



# BROUWER SOD HARVESTER

1570 & 1576 Models  
John Deere

## OPERATOR'S MANUAL



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**SECTION 1**

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**INTRODUCTION**

Descriptions	1-01
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# INTRODUCTION

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## DESCRIPTION

The 1570 & 1576 Brouwer Sod Harvesters feature independent floating cutting heads that improve sod quality by reducing scalping and maintaining consistency. They also reduce waste and increase yield being able to cut close to irrigation pipes, ditches and fences. Mounted on a John Deere 5065E Tractor the 1570 & 1576 Sod Harvesters deliver exceptional maneuverability along with small tractor economy and lasting value.

Operating off uncut turf, the 1570 & 1576 Sod Harvesters can harvest all types of grasses on varying types of soil, in wet or dry, soft or hard conditions. They can produce rolls or slabs in dimensions to suit your local market. You can adjust sod thickness 'on the go' with the hydraulic depth control, standard on every new harvester.

The tractor mounted auto-steer assures accuracy and efficiency to increase your harvest. Even the re-growth and maturity of successive sod crops is enhanced since re-growth strips can also be cut accurately and consistently.



**SPECIFICATIONS**

<p><b>WIDTH OF CUT</b>  <b>LENGTH OF CUT</b>  <b>DEPTH OF CUT</b>  <b>PERFORMANCE</b>  <b>CONTROLS</b>  <b>CUTTER / CONVEYOR DRIVES</b>  <b>CUTTING BLADES</b>  <b>CONVEYOR &amp; ROLL-UP</b>  <b>PALLET SIZE</b>  <b>OPERATING DIMENSIONS</b>  <b>TRANSPORT DIMENSIONS</b>  <b>CONSTRUCTION</b>  <b>WEIGHT (Harvester Conveyor only)</b>  <b>WEIGHT (All Harvester Components)</b></p>	<p>16in. (406 mm.) 18 in. (457 mm.) 24 in. (610 mm.)                  24 in. (610 mm.) to 100 in. (2540 mm.)                  Up to 2 1/8 in.(54 mm). Power adjustable.                  1500 Rolls (1260 m/sq.) per hour.                  Individual control levers for each function.                  Hydraulic Motor.                  One Piece or Three Piece.                  Rubber Belt. Standard Profile. Opt: Low Profile. or Metal Mintex.                  48in. (1219mm.) X 48 in. (1219mm.) Standard.                  L.204 in. (5182 mm.) W.120 in. (3048 mm.) H.104 in. (2641 mm.)                  L. 210 in. (5334 mm.) W. 94 in. (2388 mm.) H. 92 in. (2337 mm.)                  High Strength Steel Weldment.                  3610 lbs. (1637 kg.) Plus options/accessories.                  7406 lbs. (3359 kg.) Plus options/accessories.</p>
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<p><b>TRACTOR</b>  <b>TRACTOR.John Deere</b>  <b>HORSE POWER</b>  <b>TRANSMISSION</b>  <b>STEERING</b>  <b>TIRES ( Industrial )</b>  <b>TRACTOR WEIGHT</b></p>	<p>John Deere                  Model 5065E                  65. (55 @ pto.)                  Collar Shift.                  Hydrostatic Power.                  F: 11-L15. R: 19.5x24                  2WD: 4634 lbs.(2102 kg.)                  4WD: 5070 lbs.(2300 kg.)</p>	<p><b>OPTIONS</b>                  Slabbing Attachment.                  Roll Attachment.                  Roll Cross Conveyor.                  Tires:                  Rear - High Flotation.19.5-24.                  or Turf Tires.16.9-24 (2wd only).</p>	<p><b>ACCESSORIES</b>                  Auto-Steer                  Brush Attachment.                  Roll Count. Std.on Slab.                  Canopy &amp; Work Lights.                  Adj. Piling Wall.                  Piling Wall extension:                  20in. (508mm)                  10in. (254mm).</p>
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**HYDRAULIC OIL SPECIFICATION**

The Hydraulic System is filled at the factory with Petro Can Hydrex AW46. (Standard Grade).  
 When topping-up or changing the oil, oil conforming to International Standard ISO.G344. HV. Grade **must be used** .  
 These oils have improved viscosity and temperature characteristics. It is imperative that the oil used meets the above specifications.  
 Clean around all areas to be worked on. Plug and cap all fittings when removed to prevent dirt or water contaminating the system that may cause serious damage to the hydraulic pump and other components.

<b>TEMPERATURE</b>	-10 deg. to 35 deg. C	0 deg. to 45 deg. C
	+14 deg. to 95 deg. F	32 deg. to 113 deg. F

<b>Castrol : Hyspin</b>	<b>AWH 46</b>	<b>AWH 68</b>
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<b>B. P. Bartran</b>	<b>HV 46</b>	<b>HV 68</b>
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<b>Esso : Univis</b>	<b>N 46</b>	<b>N 68</b>
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<b>Mobil</b>	<b>15 M</b>	<b>16 M</b>
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<b>Shell : Tellus Oil</b>	<b>T 46</b>	<b>T 68</b>
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<b>Texaco</b>	<b>HDZ 46</b>	<b>HDZ 60</b>
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**IMPORTANT**

**Model Number.**

The Model Number is on sales literature, technical manuals and price lists.

**Machine Serial Number.**

The serial number applies only to the machine to which it is allocated.

The serial number **must be quoted** when ordering parts or calling for service or warranty.







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**SECTION 2**

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**SAFETY**

General Safety  
Safety Decals

2-01/2-10  
2-11/2-12

# SAFETY

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## SAFETY ALERT SYMBOL

Hazards are identified by this symbol followed by the signal words:  
**DANGER, WARNING OR CAUTION.**



### **DANGER**

Indicates an immediate hazardous situation which if not corrected or avoided, **WILL result in death or serious injury.**



### **WARNING**

Indicates a potential hazardous situation which **COULD result in death or serious injury if not avoided.**



### **CAUTION**

Indicates a potentially hazardous situation which **MAY result in a minor or moderate injury.**

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Always follow safe operating and maintenance practices to ensure your own safety and that of others. Warning and safety signs/decals are prominently displayed and strategically placed on the machine. Before operating the machine check that all safety signs and decals are in place, are not damaged and easily readable.

It is important to familiarize yourself with the safety signs/decals. They are shown in Section 1, pages 3 to 8.

Do not operate the machine if drugs, alcohol or medication are being used which can affect the alertness or co-ordination of the operator.

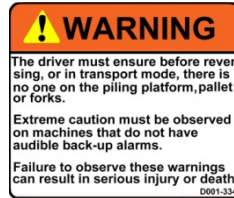
Seek professional advice before operating the machine if there is any doubt about the side effects of medication being taken that may put your safety at risk.

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**It is imperative that the warnings shown on all decals are strictly adhered to.  
The driver and stacker(s) must pay particular attention to the decals illustrated here.**



**Located on the Rear Beam.**  
See page 2-12.



**Located on the Controls Cover-**  
See page 2-12.

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### **WARNING**

**For clarity some safety guards are not shown. Do not operate machine if any safety devices are damaged or missing.**

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**The following safe operating procedures must be observed.**

- It is important that the operator is in full control of the harvester at all times.
- Before reverse travel is engaged the Stacker(s) must remove themselves from the stacking platform to a safe location clear of the machine, in view of the operator, eg: on the uncut turf (conveyor side), clear of the path of the harvester.
- While reversing, the operator must monitor the path of travel to ensure the Stacker(s) are in sight at all times, while steering clear of any obstructions in the field.
- While harvesting reverse must be used only when absolutely necessary.
- The stacker(s) must not be on the rear of the harvester while transporting in reverse.

Never allow children or untrained people to operate this equipment. Local regulations can restrict the age of the operator.

Only allow the operator(s) on the machine, keep riders off. Never carry passengers. Riders on the machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders may obstruct the operator's view resulting in the machine being operated in an unsafe manner.



Keep warning labels and this operator's manual legible and intact. Replacement labels and manuals are available from the factory.

Do not operate the machine while under the influence of drugs or alcohol.

Keep pets and bystanders at a safe distance.

The owner / user can prevent and is responsible for accidents or injuries occurring to themselves, other people or property.

## Machine preparation

Check operator presence interlock system and brake operation. Adjust or repair any problems before using.

Do not tamper with or defeat safety devices. Keep guards, shields and interlock safety devices in place and in proper working condition. They are for your protection.

Keep all fasteners such as nuts, bolts and pins well secured.

Verify that the machine is in good operating condition.

Only use accessories and attachments approved by the manufacturer.

## OPERATING SAFELY

Keep hands and feet away from cutting unit.

Exercise extra care when loading and unloading the machine onto a trailer or truck.

Shut off fuel while storing or transporting.

Watch out for traffic when near or crossing roadways.



## WARNING

Exhaust fumes contain carbon monoxide that is toxic and can be fatal when inhaled. Never run an engine in an enclosed area, engine exhaust fumes can cause sickness or death.

**NEVER** operate an engine without proper ventilation. Work in ventilated area.

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Exercise care when pulling loads or using heavy equipment.

Use only approved drawbar hitch points.

Limit loads to those you can safely control.

Do not turn sharply. Use care when reversing. Look behind and down below backing up.

Use counterweight(s) or wheel weights only as recommended in the operator's manual.

Put transmission in **PARK** before dismounting. Leaving transmission in gear with engine stopped will **NOT** prevent the harvester from moving.

Be sure everyone is clear of the harvester before starting engine.

Operating equipment requires the full attention of the operator. Do not wear radio or music headphones while operating the machine.



## CAUTION

Prolonged exposure to loud noise can cause impairment or loss of hearing.

The operator should wear suitable hearing protective devices to protect their hearing.

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# SAFETY

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## CAUTION

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**NEVER** try to get on or off a moving harvester.

Before leaving operator position, place in PARK, lower implements to the ground, stop the engine and remove the key.

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Do not change the engine governor setting or over speed the engine.

Inspect the area where the equipment is to be used and remove all objects which might or damage the machine.

Only operate with good light, keeping away from holes and hidden hazards.

### Starting

Start only according to instructions in this manual or on the machine.

DO NOT use starting fluid.



## WARNING

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Avoid possible injury or death from runaway machine.

DO NOT start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

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**NEVER** start engine while standing on the ground. Start engine only from operators seat, with transmission in neutral or in park.

Before attempting to start the engine, make sure the transmission is in park.

### Interrupting operation

Reduce throttle to slow, and allow engine to operate at no load for several minutes before shutting down engine.

To park harvester safely, stop on level ground, move machine controls to the "OFF" position, lower equipment to the ground, put gear shift lever in PARK, SET brakes, STOP the engine and remove key.

Before leaving the operator's seat, wait for engine and attachment parts to stop moving.

Stop engine, move machine controls to the "OFF" position and remove the key, before checking, cleaning or working on the machine. If the machine begins to vibrate abnormally, inspect and make repairs as needed before restarting, except for repairs or adjustments as specifically noted, where the engine must be running. Keep clear of moving parts in these circumstances.

### Highway Operation

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment and self-propelled machines on public roads. Frequently check for traffic from the rear, especially turns and use turn signal lights.

Slow down and use caution when making turns and crossing roads and railroad tracks.

Use headlights, flashing warning lights and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean and in good working order. Replace or repair lighting and marking that has been damaged or lost.

Couple brake pedals together for road travel.

## Prevent Tipping

Avoid holes, ditches and obstructions which cause the harvester to tip, especially on hill sides.



**NEVER** drive near the edge of a gully or steep embankment that may collapse and cave-in, causing the machine to tip.

Shift to a low gear before descending a steep hill to improve your control of the harvester with little or no braking. Use engine braking to reduce speed before applying harvester brakes. Runaway tractors often tip over. Never coast downhill.

Slow down and use caution when making turns and when changing directions on slopes.

## Freeing a mired machine

Attempting to free a mired machine can involve safety hazards such as the mired machine tipping rearward, the towing tractor overturning and the tow chain or tow bar (a cable is not recommended) failing and recoiling from its stretched condition.

Back your machine out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind rear wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of all wheels and drive slowly ahead.

If it is necessary to tow with another unit, use a tow bar or chain (a cable is not recommended). Inspect the chain for flaws/damage.

Make sure all parts of towing devices are of adequate size and strong enough to handle the load.

Always hitch to the drawbar of the towing unit. Do not hitch to the front push bar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.

## Stay clear of rotating drivelines



Entanglement in rotating driveline can cause serious injury or death.



## Maintenance Safety in general

Maintain machine according to manufacturer's schedule and instructions for maximum safety and best harvesting results.

Park machine on firm level ground.

Never allow untrained personnel to service machine.

Adjust or repair only after the engine has been stopped and machinery has stopped moving

Replace parts if worn, damaged or faulty. For best results, always replace with parts recommended by the manufacturer.

Disconnect the battery (or remove the spark plug wire(s) ,if applicable) ,before making any repairs. Disconnect the negative terminal first. Reconnect positive first.

Carefully release pressure from components with stored energy.

# SAFETY

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## Support Machine Properly

Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the machine or attachment be lifted, use jackstands. If left in a raised position, hydraulically supported devices can settle or leak down.



### WARNING

Do not support the machine on cinder blocks, hollow tiles or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a machine, always follow safety precautions listed in the implement or attachment operator's manual

Do not put any body parts near rotating parts.

Clean up oil or fuel spillage thoroughly.

Replace faulty mufflers.

To reduce fire hazards, keep the engine, muffler, battery compartment and fuel storage area free of grass, leaves, debris buildup or grease.

## Fuel

**Handle fuel with care, it is highly flammable.** Use an approved container. IF the spout does not fit inside the fuel filler neck, use a funnel.



### WARNING

Use extra care when handling gasoline and other fuels, they are flammable and vapors are explosive.

**NEVER** remove the fuel cap from the fuel tank, or add fuel, when the engine is running or while the engine is hot.

Do not smoke when handling fuel. Never fill or drain the fuel tank indoors.

Use care to avoid spilling fuel. If fuel is spilled, clean it up immediately.

**NEVER** handle or store fuel containers near an open flame or any device that may create sparks and ignite the fuel or fuel vapors.

Be sure to reinstall and tighten fuel cap securely.

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Be prepared if a fire starts. Keep a first aid kit and fire extinguisher handy.

Use only approved container.

### When refueling or checking fuel level:

Stop the engine and allow to cool;

Do not smoke;

Never refuel or drain the machine indoors;

Do not overfill;

Clean up spills immediately. Do not attempt to start the engine until the spill is cleaned up and the vapors have cleared.



### WARNING

Do not fill containers in a vehicle or on a truck or trailer bed with a plastic liner. Fill containers on the ground away from the vehicle.

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Keep dispenser nozzle in contact with the rim of the fuel tank or container opening until fueling is complete. Do not use a nozzle lock-open device.

Replace caps on fuel cans and tanks securely.

## Hydraulic System

### WARNING

The machine's hydraulic system operates under high pressure.

To prevent serious injury from hot, high pressure oil, never use your hands to check for oil leaks, use paper or cardboard.

Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin. If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.



Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Always lower implements to ground, disengage all drives, engage parking brake, stop engine and remove key before inspecting or disconnecting hydraulic lines or hoses.

Check visible hoses and tubes daily. Look for wet hoses or oil spots. Replace worn or damaged hoses and tubes before operating the machine.

Replacement tubes or hoses must be routed in the same path as the existing hose, do not move clamps, brackets and ties to a new location.

Thoroughly inspect all tubes, hoses and connections every 300 hours.

**IMPORTANT: The hydraulic system can be permanently damaged if the oil becomes contaminated.** Before disconnecting any hydraulic component, clean the area around the fittings and the hose ends to keep impurities out of the system.

Before disconnecting any hydraulic component, tag or mark the location of each hose then clean the area around the fittings.

As you disconnect the component, be prepared to assembly plugs or caps to the hose ends and open ports. This will keep impurities out of the hydraulic system and also prevent oil spills.

Make sure 'O' Rings are clean and hose fittings are properly seated before tightening.

Keep the hose from twisting. Twisted hoses can cause couplers to loosen and the hose flexes during operation resulting in oil leaks.

Kinked or twisted hoses can restrict the oil flow causing the system to malfunction and the oil to overheat and also lead to hose failure.

# SAFETY

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## Service Cooling System

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### CAUTION

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Do not pour cold water into a hot radiator. Do not operate engine without a proper coolant mixture. Install cap and tighten securely.

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Add make-up coolant through the recovery tank, not directly to the radiator.

If radiator cap must be removed, do not remove it when engine is hot. Shut engine off and wait until cap is cool enough to touch with bare hands. To relieve pressure, slowly loosen cap to its first stop, before removing completely.

## Battery Service

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### WARNING

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Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat through clothing, and cause blindness if splashed into eyes.

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### CAUTION

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Always use insulated tools, wear protective glasses or goggles and protective clothing when working with batteries. Read and obey all battery manufacturer's instructions.

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### WARNING

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Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to cause cancer and reproductive harm. **Wash your hands after handling.**

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#### Avoid the hazard by:

1. Filling the batteries a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

#### If you spill acid on yourself

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid
3. Flush your eyes with water for 15-30 minutes. Get medical attention immediately.

#### If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2L (2 quarts)
3. Get medical attention immediately.

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### WARNING

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Batteries generate explosive hydrogen gas. To reduce the chance of an explosion, avoid creating sparks near a battery. Always connect the negative jumper cable to the frame of the tractor with the discharged battery away from the charged battery.

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Charge batteries in an open, well ventilated area away from sparks or flame.

Unplug charger before connecting or disconnecting battery.

#### Jump Starting.

Check all jumper cables are in good condition. Turn 'off' the ignition and all accessories on both machines.

Position the machine with the charged battery next to, but not touching, the machine with the dead battery.

#### Making Cable Connections.

Ensure the cable clamps do not touch anywhere other except to intended connections.

Never connect positive (red) terminal to the negative (black) terminal.

Keep cables clear of any engine parts when starting.

Connect the one end of the red cable to the positive terminal of one battery, the other end to the positive terminal of the second battery.

Connect one end of the black cable to the negative terminal of the machine with the charged battery. Make the final connection of the black cable on the engine block of the machine to be started.

Start the machine with the charged battery, the start the machine with the discharged battery.

Remove the cables in the reverse order to above. Take care when removing each cable clamp they do not touch any metal parts while the other end is connected still connected.



## Transporting and Storage Safety

A disabled harvester is best transported on a flatbed carrier. Use chains to secure the harvester to the carrier.

Never tow a harvester at a speed greater than 16 km/h (10 mph). An operator must steer and brake the harvester under tow.

Stop the engine and allow to cool before storing.

Drain the fuel tank outdoors only.

Shut off fuel while storing or transporting.

Store fuel in an approved container in a cool, dry place.

Keep the machine and fuel containers in a locked storage place to prevent tampering and to keep children from playing with them.

Do not store the machine or fuel container near heating appliances with an open flame such as a water heater or an appliance with a pilot light.

## Service Harvester Safely

Do not service the harvester while it is in motion or while the engine is running.

When servicing front-wheel-drive equipped harvester, with rear wheels supported off the ground, and rotating the wheels by engine power, always support the front wheels in a similar manner. Engaging front-wheel drive will pull the rear wheels off their support if front wheels are not raised.

Tighten wheel hardware to correct torque as specified in wheels, tires and treads section.

Torque at intervals shown in break-in period and lubrication and maintenance sections, to ensure that the wheel hardware does not loosen.

Reinstall shields removed during service.

