MODEL 96 ROTARY HAY MOWER

ROTOR GEARBOX ASSEMBLY, CENTRE & R.H.

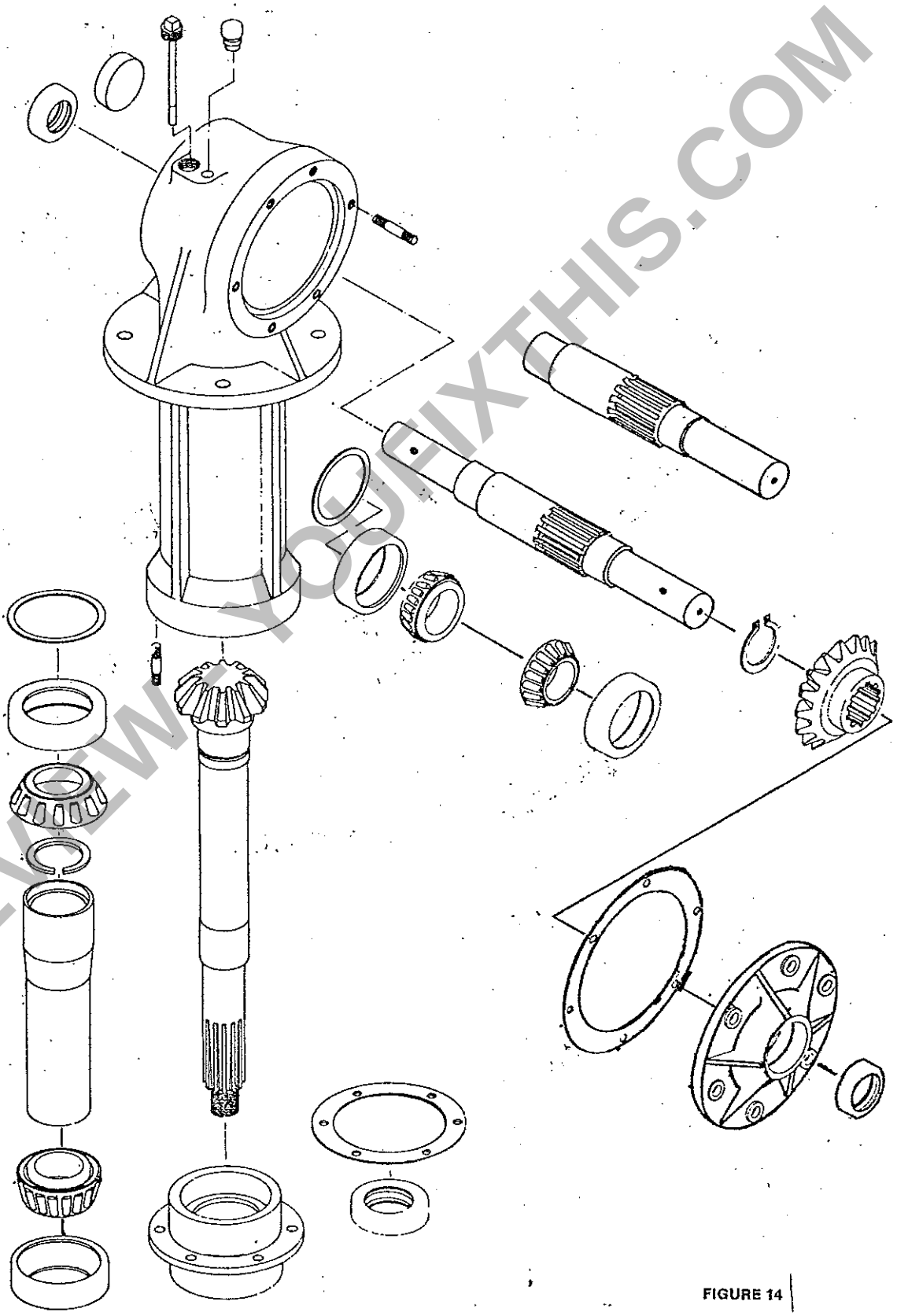


FIGURE 14

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SERVICE CHART

PROBLEM	POSSIBLE CAUSE	CORRECTION
Machine not rising horizontally.	1. Air in hydraulic system.	1. Purge hydraulic system as per Operators Manual.
	2. Transport stop not removed.	
Blades clashing.	Incorrect rotor timing.	Re-time rotors as per Operators Manual Page 13 Fig. 9.
Slip clutch failure.	1. PTO speed too slow.	1. Operate at 540 PTO RPM under load.
	2. Excessively large tractor.	2. Match tractor to machine.
	3. High ground speed.	3. Slow down.
	4. Blunt blades.	4. Keep blades sharp.
	5. Incorrect torque setting.	5. Set torque to maximum 7,200 in/lbs.
	6. Weak clutch springs.	6. Replace clutch springs and linings.
Drive Line failure.	1. Clutch not working.	1. Clean and correctly adjust clutch.
	2. Turning too sharp.	2. Don't turn sharp.
	3. Incorrectly hitched to tractor.	3. Hitch correctly as per Operators Manual.
	4. PTO speed too slow.	4. Run at 540 PTO RPM under load.
	5. Lack of or over lubrication.	5. Lubrication as per Operators Manual.
	6. Excessively large HP tractor.	6. Match tractor HP to machine.
	7. Rotors hitting obstructions or uneven ground.	7. Raise rotors as high as possible off ground.
	8. Ground speed too high or tough grass.	8. Slow forward speed.
	9. Blades blunt.	9. Rotate or sharpen blades.

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AFTER SEASON SERVICE CHECKLIST

IMPORTANT - Clean, check and reset slip clutch PRIOR to starting EACH season.

1. (a) Clean machine as required.
2. Check hydraulic system for correct operation.
   (a) Check for worn hoses, replace as necessary
   (b) Tighten all fittings and position hoses to clear PTO and tractor.
3. (a) Check PTO slides freely.
   (b) Check universal joint condition, replace as necessary
