BROUWER SOD HARVESTER

1576*JD* Roll Model

OPERATOR'S MANUAL

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SECTION 1

INTRODUCTION

INTRODUCTION

The **1576 Brouwer Sod Harvester** features an independent floating cutting head that improves sod quality by reducing scalping and maintaining consistency. It also reduces waste and increases yield, being able to cut close to irrigation pipes, ditches and fences.

Mounted on a John Deere 5065E Tractor the 1576 Sod Harvester delivers exceptional maneuverability along with small tractor economy and lasting value.

Operating off uncut turf, the 1576 Sod Harvester can harvest all types of grasses on varying types of soil, in wet or dry, soft or hard conditions. It 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 accessory 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

WIDTH OF CUT	16in. (406 mm.) 18 in. (457 mm.) 24 in. (610 mm.)
LENGTH OF CUT	24 in. (610 mm.) to 100 in. (2540 mm.)
DEPTH OF CUT	Up to 2 1/8 in.(54 mm). Power adjustable.
PERFORMANCE	1500 Rolls (1260 m/sq.) per hour.
CONTROLS	Individual control levers for each function.
CUTTER / CONVEYOR DRIVES	Hydraulic Motor.
CUTTING BLADES	One Piece or Three Piece.
CONVEYOR & ROLL-UP	Rubber Belt. Standard Profile. Opt: Low Profile. or Metal Mintex.
PALLET SIZE	48in. (1219mm.) X 48 in. (1219mm.) Standard.
OPERATING DIMENSIONS	L.204 in. (5182 mm.) W.120 in. (3048 mm.) H.104 in. (2641 mm.)
TRANSPORT DIMENSIONS	L. 210 in. (5334 mm.) W. 94 in. (2388 mm.) H. 92 in. (2337 mm.)
CONSTRUCTION	High Strength Steel Weldment.
WEIGHT (Harvester Conveyor only)	3610 lbs. (1637 kg.) Plus options/accessories.
WEIGHT (All Harvester Components)	7406 lbs. (3359 kg.) Plus options/accessories.

TRACTOR	**John Deere Model 5065E**
HORSE POWER	65. (55 @ pto.)
TRANSMISSION	Collar Shift.
STEERING	Hydrostatic Power.
TIRES (Industrial)	F: 11-L15. R: 19.5x24
TRACTOR WEIGHT	2WD: 4634 lbs.(2102 kg.) 4WD: 5070 lbs.(2300 kg .)

OPTIONS	**ACCESSORIES**
Slabbing Attachment.	Auto-Steer
Roll Attachment.	Brush Attachment.
Roll Cross Conveyor.	Roll Count. Std.on Slab.
Tires:	Canopy & Work Lights.
Rear - High Flotation.19.5-24.	Adj. Piling Wall.
or Turf Tires.16.9-24 (2wd only).	Piling Wall extention:
	20in. (508mm)
	10in. (254mm).

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.

SECTION 2

SAFETY

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.**

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.

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
See page 2-12.

WARNING

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

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.

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.

⚠ CAUTION

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.

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

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.

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

To Prevent collisions between other road users, slow moving tractors with attachments or towed equipment and self-propelled machines on public roads must 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.

WARNING

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 so as to need 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.

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 before making any repairs. Disconnect the negative terminal first. Reconnect positive first.

Carefully release pressure from components with stored energy.

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 jack-stands. 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 container 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 fill cap from the fuel tank, or add fuel, when the engine is running or while 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 fill cap securely.

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.

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.

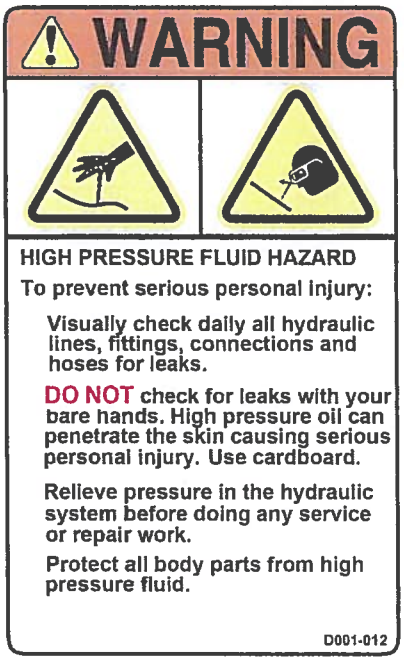
Hydraulic System

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.

Service Cooling System

CAUTION

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

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

WARNING

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

CAUTION

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

WARNING

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

Avoid the hazard by:

- Filling the batteries a well-ventilated area.
- Wearing eye protection and rubber gloves.
- Avoiding breathing fumes when electrolyte is added.
- Avoiding spilling or dripping electrolyte.
- 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.

WARNING

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.

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, then 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.

NOTE

No power steering if engine is not running.

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 section 5.
Check torque at intervals recommended to ensure that the wheel hardware does not loosen.

Reinstall shields removed during service.

NOTE

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.

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 relive 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.
Repair damaged parts 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

CAUTION

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

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 dispense 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 of pressurized fluid Lines

CAUTION

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.

DECALS


WARNING
Do not service or repair this machine with attachments in the raised position unless they are securely blocked. Failure to do so could result in death or serious injury.
D001-029
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
Left Rear Fender
CAUTION
AVOID INJURIES. READ OPERATOR'S MANUAL BEFORE OPERATING MACHINE.
202525
DANGER
D001-F17
PELIGRO
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
D001-019
WARNING
Fasten your seat belt
Rear Beam
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
Rear Beam
4136127
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
Pump Drive
IMPORTANT
DO NOT OVERFILL
Max. Oil Level
D001-069
2000653
HYDRAULIC OIL
CONSULT OPERATOR'S MANUAL
D001-022
WARNING
HIGH PRESSURE FLUID HAZARD
To prevent serious personal injury:
Visually check daily all hydraulic lines, fittings, connections and hoses for leaks.
DO NOT check for leaks with your bare hands. High pressure oil can penetrate the skin causing serious personal injury. Use cardboard.
Relieve pressure in the hydraulic system before doing any service or repair work.
Protect all body parts from high pressure fluid.
D001-012

DECALS

LIQUID FILLED

Left rear wheel only.

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.

CONVEYOR SPEED

CAUTION

STOP ENGINE BEFORE ATTEMPTING INSPECTION, CLEANING, OR ADJUSTMENT.

Head Speed

Canopy Lights

On

Off

CAUTION

AVOID INJURIES. READ OPERATOR'S MANUAL BEFORE OPERATING MACHINERY.

WARNING

KEEP CLEAR OF CONVEYOR.

WARNING

CRUSHING HAZARD

Stay clear of moving parts

CAUTION

To avoid injury DO NOT EXIT the driver's area from this side of the tractor.

WARNING

KEEP ALL SHIELDS IN PLACE.

DO NOT OPERATE UNIT WITH SHIELD REMOVED.

WARNING

HOLD ACTUATOR LEVER WHEN DISCONNECTING. RELEASE THE ACTUATOR SPRING TENSION SLOWLY

CAUTION

AVOID INJURIES. ENGAGE AUTO-STEER ONLY WHEN HARVESTING

MANUAL

AUTO

AUTO STEER

CAUTION

Do not step on conveyor at any time

CAUTION

KEEP AWAY FROM CLOSE CLEARANCE AREAS.

IMPORTANT

The Cylinder Lock is to be used ONLY DURING SERVICING.

Do not use when transporting, as shock loads could damage the Harvester.

WARNING

KEEP ALL SHIELDS IN PLACE.

DO NOT OPERATE UNIT WITH SHIELD REMOVED.

WARNING

KEEP CLEAR OF CUTTING HEAD

WARNING

THROWN OBJECTS

SECTION 3

OPERATING CONTROLS AND ADJUSTMENTS

IMPORTANT

The owner and operator must assume responsibility for the safe operation of the machine, their own safety and of others, by reading, understanding and following the safety instructions and operating procedures as outlined in this manual.

Failure to adhere to these instructions and procedures indemnifies Brouwer Turf Inc. against any claims that may arise due to accidents resulting in personal injury or property damage.

BE A QUALIFIED OPERATOR BY :

- **Reading and obeying the instructions in this manual and the decals on the machine.**
- **Receiving operating training on the harvester.**
- **Asking your supervisor or equipment dealer to explain anything you do not understand.**
- **Explaining the instructions in the manual and the decals to users/operators who cannot Read or understand them.**

The service and reliability of the harvester will be affected by the proper maintenance and operation of the machine.

Use only genuine Brouwer replacement parts. Parts not supplied by Brouwer may not meet Brouwer specifications or standard of manufacturing and may void the warranty.
The use of non-approved parts may result in component failure and possibly cause an accident to the operator or others.

Cutter and Conveyor Controls

It is recommended that a gear range is selected that allows ground speed travel (mph) with as low an engine speed (rpm) as possible. The lowest recommended engine speed is 1200 rpm.
This reduces noise and wear, and longer working life to the harvester and tractor.

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 the best 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 4in to 6in. between the sod pieces as they come up the conveyor. The conveyor speed should be increased to enlarge the gap when cutting slabs, to prevent them from piling up one on top of 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 speed.

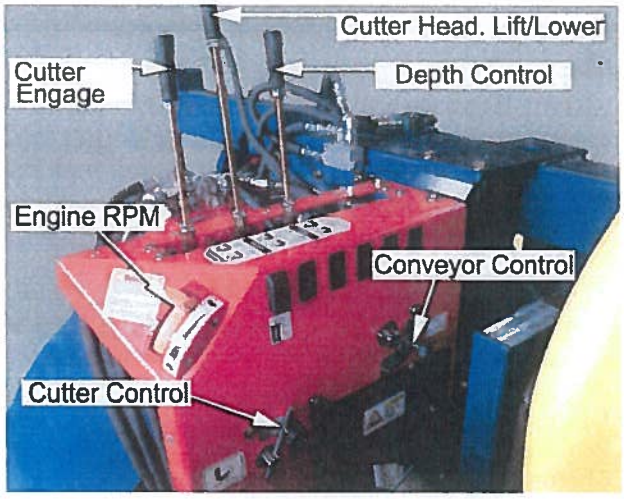
It is essential that the operator drives at a constant speed, in order to maintain the proper spacing between the sod pieces as they travel up the conveyor, since variations in the spacing will result in poorly rolled, jammed or torn sod.

When harvesting the operator should maintain as straight a line as possible to minimize steering problems.
The Auto-Steer accessory with micro adjustment control, ensures that this objective is met.

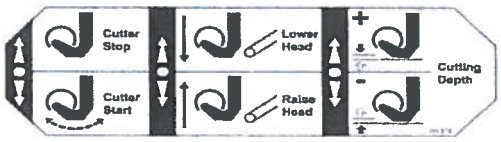
Harvester Engage & Lift Arm Controls

For ease of operation, the levers to raise and lower the cutting head, engage the cutter and set depth of cut are located conveniently to the right of the operator.

When starting to cut, the cutter 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.



Operating Controls

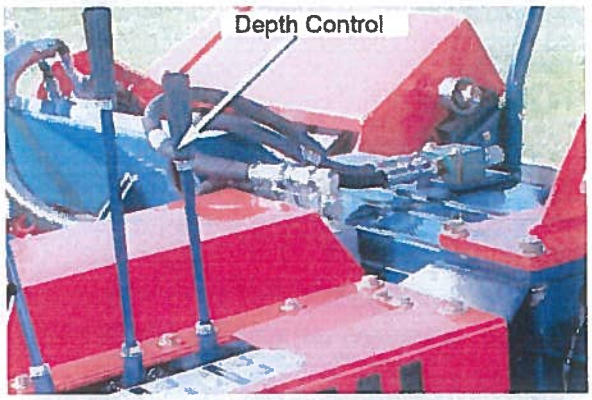


Controls Decal

Engine Speed Control Decal

Sod Thickness: Hydraulic Depth Control – 1576

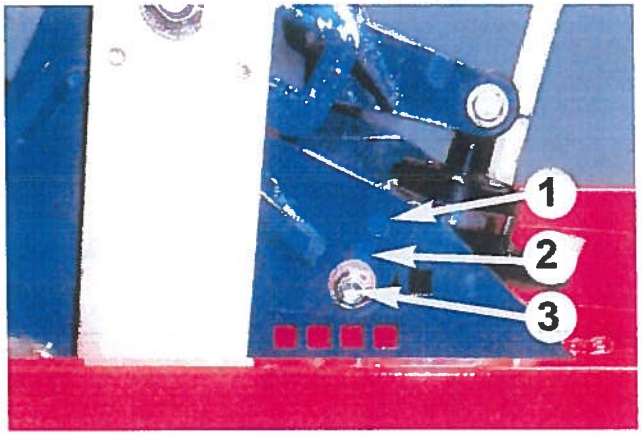
The 1576 Sod Harvester has hydraulic depth control as standard equipment. This allows the operator to adjust the depth of cut while harvesting, by means of a control lever conveniently mounted on the top of the control panel.



