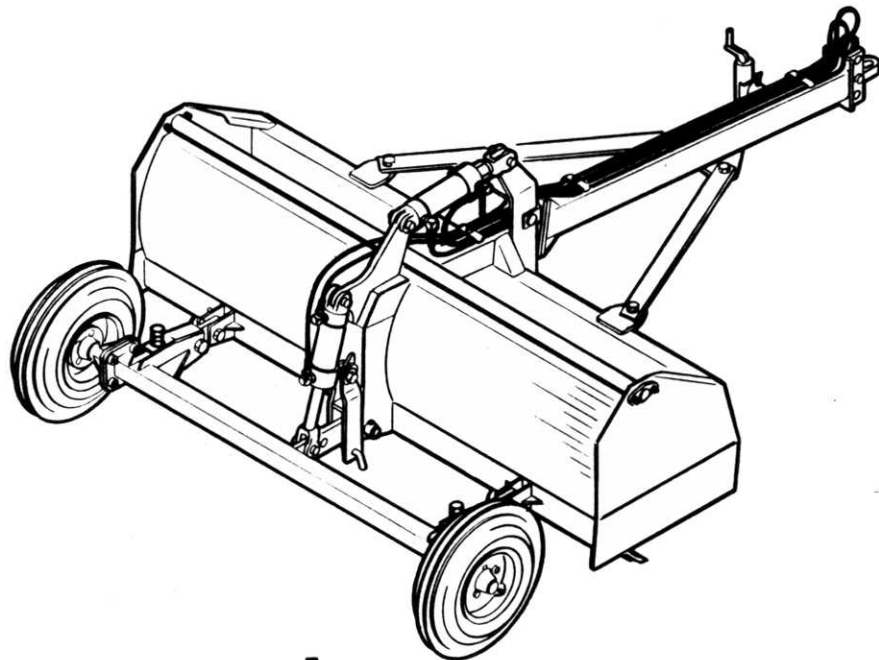


Deegelman

"BEST IN THE FIELD - - - WHERE IT COUNTS"

LAND LEVELER 3050 / 3650



OPERATOR'S and PARTS MANUAL

142320

SEPT 90

farm implements

**DEGELMAN
LAND LEVELER
MODEL 3050/3650**

W A R R A N T Y

Degelman Industries Ltd. warrants its products to the original owner for a period of one (1) year from date of purchase. All matters related with the warranty of our products must be handled through the authorized selling dealer. Warranty does not cover normal wear of the machine components or damages caused by lack of maintenance or misuses, and is subject to the following provisions:

REPLACEMENT PARTS:

Will be warranted for a period of ninety (90) days.

WARRANTY ON MACHINES USED FOR CUSTOM WORK, RENTALS OR INDUSTRIAL USE:

Will be warranted as stated above, with the exception that it shall be for a period of ninety (90) days only.

TIRES:

Will be adjusted for warranty by the tire manufacturer.

LABOUR:

Any labour subject to warranty must be authorized by a Degelman representative before work is started. Warranty labour allowance and rates will be handled according to established service warranty policy.

GOVERNMENT LEGISLATION:

Warranty terms and conditions are subject to Provincial or State Legislation.

MODIFICATIONS:

Warranty will be void if any component is altered or modified, unless written authorization is granted by Degelman Industries Ltd.

WARRANTY on ATTACHED EQUIPMENT:

No responsibility will be assumed for whatever damages may occur to equipment attached to this Degelman product.

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
1	Introduction	1
2	Safety	2
2.1	General Safety	3
2.2	Operating Safety	4
2.3	Maintenance Safety	4
2.4	Hydraulic Safety	5
2.5	Transport Safety	5
2.6	Storage Safety	6
2.7	Tire Safety	6
2.8	Safety Decals	6
2.9	Sign-Off Form	7
3	Safety Decal Locations	8
4	Operation	9
4.1	To the New Operator or Owner	9
4.2	Principles of Operation	10
4.3	Break-In	11
4.4	Pre-Operation Checklist	11
4.5	Equipment Preparation	12
4.5.1	Tractor Preparation	12
4.5.2	Implement Preparation	13
4.6	Attaching/Unhooking	14
4.7	Operating	15
4.8	Transporting	16
4.9	Storage	17
5	Service and Maintenance	18
5.1	Service	18
5.1.1	Lubricants	18
5.1.2	Greasing	18
5.1.3	Servicing Intervals	19
5.1.4	Service Record	20
5.2	Adjustments	21
5.2.1	Hitch Clevis	21
5.2.2	Cutting Edge	21
5.3	Repair	22
5.3.1	Wheel Hub Repair	22
5.3.2	Hydraulic Cylinder Repair	23
6	Trouble Shooting	24
7	Specifications	25
7.1	Mechanical	25
7.2	Bolt Torque	26
7.3	Hydraulic Fitting Torque	27
7.4	Publications	28

(Table of Contents con't. next page)

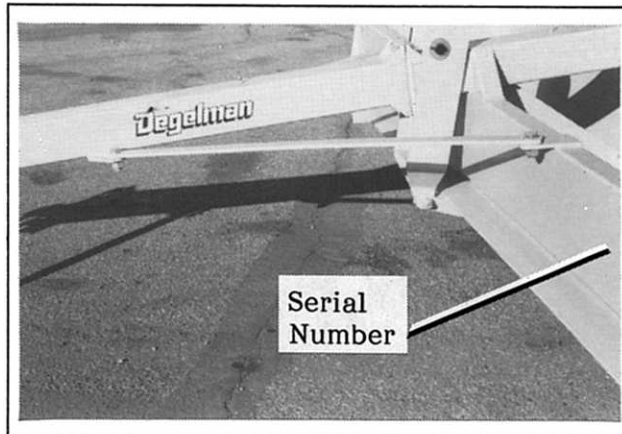
TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
8	Parts	29
8.1	Ordering Information	29
8.2	Parts Table of Contents	29
9	Index	40

SERIAL NUMBER LOCATION

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

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



Model Type _____

Serial Number _____

1 INTRODUCTION

Congratulations on your choice of a Degelman Land Leveler to complement your farming operation. It has been designed and manufactured to meet the needs of a discerning Agricultural market for the efficient removal and placement of dirt.

Use this manual as your first source of information about this machine. If you follow the instructions given in this manual, your machine will work well for many years.

Safe, efficient and trouble free operation of your Degelman Land Leveler 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.

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



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

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 machine 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 guidelines.

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 Degelman Land Leveler. YOU must ensure that you and anyone else who is going to operate, maintain or work around the machine 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 will alert you to all good safety practices that should be adhered to while operating this equipment.

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.

- Land Leveler owners must give operating instructions to operators or employees before allowing them to operate the unit, and at least annually thereafter per OSHA 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 these. 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 or adjusting the Leveler.



2. Install and properly secure all shields and guards before operating.

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



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



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

- a hard hat
- protective shoes with slip resistant soles
- protective glasses or goggles
- heavy gloves
- wet weather gear
- hearing protection
- respirator or filter mask



6. Clear the area of people, especially small children, and remove foreign objects from the machine before starting and operating.

7. Do not allow riders.

8. Lower bucket to ground, stop tractor engine, place all controls in neutral, set park brake and remove ignition key before servicing, adjusting or repairing.

9. Review safety related items with all operators annually.

2.2 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before using.
2. Lower bucket to ground, stop tractor engine, place all controls in neutral, set park brake and remove ignition key before servicing, adjusting or repairing.
3. Do not allow riders on the machine or tractor during operation or transporting.
4. Clear the area of all bystanders, especially children, before starting.
5. Be careful when working around or maintaining a high-pressure hydraulic system. Ensure all components are tight and in good repair before starting.
6. Clean all reflectors, lights and the SMV sign before transporting on a highway or public road. Be sure to check with local highway authorities and comply with their lighting requirements.
7. Stay well back from machine when operating. Keep others away.

2.3 MAINTENANCE SAFETY

1. Review the Operator's Manual and all safety items before working with, maintaining or operating the machine.
2. Lower bucket to ground, stop the tractor engine, place all controls in neutral, set park brake and remove ignition key before servicing, adjusting or repairing.
3. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making adjustments.
4. Place safety stands or large blocks under the frame before removing tires or working beneath the machine.
5. Be careful when working around or maintaining a high-pressure hydraulic system. Wear proper eye and hand protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop when searching for a pin hole leak in a hose or a fitting.
6. Always relieve pressure before disconnecting or working on hydraulic system.

2.4 HYDRAULIC SAFETY

1. Always place all tractor hydraulic controls in neutral before dismounting.
2. Make sure that all components in the hydraulic system are kept in good condition and are clean.
3. Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.
4. Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cement. 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. Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the machine in the field/yard or on the road.
2. Check with local authorities regarding machine transport on public roads. Obey all applicable laws and regulations.
3. Always travel at a safe speed. Use caution when making corners or meeting traffic.
4. 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.
5. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the shoulder, if permitted by law.
6. Always use hazard warning flashers on tractor when transporting, unless prohibited by law.
7. Always use a pin with provisions for a mechanical retainer and a safety chain when attaching to a tractor or towing vehicle.
8. Locate the red transport bar in position before moving on a public road.

2.6 STORAGE SAFETY

1. Store unit in an area away from human activity.
2. Store implement only with bucket lowered to ground.
3. Do not permit children to play around the stored unit.

2.7 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce a blow out 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 serviceman 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. Safety decals will be available free of charge upon request.

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

Degelman 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 this machine 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 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 safe operation of the equipment.

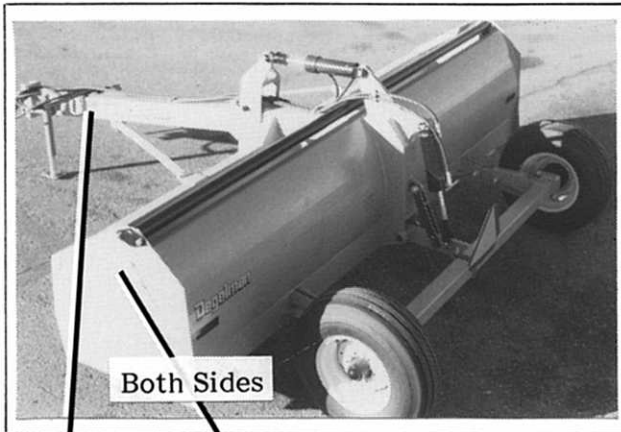
SIGN-OFF FORM

DATE	EMPLOYEE'S SIGNATURE	EMPLOYER'S 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!



<p>⚠ AVERTISSEMENT</p> <p>CHUTE DE LA PELLE</p> <p>Peut causer des blessures graves, ou même la mort.</p> <p>Tenir les mains et les pieds loin de la pelle lorsqu'elle est en position levée.</p>		<p>⚠ WARNING</p> <p>FALLING BLADE HAZARD</p> <p>Can cause serious injury or death.</p> <p>Keep hands and feet from under raised blade.</p> <p style="text-align: right; font-size: small;">142386</p>
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<p>⚠ ATTENTION</p> <ol style="list-style-type: none"> 1. Lire et comprendre le manuel de l'opérateur avant de mettre la machine en marche. 2. Utiliser la cheville d'attache avec un dispositif de blocage mécanique. 3. Eloigner tout spectateur, spécialement les enfants, avant le démarrage. 4. Baisser la machine au sol, arrêter le moteur du tracteur, fixer le frein de stationnement et enlever la clef de contact avant de faire le service ou toute réparation. 5. Enlever la pression avant de "travailler" sur le système hydraulique. Il faut toujours utiliser une pièce de bois ou un carton pour chercher les "fuites". 6. Reviser annuellement les instructions de sécurité. 	<p>⚠ CAUTION</p> <ol style="list-style-type: none"> 1. Read and understand the Operator's Manual before operating. 2. Use hitch pin with a mechanical locking device. 3. Clear area of bystanders, especially small children, before starting. 4. Lower machine to ground, stop tractor engine, set park brake and remove ignition key before servicing or repairing. 5. Relieve pressure before working on hydraulic system. Use a piece of wood or cardboard when searching for leaks. 6. Review safety instructions annually. <p style="text-align: right; font-size: small;">142383</p>
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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 free of charge.



