

Ezee-On

MODEL 4500 DISC HEAVY DUTY TANDEM 3 SECTION FRAME

OWNER'S MANUAL c/w ASSEMBLY INSTRUCTIONS and Parts List

Manufactured
by

Ezee-On Manufacturing

Vegreville, Alberta
Canada
726G

Printed in Canada

EZEE-ON MANUFACTURING

Limited Warranty Policy

Ezee-On Manufacturing's products are warranted to the original non-commercial purchaser to be free from defects in material and workmanship for a minimum period of twelve (12) months from the original date of purchase.

Ezee-On Manufacturing's obligation under this warranty shall be limited to the repair or exchange, at Ezee-On's option, free of charge to the original purchaser, any part or component that, in our judgment, shows evidence of such defect. Further, that such part shall be returned within thirty (30) days from date of failure to Ezee-On Manufacturing, routed through the dealer and distributor from whom the equipment was purchased, **transportation charges prepaid**.

This warranty shall not be interpreted to render Ezee-On Manufacturing liable for injury or damages of any kind or nature to person or property. This warranty does not include claims for, or extend to the loss or damage of crops, loss because of delay in seeding/ planting or harvesting, or any expense or loss incurred for labor, substitute machinery, rental, transportation expense or for any other reason.

Except as set forth above, Ezee-On Manufacturing shall have no obligation or liability of any kind on account of any of its equipment and shall not be liable for special or consequential damages. Ezee-On Manufacturing makes no other warranty, expressed or implied, and, specifically, Ezee-On Manufacturing disclaims any implied warranty or merchantability or fitness for a particular purpose. The purchaser is solely responsible for determining suitability of Ezee-On equipment purchased. This warranty is subject to any existing conditions of supply, which may directly affect our ability to obtain materials or manufacture replacement parts.

Ezee-On reserves the right to make improvements in the design of products and/ or changes in specifications at any time, without incurring any obligation to owners of units previously sold. No one other than Ezee-On Manufacturing is authorized to alter, modify or enlarge this warranty.

Genuine Ezee-On replacement parts and components will be warranted for 90 days from date of purchase, or the remainder of the original equipment warranty period, whichever is longer.

Under no circumstances will this warranty cover any merchandise or components thereof, which, in the opinion of the Company, has been subjected to misuse, unauthorized modifications, alteration, an accident or if repairs have been made with parts other than those obtainable through Ezee-On Manufacturing.

Commercial Use: Warranty for commercial, rental or custom use of any Ezee-On product is limited to 90 days, parts and labor.

Twelve Months Warranty:

All Ezee-On manufactured products are warranted for twelve consecutive months from the date of delivery of the new Ezee-On product to the original non-commercial purchaser.

- 1-12 Months: 100% parts and labor coverage
-

Extended Coverage Limited Warranty (24 additional months):

Air Drills, Coulter Drills, Air Carts, Cultivators, Chisel Plows, Offset and Tandem Discs and Post Drivers carry limited extended warranty. Ezee-On Manufacturing's obligations under this extended warranty coverage shall be limited to repair or exchange, at Ezee-On Manufacturing's option, for the original, non-commercial owner:

- 13-24 Months: 100% Ezee-On manufactured components only, NO labour – see below for description
- 25-36 Months: 50% Ezee-On manufactured components only, NO labour – see below for description

Ezee-On manufactured components are, but not limited to: frames, axles, hitches, castor assemblies, packers, turnbuckles, rockshafts, packer frames, packers – steel, tanks – air cart seed and fertilizer tanks, seed cups, metering rollers.

NON Ezee-On manufactured components are, but not limited to: Monitors, tires, rims, bearings, hydraulics: motors, pumps, controls, cylinders, hoses and valves; sprockets, chain, rubber packer wheel tires, polyurethane wheel mounted packers, coulter blades, shanks, springs, bolts, pulleys, air hoses, sweeps, spikes, spoons, seals, power wheels, hitch jacks, hubs and wheels.

The Company in no way warrants engines, batteries, coulter assemblies, rubber tires, or other trade accessories since these items are warranted separately by their respective manufacturers.

T2-215 Bearing Extended Coverage Limited Warranty:

Seven year limited warranty: Extended coverage (13-84 months) on T2-215 Series bearing is limited to the replacement of ball bearings and seals for the original, non-commercial owner. Associated bearing parts, labor, freight, etc., are not covered.

Warranty Limitations and/ or Exclusions:

1. Buckets & bucket tines, bale spears & tines, grapple tines, pallet forks, shanks, all ground engaging tools, disc openers and disc blades, air seeder hose and normal wear parts/ items carry NO warranty.
2. There is no warranty coverage if parts or attachments, other than those made or marketed by Ezee-On Manufacturing have been used in connection with the unit, and in the sole judgment of Ezee-On, such use affects its performance or reliability.
3. If the equipment has been altered or repaired in a manner which, in the sole judgment of Ezee-On, affects its performance, stability or reliability.
4. The purchaser shall be responsible for dealer travel time to the machine or to deliver the machine to the dealer's service shop for repair. Ezee-On Manufacturing does not cover delivery charges or travel time.

This warranty policy is subject to change without prior written notice at Ezee-On Manufacturing's sole discretion.

Revision: September 1, 2004

EZEE-ON MANUFACTURING

Warranty Registration Form

NOTE: Warranty reimbursement is contingent upon product registration. Please complete this form and forward by mail or fax to the address above.

OWNER'S NAME: _____

ADDRESS: _____

CITY: _____ STATE/ PROVINCE: _____

POSTAL/ ZIP CODE: _____

PHONE #: _____

EMAIL Address: _____

Model Purchased: _____

Serial Number: _____

Dealer's Name: _____

Dealer's Location: _____

I/ We acknowledge receipt of the Owner's manual for the above specified implement and acknowledge that the Owner's Manual contains the Limited Warranty Statement governing the implement purchased and also contains information vital to the proper and safe operation of this equipment.

Owner's Signature(s)

Date Signed

INTRODUCTION

Thank you for deciding to purchase this Ezee-On product. In addition to having traditional Ezee-On reliable and durable disc, your new implement incorporates a number of operational and safety features. We urge you to familiarize yourself with the operation and maintenance of your implement by reading this manual carefully.

Remember that it is the responsibility of the operator to ensure that the implement is field ready. However, should you encounter a problem, please contact your dealer immediately.

This manual contains the following:

- initial setup instructions
- operational (field) instructions
- parts listing for this implement

READ THIS BOOK CAREFULLY TO INSURE THAT YOUR NEW DISC IS ASSEMBLED AND ADJUSTED CORRECTLY.



RIGHT and **LEFT** is determined by standing behind the machine and facing **FORWARD** in the direction of travel.



This symbol is used to identify safety messages. When you see this symbol, read the safety message carefully.

EZEE-ON RESERVES THE RIGHT TO MAKE CHANGES IN MODEL OR SPECIFICATIONS WITHOUT ANY OBLIGATION AS TO THE REPLACEMENT OR MODIFICATIONS IN PREVIOUS MACHINES.

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SAFETY RECOMMENDATIONS



WATCH FOR THIS SYMBOL. IT IDENTIFIES IMPORTANT SAFETY MESSAGES. WHEN YOU SEE THIS SYMBOL, READ THIS SAFETY MESSAGE CAREFULLY.

GENERAL SAFETY

1. Never allow anyone to ride on the tractor drawbar, or on the disc. The person(s) riding may fall and be seriously or fatally injured.
2. Disc should be operated ONLY by persons responsible and qualified to do so.
3. Never allow anyone to climb or play on the tractor or disc. They may fall and be seriously injured.
4. Follow all safety precautions in your tractor manual.
5. Keep a First Aid Kit in the tractor at all times.

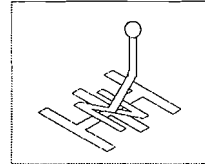


ASSEMBLY SAFETY

1. When assembling disc, use aligning punch to line up holes. Keep fingers out of holes. Any sudden movement of heavy components will severely injure or sever your fingers.
2. Use adequate manpower or hoist to lift the heavy components into place. Attempting to lift heavy components by yourself could cause serious injury.
3. Be sure all bolts and hydraulic fittings are tight, and all cotter pins are installed in the slotted nuts and pins.
4. Support the main and wing frames securely before assembling the components. Inadequate support may result in the heavy components falling and causing serious injury to you or person(s) nearby.
5. Be sure all wheel bolts are checked for tightness during initial transport or when first discing. Loose wheel bolts may result in the wheel falling off, causing serious damage to the disc and may cause serious injury to the operator or person(s) nearby.
6. To fill the wing lift cylinders with hydraulic fluid, remove the pin from the shaft end of each wing lift cylinder and pump fluid into the cylinders. Extend and contract the cylinders until they are completely filled with hydraulic fluid. The wings will free-fall if the cylinders are not completely filled with fluid, resulting in serious damage to machine or serious injury or death to person(s) nearby.
7. Do not raise or lower the main or wing frames until all components are securely tightened. Loose components will cause serious damage to the disc and serious injury or death to you and person(s) nearby if the main or wing frames fell.
8. Hydraulic oil escaping under pressure has sufficient force to cause serious injury. Relieve pressure in all hydraulic components before disconnecting any hydraulic components. Before applying pressure to hydraulic system, be sure all connections are tight and components are not damaged. If injured by escaping hydraulic fluid, see a medical doctor immediately.
9. When attaching gang assemblies, wear protective gloves to prevent injury from cutting edges of blades.
10. Before applying pressure to the hydraulic system, be sure all connections are tight and the components are not damaged.
11. Wings will free fall if wing cylinder is not full of oil causing serious damage to machine or serious injury or death to person(s) nearby.
12. If hydraulic cylinder shafts are unpinned and cycled to fill them with oil, they can be seriously damaged if clevis of shaft strikes rockshaft arm or wing cylinder lug.
13. Do not stand under folded wings when working on disc. If hydraulic system failed or if hydraulic lever was accidentally operated, wings may fall resulting in serious injury or death to person(s) near disc.
14. When assembling gangs ensure adequate support is placed under main frame and wing frames. Do not use lock out valves as safety device to prevent frame from falling. If any hydraulic component failed, disc could drop causing serious injury or death to person(s) nearby.

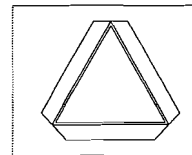
MAINTENANCE SAFETY

1. Do not loosen or disassemble hydraulic components when there is pressure within those components. Hydraulic components under pressure may cause parts and hydraulic fluid to fly out at a high velocity, which could cause serious injury. Always relieve the pressure in the hydraulic system before making adjustments to the hydraulic system. If injured by escaping hydraulic fluid, see a medical doctor immediately.
2. Check all hydraulic hoses periodically for signs of ruptures and leaks. Always use wood or cardboard as a backstop, and wear gloves and eye protection when searching the hydraulic system for leaks. Spurting hydraulic fluid can cause injury if it penetrates the skin or the eyes. If injured by escaping hydraulic fluid, see a medical doctor immediately.
3. Always relieve the pressure in the hydraulic system when the disc is not being operated.
4. Always permit parts which contain hot fluid to cool to a safe temperature before handling or disconnecting these parts.
5. Always wear safety glasses or goggles and gloves when working on the hydraulic system.
6. To fill wing lift cylinder with hydraulic oil, extend and contract cylinder within slot on wing until cylinders are completely filled with oil. Do not fold wings until cylinders are completely filled, wings will free fall if cylinders are not filled with oil, causing serious damage to machine or serious injury or death to person(s) nearby.
7. Lower the disc to the ground when servicing or making adjustments. If the disc must be serviced in the raised position, place blocks under frame. Do not rely on hydraulics lock up valves as a safety device. If the hydraulic system failed, or if the hydraulic lever was accidentally operated, the disc could drop.
8. Do not lubricate disc while it is in motion. You may fall in front of disc and be seriously or fatally injured.
9. Always place all tractor controls in neutral and lock brakes when hitching disc to tractor. Tractor could roll backwards when hitching disc.
10. If wing lift cylinder(s) or wing lift hydraulic hoses are removed when wings are folded into transport position, always install a safety chain between each wing frame and main frame to prevent wings from falling. If wing(s) fell, serious injury or death could occur to person(s) nearby and machine would be damaged severely.



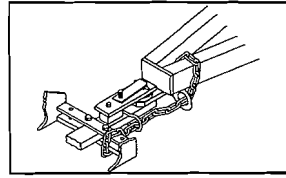
TRANSPORT SAFETY

1. When trailing the disc over public roads, use the SMV emblem and warning light for protection of tractor and other motor vehicle operators. Check local laws for width and height maximums.
2. When transporting disc always place both hydraulic lock up valves in "closed" position. See Section 6 of Operating Instructions on page 6. If hydraulic lever was accidentally operated the disc could drop or wings could fall causing serious injury or death to operator or person(s) nearby.
3. Do not exceed 10 mph (16 km/h) when transporting the disc on smooth surfaces. Reduce speed when transporting on rough surfaces. Excessive speed could cause loss of tractor control and damage to disc and tractor. Do not transport the disc with any other vehicle except a tractor.
4. When transporting disc always install the complete package of depth control stops - 17" long (431.8 mm) on shaft of centre frame cylinder. If any components of hydraulic system failed disc could drop and causing serious injury or death to operator or person(s) near by.



- When transporting the disc with the wings folded (UP), be sure there is sufficient clearance under all power lines and other overhead obstructions. Serious injury or death can result from contact with electrical lines. Use care to avoid contact with electrical lines when moving or operating the disc. Refer to specification chart on page 5 for approximate transport height for your machine.

- Always attach a safety chain to the tractor drawbar and the disc hitch before transporting the disc. The safety chain will help control the disc should it accidentally separate from drawbar. Use a chain with a strength rating greater than the gross weight of the towed machine. Serious damage and injury or death could result from the disc separating from the tractor drawbar.



- Check all reflectors and visibility and cleanliness before transporting the disc. It is important that the reflectors are clean and visible, especially during the evening hours.

- Regulate your speed on hillsides and curves when transporting the disc. Loss of tractor control could result in serious damage to the disc and possible serious injury or death to you or person(s) nearby.



- Never allow anyone to ride on drawbar of the tractor or on the disc. The person riding may fall and be seriously injured.

OPERATION SAFETY

- Be sure person(s) are standing clear before starting or moving the tractor and disc.
- Only one (1) person (the operator) should be permitted on the tractor when the disc is in operation, and he/she should be familiar with repair procedures and temporary first aid treatment.
- Never stand between the tractor and disc when hitching disc to the tractor UNLESS all tractor controls are in neutral and the park brake is set. The tractor could roll backwards which could result in serious injury or death to you or persons nearby.
- When operating on hillsides, use extreme care. The tractor may tip over if it strikes a hole, ditch or other irregularity.
- To avoid personal injury or death, always stay clear of the folding wings when they are being raised, lowered or in the folded position. If the hydraulic system failed, or if the hydraulic lever was accidentally operated, the wings could drop, resulting in serious injury or death to you or person(s) nearby.
- Do not stand under wing while wing is being raised or lowered. If any components of hydraulic system should fail, or if hydraulic lever should accidentally be operated, wing could drop causing serious injury or death.
- Always relieve the pressure in hydraulic system and close both hydraulic lockup valves when the disc is not being used.

SAFETY DECALS

- Keep all decals clean and in good condition to provide you with a constant reminder of safe operating procedures.
- Replace any destroyed, missing or illegible decals.

STORAGE

- Wings may unfold due to thermal expansion of hydraulic oil causing damage to disc, property or severe injury or death to person(s) nearby. Release pressure in all cylinders then close hydraulic lockup valves before unhitching from tractor or when parking with tractor.

SPECIFICATIONS

MODEL	BLADE SPACING	APPROX. CUTTING WIDTH	NO. OF BLADES	NO. OF GANG BEARINGS	GANG BEARING TYPE	APPROX. TRANSPORT WIDTH	APPROX. TRANSPORT HEIGHT
					STD.		
4509 - 50B	9" (230 mm)	19-1/2' (5.9 m)	50	16	410WSS	12' (3.7m)	11'2" (3.4 m)
4509 - 54B	9" (230 mm)	21' (6.4 m)	54	18	410WSS	12' (3.7m)	11'10" (3.6 m)
4509 - 58B	9" (230 mm)	22' (6.7 m)	58	18	410WSS	12' (3.7m)	12'7" (3.8 m)
4509 - 62B	9" (230 mm)	23-1/2' (7.2 m)	62	18	410WSS	12' (3.7m)	13'4" (4.1 m)
4509 - 66B	9" (230 mm)	24-1/2' (7.5 m)	66	20	410WSS	12' (3.7m)	14'0" (4.3 m)
4500 - 46B	10-1/2" (267 mm)	20' (6.0 m)	46	18	410WSS	12' (3.7m)	11'8" (3.6 m)
4500 - 50B	10-1/2" (267 mm)	22' (6.7 m)	50	18	410WSS	12' (3.7m)	12'6" (3.8 m)
4500 - 54B	10-1/2" (267 mm)	23-1/2' (7.2 m)	54	18	410WSS	12' (3.7m)	13'4" (4.1 m)
4500 - 58B	10-1/2" (267 mm)	25' (7.6 m)	58	20	410WSS	12' (3.7m)	14'2" (4.3 m)
4502 - 42B	12" (305 mm)	20-1/2' (6.2 m)	42	16	410WSS	12' (3.7m)	12'0" (3.7 m)
4502 - 46B	12" (305 mm)	23' (7.0 m)	46	18	410WSS	12' (3.7m)	13'0" (4.0 m)
4502 - 50B	12" (305 mm)	24-1/2' (7.5 m)	50	18	410WSS	12' (3.7m)	13'11" (4.2 m)

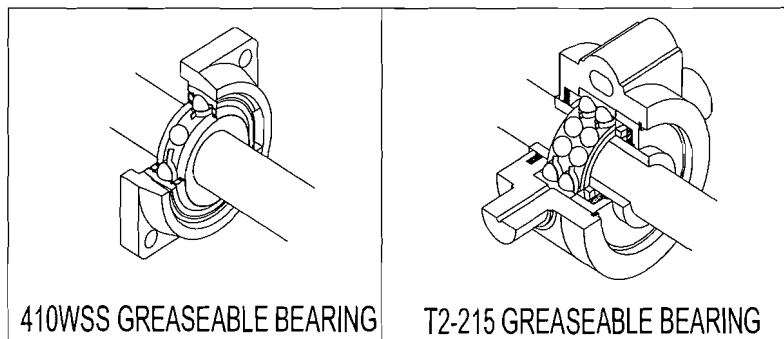
TIRE LOCATION	TIRE SIZES	PRESSURE
Centre Frame	(4) 11L x 15 F1, Load Range "F"	60 PSI (414 KPA)
Wing Frame	(4) 11L x 15 F1, Load Range "D"	50 PSI (345 KPA)

HYDRAULIC CYLINDERS			
Application	Size	Req'd	Machine Size
L.H. Wing Frame Lift	3-1/2" x 24" (88.9 mm x 610 mm) Rephasing	1	All Sizes
R.H. Wing Frame Lift	3" x 24" (76.2 mm x 610 mm) Rephasing	1	All Sizes
Wing Lift	5" x 36" (127 mm x 914 mm)	2	24' to 32-1/2' (8.53 m x 9.90 m)

GANG ANGLES: Front Gang- 21 Degree (Fixed)
Rear Gang - 19 Degree (Fixed)

BOLT TORQUES: Gang Bolts ----- 1-15/16" (49 mm) Diameter 3200 ft. lbs (4339 N · m)
Gang Beam Bolts ----- 1-1/4" (31.7 mm) Diameter 840 ft. lbs (1139 N · m)
Levelling Crank Bolts ----- 1-1/4" (31.7 mm) Diameter 840 ft. lbs (1139 N · m)
Wheel Bolts ----- 9/16" (14.2 mm) Diameter 130 ft. lbs (176.3 N · m)
Bearing Hanger U-Bolts -- 7/8" (22.0 mm) Diameter 430 ft. lbs (583.0 N · m)

GANG BEARINGS



GENERAL OPERATING INSTRUCTIONS

1. Before operating disc, refer to Safety Precautions on pages 2 to 4. Review disc safety items applicable to road transport and field operation of disc.
2. **IMPORTANT:** WHEN LOWERING WING TO FIELD POSITION, BE SURE WING LIFT CYLINDERS ARE FULLY EXTENDED. AFTER WING TIRES HAVE HIT THE GROUND CONTINUE TO HOLD HYDRAULIC LEVER. THERE WILL BE A SHORT PAUSE BEFORE CYLINDERS FULLY EXTEND. IF CYLINDERS ARE NOT FULLY EXTENDED, THE WING WILL HANG ON CYLINDERS AND WILL NOT FLEX DOWN.



CAUTION: NEVER STAND BETWEEN THE TRACTOR AND DISC WHEN HITCHING DISC TO THE TRACTOR *UNLESS* ALL TRACTOR CONTROLS ARE IN NEUTRAL AND THE BRAKE IS SET. THE TRACTOR COULD ROLL BACKWARDS WHICH COULD RESULT IN SERIOUS INJURY OR DEATH TO YOU OR PERSON(S) NEARBY.

3. Do not make sharp turns with the disc in ground. Sharp turns put excess pressure on the gangs.

IT IS ADVISABLE TO ALWAYS LIFT MACHINE OUT OF GROUND FOR MAKING SHARP TURNS. EXCESSIVE SIDE THRUST IS APPLIED TO BEARINGS AND MACHINE IF DISC IS TURNED WHILE IT IS IN THE GROUND.

4. For best performance, the tractor drawbar should be pinned at centre of tractor.
5. Ensure disc is level and cutting depth is properly adjusted. If further adjustments are required, see pages 10 and 11.
6. See Fig. 1. When transporting disc, always place hydraulic lockup valves in closed position. Lockup valves are located at the front end of centre frame.

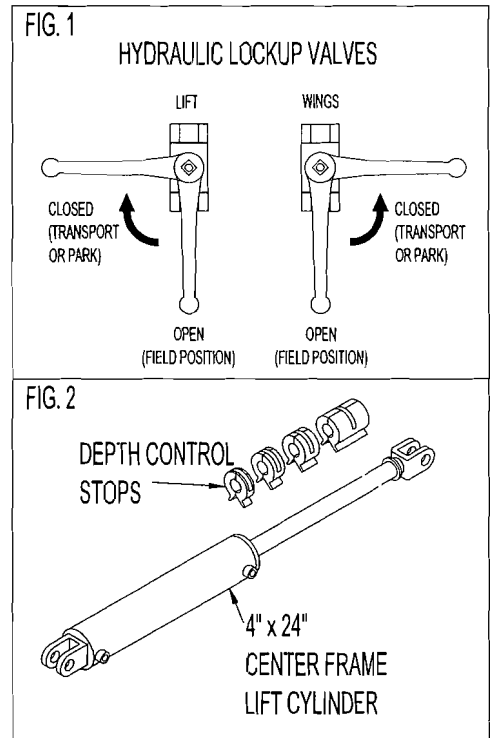


CAUTION: WHEN TRANSPORTING DISC ALWAYS PLACE BOTH HYDRAULIC LOCKUP VALVES IN "CLOSED POSITION". IF HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED THE DISC COULD DROP OR WINGS COULD FALL CAUSING SERIOUS INJURY OR DEATH TO OPERATOR OR PERSON(S) NEARBY.

7. See Fig. 2. When transporting disc always place the complete depth control package 17" (431.80 mm) long on shaft of 4" x 24" (102 mm x 610 mm) centre frame lift cylinder.



WARNING: WHEN TRANSPORTING DISC ALWAYS INSTALL THE COMPLETE PACKAGE OF DEPTH CONTROL STOPS 17" (432 mm) LONG ON SHAFT OF CENTRE FRAME CYLINDER. IF ANY COMPONENT OF HYDRAULIC SYSTEM FAILED DISC COULD DROP CAUSING SERIOUS INJURY OR DEATH TO OPERATOR OR PERSON(S) NEARBY.



8. **IMPORTANT:** WHEN TRANSPORTING DISC, DO NOT EXCEED SPEED OF 10 mph (16 km/h).
9. **IMPORTANT:** DO NOT OPERATE DISC IN FIELD WITH WING FOLDED IN TRANSPORT POSITION. SEVERE DAMAGE WILL OCCUR WHEN DISCING WITH WINGS FOLDED.
10. **IMPORTANT:** DO NOT DISC WITH FRONT GANGS CUTTING DEEPER THAN REAR GANGS. DISC MUST BE LEVEL. IF FRONT GANGS ARE LOWER, EXCESSIVE STRAIN WILL BE PLACED ON BLADES, GANG BEARINGS AND FRAME HITCH, WHICH COULD LEAD TO PREMATURE PARTS FAILURE, ESPECIALLY OUTSIDE BLADES OF FRONT GANGS.
11. **IMPORTANT:** WHEN DISC IS PARKED WITH BLADES RESTING ON FROZEN GROUND, DO NOT ATTEMPT TO LIFT DISC OUT OF FROZEN GROUND BY LOWERING TRANSPORT WHEELS. LIFTING DISC OUT OF FROZEN GROUND WITH TRANSPORT WHEELS MAY CAUSE SERIOUS DAMAGE TO DISC COMPONENTS. DAMAGE WILL MOST LIKELY OCCUR TO MAIN LIFT CYLINDERS AND ROCKSHAFT CYLINDER ARMS.

DO NOT PARK DISC WITH BLADES ON GROUND THAT MAY FREEZE. LEAVE DISC PARKED ON TRANSPORT WHEELS.

12. **IMPORTANT:** TO AVOID SERIOUS DAMAGE TO HITCH JACK, BE SURE JACK IS LOCKED IN HORIZONTAL POSITION AND CRANK OF JACK IS NOT HANGING BELOW HITCH WHEN DISC IS IN MOTION. SEE PAGE 23, SECTION 11.

GENERAL OPERATING INSTRUCTIONS CONTINUED:

13. See Fig. 3. Attach a safety chain to the tractor drawbar and to the disc's hitch before transporting the disc. Use a chain with strength rating greater than the gross weight of disc. (Safety chain available as an option).



DANGER: WHEN TRANSPORTING A DISC, BE SURE TO ATTACH A SAFETY CHAIN TO TRACTOR DRAWBAR AND DISC HITCH. THE SAFETY CHAIN WILL HELP CONTROL DISC SHOULD IT ACCIDENTALLY SEPARATE FROM THE DRAWBAR. USE A CHAIN WITH A STRENGTH RATING GREATER THAN THE GROSS WEIGHT OF THE TOWED MACHINE.

SERIOUS DAMAGE, INJURY OR DEATH COULD RESULT FROM THE DISC SEPARATING FROM THE TRACTOR DRAWBAR.



DANGER: SEE FIG. 4. DO NOT STAND UNDER THE WING(S) WHILE IT IS BEING RAISED OR LOWERED. IF ANY COMPONENT OF THE HYDRAULIC SYSTEM FAILED OR IF THE HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, WING COULD FALL CAUSING SERIOUS INJURY OR DEATH.

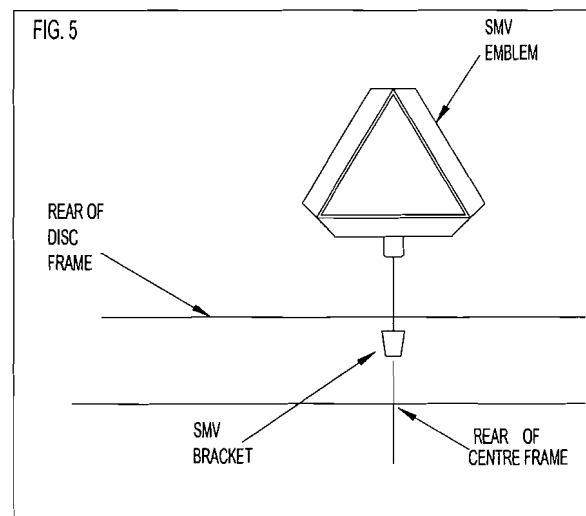
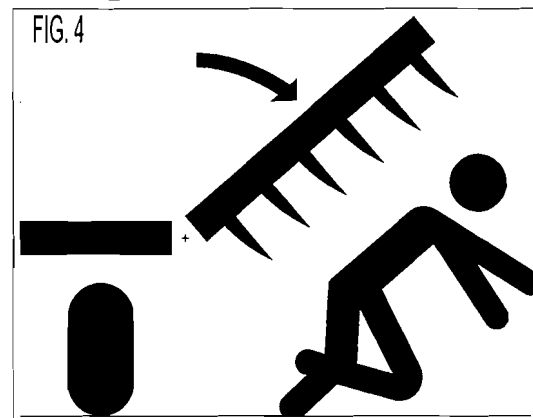
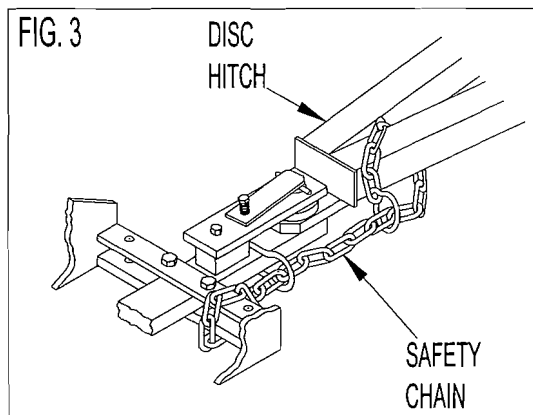
14. See Fig. 5. Install the "SMV" emblem (not supplied by Ezee-On) in the "SMV" bracket welded to the rear of centre frame before transporting the disc



CAUTION: USE THE "SMV" EMBLEM (NOT SUPPLIED BY EZZE-ON) AND WARNING LIGHTS FOR THE PROTECTION OF TRACTOR AND OTHER MOTOR VEHICLE OPERATORS WHEN TRANSPORTING THE CULTIVATOR OVER PUBLIC ROADS. CHECK LOCAL LAWS REGARDING TRANSPORTING REGULATIONS.



CAUTION: WHEN TRAILING THE DISC OVER PUBLIC ROADS, USE THE SMV EMBLEM AND WARNING LIGHTS FOR PROTECTION OF TRACTOR AND OTHER MOTOR VEHICLE OPERATORS. CHECK LOCAL LAWS FOR WIDTH AND WEIGHT MAXIMUMS AND HEIGHT MAXIMUMS.



 **CAUTION:** DO NOT EXCEED 10 mph (16 km/h) WHEN TRANSPORTING DISC ON SMOOTH ROADS, REDUCE SPEED WHEN TRANSPORTING ON ROUGH ROADS. EXCESSIVE SPEED COULD CAUSE LOSS OF TRACTOR CONTROL AND DAMAGE TO DISC AND TRACTOR. DO NOT TRANSPORT DISC WITH ANY OTHER VEHICLE EXCEPT TRACTOR.

 **DANGER:** WHEN TRANSPORTING DISC WITH WINGS RAISED, BE SURE THERE IS SUFFICIENT CLEARANCE UNDER ALL POWER LINES AND OTHER OVERHEAD OBSTRUCTIONS. SERIOUS INJURY OR DEATH CAN RESULT FROM CONTACT WITH ELECTRICAL LINES. USE CARE TO AVOID CONTACT WITH ELECTRICAL LINES WHEN MOVING OR OPERATING DISC. MODELS EQUIPPED WITH FOLDING GANG BEAMS MUST HAVE THESE BEAMS FOLDED TO GIVE MINIMUM TRANSPORT HEIGHT.

 **WARNING:** WHEN TRANSPORTING DISC, ALWAYS PLACE HYDRAULIC LOCK UP VALVE(S) IN “CLOSED” POSITION. SEE SECTION 6 OF OPERATING INSTRUCTIONS ON PAGE 6. IF THE HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, THE DISC COULD DROP OR WINGS COULD FALL CAUSING SERIOUS INJURY OR DEATH TO OPERATOR OR PERSON(S) NEARBY.

15. **REPHASING ROCKSHAFT CYLINDERS** - Periodically, the hydraulic lift cylinders on wing frame will not be synchronized with center frame cylinder. This will cause uneven cutting depth. If this happens it will be necessary to rephase the lift cylinders. Rephasing is done by lifting disc completely out of the ground and holding the hydraulic control lever until all (3) three rockshaft cylinders are fully extended. See section on page 33 for further information on the lift hydraulic system.

 **WARNING:** NEVER ALLOW ANYONE TO RIDE ON DRAWBAR OF THE TRACTOR OR ON THE DISC. THE PERSON RIDING MAY FALL AND BE SERIOUSLY INJURED.