The hydraulic depth control will provide a variation of cut of 1inch.
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 holes were added in the pivot bracket and the lower set of holes in the cutting head frame are no longer used.

Refer to the illustration below for the available cutting ranges.

1. 1 1/8in. to 2 1/8in.
2. 3/4in. to 1 3/4in.
3. 3/8in. to 1 3/8in.

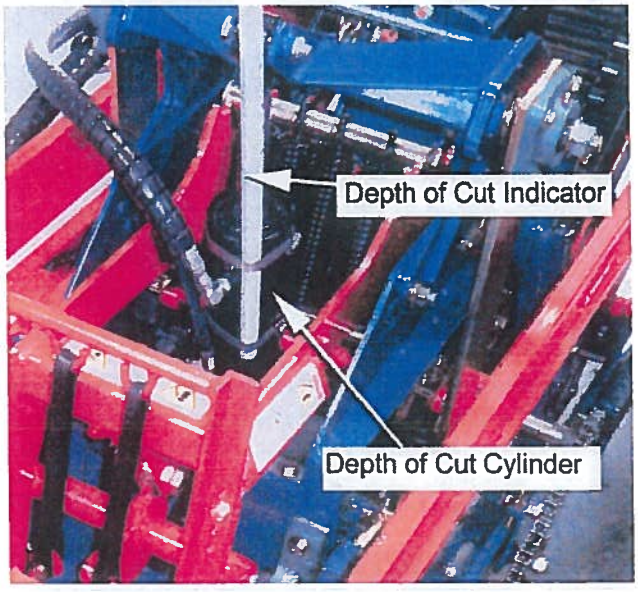


A second Depth Control Lever is provided at the rear beam for the convenience of the person on the stacking platform

Rear Depth Control Lever

Depth of Cut Indicator.

The Depth of Cut Indicator attached to the Depth Cylinder is marked to show the operator the change in the depth of cut setting.



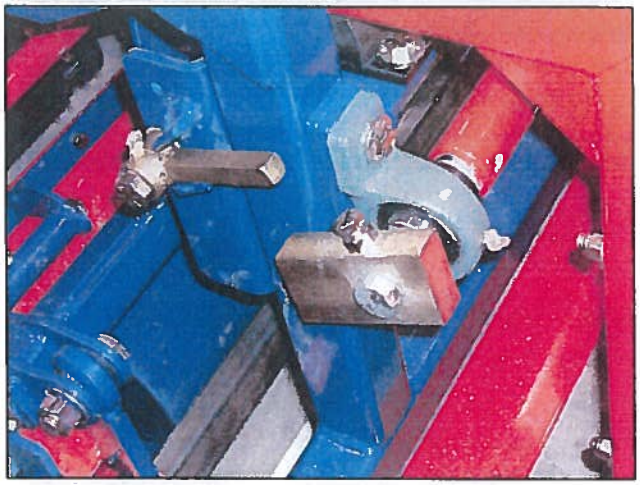
Dept of Cut Indicator

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 54in. and is easily identified by a letter '**S**' stamped on the cam.
2. The fast lift cam is used for cut lengths of 54in. to 72in. and is stamped with the letter '**F**'.
3. The super-lift cam is used for cut lengths of more than 72in. and is stamped with the letters '**FF**'.

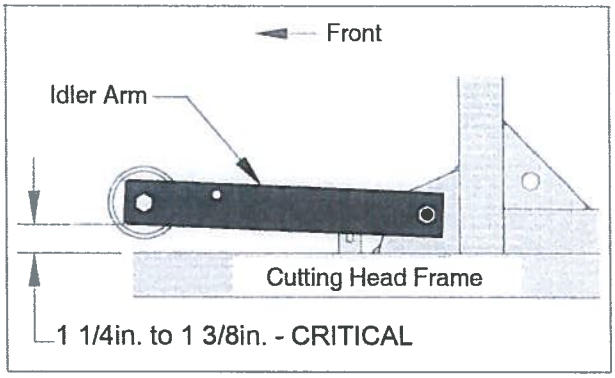
⚠ WARNING

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 P5-01.

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.

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.

WARNING

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 hands and loose clothing away from moving parts.

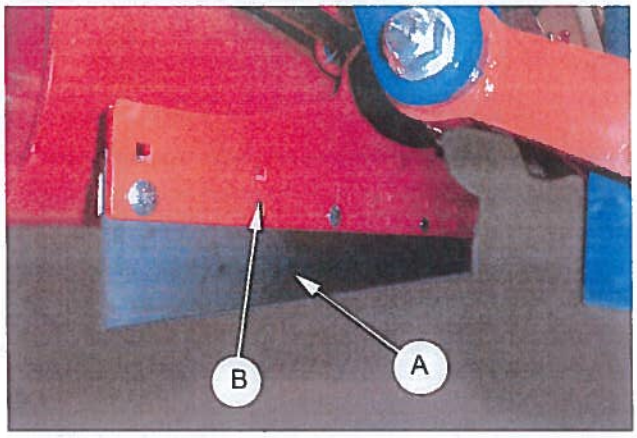
The toe guard provides a warning when a foot gets too close to the cut-off blade.

CAUTION

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

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 case premature wear.



The Cut-off Blade 'A' is reduced in depth by wear and sharpening. Holes are provided in the Cut-off Frame **'B'** to compensate for this wear. Blades less than 2 ½ in. 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 approximately 15 degrees back from the vertical,(at the bottom).

Any change to the shape or position of the hooks that attach the springs to the Cut-off Frame will change the angle of the blade.

NOTE

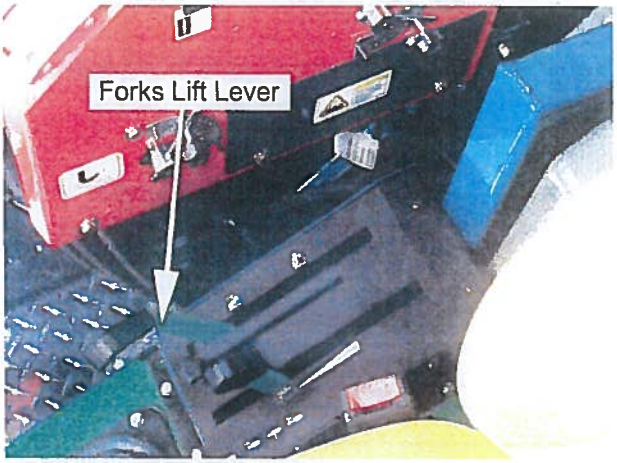
To operate in soft soil or excessive thatch, the harvester can be equipped with a serrated Cut-off Blade for more positive cutting.

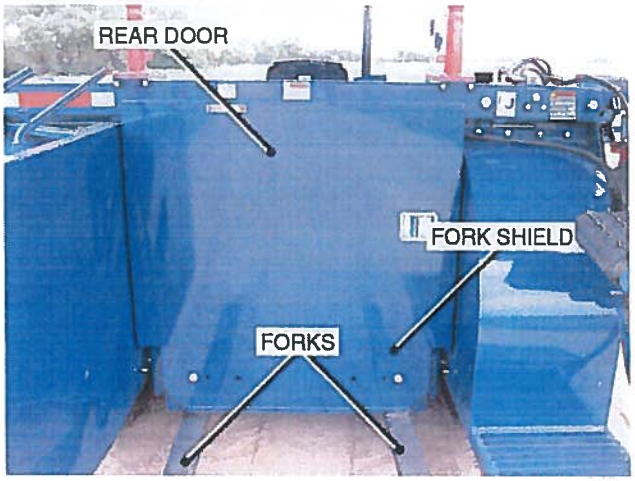
Rear Forks Lift Control

The lift control lever for the rear forks is located to the right of the driver's seat. It is usually used full up or down, but will hold any position if required.

The inner lever allows for some additional lift and is not necessarily used. It is usually left in the lower position.

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.

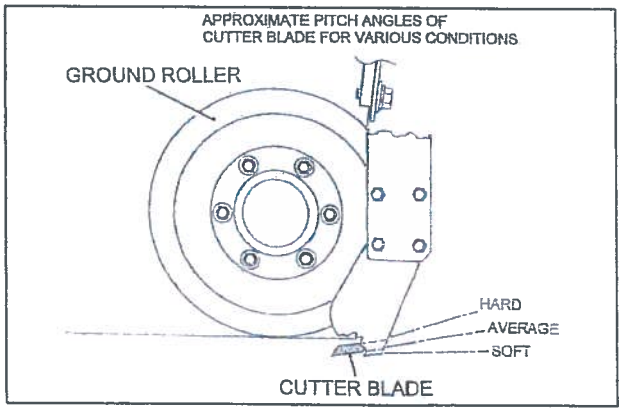




Cutter Blade Angle

The angle of the cutter blade , relative to the ground, is the '**pitch**'. The factory setting is for average cutting conditions but can be changed to suit various soil conditions.

For soft ground adjust the pitch so that the cutter blade is as flat as possible, relative to the ground.
When cutting in harder soil, the pitch may have to be increased(as illustrated), to maintain a proper cutting action and 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 ground roller is maintained.
The conveyor front idler shaft can be adjusted to ensure the conveyor mat does not interfere with the cutter blade.
The relationship of the roller is addressed in the roller adjustment section.



Cutter Blade Angle

Adjusting the Pitch – 1576

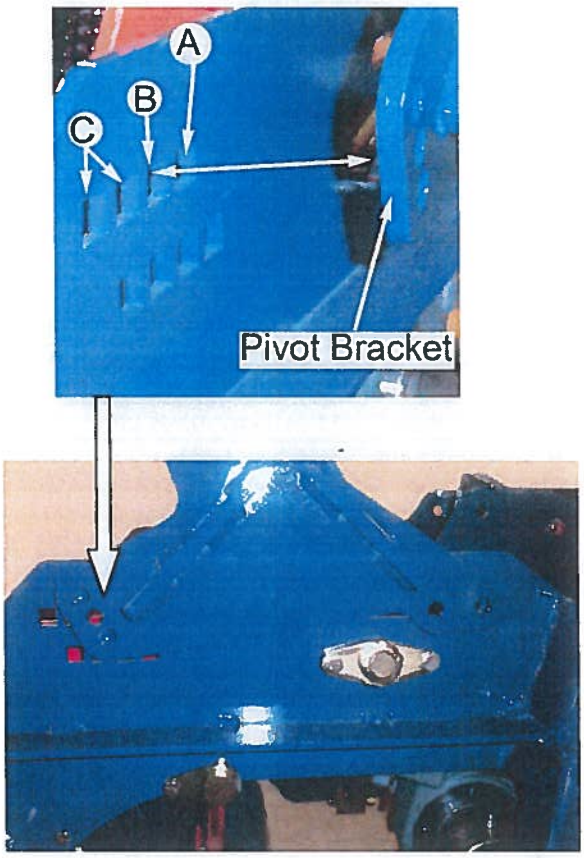
Pitch adjustment is accomplished with a series of four mounting holes, and a slot in the frame to which the pivot bracket is mounted.

For the 'normal' amount of pitch angle the second hole '**B**' (from the rear) is used.

The first hole '**A**' (minimum pitch) is used for soft soil or peat.

The third and fourth holes '**C**' (maximum pitch) are used for hard ground.

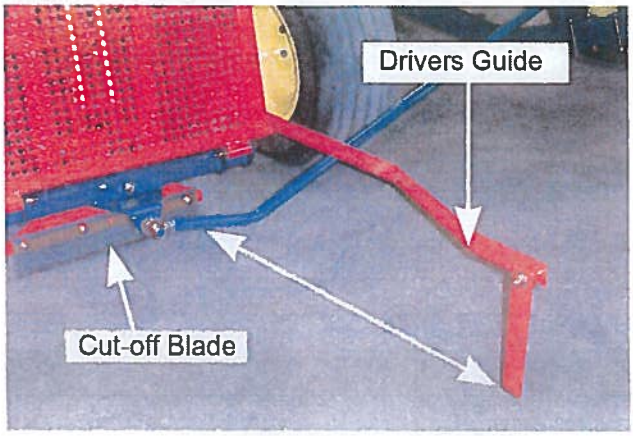
The lower set of holes are not used.



Periodically a check should be made to ensure that the mounting bolts have not loosened during operation.

