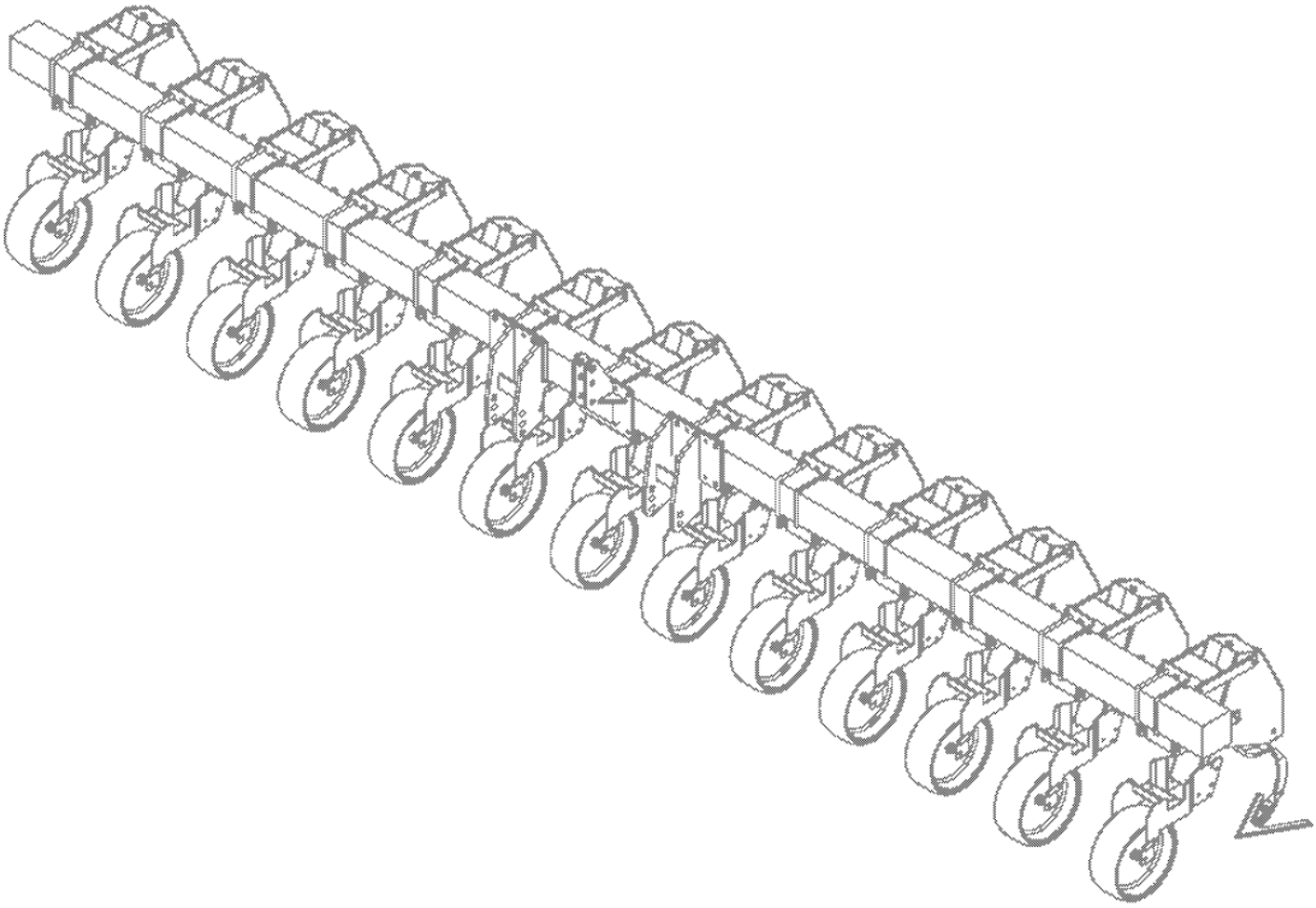
ROW CROP CULTIVATOR
2021



ALLOWAY

3130

OPERATOR'S MANUAL

PN : 200-5-0016 (2019)

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Alloway dealer. Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists in the Operator's Manual are completed before releasing equipment to the owner.

The dealer must complete the Warranty Registration included in this manual. Both dealer and customer must sign the registration which certifies that all Dealer Check List items have been completed. The dealer is to return the prepaid postage portion to Alloway, give one copy to the customer and retain one copy.

Note: Warranty credit is subject to this form being completed and returned.

TO THE OWNER:

Read this manual before operating your Alloway equipment. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all the adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the equipment.

For service, your authorized Alloway dealer has trained mechanics, genuine Alloway service parts and the necessary tools and equipment to handle all your needs.

Use only genuine Alloway service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

Model:_____ **Date of Purchase** _____

Serial Number: (see Safety Decal section for location) _____

Provide this information to your dealer to obtain correct repair parts.

Throughout this manual, the term **IMPORTANT** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION, WARNING** and **DANGER** are used in conjunction with the Safety-Alert Symbol, (a triangle with an exclamation mark), to indicate the degree of hazard for items of personal safety.

This Safety-Alert Symbol indicates a hazard and means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

DANGER Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

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

CAUTION Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

IMPORTANT Indicates that failure to observe can cause damage to equipment.

NOTE Indicates helpful information.

ALLOWAY

PN : 200-5-0016 (2019)

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GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your Beet Defoliator. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance. These instructions have been compiled from extensive field experience and engineering data. Some information may be general in nature due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing, but due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

WARNING

- **Some illustrations in this manual show the Beet Defoliator with safety shields removed to provide a better view. The Beet Defoliator should never be operated with any safety shielding removed.**

Throughout this manual, references are made to right and left direction. These are determined by standing behind the equipment facing the direction of forward travel.

SPECIFICATIONS

Number of Rows: ..... 8 - 12
Row Spacing: ..... 20 - 30 in (51 - 76 cm)
Transport Width (Folded): ..... 14’ 4” (4.4 m)
Overall Width (Operation): ..... 25’ 6” (7.8 m)
Transport Height (Folded): ..... 13’ 4” (4.1 m)
Size: ..... (Traction Tire) 11.2 X 24
Tire Pressure: ..... 20 PSI (137.9 kPa)
Weight: ..... 14,400 lbs (6530 kg)

MODEL 3130 SPRING TINE SHANK CULTIVATORS

MODEL	TOOLBAR	3-PT HITCH	TRANSPORT WIDTH	WEIGHT
6 Row 22”	R	D	152”	1955 lbs.
6 Row 30”	R	D	200”	2215 lbs.
8 Row 22”	R	D	200”	2475 lbs.
8 Row 30”	R	D	252”	2875 lbs.
8 Row 30”	F	D	145”	3305 lbs.
12 Row 22”	R	D	288”	3505 lbs.
12 Row 22”	F	D	157”	4000 lbs.
12 Row 24”	TRR	D	300”	3530 lbs.
12 Row 24”	F	D	171”	4010 lbs.
12 Row 30”	TRF	D	213”	5175 lbs.
16 Row 30”	TRF	D	267”	6220 lbs.
18 Row 22”	TRF	D	246”	6405 lbs.
24 Row 22”	FR	E	288”	8375 lbs.

Weights are without optional equipment.

MODEL 3130 RIGID SHANK CULTIVATORS

MODEL	TOOLBAR	3-PT HITCH	TRANSPORT WIDTH	WEIGHT
6 Row 30”	R	D	200”	2215 lbs.
6 Row 36/40”	R	D	252”	2475 lbs.
8 Row 30”	R	D	252”	2875 lbs.
8 Row 30”	F	D	145”	3305 lbs.
8 Row 36”	TRR	D	328”	3305 lbs.
12 Row 30”	TRF	D	213”	5175 lbs.
16 Row 30”	TRF	D	267”	6220 lbs.
16 Row 38”	TRF	D	267”	6000 lbs.
8 Row 40”	TRF	D	267”	5000 lbs.

Weights are without optional equipment.

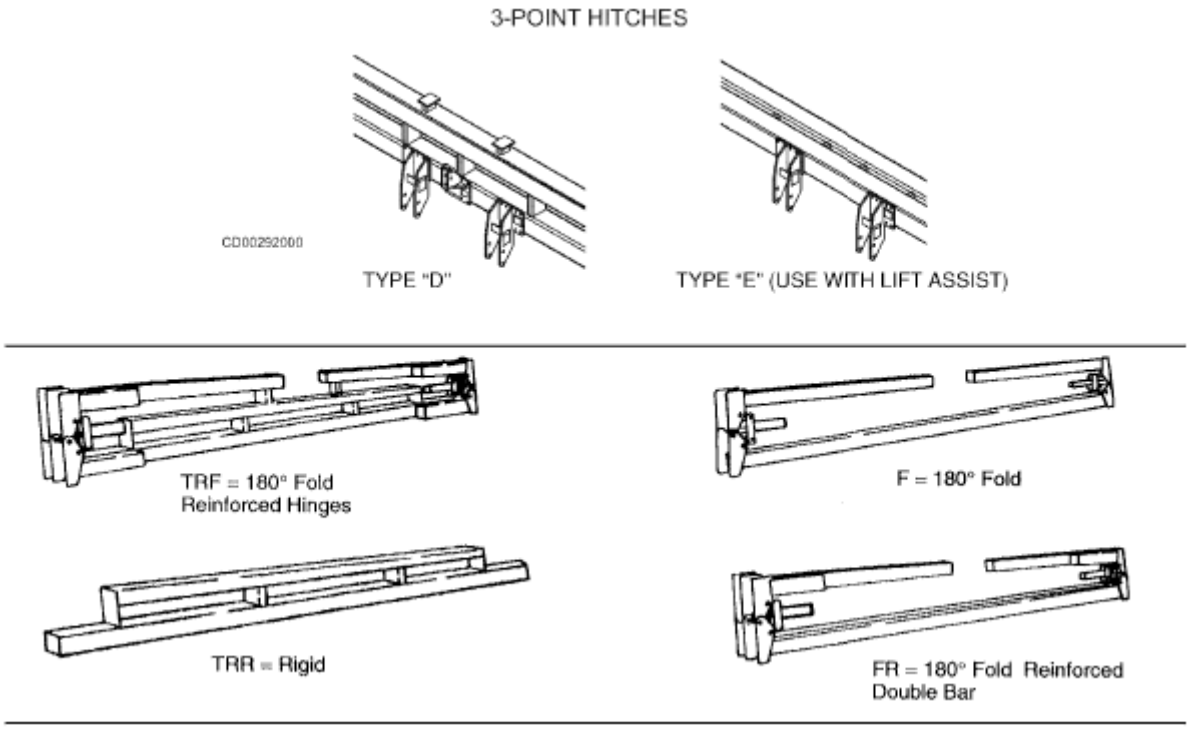
OPTIONAL EQUIPMENT

The Alloway Row Crop Cultivator has several toolbar types and a variety of optional equipment for row crop applications.

Optional equipment may change these specifications.

Cultivator weights do not include optional equipment.

Description	Part No.	Weight
Guide and Support Wheels		
Adjustable guide wheel	200-1-3666	312 lbs./pair
Semi-Pneumatic guide wheels	200-1-3699	175 lbs./pair
Steel guide wheels	200-1-3668	220 lbs./pair
King guide strut	200-1-3639	777 lbs./pair
Shields		
24” Rolling shields	200-1-3636	57 lbs./pair
24” Rolling end shield	200-1-3637	84 lbs./pair
Open top shields 22” row	200-1-3691	102 lbs./row
Open top shields 30” row	200-1-3642	104 lbs./row
Open top shields 36-40” row	200-1-3692	105 lbs./row
Flip-up 14” disc with knife mounts and knives	200-1-3645	78 lbs./row
Row Weeder Attachment		
Row weeder disc with clamp	200-1-3655	115 lbs./row



SAFETY RULES
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

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.

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.

It has been said "The best safety device is an informed, careful operator." We ask you to be that kind of an operator.

TRAINING

■ **Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals are available from dealer). Failure to follow instructions or safety rules can result in serious injury or death.**

■ **If you do not understand any part of this manual and need assistance, see your dealer.**

■ **Know your controls and how to stop engine and attachment quickly in an emergency.**

■ **Operators must be instructed in and be capable of the safe operation of the equipment,** attachments **and all controls. Do not allow anyone to operate this equipment without proper instructions.**

■ **Keep hands and body away from pressurized lines. Use paper or cardboard, not body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**

■ **Make sure that all operating and service personnel know that in the event hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury, or gangrene, serious injury or death will result. CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**

■ **Never allow children or untrained persons to operate equipment.**

PREPARATION

■ **Check that all hardware is tight and properly installed. Always tighten to torque chart specifications unless instructed otherwise in this manual.**

■ **Air in hydraulic systems can cause erratic operation and allows loads or equipment components to drop unexpectedly. Before operating or allowing anyone to approach the equipment, purge any air in the system by operating all hydraulic functions several times after connecting equipment, connecting hoses, or doing any hydraulic maintenance.**

■ **Make sure all hydraulic hoses, fittings and valves are in good condition and not leaking before starting power unit or using equipment. Check and route hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hoses immediately.**

■ **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing and head; and respirator or filter mask where appropriate.**

■ **Ensure implement is properly attached, adjusted and in good operating condition.**

■ **Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.**

■ **Before starting power unit, check all equipment driveline guards for damage and make sure they rotate freely on all drivelines. Replace any damaged guards. If guards do not rotate freely on drivelines, repair and replace bearings before operating.**

■ **Power unit must be equipped with ROPS or ROPS CAB and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.**

(Safety Rules continued on next page)

SAFETY RULES
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

(Safety Rules continued from previous page)

■ **Remove accumulated debris from this equipment, tractor and engine to avoid fire hazard.**

■ **Ensure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)**

■ **Ensure shields and guards are properly installed and in good condition. Replace if damaged.**

■ **A minimum 20% of tractor and equipment weight must be on tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. When attaining the minimum 20% weight on the front wheels, you must not exceed the Roll Over Protection Structure (ROPS) weight certification. Weigh the tractor and equipment. Do not estimate.**

■ **Make sure hydraulic hoses and cylinders are fully purged of air before operating. Keep all persons away and fill the system by raising and lowering all functions several times. Air in the system can allow components to fall unexpectedly.**

■ **Inspect and clear area of stones, branches or other hard objects that might be thrown, causing injury or damage.**

TRANSPORTATION

■ **Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.**

■ **Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake and ensure all other controls are disengaged before starting power unit engine.**

■ **A minimum 20% of tractor and equipment weight must be on tractor front wheels when attachments are in transport position. Weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. Weigh tractor and equipment. Do not estimate.**

■ **Always attach safety chain to tractor drawbar when transporting unit.**

■ **Always raise unit and install transport locks before transporting. Leak down or failure of mechanical or hydraulic system can cause equipment to drop.**

■ **Never exceed 20 MPH during transport. See the Speed vs. Weight Ratio Table in "Field Operation, Transporting the Unit" for proper tow vehicle to machine weight ratios.**

■ **Watch for hidden hazards on the terrain.**

■ **Always comply with all state and local lighting and marking requirements.**

■ **Never allow riders on power unit or attachment.**

■ **Look down and to the rear and make sure area is clear before operating in reverse.**

■ **Do not operate or transport on steep slopes.**

■ **Use extreme care and reduce ground speed on slopes and rough terrain.**

■ **Do not operate or transport equipment while under the influence of alcohol or drugs.**

(Safety Rules continued on next page)

SAFETY RULES
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

(Safety Rules continued from previous page)

OPERATION

- **Equipment may be pictured with covers open for instructional purposes. Never operate equipment with covers open.**
- **Do not allow bystanders in the area when operating, attaching, removing, assembling or servicing equipment.**
- **Never walk, stand or position yourself or others under a raised wing or in the path of a lowering wing.**
- **Never go under equipment (lowered to the ground or raised) unless it is properly blocked and secured.**
- **Never place any part of the body under equipment or between moveable parts even when the engine has been turned off.**
- **Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death. Follow Operator's Manual instructions for working under equipment and blocking requirements or have work done by a qualified dealer.**
- **Keep bystanders away from equipment.**
- **Do not operate or transport equipment while under the influence of alcohol or drugs.**
- **Operate only in daylight or good artificial light.**
- **Avoid contact with electrical wires.**
- **Keep hands, feet, hair and clothing away from equipment while engine is running. Stay clear of all moving parts.**
- **Always comply with all state and local lighting and marking requirements.**
- **Never allow riders on power unit or attachment.**
- **Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.**
- **Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake and ensure all other controls are disengaged before starting power unit engine.**
- **Operate tractor PTO at the RPM speed stated in "Specifications" section.**
- **Do not operate PTO during transport.**
- **Look down and to the rear and ensure area is clear before operating in reverse.**
- **Do not operate or transport on steep slopes.**
- **Do not stop, start or change directions suddenly on slopes.**
- **Use extreme care and reduce ground speed on slopes and rough terrain.**
- **Watch for hidden hazards on the terrain during operation.**
- **Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, remove key, inspect and repair any damage before resuming operation.**
- **Always connect safety chain from equipment to towing vehicle when transporting.**

(Safety Rules continued on next page)

SAFETY RULES
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

(Safety Rules continued from previous page)

■ **AVOID INJURY OR DEATH FROM POWER LINES:**

- **Stay away from power lines.**
- **Electrocution can occur without direct contact.**
- **Check clearances before raising implement.**
- **Do not leave operator's seat if any part of tractor or implement contacts electric lines.**

■ **Before servicing, adjusting, repairing or unplugging, stop tractor engine, place all controls in neutral, set park brake, remove ignition key, and wait for all moving parts to stop.**

■ **Before working under a raised implement, read and follow all Operator's Manual instructions and safety rules. Implement must be attached to tractor. Lift cylinder locks must be installed and lift cylinders lowered against locks. Hydraulic system leak down, hydraulic system failures, or movement of control levers can cause equipment to drop unexpectedly and cause severe injury or death.**

MAINTENANCE

■ **Before servicing, adjusting, repairing, or unplugging, stop tractor engine, place all controls in neutral, set park brake, remove ignition key, and wait for all moving parts to stop.**

■ **Before working underneath a raised implement, read and follow all Operator's Manual instructions and safety rules. Implement must be attached to tractor. Lift cylinder locks must be installed and lift cylinders lowered against locks. Hydraulic system leak down, hydraulic system failures, or movement of control levers can cause equipment to drop unexpectedly and cause severe injury or death.**

■ **Service and maintenance work not covered in OWNER SERVICE must be done by a qualified dealership. Special skills, tools, and safety procedures may be required. Failure to follow these instructions can result in serious injury or death.**

■ **Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.**

■ **Your dealer can supply original equipment hydraulic accessories and repair parts. Substitute parts may not meet original equipment specifications and may be dangerous.**

■ **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing and head; and respirator or filter mask where appropriate.**

■ **Do not allow other people in the area when operating, attaching, removing, assembling or servicing equipment.**

■ **Never go under equipment lowered to the ground or raised unless it is properly blocked and secured. Never place any part of the body under equipment or between moveable parts even when the engine has been turned off.**

■ **Hydraulic system leak down, hydraulic system failures, mechanical failures or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.**

■ **Follow Operator's Manual instructions for working under and blocking requirements, or have work done by a qualified dealer.**

■ **Ensure implement is properly attached, adjusted and in good operating condition.**

■ **Never perform service or maintenance with engine running.**

■ **Make sure hydraulic hoses and cylinders are fully purged of air before operating. Keep all persons away and fill the system by raising and lowering all functions several times. Air in the system can allow components to fall unexpectedly.**

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

SAFETY RULES
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

(Safety Rules continued from previous page)

- **Make certain all movement of implement components has stopped before approaching for service.**
- **Do not handle blades with bare hands. Careless or improper handling may result in serious injury.**
- **Tighten all bolts, nuts and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before operating.**
- **Ensure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)**
- **Ensure shields and guards are properly installed and in good condition. Replace if damaged.**

- **Do not disconnect hydraulic lines until machine is securely blocked or placed in lowest position and system pressure is released by operating all valve control levers.**

STORAGE

- **Follow manual instructions for storage.**

- **Keep children and bystanders away from storage area.**

CHECK LISTS

PRE-DELIVERY CHECK LIST
(DEALER'S RESPONSIBILITY)

Inspect the equipment thoroughly after assembly to ensure it is set up properly before delivering it to the customer.

The following check lists are a reminder of points to inspect. Check off each item as it is found satisfactory or after proper adjustment is made.

—— Check that all safety decals are installed and in good condition. Replace if damaged.

—— Check that shields and guards are properly installed and in good condition. Replace if damaged.

—— Check that PTO shaft is properly installed.

—— Properly attach implement to tractor and make all necessary adjustments.

—— Check all bolts to be sure they are tight.

—— Check wheel lug nuts and adjust to proper torque.

—— Check that all cotter pins and safety pins are properly installed. Replace if damaged.

—— Check and grease all lubrication points as identified in "Service, lubrication information."

—— Check the level of gearbox fluids before delivery. Service, if required, as specified in the "Service, lubrication information."

—— Check that tractor hydraulic reservoir has been serviced and that hydraulic system and all functions have been operated through full cylinder stroke to purge air from system.

—— After pressurizing and operating all Defoliator functions, stop tractor and make sure there are no leaks in the hydraulic system. Follow all safety rules when checking for leaks.

DELIVERY CHECK LIST
(DEALER'S RESPONSIBILITY)

—— Check that all safety decals are installed and in good condition. Replace if damaged.

—— Show customer how to make adjustments and select proper PTO speed.

—— Show customer how to make adjustments.

—— Instruct customer how to lubricate and explain importance of lubrication.

—— Point out the safety decals. Explain their meaning and the need to keep them in place and in good condition. Emphasize the increased safety hazards when instructions are not followed.

—— Present Operator's Manual and request that customer and all operators read it before operating equipment. Point out the manual safety rules, explain their meanings and emphasize the increased safety hazards that exist when safety rules are not followed.

—— Show customer how to make sure driveline is properly installed and that spring-activated locking pin or collar slides freely and is seated in groove on tractor PTO shaft.

—— Show customer the safe, proper procedures to be used when mounting, dismounting, and storing equipment.

—— Explain to customer that when equipment is transported on a road or highway, safety devices should be used to give adequate warning to operators of other vehicles.

—— Explain to customer that when equipment is transported on a road or highway, a Slow Moving Vehicle (SMV) sign should be used to provide adequate warning to operators of other vehicles.

—— Explain to customer that when towing on a public road to comply with all state and local lighting/marking laws and to use a safety tow chain.

—— Make customer aware of optional equipment available so that customer can make proper choices as required.

—— Point out all guards and shields. Explain their importance and the safety hazards that exist when not kept in place and in good condition.

SAFETY & INSTRUCTIONAL DECALS

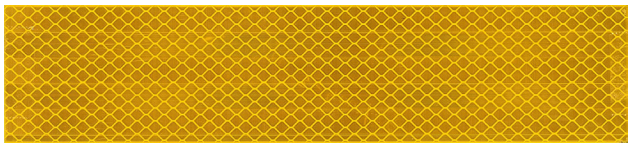
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!

A. 500-3-0977 Caution (1-11)

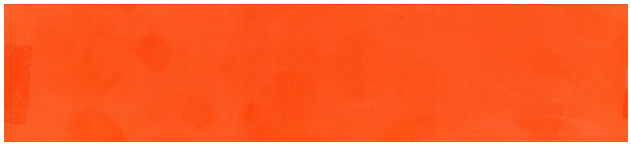
B. 100-3-1367 Safety Guard

D. 500-3-0980 Missing Shields Warning



H. 200-3-4004 Amber Reflector 9 x 2

I. 200-3-4005 Red Reflector 9 x 2



J. 200-3-4034 Orange Fluorescent Reflector 9 x 2

K. 506-3-0194 Shield Missing Warning

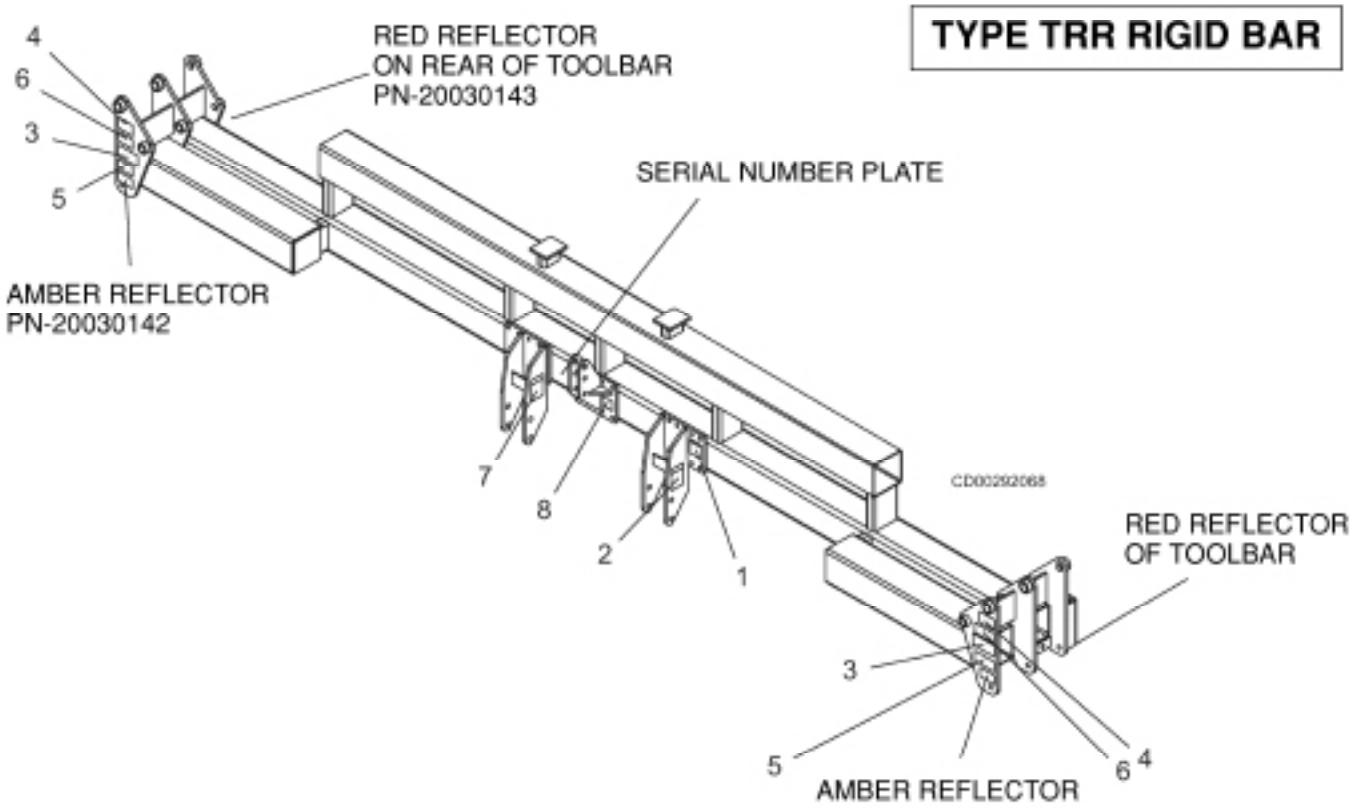
N. 200-3-1366 Serial Number Tag

SAFETY & INSTRUCTIONAL DECALS

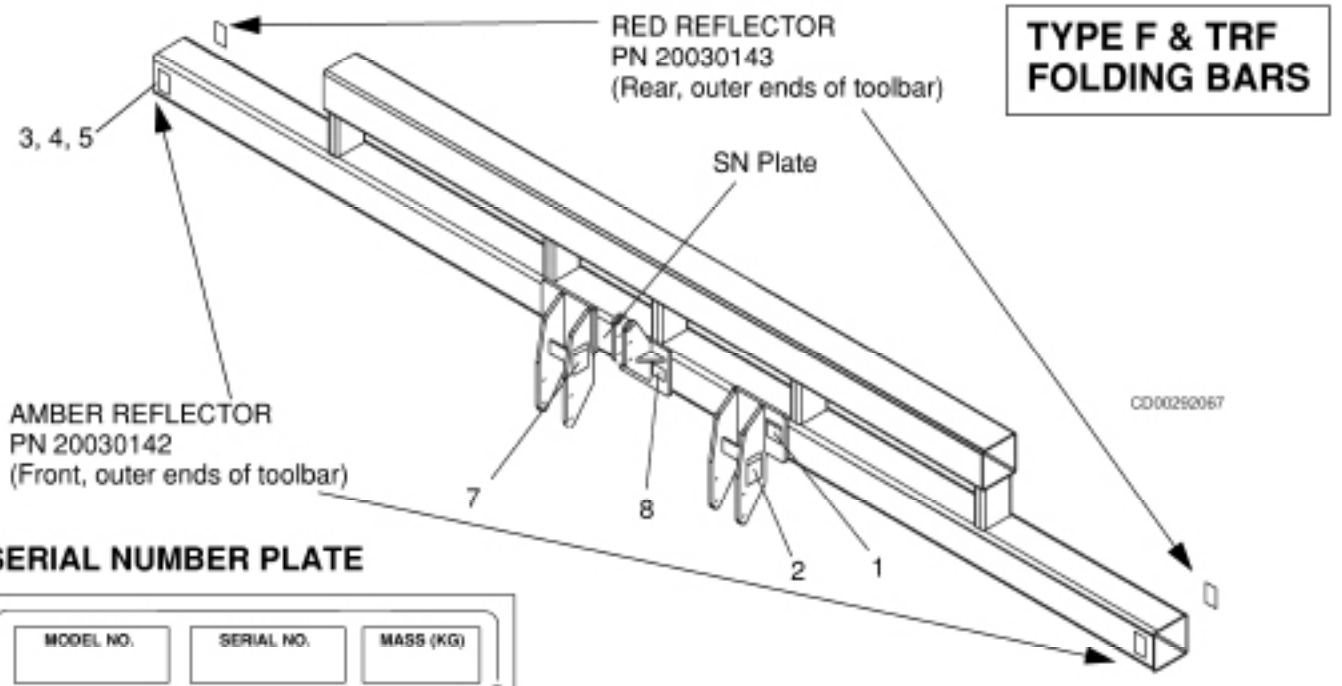
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!

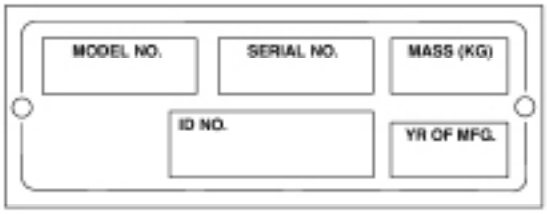
TYPE TRR RIGID BAR



TYPE F & TRF FOLDING BARS



SERIAL NUMBER PLATE



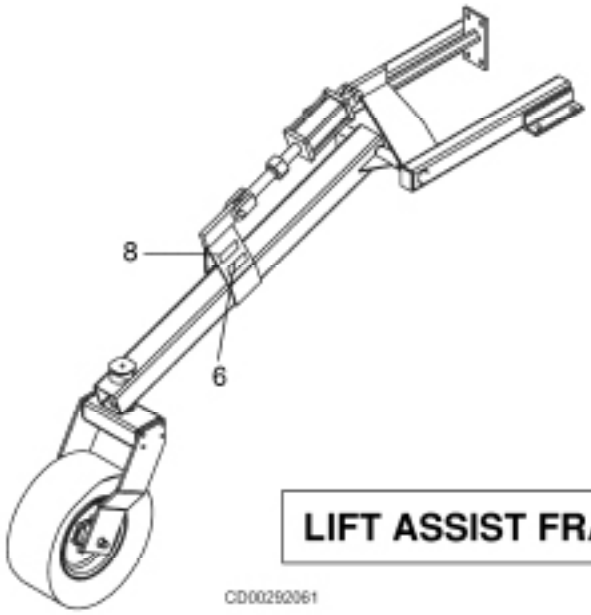
(Safety Decals continued on next page)

SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!

(Safety Decals continued from previous page)



LIFT ASSIST FRAME

CD00292061

7 - PN 20033891

⚠ WARNING

IMPLEMENT CAN TIP OVER AND CRUSH IF ATTACHED, REMOVED OR STORED IMPROPERLY.

- Read and follow Operator's Manual instructions and safety rules for procedures and use of parking stands.
- Front parking stands must be on all cultivators.
- Rear parking stands must be on all folding cultivators unless cultivator has rear lift assist.
- Parking stands must be kept in good condition or replaced if damaged.
- Remove on solid, level ground.
- Cultivator must be level and stable with parking stands properly positioned and rear lift assist (when equipped) lowered to rest on cylinder stops before removing from tractor.
- Keep all bystanders away.

Failure to follow these instructions can result in serious injury or death.

20033891

1 - PN 20033911

⚠ WARNING

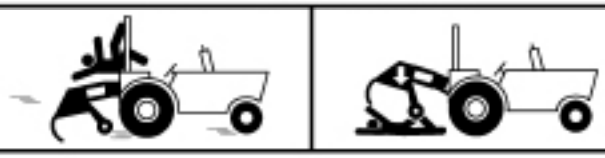
TO AVOID SERIOUS INJURY OR DEATH:

- Read Operator's Manual before operating, servicing or repairing equipment. Follow all safety rules and instructions. (Manuals are available from dealer or, in the United States and Canada, call 1-877-275-8714.)
- Operate from tractor seat only.
- Lower equipment to ground, stop engine, remove key and set brake before dismounting tractor.
- Allow no children or untrained persons to operate equipment.

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

2- PN 20033887

⚠ WARNING



FALLING OFF CAN RESULT IN BEING RUN OVER.

- Tractor must be equipped with ROPS (or ROPS CAB) and seat belt. Keep foldable ROPS systems in "locked up" position at all times.
- Buckle Up! Keep seat belt securely fastened.
- Allow no riders.

RAISED IMPLEMENT CAN DROP AND CRUSH.

- Never go underneath raised implement which can drop from equipment or tractor 3-point hitch hydraulic leak down, hydraulic system failures, movement of control levers or mechanical linkage failures.
- Service work does not require going underneath implement. Read manual instructions.

FALLING OFF OR GOING UNDERNEATH IMPLEMENT CAN RESULT IN SERIOUS INJURY OR DEATH.

20033887

3 - PN 20033890

⚠ DANGER

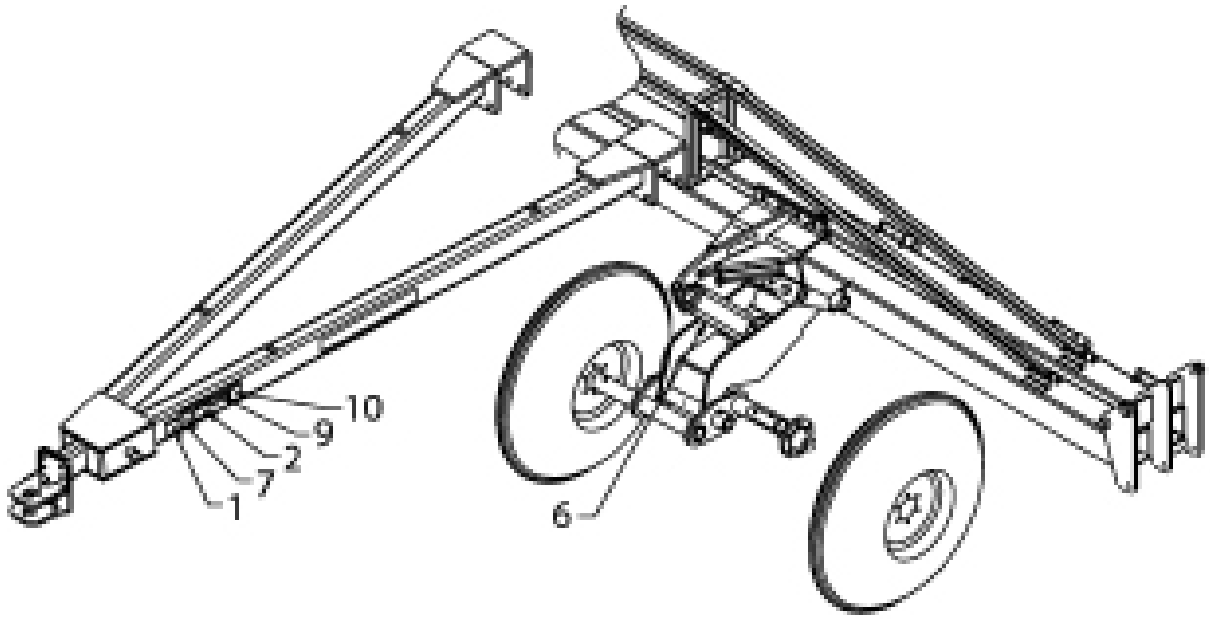
To avoid injury or death, do not contact electric lines.

20033890

SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!



⚠ WARNING

Air in hydraulic systems can allow wings or other components to fall rapidly when being raised or lowered. Before operating or allowing anyone to approach the equipment, purge all air from the system by operating all hydraulic functions several times.

20033889

1. 200-3-3889 Hydraulic Air Warning

IMPORTANT

Do not use upper 3-point top link when cultivator is equipped with rear lift assist. Damage will occur to equipment.

20033893

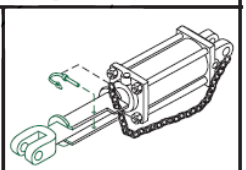
2. 200-3-3893 Three Point Top Link Warning

⚠ WARNING

RAISED EQUIPMENT CAN DROP AND CRUSH

- Install locks before transporting or working underneath raised implement.
- Locks must be installed correctly, kept in good condition, and stored on implement.
- Read and follow manual instructions.

FAILURE TO FOLLOW INSTRUCTIONS CAN RESULT IN SERIOUS INJURY OR DEATH.



CYLINDER LOCKS

20034030

6. 200-3-4030 Cylinder Lock Warning

⚠ WARNING

HIGH PRESSURE HYDRAULIC OIL LEAKS CAN PENETRATE SKIN RESULTING IN SERIOUS INJURY, GANGRENE OR DEATH.

- Check for leaks with cardboard; never use hand.
- Before loosening fittings: lower load, release pressure, and be sure oil is cool.
- Consult physician immediately if skin penetration occurs.

506-3-0195

7. 506-3-0195 Hydraulic Pressure Warning

⚠ WARNING

To avoid injury or death, stand clear of machine when wings are being folded or unfolded. Mechanical failure, hydraulic system failure, or air in hydraulic system can allow wings to fall rapidly.

20033888

9. 200-3-3888 Raised Wing Hazard

⚠ WARNING

TIPPING HAZARD

Weight of attachments on rear can cause hitch to raise rapidly during unhitching.

SUPPORT TOOLBAR AND TONGUE ON PARKING STANDS BEFORE LOWERING UNIT.

⚠ ADVERTENCIA

PELIGRO DE VOLCADURA

El peso de los accesorios en la parte trasera puede provocar que el mecanismo de enganche suba con rapidez durante el desenganche.

APOYE LA BARRA Y LA LENGÜETA SOBRE SOPORTES ANTES DE BAJAR LA UNIDAD.

20034028

10. 200-3-4028 Tipping Hazard Warning Decal

OPERATION

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 an operator's single careless act.

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

It has been said "The best safety device is an informed, careful operator." We ask you to be that kind of operator.

⚠ WARNING

■ **Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals are available from dealer or, in the United States and Canada, call 1-877-275-8714.) Failure to follow instructions or safety rules can result in serious injury or death.**

■ **Know your controls and how to stop engine and attachment quickly in an emergency.**

■ **Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result. CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**

■ **Never allow children or untrained persons to operate equipment.**

■ **Keep bystanders away from equipment.**

■ **A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.**

⚠ WARNING

■ **Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to implement, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.**

■ **Implement can tip over and crush if attached, removed, or stored improperly.**

- **Read and follow instructions and safety rules for procedures and use of parking stands.**
- **Front parking stands must be on all cultivators.**
- **Rear parking stands must be on all folding cultivators unless cultivator has rear lift assist.**
- **Parking stands must be kept in good condition and replaced if damaged.**
- **Remove on solid, level ground.**
- **Before removing from tractor, cultivator must be level and stable with parking stands properly positioned and rear lift assist (when equipped) lowered to rest on cylinder stops.**
- **Keep all bystanders away.**

■ **NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.**

- **Service work does not require going underneath.**
- **Read Operator's Manual for service instructions or have service performed by a qualified dealer.**

■ **Before folding or unfolding cultivator:**

- **Make sure you have adequate clearance on each side and overhead.**
- **Make sure wing cylinder restrictor fittings are properly installed.**
- **Make sure wing-mounted gauge wheels and guide coulters will not contact tractor cab or tires.**

⚠ CAUTION

■ **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.**

■ **Always sit in tractor seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting tractor engine.**

■ **Always comply with all state and local lighting and marking requirements.**

⚠ DANGER

■ **AVOID INJURY OR DEATH FROM POWER LINES:**
- **Stay away from power lines.**
- **Electrocution can occur without direct contact.**
- **Check clearances before raising implement.**
- **Do not leave the operator's seat if any part of the tractor or implement contacts electric lines.**

PRE-OPERATION CHECK LIST
(OWNER'S RESPONSIBILITY)

IMPORTANT

■ **This Pre-Operation Check List is provided for the operator. It is important to follow for both personal safety and maintenance of the row crop cultivator.**

___ Review and follow all safety rules and safety decal instructions on page 4 through page 9.

___ Check that all safety decals are installed and in good condition. Replace if damaged.

___ Check that all hardware and cotter pins are properly installed and secured.

___ Check that equipment is properly and securely attached to tractor.

___ Check all lubrication points and grease as instructed in "Service, lubrication information."

___ Check hydraulic reservoir level.

___ Check that all hydraulic hoses and fittings are in good condition and not leaking before starting tractor. Check that hoses are not twisted, bent sharply, kinked, frayed or pulled tight. Replace any damaged hoses immediately.

___ Raise and lower equipment and wings to make sure air is purged from hydraulic cylinder and hose.

___ Make sure tractor 3-point lift links do not interfere with hydraulic hoses.

___ Make sure tractor ROPS or ROPS cab and seat belt are in good condition. Keep seat belt securely fastened during operation.

___ Before starting engine, operator must be in tractor seat with seat belt fastened. Place transmission in neutral or park, engage brake and disengage tractor PTO.

Attaching Cultivator (Pull-Type Hitch)

1. Park cultivator on a solid, level, dry area that is free from debris and other foreign objects.

NOTE: Before attaching cultivator, be sure the tractor has a clevis type hitch that can handle drawbar loads in both the downward and upward direction. Be sure to use a hardened drawbar pin that allows for a mechanical retainer, such as a klik pin.

2. Clear the area of bystanders, especially children.

⚠ WARNING

■ **Keep bystanders away from equipment.**

3. Set cultivator hitch height to match tractor drawbar height.

4. Carefully back up the tractor to align with hitch.

5. Pin cultivator to tractor drawbar, using hardened drawbar pin. Attach a mechanical retainer, such as a klik pin.

6. Attach safety chain to tractor.

7. Clean the hydraulic couplers and fittings to avoid oil contamination.

⚠ WARNING

■ **Air in hydraulic systems can cause erratic operation and allow loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.**

8. Connect wing fold hydraulic lines to the tractor #1 hydraulic couplers. Couplers must be connected so that pushing the control lever forward moves (unfolds) the wings to operating position and pulling the lever rearward moves (folds) the wings to transport position.

