



**OPERATOR'S MANUAL
AND PARTS LIST
TDR-12 TRI-DECK
12 FT ROTARY FINISHING ROLLER MOWER**



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TO THE OWNER:

Before you operate this mower, study this manual carefully. It has been prepared to help you do a better and safer job of maintaining your mower.

Use only genuine Progressive Turf Equipment Inc. replacement parts. Substitute parts will void the warranty and may not meet the standards required for safe and satisfactory operation of this equipment.

Blades are especially important. Their manufacturing process is a very exacting one and only a handful of blade producers are capable of this process. Always insist on purchasing and using OEM blades for your own protection and that of your employees.



ATTENTION - This safety symbol means your personal safety is involved. Be sure to observe and follow these instructions.



DANGER - An extreme intrinsic hazard exists which would result in high probability of death or serious injury if proper precautions are not taken.



WARNING - A hazard exists which can result in injury or death if proper precautions are not taken.



CAUTION - A reminder about safety practices, or directs attention to unsafe practices, which could result in personal injury if proper precautions are not taken.

GENERAL INFORMATION:

The purpose of this manual is to assist the operator in maintaining and operating Progressive Turf Equipment mowers. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance.

Some information may be general in nature due to unknown and varying conditions. However, through experience and these instructions, you should be able to develop operating procedures suitable to your particular situation.

Throughout this manual, references are made to right and left directions. These are determined by standing at the rear of the equipment and facing the direction of forward travel. Blade rotation is counter-clockwise as viewed from the top of the mower.

For quick reference, record the following information.

MODEL: _____

DATE PURCHASED: _____

SERIAL NUMBER: _____

For additional information, assistance during assembly, or operation of this mower, contact the dealer from whom the machine was purchased, or call Progressive Turf Equipment Inc.

PHONE: 519-527-1080 1-800-668-8873 FAX: 519-527-2275

WARRANTY POLICY

(To validate warranty, the Delivery and Warranty Registration form must be completely filled out & mailed to Progressive Turf Equipment Inc.)

Progressive Turf Equipment Inc. warrants each new product to be free of defects in material and workmanship to the original purchaser. Warranty will be applicable, from the original date of purchase.

**Pro-Flex 120, TD65-2, TD65, TD92, Pro-Max 36, TDR-22,
TDR-15, TDR-12, SDR-65, SDR-90
FOR ALL APPLICATIONS - 24 MONTHS**

This warranty coverage supersedes all written warranties, effective June 2007.

This warranty will not cover any components which, in the opinion of the company, have been subjected to negligent use, alteration, or accident, or if parts supplied by others have been used in repairs of any product manufactured by Progressive Turf Equipment Inc.

Our obligation, in the event that any Progressive Turf Equipment Inc. product warranted, shall become defective or fail, will be limited to repairing or replacing free of charge, or provide labour and materials for the repair of, any defective part, subject to company approval. All defective parts must be retained for 60 days after applying for warranty. Any parts to be returned to Progressive Turf Equipment Inc. for inspection will be issued an RGA number and must be returned within 14 days, transportation charges prepaid. This warranty will not provide for service calls to customer location or for transportation of equipment to dealer location if such servicing is required.

The sole liability of Progressive Turf Equipment Inc. under this warranty or any implied warranty, shall be limited as set forth herein. The customer agrees that Progressive Turf shall not in any event be obligated to reimburse, or pay the customer for any expense, loss or any direct, incidental or consequential damages to any person or property for any reason, or caused by reason of Progressive Turf Equipment Inc., negligence, or otherwise in connection with the sale, delivery, installation, training or use of the equipment. The customer shall indemnify and hold Progressive Turf Equipment Inc. harmless against all such liability.

This warranty is not subject to change or modification by anyone, including dealers, and no one is authorized to make any representation on behalf of Progressive Turf Equipment Inc.

TDR-12 MACHINE SPECIFICATIONS

Cutting Width	12 feet	Deck Flexibility	25" up, 15 degree down
Cutting Height	½" to 4"	Numbers of wheels	2 on main frame
Recommended HP	25 Min – 40 Max	Mowing Capacity	MPH 2 4 6 Acres per hour 2.9 5.8 8.75 Assumes no stops or overlap.
Hydraulics	Requires 1 double acting outlet, all hoses supplied to tractor	Paint Finish	Electrostatically painted with oven baked finish.
Transport Width	84"	SMV Sign	Located at back of mower for safety
Height	89".	Weight	Total 3500 lbs.
Length	14 ft.		
Ground Clearance	9 1/4" Cutting		

DECK		FRAME	
Drive	PTO shaft to right angle gear box driving a B" section belt to 2 heavy-duty spindles.	"A" Frame	Hollow structural steel tubing with supports at high stress areas to achieve maximum strength.
Belt Adjustment	Easily made by loosening four bolts at gear box base and adjusting the slide plate forward or backward and retightening.	Wheels	5 bolt, 4 1/2" bolt circle
Deck Construction	3/16" steel plate formed and welded with supporting members at high stress areas to achieve maximum strength. Deck is 7" deep.	Tires	2- 20.5X8-10ply Turf Tires
Cutting Height	Easy and accessible screw mechanism. Infinite number of adjustments from ½" to 4"	Hitch	4 positions, with height settings from 10-1/2" to 15". Safety chain with hook according to Dept. of Transport regulations.
Spindles	7 spindles, 3-30mm spindles per deck are each carried in 2 re-grease able ball bearings, which are housed, in a precision machined hub.	Tongue Weight	Transport position – 1100 lbs. Mowing position – 560 lbs.
Blade Support	¾" x 2-1/2" x 8" long bar welded to spindle and machined. ½" bolts hold blade rigid to provide clean level cut.	Cylinders	Rear deck: 1-2.5" x 12" double acting Wing deck: 2-2.5" x 12" double acting
Blades	High lift, heat treated, alloy steel blades 5/16" x 2 ½" x 23" per deck. Tractor PTO – 540 RPM	Screw Jack	Side wind jack for easy hookup.
Speeds	Blades – 3040 RPM Blade Tip Speed 18,287 FPM	Main Gear Box	4 shaft gear box with 1 3/8-6 spline shafts, delivering power to decks.
Rollers	6" diameter with 1.88 wall thickness. Supported by (2) 1.25" two bolt ductile bearings	PTO Shafts	Deck Drive telescoping agricultural PTO Drive shafts, with proper safety shields. 1-3/8-6 spline quick-disconnect yokes on both ends.
			Input PTO...Category # 6. Deck PTO...Category # 4