Drivers Guide

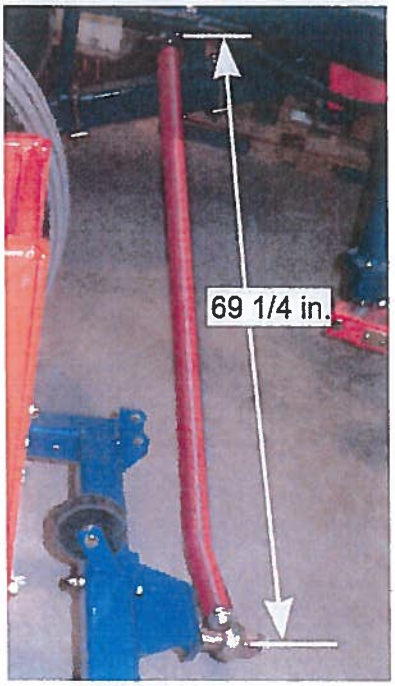
The driver's guide is mounted to the cutting head, to assist the driver to follow the cut edge of the sod. A transport position is provided, and should be used when the unit is not cutting.
The driver's guide is not used when the Auto-Steer option is installed.



Tie Rod Adjustment

The Tie Rod maintains the harvester parallel and correctly spaced to the tractor. If the harvester is not parallel to the tractor, the sod will be cut thicker on one side than the other. This will produce "cone shaped" rolls, or rolls that are not uniform in shape or size, which makes stacking difficult.

The Tie Rod length is measured in a straight line, from the center of one Rod End to the center of the other. The setting is 69 1/4in.(16&18in. machines).
72 1/4in. (24in.machines).
This length will be changed if the rod hits an obstruction hard enough to bend it.



Typical Tie Rod

To adjust the length of the Tie Rod, remove one end of the Tie Rod from the machine. Loosen the Rod End jam-nut, and turn the Rod End in or out. When the adjustment is complete, re-tighten the jam-nut.

Rear Suspension. Harvester Main Frame

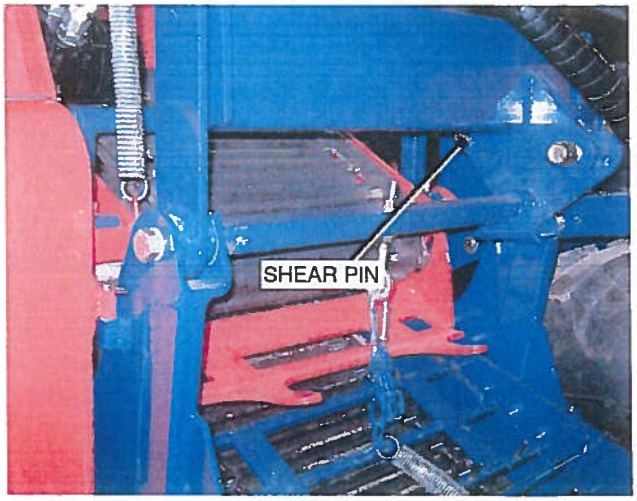
Due to the flexibility of the floating head, the stability for the main frame must be provided by the rear suspension.

While providing the required stability, sufficient shock absorbing is built in to prevent damage to the frame from the normal shocks that occur when harvesting.

In the event of a severe shock (e.g. hitting a large rock) and the shear pin 'shears', the remainder of the suspension will hold the unit secure.

Replacing a Shear Pin

Replace shear pins only with a genuine Brouwer replacement. Part no. G2011.
Do not under any circumstance use a bolt. Severe damage to the harvester could result.
Keep several spare shear pins in the tool box.

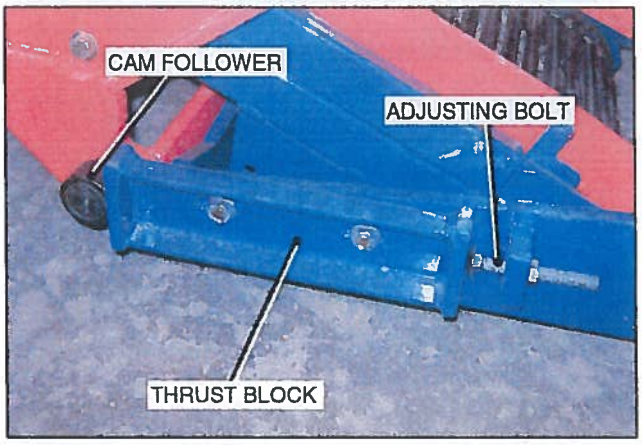


The suspension is easily positioned for replacement of the shear pin by fastening a chain around the upper left rail of the cutting head cradle, and the lift arm of the conveyor lift. Using the conveyor lift, the unit is carefully lifted into position.

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

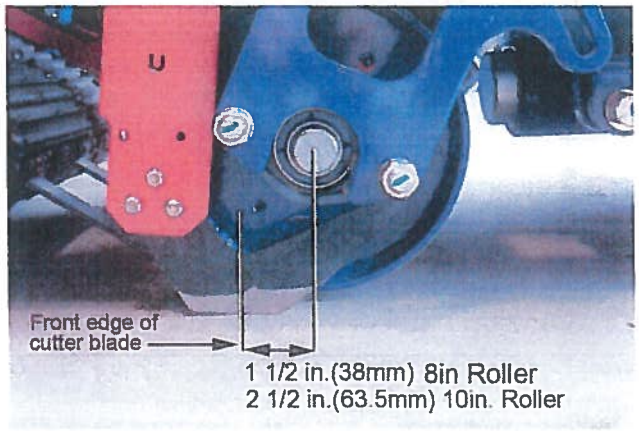
The roller supports the front end of the harvesting unit, and also applies pressure to the sod immediately ahead of the cutting blade. This roller can be adjusted forward or backward on the frame and should be set so that the vertical centerline of the roller is 1 ½ in. (8 in. roller) or 2 ½ in. (10in. 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 in. roller forward to provide more space between the blade and roller for small stones to pass through. The clearance (on 8 in. rollers) may be increase up to 2 in. or 2 ¼ in. Too little distance between the roller and the blade causes a "pinching action" resulting in longer pieces of sod.

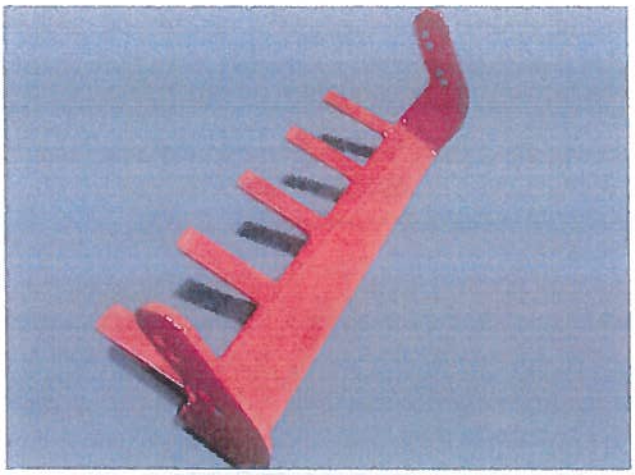
The roller should be centered between the side arms of the cutting blade, so that the bolts on the cutting blade do not strike the roller in operation.



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 of the roller face. (approximately 1/32 in.)

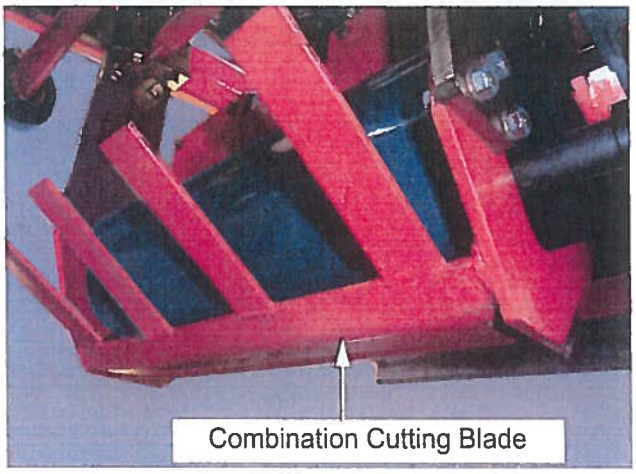


Sod Guide Bracket

Sod Guide Bracket

On the standard cutting blade (16 in. & 18 in. 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.



NOTE

PLEASE 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

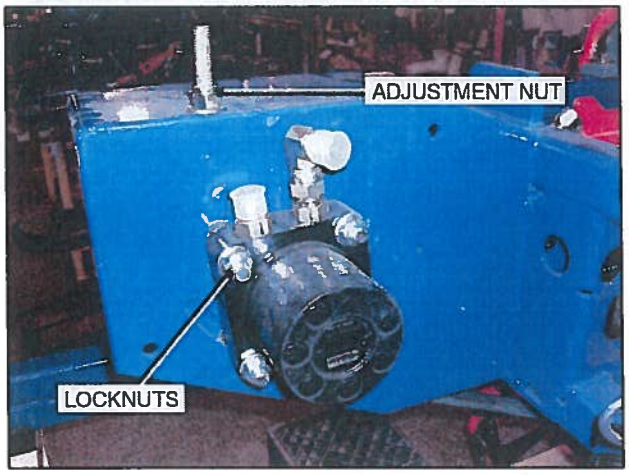
⚠ CAUTION

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.

Cutter Drive: Belt Tension

Cutter drive uses one 3V banded belt.
Tension is ¼in. to 3/8in. 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.



Conveyors: Rubber Mats

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

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 5-04.

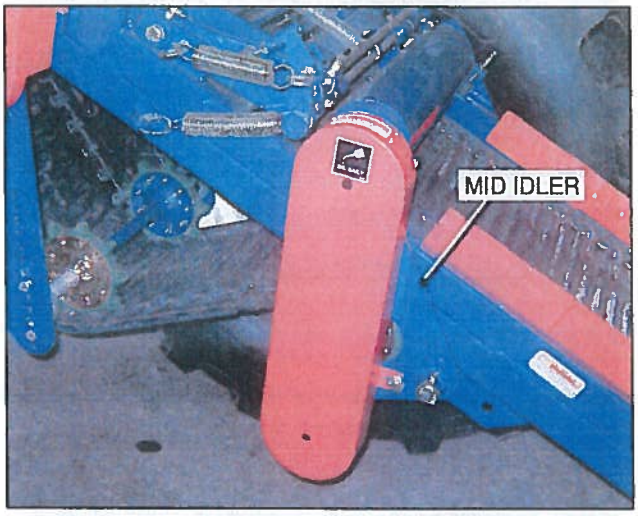
⚠ WARNING

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

Mid Idler Assembly: Rubber Mat

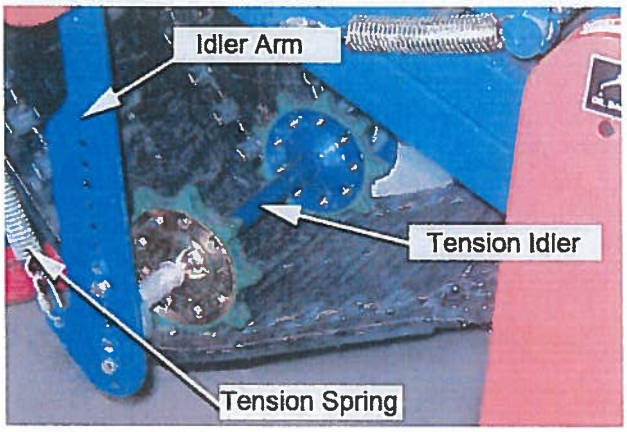
The mid-idler assembly is supports the conveyor mat under the conveyor frame.
On units equipped with the roll-up option, it also drives the 4in. feed roller.
Refer to the roll-up section.

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



Belt Tensioning Idler: Rubber Belt Conveyors

The tensioning belt idler maintains the proper tension on the mat.
A series of holes in the idler arm allow the idler shaft to be set in different positions to allow for stretch or shrinkage in the belt.
The idler arm **must not reach a point of 90 degrees** relative to the harvester frame, or the idler arm will be pulled over center by the tension spring and all mat tension will be lost.



NOTE

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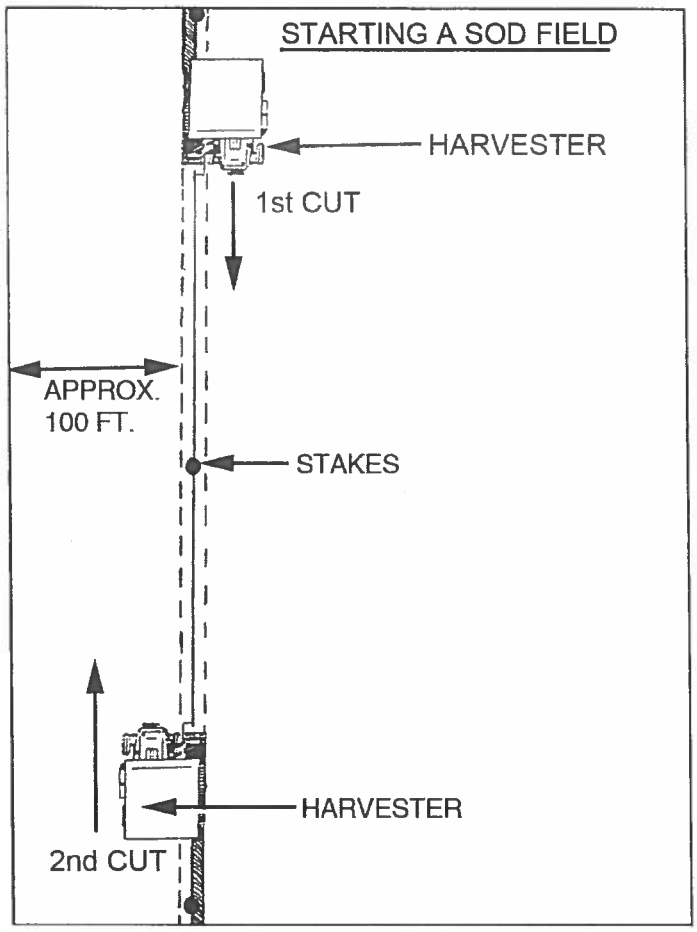
SECTION 4

HARVESTING

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: 16in. 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.

