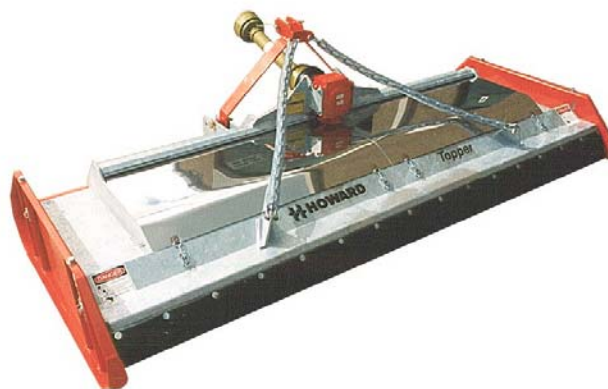


Primarily for machines serial numbers: TTA 248----- onwards.



# *Topper Parts List*



**HOWARD AUSTRALIA PTY LTD**

Private Bag 5  
SEVEN HILLS NSW 1730  
AUSTRALIA

Telephone: (02) 9674 2966  
Fax: (02) 9674 6263

# SAFETY & INSTRUCTION DECALS

These decals provide the basic safety and operating instructions for this equipment and must be maintained in legible condition.



## Universal Driveshaft Entanglement

Part No: 70781 Qty: 1

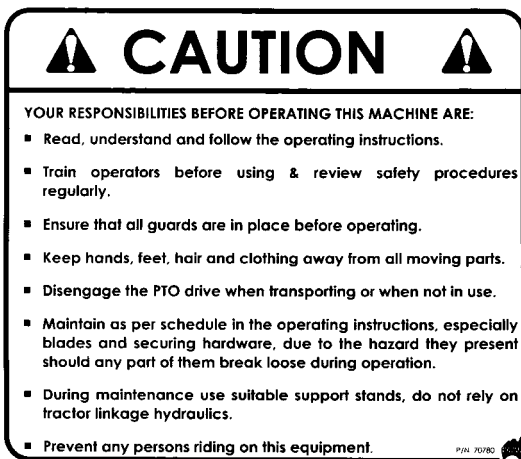
Location: Driveshaft outer plastic cover.



## Cutting Blades & Thrown Object

Part No: 70699 Qty: 2

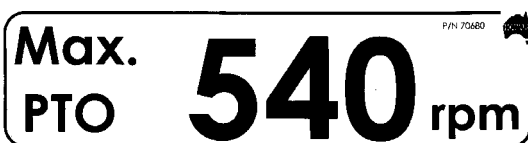
Location: Rear of body, both sides.



## Operator Responsibilities

Part No: 70780 Qty: 1

Location: Front LHS of body, below cover.



## PTO Max. 540 rpm

Part No: 70680 Qty: 1

Location: Front apron LHS of body.

## IDENTIFICATION DECALS

***Topper***

Topper (260x80mm)

Part No: 70774 Qty: 1

Location: Rear RHS below cover.

 **HOWARD**

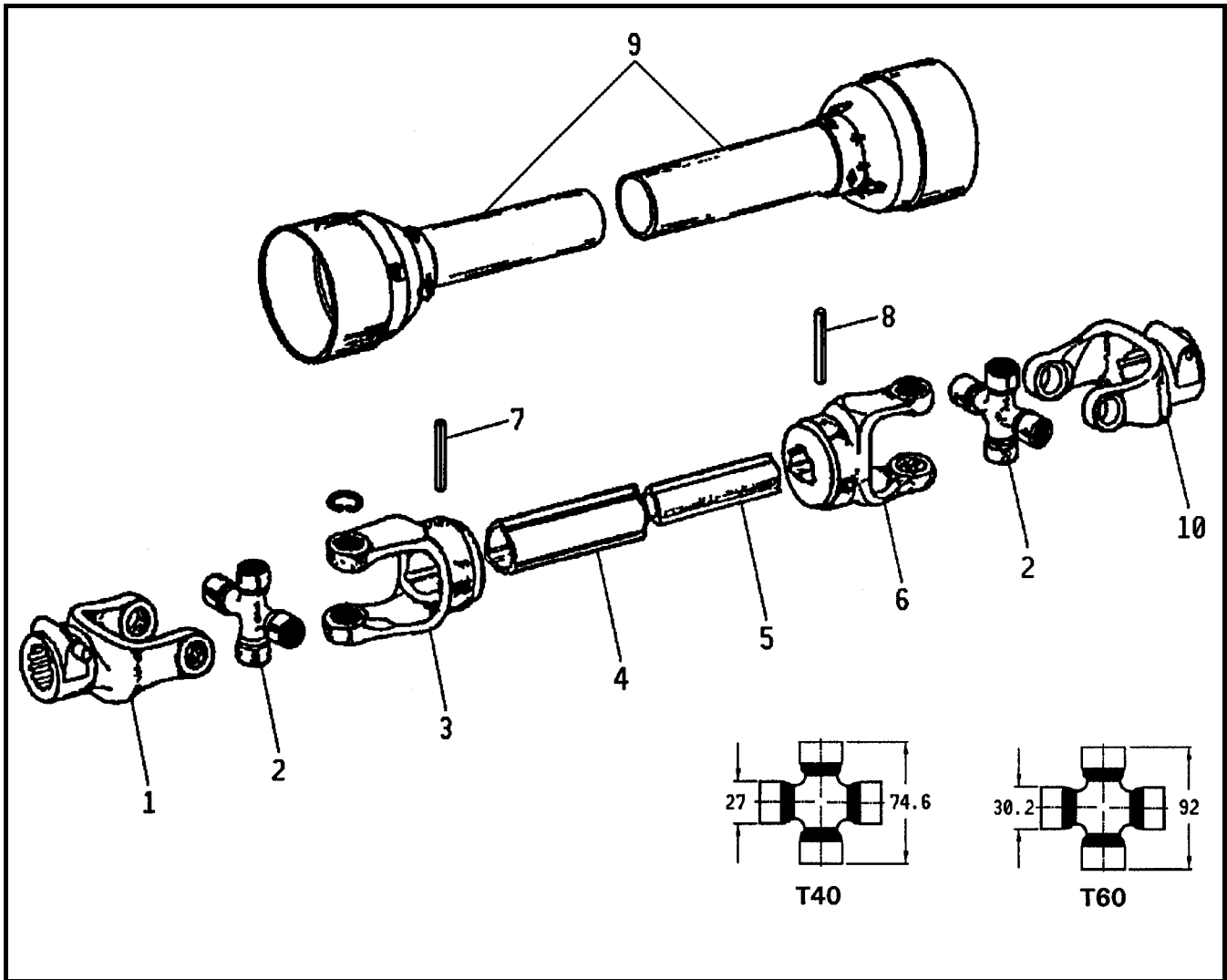
Howard (400x90mm)

Part No: 70685 Qty: 1

Location: Rear LHS below cover.

