OWNER'S MANUAL

TERRA-MAX

⚠ CAUTION

For Safe Operation
Read Rules And
Instructions Carefully

TERRA-MAX

STATEMENT OF POLICY

It is the policy of **Worksaver, Inc.** to improve its products where it is possible and practical to do so. **Worksaver, Inc.** reserves the right to make changes or improvements in design and construction at any time, without incurring the obligation to make these changes on previously manufactured units.

Safety Instructions
Tractor Preparation
Operating Instructions
Assembly & Mounting
Maintenance
Repair Parts

⚠ CAUTION

THE FOLLOWING SAFETY PRECAUTIONS SHOULD BE THOROUGHLY UNDERSTOOD BEFORE ATTEMPTING TO BEGIN ASSEMBLING THIS MACHINE

1. Select an area for assembly that is clean and free of any debris which might cause persons working on the assembly to trip.
2. Do not lift heavy parts or assemblies. Use crane, jack, tackle, fork trucks or other mechanical devices.
3. Preview the assembly instructions in your operator's manual before proceeding further.
4. If the assembly instructions call for parts or assemblies to be blocked up, use only blocking material that is in good condition and is capable of handling the weight of the assembly to be blocked. Also insure that the blocking material is on a clean, dry surface.
5. Never put hands, or any part of body, under blocked up assemblies if at all possible.
6. After completing assembly, thoroughly inspect the machine to be sure that all nuts, bolts, hydraulic fittings or any other fastened assemblies have been thoroughly tightened.
7. Before operating the machine, thoroughly read the operation section of your operator's manual.
8. Before operating, read the maintenance section of your operator's manual to be sure that any parts requiring lubrication, such as gearboxes, are full, to avoid any possible damage.
9. **Before operating equipment – If you have any questions regarding the proper assembly or operation, contact your dealer or the manufacturer**

TABLE OF CONTENTS

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MODEL NUMBER_____ SERIAL NUMBER_____

DEALER _____ PURCHASE DATE _____

LIMITED WARRANTY

WORKSAVER, INC. warrants each new and unused **WORKSAVER** machine, when properly assembled, adjusted, and operated, to be free of defects in material and workmanship, in normal use and when properly serviced, for a period of twelve (12) consecutive months.

Warranty begins from the date of delivery to the original purchaser and applies to all new **WORKSAVER** products that have not been altered and are being used for the intended purpose. Negligence, abuse, or modification of equipment manufactured by or purchased and resold by **WORKSAVER, INC.** will void this warranty.

This warranty is effective only when:

1. **WORKSAVER** has received a **"Warranty Registration Card"** completed and signed by customer.

2. Defective parts have been returned to **WORKSAVER** by a **"Return Goods Authorization"** number with freight charges prepaid by the dealer or customer.

3. **WORKSAVER**'s examination discloses to **WORKSAVER**'s satisfaction the part or parts to have been defective.

It is the user's responsibility to inspect his machine and have parts repaired or replaced when continued use of the product would cause damage or excessive wear to other parts.

This warranty does not apply to normal maintenance service and parts, or to normal deterioration due to wear and exposure. **WORKSAVER** does not warrant coulter blades, tires hydraulic cylinders, accessories, and other parts not manufactured by **WORKSAVER**, but supplied with or as a part of its products. **WORKSAVER** will, however, obtain and pass on any adjustments provided by the manufacturer of such parts under these manufacturer's warranties. Tires on **WORKSAVER** equipment are warranted through the respective tire manufacturer.

WORKSAVER, INC. will not be held responsible for any repair charges made by customers without prior written consent and prior equipment inspection by an authorized **WORKSAVER** sales or service technician. **WORKSAVER** may, at its option, elect to grant adjustments in the field through an authorized representative and may thereby elect to waive the requirement that parts be returned to **WORKSAVER**'s factory.

WORKSAVER non-wearable repair parts are warranted for ninety (90) days from date of purchase or for the unexpired warranty period of the applicable **WORKSAVER** machine, whichever period is longer. This warranty is subject to any existing condition of supply which may directly affect **WORKSAVER, INC.**'s ability to obtain materials of manufacture and delivery of replacement parts.

This warranty shall not be interpreted to render liability for injury or damages of any kind, direct, consequential, or contingent to person or property. This warranty does not extend to loss of crops, economic and/or commercial loss, loss because of delay in crop production or any expense incurred for labor, supplies, substitute machinery, rental or for any other reason.

WORKSAVER, INC. reserves the right to make improvements in design and changes in specifications at any time without incurring any obligation to owners of machines previously sold.

TO THE EXTENT ALLOWED BY APPLICABLE LAW, THIS WARRANTY IS EXPRESSLY IN LIEU OF OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES OF REPAIR OR REPLACEMENT AS SET FORTH ARE THE ONLY REMEDIES UNDER THIS WARRANTY. NO ONE IS AUTHORIZED TO ALTER, MODIFY, OR ENLARGE THIS WARRANTY NOR ITS EXCLUSIONS, LIMITATIONS, AND RESERVATIONS, VERBALLY OR IN WRITING, OR GRANT ANY OTHER WARRANTY.

TERRA-MAX BENEFITS

1. One pass operation saves labor, time, expense.
2. Improve water infiltration and drainage, reduces water runoff, and helps soil retain water for crop growth.
3. Leaves surface residue in place to minimize wind and water erosion.
4. Allows crops to develop deeper root systems to withstand drought conditions.
5. Leaves soil profile layers intact.
6. Reduces need for secondary tillage operations.
7. Aerates the soil.
8. Does not bring large clods or slabs of subsoil to the surface.
9. Provides efficient soil loosening in wide range of soil types.
10. High clearance frame allows trouble free operation in trash conditions.
11. Machine design allows variation of shank spacing for total soil loosening or for zone loosening in row crops.
12. Soil surface is left almost level and without large clods for direct drilling or planting.
13. Choice of austempered, high carbon steel, or chromium carbide points to handle your soil type.
14. Adjustable shank spacing can allow zone loosening while leaving areas of unloosened soil to act as traffic lanes for following field operations. This controlled traffic procedure limits recompaction of the soil in the crop rows.
15. Large diameter, adjustable coulters allow the Terra-Max to operate in heavy trash conditions.
16. Spring assisted gauge wheels allow one man adjustment.
17. Terra-Max can be used to loosen compacted soils created by wet spring planting or wet fall harvesting operations.
18. Rugged, straight forward Terra-Max design allows more operating time and less down time.

To the Owner/Operator/Dealer

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

BEFORE YOU START!!
Read the safety messages on the implement and shown in your manual.
Observe the rules of safety and common sense!

THIS SYMBOL MEANS

– ATTENTION!

– BECOME ALERT!

– YOUR SAFETY IS INVOLVED!

THIS SAFETY ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY WARNING MESSAGES. CAREFULLY READ EACH WARNING MESSAGE THAT FOLLOWS. FAILURE TO UNDERSTAND AND OBEY A SAFETY WARNING, OR RECOGNIZE A SAFETY HAZARD, COULD RESULT IN AN INJURY OR DEATH TO YOU OR OTHERS AROUND YOU. THE OPERATOR IS ULTIMATELY RESPONSIBLE FOR THE SAFETY OF HIMSELF, AS WELL AS OTHERS, IN THE OPERATING AREA OF THE TRACTOR AND ATTACHED EQUIPMENT.

UNDERSTAND SIGNAL WORDS

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

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or the manufacturer directly.

IMPORTANT SAFETY INFORMATION!

Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operating, to acquaint yourself with the machines. It is the implement owner's responsibility, if this machine is used by any person other than yourself, is loaned or rented, to make certain that the operator, prior to operating:

1. Reads and understands the operator's manuals.
2. Is instructed in safe and proper use.

The use of this equipment is subject to certain hazards which cannot be protected against by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using. If there is something in this manual you do not understand, ask your supervisor, or your dealer, to explain it to you.

SAFETY SIGNS

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become unreadable.
- Replaced parts that displayed a safety sign should also display the current sign.
- Safety signs are available from your Distributor or Dealer Parts Department or the factory.

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50˚F (10˚C).
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign 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 sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

TIRE SAFETY

- 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.
- Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
- Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.
- Always order and install tires and wheels with appropriate capacity to meet or exceed the anticipated weight to be placed on the equipment.

EQUIPMENT SAFETY GUIDELINES

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

Replace any CAUTION, WARNING, DANGER or instruction safety sign that is not readable or is missing. Location of such safety signs is indicated in this booklet.

Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.

Review the safety instructions with all users annually.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.**

To prevent injury or death, use a tractor equipped with a Roll-Over Protective System (ROPS). Do not paint over, remove or deface any safety signs or warning signs on your equipment. Observe all safety signs and practice the instruction on them.

Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - **DON'T TRY IT.**

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.

In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and Operation Instructions in each of the appropriate sections of the Tractor and Implement Manuals. Pay close attention to the Safety Signs affixed to the Tractor and the Implement.

SAFETY TRAINING

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewelry to be around moving parts.

PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!
Tractors with or without implements attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss. **NOTE:** Hearing loss from loud noise (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

Operate the implement only with a tractor equipped with an approved Roll-Over Protective System (ROPS). Always wear your seat belt on tractors equipped with a ROPS. Serious injury or even death could result from falling off the tractor – particularly during a turnover when the operator could be pinned under the ROPS or the tractor.

Operate only in daylight or good artificial light.

Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operating, to acquaint yourself with the machines. It is the implement owner's responsibility, if this machine is used by any person other than yourself, is loaned or rented, to make certain that the operator, prior to operating:

1. Reads and understands the operator's manuals.
2. Is instructed in safe and proper use.

Know your controls and how to stop tractor, engine, and implement quickly in an emergency. Read this manual and the one provided with your tractor.

Train all new personnel and review instructions frequently with existing workers. 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 allow children to operate this machine.

OPERATIONAL SAFETY

The use of this equipment is subject to certain hazards which cannot be protected against by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using. If there is something in this manual you do not understand, ask your supervisor, or your dealer, to explain it to you.

Do not reach or place yourself under equipment until it is blocked securely.

Take all possible precautions when leaving unit unattended: Disengage PTO, set parking brake, stop engine and remove key from ignition. Park in level area.

Do not allow riders on the implement or tractor at any time. There is no safe place for any riders.

Never operate tractor and implement under trees with low hanging limbs. Operators can be knocked off the tractor and then run over by the implement.

Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.

Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground and when operating close to ditches or fences. Be careful when turning sharp corners.

Reduce speed on slopes and sharp turns to minimize tipping or loss of control. Be careful when changing directions on slopes. Do not start or stop suddenly on slopes. Avoid operation on steep slopes.

When using a unit, a minimum 20% of tractor and equipment weight must be on tractor front wheels. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a front end loader, front wheel weights, ballast in tires of front tractor weights. When attaining a minimum 20% of tractor and equipment weight on the front wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. Do not guess or estimate!

Inspect the entire machine periodically as indicated in the Maintenance Section of this manual. Look for loose fasteners, worn or broken parts, pinched hydraulic hoses, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order.

In extremely uneven terrain, rear wheel weights, front tractor weight, and/or tire ballast should be used to improve stability.

Pass diagonally through sharp dips and avoid sharp drops to prevent “hanging up” tractor and implement. Practice will improve your skills in maneuvering rough terrain.

Always angle down slopes; never across the face. Avoid operation on steep slopes. Slow down on sharp turns and slopes to prevent tipping and/or loss of control.

OPERATIONAL SAFETY (continued)

All equipment is potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes potential hazards and follows reasonable safety practices.

When the use of hand tools is required to perform any part of assembly, installation, adjustment, maintaining, repairing, removal, or moving the implement, be sure the tools used are designed and recommended by the tool manufacturer for that specific task.

Personal protection equipment including safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement.

Always use two people or a mechanical device to handle heavy, unwieldy components during assembly, installation, removal, or moving the implement.

Never place any part of your body where it would be in danger if movement should occur during assembly, installation, operation, maintaining, repairing, removal, or moving the implement.

Never place yourself between the tractor and implement while hitching or while implement is in operation.

Do not work under a raised implement unless it is securely blocked or held in position. **Do not** depend on the tractor hydraulic system to hold the implement in place.

Do not allow others to ride on the tractor with an operator. Riders are subject to injury such as being struck by foreign objects or being thrown off. Riders obstruct the operator's view resulting in unsafe operation. **Never allow anyone to ride on the implement!**

Before you operate the implement, check over all pins, bolts and connections to be sure all are securely in place. Replace any damaged or worn parts immediately.

Use stabilizer bars, adjustable sway chains, or sway blocks on your tractor lift arms to keep the implement from swinging side to side.

Keep alert and watch the front as well as the rear when working with the implement.

When maneuvering close to buildings or passing through narrow areas, be sure to allow sufficient clearance for the implement.

Do not operate close to ditches or creeks. Slow down when operating over rough ground.

Always be sure the implement is in the fully raised position when in transport.

OPERATIONAL SAFETY (continued)

When adjusting the coulters, be sure that your feet are never under the blade.

Do not use your finger for aligning the shear bolt holes.

The Terra-Max is shipped with grade #5 bolts and lock nuts to retain the pull pins. This is for your safety in preventing the pull pins from coming out. **DO NOT use linch pins.** A linch pin can be opened by residue catching on the bail.

Never detach the Terra-Max without all the parking stands properly set, even though it may seem stable. Settling ground or people leaning on it, may tip it over. Your safety is at risk.

Avoid excessive speed during operation. Maximum operating speed is 6 mph.

Stay clear of toggle trip mechanism.

PULL TYPE TERRA-MAX

Do not allow anyone near the tongue when raising.

The Terra-Max must always be in the lowered position before attempting to un-hook. If not, the tongue will raise rapidly, may swing sideways and cause serious injury. Your safety is at risk.

Escaping hydraulic fluid under pressure can penetrate the skin causing serious injury. Do not use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks. Stop engine and relieve pressure before connecting or disconnecting lines. Tighten all connections before starting engine or pressurizing system. If any fluid is injected into the skin, obtain medical attention immediately or gangrene may result.

Use a pull tongue safety chain. A safety chain will help control a drawn implement should it accidentally separate from the drawbar. This is a must when traveling public roads.

MAINTENANCE SAFETY

Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.

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.

MAINTENANCE SAFETY (continued)

- Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.

- Before working on this machine, drive to a level area, lower implement (or if working underneath, raise and block securely), shut off the engine, set the brakes, and remove the ignition keys.

- If Terra-Max has been shipped in a vertical position with the special shipping tubes, use extreme care in uprighting the unit. Keep everyone clear. Be sure area is flat and clear of objects or other equipment.

- Never work under equipment unless it is blocked securely. Never depend on hydraulic system to keep implement in raised position.

- Keep all persons away from operator control area while performing adjustments, service, or maintenance.

- Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance.

- Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.

- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

- Remove hydraulic pressure prior to doing any maintenance. Place the implement on the ground or securely block up, and turn off the engine. Push and pull the remote cylinder lever in and out several times to relieve hydraulic pressure.

- Never use your hands to locate a hydraulic leak on attachments. Use a small piece of cardboard or wood. Hydraulic fluid escaping under pressure can penetrate the skin. Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. If injured by escaping hydraulic fluid, see a doctor at once. Gangrene and death can result. Without immediate medical treatment, serious infection and reactions can occur.

- After servicing, be sure all tools, parts and service equipment are removed.

- Check to ensure all safety signs are installed and in good condition. (See safety sign section for location drawing.)

- Never replace hex bolts with less than grade five bolts unless otherwise specified, i.e. shear bolts. Refer to bolt torque chart for head identification marking.

MAINTENANCE SAFETY (continued)

- Be sure the reflectors on each front and rear corner of the Terra-Max frame are in place and in good condition.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
- If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.

TRANSPORT SAFETY

- Comply with state and local laws governing highway safety and movement of farm machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- When driving the tractor and equipment on the road or highway under 20 mph (32 kph) at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. 3 pt. implements over 13 ft. in width and all pull type implements should have lights.
- Always be sure the implement is in the proper raised position for transport.
- Reduce speed when transporting mounted implements to avoid bouncing and momentary loss of steering control.
- Plan your route to avoid heavy traffic.
- Always install or activate transport lock-up devices before transporting.
- Do not drink and drive!
- Watch for traffic when operating near or crossing roadways.

TRANSPORT SAFETY (continued)

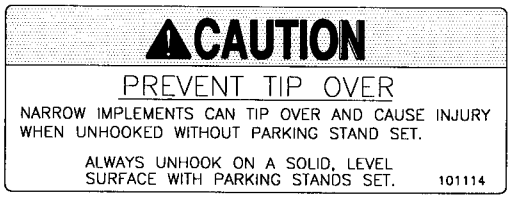
- Turn curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steerage. Slow down on rough or uneven surfaces, and loose gravel.
- Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground and when operating close to ditches or fences. Be careful when turning sharp corners.
- Never allow riders on either tractor or implement. Falling off can kill.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
- Use hardened hitch pins with retainers when attaching to pull-type machines.
- Use a safety chain to prevent unexpected separation with pull-type models.

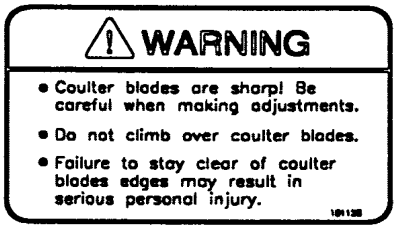
STORAGE SAFETY

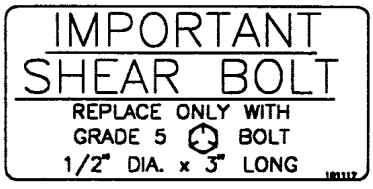
- Following operation, or when unhooking, stop the tractor, set the brakes, disengage the PTO, shut off the engine and remove the ignition keys.
- Never unhitch without using the parking stands.
- Store the unit in an area away from human activity.
- Do not park equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.
- Do not permit children to play on or around the stored implement.
- Make sure all parked machines are on a hard, level surface and engage all safety devices.

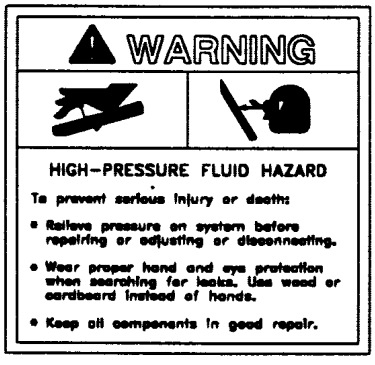
SAFETY SIGNS

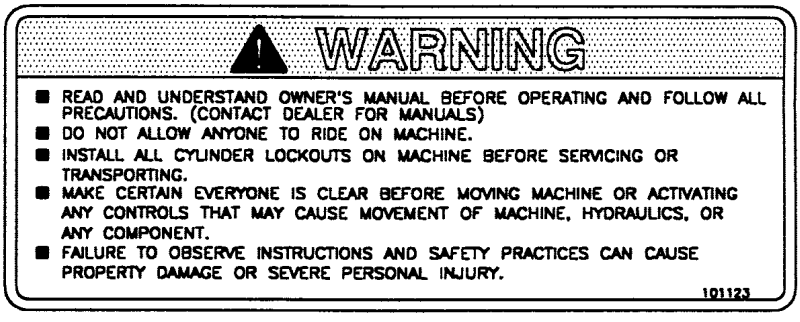
The safety signs shown on this page are part of your Terra Max, depending on model and options. Please take a few minutes to familiarize yourself with these safety signs. Check to be sure they are securely affixed to the machine where indicated in the parts section and that they are readable. Damaged or missing safety signs should be replaced.

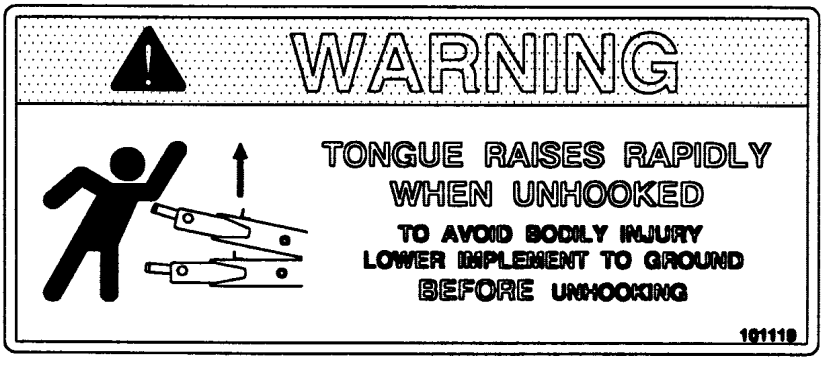


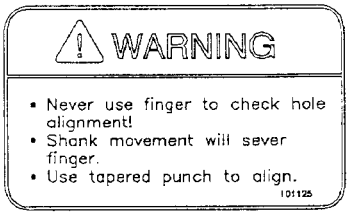


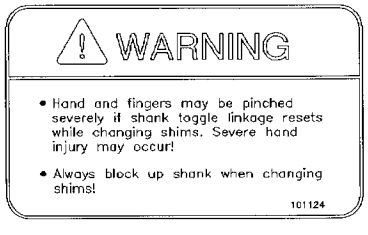


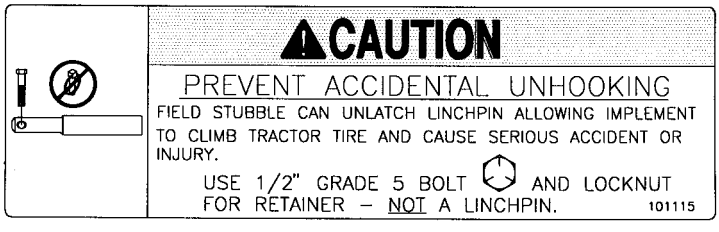




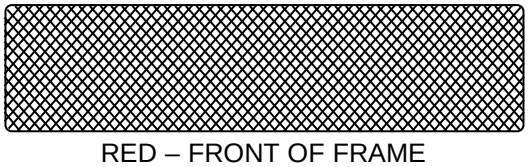








RED – REAR OF FRAME



RED – FRONT OF FRAME

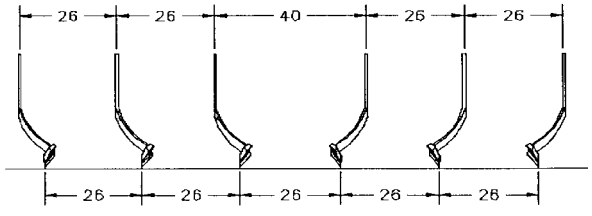
PRODUCT DESCRIPTION AND GENERAL INFORMATION

The Terra-Max offers flexibility in shank location and spacing for a variety of crops and cultural practices. Following is a brief description of models and options for general information. Also provided are set-up drawings showing specific locations of components for several popular models. If you have other requirements, please contact Worksaver, Inc.

TERRA-MAX I

The Terra-Max I has a single row of shanks. Shanks are usually arranged in right and left hand pairs, with shanks curving inward toward the centerline of the machine. Shanks can also be arranged to curve outward or all in one direction. Each shank has a leading coulter assembly for slicing through residue ahead of the shanks. Gauge wheels and 3-Pt. hitch setting control the working depth of the shanks. Small models can be used without gauge wheels.

Fig. 1 (right) shows the minimum recommended shank point spacing of 26 inches. This spacing will give near complete soil shattering under most conditions.



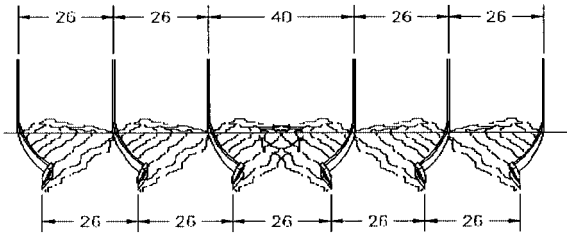


Fig. 2 (above) shows the typical soil shattering profile in dry soil conditions at a 14 to 16 inch working depth.

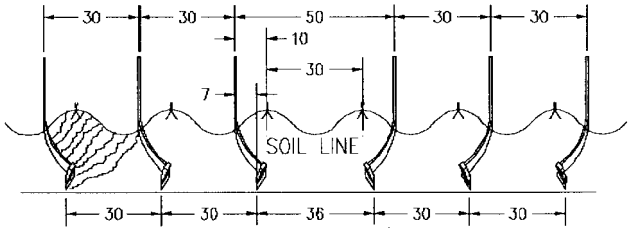


Fig. 3 (above) shows the typical row crop configuration for min-till crop.

TERRA-MAX II

The Terra-Max II models have two rows of shanks. A right hand shank located directly behind a left hand shank, for greater soil shattering. Each pair of shanks has a leading coulter unit for slicing residue. Gauge wheel and 3-Pt. hitch control the working depth of the shanks.

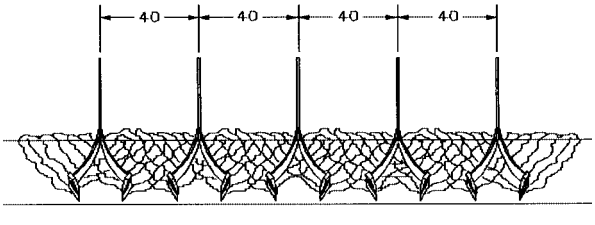


Fig. 4 shows a typical Terra-Max II unit.

PRODUCT DESCRIPTION AND GENERAL INFORMATION

SHANK SPACING (AS SHIPPED)

Unless otherwise specified on the order, we will ship all assembled or partially “knocked down” units on normal 30 inch point spacing. On Terra-Max I units, the two center shanks will be set on 44 inch centers and the outer shanks on 30 inch centers. On Terra-Max II units, all shanks will be set on 40 inch centers (see diagrams below.)

DETERMINING CORRECT PART DESCRIPTION

Farm equipment is described as to left hand or right hand by standing behind the equipment and facing the same direction as the operator on the tractor.

In this position, if the Terra-Max shank curves to the left, it is a left hand shank. If the shank curves to the right, it is a right hand shank.

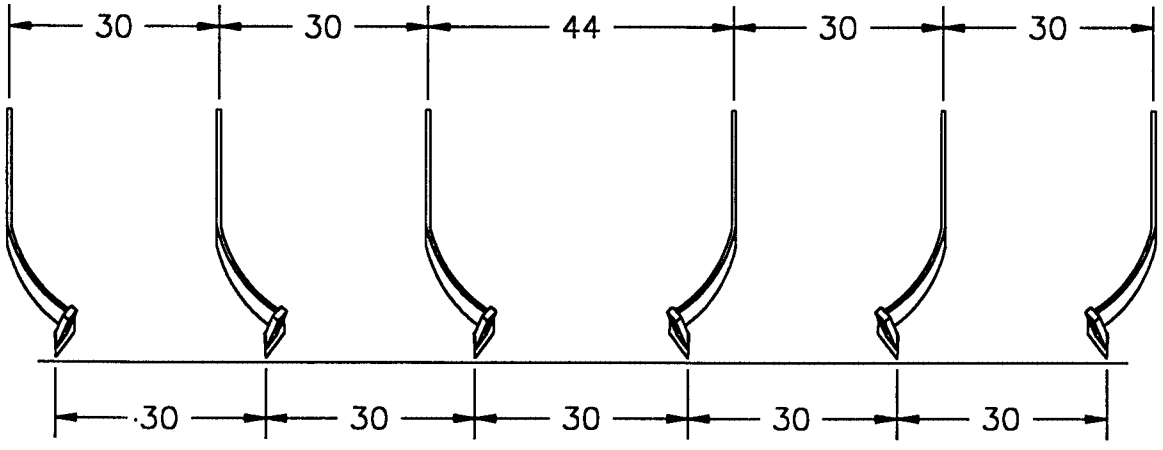
See page 50 for a drawing and further explanation.

