

2009



US SPARS



U.S Spars Moving Forward

When U.S. Spars was created in 1998 its primary purpose was to supply the sailing industry with the very best product and service available. Now in 2009 our philosophy has not changed, we still supply the best product and offer service second to none. Along the way we have built partnerships with the worlds largest boat builders, this includes Beneteau, Catalina, Com-Pac, Hunter and Performance Cruising. Our spars are now also supplied by a dealer network which includes some of the industries most notable companies. Our sales team can put you in contact with your local dealer upon request. If individuals prefer they can deal directly with our production facilities in Florida where we can take you through the re-rig process step by step.

We would like to thank all of our customers for their valued support and look forward to working with new and old customers in the near future.

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Rigging@usspars.com

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U.S. SPARS SECTIONS

Section	Dimensions	Inertias		Weight Kg
		YY'	XX'	
Z 105	72/57	20.7	14	0.9
Z 125	76/62	33	21	1.25
Z 145	81/68	45	29	1.45
Z 170	98/68	65	33	1.64
Z 190	108/78	94	50	1.92
Z 230	122/82	143	69	2.29
Z 265	143/96	238	118	2.72
Z 301	160/105	343	149	3.02
Z 351	160/105	391	173	3.441
Z 401	179/119	601	260	4.1
Z 501	189/125	760	326	4.6
Z 532	201/124	998	380	5.38
Z 602	223/138	1411	518	6.21
Z 702	240/146	1951	726	7.61
Z 902	257/160	2641	1022	8.96
Z 1001	290/175	3677	1452	9.77
Z 1250	310/182	4994	1838	11.76

U.S. SPARS FURLING MASTS

Section	Dimensions	Inertias		Weight Kg
		YY'	XX'	
Z 300 E	160/105	400	162	3.5
Z 400 E	183/117	585	280	4.9
Z 500 E	200/124	808	378	5.77
Z 532 E	201/125	887	409	5.95
Z 602 E	223/138	1286	544	6.85
Z 702 E	240/145	1624	731	7.88
Z 900 E	255/160	2240	1014	9.72
Z 902 E	257/160	2301	1032	9.54
Z 1100 E	293/176	3550	1526	11.48
Z 1250 E	310/180	4688	1857	13.18
Z 1400 E	340/200	6125	2613	14.77
Z 1600 E	390/230	10198	4414	18.88

U.S. SPARS BOOMS

Section	Dimensions	Inertias		Weight Kg
		YY'	XX'	
Z 120	71/61	45	24	1.2
Z 160	94/68	64.01	30.27	1.56
Z 204	118/86	153	73	2.28
Z 360	145/105	332.03	155.54	3.29
Z 480	180/125	730.66	324.64	4.82
Z 690	232/142	1661	463	

**MARECHAL MASTS
AVAILABLE THROUGH U.S. SPARS**

CLASSIC MAST

SECTION	DIMENSIONS	INERTIAS		WEIGHTKg
		YY!	XX!	
P67	110/80	99	63	2
P78	115/78	178	78	3
P132	134/84	290	132	3.8
P310	190/107	960	312	5.4
P 410	215/116	1409	410	6.6
P710	246/134	2311	710	8.3
P1040	290/146	3790	1032	9.84
P1838	310/182	4994	1838	11.16
M 120	306/194	5308	2100	12.88
M 135	334/211	6790	2898	14.35
M 1551	361/229	8604	3704	16.04
M 180	348/195	10045	3232	18.04
M 200	366/205	12280	3960	20.55
M 265	460/215	25049	6790	26.58
M 300	500/270	29974	10216	29.22
P15000	600/285	52000	15000	35

SPINNAKER POLE TUBE

CODE	TYPE
950	Tube 80 x LG:5000
953	Tube 100 x 3 lg6000
955	Tube 70 x 2.5 Lg4500
965	Tube 57 x 2,1 lg 6800
967	Tube 30 x 1.5 LG 5800
968	Tube 80 x05 Lg6000
969	Tube 50 x 2 lg 6000
971	Tube 60 x 5 LG 6M
972	Tube 45 x 2 LG:4670
975	Tube 16 x 1.5 LG 6000 I157
976	Tube 50 x 5 LG 6000
978	Tube 25 x 2 lg 4500
979	Tube 30 x 2 lg 5400

SPREADERS

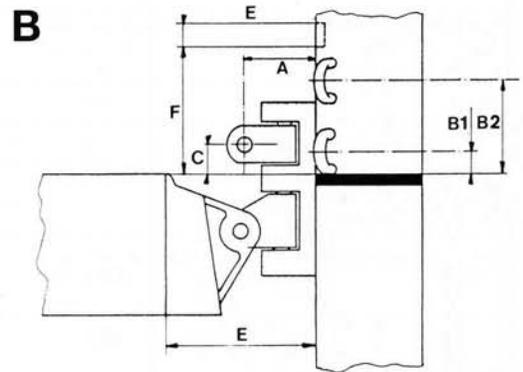
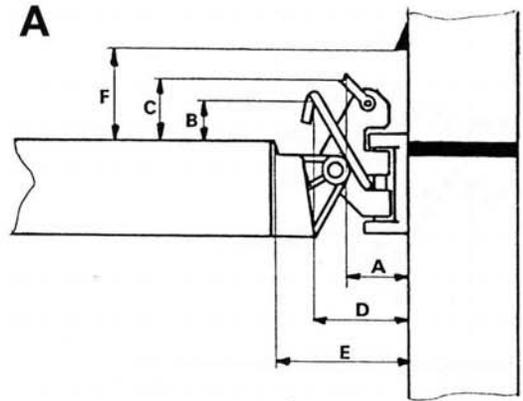
Profiles		Dimensions mm	Weight Kg
	Z Der	44 x 9	0.4
	Z 65	56 x 21	0.5
	Z 80	56 x 25	0.8
	Z 60	55 x 20	0.5
	Z 95	80 x 25	1.25
	Z 240	130 x 40	2.4
	Z 341	155 x 49	3.6
	Z 541	180 x 60	5.4

		Spreader Tip				
		Spreader Tip		Discontinuous Spreader Tip		
Spreader		Reference	Material	Type	V1 Pin Diameter	D2 Pin Diameter
Z Der	Taper	3112	Aluminium	No		
Z 60	Taper	3113	Delrin	3527	8 mm	6 mm
Z 65	No taper	1667	Delrin	1054	8 mm	6 mm
Z 80	No taper	1667	Delrin	3500	10 mm	8 mm
	No taper	1040	Delrin	1040	12 mm	8 mm
Z 95	Taper	3114	Delrin	3500	10 mm	8 mm
	Taper	3114	Delrin	3110	12 mm	8 mm
	No taper	3802	Delrin	3804	10 mm	8 mm
	No Taper	3802	Delrin	3805	12 mm	8 mm
Z 240	Taper	3115	Delrin	3378	16 mm	12 mm
	Taper	3115	Delrin	3147	19 mm	12 mm
	Taper	3109	Aluminium		16 mm	12 mm
	Taper	3109	Aluminium	3147	19 mm	12 mm
	No Taper	3803	Delrin	3806	16 mm	12 mm
	No Taper	3803	Delrin	3807	19 mm	12 mm
	No taper	3822	Aluminium	3806	16 mm	12 mm
	No taper	3822	Aluminium	3807	19 mm	12 mm
Z 341	Taper		Aluminium			

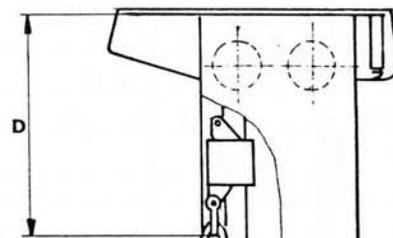
SAILMAKERS INFORMATION

Section	Z 105	Z 125	Z 145	Z 170	Z 190	Z 230	Z 265	Z 301	Z 351	Z 401	Z 501	Z 531	Z 602	Z 702	Z 902	Z 1001	Z 1400	
Sail Slide			A0 16	A0 16	A0 16	A0 16	A0 14	Sea Sure 04.62 HA 91										
Sail Track	8 mm	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm											

Boom	A	B	C	D	E	F
Z 120 Dinghy	20	10	10	20	55	200
Z 120 Cruiser	50	10	20	20	100	200
Z 160	60	30	50	65	130	90
Z 204 Small	30	15	25	65	150	90
Z 204 Large	60	15	45	80	170	90
Z 360	60	10	30	80	190	90
Z 480	60	10	25	100	207	90
Z 690 A	60	60	50	100	230	90
Z 690 B	60		26		230	90

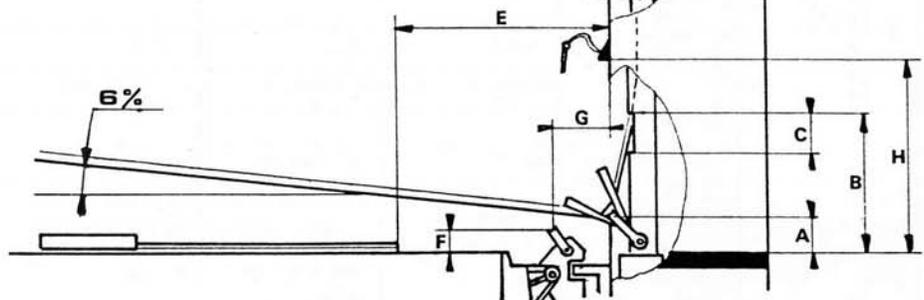


Furling Mast	A	B	C	D	E	F	G	H	Sail Track	Sail Slide for Trysail
Z 230 E	60	150	100	350	800	20	40	-	6 End	-
Z 300 E	60	500	100	400	800	20	40	100	6 End	HA 89
Z 400 E	60	500	100	400	800	35	60	100	6 End	HA 89
Z 500 E	60	500	100	400	800	35	60	100	6 End	HA 89
Z 602 E	60	500	100	400	1000	35	60	100	6 End	Sea Sure 04.62
Z 702 E	60	500	100	450	1000	35	60	100	6 End	Sea Sure 04.62
Z 902 E	60	500	100	450	1200	35	60	100	6 End	Sea Sure 04.62
Z 1100 E	60	500	100	450	1500	35	60	100	6 End	Sea Sure 04.62
Z 1400 E	60	500	100	450	1500	35	60	100	6 End	Sea Sure 04.62



Recommendations for Furling Mast Luff Rope
Maxi 6 mm

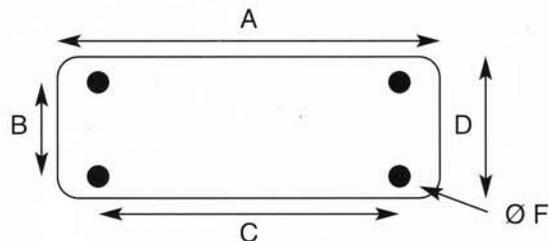
Don't forget the 6% slope on the main sail foot.



