



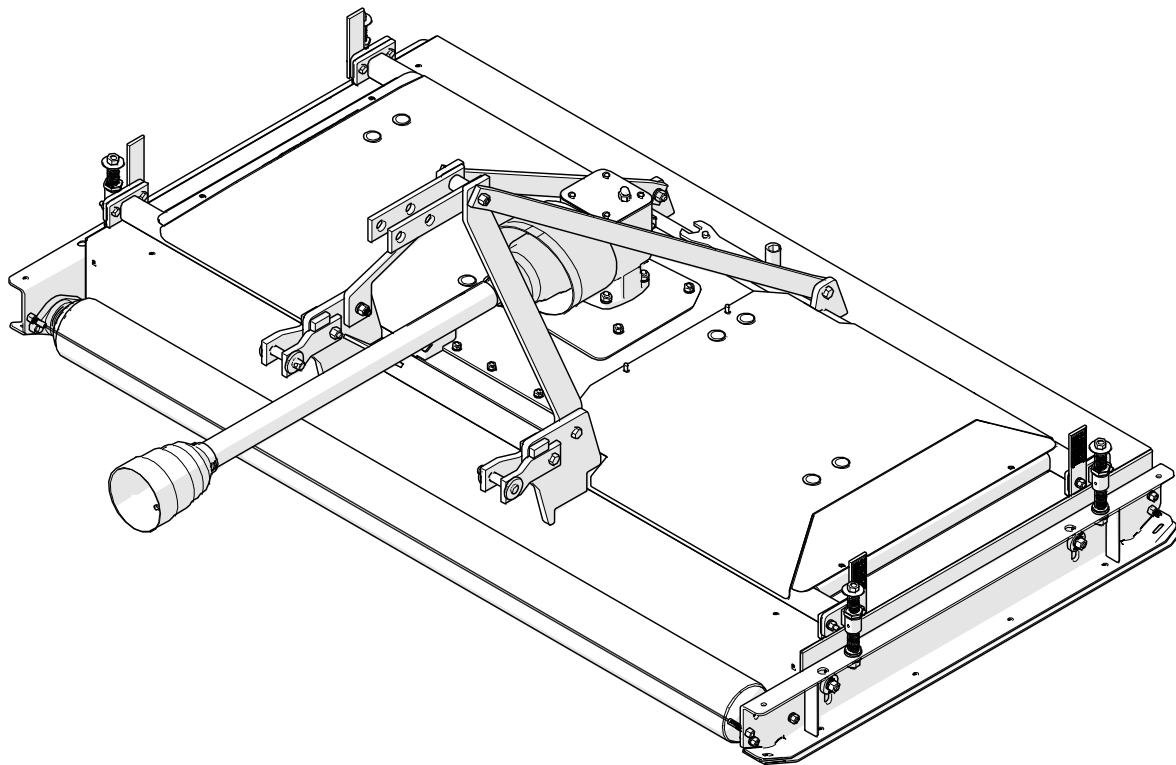
Operator's Manual
and Parts List

SDR-65 & SDR-90

Single Deck Rotary Finishing Mower

SDR 65 Serial No. 13365067 and up

SDR 90 Serial No. 13390080 and up



PROGRESSIVE TURF EQUIPMENT INC.
137 WEST WILLIAM STREET
SEAFORTH, ONTARIO
CANADA N0K 1W0

PHONE: 519-527-1080
TOLL FREE: 800 668-8873
ISSUE DATE: April 2013

SERIAL # _____
WEB: www.progressiveturfequip.com

P.N.120528



DANGER!

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

DECLARATION OF CONFORMITY

According to Annex 11 A of the European Community Regulation for Machines

We, Progressive Turf Equipment Inc. 137 West William Street, Box 940, Seaforth Ontario, Canada declare under our sole responsibility that:

Progressive Rotary Finishing Mowers

<u>Models:</u>	<u>Part Number</u>	<u>Description</u>
TD65-2	526512D	3.66m Tri-Deck Finishing Mower
TD65	526515D	4.72m Tri-Deck Finishing Mower
TD92	529222E	6.70m Tri-Deck Finishing Mower
PF-120	601205D	3.05m Pro-Flex Contour Mower
PFR-120	601205RD	3.05m Pro-Flex Roller Contour Mower
PM-36	529236E	10.97m Pro-Max 36 Mowing System
TDR-22	526924E	6.70m Tri-Deck Roller Mower
TDR-15	528750D	4.72m Tri-Deck Roller Mower
TDR-12	528712D	3.65m Tri-Deck Roller Mower
SDR-65	531965C	165cm Three Point Hitch Roller Mower
SDR-90	531990C	228.6cm Three Point Hitch Roller Mower

are in conformity with Directive 98/37/EC of the European Parliament and of the Council of 22 June, 1998 on the approximation of the laws of the member states relating to Machinery.

The Technical Construction File is maintained at the corporate offices of Progressive Turf Equipment Inc. at the address listed above.

Dated at Seaforth, Ontario Canada the 28th day of February 2013.



Luke Janmaat
President
Progressive Turf Equipment Inc.

TABLE OF CONTENTS

PAGE

INTRODUCTION

TO THE OWNER	6
GENERAL INFORMATION	7
WARRANTY	8
SAFETY INSTRUCTIONS	9
SPECIFICATIONS.....	10
SAFETY DECAL LOCATIONS	11
SAFETY DECAL LISTING	12
MAINTENANCE SAFETY	14

OPERATION OF THE MOWER

DAILY CHECK LIST	15
HITCHING MOWER TO TRACTOR	16
CONNECTING THE PTO SHAFT	16
ADJUSTING PTO LENGTH	17
CUTTING HEIGHT ADJUSTMENT	18
TRANSPORTING MOWER	19
GREASE COMPATIBILITY.....	20
LUBRICATION	21
GEARBOX OIL LEVEL	22

MAINTENANCE

MOWER BLADE SERVICING	23
BLADE REMOVAL & INSTALLATION	24
BLADE SHARPENING	24
SPINDLE INSPECTION	25
SPINDLE ASSEMBLY REMOVAL	25
SPINDLE ASSEMBLY INSTALLATION	25
ASSEMBLY OF SPINDLES	26
“V” BELT ADJUSTMENT	27
“V” BELT TENSION	27
TROUBLE SHOOTING	28

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

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 of the following new, unused current models:

**ProFlex 120, ProFlex 120R, TD65-2, TD65, TD92, Pro-Max 36 TDR-15, TDR-12, TDR-22,
SDR-65, SDR-90**

Basic Mower: 24 months
Gear Boxes: 36 months

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

This warranty will not cover any components which, in the opinion of the company, have been subjected to negligent use, alteration, and accident, damage due to lack of maintenance or use of wrong lubricants, or if parts supplied by others have been used in repairs of any product manufactured by Progressive Turf Equipment Inc. Items such as blades, belts, tires, wheels and batteries are considered consumable wear items and are excluded from Progressive Turf Equipment Inc.'s warranty coverage. Warranty coverage on these items is limited to what is provided by the OEM of the applicable part, if any.

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 consideration. 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. PROGRESSIVE TURF EQUIPMENT INC. DISCLAIMS ANY EXPRESS (EXCEPT AS SET FORTH HEREIN) AND IMPLIED WARRANTIES WITH RESPECT TO THE GOODS INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND MAKES NO WARRANTY AS TO THE DESIGN, CAPABILITY, CAPACITY, OR SUITABILITY FOR USE OF THE GOODS.

Progressive Turf Equipment Inc. reserves the right to make improvements to the design or changes to the specifications at any time without prior notice or any obligation or duty to inform current owners or modify units previously sold.

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.

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

Model _____ Serial Number _____

Date Purchased _____ Dealer _____

Read your Operator's Manual

This warranty coverage supersedes all written warranties, effective November 1, 2012.

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.