SPECIAL SHANK / POINT SPACING

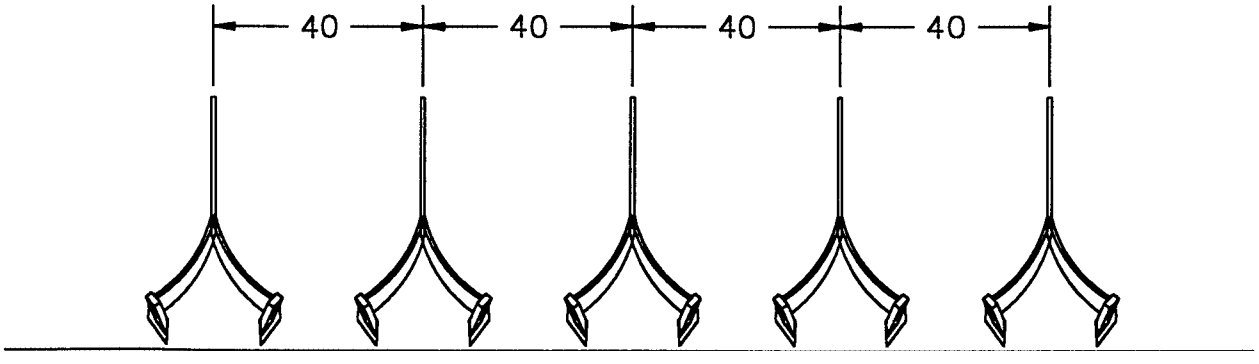
Shanks will be set on other point spacing if specified on the order. (Wider frame may be required)

See page 17 for determining the required frame width for point spacing other than 30 inch.

TERRA-MAX I



TERRA-MAX II

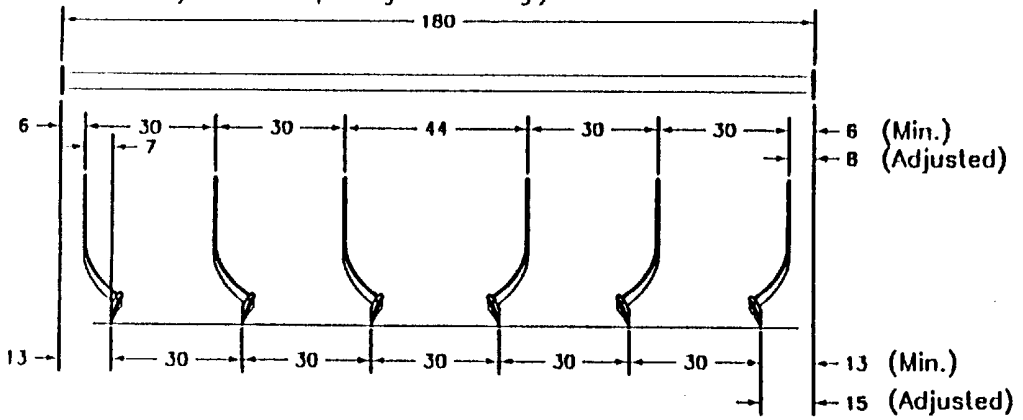


DETERMINING SHANK SPACING (Continuous)

Point spacing should be about equal. The minimum recommended point spacing is 26". The maximum is determined by allowing 13 inches from each end of the frame, then dividing the remaining width equally by the number of point spaces.

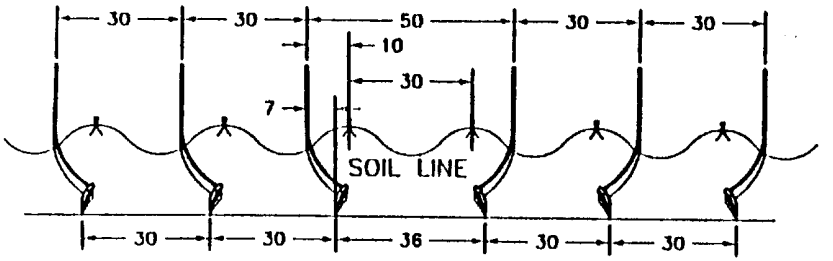
EXAMPLE: 15 Ft. Frame (6) Shanks

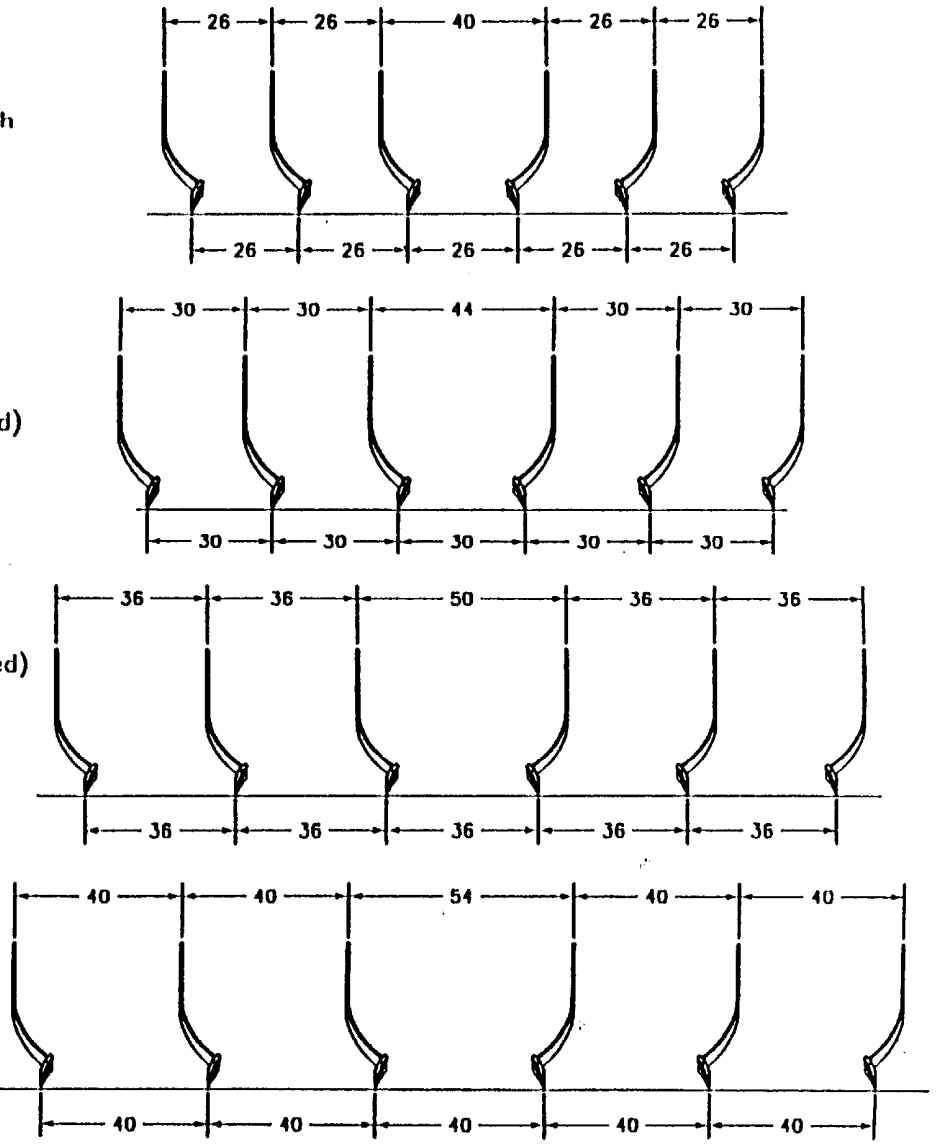
180"-26"/5 spaces=30.8" Round down to 30" spacing then adjust end spacing accordingly.



DETERMINING SHANK SPACING (Row crop)

Shank spacing matches the row spacing except the center two shanks. The center two run outside the rows by equal amounts, normally about 10 inches. This puts the shank point about 3 inches off the center of the rows



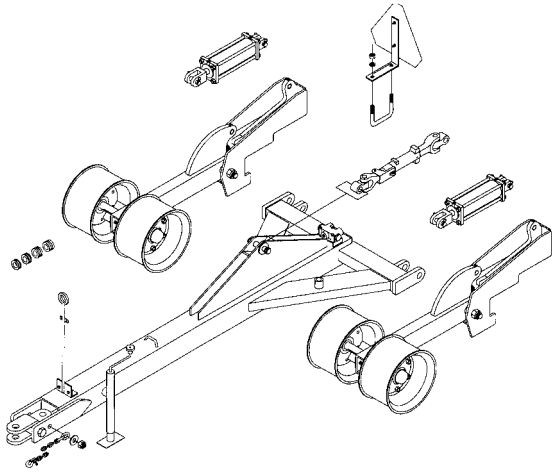


PRODUCT DESCRIPTION AND GENERAL INFORMATION

PULL TYPE MODELS

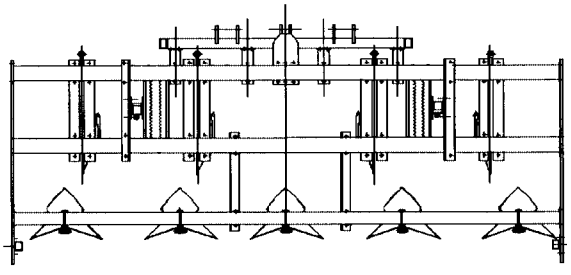
An optional pull type tongue package is available for larger (12½' and wider) Terra-Max I, Terra-Max II and Cotton special machines.

This package includes:
Pull tongue assembly, combination drawbar clevis, tongue jack, toplink turnbuckle, transport wheel assemblies, dual wheels, hydraulic cylinders, hose assemblies and SMV emblem. A tongue safety chain is standard equipment.



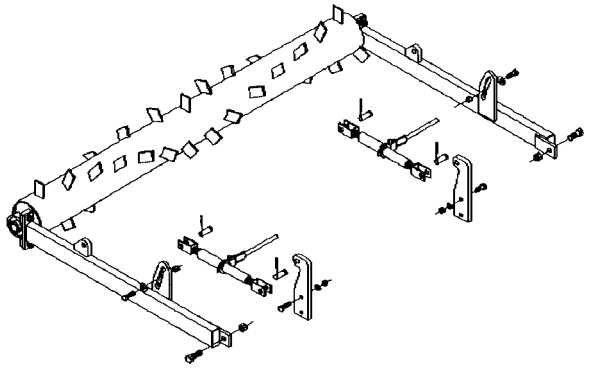
COTTON SPECIAL MODELS

The cotton specials are units with an extra frame crossbar and adjustable furrowing shovels. These special units are used primarily in cotton fields or where raised beds are desired.



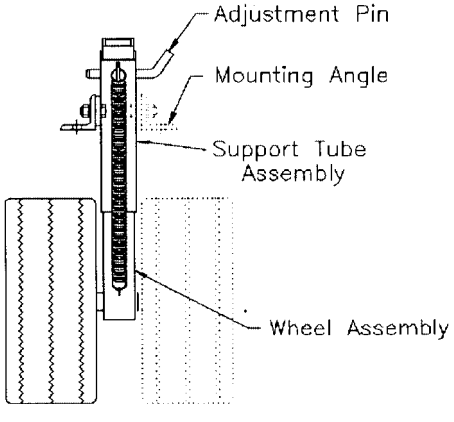
ROLLER CONDITIONER OPTION

The optional roller conditioner is available on most Terra-Max I and Terra-Max II units. The roller conditioner firms the surface of the loosened soil, breaks up any large clods and incorporates a portion of reside for improved residue management. The optional roller conditioner can also be used to control operating depth (eliminating need for gauge wheels).



GAUGE WHEELS

Terra-Max units can be equipped with gauge wheels. Additional gauge wheels are available if required. Use of the pull package or optional roller conditioner can eliminate need for gauge wheels.
For flexibility in the gauge wheel mounting position, the mounting angle may be placed on either side of the support tube assembly. The wheel assembly can also be turned to either side as shown in accompanying diagram.



SPECIFICATIONS

3-POINT MODELS	**TERRA-MAX I**	**TERRA-MAX II**
Hitch Accommodations:		
Cat. II & Cat. III Standard	YES	YES
Cat. II & Cat. III Quick Hitches	YES	YES
Cat. III Narrow Quick Hitch	YES	YES
Pull Pin height above ground		
Lower Position	31”	31”
Upper Position	35”	35”
Length (Front to Rear)	55”	79”
with Roller Option	90”	114”
Height (Overall)	59”	59”
Under Frame Clearance	38”	38”
Shank Protection	Shear Bolt or Toggle Trip	Shear Bolt Only
Coulter Diameter	20”	20”
Gauge Wheels (6-Bolt) Hub (10 x 6) Wheel (20.5 x 8.0-10) Tire Adjustment increment 1.0”	Requirements Vary – See Page 22	Two (2) Gauge Wheels Required
Working Depth (14” nominal)	20” Max	20” Max
Horsepower Requirements* Soil conditions will effect horsepower requirements.	25-35 Per Shank	35-50 Per Row
Parking Stands	YES	YES
Roller Option		
Tube Diameter	$8^{5}/_{8}$”	$8^{5}/_{8}$”
Bearings (4-Bolt Flange)	2”	2”
Adjustment	(Ratchet Jacks)	
PULL TYPE MODEL		
Length (Additional)	115”	115”
Transport Wheels (6-Bolt) Hub (15 x 8 lb.) Wheel Tires (Not Supplied) 9.5L-15 or 11.5L-15 (8 ply Minimum recommended)	Four Wheels in Pull Type Package	

PREPARING THE TRACTOR

Check that your tractor is large enough to handle a deep tillage tool like a Terra-Max (Terra-Max I units generally require 25-35 hp per shank, Terra-Max II units require 35-50 hp per row or pair shanks). Remember that soil type, past tillage practices, operating depth, soil moisture level, and forward operating speed will also figure in to the horsepower requirement.

Proper tire size, inflation pressure and ballasting is necessary for good performance. Consult your tractor owners manual or dealer.

Be sure your 3-point lift system is in good working order. In most cases you will want to use some weight transfer. Consult your tractor owners manual for proper draft control setting. Hydraulic oil and filters should be serviced according to tractor manufacturers' recommendations.

Lift arm sway blocks or stabilizer bars should be installed to prevent excessive side sway.

CAUTION: Be sure your tractor is in good condition. Read all the safety precautions and make sure all tractor operators are familiar with the safety rules of operation.

CAUTION: Be sure your tractor is equipped with a "Slow Moving Vehicle" (SMV) emblem on the rear of the tractor for road travel. If you travel public roadways after dusk, your tractor and implement must be equipped with warning lights according to your state Department of Transportation.

CAUTION: It is recommended that a ROPS (Roll-Over Protection Structure) be installed on all tractors. Contact your local tractor dealer for a ROPS for your tractor.

ARTICULATED STEERING TRACTOR USE

Warranty Limitation

Special care must be taken when using a 3-point model Terra-Max on (4-WD) four wheel drive articulated steering tractors. TURNING WITH SHANKS IN THE GROUND CAN DAMAGE THE SHANKS AND FRAME.

WORKSAVER INC. RECOMMENDS THAT A PULL TYPE MODEL TERRA-MAX BE CONSIDERED WHEN USING 4-WD ARTICULATED STEERING TRACTORS.

Worksaver Inc. will not warrant any part of a 3-point mounted Terra-Max if damaged due to use on articulated steering tractors.

MAKE EVERY DAY A HOLIDAY

FROM ACCIDENTS

ASSEMBLY

This section provides instruction for the basic set-up of the Terra-Max. Refer to the operating section for adjustment of components. Refer to the hardware torque chart and torque all nuts and bolts accordingly.

CAUTION: Never work under the Terra-Max to assemble or adjust components without having the frame securely blocked or resting on the parking stands.

SET-UP Partial knock-down shipments

Some units are shipped on returnable shipping skids. The shipping package consists of two pieces of tubing 46 inches long and four pins with HD linch pins. The tubes are pinned to the Terra-Max 3-point frame. This allows the Terra-Max to be shipped in a vertical position for stable economical shipping. Use a crane or forklift to lift the unit from the truck.

CAUTION: Use extreme care in uprighting the Terra-Max unit. Keep everyone clear. Be sure area is flat and clear of objects or other equipment.

Small Terra-Max Models

Small Terra-Max models (4 ft. - 8 ft. width) are usually shipped knocked down for lower freight costs. Refer to the exploded parts drawing to assemble. Read all of the assembly instructions prior to assembling.

SHANK SPACING AND ALIGNMENT

The “Product Description and General Information” section of this manual provides information on configurations and shank spacing for a variety of uses. The location of the shanks must be equally spaced from the center of the machine and square with the frame. Use a tape measure and check the distance from the center of the frame to the center of the shanks. Use a carpenters square and align the mounting brackets with the frame cross members. Failure to do this will result in poor performance such as machine plugging, excessive shank and point wear, ridging, and higher horsepower requirements.

Shear Bolt Models

Shear bolt models (10 ft. and larger) are usually shipped assembled. Shanks may be either removed or placed in the “tripped position” to allow loading of additional units on a truck. If this is the case, place shanks in their “normal operating position” with the unit resting on the shipping tubes.

Once the shanks are installed, turn the unit to its upright position with the use of a crane or forklift. Remove the shipping tubes and pins for return to the factory. If necessary, refer to the configuration drawings and install the gauge wheels (if ordered), coulters, and optional roller conditioner.

Toggle Trip Models

Toggle trip models are shipped with the shanks installed. The toggle trip mechanism is sometimes wired in the tripped position. Before setting the unit upright, the shanks should be reset to their normal operating position. To do this, lift up on the end of the shank near the point by hand and cut the wire. Slowly lower the shank. You will be supporting the weight of the shank only. The two extension springs add very little force to the shanks. It is advisable however, to wear gloves and stay clear of the trip mechanism and shank. Once the shanks are reset, turn the unit to its upright position with the aid of a crane or forklift. Remove the shipping tubes and pins for return to factory. Refer to the configuration drawings and install the gauge wheels (if ordered), and optional roller condition.

COULTER ASSEMBLY

The coulters should be set to run just deep enough to slice through the residue ahead of the shanks. The coulter cutting depth is controlled by changing the coulter shank in the coulter mounting tube. To adjust, loosen the two square head set screws and move the coulter up or down. Tighten the two set screws and lock nuts securely.

Once one coulter is properly set, the others can be set accordingly by measuring the amount of exposed shank above the coulter mounting tube.

The spring tension on the coulter is pre-set at the factory. As the coulter blade moves upward, the spring pressure is increased to allow slicing through heavy residue or penetrating hard soils.

The coulter pivot should be set to allow the coulter to pivot equally each way from center. It may be necessary to limit the amount of pivot to one side if a gauge wheel is set close to a coulter. Be sure the coulter cannot slice into a gauge wheel. Pivot angle of the coulter assembly is controlled by the welded block on the coulter shank. Rotating the position of the shank will control the pivot angle.

GAUGE WHEEL

The gauge wheels should be set to control the working depth of the Terra-Max. In most cases they should be spaced as far apart on the unit as practical for stability. Small Terra-Max units (2-3 shanks) may not require gauge wheels. Refer to the set-up drawings for suggested locations. Additional gauge wheels can be added. Use of the optional roller conditioner or the pull package can sometimes replace gauge wheels on units up to 15 ft. in width. Eight (8) shank units require four (4) gauge wheels.

The gauge wheels are adjusted by changing the set-pin hole location. A counter balance spring provides easy adjustment. The wheels will adjust in one inch increments. To estimate the working depth, measure the distance from the under side of tire to the ground and then allow about one inch for tire compression. Make final adjustments in the field by checking the hard pan layer with a spade or soil probe. Make sure all wheels are set the same. Tires should be inflated to the operating range of the tire as specified by the manufacturer.

PULL TYPE TERRA-MAX

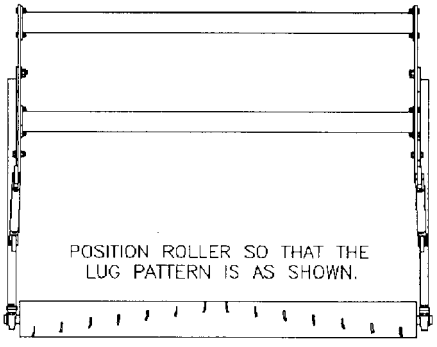
Refer to the parts section and assemble the pull package accordingly. Space the transport wheel arm at 90 inches center to center of the arms. This will provide good road transport characteristics and will straddle 30 inch field rows. If this spacing is not suitable for your row spacing, it is advisable to space them wider rather than narrower.

CAUTION: Make sure Terra-Max pull tongue is connected to tractor before attempting to apply hydraulic pressure. Uncontrolled tongue movement could result causing serious injury or equipment damage.

Refer to the pull type diagram and parts section on page 61, and connect the hydraulic hoses as shown. Connect hoses to tractor. Fully extend and retract cylinders several times, maintaining hydraulic pressure at full extension for at least 30 seconds. Then extend cylinders one more time, maintaining pressure at full extension for one minute. This allows all air to escape from the cylinders. Recheck all hydraulic connections for leaks.

Be sure hoses are routed so they are free to flex as cylinder are activated. Secure hoses with ties provided to prevent them from drooping and catching on crop residue.

ROLLER CONDITIONER OPTION



1. Refer to the parts illustration (page 59) and bolt the two turnbuckle anchors to the rear of the frame end plates.

2. Assemble the flange bearings on the two roller arms using the 5/8 x 2 carriage bolts. Orient the bearing so the grease zerk is easy to reach with a grease gun.

3. Check the drawing and position the roller conditioner behind the Terra-Max with the lug pattern positioned as shown. Clean the roller shaft ends and slide the right and left hand arms and bearings onto the shafts.

   NOTE: A spacer ring (part #803624) is required between the end of the roller and the bearing. When installing the arm and bearing assembly, make sure the spacer ring is against the bearing and not the plate of the arm. A 3/8" x 3" cotter pin needs to be installed in each shaft end outside the bearing.

4. Assemble the right and left hand arms to the Terra-Max frame. It is suggested that all bolts be left loose at this time. Install the bolt, flat washer, and nylock nut that holds the slotted lug on the arms to the main frame end plates.

5. Install the ratchet jacks and pin in place. Grease the threads of the ratchet jacks.

6. Check the roller conditioner so that it is "centered" behind the Terra-Max. Now tighten the pivot bolt and bolt in the slotted lug on each side. These should be tightened only enough to be snug – the arms need to be able to move up and down as needed with the ratchet jack adjustment.

7. Check the bearing spacing so it is equal on both ends of the roller shafts and lock the set screws. Check the roller conditioner that it turns freely. Grease the bearings.

TRANSPORT LIGHT PACKAGE

If you travel public roadways after dusk, your tractor and implement must be equipped with warning lights. Check with your state Department of Transportation for the exact specifications for your state.

The general recommendation is that lights should be used on 3 pt. implements over 13 ft. in width and on all pull type implements.

To install the Worksaver Transport Light Package, refer to the exploded parts view of the light package on page 65. Install one of the light brackets on the left and right rear corners of the machine. Attach the left and right lamp units on the appropriate bracket. Then connect the "wishbone" wiring harness to each lamp unit and run the wire from the lamp unit to the front center of the machine. On narrower width units, there will be excess wire which needs to be carefully coiled and fastened to the frame in a safe, out of the way location.

Fasten the wire to the frame so that it is secure and cannot be snagged by crop residue passing through the underside of the Terra-Max.

If your unit is a 3 pt. mounted Terra-Max, attach the 6 ft. harness to the end on the "wishbone" harness and connect to your tractor outlet.

If your Terra-Max is a pull type unit, then attach the 15 ft. harness to the "wishbone" harness and run the wires with the hydraulic hoses up the top center of the tongue and to the tractor connector.

In both cases, carefully fasten the wiring with nylon strap connectors. Make sure wires cannot snag on passing residue and that enough slack has been allowed to make turns on pull type units.

HARDWARE TORQUE CHART

SAE Grade	Head Markings
SAE GRADE 1 SAE GRADE 2	 No Mark

SAE Grade	Nut Markings
2	 No Mark

SAE Grade	Head Markings
SAE GRADE 5	
SAE GRADE 5.1	
SAE GRADE 5.2	

SAE Grade
5 Nut Markings 

SAE Grade	Head Markings
SAE GRADE 8	
SAE GRADE 8.2	

SAE Grade
8 Nut Markings 

DIA.	WRENCH SIZE	SAE GRADE 1 OIL lb–ft	SAE GRADE 1 DRY lb–ft	SAE GRADE 2 OIL lb–ft	SAE GRADE 2 DRY lb–ft	SAE GRADE 5 OIL lb–ft	SAE GRADE 5 DRY lb–ft	SAE GRADE 8 OIL lb–ft	SAE GRADE 8 DRY lb–ft
1/4	7/16	2.5	3	4	5	6	8	8.5	12
5/16	1/2	5	6.5	7.5	10	12	17	18	24
3/8	9/16	8.5	12	14	18	22	30	30	40
7/16	5/8	14	19	22	30	35	50	50	70
1/2	3/4	21	30	35	45	55	75	75	105
9/16	13/16	30	40	50	65	80	105	110	150
5/8	15/16	40	55	65	90	110	145	150	205
3/4	1–1/8	75	100	120	160	190	260	270	365
7/8	1–5/16	120	165	120	165	305	415	435	590
1	1–1/2	180	245	180	245	460	625	650	880
1–1/8	1–11/16	255	345	255	345	575	780	920	1250
1–1/4	1–7/8	360	490	360	490	810	1100	1300	1765
1–3/8	2–1/16	470	640	470	640	1061	1440	1705	2315
1–1/2	2–1/4	625	850	625	850	1410	1910	2260	3070

DO NOT use these values if a different torque value or tightening procedure is being used for a specific application. Torque values listed are for general use only. Check tightness of cap screws periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and you properly start thread engage–ment. This will prevent them from failing when tightening.

OPERATING INSTRUCTIONS

BEFORE OPERATING OR TRANSPORTING

CAUTION: Be sure your tractor is equipped with a "Slow Moving Vehicle" (SMV) emblem on the rear of the tractor for road travel. If you travel public roadways after dusk, your tractor must be equipped with warning lights according to your state Department of transportation.

CAUTION: Be sure the reflectors on each front and rear corner of the Terra-Max frame are in and in good condition.

CAUTION: It is recommended that a ROPS (Roll-Over Protection Structure) be installed on all Contact your local tractor dealer for a ROPS for your tractor.

WORKING DEPTH AND HARDPAN CONDITIONS

Purpose of the Terra-Max is to break up soil compaction or hardpan layer. The depth of the hardpan layer must be identified so the Terra-Max can be set to correct the problem. It is suggested that the soil profile be checked with a spade or soil probe to define the hardpan layer. You can use a $^{3}/_{8}$ or $^{1}/_{2}$ inch steel rod with a tee handle welded on top. Push straight down with a steady force. You should be able to feel the increased resistance at the top of hardpan layer and then break through and push easier as the rod goes below the hard layer. Measure the rod length to the top and bottom of the hardpan. A soil penetrometer with dial read-out can be used for more accurate soil compaction determination.

Set the Terra-Max so the points run below the hardpan layer. Re-check after operating the Terra-Max to make sure that you are running deep enough. Make several tests across the field as soil.conditions can vary considerable in the same field. Research has shown that most compaction is in the top 14-16 inches of soil depth. Operating deeper than 16 inches will increase the horsepower requirement considerably. The Terra-Max should operate at least at a depth of 12 inches or more. Operating at less than 12 inches can produce slabs of soil ridged up.

It is important to use a tractor with enough horsepower and traction. Soil conditions will effect horsepower requirements. Generally, allow 25-35 HP per shank on Terra-Max I models and 35-50 HP per row on Terra-Max II models. If you find that you are limited by available horsepower, consider reducing the number of shanks and increasing the spacing of the remaining shanks. Then operate the Terra-Max again the following year at an angle to the direction traveled the first year. It is more important to operate fewer shanks at the needed depth than more shanks at too shallow a depth. Operating too fast will also increase horsepower requirements and cause rapid wear of points, wear plates, and shanks. 3.5 mph - 5 mph is the recommended operating speed.

SHANK SPACING AND ALIGNMENT

The "Product Description and General Information" section of this manual provides information on configurations and shank spacing for a variety of uses. If you change the location of the shanks and/or gauge wheels, it is very important that they be equally spaced from the center of the machine and square with the frame. Check the distance from the center of the frame to the center of the shanks. Use a carpenters square and square the mounting brackets with the frame cross members.

