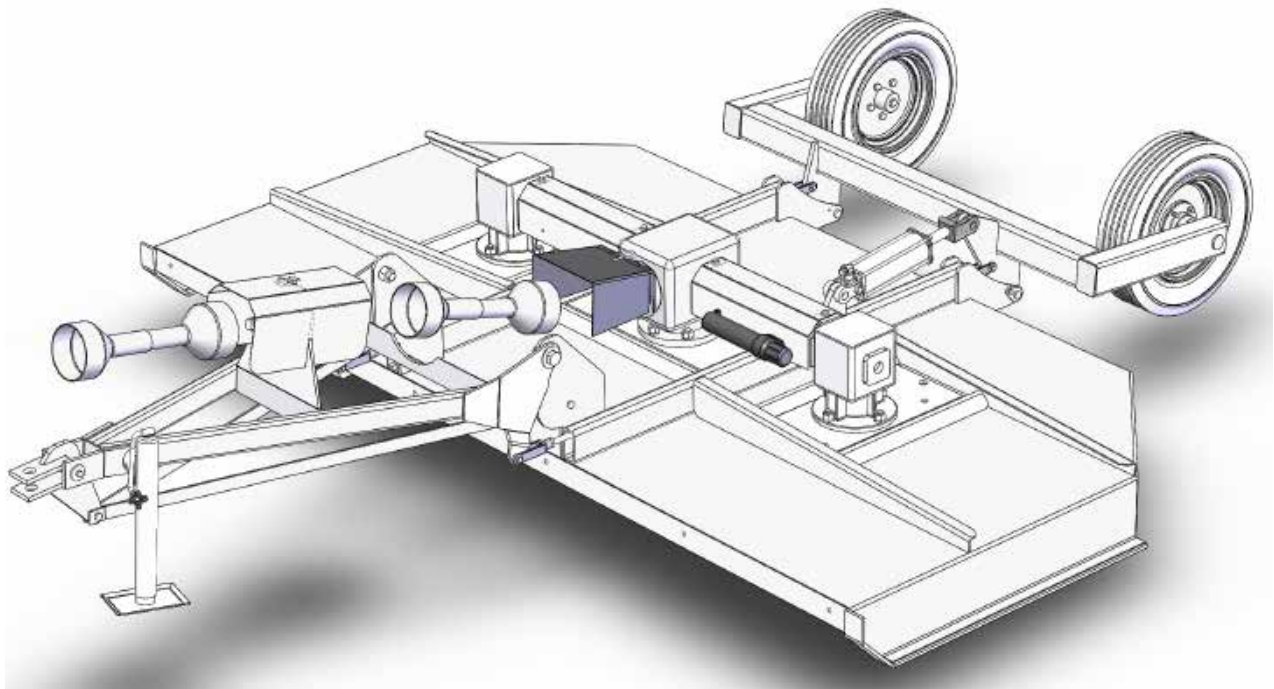




120 Pulsar Cutter
Operator's and Parts Manual



M K Martin Enterprise Inc
3950 Steffler Rd Elmira On Ca N3B 2Z3

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3950 Steffler Rd. • Elmira • Ontario, Canada • N3B 2Z3 • Email : sales@mkmartin.ca • Fax : (519)-664-3695 • Tel : (519)-664-2752

Warranty

Effective on products retailed on or after November 1, 2017

Two Year Limited Consumer Warranty

Five Year Limited Consumer Warranty on Gearboxes

90 Day Limited Commercial Warranty including Gearboxes

Commercial includes rental and industrial applications.

Warranty begins at the time of customer delivery and is activated upon warranty registration receipt at MK Martin Enterprise Inc.

Warranty coverage is null and void unless the Warranty Registration form has been completed in full and is on file at MK Martin Enterprise Inc.

Keep your registration copy in a safe place, it is required as proof of warranty activation.

This new and unused product is warranted by MK Martin Enterprise Inc. to be free from defects in material and workmanship under normal use and regular service as described in the owner's manual, for a consumer period of 2 years and 5 years for gearboxes, from the date of delivery, and commercial period of 90 days, including gearboxes, from the date of delivery. Warranty is limited to the replacement of parts and / or repair of the product.

If issues develop within the warranty period with the product, contact the local dealer from which you purchased the unit. Only MK Martin authorized dealers may make repairs to the product or affect the replacement of defective parts, unless otherwise approved by MK Martin. Repairs / replacement will be done at no charge within a reasonable time after the receipt of the product.

This warranty does not cover the following items:

1. Normal replacement of service items.
2. Normal maintenance or adjustments.
3. Machines or parts lost or damaged during shipment,
4. Accessory items / parts not supplied by MK Martin
5. Damages resulting from:
 - misuse, negligence, accident, theft or fire
 - use of improper or insufficient fuel, fluids or lubricants
 - use of after market parts or accessories, unless approved by MK Martin
 - modifications, alteration, tampering or improper repair
 - any device or accessories installed by other than an authorized dealer.
6. Tires are covered by the manufacturer of the tire and the warranty period specified by that manufacturer. **Please contact the tire manufacturer for warranty on these items.**

MK Martin Enterprise Inc. shall not, in any event, be liable for any losses, damages or costs; to include profits, travel, transportation, pick up, delivery, towing cost, tow vehicle, loss of use, whether special, incidental, consequential or otherwise, in any way. Unit or parts are returned at the customer's expense.

Include a copy of your completed Warranty Registration form with any claim as proof of warranty activation.

There are no warranties, expressed or implied, other than those specified herein. No agent, employee or other person has any authority to vary any of the foregoing provisions.

Warranty coverage is null and void unless the Warranty Registration form has been completed in full and is on file at MK Martin Enterprise Inc. Warranty begins at the time of customer delivery and is activated upon Warranty Registration receipt at MK Martin Enterprise Inc.

M K Martin Enterprise Inc
3950 Steffler Rd
Elmira ON CA N3B 2Z3

Purchaser's warranty protection is valid only when this completed form or a copy of this form is on file at M K Martin Enterprise Inc. By filling out this form the purchaser has acknowledged delivery of equipment and owner's / operator's manual and has accepted the condition of the equipment.

