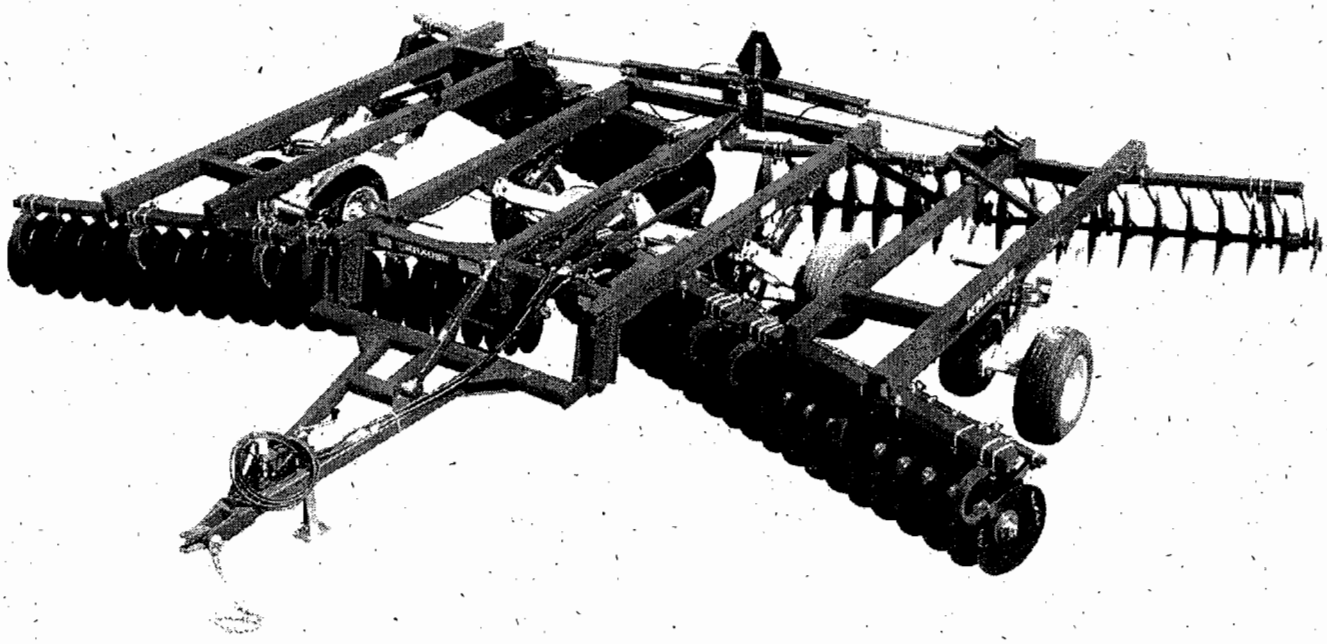
DEC 2006 7400-1

OWNER'S MANUAL

7400



FLEX-WING TANDEM DISC HARROW

7400 SERIES

KRAUSE

305 SOUTH MONROE / P.O. BOX 2707 / HUTCHINSON, KS 67504-2707

Congratulations

You have just purchased a quality designed and manufactured Krause tillage tool. Advanced features have been designed into the implement for modern farming operations. As with any investment, a return is expected, and the return received from this investment will be in the form of maximum tillage performance during may years of dependable service.

In order to maintain quality performance of the new Krause implement, it is important that all of the information in the manual be reviewed and studied carefully before operation. The contents provide operating instructions, maintenance instructions, and information on how to make adjustments.

SAFETY ALERT SYMBOL

BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY. THIS SYMBOL IDENTIFIES IMPORTANT SAFETY MESSAGES. CAREFULLY READ THE MESSAGE THAT FOLLOWS.

MODEL NUMBER_____ SERIAL NUMBER_____

PURCHASE RECORD - - DATE_____

A note to our customers, parts managers and dealers:

This manual has been prepared to assist you in the proper use, daily care, and operation of your new Krause equipment. It contains specific information on the many built-in features of your equipment, the accessories and options that are available, general specifications, and instructions for making minor adjustments.

Read this manual carefully before operating your Krause equipment, and keep it in a convenient location for later reference.

In order to ensure that you have the most current owner's manual available for your implement, we have added a revision code to each manual. Please note the information listed below and specify when placing service calls or ordering parts.

Manual for Model: 7400

This manual covers models beginning with Serial No. 1001

Owner's Manual #: 7400-1

Parts Manual #: 7400-2

Rev.:

ISSUED TO:	ISSUED BY:
Owner's Name	*Krause Dealer*
Mailing Address	*City*
City	*State*
State	*Date of Purchase*

Warranty Policy

(Krause Serial Numbered Wholegoods purchased subsequent to 7/1/99)

Note: All warranty work must be accomplished by a Krause Corporation Authorized Service Center rated to perform maintenance on Krause Corporation Products.

A. KRAUSE CORPORATION ("KRAUSE") LIMITED WARRANTY.

(1) Subject to the limitations and conditions hereinafter set forth, Krause warrants, at the time of delivery by Krause to be free from (i) defects in materials or workmanship, and (ii) defects in design that in the view of the state of the art as of the date of manufacture should have been foreseen provided, however, that the defect must be discovered and reported to Krause within the periods specified as follows. For a period of one year all new serial numbered production agricultural units covered by this warranty; for a period of thirty-six (36) months the tongue weldment, center frame weldment, wing frame weldments, disc harrow gang bearings and K-Tine field cultivator shanks.

(2) Krause does not warrant disc blades, shanks, hydraulic cylinders, accessories and other parts not manufactured by it, but supplied with or as a part of its products. Krause will, however, obtain and pass on any adjustments provided by the manufacturers of such parts under these manufacturer's warranties. Tires supplied on Krause products, will be warranted by the tire manufacturer's retail outlets.

(3) The entire extent of Krause's liability shall be limited to that of either reimbursing Buyer for its costs of purchasing a rebuilt, over-hauled or repaired part from either Krause or a proper Krause Authorized Service Center or, at Krause's election, reimbursing buyer for its costs of having the part repaired at a proper Krause Authorized Service Center. If Krause elects not to repair the part and if neither a rebuilt, over-hauled or repaired part is, in Krause's opinion, timely available then Krause will reimburse buyer for its costs of purchasing a new part from either Krause or a proper Krause Authorized Service Center. The labor necessary to remove from the product such part or parts and to install in the product such part or parts, as well as any repair made as the result of improper installations by Krause, shall be covered by this warranty, provided the work is performed at a proper Krause Authorized Service Center.★ If return of the defective part is required, it must be returned shipping prepaid to Krause. Krause's limited warranty will apply to any part repaired or replaced by a proper Krause Authorized Service Center pursuant to Krause's Limited Warranty: however, the applicable warranty for such part repaired or replaced shall be limited to the unexpired portion of Krause's Limited Warranty described in paragraph (1) or (2) above, as applicable. In other words, the warranty period of the part repaired or replaced does not start over from the date of reinstallation.

★[Krause Corporation will repair or replace, free of charge, any part of the product found to be defective, within the specified warranty periods, after an inspection of the part has deemed it to be defective. Inspection must be performed by an authorized agent of Krause Corporation, or returned to the Krause factory for inspection and disposition. Warranty labor will be considered during the first year of warranty only. Krause Corporation will establish and publish an hourly flat rate for shop labor and reimbursement during the first year of the warranty period. Krause Corporation does not allow credit for the cost of travel time, mileage or hauling as a warranty allowance. During the remaining second and third year, when applicable, Krause will repair or replace the defective part, without consideration of labor charges.]

(4) Routine services (such as inspections, field settings, adjustments, etc.) and replacement of items which deteriorate from expected normal wear and tear or exposure (such as paint, tires, hoses, blades, sweeps, etc.) are not covered by this Limited Warranty. Such routine services and replacements required during the course of operation are not considered to be the result of any defect in the product.

B. LIMITATIONS APPLICABLE TO KRAUSE'S LIMITED WARRANTY.

(1) Krause will be relieved of all obligations and liability under this warranty if:

(i) The alleged defect in the part is due to misuse or neglect on the part of someone other than Krause; or

(ii) Krause's identification mark or name or serial number has been removed from the part in question; or

(iii) The product and/or equipment have not been maintained, operated or stored either in accordance with applicable manuals, communications or other written instructions of Krause or any manufacturer of the part involved, or in accordance with applicable regulations and advisory circulars unless buyer shows that such maintenance, operation or storage was not a contributory cause of the defect; or

(iv) The part in question has been modified or altered after delivery other than by the manufacturer or in accordance with a modification or alternation scheme approved in writing by the manufacturer; or

(v) The product is used for purposes other than conventional owner/operator usage. Usage not considered conventional owner/operator includes, but is not limited to, operation conditions that consist of rocks or other obstructions.

(2) For the purpose of this Warranty, no part of the product or equipment will be regarded as breaching the limited warranty merely because, subsequent to its delivery, some modification or alteration becomes necessary for product improvements or in order to meet a change in the requirements of any applicable regulation.

(3) TO THE EXTENT ALLOWED BY APPLICABLE LAW, BUYER WAIVES AS TO KRAUSE ALL OTHER WARRANTIES, WHETHER OF MERCHANTABILITY, FITNESS OR OTHERWISE, THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACT HEREOF.

(4) TO THE EXTENT ALLOWED BY APPLICABLE LAW, THE OBLIGATIONS OF KRAUSE SET FORTH HEREIN SHALL BE THE EXCLUSIVE REMEDIES FOR ANY BREACH OF WARRANTY HEREUNDER, AND, TO THE SAME EXTENT, KRAUSE SHALL NOT BE LIABLE FOR ANY GENERAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY DAMAGES FOR DIMINUTION OF MARKET VALUE, LOSS OF USE OR LOSS OF PROFITS, OR ANY DAMAGES TO THE PRODUCT CLAIMED BY BUYER OR ANY OTHER PERSON OR ENTITY UPON THE THEORIES OF NEGLIGENCE OR STRICT LIABILITY IN TORT.

(5) ANY ACTION BY BUYER FOR BREACH OF THIS WARRANTY BY EITHER KRAUSE OR SELLER MUST BE COMMENCED WITHIN (1) YEAR AFTER THE CAUSE OF ACTION ACCRUES.

Establishing Customer Warranty

Dealer's Obligation

1. It is the responsibility of the dealer to complete a **Delivery Report and Warranty Registration** form. The form should contain the model, serial number, delivery date, along with the complete dealer and customer address. This form must be signed by the dealer and customer upon physical delivery of the product to the customer. The dealer must complete the **pre-delivery check list** provided on the Delivery Report and Warranty Registration form.

2. Dealer will review the **Predelivery Check List** located in the front of the owner's manual with the customer and / or operator. This should be signed by the dealer at time of delivery to the retail customer.

3. The dealer will review the **Customer Review Sheet** located at the front of the owner's manual with the customer and / or operator. This should be signed by the dealer representative and the customer.

4. An authorized Krause dealer will submit **warranty claims** on behalf of the customer. All claims must be handled through the dealer. They will then be given to the Krause District Manager for inspection and approval. Warranty requests must be filed within 60 days from completion of the repair for consideration.

5. It is the dealer's responsibility to **service** the warranty on products sold through said dealership.

This warranty gives you specific rights, and you may also have other rights which vary from state to state.

Establishing Customer Warranty

Customer's Obligation

1. The customer is responsible for reading the operator's manual supplied with each serial numbered unit. The manual describes the safe and correct operating procedures of the specific product. The operator's manual will also instruct the user on recommended lubrication and maintenance of the product.

2. The customer will advise the dealer of the anticipated start date of the product so a dealer representative can be on hand to make necessary field adjustments.

3. The owner is also responsible for inspecting the product during and after use. If a part has failed or is in need of repair, it should be replaced. When continued use of the product would result in excessive wear of other components, the part should be replaced before operation is continued. Continued use of the product may void warranty on other parts damaged from this condition. The user must make the machine available to the dealer for a warranty repair.

4. It is the customer's responsibility to deliver his machine to an authorized Krause dealer for completion of a warranty repair. If the dealer agrees to make a service trip to the customer's residence, it is an agreement between the dealer and the customer. Krause will not allow warranty credit for the cost of travel, mileage, or hauling.

5. Warranty labor consideration will only be given during the first year of warranty. Any labor charge for the 2nd or 3rd year on the limited warranty will be at the customer's expense.

This warranty gives you specific rights, and you may also have other rights which vary from state to state.

7400 SERIES TANDEM DISC HARROW
DEALER PREDELIVERY CHECK SHEET

TO BE CHECKED BY DEALER

CUSTOMER_____ DATE_____

ADDRESS_____

DEALER_____

ADDRESS_____

MODEL_____ SERIAL NUMBER_____

DEALER CHECK:

1. ____Check to see that all rocker shaft bolts are tight and pins are in place.
2. ____Check to see that hydraulic cylinders are full of oil (air bled out of cylinders). Clevis pins with hair pin clips should be in place. Hydraulic system requires 22 Quarts / 23 Liters of oil for 18' & 21' Models; 26 Quarts / 25 Liters for 24' & 27' Models.
3. ____Examine hydraulic hoses to see that they are protected from damage.
4. ____Check to see that all wheel bearings have been adjusted and greased.
5. ____Check lug bolts holding wheels to the hub to see that they are torqued to 120 Ft. Lbs.
6. ____The correct size tires, 11L x 15, 8-Ply inflated to 44 PSI / 303 kPa pressure should be on the implement. 24' & 27' Models use 11L x 15, 10-Ply tires inflated to 44 PSI / 303 kPa on the center rocker only.
7. ____Check to see that pins attaching hitch to frame and clevis to hitch are in place and secured.
8. ____Jack should be operational for support of tongue when implement is not attached to a tractor.
9. ____Wings are attached with special pins and secured with slotted nut and cotter pin.
10. ____Wing and road lock are correctly installed and operate satisfactorily.
11. ____Restrictors are installed in wing lift cylinder rod end ports.
12. ____All decals are in place per page P36 of this owner's manual.
13. ____Safety Chain is in place.
14. ____Customer review sheet is filled out and signed.
15. ____Review lighting requirements. Light kits are standard.
16. ____Check to see that the Owner's Manual is in the storage canister on the implement.
17. ____Make sure that the SMV Sign is clean and in place.

DELIVERED BY_____

DATE_____

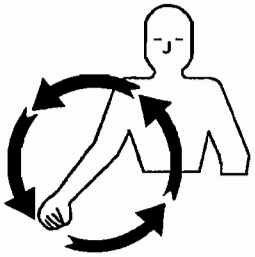
SAFETY ALERT SYMBOL

BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY.

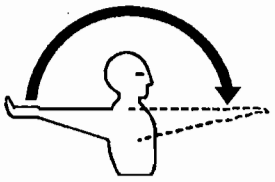
THIS SYMBOL IDENTIFIES IMPORTANT SAFETY MESSAGES.

CAREFULLY READ THE MESSAGE THAT FOLLOWS.

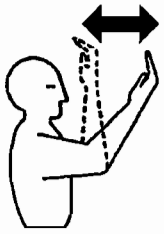
TEN MOST COMMON HAND SIGNALS USED IN THE FIELD



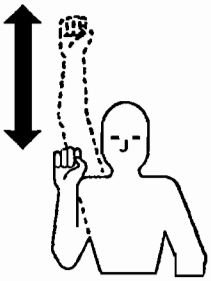
START THE ENGINE



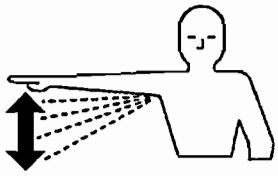
MOVE OUT OR TAKE OFF



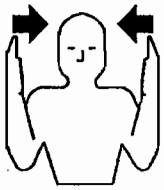
MOVE TOWARD ME



SPEED IT UP



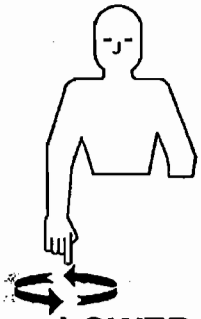
SLOW IT DOWN



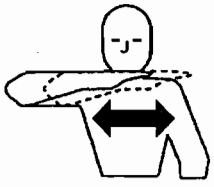
THIS FAR TO GO

STOP

RAISE THE EQUIPMENT



LOWER THE EQUIPMENT



STOP THE ENGINE

SAFETY FIRST

WATCH FOR THIS SYMBOL AND CAREFULLY READ THE MESSAGES.

1. **UNDERSTAND SIGNAL WORDS.** A signal word -- **DANGER**, **WARNING**, or **CAUTION** is used with the safety alert symbol. **DANGER** identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

2. Read and understand this owner's manual before operating the machine.
3. Be sure that the safety decals and reflectors are clean and in place.
4. Do not climb or walk on disc frame, or tires.
5. Never position yourself under any portion of the implement unless the cylinder lock is placed over the cylinder rod, or the entire unit is lowered to the ground.
6. Stop tractor engine and set parking brake before leaving operator's position to adjust, lubricate, clean or unclog the machine.
7. Do not stand between the implement and the tractor unless the tractor brakes are locked and the engine is shut off.
8. Do not stand on or straddle a tongue when unhitching.
9. Never operate unit until hydraulic cylinders and lines are full of oil and free of air. See operating instructions.
10. Use a Slow-Moving-Vehicle (SMV) emblem and proper lighting when transporting the disc harrow.
11. Always use a safety chain of tensile strength equal to the gross weight of the disc harrow plus any attachments when transporting.
12. Check wheel bolts before and during transport.
13. Always use road locks to hold disc harrow in the raised position.
14. Do not road an implement over 25 miles per hour on the best surface conditions. Reduce speed when going up or down hills and when approaching ditches or corners.
15. Check condition of hitch pins and bolts, tires and hubs, and safety chain before transporting.
16. Do not add excessive additional weight to the disc. Additional weight could cause frame or axle to fail resulting in loss of control of implement / tractor during transporting.
17. Serious injury can be inflicted by disc blades and disc gangs if not handled safely. Watch for unsafe conditions. Keep your co-worker's safety in mind.

OPERATING INSTRUCTIONS

READ ALL THE SAFETY DECALS ON THE IMPLEMENT AND REVIEW THE SAFETY FIRST SUGGESTIONS ON THE BACK OF THIS MANUAL TO REFRESH YOUR MEMORY. WATCH FOR THE SAFETY SYMBOL, AND READ THE INFORMATION THAT FOLLOWS. THIS IS FOR YOUR OWN PROTECTION.

ABOUT YOUR TANDEM DISC

This tandem disc was designed for medium primary to finish work and can be pulled over a wide range of field speeds ranging from 3.5 to 6 m.p.h., with maximum working depth under normal conditions of 5 inches. Do not exceed 5 m.p.h. in rocky conditions.

Horsepower requirements generally will be 6 HP per foot of cut in average soil conditions. See your Krause dealer about a "DISC HARROW SELECTION GUIDE" for additional information.

It is advised adding of attachments be limited to Krause original equipment options, or light duty tine or spike harrows that weigh no more than 25 pounds per foot of cut.

Caution: Adding of excess additional weight could cause frame or axle failures resulting in loss of control during transport.

PREPARING THE TANDEM DISC FOR OPERATION

Caution: Lower implement to the ground before making the following inspections. With implement lowered, enter the framework by stepping over. Do not crawl under framework. If implement is not lowered, any hydraulic failure could cause the unit to drop suddenly, causing personal injury.

1. Inspect for any loose bolts.
2. Check disc gangs for tight tie rod nuts and clinched cotter pins.
3. Look at the top of each bearing arm and check to see if it is flush with the bottom of the frames. See page O11 'DISC GANGS'.
4. Check tire pressure. Inflate 11L x 15 tires to 44 PSI. DO NOT INFLATE TIRES ABOVE THE RECOMMENDED PRESSURE.

   Caution: Frequently check to see that the wheel lug bolts are torqued to 120 Ft. Lbs., particularly during the initial transporting and operation of the tillage tool. The bolts may work loose, resulting in the loss of a wheel and subsequent loss of control of the tool and/or tractor.

5. Make sure that all grease zerk locations have been sufficiently greased. Grease zerks will be found on rocker shaft pivots, regreaseable disc gang bearings, adjustment screws, and wheel hubs. USE EXTREME CAUTION WHEN WORKING AROUND SHARP DISC BLADES.

PREPARING THE TRACTOR

Read your tractor owner's manual. It will describe safe methods of operation. Make sure your tractor has proper added ballast, and that its hydraulic system is full of oil and working properly. Check tractor brakes and warning lights, make sure they are in working order.

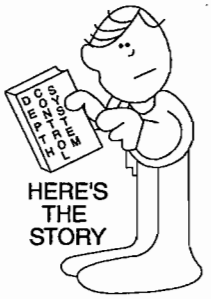
HYDRAULIC SYSTEM

Inspect the hydraulic system for tell-tale leaks and loose fittings. Tighten if needed. If you are plumbing the implement with JIC / O-Ring fittings it is not necessary to use a tape type or liquid sealer. MAKE SURE THE RESTRICTORS ARE IN THE ROD END PORTS OF THE WING LIFT CYLINDERS. If not previously filled, 18' & 21' Models will require 23 Quarts / 22 Liters of your tractor manufacturer's recommended oil; 24' & 27' Models will require 26 Quarts / 25 Liters. Read the Service Section "HYDRAULICS" on page O12 before filling the system.

Caution: Air in hydraulic system could allow disc harrow or wings to drop suddenly.

Do not operate the wing hydraulics until you have read wing lift and lock operating instructions under "Transporting".

UNDERSTANDING YOUR HYDRAULIC DEPTH CONTROL SYSTEM



The 7400 Series Disc Harrow uses a master and slave system of depth control cylinders.

As oil is pumped into the base of the master cylinder, oil is forced out of the rod end and into the base end of its slave cylinder. In turn, this forces oil out of the slave cylinder which then returns to the tractor hydraulic reservoir.

Since there is a smaller volume of oil which passes from the rod end of the master cylinder to the base end of the each slave cylinder, the cylinders must be progressively smaller in diameter. In this system the master cylinder is 4" in diameter; the wing slave is 3-3/4" in diameter. All of the cylinders in this system have a 10" stroke length.

When the disc is raised completely out of the ground, these specially designed cylinders are synchronized for uniform lifting by holding the tractor remote hydraulic control level in the raise position for a few seconds. This allows a small volume of oil to bypass from the base of the master cylinder to the base end of the slave cylinder, and back to the tractor. Consequently, all of the cylinders are fully extended simultaneously. To maintain a precise working depth, it may be necessary to synchronize the slave cylinders once or twice during each hour of use. This can be easily done when the unit is being raised to make a turn.

When working with this kind of arrangement, be sure all of the cylinders are mounted in proper sequence. Hoses must be attached in the proper order, and all air bled from the hoses and the cylinders.

REPAIR OF HYDRAULIC CYLINDERS SHOULD BE MADE BY AN AUTHORIZED KRAUSE DEALER ONLY.

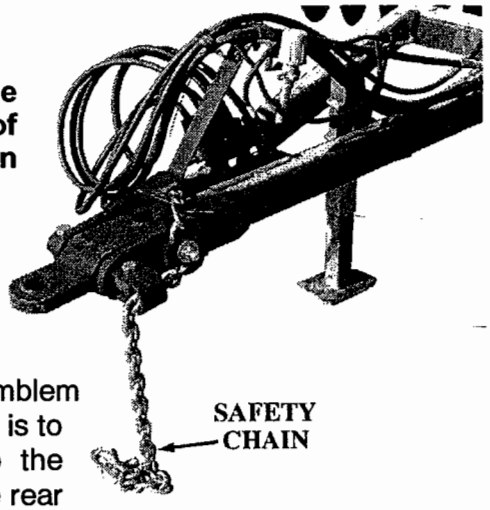
HYDRAULIC HOSE AND CYLINDER DRAWINGS CAN FOUND ON PAGES P26 THROUGH P29 OF THE PARTS SECTION IN THIS MANUAL.

HITCHING & UNHITCHING

Danger: Do not allow any person to stand between the tractor and implement while backing into position. Sudden loss of control could cause serious injury or death to a person caught between the tractor and implement. Tell your helper to wait until you give him the signal that the tractor is in park or neutral and the hand brake is set and engine is shut off.

Note: Hydraulic hose grips are color coded as shown below:	
Black / Black .... Lower Unit	**Red / Black ..... Raise Unit**
Yellow / Yellow .. Lower Wings	**Red / Yellow .... Raise Wings**
Blue / Blue ..... Lower Rear Gangs	**Red / Blue ..... Raise Rear Gangs**

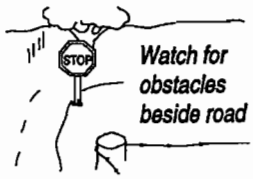
Transport Safety



Warning: Always use a safety chain with tensile strength equal to the gross weight of the unit, plus any attachments, when transporting.

Note: A safety chain, SMV emblem, and a light kit were furnished as standard equipment with your implement. Make sure they are in place, clean and in working order.

Be sure to insert the ASAE Slow Moving Vehicle (SMV) emblem into the bracket provided before transporting. The emblem is to mounted point up in a plane that is perpendicular to the direction of travel ± 10 °. It shall be placed centrally at the rear of the vehicle, unobscured, and 2' to 6' (0.61 to 1.8m) above the ground, measured from the lower edge of the emblem. The SMV emblem should be wiped clean before entering the road or highways.



Comply with state and local laws pertaining to lighting and road widths. Turn on flashing lights whenever traveling on a highway except where it is prohibited by law. If the implement obscures the tractor warning lamp, a lamp must be added to the left of the implement. Transport during daylight hours only. Watch your clearance. Be aware of obstacles along the side of the roadway that might be caught by the disc harrow when passing by. Pull over to the side of the road to permit safe clearance for oncoming traffic. Keep the red and yellow reflectors clean and visible. Replace the reflectors if they become faded or damaged. Watch for pedestrians on the side of the road that need to be warned of your presence.

Danger: Always check conditions of transport lock valve, tires, wheels, hubs, safety chain, hitch bolts, and clevis pin before transporting the implement.

Check specification page and be aware of the transport height and width of your model of tandem disc harrow.

Danger: Do not exceed 25 m.p.h. in transport on best surface. Exceeding this speed can result in failure in wheel hubs or spindles and loss of control of implement and/ or tractor. Do not tow this implement if its weight exceeds 1-1/2 times the weight of the towing unit. Pin tractor drawbar to prevent side sway during transport.

FIELD ADJUSTMENTS

THERE ARE (3) IMPORTANT RULES TO FOLLOW FOR PROPER FIELD ADJUSTMENT:

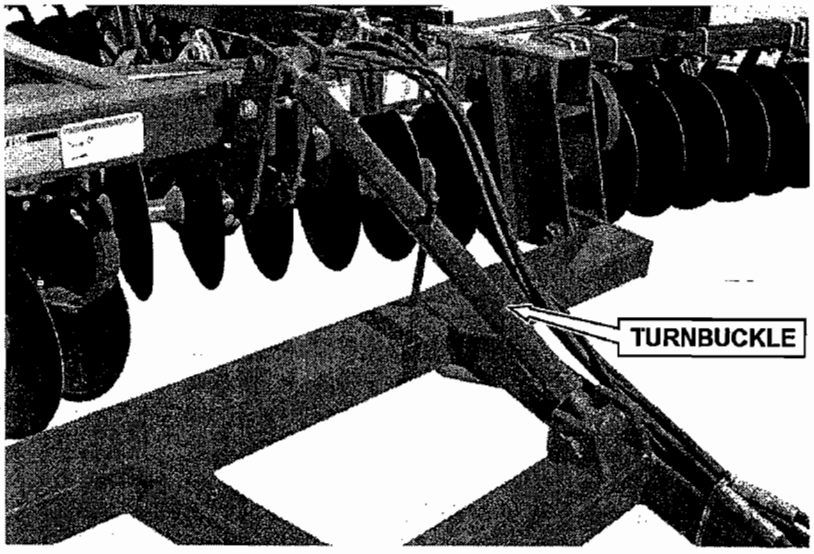
1. LEVEL THE IMPLEMENT FROM FRONT TO REAR.
2. LEVEL THE IMPLEMENT FROM SIDE TO SIDE.
3. SET THE HYDRAULIC STOP ON THE CYLINDER, AND CARRY SOME OF THE WEIGHT OF THE IMPLEMENT ON THE WHEELS.

A level harrow in the working position will give the most uniform penetration and field leveling possible. Leveling the harrow for the first time should be performed on as level of a surface as is possible. Hitch the tractor to the clevis and lower the wings and extend the wing lift cylinders to the maximum stroke.

Front to Rear Leveling

With the implement close to the ground, turn the turnbuckle until the frame is level front to rear.

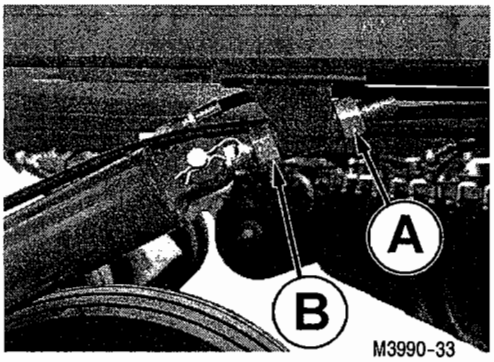
NOTE: Turn clockwise to lower the front, and counter-clockwise to raise the front. This is an average position and should be readjusted at field depth. The angle of the front frame members can give the illusion that the front gangs are running deeper than the back. When checking the front to rear leveling in the field, always stand well away from the unit and view the frames from frame height.



M3990-33

Hydraulic Leveling

Extend or retract the cylinder to move it to the middle of it's adjustment range. Level the implement front-to-rear as shown above. During field operation the cylinder is activated to lower the rear gangs and fill a furrow or raise the rear gangs to eliminate a ridge. If the hydraulic leveling is constantly in an extreme position, readjust the turnbuckle.



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Side to Side Leveling

If the wing is too high, loosen NUT A, and thread down NUT B (to retract the eyebolt) until the wing is level with the center section, and then re-tighten NUT A. (See photograph to the left.)

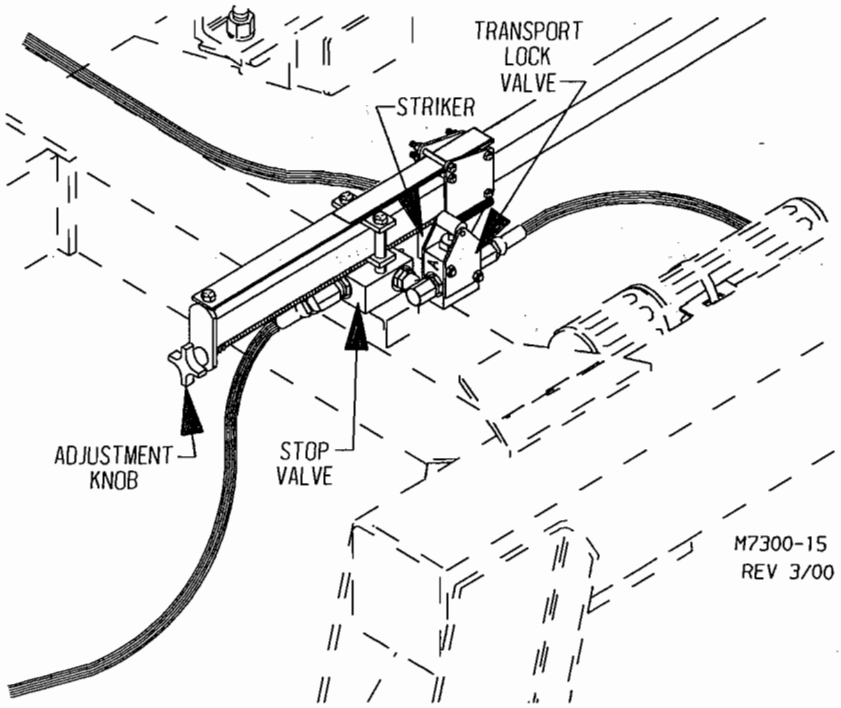
NOTE: If NUT B is difficult to turn, use the fold cylinders to raise the wings slightly.

Reverse this procedure if the wing is too low.

Hydraulic Depth Control Adjustment

The STOP VALVE controls the unit depth. when a depth change is required, turn the knob to move the striker closer to the valve to decrease depth or further away from the valve to increase depth. Moving the striker by 3/8" will effect actual depth by 1"

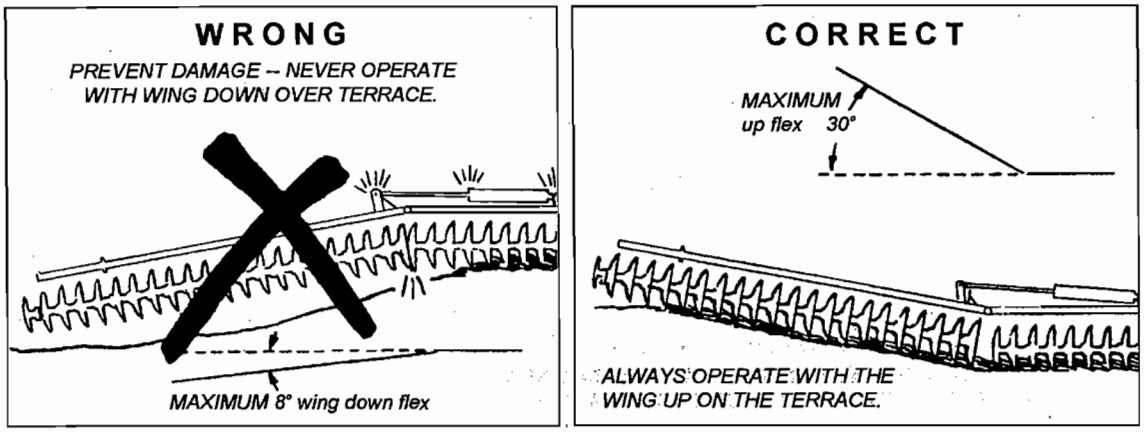
If the unit depth varies during field operation, see the "Problem Solving" section in this manual.



Flexibility

ALWAYS WORK WITH WINGS DOWN: Major damage may occur to disc blades if used with the wings up. For maximum flexibility, make sure the wing hydraulic cylinders are fully extended after the wing is down.

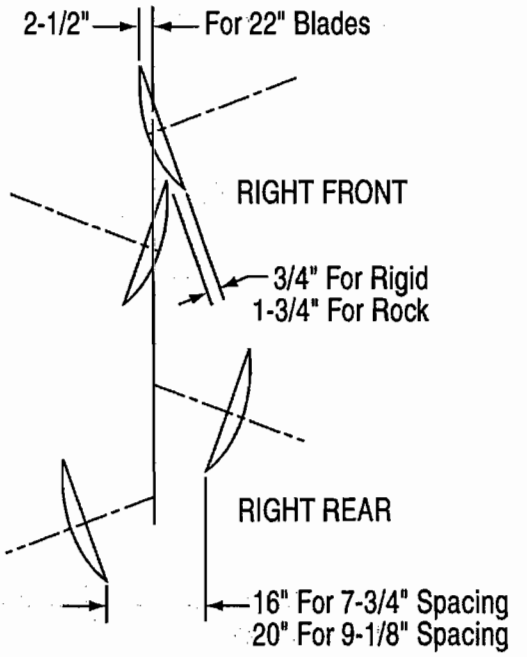
When working terraced ground, place the wing up on the terrace, not down over the terrace, as the wings are limited in their downward movement, but not in the upward movement.



Disc Gang Spacing

The FRONT gangs are overlapping in the center and should be adjusted as shown at the right.

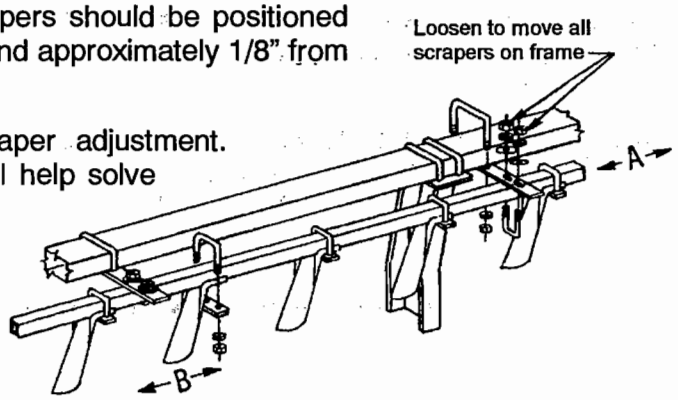
BACK gang spacing should be 16" to 20" apart. Field conditions, blade size, and speed will affect this setting. Move gangs out to eliminate a ridge or move in to eliminate a furrow.



Rigid Scraper Adjustments

1. Scrapers can be adjusted by moving the entire assembly "A" from side to side at the bracket location.
2. Also, each scraper blade "B" can be adjusted individually along its mounting frame.

When scrapers are required, adjust blades so that the scraping edge of each scraper blade is flush against the disc blade, but not tight enough to prevent the gang from revolving freely. When scrapers are not required, adjust the scraper frame to move scraper blades away from disc blades. Under most conditions, scrapers should be positioned approximately 2" in from the cutting edge and approximately 1/8" from the surface of the disc blades.



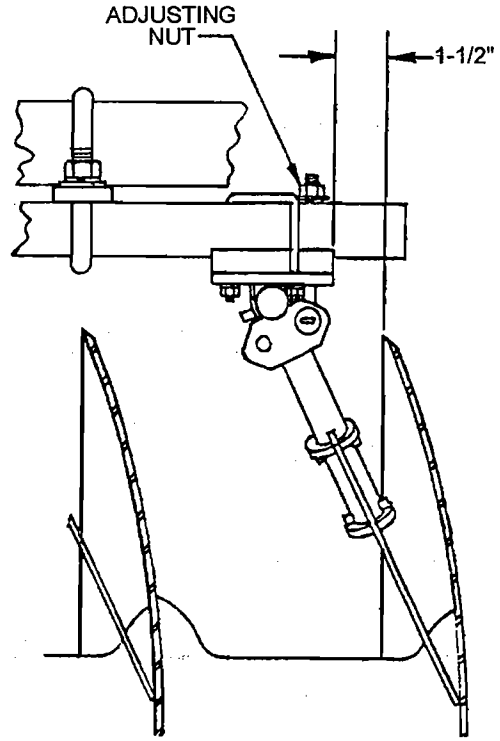
Each field requires some individual scraper adjustment. Moving scrapers one way or the other will help solve your individual scraper problems. The removal of the scraper blade at a bearing arm location may be necessary in some conditions. Frequent examination will prevent damage to scraper assemblies and spacer spools.