BASES DIMENSIONS

Section	Réf.	A	B	C	D	E	F
Z 105	1 111	110	0	90	40	16	5
Z 125	1 111	110	0	90	40	16	5
Z 145 a	1 111	110	0	90	40	19	5
Z 145 b	1 112	118	32	80	59	20	6,5
Z 145 c	1 100	124	32	80	108		6,5
Z 170	1 100	124	32	80	108	11	6,5
Z 190	1 100	124	32	80	108	0	6,5
Z 190 a	1 101	152	59	87	130		6,5
Z 230	1 101	152	59	87	130	9	6,5
Sabot	1 170	150	94	130	113	12	6,5
Z 230 E	1 101	152	59	87	130		6,5
Z 265	1 101	152	59	87	130	-15	6,5
Sabot	1 102						
Z 301	1 103	214	85	160	160	14	6,5
Sabot	4 016	190	100	145	120		8,5
Z 300 E		214	85	160	160		6,5
Z 401	4 032	245	150	200	220	14	6,5
Sabot	1 174						
Z 400 E	4 032	245	150	200	220	14	6,5
Z 531	4 022	235	150	200	220		8,5
Sabot	4 024						8,5
Z 501	1 120	235	150	200	188	14	8,5
Sabot	4 023						8,5
Z 500 E	1 163	235	150	200	220		8,5
Sabot	4 026						8,5

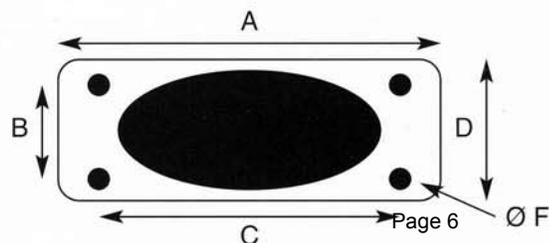
Section	Réf.	A	B	C	D	E	F
Z 602	1 164	285	160	215	230	25	8,5
Sabot	4 027						8,5
Z 602 E	1 164	285	160	215	230	25	8,5
Sabot	1 157	300	160	210	190		8,5
Z 702	1 118	280	160	215	230	7	8,5
Sabot	1 113	225	70	130	150	0	8,5
Z 702 E	1 165	285	160	215	230	15	8,5
Sabot	1 158						8,5
Z 902	4 035	285	160	215	230		8,5
Sabot	1 160	305	160	210	190	0	8,5
Z 902 E	4 035	285	160	215	230	5	8,5
Sabot	1 160	305	160	210	190	0	8,5
Z 1001	1 394	340	180	260	260		8,5
Sabot	4 028	290	98		182	0	8,5
Z 1100 E	1 395	340	180	260	260	25	8,5
Sabot	1 161	300	90	150	190	5	8,5
Z 1400	5 026	410	220	310	320		8,5
Sabot	4 029						8,5



DECK COLLARS DIMENSIONS

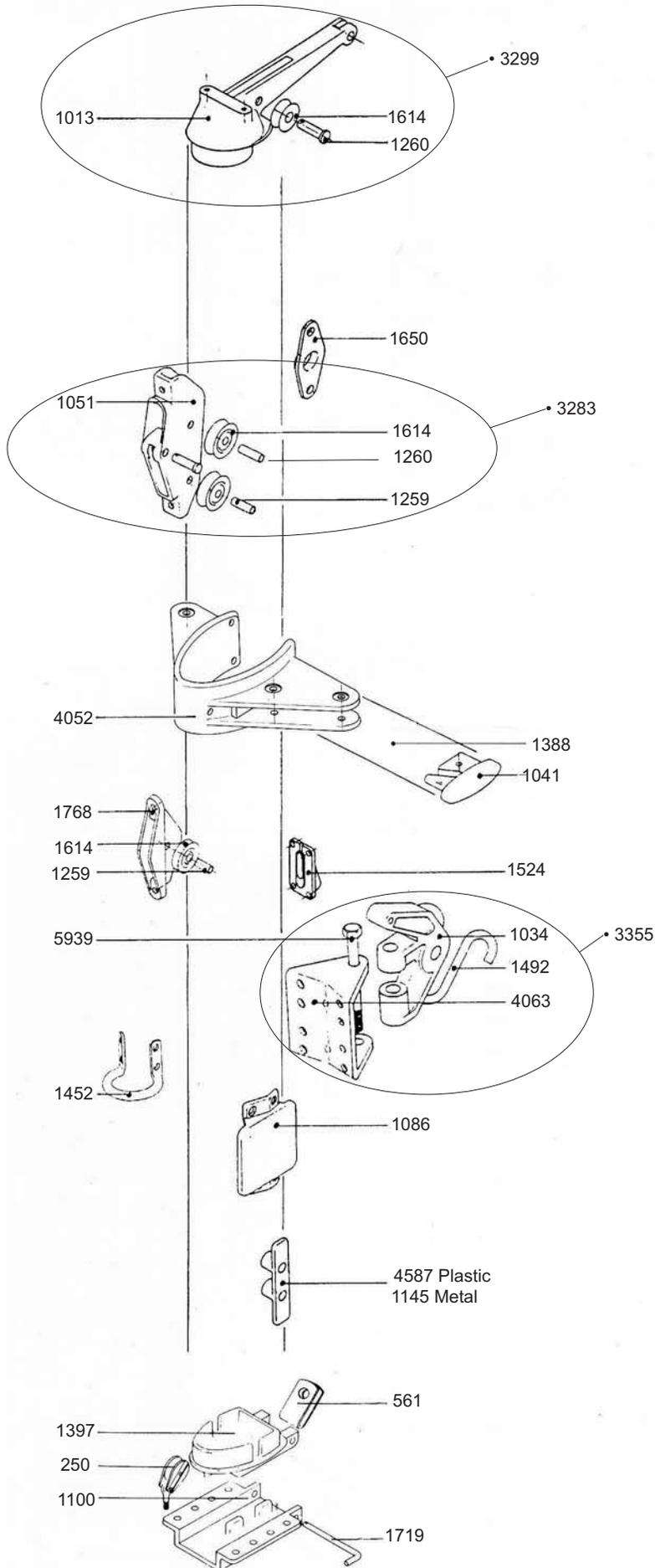
Section	Réf.	A	B	C	D	F
Z 230	4 053	180	106	116	170	6,5
Z 265	1 115	235	150	200	220	8,5
Z 301	1 115	235	150	200	220	8,5
Z 401	1 067	285	160	215	230	8,5
Z 400 E	1 067	285	160	215	230	8,5
Z 501	1 067	285	160	215	230	8,5
Z 500 E	1 067	285	160	215	230	8,5
Z 531	1 067	285	160	215	230	8,5
Z 602	1 393	340	180	260	260	8,5
Z 602 E	1 393	340	180	260	260	8,5
Z 702	1 396	340	180	260	260	8,5
Z 702 E	1 396	340	180	260	260	8,5

Section	Réf.	A	B	C	D	F
Z 902	1 396	340	180	260	260	8,5
Z 902 E	1 396	340	180	420	310	8,5
Z 1001	1 174	460	262	415	310	8,5
Z 1100 E	1 174	460	262	415	310	8,5
Z 1400	4 035	520	300	470	370	8,5

