

Model Number: RDA-26

Serial Number: _____

THE HURRICANE

DITCH ANGEL™



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CAUTION!!!!

- Read the Operator's Manual.
- Learn to operate this machine SAFELY.
- Be alert. Observe ALL Safety Practices.
- Machines can be hazardous in the hands of an UNFAMILIAR, UNTRAINED or COMPLACENT operator.
- Do not risk INJURY or DEATH!

INTRODUCTION

Thank you and congratulations on the purchase of your Hurricane Ditcher Model RDA-26 Ditch Angel™. We certainly hope that it will be helpful and useful to you. As with all of our ditchers, it has been tested and built with knowledge, precision, and quality for years of dependable service. As the leader in the ditching industry since 1984, we continually build on our experience and use customer feedback to maintain and improve the quality and dependability of our machines.

In order to fulfill a need for all levels of government highway departments and military contractors, the Ditch Angel™ was developed in 1999 as an efficient and affordable machine to clean and maintain roadside ditches and to maintain roadside right-of-ways using a standard farm tractor. It is also being used in agriculture on farms and plantations to clean and maintain surface drainage ditches. Whatever your application, we hope it works well for you.

Please read and follow all safety precautions, operating procedures and maintenance requirements. Following these recommendations will prevent injury and operation down time. Proper maintenance and lubrication will prevent machine breakdown and increase its life expectancy, which will lead to better performance for you. Please let us know of any comments, suggestions, or problems that may arise.

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YOUR AUTHORIZED HURRICANE DITCHER DEALER:



SPECIFICATIONS OF THE MODEL RDA-26 DITCH ANGEL™

- HP required: 90 to 150 HP on 540 RPM or 1000 RPM PTO
- Width of cut: 26 inches
- Depth of cut: Up to 14 inches in a single pass; 5 inches to 8 inches per pass recommended
- Reach (outward): Approximately 11 feet from center
- Reach (downward): 5 feet deep at approximately 7 feet from center
- Volume of soil moved: With a 100 HP tractor, 6 inches deep and ground speed of 1-1/2 miles per hour, 187.4 cubic yards per hour or 3.1 cubic yards per minute. With a 150 HP tractor, 12 inches deep and ground speed of 2 miles per hour, 650.5 cubic yards per hour or 10.8 cubic yards per minute
- Weight of machine: Approximately 4,900 pounds with impeller wheel; approximately 5,400 pounds with 5 foot brush mower; add approximately 700 pounds for optional tail wheel assembly
- Height of machine: Approximately 11 to 12 feet in transport; maximum of 16 feet in operation
- Length of machine: Approximately 15 to 16 feet in transport; maximum of 20 feet in operation
- Depth of machine: Approximately 5 feet without optional tail wheel assembly or 5 foot brush mower; approximately 8 feet 6 inches with optional tail wheel assembly and 5 foot brush mower
- Drive train: 55 series PTO with shear bolts which overload at the tractor end; double 80 roller chain with idler adjustment; reversible gear drive
- Optional tail wheel assembly recommended for stability when using a 125 HP or less tractor or when operating 5' brush mower.
- Certain brands of tractors could require different length PTO and/or hydraulic hoses. Contact your dealer for detailed specifications.

SAFETY PRECAUTIONS



OBSERVE THIS SYMBOL THROUGHOUT THIS MANUAL. It calls out potential hazards and dangers.

The symbol described above will be associated with a key SIGNAL WORD. A signal word will designate a degree or level of hazard seriousness. These are as follows:



DANGER! Indicates an imminently hazardous situation that, if not avoided, **WILL** result in death or serious injury; a danger that safety guards cannot protect against.



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; also an alert to unsafe practices.



CAUTION! Indicates a potentially hazardous situation that, if not avoided, **MAY** result in minor or moderate injury; also an alert to unsafe practices.

INTENDED USE: RDA-26 is designed to be pulled by a ROPS- equipped tractor of proper size. It is not to be used in any other purpose other than its intended use.

BEFORE OPERATION:

- Carefully study and understand this manual. Be sure the operator has read and understands all operations before using this machine.
- Do not wear loose-fitting clothing which may catch in moving parts.
- Learn to operate this machine safely. Be alert and observe all safety practices. Machines can be hazardous in the hands of an unfamiliar, untrained or complacent operator. Never risk injury or death!
- After servicing, be sure all tools and servicing equipment have been removed from the machine.
- Be certain there is no one near the machine before starting.
- Do not use the ditcher until you are **certain** that the area in which you are preparing to work is clear. Be especially watchful for people, animals and moving vehicles that may enter the discharge path. Remember, soil may be thrown over 50 feet, rocks and other debris may go farther, so use extreme caution in any area with buildings or objects that could be damaged from flying debris.



WARNING! Do not operate this machine above 540 RPM if ditcher is rated for 540 RPM; above 1000 RPM if ditcher is rated for 1000 RPM. Excessive speed of PTO can be dangerous.



WARNING! Do not exceed recommended horsepower (200 HP or less) for this machine. Excessive horsepower can be dangerous.



CAUTION! Make sure drawbar is moved to one side. Do not leave the drawbar in the middle of your tractor as PTO damage may occur!

- Before each use, inspect the lower shaft behind the impeller wheel for material wrapped around shaft. Failure to keep shaft clear could result in bearing failure and is not covered under warranty.

DURING OPERATION:

Keep all shields in place.

- Allow no one to stand on the right side (discharge side) of the machine while it is in operation, whether it is moving or standing still.

- **NO PASSENGERS ALLOWED!** Do not allow anyone to ride on ditcher at any time.
- Keep clear of all moving parts.
- Disengage the PTO and shut off tractor engine before servicing, cleaning or clearing a clogged machine.
- Avoid overhead wires; contact could cause serious injury or death.

WARNING LABELS & ILLUSTRATION

Your RDA-26 DITCH ANGEL comes equipped with all safety labels in place. These safety labels are designed to help you safely operate your equipment. They inform you about possible hazards associated with the normal operation or foreseeable misuse of the product and how to properly avoid those hazards to prevent physical injury or death. You are required to read and follow their directions.

1. Keep all safety labels clean and legible.
2. Replace all damaged or missing labels.
3. New equipment installed during repairs may require replacement safety labels to be affixed or replaced part, if missing, as specified by Hurricane Ditcher Co.
4. Contact your local dealer to order replacement labels.
5. Refer to this section for proper label placement. When installing new labels:
 - a. Clean placement surface with soapy water or surface cleaning solution and allow to dry.
 - b. Peel backing from label, carefully center and place label in proper location ensuring no creases or air pockets
 - c. Press label firmly onto the surface and use a straight edge to smooth the label on the machine for a secure adhesion

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>
A1	009040	<u>WARNING</u> – KEEP ALL SHIELDS IN PLACE
C1	009010	<u>DANGER</u> – STAY CLEAR OF MACHINE WHEN IN OPERATION
D1	009020	<u>DANGER</u> – ROTATING DRIVE LINE

Note: Manufacturer will replace safety decals upon request when worn, damaged or missing.

WARNING

1. Keep all shields in place.
2. Disengage PTO and shut off engine before servicing, cleaning, or clearing a clogged machine.
3. Keep hands, feet and clothing away from all moving parts.
4. Allow no riders on this equipment at any time.
5. Learn to operate this machine safely, be alert, observe all safety practices. Machines can be hazardous in the hands of an unfamiliar, untrained or complacent operator. Do not risk injury or death.
6. Allow no one to stand on left side (discharge side) of machine while it is in operation - either when it is moving or standing still.
7. When machine is in operation keep in mind soil, roots, rocks, etc. may be thrown up to 150 feet or more out discharge side, causing damage to any object or harm to any person within it's range.
8. It is recommended that PTO be disengaged when turning at ends of field. Do not make sharp turns while PTO is turning.
9. Be sure to keep slip portion of PTO shaft well lubricated.