   (c) Check PTO retaining set screws.
   (d) Check slop clutch operation and breakaway torque.
   (e) Dismantle slip clutch, replace worn parts, clean and re-assemble, setting to correct torsion (6800-7200 in lbs).
4. Check hitch and hitch pin hole for excessive wear - repair or replace as necessary.
   (a) Check operation of drawbar latch, lubricate latch and wear pad.
   (b) Straighten hitch rod as necessary.
   (c) Check torsion bar transport latch is operating correctly.
5. Check torsion bar condition and adjustment.
6. (a) Lower machine onto firm level ground.
   (b) Remove main cover.
   (c) Clean under main cover as required.
7. (a) Check for cracking from gearbox mounting holes.
   (b) Check for cracking of main frame at points. See Page 21.. Fig. 13 No.'s 1 & 2 .
   (c) Repair by grooving out crack, welding and grinding back.
8. (a) Check for wear of shear pin/drive pin locations. If worn replace shafts.
   (b) Replace shear pins and drive pins if worn.
   (c) Lubricate shear pins/drive pins.
9. (a) Check bearing pre-load and gear backlash in all gear boxes. Adjust if necessary.
   (b) Replace any leaking oil seals.
10. Tension all gearbox mounting hardware to 180-200 ft./lbs.

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MAINTENANCE

INSTALLING THE BLADES (Figure10)

CAUTION: DON'T OPERATE THE MACHINE WITH DAMAGED BLADES AS THIS CAUSES THE ROTORS TO BECOME UNBALANCED AND WILL RESULT IN UNDUE VIBRATION.

BEFORE ATTEMPTING ANY BLADE ADJUSTMENT MAKE SURE THE TRACTOR ENGINE IS SWITCHED OFF AND THE P.T.O. DISENGAGED.

INSTALL SAFETY CLAMP ON AXLE CYLINDER.

A slot is provided in each end of the blade and in each arm of the rotor (Figure 8). The blade is attached to the rotor by means of the case-hardened blade pin which is shaped to enable it to pass through the blade and rotor slots. The flat spring bolted to the top of each rotor arm locks the pin in position.