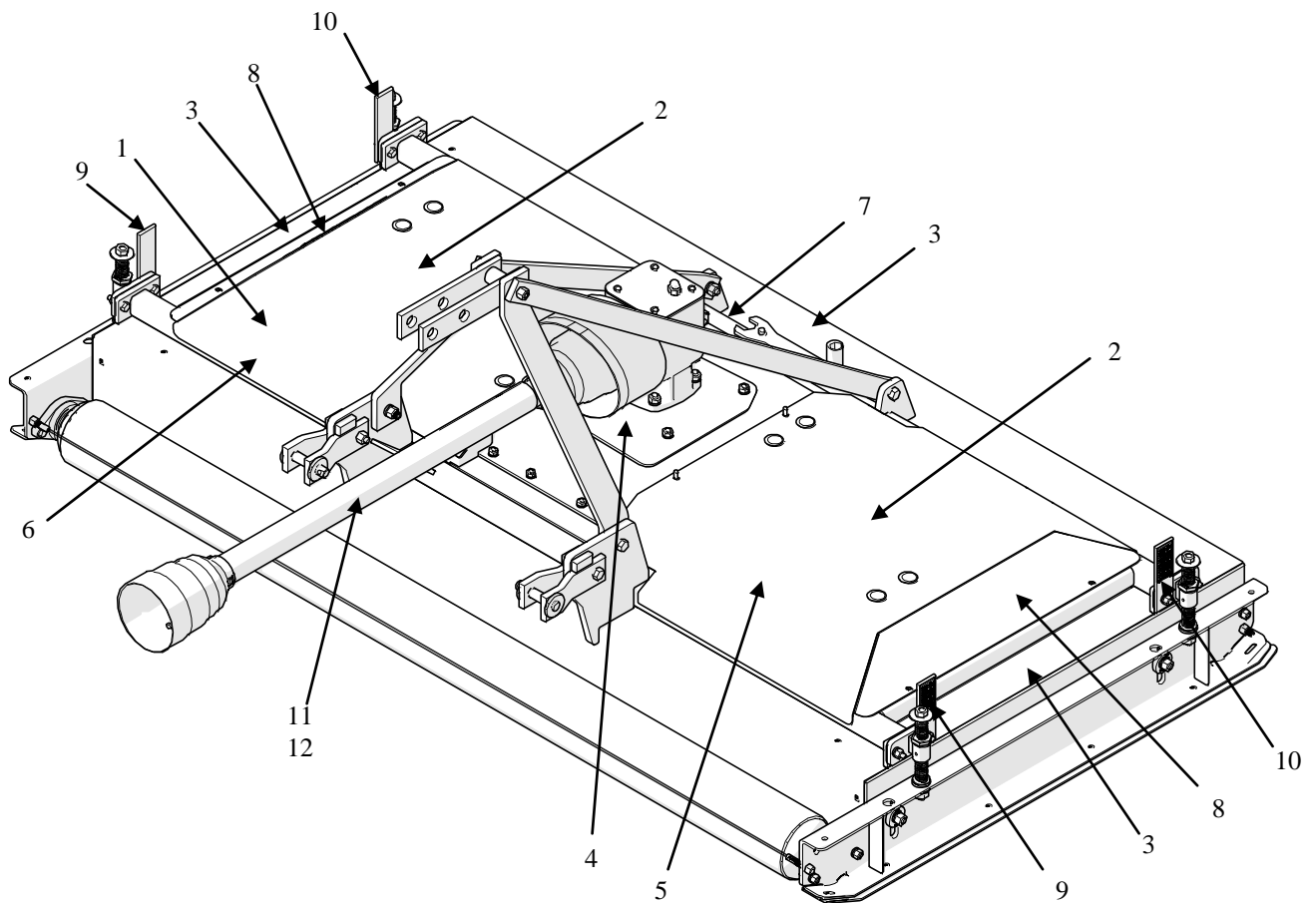
SDR MOWER SPECIFICATIONS

	SDR-65	SDR-90
Cutting Dimensions	65"	90"
Deck Dimensions	Width Length Depth 72" 51" 7"	Width Length Depth 97" 52" 7"
Recommended HP	25 hp*	35 hp*
Weight	975 LBS	1380 LBS
Speeds	TRACTOR PTO – 540 rpm Blades – 3040 rpm Blade tip speed - 18 287 rpm	TRACTOR PTO – 540 rpm Blades – 2890 rpm Blade tip speed – 18 300 fpm
Blades	3 - 23" Blades 5/16" x 2 1/2" heat treated alloy steel blades	4 - 24" Blades
Spindles	3 Spindles, 30 mm Supported by 2 grease-able ball bearings which are housed in a precision machined hub.	4 spindles, 35 mm
Cutting height	Infinite settings from 1/2" to 4"	
Deck Drive	PTO shaft to right angle gear box driving "B" section belts to heavy duty spindles.	
Blade Support	3/4" x 1/2" x 8" long bar welded to spindle and machined for balance. Two 1/2" bolts hold blade rigid to provide a clean level cut	
Deck Construction	A single piece of 3/16" steel plate formed and welded with supporting members at high stress areas to achieve maximum structural strength.	
Rollers	6" diameter with 0.188" wall thickness, supported by 1 1/4" two bolt ductile flange bearings.	
Belt Adjustment	Easily made by loosening hold down bolts and adjusting tap bolt to desired belt tension.	
P.T.O. Shaft	Telescoping category #4 agricultural PTO drive shaft, with proper safety shields, 1 3/8" – 6 spline quick disconnect yokes on both ends with ring lock collars	
Lift Link	Category 1	

*May require weights on the front of the tractor

SAFETY & MAINTENANCE DECAL LOCATIONS ON MACHINE:

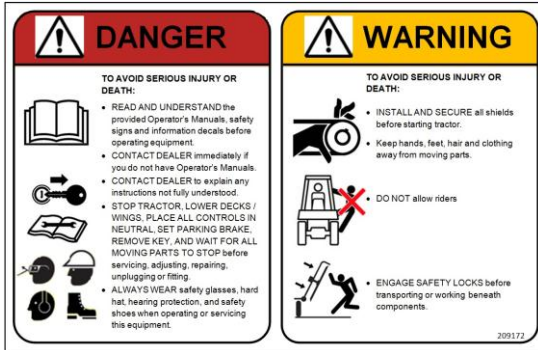
ITEM NO.	DESCRIPTION	QTY
1	DANGER – READ MANUAL	1
2	CAUTION – REPLACE SHIELDS	2
3	DANGER – BLADE HAZARD	3
4	WARNING – OEM PARTS	1
5	CAUTION – DISENGAGE PTO	1
6	PTO GREASING	1
7	COMPANY NAME	1
8	MOWER MODEL	2
9	HEIGHT DECAL – FRONT	2
10	HEIGHT DECAL - REAR	2
11	DANGER – OUTER TUBE	1
12	DANGER – OUTER SHIELD	1



SDR DECAL LISTING

If decals become faded, damaged, or lost, replace immediately. Order decals according to corresponding Part # below. Complete decal kits are also available.

SDR Decal Kit - 531002



ITEM 1
(209172)



ITEM 2
(209113)



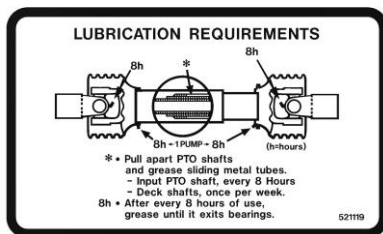
ITEM 3
(209173)



ITEM 4
(209115)



ITEM 5
(521820)



ITEM 6
(521119)



ITEM 7
(521817)

PROGRESSIVE SDR-90 ROLLER MOWER

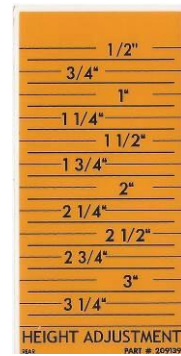
ITEM 8 – SDR-90
(209133)

PROGRESSIVE SDR-65 ROLLER MOWER

ITEM 8 – SDR-65
(209135)



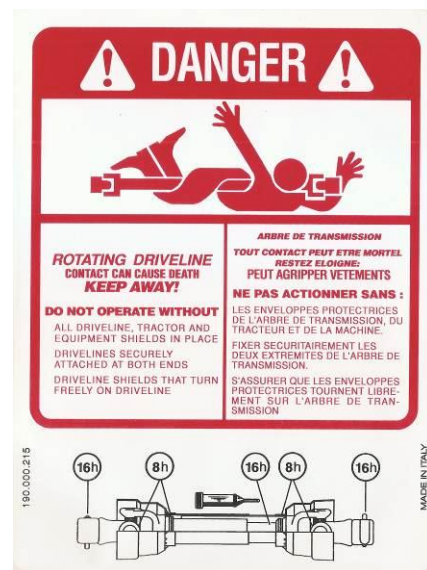
**ITEM 9
(209123)**



**ITEM 10
(209139)**



**ITEM 11
(521451)**



**ITEM 12
(521455)**

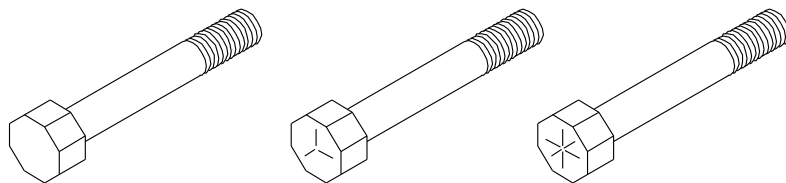
MAINTENANCE SAFETY:

- ❖ 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 cotter-pinned.
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 the gearbox for proper amount of gear oil. Mower must be on level surface when this is done.

HITCHING MOWER TO TRACTOR:



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

- a) Lower three point hitch arms on tractor and align them with the lower hitch links on both ends of the hitch assembly. Insert a 7/8" pin to secure links to lower tractor arms.
- b) Adjust tractor top link length to match distance between top link of mower and tractor top link mount. Attach with 7/8" pin.
- c) Raise and lower mower to ensure that it does not come into contact with the tractor. The links should operate smoothly and should not bind. Note that the SDR-90 will require front bumper weights.

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.
- f) **NOTE:** If mower is being used on another tractor, it is necessary to ensure that the overall length of the PTO is correct. Check and adjusted per the steps outlined above



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.

Adjusting the PTO shaft to the correct length

IMPORTANT: When checking driveline PTO shaft minimum length, it is necessary to align and level the tractor's PTO shaft with the gearbox shaft of the mower.

1. Measure the shortest distance possible between the tractor PTO shaft and the gearbox shaft of the mower. The lower links on the 3 point hitch must be hanging downward to obtain the shortest length (see diagram 1).

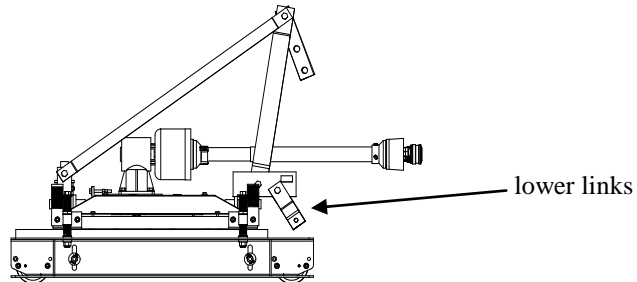


Diagram 1

2. Shorten the driveline PTO shaft as follows:
 - a. Make sure the tractor PTO shaft and the mower PTO shaft are level with each other.
 - b. Separate the two driveline shaft halves and connect one half to the tractor PTO shaft and the other half to the mower gearbox shaft.
 - c. Hold driveline shaft halves side by side to determine if they are too long. The shields on each half should end approximately 3" from the universal joint shield. Measure 3" back from the universal joint shield (dimension X on Diagram 2) and mark that location on the inner and outer shields.
 - d. Cut off the outer shield at dimension 'A'. Measure dimension 'A' from the end of the outer shaft and cut the same amount off of the outer shaft. Cut off the inner shield at dimension 'B'. Measure dimension 'B' from the end of the inner shaft and cut the same amount off of the inner shaft.
 - e. Remove all burrs from shafts. Keep shaft ends square not rounded off. Clean all filings from drive shield tubes.
 - f. Once driveline has been reassembled, check to make sure the driveline does not bottom out in the shortest position.