SAFETY

WORK SAFELY ---- FOLLOW THESE RULES



Instructions given with this symbol are for personal safety. Be sure you and your workers follow them.

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT

BEFORE HANDLING ANY EQUIPMENT READ THE OPERATOR'S MANUAL.

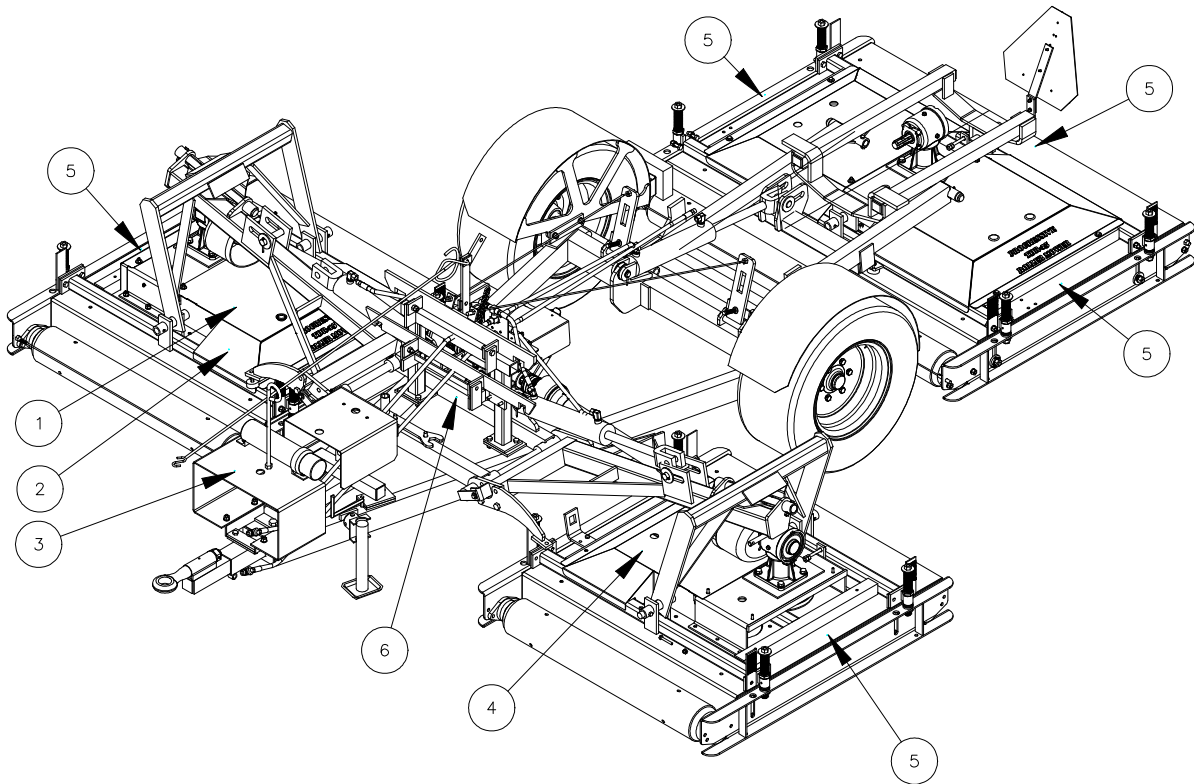
- ❖ To avoid accident or injury, do not allow anyone to operate this equipment without proper instructions. Any person who operates this equipment must be instructed in and be capable of the safe operation of the unit.
- ❖ Know your controls and how to stop tractor engine, and mower quickly in an emergency.

OPERATING SAFELY:

- ❖ Shift tractor into neutral and disengage power take-off before starting tractor.
- ❖ Never allow riders on tractor or equipment.
- ❖ Use extreme care when operating on uneven terrain.
- ❖ Immediately stop mower and shut off tractor upon striking any object. Inspect mower and repair any damage before you continue mowing.
- ❖ Always turn off tractor before making any adjustments to mower, if operator has to dismount tractor.
- ❖ If mower becomes clogged, disengage power to mower and turn off tractor before dismounting.
- ❖ Always disengage PTO and be sure driveline has stopped rotating before raising decks into transport position.
- ❖ Always obey all local and state regulations when operating on public roadways and highways.
- ❖ Reduce speed while operating during wet conditions on slopes, especially when making sharp turns.

SAFETY & MAINTENANCE DECAL LOCATIONS ON MACHINE:

ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	CAUTION - 521820	5	WARNING - 521043
2	CAUTION - 521108	6	SERIAL NUMBER PLATE
3	LUBRICATION - 521119		
3	NOTICE - 521784		
3	CAUTION - 521819		
3	WARNING - 209115		
4	GREASE SCHEDULE - 526003		



OBEDI THESE SAFETY DECALS:

If decals become faded, damaged, or lost, replace immediately.

