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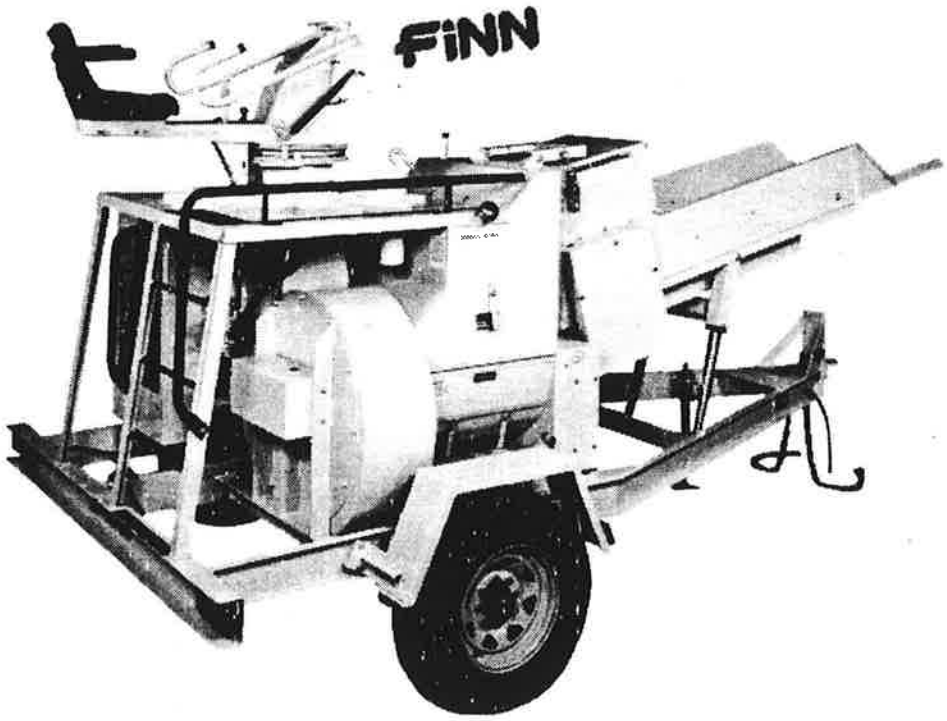

B-260

Mulch Spreader

Parts and Operator's Manual

Model **RR** Serial No. _____

WARRANTY

Finn warrants to the original Purchaser for use (or rental to others for use) all new construction machinery and attachments therefore manufactured by Finn to be free from defects in material and workmanship for a period of 12 months from date of purchase or 1200 hours of use, whichever comes first. Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product in which installed, as if such parts were original components of that product. Finn makes no warranty with respect to (a) allied equipment or trade accessories not manufactured by it (such as, but not limited to tires, ignitions, starters, hose, batteries, magnetos, carburetors, engines or like or unlike equipment or accessories), such being subject to the warranty, if any, provided by their respective manufactures; or (b) secondhand, used, altered, or rebuilt machines. Further, the warranty herein expressed shall be rendered null and void to the extent any defect or failure of the products warranted hereby arises out of or is caused by accessories or component parts not manufactured or supplied by Finn, whether same are supplied by Purchaser, dealers or any other party. THE WARRANTY DESCRIBED IN THIS PARAGRAPH SHALL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Upon notification of Finn during the above-stated warranty period of any failure to conform to this warranty, and upon inspection by Finn to verify said nonconformity and verify the continuing existence of the warranty period, Finn will provide a new part or a repaired part, whichever Finn elects, to replace the part found to be defective. Such parts will be provided without charge to the Purchaser during normal working hours at a place of business of a Finn dealer or other establishment authorized by Finn to effect said repairs or replacements, but Purchaser shall bear all costs of transporting the product to and from such place of business or establishment. Correction of nonconformities, in the manner and for the period time provided above, shall constitute fulfillment of all liabilities of Finn under this contract.

THE REMEDIES OF THE USER SET FORTH HEREIN ARE EXCLUSIVE, WITHOUT REGARD TO WHETHER ANY DEFECT WAS DISCOVERABLE OR LATENT AT THE TIME OF DELIVERY OF THE PRODUCT TO THE PURCHASER. The essential purpose of this exclusive remedy shall be to provide the Purchaser with repair or replacement of parts that prove to be defective within the period and under the conditions previously set forth. This exclusive remedy shall not have failed of its essential purpose (as that term is used in the Uniform Commercial Code) provided Finn remains willing to repair or replace defective parts within a commercially reasonable time after it obtains actual knowledge of the existence of a particular defect.

IN NO EVENT SHALL FINN BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES, INCLUDING LOST PROFITS OR LOST COMMERCIAL OPPORTUNITIES, WITH RESPECT TO THE SALE OF THE ABOVE WARRANTED PRODUCT OR ANYTHING DONE IN CONNECTION THEREWITH, OR FOR PROPERTY DAMAGE SUSTAINED BY A PERSON CLAIMING TO BE A THIRD PART BENEFICIARY OF A SURVIVING WARRANTY UNDER THE LAW OF ANY JURISDICTION.

NOTICE

FINN CORPORATION URGES THE USE OF ONLY FINN CORPORATION SUPPLIED PARTS AND ATTACHMENTS TO ASSURE PROPER PERFORMANCE AND SAFE OPERATION OF FINN CORPORATION EQUIPMENT. INSIST ON PARTS AND ATTACHMENTS MANUFACTURED OR SUPPLIED BY FINN CORPORATION WHEN YOU PURCHASE, REPAIR OR REPLACE YOUR FINN EQUIPMENT AND ATTACHMENTS.

BECAUSE FINN CORPORATION CANNOT ASSURE THAT PARTS AND ATTACHMENTS NOT MANUFACTURED OR SUPPLIED BY FINN MEET FINN CORPORATION'S QUALITY STANDARDS, SPECIFICATIONS, OR OPERATING REQUIREMENTS, OUR WARRANTY IS NOT EFFECTIVE TO THE EXTENT ANY FAILURE OF OR DEFECT IN A FINN CORPORATION PRODUCT ARISES FROM OR IS CAUSED BY PARTS, ATTACHMENTS OR COMPONENTS NOT ORIGINATING WITH FINN CORPORATION. USE OF FINN CORPORATION EQUIPMENT WITH PARTS AND ATTACHMENTS NOT MANUFACTURED OR SUPPLIED BY FINN COULD RESULT IN PERSONAL INJURY.

Effective December 8, 1995

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

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SAFETY FIRST

With any piece of equipment, new or used, the most important part of its operation is SAFETY!

Finn Corporation encourages you and your employees to familiarize yourselves with your new equipment and to stress safe operation.

The first four pages of this manual are a summary of all the main safety aspects associated with this unit. Be sure to read completely before operation of machine.

This symbol is used throughout the operation and maintenance sections of this manual to call attention to safety procedures.
- Pay Attention -

DANGER: Immediate hazards which WILL result in severe personal injury or death.

WARNING: Hazards or unsafe practices which COULD result in severe personal injury or death.

CAUTION: Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

IMPORTANT: Indicates that equipment or property damage could result if instructions are not followed.

NOTE: Gives helpful information.

CALIFORNIA

Proposition 65 Warning

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P/N 12304

Finn Corporation

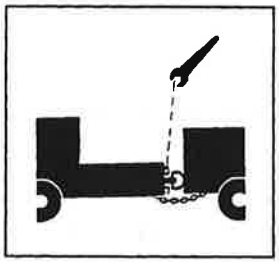
MULCH SPREADER SAFETY SUMMARY SECTION

It is important that all operators of this machine are familiar with all of the safety aspects mentioned below and have read the entire Operator's Manual before operating the machine. Always keep a copy of this manual with the machine. It is the responsibility of the operator of the machine to fully understand this safety sheet. Remember that YOU are the key to safety. Good safety practices protect not only you but also the people working with and around you. Keep in mind that this safety sheet is written for this type of machine only. Practice all other usual and customary safe working precautions; and above all, remember that safety is up to you.

The FINN MULCH SPREADER is intended to be used as an applicator of vegetative hay or straw mulches onto the seedbed. Its use with other products or for other applications must be by approval of the product's manufacturer. If there are any questions contact FINN Corporation at 1-800-543-7166.

I. PRE-START EQUIPMENT CHECK (equipment check is to be made with the engine off):

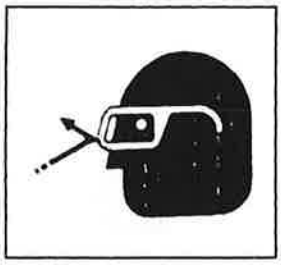
1. Check hitch and hitch bolts, safety chains, lights, brakes and breakaway switch. Verify that the hitch ball is the correct size for the coupler.



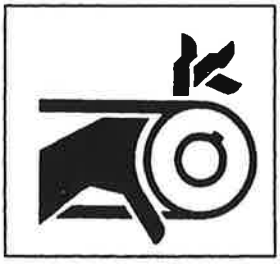
2. Check that all guard railing is in place and secure.
3. Verify that all guards are in place.
4. By carefully looking in the shredder box, inspect the shredder box for foreign objects.
5. With the ignition switch on, verify that the signal horn is operating correctly.
6. Make sure no one is working on or inside the machine. Signal "All Clear" before starting the engine.
7. Inspect all hydraulic hoses for cracks, bulges or damage. If hose is bad, replace immediately.

II. MACHINE OPERATION:

1. Always wear safety goggles when operating or feeding the machine. Other safety attire such as safety shoes, ear protection, gloves, hard hats, dust masks, etc., should be worn as required by warning decals on machine, operator's manuals, or jobsite requirements. Remove rings, watches, etc. Avoid loose fitting clothing that may get caught in rotating machinery.



2. Do not operate the machine without all guards in place.

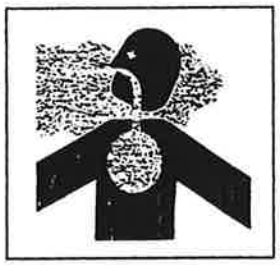


3. Make sure the discharge spray area is clear of all persons, animals, etc.

4. The driver of the carrying or towing vehicle is responsible for the safety of the operator(s) and feeder(s) of the machine. Make sure the driver is aware of and avoids all possible hazards to the operator(s) on the machine, such as tree limbs, low power lines, etc. Vehicles on which equipment is mounted or towed must be started or stopped gradually. Avoid abrupt starts and stops. Never operate on a slope or a hill that may endanger the operator(s). All personnel should review and be familiar with start/stop signals between the driver and operator(s) before operation of the equipment.

5. Operator(s) of equipment should never ride on machine at speeds greater than 5 MPH (8km/h).

6. Never operate machine in an enclosed area without venting the exhaust of both the equipment and the vehicle on which the equipment is mounted or towed. Deadly carbon monoxide fumes can accumulate.



7. Never operate this or any other machinery when fatigued, tired, under the influence of alcohol, illegal drugs or medication. You must be in good physical condition and mentally alert to operate this machine.

8. Never modify the machine. Never remove any part of the machine (except for service and then reinstall before operating).

9. Use proper means for mounting and dismounting of machine. Never mount or dismount a moving machine.

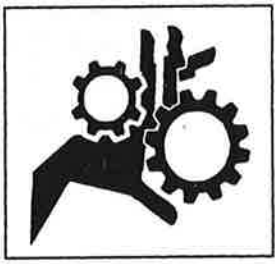
10. Do not aim discharge at people, animals, etc. Only aim the discharge at the intended seedbed.

11. Do not open any doors or access panels while machine is in operation. Severe injury may result from rotating parts.

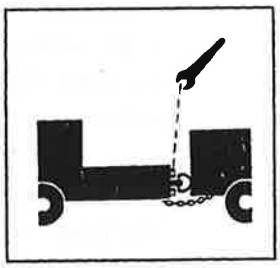
12. Do not attempt to pull anything out of the feed chute or shredder box when machine is in operation. Shut down the engine, using OSHA lockout/tagout procedure (29CFR 1910.147) before removing any foreign objects. Signal "All Clear" before restarting the machine.

III. MAINTENANCE:

1. Before servicing the machine, turn off engine and allow all moving parts to stop. Disconnect the battery cables to prevent accidental starting of the machine. Tag the engine operating area to show that the machine is being serviced. Use lockout/tagout procedure (29 CFR 1910.147).



2. On trailer units perform general maintenance such as checking the safety chains, hitch and hitch bolts, tires, and brakes. Repair or replace if worn or broken. Never operate machine on improperly inflated or damaged tires. Always use a safety cage or cable restraints when reinflating a repaired tire.



3. Radiator maintenance. Liquid cooling systems build up pressure as the engine gets hot. Before removing the radiator cap, stop the engine and let the system cool. Remove the radiator cap only after the coolant is cool.

4. Battery maintenance. Lead-acid batteries contain sulfuric acid which damage eyes or skin on contact. Always wear a face shield to avoid acid in the eyes. If acid contacts eyes, flush immediately with clean water and get medical attention. Wear rubber gloves and protective clothing to keep acid off skin. Lead-acid batteries produce flammable and explosive gases. Keep arcs, sparks, flames, and lighted tobacco away.

5. Filling of fuel. Never fill the fuel tank with the engine running, while smoking or when near an open flame. Never smoke while handling fuel or working on the fuel system. The fumes in an empty container are explosive. Never cut or weld on fuel lines, tanks, or containers. Move at least 10 feet (3 meters) away from fueling point before starting engine. Wipe off any spilled fuel and let dry before starting engine

NOTE: Be careful not to allow fuel, lubricant, hydraulic fluid, or cooling fluids to penetrate into the ground or be discharged into the water system. Collect all used fluids and dispose of them properly.

6. It is recommended that only authorized genuine FINN replacement parts be used on the machine.

7. Do not use ether cold start fluid if engine is equipped with glow plug type preheater or other intake manifold type preheater. It could cause an explosion or fire and severe injury or death.

8. Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause injury, blindness or death. Pressure may build up in the hydraulic system so use caution when removing the cap.

9. Make certain that all decals on the machine are maintained in good legible condition. Replacement decals are available through FINN Corporation by specifying the part number shown in the lower right hand corner of the decal. See page 5 for the current set of safety decals mounted on the unit. See Parts Manual for the location and quantity of all decals on this unit.

ASPHALT SYSTEM:

1. Clean the adhesive with fuel oil or kerosene. DO NOT USE GASOLINE. Collect all fluids and dispose of properly according to local codes.

CURRENT SET OF SAFETY DECALS

⚠ DANGER

Rotating Parts.

Turn off engine and allow all parts to stop completely before opening door, removing guards or attempting service.

P/N 20068

⚠ WARNING

To prevent serious burning or scalding:

- Pressurized cooling system.
- Allow system to cool.
- Remove cap slowly with gloves on.

SW600

⚠ CAUTION

Personnel should not ride this equipment at speeds greater than 5 MPH (8 km/h).

P/N 20970

⚠ WARNING

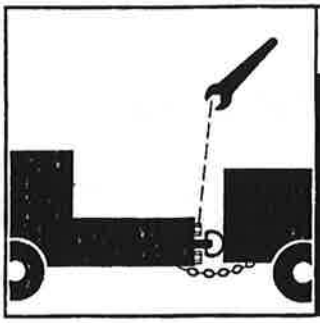
Rotating fan hazard.
Keep hands clear.
Shut off engine before servicing.

P/N 12251

⚠ WARNING

Do not operate without guards in place.

P/N 12179



⚠ CAUTION

Always inspect tow vehicle and equipment hitch before towing. Tighten all hitch bolts and properly connect wiring and safety chains.

P/N 31227

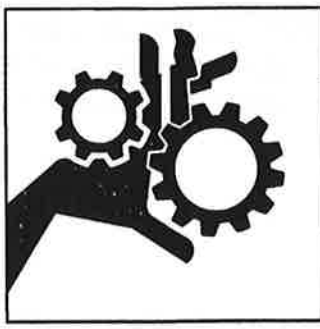
WARNING

- BREAKAWAY SWITCH -
DO NOT USE FOR PARKING.
ATTACH CABLE TO TOWING VEHICLE WITH SLACK FOR TURNING.
ENGINE BATTERY ON TRAILER MUST BE CHARGED AND HOOKED UP FOR PROPER BREAKAWAY FUNCTION.

P/N 29452

⚠ CAUTION

Wear eye protection around operating equipment



⚠ WARNING

Turn engine off, disconnect battery, and allow all moving parts to stop before servicing equipment.

P/N - 22357

CAUTION

Use on 2" Ball Only

P/N. 31336

⚠ DANGER

HOT EXHAUST

SW7

CAUTION

Both the single and double chains must be crossed under the tongue. They must be oriented in such a manner as to prevent the tongue from dropping to the ground in the event of failure to the hitch, coupler or ball. The chains must be connected to the towing vehicle so that the slack for each length of chain, between the trailer and the towing vehicle, is the same and must have no more slack when in use than is necessary to permit proper turning of the vehicles. The forward end of the chain must be attached to the towing vehicle, not to the ball, but to the hitch or other frame member. The chain must be looped around the member and hooked back into itself.

SAFETY CHAIN INSTALLATION

P/N 31228

⚠ CAUTION

Wear proper eye protection when feeding this machine.

P/N - 22690

OPERATION AND MAINTENANCE MANUAL FOR THE FINN B260 MULCH SPREADER

This manual is designed for step by step instructions of the operation, care and maintenance of the B260 Mulch Spreader and, in addition, it contains illustrations and descriptions of a complete list of parts and components for easy identification. For best results and to insure longer life of the equipment, please follow the instructions carefully. For your safety read the entire manual before operation of this unit.

DEFINITION OF MULCHING:

Mulching is the process whereby a vegetative mulch such as hay or straw, sometimes excelsior or other wood product or any other vegetative material is spread on previously seeded areas to promote germination, while providing for temporary erosion control.

THE FINN B260 MULCH SPREADER AND HOW IT WORKS:

The Finn Mulch Spreader will apply any vegetative mulch at a fast and uniform rate (with the specified amount of adhesive material, if so desired) utilizing a minimum amount of manpower.

The baled vegetative mulch material, when placed on the feed chute is being moved to the shredder housing by the variable speed power feed system. In the shredder housing a combination of beater chains and air currents separate the mulch into individual fibers, which are drawn into the blower housing and blown through the discharge assembly onto the seedbed.

TOWING TRUCK:

The truck used to tow the Finn Mulch Spreader should have a bed large enough to carry the quantity of mulch needed for economical operation. If the Mulch Spreader is going to be used on rough hilly terrain, a truck with a two-speed axle is suggested. This will supply the necessary slow speed required for careful, uniform application. The truck must be equipped with a ball or pintle hitch with a large enough rating to tow the Mulch Spreader. Use a 2-5/16" ball rated at least 7500 lbs. (3401 kg). The tow vehicle must be able to support 750 lbs. (340 kg) down on its hitch. There must be provisions for the safety chains to be attached. The hitch should be mounted as near the end of the truck bed as possible.

