

Standen



POWAVATOR 35

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INTRODUCTION

The POWAVATOR 35 is a light weight machine capable of primary and secondary tillage for tractors having 12-35hp at the pto at 540rpm.

The POWAVATOR 35 is suitable for category I or II 3-point linkage, with the 50" & 60" being able to be offset to the right by 10" (25cm).

Drive is via the universal joint assembly, safety clutch, single speed gearbox and chain side drive to a 2 or 3 bladed rotor.

Depth of tillage is controlled by side mounted skids or by optional front mounted wheels.

The type of tilth produced is controlled by:-

- (a) Forward speed of the tractor.
- (b) Position of trailing shields.

SERIAL NUMBER

The serial and model number is stamped on the identification plate attached to your POWAVATOR. For future reference record the numbers below. Always quote them when ordering spare parts.

MODEL No.
SERIAL No.
DATE PURCHASED.

UNIVERSAL JOINT ASSEMBLY

The universal joint assembly transmits the engine power to the POWAVATOR. Whilst it is rotating the uneven nature of the land the lifting and lowering of the machine causes the male inner drive shaft to slide in and out of the outer drive tube. This continually alters its working angle therefore correct lubrication is necessary to keep it in good working order.

Before use ensure lithium based grease is applied to the joints cross assemblies and guards. Also separate the two halves of the joint assembly and liberally smear them with graphite or molybdenum disulphide grease.

Always ensure that there is at least 4 inches of the male shaft engaged within the female tube when under working conditions. If the standard length of the drive shaft is too long for a particular tractor application, the male and female shafts and guards should be shortened as necessary.

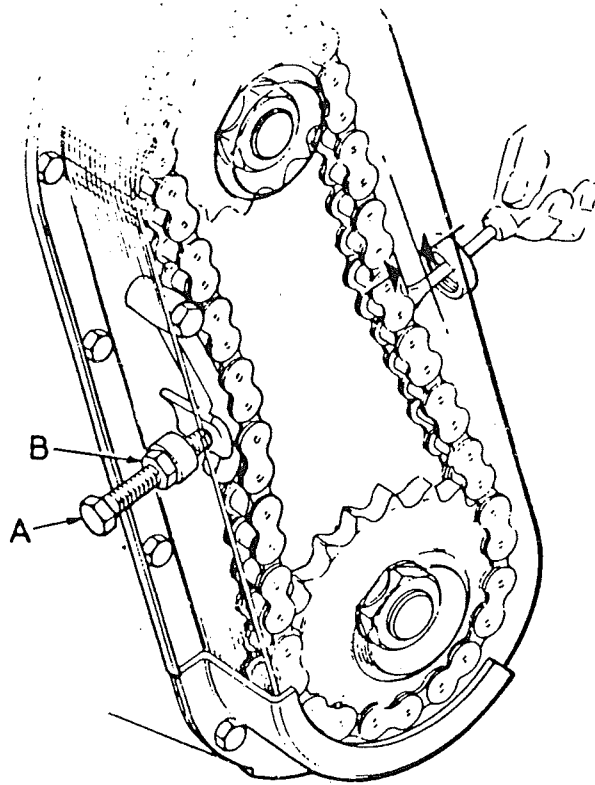
The tractor hydraulic lift linkage must never lift the POWAVATOR high enough to cause the two halves of the universal joint assembly to part or exceed an angle of 40 degrees from the horizontal. To prevent this happening a limit stop should be fitted to the tractors hydraulic lift lever control quadrant, or the lower links rearranged according to the tractor manufacturers instruction book.

SAFETY CLUTCH

The safety clutch is supplied complete with the universal joint and is attached to the POWAVATOR input shaft by a quick release ball type coupling.

The clutch comprises of a clutch plate, friction discs and compression plates. The clutch is factory set and cannot be adjusted.

Prior to the first use and after long periods out of work check the working of the clutch. To do this first, (a) tighten the four nuts on the back of the clutch until the friction discs are released. Rotate the clutch fully, then (b) turn the nuts fully back. Now the clutch is ready for use.



CHAINCASE WEAR SHOE

To protect the chaincase there is a wear shoe which should be replaced when worn. Failure to do so will result in the chaincase wearing through also allowing the oil to escape and dirt to enter with consequent damage to the side drive components.

SIDE SKIDS

To protect the sideplates skids are fitted and these must be replaced when worn and no longer effective.