### PAINT HOWARD ORANGE

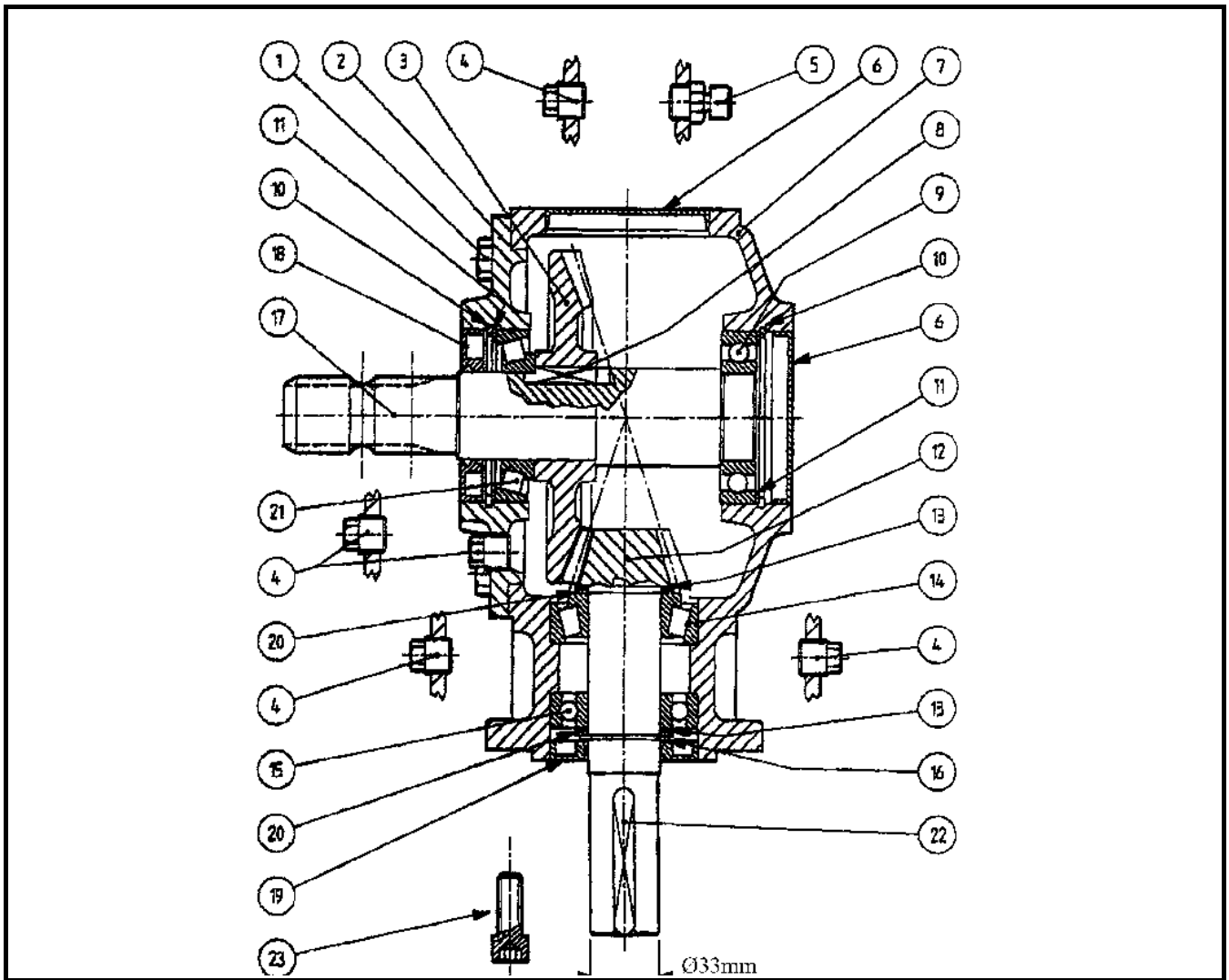
Part No.	Description	Qty
209052510	Paint Howard Orange	1 Ltr
209052520	Paint Howard Orange	4 Ltr



**UNIVERSAL DRIVE SHAFT - TOPPER**

11/93

Item	T40 Shaft Part No. TT178, '210	T60 Shaft Part No. TT237-300	Description	Qty
1-9	204057096	616444	Shaft Assembly	1
1	204051440	204051080	Yoke - Tractor	1
NI	20405629A	20405629A	Pin Kit - 'EG'	1
2	204056906	204056380	Cross Kit	2
3	204051410	204051060	Yoke - Outer Tube	1
4	204052060	204054080	Outer Tube	1
5	204052070	204054090	Inner Tube	1
6	204051420	204051070	Yoke - Inner Tube	1
7	204056907	208089370	Pin - Outer Tube Yoke	1
8	204056908	208089240	Pin - Inner Tube Yoke	1
9	204055915	204055020	Cover Set	1
10	204051440	20405108A	Yoke - (Pinch Bolt T60 Shaft only)	1