ATTACHMENTS:

HAND HELD ASPHALT SPRAY BAR

The asphalt spray bar is used to spray asphalt emulsion independently of the built-in system. The 50' (15 m) hose connects to the asphalt system by a quick coupling, which is plugged in at the side of the blower housing opposite the relief valve. The rate of asphalt discharge is controlled by the size nozzles inserted in the hand held spray bar. Clean the accessory spray bar and hose by connecting to the asphalt system while the system is being flushed with clean out liquid.

50' (15 m) EXTENSION FOR DISCHARGE SPOUT

The collapsible tube, when secured to the spout of the adapter provided, will extend the length of the discharge spout 50' (15 m). When this tube is attached, mulch material must be pushed farther before discharge. Thus, it is important to keep the air pressure as high as possible. This can be done by feeding not more than two (2) bales per minute of good bright material, less is the material being used is of poor quality. KEEP THE TUBE AS STRAIGHT AS POSSIBLE. DO NOT FEED MULCH UNTIL TUBE IS FILLED WITH AIR.

Asphalt hoses for the discharge spout extension are connected to the manifold at the side of the blower housing using a quick connect coupling. The valve on the extension is used the same way as the main valve on your Finn Mulch Spreader.

Since less mulch is being fed into the machine, less asphalt is required and smaller asphalt spray nozzles are used when the spout extension is in place. Clean the hoses and nozzles by the same technique as used with the hand held asphalt spray bar.

STACKING THE BALES ON THE TRUCK:

Load the bales of mulch on the truck bed with binder twine or wire on top rather than on the side. This makes it easier to grab the bales while the Mulch Spreader is in operation.

Place the first layers of bales "lengthwise" on the truck. The second layer of bales should be placed "crosswise". Then alternate successive layers lengthwise and crosswise so that the load is secure.

Leave enough room (at least the width on one bale) at the rear of the truck bed where the bale handlers have to work.

POSITIONING THE FEED CHUTE EXTENSION:

The feed chute extension should extend at least 18 inches (45 cm) over the rear edge of the truck bed. Achieve this as follows:

1. Unhook the discharge spout holddown, and fold it down to the horizontal position.
2. Swing the discharge tube to the side.
3. Swing the feed chute extension down to the feed position. If the extension is short of the edge of truck bed, move it to the rear set of mounting holes.
4. The feed chute should then be adjusted so that it is 6 to 12 inches (15 to 30 cm) higher than the bed of the truck.
5. Be sure that when turning the truck, the truckbed will not come in contact with the power feed mechanism.

PRE-START CHECK:

Safety check to insure operator safety:

1. Check the bolts on the hitch and safety chains, the brakes, and the trailer lights.
2. With ignition "on", check the amber safety light.
3. Check the signal horn.
4. Insure that all guards are in place.

EQUIPMENT CHECK:

CAUTION: Equipment check is made with the engine off and all rotating parts stopped.

1. Tool kit – see that it contains all prescribed items (see page 49 in parts manual).
2. Lubricate equipment – use handgun only (see lube chart pages 26-27).
3. Check engine oil and fuel. Refer to the engine manual for proper oil and fuel. Also, check hydraulic oil level. (See hydraulic system for oil spec.)
4. Inspect air cleaner for dust and dirt and clean if necessary.
    a) Knock the loose particles from element.
    b) Wash with water and detergent.
    c) Rinse and allow to dry . . . Do not force dry, do not use compressed air or heat.
5. Check belts for proper tightness. Belts are in proper adjustment when 8 pounds (3.6 kg) pressure in the center of the belt produces 3/8" (1 cm) depression.
6. Engage and disengage clutch to determine if it "snaps" in and out of gear.
7. When not using an adhesive, remove the belts, which drive the asphalt pump (running the pump dry will permanently damage it).
8. Check the radiator liquid level (protected to –34 °F. (-37 °C) when shipped).
9. Check shredder box for foreign objects, which could damage the equipment or injure workers.
10. Check beater chains and their mounting pins for damage or wear. Replace if necessary.

STARTING THE ENGINE:

CAUTION: See safety section of the manual (pages 2-4) before operating the machine.

1. Be sure that the clutch is disengaged and that the power feed handle is in the "off" position.
2. Turn ignition switch to "start" position. If engine does not start within 15 seconds turn the key back to the off position and wait at least 30 seconds before trying again.

NOTE: This engine has a safety system that will shut the engine off if the engine oil pressure drops below 7 psi (48 kPa), or if the water temperature reaches 230 °F (110 °C).

3. The safety switch has a 15-second time delay on it. If the ignition switch is left in the "on" position for longer than 15 seconds the engine will not start. This is indicated by the red light coming on in the gauge panel. To start the engine simply turn the key to the "off" position and attempt to start again.
4. Allow the engine to warm up at fast idle for 3 to 5 minutes. The voltmeter indicates whether the alternator is charging or not.
5. With the engine still idling, engage the clutch slowly. Move the throttle to wide-open position and let the governor control the engine speed. Governed speed of the engine on the Finn Mulch Spreader should be 2550 to 2600 RPM under load.

CAUTION: Before engaging the clutch, be certain that the discharge tube is under control and is pointed in the proper direction.

IMPORTANT: After the first four-eight hours of operation, the drive belt should be checked and retightened, and the clutch checked and adjusted (see page 17).

CREW MEMBERS AND THEIR DUTIES:

1. The Operator controls the placement of the mulch on the seedbed by moving the discharge assembly. He also controls the movement of the towing truck along the seedbed by using a predetermined set of signals with the signal horn.
2. The Bale Handlers operate from the truckbed and supply the power feed assembly with bales of mulch material; they cut and dispose of the bale twine or wire, and keep the power feed chute full of material with no gaps so that there will be no interruption in distribution of the mulch to the seedbed.
3. The Truck Driver follows the directions of the operator for the movement of the towing truck. The truck driver should be cautious in stopping the truck so that the crewmembers are not thrown off balance.

FEEDING THE MULCH:

The power feed assembly of the Finn Mulch Spreader has been designed to give fast, uniform, mechanical feeding. The adjustable feeding rate allows the use of varied materials and at the same time obtains maximum production.

The power feed assembly, by means of a power feed chain, feed the mulch material at an adjustable rate to the separator roll which drops the bats into the shredder housing.

The power feed assembly is driven by a hydraulic motor mounted on the top side of the power feed chute and is controlled by the operator at the discharge control station. The power feed control is a lever which, when it is pulled back from the center position, makes the power feed chain run away from and when pushed forward from center position causes the power feed chain to move toward the shredder housing. Forward or rearward, the further the lever is moved, the faster the chain travels. Once a speed has been selected, centering the lever stops the chain and returning the lever to the same position gives the same speed. Through the use of the power feed control lever, the operator can momentarily stop the feeding cycle when wet bales are encountered or when it is necessary to stop applications because of driveways, bridge abutments, etc. The operator can slow down or speed up the rate of feeding depending on the type of material that is being encountered bale by bale.

To start the power feed, push the control lever slowly until the desired speed is reached. It is necessary that the bale handlers keep the power feed chute completely full at all times to get the maximum production rate of the Finn Mulch Spreader.

The operator should have a full stream of mulch coming at all times, directing the material to the area to be mulched. He has complete control of the power feed mechanism by the use of the control lever and can vary his rate of feed instantaneously to fit all conditions. If the bale handlers are unable to keep the feed chute full, the operator should slow the feed down slightly until the bale handlers can keep up. This gives a more uniform application. If the feed rate is not fast enough for the good bright straw, and the control handle is full forward, move the handle to the right and then forward into the high speed forward slot.

It is suggested that every truckload of mulch, the power feed tray is emptied to allow the operator to remove any wire or twine from around the feeder roll.

At no time should the rate of feed be set beyond the capacity of the machine (because of poor quality of the mulch material being used) as overloading the machine will occur, thus causing extensive wear and maintenance problems.

DISTRIBUTING THE MULCH:

The Mulch Spreader should be towed to a point approximately 60 feet (18 m) from the area where the mulch is to be applied. The operator elevates the discharge spout about 10° above the plain of the seedbed so that the mulch floats onto the seedbed.

Do not drive the mulch into the seedbed with air pressure. The higher the tube is held, the more uniform the application will be.

A full circle horizontal travel of the discharge spout allows the operator to vary the direction of the discharge spout according to the prevailing winds. The tube should never be directed into the wind, towards any person, or at the towing vehicle.

SMOOTHING OUT MULCH PATTERNS:

The lower roll assembly in the shredder housing which is driven by the blower power band, is equipped with mounting points for 8 beater chains and 6 fingers. For normal straw application 4 or 6 chains are all that are needed. If you have material coming out in lumps or find it impossible to handle because the mulch material is wet or hard, install extra chains in pairs until the smoothness of mulch application is reached.

CAUTION: Be sure beater chains are mounted opposite each other at all times to avoid throwing the blower shaft out of balance.

If your equipment is still throwing mulch material out in lumps and does not have a good discharge pattern, then move the last beater hub closer to the blower housing, but leave it in the shredder box.

CLOGGING OF THE MULCH BLOWING SYSTEM:

If during operation the machine gets plugged simply shut off the power feed. If the machine does not clear up, disengage the clutch and let the machine coast to a stop; before turning off the engine the operator can reverse the power feed chain using the control lever to unload the power feed chute to facilitate cleaning the machine.

DANGER: Do not reach into the shredder box or attempt any adjustment until the engine and all rotating parts have stopped.

Four locations have been provided to help remove any obstructions:

1. The opening into the beater box into which the mulch material is fed.
2. The access door in the shredder housing.
3. The access door into the blower discharge transition.
4. The discharge tube itself.

When the obstruction has been removed and access doors closed, the motor can again be started and mulch application continued.

If consistent plugging occurs, it can be caused by one of several reasons:

1. The bale handlers do not feed the bales at a consistent rate and/or do not guide the bales properly onto the power feed mechanism after they remove the strings or wires, leaving gaps in the stream of bales or the bats lay flat on the tray.
2. The power band is out of adjustment, causing it to slip.
3. Check that the necessary beater chains are installed.
4. Operator is feeding the mulch material too fast and overloading the shredder housing. The blower will only suck separated mulch fibers into the blower housing; this separation process takes longer with wet and hard material than with dry mulch material.

HYDRAULIC SYSTEM:

The hydraulic system on your Finn Mulch Spreader consists of a pump, reservoir with suction strainer, oil filter, and power feed hydraulic motor with flow control valve set to operate at 2000 PSI (13790 kPa). The most important areas of maintenance are the hydraulic oil and filtration. The reservoir holds 8 gallons of ISO Grade 46 Hydraulic Oil such as Mobil DTE25, Gulf 46AW, Shell-Tellus 46 or equivalent. The hydraulic oil should be replaced per the lubrication schedule or if the oil becomes milky or it gives off a burnt odor. The hydraulic oil filter must be replace with a 10-micron filter – Finn part # 21618. The following checks will keep your Finn Mulch Spreader in proper operating condition:

1. Check oil level once a week, add additional oil when level goes down below 1 ½" (3.8 cm).
2. Change oil filter on oil tank every 500 hours of operation.
3. Check and clean suction strainer once a year or whenever the oil is changed.
4. Change hydraulic oil whenever the color turns to milky white, (change is caused by water getting into hydraulic system) or if oil gives off a burnt odor.
5. Keep all fittings and hoses tight and leak free.
6. Keep system clean at all times.

CAUTION: Do not start or run the engine without hydraulic oil in the reservoir or with a closed reservoir ball valve as permanent damage to the hydraulic pump will occur.

TROUBLE SHOOTING THE HYDRAULIC SYSTEM:

First check the oil level in the reservoir. Add oil if necessary. All checks should be made with the engine running at least half throttle.

Problem	Cause	Solution
Power feed motor will not run in either direction.	Plugged suction strainer.	Clean strainer.
	Suction line valve closed.	Open valve.
	Collapsed suction hose.	Replace hose.
	Worn pump.	Repair or replace.
Power feed chain runs unevenly.	Loose chain.	Adjust tension on chains.
Power feed motor runs in reverse only.	Flow control stuck or plugged.	Repair or replace.
	Flow control cable inoperative.	Repair cable.

ASPHALT EMULSION SYSTEM:

The Finn Mulch Spreader could be equipped to spray asphalt emulsion adhesive on the mulch material as it leaves the end of the discharge spout. This adhesive effectively keeps the mulch in place on the seedbed. The asphalt emulsion system for the Finn Mulch Spreader consists of:

1. A suction pipe with strainer screen.
2. A pump which draws the adhesive from a portable supply tank being towed behind the Mulch Spreader, or a tank mounted on the truck bed, or a drum carried on the Mulch Spreader.
3. A valve to control the flow of the adhesive.
4. Tubes that carry the adhesive to the end of discharge spout.
5. Injection nozzles for spraying adhesive on the mulch at the end of the discharge spout.
6. A relief valve, which has been pre-set at the factory.

A. OPERATION INSTRUCTIONS:

1. Remove the plug from the top of the adhesive tank and insert the suction assembly into the tank.

2. Install the drive belts on the adhesive pump.
3. Install the nozzles into the pipe elbows at the top end of discharge tube. Install each nozzle so that its slot is parallel to the top of the discharge top and turned slightly downward toward the discharge tube outlet.
4. Start the engine and let it warm up at an idle speed. Then with the engine still idling, engage the clutch slowly.

Read the asphalt pressure gauge on the discharge spout. It should show at least 35 psi (241 kPa). If the gauge shows no pressure, air is trapped in the line. Bleed the line by opening the bleed valve below the pressure relief valve. After bleeding the line, close the valve. You should then have a pressure reading on the gauge. Open the asphalt valve momentarily to check the spray pattern produced by the nozzles, be careful where the tube is aimed.

With the asphalt system ready for operation, move the throttle to wide open position, let the governor control the engine speed and you are now ready to commence operation.

When using the adhesive, the operator keeps the valve handle in the "on" position, when mulch flow is temporarily interrupted, turn the adhesive handle to the "off" position; the asphalt droplets will drift quite far if there is not mulch to tack on to.

B. NOZZLE SELECTION:

From the six sets, select the nozzles which will deliver the gallonage required. Install the nozzles in the pipe elbows at the end of the discharge spout.

The faster you apply the mulch, the larger the nozzle you will need. Naturally, the larger the nozzle opening the more adhesive it will spray.

The nozzles spray at the following rates:

Nozzle No.	Gallons per minute*	Liters per minute
¼" - 1506	1	4
¼" - 1520	2	8
¼" – 1540	4	15
¼" – 1560	7	27
3/8" – 12	12	45
3/8" – 15	15	57

*Note: This is the quantity delivered in one minute by each individual nozzle.

Use the following formula to find out which nozzles to use to apply the proper amount of adhesive material:

$$\frac{\text{Tons per hour x gallons (L) per ton required}}{60} = \text{Gallons (L) per minute For 2 Nozzles}$$

A ton per hour is determined by the quality of the mulch material and the ability of the bale handlers on the truck.

The gallons (liters) per ton required is determined by the specifications for the particular job; normally this is around 100 gallons per ton (418 liters per metric ton).

EXAMPLE:

Assuming you have two (2) able bodied men feeding the mulch to the Mulch Spreader; and the mulch is of average quality; we assume you can blow 7 tons per hour. Assuming also your specifications read 120 gallons (500 liters) of adhesive per ton; then the formula looks as follows:

$$\frac{7 \text{ (tons per hour)} \times 120 \text{ (gallons per ton)}}{60 \text{ minutes}} = \frac{840}{60} = 14 \text{ GPM approx.}$$

$$\frac{6.3 \text{(Metric ton per hour)} \times 500 \text{ (liters per metric ton)}}{60 \text{ minutes}} = \frac{3150}{60} = 53 \text{ liters per minute}$$

Since you will use 2 nozzles, select 2 nozzles, which are closest to each other in gallonage, in this case 2 nozzles of 7 gallons (27 liters), per minute (#1560). For 27 gallons (102 liters) per minute one would select 1 nozzle of 15 gallons (57 liters) per minute (3/8"-15) and 1 nozzle of 12 gallons (45 liters) per minute (3/8" – 12).

If during operation, the flow of asphalt stops, check the following items:

1. Tank – for quantity of adhesive.
2. Screen in the suction pipe (use exhaust of engine to clean).
3. Loosen belt on pump.

C. ASPHALT SYSTEM CLEANING:

Since asphalt emulsion sets when exposed to air, the lines and nozzles must be cleaned soon after mulching is stopped. For shut downs longer than 10 minutes and at the end of each day's operation, the following clean-up procedure should be used:

1. With the clutch disengaged and all moving parts stopped, insert the suction tube into a barrel of environmentally friendly cleaning solution.

DANGER: Do NOT use gasoline when cleaning the asphalt system.

2. Engage the clutch, open the throttle halfway and move the asphalt valve handle to discharge until a clear white fog appears at the end of the spout.
3. Close the valve and let the machine run for at least 30 seconds. This allows time for all supply lines and bypass system to be cleaned.
4. Disengage the clutch and shut-off the engine. Remove barrel suction assembly from the cleaning solution and insert it in the holder in the frame.
5. Remove pump drive belt. Pump will be permanently ruined if it is run without liquid being pumped.

CLEANING AND MAINTENANCE:

AFTER FIRST 4 – 8 HOURS OPERATION:

1. Check belt tension on the drive belt
2. Check and adjust clutch-see page 17
3. Retorque wheel lugs – again after 7 days.

DAILY CLEAN-UP MAINTENANCE:

Follow this procedure daily to keep the equipment in good operation condition:

1. Remove asphalt emulsion strainer screen. Clean and reinstall (use exhaust of engine).
2. Check the air cleaner pre-cleaner by sight; if dirty empty the plastic cup.
3. Check the air cleaner on the engine by removing the element and checking the cleanliness of the element by using a light inserted inside. If the light cannot be seen, element is dirty. Wash it with clean water and detergent; do not use a pressure hose. If you cannot get it clean enough to see light, element should be replaced.
4. Clean the radiator and radiator screen with tap water.
5. Check crankcase oil level and add oil if necessary.
6. Check tension on the power band (3/8" (1 cm) depression at the center of the band using 8 lbs. (3.6 kgs.) of pressure) and adjust if necessary.
7. Clean the beater rolls, making sure to remove all twine, wire and other foreign objects.
8. Lock the discharge tube (using the hold down strap) into the carrying saddle.
9. Fill the fuel tank.
10. Fill your clean-out barrel with an environmentally friendly cleaning solution.
11. If the asphalt emulsion system has been used, the cleaning procedure previously described should be followed.
12. Check hitch bolts, safety chains, and brakes.