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### NOTE

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Refer to pages 2-09 and 2-10 for:

- Tire service.
  - Handling chemical products.
  - Disposal of waste products.
  - Removal of paint before welding.
  - Avoidance of heating pressurized fluid lines.
-

# SAFETY

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## Service Tire Safety



### WARNING

Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion.

Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and not in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

## Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from harvester before servicing electrical system components or welding on machine.

## Handle Chemical Products Safely

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals include such items as fuels, lubricants, coolants, paints, and adhesives.

## A Material Safety Data Sheet (MSDS) provides specific details on chemical products:

Physical and health hazards;

Safety procedures;

Emergency response techniques

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and use of recommended equipment.

## Dispose of Waste Properly

Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone from drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants can damage the atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste at your local environmental or recycling center or your dealer.

### **Remove Paint Before Welding or Heating**



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**CAUTION**

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Avoid potentially toxic fumes and dust. Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

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Remove paint before heating:

Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.

If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.

If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Do not use a chlorinated solvent in areas where welding will take place. Do all work in an area that is well ventilated to carry toxic fumes and dust away. Dispose of paint and solvent properly.

### **Avoid Heating or Pressurized fluid Lines**



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**CAUTION**

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Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.

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**WARNING**

**BEFORE DISMOUNTING MACHINE**

1. Lower all attachments to ground.
2. Place all controls in neutral position.
3. Engage parking brake.
4. Shut off engine.

D001-028

**WARNING**



**Fasten your seat belt**

D001-019

**WARNING**



**HIGH PRESSURE FLUID HAZARD**  
To prevent serious injury or death from escaping hydraulic fluid. Visually check all hydraulic lines and hoses BEFORE applying pressure. Relieve pressure on system before repairing, adjusting or disconnecting. Use of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.

D001-012

**CAUTION**

**HOT EXHAUST**  
To avoid injury keep clear of exhaust pipes and muffler.

D001-053



**WARNING**

To Prevent Serious Injury or Death  
• Avoid unsafe operation or maintenance  
• Do not operate or work on this machine without reading and understanding the operator's manual.  
• If manual is lost, contact your nearest dealer for a new manual.

D001-033

**DANGER**



Si vous ne lisez pas l'anglais, demandez à quelqu'un qui lit l'anglais de traduire pour vous toutes les consignes de sécurité.

D001-F17

**PELIGRO**



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

D001-S15



**WARNING**

**NO RIDERS**  
Vehicle is to be ridden in operators seat only. Failure to do so could result in death or serious injury.

D001-024



D001-054

**WARNING**

**CRUSHING HAZARD**  
Stay clear of moving parts  
(Typical eleven places on conveyor and cutting head. One per starter tray, one per lift arm.)



**WARNING**



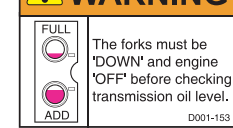
**HIGH PRESSURE FLUID HAZARD**

To prevent serious injury or death from escaping hydraulic fluid. Visually check all hydraulic lines and hoses BEFORE applying pressure. Relieve pressure on system before repairing, adjusting or disconnecting. Use of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.

D001-012



**WARNING**



The forks must be 'DOWN' and engine 'OFF' before checking transmission oil level.

D001-053  
(John Deere only.)

**WARNING**

To Prevent Serious Injury  
Switch tractor engine 'OFF' before opening the Rear Door. Do not operate harvester with the Rear Door open or removed.

D001-185



**CAUTION**  
DO NOT TOUCH THE AUTO-STEER SWITCH WHILE IN TRANSPORT  
D001-100



Canopy Lights  
On  
Off  
00-380  
00-380

**IMPORTANT**  
The Cylinder Lock is to be used ONLY DURING SERVICING. Do not use when transporting, as shock loads could damage the Harvester.  
D001-136

**CAUTION**  
To avoid injury DO NOT EXIT the driver's area from this side of the tractor.  
D001-113

CONVEYOR SPEED  
009103



**Head Speed**  
005219  
006219

**CAUTION**  
To avoid injury DO NOT EXIT the driver's area from this side of the tractor.  
D001-113



**WARNING**  
HOLD ACTUATOR LEVER WHEN DISCONNECTING. RELEASE THE ACTUATOR SPRING TENSION SLOWLY.  
D001-066

**WARNING**  
The driver must ensure before reversing, or in transport mode, there is no one on the piling platform, pallet or forks.  
Extreme caution must be observed on machines that do not have audible back-up alarms.  
Failure to observe these warnings can result in serious injury or death.  
D001-334



D001-333 On Rear Beam.

**WARNING**  
The driver must ensure before reversing, or in transport mode, there is no one on the piling platform, pallet or forks.  
Piling/stacking operators must dismount and keep well clear of the machine before it reverses.  
Extreme caution must be observed on machines that do not have audible back-up alarms.  
Failure to observe these warnings can result in serious injury or death.  
D001-333

**CAUTION**  
Do not step on conveyor at any time  
D001-113



**CAUTION**  
To avoid injury DO NOT EXIT the driver's area from this side of the tractor.  
D001-113

**WARNING**  
KEEP ALL SHIELDS IN PLACE. DO NOT OPERATE UNIT WITH SHIELD REMOVED.  
00-280

**WARNING**  
KEEP CLEAR OF CUTTING HEAD.  
009097



**CAUTION**  
HOT EXHAUST  
To avoid injury keep clear of exhaust pipes and muffler.  
D001-053

**WARNING**  
RELEASE CAM STOP BEFORE SERVICING.  
NOTE STRIKE CAM STOP FROM BELOW TO RELEASE. KEEP CLEAR.  
009432



**WARNING**  
NO RIDERS  
Vehicle is to be ridden in operators seat only. Failure to do so could result in death or serious injury.  
D001-024



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**SECTION 3**

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**GENERAL OPERATION**

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# GENERAL OPERATION

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## Sod Harvester Travel Speeds

The Sod Harvester is fitted to a John Deere 5065E or New Holland T4020 Tractor which is specially built to Brouwer specifications, which are optimized for sod harvesting. It is recommended that a gear range is selected which will allow travel at the ground speed (MPH) with as low an engine speed (RPM) as possible. The lowest recommended engine speed is 1200 RPM. This reduces noise and wear, which results in a better work environment, and a longer life to the harvester and the tractor.

## Hydraulics

External system:

Use only a high quality hydraulic oil.

Do not use motor oil.

The recommended oil to be used in this unit is:

Petro Can Hydrex AW46 (Standard Grade)

(this is the oil installed at the factory)

When topping up or changing the oil, oil

conforming to International Standard

ISO G344. HV. Grade **must be used**.

TEMPERATURE	-10 deg. to 35 deg. C	0 deg. to 45 deg. C
	+14 deg. to 95 deg. F	32 deg. to 113 deg. F

Castrol : Hyspin	AWH 46	AWH 68
------------------	--------	--------

B. P. Bartran	HV 46	HV 68
---------------	-------	-------

Esso : Univis	N 46	N 68
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Mobil	15 M	16 M
-------	------	------

Shell : Tellus Oil	T 46	T 68
--------------------	------	------

Texaco	HDZ 46	HDZ 60
--------	--------	--------

Please note that since all hydraulic oils break down with use, the oil in the system should only be operated for one season, or approximately 750 hours. For additional protection of the hydraulic motors on the harvester, a high efficiency filter has been installed. Replace the high efficiency oil filter cartridge after the first 25 hours of operation and every 250 hours thereafter, or at any time that the needle of the oil gauge remains in the red

**Replace only with a high efficiency cartridge.**

When disconnecting hoses, or removing hydraulic parts for any reason, or when filling the system with oil, extreme care must be exercised to assure that no dirt enters the system, as this will damage the hydraulic pumps, motors and valves.

---

### IMPORTANT

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To provide opportunity for maximum cooling, sod must **NOT** be piled on the front tractor weights. If more weight is required at the front of the machine, loaded front tires can be used, or order the weight kit from dealer.

---



## GENERAL OPERATION

### Cutter and Conveyor Controls

The Sod Harvester has an independent oil supply to both the conveyor drive and the cutter drive. This will allow the optimum speed to be used for each motor.

The front hydraulic control operates the cutter knife.

The rear hydraulic control operates the conveyor mat speed.

### Cutter Knife Speed Setting

For best results. Start at the maximum speed and work back to the lowest setting which will provide satisfactory results.

The tractor ground speed may have to be reduced when cutting in rough or stony ground, to avoid damage. The cutting blade and cut off blade should always be kept sharp. In soft soils, the cutting blade may have to be honed to obtain a proper cut.

### Conveyor Speed Setting

When cutting rolls the conveyor speed should be adjusted to provide a space of 4" to 6" between the sod pieces as they come up the conveyor. The conveyor should be speeded up to increase the gap when cutting slabs, so that they do not pile up on top of one another. When setting this motor speed, it is essential that the tractor RPM is at the speed at which the unit will be operated, and that the tractor is in the desired gear. Any appreciable change in ground speed will require an adjustment of the conveyor motor.

It is essential that the tractor operator drive at a constant speed in order to maintain the proper spacing between the sod as it travels up the conveyor, since variations in the spacing will result in poorly rolled, jammed or torn sod.

It is desirable to operate in as straight a line as possible to minimize steering problems. The Auto-Steer option will assure that this objective is met.

### Harvester Engage & Lift Arm Controls

For ease of operation, the lever to raise and lower the cutting head is grouped with the lever which engages the harvester, in a convenient location on top of the control panel.

When starting to cut, the motor should be started before the cutting head is lowered to the ground, to reduce the 'shock' to the cutter motor. The cutting head must be lowered gently to the ground, not dropped, and the lift chain must be slack at all times, while the harvester is in operation.



**Cutter Knife Speed, Conveyor Speed Controls  
Cutter Head, Lift and Depth Control Levers**

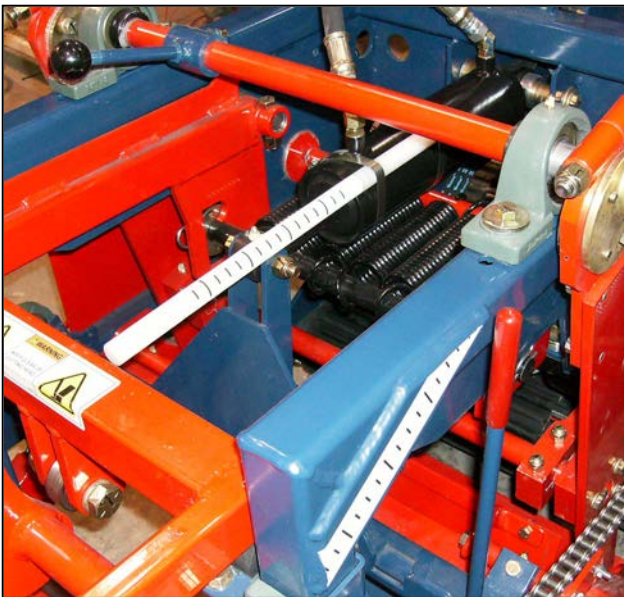
# GENERAL OPERATION

## Sod Thickness: Hydraulic Depth Control – 1570

The 1570 Sod Harvester comes with a hydraulic depth control as standard equipment. This allows the operator to adjust the depth of cut while the machine is in motion by means of a control lever conveniently mounted on the top of the control panel.

Another depth control lever is mounted under the rear beam for the convenience of the person on the rear platform.

A series of marks on the depth indicator show the change in depth.



Depth Indicator



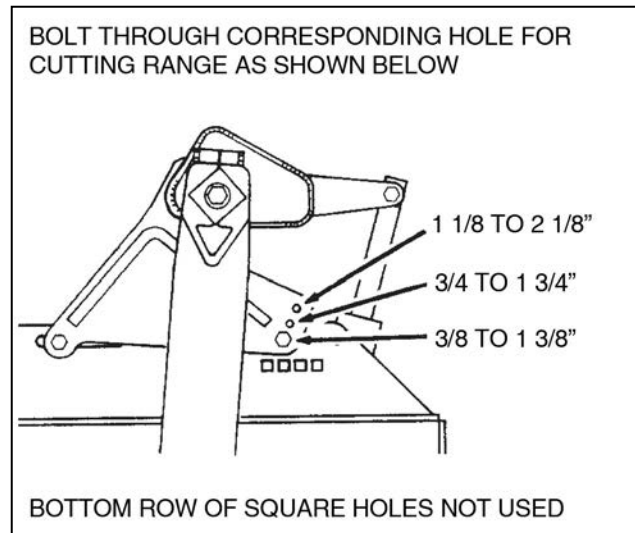
Rear Depth Control Lever

## Sod Thickness: Hydraulic Depth Control – 1576

The 1570 Sod Harvester comes with a hydraulic depth control as standard equipment. This allows the operator to adjust the depth of cut while the machine is in motion by means of a control lever conveniently mounted on the top of the control panel.

The hydraulic depth control will provide a variation of 1". Originally a second range was accommodated by a second row of holes in the cutting head frame. However, it was found that an overlap of ranges was desirable. Two extra holes were put in the pivot bracket and the lower set of holes in the cutting head frame are no longer used. Refer to the diagram for the available cutting ranges.

A series of notches on the pivot bracket and a pin on the pivot arm indicates the change in depth. One notch will indicate approximately on tenth of an inch, or a little less than 1/8".



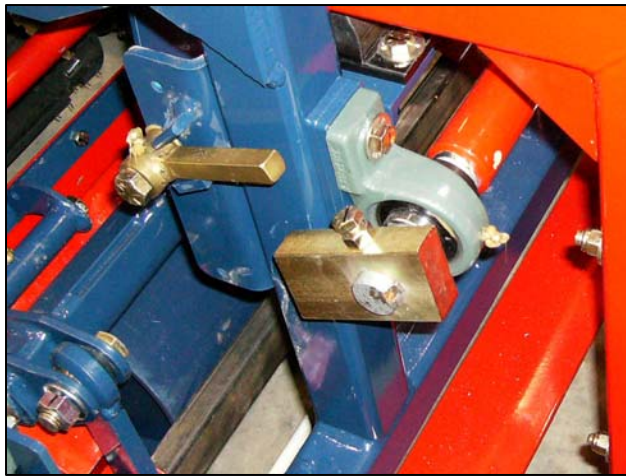
## GENERAL OPERATION

### Cut-Off: Stop Return Cam, Return Cam Stop

Since the sod is cut to length before the bottom blade has cut under the full length, a stop return cam and a return cam stop are provided to assure a uniform cut length of the first piece of sod.

The stop return cam is mounted on the outer end of the cut-off cam shaft, and the return cam stop is mounted to the cutting head frame.

When the return cam reaches the correct position, it is engaged by the return cam stop. This indicates the end of the cut and prevents the spring pressure on the cut-off frame from rotating the cut-off cam shaft backwards.



A different stop return cam is required for each length of sod. The part number is stamped on each stop return cam. Refer to the parts manual for a complete list.

### NOTE

#### Three cut-off cams are available.

1. The slow lift cam is used for cut lengths under 54" and is easily identified by a letter 'S' stamped on the cam.
2. The fast lift cam is used for cut lengths of 54" to 72" and is stamped with the letter 'F'.
3. The superlift cam is used for cut lengths of more than 72" and is stamped with the letters 'FF'.



### WARNING

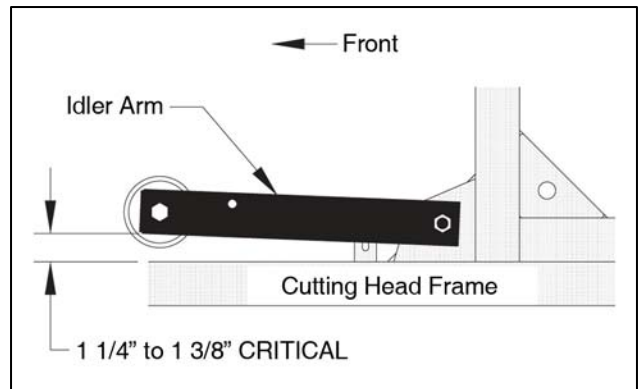
USE THE CYLINDER LOCK FOR THE SAFETY OF THE OPERATOR, SERVICE MECHANIC, OR OTHERS WHEN WORKING ON THE HARVESTER WITH THE CUTTING HEAD RAISED. SEE PG 5-01.

### Cut-Off Length Adjustment



### CAUTION

WHEN CHANGING SPROCKETS TO MODIFY CUT-OFF LENGTH, THE LENGTH OF THE ROLLER CHAIN MUST ALSO BE MODIFIED. INCORRECT CHAIN LENGTH CAN RESULT IN DAMAGE TO CAMSHAFT.



Idler arm position while setting roller chain length (with depth cylinder fully extended).

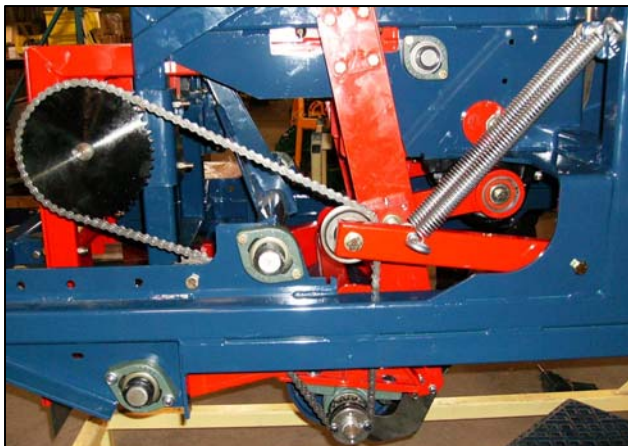
Unhook idler springs from idler arm. Adjust depth control to thinnest cutting position (cylinder fully extended). Refer to Page 74 of the parts manual for sprocket combinations available. Change sprockets as needed. With idler arm in position shown, cut chain length as needed. The dimension between the bottom of the idler arm and the top of the cutting head frame is critical! If the chain is cut too short, it could result in a bent camshaft when cutting thin. If the chain is cut too long, improper chain tension will result when cutting thick.

Sprocket combinations which are recommended for various lengths of sod, are approximate only. Final choice of sprockets must be determined in the field.

In the spring, when the sod is wet, it stretches after it is cut, while later in the year, when the sod is drier, the cut length of sod tends to be closer to the ground cut-off length. Many other criteria may have an effect on the length of sod after it is cut, such as the type of soil, age of the sod, type of grass etc.

# GENERAL OPERATION

## Camshaft Roller Sprockets



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### WARNING

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#### **DO NOT MODIFY OR ELIMINATE GUARDS**

The guards which are used on this machine are designed for maximum safety and convenience of operation. They provide additional protection for people who work near the machine as well as those who work on the machine.

No amount of guarding can make a unit completely safe. Common sense and a respect for moving machinery are a must for a safe operation. Keep finders and loose clothing away from moving parts.

The toe guard provides a warning when a foot gets too close to the cut-off blade.

---

### CAUTION

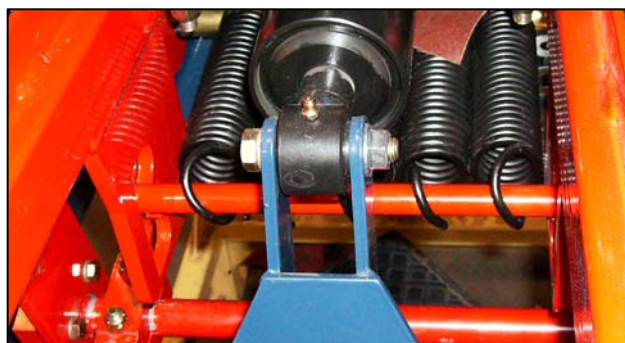
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**THE ILLUSTRATIONS IN THIS MANUAL ARE GENERALLY SHOWN WITH THE GUARDS REMOVED FOR CLARITY. HOWEVER FOR THE SAFETY OF THE OPERATOR OR BYSTANDERS, THE GUARDS MUST ALWAYS BE IN PLACE WHEN THE MACHINE IS IN OPERATION.**

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## Cut-Off Blade Depth Adjustment

The cut-off blade should be sharp at all times. The cut-off depth should be set only deep enough to insure a clean cut, through whatever thickness of sod being cut, and the cut-off frame should make light contact with the rubber stops. Unnecessary pressure will cause the cut-off frame to bounce on the rubber stops and cause premature wear.