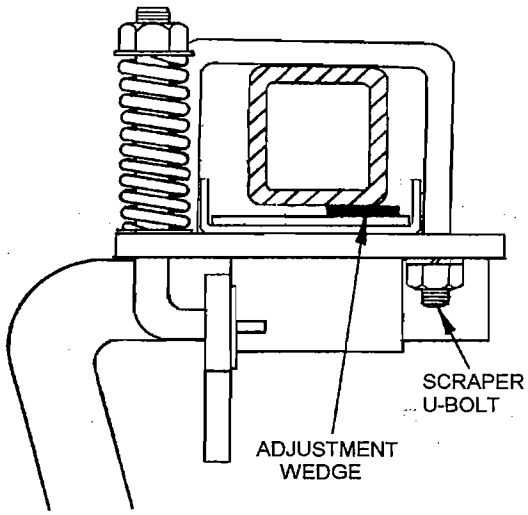
Some wet or heavy trash conditions may require use of chain trash guard option, Part Number 1582-146-0.

Spring Loaded Scraper Adjustments

Spring loaded scrapers can be adjusted towards or away from the disc blades by moving the entire assembly or moving individual scrapers, similar to the rigid scraper adjustments. Spring scrapers are in correct position when the scraper mounting plate is 1-1/2" from the edge of the disc blade as shown in the illustration below. In most conditions, the edge of the scraper blade should be approximately 3/4" in from the outside cutting edge of the disc blade. Use the following procedure to adjust the scraper blade force against the disc blade.

1. Loosen the adjusting nut until scraper blade starts to move away from the disc blade.
2. Retighten the adjusting nut until the scraping edge of the blade is just contacting the disc blade. (At this point there should not be any force against the disc blade.
3. Tighten the adjusting nut one complete revolution for each 5 lbs. of scraper force desired against the disc. The initial setting should be approximately 15 lbs. or three complete revolutions.
4. In moderate conditions, a smaller scraper force may be desired and in tough conditions a larger force may be required. The scraper setting should fall between a 10 lb. minimum and a 30 lb. maximum setting.





There is an adjustment wedge used to mount the spring scraper next to the extension trash bar loop on the rear outer disc blades. This scraper can be tilted towards the spool by tightening and loosening the nuts on the scraper U-Bolt. This scraper should be adjusted so that the scraper does not hang over the outside of the taper disc blades.

FIELD OPERATION

Working Depth

The depth of your disc harrow is controlled by the remote cylinder control lever(s) of the tractor. The wheels will act as gauge wheels to regulate working depth. Your disc harrow will not work uniformly , unless some weight of the unit is carried on the wheels. Speed will affect working depth. Do not expect maximum depth at high field speeds. Other factors affecting working depth are moisture conditions, amount of trash on surface, polish of disc blades, blade spacing and blade sharpness.

Remember to reduce speeds when working in extremely rocky conditions. Field speeds should not exceed 5 m.p.h. You will get better penetration and less blade breakage at lower speeds.

Turning In The Field

Short turns at working depth may result in driving the front blades deeper in the ground, causing damage to disc blades or bearings. If short turns must be executed, raise the disc harrow out of the ground and complete the turn before engaging the tool for further tilling.

When lifting the disc harrow completely out of the ground, hold the tractor hydraulic valve open for a second or two to resynchronize the slave cylinders.

IMPORTANT: ***4-WHEEL DRIVE TRACTORS CAN CAUSE SEVERE SIDE STRAIN ON TONGUE AND CLEVIS UNLESS THE DRAWBAR IS ALLOWED SOME MOVEMENT. ALWAYS ALLOW DRAWBAR MOVEMENT DURING FIELD OPERATION FOR STEERING CORRECTIONS. DRAWBAR MUST BE PINNED BEFORE TRANSPORTING.***

General Information

Different soil types require different blade sizes, thickness, and spacing.

As a general rule, heavy wet soils require wider spacing. For a finer seed bed preparation, narrow spacing should be used.

Six gauge or 1/4" thick blades should be used in severe conditions.

⚠ **Caution: Never add weight to the implement to gain added penetration. Overloading of tires and axles may cause damage to the disc harrow.**

STORAGE SUGGESTIONS

Wings should ***not*** be stored in raised position. Make sure transport locks are closed. Coat disc blades and hydraulic cylinder shafts with rust preventative during extended periods of storage. Cylinder rod ends may be unpinned and the cylinders retracted to protect the polished surface of cylinder rods. **FOR ADDED SAFETY:** lower unit to the ground during long periods of storage. Inspect the unit for worn or damaged parts and replace as needed to avoid delays the next season.

SERVICING

General Maintenance

All nuts should be checked and tightened during and after the first 1/2 day of operation, and periodically thereafter. Check disc gang tie rods frequently and keep tight at all times. Torque tie rods to 1,200 Ft. Lbs. Torque all wheel bolts from to 120 foot pounds.

The Krause Disc is a ruggedly designed implement which will perform efficiently if properly adjusted and maintained. Keep blades sharp.

Lubrication

Regreaseable gang bearings should be greased after each 48 hours of use in normal conditions, every 24 hours of use in extreme conditions, and before long periods of storage. Grease the bearings until grease passes by the seals. This will lubricate and flush the seals. Rocker shaft pivots, wing hinges, and tongue adjustment screws should be lubricated with multi-purpose type grease after each 48 hours of use.

⚠ **Caution: For your safety, lower wings and implement to the ground and enter framework by stepping over. When lubricating or making adjustments on your disc harrow, watch for obstructions and protrusions.**

Wheel Bearings

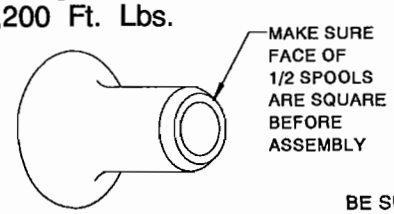
Grease wheel bearings every 24 hours of use. Check for excessive end play each time bearings are greased. Once a year, clean and repack wheel bearings with EP#2 Grease. Replace seals each time bearings are removed. Replace any worn or damaged parts. After repacking, replace hub with seal and rear bearing already assembled. Use light oil on seal surface and use extreme care when pushing seal over the spindle. Install outer bearing, flat washer, and slotted nut. Tighten nut while turning hub until there is resistance to rotation. Then back off nut from 1 to 2 slots until hub turns freely without end play. Secure nut with clinched cotter pin.

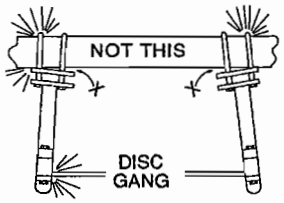
Walking Beams

Grease the walking beam bearing every 24 hours of use. When greasing the bearings, lower the unit onto the disc blades and raise the walking beams off the ground. Check each walking beam for any slack in the pivot bearings. When the slack is found, tighten the axle nut until slack is eliminated and tighten 5 to 10 ft. lbs. of preload on the bearings. DO NOT BACK THE AXLE NUT OFF. Check, clean, and repack the walking beam bearings each year in a procedure that is similar to that of the wheel bearings.

Disc Gangs

Refer to Placement Pages of this book when replacing disc blades, bearings or spools. Leave bearing bolts one turn loose until bearing arms are in place on the frame. Tighten tie rod to 1,200 Ft. Lbs. Tighten one bearing arm to the frame then tighten its bearing bolts. Make sure the other bearing arm top plate is parallel with the bottom of the frame before tightening its U-Bolts. Tighten other bearing bolts.





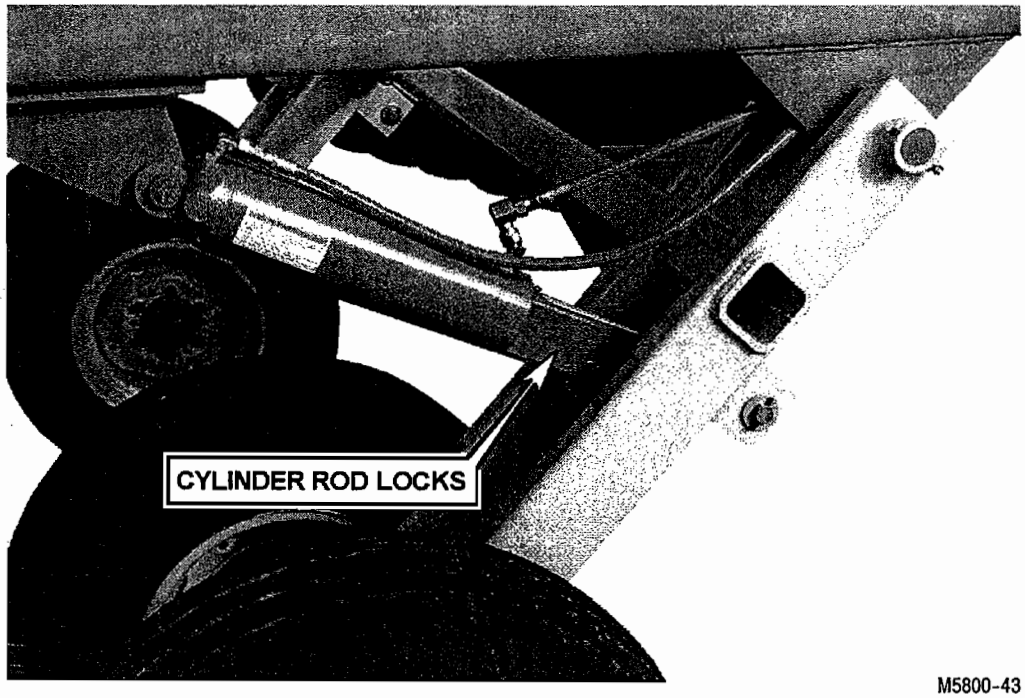
BE SURE THE BEARING ARM FITS FLAT AGAINST THE GANG BEFORE TIGHTENING THE U-BOLTS.

Danger: Due to their sharpness and weight, serious injury can be inflicted by disc blades and disc gangs if not handled safely. Watch for unsafe conditions. Keep your co-workers safety in mind. Should personal injury occur, have medical treatment administered immediately.

Cylinder rod locks have been provided for use when performing maintenance operations.

Extend the cylinders and fasten the channel shaped locks onto both cylinder rods (see photo below). This will prevent accidental lowering of implement during maintenance procedures.

IMPORTANT: ROCKER DAMAGE CAN OCCUR IF ONE LOCK IS ON THE CYLINDER ROD AND THE OTHER CYLINDER ROD LOCK IS OFF. USE *BOTH* LOCKS!



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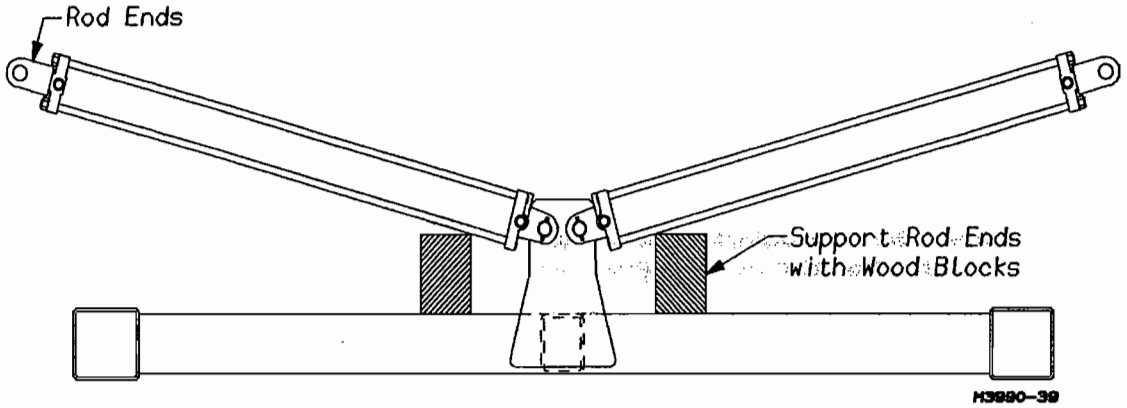
HYDRAULIC SAFETY (Please read carefully)

If the implement hydraulic system has never been used, stored over a period of time or disassembled for any reason, unpin the rod ends of the cylinders and support the cylinders so the rod ends will clear frame members when fully extended. Back the tractor to the front of the implement and connect the hydraulic hoses. Check the tractor hydraulic reservoir and make sure it is full of the manufacturer's recommended oil. If you are sure the implement hydraulic hose connections are tight, begin filling the system by extending and retracting the cylinders. Hold the control lever open and pause at the end of each stroke to bleed the air from the system. Continue the cycles until the cylinders respond with immediate solid actuation. When you are sure the systems are free of air, pin the rod ends of the cylinders to the implement cylinder lugs.



Warning: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

Avoid Heating Near Pressurized Fluid Lines

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.

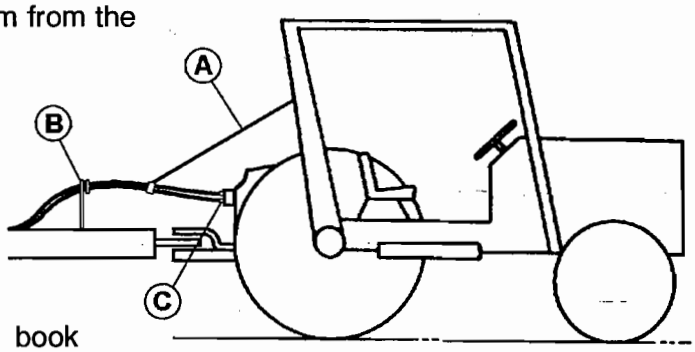
THE FOLLOWING WARNINGS PERTAIN TO THE MORE COMMON ABUSES OF HYDRAULIC HOSE:

1. **INSPECT** the hose assembly before each use.
2. **REPLACE** the hose assembly immediately if:
   a) The jacket of the hose appears abnormal
   b) You have reason to believe it may be abnormal
   c) There is any fluid leakage.
   d) The couplings are damaged.
   e) The hose is damaged or kinked.
   f) The reinforcement is visible through the jacket.
5. DO NOT **EXCEED** the maximum recommended working pressure of hose.
6. DO NOT **KINK** the hose assembly.
7. DO NOT **BEND** the hose assembly beyond its minimum bend radius of 3.25
8. DO NOT **EXPOSE** to temperatures in excess of 225° Fahrenheit
9. DO NOT USE AS A **STRENGTH MEMBER** for pulling or lifting equipment.

Caution: If replacing hydraulic hose, use only hose that meets of exceeds 3,000 PSI working pressure.

IMPORTANT: REPAIR OF HYDRAULIC CYLINDERS SHOULD BE MADE BY AN AUTHORIZED KRAUSE DEALER.

Prevent damage to trail hoses by supporting them from the tractor with an elastic strap "A" . Avoid having excess hose between the implement support "B" and the tractor connection "C" . Either reposition the hose farther back on the implement or request a shorter hose from your dealer.



Repair Parts

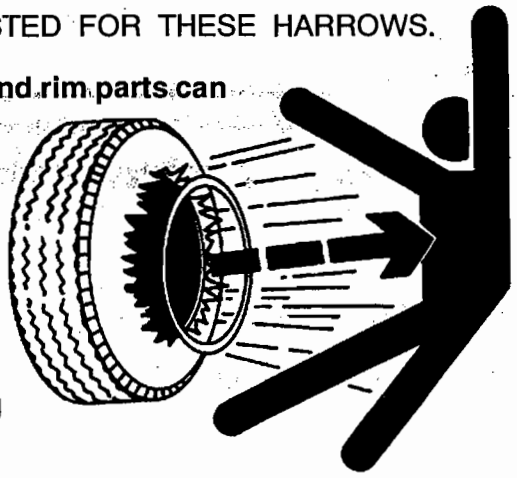
Refer to the Assembly Section of this book when repairing or replacing parts, and follow the same procedure as used when assembly a new unit. Reverse this procedure for disassembly. The Parts Section of this manual will show a breakdown of assemblies, location of parts, and part numbers.

It is recommended that KRAUSE replacement parts be used.

KRAUSE PARTS WERE DEVELOPED AND TESTED FOR THESE HARROWS.

Caution: **Explosive separation of a tire and rim parts can cause serious injury or death.**

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Inspect tires and wheels daily. Do not operate with low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



SUGGESTED REMEDIES FOR HYDRAULIC PROBLEMS

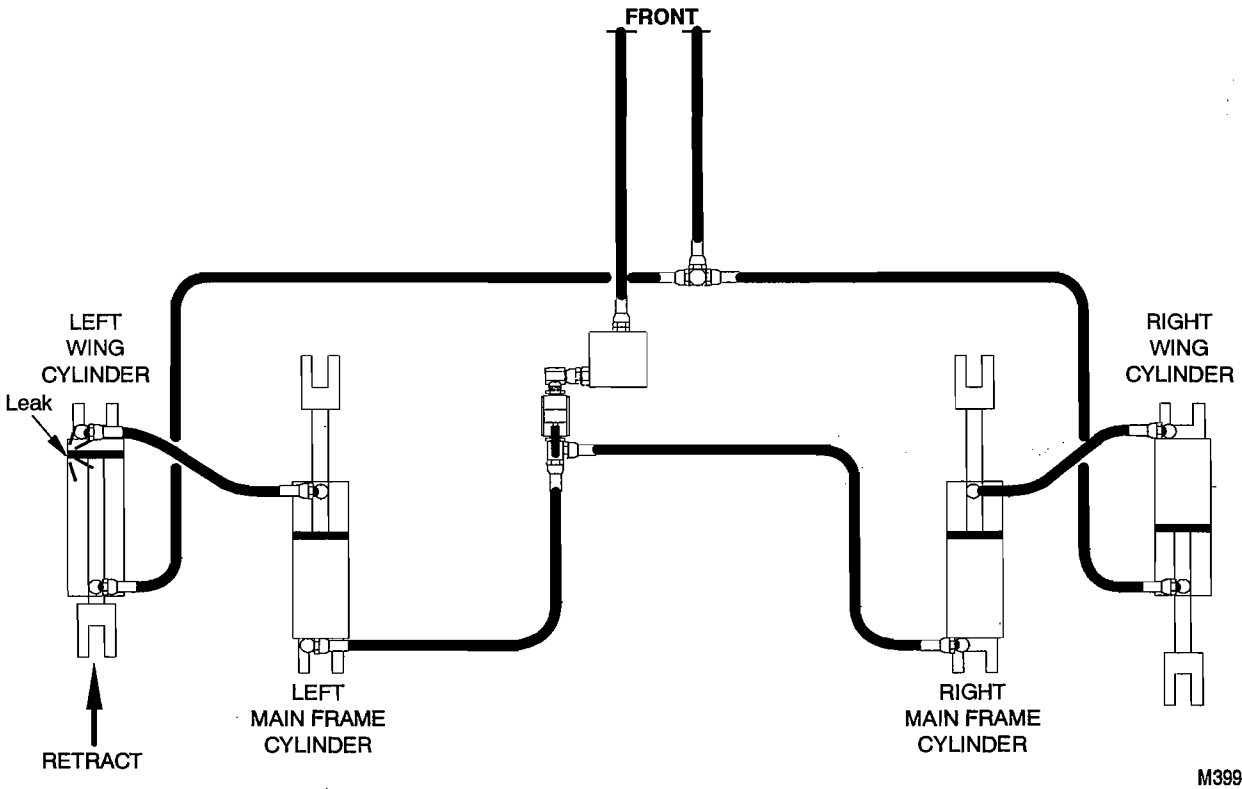
PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Disc raises and lowers slowly	Restrictor fitting in rocker shaft cylinder	Check for restrictor ell and replace with standard fitting. NOTE: All wing lift cylinder ports should have restrictor ells.
Rocker cylinders are settling after rephasing	Rephasing groove in cylinder	It is normal for a rephasing cylinder to settle approximately 3/8" until the piston is part the rephasing groove.
All rocker cylinders settling at mid-stroke	Tractor valve leaking	Repair tractor valve
Cylinder has spongy or erratic movement	Air in the hydraulic system	Purge the system of air as described on page O3.
Cylinder retracting or extending out of sequence	Leaking seal	Check for external leaks
		Locate internal piston leak as described on the following pages
	Air in hydraulic system	Purge air from system. See page O3.
	Scarred cylinder wall	Locate internal leak as described on the following pages.
IMPORTANT: REPAIR OF HYDRAULIC CYLINDERS SHOULD BE MADE BY AN AUTHORIZED KRAUSE DEALER.		

TEST PROCEDURE TO LOCATE INTERNAL LEAKING CYLINDER IN A REPHASING SYSTEM

1. Raise the unit until the disc blades are 4" to 5" above the ground, but do not fully extend the cylinder.
2. Measure the length of the four rocker cylinders and record those lengths.
3. Allow the unit to sit for a period of time until there is a measurable change in one of the cylinder lengths. This may require an hour or two (preferably overnight).
4. Measure the length of each cylinder again and note whether or not the cylinder extended or retracted.
5. Match your results to one of the five case studies shown on the following pages to locate the leaking cylinder.

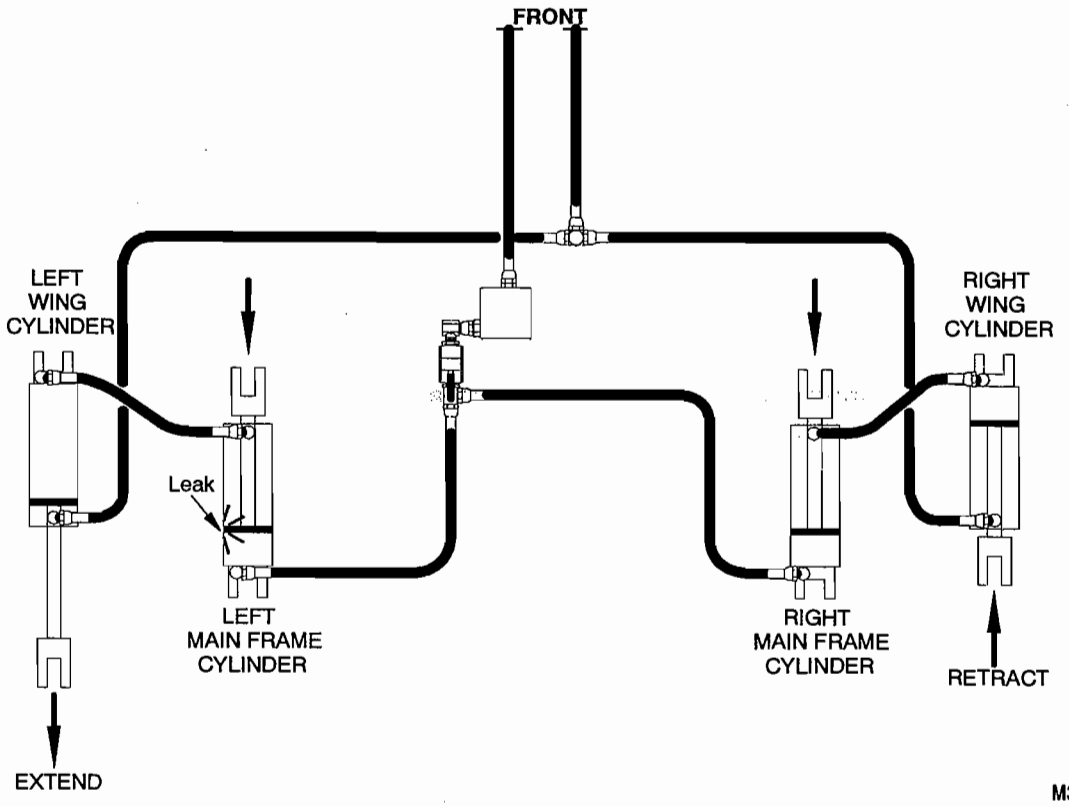
CASE 1:

Symptom:	Left wing lowering as the disc is pulled in the field
Probable Cause:	Left wing cylinder piston seal leak
Test Result:	(See page O14) Left wing cylinder retracts, all other cylinders do not change
Leak Location:	Left Wing Rocker Cylinder



CASE 2:

Symptom:	Left wing raising as the disc is pulled in the field
Probable Cause:	Left main frame cylinder piston seal leak
Test Result:	(See page O14) Left wing cylinder extends, all other cylinders retract
Leak Location:	Left Main Frame Rocker Cylinder



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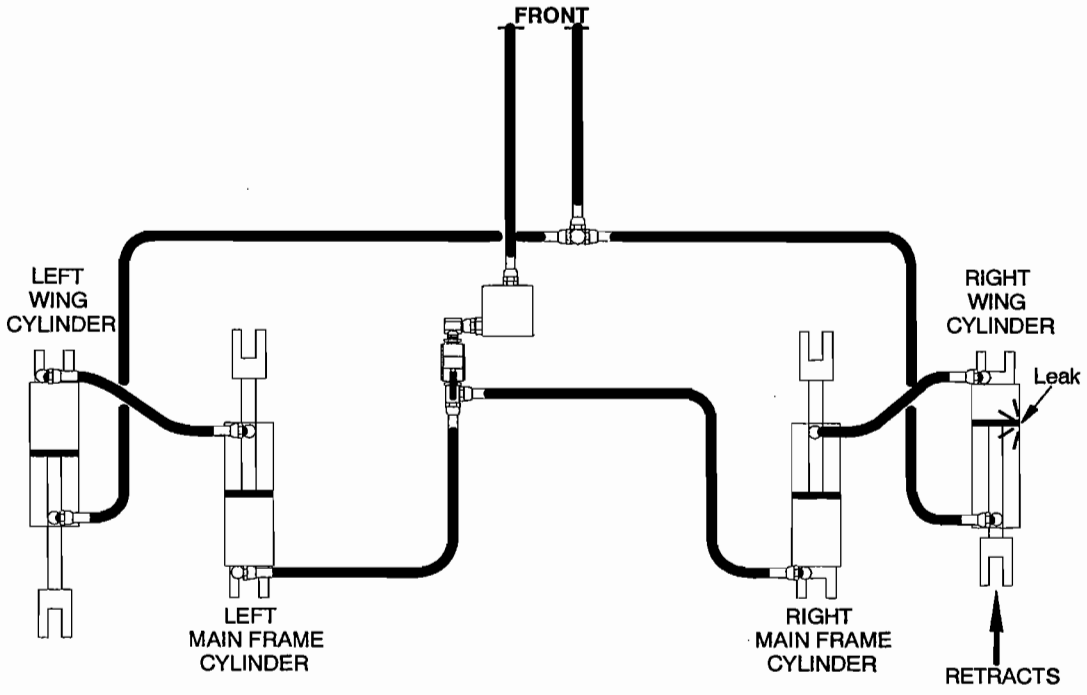
CASE 3:

Symptom:	Right wing lowering as the disc is pulled in field
Probable Cause:	Right wing cylinder piston seal leak
Test Result:	(See page O14) Wing cylinder retracts, all other cylinders do not change
Leak Location:	Right Wing Rocker Cylinder



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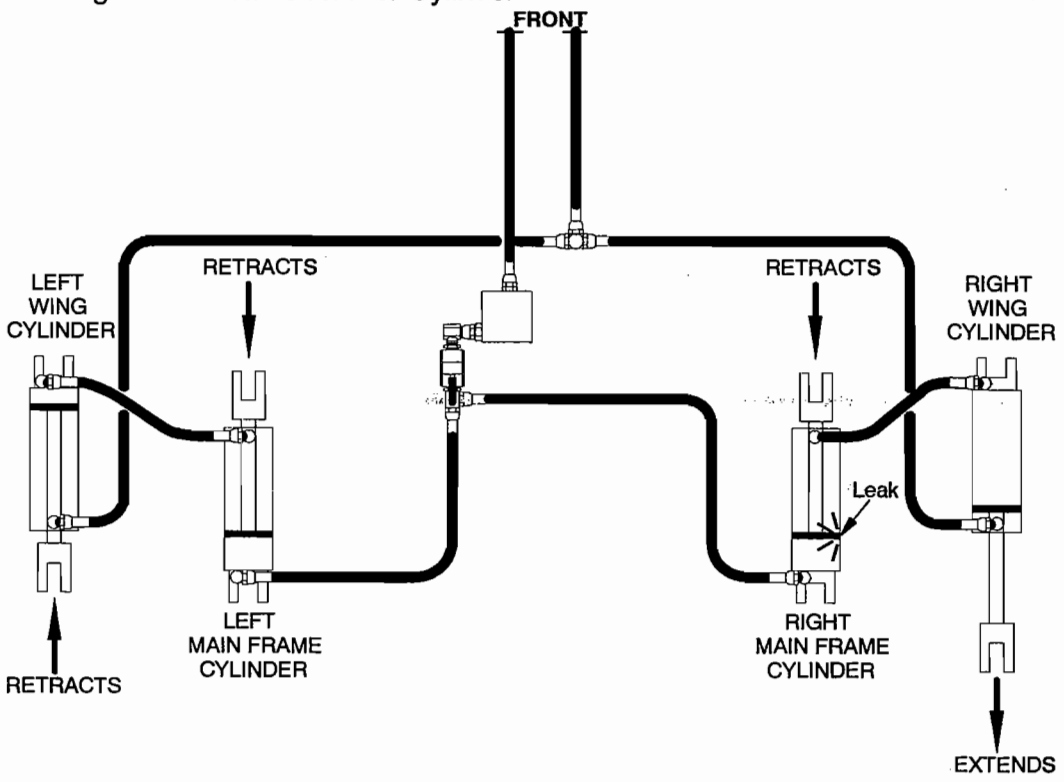
CASE 4:

Symptom: Right wing raising as the disc is pulled in field
Probable Cause: Right main frame cylinder piston seal leak
Test Result: (See page O14) Right wing cylinder extends, all other cylinders retract
Leak Location: Right Main Frame Rocker Cylinder



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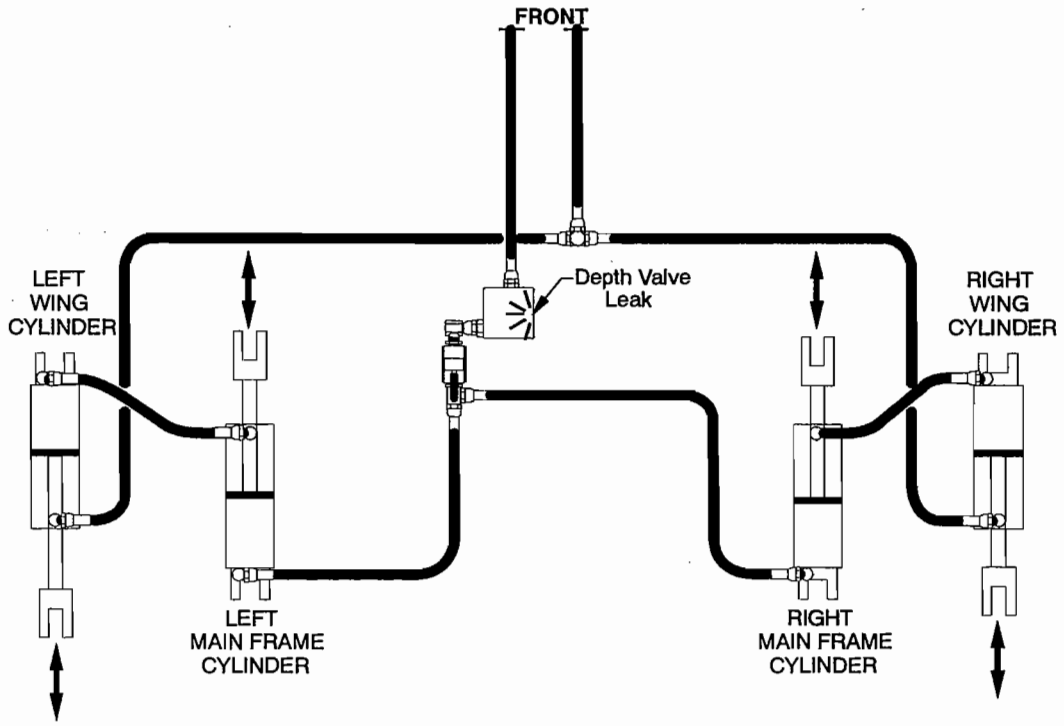
CASE 5:

Symptom: Entire disc will not maintain set depth
Probable Cause: Depth Valve Leak
Test Result: (See page O14) All cylinders are retractor or extending at the same time
Leak Location: If all cylinders are extending at the same rate, the tractor valve is leaking. IF all cylinders are retracting at the same rate, the leak could be in the stroke control valve or the tractor valve.



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SUGGESTED REMEDIES FOR POSSIBLE FIELD PROBLEMS

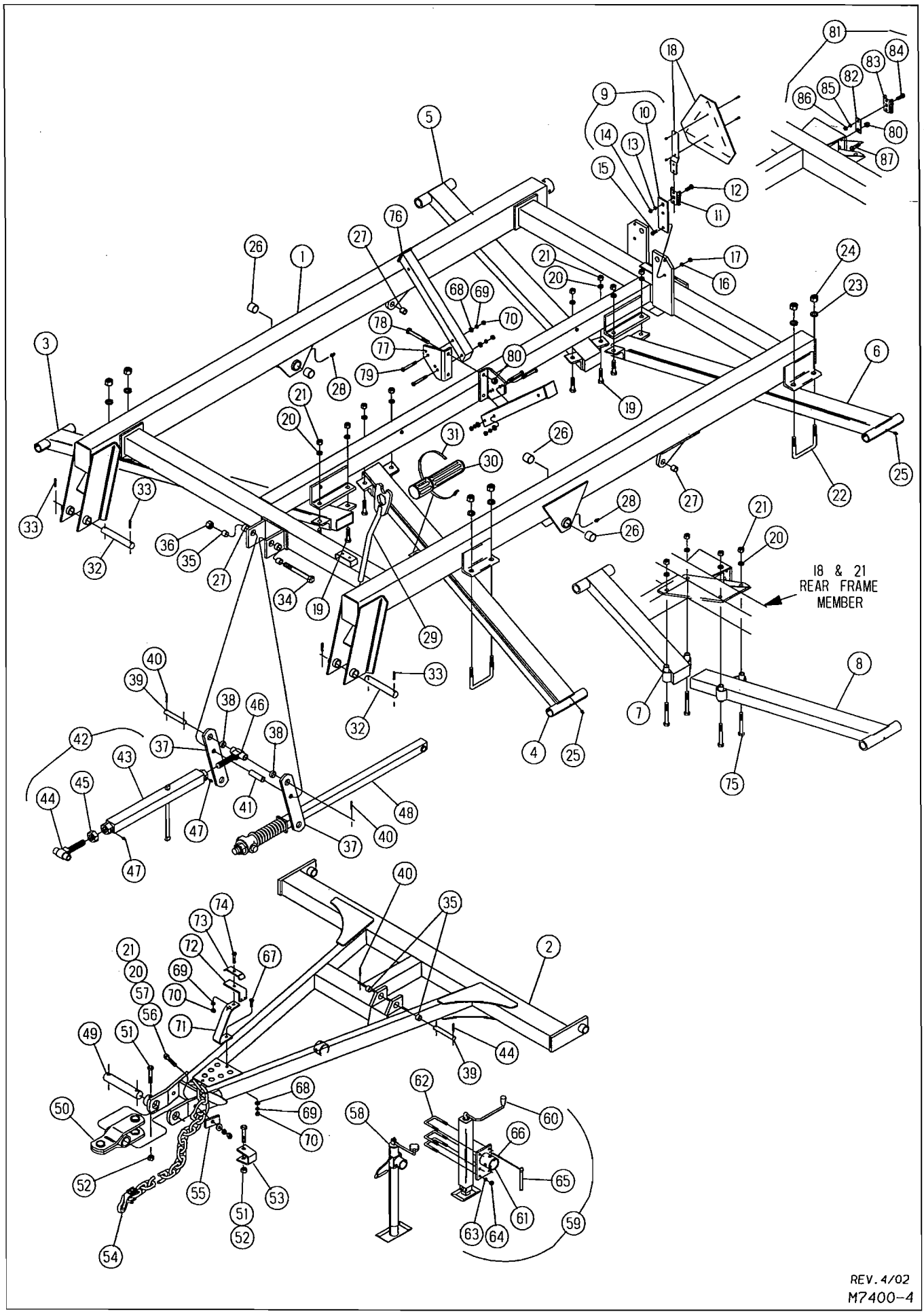
PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Leaving center ridge	Excessive speed	Reduce speed
	Rear gangs cutting too deep	Shorten turnbuckle on tongue
	Rear discs are set too close together	Readjust distance between inside disc blades
		Reduce size of inside rear disc blades
Leaving center furrow	Discing too slowly	Increase speed, not to exceed 6 m.p.h., 5 m.p.h. in rocky conditions
	Rear gang not cutting deep enough	Lengthen turnbuckle on tongue
	Rear blades too far apart	Readjust distance between disc blades
Leaving untilled center strip	Discing too shallow	Increase depth
	Front center gangs too far apart	Move front center gangs in
	Front center gangs overlapped too much	Move front center gangs out
Leaving furrow on outside	Rear running too deep	Readjust turnbuckle on tongue
	Extension disc blade incorrect size	Decrease size of extension disc blade
Leaving ridge on outside	Front running too deep	Adjust turnbuckle on tongue
	Not enough overlap	Move tractor toward plowed ground
	Wing section running too deep	Adjust wing rocker shaft leveling screw
	Excessive speed	Reduce speed
Center section not level from side to side	Incorrect air pressure in tires	Inflate 11L x 15 tires to 44 P.S.I.
Wing not level from side to side	Wing too high	To lower wing, shorten wing adjustment screw
	Wing too low	To raise wing, lengthen wing adjustment screw
	Wing lift cylinder not fully extended	Extend cylinder to maximum length and hold open briefly
	Slave cylinders out of phase	Raise unit out of ground and hold control lever open until all cylinder are completely extended

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Disc not level front to rear during field operation	Tongue turnbuckle	Lengthen turnbuckle to raise front; Shorten turnbuckle to lower front
Gangs plugging	Extremely wet conditions	Decrease depth of work or allow field to dry if possible
	Worn or improper adjustment of scraper blades	Readjust scrapers, replace worn parts
Gang does not revolve	Obstruction in disc gang	Check for rocks, mud, roots, etc.
	Scrapers	Check for scrapers adjusted too tight to the disc blades
	Seized bearing	Replace
	Plugging at bearing arm	Try removing scraper at this location
Wing will not flex down far enough	Wing lift cylinder	Make sure cylinders are fully extended
Disc will not penetrate or penetrates too much	Stroke control settings on wheel control cylinders	Readjust depth control striker
Wheels have excessive wobble	Loose wheel bolts	Torque wheel bolts to 120 Ft. Lbs.
	Loose spindle nut	Tighten nut until tight, then turn back one notch and pin
Discs have excessive wobble	Tie rod nut too loose	Retorque nut on tie rod to 1,200 Ft. Lbs.
Disc will not lower or wings will not lower	Transport locks engaged	Open transport lock valves
Wings will not raise to transport position	Plugged restrictor	Remove restrictors from ends of cylinder and check orifice for foreign material
	Insufficient hydraulic pressure	Check tractor hydraulic system
Inadequate transport clearance	Wheel control cylinders not extended	Extend cylinders
	Tire pressure low	Inflate 11L x 15 tires to 44 P.S.I.
	Disc not level from front to rear	Adjust turnbuckle on tongue

PARTS SECTION

THE FOLLOWING ILLUSTRATED PARTS SECTION HAS BEEN COMPILED TO REFLECT PART NUMBERS REQUIRED TO ORDER PARTS, AND TO SUPPORT THE ASSEMBLY SECTION FOR DIMENSIONS AND DESCRIPTIONS OF ALL PARTS, BOLTS, PINS, ETC. THE OPERATOR CAN ALSO IDENTIFY PART NAMES TO CLARIFY PROPER OPERATIONAL STEPS.