9. Connect lift wheel hydraulic lines to the tractor #2 hydraulic couplers. Couplers must be connected so that pushing the control lever forward lowers the cultivator and pulling the lever rearward raises the cultivator.

10. Connect 7-pin electrical connector to the tractor.

11. Raise the tool bar slightly so that rear parking stands are off the ground.

12. Stop engine, set parking brake, wait for all moving parts to stop. Remove the ignition key before dismounting.

13. Raise all parking stands to upper position. Install pin through parking stands and bracket.

IMPORTANT

■ **To prevent damage, raise parking stands to upper position before moving cultivator. parking stands must be replaced if bent or damaged.**

■ **To prevent damage to cultivator, do not drop. Lower slowly. Dropping cultivator could result in damage to gauge wheel.**

Attaching Cultivator (Quick Hitch)

1. Park cultivator on a solid, level, dry area that is free from debris and other foreign objects.

NOTE: Before attaching tractor to cultivator, be sure hitch pins and spacers are completely assembled to match the hitch configuration of your tractor as shown in Figure 1.

2. Set the height of the 3-point hitch so that quick hitch coupler is lower than the mounting pins.

3. Make sure the lower links on the tractor are set in the free-float position (see tractor manual for details).

4. Make sure 3-point hitch is set in the sway position (see tractor manual for details).

5. Align the couplers under the mounting pins while backing up.

NOTE: Use the proper size bushings for lower link mounting pins and the correct upper link pin location for Category II, III, or III N operation.

6. Clear the area of bystanders, especially children.

⚠ WARNING

- **Keep bystanders away from equipment.**

7. Carefully back up the tractor until the coupler hooks align with the cultivator hitch pins.

8. When the coupler is under the pins, slowly raise the 3-point hitch. Be sure each of the mounting pins seat in their respective coupler hook.

9. Stop engine, set parking brake, wait for all moving parts to stop. Remove the ignition key before dismounting.

10. Release the coupler retainer locks to secure the mounting pins in the coupler.

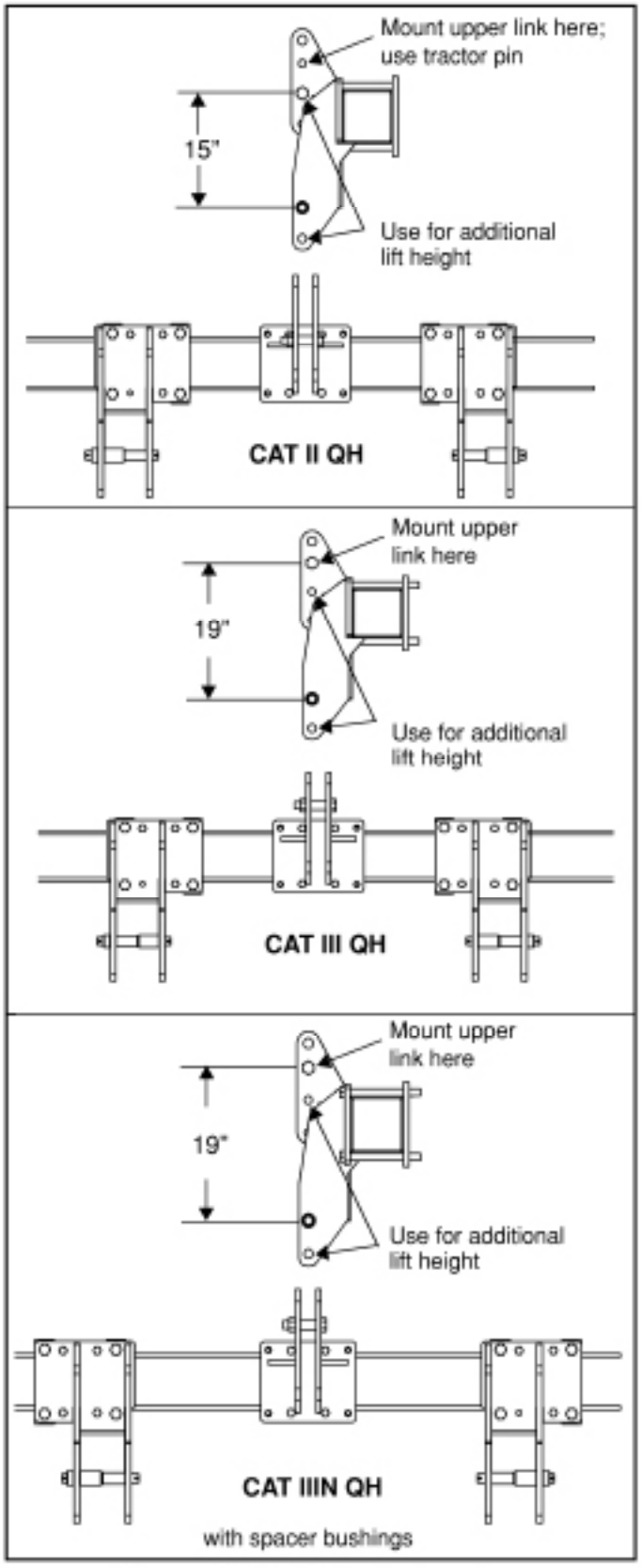


Figure 1 Quick Hitch Configurations

Attaching Cultivator (Quick Hitch) Cont'd

11. Clean the hydraulic couplers and fittings to avoid oil contamination.

⚠ WARNING

■ **Air in hydraulic systems can cause erratic operation and allow loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.**

12. Connect hydraulic couplings. Couplings must be completely engaged.

13. Connect wing fold hydraulic lines to the tractor #1 hydraulic couplers. Couplers must be connected so that pushing the control lever forward moves (unfolds) the wings to operating position and pulling the lever rearward moves (folds) the wings to transport position.

14. Connect lift assist hydraulic lines to the tractor #2 hydraulic couplers. Couplers must be connected so that pushing the control lever forward lowers the cultivator and pulling the lever rearward raises the cultivator.

15. Connect 7-pin electrical connector to the tractor.

16. Raise the tool bar slightly.

17. Stop engine, set parking brake, wait for all moving parts to stop. Remove the ignition key before dismounting.

18. Raise all parking stands to upper position. Install pin through parking stands and bracket.

IMPORTANT

■ **To prevent damage, raise parking stands to upper position before moving cultivator. parking stands must be replaced if bent or damaged.**

■ **To prevent damage to cultivator, do not drop. Lower slowly. Dropping cultivator could result in damage to gauge wheel.**

Attaching Cultivator to Tractor (Standard Hitch)

1. Park cultivator on a solid, level, dry area that is free from debris and other foreign objects.

2. Clear the area of bystanders, especially children.

⚠ WARNING

■ **Keep bystanders away from equipment.**

3. Make sure hitch pins and spacers are completely assembled to match the hitch configuration of your tractor. See Figure 2.

4. Remove 3-point hitch lower pins and upper link bolt. Back tractor and align lower links with hitch pins.

5. Stop engine, set parking brake, and wait for all moving parts to stop. Remove ignition key before dismounting.

6. install pins with correct bushings and secure quick-lock pins. Align upper link and fasten with bolt and spacer bushing (or upper link pin for CAT II hitches).

7. Clean the hydraulic couplers and fittings to avoid oil contamination.

8. Connect hydraulic couplings. Couplings must be completely engaged.

⚠ WARNING

■ **Air in hydraulic systems can cause erratic operation and allow loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.**

9. Connect wing fold hydraulic lines to the tractor #1 hydraulic couplers. Couplers must be connected so that pushing the control lever forward moves (unfolds) the wings to operating position and pulling the lever rearward moves (folds) the wings to transport position.

10. Connect lift assist hydraulic lines to the tractor #2 hydraulic couplers. Couplers must be connected so that pushing the control lever forward lowers the cultivator and pulling the lever rearward raises the cultivator.

11. Connect 7-pin electrical connector to the tractor.

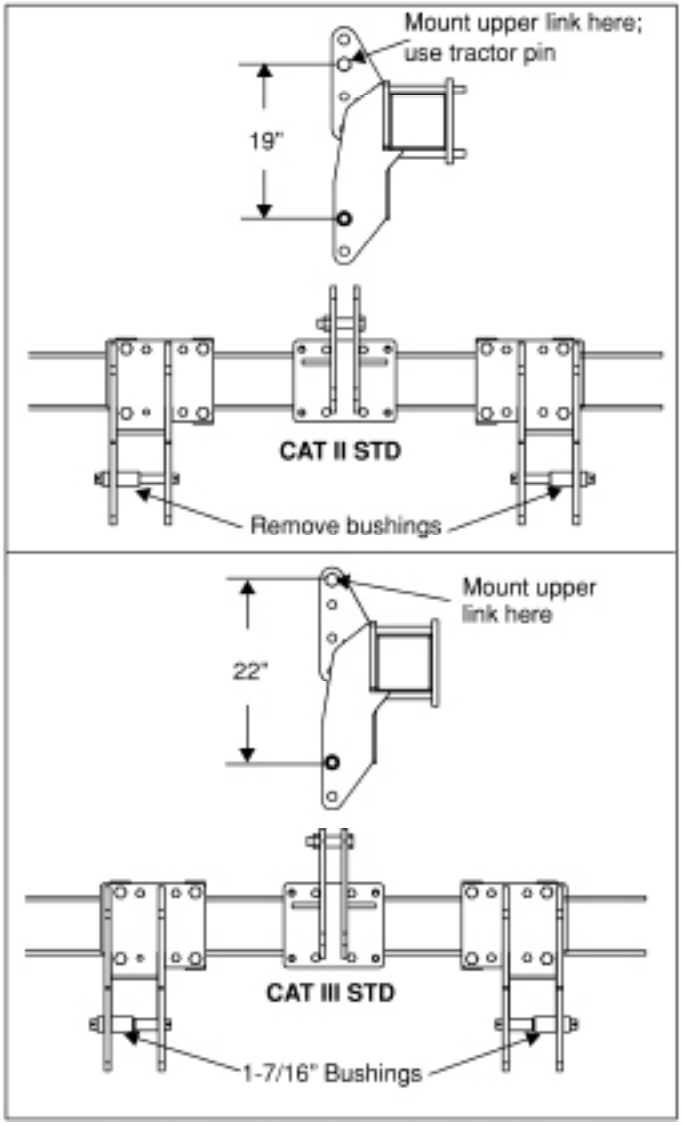


Figure 2 Standard Hitch Configuration

12. Raise the tool bar slightly.

13. Stop engine, set parking brake, and wait for all moving parts to stop. Remove ignition key before dismounting.

14. Raise all parking stands into upper position. Install pin through parking stand and bracket as shown in Figure 4.

IMPORTANT

■ **To prevent damage, raise parking stands to upper position before moving cultivator.**

■ **To prevent damage to cultivator, do not drop. Lower slowly. Dropping cultivator could result in damage to gauge wheel.**

Removing Cultivator from Tractor

Pull-Type Hitch

1. Park cultivator on a solid, level, dry area that is free from debris and other foreign objects.

2. Clear the area of bystanders, especially children.

WARNING

Keep bystanders away from equipment.

3. Stop engine, set parking brake, wait for all moving parts to stop. Remove ignition key before dismounting.

4. Lower rear parking stands. Pin in position so the tool bar will be level with the hitch stored at drawbar height. See Figure 4.

5. Lower tongue jack into position.

6. From tractor cab, start engine and raise cultivator.

7. Remove transport locks. Store transport locks as shown in Figure 3.

8. Lower cultivator until weight is carried on the rear parking parking stands and parking jack.

9. Stop engine, set parking brake, wait for all moving parts to stop. Remove ignition key before dismounting.

10. Relieve hydraulic pressure on fold and lift cylinders.

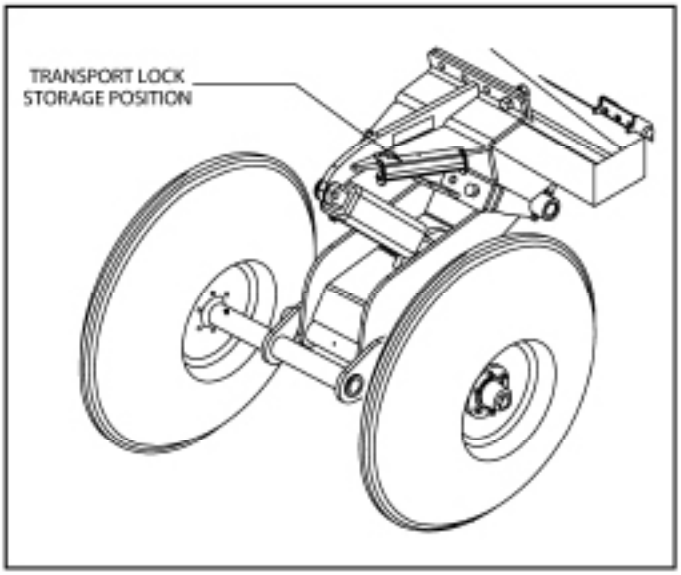


Figure 3 Storage Position

11. Unhook hydraulic lines.

12. Unhook safety chain from tractor.

13. Unhook electrical connector.

14. Remove hitch pin.

15. Start engine and slowly drive away from cultivator.

16. Stop engine, set parking brake, and remove key.

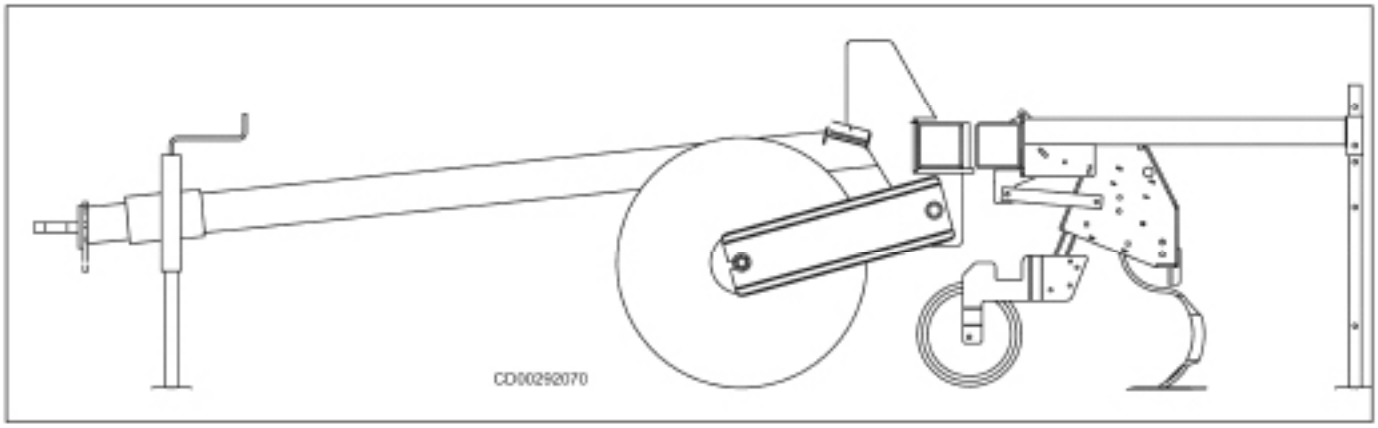


Figure 4 Rear parking stand lowered and pinned
Tongue jack in correct position for storing cultivator

Removing Cultivator from Tractor

Rigid Cultivators or Wing Cultivators Removed in Operating Position (WINGS UNFOLDED)

⚠ WARNING

■ **Implement can tip over and crush if attached, removed, or stored improperly.**

- **Read and follow instructions and safety rules for procedures and use of parking stands.**
- **Front parking stands must be on all cultivators.**
- **Rear parking stands must be on all folding cultivators unless cultivator has rear lift assist.**
- **Parking stands must be kept in good condition and replaced if damaged.**
- **Remove on solid, level ground.**
- **Before removing from tractor, cultivator must be level and stable with parking stands properly positioned and rear lift assist (when equipped) lowered to rest on cylinder stops.**
- **Keep all bystanders away.**

■ **Keep bystanders away from equipment.**

1. Park cultivator on a solid, level, dry area that is free from debris and other foreign objects.

2. Make sure bystanders are clear from working area.

3. Lower lift assist wheels (if equipped) to rest on cylinder stops.

4. Lower cultivator so that sweeps and gauge or guide wheels rest on the ground. Position toolbar in the operating position so that cultivator linkage is nearly horizontal. See Figure 5.

5. Stop engine, set parking brake, and wait for all moving parts to stop. Remove ignition key before dismounting.

6. Lower front parking stands to the ground and pin in position so that parking stands will be vertical when the tractor is removed. See Figure 6.

7. Relieve hydraulic pressure in wing fold and lift assist cylinders (if equipped).

8. Adjust center link as necessary to remove load from hitch.

9. With Quick-Hitch: Release coupler latches and lower hitch to release hitch pins.

10. Without Quick-Hitch: Remove hitch pins from upper and lower hitch links.

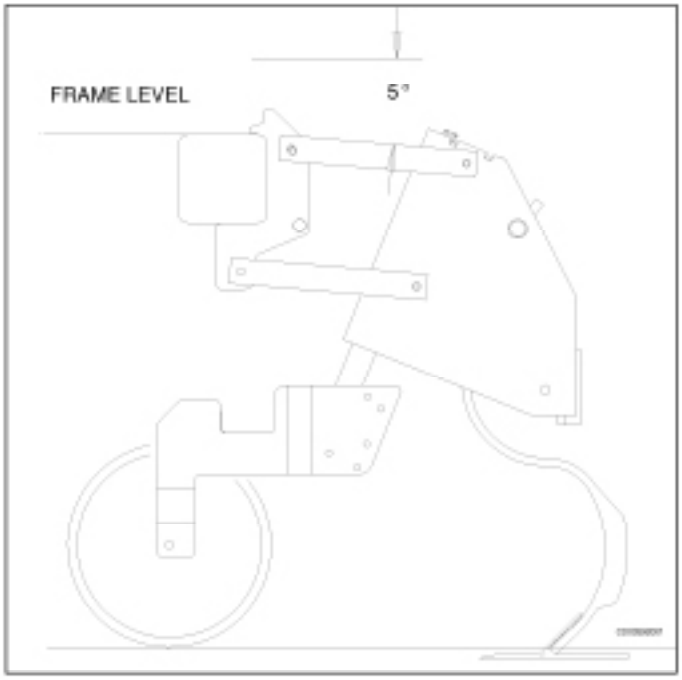


Figure 5 Operating Position

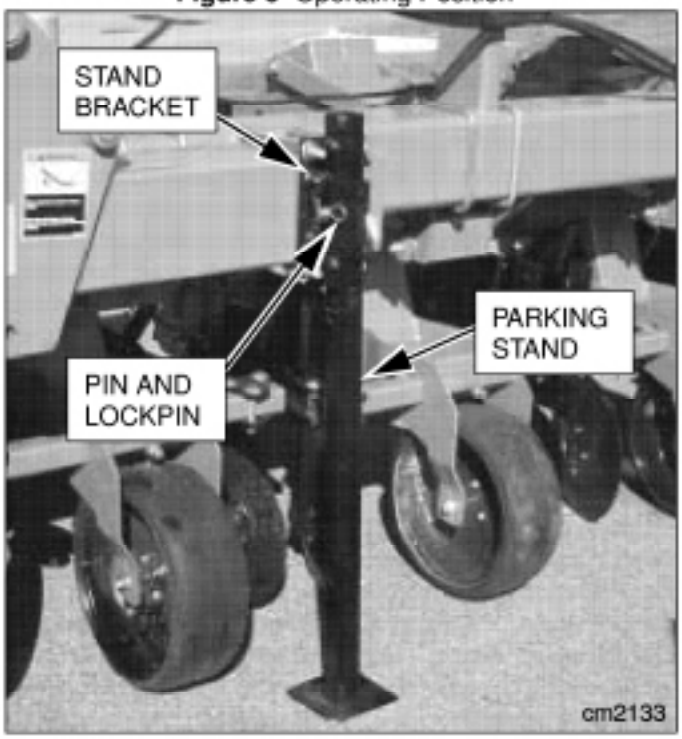


Figure 6 Front Parking Stand Lowered and Pinned

11. Disconnect hydraulic couplers and electrical connector from tractor.

12. Start engine and slowly drive away from cultivator.

Removing Cultivator from Tractor

Wing Cultivators Removed in Transport Position (WINGS FOLDED)

⚠ WARNING

■ **Implement can tip over and crush if attached, removed, or stored improperly.**

- **Read and follow instructions and safety rules for procedures and use of parking stands.**
- **Front parking stands must be on all cultivators.**
- **Rear parking stands must be on all folding cultivators unless cultivator has rear lift assist.**
- **Parking stands must be kept in good condition and replaced if damaged.**
- **Remove on solid, level ground.**
- **Before removing from tractor, cultivator must be level and stable with parking stands properly positioned and rear lift assist (when equipped) lowered to rest on cylinder stops.**
- **Keep all bystanders away.**

■ **Keep bystanders away from equipment.**

1. Park cultivator on a solid, level, dry area that is free from debris and other foreign objects.

2. Clear the area of bystanders, especially children.

3. Lower lift assist wheels (if equipped) to rest on cylinder stops.

4. Lower cultivator so that sweeps and gauge or guide wheels rest on the ground. Position toolbar in the operating position so that cultivator linkage is nearly horizontal. See Figure 7.

5. Stop engine, set parking brake, and wait for all moving parts to stop. Remove ignition key before dismounting.

6. Lower front parking stands to the ground and pin in position so that parking stands will be vertical when the tractor is removed.

7. Lower rear parking stands (folding cultivators without lift assist) to the ground and pin in position so that parking stands will be vertical when tractor is removed. Front and rear stands should be pinned in the same hole position. See Figure 8.

8. Relieve hydraulic pressure in wing fold and lift assist cylinders.

9. Adjust center link as necessary to remove load from hitch.

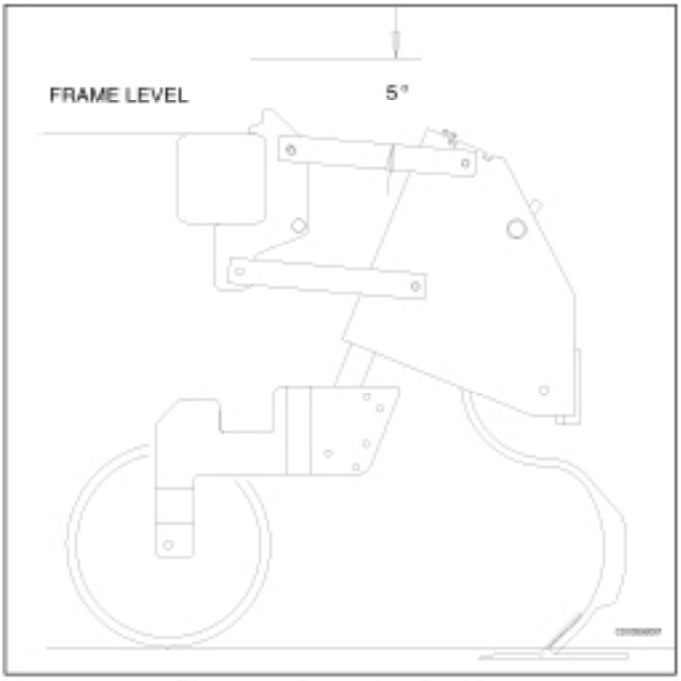


Figure 7 Operating Position

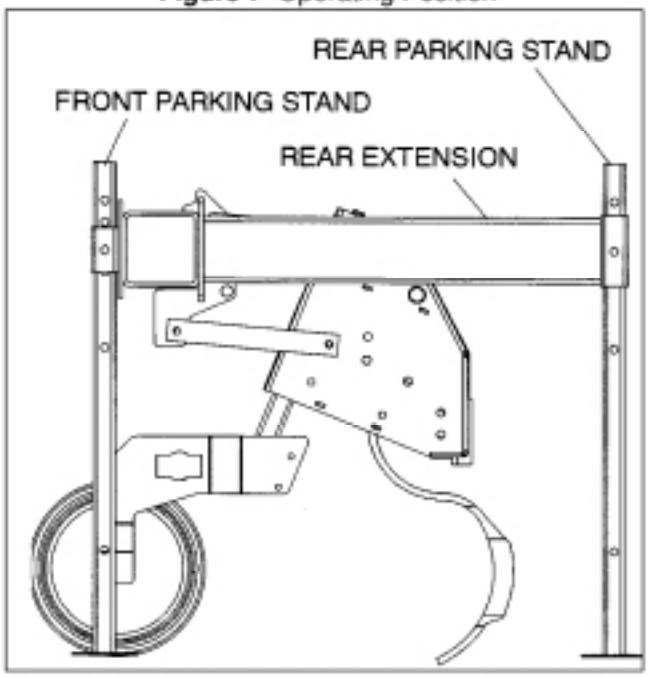


Figure 8 Front &Rear Parking Stands (Type F Toolbar)

10. With Quick-Hitch: Release coupler latches and lower hitch to release hitch pins.

11. Without Quick-Hitch: Remove hitch pins from upper and lower hitch links.

12. Disconnect hydraulic couplers and electrical connector from tractor.

13. Start engine and slowly drive away from cultivator.

Removing Cultivator from Tractor

Wing Cultivators Equipped with Lift Assist Wheels

⚠ WARNING

■ **Implement can tip over and crush if attached, removed, or stored improperly.**

- **Read and follow instructions and safety rules for procedures and use of parking stands.**
- **Front parking stands must be on all cultivators.**
- **Rear parking stands must be on all folding cultivators unless cultivator has rear lift assist.**
- **Parking stands must be kept in good condition and replaced if damaged.**
- **Remove on solid, level ground.**
- **Before removing from tractor, cultivator must be level and stable with parking stands properly positioned and rear lift assist (when equipped) lowered to rest on cylinder stops.**
- **Keep all bystanders away.**

■ **Keep bystanders away from equipment.**

1. Park cultivator on a solid, level, dry area that is free from debris and other foreign objects.

2. Clear the area of bystanders, especially children.

3. Lower lift assist wheels to rest on cylinder stops.

4. Lower cultivator so that sweeps and gauge or guide wheels rest on the ground. Position toolbar in the operating position so that cultivator linkage is nearly horizontal. See Figure 9.

5. Stop engine, set parking brake, and wait for all moving parts to stop. Remove ignition key before dismounting.

6. Lower front parking stands to the ground and pin in position so that parking stands will be vertical when the tractor is removed. See Figure 10.

7. Relieve hydraulic pressure in wing fold and lift assist cylinders.

8. Adjust center link as necessary to remove load from hitch.

9. With Quick-Hitch: Release coupler latches and lower hitch to release hitch pins.

10. Without Quick-Hitch: Remove hitch pins from upper and lower hitch links.

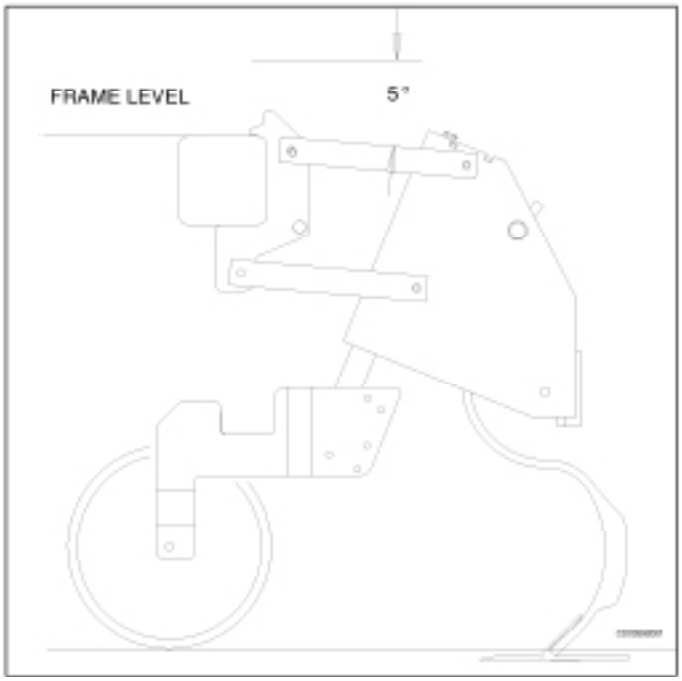


Figure 9 Operating Position

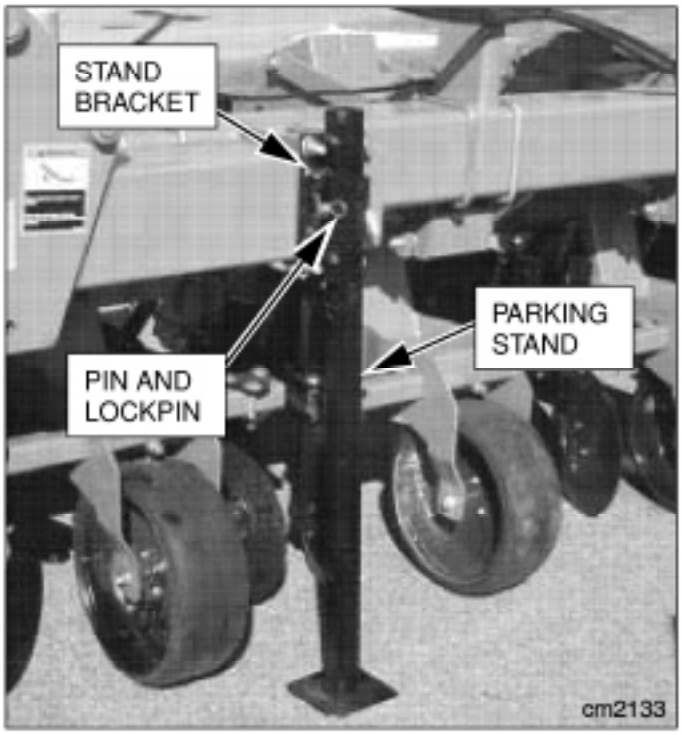


Figure 10 Front Parking Stand Lowered and Pinned

11. Disconnect hydraulic couplers and electrical connector from tractor.

12. Start engine and slowly drive away from cultivator.

Electrical System

The tractor must be equipped with an SAE J560a 7-pin electrical connector. This will provide power for turn signals, warning flashers, and tail lights.

The cultivator is equipped with warning flashers and turn signals, located on each end of the main tool bar. Warning lights must be functional whenever transporting on public highways.

See your tractor operator's manual for instructions on warning light and turn signal operation.

If warning lights, turn signals, and tail lights do not function correctly, see your Alloway dealer.

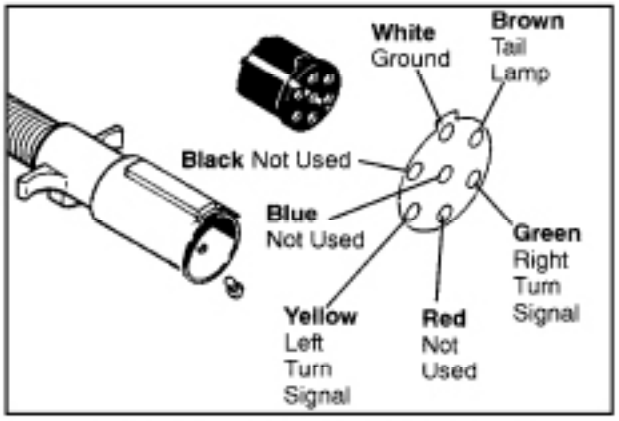


Figure 11 7-Pin Electrical Connector

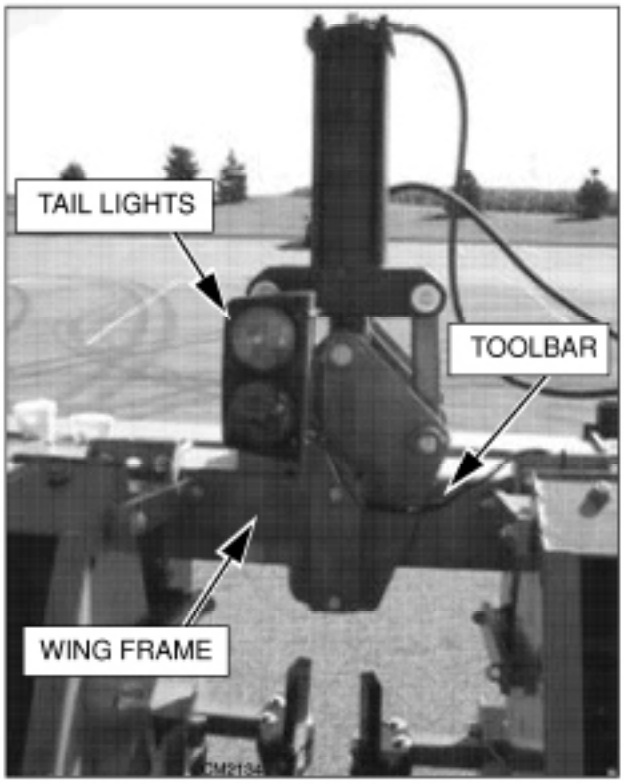


Figure 12 Tail Light (Folding Bar, left side shown)

Front Parking Stands

Front parking stands are supplied with all 3130 cultivators. Front stands must be installed to support the cultivator whenever it is removed from the tractor.

1. Lower front parking stands to the ground and pin in position so that parking stands will be vertical when the tractor is removed. See Figure 13.

Rear Parking Stands

Rear parking stands are supplied with all folding toolbar 3130 cultivators without rear lift assist wheels. Either rear parking stands or lift assist wheels must be installed to support the cultivator whenever it is removed in the folded transport position.

1. Lower rear parking stands (folding cultivators without lift assist) to the ground and pin in position so that parking stands will be vertical when tractor is removed. Front and rear stands should be pinned in the same hole position as shown in Figure 13.

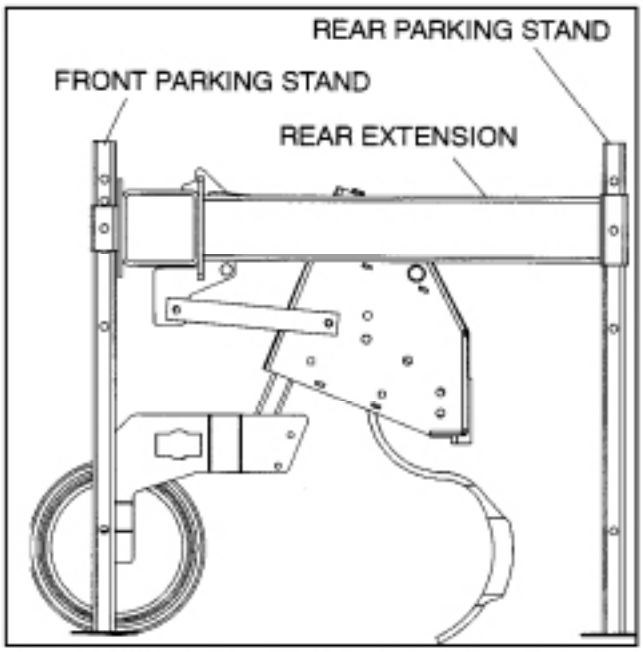


Figure 13 Front & Rear Parking Stands (type F toolbar)

Folding the Cultivator

⚠ WARNING

■ **Never walk, stand, or place yourself or others under a raised wing or in the path of a lowering wing. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause wings to drop unexpectedly and cause severe injury or death.**

■ **Before folding or unfolding cultivator:**

- **Make sure you have adequate clearance on each side and overhead.**
- **Make sure wing cylinder restrictor fittings are properly installed.**
- **Make sure wing-mounted gauge wheels and guide coulters will not contact tractor cab or tires.**

1. Connect wing fold hydraulic lines to the tractor #1 hydraulic couplers. Couplers must be connected so that pushing the control lever forward moves (unfolds) the wings to operating position and pulling the lever rearward moves (folds) the wings to transport position.

⚠ DANGER

■ **AVOID INJURY OR DEATH FROM POWER LINES:**

- **Stay away from power lines.**
- **Electrocution can occur without direct contact.**
- **Check clearances before raising implement.**
- **Do not leave the operator's seat if any part of the tractor or implement contacts electric lines.**

2. Position the tractor and cultivator in a level area, free of overhead obstacles.

3. Use the tractor 3-point hitch and lift assist wheels (if equipped) or pull-type hitch to raise the cultivator to a level position off the ground.

4. Activate fold control lever rearward and move the cultivator wings until they contact the wing rests that are attached to the main frame. Raise the cultivator into transport position.

Unfolding the Cultivator

⚠ WARNING

■ **Never walk, stand, or place yourself or others under a raised wing or in the path of a lowering wing. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause wings to drop unexpectedly and cause severe injury or death.**

■ **Before folding or unfolding cultivator:**

- **Make sure you have adequate clearance on each side and overhead.**
- **Make sure wing cylinder restrictor fittings are properly installed.**
- **Make sure wing-mounted gauge wheels and guide coulters will not contact tractor cab or tires.**

1. Connect wing fold hydraulic lines to the tractor #1 hydraulic couplers. Couplers must be connected so that pushing the control lever forward moves (unfolds) the wings to operating position and pulling the lever rearward moves (folds) the wings to transport position.

2. Position the tractor and cultivator in a level area, free of overhead obstacles and with enough clear area to permit the cultivator to unfold.

⚠ DANGER

■ **AVOID INJURY OR DEATH FROM POWER LINES:**

- **Stay away from power lines.**
- **Electrocution can occur without direct contact.**
- **Check clearances before raising implement.**
- **Do not leave the operator's seat if any part of the tractor or implement contacts electric lines.**

3. Use the tractor 3-point hitch and lift assist wheels (if equipped) or pull-type hitch to raise the cultivator to a level position off the ground.

4. Activate fold control lever forward and move the cultivator wings off wing rests into operating position.

5. Move tractor into position for cultivating.

Connecting Lift Assist

3-Point Hitch Semi-Mounted Cultivator

IMPORTANT

■ **If the cultivator is used with lift assist wheels, it must be operated as a semi-mounted unit to prevent damage to the 3-point hitch components. Remove the upper link mast and attach the cultivator to the lower 3-point hitch links only. Lift assist wheels will always carry part of the cultivator weight.**

1. Connect lift assist hydraulic lines to the tractor #2 hydraulic couplers. Couplers must be connected so that pushing the control lever forward lowers the cultivator and pulling the lever rearward raises the cultivator.

2. Use the adjustment nuts on the lift assist cylinders to level and control the operating position of the rear of the cultivator.

3. When storing the folding cultivator in the transport position, lower lift assist wheels to rest on the cylinder stops and front parking stands installed as described in Removing Cultivator from Tractor, page 18.

FIELD OPERATION

⚠ WARNING

■ **A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.**

IMPORTANT

■ **Raise cultivator out of the ground when making sharp turns.**

■ **Do not back up with sweeps or tools in the ground.**

1. Enter the field and straddle rows in the same direction of planter travel.

2. Make sure no one is near the cultivator when raising or lowering wings.

3. Unfold into operating position.

4. Lower cultivator slowly and move forward approximately 20 feet.

IMPORTANT

■ **To prevent damage to cultivator, do not drop. Lower slowly. Dropping cultivator could result in damage to gauge wheel.**

5. Check shovel working depth by brushing worked soil aside to determine the amount of ground penetration. Shovel depth is adjusted by raising or lowering the gauge wheel on each gang. Gangs behind tractor wheels are often adjusted deeper to loosen compacted soil.

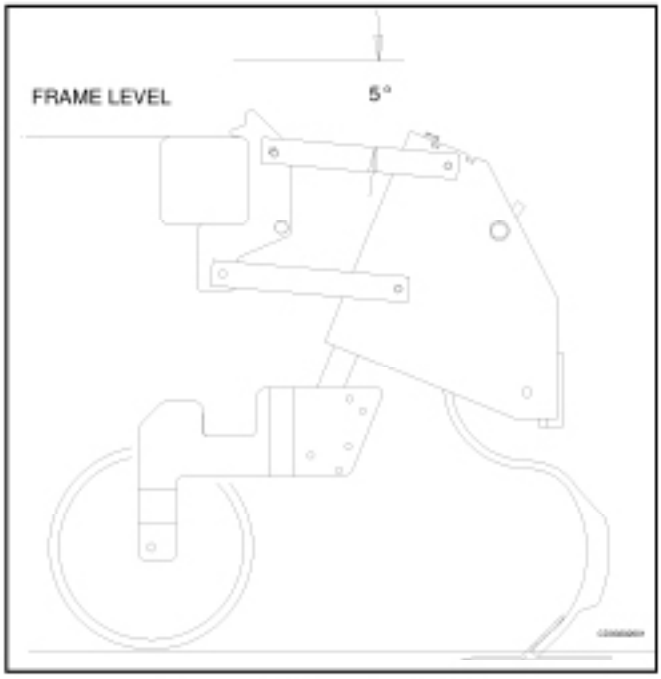


Figure 14 Operating Position

6. If necessary, readjust tine placement for proper coverage.

7. After establishing working depth, it may be necessary to reset the 3-point lever stop and adjust the support wheels or to adjust the stops on pull-type wheel cylinders to maintain operating position as shown in Figure 14.

8. To adjust individual attachments, refer to MAKING ADJUSTMENTS, page 26 to page 29.

STORAGE

⚠ WARNING

- **Block equipment securely for storage.**
- **Keep children and bystanders away from storage area.**

At the end of the season, the cultivator should be thoroughly inspected and prepared for storage. Repair or replace any worn or damage components to prevent unnecessary down time at the beginning of the next season.

To ensure a long, trouble-free life, prepare the unit for storage by carrying out the following procedure:

1. Clear the area of bystanders, especially children.

2. On solid, level ground, lower unit to rest in a stable level position with parking stands properly positioned.

3. Stop engine, set parking brake, and wait for all moving parts to stop. Remove ignition key before dismounting.

4. Thoroughly wash the unit, using a pressure washer to remove all dirt, mud, debris, and residue.

5. Repair or replace damaged parts. Remove any entangled material.

6. Inspect all hydraulic hoses, lines, couplers, and fittings. Tighten all loose fittings. Replace any hose that is badly cut, nicked, abraded, or separating from the crimped end of a fitting.

7. Lubricate all grease fittings. Make sure all grease cavities have been filled with grease to remove any water residue from pressure washing. Touch up all paint nicks and scratches to prevent rust.

8. Move to storage area. Select a dry area free of debris. Store in an area away from human activity.

9. Unhook from tractor (see Removing Cultivator from Tractor, page 17).

NOTE: Do not deflate tires.