**TV311H GEARBOX ASSY - TOPPERS S/N TTA 248 on.**

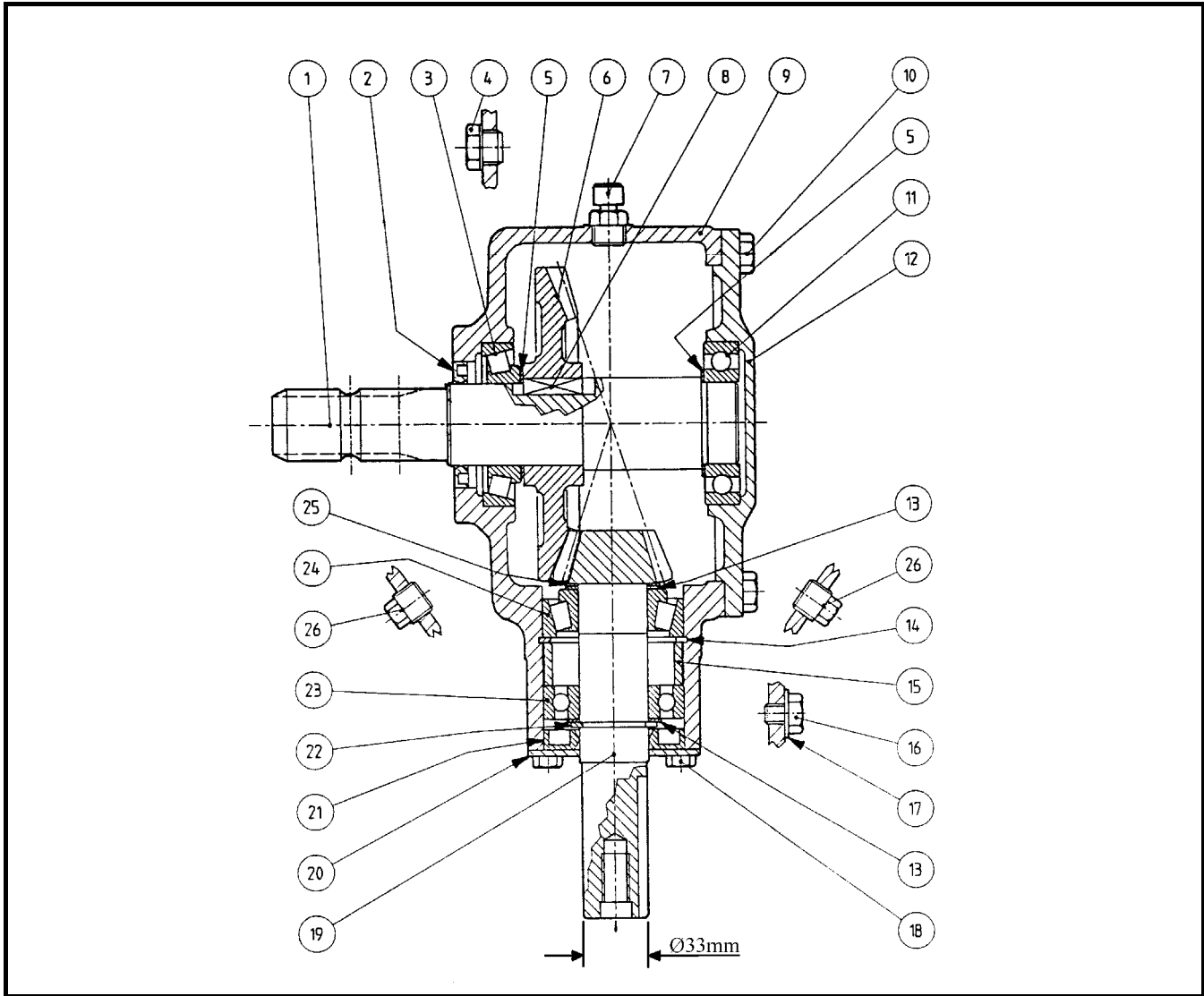
3/01

The TV311H gearbox can be differentiated from the T304A gearbox by the 4 mounting holes/faces on the top of the gearbox plus a bolted flange on the output shaft housing. Plain keyed 33 dia. output shaft.

Item	Part No	Description	Qty	Item	Part No	Description	Qty
1-23	T20072	Gearbox Assembly	1	11	0.110.7500.00	Shim	2
				12«	0.304.5011.00	Shaft & Pinion Z=12	1
				13	0.257.7500.00	Shim	2
1	301410255	Bolt M10 x 25	8	14«	253572241	Bearing	1
2	0.311.1702.00	Cover	1	15«	253572171	Bearing	1
3«	0.244.6204.00	Crownwheel Z=36	1	16	208102280	Circlip	1
4	203031180	Plug	6	17	0.304.3000.00	Input Shaft	1
5	8.6.7.00161	Breather/ Plug	1	18«	268040102	Seal	1
6	8.7.0.00790	Cap	2	19«	267235103	Seal	1
7	0.311.0301.00	Gearcase	1	20	0.259.7500.00	Shim	2
8	8.4.1.001141	Key	1	21«	254080201	Bearing	1
9«	254080181	Bearing	1	22	8.4.1.01689	Bearing	1
10	208001320	Circlip	2	23	301412305	Bolt 35.3 x 1.3	4

**ITEM SERVICE NOTES** (As applicable to those item no.s indicated by '«' after the item no.)

- 3,12 Gear Backlash 0.2 - 0.5mm (.008" - .020")
- 9,21 Input shaft bearing preload - No end float / No preload.
- 14,15 Output shaft preload - No endfloat / No preload to very slight preload.
- 18,19 Seal sprung lip toward gearbox.



**T304A GEARBOX ASSY - TOPPERS S/N TTA 027 - TTA 248**

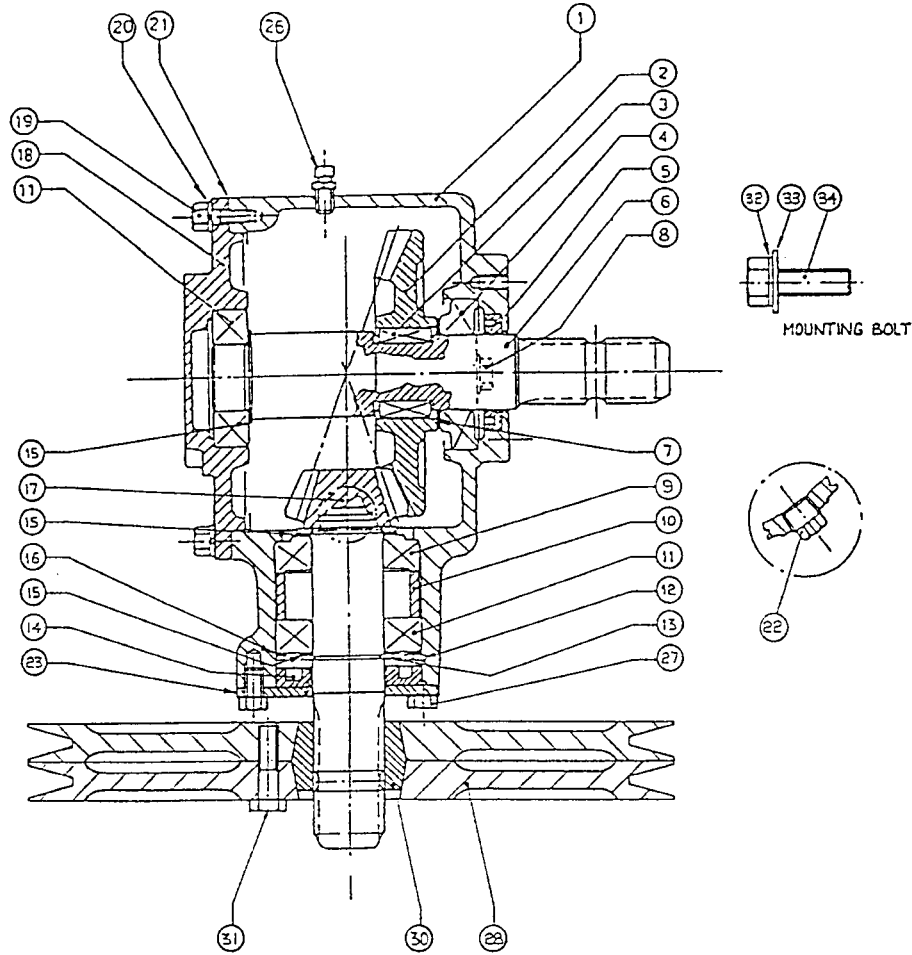
3/01

Identify by: 8 bolts affixing rear cover -item 12. Plain keyed 33 dia. output shaft through pulley(s).