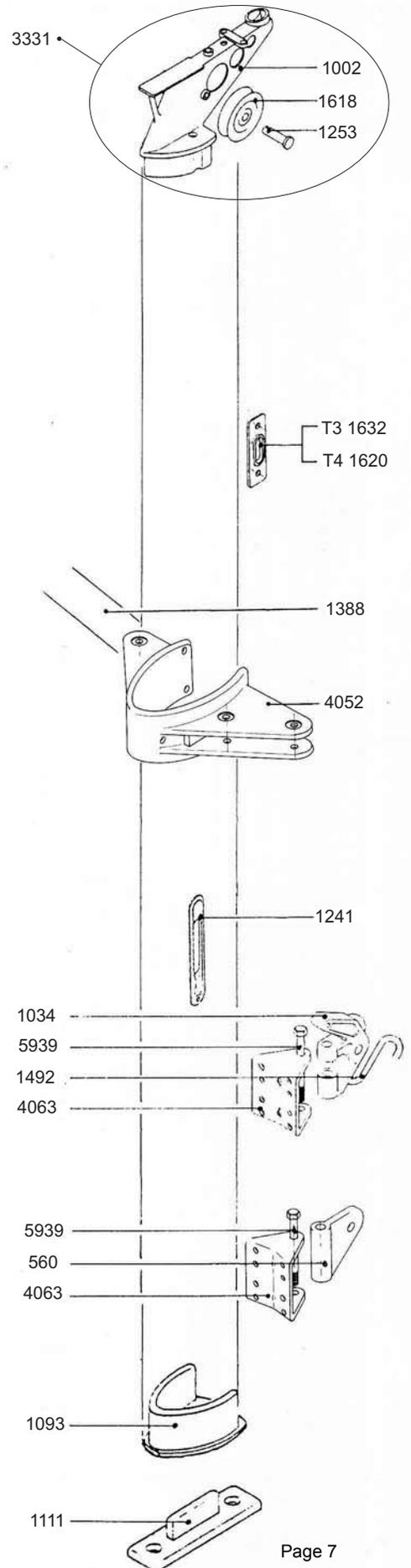


MASTS

Z 145



Z 145 TAPER



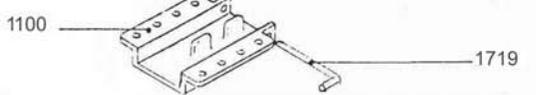
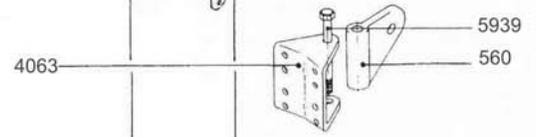
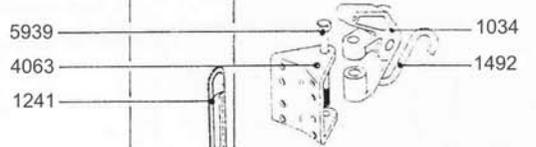
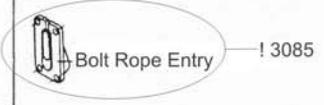
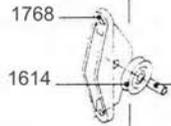
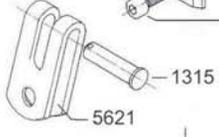
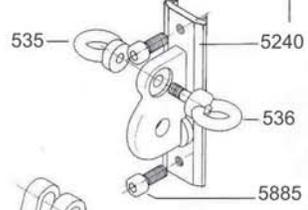
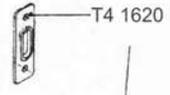
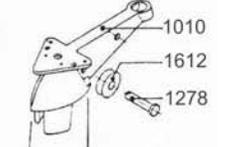
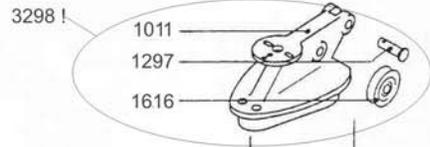
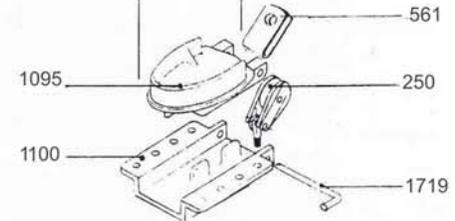
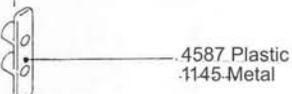
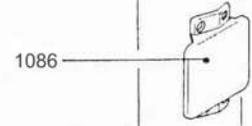
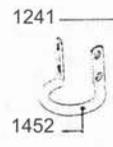
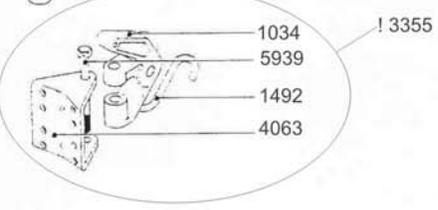
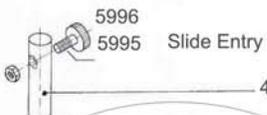
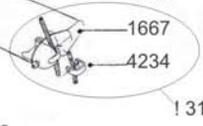
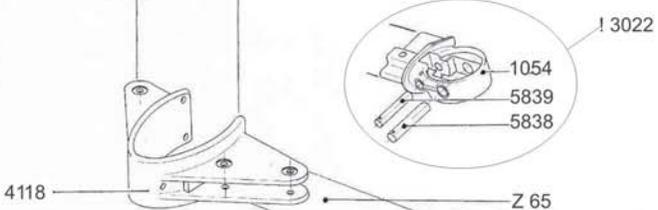
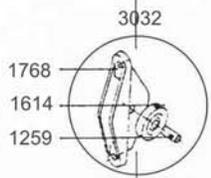
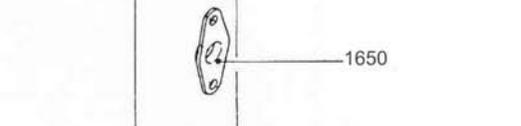
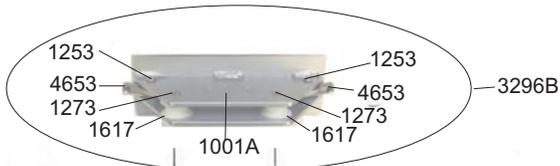
Z 170