Notes


18 & 21
REAR FRAME
MEMBER
REV. 4/02
M7400-4

MAIN FRAME, TONGUE, & GANG BEAMS

FOR MODELS - ALL

10/04

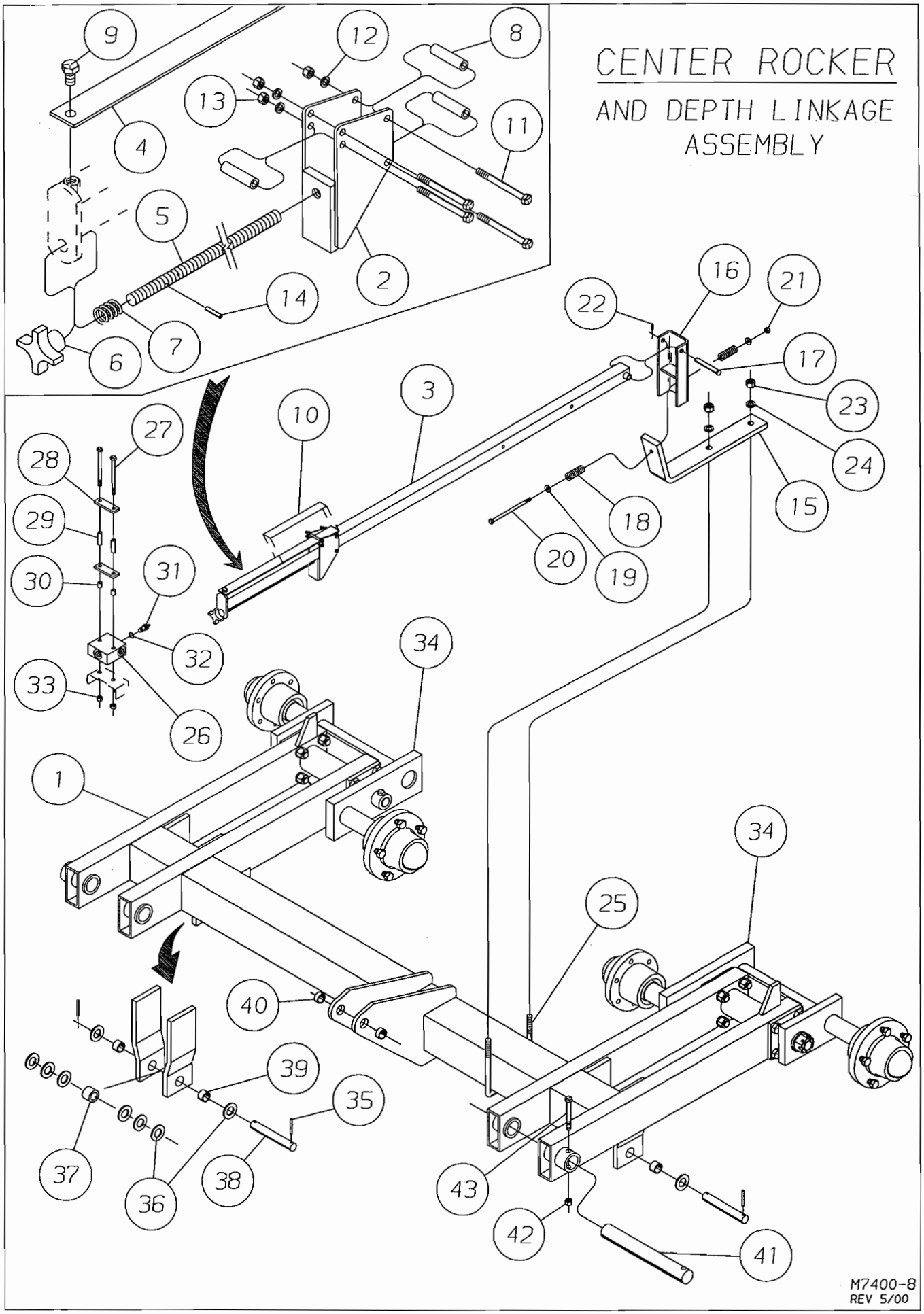
Item		Part Number	Part Description	Qty.
1	★	7400-1-0	Center Frame	1
	●	7401-1-0	Center Frame - **Shown**	1
2	★	7400-30-0	Tongue Weldment	1
	●	7301-30-0	Tongue Weldment - **Shown**	1
3	★	7400-34-0	Rt. Front Gang Beam	1
	●	7401-34-0	Rt. Front Gang Beam - **Shown**	1
4	★	7400-35-0	Lt. Front Gang Beam	1
	●	7401-35-0	Lt. Front Gang Beam - **Shown**	1
5	●	7301-36-0	Rt. Rear Beam - Shown	1
6	●	7301-37-0	Lt. Rear Beam - Shown	1
7	★	7400-36-0	Rt. Rear Beam Weldment	1
8	★	7400-37-0	Lt. Rear Beam Weldment	1
9	●	3991-59-0	SMV Bracket Assembly	1
10		3991-0-2	SMV Mount	1
11		74-144	Socket Lamp Bracket	1
12		62-131	7/16NC x 1" Carriage Bolt	1
13		64-105	7/16" STD. Lock Washer	1
14		63-104	7/16NC Hex Nut	1
15		62-569	1/2NC x 1-1/2"GD5 Cap Screw	2
16		64-107	1/2" STD. Lock Washer	2
17		63-106	1/2NC Hex Nut	2
18		5250-175-0	SMV Sign Assm. w/Hardware	1
19		62-421	3/4NC x 2" GD5 Cap Screw	8
20		64-112	3/4" STD. Lock Washer	8
21		63-112	3/4NC Hex Nut	8
22		61-239	1"DIA. U-Bolt	4
23		64-118	1" STD. Lock Washer	8
24		63-117	1NC Hex Nut	8
25		65-100	1/8NPT Zerk	4
26		53-110	Wear Sleeve	4
27		53-102	Wear Sleeve	4
28		65-101	1/8" STD. Zerk	2
29		4880-25-0	Combination Wrench Weldment	1
30		99-192	Owner's Manual Canister	1
31		25-1163	Hose Clamp	1
32		3991-0-6	Pin	2
33		60-615	3/8" DIA. x 2" Roll Pin	4
34		62-257	1NC x 8"GD5 Cap Screw	1
35		53-113	Wear Sleeve	4
36		63-119	1NC Lock Nut	1
37		7300-53-0	Leveling Link	2
38		53-109	Wear Sleeve	2
39		6127-0-11	Pin	2
40		60-606	1/4" DIA. x 2" Roll Pin	4
41		7301-0-12	Spacer	1
42		6142-80-0	Turnbuckle Assembly	1
43		6142-81-0	Turnbuckle Weldment	1
44		6142-83-0	Left Hand Thread End	1

Item		Part Number	Part Description	Qty.
45		63-129	1-1/2NC Hex Jam Nut	1
46		6142-82-0	Right Hand Thread End	1
47		65-101	1/8NPT STD. Zerk	2
48		See pg P24	Adjustment Link Assembly	
49		5630-0-1	Hitch Pin	1
50		7300-75-0	Flip Hitch Weldment (1½" Dia.)	1
51		62-201	3/4NC x 4" GD5 Cap Screw	2
52		63-114	3/4NC Lock Nut	2
53		5630-0-2	Chain Clevis	1
54	★	72-351	10,000# Safety Chain	1
	●	72-352	20,000# Safety Chain	1
55		7300-0-1	Bolt Plate	1
56		62-197	3/4NC x 3" GD5 Cap Screw	1
57		64-113	3/4" STD. Flat Washer	1
58	★	73-100	Jack w/o Mount Plate	1
59	●	4956-56-0	Jack Assembly	1
60		73-111	Jack Assembly	1
61		4956-55-0A	Jack Mounting Bracket	1
62		61-172	1/2"DIA. U-Bolt	3
63		64-107	1/2" STD. Lock Washer	6
64		63-106	1/2NC Hex Nut	6
65		60-106	Fas-Pin w/ Chain	1
66		60-702	3/16"DIA.x 1-1/2" Cotter Pin	1
67		62-300	1/2NC x 1"GD5 Cap Screw	1
68		64-107	1/2" STD. Flat Washer	5
69		64-106	1/2" STD. Lock Washer	6
70		63-106	1/2NC Hex Nut	6
71		2145-170-3	Hose Stand	1
72		3991-0-1	Hose & Plug Plate	1
73		2426-170-5	Hose Clamp	1
74		62-343	1/2NC x 2" GD5 Cap Screw	1
75		62-207	3/4NC x 5-1/2"GD5 Cap Screw	4
76	■	7400-70-0	Wing Support Weldment	2
77	■	7401-0-2	Wing Stop Mount	2
78	■	62-393	5/8NC x 6"GD5 Cap Screw	2
79	■	62-377	1/2NC x 4"GD5 Cap Screw	4
80		63-110	5/8NC Lock Nut	3
81	★	4805-95-0	SMV Bracket Assembly	1
82		4805-95-1	SMV Bracket	1
83		74-144	Socket Lamp Bracket	1
84		62-131	7/16NC x 1"GD5 Carriage Bolt	1
85		64-105	7/16" STD. Lock Washer	1
86		63-104	7/16NC Hex Nut	1
87	★	62-169	5/8NC x 2"GD5 Cap Screw	1

★ 18 & 21 Models

● 24 & 27 Models

■ 21' Models ONLY


CENTER ROCKER
AND DEPTH LINKAGE
ASSEMBLY
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M7400-8
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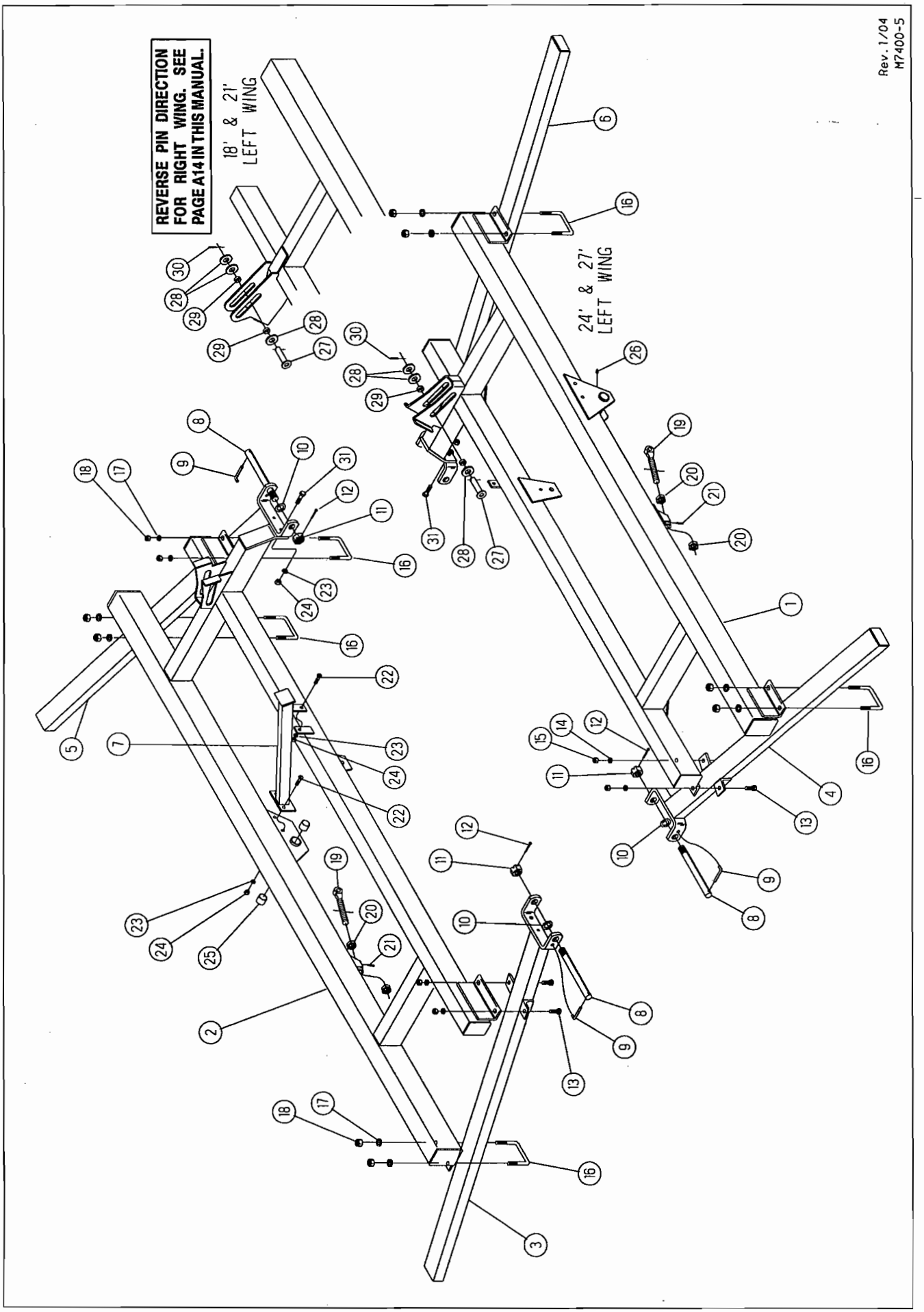
CENTER ROCKER AND DEPTH LINKAGE ASSEMBLY

FOR MODELS - ALL 12/06

Item	Part Number	Part Description	Qty.
1	7300-10-0	Center Rocker Weldment (18' and 21' Models) SHOWN	1
	7301-10-0	Main Rocker for Walking Beam (24' thru 27' Models)	1
	7300-83-0	Depth Linkage Assembly (Includes Items 2 thru 14)	1
2	7300-84-0	Striker Weldment	1
3	7300-85-0	Linkage Weldment	1
4	7300-83-5	Gauge Slide	1
5	7300-83-4	Threaded Rod	1
6	99-215	Knob	1
7	76-102	Spring	1
8	7300-83-3	Striker Spacer	4
9	62-635	3/8NF x 5/8" Cap Screw	1
10	74-489	Depth Decal	1
11	62-385	1/4NC x 2-1/2" GD5 Cap Screw	4
12	64-100	1/4" STD. Lock Washer	4
13	63-100	1/4NC Hex Nut	4
14	60-632	5/32" DIA. x 3/4" Roll Pin	1
15	3991-0-4	Hydraulic Stop Arm	1
16	4987-84-0	Stop Arm Weldment	1
17	60-231	1/2" DIA. x 3-1/2" Clevis Pin	1
18	76-120	Compression Spring	2
19	64-104	3/8" STD. Flat Washer	1
20	62-636	3/8NC x 6" GD5 Cap Screw	1
21	63-134	3/8NC Nylon-Top Lock Nut	1
22	60-725	5/32" DIA. x 1-1/2" Cotter Pin	1
23	63-109	5/8NC Hex Nut	2
24	64-109	5/8" STD. Lock Washer	2
25	61-223	5/8" DIA. U-Bolt	1
26	25-2535	Stop Housing Assembly	1
27	62-475	3/8NC x 5" GD5 Carriage Bolt	2
	7300-86-0	Guide Assembly (Includes Items 28 thru 33)	
28	3112-69-2	Bolt Strap	2
29	3112-69-1	Valve Spacer	2
30	7300-86-1	Spacer	2
31	25-2536	Cartridge Assembly (Includes Item 32 O-Ring)	1
32	25-2476	O-Ring	1
33	63-134	3/8NC Nylon-Top Lock Nut	2
34	see pg P10/P11	Center Walking Beam Assembly	Spec.
35	60-606	1/4" DIA. x 2" Roll Pin	4
36	64-155	1"SAE Flat Washers	16
37	4987-0-22	Spacer	2
38	4226-0-4	Cylinder Pin	2
39	53-103	Wear Sleeve (pressed into cylinder lugs)	4
40	53-116	Wear Sleeve (pressed into leveling lugs)	2
41	4987-0-1	Rocker Pivot Pin	2
42	63-107	1/2NC Lock Nut	2
43	62-154	1/2NC x 3-1/2" GD5 Cap Screw	2
44	5800-17-0	Cylinder Lock Assembly	2
45	6124-17-1	Channel	1
46	44-107	Rubber Threaded Bumper	2
47	63-102	3/8NC Hex Nut	2
48	60-103	P.T.O. Lock Pin	1

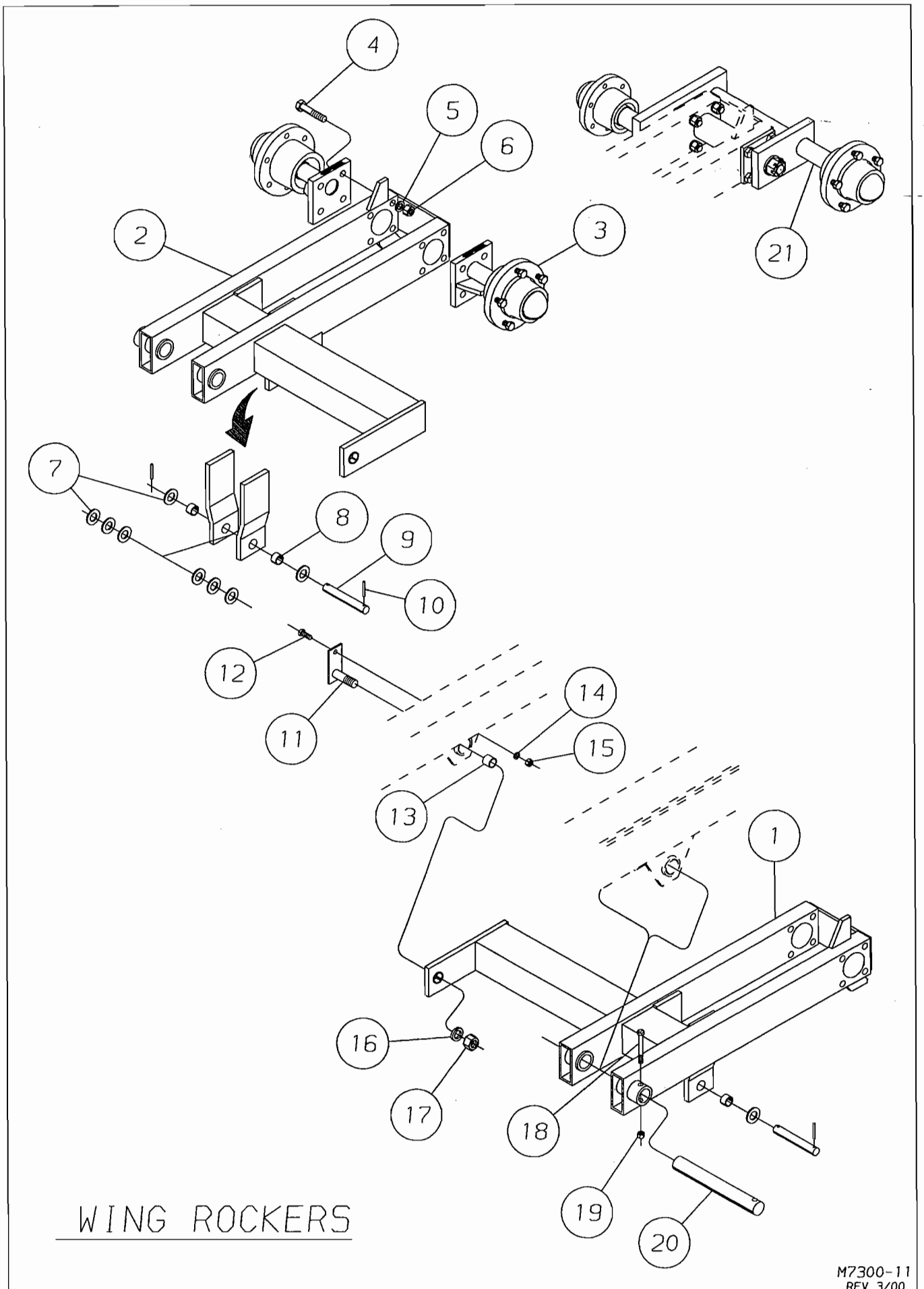

REVERSE PIN DIRECTION FOR RIGHT WING. SEE PAGE A14 IN THIS MANUAL.
18' & 21' LEFT WING
24' & 27' LEFT WING
Rev.1/04
M7400-5

WING FRAMES & GANG BEAMS

FOR MODELS - ALL 1/01

Item	Part Number	Part Description	Qty.
1	7400-18-0	18' Left Wing Frame	1
	7401-18-0	21' Left Wing Frame	1
	7402-18-0	24' & 27' Left Wing Frame	1
2	7400-20-0	18' Right Wing Frame	1
	7401-20-0	21' Right Wing Frame	1
	7402-20-0	24' & 27' Right Wing Frame	1
3	★ 7400-38-0	Right Front Wing Gang Beam	1
	● 7401-38-0	Right Front Wing Gang Beam	1
	■ 7402-38-0	Right Front Wing Gang Beam	1
	◆ 7403-38-0	Right Front Wing Gang Beam	1
4	★ 7400-39-0	Left Front Wing Gang Beam	1
	● 7401-39-0	Left Front Wing Gang Beam	1
	■ 7402-39-0	Left Front Wing Gang Beam	1
	◆ 7403-39-0	Left Front Wing Gang Beam	1
5	★ 7300-40-0	Right Rear Wing Gang Beam	1
	● 7301-40-0	Right Rear Wing Gang Beam	1
	■ 7302-40-0	Right Rear Wing Gang Beam	1
	◆ 7303-40-0	Right Rear Wing Gang Beam	1
6	★ 7300-41-0	Left Rear Wing Gang Beam	1
	● 7301-41-0	Left Rear Wing Gang Beam	1
	■ 7302-40-0	Left Rear Wing Gang Beam	1
	◆ 7303-40-0	Left Rear Wing Gang Beam	1
7	■◆ 7402-44-0	Wing Stop Weldment	2
8	4901-0-1	Hinge Pin	4
9	1901-0-2	Hinge Lock Pin	4
10	64-145	Special Washer - 2-1/2"O.D. x 1-5/8"I.D. x 3/16"	16
11	63-128	1-1/2NC Slotted Hex Nut	4
12	60-711	1/4" DIA. x 3" Cotter Pin	4
13	62-421	3/4NC x 2" GD.5 Cap Screw	4
14	64-112	3/4" STD. Lock Washer	6
15	63-112	3/4NC Hex Nut	6
16	61-239	1" DIA. U-Bolt	6
17	64-118	1" STD. Lock Washer	6
18	63-117	1NC Hex Nut	6
19	61-249	1-1/4NC Eyebolt Weldment	2
20	63-124	1-1/4NC Jam Nut	4
21	60-614	3/8" DIA. x 1-3/4" Roll Pin	2
22	62-424	5/8NC x 1-1/2" GD.5 Cap Screw	6
23	64-109	5/8" STD. Lock Washer	6
24	63-109	5/8NC Hex Nut	6
25	53-110	Wear Sleeve	4
26	65-101	1/8NPT STD. Zerk	2
27	3131-77-0	Wing Fold Pin	2
28	64-126	1-1/4" STD. Flat Washer	6
29	53-109	Wear Sleeve	2
30	60-606	1/4" DIA. x 2" Roll Pin	2
31	■◆ 62-195	3/4NC x 2-1/2" GD5 Cap Screw	2

★ For 18' Model
● For 21' Model
■ For 24' Model
◆ For 27' Model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WING ROCKERS
M7300-11
REV 3/00

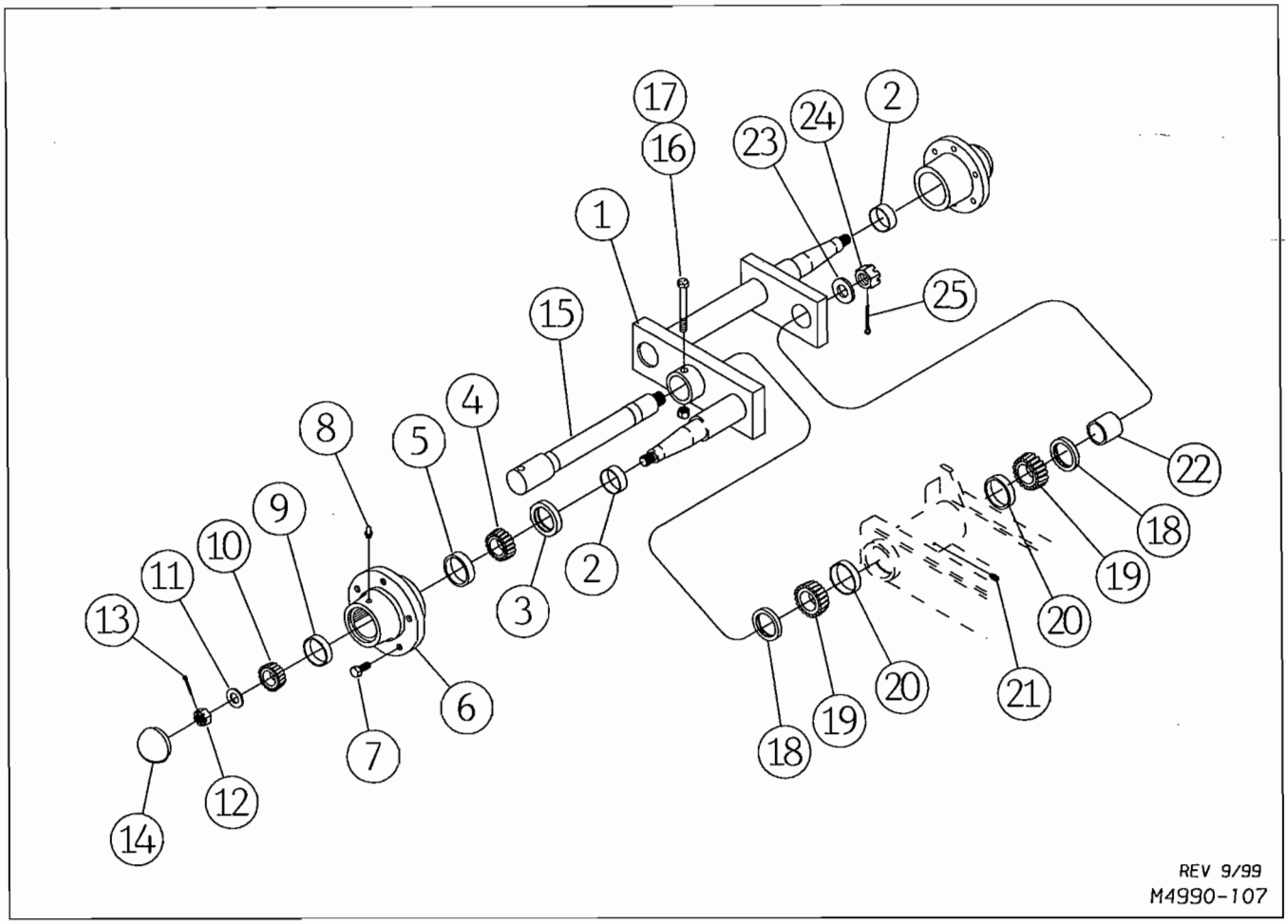
WING ROCKERS ASSEMBLY

FOR MODELS - ALL

10/04

Item	Part Number	Part Description	Qty.
1	7300-12-0	Right Wing Rocker Weldment	1
2	7300-13-0	Left Wing Rocker Weldment	1
3	1918-17-0	Hub and Axle Assembly (optional all models)	4
4	62-201	3/4NC x 4" GD5 Cap Screw	16
5	64-112	3/4" STD. Lock Washer	16
6	63-112	3/4NC Hex Nut	16
7	64-155	1" SAE Flat Washer	16
8	53-103	Wear Bushing (1.25"O.D. x 1.02"I.D. x .72" Long)	4
9	4226-0-4	Cylinder Pin	2
10	60-606	1/4" DIA. x 2" Roll Pin	4
11	4805-44-0	Pivot Pin Weldment	2
12	62-420	1/2NC x 1-1/4" GD5 Cap Screw	2
13	53-148	Wear Bushing (1.25"O.D. x 1.02"I.D. x 1.50"Long)	2
14	64-107	1/2" STD. Lock Washer	2
15	63-106	1/2NC Hex Nut	2
16	64-118	1" STD. Lock Washer	2
17	63-117	1NC Hex Nut	2
18	62-154	1/2NC x 3-1/2" GD5 Cap Screw	2
19	63-107	1/2NC Lock Nut	2
20	4987-0-1	Rocker Pivot Pin	2
21	4987-28-0	Walking Beam Assembly (Optional on 24' & 27' Models)	2

CENTER SECTION WALKING BEAM ASSEMBLY



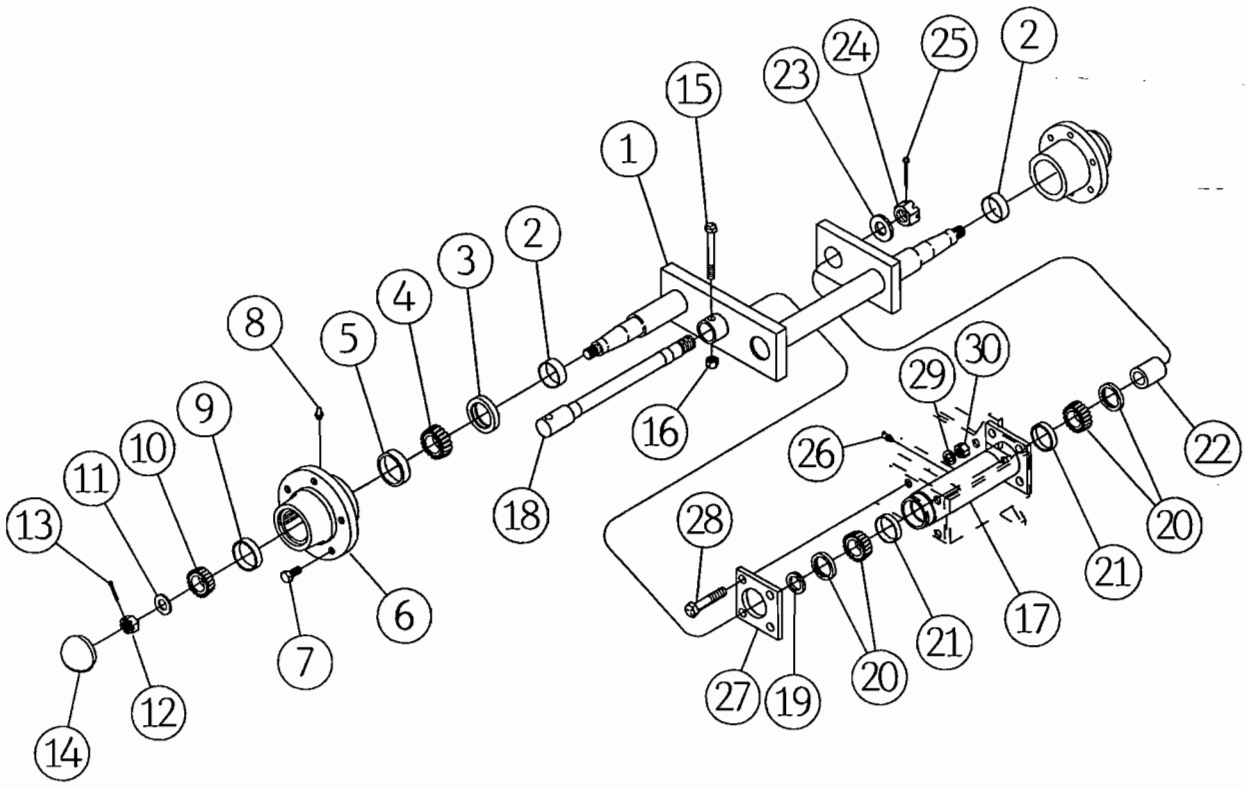
FOR MODELS - 24' & 27'

10/00

Item	Part Number	Part Description	Qty.
1	4987-54-0	Walking Beam Weldment	1
2	53-108	Sleeve	2
3	42-109	Seal	1
4	41-114	Cone (Timken #LM-104949)	1
5	41-210	Cup (Timken #LM-104911)	1
6	★ 2135-14-0A	Repair Hub	1
7	62-295	Wheel Bolt	6
8	65-122	Zerk	2
9	41-208	Cup (Timken #LM48510)	1
10	41-112	Cone (Timken #LM-48548)	1
11	64-120	1" SAE Flat Washer	1
12	63-204	1NF Slotted Hex Nut	1
13	60-702	3/16"DIA. x 1-1/2" Cotter Pin	1
14	52-302	Hub Cap	1
15	4987-9-1	Center Spindle	1
16	62-178	5/8NC x 4"GD5 Cap Screw	1
17	63-110	5/8NC Lock Nut	1
18	42-131	Seal	2
19	41-114	Cone	2

Item	Part Number	Part Description	Qty.
20	41-210	Cup	2
21	65-100	1/8 x 45 Zerk	1
22	2490-90-3	Bushing	1
23	64-167	Special Washer	1
24	63-231	1-1/4NF Slotted Hex Nut	1
25	60-710	1/4"DIA. x 2-1/2" Cotter Pin	1
★	Includes Items 6, 7, 8, 9, 10		
	2135-84-0	Hub Bearing Repair Kit (Includes Items 3,4, 5, 9, 10)	

WALKING BEAM ASSEMBLY



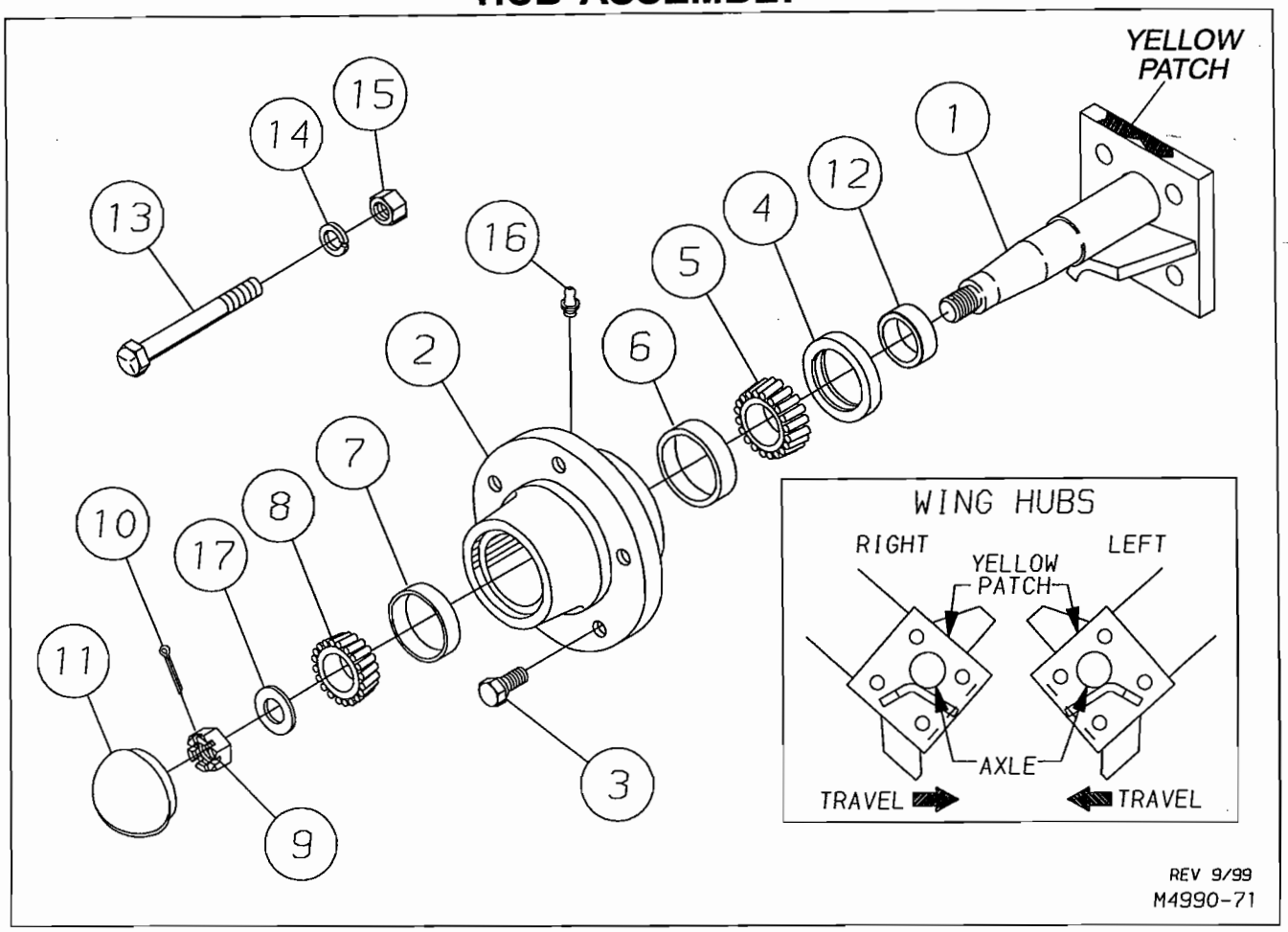
FOR MODELS - STANDARD on Center Section: 18' & 21' 10/04
OPTIONAL on Wings: 21', 24' & 27' Models ONLY

