST

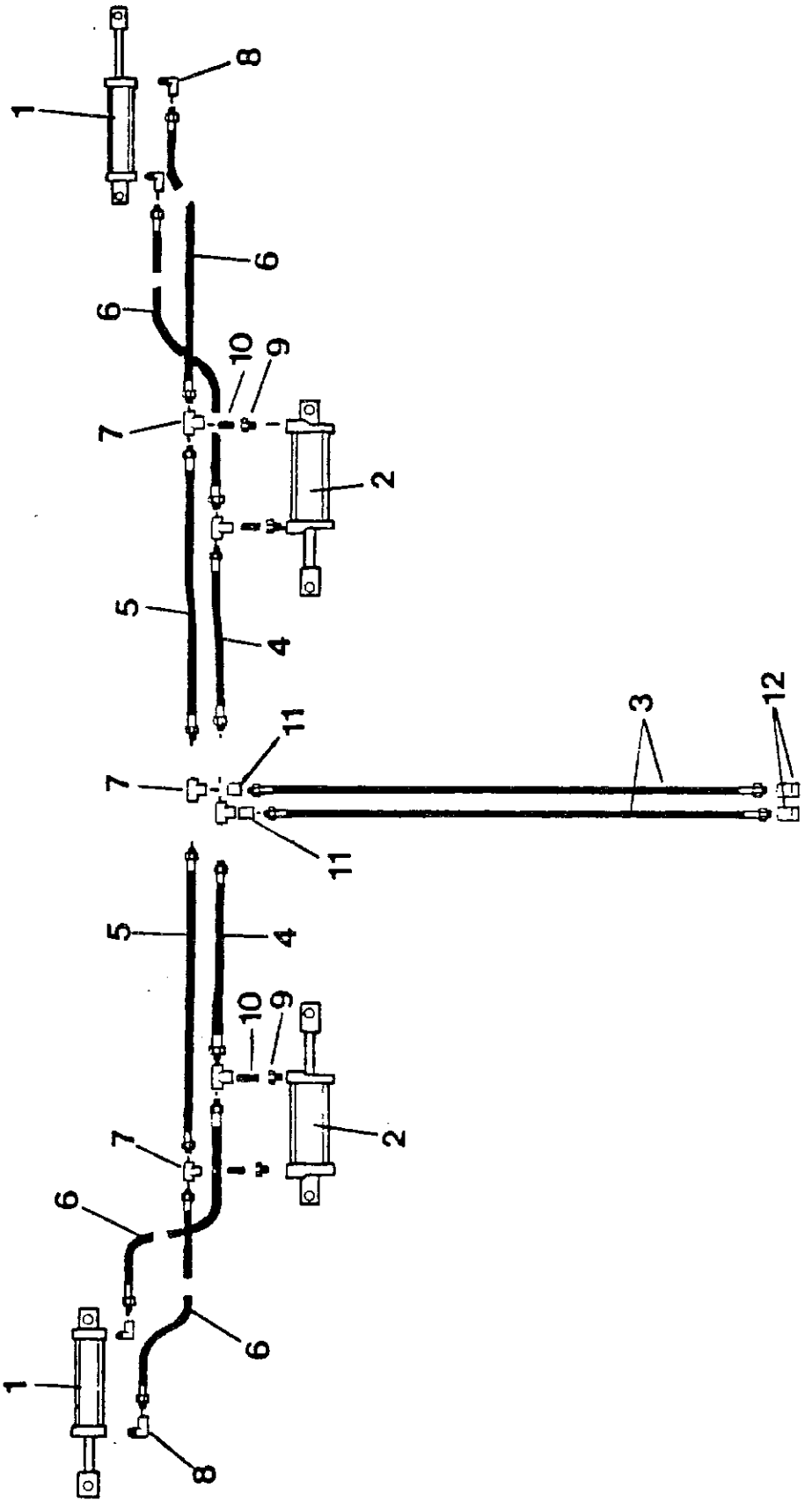
GAUGE WHEEL HYDRAULIC ASSEMBLY



GAUGE WHEEL HYDRAULIC ASSEMBLY

ITEM NO.	PARTS NO.	DESCRIPTION	QTY.
1	95000	Hydraulic Cylinder, 3" x 8"	4
2	95047	3/8" x 1/2" Pipe Bushing	4
3	95004	3/8" Close Nipple	4
4	95016	3/8" NPT Steel Tee	6
5	950107	1/2" NPT x 3/8" Swivel Elbow	4
6	95012	Univ. Male Tip 1/2" Pioneer End	2
7	186901	17" Hose Assembly 3/8" x 1/2"	2
8	181800	84" Hose Assembly Center	2
9	186902	80" Hose Assembly 3/8" x 3/8"	2
10	186903	246" Hose Assembly 3/8" x 3/8"	4