 **WARNING:** LOWER THE DISC TO THE GROUND WHEN SERVICING OR MAKING ADJUSTMENTS . IF THE DISC MUST BE SERVICED OR ADJUSTED IN THE RAISED POSITION, PLACE BLOCK UNDER FRAME. DO NOT RELY ON HYDRAULIC LOCK UP VALVES AS A SAFETY DEVICE. IF THE HYDRAULIC SYSTEM FAILED, OR IF THE HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, THE DISC COULD DROP.

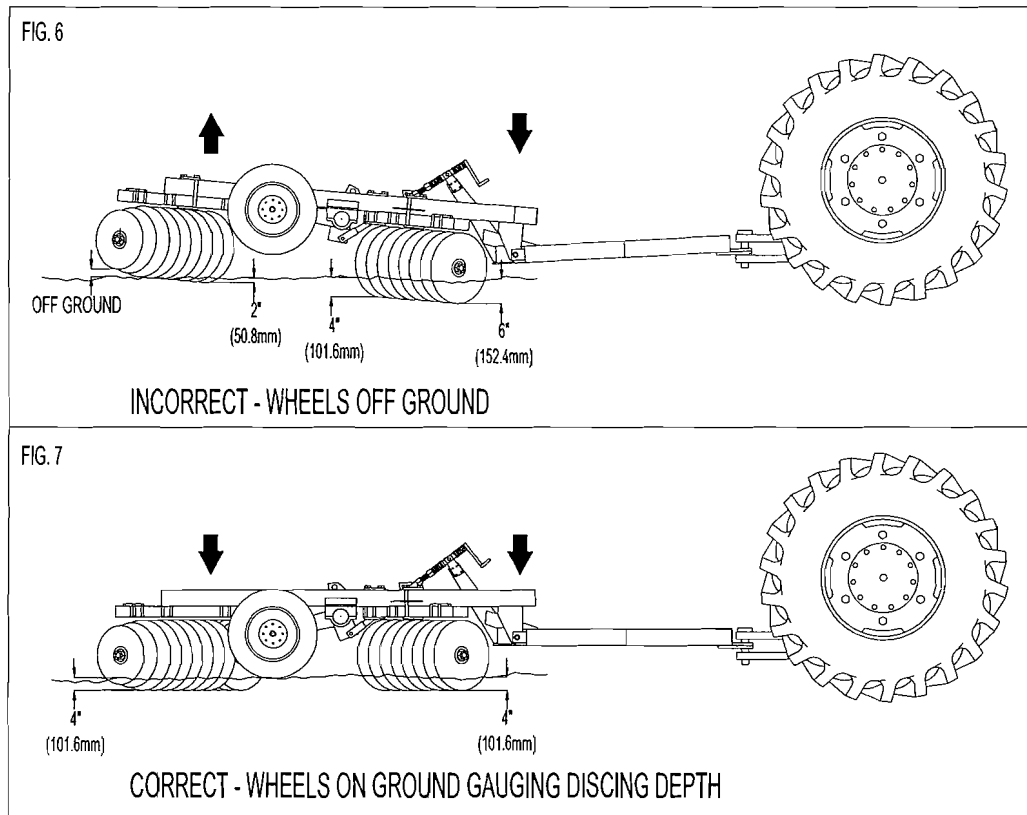
 **CAUTION:** WHEN OPERATING ON HILLSIDES, USE EXTRA CARE. TRACTOR MAY TIP SIDEWAYS IF IT STRIKES A HOLE, DITCH OR OTHER IRREGULARITIES.

16. **IMPORTANT:** WHEN PARKING DISC ALWAYS RELEASE PRESSURE IN HYDRAULIC CYLINDERS. SERIOUS DAMAGE COULD OCCUR TO HYDRAULIC CYLINDER IF THERMAL EXPANSION OF HYDRAULIC OIL TAKES PLACE DUE TO WARM WEATHER OR IF DISC IS STORED IN HEATED BUILDING.

17. **IMPORTANT:** WHEN PARKING DISC ALWAYS PLACE BOTH HYDRAULIC LOCKUP VALVES IN “CLOSED POSITION”. SEE FIG. 1 ON PAGE 6.

18. **IMPORTANT:** IN DISCING CONDITIONS WHERE EXTREME WING FLEXIBILITY IS REQUIRED, REMOVE CYLINDER PIN FROM SHAFT END OF EACH WING LIFT CYLINDER AND RETRACT CYLINDERS.

WHEN REATTACHING SHAFT END OF WING LIFT CYLINDERS TO WING FRAME, BE SURE CYLINDER SHAFT DOES NOT STRIKE CYLINDER LUG ON WING FRAME. SERIOUS DAMAGE MAY OCCUR TO CYLINDER IF CYLINDER SHAFT STRIKES CYLINDER LUG. BEFORE EXTENDING CYLINDER SHAFTS BLOCK UP CYLINDER SO THAT CYLINDER SHAFT PASSES OVER CYLINDER LUGS.



19. To keep disc level transport wheels must be riding on ground gauging desired discing depth, as shown in Fig. 7.

If conditions are such that disc can not penetrate to maximum depth, do not raise transport wheels off ground as shown in Fig. 6. Raised transport wheels may cause front of disc to drop causing front gangs to cut deeper than rear gangs.

Front of disc may drop because rockshaft and hitch levelling arm is linked. As the wheels are raised, the hitch levelling arm is pulled back allowing hitch to float. If hitch is allowed to float it will not support front of disc allowing front gang to drop.

With front of disc lower than the rear, the front outside blades will cut much deeper than the front inside blades. This means that more of the disc's weight is placed on the front outside blades, forcing them deeper into the ground.

Uneven and deep front gang penetration in tough conditions will place excessive strain on blades, gang bearings, frame and hitch, and will lead to a premature failure of parts especially outside blades and bearings of front gangs.

IMPORTANT: OPERATING DISC WITH TRANSPORT WHEELS OFF GROUND WILL CAUSE UNEVEN DISCING JOB AND PLACE UNDUE STRAIN ON MACHINE WHICH COULD LEAD TO PARTS FAILURE. ALWAYS OPERATE DISC WITH TRANSPORT WHEELS ON GROUND EVEN IF SOIL CONDITIONS WILL NOT ALLOW DISC TO PENETRATE TO MAXIMUM DEPTH.

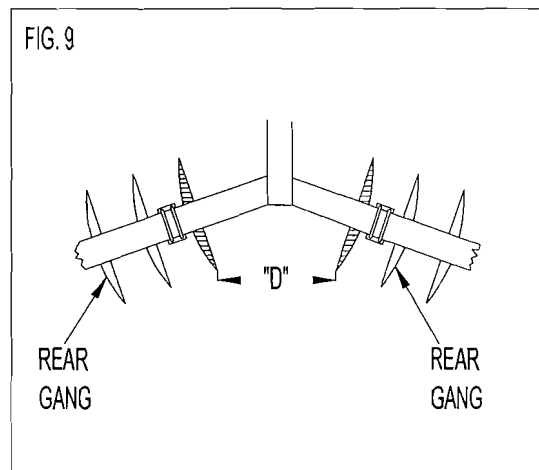
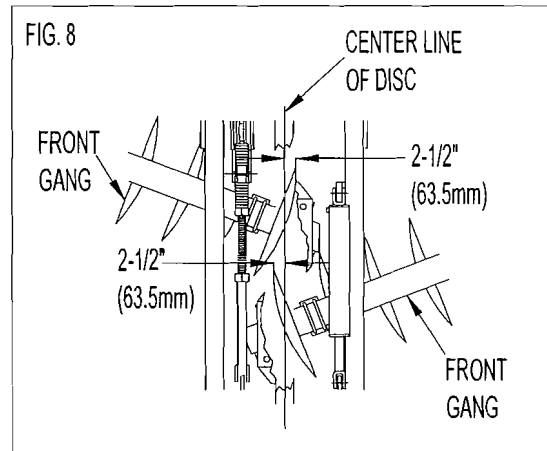
ADJUSTMENTS

1. LATERAL ADJUSTMENT OF THE FRONT AND REAR GANGS

- FRONT GANGS** - See Fig. 8. Loosen bearing hanger U-bolts and adjust front gangs so that leading edge of inside blades are, arrow 1, approximately 2-1/2" (63.5 mm) past centre of disc. The centre of disc is shown in Fig. 8. If the above adjustment is made correctly, the front gang will not leave any unbroken ground at centre of disc.
- REAR GANGS** - See Fig. 9. To adjust rear gangs, loosen bearing hanger U-bolts.

The opening between the rear gang dimensions "D" must be set at a distance that will allow furrow left by the front gangs to be filled evenly. The distance the rear gangs are set apart is determined by the discing speed, discing depth, gang angle and soil conditions. If the rear gangs are set too close together, the rear gangs will leave a ridge at centre. If rear gangs are set too far apart, the furrow at centre left by the front gangs will not be filled. Take note of the amount of soil the rear inside blades are packing up. It may be necessary to increase distance between rear gangs in order to collect enough soil to fill furrow. To start with this, distance should be set at 2" (50.8 mm) less than diameter of blade to a maximum of 24" (610mm). For example, if your disc is equipped with 26" (660 mm) blades then the opening (Dimension "D") should be 24"(610 mm). If your disc is equipped with 28" (711mm) diameter blades dimension "D" would be set at a maximum of 24" (610mm).

An increase in discing speed may required rear gangs to be set further apart. A decrease in discing speed may require rear gangs to be set closer together.

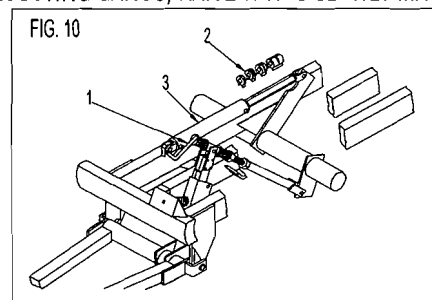


NOTE: Be sure the blade to blade distance between individual gangs are adjusted to match your disc's blade spacing.

- When gang adjustments are complete, tighten all bearing hanger U-Bolts. For machines equipped with 410WSS bearings, see section 28 on page 32 for gang bearing alignment procedures.
- IMPORTANT:** WHEN RAISING WINGS FOR TRANSPORT FOR FIRST TIME AFTER ADJUSTING GANGS, RAISE WINGS SLOWLY MAKING SURE WING GANGS CLEAR CENTRE FRAME GANGS.
 - LEVELLING DISC - FRONT to REAR** - See Fig. 10. When discing, the front and rear gangs should be cutting at same depth. The levelling crank, arrow 1, is used to level disc.

TO LOWER FRONT GANGS: Turn crank, arrow 1, "IN" (clockwise)

TO RAISE FRONT GANGS: Turn crank, arrow 1, "OUT" (counter clockwise)



VERY IMPORTANT: ALWAYS KEEP DISC LEVEL FROM FRONT TO REAR. DISCING WITH FRONT GANGS LOWER THAN REAR GANGS WILL CAUSE RIDGING AT OUTSIDE AND MAY CAUSE DAMAGE TO DISC COMPONENTS.

- SETTING DISCING DEPTH** - See Fig. 10. To set discing depth, install depth control segments, arrow 2, on shaft of centre frame cylinder, arrow 3. Install segments as required to obtain desired discing depth.

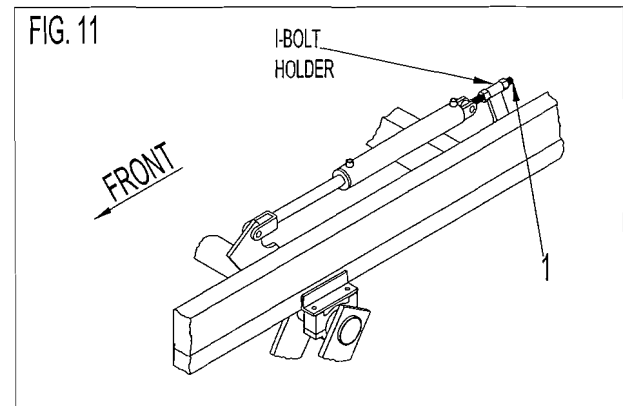
ADJUSTMENTS CONTINUED:

5. LEVELLING WING FRAMES - See Fig. 11.

Before this adjustment is made, be sure centre frame is level from front to rear. After adjustments are complete tighten nuts on cylinder I-Bolt.

For even blade penetration, outside of wing frames must be level with centre frame or even 1/2" (12.7 mm) higher than centre frame.

To level wing frame with centre frame, adjust wing rockshaft cylinder I-Bolt, arrow . If outside of wing frame needs to be raised, loosen rear nut of I-Bolt and tighten front nut. This will lower the wheels raising outside of wing. If outside of wing frame needs to be lowered, loosen front nut of I-Bolt and tighten rear nut. This will raise the wheels allowing outside of wing lower.

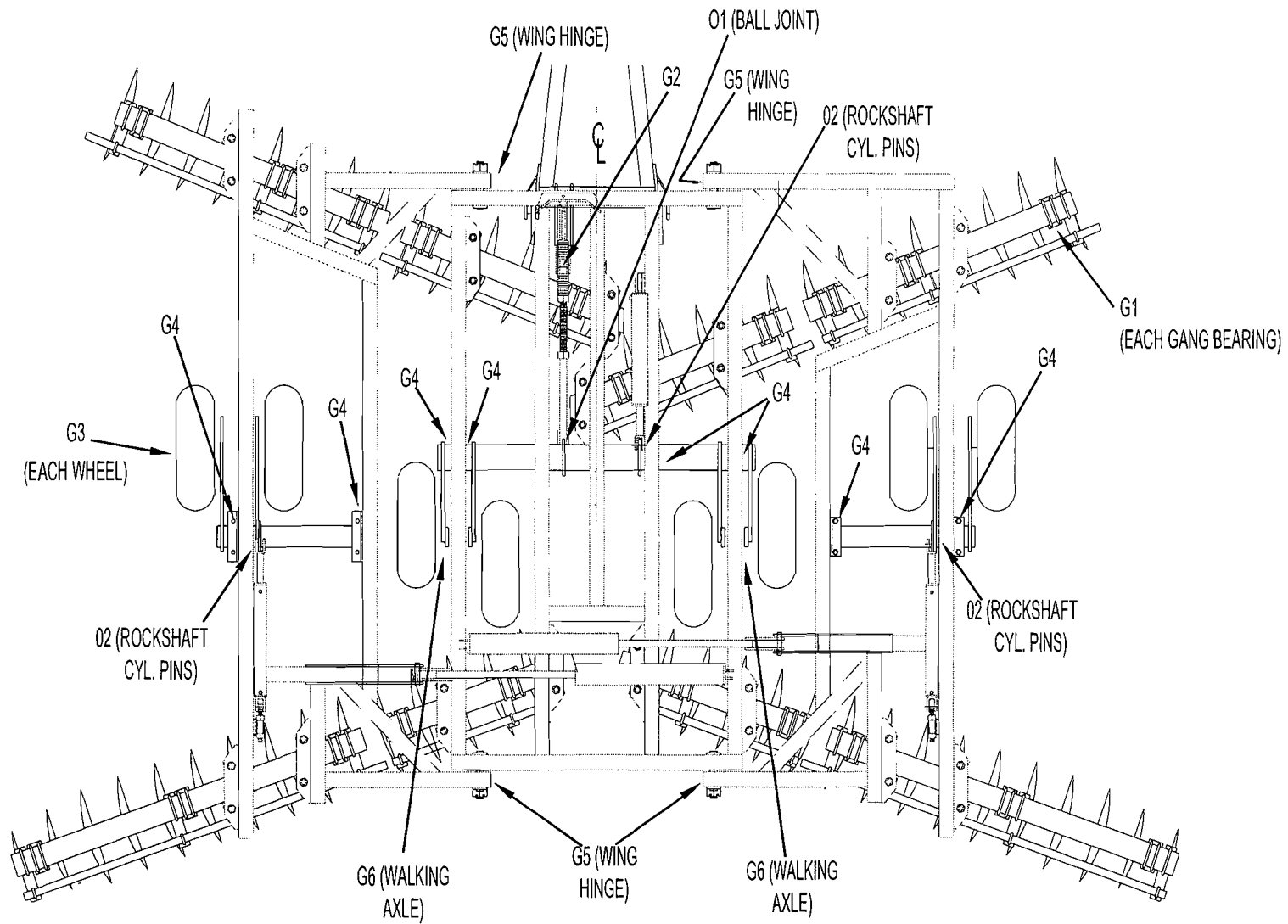


IMPORTANT: BE SURE AXIS OF CLEVIS PIN IS HORIZONTAL WITH CYLINDER PORTS FACING UP. IF CLEVIS BOLT IS NOT POSITIONED PROPERLY, CYLINDER WILL NOT BE FREE TO PIVOT WHEN ACTIVATED, CAUSING SERIOUS DAMAGE.

CAUTION: ALWAYS PLACE TRACTOR CONTROLS IN NEUTRAL AND LOCK BRAKES WHEN HITCHING DISC TO TRACTOR, TRACTOR COULD ROLL BACKWARDS WHEN HITCHING DISC.

CAUTION: WHEN OPERATING ON HILLSIDES, USE EXTRA CARE. TRACTOR MAY TIP SIDEWAYS IF IT STRIKES HOLE, DITCH OR OTHER IRREGULARITY.

FIG. 12



MAINTENANCE

1. LUBRICATION See Fig. 12 - All grease lubricating points on disc are marked with arrow G. The oil lubrication points are marked with arrow O.

- G1) GANG BEARINGS - for 410 Series - Lubricate every 20 hours of operation with 6 to 10 strokes of hand grease gun. Use a high quality SAE multi-purpose grease.
- for T2-215 Series - Lubricate every 20 hours of operation. Lubricate until grease comes out around seal. Excessive lubrication will not damage seals. Use high quality SAE multi-purpose grease.

CAUTION: FOR 410 SERIES BEARINGS ONLY. IF GANG BEARINGS ARE OVER LUBRICATED, THERE IS A POSSIBILITY THAT THE SEALS CAN BE PUSHED OUT. THIS IS MORE LIKELY TO HAPPEN WHEN BEARINGS ARE NEW.

- G2) Lubricate levelling crank every 100 hours of operation.
- G3) Lubricate wheels every 50 hours of operation.
- G4) Lubricate top and bottom half of each rockshaft bearing every 20 hours of operation.
- G5) Lubricate wing hinge points every 100 hours of operation.
- G6) Lubricate walking axles every 50 hours of operation.

NOTE: When you receive your new disc, grease all lubricating points before starting to disc. However, use caution when lubricating 410 series gang bearings. These gang bearings are filled with grease at the factory and seals may be damaged if over lubricated.

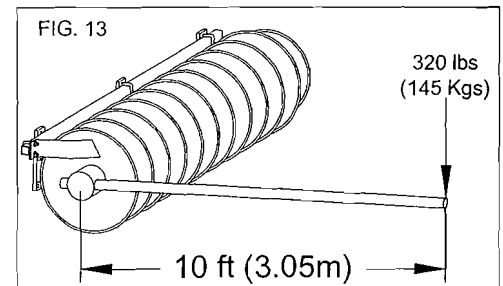
- O1) Lubricate levelling crank ball joint (with oil) at the end and beginning of each season.
 - O2) Lubricate rockshaft cylinder pins (with oil) every 50 hours of operation.
2. All bolts and nuts should be checked periodically to make sure they are tight. Special attention should be given to gang bolts, bearing bolts and bearing hanger U-bolts, and wheel bolts.

They should be tightened as follows:

- Gang bolts 1-15/16" (49 mm) Diameter -tighten to 3200 ft. lbs torque(4339 N · m)

See Fig. 13. To tighten gang bolt to 3200 ft. Lbs (4339N.m) install a 10ft. (3.05m) bar in socket wrench and apply 320 Lbs. (145Kgs) of force to end of bar.

IMPORTANT: After repairing a gang, the gang bolt should be retightened after 2 hours of operation



IMPORTANT!!!
SEVERE DAMAGE WILL OCCUR IF GANG BOLTS ARE LOOSE.

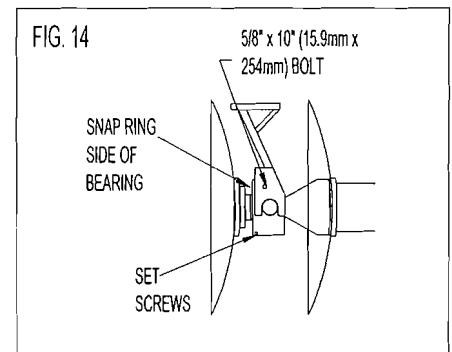
- Gang beam bolts 1-1/4" (31.7 mm) Diameter --- 840 ft. lbs (1139 N · m)
- Levelling crank bolt 1-1/4" (31.7 mm) Diameter - 840 ft. lbs (1139 N · m)
- Wheel bolts 9/16" (14.2 mm) Diameter ----- 130 ft. lbs (176.2 N · m)
- Bearing hanger u-bolts 7/8" (22 mm) Diameter -- 430 ft. lbs (583.0 N · m)

3. When storing disc for a long period of time, grease all lubricating points.
4. Keep the pressure equal on all wheels. See specifications on page 5 for tire pressure.

5. **IMPORTANT:** SEE FIG. 14. FOR DISCS EQUIPPED WITH T2-215 BEARINGS. IF T2-215 BEARING MUST BE DISMANTLED, DOUBLE SET SCREWS MUST BE REMOVED FROM BOTTOM OF HOUSING TO REMOVE SEAL CAP.

WARNING: DO NOT SERVICE DISC WHILE IT IS MOTION. YOU MAY FALL IN FRONT OF DISC AND BE SERIOUSLY INJURED.

WARNING: LOWER THE DISC TO THE GROUND WHEN SERVICING OR MAKING ADJUSTMENTS. IF THE DISC MUST BE SERVICED OR ADJUSTED IN THE RAISED POSITION, PLACE BLOCKS UNDER FRAME. DO NOT RELY ON HYDRAULIC LOCK UP VALVES AS A SAFETY DEVICE. IF THE HYDRAULIC SYSTEM FAILED, THE DISC COULD DROP.

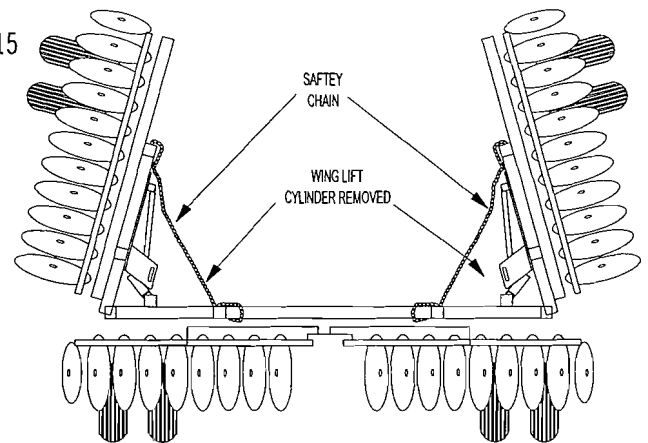


6. See Fig. 14. When reinstalling bearing hanger on **T2-215 Bearing** (if gangs are dismantled) do not over tighten the 5/8" x 10" (15.7 mm x 254 mm) bolts, which fasten hanger to bearing. Turn inner nut until it is snug against bearing hanger. Secure inner nut by tightening a outer jam nut against it. The bolt may break during field operations if it is tightened using a normal torque.

MAINTENANCE CONTINUED:

7. **WING LIFT CYLINDER REMOVAL** - See Fig. 15. If possible lower wings to field position if the wing lift cylinder hydraulic system must be serviced or repaired. If wing lift cylinder hydraulic system must be serviced or repaired with wings in folded position, install a safety chain between each wing frame and main frame to prevent wings from falling down. Always install a chain on both wings even if only one cylinder is being worked on.

Fig. 15



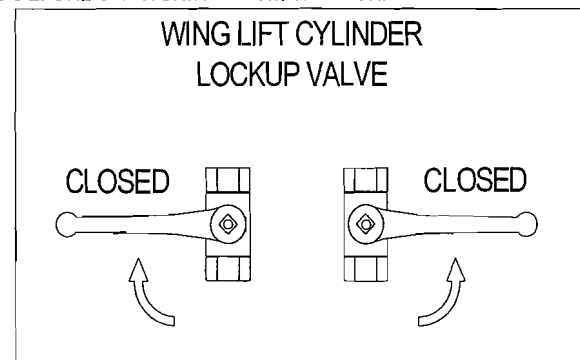
CAUTION: IF WING LIFT CYLINDER(S) OR WING LIFT HYDRAULIC HOSES ARE REMOVED WHEN WINGS ARE FOLDED INTO TRANSPORT POSITION, ALWAYS INSTALL A SAFETY CHAIN BETWEEN EACH WING FRAME AND MAIN FRAME TO PREVENT WINGS FROM FALLING. IF WINGS FELL SERIOUS INJURY OR DEATH COULD OCCUR TO PERSON(S) NEARBY AND MACHINE WOULD BE DAMAGED SEVERELY.

8. Keep all safety decals clean and in good condition to provide a constant reminder of safe operating procedures.
9. Replace any destroyed, missing or illegible decals and reflectors.
10. At the end of each season do following:
 - (A) Relieve pressure in all hydraulic cylinders. Disconnect hydraulic hoses from tractor and cap them.
 - (B) If disc is to be stored outdoors, cover hydraulic cylinders and hoses with weather proof material and coat all exposed cylinder shafts with grease.
 - (C) Set planks under each wheel.
 - (D) Lubricate all grease points.
 - (E) Check disc for worn or damaged parts. Replace damaged parts during the off season.
 - (F) Touch up any scratches with EZEE-ON paint.

CAUTION: ALWAYS RELIEVE THE PRESSURE IN HYDRAULIC SYSTEM AND CLOSE BOTH HYDRAULIC LOCKUP VALVES WHEN THE DISC IS NOT BEING USED.

- (G) **IMPORTANT:** WHEN STORING DISC DO NOT LEAVE CYLINDERS UNDER HYDRAULIC PRESSURE, ESPECIALLY IF CYLINDERS ARE ACTIVATED DURING COOL TEMPERATURES. THE THERMAL EXPANSION OF OIL WHICH TAKES PLACE WHEN THE MACHINE IS IN A WARMER ENVIRONMENT MAY CAUSE SERIOUS DAMAGE TO CYLINDER, LINES OR HOSES. ALWAYS RELEASE HYDRAULIC PRESSURE AND CLOSE LOCKUP VALVES BEFORE UNHITCHING FROM TRACTOR.

IMPORTANT: WINGS MAY UNFOLD DUE TO THERMAL EXPANSION OF HYDRAULIC OIL CAUSING DAMAGE TO DISC, PROPERTY OR SEVERE INJURY OR DEATH TO PERSON(S) NEARBY. RELEASE PRESSURE IN ALL CYLINDERS THEN CLOSE HYDRAULIC LOCKUP VALVES BEFORE UNHITCHING FROM TRACTOR OR WHEN PARKING WITH TRACTOR.



TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
OUTSIDE BLADES OF FRONT WINGS ARE CUTTING TOO DEEP CAUSING DISC TO RIDGE AT OUTSIDE	- wheels raised off ground causing front of disc to drop - tire pressure is low on outer wheels causing disc to cut deep at outside - disc is lower at front than at rear - wing wheel not adjusted for proper cutting depth - wing rockshaft cylinders are not synchronized with centre from rockshaft cylinders	- lower wheels to ground so they gauge discing depth, see section 18 of general operating instructions on page 9 - inflate tire, see tire pressures on page 5 - using levelling crank raise front of disc - see Fig. 10 on page 10 - raise outside of wing by adjusting lift cylinder l-bolt, see section 5 on page 11 - rephase rockshaft cylinders, section 16 on page 8
OUTSIDE BLADES OF FRONT WINGS ARE NOT CUTTING DEEP ENOUGH	- disc is higher at front than at rear	- using levelling crank raise front of disc - see Fig. 10 on page 10
OUTSIDE BLADES ON FRONT AND REAR GANGS ARE CUTTING TOO DEEP	- tire pressure is low for wing wheels causing wings too cut deeper - outside of wing frame is lower than main frame - wing rockshaft cylinder are not synchronized with main frame rockshaft cylinder	- check tire inflation for all wheels, see tire pressure on page 5 - raise outside of wing with wing rockshaft cylinder anchor bolt see section 5 on page 11 - rephase rockshaft cylinder, see section 15 on page 8
OUTSIDE BLADES ON FRONT AND REAR GANGS ARE NOT CUTTING DEEP ENOUGH	- tire pressure is lower on centre section wheels than wing section wheel causing centre section to cut deeper - outside of wing frame(s) is higher than main frame - wing rockshaft cylinder is not synchronized with main frame rockshaft cylinder	- check tire inflation for all wheels, see tire pressure on page 5 - lower outside of wing with wing rockshaft cylinder anchor bolt, see section 5 on page 11 - rephase rockshaft cylinder, see section 15 on page 8
DISC IS LEAVING A RIDGE AT CENTRE OF DISCING	- rear gangs are cutting deeper than front gangs - a high discing speed is causing disc to throw dirt further resulting in a pile at centre - rear gangs are too close together	- level disc using levelling crank - see Fig. 10 on page 10 - reduce discing speed - increase distance between rear gangs see section 1 on page 10

TROUBLE SHOOTING CONTINUED

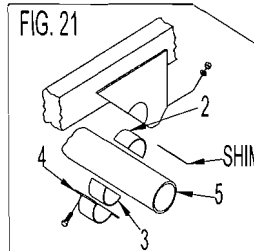
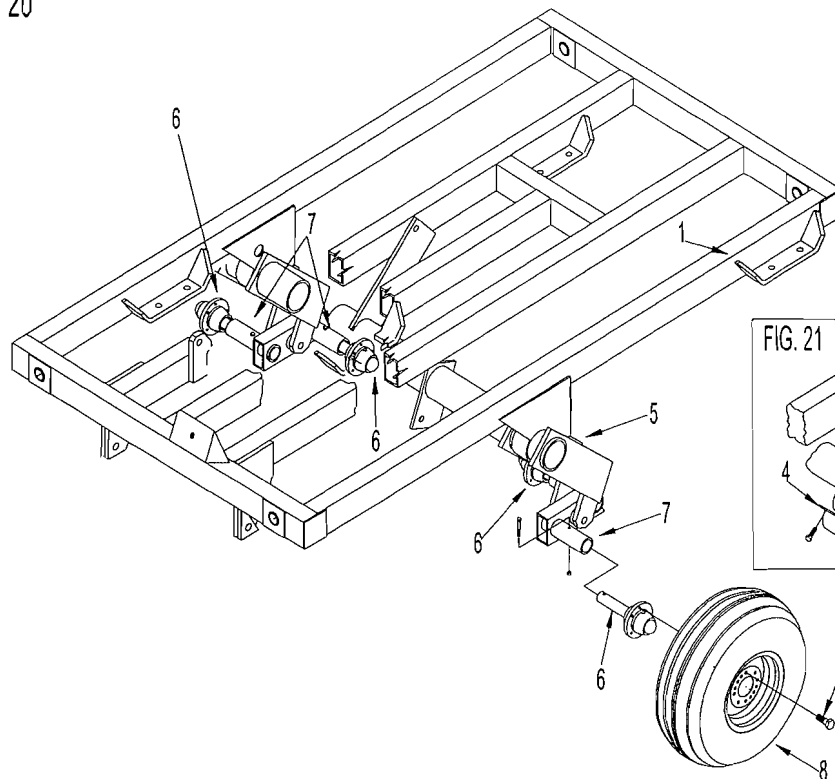
PROBLEM	POSSIBLE CAUSE	REMEDY
REAR GANGS ARE NOT FILLING FURROW LEFT BY FRONT GANGS AT CENTRE OF DISC	- front gangs are cutting deeper than rear gangs - a low discing speed is causing disc to <i>not</i> throw dirt far enough to fill furrow left by front centre blades - rear gangs are too far apart	- level disc using levelling crank - see Fig. 10 on page 10 - increase discing speed - decrease distance between rear gangs - see section 1 on page 10
FRONT GANGS ARE LEAVING UNBROKEN GROUND AT CENTRE OF DISC	- front gangs are either overlapped too much or not enough	- adjust overlap of front gangs - see section 1 on page 10
DISC GANGS ARE PLUGGING	- scrapers are too far from blades - thrash conditions too heavy for your machine cylinder(s)	- adjust scrapers so they are contacting blades - contact your Ezee-On Dealer
WHEN RAISING DISC OUT OF GROUND, MAIN FRAME COMES OUT OF GROUND WHILE OUTSIDE OF WING(S) LAGS BEHIND OR DOES NOT COME OUT OF GROUND	- piston seals on wing rockshaft cylinder(s) are damaged	- replace piston seals of wing rockshaft cylinder
WHEN RAISING DISC OUT OF GROUND, OUTSIDE OF WING(S) COMES OUT OF GROUND WHILE MAIN FRAME LAGS BEHIND OR DOES NOT COME OUT OF GROUND	- piston seals on main frame rockshaft cylinder is damaged	- replace piston seals of main frame rockshaft cylinder
WHEN RAISING DISC OUT OF GROUND, MAIN FRAME ROCKSHAFT CYLINDER IS FULLY EXTENDED WHILE WING ROCKSHAFT CYLINDER(S) ARE NOT FULLY EXTENDED	- rockshaft cylinders are not synchronized	- rephrase rockshaft cylinders, see section 15 on page 8
WHEN RAISING DISC OUT OF GROUND WING ROCKSHAFT CYLINDER IS FULLY EXTENDED WHILE MAIN FRAME ROCKSHAFT CYLINDER(S) ARE NOT FULLY EXTENDED	- rockshaft cylinders are not synchronized	- rephrase rockshaft cylinders, see section 15 on page 8
DISC WILL NOT PENETRATE SOIL	- soil condition too hard for your machine	- contact your Ezee-On Dealer

**ILLUSTRATIONS NUMBERS FROM 15-20
HAVE BEEN INTENTIONALLY
LEFT OUT**

ASSEMBLY INDEX

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FIG. 20



ASSEMBLY INSTRUCTIONS

1. See Fig. 20. Raise frame assembly, arrow 1 approximately 46" (1168 mm) from ground and block securely.
2. See Fig. 21. Locate six (6) plastic bearing liners, arrow 2 and 3, in one of the shipping cartons. Choose three (3) with 45 degree grease fittings and three (3) with straight grease fittings. Place a layer of grease on inside surface of each liner.
3. See Fig. 20 and 21. Remove cap, arrow 4, from each of the three rockshaft bearings. Next place one bearing liner, arrow 2, in each bearing using liner with 45 degree grease fitting. Install rockshaft, arrow 5, into the three bearings on main frame assembly. Position rockshaft so that outside bearings are positioned between wheel legs. Place bearing liner, arrow 3, over rockshaft using liner with straight grease fitting. Then secure rockshaft to each bearing with one bearing cap, arrow 4. Install necessary shims between bearing cap and bearing. See note below. Tighten bolts.