Item	Part Number	Part Description	Qty.
1	4987-49-0	Walking Beam Weldment	1
2	53-105	Wear Sleeve	2
3	42-108	Seal	1
4	41-113	Cone	1
5	41-209	Cup	1
6	★ 1918-14-0A	Repair Hub Assembly	1
7	62-295	Wheel Bolt	6
8	65-122	1/4 x 65 Drive Zerk	2
9	41-208	Cup	1
10	41-112	Cone	1
11	64-120	1" SAE Flat Washer	1
12	63-204	1NF Slotted Hex Nut	1
13	60-702	3/16"DIA. x 1-1/2" Cotter Pin	1
14	52-302	Hub Cap	1
15	62-409	5/8NC x 3" GD5 Cap Screw	1
16	63-110	5/8NC Lock Nut	1
17	4987-53-0	Walking Beam Hub	1
18	4987-29-1	Pivot Spindle	1

Item	Part Number	Part Description	Qty.
19	4218-13-3	Special Washer	1
20	41-121	Cone Assembly	2
21	41-208	Cup	2
22	4987-29-2	Bushing	1
23	64-167	Special Washer	1
24	63-231	1-1/4NF Slotted Hex Nut	1
25	60-710	1/4"DIA. x 2-1/2" Cotter Pin	1
26	65-100	1/8 x 45 Zerk	1
27	4987-53-2	Plate	1
28	62-201	3/4NC x 4" GD5 Cap Screw	8
29	64-112	3/4" STD. Lock Washer	8
30	63-112	3/4NC Hex Nut	8

★ Repair Hub includes Items 6, 7, 8, 9 & 10

HUB ASSEMBLY

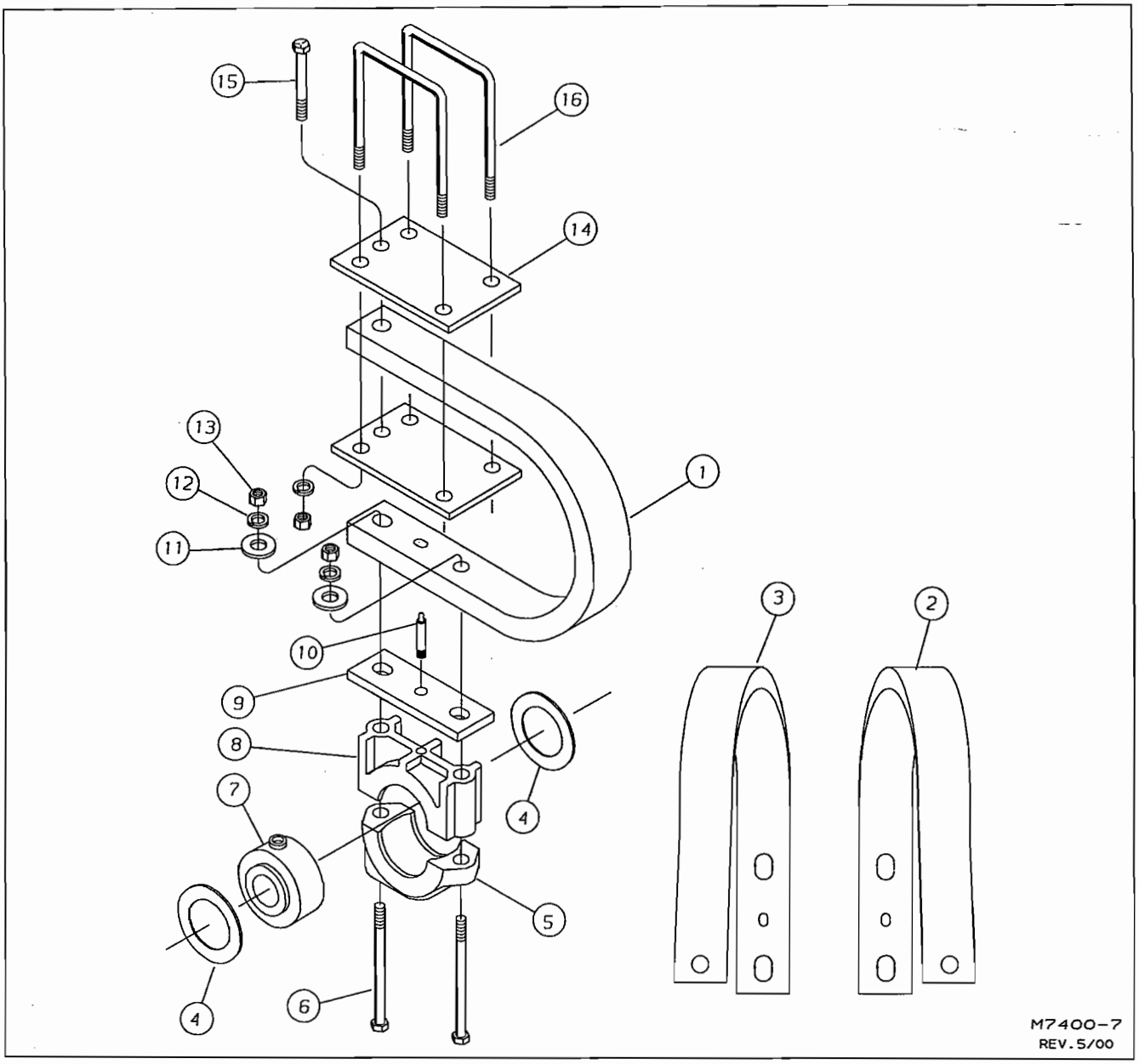


FOR MODELS - ALL WINGS 10/04

Item	*Part Number*	*Part Description*	*Qty.*
	1918-17-0	Hub & Spindle Assembly	1
1	1918-15-0	Repair Spindle and Sleeve Assembly (Includes Items 1 & 12)	
2	1918-14-0A	Repair Hub Assembly (Includes Items 2, 3, 6, 7 & 16)	1
3	62-295	Wheel Bolt	6
4	42-108	Seal	1
5	41-113	Rear Cone	1
6	41-209	Rear Cup	1
7	41-208	Front Cup	1
8	41-112	Front Cone	1
9	63-204	1NF Slotted Hex Nut	1
10	60-702	3/16" DIA. x 1-1/2" Cotter Key	1
11	52-302	Hub Cap	1
12	53-105	Wear Sleeve	1
13	★ 62-201	3/4NC x 4" GD5 Cap Screw	4
14	★ 64-112	3/4" STD. Lock Washer	8
15	★ 63-112	3/4NC Hex Nut	8
16	65-122	1/4" x 65° Drive Zerk	2
17	64-120	1" SAE Flat Washer	1
	1918-84-0	Hub Bearing Repair Kit (Includes Items 4,5,6,7,8)	

★ Not part of Hub Assembly

ROCK FLEX BEARING ARM ASSEMBLY



FOR MODELS - ALL ROCK FLEX MODELS 11/02

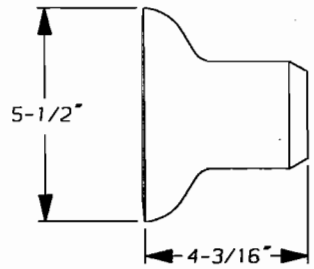
Item	Part Number	Part Description	Qty.
	4995-196-0	Flex Shank Assembly	1
1	31-196	Shank	1
2	31-197	Right Disc Harrow Shank	1
3	31-198	Left Disc Harrow Shank	1
4	45-105	Side Ring	2
5	1927-10-1	Lower Bearing Housing	1
6	62-215	3/4NC x 6-1/2" GD.5 Cap Screw	2
7	40-167	Bearing Assembly	1
8	1927-10-2	Upper Bearing Housing	1
9	4995-196-1	Spacer	1
10	65-123	1/8NPT x 2-5/32" Zerk	1
11	64-113	3/4" STD. Flat Washer	2
12	64-112	3/4" STD. Lock Washer	7
13	63-112	3/4NC Hex Nut	7
14	2196-0-10	Bolt Plate	2
15	62-197	3/4NC x 3" GD5 Cap Screw	1
16	61-122	3/4"DIA. U-Bolt	2

SPACER SPOOLS

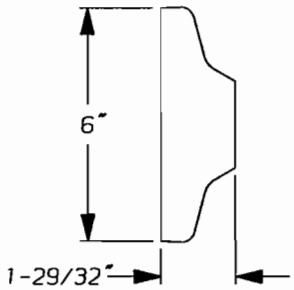
Rev.12/06
M7400-6

8" SPACING

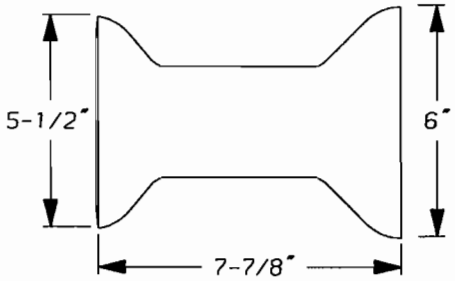
7400-0-8
LONG HALF SPOOL



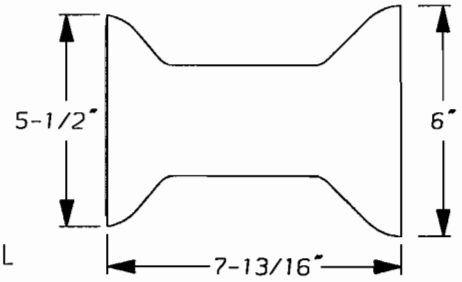
7400-0-11
SHORT HALF SPOOL



7400-0-6
CAST SPACER SPOOL

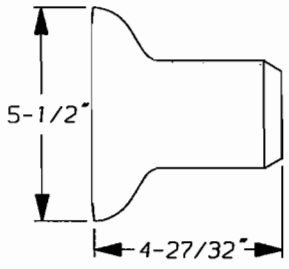


7400-0-12
DUCTILE SPACER SPOOL

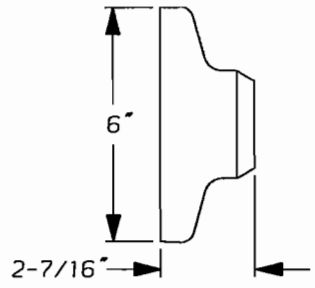


9-1/8" SPACING

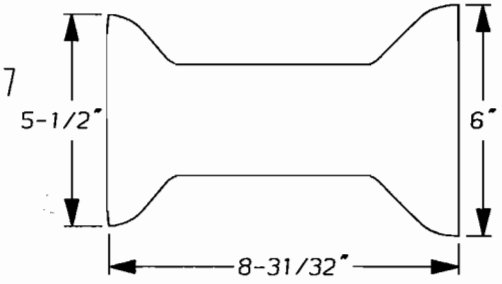
7400-0-9
LONG HALF SPOOL

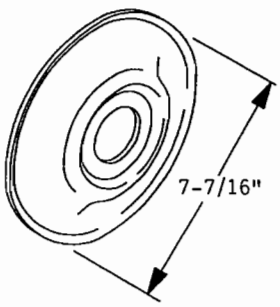


7400-0-10
SHORT HALF SPOOL

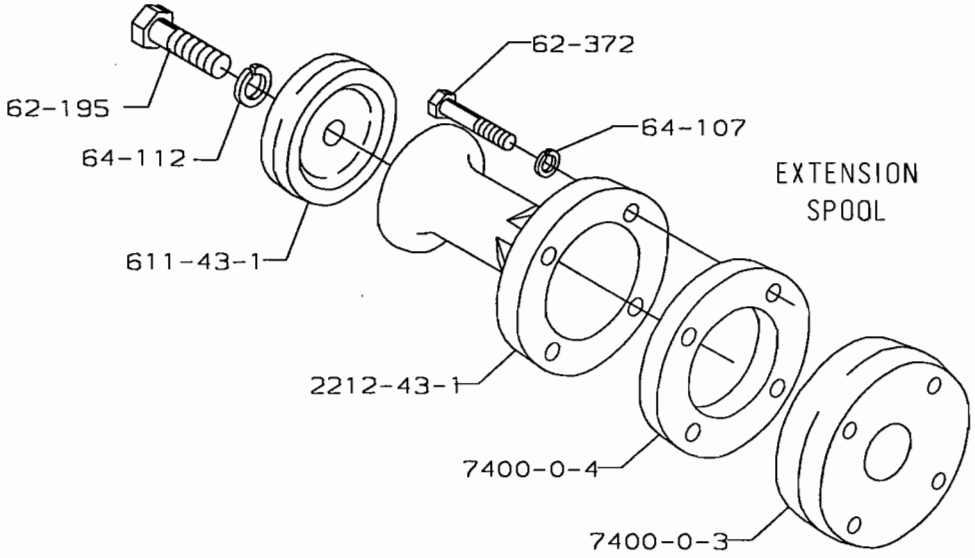


7400-0-7
CAST SPACER SPOOL

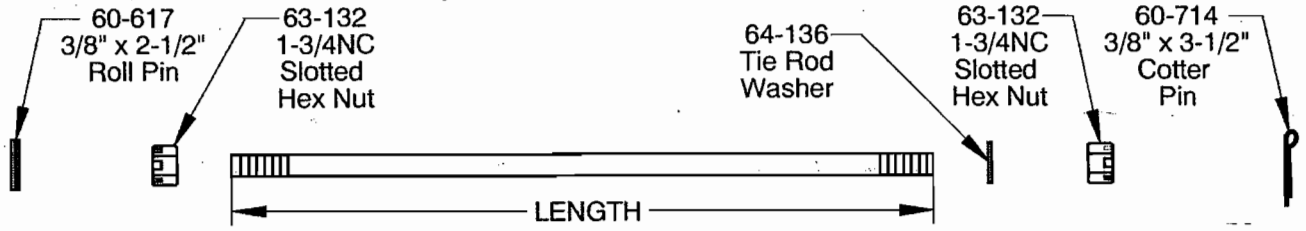




45-107
END WASHER



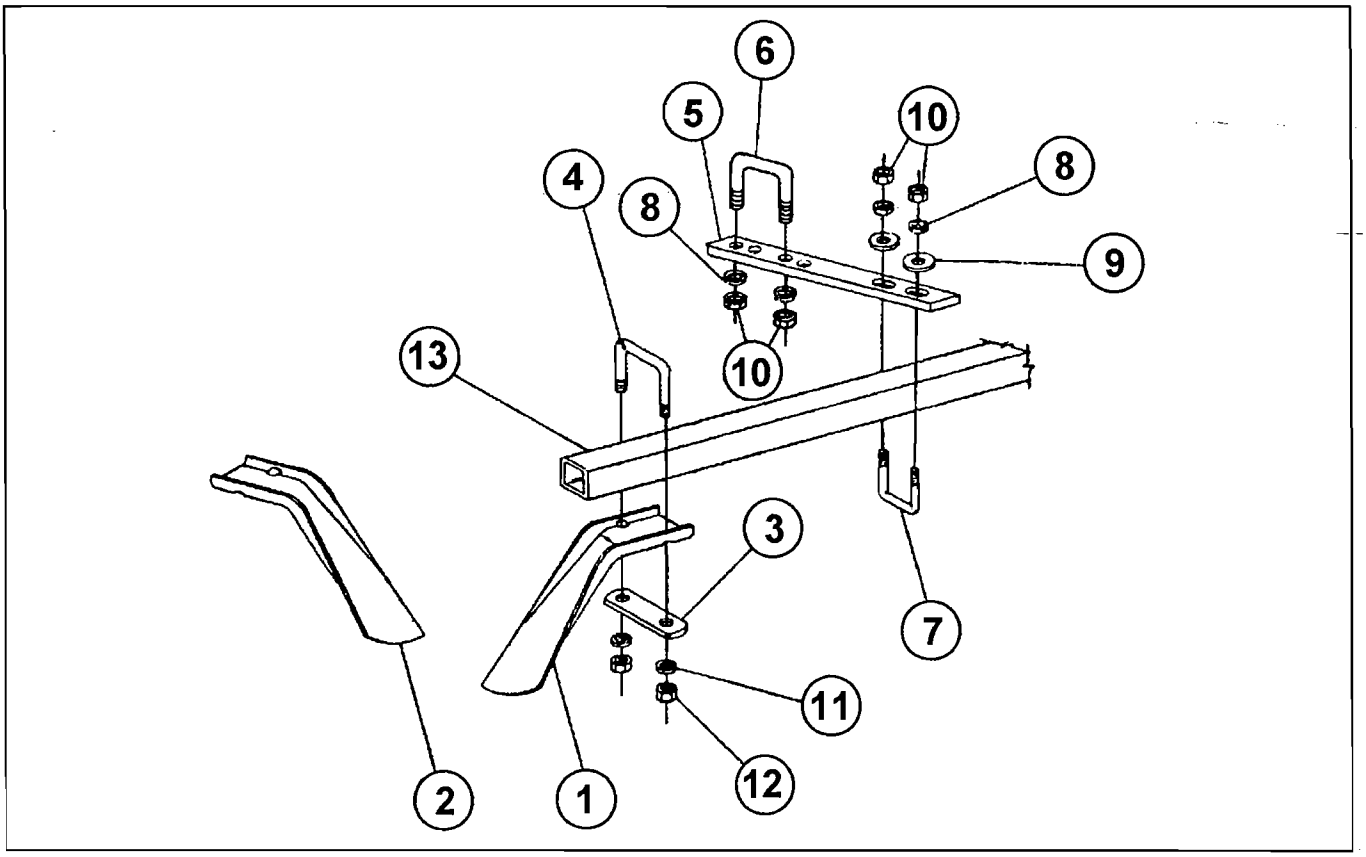
1-3/4" ROUND TIE RODS



3/00

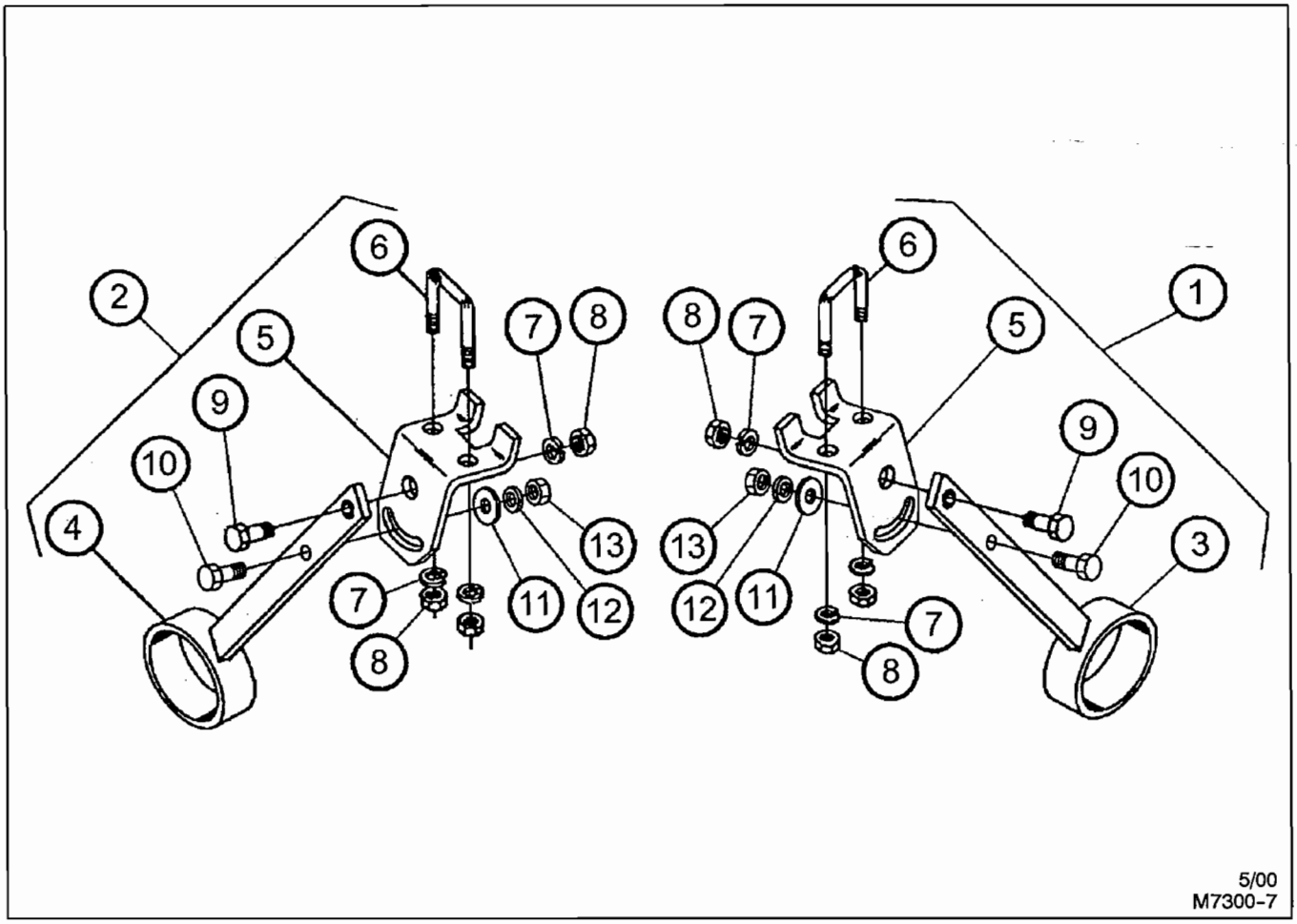
MODEL	LOCATION		LENGTH 1/4" Disc Blades	DISC SPACING	NO. OF DISC	ALLOY TIE ROD
7400-18N 7400-18NR	Center	Front	46-1/2"	8"	6	2430-18-1
		Rear	38-1/2"	8"	5	7401-0-1
	Wing	Front	62-5/8"	8"	8	4995-0-4
		Rear	70-1/2"	8"	9	4995-0-5
7400-18W 7400-18WR	Center	Front	42-7/8"	9-1/8"	5	7301-0-4
		Rear	33-7/8"	9-1/8"	4	7301-0-5
	Wing	Front	61-3/8"	9-1/8"	7	4995-0-3
		Rear	70-1/2"	9-1/8"	8	4995-0-5
7400-21N 7400-21NR	Center	Front	46-1/2"	8"	6	2430-18-1
		Rear	38-1/2"	8"	5	7401-0-1
	Wing	Front	78-1/2"	8"	10	4995-0-6
		Rear	86-1/2"	8"	11	1541-20-1
7400-21W 7400-21WR	Center	Front	42-7/8"	9-1/8"	5	7301-0-4
		Rear	33-7/8"	9-1/8"	4	7301-0-5
	Wing	Front	79-1/2"	9-1/8"	9	4995-0-7
		Rear	88-5/8"	9-1/8"	10	4995-0-8
7400-24N 7400-24NR	Center	Front	70-1/2"	8"	9	4995-0-5
		Rear	62-5/8"	8"	8	4995-0-4
	Wing	Front	78-1/2"	8"	10	4995-0-6
		Rear	86-1/2"	8"	11	1541-20-1
7400-24W 7400-24WR	Center	Front	70-1/2"	9-1/8"	8	4995-0-5
		Rear	61-3/8"	9-1/8"	7	4995-0-3
	Wing	Front	70-1/2"	9-1/8"	8	4995-0-5
		Rear	79-1/2"	9-1/8"	9	4995-0-7
7400-27N 7400-27NR	Center	Front	70-1/2"	8"	9	4995-0-5
		Rear	62-5/8"	8"	8	4995-0-4
	Wing	Front	94-1/2"	8"	12	1546-20-1
		Rear Inside	54-5/8"	8"	7	4995-0-2
		Rear Outside	46-1/2"	8"	6	2430-18-1
7400-27W 7400-27WR	Center	Front	70-1/2"	9-1/8"	8	4995-0-5
		Rear	61-3/8"	9-1/8"	7	4995-0-3
	Wing	Front	88-5/8"	9-1/8"	10	4995-0-8
		Rear	97-7/8"	9-1/8"	11	4995-0-9

5" RIGID SCRAPERS



Item	Part Number	Part Description	Qty.
1	32-115	Left Rear - Right Front Scraper Blade	
2	32-114	Left Front - Right Rear Scraper Blade	
3	4907-186-3	Clamp	
4	61-145	U-Bolt	
5	1901-187-1	Scraper Bracket	S
6	61-107	U-Bolt	
7	61-119	U-Bolt	
8	64-109	5/8" STD. Lock Washer	P
9	64-110	5/8" STD. Flat Washer	
10	63-109	5/8NC Hex Nut	
11	64-107	1/2" STD. Lock Washer	E
12	63-106	1/2NC Hex Nut	
13	2008-1-300	Scraper Frame 30" Long	
	2008-1-385	Scraper Frame 38-1/2" Long	C
	2008-1-435	Scraper Frame 43-1/2" Long	
	2008-1-535	Scraper Frame 53-1/2" Long	
	2008-1-585	Scraper Frame 58-1/2" Long	I
	2008-1-625	Scraper Frame 62-1/2" Long	
	2008-1-68	Scraper Frame 68" Long	
	2008-1-705	Scraper Frame 70-1/2" Long	F
	2008-1-795	Scraper Frame 79-1/2" Long	
	2008-1-875	Scraper Frame 87-1/2" Long	
	2008-1-945	Scraper Frame 94-1/2" Long	Y
	2008-1-975	Scraper Frame 97-1/2" Long	
	2008-1-104	Scraper Frame 104" Long	
	2008-1-1085	Scraper Frame 108-1/2" Long	
	2008-1-115	Scraper Frame 115" Long	

EXTENSION TRASH BAR ASSEMBLIES

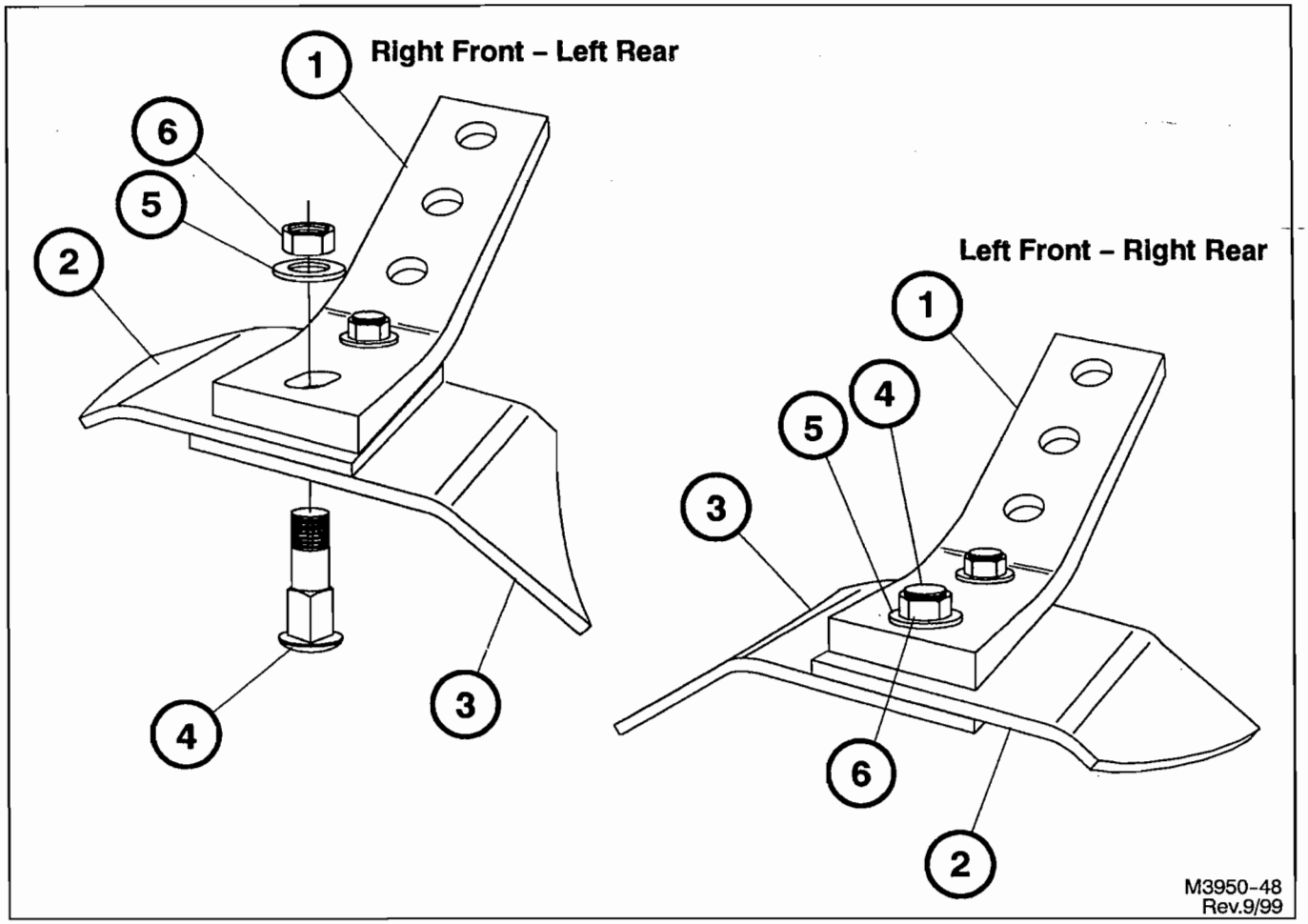


5/00
M7300-7

FOR MODELS - ALL 3/00

Item	*Part Number*	*Part Description*	*Qty.*
1	7400-44-0	Right Extension Trash Bar Assembly - **Used w/ 5" Scrapers**	Spec.
2	7400-43-0	Left Extension Trash Bar Assembly - **Used w/ 5" Scrapers**	Spec.
3	7300-46-0	Right Extension Trash Bar	1
4	7300-45-0	Left Extension Trash Bar	1
5	7400-43-1	Bracket	1
6	61-119	5/8" DIA. U-Bolt	1
7	64-109	5/8" STD. Lock Washer	3
8	63-109	5/8NC Hex Nut	3
9	62-169	5/8NC x 2"GD5 Cap Screw	1
10	62-414	1/2NC x 1-3/4" GD5 Cap Screw	1
11	64-108	1/2" STD. Flat Washer	1
12	64-107	1/2" STD. Lock Washer	1
13	63-106	1/2NC Hex Nut	1

DOUBLE SCRAPER ASSEMBLY

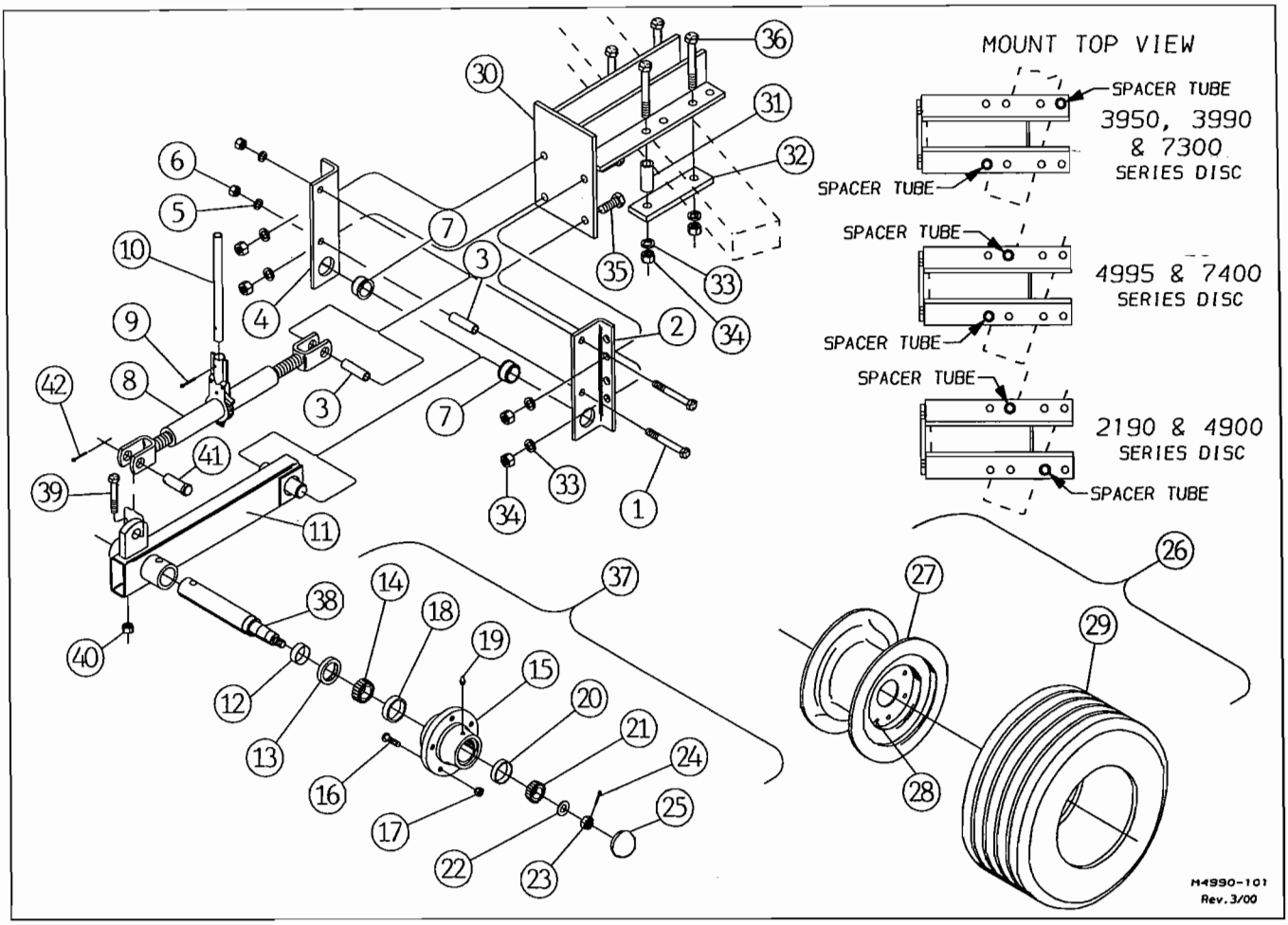


FOR MODELS - ALL

9/99

Item	*Part Number*	*Part Description*	*Qty.*
	■ 4950-186-0	Right Front - Left Rear Double Scraper Assembly	1
	● 4950-185-0	Left Front - Right Rear Double Scraper Assembly	1
1	4950-185-1	Bracket	1
2	■ 4950-186-2	Convex Scraper Blade for Right Front - Left Rear Assm.	1
	● 4950-185-2	Convex Scraper Blade for Left Front - Right Rear Assm.	1
3	■ 4950-186-3	Concave Scraper Blade for Right Front - Left Rear Assm.	1
	● 4950-185-3	Concave Scraper Blade for Left Front - Right Rear Assm.	1
4	62-139	1/2NC x 1-3/4" Carriage Bolt	2
5	64-108	1/2" STD. Flat Washer	2
6	63-108	1/2NC Nylon-Top Lock Nut	2