Be sure to seal your asphalt tank to prevent setting up of emulsion. Refill the tank with adhesive. For longer storage, add a quart of oil to the filled tank. If asphalt supply tank is to be stored empty, it must be washed and cleaned inside and out.

WEEKLY MAINTENANCE:

After each 40 hours of operation, follow this procedure:

1. Change engine oil, following the engine manufacturer's recommendations.
2. Change the engine oil filter cartridge with every other oil change.
3. Lubricate bearings with general-purpose chassis lubricant, using a grease gun. Wipe each bearing before lubrication to remove dirt and prevent overheating.
4. Inflate tires to proper pressure as specified on the tire.
5. Check clutch adjustment. If clutch does not smartly snap in or snap out, clutch needs adjustment. Refer to your engine manual for instructions.

CAUTION: Adjust only when the engine is off.

CARE AND OPERATION OF ROCKFORD POWER TAKE-OFF

The following brief instructions are a simple outline of duties that the owner and operator must perform for long and satisfactory service from any Rockford Power Take-Off.

CLUTCH ADJUSTMENT PROCEDURE:

Rockford power take-offs with HE clutches described in this manual do not automatically adjust to compensate for wear of the clutch facing(s). The operator must periodically adjust the clutch to ensure correct clutch operation.

The clutch should be adjusted if the force required to engage the clutch drops by 10-15% of the specified engagement force (see the table below). Clutch engagement force should be continually monitored so proper clutch adjustment is maintained. Destructive damage may have already occurred if engagement force is allowed to diminish to the point where the clutch fails to carry the load (slippage), if facing(s) have overheated, of if the clutch self-disengages (normally a result of improper clutch engagement).

Clutch Size	Reference Handle Length	Pressure at Lever
10"	10"	120-140#

NOTE: New clutches or new facings usually require several, frequent adjustments until the friction facing surfaces have "worn in". The clutch friction facing will become glazed, and possibly permanently damaged if the clutch is permitted to slip excessively.

ADJUST THE CLUTCH:

Remove the PTO nameplate, disengage the clutch and rotate it to gain access to the adjusting ring lock.

Remove the lock bolt and adjustment lock.

Rotate the adjusting ring counter-clockwise to tighten the clutch. Rotating the adjusting ring clockwise will loosen the clutch. Adjust to obtain the proper clutch handle engagement force.

When clutch is properly adjusted, reposition the locking finger in a slot. Tighten the adjustment lock bolt. Replace the PTO nameplate.

LUBRICATION:

LUBRICANT: Any high grade, Lithium Base #2, short fiber grease recommended for use in 2,100 RPM roller bearings operating at temperatures of 200° F (93° C).

NOTE: Do not mix Sodium or Calcium base grease with Lithium grease.

LUBRICATION INTERVALS:

The following lubrication intervals are suggested as guidelines. The operator is responsible for establishing lubrication intervals appropriate to the duty cycle and environmental operating conditions to which the PTO is subjected.

Main Bearings: Grease every 100 hours of operation or less. Add grease until grease is forced out the labyrinth seal(s) around the shaft. Manually (not by starting the engine) rotate the shaft while adding grease.

PTO Cross Shaft: Grease every 500 hours of operation. Add one or two pumps of grease from a hand operated grease gun.

Clutch Linkage and Levers: Lubricate with engine oil every 500 hours of operation.

The lubrication intervals and the amount of grease used should be adjusted to minimize the amount of grease forced out of the bearing housing. A small amount of grease driven from the bearing housing is an indication that enough grease is being provided.

Bearing Operating Temperatures:

The main bearing operating temperature range is normally between 170°F and 200°F (76.7°C to 93.3°C). Locations with high ambient temperatures such as desert climates will cause the bearings to run hotter. More frequent lubrication intervals and/or specialized grease designed for higher operating temperatures will be required.

NOTE: There is a tendency to test temperature with the hand. However, it is difficult to hold a hand on a bearing housing operating at 150° F (65.6° C) although that temperature is below the normal 170° F (76.7°C). *operating temperature of the PTO. Therefore a thermometer (contact type) should be used to make reasonably accurate temperature measurements.*

DISASSEMBLE THE POWER TAKE-OFF:

(Refer to Figure 1 on page 24 for parts call out).

1. Remove all accessories or drives attached to the output shaft.

   ENGAGE THE CLUTCH.

   - Disconnect any linkage that may be attached to the clutch-actuating handle.
   - Loosen the bolt that fastens the handle to the cross-shaft.
   - Match-mark the handle and cross shaft so that the handle can be reinstalled at the same place on the shaft.
   - Slide the handle off the cross shaft spline.

2. Remove the power take-off from the engine.

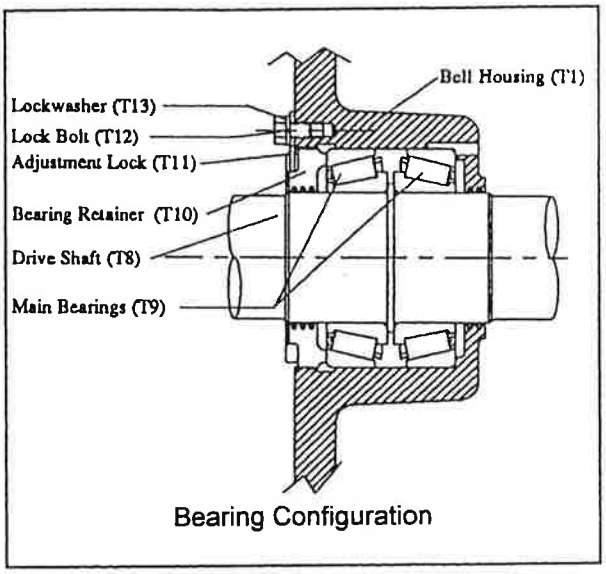
   - Attach a hoist or other suitable lifting device to the power take-off. Attach at three points spanning the center of gravity to hold the shaft in a horizontal position during removal.
   - Remove the mounting bolts, removing those located near the top last. The PTO should separate from the flywheel housing. If the PTO does not separate, install two 3/8"-16 UNC bolts in the threaded holes in the flange. Tighten the bolts alternately and evenly until the housing is removed from the engine flywheel housing pilot diameter.
   - Exercise caution when removing the PTO from the engine to avoid damage to the grease fittings, facing(s), and pilot bearing.

3. Remove the clutch from the PTO shaft.

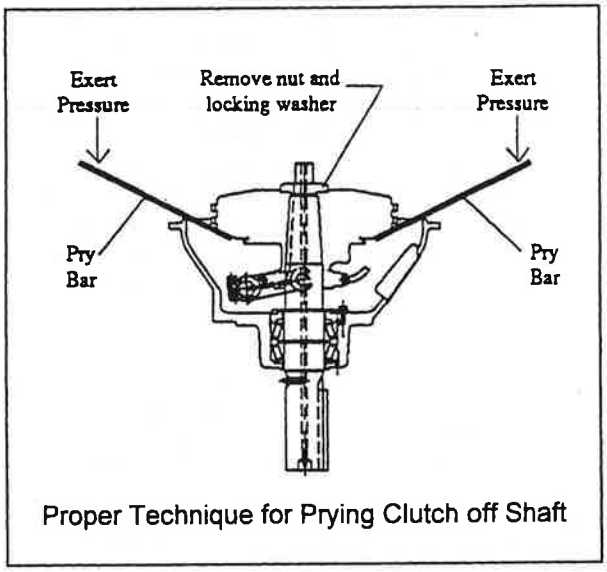
   - Remove the pilot bearing (T25) from the drive shaft with a bearing puller.
   - Position the PTO with the pilot bearing end up, resting with support beneath the end of the output shaft.
   - Bend the locking plate (T27) away from nut (T26), and remove the nut and locking plate.
   - Place pry bars under the pressure plate. While exerting pressure on the pry bars, strike the end of the shaft with a soft mallet to "jar" the clutch loose. Pull the clutch from the shaft. Use caution not to damage the end of the shaft.

4. Remove the shaft and bearings from the bearing housing.

   - Remove lock bolt (T12), lockwasher (T13) and adjustment lock (T11).
   - Rotate the bearing retainer (T10) counterclockwise and remove it.



Bearing Configuration



Proper Technique for Prying Clutch off Shaft

   - Lift the drive shaft (T8) with bearings (T9) from the bearing housing (a hoist may be needed).
   - One tapered roller bearing cup will have remained in the bearing housing. Remove the bearing cup from the bearing housing. Insert a small punch through the three holes provided in the rear of the bearing housing and drive the cup out. (Some units have threaded plugs, which first must be removed from the holes).

5. Remove the main bearings from the drive shaft.

Wash the bearings with clean fuel oil or solvent. Dry and carefully examine for wear, corrosion, or rough spots. If it determined the bearings must be replaced, remove from shaft.

- Place the shaft in a press with a split-plate resting on the bed of the press, positioned under the top bearing inner race.

  CAUTION: *Place a block of wood beneath the shaft to prevent it from being damaged as it falls loose.*

  CAUTION: *If the inner race of the pilot bearings is still on the shaft (roller bearing style) place a plug on the end of the shaft to prevent pressing against the pilot bearing inner race.*

- Turn the shaft over and repeat the previous steps to remove the remaining bearing.

6. Remove the cross shaft.

- Loosen (2) bolts securing the yoke assembly (T16) to the cross shaft.
- Slide the cross shaft through the housing until the yoke rests against a block of wood placed between the yoke and the housing.
- With a soft mallet, drive the cross shaft out of the yoke just far enough to expose the two woodruff keys (T15).
- Remove the woodruff keys.
- Slide or tap the cross shaft out of the yoke and housing.

INSPECT THE PTO COMPONENTS:

Tapered Roller Bearings: Visually examine for indications of wear, corrosion, brinelling or pitting on races or rollers. Bearing cups and cones must not exhibit signs of pitting, scuffing or tracking. Lightly oil the races with clean oil, hold one race stationary while slowly rotating the other race against it. Rough spots or sticking indicate need for replacement. Races must be smooth and unworn.

Bell Housing:

- Check the bearing fit. Bearing races usually are designed with a sliding or slightly snug fit in the housing bore. They should not have side movement in the bore. Labyrinth seal bores at the output end of the bearing housing should be round, not oval and should be approximately .020"-.025" (.508mm-.635mm) diameter larger than the drive shaft.
- If a bearing failure has occurred, be sure the bearing has not spun in the housing, destroying the shoulder or bore contacted by the bearing.
- The mounting pilot O.D. and mounting face must be free of protruding metal, rust corrosion etc., which would prevent the housing from locating properly in the flywheel housing bore or against the bearing house face. An improper fit causes misalignment. Misalignment is a major cause of power take-off failure. The snapring should restrict bearing movement to .015" (.381 mm) maximum.
- Cross shaft holes should not be worn more than .015" (.381 mm) out of round. A little wear does not render the parts unserviceable, but excessive wear can cause binding of the cross shaft under load during clutch engagement.

Cross Shaft:

- Be sure the cross shaft moves freely in the bell housing. Remove rust or corrosion from the cross shaft and the holes in the bell housing. Wear on the cross shaft does not become detrimental until it inhibits smooth rotation during clutch engagement (creates a false clutch engagement pressure reading) or allows moisture, dirt, or other corrosives to enter the housing. This can be prevented by ample greasing through the grease fittings to keep the cross shaft lubed. If the cross shaft is excessively worn on only one side, it can be reinstalled with the worn area 180° from its original position. Most Rockford cross shafts are splined on both ends and may be reversed in the housing.
- Woodruff key slots must hold the keyways straight. If the release yoke has been loose on the cross shaft the keyways may have one side worn at an angle.

Clutch Release Yoke:

- Keyways must not be worn excessively.
- Replace if width of cradles is over .875" (22.22 mm).

Drive Shaft:

- Pilot bearing journal must not be worn. A new pilot bearing should have a sliding-but-snug fit or tight fit. Finn recommends that a new pilot bearing is installed whenever the PTO assembly is completely taken apart.
- Threads must not be damaged.
- Keyways must not be worn so as to allow side movement of keys.
- Clutch taper should not be worn, although a small amount of wear, if worn evenly 360° around the shaft may be serviceable as long as the clutch will seat securely and squarely and the jam nut will tighten against the clutch body. If too much wear has occurred the clutch will slide too far onto the taper and the jam nut will bottom out on the thread or shoulder before it contacts the clutch body.

DISASSEMBLE THE CLUTCH:

1. Preparation for disassembly.

   - Disengage the clutch.
   - Match -mark the clutch body (H1), pressure plate (H3), and release sleeve (H25).

2. Remove the release sleeve and bearing sub-assembly.

   - Remove the lever spring (H12).
   - Notice the direction of the clevis pins (H31 and H33) are installed. Upon reassembly of the clutch they must be installed from the same side so the head leads the direction of clutch rotation.
   - Remove retainers (H34) and clevis pins (H33) to separate the links (H30) from the levers (H13).

3. Disassemble the sleeve and bearing sub-assembly.

   - Remove the three retainers (H32) and clevis pins (H31) to remove the links from the release sleeve (H25).
   - Remove the external snapring (H28) from the release sleeve.
   - Using a split plate, support beneath the release bearing (H26) on the bed of a press. Press the release sleeve from the bearing.
   - Remove the internal snapring (H29).
   - Tap the bearing carrier (H27) off the bearing.

4. Remove the levers.

   - Note the direction the clevis pins (H14) are installed so they can be reinstalled in the same direction. Remove three retainers (H15) and clevis pins (H14) to separate the levers from the clutch body.

5. Remove and disassemble the pressure plate sub-assembly.

   - Lift the pressure plate sub-assembly from the clutch body.
   - Remove the wear ring (H9) from inside the adjusting ring.
   - Remove the adjustment lock bolt, lockwasher and adjustment lock (H19) from the pressure plate.
   - Rotate the adjusting ring counter-clockwise to remove it from the pressure plate.

6. Complete the disassembly of the clutch.

   - Remove the facing disc (H4).
   - Remove three separator springs (H36) from the pockets in the clutch body.

INSPECT THE CLUTCH COMPONENTS:

Clutch Body:

- Friction surfaces must not have heat cracks, must be smooth and must be flat within .005" (.127mm).
- Drive bosses must not have wear marks exceeding .003" (.076mm) depth due to wear from the pressure plate or center plate.
- Keyway must not be worn.
- Tapered bore must fit snugly and securely on shaft.

Pressure Plate:

- Friction surface must not have heat cracks, must be smooth and must be flat within .005" (.127mm).
- Drive slots must not be excessively worn. Measure the width of the clutch body drive lug in the worn contact area. Measure the width of the pressure plate drive slot in the (worn) contact area. If the difference between the two readings exceeds .012" (.305mm) the worn component(s) must be replaced.
- Threads for adjusting ring must not be damaged.

Release Sleeve:

- No fractures should exist in the bosses.
- Clevis pin holes must not be worn excessively. A small amount of wear is normal and will not be detrimental.
- The release sleeve bore should not be worn beyond the limits shown below:

Basic Size	Max. Allowable Dia.
7/8" (22.23mm)	.883" (22.43mm)
1-1/4" (31.75mm)	1.258" (31.95mm)
1-3/8" (34.93mm)	1.387" (35.23mm)
1-3/4" (44.45mm)	1.759" (44.68mm)
2" (50.80mm)	2.012" (51.10mm)
2-1/4" (57.15mm)	2.259" (57.38mm)
2-1/2" (63.50mm)	2.509" (63.73mm)

- Snapring groove must not be damaged or worn beyond:

Clutch Size	Max. Allowable Width
6-1/2" clutch	.130" (3.30mm)
8" clutch	.145" (3.68mm)
10" &11-1/2" clutches	.155" (3.94mm)

- Ball bearing must fit tight on the release sleeve.

Release Bearing. Hold the inner race and slowly rotate the outer race, feeling and listening for rough spots, catches or a sticking condition.

Bearing Carrier:

- Flat areas are usually worn on the trunnions. Measure across a worn and an unworn area for comparison. Maximum allowable wear is .015" (.38mm).
- The snapring groove must securely hold the snapring. Measure the dimension from the bearing shoulder inside the carrier to the farthest edge of the snapring groove and compare with below.

Clutch Size	Maximum Width
6-1/2"-8" clutches	.700" (17.78mm)
10" & 11-1/2" clutches	.814" (20.68mm)
or	.891" (22.63mm)

- The bearing fit may be a sliding fit, but must be snug. A slightly tight fit is desirable.

Facing Discs:

- Must be free of oil or grease. Must not be burned. Once burned, they normally are incapable of holding torque.
- Measure the amount of wear that has occurred on each friction surface (2 surfaces per facing disc). Total wear allowable in any clutch (add 2 or 4 surfaces together) is approximately ¼" (6.35mm). Thickness of a new facing plate is .437" (11.10mm).
- Teeth must not be worn excessively or broken.

ASSEMBLE THE CLUTCH:

1. Assemble the sleeve and bearing sub-assembly.

- Install the release bearing (H26) in the bearing carrier (H27). The fit should be a snug sliding fit or a light press fit.
- Install the internal snapring (H29).
- Press the release bearing onto the release sleeve with the snapring located on the side nearest the three bosses of the release sleeve. Be sure to press against the inner race of the bearing - **do not** support, press or tap against the outer race (bearing carrier). Damage to the bearing could result.
- Install external snapring (H28).
- Place two links on one side of the bosses of the release sleeve (one on either side of the boss). The travel stop protruding from one side of each link should point toward the bottom of the release sleeve and must rest against the release sleeve.
- Install the clevis pin (H31) through both links and the lever boss.

NOTE: The clevis pin must be installed as previously noted so the head will lead the direction of clutch rotation.

- Securely install the retainer (H32) in the groove of the clevis pin.
- Repeat the previous 3 steps to install links on the remaining 2 lever bosses.

2. Assemble the clutch body sub-assembly.

- Place the clutch body (H1) on the bench with the friction surface up.
- Install three separator springs (H36) in the spring pockets of the clutch body.
- Place one facing plate (H4) on the clutch body.
- Thread the adjusting ring (H9) into the pressure plate (H3) *almost* to the bottom of the thread.
- Place the wear ring in the adjusting ring.

3. Install the release levers.
   - Position the three levers (H13) in the lever bosses with the protruding tang against the wear ring up and the "long end" up.
   - Press down on the pressure plate to compress the separator springs and allow the clevis pin (H14) to be inserted through the lever and clutch body.

NOTE: Be sure the clevis pins are installed so the heads will lead the direction of clutch rotation.

- Securely install retainers (H15) on the clevis pins.

