

# OWNER'S/ OPERATOR'S MANUAL

**MODEL NO.'s**  
**MPLP-112**  
**MP-114**  
**MP-214**

## **CAUTION**

For Safe Operation  
Read Rules And  
Instructions Carefully

SINO LEEINGLES, PIDA AYUDA  
A AIGUIEN QUE SI LO LEA  
PARA QUE LE TRADUZCA LAS  
MEDIDAS DE SEGURIDAD.

## **2 Bottom Standard**



## **1 Bottom Standard**



## **Low Profile**



# **3 PT. MOLDBOARD PLOWS**

**Safety Instructions**  
**Tractor Preparation**  
**Operating Instructions**

**Assembly & Mounting**  
**Maintenance**  
**Repair Parts**

## **CAUTION**

### **THE FOLLOWING SAFETY PRECAUTIONS SHOULD BE THOROUGHLY UNDERSTOOD BEFORE ATTEMPTING TO BEGIN ASSEMBLING THIS MACHINE**

1. Select an area for assembly that is clean and free of any debris which might cause persons working on the assembly to trip.
2. Do not lift heavy parts or assemblies. Use crane, jack, tackle, fork trucks or other mechanical devices.
3. Preview the assembly instructions in your operator's manual before proceeding further.
4. If the assembly instructions call for parts or assemblies to be blocked up, use only blocking material that is in good condition and is capable of handling the weight of the assembly to be blocked. Also insure that the blocking material is on a clean, dry surface.
5. Never put hands, or any part of body, under blocked up assemblies if at all possible.
6. After completing assembly, thoroughly inspect the machine to be sure that all nuts, bolts, hydraulic fittings or any other fastened assemblies have been thoroughly tightened.
7. Before operating the machine, thoroughly read the operation section of your operator's manual.
8. Before operating, read the maintenance section of your operator's manual to be sure that any parts requiring lubrication, such as gearboxes, are full, to avoid any possible damage.
9. **Before operating equipment – If you have any questions regarding the proper assembly or operation, contact your dealer or representative.**

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SINO LEEINGLES, PIDA AYUDA A AIGUIEN QUE SI LO LEA PARA QUE LE TRADUZCA LAS MEDIDAS DE SEGURIDAD.

**STATEMENT  
OF POLICY**

It is the policy of Farm Star to improve its products where it is possible and practical to do so. Farm Star reserves the right to make changes or improvements in design and construction at any time, without incurring the obligation to make these changes on previously manufactured units.

**TO THE OWNER :**

Read this manual before using your Moldboard Plow. This manual is provided to give you the necessary operating and maintenance instructions for keeping your plow in top operating condition. Please read this manual thoroughly. Understand what each control is for and how to use it. Observe all safety signs on the machine and noted throughout the manual for safe operation of implement. Keep this manual handy for ready reference.

Like all mechanical products, it will require cleaning and upkeep. Lubricate the plow as specified.

Use only genuine Farm Star service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model and serial number of your plow here:

Model: \_\_\_\_\_ Serial Number: \_\_\_\_\_

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**RETAIL CUSTOMER'S RESPONSIBILITY**

**It is the Retail Customer and/or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain, and store the product in accordance with all instructions and safety procedures. Failure of the operator to read the Operator's Manual is a misuse of this equipment.**

**It is the Retail Customer and/or Operator's responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause a safety hazard.**

**It is the Retail Customer's responsibility to deliver the product to the authorized Farm Star Dealer, from whom he purchased it, for service or replacement of defective parts which are covered by warranty. Repairs to be submitted for warranty consideration must be made within forty-five (45) days of failure.**

**It is the Retail Customer's responsibility for any cost incurred by the Dealer for traveling to or hauling of the product for the purpose of performing a warranty obligation or inspection.**

# To the Owner/Operator/Dealer

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

## BEFORE YOU START!!

**Read the safety messages on the implement and shown in your manual.  
Observe the rules of safety and common sense!**



### THIS SYMBOL MEANS

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

THIS SAFETY ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY WARNING MESSAGES. CAREFULLY READ EACH WARNING MESSAGE THAT FOLLOWS. FAILURE TO UNDERSTAND AND OBEY A SAFETY WARNING, OR RECOGNIZE A SAFETY HAZARD, COULD RESULT IN AN INJURY OR DEATH TO YOU OR OTHERS AROUND YOU. THE OPERATOR IS ULTIMATELY RESPONSIBLE FOR THE SAFETY OF HIMSELF, AS WELL AS OTHERS, IN THE OPERATING AREA OF THE TRACTOR AND ATTACHED EQUIPMENT.

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## UNDERSTAND SIGNAL WORDS

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

**DANGER:** Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

**WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

**CAUTION:** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or the manufacturer directly.

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## IMPORTANT SAFETY INFORMATION!

Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operating, to acquaint yourself with the machines. It is the implement owner's responsibility, if this machine is used by any person other than yourself, is loaned or rented, to make certain that the operator, prior to operating:

1. Reads and understands the operator's manuals.
2. Is instructed in safe and proper use.










The use of this equipment is subject to certain hazards which cannot be protected against by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using. If there is something in this manual you do not understand, ask your supervisor, or your dealer, to explain it to you.

## SAFETY INFORMATION (continued)







### EQUIPMENT SAFETY GUIDELINES

-  Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them.
  
-  Review the safety instructions with all users annually.
  
-  This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.**
  
-  To prevent injury or death, use a tractor equipped with a Roll-Over Protective System (ROPS). Do not paint over, remove or deface any safety signs or warning signs on your equipment. Observe all safety signs and practice the instruction on them.
  
-  Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question – **DON'T TRY IT.**
  
-  Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
  
-  In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and Operation Instructions in each of the appropriate sections of the Tractor and Implement Manuals. Pay close attention to the Safety Signs affixed to the Tractor and the Implement.



### SAFETY SIGNS

-  Keep safety signs clean and legible at all times.
  
-  Replace safety signs that are missing or have become illegible.
  
-  Replaced parts that displayed a safety sign should also display the current sign.
  
-  Safety signs are available from your Distributor or Dealer Parts Department or the factory.

## SAFETY INFORMATION (continued)



All equipment is potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes potential hazards and follows reasonable safety practices.



When the use of hand tools is required to perform any part of assembly, installation, adjustment, maintaining, repairing of the implement, be sure the tools used are designed and recommended by the tool manufacturer for that specific task.



Personal protection equipment including safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing of the implement.



Always use two people to handle heavy, unwieldy components during assembly, installation of the implement.



Never place any part of your body where it would be in danger if movement should occur during assembly, installation, operation, maintaining, repairing of the implement.



Never place yourself between the tractor and implement while implement is in operation.



Do not work under a raised implement unless it is securely blocked or held in position. Do not depend on the tractor hydraulic system to hold the implement in place.



A heavy load can cause instability of the tractor. Use extreme care during travel. Slow down on turns and watch out for bumps. The tractor may need front counter-weights to counter-balance the weight of the implement.



Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.



Do not allow others to ride on the tractor with an operator. Riders are subject to injury such as being struck by foreign objects or being thrown off. Riders obstruct the operator's view resulting in unsafe operation. **Never allow anyone to ride on the implement!**



Before you operate the equipment, check over all pins, bolts and connections to be sure all are securely in place. Replace any damaged or worn parts immediately.



Do not allow anyone who is not familiar with the safety rules and operation instructions to use this equipment.



Never allow children to operate or be around equipment.



















Know your controls and how to stop tractor, engine, and implement quickly in an emergency. Read this manual and the one provided with your tractor.



Keep alert and watch the front as well as the rear when working with equipment.

## SAFETY INFORMATION (continued)

-  When maneuvering close to buildings or passing through narrow areas, be sure to allow sufficient clearance for the implement and tractor.
-  Do not operate close to ditches or creeks. Slow down when operating over rough ground.
-  When removing, or adjusting equipment, be sure that your feet are never under the implement.
-  Be careful to avoid catching the implements on stumps, rocks, or other immovable objects.
-  Use extra care when working on slopes.
-  Avoid excessive speed during operation.
-  Make implement adjustments only when the implement is attached to the tractor.
-  Do not replace shear bolt with a hard bolt. Damage could result to implement and sudden stop to tractor could dislodge operator from tractor seat causing injury.
-  Always ease the tractor into the load.
-  Never operate tractor and implement under trees with low hanging limbs. Operators can be knocked off the tractor and then run over by the implement.
-  When driving the tractor and equipment on the road or highway under 20 mph (32 kph) at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.
-  Always be sure the implement is in the proper raised position for transport.
-  Reduce speed when transporting mounted implements to avoid bouncing and momentary loss of steering control. Reduce speed on rough roads.
-  Coultter blades are sharp. Do not allow blades to roll over or fall onto any part of body. Do not allow wrenches to slip when working near coultter blades. Do not climb over machine above coultter blades when there is a possibility of slipping and falling on them. Serious injury can result from carelessness while working near coultter blades.
-  Be certain the tractor is in neutral or park position before starting engine.
-  Take all possible precautions when leaving unit unattended: Disengage PTO, set parking brake, stop engine and remove key from ignition. Park in level area.