The spring adjustment shaft can be set in one of three positions and is set in the center position when it leaves the factory.

Moving the spring adjustment shaft down, increases the pressure on the cut-off frame. Moving it up reduces the pressure.

The center position usually provides the correct pressure. If the cut off blade does not go through the sod with the spring shaft in the upper position, lower the cut-off blade frame one hole on the cut-off frame.

Excessive spring pressure can cause the cutting head to lift, resulting in excessive lengths of sod, and possibly scalping.

Care should be taken to see that the edge of the cut-off blade holder (where the bolts are located) does not hit the sod on the down stroke, as it will damage the end of the sod, and cause problems when the sod is laid.

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## GENERAL OPERATION

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### NOTE

**ALWAYS OPERATE THE HARVESTER WITH THE CUT-OFF SPRING SHAFT IN THE LOWEST POSITION REQUIRED TO MAKE A CLEAN CUT OFF.**

---

The cut-off blade is reduced in depth by wear and sharpening. Holes are provided in the cut-off blade frame to compensate for this wear. Blades less than 2 1/2 " in depth should be replaced.

The front springs (urethane straps) on the cut-off blade allow for the forward motion of the machine as the cut is being made. At the rest position, the blade should hang in a vertical position on the 1570, and approximately 15 degrees back (at the bottom) on the 1576. Any change to the shape or position on the hooks which attaché the springs, will change the angle of the blade.

---

### NOTE

**TO OPERATE ON SOFT SOIL, OR EXCESSIVE THATCH, THE HARVESTER CAN BE EQUIPPED WITH A SERRATED CUT OFF BLADE FOR MORE POSITIVE CUTTING.**

---



Use caution when releasing the spring tension. Use a 6-point 11/16" socket and ratchet on the welded hex nut to rotate shaft.

### Rear Fork Lift

The lift control for the rear forks is located to the right of the driver's seat. The draft lever is not used, and is usually left in the #10 position (out of the way). The lever on the right controls the forks, and is usually used full up or down, but will hold any position, if required.

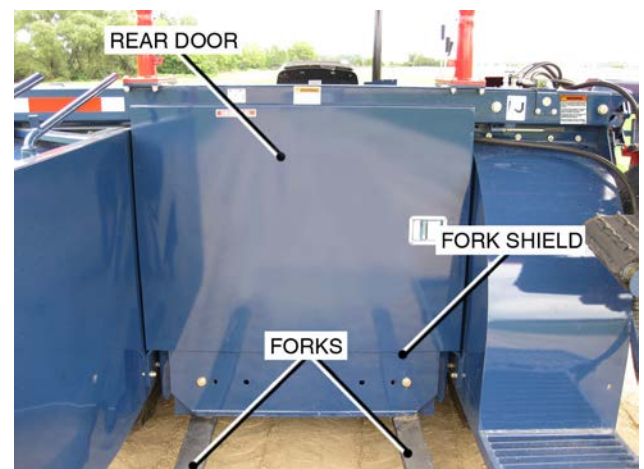
The rear fork frame has two sets of holes for fastening the forks in position. These holes provide a means of width adjustment of the forks, for different size pallets.

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### NOTE

**THE ILLUSTRATIONS ARE FOR REFERENCE ONLY. FOR MORE DETAIL, AND A COMPLETE BREAKDOWN OF PARTS, REFER TO THE APPROPRIATE SECTION OF THE PARTS MANUAL.**

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# GENERAL OPERATION

## Pitch Adjustment

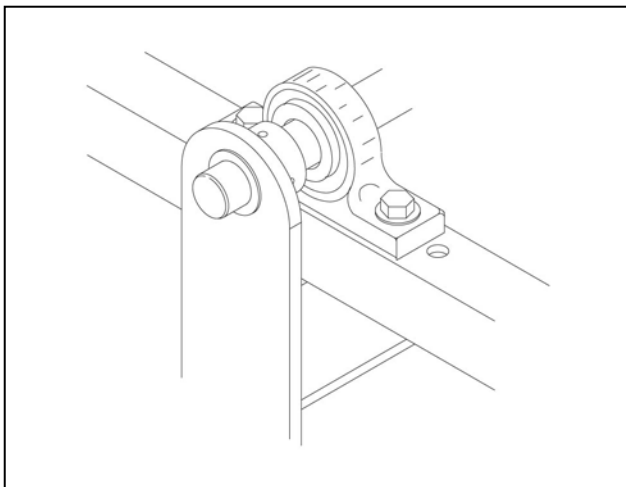
The angle of the cutter blade to the ground is called the pitch. When the unit leaves the factory, it is set for average cutting conditions, but can be changed to suit various soil conditions.

When the ground is soft, it is desirable to adjust the pitch so that the blade is as flat to the ground as possible. When cutting in harder soil, the pitch may have to be increased, (increase angle to the ground) to maintain a proper cutting action, and to prevent the cutting head from coming out of the ground. Care must be taken when the pitch is changed, that the relationship of the blade to the conveyor mat and the roller is maintained. The front idler shaft of the conveyor can be adjusted to assure the conveyor mat does not interfere with the cutter blade. The relationship of the roller to the cutter blade is addressed in the roller adjustment section.

## Adjusting the Pitch – 1570

The adjustment of the pitch is accommodated by a set of three mounting holes for the pillow block bearings on the pivot shaft and slots in the pillow block bearings. The amount of pitch is determined by the mounting holes used. The normal setting is in the center set. The rear set of holes (minimum pitch) is used for soft soil or peat. The front set of holes (maximum pitch) is used for hard ground.

A periodic check should be made to assure the mounting bolts have not loosened during operation

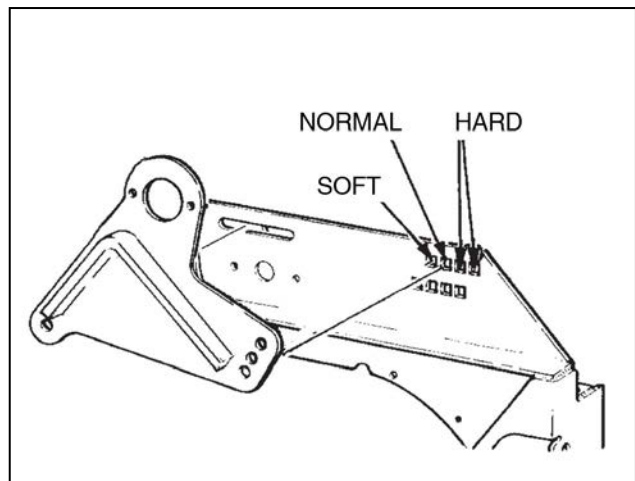


**Pitch Adjustment – 1570**

## Adjusting the Pitch – 1576

The adjustment of the pitch is accommodated by a series of four mounting holes, and a slot, to which the pivot bracket is mounted. The amount of pitch is setting is in the second hole (from the rear). The first hole (minimum pitch) is used for soft soil or peat. The third and fourth holes (maximum pitch) are used for hard ground. Extra holes are used to provide additional depth adjustment and will be addressed in the sod thickness section,

A periodic check should be made to assure the mounting bolts have not loosened during operation.



**Pitch Adjustment – 1576**

## Drivers Guide

The driver's guide is mounted to the cutting head, to assist the driver to follow the edge of the sod. A transport position is provided, and should be used when the unit is not cutting. The driver's guide is not used when the Auto-Steer option is installed.

## Track Rod Adjustment

The track rod maintains the harvester parallel, and correctly spaced to the tractor. If the harvester is not parallel to the tractor, the sod may be cut thicker on one side than the other, or may ender the conveyor closer to one side. Either of these conditions can produce "cone shaped" rolls or rolls that are not uniform in shape or size, which makes stacking difficult.

The rod length is measured in a straight line, from the center of one rod end to the center of the other. The initial setting is 46 7/8" for the 1570, and 69 1/4" for the 1576. This length will be changed if the rod hits an obstruction hard enough to bend it.

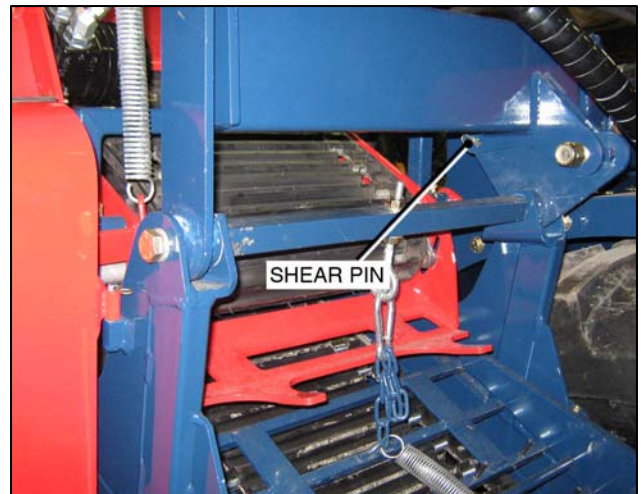
To adjust the length of the rod, remove one end of the rod from the machine. Loosen the lock nut, and turn the rod end in or out. When the adjustment is complete, be sure to tighten the locknut.

## Rear Suspension. Harvester Main Frame

The rear suspension for the Sod Harvester main frame is different from some other models. Due to the flexibility of the floating head, the stability for the main frame must be provided by the rear suspension.

While providing the required stability, sufficient shock absorbing has been included to prevent damage to the frame from the normal shocks and strains of harvesting.

In the event of a severe shock (i.e. hitting a large rock etc.) a shear pin will absorb the initial shock. The remainder of the suspension will hold the unit secure.



## Replacing a Shear Pin

If a pin is sheared, replace only with a genuine Brouwer replacement part no. G2011. Do not under any circumstance use a bolt. Severe damage to your equipment could result. Keep a few spares in the tool box.

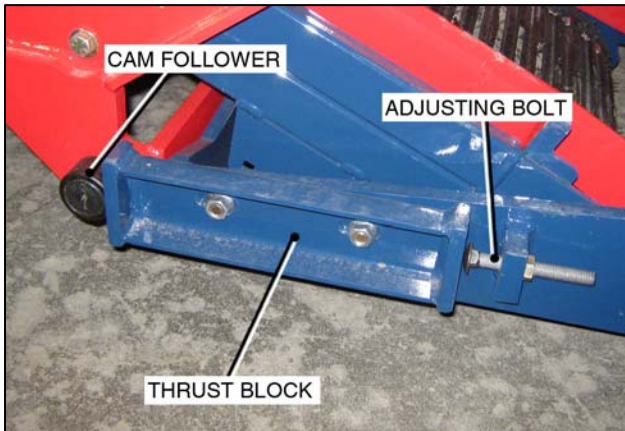
The suspension is easily positioned for replacement of the shear pin by fastening a chain around the upper left rail of the cutting head cradle, and the lift arm of the conveyor lift. Using the conveyor lift, the unit is carefully lifted into position.

# GENERAL OPERATION

## Cam Follower Thrust Blocks – 1576

The forward thrust of the cutting head is carried by the cam follower thrust blocks, which are mounted on the cutting head frame. The thrust blocks act upon cam followers which are mounted to the cradle. It is essential to keep this assembly properly adjusted to assure the longevity of the pivot bearings of the floating head unit.

Adjust the thrust block against the cam follower with the adjusting bolt until the cam roller cannot be turned by hand. Turn the adjusting bolt two more flats of the head (120 degrees). This assures that the thrust forces act upon the cam rollers, and not the pivot bearings. Tighten all locknuts and bolt, and check regularly to assure that this unit is operational.



## Roller Adjustment

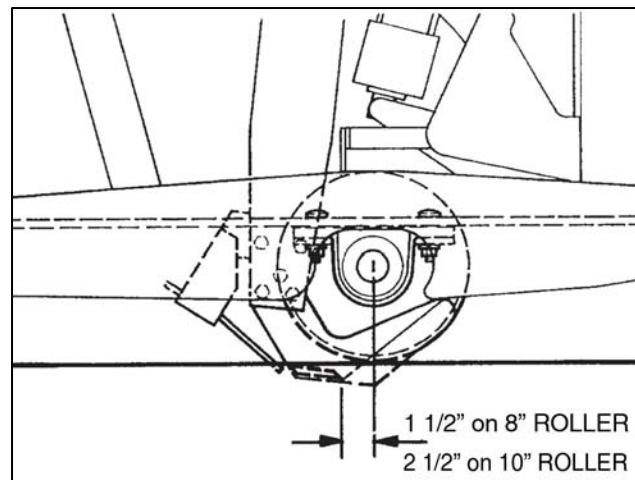
The roller supports the front end of the harvesting unit, and also applies pressure to the sod immediately ahead of the cutting blade. This roller can be adjusted forward or backward on the frame and should be set so that the vertical centerline of the roller is 1 1/2" (8" roller) or 2 1/2" (10" roller) ahead of the edge of a new cutter blade, when the blade is at the maximum forward position of the cutting stroke. The roller and blade must be parallel to each other, to avoid sod that is thicker on one side.

In certain "Peat" or "Muck" soils, a distance of less than specified above may be required for a proper cutting action.

In "soft soils" or "excessive thatch" conditions, rolling the sod just before cutting may result in easier cutting, and a better quality (tighter) roll.

In "stoney ground" it is often advisable to move the 8" roller forward to provide more space between the blade and roller for small stones to pass through. This distance (on 8" rollers) may be increase up to 2" or 2 1/4". Too little distance between the roller and the blade causes a "pinching action" resulting in longer pieces of sod.

The roller should be centered between the side arms of the cutting blade, so that the bolts on the cutting blade do not strike the roller in operation.





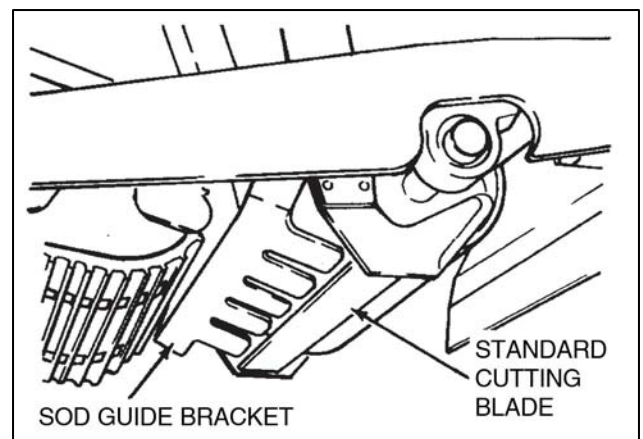
### Roller Scraper

Since the roller, in fact measures the length of the sod being cut, it must be kept clean at all times, as an increase in the size of the roller, due to a collection of grass, mud or dirt, would increase the length of the sod being cut.

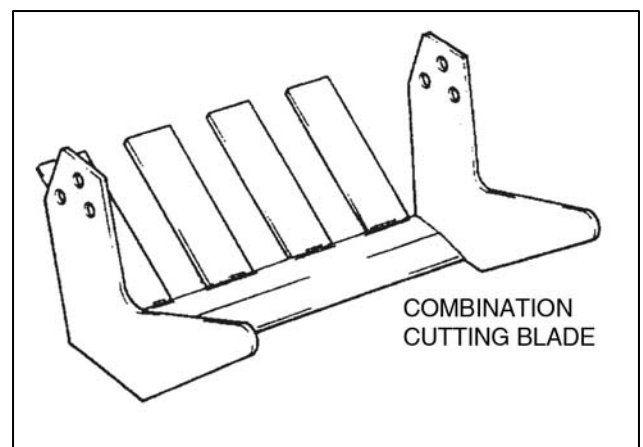
A scraper is provided to prevent accumulation of mud, grass or dirt on the roller, adjustment is provided by two slotted holes. Adjust the scraper so that the blade is just clear (approximately 1/32") of the roller face.

### Sod Guide Bracket

On the standard cutting blade (16" & 18" conveyor) the sod guide bracket directs the sod from the cutting blade knife to the conveyor belt. The fingers should lie in perfect line with, and just behind the blade. Bent fingers should be straightened.



On the combination cutting blade, the fingers are welded directly to the blade. Care should be taken that these line up with the conveyor belt, and do not strike the belt in operation. Bent fingers should be straightened.



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#### NOTE

**PLEASE TAKE NOTE THAT THE ILLUSTRATIONS ARE FOR REFERENCE ONLY. FOR MORE DETAIL, AND A COMPLETE BREAKDOWN OF PARTS REFER TO THE APPROPRIATE SECTION OF THE PARTS MANUAL**

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# GENERAL OPERATION

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## CAUTION

USE THE CYLINDER LOCK SHOWN ON PAGE 5-01, WHEN WORKING ON THE HARVESTER WITH THE CUTTING HEAD RAISED, TO PREVENT INJURY DUE TO ACCIDENTAL RELEASE OF THE LIFT MECHANISM.

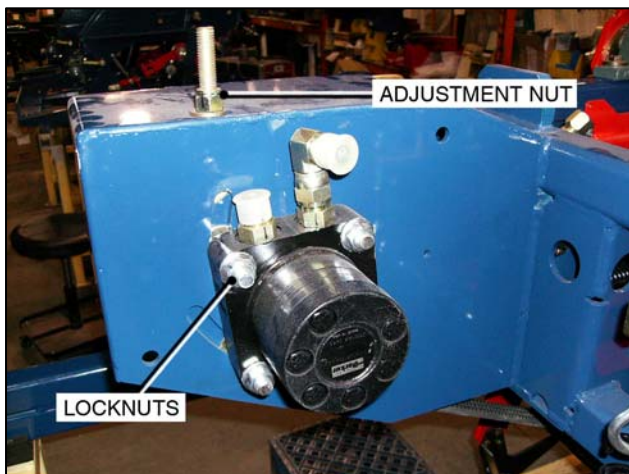
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### Cutter Drive: Belt Tension

Uses one 3V belt...Tension is ¼" to 3/8" deflection between the motor and crankshaft pulleys.

Adjustment is accomplished by loosening the three locknuts on the cutter drive motor and turning the adjustment nut clockwise to tighten, and counter clockwise to loosen. Tighten the locknuts on the drive motor when the adjustment is complete.

To change the V Belts, see Section 5, Page 5-04



### Conveyors: Rubber or Mintex Belts

The rubber belt conveyor was developed for areas with abrasive soils, but works well in most areas, and is the preferred choice of most sod growers.

The mintex belt conveyor is used where considerable loose soil accompanies the sod up the conveyor, and helps to shake the loose soil from the conveyor before it reaches the piler.

### Crown Roller / Front Idler: Rubber Belt Conveyor

The rubber belt conveyor uses a crown roller at the front end of the conveyor to keep the belt tracking properly. It is easy to maintain proper alignment with the adjusting wedges provided. A scraper is used to prevent dirt build-up on the roller. An additional small idler is used to prevent the belt from contacting the cutting head frame or cradle. For maintenance or service, see the Service section, page 5-06.