Date of delivery to purchaser -----

Type of Equipment -----

Model # ----- **Serial #** -----

Retailer's Signature Indicates

- *Equipment was properly assembled as directed by manufacturer*
- *Equipment was tested for functionality and operates properly*
- *Purchaser was instructed in safe and proper operating procedures*
- *Warranty was explained to purchaser*
- *Purchaser was given the operators manual*

Retailer

Signature -----

Company -----

Address -----

Purchaser's signature indicates

- *Acceptance of equipment fully assembled*
- *Received operator's manual*
- *Clearly understands conditions of warranty*
- *Received instructions of safe and proper operation of equipment*

Purchaser

Signature -----

Company -----

Mailing address -----

City ----- **Prov/State** ----- **Postal Code/Zip** -----

Available phone number -----

Warranty is valid only when it has been received by manufacturer at address above

Warranty Registration

Please Cut and Return to M K Martin Enterprise Inc

Fold And Tape here

Do not tape all edges or use staples

Fold Here

Postage
Stamp

M K Martin Enterprise Inc
3950 Steffler Rd
Elmira ON CA N3B 2Z3

Safety

Take Note! This safety symbol is found throughout this manual to call your attention to instructions involving yourself and others working around the machine.

- **Failure to follow these instructions can result in injury or death**



This symbol means

- **Attention!**
- **Become Alert!**
- **Your Safety is involved!**

Signal words are used in this manual.

Caution: Indicates a potentially hazardous situation that may result in injury.

Warning: Indicates a hazardous situation that could result in serious injury or death.

Danger: Indicates a hazardous situation that needs to be avoided. It is you the operator that needs to be aware of these dangers.

If you have any questions not answered in this manual please contact your dealer or

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Safety - It's in your interest!

Safety Guidelines.

Safety is one of our main concerns, however it is up to the operator to practice caution.

To avoid personal injury, study the following practice and insist that those working with you to follow them.

The 120 Pulsar Rotary Cutter has guards on all the drive shafts for your protection, Do not operate the cutter with the guards removed!

If they are damaged, repair or replace them!



Be careful with high pressure hydraulic lines! A high pressure fluid spray can break the skin and cause serious injury! Get immediate medical attention!



Rocks and other debris can be ejected at high speed and can injure or kill bystanders in the vicinity. Keep all workers and spectators back 50 ft or more.

Replace any decals that may be missing or not be readable. Location of decals are indicated elsewhere in this manual.

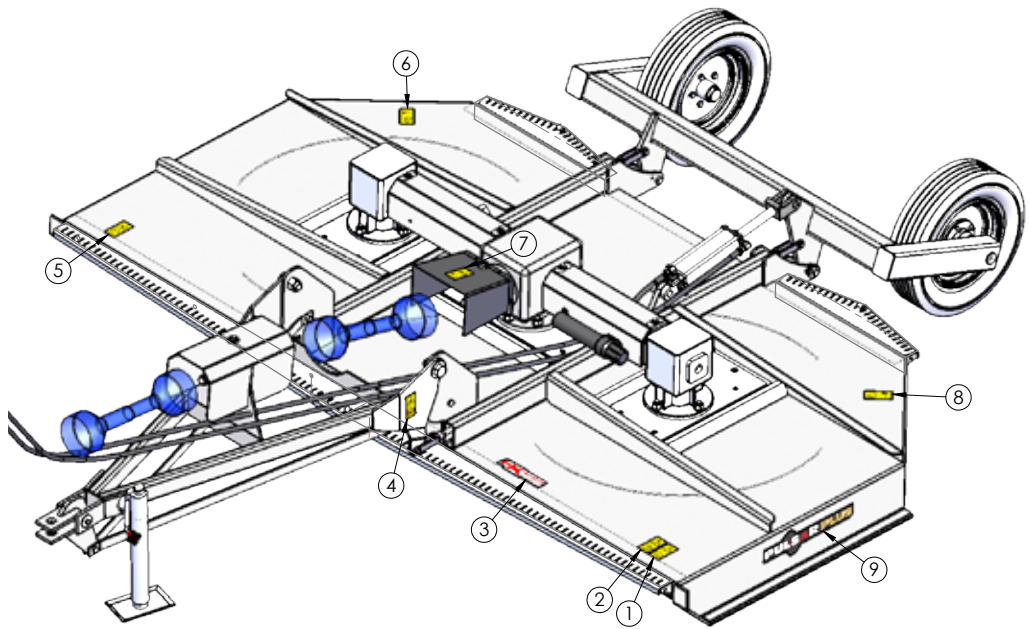
Do not use this machine while under the influence of drugs or alcohol.

Review the safety instructions with all users annually.

This equipment should not be operated by children or those unfamiliar with the operation of the Pulsar Cutter. **Do not allow persons to operate this machine until they have read manual and/or were instructed by a qualified person.**

Do not paint over or remove or deface any safety signs or warning decals on the Pulsar Cutter. **Observe all safety signs and practice the instructions on them.**

Decal Location



#1 - Before operating machine, carefully read the instruction manual



#2 - Before any operation of maintenance a/o adjustment, stop, brake the tractor on level ground, lower the machine to the ground and read the instruction manual.



#6 - DANGER. Sharp objects could be thrown. Keep safe distance from the machine



#3 - MK Martin
Made in Canada



#7 - DANGER of being caught by the PTO shaft. Do not go near the rotating members of the machine while in operation.



#4 - DANGER of being crushed. Do not get between the tractor and the machine.



#8 - DANGER of possible shearing of limbs. Keep a safe distance from the machine while it is working.



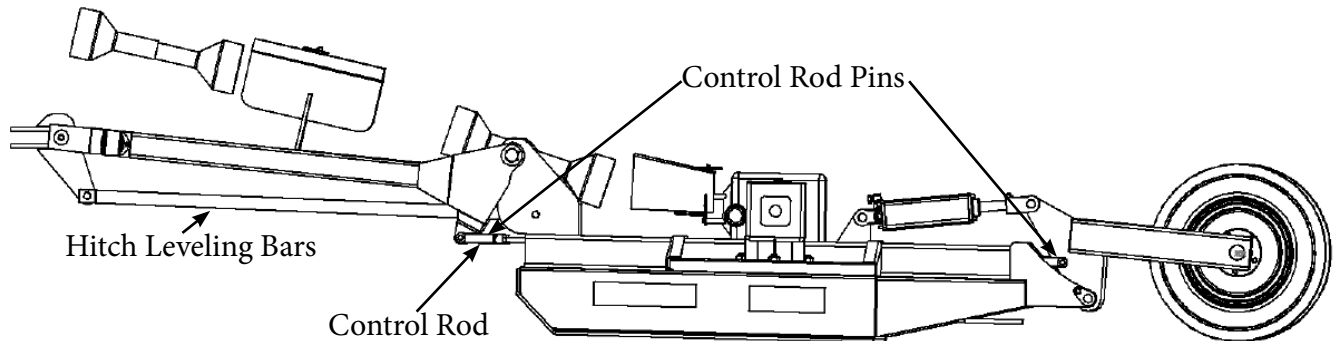
#5 - DANGER of possible shearing of limbs. Do not reach under mower deck unless all moving parts of the machine have reached a complete standstill.