NOTICE: NEVER MAKE SHARP TURNS WITH THE SHANKS IN THE GROUND. MAKE GENTLE SWEEPING CONTOUR CURVES ONLY. THE TRACTOR SHOULD BE TRAVELING IN A STRAIGHT LINE WHEN THE SHANKS ARE ENTERING OR LEAVING THE GROUND.

ATTACHING THE TERRA-MAX TO TRACTOR (3-Pt. hitch models)

ALWAYS REFER TO YOUR TRACTOR OWNER'S MANUAL FOR INSTRUCTION IF YOU ARE UNFAMILIAR WITH SAFE PRACTICES OR ASK A SERVICE PERSON FOR ASSISTANCE.

WARNING: Make sure no one is between tractor and implement when attaching.

The Terra-Max has an upper and lower hitch position. Most tractors will use the lower hitch position. The upper position is for very large tractors working at near maximum depth. Use the position which provides the straightest lift arm pull at working depth. For road travel, you may want to place the draft control selector in the HOLD position which will raise the lift arms to their highest position. Be sure to re-set the draft control for field operation.

The Terra-Max is shipped with grade #5 bolts and lock nuts to retain the pull pins. This is for your safety in preventing the pull pins from coming out. **DO NOT use linch pins**. A linch pin can be opened by residue catching on the bail. The pull pins are stepped on 12½' and smaller size Terra-Max units. The bushings go on the same side of the pull ear as the retaining bolt except Cat. II standard hook-ups where the small portion of the pin fits the lift arm ball (1⅛" Dia.).

When attaching with a quick hitch, never push the Terra-Max with it resting on the parking stands. This can bend the stands and prevent them from raising. It may be necessary to adjust the upper top link on the tractor to allow the quick hitch to connect to the Terra-Max. For standard hook-ups (no quick hitch) the upper link should be in one of the upper hole locations. This reduces the stress on the upper link and causes the rear of the Terra-Max to raise higher in the transport position. Most tractor lift arms have a RIGID or LATERAL FLOAT position built into the draft links. The RIGID position holds the implement rigid to the tractor lift arms. The LATERAL FLOAT position allows the draft link to raise slightly as the implement follows the ground contour. For most field contours the RIGID position should be used. Refer to your tractor owner's manual for setting instructions. Once you have securely attached the Terra-Max to your tractor, you should raise the Terra-Max parking stands. Raise them to the highest position and pin in place. Do not remove them from the unit. For safety, they should always be on the unit and available for use.

CAUTION: Never work under implement unless it is blocked securely or resting on parking stands.

DETACHING THE TERRA-MAX AND STORING (3-Pt. Models)

It is advisable to detach the Terra-Max on a solid level surface with a slight tilt forward. This makes re-attaching with a quick hitch much easier. Lower the implement to the ground, and lower the parking stands. Now raise the Terra-Max slightly, and pin the parking stands. Adjust the upper link if necessary to free the hitch. (NOTE: Never drop the Terra-Max on concrete or hard ground. Point damage or breakage can occur.) Many newer tractors have a speed control for drop rate. A minimum of 3 seconds should be used. It is best to let the shanks carry some of the weight when parked, by placing a 4 x 4 board under the shanks just behind the point. This makes the unit more stable when re-attaching and protects the parking stands.

CAUTION: Never detach the Terra-Max without all the parking stands properly set, even though it may seem stable. Settling ground or people leaning on it, may tip it over. Your safety is at risk.

PULL TYPE TERRA-MAX

Hooking, unhooking and transporting

The pull type Terra-Max has the transport wheels extending forward from the frame. The tongue has an **up force** when the machine is raised from the ground or in the transport position.

HOOKING UP

A tongue jack is provided to support the tongue and hold it at drawbar height for re-attaching. If the Terra-Max has been setting unhooked for some time with the tongue jack on soft ground it may have settled into the ground and be too low for attaching to the tractor drawbar. If you are not able to raise the tongue with the tongue jack, connect the hydraulic hoses and carefully raise the tongue hydraulically.

CAUTION: Do not allow anyone near the tongue when raising.

With the tongue connected to the tractor drawbar and the hydraulic hoses connected, raise the Terra-Max to its full up position. This will give the cylinders time to fully extend. Hold hydraulic pressure on the cylinders for a few moments. Turn the hydraulic lock valve to the locked position before transporting on the road or when working under the machine. Be sure the tractor drawbar pull pin is securely attached. Remove the tongue jack and place it in transport location at the rear of the tongue assembly. This will prevent the tractor tire from damaging the jack in the event of a sharp turn.

UNHOOKING

CAUTION: THE TERRA-MAX MUST ALWAYS BE IN THE LOWERED POSITION BEFORE ATTEMPTING TO UN-HOOK. IF NOT – THE TONGUE WILL RAISE RAPIDLY, MAY SWING SIDEWAYS AND CAUSE SERIOUS PERSONAL INJURY. YOUR SAFETY IS AT RISK.

Lower the Terra-Max to the ground. Place the tractor hydraulic lever in float position. Install the tongue jack and use the jack to raise the tongue to align it with the drawbar. Disconnect the hydraulic hoses and remove the tractor pull pin.

TRANSPORTING

Always use caution when transporting a drawn implement. Be sure the drawbar pull pin is securely in place. Make sure the hydraulic cylinder transport lock valve is used. CYLINDER LOCK VALVE MUST BE IN LOCKED POSITION.

CAUTION: Be sure your tractor is equipped with a “Slow Moving Vehicle” (SMV) emblem on the rear of the tractor for road travel. If you travel public roadways after dusk, your tractor and implement must be equipped with warning lights according to your state Department of Transportation. Be sure the reflectors on each front and rear corner of the Terra-Max frame are in place and in good condition. It is recommended that a ROPS (Roll-Over Protection Structure) be installed on all tractors. Contact your local tractor dealer for a ROPS for your tractor.

LEVELING FOR FIELD OPERATION

ALWAYS REFER TO YOUR TRACTOR OWNER'S MANUAL FOR INSTRUCTION IF YOU ARE UNFAMILIAR WITH TRACTOR ADJUSTMENTS OR ASK A SERVICE PERSON FOR ASSISTANCE.

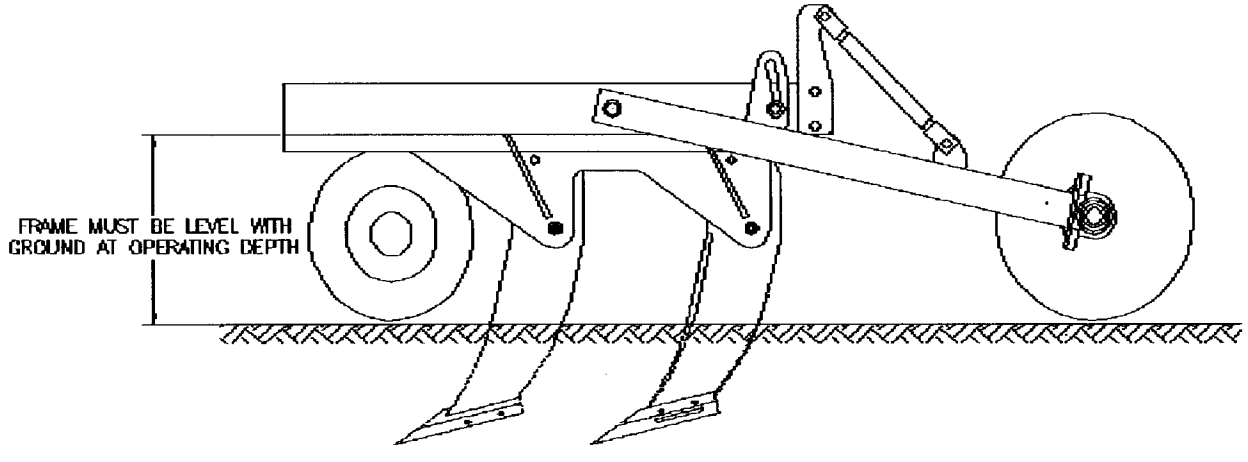
The **Terra-Max should be level, side to side,** for both road transport and field operation. The Terra-Max must be leveled by adjusting the leveling links of the tractor lift arms. Refer to your tractor owners manual for instructions. With the tractor on a smooth level surface, raise the Terra-Max slightly and measure the frame height at each side. Adjust the tractor lift arms accordingly. Most tractor lift arms have a RIGID or LATERAL FLOAT position built into the draft links. The RIGID position holds the implement rigid to the tractor lift arms. The LATERAL FLOAT position allows the draft link to raise slightly as the implement follows the ground contour. For most field contours the RIGID position should be used. Refer to your tractor owner's manual for setting instructions.

The **Terra-Max must also be level front to rear** when operating at working depth. This is best accomplished by observing from the side at a distance, with the implement at working depth. Stop the tractor and adjust the tractor upper link as necessary. It may be helpful to slightly raise, then lower the Terra-Max to provide some slack in the linkage in order to adjust the upper link. For safety, shut the tractor engine OFF before making any adjustment.

PULL TYPE MODELS

The pull type model Terra-Max is leveled front to rear by adjusting the pull tongue turnbuckle. NOTE: THE TURNBUCKLE SHOULD BE CONNECTED TO THE TOP HOLE LOCATION IN THE TERRA-MAX 3-PT. MAST. The turnbuckle should be adjusted so the frame is level at working depth. Shortening the turnbuckle will raise the rear of the Terra-Max. ft may be necessary to raise slightly then lower the unit to give some slack in the turnbuckle for adjusting. BE SURE TO TIGHTEN THE LOCK NUT AFTER ADJUSTMENT.

NOTE: It is best to raise the roller conditioner until the working depth and machine levelness is set, then lower and set the roller conditioner.



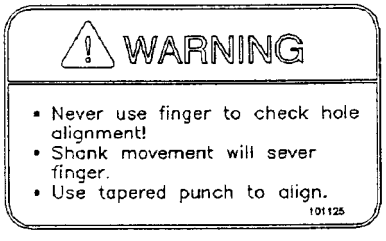
SHANK PROTECTION

SHEAR BOLT MODELS

Shear bolt protection is available on all models of Terra-Max. When an obstruction is encountered by the shank, the shear bolt should shear and protect the shank from damage. The shank pivots on a hardened steel bushing to prevent wear on the pivot bolt. The pivot bushing is slightly longer than the shank is thick to allow side clearance for pivoting. The pivot bolt and lock nut should be tight to keep the pivot bushing from rotating. No lubrication is required for the pivot joint.

The shear bolt is a 1/2 – l3NC x 3 inch long grade #5 bolt and is retained by a lock washer and hex nut. When replacing the bolt, tighten the nut until the lock washer is compressed. No excess clearance should be between the mounting plates and the shank. Hardened steel bushings are welded into the mounting plates to assist in a clean shear when the bolt shears. Occasionally, a piece of sheared bolt becomes lodged in one side and must be removed with a hammer and punch. If this happens, use care not to damage the hardened bushings or shank hole. It usually helps to swing the shank rearward and keep it back by placing a bolt through the hole in the shank.

WARNING: Do not use your finger for aligning the shear bolt holes.



NOTICE: USE 1/2 INCH DIA. GRADE #5 BOLT FOR SHEAR BOLTS. WARRANTY IS VOID IF GRADE #8 BOLTS ARE USED.

“Soft” grade #2 bolts will deform when sheared and lodge in the side plates. Grade #8 bolts are too hard and will damage the shear bolt holes, shank, and side plates.

MAKE EVERY DAY A HOLIDAY

FROM ACCIDENTS

SHANK PROTECTION

TOGGLE TRIP MODELS

All Terra-Max I and Cotton Special models are available with toggle trip shanks. TERRA-MAX II MODELS ARE NOT AVAILABLE WITH TOGGLE TRIP due to space limitations.

Toggle trip provides easy reset by simply raising the machine to its fully raised position. A quick full raise provides thrust and ground clearance for trouble free reset, usually without getting off the tractor. If “an assist” is required, use caution not to be in the path of the shank. Keep hands free and clear of the latch mechanism. It’s best to stand behind the shank and push it with one foot. If shanks tend to stick in the tripped position, lubricate the shank pivot and side plate areas with machine oil. Grease the three pivot pins on the latch mechanism.

The toggle trip mechanism is set at the factory. Three shims are installed under the stop bolt in the trip mechanism. If shanks tend to trip too easily when small rocks or hard ground is encountered, remove one of the shims. **Remove the second and third shim only if excessive tripping still occurs.** Normally, at least one shim should always be installed. Never remove more than one shim at a time.

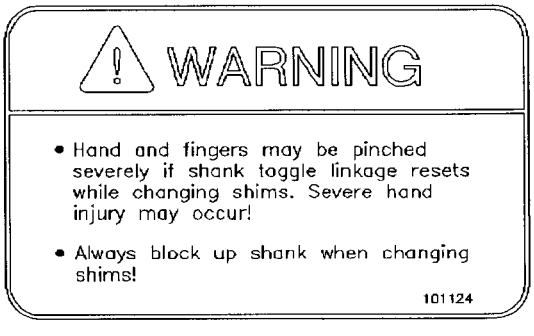
Three shims have been designed into the trip mechanism to provide ample adjustment for joint wear and weakening of the toggle spring as the number of shank trips increases. Removal of shims will place more stress on the shank and trip mechanism. Removing shims prematurely will cause the trip linkage to bind and will damage the trip linkage and shank. Each shim removed will increase the force required to trip the shank by about 1250 pounds at the point.

NOTE: Damage to shank, linkage, or mounting bracket may occur if too many shims are removed and shank is not able to trip.

NOTE: If the toggle trip spring (part # 803393) is replaced, install three shims back under the stop bolt and start from this adjustment position.

To trip the shank for shim removal, lift the tail of the upper latch half and pull rearward on the lower portion of the shank. Block under the tip of the point with the shank swung rearward. To avoid hand injury, use care when re-setting the shank and stay clear of the trip mechanism.

WARNING: Stay clear of toggle trip mechanism.



COULTER ADJUSTMENT

The coulters should be set to run just deep enough to slice through the residue ahead of the shanks. The coulter cutting depth is controlled by changing the coulter shank in the coulter mounting tube. To adjust, loosen the two square head set screws and move the coulter up or down. Tighten the two set screws and lock nuts securely.

Once one coulter is properly set, the others can be set accordingly by measuring the amount of exposed shank above the coulter mounting tube.

The spring tension on the coulter is pre-set at the factory. As the coulter blade moves upward, the spring pressure is increased to allow slicing through heavy residue or penetrating hard soils.

The coulter pivot should be set to allow the coulter to pivot equally each way from center. It may be necessary to limit the amount of pivot to one side if a gauge wheel is set close to a coulter. Be sure the coulter cannot slice into a gauge wheel. Pivot angle of the coulter assembly is controlled by the welded block on the coulter shank. Rotating the position of the shank will control the pivot angle.

GAUGE WHEELS

The gauge wheels should be set to control the working depth of the Terra-Max. In most cases they should be spaced as far apart on the unit as practical for stability. Refer to the set-up drawings for suggested locations. Additional gauge wheels can be added. Use of the optional roller conditioner or pull package can replace gauge wheels on units up to 15 feet in width.

The gauge wheels are adjusted by changing the set-pin hole location. A counter balance spring provides easy adjustment. The wheels will adjust in one inch increments. To estimate the working depth, measure the distance from the under side of tire to the ground and then allow about one inch for tire compression. Make final adjustments in the field by checking the hard pan layer with a spade or soil probe. Make sure all wheels are set the same. Tires should be inflated to the operating range of the tire as specified by the tire manufacture.

The gauge wheels are intended to work in conjunction with the tractor 3-point draft control system in maintaining the working depth. In most conditions, some weight transfer will be beneficial for operating efficiently and maintaining traction. If difficulty in pulling the Terra-Max is a problem, a shallower depth, fewer shanks, more ballast, or larger tractor will be necessary.

ROLLER CONDITIONER (optional)

The roller conditioner is adjustable by use of the two ratchet jacks. It is very important that the ratchet jacks be set the same to keep both sides of the machine at the same working depth. Measure the pin to pin distance of each jack and be sure they are equal. Set the working depth with the gauge wheels first (if so equipped), then lower and set the roller conditioner. The roller conditioner can be set to smooth the soil surface (light ground pressure) or to incorporate a portion of residue into the soil by increasing the amount of ground pressure.

NOTE: Too much ground pressure in loose or sandy soils may cause the roller to drag rather than roll, and soil may build up in front of roller.

POINT OPTIONS

Several point options are available to match various soil types and conditions. Points are R.H. and L.H. to match the shanks. All points are held on with two $^{5}/_{8}$ x $2^{1}/_{2}$ split roll pins. These pins are NOT available locally in most areas. Remember to order these pins with your first set of replacement points so that you will have some spares. In an emergency a $^{5}/_{8}$ – 11 x 3 grade #5 bolt and lock nut can be used.

NOTE: If a bolt is used, the bolt head and nut will wear quickly and will need to be checked often.

NOTICE: Point and wear plate life will depend on the type of soil being tilled, what underground objects may be present, and forward operating speed. Operating too fast will greatly increase the wear of all the ground engaging parts.

1. AUSTEMPERED POINTS
   Austempered points are cast with high grade heat treated ductile iron. These points are recommended for most soil types.

2. CHROMIUM CARBIDE POINTS
   Chromium carbide points are a very hard abrasion resisting cast material. Due to extreme hardness, the point also tends to be brittle. DO NOT DROP THE TERRA-MAX ON A HARD SURFACE IF YOU USE THESE POINTS. THESE POINTS ARE NOT RECOMMENDED WHERE LARGE OBJECTS, SUCH AS STONES, ROCKS, STUMPS, ETC., ARE PRESENT.

   Use this point for abrasive soils, where you would use hard-surfaced plow shares. In most conditions chromium carbide points will out wear several points made of other material. This point can also be used in most soil types if you simply want a longer wearing point.

   One option is to use this point on shanks that run directly behind your rear tractor tires which increases point wear due to the tighter compacted soil. Run your own tests and choose the point that is most economical for your soil type and condition.

4. STEEL POINTS
   The steel points are made with a steel body and a replaceable high carbon heat treated steel wear point.

   The high carbon steel wear point is a replaceable weld-on part. The worn point can be removed with an acetylene cutting torch. A new replaceable wear point is then welded on with general purpose arc welding rod.

   These points are recommended for soils where underground objects (rocks and stumps) are frequently encountered. They do not have the wearability of Austempered or Chromium Carbide points, but can withstand the impact shock of contacting underground objects without breaking off.

(CONTINUED NEXT PAGE)

POINT OPTIONS (continued)

4. SHANK PROTECTOR WEAR PLATES
   This is a formed wear plate made from abrasion resistant steel that fits on the lower part of the shank and is held on by the roll pins that connect the point to the shank.

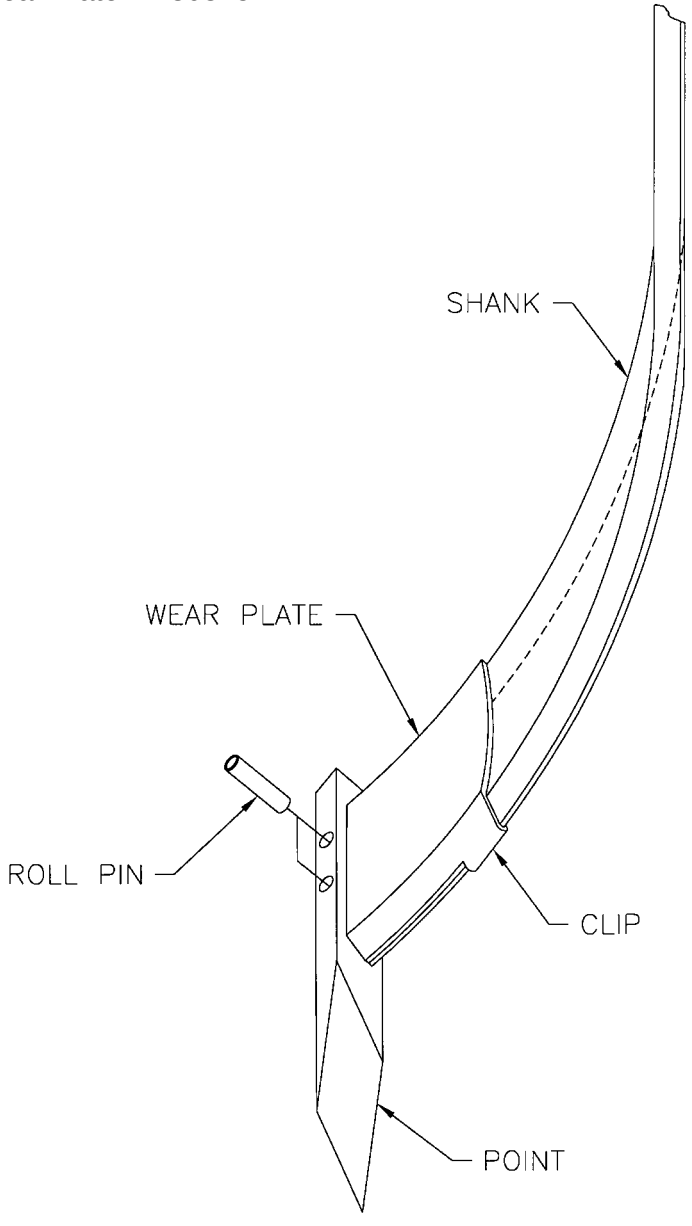
   A clip on the top of the wear plate leading edge wraps around the leading edge of the shank to keep the plate against the shank.

   In most soil conditions, the wear plates will last for a reasonable number of acres and provide wear protection for the lower portion of the shank. If you are operating in abrasive soil, then it is recommended to add a few beads of hard surface weld to the leading edge for longer wear plate life.

   The part number for the replaceable wear plates are:

   LH Wear Plate – #803250

   RH Wear Plate – #803251



MAINTENANCE

1. Check all nuts and bolts for tightness. Refer to the torque chart for specifications.

2. Check points, moldboard wear plates, and shanks for wear and damage. Replace worn or damaged parts.

3. Check tires for cuts and abrasions. Check tires for proper inflation pressure of 35 Psi.. **NOTE:** Some tires may be labeled for higher inflation pressure and may be inflated accordingly.

4. After seasonal use, paint the shanks, wear plates, coulters, and points to prevent excessive rusting during extended non-use periods. This will reduce the scour time when you use the Terra-Max again.

5. Check safety reflectors. Be sure all are securely attached and in good condition. Immediately replace any damaged or missing safety signs.

6. SHEAR BOLT REPLACEMENT If a shear bolt is sheared due to hitting an obstruction, replace it with a $^{1}/_{2}$ inch grade #5 bolt. (Three radial head marks)

LUBRICATION

COULTERS
Grease the coulter hub and spring pivot daily with two to three shots of grease.

GAUGE WHEELS
Repack the wheel bearings annually with a good grade wheel bearing grease. Inspect the bearings and seal, and replace as necessary.

TRANSPORT WHEELS – PULL TYPE ONLY
Grease the transport wheel arm pivot tube daily with two to three shots of grease.
Repack the wheel bearings annually with a good grade wheel bearing grease. Inspect the bearings and seal, and replace as necessary.

ROLLER CONDITIONER – OPTION
Grease bearings daily with two to three shots of grease.
Occasionally, lubricate the threads on the ratchet jacks.

TOGGLE TRIP MECHANISM
Grease the three pivot pins on the toggle trip linkage daily with one or two shots of grease.

STORING SAFELY

1. Always store implement in a clean, dry location away from children and livestock.

2. Storage location should be level and solid to make hitching and unhitching easy.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Tractor will not pull Terra-Max	1. Insufficient horsepower	Use larger, heavier tractor
	2. Soil too wet	Let soil dry
	3. Insufficient traction	(See tire slippage below)
Excessive tractor tire slippage	1. Tractor too small	Use larger, heavier tractor
	2. Insufficient traction	Dual rear tire or Add ballast Increase draft control Reduce number of shanks Use tractor with FWDA Operate at shallower depth on first pass
	3. Ground was tilled prior to subsoiling	Subsoil first
Trash buildup on shanks	1. Coulter not aligned	Align coulter with shank
	2. Coulter not low enough	Lower coulter shank
	3. Shank out of alignment	Align shank
	4. Bent coulter shank or arm	Replace damaged part
	5. Shank and point not scoured	Polish shank and point
	6. Loose residue due to prior tillage or mowing operation	Subsoil first
	7. Worn coulter blades	Replace blades
	8. Dull coulter blades	Sharpen coulter blades
	9. Gauge wheel in wrong position	Reposition gauge wheel
Large clods	1. Soil too hard and dry	Increase depth Reduce speed
	2. Hard soil type	Use optional roller conditioner
	3. Operating too shallow	Raise gauge wheels, roller/conditioner
	4. Wire or foreign object on shank	Remove object

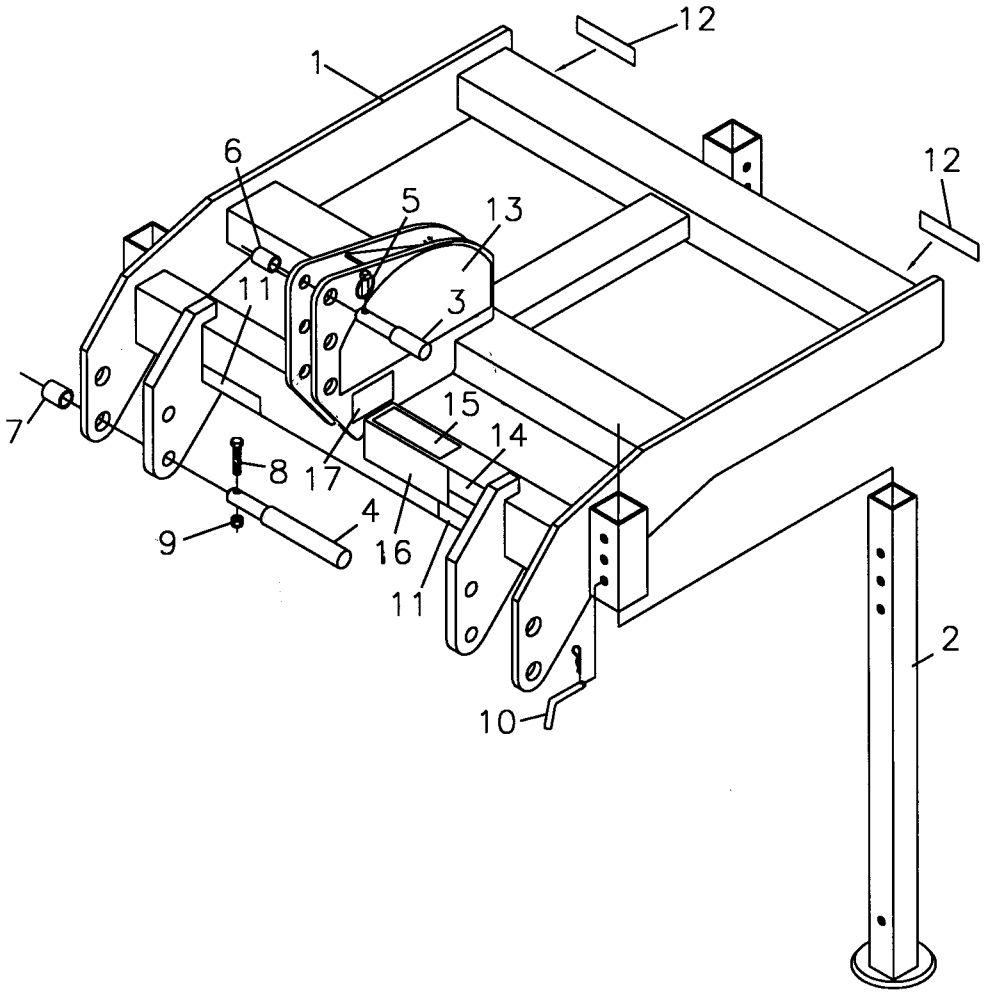
TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Shearing pins	1. Wrong size or grade shear bolt	Use 1/2 grade 5 Do not use grade 8 – damage may occur
	2. Too much load	Reduce speed or operating depth
	3. Hitting rocks or obstructions	Purchase Toggle Trip Terra-Max to eliminate replacing bolts
Excessive shank tripping (Toggle)	1. Soil too hard and dry	Reduce speed Reduce depth
	2. Improper toggle shim setting	Read operating section on toggle shims
	3. Underground objects	Remove object or mark area to raise unit Check operating depth (may be too deep)
Implement will not lift high enough	1. Using top set of pull pin holes	Use lower hitch position
	2. Implement too heavy for tractor	Use larger tractor
	3. Incorrect top link position	Reposition toplink (See manual)
Ridging	1. Wrong shank spacing or alignment	Adjust shank spacing and align
	2. Gauge wheels not set the same	Measure and reset gauge wheels
	3. Machine not level	Level machine
	4. Worn or different type points	Check points and replace
	5. Bent shank	Replace shank
Roller conditioner pushing dirt	1. Roller set too low	Raise roller conditioner
	2. Loose soil or light soil	Use gauge wheels to hold operating depth and raise roller conditioner