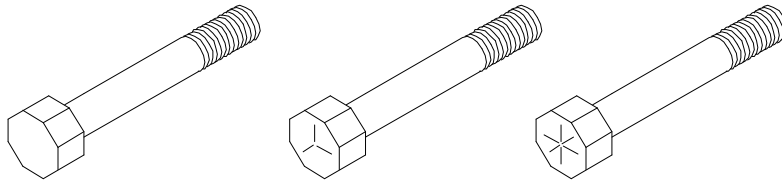
MAINTENANCE SAFETY:

- ❖ Never work on mower without safety locks in place, if decks are in raised position.
- ❖ Keep tractor and mower in good operating condition and all safety devices in place.
- ❖ Frequently check blade mounting bolts for tightness.
- ❖ Periodically check to ensure all bolts are tight and that all nuts, screws and cotter pins are properly installed to ensure that the mower is in a safe condition.

PROPER TORQUE FOR FASTENERS:

The chart lists the correct tightening torque for fasteners on Progressive Turf Equipment mowers. When bolts are to be tightened or replaced, refer to this chart to determine the proper torque except when specific torque values are assigned in the manual. Only SAE grade 5 fasteners are to be used in the assembly of this machine, or as otherwise specified in this manual.

Bolt Head Markings



SAE Grade 2

(No Dashes)

SAE Grade 5

(3 Dashes)

SAE Grade 8

(6 Dashes)

Recommended Torque in Foot Pounds (Newton-Meters)

Bolt Diameter (in.)	SAE Grade 5
5/16	21 (28)
3/8	38 (52)
7/16	55 (75)
1/2	85 (115)
9/16	125 (170)
5/8	175 (240)
3/4	300 (410)
7/8	450 (610)
1	680 (925)
1" L.H. Spindle Nut	60 (82)

OPERATING THE MOWER:

A careful and knowledgeable operator is the best insurance against an accident.
Allow no riders on any equipment.

If tractor is equipped with R.O.P.S., use the seat belt for maximum protection.

Make sure that everyone is clear of the tractor and mower before starting the engine or operating.

DAILY CHECK LIST:

1. Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough soled work shoes. Never operate tractor or implements in bare feet, sandals or sneakers.
2. Check that mower is properly and securely attached to tractor with a safety chain.
3. Ensure all safety shielding is properly installed and check that all nuts and bolts are secure and pins are properly cotterpinned.
4. Check condition of blades and security of attachment.
5. Ensure mower is properly mounted, adjusted and in good operating condition.
6. Clear area of stones, branches or other debris that might be thrown causing injury or damage.
7. Never permit any person other than the operator to ride or board the tractor at any time.
8. Check that all lubrication points with grease fittings have been lubricated as per schedule.
9. Check all gearboxes for proper amount of gear oil. Mower must be on level surface when this is done.

Be sure actuator pull rope is properly secured and will not become entangled in PTO shaft.

HITCHING MOWER TO TRACTOR:



NOTICE - Attach mower to drawbar only.

Drawbar should be adjusted so that the input pto shaft is not extended too far during operation and pull the shaft apart. This is critical for proper PTO shaft operation.

Adjust hitch or drawbar so mower frame (Item #1, Page 33) is at the most level position in relation with the ground. This will ensure proper flotation of the wing decks.



CAUTION - Safety chain must always be attached to towing vehicle.



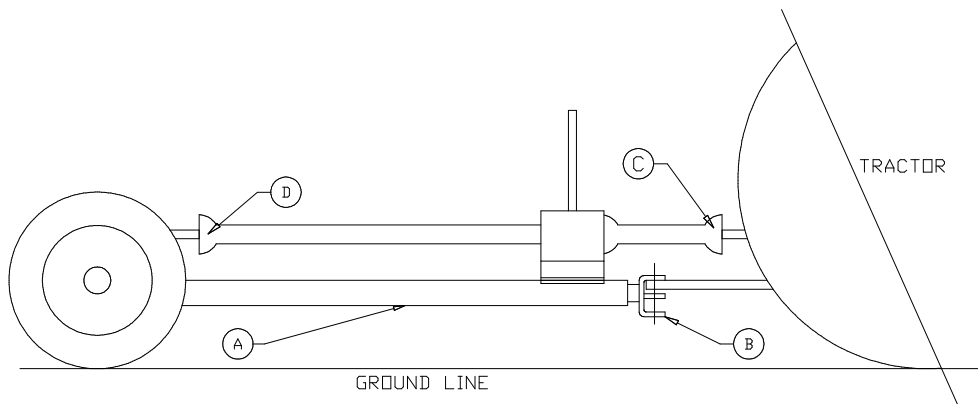
CAUTION - When towing mower on any roadways, lock brakes together. Use proper lighting and marking devices according to the local regulations.

NOTE: If the three-point hitch is attached to tractor, be sure it will not contact any part of the mower when making sharp turns. Mount the hose support bracket so the large access hole is directly over the grease fitting on the hanger bearing. The hose support rod may have to be bent back slightly to clear the three point hitch arms.

LEVELLING THE MOWER & PTO:

For proper mower operation and maximum PTO life, the mower hitch and PTO driveline must be setup correctly.

- a) When the mower is connected to the tractor, the mower hitch frame “A”, should be as close to level with the ground as possible.
- b) The connecting hitch “B” can be removed and turned over to give more height adjustments. Set in the best position for the mower frame to be as level as possible.
- c) To ensure proper life of the PTO shaft, the driveline from the mower gear box “D” to the PTO shaft “E” on the tractor should be in a straight line.



CONNECTING THE PTO SHAFT:

- a) Ensure that the tractor engine is shut off and the parking brake is locked.
- b) Holding the PTO against the end of the tractor PTO shaft, rotate the tractor PTO by hand until the shaft slides on slightly.
- c) Slide the locking collar on the PTO backwards, releasing the locking mechanism. Hold and slide the PTO on.
- d) Release the locking ring and pull the PTO shaft backwards until the locking mechanism snaps into place.
- e) Push the shaft forward and backwards to ensure that this is securely locked in place.

