

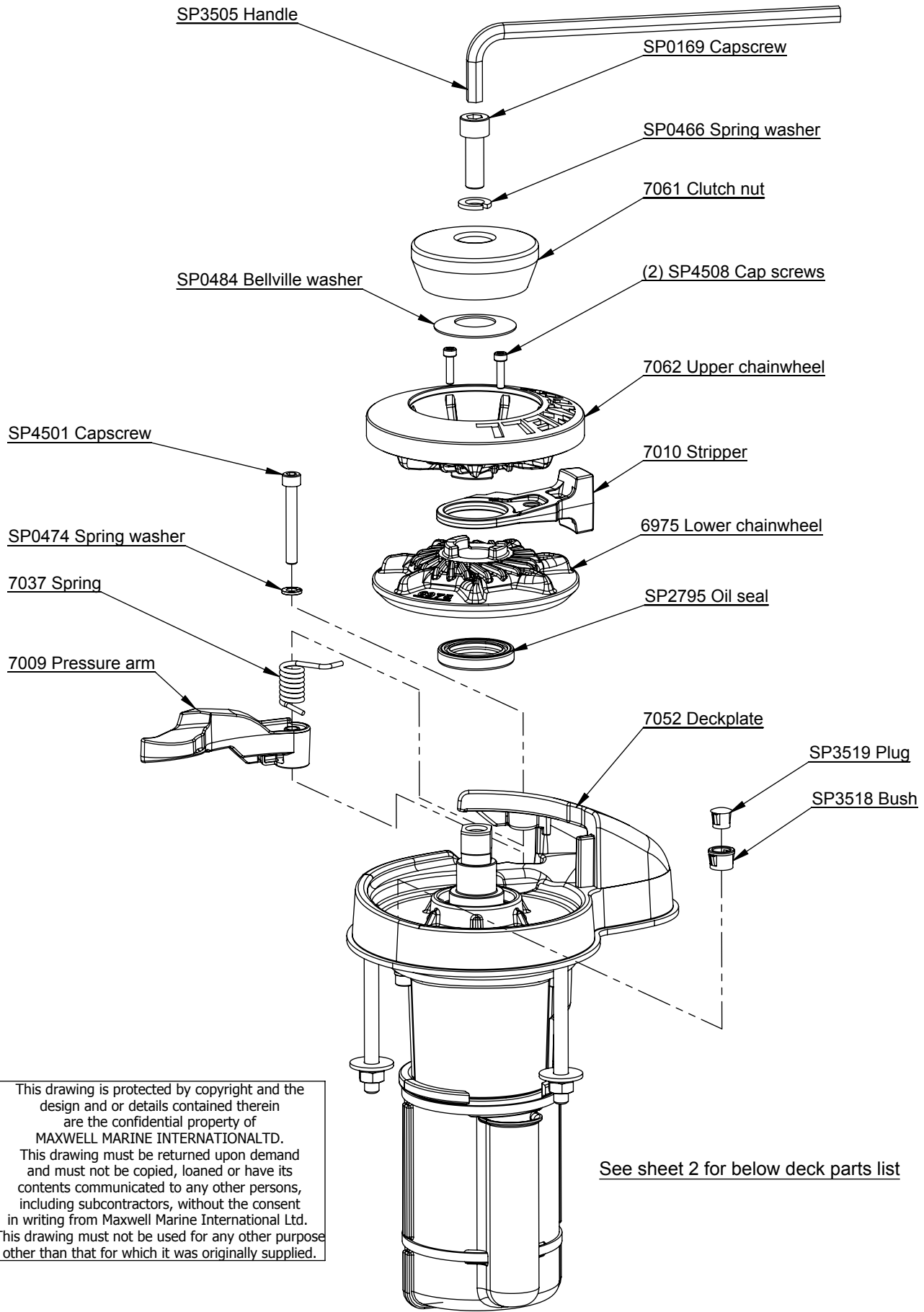
# **Maxwell**

## **Reference Manual**





Rev.	Change	Made on	Des/Dwn	Checked
1.00	Initial issue	26/09/08	PC/RP	PC



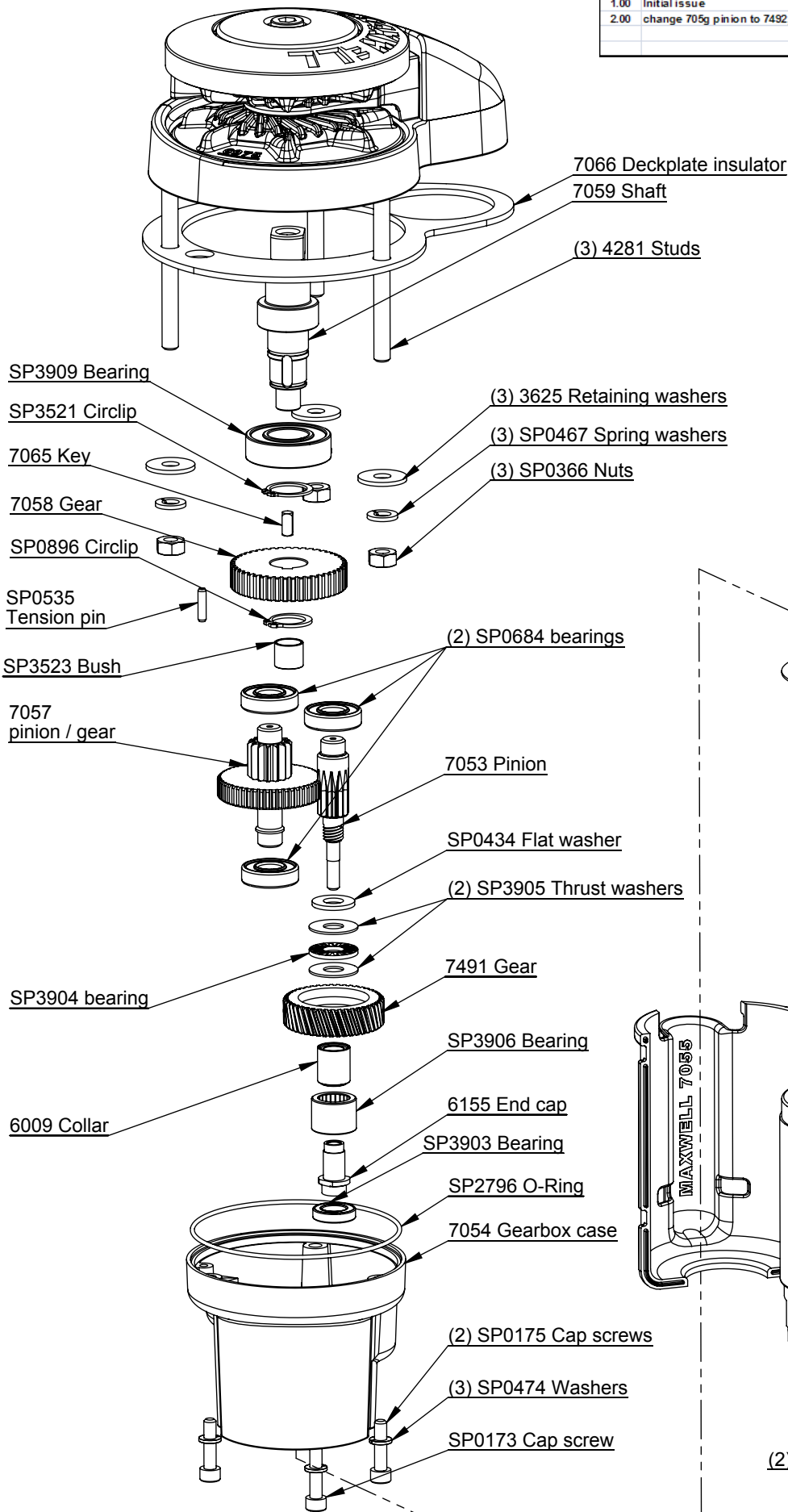
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See sheet 2 for below deck parts list

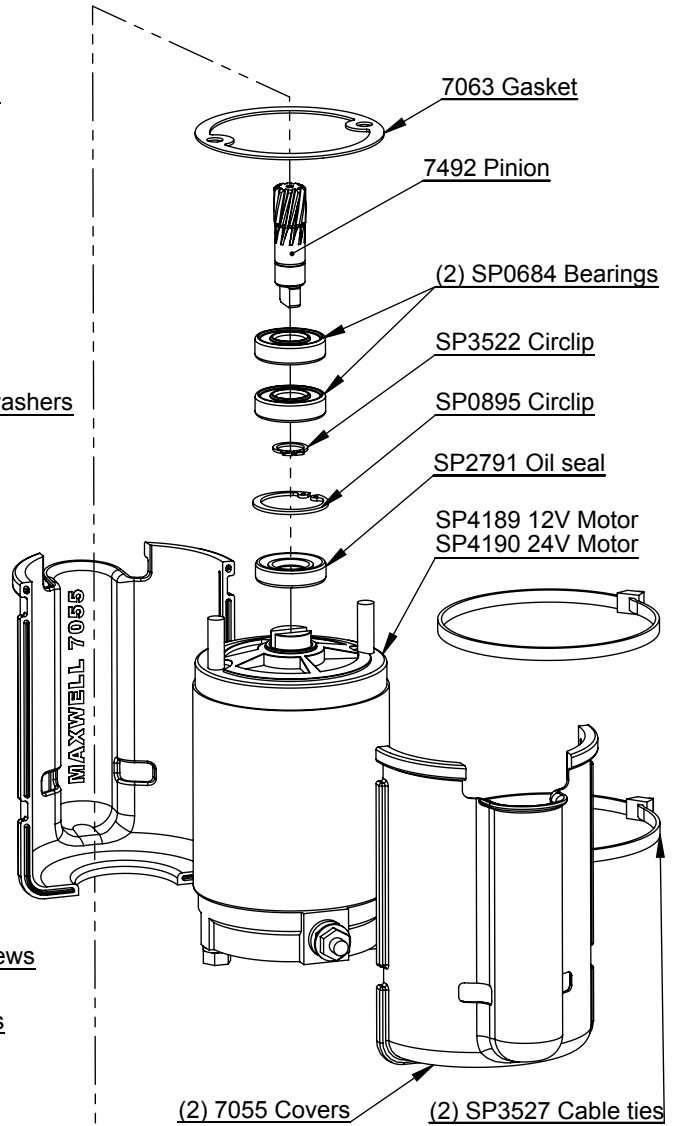
Description	Assy No.
RC6 - 12V	P102569
RC6 - 24V	P102570

Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:3	pbv	1 of 2	RC6	P102570

Rev.	Change	Made on	Des/Dwn	Checked
1.00	Initial issue	26/09/08	PC/RP	PC
2.00	change 705g pinion to 7492, 6161 gear to 7491	25/10/10	Peter Chiu	GB



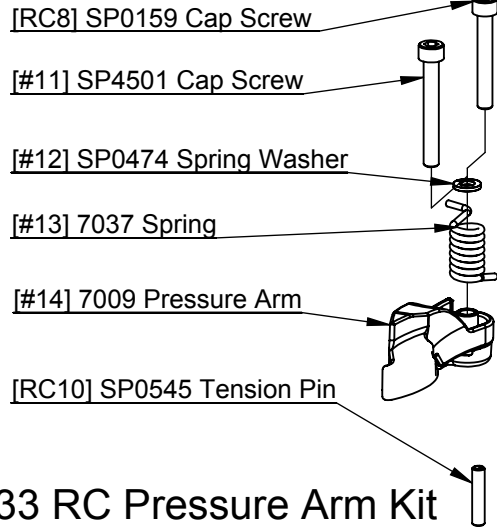
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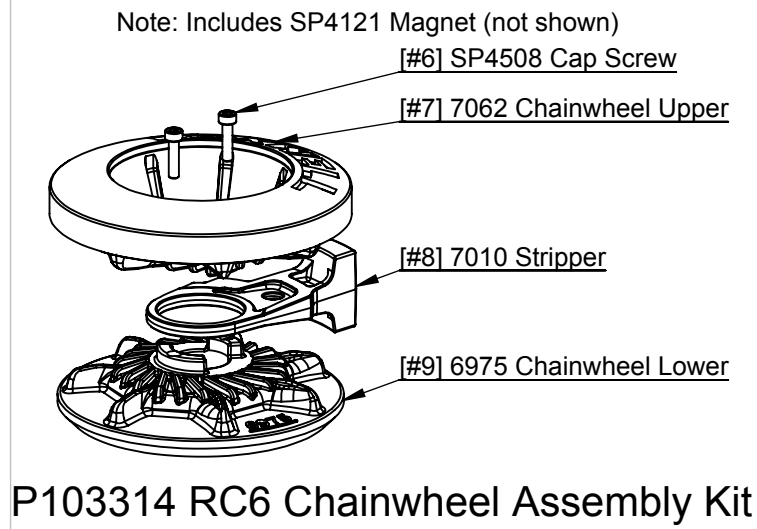
See sheet 1 for above deck parts list

Description	Assy No.
RC6 - 12V	P102569
RC6 - 24V	P102570

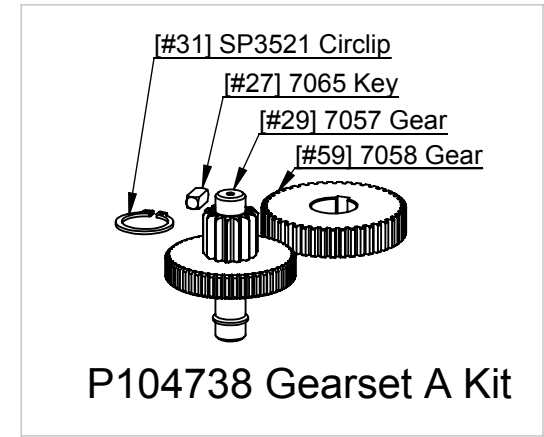
Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:3	pbv	2 of 2	RC6	P102570