## SAFETY INFORMATION (continued)



Pick up all rocks and other debris before operation. Enter new areas carefully. Never assume an area is clear.  
**Always Check!**



Turn curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steering. Slow down on rough or uneven surfaces, and loose gravel.



Never work under equipment unless it is blocked securely. Never depend on hydraulic system to keep implement in raised position.



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



Never replace hex bolts with less than grade five bolts unless otherwise specified, i.e. shear bolts. Refer to bolt torque chart for head identification marking.



Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.



If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.



Following operation or when unhooking, stop the tractor, set the brakes, shut off the engine, relieve all hydraulic pressure and remove the ignition keys.



Store the unit in an area away from human activity. Do not park equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.



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



Make sure all parked machines are on a hard, level surface and engage all safety devices.



If blocking is used, make sure it is solid and secure before leaving area.

# INSTRUCTIONS

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## TRACTOR REQUIREMENTS AND PREPARATION

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The One and Two Bottom Moldboard Plows provide excellent soil tillage for small and hobby farms. Each plow has shear-bolt protection to protect the unit from underground objects.

The "low profile" one bottom 12" plow is designed for small tractors having low profile configuration and a Cat. O (20" spacing) or a Cat. I (26" spacing) with  $\frac{7}{8}$ " pull pins.

Coulters and trashboards are NOT available for this model.

The one and two bottom 14" plows are for standard size tractors equipped with a Cat. I (26" spacing) 3 pt. hitch.

Generally, it requires 1 hp for each 1 inch of moldboard plow width, ie, 12" plow requires 12 hp, 14" plow requires 14 hp, and a two bottom 14" plow requires 28 hp. Small compact tractors may need to be larger than this general rule.

Check the tractor's 3-point hydraulic lift system. It should operate up and down smoothly and hold its position when set. Refer to your tractor owner's manual or dealer for any adjustments necessary to put the 3-point hydraulic lift system in good working order. (I&T shop manuals will list most specifications and adjustment instructions – available from most farm equipment dealers.)

Check the hydraulic system. Be sure the tractor hydraulic oil and filter have been serviced according to the tractor manufacturer's recommendations.

Smaller size tractors may need front counter weights to counter-balance the weight of the implement.

It is recommended that the tractor be equipped with a Rollover Protection System (ROPS) and a seat belt that is used.



**Be sure your tractor is in good condition and properly equipped with counter weights. Read all the safety precautions and make sure all tractor operators are familiar with the safety rules of tractor operation.**

It is important that your tractor be properly prepared to obtain the best and safest operation from your plow. The following procedures are recommended. In addition, review your tractor manual for instructions on adjustments and use of three point hitch control features, ballast weighting, and tire pressures.

## BALLAST WEIGHTING

Mounted plows normally require added weight to the tractor to maintain proper stability and traction during operation and transport.

- 1) An 80% tire fill of ballast fluid is usually enough for the rear tires. It may be necessary in some cases to add metal weights to prevent tire slippage.
- 2) Add front end weights if there is floating action on the front of the tractor when plowing. Approximately 100 lbs. of additional front end weight is usually needed for each plow bottom when working in average soil.
- 3) To determine proper weighting, check the soil between the rear tire lug prints. When pulling a full plow load, the soil should be broken or shifted slightly. Too much weight will cause sharp, firm tread marks. Slippage results from insufficient weight, will show up in poorly defined tread marks.

## WHEEL TREAD SETTINGS

**Fig. 1 & Table 1 (page 9)**

The rear tractor wheel measurements should be made from center line of tractor to inside wall of tires. The right tractor wheel should be set to correspond exactly with the right rear wheel as measured to inside walls of the tires. See table 1 for correct wheel spacings for number and size of plow bottoms being used.

## TIRE INFLATION

Proper tire inflation can be determined by checking the tire lugs on a cement surface. The tire is correctly inflated if approximately 90% of the lug makes contact with the surface when the tractor is fully weighted.

## COULTER ATTACHMENT

Rolling coulters are recommended to make plowing smoother and neater. Coulters also make plowing easier by reducing drag. (Not available on 12" low profile model.)

**NOTE:** Quick hitches cannot be used with these 3 pt. moldboard plows. They must connect directly to the tractor lift arms.



# OPERATING INSTRUCTIONS

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## GENERAL SAFETY

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Only qualified people familiar with this manual should operate this machine. It is recommended that tractor be equipped with Roll-Over Protective System (ROPS) and a seat belt be used. Check for ditches, stumps, holes, or other obstacles that could upset tractor or damage plow. Always turn off tractor engine, set parking brake, lower plow to ground before dismounting tractor.

The safe operation of this machine is the responsibility of the owner/operator. The operator should be familiar with the plow and tractor and all safety practices before starting operation. Read the safety rules on pages 2 thru 6.

## COULTER

The purpose of the coulters is to cut through surface trash and sod and to provide a clean uniform furrow. The coulters also reduce draft and wear on the cutting edge of the plow bottom.

Adjust the coulter laterally by loosening the U-bolt and twisting the stem. Height adjustment is made simply by raising or lowering the stem. Be sure to tighten U-bolt after adjustment is complete.

## WIDTH OF CUT

The rolling coulter should only be positioned far enough to the left of the landside to allow a clean, straight furrow wall. For average conditions, set the coulter blade between  $\frac{1}{4}$ " and  $\frac{5}{8}$ " to the left of the landside. Loose ground and tough scouring conditions will sometimes require the coulter to be set a little wider.

## DEPTH

The rolling coulter should be set deep enough to cut trash and leave a clean furrow wall. It should not run too deep or it will push trash and not cut it.

**NOTE:** The model MPLP-112 "Low Profile" Plow cannot be equipped with a coulter. The area to be plowed must be free of heavy or long stemmed trash. Using a rotary or flail mower to cut up crop residue is recommended.

For proper coulter settings according to field conditions, see the ADJUSTMENT section.

## HITCHING PLOW TO TRACTOR 3 PT. HITCH

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Never let anyone stand between the rear of the tractor and the plow while the tractor is backing up. Always stand to the side until tractor has come to a complete stop and the brakes set or the tractor shift placed in "PARK".

- 1) Back tractor to align link arms with plow hitch points.
- 2) Attach left-hand lower link arm to plow. Secure with linch pin.
- 3) Attach right-hand lower link arm to plow and secure. Adjust arm height as necessary by using crank located on link arm.
- 4) Install suitable top link between tractor and plow. Secure with link pins and linch pins.
- 5) Lift plow and check to see that both link arms are the same height. Adjust using crank if necessary.
- 6) Check to see that plow is level from front to rear. Shorten or lengthen top link as necessary to level the plow.

## ADJUSTMENTS

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- ▲ Lower implement to ground or block securely, turn tractor engine off, remove key and set brakes or place shift lever in "Park" position.
- ▲ Before working underneath, raise 3-pt. hitch to highest position and block securely. Hydraulic system leakdown and failure of mechanical or hydraulic system can cause equipment to drop.
- ▲ Keep all persons away from operator control area while performing adjustments, service or maintenance.
- ▲ Do not run engine indoors – exhaust gases contain carbon monoxide, an odorless and deadly poison.
- ▲ Wear protective gloves when handling plow bottoms and coulters to protect from sharp edges.

# OPERATING INSTRUCTIONS (continued)

## ADJUSTMENTS (continued)

In order to trail properly with a minimum effect on tractor steering, it is necessary to adjust the plow so that the plow is pulling as close to the tractor centerline as possible. Refer to Table 1 and Figures 1 and 2, dimension A. **Note** that for one bottom plows in particular, the ideal wheel tread width is too narrow for most tractors to obtain. In those cases, set the width as narrow as possible.

- 1) Do not attempt to lift heavy parts or assemblies. Use a hoist, crane, forklift, or similar safe mechanical device.
- 2) Preview the plow instructions and the exploded views in your operator's manual and become familiar as to how the parts or assemblies go together.
- 3) Have good blocking material available.
- 4) Select an area for adjustment that is clean, free from debris, and fairly level.

