Diversified Fabricators, Inc.

Owner / Operator Manual

Spreader

1325 US 41 Bypass South
Griffin, Georgia 30224

1-800-526-6480

www.dfiequipment.com

Revised March 2009 -

Dear Customer,

Thank you for purchasing a D.F.I. product. With proper operation and maintenance, it will provide you with years of service.

In order to make the best use of your investment; be certain to familiarize yourself with the contents of the entire user manual before attempting to operate your unit.

Included in this manual are details on the operation and maintenance of your spreader. We custom manufacture quality water tankers, lubrication service trucks, hydraseeders, liquid fertilizer applicators, dry fertilizer spreaders and a variety of equipment. Our Griffin, Georgia plant continues to grow as we are constantly adding inventory and improving equipment to meet our customer's needs.

If you have any questions, please feel free to call one of our representatives at 1-800-526-6480.

Thank you,

Spreader - Owner / Operator Manual

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I - SAFETY FORMAT

1. Read operator's manual and follow all safety warnings on the machine.
2. This equipment is intended for agricultural field use. Never tow unit loaded at more than 10 mph.
3. Follow the chassis manufacturer's recommendations for maintenance and safety.
4. Read and understand all labels and operating procedures before operating this equipment.
5. Never allow anyone to ride in or on a spreader.
6. Do not operate without shields and guards in place.
7. Never move your equipment without checking to see that people and obstructions have been moved from your path.
8. Never operate at unsafe speed.
9. Never operate any spreader while there is anyone within 100 feet of the machine.
10. Always wear eye protection and use proper safety equipment when handling and applying chemicals.
11.  Use caution when operating on uneven terrain. **CAUTION: Top heavy loads may cause a unit to turn over on a steep hillside.**
12. As with any heavy equipment, the operator has the ultimate responsibility for safe operation of this equipment.
13. BEFORE you start up equipment, look over the entire machine. Look for worn, broken or missing parts. Repair or replace BEFORE ATTEMPTING TO OPERATE.
14. Never allow unauthorized riders.
15. Keep hands and feet away from rotating parts and drive belts.
16. Stop engine before adjusting or servicing the machine.
17. Never exceed the GVWR (Gross Vehicle Weight Rating) of the unit.
18.  **CAUTION: Never allow operation by an unqualified or untrained operator.**
19. Rotating shafts and spinning parts can cause injury if you come in contact with them.
20. Read and understand all labels and operating procedures before operating this equipment.
21. Check air pressure in all tires. Add air as necessary to meet the tire manufacturer's specifications.
22. Check all hydraulic hoses for worn spots or leaks. Pad the sharp corners where the  hose might wear through. **CAUTION: High-pressure hydraulic lines can cause injury to skin and eyes.** Wear proper protection.
23.  Be sure hydraulic lines are kept away from hot exhaust lines and mufflers. **DANGER: Hydraulic oil that gets on the exhaust will flame up and burn. This can cause serious injury or death. NEVER ALLOW ANYONE TO OPERATE EQUIPMENT WITHOUT A FIRE EXTINGUISHER ON BOARD.**
24. Replace safety decals when the original decals become illegible.
25. Make any adjustments to the machine before engaging the Power Take-Off or hydraulic system. Never engage PTO above manufacturers recommended RPM rate.
26. Stop all moving parts before attempting any adjustments or service.
27. Check all lug nuts daily to be certain they are tight.
28.  Use caution when operating a water truck on a hillside. **DANGER: A fully loaded truck will be top heavy and can turn over causing injury or death.**
29. Operators should have prior training in truck driving, covering loaded stopping distances as well as cornering.


HIGH-PRESSURE FLUID HAZARD
- Relieve pressure on system before repairing or adjusting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.
FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH
DFI 1003


DANGER
ROTATING SPINNERS
DEATH CAN RESULT FROM ENTANGLEMENT.
KEEP PEOPLE AND CLOTHING WELL CLEAR.
DO NOT SERVICE OR MAKE ADJUSTMENTS WITHOUT FIRST:
·STOPPING POWER SOURCE.
· ENSURING BYSTANDERS ARE AT LEAST 100 FEET AWAY FROM MACHINE.
DFI 1004

DANGER

TOXIC CHEMICAL HAZARD

WEAR RUBBER GLOVES

1. Do not allow chemical or solution to touch skin. Some can be absorbed through the skin.
2. Wear rubber gloves and protective gear at all times.

DON'T BREATHE VAPOR

1. Stay away from chemical, splash and vapor. Keep others away.
2. Do not breathe vapor.
3. Wear proper respirator when working with chemicals.

DON'T INGEST CHEMICAL

1. Chemicals can be toxic.
2. If in eyes or mouth, read chemical manufacturers instructions and follow exactly.
3. Seek medical attention immediately.
4. A poison control number is normally inside the front cover of your telephone book.

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN SERIOUS INJURY OR DEATH

DFI 1001

CAUTION

- READ OPERATORS MANUAL AND FOLLOW ALL SAFETY WARNINGS ON THE MACHINE.
- DO NOT OPERATE WITHOUT SHIELDS AND GUARDS IN PLACE.
- KEEP HANDS AND FEET AWAY FROM ROTATING BLADES AND DRIVE BELTS.
- STOP ENGINE BEFORE ADJUSTING OR SERVICING MACHINE.
- THIS EQUIPMENT IS INTENDED FOR AGRICULTURAL FIELD USE. NEVER TOW UNIT LOADED AT MORE THAN 10 MPH.
- NEVER EXCEED THE GVWR OF THE UNIT.
- NEVER OPERATE ANY SPREADER OR SPRAYER WHILE THERE IS ANYONE WITHIN 100 FEET OF THE MACHINE.
- NEVER ALLOW ANYONE TO RIDE IN OR ON A SPREADER.
- ROTATING SHAFTS AND SPINNING PARTS CAN CAUSE INJURY IF YOU COME IN CONTACT WITH THEM.
- ALWAYS WEAR EYE PROTECTION AND USE PROPER SAFETY EQUIPMENT WHEN HANDLING AND APPLYING CHEMICALS.
- READ AND UNDERSTAND ALL LABELS AND OPERATING PROCEDURES BEFORE OPERATING THEIS EQUIPMENT.
- EQUIPMENT SHOULD BE CHECKED DAILY FOR LOOSE OR BROKEN PARTS, WORN HOSES, AND THE GENERAL CONDITION OF THE UNIT. REPAIR OR REPLACE AS NECESSARY.
- AS WITH ANY EQUIPMENT, THE OPERATOR IS RESPONSIBLE FOR HIS EQUIPMENT AND SHOULD REPORT ANY UNSAFE CONDITION TO HIS SUPERVISOR.

Most accidents are caused by the failure of some individuals to observe simple and fundamental safety rules or precautions. Accidents can be prevented by recognizing the cause and by doing something about them before an accident occurs.

Regardless of the care used in the design and construction, there are many points that cannot be completely safeguarded without interfering with accessibility and efficient operation.

A careful operator is the best insurance against an accident.

The complete observance of one simple rule can prevent many thousands of serious injuries each year. That rule is **NEVER ATTEMPT TO CLEAN OR MAKE ADJUSTMENTS TO A MACHINE WHILE IN MOTION.**

“Most farm accidents, like industrial, home, and highway are caused by the failure of some individuals to observe simple and fundamental safety rules or precautions. For this reason, recognizing the causes of accidents can prevent farm accidents, just as other types of accidents, and doing something about them before an accident occurs.

Regardless of the care used in the design and construction of farm equipment, there are many points that cannot be completely safeguarded without interfering with accessibility and efficient operation.

A careful operator is the best insurance against an accident.

The complete observance of one simple rule can prevent many thousands of serious injuries each year. That rule is NEVER ATTEMPT TO CLEAN OR ADJUST A MACHINE WHILE IN MOTION.”

NATIONAL SAFETY COUNCIL

II - SET-UP FORMAT

Pre-use / Pre-Delivery checklist

Your dry fertilizer and lime spreader is designed to spread granular fertilizer and agricultural lime over a specified swath width with a specified relationship to the ground. The material is conveyed to the rear of the spreader, divided equally between the right and left spinner and dropped on the spinners to produce an even spread pattern across the entire swath.

After the first 50 acres of use, all belts should be checked for proper tension, all sprockets checked for alignment, and take-up bearings checked for proper adjustment.

The truck-mounted spreaders are mounted on the customer's chassis. The unit is completely installed and tested. The spreader is ready to go to the field and begin spreading.

Pull type unite are completed and tested at DFI.

The owner/operator must attach the appropriate hydraulic connectors to match his tractor connections. Read your tractor" owners manual before attaching to the spreader.

John Deere recommends that the return line from the spreader be hooked to a "ported filter cover". This allows the oil to return to the reservoir without having to go through all the valves. This in turn helps keep the oil temperature lower.

On ALL closed center hydraulic systems use the Tractor Flow Control to control spinner speed. Most 1989 and above Ford, IHC, and John Deere all have closed center hydraulic systems. Older model Fords have open center hydraulic systems.

All spreaders should be spread pattern tested by your personnel with your material in your field before being placed in full service. Contact DFI or your dealer if you have any problems producing the desired results.

TRUCK SPREADER - MODEL DFI SS 210 CUBIC FOOT

- 12 foot, 304 stainless steel truck mounted spreader.
- Fits 96" to 102" chassis.
- 210 cubic foot capacity when the material is level with the top, not mounded up.
- 16" or 24" stainless steel webbed chain.
- Parallel hydraulics – the oil flow to the spinners is divided equally, this gives more power at lover pressures and temperature.
- 304 stainless steel motor mount and baffle.
- 10 gauge hull with 7 gauge floor.
- 50 gallon oil tank. The oil tank has a filtered fill, suction line strainer and return line filter. This insures a cleaner hydraulic system for longer life.
- The entire hull is T-304 stainless steel. There are no carbon steel parts welded to the stainless hull.
- The hydraulic drive conveyor eliminates many maintenance problems. The powerful torque motor is totally lubricated with hydraulic oil and features a direct-coupled "gear box less" drive.
- Ground Drive System includes: drive wheel, hydraulic cylinder and valve to engage, standard sprocket ratios for low rates of fertilizer to high rates of lime, special sprocket ratios to fit your application, back-up protection to insure that the conveyor does not run backward.
- ICC Lights.
- Steep 45-degree sidewall slope on hull.
- Screw jack type gate control.
- Heavy gauge cat walks – both sides of spreader.
- Continuous weld seams.
- 1 ¼" front roller and bearings.
- 1 ½" jack shaft.
- Heavy-duty bearings for increased life and lower maintenance cost. Also, all bearings are "off the shelf" at any parts supplies house.
- Spinner drive system designed by DFI.
- Each unit carries a full warranty against defects in materials and workmanship.

PULL TYPE SINGLE AXLE – MODEL DFI SS 162 CFT PT

- The entire hopper is stainless steel
- 304 stainless steel 10-gauge hull with 7-gauge floor and 12-gauge sides.
- No carbon steel parts are welded to the stainless.
- 162 cubic foot capacity struck lever – not mounded.
- 16" or 24" stainless steel webbed welded link bed chain.
- All enclosed gear box drive for spinners driven from the drive wheel – oil lubricated or twin hydraulic motors.
- 12,000-lb capacity spindle – 24,000-lb axle.
- 30" clear under spinner motors.
- 11.25 x 28 – 12 ply tire with ½" plated wheels. Other sizes are optional.
- Stainless mount for gearbox and motors.
- Hydraulic cylinder to engage drive wheel or manual lever.

IV - ATTACHING THE SPREADER

Pull Type Spreaders are equipped with a clevis hitch. The minimum diameter of your pull pin should be 7/8". Inspect attachment pins on a daily routine. Inspect all bolts on the hitch and draw bar. Repair or replace as necessary. Use only pull pins that are rated or graded for use in implement towing. Never use ungraded bolts or ungraded steel rod.

v - TRANSPORTING THE SPREADER

- The spreader may be towed on the highway. If loaded, do not tow faster than 10 mph.
- **CAUTION The towing vehicle should weigh at least as much as the trailer plus the load.** Be sure all brakes are operating properly before towing.
- Be sure you have the proper slow moving vehicle signs displayed.
- Observe all local laws concerning safety on the road.

VI - OPERATING INSTRUCTIONS FOR SPREADERS

- Read and understand all instructions before attempting to operate equipment.
- Adjust chute as shown on the rate chart for the rate that you will be applying.
- Set the Gate opening for the desired application rate. This is also found on the rate chart.
- Select the correct chain arrangement for the spread rate that you desire. Normally, when spreading fertilizer, you will use the 12-tooth sprocket on the drive wheel shaft and the 60-tooth sprocket on the jack shaft above the drive wheel. For lime, use the 14-tooth sprocket on the drive wheel shaft and the 24-tooth sprocket on the jack shaft. If you need help in determining the proper setting or chain ratio, contact Diversified Fabricators, Inc. at **1-800-526-6480**. Hydraulic drive conveyor rate charts will be done by DFI at the time of delivery.
-  Clear all by-standers away before starting the spreader. **DANGER: Spinning spreader dishes can cause serious injury. USE EXTREME CAUTION.**
- Check the spinner speed with a tachometer and one person to adjust the flow controls. The correct procedure is:
  - ➢ Clean all material off dishes, remove the fins or blades before using a hand held tachometer.
  - ➢ Have the operator start the engine and engage the PTO and drive wheel.
  - ➢  Have the operator start the hydraulic pump. **DANGER: Spinning spreader dishes can cause injury. USE EXTREME CAUTION.**
  - ➢ When using a hand held tachometer use extreme caution. When checking spinner RPM, a strobe light tachometer is the safest to use.
  - ➢ The operator should bring engine RPM up to field operating speed.
  - ➢ Read the tachometer.
  - ➢ Have the third person adjust the flow control as necessary. Normally you should set the spinner speed at about 600 RPM. A 50' swath of Ammonia Nitrate probably needs to be adjusted to 500 RPM.

START-UP of TRUCK UNIT

- Determine swath to be spread.
  - ➢ Set spinner speed. (Press wheel must be engaged.)
    500 RPM for 50' swath or less
    600 RPM for 60' swath.
    Take precautions when checking the spinner speed.
  - ➢ Determine density of material.
  - ➢ Set pound per acre per inch of Gate.
  - ➢ Determine chute setting (see suggested settings on chart.)
  - ➢ Actual spreading in the field should be to driver's preference, proper width should be maintained, the ends of field are usually lapped depending on the driver's preference. Care should be taken to make sure ground speed is less than 15 MPH.

- The above mentioned instructions are suggested to obtain a uniform spread pattern. After doing this you should run a spread pattern test to check this.

- Read and understand all instructions before attempting to operate equipment.
- Adjust chute as shown on the rate chart for the rate that you will be applying.
- Set the Gate opening for the desired application rate. This is also found on the rate chart.
- Select the correct chain arrangement for the spread rate you desire. Normally, when spreading fertilizer, you will use the 12-tooth sprocket on the drive wheel shaft and the 60-tooth sprocket on the jack shaft above the drive wheel. For line, use the 14-tooth sprocket on the drive wheel and the 24-tooth sprocket in the jack shaft. If you need help in determining the proper stewing of chain ratio, contact Diversified Fabricators, Inc. at **1-800-526-6480**.
-  Clear all by-standers away before starting the spreader. **DANGER: Never allow anyone to ride in or on the spreader.**
- If you want to use the hydraulic cylinder to engage the drive wheel you must disconnect the manual lever. It is connected to the drive wheel frame. Remove the locking pin and move the linkage to the storage position. Replace the locking pin. Place the hydraulic cylinder and put the pin through the clevis. Use locking pin to secure the clevis pin.
- Adjust the cylinder so that the drive wheel is 2 ½" from the applicator tire when cylinder is in the closed position.
-  Connect the hoses to the tractor remote plug in ports. **DANGER: Hydraulic pressure can move parts with extreme force. Do not operate the tractor hydraulic controls while anyone is within 100 feet of the spreader.** After bystanders are at a safe distance, crank the tractor and move the hydraulic control, according to the tractor manufacturer instructions.
- Check for leaks. If leaks are found, make corrections or adjustments as necessary then test again. The drive wheel should contact the applicator tire with enough pressure to get good traction.

   **CAUTION: Excessive pressure will reduce drive wheel and bearing life.**
- After all adjustments have been make pull the spreader a short distance, stop and take a walk around the spreader. Check to see that everything is working correctly.
- To spread with an even swath the spreader should be pulled at a constant speed. The all-ground drive spreader has a direct relationship between the speed of the spreader and the speed of the spinners. The standard spreader does best at about 5 to 7 MPG. Higher speeds produce excessive spinner speeds that adversely affect the spread pattern on fertilizer.
- Engage the drive wheel when you want to spread, disengage to stop everything. Never back up with the drive wheel engaged.

   **CAUTION: The spreader and the conveyor chain may be damaged if the spreader is backed up with the drive wheel engaged.**

VII – CHUTE SETTINGS

DIVERSIFIED FABRICATORS INC.

1325 U.S. Highway 41 Bypass South
Griffin, Georgia 30223

CHUTE & GATE SETTING

SWATH →	60'		50'		45'	
SPINNER SPEED RPM	600 - 650		500 - 550		450 - 500	
	CHUTE	GATE	CHUTE	GATE	CHUTE	GATE
	5	1 1/2	4.75	1 1/2	4.25	1 1/2
	4.75	2	4.5	2	4	2
	4.5	3	4.25	3	3.75	3
	4.25	4	4	4	3.5	4

PHONE: (404) 412-0429 FAX: (404) 412-0459 TOLL FREE: 1-800-526-6480

Additional information:

1 Bushel of Rye = 56 to 60 pounds
The density of Rye or Wheat = 43 - 45 pounds per cubic foot
The density of Oats = 28 - 30 pounds per cubic foot

Phone: 770 412-0429 Fax: 770 412-0459 Toll Free 1-800-526-6480

Diversified Fabricators Inc.
1325 Highway 41 Bypass South
Griffin, Georgia 30223

APPLICATION RATE CHART
PULL TYPE SPREADER

* - 12 TOOTH SPROCKET ON DRIVE WHEEL
* - 60 TOOTH SPROCKET ABOVE DRIVE WHEEL
* - 14 TOOTH SPROCKET ON THE INSIDE OF THE JACK SHAFT
* - 48 TOOTH SPROCKET ON DRIVE REAR ROLLER
* - 16" CONVEYOR CHAIN
* - 13 TOOTH REAR ROLLER
* - 4:00 X 8 DRIVE WHEEL

DENSITY, POUNDS PER CUBIC FOOT

POUNDS PER ACRE PER INCH OF GATE OPENING

16 -- 30" ROWS = 40 FEET
16 -- 36" ROWS = 48 FEET
16 -- 38" ROWS = 50.7 FEET
16 -- 40" ROWS = 53.3 FEET

45	92	76	72	69
50	102	85	80	76
55	112	93	88	84
60	122	102	96	92
65	132	110	104	99
70	143	119	112	107
75	153	127	121	115
80	163	136	129	122
85	173	144	137	130

CHUTE SETTINGS

100# TO 140# = 5
160# TO 200# = 4.75
220# TO 200# = 4.5
320# TO 360# = 4.25
380# TO 440# = 4
460# TO 520# = 3.75
560# TO 640# = 3.5
760# TO 970# = 3

LIME: 90 POUNDS PER CUBIC FOOT
14 TOOTH ON THE DRIVE WHEEL, 24 TOOTH ABOVE
ADJUST CHUTE TO 1,45 FOOT SWATH
475 POUNDS PER ACRE PER INCH OF GATE OPENING

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Diversified Fabricators Inc.
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Griffin, Georgia 30223

APPLICATION RATE CHART
TRUCK MOUNTED SPREADER

* - 12 TOOTH SPROCKET ON DRIVE WHEEL
* - 60 TOOTH SPROCKET ABOVE DRIVE WHEEL
* - 14 TOOTH SPROCKET ON THE INSIDE OF THE JACK SHAFT
* - 48 TOOTH SPROCKET ON DRIVE REAR ROLLER
* - 16'' CONVEYOR CHAIN
* - 13 TOOTH REAR ROLLER
* - 20.5 X 8 X 10 DRIVE WHEEL

DENSITY, POUNDS PER CUBIC FOOT

POUNDS PER ACRE PER INCH OF GATE OPENING

DENSITY	45 FOOT SWATH	50 FOOT SWATH	55 FOOT SWATH	60 FOOT SWATH
45	65	58	53	49
50	72	65	59	54
55	79	71	65	60
60	86	78	71	65
65	94	84	77	70
70	101	91	83	76
75	108	97	88	81
80	115	104	94	86
85	123	110	100	92

CHUTE SETTINGS

100# TO 140# = 5
160# TO 200# = 4.75
220# TO 300# = 4.5
320# TO 360# = 4.25
380# TO 440# = 4
460# TO 520# = 3.75
560# TO 640# = 3.5
760# TO 970# = 3

LIME: 90 POUNDS PER CUBIC FOOT
14 TOOTH ON THE DRIVE WHEEL, 24 TOOTH ABOVE
ADJUST CHUTE TO 1, 50 FOOT SWATH
341 POUNDS PER ACRE PER INCH OF GATE OPENING,
426 POUNDS ON 40 FOOT SWATH

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Diversified Fabricators Inc.
1325 Highway 41 Bypass South
Griffin, Georgia 30223

APPLICATION RATE CHART
PULL TYPE SPREADER

* - 12 TOOTH SPROCKET ON DRIVE WHEEL
* - 60 TOOTH SPROCKET ABOVE DRIVE WHEEL
* - 14 TOOTH SPROCKET ON THE INSIDE OF THE JACK SHAFT
* - 48 TOOTH SPROCKET ON DRIVE REAR ROLLER
* - 18" CONVEYOR CHAIN
* - 13 TOOTH REAR ROLLER
* - 4:00 X 8 DRIVE WHEEL

DENSITY, POUNDS PER CUBIC FOOT

POUNDS PER ACRE PER INCH OF GATE OPENING

DENSITY	16 — 30" ROWS = 40 FEET	16 — 36" ROWS = 48 FEET	16 — 38" ROWS = 50.7 FEET	16 — 40" ROWS = 53.3 FEET
45	103	85	81	77
50	115	96	90	85
55	126	104	99	94
60	137	115	120	103
65	148	124	117	111
70	161	134	126	120
75	172	143	136	129
80	183	153	145	137
85	195	162	154	146

CHUTE SETTINGS

100# TO 140# = 5
160# TO 200# = 4.75
220# TO 300# = 4.5
320# TO 360# = 4.25
380# TO 440# = 4
460# TO 520# = 3.75
560# TO 640# = 3.5
760# TO 970# = 3

LIME: 90 POUNDS PER CUBIC FOOT
14 TOOTH ON THE DRIVE WHEEL, 24 TOOTH ABOVE
ADJUST CHUTE TO 1, 45 FOOT SWATH
534 POUNDS PER ACRE PER INCH OF GATE OPENING

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APPLICATION RATE CHART
24'' CHAIN PULL TYPE SPREADER

* - 12 TOOTH SPROCKET ON DRIVE WHEEL
* - 60 TOOTH SPROCKET ABOVE DRIVE WHEEL
* - 14 TOOTH SPROCKET ON THE INSIDE OF THE JACK SHAFT
* - 48 TOOTH SPROCKET ON DRIVE REAR ROLLER
* - 24'' CONVEYOR CHAIN
* - 13 TOOTH REAR ROLLER
* - 40.8 X 8 DRIVE WHEEL

DENSITY, POUNDS PER CUBIC FOOT

POUNDS PER ACRE PER INCH OF GATE OPENING

DENSITY	45 FOOT SWATH	50 FOOT SWATH	55 FOOT SWATH	60 FOOT SWATH
45	122	110	100	92
50	136	122	111	102
55	149	134	122	112
60	163	147	133	122
65	177	159	144	132
70	190	171	156	143
75	204	183	167	153
80	217	196	178	163
85	231	208	189	173

CHUTE SETTINGS

100# TO 140# = 5
160# TO 200# = 4.75
220# TO 200# = 4.5
320# TO 360# = 4.25
380# TO 440# = 4
460# TO 520# = 3.75
560# TO 640# = 3.5
760# TO 970# = 3

LIME: 90 POUNDS PER CUBIC FOOT
12 TOOTH ON THE DRIVE WHEEL, 24 TOOTH ABOVE
ADJUST CHUTE TO 1, 45 FOOT SWATH
613 POUNDS PER ACRE PER INCH OF GATE OPENING,
550 POUNDS ON 50 FOOT SWATH

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VII - ATTACHMENTS, ACCESSORIES, and OPTIONS

- One way attachment can be used to place all material to either side of spreader. Can be used on roadsides, fish ponds, pecan groves, etc …
- Diverter for placing all materials equally on each side of spreader (No materials in center). Can be used for peach, apple, and pecan trees, and various other crops.
- Half rate kits can be used for extreme low rates and/or extremely heavy materials to prevent damage to bed chain or components.
- Young tree attachment (for Grove Spreaders only) is used to place small amounts of fertilizer to each tree automatically.
- Split chains: Two 8" wide chains in place of a single 16" chain will give you the option of spreading only one half of the total swath. This is good for narrow areas, groves, orchards, etc … The rate per acre remains the same, whether you use one chain or both.
- Uploader Motors: This enables a spreader with a ground drive conveyor to unload in a stationary position.
- Inverted "V" over bed chain, reduces the weight of material on the chain and reduces the force required to drive the chain.

