

Ezee-On

MODEL 4490 DISC MEDIUM DUTY TANDEM 3 SECTION FRAME

OWNER'S MANUAL

c/w

ASSEMBLY INSTRUCTIONS

and

PARTS LIST

Manufactured by

Ezee-On Mfg. Ltd.

Vegreville, Alberta

Canada

Printed in Canada

642C

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

Tandem Disc Pre-Delivery Inspection/ Warranty Registration

Dealership _____ Location _____ Delivery Date: _____
Model _____ Width _____ Serial # _____ ☐ New Machine ☐ Demo Unit

Items for Dealership technician to inspect prior to delivery:

- | | |
|---|--|
| ☐ Torque all wheel bolts/ lug nuts to specifications | ☐ Check Operator's Manual to ensure all decals are correctly installed |
| ☐ Check tire pressures are correct. (Affects leveling process) | ☐ Connect Disc to tractor with a suitable pin and then lift the hitch jack |
| ☐ Level machine. Refer to Operator's Manual for detailed instructions | ☐ Check hydraulic hoses are leak free and hydraulic cylinders are filled with oil |
| ☐ Lubricate the entire machine as recommended in the Operator's Manual | ☐ Adjust mounted harrows as required (if equipped) |
| ☐ Check tightness of all bolts | ☐ Check overlap measurement of front gangs (Does not apply to model 395) |
| ☐ Check the correct # of depth stops are installed on mounting bar. (8)
*(Model 395 Offset disc has only (5) depth stop segments) | ☐ Check opening measurement between two inner blades of rear main frame gangs |
| ☐ Set front and rear gangs at medium angle (if adjustable) | ☐ Check all electrical components (safety lights) and connections |
| ☐ Adjust scrapers so they come into contact with blades | ☐ Ensure hydraulic lockout valves function properly |

Pre-Delivery completed by _____ (signature) Date _____
mm dd yyyy

Items for Dealership staff to cover with customer upon delivery:

- | | |
|---|--|
| ☐ Give the Operator's Manual to your customer | ☐ Connect hydraulics, wiring harness, safety chain, etc. |
| ☐ Inform your customer of all safety precautions, maintenance procedures, and proper operation of the Disc | ☐ Ensure machine functions properly. (Fold/Unfold, no leaks, lights work, etc) |
| ☐ Verify correct serial number | ☐ Take the Disc to a field (preferably where the ground is level, if possible) and perform all required leveling adjustments. Follow the Operator's Manual |
| ☐ Attach Disc to tractor | ☐ Explain warranty and fill out registration |
| ☐ Ensure hitch jack is in transport position | ☐ Start tractor and run all controls so your customer understands correct operation of the Disc and ensure all functions of the Disc are working properly |

Warranty Registration

Owner's Name _____ Address _____ Town _____
Province/ State _____ Country _____ Postal/ Zip Code _____
Home Phone # _____ Cell Phone # _____ Email Address _____

*The owner hereby acknowledges receipt of the Operator's Manual and that all delivery checks have been completed as listed above. Owner furthermore acknowledges that the Operator's Manual is an integral part of the purchased equipment and it contains information important to the proper operation, maintenance, and safety procedures of this machine.

Owner's signature _____ Date _____
mm dd yyyy

Dealer's signature _____ Date _____
mm dd yyyy

Mail or Fax the original copy of this Warranty Registration and Pre-Delivery/Delivery Inspection to Ezee-On Manufacturing immediately after delivery.

Warranty Registration is mandatory. Failure to complete and return this form will delay the processing of warranty claims

INTRODUCTION

THANK YOU for choosing to purchase this Ezee-On implement, we are confident you will be impressed with its performance.

In addition to the traditional values of simplicity, reliability and durability, your new EZEE-ON implement incorporates a number of operational and safety features. We urge you to familiarize yourself with the maintenance and operation of your implement by reading this Manual thoroughly and completely. Failure to do so could result in personal injury or equipment damage.

THIS MANUAL contains important information regarding assembly, maintenance, operating instructions, and troubleshooting problems, and should be considered a permanent part of your implement.

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



READ THIS BOOK CAREFULLY TO ENSURE THAT YOUR NEW IMPLEMENT IS ASSEMBLED AND ADJUSTED CORRECTLY PRIOR TO FIRST OPERATION.

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.

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EZEE-ON MFG. LTD. RESERVES THE RIGHT to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication, but are subject to change without notice.

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.

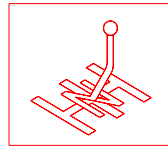


ASSEMBLY SAFETY

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 cylinders is not full of oil causing serious damage to machine or serious injury or death to person(s) nearby.
12. When assembling gangs ensure adequate support is placed under main frame and wing frame. Do not use lock out valves as safety devise to prevent frame from falling. If any hydraulic component failed, disc could drop causing serious injury or death to person(s) nearby.