GAUGE WHEEL ASSEMBLY -- ACCESSORY



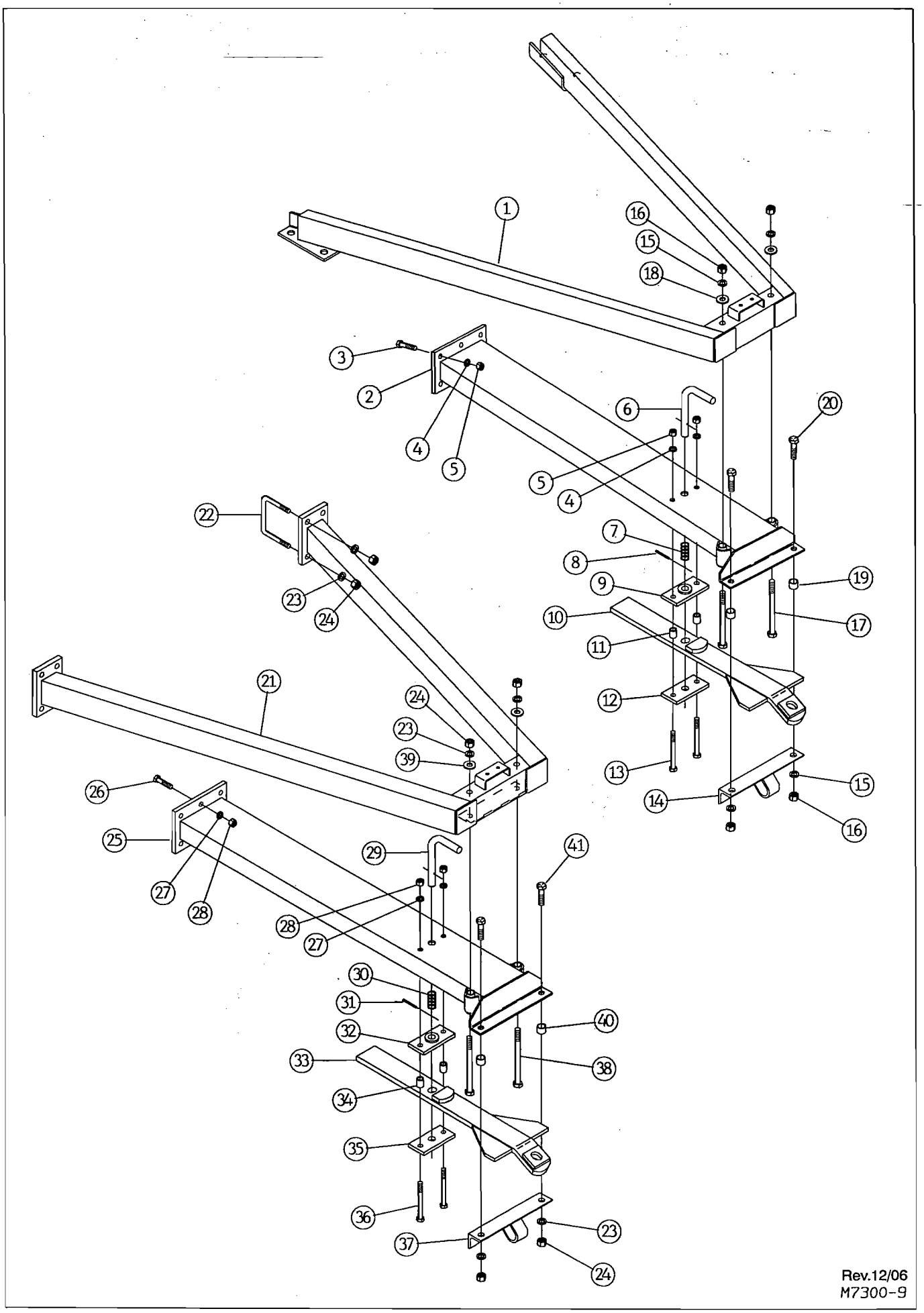
FOR MODELS - 8/01

Item	Part Number	Part Description	Qty.
	2190-49-0	Left Gauge Wheel Assembly	
	2190-50-0	Right Gauge Wheel Assembly	
1	62-339	5/8NC x 4-1/2" GD5 Cap Screw	2
2	2190-51-0	Left Side Plate (includes Item 7)	1
3	4000-50-1	Spacer Tube (15/16"DIA. x 3"L)	2
4	2190-52-0	Right Side Plate (Includes Item 7)	1
5	64-109	5/8" STD. Lock Washer	2
6	63-109	5/8NC Hex Nut	2
7	2190-51-1	Bushing (2.125 od x1.52id.1.00)	2
8	70-212	Ratchet Jack (includes items 9, 10)	1
9	60-708	1/4"DIA. x 1-3/4" Cotter Pin	1
10	70-212-1	7" Jack Handle	1
11	2190-53-0	Gauge Wheel Weldment	1
12	53-111	Wear Sleeve (includes items 11,12)	1
13	42-115	Seal (National #470543)	1
14	41-112	Cone (Timken #LM48548)	1
15	★ 4990-114-0	Repair Hub Assembly	1
16	62-498	1/2NF x 1-7/8" Wheel Bolt	1
17	63-209	1/2NF Lug Nut	5
18	41-208	Cup (Timken #LM48510)	1
19	65-101	1/8NPT STD. Zerk	1
20	41-215	Cup (Timken #LM67010)	1
21	41-117	Cone (Timken #LM67048)	1
22	64-161	3/4" Hardened Flat Washer	1

Item	Part Number	Part Description	Qty.
23	63-201	3/4NF Slotted Hex Nut	1
24	60-725	5/32" DIA. x 1-1/2" Cotter Pin	1
25	52-305	Hub Cap	1
26	•1000-81066-0	Wheel & Tire Assembly	1
27	52-109	Wheel 10" x 6"	1
28	51-120	#415 Valve Stem	1
29	51-121	Tire 20.5 x 8-10, 6-Ply	1
30	4990-141-0	Wheel Mount Weldment	1
31	4956-0-8	Spacer (1-1/4"D x 2-11/16"Long)	2
32	4990-142-1	Bolt Plate	2
33	64-112	34/" STD. Lock Washer	8
34	63-112	3/4NC Hex Nut	8
35	62-421	3/4NC x 2" GD5 Cap Screw	4
36	62-207	3/4NC x 5-1/2" GD5 Cap Screw	4
37	2190-30-0	Spindle & Hub Assembly	1
38	2190-29-0	Repair Spindle & Sleeve Assembly	1
39	62-176	5/8NC x 3-1/2" GD5 Cap Screw	1
40	63-110	5/8NC Lock Nut	1
41	60-200	1"DIA. x 2-1/2" Clevis Pin	1
42	60-703	3/16"DIA. x 1-3/4" Cotter Pin	1

• Includes Items 27, 28 & 29

★ Includes Items 16, 17, 18, 19 & 20



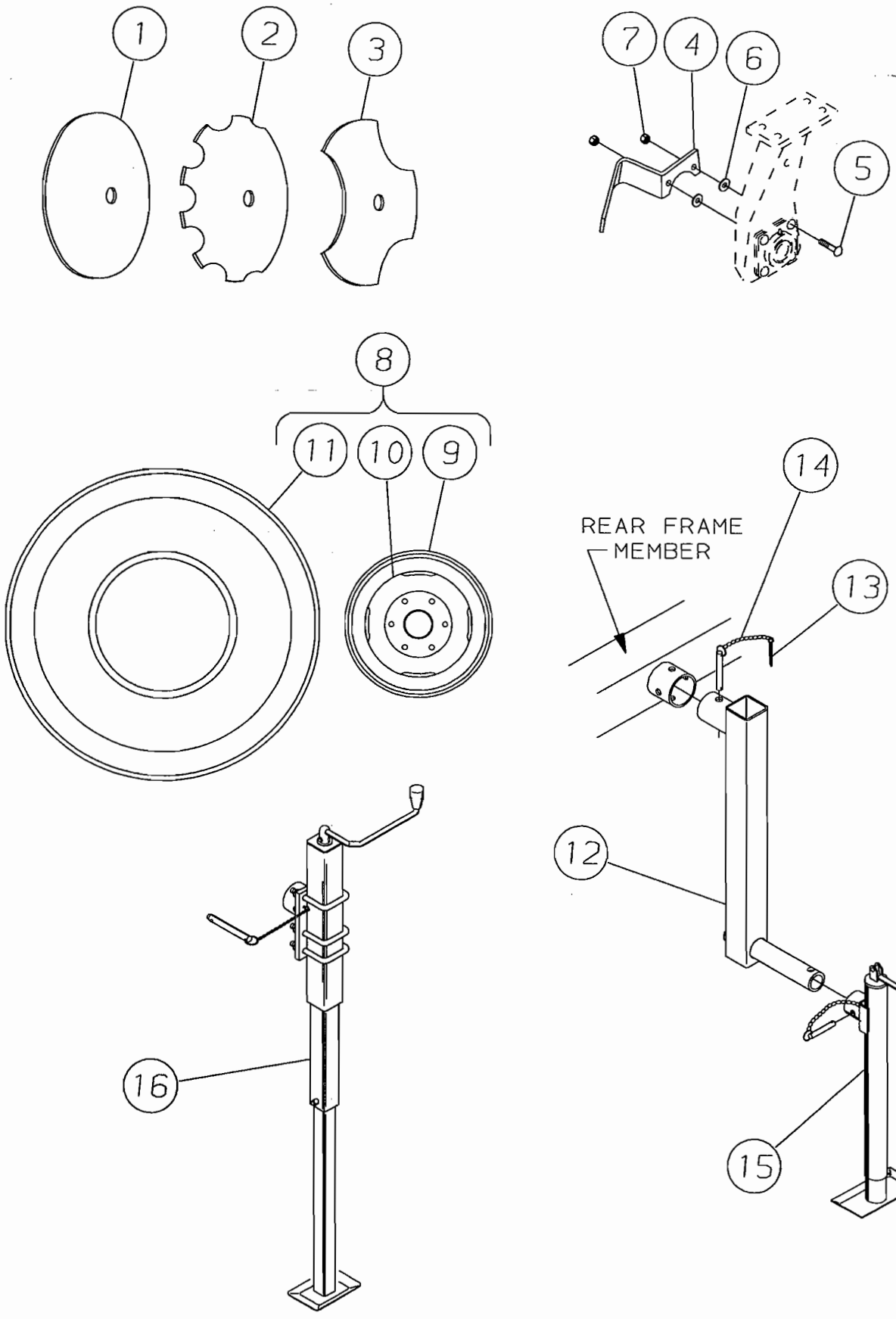
Rev.12/06
M7300-9

HITCH ASSEMBLY

FOR MODELS - ALL

1/01

Item	Part Number	Part Description	Qty.
	7300-302-0	18' & 21' Hitch Assembly	1
1	7300-304-0	Hitch Brace Weldment	1
2	7300-303-0	Hitch Weldment	1
3	62-441	5/8NC x 2-1/2" GD5 Cap Screw	6
4	64-109	5/8" STD. Lock Washer	6
5	63-109	5/8NC Hex Nut	6
6	3755-302-1	Spring Pin	1
7	76-137	Spring	1
8	60-606	1/4" DIA. x 2" Roll Pin	1
9	3755-305-0	Pin Guide Weldment	1
10	3755-304-0A	Tongue Weldment	1
11	3755-302-3	Spacer	2
12	3755-302-2	Pin Guide	1
13	62-393	5/8NC x 6" GD5 Cap Screw	2
14	3755-307-0	Angle Weldment	1
15	64-112	3/4" STD. Lock Washer	4
16	63-112	3/4NC Hex Nut	4
17	62-492	3/4NC x 9" GD5 Cap Screw	2
18	64-113	3/4" STD. Flat Washer	2
19	3755-302-4	Spacer	2
20	62-195	3/4NC x 2-1/2" GD5 Cap Screw	2
	7301-302-0	24' - 34' Hitch Assembly	1
21	7301-304-0	Hitch Brace Weldment	1
22	61-264	3/4" DIA. U-Bolt 5-1/16" W x 6-7/8" L	4
23	64-112	3/4" STD. Lock Washer	12
24	63-112	3/4NC Hex Nut	12
25	7301-303-0	Hitch Weldment	1
26	62-441	5/8NC x 2-1/2" GD5 Cap Screw	6
27	64-109	5/8" STD. Lock Washer	6
28	63-109	5/8NC Hex Nut	6
29	3755-302-1	Spring Pin	1
30	76-137	Spring	1
31	60-606	1/4" DIA. x 2" Roll Pin	1
32	3755-305-0	Pin Guide Weldment	1
33	3755-304-0A	Tongue Weldment	1
34	3755-302-3	Spacer	2
35	3755-302-2	Pin Guide	1
36	62-393	5/8NC x 6" GD5 Cap Screw	2
37	3755-307-0	Angle Weldment	1
38	62-492	3/4NC x 9" GD5 Cap Screw	2
39	64-113	3/4" STD. Flat Washer	2
40	3755-302-4	Spacer	2
41	62-195	3/4NC x 2-1/2" GD5 Cap Screw	2



Rev. 4/02
M7300-8

DISC BLADES, WHEELS & TIRES, REAR JACK MOUNT

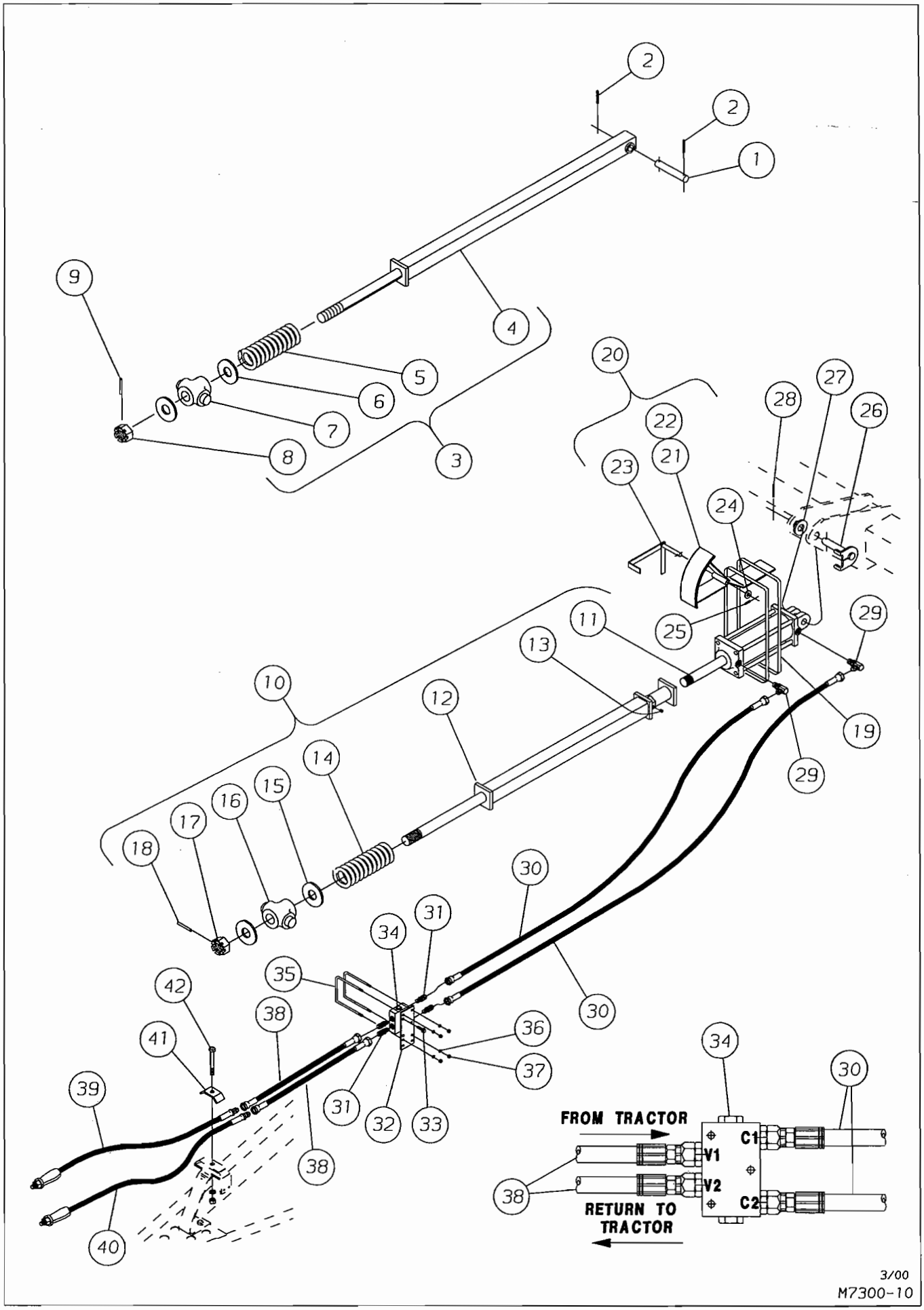
FOR MODELS - ALL

4/02

Item	Part Number	Part Description				Qty.
1	30-219	Plain Blade	24" DIA.	7 Ga.	244517Com-PS	SPECIFY
	30-243	Plain Blade	24" DIA.	6 Ga.	245017Com-PS	
	30-220	Plain Blade	24" DIA.	1/4"	246517Com-PS	
	30-238	Cons. Blade	24" DIA.	6 Ga.	245017Com-PS	
	30-223	Plain Blade	22" DIA.	7 Ga.	224517Com-PS	
	30-240	Plain Blade	22" DIA.	6 Ga.	225017Com-PS	
	30-241	Plain Blade	22" DIA.	1/4"	226517Com-PS	
	30-237	Plain Blade	22" DIA.	6 Ga.	Shallow Concavity	
	30-225	Plain Blade	20" DIA.	6 Ga.	205017Com-PS	
	30-235	Plain Dub	18" DIA.	7 Ga.	184517Com-PS	
2	30-221	Notched Blade	24" DIA.	1/4"	246517Com-NS	
	30-242	Notched Blade	22" DIA.	1/4"	226517Com-NS	
	30-226	Notched Dub	20" DIA.	6 Ga.	205017Com-NS	
3	30-148	Cut Out Blade	16" DIA.	7 Ga.	164511-NS	
	30-100	Cut Out Blade	16" DIA.	7Ga.	164511-PS	
	1918-170-0	Bar Scraper Bundle for 8" Spacing				1
4	1918-170-1	R.F. - L.R. Bar Scraper				1
	1918-170-2	L.F. - R.R. Bar Scraper				1
5	62-139	1/2NC x 1-3/4" Carriage Bolt				2
6	64-108	1/2" STD. Flat Washer				4
7	63-107	1/2NC Self Locking Nut				2
8	1000-11580-0	Wheel & Tire Assembly (Standard Wings)				4
9	52-103	15" x10" Wheel				4
10	51-107	#415 Valve Stem				4
11	51-106	11L x 15, 8-Ply Tire				4
8	1000-11500-0	Wheel & Tire Assembly (Standard on Center & Optional on Wings)				4
9	52-103	15" x 10" Wheel				4
10	51-107	#415 Valve Stem				4
11	51-126	11L x 15, 10-Ply Tire				4
	★ 3990-85-0	Rear Jack Mount Assembly (Accessory)				1
12	3990-86-0	Post Weldment				1
13	60-106	Fas-Pin				1
14	60-702	3/16" DIA. x 1-1/2" Cotter Pin				1
15	73-100	Jack Assembly (Not Included)				1
16	● 4956-56-0	Jack Assembly				

★ Rear Jack used for 18' and 21' Models

● Rear Jack used for 24' through 34' Models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V1
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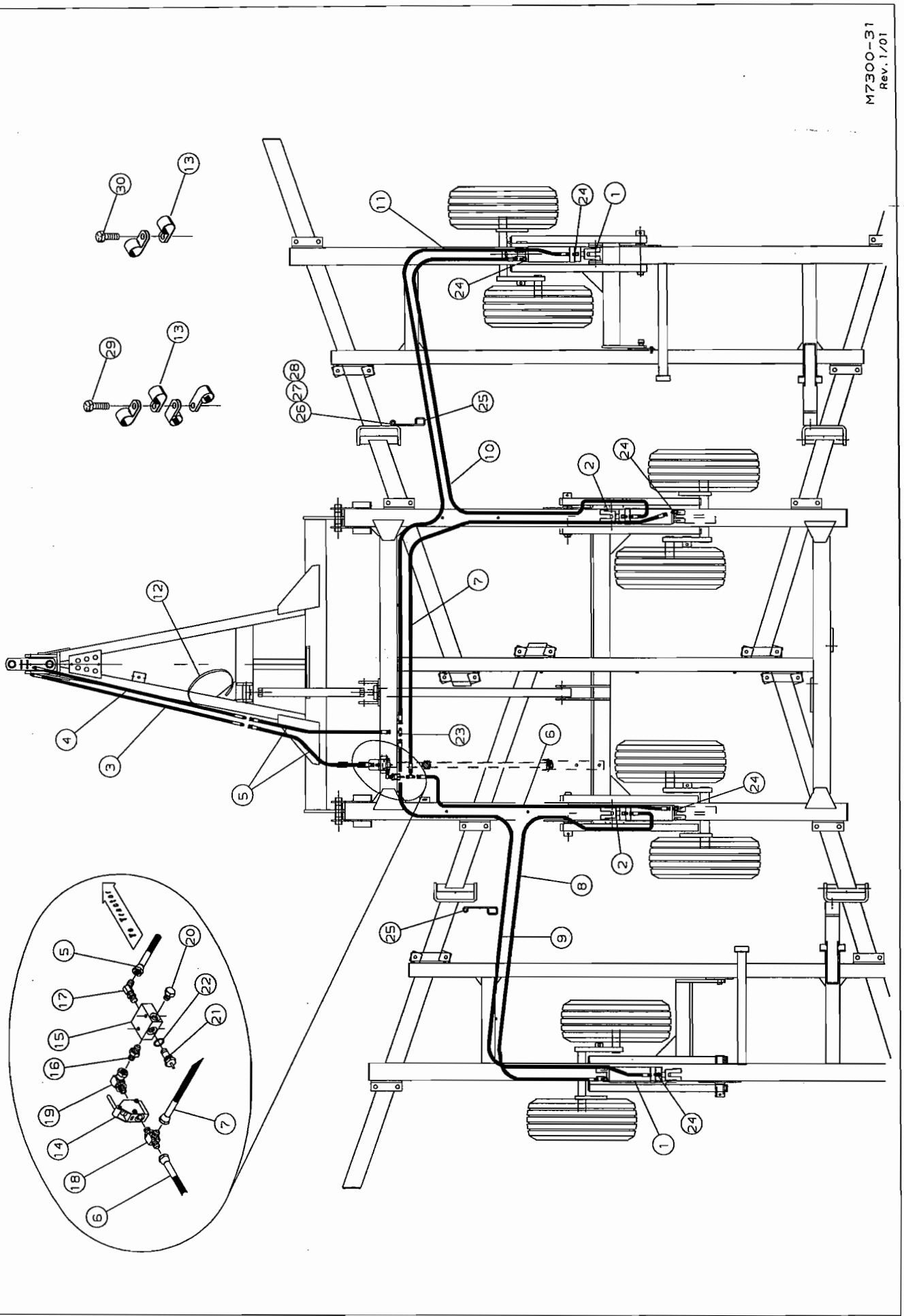
3/00
M7300-10

STANDARD & HYDRAULIC LEVELING

FOR MODELS - ALL 3/05

Item	Part Number	Part Description	Qty.
1	4616-0-12A	Top Link Pin	1
2	60-606	1/4" DIA. x 2" Roll Pin	2
3	7301-50-0	Leveling Link Assembly (Includes Items 4-9)	1
4	7301-51-0	Link Weldment	1
5	76-164	Spring	1
6	64-129	1-1/2" STD. Flat Washer	2
7	2145-52-1	Trunnion Casting	1
8	63-128	1-1/2NC Slotted Hex Nut	1
9	60-617	3/8" DIA. x 2-1/2" Roll Pin	1
10	7300-50-0	Optional Hydraulic Leveling Link Assembly (Includes Items 11-19)	1
11	21-173	3" x 5" Hydraulic Cylinder Assembly (No Clevis)	1
12	7300-51-0	Link Weldment	1
13	62-310	3/8NF x 3/8" Socket Head Set Screw	1
14	76-164	Spring	1
15	64-129	1-1/2" STD. Flat Washer	2
16	2145-52-1	Trunnion Casting	1
17	63-128	1-1/2NC Slotted Hex Nut	1
18	60-617	3/8" DIA. x 2-1/2" Roll Pin	1
19	25-128	Hose Wrap Lock	2
20	7300-55-0	Cylinder Gauge Assembly (Includes Items 22-26)	1
21	7300-56-0	Gauge Weldment	1
22	74-530	Depth Gauge Decal	1
23	7300-57-0	Gauge Pivot Weldment	1
24	64-162	1/2"SAE Flat Washer	1
25	60-602	3/16" DIA. x 1" Roll Pin	1
26	7300-58-0	Lock Pin Weldment	1
27	64-119	1" STD. Flat Washer	1
28	60-606	1/4" DIA. x 2" Roll Pin	1
29	4956-75-0	Restrictor Fitting w/ Tag	2
30	24-240R	3/8" x 107" 2W Black Hose Assembly (JIC)	2
31	25-328	9/16(M) O-Ring to 3/4(M) JIC Hydraulic Fitting	4
32	6118-0-6	Bolt Plate	1
33	62-510	5/16NC x 3/4" Hex Washer Thread Cutting Screw	3
34	25-2278	Valve	1
35	61-250	U-Bolt, 1/4" DIA. x 4-1/16"W x 5"L	2
36	64-100	1/4" STD. Lock Washer	4
37	63-100	1/4NC Hex Nut	4
38	24-200R	3/8" x 24" 2W Black Hose Assembly (JIC)	2
39	4881-72-0	3/8" x 95" Hose Assembly w/ Blue & Blue Plastic Grip (parts on page P30)	1
40	4881-73-0	3/8" x 95" Hose Assembly w/ Red & Blue Plastic Grip (parts on page P30)	1
41	3514-0-2	Hose Clamp	1
42	62-154	1/2NC x 3-1/2" GD5 Cap Screw (replaces existing bolt)	1

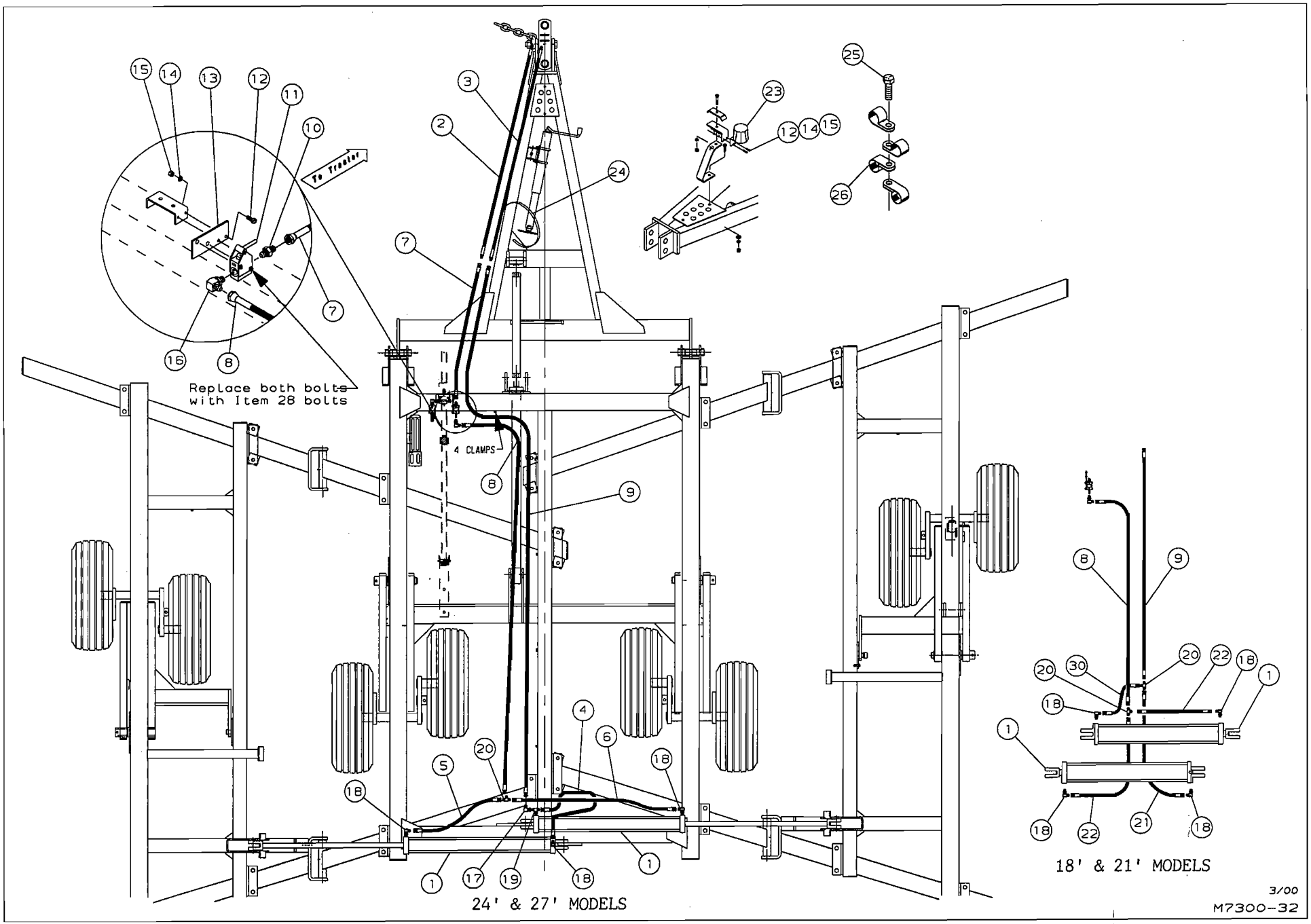

M7300-31
Rev.1/01
To Fender

DEPTH SYSTEM HYDRAULICS

FOR MODELS - ALL

12/06

Item	Part Number	Part Description	Qty.
1	21-1006	3-3/4" x 10" Hydraulic Cylinder	2
2	21-1007	4" x 10" Hydraulic Cylinder	2
3	4881-77-0	1/2" x 95" Hose & Red/Black Plastic Grip Assembly (parts on pg P30)	1
4	4881-71-0	1/2" x 95" Hose & Black/Black Plastic Grip Assembly (parts pg P30)	1
5	24-309R	1/2" x 68" Black 2W JIC Hose Assembly	2
6	24-261R	3/8" x 84" Black 2W JIC Hose Assembly **(18' & 21' Models)**	1
	24-214R	3/8" x 89" Black 2W JIC Hose Assembly **(24' to 27' Models)**	1
7	24-224R	3/8" x 130" Black 2W JIC Hose Assembly **(18' & 21' Models)**	1
	24-227R	3/8" x 148" Black 2W JIC Hose Assembly **(24' to 27' Models)**	1
8	24-223R	3/8" x 128" Black 2W JIC Hose Assembly **(18' Models)**	1
	24-278R	3/8" x 138" Black 2W JIC Hose Assembly **(21' Models)**	1
	24-289R	3/8" x 166" Black 2W JIC Hose Assembly **(24' & 27' Models)**	1
9	24-283R	3/8" x 144" Black 2W JIC Hose Assembly **(18' Models)**	1
	24-2115R	3/8" x 156" Black 2W JIC Hose Assembly **(21' Models)**	1
	24-289R	3/8" x 166" Black 2W JIC Hose Assembly **(24' & 27' Models)**	1
10	24-228R	3/8" x 149" Black 2W JIC Hose Assembly **(18' Models)**	1
	24-242R	3/8" x 161" Black 2W JIC Hose Assembly **(21' Models)**	1
	24-231R	3/8" x 176" Black 2W JIC Hose Assembly **(24' & 27' Models)**	1
11	24-2115R	3/8" x 156" Black 2W JIC Hose Assembly **(18' Models)**	1
	24-286R	3/8" x 168" Black 2W JIC Hose Assembly **(21' Models)**	1
	24-2101	3/8" x 187" Black 2W JIC Hose Assembly **(24' & 27' Models)**	
12	25-128	Hose Wrap	1
13	25-127	3/4" Hose Clamp	27
14	25-2272	Manual Check Valve	1
15	25-2535	Remote Stop Assembly	1
16	25-300	O-Ring 37° Flare Adapter	1
17	25-312	O-Ring 37° Flare 45° Adapter Hydraulic Fitting	1
18	25-302	O-Ring 37° Flare Tee	1
19	25-320	O-Ring 37° Flare Female 90° Fitting	1
20	25-317	Plug 3/4" O-Ring	1
21	25-2536	Cartridge Assembly (Includes Item 22 O-Ring)	1
22	25-2476	O-Ring	1
23	25-303	37° Flare (3/4) Male Tee	1
24	25-301	O-Ring 37° Flare 90° Ell	8
25	76-216	Hose Support	2
26	62-421	3/4NC x 2" GD.5 Cap Screw	2
27	63-112	3/4NC Hex Nut	2
28	64-112	3/4" STD. Lock Washer	2
29	62-692	3/8NF x 1" GD.5 Cap Screw	3
30	62-491	3/8NF x 3/4"GD5 Cap Screw	12


Replace both bolts with Item 28 bolts
4 CLAMPS
24' & 27' MODELS
18' & 21' MODELS
3/00
M7300-32

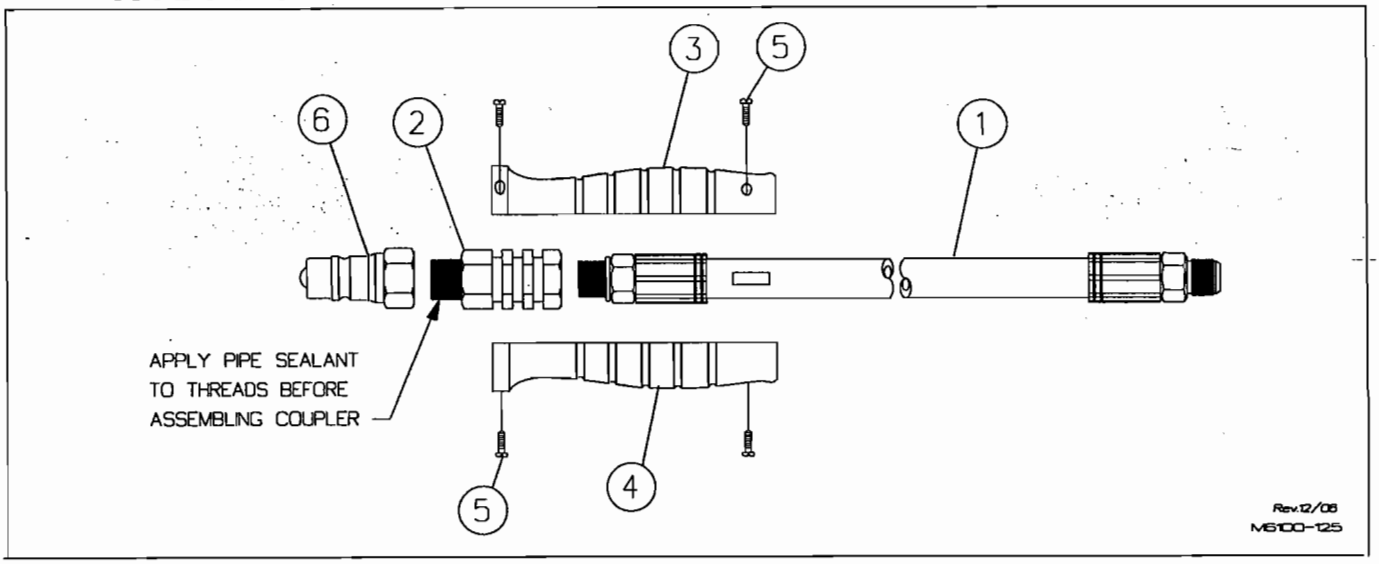
WING LIFT SYSTEM HYDRAULICS

FOR MODELS - ALL 7/05

Item	Part Number	Part Description	Qty.
1	21-172	4" x 32" Hydraulic Cylinder **(18' & 21' Models)**	2
	21-168	4" x 40" Hydraulic Cylinder **(24' thru 27' Models)**	2
2	4881-70-0	3/8" x 95" Hose & Red/Yellow Plastic Grip Assembly (parts page P30)	1
3	4881-76-0	3/8" x 95" Hose & Yellow/Yellow Plastic Grip Assembly (parts page P30)	1
4	24-200R	3/8" x 24" Black 2W JIC Hose Assembly **(24' & 27' Models)**	11
5	24-203R	3/8" x 40" Black 2W JIC Hose Assembly **(24' & 27' Models)**	1
6	24-290R	3/8" x 52" Black 2W JIC Hose Assembly **(24' to 27' Models)**	1
7	24-288R	3/8" x 70" Black 2W JIC Hose Assembly	1
8	24-279R	3/8" x 112" Black 2W JIC Hose Assembly **(18' & 21' Models)**	1
	24-283R	3/8" x 144" Black 2W JIC Hose Assembly **(24' to 27' Models)**	
9	24-231R	3/8" x 176" Black 2W JIC Hose Assembly **(18' & 21' Models)**	1
	24-250R	3/8" x 196" Black 2W JIC Hose Assembly **(24' to 27' Models)**	1
10	25-300	O-Ring 37° Flare Adapter	1
11	25-2272	Manual Check Valve	1
12	62-507	1/4NC x 3/4" GD.5 Cap Screw	4
13	3991-0-3	Mounting Plate	1
14	64-100	1/4" STD. Lock Washer	2
15	63-100	1/4NC Hex Nut	2
16	25-301	O-Ring 37° Flare 90° Ell	1
17	25-310	3/4(M) JIC to 3/4(F) JIC 90° Swivel Hydraulic Fitting	1
18	4956-75-0	90° Restrictor Assembly w/Tag	4
19	25-306	O-Ring 37° Flare Tee Restrictor	1
20	25-303	37° Flare 3/4 Male Tee	★2/1
21	24-202R	3/8" x 36" Black 2W JIC Hose Assembly **(18' & 21' Models)**	1
22	24-201R	3/8" x 30" Black 2W JIC Hose Assembly **(18' & 21' Models)**	2
23	79-397	Plug Storage Receptacle	1
24	25-128	Hose Wrap	1
25	62-491	3/8NF x 3/4" GD.5 Cap Screw	5
26	25-127	3/4" Hose Clamp	10
27	25-126	Stay Strap - 34" Use as needed (not shown)	15
28	62-394	5/16NC x 2-1/2" GD.5 Cap Screw (not shown)	2
29	25-307	37° Flare JIC Male / Female Swivel Tee Hydraulic Fitting	1
30	24-235R	3/8" x 16" Black 2W JIC Hose Assembly **(18' & 21' Models)**	1