### Front Idler: Mintex Mat Conveyor

The mintex mat conveyor uses an idler shaft and sprockets at the front end of the conveyor to keep the mat tracking properly. It is easy to maintain proper alignment with the adjustment wedges provided. Two additional small idlers are used to prevent the belt from contacting the cutting head or cradle. For maintenance or service, see the Service section, page 5-08.

## WARNING

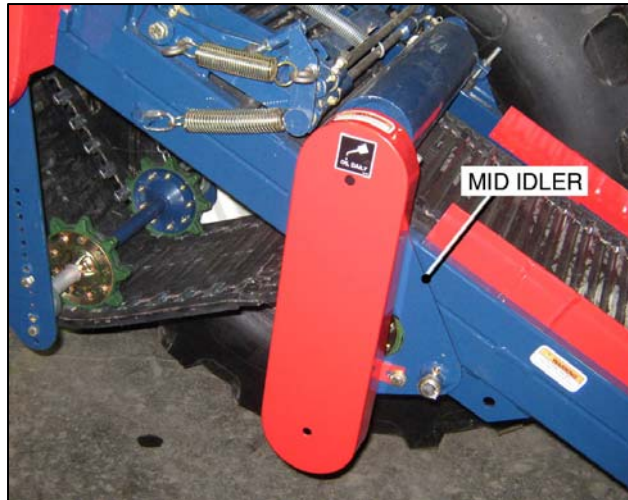
THE ILLUSTRATIONS IN THIS MANUAL ARE GENERALLY SHOWN WITH GUARDS REMOVED, FOR CLARITY. HOWEVER FOR THE SAFETY OF THE OPERATOR OR BYSTANDERS, THE GUARDS MUST ALWAYS BE IN PLACE WHEN THE MACHINE IS IN OPERATION.

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### Mid Idler Assembly: Rubber or Mintex Belt

The mid idler assembly is used to support the conveyor mat under the conveyor frame (rubber mat shown, mintex mat is similar). On units equipped with the roll-up option, it is also used to drive the 4" feed roller. Refer to the roll-up section.

The sprocket teeth should be centered in the holes of the conveyor mat, to prevent excessive wear. Check after each belt alignment. Replace sprockets when teeth are worn.



### Tensioning Belt Idler: Rubber Belt Conveyors

The tensioning belt idler maintains the proper tension on the belt. A series of seven holes allows the idler shaft to be set in five different positions to allow for stretch or shrinkage in the belt. The idler arm must be kept from reaching a 90 degree point with the harvester frame or the idler arm will be pulled over center by the tension spring and all tension will be lost.

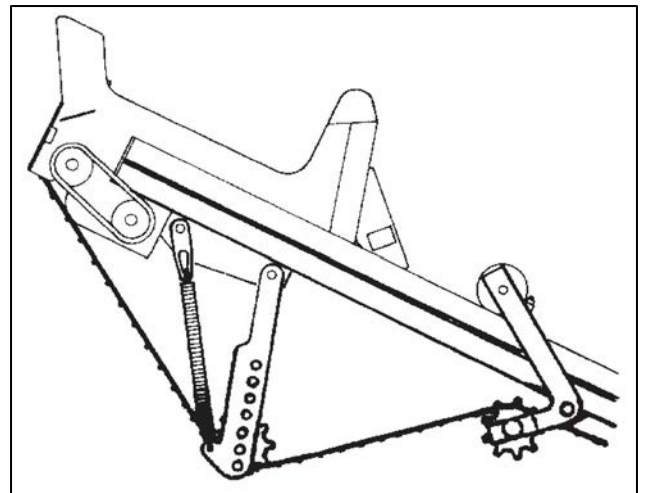
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#### NOTE

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**PLEASE TAKE NOTE THAT THE ILLUSTRATIONS ARE FOR REFERENCE ONLY. FOR MORE DETAIL, AND A COMPLETE BREAKDOWN OF PARTS REFER TO THE APPROPRIATE SECTION OF THE PARTS MANUAL**

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## SECTION 4

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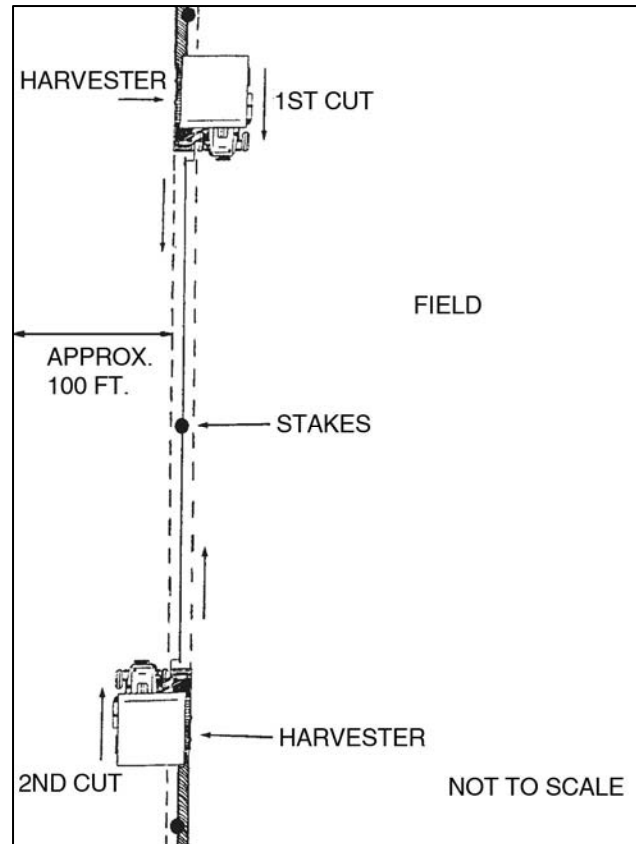
### OPERATION

Harvesting: How to Start a Field	4-01
Suggested Method of Loading Pallets	4-02
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Roll-Up Tray	4-06
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# OPERATION

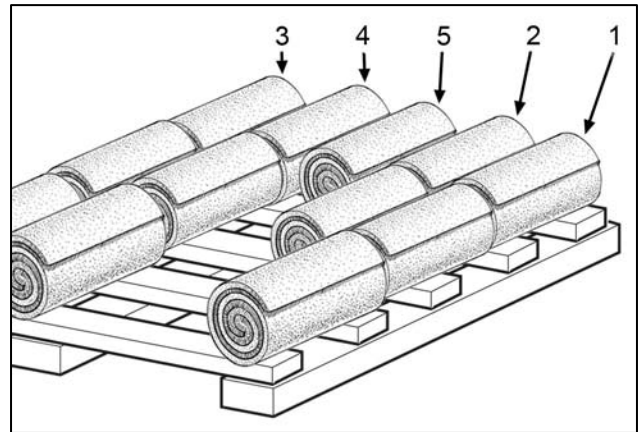
## Harvesting Sod: How to Start a Field

1. Roll the field immediately before cutting
2. Measure off an equal distance from the edge of the field (anything up to 100 ft.) and at three points down the length of the field, put stakes in a straight line.
3. Cut a strip down this line, the full length of the field. See illustration.
4. As skids are loaded they can be set off to the side or taken out the end.
5. On reaching the end of the field, turn and come back, cutting a strip beside the first cut. Sometimes it is necessary to roll out the marks made by the tractor as it made the first cut.
6. Repeat until the area is completely cut.
7. This method provides easy access for trucks to load without travelling over uncut sod.
8. If a starting point of more than 100 ft. is chosen, the distance the harvester must travel from one cut to the next is increased, resulting in wasted time.
9. Choosing too narrow a width creates too many "starts" and could increase the amount of rolling required to remove the wheel marks left by the harvester as it starts a new area.



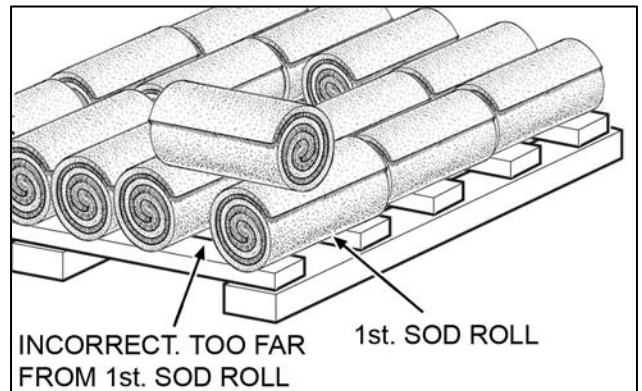
**Suggested Method of Loading Pallets: 16" Rolls**

**Fig.1**  
Shows the first sod even on two sides and the flap just over the top of the roll and to the outside face of the pallet. The first layer should be laid across the boards on the pallet. The first two rolls should be laid close together on the side of the pallet closest to the piler. The second two rolls should be laid close together on the side of the pallet farthest away from the piler. The fifth roll should be dropped in the remaining space. Any space between the rolls should be next to roll No. 5 in each row.



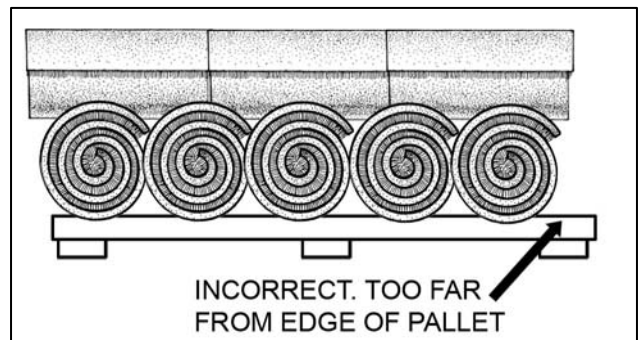
**Fig.1**

**Fig.2**  
Shows the first layer and the start of the second layer. The second roll from the edge on the first layer is in the wrong position. It should be close to the first roll, as mentioned above. If it is left in this position, the corner of the load will be weak and could fall off when the skid is moved.



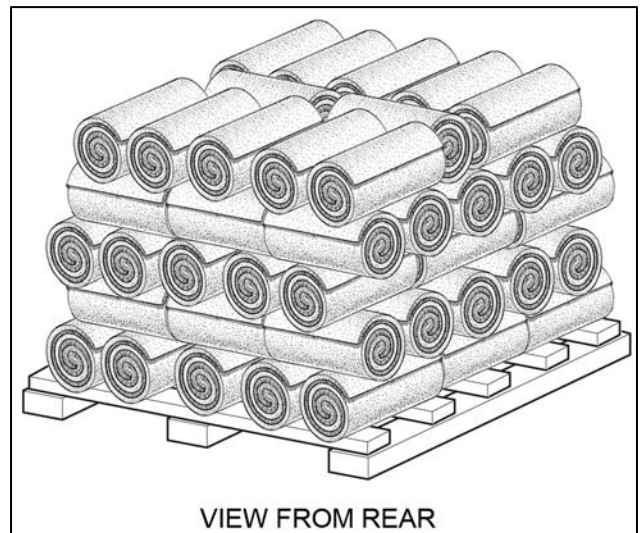
**Fig.2**

**Fig.3**  
Shows incorrect placement of the first roll, too far from the edge of the pallet. Any space between rolls on the first three layers should be in the center of the row, not at the edge. Notice the ends of the rolls in a neat straight line, just over the top of the center line of the sod roll.



**Fig.3**

**Fig.4**  
Shows the fifth layer reduced in width by piling one roll in the center of the row in the opposite direction. After 4 full width layers the next two layers are reduced in width so that the load will pile more solidly.



**Fig.4**

**VIEW FROM REAR**

# OPERATION

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## Loading Pallets Continued

Fig.5  
Shows six layers completed. Notice how tightly these rows are now bound together to make the load secure.

When cutting 18" or 24" the method of stacking usually changes in order to suit the width of the pallet. The basic principle of tying the load together by cross piling the sods should be practiced throughout.

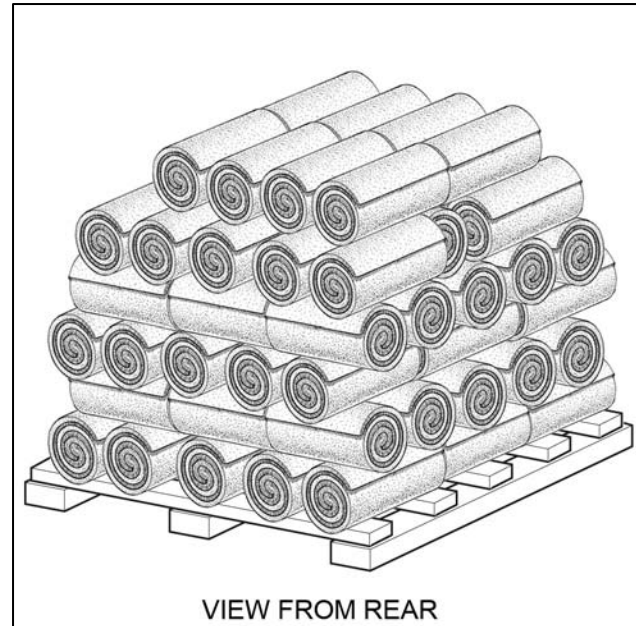
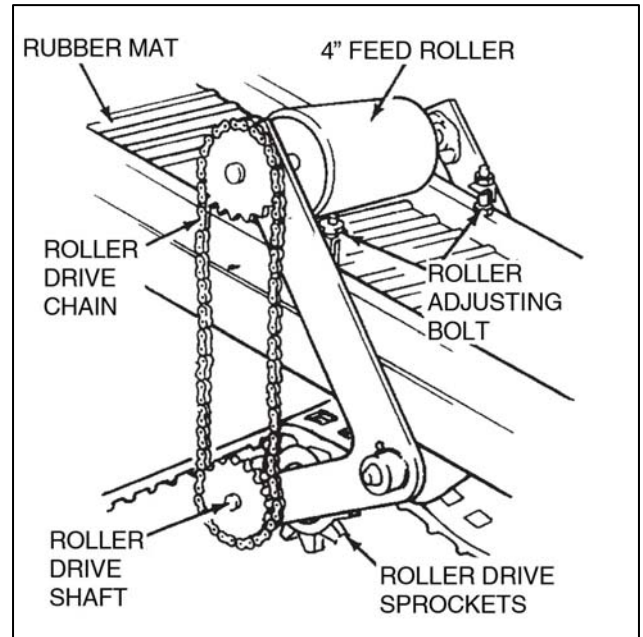
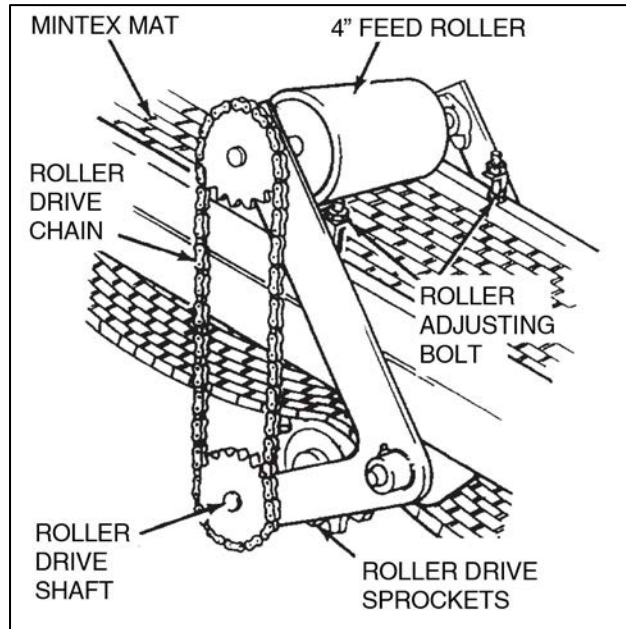


Fig.5



## Roll Harvesting – 4" Feed Roller

This roller is used to feed the sod into the gate of the starter tray on all rolling machines, and should be kept clean at all times for best operation. It is mounted on the mid idler assembly and is powered by the conveyor belt moving over the sprockets of the idler shaft.



**ADJUSTMENT:** The roller should rest on the sod. The adjusting bolts should be set so that there is approximately 1/8" clearance between the head of the bolt and the harvester frame, when the sod is under the roller. Weaker sod may require the pressure to be reduced, by screwing the adjusting bolts down to lift the roller.

Pressure between this roller and the mat, forces the sod solidly against the starter tray gate. The leading edge of the sod forces the gate to lift, raising the end of the sod, which being forced from behind, starts to roll up.

# OPERATION

## Starter Tray

The starter tray should be positioned square on the conveyor to prevent cone shaped rolls. The front of the tray can be adjusted to provide space (approximately 5/8") between the bottom of the starter tray and the conveyor mat by means of the adjusting bolts on the offset link arms. The height of the rear part of the starter tray (also approximately 5/8") can be adjusted by the chain and eye bolt.

The starter gate should be positioned approximately 1/8" from the conveyor mat. **It must not be allowed to run on the mat.** The gate height is set using the adjusting bolts on the straight link arms. The gate must also be positioned perpendicular to the conveyor mat. This is achieved using the adjusting bolt on the pivot rod.

The starter gate stops should be positioned so the bottom of the gate cannot rise higher than the top of the square bars on the starter tray.

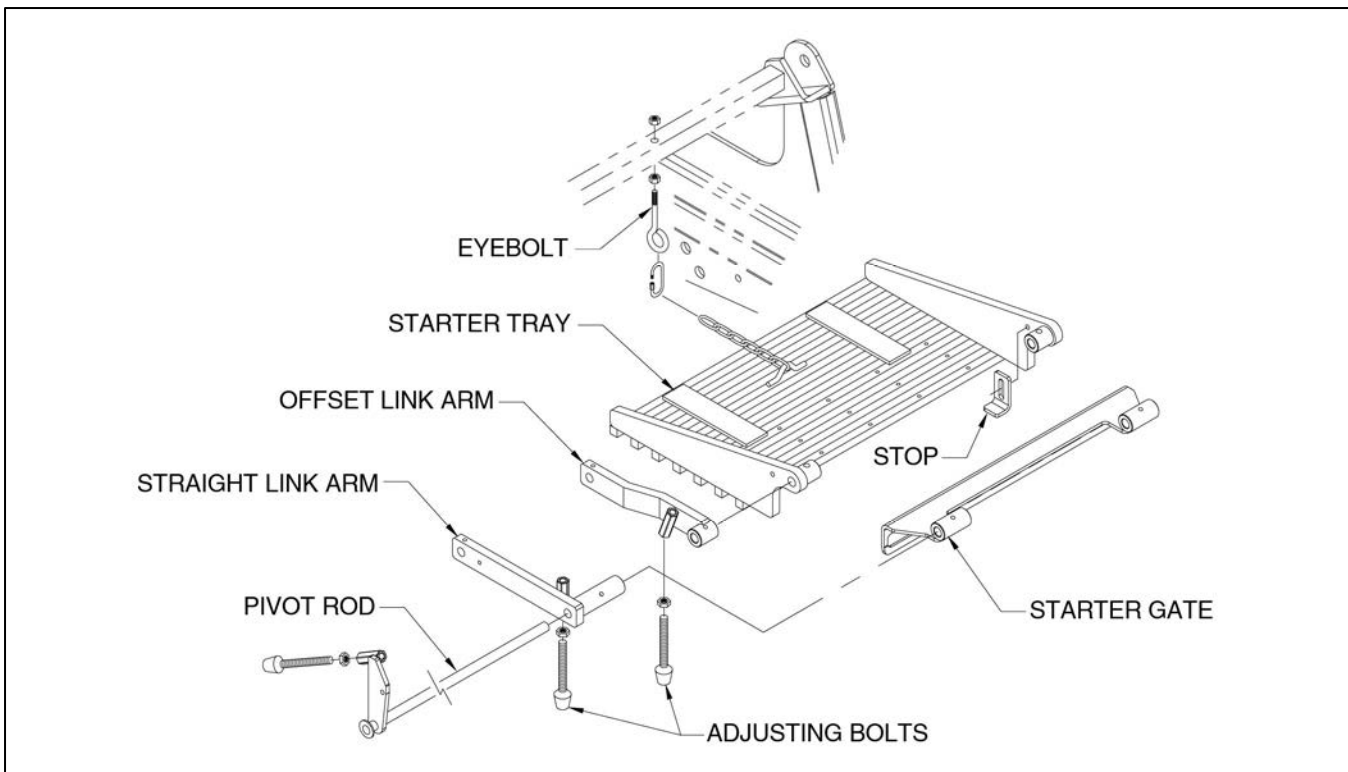
As the sod travels up the conveyor, the starter gate blocks the passage of the sod, flips up the leading end, and the sod starts to roll.