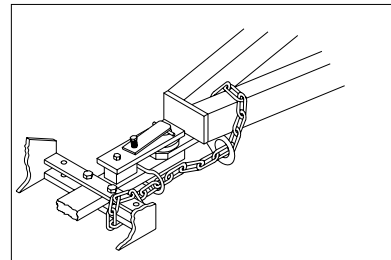
MAINTENANCE SAFETY

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 cylinders with hydraulic oil, extend and contract cylinder within slot on wing until cylinders are completely filled with oil. Do not fold wing until cylinder is completely filled, wing 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 a wing lift cylinders or wing lift hydraulic hoses are removed when wings are folded into transport position, always install a safety chain between 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.



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 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.
5. Always attach a safety chain to the tractor drawbar and the disc hitch before transporting the disc. 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.



6. 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.
7. 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.
8. Never allow anyone to ride on drawbar of the tractor or on the disc. The person riding may fall and be seriously injured.
9. When transporting disc always install the complete package of depth control stops (17" long) on shaft of main frame cylinder. If any component of hydraulic system failed disc could drop causing serious injury or death to operator or person(s) nearby.

OPERATION SAFETY

1. Be sure person(s) are standing clear before starting or moving the tractor and disc.
2. 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.
3. 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 person(s) nearby.
4. When operating on hillsides, use extreme care. The tractor may tip over if it strikes a hole, ditch or other irregularity.
5. To avoid personal injury or death, always stay clear of the folding wing when it is being raised, lowered or in the folded position. If the hydraulic system failed, or if the hydraulic lever was accidentally operated, the wing could drop, resulting in serious injury or death to you or those nearby.
6. 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.

SAFETY DECALS

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

STORAGE

1. 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	WING WIDTH	BLADE SPACING	APPROXIMATE CUTTING WIDTH	NO. OF BLADES	NO. OF GANG BRGS	GANG BEARING TYPE		APPROX TRANSPORT WIDTH	APPROX TRANSPORT HEIGHT
4490-54SN	96" (2438mm)	8" (203mm)	18-1/2' (6.3m)	54	18	211	410WSS	11'6" (3.5m)	10'0" (3.1m)
4490-58SN		8" (203mm)	20' (6.0m)	58	20	211	410WSS		10'6" (3.2m)
4490-62SN		8" (203mm)	21' (6.4m)	62	20	211	410WSS		11'1" (3.4m)
4490-70N		8" (203mm)	24' (7.3m)	70	22	211	410WSS		12'4" (3.8m)
4490-74N		96" (2438mm)	25-1/2' (7.8m)	74	22	211	410WSS		12'11" (3.3m)
4490-78N		68" (1729mm)	27' (8.2m)	78	24	211	410WSS		13'7" (4.0m)
4490-86W		68" (1729mm)	29-1/2' (9.0m)	86	24	211	410WSS		14'10" (4.6m)
4490-94W		68" (1729mm)	32' (9.8m)	94	28	211	410WSS		16'1" (4.9m)
4490-46SN	96" (2438mm)	9" (229mm)	18' (5.5m)	46	20	211	410WSS	11'6" (3.5m)	10'0" (3.1m)
4490-50SN		9" (229mm)	19-1/2' (5.9m)	50	20	211	410WSS		10'9" (3.3m)
4490-54SN		9" (229mm)	21' (6.4m)	54	20	211	410WSS		11'6" (3.5m)
4490-62N		9" (229mm)	23-1/2' (7.2m)	62	22	211	410WSS		12'3" (3.7m)
4490-66N		68" (1729mm)	25' (7.6m)	66	22	211	410WSS		13'0" (4.0m)
4490-70N		68" (1729mm)	26-1/2' (8.1m)	70	22	211	410WSS		13'8" (4.2m)
4490-78W		68" (1729mm)	29-1/2' (9.0m)	78	24	211	410WSS		15'1" (4.6m)
4490-86W		96" (2438mm)	32-1/2' (9.9m)	86	26	211	410WSS		16'6" (5.1m)