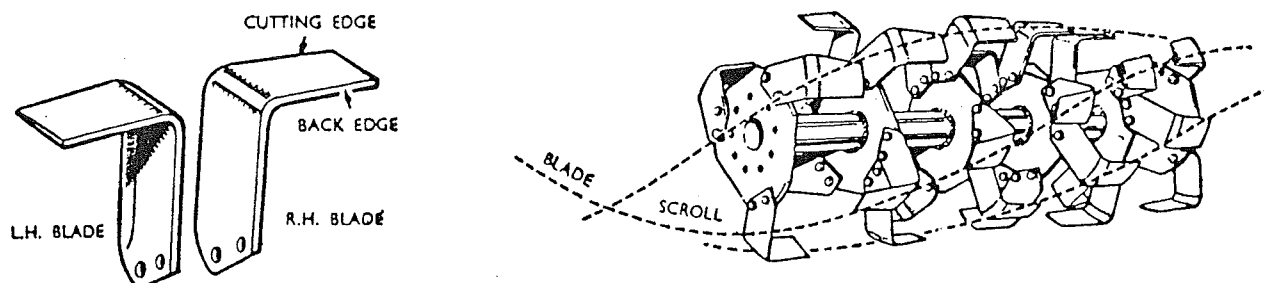
TRAILING BOARD

The position of the trailing boards help control the type of tilth produced. With the board lowered the cultivated soil strikes the board and the clod breaks on impact producing a fine tilth. Trash is buried and the boards have a leveling effect.

With the boards raised the soil is thrown out unimpeded producing a coarse tilth. Trash and weeds are brought to the surface and left to wither and die.

When correctly fitted the blades must form a 'scroll' pattern. This ensures that they enter the soil at regular intervals to even out the load on the transmission.

When replacing worn blades remove one blade and fit a new blade before proceeding to the next. This ensures the blade scroll pattern is maintained. To identify left and right hand blades see diagram.



Use only DOWDESWELL blade bolts and nuts which are manufactured to the correct shank length and tensile strength. Fit the bolt head against the blade and the spring washer and nut against the flange. Tighten the nuts to the following torque figures and check them daily. 17 MKp (123 lb/ft).

WEED CUTTERS

Small weedcutter plates are fitted at each end of the bladed rotor to prevent weeds and long grass wrapping around the rotor ends. These plates are slotted and should be adjusted so they just clear the blades when the rotor is turning. Severe power loss may occur if weeds are allowed to wrap around the rotor.

TOPMAST AND MOUNTING PINS

The machine is fitted with category I pins with category II sleeves which are supplied as standard. The mounting pins can be positioned in one of two holes on the mounting plate and on either side of the plate to suit categories and lower link arms of various types of tractor.

The 50 and 60 inch machines can be offset by 10 inches (25cm) maximum to the right. This is achieved by turning the topmast and moving the mounting plates along the front toolbar to the desired position.

BEFORE WORK CHECK:-

The machine is mounted onto the tractor correctly. The safety guards are in place and effective.

The maintenance procedures have been carried out.

The depth control and trailing boards are in the desired setting. Ensure the tractor hydraulics are set to "Position" not "Draft" control.

USING THE MACHINE

Engage the tractor pto. Drive the tractor forward at the same time lowering the POWAVATOR into the ground with the rotor turning. Work a short distance, then stop, disengage the pto and switch off the tractor engine. Check tilth is satisfactory and depth of tillage is equal across full rotor width. If not then either change forward speed of tractor or the trailing board setting to obtain correct tilth or depth control to obtain correct depth.

It may be necessary to start at a shallow setting and work progressively deeper on subsequent runs. If more than one pass is required the second run should be at right angles to the first to ensure total coverage. When turning at the headlands lift the POWAVATOR out of the ground and disengage the pto.

Do not operate the POWAVATOR with the tractor in neutral.

LUBRICATION AND MAINTENANCE

Regular lubrication and maintenance is essential if a long working life is to be expected from the POWAVATOR.