The first square bar (behind the gate) has a row of pins which protrude about 1/4" below the bottom surface. The second and third bar have pins protruding about 1/8". These grip the underside of the sod at the start of a roll. If the sod slips through without starting to roll, the pins may have to be pushed down. These pins wear with use and must be adjusted or replaced as required. In tender sod, these pins may hold the underside of the sod too long, causing a loose roll, incorrect flap position, or partially folded and not rolled. These pins may have to be raised.

There should be approximately 4" to 6" between the sods as they come up the conveyor. In weak sod, it may be desirable to reduce this to 2". At this close spacing, the RPM of the tractor must be kept constant, as any variation will change the space between the sods.

Dirt or any other materials on the conveyor between the sods may make the gate react and it will not be in a position to start a good roll.

The starter tray arms are equipped with grease fittings and should be greased daily.



### Roll-Up Tray

The roll up conveyor continues the rolling action after the roll has passed the starter tray. This conveyor should hang about 2" above the starter tray, when the conveyor is empty. The measurement is taken from under the front curved guide bars (1) to the top of the starter tray frame.

Adjustments to the height of the tray is made with the chain (2) which connects the support spring to the roll-up tray.

The speed of the roll up mat is timed by means of sprockets and chain which are driven by the conveyor drive motor. The unit is set at the factory to the average operating speed for the specified sod length. Sprockets may have to be changed to suit various lengths and conditions, see chart in parts manual page 74.



The front idler assembly must be set so that the mat is almost touching the front cross member, so that the sod does not enter this space, and disrupt the roll.

The rear idler assembly is adjustable to allow for belt tension. When the top section of the rubber belt is pressed down there must be at least 2 ½" between it and the bottom section of the belt.

With the mintex belt, the mat should be slack and the pressed down dimension should be 1 ½".

When adjusting the rear shaft to tension the mat, make sure that both the front and rear shafts are parallel to prevent "cone shaped" rolls.

### Roll-Up Tray Stops

A roll-up tray stop (3) with a urethane bumper pad is bolted to each side of the conveyor frame, and a pair of bearings (4) is bolted to each side of the roll-up tray. Replace the bearings or the roll-up tray stops, if they become excessively worn or damaged.

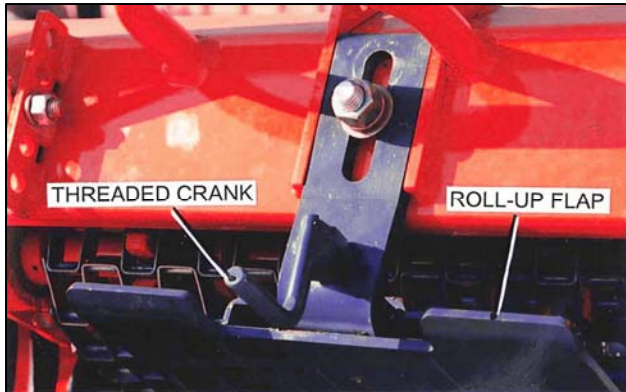
# OPERATION

## Roll-Up Flap Adjustment

The Roll-Up Flap determines the position of the flap on the roll as it leaves the conveyor. The Flap Adjuster is positioned by a threaded crank. The 'roll-up' of the turf should be completed just as it leaves the conveyor and should not require an extra turn.

If the roll is incomplete when the roll is discharged, the roll-up flap adjuster should be moved back. The up and down adjustment should be set so that the flap adjuster just clears the mat.

If the adjustment of the roll-up flap adjuster does not correct the flap position it may be necessary to change the drive sprockets.



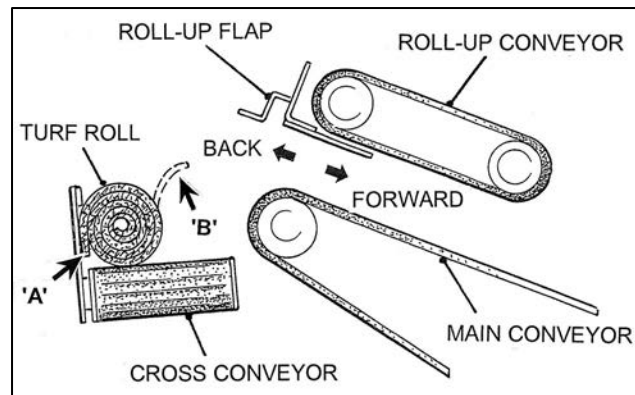
## Roll Cross Conveyor

The Roll-Up Flap is correctly adjusted when the flap on the roll is at position 'A'.

If the flap falls toward the conveyor, position 'B', move the Flap Adjuster **'FORWARD'**.

If the roll is not completed, move the adjuster **'BACK'**

The rubber belt cross conveyor has built-in spring loaded belt tension. For service or repair see the maintenance tips section.



## Sod Catcher

The sod catcher is an alternate method of transferring sod, which is preferred by some operators. It can be set for one man, or two man operation, but is usually set for one man operation when it leaves the factory.

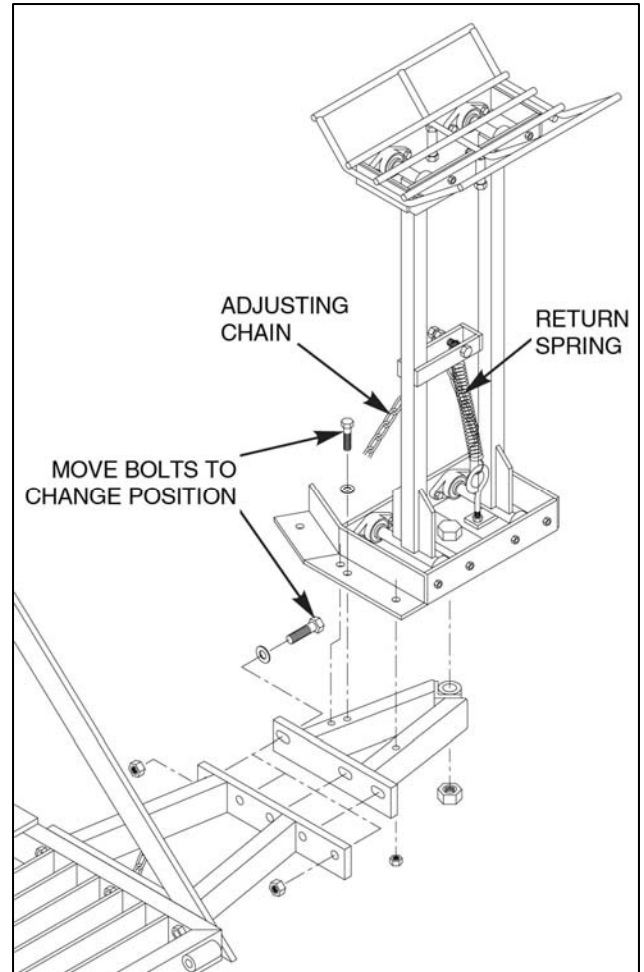
The basket should be mounted so that the flattest angle is toward the conveyor mat, and when in this position the edge of the basket should be about 1" from the mat. Bend the leading edge of the basket to adjust.

To change to a two man operation, remove the basket from the stand. Loosen the large nut in the center of the base, remove the two bolts that secure the stand to the 'A' frame, and turn the stand "counter clockwise" approximately 1/8 turn. At this point a second set of holes will line up with the holes in the 'A' frame. Replace the bolts and tighten. Also tighten the large nut in the base. Reposition the basket above.

The action of the catcher basket is regulated by the adjusting chain, and the return spring.

The adjusting chain must be set to prevent the catcher basket arms from going past perpendicular, into a lock position. If this occurs, shorten the chain.

The tension on the return spring must be sufficient for a quick return of the basket to the rest position, and still allow the weight of the roll to activate the transfer. The tension adjusted by the eye bolt in the base.



# OPERATION

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## Slabbing Harvester

In areas where soil conditions, types of grass or market conditions do not suit the rolling of sod, other methods are available.

The slabbing harvester uses the same basic conveyor and cutting head as the roll harvester, but will require a curved conveyor to assist the transfer of the slabs to the pallet.

## Curved Conveyor

For the harvesting of slabs, or folded sod, a curved conveyor is used to transfer the sod to the pallet, in the proper orientation for placement on the pallet.



## Standing Platform for Slabbing

A special set of standing platforms is available and recommended for use with the curved conveyor, to provide better access to the piling cavity to correctly stack the slabs.

The tall platform will pivot up out of the way and is held by a latch.

Piling wall extensions are available for when lightweight soils or some southern style grasses result in increased thickness of sod, without adding weight. This allows the same area of sod to be stacked on a pallet. See parts manual for part numbers.



## Auto-Steer

When the machine is ready to commence harvesting, it is important that the Auto-Steer final set-up is carried out as shown in the following instructions.

**The operator must read the operating instructions in Sections 2 and 3, before using the Auto-Steer.**

### Cutting the Starting Strip.

The starting strip of turf must be cut '**manually steering**', This creates the turf 'edge' for the Guide Shoe to follow.

- Start the tractor, see Section 3, page 3-01. Select the Transmission Range and Gear recommended. Slowly release the Clutch Pedal.
- Lower the Cutter Head

Using manual steering, proceed to cut the starting strip. The starting strip must be cut straight, to ensure the correct operation of the Auto-Steer.

When the starting strip has been cut :

- Position the harvester parallel to the start strip, with the Cutter Side Blade aligned with the '**cut edge**' of the turf.
- Switch the Auto-Steer '**ON**', by moving the Auto-Steer selector valve to the "AUTO" position.

### NOTE

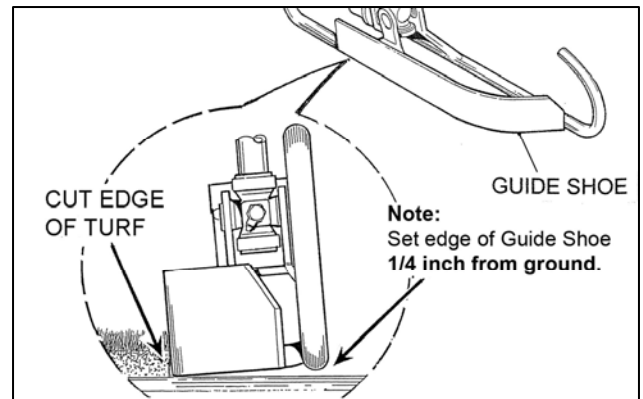
If the Guide Shoe lowers on the 'un-cut' turf, when the Auto-Steer is switched '**ON**', switch the Auto-Steer '**OFF**'. The reset cylinder will move the Guide Shoe 'off' the un-cut turf, then switch the Auto-Steer back '**ON**'.

- Proceed to cut the second strip.
- Lower the Cutter Head.
- Continue cutting the second strip, using the 'Fine Adjust' Control, to trim any waste. Each revolution of the Control Knob equals approximately  $\frac{1}{4}$  inch of lateral movement of the Guide Shoe.

If the Auto-Steer works satisfactory but the 'Fine Adjust' Control Cable has run out of adjustment, re-set the cable.

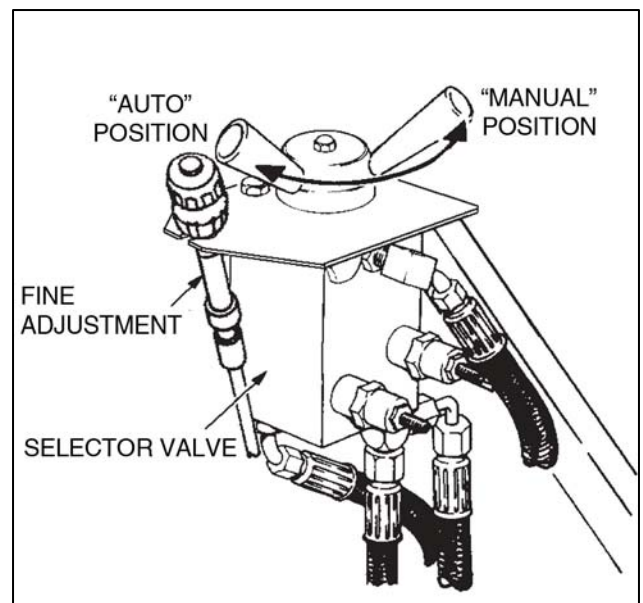
### NOTE

If there is a problem with the Auto-Steer during harvesting, reset the Auto-Steer in the following sequence



### NOTE

Please take note that the illustrations are for reference only. For more detail, and a complete breakdown of parts, refer to the appropriate section of the parts manual.



# OPERATION

## Cam Roller and Roller Arm Position.

### IMPORTANT

The Cam, Roller and Stop Pin must be set-up with the Stop Pin at the 'mid-point,' of its travel in the cavity, in the Sensor Valve End Plate. This is the 'NEUTRAL' position in the Sensor Valve.

### Cam and Roller Arm Set-Up.

The recommended method of setting the Auto-Steer is:

- Position the Harvester 'ready to cut'.
- With the Auto-Steer 'OFF', cut a strip of turf, for a minimum distance of 20 feet. **It must be cut straight.**
- Stop the harvester.

The harvester will be parallel to the cut edge, the steering wheels 'straight ahead', and the Cutter Head 'down'.

**Switch the Auto-Steer 'ON'. Turn the Tractor 'OFF'.**

- Remove the two 5x40mm Socket Head Screws 'A', from the Sensor Valve End Plate and remove the End Plate Cover 'B', complete with Rubber Seal.
- Swing the Auto-Steer Guide Shoe 'left or right', to align the ¼ inch hole in the Cam, with the hole in the Support Plate.
- Insert a ¼ inch Bolt 'C', through the holes to lock the Cam in position.
- Adjust the Cable 'D' (attached to the Cam), to the 'mid-point' of its stroke travel, and lock it in place.
- Back-off the Setscrew that clamps the Roller Arm to the Roller Shaft. See lower figure. Use a 'flat blade' screwdriver to turn the Stop Pin to its 'mid-point' of travel, in the cavity. Hold the Stop Pin in this position.
- The Sensor Valve Internal Spool will now be in the 'NEUTRAL' position.

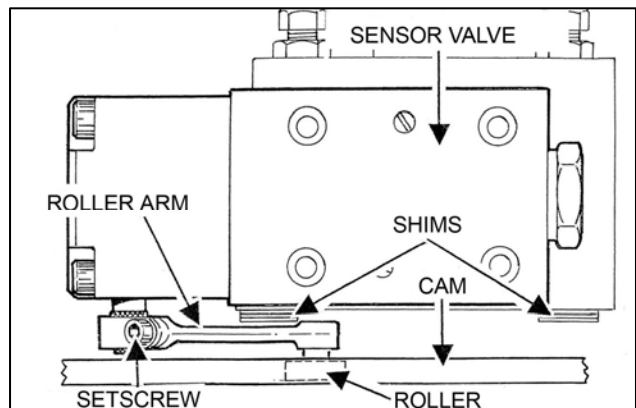
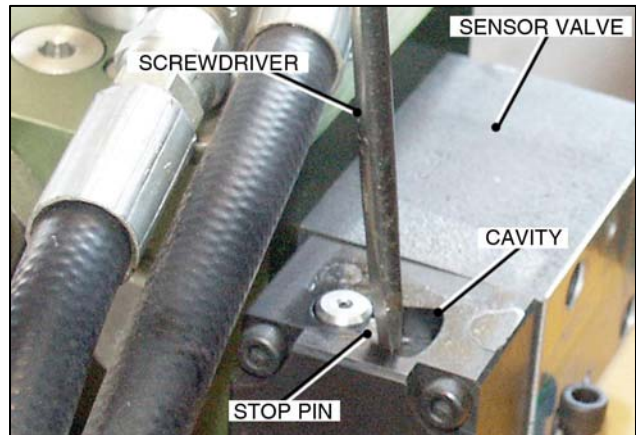
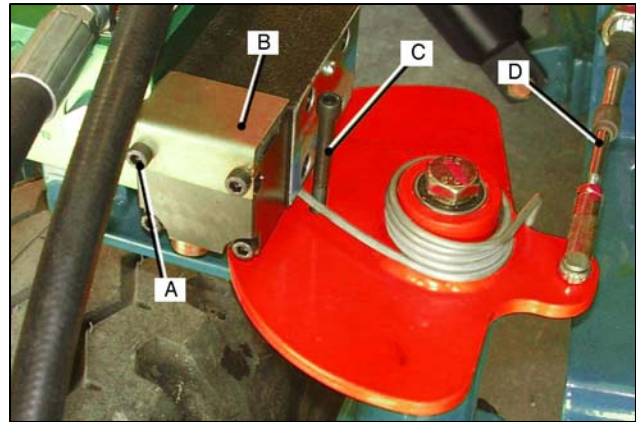
- Push the Roller Arm until Roller is 'hard' against the Cam.
- Adjust the Roller Arm 'up or down' on the shaft, to get maximum surface contact between the Cam and Roller.
- Check that the Roller Arm is fully engaged on the knurled portion of the Roller Shaft.
- Tighten the Roller Arm Setscrew.

### IMPORTANT

Before operating the Auto-Steer **remove the ¼ inch Bolt from the Cam.** Failure to do so will result in damage to the system.

### Also

Fill the Stop Pin Cavity with 'white grease' to prevent **corrosion forming on the Roller Shaft, causing it to 'stick' and adversely affecting operation.**



- Position the Sensor Valve End Plate Cover, complete with the rubber seal, re-fit the 40mm Socket Screws.

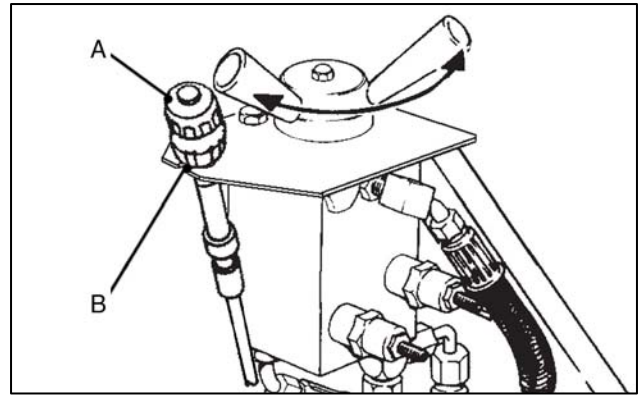


## Fine Adjust Control.

As noted on page 6-02, the Fine Adjust Control allows the operator to trim the waste strip. It is recommended that it is set-up as follows:

### Set the Fine Adjust Control to its 'Mid-Point' by:

- Releasing the Control Lock 'A'.
- Press the End Button 'B', and slide the Control Knob 'IN' or 'OUT,' to find the mid-point of travel.
- Re-tighten the Control Lock.