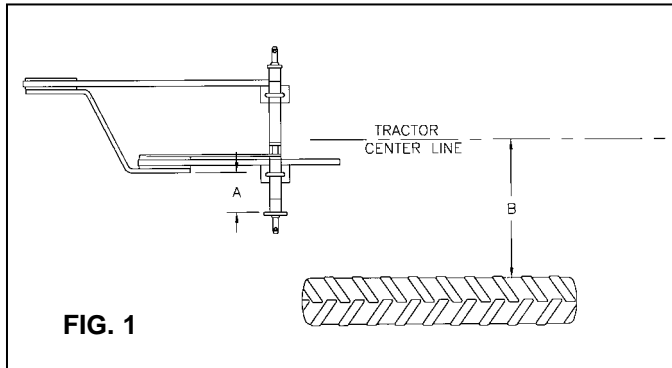


FIG. 1  
Cross Shaft and Wheel Tread Settings - See Table 1  
(Two Bottom Plow frame shown)

Measure from the inside of the tires  
to the centerline of pull.

TABLE 1

Model	Cross Shaft	Cross Shaft Setting (Dimension "A")	Ideal Pull Point *	Tire Tread (Inside of Tires)
1 bottom 12"	Cat. O (20")	9 $\frac{1}{2}$ "	9"	18"
1 bottom 14"	Cat. I (26")	11 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	21"
2 bottom 14"	Cat. I (26")	7 $\frac{1}{4}$ "	17 $\frac{3}{4}$ "	35 $\frac{1}{2}$ "

\* Measure from inside of the tires to the centerline of pull.

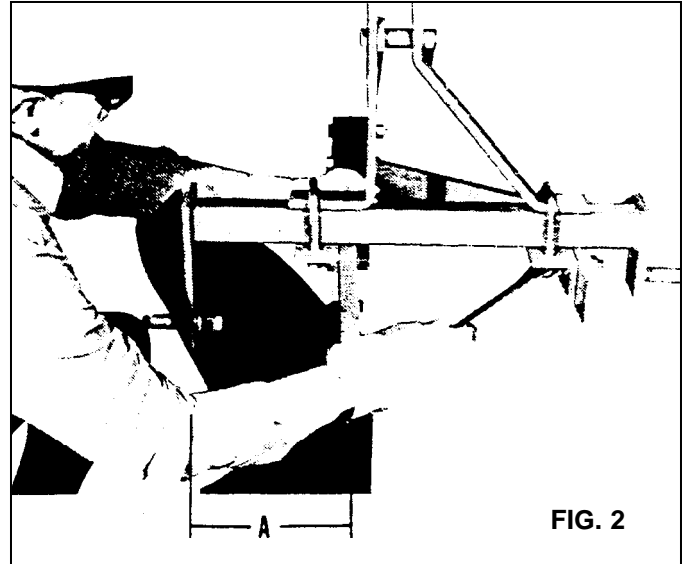


FIG. 2  
Cross Shaft Assembly and Adjustment  
(One Bottom Plow shown)

## COULTER ATTACHMENT

Rolling coulters are recommended to make plowing smoother and neater. Coulters also make plowing easier by reducing drag.

Mount the coulters on the beam in front of the plow bottom. On the one bottom 14" plow, it can only go on the left side of the beam. On the two bottom 14" plow, it can be mounted on either side of the beam to aid in lateral adjustment.

- 1) Remove the U-bolt and clamp components from the coulters stem.
- 2) Install the U-bolt through the plow beam.
- 3) Seat the coulters stem in the clamp and position the U-bolt. Install lockwashers and nuts but do not tighten.
- 4) For hard ground conditions, raise it to reduce its tendency to ride the plow out of the ground. For light and loose soils, especially where there is much trash, move the coulters down.

# OPERATING INSTRUCTIONS (continued)

## ADJUSTMENTS (continued)

### COULTER DEPTH

5) The coulters should be set deep enough to cut trash and leave a clean furrow wall. Do not run the coulters too deep or it will push trash instead of cutting it. Under most trashy conditions, the blade should not run more than 4" deep. When plowing sod without loose trash, set the coulters deep enough to cut roots below the surface, usually from 1" to 2" shallower than the furrow bottom.

### COULTER LATERAL ADJUSTMENT

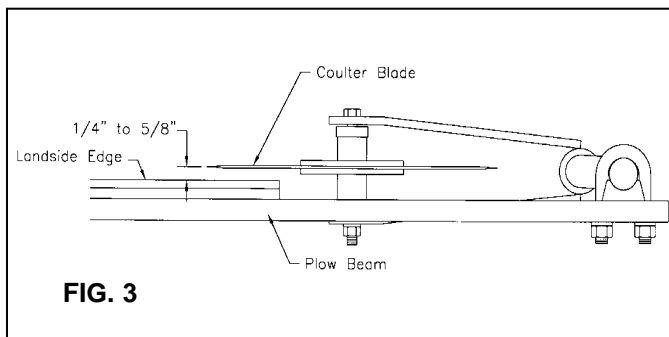


FIG. 3  
*Coulter Lateral Adjustment (top view)*

The coulters should be set only far enough to the left of the landside to leave a clean straight furrow wall. For average conditions, set the coulter 1/4" to 5/8" to the left of the landside as shown. Loose ground and tough scouring conditions will sometimes require the coulter to be set a little wider.

To adjust the coulter width of cut, loosen the stem clamp U-bolt and rotate the coulter stem. With the coulter repositioned, tighten the U-bolt.

1) Initially set the rear coulter where it should run. Observe the angle of the coulter stem in relation to the plow beam and set all other stems at the same angle.

2) A final setting must be made in the field. Always adjust the rear coulter first because it is the easiest to observe.

3) After the rear coulter is adjusted correctly, set all other coulters exactly the same. Be sure the distance between the coulters is the same as the plow bottom size (12" or 14"). If the coulter setting is wider for one bottom, it has to be narrower for another bottom. A wide and a narrow furrow slice will go through the plow, causing the plowed furrows to ridge. It will also result in a hard pulling plow and excessive wear on a plow bottom shin and landside.

## WARNING!

Coulter blades are sharp. Do not allow blades to roll over or fall onto any part of body. Do not allow wrenches to slip when working near coulter blades. Do not climb over machine above coulter blades when there is a possibility of slipping and falling on them. Serious injury can result from carelessness while working near coulter blades.

### TRASH COVER BOTTOM ATTACHMENTS (Optional)

The trash cover mounts onto the shank using a Trashboard Bracket. Use the middle two nuts and bolts on the shank, the same ones used to attach to plow bottom to the shank, to attach the Trashboard Bracket.

The trashboard is mounted to the bracket with two 7/16" x 1 1/4" plow bolts, flat washers and nuts.

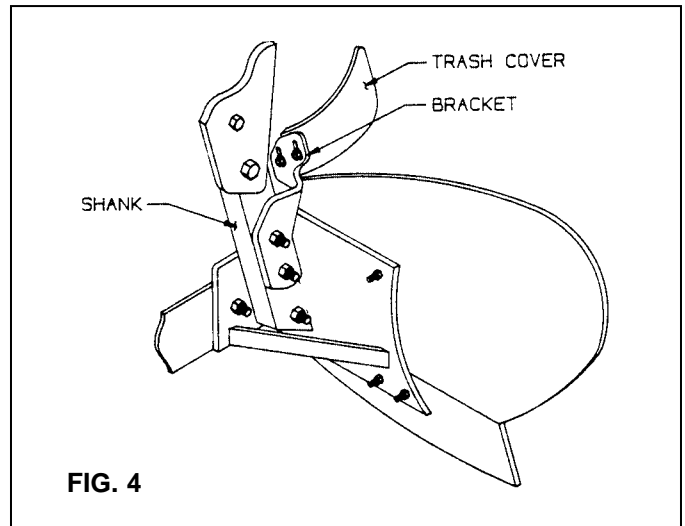


FIG. 4

*Trash Cover*

**OBEY ALL  
SAFETY  
WARNINGS!!**

# OPERATING INSTRUCTIONS (continued)

## OPERATION

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Be sure your tractor is in good condition. Read all the safety precautions and make sure all tractor operators are familiar with the safety rules of operation.

Set the plow on the ground. Plow about twenty feet, or until you can see what adjustment the plow needs.

Adjust tractor's top link and rear landslide heel to set the plow frame level end-to-end.

The frame should also be level when in the ground for in-furrow operation depending on the furrow depth.