TIRES

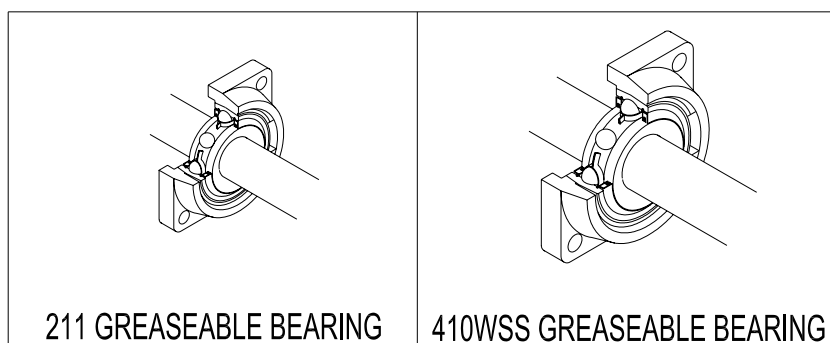
SIZE	TOTAL NO. of WHEELS	WING WHEEL TYPE	M/F TIRES		W/F TIRES	
			SIZE	PRESSURE	SIZE	PRESSURE
23-1/2' to 27' (7.2m to 8.2m)	6	SINGLE	11L x 15 FI Load Range "F"	55 PSI (380 kPa)	11L x 15 FI Load Range "D"	50 PSI (345 kPa)
29-1/2' to 32-1/2' (9.0m to 9.9m)	8	DUAL	11L x 15 FI Load Range "F"	55 PSI (380 kPa)	11L x 15 FI Load Range "D"	50 PSI (345 kPa)

GANG ANGLE - Front Gang - Fixed - 20 degrees
 - Rear Gang - Fixed - 17 degrees

HYDRAULIC CYLINDERS - Wing Lift (2) - 5" x 36" (127 mm x 914 mm)
 Lift (1) - 4" x 24" Rephasing (88.9 mm x 610 mm) Centre Frame
 (1) - 3-1/2" x 24" Rephasing (88.9 mm x 610 mm) L.H. Wing
 (1) - 3" x 24" Rephasing (76.2 mm x 610 mm) R.H. Wing

BOLT TORQUES - Gang Bolts ----- 1-15/16" (49 mm) Diameter 3200 ft. lbs. (4336 N . m)
 Leveling Crank Bolts ----- 1-1/4" (31mm) Diameter- 840 ft. lbs. (1138.2 N . m)
 Wheel Bolts----- 9/16" (14mm) Diameter 150ft. lbs. (203.25 N . m)
 Bearing Hanger U-Bolts -- 5/8" (15mm) Diameter -- 150 ft. lbs. (203.25 N . m) (Solid Hangers)
 Bearing Hanger U-Bolts -- 3/4" (19mm) Diameter - 260 ft. lbs. (352.3 N . m) (Stone Flex Hanger)

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 WINGS 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 CYLINDER IS 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 PARK BRAKE IS SET. THE TRACTOR COULD ROLL BACKWARDS WHICH COULD RESULT IN SERIOUS INJURY OR DEATH TO YOU OR PERSON(S) NEARBY.

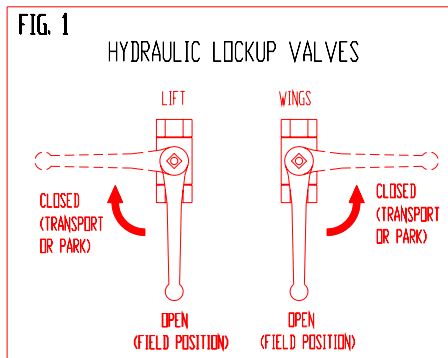
3. For best performance, the tractor drawbar should be pinned at centre of tractor.
4. Ensure disc is level and cutting depth is properly adjusted. If further adjustments are required, see pages 11 to 16.
5. Do not make sharp turns with the disc in ground. Sharp turns put excess pressure on the gangs.

IT IS ADVISABLE TO ALWAYS LIFT MACHINERY 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.

6. See Fig. 1. When transporting disc, always place hydraulic lockup valves in closed position. Lock up valves are located at the front end of centre frame.



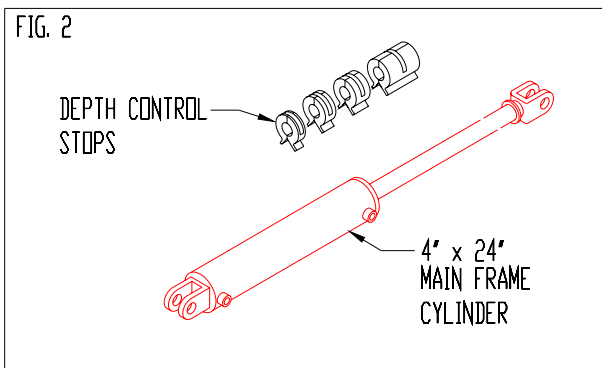
CAUTION: WHEN TRANSPORTING DISC ALWAYS PLACE BOTH HYDRAULIC LOCK UP VALVES IN "CLOSED" POSITION. IF THE HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED THE DISC COULD DROP OR WINGS COULD FALL CAUSING SERIOUS INJURY OR DEATH TO OPERATOR OR PERSON(S) NEARBY.