TROUBLESHOOTING GUIDE

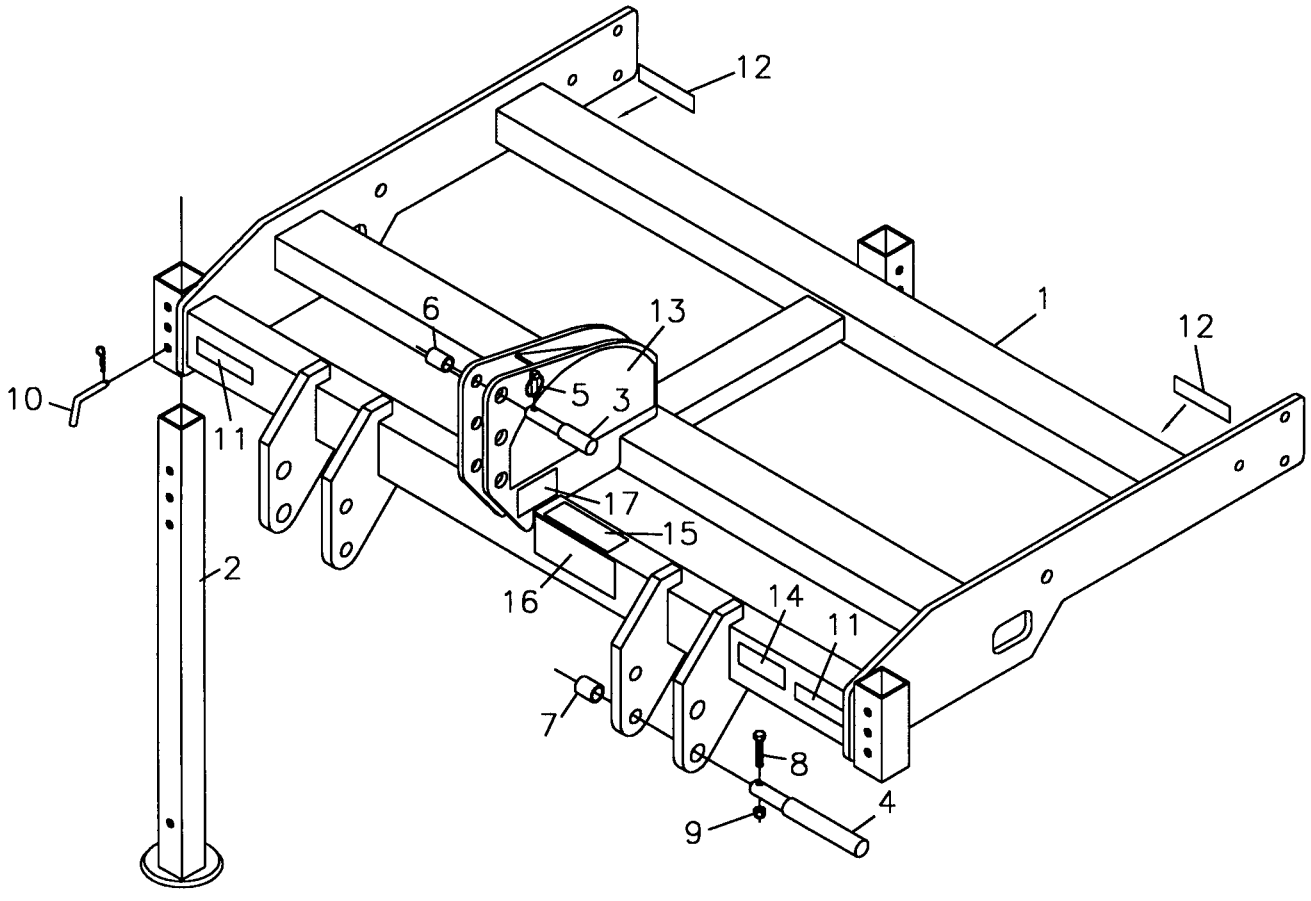
PROBLEM	CAUSE	SOLUTION
Excessive point wear	1. Soil too hard and dry	Use chrome-carbide points unless rock or objects are in field
	2. Hard abrasive soil	Use chrome-carbide points
	3. Excessive speed	Slow down
Excessive lower shank wear	1. Shanks not aligned	Re-align shanks with square
	2. Hard abrasive soil	Check wear plates Hard surface weld for longer wear life
Trash buildup on coulter	1. Coulter too low	Raise coulter
	2. Worn coulter blades	Replace blades
	3. Dull coulter blades	Sharpen blades
	3. Piles of loose residue in field	Spread residue evenly
Point breakage	1. Underground objects	Consider using steel points Check operating depth (May be operating too deep or deeper than field has been tilled before)
	2. Dropping Terra-Max on hard surface	Lower unit slowly on hard ground or concrete
Excessive wear plate wear	1. Hard abrasive soil	Weld beads of hard surface weld on wear plates

4 FT. FRAME PACKAGE



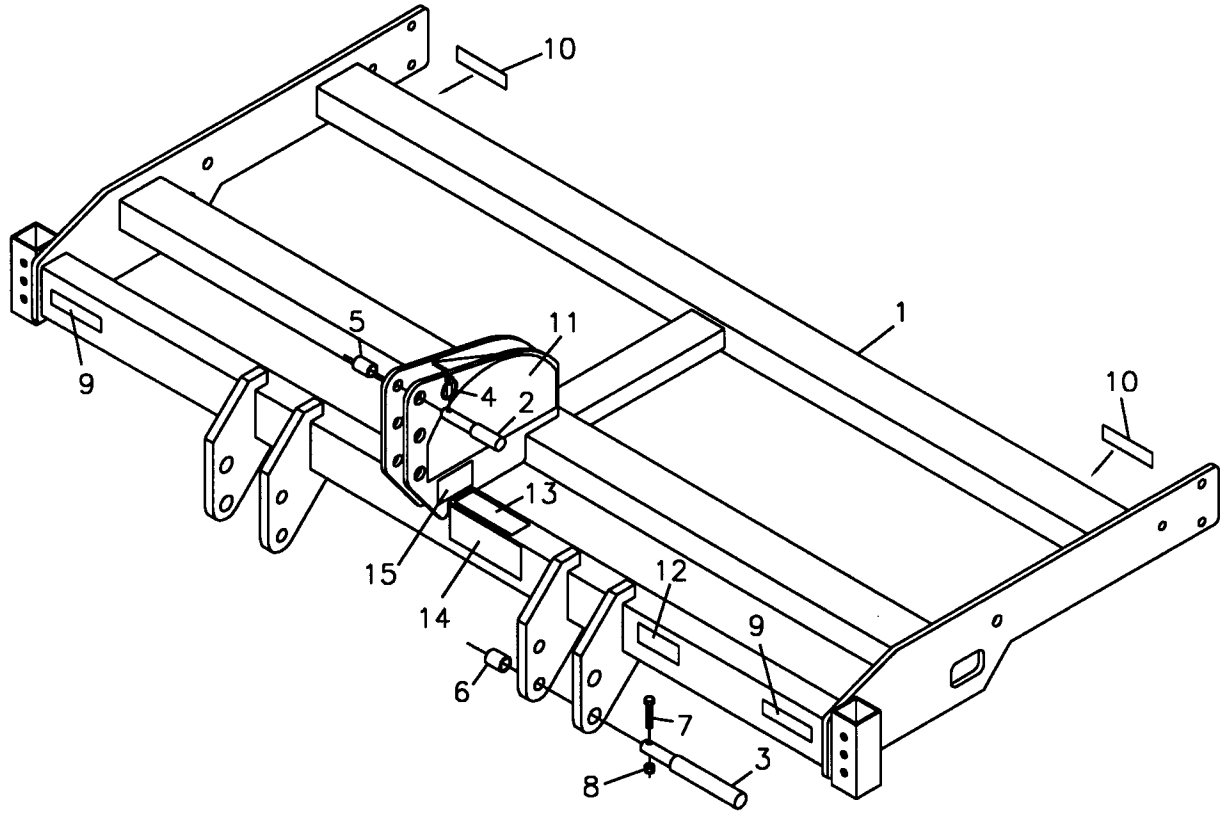
REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803537	Main Frame Weldment	1
2	803631	Stand Weldment	3
3	803052	Toplink Pin	1
4	380142	Hitch Pin	2
5	590006	Linch Pin 7/16" (AK-14)	1
6	590066	Bushing, Toplink (AK-216)	1
7	590126	Bushing, Lift Arm (AK-58)	2
8	2503222	Bolt 1/2"-13NC x 2 1/2" Hex Hd Gr.5	2
9	2500039	Nut 1/2"-13NC Hex Nylock	2
10	341826	Pin, Hitch 1/2" x 3 1/2"	3
11	101120	Safety Sign - Amber Reflector	2
12	101121	Safety Sign - Red Reflector	2
13	101108	Safety Sign - Terra-Max	2
14	101114	Safety Sign - Caution (Prevent Tip Over)	1
15	101115	Safety Sign - Caution (Prevent Accidental Unhooking)	1
16	101123	Safety Sign - Warning (Read Owner's Manual)	1
17	101126	Safety Sign - Warning (Coulter Blades Are Sharp)	1

6 FT. FRAME PACKAGE



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803197	Main Frame Weldment	1
2	803631	Stand Weldment	3
3	803052	Toplink Pin	1
4	380142	Hitch Pin	2
5	590006	Linch Pin 7/16" (AK-14)	1
6	590066	Bushing, Toplink (AK-216)	1
7	590126	Bushing, Lift Arm (AK-58)	2
8	2503222	Bolt 1/2"-13NC x 2 1/2" Hex Hd Gr.5	2
9	2500039	Nut 1/2"-13NC Hex Nylock	2
10	341826	Pin, Hitch 1/2" x 3 1/2"	3
11	101120	Safety Sign - Amber Reflector	2
12	101121	Safety Sign - Red Reflector	2
13	101108	Safety Sign - Terra-Max	2
14	101114	Safety Sign - Caution (Prevent Tip Over)	1
15	101115	Safety Sign - Caution (Prevent Accidental Unhooking)	1
16	101123	Safety Sign - Warning (Read Owner's Manual)	1
17	101126	Safety Sign - Warning (Coulter Blades Are Sharp)	1

8 FT. FRAME PACKAGE



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803253	Main Frame Weldment	1
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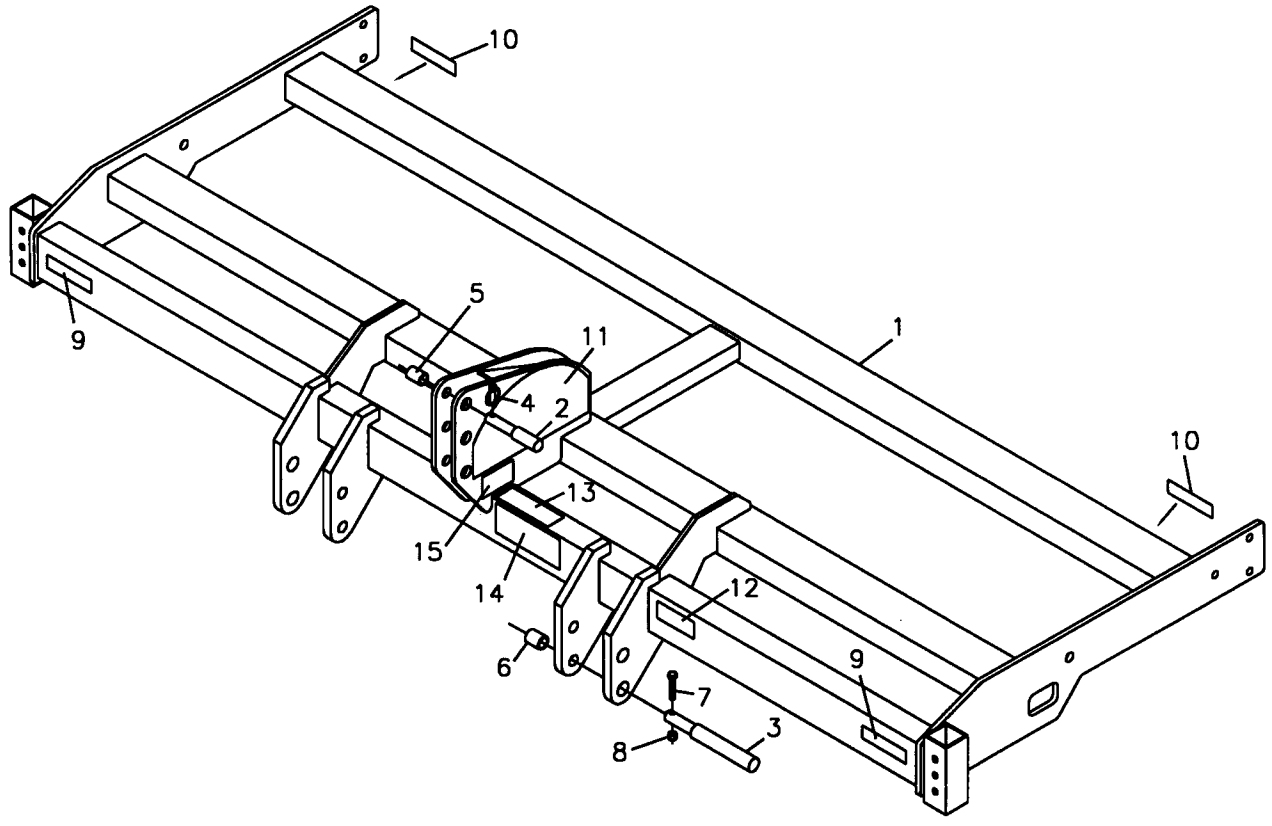
3	380142	Hitch Pin	2
4	590006	Linch Pin 7/16" (AK-14)	1
5	590066	Bushing, Toplink (AK-216)	1
6	590126	Bushing, Lift Arm (AK-58)	2
7	2503222	Bolt 1/2"-13NC x 2 1/2" Hex Hd Gr.5	2
8	2500039	Nut 1/2"-13NC Hex Nylock	2
9	101120	Safety Sign - Amber Reflector	2
10	101121	Safety Sign - Red Reflector	2
11	101108	Safety Sign - Terra-Max	2
12	101114	Safety Sign - Caution (Prevent Tip Over)	1
13	101115	Safety Sign - Caution (Prevent Accidental Unhooking)	1
14	101123	Safety Sign - Warning (Read Owner's Manual)	1
15	101126	Safety Sign - Warning (Coulter Blades Are Sharp)	1

10 FT. FRAME PACKAGE



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1	803357	Main Frame Weldment	1
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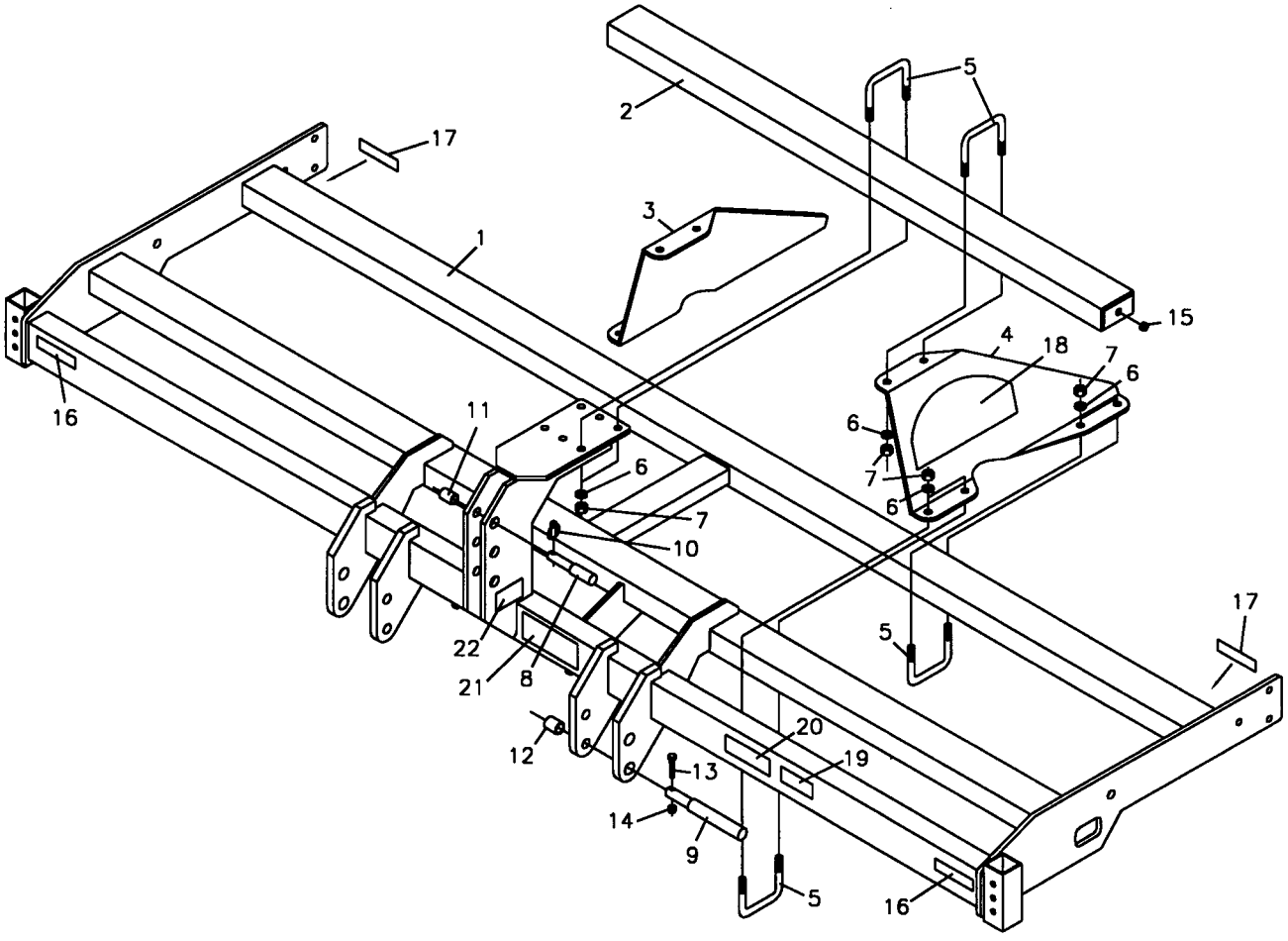
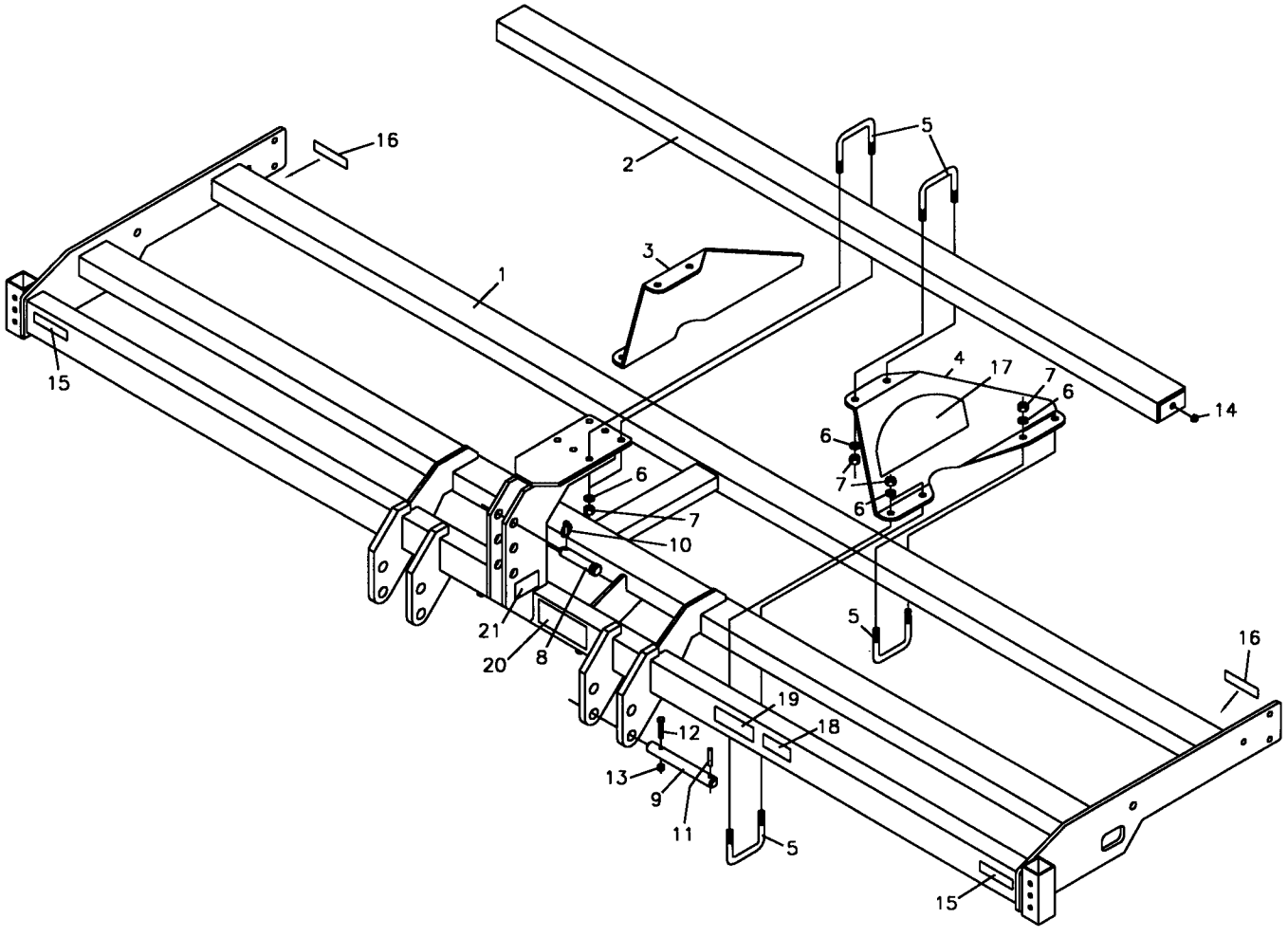
3	380142	Hitch Pin	2
4	590006	Linch Pin 7/16" (AK-14)	1
5	590066	Bushing, Toplink (AK-216)	1
6	590126	Bushing, Lift Arm (AK-58)	2
7	2503222	Bolt 1/2"-13NC x 2 1/2" Hex Hd Gr.5	2
8	2500039	Nut 1/2"-13NC Hex Nylock	2
9	101120	Safety Sign - Amber Reflector	2
10	101121	Safety Sign - Red Reflector	2
11	101108	Safety Sign - Terra-Max	2
12	101114	Safety Sign - Caution (Prevent Tip Over)	2
13	101115	Safety Sign - Caution (Prevent Accidental Unhooking)	2
14	101123	Safety Sign - Warning (Read Owner's Manual)	2
15	101126	Safety Sign - Warning (Coulter Blades Are Sharp)	2

12.5 FT. FRAME PACKAGE



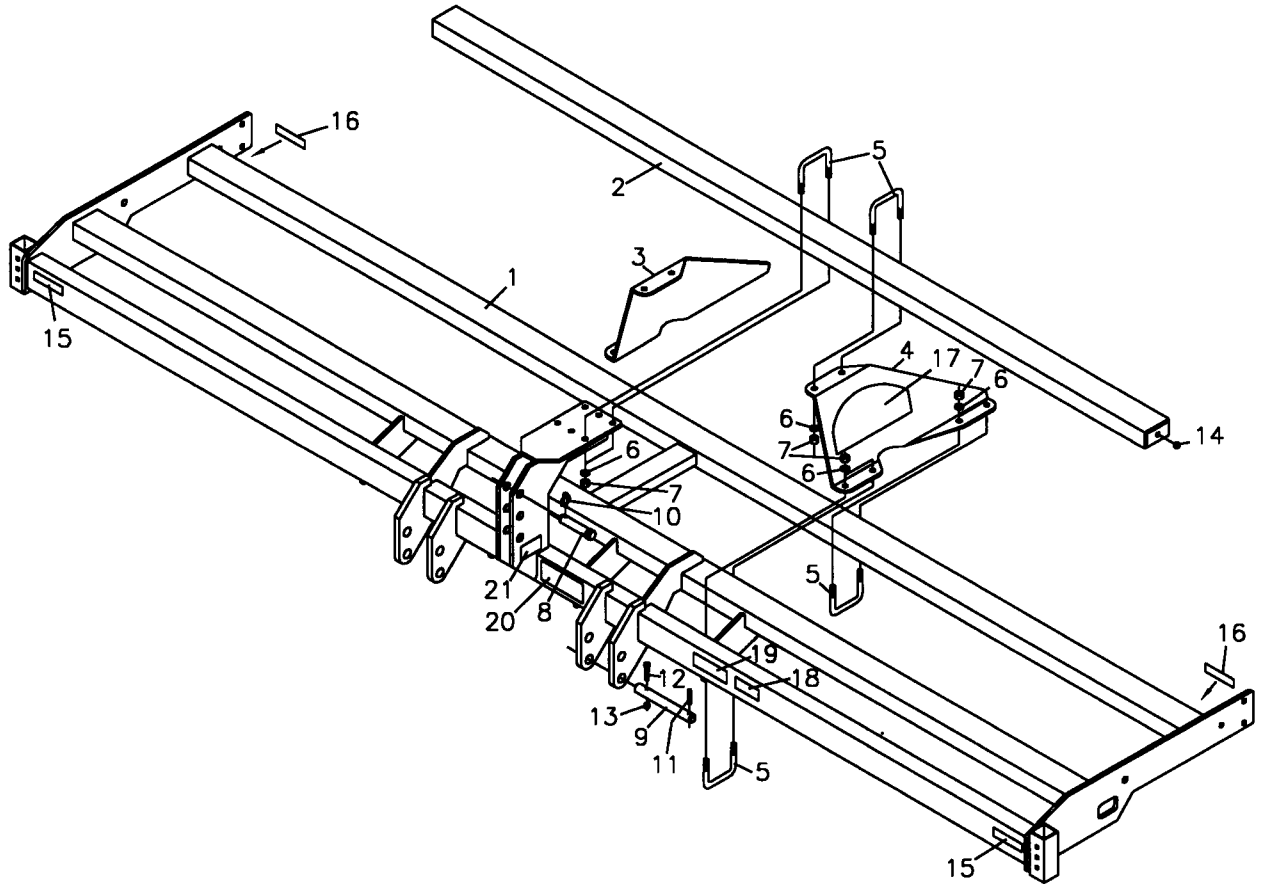
REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803560	Main Frame Weldment	1
2	803114	Upper Tube Weldment (78")	1
3	803017	Tie Plate – RH	2
4	803018	Tie Plate – LH	2
5	803005	U–Bolt 3/4"–10NC x 5" ID	15
6	2502001	Washer 3/4" Springlock	30
7	2500002	Nut 3/4"–10NC Full Hex	30
8	803052	Toplink Pin	1
9	380142	Hitch Pin	2
10	590006	Linch Pin 7/16" (AK–14)	1
11	590066	Bushing, Toplink (AK–216)	1
12	590126	Bushing, Lift Arm (AK–58)	2
13	2503222	Bolt 1/2"–13NC x 2 1/2" Hex Hd Gr.5	2
14	2500039	Nut 1/2"–13NC Hex Nylock	2
15	2400040	Cap, Plastic 3/4"	2
16	101120	Safety Sign – Amber Reflector	2
17	101121	Safety Sign – Red Reflector	2
18	101108	Safety Sign – Terra–Max	2
19	101114	Safety Sign – Caution (Prevent Tip Over)	1
20	101115	Safety Sign – Caution (Prevent Accidental Unhooking)	1
21	101123	Safety Sign – Warning (Read Owner's Manual)	1
22	101126	Safety Sign – Warning (Coulter Blades Are Sharp)	1