### FRONT END BALLAST

Front end ballast may be required for stability and steering control when weight is transferred to the back tires as the plow is raised. As a general guide:

- Ballast the tractor (less plow) so that approximately 1/3 of the tractor weight is on the front wheels.
- When mounted plow is raised, the reaction on the front wheels should be less than 20% of tractor weight.
- Add additional ballast as required for stability during operation and transport. Tractor front end ballast may not always maintain tractor stability if tractor is operated on rough terrain at high speeds. In such cases, reduce speed and exercise caution.



A heavy load can cause instability in driving a tractor. Make sure the front of the tractor is properly counterbalanced with weights. Always drive slowly - especially around turns. An unstable tractor could steer badly and possibly tip over, causing injury or death.



When using the unit, a minimum 20% of tractor and equipment weight must be on tractor front wheels. Without this weight, tractor could tip up, causing possible loss of control and possible personal injury or death. The weight may be attained with a front end loader, front wheel weights, ballast in tires or front tractor weights. When attaining a minimum 20% of tractor and equipment weight on the front wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. **DO NOT GUESS OR ESTIMATE!**

### UNEVEN TERRAIN



Do not operate on steep slopes.

Do not stop, start or change directions suddenly on slopes.

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

Watch for hidden hazards on the terrain during operation.

## TRANSPORTING

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Pay particular close attention to the Safety Messages regarding transport. Avoid unnecessary injuries and equipment damage by exercising cautious, conscientious travel procedures.

Attaching the plow to the tractor increases the overall length of the working unit. Allow additional clearance for the blade to swing when turning.

Raise the plow as high as possible for transporting.



When traveling on public roads, whether at night or during the day, use accessory light and devices for adequate warnings to operators of other vehicles. Comply with all federal, state and local laws.

# OWNER SERVICE

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## MAINTENANCE

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Your plow should be serviced prior to each day's operations. Proper maintenance will insure optimum performance and product longevity.

Inspect the plow for loose, damaged or worn parts and adjust or replace if needed.

Repaint parts where paint is worn or scratched to prevent rust.

Check all bolts and nuts to be sure they are tight.

At the end of the working season or when the plow will not be used for a long period, it is good practice to clean off any dirt that may have accumulated on the plow.

The coulter and gauge wheel have sealed bearings that do not require lubrication. However, check these attachments periodically to see that they rotate freely.

Keep coulter blades and moldboard cutting edges sharp at all times.

## SHEARBOLT REPLACEMENT

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Your plow is equipped with a grade 2 shearbolt on the plow beam. When replacing a broken bolt, use only the same size bolt of grade 2 or lower.



Replacement of the shearbolt with a bolt higher than grade 2 may result in serious damage to plow or injury to operator and voids the manufacturer warranty.

## STORING SAFELY

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Storage location should be level and solid to make hitching and unhitching easy.

For one bottom plows, place support under left end of drawbar. Plow will tip over if not supported.

Remove top link from plow.

Detach lower link arms from plow.

Be sure plow is stable.

Thoroughly clean your plow prior to storage.

For storage between seasons, coat the soil engaging surfaces with oil or other rust inhibitor. Apply fresh grease to trip beam lubrication points.

## OPTIONS

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### 800515 Coulter

15" diameter rolling coulter assembly with shank. For 14" one and two bottom plows.

### 500519 Trashboard

For 14" one and two bottom plows.

- 
- U Keep children away from danger all day, every day.
  - U Equip tractors with rollover protection (ROPS) and keep all machinery guards in place.
  - U Please work, drive, play, and live each day with care and concern for your safety and that of your family and fellow citizens.

# TROUBLESHOOTING GUIDE

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The principle cause of plowing difficulties is improper adjustment. When you experience problems, do not attempt to make adjustments without consulting this section. Also, when making adjustments, test one adjustment at a time. Making multiple adjustments will often compound the problem.

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
<b>Poor penetration into soil.</b>	1. Insufficient suck.	Shorten tractor top link.
	2. Worn share.	Replace share.
	3. Coulter too deep or too far forward.	See coulter adjustment instructions.
	4. Dull coulter blade.	Sharpen or replace coulter.
	5. Position of tractor selector levers.	Refer to tractor's owner's manual for proper settings.
	6. Ground hard and dry.	Increase depth of head land starting furrow. Wait for rain.
<b>Plow crowding (plow not running straight).</b>	1. Plow running on nose.	Lengthen tractor top link.
	2. Plow crowding to the left.	Front bottom too deep, shorten right-hand leveling screw or lengthen tractor top link.
	3. Plow crowding to the right.	Front bottom too shallow, lengthen right-hand leveling screw or shorten tractor top link.
	4. Rear landside heel adjustment.	Lower heel of landside. Landside should contact bottom of furrow.
	5. Plow goes too deep.	Lengthen top link to reduce suck.
	6. Plow won't stay down.	Shorten top link to give plow more suck. Be sure coulters are sharp and not too far forward.
	7. Front bottom cutting too narrow or too wide.	Using the adjustable link pinholes, adjust plow to right or left so front bottom cuts proper width. <b>NOTE:</b> This adjustment should not be used to compensate for improper wheel and cross shaft adjustments.
	8. Coulter adjustment.	Be sure coulters swing free and run straight.
	9. Worn share.	Replace share.
	10. Improper wheel and cross shaft setting.	Set wheels and cross shaft properly.

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## TROUBLESHOOTING GUIDE (continued)

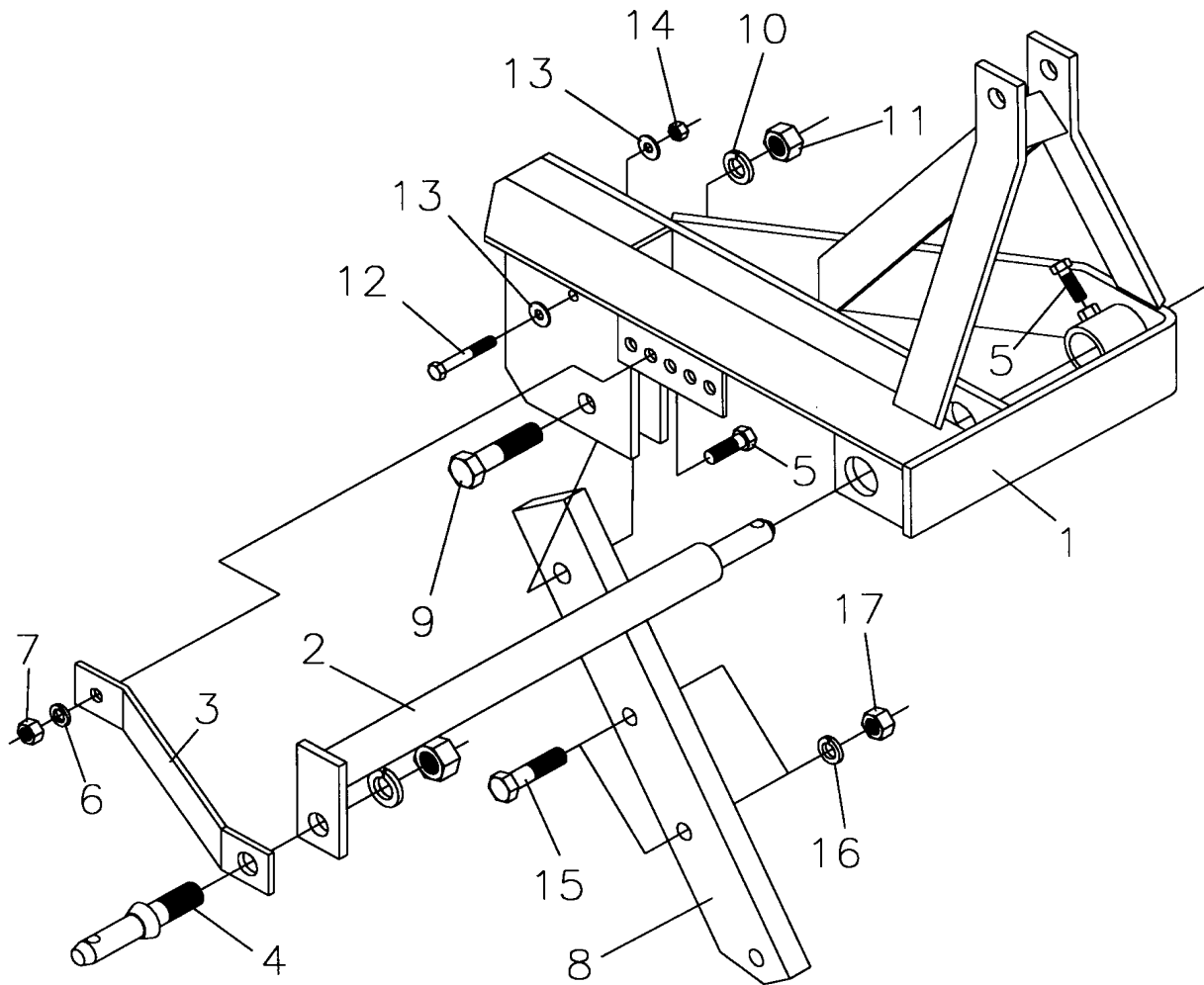
PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
<b>Plow ridging.</b>	1. Front bottom too deep.	Shorten right-hand leveling screw or lengthen tractor top link.
	2. Front bottom too shallow.	Lengthen right-hand leveling screw or shorten tractor top link.
	3. Front bottom cutting too wide or too narrow.	Adjust plow properly by correct wheel and cross shaft settings.
	4. Coulter Adjustment.	Properly adjust coulter. See COULTER ADJUSTMENTS.
<b>Poor trash coverage.</b>	1. Coulter adjustment.	Set coulters deep enough to cut trash but not deep enough to push trash.
	2. Dull coulters.	Sharpen or replace blade.
	3. Coulters not turning.	Worn or binding hub bearings – replace bearings.
	4. Bottoms not scouring.	Clean bottoms frequently until land polish is obtained.
<b>Bottoms won't scour.</b>	1. New bottoms.	Clean surfaces with kerosene or fuel oil.
	2. Plow running on nose.	Lengthen top link.
	3. Plow running crooked.	Place the right-hand link pin in the cross shaft's center adjustment hole. Obtain the proper width of cut for front bottom at this setting by making cross shaft and tractor wheel adjustments. The wheel track should be adjusted so that the inside of the right-hand front tire is in line with the inside of the right-hand rear tire.
<b>Ragged furrow wall.</b>	1. No coulter.	Add coulter.
	2. Coulter adjustment.	Set coulters to run more toward land and deeper if in loose soil. Be sure coulter swings freely.
	3. Plow running crooked.	See BOTTOMS WON'T SCOUR.
<b>Plow pulls heavy.</b>	1. Plow running on nose.	Lengthen top link.
	2. Bottoms not scouring.	See BOTTOMS WON'T SCOUR.
	3. Excessive landside pressure.	Incorrect tractor wheel or cross shaft setting – Rear landside should run approximately 1/4 to 1/2" from furrow wall.

