

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

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 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.

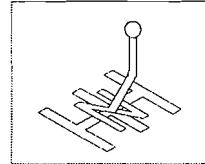


ASSEMBLY SAFETY

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.

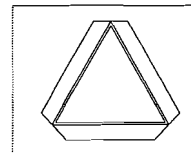
MAINTENANCE SAFETY

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.



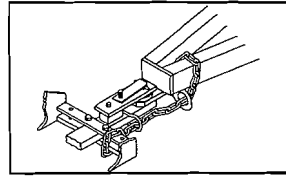
TRANSPORT SAFETY

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)

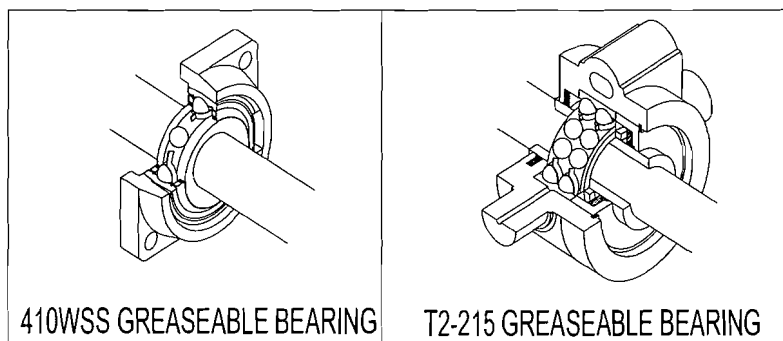
TIRE LOCATION	TIRE SIZES	PRESSURE
Centre Frame	(4) 11L x 15 F1, Load Range "F"	60 PSI (414 KPA)
Wing Frame	(4) 11L x 15 F1, Load Range "D"	50 PSI (345 KPA)

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.

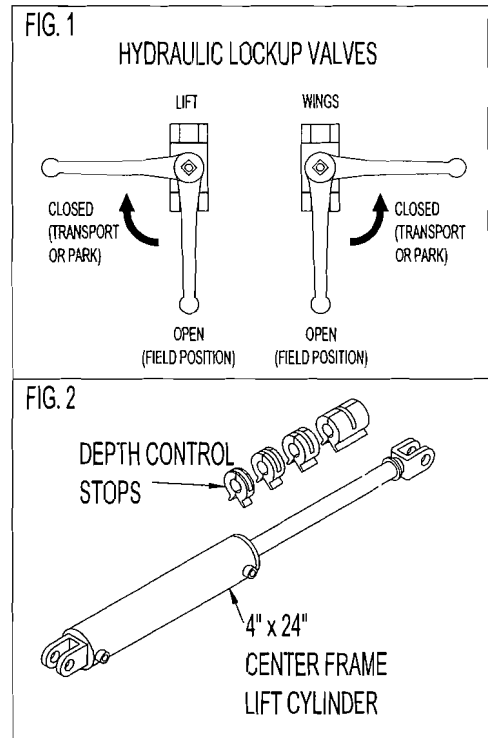


CAUTION: WHEN TRANSPORTING DISC ALWAYS PLACE BOTH HYDRAULIC LOCKUP VALVES IN "CLOSED POSITION". IF HYDRAULIC LEVER WAS ACCIDENTALLY OPERATED THE DISC COULD DROP OR WINGS COULD FALL CAUSING SERIOUS INJURY OR DEATH TO OPERATOR OR PERSON(S) NEARBY.

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.