15 FT. FRAME PACKAGE



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803565	Main Frame Weldment	1
2	803116	Upper Tube Weldment (120")	1
3	803017	Tie Plate – RH	3
4	803018	Tie Plate – LH	3
5	803005	U–Bolt 3/4"–10NC x 5" ID	21
6	2502001	Washer 3/4" Springlock	42
7	2500002	Nut 3/4"–10NC Full Hex	42
8	590158	Toplink Pin (AK–802)	1
9	803579	Hitch Pin (Cat. III)	2
10	590006	Linch Pin 7/16" (AK–14)	1
11	2504195	Roll Pin 1/2" x 2 1/2"	2
12	2503222	Bolt 1/2"–13NC x 2 1/2" Hex Hd Gr.5	2
13	2500039	Nut 1/2"–13NC Hex Nylock	2
14	2400040	Cap, Plastic 3/4"	2
15	101120	Safety Sign – Amber Reflector	2
16	101121	Safety Sign – Red Reflector	2
17	101108	Safety Sign – Terra–Max	2
18	101114	Safety Sign – Caution (Prevent Tip Over)	1
19	101115	Safety Sign – Caution (Prevent Accidental Unhooking)	1
20	101123	Safety Sign – Warning (Read Owner's Manual)	1
21	101126	Safety Sign – Warning (Coulter Blades Are Sharp)	1

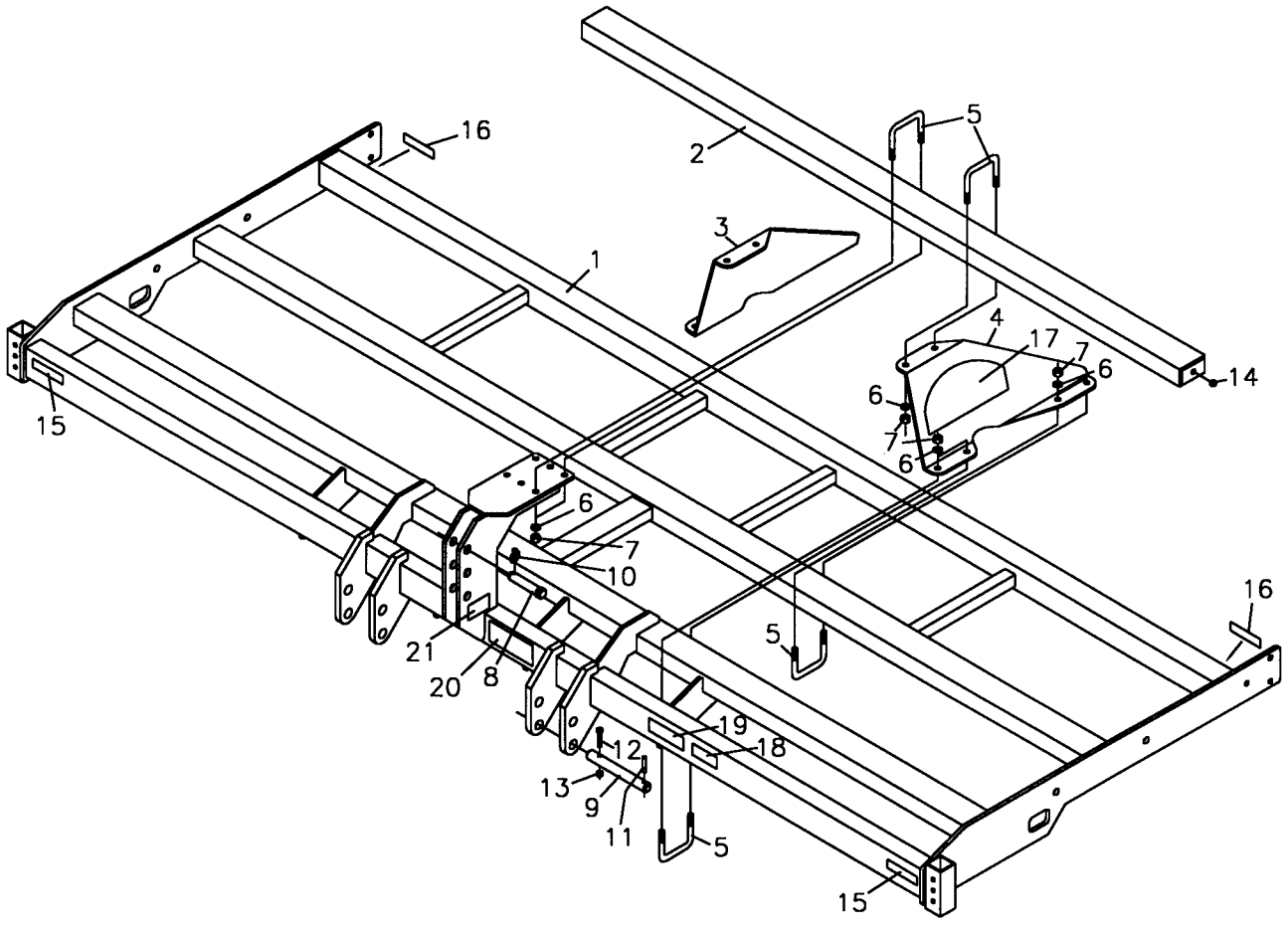
17.5 FT., 18.5 FT. & 20 FT.
FRAME PACKAGES



REF NO.	PART NO.	DESCRIPTION	NO. REQUIRED		
			17.5 FT.	18.5 FT.	20 FT.
1	803567	Main Frame Weldment (17.5 Ft.)	1	–	–
	803568	Main Frame Weldment (18.5 Ft.)	–	1	–
	803570	Main Frame Weldment (20 Ft.)	–	–	1
2	803221	Upper Tube Weldment (150")	1	1	–
	803182	Upper Tube Weldment (180")	–	–	1
3	803017	Tie Plate – RH	3	3	4
4	803018	Tie Plate – LH	3	3	4
5	803005	U–Bolt 3/4"–10NC x 5" ID	21	21	27
6	2502001	Washer 3/4" Springlock	42	42	54
7	2500002	Nut 3/4"–10NC Full Hex	42	42	54
8	590158	Toplink Pin (AK–802)	1	1	1
9	803579	Hitch Pin (Cat. III)	2	2	2
10	590006	Linch Pin 7/16" (AK–14)	1	1	1
11	2504195	Roll Pin 1/2" x 2 1/2"	2	2	2
12	2503222	Bolt 1/2"–13NC x 2 1/2" Hex Hd Gr.5	2	2	2
13	2500039	Nut 1/2"–13NC Hex Nylock	2	2	2
14	2400040	Cap, Plastic 3/4"	2	2	2
15	101120	Safety Sign – Amber Reflector	2	2	2
16	101121	Safety Sign – Red Reflector	2	2	2
17	101108	Safety Sign – Terra–Max	2	2	2
18	101114	Safety Sign – Caution (Prevent Tip Over)	1	1	1
19	101115	Safety Sign – Caution (Prevent Accidental Unhooking)	1	1	1
20	101123	Safety Sign – Warning (Read Owner's Manual)	1	1	1
21	101126	Safety Sign – Warning (Coulter Blades Are Sharp)	1	1	1

15 FT. FRAME PACKAGE

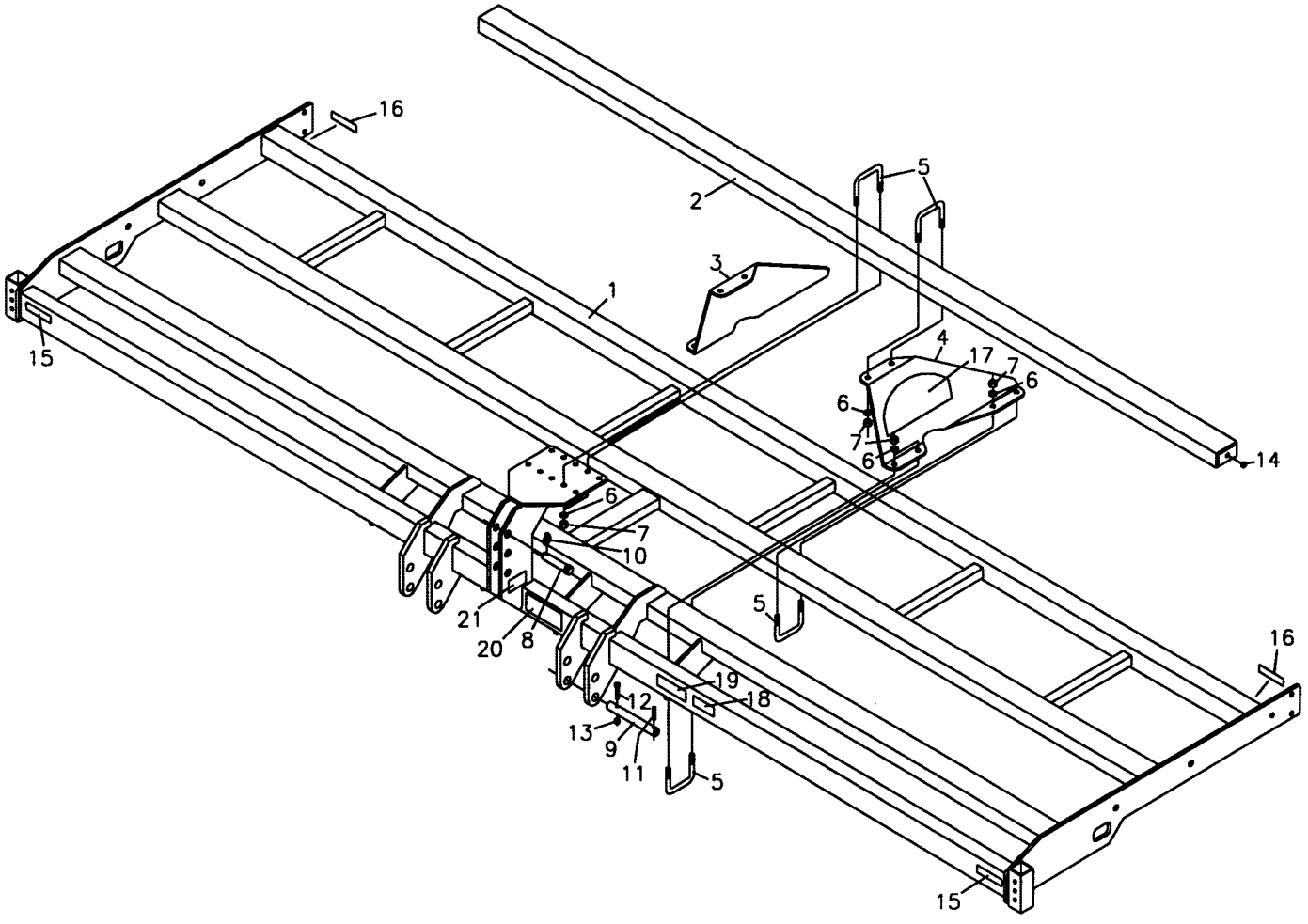
(COTTON SPECIAL)



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803550	Main Frame Weldment	1
2	803116	Upper Tube Weldment (120")	1
3	803017	Tie Plate – RH	3
4	803018	Tie Plate – LH	3
5	803005	U–Bolt 3/4"–10NC x 5" ID	21
6	2502001	Washer 3/4" Springlock	42
7	2500002	Nut 3/4"–10NC Full Hex	42
8	590158	Toplink Pin (AK–802)	1
9	803579	Hitch Pin (Cat. III)	2
10	590006	Linch Pin 7/16" (AK–14)	1
11	2504195	Roll Pin 1/2" x 2 1/2"	2
12	2503222	Bolt 1/2"–13NC x 2 1/2" Hex Hd Gr.5	2
13	2500039	Nut 1/2"–13NC Hex Nylock	2
14	2400040	Cap, Plastic 3/4"	2
15	101120	Safety Sign – Amber Reflector	2
16	101121	Safety Sign – Red Reflector	2
17	101108	Safety Sign – Terra–Max	2
18	101114	Safety Sign – Caution (Prevent Tip Over)	1
19	101115	Safety Sign – Caution (Prevent Accidental Unhooking)	1
20	101123	Safety Sign – Warning (Read Owner's Manual)	1
21	101126	Safety Sign – Warning (Coulter Blades Are Sharp)	1

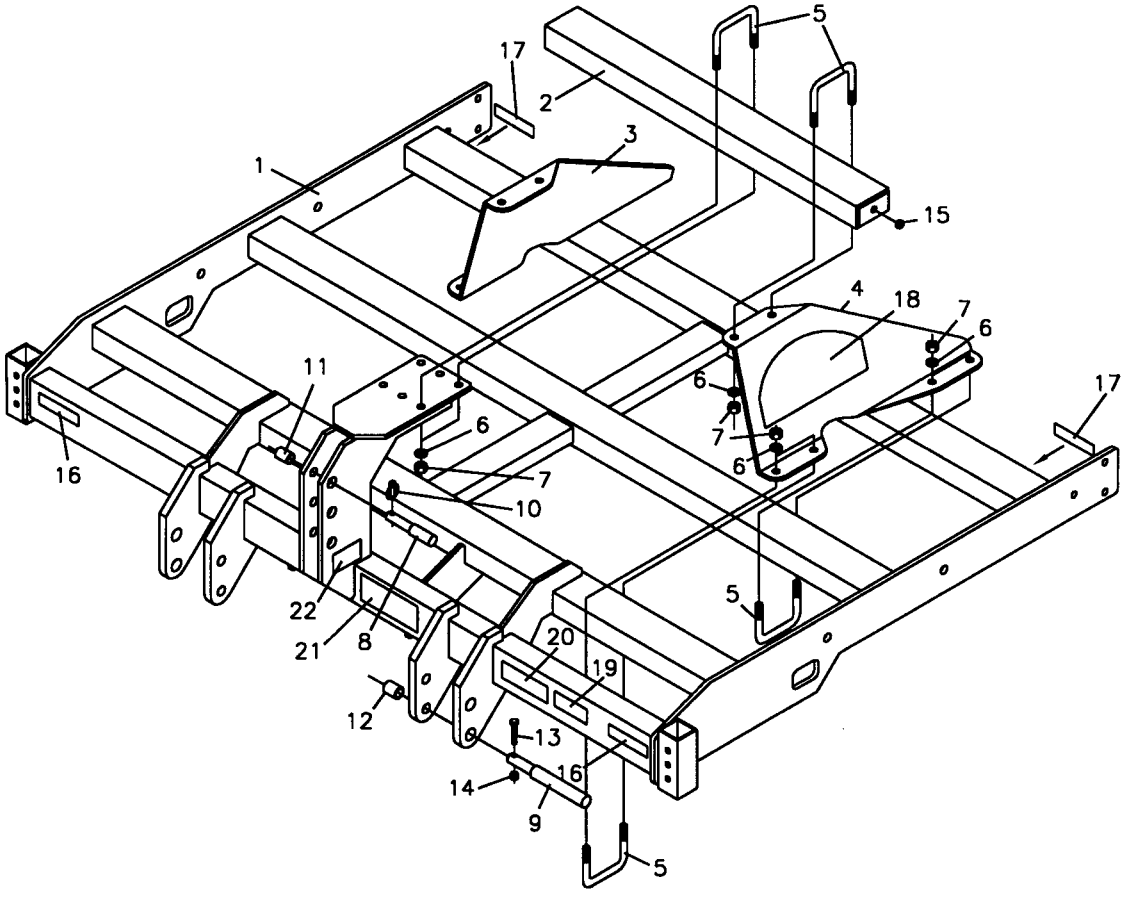
20 FT. FRAME PACKAGE

(COTTON SPECIAL)



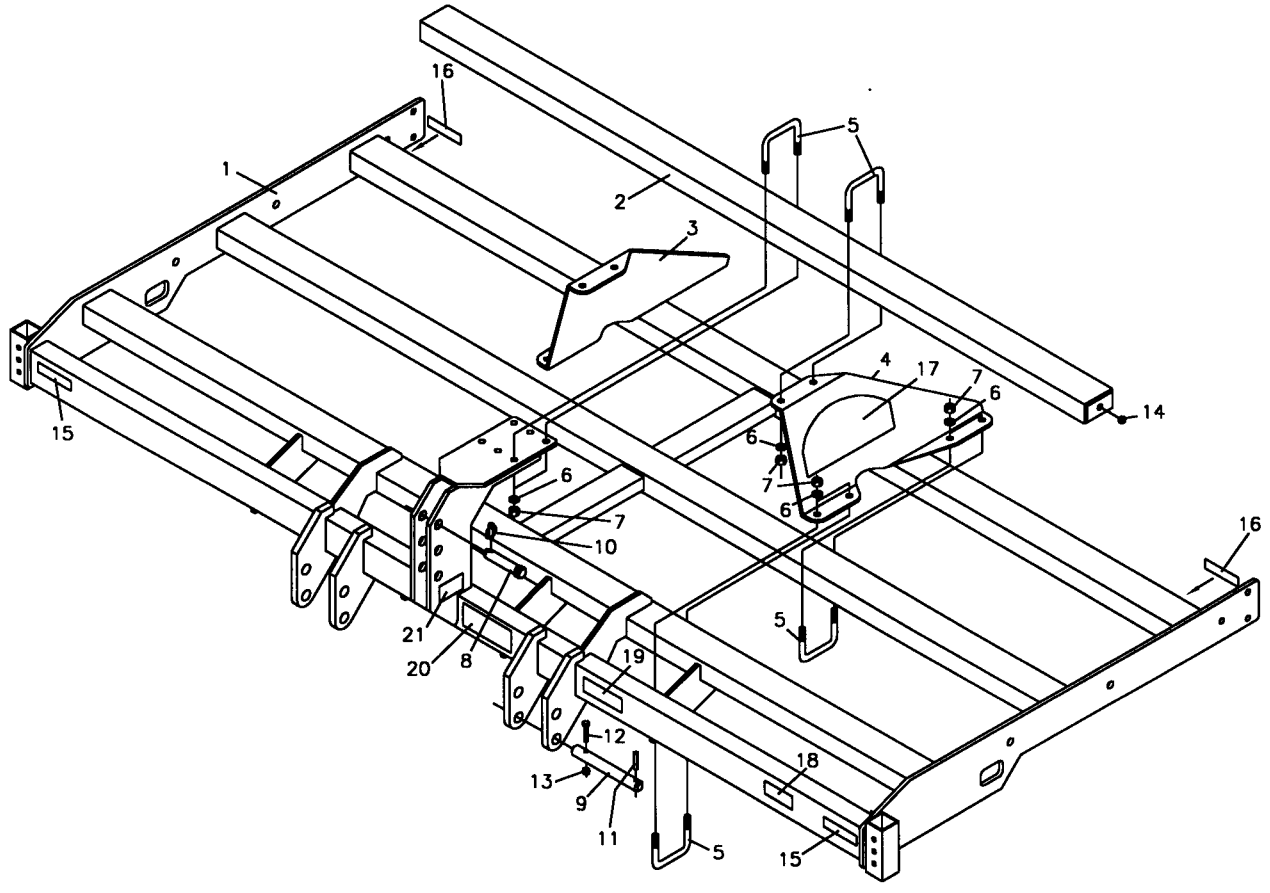
REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803572	Main Frame Weldment	1
2	803182	Upper Tube Weldment (180")	1
3	803017	Tie Plate – RH	4
4	803018	Tie Plate – LH	4
5	803005	U–Bolt 3/4"–10NC x 5" ID	29
6	2502001	Washer 3/4" Springlock	58
7	2500002	Nut 3/4"–10NC Full Hex	58
8	590158	Toplink Pin (AK–802)	1
9	803579	Hitch Pin (Cat. III)	2
10	590006	Linch Pin 7/16" (AK–14)	1
11	2504195	Roll Pin 1/2" x 2 1/2"	2
12	2503222	Bolt 1/2"–13NC x 2 1/2" Hex Hd Gr.5	2
13	2500039	Nut 1/2"–13NC Hex Nylock	2
14	2400040	Cap, Plastic 3/4"	2
15	101120	Safety Sign – Amber Reflector	2
16	101121	Safety Sign – Red Reflector	2
17	101108	Safety Sign – Terra–Max	2
18	101114	Safety Sign – Caution (Prevent Tip Over)	1
19	101115	Safety Sign – Caution (Prevent Accidental Unhooking)	1
20	101123	Safety Sign – Warning (Read Owner's Manual)	1
21	101126	Safety Sign – Warning (Coulter Blades Are Sharp)	1

8 FT. & 10 FT. TERRA-MAX II
FRAME PACKAGE



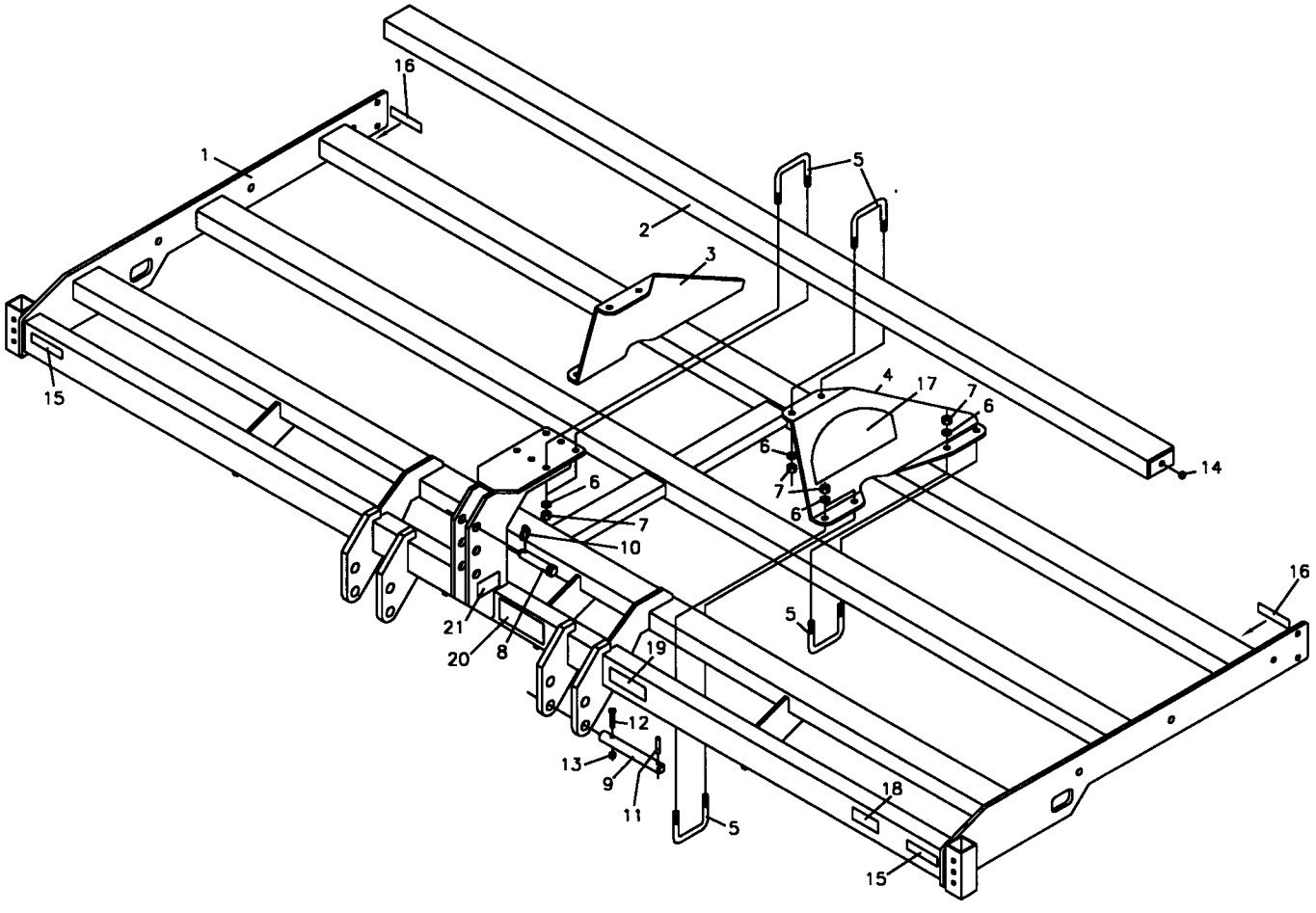
REF NO.	PART NO.	DESCRIPTION	NO. REQUIRED	
			8 FT.	10 FT.
1	803545	Main Frame Weldment (8 Ft.)	1	–
	803546	Main Frame Weldment (10 Ft.)	–	1
2	803113	Upper Tube Weldment (48")	1	–
	803114	Upper Tube Weldment (78")	–	1
3	803017	Tie Plate – RH	1	2
4	803018	Tie Plate – LH	1	2
5	803005	U–Bolt 3/4"–10NC x 5" ID	9	15
6	2502001	Washer 3/4" Springlock	18	30
7	2500002	Nut 3/4"–10NC Full Hex	18	30
8	803052	Toplink Pin	1	1
9	380142	Hitch Pin	2	2
10	590006	Linch Pin 7/16" (AK–14)	1	1
11	590066	Bushing, Toplink (AK–216)	1	1
12	590126	Bushing, Lift Arm (AK–58)	2	2
13	2503222	Bolt 1/2"–13NC x 2 1/2" Hex Hd Gr.5	2	2
14	2500039	Nut 1/2"–13NC Hex Nylock	2	2
15	2400040	Cap, Plastic 3/4"	2	2
16	101120	Safety Sign – Amber Reflector	2	2
17	101121	Safety Sign – Red Reflector	2	2
18	101108	Safety Sign – Terra–Max	2	2
19	101114	Safety Sign – Caution (Prevent Tip Over)	1	1
20	101115	Safety Sign – Caution (Prevent Accidental Unhooking)	1	1
21	101123	Safety Sign – Warning (Read Owner's Manual)	1	1
22	101126	Safety Sign – Warning (Coulter Blades Are Sharp)	1	1

12.5 FT. TERRA-MAX II
FRAME PACKAGE



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803547	Main Frame Weldment	1
2	803116	Upper Tube Weldment (120")	1
3	803017	Tie Plate – RH	3
4	803018	Tie Plate – LH	3
5	803005	U–Bolt 3/4"–10NC x 5" ID	21
6	2502001	Washer 3/4" Springlock	42
7	2500002	Nut 3/4"–10NC Full Hex	42
8	590158	Toplink Pin (AK–802)	1
9	803579	Hitch Pin (Cat. III)	2
10	590006	Linch Pin 7/16" (AK–14)	1
11	2504195	Roll Pin 1/2" x 2 1/2"	2
12	2503222	Bolt 1/2"–13NC x 2 1/2" Hex Hd Gr.5	2
13	2500039	Nut 1/2"–13NC Hex Nylock	2
14	2400040	Cap, Plastic 3/4"	2
15	101120	Safety Sign – Amber Reflector	2
16	101121	Safety Sign – Red Reflector	2
17	101108	Safety Sign – Terra–Max	2
18	101114	Safety Sign – Caution (Prevent Tip Over)	1
19	101115	Safety Sign – Caution (Prevent Accidental Unhooking)	1
20	101123	Safety Sign – Warning (Read Owner's Manual)	1
21	101126	Safety Sign – Warning (Coulter Blades Are Sharp)	1