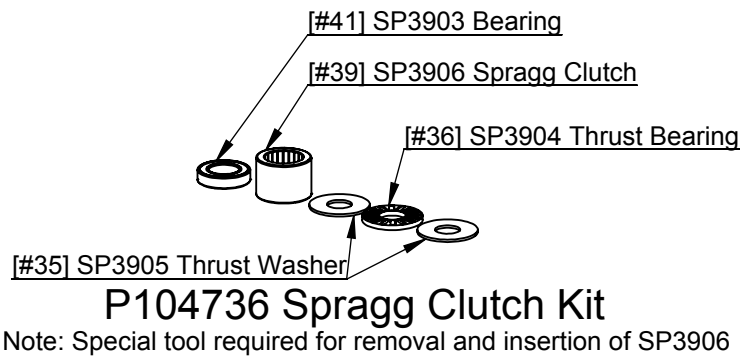
P104733 RC Pressure Arm Kit



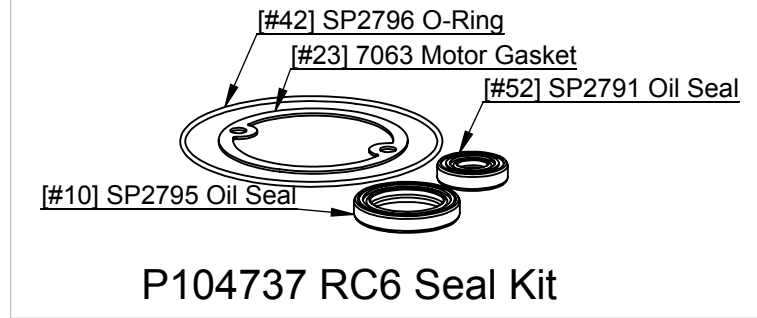
P103314 RC6 Chainwheel Assembly Kit



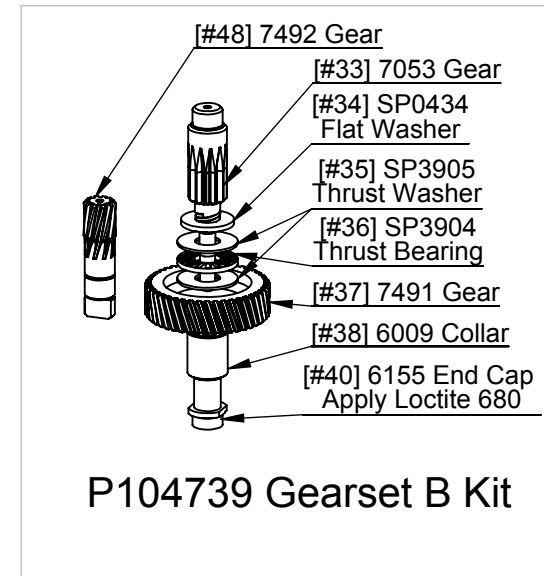
P104738 Gearset A Kit



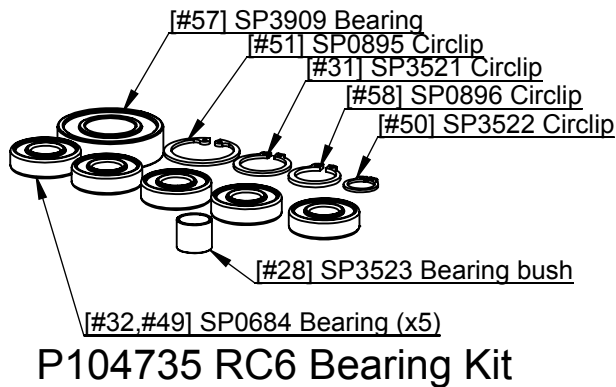
P104736 Spragg Clutch Kit



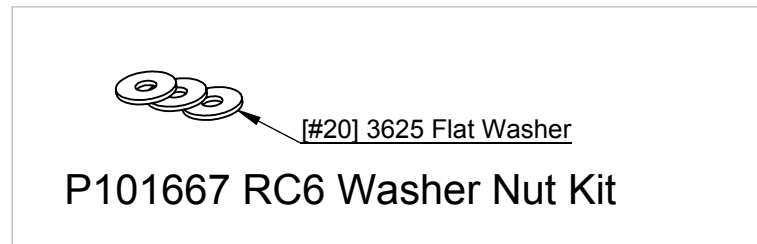
P104737 RC6 Seal Kit



P104739 Gearset B Kit



P104735 RC6 Bearing Kit



P101667 RC6 Washer Nut Kit

Description		Assy No.
RC6 Bearing Kit		P104735
Spragg Clutch Kit		P104736
RC6 Seal kit		P104737
RC6 Gearset A Kit		P104738
RC6 Gearset B Kit		P104739
RC6 Washer Nut Kit		P101667
RC6 6mm Chainwheel Assembly Kit		P103314

Rev.	Change	Made on	Des/Dwn	Checked
1.00	Initial Kit Drawing issue	19/10/12	GB	PC
	Corrected Pressure arm Code, added code to End cap	03/07/14	GB	

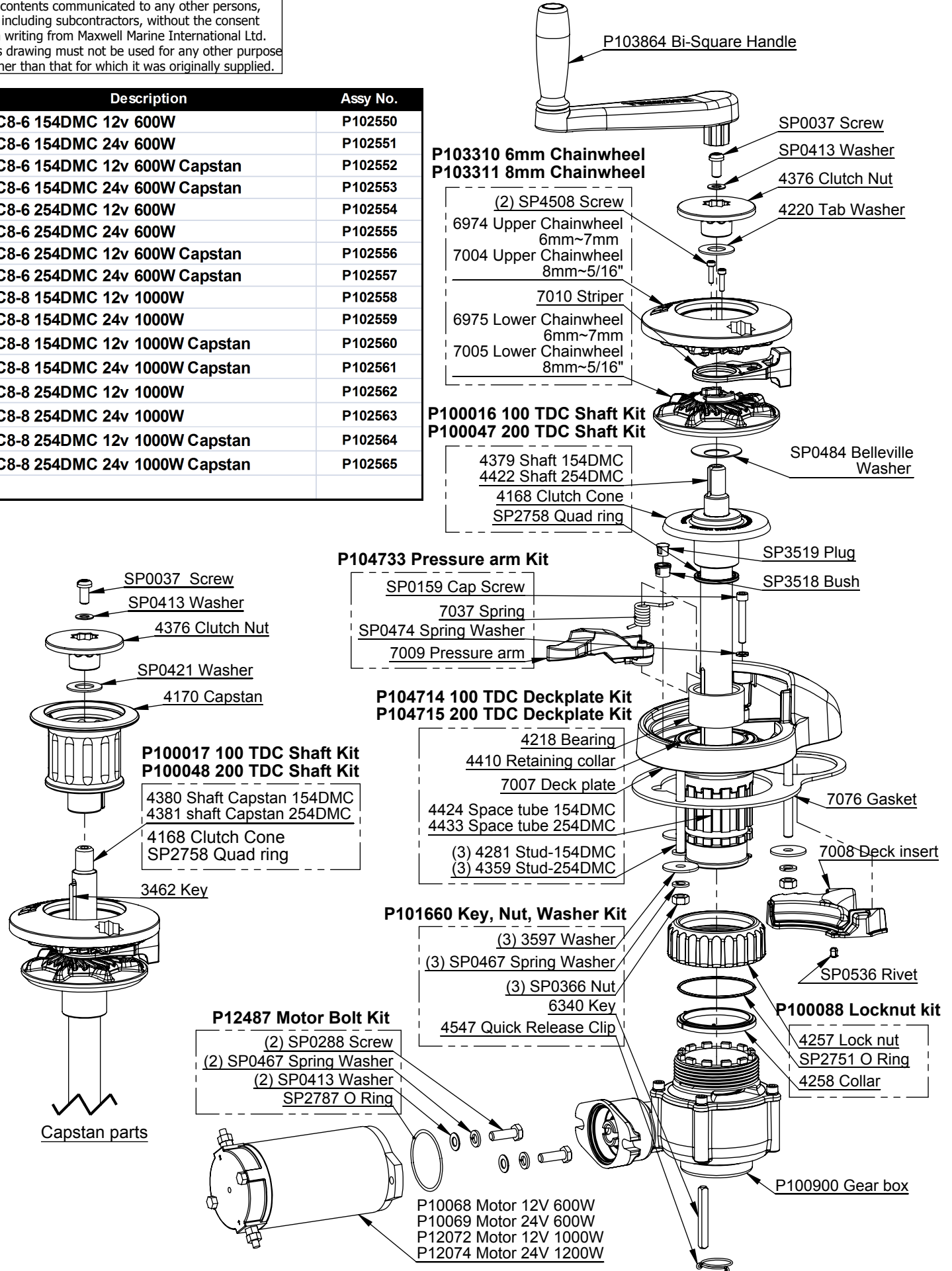
Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:3	DFTED	1 of 1	<b>RC6 Kits</b>	<b>P102570</b>



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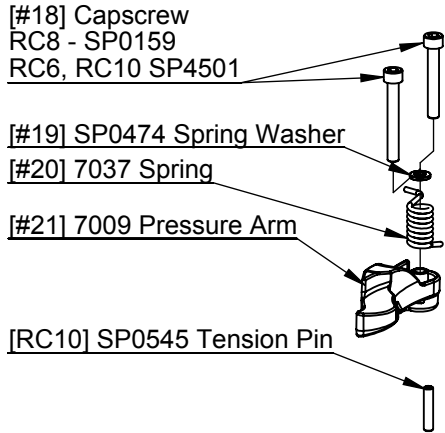
Rev.	Change	Made on	Des/Dwn	Checked
1.00	Initial issue	07/08/08	PC/RP	PC
2.00	Washers SP0421 & 7317 Removed	02/02/10	DH	RP
3.00	Update to version 3.00	01/11/13	Peter Chiu	GB

Description	Assy No.
RC8-6 154DMC 12v 600W	P102550
RC8-6 154DMC 24v 600W	P102551
RC8-6 154DMC 12v 600W Capstan	P102552
RC8-6 154DMC 24v 600W Capstan	P102553
RC8-6 254DMC 12v 600W	P102554
RC8-6 254DMC 24v 600W	P102555
RC8-6 254DMC 12v 600W Capstan	P102556
RC8-6 254DMC 24v 600W Capstan	P102557
RC8-8 154DMC 12v 1000W	P102558
RC8-8 154DMC 24v 1000W	P102559
RC8-8 154DMC 12v 1000W Capstan	P102560
RC8-8 154DMC 24v 1000W Capstan	P102561
RC8-8 254DMC 12v 1000W	P102562
RC8-8 254DMC 24v 1000W	P102563
RC8-8 254DMC 12v 1000W Capstan	P102564
RC8-8 254DMC 24v 1000W Capstan	P102565



Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:4.5	DFTED	1 of 1	<b>RC8 Stainless Steel Variations</b>	<b>P102550</b>





[#18] Capscrew  
RC8 - SP0159  
RC6, RC10 SP4501

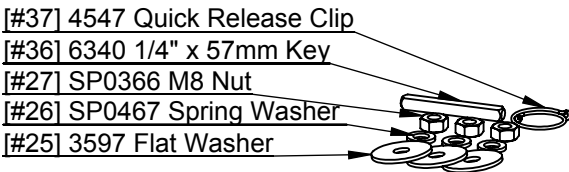
[#19] SP0474 Spring Washer

[#20] 7037 Spring

[#21] 7009 Pressure Arm

[RC10] SP0545 Tension Pin

**P104711 RC Pressure Arm Kit**



[#37] 4547 Quick Release Clip

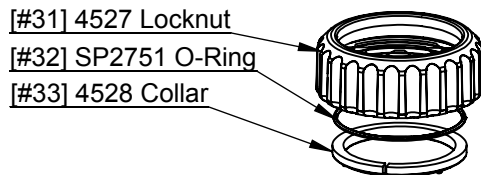
[#36] 6340 1/4" x 57mm Key

[#27] SP0366 M8 Nut

[#26] SP0467 Spring Washer

[#25] 3597 Flat Washer

**P101660 Spring Key Washer Kit**

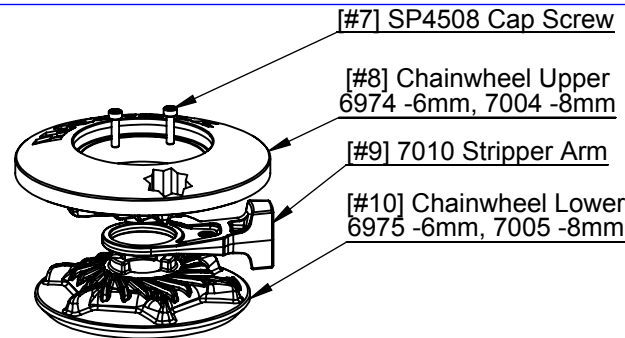


[#31] 4527 Locknut

[#32] SP2751 O-Ring

[#33] 4528 Collar

**P100088 Locknut Kit**



[#7] SP4508 Cap Screw

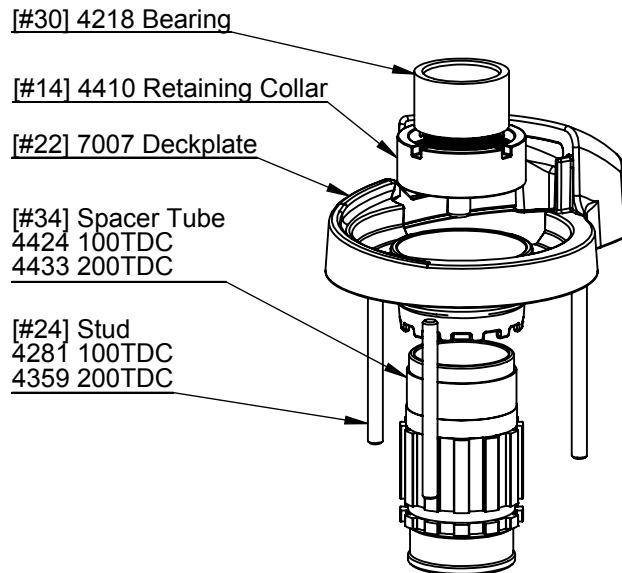
[#8] Chainwheel Upper  
6974 -6mm, 7004 -8mm

[#9] 7010 Stripper Arm

[#10] Chainwheel Lower  
6975 -6mm, 7005 -8mm

Note: Includes SP4121 Magnet (not shown)

**P103310 RC8-6 6mm Chainwheel  
P103311 RC8-8 8mm Chainwheel**



[#30] 4218 Bearing

[#14] 4410 Retaining Collar

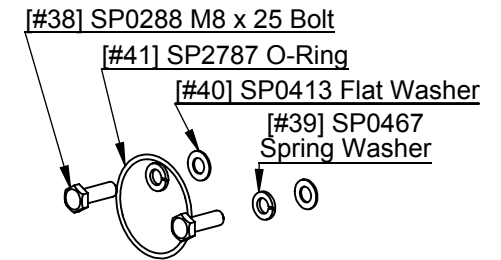
[#22] 7007 Deckplate

[#34] Spacer Tube  
4424 100TDC  
4433 200TDC

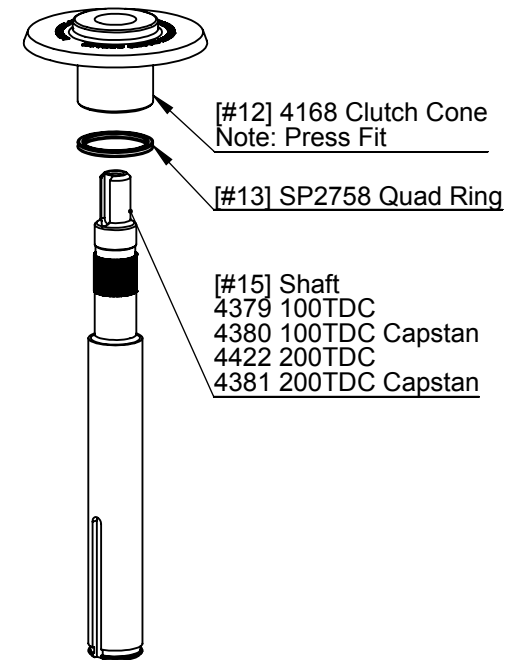
[#24] Stud  
4281 100TDC  
4359 200TDC

**P104714 100TDC RC8 Deckplate Kit  
P104715 200TDC RC8 Deckplate Kit**

Refer to P104731 (100TDC) or P104732 for Full Deckplate Assembly including Deckplate, Pressure arm, Locknut & Deckplate insert.