MASTS

Z 170 7/8

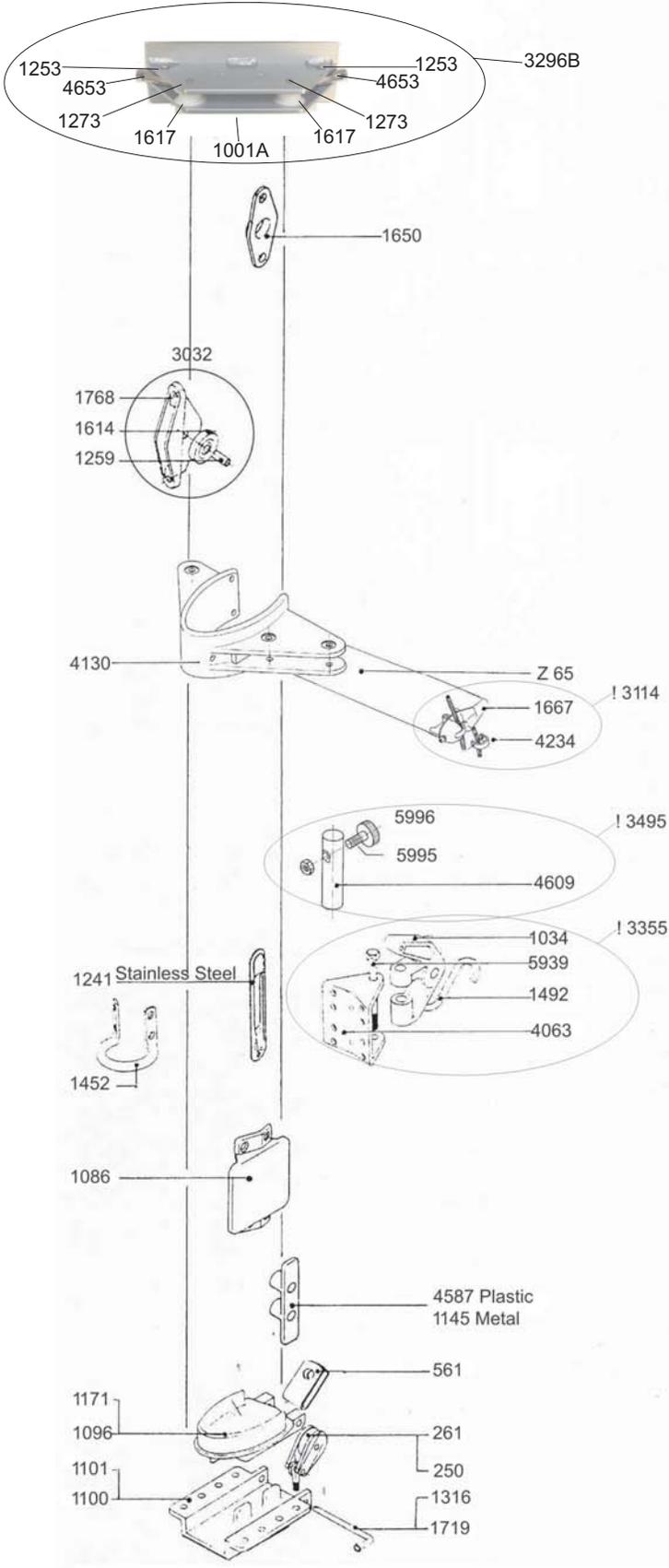
Z 170 Taper

NEW MASTHEAD FOR Z170, Z190, Z230



Z 190

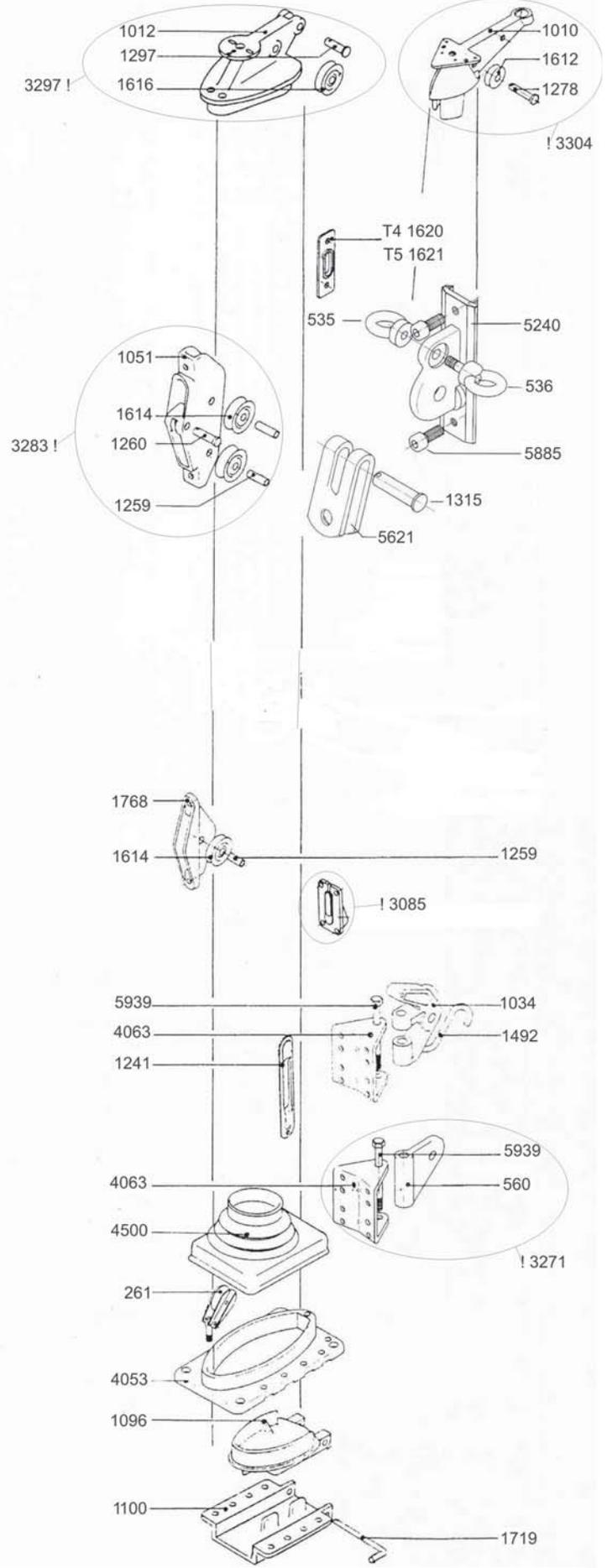
NEW MASTHEAD FOR Z170, Z190 & Z230



MASTS

Z 190 7/8

Z 190 Taper



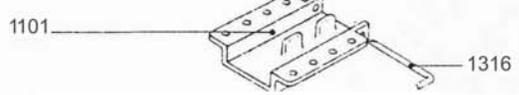
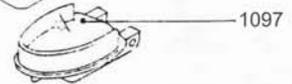
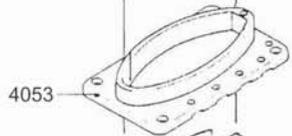
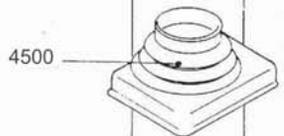
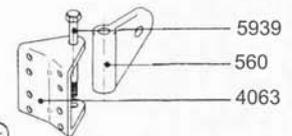
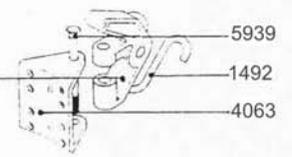
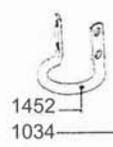
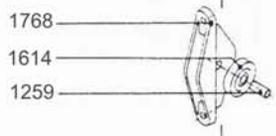
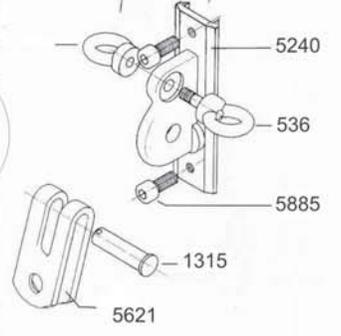
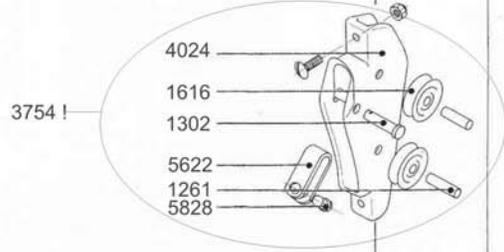
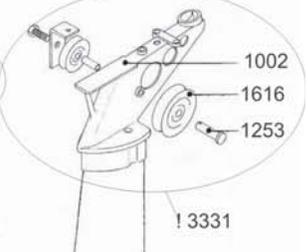
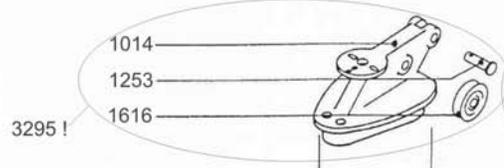
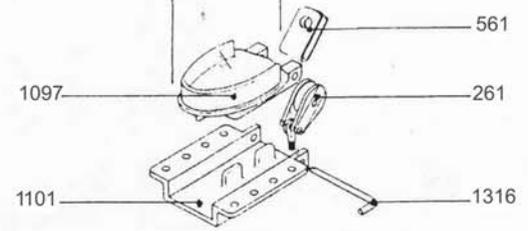
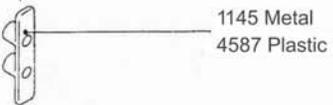
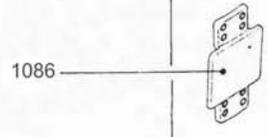
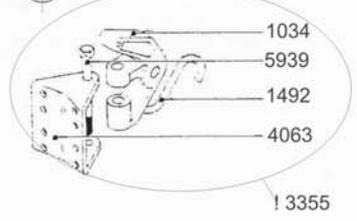
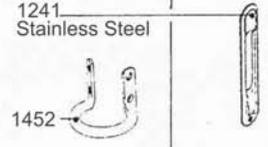
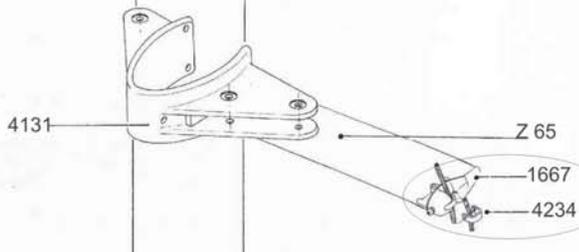
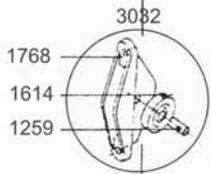
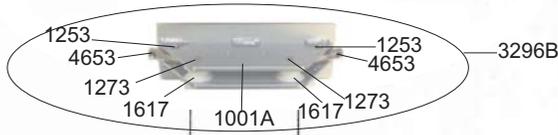
Z 230

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Z 230 Taper

NEW MASTHEAD FOR Z170, Z190 & Z230

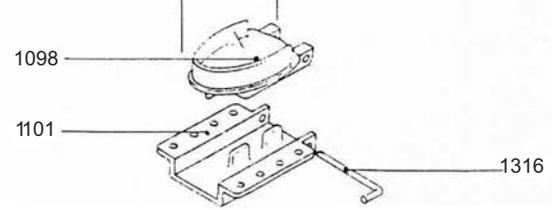
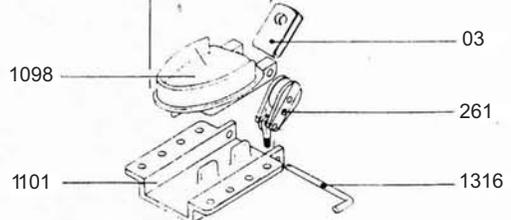
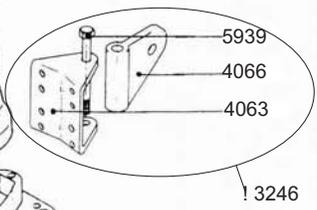
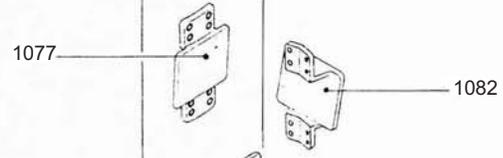
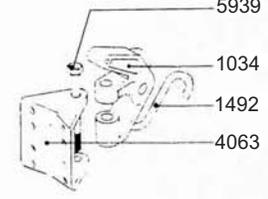
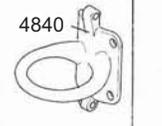
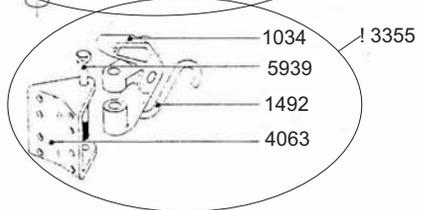
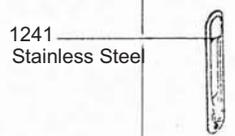
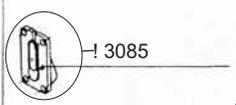
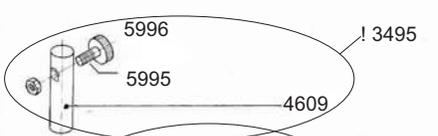
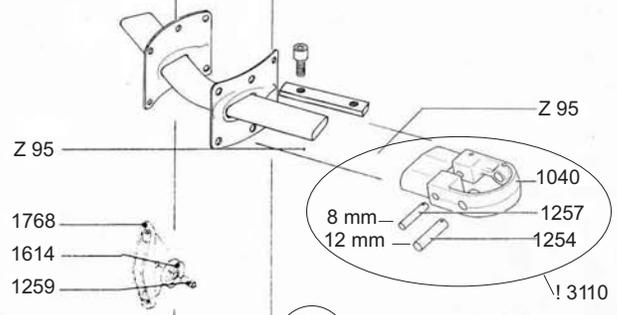
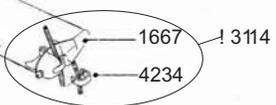
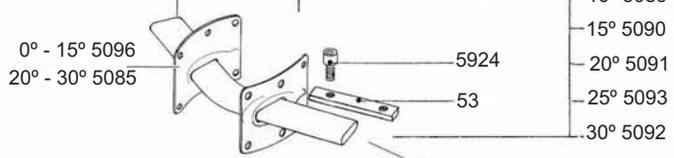
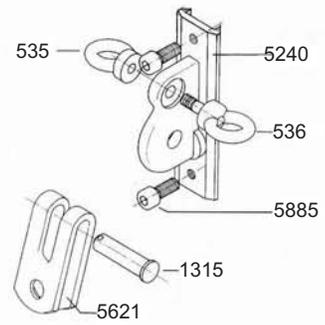
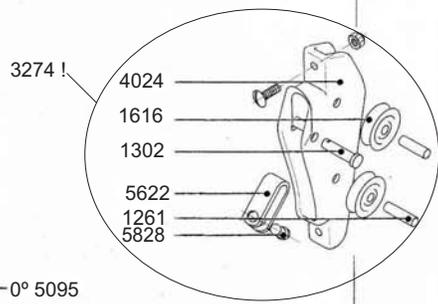
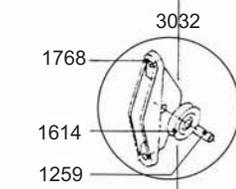
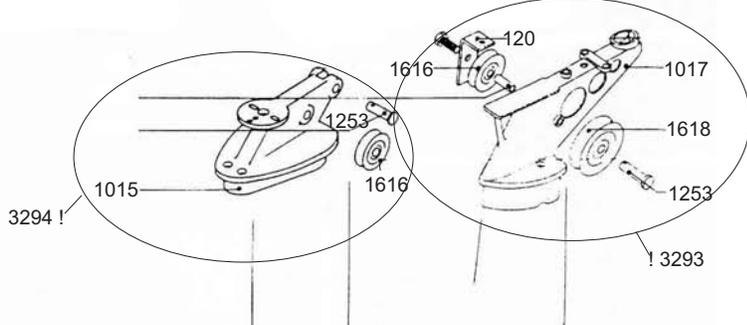
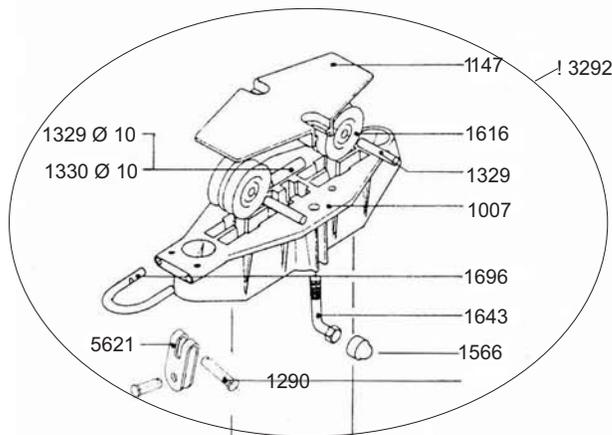