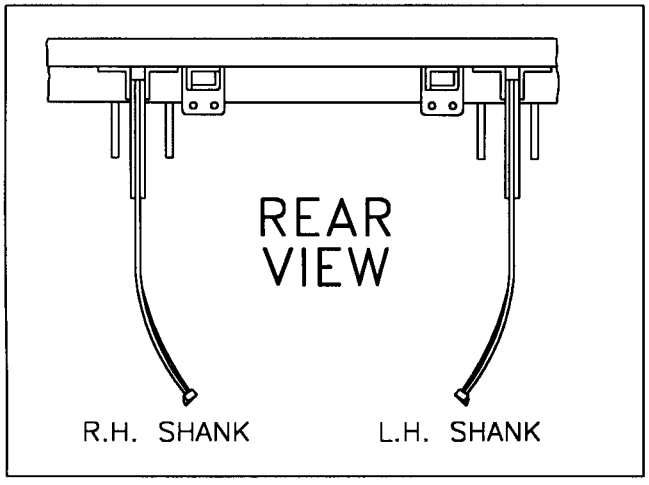
15 FT. TERRA-MAX II
FRAME PACKAGE



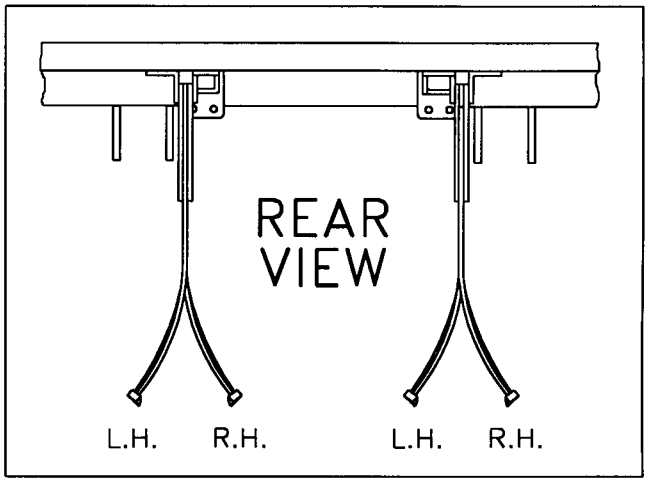
REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803548	Main Frame Weldment	1
2	803221	Upper Tube Weldment (150")	1
3	803017	Tie Plate – RH	4
4	803018	Tie Plate – LH	4
5	803005	U–Bolt 3/4"–10NC x 5" ID	27
6	2502001	Washer 3/4" Springlock	54
7	2500002	Nut 3/4"–10NC Full Hex	54
8	590158	Toplink Pin (AK–802)	1
9	803579	Hitch Pin (Cat. III)	2
10	590006	Linch Pin 7/16" (AK–14)	1
11	2504195	Roll Pin 1/2" x 2 1/2"	2
12	2503222	Bolt 1/2"–13NC x 2 1/2" Hex Hd Gr.5	2
13	2500039	Nut 1/2"–13NC Hex Nylock	2
14	2400040	Cap, Plastic 3/4"	2
15	101120	Safety Sign – Amber Reflector	2
16	101121	Safety Sign – Red Reflector	2
17	101108	Safety Sign – Terra–Max	2
18	101114	Safety Sign – Caution (Prevent Tip Over)	1
19	101115	Safety Sign – Caution (Prevent Accidental Unhooking)	1
20	101123	Safety Sign – Warning (Read Owner's Manual)	1
21	101126	Safety Sign – Warning (Coulter Blades Are Sharp)	1

POINT AND SHANK OPTIONS

TERRA–MAX I



TERRA–MAX II



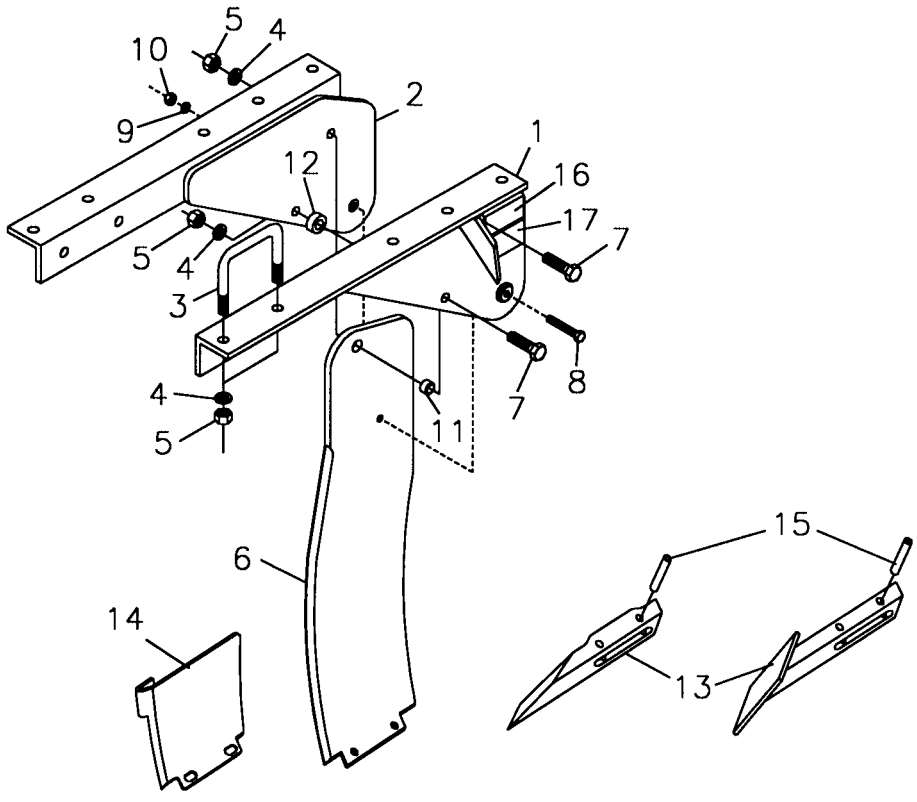
NOTE: SHANK IDENTIFICATION

R.H.–SHANKS CURVE TO THE RIGHT WHEN STANDING BEHIND THE UNIT.

L.H.–SHANKS CURVE TO THE LEFT WHEN STANDING BEHIND THE UNIT.

Part #	Description	Weight
803260	High Carbon Steel Point Assembly–L.H.	13
803261	High Carbon Steel Point Assembly–R.H.	13
803252	Weld–On HCS Wear Point	2
803358	Austempered Point – LH (Solid Body)	12
803359	Austempered Point – RH (Solid Body)	12
803531	Chromium–Carbide Point – RH (Solid Body)	12
803532	Chromium–Carbide Point – LH (Solid Body)	12
803250	Pin–On Wear Plate–L.H. (Abrasion Resistant)	6
803251	Pin–On Wear Plate–R.H. (Abrasion Resistant)	6
2504175	Roll Pin, 5/8" x 2 1/2" (2 per Shank)	0.1

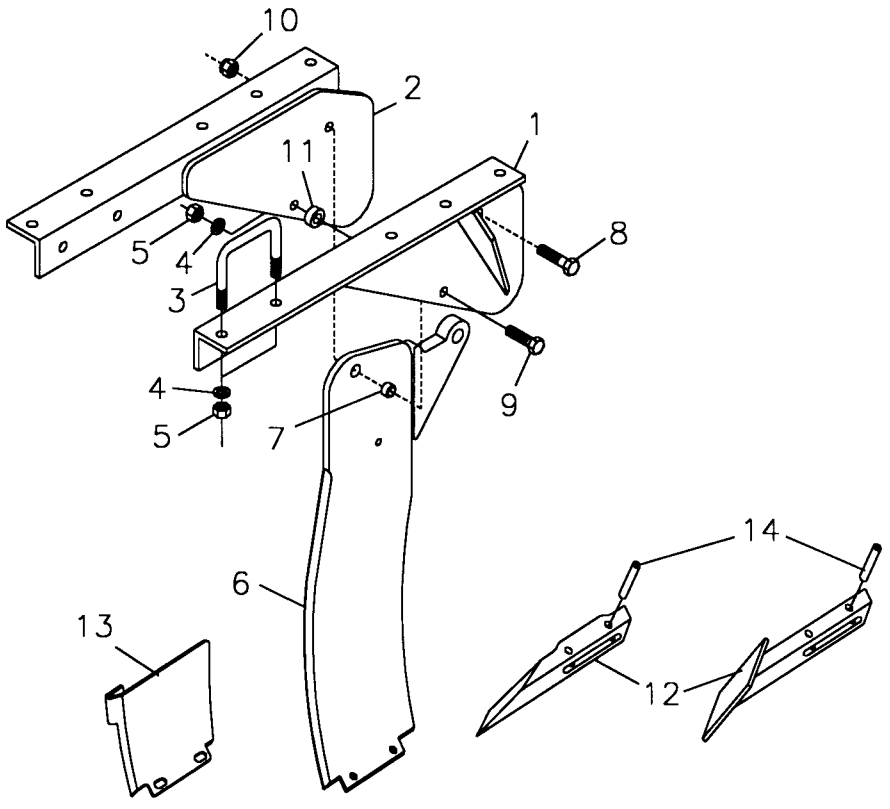
TERRA-MAX I
SHANK PACKAGE
(WITH SHEAR BOLT)



	REF NO.	PART NO.	DESCRIPTION	NO. REQ.
		803123	LH Shank Package	1
		803126	RH Shank Package	1
	1	803004	LH Shank Support Weldment	1
	2	803081	RH Shank Support Weldment	1
	3	803005	U-Bolt 3/4"-10NC x 5" ID	4
	4	2502001	Washer 3/4" Springlock	10
	5	2500002	Nut 3/4"-10NC Full Hex	10
	6	803121	LH Shank	1
	NS	803124	RH Shank	1
	7	2503085	Bolt 3/4"-10NC x 2 1/2" Hex Head Gr.5 (Pivot)	2
	8	2503151	Bolt 1/2"-13NC x 3" Hex Head Gr.5 (Shear)	1
	9	2502002	Washer 1/2" Springlock	1
	10	2500003	Nut 1/2"-13NC Full Hex	1
	11	803185	Split Bushing (Pivot) 1" OD x 3/4" ID x 5/8"	1
	12	803107	Shank Plate Spacer	1
*	13	See Page XX	LH Terra-Max Point (See Page 50 for options)	1
*	NS	See Page XX	RH Terra-Max Point (See Page 50 for options)	1
*	14	803250	LH Wear Plate (See Page 50 for options)	1
*	NS	803251	RH Wear Plate (See Page 50 for options)	1
*	15	2504175	Roll Pin (5/8" x 2 1/2")	2
	16	101117	Safety Sign - Important (Shear Bolt)	1
	17	101125	Safety Sign - Warning (Sever Finger)	1

*Points, Moldboards, and Roll Pins are options and are not included if ordering a Shank Package

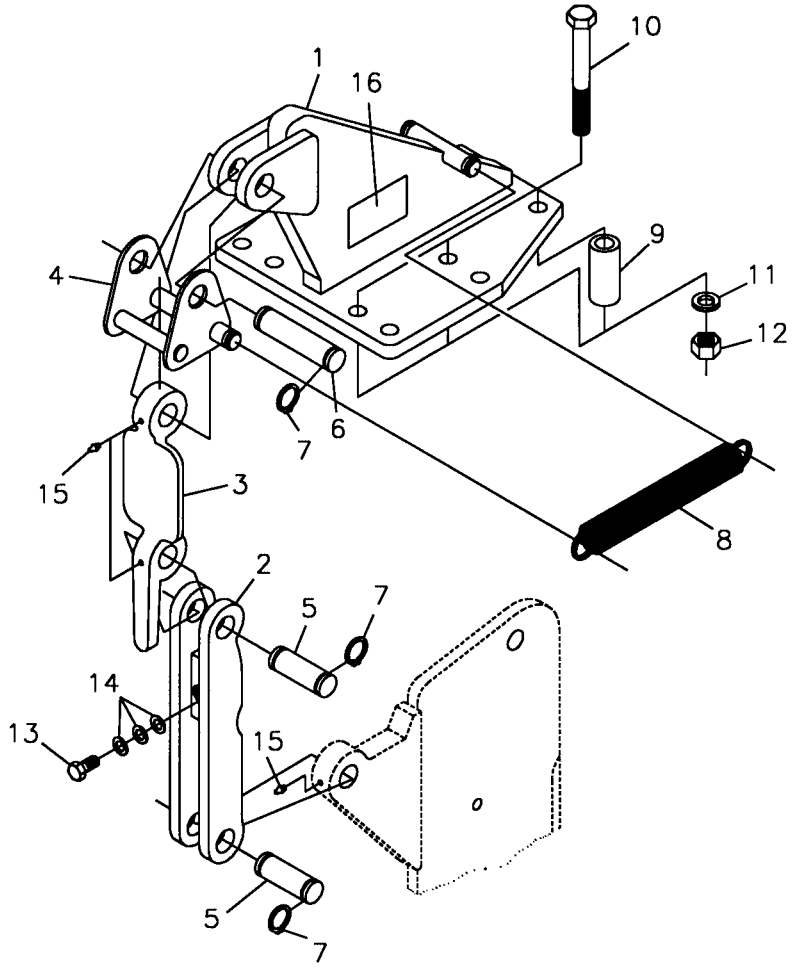
TERRA-MAX I
SHANK PACKAGE
(WITH TOGGLE TRIP)



	REF NO.	PART NO.	DESCRIPTION	NO. REQ.
		803390	LH Toggle Trip Shank Package	1
		803395	RH Toggle Trip Shank Package	1
	1	803402	LH Toggle Trip Shank Support Weldment	1
	2	803403	RH Toggle Trip Shank Support Weldment	1
	3	803005	U-Bolt 3/4"-10NC x 5" ID	4
	4	2502001	Washer 3/4" Springlock	9
	5	2500002	Nut 3/4"-10NC Full Hex	9
	6	803391	LH Toggle Trip Shank	1
	NS	803392	RH Toggle Trip Shank	1
	7	803185	Split Bushing (Pivot) 1" OD x 3/4" ID x 5/8"	1
	8	2503135	Bolt 3/4"-10NC x 3" Hex Head Gr.5	1
	9	2503085	Bolt 3/4"-10NC x 2 1/2" Hex Head Gr.5	1
	10	2500037	Nut 3/4"-10NC Hex Nylock	1
	11	803107	Shank Plate Spacer	1
*	12	See Page XX	LH Terra-Max Point (See Page 50 for options)	1
*	NS	See Page XX	RH Terra-Max Point (See Page 50 for options)	1
*	13	803250	LH Wear Plate (See Page 50 for options)	1
*	NS	803251	RH Wear Plate (See Page 50 for options)	1
*	14	2504175	Roll Pin (5/8" x 2 1/2")	2

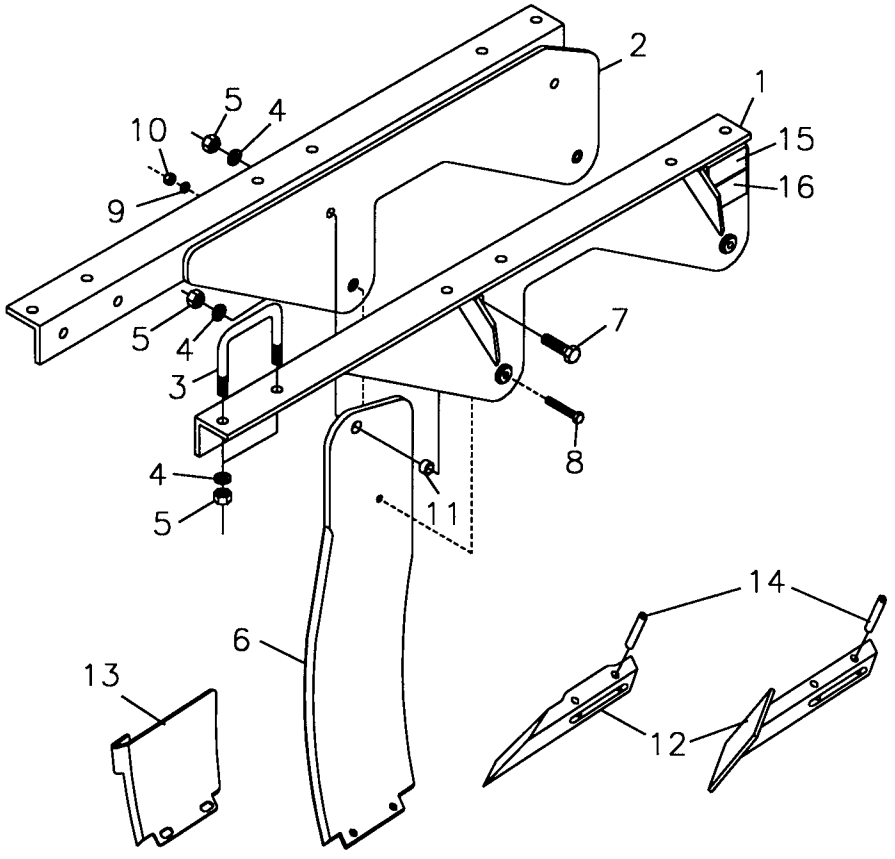
*Points, Moldboards, and Roll Pins are options and are not included if ordering a Shank Package

TOGGLE TRIP LINKAGE PACKAGE



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803381	Base Weldment	1
2	803387	Trip Link Weldment	1
3	803393	Spring Link	1
4	803406	Spring Bracket Weldment	1
5	803396	Short Pin – Trip Link	2
6	803397	Long Pin – Trip Link	1
7	2504176	Snap Ring 1 1/8" (SHR–112)	6
8	803398	Extension Spring 1 1/4" x 10"	2
9	803386	Toggle Base Spacer	2
10	2503035	Bolt 3/4"–10NC x 6" Hex Head	6
11	2502001	Washer 3/4" Springlock	6
12	2500002	Nut 3/4"–10NC Full Hex	6
13	2503062	Bolt 1/2"–13NC x 1" Hex Hd.	1
14	2504177	Machinery Bushing 1/2" ID x 18 Ga.	3
15	2504178	Grease Zerk 1/4"–28NF	3
16	101124	Safety Sign – Warning (Severe Hand Injury)	1

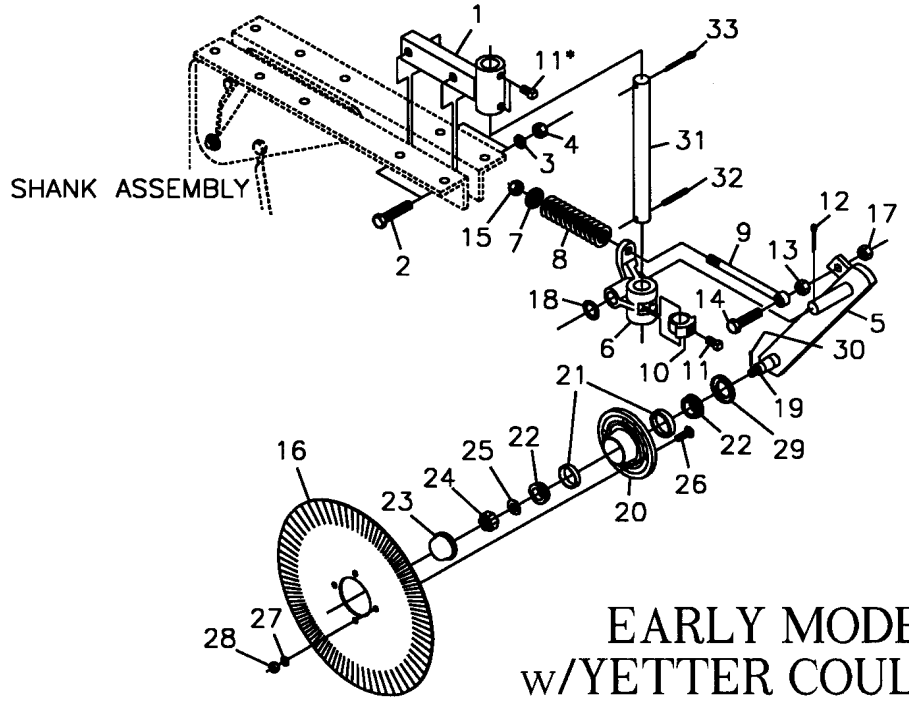
TERRA-MAX II
SHANK PACKAGE



	REF NO.	PART NO.	DESCRIPTION	NO. REQ.
		803127	Terra-Max II Shank Package	1
	1	803010	LH Shank Support Weldment	1
	2	803083	RH Shank Support Weldment	1
	3	803005	U-Bolt 3/4"-10NC x 5" ID	6
	4	2502001	Washer 3/4" Springlock	14
	5	2500002	Nut 3/4"-10NC Full Hex	14
	6	803121	LH Shank	1
	NS	803124	RH Shank	1
	7	2503085	Bolt 3/4"-10NC x 2 1/2" Hex Head Gr.5 (Pivot)	2
	8	2503151	Bolt 1/2"-13NC x 3" Hex Head Gr.5 (Shear)	2
	9	2502002	Washer 1/2" Springlock	2
	10	2500003	Nut 1/2"-13NC Full Hex	2
	11	803185	Split Bushing (Pivot) 1" OD x 3/4" ID x 5/8"	2
*	12	See Page XX	LH Terra-Max Point (See Page 50 for options)	1
*	NS	See Page XX	RH Terra-Max Point (See Page 50 for options)	1
*	13	803250	LH Wear Plate (See Page 50 for options)	1
*	NS	803251	RH Wear Plate (See Page 50 for options)	1
*	14	2504175	Roll Pin (5/8" x 2 1/2")	2
	15	101117	Safety Sign - Important (Shear Bolt)	1
	16	101125	Safety Sign - Warning (Sever Finger)	1

*Points, Moldboards, and Roll Pins are options and are not included if ordering a Shank Package

TERRA-MAX COULTER PACKAGE

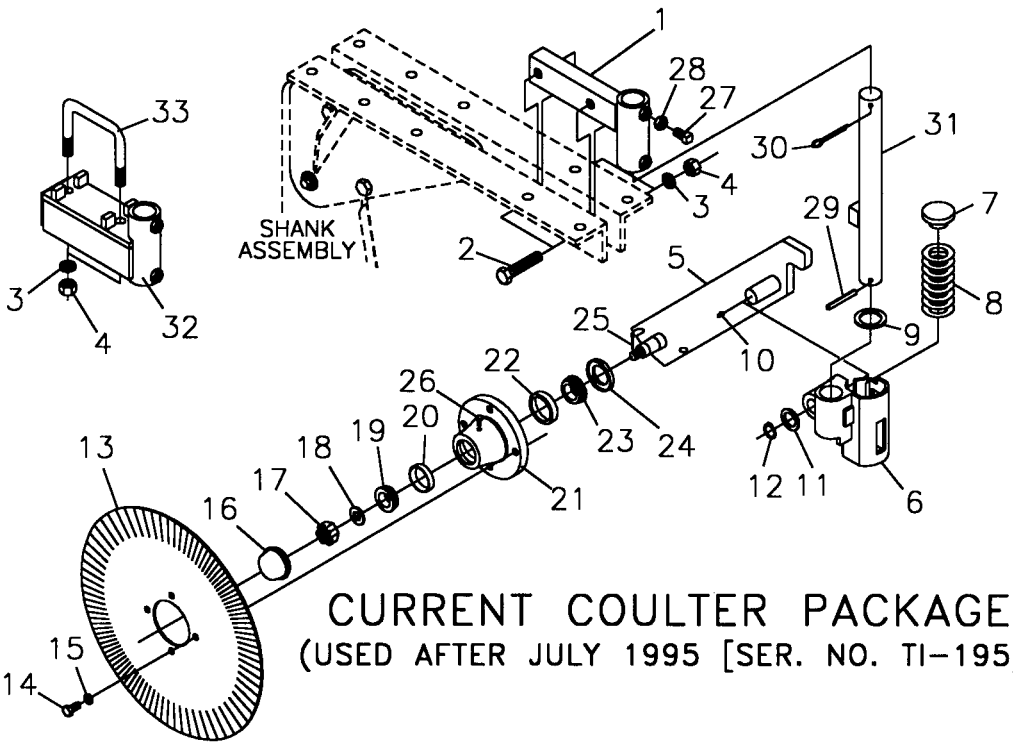


EARLY MODEL w/YETTER COULTERS

REF NO.	WORKSAVER PART NO.	DESCRIPTION	NO. REQ.	YETTER PART NO.
1	803085	Coulter Mount	1	
2	2503024	Bolt 3/4"-10NC x 3 1/2" Hex Head	2	
3	2502001	Washer 3/4" Springlock	2	
4	2500002	Nut 3/4"-10NC Full Hex	2	
	803120	Coulter Assembly (Includes #5 thru 30)	1	2910-020-BB
5	803216	Coulter Arm	1	2910-201
6	803208	Hinge Casting	1	2910-303
7	803214	Spring Bushing	1	2910-302
8	803213	Spring	1	2910-311
9	803212	Push Rod	1	2910-121
10	803130	Locking Collar w/Set Screw (Ref. #11)	1	2910-301-BB
11*	2503244	Set Screw 5/8"-11NC x 1" Sq.Hd. Gr.5	3	2503-379
12	2504068	Cotter Pin 1/4" x 1 3/4"	1	2531-151
13	803209	Nut 3/4"-16NF Hex Jam	1	2520-312
14	803210	Bolt 3/4"-16NF x 3" Hex Head Gr.5	1	2502-410
15	803211	Nut 3/4"-10NC Hex Stamplock	1	2520-515
16	803128	Coulter Blade 20" Dura Flute	1	2571-076
17	803215	Nut 3/4"-16NF Hex Stamplock	1	2520-510
18	803217	Machinery Bushing 1 1/4" ID x 14 Ga.	1	2526-561
19	803255	Coulter Spindle	1	2900-108
	803129	Hub Assembly (Includes #20 thru 30)	1	2900-123
20	803277	Hub Pressed Assembly w/Cup (Ref. #21)	1	2900-105
21	803204	Cup LM-67010	2	2550-029
22	803203	Cone LM-67048	2	2550-027
23	803200	Hub Cap	1	2570-375
24	803201	Nut 5/8"-18NF Slotted Hex	1	2520-461
25	803202	Washer 5/8" Flat	1	2526-449
26	803207	Bolt 1/2"-13NC x 1 1/2" Carr.Hd. Gr.5	4	2505-339
27	2502002	Washer 1/2" Springlock	4	2525-352
28	2500003	Nut 1/2"-13NC Full Hex	4	2520-352
29	803205	Seal CR 16069	1	2555-115
30	803278	Cotter Pin 1/8" x 1 1/4"	1	2531-102
31	803132	Coulter Shank 16"	1	2990-318
32	2504100	Roll Pin 3/8" x 3"	1	
33	2504148	Cotter Pin 3/8" x 2 1/2"	1	

*EARLY MODELS USE 1/2"-13NC x 1" SET SCREW PART #2503126

TERRA-MAX COULTER PACKAGE

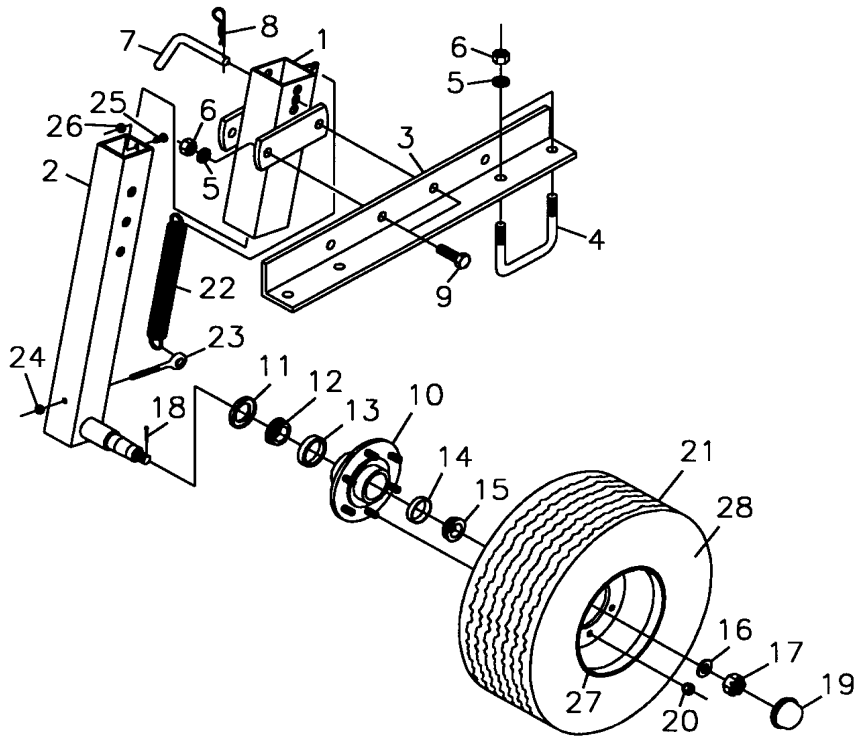


CURRENT COULTER PACKAGE
(USED AFTER JULY 1995 [SER. NO. TI-195])

