













**ALAMO INDUSTRIAL**

PO BOX 549  
SEGUIN TX 78156-9967

Please fold (do not tear), tape, and drop in any mailbox.

**PLEASE FILL OUT OWNER WARRANTY REGISTRATION INFORMATION  
SIGN, AND DROP LAST COPY IN ANY MAILBOX.**

**IMPORTANT!  
TO PLACE THIS WARRANTY IN EFFECT,  
THIS WARRANTY REGISTRATION MUST BE  
FILLED OUT, SIGNED, AND MAILED WITHIN 30  
DAYS OF DELIVERY DATE OF THIS MACHINE.  
DEALER AND PURCHASER MUST SIGN.**

**ATTENTION: ANY CLAIM SUBMITTED TO ALAMO INDUSTRIAL®  
WILL BE REFUSED UNTIL COMPLETED, SIGNED  
WARRANTY REGISTRATION CARD IS ON FILE.**

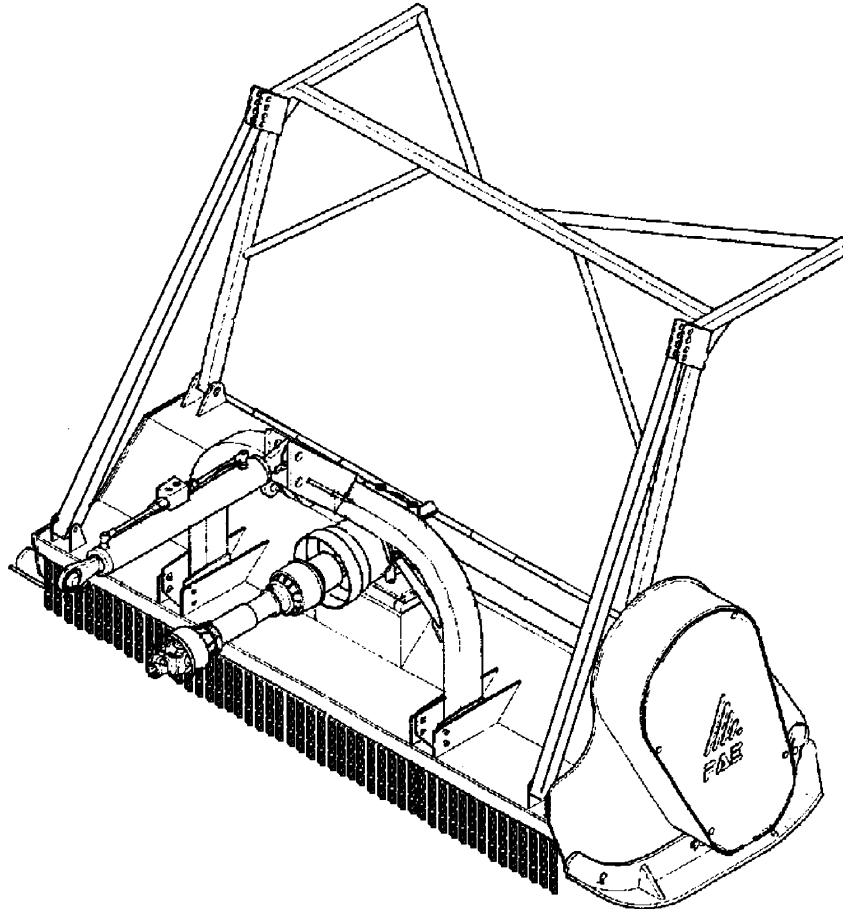


# FML

## FM Series Severe Duty Shredders

Rev 03-13

P/N 02967616



# OPERATOR'S MANUAL with PARTS LISTING

**ALAMO INDUSTRIAL**

1502 E. Walnut  
Seguin, Texas 78155  
830-372-9595


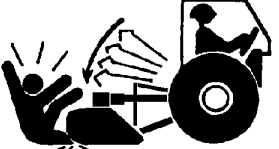
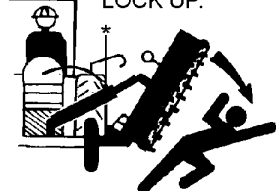




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# TO THE OWNER/OPERATOR/DEALER

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

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

 <h1 style="font-size: 4em; margin: 0;">DANGER</h1>			
<p><b>FAILING TO FOLLOW SAFETY MESSAGES AND OPERATING INSTRUCTIONS CAN CAUSE SERIOUS BODILY INJURY OR EVEN DEATH TO OPERATOR AND OTHERS IN THE AREA.</b></p>			
<p>1.</p> 	<p>2. NO RIDERS, NO CHILDREN OPERATORS</p> 	<p>3. USE SAFETY SHOES, HARD HAT, SAFETY GLASSES, SEAT BELTS, &amp; ROPS</p> 	<p>4. BLOCK UP SECURELY BEFORE WORKING UNDER.</p> 
<p>1. Study and understand Operator's Manuals, Safety Signs, and Instructional Decals for tractor &amp; flail mower to prevent misuse, abuse, &amp; accidents. Practice before operating mower in a confined area or near passersby.</p> <ul style="list-style-type: none"> <li>Learn how to stop engine suddenly in an emergency. Be alert for passersby and especially children.</li> </ul> <p>2. Allow no children on or near implement or tractor. Allow no riders on tractor or implement. Falling off can cause serious injury or death from being runover by tractor or mower or contact with Flail Mower Blades.</p> <p>3. Operate only with tractor having Roll-Over Protective Structure (ROPS) and with seatbelt fastened securely and snugly to prevent injury and possible death from falling off or tractor overturn. Personal Protective Equipment such as Hard Hat, Safety Glasses, Safety Shoes, and Ear Plugs are recommended.</p> <p>4. Block up or support raised machine and all lifted components securely before putting hands or feet under or working underneath any lifted component to prevent crushing injury or death from sudden dropping or inadvertent operation of controls. Make certain that area is clear before lowering or folding.</p> <p>5. Before transporting, put Lift Lever in detent or full-lift position. Install Transport Safety Devices securely on folding implements. Slow down when turning and on hillsides.</p> <ul style="list-style-type: none"> <li>Install **Restrictor in folding circuit to slow down lowering and unfolding if action is faster than is desirable.</li> </ul> <p>6. Make certain that SMV sign, Warning Lights, and Reflectors are clearly visible. Follow local traffic codes.</p> <p>7. Never operate with Flail Mower or Folding Section raised if passersby, bystanders or traffic are in the area to reduce possibility of injury or death from objects thrown by Blades under Shields or implement structure.</p> <p>8. Before dismounting, secure flail mower in transport position or lower to ground.</p> <ul style="list-style-type: none"> <li>Put tractor in park or set brake, disengage PTO, stop engine, remove key, and wait until noise of rotation has ceased to prevent entanglement in rotating parts which may cause injury or death.</li> <li>Never mount or dismount a moving vehicle. Crushing from runover may cause injury or death.</li> </ul>			
<p>5. TRANSPORT SAFELY, LOCK UP.</p> 	<p>6. USE SMV, LIGHTS, &amp; REFLECTORS.</p> 	<p>7. DO NOT OPERATE WITH MOWER OR WING RAISED.</p> 	<p>8. DO NOT MOUNT OR DISMOUNT WHILE MOVING.</p> 

## WARRANTY INFORMATION:

Read and understand the complete Warranty Statement found in this Manual. Fill out the Warranty Registration Form in full and return it to within 30 Days. Make certain the Serial Number of the Machine is recorded on the Warranty Card and on the Warranty Form that you retain.



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# **SAFETY SECTION**

# SAFETY

A safe and careful operator is the best operator. Safety is of primary importance to the manufacturer and should be to the owner/operator. Most accidents can be avoided by being aware of your equipment, your surroundings, and observing certain precautions. The first section of this manual includes a list of Safety Messages that, if followed, will help protect the operator and bystanders from injury or death. Read and understand these Safety Messages before assembling, operating or servicing this implement. This equipment should only be operated by those persons who have read the Manual, who are responsible and trained, and who know how to do so safely and responsibly.

The Safety Alert Symbol combined with a Signal Word, as seen below, is used throughout this manual and on decals which are attached to the equipment. The Safety Alert Symbol means: **“ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!”** The Symbol and Signal Word are intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this equipment..

**Practice all usual and customary safe working precautions and above all---remember safety is up to YOU. Only YOU can prevent serious injury or death from unsafe practices.**

## CAUTION!



The lowest level of Safety Message; warns of possible injury. Decals located on the Equipment with this Signal Word are Black and Yellow.

## WARNING!



Serious injury or possible death! Decals are Black and Orange.

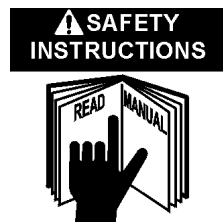
## DANGER!



Imminent death/critical injury. Decals are Red and White. (SG-1)

**READ, UNDERSTAND, and FOLLOW the following Safety Messages. Serious injury or death may occur unless care is taken to follow the warnings and instructions stated in the Safety Messages. Always use good common sense to avoid hazards.**

(SG-2)

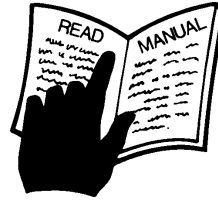


# SAFETY

## PELIGRO!



Si no lee Ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad. (SG-3)



**¡LEA EL INSTRUCTIVO!**

## DANGER!



Never operate the Tractor or Implement until you have read and completely understand this Manual, the Tractor Operator's Manual, and each of the Safety Messages found in the Manual or on the Tractor and Implement. Learn how to stop the tractor engine suddenly in an emergency. Never allow inexperienced or untrained personnel too operate the Tractor and Implement without supervision. Make sure the operator has fully read and understood the manuals prior to operation. (SG-4)



## WARNING!

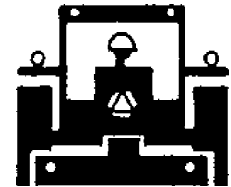


Always maintain the safety decals in good readable condition. If the decals are missing, damaged, or unreadable, obtain and install replacement decals immediately. (SG-5)

## WARNING!



Make certain that the "Slow Moving Vehicle" (SMV) sign is installed in such a way as to be clearly visible and legible. When transporting the Equipment use the Tractor flashing warning lights and follow all local traffic regulations. (SG-6)



## WARNING!



Operate this Equipment only with a Tractor equipped with an approved roll-over-protective system (ROPS). Always wear seat belts. Serious injury or even death could result from falling off the tractor--particularly during a turnover when the operator could be pinned under the ROPS. (SG-7)



## WARNING!

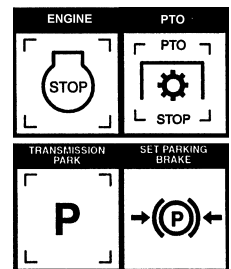


Do not modify or alter this Implement. Do not permit anyone to modify or alter this Implement, any of its components or any Implement function. (SG-8)

## DANGER!



BEFORE leaving the tractor seat, always engage the brake and/or set the tractor transmission in parking gear, disengage the PTO, stop the engine, remove the key, and wait for all moving parts to stop. Place the tractor shift lever into a low range or parking gear to prevent the tractor from rolling. Never dismount a Tractor that is moving or while the engine is running. Operate the Tractor controls from the tractor seat only. (SG-9)



## DANGER!



Never allow children or other persons to ride on the Tractor or Implement. Falling off can result in serious injury or death. (SG-10)



# SAFETY

**DANGER!**



Never allow children to operate or ride on the Tractor or Implement. (SG-11)



**WARNING!**



Do not mount the Tractor while the tractor is moving. Mount the Tractor only when the Tractor and all moving parts are completely stopped. (SG-12)



**DANGER!**



Start tractor only when properly seated in the Tractor seat. Starting a tractor in gear can result in injury or death. Read the Tractor operators manual for proper starting instructions. (SG-13)



**DANGER!**



Never work under the Implement, the framework, or any lifted component unless the Implement is securely supported or blocked up to prevent sudden or inadvertent falling which could cause serious injury or even death. (SG-14)



**DANGER!**



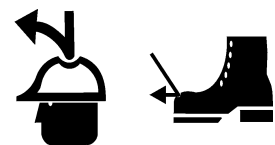
Do not operate this Equipment with hydraulic oil leaking. Oil is expensive and its presence could present a hazard. Do not check for leaks with your hand! Use a piece of heavy paper or cardboard. High-pressure oil streams from breaks in the line could penetrate the skin and cause tissue damage including gangrene. If oil does penetrate the skin, have the injury treated immediately by a physician knowledgeable and skilled in this procedure. (SG-15)



**WARNING!**



The operator and all support personnel should wear hard hats, safety shoes, safety glasses, and proper hearing protection at all times for protection from injury including injury from items thrown by the equipment. (SG-16)



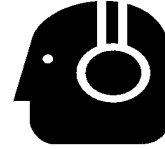
# SAFETY

## CAUTION!



### **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!**

Tractors with or without an Implement attached can often be noisy enough to cause permanent hearing loss. We recommend that you always wear hearing protection if the noise in the Operator's position exceeds 80db. Noise over 85db over an extended period of time will cause severe hearing loss. Noise over 90db adjacent to the Operator over an extended period of time will cause permanent or total hearing loss. *Note:* Hearing loss from loud noise [from tractors, chain saws, radios, and other such sources close to the ear] is cumulative over a lifetime without hope of natural recovery. (SG-17)



## WARNING!



Transport only at safe speeds. Serious accidents and injuries can result from operating this equipment at unsafe speeds. Understand the Tractor and Implement and how it handles before transporting on streets and highways. Make sure the Tractor steering and brakes are in good condition and operate properly.



Before transporting the Tractor and Implement, determine the safe transport speeds for you and the equipment. Make sure you abide by the following rules:

1. Test the tractor at a slow speed and increase the speed slowly. Apply the Brakes smoothly to determine the stopping characteristics of the Tractor and Implement. As you increase the speed of the Tractor the stopping distance increases. Determine the maximum safe transport speed for you and this Equipment.
2. Test the equipment at a slow speed in turns. Increase the speed through the turn only after you determine that it is safe to operate at a higher speed. Use extreme care and reduce your speed when turning sharply to prevent the tractor and implement from turning over. Determine the maximum safe turning speed for you and this equipment before operating on roads or uneven ground.
3. Only transport the Tractor and Implement at the speeds that you have determined are safe and which allow you to properly control the equipment.



Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes. When operating down a hill or on wet or rain slick roads, the braking distance increases: use extreme care and reduce your speed. When operating in traffic always use the Tractor's flashing warning lights and reduce your speed. Be aware of traffic around you and watch out for the other guy. (SG-19)

## WARNING!



Never attempt to lubricate, adjust, or remove material from the Implement while it is in motion or while tractor engine is running. Make sure the tractor engine is off before working on the Implement.