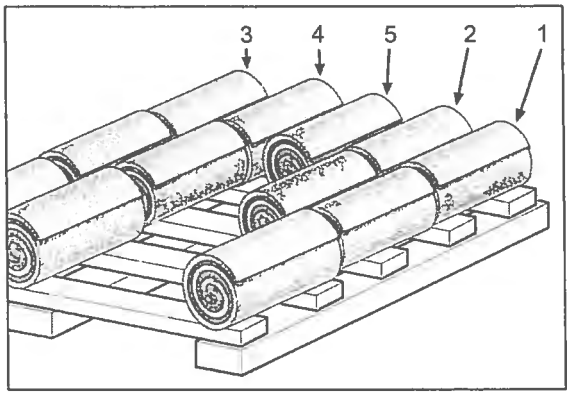


Fig.1

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.

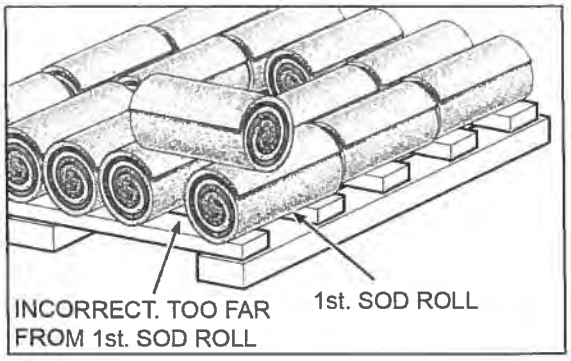


Fig.2

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.

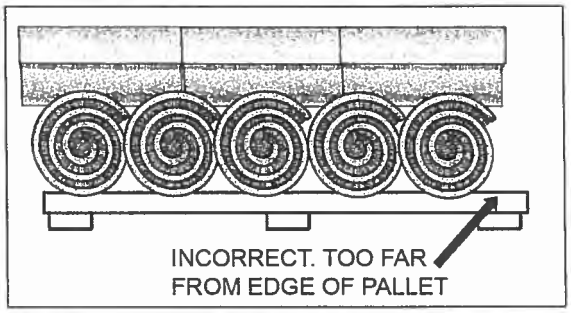


Fig.3

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.

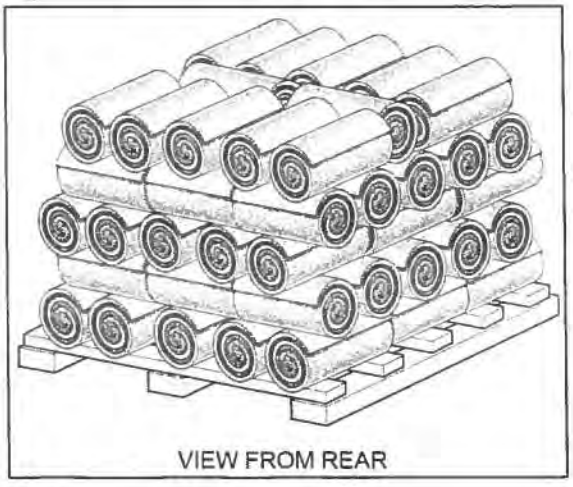


Fig.4

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 18in. or 24in. 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.

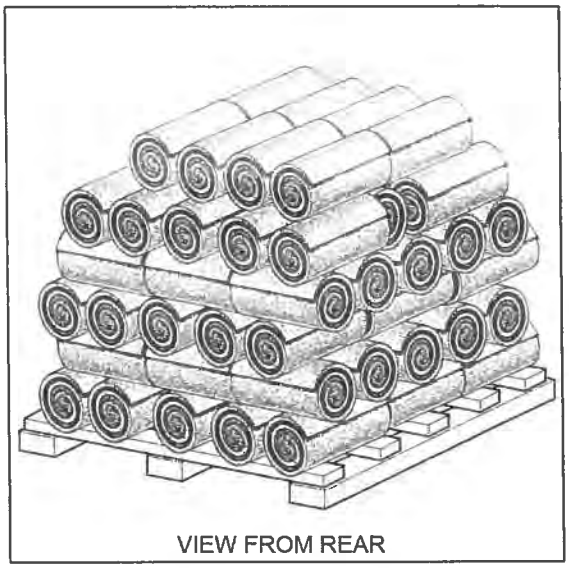
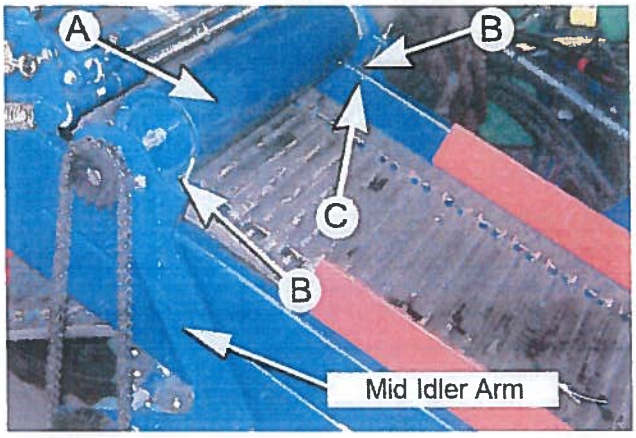


Fig.5

Roll Harvesting – 4in. Feed Roller

The 4in. Roller **'A'** is used to feed the sod into the gate of the starter tray on roll-up machines.
It should be kept clean for best operation.
It is mounted on the Mid Idler Arm assembly and is powered by the conveyor belt moving over the sprockets of the idler shaft.



ADJUSTMENT: The roller should just rest on the sod. The Bolts **'B'** should be adjusted so that there is approximately 1/8in. clearance between the head of the bolt and the harvester frame **'C'**, 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.

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 5/8in.) 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 5/8in.) can be adjusted by the chain and eye bolt.

The starter gate should be positioned approximately 1/8in. 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.

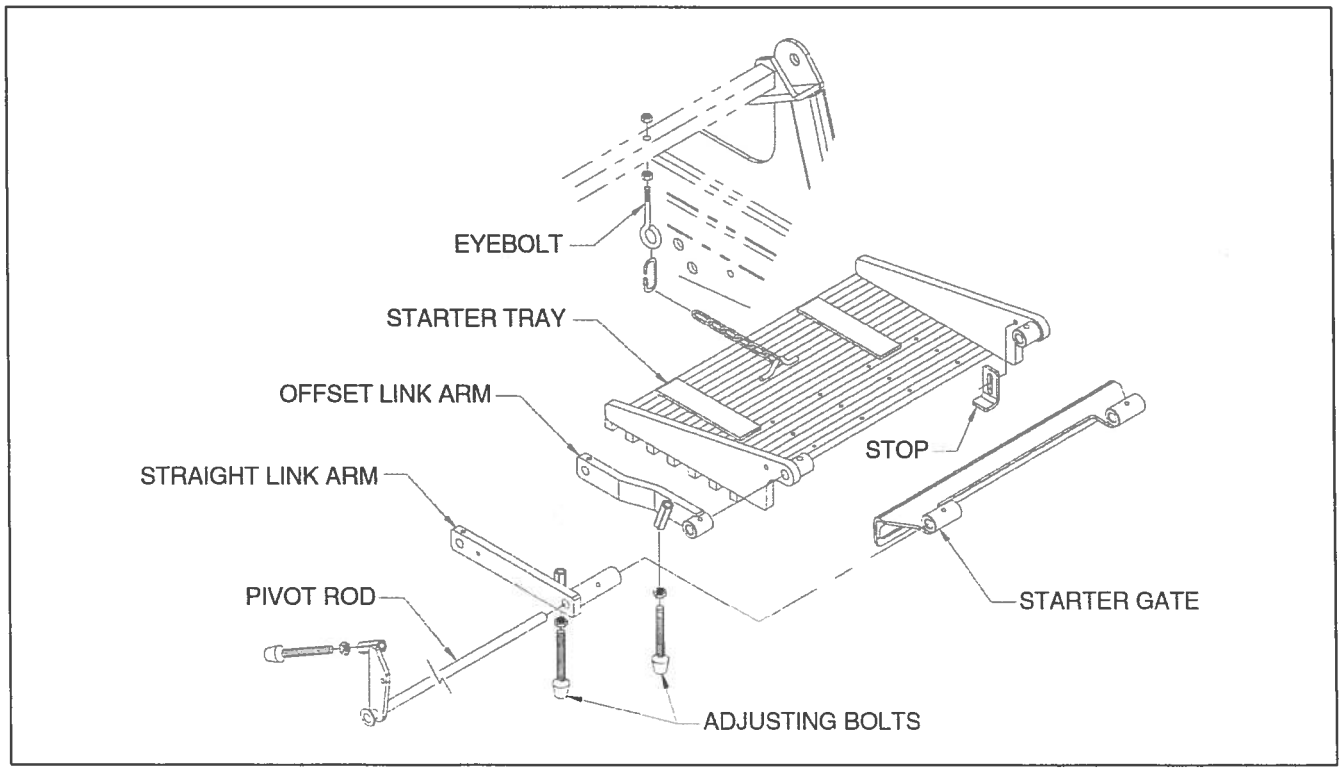
As the sod travels up the conveyor, the starter gate blocks the passage of the sod, flips up the leading end, and the sod starts to roll.

The first square bar (behind the gate) has a row of pins which protrude about 1/4in. below the bottom surface. The second and third bar have pins protruding about 1/8in. 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 replace 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 4in. to 6in. between the sods as they come up the conveyor. In weak sod, it may be desirable to reduce this to 2in. 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 sod pieces may make the gate react and it will not be in a position to start a good roll.

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



Starter Tray Assembly

Roll-Up Tray

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

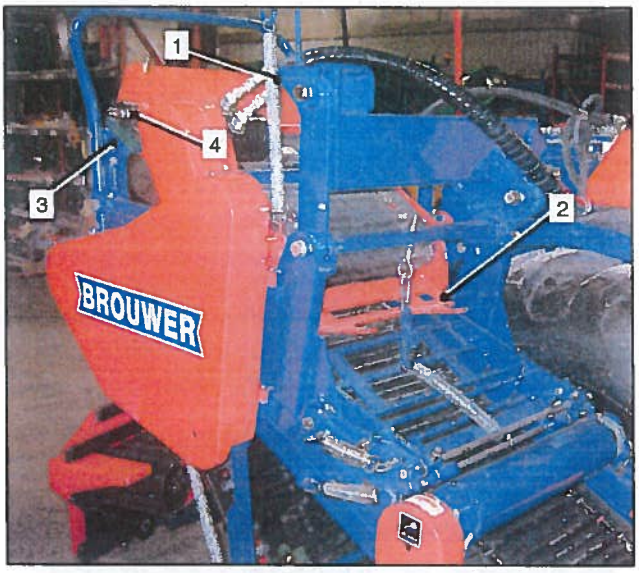
Adjustments to the height of the tray is made with the chain (**1**) which connects the support spring to the roll-up tray.

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 ½in. between it and the bottom section of the belt.

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.



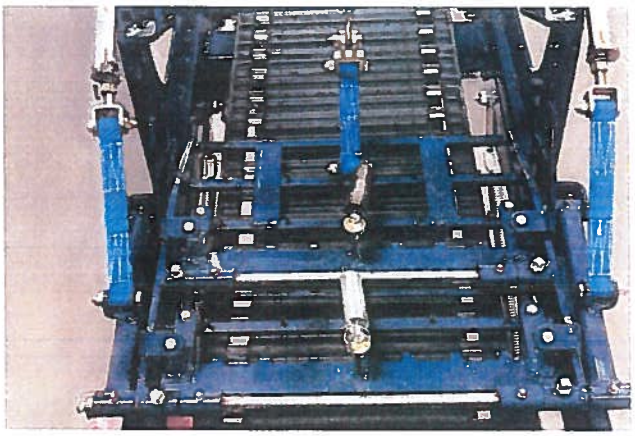
Roll-Up Tray Stops

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.