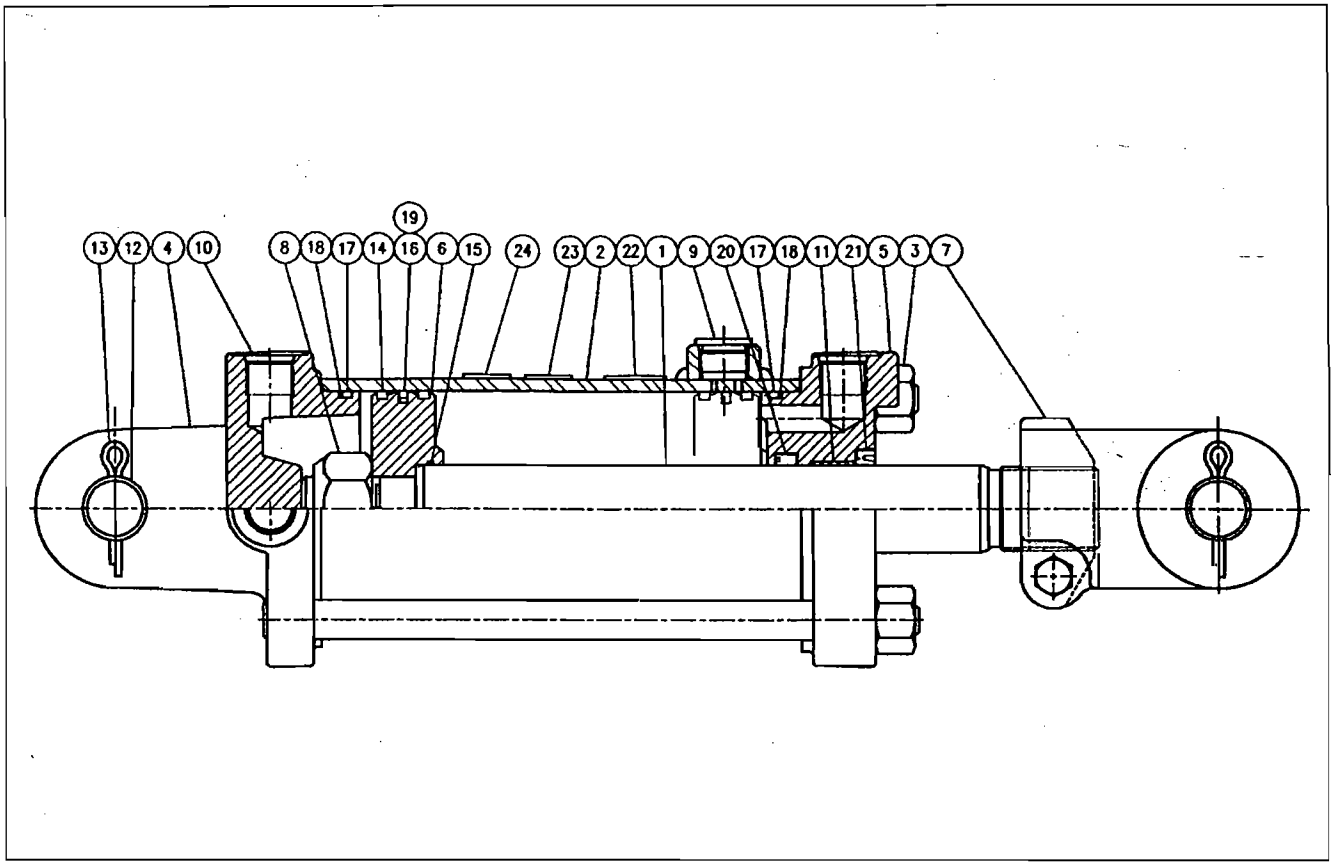
★ Quantity for 18' & 21' Models

HYDRAULIC HOSE WITH PLASTIC GRIP ASSEMBLIES



Item	Part Number	Part Description	Qty.
	4881-71-0	1/2" x 95" 100R2 Hose with Black/Black Grip Assembly	1
1	24-330R	1/2" DIA. x 95" JIC/ORB 100R2 Hose	1
2	25-2295	3/4 ORB to 1/2 NPT Hydraulic Fitting	1
3	25-2291	Hose Grip Half - Black	1
4	25-2291	Hose Grip Half - Black	1
5	62-656	Screw	4
6	25-221	1/2NPT Male Coupler	1
	4881-77-0	1/2" x 95" 100R2 Hose with Red/Black Grip Assembly	1
1	24-330R	1/2" DIA. x 95" JIC/ORB 100R2 Hose	1
2	25-2295	3/4 ORB to 1/2 NPT Hydraulic Fitting	1
3	25-2289	Hose Grip Half - Red	1
4	25-2291	Hose Grip Half - Black	1
5	62-656	Screw	4
6	25-221	1/2NPT Male Coupler	1
	4881-70-0	3/8" x 95" 100R2 Hose with Red/Yellow Grip Assembly	1
1	24-2105R	3/8" DIA. x 95" JIC/ORB 100R2 Hose	1
2	25-2295	3/4 ORB to 1/2 NPT Hydraulic Fitting	1
3	25-2289	Hose Grip - Red	1
4	25-2290	Hose Grip - Yellow	1
5	62-656	Screw	4
6	25-221	1/2NPT Male Coupler	1
	4881-76-0	3/8" x 95" 100R2 Hose with Yellow/Yellow Grip Assembly	1
1	24-2105R	3/8" DIA. x 95" JIC/ORB 100R2 Hose	1
2	25-2295	3/4" ORB to 1/2 NPT Hydraulic Fitting	1
3	25-2290	Hose Grip Half - Yellow	1
4	25-2290	Hose Grip Half - Yellow	1
5	62-656	Screw	4
6	25-221	1/2NPT Male Coupler	1
	4881-72-0	3/8 x 95" 100R2 Hose with Blue/Blue Grip Assembly	1
1	24-2105R	3/8" DIA. x 95" JIC/ORB 100R2 Hose	1
2	25-2295	3/4" ORB to 1/2NPT Hydraulic Fitting	1
3	25-2509	Hose Grip Half - Blue	1
4	25-2509	Hose Grip Half - Blue	1
5	62-656	Screw	4
6	25-221	1/2NPT Male Coupler	1
	4881-73-0	3/8" x 95" 100R2 Hose with Red/Blue Grip Assembly	1
1	24-2105R	3/8" DIA. x 95" JIC/ORB 100R2 Hose	1
2	25-2295	3/4 ORB to 1/2NPT Hydraulic Fitting	1
3	25-2289	Hose Grip Half - Red	1
4	25-2509	Hose Grip Half - Blue	1
5	62-656	Screw	4
6	25-221	1/2NPT Male Coupler	1

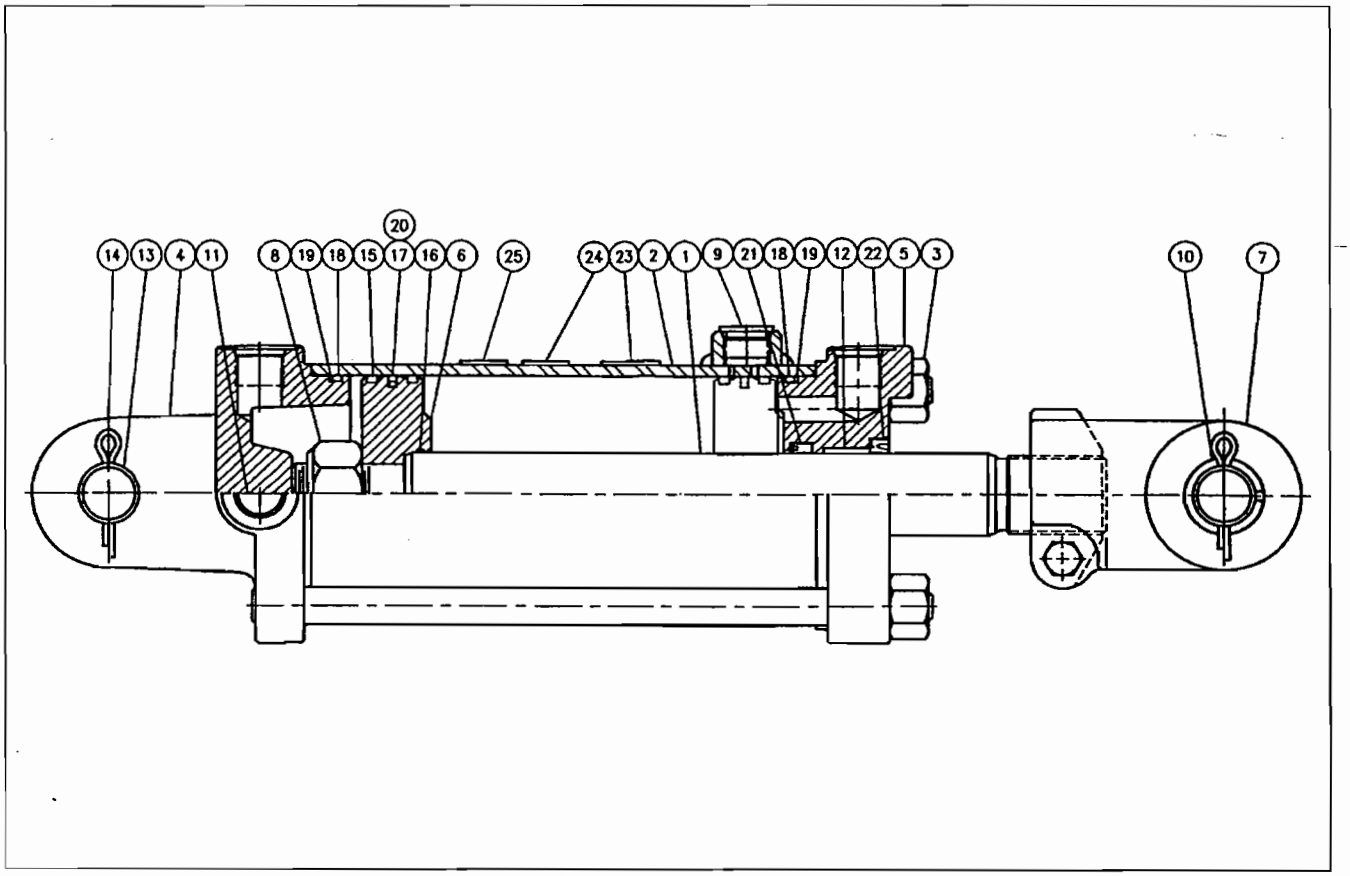
PRINCE HYDRAULIC CYLINDER



21-1006 3-3/4" X 10" PRINCE HYDRAULIC CYLINDER ASSEMBLY (Series) 7/05
Retracted - 22-1/4" Extended - 32-1/4" Stroke - 10" Rod Diameter - 1-3/8"

Item	*Part Number*	*Part Description*	*Qty.*
1	21-2061	Piston Rod	1
2	21-2064	Tube Assembly	1
3	21-381	Tie Rod Assembly	4
4	21-348	Butt	1
5	21-803	Gland	1
6	21-804	Piston	1
7	21-2126	Clevis Assembly	1
8	63-119	Lock Nut	1
9	21-702	Port Plug	1
10	21-404	#8 SAE Plug	3
11	21-807	Bushing	1
12	21-260	Clevis Pin	2
13		3/16" DIA. x 1-3/4" Cotter Pin	4
14	★	Bearing Ring	1
15	★	O-Ring	1
16	★	O-Ring	1
17	★	O-Ring	2
18	★	Back-Up Washer	2
19	★	Teflon Seal	1
20	★	U-Cup	1
21	★	Wiper	1
22	74-515	Seal Kit Decal	1
23	21-443	Series Caution Decal	1
24	74-113	Cylinder Warning Decal	1
25	21-2127	Bushings (Included in Item 7 Clevis Assembly)	2
	21-808	Seal Kit (★ Items Included in Kit)	

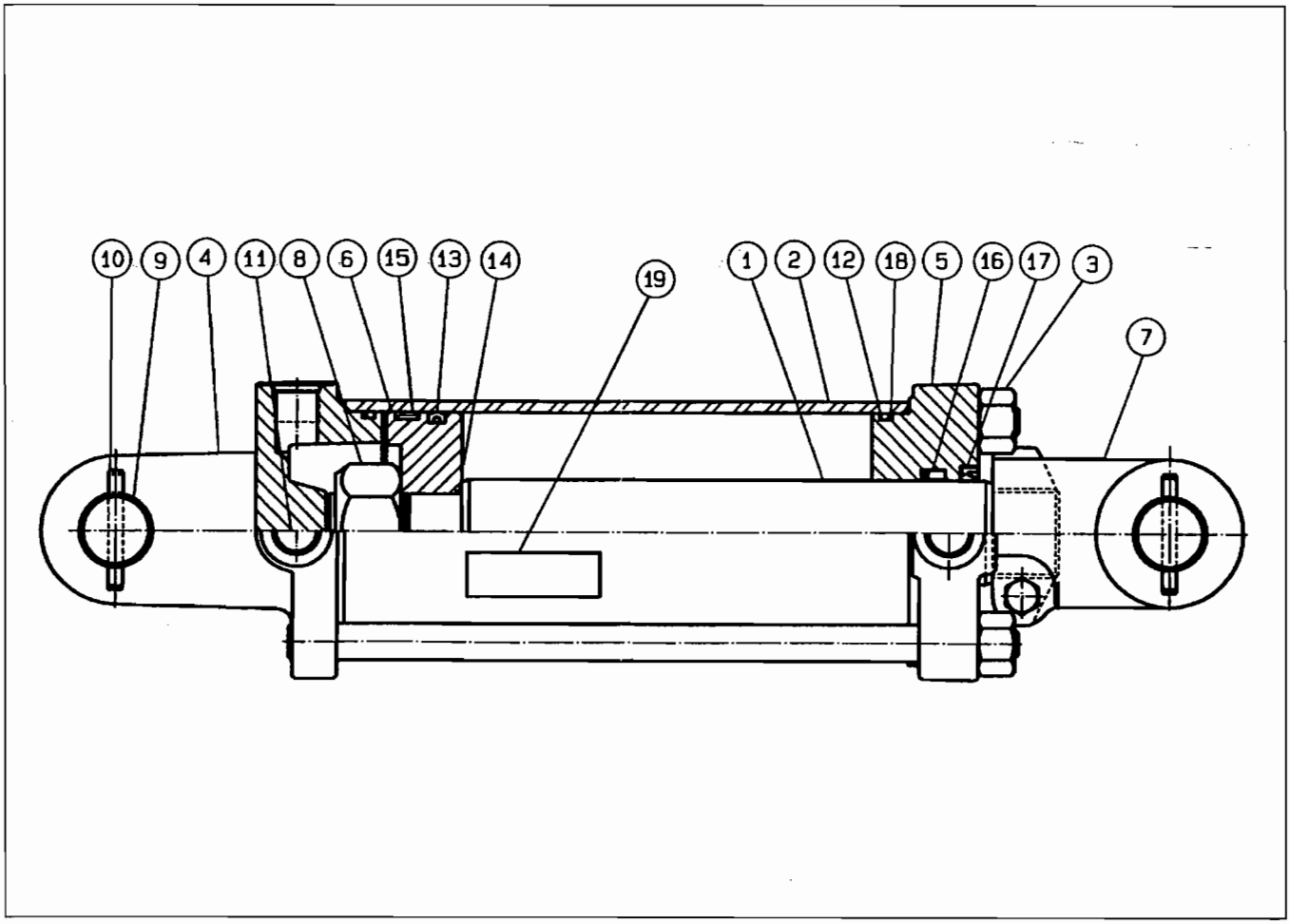
PRINCE HYDRAULIC CYLINDER



21-1007 4" X 10" PRINCE HYDRAULIC CYLINDER ASSEMBLY (Series) 7/05
Retracted - 22-1/4" Extended - 32-1/4" Stroke - 10" Rod Diameter - 1-3/8"

Item	*Part Number*	*Part Description*	*Qty.*
1	21-2061	Piston Rod	1
2	21-2063	Tube Assembly	1
3	21-381	Tie Rod Assembly	4
4	21-337	Butt	1
5	21-810	Gland	1
6	21-811	Piston	1
7	21-2126	Clevis Assembly	1
8	63-119	Lock Nut	1
9	21-702	ORB Plug	1
10	21-2127	Bushing	2
11	21-404	#8 SAE Plug	1
12	21-807	Bushing	1
13	21-260	Clevis Pin	2
14		3/16" DIA. x 1-3/4" Cotter Pin	4
15	★	Bearing Ring	1
16	★	O-Ring	1
17	★	O-Ring	1
18	★	O-Ring	2
19	★	Back-Up Washer	2
20	★	Teflon Seal	1
21	★	U-Cup	1
22	★	Wiper	1
23	74-516	Seal Kit Decal	1
24	21-443	Series Caution Decal	1
25	74-113	Cylinder Warning Decal	1
	21-2059	Seal Kit (★ Items Included in Kit)	

PRINCE HYDRAULIC CYLINDER

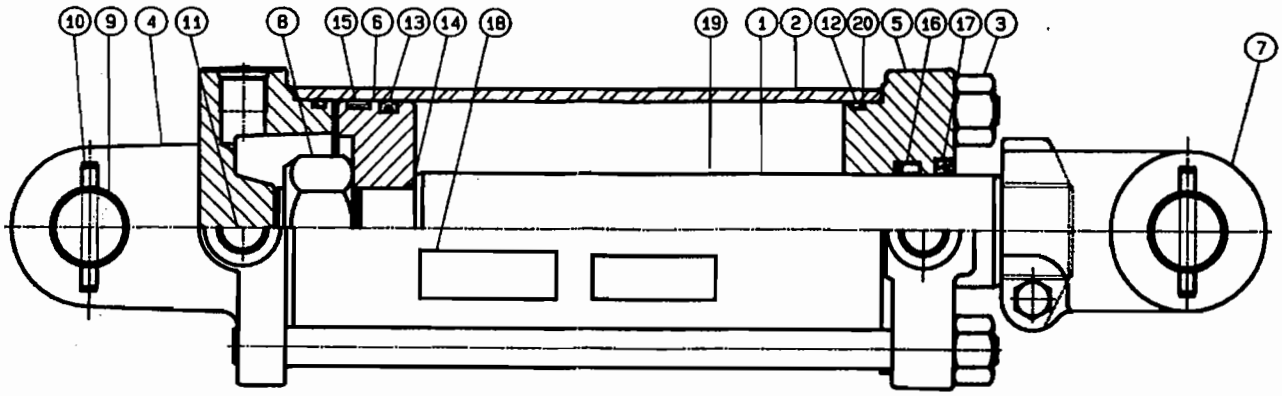


21-172 4" X 32" PRINCE HYDRAULIC CYLINDER ASSEMBLY (STD) 11/99
Retracted - 42-3/4" Stroke - 32" Extended - 74-3/4" Rod Diameter - 1-3/4"

Item	*Part Number*	*Part Description*	*Qty.*
1	21-900	Piston Rod	1
2	21-266	Tube	1
3	21-526	Tie Rod Assembly	4
4	21-738	Butt	1
5	21-878	Gland	1
6	21-879	Piston	1
7	21-507	Clevis Assembly	1
8	21-286	Lock Nut	1
9	21-859	Clevis Pin	2
10		1/4" DIA. x 2" Roll Pin	4
11	21-404	#8 SAE Plug	3
12	★	O-Ring	1
13	★	Crown Seal	1
14	★	O-Ring	1
15	★	Bearing Ring	1
16	★	U-Cup	1
17	★	Wiper	1
18	★	Back-Up Washer	2
19	74-113	Cylinder Warning Decal	1
	• 21-857	Seal Kit (★ Items Included in Kit)	

• Not Included in Cylinder Assembly

PRINCE HYDRAULIC CYLINDER ASSEMBLY



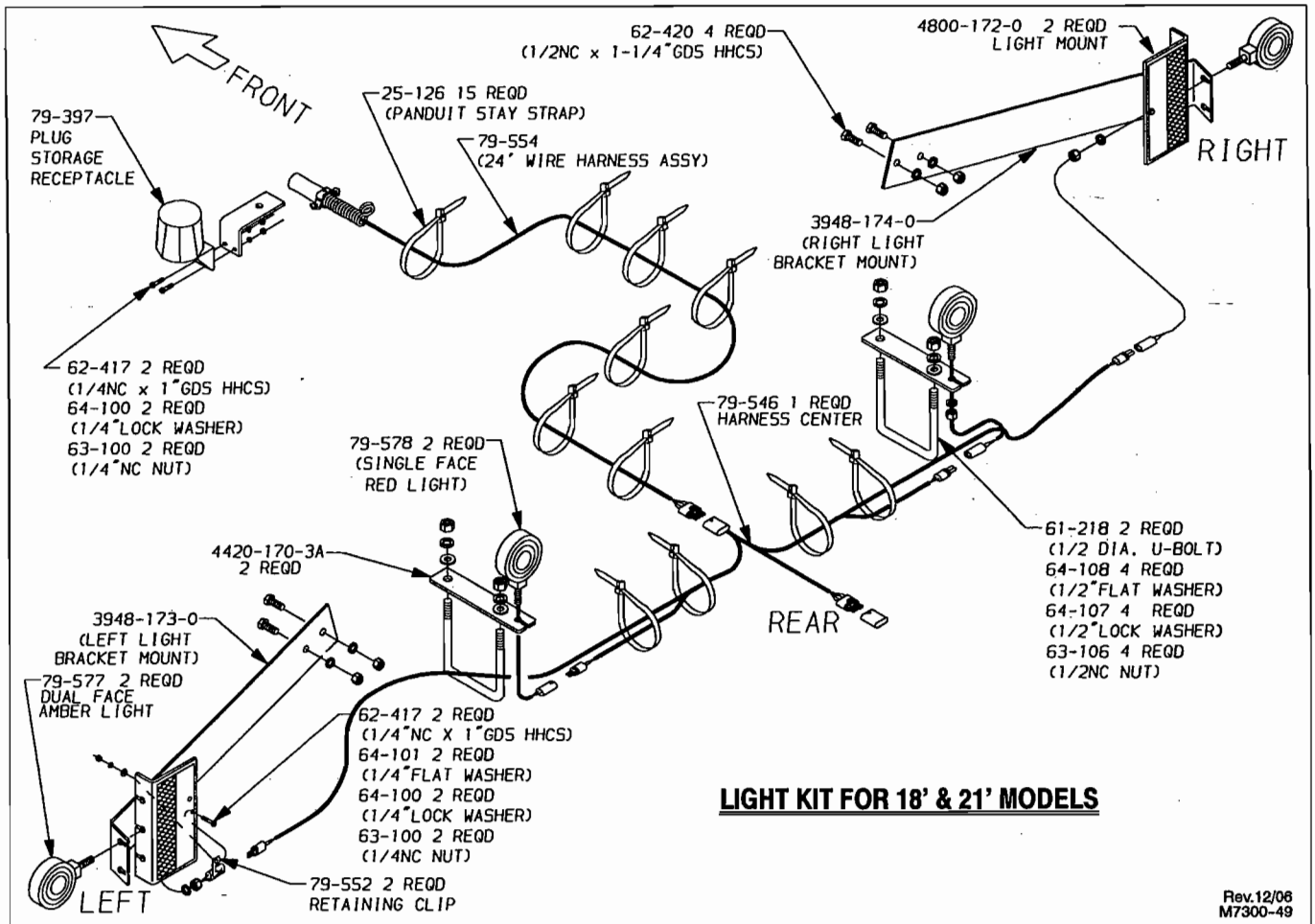
Revised 3/95

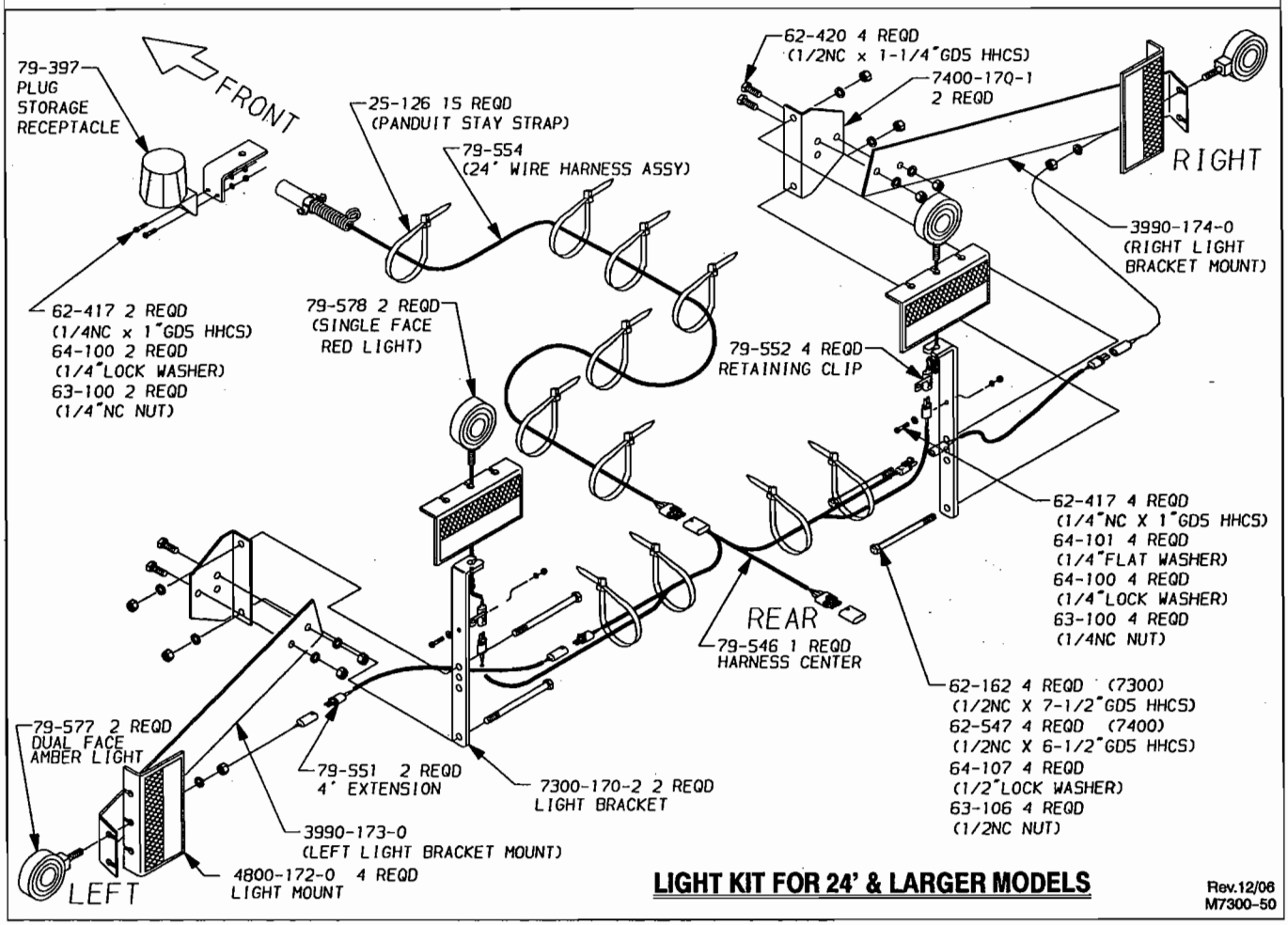
21-168 4" X 40" PRINCE HYDRAULIC CYLINDER ASSEMBLY 1/04

Retracted - 50-3/4" Extended - 90-3/4" Stroke - 40" Rod Diameter - 1-3/4"

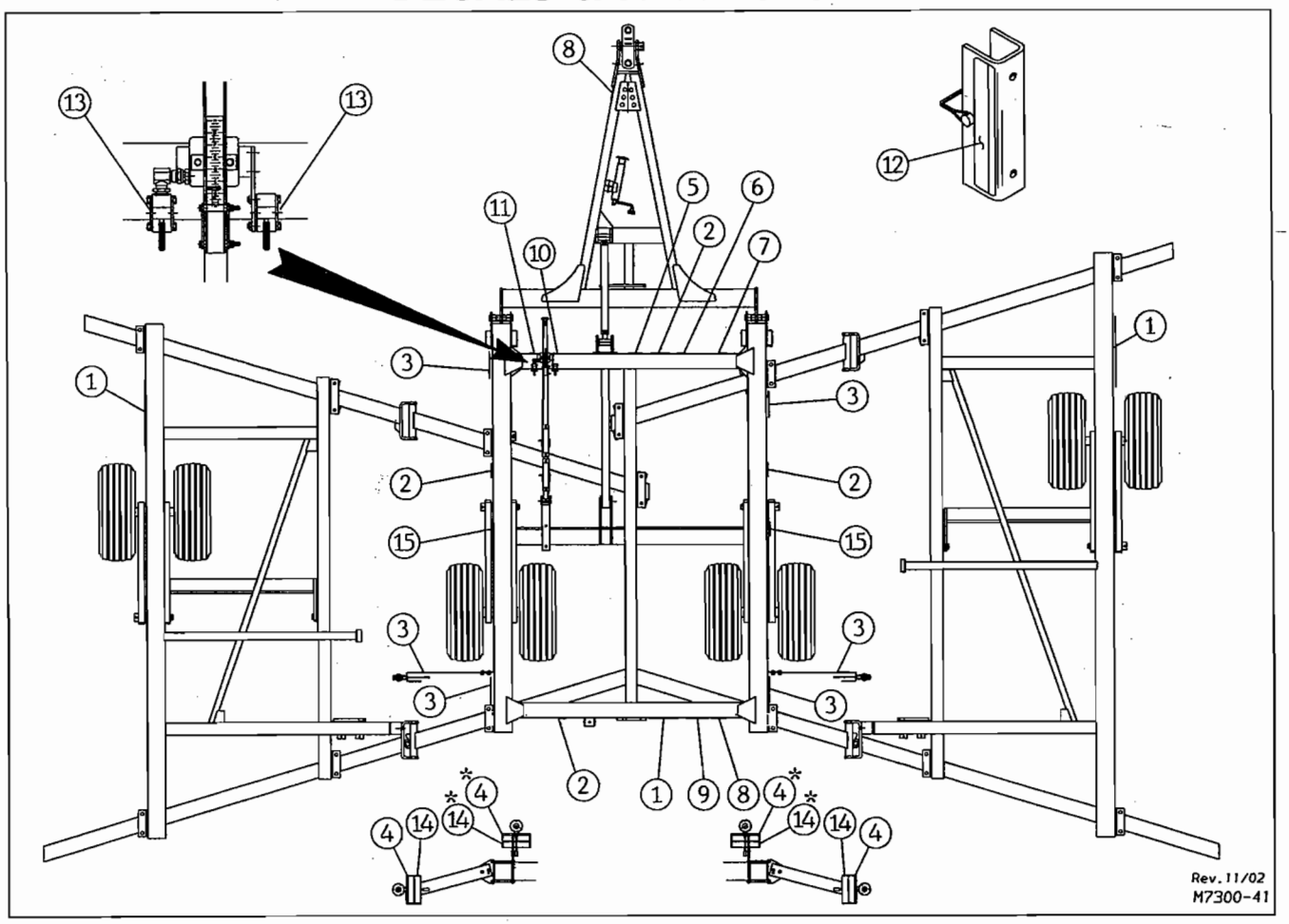
Item	*Part Number*	*Part Description*	*Qty.*
1	21-877	Piston Rod	1
2	21-371	Tube	1
3	21-440	Tie Rod Assembly	4
4	21-882	Butt	1
5	21-878	Gland	1
6	21-879	Piston	1
7	21-507	Clevis Assembly	1
8	21-286	Lock Nut	1
9	21-872	Clevis Pin	
10		1/4"DIA. x 2" Roll Pin	4
11	21-404	Port Plug	1
12	★	O-Ring	2
13	★	Crown Seal	1
14	★	O-Ring	1
15	★	Bearing Ring	1
16	★	U-Cup	1
17	★	Wiper	1
18			
19	74-113	Cylinder Warning Decal	1
20	★	Back-Up Washer	2
	• 21-857	Seal Kit (★ Items Included in Kit)	

• Not part of cylinder assembly


FRONT
79-397
PLUG
STORAGE
RECEPTACLE
25-126 15 REQD
(PANDUIT STAY STRAP)
79-554
(24' WIRE HARNESS ASSY)
62-420 4 REQD
(1/2NC x 1-1/4"GD5 HHCS)
4800-172-0 2 REQD
LIGHT MOUNT
RIGHT
3948-174-0
(RIGHT LIGHT
BRACKET MOUNT)
62-417 2 REQD
(1/4NC x 1"GD5 HHCS)
64-100 2 REQD
(1/4"LOCK WASHER)
63-100 2 REQD
(1/4"NC NUT)
79-546 1 REQD
HARNESS CENTER
79-578 2 REQD
(SINGLE FACE
RED LIGHT)
61-218 2 REQD
(1/2 DIA. U-BOLT)
64-108 4 REQD
(1/2"FLAT WASHER)
64-107 4 REQD
(1/2"LOCK WASHER)
63-106 4 REQD
(1/2NC NUT)
4420-170-3A
2 REQD
REAR
3948-173-0
(LEFT LIGHT
BRACKET MOUNT)
79-577 2 REQD
DUAL FACE
AMBER LIGHT
62-417 2 REQD
(1/4"NC X 1"GD5 HHCS)
64-101 2 REQD
(1/4"FLAT WASHER)
64-100 2 REQD
(1/4"LOCK WASHER)
63-100 2 REQD
(1/4NC NUT)
LEFT
79-552 2 REQD
RETAINING CLIP
LIGHT KIT FOR 18' & 21' MODELS
Rev.12/06
M7300-49


FRONT
79-397
PLUG
STORAGE
RECEPTACLE
25-126 15 REQD
(PANDUIT STAY STRAP)
79-554
(24' WIRE HARNESS ASSY)
62-420 4 REQD
(1/2NC x 1-1/4"GD5 HHCS)
7400-170-1
2 REQD
RIGHT
3990-174-0
(RIGHT LIGHT
BRACKET MOUNT)
62-417 2 REQD
(1/4NC x 1"GD5 HHCS)
64-100 2 REQD
(1/4"LOCK WASHER)
63-100 2 REQD
(1/4"NC NUT)
79-578 2 REQD
(SINGLE FACE
RED LIGHT)
79-552 4 REQD
RETAINING CLIP
62-417 4 REQD
(1/4"NC X 1"GD5 HHCS)
64-101 4 REQD
(1/4"FLAT WASHER)
64-100 4 REQD
(1/4"LOCK WASHER)
63-100 4 REQD
(1/4NC NUT)
REAR
79-546 1 REQD
HARNESS CENTER
62-162 4 REQD (7300)
(1/2NC X 7-1/2"GD5 HHCS)
62-547 4 REQD (7400)
(1/2NC X 6-1/2"GD5 HHCS)
64-107 4 REQD
(1/2"LOCK WASHER)
63-106 4 REQD
(1/2NC NUT)
79-577 2 REQD
DUAL FACE
AMBER LIGHT
79-551 2 REQD
4' EXTENSION
7300-170-2 2 REQD
LIGHT BRACKET
3990-173-0
(LEFT LIGHT BRACKET MOUNT)
LEFT
4800-172-0 4 REQD
LIGHT MOUNT
LIGHT KIT FOR 24' & LARGER MODELS
Rev.12/06
M7300-50

DECALS & REFLECTORS



FOR MODELS - ALL 11/02

Item	Part Number	Part Description	Qty.
1	74-604	KRAUSE Decal	3
2	74-102	DANGER - Stand Clear of Wing Decal	4
3	74-577	Yellow Reflector Tape	6
4	74-575	Red Reflector Tape	2 / 4★
5	74-115	Name Plate	1
6	74-117	Implement Safety Decal	1
7	74-121	Width - Height Decal	1
8	74-158	Tongue Rise Decal	1
9	74-545	7400 SERIES Decal	1
10	74-276	WARNING - High Pressure Decal	1
11	74-418	Transport Lock Valve Decal	1
12	74-387	WARNING - Cylinder Lock Decal	2
13	74-546	Fold Valve / Rocker Valve Decal	2
14	74-576	Fluorescent Orange Tape	2 / 4★
15	74-606	Trademark Decal	2

★ Quantity used for Models 24' & Larger

ASSEMBLY SECTION

THE FOLLOWING SECTION ILLUSTRATES A GENERAL METHOD FOR THE ASSEMBLY OF THIS SERIES KRAUSE TILLAGE TOOL. YOU MUST KNOW THE MODEL NUMBER OF THE UNIT BEING ASSEMBLED WHENEVER MAKING REFERENCE TO THIS SECTION. THE FOLLOWING PICTURES AND DRAWINGS WILL SHOW BOLTS, PINS, NUTS AND ETC., WITH THE DESCRIPTIVE SIZE AND LENGTHS IN THE ACCOMPANYING PARAGRAPH AND A PARTS LISTING REFERENCE PAGE NUMBER. IF ANY DIFFICULTY SHOULD BE ENCOUNTERED DURING THE ASSEMBLY, RECHECK THE ILLUSTRATIONS, ASSEMBLY STEPS AND PARTS LIST DRAWINGS.

PROPER BOLT USE

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque vales listed are for general use only. Check tightness of fasteners periodically.

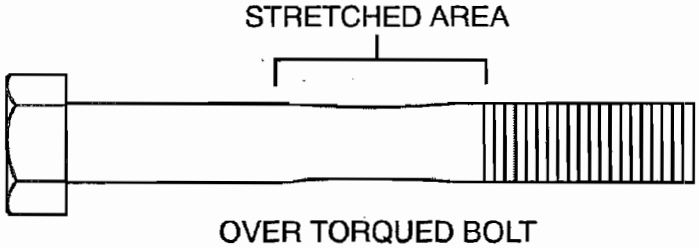
Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

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

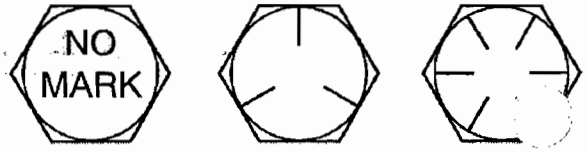
Tighten plastic insert or crimped steel-type lock nuts to approximately 110 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

NOTE: "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication. ***Tighten lubricated bolts to approximately 80% of dry bolts.***

BOLT SIZE	WRENCH SIZE	BLACK OR PLATED BOLTS		
		GRADE 2	GRADE 5	GRADE 8
3/8"	9/16"	20	33	45
7/16"	5/8"	32	52	70
1/2"	3/4"	50	80	105
5/8"	15/16"	100	150	210
3/4"	1-1/8"	160	260	375
7/8"	1-5/16"	175	415	600
1"	1-1/2"	250	625	880
1-1/8"	1-11/16"	375	850	1400
1-1/4"	1-7/8"	530	1100	1765
1-1/2"	2-1/4"	930	1400	2540



OVER TORQUED BOLT



SAE GRADE 2

SAE GRADE 5

SAE GRADE 8

ASSEMBLY INSTRUCTIONS

STUDY THE NAMES AND LOCATIONS OF THE PARTS AND FAMILIARIZE YOURSELF WITH THE FLEX WING TANDEM DISC BEFORE STARTING THE ASSEMBLY. READING THE STEP BY STEP INSTRUCTIONS THAT FOLLOW WILL BE HELPFUL.