PRE-RUN CHECK LIST

- Check oil level in reservoir.
- Check transmission oil level.
- Check all hoses for wear points and leaks.
- Check oil level in gear box reservoir, if applicable.
- Check bed chain tension. The chain should not drag on cross members under it.
- Check to see that everything runs correctly before loading.
- Check spinner speed. Run engine at field RPM.
- Check all bolts that tie the body to the truck chassis, repair or replace as necessary.

TO SPREAD FERTILIZER

- Close gate before loading fertilizer.
- Load, tarp, and go to field.
- Set gate at desired height. (Check rate chart).
  - ➢ Below 300 pounds per acre use low chain speed (pull in on selector).
  - ➢ Above 300 pounds per acre use fast chain speed (push out on selector).
-  Set chute as shown on attached sheet. **CAUTION:** Keep all by-standers back at a safe distance while power-take-off (PTO) is engaged. The spinners will throw some material 50 feet and can cause serious injury.
- Engage power-take-off (PTO). Spinners will run all the time the PTO is engaged.
- Turn on conveyor with electric switch in cab when you want to spread. The conveyor can be stopped or started without disengaging the clutch.

NOTE: THE OPERATOR SHOULD SPREAD PATTERN TEST HIS MATERIAL AT HIS SWATH BEFORE PUTTING THE MACHING IN FULL SERVICE.

DFI ALL HYDRAULIC SPREADERS-

- The hopper and the conveyor are the same for both "all hydraulic" and the drive wheel units.
- The all-hydraulic uses a tandem PTO pump. One section of the pump powers the spinners, the other powers the conveyor.
- **CAUTION The spinners run all the time the PTO is engaged.**
- The conveyor has two speeds: high for lime and low for fertilizer. This is a manual valve.
- The conveyor can be stopped and started with a switch in the cab of the truck.
- The conveyor has a direct relationship with the ground covered. That means that your rate per acre is always consistent. The speed of the truck and the RPM of the engine can vary as you feel necessary. The rate per acre will remain constant. However, the truck must remain in the same gear.
- DFI produces a rate chart for various density materials in each spreading gear of the truck. The truck must have the correct tires at the time of calibration.
- The all hydraulic unit eliminates all the roller chain sprockets, the drive wheel, and six bearings.
- The all hydraulic spreader will spread in forward or reverse and will unload while sitting still.
- There are only four bearings to service; two on the front and two on the rear.
- DFI has two different drive motors. The standard for up to 12' conveyors and the heavy duty for over 12' long conveyors.
- As with all DFI equipment, the hydraulic option is designed to help you make your spreading job easier.
- Electronic control / computer controls are optional – contact Diversified Fabricators, Inc. for more information.

CALIBRATION PROCEDURE
ALL HYDRAULIC SPREADERS

- Be sure that you have the tires on the rear drive axle that you intend to spread with.
- Decide which gear you intend to spread with.
- Measure a mile.
- Mark the rear roller so that every time it goes around you see the market one time.
- Put the conveyor chain in the slow speed. Move the spinner speed control to zero to stop the spinners.
- Let one man drive. Drive the mile in one of your spreading gears. Do not shift gears during the test. Have another man count the turns that the rear roller makes during the mile.
- Repeat the test for each spreading gear.
- Call DFI. We need:
  - ➢ Swath width that you want the chart calibration done on, and
  - ➢ Number of turns that rear roller counted.

NOTE: You may change speeds and engine RPM. Do not shift gears during the test.

Recommended Hydraulic Oil
Union AW46 or equivalent 10 weight Non-foaming anti-wear anti-corrosive high quality hydraulic oil.

The life of the pump and motors is dependent on the quality of the oil. Never use "cheap" hydraulic oil.

Never use water base hydraulic oil. The roller bearings in the pump will be damaged with use of water-based oil.

Do not over grease bearings. If you put too much grease in the bearings the seal will be pushed out. Once the seal is gone, you have no protection against contamination of the bearings. The bearings will fail shortly thereafter. Only a small amount of grease is necessary. With a hand-operated pump, one pump after a full week of use is sufficient. If you see the seal swell, or grease come out, quit pumping.

Recommended Gear Oil
90-WEIGHT GEAR OIL

Gear boxes –

All hydraulic truck spreaders and pull type spreaders with gearbox spinners require 90-weight gear oil.

CAUTION: **Gearboxes will fail if not lubricated.** All DFI spreaders have oil reservoirs with sight tubes. Keep some oil in the sight tube.

The following checklist should be gone over with the owner/operator before the equipment is put in service.

- Visual walk around check
  - ➢ Keep tie down bolts tight – retighten after the first 50 hours. Check weekly.
  - ➢ Hydraulic hoses and lines – check to be sure there are no leaks, be sure there are no sharp corners to cut the hoses – pad if necessary. Check daily.
  - ➢ Check air pressure in tires daily. Follow tire manufacturers recommendations.
  - ➢ Check conveyor chain daily – adjust so that chain does not drag on cross members under spreader. Always keep front idler roller parallel to axles. Do not allow the roller to run at an angle. The bed chain may be damaged if the roller is not properly adjusted.
  - ➢ Check lug nuts daily. Retighten as necessary.
- Always clean excess material off a spreader and wash thoroughly before storing. Never allow fertilizer to "cake-up" on any parts of the spreader. Use a high-pressure washer to clean the machine. A regular application of diesel fuel or waste oil can prolong the life of your spreader. This will also make it easier the next time you clean the machine.
- Grease bearings occasionally – do not pump too much grease or the seals will be destroyed.
- Service filters and change hydraulic oil every six months.
- Test spread pattern for each different swath or material. Contact DFI if you have any questions.

EXCESSIVE NOISE IN PUMPS	
Problem	**Remedy**
Insufficient Fluid	Replenish fluid to proper level with proper grade
Fluid is too heavy	Drain system and refill with specified grade of fluid SAE 10 weight
Oil filter is dirty	Clean or replace filter element
Clogged suction line screen	Clean screen thoroughly
Pump over-speeding	Check pump maximum speed: slow down pump driver: or install larger pump
Air vent on fluid reservoir clogged	Clean or replace breather on reservoir
Air bubbles in fluid	Drain system and refill with non-foaming hydraulic fluid
Filter too small	Replace with larger filter
Air leaks at pump intake	Tighten joints, look for restriction between tank and pump
Worn or broken parts	Replace parts as necessary

FOAMING FLUID	
Problem	**Remedy**
Improper fluid	Drain system and refill to correct level with proper grade of anti-foaming fluid
Low fluid level	Top up with proper grade of anti-foaming fluid
Air leaking into suction line between reservoir and pump	Tighten all connections. Check suction hoses

OIL LEVEL CONTINUES TO DROP	
Problem	**Remedy**
Oil level in tank continues to drop	Indicates a leaking line: replace and/or tighten
Pump rotating in wrong direction	IMMEDIATELY STOP POWER TAKE OFF to prevent damaging pump. Then reverse direction of pump rotation
Pump fails to prime itself Air leak into suction line Oil is too heavy	Tighten up joints. Drain system and replace fluid with proper grade of anti-foaming fluid

SYSTEM LACKS ANY PRESSURE WITH PUMP RUNNING	
Problem	**Remedy**
Relief valve not set correctly	Use pressure gauge and reset valve to specified pressure
Relief valve leaking	Check relief valve seat for score marks. Reseat by grinding or replace
Broken relief valve spring	Replace spring; reset relief valve
Internal leakage in control valve or power cylinder	Repair of replace leaking valve or cylinder

EXCESSIVE WEAR IN PUMP	
Problem	**Remedy**
Abrasive contaminates in fluid	Drain and flush entire system. Install new filter. Fill system with fresh oil of proper grade or filter contaminated oil through a 10-micron filter before refilling. Operate pump an hour. Drain system again. Install new filter element and fluid.
Fluid to light for service	Drain and replace with anti-foaming fluid of proper grade.
Sustained pressure above pump maximum rating	Check and reset relief valve pressure, using pressure gauge.
Sustained excessive speed and pressure above pump maximum rating	Recheck pump rated speed. Slow down driver to produce this speed.

OVERHEATED FULID	
Problem	**Remedy**
Fluid too heavy.	Drain system and refill with lighter grade of aiti-foaming fluid.
Fluid to light for high-temperature location.	Drain system and refill with heavier grade of anti-foaming fluid.
Dirty fluid.	Drain and flush system; refill with proper grade of anti-foaming fluid; replace filter element.
Dirt of chip caught between plunger and seat of relief valve.	Disassemble relief valve and remove contaminant. Check condition of filter to prevent recurrence.

Incorrect setting on relief valve	Use gauge and adjust relief valve setting to correct pressure.
Worn pump permits oil to bypass internally.	Repair worn pump parts or replace pump.
Relief valve leaks or not operating.	Repair or replace relief valve
Excessive friction caused by pump components over-torqued.	Disassemble pump and back off over-torqued components to tightness specified in the maintenance manual.
Undersized hoses and valves in system.	Replace with proper size hose and valves.
Restrictions and excessive bends in lines.	Re-plumb system to eliminate restrictions.
Internal leaks not in pump	Locate and repair leaks.

PUMP NOT EFFICIENT	
Problem	**Remedy**
Worn pump parts reduce pump efficiency.	Repair or replace pump.
Internal leak in control valve or cylinder.	Repair or replace control valve. Replace cylinder packing. Check cylinder walls for scoring and replace if necessary.
Erratic motor performance: a. If motor rums slow on start-up, and speeds up after fluid is warm, fluid is too heavy. B. If motor slows down after fluid has heated up, fluid is too light.	a. Drain system and refill with lighter grade anti-foaming fluid. b. Drain system and refill with heavier grade of anti-foaming fluid.

MOTOR DOESN'T DEVELOP PROPER TORQUE OR SPEED	
Problem	**Remedy**
Relief valve incorrectly adjusted.	Use a pressure gauge and increase relief valve pressure setting to proper level.
Relief valve sticking open.	Disassemble relief valve and remove dirt from under ball or piston. Check condition of filter to prevent recurrence.
Insufficient pump pressure of volume.	Use pressure and flow gauges to check pressure output and pressure.

LUBRICATION OR PUMPS AND MOTORS

- The hydraulic oil used in the entire circuit provides the lubrication for all parts of the pumps. KEEP THIS OIL CLEAN AND FREE OF DIRT. DFI recommends a 25-micron return filter and a 149-micron (100-mesh screen) suction filter to fully protect the pump and system from excessive wear and damage from dirt.
- If the pump fails and you think metal particles have gotten in the circuit:
  - ➢ Drain ALL the oil from the whole system
  - ➢ Flush the system with kerosene
  - ➢ Refill the system with fresh oil of correct grade.
    - ✓ Viscosity index at 100 degrees F (37 C): 90 or higher
    - ✓ Viscosity SUS at 100 degrees F (37 C): 150 to 300 (32-65 CST)
    - ✓ Aniline point: 165 or higher
    - ✓ Anti-foam and anti-oxidant additives
- Temperature of oil should never exceed 185 degrees F (85C)
- NEVER use low-viscosity naphtha-base oils, aircraft hydraulic fluids, or automotive brake fluids without consulting DFI.
- For extended operation at temperatures below 20 degrees F (-7C) always use a low-pour-point oil of top quality.

SPREAD PATTERN PROBLEMS

Things to look for to avoid spread pattern problems.

- Tight fit or rear roller cover plate at rear roller.
- Center motors 12 ¾" from baffle plate.
- Motors 25" apart centered under chute.
- Be sure that blades have plenty of "CUP", about 45 degrees. The blades should not be leaning of bent backward.
- The entire chute compartment should be kept clean and the adjustment well greased for easy movement of the chute.
- The spinner speed should be kept about 650 RPM at field engine operating speed.
- All shields should always be kept in place.
- Proper inflation or ground wheel and drive wheel should be maintained.
- Leaking seals in motors or bad bearings in spinner shafts can cause spread problems.

XIII – THE MOST COMMONLY ASKED QUESTIONS

- Why is it important to use original equipment bearings?
  Answer: Because different shaft height bearings misalign shafts and cause problems elsewhere.
- How often should the bed chain tension be checked?
  Answer: Daily.
- What should be done about sag to one side in the bed chain?
  Answer: Nothing, always keep front roller adjusted even.
- How often should the hydraulic oil be checked?
  Answer: Daily
- What type oil and what weight should I use?
  Answer: Any good 10 weight non-foaming hydraulic oil. DFI recommends **UNION AW46**.
- Why is it important to check rear roller cover plates?
  Answer: A worn or damaged plate will cause uneven spread patterns.
- How often should I check hydraulic hoses for wear and looks?
  Answer: Daily
- How often should spinner blades be checked for wear?
  Answer: Daily
- How can I tell right hand dish and right hand blade from the left side dish and blades?
  Answer: If a left hand dish in put on the right hand dish the blades will not line up properly and vise-versa.
- Why is it important to keep divided chute clean?
  Answer: A clogged chute will cause uneven spread patterns.
- Why is it important to adjust the chute?
  Answer: For uniform spread pattern.
- Why is spinner speed important?
  Answer: For uniform spread pattern.
- How often should spinner speed be checked?
  Answer: Weekly.
- Name the areas that need greasing every day?
  Answer: None.
- Is the spinner speed the same for 50' and 60' swath?
  Answer: No, 500 RPM for 50'. 600 RPM for 60'.
- If I change truck tire size will it affect the rate per acre?
  Answer: Not on ground drive units but on hydraulic conveyors it will.
- How important is material particle size?
  Answer: Very important for uniform spread pattern.
- What factors change the rate per acre on a spreader truck?
  Answer: Sprocket combinations and swath width and density.
- How do I set spinner speed?
  Answer: With the flow control valve.
- Why should spinner speed remain constant?
  Answer: For uniform spread pattern width.
- At what time should I consider using a half rate sprocket combination and why?
  Answer: For real low rates, 100 lbs. Per acre or less. This will keep from damaging bed chain or rear gate.
- How do I measure gate opening?
  Answer: From the floor to the bottom of the gate.
- Why should spinner motors be centered under the chute?
  Answer: For uniform spread pattern.
- How do I adjust the gate for different density material?
  Answer: See rate chart.
- When spreading on 50' swath, how far apart are wheel tracks?
  Answer: 50'.
- What ground speed should be maintained while spreading? Maximum? Minimum?
  Answer: 15 mph – Maximum, no minimum.

XIV – CALIBRATION AND SPREAD PATTERN TESTING

A spread Pattern Kit is available through DFI.

- Use of 7-11 pans is recommended, spaced an even distance apart. This should be done in pasture or on a level surface with no tall crops or weeds.
- Drive across center pan and pour material in test tubes, with care taken to keep tubes in order that pans are spaced.
- Once this evaluation is made of the spread pattern, there are three acceptable spread patterns that should be seen in the tubes. The other patterns commonly referred to as the "M" "W", or "lopsided" are not desirable and steps should be taken to correct these patterns.

"M" Pattern is often caused by the operator having the chute adjusted too far back. This places the material on the spinners so that the material is spread too wide and leads to light application behind the spreader.
When this happens:

- Move the chute forward to place more material in the center of the swath.
- Decrease spinner speed.
- Check for worn cover plate or spinner not positioned under the chute.
- Hydraulic flow control stuck.

"W" Pattern can also be caused by having the chute out of adjustment. To correct this:

- Move the chute out away from spreader to move material further out.
- Check spinner speed (increase probably).
- Check for worn cover plates (replace if necessary).
- Hydraulic flow control stuck.

"Lopsided" Pattern can be caused by the following:

- Operating on STEEP HILLSIDE (may need Hillside Divided).
- Spinner motor on one side not proper RPM.
- Bad spinner motor bearings.
- Spinners not centered under the chute.
- Chute blockage.
- Bent or worn out spinner blades.
- Spinners not level.
- Wrong spinner dish (right on left or left on right).

Further studies could be done with consideration given to particle size, for example; fine dusty materials and wet materials.

Accurate spreading can always be improved by operator's skill and conscientious operation, proper driving widths, proper maintenance, and proper ground speeds, studying the operation manuals, and knowing the density of materials. Always use good materials and replace parts with original parts.

Lime spreading on high-density materials being applied in heavy applications requires entirely different chute adjustments and should be checked just like fertilizer for proper uniform spreading.

1	Spinner Blade Carbon Steel Stainless Steel Specify left or right	 DFI MS BLADE DFI SS BLADE
2	Spinner Dish Carbon Steel Stainless Steel Specify left or right	 DFI MS DISH DFI SS DISH
3	2" Reflector – self adhesive	
4	Spinner Motor Hub	DFI HUB
5	Nut/Blot/Washer assembly 5/16 x 1 Bolt 5/16 Nut ¼ Flat Washer	
6	Complete Spinner Dish Carbon Steel Stainless Steel	 DFI MS DISH W/BLADES DFI SS DISH W/BLADES
7	Quad Gear Box Spinner Drive Assembly	
8	Divider Chute Screw Coupling	CHUTE COUPLING
9	Divider chute Screw with Bearing	C SCREW W/BRNG
10	Rotating Spinners Danger Decal	DFI 1004
11	2" 4-Bolt Flange Bearing	
12	2" Rear Roller	DFI REAR ROLLER
13	Chute Bracket Side Plate Stainless Steel Carbon Steel	 CHUTE S PLATE SS CHUTE S PLATE CS
14	1 ¼" Take-up Bearing	
15	DFI Front Roller	FRONT ROLLER
16	Take-up Bolt SS Truck – 16" Pull Type – 10"	TAKE-UP BOLT
17	Stainless Webbed Bed Chain 8", 16", 24"	
18	Front Flap Front Flap Assembly	FRONT FLAP FR FLAP ASB
19	48 Tooth Sprocket for 60 series chain with 2" bore	

20	60 Series Chain (10" package or 50' roll) Stainless Steel Carbon Steel 1/2 link – 60H 60H Connecting link #60 Offset link	
21	Stainless Steel chute Assembly 8", 16", 24"	SS CHUTE ASB
22	Stainless Steel Gate 8", 16", 24"	
23	Stainless Steel Gate Slide (specify left or right)	SS GATE SLIDE
24	Gate Setting Scale – (right side)	GATE SET SCALE

25	Stainless Gate Jack with Handle	G JACK W/HANDLE
26	3' Gate Jack Handle	GATE JACK HAND
27	Blue Block Universal Joint	
28	1 ¼" Pillow Block Bearing	
29	12 Tooth Sprocket – 60 series chain 1 ¼" bore – 5/16" Keyway	
30	14 Tooth Sprocket – 60 series chain 1 ¼" bore – 5/16" Keyway	
31	U-Joint 1 ¼" Round to 1" Square 31A – U-Joint 1 ¼" Round to 1" Square Slip	
32	1" Solid High Tensile Steel Shaft	
33	1 ¼" Round Shaft with Key Way slots High Tensile Steel	
34	Press Wheel – 4 x 8 x 15.25 w/rim and segmented tire assembly	
35	Press wheel shaft and Hub Assembly-Specify Truck or Pull Type	
36	1 ¼" Pillow Block Bearing	
37	60 Tooth Sprocket – 60 series chain – 1 ½" shaft	
38	Spring	
39	3" x 3" Hydraulic Cylinder	
40	Pressure Relief Valve	
41	Flow Control Valve	
42	Splitter 50/50	
43	Selector Valve	
44	Splitter 75-70-30	
45	Return Line Filter Assembly	
46	1 ¼" Plated Nipple	
47	1 ¼" Gate Valve	
48	Hydraulic Tank Band	
49	Oil Tank	
50	Oil Tank Reservoir Assembly	
51	Torqmotor	

52	Gearbox 6:1	
53	Unloader Valve	
54	Drop Leg – Tongue Jack 8,000#	
55	Drop Leg – Tongue Jack 8,000# - Handle only	
56	Swivel Hitch Assembly	
57	Tie Down Assembly – (specify bolt length)	
58	Mounting Grommet	
59	Light	
60	Wiring Harness	
61	Rim – Reverse Wheel 11.25 x 28	
62	Lug nut	
63	Tire – 11.25 x 28	
64	871 Hub and Spindle Assembly	

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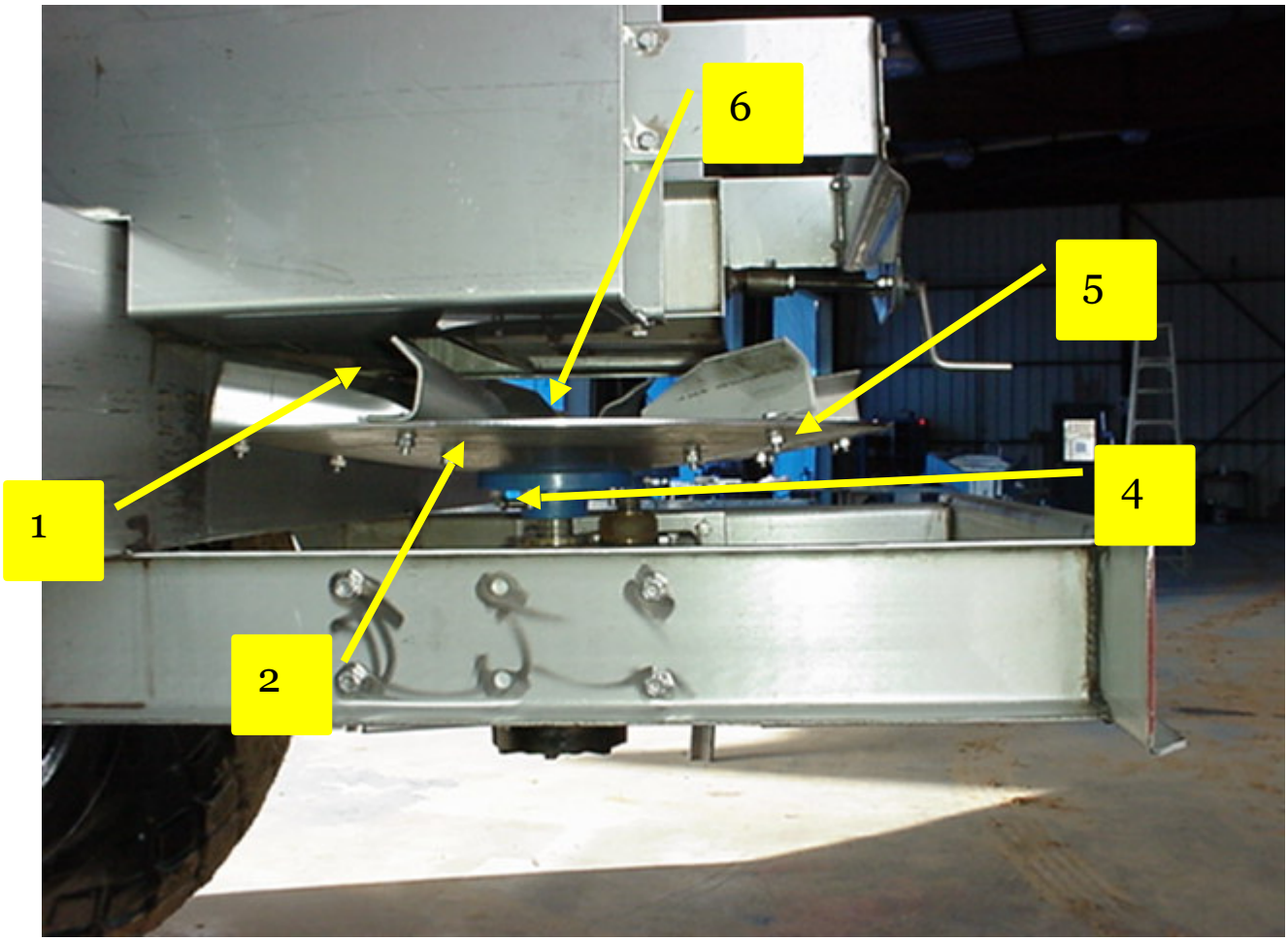