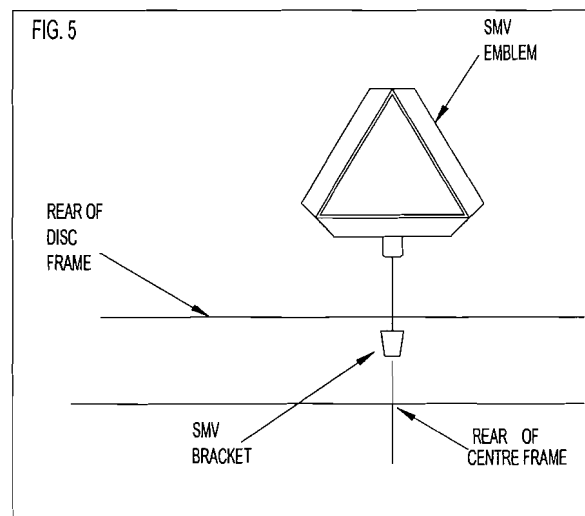
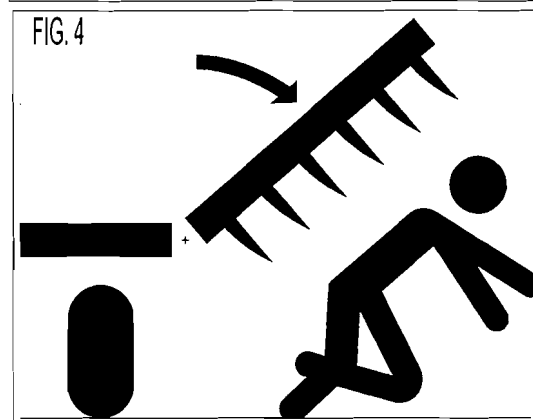
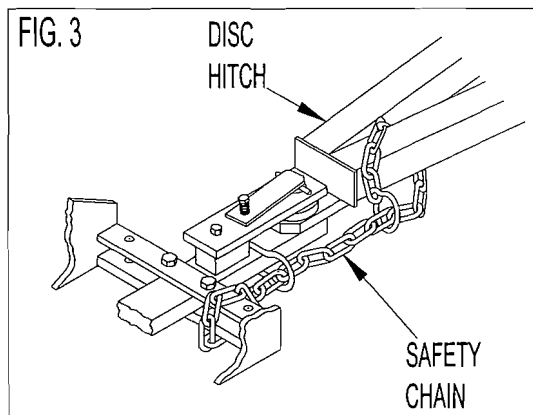
SERIOUS DAMAGE, INJURY OR DEATH COULD RESULT FROM THE DISC SEPARATING FROM THE TRACTOR DRAWBAR.

! 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.

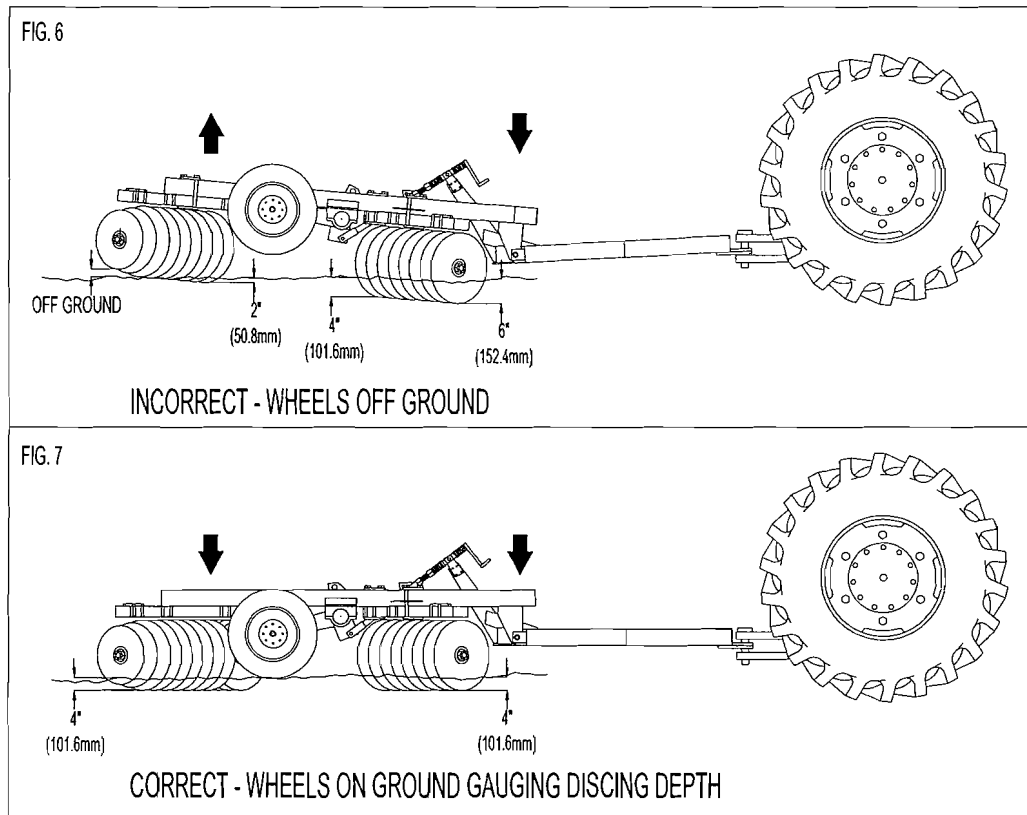
 **CAUTION:** WHEN OPERATING ON HILLSIDES, USE EXTRA CARE. TRACTOR MAY TIP SIDEWAYS IF IT STRIKES A HOLE, DITCH OR OTHER IRREGULARITIES.