Item	Part No	Description	Qty	Item	Part No	Description	Qty
1-27	T20071	Gearbox Assy T304A	1	13	0.259.7500.00	Shim 48.0	2
1	0.304.3000.00	Shaft	1	14	208101410	Circlip	1
2«	266240071	Oil Seal	1	15	0.304.7100.00	Spacer	1
3«	254080201	Bearing	1	16	8.1.1.00492	Bolt M10 x 10	1
4	8.6.4.00673	Oil Window	1	17	8.3.3.00481	Washer	1
5	0.244.7500.00	Shim	2	18	301408145	Bolt M8 x 14	4
6«	0.244.6204.00	Gear Z = 36	1	19«	0.304.5011.00	Pinion & Shaft Z= 12	1
7	8.6.7.00161	Oil Filler Plug	1	20	1.244.1706.00	Cover	1
8	8.4.1.001141	Key	1	21«	267235103	Oil Seal	1
9	0.304.0306.00	Case	1	22	208102280	Circlip	1
10	301410255	Bolt M10 x 25	8	23«	253572171	Bearing	1
11«	254080181	Bearing	1	24«	253572241	Bearing	1
12	0.304.1302.00	Cover	1□	25	0.259.7513.00	Shim 35.3 x 1.3	1
				26	8.6.5.00006	Plug	2

**ITEMS « SERVICE NOTES** (As applicable to those item no.s indicated by '«' after the item no.)

- 6,19 Gear Backlash 0.2 - 0.5mm (.008" - .020")
- 3,11 Input shaft bearing preload - No end float/ No preload.
- 23,24 Output shaft preload - No endfloat / No preload to very slight preload.
- 2,21 Seal sprung lip toward gearbox.



**T4A GEARBOX ASSY - TOPPERS S/N pre TTA 027**

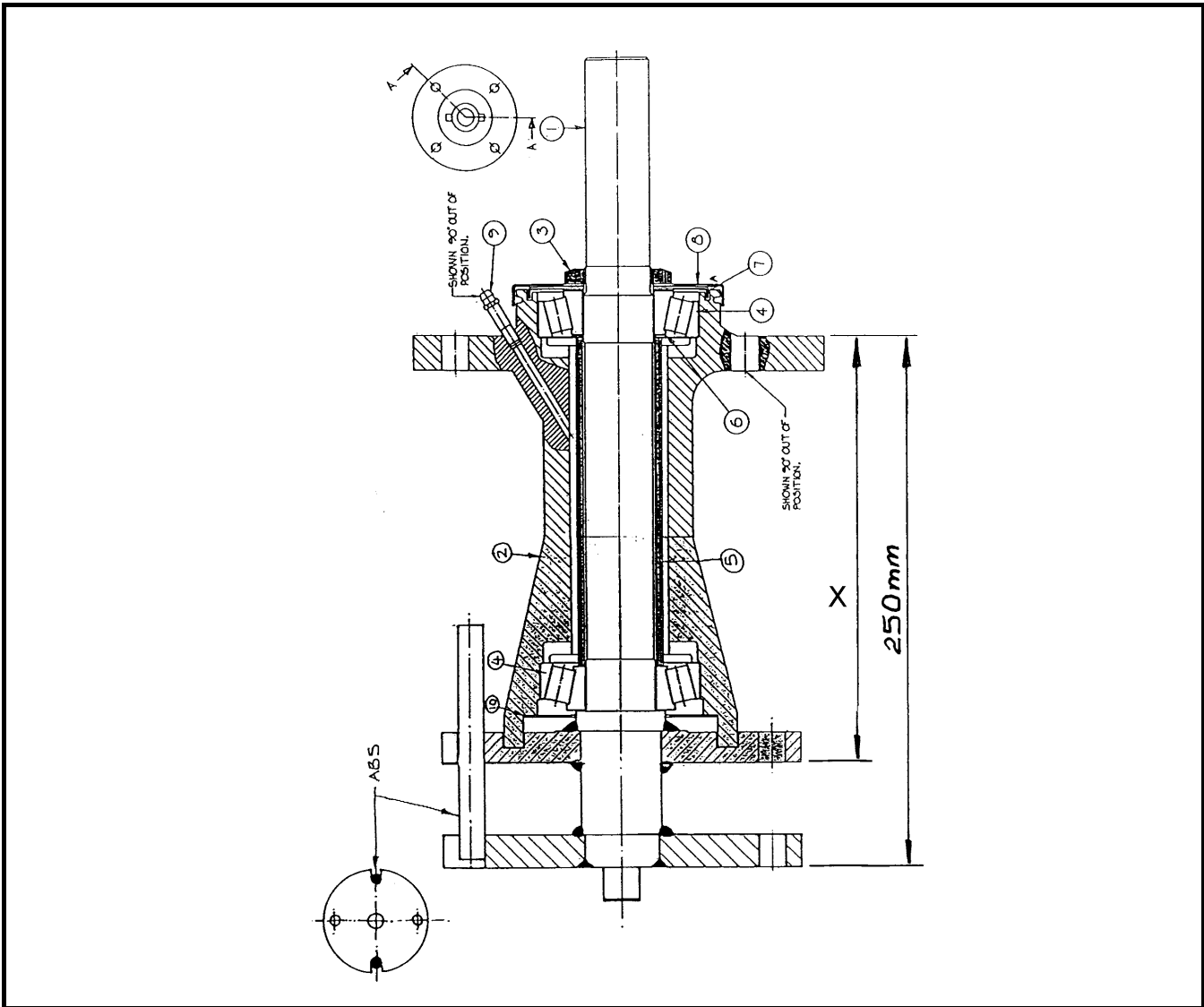
3/01

Identify by: 6 bolts affixing rear cover -item 18. Splined 1.3/8" dia. output shaft.

Item	Part No	Description	Qty	Item	Part No	Description	Qty
1-27	616663	Gearbox Assy	1	17	0.244.5003.00	Pinion & Shaft Z=10	1
1	0.244.0508.00	Case	1	18	0.244.1312.00	Cover	1
2«	0.244.6005.00	Crownwheel Z=30	1	19	301408225	Setscrew M8x22	6
3	8.4.1.00057	Key 8 x 10 x 30	2	20	308080045	Washer M8	6
4«	254080201	Bearing	1	21	0.247.7201.00	Gasket	1
5«	266240071	Oil Seal	1	22	203031180	Plug	2
6	0.244.3203.02	Shaft	1	23	0.244.1706.00	Cover	1
7	0.244.7500.00	Shim	1	26	8.6.7.00161	Breather	1
8	8.6.4.00673	Oil Window	1	27	301408145	Setscrew M8 x 14	4
9«	253572181	Bearing	1	28	616648	Pulley 200 PCD	2
10	0.244.7100.00	Spacer	1		616319	Pulley 250 PCD	4
11«	253572171	Bearing	1	30	616625	Bush	1,2
12	208101410	Int Circlip	1	31	301208805	Bolt M8 x 80	3
13	208102280	Ext Circlip	1	32	308120045	Spring Washer M12	4
14«	267235101	Oil Seal	1	33	308120015	Flat Washer M12	4
15	0.259.7500.00	Shim	3	34	301412305	Setscrew M12 x 30	4
16	0.248.7500.00	Shim	1				

**ITEMS « SERVICE NOTES** (As applicable to those item no.s indicated by '«' after the item no.)

- 2,17 Gear Backlash 0.2 - 0.5mm (.008" - .020")
- 4,11 Input shaft bearing preload - No end float/ No preload.
- 9,11 Output shaft preload - No endfloat / No preload to very slight preload.
- 5,14 Seal sprung lip toward gearbox.