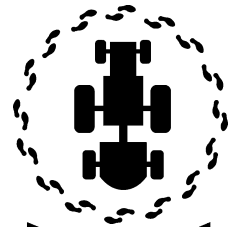
(SG-20)

# SAFETY

## WARNING!



Periodically inspect all moving parts for wear and replace when necessary with authorized service parts. Look for loose fasteners, worn or broken parts, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order. (SG-21)



## WARNING!



Always read carefully and comply fully with the manufacturers instructions when handling oil, solvents, cleansers, and any other chemical agent. (SG-22)



## DANGER!



Never run the tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to your health. (SG-23)

## DANGER!



**KEEP AWAY FROM ROTATING ELEMENTS** to prevent entanglement and possible serious injury or death. (SG-24)



## DANGER!



Never allow children to play on or around Tractor or Implement. Children can slip or fall off the Equipment and be injured or killed. Children can cause the Implement to shift or fall crushing themselves or others. (SG-25)

## WARNING!



Do not exceed the rated PTO speed for the Implement. Excessive PTO speeds can cause Implement driveline or blade failures resulting in serious injury or death. (SG-26)

## DANGER!



**NEVER use drugs or alcohol** immediately before or while operating the Tractor and Implement. Drugs and alcohol will affect an operator's alertness and coordination and therefore affect the operator's ability to operate the equipment safely. Before operating the Tractor or Implement, an operator on prescription or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to operate the Equipment safely. **NEVER** knowingly allow anyone to operate this equipment when their alertness or coordination is impaired. Serious injury or death to the operator or others could result if the operator is under the influence of drugs or alcohol. (SG-27)





# SAFETY

## DANGER!



Operate the Tractor and/or Implement controls only while properly seated in the Tractor seat with the seat belt securely fastened around you. Inadvertent movement of the Tractor or Implement may cause serious injury or death. (SG-29)

## WARNING!

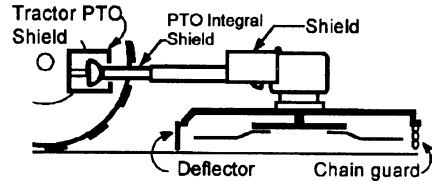


Mow only in conditions where you have clear visibility in daylight or with adequate artificial lighting. Never mow in darkness or foggy conditions where you cannot clearly see at least 100 yards in front and to the sides of the tractor and mower. Make sure that you can clearly see and identify passersby, steep slopes, ditches, drop-offs, overhead obstructions, power lines, debris and foreign objects. If you are unable to clearly see this type of items discontinue mowing. (SGM-1)

## DANGER!



All Safety Shields, Guards and Safety devices including (but not limited to) - the Deflectors, Chain Guards, Steel Guards, Gearbox Shields, PTO integral shields, and Retractable Door Shields should be used and maintained in good working condition. All safety devices should be inspected carefully at least daily for missing or broken components. Missing, broken, or worn items must be replaced at once to reduce the possibility of injury or death from thrown objects, entanglement, or blade contact. (SGM-3)



## DANGER!



The rotating parts of this machine have been designed and tested for rugged use. However, the blades could fail upon impact with heavy, solid objects such as metal guard rails and concrete structures. Such impact could cause the broken objects to be thrown outward at very high velocities. To reduce the possibility of property damage, serious injury, or even death, never allow the cutting blades to contact such obstacles. (SGM-4)

## WARNING!



Extreme care should be taken when operating near loose objects such as gravel, rocks, wire, and other debris. Inspect the area before mowing. Foreign objects should be removed from the site to prevent machine damage and/or bodily injury or even death. Any objects that cannot be removed must be clearly marked and carefully avoided by the operator. Stop mowing immediately if blades strike a foreign object. Repair all damage and make certain rotor or blade carrier is balanced before resuming mowing. (SGM-5)



## WARNING!



Many varied objects, such as wire, cable, rope, or chains, can become entangled in the operating parts of the mower head. These items could then swing outside the housing at greater velocities than the blades. Such a situation is extremely hazardous and could result in serious injury or even death. Inspect the cutting area for such objects before mowing. Remove any like object from the site. Never allow the cutting blades to contact such items. (SGM-6)

# SAFETY

## WARNING!



Mow at the speed that you can safely operate and control the tractor and mower. Safe mowing speed depends on terrain condition and grass type, density, and height of cut. Normal ground speed range is from 0 to 5 mph. Use slow mowing speeds when operating on or near steep slopes, ditches, drop-offs, overhead obstructions, power lines, or when debris and foreign objects are to be avoided. (SGM-7)

## WARNING!



Avoid mowing in reverse direction when possible. Check to make sure there are no persons behind the mower and use extreme care when mowing in reverse. Mow only at a slow ground speed where you can safely operate and control the tractor and mower. Never mow an area that you have not inspected and removed debris or foreign material. (SGM-8)

## DANGER!



Replace bent or broken blade with new blades. NEVER ATTEMPT TO STRAIGHTEN OR WELD ON BLADES SINCE THIS WILL LIKELY CRACK OR OTHERWISE DAMAGE THE BLADE WITH SUBSEQUENT FAILURE AND POSSIBLE SERIOUS INJURY FROM THROWN BLADES. (SGM-10)

## WARNING!



Do not mow with two machines in the same area except with Cab tractors with the windows closed. (SGM-11)

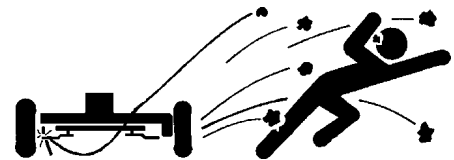
## DANGER!



Rotary Mowers are capable under adverse conditions of throwing objects for great distances (100 yards or more) and causing serious injury or death. Follow safety messages carefully

### **STOP MOWING IF PASSERSBY ARE WITHIN 100 YARDS UNLESS:**

- Front and Rear Deflectors, Chain Guards, or Bands are installed and in good, workable condition;
- Mower sections or Wings are running close to and parallel to the ground without exposed Blades;
- Passersby are outside the existing thrown-object zone;
- All areas have been thoroughly inspected and all foreign material such as rocks, cans, glass, and general debris has been removed.



NOTE: Where there are grass and weeds high enough to hide debris that could be struck by the blades, the area should be: inspected and large debris removed, mowed at an intermediate height, inspected, closely with any remaining debris being removed, and mowed again at desired final height. (This will also reduce power required to mow, reduce wear and tear on the Mower drivetrain, spread cut material better, eliminate streaking, and make the final cut more uniform.)

(SRM-1)

## DANGER!



Always disconnect the main PTO Driveline from the Tractor before performing service on the Mower. Never work on the Mower with the tractor PTO driveline connected and running. Blades or Drivelines could turn without warning and cause immediate entanglement, injury or death.

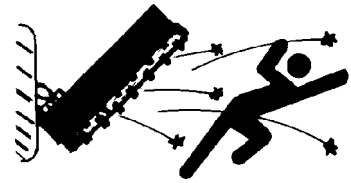
(SRM-3)

# SAFETY

## WARNING!



Do not let the Blades turn when the Mower Deck is raised for any reason, including clearance or for turning. Raising the Mower deck exposes the Cutting Blades which creates a potentially serious hazard and could cause serious injury or even death from objects thrown from the Blades. (SRM-7)



## DANGER!

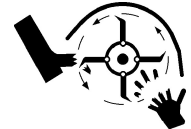


There are obvious and hidden potential hazards in the operation of this Mower. REMEMBER! This machine is often operated in grass and in heavy weeds. The Blades of this Mower can throw objects if shields are not properly installed and maintained. Serious injury or even death may occur unless care is taken to insure the safety of the operator, bystanders, or passersby in the area. Do not operate this machine with anyone in the immediate area. Stop mowing if anyone is within 100 yards of mower. (SFL-1)

## DANGER!



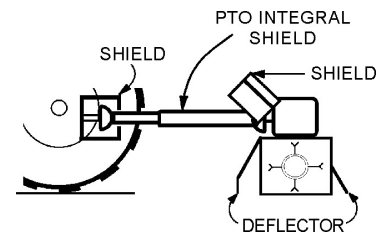
Do not put hands or feet under mower decks. Blade Contact can result in serious injury or even death. Stay away until all motion has stopped and the decks are securely blocked up. (SFL-2)



## DANGER!



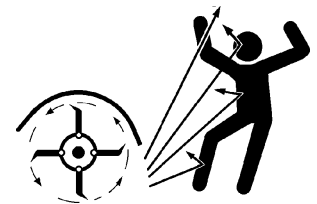
All Safety Shields, Guards and Safety devices including (but not limited to) - the Deflectors, Steel Guards, Gearbox Shields, PTO integral shields, and Retractable Door Shields should be used and maintained in good working condition. All safety devices should be inspected carefully at least daily for missing or broken components. Missing, broken, or worn items must be replaced at once to reduce the possibility of injury or death from thrown objects, entanglement, or blade contact. (SFL-5)



## DANGER!



Flail Mowers are capable under adverse conditions of throwing objects for great distances (100 yards or more) and causing serious injury or death. Follow safety messages carefully.



### **STOP MOWING IF PASSERSBY ARE WITHIN 100 YARDS UNLESS:**

- Front and Rear Deflectors, Chain Guards, or Bands are installed and in good, workable condition;
- Mower sections or Wings are running close to and parallel to the ground without exposed Blades;
- Passerby are outside the existing thrown-object zone;
- All areas have been thoroughly inspected and all foreign material such as rocks, cans, glass, and general debris has been removed.

NOTE: Where there are grass and weeds high enough to hide debris that could be struck by the blades, the area should be: inspected and large debris removed, mowed at an intermediate height, inspected, closely with any remaining debris being removed, and mowed again at desired final height. (This will also reduce power required to mow, reduce wear and tear on the Mower drivetrain, spread cut material better, eliminate streaking, and make the final cut more uniform.)

(SFL-6)

# SAFETY

## WARNING!



Do not operate Mower if excessive vibration exists. Shut down PTO and the Tractor engine. Inspect the Mower to determine the source of the vibration. If Mower blades are missing or damaged replace them immediately. Do not operate the mower until the blades have been replaced and the Mower operates smoothly. Operating the Mower with excessive vibration can result in component failure and broken objects to be thrown outward at very high velocities. To reduce the possibility of property damage, serious injury, or even death, never allow the Mower to be operated with blades missing. (SFL-4)

## WARNING!



Never leave Tractor and Implement unattended while the implement is in the lifted position. Accidental operation of lifting lever or a hydraulic failure may cause sudden drop of unit with injury or death by crushing. To properly park the implement when disconnecting it from the tractor, lower the stand and put the retaining pin securely in place, or put a secure support under the A-Frame. Lower the implement carefully to the ground. Do not put hands or feet under lifted components. (SPT-1)

## WARNING!



Be particularly careful when transporting the Implement with the Tractor. Turn curves or go up hills only at a low speed and using a gradual steering angle. Rear mounted implements move the center of gravity to the rear and remove weight from the front wheels. Make certain, by adding front ballast, that at least 20% of the tractor's weight is on the front wheels to prevent rearing up, loss of steering control or Tractor tip-over. Slow down on rough or uneven surfaces to prevent loss of steering control which could result in property damage or possible injury. Do not transport unless 3-Point lift lever is fully raised and in the latched transport position. Dropping implement in transport can cause serious damage to the tractor and/or Implement and possibly cause the operator or others to be injured or killed. (S3PT-2)

## DANGER!



Make sure the PTO shield, integral driveline shields, and input shields are installed when using PTO-driven equipment. Always replace any shield if it is damaged or missing. (S3PT-8)



## WARNING!



Relieve hydraulic pressure prior to doing any maintenance or repair work on the Implement. Place the Implement on the ground or securely blocked up, disengage the PTO, and turn off the tractor engine. Push and pull the Remote Cylinder lever in and out several times prior to starting any maintenance or repair work. (S3PT-9)



## WARNING!



The rotating parts of this machine continue to rotate even after the PTO has been turned off. The operator should remain in his seat for 60 seconds after the brake has been set, the PTO disengaged, the tractor turned off, and all evidence of rotation has ceased. (3PT-10)

**“Wait a minute...Save a life!”**

# SAFETY

## DANGER!



This Implement is wider than the Tractor. Be careful when operating or transporting this equipment to prevent the Implement from running into or striking sign posts, guard rails, concrete abutments or other solid objects. Such an impact could cause the Implement and Tractor to pivot violently resulting in loss of steering control, serious injury, or even death. Never allow the Implement to contact obstacles. (S3PT-12)

In addition to the design and configuration of this Implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the Tractor and Equipment Manuals. Pay close attention to the Safety Signs affixed to the Tractor and Equipment. (SG-18)

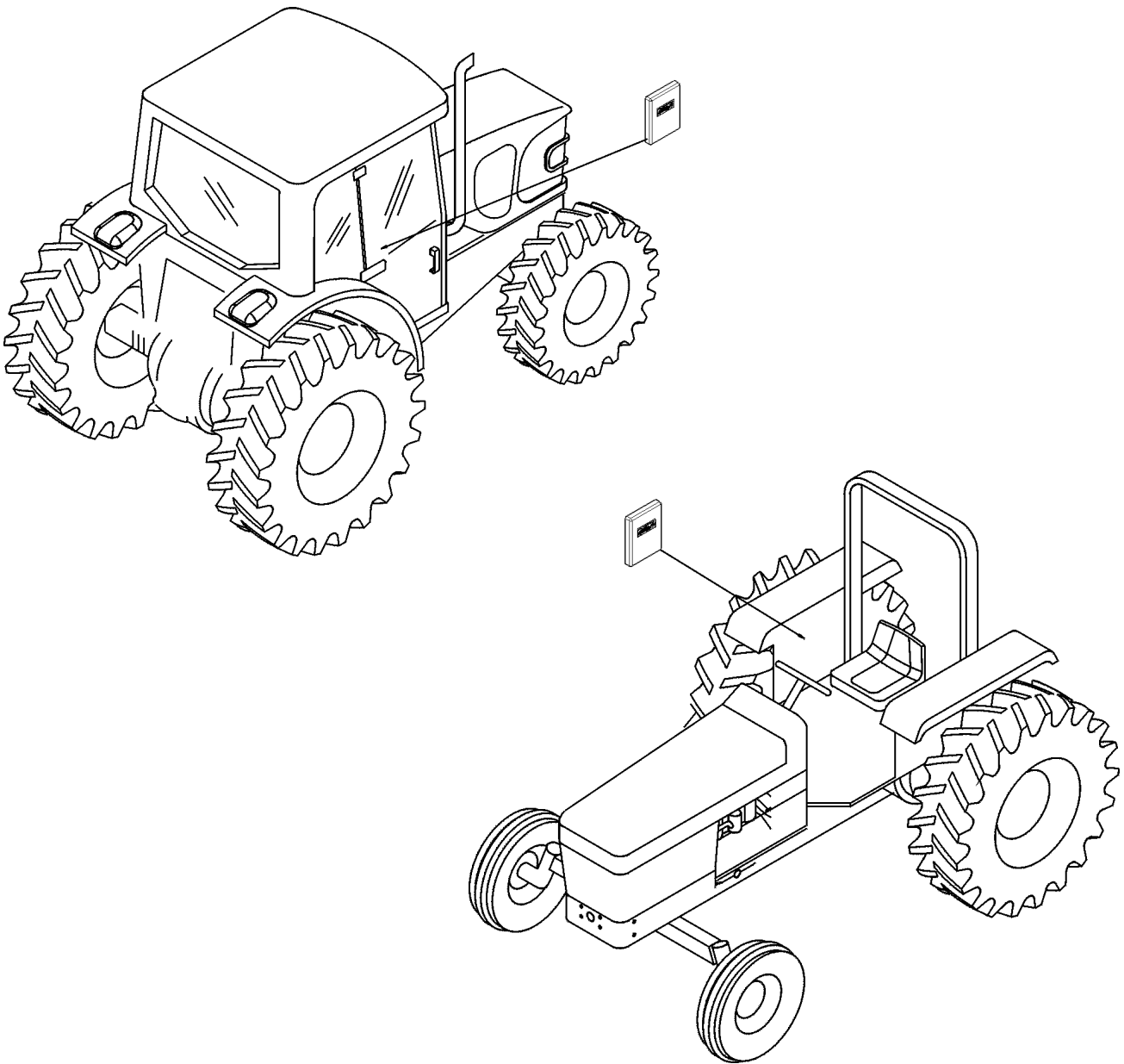
## PARTS INFORMATION

Alamo Industrial mowers use balanced and matched system components for blade carriers, blades, cuttershafts, knives, knife hangers, rollers, drivetrain components, and bearings. These parts are made and tested to Alamo Industrial specifications. Non-genuine "will fit" parts do not consistently meet these specifications. The use of "will fit" parts may reduce mower performance, void mower warranties, and present a safety hazard. Use genuine Alamo Industrial mower parts for economy and safety.