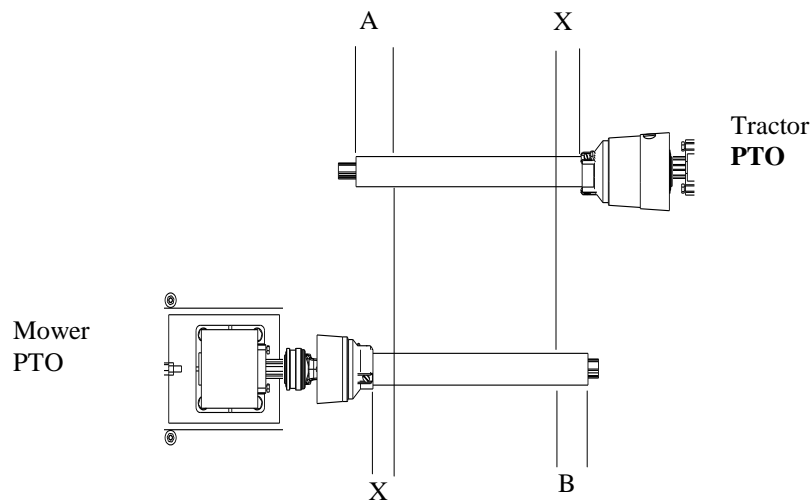


Diagram 2

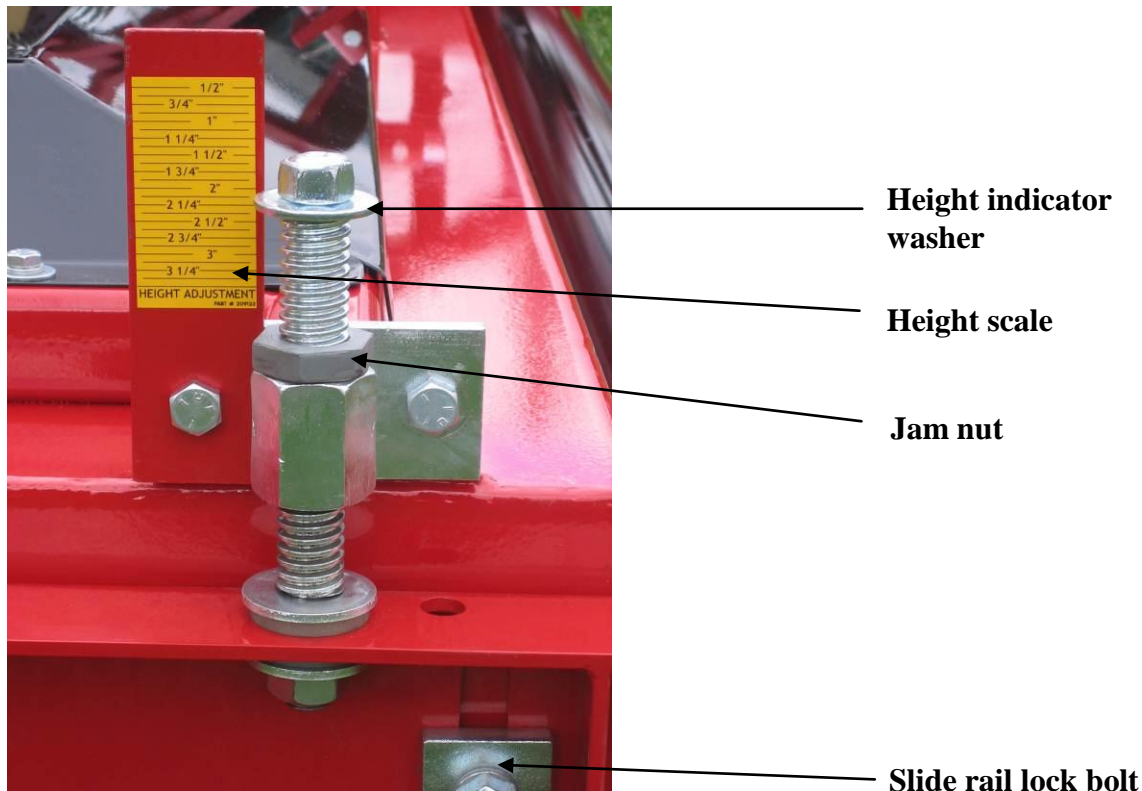
CUTTING HEIGHT ADJUSTMENT:

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. 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. 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.

To make a height adjustment, follow these steps:

- 1) Loosen the 2 locking bolts on the side channel
- 2) Loosen the ACME jam nut
- 3) Turn the 5/8" nut on top of the ACME threaded rod to desired height
- 4) Tighten ACME jam nut
- 5) Tighten the sided channel locking bolts

SDR HEIGHT ADJUSTER



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.



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.

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:

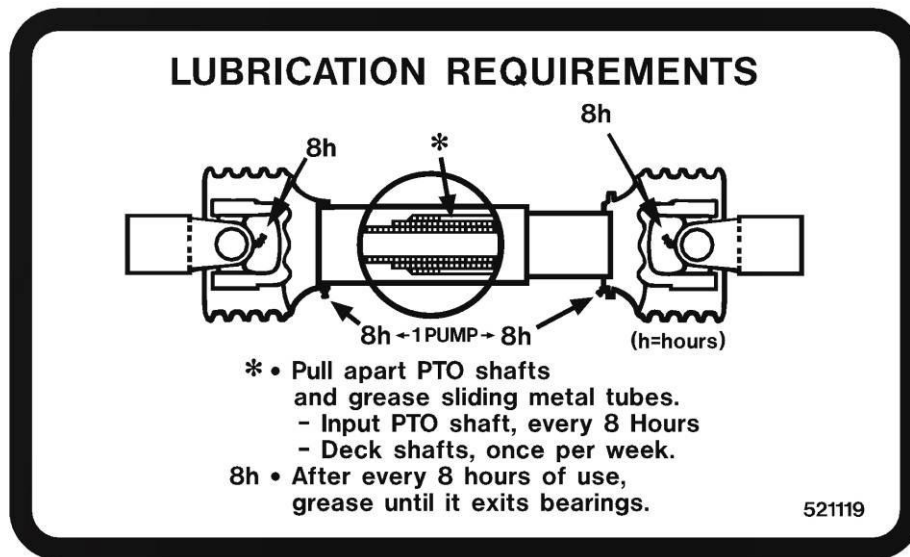
The grease you use for the blade spindle assemblies must have these properties:

- 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. The following information shows and describes where all lubrication points are located.

DECK	P.T.O. SHAFTS
<ul style="list-style-type: none"> • Spindles* (See Manual) <p>*As Required</p>	<ul style="list-style-type: none"> • Main Input*(See Below) • Pull Apart Sliding Tubes once per week and lubricate <p>*As Required</p>
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <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 and the bottom of hub on pulley. 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 LEVEL:

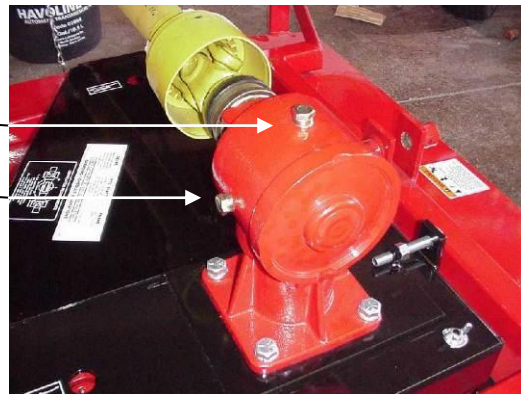
IMPORTANT! DO NOT OVERFILL! MOWER MUST BE LEVEL WHEN CHECKING GEARBOX OIL LEVEL

DECK GEARBOX:

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



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.**

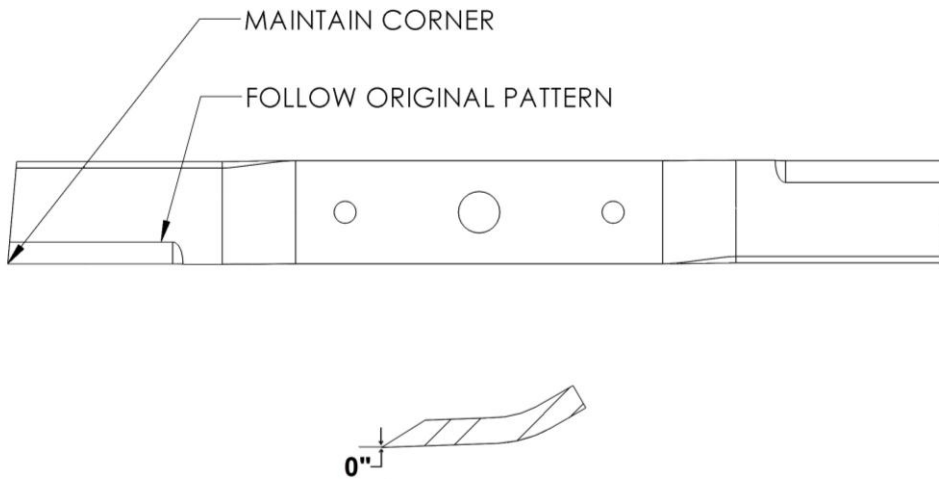
BLADE REMOVAL AND INSTALLATION:

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.

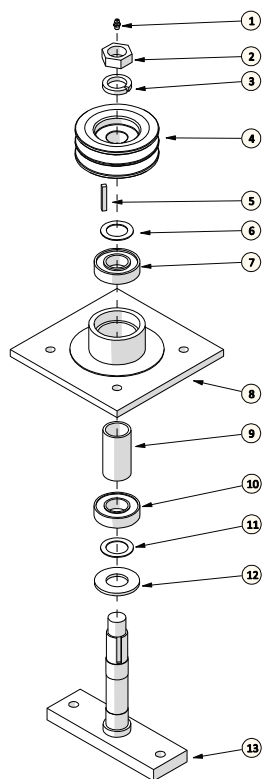
SPINDLE REPAIR:

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.



ITEM	DESCRIPTION
1	GREASE FITTING 1/4 - 28
2	HEX NUT- L.H.
3	L.H. LOCKWASHER
4	PULLEY
5	KEY - 1/4" X 1-1/16"
6	SHIM WASHER
7	TOP BEARING
8	SPINDLE HOUSING
9	SPACER TUBE
10	BOTTOM BEARING
11	SHIM WASHER
12	SPINDLE DIRT SHIELD
13	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.

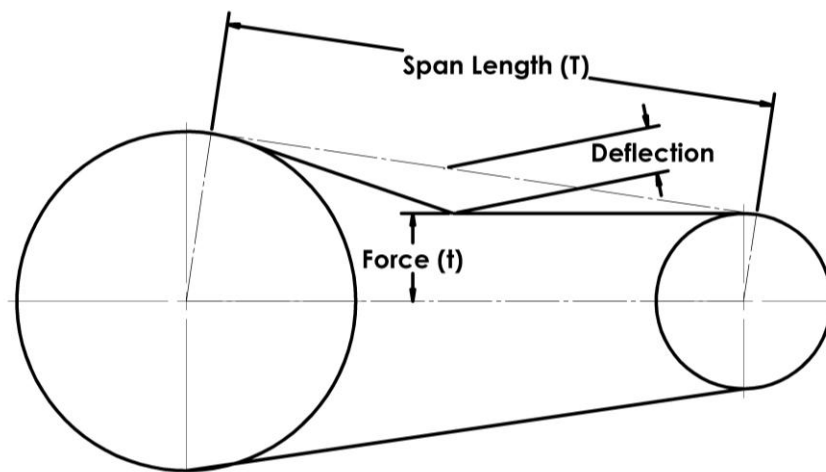
“V” BELT ADJUSTMENT:

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.

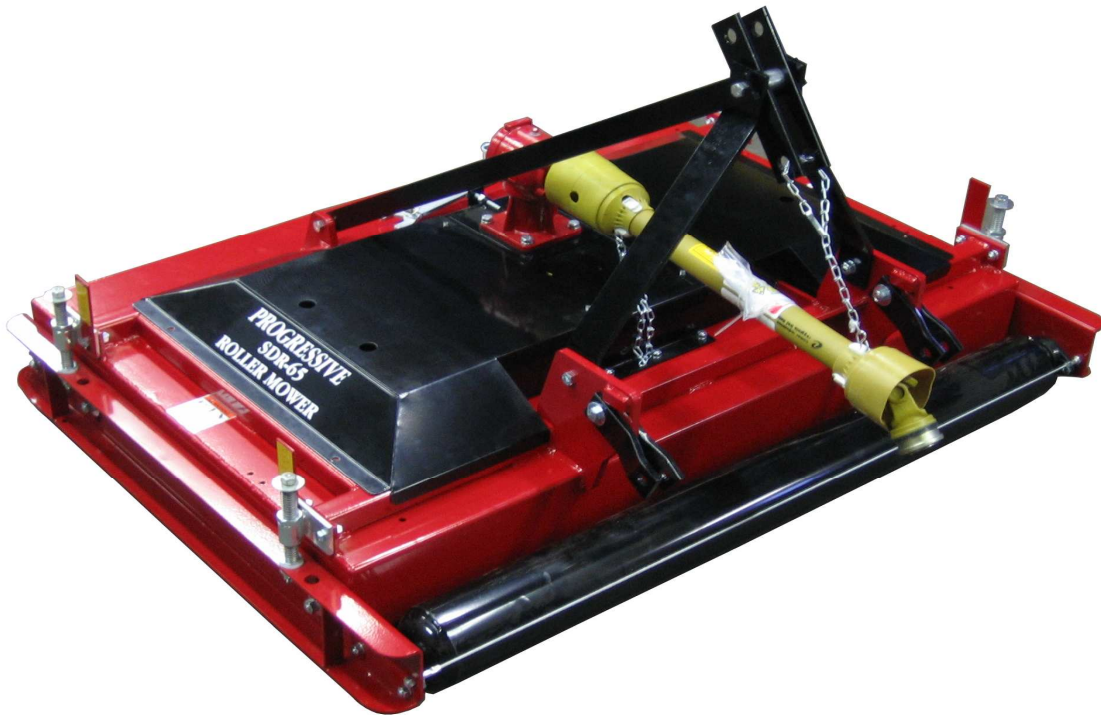
TROUBLE SHOOTING:

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
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

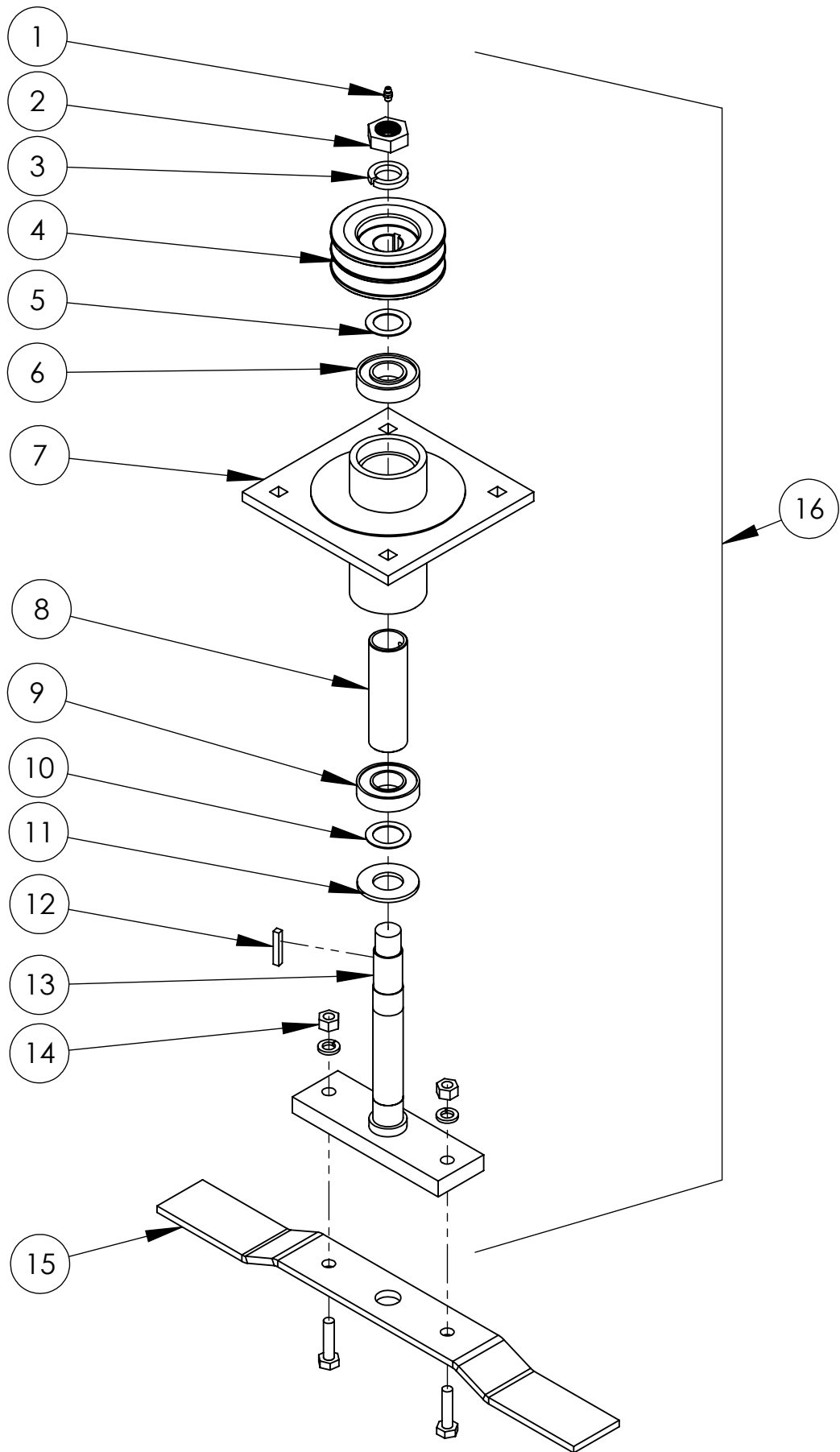
SDR-65 FINISHING MOWER PARTS MANUAL

TABLE OF CONTENTS

<u>DESCRIPTION</u>	<u>PAGE</u>
BLADE SPINDLE ASSEMBLY	2
DECK ASSEMBLY	4
GEARBOX MOUNT ASSEMBLY	6
HITCH FRAME ASSEMBLY	8
PTO SHAFT	10