10. Store the unit away from human activity

11. Do not allow children to play on or around the stored unit.

TRANSPORTING

⚠ CAUTION

■ **Always comply with all state and local lighting and marking requirements.**

1. Make sure all bystanders are clear of the unit.

2. Make sure the unit is securely attached to the tractor and all retainer pins are installed.

3. Make sure safety chain is installed on pull-type model.

4. Raise the unit.

5. Check the tire pressure. Be sure tires are at specified pressure.

6. Install transport locks on pull-type cultivator.

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

8. Never transport the unit faster than 10 mph (16 kmph).

9. Know the transport height and width of your unit.

10. Stay clear of overhead power lines when folding and unfolding unit. Electrocution can occur without direct contact.

MAKING ADJUSTMENTS

Leveling Toolbar Wings

1. Level wings to center toolbar, using leveling bolts.

2. Tighten jam nuts when wings are level.

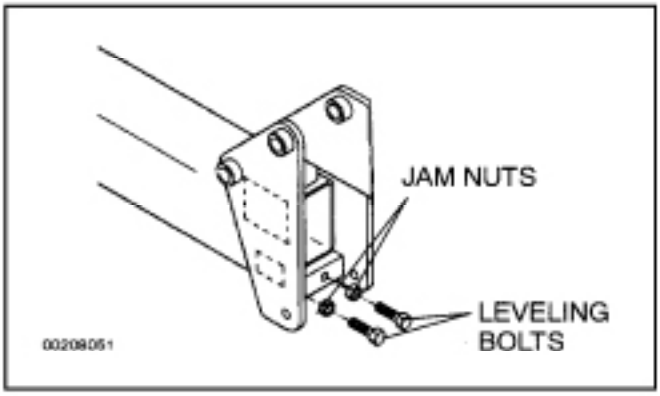


Figure 15 Toolbar Wings

Adjusting Gangs

1. Keep cultivator frame level with ground by adjusting upper link on tractor to maintain consistent ground penetration of each tine.

2. Adjust tractor 3-point hitch and frame gauge wheels so that cultivator linkage operates approximately 5 degrees from level as shown in Figure 16.

3. Set working depth by adjusting gauge wheel. Turn adjusting nut clockwise to increase working depth and counterclockwise to decrease working depth.

4. Set tine pitch by adjusting tine pitch adjustment screw as shown in Figure 17.

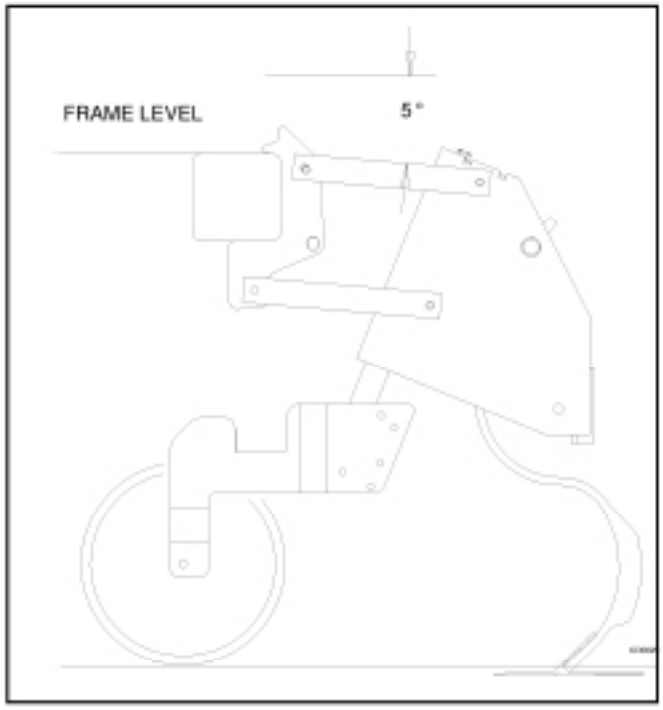


Figure 16 Operating Position

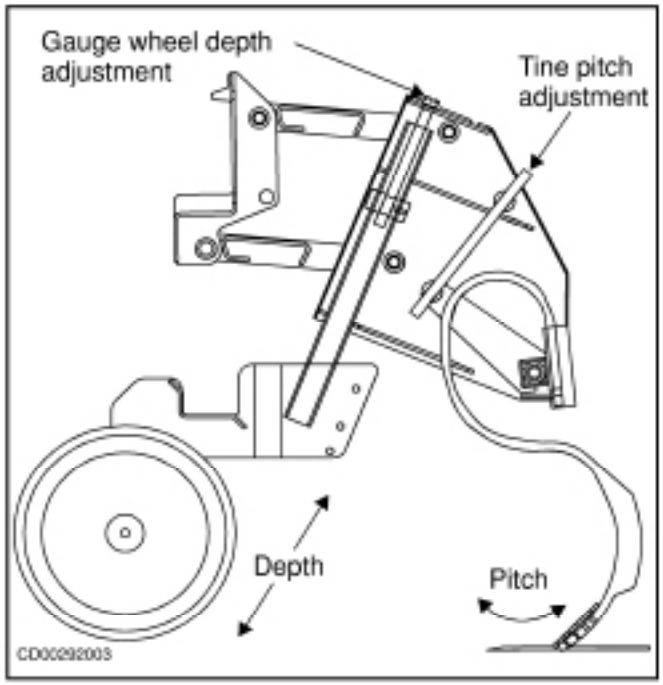


Figure 17 Gang Adjustment

Adjusting Support Wheels

Center Frame Support Wheels

The toolbar weight should be split between the tractor 3-point and the support wheels. To provide level operation of the toolbar, adjust the support wheels mounted on rigid toolbars or on the center section of folding toolbars.

Use field conditions and desired cultivator performance to set support wheel operating height.

1. Shorten the screwjack to lower to toolbar. Lengthen the screwjack to raise the toolbar. See Figure 18.

Wing Support Wheels

To maintain a proper working height at the outer end of the toolbar's wings, position and adjust the support wheels. Re-adjust the wing support wheels if the center frame operating position is changed.

1. Shorten the screwjack to lower to toolbar. Lengthen the screwjack to raise the toolbar. See Figure 18.

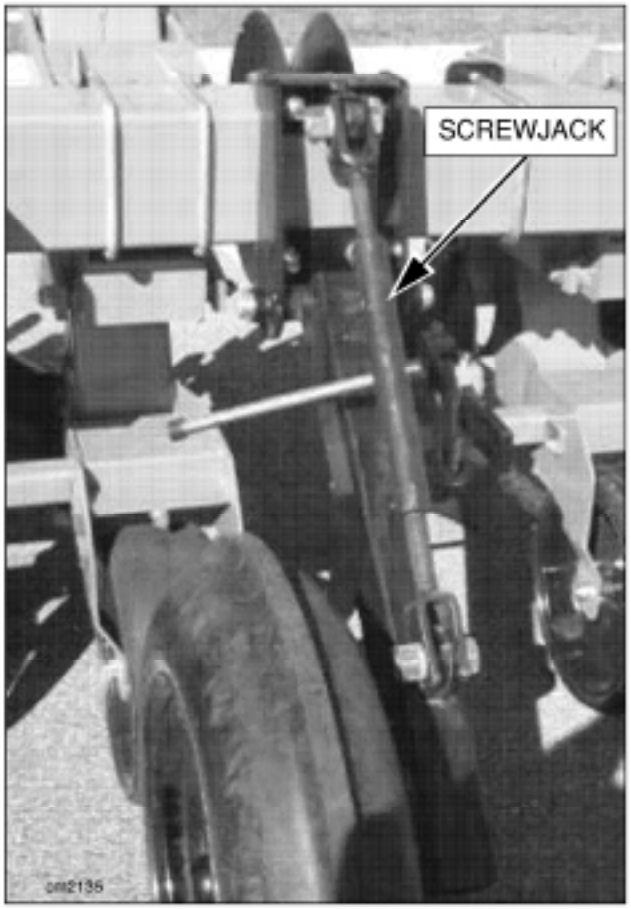


Figure 18 Adjusting Support Wheels

Adjusting Dual Discs

1. Adjust disc width by loosening bolts and jam nuts on top of the disc clamp.
2. Slide discs on rails until reaching desired width.
3. Tighten bolts and jam nuts.

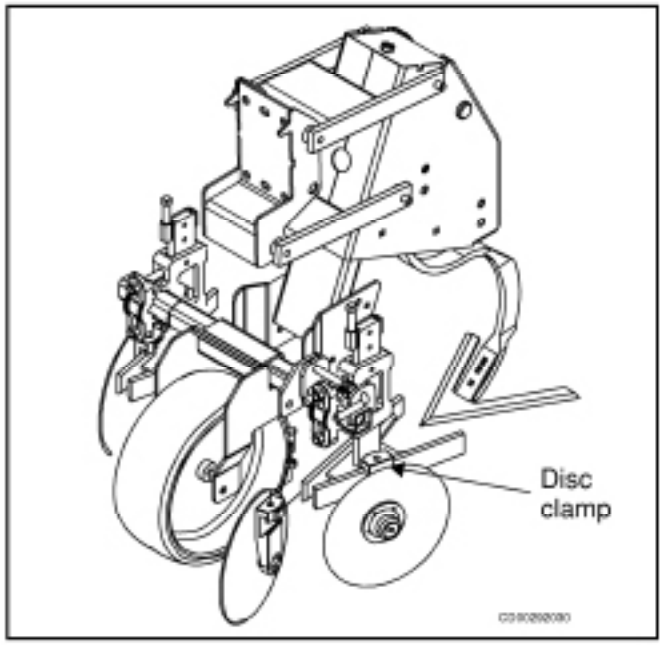


Figure 19 Adjusting Dual Discs

Adjusting Sweeps

1. Adjust pitch by selecting a different hole on the tine (straight edge tine). Use pitch adjusting screw. See Figure 20.

Adjusting Optional Equipment

Refer to ASSEMBLY section for instructions on adjusting additional optional attachments.

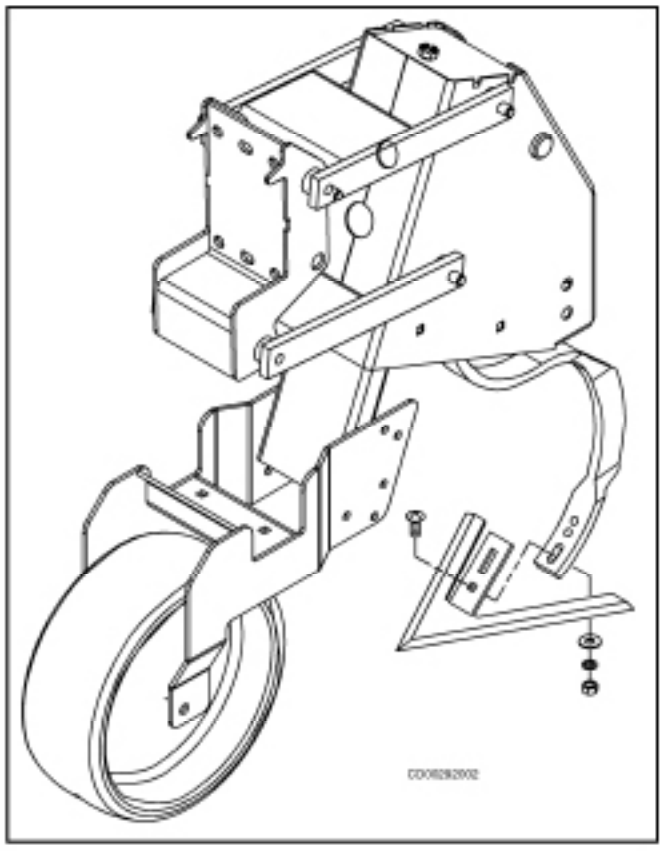


Figure 20 Adjusting Sweep Pitch

⚠ WARNING

■ NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.

- **Service work does not require going underneath.**
- **Read Operator's Manual for service instructions or have service performed by a qualified dealer.**

■ Know your controls and how to stop engine and attachment quickly in an emergency.

■ Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.

■ Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result. CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.

■ Never allow children or untrained persons to operate equipment.

■ Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.

■ Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to implement, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.

■ Before servicing, unfold completely to operating position. Do not service with wings in any other position.

⚠ CAUTION

■ If you do not understand any part of this manual and need assistance, see your dealer.

■ Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.

Greasing

Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. An SAE multi-purpose lithium-based grease is also acceptable.

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

Storing Lubricants

Your unit can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contaminants.

The recommended lubrication intervals are based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.

Servicing Intervals

10 Hours

Lubricate 180-degree folding toolbar (Figure 21).

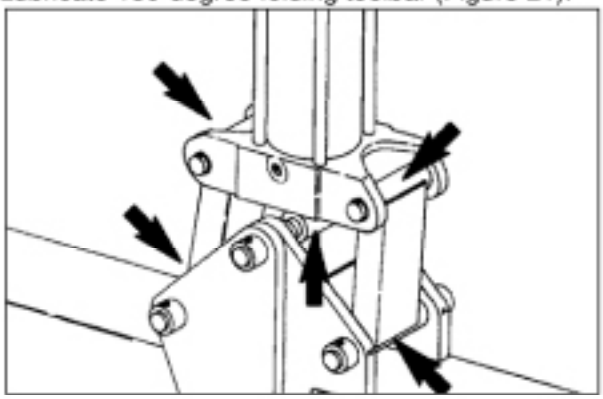


Figure 21

25 Hours

Lubricate guide wheel screw jacks (Figure 22 & Figure 24).

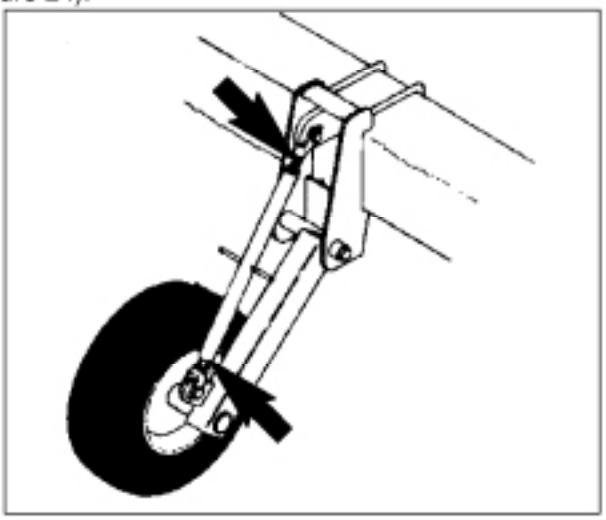


Figure 22

25 Hours

Lubricate lift assist assemblies (Figure 23)

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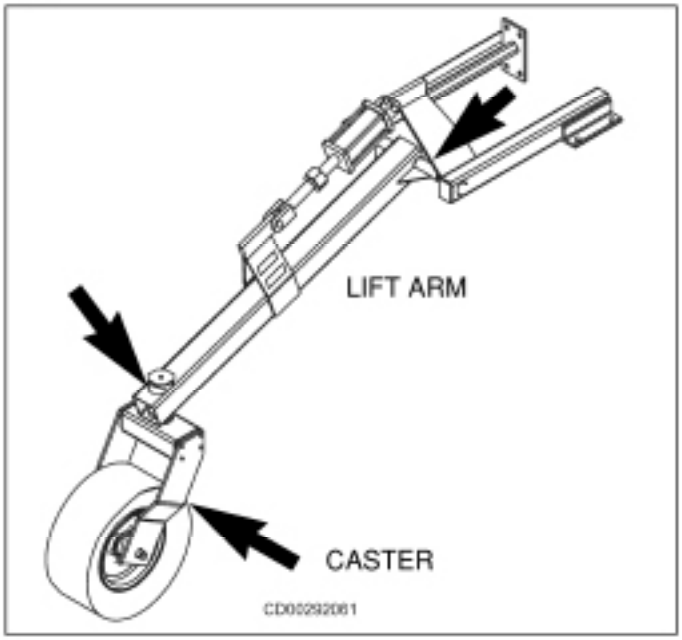


Figure 23

25 Hours

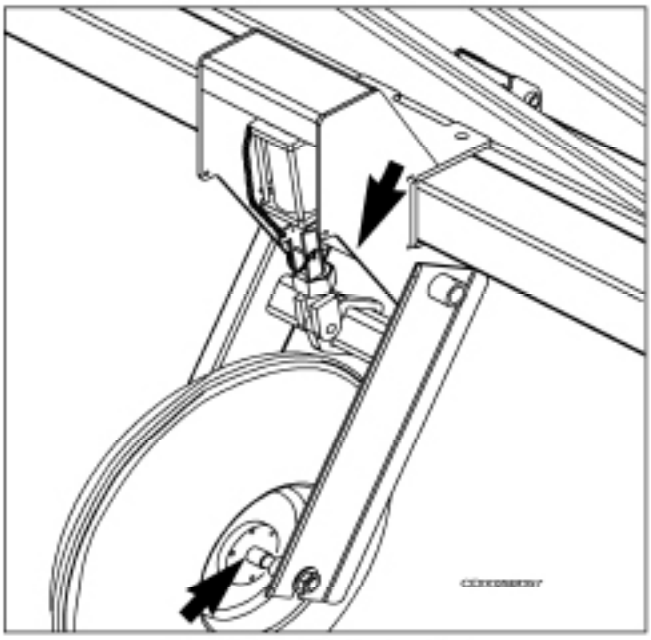


Figure 24 Pull-type Hitch

Servicing Intervals (Cont'd)

Annually

Repack all wheel bearings.

Lubricate dual knife disc mounting tubes (Figure 25).

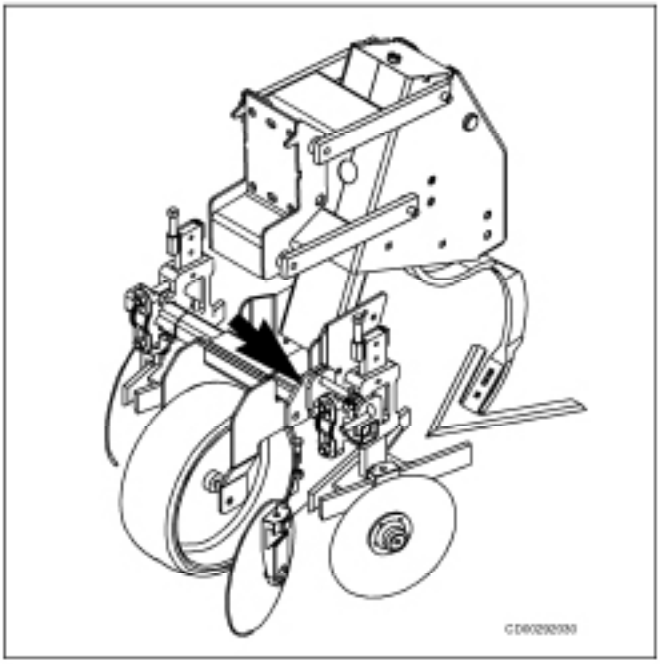


Figure 25

ASSEMBLY

DEALER SET-UP INSTRUCTIONS

⚠ WARNING

■ **Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**

■ **Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result. CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**

■ **Air in hydraulic systems can cause erratic operation and allow loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.**

■ **Before folding or unfolding cultivator:**

- **Make sure you have adequate clearance on each side and overhead.**
- **Make sure wing cylinder restrictor fittings are properly installed.**
- **Make sure wing-mounted gauge wheels and guide coulters will not contact tractor cab or tires.**

■ **Never allow children or untrained persons to operate equipment.**

■ **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**

■ **Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to implement, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.**

⚠ WARNING

■ **Do not handle blades with bare hands. Careless or improper handling may result in serious injury.**

⚠ CAUTION

■ **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.**

Assembly of this cultivator is the responsibility of the Alloway dealer. The cultivator should be delivered to the owner completely assembled, lubricated, and adjusted for normal conditions.

Set up cultivator as received from the factory with these instructions. Complete the check lists on page 34 when set-up is completed.

Cultivators are shipped disassembled. When you receive shipment, examine the unit carefully for any hidden damage during shipment. Before assembling the unit, check and compare the parts, bundles, and cartons against the packing list to identify any shortages. If any parts shortages are noted, contact Alloway immediately.

1. Select an assembly location that is clean and level with a firm, dry surface. The area must not have any overhead power lines or obstructions and must be large enough to work safety around the unit and to accommodate the unit when fully assembled.

2. Remove cultivator from the carton. Open the parts box and lay parts out for easy identification. Refer to the parts lists and exploded view drawings in this manual.

NOTE: Recommended torque values are given in the Bolt Torque Chart, page 94.

PRE-DELIVERY CHECK LIST
(DEALER'S RESPONSIBILITY)

Inspect the equipment thoroughly after assembly to make sure that it is set up properly before delivering it to the customer.

The following check lists are a reminder of points to inspect. Check off each item as it is found satisfactory or after proper adjustment is made.

___ Check that all safety decals are installed and in good condition. Replace if damaged.

___ Properly attach implement to tractor and make all necessary adjustments.

___ Check all bolts to be sure they are properly torqued.

___ Check wheel bolts for proper torque.

___ Check that all cotter pins and safety pins are properly installed. Replace if damaged.

___ Check and grease all lubrication points as identified in Servicing Intervals, page 31 and page 32.

___ Check that hydraulic reservoir has been serviced and that hydraulic system and all functions have been operated through full cylinder stroke to purge air from system.

DELIVERY CHECK LIST
(DEALER'S RESPONSIBILITY)

___ Show customer how to make adjustments.

___ Instruct customer how to lubricate and explain the importance of lubrication.

___ Point out the safety decals. Explain their meaning and the need to keep them in place and in good condition. Emphasize the increased safety hazards when instructions are not followed.

___ Present Operator's Manual and request that customer and all operators read it before operating equipment. Point out the manual safety rules, explain their meanings and emphasize the increased safety hazards that exist when safety rules are not followed.

___ Explain to customer the potential crushing hazards of going underneath raised equipment. Instruct customer that service work does not require going underneath unit and never to do so.

___ Show customer the safe, proper procedures to be used when mounting, dismounting, and storing equipment.

___ For mounted units, add wheel weights, ballast in front tires, and/or front tractor weight to enhance front end stability. A minimum 20% of tractor and equipment gross weight must be on front tractor wheels. When adding weight to attain 20% of tractor and equipment weight on front tractor wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. Do not estimate!

___ Explain to customer that when equipment is transported on a road or highway, a Slow Moving Vehicle (SMV) sign should be used to provide adequate warning to operators of other vehicles.

___ Make customer aware of optional equipment available so that customer can make proper choices as required.

ORDER OF ASSEMBLY

Completely assemble two rows of the cultivator, including all options and accessories, before assembling the entire cultivator. Once you have assembled two rows and approve the configuration, continue assembling the balance of the cultivator. **NOTE:** Application and conditions will determine the exact assembly.

Assemble the cultivator in the following order:

1. Apply Alloway decal, page 35.

2. Mount either 3-point or pull-type hitch, page 36 - 38.

3. Assemble toolbar (folding units only), page 39.

4. Install lights, page 42.

5. Mount row units to toolbar, page 42.

6. Mount shovels or sweeps, page 44.

7. Mount King guide row units, page 45.

8. Install down pressure springs (optional), page 46.

9. Attach rear shanks, page 47.

10. Attach rear extension brackets and shanks (optional) page 47.

11. Mount coulter discs (optional), page 48.

12. Mount semi-pneumatic or steel guide wheels, page 50.

13. Mount front and rear parking stands, page 51.

14. Mount adjustable support wheels, page 52.

15. Install shields, page 53 to 56.

16. Install flip-up tubes and dual discs/dual knives, page 57 to page 60.

17. Install row weeder discs or other options, page 59 to 61.

18. Mount lift assist (optional), page 62.

19. Mount rear stabilizer coulter, page 64.

20. Tighten all bolts to specifications in the Bolt Torque Chart, page 94.

21. Check that all tire pressures are 28-32 psi (38-42 psi for pull-type transport wheels).

Apply Alloway Decal

All safety and reflector decals are applied at the factory. All model decals are to be applied by the dealer.

NOTE: To avoid interference with the cultivator components, apply all other decals after assembling cultivator. On row spacings 36" and above, the Alloway decal can be applied after assembling cultivator.

1. Be sure installation area is clean and dry.

2. Decide on exact position before removing backing paper. The Alloway decal will be placed on the front right side of the toolbar as shown in Figure 1.

3. Remove the smallest portion of the split backing paper.

4. Align decal and carefully press the small portion with the exposed sticky backing in place.

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

6. Small air pockets can be pierced with a pin and smoothed out, using the decal backing paper.

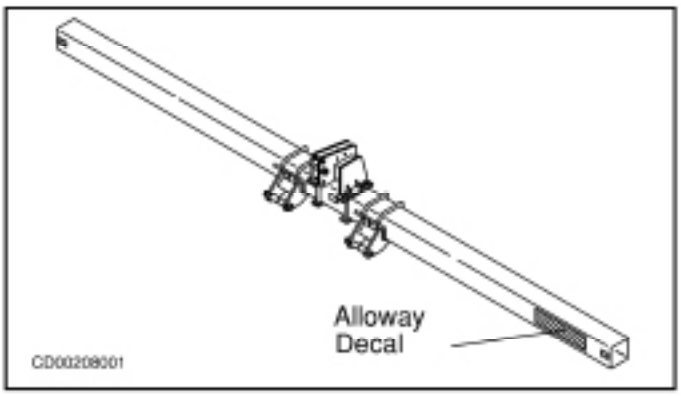


Figure 1 Alloway Decal Position

MOUNT HITCHES

Identify Toolbar Type

1. Support the toolbar on suitable stands.

2. Identify toolbar type according to Figure 2. Locate center point and mark for reference during assembly.

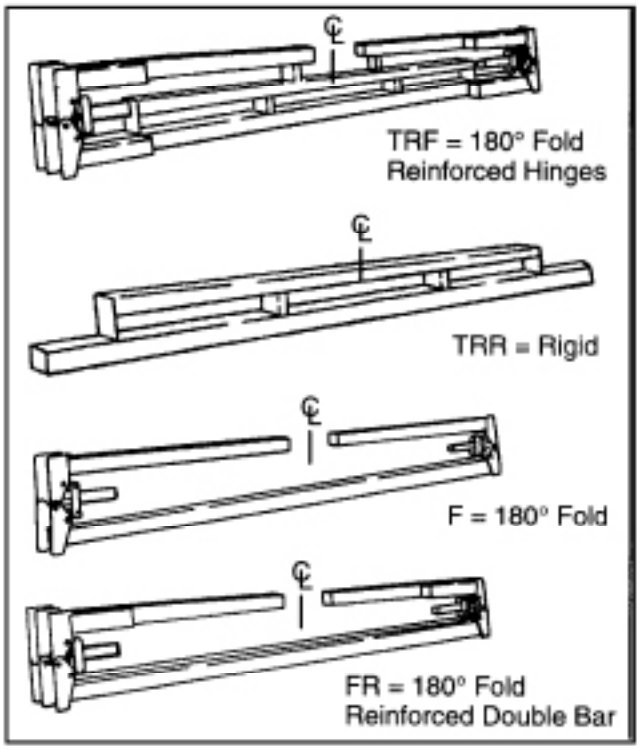


Figure 2 Toolbar Identification

3. Identify hitch mounting positions according to Figure 3.

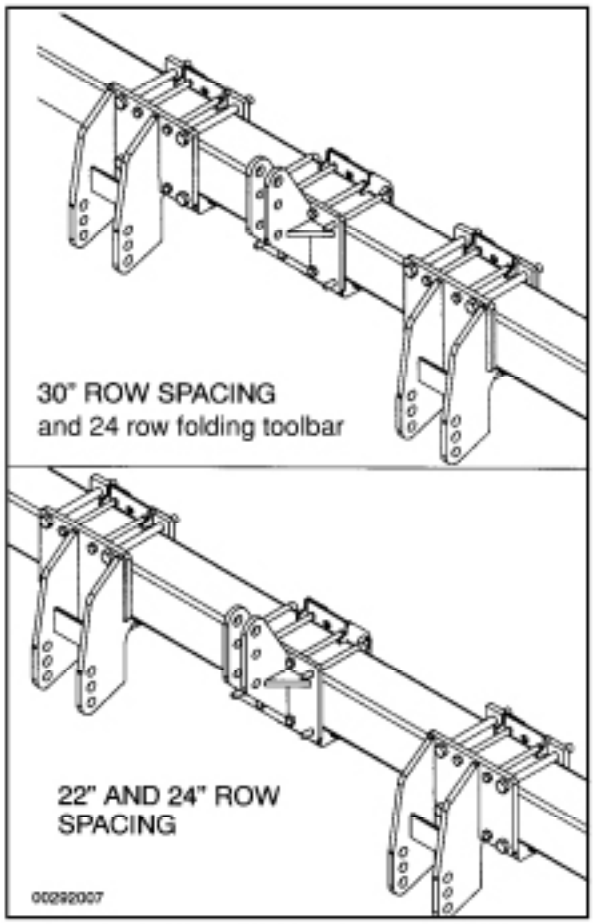


Figure 3 Hitch Mounting Positions

MOUNT HITCH (CONT'D)

Install 3-Piece Mast

1. Install upper mast, using U-bolts, lock washers, and nuts.

2. Attach center hitch to toolbar and upper mast, using 7/8 NC x 10" hex bolts, lock washers, and nuts.

3. Fasten the 1-1/4" OD bushings between the plates, using 1 x 5" hex bolts, lock washers, and nuts.

4. See Figure 4, Figure 5, or Figure 6 for the correct bushing location to fit the hitch that will be used. Be sure upper mast is centered on the toolbar.

NOTE: The short side of the wings must be on the tractor side toolbar.

IMPORTANT

■ **If the cultivator if used with lift assist wheels, it must be operated as a semi-mounted unit to prevent damage to the 3-point hitch components. Remove the upper link mast and attach the cultivator to the lower 3-point hitch links only. Lift assist wheels will always carry part of the cultivator weight.**

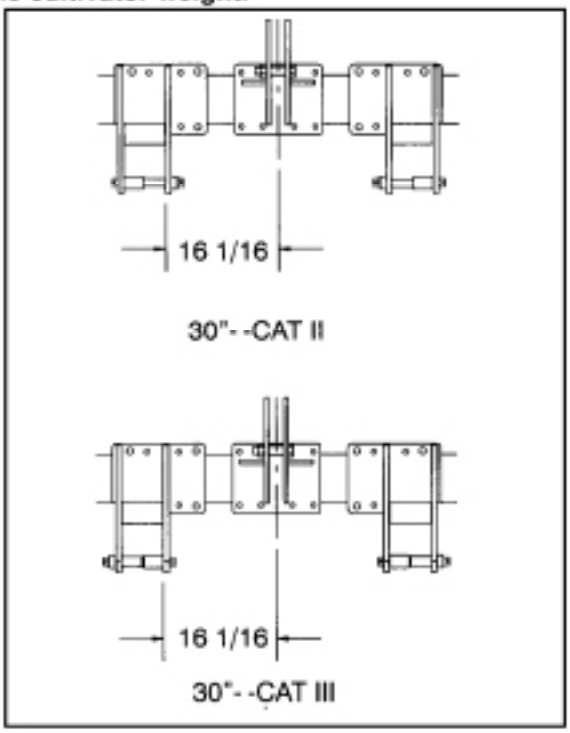


Figure 4 Hitch Position 30" Row & 22"-24" Row

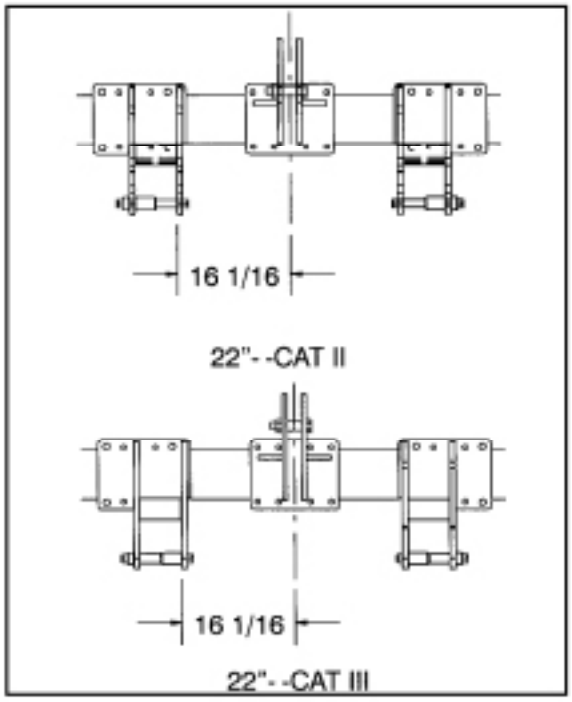


Figure 5 Hitch Position 22" Row

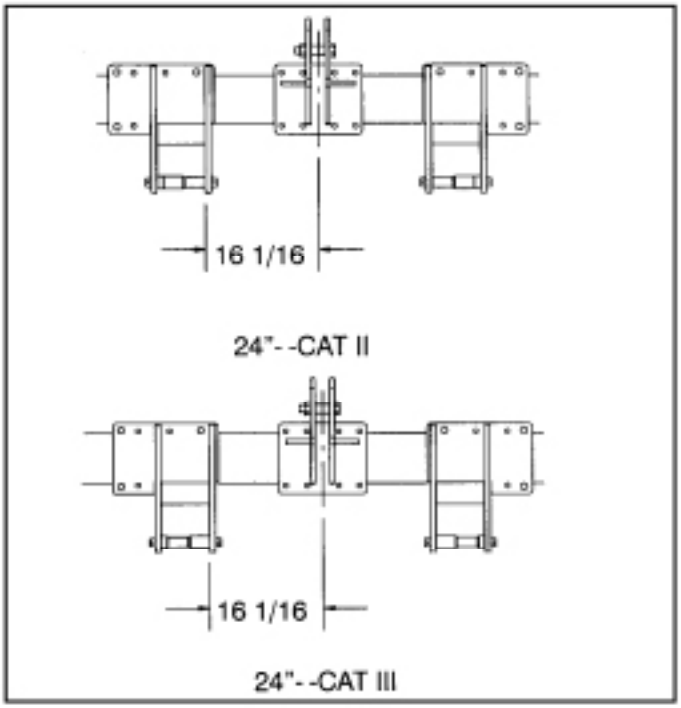


Figure 6 Hitch Position 24" Row

MOUNT HITCH (CONT'D)

Install 3-Piece Mast (Cont'd)

1. Support toolbar and fasten each lower 3-point bracket to toolbar. Install 7/8" hex bolts, lock washers, and nuts through row linkage and lower bracket.

2. Position lower 3-point brackets and spacers to match tractor hitch (Figure 4, Figure 5, or Figure 6). 24" row units use different lower 3-point brackets.

NOTE: Linkages attached to the 3-point brackets use 7/8 NC bolts and backstraps to attach the toolbar.

3. Mount spacer to lower 3-point brackets, using 1-1/8" OD x 9-5/16" pins and 7/16 x 2" Klik pin.

NOTE: Do not tighten bolts until entire cultivator is assembled.

Pull-Type Hitch

1. Wheel masts and tongue are assembled at the factory. Install wheel masts in the guide rows, usually at 44" and 88" inches from the center row unit.

2. Attach wheel mast assemblies to the front 7 x 7 tube, using 1" NC x 4.5/3" bolts, lock washer and nut.

3. Center tongue on front 7 x 7 toolbar and attach with 1" NC x 10 bolts and lock nuts.

4. Tighten bolts to specifications in the Bolt Torque Chart, page 94.

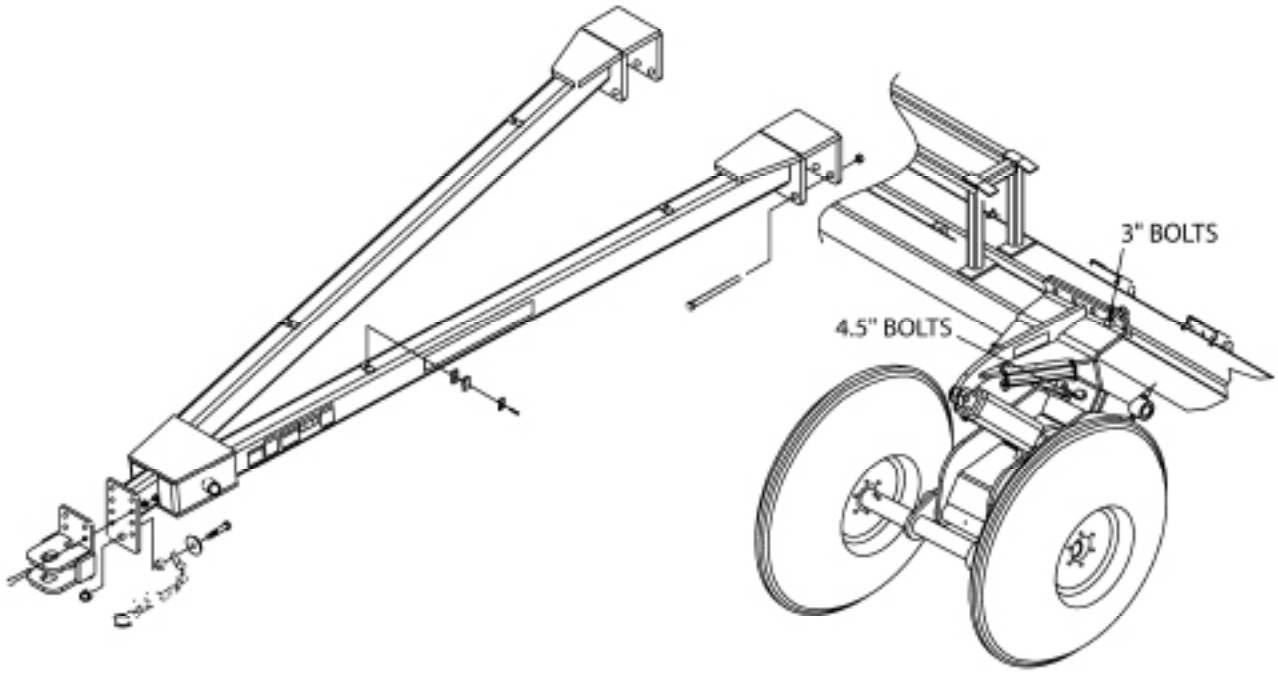


Figure 7 Pull-Type Hitch and Wheel Mast Assembly

Assemble Toolbar

1. On toolbars with 180-degree folding wings, assemble the cylinder yoke assembly when mounting the wings.

2. Use the longest pins on 7" x 7" toolbars. The ports on the cylinder should face toward the tractor side of the cultivator.

3. Secure the hinge pins with 5/16 x 2-1/2" bolts and lock nuts.

4. Assemble 3/4" jam nuts onto the 3/4" x 2-1/2" bolts and turn them into the hinge plates, located at the underside of the hinge. The bolt head faces the wings.

NOTE: On double toolbars, make sure the short side of wings are on the tractor side of the toobar or the bolts used to level the wings will not be in the proper place.

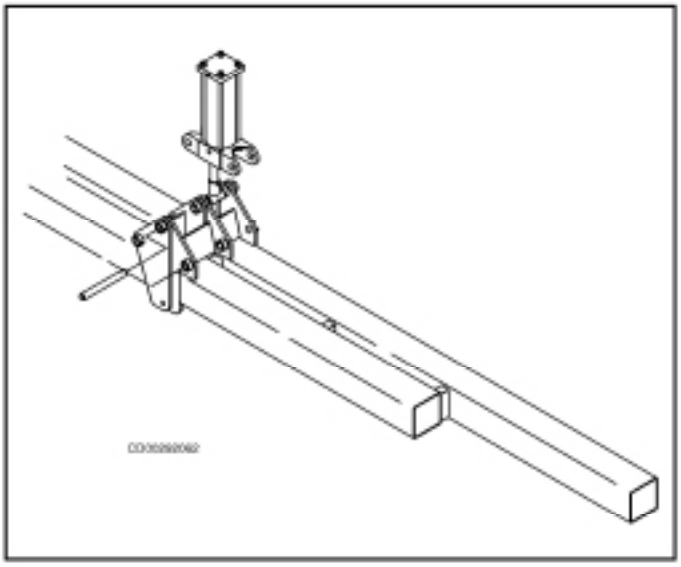


Figure 8 Mounting Wings

5. Assemble grease zerks in cylinder linkage bars.

6. Mount the linkage bars to the wings, using medium-length pins. The grease zerks should point outward from the hinge.

7. Secure the linkage bar pins with 5/16" x 2-1/2" bolts and lock nuts.

8. Assemble the linkage bars to the cylinder casting, using welded head pins and snap ring pins as shown in Figure 9. The snap ring pins go through the pin on the tractor side of the cylinder.

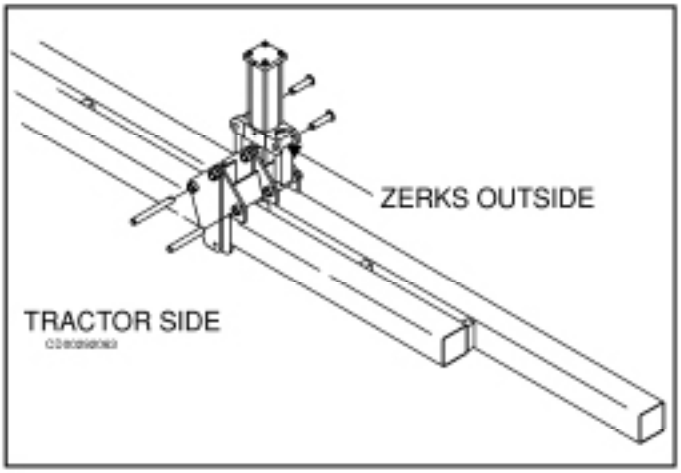


Figure 9 Mounting Cylinder Linkage Bars

Mount Hydraulics

⚠ WARNING

■ **Air in hydraulic systems can cause erratic operation and allow loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.**

■ **Make sure all hydraulic hoses, fittings, and valves are in good condition and not leaking before starting power unit or using equipment. Check and route hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hoses immediately.**

1. Fasten adapters to the cylinders.

2. Attach 90-degree elbows to adapters. Point elbows downwards and toward the center of the cultivator.

3. Fasten the long hoses to the upper ports on cylinders and medium hoses to the lower ports on cylinders.

4. Run the hoses to the center of the toolbar and fasten the two long hoses and two shorter hoses together.

5. After cultivator is completely assembled, fasten two 60" hoses to the toobar, using the plastic cable ties.

6. Fasten the wing rests to the center section, using 5/8" U-bolts, nuts, and lock washers (not required on TRF) as shown in Figure 11. Locate wing rests by measuring from the hinge pin. Make sure there is no interference with gang assemblies when folded.