## TROUBLESHOOTING GUIDE (continued)

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
<b>Plow pulls heavy. (CONTINUED)</b>	4. Cover board (if being used) pushing too much soil.	Raise outer ends but keep point down against top of moldboard.
	5. Excessive tractor wheel slippage.	Refer to tractor manual for correct operation of depth control or tractor control. Then add weight to tractor if necessary. Reduce air pressure in rear tires. Tractor too small – use bigger tractor.
	6. Bent plow frame or beam.	Replace bent parts – check shearbolt.
	7. Ground hard and dry.	Use bigger tractor or wait for rain.
<b>Bent plow beam or frame.</b>	1. Hard shearbolt.	Replace bent parts and install proper shearbolt.
	2. Hitting hidden objects.	Know soil conditions. Use slow speed when soil conditions unknown.
	3. Using too large of tractor or one that is heavily weighted and has four wheel drive.	Preferably use tractor of recommended horsepower. Slow down and use extra care.
<b>OTHER PROBLEMS:</b>		
<b>Furrows rolling back.</b>	1. Furrows too deep for width of bottom.	Reduce plowing depth.
<b>Broken or misplaced furrows.</b>	1. Plowing speed too high.	Reduce tractor speed.
<b>Broken furrow walls.</b>	1. Coulter disc set too close to plow bottom.	Reset coulters.
<b>Step in furrow walls.</b>	1. Coulter set too far away from plow bottom.	Reset coulters.
<b>Plow comes out of ground.</b>	1. Tractor draft control lifting plow.	Set tractor draft control.
	2. Soil too hard.	Wait for rain.
<b>Side pull.</b>	1. Tractor front pulls toward furrow.	Add front end weight.