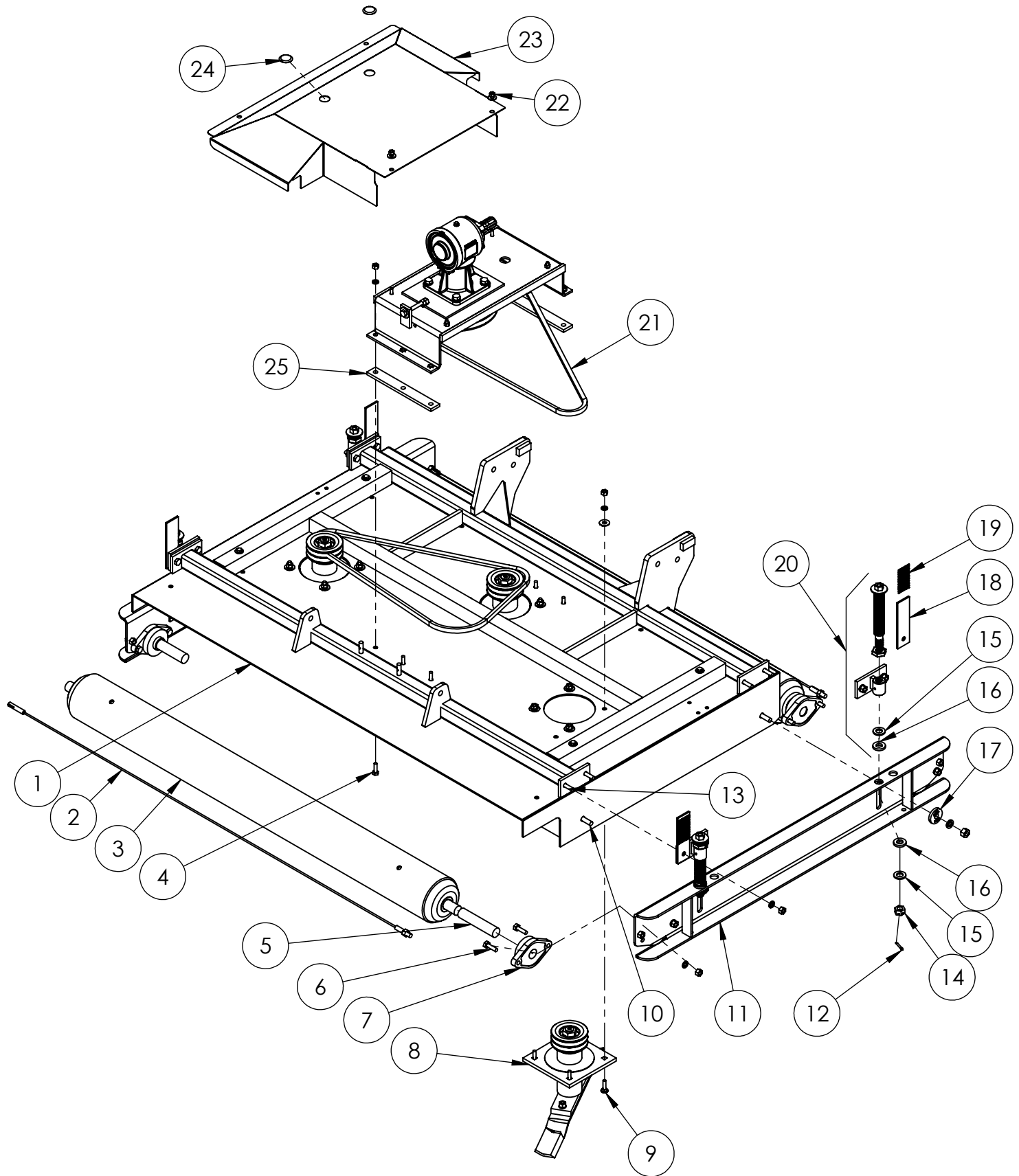


BLADE SPINDLE ASSEMBLY



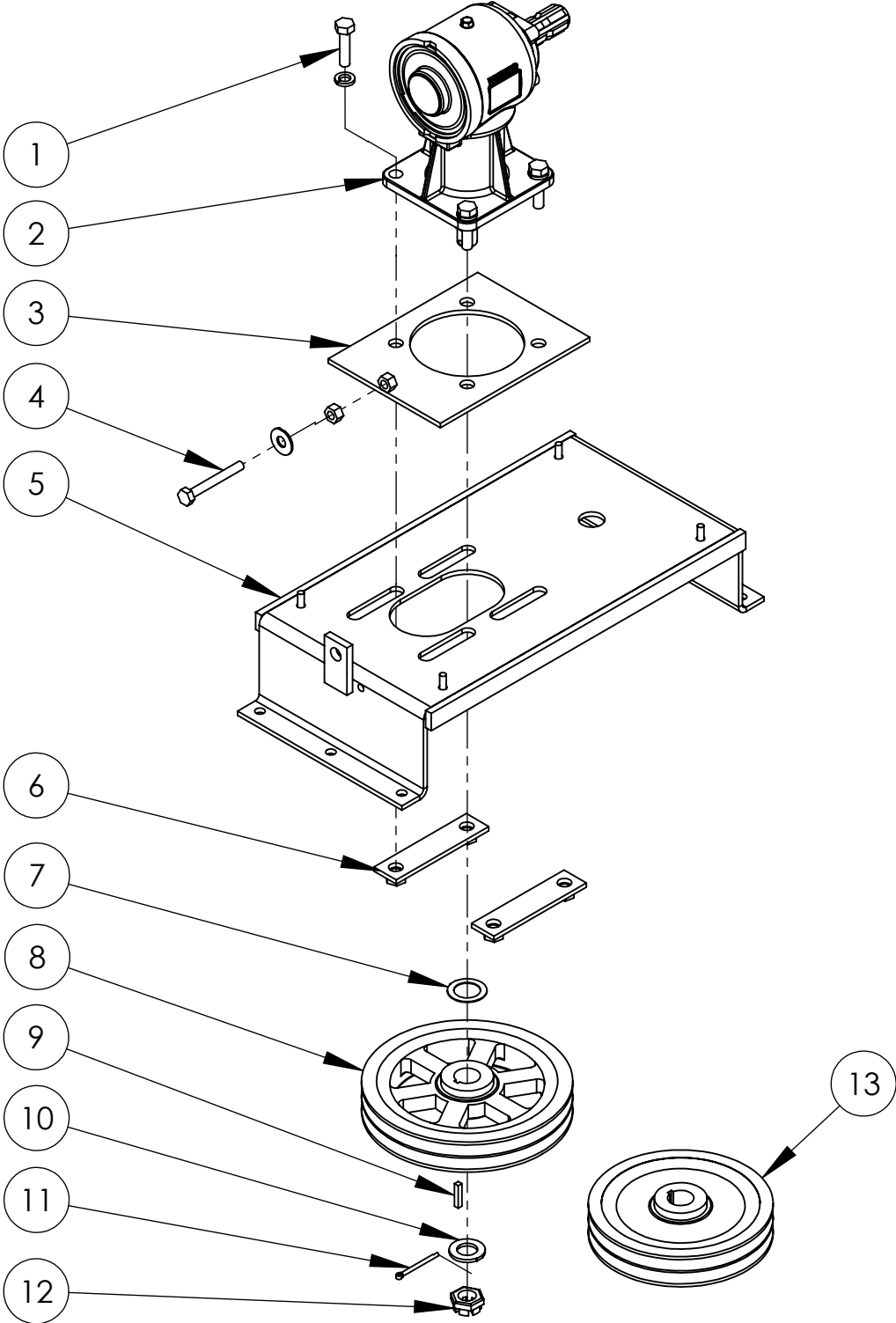
BLADE SPINDLE ASSEMBLY			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	O.L.	GREASE FITTING 1/4 - 28, STR	1
2	521003	HEX NUT- L.H.	1
3	521002	L.H. BLADE SPINDLE LOCKWASHER (3PER KIT)	1
4	521790	5.9" BLADE SPINDLE PULLEY	1
	521773	4.4" BLADE SPINDLE PULLEY	1
5	521301	1.125" SHIM WASHER (9PCS)	1
6	521302	BEARING - TOP	1
7	524220	TDR-15 BLADE SPINDLE HUB	1
8	524222	BEARING SPACER TUBE	1
9	521701	BOTTOM BEARING	1
10	521305	SHIM WASHER 1.188" (9PCS)	1
11	521306	SPINDLE DIRT SHIELD (3PCS)	1
12	O.L.	1/4" SQ. x 1 9/16" KEY	1
13	524224	TDR-15 BLADE SPINDLE	1
14	O.L.	1/2" x 1 3/4" GR5 HEX BOLT, LOCKWASHER AND NUT	2
15	522603	BLADE 23" HIGH LIFT (9PCS)	1
	522606	BLADE 23" LOW LIFT (9PCS)	1
16	524230	COMPLETE BLADE SPINDLE ASSEMBLY 4.4" PULLEY	1
	524232	COMPLETE BLADE SPINDLE ASSEMBLY 5.9" PULLEY	1
-	-	NOTE: QUANTITIES ARE FOR ONE COMPLETE SPINDLE ASSEMBLY	-
-	-	O.L. - OBTAIN LOCALLY	-

DECK ASSEMBLY



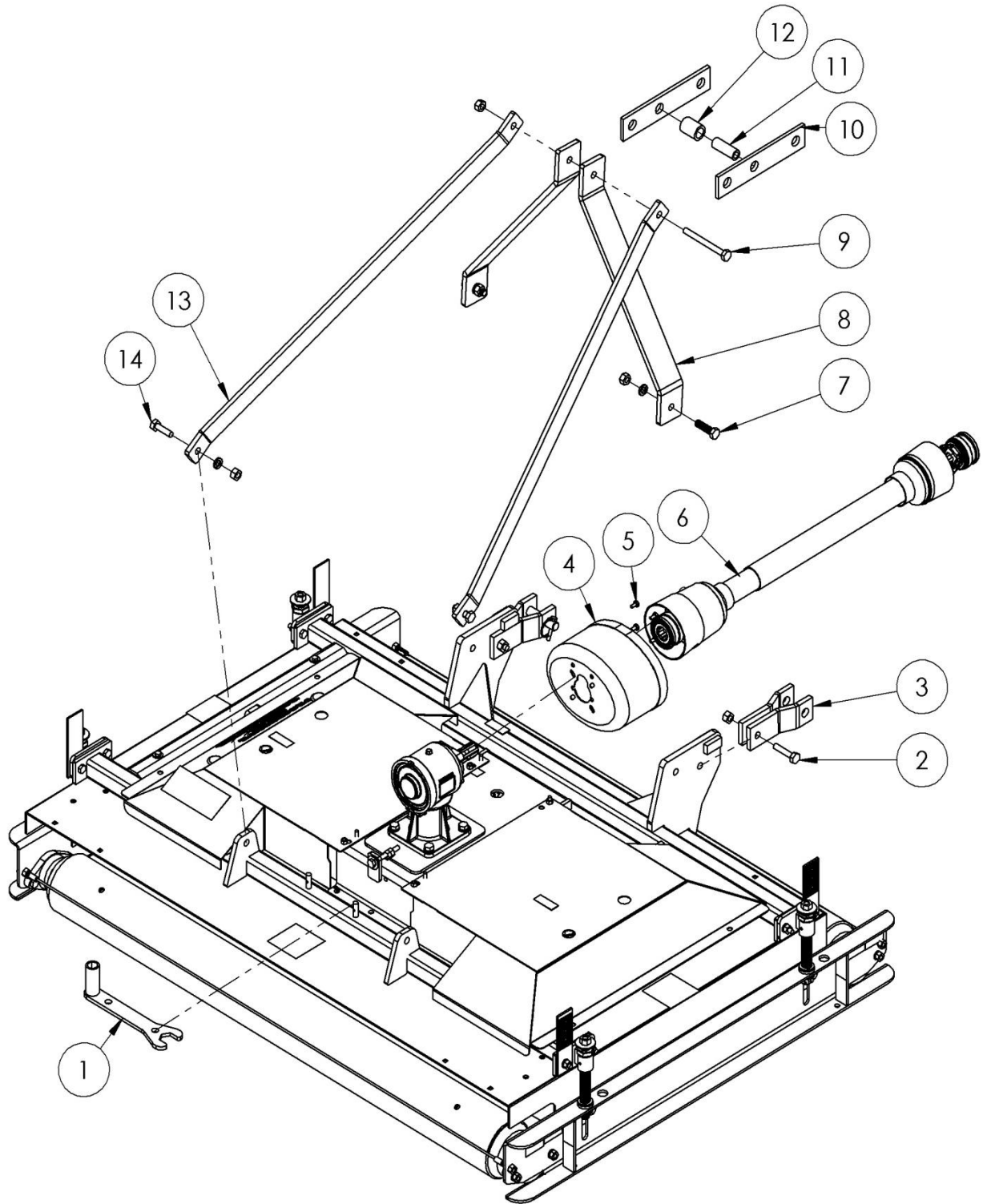
DECK ASSEMBLY			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	531114	DECK - SDR-65	1
2	524221	TDR15 ROLLER WIPER ASSEMBLY	2
3	524216	DECK ROLLER WITH SHAFTS	2
4	O.L.	7/16" x 1-1/2" NC GR5 BOLT, WITH LOCK AND NUT	6
5	526494	1 1/4" ROLLER SHAFT REPLACEMENT KIT	4
6	O.L.	1/2" x 1 1/2" GR5 HEX BOLT, LOCKWASHER AND NUT	8
7	213019	1 1/4" FLANGE BEARING 2 BOLT	4
8	524232	BLADE SPINDE ASSEMBLY 5.9" PULLEY	3
	524230	BLADE SPINDE ASSEMBLY 4.4" PULLEY	3
9	O.L.	7/16" x 1 1/2" GR5 CARRIAGE BOLT, LOCKWASHER AND NUT	12
10	O.L.	5/8" x 2" GR5 CARRIAGE BOLT, LOCKWASHER AND NUT	4
11	524190	TDR-15 DECK CHANNEL	2
12	O.L.	5/32" x 1 1/2" COTTER PIN	4
13	O.L.	1/2" x 1 3/4" GR5 HEX BOLT, LOCKWASHER AND NUT	8
14	305715	3/4"NC SLOTTED NUT	4
15	526365	3/4" FLAT WASHER(8 PER KIT)	1
16	526137	DECK ADJ. NYLON WASHER (8 PER KIT)	1
17	526148	CHANNEL CLAMP WASHER (4 PER KIT)	1
18	526125	HEIGHT DECAL PLATE	4
19	526491	TDR HEIGHT DECAL KIT (6PCS)	1
20	526252	HEIGHT ADJUSTMENT KIT (8PC KIT) COMES WITH ITEMS 13,14 AND 15.	4
21	212039	BELT - B74 (USE WITH 5.9" PULLEYS)	2
	521315	BELT - B69 (USE WITH 4.4" PULLEYS)	2
22	O.L.	3/8" HEX NUT & WASHER	8
23	528212	TDR-15 DECK SHIELD	2
24	526135	SNAP IN HOLE PLUG (8 PER KIT)	1
25	524247	GEARBOX MOUNT SPACER - (USE WITH 5.9" PULLEYS)	2
NOTE: QUANTITIES ARE FOR ONE DECK			
O.L. - OBTAIN LOCALLY			

GEARBOX MOUNT ASSEMBLY



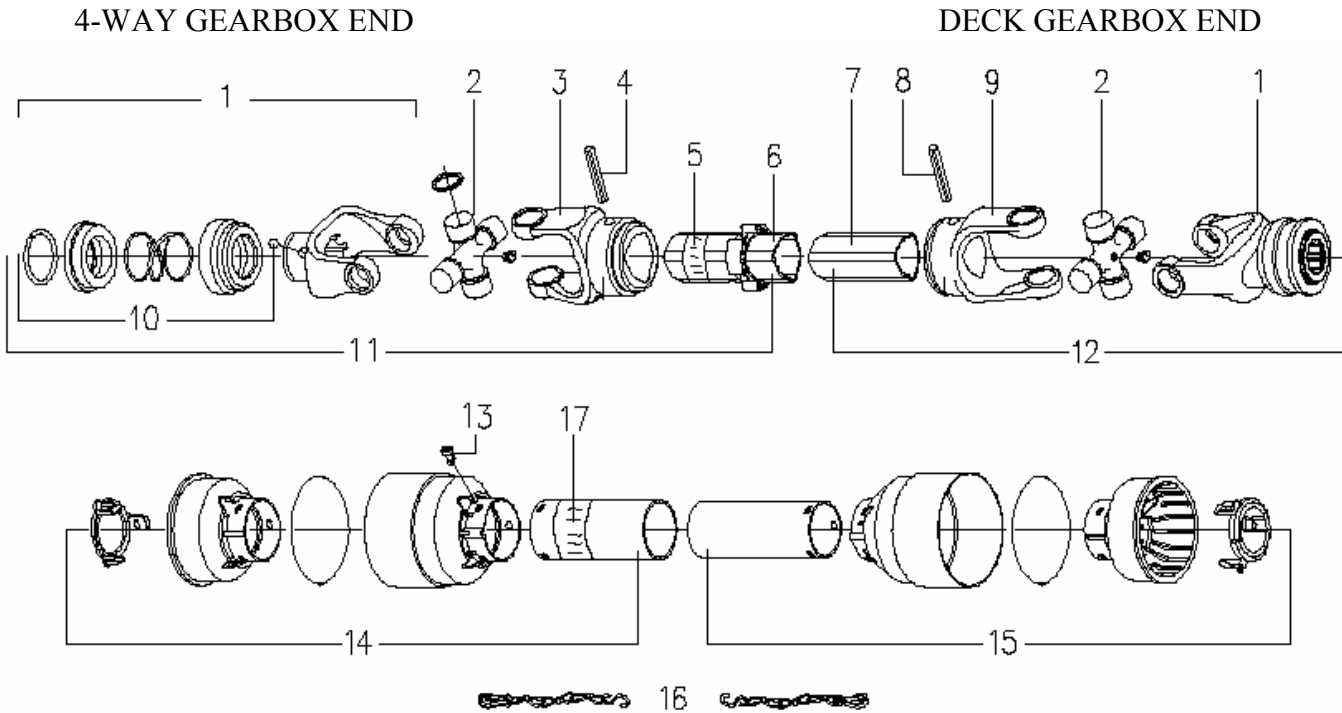
GEARBOX MOUNT ASSEMBLY			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	O.L.	9/16" x 2" GR5 HEX BOLT & LOCK WASHER	4
2	521012	DECK GEARBOX	1
3	521013	SLIDE PLATE	1
4	521020	1/2" x 3 1/2" GR5 TAP BOLT, (FLATWASHER AND NUT-O.L.)	1
5	521019	GEARBOX MOUNT	1
6	521018	STIFFENER NUT BRACKET	2
7	521004	SHIM WASHER - 1.250" (9PC KIT)	1
8	212021	MAIN DRIVE PULLEY 11 1/4" (USE WITH 5.9" SPINDLE PULLEYS)	1
9	521390	KEY 1/4" x 1 5/16 (3 PER KIT)	1
10	521129	WASHER - (3 PC KIT)	1
11	O.L.	3/16" x 1 1/2" COTTER PIN	1
12	521130	CASTLE NUT - M24	1
13	521774	MAIN DRIVE PULLEY 8.7" (USE WITH 4.4" SPINDLE PULLEYS)	1
NOTE: QUANTITIES ARE FOR ONE DECK			
O.L. - OBTAIN LOCALLY			