NOTE: Do not tighten wing rests until entire cultivator has been assembled. They may need to be moved to avoid other components bolted to the center toolbar or wings.l

7. Install hydraulic tips and attach 3-point hitch to front of toolbar.

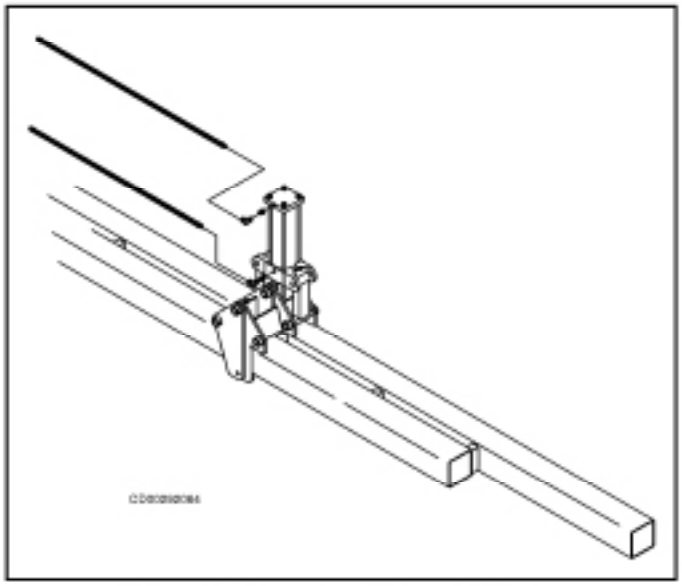


Figure 10 Installing Hydraulic Fittings

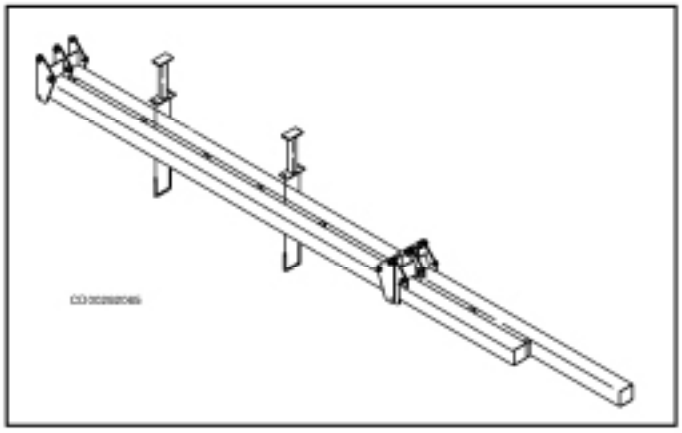


Figure 11 Wing Rest

8. Torque hydraulic fittings according to specifications given below.

TORQUE SPECIFICATIONS

Fitting	Required Torque
3/8 Flare JIC	17 - 19 lbs.-ft.
3/8 O-Ring Boss	24 - 26 lbs.-ft.
1/2 O-Ring Boss	50 - 60 lbs.-ft.

Make Final Adjustments

1. Attach to tractor and slowly fold and unfold; then make final adjustments.

2. On folding toolbars, charge the hydraulic cylinders by raising the wings 1 foot and unfolding several times to make sure hydraulic cylinders are completely filled with oil.

IMPORTANT

■ **Failure to charge hydraulic cylinders will cause damage to the cultivator and possible personal injury as wings will "free fall" into transport position. Stay clear of folding toolbars when folding.**

3. Level wings to the center toolbar, using 3/4 x 2-1/2" hex bolts and jam nuts. These may need to be readjusted after cultivator is completely assembled.

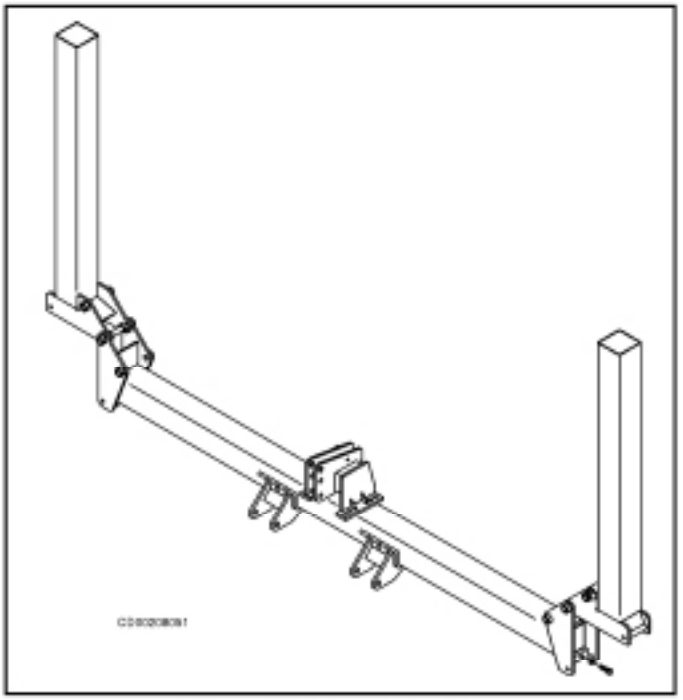


Figure 12 Leveling Wings

Install Lights

1. Rigid Bar (TRR): Install light brackets to ends of toolbar, using U-bolts and nuts as shown in Figure 13.

1. Folding Bar (TRR and TRF): Install light brackets to wing support plates, using 5/8" bolts and nuts.

2. Attach tail light assemblies to brackets. Tail lights should be mounted toward the outside of the cultivator with red lens visible to the rear and towards the bottom.

3. Connect the light harness to the tail lights and secure to top side of toolbar, using plastic ties. When cultivator is completely assembled, use additional tie straps to secure harness in place.

IMPORTANT

■ **Tail light harness must be installed so that it is not pinched or damaged during operation of the cultivator.**

4. Connect tractor harness to tail light harness and secure out of the way during rest of assembly.

5. Fasten end cap, using screw provided.

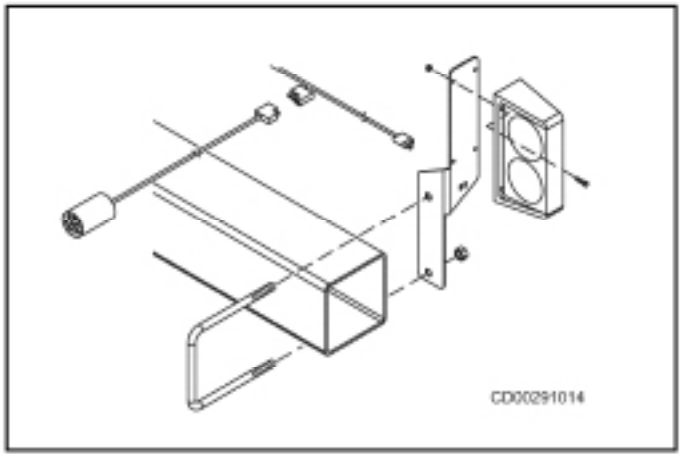


Figure 13 Installing Lights
(Rigid bar shown)

Mount Row Units

1. Locate the center of the toolbar and mark it. Mark off the row spacings on both sides of the center mark.

Example: On even row units (8 or 12 rows), if the cultivator will be used for 30-inch rows, mark off every 30 inches on both sides of the center mark.

2. Center the linkage assemblies over the marks made on the toolbar and fasten them, using 5/8" U-bolts and flanged nuts.

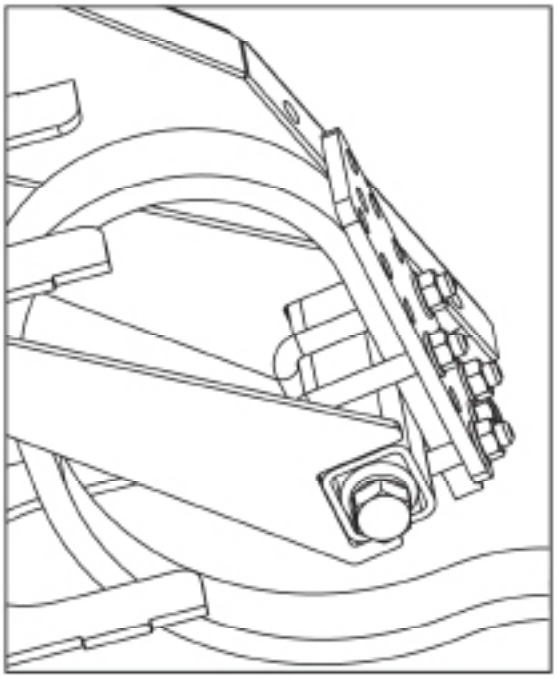
NOTE: Linkages attached to the 3-point brackets use 5/8 NC bolts and the linkage.

3. Install row units with 6 x 12. Set back gauge wheel at 44" or 88" from center if using steel or semi-pneumatic guide wheels.

Mount Tines

Straight Edge Tine

1. Fasten tine to tine pitch bracket, using 1/2 x 1-1/2" hex bolt and flange nut.



Detail

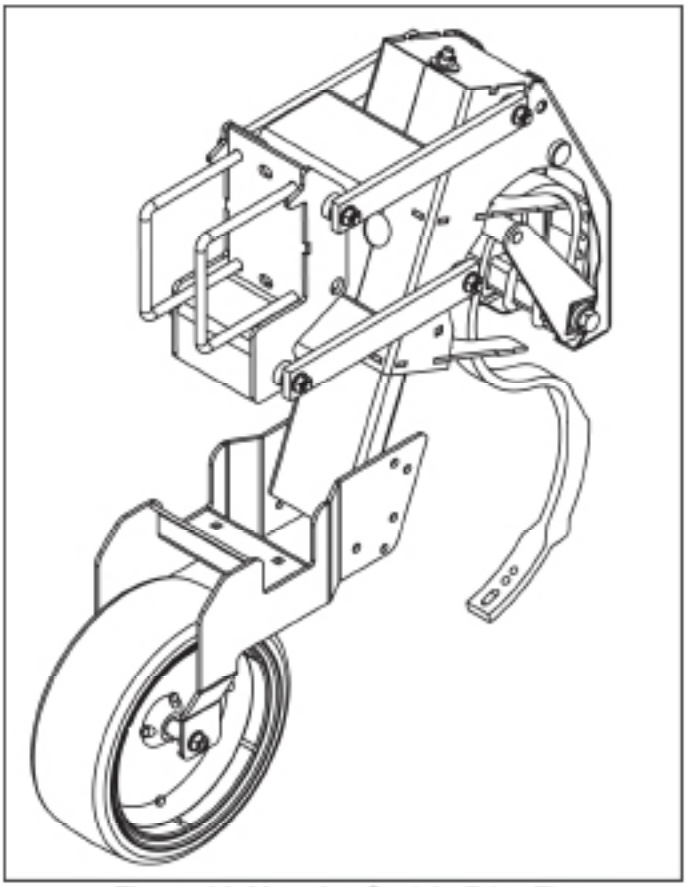


Figure 14 Mounting Straight Edge Tine

Mount Shovels & Sweeps

Heavy Duty Adjustable Tine

1. Fasten shovels to tine, using two 7/16 x 2" plow bolts with 1/2" heads, flat washers, lock washers, and hex nuts as shown in Figure 15.

2. Adjust shovel pitch by selecting top or bottom holes in tine.

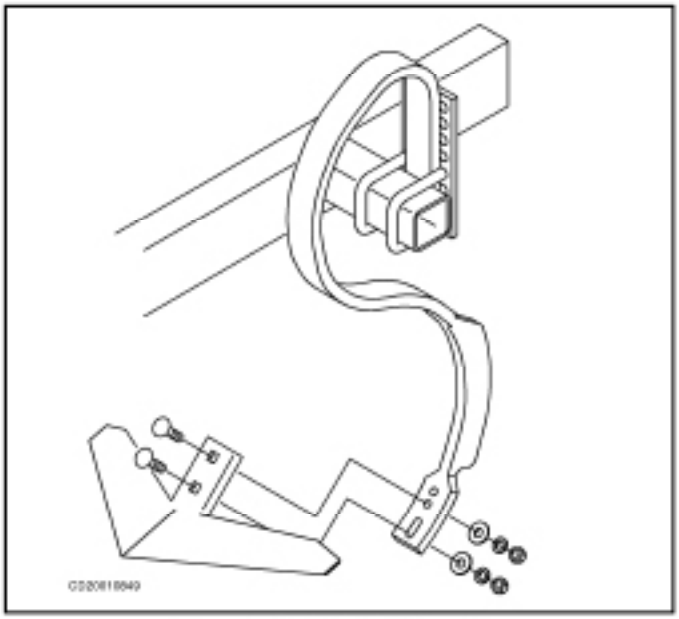


Figure 15 Straight Edge Tine

Rear Shank

1. Fasten shovels to shank, using two 1/2 x 3" plow bolts, flat washers, lock washers, and hex nuts.

Large sweeps use 1/2 x 3-1/2" plow bolts and spacer plates as shown in Figure 16.

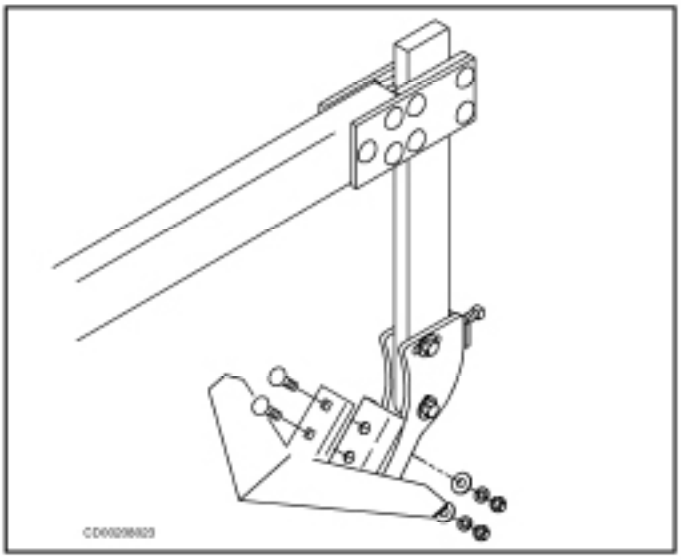


Figure 16 Rear Shank

Mount King Guide Struts, Shanks, & Extensions

1. Fasten king guide strut to the toolbar, using 7/8" A-bolts, lock washers, and hex nuts as shown in Figure 17.

2. Attach shanks to king guide strut, using 1/2 NC x 1-1/2 bolt and flanged lock nut (Figure 18).

3. Attach extensions to the king guide struts (Figure 19).

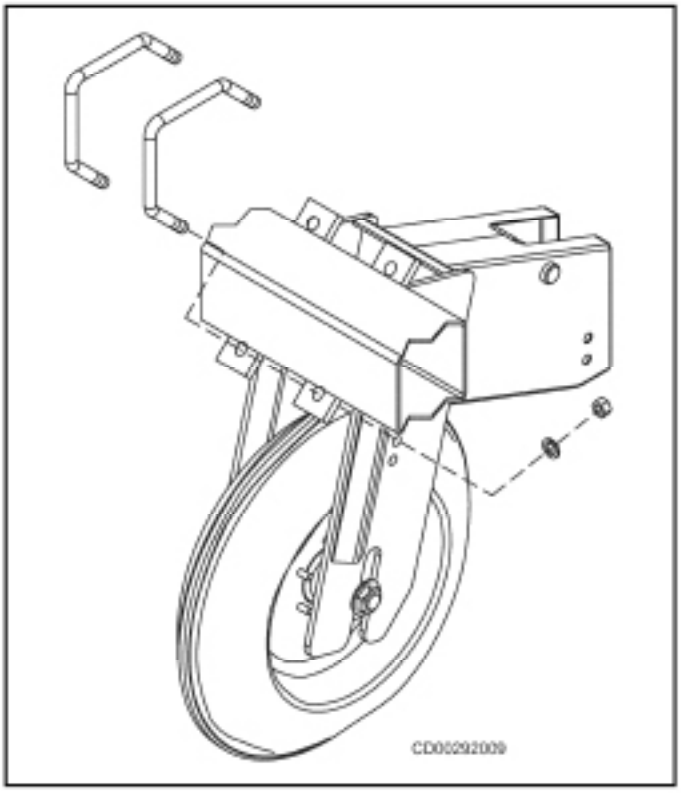


Figure 17 Mounting King Guide Strut

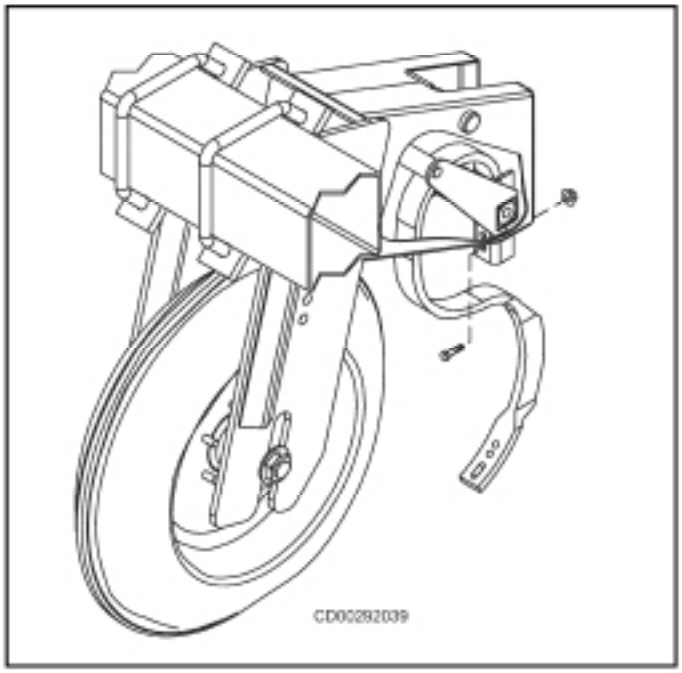


Figure 18 King Guide Adjustable Shank

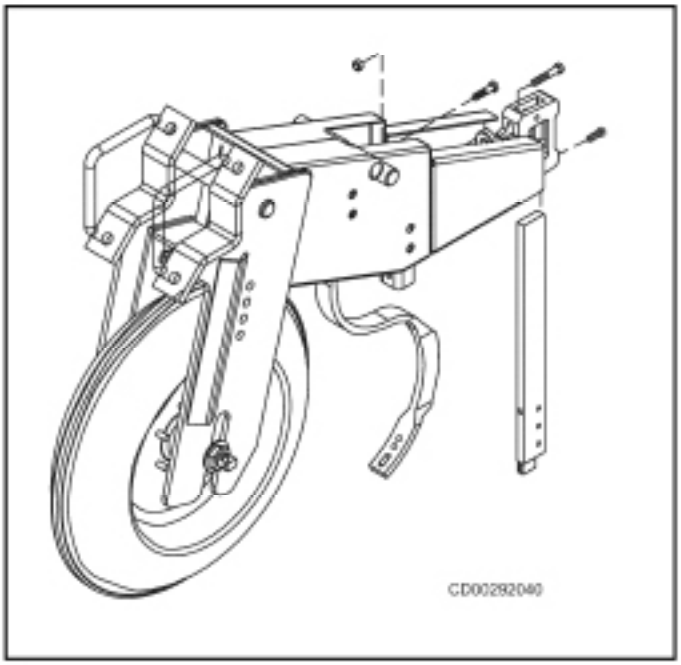


Figure 19 King Guide Shank Extension

Install Down Pressure Springs

1. Insert spring rod in mounting bracket and install cotter pins.

2. Replace picot bolt retaining nut with new shoulder nut provided.

3. Slide spring into place over spring rod and fasten into place with spring retainers. Use flat washers on each side of spring hook as shown in Figure 20.

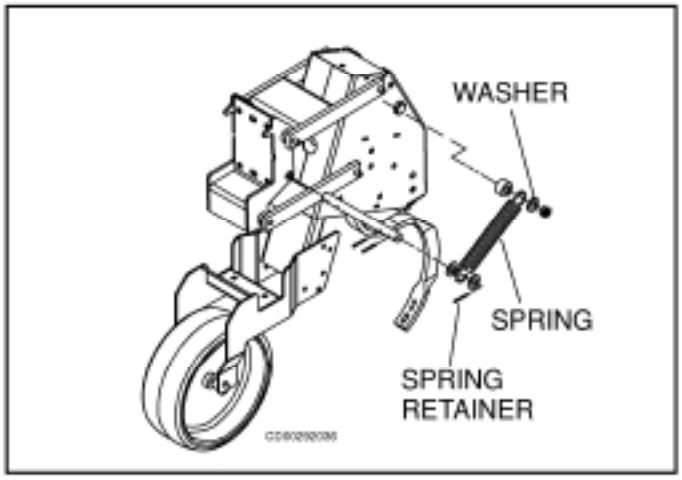


Figure 20 Down Pressure Springs

Rear Extension with Hiller or Rigid Shank

1. Attach rear extension to linkage, using four cap screws, lock washers, and nuts on each unit.

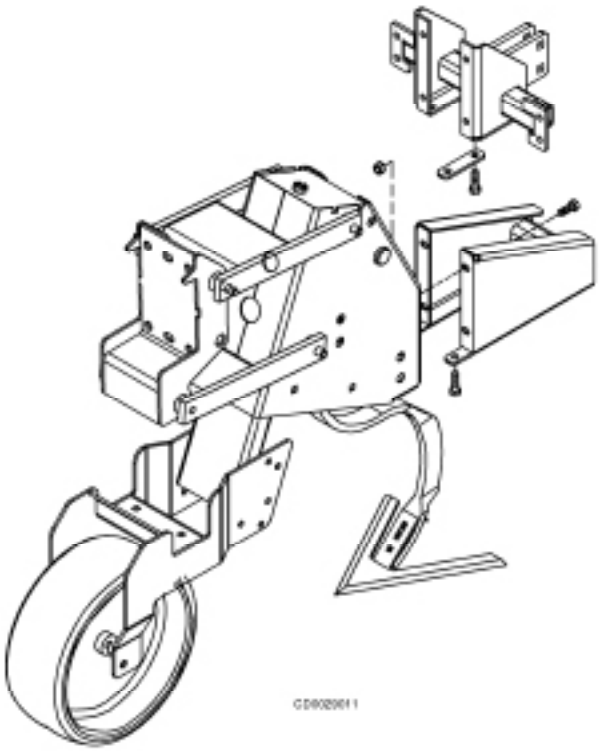


Figure 21

Rear Extension with Cast Clamp

1. Attach cast clamp body to rear extension and attach shank to clamp.

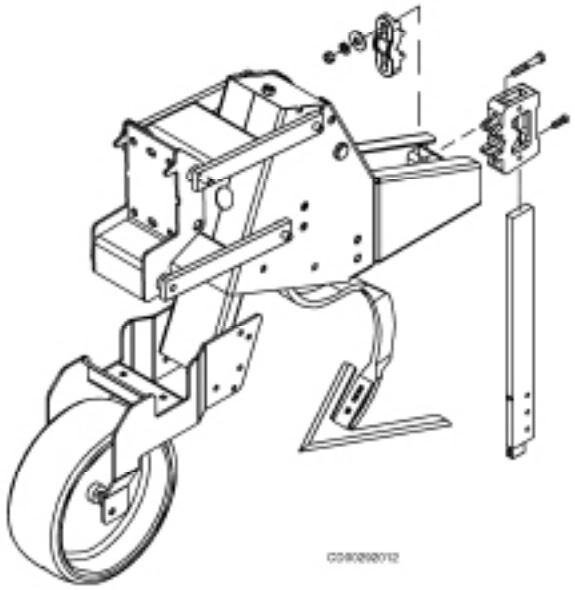


Figure 22

Rigid Rear Extension with Shank

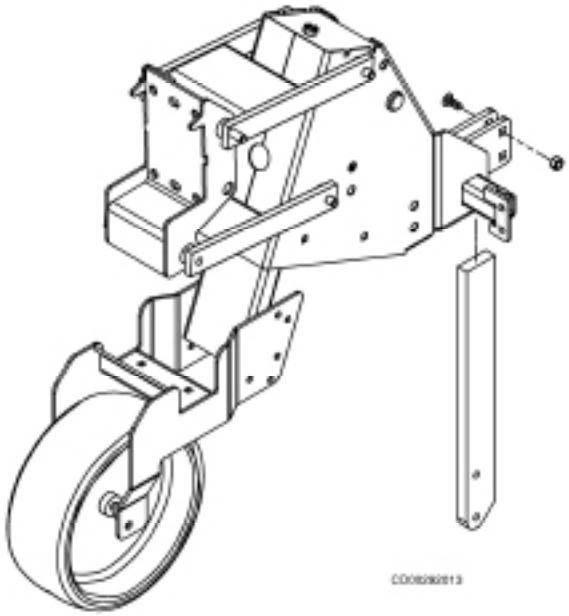


Figure 23

Rigid Rear Extensions with Tine Adapter

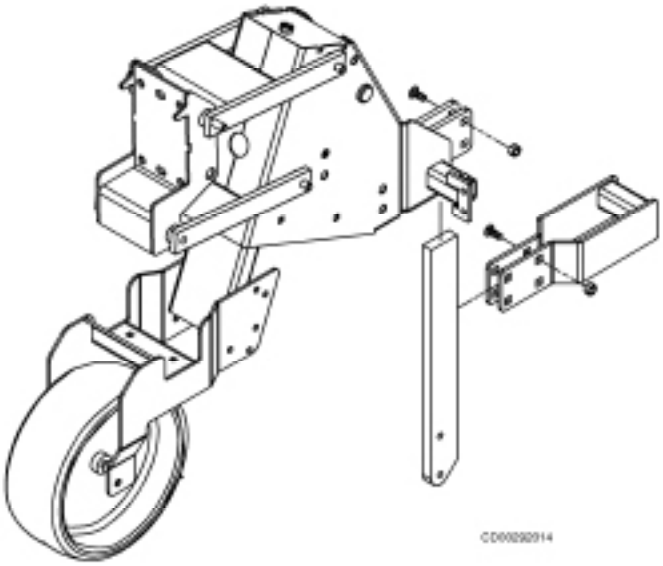


Figure 24

Mount Coulter Discs

Straight Edge Tines

1. Fasten hub assembly to disc, using 3/8 x 1-1/4" hex bolts, lock washers, and hex nuts as shown in Figure 26.

2. Mount disc/hub assemble to disc mount arms, using 3/8 NC x 1-1/2 hex head cap screw as shown in Figure 27.

3. Attach disc arms with 1/2 NC carriage bolts, spacer, washer, and adjustment pin.

4. Lock bearing lock collars in direction of wheel travel (see Figure 25).

Rigid Tines

1. Fasten hub assembly to disc, using 3/8 x 1-1/4" hex bolts, lock washers, and hex nuts as shown in Figure 26.

2. Mount disc/hub assemble to disc mount weldment, using 3/8 NC x 1-1/2 hex head cap screw as shown in Figure 25.

3. Attach disc arms with 1/2 x 1-1/2 bolts, spacer, washer, and adjustment pin.

4. Lock bearing lock collars in direction of wheel travel (see Figure 25).

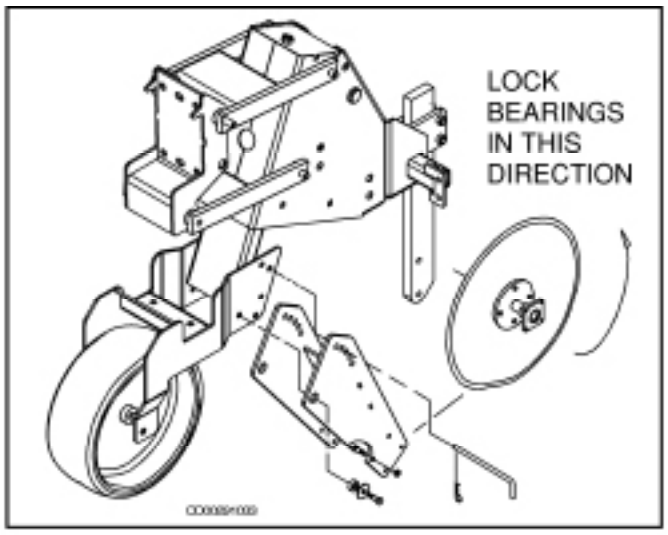


Figure 25 Disc Mount Assembly
(Rigid shank tine)

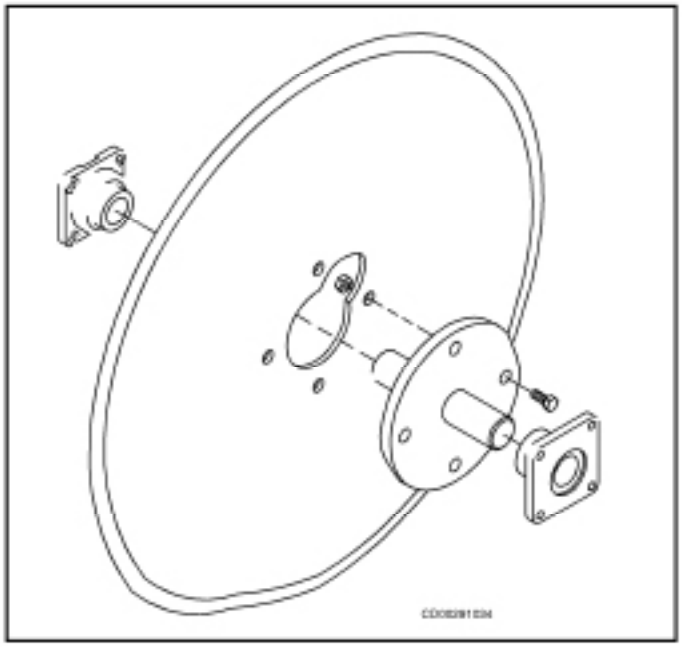


Figure 26 Mounting Coulter Disc

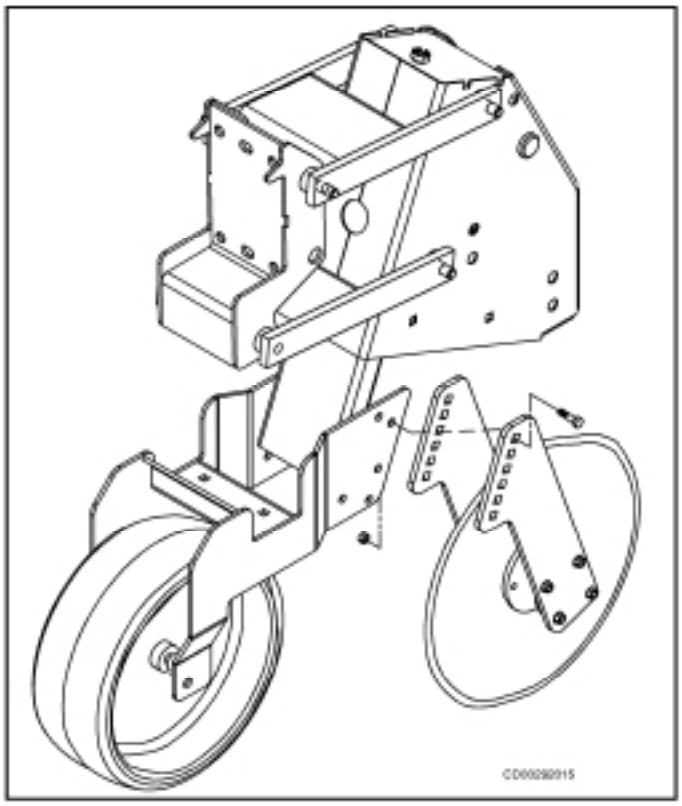


Figure 27 Disc Mount Assembly
(Straight edge tine)

Attaching Adjustable Support Wheels

Mount Pivot Arm

1. Attach pivot arm, using pin and two 5/16 x 1-5/8" roll pins as shown in Figure 28.

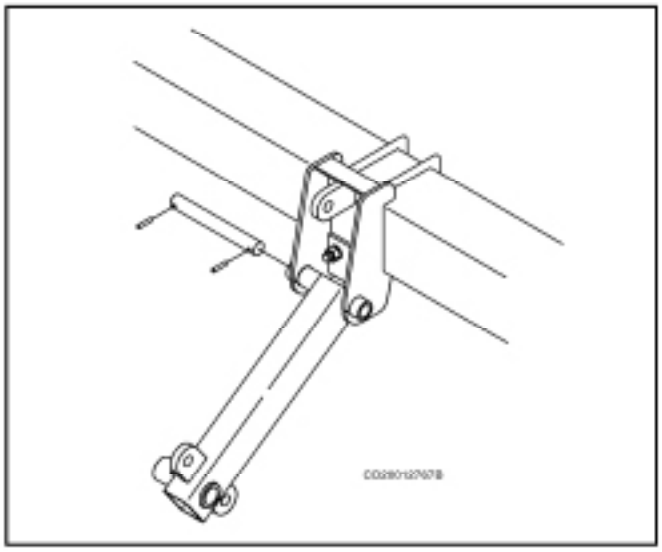


Figure 28 Mounting Pivot Arm

Attach Screwjack

2. Attach screwjack, using two 1 x 3" hex bolts, lock washers, and hex nuts as shown in Figure 29.

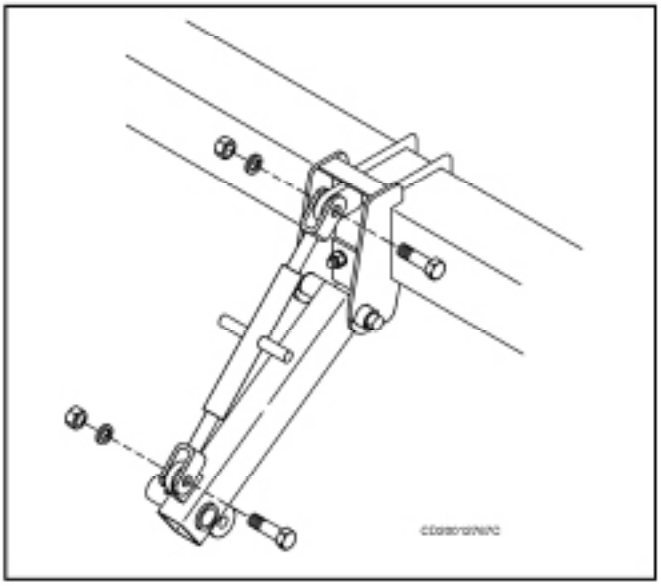


Figure 29 Attaching Screwjack

Fasten Hub & Spindle Assembly

3. Fasten hub and spindle assembly, using 1/2 x 3" hex bolt, lock washer, and hex nut as shown in Figure 30.

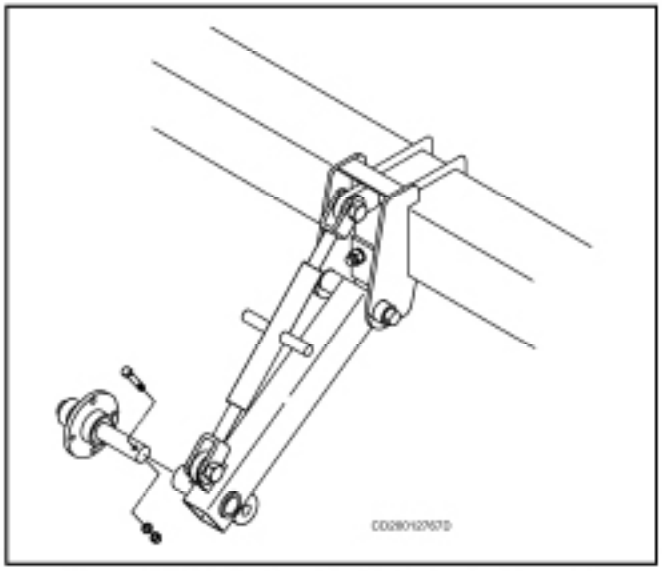


Figure 30 Fastening Hub & Spindle Assembly

Fasten Tire & Rim Assembly

4. Fasten tire and rim assembly, using bolts provided in hub as shown in Figure 31.

5. If you have a support wheel, be sure tire is centered over the guide marks; then tighten U-bolts on mount.

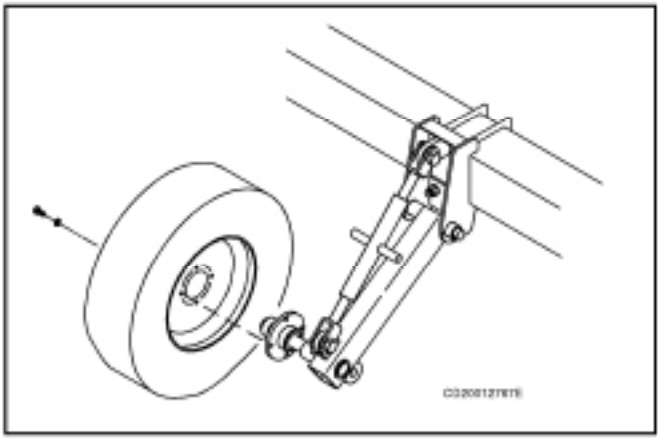


Figure 31 Fastening Tire & Rim Assembly

Mounting Semi-Pneumatic & Steel Guide Wheels

Mount Guide Wheels

1. Mount guide wheels centered over guide marks, using U-bolts provided as shown in Figure 32.

NOTE: For some applications, these wheels may need to be mounted behind the tractor tires.

IMPORTANT

- **When using semi-pneumatic or steel guide wheels, measure tractor and cultivator carefully. Position wheels so that they will not hit tractor cab when toolbar is folded.**
- **When placing behind tractor tires, carefully check the clearance in all positions. Some tractors without quick hitch may not have adequate clearance when the cultivator is raised.**
- **Adjustable gauge wheels will interfere with semi-pneumatic or steel guide wheels and may not be used together.**

2. Adjust wheels by removing bolt in angle and turning adjustment plate as shown in Figure 33.

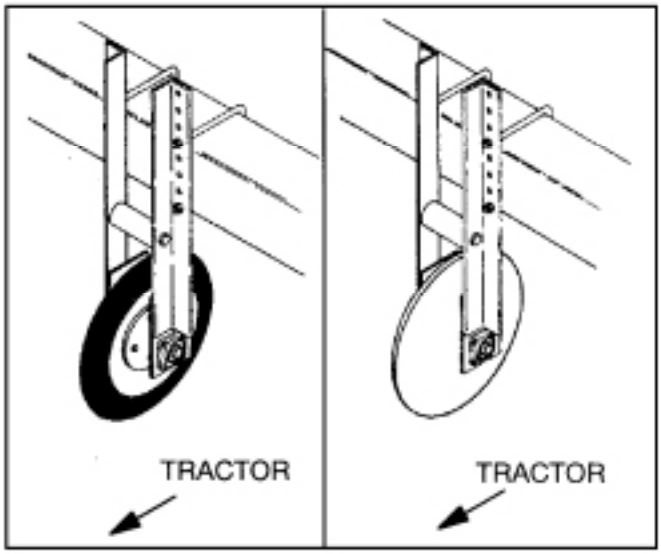


Figure 32 Semi-Pneumatic Wheels (left) & Steel Guide Wheels (right)

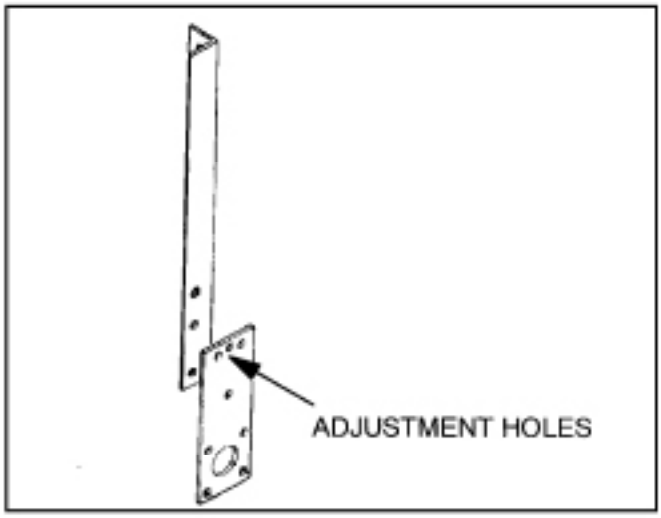


Figure 33 Adjustment Plate

Mount Front Parking Stands

Two front parking stands are included with all 3130 cultivators.

1. Install front parking stands at each end of the toolbar center section as shown in Figure 34.

2. TRR and F toolbars: Position parking stand assembly between row units and fasten to front side of toolbar as shown in Figure 35, using 5/8" U-bolts and flanged nuts.

2. TRF toolbars: Attach front parking stands to short hinge tubes of reinforced folding toolbars as shown in Figure 35, using 5/8" U-bolts and flanged nuts.

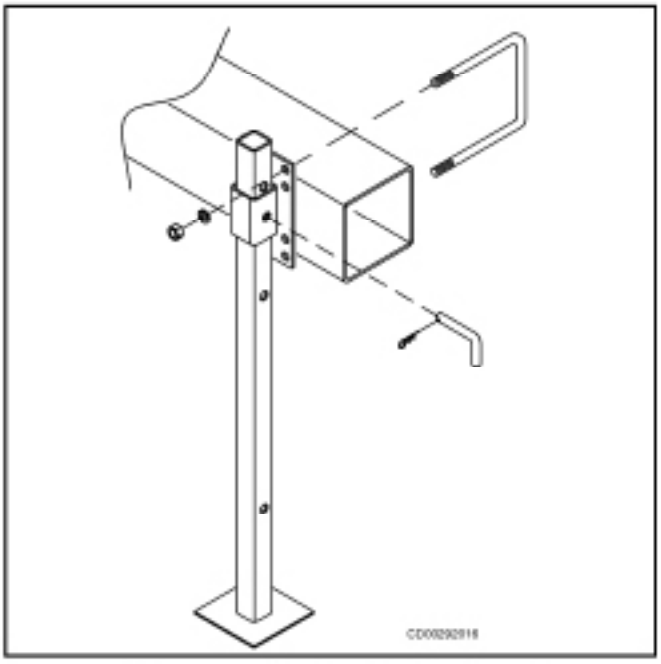


Figure 34 Mounting Parking Stand

Rear Parking Stands

Rear parking stands are included with all folding toolbar cultivators (TRF and F). Rear parking stands must be used for all folding toolbar cultivators not equipped with lift assist wheels.

1. Install parking stands at each end of the toolbar center section as shown in Figure 35.

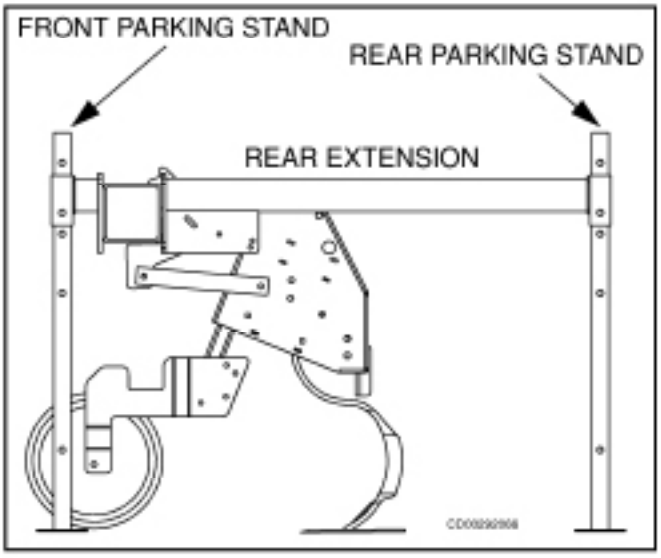


Figure 35 Front and Rear Parking Stands (Type F toolbar)

Mounting Adjustable Support Wheels

⚠ WARNING

- **Before folding or unfolding cultivator:**
  - **Make sure you have adequate clearance on each side and overhead.**
  - **Make sure wing cylinder restrictor fittings are properly installed.**
  - **Make sure wing-mounted gauge wheels and guide coulters will not contact tractor cab or tires.**

IMPORTANT

- **These wheels may not be used behind tractor tires.**
- **When using adjustable support wheels, measure tractor and cultivator carefully. Position support wheels so that they will not hit tractor cab when toolbar is folded.**

Measure Support Wheel Location (Figure 36)

Support wheels may need to be adjusted to prevent interference with some tractor cabs or accessories when folding and unfolding the cultivator.