(SPAM-1)

**SEE YOUR ALAMO DEALER**

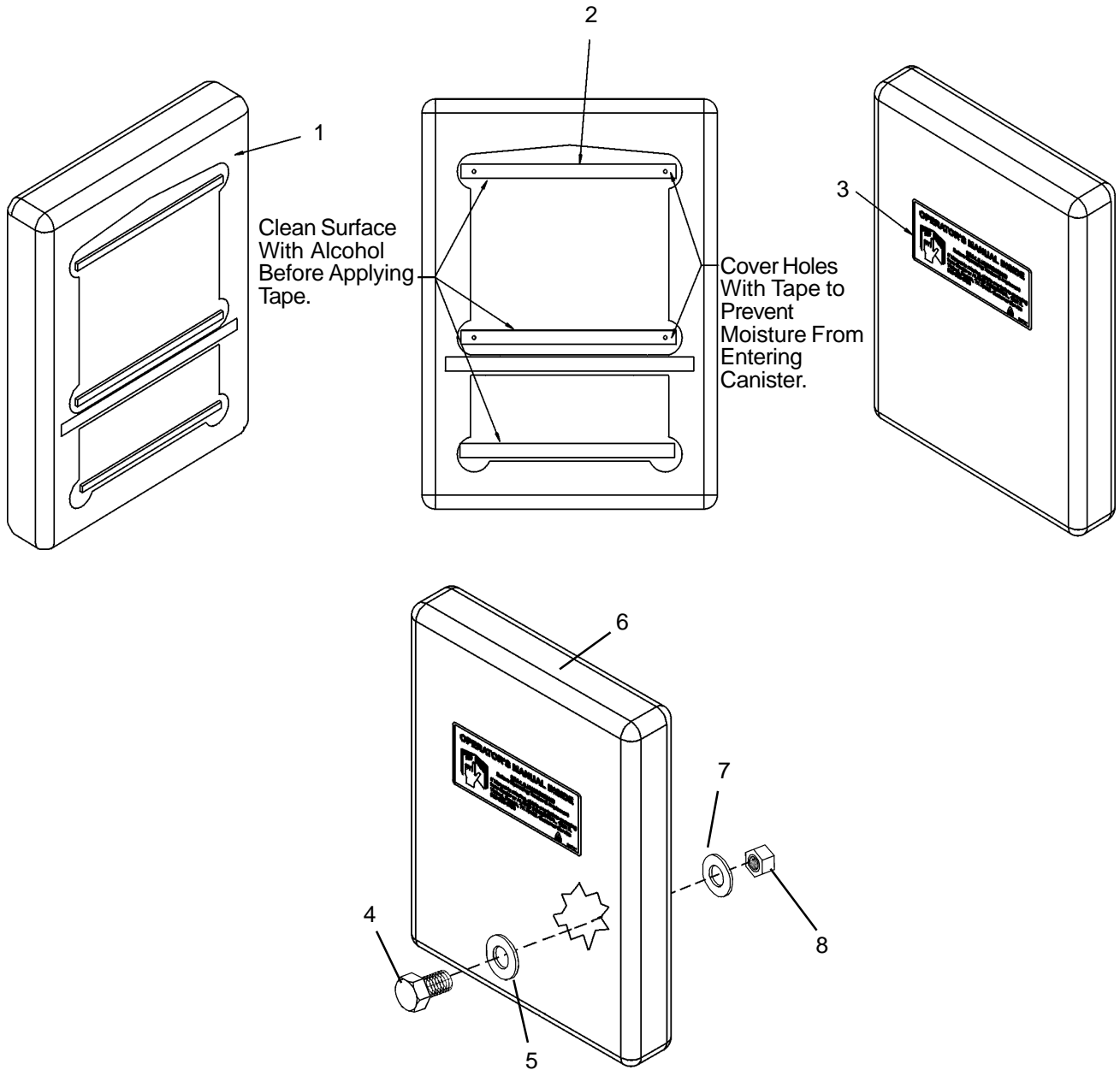
# SAFETY



## ATTENTION!

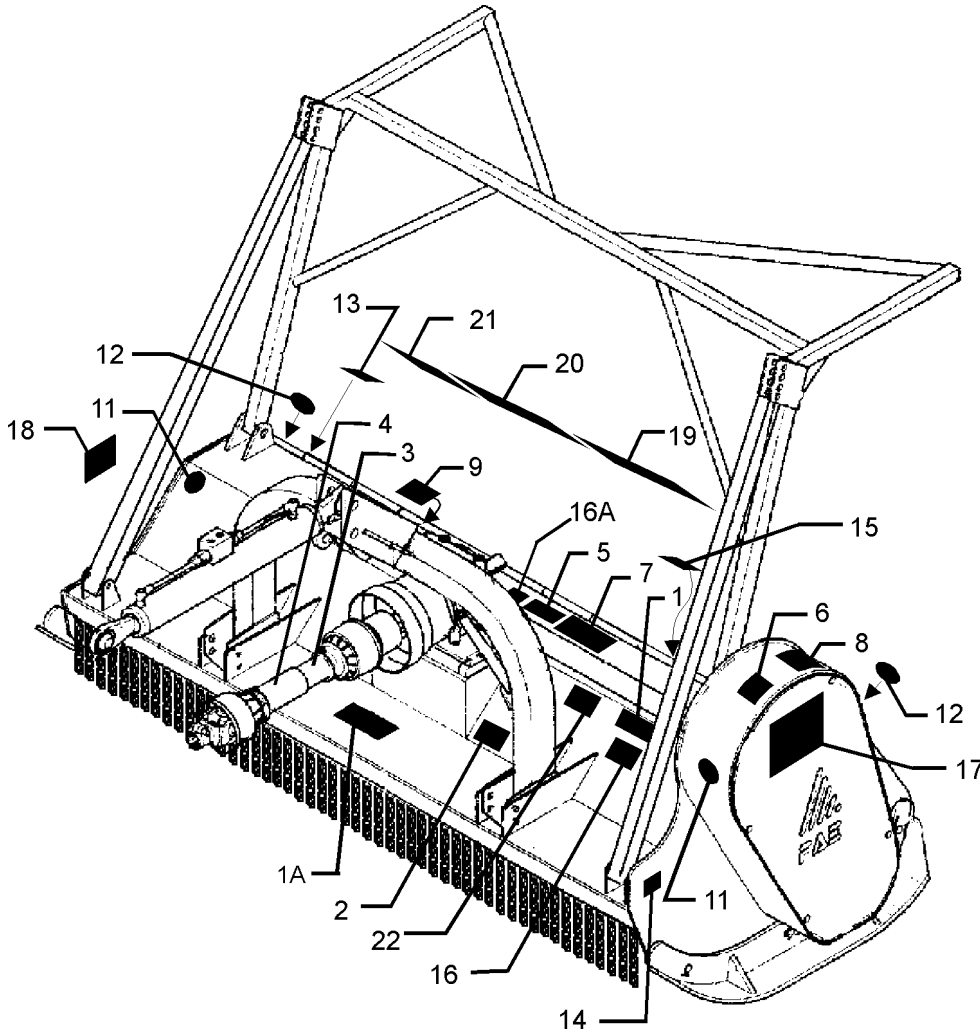
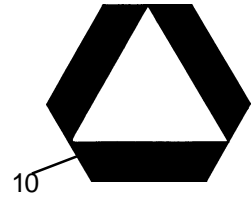
This unit was shipped with an Operator's Manual Specifically designed to remain with the unit at all times. This manual is to be stored in the protective canister shipped with this unit. Because it is not feasible to attach the protective canister to the unit directly due to severe conditions in which it operates, the canister must be installed in a secure area such as the operator's station. Choose a location that allows convenient access by the operator and easily allows removal of the Operators Manual. Use the adhesive and/or the included fasteners to securely attach the canister. Operator must read the Operator's Manual prior to using the unit.

# SAFETY



ITEM	PART NO.	QTY	DESCRIPTION
1	02977385	1	Sq. Canister
2	02968143	2 1/2'	Tape 3M Back to Back
3	02977417	1	Decal, Op. Man. Inside
4	10058000	4	Bolt
5	00024100	4	Flatwasher
6	02967444C	4	Operators Manual
7	00017000	4	Lockwasher
8	02959924	4	Nut Toplock

# SAFETY DEACTIVATION





# SAFETY LABEL LOCATION

ITEM	PART NO.	QTY	LEVEL	DESCRIPTION
1	002369	1	DANGER	Flail Multi-Hazard
1A	00725746	1	PELIGRO	PELIGRO!
2	00725739	1	WARNING	Use/Repair Shields & Guards, Flails
3	00756004	[1]	DANGER	Driveline Shield Missing- Do Not Operate
4	00756005	[1]	DANGER	Rotating Driveline/Entanglement/All Shields
5	00756494	1	DANGER	D/L Multi-Hazard
6	00758194	1	WARNING	Pinch Point (V-Belt/Pulley)
7	02967867	1	DANGER	Operation of Safety Shield
8	02967668	1	DANGER	Cutting Blades/Thrown Objects (Flail)
9	D103	1	WARNING	540 RPM
	D114	1	WARNING	1000 RPM
10	03200347	(1)	REFLECT	SMV
11	99203	{2}	REFLECT	Red Reflector
12	99204	{2}	REFLECT	Yellow Reflector
13	000108	1	INSTRUCT	Flail Operating Inst
14	000678	1	INSTRUCT	Grease Fitting Inside
15	00763977	1	INSTRUCT	Notice to Owner
16	02925100	1	INSTRUCT	Genuine Parts, Flail
16A	00773723	1	PELIGRO!	Rotating Driveline Translation
17	001650	1	LOGO	ALAMO (7.26 x 7.5)
18	02960766	1	LOGO	ALAMO (4 x 5)
19	00757139	1	LOGO	ALAMO (4.5 x 16.5)
20	02967592	1	NAME	FML
21*	02967595	1	WIDTH	100
	02967598	1	WIDTH	175
	02967599	1	WIDTH	200
22	NFS	1	SER PLT	ALAMO Serial Plate

[ ] Installed by Driveline Manufacturer

( ) Provided by Tractor Manufacturer

\* Make choice from each set

{ } For Machines over 96" Wide

# SAFETY DECALS

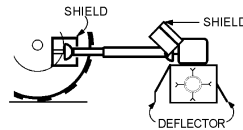
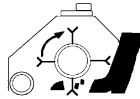
## ⚠ WARNING

FAILURE TO USE AND MAINTAIN SHIELDS AND DEFLECTORS IN GOOD CONDITION MAY LEAD TO INJURY OR DEATH FROM ENTANGLEMENT WITH ROTATING PARTS, BEING HIT BY OBJECTS THROWN WITH GREAT FORCE BY BLADES, OR BY BLADE CONTACT.

- Always replace Guards which have been removed for maintenance. Never operate with guard missing or broken.

- Chain Guards, Gearbox, Driveline Shields, Rubber-fabric Deflectors, and solid Band enclosures are subject to wear and lost or broken parts and must be repaired or replaced as soon as damage is found.

- Safety Shielding must be installed and in good condition to reduce the possibility of thrown objects any time this machine is operated in any area where thrown objects could cause injury.

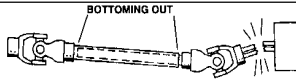
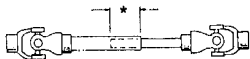


2 - 00725739

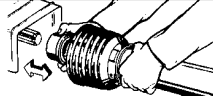
## ⚠ DANGER

1. MAKE CERTAIN DRIVELINES ARE OF THE CORRECT LENGTH AND SECURELY ATTACHED. DRIVELINE SEPARATION AND/OR PTO STUB SHAFT FAILURE CAN CAUSE INJURY OR DEATH. (See Operator's Manual for procedure.)

\* SEE MANUAL FOR MINIMUM OVERLAP & MINIMUM/MAXIMUM LENGTHS



2. MAKE CERTAIN THAT DRIVELINE SHIELDS ARE INSTALLED CORRECTLY AND TURN FREELY TO PREVENT INJURY OR DEATH FROM ENTANGLEMENT



3. MAKE CERTAIN THAT DRIVELINE IS INSTALLED CORRECTLY ON TRACTOR PTO SHAFT. MOVE YOKE BACK AND FORTH UNTIL LOCKING COLLAR CLICKS FORWARD AND LOCKS YOKE IN PLACE

4. 540 PTO RPM UNLESS SPECIFICALLY MARKED OTHERWISE.

00756494

5 - 00756494

## ⚠ DANGER

CUTTING BLADES



THROWN OBJECTS



**KEEP AWAY - ROTATING BLADES**

BEING HIT BY THROWN OBJECTS OR CONTACTING ROTATING BLADES CAN CAUSE INJURY OR DEATH

- Stop mowing if passersby enter the area of thrown objects. (See Operator's Manual)
- Use special care when Flail or Wing is raised off the ground. (See Oper. Manual)
- Operate only if all Guards-Deflectors are in place and in good condition.