DANGER

ROTATING DRIVE LINE

FAILURE TO HEED THESE WARNINGS MAY RESULT IN PERSONAL INJURY OR DEATH.

KEEP CLOTHING, YOURSELF, AND OTHERS WELL CLEAR. DO NOT OPERATE UNLESS PTO GUARDS, TRACTOR MASTER SHIELD, AND IMPLEMENT GUARDS ARE IN PLACE.

PTO GUARDS MUST TURN FREELY AND BE PROPERLY ATTACHED AND MAINTAINED.

"U" JOINT YOKES MUST BE SECURELY LOCKED ONTO TRACTOR AND IMPLEMENT SHAFTS.

BE SURE TRACTOR DRAW BAR AND IMPLEMENT HITCH ARE ADJUSTED CORRECTLY.

GREASE TELESCOPING SHAFT REGULARLY TO MINIMIZE THRUST FORCES.

DANGER

STAY CLEAR OF MACHINE WHEN IN OPERATION



A1

C1

D1

TRANSPORTATION

If you will be transporting your ditcher on a trailer, the short arm must be in its most vertical position so that the machine can be safely secured. It may cause injury to yourself or others, or damage the machine or your truck or trailer if it is not securely tied down. It is best not to use the parking stands when transporting your ditcher due to the concentrated weight on each parking stand. If you must use the parking stands, be certain to place a board under each parking stand to prevent damage to the floor of your truck or trailer. You should also place a 6 inch x 6 inch or larger wooden block under the short arm.

If your machine is equipped with optional tail wheels, you must place a wooden 4 inch x 4 inch board under each runner.

If your machine is equipped with the 5 foot brush mower, make certain that the mower runners lay flat on your truck or trailer.

If you are transporting the ditcher behind a tractor, it is important to make the machine as narrow as possible. To accomplish this, do the following:

- 1) Retract the large cylinder so that the long arm boom will be as high as possible.
Note: If 5' brush mower is attached, you must extend the mower cylinder so that the mower is in its most vertical position.
- 2) Extend the small cylinder so that the short arm stock will be approximately vertical.
- 3) Retract the cylinder on the counter balance.

UNHITCHING FROM TRACTOR

- 1) Park on level ground far enough from obstacles that the arm and counterweight will not hit them.
- 2) Gently lower the ditcher until the frame is firmly supported on the ground.
 - a) If machine is equipped with optional tail wheel assembly, lower parking stands and reinstall pins and clips so machine will set level.
- 3) Using the tractor's hydraulics, position the outer arm in a vertical position then lower the inner arm until the impeller wheel is firmly resting on the ground. NOTE: A wooden 4 inch x 4 inch board placed under the drag plate will hold the impeller wheel off the ground allowing you to check for free movement before the next use (*See Free Movement of Driveline section on page 11*).
- 4) Release the hydraulic pressure from the hydraulic lines. NOTE: Some tractors require the engine to be turned off to release the pressure. Proceed to unhook the hydraulic lines. Always clean the quick couplers before reconnecting them to any hydraulic system.



WARNING! Always shut tractor engine off before unhooking PTO.

- 5) Pull the PTO safety slide lock (*See page 13 item L5*) back on the PTO and remove from tractor spline.
- 6) Place PTO in its holder.
- 7) If using a quick hitch, release the quick hitch latches, lower the quick hitch, and slowly pull forward.
- 8) If not using a quick hitch, remove the lynch pins, hitch pins, and spacers, and slowly pull forward.
- 9) Return lynch pins, hitch pins, and spacers to ditcher hitch.

USING THE MODEL RDA-26 DITCH ANGEL™

Each customer will use their machine for different purposes and in slightly different ways. We cannot tell you the proper way to use your machine for your particular purpose, but we can make recommendations for various uses.

Be aware of the impeller wheel and the surroundings at all times. Watch for buildings and other structures in the path of the discharge side of the machine. Also, inspect the ground forward of the impeller wheel for debris or other dangers. Large stones can become extremely dangerous projectiles that can fly up to 150 feet. The manufacturer cannot be responsible for improper use including breaking up and moving asphalt and heavy stone laden soil (maximum 8 inch diameter or 12 pounds). Always use common sense and follow safety procedures.

CLEANING AND MAINTAINING ROADSIDE DITCHES is the primary application of the RDA-26 Ditch Angel Ditcher. It is best to use this machine with the outer arm vertical or extended slightly outward. The farther you reach with the machine's arms the more side draft will occur, thus resulting in a slower ground speed and less digging capacity. The impeller may be operated at 5 to 8 inches deep and a forward travel of about 1-1/2 miles per hour.

BUILDING OR REWORKING A DRAINAGE DITCH – The ditcher throws soil and debris to the right side. When possible, it is more efficient if the soil is thrown to both sides of the ditch or waterway. To do this, make your first pass in the center of your ditch or waterway. After turning around, make your second pass in the opposite direction just to the outside of your previous pass. If the ditch or waterway needs to be deeper, start in the center again and work outward. If the ditch needs to be deeper but the soil is unable to be thrown out due to the steepness of the ditch bank, take an additional pass cutting soil off the right bank. This will allow you to make an additional pass traveling in the same direction cutting soil in the bottom of the ditch and make it easier to discharge the soil.

CHECKLIST BEFORE OPERATION

- Read and understand the operator's manual.
- Read all information on the safety decals on the machine.
- Check all bolts to make sure they are tight.
- Before connecting to tractor PTO and as general daily maintenance, check for free movement of driveline and/or slack in chain (*See Free Movement of Driveline section on page 11*).



WARNING! Do not operate this machine above 540 RPM if ditcher is rated for 540 RPM; above 1000 RPM if ditcher is rated for 1000 RPM. Excessive speed of PTO can be dangerous and could cause personal injury or damage to your tractor or ditcher.

- Check that all hydraulic hoses are secured and will not interfere with the tractor wheels, PTO shaft or any other part.
- Be sure the PTO is hooked up correctly and will not interfere with the drawbar on the tractor.
- Be sure the hitch is secure.
- Check your tractor's hydraulic oil reservoir level (*See Lubrication section on page 9-10*).
- Lubricate machine (*See Lubrication section on page 9-10*).

- Check PTO forward travel. PTO must slide freely and must not bottom out, otherwise damage to bearings and shaft may occur.
- Before running machine each season or once per year, remove the shear bolt and lock nut from the impeller wheel to verify that the shear hub is moving freely. Reinstall shear bolt and lock nut after inspection is complete.
- Before running machine each season or once per year, remove the shear bolts and lock nuts from the PTO shear yoke assembly to verify that the shear yoke is not corroded and will move freely. Reinstall shear bolts and lock nuts after inspection is complete.

OPERATING INSTRUCTIONS

- 1) Keep all shields in place.
- 2) Keep hands, feet and clothing away from all moving parts.
- 3) Do not allow anyone to ride on this equipment at any time.
- 4) Learn to operate this machine safely. Be alert and observe all safety practices. Machines can be hazardous in the hands of an unfamiliar, untrained or complacent operator. Do not risk injury or death!
- 5) Do not allow anyone to stand on the right side (discharge side) of the machine while it is in operation, whether it is moving or standing still.
- 6) Disengage PTO and shut off tractor engine before servicing, cleaning or clearing a clogged machine.
- 7) When the machine is in operation, keep in mind that soil, roots, rocks and other debris may be thrown 100 feet or more out the discharge side causing damage to an object or harm to a person within its range.
- 8) Use rubber straps to secure hoses on the tractor to keep them from getting into the PTO, otherwise damage may occur. You may also adjust the slack in hoses at the hose bracket (DO NOT adjust it too tight).
- 9) Be sure to keep the slip shaft portion (*See page 13 item L9*) of the PTO shaft well lubricated (*See Lubrication section on page 9-10*).
- 10) Do not engage PTO when tractor is running at high RPM. Slow RPM to idle before engaging PTO.
- 11) There are two (2) shear bolts in the PTO shaft (*See page 13 item L4*). If these bolts shear, stop the tractor, disengage the PTO, shut off tractor engine, and replace the sheared bolts.