Reposition support wheels following these steps:

1. Measure and record distance **A** from wing hinge pin to the tractor obstruction (operator cab, etc.).

2. Measure and mark the same distance from hinge pin to a point on wing **B**. Support wheels may be positioned on cultivator wings inside that point.

3. DO NOT position support wheels beyond this point, as shown in shaded area in Figure 36.

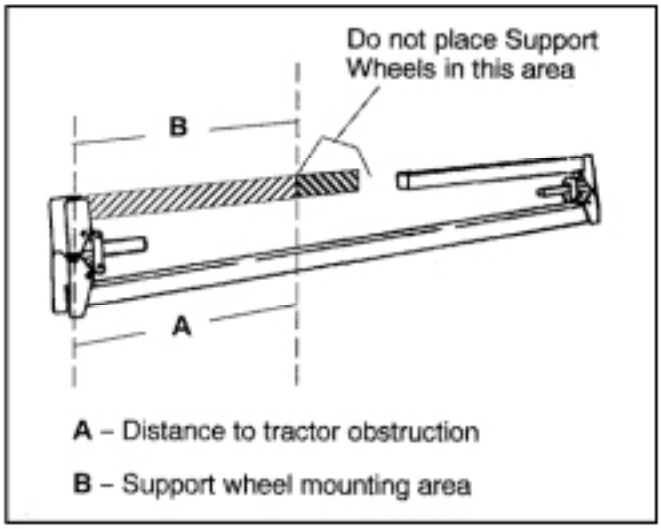


Figure 36 Measuring for Support Wheels

Fasten Strut Mount

1. Fasten strut mount, using two 3/4" U-bolts, lock washers, and hex nuts as shown in Figure 37.

2. NOTE: Mount support wheels over a linkage facing towards the tractor. DO NOT tighten the U-bolts until assembly is complete.

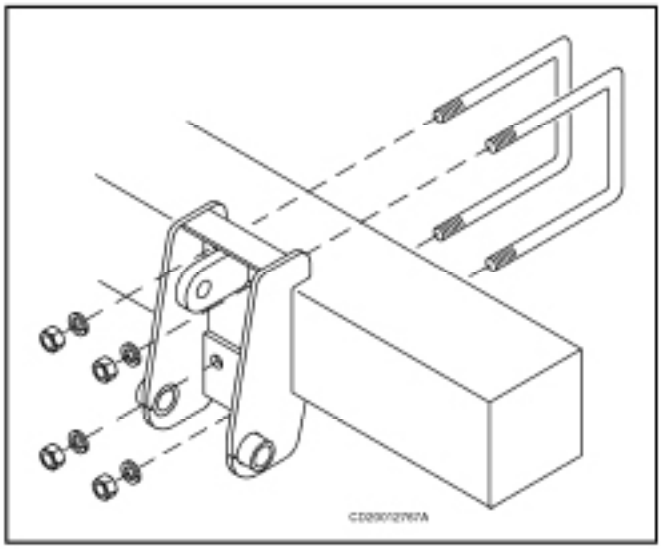


Figure 37 Fastening Strut Mount

Install Rolling Shields

Toolbar Mounted

1. Fasten mount to toolbar, using 5/8" U-bolt and flanged nuts as shown in Figure 38. Be sure mounts are centered over the row.

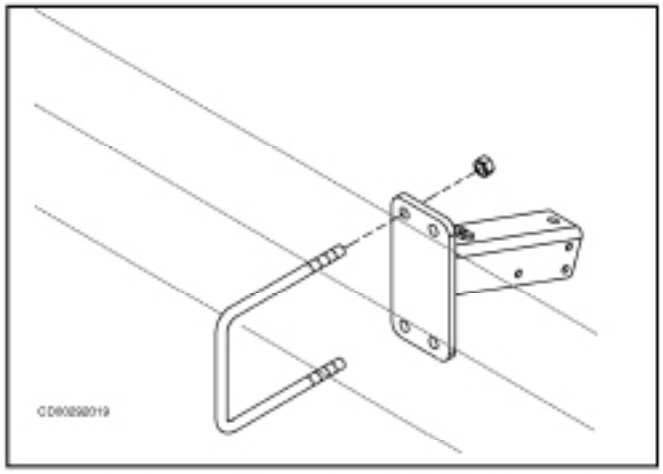


Figure 38 Toolbar Mounted Rolling Shield

Row Unit Mounted

1. Fasten mounting tubes to each side of row unit, using one 5/8 x 1-1/4 hex bolt and two 1/2 x 1 carriage bolts per side as shown in Figure 39.

2. Assemble pivot bracket on tube, set to match row spacing, and tighten set screw.

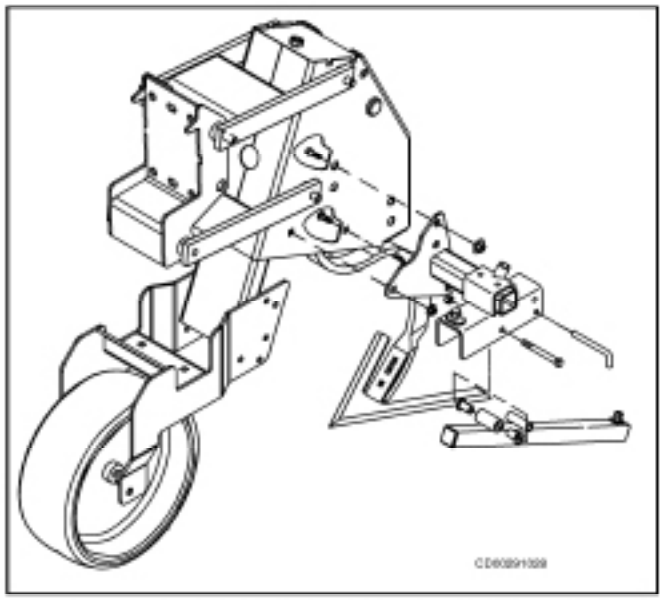


Figure 39 Row Unit Mounted Rolling Shield

Install Rolling Shields (Cont'd)

Attach Lower Tubes & Shield

1. Slide lower tube into upper tube and fasten, using bolt on upper tube.

2. Remove nut and lock washer from spindle bolt assembly.

3. Slide spacer plates and shields onto spindle assembly and fasten, using lock washers and nuts.

4. For narrow shields, place spacers on spindle assembly to outside of support plates.

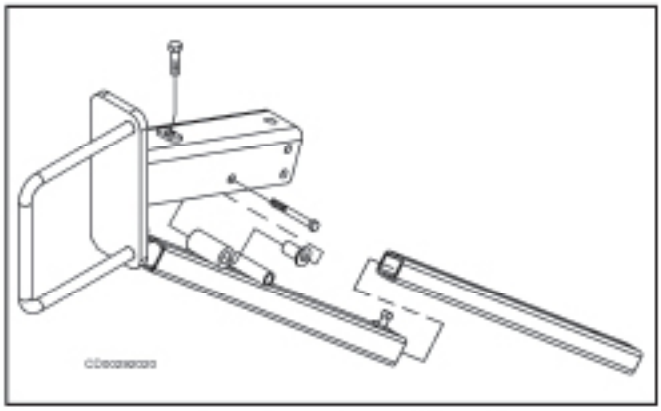
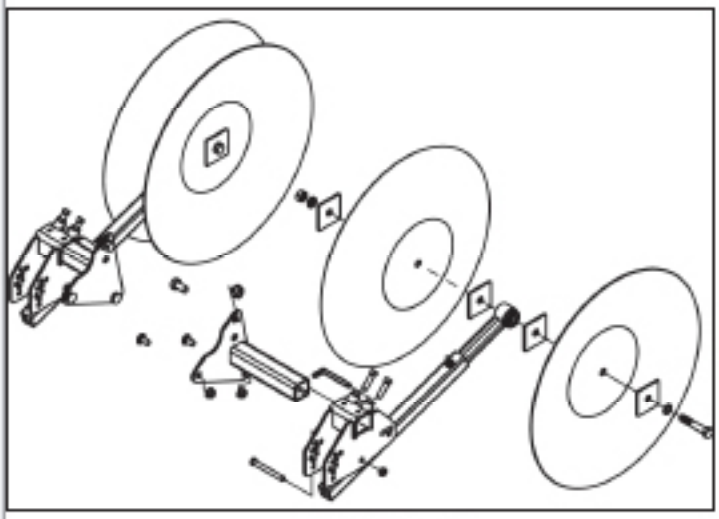
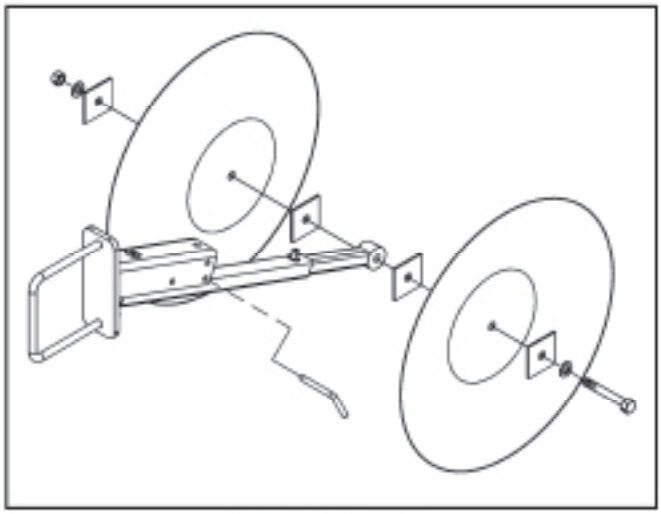


Figure 40 Fastening Tubes



Gang Mount



Toolbar Mount

Figure 41 Fastening Tubes & Shields

Open Top Shield

Fasten Mount Assembly

Shield must be used with set-back brackets as follows:

BRACKET	ROW
20022012	40"
20021950	30"
20022011	22"

NOTE: Long side of shield must point away from tractor.

1. Slide pivot bracket into set-back.
2. Install lock pin and U-bolt as shown in Figure 42.
3. Fasten end shields as shown in Figure 43.

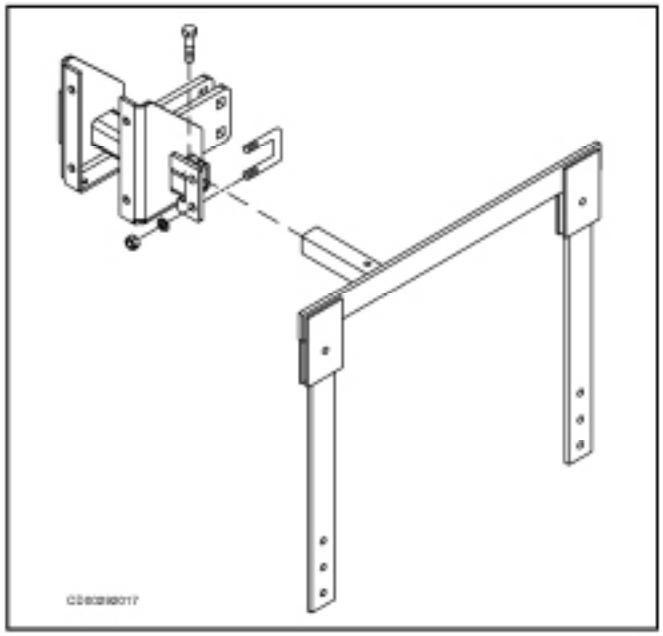


Figure 42 Fastening Mount Assembly

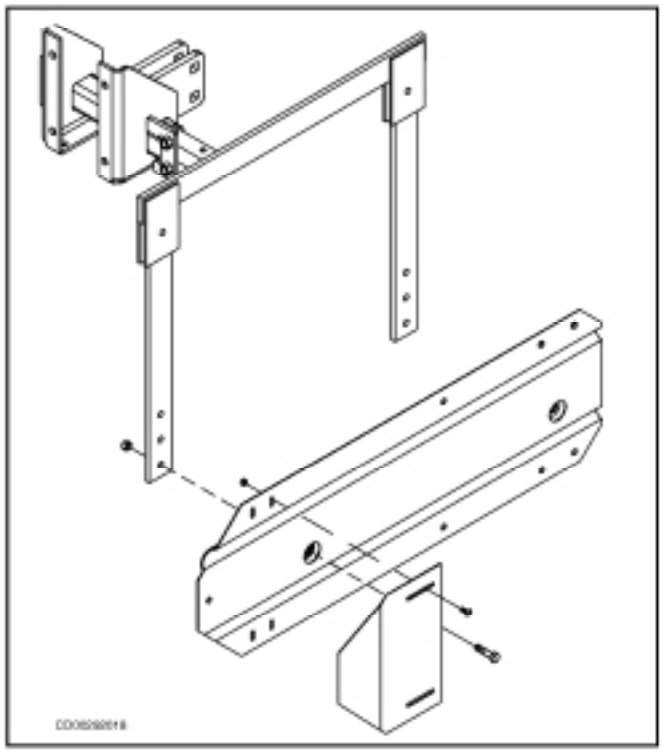


Figure 43 Fastening End Shields

Open Top Shield (Cont'd)

Assemble Shields

1. Fasten parallel arms to shields, using 7/16 x 1-1/4" hex bolts on back arm and 7/16 x 2" hex bolts on front arm with flat washers and lock nuts.

2. Fasten pivot bracket to parallel arms, using 7/16 x 1-1/4" hex bolts and lock nuts.

3. Attach chain to 7/16 x 2" hex bolt on front parallel arm, using lock nut.

4. Run chain to pivot bracket, fastening with 3/8 x 2-3/4" clevis pin, 5/16" flat washer, and hair pin cotter.

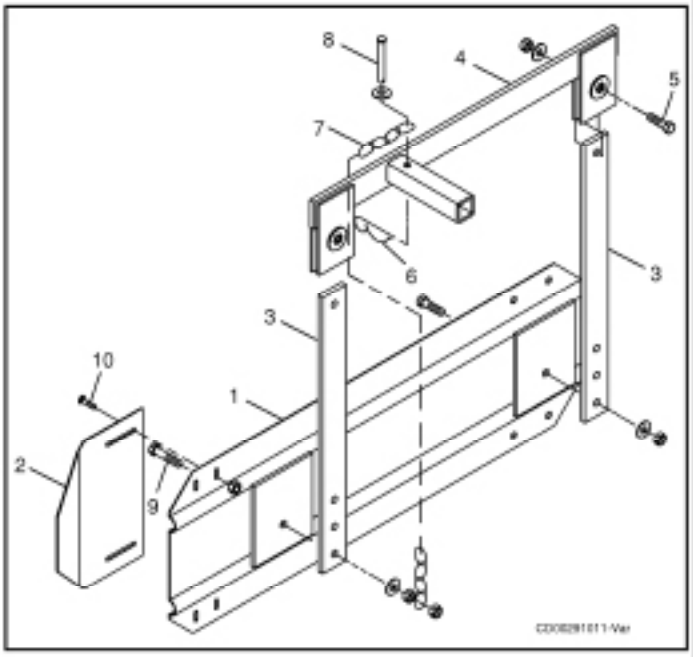


Figure 44 Assembling Shields

Attach Shield Guides

1. Attach shield guides, using 1/4 NC x 1" carriage bolts and hex nuts as shown in Figure 45.

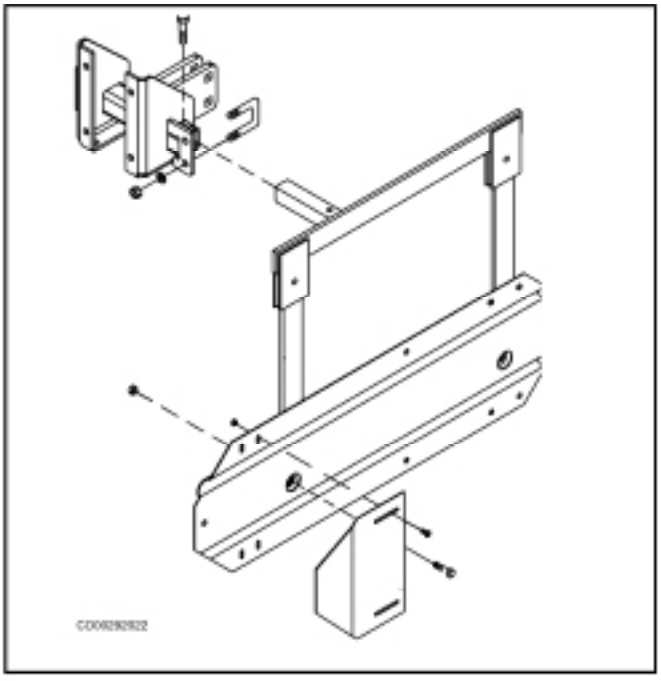


Figure 45 Attaching Shields

Attach Rear Extension

1. Fasten rear extension to shield, using 3/8 x 1" hex bolts, flat washers, and flanged nuts.

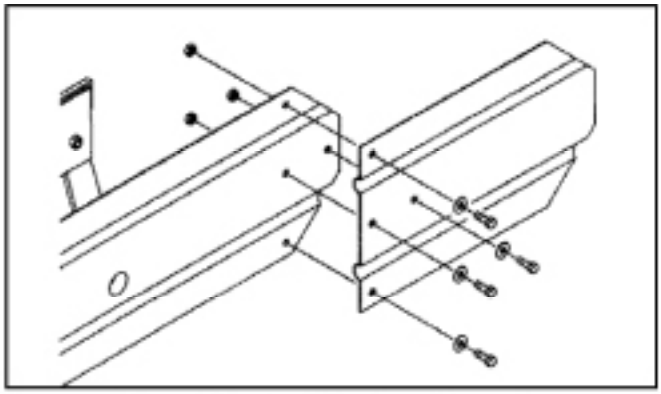


Figure 46 Attaching Rear Extension

Dual Disc / Dual Knife

Fasten Flip-Up Disc Tube

1. Fasten tube assembly to front tube bracket, using front tube clamp, 7/16 x 1-1/2" carriage bolts, lock washers, and hex nuts.

NOTE: Make sure tube is centered and spring assembly is on top. Spring assembly should always be on left side of tree as shown in Figure 47.

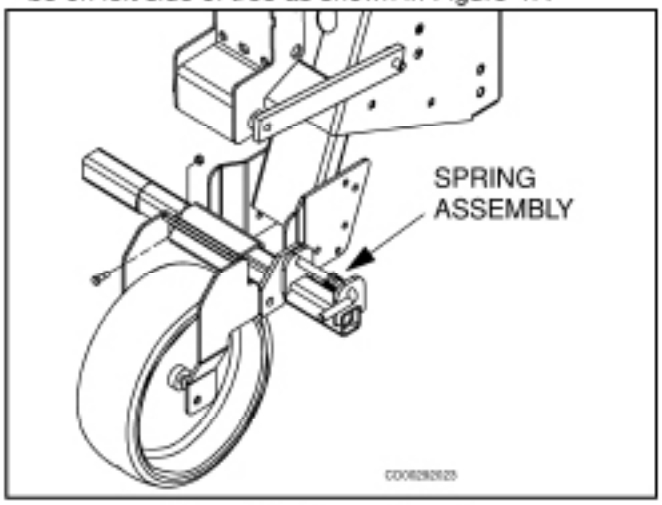


Figure 47 Flip-up Disc Tube

Fasten Clamp Assembly

1. Fasten clamp assembly to front tube, using the hardware provided with clamp assembly.

2. Mount clamps on the back side of front tube as shown in Figure 48.

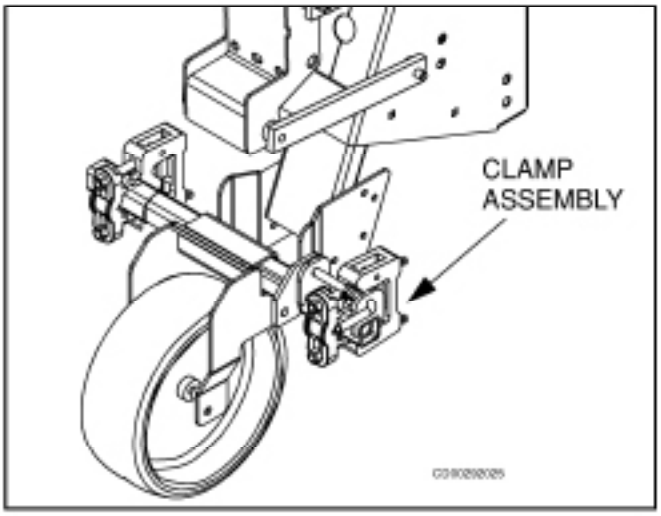


Figure 48 Fastening Clamp

Attach Shank Weldment

1. Slide shank weldment into clamp assembly. as shown in Figure 49.

2. Adjust shank to proper height and tighten set screws in clamp assembly.

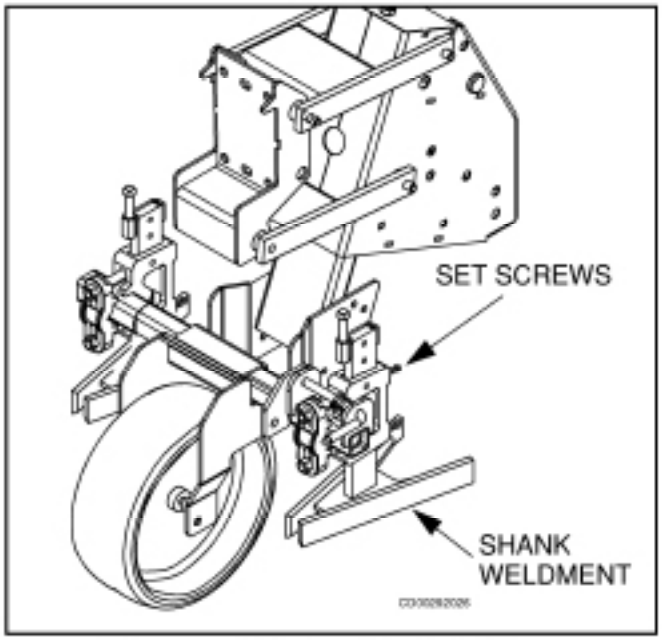


Figure 49 Attaching Shank Weldment

Fasten Dual-Disc Assembly

1. Slide dual disc assemblies over the rail on the shank weldment as shown in Figure 50.

2. Adjust to proper width and tighten hex bolt and jam nut on top of disc assembly.

NOTE: There are right and left disc assemblies. When mounted, the back of the disc should be farther away from the rail than the front to throw dirt away from the row.

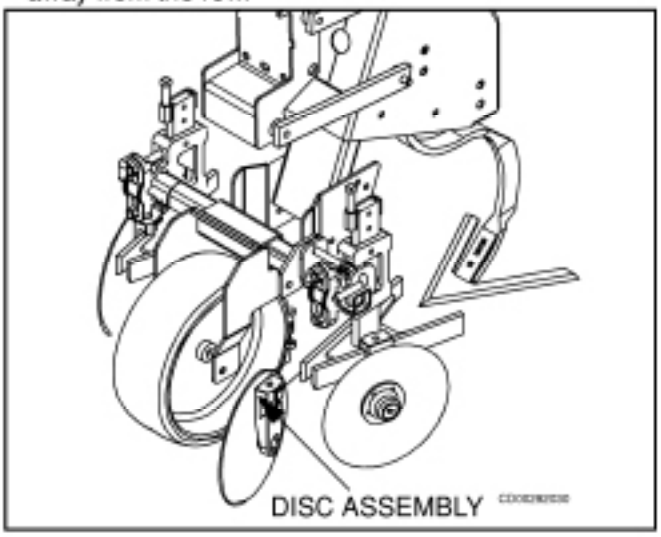


Figure 50 Fastening Disc Assembly

Dual Disc / Dual Knife (Cont'd)

Attach Dual Knife

1. Fasten the knife to the adapter, using two 3/8 x 1-1/2" carriage bolts, flat washers, lock washers, and hex nuts as shown in Figure 51. Knife must go on inside of adapter.

2. Slide dual knife assemblies over the rail on shank weldment and fasten with 1/2" hex bolt and jam nut.

NOTE: The mounting surface on the left and right knife adapters must be parallel to the row.

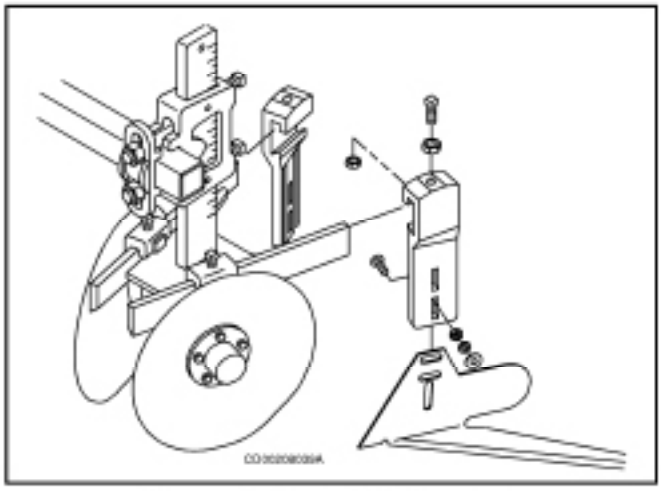


Figure 51 Dual Knife Assembly

Attach Adjustable Screw Kit

1. Fasten adjustment nut to the shank weldment, using a 3/8 x 1-1/2" hex bolt and flanged nut.

2. Thread the 5/8 x 4-1/2" square head set screw or crank into the adjustment nut as shown in Figure 52.

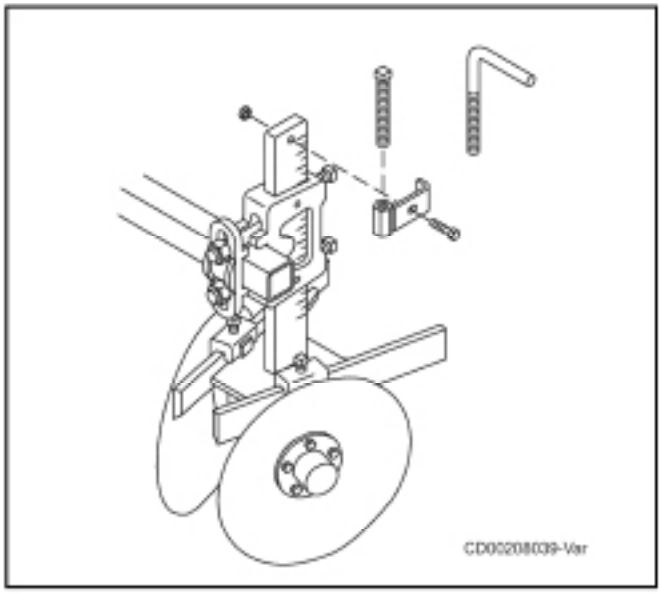


Figure 52 Adjustable Screw Kit

Row Weeder Discs

Row weeder discs are typically used to remove weeds next to the row. They can be reversed to move direct to the row.

Fasten Clamps to Tubes

1. Place front tubes in the mast as shown in Figure 53.

Assemble clamps and attach loosely to tubes as shown in Figure 54. Fasten with 1/2 NC x 3-1/2" bolts and flanged nuts.

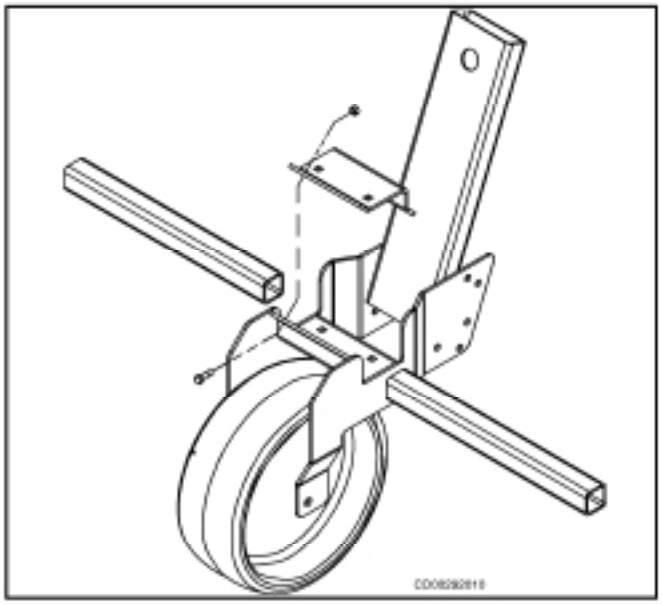


Figure 53 Front Tubes in Mast

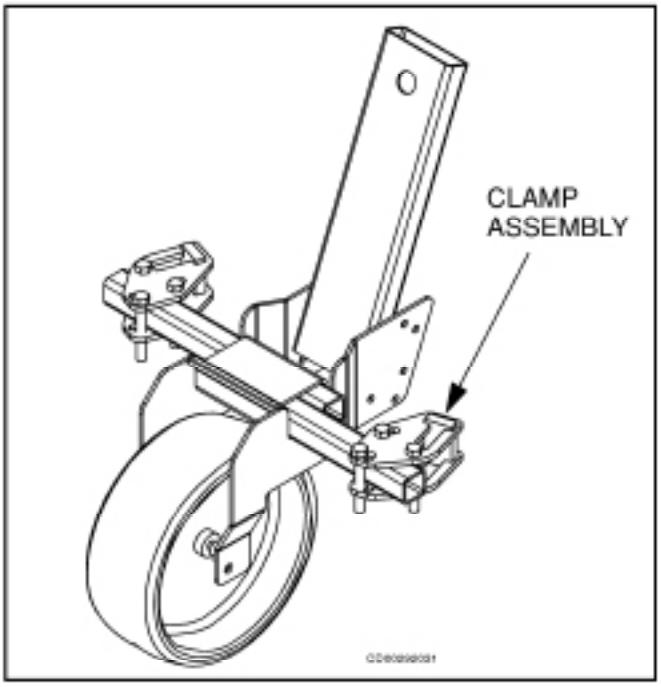


Figure 54 Fastening Clamps to Tubes

Fasten Disc Assemblies to Tubes

1. Fasten shank and disc assembly to clamps.

2. Install set screw and jam nut as shown in Figure 55.

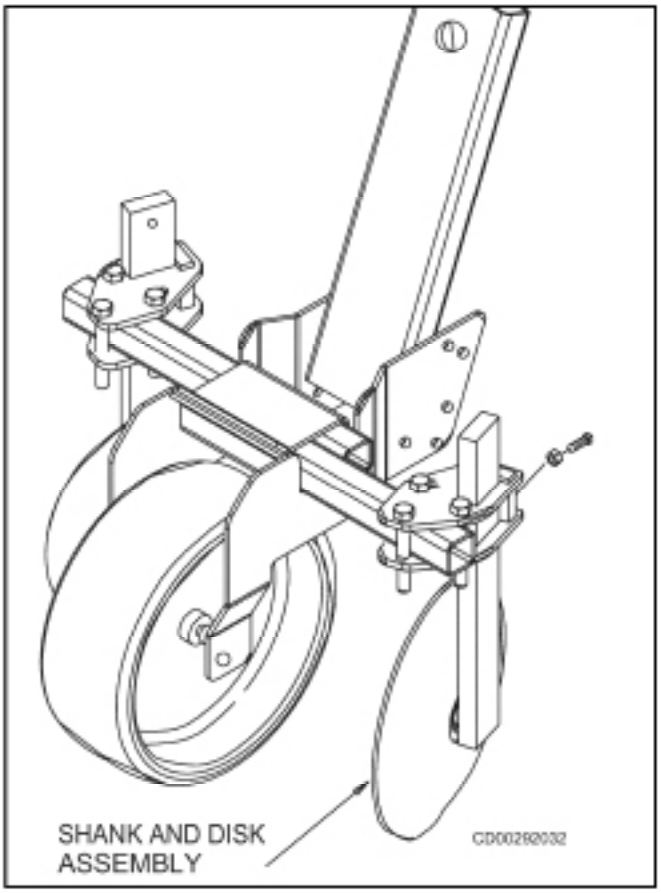


Figure 55 Mounting Discs

Row Weeder Disc Crank

Assemble Crank

1. Thread crank through adjustment nut and secure with 5/8" jam nut and 5/8" flanged nut as shown in Figure 56.

2. Make sure the nuts are jammed together.

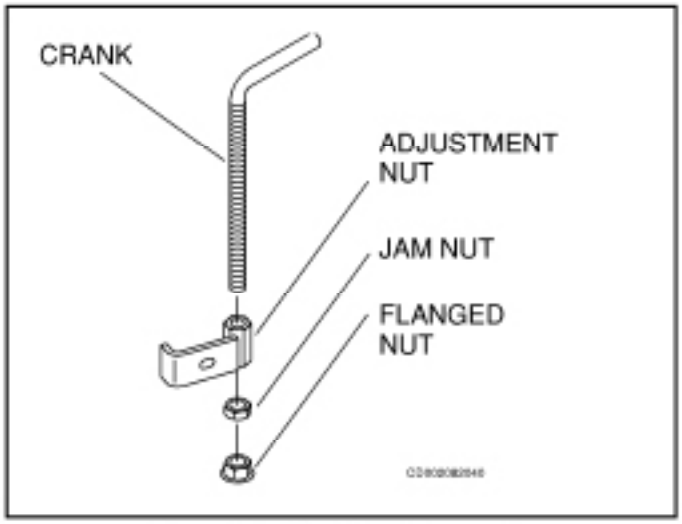


Figure 56 Disc Crank Assembly

Mount Crank Assembly

1. Mount crank assembly to shank, using 3/8 x 1-3/4" hex bolt and flanged nut as shown in Figure 57.

2. Adjust row weeder unit to initial desired setting and tighten all bolts to specifications given in the Bolt Torque Chart.

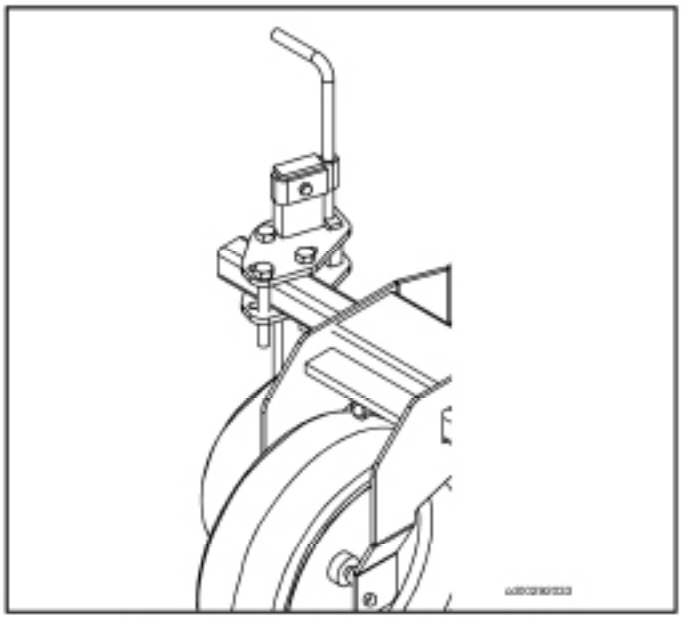


Figure 57 Mounting Crank Assembly

Hiller Attachment

Assemble Hiller

1. Assemble as shown in Figure 58.
2. Install hinge bolt, but do not install nut.

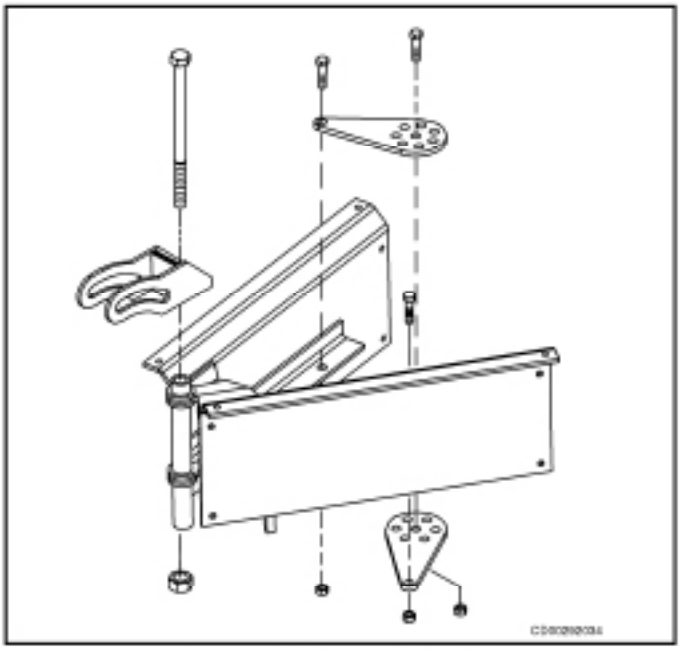


Figure 58 Assembling Hiller

Fasten to Shank

1. Fasten hiller to shank. Use 1/2 NC x 2-1/2" hex bolt and flanged nut through pitch adjustment bracket as shown in Figure 59.
2. Place hinge bolt through sweep shoe and install nut.
3. Adjust hiller assembly to desired setting and tighten nuts to specifications in Bolt Torque Chart.

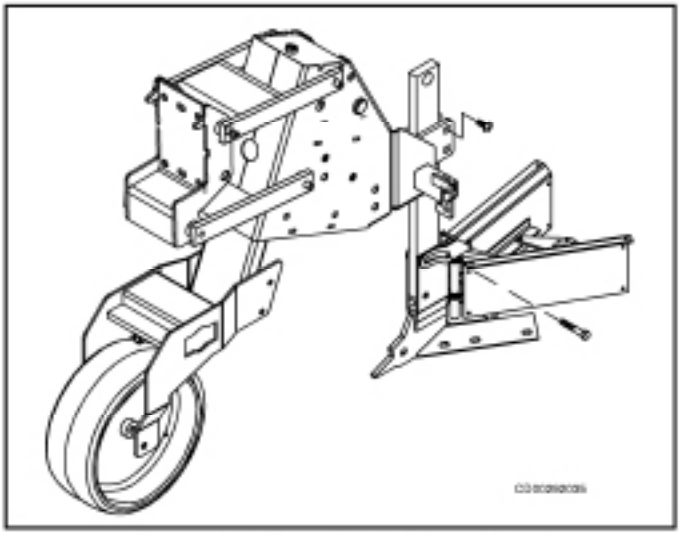


Figure 59 Fastening Hiller to Shank

Lift Assist (TRF or TRR bars only)

Fasten Assembly to Toolbar

1. Fasten frame assembly to toolbar, using 7/8" bolts, lock washers, and hex nuts as shown in Figure 60.

2. Fasten top support to TRF bars with 3/4" U-bolts.

Fasten Hydraulic Cylinder

3. Remove clevis from rod end of hydraulic cylinder and attach depth stop nut as shown in Figure 60.

4. Replace clevis.

5. Fasten hydraulic cylinder to ears on frame and fasten, using pins provided with cylinder.

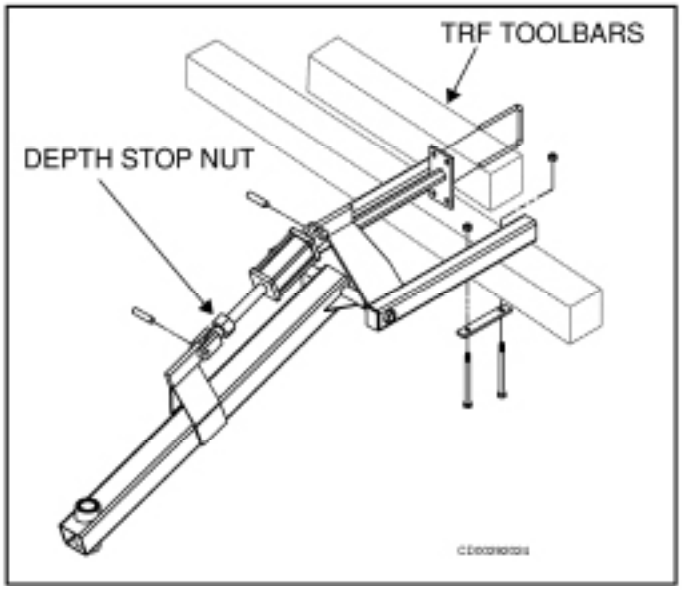


Figure 60 Fastening Lift Assist to Toolbar

Fasten Caster Assembly

1. Remove cap, 1/2 x 1" hex bolt, and lock washer from top of caster assembly as shown in Figure 61.

2. Slide assembly through bushings in frame assembly and fasten, using cap, bolt, and lock washer.

3. Tighten all lift assist bolts to specifications in the Bolt Torque Chart.

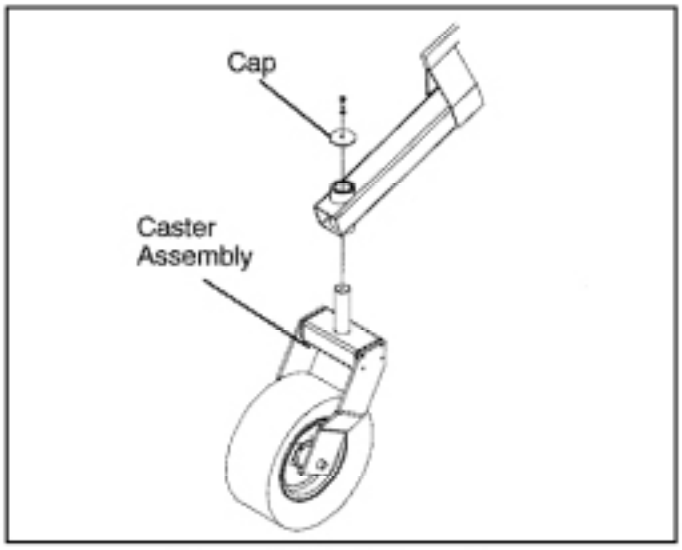


Figure 61 Caster Assembly

Lift Assist (Cont'd)

Mount Hydraulics

1. Attach 6FJIC x 8MORB to hydraulic cylinder.
2. Attach 6FJIC x 6MJIC elbow.
3. Attach hoses to 6FJIC x 6MJIC elbow as shown in Figure 62.
4. When using double lift assist, run 115" hose and 100" hose up to cylinder. Longer hoses go to rod end ports.
5. Run hoses to center of toolbar and fasten tees to hoses as shown in Figure 63.