02967668

8 - 02967668

## ⚠ DANGER



**GUARD MISSING  
DO NOT OPERATE**

00756004

## ⚠ DANGER



**GUARD MISSING  
DO NOT OPERATE**

00756004

## ⚠ DANGER

3 - 00756004

## ⚠ DANGER



**ROTATING DRIVELINE-  
CONTACT CAN CAUSE DEATH  
KEEP AWAY!**

**DO NOT OPERATE WITHOUT-**

- All driveline guards, tractor and equipment shields in place
- Drivelines securely attached at both ends
- Driveline guards that turn freely on driveline

00756005

4 - 00756005

1 - 002369 Not Shown  
(See Inside Front Cover of Manual)

# SAFETY DECALS

## DANGER

### SAFETY SHIELD & DEFLECTOR OPERATION

- Failure to close Safety Shield and Deflector may allow objects to be thrown outward with great force which can cause property damage, bodily injury, or death.
- 1. Keep Safety Shield and Deflector fully closed when cutting grass and weeds to reduce possibility of objects' being thrown outward by the Blades and to prevent contact with the Blades if persons are in the area.
- 2. Before cutting brush, trimming limbs, or other such operations, raise the Deflector and Safety Shield fully to allow the blades to contact the material if area is clear of passersby. Operator must stop cutting and close shield if passerby enters the thrown objects area or blade contact area.
- 3. Repair or replace Safety Shield and Deflector as needed.
- 4. Always transport with Safety Shield and Deflector closed.

02967867

7 - 02967634

### NOTICE TO OWNER

An OPERATOR'S MANUAL (with Repair Parts Listing) and a WARRANTY REGISTRATION CARD were attached to this implement during final inspection at the factory. If they were not attached at the time of purchase, please contact your selling dealer at once.

1. Read and understand Manual before operating the implement.
2. Complete, sign, and mail the Warranty Registration Card in today. 00763977

15 - 00763977

### OPERATING INSTRUCTIONS

This Mower will give long satisfactory service with a minimum of upkeep cost if the following procedure is followed:

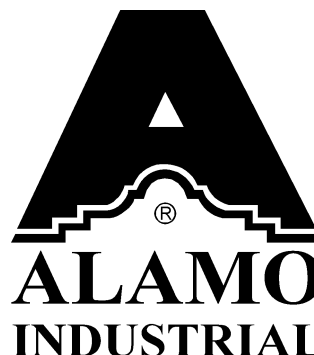
1. KEEP PROPERLY LUBRICATED
  - a. BEARINGS - Use a lithium-based #2 Bearing Grease such as Shell Alvania #2, Sinclair Litholene, Mobil BRB, Texaco Marfak #2, Standard Stanolith #57, etc.
  - b. GEARBOX - Use SAE EP90 oil.
2. KEEP FASTENERS TIGHTENED
  - a. Normally, if Fasteners loosen after being properly tightened, the Mower is vibrating more than is acceptable and permanent damage can occur rapidly.
  - b. See Bolt Chart for proper tightening torque.
3. KEEP THE MOWER RUNNING SMOOTHLY AND QUIETLY.
  - a. After hitting any obstruction and at the first sign of any unusual vibration or noise, STOP THE MOWER, and do not operate again until the problem is found and corrected. VIBRATION CAN DESTROY THE ENTIRE MOWER IN A SHORT TIME.
  - b. Inspect for broken or missing Knives, Knives restricted from swinging freely, worn Bearings, a bent Shaft, or other conditions causing out-of-balance rotation.
  - c. See Bulletin #5 for details on causes and correction of vibration of Flail Mowers.

**NOTICE:** Warranty does not cover damage resulting from the failure to observe these reasonable procedures. 000108

13 - 000108

**GREASE  
FITTING  
INSIDE**

14 - 000678



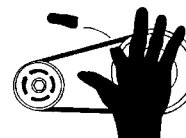
17 - 001650

18 - 02960766

## WARNING

DO NOT OPERATE WITH BELT SHIELD REMOVED. FINGER(S) MAY BE PINCHED OFF IF CAUGHT BETWEEN V-BELT AND PULLEY.

00758194



6 - 00758194

## WARNING

**OPERATE THIS MACHINE AT  
540 RPM  
TRACTOR PTO SPEED ONLY**

Overspeeding PTO may cause component failure with resulting injury.

D103

9 - D103

03200347 - SMV  
(Not Shown)  
99203 - Red Reflector  
(Not Shown)  
99204 - Yellow Reflector  
(Not Shown)

# SAFETY DECALS

## IMPORTANT

### ALAMO GENUINE FLAIL PARTS

ALAMO INDUSTRIAL Flail Mowers use dynamically balanced and matched system components for Cutter Shafts, Knives, Knife Hangers, Rollers, Drivetrain components, Bearings, Belts, and Pulleys. ALAMO INDUSTRIAL parts are made and tested to meet close-tolerance specifications of balance, quality, and consistency that assure long, trouble-free service.

The use of inferior "will fit" parts will void warranty for your ALAMO INDUSTRIAL implement and may cause premature or catastrophic failure which can result in serious injury or death. If you have any questions concerning the repair parts you are using, contact ALAMO INDUSTRIAL 1502 E. Walnut Seguin, TX 78155 (830) 372-3551.



16-03200432

# FML

20-02967592

# 175

21-02967598

# 200

21-02967599



## PELIGRO

Si No Lee Ingles, Pida Ayuda a Alguien Que Si Lo Lea Para Que le Traduzca las Medidas de Seguridad.

### LEA EL INSTRUCTIVO



00725746

1A-00725746



A Terrain King® Product

19-00757139

## PELIGRO

Un manual de la seguridad de la línea de conducción n/p 00773776 está disponible en español. Llame el número enumerado para una copia gratis.



**LINEA DE CONDUCCION GIRATORIA-**  
EL CONTACTO PUEDE CAUSAR LA MUERTE  
**¡MANTENERSE LEJOS!**  
NO FUNCIONE SIN QUE-

- Todos los protectores de la línea de Conducción, alimentador y blindajes del Equipo estén en su lugar
- Las líneas de conducción estén conectadas con seguridad en ambos extremos
- Los protectores de la línea de conducción den vuelta libremente en la línea de Conducción

00773723

16A-00773723

# SAFETY

## FEDERAL LAWS AND REGULATIONS

This section is intended to explain in broad terms the concept and effect of federal laws and regulations concerning employer and employee equipment operators. This section is not intended as a legal interpretation of the law and should not be considered as such.

### **Employer-Employee Operator Regulations**

U.S. Public Law 91-596 (The Williams-Steiger Occupational and Health Act of 1970) OSHA

#### **This Act Seeks:**

"...to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources..."

#### DUTIES

Sec. 5 (a) Each employer-

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.
- (b) Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued pursuant to this Act which are applicable to his own actions and conduct.

### **OSHA Regulations**

OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved."

### **Employer Responsibilities:**

To ensure employee safety during Tractor and Implement operation, it is the employer's responsibility to:

1. Train the employee in the proper and safe operation of the Tractor and Implement.
2. Require that the employee read and fully understand the Tractor and Implement Operator's manual.
3. Permit only qualified and properly trained employees to operate the Tractor and Implement.
4. Maintain the Tractor and Implement in a safe operational condition and maintain all shields and guards on the equipment.
5. Ensure the Tractor is equipped with a functional ROPS and seat belt and require that the employee operator securely fasten the safety belt and operate with the ROPS in the raised position at all times.
6. Forbid the employee operator to carry additional riders on the Tractor or Implement.
7. Provide the required tools to maintain the Tractor and Implement in a good safe working condition and provide the necessary support devices to secure the equipment safely while performing repairs and service.
8. Require that the employee operator stop mowing if bystanders or passerbys come within 100 yards.

### **Child Labor Under 16 Years of Age**

Some regulations specify that no one under the age of 16 may operate power machinery. It is your responsibility to know what these regulations are in your own area or situation. (Refer to U.S. Dept. of Labor, Employment Standard Administration, Wage & Home Division, Child Labor Bulletin #102.)



# **INTRODUCTION SECTION**

# INTRODUCTION

This Flail Mower is designed with care and built with quality materials by skilled workers. Proper assembly, maintenance, and operating practices, as described in this manual, will help the owner/operator get years of satisfactory service from the machine.

The purpose of this manual is to familiarize and instruct. The Assembly Section instructs the owner/operator in the correct assembly of the Mower using standard and optional equipment. The Parts Listing section is designed to familiarize the owner/operator with replaceable parts on the Mower. This section provides exploded assembly drawings of each mower component illustrating each piece and the corresponding part number.

Careful use and timely service saves extensive repairs and costly downtime losses. The Operation and Maintenance Sections of the manual train the owner/operator how to work the Mower correctly and attend to appropriate maintenance. The Trouble Shooting Guide helps diagnose difficulties with mower and offers solution to the problems.

Safety is of primary importance to the owner/operator and to the manufacturer. The first section of this manual includes a list of Safety Messages, that, if followed, will help protect the operator and bystanders from injury or death. Many of the Safety Messages will be repeated throughout the manual. The owner/operator/dealer should know these Safety Messages before assembly and be aware of the hazards of operating this mower during assembly, use, and maintenance. The Safety Alert Symbol combined with a Signal Word, as seen below, is intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this machine.

## CAUTION



The lowest level of Safety Message; warns of possible minor injury. Decals located on the Mower with this Signal Word are Black and Yellow.

## WARNING



Serious injury or possible death! Decals are Black and Orange.

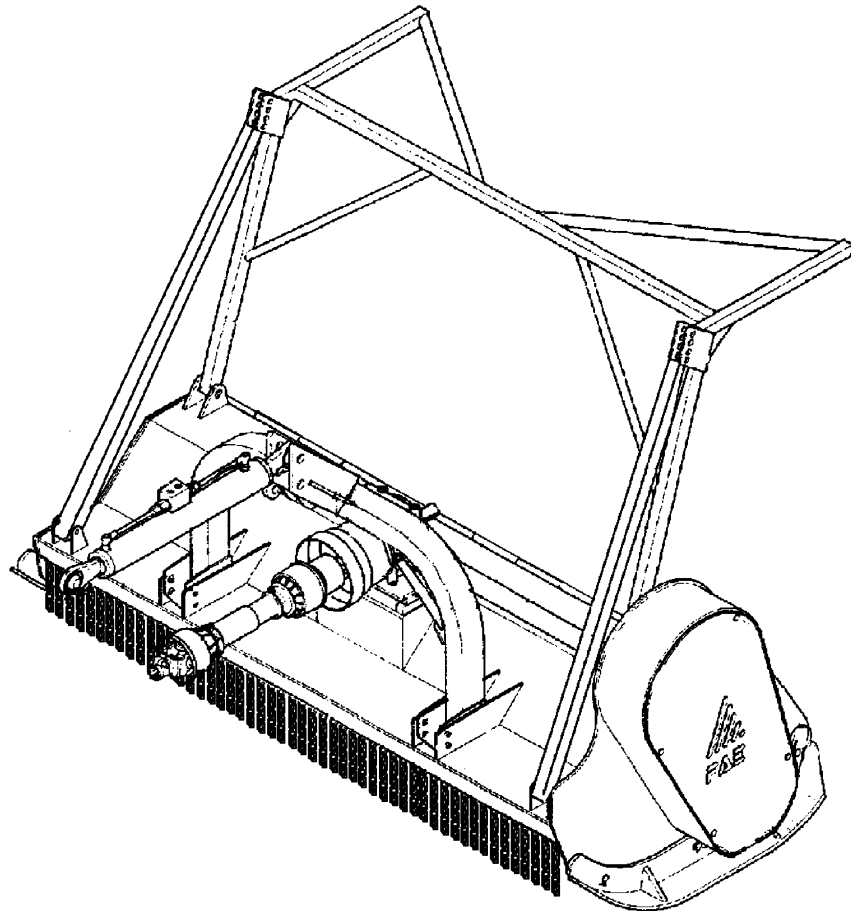
## DANGER



Imminent death/critical injury. Decals are Red and White.



# INTRODUCTION



These Flail Mowers are designed for heavy-duty work.

## **DANGER**



For Non-Agricultural use, OSHA, ASAE, SAE, and ANSI standards require the use of Chain Guards, Deflectors, or Solid Skirts at all times. The Mower manufacturer strongly recommends the use of Chain Guards, Deflectors, or Solid Skirts for Agricultural purposes as well to reduce the risk of property damage, serious bodily injury, or even death from objects thrown out by or from contact with the Cutting Blades.

## **WARNING**



At least 20% of the tractor's total weight must be on the front tires with the Mower lifted to provide adequate traction for safe steering under good conditions. Slow down on hills, rough terrain, and curves.

Front and rear, and left and right are determined by the normal direction of travel (the same as on your automobile).

# INTRODUCTION

## A. OWNER'S RESPONSIBILITIES

1. Read the TRACTOR Owner's Manual as well as this manual before attempting to install or operate the FML mower.
2. Know all the controls and how to stop quickly. Know how to operate the FML before attempting to mow with it.
3. Keep both the tractor and the mower in good operating condition. Keep all fasteners secure to help maintain equipment in safe working condition. Check knives and knife fasteners daily for damage or missing pins.
4. Keep all safety devices in place. Read, understand, and comply with safety decals located on tractor and mowers.
5. Do not allow children to operate the tractor or mower. Do not allow adults to operate the equipment without proper instruction.
6. Do not carry passengers. Keep children and pets a safe distance away.
7. When leaving the operator's position always follow good safety practices:
  - a. Turn off power to the mower.
  - b. Lower the mower to the ground.
  - c. Set the parking brake.
  - d. Stop the engine and remove the key.
8. Clear the work area of objects which might be picked up and thrown.
9. Stay alert for holes in the terrain and other hidden hazards.
10. To reduce fire hazard, keep engine free of grass, leaves, or excessive grease.
11. Thoroughly check the condition of the mower before mowing.
12. The cutting rotor must be free to turn before starting the mower. Do not start the mower while in the cut. Allow the cutting rotor to develop full speed before mowing.
13. Disengage power to the mower when transporting or not in use. NEVER engage the power to the mower when the cutter unit is in the TRANSPORT position.
14. "In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern and prudence of the operator and requires suitable training of personnel involved in the operation, transport, maintenance and storage of equipment." - SAE J1001
15. Disengage power to the mower and stop engine before leaving operator's position.
16. Do not change engine governor settings or overspeed engine.