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.

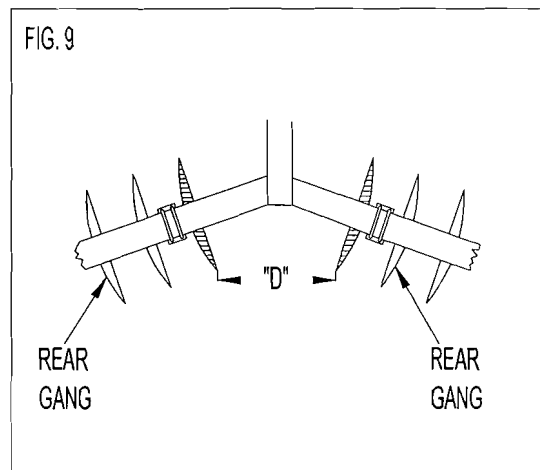
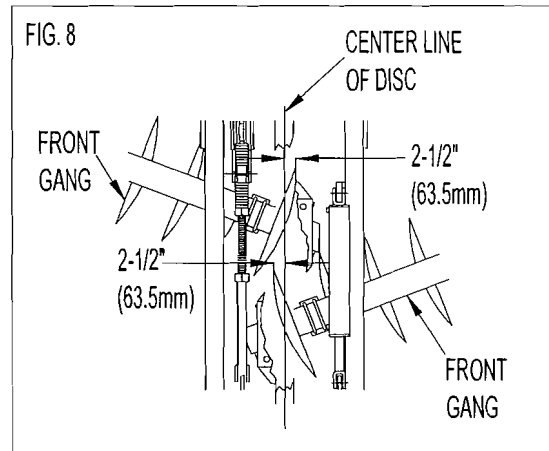
ADJUSTMENTS

1. LATERAL ADJUSTMENT OF THE FRONT AND REAR GANGS

- a) **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.
- b) **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.

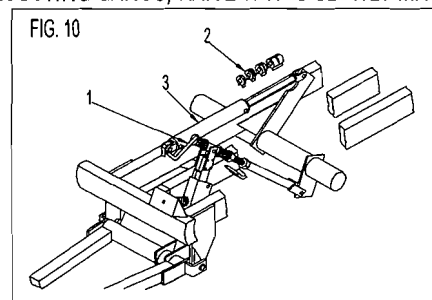


NOTE: *Be sure the blade to blade distance between individual gangs are adjusted to match your disc's blade spacing.*

- c) 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.
2. **IMPORTANT:** WHEN RAISING WINGS FOR TRANSPORT FOR FIRST TIME AFTER ADJUSTING GANGS, RAISE WINGS SLOWLY MAKING SURE WING GANGS CLEAR CENTRE FRAME GANGS.
3. **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.

4. **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.

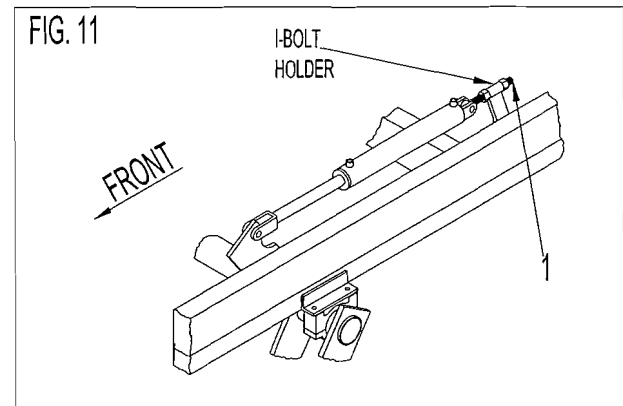
ADJUSTMENTS CONTINUED:

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.