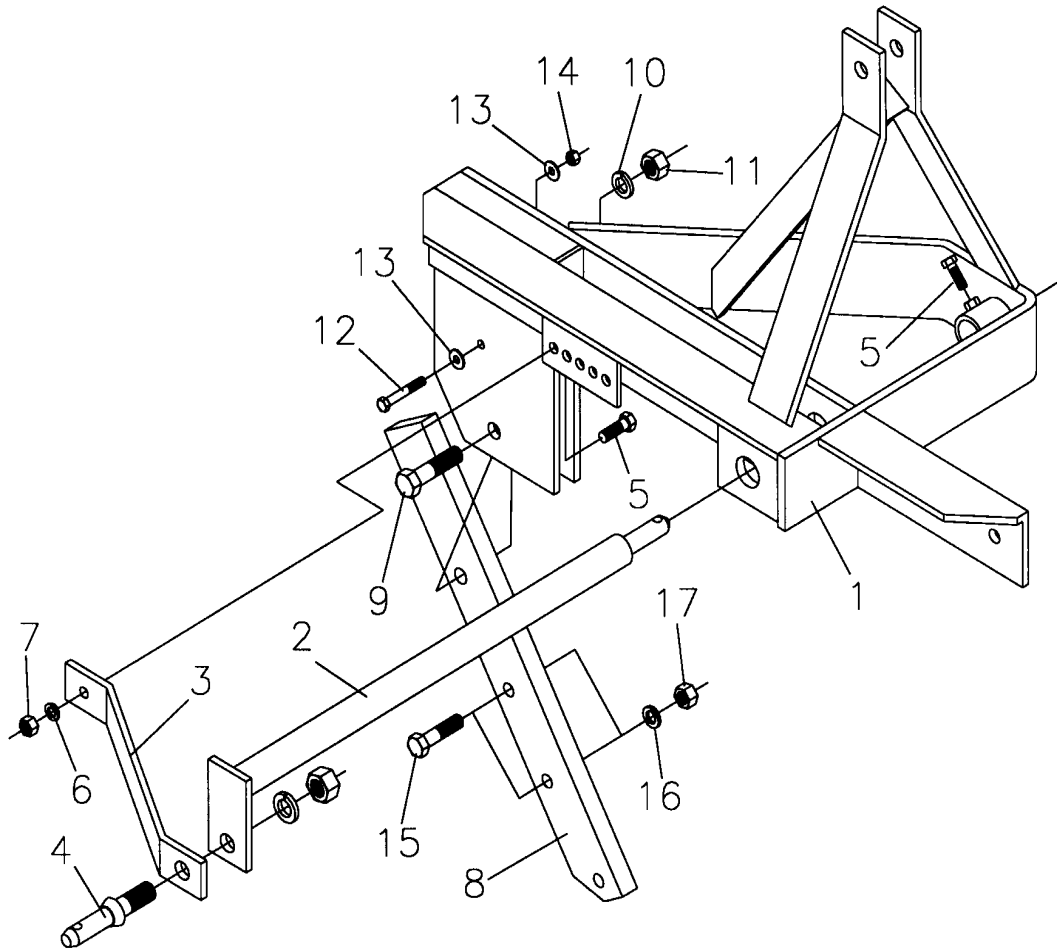


## LOW PROFILE PLOW PARTS LIST



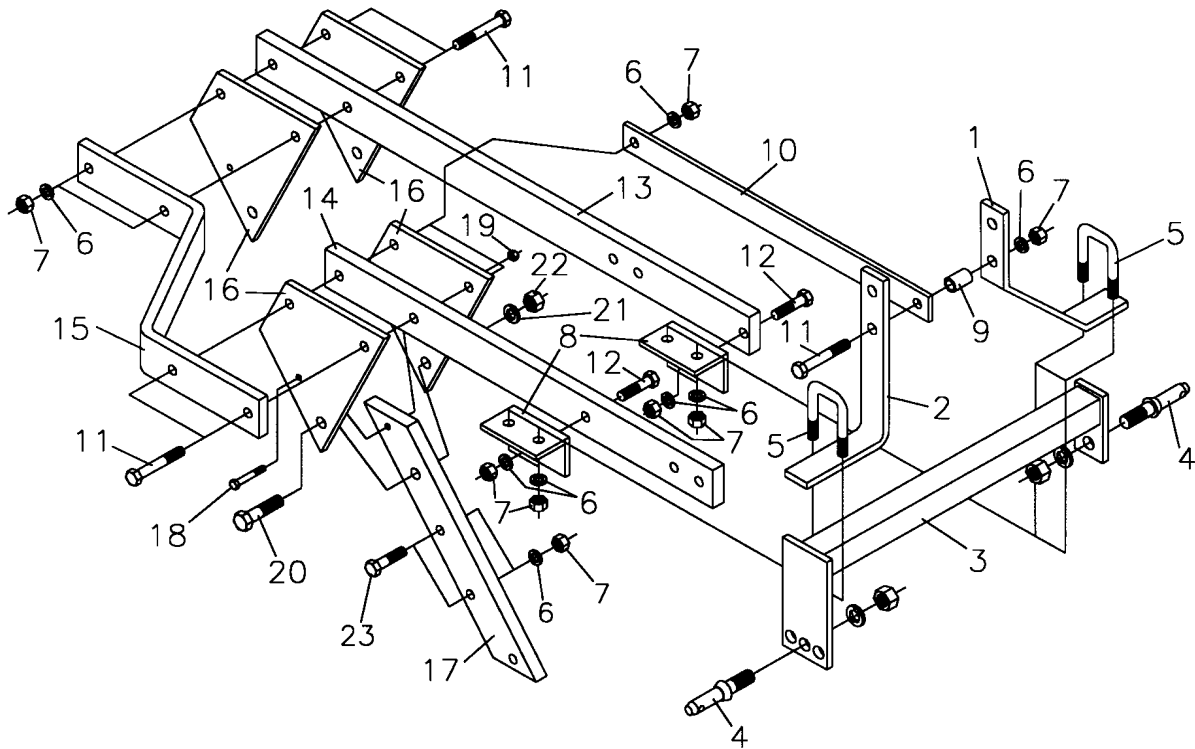
Ref. No.	Part No.	Description	No. Req'd.
1	800536	Main Frame Weldment	1
2	800537	Pull Shaft Weldment	1
3	800538	Brace, RH Side	1
4	590108	Lift Pin (AK-578)	1
5	2503004	Bolt 1/2"-13NC x 1 1/2" Hex Head Gr.2	2
6	2502002	Washer 1/2" Springlock	1
7	2500003	Nut 1/2"-13NC Full Hex	1
8	800547	Shank, Plow Bottom	1
9	2503135	Bolt 3/4"-10NC x 3" Hex Head Gr.5 (Pivot)	1
10	2502001	Washer 3/4" Springlock	1
11	2500002	Nut 3/4"-10NC Full Hex	1
12	2503039	Bolt 3/8"-16NC x 2 1/2" Hex Head Gr.2 (Shear)	1
13	2501004	Washer 3/8" Flat	2
14	2500055	Nut 3/8"-16NC Stamplock Hex	1
15	2503088	Bolt 5/8"-11NC x 2 1/2" Hex Head Gr.5	2
16	2502007	Washer 5/8" Springlock	2
17	2500013	Nut 5/8"-11NC Full Hex	2

# 1 BOTTOM STANDARD PLOW PARTS LIST



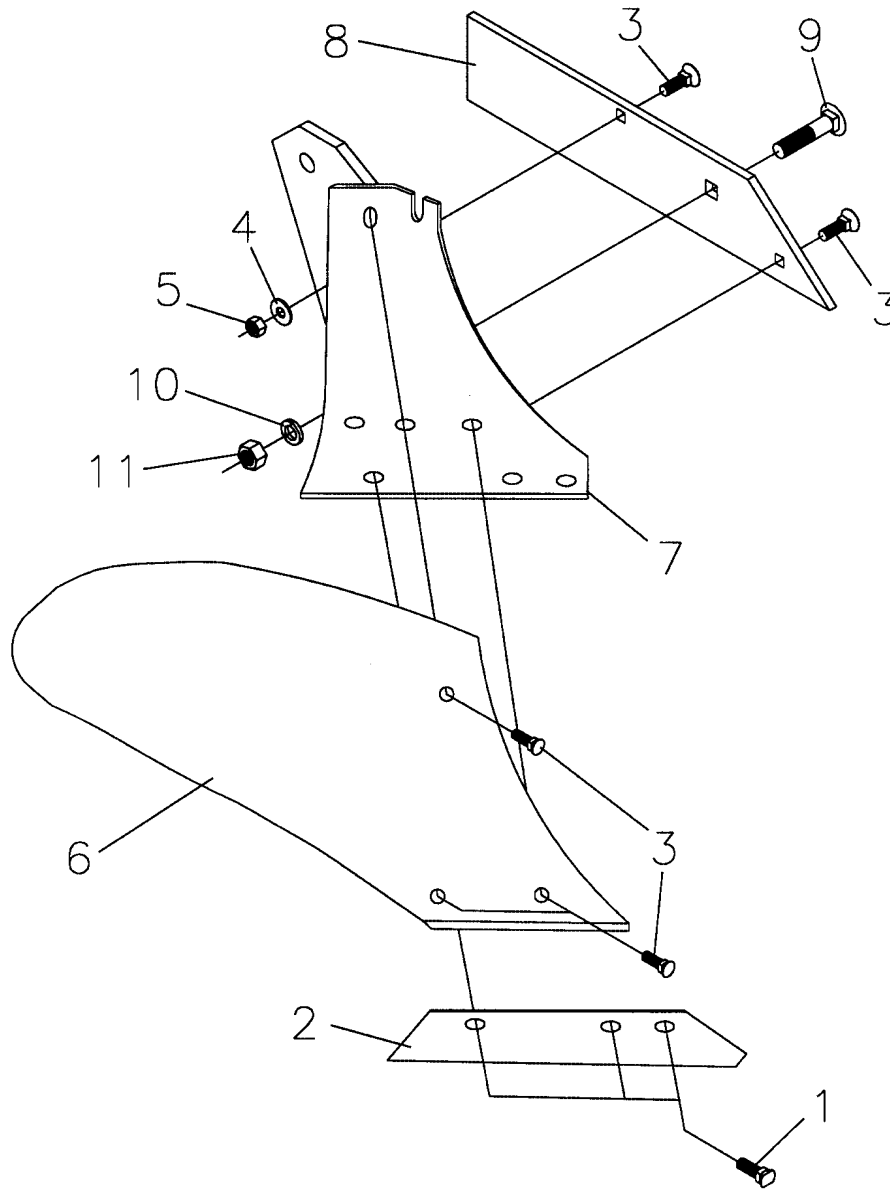
Ref. No.	Part No.	Description	No. Req'd.
1	800506	Main Frame Weldment	1
2	800526	Pull Shaft Weldment	1
3	800534	Brace, RH Side	1
4	590108	Lift Pin (AK-578)	1
5	2503004	Bolt 1/2"-13NC x 1 1/2" Hex Head Gr.2	2
6	2502002	Washer 1/2" Springlock	1
7	2500003	Nut 1/2"-13NC Full Hex	1
8	800535	Shank, Plow Bottom	1
9	2503135	Bolt 3/4"-10NC x 3" Hex Head Gr.5 (Pivot)	1
10	2502001	Washer 3/4" Springlock	1
11	2500002	Nut 3/4"-10NC Full Hex	1
12	2503039	Bolt 3/8"-16NC x 2 1/2" Hex Head Gr.2 (Shear)	1
13	2501004	Washer 3/8" Flat	2
14	2500055	Nut 3/8"-16NC Stamplock Hex	1
15	2503088	Bolt 5/8"-11NC x 2 1/2" Hex Head Gr.5	2
16	2502007	Washer 5/8" Springlock	2
17	2500013	Nut 5/8"-11NC Full Hex	2

## 2 BOTTOM STANDARD PLOW PARTS LIST



Ref. No.	Part No.	Description	No. Req'd.
1	800511	A-Frame LH	1
2	800512	A-Frame RH	1
3	800513	Cross Bar Weldment	1
4	590108	Lift Pin (AK-578)	2
5	800514	U-Bolt 5/8"-11NC 2"ID x 4"Lg.	2
6	2502007	Washer 5/8" Springlock	13
7	2500013	Nut 5/8"-11NC Full Hex	13
8	800516	Angle, Cross Bar Attachment	2
9	800517	Spacer	1
10	800518	Brace Strap	1
11	2503066	Bolt 5/8"-11NC x 4" Hex Head Gr.2	5
12	2503051	Bolt 5/8"-11NC x 2 1/2" Hex Head Gr.2	2
13	800521	Main Bar (Long) 44 1/2"	1
14	800522	Main Bar (Short) 35"	1
15	800523	Tie Bar	1
16	800524	Shank Plate	4
17	800525	Plow Beam	2
18	2503039	Bolt 3/8"-16NC x 2 1/2" Hex Head Gr.2 (Shear)	2
19	2500055	Nut 3/8"-16NC Stamplock Hex	2
20	2503135	Bolt 3/4"-10NC x 3" Hex Head Gr.5 (Pivot)	2
21	2502001	Washer 3/4" Springlock	2
22	2500002	Nut 3/4"-10NC Full Hex	2
23	2503088	Bolt 5/8"-11NC x 2 1/2" Hex Head Gr.5	2