**P12487 Motor Bolt Kit**



[#12] 4168 Clutch Cone  
Note: Press Fit

[#13] SP2758 Quad Ring

[#15] Shaft  
4379 100TDC  
4380 100TDC Capstan  
4422 200TDC  
4381 200TDC Capstan

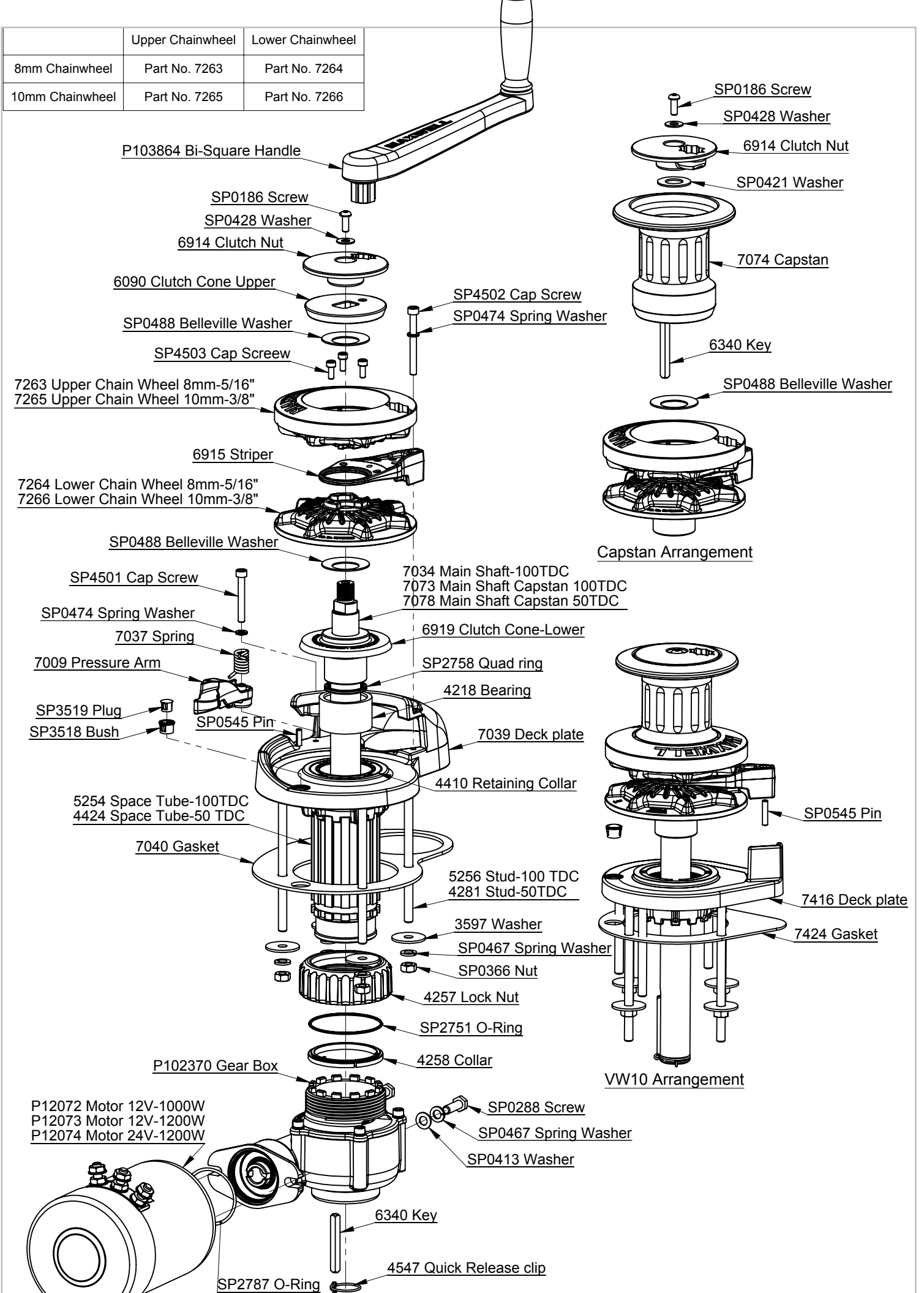
**P100016 100TDC Shaft Kit  
P100017 100TDC Capstan Shaft Kit  
P100047 200TDC Shaft Kit  
P100048 200TDC Capstan Shaft Kit**

Refer P100018 for Capstan conversion Kit to convert Low Profile to Capstan Version

Rev.	Change	Made on	Des/Dwn	Checked
1.00	Initial Kite Drawing Issue	30/10/12	GB	PC
2.00	Corrected Chainwheel item #7 was SP0178	17/10/13	GB	PC

Description					Assy No.
As Shown					N/A
Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:4	DFTED	1 of 1	<b>RC8 Kit Assemblies</b>	<b>P102550</b>
File location: W:\Product Data\assemblies\P102000-P102999\P102550_2.00_PBV_RC8 KITS					

	Upper Chainwheel	Lower Chainwheel
8mm Chainwheel	Part No. 7263	Part No. 7264
10mm Chainwheel	Part No. 7265	Part No. 7266



Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:4.4	pbvint	1 of 1	<b>RC10 Stainless Steel variations</b>	<b>P102571</b>

[RC6/RC8] SP0159 M6x40 Cap Screw

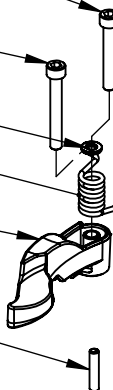
[#16] SP4501 M6x45 Cap Screw

[#17] SP0474 M6 Spring Washer

[#18] 7037 Spring

[#19] 7009 Pressure Arm

[#22] SP0545 5x24 Pin



P104733 RC Pressure Arm Kit

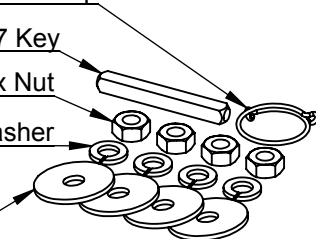
[#38] 4547 Quick Release Clip

[#37] 6340 1/4" x 57 Key

[#27] SP0366 M8 Hex Nut

[#26] SP0467 Spring Washer

[#25] 3597 Flat Washer

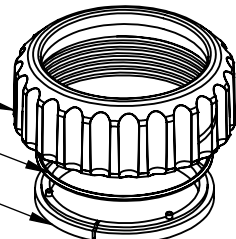


P101668 Spring, Key, Washer Kit 4x M8

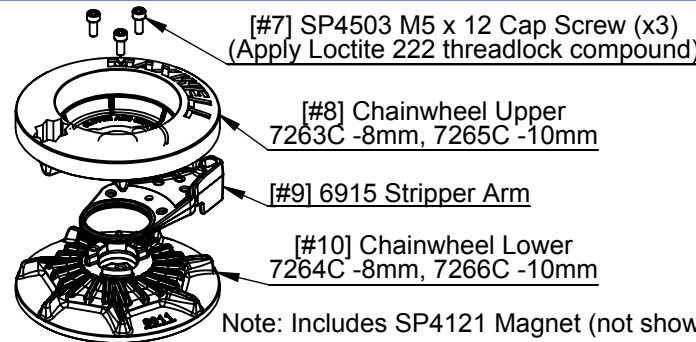
[#30] 4257 Locknut

[#31] SP2751 O-Ring 66x2

[#31] 4258 Collar



P100088 Locknut Kit



[#7] SP4503 M5 x 12 Cap Screw (x3)  
(Apply Loctite 222 threadlock compound)

[#8] Chainwheel Upper  
7263C -8mm, 7265C -10mm

[#9] 6915 Stripper Arm

[#10] Chainwheel Lower  
7264C -8mm, 7266C -10mm

Note: Includes SP4121 Magnet (not shown)

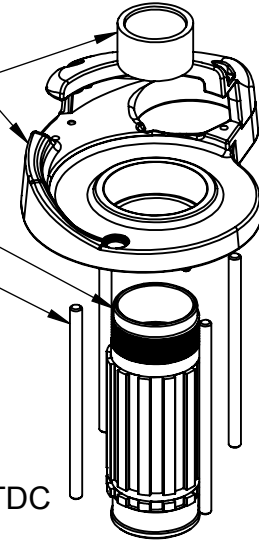
P103308 RC10-8 8mm Chainwheel Assembly  
P103309 RC10-10 10mm Chainwheel Assembly

[#33] 4218 Deck Bearing

[#23] 7039 Deckplate

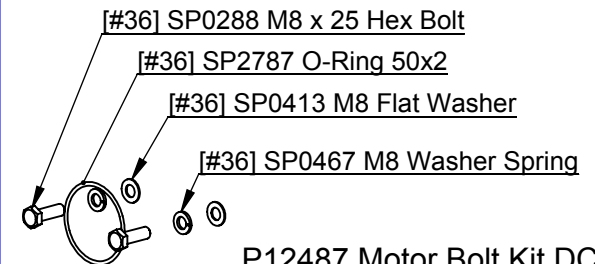
[#34] 5254 Spacer Tube

[#24] 5256 M8 Stud



P104722 RC10 Deckplate 100TDC

Refer to P104730 for Full Deckplate assembly including deckplate, pressure arm, locknut kits



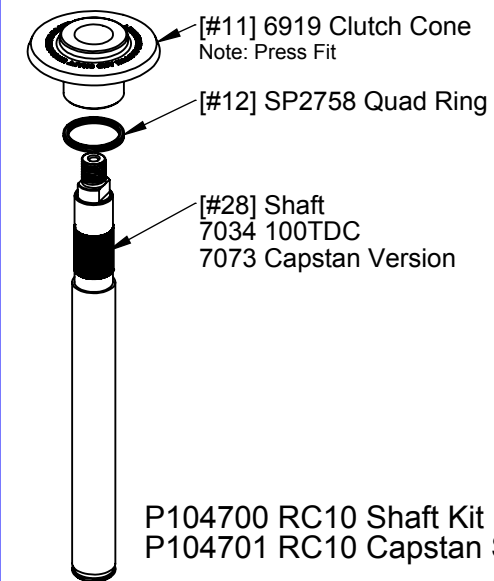
[#36] SP0288 M8 x 25 Hex Bolt

[#36] SP2787 O-Ring 50x2

[#36] SP0413 M8 Flat Washer

[#36] SP0467 M8 Washer Spring

P12487 Motor Bolt Kit DC  
(P12488 Motor Bolt Kit Hyd)



[#11] 6919 Clutch Cone  
Note: Press Fit

[#12] SP2758 Quad Ring

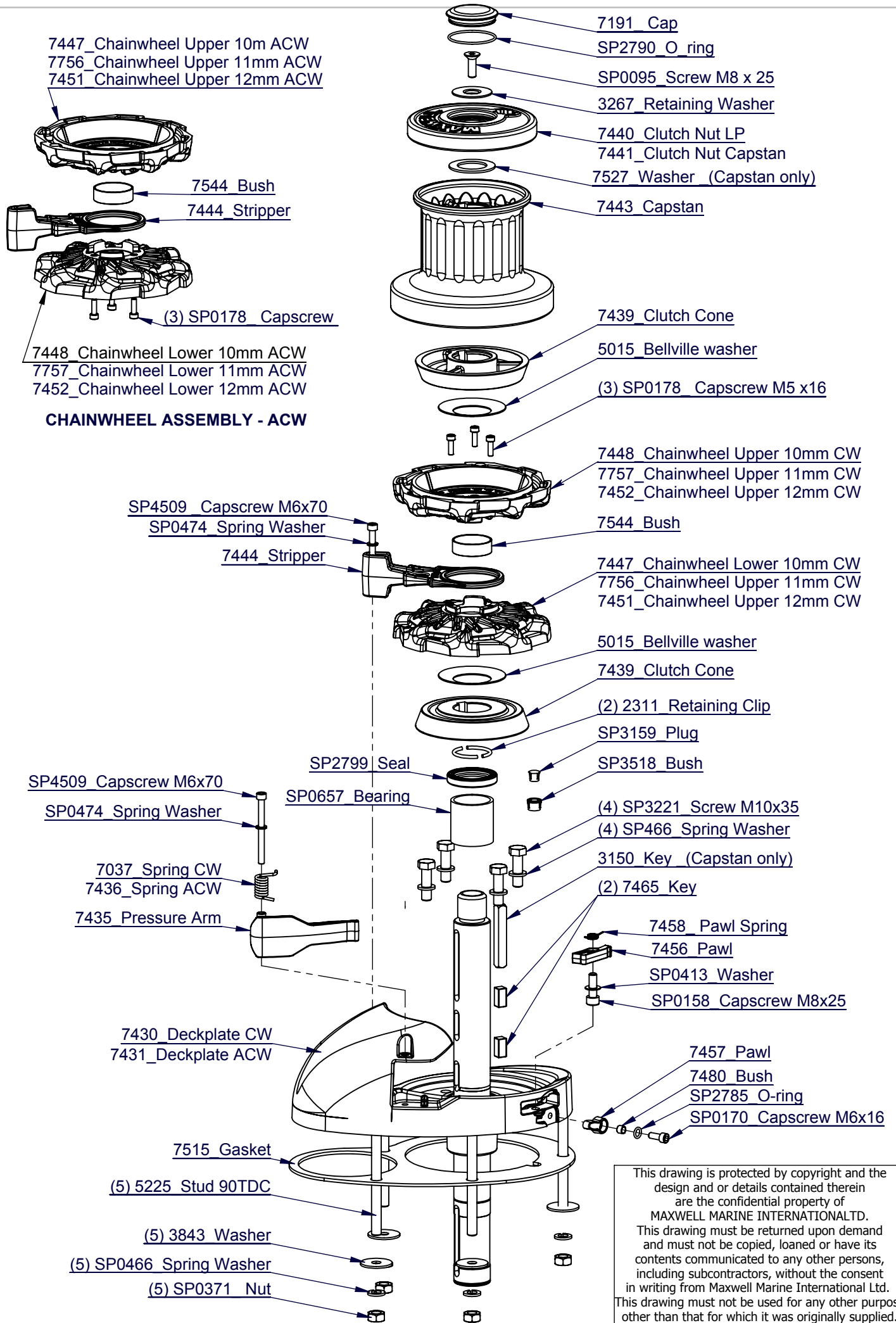
[#28] Shaft  
7034 100TDC  
7073 Capstan Version

P104700 RC10 Shaft Kit  
P104701 RC10 Capstan Shaft Kit

Refer P104702 for Capstan conversion Kit to convert Low profile to Capstan Version

Rev.	Change	Made on	Des/Dwn	Checked
2.00	Initial Kit Drawing Issue	12/10/12	GB	DH