WARNING! Shear bolts are designed to break under a specified load. Do not use a stronger bolt than is specified by manufacturer!

- 12) The impeller wheel has one (1) shear bolt near the center (*See page 13 item B2*). If a rock or other object is fed into the impeller, this bolt may shear causing the impeller to stop rotating. When this happens, stop the tractor, disengage the PTO, shut off tractor engine, and replace the sheared bolt.
- 13) In normal conditions, when mud or trash becomes a problem, stop forward travel and allow the machine to clear itself before moving ahead.



WARNING! Do not operate this machine above 540 RPM if ditcher is rated for 540 RPM; above 1000 RPM if ditcher is rated for 1000 RPM. Excessive speed of PTO can be dangerous and could cause personal injury or damage to your tractor or ditcher.



WARNING! Do not exceed recommended horsepower (200 HP or less) for this machine. Excessive horsepower can be dangerous and could cause personal injury or damage to your tractor or ditcher.



WARNING! Do not use this machine with a PTO adaptor. The Agricultural Driveline Manufacturers Association and The Association of Equipment Manufacturers discourage the use of PTO adaptors due to serious safety and operational concerns.

MAINTENANCE

If you are not going to use your machine for a period of time, paint the areas where the soil has worn off the paint (for example: hardened impeller paddles, impeller wheel, inside the deflector). You should also apply a thin coat of grease to the exposed hydraulic cylinder rods to prevent rusting and corrosion. Storing inside or covering with a tarp will extend the life of your ditcher.

After approximately every ten (10) hours of use, disconnect from tractor and check for the free movement of driveline and proper chain tension (*See Free Movement of Driveline section on page 11*).

When impeller paddles are slightly worn, weld with a hard surfacing rod on each paddle to build them back up. Use a welding rod that is equal to a 60RC Rockwell hardness. NOTE: Be sure to add the same amount of material to each paddle to keep the impeller assembly in balance. Replace paddles when worn flush with the impeller wheel.

If any component of your ditcher appears to be worn and needs replaced, please contact your dealer for replacement parts.

LUBRICATION

The Model RDA-26 Ditch Angel™ has 32 grease fittings (37 grease fittings with optional 5' brush mower). Refer to the Illustration on page 10 for the location of these fittings. Read carefully the information below on lubricating those areas. NOTE: Damage may occur due to improper lubrication.

A – **DAILY** (every 8 hours or before each use) – Grease the following with gun grease:

- 1 – The slip joint between PTO halves (remove from tractor, separate halves, apply gun grease all the way around shaft, and reassemble).
- 2 – The two (2) universal joints at the ends of each PTO half.
- 3 – The pivot support brace on the long arm.
- 4 – Eight (8) grease fittings on each set of pivot rings.
- 5 – Two (2) grease fittings on each tail wheel pivot.
- 6 – Two (2) grease fittings on each brush mower pivot.
- 7 – One (1) grease fitting on the brush mower idler sprocket.
- 8 – Check your tractor's hydraulic oil reservoir level. If system is completely empty (as when new) the ditcher's cylinders will require approximately 2-1/2 gallons of oil. Use a quality hydraulic oil of your choice.

B – **24 HOURS OF OPERATION**

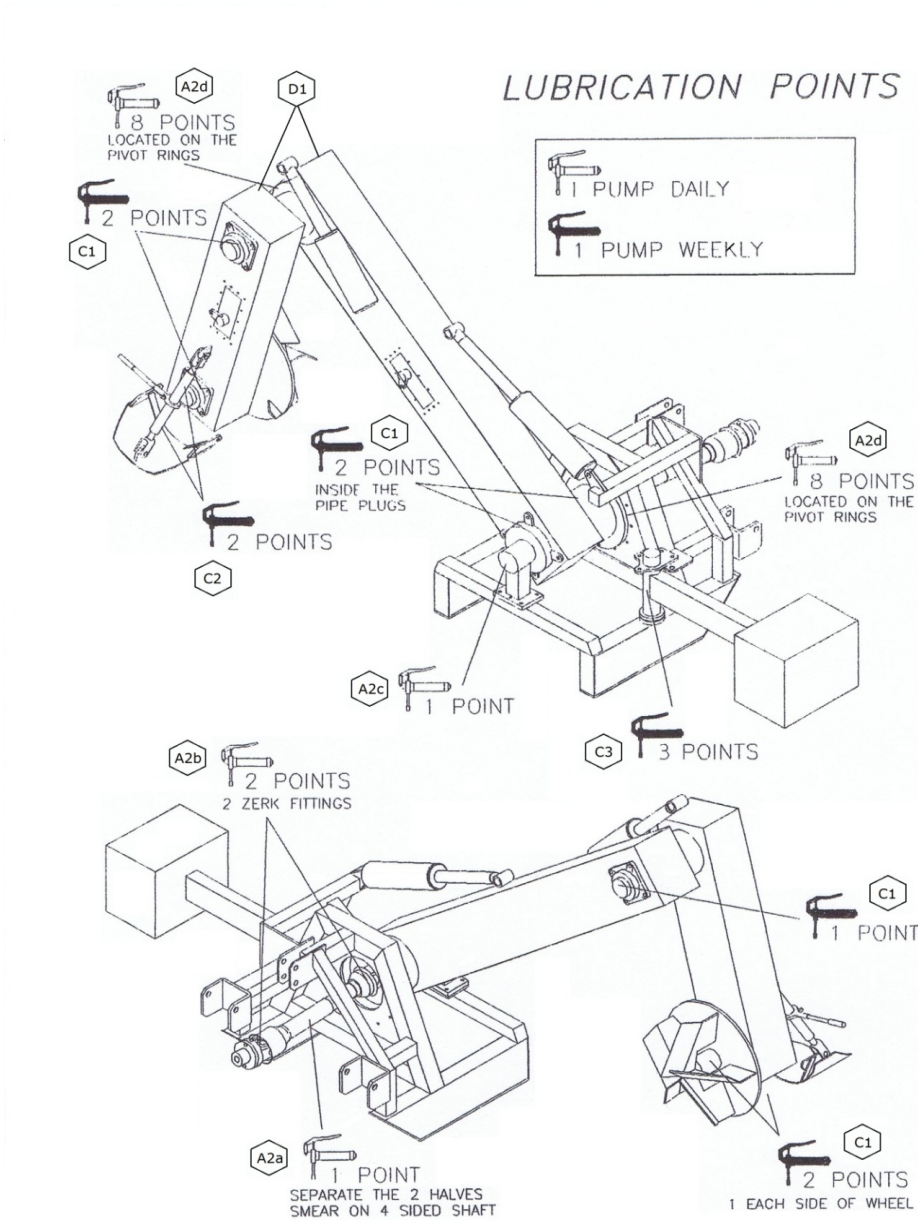
- 1 – Check the enclosed gearbox oil level of both arms. With the arms (gearboxes) in their most vertical position, remove the oil check plug (on back side of gearboxes about 14 and 21 inches above the low ends of the short and long boxes respectively). If oil begins to run heavily, it is too full. Allow the flow to slow and replace plug. If there is no flow, the oil level is low. Remove the oil fill plug and fill to the oil level check plug. The factory installed gearbox oil is Lucas ISO 680 industrial gear oil. Use of this oil is recommended as it is specifically formulated for peak performance of your Hurricane Ditcher.

C – 40–60 HOURS OR 1–2 WEEKS OF OPERATION – Grease the following with gun grease:

- 1 – Three (3) flange ball bearings on the gearboxes – 1 pump each.
- 2 – Two (2) grease fittings on ratchet jack..
- 3 – One (1) flange roller bearing on the gearbox – 1 pump.