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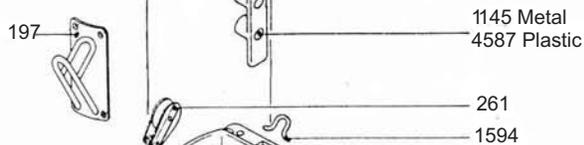
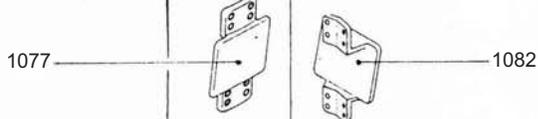
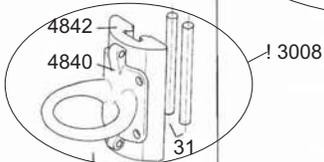
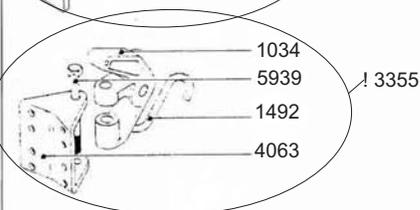
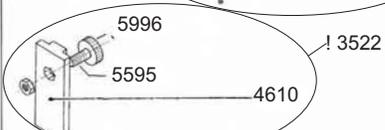
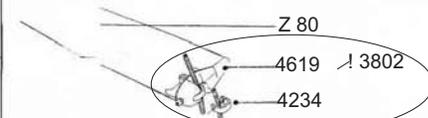
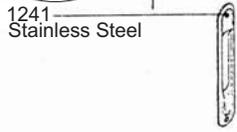
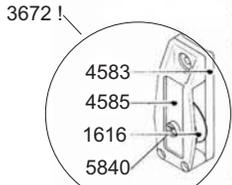
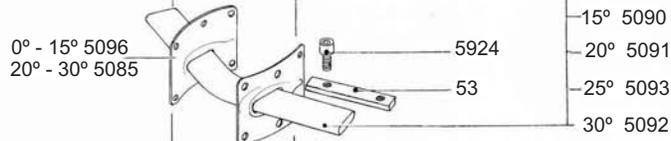
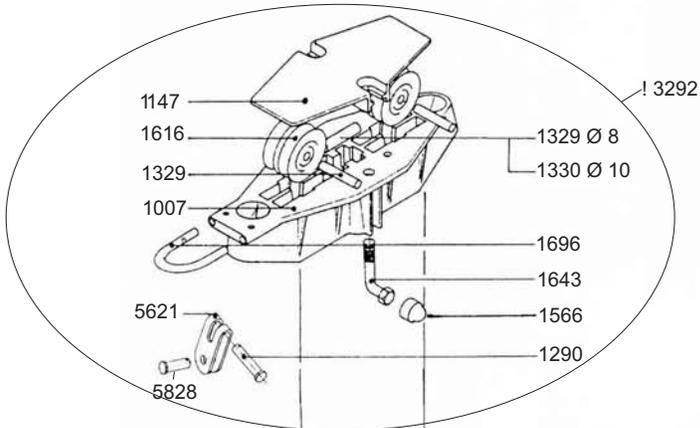
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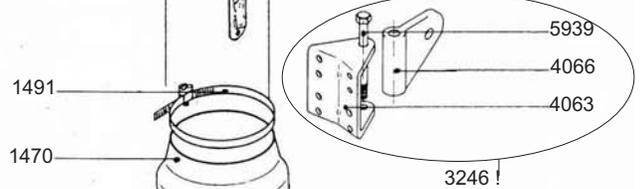
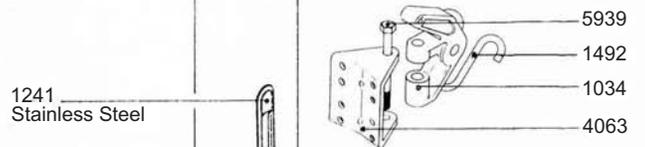
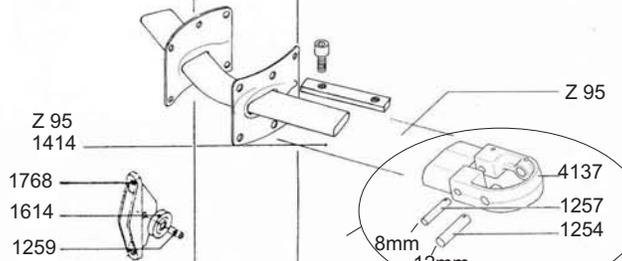
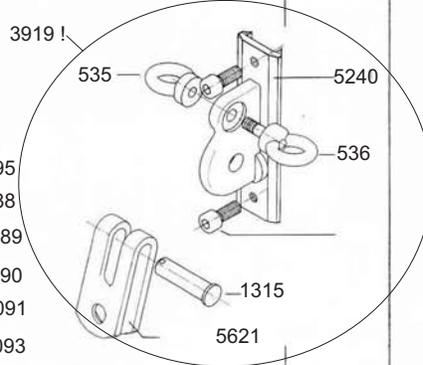
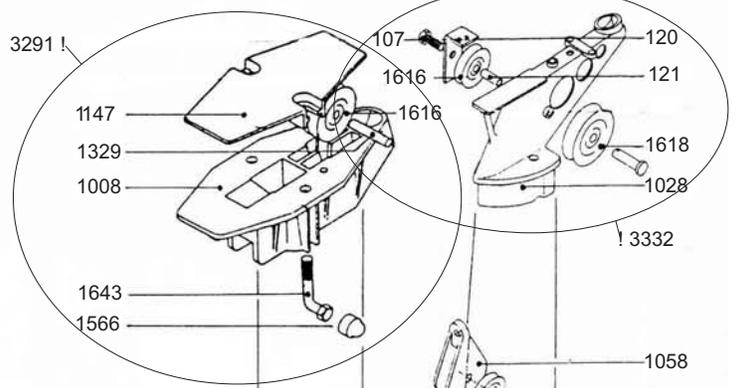


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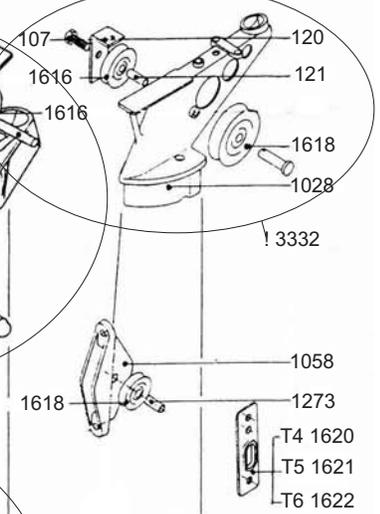
Z 351



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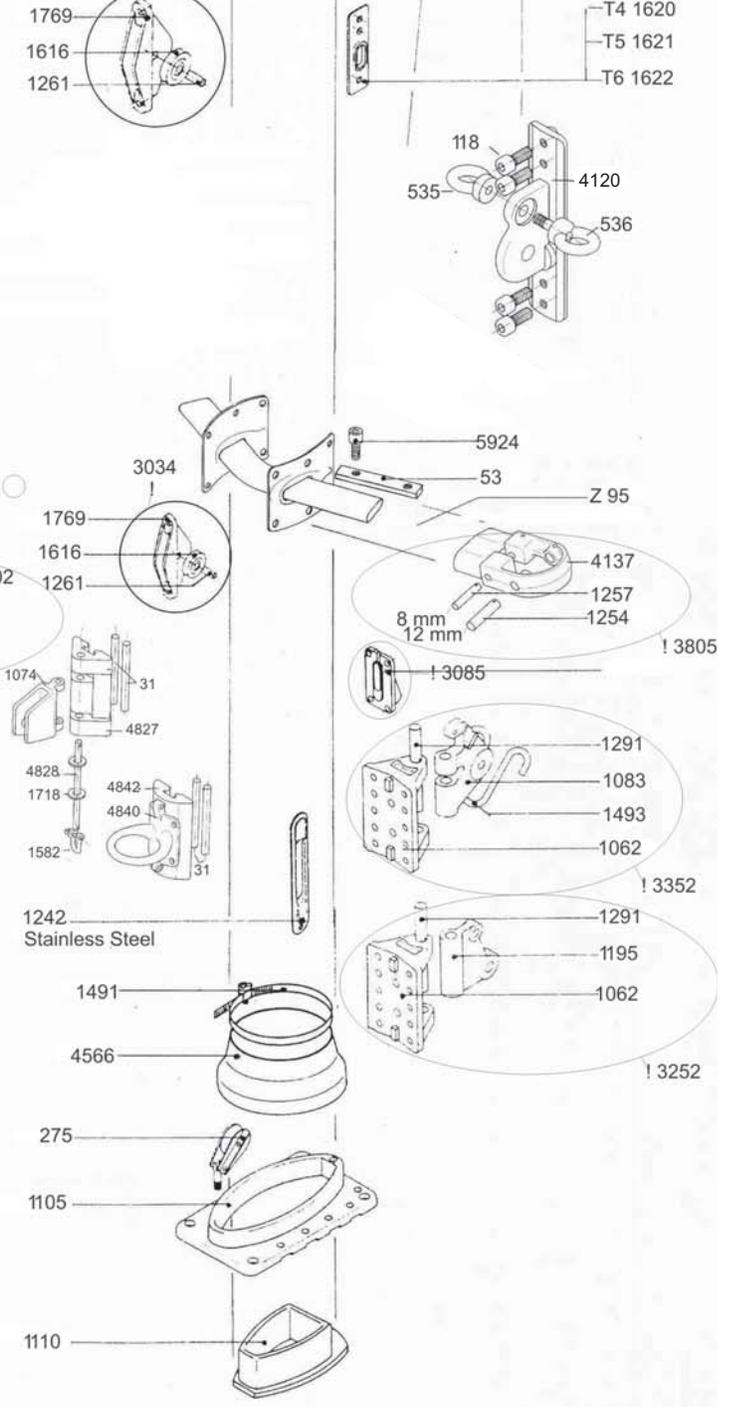
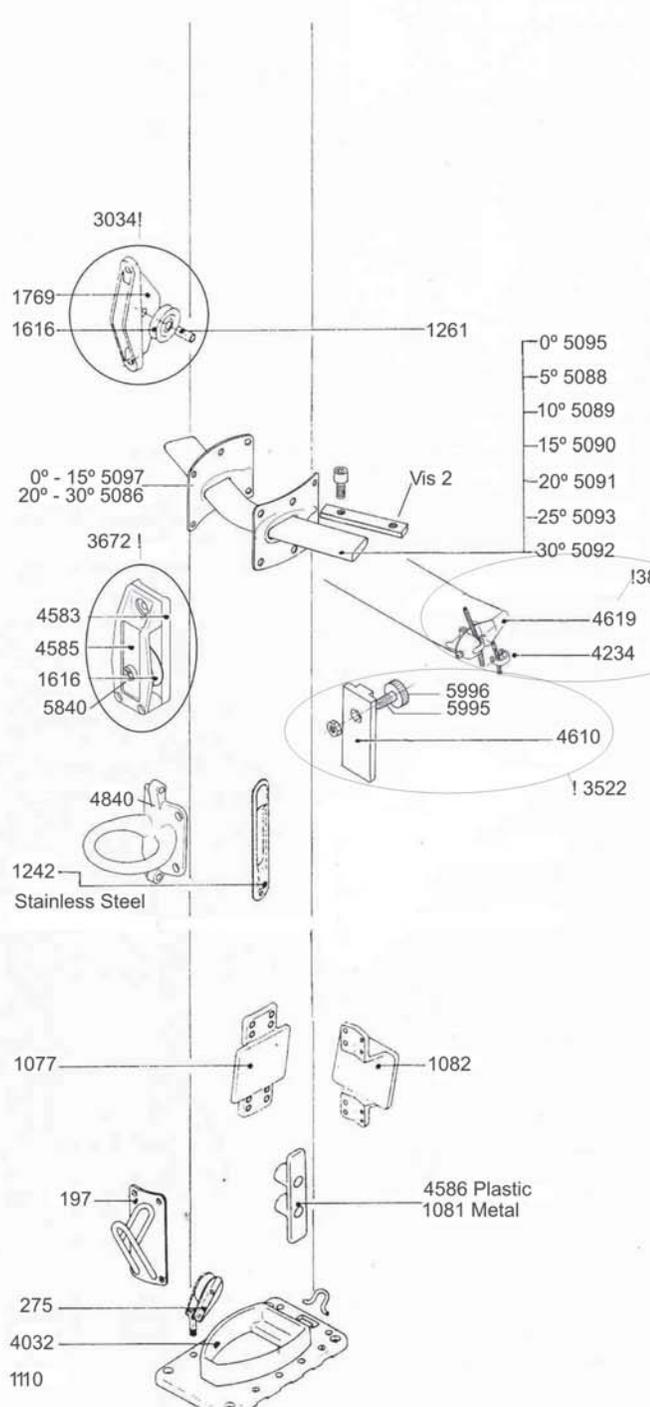
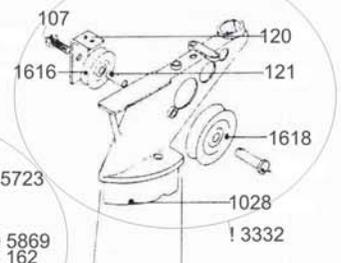
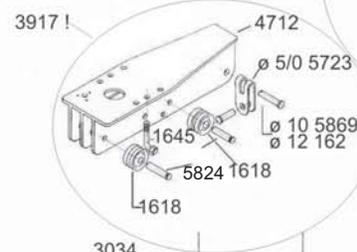
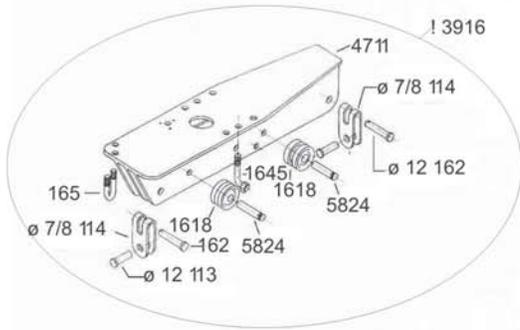