Double Starter Tray

To improve operation in certain grass conditions eg. light or weak grass, it is recommended that the Double Starter Tray is installed.

A kit is available for this option. Refer to the parts manual for details.



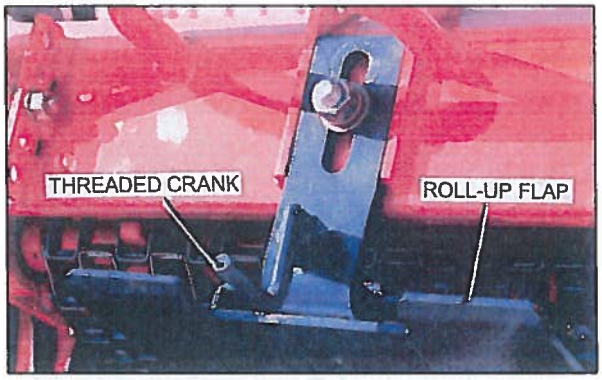
Double Starter Tray

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.

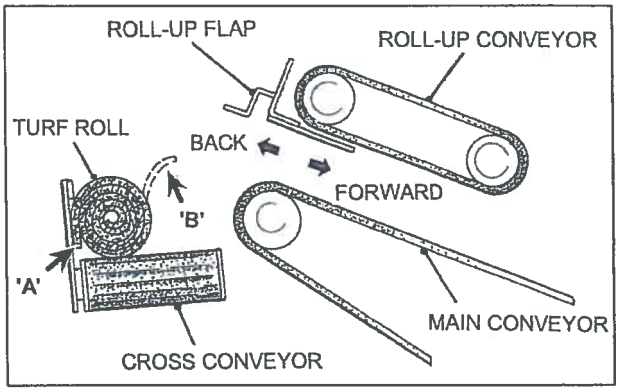
If the adjustment of the roll-up flap adjuster does not correct the flap position it may be necessary to change the drive sprockets.



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 complete, move the adjuster **'BACK'**

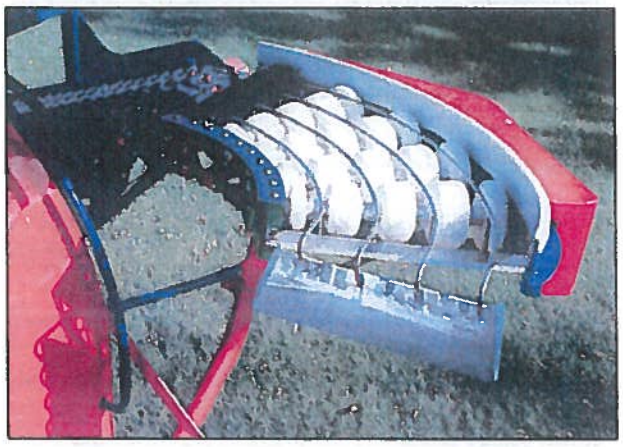
The rubber belt cross conveyor has built-in spring loaded belt tension.
For service or repair see page 5-06.



Slabbing Harvester

In areas where soil conditions, types of grass or market conditions do not suit the rolling of sod, an alternative method is available.

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



Curved Conveyor

The curved conveyor is used to transfer the sod to the pallet in the proper orientation for placement on the pallet.

Standing Platform for Slabbing

To provide better access to the piling cavity to correctly stack the slabs. Standing platforms are available and recommended for use with the curved conveyor.

The long platform will pivot up out of the way and held in place with 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.

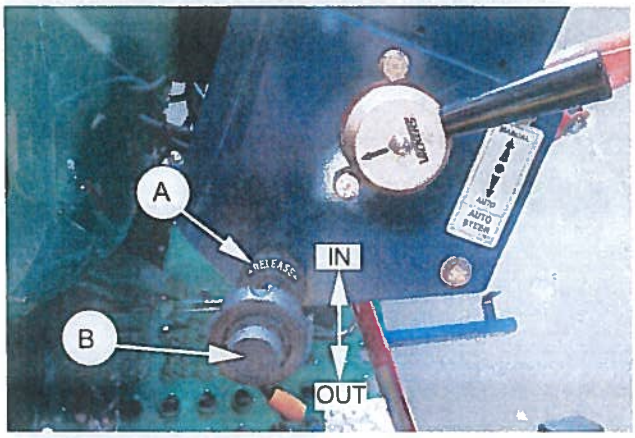
Auto-Steer Set-Up

It is important that the Auto-Steer final set-up is carried out as shown in the following instructions. **The operator must read the instructions in Sections 2 and 3, before using the Auto-Steer.**

Fine Adjust Control: Mid-Point setting.

- Release the Control Lock '**A**'
- Press End button '**B**' and slide control knob '**IN**' or '**OUT**' to find the mid-point.
- Tighten the Control Lock '**B**'.

It is recommended that this adjustment is carried out before starting to set-up for harvesting.



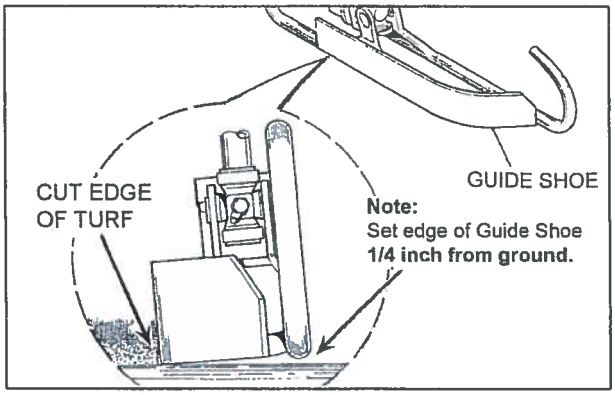
Fine Adjust Control. Mid-Point setting

Cutting the Starting Strip.

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

- Start the tractor, see Section 3, page 3-02. Select the Transmission Range and Gear recommended. Slowly release the Clutch Pedal.
- Lower the Cutter Head

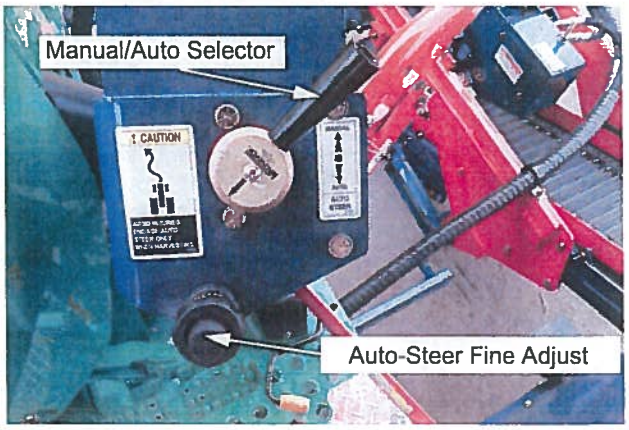
Using manual steering, proceed to cut the starting strip. The starting strip must be cut straight, to ensure the correct operation of the Auto-Steer.
Position the harvester parallel to the start strip, with the Cutter Side Blade aligned with the '**cut edge**' of the turf.



- 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 ¼ 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 as shown in the pages.

Cam Roller and Roller Arm Position.

IMPORTANT

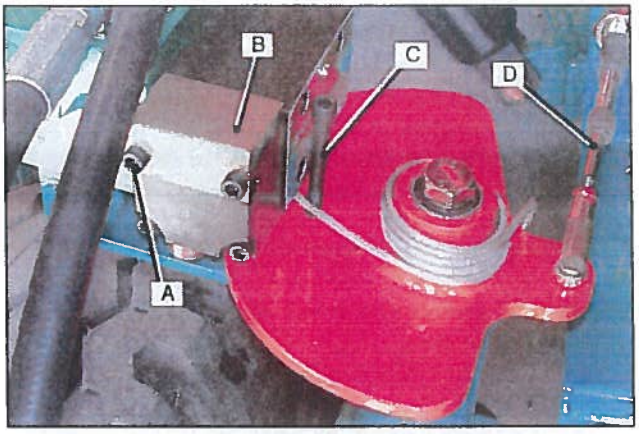
The Cam, Roller and Stop Pin must be set-up with the Stop Pin at the '**mid-point**,' of its travel in the cavity in the Sensor Valve End Plate. This is the '**NEUTRAL**' position in the Sensor Valve.

Cam and Roller Arm Set-Up.

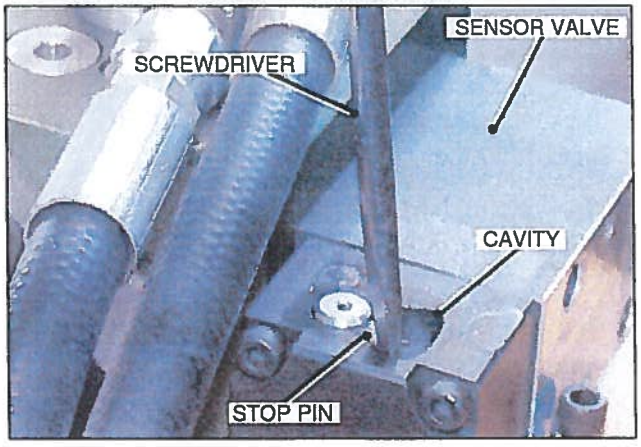
The recommended method of setting the Auto-Steer is:

- 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.

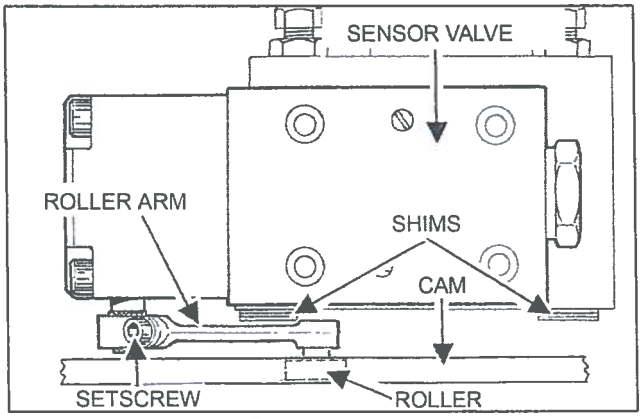
The harvester will be parallel to the cut edge, the steering wheels 'straight ahead', and the Cutter Head 'down'.
Switch the Auto-Steer 'ON'. Turn Tractor 'OFF.'



- 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.
- Place Guide Shoe tight against cut edge of sod.
- 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**' on 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

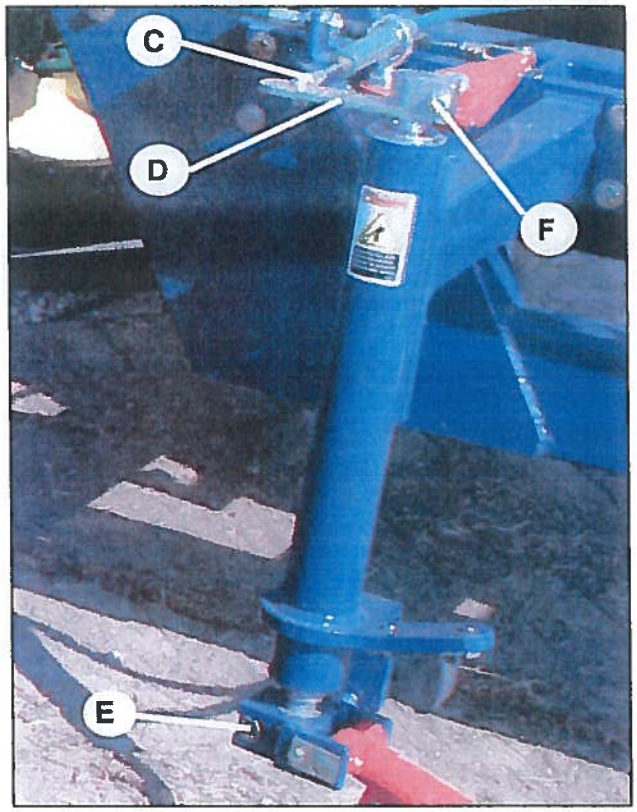
Fill the Stop Pin Cavity with 'white grease' to prevent corrosion forming on the Roller Shaft, causing it to 'stick' and adversely affecting operation.

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

Actuator Column.
Spring Tension 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.



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.