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



CAUTION: WHEN TRANSPORTING DISC ALWAYS INSTALL THE COMPLETE PACKAGE OF DEPTH CONTROL STOPS (17" LONG) ON SHAFT OF CENTRE FRAME CYLINDER. IF ANY COMPONENT OR 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 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.
10. **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.

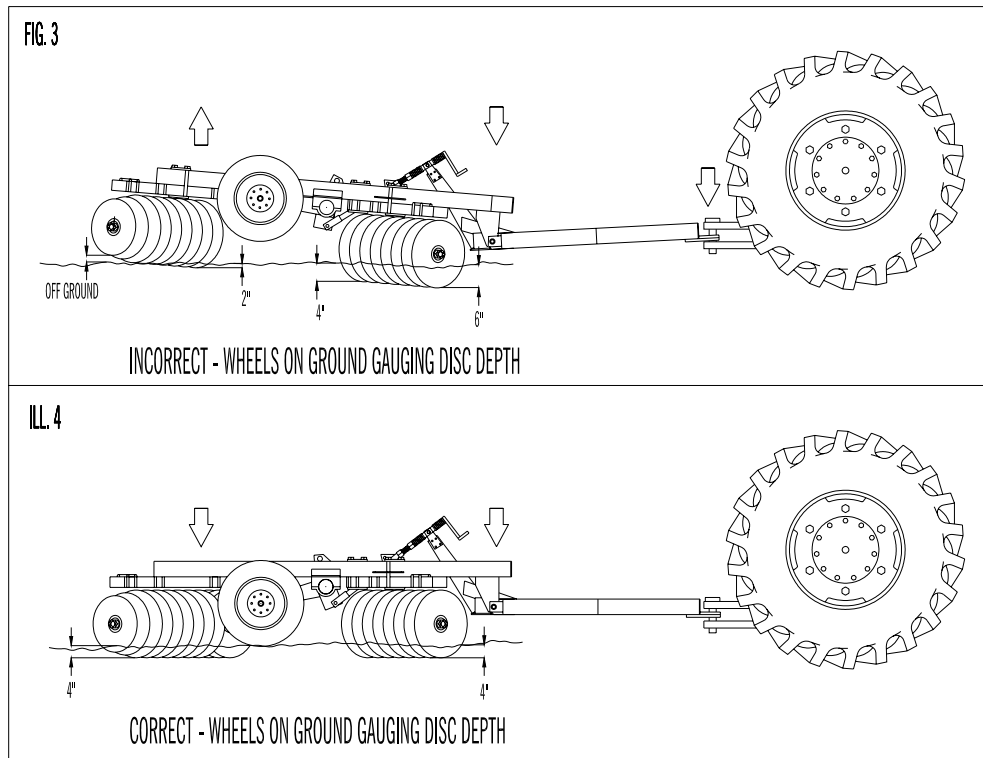
DO NOT PARK DISC WITH BLADES ON GROUND THAT MAY FREEZE. LEAVE DISC PARKED ON TRANSPORT WHEELS.

GENERAL OPERATING INSTRUCTIONS CONTINUED:

11. **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 19, SECTION 11.
12. **IMPORTANT:** DO NOT OPERATE DISC IN FIELD WITH WING FOLDED IN TRANSPORT POSITION. SEVERE DAMAGE WILL OCCUR WHEN DISCING WITH WINGS FOLDED.



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



13. 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.

The condition shown in Fig. 3 may also cause frame to buckle upward at frame hinge point, raising centre blades off ground. If frame is level, as shown in Fig. 4 thrust at outside end of front gangs is greatly reduced. Side thrust is distributed evenly on all front blades, reducing the possibility of centre rising.

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.

GENERAL OPERATION CONTINUED:

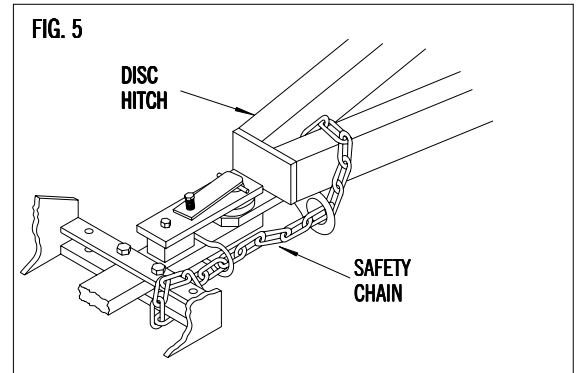
14. See Fig. 5. Attach a safety chain to the tractor drawbar and to the disc's hitch before transporting the disc. Use a chain with strength rating greater than the gross weight of disc. (Safety chain available as an option).