NOTE: *It will be necessary to install shims between half-clamp, arrow 4, and rockshaft bearing, to allow rockshaft to turn freely in bearing after bolts have been tightened. It is important to install correct number of shims. Normally 2 shims on top and 3 shims on bottom will provide correct clearance. Too many shims will leave a gap between bearing liners and rockshaft, not enough shims will cause bearing to be too tight resulting in premature liner wear. Rockshaft must be snug but free to turn.*

! WARNING: SUPPORT MAIN FRAME SECURELY BEFORE ASSEMBLING COMPONENTS. HEAVY FRAMES COULD CAUSE SERIOUS INJURY IF THEY FELL.



WARNING: SUPPORT MAIN FRAME SECURELY BEFORE ASSEMBLING COMPONENTS. INADEQUATE SUPPORT MAY RESULT IN THE HEAVY COMPONENTS FALLING AND CAUSING SERIOUS INJURY TO YOU OR PERSON(S) NEARBY.

4. INSTALLING HUB ASSEMBLIES - See Fig. 20. Install four (4) eight bolt hub and spindle assemblies, arrow 6, into walking beam tubes, arrow 7. Fasten each spindle to the tube with one (1) 1/2" x 4" (12.7 mm x 102 mm) N.C. hex bolts complete with 1/2" (12.7 mm) nylon locknut.
5. INSTALLING TIRE AND WHEEL ASSEMBLIES - See Fig. 20 . Install one (1) eight bolt tire and wheel assembly, arrow 8, to hub assembly, arrow 6, on each side of each wheel leg. Centre frame uses 12.5L x 15 F1, load range F tires. Secure back wheel with eight (8) 9/16" x 1-11/16" (14.2 mm x 42.7 mm) wheel bolts, arrow 9. Tighten wheel bolts to 130 ft. lbs. (176.3 N·m). Lock each wheel bolt by installing one (1) 9/16" (14.2 mm) N.F. hex nut on thread that extends past hub. Tighten nuts.



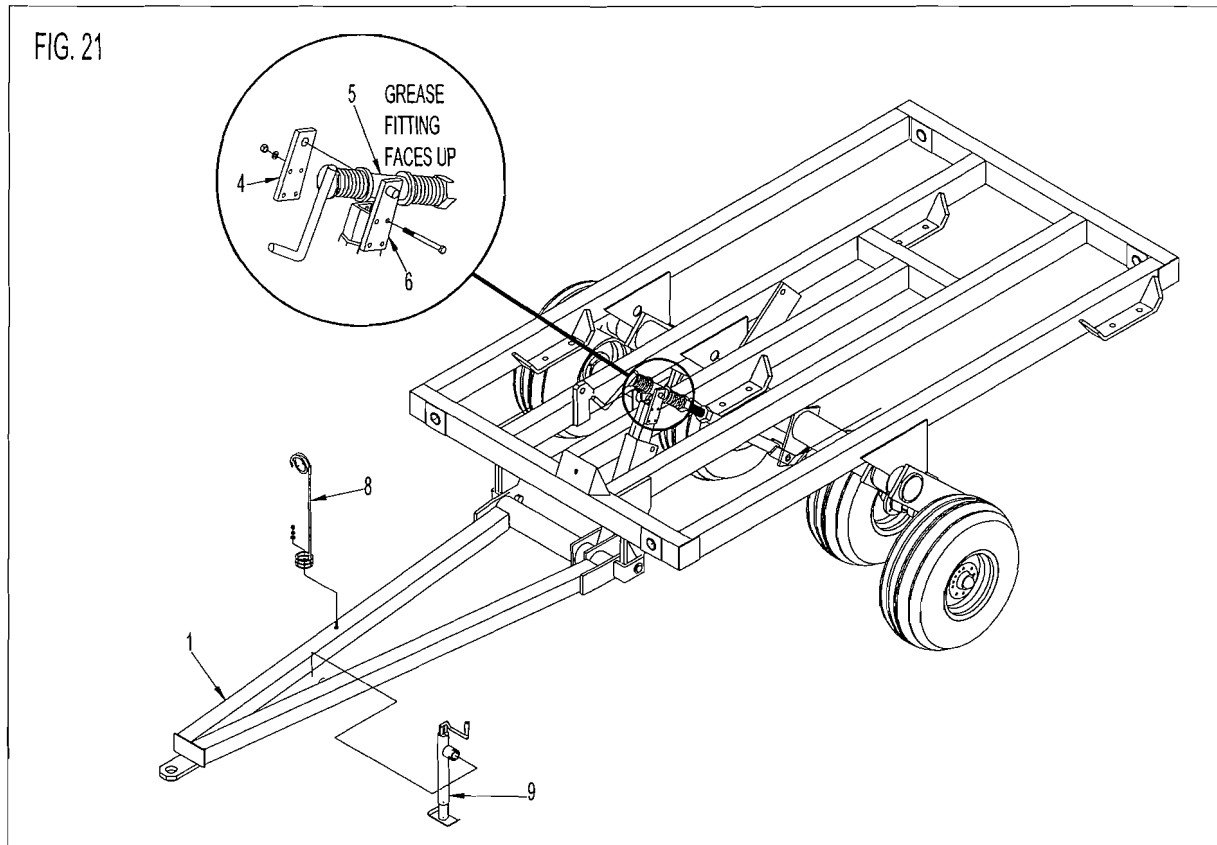
IMPORTANT: WHEEL BOLTS MUST BE KEPT TIGHT. IF BOLTS ARE NOT TIGHT THEY WILL LOOSEN CAUSING SEVERE DAMAGE TO HUB, WHEEL AND TIRE. CHECK WHEEL BOLTS PERIODICALLY, ESPECIALLY THE FIRST FEW HOURS OF OPERATION, EITHER TRANSPORT OR FIELD WORK.



WARNING: USE ADEQUATE MANPOWER OR A HOIST TO LIFT HEAVY COMPONENTS IN PLACE. ATTEMPTING TO LIFT HEAVY COMPONENTS BY YOURSELF COULD CAUSE SERIOUS INJURY.



CAUTION: WHEN ASSEMBLING DISC USE ALIGNING PUNCHES TO LINE UP HOLES. KEEP FINGERS OUT OF HOLES.



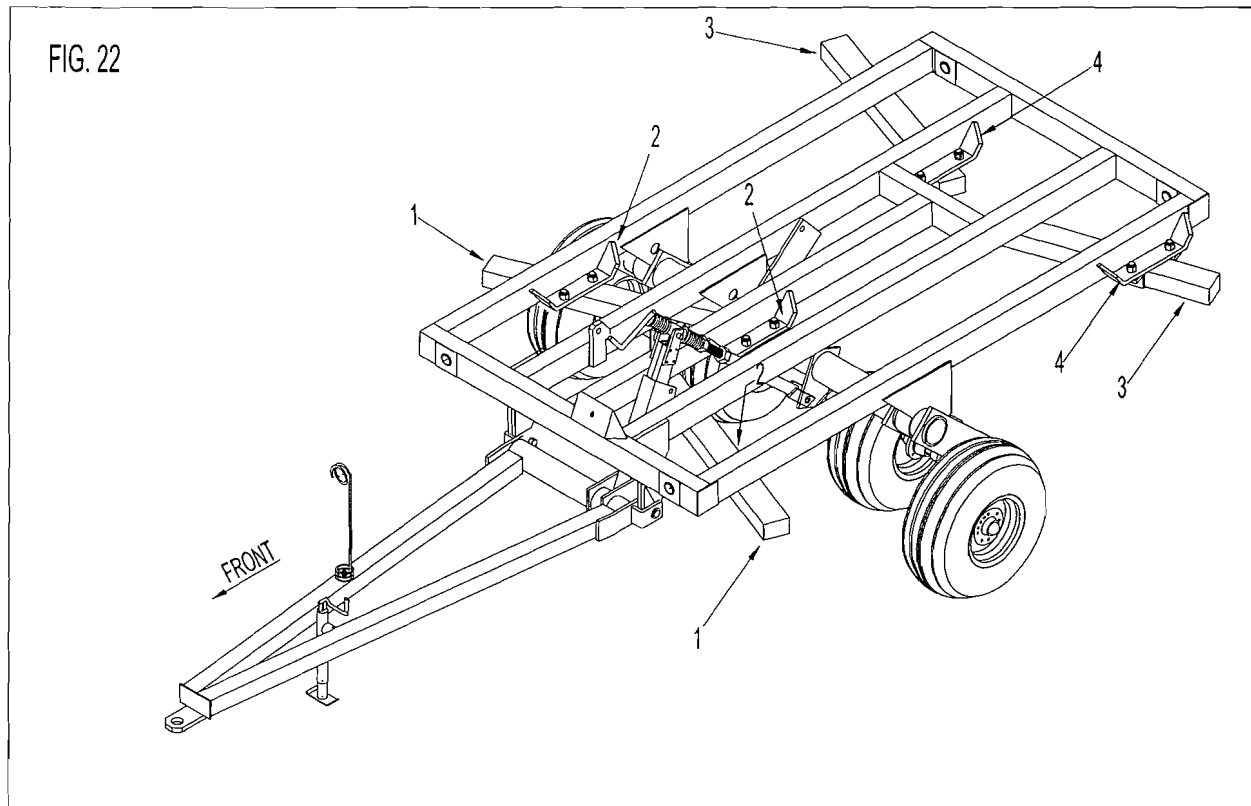
6. See Fig. 21. Attach hitch assembly, arrow 1, to hitch lugs on main frame with two (2) 1-1/2" dia. x 5" (38.1 mm dia. x 127 mm) pins. Secure each pin with one (1) 7/16" (10.9 mm) lynch pin.
7. See Fig. 21. To attach levelling crank, arrow 2, to levelling arm, arrow 3, remove bolt-on lug, arrow 4, of hitch levelling arm. Next, install 1" (25 mm) diameter pin of bearing tube, arrow 5, into weld-on lug, arrow 6, of levelling arm. Position bearing tube so grease fitting is facing up. Place bolt-on lug, arrow 4, over outside of levelling crank. Install 1" (25 mm) diameter pin of bearing tube into bolt-on lug. Fasten the bolt-on lug to the levelling arm with four (4) 1/2" x 5" (12.7 mm x 127 mm) N.C. hex bolts c/w nuts and lockwashers.
8. See Fig. 21. Attach clevis end of levelling link, arrow 2, to arm, arrow 7, on rockshaft. Fasten with one 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) bolt c/w nut and lockwasher. Tighten bolt to 840 ft. lbs. (1139 N · m).

NOTE: The 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) bolt must be tightened so that the clevis is drawn up tight against the ball joint in arm, arrow 7. Tighten bolt to 840 ft. lbs. (1139 N · m). Ball must also be free to pivot in socket. Lubricate ball with oil and turn in socket to make sure ball is free to pivot.

9. See Fig. 21. Fasten hose support, arrow 8, to a bolt welded to top of hitch. Secure with (1) 5/8" (15.7 mm) nut, (1) 11/16" (17.2 mm) I.D. flatwasher, and (1) 5/8" (15.7 mm) lockwasher.
10. See Fig. 21. Mount hitch jack, arrow 9, on round tube welded to inside of hitch. Jack pivots on mounting tube and can be placed in vertical position for supporting disc hitch or horizontal position while disc is in motion. Lock jack in desired position with pin.

IMPORTANT: JACK MUST BE IN HORIZONTAL POSITION WHEN DISC IS IN MOTION. IF JACK IS IN VERTICAL POSITION WHEN DISC IS IN MOTION, JACK MAY STRIKE GROUND OR OBSTRUCTION ON GROUND, CAUSING SEVERE DAMAGE TO JACK, BE SURE CRANK OF JACK IS NOT HANGING BELOW HITCH WHEN JACK IS IN HORIZONTAL POSITION. PLACE CRANK ON TOP OF HITCH TO AVOID DAMAGE.

FIG. 22



11. ATTACHING MAIN FRAME GANG BEAMS - See Fig. 22 and 23.

NOTE: Determine front and rear main frame gang beams by length. For gang beam lengths refer to chart on page 36.

- a) Attach front gang beams, arrow 1, to mount brackets, arrow 2, welded to inside and outside frame members. Fasten each gang beam with two (2) 1-1/4" x 3-1/2" (31.7 mm x 88.9 mm) N.C. hex bolts c/w nuts and lockwashers at each mount bracket. Front gang beams are L.H. and R.H. and must be positioned as shown. Tighten bolts to 840 ft. lbs. (1139 N · m).
- a) Attach rear gang beams, arrow 3, to mount brackets, arrow 4, welded to inside and outside frame members. Fasten each gang beam with two (2) 1-1/4" x 3-1/2" (31.7 mm x 88.9 mm) N.C. hex bolts c/w nuts and lockwashers at each mount bracket. Rear gang beams are L.H. and R.H. and must be positioned as shown. Tighten bolts to 840 ft. lbs. (1139 N · m).

FIG. 23

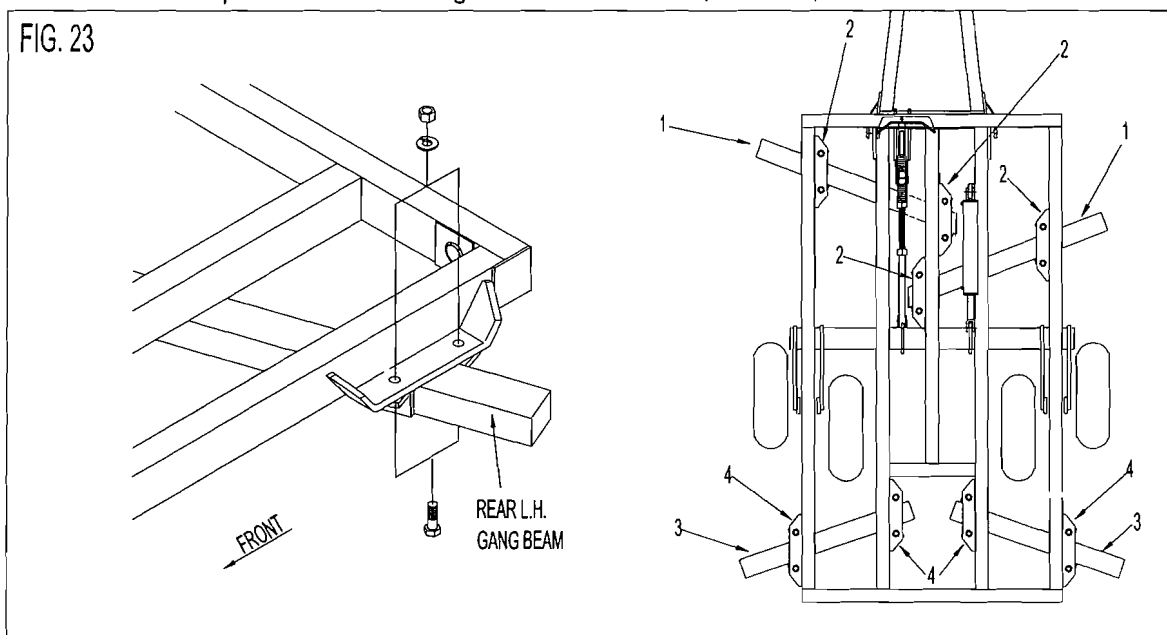
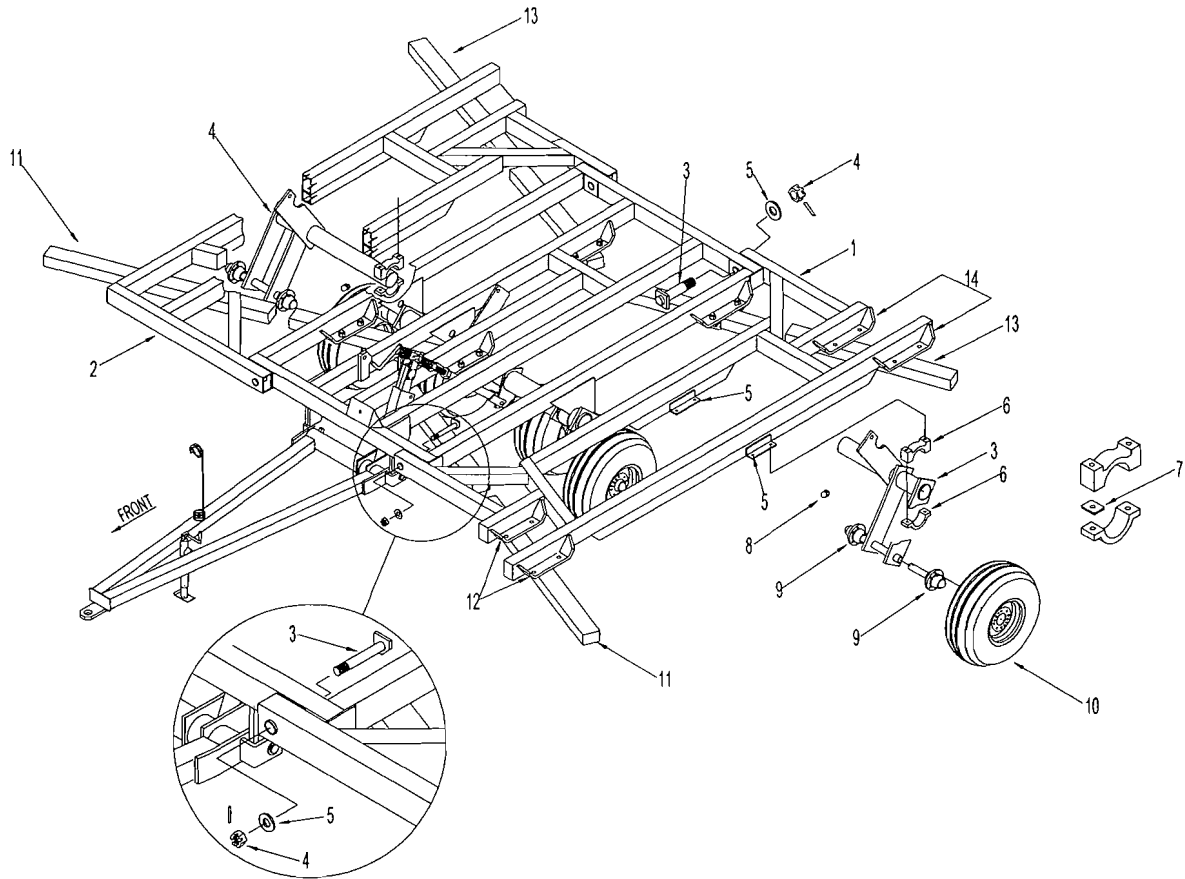


FIG. 24



12. See Fig. 24. Locate one (1) wing frame, arrows 1 and 2, on each side of main frame. Wing frames are L.H. and R.H. and must be positioned as shown. Bolt front hinge tube of each wing frame to mount tubes in front tube of main frame. Secure each wing with one (1) 1-15/16" dia. pin x 13-1/2" (49mm x 343mm) hinge bolt, arrow 3, c/w 2" (50.8mm) slotted nut, arrow 4, and 2" I.D. x 1/2" (50.8mm x 12.7mm) washer, arrow 5. Install bolts from inside of main frame.
Bolt rear hinge tubes of each wing frame to wing mount tubes in rear of main frame. Secure each wing with one (1) 1-15/16" dia. x 13-1/2" hinge bolt (49mm x 343mm) c/w 2" (50.8mm) slotted nut and 2" I.D. x 1/2" (50.8mm x 12.7mm) washer, arrow 5. Install bolts from inside of main frame. Tighten all four (4) hinge bolts enough to remove end play. Do not over tighten hinge bolts. Install 3/8" x 3" (9.4mm x 76.2mm) cotter pins in all slotted nuts.
13. Attaching Wing Frame Gang Beams - See Fig. 24.
Note: Determine front and rear wing frame gang beams by length. For gang beam lengths refer to chart on page 36.
 - a) Attach front gang beams, arrow 11, to brackets, arrow 12, welded to inside and outside frame members. Fasten each gang beam with two (2) 1-1/4" x 3-1/2" N.C. (31.7 x 88.9mm) hex bolts c/w nuts and lockwashers at each mount bracket. Front gang beams are L.H. and R.H. and must be positioned as shown. Tighten bolts to 840 ft. lbs. (1139 N.m).
 - b) Attach rear gang beams, arrow 13, to brackets, arrow 14, welded to inside and outside frame members. Fasten each gang beam with two (2) 1-1/4" x 3-1/2" N.C. (31.7 x 88.9mm) hex bolts c/w nuts and lockwashers at each mount bracket. Front gang beams are L.H. and R.H. and must be positioned as shown. Tighten bolts to 840 ft. lbs. (1139 N.m).

WARNING: USE ADEQUATE MANPOWER OR A HOIST TO LIFT HEAVY COMPONENTS INTO PLACE. ATTEMPTING TO LIFT HEAVY COMPONENTS BY YOURSELF COULD CAUSE SERIOUS INJURY.

WARNING: SUPPORT WING FRAMES SECURELY BEFORE ASSEMBLING COMPONENTS. HEAVY FRAME COULD CAUSE SERIOUS INJURY IF THEY FELL.

CAUTION: WHEN ASSEMBLING DISC, USE ALIGNING PUNCH TO LINE UP HOLES. KEEP FINGERS OUT OF HOLES.

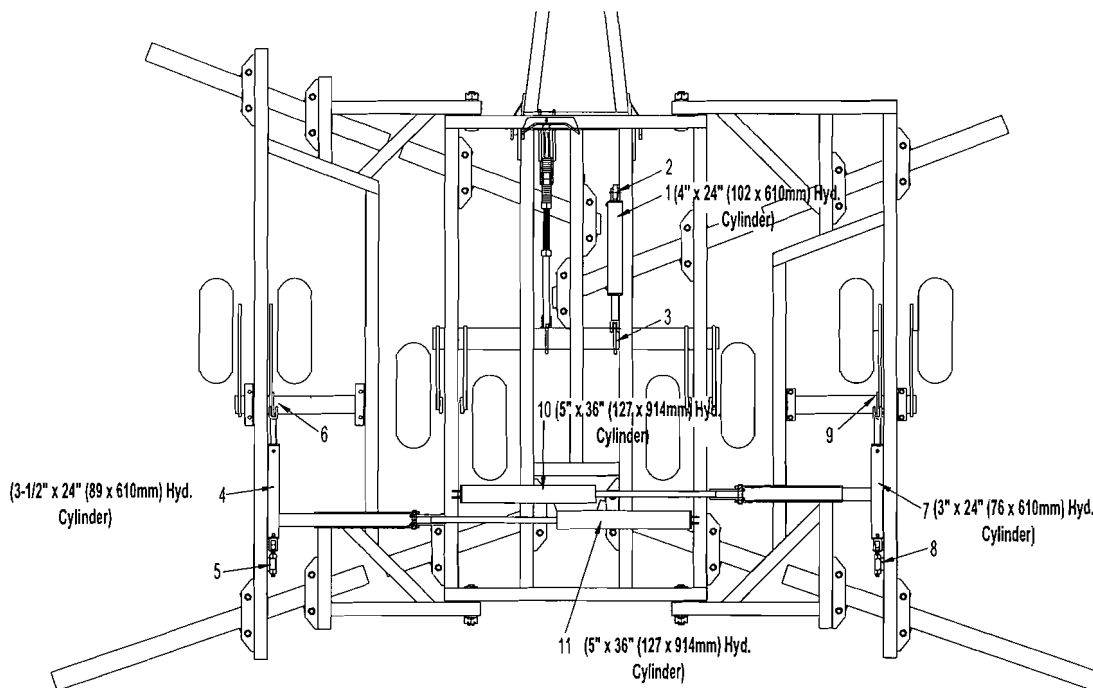
14. See Fig. 24. Fasten L.H. and R.H. wing rockshafts, arrow 3 and 4, to bottom of L.H. and R.H. wing frames. Be sure correct rockshaft is used. Wheel leg points forward with cylinder arm on top. Secure each rockshaft to two (2) bearing brackets, arrow 5, with two (2) sets of 5-1/2" (139.7 mm) rockshaft bearings, arrow 6. Fasten each rockshaft bearing set to bearing bracket with two (2) 3/4" x 6-1/2" (19 mm x 165 mm) hex bolts c/w nuts and lockwasher. Position top half of rockshaft bearing so grease hole faces front. Position bottom half of rockshaft bearing so grease holes faces the rear. After tightening rockshaft bearing bolts, rockshaft should be free to pivot in bearing.

NOTE: *If rockshaft bearing are too tight and don't allow rockshaft to turn freely, place necessary 2" x 3" (50.8 x 76.2) shims, arrow 7, (as required) between bearing halves. Shim(s) are packed in hydraulic hose and fitting box.*

NOTE: *Before installing rockshaft bearings place a coat of grease on bearing surface.*

15. See Fig. 24. Install one (1) grease fitting, arrow 8, in top half of each bearing assembly.
16. See Fig. 24. Install two (2) 6 bolt hub and spindle assemblies, arrow 9, into spindle mounting tubes at bottom of wheel leg of each rockshaft, arrows 3 and 4. Secure each spindle with one (1) 1/2" x 3-1/2" (12.5mm x 89mm) hex bolt c/w nylon lock nut.
17. See Fig. 24. Install one (1) six bolt tire and wheel assembly, arrow 10, to each hub assembly, arrow 9. Secure each wheel with six (6) 9/16" x 1-1/8" (14.2mm x 28.5mm) wheel bolts tighten wheel bolts to 130 ft. Lbs. (176.3 N · m.).

FIG. 25



18. See Fig. 25. Fasten one (1) 4" x 24" (101.6 mm x 610 mm) lift cylinder, arrow 1, to main frame and rockshaft arm. Fasten barrel end to cylinder lug, arrow 2. Position so ports face L.H.S. Fasten shaft end to cylinder arm, arrow 3, on rockshaft. Fasten each end of cylinder with one (1) 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) pin. Secure cylinder pins with 5/16" x 2" (7.8 mm x 50.8 mm) cotter pins.
19. See Fig. 25. Fasten one (1) 3-1/2" x 24" (88.9 mm x 610 mm) rockshaft cylinder, arrow 4, to L.H. wing frame and rockshaft arm. Fasten barrel end to 1-1/4" x 8" (31.7 mm x 203 mm) I-Bolt, arrow 5. Position so ports face up. Fasten shaft end to cylinder arm, arrow 6, on rockshaft. Fasten each end of cylinder with one (1) 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) pin. Secure cylinder pins with 5/16" x 2" (7.8 mm x 50.8 mm) cotter pins.
20. See Fig. 25. Fasten one (1) 3" x 24" (76.2 mm x 610 mm) rockshaft cylinder, arrow 7, to R.H. wing frame and rockshaft arm. Fasten barrel end to 1-1/4" x 8" (31.7 mm x 203 mm) I-Bolt, arrow 8. Position so ports face up. Fasten shaft end to cylinder arm, arrow 9, on rockshaft. Fasten each end of cylinder with one (1) 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) pin. Secure cylinder pins with 5/16" x 2" (7.8 mm x 50.8 mm) cotter pins.

IMPORTANT: IF CYLINDER PIN ON BARREL END IS NOT POSITIONED PROPERLY, SERIOUS DAMAGE MAY OCCUR TO CYLINDER OR I-BOLT. IF CYLINDER BARREL IS TURNED SO AXIS OF CYLINDER PIN IS NOT HORIZONTAL, CYLINDER WILL NOT BE FREE TO PIVOT UP AND DOWN WHEN CYLINDER IS ACTUATED.