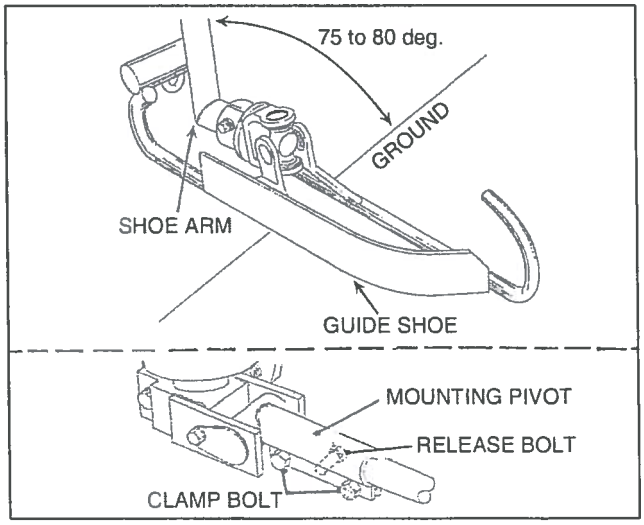
If the Lever Arm rotates 'back' **less than 80 degrees,** re-set it by loosening the Clamp Bolt '**F**', and turning the Lever Arm the required **80 to 90 degrees.**

- 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**'.

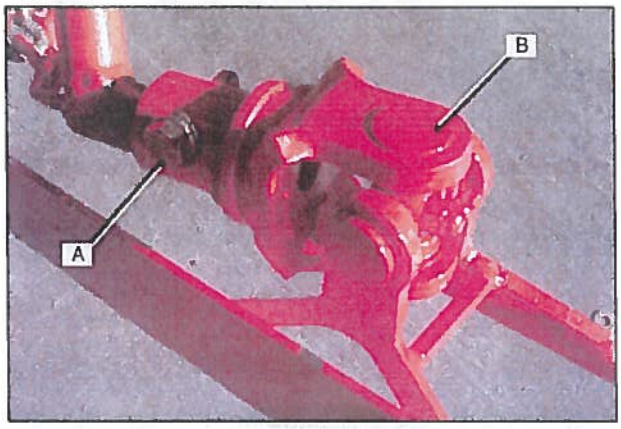
Shoe Arm Adjustment.

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



Guide Shoe Adjustment.



The Guide Shoe must be correctly adjusted as follows :

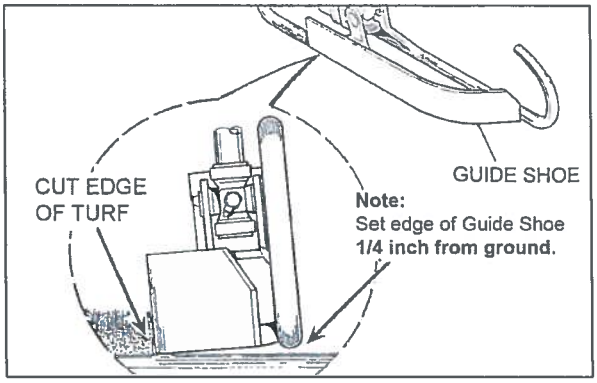
- Loosen the Yoke Clamp Bolt '**A**', and rotate the Guide Shoe '**B**', until there is **¼ inch** clearance between the **inside edge** of the shoe and the ground.
- Tighten the Yoke Clamp bolt.

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 :

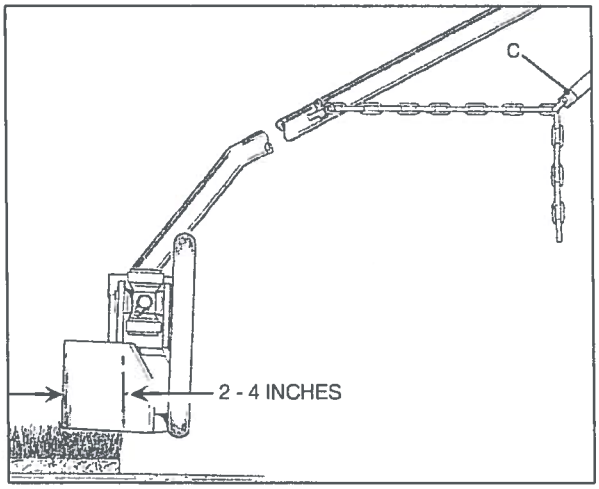
'Away' from the cut edge :

- Back-off the Locknut and turn the Stop Bolt '**IN**'.

'Closer' to the cut edge :

- Turn the Stop bolt '**OUT**'.

After adjustment **fully tighten the Locknut.**



Auto-Steer 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 1¼ in Wrench '**C**', on the Top Lever Arm
- and rotate 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.

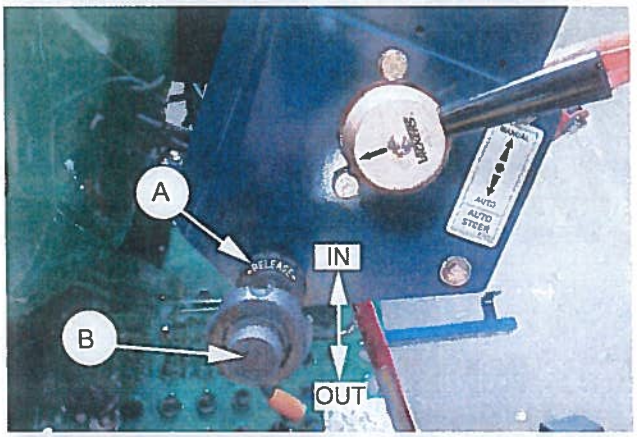
.

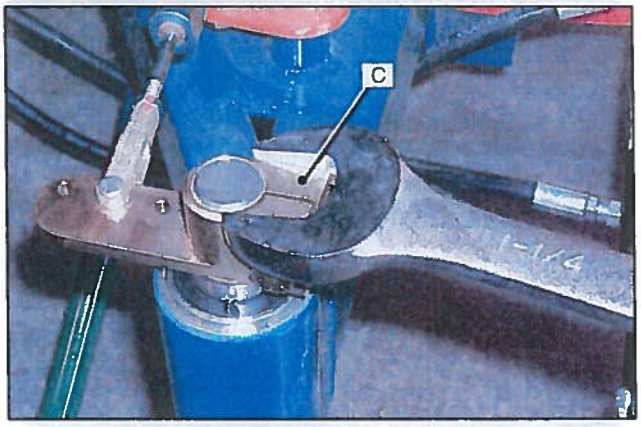
To prevent **any movement** of the Top Lever Arm and Spring Column Shaft, use the wrench to hold the Top Lever Arm firmly, against spring pressure and :

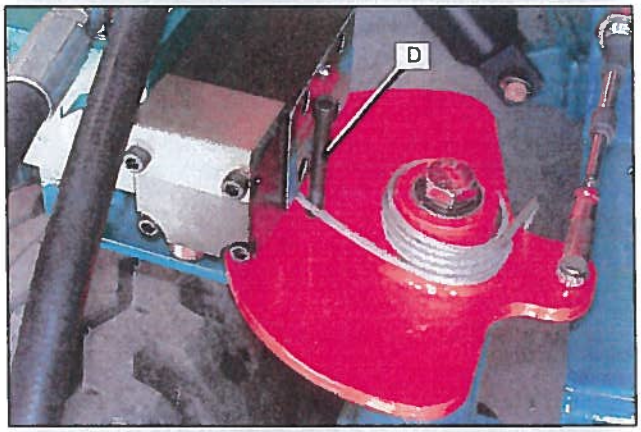
- Loosen the Shoe Arm Clamp Bolt '**E**', and move the Guide Shoe against the 'cut edge' of the turf.
- Tighten the Shoe Arm Clamp Bolt.

IMPORTANT

Before operating, the 1/4in. bolt '**D**' **must be removed** from the cam. Failure to do so will result in damage to the auto-steer mechanism.



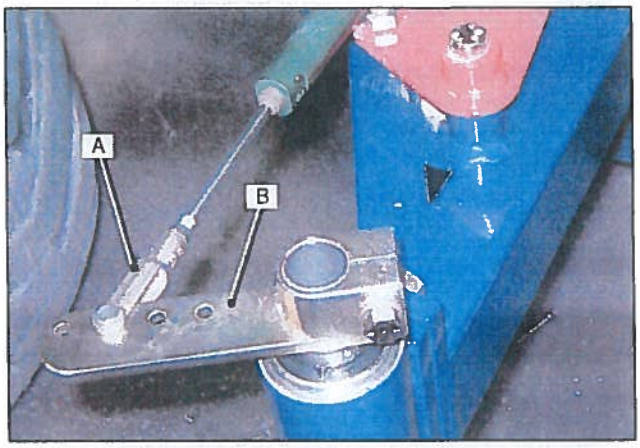




Auto-Steer Sensitivity Adjustment

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.



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 sweeps 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, and 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.

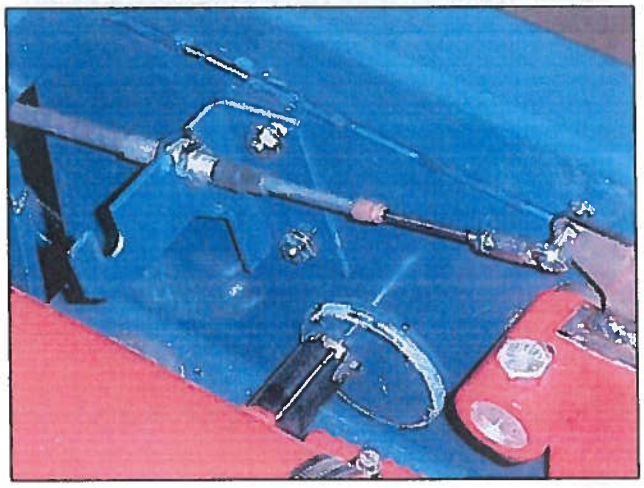
Counter

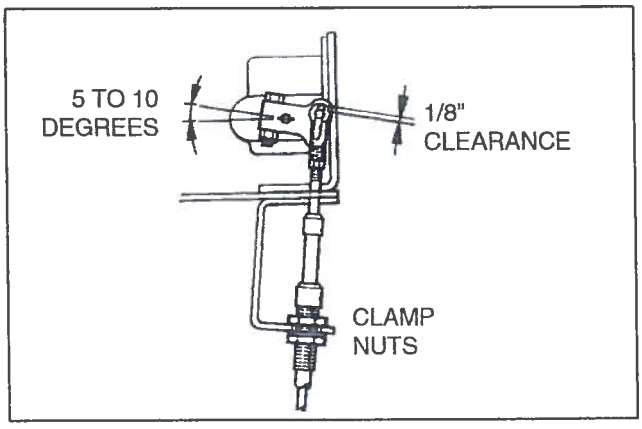
The counter is standard equipment on the slabbing unit option, but is available as an accessory on the roll-up option. The unit count rolls or slabs.
Refer to the counter section of the parts manual for a full layout and parts description.

The counter is activated by the cut-off stroke of the cut-off frame. The Counter Arm is slotted to prevent variations in the stroke of the cutting frame from causing damage to the counter.

The following set-up procedure should be followed:

- Set the counter arm at a position 5 to 10 degrees from perpendicular to the cable (see illustration). Flush with the inside thread end of the yokes.
- Set the cut-off frame so that it is sitting on the rubber bumpers.
- 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 1/8in. clearance to the upper end of the slot.





Canopy & Lights

The canopy provides some protection from the hot sun, and the canopy frame provides convenient mounting locations for three work lights that allow you to extend the workday.

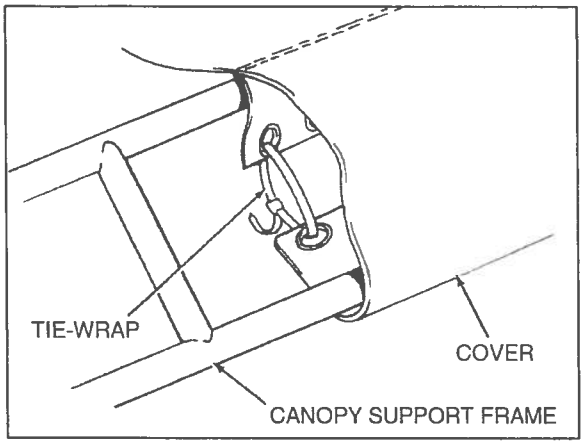
Refer to the Canopy & Lights section of your parts manual for part numbers, a full layout, and parts descriptions.

The cover is attached to the canopy frame with tie-wraps. See illustration.

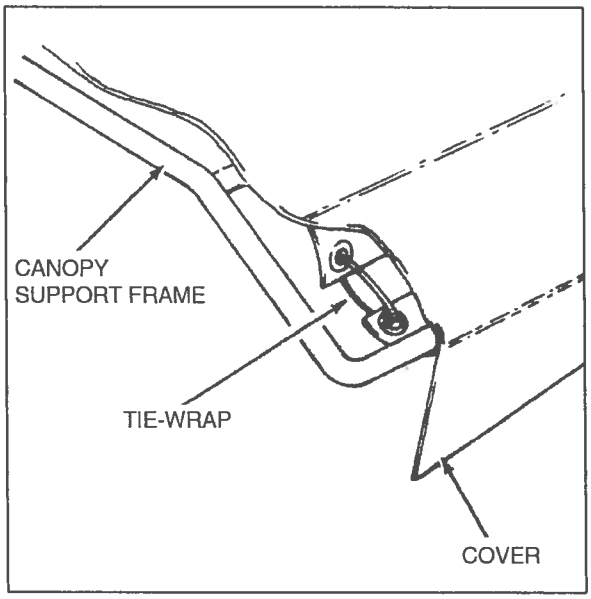
Position the work lights in locations that will highlight the piling cavity, the roll up tray or slabber, and the cutting head.