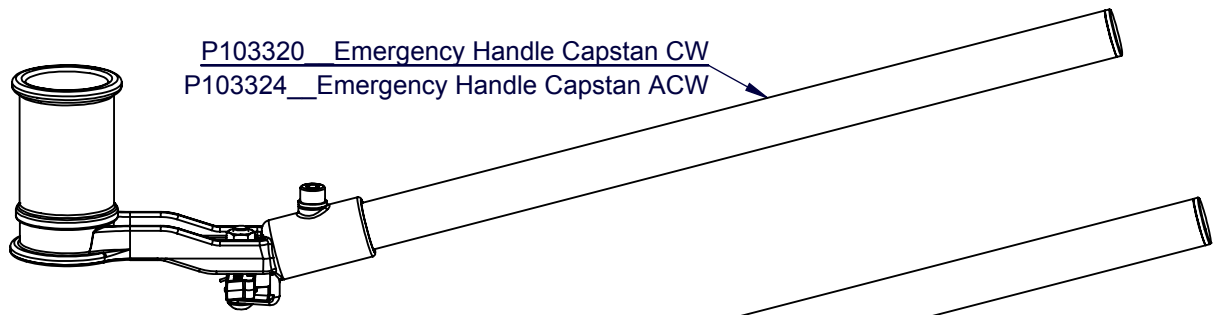
Description					Assy No.
RC8 RC10 Pressure Arm Kit					P104733
Motor Bolt Kit DC					P12487
Spring, Key, Washer Kit 4x M8					P101668
RC10-8 8mm Chainwheel Assembly					P103308
RC10-10 10mm Chainwheel Assembly					P103309
RC10 100 TDC Deckplate Assembly					P104722
RC10 Low Profile Shaft Kit					P104700
RC10 100TDC Capstan Shaft Kit					P104701
Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:5	DFTMR	1 of 1	<b>RC10 Kit Assemblies</b>	<b>P102571</b>



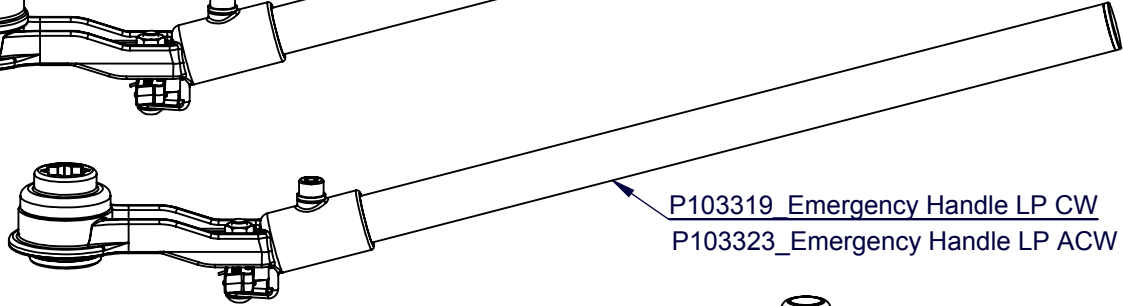
**CHAINWHEEL ASSEMBLY - ACW**

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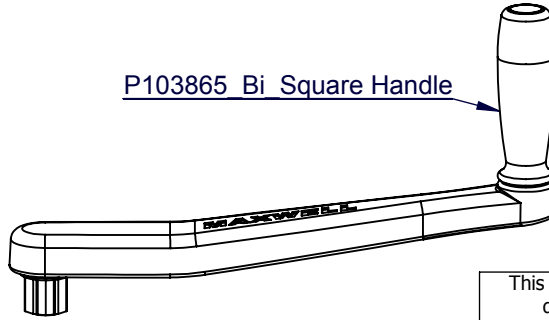
Sht Size	Scale	Dwg Type	Sheet	Description	
A4	1:20	?	1 of 2	RC12	P104900



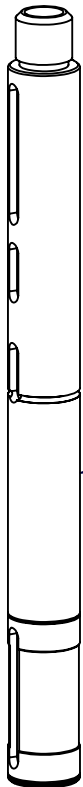
P103320 Emergency Handle Capstan CW  
P103324 Emergency Handle Capstan ACW



P103319 Emergency Handle LP CW  
P103323 Emergency Handle LP ACW



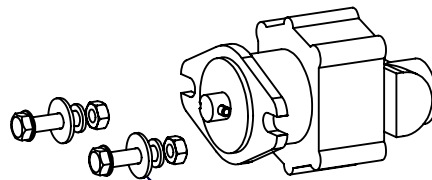
P103865 Bi Square Handle



7437 Shaft LP 90 TDC  
7438 Shaft Capstan 90TDC  
7463 Shaft LP 190TDC  
7464 Shaft Capstan 190TDC

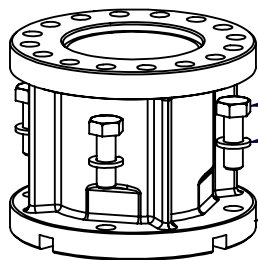
3150 Key

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Hydraulic motor

P12488 Motor Bolt Kit (Hydraulic)

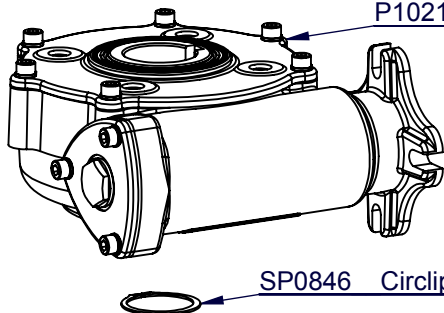


(4) SP3221 Screw M10x 35  
(4) SP0466 Spring Washer

7434 Spacer Tube 190TDC  
7433 Spacer Tube 90TDC

SP0846 Circlip

P102181 Gearbox 100:1  
P102180 Gearbox 75:1



DC motor

SP0846 Circlip

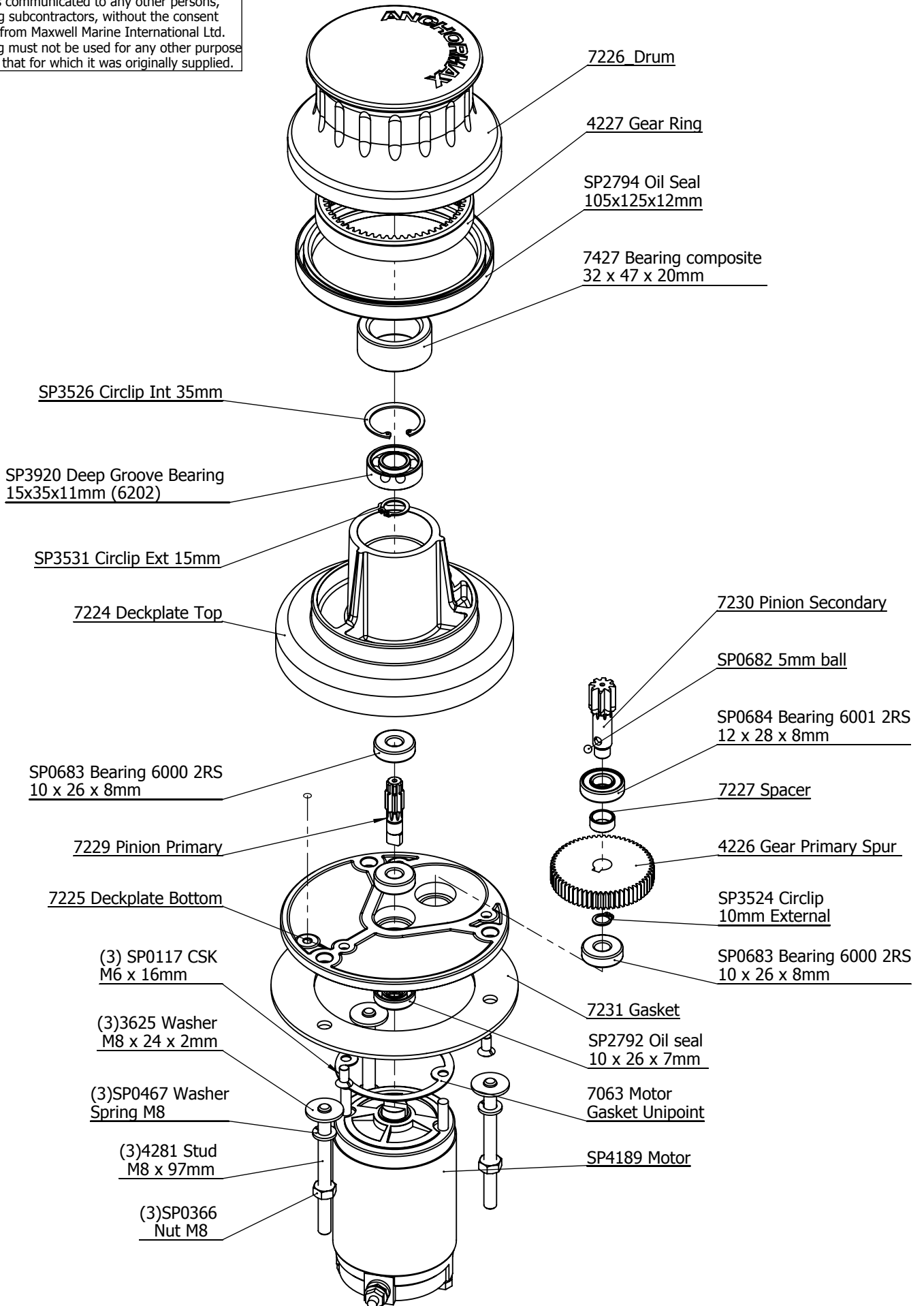
P12487 Motor Bolt kit (DC)

Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:4	?	2 of 2	<b>RC12</b>	P104900
File location: W:\Product Data\assemblies\P104000-P104999\P104900_2.00_pbvint_RC12exploded_for manual P104900					



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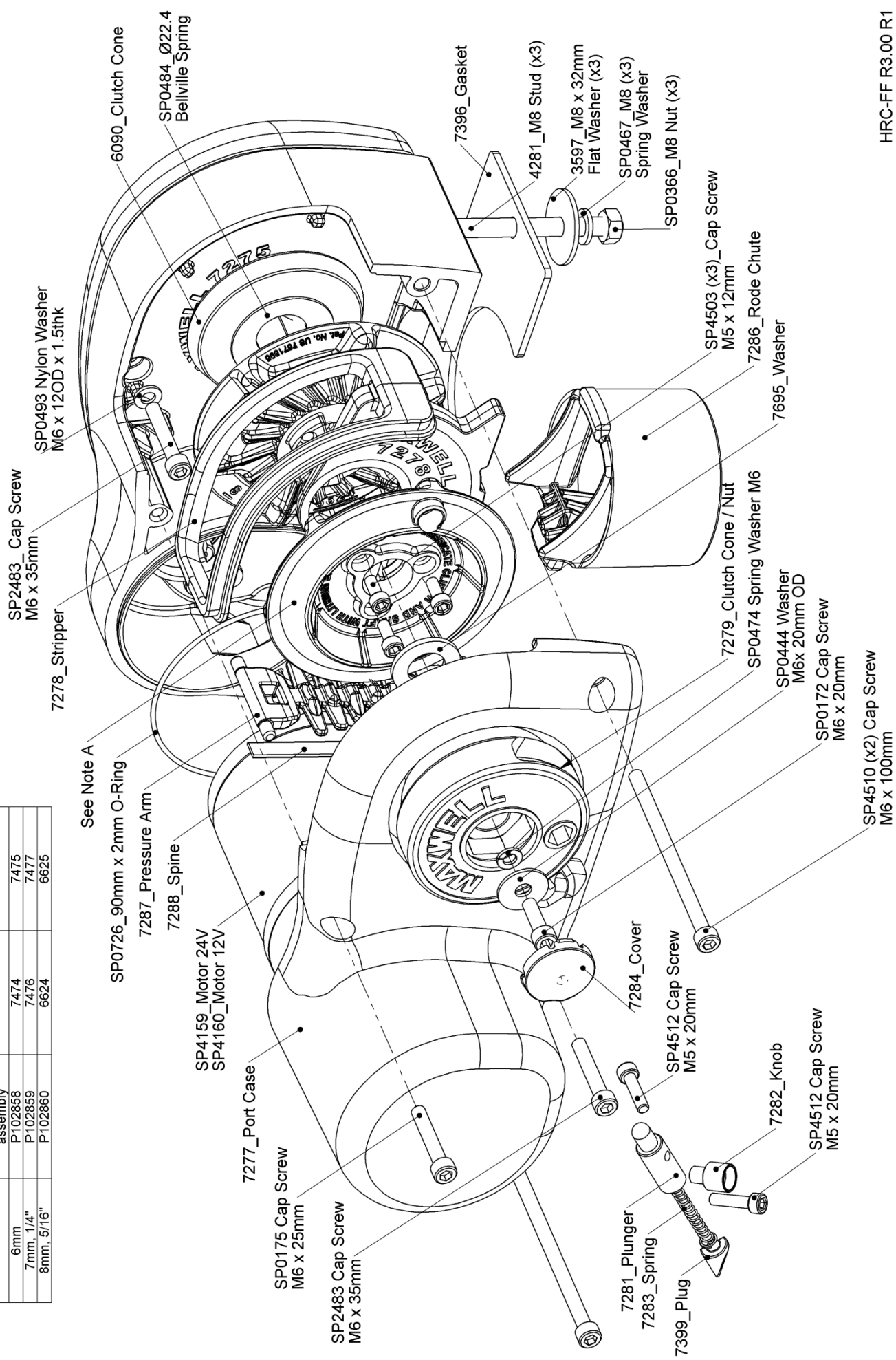
Rev.	Change	Made on	Des/Dwn	Checked
3.00	Main bearing now Tecaform AHLA, SS drum	25/06/10	DB	GB
4.00	Motor changed to SP4169	12/02/11	DB	GB
5.00	Removed tension pin	21/03/11	GB	PC



Sht Size	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:3.25	?	1 of 1	<b>Anchormax exploded view</b>	<b>P100461</b>