To remove the blades, the spring is levered up with a screwdriver, the blade pin is turned 90° using the special spanner supplied and pushed back to align with the slot in the rotor. Push the blade in to align the slot with the rotor slot and remove the blade pin.

To install the blades, reverse the above procedure and ensure that the flat spring is properly seated behind the head of the blade pin.

After the mower has been operating for some time grass or other foreign matter will lodge in the rotor arm behind the blade. It is, therefore, necessary to clean this area thoroughly to avoid difficulty in pushing the blade in to align the slots when removing the blade pin.

NOTE: DULL CUTTING EDGES GREATLY INCREASE POWER REQUIREMENTS; FOR BEST RESULTS ALWAYS MAKE SURE YOUR MOWER BLADES HAVE A SHARP, CLEAN CUTTING EDGE.

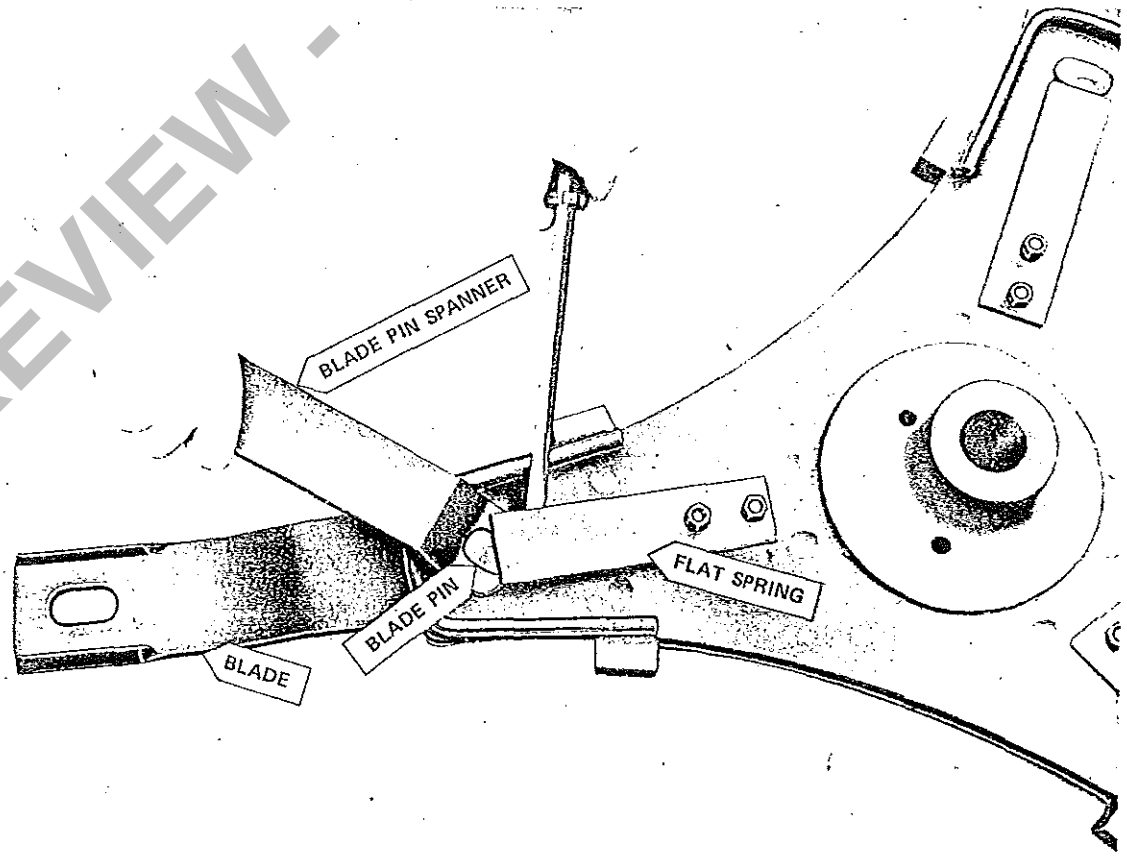


FIGURE 10

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TORQUE AND CONVERSION CHARTS