NOTE

Installing more than three lights will cause a drain on your electrical system.



Canopy - Side Installation



Canopy- Front Installation

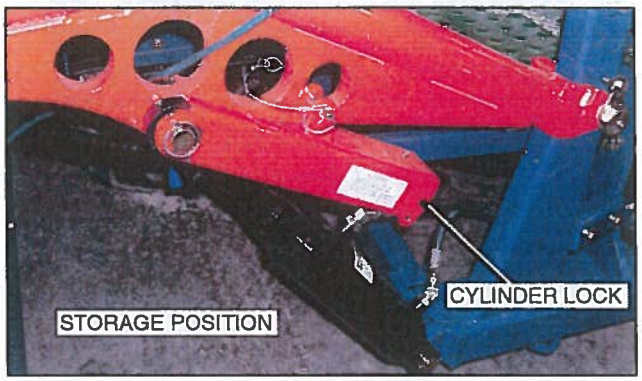
SECTION 5

Conveyor Lift Arm Cylinder Lock

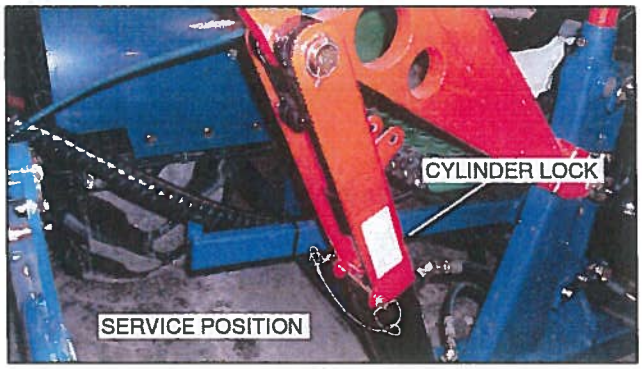
CAUTION

A CYLINDER LOCK IS FITTED TO THE LIFT ARM TO ELIMINATE THE POSSIBILTY 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 ,for easy access when needed.



WHEEL LUG BOLT, LUG NUT TORQUE

Rear Lug Nuts	275-300 ft. lbs.
Front Lug Bolts 2WD	130 ft. lbs.
Front Lug Bolts 4WD	220 ft. lbs.

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

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.

   eg.
   Roll-up tray arms
   Starter tray arms
   4in. 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**.

   eg.
   Crankshaft bearings
   8in. roller bearings
   Conveyor drive shaft bearings
   Conveyor idler shaft bearings
   Roll-up tray drive shaft bearings
   Roll-up tray idler shaft bearings
   4in. 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 sprocket roller chains daily.

HYDRAULIC SYSTEM

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, it is imperative that the oil used must conform to :
International Standard ISO.G344. HV Grade.

Listed below are compatible oils that can be used if Petro-Can Hydrex AW46 is not available.
These oils have improved viscosity and temperature characteristics.
The oil used must meet these specifications.

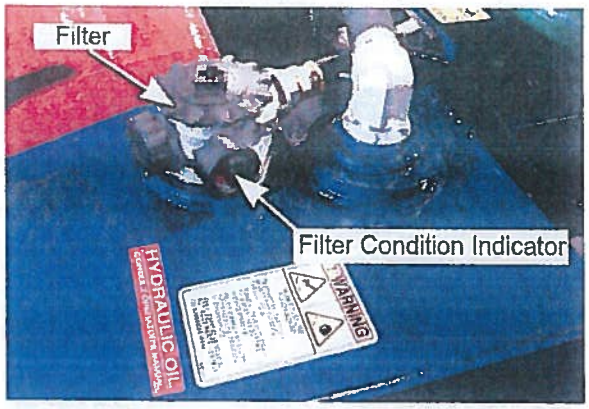
AMBIENT TEMPERATURE	Standard Range -10 deg. to 35 deg. C +14 deg. to 95 deg. F	High Range 0 deg. to 45 deg. C 32 deg. to 113deg.F
Castrol : Hyspin	AWH 46	AWH 68
B . P . Bartran	HV 46	HV 68
Esso : Univis	N 46	N 68
Mobil	15 M	16 M
Shell : Tellus Oil	T 46	T 68
Texaco	HDZ 46	HDZ 60

Note that all oils break down with use. The oil in the system should only be in operation for one season, or approximately 750 hours.

For additional protection of the hydraulic motors a high efficiency filter is installed.

Replace the filter cartridge after the first **25 hours of operation and every 250 hours thereafter**, or at any time the condition indicator needle goes into the '**RED**' zone. Do not delay replacing the filter if this occurs.

Replace only with a Brouwer High Efficiency Filter.



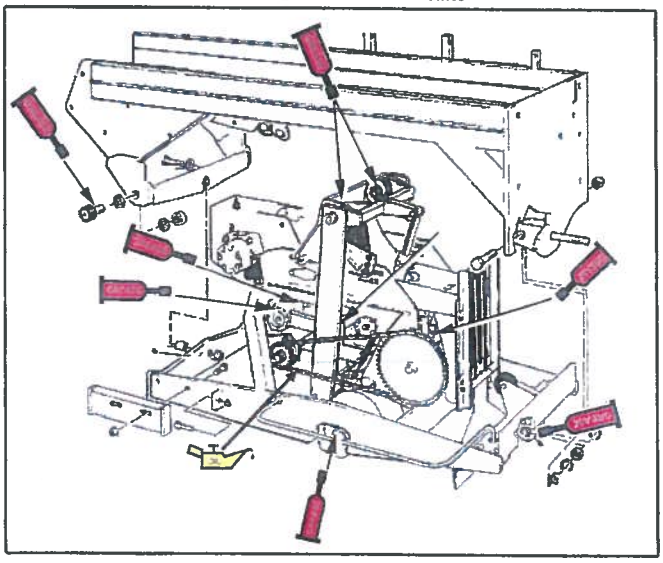
When disconnecting hoses, or removing hydraulic parts, or when filling the system with oil, extreme care must be exercised to ensure that no dirt enters the system, as this will damage the hydraulic pumps, motors and valves.

IMPORTANT

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.

LUBRICATION

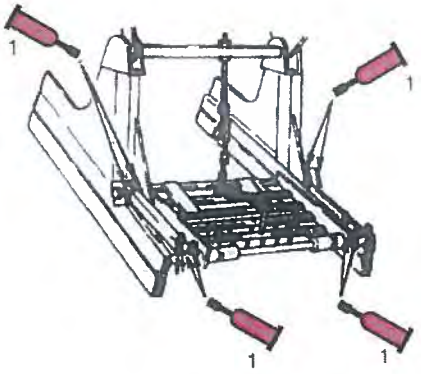
Cutter Head Lubrication Points

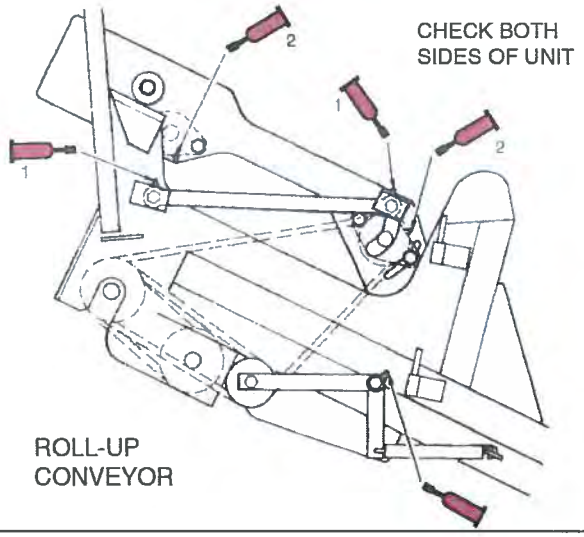


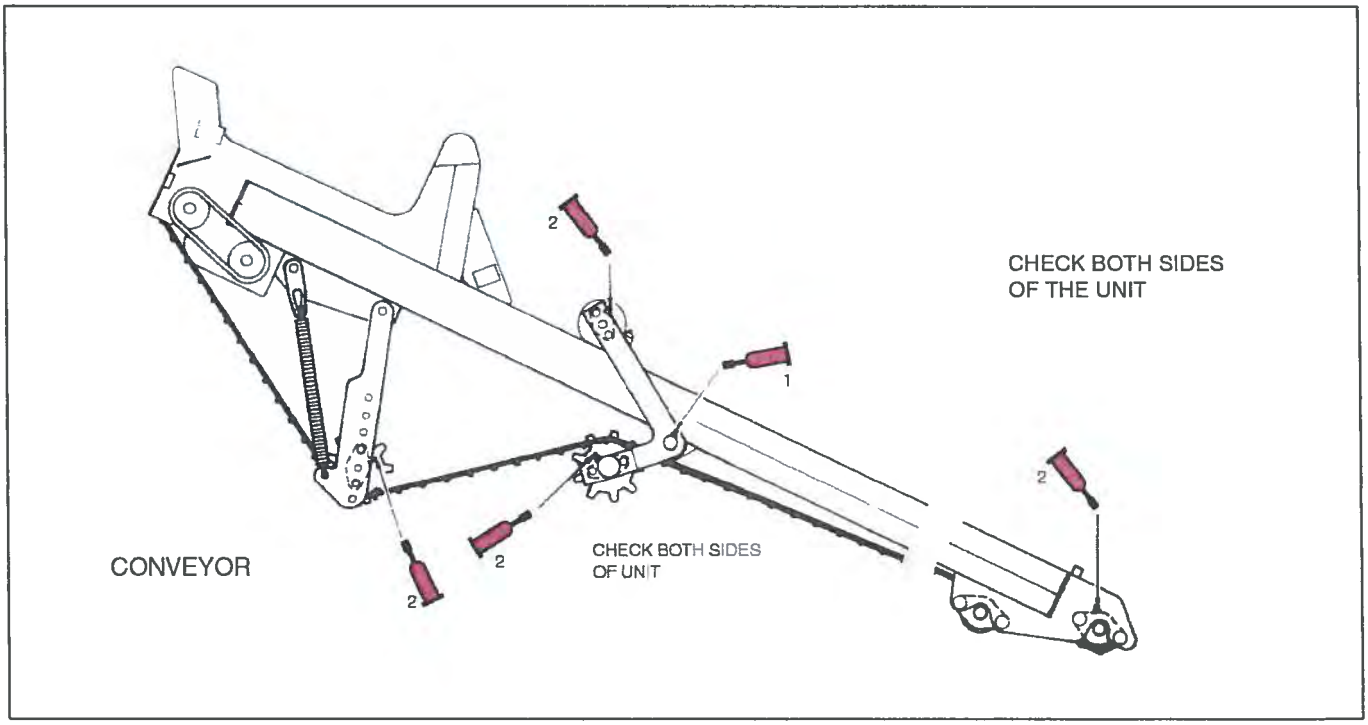
Auto-Steer Lubrication

Conveyor Lift Cylinder Lock

STARTER TRAY







Conveyor Mat.

On average the Conveyor mat will last two or three seasons.
Under certain soil conditions the Metal Clip Inserts wear out and have to be replaced.

Following are the recommended methods for replacing the Mat Splices and Inserts.

The Mat is joined using Metal Mat Splices.
There are special tools available for the easy removable and replacement of the Splices.

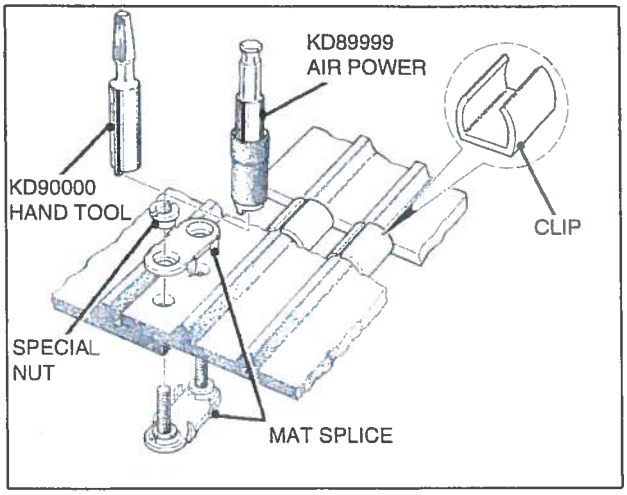
Part No. KD 89999 is used with air power.
Part No. KD 90000 is for use with a hand tool.