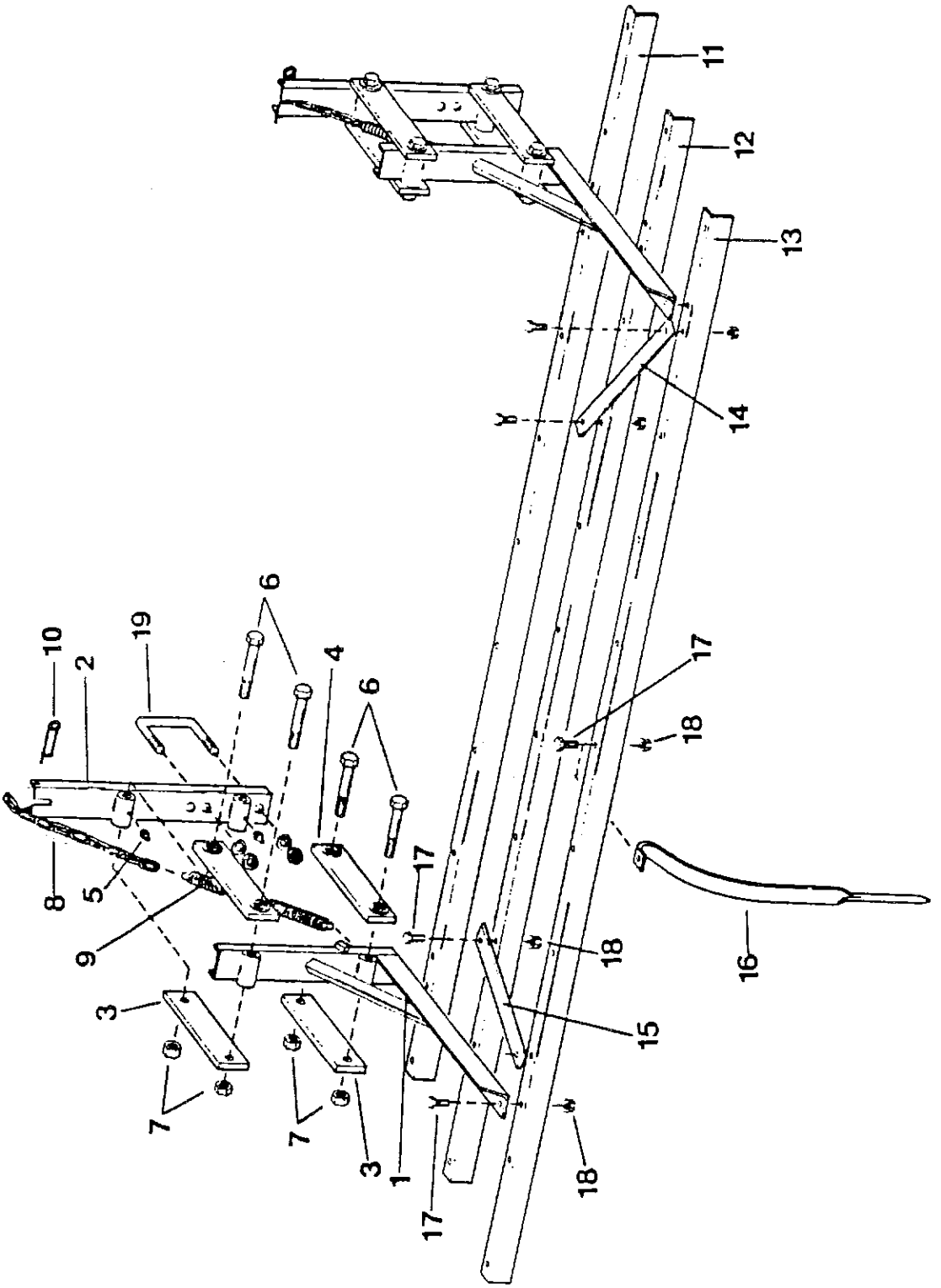
FOLDING HYDRAULIC ASSEMBLY



FOLDING HYDRAULIC ASSEMBLY

ITEM NO.	PARTS NO.	DESCRIPTION	QTY.
1	95087	3 1/2" x 16" Cylinder	2
2	96126	4" x 16" Cylinder	2
3	186901	17" Hose Assembly 3/8" x 3/8"	2
4	101000	84" Hose Assembly Center	2
5	509002	106" Hose Assembly	2
6	186904	120" Hose Assembly 3/8" x 3/8"	4
7	95016	3/8" NPT Steel Tee	6
8	95017	1/2" NPT x 3/8" Swivel Elbow	4
9	95047	3/8" x 1/2" Pipe Bushing	4
10	95004	3/8" Close Nipple	4
11	95008	3/8" Restrictors	2
12	95012	Univ. Male Tip 1/2" Pioneer End	2