4. Install the release sleeve and bearing sub-assembly on the clutch.

- Position the sleeve and bearing sub-assembly on the clutch so the links align with the levers.
- Align the clevis pin holes and install a clevis pin (H33) through the links and levers so the head of the clevis pin will lead the direction of rotation during clutch operation.
- Securely install the retainer (H34) in the groove of the clevis pin.
- Repeat at remaining lever positions.
- Install the lever spring over the release bearing. Locate a connector of the spring over each of two levers, and then stretch the spring to get it onto the third lever.
- Using the drive ring as a gage, perfectly center the facing disc(s) relative to the clutch body.
- Engage the clutch by pressing the release sleeve and bearing down to the stop. If the facings are not clamped tight, disengage the clutch, rotate the adjusting ring counter-

clockwise and reengage the clutch. Repeat until the clutch is adjusted tight enough to hold the facings aligned.

NOTE: *If the facings are not perfectly aligned in the clutch, mounting the PTO onto the engine will be restricted by interference between the facing teeth and the teeth of the drive ring.*

- Insert the adjustment lock in a slot of the adjusting ring. Install the lock bolt and lockwasher. Tighten finger tight.

NOTE: *Do not disengage the clutch until after the PTO has been mounted on the engine. Should the facings become misaligned repeat the procedure explained above for aligning the facings.*

ASSEMBLE THE POWER TAKE-OFF:

1. Install the main bearings on the drive shaft.

   - Start one bearing cone (T9) on the shaft with the wide face of the inner race facing the shoulder on the drive shaft.
   - Place a steel ring approximately ¼" thick over the shaft resting against the narrow race of the bearing cone.

     CAUTION: *Do not allow any pressure to be applied against the bearing cage at any time. A damaged cage will cause bearing failure.*

   - Support beneath the steel ring on the bed of a press. Press the drive shaft into the bearing until the shoulder on the shaft is tight against the bearing inner race.

     NOTE: *If the inner race of a roller type pilot bearing is on the shaft, place a plug on the end of the shaft to prevent pressing directly against the inner race.*

   - Turn the shaft over in the press. Press the second bearing onto the shaft just as described above.

2. Install the drive shaft in the bearing housing.

   - Support beneath the bearing housing with the bore up.
   - Install one bearing cup in the bore. (If necessary, gently tap the cup to the bottom of the bore).
   - Install the shaft and bearing in the bore.
   - Place the second bearing cup onto the exposed bearing cone. (If necessary, gently tap on the outer edge of the cup using a hard dowel to seat the cup against the bearing cone. Under no circumstances should abusive force be used. Excessive force can damage the roller surface of the bearing cup, causing bearing failure).
   - Thread the bearing retainer (T10) into the bearing housing until it is snugly tightened against the bearing cup. Rotate the drive shaft while tightening the bearing retainer to determine when "zero" bearing clearance exists. When the bearing cups are seated the "zero"
   - After "zero" bearing clearance has been obtained, back the bearing retainer out 2 or 3 notches using the adjustment lock bolt hole as a reference point.

     NOTE: *This is a preliminary adjustment. Final measurement and adjustment will be made in the next section.*

   - Position the adjustment lock (T11) tab in a notch, align the bolthole with the hole in the housing, and install the adjustment lock bolt and lockwasher (T12 & T13).

3. Install the cross shaft and clutch release yoke.

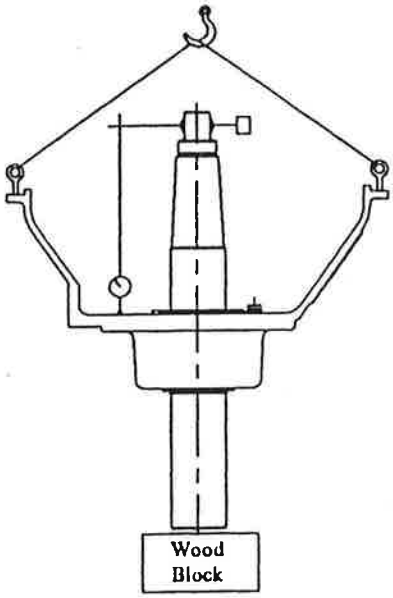
   - Lubricate the cross shaft holes in the bell housing. Slide the cross shaft (T14) through one hole.
   - Slide the clutch release yoke (T16) onto the cross shaft. The bolt holes (unthreaded end) should face outward (toward the flywheel). Slide the cross shaft through the release yoke and into the other cross shaft hole in the bell housing.
   - Rotate and position the cross shaft so one keyway is exposed in the middle of the release yoke. The other keyway will be located outside the yoke. Install two woodruff keys (T15) in the cross shaft.
   - Slide the cross shaft and woodruff keys into the keyways of the release yoke until the keys are centered on the yoke.
   - Install two bolts and lockwashers in the clutch release yoke. Tighten and torque to 17-20 ft. lbs. (23-27 Nm).

4. Complete the assembly of the housing unit.

   - Install all pipe plugs and fittings to complete assembly of the bearing housing and bell housing.
   - Install grease fittings in the shaft and housings.

ADJUST THE MAIN BEARING END PLAY:

1. Support the PTO with a sling and chain hoist as illustrated.



2. Raise the PTO high enough for access to the output end of the drive shaft. Using a soft, but heavy mallet against a hard wood block, strike the end of the shaft to seat the front bearing cup.
3. Lower the PTO and repeat the procedure in step 2 on the front end of the drive shaft to seat the rear-bearing cup.

CAUTION: *Sufficient force must be used to securely seat the cups, but abusive force can damage the roller surface of the cups, resulting in bearing failure.*

4. Insert 4 pieces of shim stock between the shaft and the bearing retainer to fill the gap and minimize sideways movement of the shaft.
5. Attach a dial indicator to the shaft as shown. Position the point on a smooth surface inside the bell housing, as close to the shaft as possible (but not on the bearing retainer). Set the dial indicator to "0".
6. Lower the PTO so the shaft rests on a wood block. Allow a small amount of slack in the lifting strap. Tap lightly on the bell housing to move it downward. Read the dial indicator. The amount of bearing end play will be indicated.
7. Raise the PTO off the wood block. Lightly tap on the pilot bearing end of the drive shaft to move it downward against the rear-bearing cup.
8. Again read the dial indicator. It should have returned to "0". If it didn't, repeat steps 5 through 7 to obtain an accurate reading.

Main bearing end play should be:
Grease lubricated bearings: .004"-.008" (loose)

9. If adjustment is necessary, proceed as follows: Rotate the bearing retainer clockwise to decrease or counterclockwise to increase the setting, then repeat steps 6 through 8 to verify the proper setting has been attained.
10. Install the adjustment lock.

INSTALL THE CLUTCH ON THE DRIVE SHAFT:

1. Support the PTO under a hoist, with the output end of the drive shaft resting on a hard wood block. Carefully lower the clutch onto the drive shaft. As the release bearing approaches the clutch release yoke, rotate the yoke upward to engage the bearing carrier trunnions in the cradles of the release yoke.
2. Just before the clutch becomes seated on the taper of the drive shaft, rotate the clutch to align the keyways and install the key ½ way into the keyway.

NOTE: If the key is installed in the bottom of the keyway before the clutch is completely seated, it may restrict proper seating of the clutch.

3. Seat the clutch on the drive shaft.
4. Drive the key the rest of the way into the keyway.
5. Place the locking washer (T27) on top of the clutch. Locate the tab in the keyway.
6. Install and tighten nut (T26) against the locking washer. Torque to:

6-1/2",7-1/2",8" HE	165-170 lb.-ft.(224-231 Nm)
10" and 11-1/2" HE	175-180 lb.-ft. (237-244 Nm)
11-1/2" HE(DP)	225-230 lb.-ft. (305-312 Nm)

7. Using a soft but heavy mallet, strike the clutch body to drive it down onto the drive shaft. Check the torque on the nut to be sure that it has not loosened.

CAUTION: *Be sure the drive shaft is resting on the wood block before striking the clutch body so the force of the impact can be absorbed by the wood block rather than by the bearing races.*

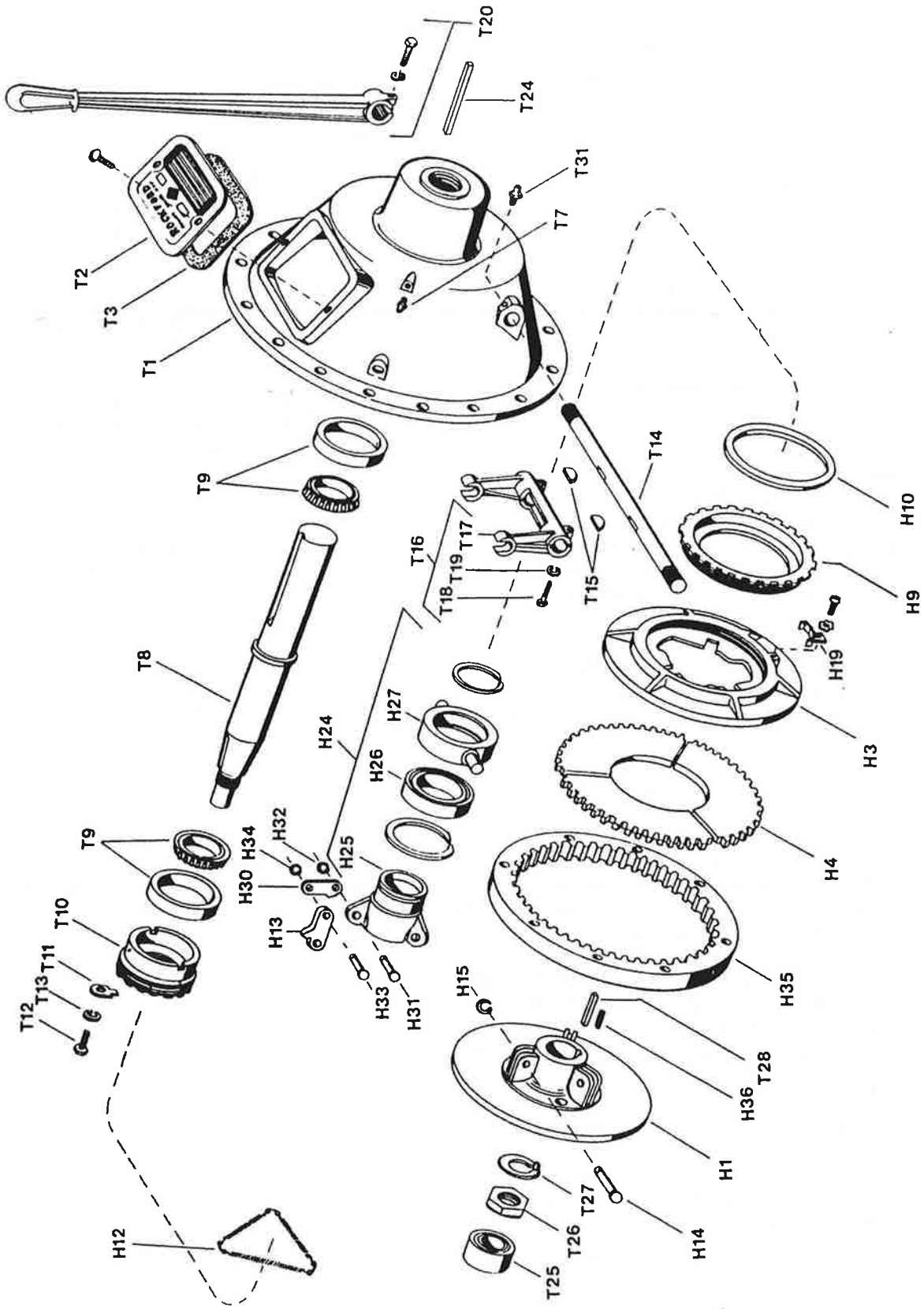

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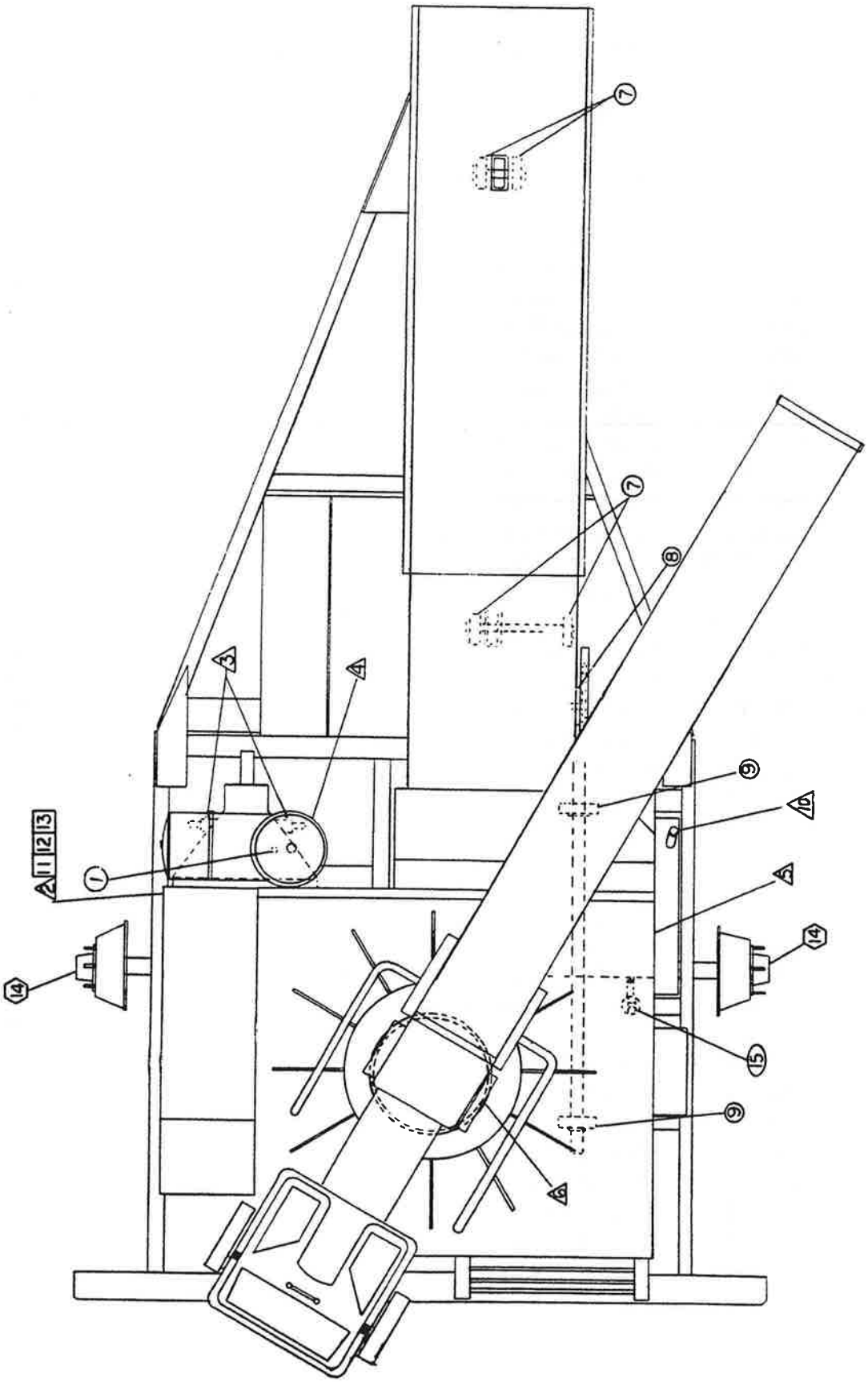
Figure 1

POWER TAKE OFF ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
	012069	Power Take Off Assembly includes:	
H1	100011	Clutch Body	1
H3	100028	Pressure Pla	1
H4	100341	Clutch Fac	1
H9	100013	Adjustin	1
H10	100032	Ring	1
H12	100026	Spr	1
H13	100018		3
H14	100010	ever Pin	3
H15	100007	ining Ring	3
H19	100024	djusting Lock	1
H24	1000	Release Sleeve and Bearing Assembly	1
H25	1	Release Sleeve	1
H26	100 1	Release Bearing	1
H27	100030	Bearing Carrier	1
H30	100019	Connecting Link	6
H31,H33	100009	Link Pin	6
H32,H34	100008	Retaining Ring	6
H35	100003	Driving Ring	1
H36	100017	Separator Spring	3
All H's	100340	Clutch Assembly	1
T1	100304	Clutch Housing	1
T2	100063	Instruction Plate	1
T3	100054	Cover Gasket	1
T7	100043	Lubrication Fitting	1
T8	100053	Drive Shaft	1
T9	100052	Bearing Cup and Cone (394A-390)	2
T10	100048	Bearing Retainer	1
T11	100039	Retainer Lock	1
T14	100040	Yoke Shaft	1
T15	100305	Woodruff Key	2
T16	100323	Clutch Yoke	1
T20	010284	Shifting Lever	1
T25	022314	Pilot Bearing	1
T26	100307	Drive Shaft Nut	1
T27	100308	Lock Washer	1
T28	100061	Clutch Key	1
T31	100224	Yoke Shaft Lubrication Fitting	2

Do not use this page to order clutch parts
See the Clutch Addendum Manual

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

LUBRICATION CHART

Ref. No.	Location	Lubricant	Frequency	Number
1	Clutch Shaft Bearing	CL	Weekly	1
2	Check Engine Oil Level	MO	Daily	1
3	Clutch Yoke Shaft	CL	Weekly	2
4	Check Air Cleaner		Daily	1
5	Check Hydraulic Oil Level	HO	Daily	1
	Change Hydraulic Oil and Filter	HO	Annually	1
6	Discharge Elbow Bearing	CL	Daily	1
	Rotate elbow to 6 or 8 different positions			
7	Power Feed Shaft Bearings	CL	Weekly	4
8	Feeder Roll Bearing	CL	Weekly	1
9	Blower Shaft Bearings	CL	Weekly	2
10	Check Fuel Tank Level	DF	Daily	1
11	Change Engine Oil	MO	See Engine Manual	1
12	Check Engine Coolant Level	AF	Daily	1
	Change Engine Coolant	AF	Seasonally	1
13	Change Oil Filter		See Engine Manual	1
14	Repack Wheel Bearings	CL	Seasonally	2
15	Change Hydraulic Oil Filter	HO	Seasonally	1

LUBRICANT OR FLUID USED

CL	Chassis Lubricant
MO	Motor Oil - See Engine Manual
AF	50/50 Anti-Freeze and Water Mixture
DF	Diesel Fuel
HO	Hydraulic Oil, Gulf 46 AW, Mobile DTE25, or Shell Tellus 46

TIME KEY

DAILY (8 hours)

WEEKLY (40 hours)

SEASONALLY (500 hours)

ANNUALLY (2000 hours)

SEE ENGINE MANUAL

FLUID CAPACITIES

Fuel - 27 Gallons (102L)
Hydraulic Oil - 8 Gallons (30 L)
Engine Coolant - 3.75 Gallons (14.2 L) 50/50 Mix Only
Engine Oil - 14 Quarts (13.3 L)

B-260

Mulch Spreader Parts Manual

Model No. RR Serial No. _____

NOTE: The Parts Manual Section of this manual may be removed. The Operator's manual must remain with the machine at all times for continued reference.