SAE AND ASTM GRADE IDENTIFICATION MARKS AND TIGHTENING TORQUES

FOR BOLTS AND SCREWS ¼" THROUGH 1" NOMINAL DIAMETER

Identification Grade Marking	Specification and Grade	Material	HARDNESS	
			Brinell	Rockwell
 NO MARK	SAE — Grade 1	Low or medium carbon steel	121 to 241	B69 to B100
	ASTM — A 307			
	SAE — Grade 2 (b)	Low or medium carbon steel	149 to 241 (a)	B80 to B100 (a)
	SAE — Grade 5	Medium carbon steel, Quenched and tempered	255 to 321	C25 to C34
	ASTM — A 449		241 to 302	C23 to C32
	SAE — Grade 8	Medium carbon alloy steel, Quenched and tempered	302 to 352	C32 to C38
	ASTM — A 354 Grade BD	Alloy steel, Quenched and tempered		

(a) Over ¾" to 1½" dia. — Min. Brinell 121; min. Rockwell B70
(b) Bolts and screws over 6" long need meet only SAE Grade 1 requirements.

STANDARD TIGHTENING TORQUE FOR NORMAL ASSEMBLY APPLICATIONS

	SAE Grade 2				SAE Grade 5			SAE Grade 8			
					Min. Tensile — 120,000 psi Proof Load — 85,000 psi			Min. Tensile — 150,000 psi Proof Load — 120,000 psi			Carr. Bolts & B RH SSQ Bolts
Size	Min. Tensile	Proof Load	Min. Clamp Load	Min. Torque Ft. Lbs.	Min. Clamp Load	Min. Torque Ft. Lbs. Plain	Plated	Min. Clamp Load	Min. Torque Ft. Lbs. Plain	Plated	Min. Torque Ft. Lbs.
¼	74,000	55,000	1,200	5	1,920	8	7	2,880	12	10	4
5/16	74,000	55,000	1,920	10	3,460	18	15	4,990	26	21	8
⅜	74,000	55,000	2,880	18	4,960	31	25	7,680	48	39	15
7/16	74,000	55,000	4,250	31	7,260	53	43	10,280	75	60	26
½	74,000	55,000	5,400	45	9,840	82	66	13,800	115	92	38
⅝	74,000	55,000	9,300	82	16,320	170	140	22,560	235	190	70
¾	74,000	55,000	12,400	155	23,200	290	230	33,200	415	330	130
⅞	60,000	33,000	11,400	165	29,400	430	340	41,600	600	480	140
1	60,000	33,000	15,000	250	38,600	640	510	54,500	900	720	210

NOTE: When an assembly is made up of a zinc plated bolt and an unplated nut, the "plain" torques apply. If the bolt is cadmium plated and the nut is plain, "plated" torques apply.

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MODEL 96 ROTARY HAY MOWER REPAIR SCHEDULE

SECTION A - MAIN FRAME, SKID AND WINDROW SHIELD GROUP

Schedule Reference	Part No. Ref.	Job Description	Time Allowance Hours	Mins.
A.01	191930	Replace main frame w/assy	8	00
A.02	156116 156117	Replace skid, right or left	0	30
A.03	157636 157637	Replace right or left extension	0	15
A.04	170206	Replace main cover w/assy	0	45
A.05	157356 157357	Replace windrow shield, right or left	0	30
A.06	156933 156935	Replace windrow flap or strip	0	15

SECTION B - SUSPENSION GROUP

Schedule Reference	Part No. Ref.	Job Description	Time Allowance Hours	Mins.
B.01	156271 156265 156264	Replace transport strap w/assy, upper Replace transport strap w/assy, lower Replace transport latch pin	0	15
B.02	156157 156255	Replace lift lever and/or torsion bar	0	45
B.03	144938	Replace lift lever bushing(s)	0	30
B.04	156499	Replace adjustment bracket	0	30
B.05	156500	Replace adjustment bolt	0	15