OPERATING SAFETY

1. Read and understand the Operator's Manual before starting.
2. Lower bucket to ground, stop engine, place all controls in neutral, set park brake and remove ignition key before servicing, adjusting or repairing.
3. Do not allow riders.
4. Clear the area of bystanders, especially small children.
5. Stay well back from machine when operating. Keep others away.

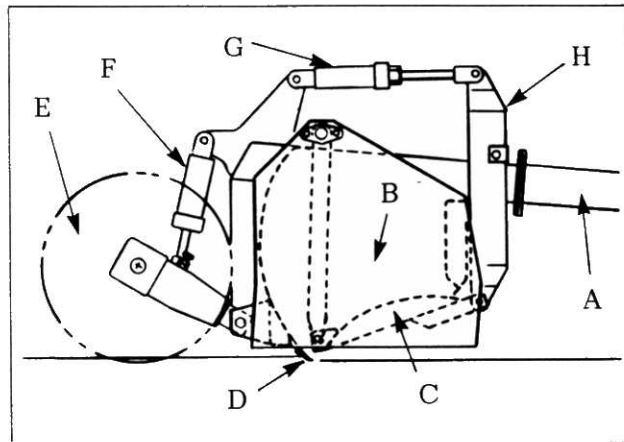
The Degelman Land Leveler is a pull type implement designed primarily for excavating, leveling and filling of dirt over open landscapes.

It is the owner's or operator's responsibility to read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum efficiency. Safety is everyone's business. By following safe operating practices, a safe environment is provided for the operator and bystanders.

The manual will take you step-by-step through your working day. By following the operating instructions in conjunction with a good maintenance program your machine will provide many years of trouble-free service.

4.2 PRINCIPLES OF OPERATION

The Land Leveler consists of a hitch pole and apron/bucket with a cutting edge and a wheel gang. By pulling the implement ahead and allowing the cutting edge to scrape just under the ground surface, dirt will be peeled away until the bucket is full. The dirt is then contained, if desired, by activating the apron control cylinder to close off the bottom of the bucket.



- A Hitch Pole
- B Bucket
- C Apron
- D Cutting Edge
- E Wheel Gang
- F Depth Control Cylinder
- G Apron Control Cylinder
- H Apron Control Arm

4.3

BREAK-IN

Although there are no operational restrictions on the Land Leveler when it is new, there are some mechanical checks that must be done to ensure the long term integrity of the unit. When using the machine for the first time, follow this procedure:

A. Before using:

1. Read Operator's Manual.
2. Lubricate both wheel bearings.
3. Check all bolt tightness.
4. Grease apron control arm bushing.

B. After operating for 2 hours:

1. Retorque wheel bolts.
2. Check all hardware tightness.
3. Check all hydraulic system connections. Tighten if any are leaking.

C. After operating 10 hours:

1. Repeat Step B.
2. Go to the service schedule as outlined in the Maintenance Section.

3. Ensure that the machine is properly attached to the tractor using a drawbar pin with provisions for a mechanical retainer. Make sure that a retainer such as a Klik pin is installed.

NOTE: It is important to pin the drawbar in the central location only.

4. Ensure that a safety chain on the hitch is installed.

5. Check cutting edge condition for nicks and cracks and replace as necessary.

6. Check the oil level in the tractor hydraulic reservoir. Top up as required.

7. Inspect all hydraulic lines, hoses, fittings and couplers for tightness. Tighten if there are leaks. Use a clean cloth to wipe any accumulated dirt from the couplers before connecting to the tractor's hydraulic system.

8. Check the tires and ensure that they are inflated to the specified pressure: 32 psi (220 kPa).

4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Land Leveler requires that each operator reads and understands the operating procedures and all related safety procedures outlined in this manual. A pre-operational check list is provided for the operator. It is important for both personal safety and maintaining the good mechanical condition of the machine that this checklist be 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 the "Maintenance Section".
2. Use only a tractor of adequate power and weight to handle the Leveler.

4.5 EQUIPMENT PREPARATION

4.5.1 TRACTOR PREPARATION

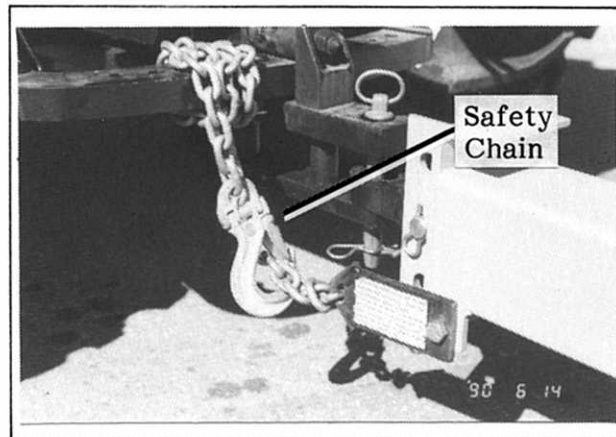
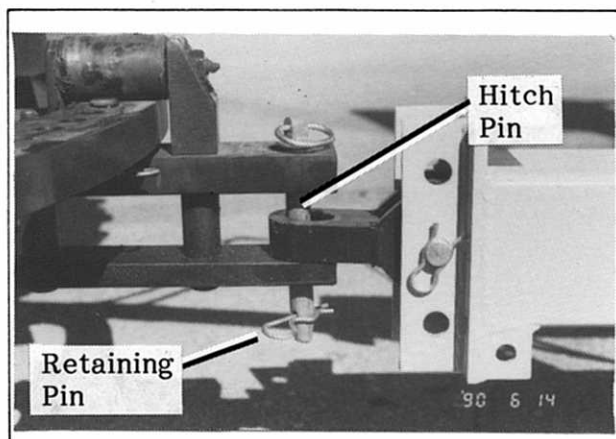
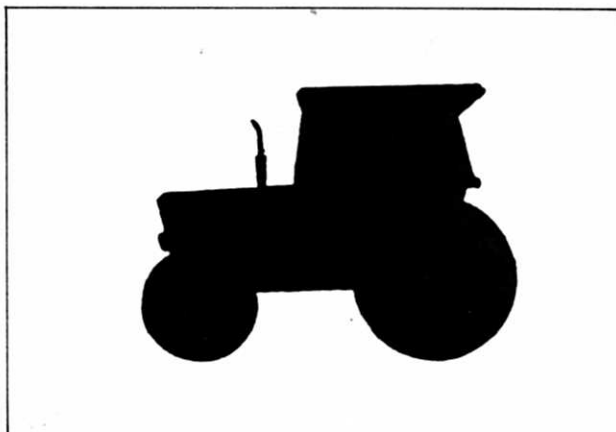
Follow this procedure when selecting and preparing a tractor for use with the machine:

1. Use only a tractor of sufficient power and weight to adequately handle the machine. It is recommended that the tractor have at least 70 PTO horsepower for normal operating conditions.

2. Locate the drawbar in its center position to prevent it from swinging.

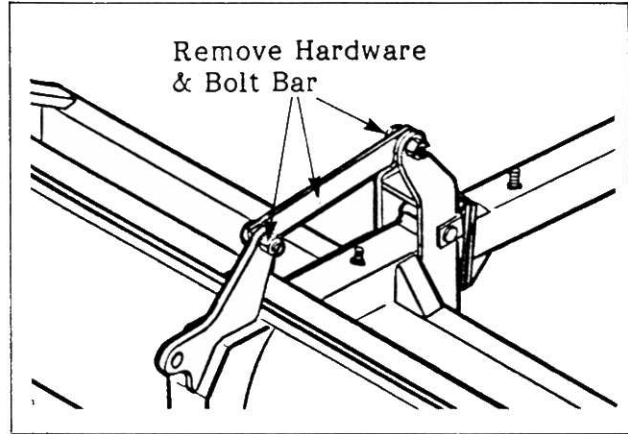
3. Use only a drawbar pin with provisions for a mechanical retainer such as a Klik pin. Always install the retainer.

4. Always attach a safety chain between the tractor and the machine to prevent unexpected separation.



4.5.2 IMPLEMENT PREPARATION

When an assembled machine is towed from the manufacturer or dealer to a customer, the bucket may have been left locked in the transport position by means of the two bolts and bolt bar indicated. Remove this bar and replace with the appropriate hydraulic cylinder (2 1/2 x 8 in. or 3 x 8 in.).

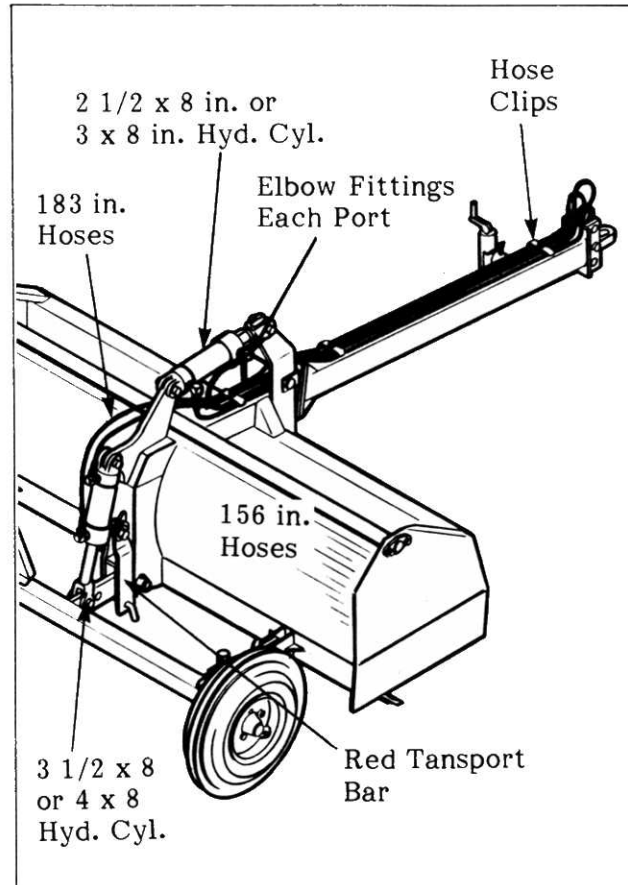


Install the appropriate depth control cylinder (3 1/2 x 8 in. or 4 x 8 in.) as shown and route specified hoses as illustrated. Secure with hose clips, 5/16 in. lockwashers and nuts.

Install four nipple fittings to front ends of hoses and attach the appropriate quick couplers to these fittings which mate with tractor outlets.

Hitch machine to tractor draw bar, connect hoses and swing up the jack.

Activate the hydraulic circuit to allow the red transport bar to be disengaged.



4.6 ATTACHING/UNHOOKING

The Leveler should always be parked on a level, dry area that is free of debris and foreign objects. Follow this procedure when attaching:

1. Clear the area of bystanders and remove foreign objects from the machine and working area.

2. Make sure there is enough room to back the tractor up to the hitch pole.

3. Start the tractor and slowly back it up to the hitch point.

4. Stop the tractor engine, place all controls in neutral, set park brake and remove ignition key before dismounting.

5. Use the hitch pole jack to raise or lower the pole to align with the drawbar.

NOTE: Use the adjusting pin in the hitch clevis to set the pole height as desired.