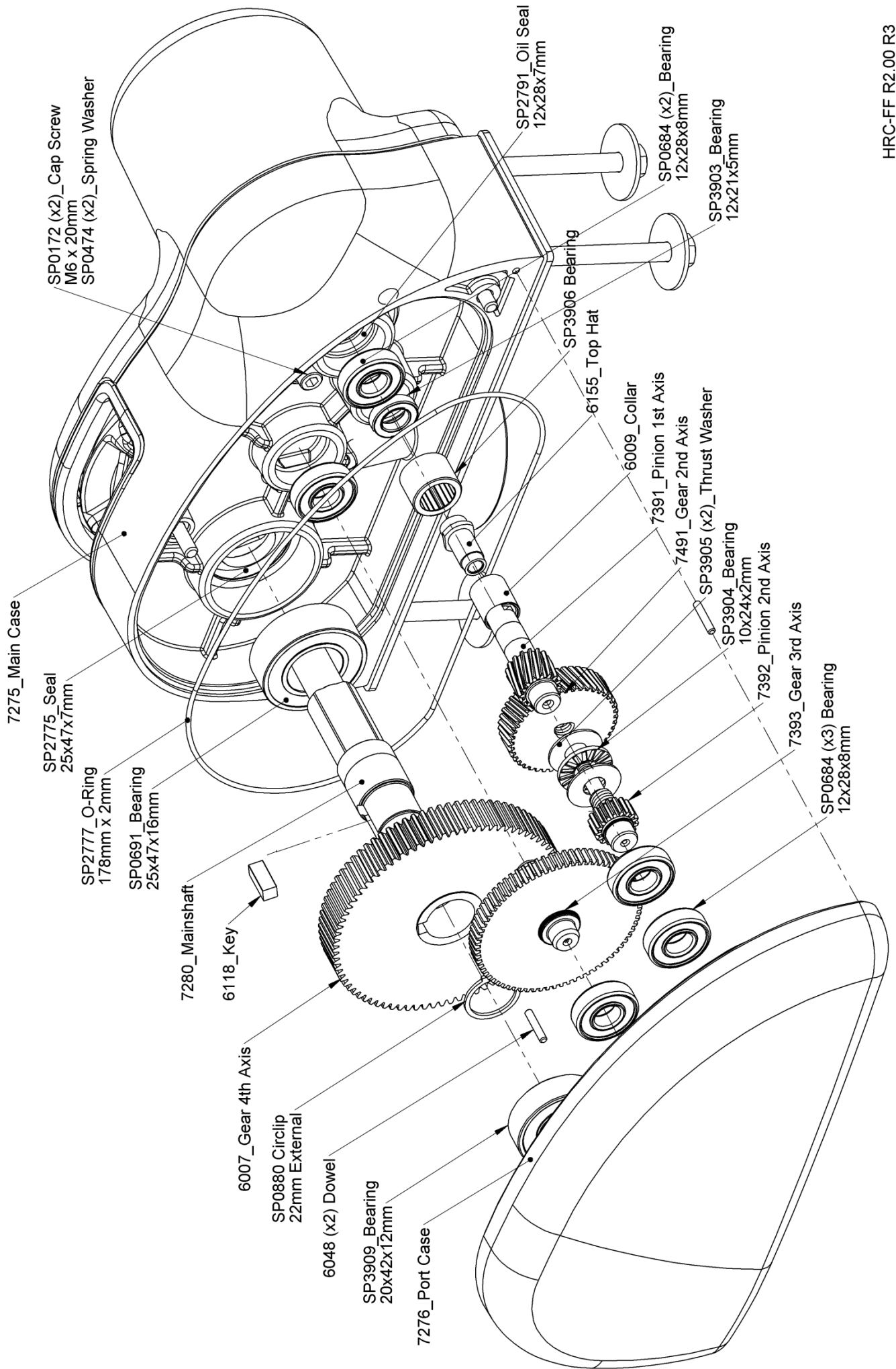
NOTE A

Chain size	Chainwheel assembly	inner chainwheel	outer chainwheel
6mm	P102858	7474	7475
7mm, 1/4"	P102859	7476	7477
8mm, 5/16"	P102860	6624	6625

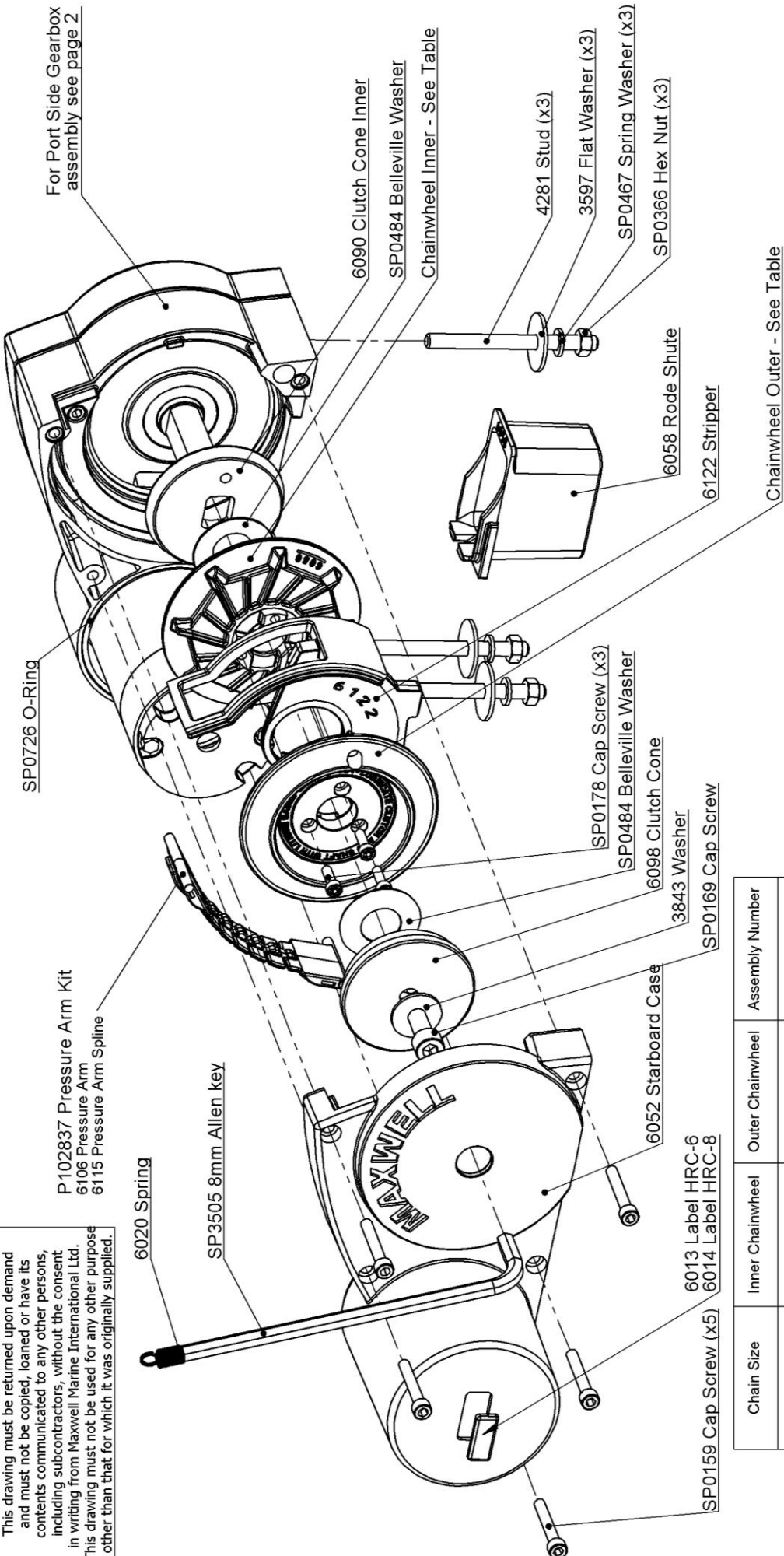


- Chainwheel assembly
- inner chainwheel
- outer chainwheel
- SP0175 Cap Screw M6 x 25mm
- SP2483 Cap Screw M6 x 35mm
- 7281\_Plunger
- 7283\_Spring
- 7399\_Plug
- 7284\_Cover
- SP4512 Cap Screw M5 x 20mm
- 7282\_Knob
- SP4512 Cap Screw M5 x 20mm
- 7277\_Port Case
- SP4159\_Motor 24V
- SP4160\_Motor 12V
- 7288\_Spine
- 7279\_Clutch Cone / Nut
- SP0474 Spring Washer M6
- SP0444 Washer M6x 20mm OD
- SP0172 Cap Screw M6 x 20mm
- SP4510 (x2) Cap Screw M6 x 100mm
- 7278\_Stripper
- SP0493 Nylon Washer M6 x 12OD x 1.5thk
- 6090\_Clutch Cone
- SP0484\_Ø22.4 Belleville Spring
- 7396\_Gasket
- 4281\_M8 Stud (x3)
- 3597\_M8 x 32mm Flat Washer (x3)
- SP0467\_M8 (x3) Spring Washer
- SP0366\_M8 Nut (x3)
- SP4503 (x3)\_Cap Screw M5 x 12mm
- 7286\_Rode Chute
- 7695\_Washer
- See Note A
- SP0726\_90mm x 2mm O-Ring
- 7287\_Pressure Arm





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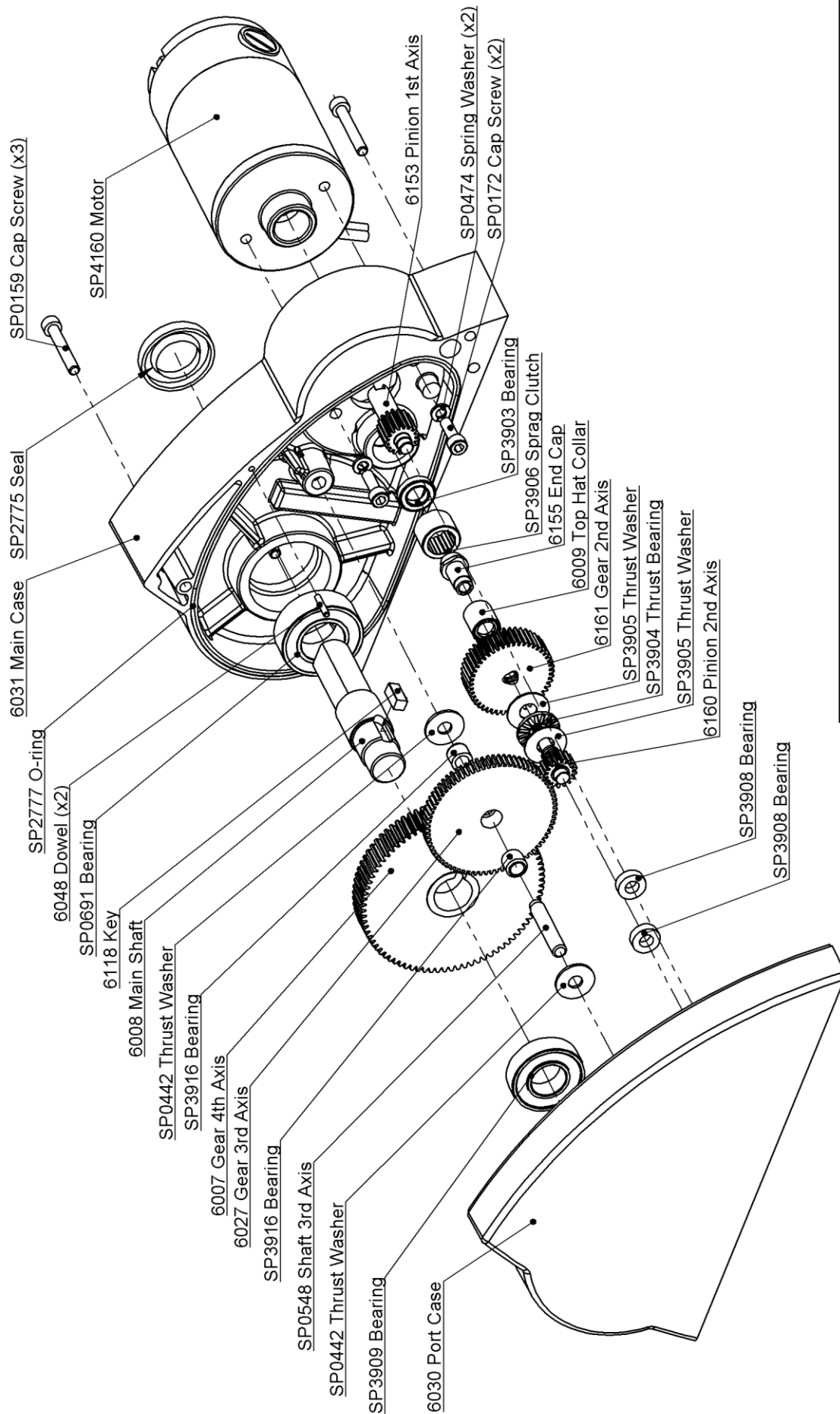
For Port Side Gearbox assembly see page 2

Assy No.	Description
P102801	HRC-6 6mm 12v
P102802	HRC-6 7mm & 1/4" 12v
P102803	HRC-6 6mm 24V
P102804	HRC-6 7mm & 1/4" 24v
P102807	HRC-8 8mm & 5/16" 12v
P102811	HRC-8 8mm & 5/16" 24v

Chain Size	Inner Chainwheel	Outer Chainwheel	Assembly Number
6mm	6050	6051	P102839
7mm & 1/4"	6062	6063	P102840
8mm & 5/16"	6109	6110	P102846

Rev.	Change	Made on	Des/Dwn	Checked
3.00	Redrawn	15/08/08	GB	DB

Pbv/Dwg No. **P102800**  
 File location: W:\Product Data\assemblies\P102000-P102999\P102800\_3.00\_pbv\_HRC\_exploded views



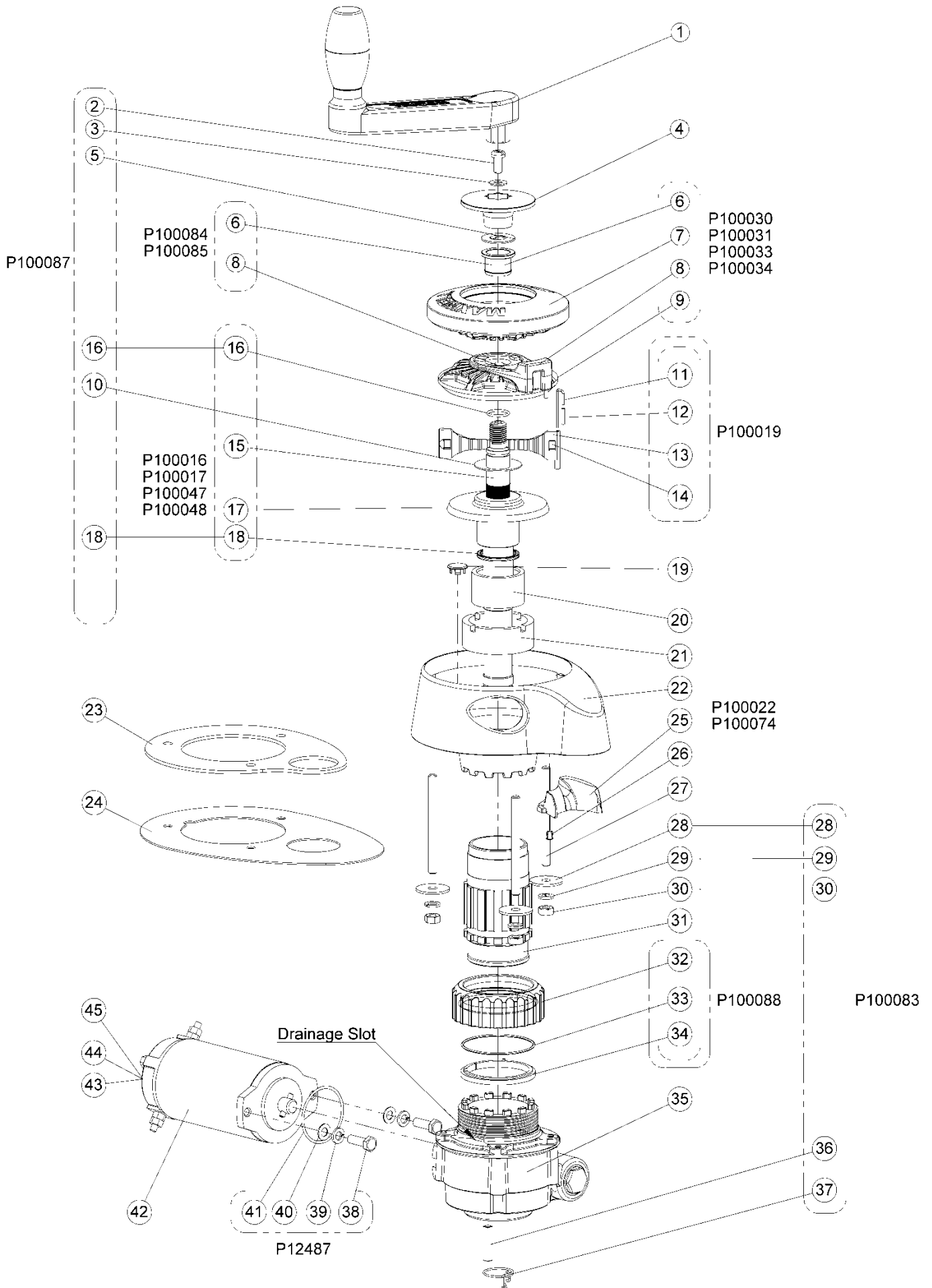
**Note: On units built Pre Sept 2008 use SP0543, SP3907, & 6003 in place of SP0548, SP3916 & SP0442 (3rd Axis assembly)**