**SPINDLE ASSEMBLY - TOPPER**

6/98

**Current Spindle X = 250mm**

**Early Spindle X = 150mm**

Item	Part No.	Description	Qty (i)	Item	Part No.	Description	Qty (i)
1-10	T32801E100	Spindle Assy	1	1-10	616689	Spindle Assy	1
1	T32905E100	Spindle Shaft	1	1	616705	Spindle Shaft	1
2	T32903A	Housing	1	2	T32902	Housing	1
3	253552081	Locknut	1	3	253552081	Locknut	1
4	253580231	Bearing	2	4	253580231	Bearing	2
5	T32908E	Spacer	1	5	616707	Spacer	1
6	616696	Shim .002"	#	6	616696	Shim .002"	#
	616697	Shim .003"	#		616697	Shim .003"	#
	616698	Shim .004"	#		616698	Shim .004"	#
7	T32900A	Inner Cap	1	7	T32900A	Inner Cap	1
8	616699	Outer Cap	1	8	616699	Outer Cap	1
9	T44261	Grease Nipple - Long	1	9	T44261	Grease Nipple - Long	1
10	616693	Grease Retainer	1	10	616693	Grease Retainer	1
				NI	T32802	Spindle Extn. 100mm	1

(i) Quantities given are per spindle. (TT178 & TT210 - 3 spindles, TT237, TT282, TT300 - 4 spindles)  
 # Qty as required.

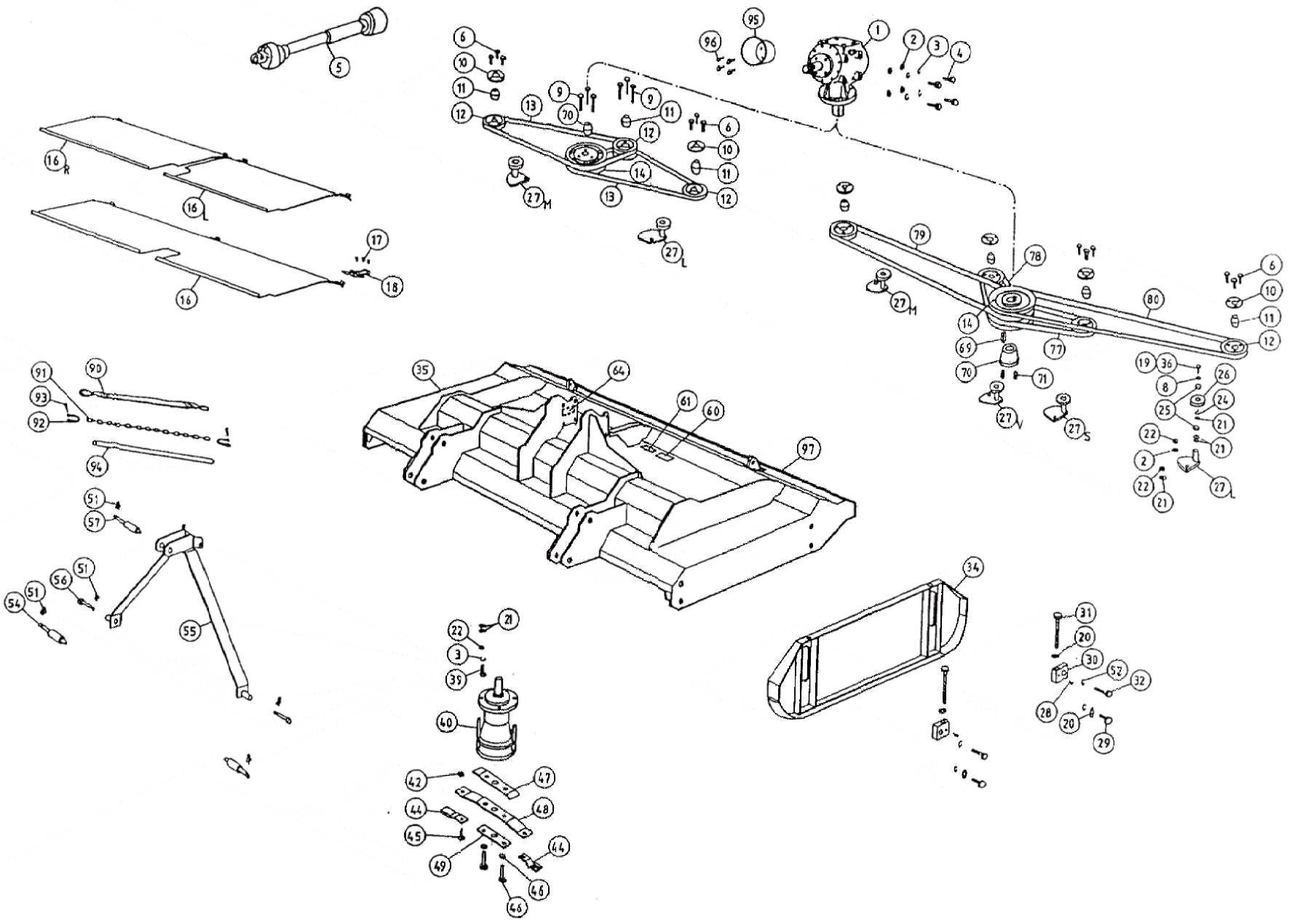
# SPINDLE ASSEMBLY INSTRUCTIONS

**WARNING:** Incorrect assembly, and in particular, incorrect spindle shaft end float, may cause premature failure of the spindle assembly.

**NOTE:** Although it is possible to check the endfloat of spindle shaft in the spindle assembly, correcting it if necessary, involves pressing the bearing cones from the shaft with possible damage to the bearing and removal of the grease retaining ring. Consequently a 'dummy' assembly is best followed (steps 1 to 5) to give the correct endfloat.