6. Install a drawbar pin with provisions for a mechanical retainer such as a Klik pin. Install the retainer.

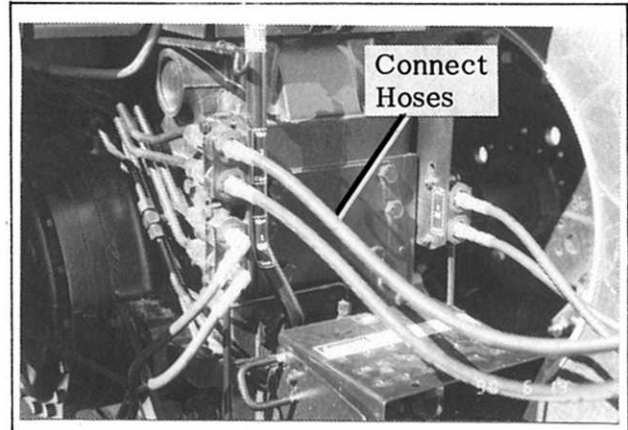
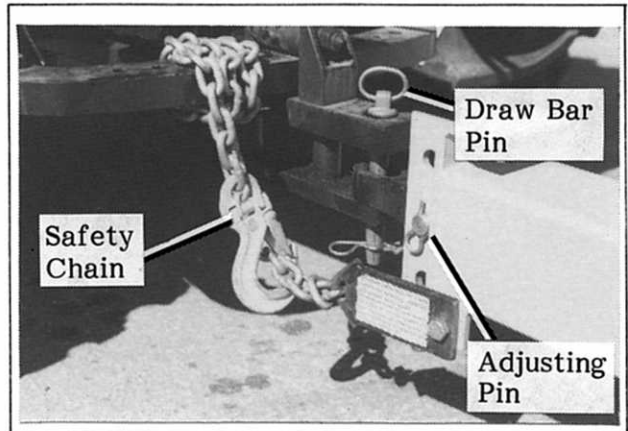
7. Install a safety chain between the tractor drawbar and the hitch pole.

8. Connect the hydraulics. To connect, proceed as follows:

- a. Use a clean cloth or paper towel to clean the couplers on the ends of the hoses. Also clean the area around the couplers on the tractor.
- b. Remove the plastic plugs from the couplers and insert the male ends. Be sure to match the pressure and return line to one valve bank.
- c. Connect the remaining coupler. Be sure to match the system with the desired control lever in the tractor.

9. Raise the hitch jack and rotate it 90° to place in its stowed position.

10. When unhooking from the tractor, reverse the above procedure.



Refer to these operational hints before starting:

1. Operator's Responsibility:

Every operator should read this manual and be instructed in safe operating procedure. An untrained operator is not qualified to operate this machine and could place themselves or bystanders in danger.

2. Bleeding the Hydraulics:

Before beginning operation, bleed the hydraulic system to remove any air.

To do this, cycle the hydraulics several times by holding the cylinder fully extended for several seconds. This will cause any trapped air to be purged from cylinder.

3. Operating Speed:

For normal operation, operate the tractor at full throttle. When operating over rough terrain or in limited working space, reduce engine speed.

The actual forward speed will be determined by tractor horsepower, land density and depth of cut. Experience will teach you the most efficient operating speed, but as a rule 3-4 MPH (5-7 km/H) is a normal operating range.

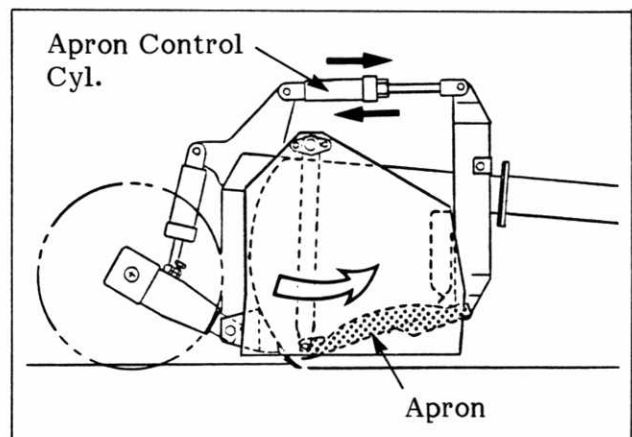
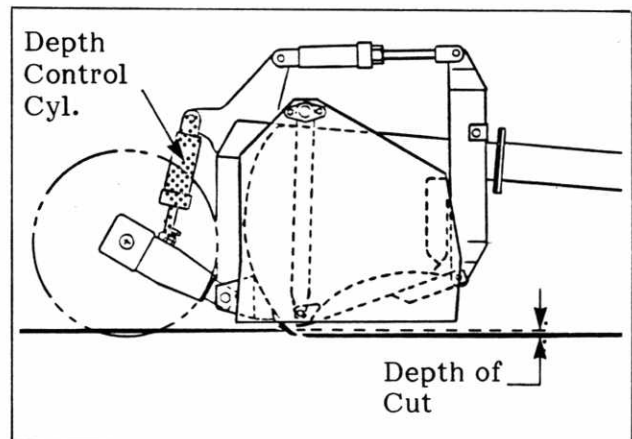
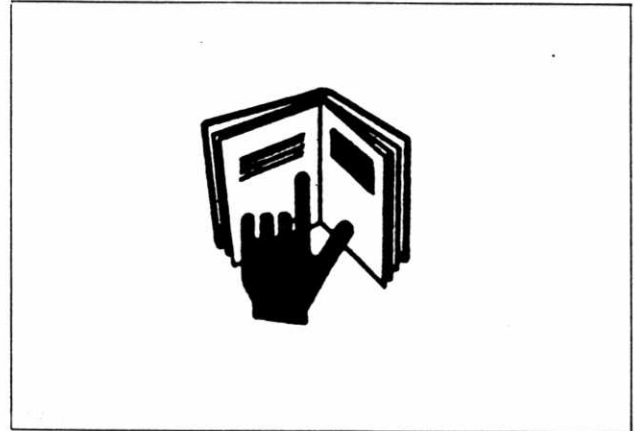
4. Depth of Cut:

The maximum depth of cut is approximately 2 in. (50mm) but normally a cutting depth of 1/2-1 in. (13-25mm) is desirable. This setting is produced by activating the control lever in the tractor connected to the depth control cylinder at the rear of machine.

5. Apron Control:

The hydraulically operated apron is used to close off and contain the material in the bucket for removal and relocation.

While implement is in motion, the apron can also be opened to various degrees which will regulate the amount of dirt dispensing from the bottom of the bucket, when such operations as filling in of low spots is desired.



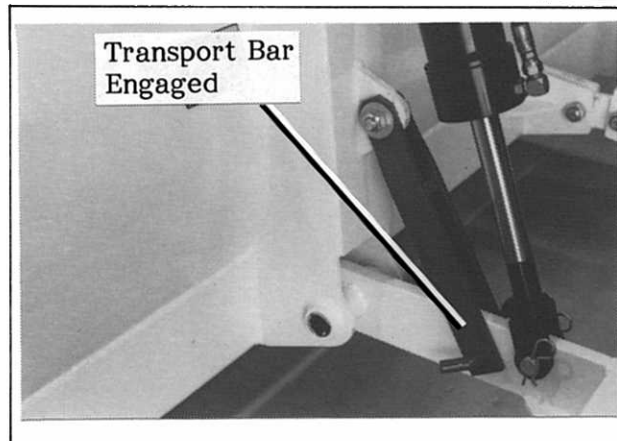
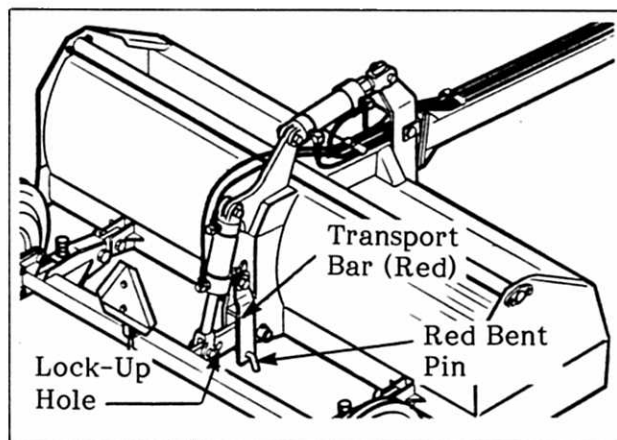


TRANSPORT SAFETY

1. Use only a drawbar pin with a mechanical retainer.
2. Always install the safety chain between the drawbar and hitch pole.
3. Clean the SMV, lights and reflectors before starting.
4. Always use hazard flashing lights on tractor.
5. Lock the red transport bar on back side of bucket in position.
6. Travel at a safe speed. Use care when making corners or meeting traffic.

Follow this procedure when preparing to transport:

1. Clear the area of bystanders, especially small children, before converting into transport configuration.
2. Remove the red bent pin.
3. Operate the hydraulics to raise bucket until red transport bar aligns with the lock-up hole.
4. Reinstall bent pin and hair pin.
5. Swing hitch pole jack up and secure with chained pin.
6. Clean the SMV, lights and reflectors.
7. Maintain a safe speed. Slow down when cornering and on rough roads.
8. Slow down and pull off to the side of the road when meeting other traffic.
9. Use hazard flashers on tractor unless prohibited by law.



**STORAGE SAFETY**

1. Store in an area away from human activity.
2. Do not allow children to play on or around the stored unit.

After the season's use, completely inspect all major systems of the machine. Repair or replace any worn or damaged components to prevent unnecessary down time at the beginning of next season.

Since the unit can be used in extremely adverse conditions during the season, the machine should be carefully prepared for storage to ensure that all dirt, mud, debris and moisture has been removed.

Follow this procedure when preparing to store:

1. Wash the entire machine thoroughly using a water hose or pressure washer to remove all dirt, mud, debris or residue.
2. Inspect all parts to see if anything has become entangled in them. Remove the entangled material.
3. Inspect all hydraulic hoses, fittings, lines and couplers. Tighten any loose fittings. Replace any hose that is badly cut, nicked or abraded or is separating from the crimped end of the fitting.
4. Touch up all paint nicks and scratches to prevent rusting.
5. Oil the exposed rams on the hydraulic cylinder to prevent rusting.
6. Select an area that is dry, level and free of debris.
7. Follow the procedure given in Section 4.6 when unhooking.



MAINTENANCE SAFETY

1. Read Operator's Manual before servicing, or maintaining machine.
2. Lower bucket to ground, stop tractor engine, set park brake and remove ignition key before servicing, adjusting, repairing or maintaining.
3. Be careful when working around or maintaining a high pressure hydraulic system. Wear the proper eye and hand protection when searching for a leak. Use a piece of wood or cardboard as a backstop when searching for a pin hole leak in a hose or a fitting.
4. Place safety stands or large blocks under the frame before removing the tires or working beneath the machine.

5.1.2 GREASING

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

1. Use only a hand-held grease gun for all greasing.
2. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt.
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 SERVICE

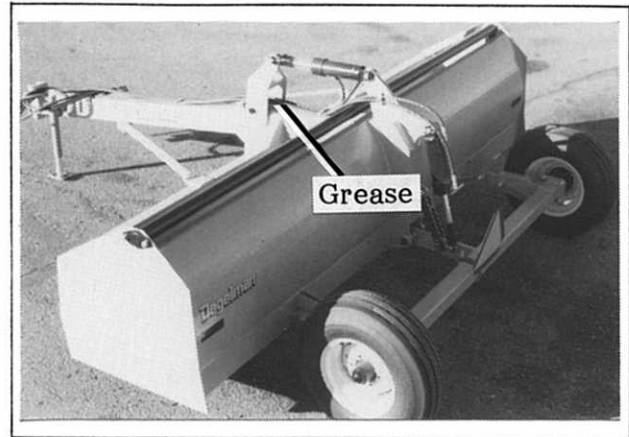
5.1.1 LUBRICANTS

1. Grease: Use an SAE multi-purpose grease with extreme pressure (EP) performance. Also acceptable is an SAE multi-purpose lithium base 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.