21. ATTACHING WING LIFT CYLINDERS - See Fig. 25.

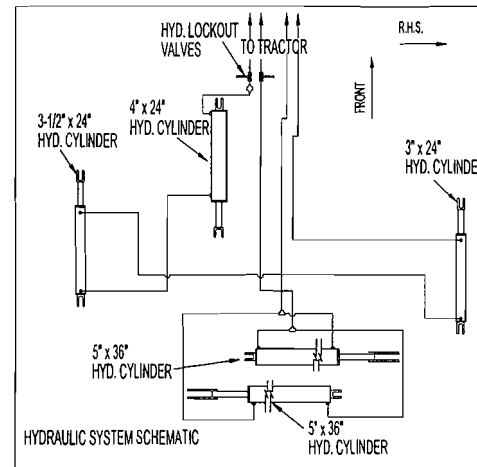
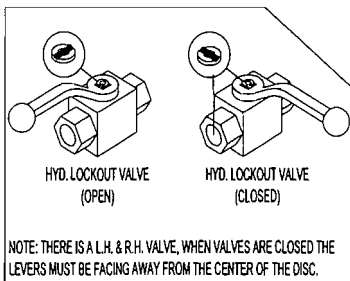
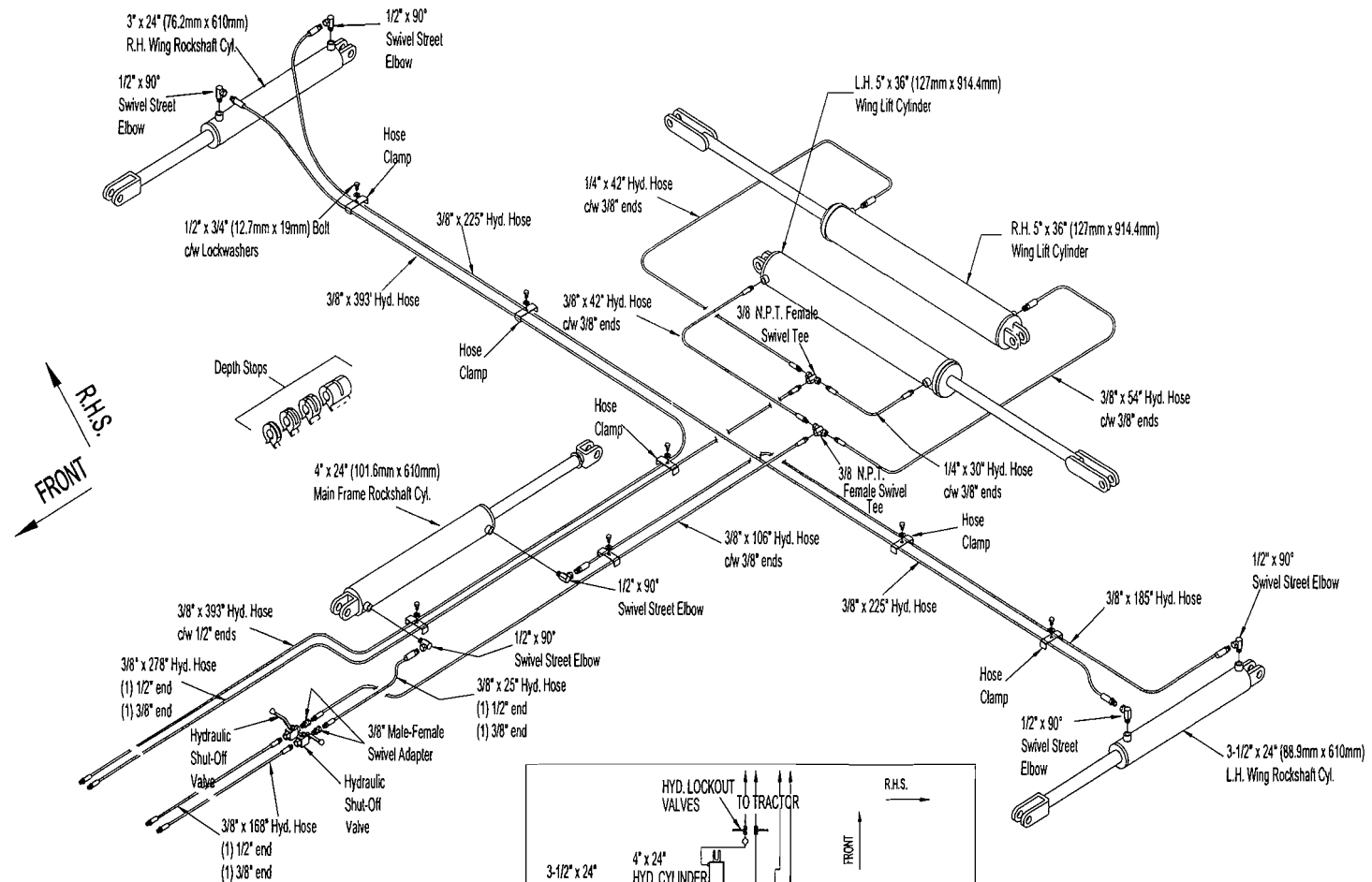
- (a) Fasten two (2) 5" x 36" (127 mm x 914 mm) wing lift cylinders, arrow 10 and 11, to lugs, at rear of main frame. Position each cylinder with ports facing towards centre of disc. Fasten barrel end of each cylinder to lug, arrow 12, with one (1) 1-1/4" x 4-3/4" (31.7 mm x 120.6 mm) pin. Secure each pin with two (2) 5/16" x 1-3/4" (7.8 mm x 44.4 mm) cotter pins. Do not attach shaft ends at this time.

 **WARNING:** DO NOT STAND UNDER WING WHILE WING IS BEING RAISED OR LOWERED. IF ANY COMPONENT SHOULD FAIL, OR IF HYDRAULIC LEVER SHOULD ACCIDENTALLY BE OPERATED, WING COULD DROP.

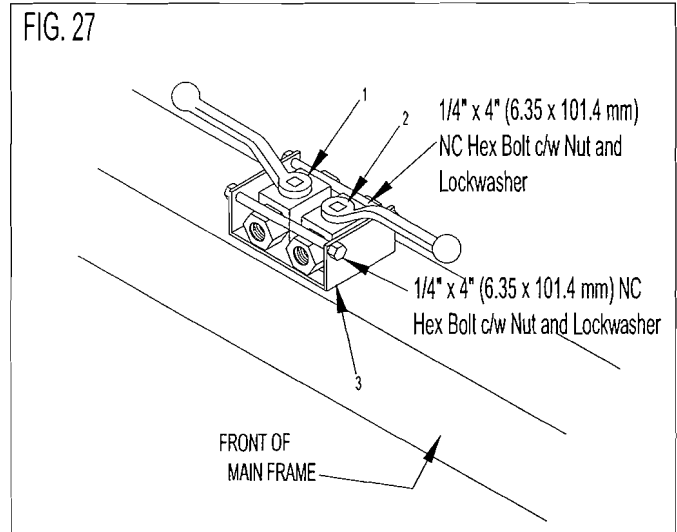
 **CAUTION:** WINGS WILL FREE FALL IF WING CYLINDERS ARE NOT FULL OF OIL CAUSING SERIOUS DAMAGE TO MACHINE OR SERIOUS INJURY OR DEATH TO PERSON(S) NEARBY.

 **CAUTION:** WHEN TRANSPORTING DISC ALWAYS PLACE HYDRAULIC LOCK UP VALVES IN "CLOSED" POSITION. IF HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, THE DISC COULD DROP OR WINGS COULD FALL.

FIG. 26



21. See Fig. 27. Place two (2) hydraulic lockup valves, arrow 1 and 2, in bracket, arrow 3, welded to front centre of main frame. Valves are assembled L.H. and R.H. Position valves as shown so handle moves out when closing valve (as shown) and forward when opening valves. Position valves between front and rear holes in bracket, arrow 3, then installing (2) 1/4" x 4" (6.35mm x 101.6mm) N.C. hex bolts c/w nuts and lockwashers in bracket to hold valves in place.



26. ATTACHING HYDRAULIC HOSES TO ROCKSHAFT CYLINDERS AND WING LIFT CYLINDERS - **NARROW WING FRAME ONLY.** - See Fig. 26.

IMPORTANT: DO NOT USE TEFLON TAPE TO SEAL HYDRAULIC HOSES AND FITTINGS. IF PIECES OF TAPE GET INTO THE HYDRAULIC SYSTEM THEY MAY PLUG SMALL ORIFICES.

NOTE: *To ensure the hydraulic system does not leak, seal fittings and hoses with sealing liquid.*

- a) See Fig. 26. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow in the shaft end port of the R.H. 3" x 24" (76.2 mm x 610 mm) wing rockshaft cylinder. Connect one (1) 3/8" x 393" (9.39 mm x 9982 mm) hydraulic hose to same swivel street elbow. Then run the hose across the wing frame to the centre of the main frame, and to front of hitch.
- b) See Fig. 26. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow in shaft end, port of 3-1/2" x 24" (88.9 mm x 610 mm) L.H. wing rockshaft cylinder. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow, in the barrel end port of the R.H. 3" x 24" (76.2 mm x 610 mm) wing rockshaft cylinder. Connect one (1) 3/8" x 225" (9.39 mm x 5715 mm) hydraulic hose, to swivel elbow, on R.H. cylinder. Next run hose across frame to 1/2" x 90 degree (12.7 mm) swivel elbow, on L.H. cylinder.
- c) See Fig. 26. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow to barrel end port of L.H. 3-1/2" x 24" (88.9 mm x 610 mm) wing rockshaft cylinder. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow, to shaft end port of 4" x 24" (101.6 mm x 610 mm) main frame cylinder. Connect one (1) 3/8" x 185" (9.39 mm x 4699 mm) hydraulic hose, to swivel elbow, on main frame cylinder. Next run same hose across frame to 1/2" x 90 degree (12.7 mm) swivel elbow on L.H. 3-1/2" x 24" (88.9 mm x 610 mm) wing rockshaft cylinder.
- d) See Fig. 26. Install one (1) 1/2" x 90 degree (12.7 mm) swivel street elbow into the barrel end port of 4" x 24" (101.6 mm x 610 mm) main frame cylinder. Connect one (1) 3/8" x 25" (9.39 mm x 635 mm) hydraulic hose, to rear port of L.H. lock-up, with one (1) 3/8" (9.39 mm) male-female swivel. Next connect same hose to 1/2" x 90 degree (12.7 mm) swivel elbow, on front port of main frame cylinder.
- e) See Fig. 26. Connect one (1) 1/4" x 30" (6.35mm x 762mm) hydraulic hose to shaft end port of L.H. 5" x 36" (127mm x 914mm) hydraulic cylinder. Fasten opposite end of same hose to a 3/8" N.P.T. (9.39 mm) swivel tee as shown. Connect one (1) 1/4" x 42" (6.35mm x 1067mm) hydraulic hose to shaft end port of R.H. 5" x 36" (127mm x 914mm) hydraulic cylinder. Fasten opposite end of same hose to same 3/8" N.P.T. (9.39mm) swivel tee as shown.
- f) See Fig. 26. Connect one (1) 3/8" x 54" (9.39mm x 1372mm) hydraulic hose to barrel end port of R.H. 5" x 36" (127 mm x 914 mm) hydraulic cylinder. Fasten opposite end of same hose to a 3/8" N.P.T. (9.39mm) swivel tee as shown. Connect one (1) 3/8" x 42" (9.39mm x 1067mm) hydraulic hose to barrel end port of L.H. 5" x 36" (127mm x 914mm) hydraulic cylinder. Fasten opposite end of same hose to same 3/8" (9.39mm) N.P.T. swivel tee.

- g) See Fig. 26. Install one (1) 3/8" (9.39 mm) male x 3/8" (9.39 mm) female swivel adapter, in to the R.H. lockup valve. Fasten one (1) 3/8" x 106" (9.39 mm x 2692 mm) hydraulic hose, in 3/8" (9.39 mm) tee, arrow B. Fasten opposite end of same hose to the 3/8" (9.39 mm) male x 3/8" (9.39 mm) female swivel adaptor in lockup valve.
 - h) See Fig. 26. Install two (2) 3/8" x 168" (9.39 mm x 4267 mm) hydraulic hoses to the front port of hydraulic lockup valves, and run hoses to front of hitch.
 - i) See Fig. 26. Install one (1) 3/8" x 278" (9.39 mm x 7061 mm) hydraulic hose, from the 3/8" (9.39 mm) swivel tee, arrow A, to front of disc.
23. **SECURING HYDRAULIC HOSES TO FRAME** - See Fig. 26 for machines with narrow wings.
Fasten hoses to frame with one U-shaped hose clamp at each hose hold down point. Each hold down point has a 1/2" (12.7 mm) hex. nut welded to the top of frame. The hold down clips are supplied in two widths, one for two hoses and one for four hoses. Place hose clamp over hoses and fasten clamp to weld-on nut with one 1/2" x 3/4" (12.7 mm x 19.0 mm) bolt c/w lockwasher.

24. **HOW MAIN LIFT ROCKSHAFT HYDRAULIC SYSTEM WORKS** - See Fig. 26.
When raising the disc, oil is pumped into the barrel end port of centre frame cylinder causing the cylinder to extend. Oil is then forced from the shaft end port of same cylinder into the barrel end port of the 3-1/2" x 24" (88.9 mm x 610 mm) cylinder on L.H. side causing wing cylinder to extend. Oil is then forced from the shaft end port of the 3-1/2" x 24" (88.9 mm x 610 mm) cylinder into the piston end port of the 3" x 24" (76.2 mm x 610 mm) wing cylinder on R.H.S. causing wing cylinders to extend. The oil from shaft end port of the 3" x 24" (76.2 mm x 610 mm) cylinder on R.H.S. is returned to the tractor.

When lowering disc, oil flows from tractor to shaft end port of the 3" x 24" (76.2 mm x 610 mm) wing cylinder, causing wing cylinder to contract. Oil forced from piston end port of the 3" x 24" (76.2 mm x 610 mm) wing cylinder flows to shaft end port of L.H. 3-1/2" x 24" (88.9 mm x 610 mm) cylinder, causing cylinder to contract. The oil forced from the piston end port of the L.H. 3-1/2" x 24" (88.9 mm x 610 mm) wing cylinder flows to shaft end port of main frame 4" x 24" (101.6 mm x 610 mm) cylinder causing cylinder to contract. The oil from piston end port of the 4" x 24" (101.6 mm x 610 mm) cylinder is returned to the tractor.

NOTE: Lockup valve must be open to allow oil to flow to and from lift cylinders.

All cylinders extend and contract at the same rate because the amount of oil flowing between the shaft end ports and the piston end ports is equal in volume. For example, the 4" x 24" (101.6 mm x 610 mm) main frame cylinder has a 2" (50.8 mm) diameter piston shaft which displaces enough oil from the shaft side to fully extend the 3-1/2" x 24" (88.9 mm x 610 mm) L.H. wing cylinder. The same method is used between the 3-1/2" x 24" (88.9 mm x 610 mm) L.H. wing cylinder and the 3" x 24" (76.2 mm x 610 mm) R.H. wing cylinder.

Each lift (rockshaft) cylinder contains a by-pass to allow oil to flow past piston when each cylinder is fully extended. If all cylinders are not fully extended when disc is raised, continue to pump oil into lift cylinders until all cylinders are fully extended.

25. **NOTE:** *Before filling lift cylinders with oil, remove clevis pin from shaft end of each cylinder so that the cylinders may be extended and contracted WITHOUT ACTUATING rockshafts. Support cylinders so shafts pass over rockshaft arms and frame components.*

See Fig. 26. To fill rockshaft cylinders with oil remove depth control stops to allow cylinders to work full length of stroke. Next, pump oil into the cylinders working shafts in and out. After all cylinders have been completely filled with oil, synchronize cylinders by fully extending them. After the first cylinder is fully extended continue to hold hydraulic lever until the other two (2) cylinders are all fully extended. Attach shaft end of each cylinder to rockshaft arm with one (1) 1-1/4" x 4-3/4" (31.7 mm x 121 mm) pin. Secure each pin with two (2) 5/16" x 1-3/4" (7.57 mm x 44.4 mm) cotter pins.

26. **NOTE:** *Before filling wing cylinders with oil, support cylinder so shaft passes over cylinder lug on wing.*

See Fig. 26. Pump oil into all 5" x 36" (127 mm x 914 mm) wing cylinders. Extend and contract cylinder shafts until cylinders are completely filled with oil. After cylinders are full of oil, fully extend all of them. Next, attach shaft end of each cylinder to a slotted hole in lug on wing frame with one (1) 1-1/4" x 4-3/4" (31.7 mm x 121 mm) pin. Secure each pin with two (2) 5/16" x 1-3/4" (7.87 mm x 44.4 mm) cotter pins.



CAUTION: HYDRAULIC CYLINDERS CAN BE SERIOUSLY DAMAGED IF CLEVIS OF SHAFT STRIKES ROCKSHAFT ARM OR WING CYLINDER LUG AS CYLINDERS ARE BEING CYCLED TO FILL THEM WITH OIL.



CAUTION: IF HYDRAULIC CYLINDER SHAFTS ARE UNPINNED AND CYCLED TO FILL THEM WITH OIL, THEY CAN BE SERIOUSLY DAMAGED IF CLEVIS OF SHAFT STRIKES ROCKSHAFT ARM OR WING CYLINDER LUG.



CAUTION: DO NOT DISCONNECT HYDRAULICALLY OPERATING COMPONENTS WHEN THERE IS PRESSURE WITHIN THOSE COMPONENTS. HYDRAULIC COMPONENTS UNDER PRESSURE MAY CAUSE PARTS AND HYDRAULIC FLUID TO FLY OUT AT A HIGH VELOCITY WHICH COULD CAUSE SERIOUS INJURY.



CAUTION: HYDRAULIC OIL ESCAPING UNDER PRESSURE HAS SUFFICIENT FORCE TO CAUSE SERIOUS INJURY. IF INJURED BY ESCAPING FLUID, OBTAIN MEDICAL TREATMENT IMMEDIATELY.

CHECK HYDRAULIC HOSES PERIODICALLY FOR SIGNS OF RUPTURE AND LEAKS. USE A CARD BOARD AS A BACKSTOP TO CHECK FOR ESCAPING HIGH PRESSURE OR HOT FLUID.



CAUTION: WINGS WILL FREE FALL IF WING CYLINDERS ARE NOT FULL OF OIL, CAUSING SERIOUS DAMAGE.



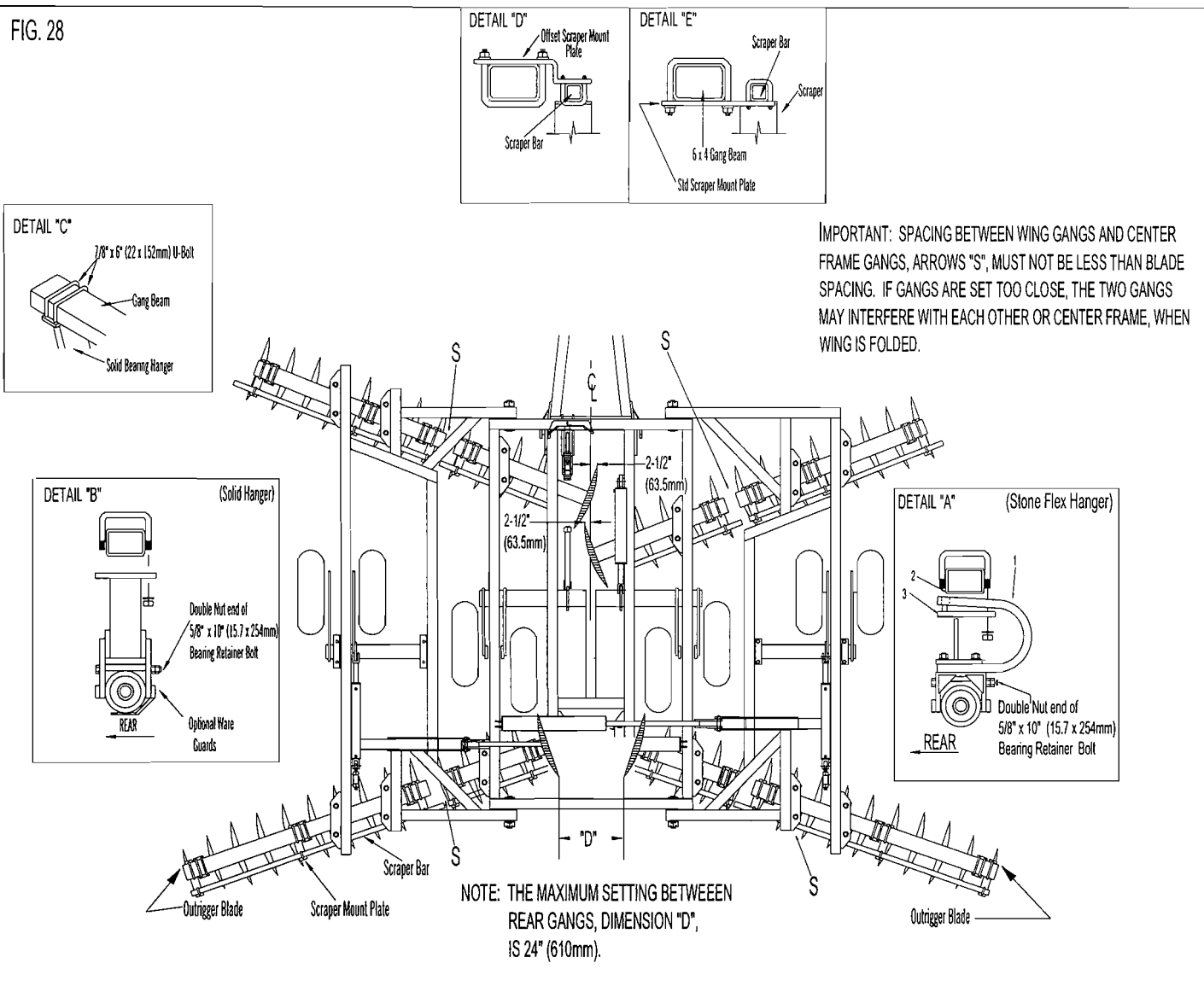
CAUTION: TO ASSEMBLE BALANCE OF DISC, EXTEND MAIN LIFT CYLINDERS RAISING FRAME. BE SURE MAIN LIFT CYLINDERS ARE COMPLETELY FILLED WITH OIL. THEN PLACE ADEQUATE SUPPORT UNDER MAIN FRAME AND EACH WING FRAMES.

DO NOT USE LOCK OUT VALVE AS SAFETY DEVICE TO PREVENT FRAME FROM FALLING. IF ANY HYDRAULIC COMPONENT FAILED DISC COULD DROP CAUSING SERIOUS INJURY OR DEATH TO THOSE NEARBY.



WARNING: DO NOT STAND UNDER WINGS WHILE WINGS ARE BEING RAISED OR LOWERED. IF ANY COMPONENTS OF HYDRAULIC SYSTEM SHOULD FAIL OR IF HYDRAULIC LEVER SHOULD ACCIDENTALLY BE OPERATED, WINGS COULD DROP CAUSING SERIOUS INJURY OR DEATH.

FIG. 28



27. ATTACHING GANG ASSEMBLIES - See Fig. 28.

NOTE: Find gang pattern for your disc on pages 37 to 43.

NOTE: Remove scraper assemblies and bundling tie bars from gang assemblies. The scraper assembly that is bundled with each gang will be assembled together on the disc. Be sure each gang and its scraper assembly is kept together. The 5/8" x 2" (15.7mm x 50.8mm) U-bolts used to bundle scraper assemblies must be saved to assemble scraper bar to gang beam later.

a) USING GANG PATTERN FOR YOUR DISC - Identify the front and rear gangs. Next, determine which gangs are for R.H.S. and which are for L.H.S. For solid hangers L.H and R.H. is determined by the 5/8" x 10" (15.7mm x 254mm) bearing retainer bolt. When the blades are correctly orientated the double nut end of the 5/8" x 10" (15.7mm x 254mm) bolt will face the rear of the disc, see Detail B. If your disc is equipped with stone flex hangers, L.H. and R.H. can also be determined by the opening of the "C" shank. When blades are correctly orientated the open end of "C" shank will face the rear of disc, see Detail A.

b) REAR GANGS - Roll rear gang assemblies in place under rear gang beams. The gang assemblies with outrigger blades (small diameter blades) must be positioned at the outside. See Fig. 28 for the direction rear gangs face.

Attach bearing hangers to gang beams with (2) two 7/8" x 6" (22.0mm x 152.0mm) U-bolts per bearing hanger. Details "B" and "C" illustrates how to attach solid hangers. Leave U-bolt loose. If disc is equipped with optional stone flex bearing hangers, see Step "D" to attach hangers.

c) FRONT GANGS - Roll front gang assemblies in place under front gang beams. See Fig. 28 for the direction the front gangs face.

Attach bearing hangers to gang beams with (2) two 7/8" x 6" (22.0mm x 152.0mm) U-bolts per bearing hanger. Details "B" and "C" illustrates how to attach solid hangers. Leave U-bolts loose. If disc is equipped with optional stone flex bearing hangers, see Step "C" to attach hangers.

d) See Detail "A", Fig. 28. If disc is equipped with optional stone flex bearing hangers, fasten each spring hanger assembly, arrow 1, to bottom of gang beam, arrow 2, with one backing plate, arrow 3, and 2 U-bolts. Be sure dowel pin of backing plate, arrow 3, is installed in slot of spring shank.

e) See Fig. 28. Set front centre frame gangs, so that the leading edge of inside blades, arrow 4, are approximately 2-1/2" (63.5 mm) past centre of disc frame - centre line of centre frame is shown in Fig. 28.

f) See Fig. 28. Set rear centre frame gangs, arrow 5, so that the distance between the rear edge of the two inside blades, dimension "D" is equal to 2" (50.8 mm) less than diameter of blade to a maximum of 24" (610mm). For example, if your disc is equipped with 26" (660 mm) diameter blades, dimension "D" would be set at 24"(610 mm). If your disc is equipped with 28" (711mm) or 30" (762mm) diameter blades, Dimension "D" would be set at a maximum of 26" (660mm). Be sure rear gangs are centered.

g) See Fig. 28. Adjust blade to blade distance between individual gang assemblies. This distance should be the same as the blade spacing of your disc.

IMPORTANT: SPACE BETWEEN WING GANGS AND CENTRE FRAME GANGS **MUST NOT** BE LESS THAN BLADE SPACING. IF GANGS ARE SET TOO CLOSE, THE TWO GANGS MAY INTERFERE WITH EACH OTHER WHEN WINGS ARE FOLDED.

h) Before tightening bearing hanger U-bolts, check each bearing hanger to make sure hanger is sitting square under gang beam. Also ensure hangers are not turned to one side. Next tighten U-bolts to 430 ft. lbs. (583.0 N m).

IMPORTANT: IF BEARING HANGERS ARE NOT SITTING SQUARE BEFORE TIGHTENING U-BOLTS, THRUST WILL BE BUILT INTO THE BEARINGS AND THE LIFE OF THE BEARING WILL BE SHORTENED

28. ATTACHING SCRAPER ASSEMBLIES - See Fig. 28.

NOTE: Find gang pattern for your disc on pages 37 to 43.

a) Identify scraper assembly for each gang. As indicated in Section 32 above, the gangs were bundled with their corresponding scraper assembly. Scraper assemblies are assembled L.H. and R.H. must be installed on appropriate side.

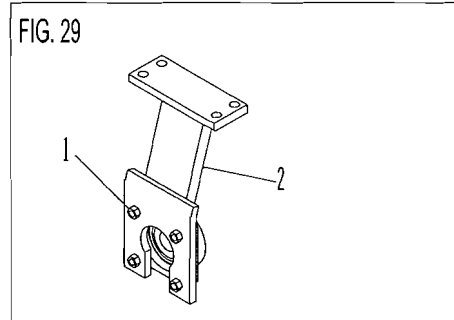
NOTE: Some gangs use a 90 degree scraper. Be sure the scraper assemblies with 90 degree scrapers are installed on the correct gangs.

b) See Fig. 28. Position each scraper assembly on REAR side of its gang with scraper placed against concave side of blades. Fasten scraper assembly to gang beam with ONE (1) scraper mount plate for each bearing hanger in the gang. Position outer scraper mount plates as close as possible to the end of the scraper bar. Position the inner scraper mount plate(s) close to a bearing hanger. Locate standard scraper mount plate on BOTTOM side of gang beam and secure with (1) 3/4" x 6" (19.0mm x 152.4mm) U-Bolt c/w nuts and lockwashers, as shown in Detail "E". Place scraper bar assembly on TOP of scraper mount plate(s) and secure scraper bar to plate(s) with one (1) 5/8" x 2" (15.7mm x 50.8mm) U-Bolts c/w nuts and lockwashers.

NOTE: In some cases the standard scraper mount plate, shown in Detail "E", can not be installed between frame and a bearing hanger. In these instances an offset scraper mount is provided. This mount plate is placed on top of the gang beam, as shown in Detail "D", allowing clearance for installation. All Models are supplied with six (6) offset mounts. If they are not used for tight locations, use them in normal locations.

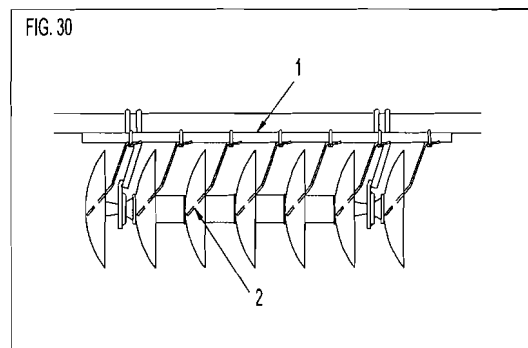
IMPORTANT: IF BEARING HANGERS ARE NOT SITTING SQUARE BEFORE TIGHTENING U-BOLTS, THRUST WILL BE BUILT INTO THE BEARINGS AND THE LIFE OF THE BEARING WILL BE SHORTENED.

29. See Fig. 29. For models equipped with 410 Series Bearing only. Loosen all the bolts, arrow 1, which fasten the bearings to the hangers, arrow 2. Then turn the disc blades to allow the bearings to align themselves. Next, tighten all the bolts. This will ensure proper bearing alignment, increasing bearing life.



30. **IMPORTANT:** WHEN RAISING WINGS FOR TRANSPORT FOR FIRST TIME AFTER ADJUSTING GANGS, RAISE WINGS SLOWLY MAKING SURE WING GANGS CLEAR CENTRE FRAME GANGS.

31. See Fig. 30. Adjust scraper bar, arrow 1, and scrapers, arrow 2, of each gang so that each scraper blade is in contact with disc blade.



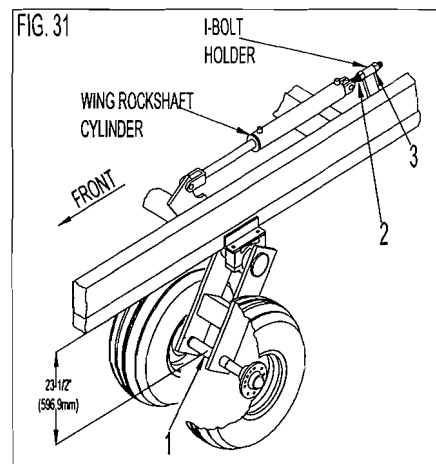
IMPORTANT: DISC WILL REQUIRE LESS HORSE POWER TO PULL IF SCRAPERS ARE ADJUSTED PROPERLY.



CAUTION: WHEN ATTACHING GANG ASSEMBLIES, WEAR PROTECTIVE GLOVES TO HELP PREVENT INJURY FROM CUTTING EDGES OF BLADES.

32. See Fig. 31. Level frames with main frame as follows:

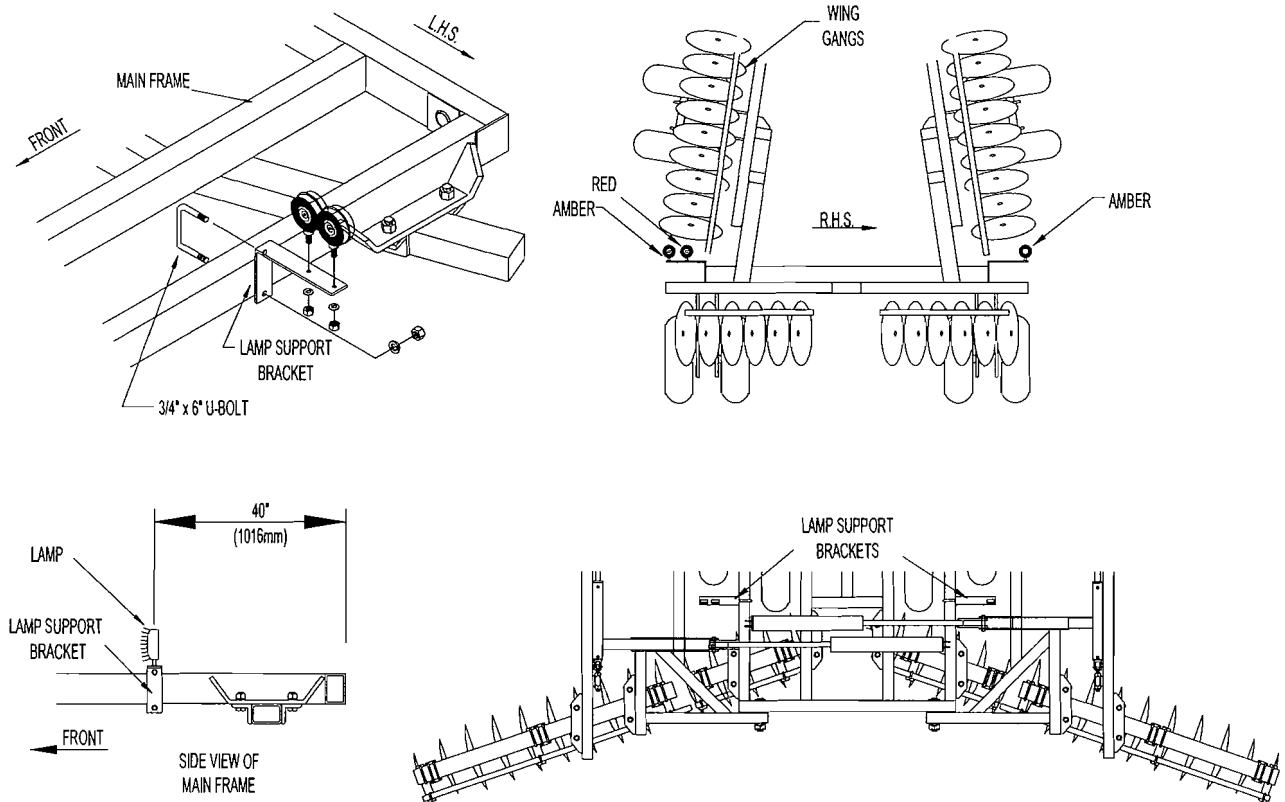
- Raise disc by extending rockshaft cylinders, be sure wing rockshaft cylinders are fully extended.
- Check position of the spindle mounting tube, arrow 1, (welded to bottom of rockshaft wheel leg). This distance should be 23-1/2" (596.9mm) from the bottom of wing frame to top of spindle mounting tube.
- If spindle mounting tube location is not correct, adjust length of wing cylinder I-Bolt, arrow 2. Extending I-Bolt will move spindle mount tube further away from bottom of frame while contracting I-Bolt will move it closer.
- After adjustments are complete, lock I-Bolt by tightening rear nut, arrow 3, against I-Bolt holder.