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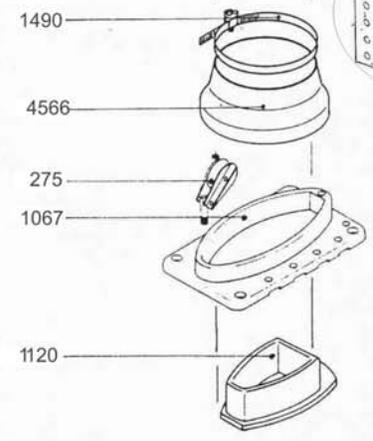
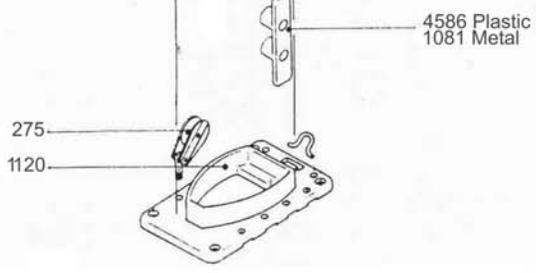
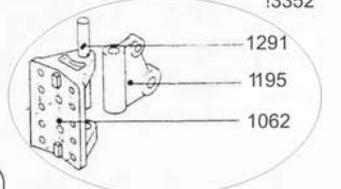
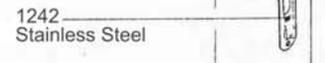
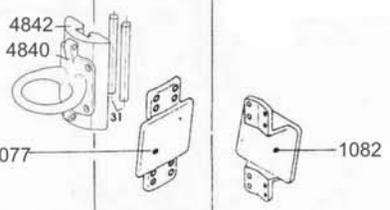
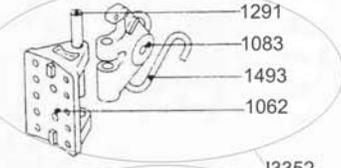
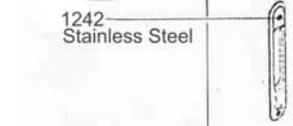
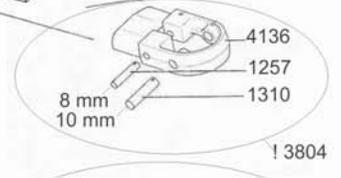
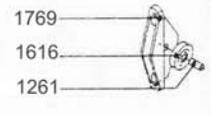
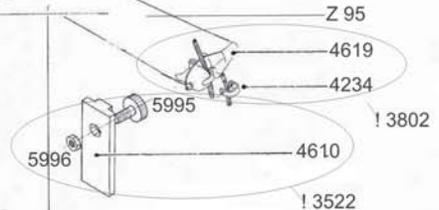
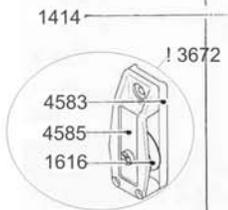
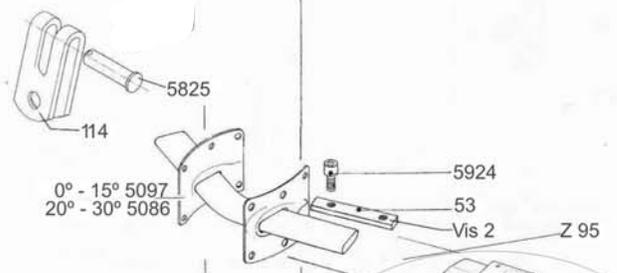
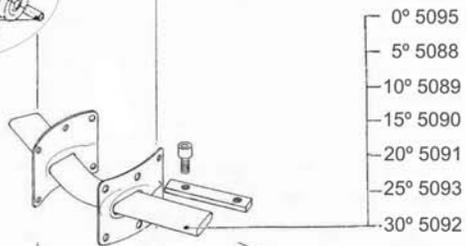
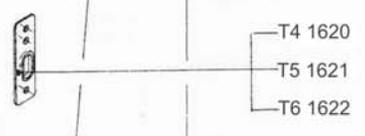
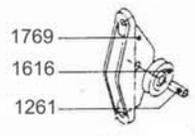
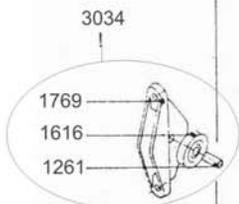
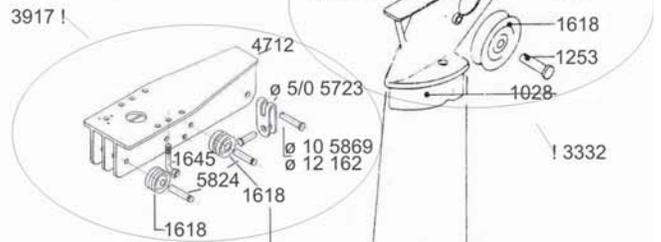
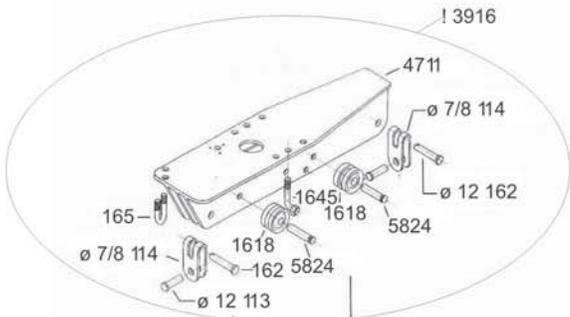


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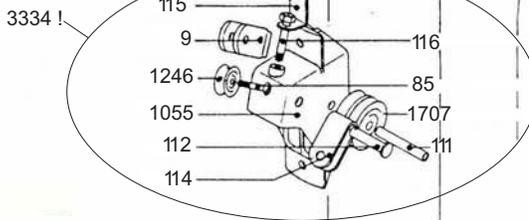
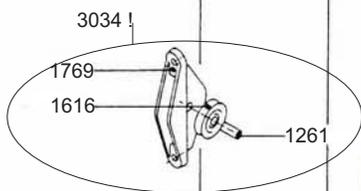
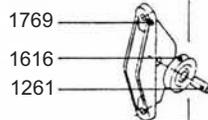
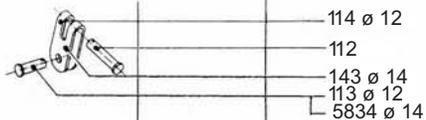
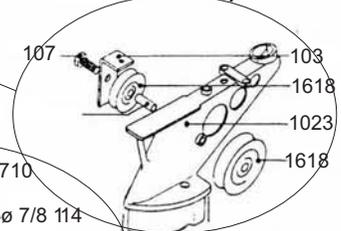
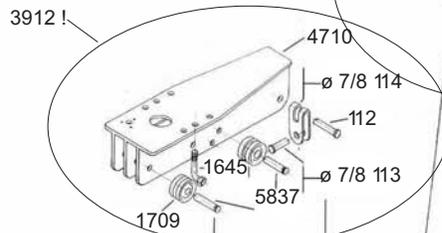
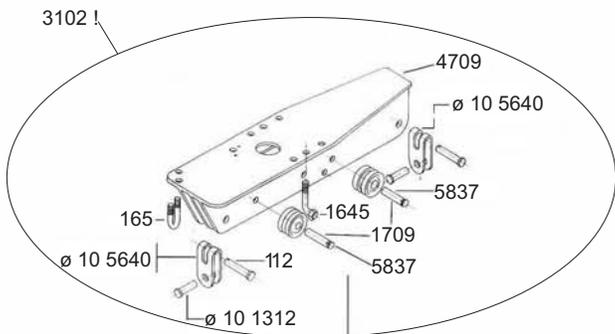