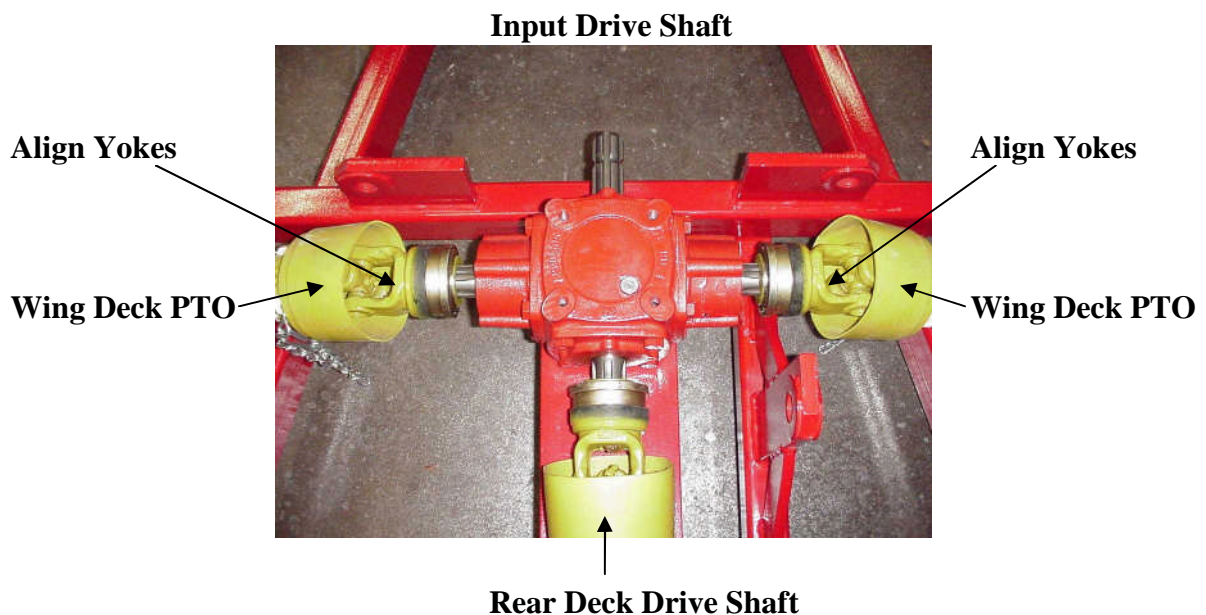


CAUTION - If the PTO shaft comes off during operation, it may cause personal injury and damage to the PTO shaft and tractor PTO. When checking, make sure the locking collar is locked, and that the shaft is not just jammed against the end of the tractor PTO shaft.

INSTALLING PTO SHAFTS:

The three identical PTO shafts are used to drive the mower decks. Each PTO shaft will have one end designated a tractor end. This end should be hooked up to the main gearbox.

IMPORTANT: The PTO shafts from the two wing decks must be timed when mounted to the gearbox. See photo below. Mount the one side first with the yoke laying flat. The opposite side must be mounted with the yoke laying as flat as possible. ie. Timed.



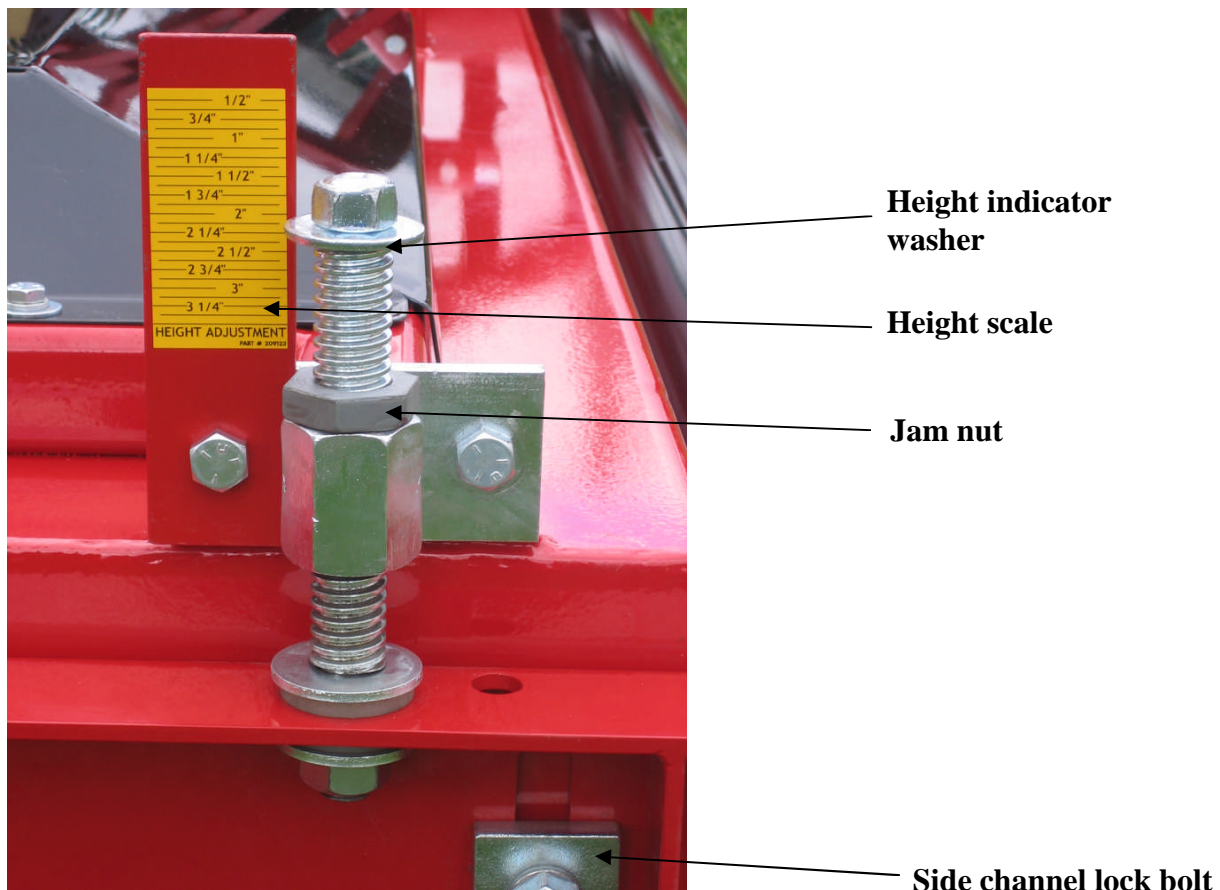
All PTO shafts have a short chain attached on both ends. Find a location to wrap or hook on short chain. Be sure that when decks are brought into transport position, the safety chain will not bind or pull PTO shield.