D – 100 HOURS OF OPERATION

- 1 – Remove the inspection plate on the top of each gearbox; check for wear on bearings, sprockets, chain, and idler; and adjust the idler assembly as required (*See Idler Adjustment section on page 11*). Perform this on both gearboxes. Reinstall inspection plates using quality grade silicone sealant under the inspection plates.



FREE MOVEMENT OF DRIVELINE

When adjusted properly and operating correctly, the driveline should move freely by hand with no slack in the chain.



WARNING! Operation of improperly adjusted machine will cause damage to your ditcher and possibly to your tractor!



WARNING! Do not use your ditcher with a PTO adaptor. The Agricultural Driveline Manufacturers Association and The Association of Equipment Manufacturers discourage the use of PTO adaptors due to serious safety and operational concerns.

To check for free movement of driveline and proper tension on chain:

Step 1 – Grasp the front PTO yoke and quickly rock it back and forth. If the PTO moves before the impeller turns, the chain requires tightening (*See Idler Adjustment section below*).

Step 2 – If the impeller is difficult to move, check for debris lodged in the machine. Remove any interfering debris and return to Step 1. If no interferences are found, continue to Step 3.

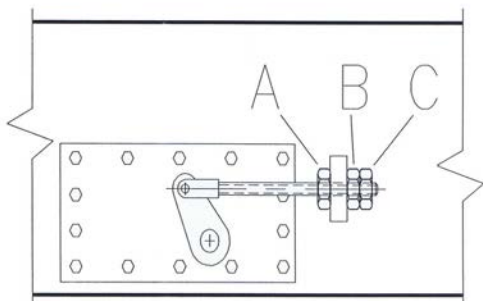
Step 3 – Release chain tension until impeller and PTO turn freely (*See Idler Adjustment section below*). Adjust as needed and return to step 1. If free movement has not been restored, continue to step 4.

Step 4 – Remove the inspection plate on top of the gearbox and carefully inspect bearings, sprockets, chain, and idler for damage. Perform this on both gearboxes. If damage is found, repair as needed and return to Step 1. Use quality grade silicone sealant behind the bearings and under the inspection plates. If no damage is found, continue to Step 5.

Step 5 – Release chain tension until impeller wheel and PTO turn freely (*See Idler Adjustment section below*).

IDLER ADJUSTMENT

Remove the inspection plate on each of the gearboxes. Visually inspect the UHMW plastic wear pad for wear or damage (*See page 13 item D5*). Replace if needed. The idler adjustment assembly has one (1) bolt and three (3) nuts (*See illustration below*). The nuts hold the idler assembly against the chain and act as a jam nut to lock the assembly in the set position. Reinstall inspection plates using quality grade silicone sealant under the inspection plates.



Chain needs **MORE** tension:

- Loosen nuts A and C
- Tighten nut B to remove any slack and apply slight tension on chain
- Tighten nuts A and C to secure the assembly

Chain needs **LESS** tension:

- Loosen nuts A and C
- Loosen nut B until chain is too loose
- Tighten nut B to remove any slack and apply slight tension on chain
- Tighten nuts A and C to secure the assembly

LIMITED WARRANTY

Hurricane Ditcher Company, Inc. shall be considered the “Company” throughout this warranty statement.

The Company warrants each new Company product to be free from defects in material and workmanship. This warranty is applicable only for the normal service life expectancy of the product or components, not to exceed twelve (12) consecutive months from the date of delivery of the new Company product to the end user for personal use. This warranty shall not exceed ninety (90) days from the date of delivery to the end user for commercial use.

Under no circumstances will it cover any merchandise or components thereof, which, in the opinion of the Company, has been subjected to misuse, unauthorized modifications, alterations, an accident, or if repairs have been made with parts other than those obtainable through the Company. The Company in no way warrants tires or other trade accessories since their respective manufacturers warrant these items separately. The Company's obligation under this warranty shall be limited to repairing or replacing free of charge to the original purchaser, any part that, in the Company's judgment, shall show evidence of such defect, provided further that such part shall be returned within thirty (30) days from the date of failure to the Company routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render the Company liable for injury or damages of any kind or nature to person or property. This warranty does not extend to the loss of crops, loss because of delay in harvesting, or any expense or loss incurred for labor, substitute machinery, rental or for any other reason.

Except as set forth above, the Company shall have no obligation or liability of any kind on the account of any of its equipment and shall not be liable for special or consequential damages. The Company makes no other warranty, expressed or implied, and specifically, the Company disclaims any implied warranty or merchantability or fitness for a particular purpose. Some states or provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusions in this warranty may not apply in those areas.

This warranty is subject to any existing conditions of supply, which may directly affect our ability to obtain materials or manufacture replacement parts. The Company reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold. No one is authorized to alter, modify, or enlarge this warranty. To enhance warranty, replace decals when worn, destroyed, removed or as needed.

No warranty will be issued for bearing failure resulting from material wrapping around impeller shaft.

This warranty is not valid unless registered with Company within 30 days from the date of delivery to the end user.

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GENERAL ASSEMBLY & ILLUSTRATION

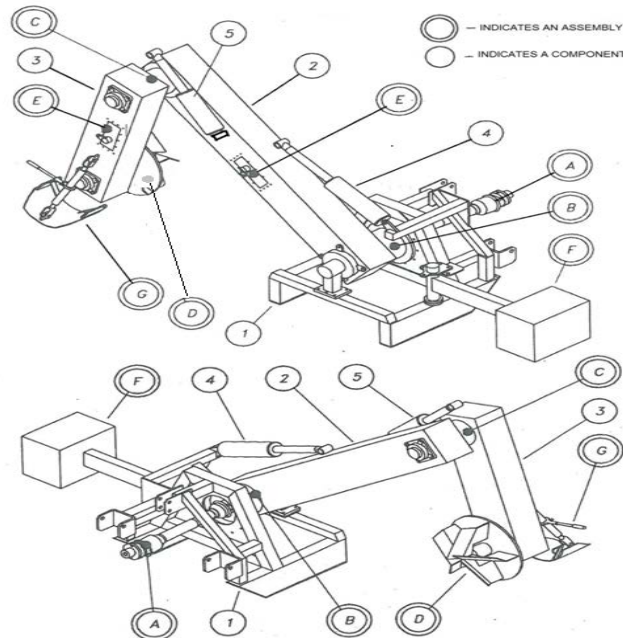
See General Assembly diagram below. For more detail on each assembly, refer to the drawings on the page numbers listed below.

ASSEMBLIES			
ITEM	DESCRIPTION	QTY	DETAIL DRAWING PG.
A	PTO SHAFT ASSEMBLY	1	14
B	PTO/FRAME JOINT ASSEMBLY	1	16
C	PIVOT JOINT ASSEMBLY	1	18
D	IMPELLER ASSEMBLY	1	20
E	CHAIN TENSIONING ASSEMBLY	2	21
F	COUNTER BALANCE PIVOT ASSEMBLY	1	22
G	DRAGPLATE ASSEMBLY	1	23