LUBRICANTS:-

Gearbox -	Castrol EPX 85/140 Multigrade oil (1.75 pints) (1 litre)
Chaincase -	Castrol EPX 85/140 Multigrade oil (0.75 pints) (0.4 litres)

GREASE POINTS INCLUDING

U/J BEARINGS	LITHIUM BASED
PTO DRIVE SHAFT	GRAPHITE OR MOLYBDENUM
	DISULPHIDE GREASE
OIL POINTS	GENERAL PURPOSE

UNIVERSAL JOINT - CLUTCH ASSY

ILLUS No.	PART No.	DESCRIPTION	QTY	ILLUS No.	PART No.	DESCRIPTION	QTY
	700363	Universal Joint complete with Clutch	18		204066236	Compression Spring	1
			19		204012540	Ball	1
	204067250	Male Half Shaft	20		204066237	Lock Collar	1
	204067260	Female Half Shaft	21		204066238	Back Up Ring	1
			22		204012610	Snap Ring	1
			23		800770	Clutch Guard	1
1	204047926	Yoke Assy (1 3/8" 6 Spline) includes:-	24		301408160	Screw	4
	204046840	Quick Release Pin Kit	25		308080040	Spring Washer	4
2	204046090	Spider Kit					
3	204047927	Yoke Male Shaft					
4	204067230	Male Shaft					
5	204046290	Tension Pin					
6	204047160	Female Yoke					
7	204067240	Female Shaft					
8	204060140	Outer Half Guard (includes):-					
	204012790	Anchor Chain					
	204060010	Reinforcing Collar					
9	204060150	Inner Half Guard (includes):-					
	204012790	Anchor Chain					
	204060010	Reinforcing Collar					
10	204066240	Clutch Assy (includes):-					
	204066216	Clutch Housing					
11	204066243	Ring					
12	204066229	Friction Disc					
13	204066220	Flange Hub					
14	204066241	Thrust Plate					
15	204066242	Compression Plate					
16	204066234	Nut					
17	204066235	Back Up Ring					

GEARBOX

ILLUS No.	PART No.	DESCRIPTION	QTY	ILLUS No.	PART No.	DESCRIPTION	QTY
50	800825	Gearbox	1	71	262515052	Oilseal	1
51	67904	Pinion 16T	1	72	254096251	Bearing	2
52	61032	Crownwheel 27T	1	73	800719	Shaft	1
53	3155	Tab Washer	2	74	53654	Filler Plug	1
54	3154	Nut	2	75	800728	Tube Support	1
55	252035081	Bearing	1	76	800850	Tube Clamp	1
56	263020041	Oilseal	1	77	301612140	Bolt	2
57	800738	Jackshaft 60"	1	78	208044500	Cap	1
	800739	Jackshaft 50" & 40"	1	79	800849	Tube Clamp	1
	800740	Jackshaft 30"	1	80	308120010	Flat Washer	2
58	251429101	Bearing	1	81	307212200	Nut	2
59	800726	Gasket 0.4mm	As Req	82	203031160	Level Plug	1
60	800725	Gasket 0.75mm	As Req	83	800727	Chain Clip	1
61	800741	Jackshaft Housing 60"	1	84	800737	Sprocket 12T	1
	800742	Jackshaft Housing 50" & 40"	1				
	800743	Jackshaft Housing 30"	1				
62	800736	Gasket	1				
63	301408250	Screw	18				
64	308080040	Spring Washer	26				
65	307208200	Nut	6				
66	203032010	Pressure Relief Valve	1				
67	800731	Guard Mount.	1				
68	301408220	Screw	8				
69	800721	Front Cover	1				
70	800722	Shim 0.1mm	As Req				
	800723	Gasket 0.25mm	As Req				
	800724	Gasket 0.5mm	As Req				

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SIDEDRIVE AND ROTORS

ILLUS No.	PART No.	DESCRIPTION	QTY	ILLUS No.	PART No.	DESCRIPTION	QTY
90	800768	Ground Skid	1				
91	301410305	Screw	2	121	308140045	Spring Washer	4
92	301812105	Screw	1	122	307214015	Nut	4
93	307212025	Locknut	1				
94	800764	Chaincase	1	123	800856	Rotor 60"	30
95	203031010	Plug	1				
96	301410225	Screw	2				
97	61056	Gasket	16				
98	307120205	Locknut	1	124	9901	Rotor 50"	1
99	308120015	Flat Washer	1	125	9900	Rotor 40"	1
100	800759	Chain Tensioner Skid	1	126	69667	Rotor 30"	1
101	307730025	Nut	1	127	108071240	Blade R.H.	9
102	800751	Tab Washer	1	128		Blade L.H.	9
103	800750	Sprocket 20T	1			Bolt	36
104	800755	Chain	1			Spring Wshr	36
105	301410250	Screw	4	129	308100045	Nut	48
106	308100035	Shakeproof Washer	4	130	307210015	Spring Washer	18
107	650077	Backing Strip	2	131	203031160	Plug	1
108	650076	Cutter Blade	2				
109	208101480	Circlip	1				
110	254090236	Ball Bearing	1				
111	267055102	Oilseal	1				
112	800752	Sleeve	1				
113	202074770	10' Ring	1				
114	800753	Rotor Drive Shaft	1				
115	800754	Tab Washer	3				
116	301412255	Screw	6				
117	301414355	Screw	4				
118	253810541	Bearing	1				
119	208002880	Circlip	1				
120	306656	Bearing Cover	1				