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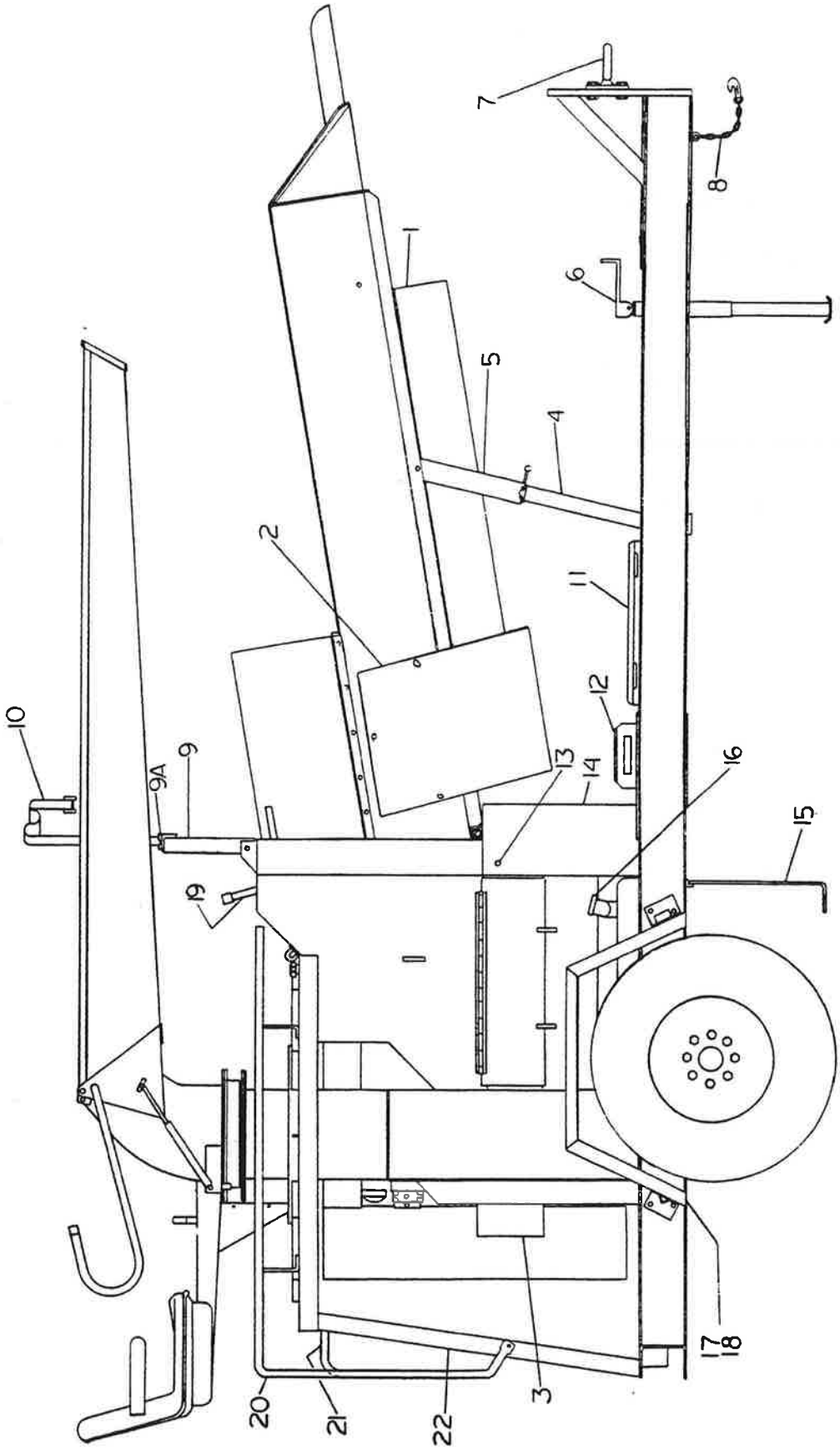
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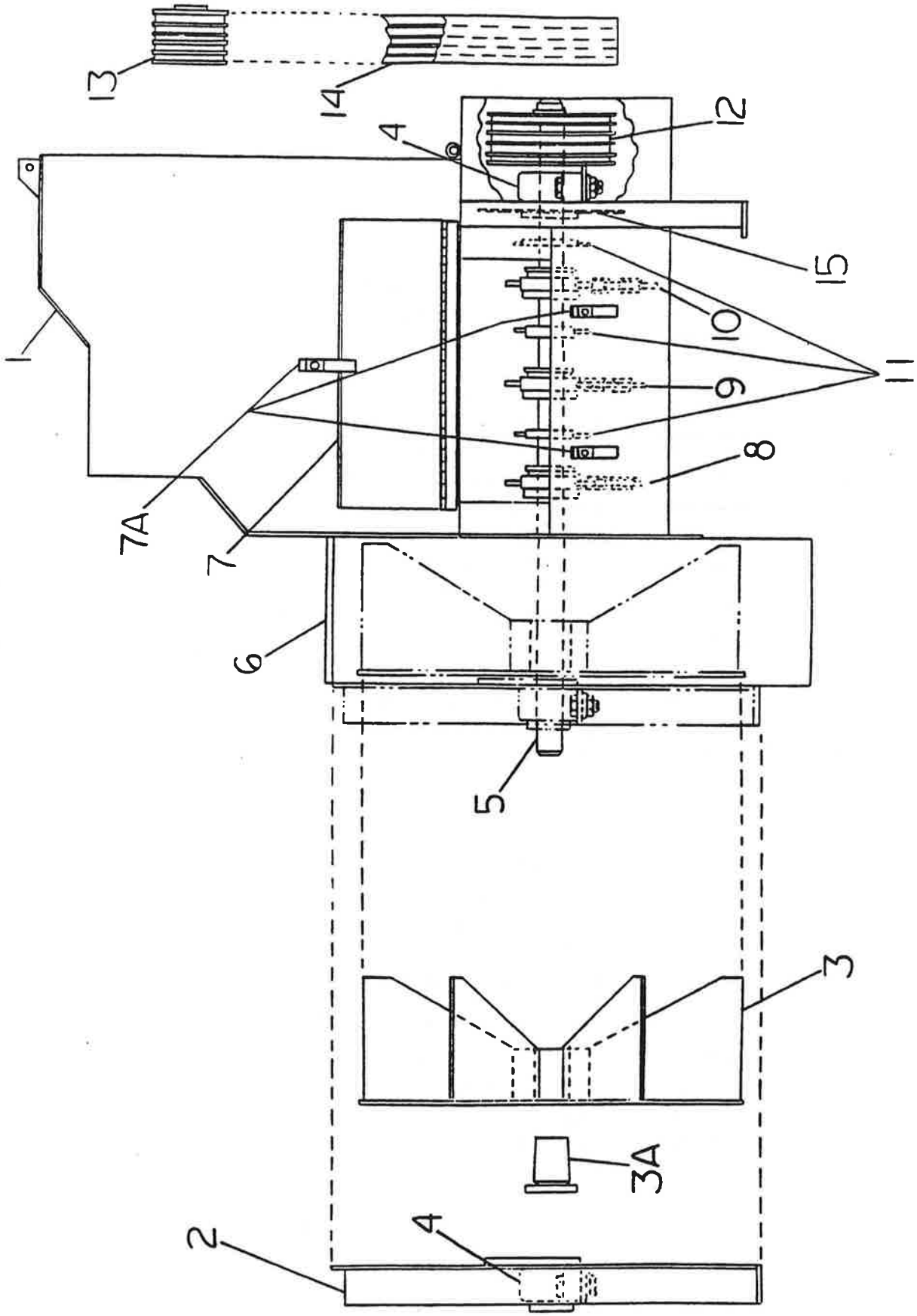
MISCELLANEOUS PARTS

Ref. No.	Part Number	Description	No. Req'd
1	023590	Feed Chain Guard	1
2	023361	Drive Chain Guard	1
3	023418	Blower Shaft End Cover	1
4	023654	Dual Jack Arrangement	1
	023636	Jack with Crank	1
	023637	Jack with Stub Shaft	1
	023591-06	Connecting Pipe	1
5	023592	Dual Jack Mount	1
6	022588	Frame Jack	1
7	080043	Tow Ring (Standard)	1
	005134	Coupler (Optional)	1
	005135	2-5/16" Ball (Optional)	1
8	190033	Safety Chain 3' Lengths	2
	004888	Coupling Link	2
	023485	Clevis Grab Hook	2
9	023593	Tube Holddown	1
9A	023583-06	Holddown Rubber Cushion	1
10	023527	Tube Holddown Strap Assembly	1
11	052160	Tool Box	1
12	011770	Battery Box	1
	080220	Battery Tie Down Strap	1
13	023266	Grease Line	1
14	023537	Belt Guard	1
	023536	Dust Guard	1
15	000489	Static Strap	1
16	023062	Fuel Tank Assembly	1
	007914	Fuel Tank Cap	1
	022739-04	Fuel Level Gauge	1
	023770-01	Suction Tube Assembly	1
	023770-02	Return Tube Assembly	1
	023529-11	Fuel Tank Support Strap	1
	023742	Fuel Tank Mounting Angle	1
17	023548-01	Fender	2
18	005272-05	Marker Light Bracket	2
19	023794-01	Clutch Handle	1
	004996	Plastic Pipe Plug	1
20	023638	Guard Rail	1
21	023638-03	Hand Rail	1
22	023551	Ladder	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

BLOWER SHAFT/SHREDDER BOX ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023571	Shredder Box Weldment	1
2	023632	Blower Cover Weldment	1
3	023311	Blower Blade	1
	021512	Blower Blade Bushing	1
	022159	Key	1
4	021511	Bearing	2
5	021365	Blower Shaft	1
6	023627	Blower Housing	1
7	023574	Access Door	1
7A	023572-09	Door Latch	3
	022202	Plastic Handle Grip	3
8	021361	Beater Chain Assembly-3 Pitch	1
	021555	Beater Hub Assembly	1
	021363	Bushing	1
	020111	Chain-3 Pitch	4
	020119	Chain Pin	4
9	021822	Beater Chain Assembly-4 Pitch	1
	021824	Beater Hub Assembly	1
	021363	Bushing	1
	020110	Chain-4 Pitch	2
	020119	Chain Pin	2
10	023228	Beater Chain Assembly-5 Pitch	1
	021824	Beater Hub Assembly	1
	021363	Bushing	1
	023363	Chain-5 Pitch	2
	020119	Chain Pin	2
11	023334	Breaker Collar	3
12	060032	Blower Shaft Sheave	1
	060305B	Bushing	1
	023649	Key	1
13	023595	Engine Clutch Sheave	1
	060030	Bushing	1
	011441	Key	1
14	023600	Drive Belt	1
15	023752	Bearing Shield Assembly	1

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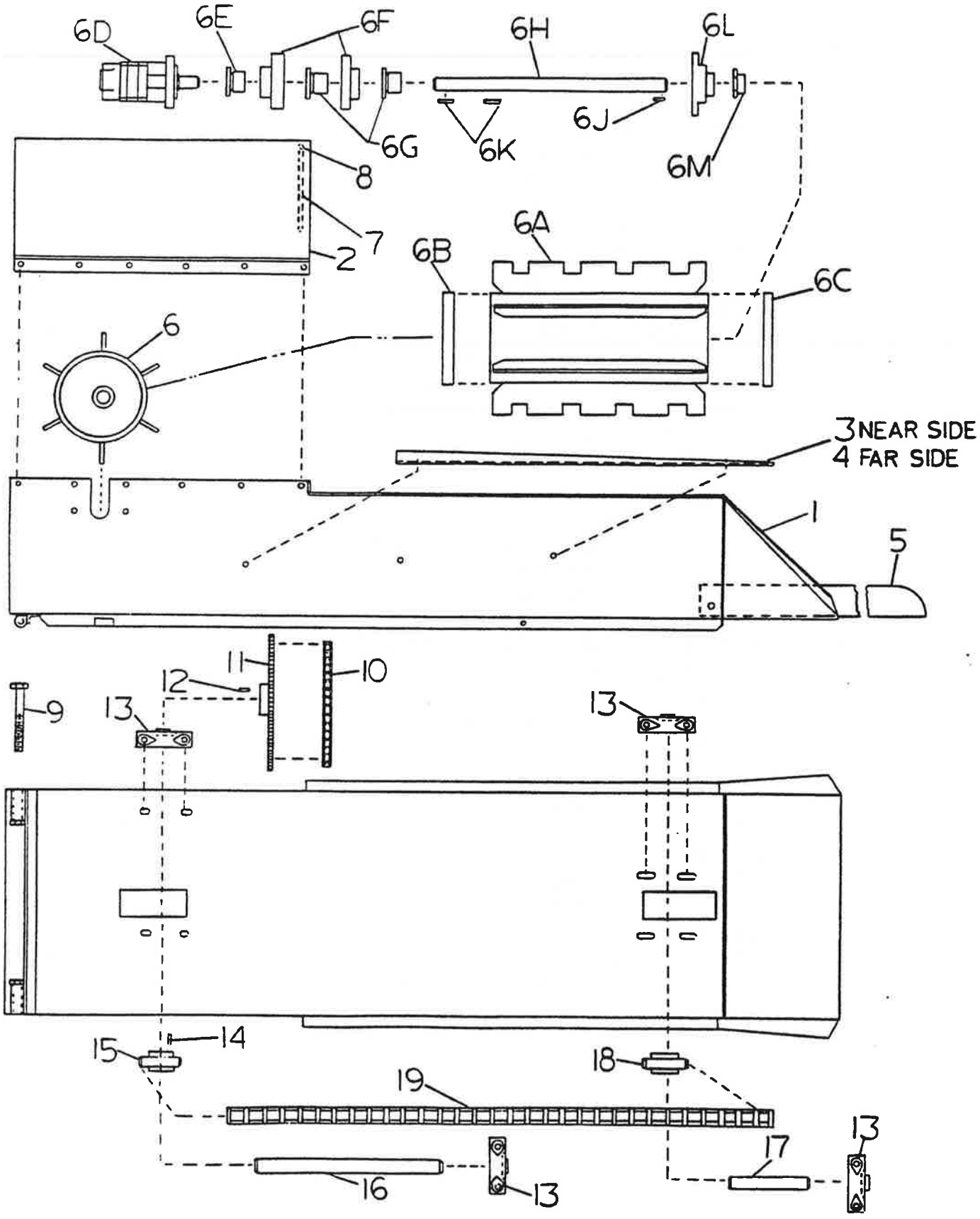
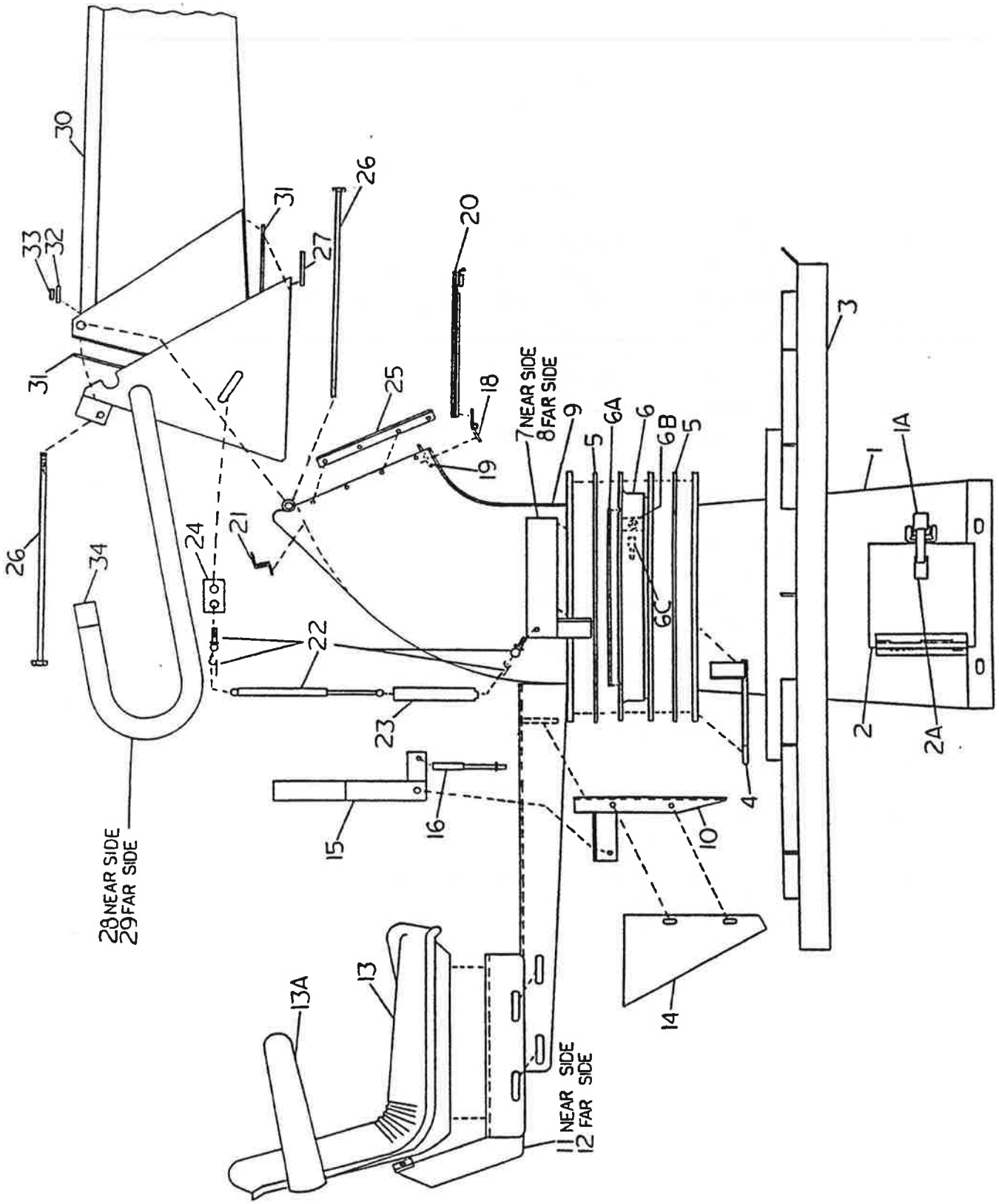