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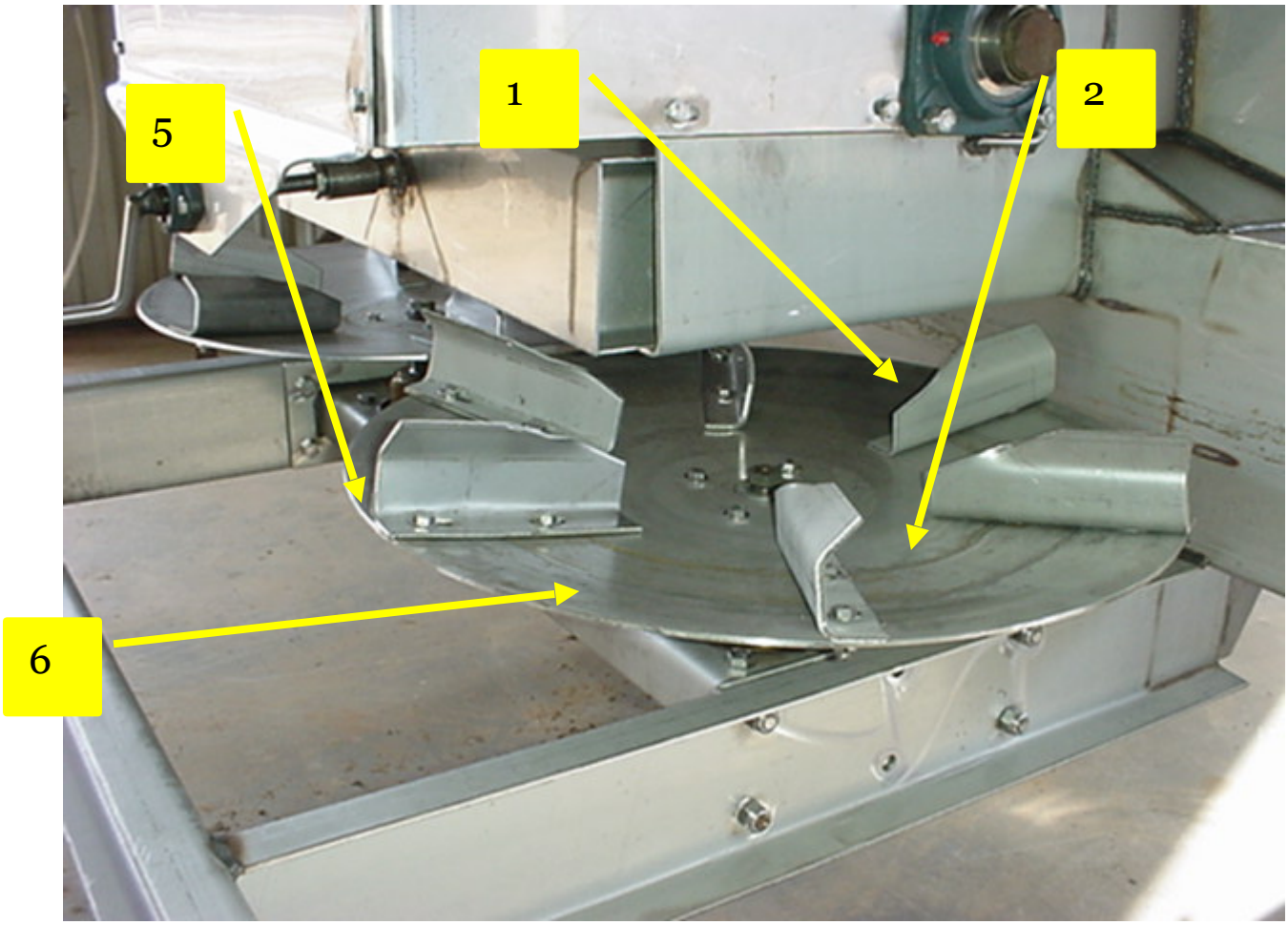

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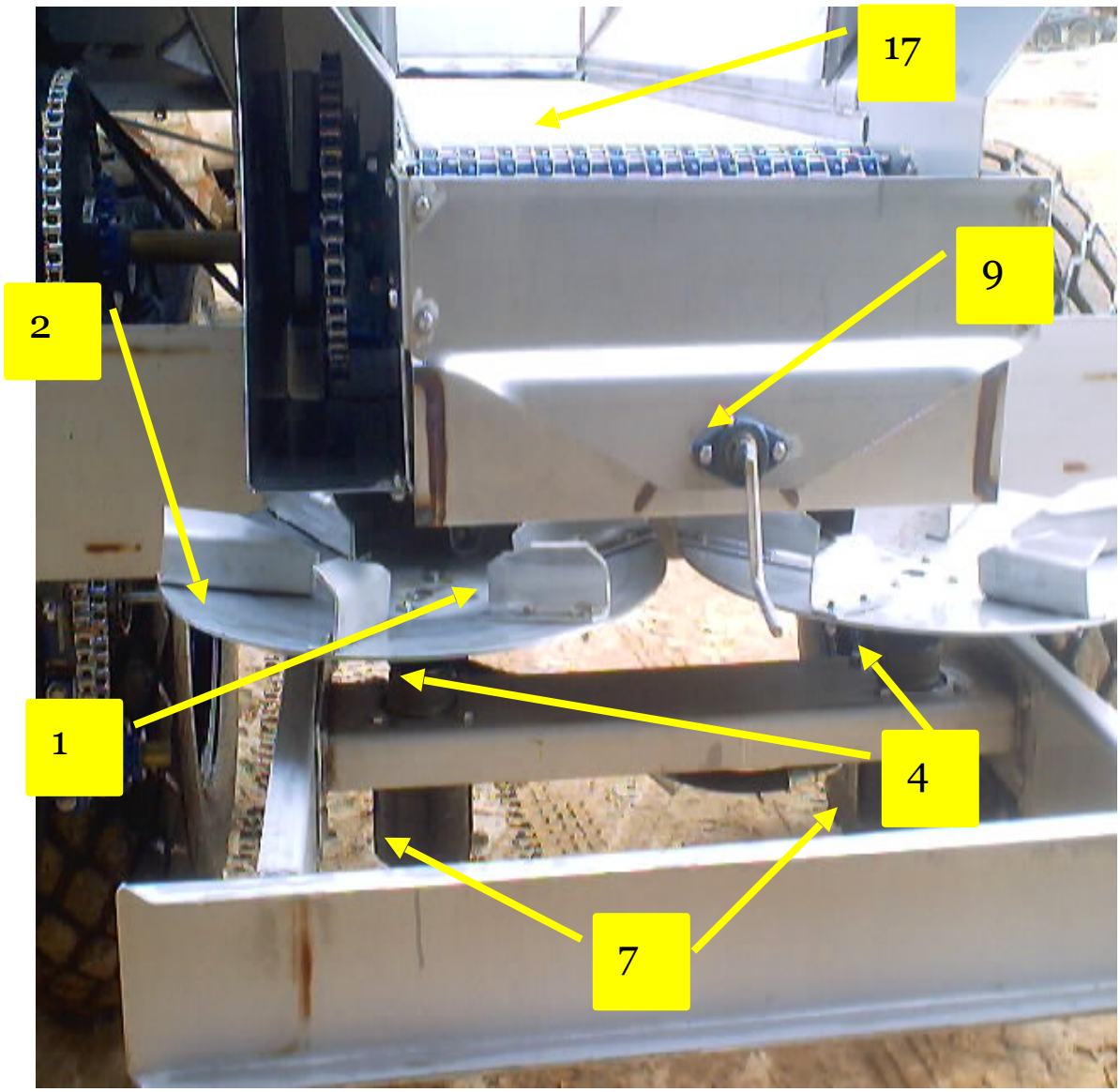

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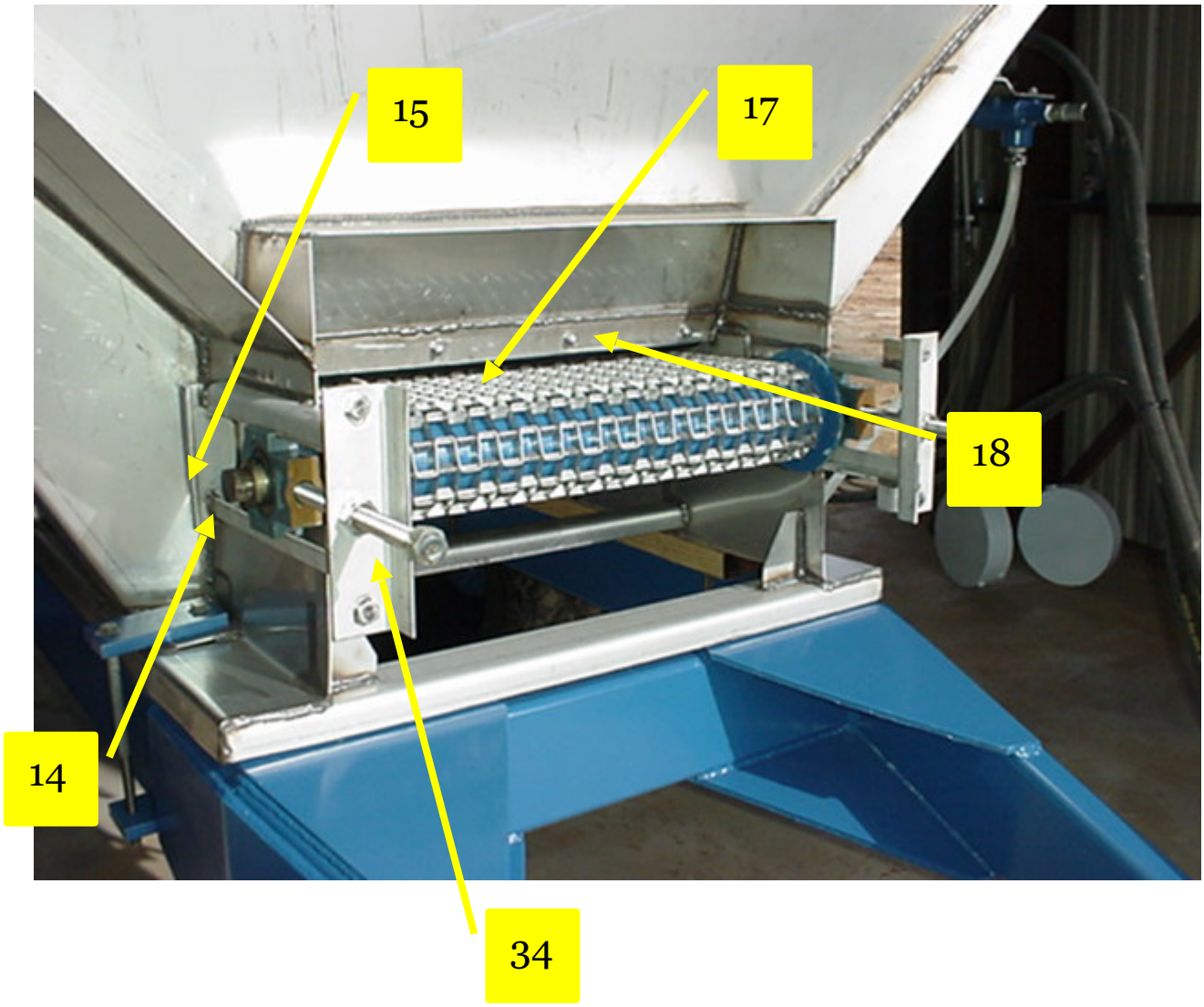

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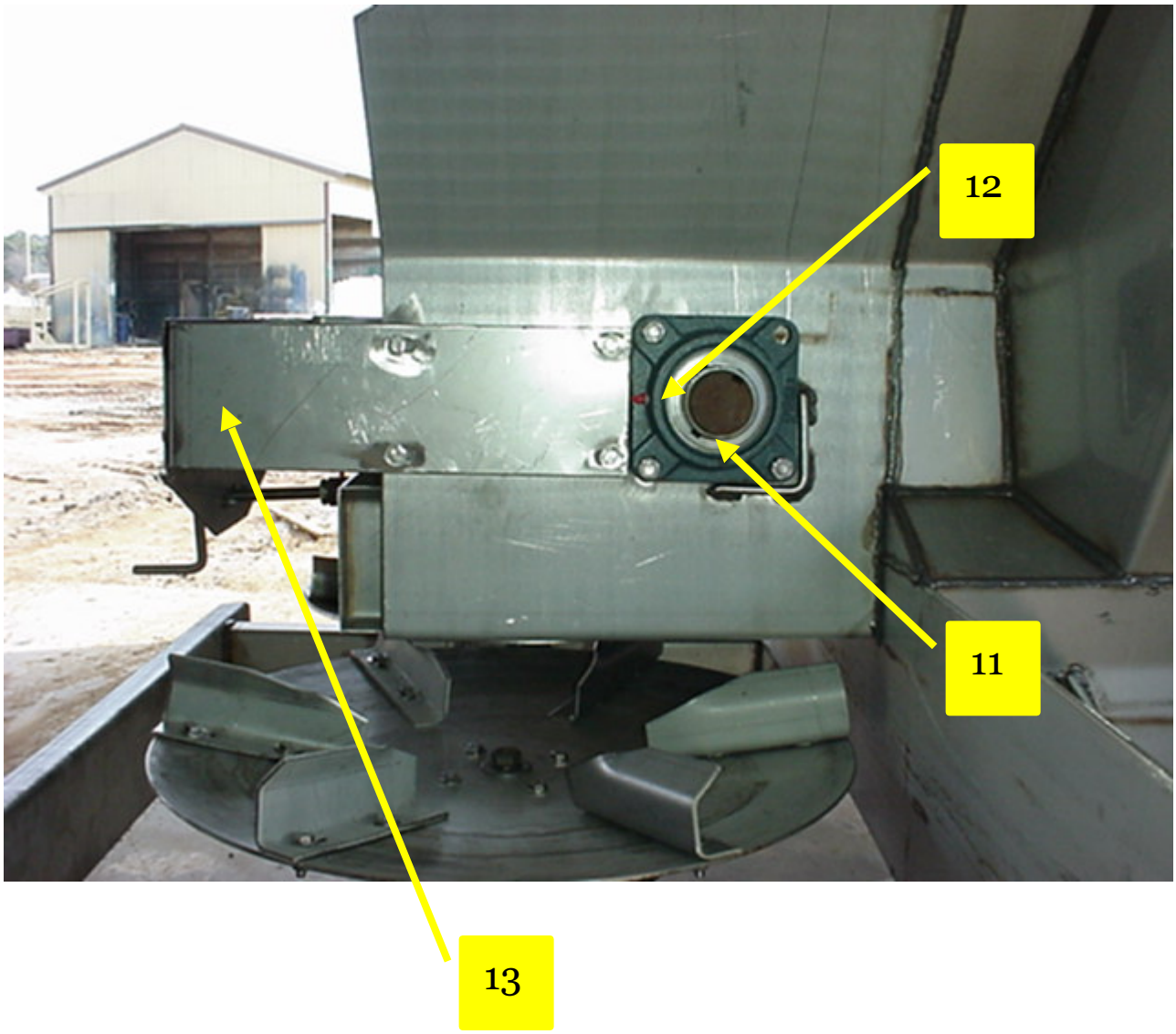

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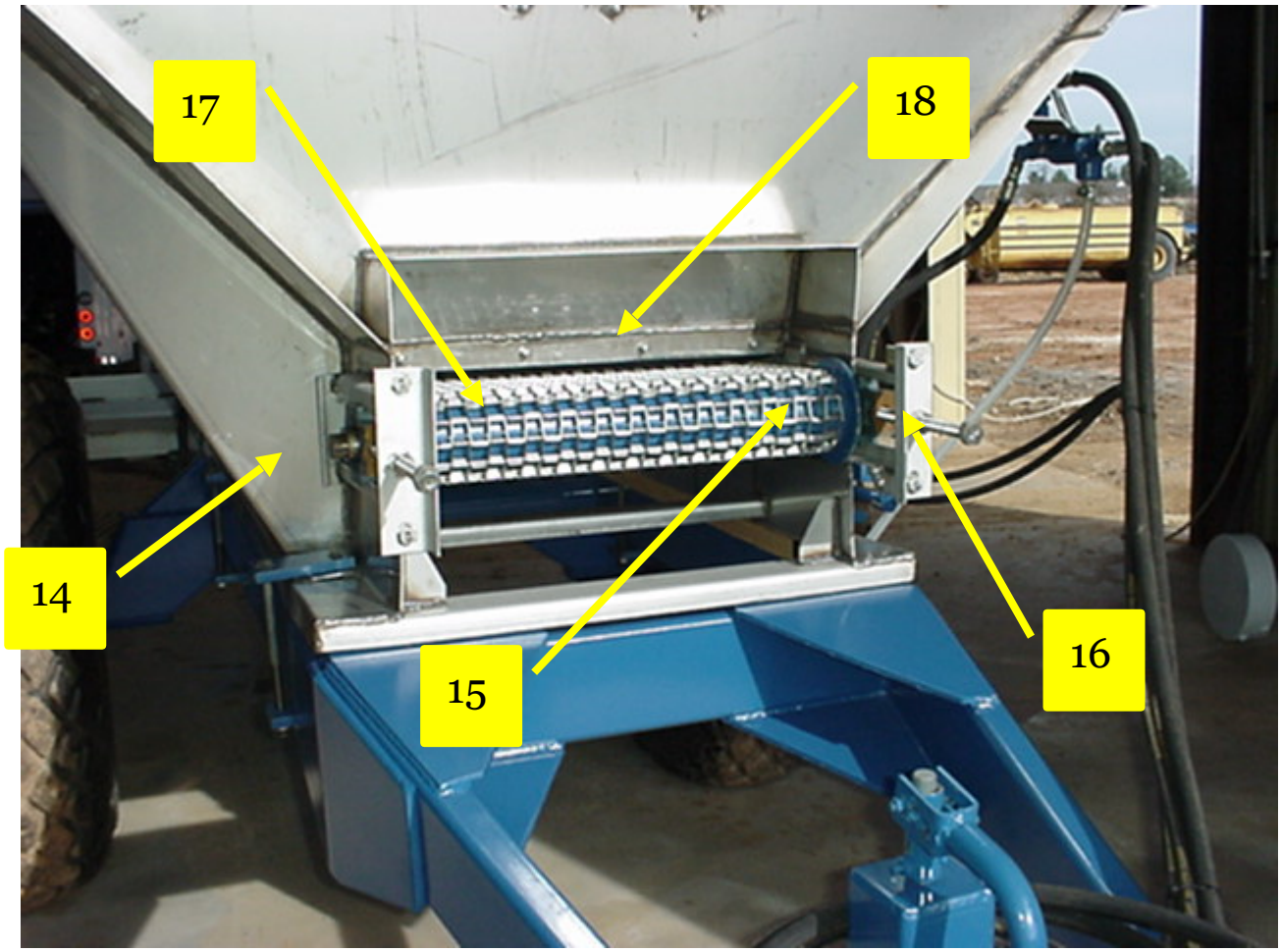

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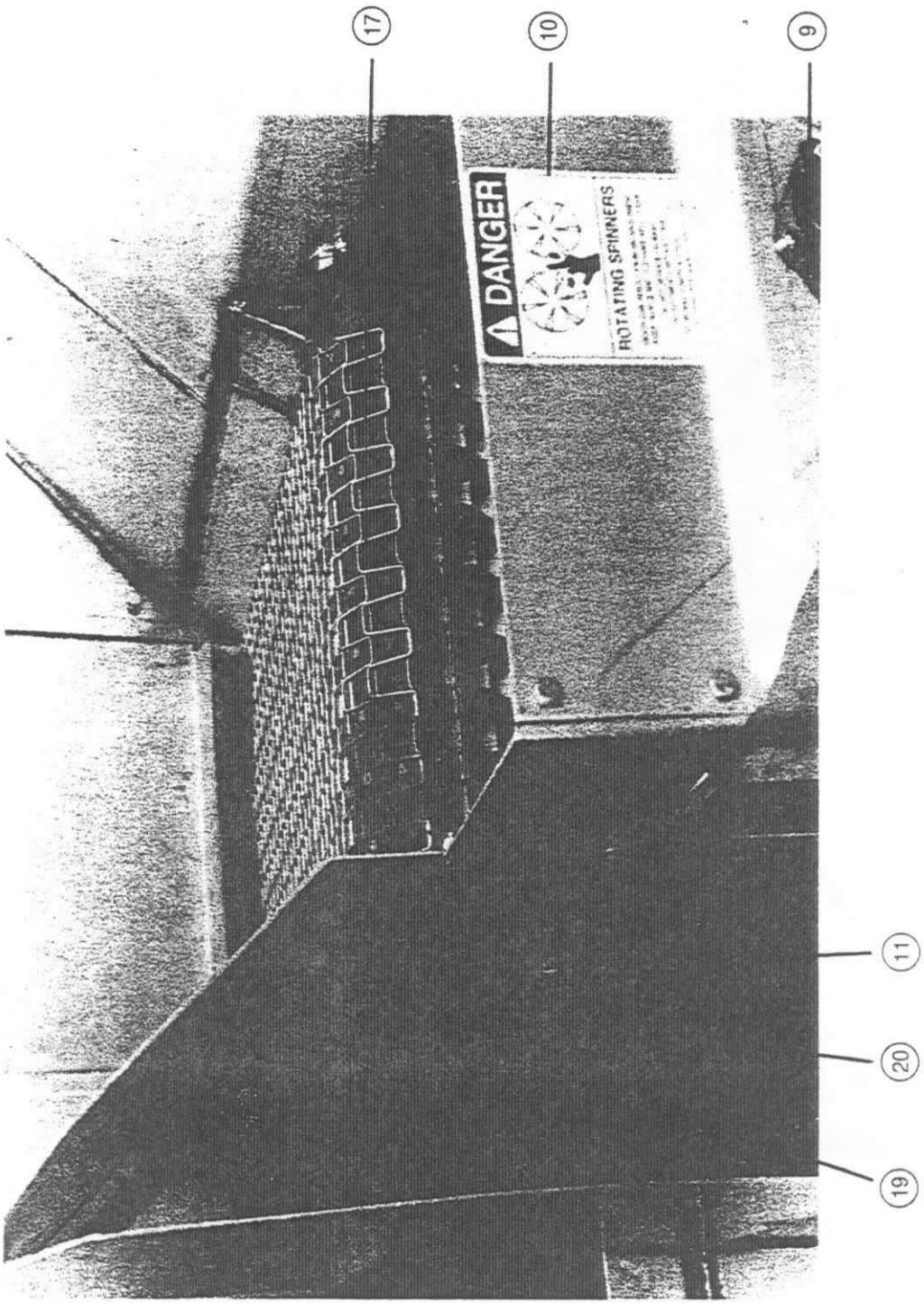

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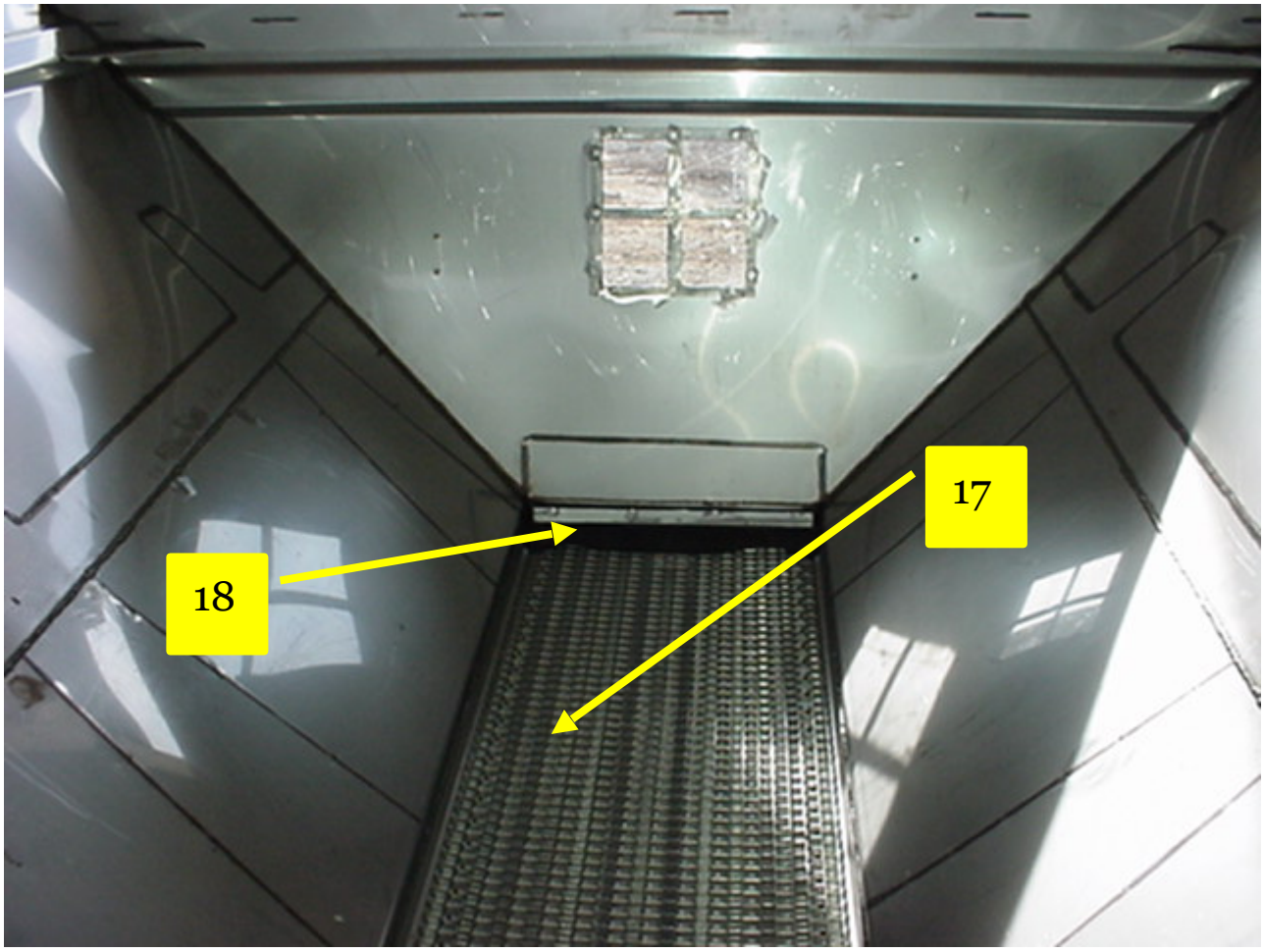