1. Clean all parts.
2. Fit bearing cups (from items 3 & 7) into housing (item 4).
3. Using a false spindle shaft comprising a suitable bolt, clamp washers and sleeve, assemble the bearing cones (item 4 cones), spacer (item 5) and shims (item 6) into the housing (item 2) and tighten.
4. Using a dial gauge check the spindle shaft endfloat.  
Correct endfloat is 0.02 to 0.06mm (.001" to .003"), NO PRELOAD. If necessary, dismantle and re-shim to give correct endfloat.
5. Dismantle 'dummy' spindle assembly (step 3), keeping parts as a set.
6. Fit lower bearing cone (from item 4) into bearing cup in housing.
7. Fit/press grease retaining ring into housing.
8. Smear anti-fretting compound onto spindle shaft (item 1) at lower bearing journal (eg Loctite 241 or 242).
9. Fit spindle shaft (item 1) into housing through lower bearing and ensure bearing seats home on shoulder. (The bearing may be a light press fit).
10. Fit spacer tube (item 5) and shims (item 6) as determined from steps 1-5 to give correct endfloat.
11. Smear anti-fretting compound onto spindle shaft at upper bearing journal.
12. Fit upper bearing cone (item 7 cone) and locknut (item 9) flat side down.
13. Torque locknut to 80 Nm (60 ftlb) and check endfloat. Refer to step 4 for correct endfloat.
14. **NOTE:** If endfloat is incorrect, determine the required adjustment to the shims, disassemble to step 6 and repeat.
15. Pump 87 grams of multi-purpose lithium based grease into assembly. Ensure grease emerges through top bearing.
16. Remove locknut, fit cap (item 8) and smear thread-locking compound onto threads.
17. Refit locknut and re-tighten to 135 Nm (100 ftlb).

BODY - TOPPER



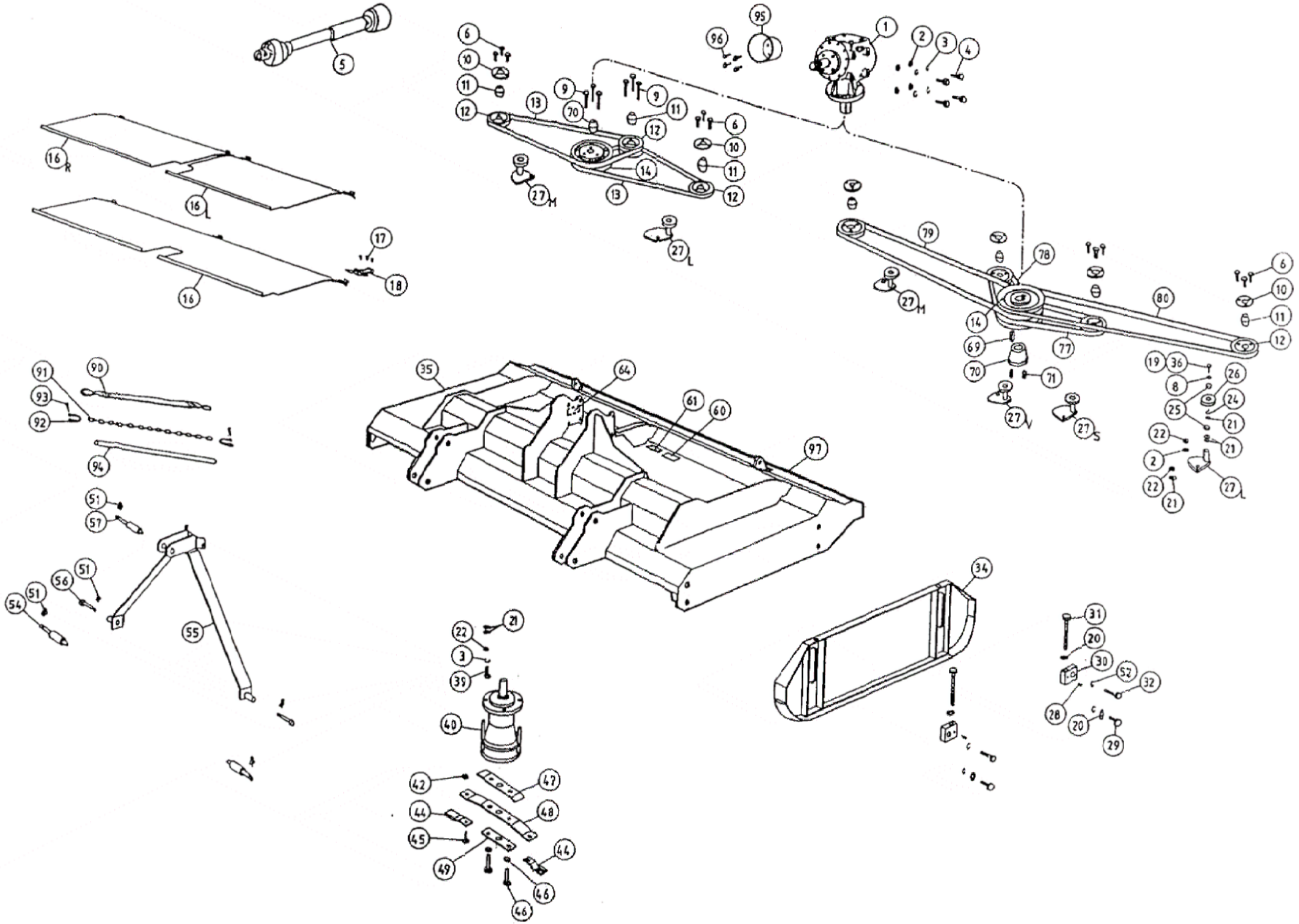
**BODY - TOPPER**

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Item	Ref Notes		Part Number	Description	Quantity				
	Pre	Post			178	210	237	282	300
1	TTA027		616663	Gearbox T4A	1	1	1	1	1
	TTA248	TTA027	T20071	Gearbox T304A	1	1	1	1	1
	-	TTA248	T20072	Gearbox TV311H	1	1	1	1	1
2			209025495	Washer M12 Hvy Flat	10	10	12	12	12
3			308120045	Washer M12 Spring ZP	20	20	24	24	24
4			301412305	Bolt M12 x 30	8	8	8	8	8
5	See separate P/L also		204057096	PTO Shaft	1	1	-	-	-
			616444	PTO Shaft	-	-	1	1	1
6			301408205	Bolt M8 x 20	6	6	12	12	12
9			301208405	Bolt M8 x 40	6	6	-	-	-
10			616623	Retainer	2	2	4	4	4
11			616668	Bush	4	4	4	4	4
12	TTA115 - TTA116	-	616628	Spindle Pulley 140mm 150mmY	4	4	4	4	-
			616628	Spindle Pulley 140mm	-	-	-	-	4
			616624	Spindle Pulley 180mm	-	-	-	-	4
13	3		See notes	2	2	-	-	-	
14			616319	G'Box Pulley 250mm	2	-	-	-	-
			616648	G'Box Pulley 200mm	-	2	-	-	-
	TTA027		616319	G'Box Pulley 250mm	-	-	2	-	-
	-	TTA248	T36128	G'Box Pulley 250x4V	-	-	1	-	-
	TTA027		616648	G'Box Pulley 200mm	-	-	-	2	-
	-	TTA248	T36127	G'Box Pulley 200x4v	-	-	-	1	-
	TTA027		616648	G'Box Pulley 200mm	-	-	-	-	2
	TTA248	TTA027	T36127	G'Box Pulley 200x4V	-	-	-	-	1
16			T33033/178	Cover	1	-	-	-	-
			T33034/210	Cover	-	1	-	-	-
16L			T33033/237L	Cover Left	-	-	1	-	-
			T33033/282L	Cover Left	-	-	-	1	-
			T33034/300L	Cover Left	-	-	-	-	1
16R			T33033/237R	Cover Right	-	-	1	-	-
			T33033/282R	Cover Right	-	-	-	1	-
			T33034/300R	Cover Right	-	-	-	-	1
17			T44325	Rivet	6	6	8	8	8