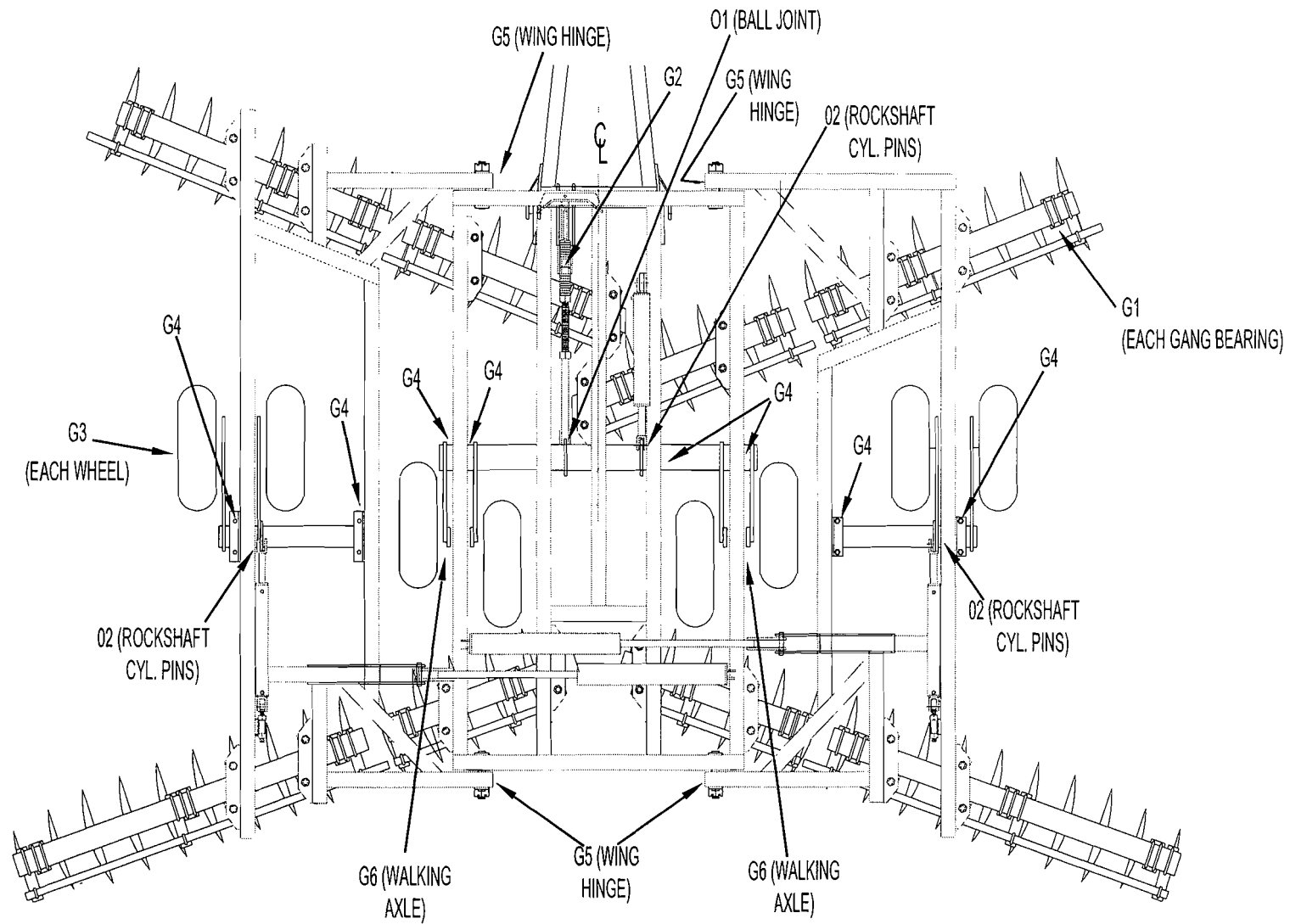


IMPORTANT: BE SURE AXIS OF CLEVIS PIN IS HORIZONTAL WITH CYLINDER PORTS FACING UP. IF CLEVIS BOLT IS NOT POSITIONED PROPERLY, CYLINDER WILL NOT BE FREE TO PIVOT WHEN ACTIVATED, CAUSING SERIOUS DAMAGE.