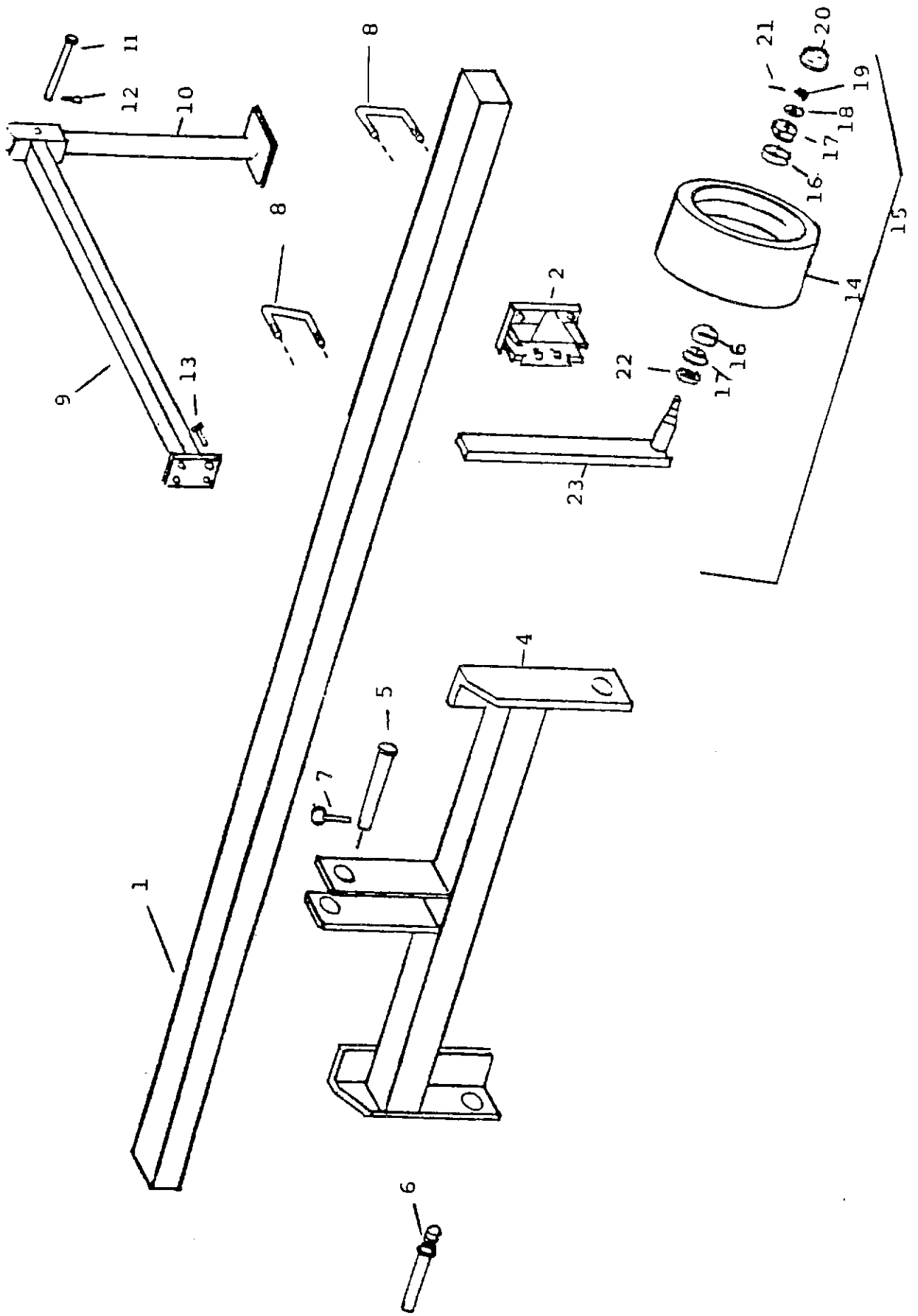
PARALLEL LINKAGE & WEEDER SECTIONS



PARALLEL LINKAGE & WEEDER SECTIONS

ITEM NO.	PARTS NO.	DESCRIPTION	QTY.
1	125200	Parallel Linkage - Back	1
2	125300	Parallel Linkage - Front	1
3	125400	Linkage Strap	2
4	125500	Linkage Strap, Bolt Side	2
5	095033	Grease Fitting, 1/4" Drive In	4
6	020068	Bolt, Hex, 5/8" x 3 1/2", Gr. 5	4
7	020427	Lock Nut, 5/8"	4
8	126200	Chain	1
9	126300	Spring	1
10	021100	Safety Pin	1
11	125600	Section Angle - Front - 72"	1
12	125700	Section Angle - center - 72"	1
13	125800	Section Angle - Rear - 72"	1
14	126500	Sway brace, 12" Long	1
15	126600	Sway brace, 11 1/2" Long	1
16	126400	Weeder Teeth	1
17	020096	Bolt, Hex, 3/8" x 7/8", Gr. 5	A/R
18	020471	Flange Nut, 3/8"	A/R
19	021008	U-Bolt, 5/8" x 3" x 5"	1