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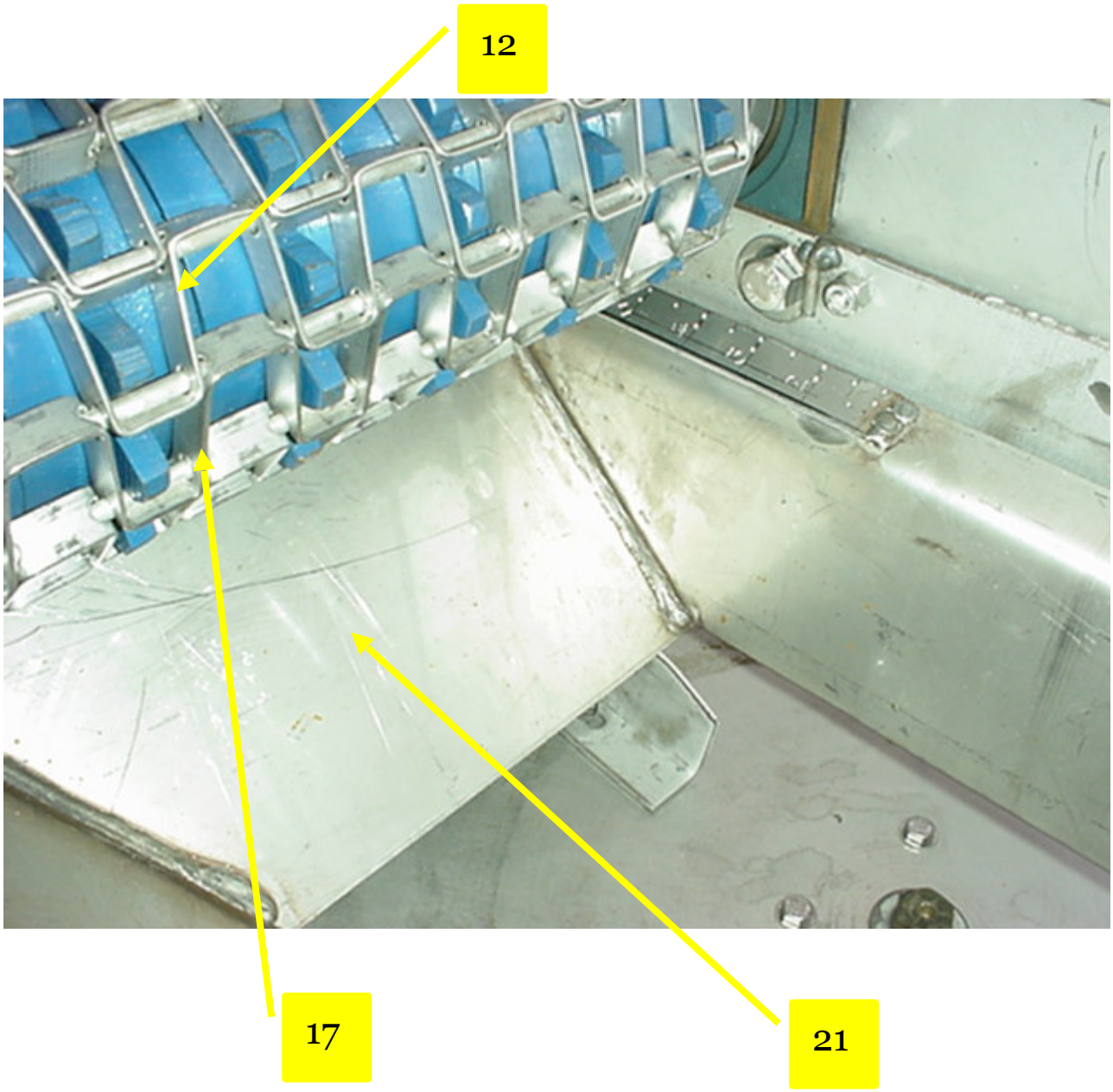

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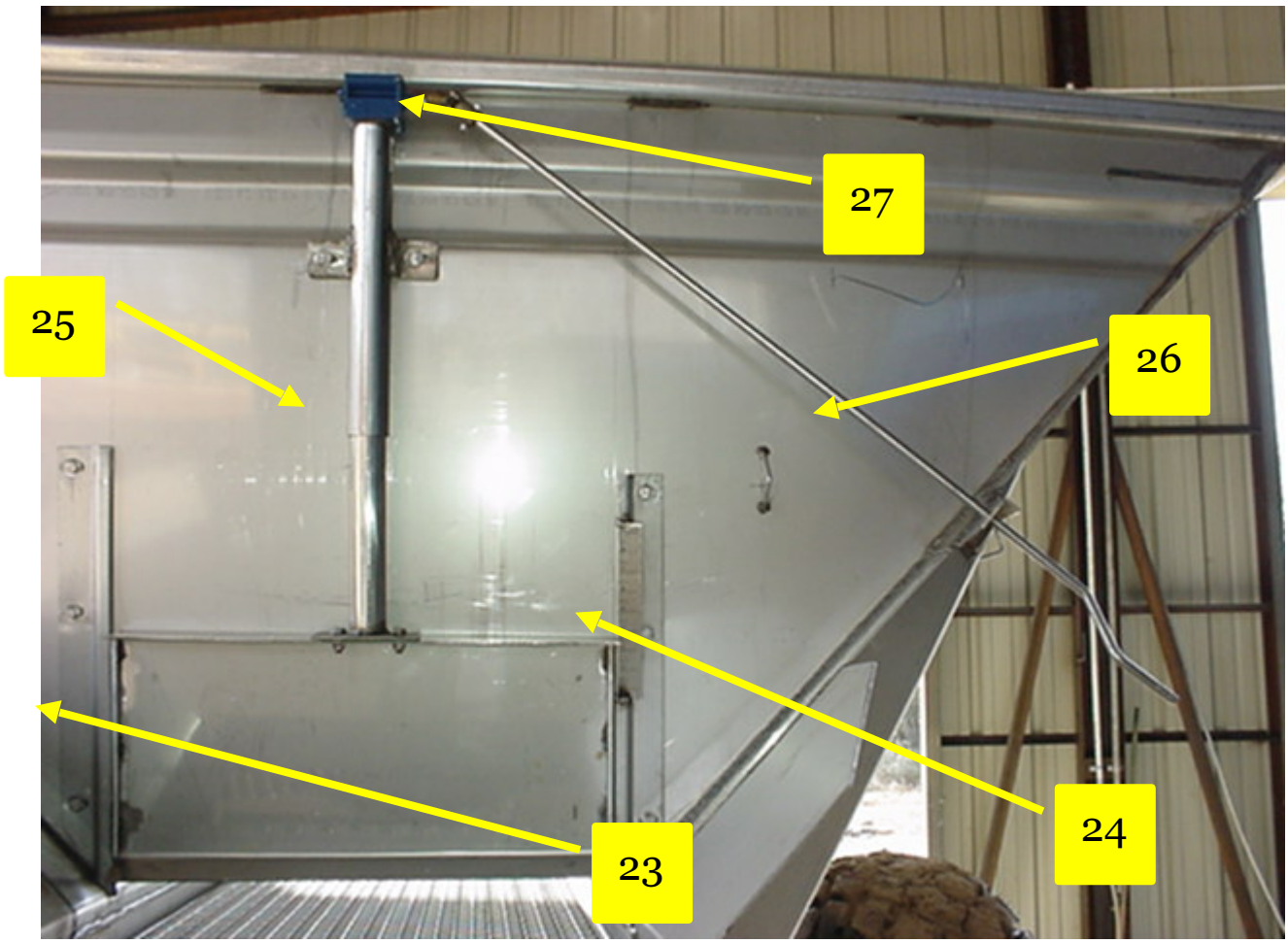

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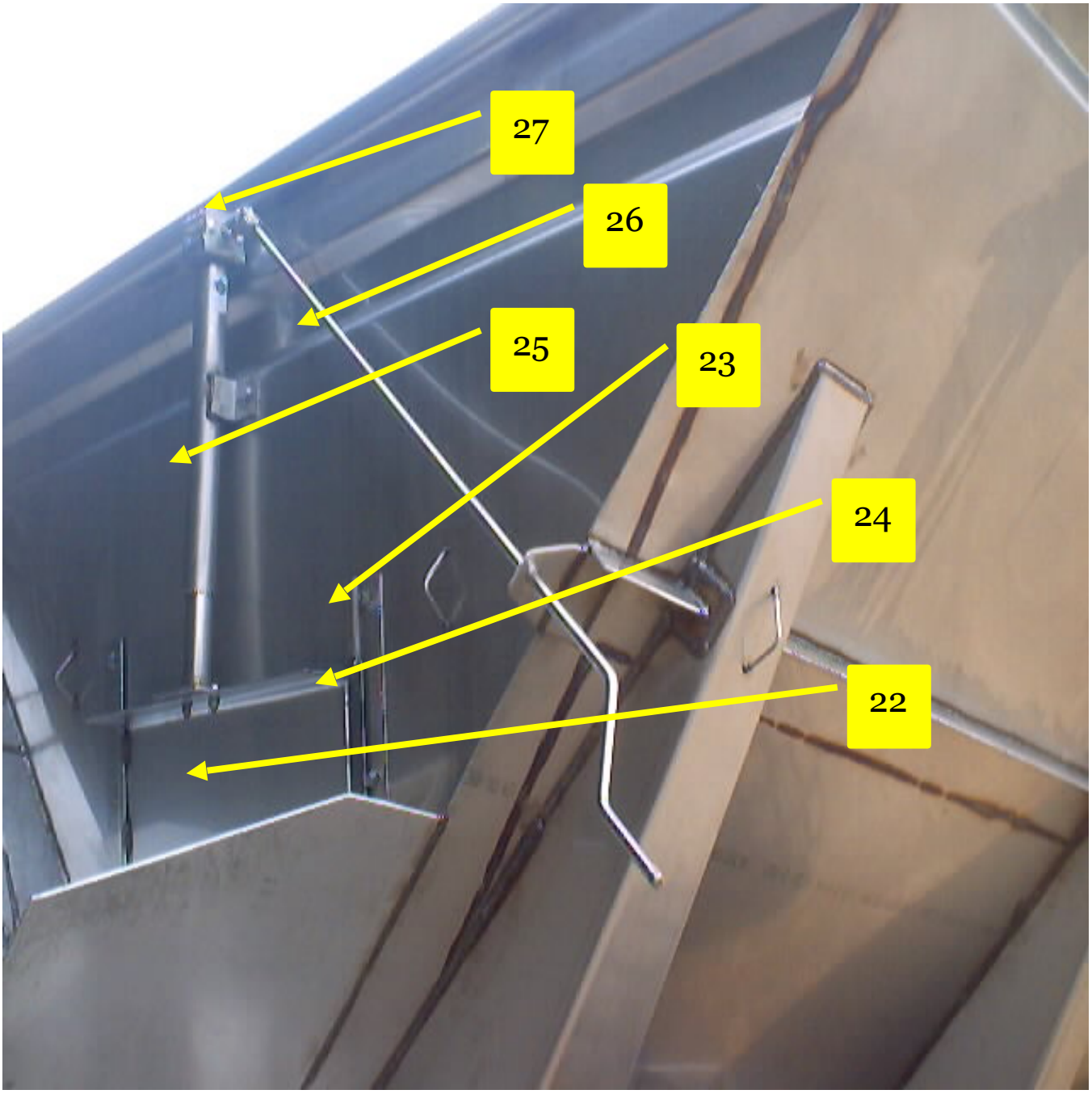

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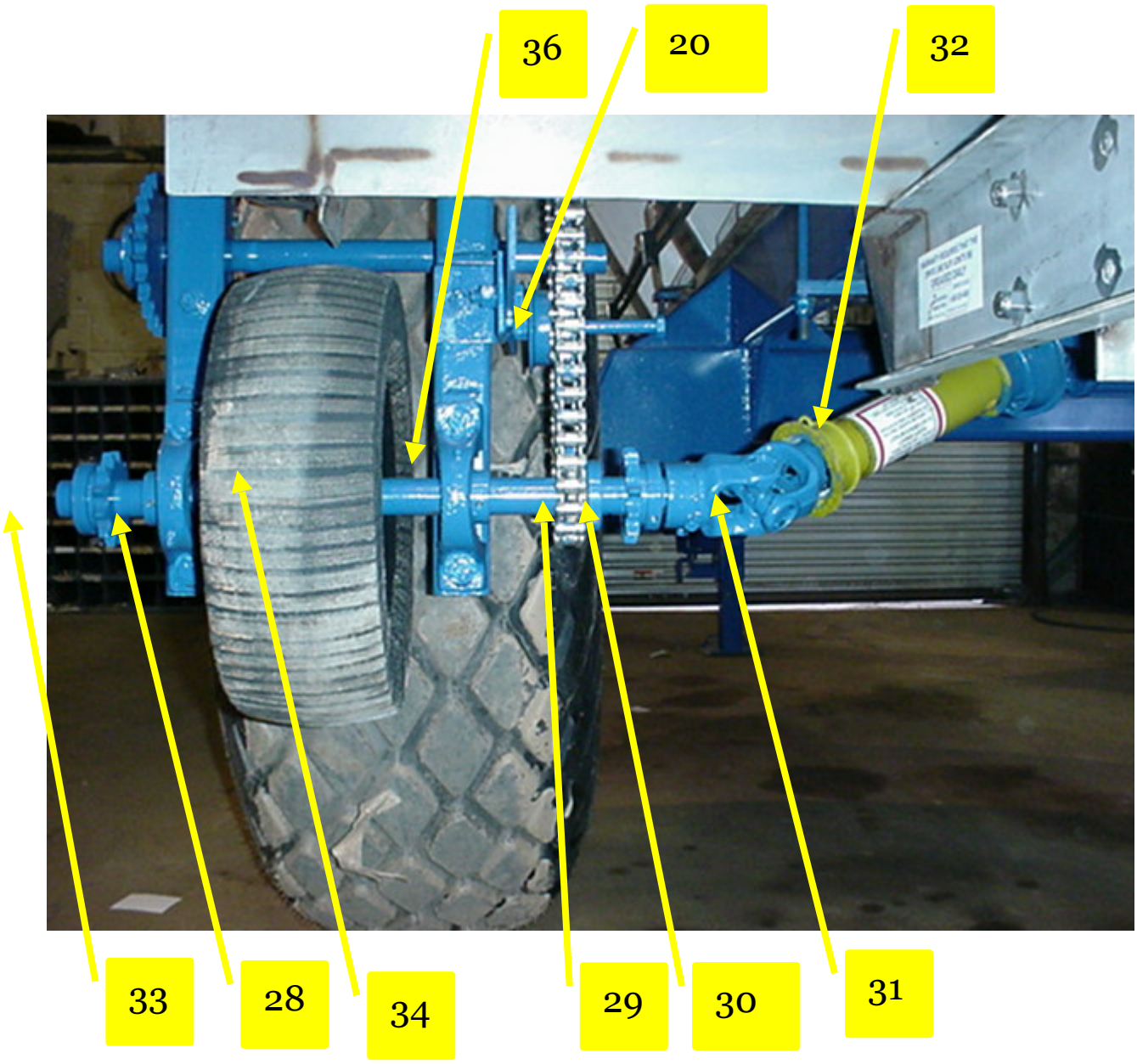

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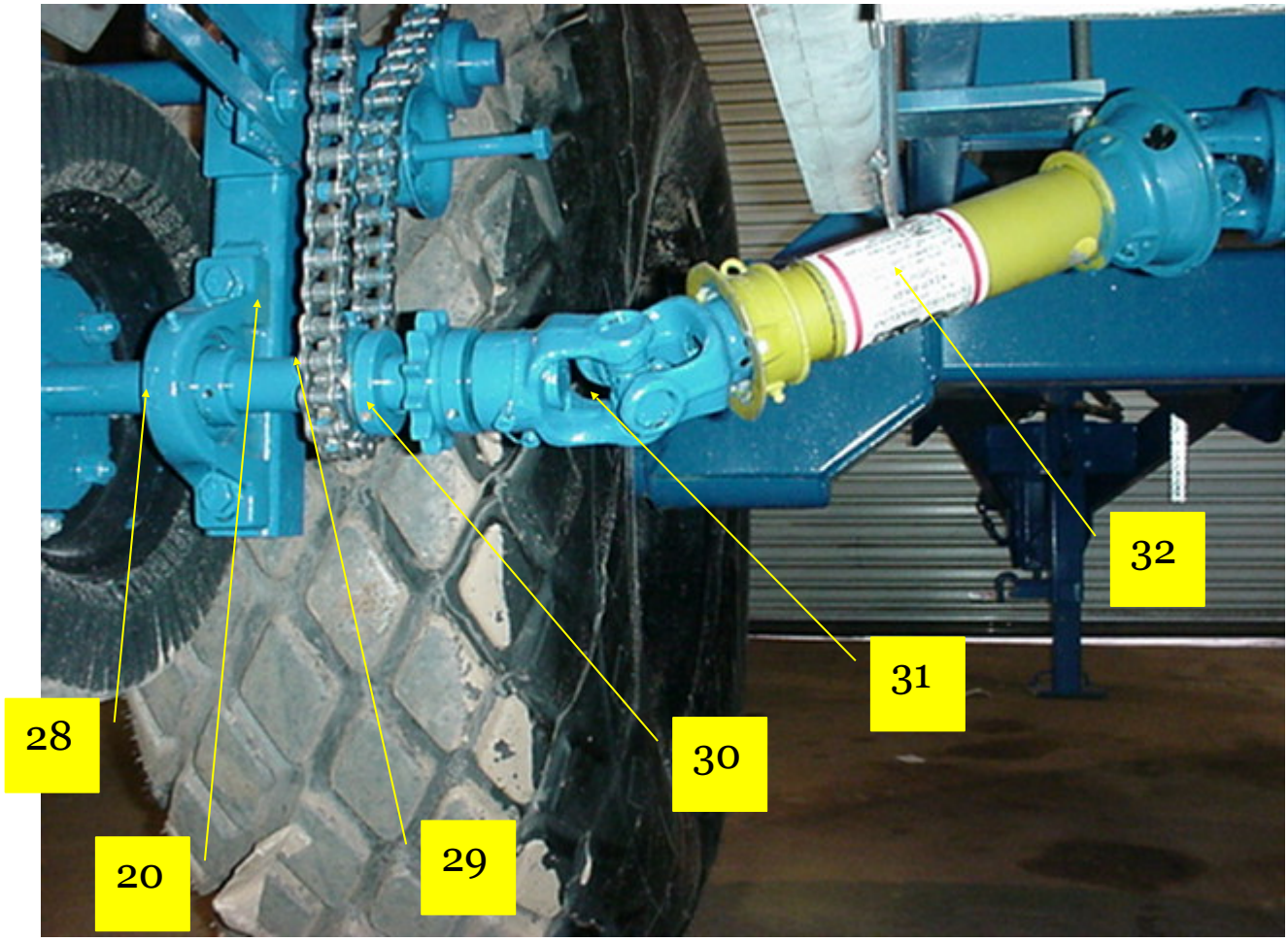

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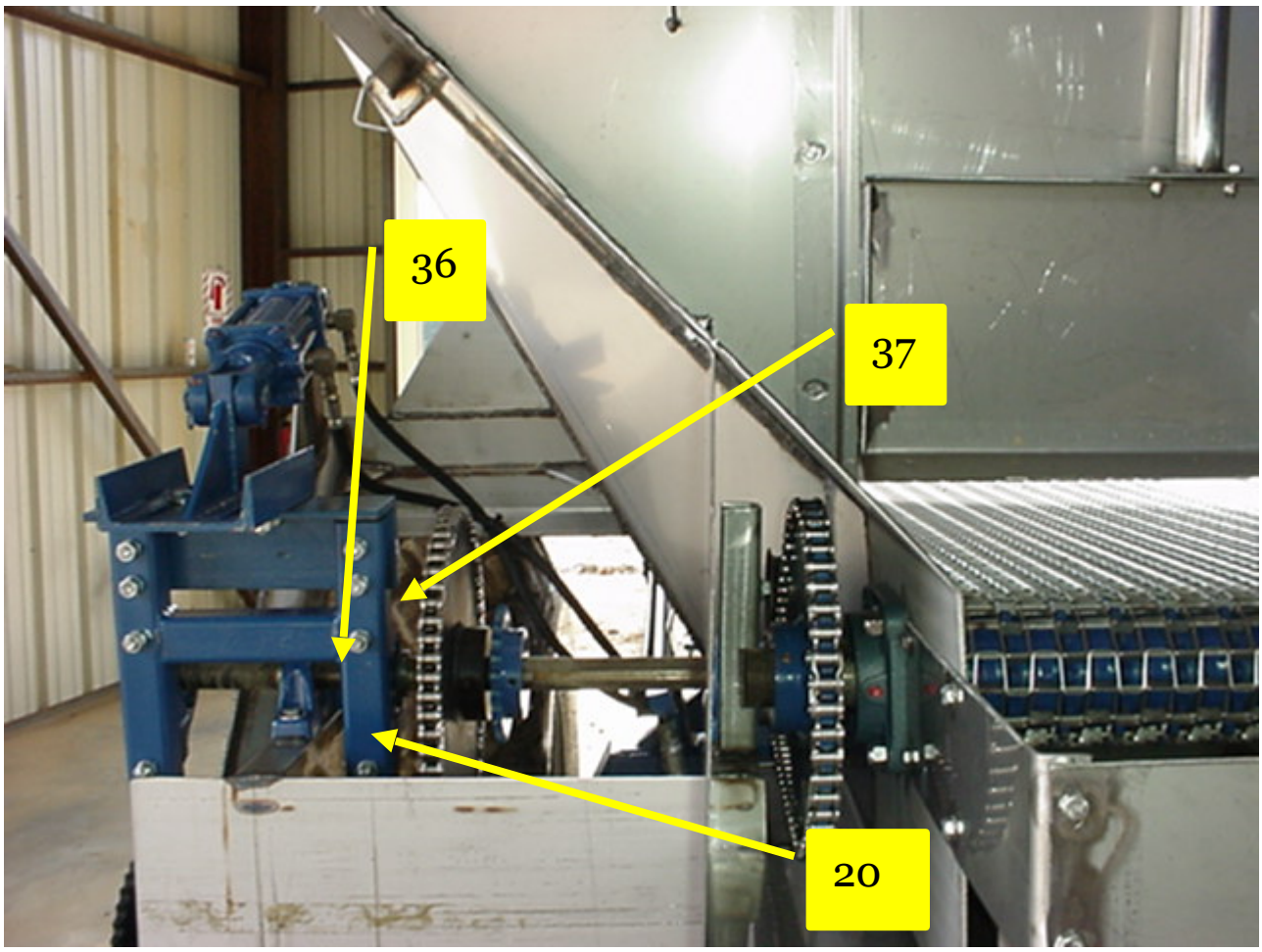