5.1.3 SERVICING INTERVALS

25 Hours:

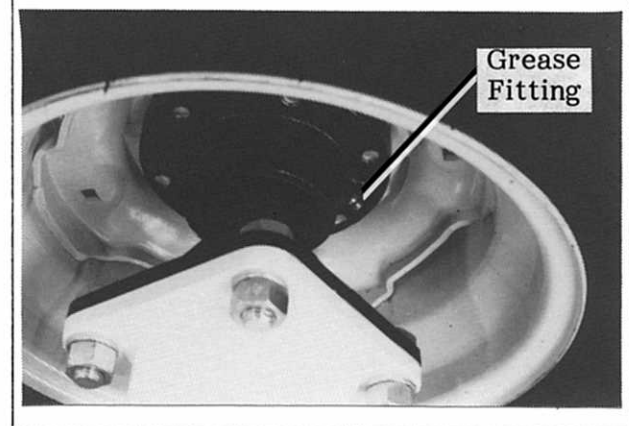
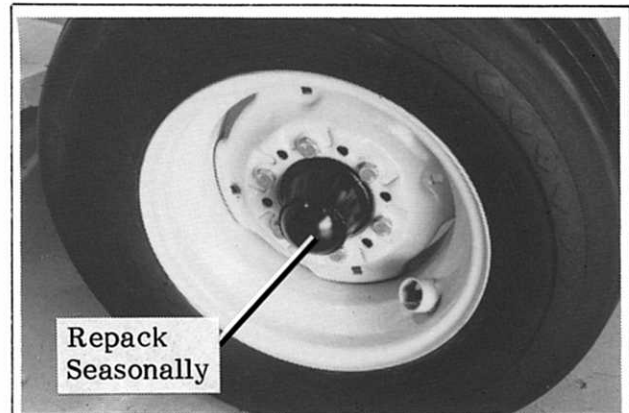
Grease the apron control arm bushing.



Annually:

Repack wheel bearings seasonally with a good grade of bearing grease.

NOTE: Additional grease can also be pumped in the hub through the grease fitting shown.



5.1.4 SERVICE RECORD

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

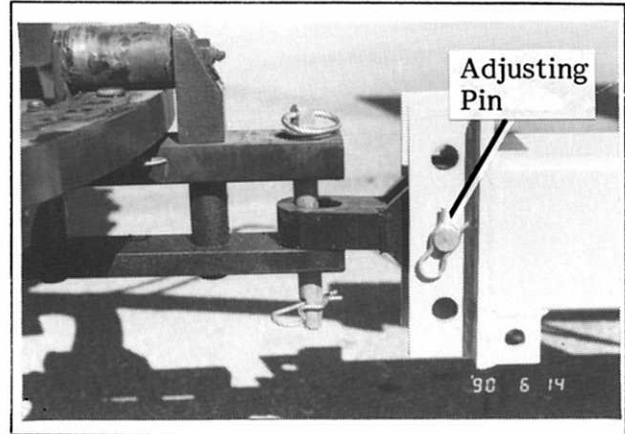
ACTION CODE: ✓ **CHECK** **C CHANGE** **CL CLEAN**
 L LUBRICATE **R REPLACE**

MAINTENANCE	HOURS												
	SERVICED BY												
8 HOURS:													
✓ Hyd. fluid leaks/cut hoses													
✓ Tire pressure 32 psi (220 kPa)													
25 HOURS:													
L Apron arm bushing													
✓ Safety signs clean/legible													
✓ Cutting edge condition													
✓ Working points and pins													
ANNUALLY:													
L Wheel bearings (2)													
✓ Pole jack condition													
✓ Bolt tightness													

5.2.1 HITCH CLEVIS

The hitch clevis can be removed and re-located as required to achieve the desired hitching height and angle. To relocate, follow this procedure:

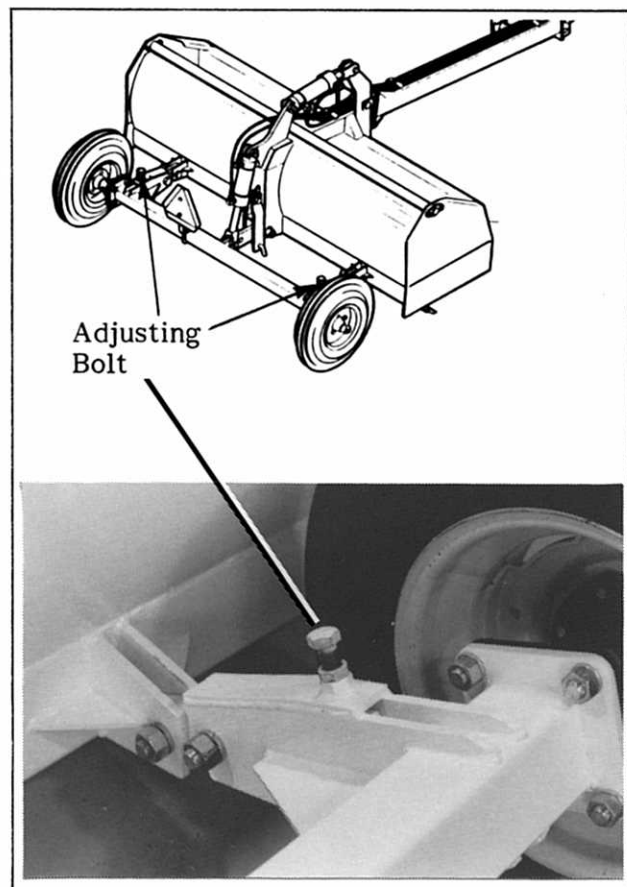
1. Clear the area of bystanders, especially small children.
2. Install the drawbar pin to attach the clevis to the tractor.
3. Use the hitch jack to lower the hitch and transfer the weight off the drawbar.
4. Remove the clevis mounting pin.
5. Move the clevis up or down as required.
6. Install the clevis mounting pin and retainer.
7. Lower the hitch and check the pole angle again.



5.2.2 CUTTING EDGE

Normally the cutting edge should be parallel with the ground to provide a level cutting action. To level the cutting edge simply turn the adjusting bolt on one side of machine until it levels out and resecure setting by tightening the jam nut.

NOTE: By turning the adjusting bolt down on one side and up on the other side, the cutting edge will become "tilted". This setting may be found useful for such operations as trenching or establishing a drainage groove.



5.3.1 WHEEL HUB REPAIR

**WARNING**

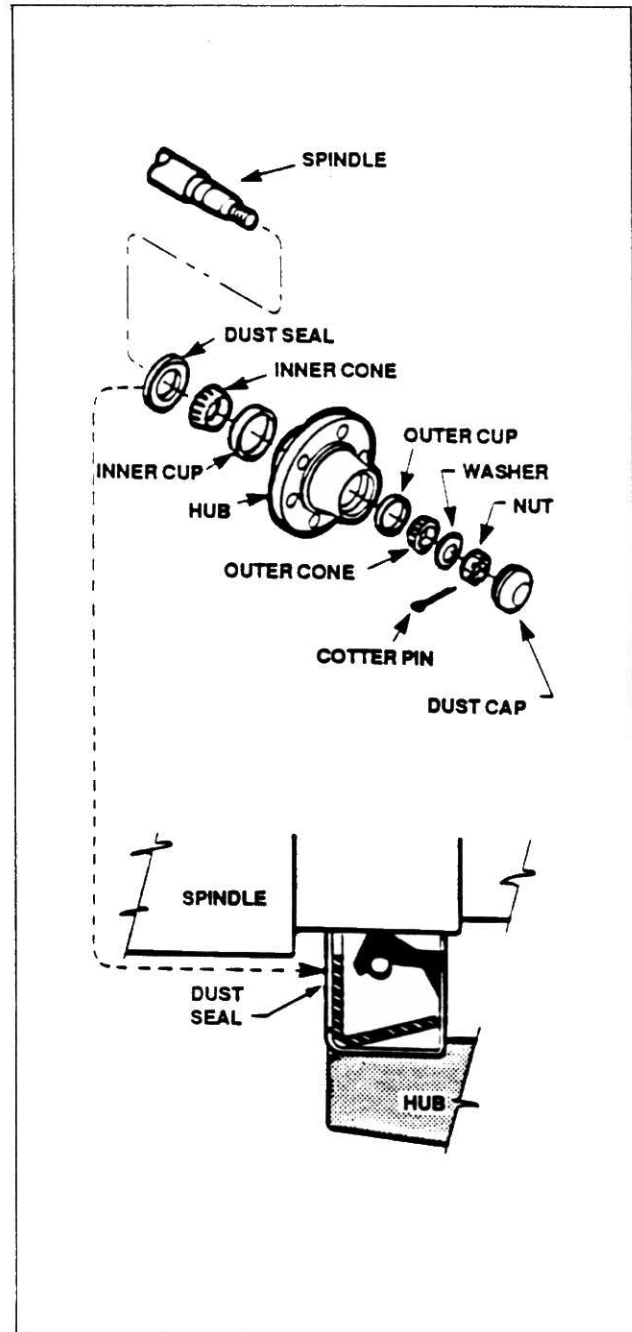
Be sure to block up frame section before removing tires.

Disassembly:

1. Carefully pry off dust cap.
2. Remove cotter pin from nut.
3. Remove nut and washer.
4. Pull off spindle.
5. Dislodge the inner cone bearing and dust seal.
6. Inspect cups that are press fitted into hub for pits or corrosion and remove if necessary.
7. Inspect and replace defective parts with new ones.

Assembly:

1. If cups need replacing, be careful to install them gently and evenly into hub until they are fully seated.
2. Apply a thick wall of grease inside hub. Pack grease into cones.
3. Install dust seal as illustrated, and inner cone.
4. Position hub onto spindle and fill surrounding cavity with grease.
5. Assemble outer cone, washer and nut.
6. Tighten nut while rotating hub until there is a slight drag.
7. Turn nut back approximately 1/2 turn to align cotter pin hole with notches on nut.
8. Install cotter pin and bend legs sideways over nut.
9. Fill dust cap half full of grease and gently tap into position.



5.3.2 HYDRAULIC CYLINDER REPAIR

Complete seal kits and cylinder components are available when repair work becomes necessary due to excessive oil leakage or damage to various parts.

NOTE: Complete rebuilt cylinder may be available. Contact your dealer for further information.