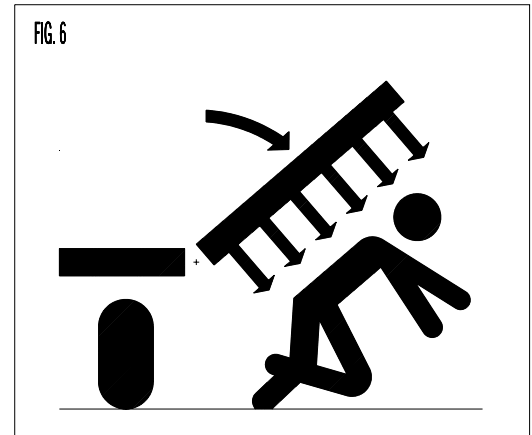
CAUTION:

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.



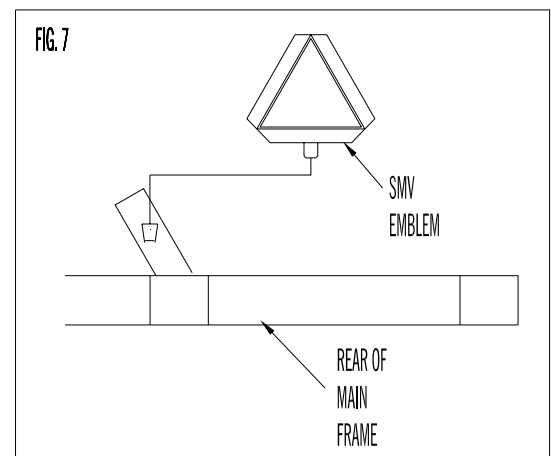
CAUTION: DO NOT STAND UNDER THE WING WHILE IT IS BEING RAISED OR LOWERED. IF ANY COMPONENT OF THE HYDRAULIC SYSTEM FAILED OR IF THE HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, WING COULD FALL. SEE FIG. 6.



15. See Fig. 7. Before transporting disc, install a SMV emblem (not supplied by Ezee-On) in the SMV bracket bolted to rear L.H. gang assembly of center frame.



CAUTION: USE THE SMV EMBLEM (NOT SUPPLIED BY EZZE-ON) AND WARNING LIGHTS FOR THE PROTECTION OF TRACTOR AND OTHER VEHICLE OPERATIONS WHEN TRANSPORTING THE DISC 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.



WARNING: WHEN TRANSPORTING DISC, ALWAYS PLACE HYDRAULIC LOCK UP VALVE IN CLOSED POSITION. SEE SECTION 8 OF OPERATING INSTRUCTIONS ON PAGE 6. IF THE HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED, THE DISC COULD DROP OR WING COULD FALL CAUSING SERIOUS INJURY OR DEATH TO OPERATOR OR PERSON(S) NEARBY.

16. Rephasing Rockshaft Cylinders - periodically the hydraulic lift cylinders on wing frames will not be synchronized with centre 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) rockshaft cylinders are fully extended



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 BLOCKS 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 TO 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 IRREGULARITY.

17. **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 WARMER WEATHER OR IF DISC IS STORED IN HEATED BUILDING.
18. **IMPORTANT:** WHEN PARKING DISC ALWAYS PLACE BOTH HYDRAULIC LOCKUP VALVES IN "CLOSED POSITION". SEE FIG. 1 ON PAGE 6.
19. **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.

ADJUSTMENTS

1. LATERAL ADJUSTMENT OF THE FRONT AND REAR GANGS

- 1) **FRONT GANGS** - See Fig. 9. Loosen U-Bolts which fasten bearing hangers to front gang beams. Adjust front gangs so that leading edge of inside blades are, arrow 1, are approximately 2-1/2" (63.5mm) past centre of disc. The centre of disc is shown in Fig. 9. If the above adjustment is made correctly, the front gang will not leave any unbroken ground at centre of disc.
- 2) **REAR GANGS** - See Fig. 10. Loosen U-Bolts which fasten bearing hangers to rear gang bearings.

The opening between the rear gangs 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 picking 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" (50.8mm) less than diameter of blades. For example, if your machine is equipped with 24" (609mm) blades, then the opening (Dimension "D") should be 22" (559mm).

An increase in discing speed may require 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 between individual gangs are adjusted to match your disc's blade spacing.