The Intermediate shaft is installed with the large bell end onto the main gear box. The PTO mount bracket is then installed by sliding the PTO end through the flange bearing, leaving the mounting bolts loose. Do not forget to install the PTO spacers to level the driveline. See section on “Hitching to the Tractor”.

CUTTING HEIGHT ADJUSTMENT:

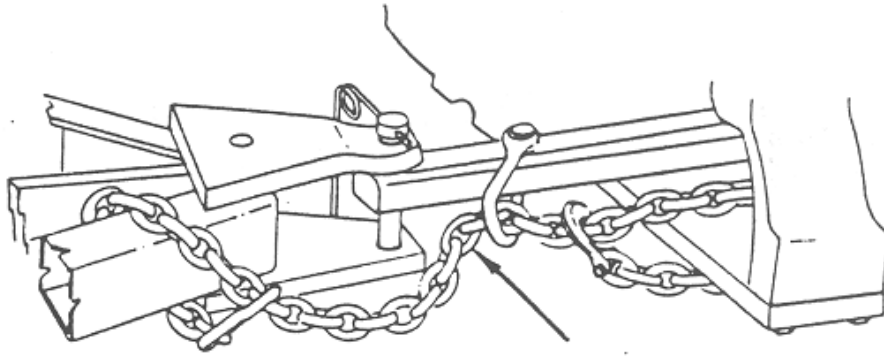
There are four height adjusters per mowing deck. Each adjuster (located in each corner of the deck) must be adjusted to the same height to ensure a smooth even cut. A wrench for this purpose is provided. In addition, each deck must be adjusted the same so that a level cut is obtained across the whole cutting width of the mower. Mower cutting height adjustment is made by turning a 5/8" nut on top of an acme threaded rod which makes up the height adjuster. A washer under the nut indicates the height against the decal. There are an infinite number of adjustments available from 1/2" to 4". Moving the adjuster up and down moves a side channel that mounts the front and rear rollers. Before attempting to make height adjustments, the locking bolt on the side channel adjacent to the adjuster must be loosened. When the desired adjustment is made, be sure to tighten the locking bolt and adjuster jam nut to maintain the adjusted height. The height decals at the back of the deck are set 1/4" lower, so that the back actually cuts 1/4" higher, this will provide a better cut, prolong the life of the blades, and reduce horsepower requirement. This will also make the side channel look uneven, but this is correct.

TDR-12 HEIGHT ADJUSTMENT



SAFETY CHAIN:

It is recommended that the safety chain provided with this mower be attached to the towing vehicle at all times.



SAFETY CHAIN

Install a safety chain as shown. After attaching the safety chain, make a test run to the left and right for a short distance to check for proper adjustment. Readjust to eliminate a loose or tight chain.

TRANSPORTING MOWERS:



CAUTION - When traveling on public roadways, use flashing amber lights and S.M.V. emblem on rear of mower to provide greater visibility to other traffic.

Once mower is in the raised position, activate tractor hydraulic control valve slightly so that the cylinders will extend and allow the locks to be totally engaged. This way there will be no sudden surges on the hydraulic system when traveling over tough terrain.



WARNING - When towing this mower the following information concerning road speed should be strictly adhered to.

WEIGHT OF TOWING VEHICLE

4500# or more
Less than 4500# but
More than 2300#
Less than 2300#

MAXIMUM ALLOWABLE ROAD SPEED

Up to 20 mph (32km/h)
Up to 10 mph (16km/h)

DO NOT TOW



CAUTION - Always have safety chain attached to towing vehicle.

TIRES:

Upon receiving your mower, check air pressure in the tires and adjust according to specifications.

Main Frame Tires – 32 PSI



CAUTION - Never inflate tires beyond 35 pounds per square inch (PSI) to seat beads. Inflation beyond 35 PSI pressure before seating the bead may break the bead or even the rim with an explosive force. If beads have not seated by the time the pressure has reached 35 PSI, deflate the assembly, move tire to another position on the rim and re-lubricate. Inflate tire and inspect both sides of the tires to be sure beads are seated properly. If not, deflate tire, unseat beads and repeat the above mounting procedure. After properly seating beads adjust to pressure recommended.

POWER TAKE-OFF:



CAUTION - Keep all safety shields in place.



CAUTION - When operating the power take-off, be sure the tractor shield is always in place, covering the exposed power take-off shaft.



WARNING - Before dismounting from the tractor, stop the power take-off, put tractor in neutral, set brakes in lock position and shut off engine.