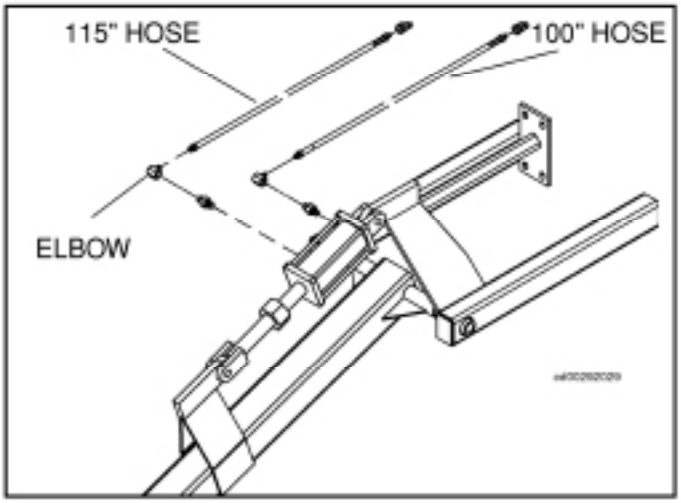


Figure 62 Mounting Hydraulics

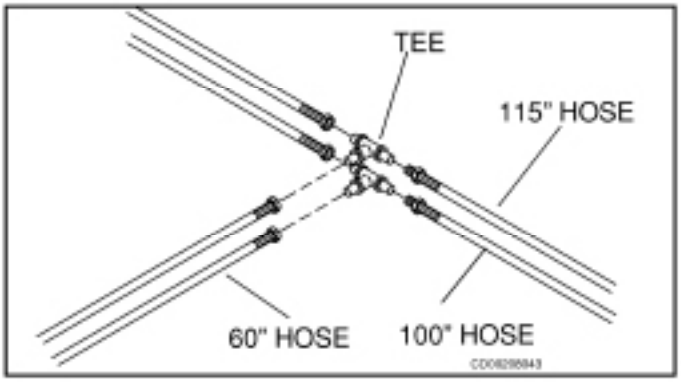


Figure 63 Fastening Tees

Rear Stabilizer Coulter

Fasten Mounting Frame

1. Fasten mounting frame to toolbar, using backing plate and 7/8" bolt, lock washers, and hex nuts.

2. Make sure frame is centered over cultivator gang.

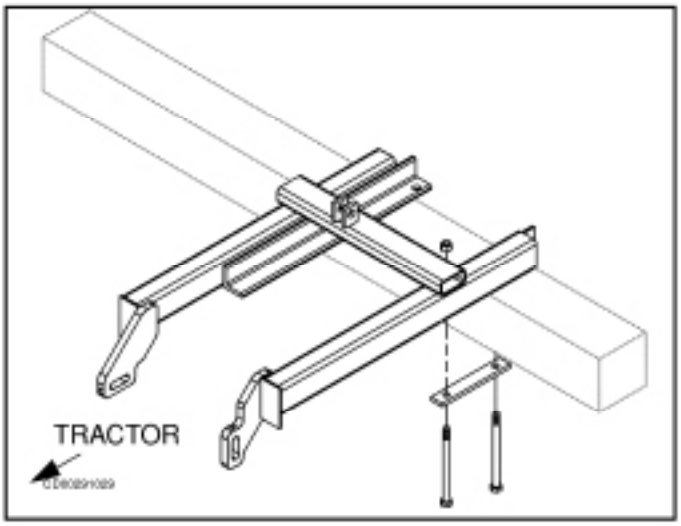


Figure 64 Fastening Mounting Frame

Mounting Rear Frame

1. Fasten rear frame to mounting frame, using two 1 x 5" hex bolts, flat washers, lock washers, and hex nuts.

2. Make sure to place flat washers as shown.

3. Center rear frame, using four 3/8 x 3-1/2" square head set screws with jam nuts.

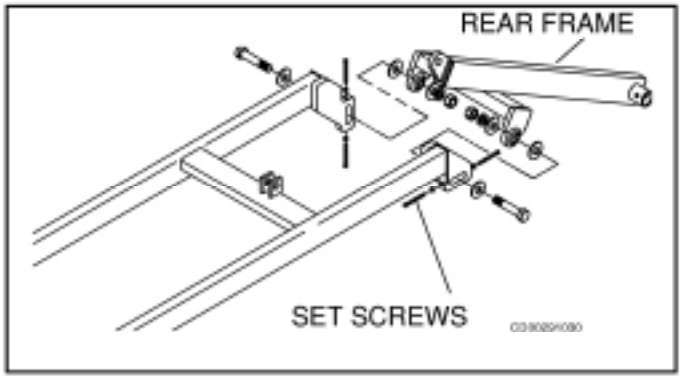


Figure 65 Mounting Rear Frame

Mounting Screw Jack

1. Place rubber bushing into arm weldment and fasten to mounting frame, using 1 x 3-1/2" hex bolt, lock washer, and hex nut.

2. Fasten screw jack to arm weldment and rear frame, using pins provided with screw jack.

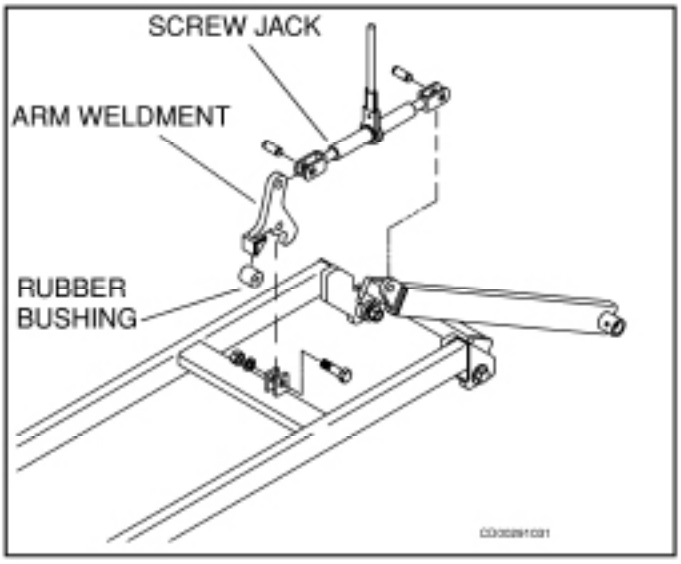


Figure 66 Mounting Screw Jack

Mounting Disc

1. Fasten hub assembly to rear frame, using 1/2 x 3" hex bolt and hex nut.

2. Fasten disc to hub, using 1/2" lock washers and hex nut.

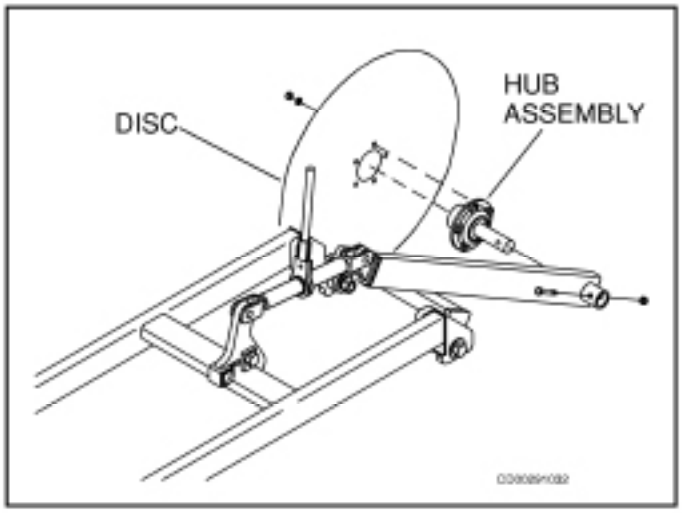


Figure 67 Mounting Disc

ALLOWAY

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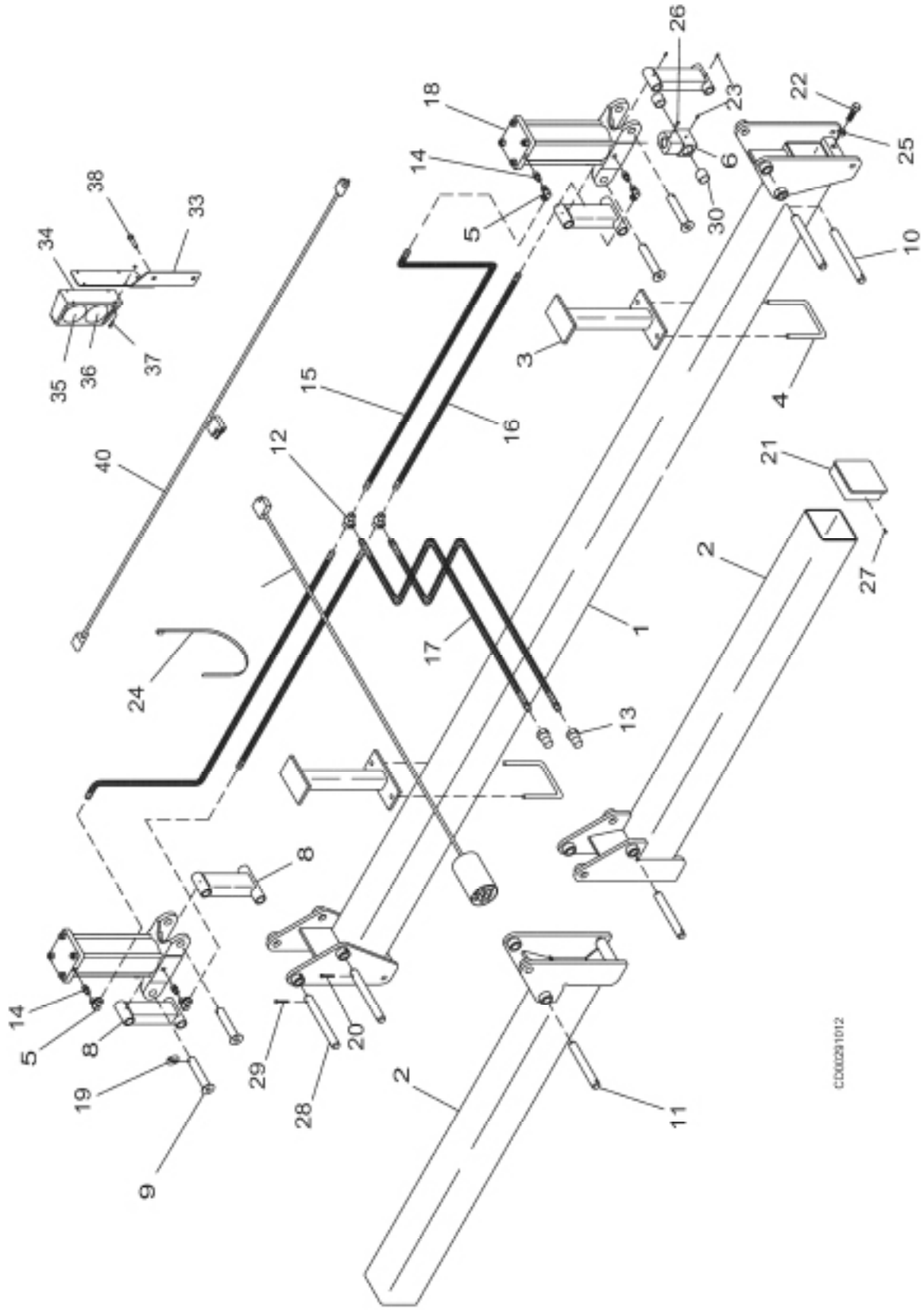
180° FOLD TOOLBAR (F)

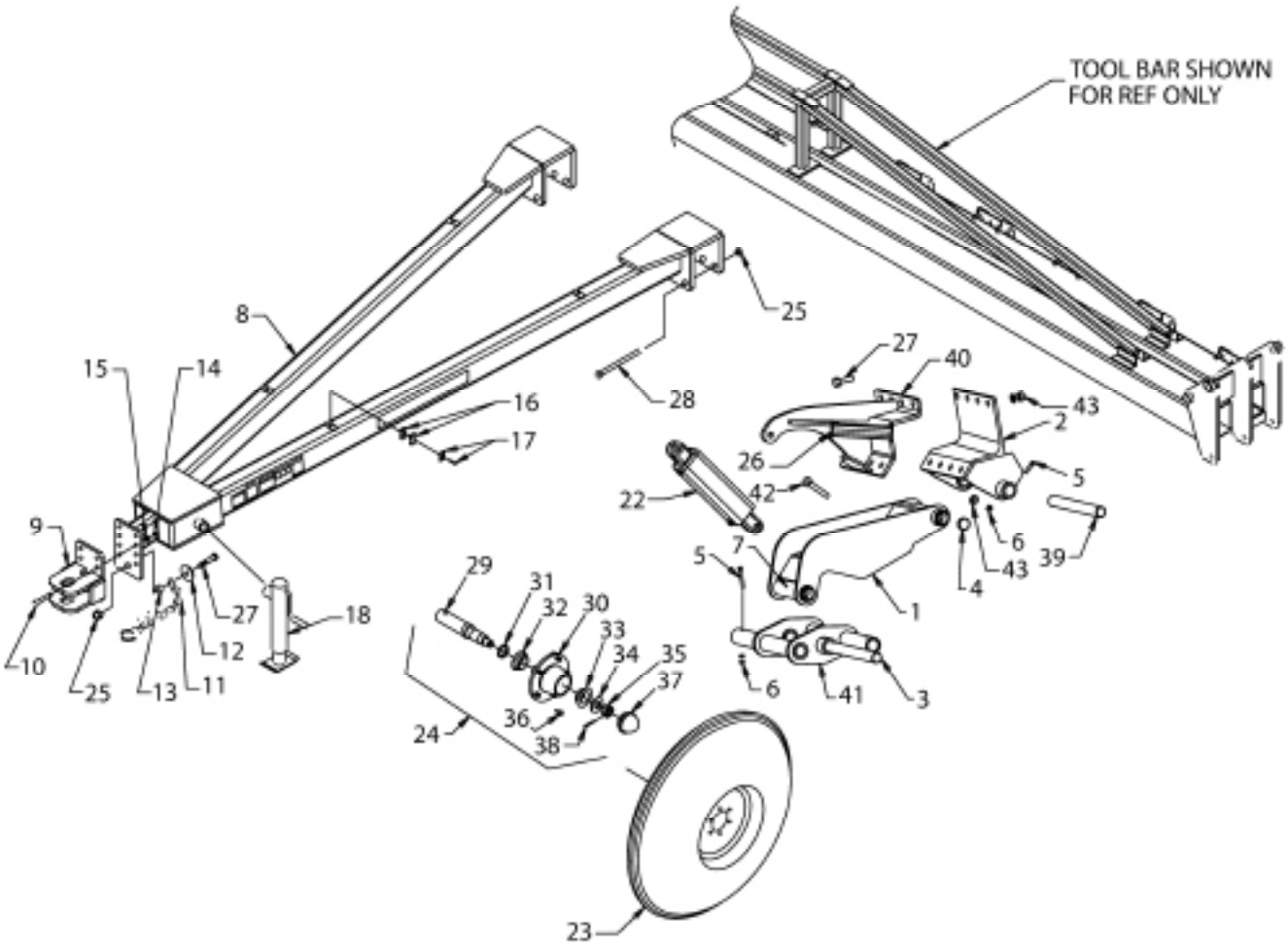


180° FOLD TOOLBAR (F) PARTS LIST

REF	PART	QTY	DESCRIPTION
1	20022042	1	Center section (830)
1	20022031	1	Center section (1222)
1	20022032	1	Center section (1224)
2	20022018	2	Wing weld (830)
2	20022017	2	Wing weld (1222 & 1224)
3	20020321	2	Wing rest
4	20030344	2	5/8" U-Bolt for 7 x 7 beam
5	90503163	4	Elbow, 6 MJIC x 6 FJIC x 90°
6	20033324	2	Clevis
6	20021776	2	Clevis assy., 1-1/2" I.D.
7	20020317	2	Cylinder linkage, wing
8	20020316	2	Cylinder linkage, center
9	**200-2-1611**	4	Cylinder pin
10	20030513	4	Cylinder pin 1-1/4" x 11-1/4" long
11	20030526	2	Pin 1-1/4 x 9-5/8" long
12	90503112	2	Tee, 6 MJIC
13	90519126	2	Quick coupler, male tip
14	90503162	4	6 MJIC x 8 MORB Restrictor, 1/16"
15	90519119	2	3/8" Hose x 6 FJIC x 6 FJIC x 100"
15	90519147	2	3/8" Hose x 6 FJIC x 6 FJIC x 111"
15	90519121	2	3/8" Hose x 6 FJIC x 6 FJIC x 120"
15	90519148	2	3/8" Hose x 6 FJIC x 6 FJIC x 142"
16	90519152	2	3/8" Hose x 6 FJIC x 6 FJIC x 82"
16	90519119	2	3/8" Hose x 6 FJIC x 6 FJIC x 100"
16	90519147	2	3/8" Hose x 6 FJIC x 6 FJIC x 111"
16	90519151	2	3/8" Hose x 6 FJIC x 6 FJIC x 134"
17	90519146	2	3/8" Hose x 6 FJIC x 8 MORB x 60"
18	20020503	2	5 x 12 Cylinder complete with clevis
18	20020500	2	5 x 12 Cylinder less clevis
18	90521263	1	Seal kit, 5 x 12 cylinder
19	90025010	4	1/4 x 1-1/4 Klik pin
20	90001071	4	5/16 x 2-1/2 Hex bolt GR5
21	20032636	2	Rubber tube cap, 7 x 7
22	90003024	4	3/4 NC x 2-1/2 Hex bolt GR5 full thread
23	90515024	10	Zerk, 1/4-28 UNF Straight
24	90507086	6	32" Plastic cable tie
25	90006282	4	3/4 NC Jam nut
26	90016033	2	3/4 NC x 1 Sq. head set screw
27	90016897	4	#6 x 3/4 Pan head sheet metal screw
28	20033431	2	Hinge pin, 1-1/2 x 11-1/4
29	90001125	2	3/8 x 3 Hex bolt GR5
30	20033285	4	Garmax bushing, 1-1/2" I.D.
33	20033870	1	Light bracket, RH
NS	20033869	1	Light bracket, LH
34	90401150	1	Dual tail light, RH
NS	90401149	1	Dual tail light, LH
35	90401142	4	Amber tail light
36	90401146	2	Red tail light
37	90001009	8	1/4 NC x 1 Hex bolt GR5
38	90001341	4	5/8 NC x 1-1/2 Hex bolt GR5
39			
40	90401152	1	Wire harness
NS	20013731	1	Safety decal
NS	90401147	4	Tail light bulb

NS = Not Shown

PULL-TYPE HITCH COMPONENTS



REF	PART	QTY	DESCRIPTION
1	20022131	2	Strut weld
2	20022133	2	Lower mount weld
3	20034085	2	Pivot pin, short
4	20034081	4	Bushing
5	90001241	4	1/2 NC x 3.5 Hex bolt
6	90006143	4	1/2 NC Spiral lock nut
7	90515001	4	1/8 NPT Straight zerk
8	20022107	1	Hitch
9	20022129	1	Clevis Weld
10	90003051	4	5/8 x 2-1/2 Hex head cap screw GR8
11	90507113	1	Tow chain
12	50031631	1	1.03 x 3.25 Washer
13	50530713	1	Bushing spacer
14	90006281	4	5/8 NC Jam nut ZP
15	90006014	4	5/8 NC Hex nut ZP
16	90031069	4	3/8 Hose clamp
17	90031068	4	Top plate
18	90523004	1	Jack
19	90042055	4	Lock pin
20	50031678	2	Chain
21	90023043	16	3-16 x 1-1/2 Cotter
22	90521414	2	4 x 12 Hydraulic cylinder
22	90521415	1	SEAL-KIT,4 x 12 Hyd Cyl
23	90509145	4	11 x 24 Wheel/tire assembly
23	90509143	4	Tire, 11.0 x 16 single rib
23	90509146	4	Wheel rim, 16 x 10, 8 bolt
24	70020165	4	Hub assembly / pt. hitch (Includes items 29-38, page 69)
25	90006514	7	1 NC Top lock nut
26	20022160	2	Transport lock
27	90001519	8	1 NC x 3 Hex bolt
28	90001551	6	1 NC x 10 Hex bolt GR5

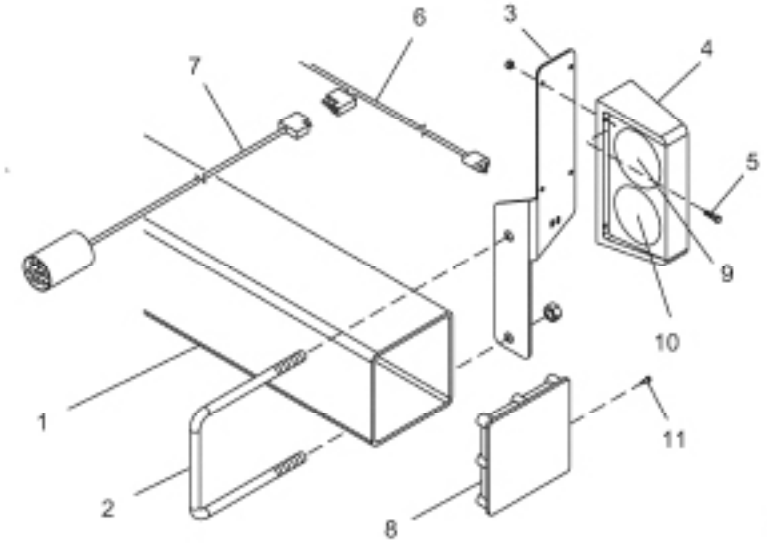
Continued on next page

PULL-TYPE HITCH COMPONENTS (CONT'D)

Continued from previous page

REF	PART	QTY	DESCRIPTION
29	700-3-0143	1	Spindle
30	90509136	1	Hub with cups
31	90109215	1	Seal
32	90101325	1	Bearing cone
33	90101326	1	Bearing cone
34	90509067	1	Washer
35	90006060	1	7/8 Slotted nut
36	90509039	8	9/16 Wheel bolt
37	90109135	1	Dust cap
38	90023064	1	1/4 x 2 Cotter pin
39	20034043	1	Pivot Pin
40	20022132		Ear weld PTH
41	20022130		Pivot weld 22"
	20022160		Pivot weld 30"
42	90001529		1" x 4.5 HHCS
43	90006019		1" NC nut

RIGID TOOLBARS (TRR)

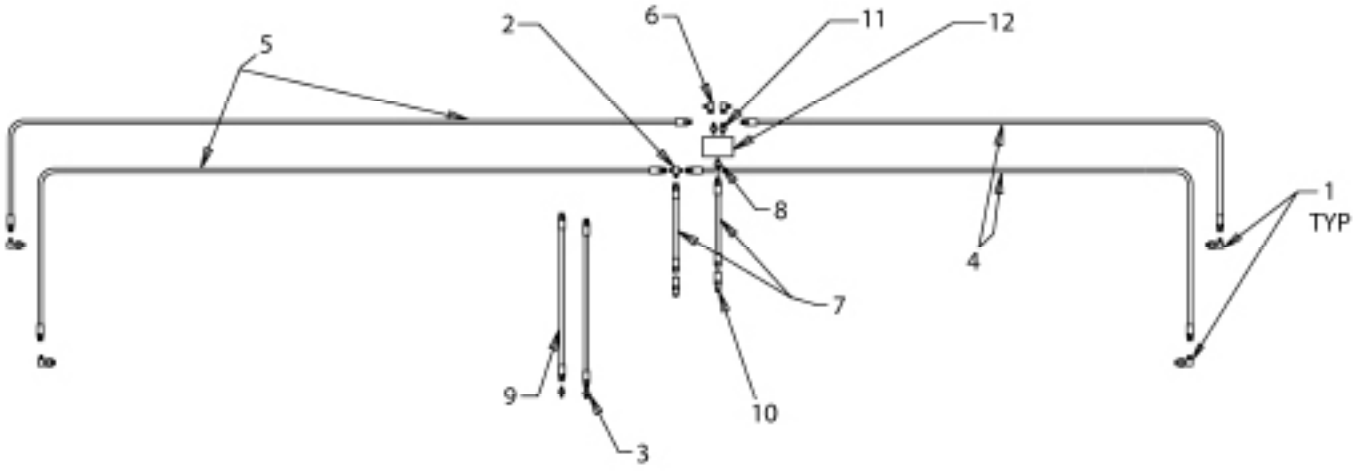


REF	PART	QTY	DESCRIPTION
1	20022126	1	Toolbar, 7 x 7 x 157.5" 6-22
1	20022124	1	Toolbar, 7 x 7 x 1/4 x 213.5" 6-30/8-22
1	20022125	1	Toolbar, 7 x 7 x 1/4 x 273.5" 8-30
1	20022063	1	Toolbar, 7 x 7 x 1/4 x 288" 12-22
2	20030344	2	U-Bolt, 5/8 NC x 7 x 8.5 long
3	20033869	1	Light bracket, LH
NS	20033870	1	Light bracket, RH
4	90401149	1	Dual tail light, LH
NS	90401150	1	Dual tail light, RH
5	90001009	4	1/4 NC x 1 Hex bolt GR5
6	90401152	1	Wire harness,
7	XXXXXXX	1	Order Item #6
8	20032636	2	Rubber tube cap
9	90401145	2	Amber tail light
10	90401146	2	Red tail light
11	90016897	2	#6 x 3/4 Pan head sheet metal screw
NS	20013730	1	Safety decal set
NS	90401147	AR	Tail light bulb

NS = Not Shown

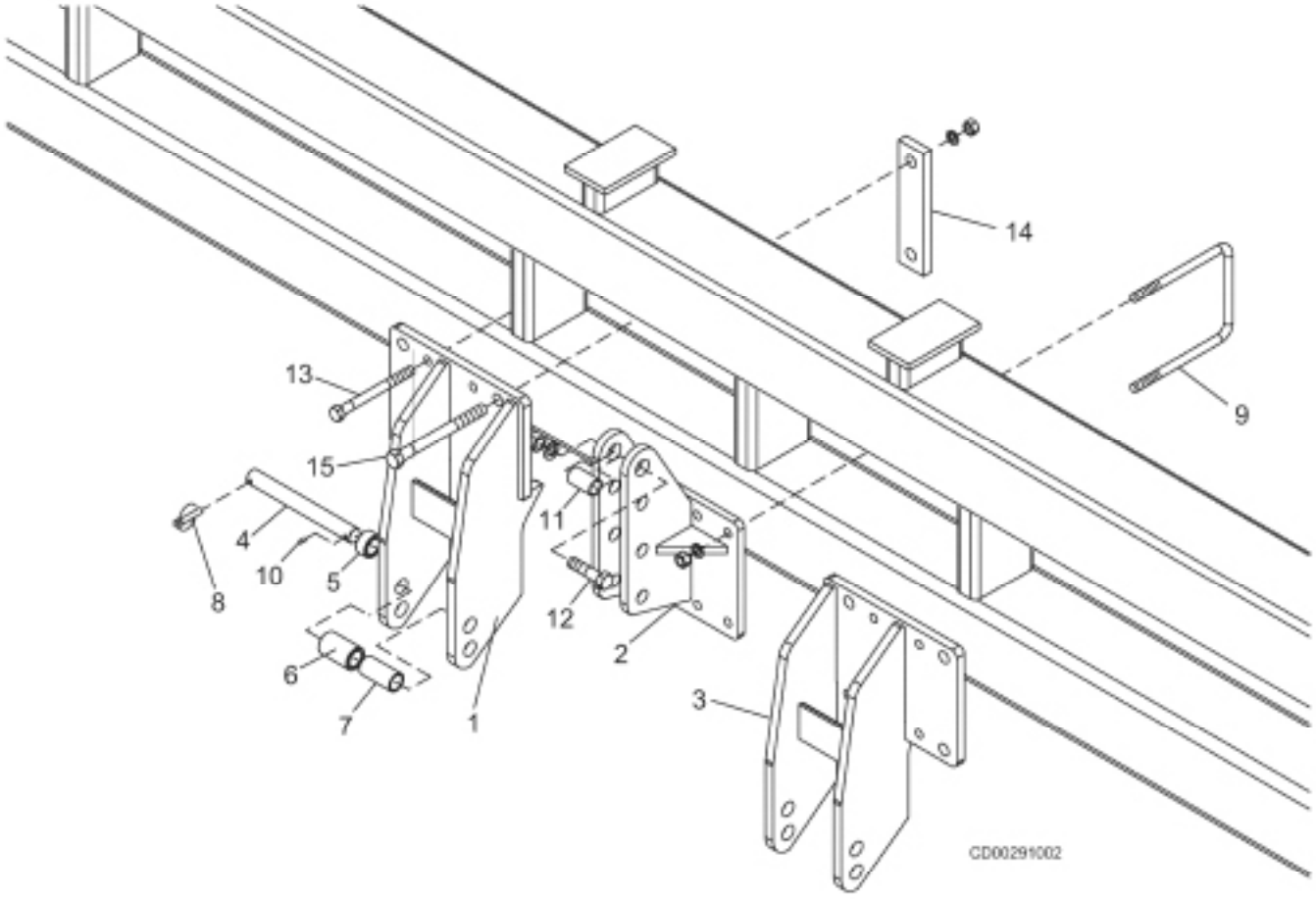
AR = As Required

HYDRAULICS



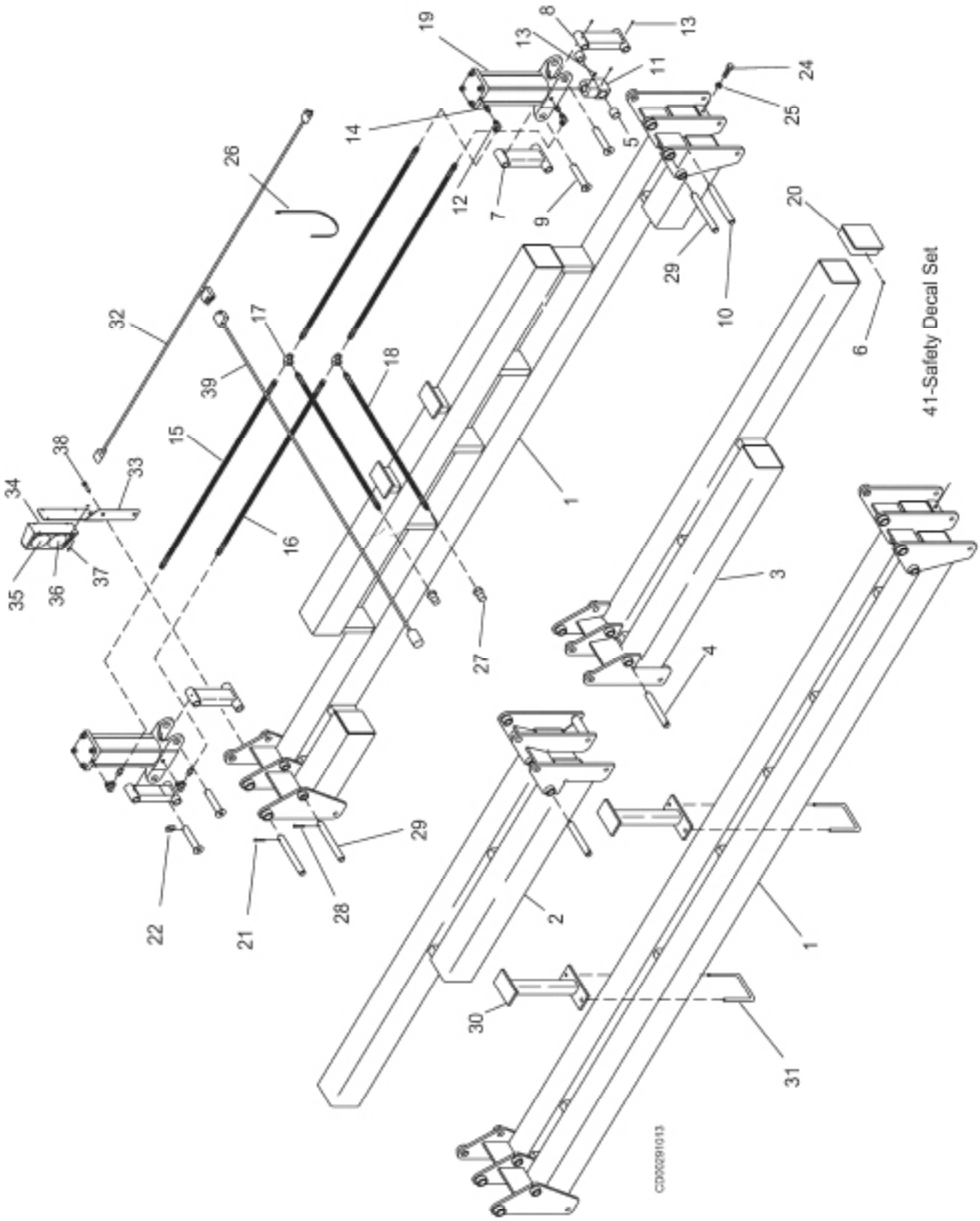
REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	905-03114	4	90° Elbow, 6MJIC x 3/4-16 MORB	7	905-19157	2	3/8 Hose 166", 6FJ svl x 8 MORB
2	905-03112	1	Tee, 6 MJIC 3-way	8	905-03115	1	Adapter, 6MJIC x 3/4-16 MORB
3	905-03111	2	Nipple, 6 MJIC	9	905-19155	2	3/8 Hose 120", 6FJ svl x 6FJ svl
4	905-19125	4	3/8 Hose 62", 6FJ svl x 6FJ svl	10	901-19126	2	Quick coupler, pioneer end
5	905-19151	2	3/8 Hose 134", 6FJ svl x 6FJ svl	11	905-03120	2	Adapter, 6MJIC x 6MORB
6	905-03163	2	90° Elbow, 6-MJIC x 6 FJIC	12	905-03175	1	Hydraulic flow divider

3-POINT HITCH



REF	PART	QTY	DESCRIPTION
1	20022043	1	Lower 3-point hitch weld (RH 22" and LH 30" & 24 row units)
1	20022046	1	Lower 3-point hitch weld (RH, 24" row spacing)
2	20022045	1	Upper mast weld
3	20022041	1	Lower 3-point hitch weld (LH 22" and RH 30" & 24 row units)
3	20022047	1	Lower 3-point hitch weld (LH, 24" row spacing)
4	20030962	2	Pin
4	20020553	2	Pin assembly (Ref 4, 10)
5	20030960	2	Spacer, 1-3/4 O.D. x 1 long
6	20030959	2	Spacer, 1-3/4 O.D.
7	20030961	2	Bushing, 1-7/16 O.D. x 3 long
8	90025012	2	7/16 x 2 Klik pin
9	20030345	2	U-Bolt, 3/4 NC x 7 x 9/12 long
10	90029204	2	Roll pin, 5/16 x 1-5/8 long
11	20030151	1	Mast spacer bushing, 1" I.D.
12	90001531	1	1" NC x 5 Hex bolt GR5
13	90001381	8	5/8 NC x 9 Hex bolt GR5
14	20030970	4	Strap
15	90003039	4	7/8 NC x 10 Hex bolt GR5

180° SINGLE REINFORCED TOOLBAR (TRF)



180° FOLD TOOLBAR (TRF) PARTS LIST

REF	PART	QTY	DESCRIPTION
1	20022036	1	Center section 180" (8-36)
1	20022037	1	Center section 200" (840)
1	20022038	1	Center section 196" (1228)
1	20022034	1	Center section 210" (1230)
1	20022039	1	Center section 224" (12-38)
1	20022035	1	Center section 198" (1622)
1	20022044	1	Center section 270" (1630)
2	20021987	1	Left wing 74" (836)
2	20021990	1	Left wing 82" (840)
2	20021993	1	Left wing 86" (1228)
2	20021312	1	Left wing 92" (1230)
2	20021996	1	Left wing 98" (1232)
2	20021984	1	Left wing 90" (1622)
2	20022002	1	Left wing 122" (1630)
2	20021999	1	Left wing 92" (1822)
2	20021388	1	Left wing 134" (2422)
3	20021988	1	Right wing 74" (836)
3	20021991	1	Right wing 82" (840)
3	20021994	1	Right wing 86" (1228)
3	20021311	1	Right wing 92" (1230)
3	20021997	1	Right wing 98" (1232)
3	20021985	1	Right wing 90" (1622)
3	20022003	1	Right wing 122" (1630)
3	20022000	1	Right wing 92" (1822)
3	20021387	1	Right wing 134" (2422)
4	20030526	1	Pin, 1-1/4 x 9-5/8" long
5	20033285	4	1-1/2" Garmax bushing
5	20033355	4	1-1/4" Garmax bushing
6	90016897	4	#6 x 3/4 Pan head sheet metal screw
7	20020316	2	Cylinder linkage, center
8	20020317	2	Cylinder linkage, wings
9	20021611	4	Pin, cylinder linkage
10	20032450	4	Hinge pin, 1-1/4" x 19-3/4" long
11	20033324	2	Clevis
11	20021776	2	Clevis assembly, 1-1/2" I.D. with bushings (Ref. Figure 5 & Figure 10)
12	90503163	4	Elbow, 6 MJIC x 6 FJIC 90°
13	90515024	10	Zerk, 1/4-28 UNF, straight
14	90503162	4	6 MJIC x 8 MORB Restrictor
15	90519147	2	3/8" Hose x 6 FJIC x 6 FJIC x 111" (184" center)
15	90519121	2	3/8" Hose x 6 FJIC x 6 FJIC x 120" (202" center, 198" center)
15	90519148	2	3/8" Hose x 6 FJIC x 6 FJIC x 142" (242" center)
15	90519149	2	3/8" Hose x 6 FJIC x 6 FJIC x 152" (264" center)
15	90519150	2	3/8" Hose x 6 FJIC x 6 FJIC x 160" (286" center)
16	90519119	2	3/8" Hose x 6 FJIC x 6 FJIC x 100"
16	90519147	2	3/8" Hose x 6 FJIC x 6 FJIC x 111"
16	90519151	2	3/8" Hose x 6 FJIC x 6 FJIC x 134"
16	90519148	2	3/8" Hose x 6 FJIC x 6 FJIC x 142"
16	90519149	2	3/8" Hose x 6 FJIC x 6 FJIC x 152"
17	90503112	2	Tee, 6 MJIC
18	90519146	2	3/8" Hose x 6 FJIC x 60"
19	20020503	2	5 x 12 Cyl complete w/clevis
19	905-21258	4	Tie Rod Bolt, 5x12
19	20020500	2	5 x 12 Cylinder less clevis
19	90521263	1	Seal kit, 5 x 12 cylinder
19	90521382	1	5 x 12 Cylinder rod
19	90521383	1	5 x 12 Cylinder rod cap
19	90521384	1	5 x 12 Cylinder cap
19	20021564	1	6 x 12 Cyl complete w/clevis
19	905-21413	4	Tie Rod Bolt, 6x12
19	90521410	4	6 x 12 Cylinder less clevis
19	90521411	1	6 x 12 Cylinder rod piston
19	90521387	1	6 x 12 Cylinder rod cap
19	90521412	1	6 x 12 Cylinder cap
19	90521368	1	Seal kit, 6 x 12 cylinder
19	20021762	1	Clevis assy. (1-1/4 pin)
19	90521385	1	1-1/4" Nut
20	20032636	4	Rubber tube caps, 7 x 7
21	90001071	6	5/16 x 2-1/2 Hex bolt GR5
22	90025010	4	1/4 x 1-1/4 Klik pin
24	90003024	4	3/4 NC x 2-1/2 Hex bolt GR5
25	90006282	4	3/4 NC Jam nut
26	90507085	6	15" Plastic cable ties
27	90519126	2	Quick coupler

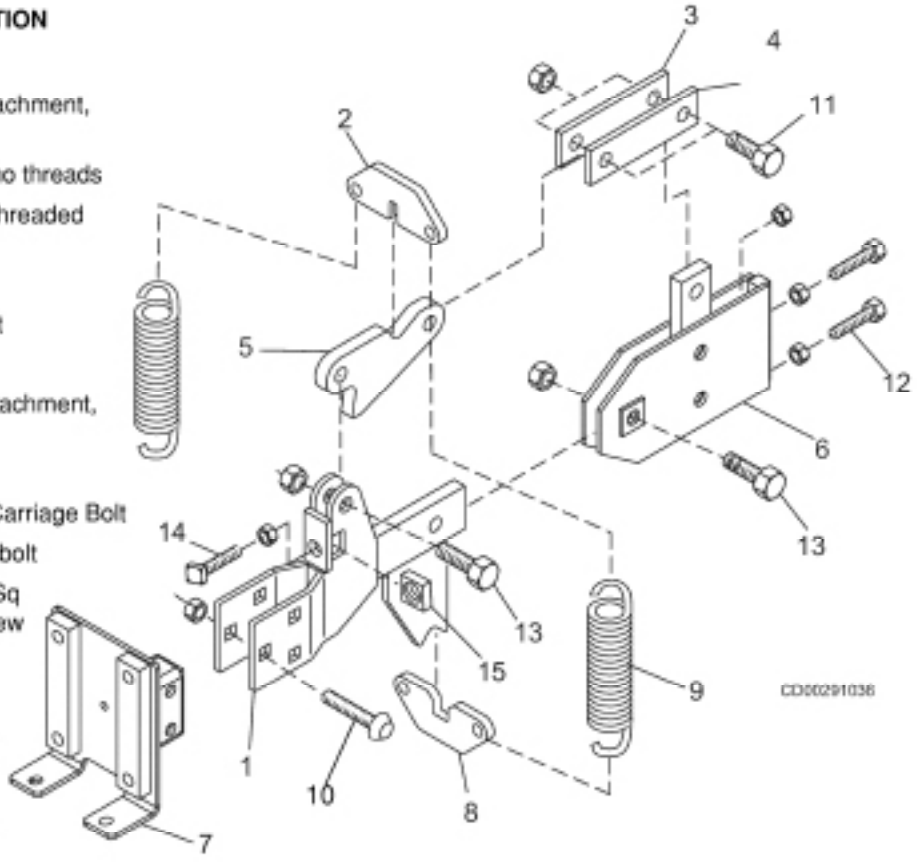
180° SINGLE REINFORCED TOOLBAR (TRF) PARTS LIST (CONT'D)

REF	PART	QTY	DESCRIPTION
28	90001071	2	5/16 NC x 2-1/2 Hex bolt GR5 (1-1/4" Hinge pin)
28	90001125	2	3/8 NC x 3 Hex bolt GR5 (1-1/2" Hinge pin)
29	20033170	2	Hinge pin, 1-1/2" x 19-3/4" long
30	20020321	2	Stand
31	20030344	2	Wing rest U-bolt
32	90401152	1	Wire harness,
33	20033870	1	Light bracket, RH
NS	20033869	1	Light bracket, LH