HITCH FRAME ASSEMBLY



HITCH FRAME ASSEMBLY			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	526094	TDR HEIGHT ADJ WRENCH	1
2	O.L.	5/8" x 2-1/2" GR5 HEX BOLT WITH LOCK NUT	2
3	524031	LOWER HITCH LINK - SDR	4
4	210061	GEARBOX COUNTER CONE C.E. MODELS ONLY	1
5	O.L.	M8 x 1.25 x 14MM C.E. MODELS ONLY	4
6	521718	PTO SHAFT	1
7	O.L.	5/8" x 2 1/4" GR5 HEX BOLT WITH NUT AND LOCKWASHER	4
8	531103	FRONT UPRIGHT LINK	2
9	O.L.	5/8" x 5 1/2" GR5 HEX BOLT WITH LOCK NUT	1
10	524017	TOP HITCH LINK - SDR	2
11	524250	3RD LINK BUSHING	1
12	524252	3RD LINK BUSHING SHORT	1
13	531105	REAR LINK	2
14	O.L.	5/8" x 2 " GR5 HEX BOLT WITH NUT AND LOCKWASHER	2
NOTE: QUANTITIES ARE FOR ONE COMPLETE MACHINE			
O.L. - OBTAIN LOCALLY			

WING DECK PTO ASSEMBLY

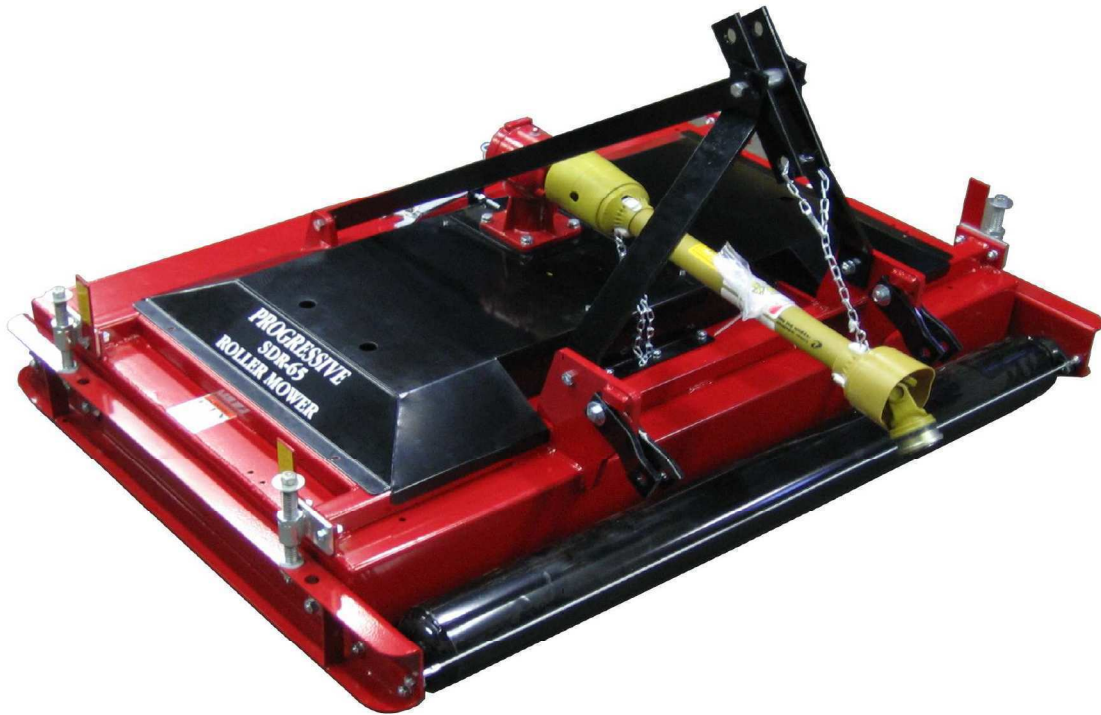


ITEM	PART #	DESCRIPTION	QTY.
1	521778	QD. YOKE 1 3/8" - 6 SPLINE (CO2)	2
2	521779	CROSS & BEARING KIT	2
3	521780	OUTER TUBE YOKE	1
4	521781	ROLL PIN FOR OUTER TUBE	1
5	521451	"DANGER" LABEL FOR OUTER TUBE	1
6	521712	OUTER TUBE	1
7	521713	INNER TUBE	1
8	521782	ROLL PIN FOR INNER TUBE	1
9	521783	INNER TUBE YOKE	1
10	210017 521727	COLLAR KIT (STEEL) COLLAR KIT (PLASTIC)	1
11	521714	1/2 FEMALE SHAFT WITH SHIELDING	1
12	521715	1/2 MALE SHAFT WITH SHIELDING	1
13	521463	PLASTIC SHIELD BOLT (6PC/KIT)	6
14	521716	1/2 FEMALE SHIELD WITH LABEL	1
15	521717	1/2 MALE SHIELD	1
16	521467	SAFETY CHAIN	2
17	521455	"DANGER" LABEL FOR OUTER SHIELD	1
****	521718	COMPLETE PTO SHAFT	1/ MACH
-	-	QUANTITY IS FOR ONE COMPLETE SHAFT	-

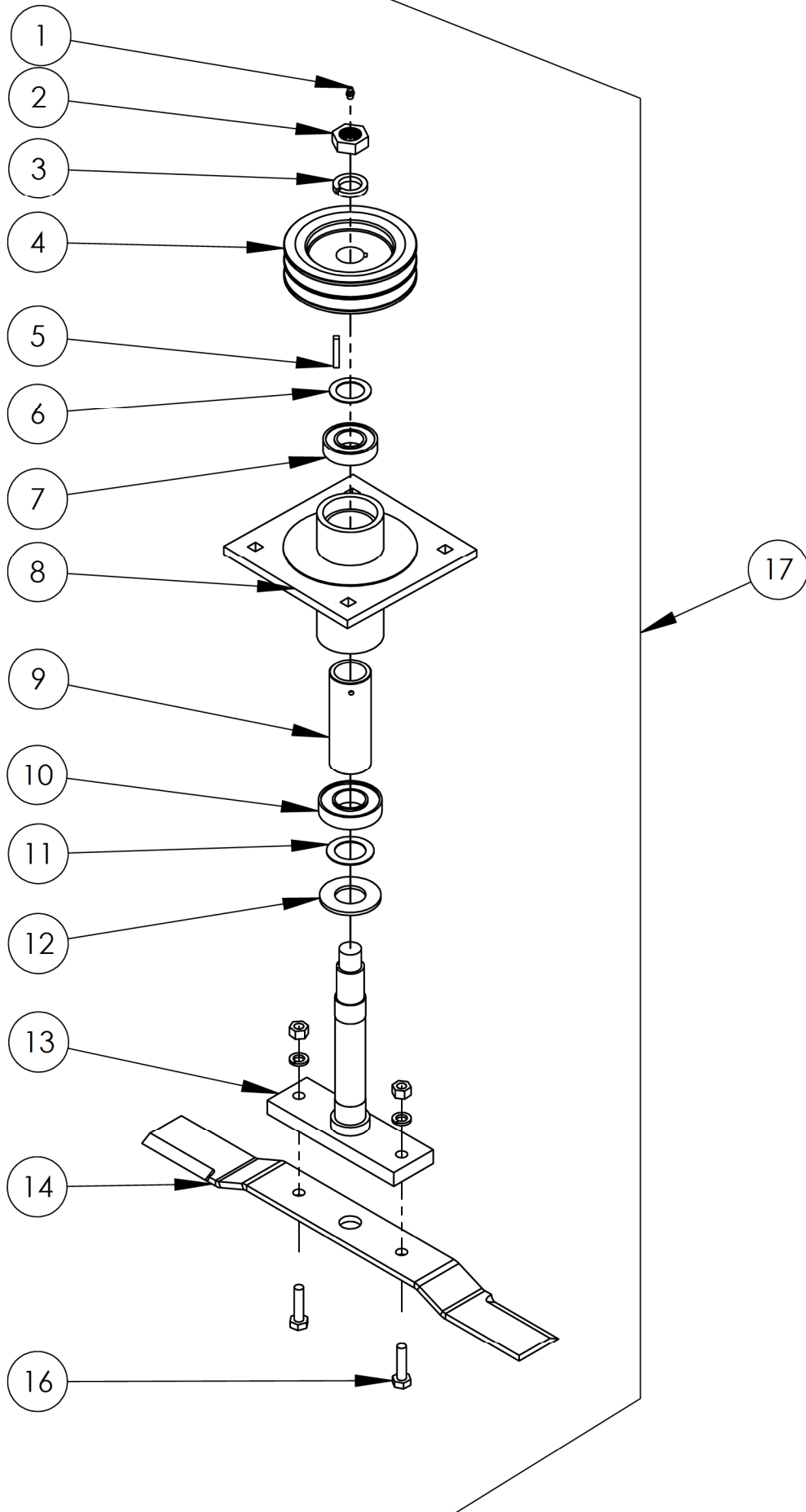
SDR-90 FINISHING MOWER PARTS MANUAL

TABLE OF CONTENTS

<u>DESCRIPTION</u>	<u>PAGE</u>
BLADE SPINDLE ASSEMBLY	2
DECK ASSEMBLY	4
GEARBOX MOUNT ASSEMBLY	6
HITCH FRAME ASSEMBLY	8
PTO SHAFT	10