CAUTION - When ready to engage PTO shaft, be sure engine RPM is at idle speed. Engaging PTO at full throttle will cause high shock loads to driveline, with the potential for future failure.

NOTE: Do not exceed the recommended PTO speed of 540 RPM.

Grease Compatibility

What Grease Is:

- Grease is essentially a distilled petroleum product in the form of mineral oil (or a synthetic) which has a thickening agent such as lithium, calcium, barium, sodium, or aluminum.
- Many of the thickeners will work for similar situations, but when mixing greases with different thickeners, one must review compatibility. Grease incompatibility will actually decrease the lubrication ability of the grease, and cause premature part failure.
- There may be other additives in the grease that impart special properties. These properties may be “high temperature”, “extreme pressure”, etc.

What We Use:

- Our bearing supplier uses Shell Alvania 2
- Progressive uses Texaco Multifak EP 2
- EP means extreme pressure
- Both greases have:
 - A mineral oil base
 - A lithium thickener
 - The mineral oil has a NLGI Grade 2
 - Both greases are compatible with each other

Note:

- If a thickener other than lithium is used, the existing grease will be contaminated and the lubrication properties may be lost.
 - If a synthetic base oil is used rather than a mineral base oil, the grease will again be contaminated and the lubrication properties may be lost
 - Molybdenum Disulfide (Moly) is an additive used in slow moving, extreme load applications. The particles in the “Moly” will actually increase bearing wear in a mower spindle. Our grease does not contain Moly.
 - The blade spindle temperature should never go above 120°F if properly greased; we do not recommend high temperature grease.
- A grease with these features is considered to be a “General Purpose Grease”. Use on all grease point locations on your Progressive Mower.

Our Recommendation for Grease Compatibility:

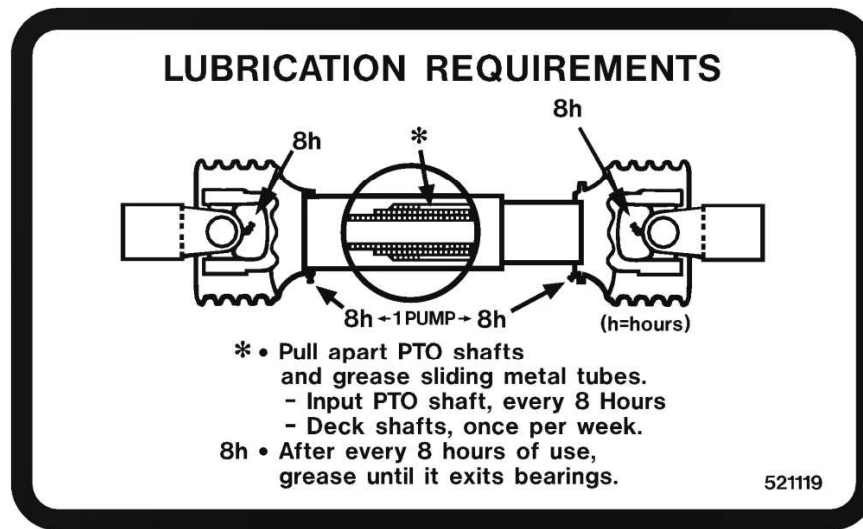
The grease you use for the blade spindle assemblies must have these properties:

- NLGI grade 2
- Lithium thickener (NOT LITHIUM COMPLEX OR LITHIUM 12-HYDROXY)
- Kinematic Viscosity at 40°C is no greater than 190 cSt
- Dropping Point Less than 400° F
- General Purpose Grease, Not Heavy Duty
- No MOLY (molybdenum disulphide) additives in the grease
- No synthetic grease
- No High Temperature Grease
- Check the properties of the grease you wish to use with your supplier prior to use.

LUBRICATION:

A properly maintained lubrication schedule will provide a smooth running machine for many years. All pivot locations have grease fittings. The following information shows and describes where all lubrication points are located.

DECKS	P.T.O. SHAFTS	FRAME
<ul style="list-style-type: none"> • Spindles* (See Manual) • 3 Pivots per Wing Deck* • 4 Pivots on Rear Deck* • *As Required 	<ul style="list-style-type: none"> • Main Input*(See Below) • Deck Drive, 4 Locations per Shaft* • Pull Apart Sliding Tubes once per week and lubricate • *As Required 	<ul style="list-style-type: none"> • 6 Pivot Locations* • 2 Wheels* <p style="text-align: center;">*As Required</p>
<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>CHECK FOR PROPER OIL LEVEL IN GEARBOXES DAILY</p> <p>GREASING SCHEDULE & LOCATION</p> </div>		



BLADE SPINDLE GREASING:

The top bearing on all spindle assemblies has a shield only. This allows grease to exit and relieves any pressure build up inside spindle housing, when greasing. Greasing of blade spindles should continue until grease can be seen exiting between the top bearing. Some working conditions will require this operation to take place every 4 to 5 running hours because of hot working areas. Cooler working areas will only require greasing every 8 to 10 hours. A proper greasing schedule can only be determined by operator, depending on working conditions in your particular area.

GEARBOX OIL LEVELS:

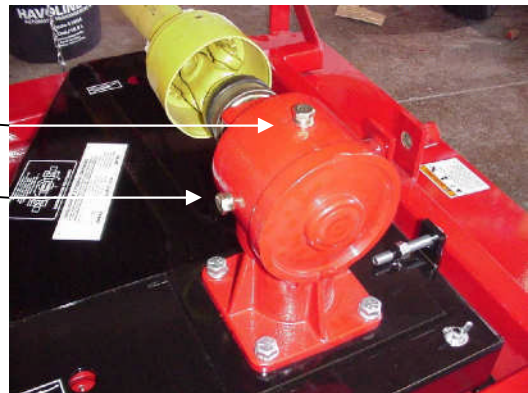
IMPORTANT! DO NOT OVERFILL! MOWER MUST BE LEVEL WHEN CHECKING GEARBOX OIL LEVEL

DECK GEARBOXES:

Gearboxes all have an oil level plug located on the side of the gearbox. Oil should reach the bottom of this hole. If oil level is low, add oil through top plug hole of casing until oil just starts to flow out of side oil level hole. Replace and tighten plugs. Use 80W90-gear oil or equivalent.