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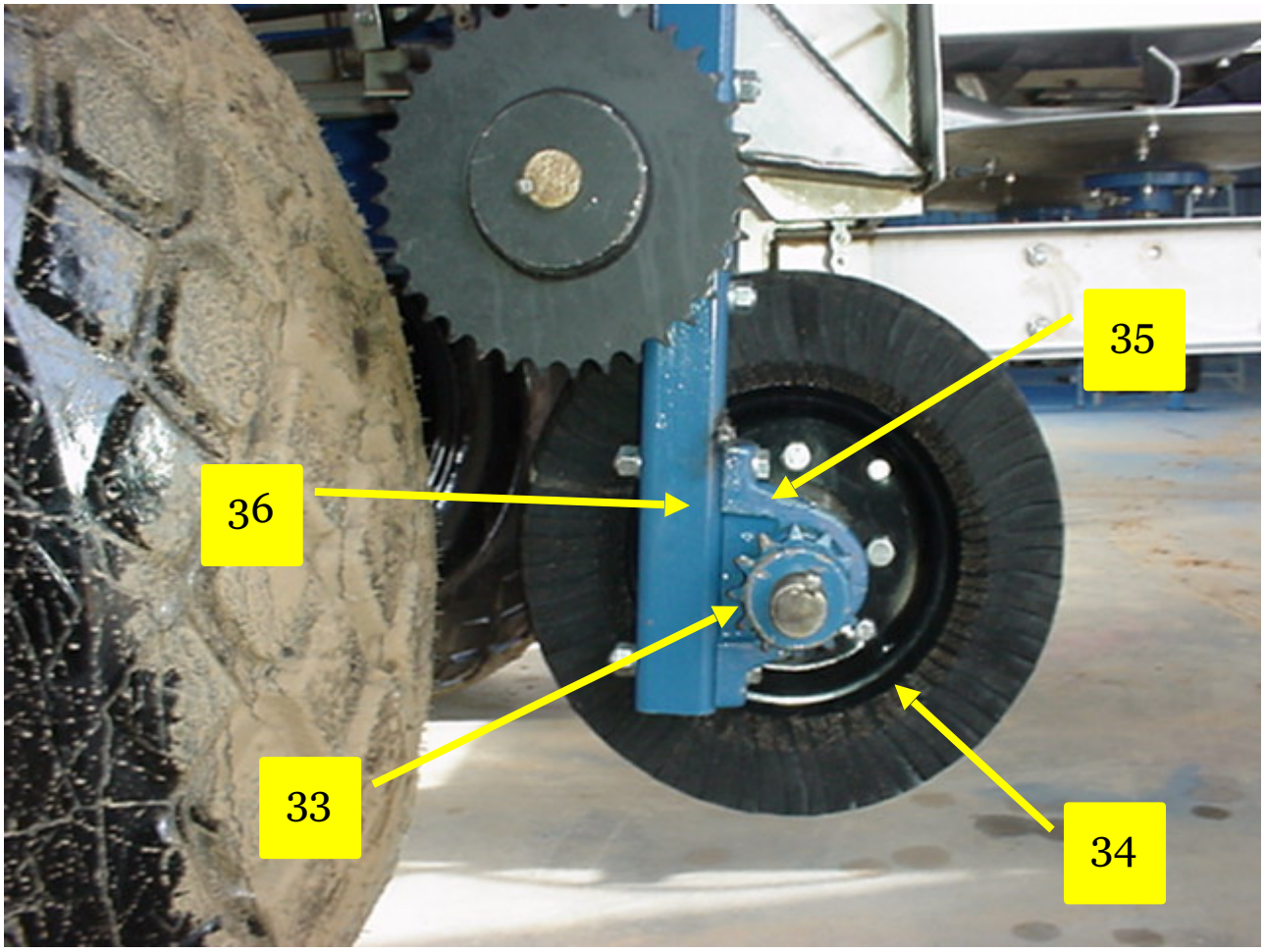

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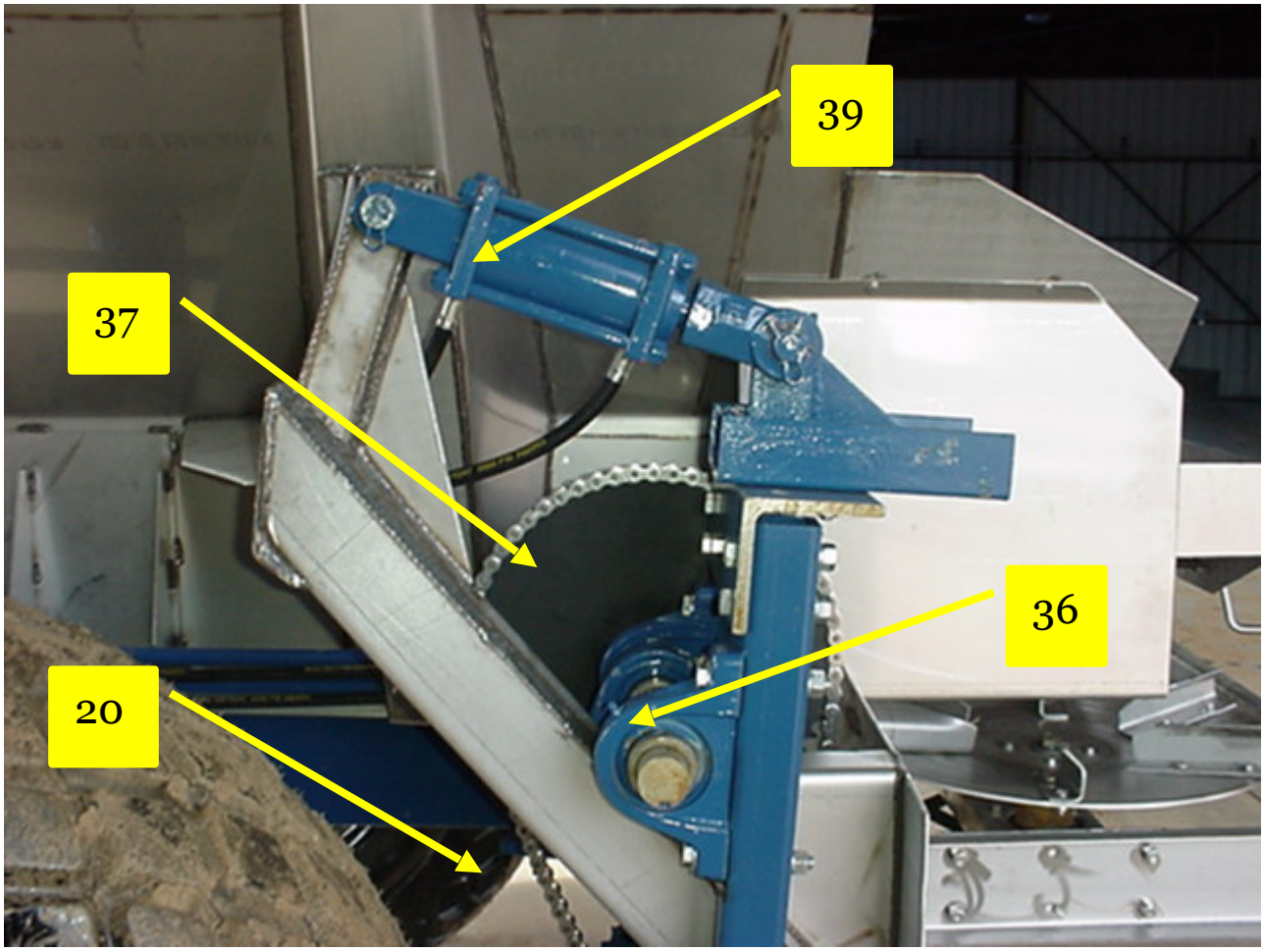

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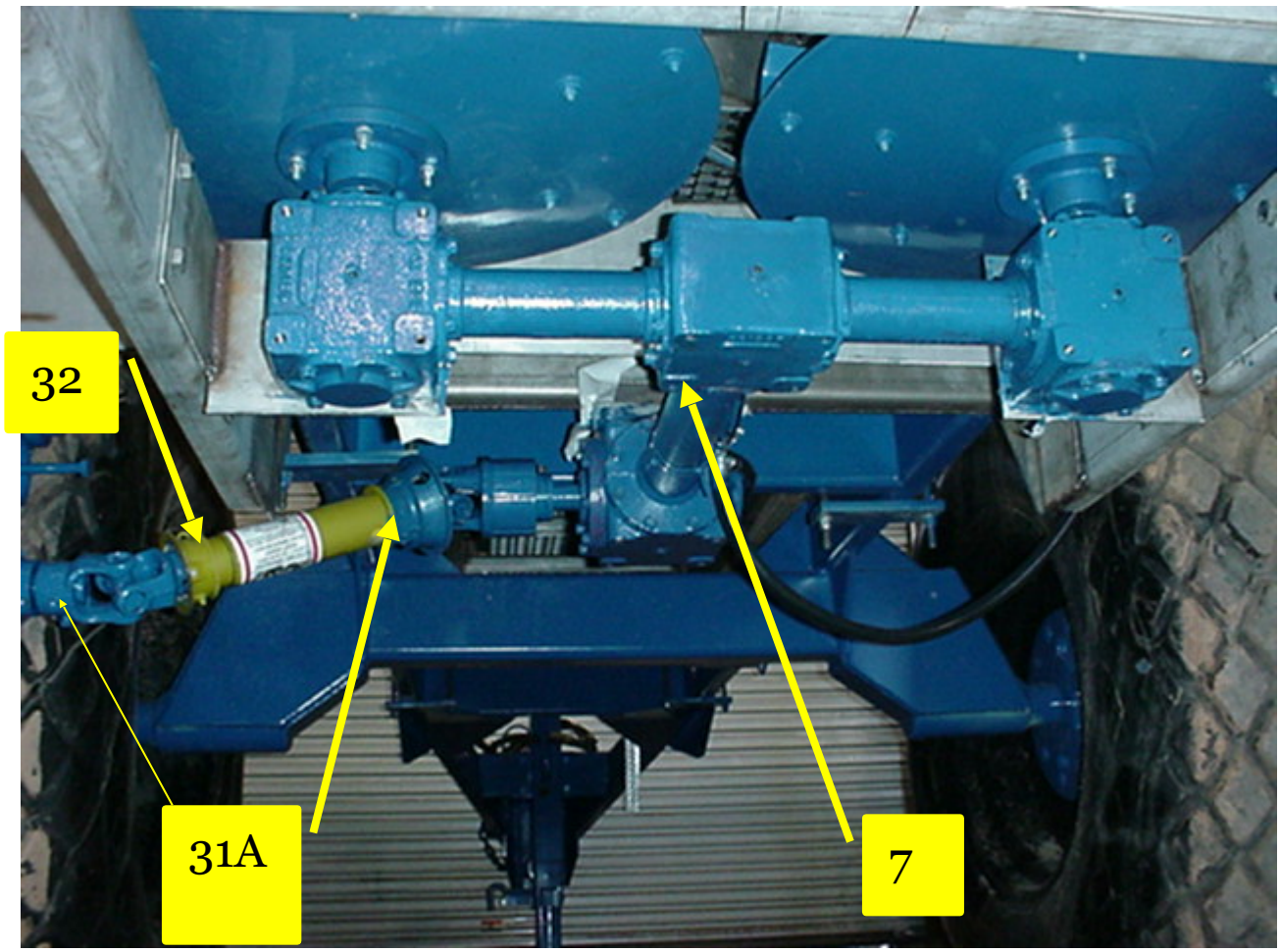

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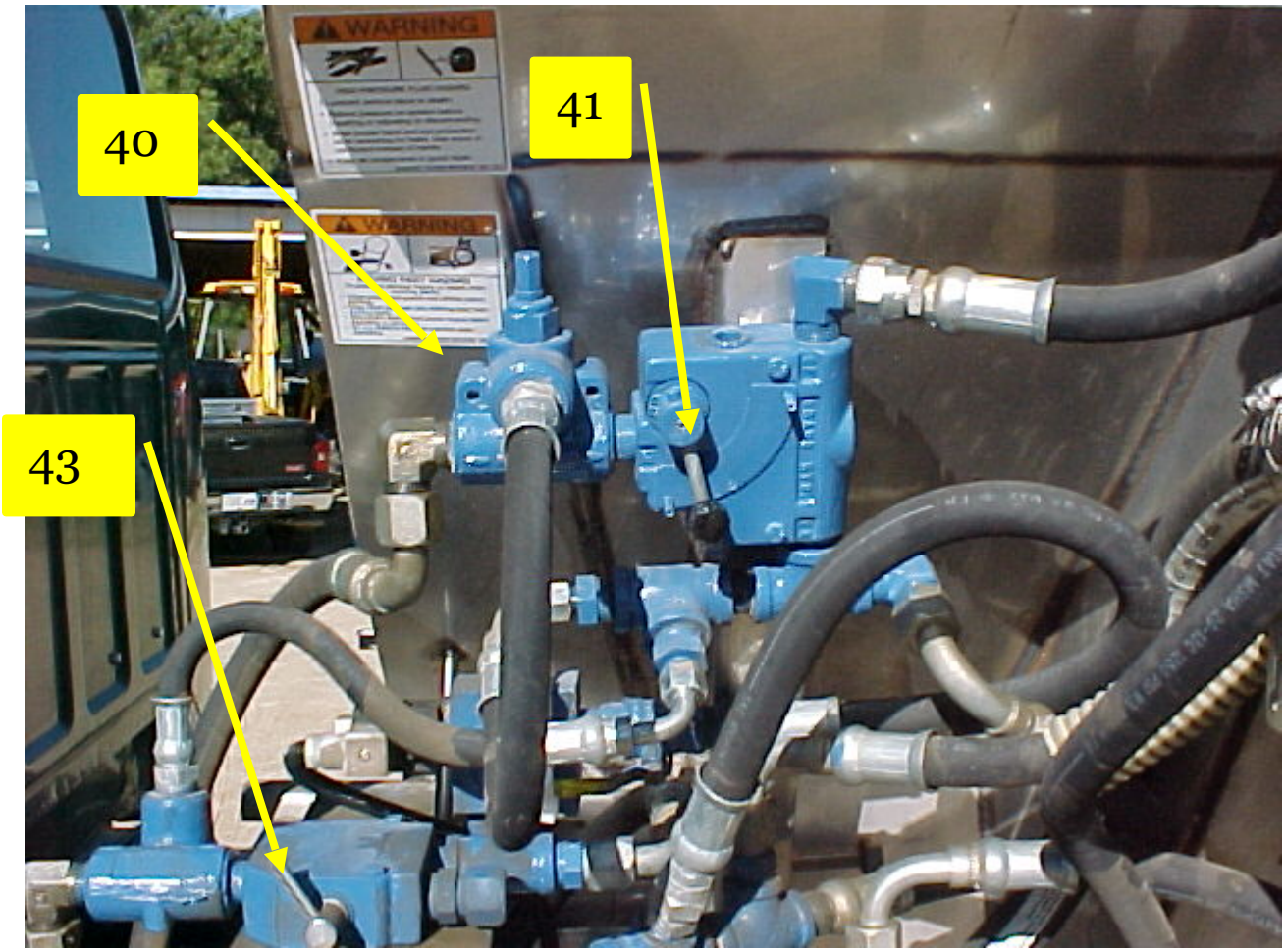

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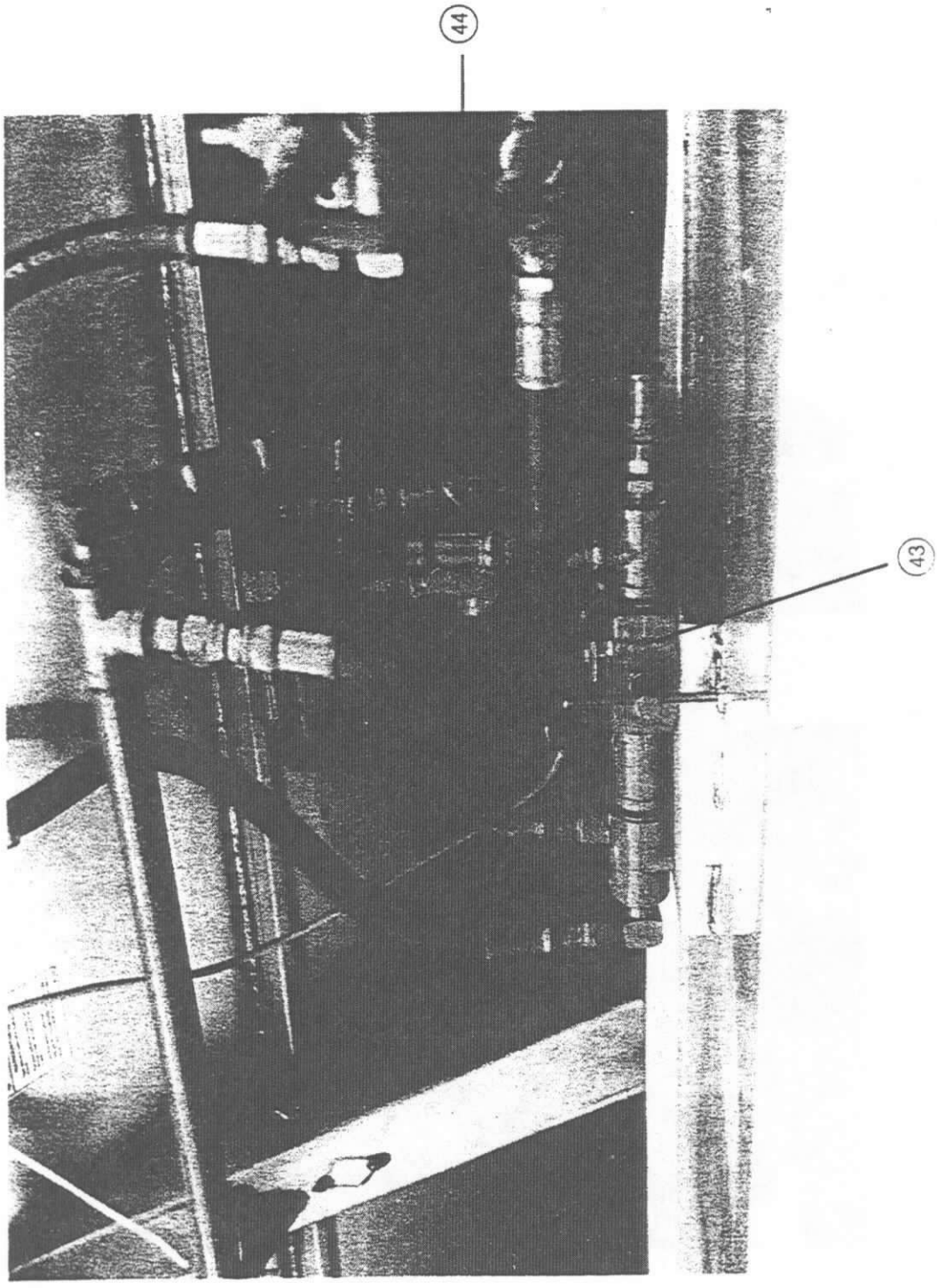

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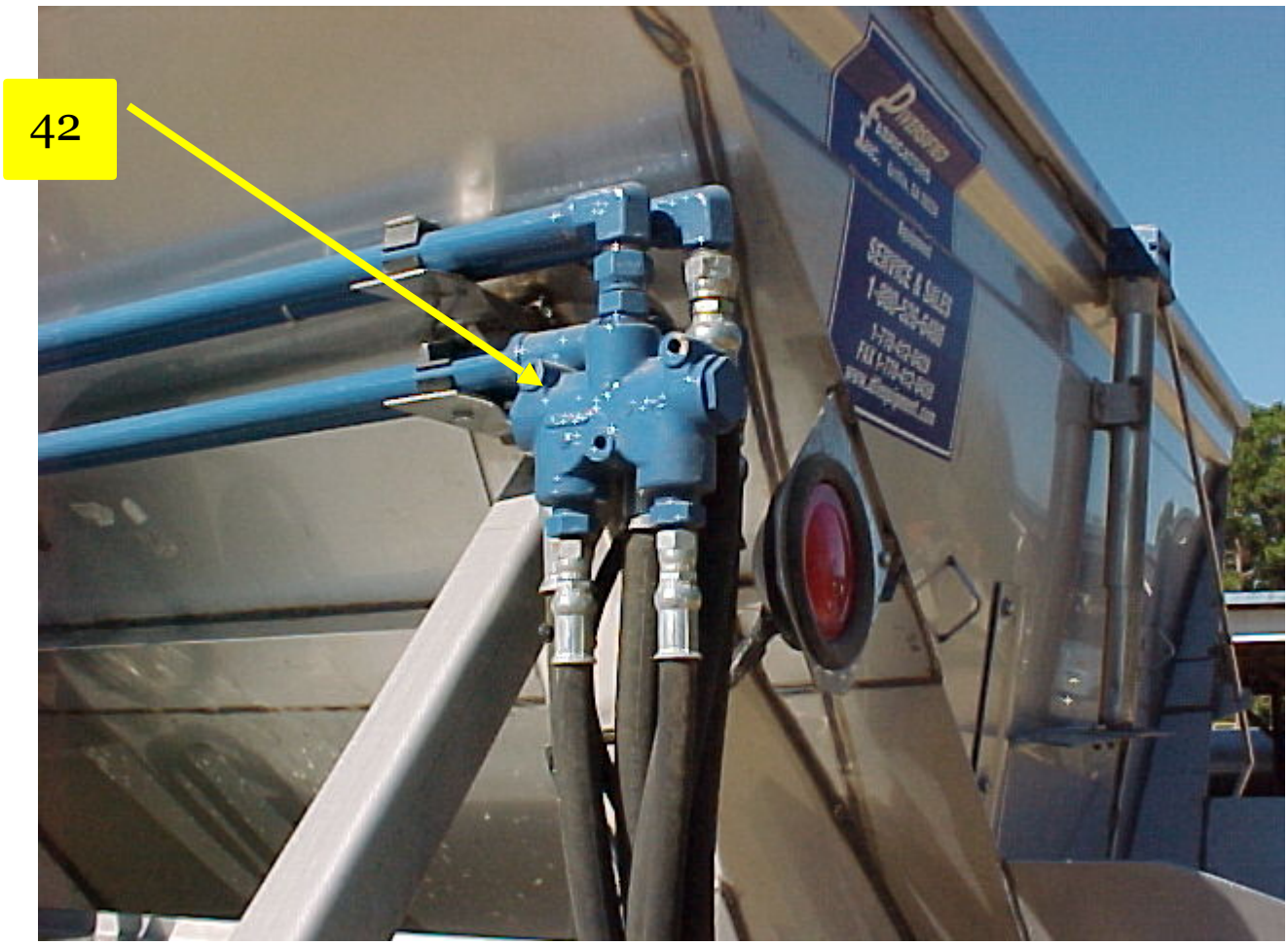

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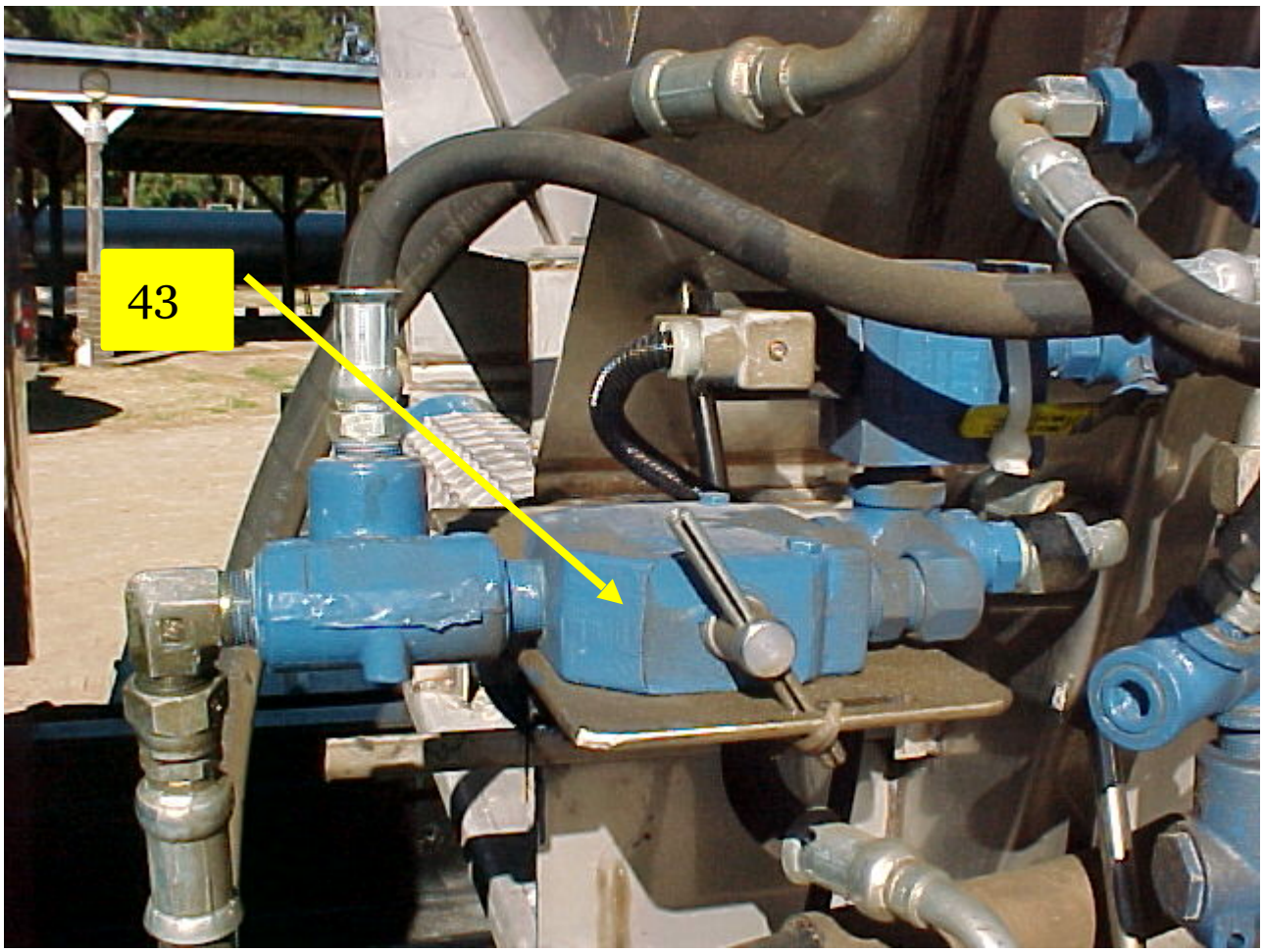