# INTRODUCTION

## B. WARNINGS

1. Remove all objects from, and stay clear of, the front of the cutter unit. Do not get near the rotating knives.
2. Disengage power to the mower before starting the engine.
3. Never allow anyone near the equipment while in operation, and watch out for traffic when crossing or working near a roadway. Make certain flashers are operating when mowing next to traffic lanes.
4. The tractor and the mower should be stopped and inspected for damage after striking an object. Repair all damage before restarting and operating the equipment.
5. Do not attempt to clear discharge, remove obstacles, adjust belts, or repair equipment before stopping the tractor engine. Never place hands or feet near knives or belts when the tractor engine is running.
6. Do not operate any ALAMO mower which is vibrating excessively. Vibration is caused by a rotating part which is out of balance. The vibration will cause additional damage to the equipment. Cutting rotor vibration could be caused by the following:
  - a. Wire, rope, rags, etc., wound around the shaft.
  - b. Knives missing or broken.
  - c. Knife hanger lugs which have broken off the shaft.
  - d. Cutting rotor bearings worn.
  - e. Cutting rotor bent from striking an object.
  - f. Cutting rotor not rotating at recommended speed.
7. Decrease travel speed for slopes and sharp turns to reduce the possibility of tipping or loss of control. It is suggested, depending on the amount of slope, to mow up and down rather than across the slope.
8. Do not release the clutch suddenly especially when going up a hill.
9. Never engage power to the mower when the cutter unit is in the TRANSPORT position.

## C. PRECAUTIONS

1. Always repair small problems before they become large ones.
2. Never work on the mower or the tractor while the engine is running.
3. Never leave the cutter unit in the raised position without proper support. Do not rely on the mower hydraulics to hold the unit up while working on it. If a hydraulic connection is loosened or a control lever is shifted, the cutter unit will come down. Always block up securely.

# INTRODUCTION

## ATTENTION OWNER/OPERATOR

BEFORE OPERATING THIS MACHINE:

1. Carefully read the Operator's Manual, completely understand the Safety Messages and instructions, and know how to operate correctly both the tractor and Mower.
2. Fill out the Warranty Card in full. Be sure to answer all questions, including the Serial Number of the Mower. Mail within 30 days of delivery date of this implement.

**NOTE:** *Warranty claims are honored only if completed "Owner Registration and Warranty" forms are on file with Alamo. Any request for warranty sent to Alamo without Registration will be returned to you with A Registration Form attached. This must be completed and returned with the Warranty Claim in order to be processed. Owner registration and Warranty cards are necessary in order to contact the owner if there is need for field improvement or modification.*

3. Record the Mower Model and Serial Numbers on the Warranty page at the rear of the Operator's Manual. Keep this as part of the permanent maintenance file for the Mower.

# IMPORTANT

**For your safety and to guarantee optimum product reliability, always use Genuine ALAMO INDUSTRIAL replacement parts. The use of inferior "will-fit" parts will void Warranty of your ALAMO INDUSTRIAL implement and may cause premature or catastrophic failure which can result in serious injury or death. If you have any questions concerning the repair parts you are using, contact ALAMO INDUSTRIAL, 1502 E. Walnut Seguin, TX 78155 (830) 372-3551.**



# **ASSEMBLY SECTION**

# ASSEMBLY

The FMLmower will attach to most tractors with Cat I or Cat II Hitch and 540 or 1000 PTO RPM.

## DEALER SETUP INSTRUCTIONS

Assembly of this mower is the responsibility of the Alamo dealer. The mower should be delivered to the owner completely assembled, lubricated, and adjusted for normal cutting conditions.

Set up mower as received from the factory with these instructions. Open parts box and lay parts out to make location easy. Refer to the parts lists and exploded view drawings for more detail.

This mower is shipped partially assembled. Assembly will be easier if components are aligned and loosely assembled before tightening hardware.

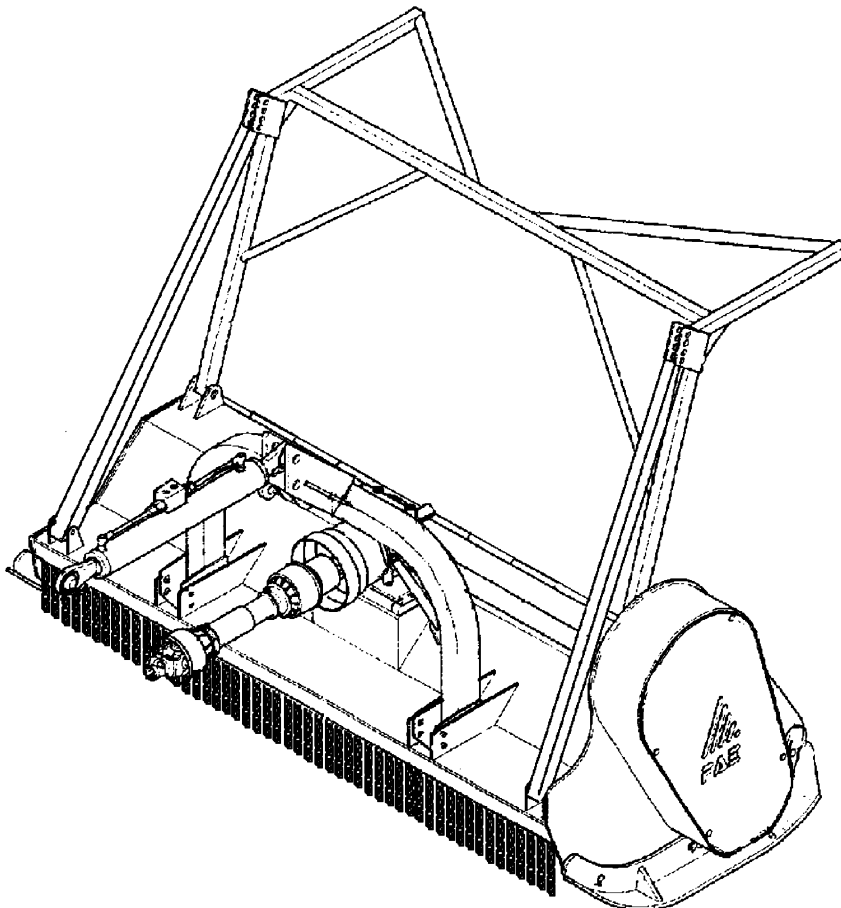
## INITIAL START UP

Before the unit is placed into service, the unit must be run at operating speeds and checked for excessive vibration. If there is excessive vibration, the problem must be found and corrected before the unit is placed into service. **Claims will not be considered for vibration related damage after the unit has been placed into service.**

**CAUTION!** Always use personal protection devices such as eye, ear, and foot protectors during assembly.



**CAUTION!** Always block up lifted components.



# OPERATION SECTION

# OPERATION

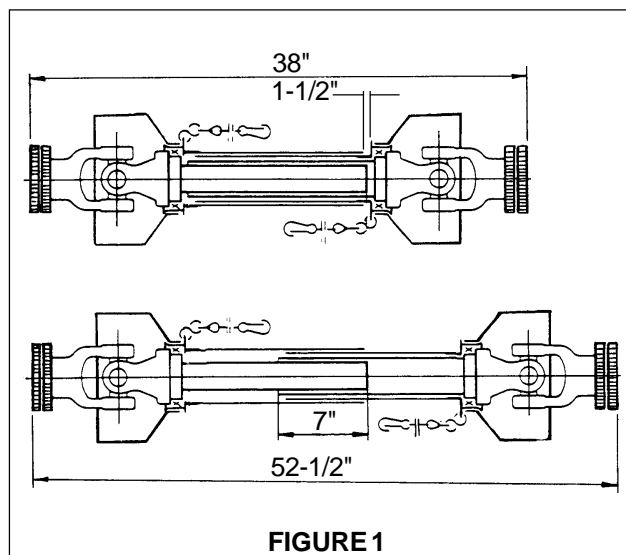
## Start-up instructions

1. Read all safety instructions. Decals on the Mower warn you of particular and multiple hazards. Some decals are attached close to part of the Mower where there is a possible hazard. Read and make sure you understand the safety messages before you operate this implement. Keep all decals clean and readable. Replace lost or damaged decals.
2. Before operating, read all the safety and operating instructions in the Operator's Manual for both the tractor and mower.
3. Power for operating the mower is supplied from the tractor PTO. Refer to your tractor manual instructions for engaging and disengaging the PTO. Start the tractor and idle at a slow engine speed until oil is being pumped. Always engage the PTO at low engine RPM and run the mower for a short period before running at the full RPM. Keep all person's well clear of mower since blades can throw objects with great velocity for a considerable distance! **KEEP CLEAR!**

## INSTALLATION OF MOWER TO TRACTOR

The FML forestry mower may be fitted to all tractors having a standard three point linkage. The three point hitch has a CAT I connection for the third position point, and a CAT II type for the first and second points. The series equipment is complete with a PTO drive shaft with free wheel and over run clutch as well as the necessary protection fitted with a chain.

1. Position the lower lift arms of the three point linkage inside of the lower plates. Align the holes, insert the pin and secure it with the split pin.
2. Connect the third point making sure that the axis of the PTO shaft is parallel to the ground. This step is very important to establish the parallelism required between the mulching mower's PTO shaft axis and the tractor. A correct adjustment allows the PTO drive shaft to function without undue stress.
3. To install the driveline, separate slip joint halves; then install them onto mower gearbox input shaft and tractor PTO shaft according to illustration on driveline shield. Hold halves side by side, then raise and lower the mower to determine that there is no interference between halves when in the shortest position, and that there is a specified minimum amount of overlap when in the longest position. Once it is determined that the shaft will cause no clearance problems, remove the halves, rejoin them and install the assembled driveline between the tractor and the mower. **Figure 1.**





# OPERATION

## CHECK PTO LENGTH

### WARNING



A loose driveline could slip off and result in personal injury or damage to mower. When attaching PTO yoke to tractor PTO shaft, it is important that spring activated locking collar is seated in groove on PTO shaft.

### WARNING



Before operating mower, check to make sure the driveline will not bottom out or become disengaged.

To adjust length, hold the half-shafts next to each other in the shortest working position. If end of driveline extends beyond shield cone, mark them according to figures below. Always maintain 1-1/2" clearance when operated in shortest working position. Shorten inner and outer guard tubes equally. Shorten inner and outer sliding profiles by the same amount that the shield tubes were shortened. Round off all sharp edges and remove burrs. Grease sliding profiles. **Figure 2.**

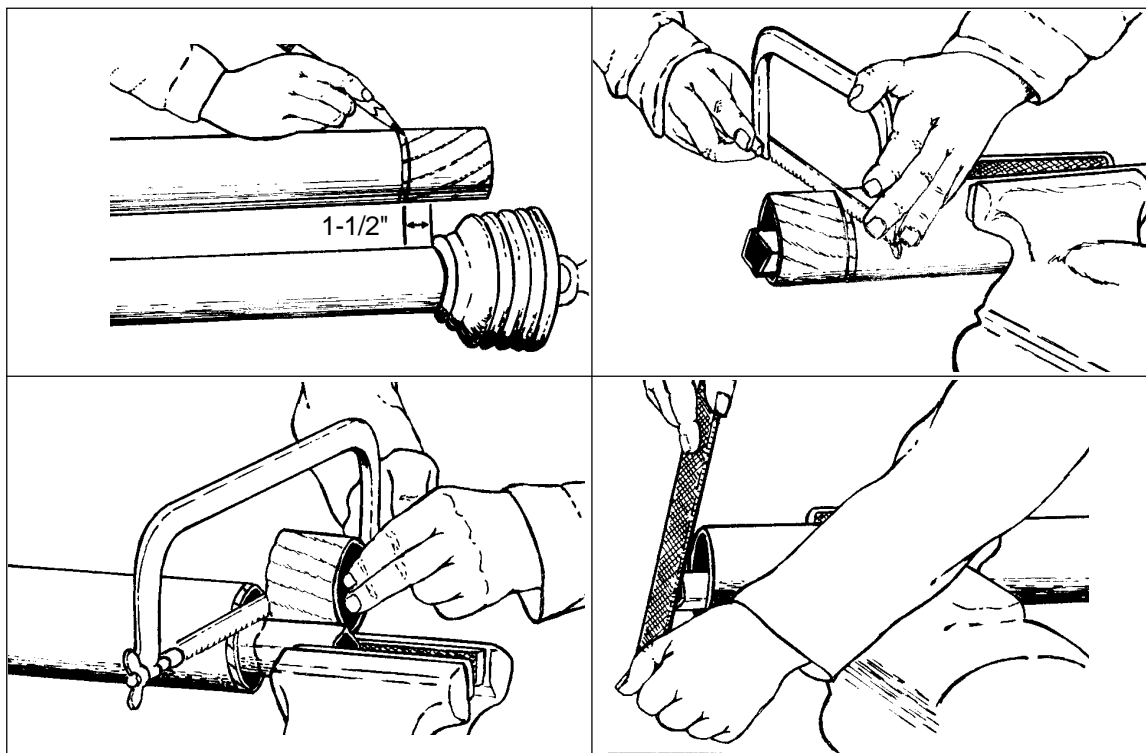


FIGURE 2

### WARNING



Driveline profile engagement must always exceed 7" at any operating position.

# OPERATION

## ADJUSTING THE HEIGHT OF THE CUT

Adjustment is made by raising or lowering the skid shoes. Remove the capscrews from the skid shoes. Move the skid shoes to the desired position, then reinstall the fasteners. Much effort can be avoided by using the tractor lift to adjust the height of the cutter unit. On even ground, without stones or bushes, position the skids on the low setting. On dusty, stony, sandy, and otherwise impervious surfaces, position the skids in the high setting.

## OPERATING TECHNIQUES

With the tractor engine at low idle, engage the PTO. Increase the engine speed until the PTO is at 540 or 1000 RPM, depending on model. Always start the cutter unit in the clear and allow the unit to develop full speed before starting to cut.

### WARNING



It is very important that proper rotor speed is maintained during operation! Failure to maintain rotor speed will result in vibration, cracks in the rotor, cracks in the structural members, bearing failures, and/or other damage that is not covered under the warranty. Maintain the rotor speed at 1800-2000 RPM>

Set the speed according to the material to be cut and the nature of the terrain. The more demanding the task the lower the speed of the tractor should be (even to the extent of using low gears). To ensure a greater degree of control over the machine, try at all times to maintain the cutting rotor speed of the mower between 1800-2000 RPM. If the mower is operated at a lower speed, trouble can develop throughout the driveline. The universal slip joint, as well as the final drive belt, can be overloaded and fail. As the cutting rotor speed decreases, cutting ability also decreases and winding of the grass may occur. Tractors are designed to operate at full PTO speeds. If cutting conditions require a slower ground speed, shift the tractor into a lower gear. Maintain the proper PTO speed.

The cutting rotor must be at full speed before starting to cut. If the cutting rotor slows down, due to heavy cutting, tractor ground speed must be reduced. If not, grass may wind around the cutting rotor rather than being discharged properly. Grass wound against housing sidesheets acts as a brake, causing power loss and possibly overheating cuttershaft bearings. The drive belt also may be overloaded and fail. Give the unit time to cut.

### WARNING

The hydraulic hood should never be used to push over branches or trees



## POSITION OF THE HYDRAULIC HOOD

To achieve the best results, it is advisable to use to the maximum advantage the adjustable aspect of the hydraulic hood. To use on dead branches, pruning, and the like it should be in a lowered position. For use on bushes, trees and areas of undergrowth it should be in a raised position.