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

FEED CHUTE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023570	Feed Chute Weldment	1
2	023171-01	Feed Chute Cover	1
3	023158-01	Bale Holder-Left Hand Side	1
4	023158-02	Bale Holder-Right Hand Side	1
5	023542	Feed Chute Extension	1
6	023189	Feeder Roll Assembly	1
6A	023123	Feeder Roll	1
6B	023125	Feeder Roll End Cap-Bearing Side	1
6C	023152	Feeder Roll End Cap-Motor Side	1
6D	023754	Hydraulic Motor	1
6E	000393B	Bushing	1
6F	023156	Rigid Coupling	1
6G	021440	Bushing	1
6H	023190	Feed Roll Shaft	1
6J	023249	Key	1
6K	023250	Key	1
6L	020586	Flange Bearing	1
6M	023596	Drive Sprocket	1
7	023348-01	Air Baffle Door	1
8	023348-02	Baffle Door Rod	1
9	X12112	Hinge Bolt	2
10	023153	Drive Chain	1
11	023134	Drive Sprocket	1
12	023249	Key	1
13	020386	Feed Chain Shaft Bearing	4
14	023250	Key	1
15	021517-02	Sprocket with Key	1
16	023198	Drive Shaft	1
17	023197	Idler Shaft	1
18	021517-01	Sprocket Plain without Key	1
19	021516	Feed Chain	1
	020686	Plain Chain Link	
	020687	Pick Chain Link	

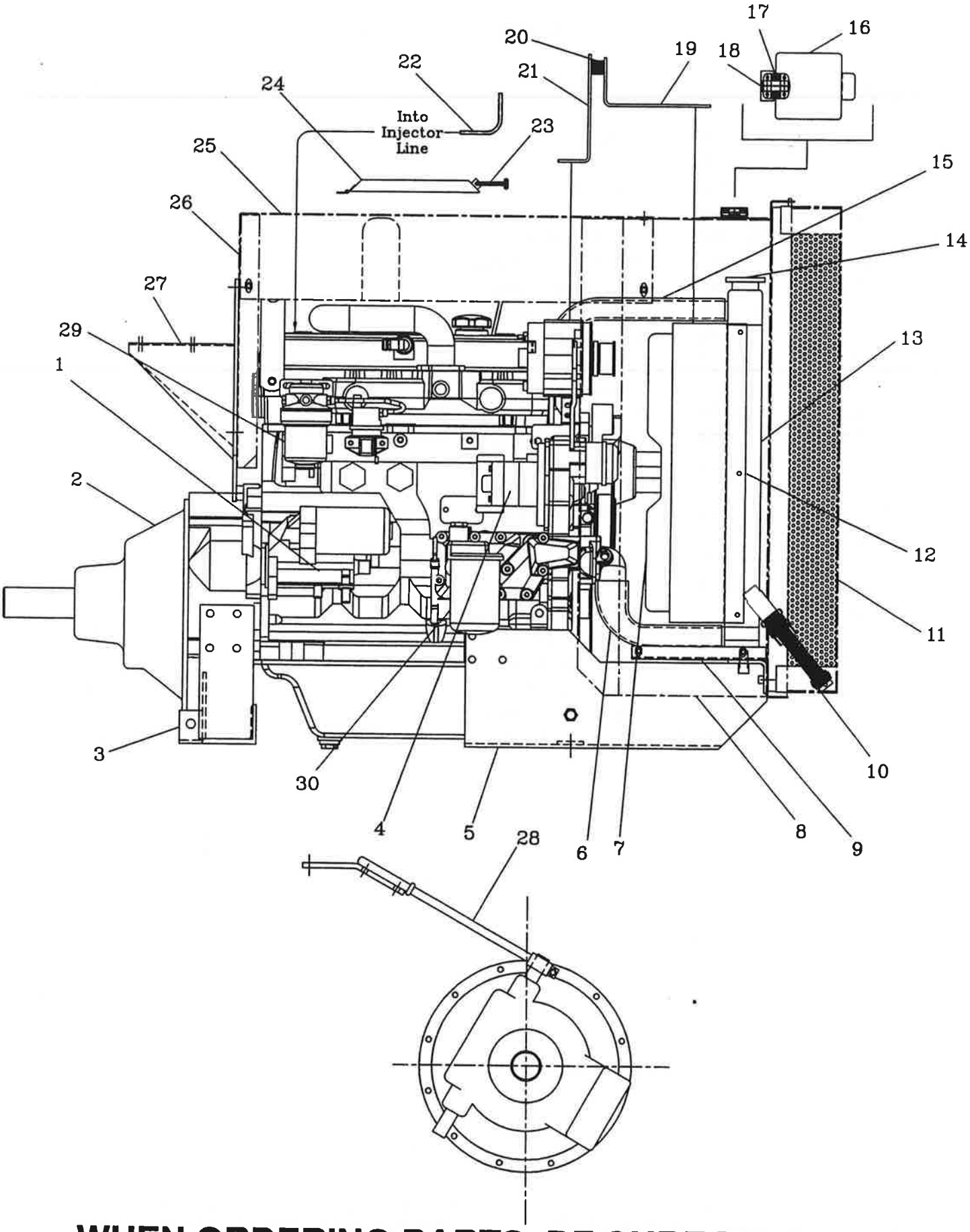
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

DISCHARGE HEAD ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023626	Lower Transition	1
1A	023689	Clamp	1
2	023688	Access Door	1
2A	023690	Strike	1
3	023550	Platform	1
4	023633-02	Rotary Stop	1
5	023368	Gasket	1
6	023374	Bearing Assembly	1
6A	023351	O-Ring	1
6B	023473	Allen Wrench Pipe Plug	1
6C	021823	Grease Fitting	2
	023350	Bearing Balls	81
7	023633-01	Gas Spring Lower Mount-Right Hand Side	1
8	023633-03	Gas Spring Lower Mount-Left Hand Side	1
9	023625	Elbow Weldment	1
10	023555-02	Control Cable Plate	1
11	023555-04	Seat Mounting Angle-Left Hand Side	1
12	023555-03	Seat Mounting Angle-Right Hand Side	1
13	023607	Seat Assembly	1
14	023554-01	Cable Control Guard	1
15	023569	Power Feed Handle	1
	022202	Plastic Handle Grip	1
16	023639	Power Feed Cable	1
	020682	Clevis and Pin	1
18	023583-03	Elbow Hinge	1
19	023726-03	Hinge Seal	1
20	023729	Flapper Door Seal Assembly	1
	023560-03	Seal Plate	1
	023726-02	Flap Side Seal	2
	023726-05	Flap Side Seal Retainer	2
	023726-08	Flap End Seal	1
	023726-06	Flap End Seal Retainer	1
21	023560-05	"Z" Piece Seal Bracket	1
22	023657	Gas Spring Assembly	2
	023609	Gas Spring	1 per
	023610	Ball Stud	2 per
	023611	Safety Clip	2 per
23	023160	Gas Spring Cover	2
24	023587-02	Ball Stud Strap	2
25	023726-07	Elbow Side Seal	2
26	023586-05	Hinge Pin	2
27	023587-01	Elbow Stop Plate	1
28	023588-02	Handle Weldment-Right Hand Side	1
29	023588-01	Handle Weldment-Left Hand Side	1
	004996	Plastic Pipe Plug	1
30	023629	Discharge Tube	1
31	023583-04	Elbow Seal	4
32	023726-01	Top Seal	1
33	023726-04	Top Seal Retainer	1
34	023721	Horn Button Cover	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

POWER SYSTEM

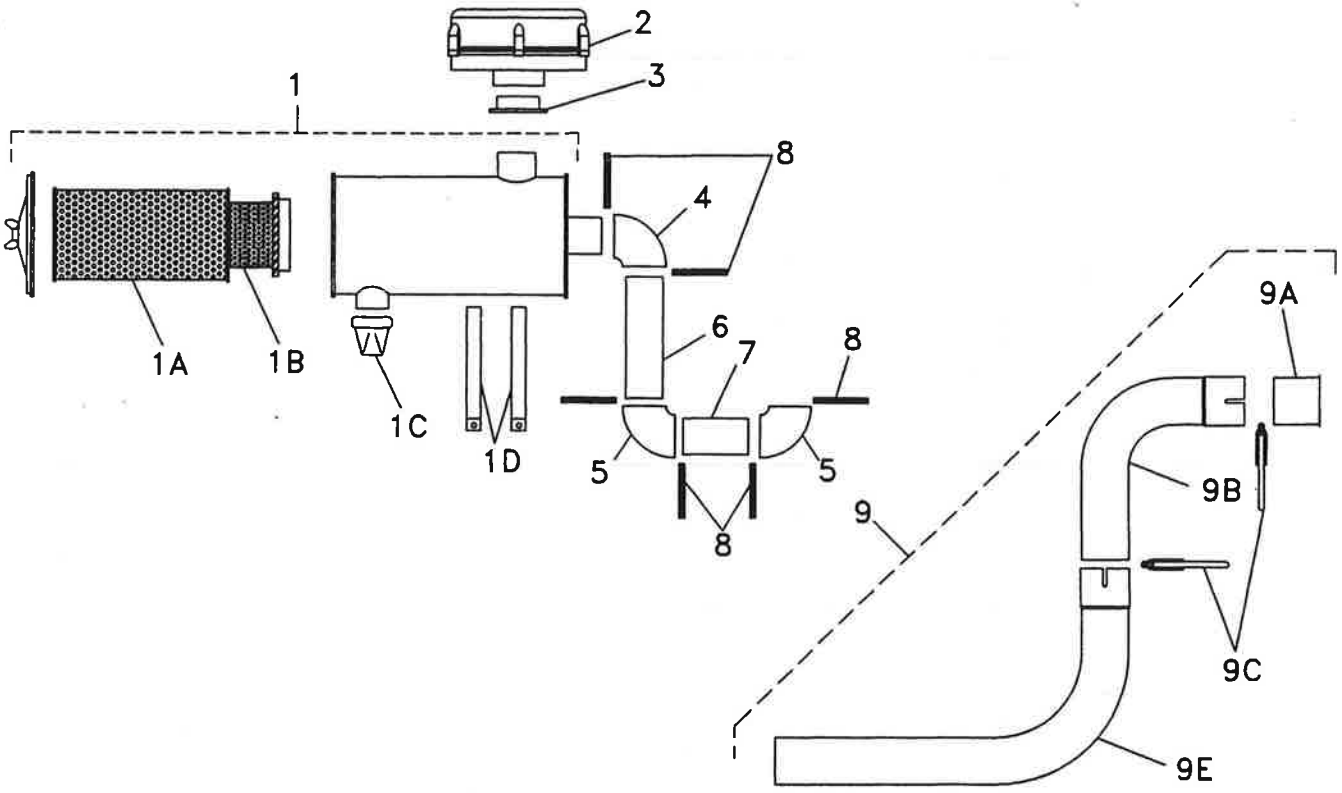
Ref. No.	Part Number	Description	No. Req'd
1	012449	Turbo Engine Assembly	1
2	012069	Clutch Assembly (See page 24)	1
	022314	Pilot Bearing	1
3	023539	Rear Engine Foot	1
	023166	Rear Jacking Bolt	1
4	023685	Hydraulic Pump (See Pages 40,41)	1
5	023842	Front Engine Mount	1
	023167	Front Jacking Bolt	1
6	023845	Lower Radiator Hose	1
	022450	Hose Clamp	2
7	JDAR98090	Fan	1
	JDR128443	Fan Spacer	1
8	023844	Radiator/Front Engine Cover	1
9	F816-0014	Air Deflector	1
10	023667	Chaff Screen Latch	2
11	023666	Radiator Chaff Screen	1
	190087	Chaff Screen Seal	124"
12	023806	Radiator/Fan Shroud	1
13	023804	Radiator Assembly	1
	008279	Rubber Mount	2
	022452	Drain Cock	1
14	023807	Radiator Cap	1
15	JDR128455	Upper Radiator Hose	1
	022450	Hose Clamp	2
16	F260-0006-02	Radiator Cap Cover	1
17	055669	Position Locking Hinge	1
18	F260-0006-03	Hinge Spacer	1
19	023792-08	Radiator Support Strap	1
20	023438	Rubber Mount	1
21	023812-02	Rear Radiator Mount	1
22	190032	Copper Tubing	3"
23	023758	Control Panel Cover Latch	1
24	023759	Control Panel Cover (See Pages 46,47)	1
25	F260-0006-01	Engine Top Cover	1
26	F330-0033	Rear Engine Panel	1
	052398-08	Rear Engine Spacer	2
27	023526-01	Air Cleaner Bracket	1
28	023794-01	Clutch Handle	1
	006737	Ball Joint	2
29	JDRE60021	Fuel Filter	1
30	JDRE59754	Oil Filter	1

NOT ILLUSTRATED

023814	Throttle Actuator (See Pages 46,47)	1
F260-0007	Actuator Mount	1
F816-0008-01	Fan Guard	1
F816-0008-02	Fan Guard Mounting Strap	1
F260-0002	Engine Side Panel	1
023825	Engine Wiring Harness (See Pages 46,47)	
023595	Engine Clutch Sheave (See Pages 34,35)	1
060030	Bushing	1
011441	Key	1

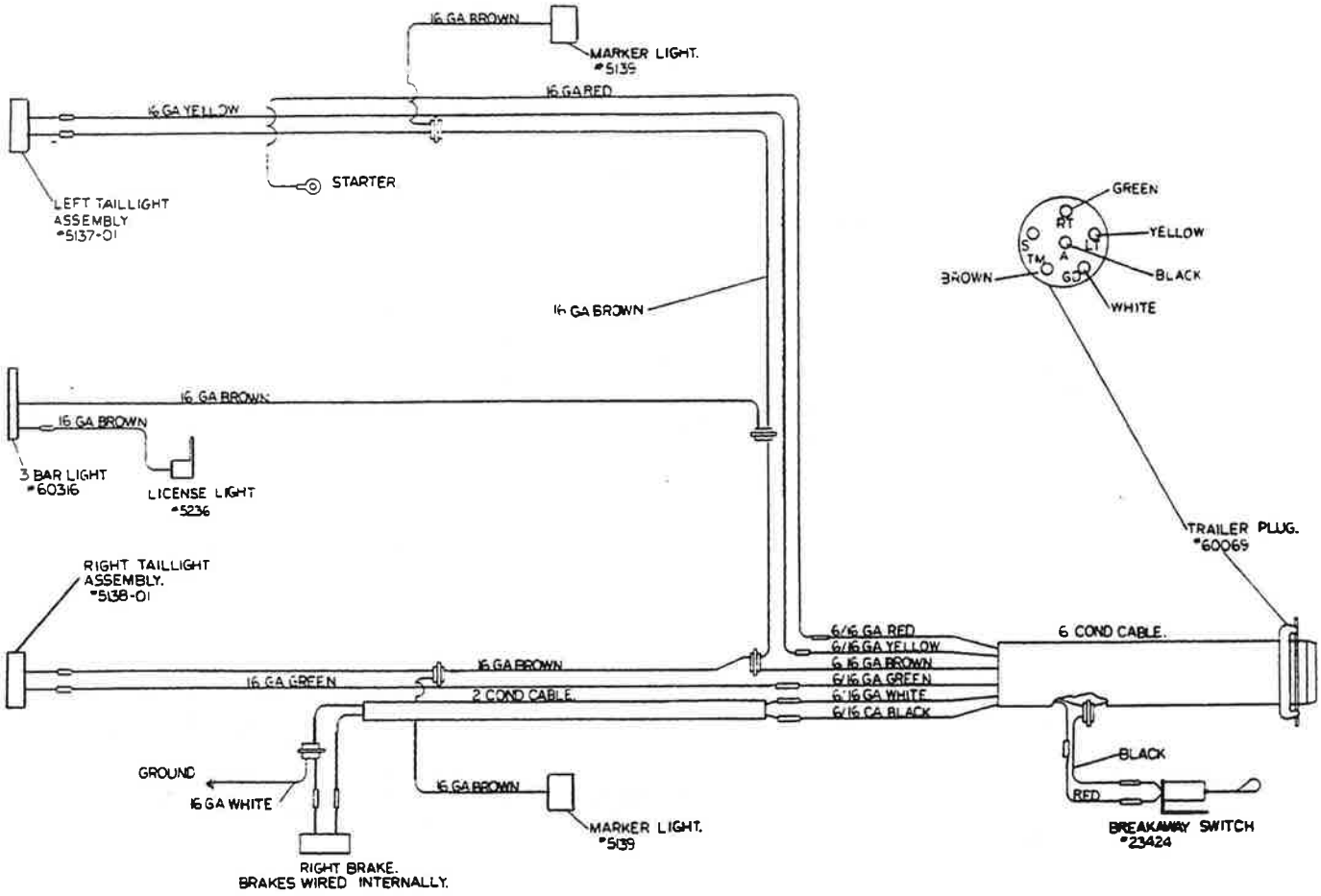
NOTE: Air cleaner and exhaust components and illustrations on page 44.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



AIR INTAKE AND EXHAUST SYSTEMS

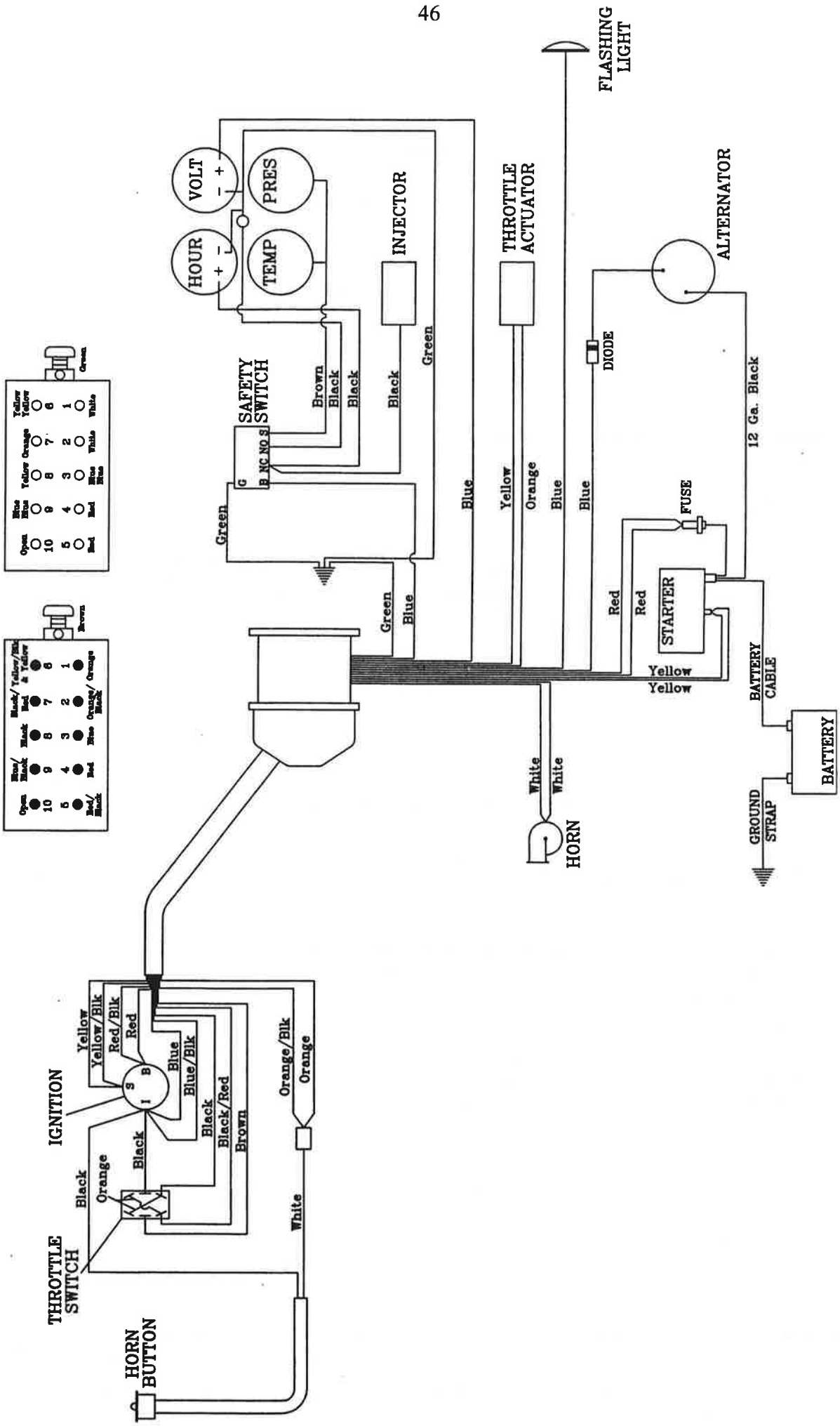
Ref. No.	Part Number	Description	No. Req'd
1	023843	Air Cleaner Assembly	1
1A	022644	Primary Element	1
1B	022645	Safety Element	1
1C	022646	Vacuator Valve	1
1D	022647	Mounting Band	2
2	012608	Pre Cleaner	1
3	023840	Adapter	1
4	060325	Rubber Reducing Elbow	1
5	011852	Rubber Elbow	2
6	023796-01	Long Connecting Pipe	1
7	023795-02	Short Connecting Pipe	1
8	022657	Hose Clamp	6
9			1
9A	023799	Exhaust Flare	1
9B	023798	Exhaust Elbow	1
9C	023801	Muffler Clamp	2
9D	023800	V-Band Clamp	1
9E	023797	Exhaust Elbow	1
	023796-02	Exhaust Support Bracket	1