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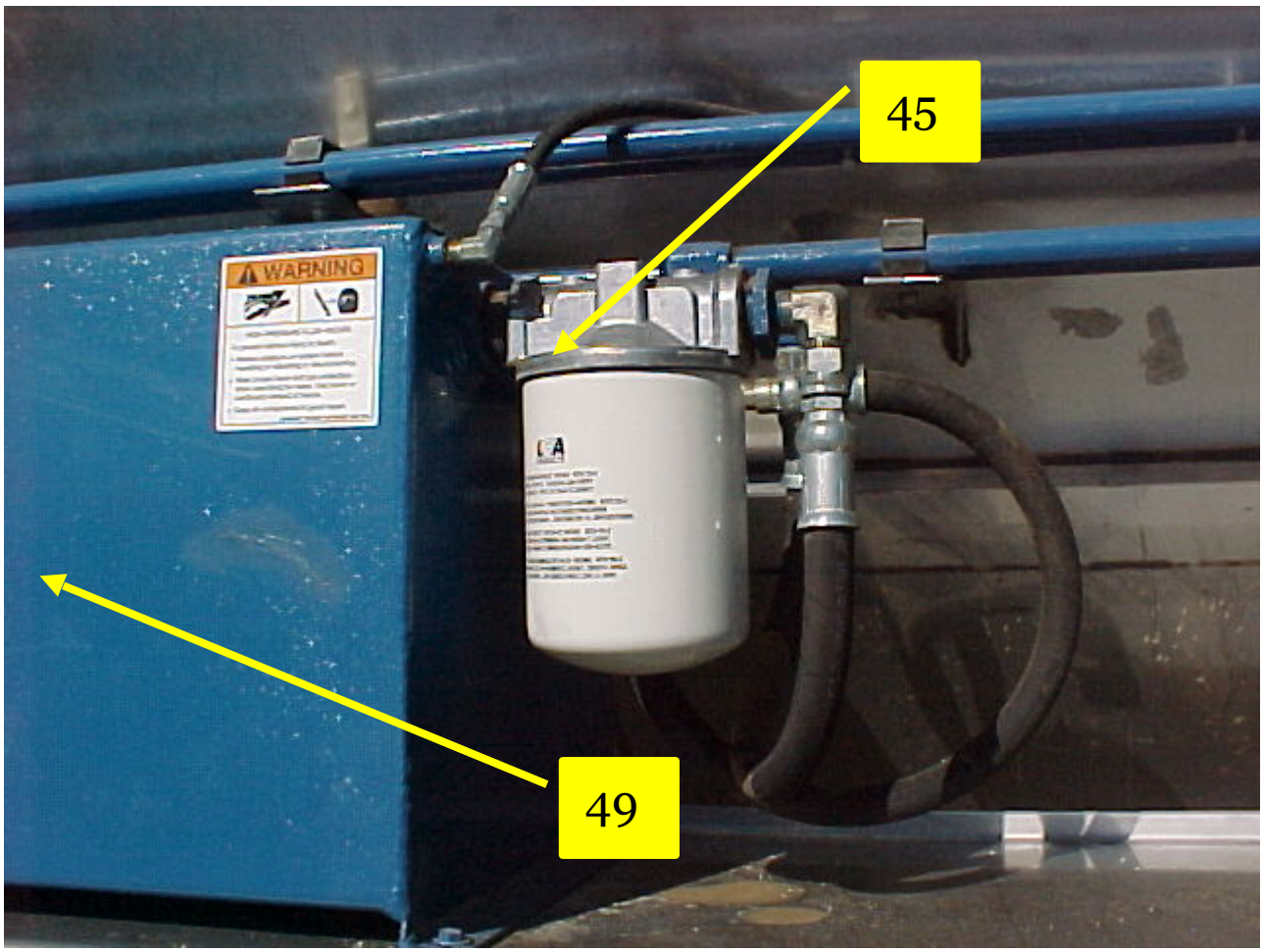

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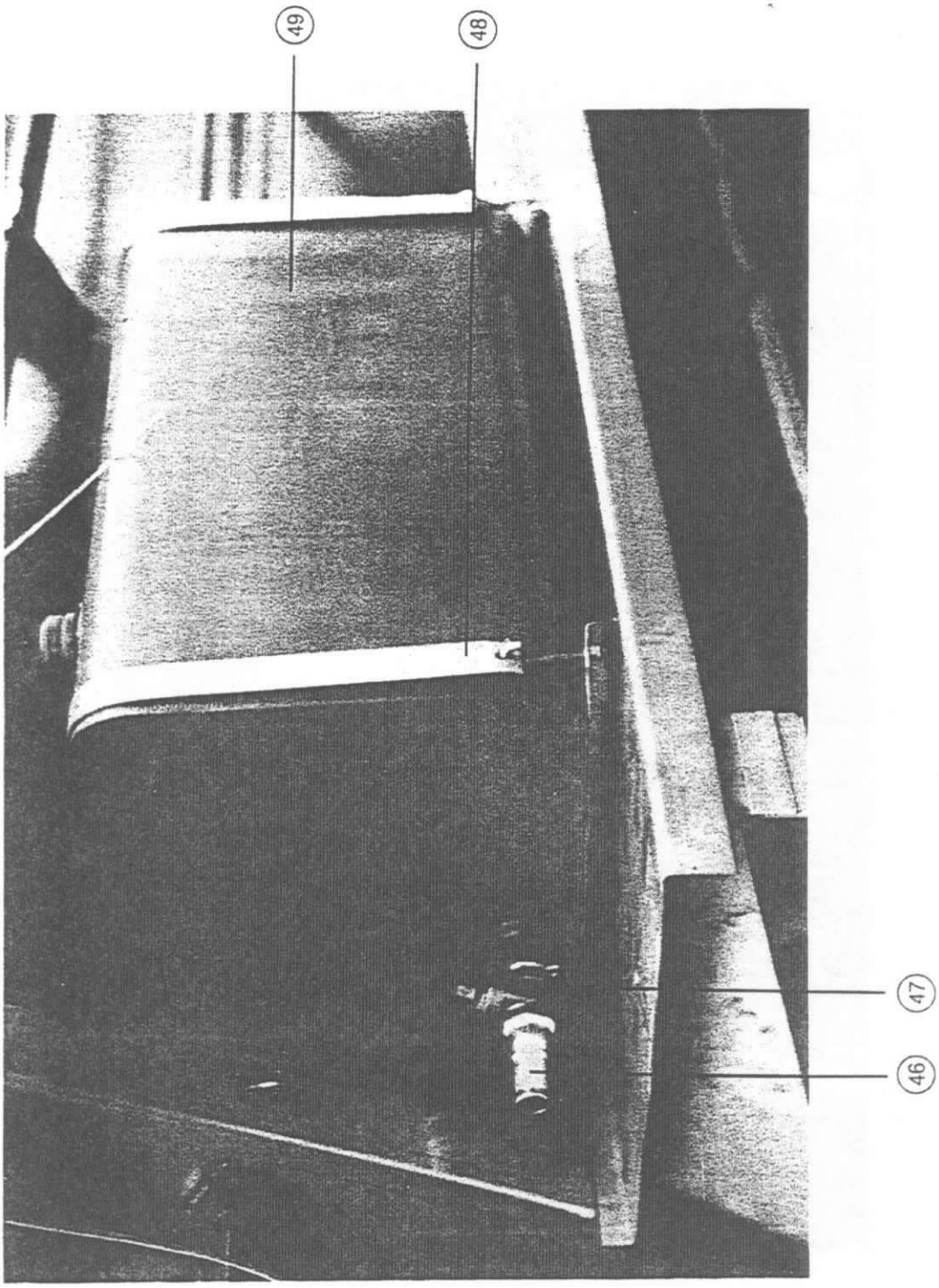

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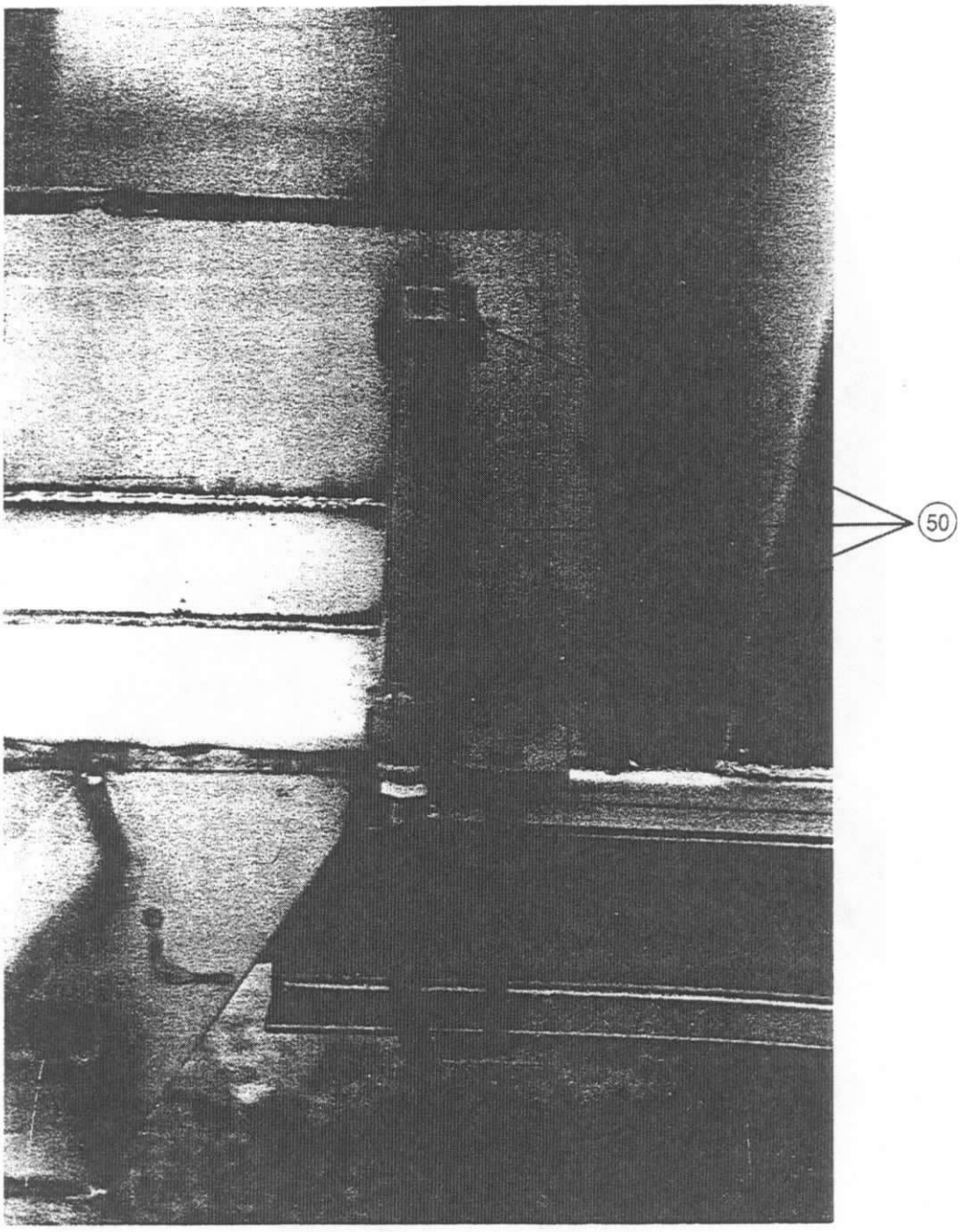

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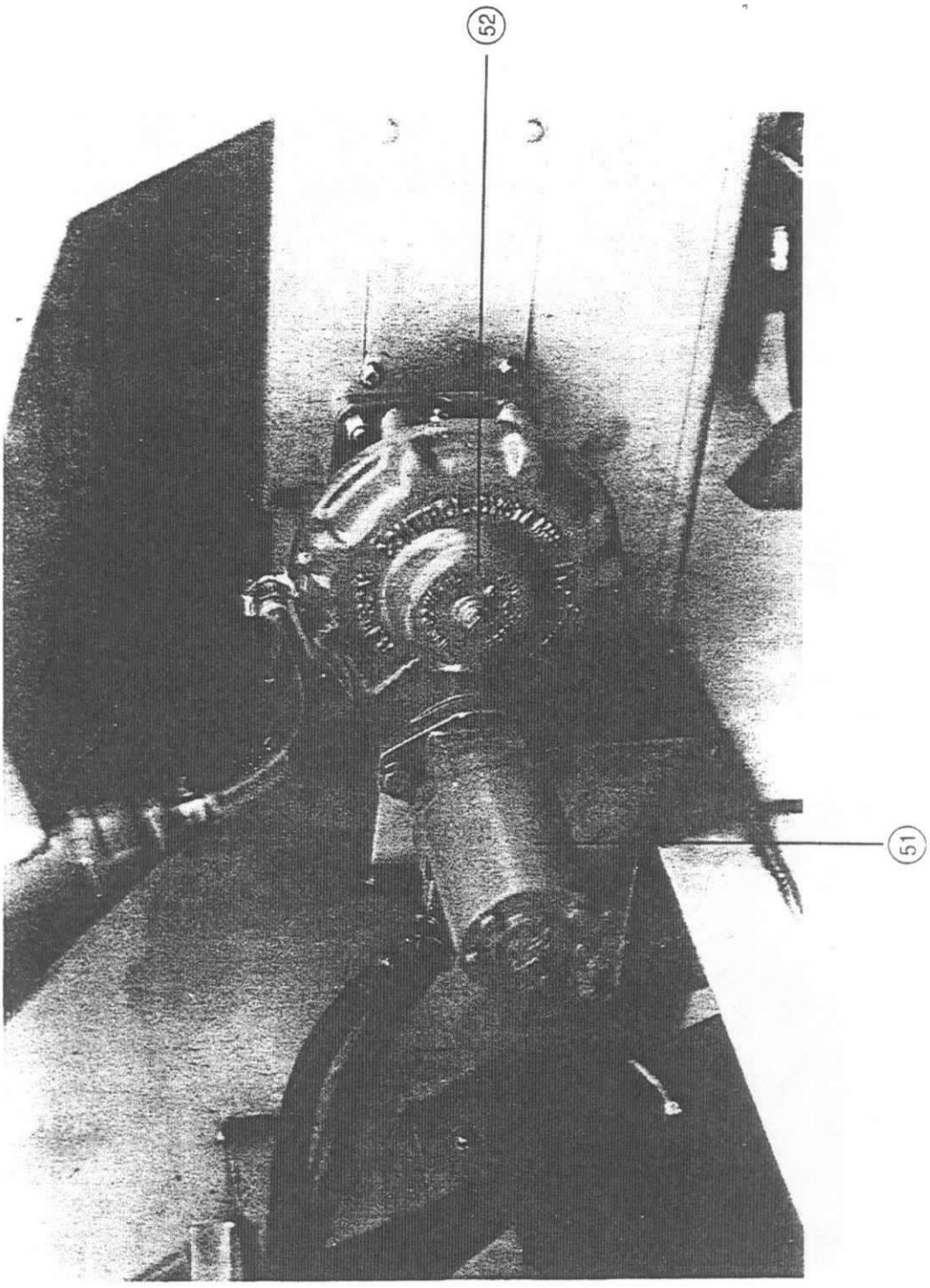

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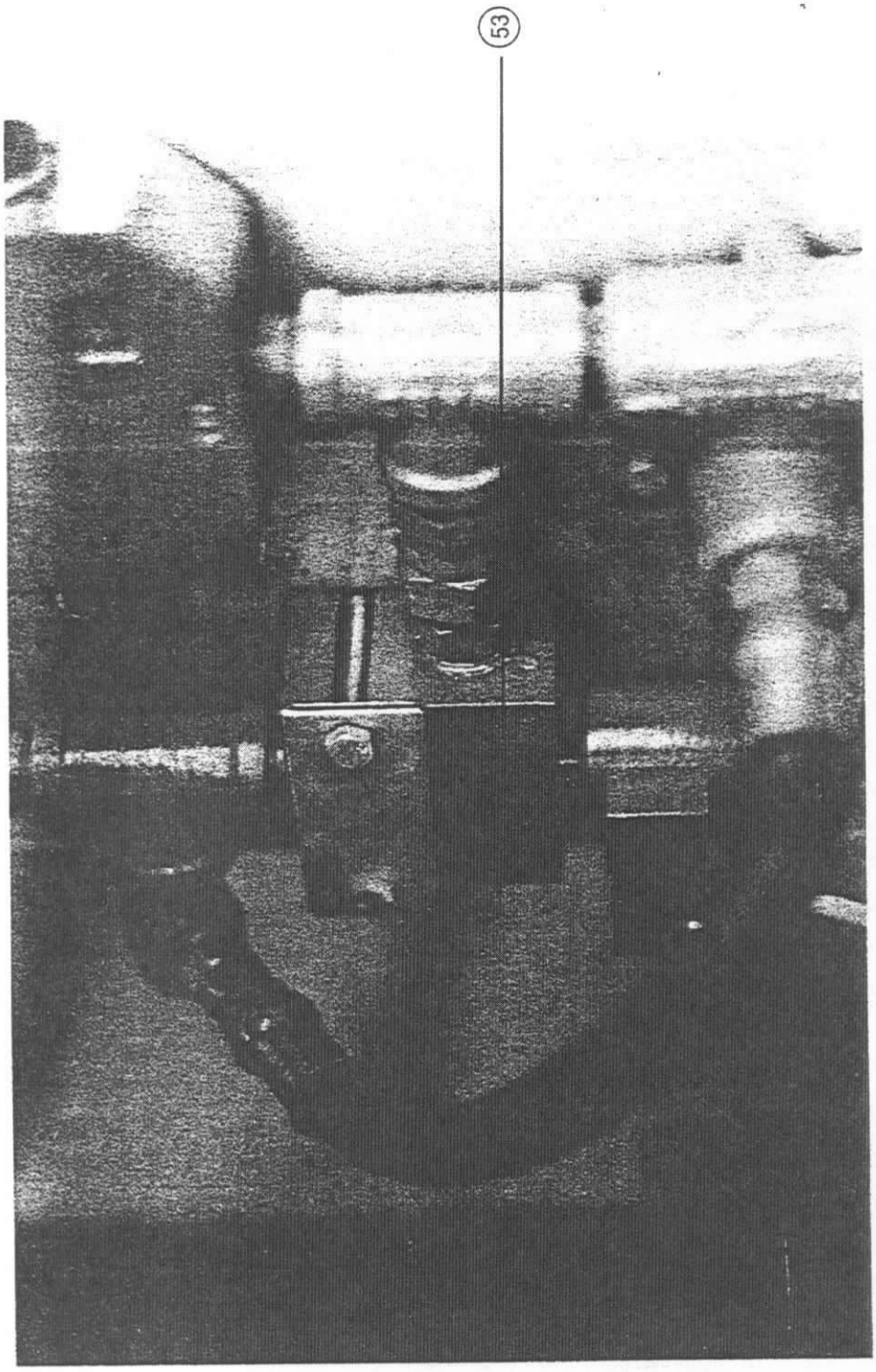
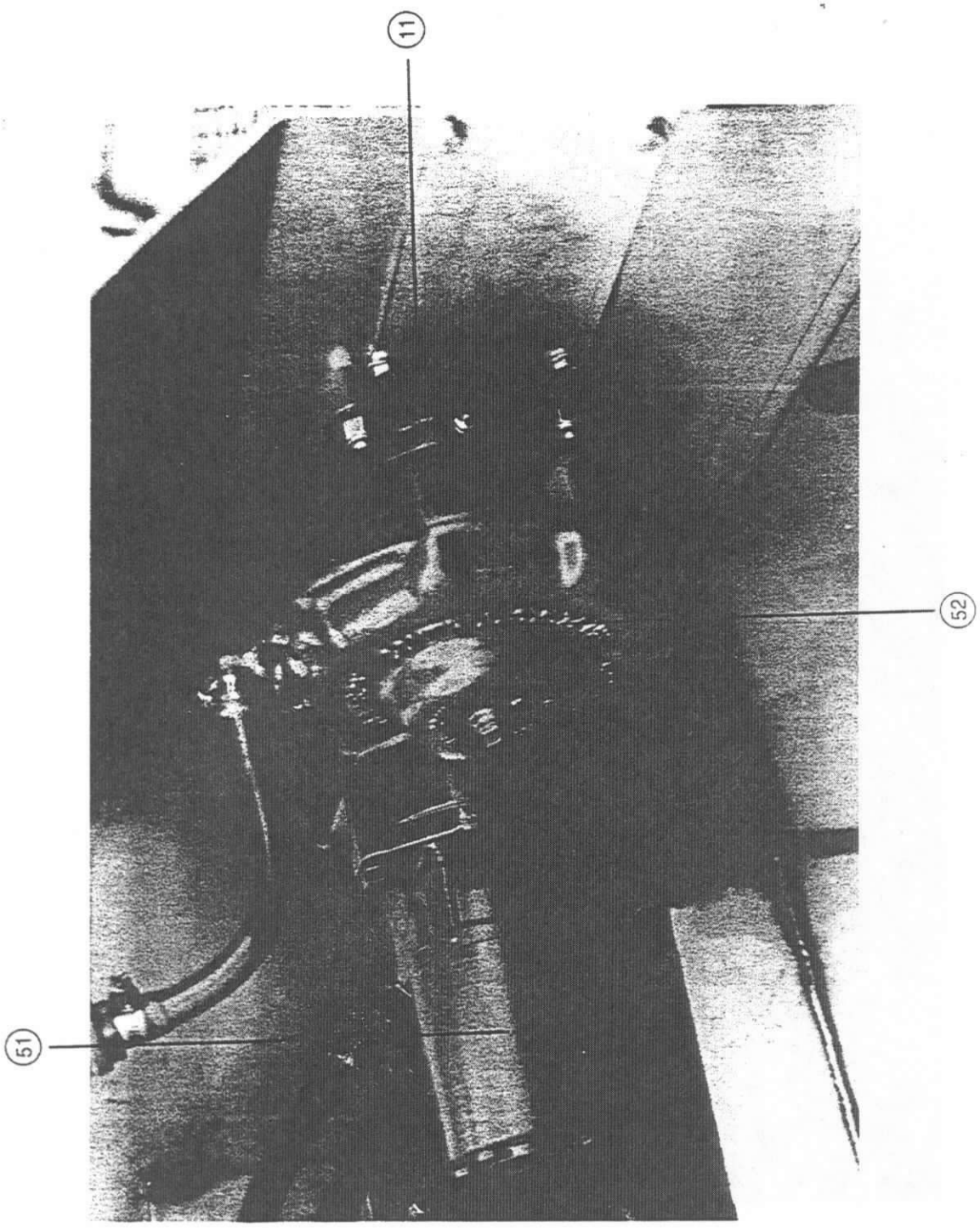