Filler Plug

Level Plug



MAIN GEAR BOX:

The main gearbox has a combination filler plug and dipstick. Remove the plug, dry off the dipstick and replace to check oil level. It must touch the oil in the gear box. Add oil as required. Use 80W90 gear oil or equivalent. Replace and tighten the plug.



MAINTENANCE:



WARNING - Turn tractor engine off before performing any maintenance.



CAUTION - Always use personal protection devices such as eye and ear protectors when performing maintenance functions.



WARNING - When completing a maintenance or service function, make sure all safety shields are installed before placing mower in service.

BLADE SERVICING:



WARNING - Be sure safety locks are in place when working on decks in the raised position. The tractor hydraulic system could fail, causing decks to fall and crush anything under them.

❖ Do not handle mower blades with bare hands. Careless or improper handling may result in serious injury.

❖ Inspect blades before each use to determine that they are mounted tightly and are in good condition. Replace any blade that is bent, excessively nicked, worn or has any other damage. Small nicks can be ground out when sharpening.



WARNING - Only original equipment blades should be used when replacing worn out mower blades. They are made of special steel alloys and subjected to rigid heat-treat and inspection requirements. Substitute blades may not meet these rigid specifications and **MAY BE DANGEROUS.**

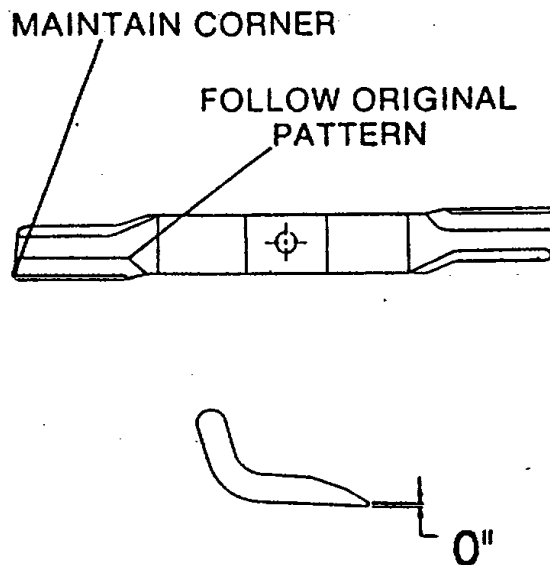
BLADE REMOVAL AND INSTALLATION:

Two, 1/2" X 1 3/4" grade 5 bolts with lock washers and nuts hold blade to blade spindle support bar. When changing blades, be sure that these fasteners are in good condition so they will not come loose during operation.

BLADE SHARPENING:

IMPORTANT - When sharpening blades be sure to balance them. Unbalanced blades will cause excessive vibration, which can damage blade spindle bearings. Vibration may also cause structural cracks in spindle housing.

Follow original sharpening pattern as shown. Sharpen blade to a razor edge. Protect hands when sharpening. Do not sharpen backside of blade.



BLADE SHARPENING

SPINDLE INSPECTION:

Spindles are equipped with two roller ball bearings. Adjustment is set by tightening the 1" left hand nut to 60 ft-lbs. torque for proper setting.

Periodically inspect blade spindles by grasping blade, and moving from side to side. If any free play is noted, replace or repair.

SPINDLE ASSEMBLY REMOVAL:

Remove blade from spindle.

Remove belt shield. Loosen 4 bolts that hold gearbox to mount. Loosen 1/2" x 3 1/2" tap bolts and slide gearbox toward front until belt is easy to remove.

Remove belt.

Remove 4 bolts attaching spindle assembly to mower frame and remove as a unit, since pulley will come out through the hole in the deck.

SPINDLE ASSEMBLY INSTALLATION:

Reverse above procedure. Be sure spindle mounting area of deck is clean of any foreign material before attaching spindle assembly.

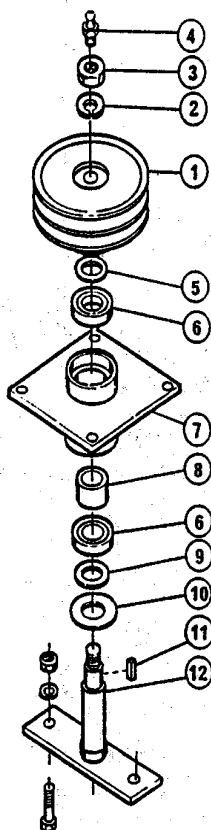
SPINDLE REPAIR:

Spindle repair requires special skills and tools. If your shop is not properly equipped or your mechanics are not properly trained in this type of repair, you may be time and money ahead to use a new spindle assembly.

Remove pulley from spindle assembly. Place assembly in press and force spindle down through housing. Once pressed apart, replace bearings, as removal will have damaged bearings internally.

ASSEMBLY OF SPINDLE:

Only use a press that has the ram and bed 100% square to each other. If bearings are not square in housing, bearings will wear out prematurely. Press on outer race when inserting into hub and press on inner race when installing on spindle.