## POSITION OF THE GUARD FRAME (OPTIONAL)

The guard frame (optional) should be adjusted in such a way that it anticipates the hydraulic hood when this is in its raised position. The frame has a dual function in that it may be used to align the material to be cut down and serves to prevent any falling tree coming towards the operator. It is advisable to equip the tractor with protection grills to prevent the possibility of falling branches penetrating the cab area.

## ADJUSTMENT WITH HYDRAULIC TOP LINKAGE (OPTIONAL)

With this linkage it is possible to considerably increase the operating capacity. To obtain the maximum advantage during the felling stage, position it with an upward incline. To obtain the maximum advantage during the grinding stage, position it with a downward incline.

# OPERATION

## TOUBLE SHOOTING

### EXCESSIVE VIBRATION

**Cause:** Rotor speed too slow or too fast.

**Solution:** Operate rotor at recommended RPM. Operation of the unit at other than recommended RPM can cause permanent imbalance and damage to the rotor as well as damage to other parts of the machine. See "Operating Instructions."

**Cause:** Foreign material wound around shaft.

**Solution:** Remove material, run and test for vibration.

**Cause:** Missing, broken or worn flails (hammers / knives).

**Solution:** Replace missing or broken flails. Make sure all flails have even weight or wear. Run and test for vibration.

**Cause:** Flail hangers broken off shaft.

**Solution:** Replace hanger. Rotor must be balanced after repair. Test for vibration.

**Cause:** Rotor bearings worn or damaged.

**Solution:** Replace bearings, run, and test.

**Cause:** Rotor shaft bent or damaged from impact.

**Solution:** Repair or replace rotor. Any repaired rotor must be balanced before being put back into service. If the rotor speed is maintained at the proper RPM, the flails will not allow the rotor to come in contact with anything. Impact damage to the rotor is an indication of improper operating techniques.

**Cause:** Worn flail retaining rods and/or bushings.

**Solution:** Replace worn parts, test for vibration after repair.

### EXCESSIVE WEAR TO ROTOR OR PARTS

**Cause:** Operation in abrasive conditions.

**Solution:** Set cutting height as high as allowable. If abrasive conditions can not be avoided, parts will require frequent replacement.

**Cause:** Operating at less than recommended rotor RPM.

**Solution:** Always maintain recommended rotor RPM. See "Excessive Vibration" and "Operating Instructions."

### ROTOR BEARING FAILURE

**Cause:** Inadequate quantity and/or quality of lubricant.

**Solution:** Replace damaged bearings. Keep bearings lubricated according to maintenance instructions.

**Cause:** Foreign material inside bearing.

**Solution:** Operating in abrasive environments and failure to properly lubricate the bearings can result in bearing failure. Always keep bearing properly lubricated and keep rotor clean.

**Cause:** Excessive vibration.

**Solution:** See causes and solutions for "Excessive Vibration".

### CRACKS IN ROTOR HOUSING

**Cause:** Excessive vibration.

**Solution:** See causes and solutions for "Excessive Vibration". Repair and correct the cause of the problem.



# **MAINTENANCE SECTION**

# MAINTENANCE

## LUBRICATION

1. Lubricate the joints of the PTO shaft and the left and right rotor supports every 8 hours. Grease PTO shaft as outlined on the diagram located on Driveline shaft shield. The gearbox is shipped with the proper amount of SAE No. 90 extreme pressure lubricant. Check the level of the gearbox and the output shaft before operating and after every 40 hours of operation by unscrewing the dipstick. It will not normally be necessary to add lubricant unless a leak develops at a shaft seal, in which case the seal should be replaced and the lubricant replenished. LUBRICATE MOWER BEFORE INITIAL USE. Use Lubriplate #1200-2 lithium grease. The following greases may be substituted: Chevron Polyurea EP grease #2, Mobil Oil Mobilux #2, Standard Oil Amolith #2, Shell Oil Alvania #2, Texaco Multifak #2, and Union Oil Unoba EP #2.

2. Before each day's use, follow this procedure:

- a. Visually check the unit, and make certain all items are properly tightened.
- b. Check the cutting rotor to make certain it has a full set of cutters. Replace any missing cutters, then run the unit at full speed to check for vibrations. Do not operate the unit in an out-of-balance condition.

## DANGER

Before doing maintenance, turn off power and securely block up mower.



## CUTTERS

It is important that the cutters are replaced after having been used for the recommended limits. To avoid damage to the rotor and the machinery as a whole, replace the whole set of cutters. Where one or two pieces are broken it is necessary to replace them with cutters of equal wear and size. To replace the cutters, open the small windows positioned on the side frames. Then remove the locking rod screws. With a small diameter pry bar, approximately 1 yard long, drive out the locking rods of the cutters by tapping the end of the pry bar with a hammer. Replace the rods if they show signs of wear. When replacing rods, the reset clockwise cutter position after each cutter change to reduce wear. Rods are wear items and will require periodic replacement. If the rotor is equipped with bushing for the flail retaining rods, they will also require replacement for wear.

## BELTS

Belts should be checked daily for proper tension.

## SERVICING

After approximately every 100 hours, the entire mower should be checked. Check nuts and bolts for tightness and retighten if necessary. Replace any worn nuts and bolts.

## STORAGE

Your mower represents an investment from which you should get the greatest possible benefit. Therefore, when the season is over, the mower should be thoroughly checked and prepared for storage so that a minimum amount of work will be required to put it back into operation for the next season. The following are suggested storage procedures:

1. Thoroughly clean the mower.
2. Lubricate the rotor as covered in the Maintenance Section.
3. Tighten all bolts and pins to the recommended torque.
4. Check the mower for worn or damaged parts. Make replacements immediately.
5. Store the mower in a clean, dry place with the mower head resting on blocks.
6. Use spray touch-up enamel where necessary to prevent rust and maintain the appearance of the mower.

# **PARTS SECTION**

## PARTS ORDERING GUIDE

The following instructions are offered to help eliminate needless delay and error in processing purchase orders for the equipment in this section.

1. The Parts Section is prepared in logical sequence and grouping of parts that belong to the basic machine featured in this manual. Part Numbers and Descriptions are given to help locate the parts and quantities required.
2. The Purchase Order must include the name and address of the person or organization ordering the parts, who should be charged, and if possible, the serial number of the machine for which the parts are ordered.
3. The Purchase Order must clearly list the quantity of each part, the complete and correct part number, and the basic name of the part.
4. The Manufacturer reserves the right to substitute parts where applicable.
5. Some parts are unlisted items which are special production items not normally stocked and are subject to special handling. Request a quotation for such parts before sending a Purchase Order.
6. The Manufacturer reserves the right to change prices without prior notice.

**NOTE:** Please refer to The Safety Section in the front of this Manual for the proper Part Number when ordering Replacement Safety Decals.



For maximum safety and to guarantee optimum product reliability, always use genuine Alamo Parts. The use of inferior replacement parts may cause premature or catastrophic failure which could result in serious injury or death. Direct any questions regarding parts to:



**Alamo Industrial**  
**1502 E. Walnut**  
**Seguin, Texas 78155**  
**830-372-3551**



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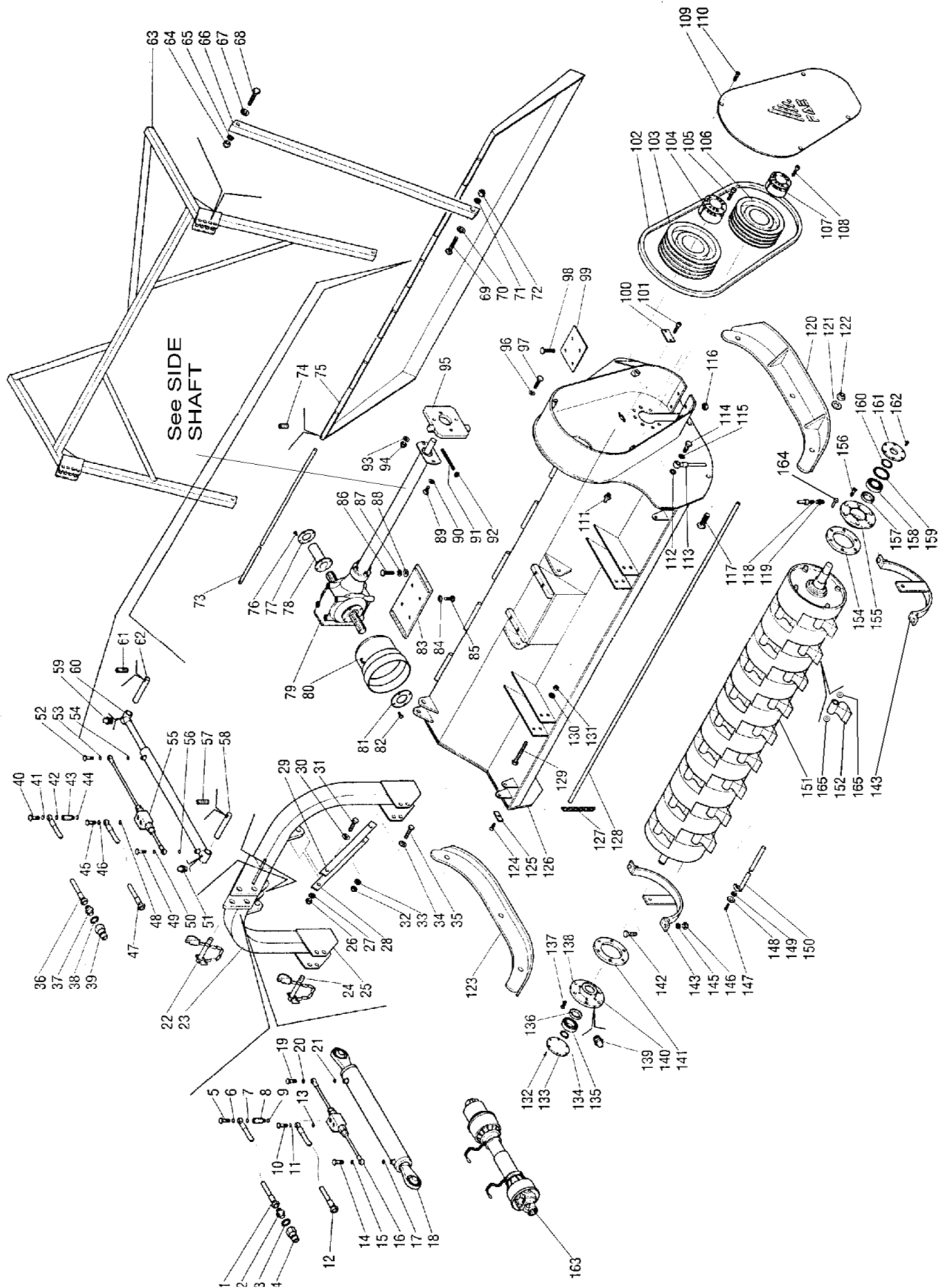
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Gearbox Assembly (540 RPM) ..... 6-10

Driveline Assembly ..... 6-12

Side Shaft (540 RPM) ..... 6-14

# GENERAL ASSEMBLY



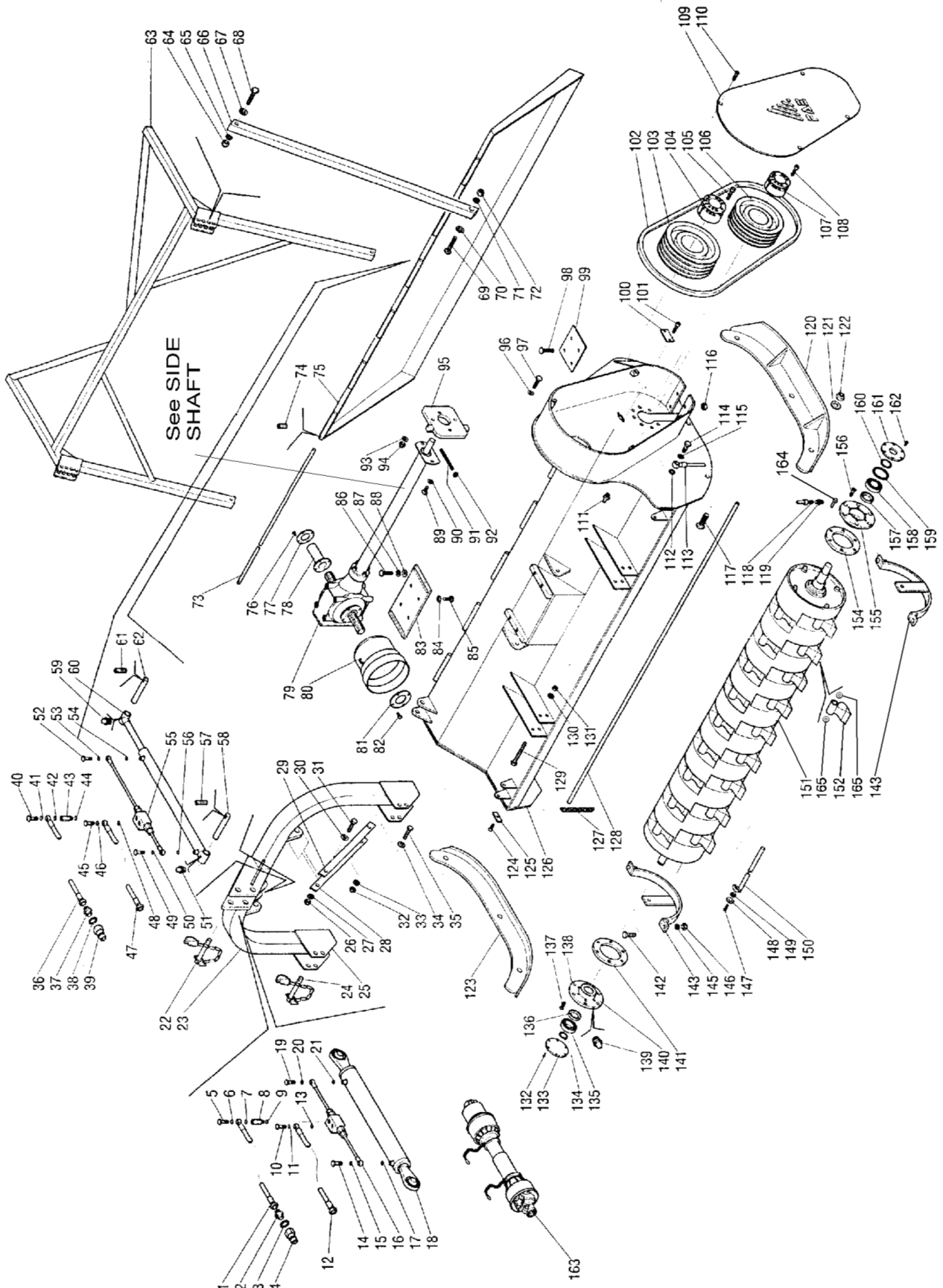
# GENERAL ASSEMBLY

## Options

*	02966995	Hydraulic Toplink
**	02967802	Guard Frame 175
**	02967803	Guard Frame 200