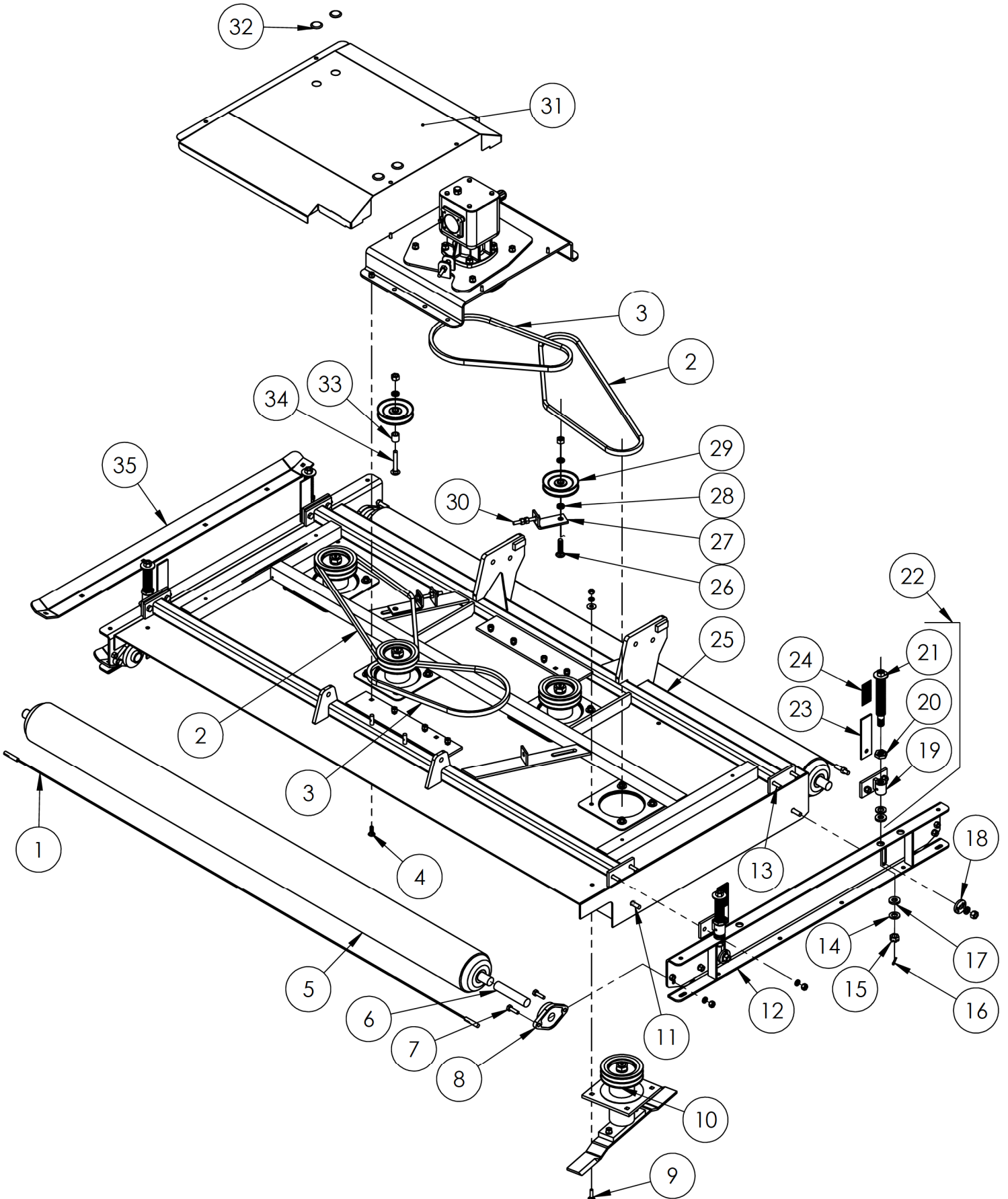


BLADE SPINDLE ASSEMBLY



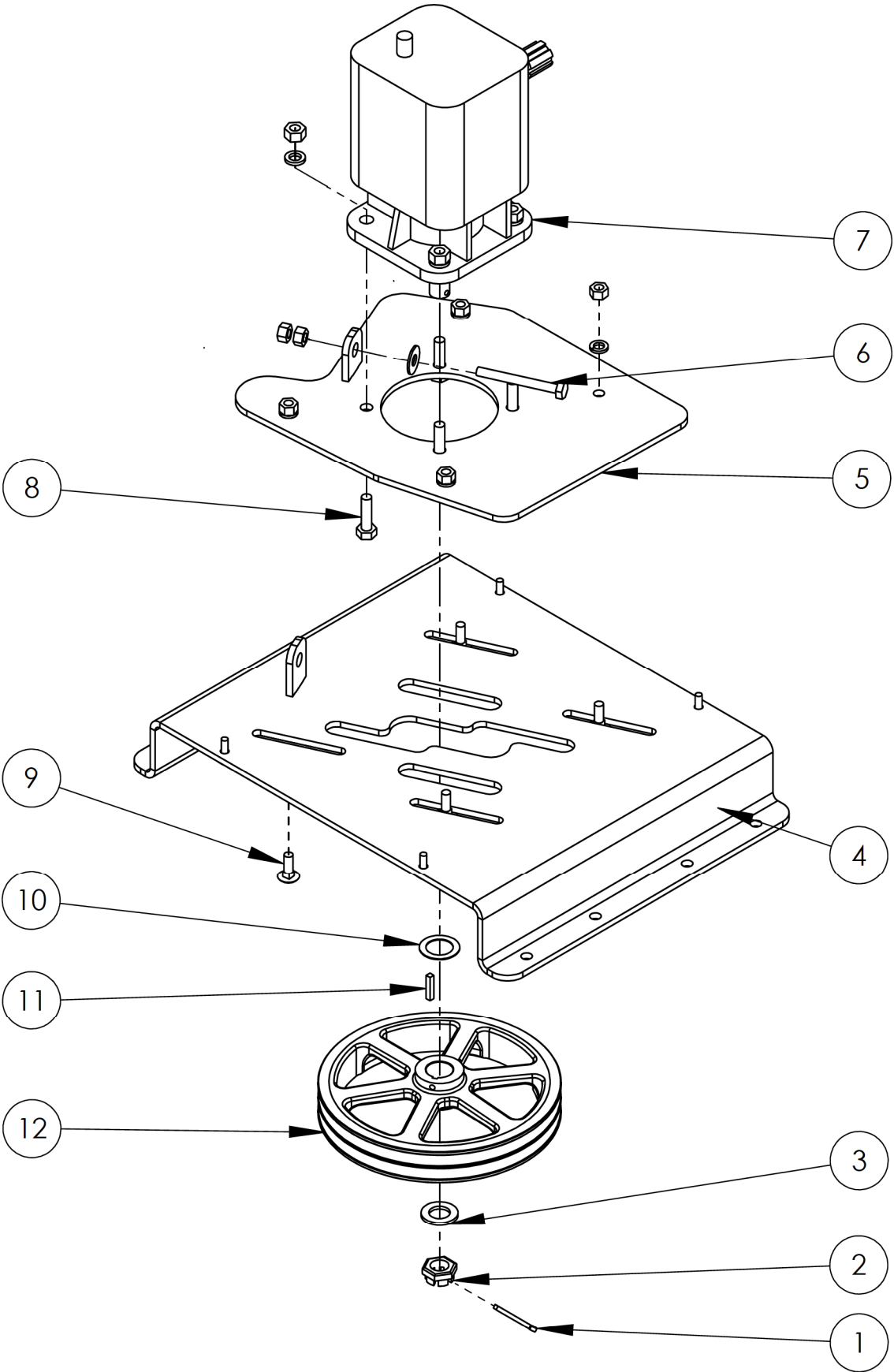
BLADE SPINDLE ASSEMBLY			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	O.L.	GREASE FITTING 1/4 - 28, STR	1
2	521003	HEX NUT- L.H.	1
3	521002	L.H. BLADE SPINDLE LOCKWASHER (3 PER KIT)	1
4	521775	5.9" BLADE SPINDLE PULLEY	1
5	O.L.	1/4" SQ. x 1 9/16" KEY	1
6	521004	SHIM WASHER - 1.250" (9 PC KIT)	1
7	521005	BEARING - TOP	1
8	526092	SPINDLE HOUSING	1
9	526096	BEARING SPACER TUBE	1
10	521445	BEARING - BOTTOM	1
11	521008	1 3/8" SHIM WASHER (9 PER KIT)	1
12	521009	DIRT SHIELD (3 PER KIT)	1
13	526098	BLADE SPINDLE	1
14	522618	24" LOW LIFT BLADE KIT (6 PCS)	1
15	522610	24" HIGH LIFT BLADE KIT (6 PCS)	1
16	O.L.	1/2" x 1 3/4" GR5 HEX BOLT, WITH LOCKWASHER AND NUT	2
17	526278	BLADE SPINDLE ASSEMBLY TDR-22	1
-	-	NOTE: QUANTITIES ARE FOR ONE COMPLETE SPINDLE ASSEMBLY	-
-	-	O.L. - OBTAIN LOCALLY	-