COMPONENTS

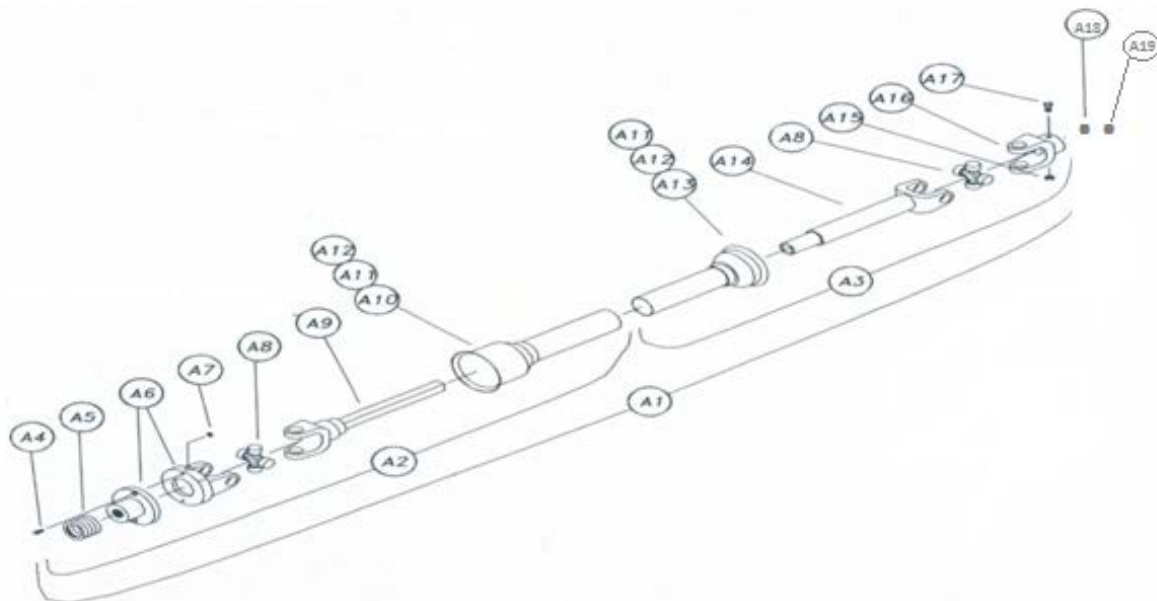
See General Assembly diagram on page 13.

ITEM	DESCRIPTION	QTY.
GA1	MAIN FRAME WELDMENT	1
GA2	INNER GEARBOX WELDMENT (LONG ARM)	1
GA3	OUTER GEARBOX WELDMENT (SHORT ARM)	1
GA4	INNER HYDRAULIC CYLINDER 4 DIA. X 24 STROKE	1
GA5	OUTER HYDRAULIC CYLINDER 3.5 DIA. X 16 STROKE	1
The following are not shown		
GA6	INNER CYLINDER HYDRAULIC HOSE (BUTT END)	1
GA7	INNER CYLINDER HYDRAULIC HOSE (ROD END)	1
GA8	DOUBLE ACTING HYD. CYL. REBUILD KIT 4 DIA. 24 STROKE	1
GA9	OUTER CYLINDER HYDRAULIC HOSE (BUTT END)	1
GA10	OUTER CYLINDER HYDRAULIC HOSE (ROD END)	1
GA11	DOUBLE ACTING HYD. CYL. REBUILD KIT 3.5 DIA. 16 STROKE	1



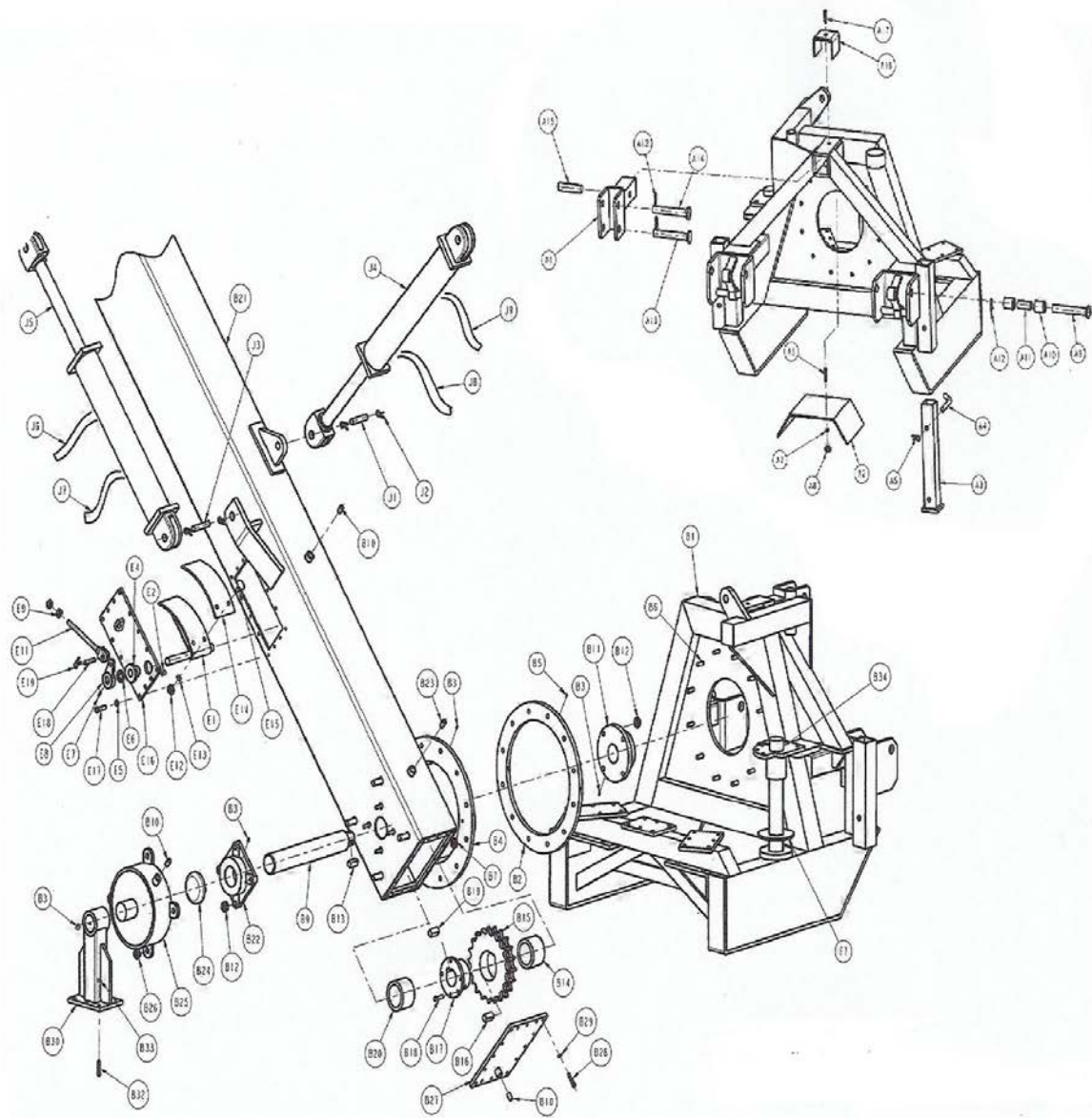
PTO SHAFT ASSEMBLY & ILLUSTRATION

ITEM	PART #	DESCRIPTION	QTY.
A1	000660	PTO SHAFT COMPLETE (INCLUDES ITEMS A4 THRU A16)	1
A2	000685/670	1 3/8" 21 SPLINE PTO SHAFT FRONT HALF (INCLUDES ITEMS A4 THRU A12)	1
	000695/665	1 3/4" 20 SPLINE PTO SHAFT FRONT HALF (INCLUDES ITEMS A4 THRU A12)	
A3	000700/675	PTO SHAFT REAR HALF (INCLUDES ITEMS A8 & A11 THRU A16)	1
A4	001005	SHEAR BOLT (HEX HEAD CAP SCREW 3/8-16UNC X 1 GR.5)	2
A5	000725	1 3/4" PTO SAFETY LOCK ASSEMBLY	1
	000735	1 3/8" PTO SAFETY LOCK ASSEMBLY	
A6	000740	SHEAR YOKE ASSEMBLY 1 3/8 21 SPLINE	1
	000750	SHEAR YOKE ASSEMBLY 1 3/4" 21 SPLINE	
A7	001255	HEX LOCK NUT 3/8-16UNC	2
A8	001890	UNIVERSAL JOINT 1 3/4 55 SERIES	2
A9	000820/823	YOKE AND SHAFT	1
A10	000770/790	PTO GUARD (FRONT HALF)	1
A11	000715	PLASTIC RETAINING RING (NOT SHOWN) INCLUDED WITH ITEM A10 & A13	2
A12	000705	STEEL SNAP RING (NOT SHOWN) INCLUDED WITH ITEM A10 & A13	2
A13	000775	PTO GUARD (REAR HALF)	1
A14	000785/795	YOKE, TUBE, AND SLIP SLEEVE	1
A15	001255	HEX LOCK NUT 3/8 -16UNC	1
A16	000815	YOKE 1 3/4 KEYED	1
A17	----	HEX HEAD CAP SCREW 3/8 -16UNC X 3 1/2 GRADE 8	1
A18	002789	SET SCREW 3/8 X 3/8	1
A19	003235	SET SCREW 3/8 X 1/4	1