Setup Information

With the deck flat on a firm surface and the cylinder retracted the hitch should be at draw-bar height. The hitch control rods can be adjusted for some height variation,. You may need to adjust the tractor draw-bar height as well.

After finishing the adjustment, measure to ensure that pin to pin measurement is equal on both control rods.



To Adjust Control Rod

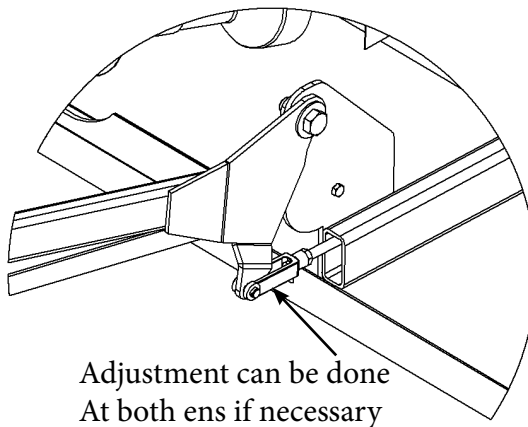
Loosen jam nut

Remove Control Rod Pin

Screw Yoke in or out on the Control Rod for proper adjustment.

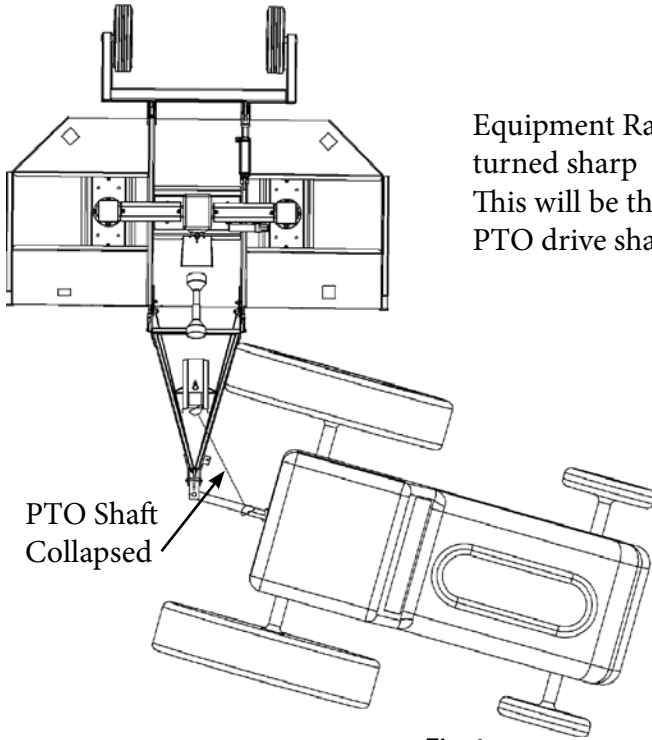
Ensure that there is a minimum of 1" of thread inside the yoke, and that nothing will bind or interfere as the cylinder goes through it's full range.

Secure the jam-nuts.



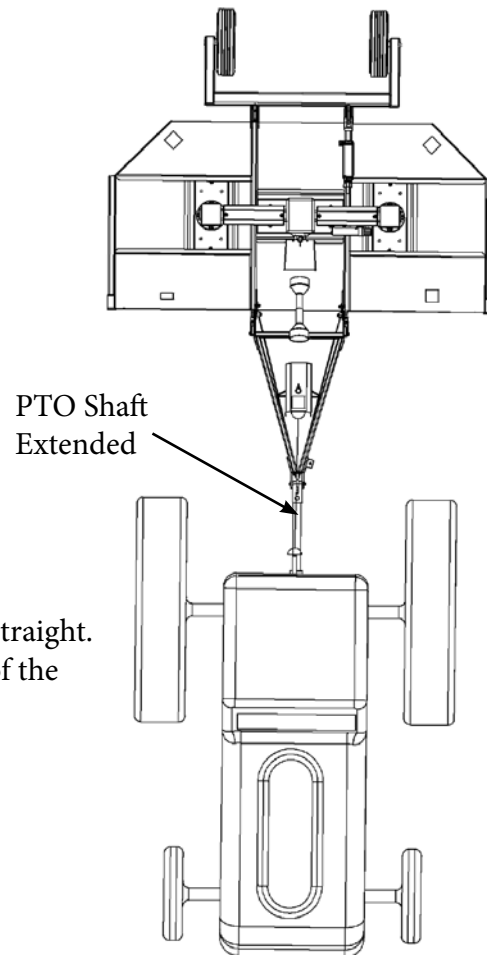
Adjustment can be done
At both ends if necessary

PTO Cutting Informational Cont.



Equipment Raised and Tractor turned sharp
This will be the collapsed length of PTO drive shaft

Fig 1



Equipment Lowered and tractor straight.
This will be the extended length of the PTO drive shaft.

Fig 2

After the shaft has been modified and before installing it. Raise the equipment and turn the tractor sharp and install the shaft. If you can attach the PTO shaft in this position you will minimize the chance of the shaft being too long and damaging the equipment.

Lower the equipment and turn the tractor straight (fig 2), check the overlap on the PTO Shaft. I should have a minimum of 6 inches or 1500mm.

Operation

After the tractor is attached, the PTO and the hydraulic lines have been connected, raise and lower the deck to ensure that the lifting linkage is working properly and the hydraulic lines are not being caught or pinched..

Notice , the deck will stay parallel to the ground as cutting height is changed and the hitch yoke also stays parallel.

At the location that you want to cut, lower the deck to your preferred cutting height.

With the tractor engine at a slow speed slowly engage the PTO and slowly bring the engine speed to 540 PTO speed. If the cutter is turning slower, the cutting tips can not make a clean cut. The cut will look ragged and uneven as it tends to tear the product off.

The field or area should be cleared of any rocks, stones, branches lumber etc before starting to cut. This will protect the cutter from getting damaged form debris that may have been hidden.



Do not use the cutter with any people within 100ft or 30M. Ejected debris can cause severe injury to any bystanders.

During cutting, use a gear that will allow the PTO speed to stay at 540 RPM and the ground travel to be slow enough to allow the cutting edges to work properly.

Machine Break-in

After using new machine 1/2 hour or cutting 2 aces, stop and do a break-in check.

1. Park on a clean firm place and place blocks or stands under the deck to prevent it from lowering.
2. Check all bolts and nuts for there proper torque.
3. Check all cotter-pins, replace any broken or missing.
4. Check for ant oil leaks (oily areas around gearbox, hydraulic line and cylinder).
5. Check oil level in gearbox, top up if needed.
6. Grease PTO and Drive joints.