Diversified Fabricators, Inc



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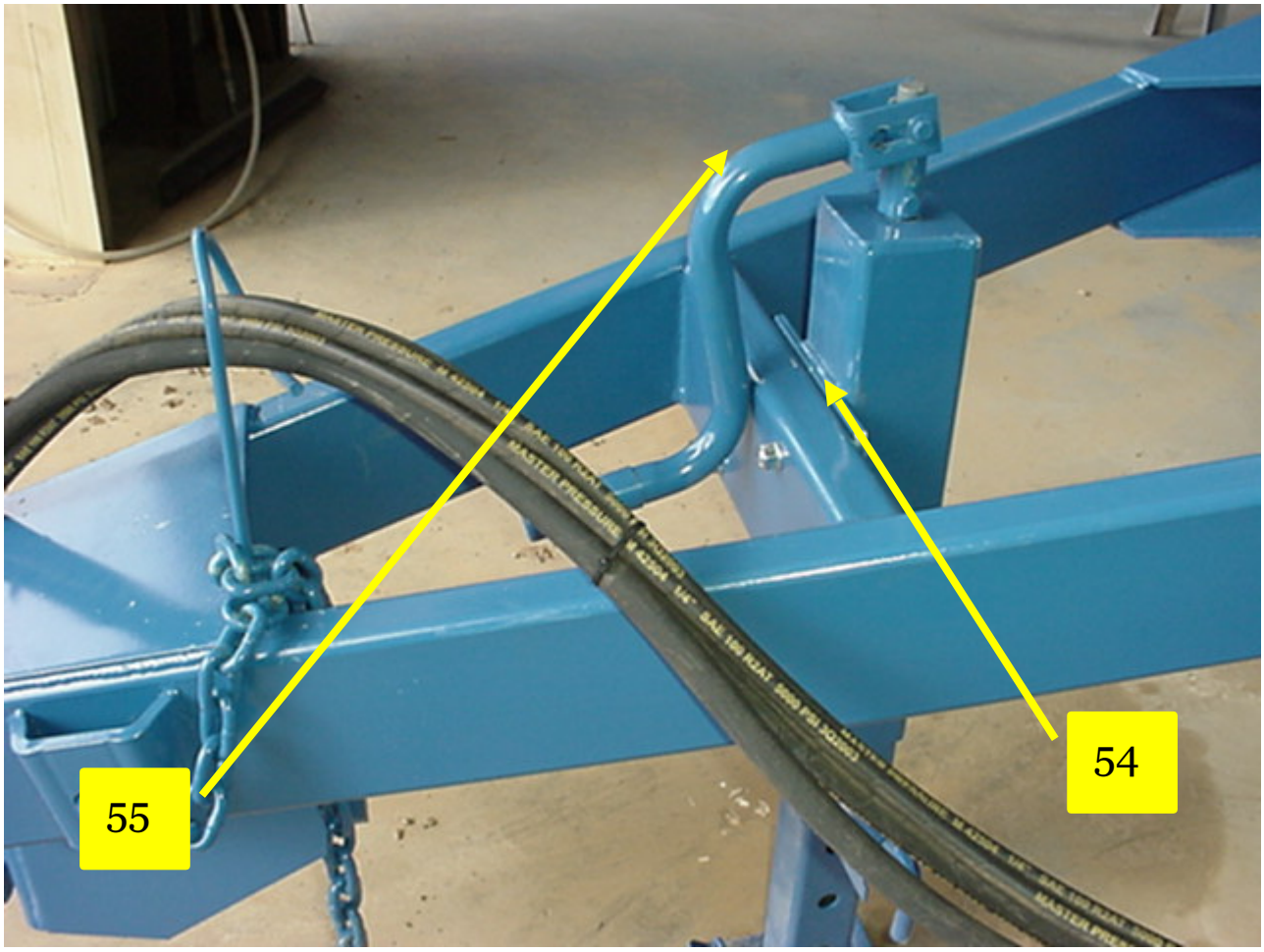

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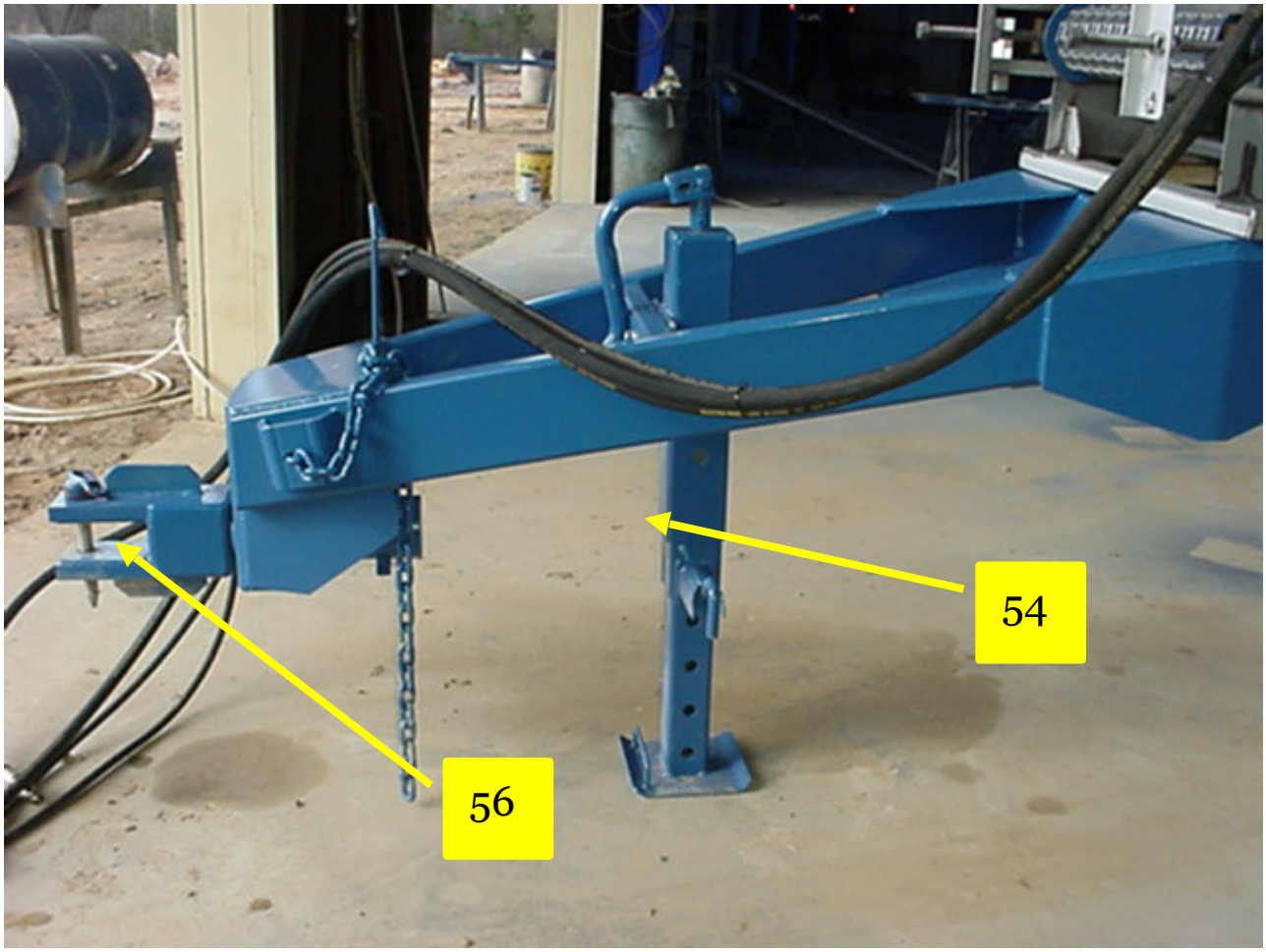

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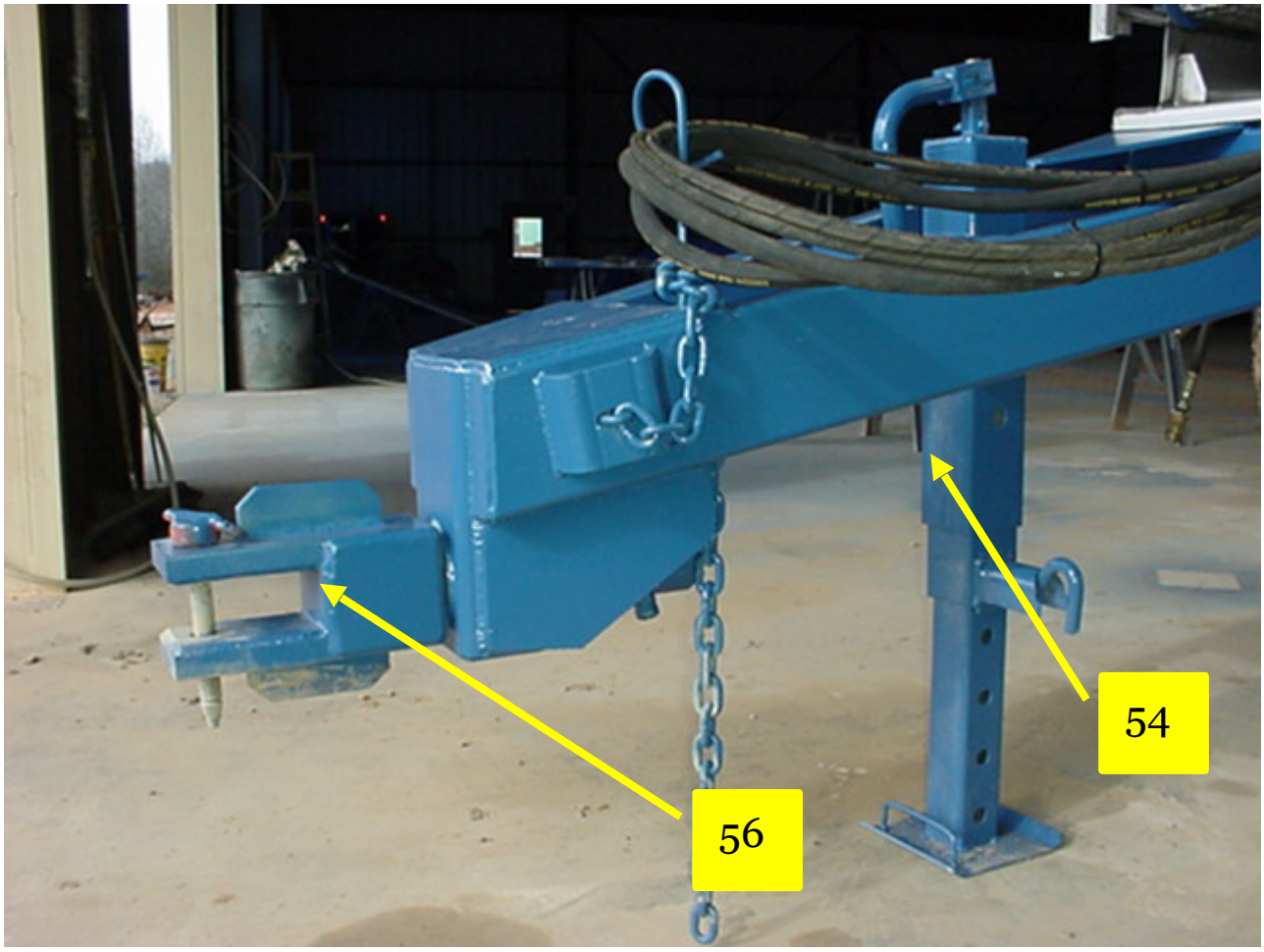

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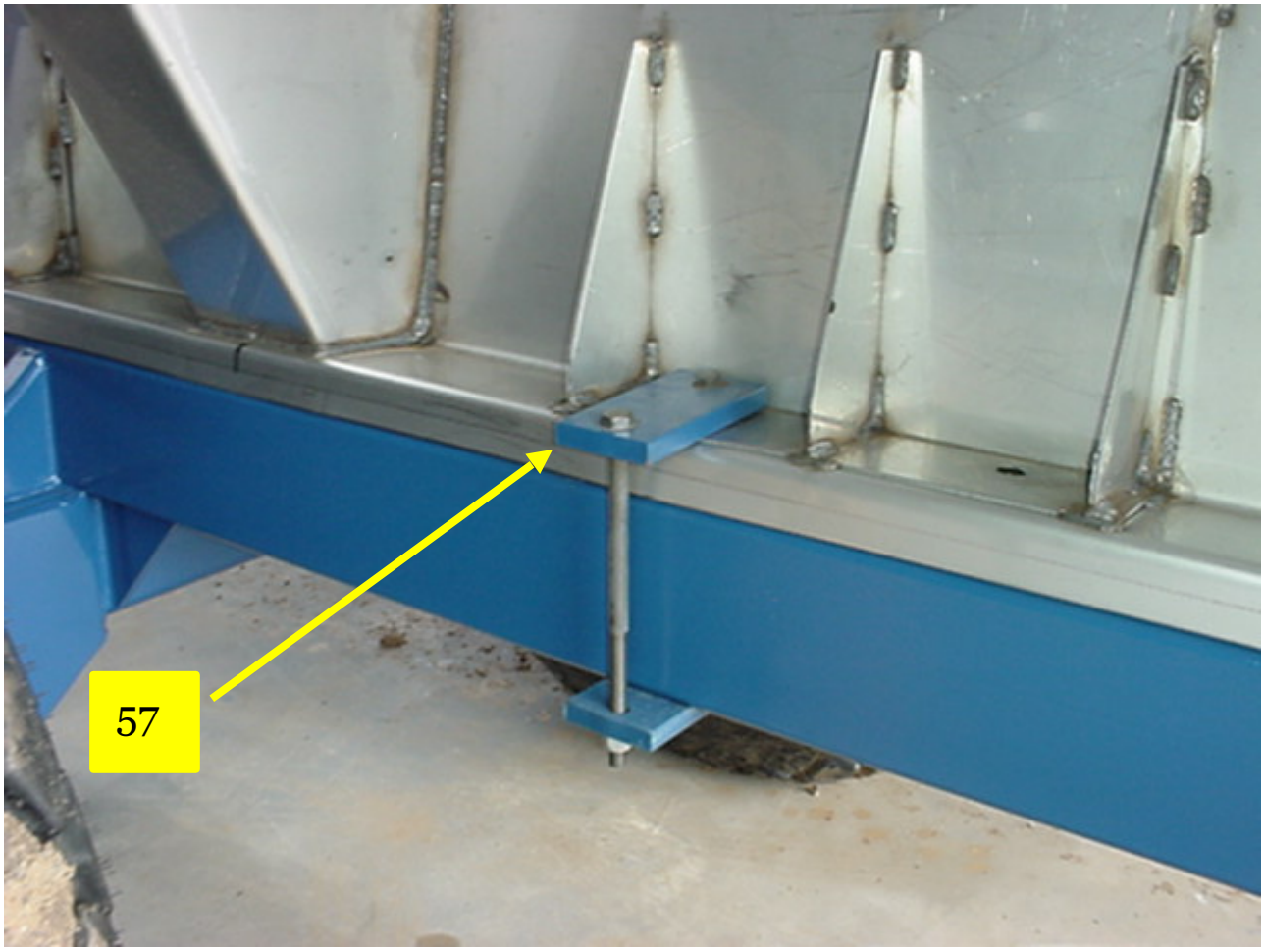

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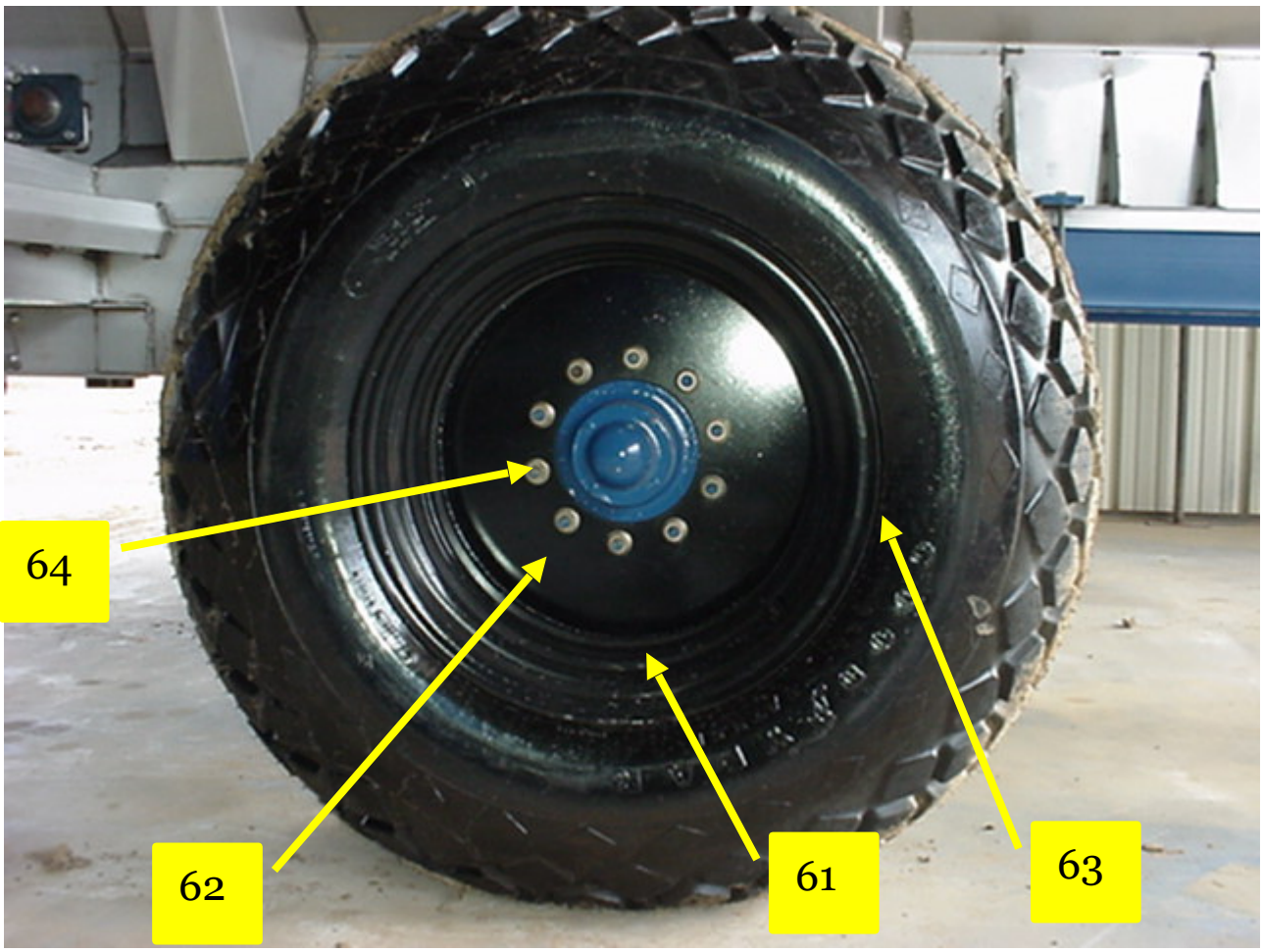

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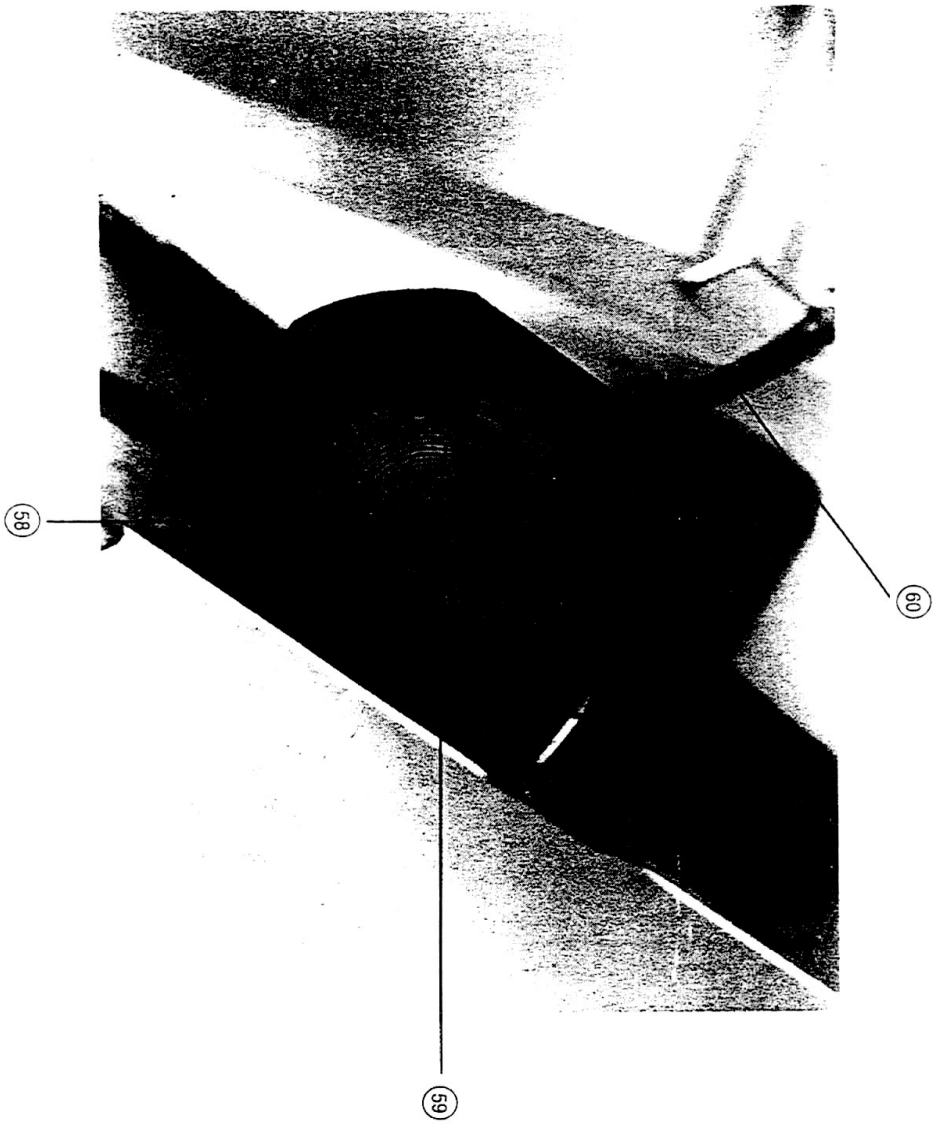
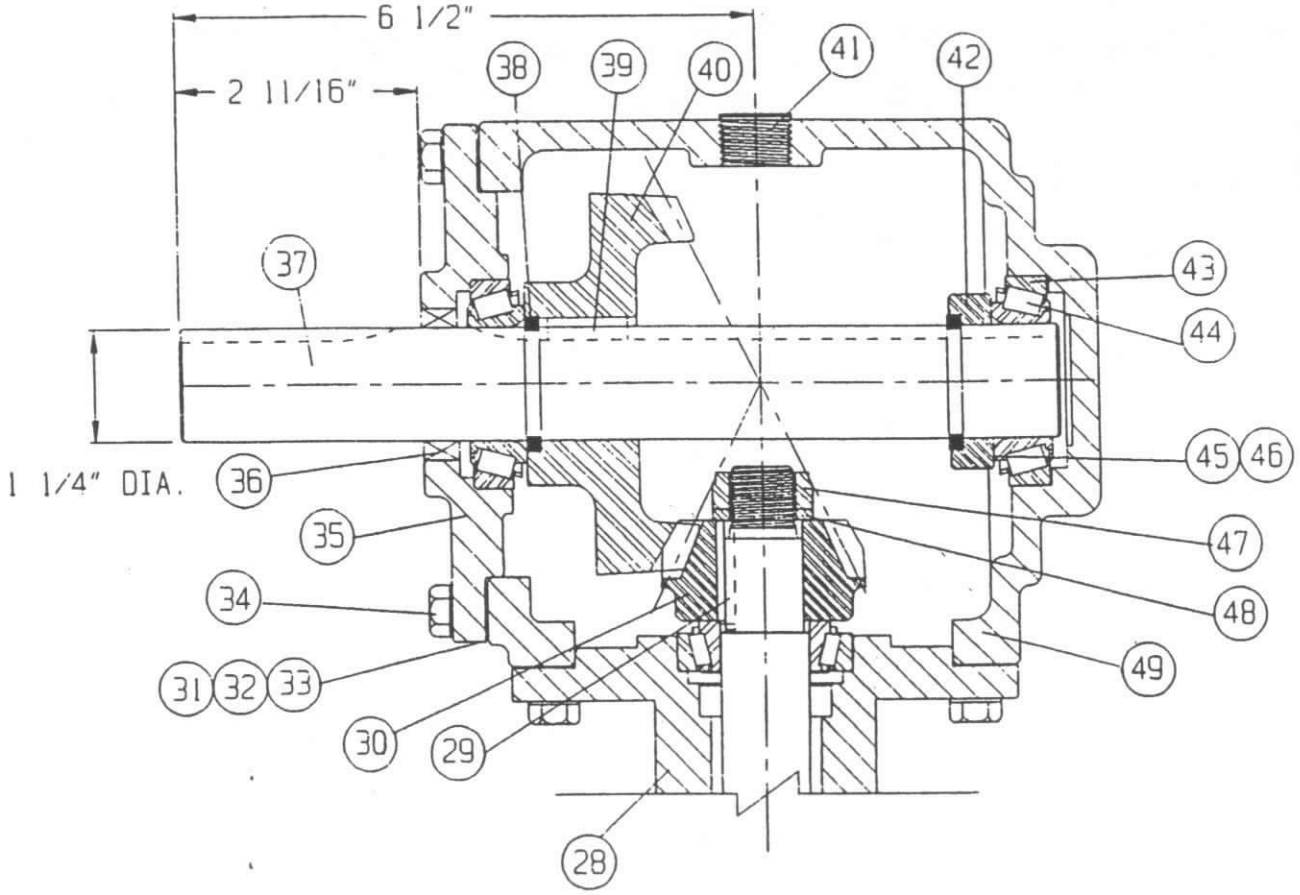
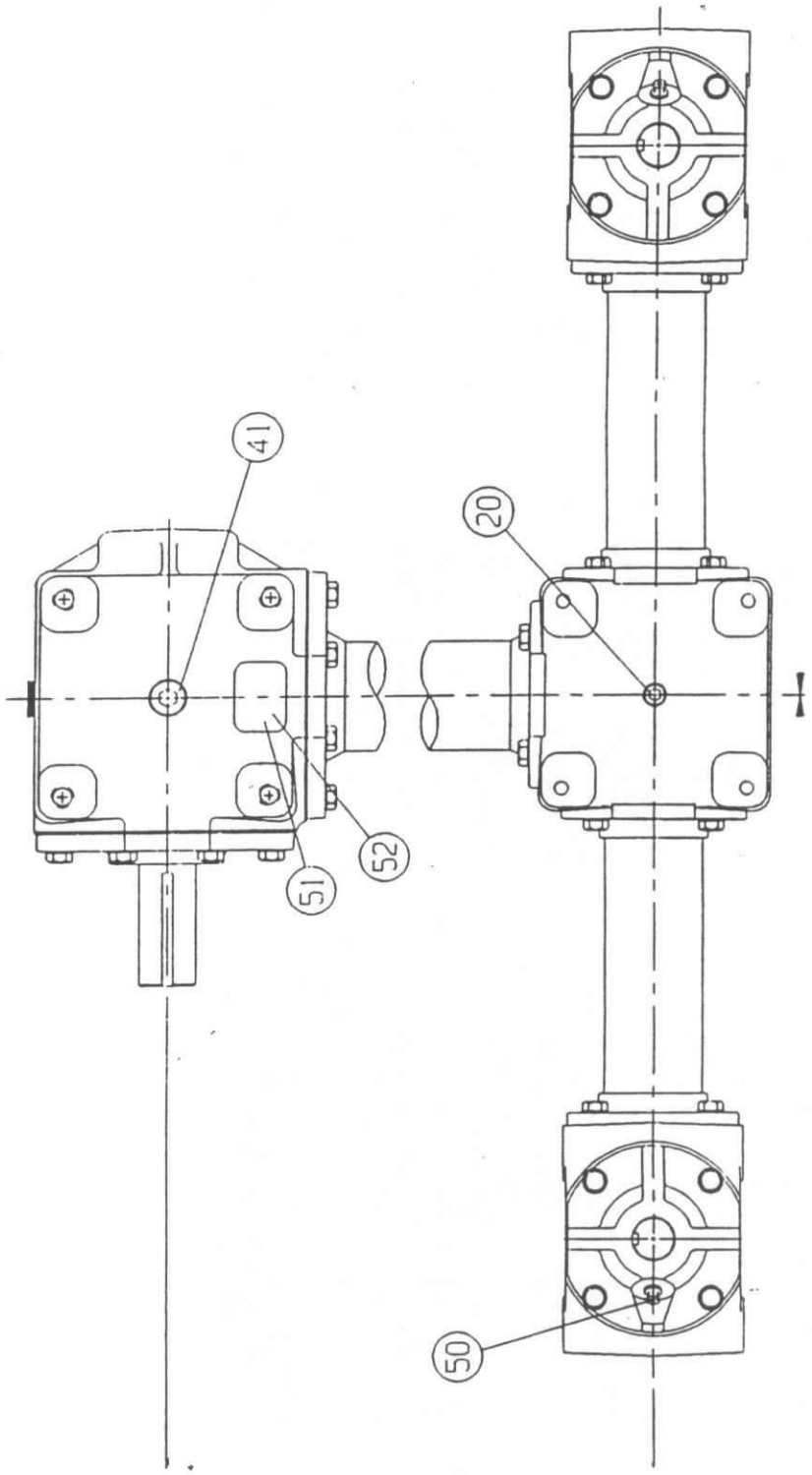