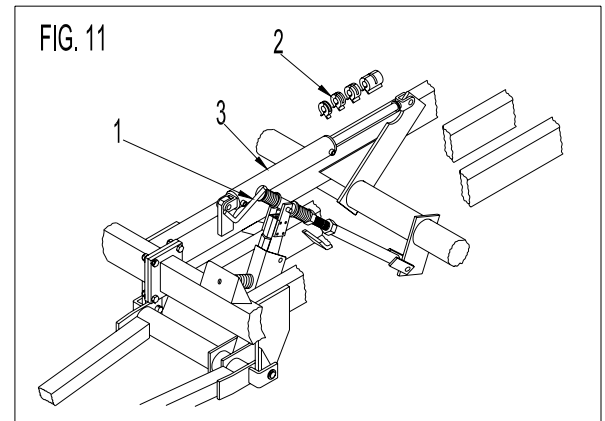
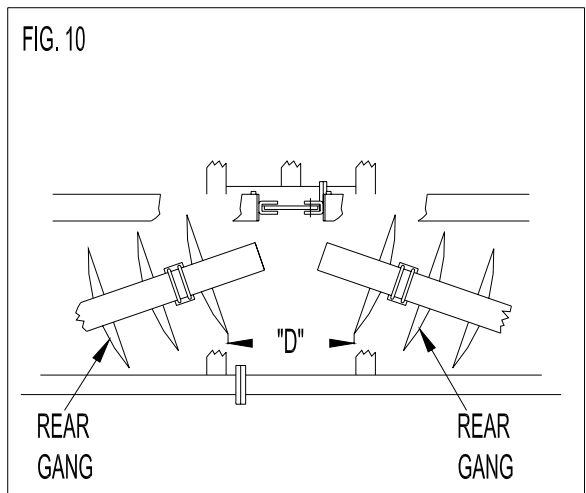
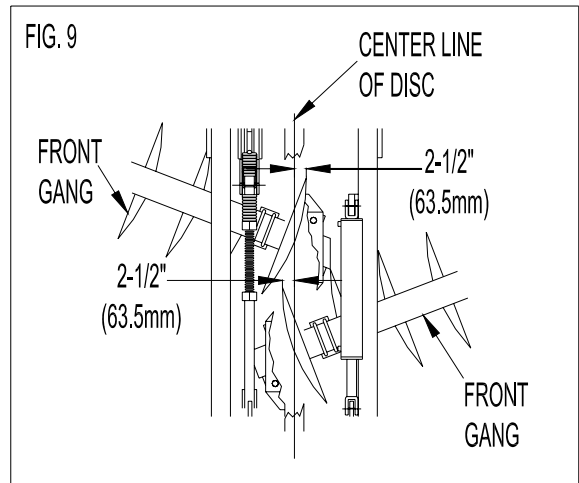
- 3) When gang adjustments are complete, tighten all bearing hanger U-Bolts. See section 1 on page 13.

2. IMPORTANT: WHEN RAISING WINGS INTO TRANSPORT FOR THE FIRST TIME AFTER ADJUSTING GANGS, RAISE WINGS SLOWLY MAKING SURE WING GANGS CLEAR CENTRE FRAME GANGS AND GANG BEAMS.

3. **LEVELLING DISC** - See Fig. 11. When discing, the front and rear gangs should be cutting at the same depth. The levelling crank, arrow 1, is used to level disc. TO LOWER FRONT GANGS, turn crank, arrow 1, clockwise (in). TO RAISE FRONT GANGS, turn crank, arrow 1, counter-clockwise (out).

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.

4. **Setting Discing Depth** - See Fig. 11. To set discing depth, install depth control segments, arrow 2, on shaft of center frame cylinder, arrow 3. Install segments as required to obtain desired discing depth.

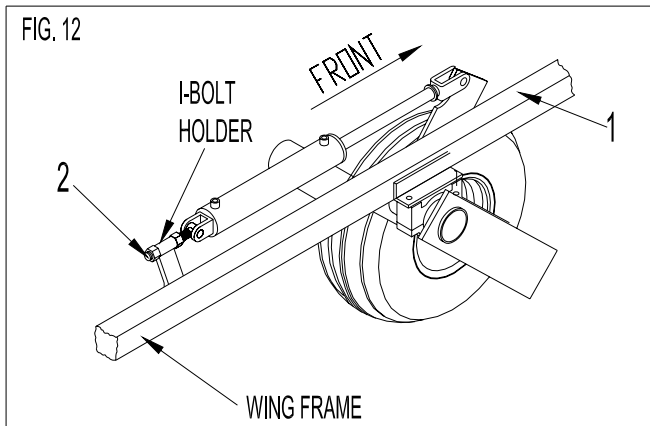


ADJUSTMENT CONTINUED:

5. Levelling Wing Adjustment - See Fig. 12.

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

Before this adjustment is made, be sure centre frame is level from front to rear. To level wing frame with centre frame, adjust wing rockshaft cylinder I-Bolt, arrow 1. If outside of wing frame needs to be raised, loosen outer nut, arrow 2, and tighten inner nut. This will lower the wheels raising outside of wing. If outside of wing frame needs to be lowered, loosen inner nut and tighten outer nut. This will raise the wheels lowering outside of wing. After adjustments are complete tighten nuts against I-Bolt holder.