After 10-15 Hours, repeat steps 1-6 above.

After you have ensured that all the nuts and bolts are staying tight, regular maintenance can be started as per service and maintenance page at back of manual.

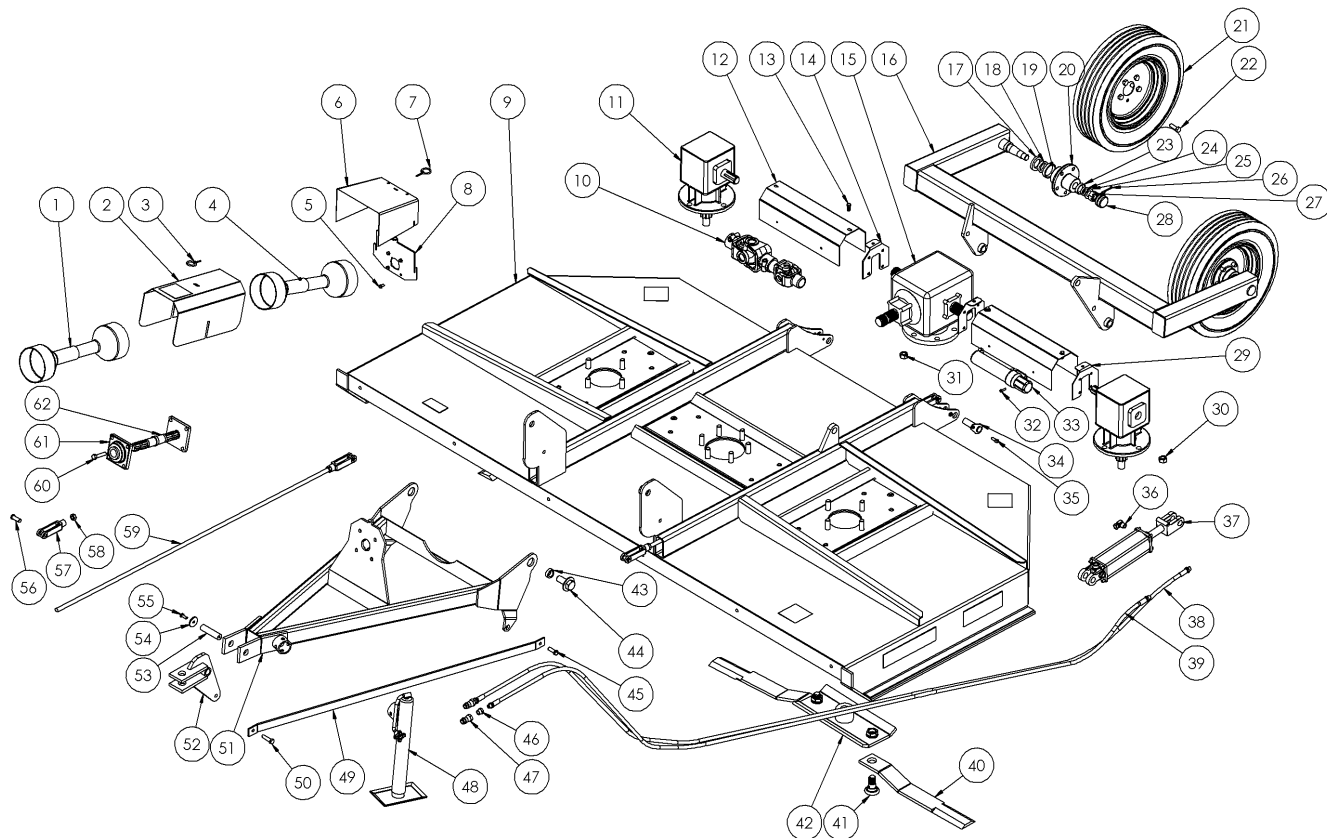
Storing the Cutter

Store Pulsar Cutter in a clean dry location.

Clean all dirt and residue from deck.

After cleaning the underside of the deck, lightly coat with oil to prevent the bare metal parts from rusting or paint the places where the paint is worn off.

Notes

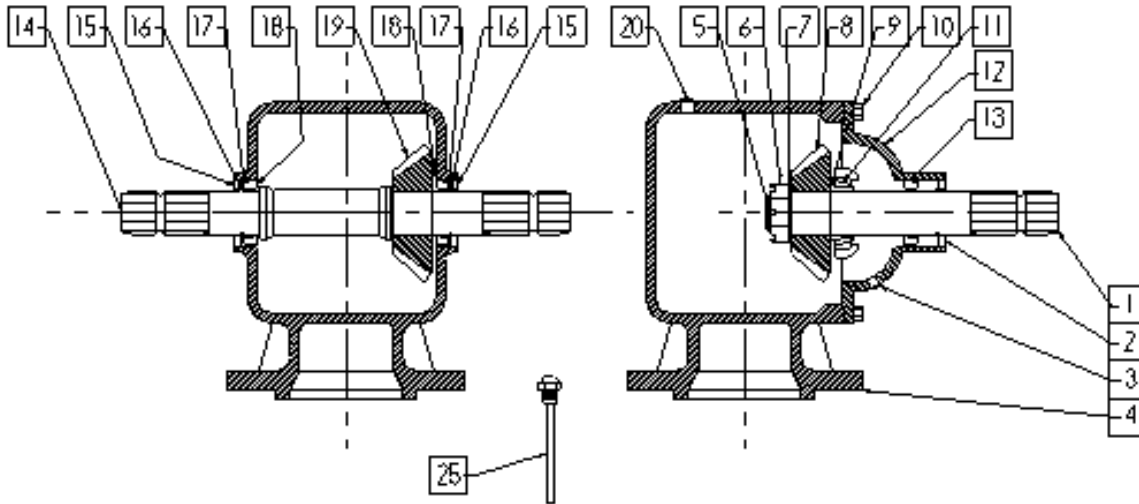


Item #	Part #	Description	Qty
1	512-1201038	Front PTO	1
2	512-1201039	PTO Intermediate Shaft Shield	1
3	OL	3/16 Lynch Pin	1
4	512-1201034	Rear Drive Shaft c/w Slip-Clutch	1
5	OL	mm8x1.25x16 Bolt	12
6	512-1201042	PTO Shield	1
7	OL	3/16 Lynch Pin	1
8	512-1201041	PTO Shield Bracket	1
9	512-120-1000	Main Deck	1
10	512-1201010	Gearbox Drive-Line	2
11	512-120F17A	Angle Gearbox	2
12	512-1201013	Gearbox Drive-Line Shield	2
13	OL	Bolt 3/8x1 c/w fw, lw, n	4
14	512-1201012	Tee Gearbox Shield Bracket	2
15	512-1201011	Tee Gearbox	1
16	512-1201016	Rear Rocking Beam	1
17	512-1201018	Wheel Hub Seal	2
18	512-1201019	Bearing Inner Cone	2
19	512-1201020	Bearing Inner Cup	2
20	512-1201017	Wheel Hub	2
21	ct555129	Pneumatic Wheel	2
22	512-1201026	Wheel Stud	10