NOTE: The above wheel leg settings are initial settings only. If wing gangs do not cut at same depth as main frame gangs, further wing cylinder adjustment will be required.

IMPORTANT: BE SURE AXIS OF CLEVIS PIN IS HORIZONTAL AND CYLINDER PORTS ARE FACING UP. IF CYLINDER AND I-BOLT ARE NOT POSITIONED PROPERLY, CYLINDER WILL NOT BE FREE TO PIVOT WHEN ACTIVATED CAUSING SERIOUS DAMAGE.

FIG. 32



33. WARNING LIGHT KIT MOUNT INSTRUCTIONS - OPTIONAL - See Fig. 32



WARNING: DO NOT STAND UNDER FOLDED WINGS WHEN WORKING ON DISC. IF HYDRAULIC SYSTEM FAILED OR IF HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, WINGS MAY FALL RESULTING IN SERIOUS INJURY OR DEATH TO PERSON(S) NEAR DISC.

- With disc folded, install one lamp support bracket on each side of main frame. Locate each bracket 40" (1016mm) from rear of main frame. Position brackets as shown in Fig. 32. Secure each bracket with one (1) 3/4" x 6" (19.0mm x 152mm) U-bolt c/w nuts and lockwashers. Tighten U-bolts.
- Fasten one (1) amber lamp and one (1) red lamp to the L.H. lamp support bracket. Position amber and red lamps so they face the rear with the amber lamp on the outside. Install lamps through 3/4" (19.1mm) holes in lamp support bracket. Secure with nuts.
- Fasten one (1) amber lamp to outer 3/4" (19.1mm) hole in R.H. lamp support bracket. Position so amber lamp faces rear. Install lamp through 3/4" hole in mount plate. Secure with nuts.

IMPORTANT: Paragraphs "b" and "c" and Fig. 32 describe and show lamp position for North American public roads. For other countries such as Australia, check local laws and regulations for required warning lamp mounting positions



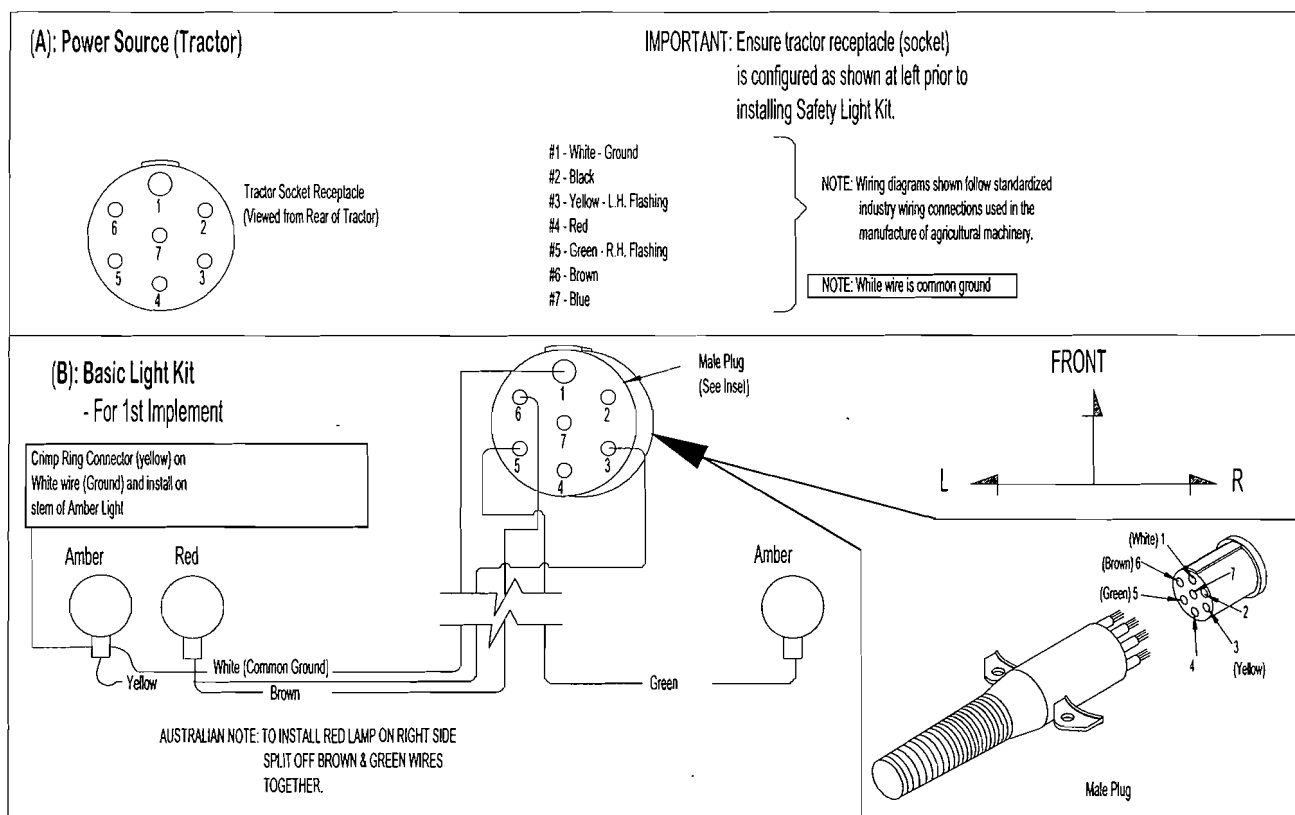
CAUTION: WHEN TRANSPORTING DISC OVER PUBLIC ROADS, USE THE SMV EMBLEM AND WARNING LIGHT FOR PROTECTION OF TRACTOR AND OTHER MOTOR VEHICLE OPERATORS. CHECK LOCAL LAWS FOR WIDTH AND HEIGHT MAXIMUMS.

WARNING LIGHT INSTALLATION CONTINUED:

D) INSTALL ELECTRICAL WIRING AS FOLLOWS:

- d1) See Fig. 33- Run four (4) wire cables (brown, white, yellow, and green) from tractor socket receptacle to rear of disc. Split off green wire and run it to the R.H. amber lamp. Next, run white wire to amber lamp on L.H. side, then run yellow wire to L.H. amber lamp and run brown wire to red lamp on L.H. side. Strip wires and fasten ring connector to each wire. Install ring connector of each wire to threaded stem of each lamp as shown in Fig. 33.
- d2) Next, disassemble male plug, then insert all wires through spring end of male plug. Strip wires and insert each wire into specific terminal of outer half of male plug. Use Fig. 33 to match wire color to proper terminal number. Reassemble both halves of male plug.
- d3) Insert male plug into tractor's socket receptacle. Activate warning light switch and check if all lamps are flashing.
- d4) IMPORTANT: Run wires along frame member. Do not run wires across open spaces. Wires that are run across open space will be damaged during discing operations or by people working on the disc.
- d5) Install a 1/2" I.D. x 9' (12.7mm x 2.74m) long plastic loom over wires that lead from male plug shown in Fig. 33. The plastic loom is installed by pushing the wires into the opening that runs the length of the loom.

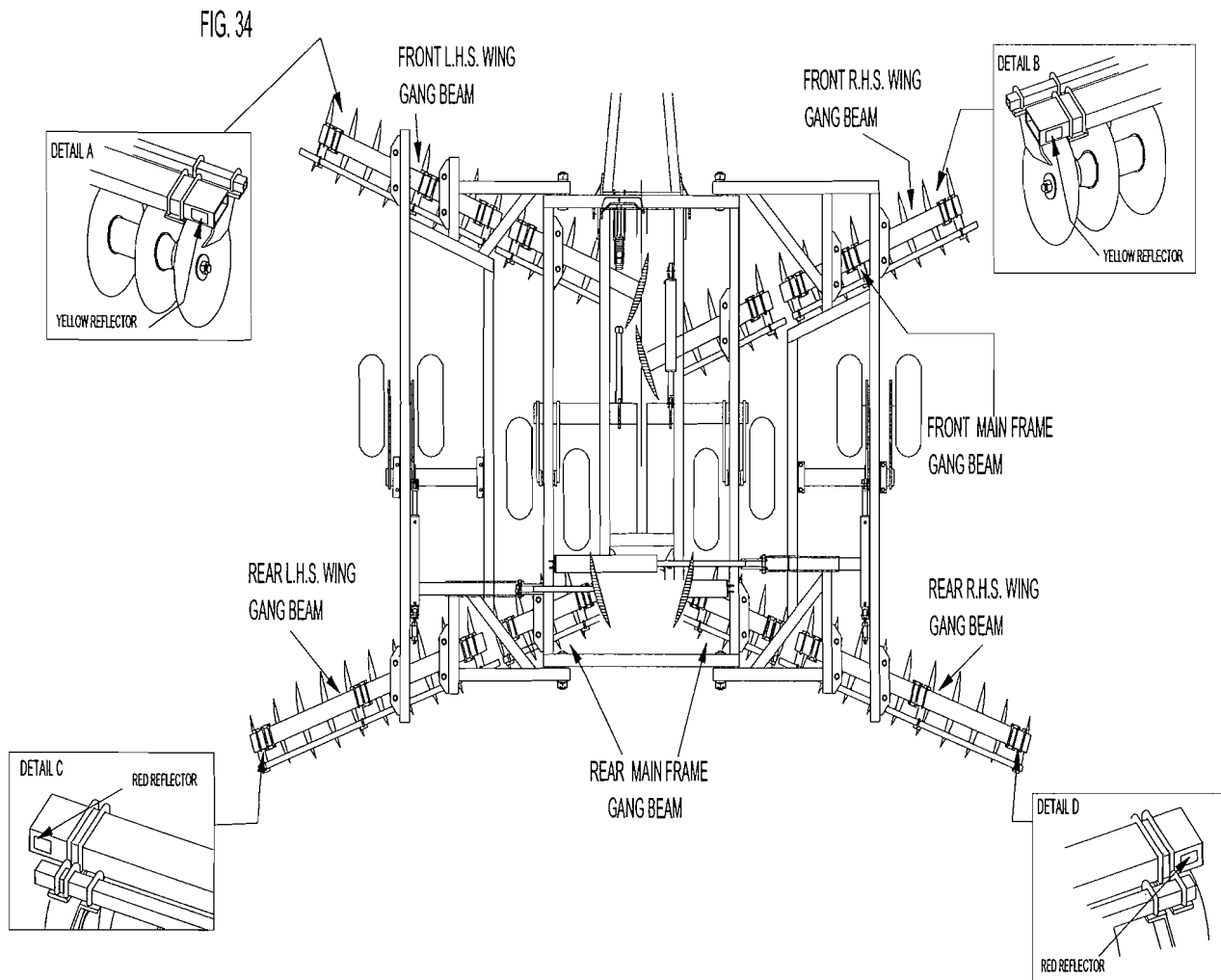
FIG. 33



COMPONENTS: BASIC LIGHT KIT

- 1 - 7 pin male plug c/w 55ft(13.7m) 14/4 rib wire
- 3 - Nylon connectors (closed end)
- 2 - Lamps - amber both sides
- 1 - Lamp - red one side

- 10 - Cable ties
- 1 - Ground Connector - ring type (7/16" - 1/2")
- 1 - 8' (24.4m) 1/2" plastic loom



38. REFLECTOR DECAL INSTALLATION - See Fig. 34

NOTE: Before installing decals, clean the area they will be placed on.

- a) Place one 2" x 9" (50.8 mm x 228.6 mm) red reflector decal on rear side of each rear gang beam. Locate decals approximately 1" (25.4 mm) from end of gang beam. See detail "C" and "D".
- b) Place one 2" x 9" (50.8 mm x 228.6 mm) yellow reflector decal on front side of each front gang beam. Locate decals approximately 1" (25.4mm) from end of gang beam. See detail "A" and "B".

GANG BEAM CHART

9" (230 mm) SPACING

DISC	L.H. & R.H. FRONT CENTRE FRAME BEAM	L.H. & R.H. REAR CENTRE FRAME BEAM	L.H. & R.H. FRONT WING FRAME BEAM	L.H. & R.H. REAR WING FRAME BEAM
50B Size	67" (1702 mm)	56" (1422 mm)	51" (1295 mm)	65" (1651 mm)
54B Size	67" (1702 mm)	56" (1422 mm)	60" (1524 mm)	75" (1905 mm)
58B Size	67" (1702 mm)	56" (1422 mm)	60" (1524 mm)	84" (2134 mm)
62B Size	67" (1702 mm)	56" (1422 mm)	70" (1778 mm)	94" (2388 mm)
66B Size	67" (1702 mm)	56" (1422 mm)	80" (2032 mm)	102" (2591 mm)

10-1/2" (267 mm) SPACING

DISC	L.H. & R.H. FRONT CENTRE FRAME BEAM	L.H. & R.H. REAR CENTRE FRAME BEAM	L.H. & R.H. FRONT WING FRAME BEAM	L.H. & R.H. REAR WING FRAME BEAM
46B Size	67" (1702 mm)	56" (1422 mm)	60" (1524 mm)	72" (1829 mm)
50B Size	67" (1702 mm)	56" (1422 mm)	60" (1524 mm)	84" (2134 mm)
54B Size	67" (1702 mm)	56" (1422 mm)	70" (1778 mm)	94" (2388 mm)
58B Size	67" (1702 mm)	56" (1422 mm)	80" (2032 mm)	106" (2692 mm)

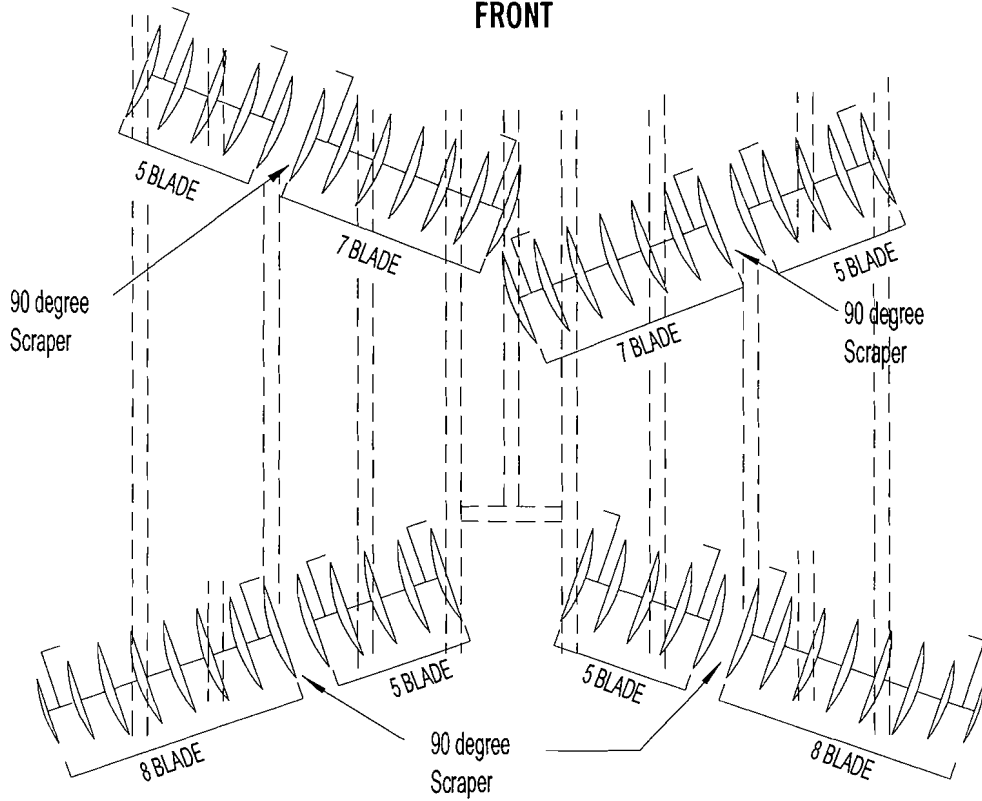
12" (305 mm) SPACING

DISC	L.H. & R.H. FRONT CENTRE FRAME BEAM	L.H. & R.H. REAR CENTRE FRAME BEAM	L.H. & R.H. FRONT WING FRAME BEAM	L.H. & R.H. REAR WING FRAME BEAM
42B Size	67" (1702 mm)	56" (1422 mm)	63" (1600 mm)	77" (1956 mm)
46B Size	67" (1702 mm)	56" (1422 mm)	63" (1600 mm)	90" (2286 mm)
50B Size	67" (1702 mm)	56" (1422 mm)	76" (1930 mm)	102" (2591 mm)

DISC GANG PATTERN - 9" (230 mm) SPACING

50 BLADE

FRONT



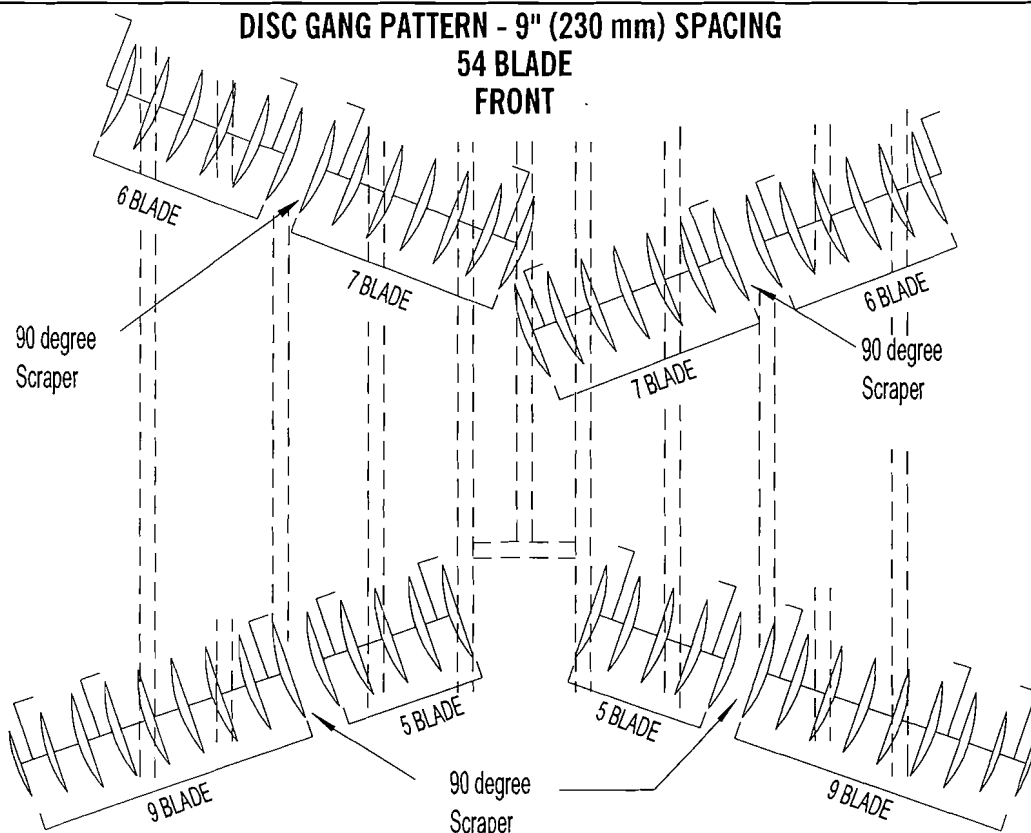
APPROX. WIDTH
19-1/2 ft. (5.9m)

16 BEARINGS

DISC GANG PATTERN - 9" (230 mm) SPACING

54 BLADE

FRONT



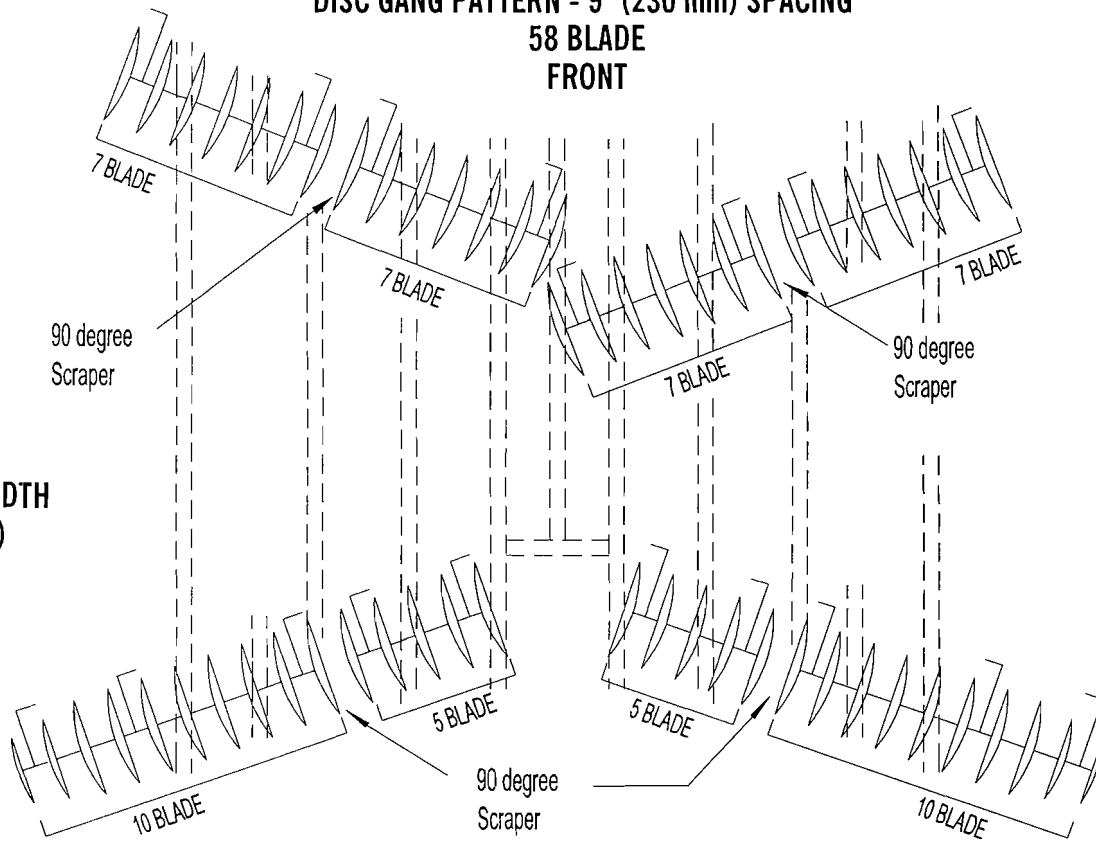
APPROX. WIDTH
21 ft. (6.4 m)

18 BEARINGS

DISC GANG PATTERN - 9" (230 mm) SPACING

**58 BLADE
FRONT**

**APPROX. WIDTH
22 ft. (6.7m)**

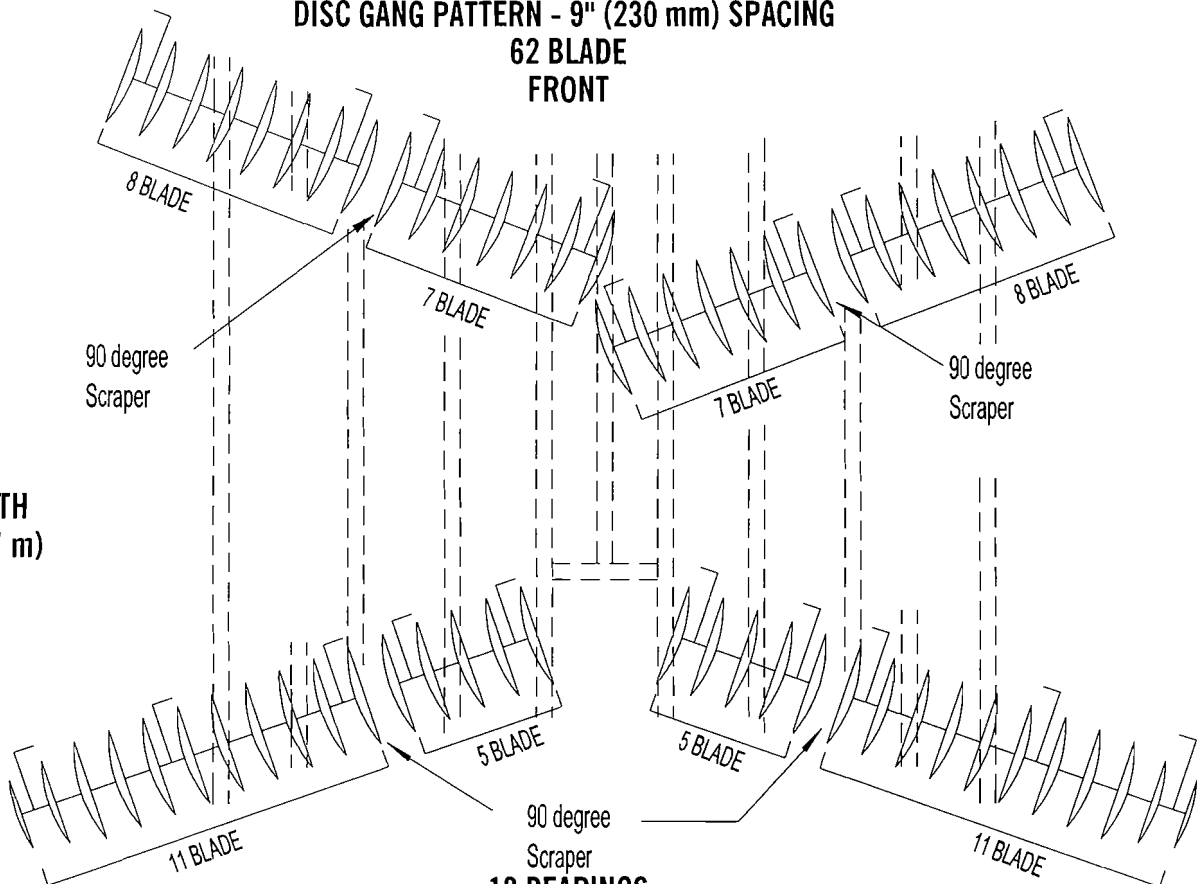


18 BEARINGS

DISC GANG PATTERN - 9" (230 mm) SPACING

**62 BLADE
FRONT**

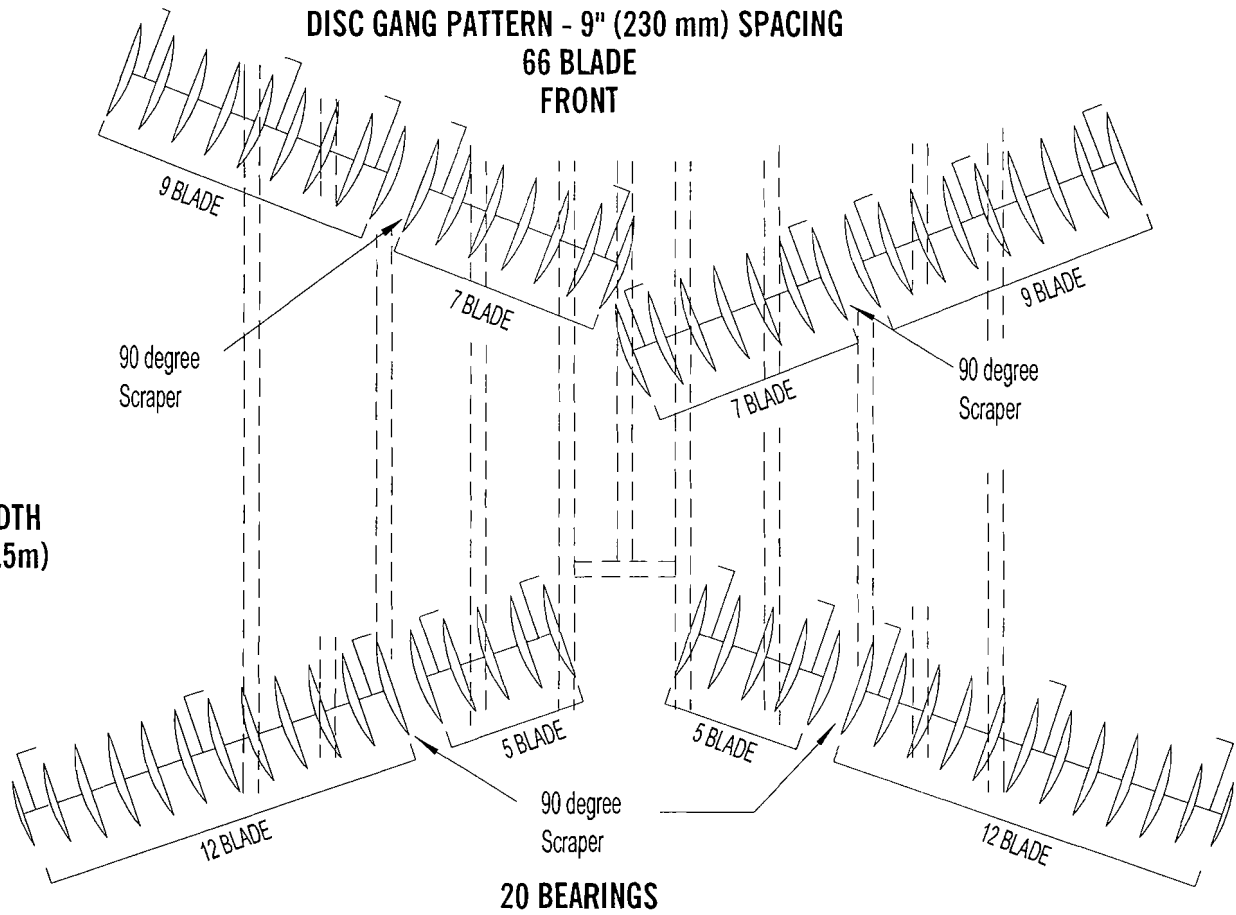
**APPROX. WIDTH
23-1/2 ft. (6.7 m)**



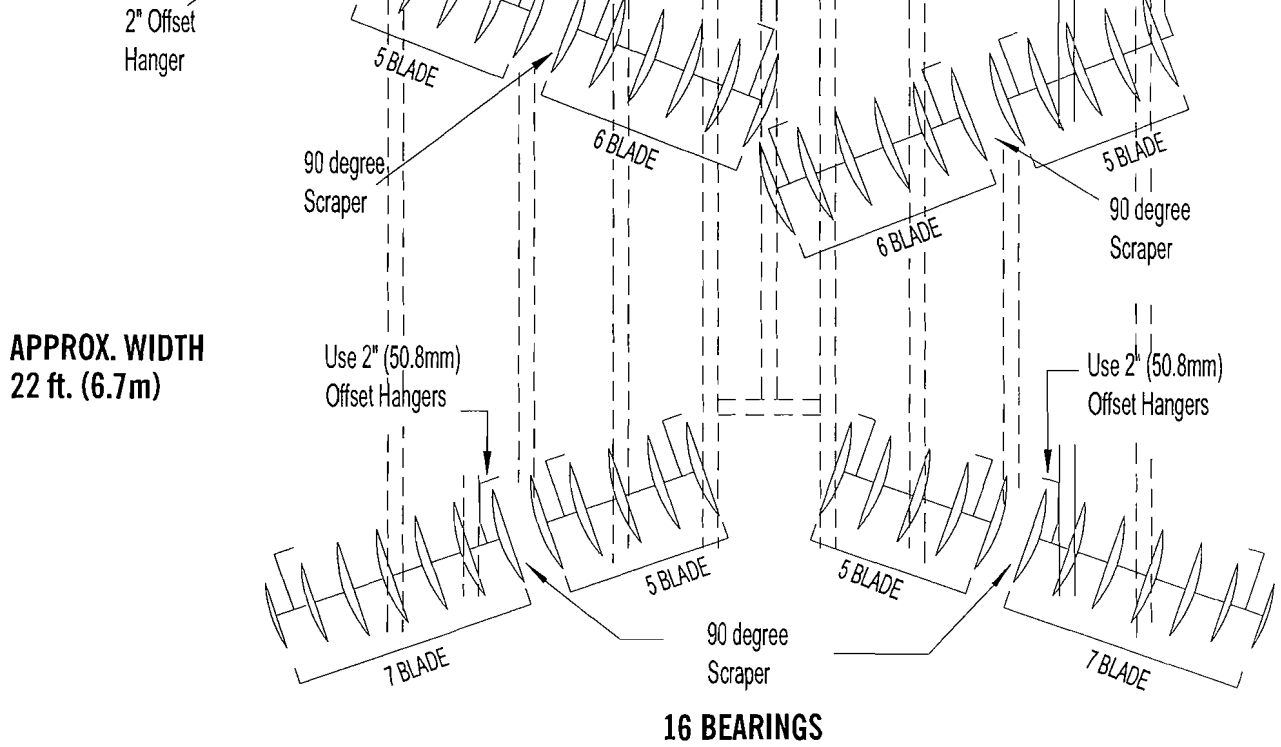
18 BEARINGS

DISC GANG PATTERN - 9" (230 mm) SPACING
66 BLADE
FRONT

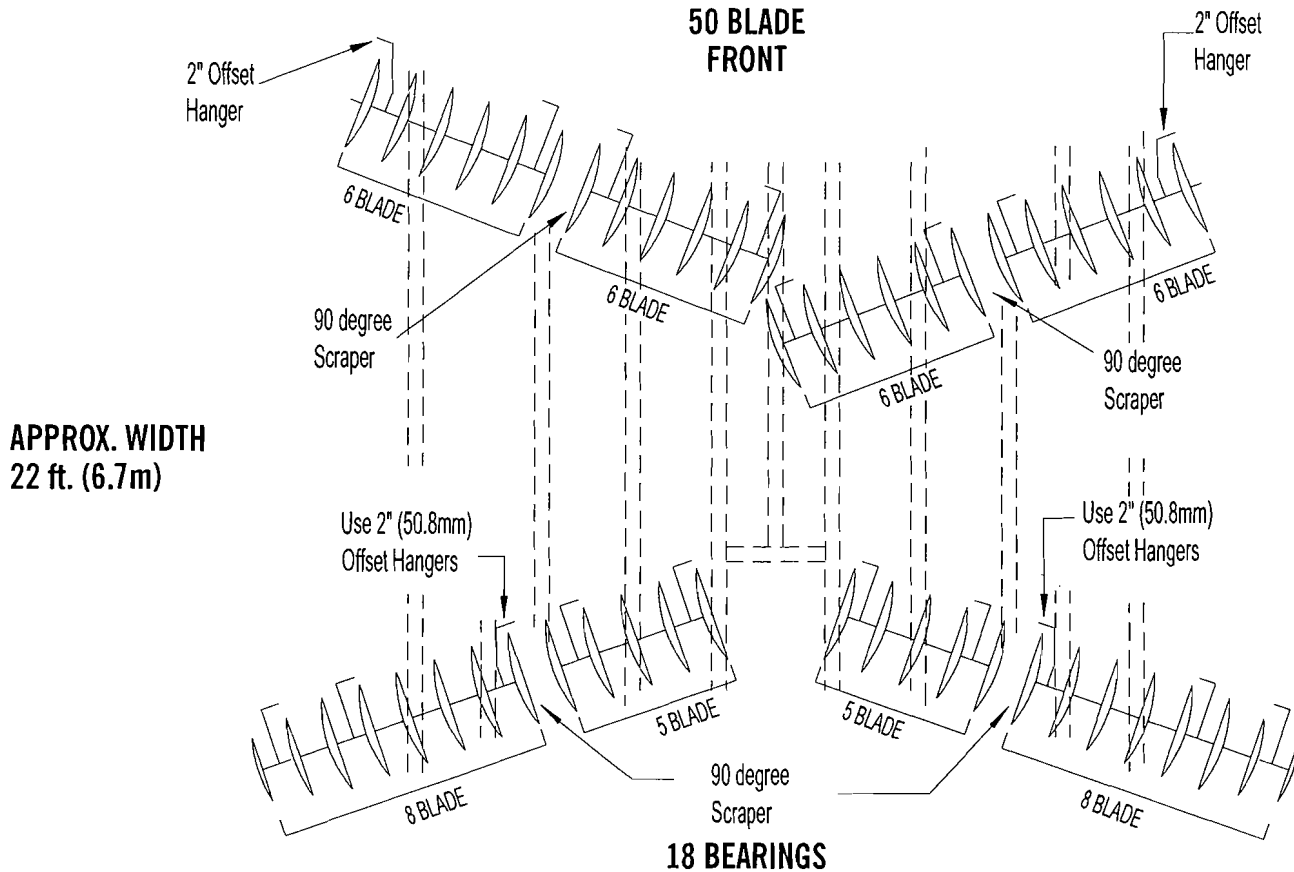
APPROX. WIDTH
24-1/2 ft. (7.5m)