## Actuator Column.

### Spring Tension Adjustment.



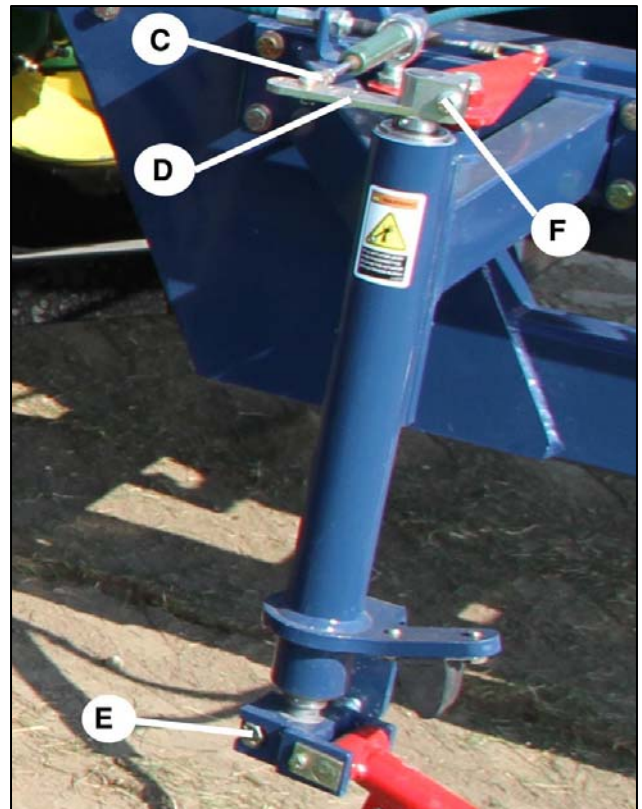
The Top Lever Arm is under spring tension. Exercise care when removing the Cable Clevis End from the Top Lever Arm, or loosening the Lever Arm Clamp Bolt.

### Position the Guide Shoe against the cut edge of turf :

- Remove Clevis End 'C', from Top Lever Arm 'D'.
  - Loosen the Shoe Arm Clamp Bolt 'E'.
- The Top Lever Arm 'D', should rotate **'clockwise'** approximately **80 to 90 degrees**, releasing the spring tension.

If the Lever Arm rotates 'back' **less than 80 degrees**, re-set it by loosening the Clamp Bolt 'F', and turning the Lever Arm the required **80 to 90 degrees**.

- Tighten the Clamp Bolt 'E'.
- Fit a 1¼ in. wrench on the Lever Arm Boss and rotate the Top Lever Arm 'back' **80 to 90 degrees, against spring pressure**.
- Refit the Clevis End 'C'.



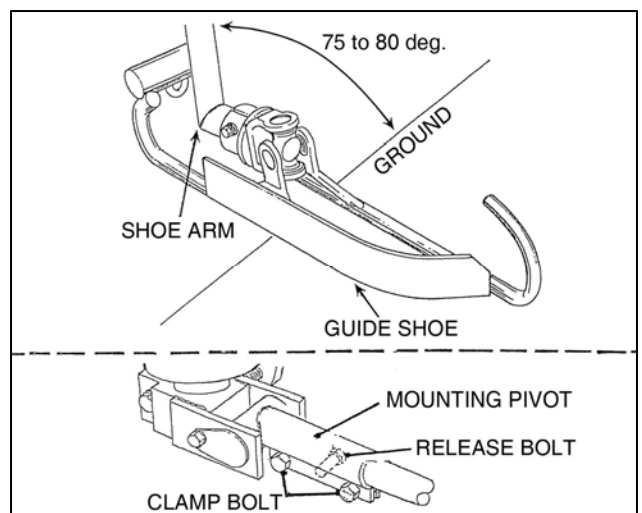
## Shoe Arm Adjustment.

The Guide Shoe Arm must be at a **75 to 80 degree** angle to the ground.

### To adjust the Shoe Arm angle :

Loosen the two Clamp Bolts in the Mounting Pivot.

- Tighten the Release Bolt to 'open up' the clamp and rotate the Shoe Arm to the correct angle.
- Back-off the Release Bolt and tighten the Clamp Bolts.

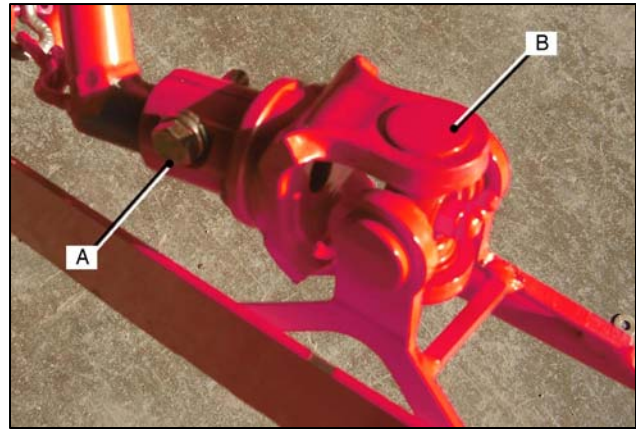


# OPERATION

## Guide Shoe Adjustment.

The Guide Shoe must be correctly adjusted as follows :

- Loosen the Yoke Clamp Bolt 'A', and rotate the Guide Shoe 'B', until there is  $\frac{1}{4}$  inch clearance between the **inside edge** of the shoe and the ground.
- Tighten the Yoke Clamp bolt.

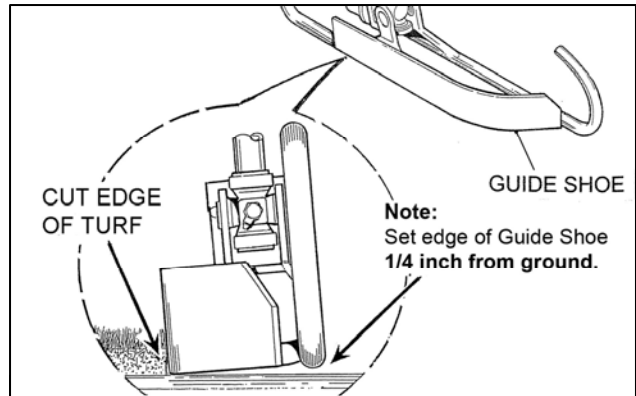


## Re-Set Cylinder Chain Adjustment.

The Re-Set Cylinder 'C', must be attached to the chain at a point that allows the Guide Shoe to travel no more than **2 to 4 inches past the 'cut edge'** onto the uncut turf.

### IMPORTANT

The Reset Cylinder chain links must be adjusted before the adjustment to the Stop Bolt. See below.



## STOP BOLT ADJUSTMENT.

The Stop Bolt 'D', determines where the Guide Shoe will 'drop' on the **ground** when the Auto-Steer is activated.

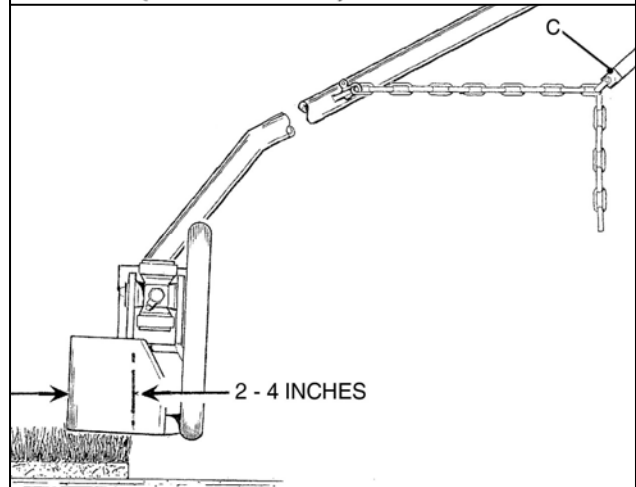
For most harvesting conditions the Stop Bolt is adjusted to position the Guide Shoe 1 to 2 inches away from the 'cut edge'.

If the conditions require adjustment to the Guide Shoe :

'Away' from the cut edge :

- Back-off the Locknut and turn the Stop Bolt 'IN'.
- Turn the Stop bolt 'OUT'.

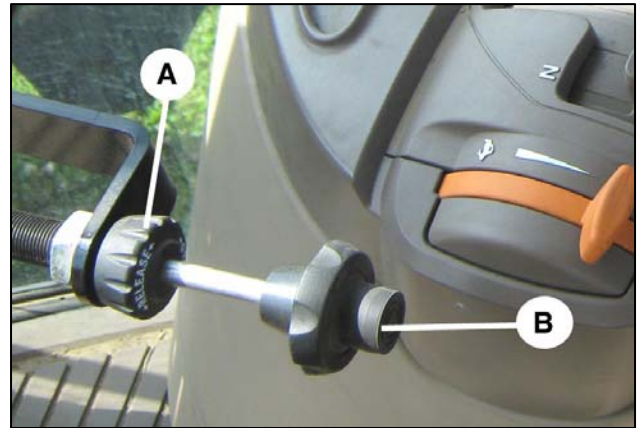
After adjustment **fully tighten the Locknut.**



## Tracking Adjustment.

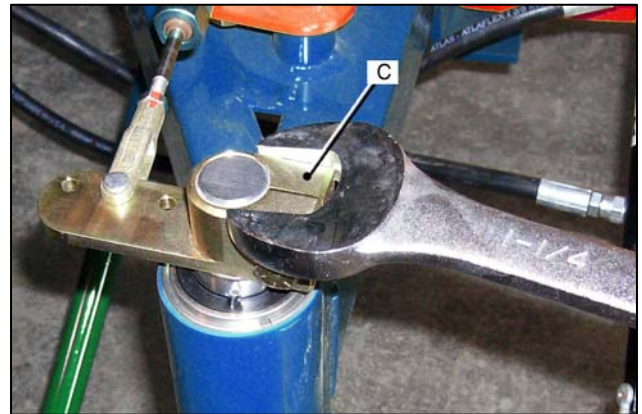
The recommended method of setting the tracking is :

- Position the harvester 'ready to cut'.
- With the Auto-Steer switched '**OFF**,' cut a strip of turf, for a minimum distance of 20 feet, it **must be cut straight**.
- Stop the harvester.  
The harvester will be parallel to the cut edge, the steering wheels 'straight ahead', and the Cutter Head 'DOWN'.
- Switch the Auto-Steer '**ON**', the Guide Shoe will 'drop'.

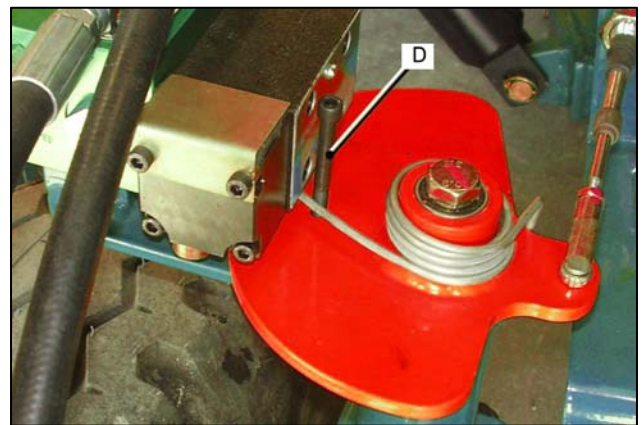


To Set the Fine Adjust Control to '**Mid-Point**':

- Release the Fine Adjust Control 'lock' '**A**'.
- Press on the End Button '**B**', and slide the Control Knob Rod '**in or out**', to find its mid-point of travel.
- Re-tighten the Control 'lock' '**A**'.
- Position the Guide Shoe against the 'cut edge' of turf.
- Fit a 1 ¼ in Wrench '**C**', on the Top Lever Arm.
- Use the wrench on the Lever Arm to rotate the Cam
- until the ¼ inch hole in the Cam aligns with the hole in the Support Plate.
- Insert a ¼ in. Bolt '**D**', in the holes to lock the Cam in place.



The Sensor Valve will now be in the '**NEUTRAL**' position.



To prevent **any movement** of the Top Lever Arm and Spring Column Shaft, use the wrench to hold the Top Lever Arm firmly, against spring pressure and :

- Loosen the Shoe Arm Clamp Bolt '**E**', and move the Guide Shoe against the 'cut edge' of the turf.
- Tighten the Shoe Arm Clamp Bolt.
- 



### IMPORTANT

Before operating the Auto-Steer the ¼ in. bolt **must be removed** from the Cam. Failure to do so will result in damage to the Auto-Steer mechanism.

# OPERATION

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## Sensitivity Adjustment



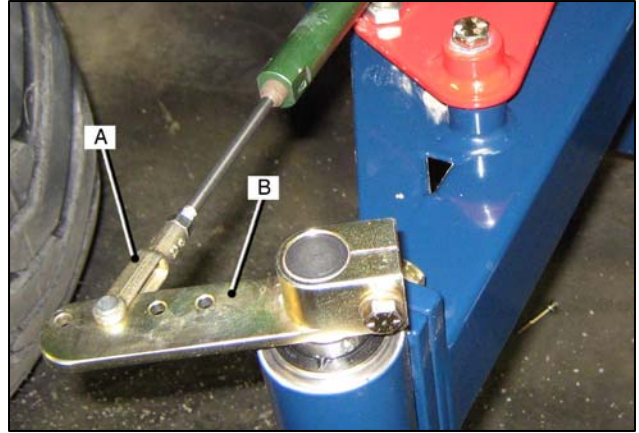
### CAUTION

The Top Lever Arm is under spring tension. Exercise care when removing the Cable Clevis End from the Top lever Arm, or when loosening the Lever Arm Clamp Bolt.

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On initial set-up the Cable End 'A', from the Sensitivity Valve may be attached at the second outer hole in the Top Lever Arm 'B'.

- To **'increase'** sensitivity, re-position the Rod End Clevis in the **'outer'** hole in the Lever Arm.
- To **'decrease'** sensitivity, re-position the Rod End Clevis at the second **'inner'** hole in the Lever Arm.



## Rotary Brush

The rotary brush is used to sweep grass clippings, stones, or other debris from the turf, immediately before cutting. The unit installs to the front plate of the cutting head and is powered by a hydraulic motor.

The motor is plumbed in line with the cutting head motor, so that it will start when the cutting head is engaged.

For installation or repairs, refer to the rotary brush section of the parts manual for a full layout and parts description.



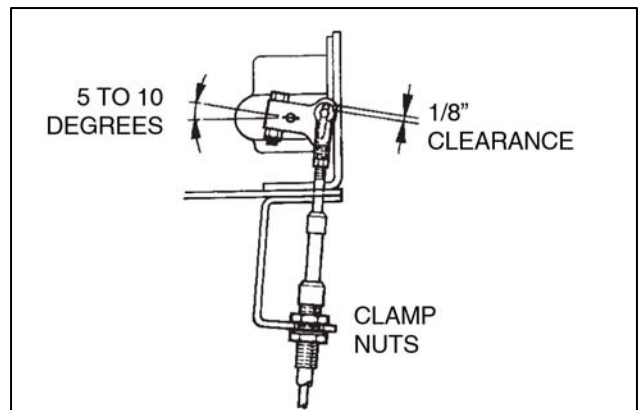
## Counter

The counter is standard equipment on the slapper option, but is available as an accessory on the roll-up option. The unit will count rolls or slabs. Refer to the counter section of the parts manual for a full layout and parts description.

The counter is activated by the cut off stroke of the cut-off frame. The counter arm has a slot to prevent variations in the stroke of the cutting frame from causing damage to the counter.

The following set-up procedure should be followed:

1. Set the counter arm at a position 5 to 10 degrees from perpendicular to the cable (See diagram.)
2. flush with the inside thread end of the yokes.
3. Set the cut-off frame so that it is sting on the rubber bumpers.
4. Using the adjustment provided by the clamp nuts on both ends of the cable housing, set the cable so that the clevis pin at the counter arm has 1/8" clearance to the upper end of the slot.



# OPERATION

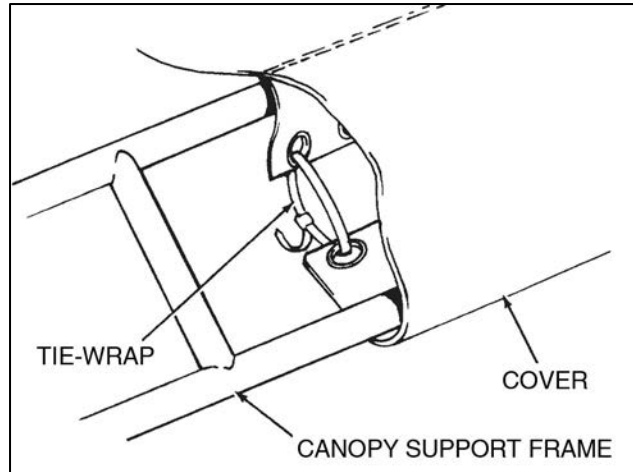
## Canopy & Lights

The canopy provides some degree of protection from the hot sun and provides a convenient mounting for three work lights that allow you to stretch the workday.

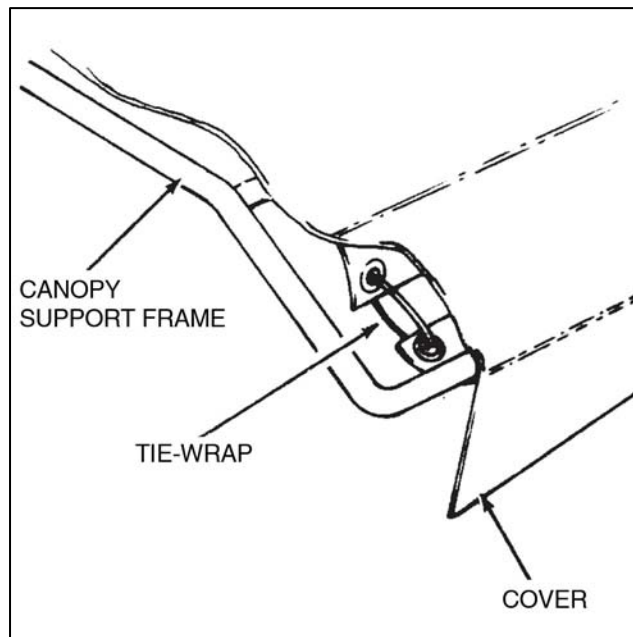
Refer to the Canopy & Lights section of your parts manual for part numbers, a full layout, and parts descriptions.

The cover is fastened to the canopy frame with nylon tie straps. See illustration.

Position the work lights in appropriate positions to highlight the piling cavity, the roll up tray or slabber, and the cutting head. More than three lights will cause a drain on your electrical system.



**Side Cover Installation**



**Front Cover Installation**

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## SECTION 5

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### SERVICE

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# SERVICE

## Cylinder Lock

**CAUTION**

A CYLINDER LOCK IS SUPPLIED WITH THE LIFT ARM TO ELIMINATE THE POSSIBILITY OF THE LIFT ARM LOWERING THE CONVEYOR BY THE LOSS OF HYDRAULIC PRESSURE DUE TO EQUIPMENT MALFUNCTION OR HUMAN ERROR.

FOR THE SAFETY OF THE SERVICE MECHANIC, THE OPERATOR, OR ANY PERSON IN THE VICINITY OF THE MACHINE UNDERGOING REPAIR, THE CYLINDER LOCK MUST BE IN PLACE, IN THE SERVICE POSITION, BEFORE ANY REPAIRS OR ADJUSTMENTS ARE BEGUN.



Be sure to replace the cylinder lock in the storage position when it is not in use so that it will be available when required.