HULL

ILLUS No.	PART No.	DESCRIPTION	QTY	ILLUS No.	PART No.	DESCRIPTION	QTY
140	800776	Hull 60"	1	164	307212200	Nut	2
	800777	Hull 50"	1	165	301410305	Screw	2
	800778	Hull 40"	1	166	800879	Front Guard 60"	1
	800779	Hull 30"	1		800880	Front Guard 50"	1
141	800852	R.H. Skid	1		800881	Front Guard 40"	1
142	800806	Trailing Board 60"	1		800882	Front Guard 30"	1
	800807	Trailing Board 50"	1	167	800883	Clamp Plate	2
	800808	Trailing Board 40"	1	168	301612105	Bolt	4
	800809	Trailing Board 30"	1	169	301410255	Screw	4
143	301412255	Screw	7	170	800848	Support Angle	1
144	308120045	Spring Washer	11				
145	307212015	Nut	11				
146	800193	Adjuster Chain	1				
147	800837	Chain Bracket	1				
148	301412350	Screw	1				
149	307212230	Nut	1				
150	307210010	Spring Washer	4				
151	308100040	Screw	4				
152	301410250	Backing Plate	4				
153	800836		1				
154	307212225	30" 40" 50" 60"	6				
155	301412250	4 4 6	6				
156	800756	4 4 6	6				
157	800380		6				
158	800854		1				
159	800878		1				
160	307210015	Nut	1				
161	308100045	Spring Washer	8				
162	301412300	Screw	8				
163	308120010	Flat Washer	2				

PROP TOPMAST & MOUNT ASSY

ILLUS No.	PART No.	DESCRIPTION	QTY
180	800819	Topmast Centrally Mounted 30" & 40"	1
	800826	Topmast Offset 50" & 60"	1
181	650274	Draw Pin	1
182	65577	Sleeve	1
183	208092060	Linch Pin	3
184	301412350	Screw	8
185	307212010	Nut	16
186	308120040	Spring Washer	16
187	800844	Mounting Plate	2
188	800846	Clamp Plate	2
189	68071	Mounting Pin	2
190	650290	Sleeve	2
191	308300040	Spring Washer	2
192	34800	Nut	2
193	301212650	Bolt	8
194	800841	Jack	1
195	301410255	Screw	2
196	800840	Bracket	1
197	208044260	Blanking Cap	1
198	208014410	'R' Clip	1
199	627790	Pin	1
200	308100045	Spring Washer	2
201	307210015	Nut	2

DEPTH CONTROL

ILLUS No.	PART No.	DESCRIPTION	QTY	ILLUS No.	PART NO.	DESCRIPTION	QTY
	800772	Depth Wheel Assy	2		800866	L.H. Depth Skid Assy	1
		Comprising of:-			800867	R.H. Depth Skid Assy	1
210	335353	Clamp Plate	2			Comprising of:-	
211	335352	Wheel Arm Guide	2	250	321412805	Coach Bolt	2
212	800773	Wheel Arm	2	251	800868	Spacer	4
213	627790	Pin	2	252	50476	Adjuster Bar	2
214	208014410	'R' Clip	2	253	301212405	Bolt	2
215	301214555	Bolt	4	254	307212055	Nut	4
216	308140045	Spring Washer	4	255	50477	Stop	2
217	307214015	Nut	4	256	308120235	Spring Washer	2
218	800774	Wheel Scraper	2	257	335116	Lever	2
219	301408255	Screw	4	258	800866	L.H. Depth Skid	1
220	308080045	Spring Washer	4			R.H. Depth Skid	1
221	107212025	Locknut	2	259	800870	Bolt	2
222	800775	Axle	2		301212605		
223	58134	Slotted Nut	2				
224	208010210	Split Pin	2				
225	108102010	Flat Washer	2				
226	308080015	Flat Washer	2				
227	209055040	Steel Wheel Assy	2				
		Comprising of:-					
228	209079180	Seal	1				
229	252547121	Bearing	1				
230	209079200	Grease Nipple	1				
231	252047141	Bearing	1				
232	209079190	Hub Cap	1				