DECK ASSEMBLY



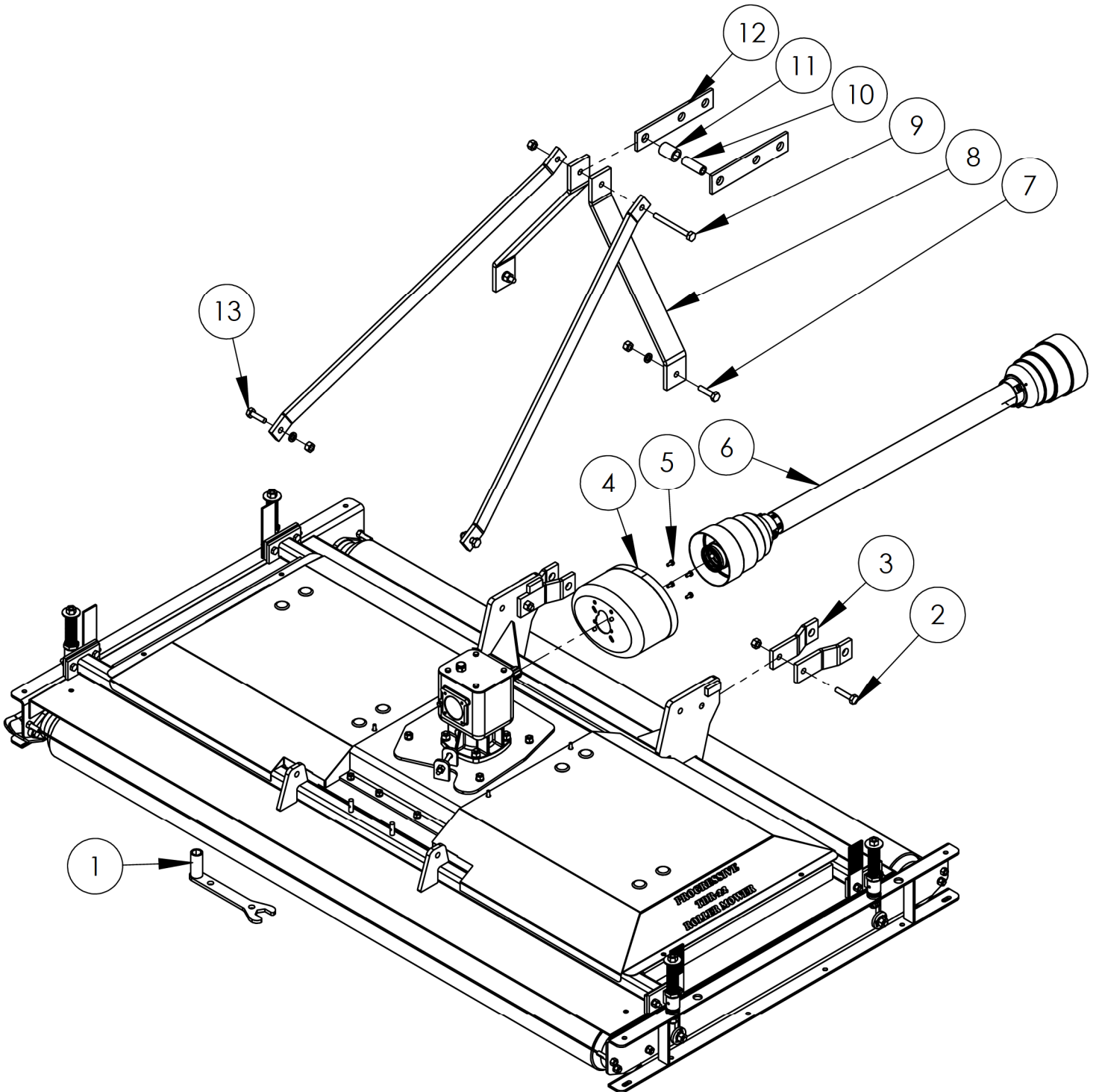
DECK ASSEMBLY			
ITEM NO.	PART #	DESCRIPTION	QTY.
1	526276	ROLLER WIPER ASSEMBLY	2
2	212035	BELT - B66	2
3	212030	BELT - B50	2
4	526188	ROLLER WITH SHAFTS	2
5	O.L.	7/16" x 1 1/4" GR5 CARRIAGE BOLT, LOCK AND NUT	8
6	526494	1 1/4" ROLLER SHAFT WITH LOCTITE 641	4
7	O.L.	1/2" x 1 1/2" HEX BOLT, LOCK AND NUT	8
8	213019	1 1/4" FLANGE BEARING 2 BOLT	4
9	O.L.	7/16" x 1 1/2" GR5 CARRIAGE BOLT, FLAT WASHER, LOCKWASHER AND NUT	16
10	526278	BLADE SPINDLE ASSY - TDR-22	4
11	O.L.	5/8" x 2" GR5 CARRIAGE BOLT, LOCK AND NUT	4
12	526186	TDR-22 DECK CHANNEL	2
13	O.L.	1/2" x 1 3/4" GR5 HEX BOLT, LOCK AND NUT	8
14	526365	3/4" FLAT WASHER(8 PER KIT)	1
15	305715	3/4"NC SLOTTED NUT	4
16	O.L.	5/32" x 1 1/2" COTTER PIN	4
17	526137	DECK ADJ. NYLON WASHER (8 PER KIT)	1
18	526148	CHANNEL CLAMP WASHER (4 PER KIT)	1
19	526340	DECK ADJUSTMENT BRACKET	4
20	526144	ACME JAM NUT	4
21	526176	ACME HEIGHT ADJUSTMENT ROD	4
22	526252	TDR HEIGHT ADJUSTMENT KIT (ITEMS 14,15,16,17,19,20,21)	4
23	526125	HEIGHT DECAL PLATE	4
24	526491	TDR HEIGHT DECAL KIT (6PCS)	4
25	531110	DECK - SDR-90	1
26	O.L.	5/8" x 2 1/2" GR5 CARRIAGE BOLT, LOCK AND NUT	1
27	526331	IDLER PULLEY BRACKET	2
28	526335	IDLER PULLEY BUSHING SHORT	1
29	212009	IDLER PULLEY 5"	2
30	O.L.	1/2" x 3 1/2" NC GR5 TAP BOLT , WITH FLAT WASHER AND 2 NUTS	2
31	531112	TDR-22 DECK SHIELD	2
32	526492	SNAP IN HOLE PLUG (12 PER KIT)	1
33	526055	IDLER PULLEY BUSHING LONG	1
34	O.L.	5/8" x 3 1/2" GR5 CARRIAGE BOLT, LOCK AND NUT	1
35	526404	OPTIONAL DECK SKID SHOE KIT COMPLETE WITH HARDWARE	1
NOTE: QUANTITIES ARE FOR ONE DECK ASSEMBLY			
O.L. OBTAIN LOCALLY			

GEARBOX MOUNT ASSEMBLY



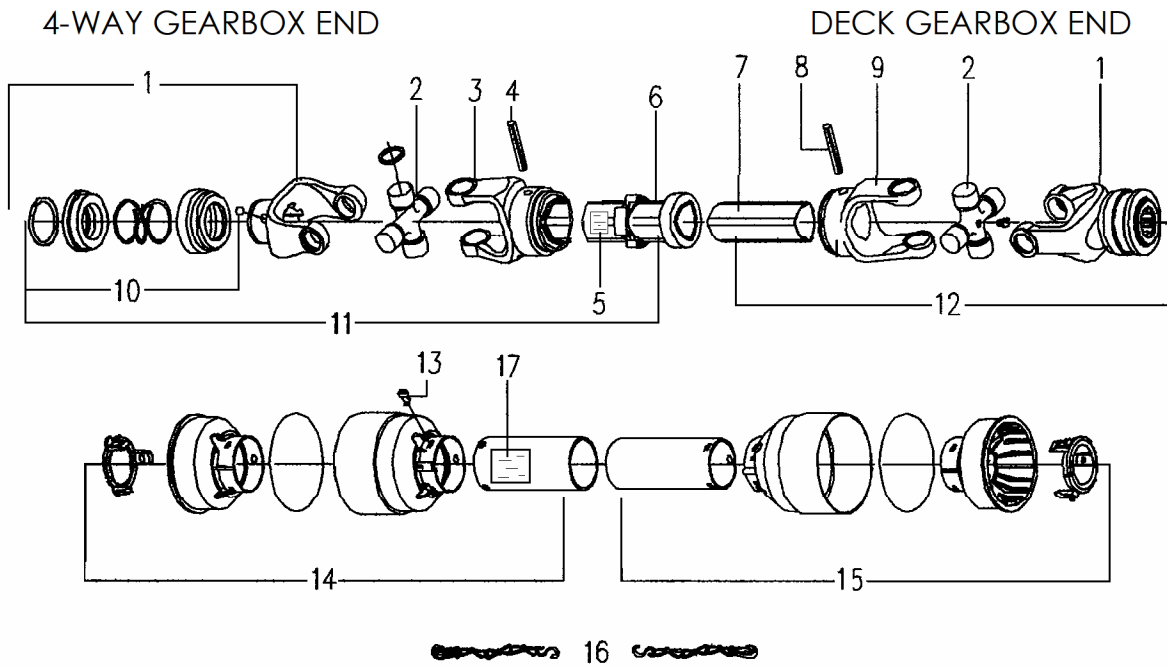
GEARBOX MOUNT ASSEMBLY			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	O.L.	3/16" X 1 1/2" COTTER PIN	1
2	521130	CASTLE NUT - M24	1
3	301123	WASHER - 25 X 44 X 4	1
4	526134	TDR-22 GEARBOX MOUNT WELDMENT	1
5	526132	TDR-22 SLIDE PLATE WELDMENT	1
6	O.L.	1/2" X 4" TAP BOLT WITH WASHER AND 2 NUTS	1
7	521432	DECK GEAR BOX	1
8	O.L.	3/8" x 2" NC GR5 BOLT, WITH LOCK AND NUT	4
9	O.L.	1/2" X 1 1/4" GR5 CARRIAGE BOLT, LOCK WASHER, AND NUT	4
10	521004	SHIM WASHER - 1.250" (9 PC KIT)	1
11	521390	KEY 1/4" x 1 5/16 (3 PER KIT)	1
12	212021	MAIN DRIVE PULLEY	1
-	-	NOTE: QUANTITIES ARE FOR ONE DECK GEARBOX ASSEMBLY ONLY	-
-	-	O.L. - OBTAIN LOCALLY	-

HITCH FRAME ASSEMBLY



HITCH FRAME ASSEMBLY			
ITEM	PART	DESCRIPTION	QTY.
1	526094	TDR HEIGHT ADJ WRENCH	1
2	O.L.	5/8" x 2 1/2" GR5 HEX BOLT WITH LOCK NUT	3
3	524031	LOWER HITCH LINK - SDR	4
4	210061	GEARBOX COUNTER CONE CE MODELS ONLY	1
5	O.L.	M8 x 1.25 x 14MM GR8,8 HEX BOLT CE MODELS ONLY	4
6	521474	DECK PTO SHAFT	1
7	O.L.	5/8" x 2" GR5 HEX BOLT WITH LOCK NUT	1
8	531103	SDR FRONT UPRIGHT LINK	2
9	O.L.	5/8" x 5 1/2" GR5 HEX BOLT WITH LOCK NUT	1
10	524250	3RD LINK BUSHING	1
11	524252	3RD LINK BUSHING SHORT	1
12	524017	TOP HITCH LINK - SDR	2
13	O.L.	5/8" x 2" GR5 HEX BOLT WITH LOCKWASHER AND NUT	2
NOTE: QUANTITIES ARE FOR ONE COMPLETE MACHINE			
O.L. - OBTAIN LOCALLY			

DECK PTO SHAFT



DECK PTO SHAFT			
ITEM	PART NO.	DESCRIPTION	QTY
1	521800	QD. YOKE 1 3/8" - 6 SPLINE (CO2)	2
2	521801	CROSS & BEARING KIT	2
3	521802	OUTER TUBE YOKE	1
4	521803	ROLL PIN FOR OUTER TUBE	1
5	521451	"DANGER" LABEL FOR OUTER TUBE	1
6	521468	OUTER TUBE	1
7	521469	INNER TUBE	1
8	521804	ROLL PIN FOR INNER TUBE	1
9	521805	INNER TUBE YOKE	1
10	210017	SLIDE COLLAR KIT - GOLD METAL	1
	521727	COLLAR KIT (CO2) BLACK PLASTIC	1
11	521470	1/2 FEMALE SHAFT WITH SHIELDING	1
12	521471	1/2 MALE SHAFT WITH SHIELDING	1
13	521463	PLASTIC SHIELD BOLT (6PC/KIT)	1 KIT
14	521472	1/2 FEMALE SHIELD WITH LABEL	1
15	521473	1/2 MALE SHIELD	1
16	521467	SAFETY CHAIN	2
17	521455	"DANGER" LABEL FOR OUTER SHIELD	1
18	521821	M67 GREASE FITTING	2
	521474	COMPLETE PTO SHAFT	
	-	NOTE: QUANTITY IS FOR ONE COMPLETE MOWER	-
-	-	O.L. - OBTAIN LOCALLY	-