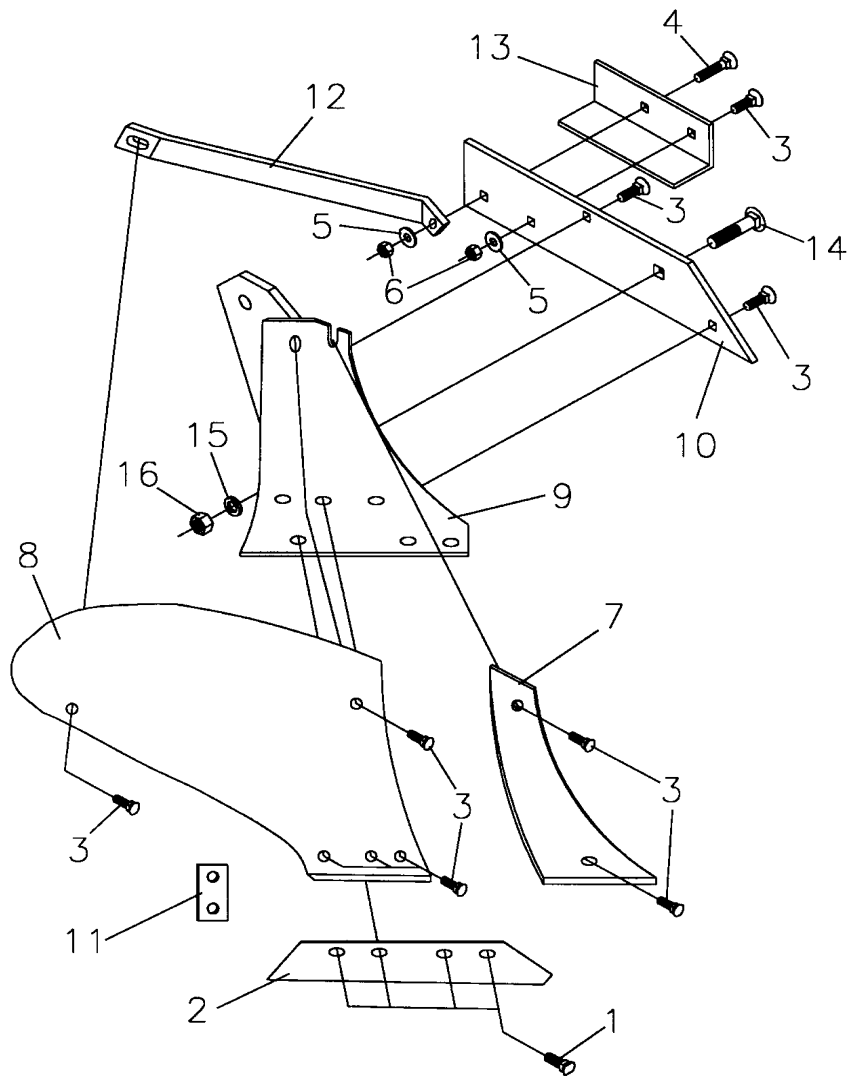
# 12" LOW PROFILE PLOW PARTS LIST



Ref. No.	Part No.	Description	No. Req'd.
1	2503290	Bolt 7/16"-14NC x 1 1/2" Clipped Head	3
2	800533	Share 12" - Low Profile	1
3	2503291	Bolt 7/16"-14NC x 1 1/4" #3 Plow Head	5
4	2501007	Washer 7/16" Flat	5
5	2500012	Nut 7/16"-14NC Full Hex	5
6	800530	Moldboard - Low Profile	1
7	800503	Frog (sold only with complete bottom assemblies)	1
8	800531	Landside, Long - Low Profile	1
9	2503286	Bolt 5/8"-11NC x 3" Carriage Head	1
10	2501005	Washer 5/8" Flat	1
11	2500013	Nut 5/8"-11NC Full Hex	1
	800578	Bottom Assembly 12" Low Profile	1

Note: Some original hardware is metric. Replacement parts will be American National.

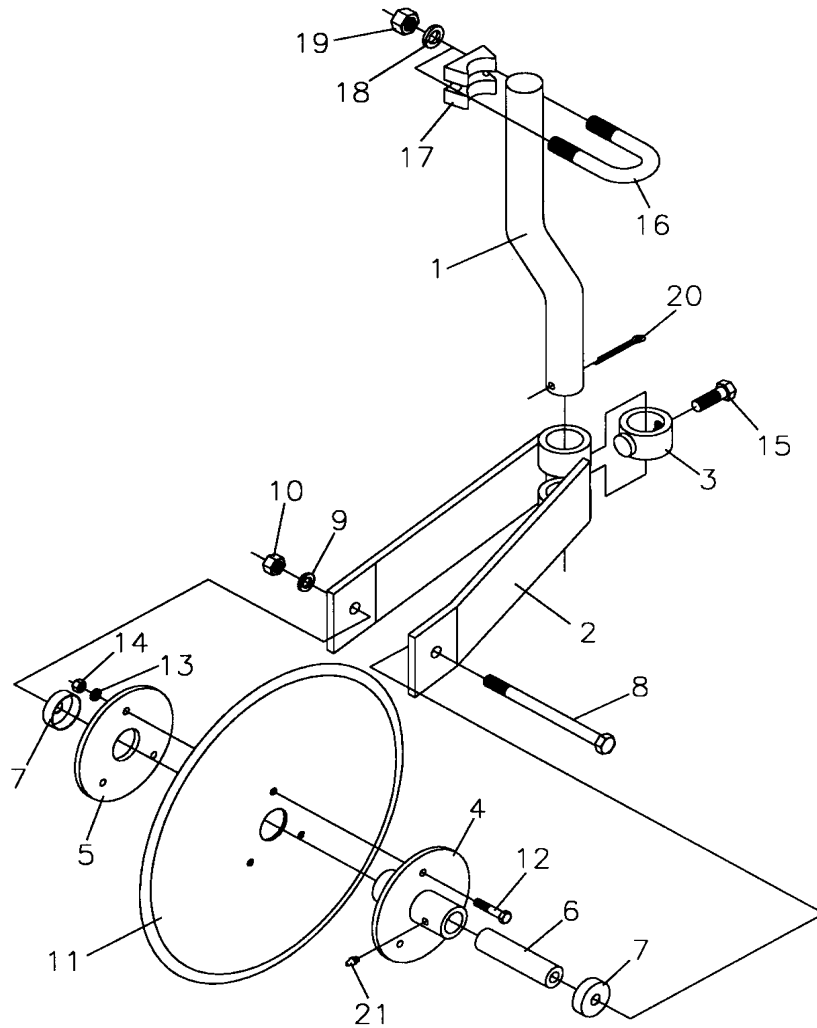
# 14" STANDARD SIZE PLOW PARTS LIST



Ref. No.	Part No.	Description	No. Req'd.	
			1 Bottom	2 Bottom
1	2503290	Bolt 7/16"-14NC x 1 1/2" Clipped Head	4	8
2	800507	14" Share	1	2
3	2503291	Bolt 7/16"-14NC x 1 1/4" #3 Plow Head	10	18
4	2503292	Bolt 7/16"-14NC x 2" #3 Plow Head	1	2
5	2501007	Washer 7/16" Flat	15	28
6	2500012	Nut 7/16"-14NC Full Hex	15	28
7	800501	Shin	1	2
8	800502	Moldboard	1	2
9	800503	Frog (sold only with complete bottom assemblies)	1	2
10	800504	Landside, Long Rear (shown)	1	1
	800508	Landside, Short Front (not shown)	-	1
11	800509	Clip	1	2
12	800527	Brace, Rear Landside (shown)	1	1
	800528	Brace, Front Landside (not shown)	-	1
13	800529	Heel	1	1
14	2503286	Bolt 5/8"-11NC x 3" Carriage Head	1	2
15	2502007	Washer 5/8" Springlock	1	2
16	2500013	Nut 5/8"-11NC Full Hex	1	2
	800570	Bottom Assembly, 14" Rear	1	1
	800575	Bottom Assembly, 14" Front	-	1