Rev.	Redrawn	Change	Made on	Des/Dwn	Checked
3.00			15/08/08	GB	DB

Description	Assy No.
HRC-6 6mm 12v	P102801
HRC-6 7mm & 1/4" 12v	P102802
HRC-6 6mm 24v	P102803
HRC-6 7mm & 1/4" 24v	P102804
HRC-8 8mm & 5/16" 12v	P102807
HRC-8 8mm & 5/16" 24v	P102811

Sheet	Scale	Dwg Type	Sheet	Description	Pbv/Dwg No.
A4	1:3	DFTMR	2 of 2	HRC - Assembly Exploded Views	P102800

File location: W:\Product Data\Assemblies\P102000-P102999\P102800\_3\_00\_pbv\_HRC\_exploded views



Item	Description	Qty	Part to order	Includes items
1	Handle	1	131/AI	1
2	M8 x 16 cheese head screw	1	P100087	2, 3, 5, 10, 16, and 18
3	M8 x 17 flat washer	1	P100087	2, 3, 5, 10, 16, and 18
4	Clutch nut	1	4376	4
5	Tab washer	1	P100087	2, 3, 5, 10, 16, and 18
6	Snap bush	1	See item 8	6 and 8
7	Chain wheel upper 500	1	P100030	6, 7, 8 and 9
7	Chain wheel upper 500M	1	P100031	6, 7, 8 and 9
7	Chain wheel upper 500MA	1	P100032	6, 7, 8 and 9
7	Chain wheel upper 800	1	P100033	6, 7, 8 and 9
7	Chain wheel upper 800M	1	P100034	6, 7, 8 and 9
8	500 stripper	1	P100084	6 and 8
8	800 stripper	1	P100085	6 and 8
9	Chain wheel lower 500	1	P100030	6, 7, 8 and 9
9	Chain wheel lower 500M	1	P100031	6, 7, 8 and 9
9	Chain wheel lower 800	1	P100033	6, 7, 8 and 9
9	Chain wheel lower 800M	1	P100034	6, 7, 8 and 9
10	Belleville washer	1	P100087	2, 3, 5, 10, 16, and 18
11	Pressure arm clip	1	P100019	11, 12, 13, and 14
12	Clip insulator	1	P100019	11, 12, 13, and 14
13	Pressure arm blade	2	P100019	11, 12, 13, and 14
14	Pressure arm spine	1	P100019	11, 12, 13, and 14
15	Shaft 154mm DMC	1	P100016	15, 16, 17 and 18
15	Shaft 254mm DMC	1	P100047	15, 16, 17 and 18
15	Shaft 154mm DMC - capstan	1	P100017	15, 16, 17 and 18
15	Shaft 254mm DMC - capstan	1	P100048	15, 16, 17 and 18
16	O-ring 18 x 2mm	1	P100087	2, 3, 5, 10, 16, and 18
17	Clutch cone	1	See item 15	15, 16, 17 and 18
18	Quad ring	1	P100087	2, 3, 5, 10, 16, and 18
19	Plug	1	*P100022 or P100074	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
20	Deckplate bearing	1	*P100022 or P100074	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
21	Spacer tube retaining collar	1	*P100022 or P100074	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
22	Deckplate	1	*P100022 or P100074	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
23	Gasket	1	4169	23
24	Performance plate	1	4517	24

\*P100022 = 154mm DMC, P100074 = 254mm DMC. See (Parts list continued on next page)

Parts List (continued)

Item	Description	Qty	Part to order	Includes items
25	Deckplate insert	1	*P100022 or P100074	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
26	Nylon rivet 5mm	1	*P100022 or P100074	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
27	M8 stud 154mm DMC	3	P100022	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
27	M8 stud 254mm DMC	3	P100074	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
28	M8 x 32 x 2 flat washer	3	P100083	28, 29, 30, 36 and 37
29	M8 spring washer	3	P100083	28, 29, 30, 36 and 37
30	M8 hex nut	3	P100083	28, 29, 30, 36 and 37
31	Spacer tube 154mm DMC	1	P100022	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
31	Spacer tube 254mm DMC	1	P100074	11, 12, 13, 14, 19, 20, 21, 22, 25, 26, 27(x3), 28(x3), 29(x3), 30(x3), 31, 32, 33, and 34
32	Locknut	1	P100088	32, 33 and 34
33	O-ring 66 x 2mm	1	P100088	32, 33 and 34
34	Collar	1	P100088	32, 33 and 34
35	Gearbox 44:1	1	P100900 (See page <b>Error! Bookmark not defined.</b> for exploded view)	35
36	1-4 in key	1	P100083	28, 29, 30, 36 and 37
37	Quick change clip	1	P100083	28, 29, 30, 36 and 37
38	M8 x 25 ss bolt	2	P12487	38(x2), 39(x2), 40(x2) and 41
39	M8 spring washer	2	P12487	38(x2), 39(x2), 40(x2) and 41
40	Ø5-8 x 5-16 washer	2	P12487	38(x2), 39(x2), 40(x2) and 41
41	O-Ring	1	P12487	38(x2), 39(x2), 40(x2) and 41
42	Motor 500 12V 600W	1	P10068	42
42	Motor 500 24V 600W	1	P10069	42
42	Motor 800 12V 1000W	1	P11112	42
42	Motor 800 24V 1000W	1	P11114	42
43	Unipoint 12V and 24V end cap and brush kit	1	P10066	43
44	Cima 12V brush kit	1	P100807	44
45	Cima 24V brush kit	1	P100808	45

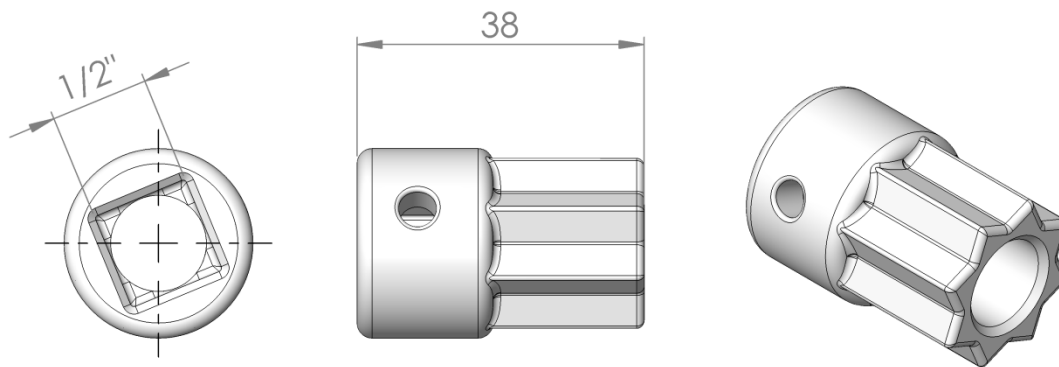
## RC Range optional extras

Bi-Square handle extension – for use where obstructions prevent full clutch handle (RC8, 10 & 12) movement e.g. recessed / covered windlass.



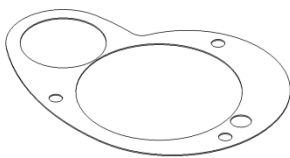
7038 – Bi-Square extension

Bi-Square to 1/2" square drive adaptor – Supplied as standard on the HRC10. Allows a standard 1/2" drive (socket set) ratchet to be used with the bi-square fittings on the clutch and chainwheel. Particularly useful where a full rotation of the chainwheel cannot be achieved e.g. HRC10, the ratchet allows recovery without removing the tool from the chainwheel.

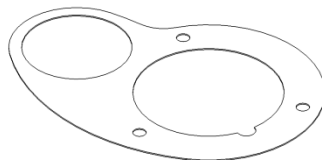


7369 – Bi-Square to 1/2" Drive adaptor

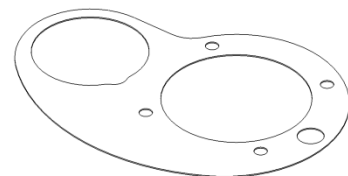
Insulating Gaskets – high density plastic insulating gasket to be fitted between the windlass deckplate and the vessels hull to isolate the metals and prevent galvanic corrosion. For use on the RC (stainless steel) windlasses when fitted to aluminium vessels. Note that the stud and fasteners must also be insulated using washers and/or spacers not provided by Maxwell.



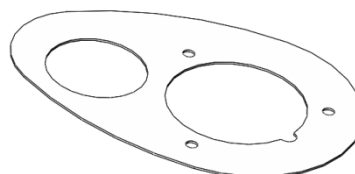
7319 – RC6 Insulating Gasket



7320 – RC8 Insulating Gasket



7321 – RC10 insulating Gasket



7307 – RC8 'Performance plate'  
use when replacing Freedom  
when fitted with plate

RC6 – Hex Cap screw in centre.

Only available 6mm



RC8 – Bi-Square fitting in centre and in chainwheel

Available 6mm or 8mm



RC8 – Bi-Square fitting off centre and in chainwheel

Available 8mm or 10mm



RC12 – Single Bi-Square fitting off center.

Available 10mm,11mm,12mm or 13mm



VW – Vertical Windlass  
Can also be mounted horizontally



VWC – Vertical Windlass With chain pipe  
CW/ACW



HWC – Horizontal Windlass



## Identification

Maxwell stock the three current specification 50mm gearboxes P100900, P102730 & P12436 other models require a retrofit kit (ref retrofit pg5)

All current specification gearboxes and spare parts are of the 'outsourced' type.

The outsourced gearboxes can be differentiated from the Maxwell manufactured gearboxes by the different fastening of the two halves.

Both gearboxes use 4 x M6 cap screws to hold the two halves of the gearbox, with the difference between the two being:

The outsourced gearbox has the cap screws assembled from above i.e. heads of the cap screws on the gearbox top side.

The Maxwell assembled gearboxes had the cap screws assembled from below i.e. heads of cap screws recessed into main gearbox body.

Refer to the below pictures to identify the gearbox type.



P12201, P102106



P12425, P12427



P12435, P12436



P100900, P102730

where gearboxes are available in different ratios and same 'body' the ratio will be stamped on the gearbox body or engraved into the wormwheel hub.

Ratio	Windlass Type	Original Gearbox	Discontinued	Replacement Gearbox	Alternative
29:1	300 fast (non quickfit) 57TDC	P102106 (12V) P102108 (24V)	2006	Not Available	Not Available
29:1	300 fast (non quickfit) 108TDC	P102110 (12V) P102109 (24V)	2006	Not Available	Not Available
29:1	300 fast (quickfit)	P102179	Current*1	P102179	N/A
44:1	800/1200 70TDC	P102138	1990's	Not Available	P100900 + Original spacer tube
44:1	800/1200 50TDC	P102144	1990's	Not Available	P100900 + Original spacer tube
44:1	800 100TDC	P12425	2006	P12425	P100900 + P101633
44:1	800/1200 150TDC	P12426	2006	P12426	P100900 + P101635
44:1	HWC 1200	P12435	2001*2	P12436 **56:1**	P100900 + P101636
44:1	1000, Freedom, RC8	P100900	Current	P100900	N/A
44:1	RSC800	P12490(12V) P12491(24V)	1990's	P12425	P100900 + P101633
44:1	RC500	P12492(12V) P12493(24V)	1990's	P12425	P100900 + P101633
56:1	R700	P11008(12V) P11059(24V)	1990's	Not Available	Not Available
56:1	500-800R 57TDC	P12200(12V) P12198(24V)	2006	Not Available	Not Available
56:1	500-800R 108TDC	P12201(12V) P12199(24V)	2006	Not Available	Not Available
56:1	HWC1500 HRC10	P12436	Current	P12436	N/A
56:1	1200 100TDC	P12427	2006	P12427	P102730 + P101633
56:1	500, 1500, RC10	P102730	Current	P102730	N/A
56:1	800/1200 150TDC	P12428	2006	P12428	P102730 + P101635
56:1	HWC650	P12445(12V) P12446(24V)	1990's	Not Available	Not Available
56:1	R800	P12480(12V) P12481(24V)	1990's	Not Available	Not Available
57:1	1000 (v'old)	P12141	1980's	Not Available	Not Available

\* 1 - Sales volume has effectively discontinued this product. \* 2 - Gearbox changed to 56:1 in 2001 however manual was never updated.

## **Servicing**

Servicing the 50mm Maxwell wormbox is relatively straight forward with few moving parts. As previously noted where replacement gears are necessary Maxwell will only supply a complete replacement gearbox.

With regular service the gearbox can be expected to give many years of trouble free service. With no service these gearboxes are prone to failing after around 5 years.

On units that have had little service it is common requirement to replace the gearbox top as the housing for the output shaft seal becomes corroded, kits are available for this purpose:

P101633 - to suit 800 & 1200 100TDC models

P101624 - to suit 1000, 1500, Freedom, RC8, RC10

As previously noted the fastening of the two halves of the gearbox was changed with outsourcing. Only the later outsourced type is held as a spare part however with the addition of 4 x longer cap screws, nuts and washers (included with the kits) these gearbox tops can be fitted to earlier type gearboxes

There are both plain sintered bronze bearings and deep groove ball bearings used in 50mm wormboxes. The sintered bronze bearings have a nominal size of 40.05 + - 0.05mm and replacements are available individually (3145). The deep groove bearings are available as a kit P90007 which includes the retaining circlips.

The three lip seals are available as a kit P90006 which includes the sight glass and o-ring. A special service tool or appropriate sleeve must be used when fitting the input shaft seal to prevent the drive slot from damaging the sealing faces.