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.

6. REMOVE RIDGE AT CENTRE OF DISC - Make one or more of the following adjustments:
 - a) Level disc from front to rear using levelling crank, see Section 3 of adjustments.
 - b) Reduce discing speeds.
 - c) Increase distance between rear gangs, see Section 1 of adjustments.
7. REMOVE FURROW AT CENTRE OF DISC - Make one or more of the following adjustments:
 - a) Level disc from front to rear using levelling crank, see Section 3 of adjustments.
 - b) Increase discing speed.
 - c) Decrease distance between rear gangs, see Section 1 of adjustments.
8. REMOVE UNBROKEN GROUND LEFT BY FRONT GANGS - Make the following adjustments:
 - a) Adjust leading edge of inside blade of each front gang so it is 2-1/2" (63.5mm) past centre of disc, see Section 1 of adjustments.
9. REDUCE GANG PLUGGING - Make the following adjustment:
 - a) Adjust scrapers so they contact blades.

MAINTENANCE

1. LUBRICATION See Fig.13 - Grease all lubricating points on disc are marked with arrow G. The oil lubrication points are marked with arrow O.

G1) Lubricated gang bearings every 20 hours with a minimum amount of grease. Excess lubrication may damage seals. Use a high quality SAE multi-purpose grease.



CAUTION: FOR 211 OR 410 SERIES BEARINGS - 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 wing pivot points with grease every 50 hours of operation.

G3) Lubricate levelling crank with grease every 100 hours of operation.

G4) Lubricate wheels with grease every 50 hours of operation.

G5) Lubricate top and bottom half of each rockshaft bearing every 20 hours of operation. If rockshaft bearings are not lubricated, there will be excessive wearing of rockshaft and rockshaft bearings.

NOTE: When you receive your new disc, grease all lubricating points before starting to disc. Do not over lubricate gang bearings. See paragraph (a) above.

O1) Lubricate levelling crank ball joints (with oil) at the end and beginning of each season.

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. If gang bolts come loose, they must be tightened to 3200 ft. lbs. (4436 N . m)

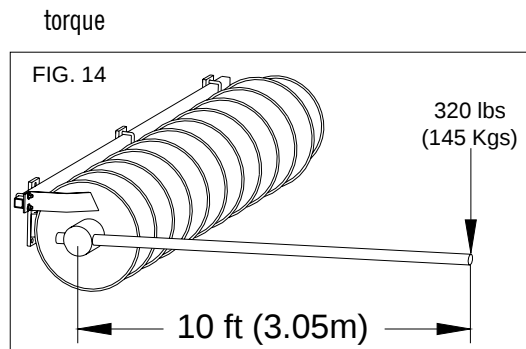
TIGHTEN BOLTS AS FOLLOWS:

- Gang bolts 1-15/16" (49mm) Diameter - 3200 ft. lbs (4339 N .m) torque
- See Fig. 14. To tighten gang bolt to 3200 ft. lbs. (4339 N.m) install a 10 ft. (3.05m) bar in socket wrench and apply 320 lbs. (145 kgs) of force to end of bar.

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

- Levelling crank bolt 1-1/4" (31.7mm) Diameter - 840 ft. lbs (1139 N . m) torque(minimum/maximum)
- Wheel bolts 9/16" (14.2mm) Diameter - 130 ft. lbs (176.3 N . m) torque
- Bearing hanger U-Bolts (for Stone Flex Hangers) - 3/4" (19mm) Diameter - 260 ft. lbs (30 m/kgs) torque
- Bearing hanger U-Bolts (for Solid Hangers) - 5/8" (15.7mm) Diameter - 430 ft. lbs (59.5 m/kgs)

NOTE: Gangs should be re-tightened after 2 hours of operation.



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

3. When storing disc for a long period of time, grease all lubricating points.
4. Ensure tires are properly inflated. See specifications on page 5 for tire pressures.

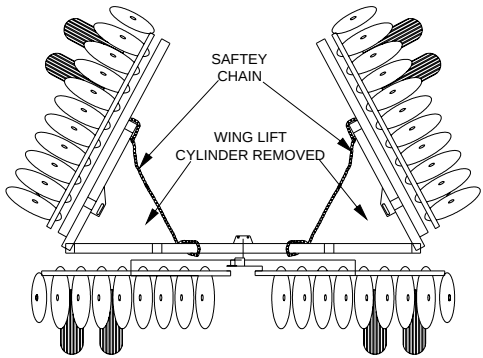


CAUTION: DO NOT SERVICE DISC WHILE IT IS MOTION. YOU MAY FALL IN FRONT OF DISC AND BE SERIOUSLY INJURED.