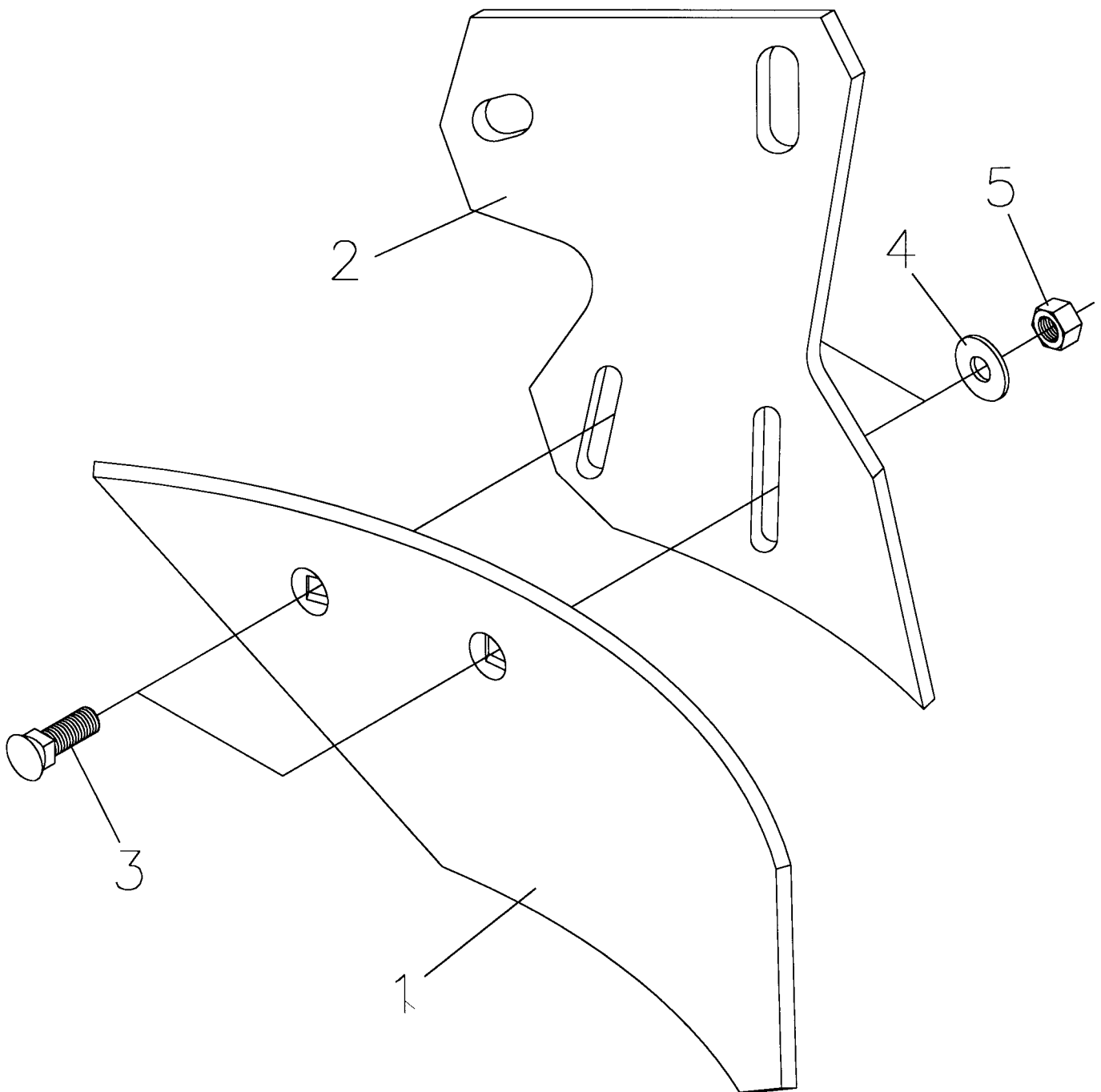
Note: Some original hardware is metric. Replacement parts will be American National.

# OPTIONAL 15" COULTER PARTS LIST



Ref. No.	Part No.	Description	No. Req'd.
1	800550	Shank, Plow Coultter	1
2	800540	Arm Weldment	1
3	800545	Lock Collar	1
4	800555	Hub, 3-Bolt	1
5	800557	Plate, Hub	1
6	800558	Axle Tube, Hub	1
7	800559	Dust Shield	2
8	2503289	Bolt 1/2"-13NC x 6" Hex Head Gr.2	1
9	2502002	Washer 1/2" Springlock	1
10	2500003	Nut 1/2"-13NC Full Hex	1
11	800551	Blade, 15" Coultter	1
12	2503038	Bolt 5/16"-18NC x 1" Hex Head Gr.2	3
13	2502011	Washer 5/16" Springlock	3
14	2500011	Nut 5/16"-18NC Full Hex	3
15	2503004	Bolt 1/2"-13NC x 1 1/2" Hex Head Gr.2	1
16	2503287	U-Bolt 5/8"-11NC 1 1/2" I.D.	1
17	2503288	Clamp, U-Bolt	1
18	2502007	Washer 5/8" Springlock	2
19	2500013	Nut 5/8"-11NC Full Hex	2
20	2504003	Pin, Cotter 1/4" x 2 1/2"	1
21	2504049	Grease Zerk, 5/16" Drive	1

# OPTIONAL TRASHBOARD PARTS LIST



Ref. No.	Part No.	Description	No. Req'd.
1	800548	Coverboard	1
2	800549	Mounting Bracket, Coverboard	1
3	2503291	Bolt 7/16"-14NC x 1 1/4" #3 Plow Head	2
4	2501004	Washer 3/8" Flat	2
5	2500004	Nut 3/8"-16NC Full Hex	2

# ⚠ SAFETY PRECAUTIONS ⚠

**MOST ACCIDENTS OCCUR BECAUSE OF NEGLIGENCE OR CARELESSNESS.  
AVOID NEEDLESS ACCIDENTS BY FOLLOWING ALL OF THE SAFETY PRECAUTIONS LISTED BELOW.**

- Machinery should be operated only by those who are responsible and are authorized to do so.
- Stop the engine, lower all equipment, lock the brakes, and remove the ignition key before dismounting from the tractor.
- Never stand between tractor and implement while tractor is being backed to hitch.
- Loose fitting clothing should not be worn, to avoid catching on various parts.
- Detach implement in area where children normally do not play.
- When performing adjustments or maintenance on an implement, first lower it to the ground or block it securely at a workable height.
- Only a qualified operator should be permitted on tractor when in operation; no riders allowed.
- Make certain everyone is in the clear before starting tractor or raising or lowering equipment.
- Operate the tractor and implement only while seated in the driver's seat.
- Reduce speed when transporting mounted implements to avoid bouncing and momentary loss of steering control.
- A heavy load can cause instability of the tractor. Use extreme care during road travel. Slow down on turns and watch out for bumps. Tractor may need front counterweights to counter-balance the weight of the implement.
- Reduce speed on hillsides or curves so there is no danger of tipping.
- Avoid driving too close to the edge of ditches or creeks.
- Do not transport implement on public roads without reflectors and slow moving vehicle emblem in daylight and with approved warning lights at night and other periods of poor visibility.
- Due to the width of some implements, use extra caution on highways, farm roads, and when approaching gates.
- Always be sure the implement is in the proper position for transport.
- Keep alert and watch the front as well as the rear when working with the implement.

## OWNER'S/ OPERATOR'S MANUAL

**MODEL NO.'s  
MPLP-112  
MP-114  
MP-214**

**WHEN ORDERING  
REPAIR PARTS,  
ALWAYS GIVE  
THE FOLLOWING  
INFORMATION:**

1. PART NUMBER
2. PART DESCRIPTION
3. MODEL NUMBER
4. NAME OF ITEM

APRIL 2001

*Please work, drive, play and live each day with care and concern for your safety and that of your family and fellow citizens.*

**MAKE EVERY DAY  
A HOLIDAY FROM ACCIDENTS**

## 3 PT. MOLDBOARD PLOWS

### FARM STAR LIMITED WARRANTY

Farm Star warrants its implements, parts and accessories to be free from defects in materials and workmanship for a period of six (6) months from date of purchase. Upon written approval, Farm Star will repair or exchange without charge any part, which upon examination by Farm Star or its authorized agent, shall disclose to be defective.

This does not apply to (1) parts that have worn out in normal use, (2) parts broken because of improper assembly or operation by the customer, (3) parts accidentally damaged, (4) failure of parts traceable to improper care, (5) parts failing through use of implement for purposes other than those for which it was designed.

The obligations assumed by Farm Star and the limitations expressed herein are in lieu of all other warranties expressed or implied.

F A R M   S T A R

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