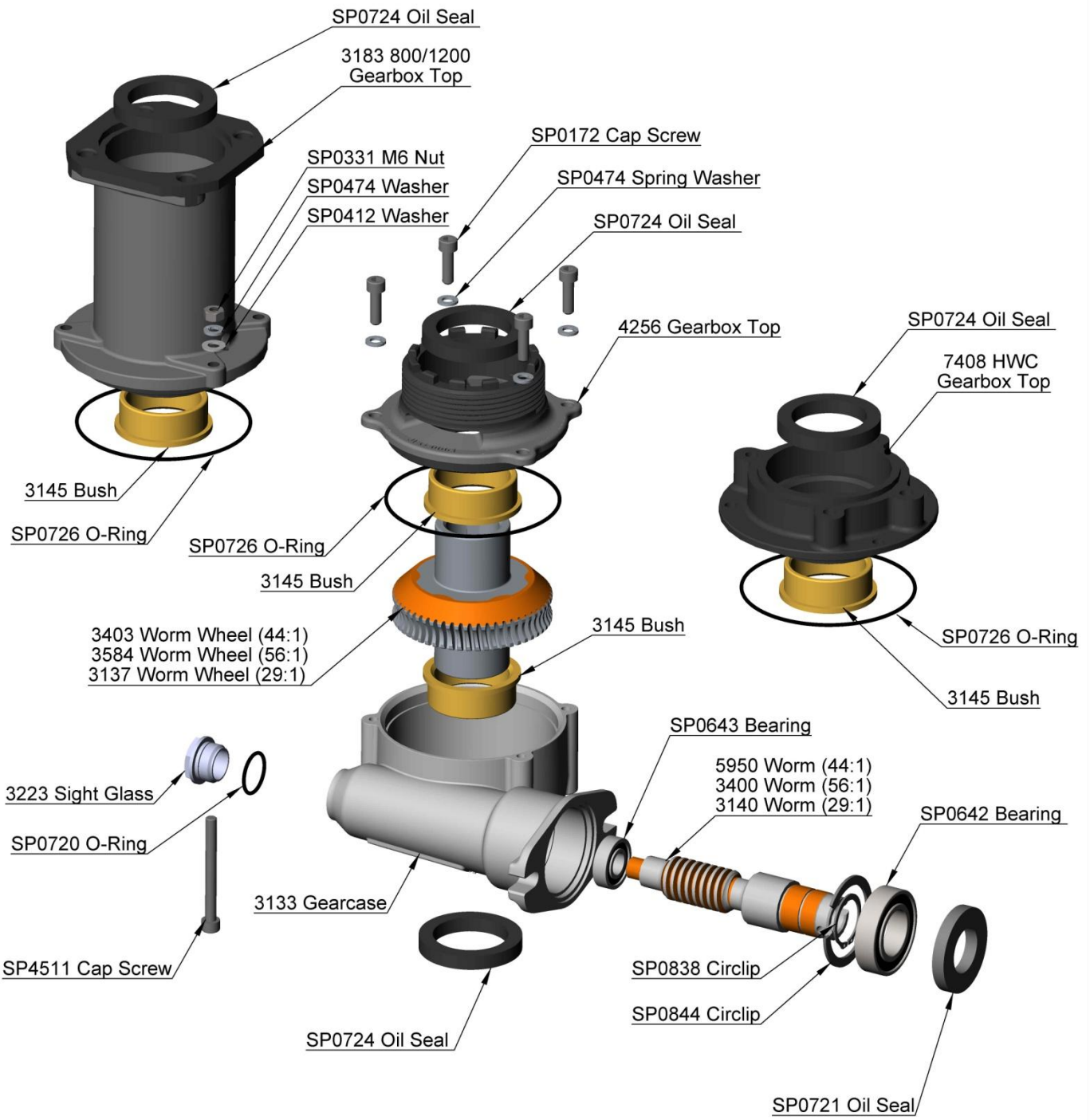
Exact oil quantity differs between specific models but is approximately 75ml. When refilling the gearbox the oil level should be sufficient to just cover the top of the teeth of the wormwheel when gearbox is level (1/2 - 3/4 fill on sight glass). Refer to pg 14 for oil type.

## **Retrofit**

With the exception of the HRC10 model all current windlasses which use the 50mm wormbox utilize the same fixing method between the gearbox and spacer tube i.e. castellation with spacer tube fixed to deckplate.

On the now discontinued 800, 1200 models and 500's built pre 2007 the spacer tube was incorporated into the gearbox. Maxwell continues to stock replacement spacer tubes for these models.

When replacing a gearbox top on gearboxes manufactured prior to 2010 i.e. when replacing gearbox tops on gearboxes with the 4 cap screws fitted from the bottom, longer cap screws and nuts are required to be fitted as the gearbox tops are no longer threaded.



P90006 Seal kit		
Part	Description	Qty
SP0724	Oil Seal	2
SP0721	Oil Seal	1
SP0720	O-Ring	1
3223	Sight Glass	1
SP0726	O-Ring	1
SP2787	O-Ring	1

P90007 Bearing Kit		
Part	Description	Qty
SP0643	Bearing	1
SP0642	Bearing	1
SP0838	Circlip	1
SP0844	Circlip	1

P101633 Spacer tube kit		
Part	Description	Qty
3145	Bush	1
SP0724	Oil Seal	1
SP0726	O-Ring	1
3183	Spacer Tube	1
SP4511	Cap Screw	4
SP0331	Nut M6	4
SP0412	Washer	4
SP0474	Washer	4

P101624 Gearbox Top Kit		
Part	Description	Qty
4256	Gearbox top	1
3145	Bush	1
SP0724	Oil Seal	1
SP0726	O-Ring	1
SP4511	Cap Screw	4
SP0331	Nut M6	4
SP0412	Washer	4
SP0474	Washer	4

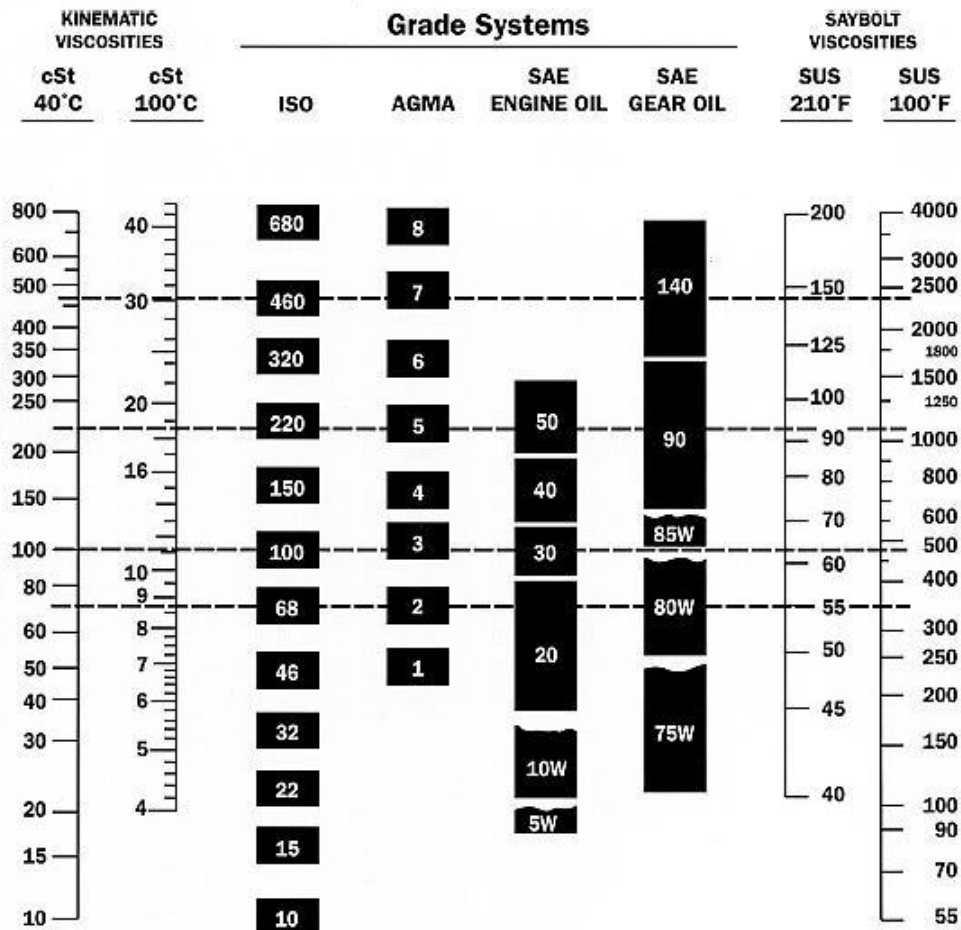


## Oil Type for Maxwell Gearboxes

The oil used by Maxwell is 'Castrol Alpha SP320' which is industrial grade gear oil with an ISO weight index of 320. Because of the industrial target market this oil is seldom available in retail outlets and often the smallest quantity available from distributors is 20 liter drums.

The gear oil can be replaced with any SAE gear oil with a weight of between 90 and 110. (SAE being the most common measure of viscosity). Use the table below for other comparative gear oils. NOTE the grading system for gear oils is different to that of motor oils, 90wt gear oil is not the same as 90wt motor oil.

Ideally a sulphur free gear oil should be used as the sulphur will corrode yellow metals (bronze, copper etc) as found in the wormwheel. It is however difficult to find sulphur free gear oils, in which case using an API GL2 - 4 grade oil is preferable over GL5 (more common these days) as the sulphur/antiwear additives in GL5 are higher concentrations (double the GL4 concentration). **i.e. avoid GL5 gear oils.**



Viscosities can be related horizontally only. For example, the following oils have similar viscosities: ISO 460, AGMA 7 and SAE GEAR OIL 140.

The viscosity/temperature relationships are based on 95 VI oils and are usable only for mono grade engine oils, gear oils and other 95 VI oils.

Crankcase oils and gear oils are based on 100°C viscosity. The "W" grades are classified on low temperature properties. ISO oils and AGMA grades are based on 40°C viscosity.

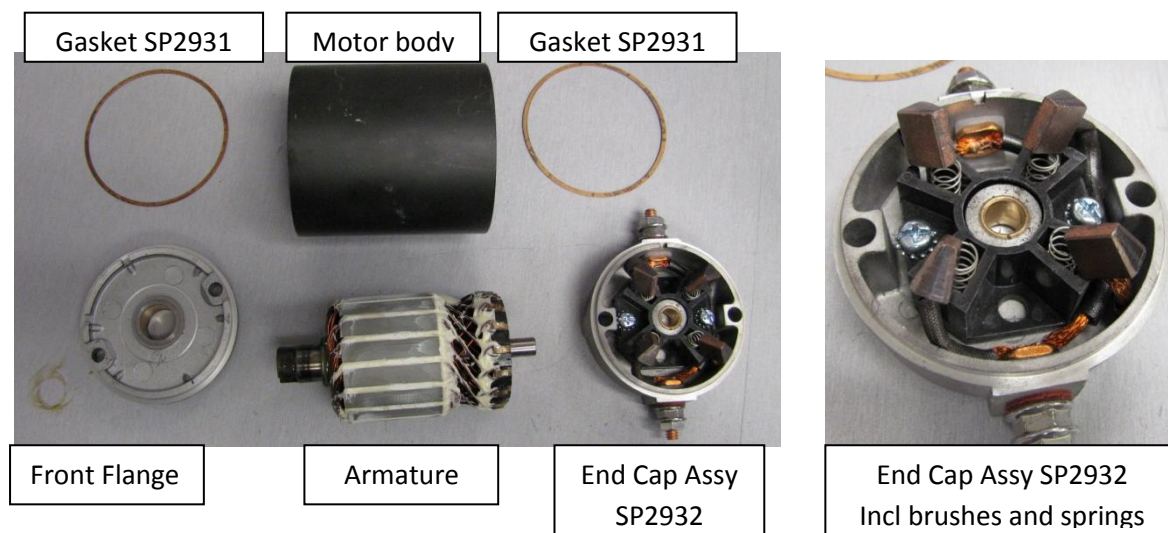
## Oil Quantities of Current Maxwell Gearboxes

Winch	Gearbox P-code	Gearbox Type	Oil quantity	
<b>500/1500 RC10/HRC10</b>	P102730	Maxwell 50mm wormbox	75ml	2.55oz
<b>1000 RC8</b>	P100900	Maxwell 50mm wormbox	75ml	2.55oz
<b>1500 VC</b>	SP3312	Bonfiglioli W63 wormbox	380ml	12.85oz
<b>2500 RC12-10</b>	P102180	Maxwell 75mm wormbox	350ml	11.85oz
<b>2500 Tall drum</b>	SP3304	Bonfiglioli W75 wormbox	560ml	18.95oz
<b>3500 RC12-12</b>	P102181	Maxwell 75mm wormbox	350ml	11.85oz
<b>4000 AC</b>	SP3305	Bonfiglioli W110 wormbox	1650ml	55.80oz
<b>4000 DC/HYD</b>	SP2902	Bonfiglioli W86 Wormbox	900ml	30.45oz
<b>4500</b>	SP3305	Bonfiglioli W110 Wormbox	1650ml	55.80oz
<b>6000</b>	SP3324	Bonfiglioli VF130 wormbox	2500ml	84.55oz
<b>8000 Hyd</b>	SP4194 SP4196	Brevini ED2045	3200ml	108.20oz
<b>8000 AC Inline</b>	SP4173	Brevini ET3030	3200ml	108.20oz
<b>8000 AC Right Angle</b>	SP4174	Brevini EC3030	3500ml	118.35oz
<b>11000 Hyd</b>	SP3317	Brevini ET3065	4600ml	155.55oz
<b>11000 AC Inline</b>	SP4175	Brevini ET3065	4600ml	155.55oz

## UNIPOINT Motor Service

All the UNIPOINT motors have the brushes acting axially along the motor axis, for this reason when the motor through bolts are removed (motor removed from Anchormax and RC6 gearbox) the endcap / brush assembly is inclined to separate from the motor body due to the spring pressure pushing the two apart. Take care not to lose the springs.

Once the motor is separated from the gearbox separate it into the individual parts; front flange, armature, motor body, end cap assembly. The Gaskets (SP2931) & End cap (SP2932) assemblies are standard across the UNIPOINT range. Brushes are only available as part of the kit SP2932.



Inspect the armature for any burnt windings / insulation, if any found replace the motor.

Inspect the motor body, check the magnets are not broken and are still bonded to the body.

Inspect the end cap assembly to ensure brush terminals or leads are not touching the body, there is no melting of the insulators, the brushes are not worn (std brush length is 12.7mm).

Clean all carbon build-up from the motor components, apply a light coating of grease to the front flange bearing and reassemble motor. Replace motor gaskets if necessary.

To reassemble first fit the armature to the end cap / brush assembly ensuring all brushes and springs are seated correctly in the housing.

While holding the armature in place fit the motor housing (armature will be attracted to magnets and pull into housing if not held in place)

Align the locking tabs on the end cap and motor body.

Align the locking tabs on the front flange and fit.

Fit through bolts.