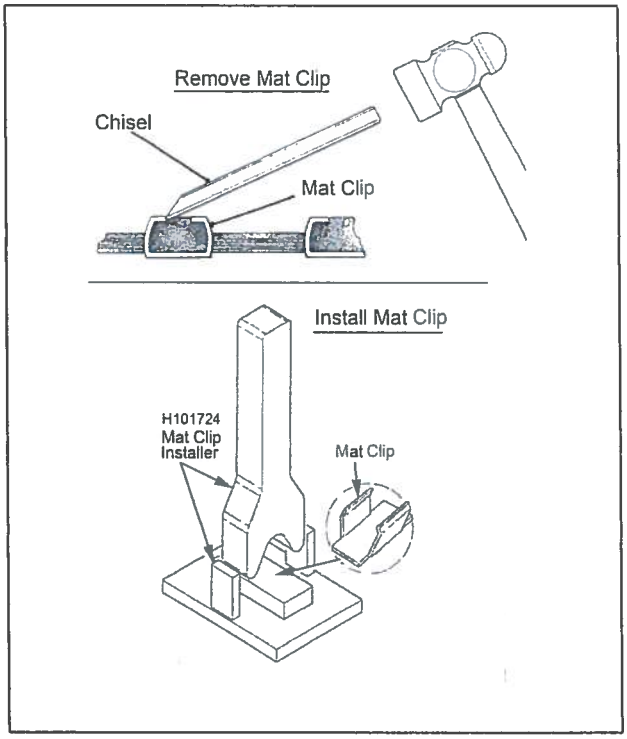
These tools speed up the removal and replacement of Mat Splice.

The Mat Clips can be removed using a chisel.
The Clip Installer, H101724, is available for easy fitting of Mat Clips.

To replace the Conveyor Mat:

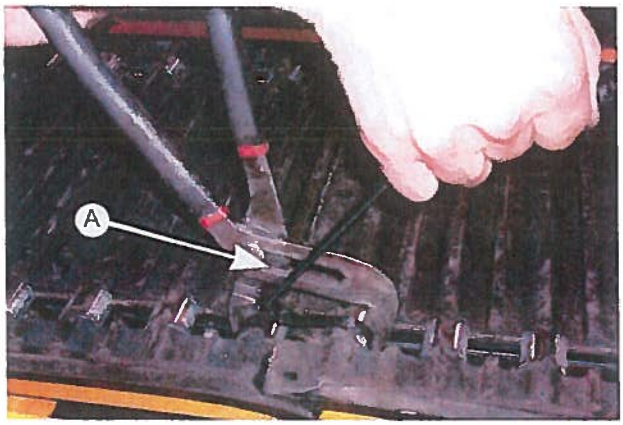
Release the Mat Tension Idler. Cut through the mat and remove it from the frame.
Install the new mat over the sprockets and position the join half way up the conveyor frame.
The mat must be installed with the lower section under the upper section.
Use Expanding Grips '**A**' as shown, to pull the mat ends together and secure them with ties or wire, until the Splices have been fitted.
When installing the Mat Splices it is important that the excess portion of the threaded stud is broken off above the nut when the splice is installed.





WARNING

Do not operate the machine until the Stud Ends have been broken off.
Failure to observe this precaution may result in serious injury to the operator and /or damage to the machine.



Refit the Mat tension Idler on completion of installation.

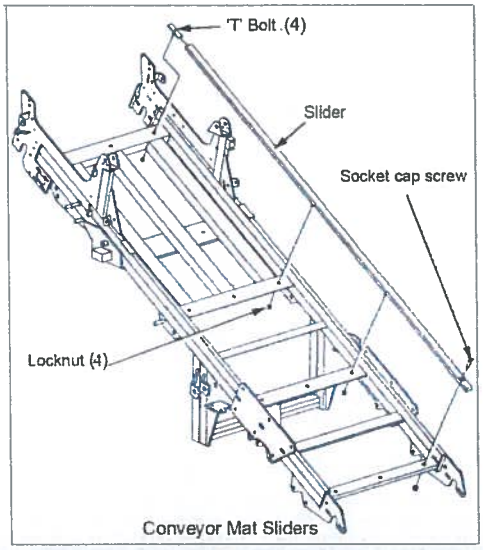
Check that the drive and mat tension sprockets are set correctly in the mat clips.

See page 5-06 for Mat alignment procedure.

Conveyor Mat Sliders.

The service life of Conveyor Sliders varies, depending on the soil conditions.
Inspect them for excessive wear when replacing the Mat, and at major service.
(Particularly under the Roll-up Tray if Roll-Up is installed).

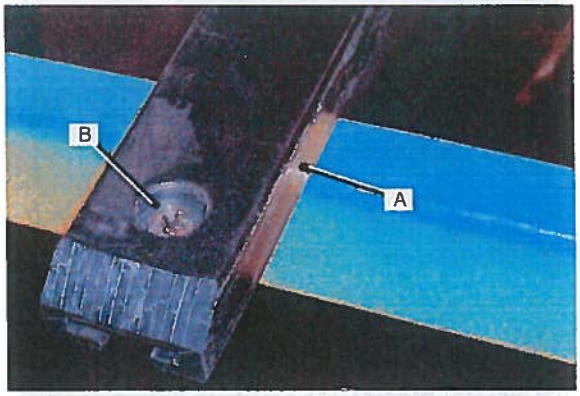
The Sliders '**A**,' fit onto '**T**-Section' Rails and fastened at the lower end with Flat Head S.S. Screws '**B**' and Locknuts.
Excessive wear will be evident when the rails show through the Sliders.
Wear thickness, (**3/8 inch**), is less than the overall thickness.



Conveyor Mat Sliders

Remove/Replace Upper Slides.

- Locate a join in the Mat and position it at the mid-point of the Conveyor Frame.
- Remove the Idler Tension Springs.(see page 3-12).
- Remove the Mat Splices '**C**'.(see page 5-04).
- Pull the Mat clear of the top Drive Sprockets and off the bottom sprockets.
- Remove the Screws '**B**' and Locknuts fastening the Sliders to the frame rails, and pull the Sliders up and off the Rails. It may be easier and quicker to cut badly worn Sliders off the Rails. Clean up the Rails for easier fitting of the Sliders.
- Feed the Slider onto the rail, from the top. 'Knock' it down the rail until the bottom fasteners can be fitted.

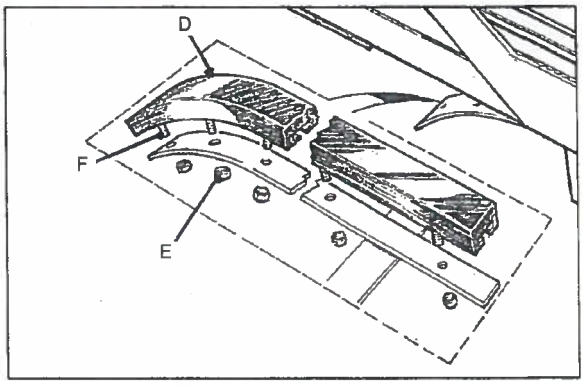


NOTE
Always replace the Sliders as a set.

Lower Sliders.

To replace the Lower Mat Sliders '**D**' :

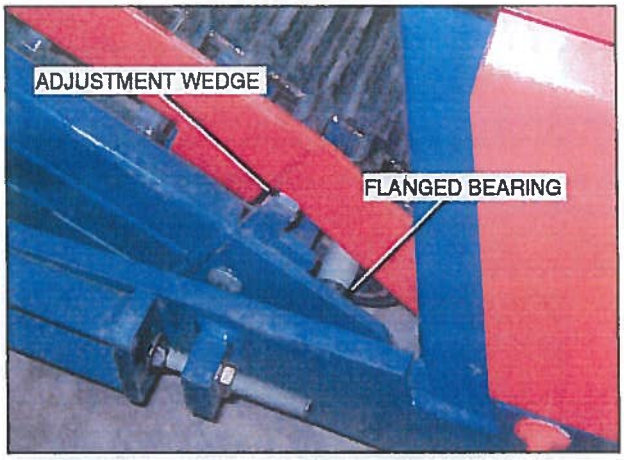
- Remove the five Locknuts '**E**', and lift the Sliders off the rails
- Remove '**T**-Bolts' '**F**', from the Sliders and fit them into the new Sliders, and bolt them into place.



Rubber Mat: 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, to allow for adjustment.

Start the conveyor at **low speed**. If the mat tends to track to one side, tap the adjustment wedge 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.
Tap the adjustment wedge in **small increments**.
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.

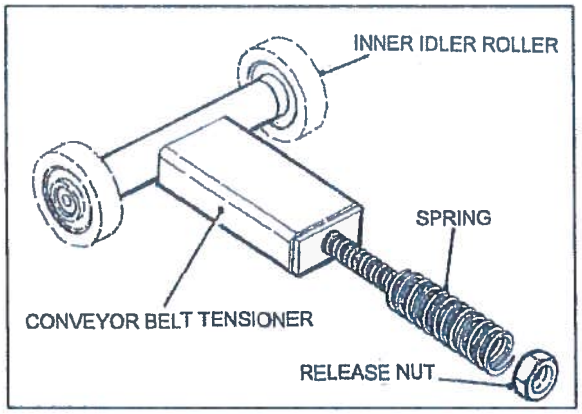
If the mat does not want to track square to the frame, check the alignment of the drive shaft assembly at the top end of the conveyor.

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 mat to the outboard side. Turning the bolt '**OUT**' will track the mat to the inboard side.
Tighten the locknut and the flange bearing bolts, when the adjustment is complete.
When the belt tracks correctly, shut off the conveyor and tighten the mounting bolts of the flange bearings and adjustment wedges.

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

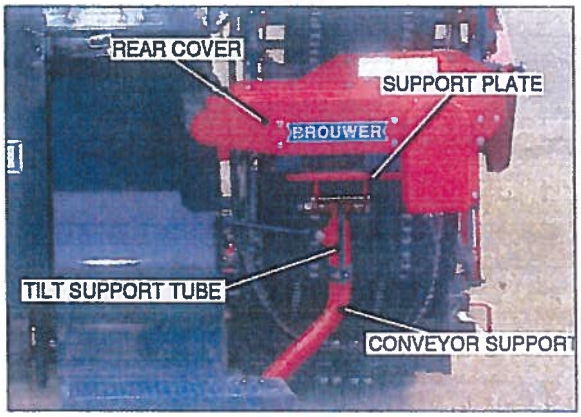
Cross Conveyor Mat Replacement

To replace the conveyor mat :
Pull the Conveyor assembly back, and also tilt it up as high as possible on its support stand. See below.
Remove the front cover.
Slacken the mat by tightening the mat tension release nut, this compresses the mat tensioner.
Remove the inner Idler Roller. This will allow the mat to be taken off the drive sprockets and outer Idler Roller.
Fit the new mat 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

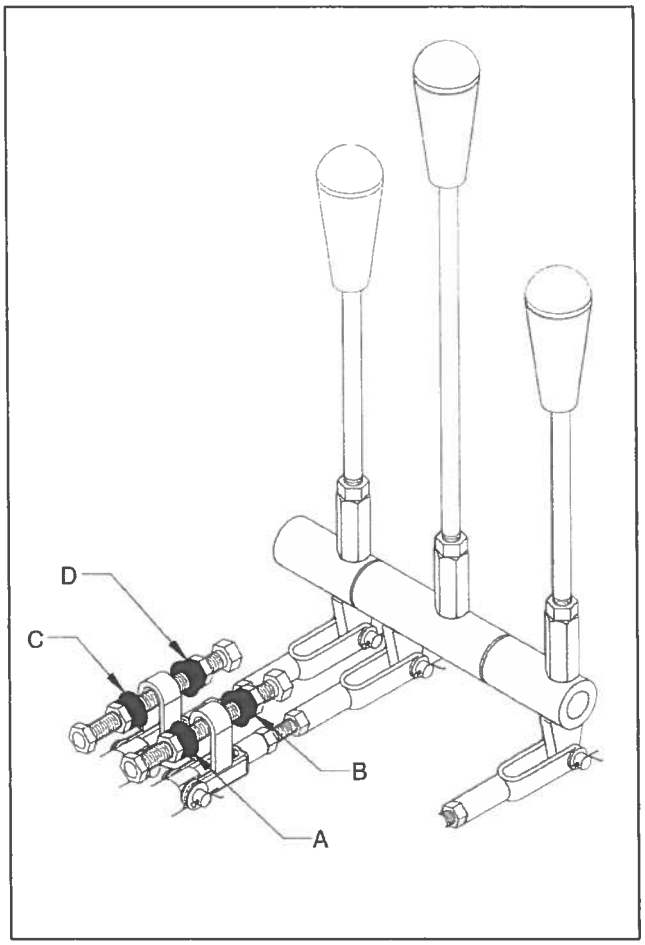
Depth Control Lever

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 Levers - Adjustment

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