SAFETY

READ ALL OF THE SAFETY NOTATIONS IN THE ASSEMBLY INSTRUCTIONS FOR YOUR OWN PROTECTION. ACCIDENTS CAN BE PREVENTED BY RECOGNIZING THE CAUSE OF AN ACCIDENT BEFORE IT CAN HAPPEN.

ASSEMBLY

Select an area for the assembly that will be large enough to accommodate the completed flex wing disc. The surface of the work area should be as level as possible. Use the proper hand tools to insure proper bolt tightness. Refer to the page entitled "Proper Bolt Use" for the recommended torque values of different size bolts.

PART LOCATIONS

FRONT - The front of the frame can be determined by the location of the name plate that has been attached to the front frame member.

RIGHT and LEFT sides can be established by standing behind the frame looking toward the front, or the direction of travel.

TOP - To be sure that the frame is right side up, position the frame with the wing lift hydraulic cylinder lugs on top.

Warning: Always attach chains securely. If a chain would break, the recoil action could cause the loose end to whip in any direction and injure any person nearby. The proof load rating of chain must equal or exceed 5 times the weight being lifted.

THE HEAVIEST COMPONENT TO BE LIFTED INTO PLACE IS THE CENTER FRAME ASSEMBLY WHICH WEIGHS 1,550 LBS.

MODEL NUMBER

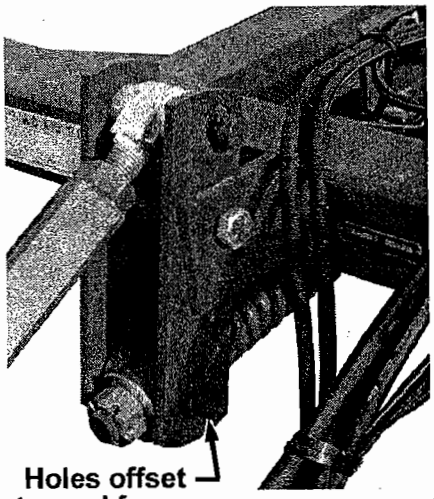
Know the model number of the disc being assembled. Use the model number whenever referring to the assembly, parts pages or the placement drawings. The number is stamped on the NAME PLATE which is located on the front frame member of the flex wing tandem disc.

I. CENTER FRAME ASSEMBLY

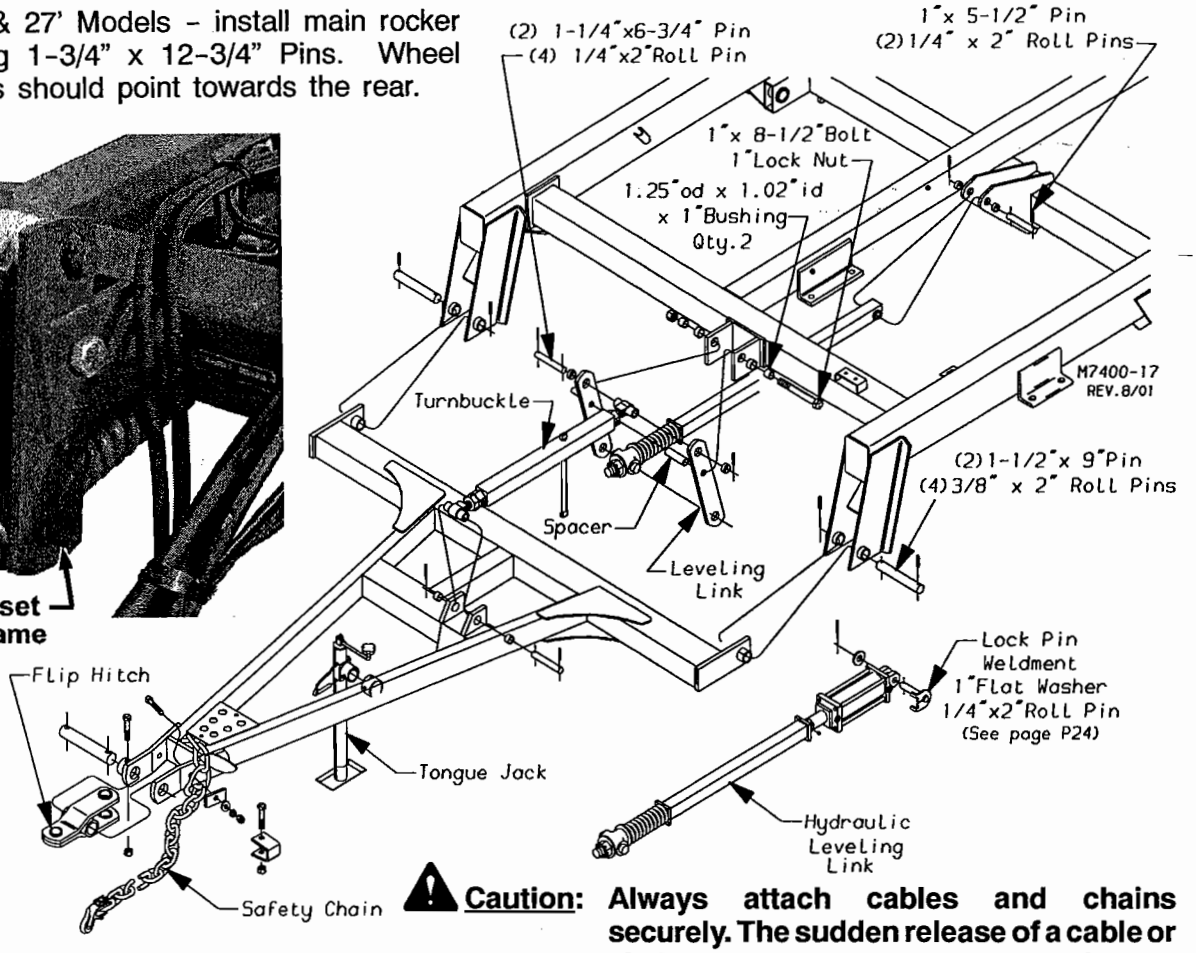
1. Place the center frame on stands approximately 44" high in the center of the assembly area, facing a direction that will permit future hitching to a tractor. NOTE: The stands will be require to support the assembly that will weigh approximately 2,000 lbs. before the tool will be self-supported.
2. Position the tongue between the formed plates at the front of the center frame and pin in place.

3. Lift the tongue and pin the tongue jack into position.

4. 24' & 27' Models - install main rocker using 1-3/4" x 12-3/4" Pins. Wheel arms should point towards the rear.



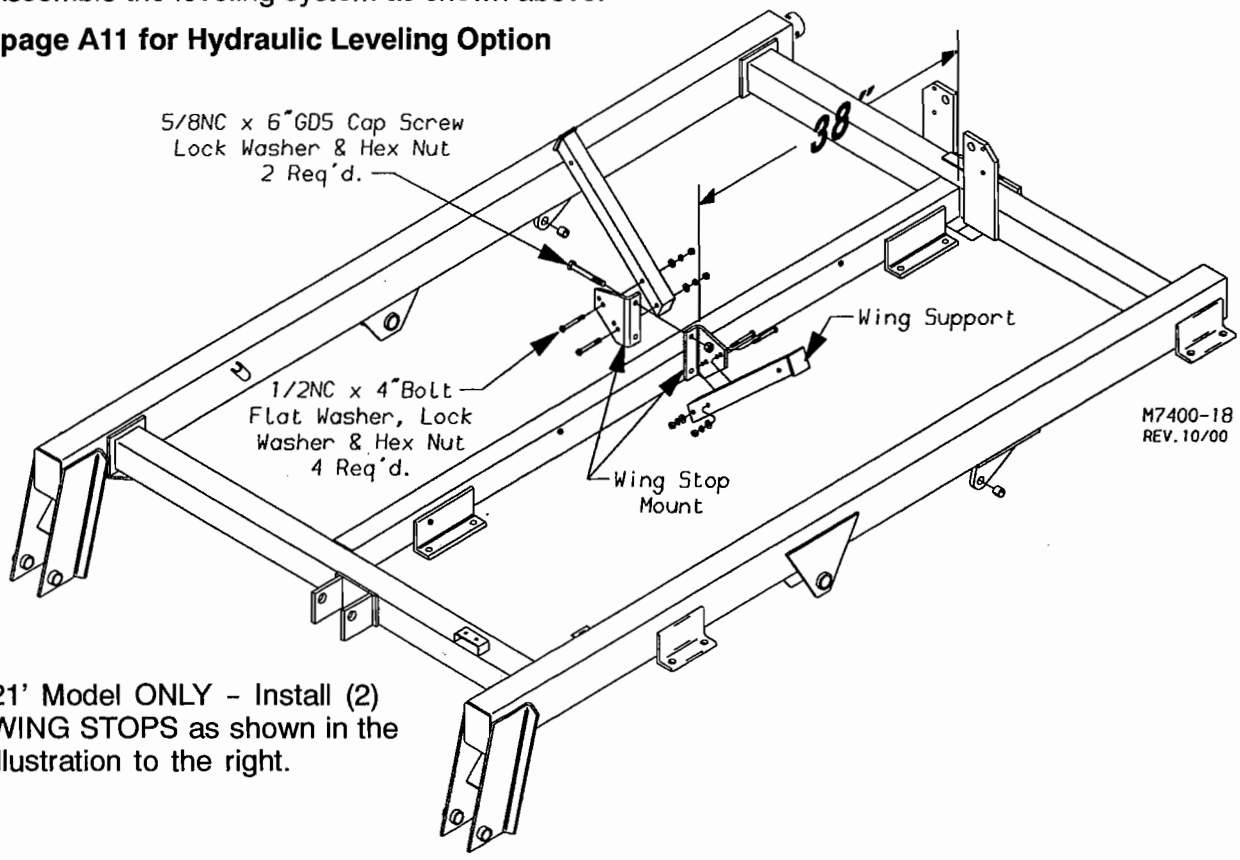
Holes offset toward frame



Caution: Always attach cables and chains securely. The sudden release of a cable or chain under tension can cause injury to persons standing nearby.

5. Assemble the leveling system as shown above.

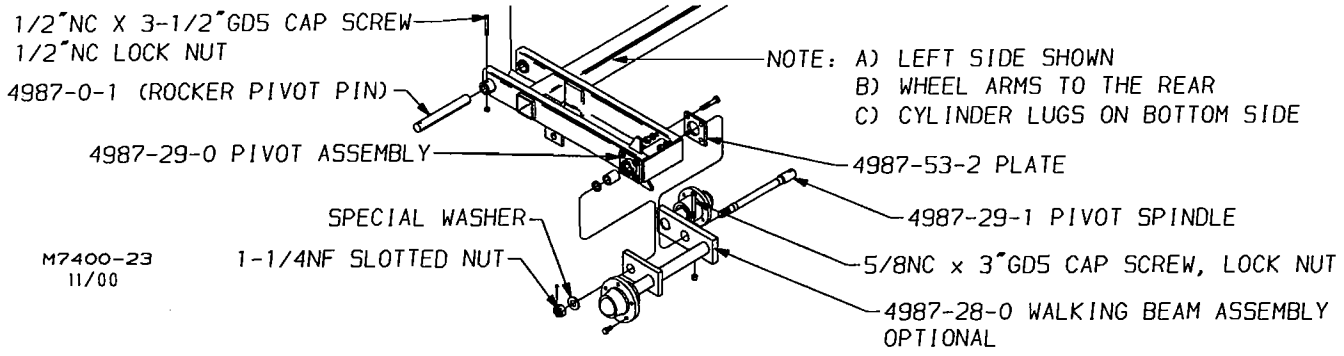
See page A11 for Hydraulic Leveling Option



6. 21' Model ONLY - Install (2) WING STOPS as shown in the illustration to the right.

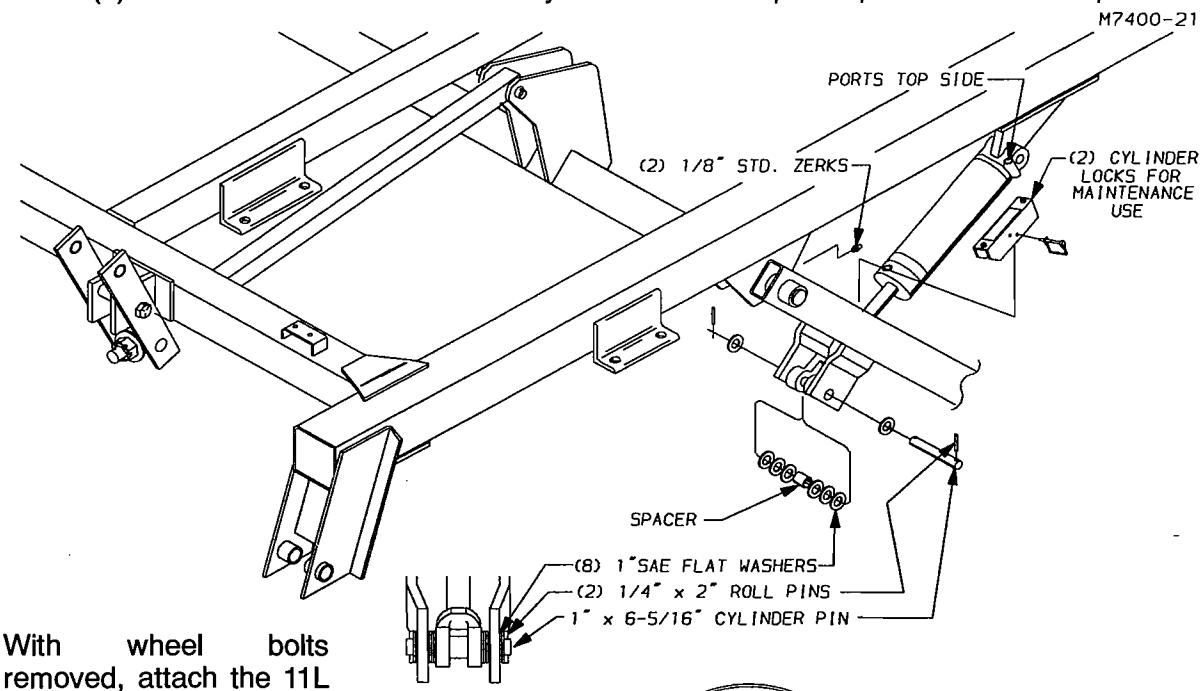
7. CENTER SECTION - **Standard Walking Beams** -- 18' & 21' Models

Remove the zerk from the Walking Beam Pivot Assemble (4987-29-0), see illustration below, and slide it into the hole in the wing wheel arms. Position the zerk hole so that it points toward the long rocker cross beam. Slide the Retainer Plate (4987-53-2) over the pivot and secure both ends with 3/4NC x 3-1/2" GD5 Bolts, Lock Washers and Hex Nuts. Remove the Center Spindle (4987-29-1) from the Pivot Assembly and position the Walking Beam weldment (4987-28-0) with the cross spindle to the bottom of the wheel arms between the rotation stops and reinsert the Center Spindle. Torque the Center Spindle Nut to 25-30 Ft. Lbs. Reinstall zerk and fill pivot tube with grease.



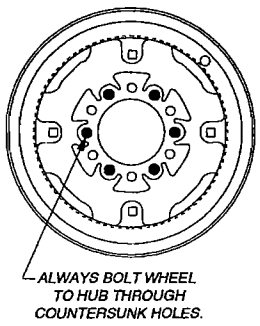
8. Pin the 4" x 10" Master Hydraulic Cylinders to the lugs. Loosen the plugs in the cylinder ports to allow the cylinders to be extended. Pin the clevis end to the rocker as shown below.

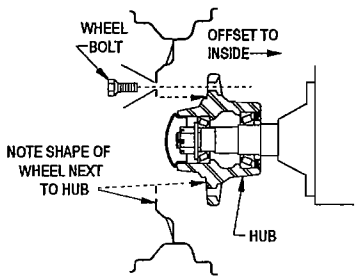
9. Install (2) CYLINDER LOCKS over the cylinder rods and pin in place with P.T.O. pins.



10. With wheel bolts removed, attach the 11L x 15, wheel and tire assemblies to the hubs.

Secure the wheels to the hub with the wheel bolts and torque them 120 Ft. Lbs. DO NOT OVER-TIGHTEN.





IMPORTANT: BEFORE LOWERING THE TIRES TO THE GROUND, CHECK THE HUBS FOR EXCESSIVE END PLAY. IF NECESSARY, ADJUST WHEEL HUB AT THIS TIME IN ASSEMBLY.

DO NOT ALLOW DIRT AND DUST TO ENTER THE HUBS. DIRT IN HUBS MAY RESULT IN BEARING FAILURE DURING OPERATION.

11. Gently lift the back of the frame until the weight is off the stands. Remove the stands. The center frame should be free standing on its own tires.

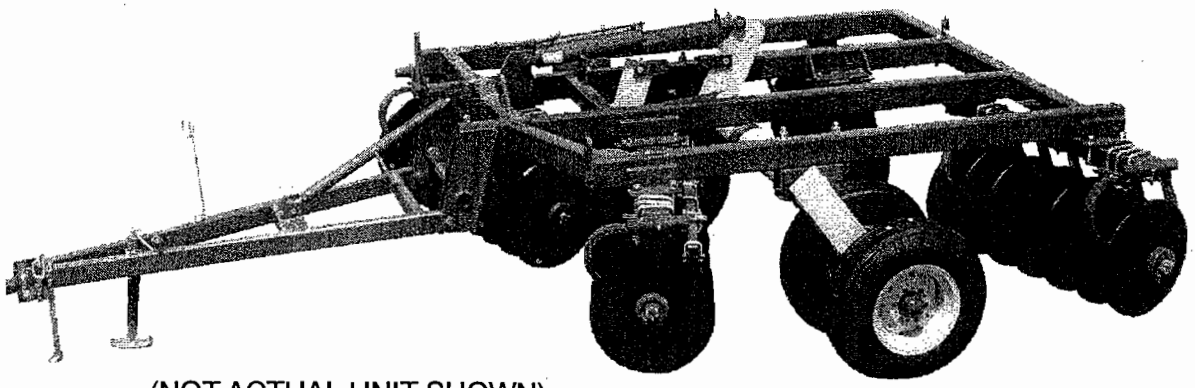
Warning: Have all persons stand clear before removing frame stands.

II. CENTER GANGS

1. Refer to the Placement Pages to select the correct disc gang for each location. The center gang assemblies are identified by the hinge tubes. The front center gang beams are longer than the rear gang beams.

Danger: Due to their sharpness and weight, serious injury can be inflicted by blades and gangs if not handled safely. Watch for unsafe conditions. Keep your co-workers safety in mind. Should personal injury occur, have medical treatment administered immediately.

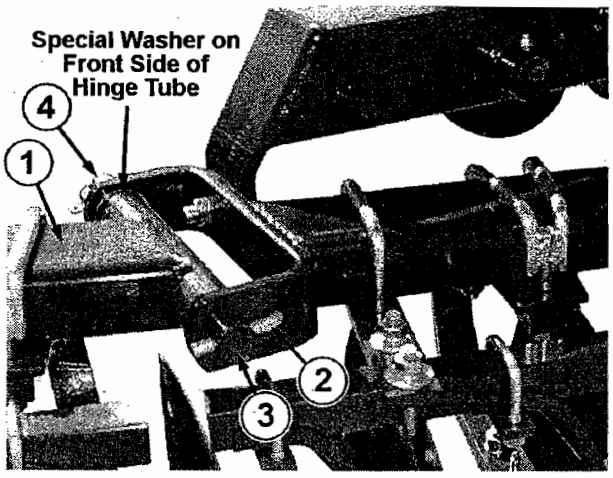
2. Roll each disc gang assembly under the frame at their specific locations.
3. Starting with a front disc gang, loop a length of chain around the center spacer spool and gang beam. Raise the assembly until it is against the bottom of the center frame. Bolt the lugs on the gang beam to the frame with 3/4NC x 2" Bolts, Lock Washers, and Nuts. Clamp the outer end of the gang beam in place with 1" DIA. U-Bolt, Lock Washer and Nut. Do not tighten the Bolts and U-Bolts until the wing frames have been assembled.
4. Repeat Step 3 for each of the remaining gang assemblies.



(NOT ACTUAL UNIT SHOWN)

III. WING FRAME ASSEMBLY

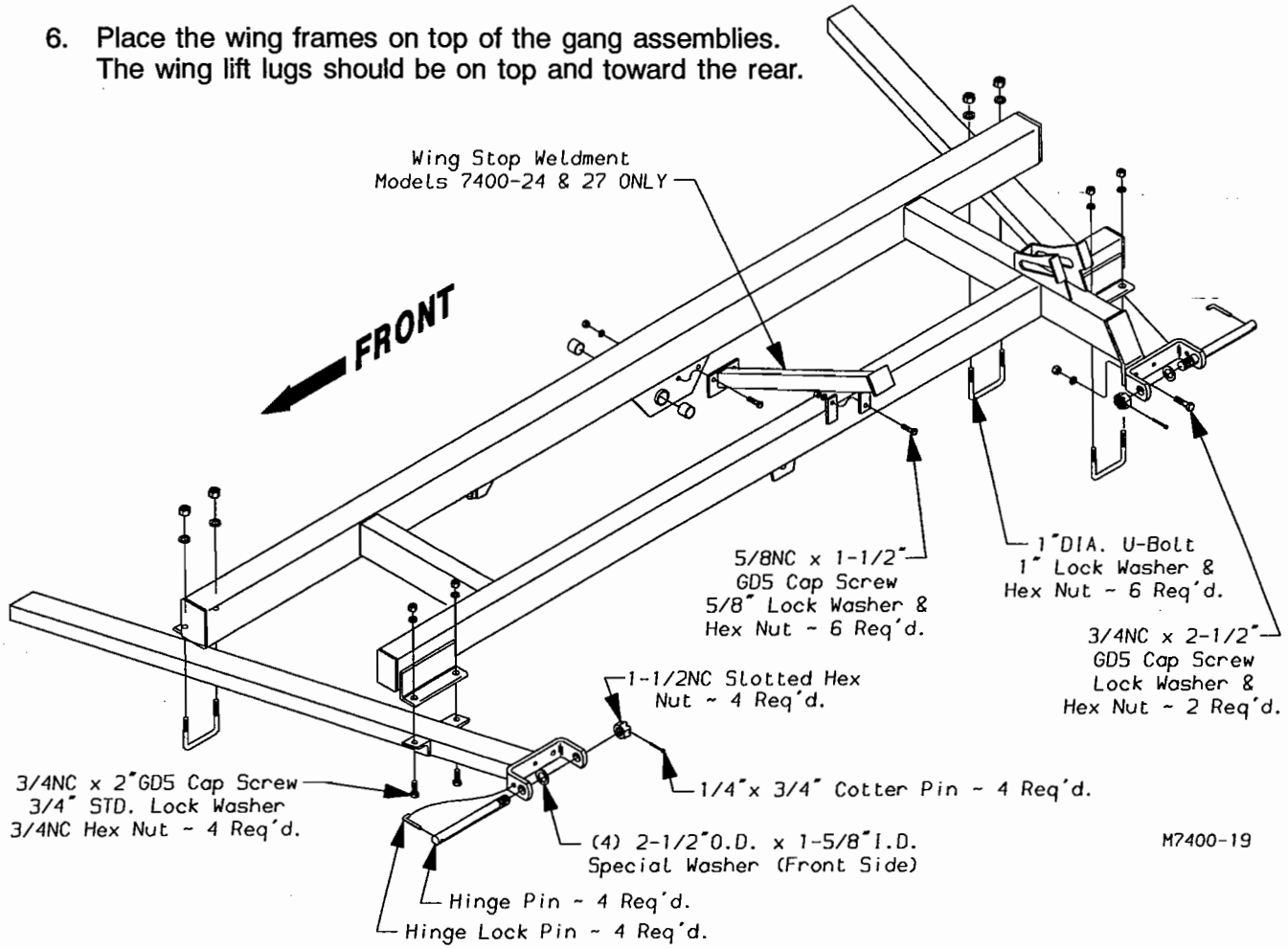
1. Attach the wing gang assemblies to the center frame hinge tubes. The rear wing gang assemblies are longer than the front gang beams.
2. Insert the long portion of the hinge pin lock into the hole on the plain end of the hinge pin.
3. Push the pin and lock through the hinge and special washer until the lock is firmly engaged in the hinge clevis hole.
4. Secure the hinge pins with 1-1/2NC Slotted Hex Nuts. After tightening the slotted nut, turn the nut back until a slot in the nut is in alignment with the hole in the hinge pin for the 1/4" DIA. x 3" Cotter Pin.



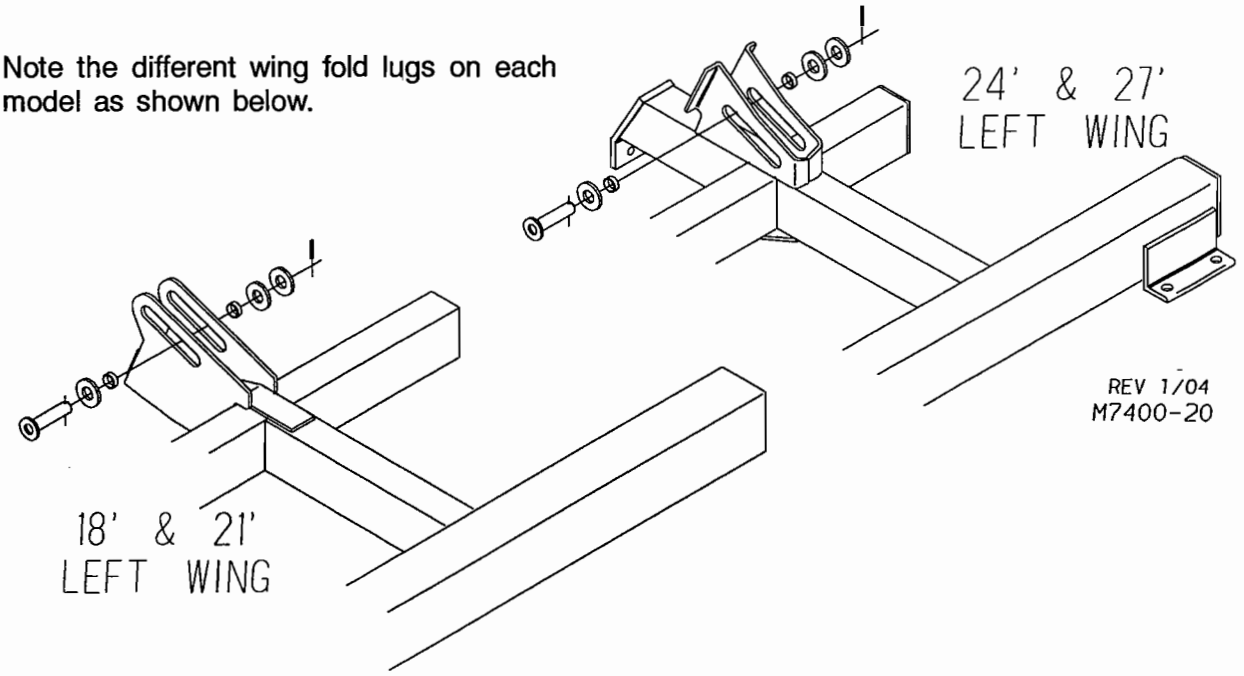
M3990-23

5. Raise the outer end of the wing gang assemblies and support them on stands.

6. Place the wing frames on top of the gang assemblies. The wing lift lugs should be on top and toward the rear.



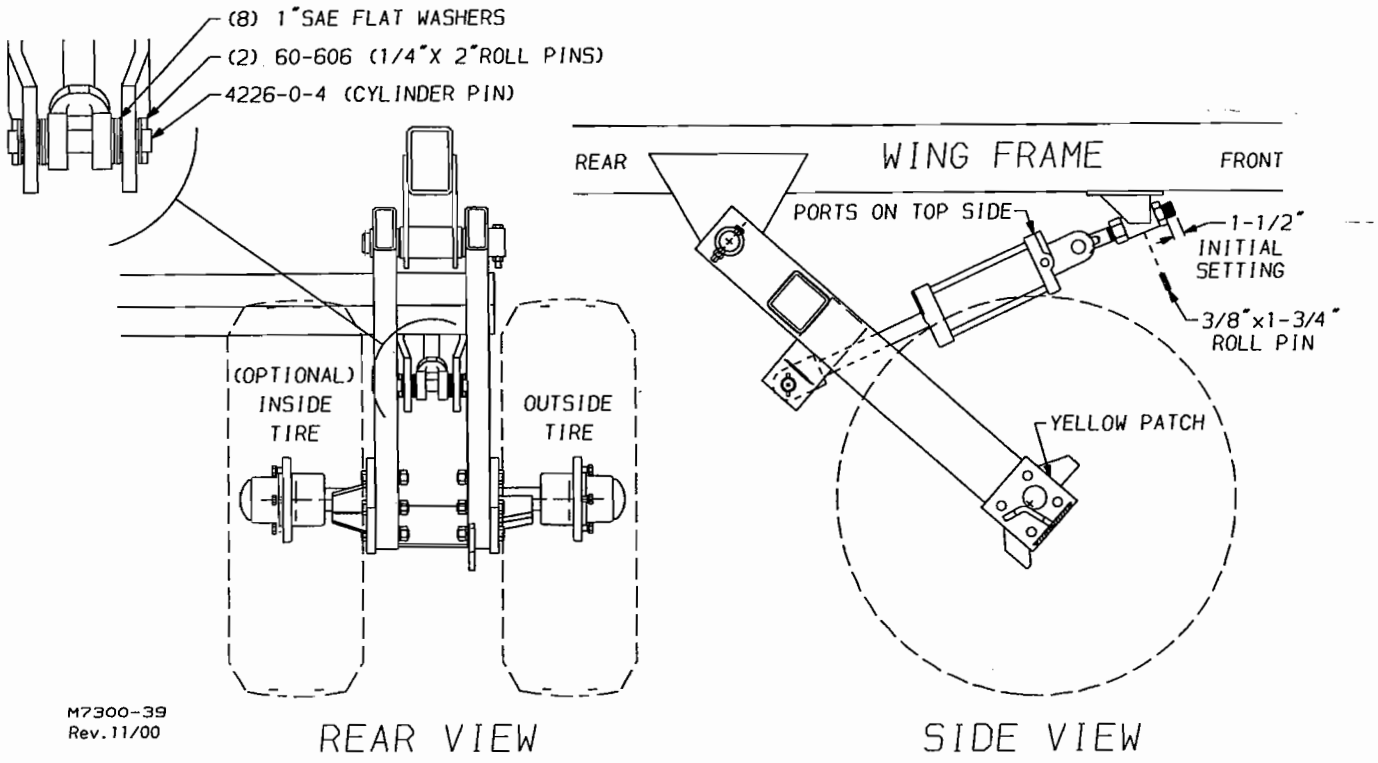
Note the different wing fold lugs on each model as shown below.



7. Fasten the wings to the disc gang assemblies. Do not tighten bolts and U-Bolts until all disc gangs have been attached to the frames.

   Models 24 & 27 -- Attach the wing rockers. See pages P8 and P9.

IV. WING ROCKER ASSEMBLY

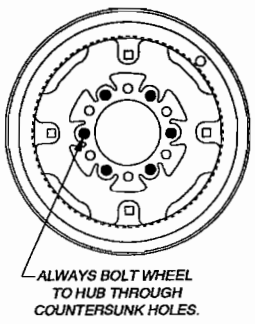


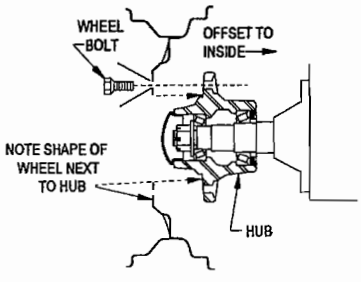
1. Fasten the wing rocker adjustment Eyebolt to the wing frame with 1-1/4NC Hex JAM Nuts. Lock in place with a 3/8" x 1-3/4" Roll Pin. For initial setting there should be 1-1/2" of thread showing.
2. Assemble a 3-3/4" x 10" Cylinder to each wing rocker with a (4226-0-4) 1" DIA. x 6-3/8" Pin in the rod end. There are (8) 1" SAE FLat Washers required, (3) on each side of the rod end clevis and (1) on the outside of each rocker lug.
3. Single / Dual Wheels -- Attach the wheel hub assembly to to the wheel arms using 3/4NC x 3-1/2" GD5 Bolts, Lock Washers and Hex Nuts. Be sure that the yellow patch on the spindle plate is positioned on the top.

   Optional Walking Beams Models 21, 24 & 27 -- Remove the zerk from the Walking Beam Pivot Assembly (4987-29-0), see illustration on page A3 and slide it into the hole in the wing wheel arms. Position the zerk hole so that it points toward the long rocker cross beam. Slide the Retainer Plate (4987-53-2) over the pivot and secure both ends with 3/4NC x 3-1/2" GD5 Bolts, Lock Washers and Hex Nuts. Remove the Center Spindle (4987-29-1) from the Pivot Assembly and position the Walking Beam weldment (4987-28-0) with the cross spindle to the bottom of the wheel arms between the rotation stops and reinsert the Center Spindle. Torque the Center Spindle Nut to 25-30 Ft. Lbs. Reinstall zerk and fill pivot tube with grease. Torque wheel bolts to 120 Ft. Lbs.
4. Attach the wing wheels to the wing wheel arms. Torque the wheel bolts to 120 Ft. Lbs.

   IMPORTANT: CHECK THE HUBS FOR EXCESSIVE END PLAY. IF NECESSARY, ADJUST THE WHEEL HUB AT THIS TIME IN ASSEMBLY.

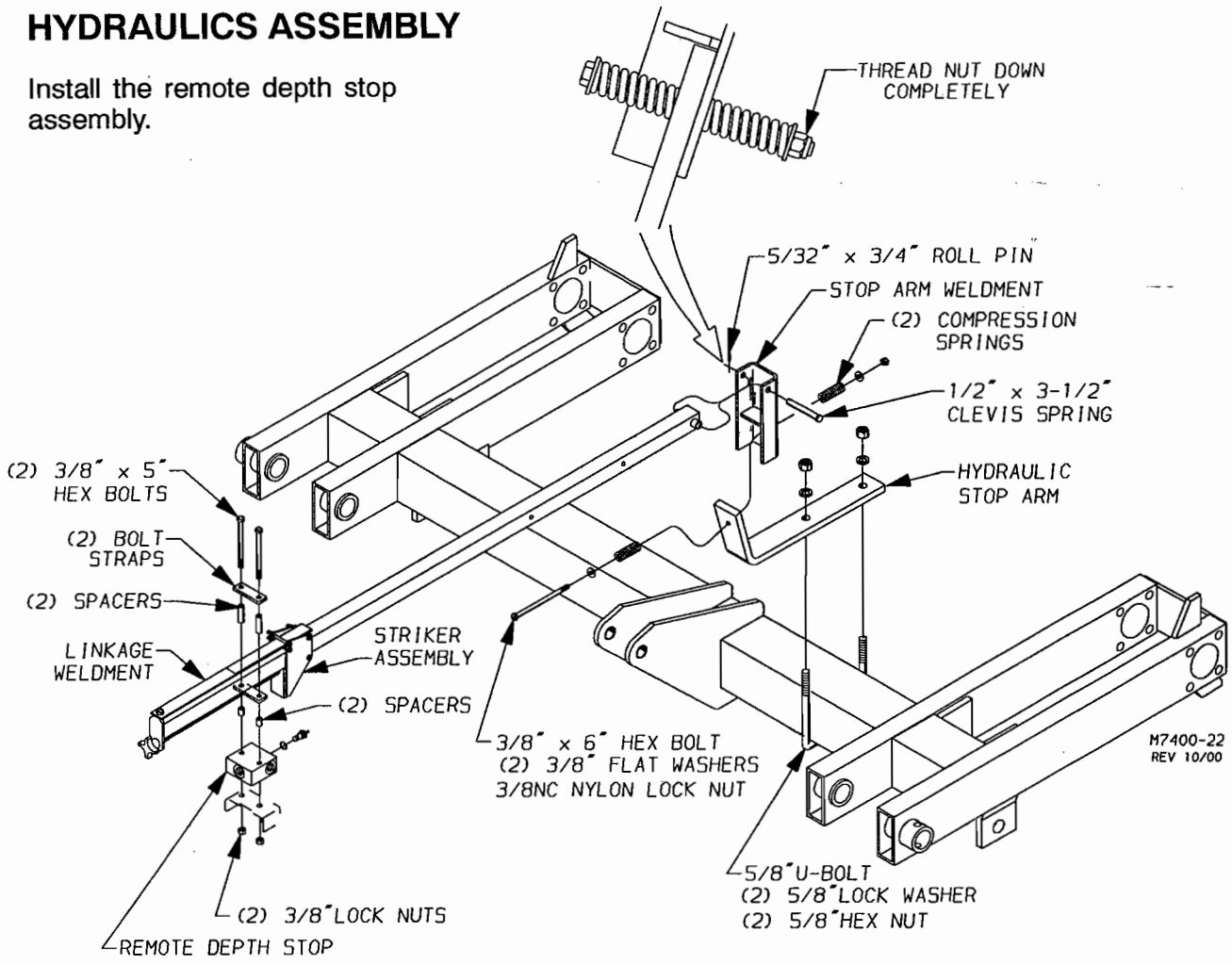
   DO NOT ALLOW DIRT AND DUST TO ENTER THE HUBS. DIRT IN THE HUBS MAY RESULT IN BEARING FAILURE DURING OPERATION.





V. HYDRAULICS ASSEMBLY

1. Install the remote depth stop assembly.



Caution: Use only hydraulic hose that meets or exceeds 3,000 P.S.I. working pressure.