## Lubrication Instructions

### General

1. Sleeve type bearings, bushings, and wear points should be greased daily to flush out dirt and contamination, and to assure sufficient lubrication

le:

- Roll-up tray arms
- Starter tray arms
- 4" roller arms
- Idler arms
- Cut-off blade frame shaft
- Cut-off blade support shaft

2. Sealed type bearings should be greased sparingly every 150 hours of operation, or more often in sandy, abrasive conditions. To avoid damage to seals, do not over grease.

le:

- Crankshaft bearings
- 8" roller bearings
- Conveyor drive shaft bearings
- Conveyor idler shaft bearings
- Roll-up tray drive shaft bearings
- Roll-up tray idler shaft bearings
- 4" roller drive shaft bearings
- Cut-off cam shaft bearings
- Cutter drive shaft bearings

Refer to pages 5-02 & 5-03 for locations.

- 1 indicates sleeve type bearing
- 2 indicates sealed type bearing

3. Oil roller chains daily

### Hydraulics

Change the hydraulic oil annually or every 750 hours of operation.

Replace the Harvester high efficiency oil filter cartridge after the first 25 hours of operation and every 250 hours thereafter.

### WHEEL LUG BOLT, LUG NUT TORQUE

	John Deere	New Holland
Rear Lug Nuts	275-300 ft. lbs.	188 ft. lbs.
Front Lug Bolts 2WD	130 ft. lbs.	85 ft. lbs.
Front Lug Bolts 4WD	220 ft. lbs.	188 ft. lbs.

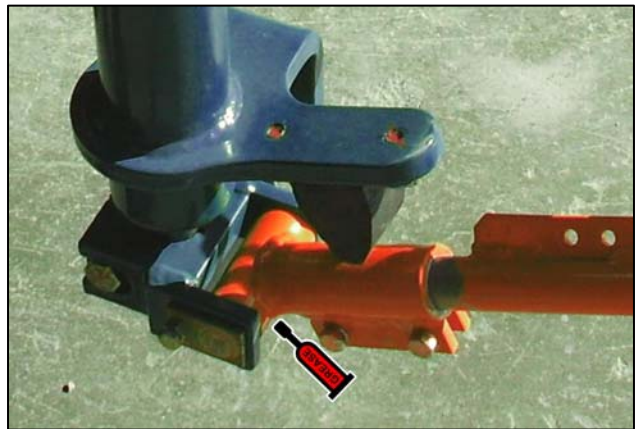
Torque should be checked after the first 20 hours of operation and every 100 hours thereafter.



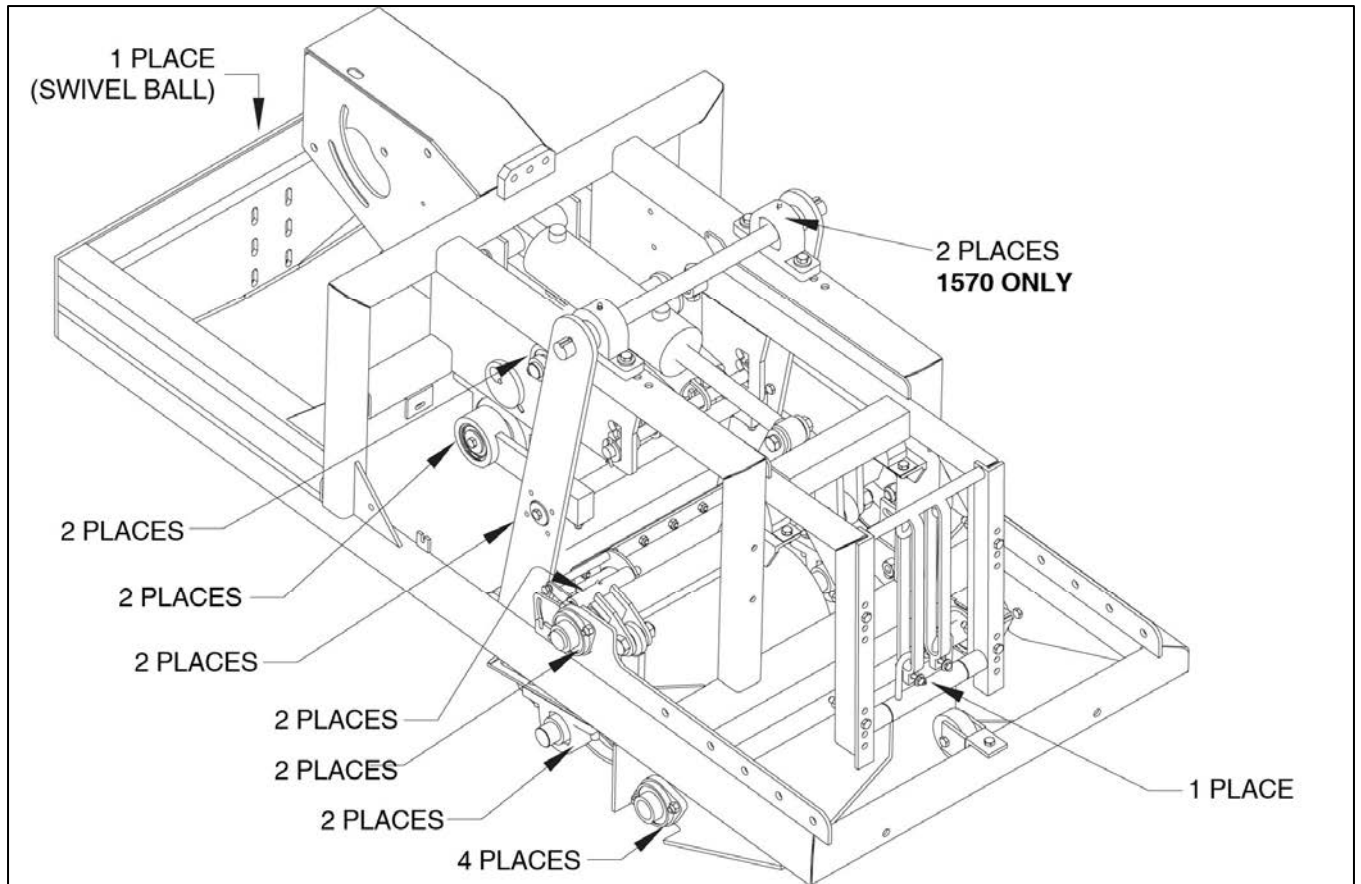
Cylinder Lock Lubrication



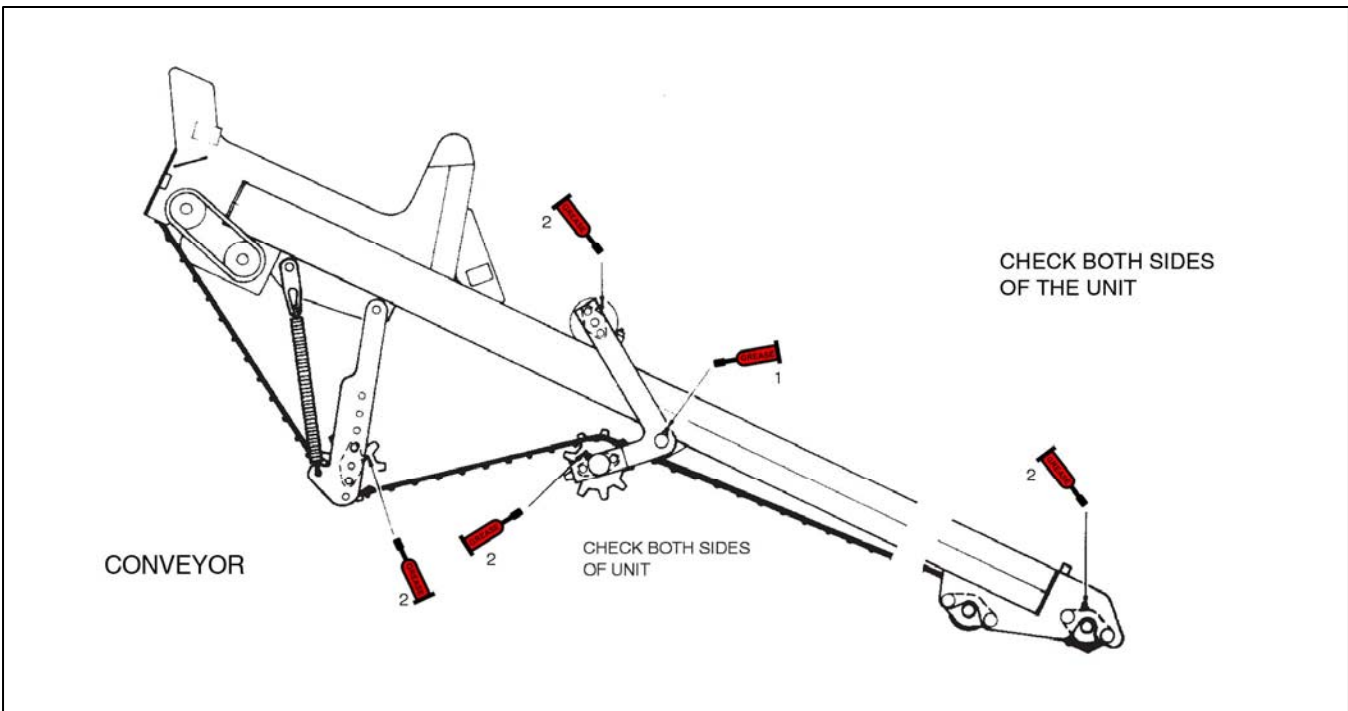
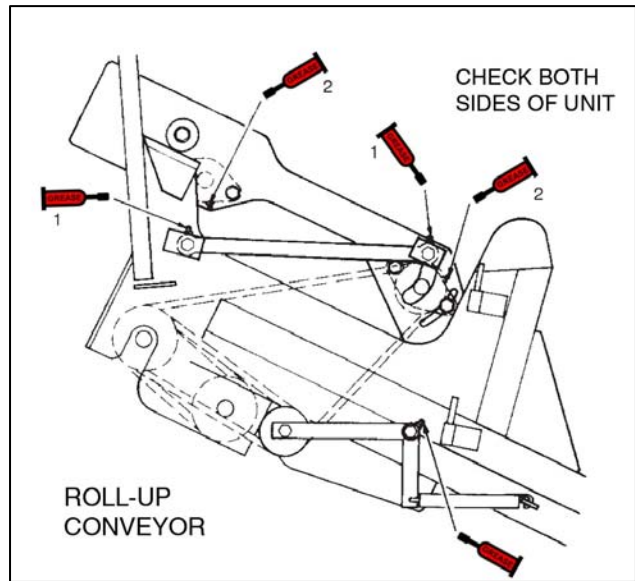
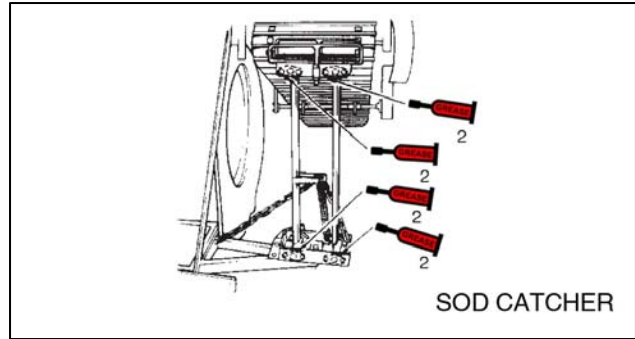
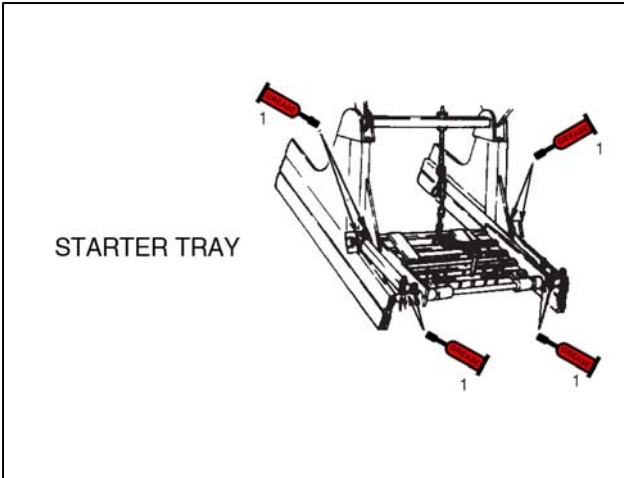
Auto-Steer Lubrication



Cutter Head Lubrication Points

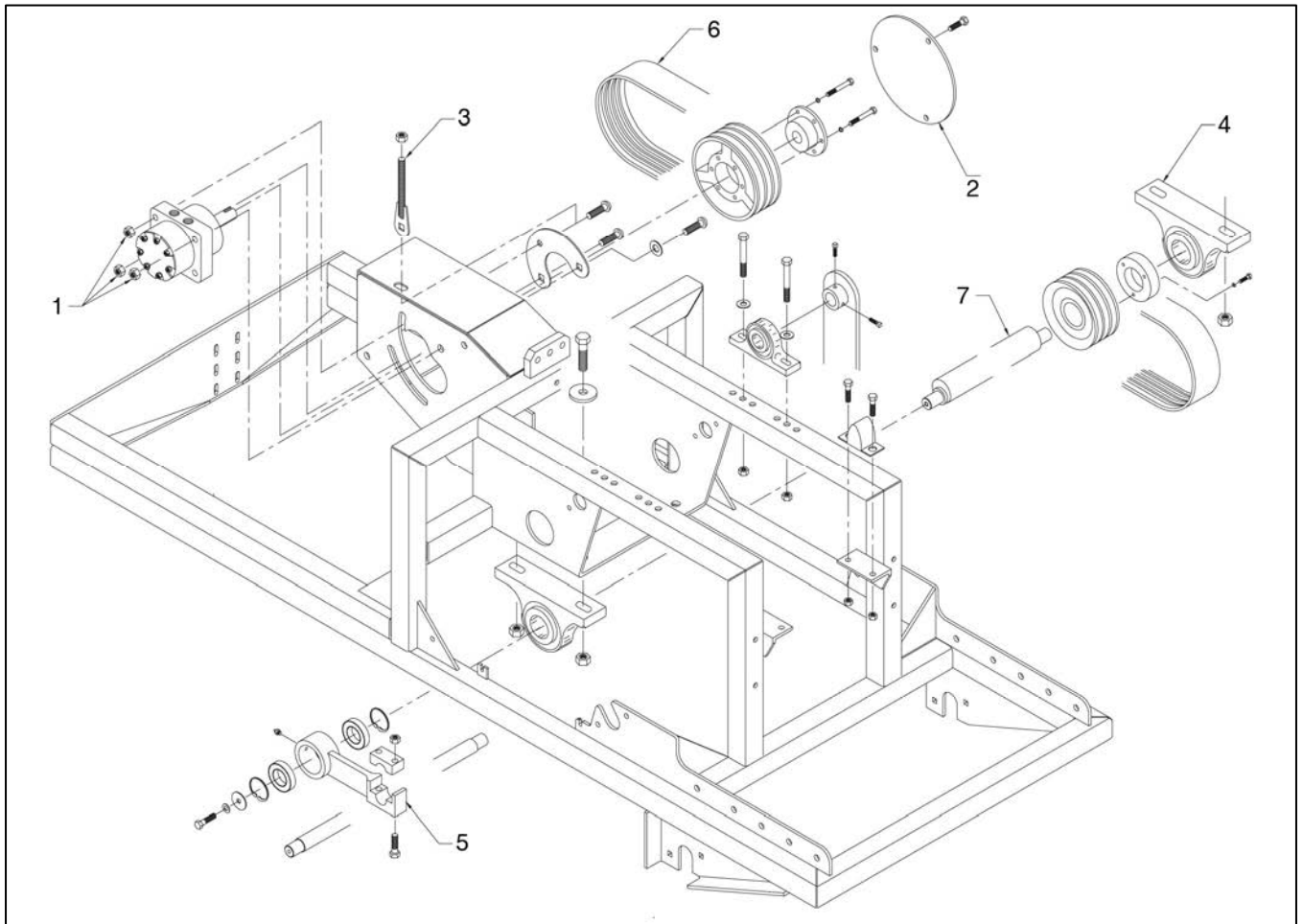


# SERVICE



## Cutter Drive: V Belt Replacement

1. Raise the cutting head with the conveyor lift and install the cylinder lock, as described on page 5-01.
2. Loosen the three locknuts (Ref. 1) on the cutter drive motor and remove the cover (Ref. 2) on the opposite side of the housing. Back off the tensioning nut (Ref. 3) to the end of the thread.
3. Remove the bolts from the nearest pillow block bearing (Ref. 4) which supports the crankshaft.
4. Remove the two bolts and cap from the connecting rod (Ref. 5) and swing rod down. Loosen the bolts in the other connecting rod to prevent rod from twisting.
5. Pry the pillow block bearing (Ref. 4) down far enough for the belt to pass through.
6. Replace old belt (Ref. 6). Install on the crankshaft pulley first, and then drive motor pulley.
7. Replace the bolts which hold the pillow block bearings, making sure that the crankshaft is square to the frame. Replace the connecting rods in the original position and tighten.
8. Adjust the belt tension as described on page 3-11. Replace the safety cover on the housing, and tighten all connections.
9. Remove the cylinder lock and install in the storage position.
10. Remember to check the belt tension during the break-in of the belt.



# SERVICE

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## Cutter Drive: To Replace Connecting Rods or Crankshaft

Refer to illustration on page 5-04. Also refer to parts manual for a complete parts breakdown and part numbers.

1. Raise the cutting head with the conveyor lift, and install the cylinder lock as described on page 5-01.
2. Loosen the three locknuts (Ref. 1) on the cutter drive motor and remove the cover (Ref. 2) on the opposite side of the housing. Back off the tensioning bolt nut (Ref. 3) to the end of the thread.
3. Remove the bolts from the nearest pillow block bearing (Ref. 4) which supports the crankshaft.
4. Remove the bolts and caps from the connecting rods (Ref. 5).
5. The cutting blade arms will now swing forward and the V belt can be removed from the drive motor pulley, and then from the crankshaft pulley and related parts.
6. Remove the bolts from the other pillow block which supports the crankshaft (Ref. 7). Take care that the crankshaft, pillow blocks and connecting rod assembly does not drop or pinch your hands.
7. The crankshaft, pillow blocks and connecting rod assembly will now drop down into the conveyor mat, and can be slid up the conveyor for removal.
8. The bearing in the end of the connecting rod is a press fit in the connecting rod, and a press fit on the crankshaft. However over time, the bearing is usually "frozen" on the crankshaft journal, and may require a gear puller for removal. Remove the retaining bolt from the journal, and use a gear puller to remove the complete connecting rod from the crankshaft. Using an old nut, or similar object on the end of the journal, will prevent damage to the threads by the gear puller. The new bearing will be a press fit on the journal.
9. The bearings in the end of the connecting rod are replaceable. Remove the clip rings for both sides of the rod end, and using a gear puller or suitable arbor press remove the bearings. Replace one clip ring and press the bearings in using a suitable plate or punch to only exert pressure on the outer race, to avoid damage to the bearing. Do not over press or damage may occur to the clip ring or groove. Install the second clip ring and the connecting rod is ready for service.