REF	PART	QTY	DESCRIPTION
34	90401150	1	Dual tail light, RH
NS	90401149	1	Dual tail light, LH
35	90401145	2	Amber tail light
36	90401146	2	Red tail light
NS	90401147	2	Tail light bulb
37	90001009	8	1/4 NC x 1 Hex bolt GR5
38	90001341	4	5/8 NC x 1-1/2 Hex bolt GR5
41	20013730	1	Safety decal set

TOGGLE TRIP

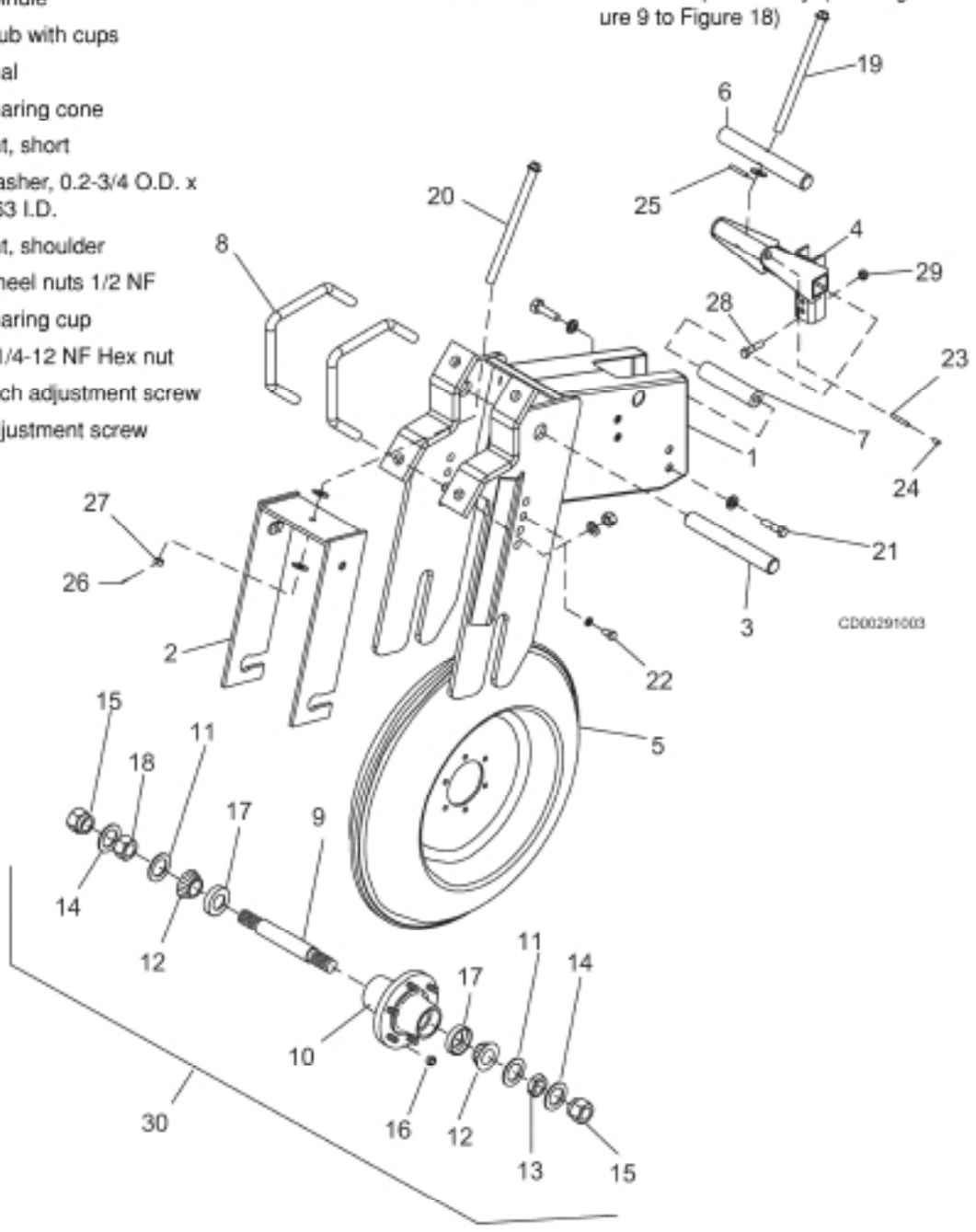
REF	PART	QTY	DESCRIPTION
1	20020592	1	Toggle trip
2	20031038	1	Plate, spring attachment, upper
3	20031034	1	Toggle trip bar, no threads
4	20031033	1	Toggle trip bar, threaded holes
5	20031040	1	Ear
6	20020591	1	Toggle Trip Pivot
7	20022099	1	Rear Set Back
8	20031036		Plate, Spring Attachment, lower
9	20031745	2	Spring Painted
10	90001792	3	5/8 NC x 3-1/2 Carriage Bolt
11	90001403	2	3/4 NC X 2 Hex bolt
12	90016068	2	1/2 NC X 2-1/2 Sq head socket screw
13	90001407	2	3/4 NC X 2-1/2 Hex bolt
14	90016118	1	3/4 NC X 3-1/2 Sq head socket screw
15	90006619	1	3/4 NC Sqr Nut



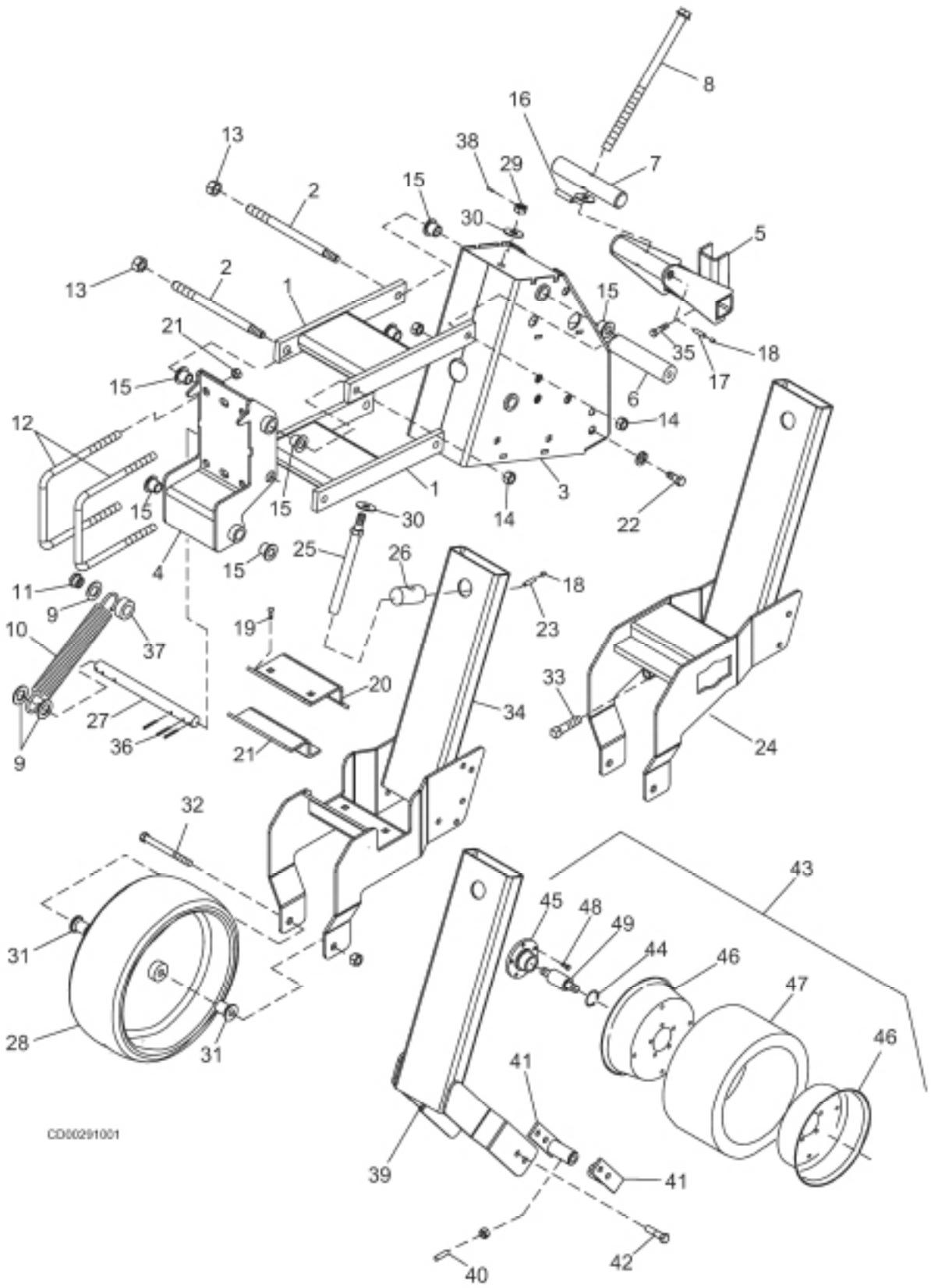
KING GUIDE STRUT ASSEMBLY

REF	PART	QTY	DESCRIPTION
1	20021948	1	King guide mast weld
2	20021947	1	Inner yoke
3	20033783	1	Threaded trunion
4	20021937	1	Pivot weld
5	20020988	1	Tire and rim assy.
—	90509014	1	Rim 16 x 6, 6 bolt
—	90509019	1	Tire 6.00 x 16 single rib
6	20033523	1	Trunion
7	20033743	1	Pivot bar
8	20031443	2	**"A" Bolt 7/8 x 7 x 7"
9	20033771	1	Spindle
10	90509082	1	*Hub with cups
11	90109127	2	Seal
12	90101149	2	Bearing cone
13	20032726	1	Nut, short
14	20033791	2	Washer, 0.2-3/4 O.D. x 1.63 I.D.
15	20033754	2	Nut, shoulder
16	90509011	6	Wheel nuts 1/2 NF
17	90101148	2	Bearing cup
18	90006024	1	1-1/4-12 NF Hex nut
19	20022020	1	Pitch adjustment screw
20	20033190	1	Adjustment screw

REF	PART	QTY	DESCRIPTION
21	90001399	2	3/4 NC x 1-1/2" Hex bolt GR5
22	90001341	2	5/8 NC x 1-1/2 Hex bolt
23	20033438	1	1/4 Rnd x 2-3/8 UHMW
24	90016237	1	5/16 NC X 5/16 Socket head screw
25	90029182	1	1/4 x 2 Roll pin
26	90023025	1	CotterPin
27	90006052	1	1/2 NF Castle nut
28	90001225	1	1/2NC X 1-1/2 Hex bolt GR5
29	90006143	1	1/2 NC Flange lock nut
30	20021958	1	Hub with spindle assy. (Ref. Figure 9 to Figure 18)



LINKAGE COMPONENTS



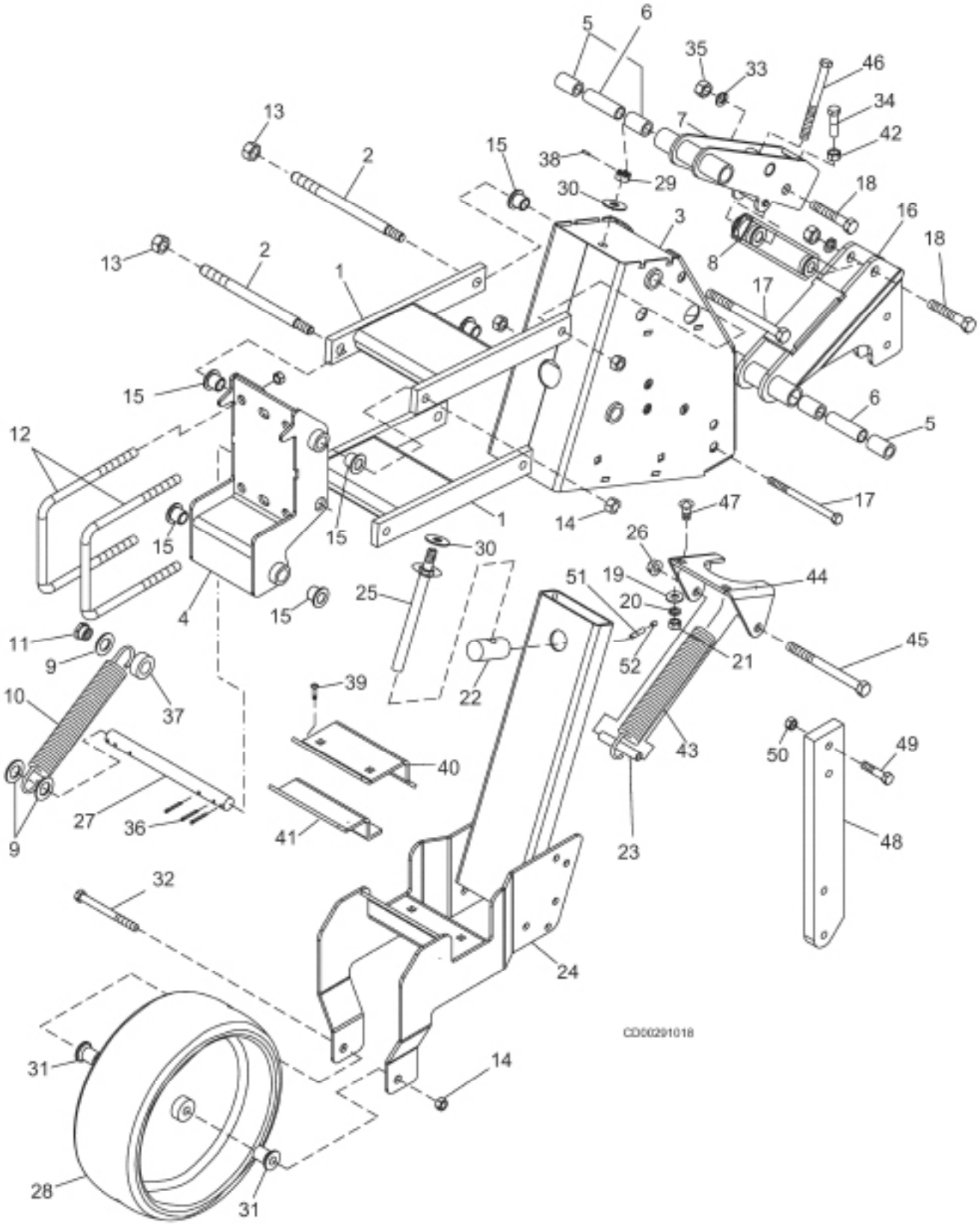
LINKAGE COMPONENTS PARTS LIST

REF	PART	QTY	DESCRIPTION
1	20021933	2	H-Linkage weld
2	20033756	4	Pivot pin 11" long
3	20021936	1	Mast weld w/o bushings
4	20021932	1	Mounting angle w/o bushings
5	20021937	1	Pivot weld
6	20033743	1	Pivot bar
7	20033523	1	Trunion
8	20022020	1	Screw, pitch adj.
9	90011073	6	10 ga machinery bushing
10	20032163	2	Down pressure spring
11	20033873	1	3/4 NC Shoulder nut right
NS	20033872	1	5/8 NC Shoulder nut left
12	20030344	2	U-bolt 5/8 NC x 7 x 8.5
13	90006510	4	3/4 NC Top lock nut
14	90006145	4	5/8 NC Flange lock nut
15	20030877	8	Bushing Flanged
16	90029182	1	1/4 x 2 roll pin
17	20033438	1	1/4 RND X 2-3/8 UHMW
18	90016237	2	5/16 X 5/16 Socket set screw
19	90001726	4	7/16 x 1-1/2 Carriage bolt
20	20032533	1	Double tube clamp
21	20030994	1	Single tube clamp
22	90001399	2	3/4 NC x 1-1/2 Hex bolt GR5
23	20033437	1	1/4 RND X 7/8 UHMW
24	20021938	1	Gauge wheel mast, prior to S/N 24229
25	20021945	1	Screw, depth adj.
26	20033201	1	Trunion, threaded
27	20033871	1	Down pressure spring rod
28	90501937	1	6 x 16 Wheel assy.
NS	90509138	AR	Tire for 90501937
NS	90509139	AR	Rim1/2 for 90501937
NS	90509140	AR	Bearing for 90501937
29	90006705	1	5/8 NC Slotted hex nut
30	90011037	2	5/8 Flat washer
31	90308424	2	Wheel spacer
32	90001369	1	5/8 NC X 6 Hex bolt GR5
33	90016097	1	5/8 NC X 2-1/2 Sqr. head set screw
34	20022095	1	Gage wheel mast, after SN 24230
35	90001225	1	1/2 NC x 1-1/2 Hex bolt
36	90023043	6	3/16 x 1-1/2 Cotter pin
37	50530713	2	Spacer bushing
38	90029470	1	3/16 x 7/8 Roll pin
39	20022058	1	Wheel arm, guide row
40	90016031	2	3/8 NC X 3/4 Sqr head set screw
41	20021705	2	Wheel holder
42	90001223	4	1/2 NC x 1-1/4 Hex bolt
43	20021685	1	6" Gauge tire with fork hub (includes items 44-49)
44	90039022	1	Retaining ring
45	20030669	1	Hub
46	20033106	2	Rim half, 6 x 12 wheel
47	20033107	1	Gauge wheel tire 6 x 12
48	90001055	5	5/16 NC x 3/4 Hex bolt
49	90101264	1	Fork type wheel bearing

NS = Not Shown

AR = As Required

ROW UNIT (RESET SHANK)



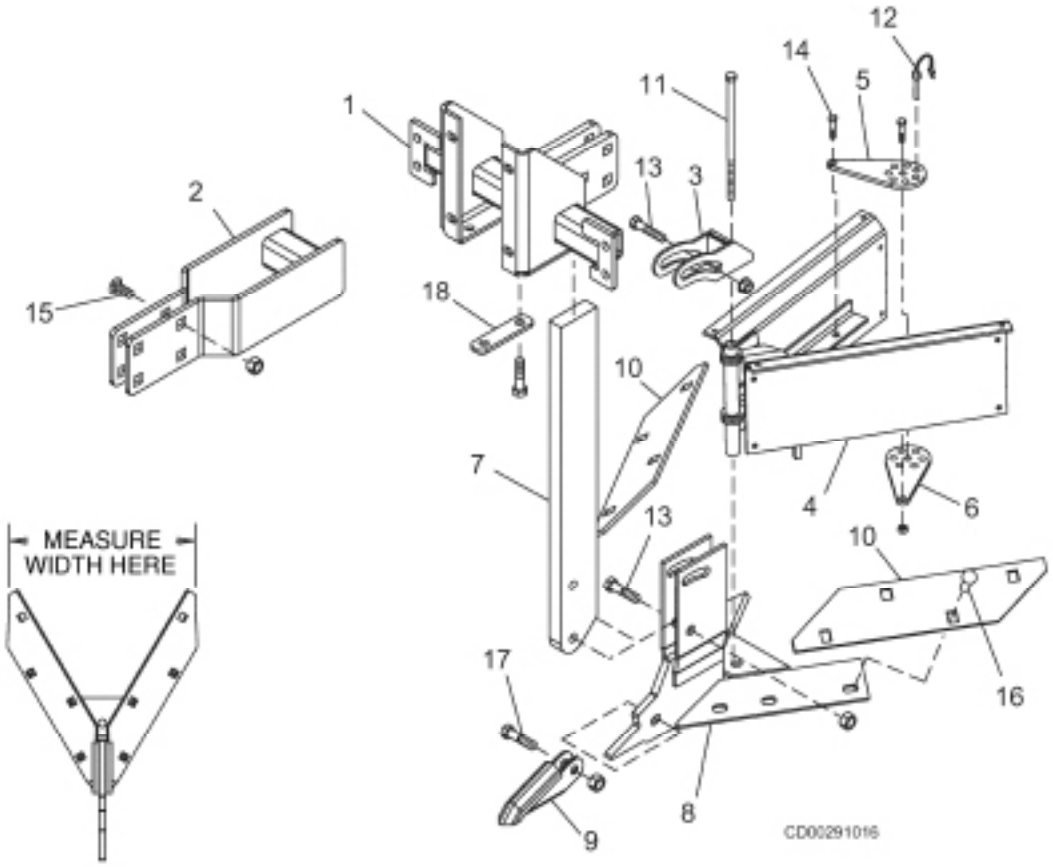
ROW UNIT (RESET SHANK) PARTS LIST

REF	PART	QTY	DESCRIPTION
1	20021933	2	H-Linkage weld
2	20033756	4	Pivot pin
3	20021936	1	Mast weld w/o bushings
4	20021932	1	Mounting angle w/o bushings
5	20033910	4	Oilite bushing
6	20033902	2	Bushing, center spacer
7	20021935	1	Upper toggle trip arm
8	20021934	1	Lower pivot arm with bushing
9	90011073	6	10 ga. Machinery bushing
10	20032163	2	Down pressure spring
11	20033873	1	3/4 NC Shoulder nut right
NS	20033872	1	5/8 NC Shoulder nut left
12	20030344	2	U-bolt 5/8 NC x 7 x 8.5
13	90006510	4	3/4 NC Top lock nut
14	90006145	4	5/8 NC Flange lock nut
15	20030877	8	Bushing, flanged
16	20021940	1	Shank mount weld
17	90001435	2	3/4 NC X 8 Hex bolt
18	90001415	2	3/4 NC X 3-1/2 Hex bolt
19	90011035	2	1/2 Flat washer
20	90011013	2	1/2 Lock washer
21	90006009	2	1/2 Hex nut
22	20033201	1	Trunnion, threaded
23	20033928	1	Tube, spring holder
24	20022095	1	Gauge wheel mast
25	20021945	1	Screw, depth adj.
26	90006508	1	5/8 NC Top lock nut
27	20033871	1	Down pressure spring rod
28	90501937	1	6 x 16 Wheel assy.
—	90509138	AR	Tire for 90501937
—	90509139	AR	Rim half for 90501937
—	90509140	AR	Bearing for 90501937
29	90006705	1	5/8 NC Slotted hex nut
30	90011037	2	5/8 Flat washer
31	90308424	2	Wheel spacer
32	90001369	1	5/8 NC X 6 Hex bolt GR5
33	90011017	4	3/4 Lock washer
34	90002526	1	1/2 NC X 2-3/4 F.T.Tap bolt
35	90006015	4	3/4 Hex nut
36	90023043	6	3/16 x 1-1/2 Cotter pin
37	50530713	2	Spacer bushing
38	90029470	1	3/16 x 7/8 Roll pin
39	90001726	4	7/16 x 1/2-2 Carriage bolt
40	20032533	1	Double tube clamp
41	20030994	1	Single tube clamp
42	90006276	1	1/2 NC Jam nut
43	20022048	1	Spring assy.
44	20033905	1	Formed plate
45	90001373	1	5/8 NC X 7 Hex bolt
46	90001255	1	1/2 NC X 6-1/2 Hex bolt
47	90001750	2	1/2 NC X 1-1/4 Carriage bolt
48	20033907	1	Shank
49	90001233	2	1/2 X 2-1/2 Hex bolt
50	90006143	2	1/2 NC Flange lock nut
51	20033437	1	1/4 RND X 7/8 UHMW
52	90016237	1	5/16 X 5/16 Socket set screw

NS = Not Shown

AR = As Required

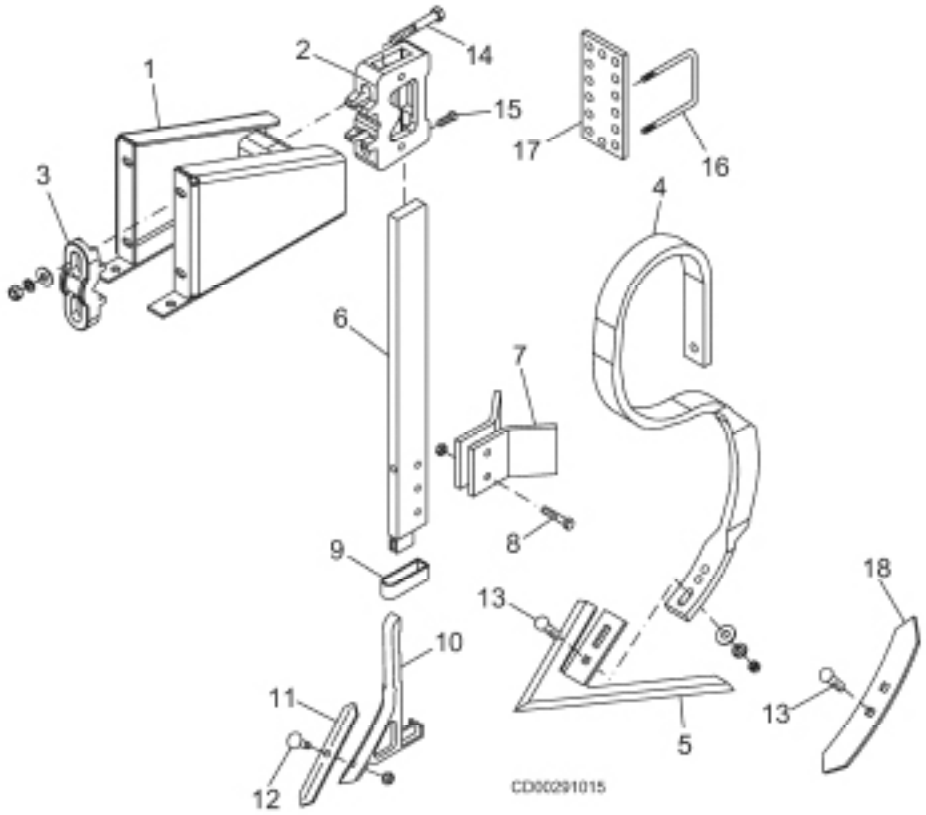
HILLER COMPONENTS



REF	PARTS	QTY	DESCRIPTION
1	20021950	1	Setback weld, 30" rows
1	20022011	1	Setback weld, 22" rows
1	20022012	1	Setback weld, 40" rows
2	20021977	1	Setback weldment
3	20021982	1	Pivot weldment
4	20021980	1	Ridger weldment
5	20033823	1	Width adjustment plate (7 hole)
6	20033817	1	Width adjustment plate (6 hole)
7	20031061	1	Ridged shank
8	20021917	1	Rigid sweep shoe
9	90510128	1	Sweep point

REF	PARTS	QTY	DESCRIPTION
10	90510130	2	17" Double edge share
10	90510135	2	19" Double edge share
10	90510129	2	21" Double edge share
10	90510136	2	25" Double edge share
11	90001265	1	1/2 NC x 9 Hex bolt GR5
12	90025028	1	Lock pin
13	90001233	1	1/2 NC x 2-1/2 Hex bolt GR5
14	90001111	3	3/8 NC x 1-1/4 Hex bolt GR5
15	90006145	4	5/8 NC x 2-1/2 Hex bolt GR5
16	90001840	4	3/8 NC x 1-1/4 Plow bolt
17	90001223	1	1/2 NC x 1-1/2 Hex bolt GR5
18	20033803	2	Reinforcement plate

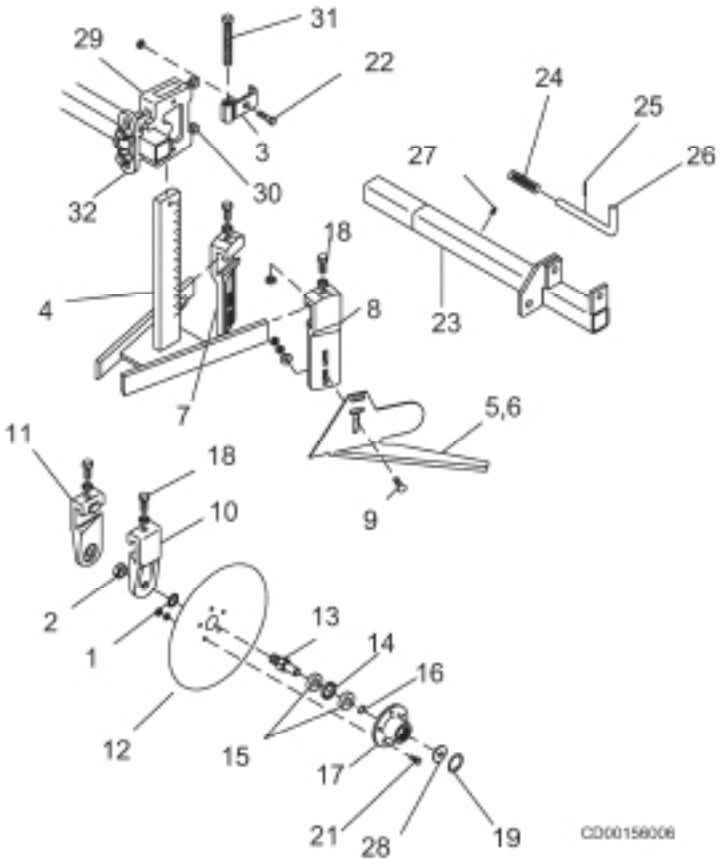
TINE AND ROW GUIDE COMPONENTS



REF	PART	QTY	DESCRIPTION
1	20021946	1	Setback weld
2	XXXXXX	1	Clamp body,Order Assy
3	20031759	1	Clamp back bracket
3	20021414	1	Clamp assy., 2" square or rectangular, diamond through 2"
4	20033524		Tine, heavy duty 20"" adj. (5/8)
4	20033525		Tine, heavy duty 20" adj. (3/4)
5	90510114		14" Beet sweep
5	90510126		14" Beet sweep, heavy duty
5	90510120		20" Beet sweep
6	20020608		Shank, row guide 3/4 x 2-1/2 x 24 long
6	20021061		Shank, row guide 3/4 x 2-1/2 x 32 long

REF	PART	QTY	DESCRIPTION
7	20033294	2	Cleanout wing
8	90001117	2	3/8 NC x 2 Hex bolt GR5
9	20020607	1	Attachment bracket
10	20031826	1	Row guide point
11	90510088	1	Spike point
12	90001841	1	3/8 NC x 1-1/2 Plow bolt
13	90001902		7/16 NC x 2 Plow bolt
14	90001363	2	5/8 NC x 4-1/2 Hex bolt GR5
15	90016095	2	5/8 NC x 2 Sq. head set screw
16	20032856	2	U-Bolt, 1/2 NC x 2-1/2 x 4-1/4
17	20032955	2	Plate
18	905-10018	1	1 3/4" Spike pt
	20020987	1	Assembly Items 10, 11, 12
NS	20020902		Assembly shank 24"
NS	20020903		Assembly shank 32"

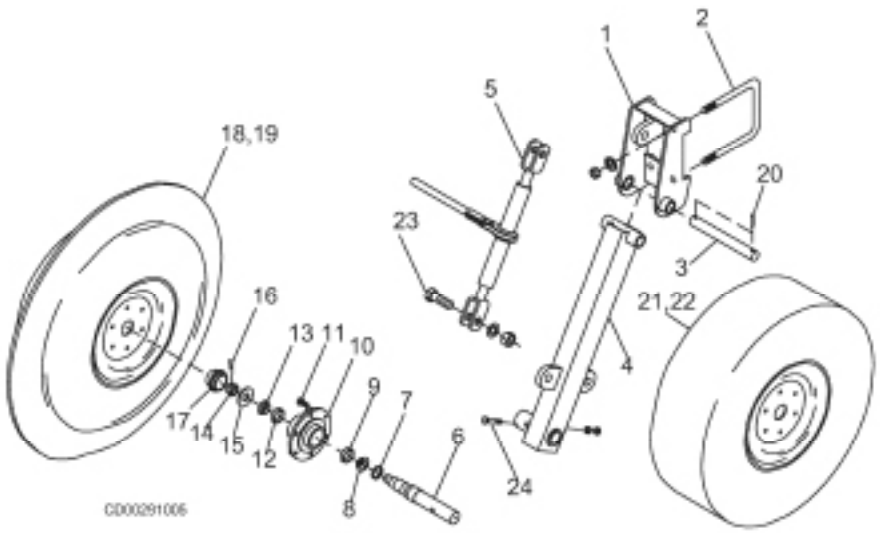
DUAL DISC & DUAL KNIFE ASSEMBLY



REF	PART	QTY	DESCRIPTION
1	90011190	1	3/4 Internal star washer
2	90006282	1	3/4 NC Jam nut
3	20021418	1	Adjustable nut weld, 3/4 x 2-1/2 shank
4	20021942	1	Shank weld, heavy duty 3/4 x 2-1/2
5	20033684	1	Weeder knife, left short
6	20033685	1	Weeder knife, right short
7	20031251	1	Weeder knife bracket, right
8	20031253	1	Weeder knife bracket, left
9	90001697	2	3/8 x 1-1/2 Carriage bolt
10	20033155		Dual disc bracket, 12° left and right
11	20033155		Dual disc bracket, 12° left and right
12	90510110	2	Disc 14"
13	20031261	1	Axle
14	20031264	1	Spacer
15	90101143	2	Bearing
16	90039029	1	Snap ring 5/8 ID , 3/4 OD x 1/32
17	20033279	1	Hub machined
18	90001225	1	1/2 NC x 1-1/2 Hex bolt GR 5
19	90039048	1	Snap ring
20	90016319	1	5/8NC X 4 Sq. Hex head set screw
21	90001055	1	5/16 NC x 3/4 Hex bolt GR5
22	90001113	1	3/8 NC x 1-1/2 Hex bolt GR5
23	20021695	1	Disc tube weldment 22"-24"
	20021696	1	Disc tube weldment 26"-30"
	20021697	1	Disc tube weldment 36"-40"
24	20032735	1	Spring
25	90029132	1	3/16 x 1-1/4 Roll pin
26	20033184	1	Pin
27	90515013	1	Zerk, 3/16 drive-in

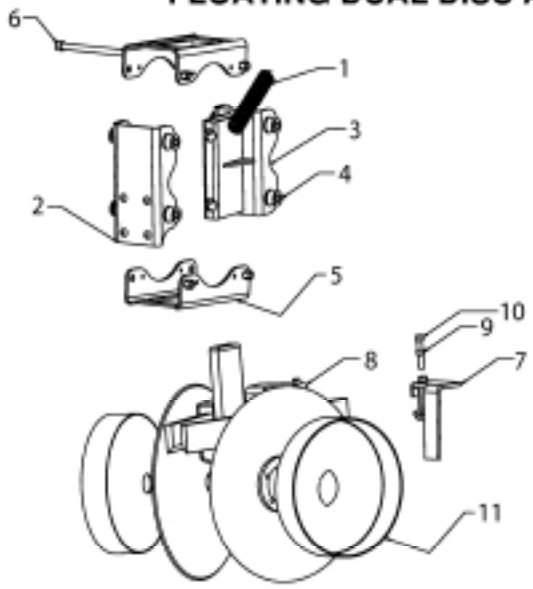
REF	PART	QTY	DESCRIPTION
28	20033278	1	Plastic dust cap
29	20021414	1	Clamp assy. 2" square
30	90016093	2	5/8 NC x 1-1/2 Sq Head set screw
31	90016319	1	3/8 NC x 4-SHSC GR5
32	20031759	1	Clamp bracket back
	20021414	1	Clamp assy. 2" square (Ref 29-32)
	20020694	1	Axle & Bearing assy. (Ref 13-16)
	20020695	1	Hub assy. (Ref 13, 17)
	20021636	1	14" Disc and hub assy.
	20021637	1	14" Disc and adapter assy., 12°
	20021698		Disc mount tube assy. 22"-24" (Ref 23-27)
	20021699		Disc mount tube assy. 26"-30" (Ref 23-27)
	20021700		Disc mount tube assy. 36"-40" (Ref 23-27)
	20021775		Hub assy. (Ref 17, 28, 19)

ADJUSTABLE GUIDE AND SUPPORT WHEELS



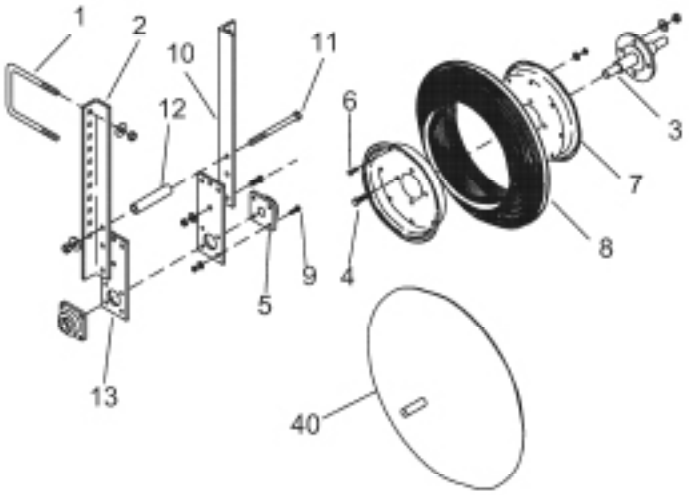
REF	PART	QTY	DESCRIPTION
1	20020535	1	Mounting bracket
2	20030345	2	3/4 U-Bolt
3	20030896	1	Pin, 1-1/4 x 10-1/8
4	20021971	1	Adjustable strut
5	90523009	1	Screw jack
6	20031784	1	Spindle
7	90109002	1	Seal for 1.750 spindle seal area
8	90101025	1	Bearing cone, inner
9	90101024	1	Bearing cup, inner
10	90509004	1	6 Bolt hub
11	90509010	6	Wheel bolt 1/2 NF x 1-1/16
12	90101016	1	Bearing cup, outer
13	90101015	1	Bearing cone, outer
14	90006062	1	1" NF Slotted nut
15	90509068	1	1" Washer
16	90023045	1	Cotter pin, 3/16 x 2"
17	90509009	1	Dust cap
18	90509019	1	Tire 5.5 x 16 Single rib imp
19	90509014	1	Rim 16 x 6LB, 6 bolt
20	90029204	1	Roll pin, 5/16 x 1-5/8"
21	90509077	1	Rim 15" x 6 x 6 hole
22	90509070	1	Tire 9.5L x 15, 8 ply
23	90001519	2	1 NC x 3 Hex bolt
24	90001237	1	1/2 NC x 3 Hex bolt
—	20020931	—	6-Bolt hub assy. (Ref 7-13, 17)
—	20020531	—	7-Bolt hub and spindle assy. (Ref 6-17)
—	20020988	—	Wheel assy., single rib (Ref 18, 19)

FLOATING DUAL DISC ASSY



1	20034136	2	Spring
2	20022134	1	Weld, pivot plate
3	20022135	1	Weld, back plate
4	20032913	8	Bushing
5	20022137	2	Weld, link pivot
6	90001201	4	7/16 NC x 5.5" HHCS, ZP
7	20022138	1	Weld, scraper LH
8	20022139	1	Weld, scraper RH
9	90006270	2	3/8 NC jam nut
10	90001111	2	3/8 x 1 1/4 NC HHCS
11	20022140	2	Depth band
NS	90006143	4	1/2 Spiralock nut
NS	90016063	2	1/2 NC x 1-1/4 SQ HD Set screw
NS	90006009	2	1/2 NC Hex nut ZP
NS	90030801	2	1/2 NC Hex nut ZP

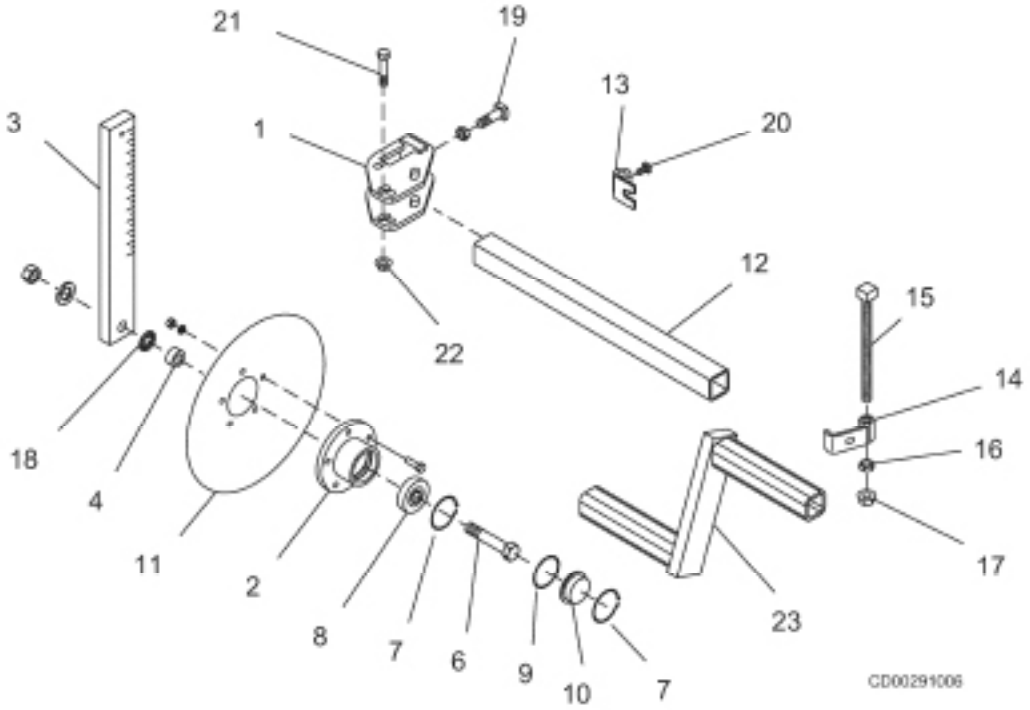
SEMI-PNUEMATIC GUIDE WHEEL
& STEEL GUIDE WHEEL



REF	PART	QTY	DESCRIPTION
1	20030344	2	5/8 U-Bolt, 7" inside x 8-1/2 long
2	20033858	1	Right angle, 32-1/4 long
3	**20021315**	1	Hub
4	90001225	8	1/2 NC x 1-1/2 Hex bolt GR5
5	90101004	2	1" Bearing, 2-3/4 bolt spacing
6	90001109	8	3/8 NC x 1 Hex bolt GR5
7	20030891	2	Rim half, 4 x 20
8	90509054	1	V-type tire, 4.5 x 20

REF	PARTS	QTY	DESCRIPTION
9	90001113	8	3/8 NC x 1-1/2 Hex bolt GR5
10	20033859	1	Left angle, 32-1/4 long
11	90001377	1	5/8 NC x 8 Hex bolt GR5
12	20032758	1	Spacer tube
13	20032815	2	Bearing plate, 2-3/4 bolt spacing
—	20020536	1	Wheel and tire assy. (Ref 6, 7, 8)
40	20022094	1	Steel Wheel assy., welded (Ref 9-15)