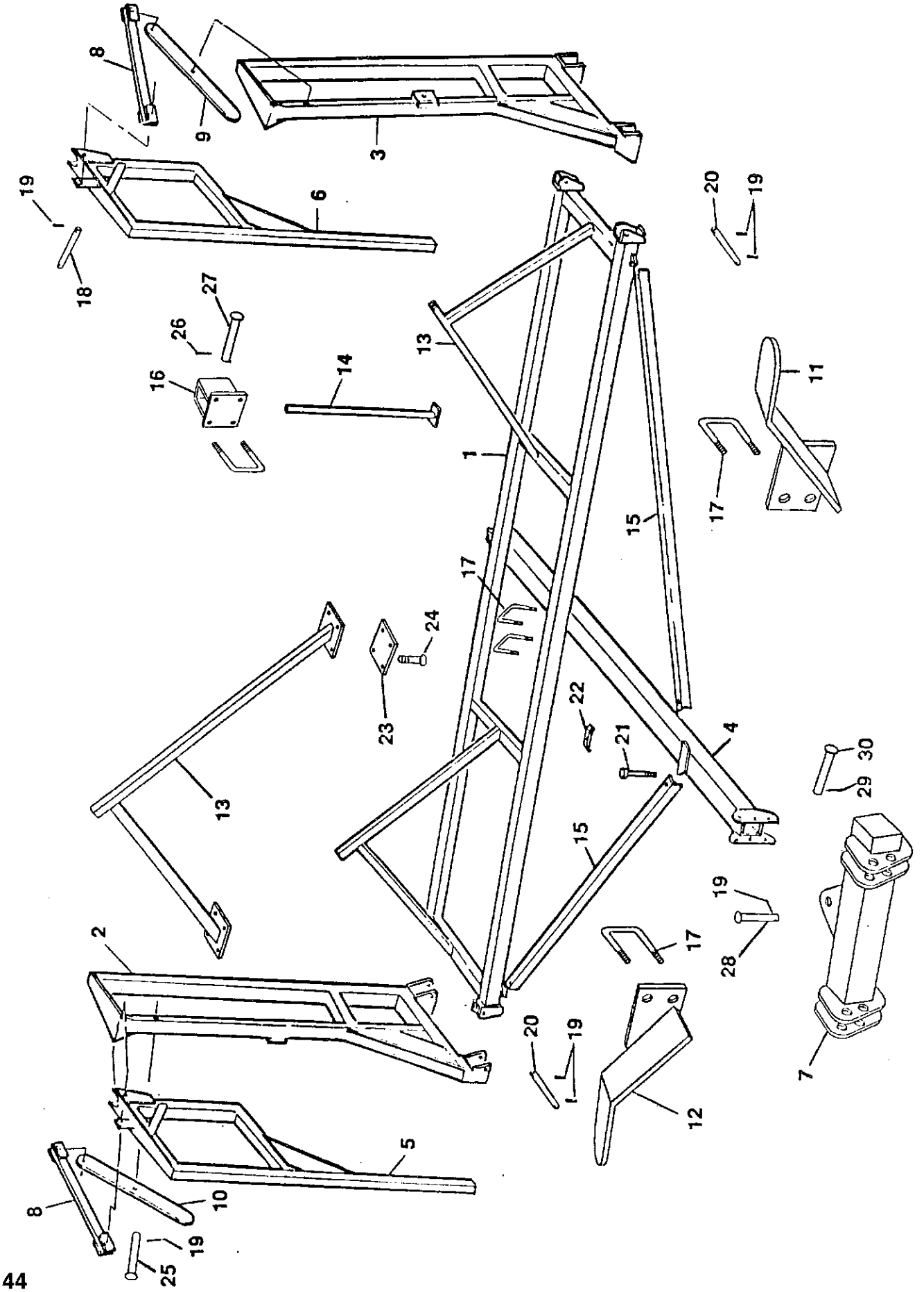
4 & 6 ROW 3 PT. WEEDER FRAME



4 & 6 ROW 3 PT. WEEDER FRAME

ITEM NO.	PARTS NO.	DESCRIPTION	QTY.
1	110025	4" x 4" Tool Bar Specify Length	1
2	227200	Gauge Wheel Clamp	2
4	227000	3-Point Assembly	1
5	220900	Top 3-Point Pin	1
6	095082	Bottom 3-Point Pin	2
7	095032	Lynch Pin	3
8	021009	U-Bolt 5/8" x 4" x 5 1/2"	7
9	227100	Parking Stand Ex.	1
10	222600	Parking Stand	1
11	020868	5/16" x 2 1/2" Clevis Pin	1
12	020912	1/8" Clip Pin	1
13	020065	5/8" x 2" Bolts	2
14	090008	Air Tire	1
15	227300	Gauge Wheel Assembly	2
16	095070	3/4" Cup LM11910	2
17	095019	3/4" Bearing LM11949	2
18	021313	3/4" Machine Bushing	1
19	020490	3/4" Hex Slotted Nut	1
20	095074	Dust Cap	1
21	020827	5/32" Cotter Pin	1
22	095073	CR Seal 10035	2
23	227310	Gauge Wheel Shank	2