Disassembly:

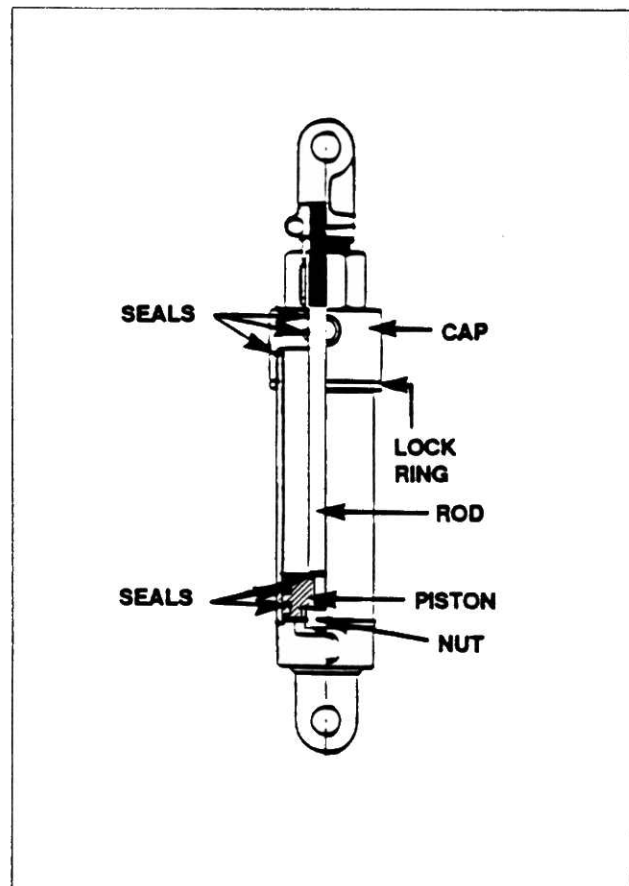
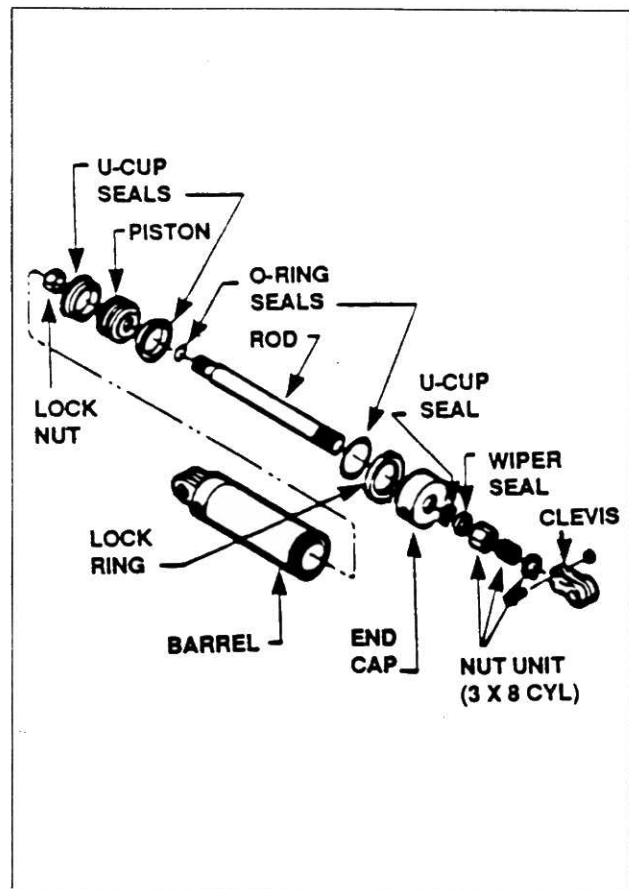
1. Loosen lock ring and turn off end cap.
2. Carefully remove piston, rod and cap combination.
3. Disassemble piston from rod by removing lock nut.

NOTE: DO NOT clamp rod by chromed surface.

4. Slide off end cap.
5. Remove seals and inspect all parts for damage.
6. Install new seals and replace damaged parts with new components.

Assembly:

1. Reinstall rod through end cap.
2. Secure piston to rod with lock nut. Torque to 225 ft. lbs.
3. With cylinder body held gently in a vise, insert piston and rod combination using a slight rocking motion.
4. Thread lock ring fully onto barrel.
5. Turn end cap fully against lock ring, then back off end cap to align ports.
6. Tighten lock ring against end cap using a drift punch and hammer.



6 TROUBLESHOOTING

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

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

PROBLEM	CAUSE	SOLUTION
Bucket creeps down during operation.	Tractor hydraulic leak.	To verify raise bucket, disconnect at tractor and observe if bucket creeps down. If not, repair tractor hydraulics.
	Damaged hoses or fittings.	Search for leaks with a piece of paper (not by hand). Repair as necessary.
	Hydraulic cylinder leak.	Replace seals or damaged components.
Bucket raises too slowly.	Low tractor pressure.	Check pressure (1500-2500 PSI) and service as necessary.
Loaded bucket will not lift.	Restriction in hoses.	Disconnect hoses and blow out lines.
Apron will not swing into position.	External leaks in hydraulic system.	Search for leaks with a piece of paper (not by hand). Repair as necessary.
Oil accumulation on hydraulic cylinder shaft.	Oil bypassing seals.	Seal manufacturer advises that small amounts of oil getting past seals is desirable. If problem becomes excessive, replace seals.
Uneven lateral planing or depth of cut.	Tires unevenly adjusted causing an unwanted tilt in cutting edge.	Correct by turning the adjusting bolt on one of the two locations on wheel frame assembly to level cutting edge.

7 SPECIFICATIONS

7.1 MECHANICAL

MODEL:

- Land Leveler 3050 (10 ft.)
- Land Leveler 3650 (12 ft.)

TRACTOR REQUIREMENTS:

- 70 horsepower (52 kW) minimum
- Hydraulic pressure output - 1500-2500 psi (10,300-17,300 kPa)

LAND LEVELER DIMENSIONS:

- Working width - 10 ft.. (3m) 3050 Model
- Working width - 12 ft.. (3.7m) 3650 Model
- Length - 13 ft.. 6 in. (4.1m)
- Height (in transport) 4 ft.. 3 in. (1.3m)

FRAME CONSTRUCTION:

- .250 in. (6.4mm) wall hollow structural steel tubing and 3/16 in. (4.5mm) plate

WHEEL/HUBS:

- Two 9.5 L x 15-6 ply tubeless type tires
- 6 bolt rim
- 2 in. (50.8mm) dia. axles
- Adjustable leveling bolts
- Heavy duty hubs

DEPTH of CUT:

- 2 in. (50mm) maximum

TRANSPORT:

- Transport height (cutting edge) 7 in. (178mm)
- Mechanical safety transport bar (red)

HYDRAULICS (optional):

- One apron control cylinder 3 x 8 in. stroke c/w adjusting nut
- One depth control cylinder 3 1/2 x 8 in. stroke
- Hoses - 3/8 in. (9.5mm) 2 wire braid construction

BUCKET:

- Ripple formed mouldboard
- Hydraulically operated apron
- 2 1/2 cu. yd. (1.5m³) capacity 3050 Model
- 3 cu. yd. (1.8m³) capacity 3650 Model
- Replaceable steel cutting edge

Design and specifications subject to change without notice.

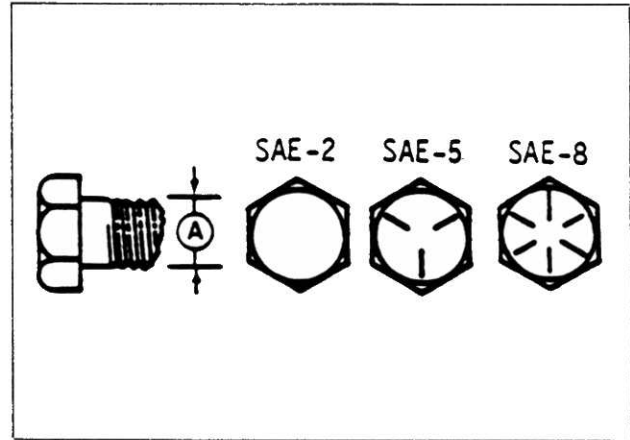
7.2 BOLT TORQUE

Checking Bolt Torque:

The tables given below give correct bolt torque 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.

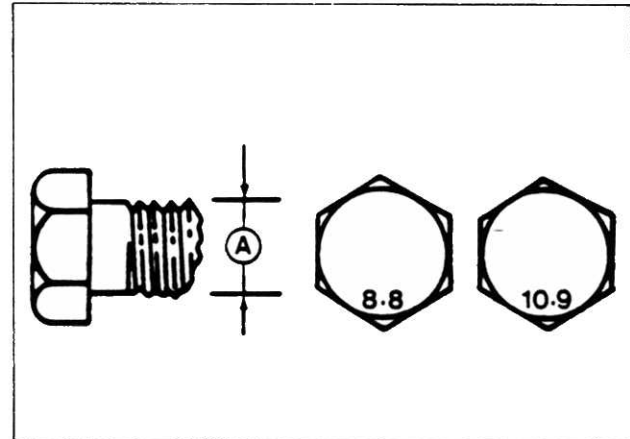
Imperial Torque Specifications:

BOLT DIAMETER A	BOLT TORQUE					
	SAE 2		SAE 5		SAE 8	
	N.m	(lb-ft)	N.m	(lb-ft)	N.m	(lb-ft)
1/4 in.	8	(6)	12	(9)	16	(12)
5/16 in.	13	(10)	24	(18)	34	(25)
3/8 in.	27	(20)	41	(30)	51	(45)
7/16 in.	41	(30)	63	(50)	95	(70)
1/2 in.	61	(45)	101	(75)	149	(110)
9/16 in.	95	(70)	150	(110)	210	(155)
5/8 in.	128	(95)	210	(155)	290	(215)
3/4 in.	225	(185)	365	(270)	520	(385)
7/8 in.	230	(170)	590	(435)	840	(620)
1 in.	345	(255)	895	(660)	1250	(930)



Metric Torque Specifications:

BOLT DIAMETER A	BOLT TORQUE			
	8.8		10.9	
	N.m	(lb-ft)	N.m	(lb-ft)
M3	0.5	(0.4)	1.8	(1.3)
M4	3	(2.2)	4.5	(3.3)
M5	6	(4)	9	(7)
M6	10	(7)	15	(11)
M8	25	(18)	35	(26)
M10	50	(37)	70	(52)
M12	90	(66)	125	(92)
M14	140	(103)	200	(148)
M15	225	(166)	310	(228)
M20	435	(321)	610	(450)
M24	750	(553)	1050	(774)



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.)	RECOMMENDED TURNS to TIGHTEN (AFTER FINGER TIGHTENING)			
		TORQUE VALUE*		(Flats)	(Turns)
		(N.m)	(lb-ft)		
3/16	7/16	8	6	1	1/8
1/4	9/16	12	9	1	1/8
5/16	5/8	16	12	1	1/8
3/8	11/16	24	18	1	1/8
1/2	7/8	46	34	1	1/8
5/8	1	62	46	1	1/8
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

7.4

PUBLICATIONS

Additional copies of the manuals are available through your local dealer. If the dealer is unable to assist you, contact Degelman Industries Ltd. and order per Part No. below.

142320 Manual - Operator's and Parts
142321 Manual - Assembly

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- Two 9.5 L x 15-6 ply tubeless type tires
- 6 bolt rim
- 2 in. (50.8mm) dia. axles
- Adjustable leveling bolts
- Heavy duty hubs

DEPTH of CUT:

- 2 in. (50mm) maximum

TRANSPORT:

- Transport height (cutting edge) 7 in. (178mm)
- Mechanical safety transport bar (red)

HYDRAULICS (optional):

- One apron control cylinder 3 x 8 in. stroke c/w adjusting nut
- One depth control cylinder 3 1/2 x 8 in. stroke
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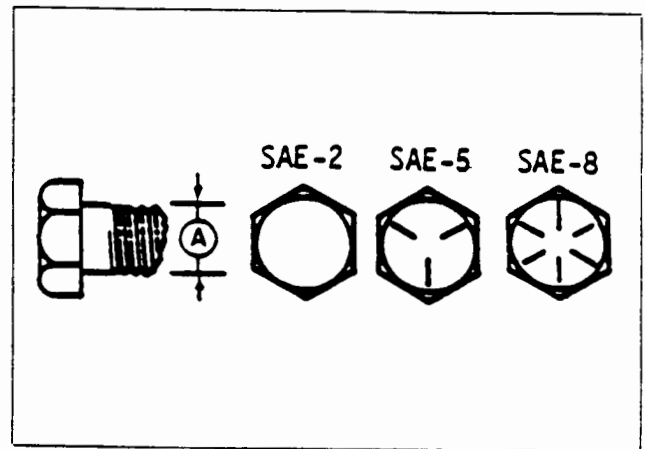
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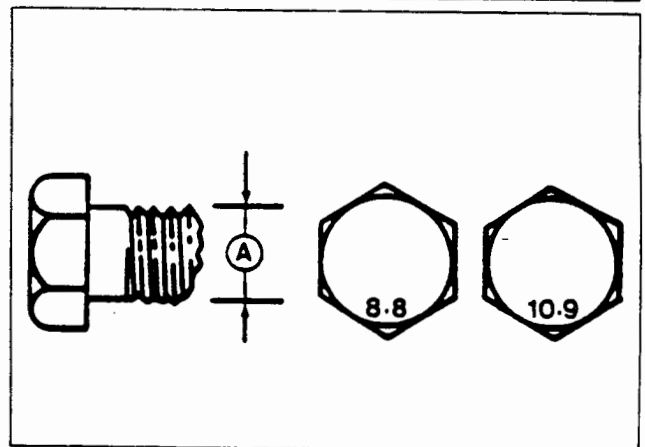
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				(Flats)	(Turns)
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1/4	9/16	12	9	1	1/8
5/16	5/8	16	12	1	1/8
3/8	11/16	24	18	1	1/8
1/2	7/8	46	34	1	1/8
5/8	1	62	46	1	1/8
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