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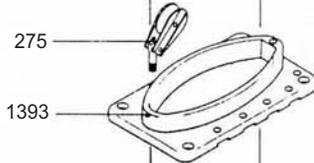
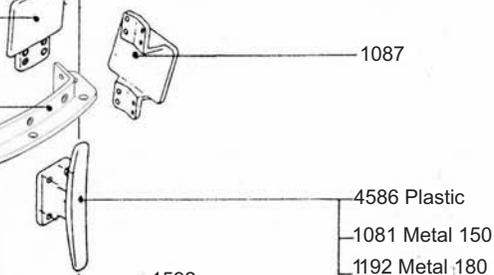
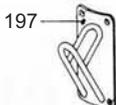
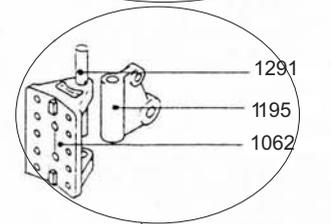
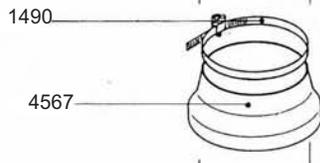
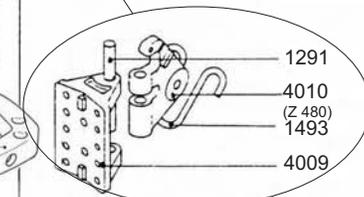
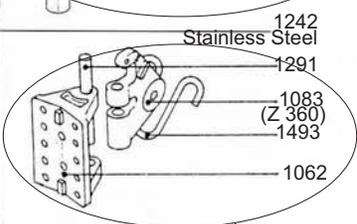
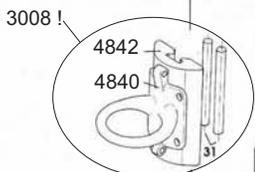
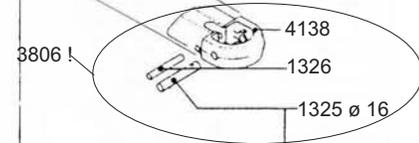
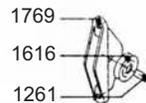
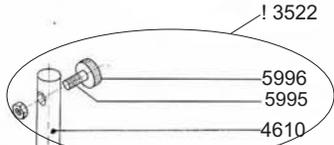
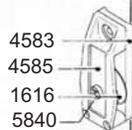
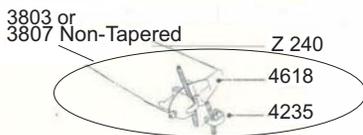
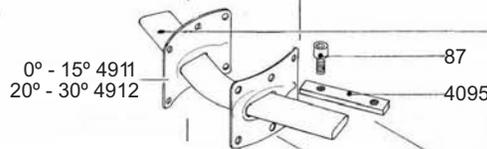
Z 602

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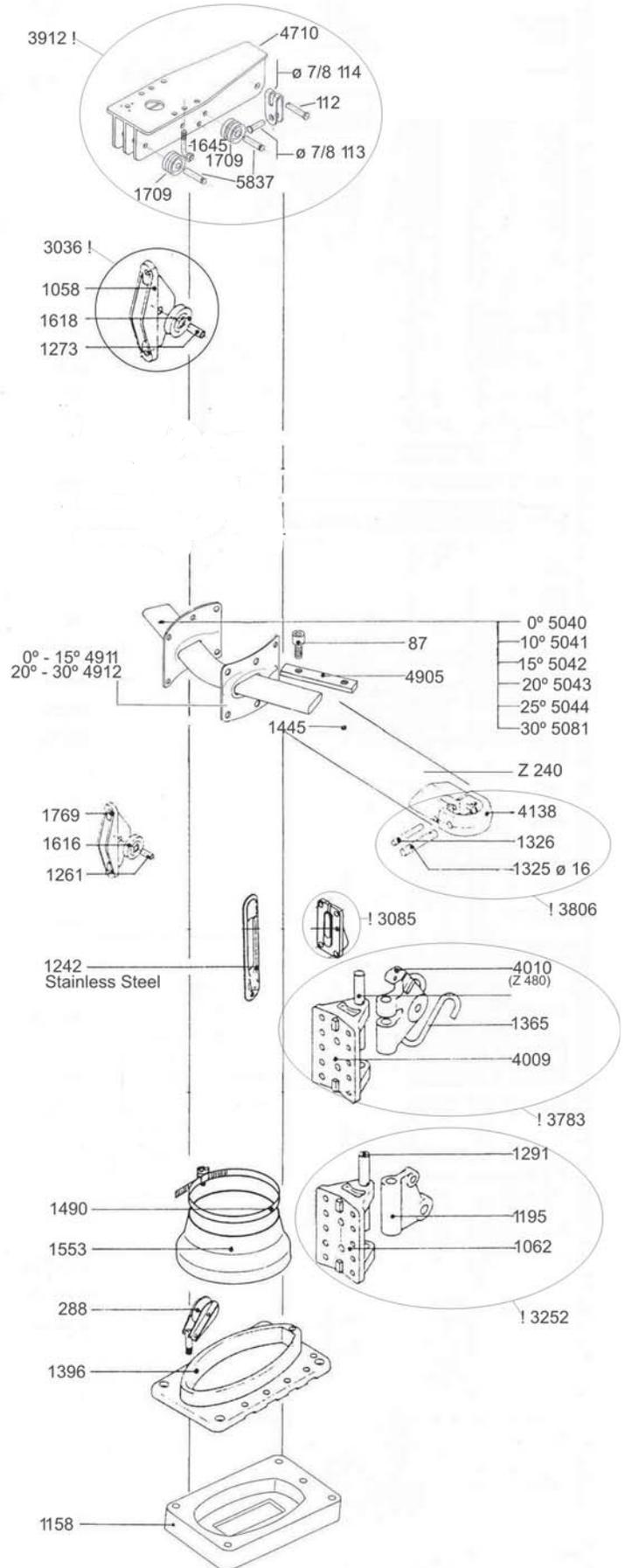
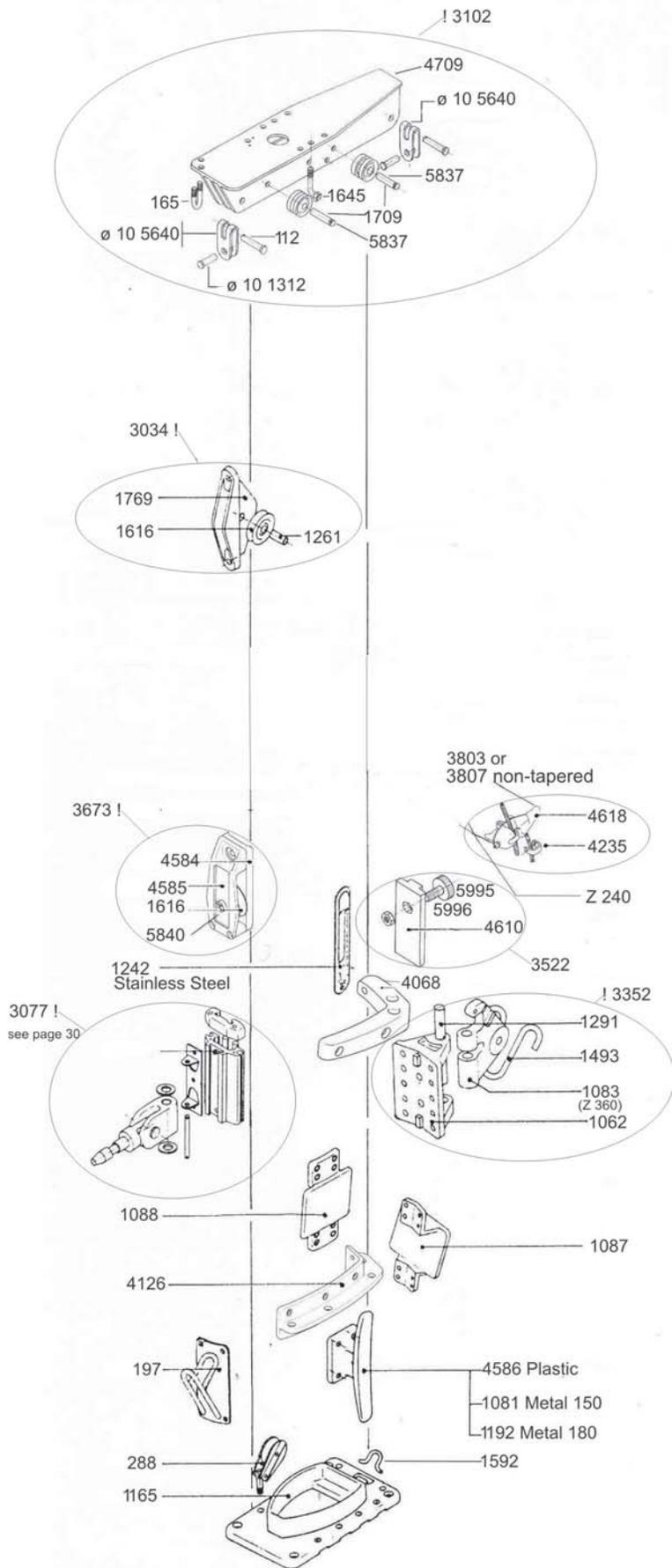
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- 10° 5041
- 15° 5042
- 20° 5043
- 25° 5044