DISC GANG PATTERN - 10-1/2" (266 mm) SPACING
46 BLADE FRONT



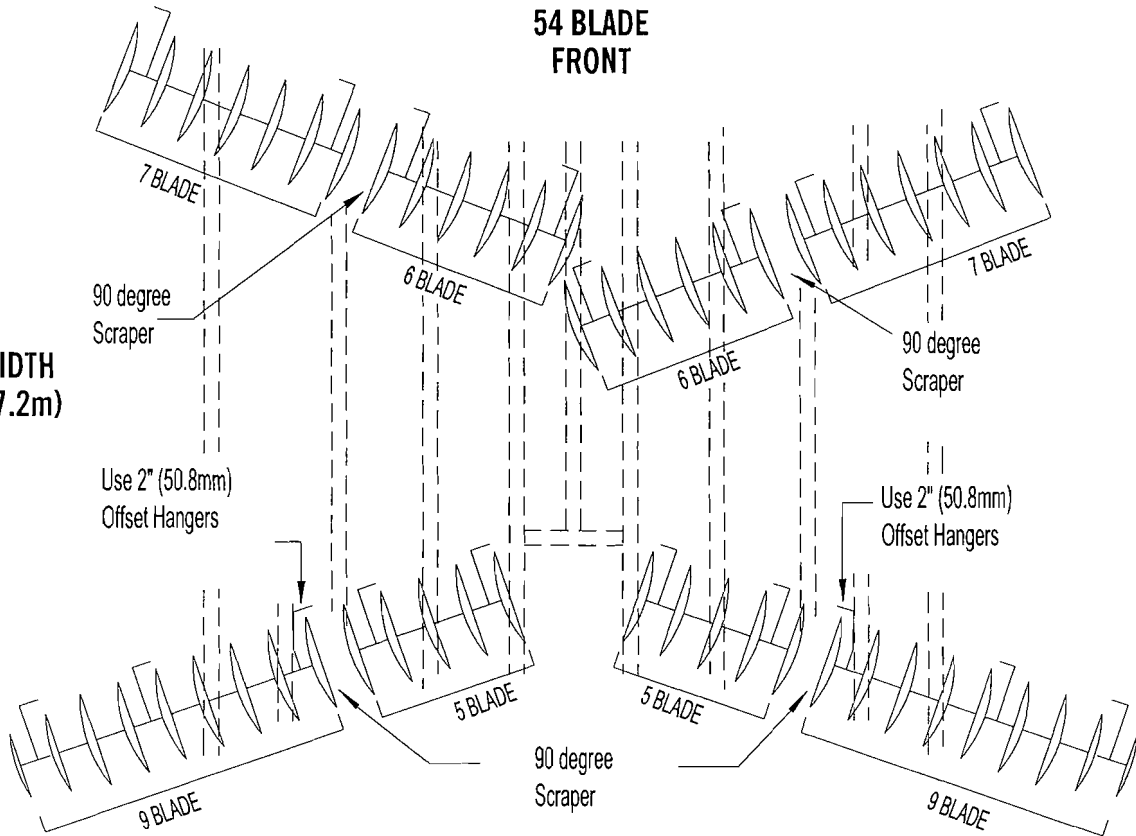
DISC GANG PATTERN - 10-1/2" (267 mm) SPACING
50 BLADE FRONT



DISC GANG PATTERN - 10-1/2" (266 mm) SPACING

54 BLADE FRONT

APPROX. WIDTH
23-1/2 ft. (7.2m)

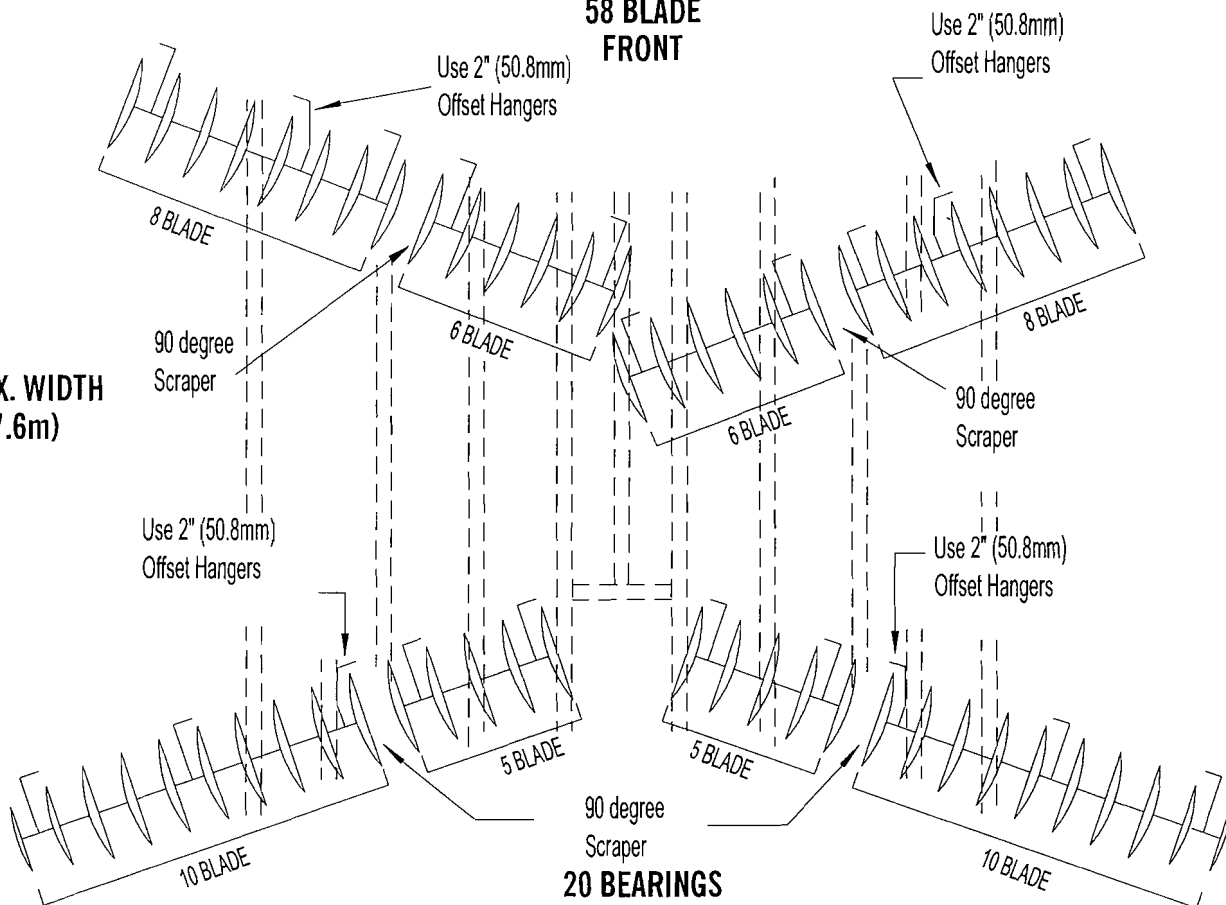


18 BEARINGS

DISC GANG PATTERN - 10-1/2" (267 mm) SPACING

58 BLADE FRONT

APPROX. WIDTH
25 ft. (7.6m)

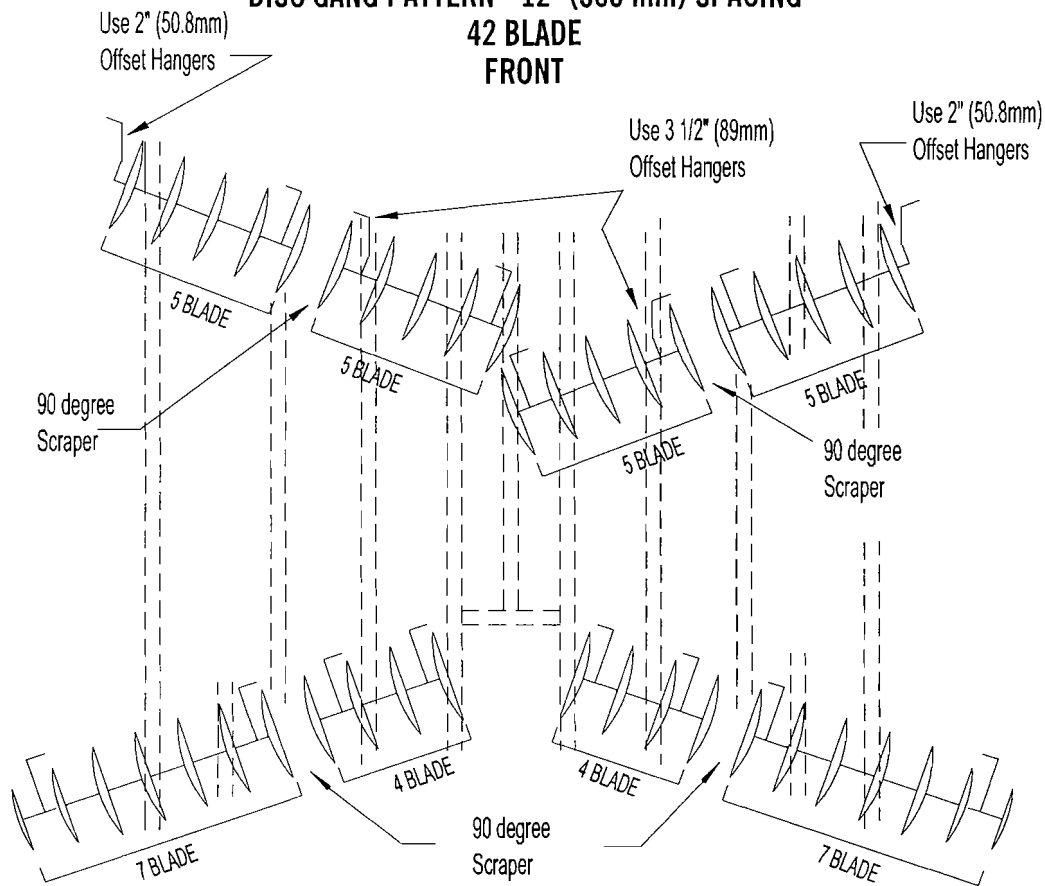


20 BEARINGS

DISC GANG PATTERN - 12" (305 mm) SPACING

42 BLADE FRONT

APPROX. WIDTH
20-1/2 ft. (6.2m)

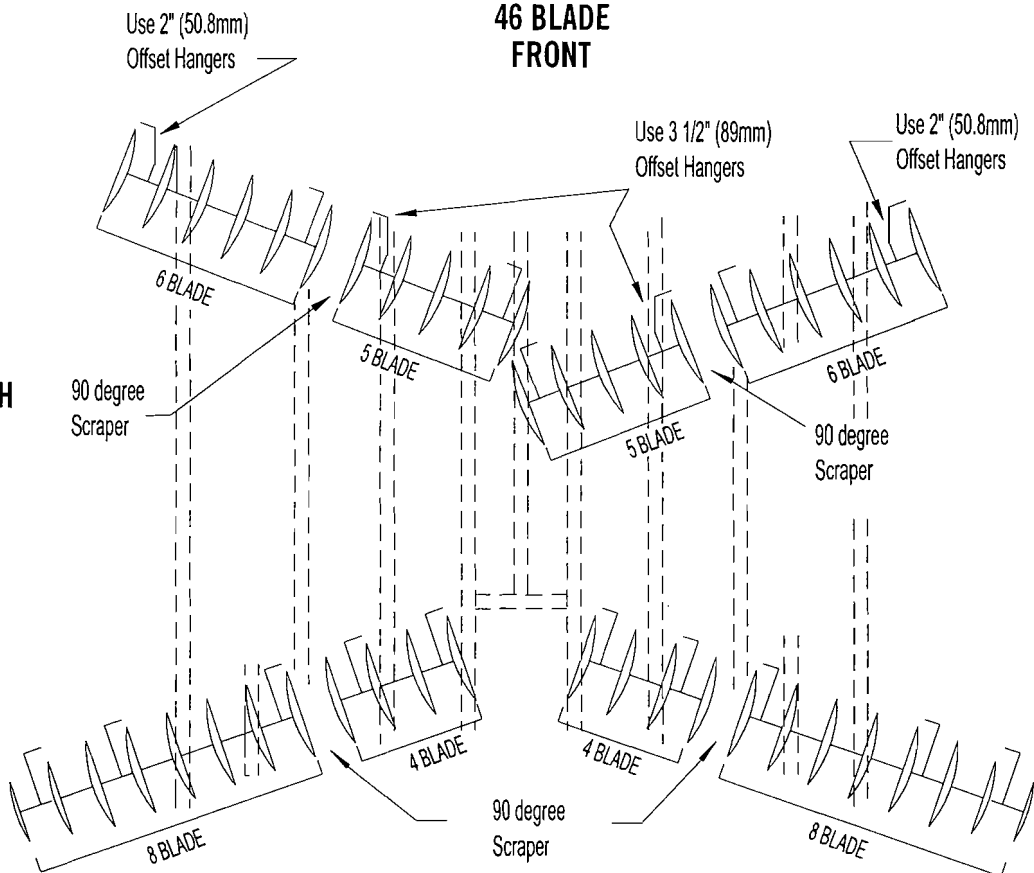


16 BEARINGS

DISC GANG PATTERN - 12" (304 mm) SPACING

46 BLADE FRONT

APPROX. WIDTH
23 ft. (7.0 m)



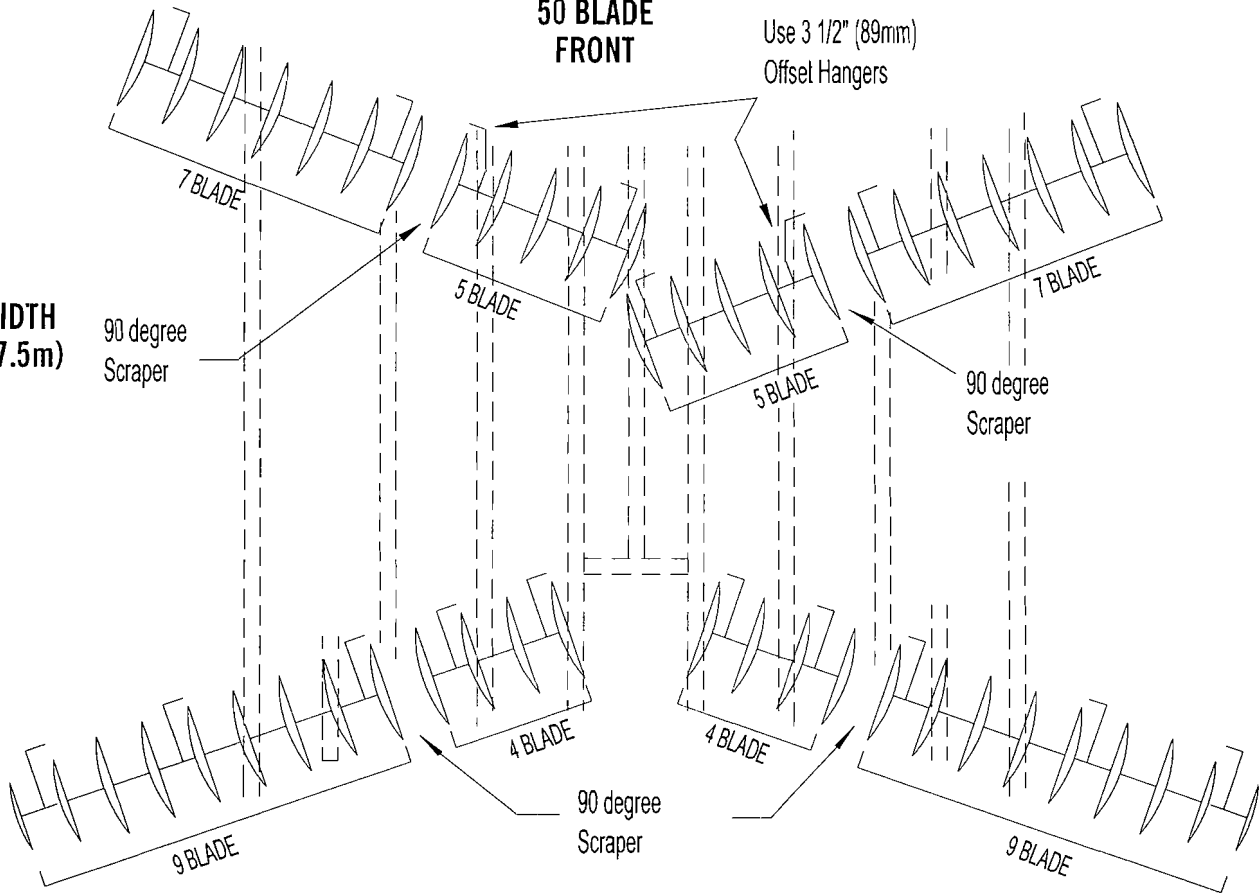
18 BEARINGS

DISC GANG PATTERN - 12" (305 mm) SPACING

**50 BLADE
FRONT**

Use 3 1/2" (89mm)
Offset Hangers

**APPROX. WIDTH
24-1/2 ft. (7.5m)**



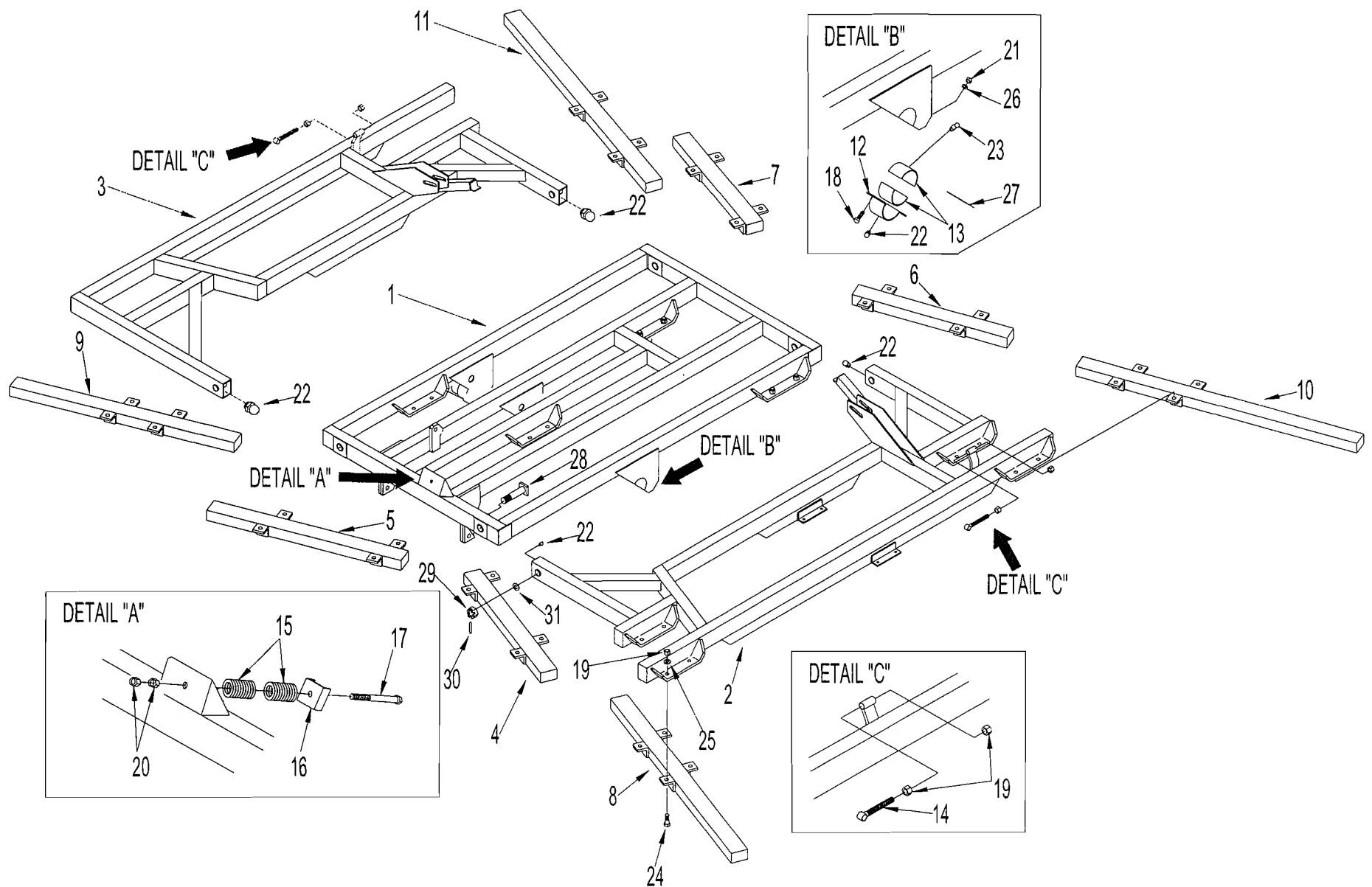
18 BEARINGS

**PAGES 45 TO 53 HAVE BEEN
LEFT OUT INTENTIONALLY**

4500 DISC PARTS INDEX

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MODEL 4500 DISC



FRAME & GANG BEAM ASSEMBLY

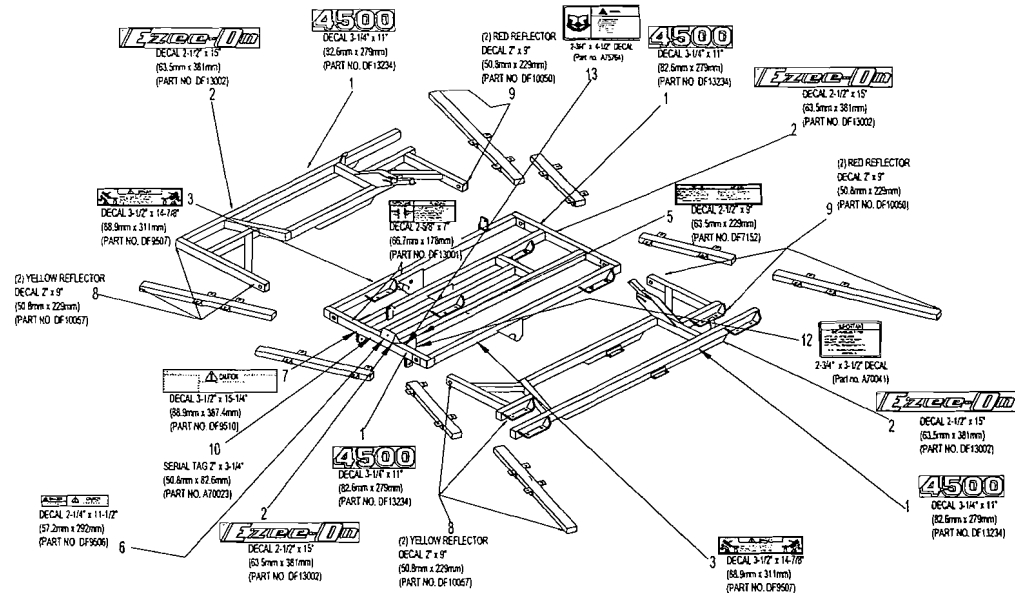
REF. NO.	PART NO.	DESCRIPTION	QTY REQ'D
1	DF13235	Main Frame - LESS rockshaft brg halves, cushion spring assembly and hinge bolts	1
2	DF13236	L.H. Wide Wing Frame - LESS cylinder l-bolts and wing lift cylinder pins.	1
3	DF13237	R.H. Wide Wing Frame - LESS cylinder l-bolts and wing lift cylinder pins.	1
4	DG13238	L.H. Front Main Frame Gang Beam - 67" (1702mm) long	1
5	DG13239	R.H. Front Main Frame Gang Beam - 67" (1702mm) long	1
6	DG13240	L.H. Rear Main Frame Gang Beam - 56" (1422mm) long	1
7	DG13241	R.H. Rear Main Frame Gang Beam - 56" (1422mm) long	1
8		9" (230mm) SPACING	
	DG13242	L.H. Front Wing Gang Beam - 51" (1295mm) long - 50 Blades	*
	DG13243	L.H. Front Wing Gang Beam - 60" (1524mm) long - 54 & 58 Blades	*
	DG13244	L.H. Front Wing Gang Beam - 70" (1778mm) long - 62 Blades	*
	DG13245	L.H. Front Wing Gang Beam - 80" (2032mm) long - 66 Blades	*
		10-1/2" (267mm) SPACING	
	DG13243	L.H. Front Wing Gang Beam - 60" (1524mm) long - 46 & 50 Blades	*
	DG13244	L.H. Front Wing Gang Beam - 70" (1778mm) long - 54 Blades	*
	DG13245	L.H. Front Wing Gang Beam - 80" (2032mm) long - 58 Blades	*
		12" (305mm) SPACING	
	DG13246	L.H. Front Wing Gang Beam - 63" (1600mm) long - 42 & 46 Blades	*
	DG13247	L.H. Front Wing Gang Beam - 76" (1930mm) long - 50 Blades	*
9		9" (230mm) SPACING	
	DG13248	R.H. Front Wing Gang Beam - 51" (1295mm) long - 50 Blades	*
	DG13249	R.H. Front Wing Gang Beam - 60" (1524mm) long - 54 & 58 Blades	*
	DG13250	R.H. Front Wing Gang Beam - 70" (1778mm) long - 62 Blades	*
	DG13251	R.H. Front Wing Gang Beam - 80" (2032mm) long - 66 Blades	*
		10-1/2" (267mm) SPACING	
	DG13249	R.H. Front Wing Gang Beam - 60" (1524mm) long - 46 & 50 Blades	*
	DG13250	R.H. Front Wing Gang Beam - 70" (1778mm) long - 54 Blades	*
	DG13251	R.H. Front Wing Gang Beam - 80" (2032mm) long - 58 Blades	*
		12" (305mm) SPACING	
	DG13252	R.H. Front Wing Gang Beam - 63" (1600mm) long - 42 & 46 Blades	*
	DG13253	R.H. Front Wing Gang Beam - 76" (1930mm) long - 50 Blades	*

REF. NO.	PART NO.	DESCRIPTION	QTY REQ'D
10		9" (230mm) SPACING	
	DG13254	L.H. Rear Wing Gang Beam - 65" (1651mm) long - 50 Blades	*
	DG13255	L.H. Rear Wing Gang Beam - 75" (1905mm) long - 54 Blades	*
	DG13256	L.H. Rear Wing Gang Beam - 84" (2134mm) long - 58 Blades	*
	DG13257	L.H. Rear Wing Gang Beam - 94" (2388mm) long - 62 Blades	*
	DG13258	L.H. Rear Wing Gang Beam - 102" (2591mm) long - 66 Blades	*
		10-1/2" (267mm) SPACING	
	DG13259	L.H. Rear Wing Gang Beam - 72" (1829mm) long - 46 Blades	*
	DG13256	L.H. Rear Wing Gang Beam - 84" (2134mm) long - 50 Blades	*
	DG13257	L.H. Rear Wing Gang Beam - 94" (2388mm) long - 54 Blades	*
	DG13260	L.H. Rear Wing Gang Beam - 106" (2692mm) long - 58 Blades	*
		12" (305mm) SPACING	
	DG13261	L.H. Rear Wing Gang Beam - 77" (1956mm) long - 42 Blades	*
	DG13262	L.H. Rear Wing Gang Beam - 90" (2286mm) long - 46 Blades	*
	DG13258	L.H. Rear Wing Gang Beam - 102" (2591mm) long - 50 Blades	*
11		9" (230mm) SPACING	
	DG13263	R.H. Rear Wing Gang Beam - 65" (1651mm) long - 50 Blades	*
	DG13264	R.H. Rear Wing Gang Beam - 75" (1905mm) long - 54 Blades	*
	DG13265	R.H. Rear Wing Gang Beam - 84" (2134mm) long - 58 Blades	*
	DG13266	R.H. Rear Wing Gang Beam - 94" (2388mm) long - 62 Blades	*
	DG13267	R.H. Rear Wing Gang Beam - 102" (2591mm) long - 66 Blades	*
		10-1/2" (267mm) SPACING	
	DG13268	R.H. Rear Wing Gang Beam - 72" (1829mm) long - 46 Blades	*
	DG13265	R.H. Rear Wing Gang Beam - 84" (2134mm) long - 50 Blades	*
	DG13266	R.H. Rear Wing Gang Beam - 94" (2388mm) long - 54 Blades	*
	DG13269	R.H. Rear Wing Gang Beam - 106" (2692mm) long - 58 Blades	*
		12" (305mm) SPACING	
	DG13270	R.H. Rear Wing Gang Beam - 77" (1956mm) long - 42 Blades	*
	DG13271	R.H. Rear Wing Gang Beam - 90" (2286mm) long - 46 Blades	*
	DG13267	R.H. Rear Wing Gang Beam - 102" (2591mm) long - 50 Blades	*
12	DFA5041	Rockshaft Bearing Cap - plain, non-reinforced type	3
13	DR5259	Rockshaft Bearing Liner Half	6
14	DFA9564	1-1/4" (31.7mm) N.C. I-Bolt Cylinder Lug	2
15	DGS187	5" (127mm) Long Compression Spring	2
16	DF10046	Spring Cushion Plate	1
17	B100140	1" (25.4mm) x 1 1/4" (356mm) N.C. Hex Bolt	1
18	B075025	3/4" (19mm) x 2-1/2" (63.5mm) N.C. Hex Bolt	6
19	BN125	1-1/4" (31.7mm) N.C. Hex Nut	36
20	BN100	1" (25.4mm) N.C. Hex Nut	2
21	BN075	3/4" (19mm) N.C. Hex Nut	6
22	10GN1	1/4" (6.35mm) - 28 Straight Grease Fitting - bottom	7
23	10GN2	1/4" (6.35mm) - 28 - 45 Degree Grease Fitting - top	3
24	B125035	1-1/4" (31.7mm) x 3-1/2" (88.9mm) N.C. Hex Bolt	32
25	8W125L	1-1/4" (31.7mm) Lockwasher	32
26	8W075L	3/4" (19mm) Lockwasher	6
27	DF5063	Rockshaft Bearing Cap Shim	*
28		1-15/16" (49.0mm) Dia. X 12-1/2" (317.5mm) Hinge Bolt	4
29	DG82	2" N.C. (50.8mm) Hex Slotted Nut	4
30	DG83	3/8" x 3" (9.4mm x 76.2mm) Cotter Pin	4
31	DH3	4" O.D. x 2" I.D. x 1/2" (102mm x 50.8mm x 12.7mm) Washer	4

* As Required

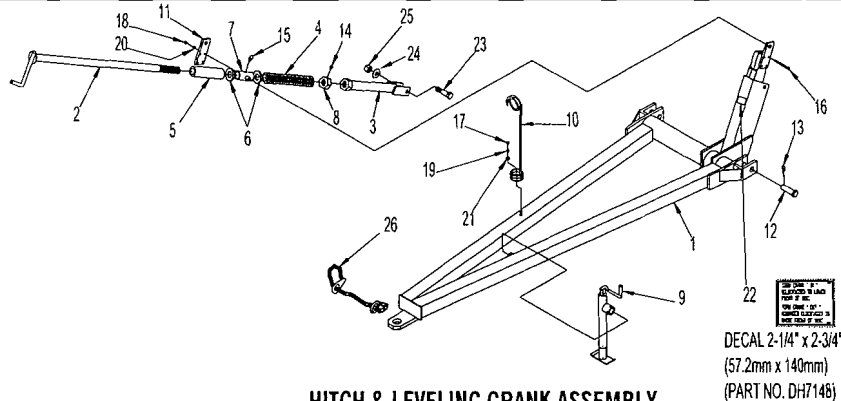
NOTE: To determine gang beam lengths for your machine, see gang chart on page 40.