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142321 Manual - Assembly

8 PARTS

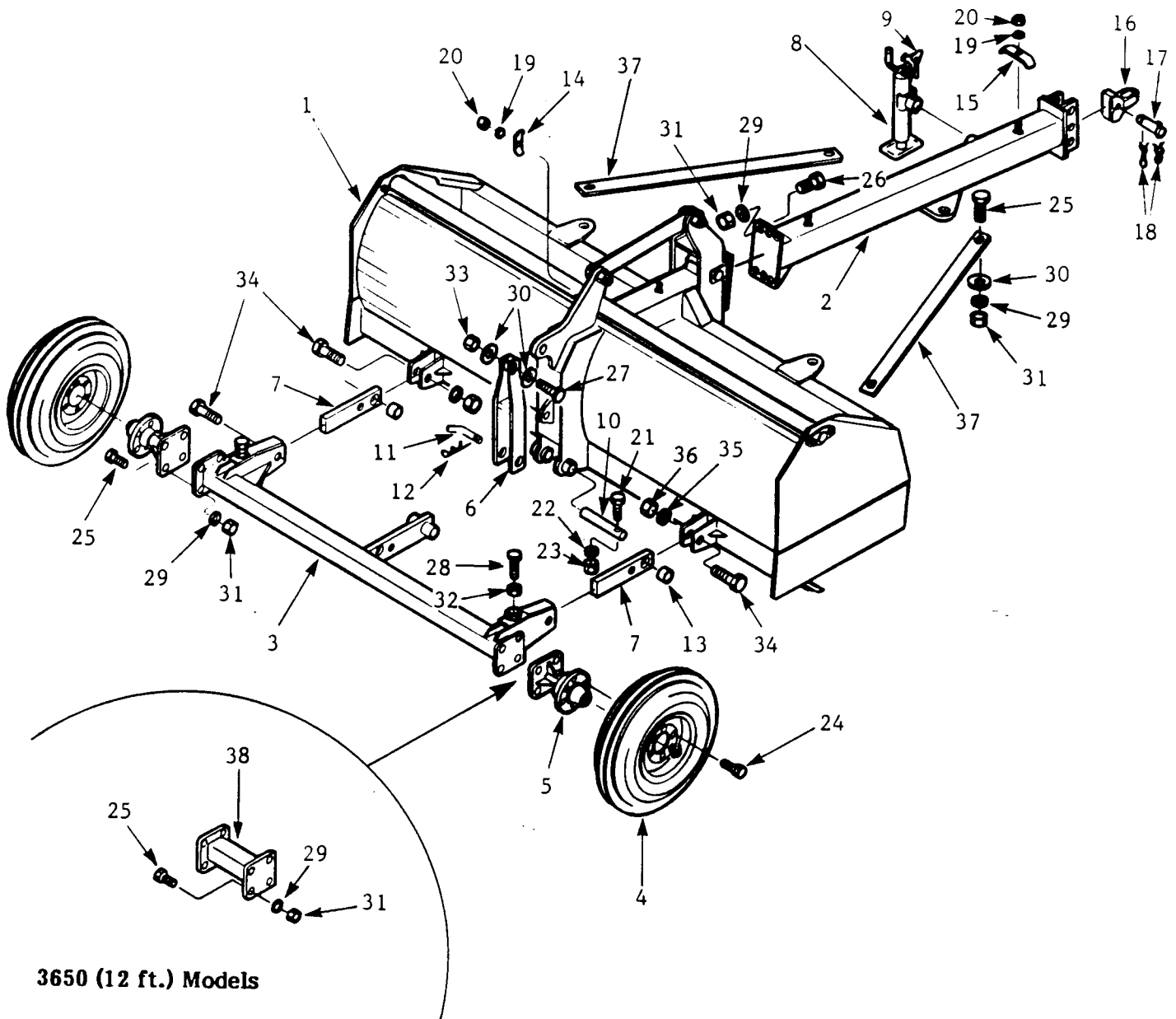
8.1 ORDERING INFORMATION

When ordering replacement parts, be sure to include the machine model number and serial number along with the part number, description and quantity required.

8.2 PARTS TABLE OF CONTENTS

Basic Components	30/31
Bucket/Apron Unit	32/33
Hub, Spindle and Tire	34
Hydraulic Layout (Optional)	35
Hydraulic Cylinder 3 x 8 in. D.I.L.	36
Hydraulic Cylinder 3 1/2 x 8 in. D.I.L.	37
Decals	38
Safety Chain	39

BASIC COMPONENTS



3650 (12 ft.) Models

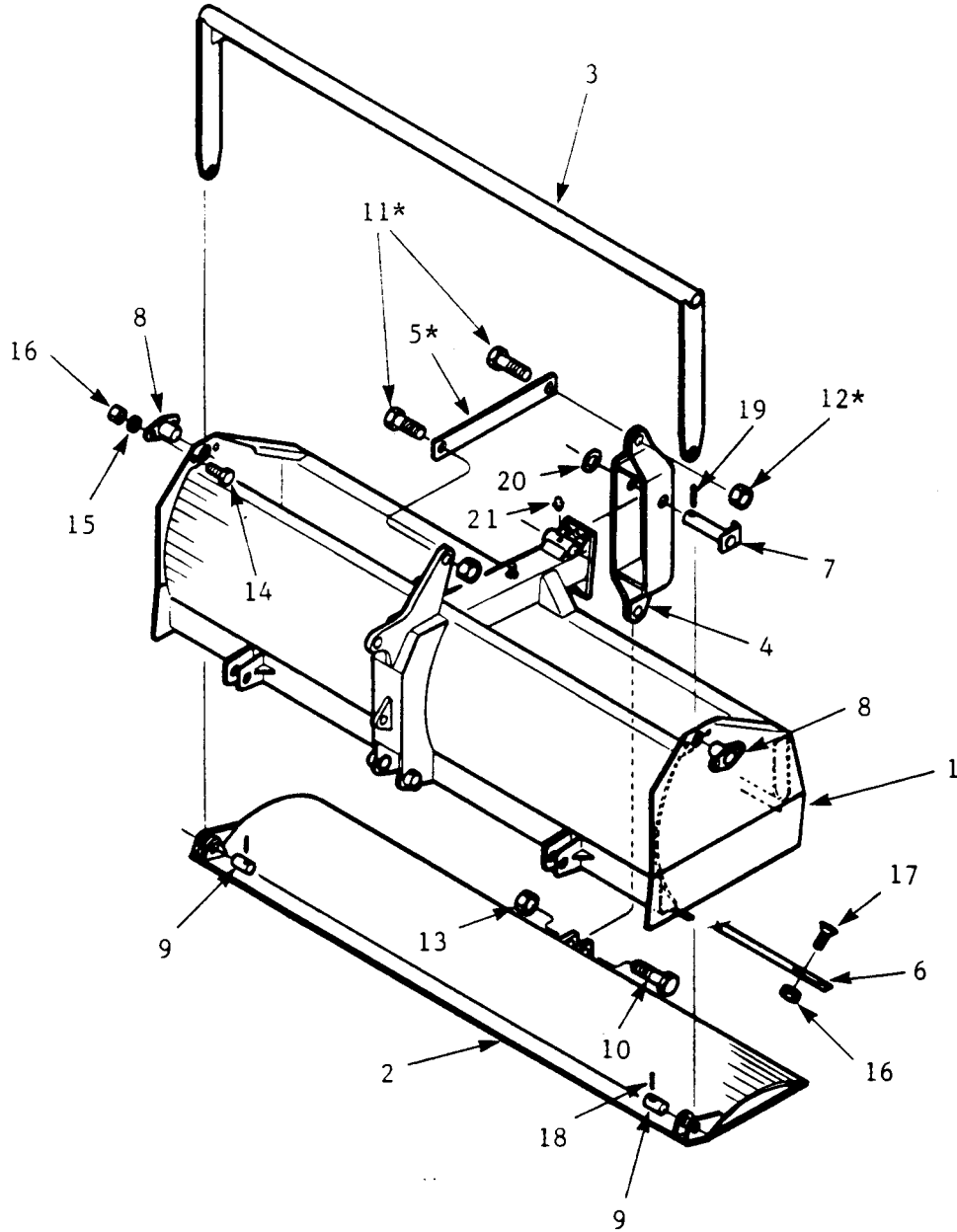
BASIC COMPONENTS

ITEM	PART No.	DESCRIPTION	QTY.
1	{ 773112	Bucket/Apron Bundle - LL3050 }	1
	{ 773212	Bucket/Apron Bundle - LL3650 }	
2	773168	Pole, Hitch - LL3050/3650	1
3	773156	Wheel Frame Assembly - LL3050/3650	1
4	131062	Wheel Assembly 9.5 L x 15 - 6 Ply	2
5	773176	Hub/Spindle Assembly - LL3050/3650	2
6	773181	Bar, Transport Assembly - LL3050/3650 - Red	1
7	773185	Bar, Connecting - LL3050/3650	2
8	132014	Jack, Top Wind - 2000 lb. capacity	1
9	118879	Pin, Hitch 9/16 in. dia.	1
10	773193	Pin 38.1 x 190mm (effective)	1
11	240277	Pin 20 x 54mm (effective) - Red	1
12	118830	Pin, Hair 4.5 x 83mm - Plated	1
13	650247	Bushing 38.1 OD x 5.6 Wall x 28mm	2
14	650256	Hose Clip - 2 Hose	1
15	660747	Hose Clip - 4 Hose	3
16	240208	Lug, Hitch Assembly	1
17	121944	Pin 25.4 x 110mm (effective) Plated-N/D	1
18	118882	Pin, Hair 3/16 x 2 3/4 in. Plated-N/D	2
19	118530	Washer, Lock 5/16 in. Plated	4
20	118427	Nut, Hex 5/16 in. UNC, Gr5, Plated	4
21	118112	Bolt, Hex 1/2 x 3 in. UNC, Gr5, Plated	1
22	118504	Washer, Lock 1/2 in. Plated	1
23	118405	Nut, Hex 1/2 in. UNC, Gr5, Plated	1
24	118313	Bolt, Wheel 9/16 x 1 1/16 in. UNF, Gr5, Plated	12
25	118043	Bolt, Hex 3/4 x 2 in. UNC, Gr5, Plated	a/r
26	118047	Bolt, Hex 3/4 x 2 1/2 in. UNC, Gr5, Plated	6
27	118050	Bolt, Hex 3/4 x 3 in. UNC, Gr5, Plated	1
28	773137	Bolt, Adjusting - Assembly - 3/4 in. UNC x 100mm	2
29	118509	Washer, Lock 3/4 in. Plated	a/r
30	118516	Washer, Flat 3/4 in. Plated	6
31	118410	Nut, Hex 3/4 in. UNC, Gr5, Plated	a/r
32	118435	Nut, Jam 3/4 in. UNC, Gr5, Plated	2
33	118422	Nut, Lock 3/4 in. UNC, Gr5, Plated	1
34	118089	Bolt, Hex 1 x 3 1/2 in. UNC, Gr5, Plated	4
35	118510	Washer, Lock 1 in. Plated	4
36	118412	Nut, Hex 1 in. UNC, Gr5, Plated	2
37	773221	Bar, Support - Bundle (includes #25, 29, 30 & 31)	2