IMPORTANT: DO NOT PIN THE ROD END OF THE WING FOLD CYLINDERS UNTIL ALL HYDRAULIC ASSEMBLY IS COMPLETE AND THE SYSTEM HAS BEEN PURGED OF AIR AND FILLED WITH OIL.

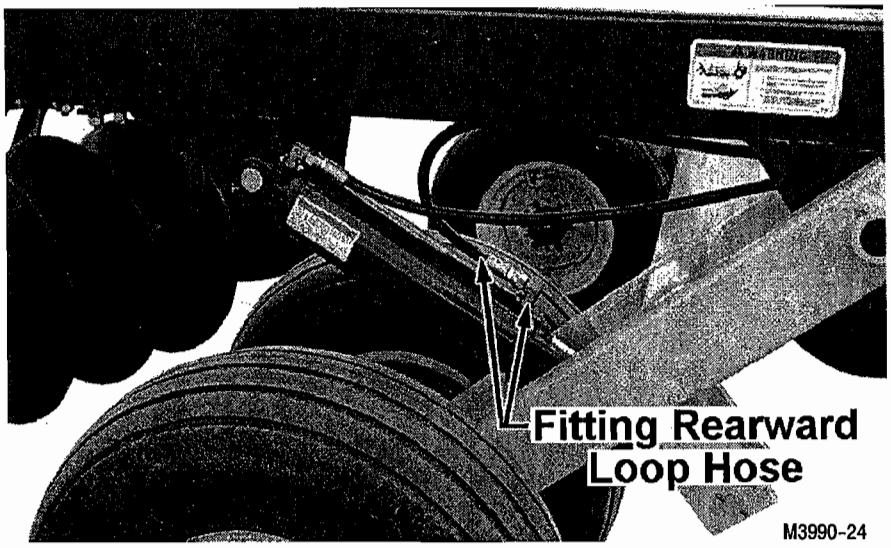
2. Pin the base end of the (2) Wing Lift Cylinders to the center frame lugs, and block up the rod ends to clear lugs. (See illustration on page A13)

3. PLUMBING --

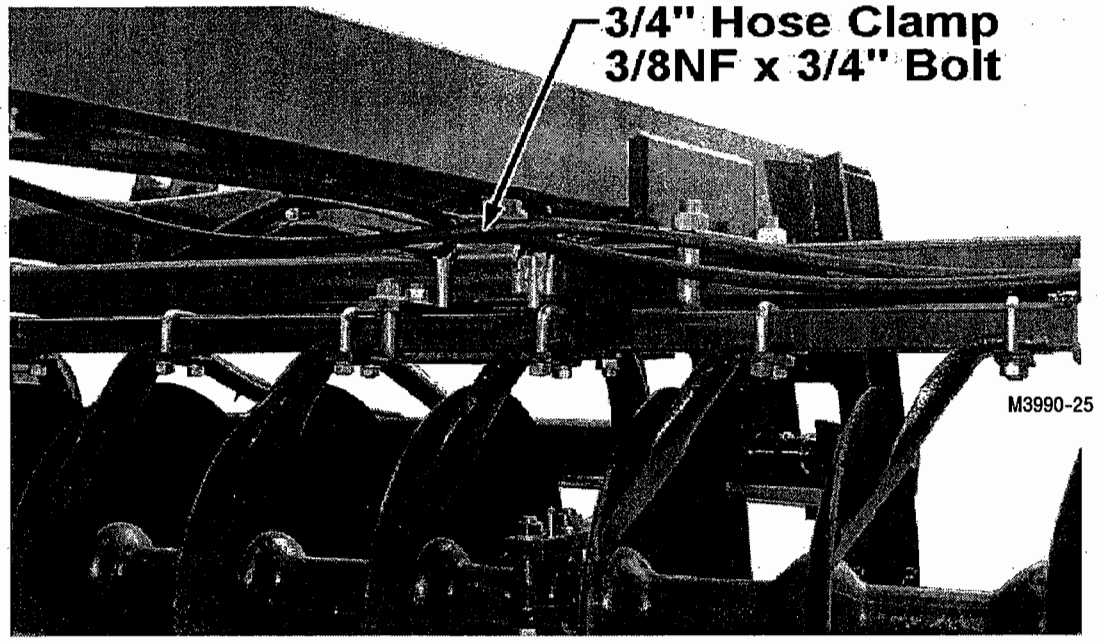
   NOTE: No tape or sealant is necessary on O-Ring / 37° Flare Fittings.

   Refer to the parts section Hydraulic Hose Kit pages P26-P29 and the following photographs for the correct assembly of hoses, fittings, and hose clamps.

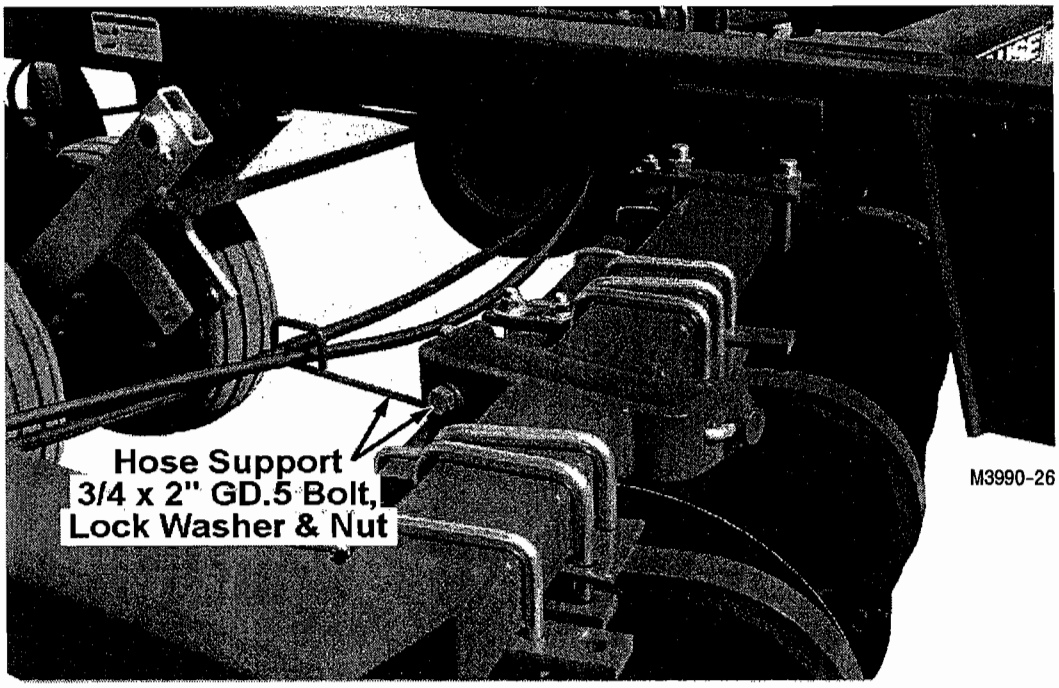
   IMPORTANT: A 90° RESTRICTOR SHOULD BE ASSEMBLED INTO BOTH ROD ENDS AND BASE END PORTS OF EACH WING LIFT CYLINDERS. THE RESTRICTOR CAN BE IDENTIFIED BY A TAG ATTACHED TO IT. PROPER LOCATION OF THESE FITTINGS IS IMPORTANT TO PREVENT THE IMPLEMENT WINGS FROM FREE-FALLING IF A HYDRAULIC FAILURE SHOULD OCCUR.



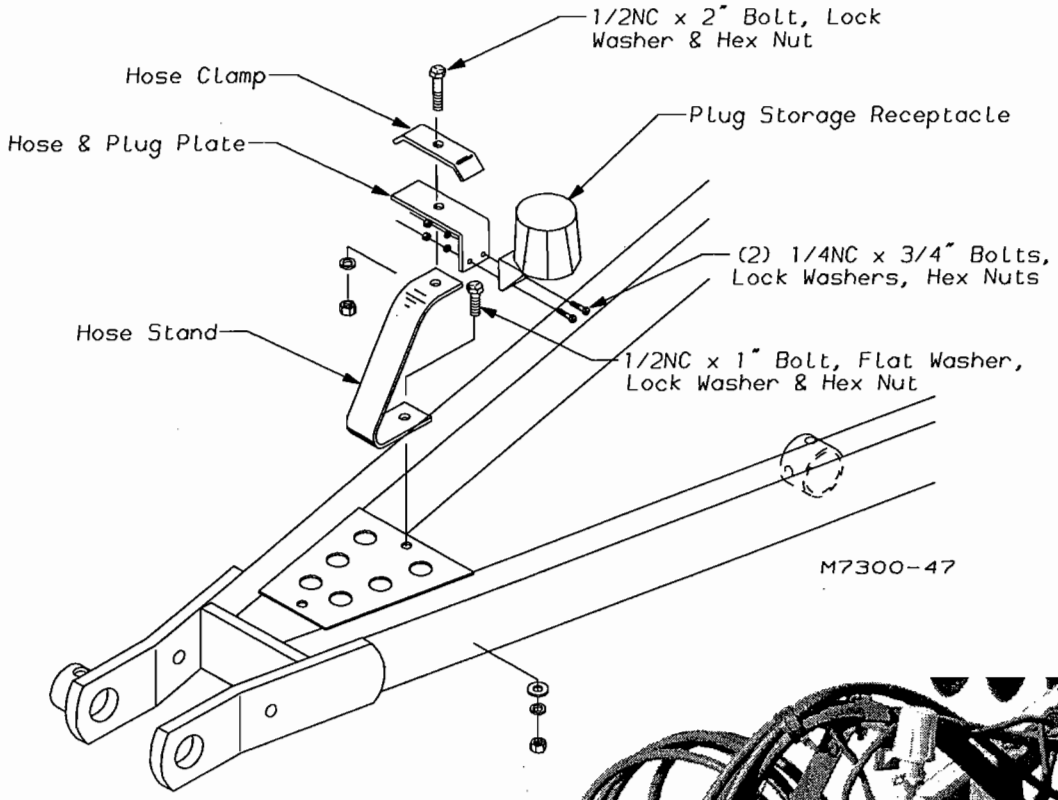
M3990-24

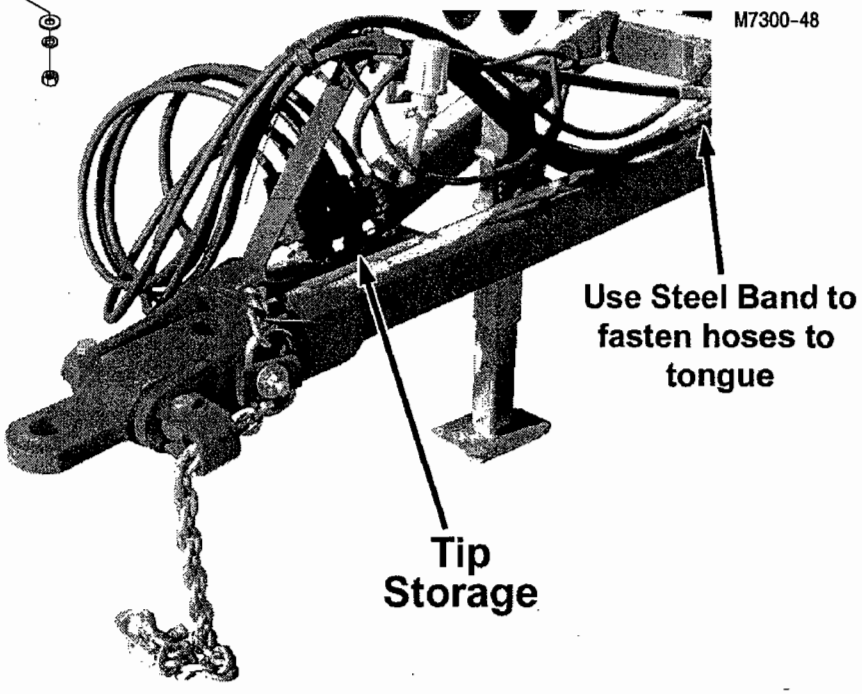


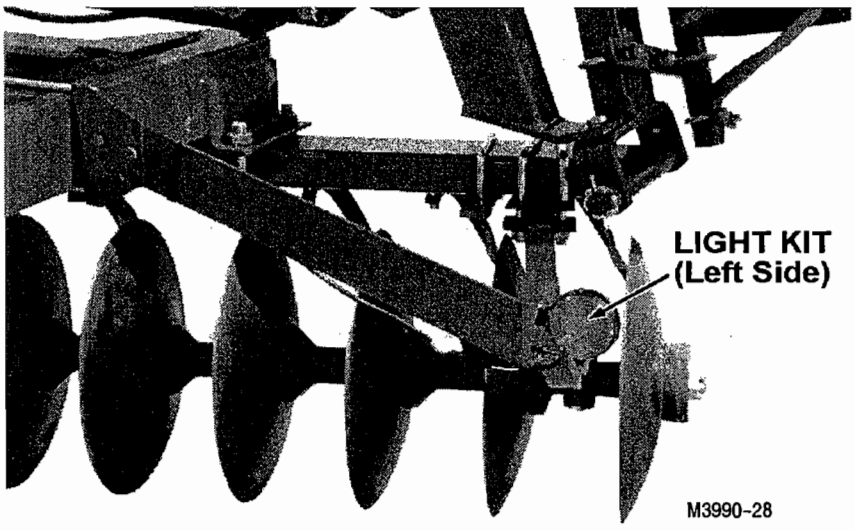
M3990-25

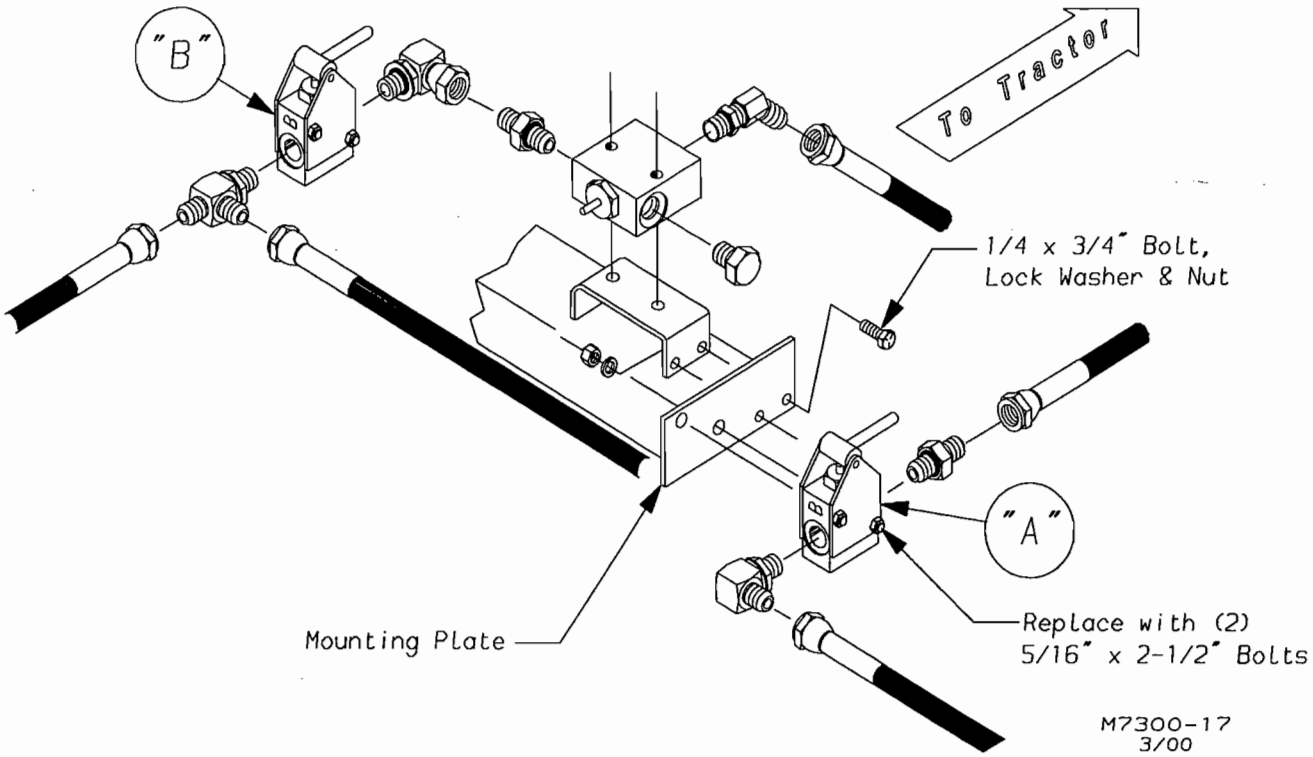


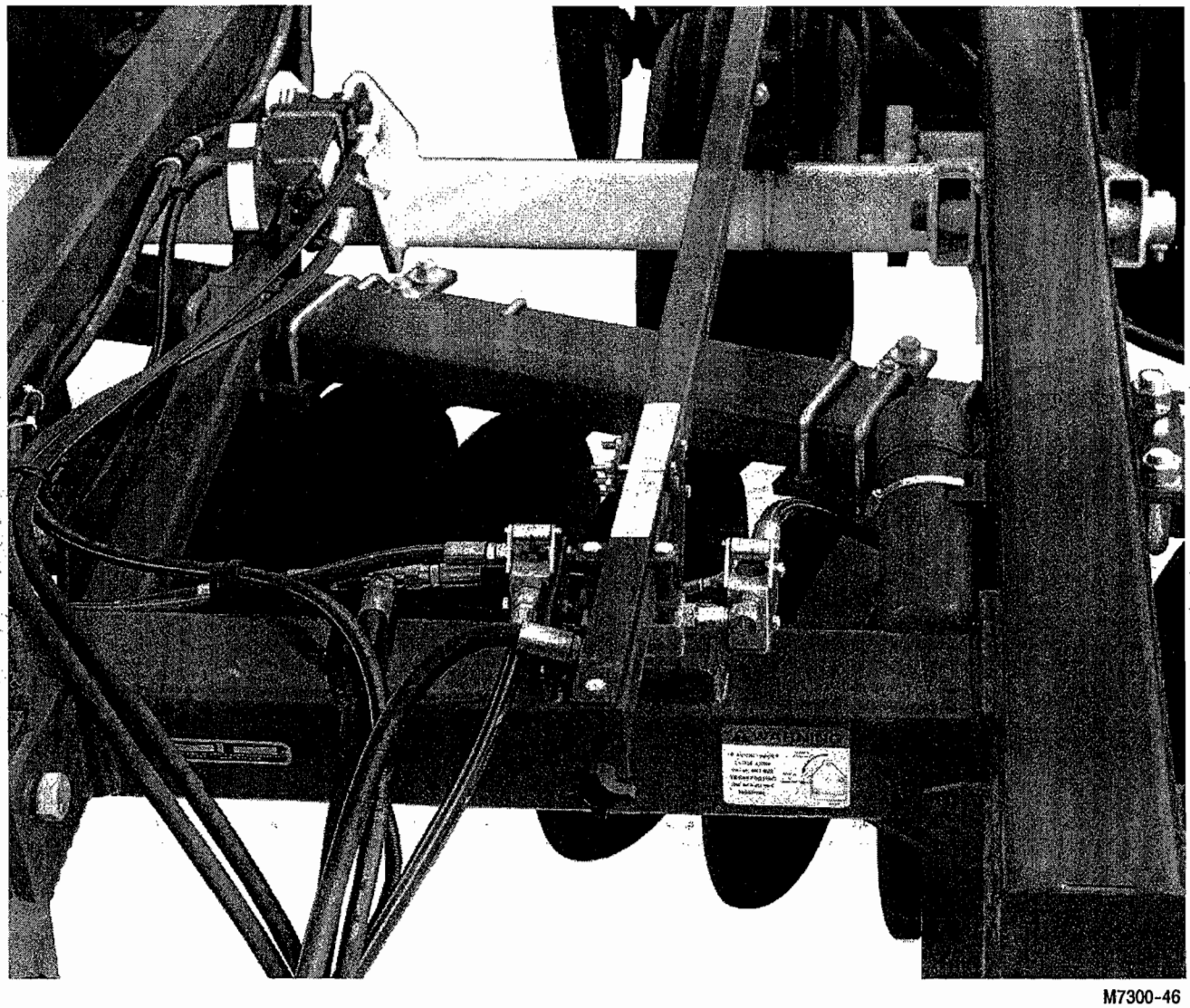
M3990-26


1/2NC x 2" Bolt, Lock Washer & Hex Nut
Hose Clamp
Plug Storage Receptacle
Hose & Plug Plate
(2) 1/4NC x 3/4" Bolts, Lock Washers, Hex Nuts
Hose Stand
1/2NC x 1" Bolt, Flat Washer, Lock Washer & Hex Nut
M7300-47


M7300-48
Use Steel Band to fasten hoses to tongue
Tip Storage


LIGHT KIT (Left Side)
M3990-28

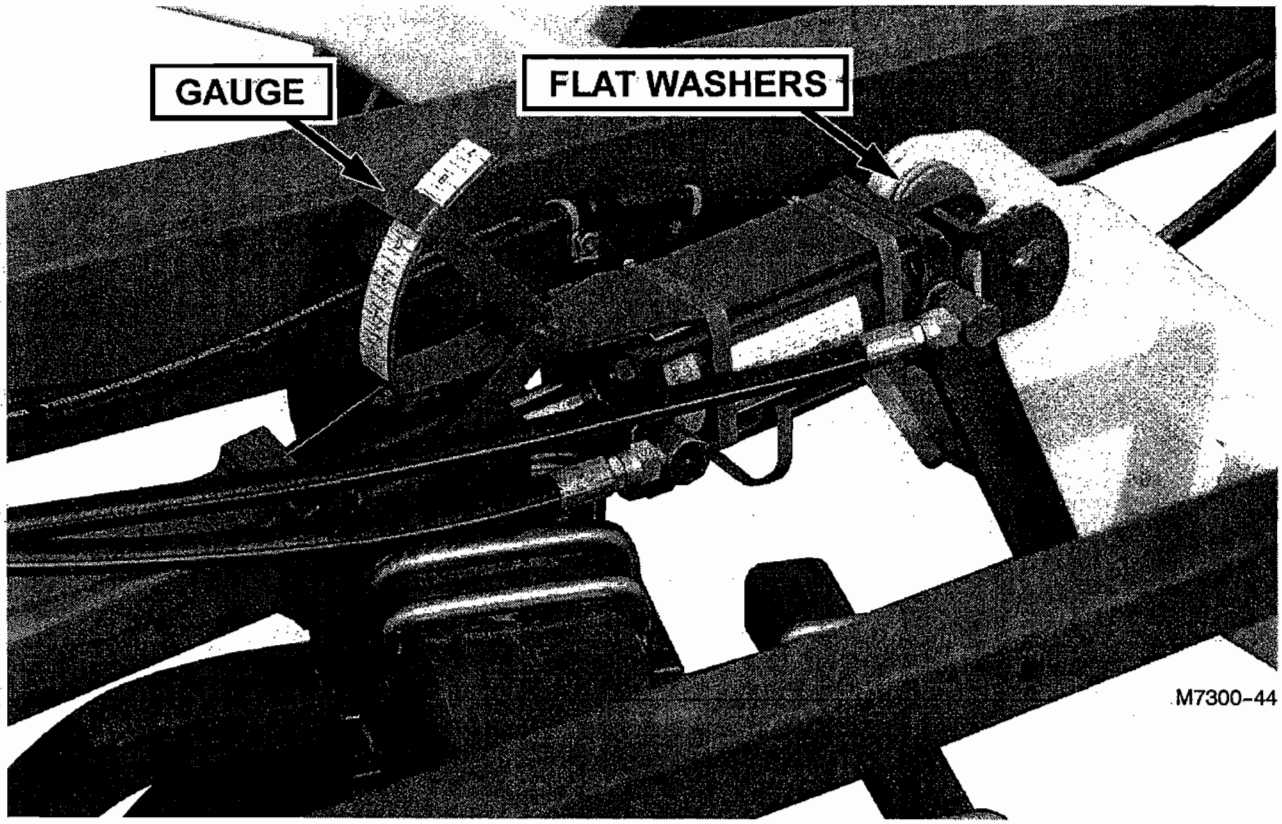

"B"
To Tractor
1/4 x 3/4" Bolt,
Lock Washer & Nut
"A"
Mounting Plate
Replace with (2)
5/16" x 2-1/2" Bolts
M7300-17
3/00



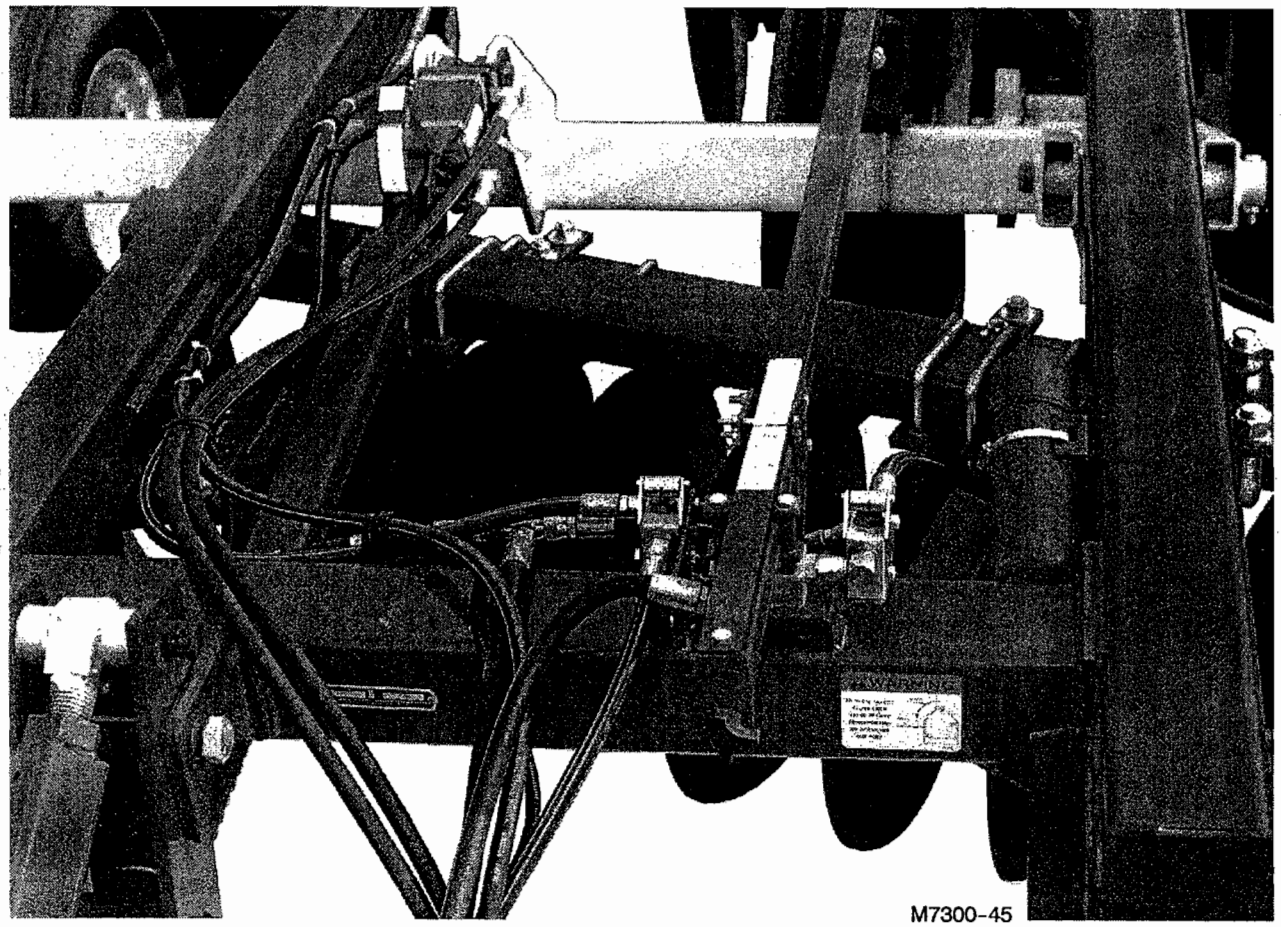
M7300-46

OPTIONAL HYDRAULIC DEPTH LEVELING CYLINDER --

Place (2) 1" Flat Washers between cylinder lug and rocker lug to ensure lock pin is engaged. Route hoses as shown, allow slack for cylinder movement. Make sure the gauge is free to move.



M7300-44



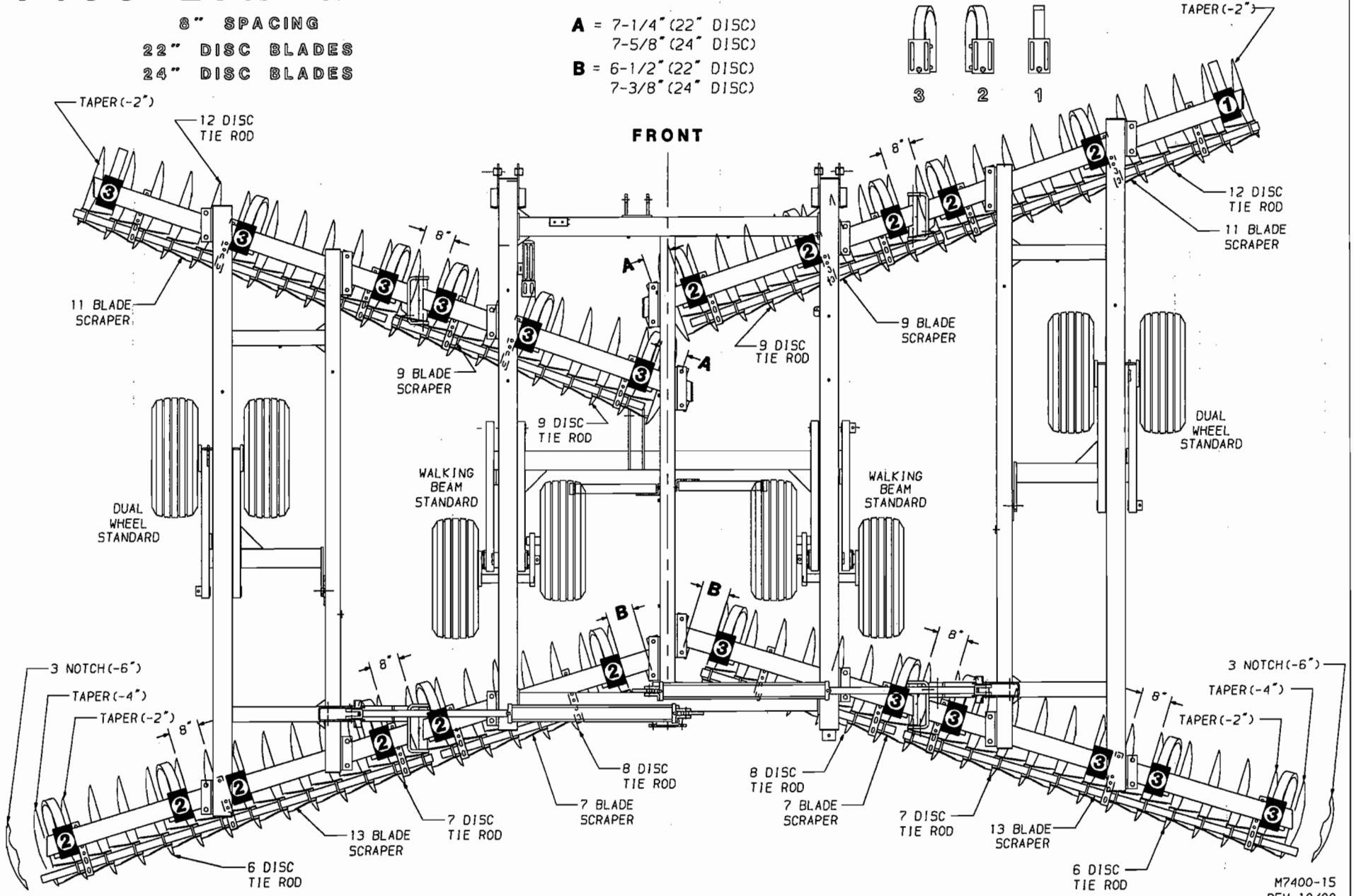
M7300-45

7400-27N & 27NR

8" SPACING
22" DISC BLADES
24" DISC BLADES

A = 7-1/4" (22" DISC)
7-5/8" (24" DISC)
B = 6-1/2" (22" DISC)
7-3/8" (24" DISC)

ROCK FLEX BEARING ARMS



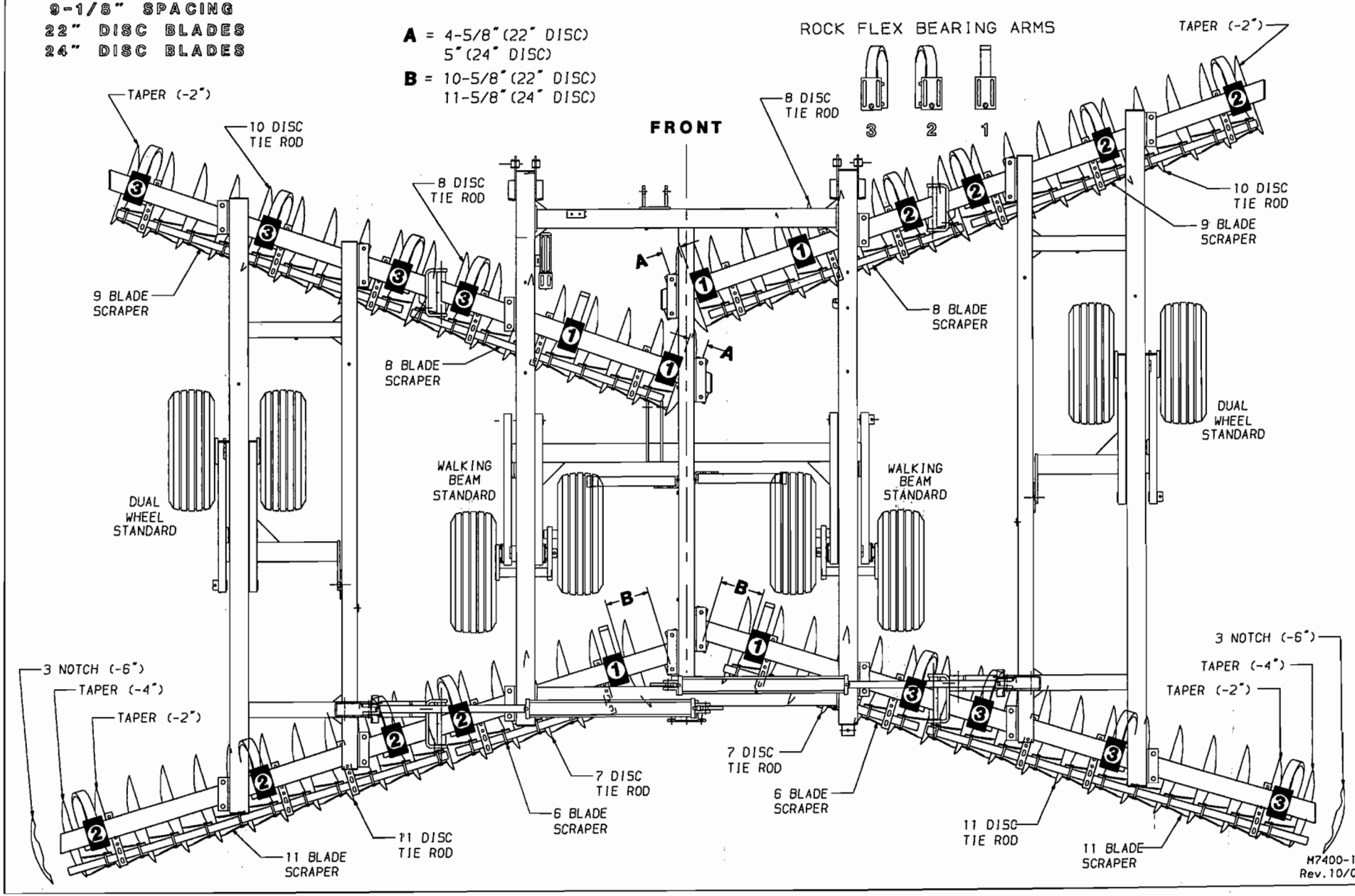
M7400-15
REV. 10/00

7400-27W & 27WR

9-1/8" SPACING
22" DISC BLADES
24" DISC BLADES

A = 4-5/8" (22" DISC)
5" (24" DISC)

B = 10-5/8" (22" DISC)
11-5/8" (24" DISC)



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SAFETY FIRST

Be observant and safety minded. Recognize and correct or avoid hazardous conditions before an accident can happen. Most accidents can be prevented by practicing simple fundamental safety rules.

1. Read and understand the implement and tractor owner's manuals before operating.
2. Be sure safety decals and reflectors are clean and in place.
3. Do not climb or walk on gangs or frames or tires.
4. Never position yourself under any portion of implement unless the transport lock is engaged or entire unit is lowered to the ground.
5. Stop engine before leaving the operator's position to adjust, lubricate, clean or unclog the machine.
6. Do not stand between the implement and tractor unless the tractor brakes are locked and engine is shut off.
7. Do not stand on or straddle a tongue when unhitching.
8. Always store a winged implement with the wings down.
9. Never remove locking pins until hydraulic cylinders and lines are full of oil and free of air. See Operating Instructions for proper method of removing air.
10. Never use machinery until all safety devices are in place.
11. Release all hydraulic pressure before shutdown periods.
12. Comply with Federal, State and local laws.
13. Use a Slow-Moving-Vehicle (SMV) emblem when transporting.
14. Always use a safety chain of tensile strength equal to the gross weight of the implement and attachments when roading.
15. Towing vehicle weight must exceed weight of towed implement.
16. Check wheel bolts before and during transport.
17. Always use wing locks and road locks to hold raised positions.
18. Never permit riders on implement.
19. Do not road an implement over 15 miles per hour on the best surface conditions. Reduce speed when going up or down hills and when approaching ditches.
20. Keep small children away from farm equipment.
21. Never modify an implement without permission from the Krause Engineering Department.
22. Always use authorized Krause parts.