ITEM	PART NO.	QTY	DESCRIPTION
1	02972002	1	Hose <b>OPTION*</b>
2	02970047	2	Adaptor <b>OPTION*</b>
3	02970048	2	Washer <b>OPTION*</b>
4	02970049	2	Coupler, Quick <b>OPTION*</b>
5	02970050	1	Bolt, Banjo <b>OPTION*</b>
6	02970051	1	Washer <b>OPTION*</b>
7	02970051	1	Washer <b>OPTION*</b>
8	02970052	1	Adaptor <b>OPTION*</b>
9	02970051	1	Washer <b>OPTION*</b>
10	02970050	1	Bolt, Banjo <b>OPTION*</b>
11	02970051	1	Washer <b>OPTION*</b>
12	02972002	1	Hose <b>OPTION*</b>
13	02970051	1	Washer <b>OPTION*</b>
14	02970050	1	Bolt, Banjo <b>OPTION*</b>
15	02970051	1	Washer <b>OPTION*</b>
16	02970053	1	Manifold <b>OPTION*</b>
17	02970051	1	Washer <b>OPTION*</b>
18	02970054	1	Cylinder toplink <b>OPTION*</b>
19	02970050	1	Bolt, Banjo <b>OPTION*</b>
20	02970051	1	Washer <b>OPTION*</b>
21	02970051	1	Washer <b>OPTION*</b>
22	02967470	1	Pin, Toplink
23	02970055	1	A-Frame
24	02967467	2	Pin, Link
25	02970055	REF	A-Frame
26	00756830	1	Nut
27	00768990	1	Washer
28	02972840	1	Strap, A-Frame
29	02972840	1	Strap, A-Frame
30	02970056	1	Lockwasher
31	002392	1	Hex Bolt
32	00756830	1	Nut
33	00768990	1	Washer
34	02970056	1	Lockwasher
35	002392	1	Hex Bolt
36	02970057	1	Hose
37	02970059	2	Adaptor
38	02970048	2	Washer
39	02970049	2	Coupler, Quick
40	02970060	1	Bolt, Banjo
41	02970061	1	Washer
42	02970061	1	Washer
43	02970062	1	Adaptor
44	02970051	1	Washer
45	02970060	1	Bolt, Banjo
46	02970061	1	Washer
47	02970057	1	Hose
48	02970061	1	Washer
49	02970050	1	Bolt, Banjo
50	02970051	1	Washer
51	02970065	1	Grease Fitting
52	02970050	1	Bolt, Banjo
53	02970051	1	Washer
54	02970051	1	Washer
55	02970064	1	Manifold
56	02970051	1	Washer
57	02970101	1	Rod, Threaded
58	02972841	1	Pin, Cylinder Link
59	02970065	1	Grease Fitting
60	02971614	1	Hydraulic Cylinder
61	02970101	1	Set Screw

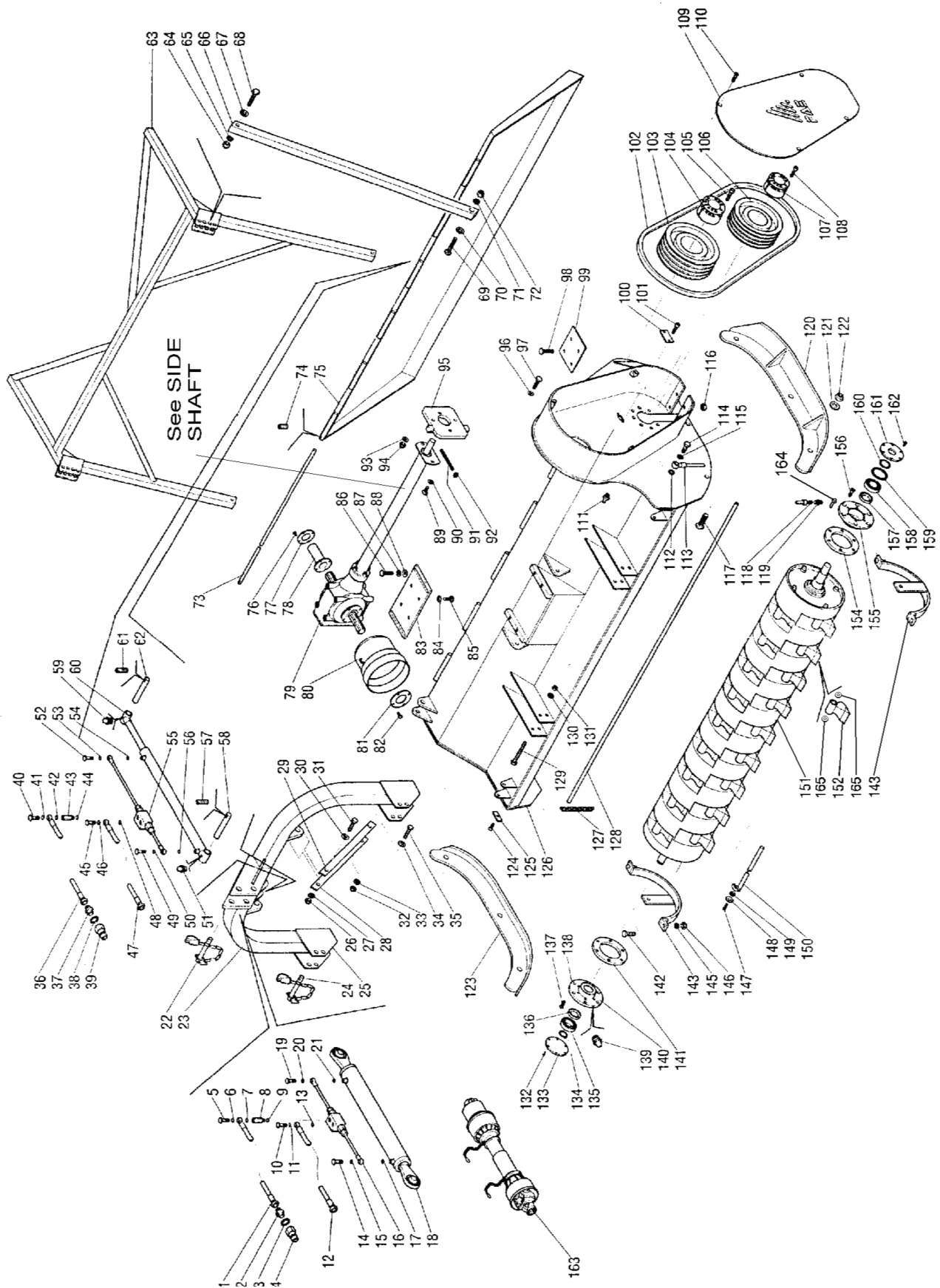
# GENERAL ASSEMBLY



# GENERAL ASSEMBLY

62	02973215	1	Pin, Cylinder Link - Rear
63	02970244	1	Brush Guard (FML 175) <b>OPTION**</b>
	02970245	1	Brush Guard (FML 200) <b>OPTION**</b>
64	00756831	3	Nut <b>OPTION**</b>
65	00766101	3	Washer <b>OPTION**</b>
66	02967477	3	Bracket Pusher Support <b>OPTION**</b>
67	02960066	3	Lockwasher <b>OPTION**</b>
68	02967535	3	Bolt <b>OPTION**</b>
69	02967535	3	Bolt <b>OPTION**</b>
70	02970066	3	Lockwasher <b>OPTION**</b>
71	00766101	3	Washer <b>OPTION**</b>
72	00756831	3	Nut <b>OPTION**</b>
73	02967525	1	Shield Bar Rear (FML 175)
	02970246	1	Shield Bar Rear (FML 200)
74	02970101	1	Rod, Threaded
75	02972843	1	Shield, Rear (FML 175)
	02970251	1	Shield, Rear (FML 200)
76	9313035	4	Bolt
77	02970067	1	Reinforcement Rib
78	02967480	1	Guard, Rear PTO
79	02970247	1	Gearbox 540 RPM
80	02967481	1	Cowling, Gearbox
81	02970068	1	Reinforcement Rib
82	9313035	4	Bolt
83	02972844	1	Gearbox Support
84	02970102	4	Washer
85	02970103	4	Bolt
86	00756026	4	Bolt
87	02970069	4	Washer
88	02970070	4	Lockwasher
89	02970071	2	Bolt
90	00768990	2	Washer
91	02970072	1	Screw
92	02970073	1	Nut
93	00768990	4	Washer
94	00756830	4	Nut
95	02970074	1	Plate, End
96	02970079	4	Lockwasher
97	02970078	4	Bolt
98	00762394	4	Bolt
99	02967513	1	Bottom Plate
100	02967530	1	Locking Tab
101	02967541	2	Bolt
102	02969079	4	V Belt
103	02970286	1	Pully 540 (200, 175, 150) to S/N 95030
	02970932	1	Pully 540 (200, 175, 150) S/N 95030 and After
	02970286	1	Pully 1000 (200, 175, 150) S/N 95031 and After
104	02967517	1	Pully Lock
105	00753230	6	Bolt
106	02970287	1	Pully 540 (150, 175, 200) to S/N 95030
	02970931	1	Pully 540 (150, 175, 200) S/N 95030 and After
	02970287	1	Pully 1000 (150, 175, 200) S/N 95031 and After
107	02967518	1	Pully Lock
108	00753230	6	Bolt
109	02967522	1	Belt Guard
110	02970104	4	Bolt
111	02967571	1	Grease Nipple
112	02970051	1	Washer
113	02972845	1	Grease Tube
114	02970110	1	Bolt
115	02970051	1	Washer
116	02970077	4	Nut
117	02972846	6	Bolt
118	02967532	1	Cap Screw
119	02970143	1	Adaptor
120	02972847	1	Skid, Right Hand
121	00768990	6	Washer
122	00756830	6	Nut
123	02972848	1	Skid, Left Hand
124	00752928	1	Hex Bolt
125	02967530	1	Locking Tab

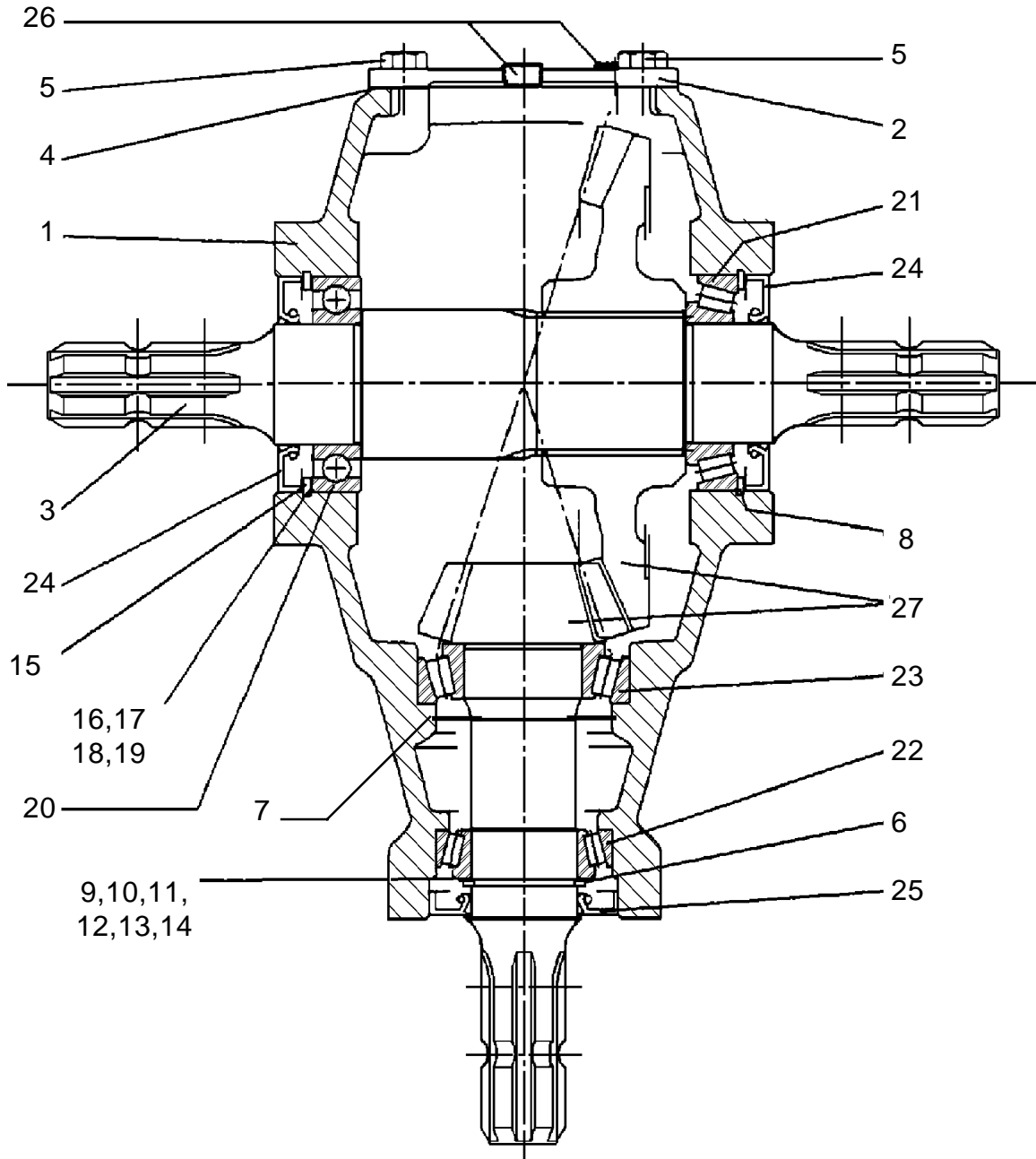
# GENERAL ASSEMBLY



# GENERAL ASSEMBLY

126	02972849	1	Hood Cowling (FML 175)
	02970248	1	Hood Cowling (FML 200)
127	02967528	120	Chain Bar Links (FML 175)
	02967528	148	Chain Bar Links (FML 200)
128	02967526	1	Chain Bar (FML 175)
	02967529	1	Chain Bar (FML 200)
129	02970105	4	Bolt
130	00766101	4	Washer
131	00756831	4	Nut
132	02967532	6	Cap Screw
133	02972850	1	Guard, Rotor End
134	02964726	1	Seal
135	02967457	1	Bearing
136	02970108	1	Seal
137	02970877	6	Bolt
138	02970143	1	Adaptor
139	02967571	1	Grease Nipple
140	02972852	1	Bearing Support
141	02972853	1	Ring Support
142	00756026	4	Bolt
143	02970184	2	Rotor Guard (FML bottom 1/2 with Tab)
145	02970069	4	Washer
146	00755906	4	Nut
147	02970071	4	Bolt
148	00768990	4	Washer
150	02970776	4	Rod, Cutter Bar (FML 175)
	02970777	4	Rod, Cutter Bar (FML 200)
151	02968901	1	Rotor Shaft (FML 175)
	02970249	1	Rotor Shaft (FML 200)
152	02966998	28	Knife (FML 175)
	02966998	32	Knife (FML 200)
154	02972853	1	Ring Support
155	02972852	1	Bearing Support
156	02970109	6	Bolt
157	02970108	1	Seal
158	02972851	1	Bearing
159	02972854	1	Spacer
160	02964726	1	Seal
161	02972855	1	Cover, Bearing
162	02967532	6	Cap Screw
163	02970250	1	Driveline
164	02971322	4	Socket Flathead Screw
165	02977945	56	Hardened Washer (FML 175)
	02977945	64	Hardened Washer (FML 200)