TMC

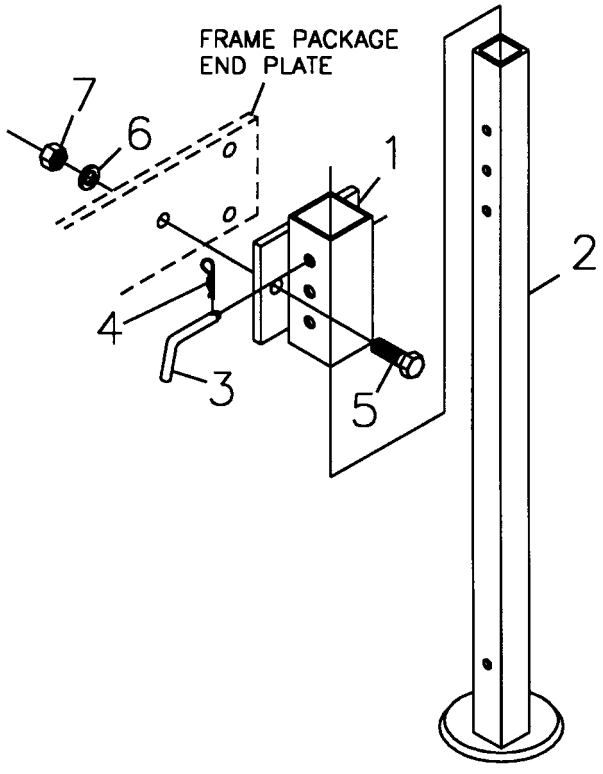
REF NO.	WORKSAVER PART NO.	DESCRIPTION	NO. REQ.	REFERENCE PART NO.
1	803451	Coulter Mount	1	
2	2503024	Bolt 3/4"-10NC x 3 1/2" Hex Head	2	
3	2502001	Washer 3/4" Springlock	2	
4	2500002	Nut 3/4"-10NC Full Hex	2	
	803498	Coulter Assembly (Includes #5 thru 26)	1	AM-2710
5	803499	Coulter Arm w/Spindle & Pivot Shaft	1	AM-2705
6	803500	Knee Casting	1	AM-2708
7	803586	Spring Cap	1	AM-2709
8	803587	Spring	1	AP-2710
9	803496	Machine Washer 1 3/4" ID x 10 Ga.	2	BP-3205
10	803497	Grease Zerk	1	BP-3072
11	803588	Machine Washer 1 1/4" ID x 1 7/8" OD	1	BP-3192
12	803589	Snap Ring	1	AP-2711
13	803456	Coulter Blade 20" Fluted (4 Bolt)	1	AP-2701
	803493	Hub Assembly (Includes #14 thru 26) 4 Bolt	1	AP-2707
14	803486	Bolt 1/2"-20NF x 1" Hex Head Gr.5	4	AP-2702
15	2502002	Washer 1/2" Springlock	4	BP-3043
16	803487	Dust Cap ARW-W	1	AP-2703
17	803488	Spindle Nut 3/4"-16NC (Slotted)	1	AP-2704
18	803489	Spindle Washer 1 1/2" OD x 13/16" ID	1	AP-2705
19	803490	Outer Cone LM-11949	1	AP-2024
20	803491	Outer Cup LM-11910	1	AP-2075
21	803492	Hub Ass'y w/Cups & Plug (Ref. #20, #22, #27) 4 Bolt	1	AP-2706-1
22	803204	Inner Cup LM-67010	1	AP-2524
23	803203	Inner Cone LM-67048	1	AP-2526
24	803494	Oil Seal (CR 15235)	1	AP-2747
25	803495	Cotter Pin 5/32" x 1 1/2"	1	AP-2029
26	803566	Plug	1	BP-3552
27	2503251	Set Screw 5/8"-11NC x 1 1/2" Sq.Hd.	2	
28	2500073	Nut 5/8"-11NC Hex Jam	2	
29	2504100	Roll Pin 3/8" x 3"	1	
30	2504148	Cotter Pin 3/8" x 2 1/2"	1	
31	803580	Shank Weldment ø1.75" x 18"	1	
32	803453	Coulter Mount for coulters between row units	1	
33	803005	U-Bolt 3/4"-10NC x 5" ID	1	

TERRA-MAX GAUGE WHEEL PACKAGE



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803165	Tube Weldment	1
2	803169	Strut Weldment	1
3	803171	Mounting Angle	1
4	803005	U-Bolt 3/4"-10NC x 5" ID	2
5	2502001	Washer 3/4" Springlock	6
6	2500002	Nut 3/4"-10NC Full Hex	6
7	803119	Adjustment Pin	1
8	590187	Hair Clip Pin (AK-2704)	1
9	2503002	Bolt 3/4"-10NC x 2" Hex Head	2
-	803117	Hub (6 Bolt) Complete (Includes #10-15,19)	1
10	803264	Hub Casting w/Cups	1
11	803265	Seal (National #204038)	1
12	803266	Cone, Inner (LM 48548)	1
13	803267	Cup, Inner (LM 48510)	1
14	803204	Cup, Outer (LM 67010)	1
15	803203	Cone, Outer (LM 67048)	1
16	803268	Washer	1
17	803269	Nut, Slotted	1
18	803274	Cotter Pin	1
19	803275	Hub Cap	1
20	803276	Nut, Lug	6
21	803118	Tire (30.5 x 8.0-10) w/Rim (10 x 6)	1
22	803172	Extension Spring (1.5 x 11.5)	1
23	2503228	Bolt 3/8"-16NC x 6" Eye	1
24	2500042	Nut 3/8"-16NC Hex Nylock	1
25	2503030	Bolt 3/8"-16NC x 3/4" Hex Head	1
26	2500004	Nut 3/8"-16NC Full Hex	1
27	803289	Rim, Gauge Wheel (10x6)	1
28	803288	Tire, Gauge Wheel (30.5x8.0-10)	1

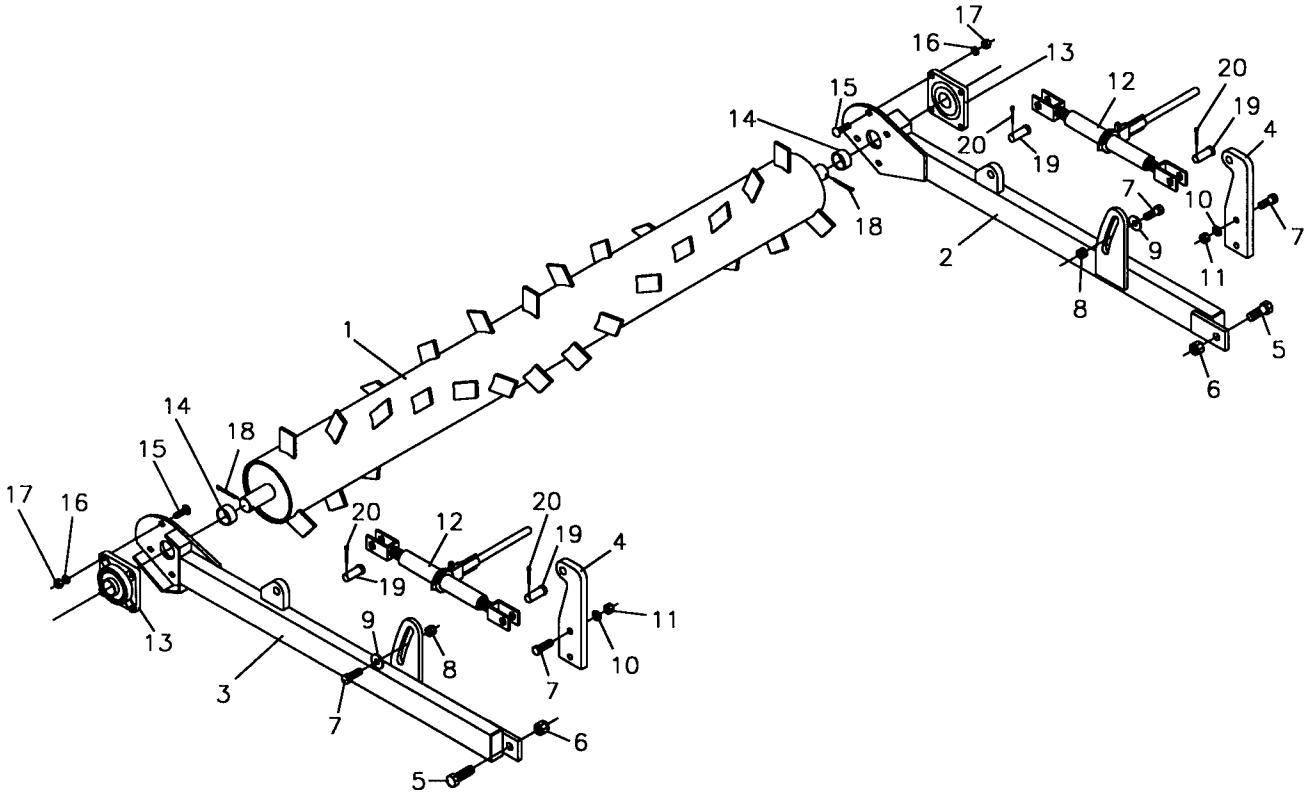
TERRA-MAX STAND KIT



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803632	Stand Mounting Bracket	2
2	803631	Stand Weldment	4
3	803637	Hitch Pin	4
4	590187	Hair Clip Pin	4
5	2503002	Bolt 3/4"-10NC x 2" Hex Head	6
6	2502001	Washer 3/4" Springlock	6
7	2500002	Nut 3/4"-10NC Full Hex	6

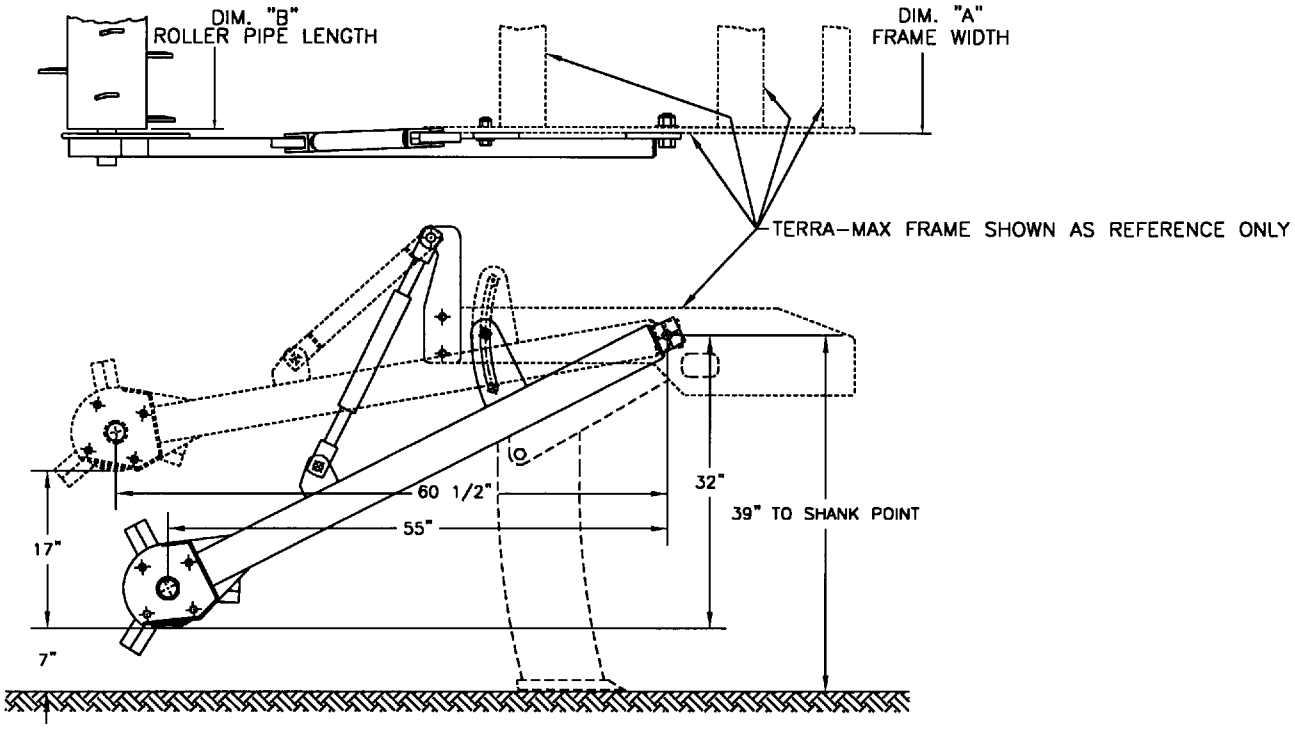
NOTE: IF OPTIONAL ROLLER-CONDITIONER UNIT IS ON MACHINE - LONGER BOLTS ARE USED AND LISTED WITH ROLLER-CONDITIONER PARTS.

ROLLER CONDITIONER PACKAGE

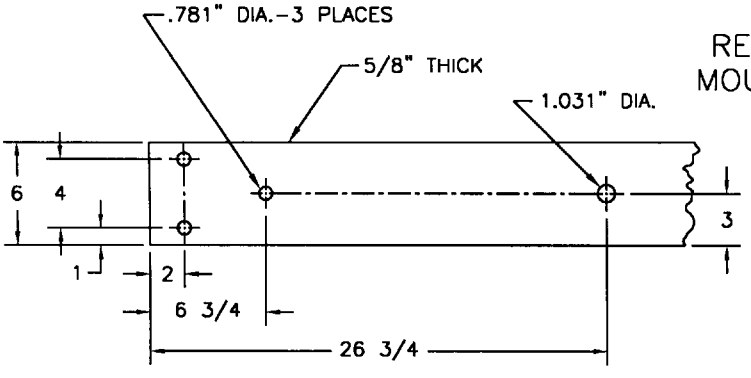


REF. NO.	PART NO.	DESCRIPTION	NO. REQ'D.
1	803541	6 Ft. Roller Weldment	1
	803101	8 Ft. Roller Weldment	1
	803162	10 Ft. Roller Weldment	1
	803102	12.5 Ft. Roller Weldment	1
	803026	15 Ft. Roller Weldment	1
	803103	17.5 Ft. Roller Weldment	1
	803682	20 Ft. Roller Weldment	1
2	803620	HD Roller Arm Weldment LH	1
3	803623	HD Roller Arm Weldment RH	1
4	803025	Turnbuckle Anchor	2
5	2503083	Bolt 1"-8NC x 3" Hex Head	2
6	2500045	Nut 1"-8NC Nylock Hex	2
7	2503084	Bolt 3/4"-10NC x 3" Hex Head	6
8	2500037	Nut 3/4"-10NC Nylock Hex	2
9	2501002	Washer 3/4" Flat	2
10	2502001	Washer 3/4" Springlock	4
11	2500002	Nut 3/4"-10NC Full Hex	4
12	590208	HD Ratchet Jack w/Pins (RJ-100)	2
13	2505029	Bearing, 4 Bolt Flanged (2" Bore)	2
13A	2505032	Bearing Insert Only (UC211-32)	As Req'd.
14	803624	Spacer, Roller (2.38" OD x 1.13" Lg.)	2
15	2503136	Bolt 5/8"-11NC x 2" Carriage Head	8
16	2502007	Washer 5/8" Springlock	8
17	2500013	Nut 5/8"-11NC Full Hex	8
18	2504148	Cotter Pin 3/8" x 2 1/2"	2
19	863068	Pin, Leveling Link	4
20	2504007	Cotter Pin 3/16" x 1 3/4"	4

ROLLER CONDITIONER PACKAGE
REFERENCE DIMENSIONS

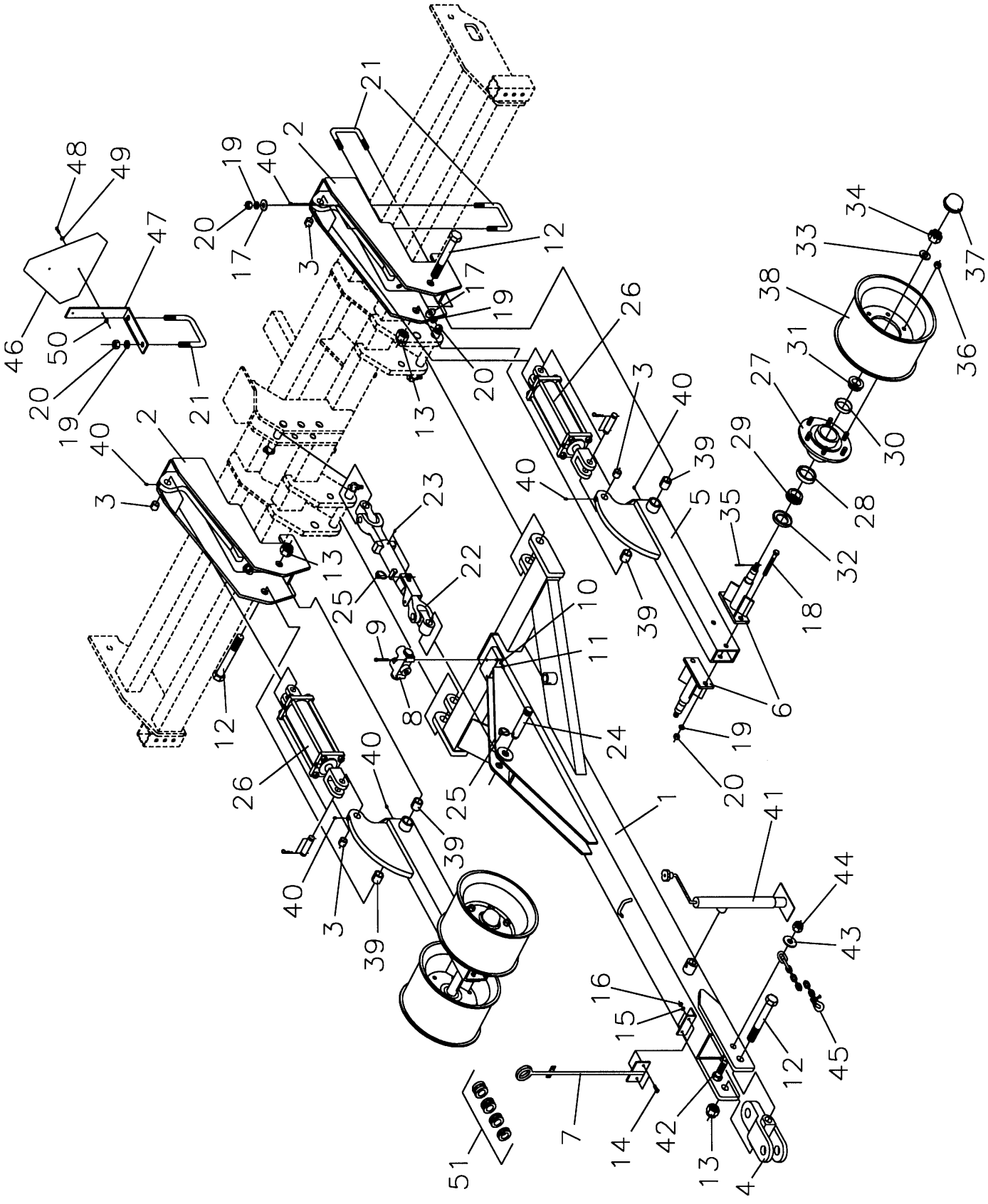


PACKAGE NO.	WIDTH	DIM. "A"	DIM. "B"
803540	6 FT.	73 1/4"	72"
803154	8 FT.	97 1/4"	96"
803161	10 FT.	121 1/4"	120"
803155	12.5 FT.	151 1/4"	150"
803156	15 FT.	181 1/4"	180"
803157	17.5 FT.	211 1/4"	210"
803680	20 FT.	241 1/4"	240"



REQUIRED HOLE LOCATIONS FOR
MOUNTING ROLLER PACKAGE ARMS

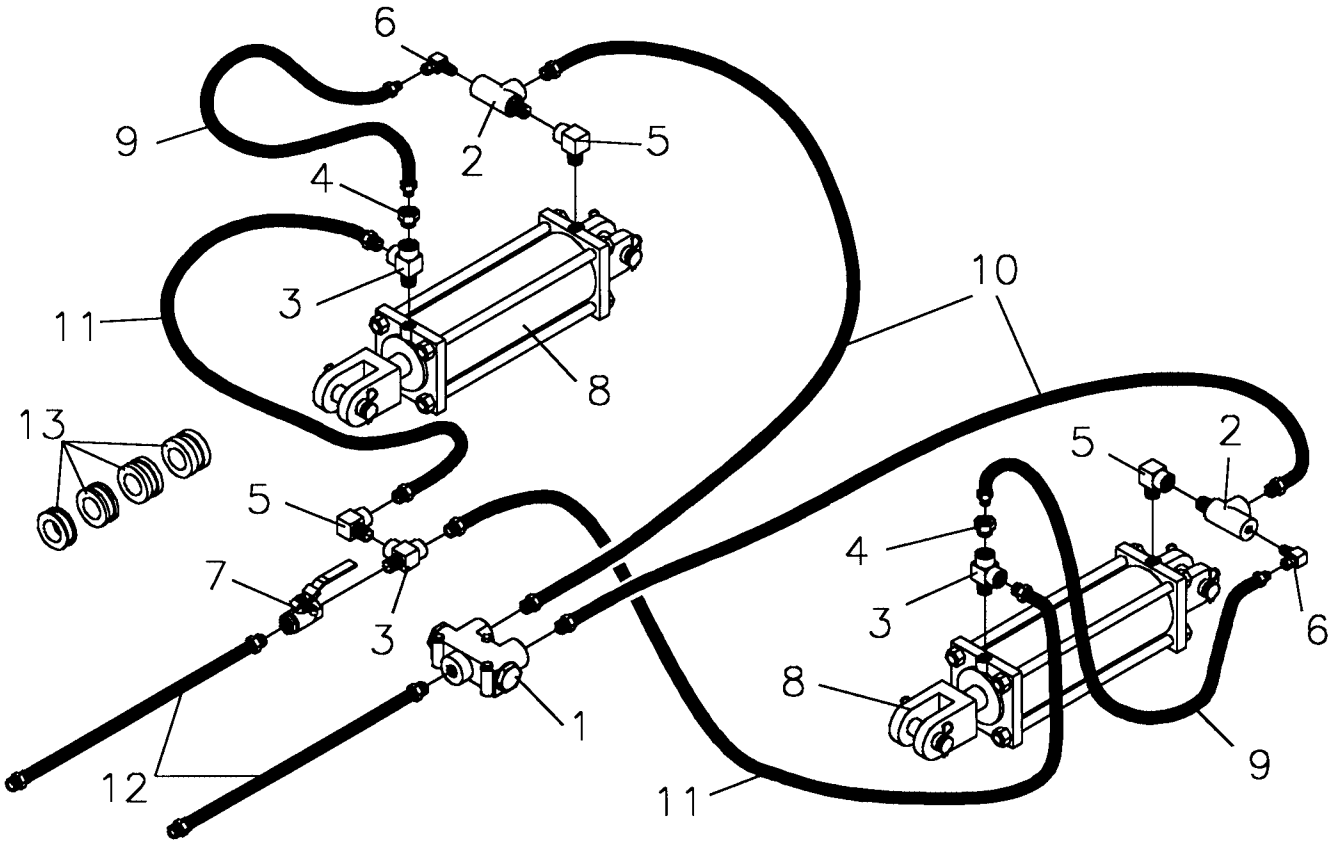
PULL TYPE CONVERSION PACKAGE



PULL TYPE CONVERSION PACKAGE

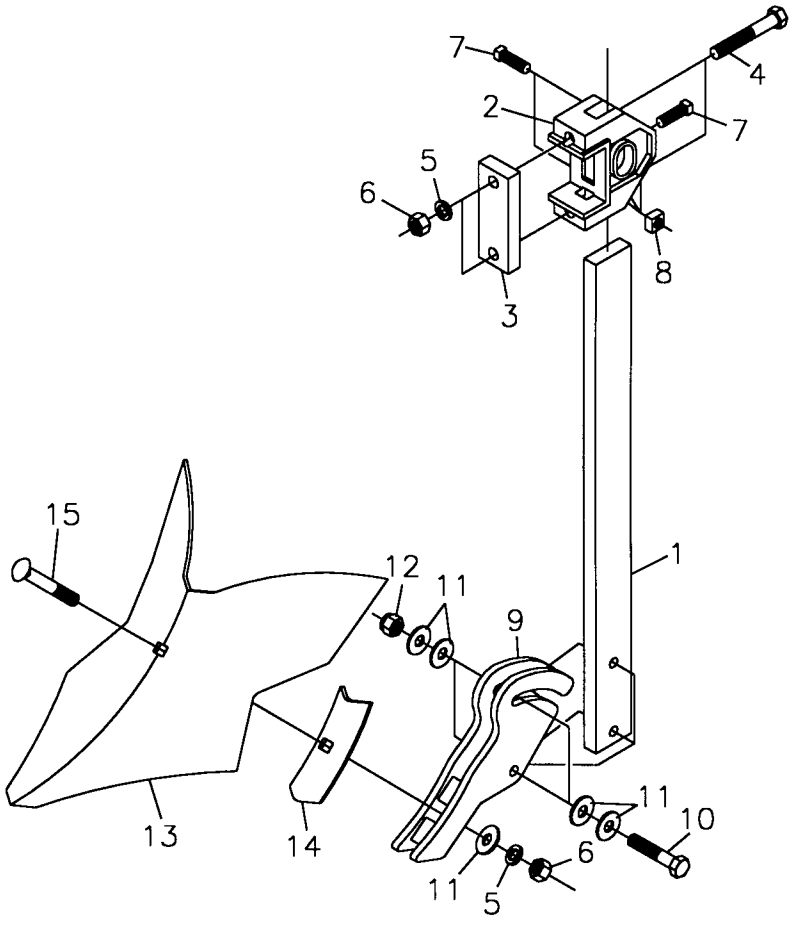
REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803841	Tongue Weldment	1
2	803850	Pull Bracket Weldment	2
3	2505035	Bushing, Spring 1 1/4" x 1" x 1"	4
4	803859	Hitch Clevis	1
5	803845	Transport Strut Weldment	2
6	380501	Wheel Spindle Weldment	4
7	803149	Hose Retainer Weldment	1
8	2505551	Flow Divider w/Combiner	1
9	2503098	Bolt 5/16"-18NC x 2 1/2" Hex Head	3
10	2502011	Washer 5/16" Springlock	3
11	2500011	Nut 5/16"-18NC Full Hex	3
12	2503225	Bolt 1 1/4"-7NC x 9" Hex Head Gr. 5	3
13	2500053	Nut 1 1/4"-7NC Nylock Hex	3
14	2503011	Bolt 3/8"-16NC x 1" Hex Head	2
15	2502008	Washer 3/8" Springlock	2
16	2500004	Nut 3/8"-16NC Full Hex	2
17	2501002	Washer 3/4" Flat	16
18	2503087	Bolt 3/4"-10NC x 5" Hex Head Gr. 5	4
19	2502001	Washer 3/4" Springlock	22
20	2500002	Nut 3/4"-10NC Full Hex	22
21	803005	U-Bolt 3/4"-10NC x 5" ID	9
22	590339	Toplink (JD #4630)	1
23	2504014	Zerk, Grease 1/8"NPT	2
24	590158	Toplink Pin (AK-802)	1
25	590006	Linch Pin 7/16" (AK-14)	2
26	2504160	Cylinder, Hydraulic 4 x 10	2
27	2801000	Hub-6 Lug	4
28	2801003	Inner Bearing Cup LM67010	4
29	2801004	Inner Bearing Cone LM64048	4
30	2801005	Outer Bearing Cup LM11710	4
31	2801006	Outer Bearing Cone LM11747	4
32	2801007	Seal C/R 16069	4
33	2801008	Washer	4
34	2801009	Nut	4
35	2801010	Cotter Pin	4
36	2801011	Lug Nut	24
37	2801012	Hub Cap	4
38	2801002	Wheel, Black 15 x 8 Lb.	4
39	2504162	Bushing, Spring 1 5/8" x 1 1/4" x 1 1/2"	4
40	2504049	Zerk, Drive 5/16"	6
41	803179	Jack, Tongue	1
42	2503260	Bolt 1"-8NC x 3" Hex Head Gr. 5	1
43	2501001	Washer 1" Flat	1
44	2500045	Nut 1"-8NC Nylock Hex	1
45	803293	Safety Chain Assembly	1
46	803294	SMV Safety Sign	1
47	803292	Bracket, SMV Emblem	1
48	2503009	Bolt 1/4"-20NC x 1" Round Head	2
49	2501006	Washer 1/4" Flat	2
50	2500008	Nut 1/4"-20NC Whiz Hex Flange	2
51	803298	Stroke Control Collars (Set of 4)	2
N/S	101116	Safety Sign-Important (Inflate Tires to 35 PSI)	2
N/S	101118	Safety Sign-Warning (Tow With Farm Tractor Only)	1
N/S	101119	Safety Sign-Warning (Tongue Raises Rapidly)	1
N/S	101122	Safety Sign-Warning (High Pressure Fluid)	1