TRAILER WIRING DIAGRAM

Part Number	Description	No. Req'd
023635	Trailer Wiring Harness	1
060069	Trailer Plug and Receptacle	1
023424	Breakaway Switch	1
030934-01	Chain	1
005016	"S" Hook	1
005017	Snap Hook	1
005139	Marker Light	2
005138-01	Right Taillight Assembly	1
005137-01	Left Taillight Assembly	1
005236	License Light	1
060316	3-Bar Light	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE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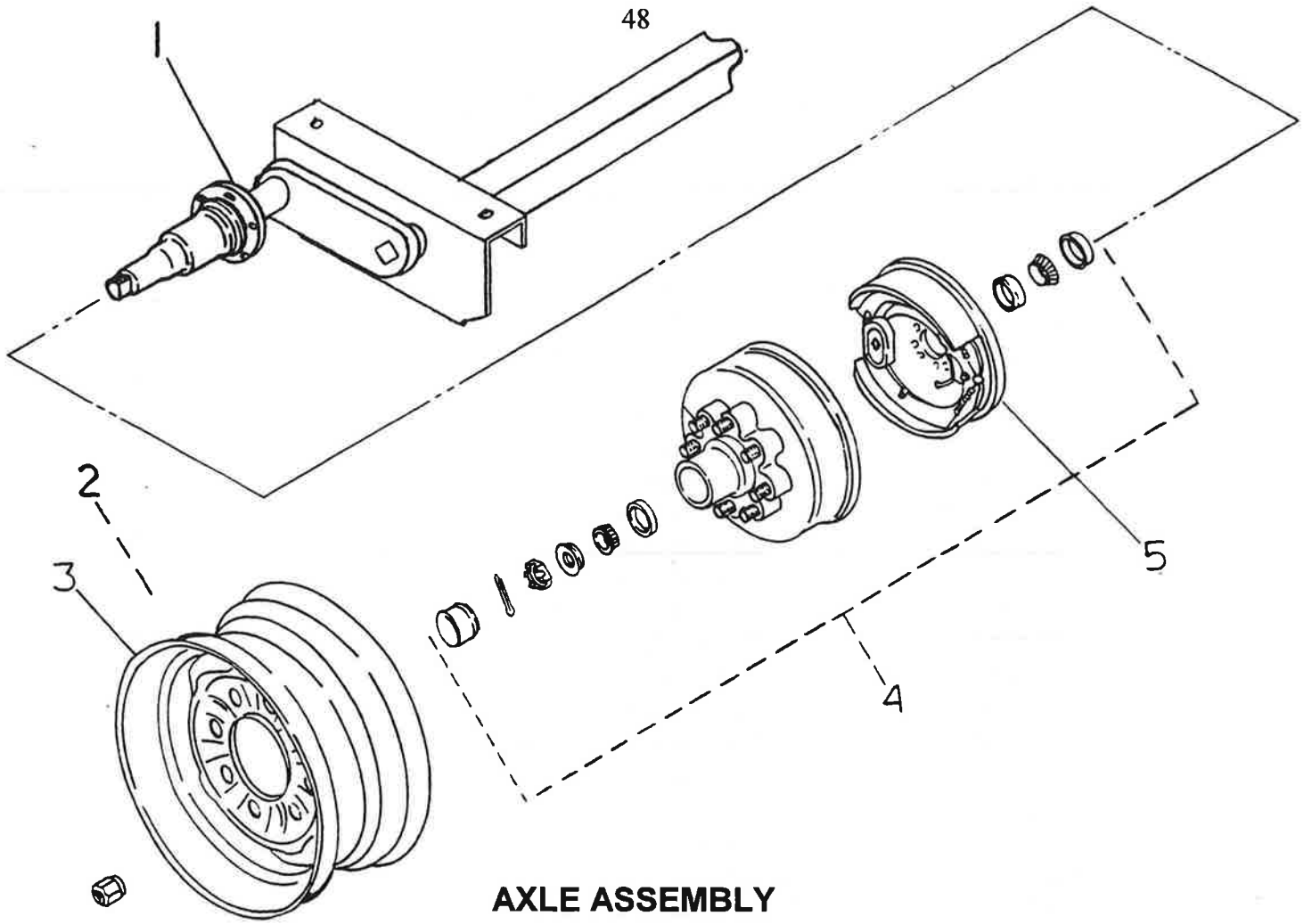
TEMP
INJECTOR
THROTTLE ACTUATOR
ALTERNATOR
SAFETY SWITCH
DIODE
FUSE
STARTER
BATTERY CABLE
BATTERY
GROUND STRAP
HORN
IGNITION
THROTTLE SWITCH
HORN BUTTON
12 Ga. Black
Green
Blue
Yellow
Orange
Red
White
Brown
Black
Yellow/Blk
Red/Blk
Blue/Blk
Black/Red
Orange/Blk

ENGINE WIRING DIAGRAM

Part Number	Description	No. Req'd
023825	Engine Wiring Harness	1
005561	Electrical Base	1
023602	Female Insert	1
170028	Fuse and Holder (30 Amp)	1
022425	Diode	1
023824-02	Control Box Assembly	1
023604	Electrical Hood	1
023601	Male Insert	1
FW71555	Throttle Switch	1
052076	Ignition Switch	1
023815	Control Box	1
023824-01	Engine Panel Assembly	1
007274	Hourmeter	1
007958	Voltmeter	1
007706	Oil Pressure Gauge	1
021839	Temperature Gauge	1
006245	Pilot Light	1
006499	Horn	1
023720	Horn Button	1
011851	Battery	1
000241	Ground Strap	1
080096	Battery Cable	1
007336	Amber Flashing Light	1
007344	Amber Lens	1
023802	Safety Switch	1
023814	Throttle Actuator	1

023076 Key for ignition switch

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



AXLE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023741	Axle with Spindles, Hubs and Drums	1
2	005060	Tire	2
	023780	Tire Valve	2
3	005057	Wheel	2
4	100232	Hub and Drum Assembly	2
	100163	Grease Seal	1 per
	100158	Inner Bearing	1 per
	100157	Inner Cup	1 per
	100229	Outer Cup	1 per
	100156	Outer Bearing	1 per
	100166	Grease Cap	1 per
	100230	Wheel Nut	8 per
	100231	Stud	8 per
	100159	Washer	1 per
	100160	Nut	1 per
5	WL23-180	Left Brake Assembly	2
	022444	Electric Brake Controller (optional)	1
	WL23-181	Right Brake Assembly	

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

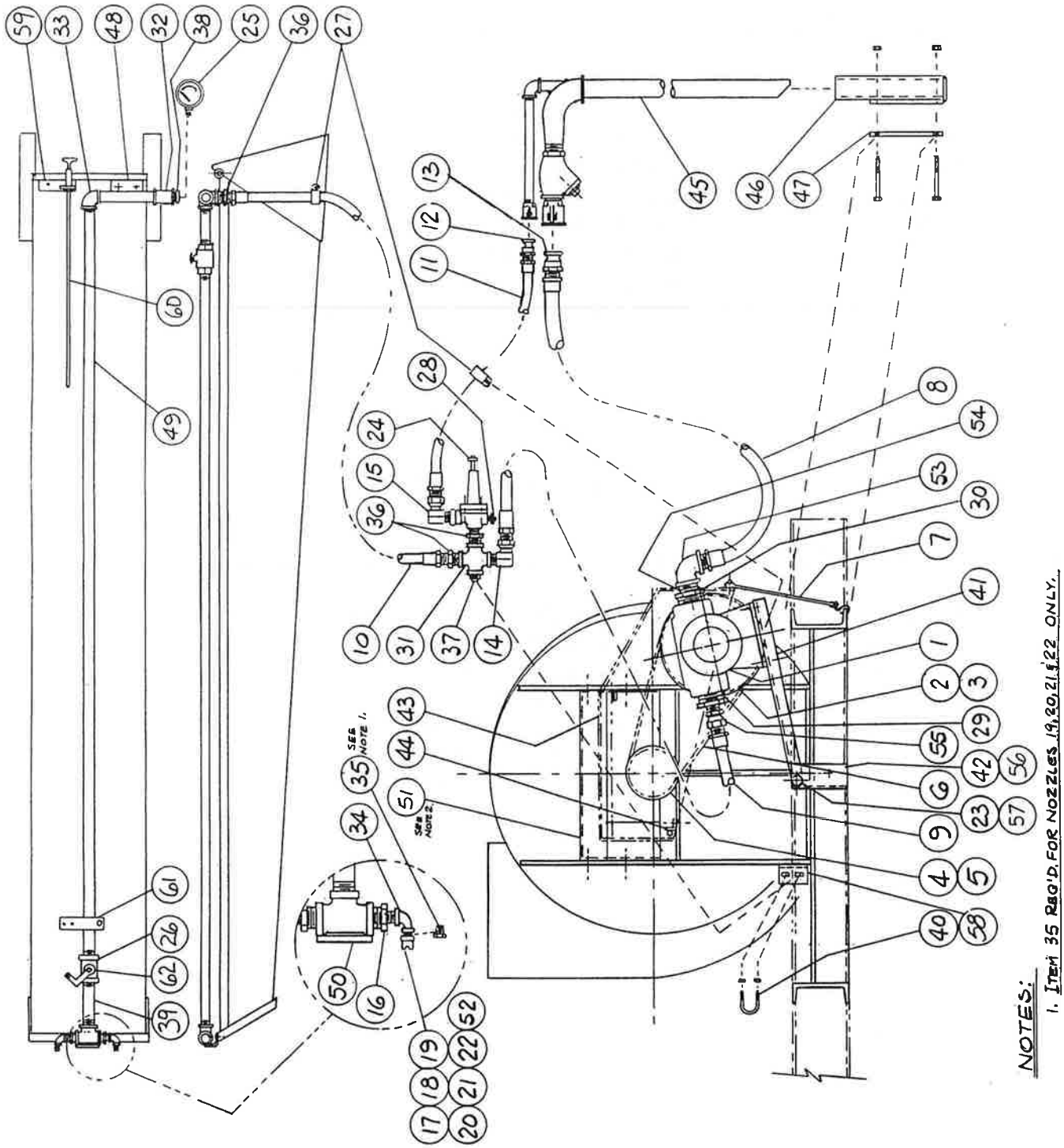
TOOL KIT

Part Number	Description	No. Req'd
021375	Grease Gun	1
021741	Grease Gun Hose	1
020365	Grease Cartridge	1
FW71833	Touch Up Paint	1
020057	Twine Cutter Size #13	1
020063	Twine Cutter Size #11	1
	Engine Parts Manual	1
	Engine Operator's Manual	1
	Mulch Spreader Parts and Operator's Manual	1

ADHESIVE SYSTEM ONLY

Part Number	Description	No. Req'd
023670	Pump Drive Belts (matched set of 2)	1
000660A	¼" 0.6 GPM Brass Nozzle	2
000660C	¼" 2 GPM Brass Nozzle	2
000660E	¼" 4 GPM Brass Nozzle	2
000660F	¼" 6 GPM Brass Nozzle	2
021224	3/8" 12 GPM Brass Nozzle	2
021225	3/8" 15 GPM Brass Nozzle	2
160733	Reducer Bushings for ¼" Nozzles	8

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



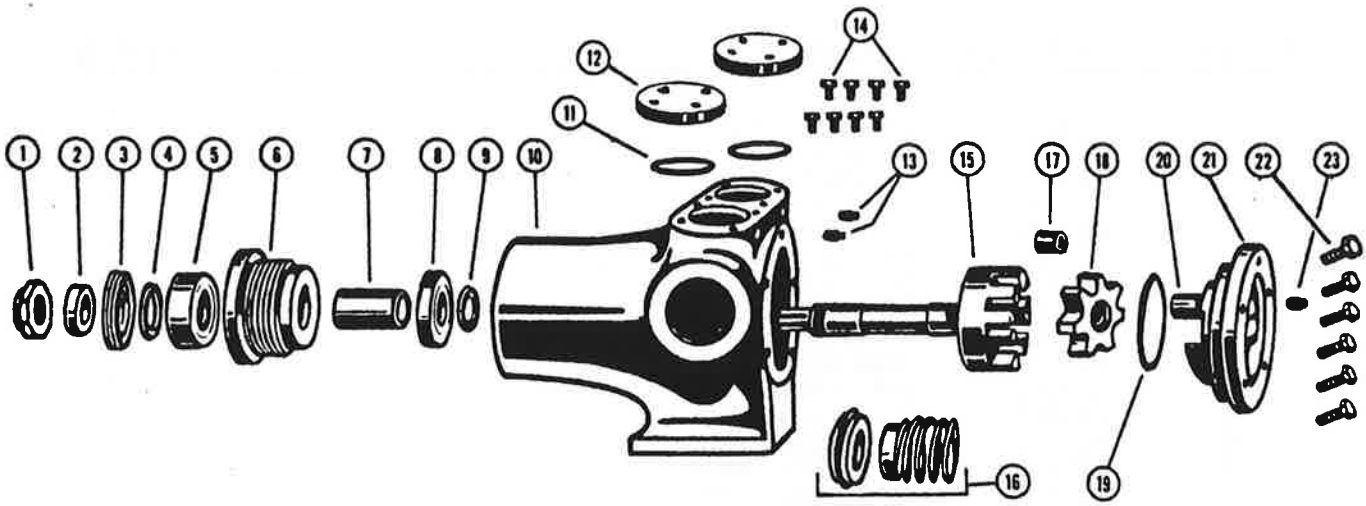
NOTES:

1. ITEM 35 REQ'D. FOR NOZZLES 19,20,21 & 22 ONLY.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

ADHESIVE SYSTEM

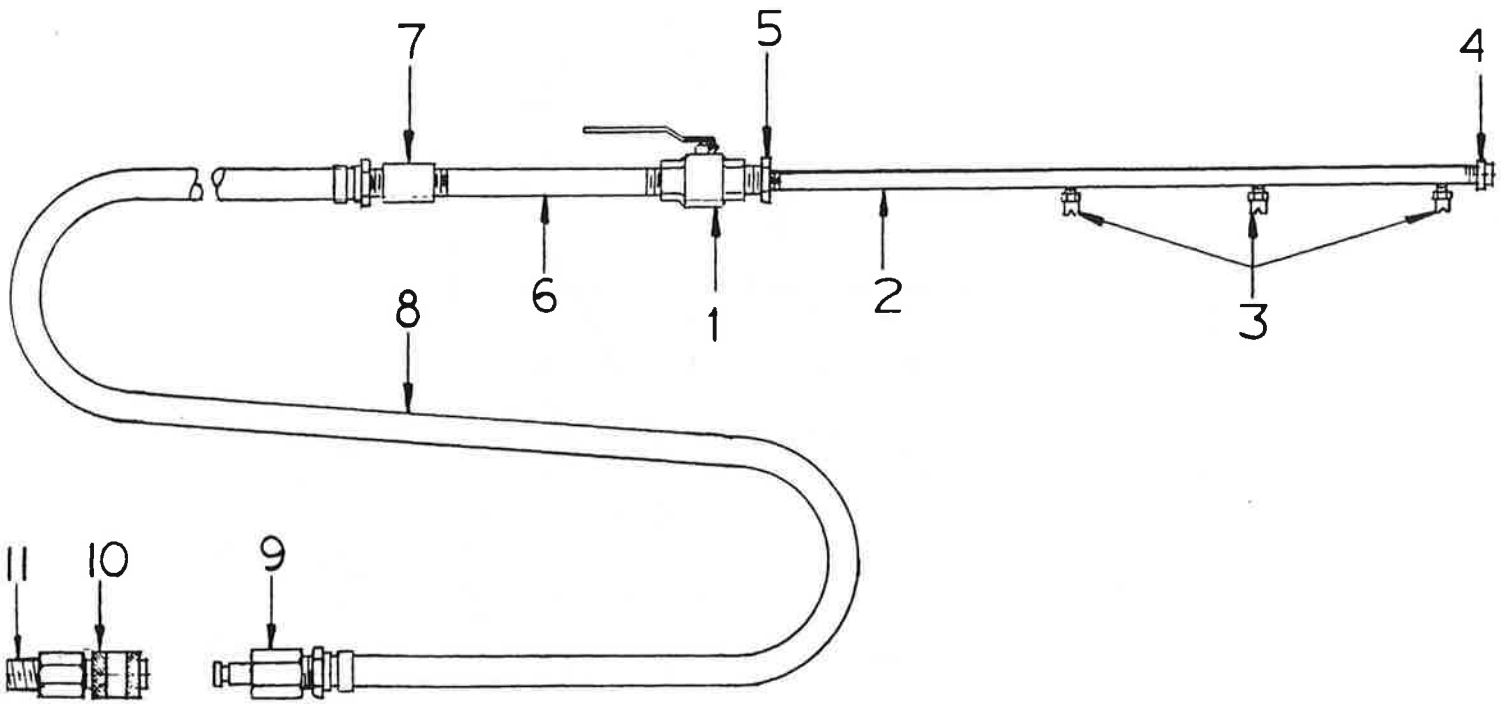
Ref. No.	Part Number	Description	No. Req'd
1	023661	Adhesive Pump	1
2	022978	Pump Sheave	1
3	020813B	Bushing	1
4	021507	Drive Sheave	1
5	021363	Bushing	1
6	023670	Drive Belts (matched set of 2)	1
7	007913	Rubber Strap	1
8	023671	Suction Hose	1
9	023292	Pressure Hose	1
10	023672	Discharge Hose	1
11	021615	Return Hose	1
12	023444	Coupling Adapter	1
13	002158	Coupling Adapter	1
14	070465	90° Adapter Union	1
15	023063	90° Adapter Union	1
16	023673	Reducer Nipple	1
17	021225	3/8" 15 GPM Brass Nozzle	2
18	021224	3/8" 12 GPM Brass Nozzle	2
19	000660F	¼" 6 GPM Brass Nozzle	2
20	000660E	¼" 4 GPM Brass Nozzle	2
21	000660C	¼" 2 GPM Brass Nozzle	2
22	000660A	¼" 0.6 GPM Brass Nozzle	2
23	023088	Bushing	1
24	000876	Relief Valve	1
	020286	Body	1
	020287	Diaphragm	1
	020376	Disk	1
25	000262	Pressure Gauge	1
26	021559	Ball Valve	1
27	008330	Clap	2
28	000575	Drain Cock	1
29	160766	Reducer Bushing	1
30	160768	Reducer Bushing	1
31	160274	Pipe Cross	1
32	160214	Pipe Tee	1
33	160010	Pipe Elbow	1
34	160108	Reducer Elbow	2
35	160733	Reducer Bushing	8
36	160745	Reducer Bushing	3
37	160240	Pipe Plug	1
38	160706	Reducer Bushing	1
39	023669-09	Nozzle Pipe	1
40	060332	U-Bolt	1
41	023663-07	Pump Base	1
	023088	Plastic Bushing	2
42	023663-06	Pump Base Pivot	1
43	023416-02	Belt Guard	1
44	023663-08	Guard Hinge Pin	1
45	021695	Barrel Suction Assembly	1
46	023674-01	Barrel Suction Support	1
47	023674-02	Support Mounting Plate	1
48	023669-01	Elbow Manifold	1
49	023669-08	Valve Pipe	1
50	023669-02	Nozzle Tee	1
51	023416-01	Bearing Guard	1
53	160014	Pipe Elbow	1
54	160309	Close Nipple	1
55	021802	Straight Adapter Union	1
56	V0224	Cotter Pin	1
57	023663-12	Stop Ring	1
58	023415-05	Cross Mounting Angle	1
59	021635-07	Cable Mount	1
60	023735	Valve Control Cable	1
61	021635	Cable Clamp	1
62	023112	Handle	1



ADHESIVE PUMP ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023661-01	Locknut	1
2	023661-02	Bearing Spacer Collar	1
3	023661-03	Bearing Housing End Cap	1
4	023661-04	Bearing Housing Lip Seal	1
5	023661-05	Outer Ball Bearing	1
6	023661-06	Bearing Housing	1
7	023661-07	Bearing Spacer	1
8	023661-08	Inner Ball Bearing	1
9	023661-09	Bearing Retainer Washer	1
10	023661-10	Casing	1
11	023661-11	Relief Port Gasket	2
12	023661-12	Relief Port Cap	2
13	023661-13	Pipe Plug	2
14	023661-14	Relief Port Capscrew	8
15	023661-15	Rotor and Shaft	1
16	023661-16	Mechanical Seal	1
17	023661-17	Idler Bushing	1
18	023661-18	Idler and Bushing	1
19	023661-19	Head Gasket	1
20	023661-20	Idler Pin	1
21	023661-21	Head and Idler Pin	1
22	023661-22	Head Capscrew	6
23	023661-23	Pipe Plug	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



SPRAYBAR ATTACHMENT (Part Number #000659)

Ref. No.	Part Number	Description	No. Req'd
1	021284	Ball Valve	1
2	000721	Aluminum Tube	1
3	000660B	Spray Nozzle	3
4	160259	Pipe Cap	1
5	160740	Reducer Bushing	1
6	160478	Pipe Nipple	1
7	160168	Pipe Coupling	1
8	000755	Hose Assembly	1
9	023103M	Male Quick Coupler	1
10	023103F	Female Quick Coupler	1
11	160303	Close Nipple	1

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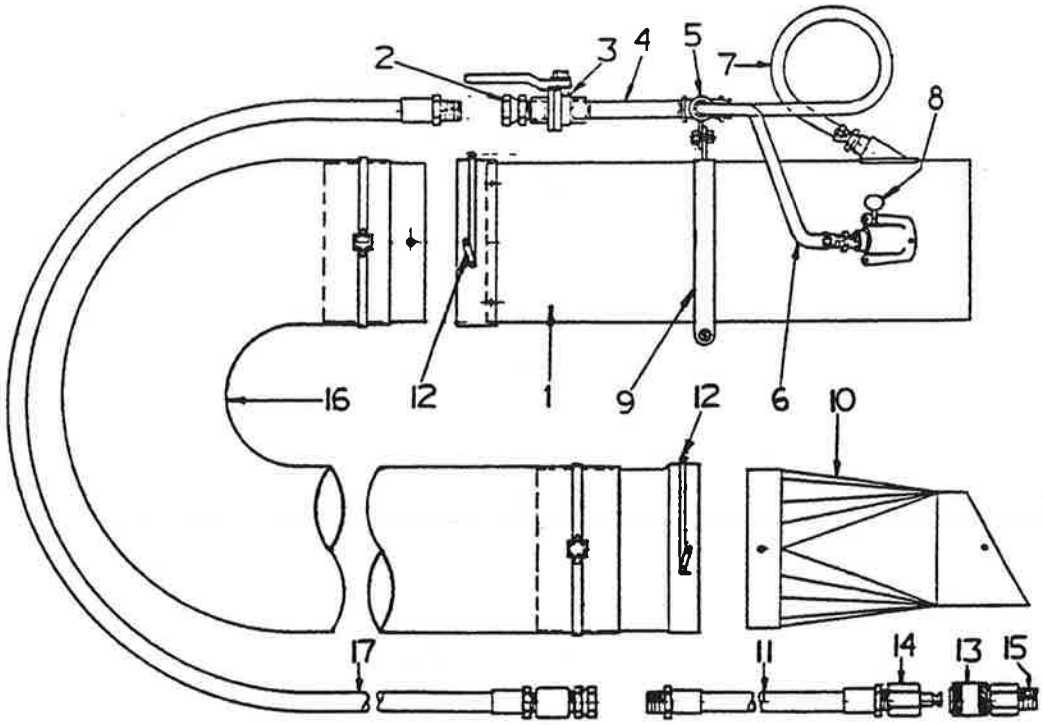

MULCH DISCHARGE EXTENSION

Ref. No.	Part Number	Description	No. Req'd
1	020293	Tip Assembly	1
2	000668	Adapter Fitting	1
3	021284	Ball Valve	1
4	160466	Pipe Nipple	1
5	021614	Discharge Manifold	1
6	020935	Side Hose	2
7	020934	Top Hose	1
8	000974	Thumb Screw	3
9	020653	Mounting Band	1
10	023662	Flexible Hose Adapter	1
11	020294	Asphalt Supply Hose	1
12	021776	Spring Clamp	1
13	023103F	Female Quick Coupler	1
14	023103M	Male Quick Coupler	1
15	160303	Close Nipple	1
16	020292	50 foot Flexible Hose	1
17	000754	50 foot Adhesive Supply Hose	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

RECOMMENDED SPARE PARTS

Part Number	Description	No. Req'd
022644	Primary Air Cleaner	1
022645	Safety Air Cleaner	1
JDRE60021	Fuel Filter	1
JDRE59754	Oil Filter	1
JDR123454	Fan Belts	1
020111	Beater Chains with #020119 Pins	4
020110	Beater Chains with #020119 Pins	2
023363	Beater Chains with #020119 Pins	2
020686	Feed Chain Links	3
020687	Feed Chain Links with Attachment	3

ADHESIVE SYSTEM ONLY

Part Number	Description	No. Req'd
023670	Pump Drive Belts (matched set of 2)	1
021807	Return Coupler Gasket	2
006515	Suction Coupler Gasket	2
020287	Relief Valve Diaphragm	1
020286	Relief Valve Body	1

REPAIR KITS

Part Number	Description
023120	Seal Kit for #008293 Hydraulic Valve
023730	Seal Kit for #023710 Hydraulic Motor
023731	Seal Kit for #023685 Hydraulic Pump

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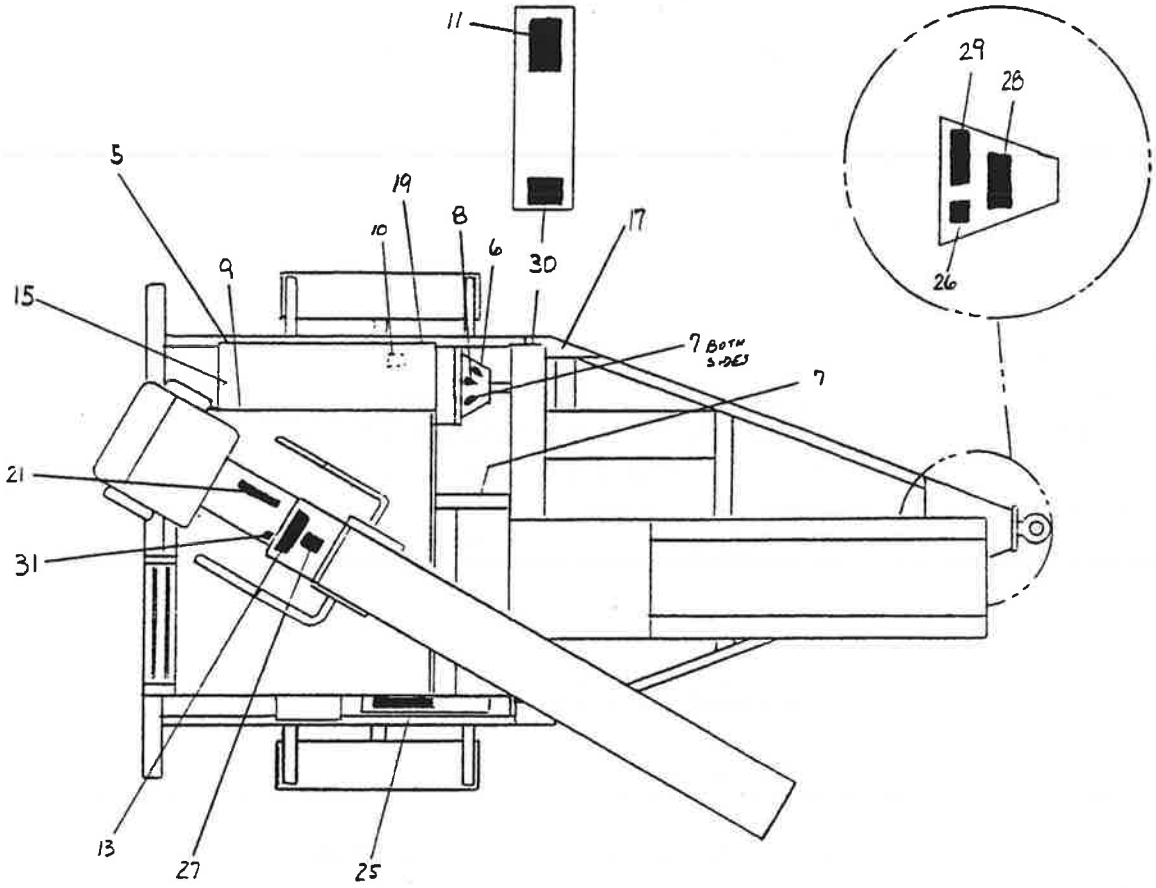

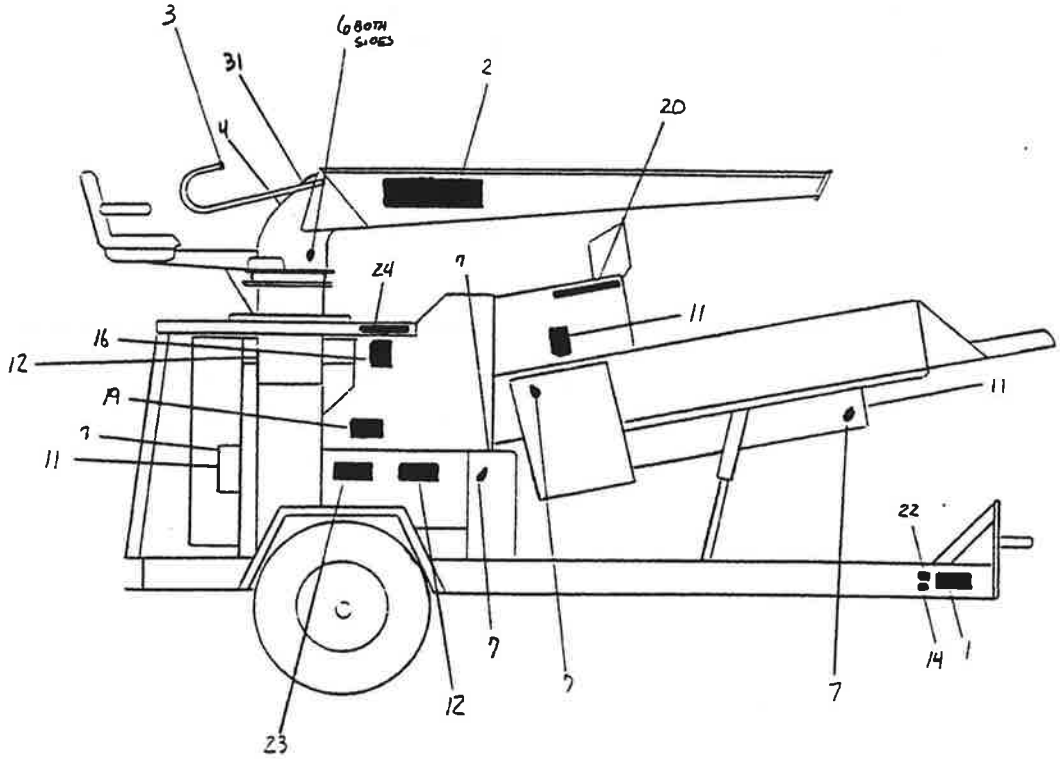

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DECALS

Ref. No.	Part Number	Description	No. Req'd
1	011690	FINN Nameplate	1
2	023174	Decal "FINN"	1
3	006870-HORN	Decal "Horn"	1
4	KL2411303	Decal "Ignition"	1
5	012251	Decal "Warning! Rotating Fan"	1
6	007230	Decal "Service Daily"	3
7	007231	Decal "Service Weekly"	8
8	007351	Decal "Hand Gun Only"	1
9	007429	Decal "Radiator Protection"	1
10	007607	Decal "Drain Water Daily"	1
11	012179	Decal "Warning! Do Not Operate"	4
12	020068	Decal "Danger! Do Not Open Door"	2
13	020970	Decal "Caution! Do Not Ride"	1
14	020976	Decal "Patent Information"	1
15	012279	Decal "Warning! Radiator Cap is Hot"	1
16	021665	Decal "Hydraulic Instructions"	1
17	012278	Decal "Danger! Hot Exhaust"	1
18	022198	Decal "Adhesive" (asphalt option only)	1
19	022357	Decal "Danger! Turn Off Engine"	2
20	022690	Decal "Caution! Wear Eye Protection"	3
21	023247	Decal "Power Feed"	1
22	023286	Decal "Patent Numbers"	1
23	023389	Decal "Notice: For More Material Flow"	1
24	012272	Decal "Hydraulic Fluid Only"	1
25	023391	Decal "Diesel Fuel Only"	1
26	023423	Decal "Breakaway Switch"	1
27	023519	Decal "Caution! Wear Eye Protection"	1
28	031227	Decal "Caution! Always Inspect Hitch"	1
29	031228	Decal "Safety Chain Instructions"	1
30	031297	Decal "Clutch Adjustment"	1
31	007535	Decal "Throttle"	1
32	012188	Decal "Danger! Do Not Run Pump Dry" (asphalt option only)	1

Note: Safety Decals must be purchased as a kit
Part # 023881

NOTE: ı umbers 3 through 32.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

EQUIPMENT REGISTRATION
(SECOND OWNER)

To enable FINN CORPORATION to maintain a record of equipment owners for parts assistance, FINN information and other purposes, we request the completion and return of this form. THANK YOU FOR YOUR COOPERATION.

EQUIPMENT _____ MODEL _____ SERIAL # _____

DATE OF PURCHASE _____ PURCHASED FROM _____

NEW OWNER _____ PHONE ( ) _____

STREET ADDRESS _____ MAIL ADDRESS _____

CITY _____ STATE _____ ZIP _____

DO YOU OWN OTHER FINN EQUIPMENT? ❑ YES ❑ NO

MODEL AND SERIAL NUMBER(S) _____

_____

DO YOU OWN OTHER COMPETITIVE EQUIPMENT? ❑ YES ❑ NO BRAND _____

WHAT IS YOUR PRIMARY BUSINESS? _____

_____

WHEN COMPLETED, PLEASE RETURN PROMPTLY. POSTAGE NOT REQUIRED.

EQUIPMENT REGISTRATION
(FIRST OWNER)

To enable FINN CORPORATION to maintain a record of equipment owners for parts assistance, FINN information and other purposes, we request the completion and return of this form. THANK YOU FOR YOUR COOPERATION.

EQUIPMENT _____ MODEL _____ SERIAL # _____

DATE OF PURCHASE _____ PURCHASED FROM _____

OWNER _____ PHONE ( ) _____

STREET ADDRESS _____ MAIL ADDRESS _____

CITY _____ STATE _____ ZIP _____

DO YOU OWN OTHER FINN EQUIPMENT? ❑ YES ❑ NO

MODEL AND SERIAL NUMBER(S) _____

_____

DO YOU OWN OTHER COMPETITIVE EQUIPMENT? ❑ YES ❑ NO BRAND _____

WHAT IS YOUR PRIMARY BUSINESS? _____

_____

PLEASE COMPLETE THE FIRST OWNER REGISTRATION AND RETURN PROMPTLY. POSTAGE NOT REQUIRED.
SECOND OWNER COPY TO REMAIN IN PARTS MANUAL.

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