Item #	Part #	Description	Qty
23	512-1201021	Bearing Outer Cup	2
24	512-1201022	Bearing Outer Cone	2
25	512-1201023	Washer	2
26	OL	3/16x1 1/4 Cotter Pin	2
27	512-1201024	Wheel Nut	2
28	512-1201025	Dust Cap	2
29	512-1201009	Angle Gearbox Shield Bracket	2
30	OL	3/4 Nut c/w lw	8
31	OL	3/4 Nut c/w lw	6
32	OL	1/4x3/4 Flange Bolt c/w Flange Nut	2
33	DJ70111	Manual Tube	1
34	512-1201028	Rocker Beam Pivot Pin	2
35	OL	Bolt 3/8x1 c/w lw	2
36	1501-0806	90° Adapter	2
37	OL	3x8 Hydraulic Cylinder	1
38	OL	1/4x168 Hydraulic Line c/w 3/8 M NPT	1
39	OL	1/4x156 Hydraulic Line c/w 3/8 M NPT	1
40	512-1201032	Cutting Tip	4
41	512-1201033	Blade Bolt c/w lw n	4
42	33623	Cutter Bar	2
43	33614	Tongue Pivot Bushing	2
44	OL	Bolt 1x2 1/2 c/w ln	2
45	OL	Bolt 1/2x1 1/2 c/w ln	2
46	OL	1/2 - 3/8 Reducer Bushing NPT	2
47	S71-4	Tractor Hydraulic Adapter	2
48	21915	Jack	1
49	512-1201002	Hitch Link	2
50	OL	Bolt 1/2x2 c/w ln	1
51	512-1201008	Tongue	1
52	512-1201001	Hitch	1
53	33602	Hitch Pivot Pin	1
54	30260	Pin Cap (Washer)	2
55	OL	Bolt 3/5 x c/w lw	2
56	512-1201005	Yoke Pin	4
57	512-1201004	Yoke	4
58	OL	Jam Nut 5/8 NC	4
59	512-1201007	Tongue Control Rod	2
60	OL	Bolt 1/2x2 1/2 c/w lw, n	4
61	512-1201035	Intermediate Shaft Bearing	2
62	512-1201036	Intermediate Shaft	1