3650 (12 ft.) Models

38	773277	Extension, Axle Frame - LS3650	2
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BUCKET/APRON UNIT

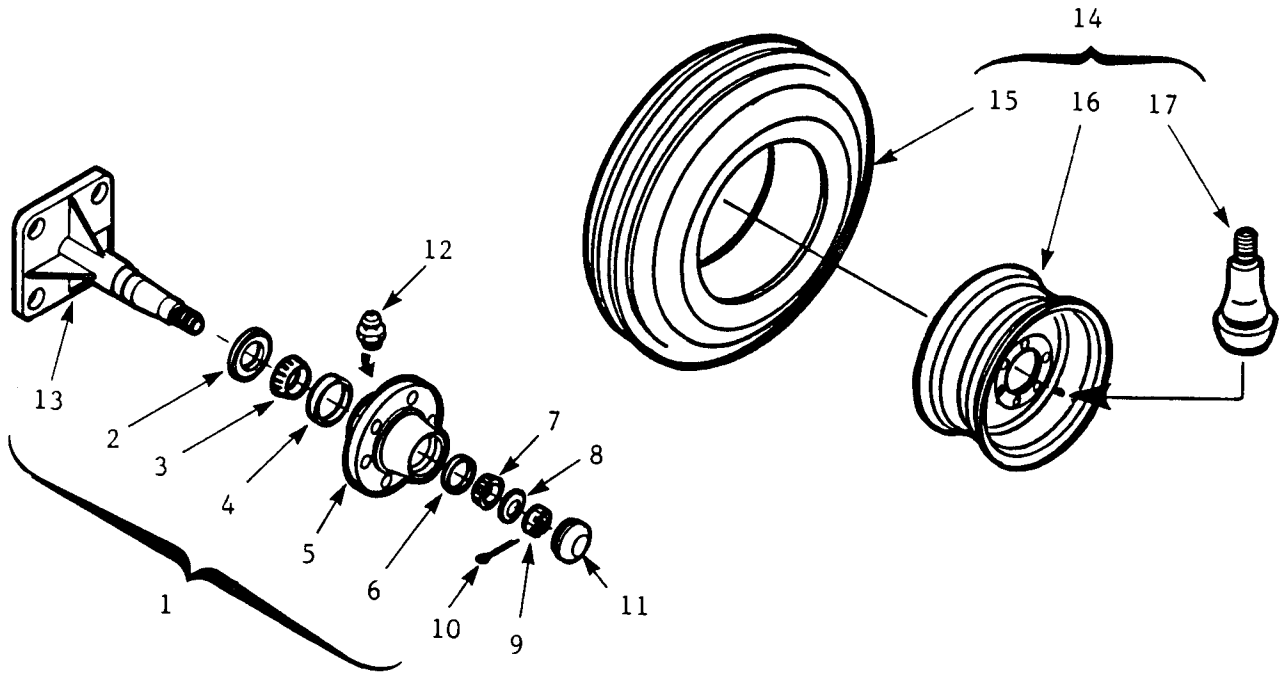


***Used for Shipping Purposes**

BUCKET/APRON UNIT

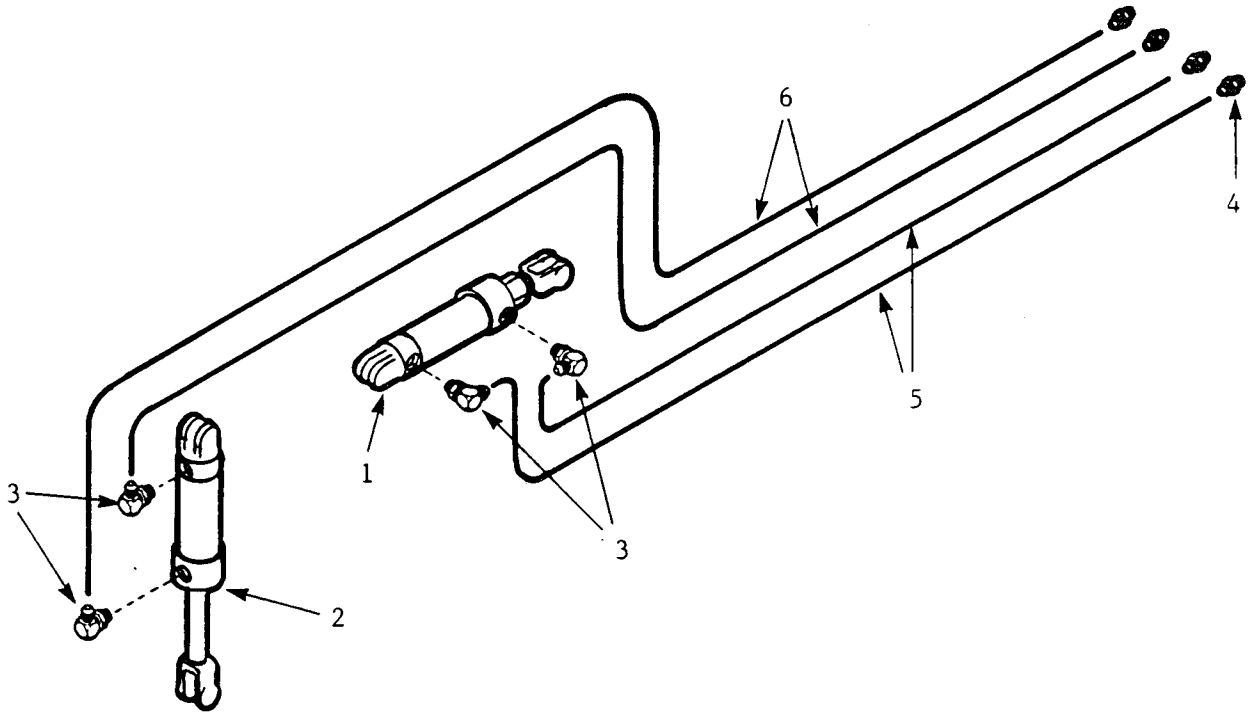
ITEM	PART No.	DESCRIPTION	QTY.
1	{ 773114	Bucket Assembly - LL3050 (10 ft.) }	1
	{ 773214	Bucket Assembly - LL3650 (12 ft.) }	
2	{ 773140	Apron Assembly - LL3050 (10 ft.) }	1
	{ 773230	Apron Assembly - LL3650 (12 ft.) }	
3	{ 773150	Arm, Support Assembly - LL3050 (10 ft.) }	1
	{ 773240	Arm, Support Assembly - LL3650 (12 ft.) }	
4	773171	Bracket, Support Assembly - LL3050/3650	1
5	773187	Bar, Bolt - 2 Hole - 700mm hole centres	1
6	{ 116210	Cutting Edge 5/8 in. x 10 ft.	1
	{ 116206	Cutting Edge 5/8 in. x 6 ft.	2
7	773197	Pin Assembly 38.1 x 206mm (effective)	1
8	773189	Pin Assembly 57.2 x 85mm (effective)	2
9	773195	Pin 25.4 x 30mm (effective)	2
10	118116	Bolt, Hex 1 x 4 1/2 in. UNC, Gr5, Plated	1
11	118089	Bolt, Hex 1 x 3 1/2 in. UNC, Gr5, Plated	2
12	118412	Nut, Hex 1 in. UNC, Gr5, Plated	2
13	118456	Nut, Lock 1 in. UNC, Gr5, Plated	1
14	118024	Bolt, Hex 5/8 x 1 1/2 in. UNC, Gr5, Plated	4
15	118508	Washer, Lock 5/8 in. Plated	4
16	118407	Nut, Hex 5/8 in. UNC, Gr5, Plated	a/r
17	118204	Bolt, Plow 5/8 x 2 1/4 in. UNC, Gr5, Plated	a/r
18	118847	Pin, Roll 1/4 x 2 in.	2
19	118845	Pin, Roll 5/16 x 2 1/2 in.	1
20	118552	Washer, Flat 1 1/2 in. Plated	1
21	118335	Grease Fitting 1/4-28 AMNF Thread-Straight	1

HUB, SPINDLE and TIRE



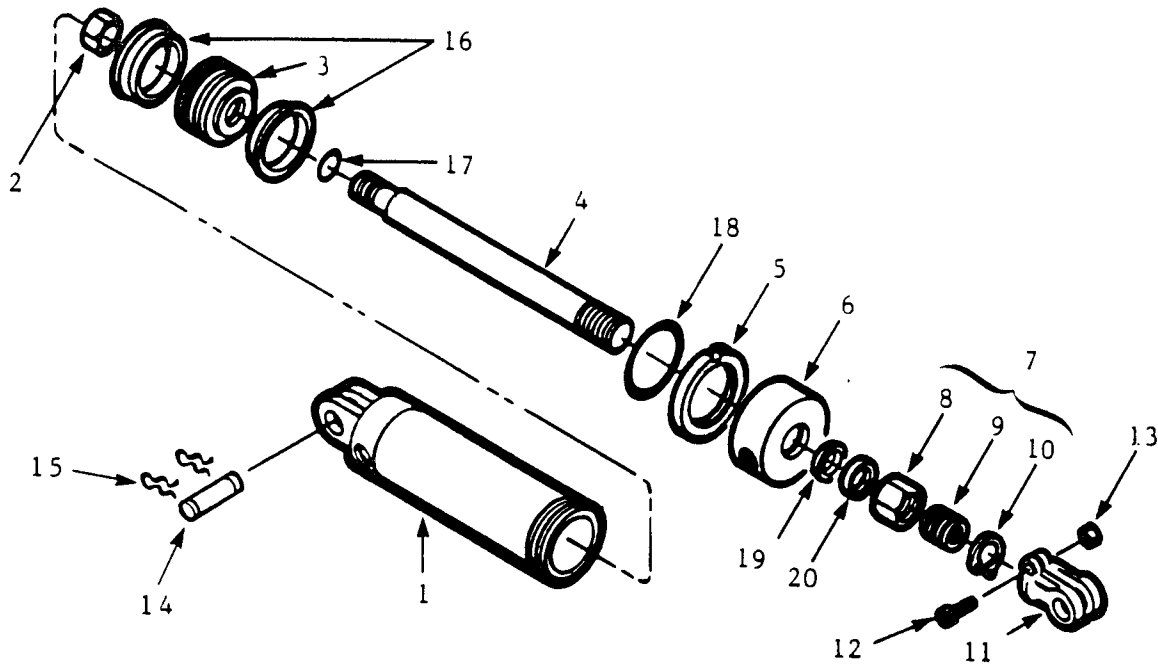
ITEM	PART No.	DESCRIPTION	QTY.
1	773176	Hub/Spindle Assembly - LL3050/3650 - complete	2
2	131026	Dust Seal - CR#20140 - 2.000 in. ID	1
3	131022	Cone, Bearing - #25580 - 1.750 in. ID	1
4	131023	Cup, Bearing - #25520 - 3.265 in. OD	1
5	131013	Hub - H618G	1
6	131025	Cup, Bearing - LM48510 - 2.563 in. OD	1
7	131024	Cone, Bearing - LM48548 - 1.375 in. OD	1
8	131020	Washer, Flat 1 in. SAE	1
9	118423	Nut, Slotted 1 in. UNS, Gr5	1
10	118835	Pin, Cotter 3/16 x 1 1/2 in.	1
11	131016	Cap, Hub - H618 & H619 Hub	1
12	118335	Grease Fitting 1/4-28 AMNF Thread - Straight	1
13	773178	Spindle Assembly - LL3050/3650	1
14	131062	Wheel Assembly - 9.5 L x 15 - 6 Ply	2
15	127003	Tire - 9.5 L x 15 - 6 Ply Tubeless	1
16	131001	Rim Wheel - 15 x 8 (6 Hole)	1
17	127006	Valve Stem - TR415	1