Item	Ref Notes		Part Number	Description	Quantity				
	Pre	Post			178	210	237	282	300
18			616639	Catch	3	3	4	4	4
19			301212405	Bolt M12 x 40	-	-	1	1	1
20			308160015	Washer M16 Hvy Flat	4	4	4	4	4
21			308120015	Washer M12 Flat	9	9	12	12	12
22			307212015	Nut M12	28	28	40	40	40
23			301412355	Bolt M12 x 35	-	-	1	1	1
24			208001060	Circlip	2	2	4	4	4
25			251237121	Bearing	4	4	8	8	8
26	TTA115	-	616622	Idler Pulley 1 Brg	2	2	4	4	4
	-	TTA115	T36011	Idler Pulley 2 Brg	2	2	4	4	4
	-	TTA115	T36011/ASM	Idler Pulley & Brg Assy	2	2	4	4	4
27S	2		T33040LS	Idler Assy Short Tower 29mm	-	-	1	1	1
27M			T33040LM	Idler Assy Med. Tower 51mm	1	1	1	1	1
27L			T33040LL	Idler Assy Long Tower 73mm	1	1	1	1	1
27V			T33040LV	Idler Assy V'Short Tow 13mm	-	-	1	1	1
28			202030080	Grease Nipple 90 Deg.	4	4	4	4	4
29			301416355	Bolt M16 x 35	4	4	4	4	4
30			T33027/TTB	Height Adjuster Block	4	4	4	4	4
31			T33027/TTR	Height Adjuster Rod	4	4	4	4	4
32			301216555	Bolt M16 x 55	4	4	4	4	4
34			T33019TT	Side Skid	2	-	2	-	-
			T33021TT	Side Skid	-	2	-	2	2
NI			TT028S	Skid Runner	2	-	2	-	-
			TT028E	Skid Runner	-	2	-	2	2
35	1		T33000/178	Body Assembly	1	-	-	-	-
			T33000/210	Body Assembly	-	1	-	-	-
			T33000/237	Body Assembly	-	-	1	-	-
			T33000/282	Body Assembly	-	-	-	1	-
			T33000/300	Body Assembly	-	-	-	-	1
NI			TT007300	Front Protector	-	-	-	-	1
36			301212505	Bolt M12 x 50	10	10	10	10	10
39			303212450	Hex Skt Cap M12 x 45	12	12	16	16	16

BODY - TOPPER



**BODY - TOPPER**

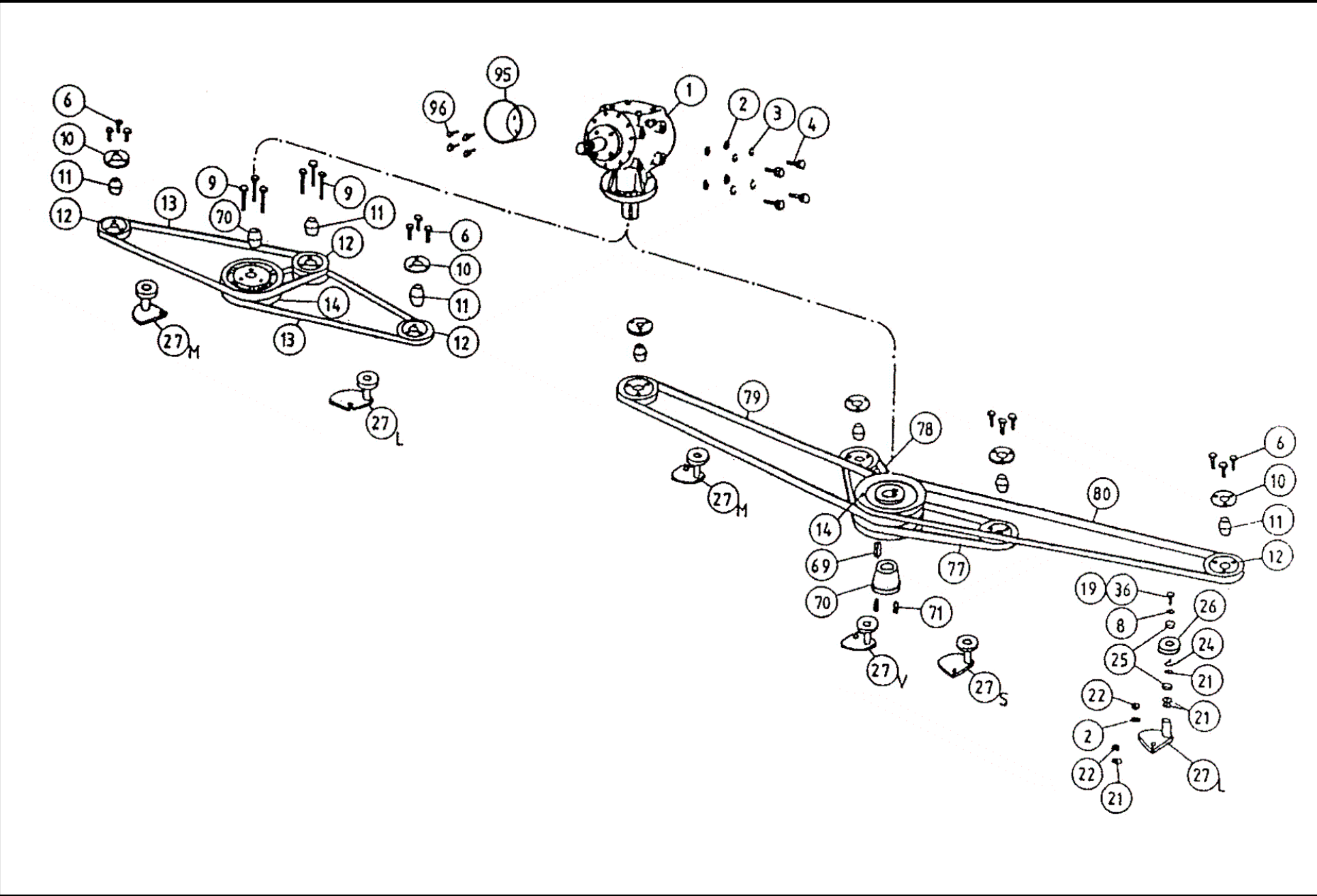
Item	Ref Notes		Part Number	Description	Quantity				
	Pre	Post			178	210	237	282	300
40	Refer to Spindle Assy Page		T32801E100	Spindle Assy - Current	3	3	4	4	4
			616689	Spindle Assy - Early	3	3	4	4	4
42			307210115	Blade Nut M10 Conloc	6	6	8	8	8
44	Refer to Opt. Equip. Page		78241	Blade HD - Uplift	6	6	8	8	8
			78016	Blade HD - Flat	6	6	8	8	8
45			78015	Blade Bolt	6	6	8	8	8
46			301212455	Bolt M12 x 45	6	6	8	8	8
47			T32269	Backing Plate	-	-	-	-	4
			616670	Backing Plate	3	-	4	-	-
			616674	Backing Plate	-	3	-	4	-
48			T32274	Blade Beam	-	-	-	-	4
			616671	Blade Beam	3	-	4	-	-
			616673	Blade Beam	-	3	-	4	-
49			616672	Clamp Plate	3	3	4	4	4
51			610661	Lynch Pin	3	3	3	3	3
52			308160045	Washer M16 Spring	10	10	10	10	10
54			616332	Lower Link Pin CAT1,2	2	2	2	2	2
55			T33101	Headstock	1	1	1	1	1
56			101212325	Bolt 3/4 x 4" UNC	2	2	2	2	2
56a			107212175	Nut 3/4" UNC Nyloc	2	2	2	2	2
57			616333	Upper Link Pin CAT1,2	1	1	1	1	1
60			T10097	Decal 'Wash Warning'	1	1	1	1	1
61			T10112	Decal 'Grease Points'	1	1	1	1	1
64			70732	Decal 'Serial Plate'	1	1	1	1	1
69			T42594	Key	-	-	1	1	1
70	TTA027		616625	Bush Biloc 1.3/8"	1	1	2	2	2
	-	TTA028	T6033	Bush Biloc 33mm	1	1	-	-	-
70	-	TTA028	T6068	Bush Taperloc	-	-	1	1	1
71			118810100	Grub Screw 5/8" x 1.1/4"	-	-	2	2	2
77	3		See notes	Vee Belt	-	-	1	1	1
78	3		See notes	Vee Belt	-	-	1	1	1
79	3		See notes	Vee Belt	-	-	1	1	1
80	3		See notes	Vee Belt	-	-	1	1	1