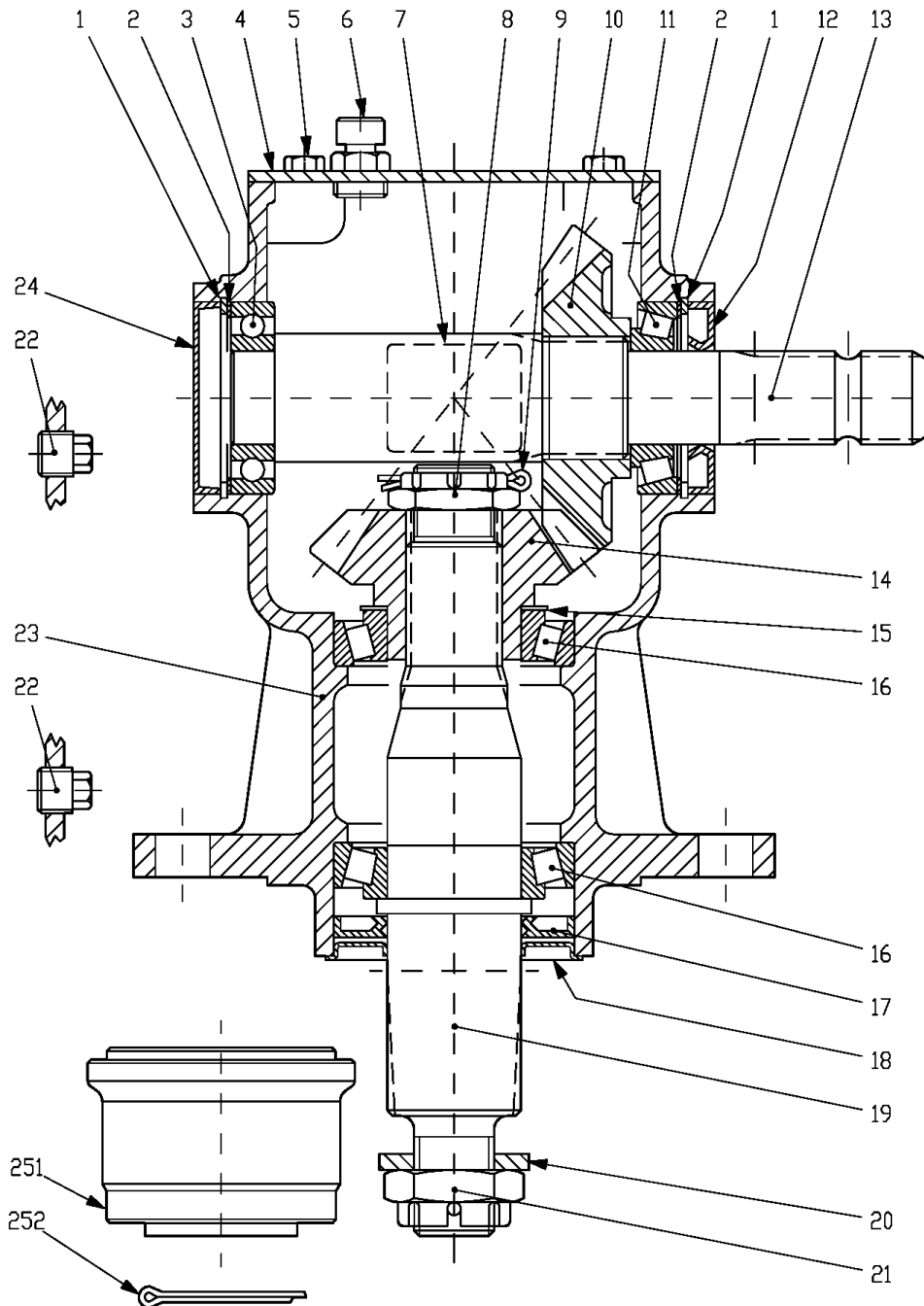
Notes

TF 340 Tee Drive



Item	Description	Part No.	Req.
	TF 340 J Gearbox		
	code no. 9.340.000.00		
1	Input Seal	512-0.340.2000.00	1
2	Oil Seal 50 x 90 x 10	512-8.7.1.01107	1
3	Oil Plug 3/8	512-8.6.5.00006	1
4	Casing	512-0.340.0300.00	1
5	Cotter pin	512-8.4.7.01112	1
6	Castle nut	512-0.132.7107.00	1
7	Spacer	512-0.340.7400.00	1
8	Crown	512-U0.125.6060.00	1
9	Shim	512-0.712.7500.00	1
10	Screw M10 x 25	512-8.1.1.00061	8
11	Bearing 30310	512-8.0.9.00268	1
12	Cover	512-0.340.1300.00	1
13	Bearing 303210	512-8.0.9.00469	1
14	Output Shaft	512-0.340.3000.00	1
15	Oil Seal 45 x 85 x 10	512-8.7.3.00331	2
16	Snap Ring 85dia.	512-8.5.2.01772	2
17	Shim	512-0.709.7500.00	2
18	Bearing 30209	512-8.0.9.00143	2
19	Pinion	512-U0.125.5060.00	1
20	Oil Plug 1/2	512-8.6.5.00203	1
21	Plate	512-0.124.7135.00	1
251	Oil filler level breather plug	512-0.340.7101.00	1

LF-140A.018



Item #	Part #	Description	Qty
1	8.5.2.00131	Snap Ring 72 UNI7437	2
2	0.248.7500.00	Shim 60.3x71	2
3	8.0.1.00870	Bearing 6207	1
4	0.140.1300.00	Cover	1
5	8.1.1.00343	Bolt M8x14	4
6	8.6.7.00269	Oil Filler Plug 1/2" GAS	1
7	0.12407101.00	Plate	1
8	0.132.7106.00	Nut M30x1.5	1
9	8.4.7.0111	Cotter Pin B4x55	1

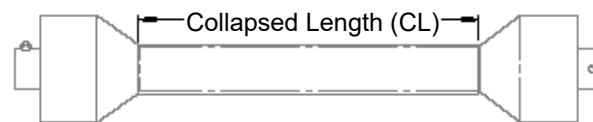
Item #	Part #	Description	Qty
10	0116.5203.00	Crown Wheel Z19 M6,5	1
11	8.0.9.00026	Bearing 30207	1
12	8.7.3.00055	Oil Seal 35x72x10	1
13	0.140.2000.00	Shaft 1"3/8Z6	1
14	0.132.5004.00	Pinion Z15 M6,5	1
15	0.712.7500.00	Shim 70.3	1
16	8.0.9.00469	Bearing 30210	2
17	8.7.1.01107	Dbl Lip Seal 50x90x10	1
18	0.139.7100.00	Protective Washer	1
19	0.140.3002.00	Shaft	1
20	0.139.7101.00	Blank Washer	1
21	8.2.2.00555	Castle Nut M30x2 PR80	1
22	8.6.5.0006	Plug 3/8" GAS	2
23	0.140.0300.00	Casting	1
24	8.7.0.00744	Cap 72x10	1
	A.139.000		1
251	0.1397000.00	Bush	1
252	8.4.7.00146	Cotter Pin B6x60	1

PTO Drive-line Dimension

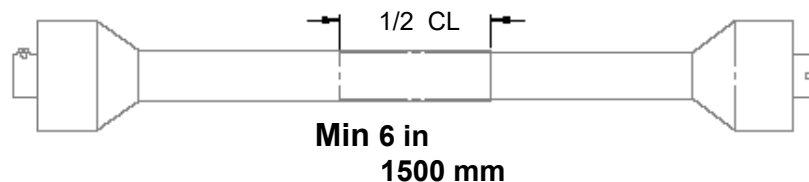
The PTO Drive-line as supplied with the machine will need to be checked for the proper length before being put into service.

To accommodate the various hitch and tractor configurations the supplied shaft may be too long, or in some case too short. To determine shaft length, find the collapsed length, raise or lower the equipment until the PTO out of the tractor is horizontal with the input shaft on the machine. Measure lock-pin groove to lock-pin groove or bolt hole on the equipment. If this is on trailed equipment then turn tractor as sharp as possible.

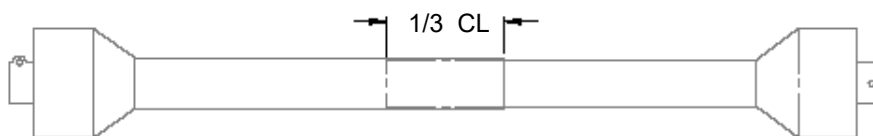
Measure collapsed PTO shaft from lock-pin to lock-pin or bolt hole and compare it with the measurement on the tractor. The difference of these measurements needs to be cut from Both Halves of the PTO shaft plus 1/2".



Working Length overlap is 1/2 of above collapsed length



Minimum Overlap in Transport Position 1/3 of collapsed length

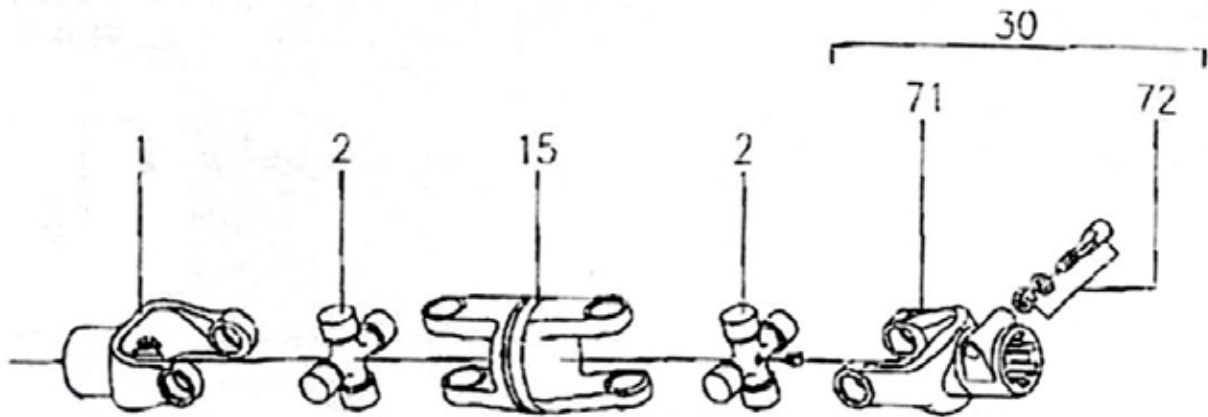


Following these guidelines will reduce the chances of damage to the equipment.