MODEL 4500 DISC



DECALS (FRAME AND GANG BEAM)

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	DF13234	4500 Decal (3-1/4" (82.6mm) x 11" (279mm))	4
2	DF13002	Eze-On Decal (2-1/2" (63.5mm) x 15" (381mm))	4
3	DF9507	Danger Decal (3-1/2" (88.9mm) x 14-7/8" (311mm))	2
4	DF13001	Hydraulic Lockup Decal (2-5/8" (66.7mm) x 7" (178mm))	1
5	DF7152	Maintenance Decal (2-1/2" (63.5mm) x 9" (229mm))	1
6	DF9506	Danger, Caution Decal (2-1/4" (57.2mm) x 11-1/2" (292mm))	1
7	DF9510	Caution Decal (3-1/2" (88.9mm) x 15-1/4" (387mm))	1
8	DF10057	Yellow Reflector (2" (50.8mm) x 9" (229mm))	6
9	DF10050	Red Reflector (2" (50.8mm) x 9" (229mm))	6
10	A70023	Serial Tag (2" (50.8mm) x 3-1/4" (82.6mm))	1
11	A75764	Read Manual Decal (2-5/16" (58.6mm) x 4-1/2" (114.3mm))	1
12	A70041	Check whl bolt decal - 2-1/4" x 3-1/2" (57.2mm x 88.9mm)	1
13	A75764	Read manual decal - 2-3/4" x 4-1/2" (69.8mm x 114.3mm)	1
	L001	Eze-On Yellow Paint - 1 quart	*
	L002	Eze-On Yellow Paint - 1/2 pint	*
	L015	Black Paint - 1 liter	*
	L016	Black Paint - 1/2 pint	*

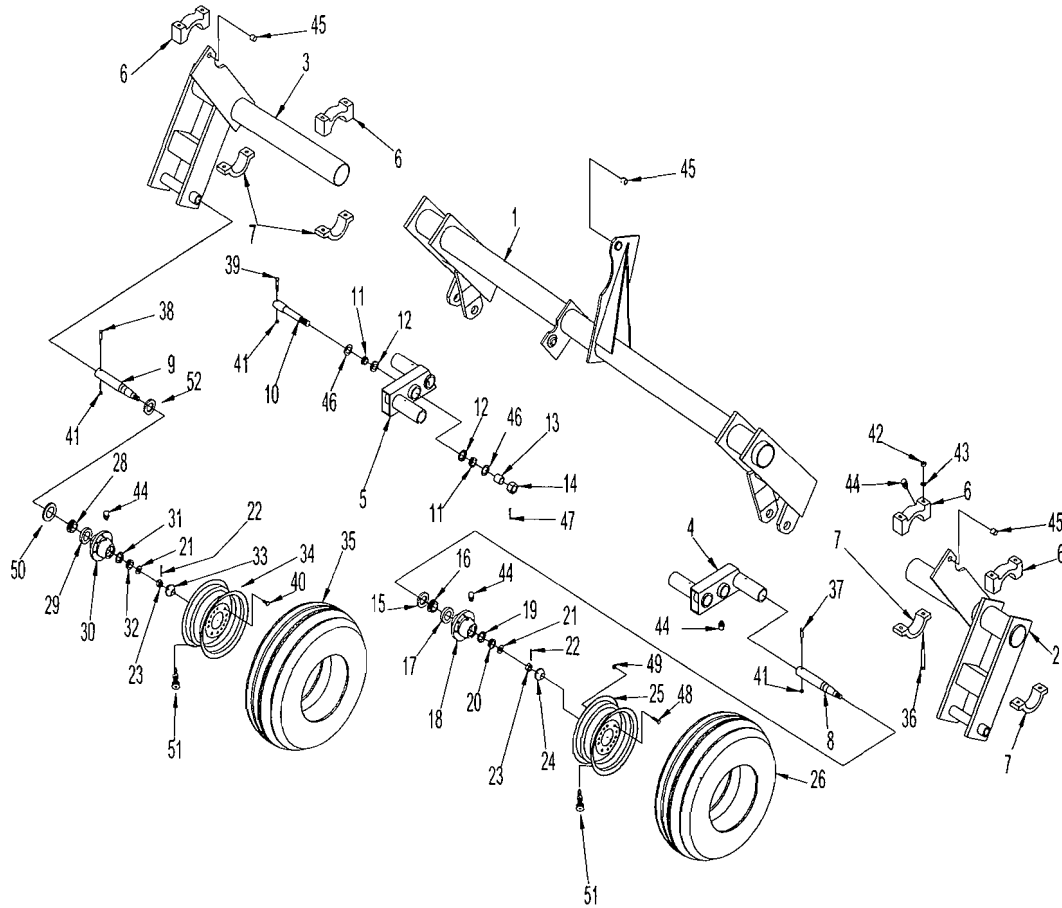


HITCH & LEVELING CRANK ASSEMBLY

REF. NO	PART. NO	DESCRIPTION	QTY. REQ'D
1	DHB13097	Hitch c/w item 11, 12, 13 & 18	1
2	DCA9970	Leveling Crank - 50" (1270mm) Long	1
3	DCA5195	Leveling Link - 16-3/4" (425mm) Pipe Length	1
4	DC9618	Compression Spring	1
5	DC13098	Spacer Tube (2-3/8" (60.2mm) O.D. x 3/16" (4.76mm) I.D. x 11" (279mm) Long)	1
6	DC15	Thrust Bearing - Timken #T199	2
7	DCA5184	Bearing Tube - leveling crank	1
8	DH5	2" (50.8mm) N.C. Heavy Hex Nut - drilled for set screw	1
9	DHB5170	Hitch Jack	1
10	DH9961	Hose Support - spring coil type	1
11	DH5146	Leveling Arm Lug	1
12	DHA9605	Hitch Pin - 1-1/2" (38.1mm) Dia. x 5" (127mm)	2
13	DH12517	7/16" (10.9mm) x 1-7/16" (36.3mm) Lynch Pin	2
14	---	1/2" (12.7mm) x 1" (25.4mm) N.C. Square Head Set Screw	1

REF. NO	PART. NO	DESCRIPTION	QTY. REQ'D
15	10GN1	1/4" (6.35mm) - 28 Straight Grease Fitting	1
16	B050050	1/2" (12.7mm) x 5" (127mm) N.C. Hex Bolt	4
17	BN062	5/8" (15.7mm) N.C. Hex Nut	1
18	BN050	1/2" (12.7mm) N.C. Hex Nut	4
19	BW062L	5/8" (15.7mm) Lockwasher	1
20	BW050L	1/2" (12.7mm) Lockwasher	4
21	BW17568706F	11/16" (17.2mm) I.D. x 1-3/4" (44.4mm) O.D. Flatwasher	1
22	DH7148	Crank Decal (2-1/4" (57.2mm) x 2-3/4" (140mm))	1
23	DR5215	1-1/4" (31.7mm) x 4-3/4" (120.6mm) N.C. Hex Bolt w/special thread length	1
24	BW125L	1-1/4" (31.7mm) Lockwasher	1
25	BN125	1-1/4" (31.7mm) N.C. Hex Nut	1
26	D13090	Safety Chain 20200 lbs (9165 Kgs)	1

MODEL 4500 DISC

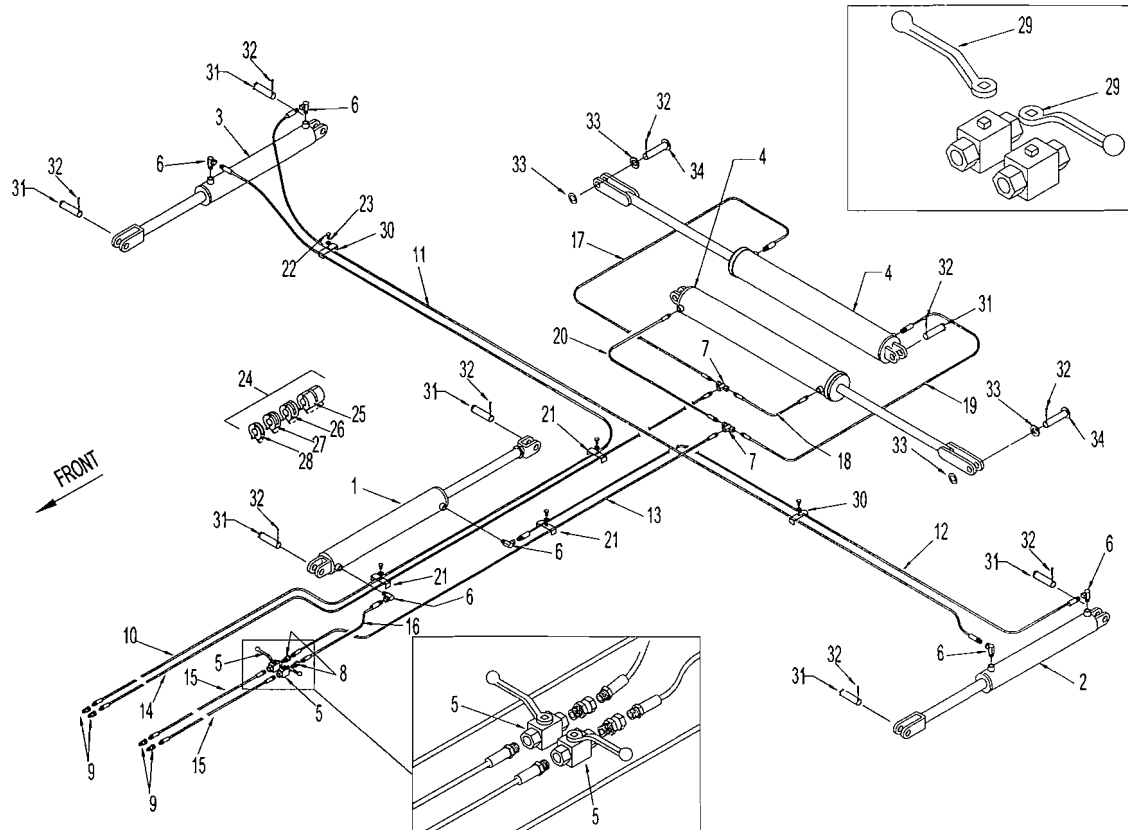


ROCKSHAFT & WHEEL ASSEMBLY - w/MAIN FRAME WALKING BEAMS

REF. NO	PART. NO	DESCRIPTION	QTY. REQ'D	REF. NO	PART. NO	DESCRIPTION	QTY. REQ'D
1	DRA13133	Main Frame Rockshaft	1	25	S81509	15" (381mm) x 10" (254mm) x 8 Bolt Rim - (requires metal valve stem)	4
2	DRA13093	L.H. Narrow and Wide Wing Rockshaft - 41"	*	26	11L15FIF	11SL x 15 "F" FI Tire	4
3	DRA13095	R.H. Narrow and Wide Wing Rockshaft - 41"	*	27	DR122	Grease Seal	4
4	DRA13131	L.H. Walking Beam Main Frame	1	28	DR120	Cone Bearing - #LM25580	4
5	DRA13130	R.H. Walking Beam Main Frame	1	29	DR118	Cup - #LM25520	4
6	DR8601T	Rockshaft Bearing - bottom half	4	30	DRA9	618 Hub c/w Cups	4
7	DR8601B	Rockshaft Bearing - top half	4	31	DR92	Cup - #LM48510	4
8	DR13004	812 Spindle - 13-3/4" (348mm)	4	32	DR91	Cone Bearing - #LM48548	4
9	DR7156	618 Spindle - 1	4	33	DR123	Hub Cap	4
10	DR13007	4-1/2" (368mm)	2	34	C60160	15" (381mm) x 8" (203mm) - 6 Bolt Rim - (requires metal valve stem)	4
11	DR13124	Walking Beam Pivot Bolt - Main Frame Rockshaft	4	35	11L15FID	11SL x 15 "D" FI Tire	4
12	DR13125	Cone Bearing #25877	4	36	B075065	3/4" (19mm) x 6-1/2" (165mm) N.C. Hex Bolt	4
13	DR13008	Bearing Cup #25821	4	37	B050045	1/2" (12.7mm) x 4-1/2" (114.3mm) N.C. Hex Bolt	4
14	DR13126	Sleeve Pivot Pin	2	38	B050035	1/2" (12.7mm) x 3-1/2" (88.9mm) N.C. Hex Bolt (plated)	4
15	DR9680	1-1/4" (31.7mm) N.F. Slotted Hex Nut	4	39	B050030	1/2" (12.7mm) x 3" (76.2mm) N.C. Hex Bolt (plated)	4
16	DR9684	Grease Seal #SE-17	4	40	DR125	9/16" (14.2mm) N.F. x 1-1/8" (28.5mm) Wheel Bolt	56
17	DR9682	Inner Cone Bearing #3780	4	41	BN050L	1/2" (12.7mm) N.C. Nylon Locknut (plated)	10
18	DR9679	Inner Cup #3720	4	42	BN075	3/4" (19mm) N.C. Hex Nut (plated)	8
19	DR9683	Hub c/w cups - 8 bolt	4	43	BW075L	3/4" (19mm) Lockwasher (plated)	8
20	DR9685	Outer Cup #2720	4	44	LOGN1	1/4" (6.35mm) - 28 Straight Grease Fitting	18
21		Outer Cone Bearing #2790	4	45	OR13120	1-1/4" (31.8mm) I.D. x 1-1/4" (31.8mm) Long Steel Insert	3
	BW20010614F	2" (50.8mm) O.D. x 1-1/16" (25.5mm) I.D. x .140" (3.55mm) Flatwasher	4	46	DR13121	Seal - P/N 18823	4
22	BP18125		4	47	BP31200	5/16" (7.8mm) x 2" (50.8mm) Cotter Pin	2
23	DR110	3/16" (4.76mm) x 1-1/4" (31.7mm) Cotter Pin	4	48	DR9671	9/16" (14.2mm) N.F. x 1-11/16" (42.7mm) Wheel Bolt	32
24	DR9681	1" (25.4mm) N.F. Hex Slotted Nut	4	49	OR9672	9/16" (14.2mm) N.F. Hex Nut	32
		Hub Cab		50	DR13191	Seal Cup - spindle mounted seal	4
				51	C60154	Valve Stem - metal	8
				52	OR13190	Grease Seal - spindle mounted type	4

* As Required

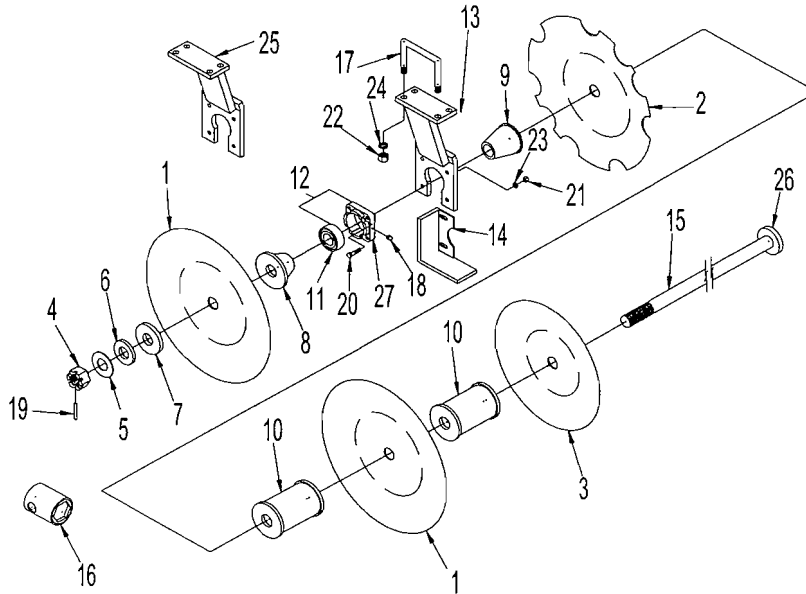
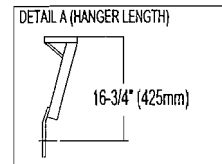
MODEL 4500 DISC



HYDRAULIC ASSEMBLY

REF. NO	PART. NO	DESCRIPTION	QTY. REQ'D	REF. NO	PART. NO	DESCRIPTION	QTY. REQ'D
1	306	4" x 24" (101.6mm x 610mm) Hydraulic Cylinder	1	16	D4462	3/8" x 25" (9.39mm x 635mm) Hydraulic Hose c/w 3/8" (9.39mm) End & 1/2" End	1
2	305	3-1/2" x 24" (88.9mm x 610mm) Hydraulic Cylinder	1	17	D4358	1/4" x 42" (6.35mm x 1067mm) Hydraulic Hose c/w 3/8" (9.39mm) Ends	1
3	304	3" x 24" (76.2mm x 610mm) Hydraulic Cylinder	1	18	I2937	1/4" x 30" (6.35mm x 762mm) Hydraulic Hose c/w 3/8" (9.39mm) Ends	1
4	248	5" x 36" (127mm x 914mm) Wing Lift Cylinder	2	19	L2911	3/8" x 54" (9.39mm x 1372mm) Hydraulic Hose c/w 3/8" (9.39mm) Ends	1
5	DL13099	Hydraulic Lockout Valve	2	20	L2910	3/8" x 42" (9.39mm x 1067mm) Hydraulic Hose c/w 3/8" (9.39mm) Ends	1
6	DL9775	1/2" (12.7mm) x 90 Degree Swivel Street Elbow	6	21	DL13186	4 Line Hose Clamp	3
7	DL9767	3/8" (9.39mm) Female Swivel Tee	2	22	B050075	1/2" x 3/4" (12.7mm x 19mm) N.C. Hex Bolt (Plated)	7
8	L1619	3/8" (9.39mm) Male-Female Swivel	2	23	BW050L	1/2" (12.7mm) Lockwasher (Plated)	7
9	L397	1/2" (12.7mm) Male Tip	4	24	C50716	Wadler Universal Stroke Control Segments (8-3/4" (222mm) package)	2
10	D4459	3/8" x 393" (9.39mm x 9982mm) Hydraulic Hose c/w 1/2" (12.7mm) Ends	1	25	C50717	4-1/4" (108mm) Depth Stop	2
11	D4460	3/8" x 225" (9.39mm x 5715mm) Hydraulic Hose c/w 1/2" (12.7mm) Ends	1	26	C50714	2" (50.8mm) Depth Stop	2
12	D4461	3/8" x 185" (9.39mm x 4699mm) Hydraulic Hose c/w 1/2" (12.7mm) Ends	1	27	C50712	1-1/2" (38.1mm) Depth Stop	2
13	P4344	3/8" x 104" (9.39mm x 2642mm) Hydraulic Hose c/w 3/8" (9.39mm) Ends	1	28	C50711	1" (25.4mm) Depth Stop	2
14	D4362	3/8" x 278" (9.39mm x 7061mm) Hydraulic Hose c/w one 3/8" (9.39mm) End x one 1/2" (12.7mm) End	1	29	DL13122	Handle Only - Hyd. Valve Lockout Valve Handle Only - HBVD40608	2
15	L2922	3/8" x 168" (9.39mm x 4267mm) Hydraulic Hose c/w one 1/2" (12.7mm) End and one 3/8" (9.39mm) end	2	30	DL9766	2 Line Hose Clamp - 1/2" (12.7mm) Hose	4
				31	DR5262	1-1/4" dia. x 4-3/4" (31.7mm x 120.6mm) Cylinder Pin	8
				32	BP31175	5/16" x 1-3/4" (7.87mm x 44.4mm) Cotter Pin	10
				33	DF5068	2" O.D. x 1-5/16" I.D. x 1/4" (50.8mm x 33.3mm x 6.35mm) Flatwasher	4
				34	S81856	1-1/4" Dia. X 5-13/16" (31.7mm x 147.6mm) long (under head to centre of hole) Cylinder Pin	2

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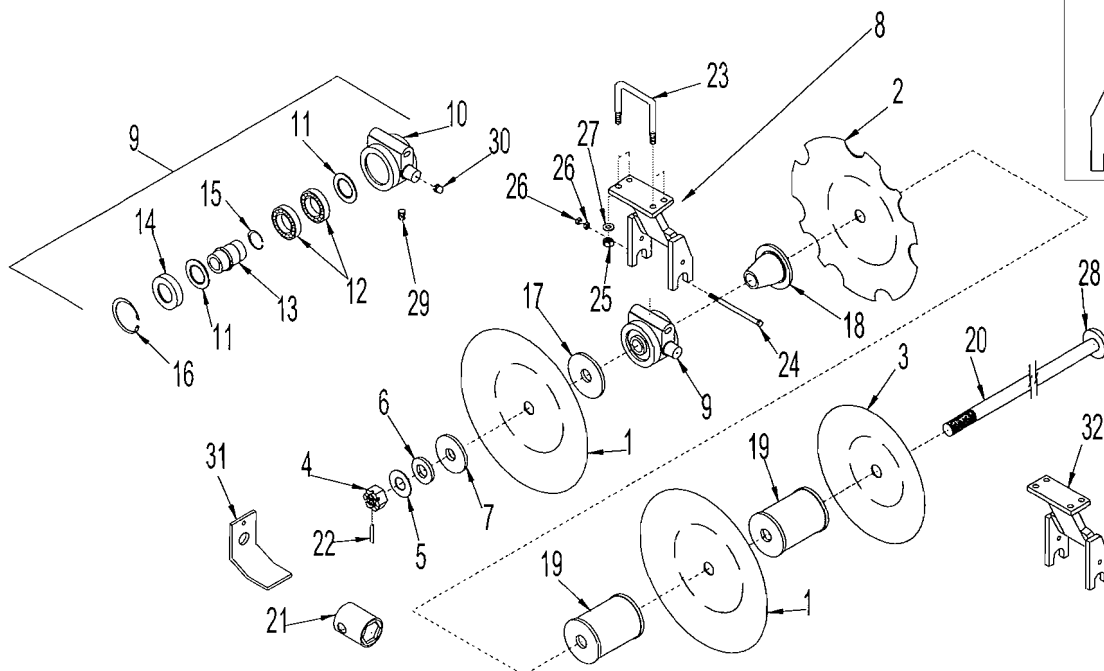


DISC GANG (WITH STANDARD HANGERS FOR 410WSS BEARINGS) - 9" & 10-1/2" (230mm & 267mm) SPACING

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D	REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	DG76	24" (610mm) x 9/32" (7mm) Plain Blade	*	15	DGA65	GANG BOLT FOR 9" (230mm) SPACING	*
	DG137	24" (610mm) x 5/16" (8mm) Plain Blade	*		DGA66	5 Blade Gang Bolt - 43-3/4" (1111mm) Long	*
	DG74	26" (660mm) x 5/16" (8mm) Plain Blade	*		DGA67	6 Blade Gang Bolt - 53" (1346mm) Long	*
	DG107	26" (660mm) x 3/8" (9mm) Plain Blade	*		DGA68	7 Blade Gang Bolt - 62-3/4" (1594mm) Long	*
	DG157	26" (660mm) x 5/16" (8mm) Plain Cone Blade	*		DGA69	8 Blade Gang Bolt - 72" (1829mm) Long	*
	DG130	28" (711.2mm) x 3/8" (9mm) Plain Blade	*		DGA70	9 Blade Gang Bolt - 81" (2057mm) Long	*
2	DG138	(2" (50.8mm) hole)	*		DGA71	10 Blade Gang Bolt - 90-1/2" (2299mm) Long	*
	DG75	24" (610mm) x 5/16" (8mm) Notched Blade	*		DGA72	11 Blade Gang Bolt - 99-3/4" (2534mm) Long	*
	DG87	26" (660mm) x 5/16" (8mm) Notched Blade	*		DGA72	12 Blade Gang Bolt - 109" (2769mm) Long	*
	DG20051	26" (660mm) x 3/8" (9mm) Notched Blade	*			GANG BOLT FOR 10-1/2" (267mm) SPACING	
		28" (711.2mm) x 3/8" (9mm) Notched Blade 2" (50.8mm) hole	*		DGA116	5 Blade Gang Bolt - used with out board bearing - 58-1/2" (1486mm) Long	*
3	DG149	20" (508mm) x 6mm (.236") Plain Outtrigger Blade	*		DGA75	5 Blade Gang Bolt - 49-1/2" (1257mm) Long	*
	DG64	22" (559mm) x 6mm (.236") Plain Outtrigger Blade	*		DGA76	6 Blade Gang Bolt - 61" (1549mm) Long	*
	DG76	24" (610mm) x 7mm (.275") Plain Outtrigger Blade	*		DGA77	7 Blade Gang Bolt - 71-1/2" (1816mm) Long	*
4	DG82	2" (50.8mm) N.C. Heavy Hex. Slotted Nut	2		DGA78	8 Blade Gang Bolt - 82-1/4" (2089mm) Long	*
5	DG89	1/4" (6.35mm) Shim Washer	*		DGA79	9 Blade Gang Bolt - 93" (2362mm) Long	*
6	DG88	1/2" (12.7mm) Shim Washer	*		DGA80	10 Blade Gang Bolt - 104" (2642mm) Long	*
7	DG13185	5-1/2" (138mm) O.D. x 2" (50.8mm) I.D. x 3/4" (19.0mm) Head Washer - used with 24" blades	*	16	DGA35	Socket Wrench	1
	DG13184	6" (152mm) O.D. x 2" (50.8mm) I.D. x 1" (25.4mm) Head Washer - used with 26" & 28" blades	*	17	DG5379	7/8" (22.2mm) x 6" (152.4mm) x 5-7/8" (149mm) Long U-Bolt	*
8	DGA106	9" (230mm) & 10-1/2" (267mm) Spacing Short Half Spool For 410WSS BRG. 3-1/4" (82.6mm) Long (Convex Side) w/6" (152mm) Washer	*	18	10GN1	1/4" (6.35mm) - 28 Grease Fitting	2
9	DGA103	9" (230mm) Spacing Long Half Spool For 410WSS Bearings, 3-11/16" (94mm) Long (Concave Side)	*	19	DG10310	7/16" (10.9mm) x 3" (76.2mm) Lock Pin	*
	DGA131	10-1/2" (267mm) Spacing Long Half Spool For 410WSS Bearings, 5-1/4" (133mm) Long (Concave Side)	*	20	B062022	5/8" (15.7mm) x 2-1/4" (57.2mm) N.C. Hex. Bolt - Gr.5	*
10	DGA100	9" (230mm) Spacing Spool - 6" (152mm) Dia. Both Ends	*		B062025	5/8" (15.7mm) x 2-1/2" (57.2mm) N.C. Hex. Bolt - Gr.5 - used with bearing guard	*
	DGA101	10-1/2" (267mm) Spacing Spool - 6" (152mm) Dia. Both Ends	*	21	BN062	5/8" (15.7mm) N.C. Hex. Nut	*
11	DG108	410WSS Greaseable Bearing (2-1/16" (52mm) Wide)	*	22	BN087	7/8" (22.2mm) N.C. Hex. Nut	*
12	DGB109	410WSS Bearing c/w Housing And Grease Fitting (2-1/16" (52mm) Bearing Width)	*	23	BW062L	5/8" (15.7mm) Lockwasher	*
13	DGA7183	Standard Bearing Hanger - 410WSS Bearing	*	24	BW087L	7/8" (22.2mm) Lockwasher	*
14	DGA40	Front L.H. & Rear R.H. Bearing Guard - 410WSS Bearing	*	25	DGA7184	2" (50.8mm) Offset Hanger - 410WSS Bearing	*
	DGA39	Rear R.H. and Front L.H. Bearing Guard - 410WSS Bearing	*	26	DGA5370	5" (127mm) Gang Washer- Weld-On Housing - 410WSS Bearing	*
				27	DG96		*