# GEARBOX ASSEMBLY (540 RPM)

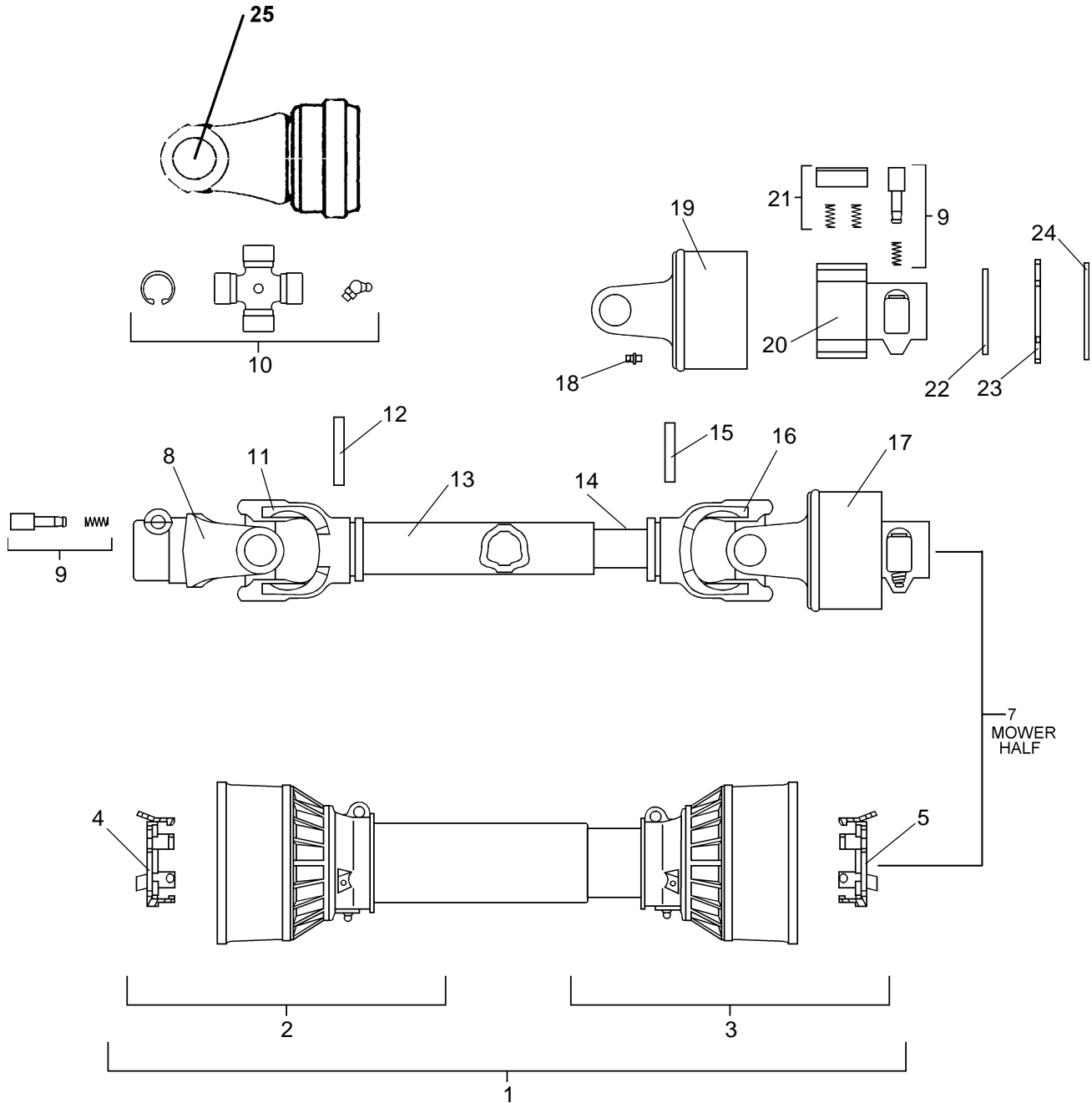




# GEARBOX ASSEMBLY (540 RPM)

ITEM	PART NO.	QTY	DESCRIPTION
1	02970483	1	Housing, Gearbox
2	02970484	1	Cover
3	02970487	1	Shaft
4		Ref	Silicone Sealent
5	02958784	8	Screw
6	02970473	1	Snap Ring
7	02970474	2	Snap Ring
8	02970475	2	Snap Ring
9	02970476	Ref	Ring
10	02970477	Ref	Ring
11	02970478	Ref	Ring
12	02970479	Ref	Ring
13	02970480	Ref	Ring
14	02967581	Ref	Ring
15	02967584	Ref	Ring
16	02967585	Ref	Ring
17	02967586	Ref	Ring
18	02967587	Ref	Ring
19	02967588	Ref	Ring
20	02967578	1	Ball Bearing
21	02967579	1	Tapered Bearing
22	02970485	1	Tapered Bearing
23	02970486	1	Bearing
24	00753238	2	Oil Seal
25	00753225	1	Oil Seal
26	02967499	3	Oil Plug
27	02970488	1	Bevel Gear (540 RPM)

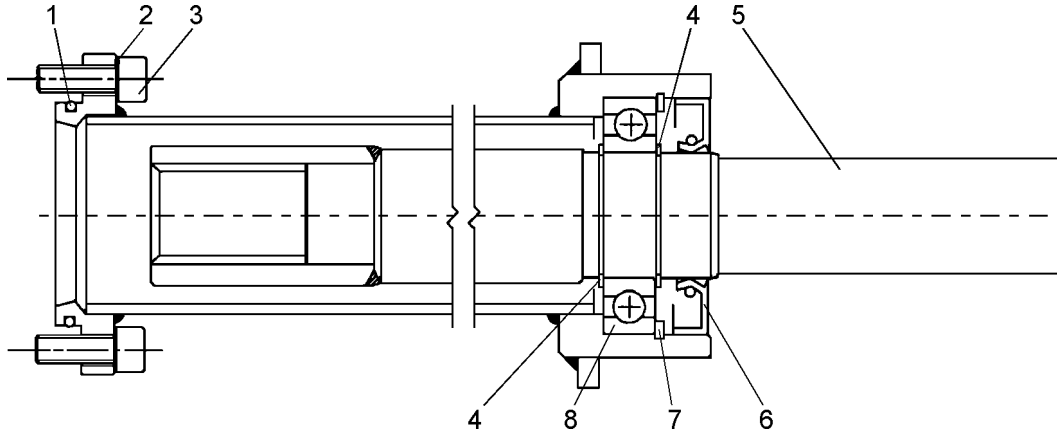
# DRIVELINE ASSEMBLY p/n 02970250 (540 RPM)



# DRIVELINE ASSEMBLY p/n 02970250 (540 RPM)

ITEM	PART NO.	QTY	DESCRIPTION
	02970252	1	DrivelineTractor Half Complete
	02970253	1	Driveline Mower Half Complete
1	02970254	1	Complete Shield
2	02970255	1	Outer Shield
3	02970256	1	Inner Shield
4	02968013	1	Bearing Shield Outer
5	02968014	1	Bearing Shield Inner
8	00752883	1	Outer Yoke
9	00754474	1	Push Pin Set
10	00752896	2	Cross Assembly
11	00754154	1	Outer Tube Yoke
12	00754167	1	Roll Pin Outer Tube
13	02970261	1	Outer Tube
14	02970262	1	Inner Tube
15	00754167	1	Roll Pin Inner Tube
16	00754153	1	Inner Tube Yoke
17	02970263	1	Over Running Clutch
18	02968025	1	Grease Fitting
19	02971302	1	Clutch, Yoke
20	02971303	1	Clutch, Body
21	02971304	3	Ratchet & Spring
22	02968029	1	Elastic Ring
23	02968030	1	Closing Ring
24	02968031	1	Circlip
25	00757144	1	Collar Kit

# SIDE SHAFT (540 RPM)



ITEM	PART NO.	QTY	DESCRIPTION
	<b>02971086</b>	<b>1</b>	<b>FML 175 540 Side Shaft Assembly</b>
	<b>02971087</b>	<b>1</b>	<b>FML 200 540 Side Shaft Assembly</b>
1	02967604	1	O-Ring Seal
2	00755954	4	Lock Washer
3	02964311	4	Screw
4	02967605	2	Snap Ring
5	02970467	1	Shaft 175
	02970468	1	Shaft 200
6	00753238	1	Seal
7	02967607	1	Snap Ring
8	02967578	1	Ball Bearing



# ALAMO INDUSTRIAL

## LIMITED WARRANTY

### 1. LIMITED WARRANTIES

- 1.01. Alamo Industrial warrants for one year from the purchase date to the original non-commercial, governmental, or municipal purchaser ("Purchaser") and warrants for six months to the original commercial or industrial purchaser ("Purchaser") that the goods purchased are free from defects in material or workmanship.
- 1.02. Manufacturer will replace for the Purchaser any part or parts found, upon examination at one of its factories, to be defective under normal use and service due to defects in material or workmanship.
- 1.03. This limited warranty does not apply to any part of the goods which has been subjected to improper or abnormal use, negligence, alteration, modification, or accident, damaged due to lack of maintenance or use of wrong fuel, oil, or lubricants, or which has served its normal life. This limited warranty does not apply to any part of any internal combustion engine, or expendable items such as blades, shields, guards, or pneumatic tires except as specifically found in your Operator's Manual.
- 1.04. Except as provided herein, no employee, agent, Dealer, or other person is authorized to give any warranties of any nature on behalf of Manufacturer.

### 2. REMEDIES AND PROCEDURES.

- 2.01. This limited warranty is not effective unless the Purchaser returns the Registration and Warranty Form to Manufacturer within 30 days of purchase.
- 2.02. Purchaser claims must be made in writing to the Authorized Dealer ("Dealer") from whom Purchaser purchased the goods or an approved Authorized Dealer ("Dealer") within 30 days after Purchaser learns of the facts on which the claim is based.
- 2.03. Purchaser is responsible for returning the goods in question to the Dealer.
- 2.04. If after examining the goods and/or parts in question, Manufacturer finds them to be defective under normal use and service due to defects in material or workmanship, Manufacturer will:
  - (a) Repair or replace the defective goods or part(s) or
  - (b) Reimburse Purchaser for the cost of the part(s) and reasonable labor charges (as determined by Manufacturer) if Purchaser paid for the repair and/or replacement prior to the final determination of applicability of the warranty by Manufacturer.

The choice of remedy shall belong to Manufacturer.

- 2.05. Purchaser is responsible for any labor charges exceeding a reasonable amount as determined by Manufacturer and for returning the goods to the Dealer, whether or not the claim is approved. Purchaser is responsible for the transportation cost for the goods or part(s) from the Dealer to the designated factory.

### 3. LIMITATION OF LIABILITY.

- 3.01. MANUFACTURER DISCLAIMS ANY EXPRESS (EXCEPT AS SET FORTH HEREIN) AND IMPLIED WARRANTIES WITH RESPECT TO THE GOODS INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- 3.02. MANUFACTURER MAKES NO WARRANTY AS TO THE DESIGN, CAPABILITY, CAPACITY, OR SUITABILITY FOR USE OF THE GOODS.
- 3.03. EXCEPT AS PROVIDED HEREIN, MANUFACTURER SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO PURCHASER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS, OR DAMAGE CAUSED OR ALLEGED TO BE CAUSED DIRECTLY OR INDIRECTLY BY THE GOODS INCLUDING, BUT NOT LIMITED TO, ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES RESULTING FROM THE USE OR OPERATION OF THE GOODS OR ANY BREACH OF THIS WARRANTY. NOT WITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, MANUFACTURER'S LIABILITY HEREUNDER FOR DAMAGES INCURRED BY PURCHASER OR OTHERS SHALL NOT EXCEED THE PRICE OF THE GOODS.
- 3.04. NO ACTION ARISING OUT OF ANY CLAIMED BREACH OF THIS WARRANTY OR TRANSACTIONS UNDER THIS WARRANTY MAY BE BROUGHT MORE THAN TWO (2) YEARS AFTER THE CAUSE OF ACTION HAS OCCURRED.

### 4. MISCELLANEOUS.

- 4.01. Proper Venue for any lawsuits arising from or related to this limited warranty shall be only in Guadalupe County, Texas.
- 4.02. Manufacturer may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.
- 4.03. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.
- 4.04. Applicable law may provide rights and benefits to purchaser in addition to those provided herein.

### KEEP FOR YOUR RECORDS

ATTENTION: Purchaser should fill in the blanks below for his reference when buying repair parts and/or for proper machine identification when applying for warranty.

Alamo Industrial Implement Model \_\_\_\_\_ Serial Number \_\_\_\_\_

Date Purchased \_\_\_\_\_ Dealer \_\_\_\_\_

ATTENTION:  
READ YOUR OPERATOR'S MANUAL

**ALAMO INDUSTRIAL**

An Alamo Group Company  
Post Office Drawer 549  
Seguin, Texas 78156  
830-379-1480





## TO THE OWNER/OPERATOR/DEALER

To keep your implement running efficiently and safely, read your manual thoroughly and follow these directions and the Safety Messages in this Manual. The Table of Contents clearly identifies each section where you can easily find the information you need.

The OCCUPATIONAL SAFETY AND HEALTH ACT (1928.51 Subpart C) makes these minimum safety requirements of tractor operators:

### REQUIRED OF THE OWNER:

1. Provide a Roll-Over-Protective Structure that meets the requirements of this Standard; and
2. Provide Seatbelts that meet the requirements of this paragraph of this Standard and SAE J4C; and
3. Ensure that each employee uses such Seatbelt while the tractor is moving; and
4. Ensure that each employee tightens the Seatbelt sufficiently to confine the employee to the protected area provided by the ROPS.

### REQUIRED OF THE OPERATOR

1. Securely fasten seatbelt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going - especially at row ends, on roads, and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly - no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by the tractor manufacturer.
9. When the tractor is stopped, set brakes securely and use park lock, if available.

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