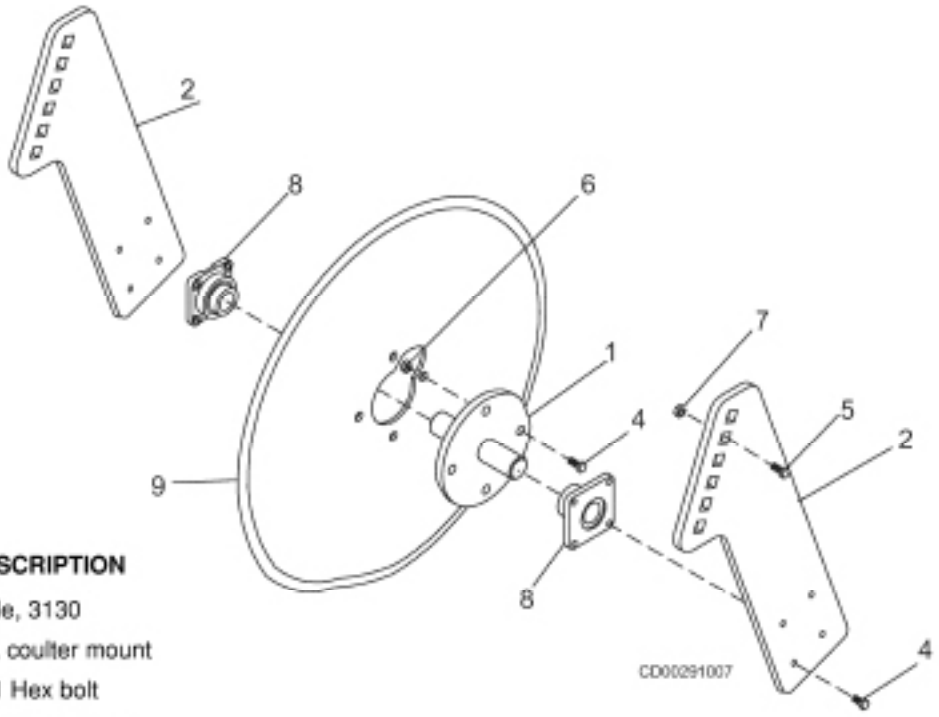
ROW WEEDER DISCS



REF	PART	QTY	DESCRIPTION
1	20021876	2	Clamp weldment
2	20021466	2	Hub
3	20032704	2	Shank
4	20032705	2	Spacer
5	90001111	10	3/8 NC x 1-1/4 Hex bolt GR5
6	90001411	2	3/4 NC x 3 Hex Bolts GR5
7	90039046	2	Snap ring
8	90101254	2	Bearing
9	90109206	2	O-Ring
10	90509118	2	Dust cap
11	90510080	2	Disc
12	20033576	2	Tube 40" rows, 24" long
12	20030993	2	Tube 30" rows, 20" long
12	20033790	2	Tube, dummy, 9" long

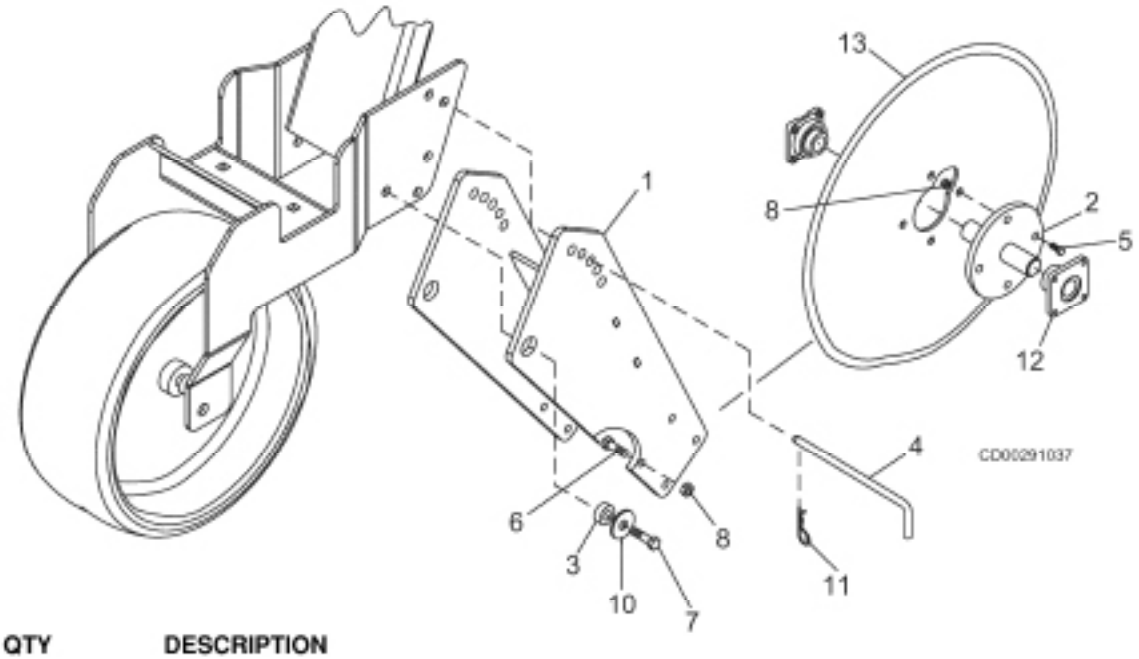
REF	PARTS	QTY	DESCRIPTION
13	20021877	1	Nozzle bracket
14	20021418	1	Adjustment nut
15	90016319	2	5/8 NC x 4 Adj. sq. head set screw
16	90006280	2	5/8 NC Jam nut
17	90006145		5/8 NC Whiz nut
18	90011190	2	5/8 Internal star washer
19	90016095	2	5/8 NC x 2 Sq. head set screw
20	90016031	2	5/8 NC x 3/4 Sq. head set screw
21	90001241	3	1/2 NC x 3-1/2 Hex bolt GR5
22	90006143	3	1/2 NC Flange nut
23	20022090	2	Raised bed mount tubes, 30" rows
23	20022104	2	Raised bed mount tubes, 40" rows

COULTER (STRAIGHT EDGE TINE)



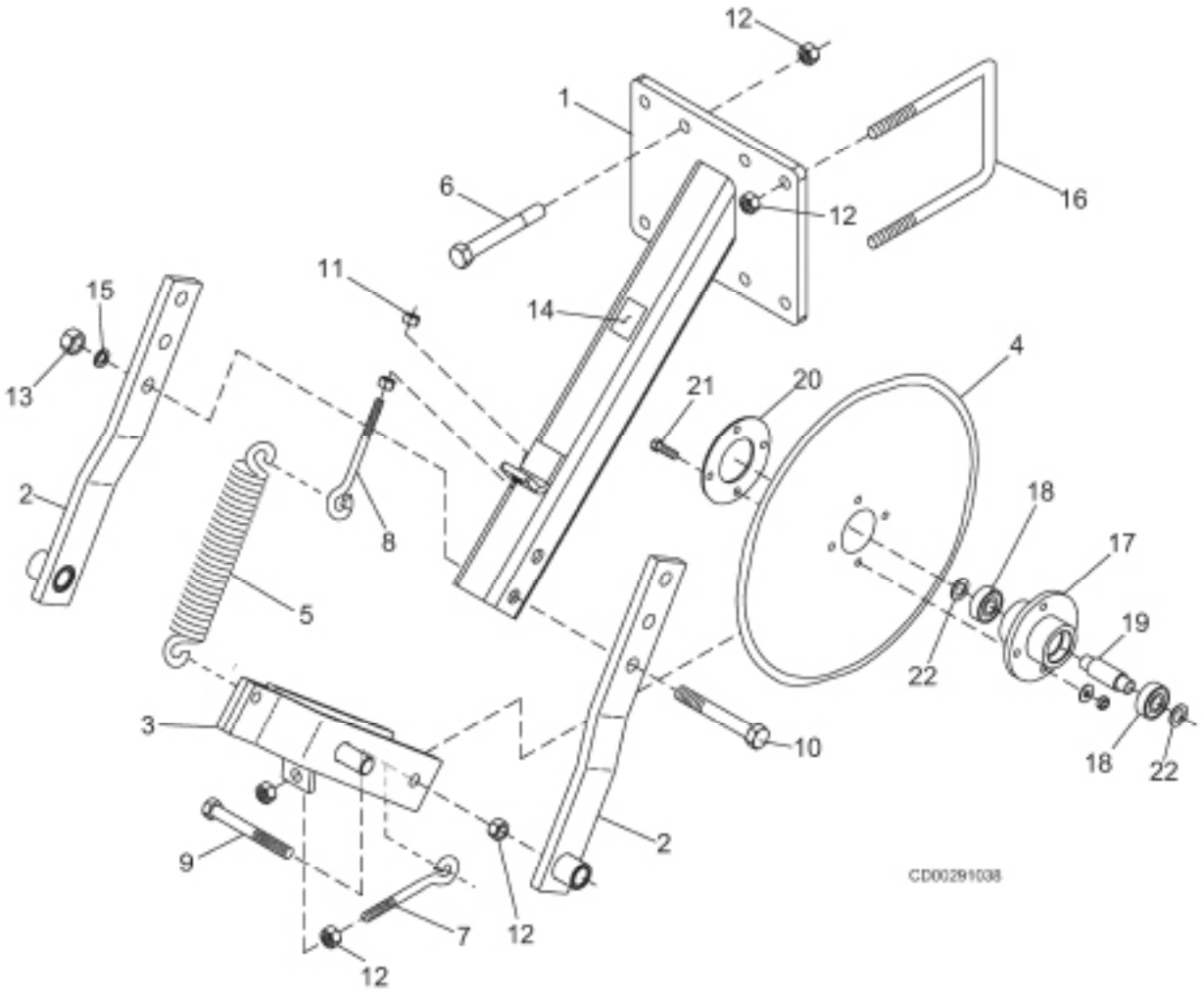
REF	PART	QTY	DESCRIPTION
1	20022097	1	Coulter axle, 3130
2	20033935	2	Side plate, coulter mount
3	90001109	4	3/8 NC X 1 Hex bolt
4	90001113	8	3/8 NC X 1-1/2 Hex bolt
5	90001750	4	1/2 NC X 1-1/4 Carriage bolt
6	90006139	12	3/8 NC Flange whiz lock
7	90006143	4	1/2 NC Spiral lock flange
8	90101004	2	1" 4 Bolt bearing NANF
8	90101003		1" Bearing insert
9	90510079	1	Coulter guide disc

COULTER (RIGID SHANK)



REF	PART	QTY	DESCRIPTION
1	20022096	1	Coulter disc mast
2	20022097	1	Coulter axle
3	20033969	2	Coulter pivot bushing
4	20033970	1	Coulter adjust pin
5	90001109	4	3/8 NC x 1 Hex bolt GR5
6	90001113	8	3/8 NC x 1-1/2 Hex bolt
7	90001225	2	1/2 NC x 1-1/2 Hex bolt
8	90006139	12	3/8 NC Flange whiz lock nut
9	90006143	2	1/2 NC Spiralock flange
10	90011035	2	1/2 Flat washer ZP
11	90025005	1	5/32 Hair pin cotter
12	90101004	2	1" 4-Bolt bearing NANF
NS	90101003	2	1" Bearing insert
13	90510079	1	Disc, guide coulter

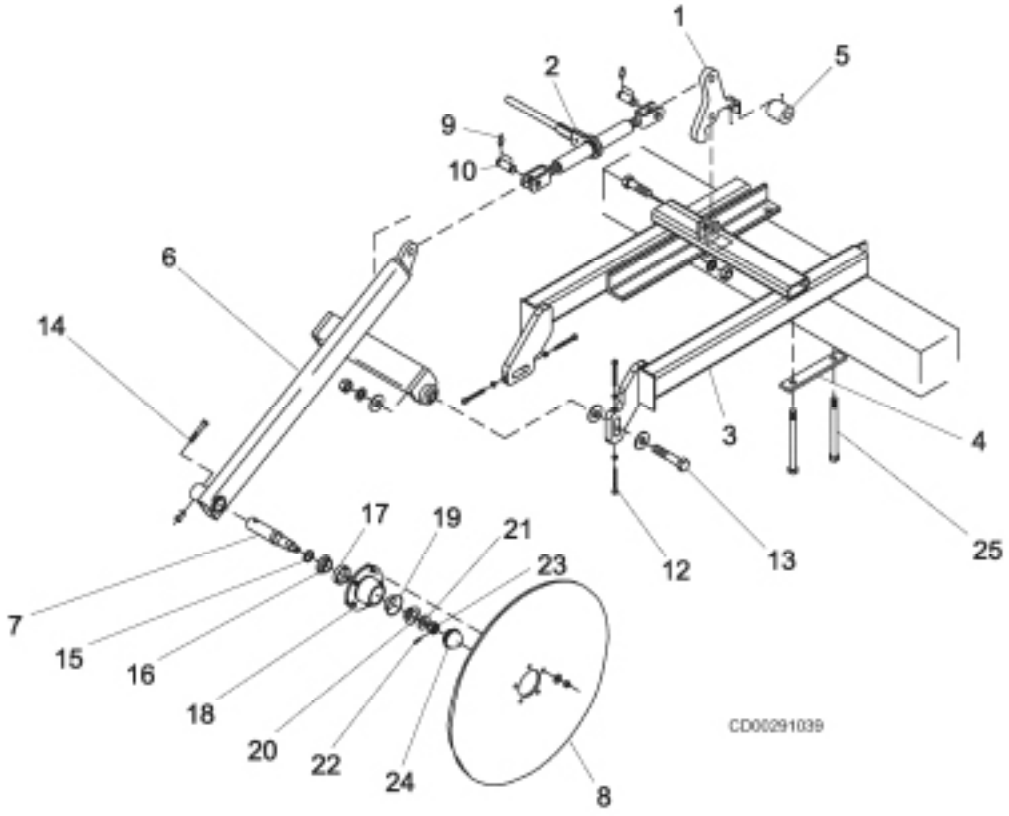
COULTER (STABILIZING)



REF	PART	QTY	DESCRIPTION
1	20022093	1	Stab coulter mast, 3130
2	20020425	2	Side arm
3	20020426	1	Clevis
4	90510079	1	Disc Blade
5	20033010	1	Spring
6	90001381	4	5/8 NC x 9 Hex bolt
7	20031285	1	5/8 Eye bolt
8	10030148	1	1/2 NC Eye bolt
9	90001369	1	5/8 NC x 6 Hex bolt
10	90001425	2	3/4 NC x 5-1/2 Hex bolt
11	90006009	2	1/2 NC Hex nut ZP

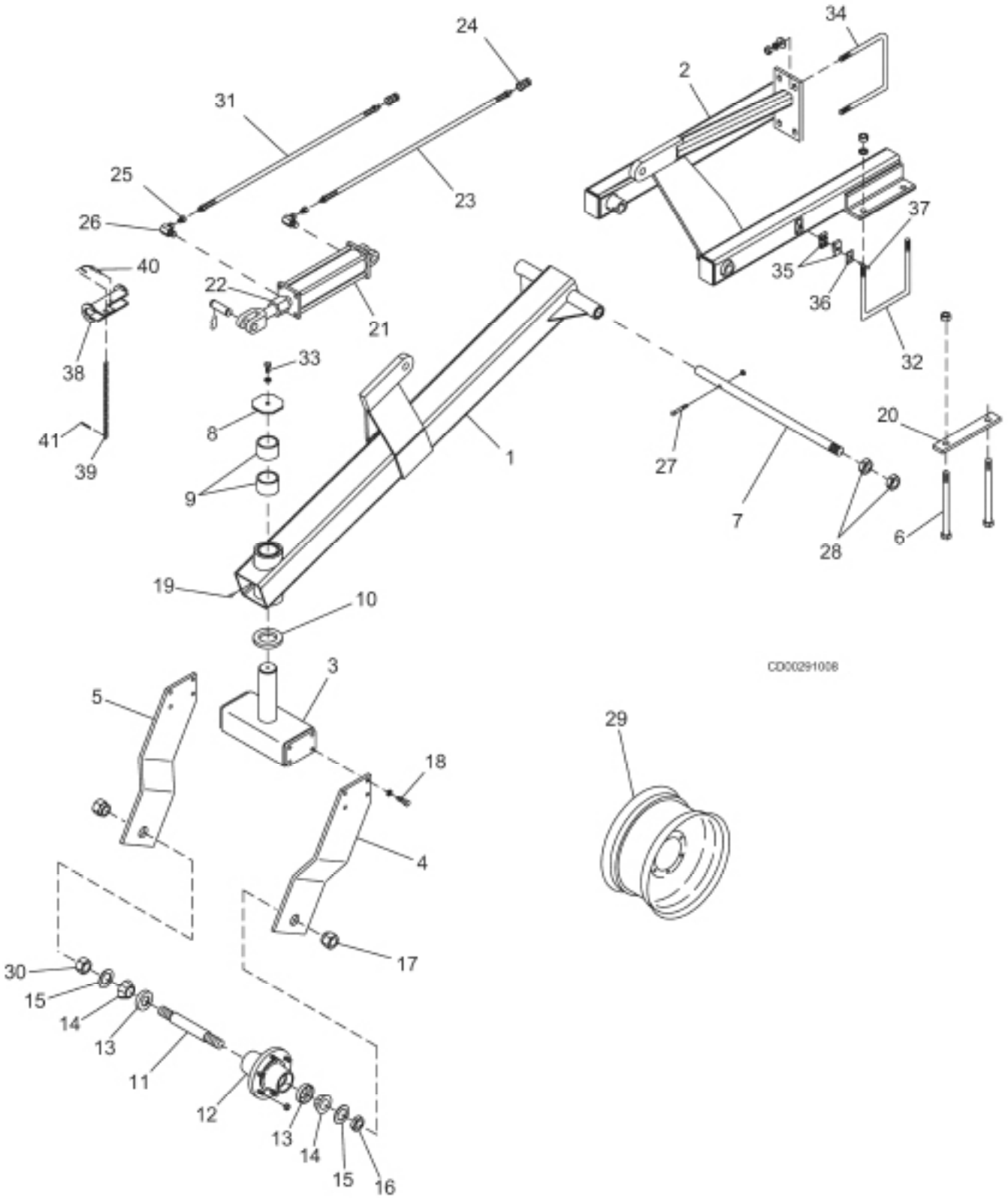
REF	PART	QTY	DESCRIPTION
12	90006145	7	5/8 NC Hex nut spiral lock
13	90006015	2	3/4 NC Hex nut
14	20030193	1	Decal, coulter adjust
15	90011017	2	3/4 Lock washer
16	20030344	2	5/8 NC x 7" U-Bolt
17	20021772	1	Hub
18	90101278	2	Bearing
19	20033351	1	Bearing spacer
20	20030685	1	Back plate
21	90001111	4	3/8 NC x 1-1/4 Hex bolt
22	90011060	2	3/4 X 14 GA NAR rim machine bushing

COULTER (REAR STABILIZER)



REF	PART	QTY	DESCRIPTION
1	20020709	1	Arm weldment
2	20020705	1	Ratchet jack
3	20022024	1	Mounting frame, 3130
4	20030970	1	Backing strap
5	20031313	1	Rubber bushing
6	20022025	1	Strut, 3130
7	20031314	1	Spindle
8	20020707	1	Disc coulter
9	90025018	1	3/4 Ext Hair pin clip
10	90042048	2	1 x 2-3/4 Clevis pin
11	90002914	1	1 NC x 3-1/2 Hex bolt GR5
12	90016042	4	3/8 x 3-1/2 Sq head set screw
13	90001531	2	1 NC x 5 Hex bolt GR5
14	90001237	1	1/2 NC x 3 Hex bolt GR5
15	90109002	1	Seal for 1.75 spindle seal area, std
15	90109209	1	Seal for undersized 1.70 seal area
16	90101023	1	Bearing cone
17	90101022	1	Bearing cup, inner
18	90509003	1	5-Bolt hub with cups
19	90101016	1	Bearing cup, outer
20	90101015	1	Bearing cone
21	90509067	1	Washer 7/8 x 2
22	90023043	1	Cotter pin 3/16 x 1-1/2
23	90006060	1	7/8 NF Slotted hex nut
24	90509009	1	Dust cap
25	90006017	4	7/8 NC x 10 Hex bolt GR5
—	20020710	—	Hub and spindle assy. (Ref. 7, 15-24)
—	10021051	—	Hub assy. (Ref. 15-24)

LIFT ASSIST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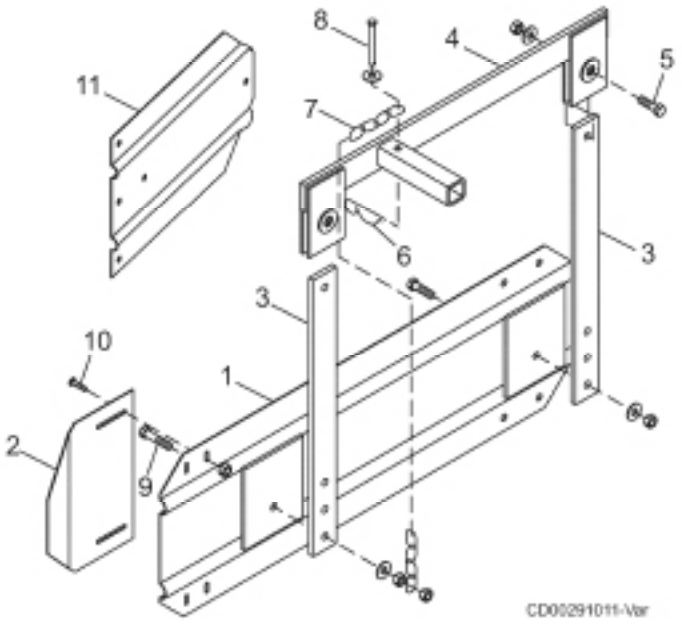
LIFT ASSIST PARTS LIST

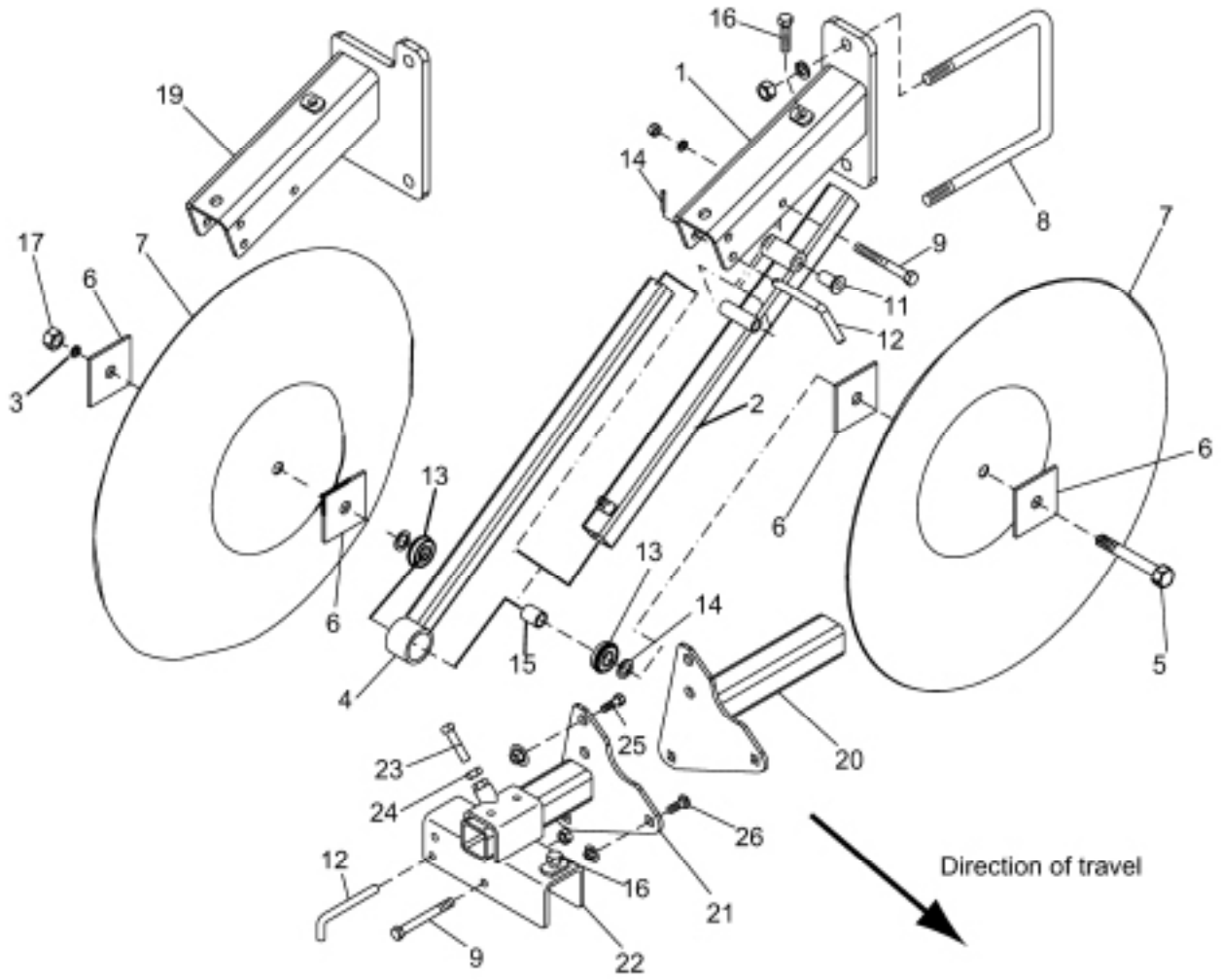
REF	PART	QTY	DESCRIPTION
1	20021957	1	Tube weldment
2	20021955	1	Mount weld, TRF folding toolbars
2	20022091	1	Mount weld, flat fold/rigid toolbars
2	20022101	1	Mount weld, FR folding toolbars, 24 row
3	20020689		Caster pivot weldment
4	20032622	1	Side plate RH
5	20032621		Side plate LH
6	90003039	4	7/8 x 10 Hex bolt
7	20032799	1	Pin
8	20031219	1	Retainer plate
9	20031766	2	Bushing
10	20031233	1	Thrust bearing
11	20031240	1	Spindle
12	90509082	1	Hub with cups
13	90101148	2	Bearing cup
14	90101149	2	Bearing cone
15	90109127	2	Seal
16	20032726	1	Nut, short 1-1/4 NF
17	20031847	2	1-1/4 NF Shoulder nut
18	90001225	8	1/2 NC x 1-1/2 Hex bolt GR5
20	20030970	2	Strap
19	90515024	1	1/4-28 UNF Straight zerk
20	20033964	2	Strap, Ft reinforced toolbar, 24 row, 3 holes
21	90521391	1	Hydraulic cylinder 3 x 10 stroke
22	90521305	1	Depth stop nut
23	90519154	1	Hose 6 FJIC x 6 MORB x 115"
24	90519126	2	Quick coupler, male tip
25	90503162	2	Restrictor 6 MJIC x 8 MORB
26	90503137	2	Elbow 6 MJIC x 6 FJIC
27	90001121	1	3/8 NC x 2-1/2 Hex bolt GR5
28	90006291	2	1-1/4 NF Jam nut
29	90509077	1	6-Hole rim 15" x 6"
30	90006024	1	1-1/4 NF Hex nut
31	90519130	1	Hose, 6 FJIC x 6 MORB x 100"
32	20030345	2	U-Bolt, 3/4 NC x 7" inside x 9-1/8" Ln, Pre '99"
33	90001221	1	1/2 NC x 1 Hex bolt GR5
34	20030344		U-Bolt ,5/8 NC x 7" inside x 8-1/2" long
35	90031069	3	Clamp body
36	90030168	3	Cover plate
37	90003459	3	5/16 NC x 1-3/8 Hex bolt GR5
38	20022059	1	Cylinder. stop weld
39	12030472	1	Chain
40	90042055	1	Lock pin
41	90023043	4	Cotter pin

OPEN TOP SHIELDS

REF	PART	QTY	DESCRIPTION
1	20021930	1	Shield weldment (LH)
NS	20021929	1	Shield weldment (RH)
2	20033688	1	Guide shield
3	20033519	2	Parallel arm 20-1/2
4	20022013	1	Bracket, 22" rows (RH)
4	20022110	1	Bracket, 30" rows (RH)
4	20022115	1	Bracket, 40" rows (RH)
NS	20022014	1	Bracket Weld, 22 rows (LH)
NS	20022009	1	Bracket, 30" rows (LH)
NS	20022016	1	Bracket, 40" rows (LH)
5	90001173	6	7/16 NC x 1-1/4 Hex bolt
6	90025004	2	1/8 Hair pin cotter
7	20032964	2	Chain
8	90032026	2	3/8 x 2-3/4 Clevis pin
9	90001179	2	7/16 NC x 2 Hex bolt
10	90001647	4	1/4 NC x 3/4 Carriage bolt
11	20033238	2	Shield extension



ROLLING SHIELDS



REF	PART	QTY	DESCRIPTION
1	20021949	1	Rolling shield mount weld
2	20021816	1	Rolling shield tube
3	90011015	1	5/8" lock washer
4	20021714	1	Axle weldment
5	90006013	1	Axle (double rolling shield) bolt
NS	90001349	1	Axle (single rolling shield) bolt
6	20033326	4	Spacer plate
7	20033305	2	Disc, 24"
8	20030344	1	U-Bolt, 5/8 NC x 7 x 8-1/2" long
9	90001195	1	7/16 NC x 4 Hex bolt GR5
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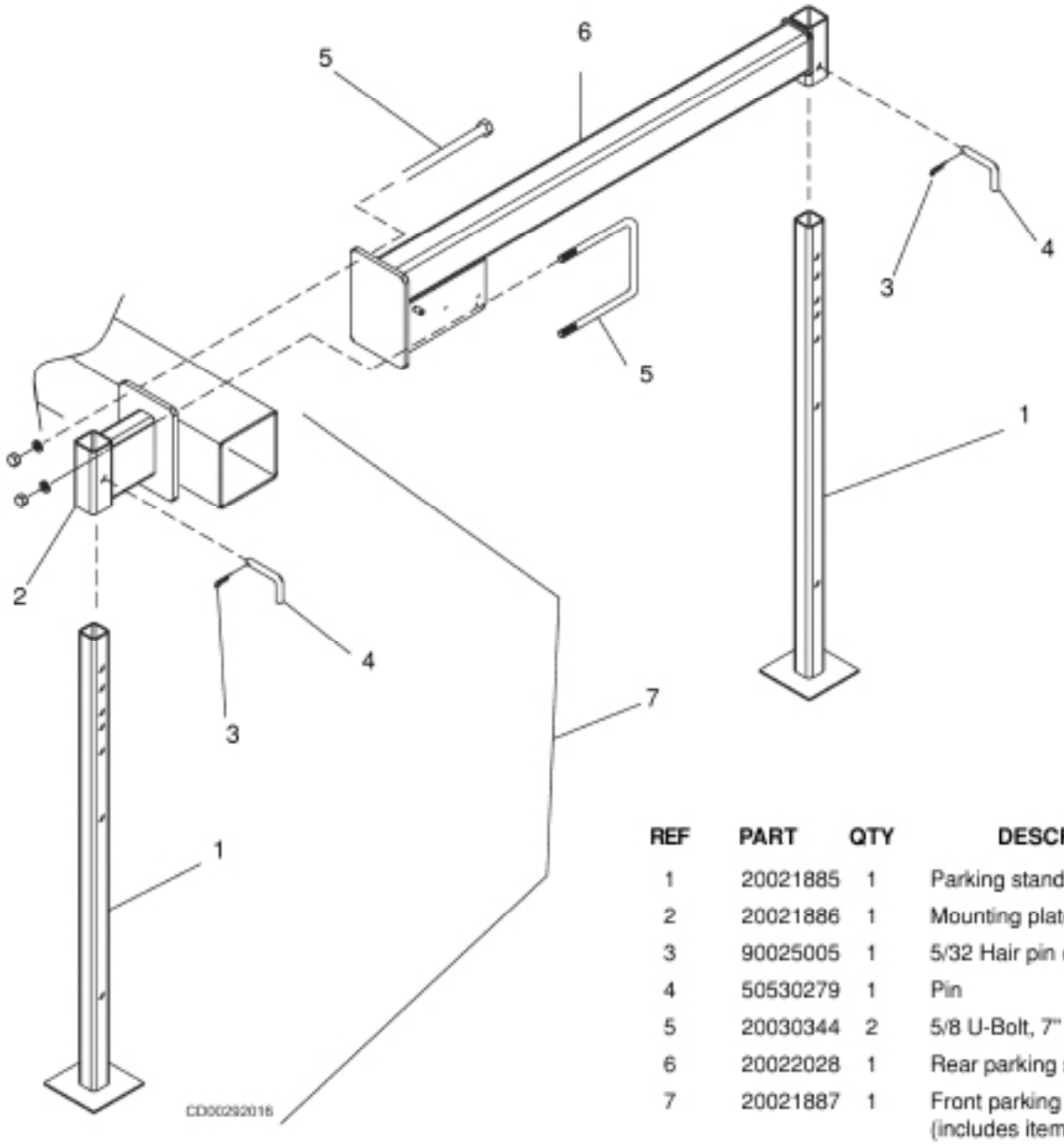
11	20032913	2	Bushing
12	20033705	1	7/16 x 3 Bent pin
13	90101334	2	Bearing
14	20033508	2	Washer
15	20034138	1	Spacer
16	90003454	1	1/2 NC x 3 Full thread bolt GR5

REF	PART	QTY	DESCRIPTION
17	90006013	1	5/8 NC Hex nut
18			
19	20021975	1	Mount offset LH
NS	20021976	1	Mount offset RH
20	20022123	1	Mount shield, 3130 LH 22" rows
20	20022026	2	Mount shield, 3130 LH 30" rows
20	20022057	2	Mount shield, 3130 LH 40" rows
21	20022122	1	Mount shield, 3130 RH 22" rows
21	20022027	1	Mount shield, 3130 RH 30" rows
21	20022056	1	Mount shield, 3130 RH 40" rows
22	20021815	1	Rolling shield bracket
23	90016064	1	1/2 NC x 1-1/2 Sq. head set screw
24	90006276	1	1/2 NC Jam nut
25	90001339	1	5/8 NC x 1-1/4 Hex bolt
26	90001749	2	1/2 NC x 1 Carriage bolt

NS = Not Shown

PARKING STANDS



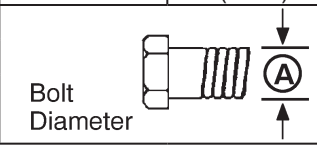
REF	PART	QTY	DESCRIPTION
1	20021885	1	Parking stand
2	20021886	1	Mounting plate
3	90025005	1	5/32 Hair pin cotter
4	50530279	1	Pin
5	20030344	2	5/8 U-Bolt, 7" inside, 8-1/2" long
6	20022028	1	Rear parking stand extension
7	20021887	1	Front parking stand assembly (includes items 1, 2, 3, 4)

BOLT TORQUE CHART

SAE Series Torque Chart

Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application. Fasteners must always be replaced with the same grade as specified in the manual parts list.

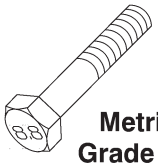
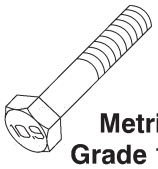
Make sure fastener threads are clean and you properly start thread engagement.

SAE Bolt Head Identification		**SAE Grade 2 (No Dashes)**		**SAE Grade 5 (3 Radial Dashes)**		**SAE Grade 8 (6 Radial Dashes)**	
Ⓐ Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		**SAE 5**		**SAE 8**	
		ft./lb.	(Nm)	ft./lb.	(Nm)	ft./lb.	(Nm)
1/4”	7/16’	6	(8)	10	(13)	14	(18)
5/16’	1/2”	12	(17)	19	(26)	27	(37)
3/8”	9/16”	23	(31)	35	(47)	49	(67)
7/16”	5/8”	36	(48)	55	(75)	78	(106)
1/2”	3/4”	55	(75)	85	(115)	120	(163)
9/16”	13/16”	78	(106)	121	(164)	171	(232)
5/8”	15/16”	110	(149)	170	(230)	240	(325)
3/4”	1-1/8”	192	(261)	297	(403)	420	(569)
7/8”	1-5/16”	306	(416)	474	(642)	669	(907)
1”	1-1/2”	350	(475)	680	(925)	1020	(1383)
1-1/8”	1-11/16”	450	(610)	885	(1200)	 Bolt Diameter Ⓐ	
1-1/4”	1-7/8”	600	(815)	1255	(1700)		
1-3/8”	2-1/16”	675	(915)	1620	(2200)		
1-1/2”	2-1/4’	920	(1250)	2200	(2900)		

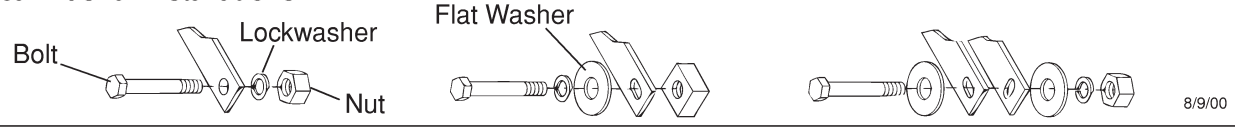
Metric Series Torque Chart

Use only metric tools on metric hardware. Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application. Fasteners must always be replaced with the same grade.

Make sure fastener threads are clean and you properly start thread engagement.

Ⓐ Diameter & Thread Pitch (Millimeters)	Wrench Size	**COARSE THREAD**				**FINE THREAD**				Ⓐ Diameter & Thread Pitch (Millimeters)	**Metric Bolt Head Identification**
		MARKING ON HEAD				MARKING ON HEAD					
		Metric 8.8		**Metric 10.9**		**Metric 8.8**		**Metric 10.9**			
		Nm	ft./lb.	Nm	ft./lb.	Nm	ft./lb.	Nm	ft./lb.		
6x1.0	10 mm	8	6	11	8	8	6	11	8	6x1.0	
8x1.25	13 mm	20	15	27	20	21	16	29	22	8x1.0	
10x1.5	16 mm	39	29	54	40	41	30	57	42	10x1.25	 **Metric Grade 8.8**
12x1.75	18 mm	68	50	94	70	75	55	103	76	12x1.25	
14x2.0	21 mm	109	80	151	111	118	87	163	120	14x1.5	
16x2.0	24 mm	169	125	234	173	181	133	250	184	16x1.5	
18x2.5	27 mm	234	172	323	239	263	194	363	268	18x1.5	
20 x 2.5	30 mm	330	244	457	337	367	270	507	374	20x1.5	
22 x 2.5	34 mm	451	332	623	460	495	365	684	505	22 x 1.5	 **Metric Grade 10.9**
24 x 3.0	36 mm	571	421	790	583	623	459	861	635	24 x 2.0	
30 x 3.0	46 mm	1175	867	1626	1199	1258	928	1740	1283	30 x 2.0	

Typical Washer Installations



ABBREVIATIONS

AG ..... Agriculture
ASAE ..... American Socity of Agricutural Engineers
ATF ..... Automatic Transmission Fluid
BSPP ..... British Standard Pipe Parallel
BSPTM ..... British Standard Pipe Tapered Male
CV ..... Constant Velocity
CCW ..... Counter-Clockwise
CW ..... Clockwise
DIA ..... Diameter
EP ..... Extreme Pressure
F ..... Female
FB ..... Female O-Ring Boss
FJ ..... Female Boss
FJX ..... Female Swivel JIC
FP ..... Female Pipe
ft./lb ..... Foot Pound
GA ..... Gauge
GR (5, etc.) ..... Grade (5, etc.)
HHCS ..... Hex Head Cap Screw
HT ..... Heat Treated
in ..... Inch
JIC ..... Joint Industry Counicl 37° Flare
kg ..... Kilogram
km/h ..... Kilometers Per Hour
lb ..... Pound
LH ..... Left Hand
LT ..... Left
in ..... Inches
m ..... Meter
mm ..... Millimeter
M ..... Male
MB ..... Male O-Ring Boss
MJ ..... Male JIC
MJX ..... Male Swivel JIC
MP ..... Male Pipe
MPa ..... Mega Pascal
MPH ..... Miles Per Hour
N ..... Newton
NC ..... National Course
NF ..... National Fine
NPSM ..... National Pipe Straight Mechanical
NPT ..... National Pipe Tapered
NPT SWF ..... National Pipe Tapered Swivel Female
Nm ..... Newton Meter
OSHA ... Occupational Safety and Health Administration
P ..... Pitch
PBY ..... Power Beyond
psi ..... Pounds per Square Inch
PTO ..... Power Take Off
QD ..... Quick Disconnect
RH ..... Right Hand
ROPS ..... Roll Over Protection Structure
RPM ..... Revolutions Per Minute
RT ..... Right
SAE ..... Society of Automotive Engineers
SMV ..... Slow Moving Vehicle
UNC ..... Unified Coarse
UNF ..... Unified Fine
UNS ..... Unified Special
ZP ..... Zinc Plate

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WARRANTY

Please Enter Information Below and Save For Future Reference.

Date Purchased: _____ From (Dealer): _____

Model Number:_____ Serial Number: _____

ALLOWAY STANDARD, d/b/a ALLOW AY, warrants this product to be free from defect in material and workmanship for TWELVE (12) MONTHS COMMENCING ON THE DATE OF DELIVERY OF THE PRODUCT TO THE ORIGINAL PURCHASER.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of ALLOWAY, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not apply in the event that the product has been materially modified or repaired by someone other than ALLOWAY, a ALLOWAY authorized dealer or distributor, and/or a ALLOWAY authorized service center; This Warranty does not cover normal wear or tear, or normal maintenance items. This Warranty also does not cover repairs made with parts other than those obtainable through ALLOWAY.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

ALLOWAY makes no warranty, express or implied, with respect to tires or other parts or accessories not manufactured by ALLOWAY. Their respective manufacturers, if any, provide warranties for these items, separately. ALLOWAY'S' obligation under this Warranty is limited to, at ALLOWAYS' option, the repair or replacement, free of charge, of the product if ALLOWAY, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. The product must be returned to ALLOWAY with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid. ALLOWAY shall complete such repair or replacement within a reasonable time after ALLOWAY receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. ALLOWAY MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALLOWAY SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

ALLOWAY shall not be liable for any incidental or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Without limiting the generality of the foregoing. Alloway specifically disclaims any damages relating to (i) lost profits, business, revenues or goodwill; (ii) loss of crops; (iii) loss because of delay in harvesting; (iv) any expense or loss Incurred for labor, supplies, substitute machinery or rental; or (v) any other type of damage to property or economic loss.

This Warranty is subject to any existing conditions of supply, which may directly affect ALLOWAYS' ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, serviceperson, salesperson, or employee of any company; including without limitation, ALLOWAY, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty.

This Warranty is effective only if the warranty registration card is returned within ten (10) days.

Answers to any questions regarding warranty service and locations may be obtained by contacting:

Alloway
4230 14th Ave.NW
Fargo, North Dakota 58102
701-356-4983

ALLOWAY

WARRANTY

ALLOWAY STANDARD, d/b/a ALLOWAY, warrants this product to be free from defect in material and workmanship for a period of One (1) year, ninety (90) days for Service Parts, from the date of delivery of the product to the original purchaser.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of ALLOWAY, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not cover normal wear or tear, or normal maintenance items.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

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This Warranty is subject to any existing conditions of supply, which may directly affect ALLOWAYS' ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, service person, salesperson, or employee of any company, including without limitation, ALLOWAY, Its authorized dealers, distributors, and service centers, IS authorized to alter, modify, or enlarge this Warranty.

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