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.*

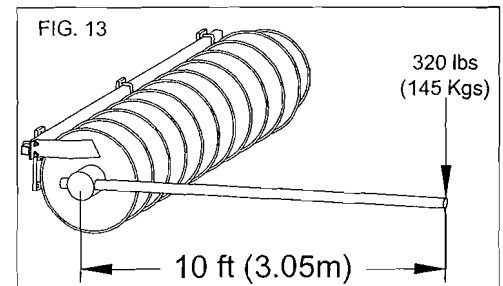
- O1) Lubricate levelling crank ball joint (with oil) at the end and beginning of each season.
 - O2) Lubricate rockshaft cylinder pins (with oil) every 50 hours of operation.
2. All bolts and nuts should be checked periodically to make sure they are tight. Special attention should be given to gang bolts,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

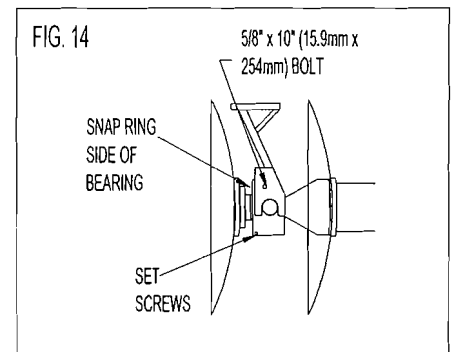
- Gang beam bolts 1-1/4" (31.7 mm) Diameter --- 840 ft. lbs (1139 N · m)
- Levelling crank bolt 1-1/4" (31.7 mm) Diameter - 840 ft. lbs (1139 N · m)
- Wheel bolts 9/16" (14.2 mm) Diameter ----- 130 ft. lbs (176.2 N · m)
- Bearing hanger u-bolts 7/8" (22 mm) Diameter -- 430 ft. lbs (583.0 N · m)

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.**

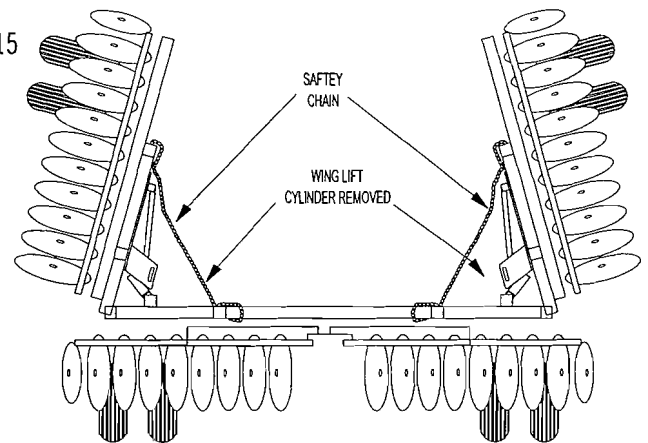


6. See Fig. 14. When reinstalling bearing hanger on **T2-215 Bearing** (if gangs are dismantled) do not over tighten the 5/8" x 10" (15.7 mm x 254 mm) bolts, which fasten hanger to bearing. Turn inner nut until it is snug against bearing hanger. Secure inner nut by tightening a outer jam nut against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



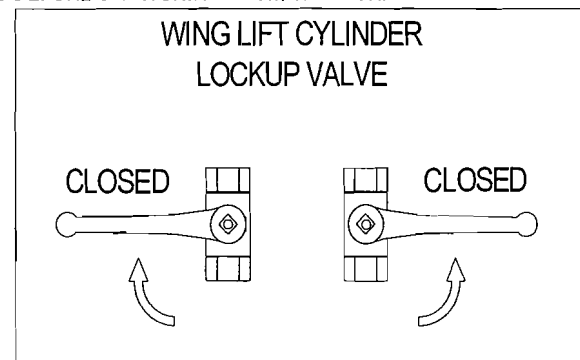
CAUTION: IF WING LIFT CYLINDER(S) OR WING LIFT HYDRAULIC HOSES ARE REMOVED WHEN WINGS ARE FOLDED INTO TRANSPORT POSITION, ALWAYS INSTALL A SAFETY CHAIN BETWEEN EACH WING FRAME AND MAIN FRAME TO PREVENT WINGS FROM FALLING. IF WINGS FELL SERIOUS INJURY OR DEATH COULD OCCUR TO PERSON(S) NEARBY AND MACHINE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