HYDRAULIC LAYOUT (Optional)



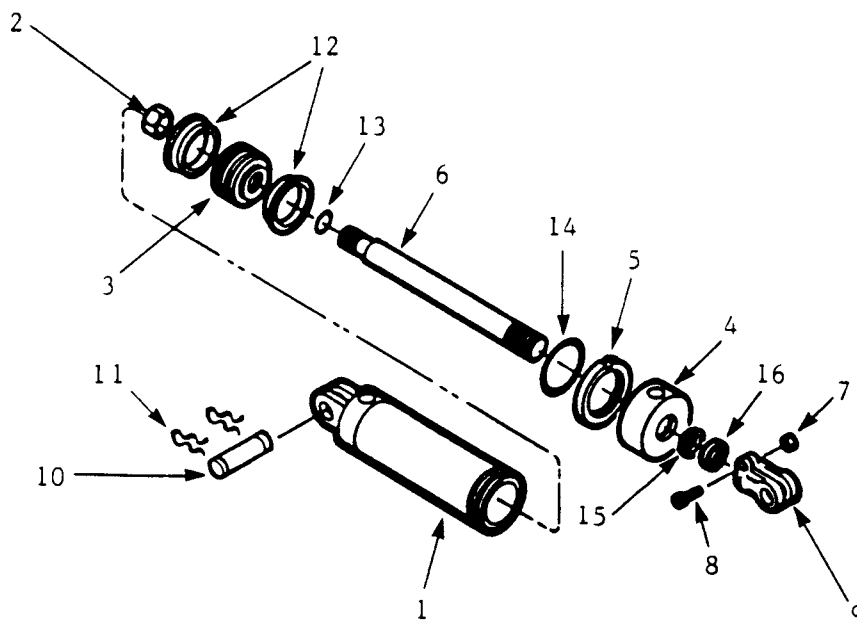
ITEM	PART No.	DESCRIPTION	QTY.
1	121397	Cylinder, Hydraulic 3 x 8 in. D.I.L.	1
2	121811	Cylinder, Hydraulic 3 1/2 x 8 in. D.I.L.	1
3	141504	Elbow, 90° 3/4 JIC(M) x 3/4 ORB(M)	4
4	141514	Nipple 1/2 NPT(M) x 3/4 JIC(M)	4
5	126531	Hose 3/8 x 156 in. 2WB - 3/4 JIC(F-SW)	2
6	126508	Hose 3/8 x 183 in. 2WB - 3/4 JIC(F-SW)	2

HYDRAULIC CYLINDER 3 x 8 in. D.I.L.



ITEM	PART No.	DESCRIPTION	QTY.
—	121397	Cylinder, Hydraulic - 3 x 8 in. - D.I.L.	a/r
1	121628	Barrel Assembly - 3 x 8 in. - D.I.L.	1
2	118441	Nut, Lock 7/8 in. UNF, Gr5, Plated, Uni-torque	1
3	121606	Piston - 3 in. Cylinder (U-Cup Type) - D.I.L.	1
4	121618	Rod, Cylinder - 3 x 8 in. - D.I.L.	1
5	121746	Ring, Lock - 3 in. Cylinder - D.I.L.	1
6	121630	Cap, Open - 3 in. Cylinder - 1 1/4 in. Rod - D.I.L.	1
7	121642	Depth Control Assembly - D.I.L. Cylinder - Plated	1
8	—	Nut, Depth Control - D.I.L.	1
9	—	Sleeve, Depth Control - D.I.L.	1
10	—	Snap Ring	1
11	121631	Clevis, Rod 1 1/4-12 UNF - D.I.L.	1
12	118311	Capscrew 3/8 x 1 3/4 in. - Allen	1
13	118403	Nut, Hex 3/8 in. UNC, Gr5, Plated	1
14	121941	Pin 25.4 x 73mm long (effective) - Plated-N/D	2
15	118882	Pin, Hair 3/16 x 2 3/4 in. Plated-N/D	4
16	—	Seal, U-Cup	2
17	—	Seal, O-Ring	1
18	—	Seal, O-Ring	1
19	—	Seal, U-Cup	1
20	—	Seal, Rod Wiper	1
—	121719	Kit, Seal - 3 in. Cylinder 1 1/4 in. Rod - D.I.L.	1
NOTE: Rebuilt Units may be available			
—	121783	Cylinder, Hydraulic - 3 x 8 in. c/w Pins - D.I.L. "Rebuilt"	a/r

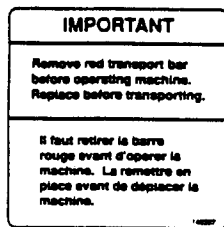
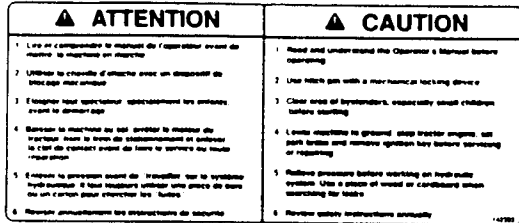
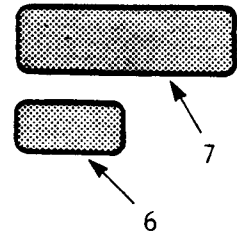
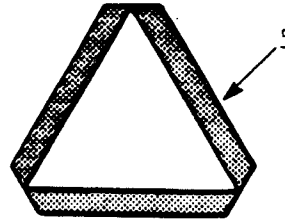
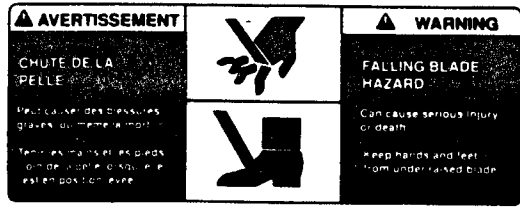
HYDRAULIC CYLINDER 3 1/2 x 8 in. D.I.L.



ITEM	PART No.	PART DESCRIPTION	QTY.
-	121811	Cylinder, Hydraulic 3 1/2 x 8 in. - D.I.L.	2
1	121687	Barrel Assembly 3 1/2 x 8 in. - D.I.L.	1
2	118441	Nut, Lock 7/8 in. UNF, Gr5, Uni-torque	1
3	121684	Piston 3 1/2 in. Cylinder - D.I.L.	1
4	121805	Cap, Open 3 1/2 in. Cylinder - D.I.L.	1
5	121748	Ring, Lock 3 1/2 in. Cylinder - D.I.L.	1
6	121682	Rod, Cylinder 3 1/2 in. Cylinder - D.I.L.	1
7	118403	Nut, Hex 3/8 in. UNC, Gr5, Plated	1
8	118311	Cap Screw 3/8 x 1 3/4 in. - Allen	1
9	121631	Clevis, Rod 1 1/4 - 12 UNF - D.I.L.	1
10	121941	Pin 25.4 x 73mm (effective) Plated-N/D	2
11	118882	Pin, Hair 3/16 x 2 3/4 in. Plated-N/D	4
-	121806	Kit, Seal 3 1/2 in. Cyl - 1 1/2 in. Rod - D.I.L.	1
		Consists of:	
12	---	U-Cup, Piston	2
13	---	O-Ring, Piston	1
14	---	O-Ring, Cap	1
15	---	U-Cup, Cap	1
16	---	Seal, Rod Wiper	1

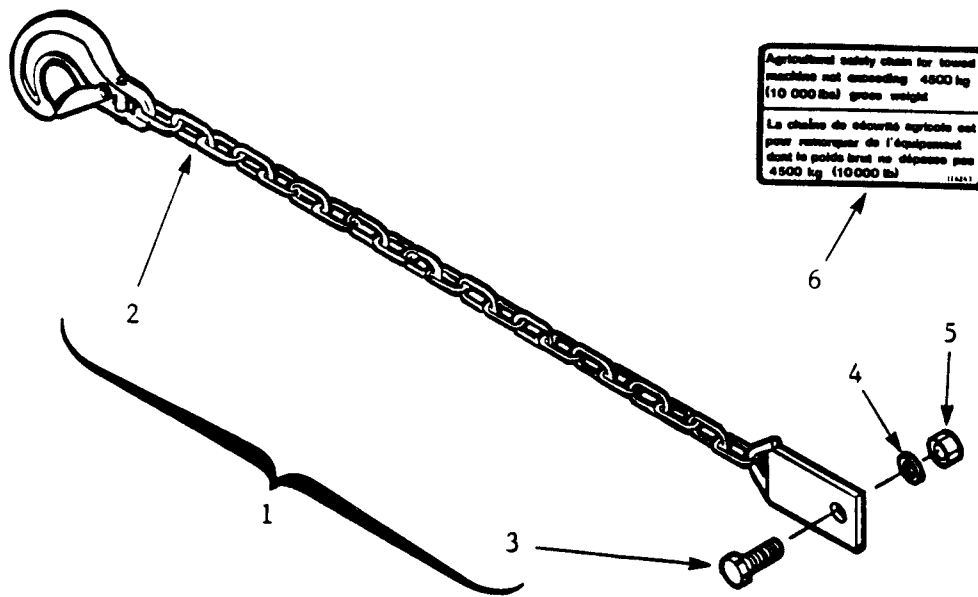
NOTE: Rebuilt Units may be available

DECALS



ITEM	PART No.	DESCRIPTION	QTY.
1	142386	Decal, Warning - Falling Blade	2
2	142383	Decal, Caution - 6 Point Safety	1
3	142387	Decal, Important - Remove Red Bar	1
4	142156	Decal - Slow Moving Vehicle	1
5	142279	Reflector Tape 43 x 82mm - Amber	2
6	142280	Reflector Tape 50 x 160mm - Red	2
7	142009	Decal, Degelman 3 3/4 x 16 1/4 in.	3

SAFETY CHAIN



ITEM	PART No.	DESCRIPTION	QTY.
1	116245	Carton - Safety Chain - 4500 Kg consists of:	1
2	116244	Chain, Safety - Assembly - 4500 Kg c/w Items #3, 4, 5 & 6	1
3	118043	Bolt, Hex 3/4 x 2 in. UNC, Gr5, Plated	1
4	118509	Washer, Lock 3/4 in. Plated	1
5	118410	Nut, Hex 3/4 in. UNC, Gr5, Plated	1
6	116243	Decal, Identification "Ag Safety Chain"	1

9 INDEX

A

Adjustments 21
Attaching/Unhooking 14

B

Bolt Torque Specifications 26
Break-In 11

C

Cutting Edge 21

E

Equipment Preparation 12

G

General Safety 3
Greasing 18

H

Hitch Clevis 21
Hydraulic Cylinder Repair 23
Hydraulic Fitting Torque Specs 27
Hydraulic Safety 5

I

Implement Preparation 13
Introduction 1

L

Lubricants 18

M

Maintenance Safety 4
Mechanical Specifications 25

O

Ordering Information (Parts) 29
Operating 15
Operating Safety 4
Operation 9

P

Parts 29
Parts Table of Contents 29
Pre-Operation Checklist 11
Principles of Operation 10
Publications 28

R

Repair 22

S

Safety 2
Safety Decal Locations 8
Safety Decals 6
Service 18
Service and Maintenance 18
Service Record 20
Servicing Intervals 19
Sign-Off Form 7
Specifications 25
Storage 17
Storage Safety 6

T

Tire Safety 6
To the New Operator or Owner 9
Tractor Preparation 12
Transporting 16
Transport Safety 5
Trouble Shooting 24

W

Wheel Hub Repair 22

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