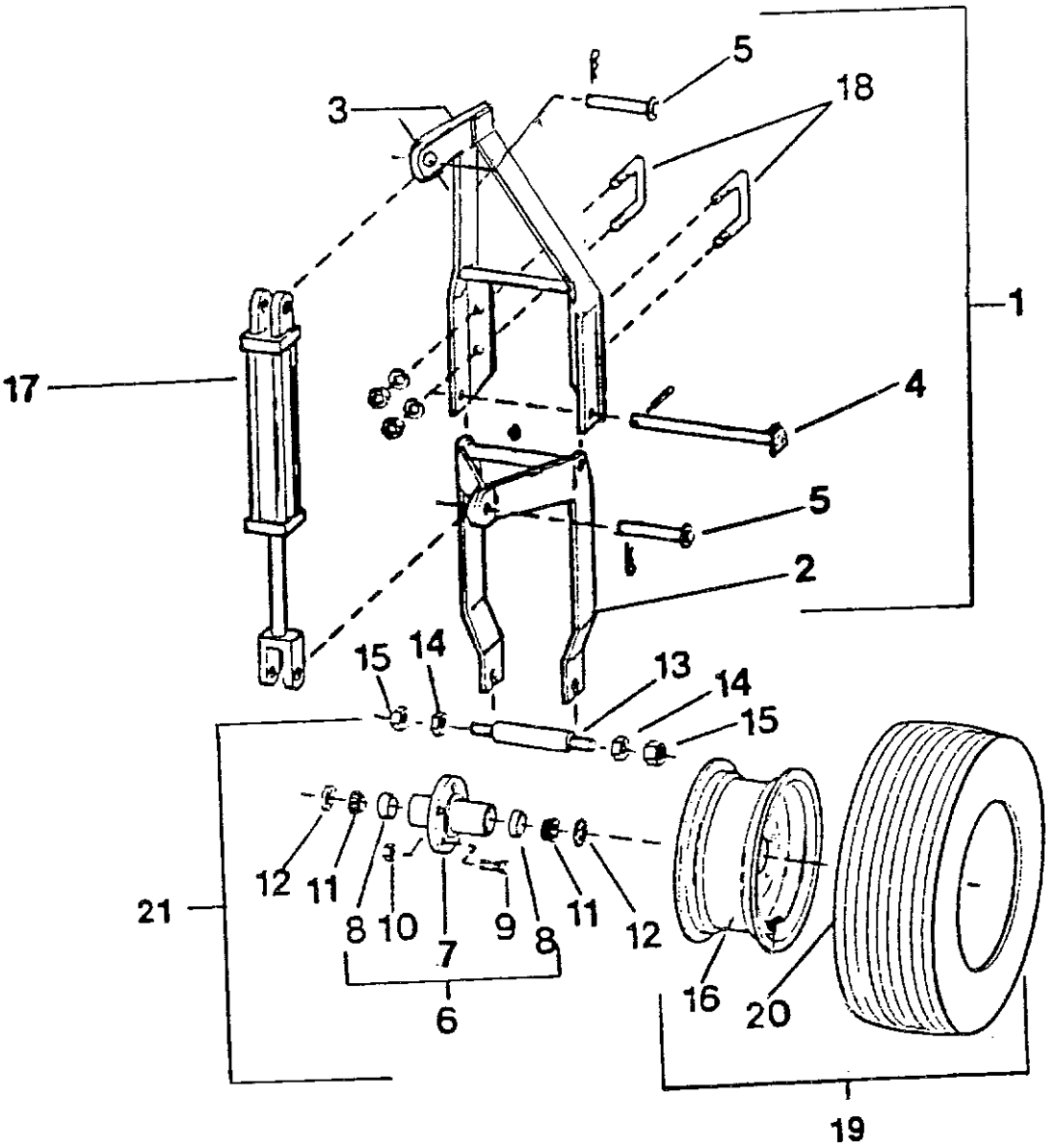
18 ROW WEEDER FRAME



18 ROW WEEDER FRAME

ITEM NO.	PARTS NO.	DESCRIPTION	QTY.
1	186100	18 Row Duo Fold Center Frame	1
2	186200	Duo Fold Right Center Wing	1
3	186250	Duo Fold Left Center Wing	1
4	186300	18 Row Duo Frame Weeder Pole	1
5	186400	Outside Fold Wing Right	1
6	186450	Outside Fold Wing Left	1
7	180860	3 Point Pole Mount	1
	126072	72" Weeder Section	
	126036	One Row Weeder Section Unit	
	127610	Duo Weeder Gauge Wheel CPLT	
8	186500	Wing Pivot Link Weldment	2
9	186510	Outer Wing Swing Arm Left	1
10	106525	Outer Wing Swing Arm Right	1
11	186700	Outer Wing Stop Left	1
12	186750	Outer Wing Stop Right	1
13	186800	Wing Stand Support	2
14	222600	Parking Stand	2
15	121000	Pole Brace	2
16	222500	Parking Stand Mount	2
17	21009	5/8" x 4" x 5 1/2" U-Bolt	8
	20406	5/8" Nut	16
	20506	5/8" Lockwasher	16
18	186601	Outside Hinge Pin	2
19	20967	1/4" x 2" Spring Lock Pin	10
20	362015	Hinge Pin	4
21	20052	1/2" x 1 1/2" Bolt	4
	20404	1/2" NC Nut	4
	20504	1/2" Lockwasher	4
22	121400	Strap Hold-Down	17
23	186810	Wing Stand Backing Plate	4
24	20061	1/2" x 5 1/2" Bolt	16
	20404	1/2" NC Nut	16
	20504	1/2" Lockwasher	16
25	106520	Swing Arm Pin	4
26	20912	# 3 Bridge Pin	2
27	20868	5/16" x 2 1/2" Clevis Pin	2
28	181100	Hitch Pin	1
29	95032	7/16" Lynch Pin	2
30	220800	Lower 3 Point Pin	2