PTO/FRAME JOINT ASSEMBLY			
ITEM	PART #	DESCRIPTION	QTY.
B1	004220S/004220H	MAIN FRAME WELDMENT	1
B2	002600	RETAINING RING	1
B3	002825	STRAIGHT GREASE FITTING 1/8"	4
B4	002605	CLASP RING (PART OF ITEM B21)	1
B5	002830	45 DEGREE GREASE FITTING 1/8"	4
B6	001415	5/8-18 UNF X 2 1/2 HHCS	12
B7	001285	5/8-18 UNF HEX NUT	12
B9	003267	INPUT SHAFT	1
B10	000875	1-NPT PIPE PLUG	2
B11	000150R	2 7/16 FLANGE BEARING	1
B12	001285	5/8-18 UNF HEX NUT (BOLTS ARE PART OF ITEM 21)	8
B13	003111	3/8 KEY	1
B14	005037	SPACER TUBE (4 1/8 LONG)	1
B15	000300	18 TOOTH NO. 80 DOUBLE ROLLER CHAIN SPROCKET	1
B16	003194	RECTANGULAR KEY (SPROCKET TO HUB)	1
B17	000385	Q1 TAPER LOCK HUB (MAY INCLUDE ITEM 16)	1
B18	001010	3/8-16 UNC X 1 1/4 HHCS	3
B19	003194	RECTANGULAR KEY (HUB TO SHAFT)	1
B20	005048	SPACER TUBE (3 7/16)	1
B21	004155	LONG GEARBOX WELDMENT	1
B22	000130P	2 7/16 FLANGE BEARING—SILICONE SEALANT	1
B23	000426	PIVOT RING (PART OF ITEM B21) NOT SHOWN	1
B24	000225/225P	BEARING CAP	1
B25	004131.4	REAR SUPPORT PIPE ASSEMBLY-SQUARE	1
B26	001285	5/8-18 INF HEX NUT (BOLTS ARE PART OF ITEM 21)	4
B27	003721	GEARBOX END COVER PLATE --SILICONE SEALANT	1
B28	001005	3/8-16 UNC X 1" HHCS CAP SCREW	14
B29	001170	3/8 SPLIT LOCK WASHER	14
B30	004131	REAR PIVOT SUPPORT WELDMENT	1
B31	004235	PIVOT RING BASE (PART OF ITEM B21) NOT SHOWN	1
B32	001355	1/2-20 UNF X 1 1/4 HHCS	6
B33	001280	1/2-20 UNF HEX LOCK NUT	6
B34	000130P	2-7/16" BEARING	1
	000225P	(NOT PICTURED) CAP FOR BEARING 000130P	1

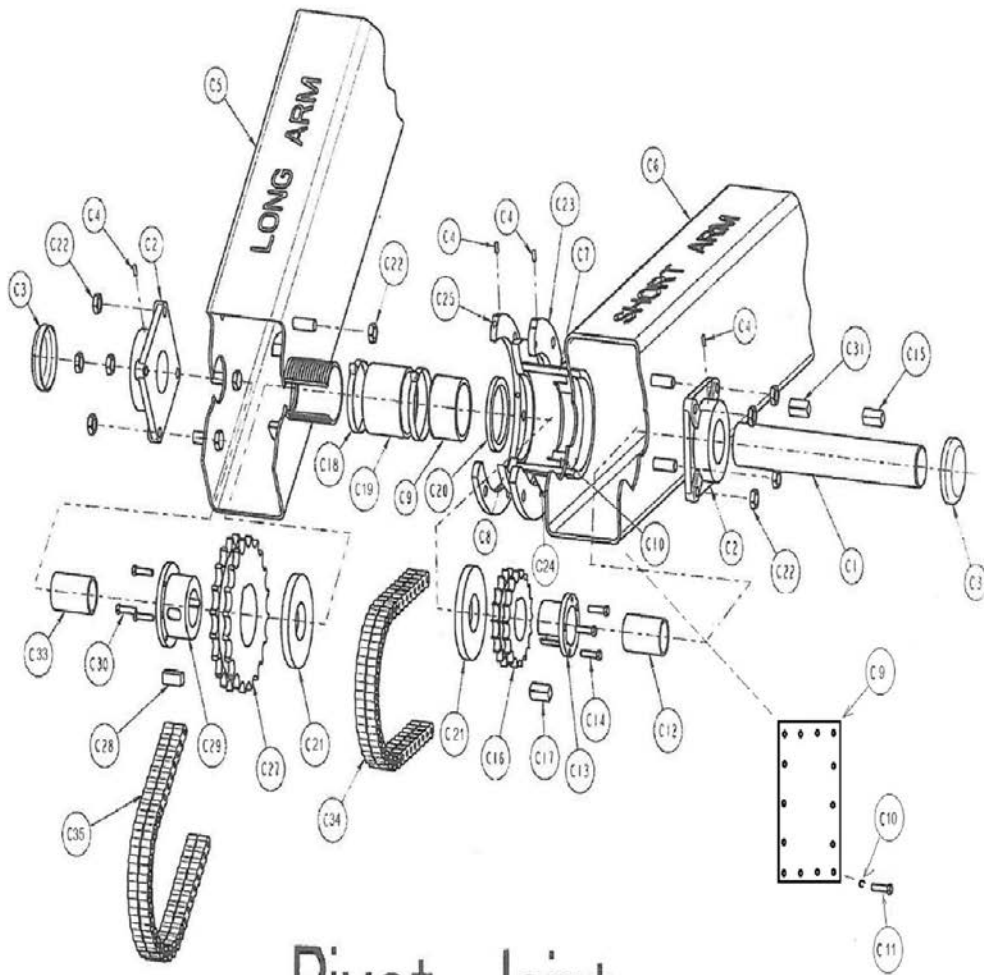
PTO / FRAME JOINT ASSEMBLY ILLUSTRATION



PTO / FRAME JOINT ASSEMBLY

PIVOT JOINT ASSEMBLY			
ITEM	PART #	DESCRIPTION	QTY.
C1	003185	PIVOT SHAFT	1
C2	000130P	FLANGE BEARING-- SILICONE SEALANT - 239NC	2
C3	000225P	BEARING CAP	2
C4	002825	STRAIGHT GREASE FITTING	2
C5	004155	MAIN GEAR BOX WELDMENT (Long Arm)	1
C6	004175	SHORT GEARBOX WELDMENT	1
C7	004235	PIVOT RING BASE (PART OF ITEM C6)	1
C8	002610	PIVOT RING (PART OF ITEM C6)	1
C9	003721	GEARBOX END COVER PLATE--SILICONE SEALANT	2
C10	001170	3/8 SPLIT LOCK WASHER	28
C11	001005	3/8-16UNC X 1 HHCS	28
C12	005059	SPACER TUBE (3 5/8)	1
C13	000385	2-7/16" F-BUSHING (MAY INCLUDE ITEM C17)	1
C14	001010	3/8-16 UNC X 1-1/4 HHCS (INCLUDED WITH ITEM C13)	3
C15	000401	RECTANGULAR KEY (HUB TO SHAFT)	1
C16	000300	18 TOOTH, NO. 80 DOUBLE ROLLER CHAIN SPROCKET	1
C17	003194	RECTANGULAR KEY (SPROCKET TO HUB)	1
C18	002785	HOSE CLAMP	2
C19	001706.1	4" RUBBER HOSE	1
C20	000495	SEAL	1
C21	002738	6" HARDENED SEAL	2
C22	0001285	5/8-18 Lock NUT (BOLTS ARE PART OF ITEM C5 & C6)	8
C23	002605	CLASP RING (PART OF ITEM C6)	1
C24	002830	45 DEGREE GREASE FITTING	4
C25	002600	RETAINING RING	1
C26	002825	STRAIGHT GREASE FITTING (NOT PICTURED)	4
C27	000325	30 TOOTH, NO. 80 ROLLER CHAIN SPROCKET	1
C28	000397	RECTANGULAR KEY (SPROCKET TO HUB)	1
C29	000400	R1 TAPER LOCK HUB (MAY INCLUDE ITEM C28)	1
C30	000270	3/8-16 UNC X 1 3/4 HHCS INCLUDED WITH ITEM C29	3
C31	003193	RECTANGULAR KEY (HUB TO SHAFT)	1
C33	005059	SPACER TUBE (3 5/8)	1
C34	000570	DOUBLE 80 ROLLER CHAIN 120 PITCH	1
C35	000535	DOUBLE 80 ROLLER CHAIN 194 PITCH	1
C36	000485	DOUBLE 80 CONNECTING LINK (NOT PICTURED)	2