1	Housing	28	Connector Cap
2	Cap	29	Key
3	Seal	30	Gear
4	Bearing Cone	31	Gasket (.015)
5	Bearing Cup	32	Gasket (.005)
6	Connector Cap	33	Gasket (.003)
7	Bearing Ball	34	Screw Sems Cap
8	Screw Sems Cap	35	Thru Cap
9	Gear	36	Seal
10	Key	37	Shaft
11	Shaft	38	Ring Retaining
12	Pin Roll	39	Key
13	Bearing Cone	40	Gear
14	Bearing Cup	41	Plug Solid Pipe
15	Gear	42	Collar
16	Shaft	43	Bearing Cup
17	Key	44	Bearing Cone
18	Ring Retaining	45	Shim (.010)
19	Key Woodruff	46	Shim (.005)
20	Plug Solid Pipe	47	Locknut
21	Spacer	48	Washer, Lock
22	Washer	49	Housing
23	Shaft	50	Zerk Grease
24	Blank Cap	51	Tag I.D.
25	Gasket (.015)	52	Cover I.D. Tag
26	Gasket (.005)	53	Lube Gear (ozs)
27	Gasket (.003)		



NOTE: ADD 32 .0ZS
LUBRICATION TO THIS UNIT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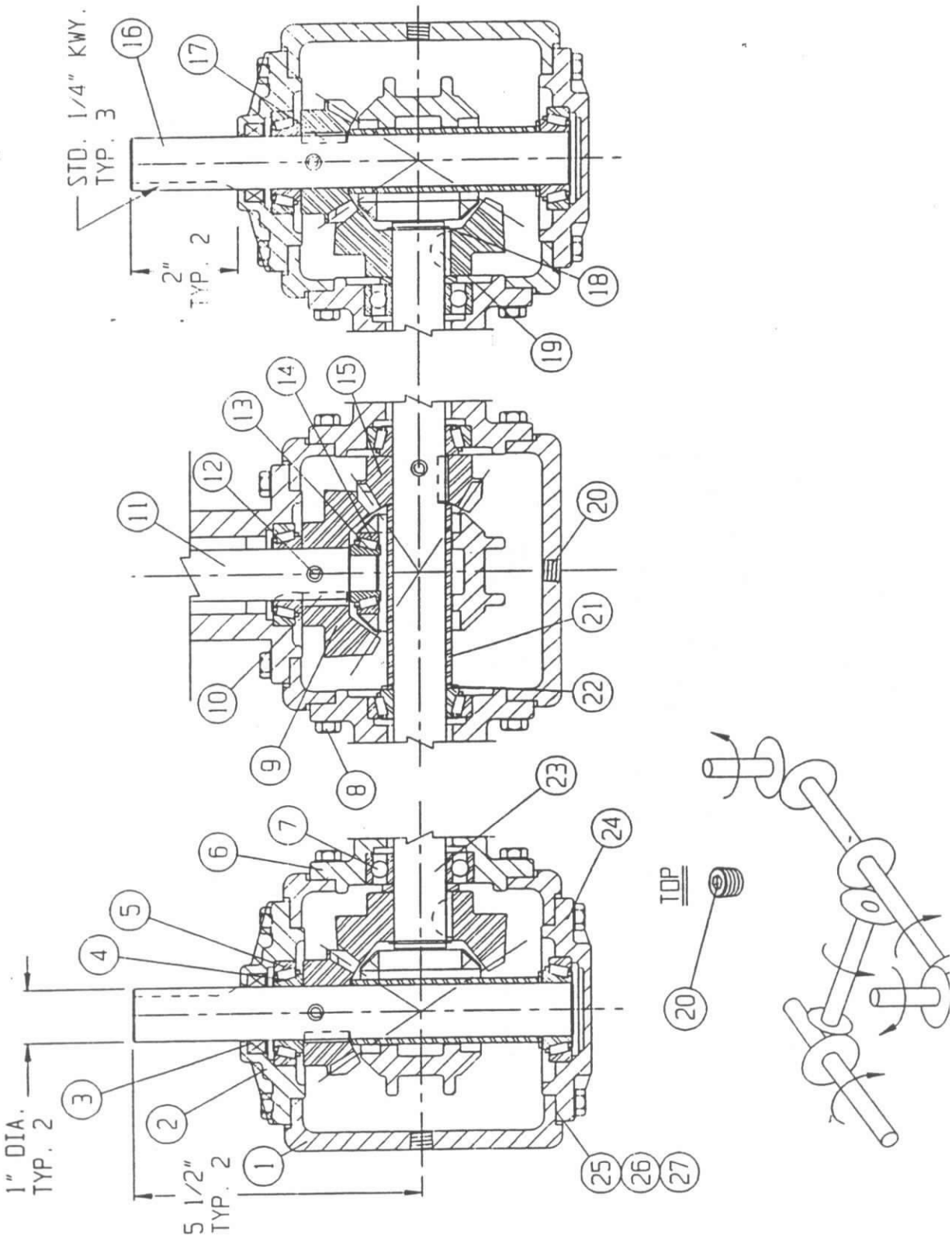

STD. 1/4" KWY. TYP. 3
2" TYP. 2
1" DIA. TYP. 2
5 1/2" TYP. 2
IDP

BREAKDOWN OF SPINNER MOTOR

	3000 Series Pumps / Motors	
1	Snap Ring	W-023-206
2	Outboard Bearing	W58-39
3	Double Lip Shaft Seal	W62-26-16
4	Bearing Spacer	UA-0558.2
5	Seal Retainer	ZD-0558
6	High Pressure Seal	W62-49-9
7	Shaft End Cover	**-0574-*
8	Check Valve Assembly	L-0280-K
9	C Shaft	**-0024
10	Spacer	SA-0558
11	Snap Ring	W-86-100
12	Pump Shaft Seal	W62-26-18
13	Motor Shaft Seal	W62-49-11
14	Ring Seal	KA-0558-1XS
15	Crowned Roller Bearing	X-0921
16	Thrust Place Teflon Coated Thrust Plate Diverter Plate	ZZ-0947 ZZ-0947-TC ZZ-0947-DS
17	Gasket Seal	TA-2995-242
18	Housing	QZ-0577-**-*
19	Drive Shaft & Gear Set	**-0024L-*-**
20	Port End Cover	WZ-0592
21	5/8” Hardened Washer	W033-2
22	5/8-11 Hardened Washer	5/8-11 x 1
23	5/8-11 Hex Nut	W3-65
24	Bearing Carrier	**-0576-*
25	Connecting Shaft	YZ-0022
26	Gear Set	U-0996L-**

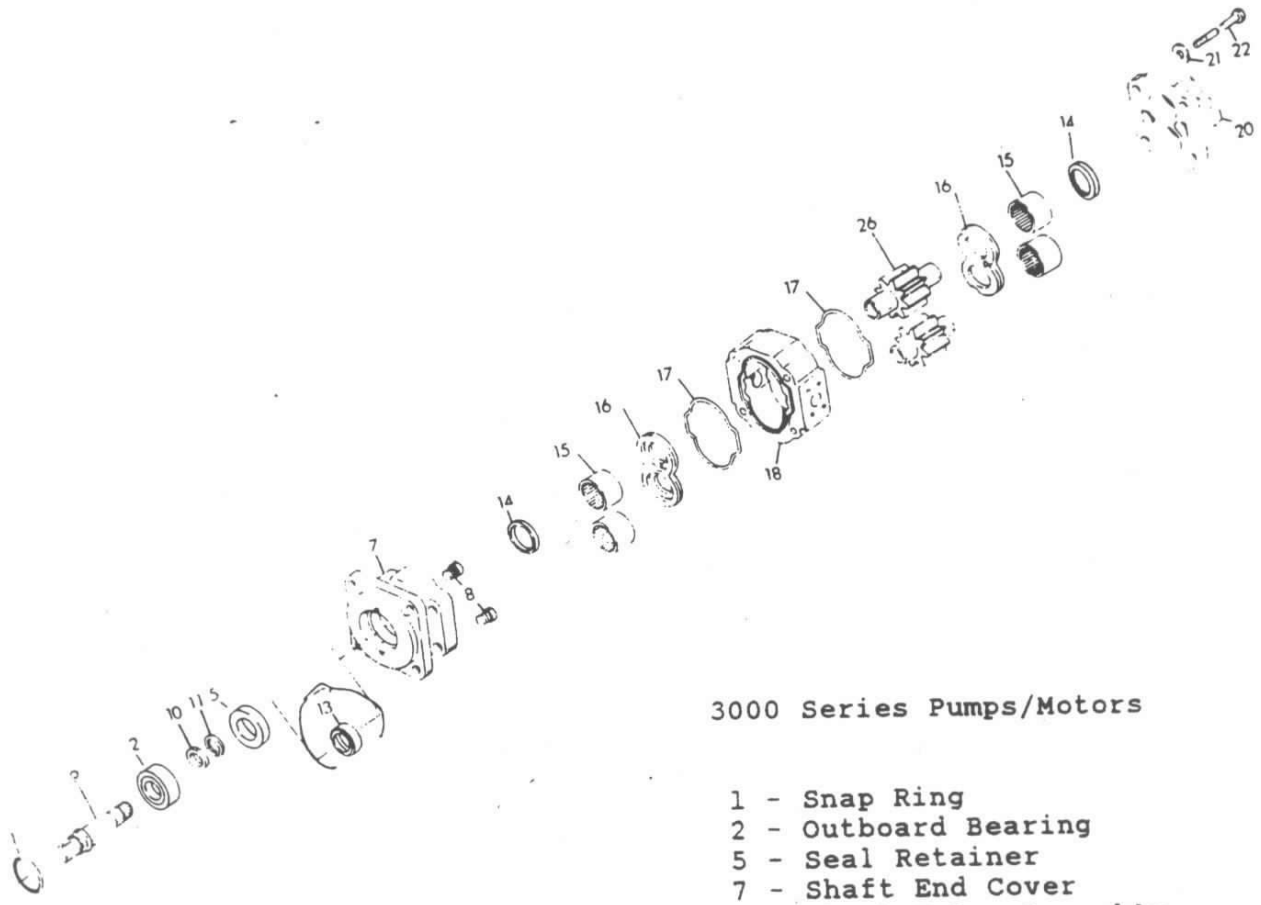
28	Hex Head Cap Screw	W1-*

DIVERSIFIED FABRICATORS, INC.

RALPH JONES
President

1325 HIGHWAY 41 BYPASS SOUTH
GRIFFIN, GEORGIA 30223
PHONE: (404) 412-0429
FAX: (404) 412-0459

BREAK DOWN OF SPINNER MOTOR



3000 Series Pumps/Motors

1 - Snap Ring
2 - Outboard Bearing
5 - Seal Retainer
7 - Shaft End Cover
8 - Check Valve Assembly
9 - C - Shaft
10 - Spacer
11 - Snap Ring
13 - Motor Shaft Seal
14 - Ring Seal
15 - Crowned Roller Bearing
17 - Gasket Seal
18 - Housing
20 - Port End Cover
21 - 5/8" Hardened Washer
26 - Gear Set
28 - Hex Head Cap Screw

HYDRAULIC CONVEYOR MOTOR
DT 2.5" Bearing Motor Components
New style housing / all new style shafts except 23 & 25
Represents motors with the following housings: 06, 07, 16 & 26.

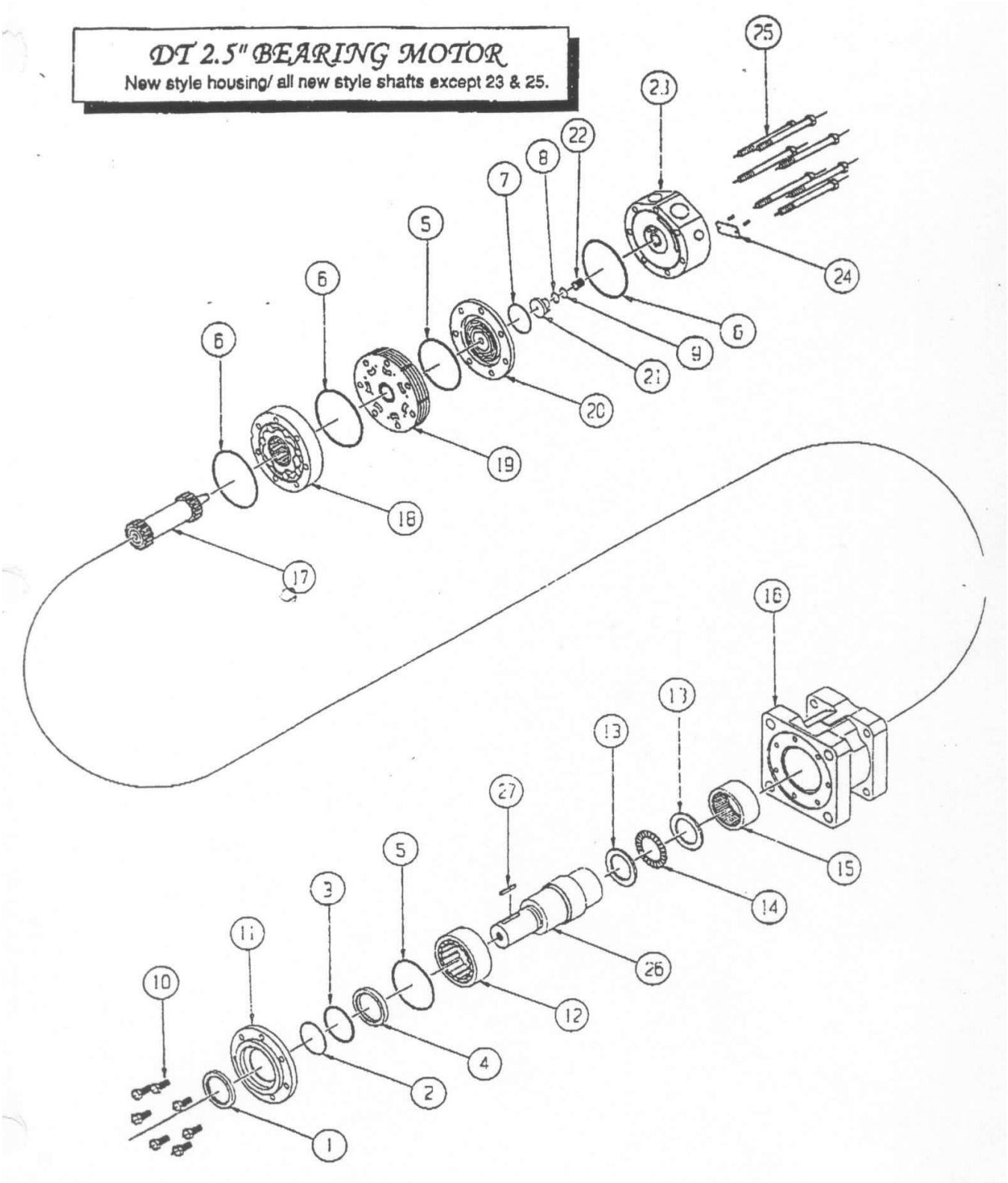
DESCRIPTION	EXP VIEW ITEM#	KIT
	Seal Kit PT666251	ITEMS #1-9 INCLUDED IN SEAL KIT PT666251
1	DUST SEAL	
2	METAL BACKUP SHIM	
3	TEFLON BACKUP SEAL	
4	SHAFT SEAL	
5	PILOT RING SEAL	
6	BODY SEALS (3)	
7	COMMUTATOR SEAL	
8	TEFLON BACKUP SEAL	
9	O-RING SEAL	

Note: Motors assembled before Jan. 5, 1994 have low pressure shaft seals. These motors will lack items 2 and 3 as shown in the drawing. To upgrade these motors to the new high pressure shaft seal configuration, order the kits below. The kit includes a standard PT666251 seal kit and a new revision pilot ring that must be used with the new seals.	
For 06, 16& 26 housing motors	PT666251P
For 07 housing motors	PT666251PY

Miscellaneous Kits

Exploded View Item # (DT 2.5" Bearing	Kit	Description
1	PT018070	DUST SEAL
10	PT018071	PILOT RING BOLTS (7)
11	PT018064	PILOT RING (5.00" DIA.)
11	PT018097	PILOT RING (125mm DIA.)
12	PT018056	FRONT HOUSING BEARING
13	PT018101	BEARING SPACER
14	PT018061	RETAINING WASHER
15	PT018062	SNAP RING

16	PT018059	THRUST WASHER
17	PT018057	THRUST BEARING
18	PT018060	REAR HOUSING BEARING
22	PT0668002	MANIFOLD
23	PT0668003	COMMUTATOR ASSEMBLY
24	PT0668004	ENDCOVER PISTON
25	PT018046	PISTON SPRING
33	PT018115	SPACER
34	PT018113	TRONT THRUST WASHER
35	PT018114	FRONT THRUST BEARING
NOT SHOWN	PT669303	M42 X 3 CASTLE NUT
NOT SHOWN	PT018038	1.125-18 UNEF SLOTTED HEX NUT
NOT SHOWN	PE018221	3000 psi RELIEF VALVE
NOT SHOWN	PE018228	1000 psi RELIEF VALVE
NOT SHOWN	PE018054	1.125-18 UNEF SOLID NUT
NOT SHOWN	PE018231	2000 psi RELIEF VALVE


DT 2.5" BEARING MOTOR
New style housing/ all new style shafts except 23 & 25.
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DIVERSIFIED FABRICATORS, INC. is hereinafter called DFI.
The products manufactured by DFI, exclusive of used or re-built machinery or equipment, are subject to the following warranty:

a) Warranty.
DFI warrants all products manufactured by it to be free from defects in material and manufacture at the time of shipment and for twelve (12) months from date of delivery to customer, and provided that the product is in normal use and service. DFI will furnish to the customer without charge, f.o.b. Griffin, Georgia replacements for such parts as DFI finds to have been defective at the time of shipment, or at DFI's discretion, will make repairs to such parts, provided that, upon request, such parts are returned, transportation prepaid, to the factory at Griffin, Georgia. THIS WARRANTY SHALL NOT BE EFFECTIVE IF THE BUYER IS IN DEFAULT AS OUTLINED BELOW.

This warranty is furnished to customer **only if work is performed** at our manufacturing facility in Griffin, Georgia.

This warranty shall not apply to any product which has been subjected to misuse, misapplication; neglect (including but not limited to use of unauthorized parts or attachments), unauthorized adjustments, or unauthorized repair. Engines, motors, and any accessories furnished with DFI's products, but which are not manufactured by DFI, are not warranted by DFI but are sold only with the express warranty, if any, of the manufacturer thereof. THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED (INCLUDING THOSE OF MERCHANTABILITY AND FITNESS OF ANY PRODUCT FOR A PARTICULAR PURPOSE), AND OF ANY OTHER OBLIGATION OF LIABILITY ON THE PART OF DFI. FURTHERMORE, THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF.

b) Limitation of Liability
It is expressly understood that DFI's liability for its products, whether due to breach of warranty, negligence, strict liability, or otherwise, is limited to the furnishing of such replacement parts, and DFI will not be liable for any other injury, loss, damage, or expense, whether direct or consequential, including but not limited to loss of use, income, profit, or production, or increased cost of operation, or spoilage of or damage to material, arising in connection with the sale, installation, use, or inability to use, or the repair or replacement of, DFI's products.

Any operation expressly prohibited in the operating instructions or safety manual furnished with the machine, or any adjustment, or assembly procedures not recommended or authorized in the operating or service instructions shall void such warranty.

c) THIS WARRANTY IS VOID UNLESS "DIVERSIFIED FABRICATORS WARRANTY" CARD IS COMPLETED AND RETURNED TO THE FACTORY AT GRIFFIN, GEORGIA WITHIN 30 DAYS AFTER DELIVERY OF UNIT TO CUSTOMER.
d) The laws of the State of Georgia apply to this transaction. DFI shall be granted by the Purchaser as listed on the front side, a purchase money security interest in the machinery, equipment, and parts listed and maintains the right to file a U.C.C.-1 financing statement to perfect said interest. Buyer hereby waives signature for the execution of the U.C.C.-1 and grants DFI a limited Power of Attorney to execute on Buyer's behalf a U.C.C.-1 financing statement if necessary. As this is a commercial transaction, DFI maintains the right to declare the indebtedness created by this invoice in default if payment is not made within forty-five (45) days or if the Buyer breaches any other term of this invoice.
e) In the event of default, DFI shall have the right of self help repossession in addition to other remedies allowed under the laws of the State of Georgia. Additionally, DFI shall have the right to apply for an immediate writ of possession pursuant to O.C.G.A.§44-14-260 et.seq. DFI shall be entitled in addition to the principal and interest reflected on the front of the invoices all costs of collection including 15% of the unpaid principal and interest as attorney fees.
f) Buyer listed on the front side of this invoice hereby agrees that this is a commercial transaction and waives any and all rights to notice of seizure by DFI if payment is not made within forty-five (45) days from the date of delivery on the front side of the invoice. Additionally, Buyer hereby waives and posting of bond by DFI for the issuance of the immediate writ of possession as outlined in O.C.G.A. §44-14-260 et.seq.

ALWAYS GIVE PART NAME, NUMBER, AND EQUIPMENT SERIAL NUMBER WHEN ORDERING PARTS

GQ-0155938B (06/02)

All accounts due and payable on terms as stated on the front of this invoice shall incur a finance charge of 1½% per month (18% Annual Percentage Rate) after 30 days from the date delivered.
A handling fee will be charged on all correctly filled orders returned for credit.

THANK YOU - WE APPRECIATE YOUR CONFIDENCE!

Diversified Fabricators, Inc.