10. The pillow block bearings can be removed from the crankshaft by loosening the lock collars. Remember that lock collars should be tightened in the direction of rotation and loosened opposite to the direction of rotation. Loosen the set screws in the lock collars and using a suitable drift or punch, tap the lock collar to loosen. The bearing should now slip from the shaft. It may be necessary to remove the dimples left by the set screws, similar marks or rust, before the bearings can be removed.
11. The sheave is removed from the crankshaft by removing the lock screws from the tapered hub, and inserting them in the jacking holes. By exerting equal pressure with each screw the joint is "cracked" to allow the sheave to be removed.
12. Reassemble the sheave, crankshaft, pillow blocks and connecting rods, but do not tighten the pillow block lock collars or the tapered bushing to the sheave at this time, to allow for alignment on final assembly.
13. Slide the assembly down the conveyor and into position to complete the assembly using steps 7 and 8 of the Cutter Drive V Belt Replacement instructions on page 5-04.
14. Make sure the crankshaft is properly lined up with the connecting rods and the cutting blade arms, and lock up the lock collars on the pillow blocks. Tighten the set screws.
15. Using a suitable straight edge, line up the sheaves of the cutter drive motor and the crankshaft, and tighten the lock screws in the tapered hub. (allow for slight movement in lock up).



### CAUTION

**IF ADJUSTMENTS OR REPAIRS MUST BE DONE WITH THE CONVEYOR LIFTED, USE THE LIFT SUPPORT AS SHOWN ON PAGE 5-01, TO PREVENT INJURY DUE TO ACCIDENTAL RELEASE OF THE LIFT MECHANISM.**

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16. Adjust the belt tension as described on page 3-11. Replace the safety cover on the housing, and tighten all connections.
17. Remove the lift support, and install in the storage position.
18. Remember to check the belt tension during the break-in of the belts.

## Rubber Conveyor Belt: Installation

Before installing the rubber belt, the conveyor should be prepared to make the alignment more convenient.

The rubber belt will be impossible to align, unless the drive shaft assembly at the upper end of the conveyor is at right angles to the conveyor frame. If problems are encountered in alignment, be sure to check this item.

The crowned roller assembly, at the bottom, or front end of the conveyor, is designed for easy adjustment, with a wedge type adjuster on each side of the assembly.

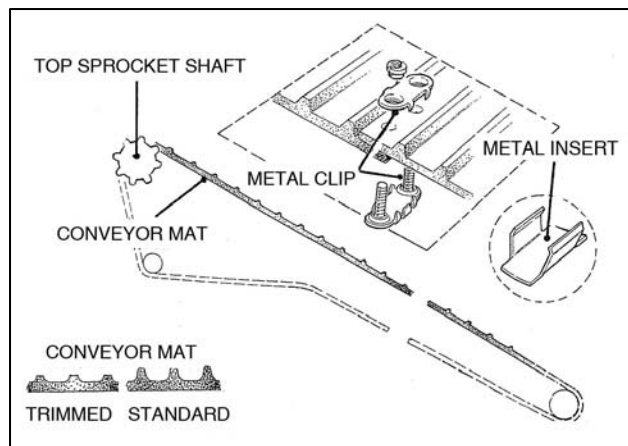
### NOTE

**THE RELATIONSHIP OF THE SOD GUIDE BRACKET ON THE CUTTING BLADE, TO THE CONVEYOR, MUST BE CONSIDERED. THE CROWNED ROLLER MUST BE SET SO THAT THE SOD GUIDE BRACKET DOES NOT STRIKE THE CONVEYOR IN OPERATION.**

Set the crowned roller assembly in the approximate position, determined by the backward stroke of the cutting blade, and allowing for the thickness of the rubber belt, plus some room for adjustment, as the assembly will move forward slightly in the alignment.

The crown roller scraper must also be in place to prevent dirt build up on the roller. It is impossible to service this scraper with the rubber belt in place.

Snug up the mounting bolts in this position, but do not tighten at this time. This is to allow some movement for alignment.



Take care that all splices are made in the same direction, with the lower end of the belt spliced on top of the upper end as shown in the illustration. Tighten the fasteners at the belt splice using the nut driver, Part no. M5016. Break off the excess stud length, after you are sure the splice is correct. Studs cannot be re-used after the ends are broken off.

### CAUTION

**DO NOT OPERATE THE CONVEYOR UNLESS THE STUD ENDS ARE BROKEN OFF. SERIOUS INJURY TO THE OPERATOR, OR DAMAGE TO THE EQUIPMENT COULD RESULT.**

The idler roller assembly which is located to the rear of the crown roller assures the smooth passage of the rubber belt over the cutting head and cradle. The idler rollers should be located directly in line with the holes in the belt, and run on the steel clips.

The mid idler assembly supports the return portion of the belt. Take care that the sprocket teeth run in the center of the holes in the belt. The sides of the holes should not climb the sprocket teeth. Be sure to check for this problem after a belt alignment is made.

The tensioning belt idler maintains the proper tension on the belt. A series of seven holes allows the idler shaft to be set in any five different positions, to allow for stretch for shrinkage in the belt, due to climatic conditions. The idler arm must be kept from reaching a 90 degree point to the harvester frame, or the idler will be pulled over center by the tension spring, and all tension will be lost.

### NOTE

**PLEASE TAKE NOTE THAT THE ILLUSTRATIONS ARE FOR REFERENCE ONLY. FOR MORE DETAIL, AND A COMPLETE BREAKDOWN OF PARTS, REFER TO THE APPROPRIATE PART OF THE PARTS MANUAL.**

# SERVICE

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## Conveyor Sliders

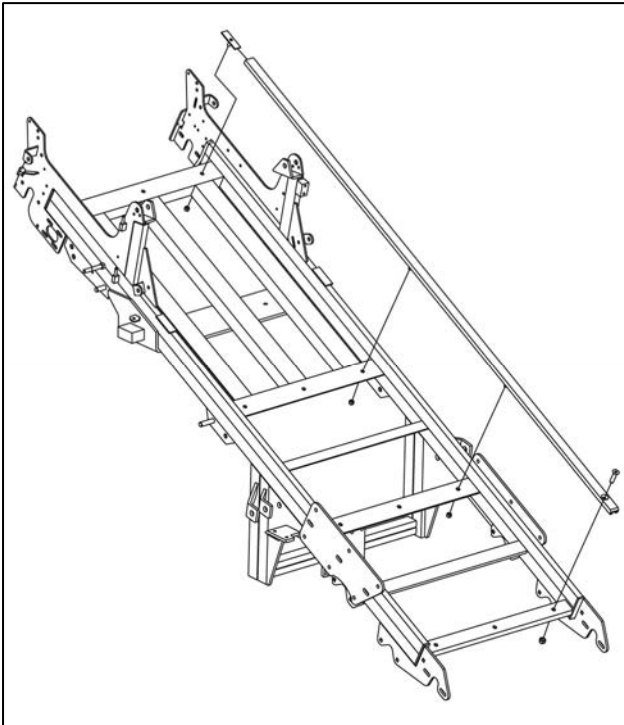
On the Sod Harvester, Brouwer has eliminated the multitude of rollers which were used to support the conveyor belt on previous models of sod harvesters.

The sliders which replace the rollers, are made from an ultra high molecular weight (UHMW) polyethylene. They require no grease and are maintenance free.

Although the sliders have an excellent service life, eventually they will have to be replaced. The first indication of wear will probably be directly under the roll-up tray. Check this area for wear periodically. Do not be fooled by the apparent thickness of the slider. Due to the 'T' slot used for mounting, the wear surface is 3/8" thick

The sliders are held in place with three 'T' bolts, and one flat head socket cap screw. Only moderate clamping is required for the flat head screws. Excess clamping may damage the slider. The 'T' bolts should only be 'snugged' up, to allow the slider to move with the expansion and contraction due to temperature fluctuations. If the 'T' bolts are clamped tight, the slider may buckle.

The 16" and 18" conveyor will use two sliders, while the 24" conveyor will use three. If a slider is replaced due to wear, it is wise to replace the set to prevent tapered rolls when harvesting.



## Roller Chain Replacement



### CAUTION

ROLLER CHAIN LENGTH IS CRITICAL. INCORRECT CHAIN LENGTH CAN RESULT IN DAMAGE TO CAM SHAFT, REFER TO CUT-OFF LENGTH ADJUSTMENT IN SECTION 3.

## Removal and Replacement

To remove or replace the sliders, release the tension provided by the tensioning belt idler, to allow the belt to be raised enough to provide access to the slider and its fastenings.

Remove the four locknuts which hold the slider in place, and remove the slider from the machine.

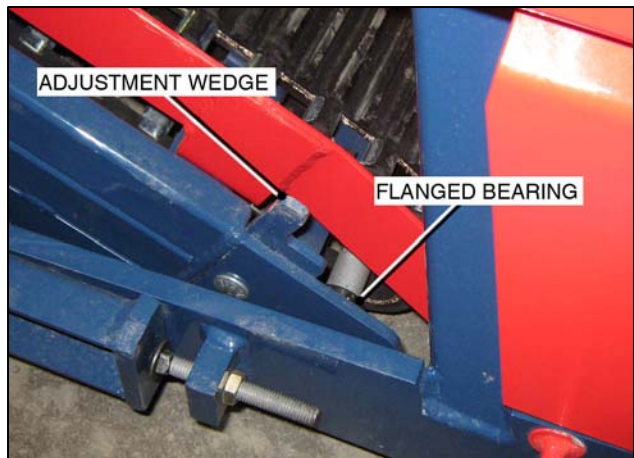
The material used in the sliders will expand or shrink considerable with changes in temperature or humidity. Care must be taken when mounting the sliders to the conveyor frame.

## Rubber Belt: Alignment Procedure



### CAUTION

**DO NOT PERFORM THIS PROCEDURE ALONE. TWO PERSONS ARE REQUIRED. ONE TO CONTROL THE HARVESTER, AND ONE TO PERFORM THE ADJUSTMENT. BE ALERT, USE EXTREME CARE.**



The bolts in the flange bearings should be snug, but not tight, for this procedure.

Start the conveyor at low speed. If the belt tends to track to one side, tap the adjustment sedge on the opposite side, using a hammer and a long punch, or suitable length metal rod. This will move the flange bearing to compensate for the runoff. Be gentle, do not overdo it. If the belt tracks to the opposite side, repeat the operation for that side. Remember that the crowned roller cannot be moved back unless the adjustment wedges are raised.

If the belt does not want to track square to the frame, check the drive shaft assembly at the opposite end of the conveyor.

The drive shaft assembly has an adjustment bolt on the inboard flange bearing. Loosen the bolts on the flange bearing, but leave them snug. Loosen the locknut on the adjustment bolt. Turning the bolt in will track the belt to the outboard side; turning the bolt out will track the belt to the inboard side. Be sure to tighten the locknut and the flange bolts, when the adjustment is complete.

When the belt tracks properly, shut off the conveyor and tighten the mounting bolts of the flange bearings and adjustment wedges.

Check that the tensioning belt idler, the mid idler assembly and the idler roller assembly are tracking properly as previously outlined.

## Mintex Conveyor Mat Installation

Proper alignment of the mintex mat will greatly improve the service life of the mat and sprockets. Care must be taken to assure that the drive shaft assembly and all three idler assemblies are square to the conveyor frame and parallel to each other.

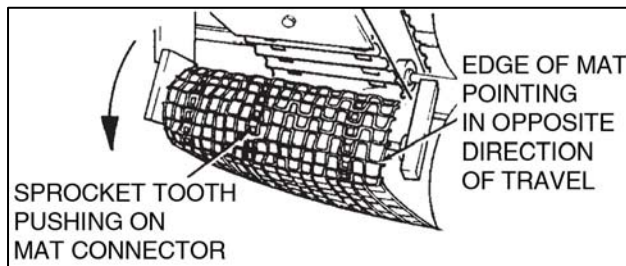
All sprockets on a shaft should be in line across the width of the mat so that the teeth engage the mat uniformly. The cross rods in the mat should contact the drive face of the sprocket teeth.

This can be accomplished by setting the idler sprockets 1" closer to the center of the mat, than the drive sprockets. This is especially essential with the mid idler sprockets when they are used to drive the 4" roller of the roll-up option. Be sure to replace the sprockets when they become worn as worn teeth can do serious damage to a mintex mat.

The sprockets of the drive shaft and idler assemblies must be in line down the length of the conveyor (with the exception of the 1" off set). All set screws in the sprockets should be checked to assure that they are tight.

### Installing Mintex Conveyor Mat

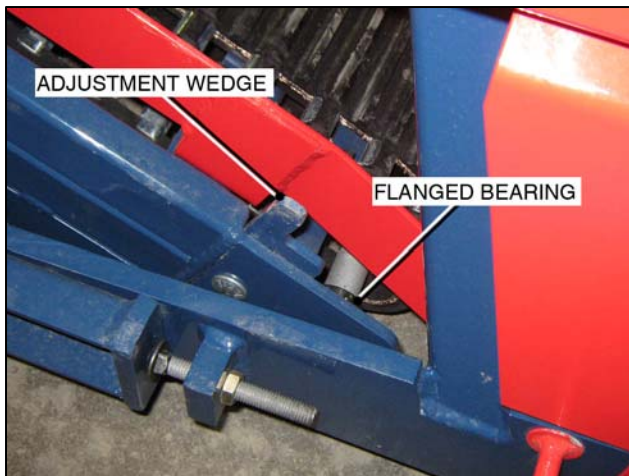
When installing a mintex mat it is essential that the formed links on the edge of the mat, should point opposite to the direction of travel. Refer to the illustration. The drive face of the sprocket teeth must contact the cross rods. The flat face of the openings in the mat should not be in contact with the face of the sprocket teeth. The sprocket teeth should be centered in the openings of the mat, and should not contact either side of the opening, or excess wear will occur and cause early failure of the mat, and/or sprockets.



The mintex mat will stretch though use and should be shortened to prevent it from jumping over the teeth on the sprockets. The connector rod can be recognized by the double nut on one end of it. If this is taken out and the mat shortened, it can be put back again to join the mat. The mat should not be tight, but should have some slack and operate freely.

# SERVICE

## Mintex Conveyor Mat: Alignment Procedure



The mintex mat normal does not require alignment if the adjustment wedges are all the way up and the shaft with sprockets is all the way back. If this shaft is too far forward it can contact the cutter knife and cause damage to the mat.

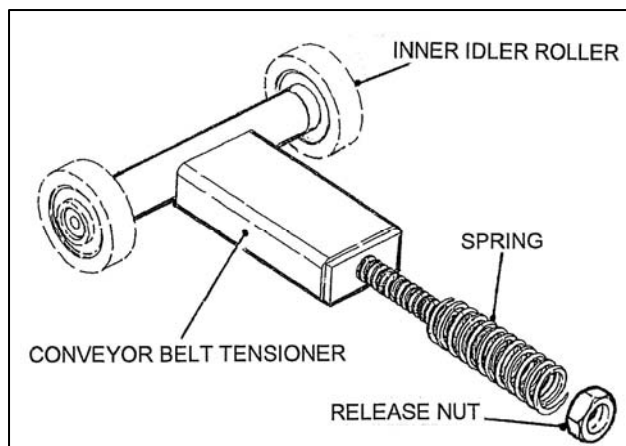
If the mat does not want to track square to the frame, check the drive shaft assembly at the opposite end of the conveyor.

The drive shaft assembly has an adjustment bolt on the inboard flange bearing.

Check that the mid idler assembly and the idler roller assembly are tracking properly.

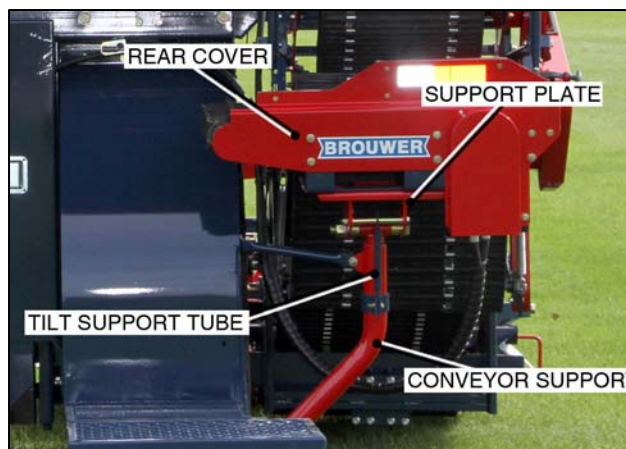
## CROSS CONVEYOR BELT REPLACEMENT

To replace the conveyor belt :  
Pull the Conveyor assembly back, and also tilt it up as high as possible on its support stand. See Fig 55  
Remove the front cover.  
Slacken the belt by tightening the belt tension release nut, this compresses the belt tensioner.  
Remove the inner Idler Roller. This will allow the belt to be taken off the drive sprockets and outer Idler Roller.  
Fit the new belt over the drive sprockets and the outer Idler Roller. Refit the inner Idler Roller. Loosen the release nut **right-off**. Replace the front cover and re-position the Cross Conveyor as required.



## CROSS CONVEYOR SUPPORT STAND ADJUSTMENT

The Cross Conveyor can be adjusted in four directions, and also tilted. Slots in the conveyor base plate, in the support plate and a tilt support tube allow a wide range of adjustment to accommodate the pilers requirements.





**Control Lever Adjustable Stops****Conveyor Lift Arm Lever**

To raise cutting head faster:

Adjust nut **A** toward spool valve

To raise cutting head slower:

Adjust nut **A** away from spool valve

To lower cutting head slower:

Adjust nut **A** toward spool valve

To lower cutting head faster:

Adjust nut **B** away from spool valve

**Depth Control Lever**

To lower the roller faster (less control when setting thinner sod):

Adjust nut **C** toward the spool valve.

To lower the roller slower (more control when setting thinner sod):

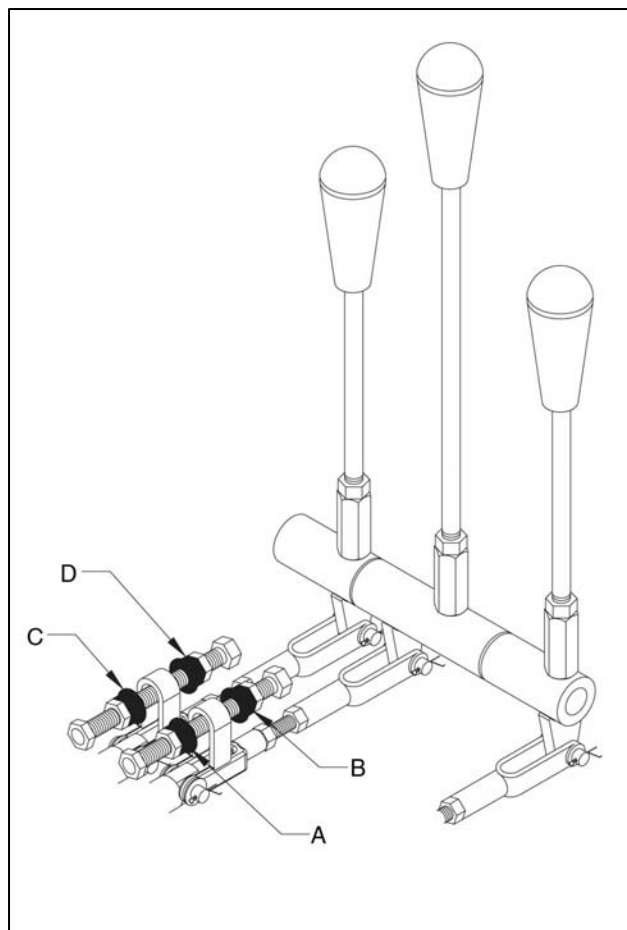
Adjust nut **C** away from the spool valve.

To raise the roller slower (more control when setting thicker sod):

Adjust nut **D** toward the spool valve.

To raise the roller faster (less control when setting thicker sod):

Adjust nut **D** away from the spool valve.

**Control Lever Adjustment**



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