CAUTION: 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.

5. **WING LIFT CYLINDER REMOVAL** – See Fig. 14. If possible lower wings to field position if the wing lift cylinder hydraulic system must be serviced or repaired. If a wing lift cylinder hydraulic system must be serviced or repaired with wings in folded position, install a safety chain between both wings 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



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

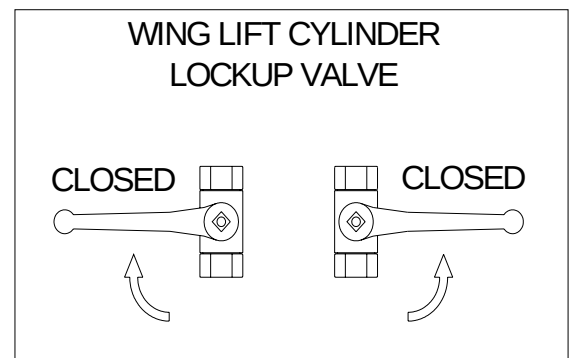


CAUTION: IF WING LIFT CYLINDER(S) OR WING LIFT HYDRAULIC HOSES ARE REMOVED WHEN WINGS ARE FOLDED INTO TRANSPORT POSITION, ALWAYS INSTALL A SAFETY CHAIN BETWEEN WING GRAMES AND MAIN FRAME TO PREVENT WINGS FROM FALLING. IF WINGS FELL SERIOUS INJURY OR DEATH COULD OCCUR TO PERSON(S) NEARBY AND MACHINE WOULD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

6. Keep all safety decals clean and in good condition to provide a constant reminder of safe operating procedures.
7. Replace any destroyed, missing or illegible decals and reflectors.
8. **IMPORTANT:** WHEN STORING DISC DO NOT LEAVE CYLINDERS UNDER HYDRAULIC PRESSURE, ESPECIALLY IF CYLINDERS ARE ACTIVATED DURING COOL TEMPERATURES. THE EXPANSION OF OIL WHICH TAKES PLACE WHEN THE MACHINE IS IN A WARMER ENVIROMENT OR HOT WEATHER RETURN MAY CAUSE SERIOUS DAMAGE TO CYLINDER, LINES OR HOSES.



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



TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
OUTSIDE BLADES OF FRONT GANGS ARE CUTTING TOO DEEP CAUSING DISC TO RIDGE AT OUTSIDE	- wheel 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 rear	- lower wheels to ground so they gauge discing depth, see Fig. 4 on page 7 - inflate tire, see tire pressures on page 5 - using levelling crank raise front of disc - see Fig. 11 on page 10
OUTSIDE BLADES ON WING (S) ARE CUTTING TOO DEEP	- outside of wing frame(s) is lower than main frame - wing rockshaft cylinder(s) is not synchronized with main frame rockshaft cylinder	- raise outside of wing with wing rockshaft cylinder anchor bolt see section 5 on page 12 - rephrase rockshaft cylinder(s), see section 16 on page 9
OUTSIDE BLADES ON WING ARE NOT CUTTING DEEP ENOUGH	- outside of wing frame is higher than main frame - wing rockshaft cylinder(s) is not synchronized with main frame rockshaft cylinder	- lower outside of wing with wing rockshaft cylinder anchor bolt, see section 4 on page 11 - rephrase rockshaft cylinder(s), see section 16 on page 9
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. 11 on page 10 - reduce discing speed - increase distance between rear gangs see section 2 on page 10

TROUBLE SHOOTING CONTINUED

PROBLEM	POSSIBLE CAUSE	REMEDY
DISC IS LEAVING A FURROW 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. 11 on page 10 - increase discing speed - decrease distance between rear gangs - see section 2 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	- adjust scrapers so they are contacting blades
WHEN RAISING DISC OUT OF GROUND, MAIN FRAME COMES OUT OF GROUND WHILE OUTSIDE OF WING LAGS BEHIND OR DOES NOT COME OUT OF GROUND	- piston seals on wing rockshaft cylinder is damaged	- replace piston seals of wing rockshaft cylinder
WHEN RAISING DISC OUT OF GROUND, OUTSIDE OF WING 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 IS NOT FULLY EXTENDED	- rockshaft cylinders are not synchronized	- rephrase rockshaft cylinders, see section 16 on page 9
WHEN RAISING DISC OUT OF GROUND WING ROCKSHAFT CYLINDER IS FULLY EXTENDED WHILE MAIN FRAME ROCKSHAFT CYLINDER IS NOT FULLY EXTENDED	- rockshaft cylinders are not synchronized	- rephrase rockshaft cylinders, see section 16 on page 9