PIVOT JOINT ASSEMBLY ILLUSTRATION

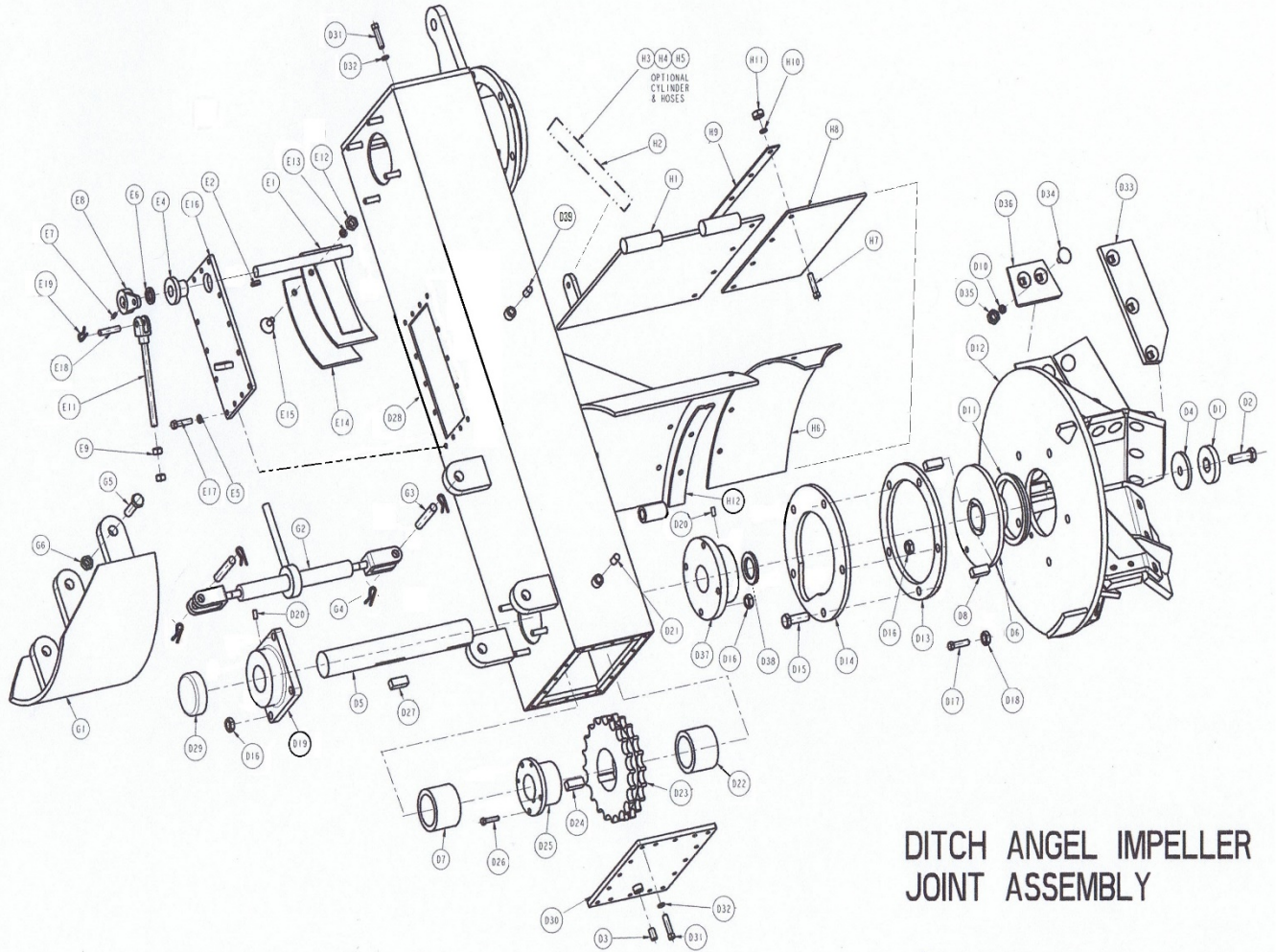


Pivot Joint

IMPELLER ASSEMBLY PARTS LIST

IMPELLER ASSEMBLY			
ITEM	PART #	DESCRIPTION	QTY.
D1	004191	Hexagon Washer 26" Impeller	1
D2	001405	5/8-18UNF X 2" HHCS	1
D3	000875	1" PIPE PLUG	1
D4	004192	FLAT PLATE RETAINING WASHER	1
D5	003197	IMPELLER SHAFT	1
D6	003275	SHEAR HUB	1
D8	003194	Key 5/8" x 2-3/4"	2
D10	001470	½" Flat Washer	25
D11	003667	BRASS RING	1
D12	003419	IMPELLER WELDMENT With Out Paddles	1
D13	004188.2	RETAINER RING	1
D14	004187.1	CLASP RING	1
D15	004120	5/8-18UNF X 2 3/4 HHCS	5
D16	001285	5/8-18 Distorted Thread Lock Nut	5
D17	001035	1/2-13UNC X 2 1/2 HHCS Gr. 5 (SHEAR BOLT)	1
D18	001265	1/2-13 Distorted Thread Lock Nut	1
D19	000130P	FLANGE BEARING 239NC	1
D20	004318	STRAIGHT GREASE FITTING	2
D21	000870	¼" Oil Check Plug	8
D22	005059	SPACER TUBE (3 5/8)	1
D23	000325	30 TOOTH, NO. 80 DOUBLE ROLLER CHAIN SPROCKET	1
D24	003193	RECTANGULAR KEY (SPROCKET TO HUB)	1
D25	000405	R2 2-7/16 Bushing (MAY INCLUDE ITEM 24)	1
D26	000270	3/8-16UNC X 1 3/4 HHCS INCLUDED WITH ITEM D25	3
D27	003194	RECTANGULAR KEY (HUB TO SHAFT)	1
D29	000225P	BEARING CAP	1
D31	001005	3/8-16UNC X 1 HHCS	14
D32	001170	3/8 SPLIT LOCK WASHER	14
D33	003310	HARDENED FRONT CUTTER BLADE (Long Paddle)	5
D34	000930	1/2-13 X 2 PLOWBOLT	25
D35	001265	1/2-13 Distorted Thread lock Nut	25
D36	003315	HARDENED OUTER CUTTER BLADE (Short Paddle)	5
D37	000150R	2-7/16 FLANGE BEARING HEAVY DUTY	1
D38	000140	HARDENED RUBBER SEAL	1