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Item	Ref Notes		Part Number	Description	Quantity				
	Pre	Post			178	210	237	282	300
90			T44042	Strops	2	2	-	-	-
91			T44071	Chain	-	-	2	2	2
92			T44628	Shackel	4	4	4	4	4
93			301212655	Bolt	4	4	4	4	4
			307212055	Nut M12 Coneloc	4	4	4	4	4
94			T44044	Plastic Tube	-	-	2	2	2
95			T44040	Cone PTO	1	1	1	1	1
96			301408125	Bolt M8 x 12	4	4	4	4	4
97	Refer Sperate List		-	Flap Rear Rubber					
NI	Refer to Decal Pages		70685	Howard	1	1	1	1	1
NI			70774	Topper	1	1	1	1	1
NI			70699	Danger	2	2	2	2	2
NI			70680	540 RPM PTO	1	1	1	1	1
NI			70780	Caution	1	1	1	1	1
NI			70781	Driveshaft entanglement	1	1	1	1	1

**NOTES**

- 178 = 1.78m, 210 = 2.10m, 237 = 2.37m, 282 = 2.82m, 300 = 3.00m.
- From S/N TTA115 (10/08/94) double bearings were introduced for the idler pulleys. It is recommended that when replacing idler pulleys or bearings to replace them with the double bearing system and thus use Item 27 when replacing single bearing assemblies with double bearing assemblies.  
NOTE. If the mower has 4 spindles new towers and quadrants will also need to be fitted. If the mower has only 3 spindles the new pulley will simply bolt onto the existing tower.
- Select belts from chart over.
- TTA30521008P has Stealth casters and wheels, special side gaurds, and headstock chains one link short.



BODY - TOPPER

# BODY - TOPPER

## V Belts

Item	Model	Serial No.	Spindle	Std Belt	Std Belt Part No.	Optional Belt (i)	Optional Belt (i)	Opt Belt Part No.
13	TT178	ALL	A - B	B76	204050110	-	-	-
13			B - C	B76	204050110	-	-	-
13	TT210	ALL	A - B	B83	204050120	-	-	-
13			B - C	B83	204050120	-	-	-
80	TT237	ALL	A	B94	20400604A	SPBX2410	5VX950	20400620A
77			B	B49	204006480	SPBX1260	5VX500	20400623A
78			C	B53	204006600	SPBX1410	5VX560	20400625A
79			D	B92	20400619A	SPBX2410	5VX950	20400620A
80	TT282	ALL	A	B103	20400606A	-	5VX1060	20400621A
77			B	B48	204006470	SPBX1260	5VX500	20400623A
78			C	B53	204006600	-	5VX560	20400626A
79			D	B101	204006500	-	5VX1060	20400621A
80	TT300	UP TO ↓ TTA114	A	B110	20400616A	-	5VX1120	20400622A
77			B	B50	20400613A	-	5VX530	20400624A
78			C	B54	20400614A	-	5VX560	20400626A
79			D	B108	20400615A	SPVX2800	-	20400627A
80	TT300	TTA115 ↓ TTA258	A	B116	20400628A	-	-	-
77			B	B56	204006130	-	-	-
78			C	B61	204006360	-	-	-
79			D	B116	20400628A	-	-	-
80	TT300	TTA259 ↓ TTA287	A	B116	20400628A	-	-	-
77			B	B55	204006500	-	-	-
78			C	B61	204006360	-	-	-
79			D	B116	20400628A	-	-	-
80	TT300	TTA288 ↓ ON	A	B114	20400629A	-	-	-
77			B	B55	204006500	-	-	-
78			C	B61	204006360	-	-	-
79			D	B116	20400628A	-	-	-

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(i) **NOTE:** Standard V belts have the advantage of being able to slip if the spindle is stalled due to excess load or if the blade strikes the ground, whereas the optional SPB section or notched belts will often break or tear due to their greater grip on the pulley. In good conditions the optional SPB or notched belt can be used to transmit more power if required.

## Central Greasing Option

Item	PART NO.	DESCRIPTION	MODELS
NI	TTO42COM	Grease Line	All
NI	TTO43COM	Clip	All
NI	TT6832	Adapter	All
NI	TT6832S	Adapter	All
NI	T44261	Grease Nipple	All

## Rear Rubber Flap

Item	PART NO.	DESCRIPTION	178	210	237	282	300
97	T33021/178	Flap Rear Rubber	1	-	-	-	-
	T33021/210		-	1	-	-	-
	T33021/237		-	-	1	-	-
	T33021/282		-	-	-	1	-
	T33021/300		-	-	-	-	1
NI	301406205	Setscrew M6x20					16
NI	307206055	Nut M6 Nyloc					16
NI	308060065	Washer M6					16

## Serial Number Identification

From TTA 00124073 to TTA 07630054.

1	2	3	4	5	6	7	8	9	10
Model		Consecutive			Width		Month		Year

From TTA 07730006M onwards.

1	2	3	4	5	6	7	8	9	10	11	12
Model		Dest	Consecutive			Width		Month		Year	