* As Required

MODEL 4500 DISC

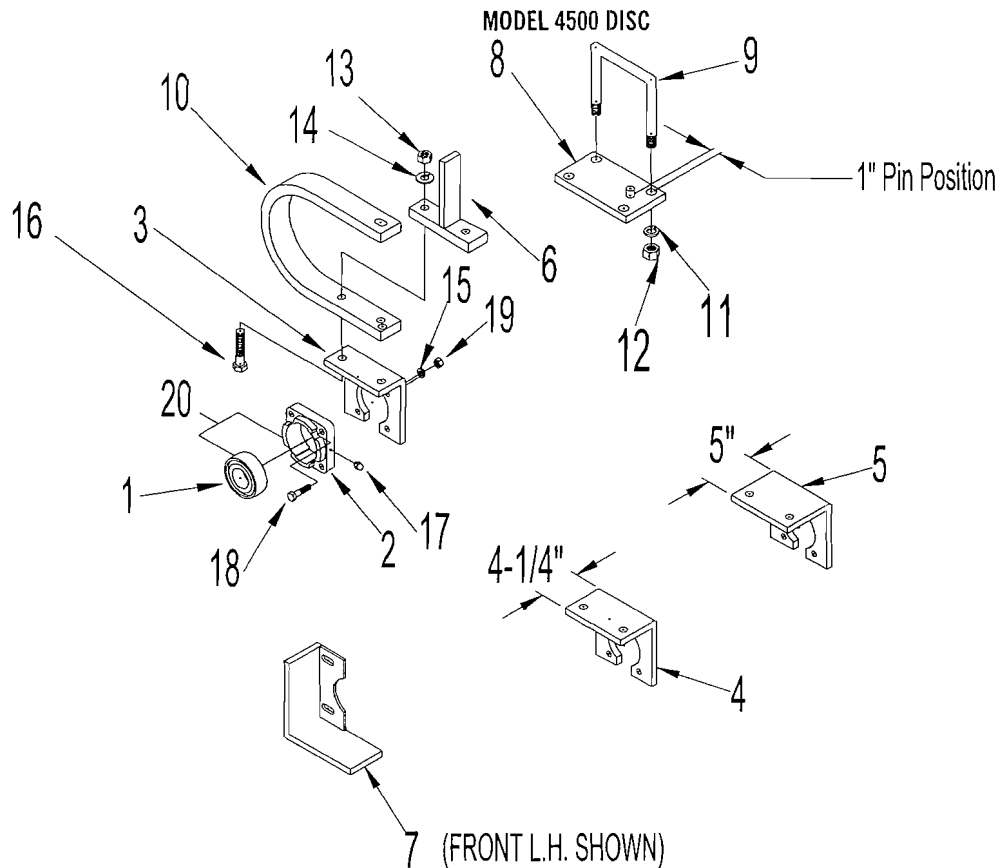


DISC GANG (WITH STANDARD HANGERS FOR T2-215 BEARINGS) - 9" (230mm), 10-1/2"(267mm) & 12" (305mm) SPACING (used with Hanger Mounted Scraper Bars)

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	---	Refer to Ref. No. 1 on Page 60 for Plain Blades	
2	---	Refer to Ref. No. 2 on Page 60 for Notched Blades	
3	---	Refer to Ref. No. 3 on Page 60 for Outrigger Blades	
4	DG82	2" (50.8mm) NC Heavy Hex Slotted Nut	*
5	DG89	1/4" (6.35mm) Shim Washer	*
6	DG88	1/2" (12.7mm) Shim Washer	*
7	DG13185	5-1/2" (138mm) O.D. x 2" (50.8mm) I.D. x 3/4" (19.0mm) Head Washer - used with 24" blades	*
	DG13184	6" (152mm) O.D. x 2" (50.8mm) I.D. x 1" (25.40mm) Head Washer - used with 26" & 28" blades	*
8	DGA13162	Std. Trunion Mounted Bearing Hanger w/o scraper tail- (See Detail A above for length)	*
9	DG9900	Housing c/w Bearings, Seals, Sleeve, Snap Ring, & Cap (T2-215 Series)	*
10	DG9901	Housing Only (T2-215 Series)	*
11	DG9905	Bearing Seal (National #200322)	*
12	DG9904	#6215 Ball Bearing (Modified)	*
13	DG9906	5" (127mm) Sleeve	*
14	DG9902	Bearing Housing Cap	*
15	DG9911	External Snap Ring (Philip French #D1400-75)	*
16	DG9910	Internal Snap Ring (Philip French #D1300-130)	*
17	DGA10563	9" (230mm) & 10-1/2" (267mm) Spacing, Short Half, 1-3/8" (34.9mm) Long (Convex Side) w/6" (152mm) Washer Spool	*
	DGA10572	12" (305mm) Spacing, Short Half, 2-7/8" (73mm) Long (Convex Side) w/6" (152mm) Washer Spool	*
18	DGA10571	9" (230mm) Spacing, Long Half, 2-11/16" (68mm) Long (Concave Side)	*
	DGA103	10-1/2" (267mm) & 12" (305mm) Spacing, Long Half, 4-3/16" (106mm) Long (Concave Side)	*
19	DGA100	9" (230mm) Spacing, Full Spool w/6" (152mm) Dia. Washer on Both Ends, Spool	*
	DGA101	10-1/2" (267mm) Spacing, Full Spool w/6" (152mm) Dia. Washer on Both Ends, Spool	*
	DGA111	12" (305mm) Spacing, Full Spool w/6" (152mm) Dia. Washer on Both Ends, Spool	*

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
20		Refer to Ref. No. 15 on Page 60 for Gang Bolts For 9" (230mm) and 10-1/2" (267mm) Spacing	
		GANG BOLT FOR 12" (305mm) SPACING	
	DGA114	4 Blade Gang Bolt - 44-1/4" (1124mm) Long	*
	DGA117	5 Blade Gang Bolt - used with outboard bearing - 65-1/4" (1657mm)	*
	DGA87	5 Blade Gang Bolt - normal - 56-1/2" (1435mm) Long	*
	DGA115	6 Blade Gang Bolt - 68-3/4" (1746mm) Long	*
	DGA69	7 Blade Gang Bolt - 81" (2057mm) Long	*
	DGA79	8 Blade Gang Bolt - 93" (2362mm) Long	*
	DGA118	9 Blade Gang Bolt - 105-3/4" (2686mm) Long	*
21	DGA35	Socket Wrench	*
22	DG10310	7/16" (10.9mm) x 3" (76.2mm) Lock Pin	*
23	DG5379	7/8" (22.2mm) x 6" (152mm) x 5-7/8" (149mm) Long U-Bolt (Plated)	*
24	BO62100	5/8" (15.7mm) x 10" (254mm) N.C. Hex Bolt Gr.5 (Plated)- Used on machines less bearing	*
	BO62110	5/8" (15.7mm) x 11" (279.4mm) N.C. hex bolt Gr. 5 (Plated)- Used on machines equipped w/bearing	*
25	BN087	7/8" (22.2mm) N.C. Hex Nut (Plated)	*
26	BN062	5/8" (15.7mm) N.C. Hex Nut (Plated)	*
27	BW087L	7/8" (22.2mm) Lockwasher (Plated)	*
28	DGA5370	5-1/2" (139.7mm) Gang Washer -Weld On	*
29	DG9912	Set Screw - 1/4" (6.35mm) N.C. x 1/2" (12.7mm) Long	*
30	10GN1	1/4" (6.35mm) - 28 Straight Grease Fitting	*
31	DG10590	Bearing Guard - T2-215 Bearing	*
32	DGA13163	2" (50.8mm) Offset Trunion Mounted Bearing Hanger w/o scraper tail - See Detail A above for lengths	*
	DGA13164	3-1/2" (88.9mm) Offset Trunion Mounted Bearing Hanger w/o scraper tail - See Detail A above for lengths	*

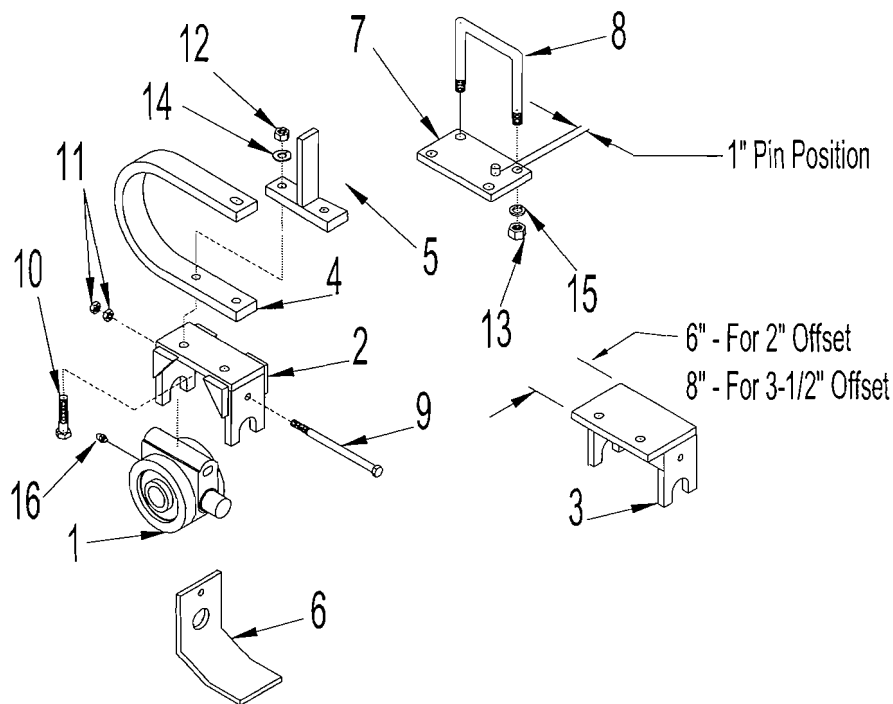
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**STONE FLEX HANGER FOR 410WSS BEARINGS (OPTIONAL)
(INDEPENDENTLY MOUNTED SCRAPER BAR ARM)**

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	DG108	410WSS Series Greaseable Bearing - 2-1/16" (52mm) Wide	*
2	DG96	Housing - 410WSS Bearing	*
3	DG5324	Standard Mounting Bracket For 410WSS Bearing	*
4	DGA5376	1-1/2" (38.1mm) Offset Mounting Bracket - 410WSS Bearing	*
5	DGA5341	2" (50.8mm) Offset Mounting Bracket - 410WSS Bearing	*
6	DG5338	Scraper Bar Support - Independently Mounted Scraper Bar	*
7	DGA40 DGA39	Front L.H. and Rear R.H. Bearing Guard Rear R.H. and Front L.H. Bearing Guard	*
8	DGA5327	Backing Plate - used with independently mounted scraper Only	*
9	DG5378	7/8" (22.2mm) x 6" (152.4mm) x 7-1/8" (181mm) Long U-bolt	*
10	DG5313	1-1/4" (31.7mm) x 2-1/2" (63.5mm) Spring Shank	*
11	BW087L	7/8" (22.2mm) Lockwasher	*
12	BN087	7/8" (22.2mm) N.C. Hex. Nut	*
13	BN075	3/4" (19mm) N.C. Hex. Nut	*
14	BW075L	3/4" (19mm) Lockwasher	*
15	BW062L	5/8" (15.7mm) Lockwasher	*
16	B075035	3/4" (19mm) x 3-1/2" (88.9mm) N.C. Hex. Bolt	*
17	10GN1	1/4" (6.35mm) - 28 Straight Grease Fitting	*
18	B062022 B062025	5/8" (15.7mm) x 2-1/4" (57.2mm) N.C. Hex. Bolt 5/8" (15.7mm) x 2-1/2" (63.5mm) N.C. Hex. Bolt - used with bearing guard	*
19	BN062	5/8" (15.7mm) N.C. Hex. Nut	*
20	DGB109	410WSS Bearing c/w Housing and Grease Fitting - 2-1/16" (52mm) Bearing Width	*

* As Required

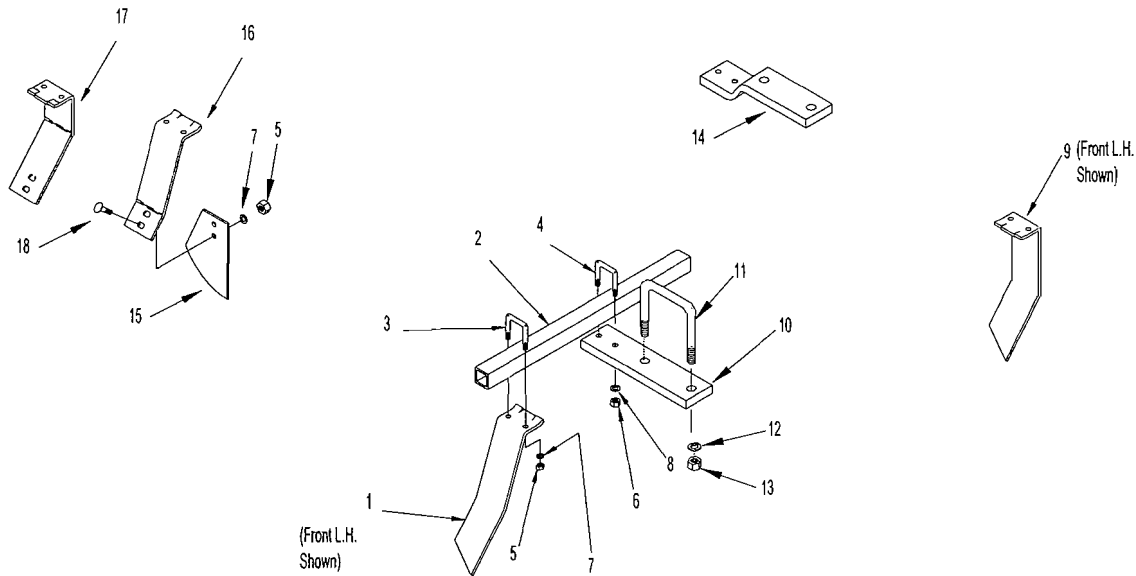


STONE FLEX HANGER FOR T2-215 SERIES BEARINGS (OPTIONAL)
(Independently Mounted Scraper Bar)

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	DGB9900	T2-215 Bearing Assembly (See Page 53 for T2-215 Bearing Breakdown)	*
2	DGA10570	Standard Mounting Bracket	*
3	DGA10575	2" (50.8mm) Offset Mounting Bracket	*
	DCA10576	3-1/2" (88.9mm) Offset Mounting Bracket	*
4	DG5313	1-1/4" (31.8mm) x 2-1/2" (63.5mm) Spring Shank	*
5	DGA5338	Shank Stop - Independently Mounted Scrapers Only	*
6	DG10590	Bearing Guard - T2-215 Bearing	*
7	DGA5327	Backing Plate - Independently Mounted Scraper Only	*
8	DG5378	7/8" (22.2mm) x 7" (178mm) x 7-1/8" (181mm) Long U-bolt	*
9	BO62100	5/8" (15.7mm) x 10" (254mm) N.C. Hex. Bolt- GR.5	*
10	BO75035	3/4" (19mm) x 3-1/2" (88.9mm) N.C. Hex. Bolt- GR.5	*
11	BN062	5/8" (15.7mm) N.C. Hex. Nut	*
12	BN075	3/4" (19mm) N.C. Hex. Nut	*
13	BN087	7/8" (22.2mm) N.C. Hex. Nut	*
14	BW075L	3/4" (19mm) Lockwasher	*
15	BW087L	7/8" (22.2mm) Lockwasher	*
16	10GN1	1/4" (6.35mm) - 28 Straight Grease Fitting	*

*As Required

MODEL 4500 DISC

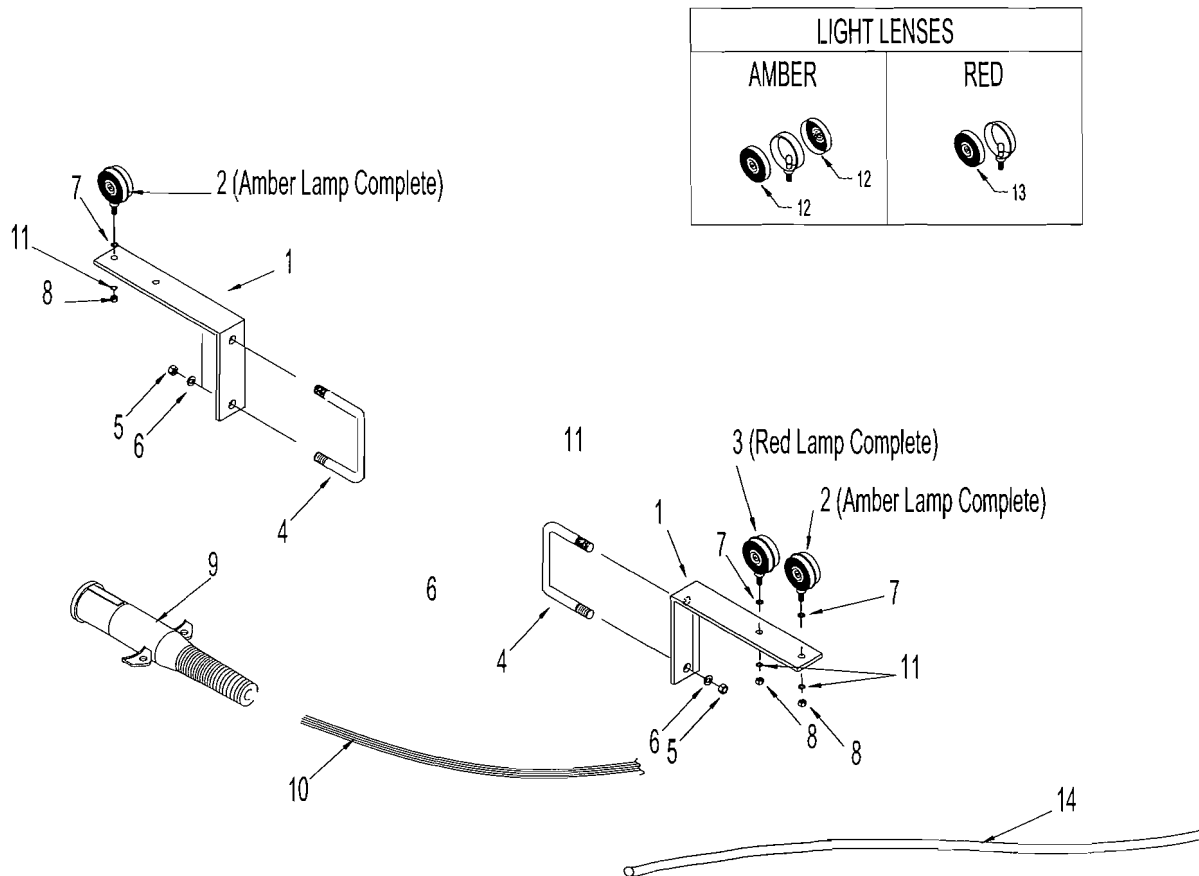


SCRAPER AND SCRAPER BAR ASSEMBLY (Independently Mounted Scraper Bar)

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	DG5292 DG5293	Scraper (Std) - Front L.H. & Rear R.H. Scraper (Std) - Front R.H. & Rear L.H.	* *
2	DS48 DS57 DS67 DS72 DS81 DS91 DS99 DS108	SCRAPER BARS FOR 9" (230mm) SPACING 5 Blade Gang Scraper Bar - 48-1/2" (1232mm) 6 Blade Gang Scraper Bar - 57-1/2" (1461mm) 7 Blade Gang Scraper Bar - 67" (1702mm) 8 Blade Gang Scraper Bar - 72" (1829mm) - 90 deg Scraper 9 Blade Gang Scraper Bar - 81" (2057mm) - 90 deg Scraper 10 Blade Gang Scraper Bar - 91" (2311mm) - 90 deg Scraper 11 Blade Gang Scraper Bar - 99" (2515mm) - 90 deg Scraper 12 Blade Gang Scraper Bar - 108" (2743mm) - 90 deg Scraper	* * * * * * * *
	DS51 DS65 DS66 DS87 DS82 DS93 DS108	SCRAPER BARS FOR 10-1/2" (267mm) SPACING 5 Blade Gang Scraper Bar - 51-1/2" (1308mm) 6 Blade Gang Scraper Bar - 65-1/2" (1664mm) 7 Blade Gang Scraper Bar - 56-1/2" (1435mm) - 90 deg Scraper 8 Blade Gang Scraper Bar - 87" (2210mm) 8 Blade Gang Scraper Bar - 82-1/2" (2096mm) - 90 deg Scraper 9 Blade Gang Scraper Bar - 93" (2362mm) - 90 deg Scraper 10 Blade Gang Scraper Bar - 108" (2743mm) - 90 deg Scraper	* * * * * * *
	DS48 DS61 DS57 DS73 DS85 DS81 DS97 DS93 DS110 DS106	SCRAPER BARS FOR 12" (305mm) SPACING 4 Blade Gang Scraper Bar - 48-1/2" (1232mm) 5 Blade Gang Scraper Bar - 61" (1549mm) 5 Blade Gang Scraper Bar - 57-1/2" (1461mm) - 90 deg Scraper 6 Blade Gang Scraper Bar - 73" (1854mm) 7 Blade Gang Scraper Bar - 85" (2159mm) 7 Blade Gang Scraper Bar - 81" (2057mm) - 90 deg Scraper 8 Blade Gang Scraper Bar - 97-1/2" (2477mm) 8 Blade Gang Scraper Bar - 93" (2362mm) - 90 deg Scraper 9 Blade Gang Scraper Bar - 110" (2794mm) 9 Blade Gang Scraper Bar - 106" (2692mm) - 90 deg Scraper	* * * * * * * * * *
3	DG5308	1/2" (12.7mm) x 2" (50.8mm) U-bolt (Plated)	*
4	DG5309	5/8" (15.7mm) x 2" (50.8mm) U-bolt (Plated)	*
5	BN050	1/2" (12.7mm) N.C. Hex. Nut (Plated)	*
6	BN062	5/8" (15.7mm) N.C. Hex. Nut (Plated)	*
7	BW050L	1/2" (12.7mm) Lockwasher (Plated)	*
8	BW062L	5/8" (15.7mm) Lockwasher (Plated)	*
9	DG5297 DG5298	90 degree Scraper Std. - Frt. L.H. & Rear R.H. 90 degree Scraper Std. - Frt. R.H. & Rear L.H.	* *
10	DG5296	Mount Plate - Scraper Bar	*
11	DG13145	3/4" x 6-7/8" cc x 5-3/4" (19.0mm x 174.5mm x 146.0mm) U-Bolt	*
12	BW075L	3/4" (19.0mm) Lockwasher	*
13	BN075	3/4" (19.0mm) N.C. Hex Nut	*
14	DG5302	Offset Scraper Mount - Scraper Bar	*
15	DG7190	Wide Pan Scraper	*
16	DG7191	Scraper Holder - Wide Pan Scraper	*
17	DG7192	90 Deg. Scraper Holder - Wide Pan Scraper	*
18	B050012C	1/2" x 1-1/4" (12.7mm x 31.7mm) N.C. Carriage Bolt	*

*As Required

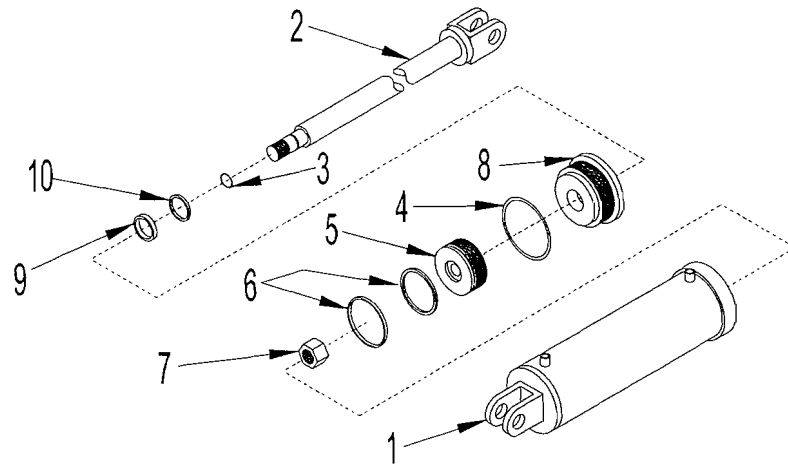
MODEL 4500 DISC



WARNING LIGHT KIT (OPTIONAL)

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	LK6412	Lamp Support	2
2	LK6422	Amber Lamp c/w Washers and Nut	2
3	LK6401	Red Lamp c/w Washers and Nut	1
4	DG13145	3/4" x 6-7/8"cc x 5-3/4" (19.0mm x 174.5mm x 146.0mm) U-Bolt	2
5	BN075	3/4" (19.0mm) N.C. Hex Nut	4
6	BW075L	3/4" (19.0mm) Lockwasher (Plated)	4
7	LK6406	1-1/8" (28.6mm) x 1/2" 1/2" (12.7mm) Rubber Washer	3
8	LK6407	1/2" (12.7mm) Hex Nut - N.F. Fine Thread	3
9	LK6423	Male Plug Complete	1
10	LK6408	55 Ft. Electrical Wire (white/yellow/brown/green) - Supplied in bulk - Stripping and Cutting required	1
11	---	1/2" (12.7mm) Starwasher	3
12	LK6409	Amber Lens - For Amber Lamps	4
13	LK6410	Red Lens - For Red Lamps	1
14	D13117	Plastic Loom - 8' (2.43m) Long	1

MODEL 4500 DISC



MAIN ROCKSHAFT CYLINDER - 4" (101.6mm) x 24" (610mm) CYLINDER - #306

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	40TU10	Tube Assembly - 4" (101.6mm) x 24" (610mm)	1
2	10SH60	Shaft - 2" (50.8mm) x 24" (610mm)	1
3	10OR18	1" (25.4mm) O.D. x 7/8" (22.2mm) I.D. O-Ring	1
4	10OR17	4" (101.6mm) O.D. x 3/16" (4.76mm) O-Ring	1
5	40PB8	Piston - 4" (101.6mm) O.D. x 1" (25.4mm) I.D.	1
6	40PS1	4" (101.6mm) O.D. Piston Seal Assembly	1
7	10NU4	1" (25.4mm) - 14 N.F. Hex Nut	1
8	40HP5	Head Plate - 4" (101.6mm) O.D. x 2" (50.8mm) I.D.	1
9	10RS2	Rod Seal - 2-3/8" (60.2mm) O.D. x 2" (50.8mm) I.D. x 3/8" (9.39mm)	1
10	10WS6	Wiper Seal - 2-1/2" (63.5mm) O.D. x 2" (50.8mm) I.D. x 3/8" (9.39mm) - All Urethane	1

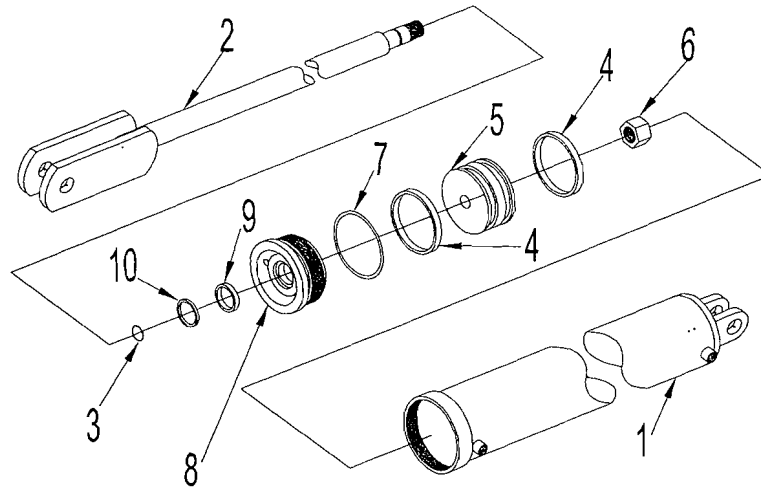
L.H. WING ROCKSHAFT CYLINDER - 3-1/2" (88.9mm) x 24" (610mm) CYLINDER - #305

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
	35TU15	Tube Assembly - 3-1/2" (88.9mm) x 24" (610mm)	1
	10SH59	Shaft - 1-3/4" (44.4mm) x 24" (610mm)	1
	10OR18	1" (25.4mm) O.D. x 7/8" (22.2mm) I.D. O-Ring	1
	10OR8	3-1/2" (88.9mm) O.D. x 3/16" (4.76mm) O-Ring	1
	35PB8	Piston - 3-1/2" (88.9mm) O.D. x 1" (25.4mm) I.D.	1
	35PS1	Piston Seal Assembly	1
	10NU4	1" (25.4mm) - 14 N.F. Hex Nut	1
	35HP9	Head Plate - 3-1/2" (88.9mm) O.D. x 1-3/4" (44.4mm) I.D.	1
	10RS3	Rod Seal - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 3/8" (9.39mm)	1
	10WS10	All Urethane Wiper Seal - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 1/4" (6.35mm) All Urethane Wiper Seal	1

R.H. WING ROCKSHAFT CYLINDER - 3" (76.2mm) x 24" (610mm) CYLINDER - #304

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	30TU34	Tube Assembly - 3" (76.2mm) x 24" (610mm)	1
2	10SH59	Shaft - 1-3/4" (44.4mm) x 24" (610mm)	1
3	10OR18	1" (25.4mm) O.D. x 7/8" (22.2mm) I.D. O-Ring	1
4	10OR3	3" (76.2mm) O.D. x 3/16" (4.76mm) O-Ring	1
5	30PB4	Piston - 3" (76.2mm) O.D. x 1" (25.4mm) I.D.	1
6	30PS1	Piston Seal Assembly	1
7	10NU4	1" (25.4mm) - 14 N.F. Hex Nut	1
8	30HP15	Head Plate - 3" (76.2mm) O.D. x 1-3/4" (44.4mm) I.D.	1
9	10RS3	Rod Seal - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 3/8" (9.39mm)	1
10	10WS10	All Urethane Wiper Seal - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 1/4" (6.35mm) All Urethane Wiper Seal	1

MODEL 4500 DISC



WING LIFT CYLINDER - 5" (127mm) x 36" (914mm) CYLINDER - #242

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	50TU8	Tube Assembly - 5" (127mm) x 36" (914mm) (for cylinder #242)	1
2	10SH36	Shaft - 1-3/4" (44.4mm) x 36" (914mm) (for 1-1/4" (31.8mm) nut)	1
3	100R19	1-1/8" (28.5mm) I.D. x 1-1/4" (31.8mm) O.D. O-Ring (for 1-1/4" (31.8mm) nut)	1
4	50CU1	4-1/2" (29.9mm) I.D. x 5" (127mm) O.D. x 1/2" U-Cup	2
5	50PB2	5" (127mm) Piston (for 1-1/4" (31.8mm) nut)	1
6	10NU3	1-1/4" (31.8mm) x 12" (305mm) U.N.F. Hex Lock Nut	1
7	100R14	4-1/2" (29.9mm) I.D. x 5" (127mm) O.D. O-Ring	1
8	50HP1	5" (127mm) Head Plate	1
9	10RS3	1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 3/8" (9.39mm) Rod Seal	1
10	10WS3	1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 3/16" (4.76mm) Wiper Seal	1

SEAL KIT

PART NO.	DESCRIPTION	QTY. REQ'D	CYLINDER NO.
5017N4	50CU1 - 4-1/2" (114mm) I.D. x 5" (127mm) O.D. x 1/2" (12.7mm) U-Cup 100R14 - 4-1/2" (114mm) I.D. x 5" (127mm) O.D. O-Ring 100R19 - 1-1/8" (28.5mm) I.D. x 1-1/4" (31.8mm) O.D. O-Ring (1-1/4" (31.8mm) nut) 100RS3 - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 3/8" (9.39mm) Rod Seal 10WS3 - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 3/16" (4.76mm) Wiper Seal 100R13 - 1" (25.4mm) O.D. x 1-1/4" (31.8mm) O.D. O-Ring (1" (25.4mm) nut)	2 1 1 1 1 1	242
4020N4-0	100R18 - 1" (25.4mm) O.D. x 7/8" (22.2mm) I.D. O-Ring 100R17 - 4" (101.6mm) O.D. x 3/16" (4.76mm) O-Ring 40PS1 - 4" (101.6mm) Piston Seal Assembly 10RS2 - 2-3/8" (60.2mm) O.D. x 2" (50.8mm) I.D. x 3/8" (9.39mm) Rod Seal 10WS6 - 2-1/2" (63.5mm) O.D. x 2" (50.8mm) I.D. x 3/8" (9.39mm) All Urethane Wiper Seal	1 1 1 1 1	306
3517N4-0	100R18 - 1" (25.4mm) O.D. x 7/8" (22.2mm) I.D. O-Ring 100R8 - 3-1/2" (88.9mm) O.D. x 3/16" (4.76mm) O-Ring 35PS1 - 3-1/2" (88.9mm) Piston Seal Assembly 10RS3 - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 3/8" (9.39mm) Rod Seal 10WS10 - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 1/4" (6.35mm) All Urethane Wiper Seal	1 1 1 1 1	305
3017N4-0	100R18 - 1" (25.4mm) O.D. x 7/8" (22.2mm) I.D. O-Ring 100R3 - 3" (76.2mm) O.D. x 3/16" (4.76mm) O-Ring 30PS1 - 3" (76.2mm) Piston Seal Assembly 10RS3 - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 3/8" (9.39mm) Rod Seal 10WS10 - 1-3/4" (44.4mm) I.D. x 2-1/8" (54.0mm) O.D. x 1/4" (6.35mm) All Urethane Wiper Seal	1 1 1 1 1	304