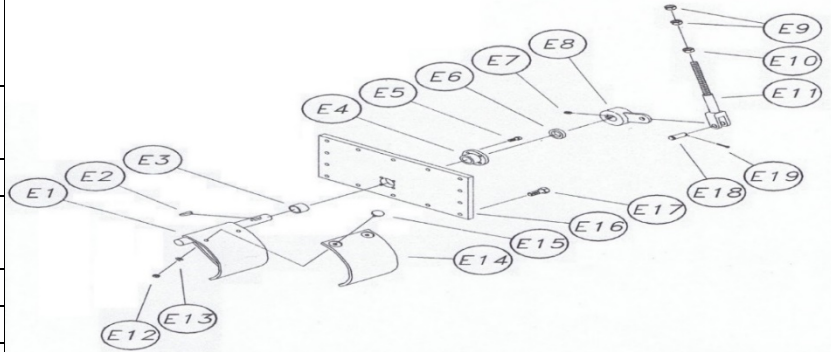
IMPELLER JOINT ASSEMBLY ILLUSTRATION



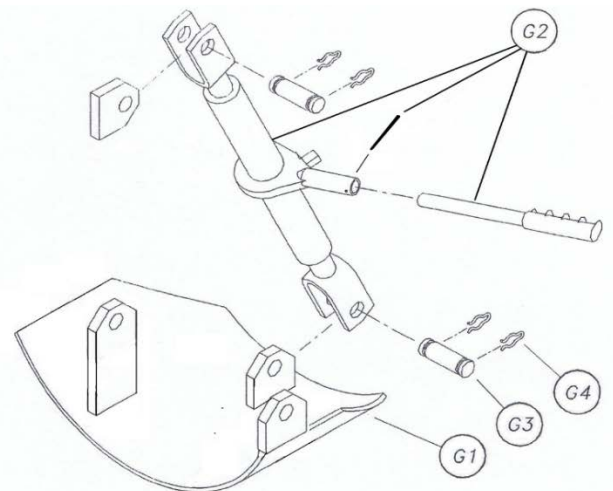
DITCH ANGEL IMPELLER
JOINT ASSEMBLY

CHAIN TENSIONING & DRAGPLATE ASSEMBLY WITH ILLUSTRATION

CHAIN TENSIONING ASSEMBLY			
ITEM	PART #	DESCRIPTION	QTY.
E1	004026	IDLER WELDMENT	1
E2	002813	WOODRUFF KEY #608	1
E3	004027	SPACER 1 I.D. X 3/8 APPROX.	1
E4	000801	BUSHING 1 DIA. (MAY BE WELDED TO E16 THEN OMIT E5)	1
E5	001090	HEX HEAD CAP SCREW 5/16-18UNC X 1 1/2	4
E6	000525	OIL SEAL 1 DIA.	1
E7	002812	SOCKET SET SCREW 3/8-16UNC X 1/2	1
E8	004027	IDLER ARM	1
E10	001130	HEX NUT 5/8-11UNC	3
E11	002291	IDLER ADJUSTING YOKE (INCLUDES E18 & E19)	1
E12	001110	HEX NUT 1/4-20UNC	4
E13	001165	SPLIT LOCK WASHER 1/4	4
E14	003659	UHMW PAD	1
E15	001220	ELEVATOR BUCKET BOLT 1/4-20UNC X 1	4
E16	003508	INSPECTION COVER PLATE-- SILICONE SEALANT	1
E17	001005	HEX HEAD CAP SCREW 3/8-16UNC X 1	14
E18	002130	CLEVIS PIN 1/2 X 1 1/2	1
E19		COTTER KEY 1/8 X 3/4	1
E20	004030	REBUILD KIT (INCLUDES ITEMS E6,E12,E13,E14, AND E15)	1

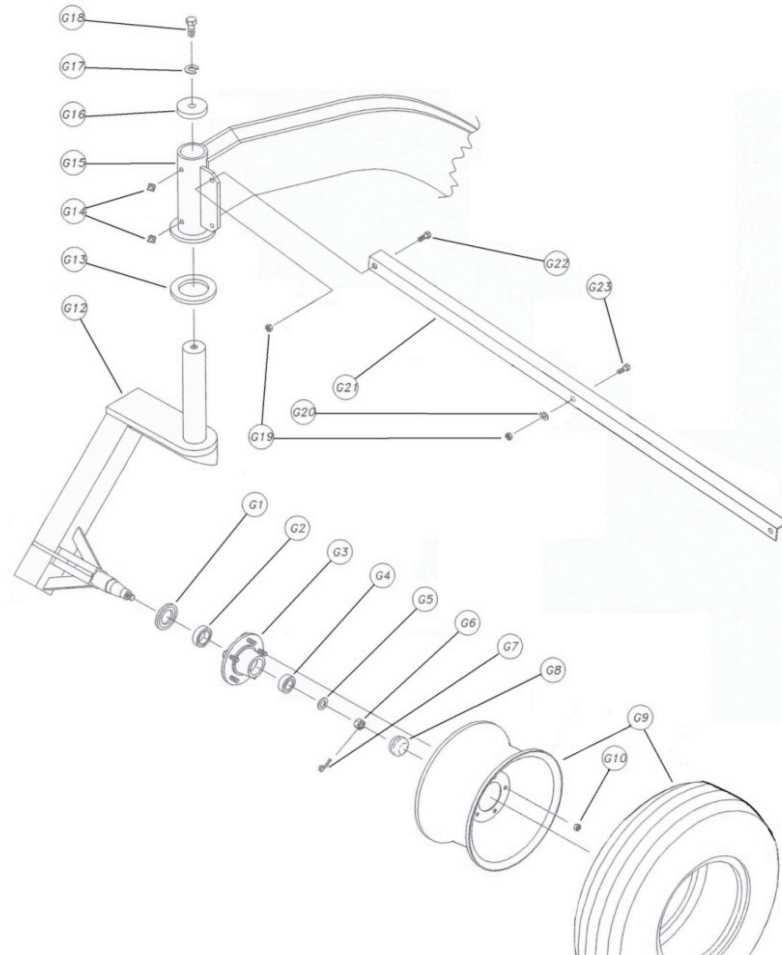


DRAGPLATE ASSEMBLY			
ITEM	PART #	DESCRIPTION	QTY.
G1	3514	DRAG PLATE	1
G2	1841	RATCHET JACK & HANDLE	1
G3	1839	1" PIN	2
G4	1838	CLIP PIN	4



OPTIONAL PARTS LIST & ILLUSTRATION

ITEM	PART #	DESCRIPTION	QTY
TAIL WHEEL ASSEMBLY			
G1	001691	GREASE SEAL	2
G2	001693 / 001694	INNER BEARING AND RACE	2
G3	001690	HUB ASSEMBLY (ITEMS G1,G2,G4,G8,G10)	2
G4	001686 / 001696	OUTER BEARING AND RACE	2
G5	001692	RETAINING WASHER	2
G6	001689	SLOTTED HEX NUT 7/8-14UNF	2
G7	001688	COTTER KEY 1/8 X 1-1/2	2
G8	001687	DUST CAP	2
G9	002245	TIRE & WHEEL	2
G10	001697	WHEEL BOLT 7/16-14UNC	12
G12	4046	TAIL WHEEL PIVOT ASSEMBLY	2
G13	004189	UHMW WESR WASHER	2
G14	002825	STRAIGHT GREASE FITTING (NOT PICTURED)	4
G15	004050	TAILWHEEL ASSEMBLY ARM	2
G16	330970	TAILWHEEL WASHER	2
G17	001180	5/8 SPLIT LOCK WASHER	2
G18	001405	5/-18 X 2" CAPSCREW	2
G19	001280	1-2-20 LOCKNUT	5
G20	001470	1/2" FLAT WASHER	1
G21	004049.2	TAILWHEEL BRACE	2
G22	001355	1/20" - 20 X 1- 1/4" HEX CAPSCREW	4
G23	001360	1/2-20UNF X 1-1/2" HEX CAPSCREW	1



UPDATED: NOVEMBER, 2019

THE HURRICANE

DITCH ANGEL™



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