PULL PACKAGE HYDRAULIC KIT



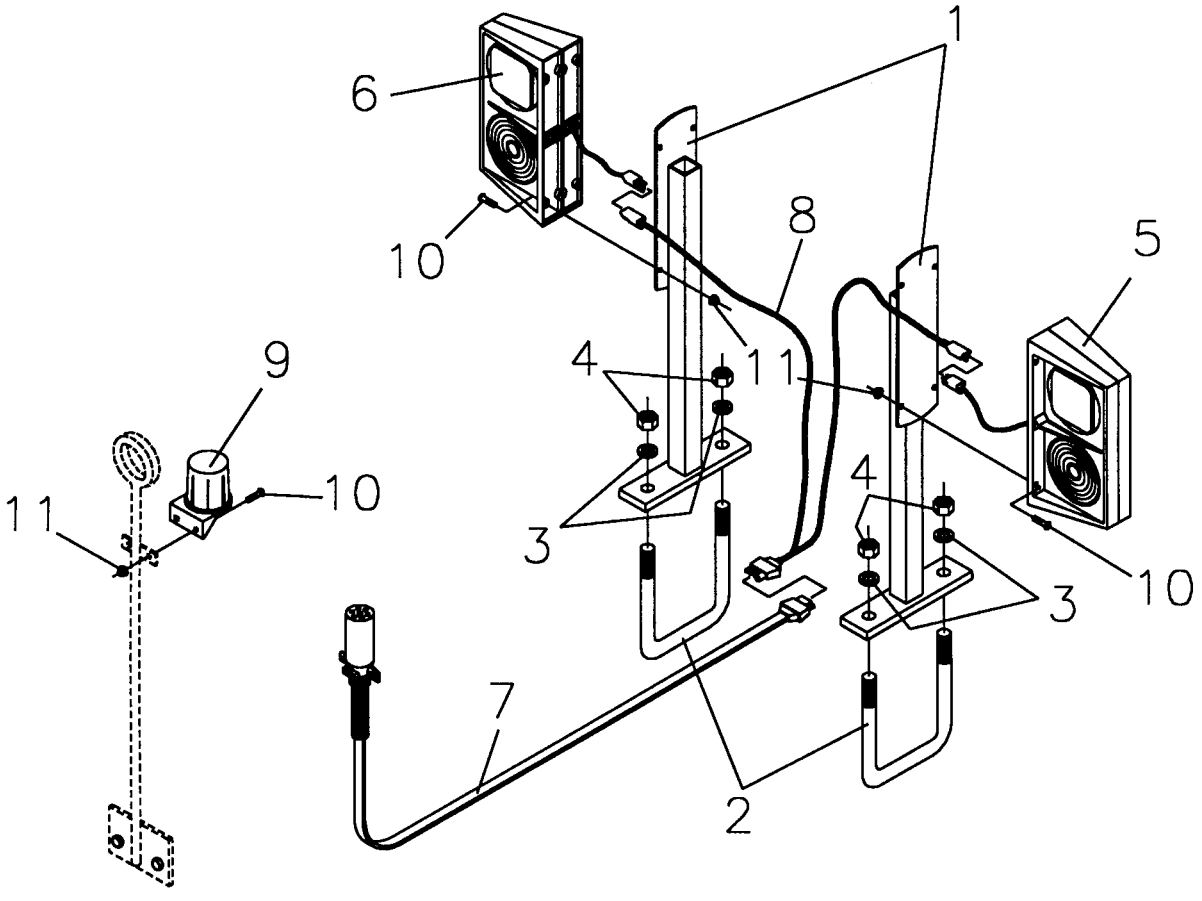
REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	2505551	Flow Divider w/Combiner	1
2	2505552	Pilot Check Valve	2
3	2504074	Male Run Tee 1/2" NPT	3
4	2505507	Reducer Bushing 1/2" to 1/4"	2
5	2900021	90° Street Elbow 1/2"	3
6	2505530	90° Swivel Elbow 1/4"–18NPT	2
7	2505569	1/2" Ball Valve	1
8	2504160	Cylinder, Hydraulic 4 x 10	2
9	2505514	Hose, Hydraulic 1/4" ID x 24" Lg.	2
10	2505554	Hose, Hydraulic 3/8" ID x 84" Lg.	2
11	2504099	Hose, Hydraulic 3/8" ID x 96" Lg.	2
12	2505556	Hose, Hydraulic 3/8" ID x 168" Lg.	2
13	803298	Stroke Control Collars (Set of 4)	2
N/S	2505544	Nylon Tie Straps	6

FURROWER ROW UNIT PACKAGE



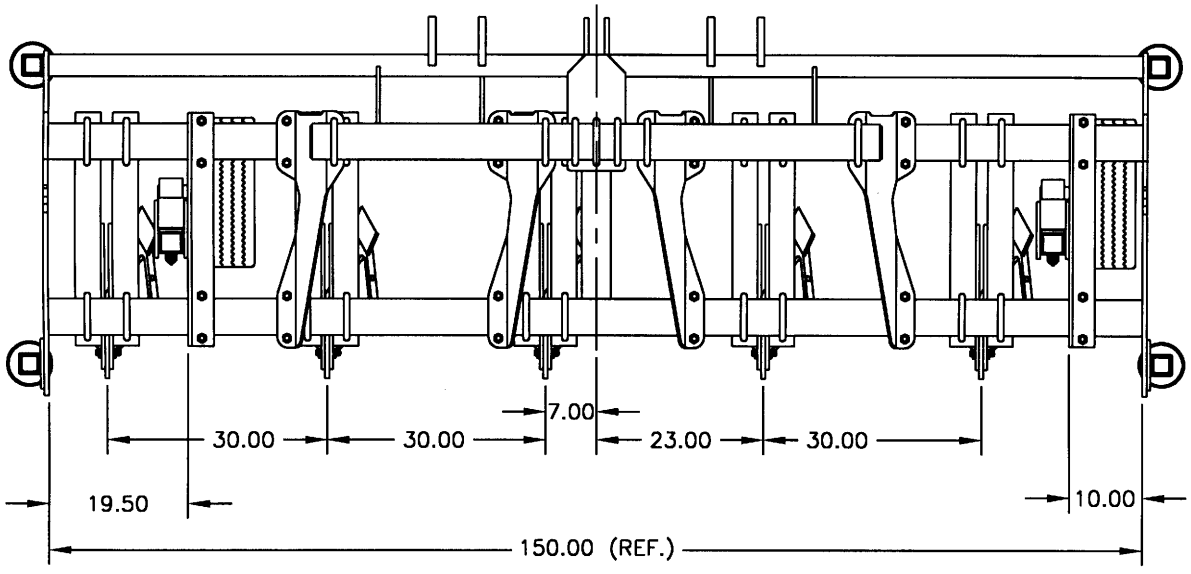
REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803281	Standard, Furrower	1
2	803282	Clamp, Furrower	1
3	803283	Backup Bar, Furrower Clamp	1
4	2503087	Bolt 3/4"–10NC x 5" Hex Head Gr.5	2
5	2502001	Washer 3/4" Springlock	3
6	2500002	Nut 3/4"–10NC Full Hex	3
7	2503241	Set Screw 5/8"–11NC x 2" Sq. Hd.	3
8	2500070	Nut 5/8"–11NC Square	3
9	803285	Foot Weldment, Furrower	1
10	2503137	Bolt 3/4"–10NC x 4" Hex Head Gr.5	2
11	2501002	Washer 3/4" Flat	9
12	2500037	Nut 3/4"–10NC Hex Nylock	2
13	803296	Shovel (Nichols G–346)	1
14	803297	Tipper (for Nichols G–346)	1
15	2503242	Bolt 3/4"–10NC x 4 1/2" Carr. Hd.	1

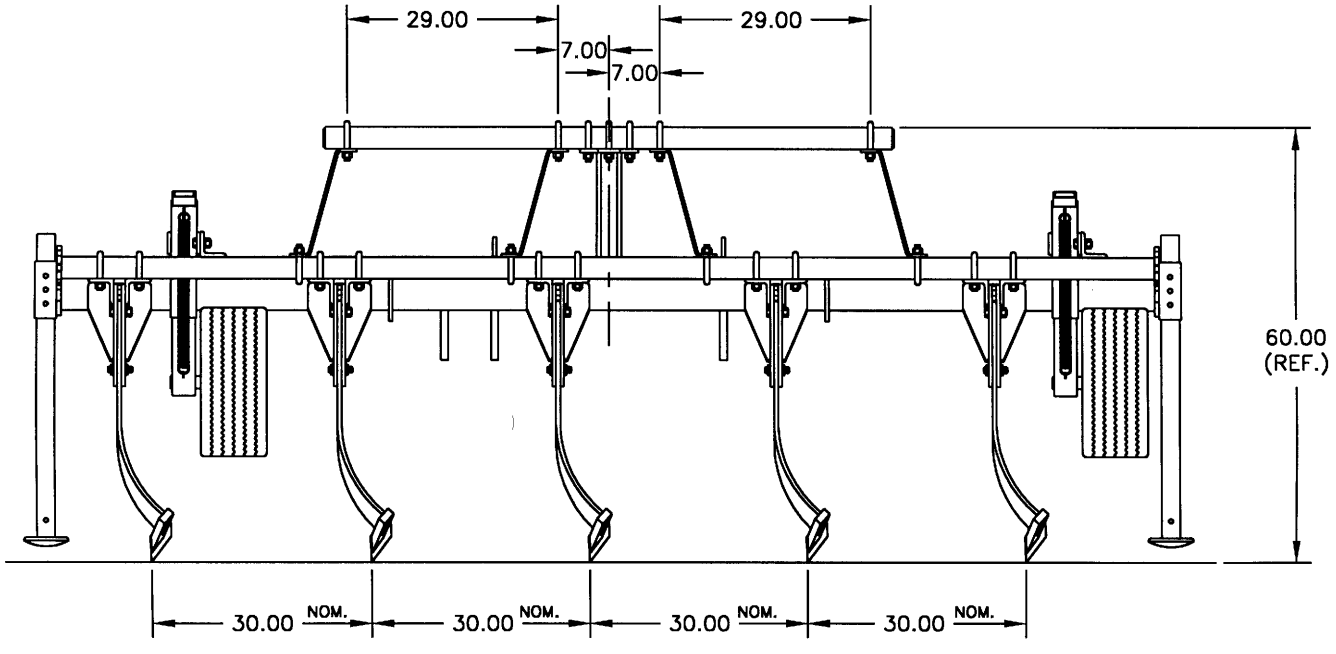
TERRA-MAX
TRANSPORT LIGHT PACKAGE
(OPTIONAL)



REF NO.	PART NO.	DESCRIPTION	NO. REQ.
1	803661	Light Bracket Weldment	2
2	803219	U-Bolt 5/8"-11NC x 5" ID	2
3	2502007	Washer 5/8" Springlock	4
4	2500013	Nut 5/8"-11NC Full Hex	4
5	2507000	Dual Lamp LH	1
6	2507001	Dual Lamp RH	1
7	2507002	Harness 6 Ft. (3 Pt. Application)	1
	2507005	Harness 15 Ft. (Pull-Type Application)	1
8	2507003	Harness, Wishbone	1
9	2507004	Weather Cap (Pull-Type Only)	1
10	2503009	Bolt 1/4"-20NC x 1" Round Head	Var.
11	2500008	Nut 1/4"-20NC Whiz Flange Hex	Var.
N/S	2505544	Nylon Tie Straps	6

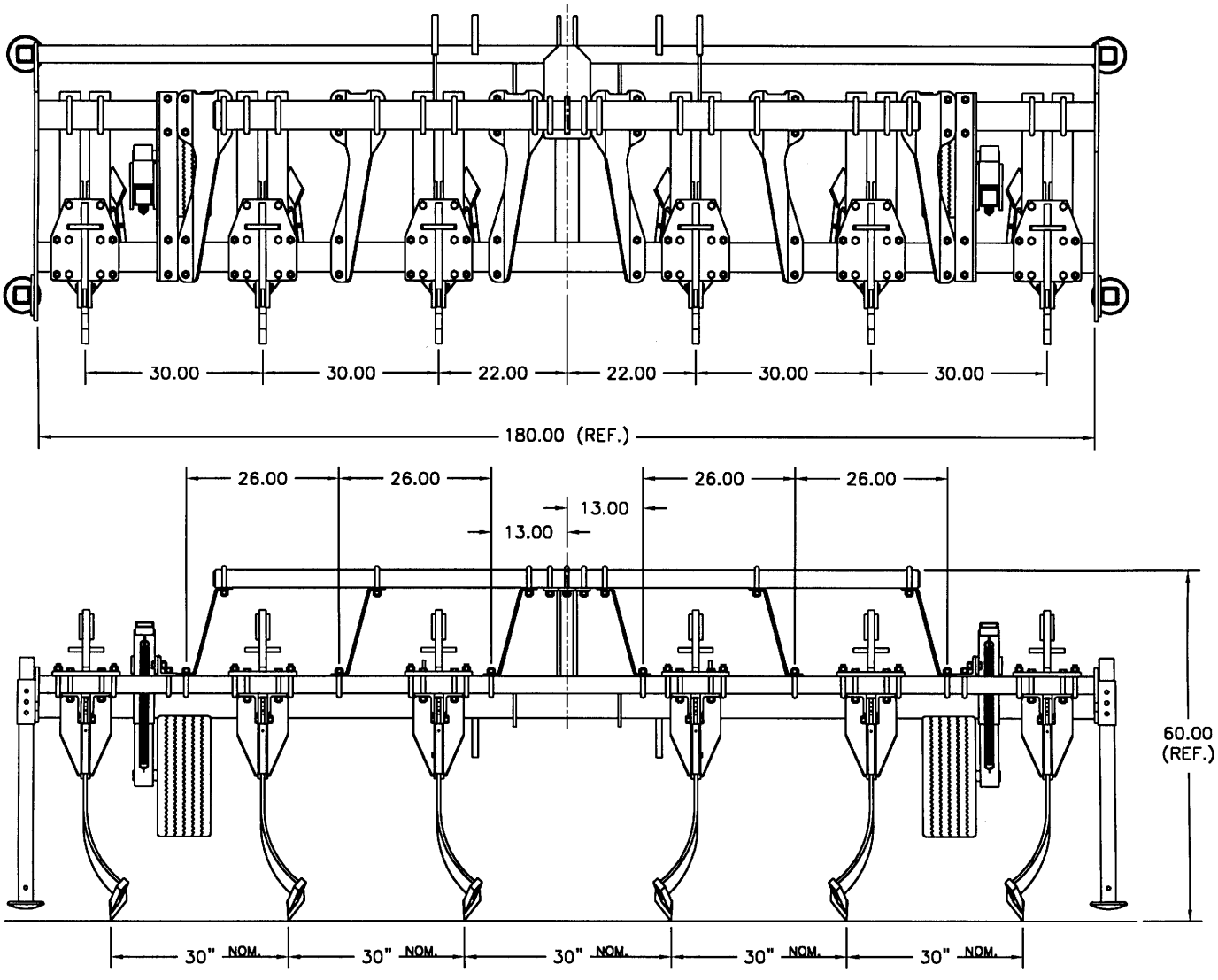
CONFIGURATION DRAWINGS





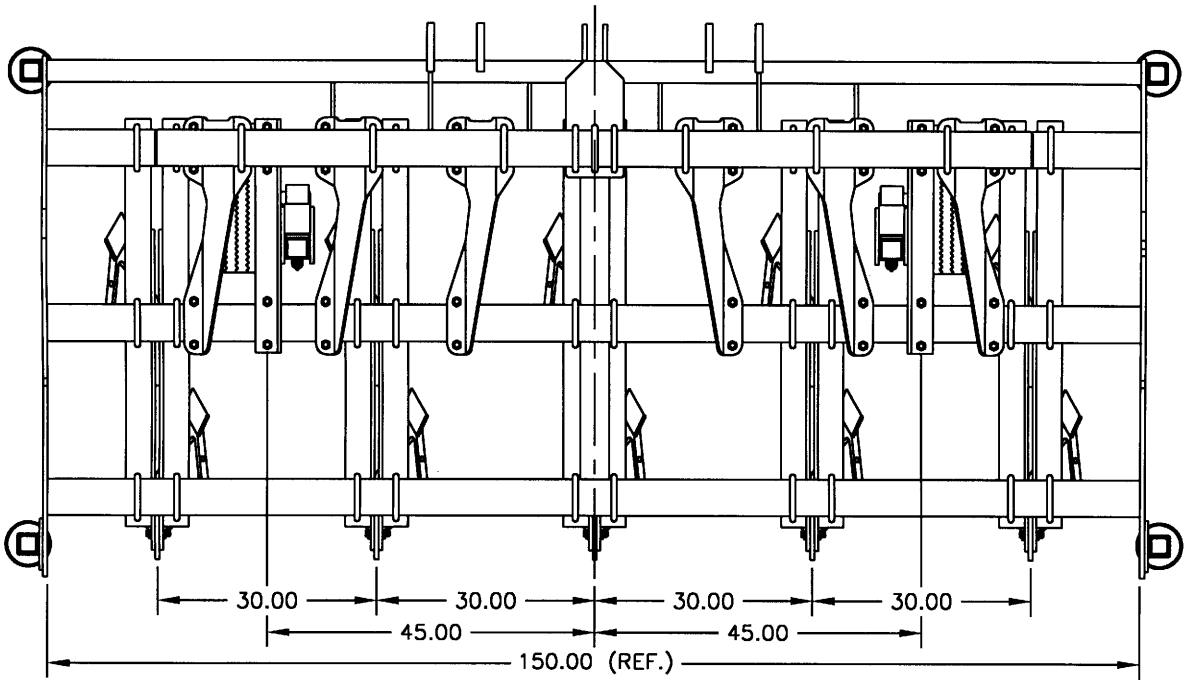
12.5' TERRA–MAX 1 STANDARD CONFIGURATION:
(5) R.H. SINGLE ROW SHANKS – SHEAR BOLT (5) COULTERS (2) GAUGE WHEELS

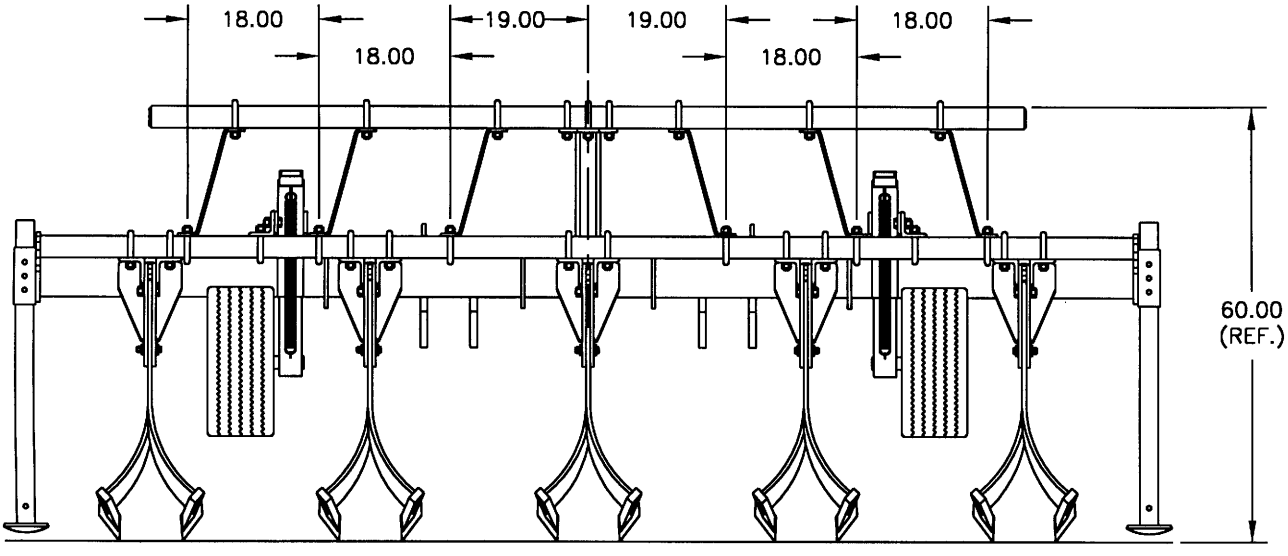
CONFIGURATION DRAWINGS



15' TERRA-MAX 1 STANDARD CONFIGURATION (TOGGLE TRIP MODEL):
(6) SINGLE ROW TOGGLE SHANKS (6) COULTERS (2) GAUGE WHEELS

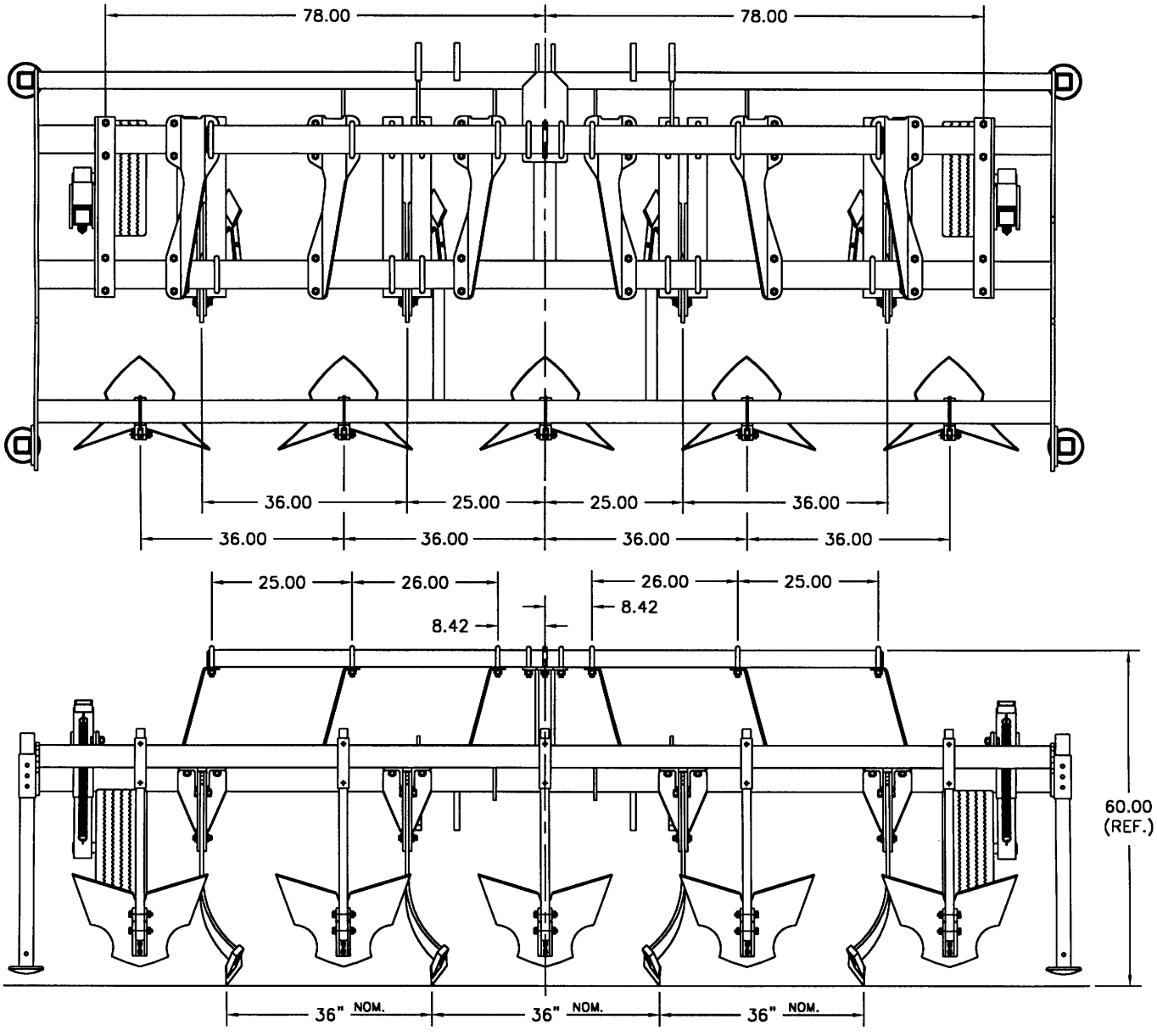
CONFIGURATION DRAWINGS





12.5' TERRA-MAX 2 5 ROW CONFIGURATION:
(5) DOUBLE ROW SHANKS - SHEAR BOLT (5) COULTERS (2) GAUGE WHEELS

CONFIGURATION DRAWINGS



15' TERRA-MAX 1 4-SHANK 5-FURROWER CONFIGURATION:
(4) SINGLE ROW SHANKS - SHEAR BOLT (5) FURROWERS (2) GAUGE WHEELS

SAFETY PRECAUTIONS

MOST ACCIDENTS OCCUR BECAUSE OF NEGLECT OR CARELESSNESS.
AVOID NEEDLESS ACCIDENTS BY FOLLOWING ALL OF THE SAFETY PRECAUTIONS LISTED BELOW.

- Machinery should be operated only by those who are responsible and are authorized to do so.
- Stop the engine, lower all equipment, lock the brakes, and remove the ignition key before dismounting from the tractor.
- Never stand between tractor and implement while tractor is being backed to hitch.
- Loose fitting clothing should not be worn, to avoid catching on various parts.
- Detach implement in area where children normally do not play.
- When performing adjustments or maintenance on an implement, first lower it to the ground or block it securely at a workable height.
- Only a qualified operator should be permitted on tractor when in operation; no riders allowed.
- Make certain everyone is in the clear before starting tractor or raising or lowering equipment.
- Operate the tractor and implement only while seated in the driver's seat.
- Reduce speed when transporting mounted implements to avoid bouncing and momentary loss of steering control.
- A heavy load can cause instability of the tractor. Use extreme care during road travel. Slow down on turns and watch out for bumps. Tractor may need front counter-weights to counter-balance the weight of the implement.
- Reduce speed on hillsides or curves so there is no danger of tipping.
- Avoid driving too close to the edge of ditches or creeks.
- Do not transport implement on public roads without reflectors and slow moving vehicle emblem in daylight and with approved warning lights at night and other periods of poor visibility.
- Due to the width of some implements, use extra caution on highways, farm roads, and when approaching gates.
- Always be sure the implement is in the proper position for transport.
- Keep alert and watch the front as well as the rear when working with the implement.

OWNER'S MANUAL

TERRA-MAX

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

1. PART NUMBER
2. PART DESCRIPTION
3. MODEL NUMBER
4. NAME OF ITEM

OCTOBER 1998

MAKE EVERY DAY

A HOLIDAY

FROM ACCIDENTS

TERRA-MAX

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