- Use a sharp hacksaw to cut the PTO tube
- Use a fine file to remove any sharp edges and burrs from sawing
- Clean off all dirt and filings from tube , carefully test for smooth fit.
- Apply a light coat of grease to the outside of the small tube
- Reinstall the shields
- Install on equipment and recheck

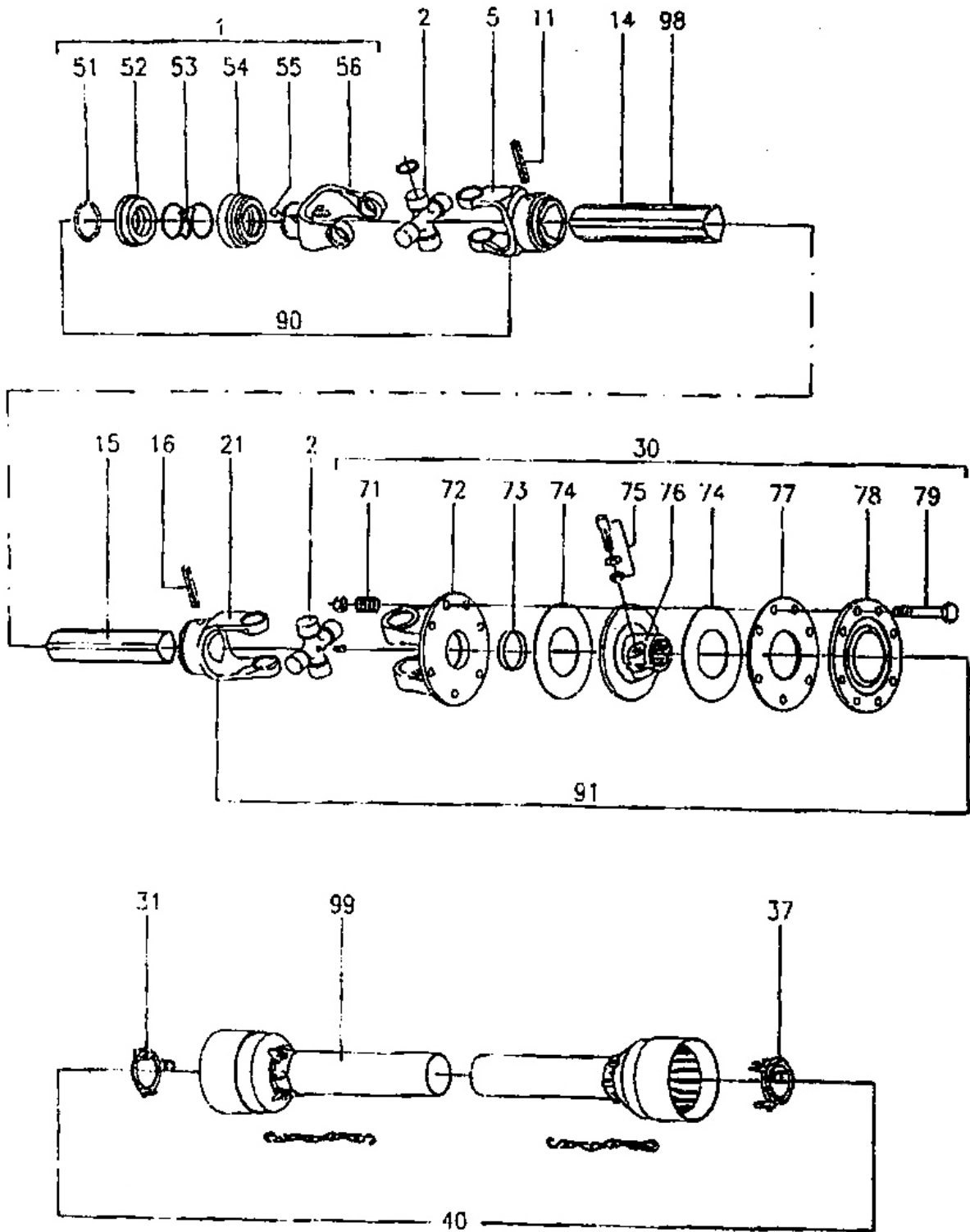
These procedures need to be done before first putting into operation and when attaching to a different tractor

Cross Drive Shaft



Item #	Description	Qty	Part #
1	Yoke 1 3/4" Z20	1	512-151.016.082
2	Cross journal set	2	512-180.016.130
15	Double Yoke SD60	1	512-141.026.485
30	Complete Yoke 152 (1 3/8" Z6	1	512-141.026.192
71	Yoke 152 (1 3/8") Z6	1	512-151.016.192
72	Tapered pin set 1 3/8	1	512-165.000.588