## CIMA Motor Servicing and Spares

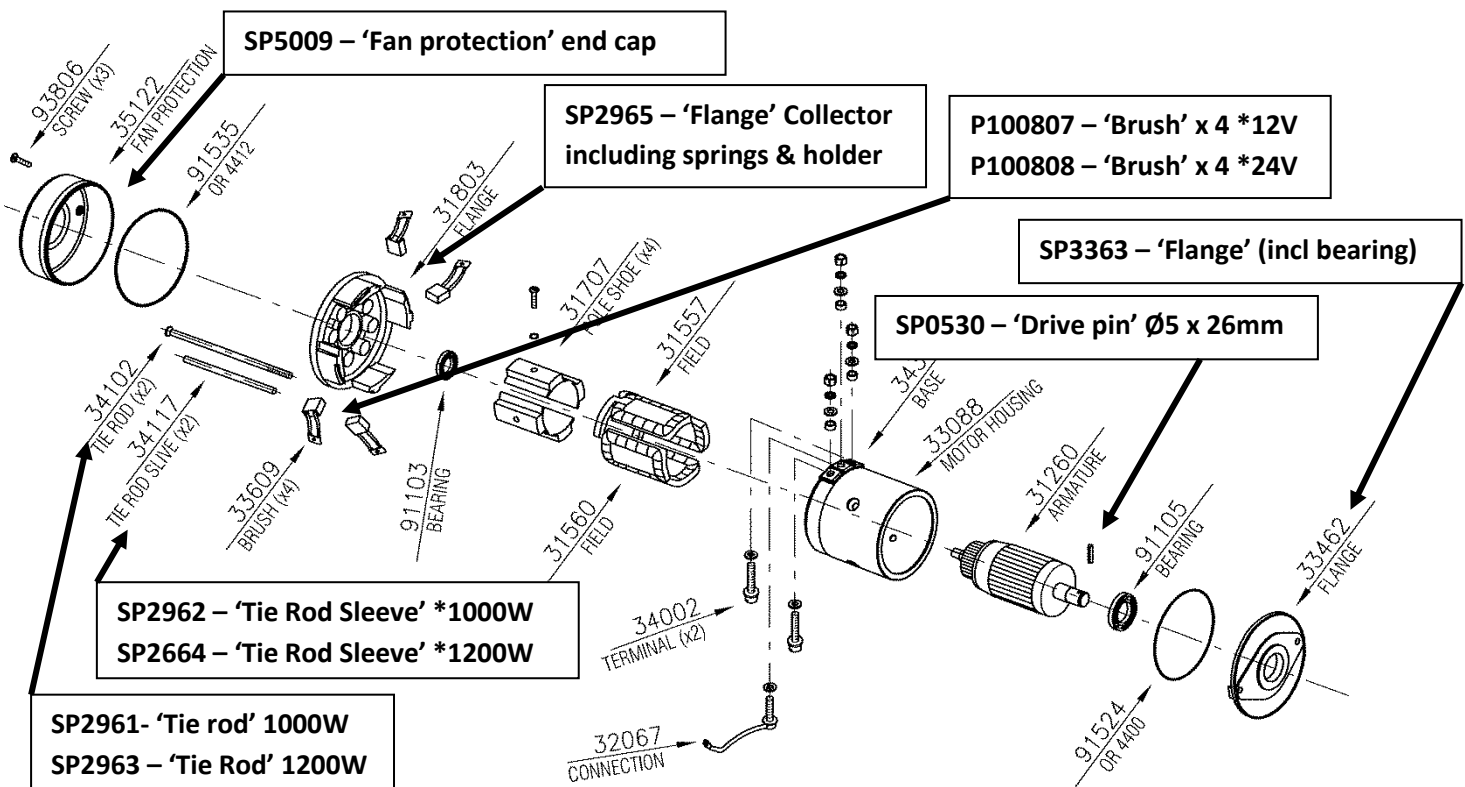
The CIMA motors are built very robustly, the only service necessary should be removal of the brush end cover and blowing out of any carbon dust, check the brushes and replace if necessary.

Spare parts are available as noted below in Bold. Other parts are available but not stocked.

Springs for the brushes are not available individually, a complete replacement flange (SP2965) is required.

The connection terminals can shear off due to over tightening, usually the break occurs below the outside nut and the terminal will stay in place sometimes passing current and other times not. We do not stock the terminals. Replacement should be undertaken by a auto electrician.

The connection from the terminal studs to the field windings can break due to twisting of the whole stud while tightening / removing the battery cables. Again repair should be undertaken by an auto electrician.



## Maxwell Serial numbers

All Maxwell windlasses are issued a serial number at time of manufacture.

This serial number can be used to positively identify the windlass, the serial number also gives us a date of manufacture so that any product revisions/changes can be taken into account when supplying spare parts. For older windlasses the serial number is often the only way to get a positive ID.

In New Zealand the serial numbers are also tracked at despatch such that we are able to track who the windlass was sold to and what else was on the sales order, I would highly recommend this system is implemented elsewhere.

### Maxwell Serial numbering system

Up until August 2000 a 5 digit sequential numbering system was used e.g. 57708, records go back to 1987.

In August 2000 a 5 digit Alpha numeric system was introduced e.g B1680. The first character donates the year of manufacture starting with A in 2000 (Letters I & O have been omitted due to similarity to digits 1 & 0).The last 4 digits are a sequential number beginning at 0001.

With the introduction of outsourcing in 2010, a secondary serial number system that runs in parallel to the existing system was introduced. This numbering system consists of 3 letters followed by 4 digits. The first letter represents the manufacturer manufacturing facility, the second is the year of manufacture (R = 2010, S = 2011 etc) and the third the month (A = Jan/Feb, B= Mar/Apr C= May/Jun etc) the numbering is sequential starting from 0 each 2<sup>nd</sup> month.

E.g.

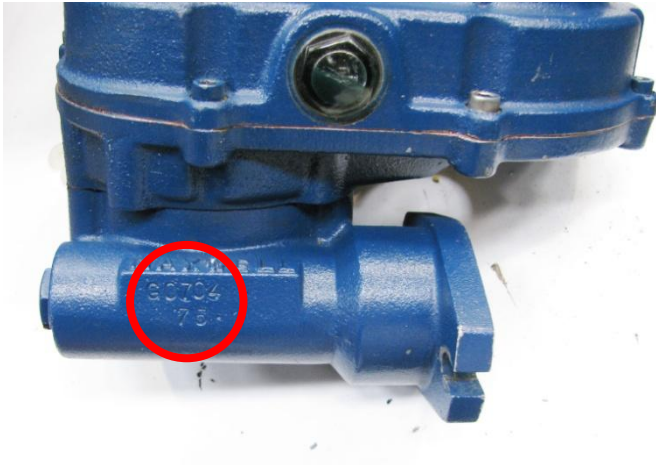
60394 = 27A sheet winch manufactured 16/10/89  
79819 = VWC 800 100TDC manufactured 11/03/96  
99065 = VWC 2500 manufactured 4/7/00  
A1457 = Freedom 500 manufactured 18/10/00  
D3495 = 2200 VWC manufactured 11/6/03  
J4763 = SY26 manufactured 19/7/08  
BSD0313 = RC10-8 manufactured Jul/Aug 2011  
BTA0044 = Anchormax manufactured Jan/Feb 2012

Records of the serial numbers are all stored at the N.Z office.

### Serial number location

For all windlasses manufactured in New Zealand the serial number will be stamped onto the gearbox casting or a metal name plate.

For windlasses manufactured at our offshore facility (RC6, 8 & 10, Anchormax, HRCFF and HRC10 since 2010) the serial number is in the form of a permanent 15x10mm adhesive label which is applied to the deckplate as shown in the images on the following page.



## Chain Dimensioning and Chainwheel Selection

To select a chainwheel for a customer you will require measurements of the chain they intend to use. There is a form available at [www.maxwellmarine.com](http://www.maxwellmarine.com) that can guide the customer to measure the chain. On the following page you can find an example of the chain dimensioning sheet and chainwheel selection.

The most important measurement in terms of chainwheel fit is P – Pitch length, the second most important is W2 width outside link. With an accurate measure of these two dimensions a chainwheel can be selected.

The other 4 dimensions can be used to check for any discrepancies

Length outside the link should be  $\text{pitch} + 2 \times \text{wire diameter}$

Chain wire diameter should match up with a chain specification for the pitch e.g. 24mm pitch should have a 8mm wire diameter - an unusually long pitch for wire diameter indicates a stretched chain.

Width inside the link should be at least wire diameter

11 links measurement divided by 11 should = Pitch , this 11 link measurement is often a better indication of chain pitch as any error is averaged over 11 links instead of just 1.

Once you have these dimensions a chainwheel can be selected from the Maxwell Chainwheel listing, available on the Maxwell website [www.maxwellmarine.com](http://www.maxwellmarine.com)

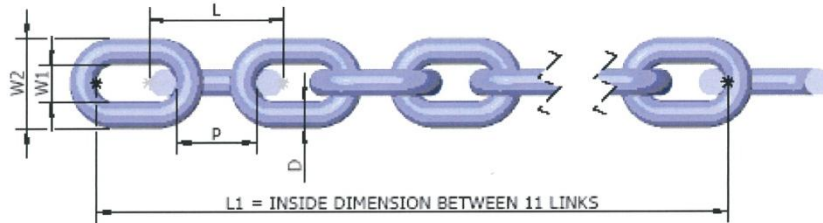
When selecting a chainwheel for a particular chain first check the dimensions make sense i.e. 11 link measure agrees with pitch ( $L1 / 11 \approx P$ ),  $W2 - W1 = 2 \times \text{wire diameter}$  etc.

Once happy dimensions are correct you can find the closest match to the chain pitch in row 3, scroll down to the desired windlass and read off the Part number.

For the RC range of windlasses with the new chainwheel a much broader range of chains can be accepted on each chainwheel.

Horizontal windlasses need a better match to chain pitch than vertical windlasses due to the reduced wrap.

Since 2009 all Maxwell chainwheels have the chain counter magnet pre-fitted. On the RC chainwheels the magnet is in the top chainwheel halve, the chainwheels for all chain application have the magnet fitted to the lower halve of the chainwheel.



P = pitch inside link L = length outside the link D = Chain wire diameter  
 W1 = width inside link W2 = width outside the link L1 = inside dimension between 11 links

Customer Chain Specifications	
Manufacturer/Supplier name	
Chain standard/code	
Chain type: Short link/stud link	Short link
Manufacturers specification if known	
Material	Mild steel
Grade	
Finish	Galv
P – Pitch length inside link	24.35
L – Length outside the link	40.35
D – Chain wire diameter	8.20
W1 – width inside the link	11.0
W2 – width outside the link	27.2
L1 – inside dimension between 11 links	267

$267/11 = 24.27 = \text{Pitch} = 24.35 - \text{OK}$

all others look ok, customer wants a chainwheel for 1000 VWC.

				MAXWELL CHAINW																							
				23	23.8	30.2	29.7	27	27.8	27.2	33.3	30.5	36.4	33.5	35.8	36.4	36	33.8	33.8	33.8							
				21	22	25.4	26.2	23.4	23.4	24	26.2	27	27.6	30.7	31	34.5	28	29.3	29.3	30							
				EN-818	DIN 766	BBB	G-40 ISO	L	L P	DIN 766	GR4, GR5	DIN 766	BBB	ACCO	G63, G80	G30 ISO	G40 ISO	Campbell C3, C4, C7	DIN 766	L	L P	P					
				ACC	ACC	Serafini	PWB	McKinnon	ACC	ACC	ACC	ACC	Campbell	Serafini	PWB	Serafini											
Nominal size D				7	7	5/16"	5/16"	8	8	8	9	9	3/8"	3/8"	3/8"	3/8"	10	10	10	10							
Windlass	Part no.	Description	Cat.																								
Freedom	P100030		A																								
	P100031		A																								
	P100033		A																								
	P100034		A																								
HRC	P102839		A																								
	P102840		A																								
	P102846		A																								
RC6	P103314		A																								
RC8	P103310		A																								
	P103311		A																								
RC10	P103308		A																								
	P103309		A																								
Liberty	P101525		A																								
	P101542		B																								
	P101547		B																								
500	3132/201C	Chainwheel for 3/16" BBB ACCO; 6mm L PWB; 6mm DIN766 chain	C																								
	3132/203C	Chainwheel for 1/4" BBB G40, G63 ACCO; 7mm DIN 766, 7mm	A																								
1000 - 1500	3173/100C	Chainwheel for 3/8" ACCO chain	A																								
	3173/101C	Chainwheel for 10mm PWB; 10mm EN-818 chain	C																								
	3173/105C	Chainwheel for 5/16" G40 and BBB ACCO; 9mm DIN766 chain	A																								
2000 - 2500	3173/107C	Chainwheel for 8mm DIN 766 chain	A																								
	3173/110C	Chainwheel for 1/4" BBB ACCO; 8mm PWB; 8mm L Serafini chain	A																								
	3173/111C	Chainwheel for 1/4" G40, G63 ACCO; 1/4" HT Campbell (vertical)	A																								
	3173/114C	Chainwheel for 1/4" PC Campbell; 9mm McKinnon; 9mm DIN766	A																								
	3173/118C	Chainwheel for 6mm PWB; 6mm DIN766; 6.3mm McKinnon; 11mm	C																								
	3231/012C	Chainwheel for 7/16" ACCO G40 chain	B																								
3231/033C	Chainwheel for 5/16" G40 & BBB ACCO; 9mm DIN 766 chain	A																									
3231/045C	Chainwheel for 10mm L Serafini; 10mm PWB; 11mm DIN766 (P)	B																									
3231/046C	Chainwheel for 1/4" G40, G63, BBB ACCO chain	D																									
3231/054C	Chainwheel for 3/8" BBB; 10mm DIN766 chain	A																									

## Identifying Chainwheels and Selecting Chain to Suit

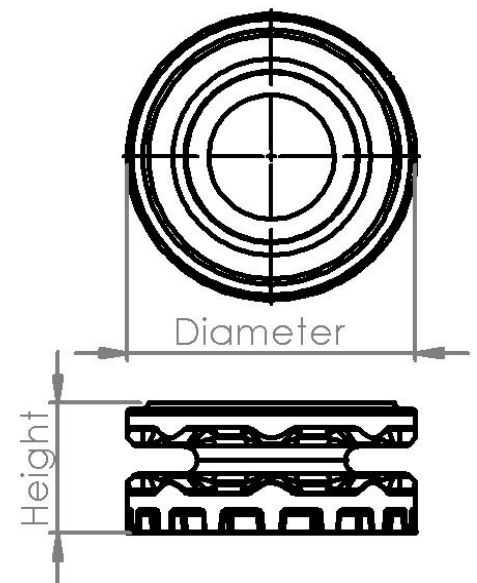
### All Chain type 'Traditional series'

Each of the Maxwell chainwheels has an identification number cast into one of the chain pockets, this number is a reference to the size of chain the chainwheel was designed. This number can be cross referenced to the chainwheel selection chart and the correct chain size found. E.g. 058 is suitable for 3/8" G40 chain or 10mm EN818, Grade L.



What this number does not tell you is the type of windlass. E.g. the 058 chainwheel is available for either the 2500, 3500 or the 3500 Band brake. To identify the type of windlass there is a label on the top of the windlass with the series number E.g. 2200. If this label has worn off or for another reason is unavailable then measurements of the chainwheel must be taken, the below table can then be used.

Series	Part number	Diameter	Height
300, 500	3132/??	100mm	32mm
800	3172/??	127mm	42mm
1000, 1200, 1500	3173/??	127mm	58mm
3500	3182/??	175mm	80mm
3500 Band brake	5437/??	175mm	93mm



Chainwheels which have a larger diameter than 175mm are part of the SY range and queries should be directed to N.Z.

For older chainwheels where the number does not appear in the chainwheel selection spreadsheet there is another spreadsheet 'Maxwell Chainwheels (OLD)' which can be searched.

### Rope Chain Combination Chainwheels 'RC series'

Like the traditional windlass series the RC windlass chainwheels all have identification numbers in one of the chainpockets. The difficulty with the RC chainwheels is that there is a different number on the each ½ of the chainwheel and these numbers are not listed in the chainwheel selection guide. The chainwheel selection guide lists the assembly number which includes the two chainwheel halves, stripper and the fasteners.

The table on the following page should be used to cross reference the individual chainwheel part numbers to the chainwheel assembly number.



Lower Chainwheel part number location example.



Upper Chainwheel part number location example.