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FEATURES

- Fully offset, 8ft. cut.
- Torsion bar suspension.
- Moderate power requirement. (MIN 22 PTO kw/30 hp).
- Patented quick release blade with 4 cutting edges.
- 6 blades (3 per rotor).
- Height adjustable skids. 1/2" to 6" cutting height. Topping to 12".
- Swinging drawbar adjustable from tractor seat.
- Parallel lift.
- Fully enclosed gearbox and shaft drive protected by slip clutch and shearpin.
- Adjustable windrow allows greater flexibility of entire hay operation.

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- Install and tighten bolts securing rotor shield, making sure shield does not rub on housing.
- Re-install top cover after first making sure that all tools have been removed from housing, all hardware is tight and platform is level.
- Tighten cover hardware securely - 3/8" bolts, 30-40 ft./lbs. Early type 5/16" bolts, 15-20 ft./lbs.
- Lubricate rotor boxes with 3 pints of SAE 90 gear oil. Left hand (right angle) gearbox requires 1-1/2 pints of SAE 90 gear oil.

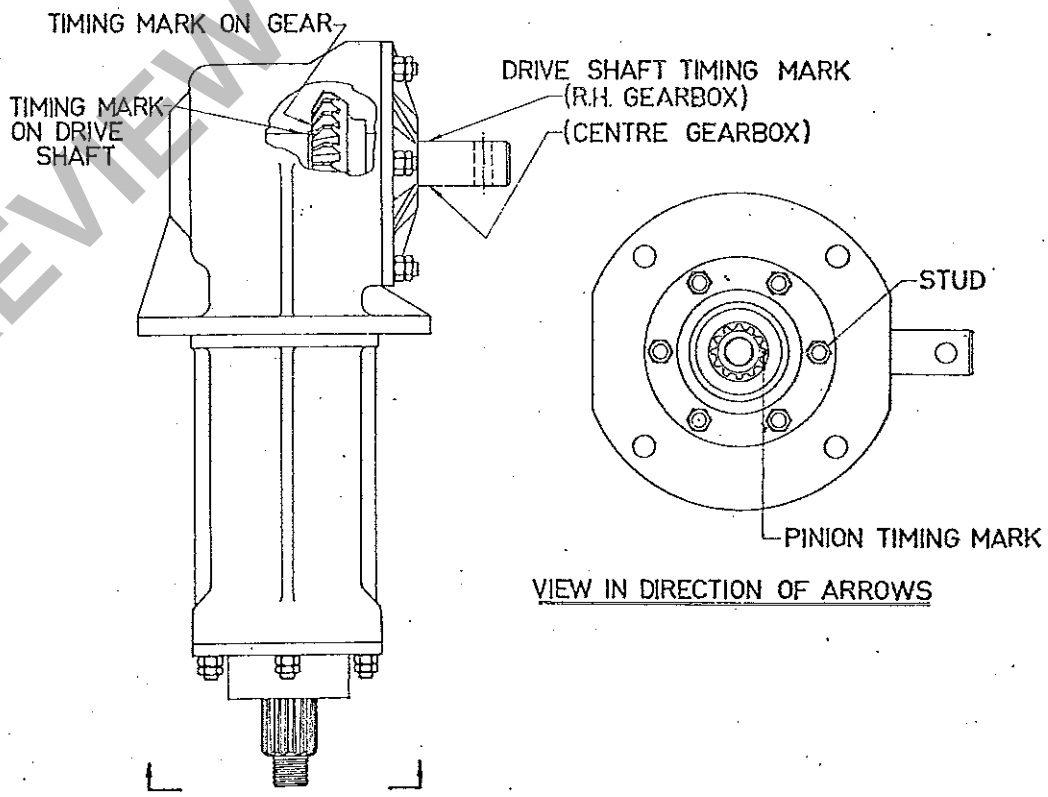


FIGURE 16

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