- 1 - PULLEY
- 2 - L.H. LOCK WASHER
- 3 - L.H. NUT
- 4 - GREASE FITTING
- 5 - SHIM
- 6 - BEARING
- 7 - SPINDLE HOUSING
- 8 - BEARING SPACER
- 9 - SHIM
- 10 - DIRT SHIELD
- 11 - 1/4" SQ. X 1 11/16" KEY
- 12 - BLADE SPINDLE

If bearings are being changed, be sure to check bearing spacer for wear. If wear is noticed, insert new spacer. This is critical because if spacer is short by only .010", the top bearing will start to bind and will result in premature failure.

Bearing with seal and shield combination will be pressed into the blade side of the hub first with the seal side facing out. Next, set spindle on press bed, install dirt shield and shim first (as per diagram) set hub, bearing end down, onto spindle. You must use a tube (Note: both ends must be square) which will slide over spindle and press on inner race of bearing, until seated against shim.

Insert bearing spacer tube with hole end up. Set remaining bearing with shield side up, open side on first, onto spindle. Press on inner race (this bearing will be a loose fit in the hub so it will seat itself properly).

When all parts have been installed on spindle, torque left hand nut to 60 ft-lbs. and then tighten set screws in pulley. Once the assembly is complete, fill with quality grease until it can be seen exiting the top bearing. Rotate the housing six revolutions by hand so the bearings will have the grease worked into them, and at the same time check for free movement. The assembly is now ready for installation into the mower deck.

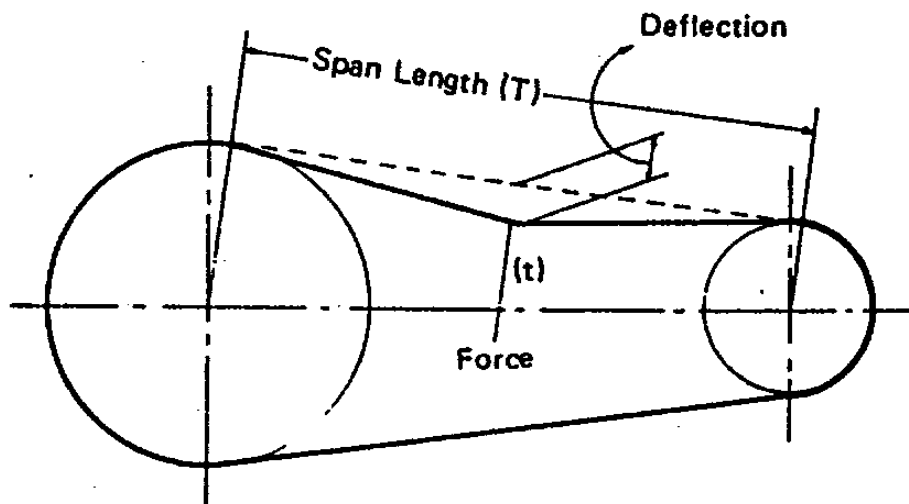
“V” BELT ADJUSTMENT:

Begin by loosening 4 bolts at the base of the gearbox. Adjusting long threaded bolt slides the gearbox back, tightening belt. After proper tension is achieved, tighten 4 bolts at base of gearbox. You may have to place a ½” nut under the head of the long threaded bolt to increase your adjustment length.

When changing belts, removal of grease fitting from the top of the center spindle will make installation easier. Be sure belts run in proper groove.

“V” BELT TENSION:

Proper belt tensioning is a fundamental factor in the successful V-belt operation. Lack of tension will cause slippage, and too much tension will cause excessive belt stretch as well as damage to the drive components, such as bearings and shafts. Therefore, to ensure proper belt tension, the following procedure is recommended.



CHECKING BELT TENSION

At the mid-point of the span, apply a deflection force with a spring scale in the direction perpendicular to the span until the belt is deflected the 3/8”.

The recommended force to deflect the belt is a minimum of 4.9 lbs. to a maximum of 7.3 lbs.

The first 24 to 48 hours of operation is the belt “run in” period. To ensure satisfactory belt performance, belt tension should be checked during this time period.

HYDRAULICS:

The hydraulic system on your Progressive mower is a simple cylinder system used to raise and lower the cutting decks into position. Each cylinder contains a .035 diameter restrictor orifice, which is located on the rod end to slow the speed of travel.

Restrictor Orifice



When reconnecting the quick disconnects to the tractor, be sure that both ends are clean. Dirt in the hydraulic system can block the orifice in the line throttle valve or even score the cylinder tubes.

Hydraulic fluid escaping under pressure has enough force to penetrate the skin. Seek medical attention at once if injured by escaping fluid. During your daily inspection repair all leaks before they create a major problem. Relieve all pressure before working on, or disconnecting the line in the hydraulic system.

If crimp-on hose ends are ever changed, be sure they are compatible with the hose, to provide the proper crimping pressure.

TROUBLE SHOOTING:

PROBLEM	CAUSE	REMEDY
Belt slippage	Lack of tension oily drive conditions	Increase tension Clean up drive
Rapid belt wear	Belt slippage belt not in proper groove	Increase tension Place in proper groove
Belt squeal	Belt slippage	Increase tension
Over-heated bearings	Belt slippage excessive drive tension	Increase Tension Tension drive properly
Wing deck, corner support bent	Insufficient spring tension	Increase Tension by adjusting eye bolt
Wing locks hard to disengage	Cylinder not pulling wing up all the way	Adjust clevis on end of cylinder
Mower deck will not lower	Orifice in line throttle valve plugged	Remove line throttle valve, Remove obstruction from orifice and reassemble
Vibration on turning.	Draw bar length incorrect	Adjust drawbar length To specification
Input shaft does not collapse easily on turning.	Lack of grease at intermediate location of drive shaft	Remove driveshaft and pull apart. Grease splines. Grease every 8 hours.
Premature spindle bearing failure.	Lack of lubrication or grease is contaminated	See grease information and ensure grease being used is compatible. Grease per instructions