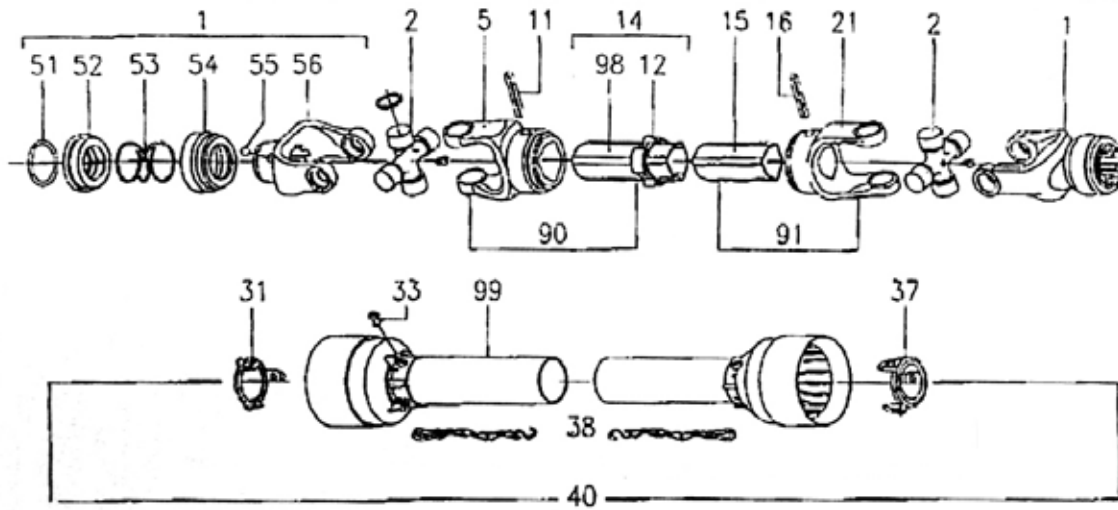
Rear Drive Shaft



Rear Drive Shaft

Item #	Description	Qty	Part #
1	Complete Collar Yoke	1	512-141.026.544
2	Cross Journal Set	2	512-180.016.130
5	Outer Yoke	1	512-151.016.028
11	Roll Pin for outer tube	1	512-190.000.018
14	Outer Tube	1	512-152.160.211.0710
15	Inner Tube	1	512-153.160.111
16	Roll Pin for inner tube	1	512-190.000.016
21	Inner Yoke	1	512-151.016.029
30	Complete Disc Clutch F29	1	512-146.262.032
31	Guard Retaining Collar for outer tube	1	512-180.016.016
37	Guard Retaining Collar for inner tube	1	512-180.016.015
40	Complete Guard with Instruction Manual	1	512-142.260.361.7620
51	Outer Circlip	1	512-190.000.451
52	Sliding Sleeve Collar	1	512-151.016.486
53	Spring	1	512-108.016.487
54	Fixed Sleeve	1	512-180.016.483
55	Bolt ½"	3	512-190.000.076
56	Yoke C12	1	512-151.016.544
71	Spring	8	512-180.019.017
72	Flanged Yoke	1	512-151.016.037
73	Bushing	1	512-180.019.019
74	Lining Ring	2	512-180.019.018
75	Tapered Pin Set 1 ¾"	1	512-165.000.589
76	Clutch Support F29	1	512-151.016.344
77	Inner Plate	1	512-180.019.014
78	Pressure Plate	1	512-180.019.116
79	Bolt M10x85 & nut	8	512-165.000.549
90	U Joint for Outer Tube	1	512-121.026.899.10
91	U Joint for Inner Tube	1	512-121.026.898.10
98	"DANGER " Label for outer tube	1	512-190.000.098
99	"DANGER" Label for outer guard tube	1	512-190.000.099
100	Instruction Manual	1	512-190.000.371

Tractor PTO Shaft



Item #	Description	Qty	Part #
1	Complete Collar Yoke	2	512-141.026.544
2	Cross Journal Set	2	512-180.016.130
5	Outer Yoke	1	512-151.016.028
11	Roll Pin for Outer Tube	1	512-190.000.018
12	Bush with grease nipple	1	512-180.016.316
14	Complete Outer Tube	1	512-152.170.284.0720
15	Inner Tube	1	512-153.160.110
16	Roll Pin for Inner Tube	1	512-190.000.016
21	Inner Yoke	1	512-151.016.029
31	Guard Retaining Collar for Outer Tube	1	512-180.016.016
33	Bolt	6	512-190.000.019
37	Guard Retaining Collar for Inner Tube	1	512-180.016.015
38	Safety Chain	2	512-180.016.025
40	Complete guard with instructional manual	1	512-142.260.418.7620
51	Outer Circlip	2	512-190.000.451
52	Sliding Sleeve Collar	2	512-151.016.486
53	Spring	2	512-180.016.487
54	Fixed Sleeve	2	512-180.016.483
55	Ball 1/2"	6	512-190.000.078
56	Yoke C12	2	512-151.016.544
90	Female tube yoke with roll pin and label	1	512-121.026.899.10
91	Male tube yoke with roll pin	1	512-121.026.900.10
98	"DANGER" Label for outer tube	1	512-190.000.216
99	"DANGER" Label for outer guard tube	1	512-190.000.215
100	Instruction Manual	1	512-190.000.371

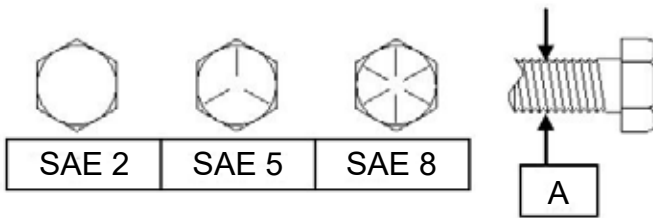
Bolt Torque

As used on this machine

- Bolt torque table shown below gives torque values for various bolts used.
- This chart is for non-lubricated threads.
- Replace with same strength bolt.

Torque Specifications. Torque values are identified by their head markings.

Diameter	SAE 2		SAE 5		SAE 8	
	<i>ft-lb</i>	<i>N.m</i>	<i>ft-lb</i>	<i>N.m</i>	<i>ft-lb</i>	<i>N.m</i>
"A"						
1/4	6	(8)	8	(11)	12	(16)
5/16	11	(15)	17	(24)	25	(33)
3/8	20	(27)	31	(42)	44	(59)
7/16	32	(43)	49	(67)	70	(95)
1/2	49	(66)	76	(105)	105	(145)
5/8	97	(130)	150	(205)	210	(285)
3/4	144	(195)	265	(360)	375	(510)
7/8	165	(225)	430	(585)	605	(820)
1	250	(340)	645	(875)	910	(1230)
1 1/8	355	(480)	795	(1080)	1290	(1750)
1 1/4	500	(680)	1120	(1520)	1820	(2460)
1 1/2	870	(1180)	1950	(2640)	3160	(4290)



Allen head cap screw are similar to SAE 8 quality

These torques are for reference only. Not all these sizes and grades are necessarily used in this machine. Bolts that are used as a pivot or hinge have to be used with a locknut, therefore only tighten enough to secure the bolt and still allowing the part to rotate freely.

Maintenance

This Cutter has very few lube points
Hydraulic Oil comes from tractor system.

8-10 hours

Universal Joints on PTO Shaft (4 places)
Visually check for flat tires. 30-35 PSI

20-30 Hours

Sliding tubes on PTO Shaft

Weekly

Check Oil Level in Gearbox
1 US quart (.785 liter)
SAE 85W90 Oil

Monthly

Check Knife Pivot for excessive wear, replace if wear is 3/16" or more
Check for cracks in knife or knife bolt, replace if cracks detected.



Note: It is a good safe practice to always replace both bolts and knives as a set when damaged or worn!

Note:

After Cutter has been parked or stored 2-3 months or more, the slip-clutch may be seized up.

Before using after and extended period of inactivity.

- Measure the slip clutch adjuster bolts
- Loosen the adjuster bolts
- Ensure that the clutch rings and faces are not seized
- Re-tighten the bolts to the initial measurement

Tighten the adjuster bolts if the clutch runs hot.

Adjust all the bolts the equally and only a 1/2 to 1 turn at a time. (If they are too tight the protection of the drive line is lost and damage to the drive shaft and gearbox will result.