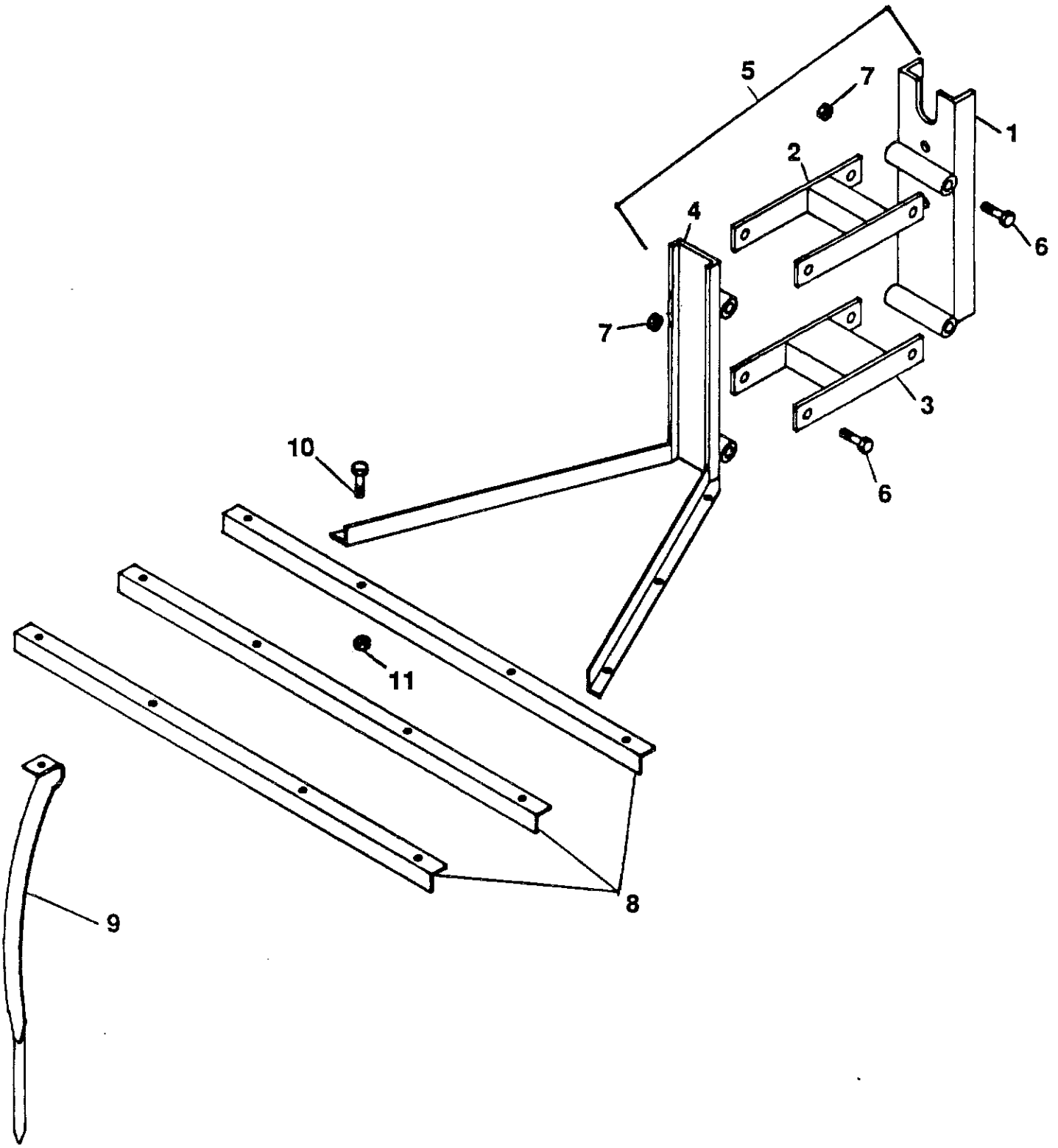
GAUGE WHEEL ASSEMBLY



GAUGE WHEEL ASSEMBLY

ITEM NO.	PARTS NO.	DESCRIPTION	QTY.
1	127010	Gauge Wheel Assembly - Complete	1
2	127110	Lower Unit - Gauge Wheel	1
3	127210	Upper Unit - Gauge Wheel	1
4	127300	Pin, 7/8" x 12 3/4"	1
5	127400	Cylinder Pin, 1" x 6 1/4"	2
6	90003	Hub Assembly	1
7	90015	Hub Casting - 5 Bolt	1
8	95093	Cup, Bearing	2
9	021408	Bolt, Stud	5
10	021409	Nut	5
11	95094	Cone, Bearing	2
12	95086	Seal, SE-13	2
13	090004	Spindle, 11" O.A.	1
14	127660	Nut, Shoulder	2
15	20461	Nut, Jam	2
16	090002	Wheel, 15 x 6L, 5 Hole	1
17	95000	Hydraulic Cylinder, 3" x 8"	1
18	021013	U-Bolt, 3/4" x 3" 4 1/2"	2
19	223710	Tire Rim Assembly	1
20		760-15 Tire	1
21	127600	Hub Spindle Assembly	1

ONE ROW WEEDER SECTION



ONE ROW WEEDER SECTION

ITEM NO.	PARTS NO.	DESCRIPTION	QTY.
1	125310	Front Linkage Mount	1
2	250400	Top Linkage	1
3	250300	Bottom Linkage	1
4	125210	Weeder Linkage Back	1
5	125110	One Row Linkage Assembly	1
6	20072	5/8" x 5 1/2" NC Grade 5 Bolt	4
7	20427	5/8" Self Lock Nut	4
8	125610	30" Section Angle	3
9	126400	Weeder Teeth	15
10	20111	3/8" x 7/8" Grade 5 Bolt	15
11	20471	3/8" Flange Nut	15

9 INDEX

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PRINTED IN USA
ISSUE DATE: APRIL, 1991

PART NUMBER: 93120