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Z 702

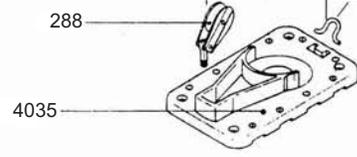
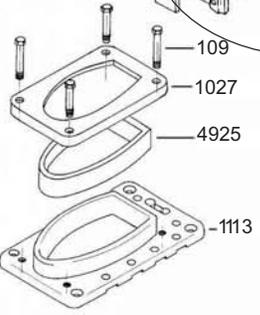
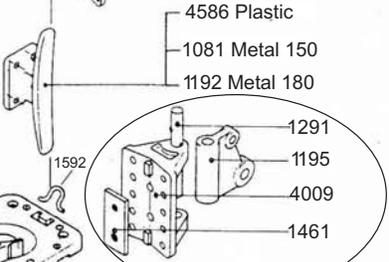
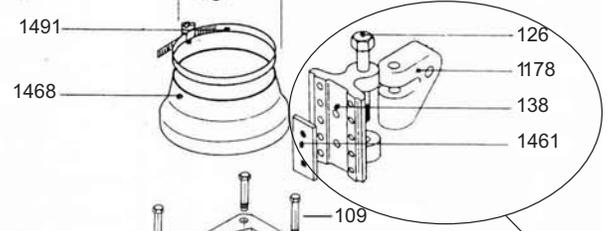
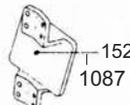
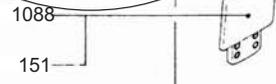
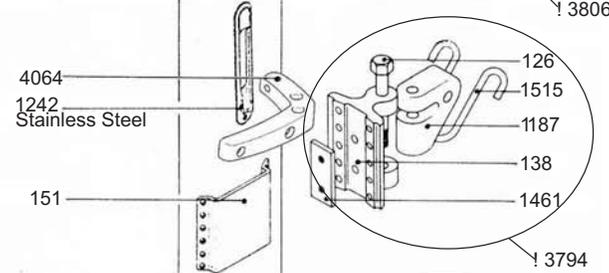
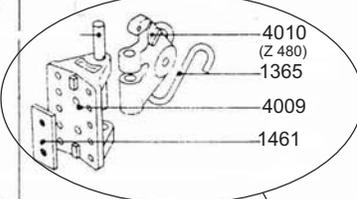
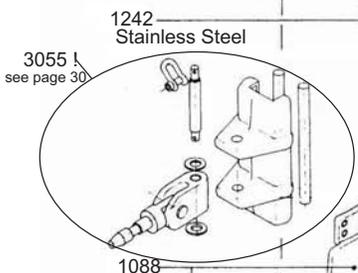
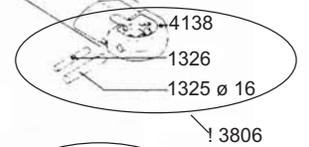
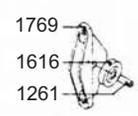
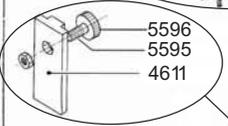
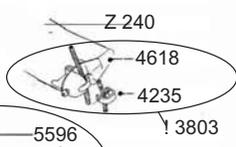
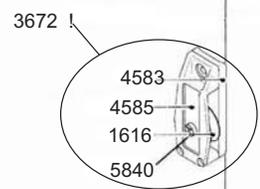
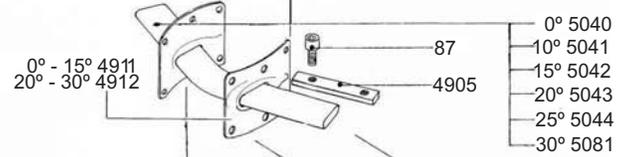
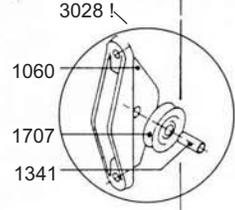
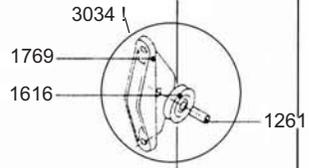
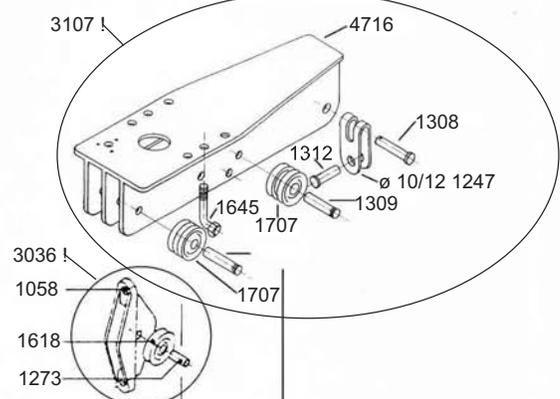
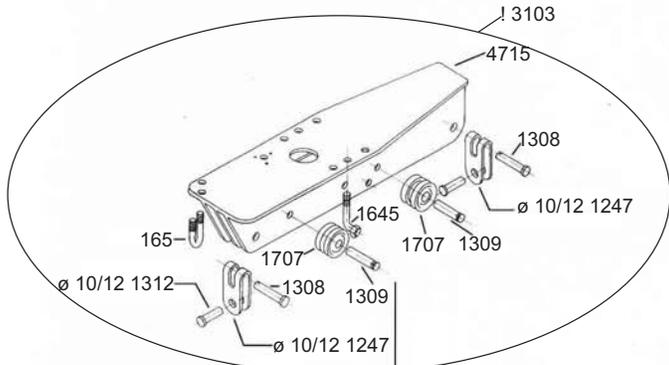
Z 702 7/8



Z 902

MASTS

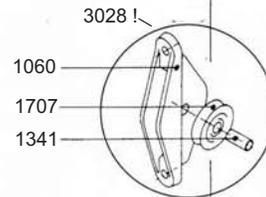
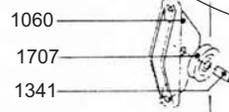
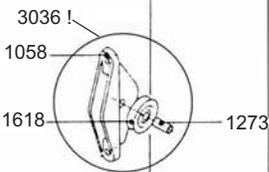
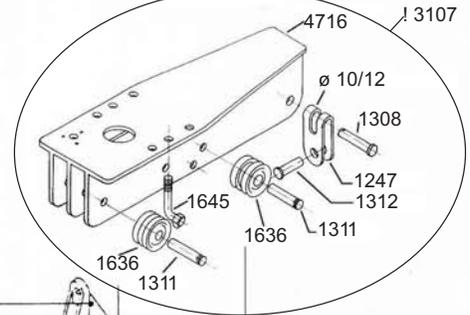
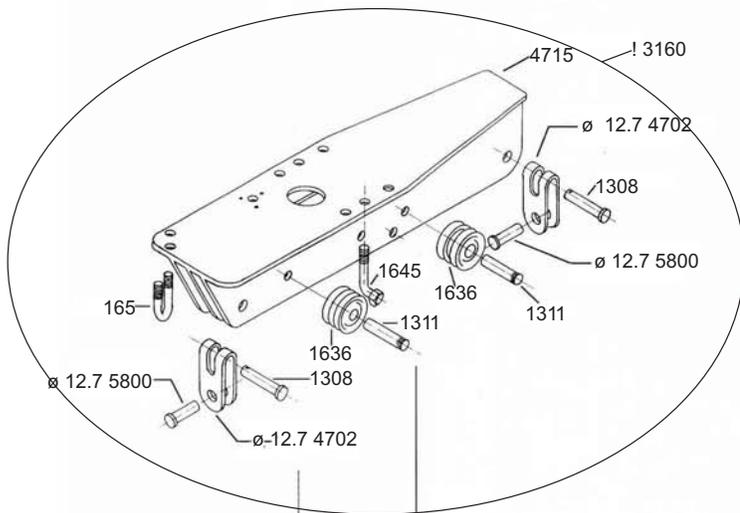
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MASTS

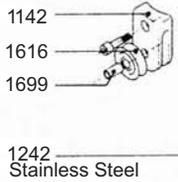
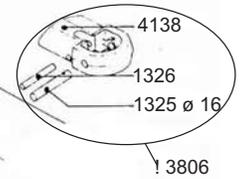
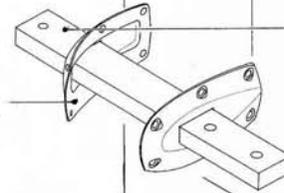
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Z 1001 7/8

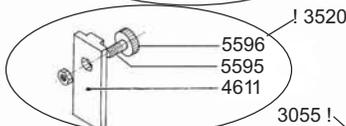
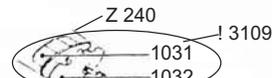


- 0° 5040
- 10° 5041
- 15° 5042
- 20° 5043
- 25° 5044
- 30° 5081

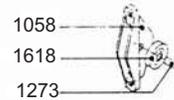
- 0° - 15° 4913
- 20° - 30° 4914



1242
Stainless Steel



3055
see page 30



1242
Stainless Steel

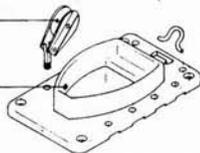
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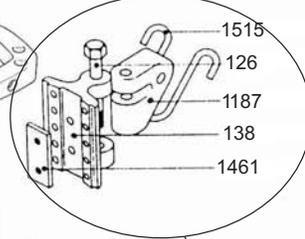
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1394

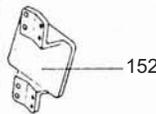


1081 Metal 150

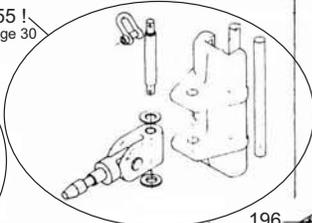
1192 Metal 180



3794

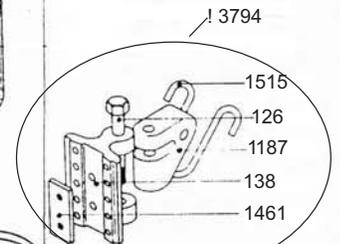


152



196

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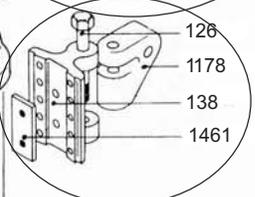
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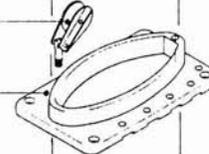
138

1461

3811

288

1174



1161

Mainsail Furling Masts

**U.S. Spars Furling Masts can accept the” Power batten
main systems” which incorporates vertical battens.**

Phone:(800)-928-0786 or (386)-462-3760

Fax (386) 462 3448

Web: www.usspars.com

U.S Spars Routine Maintenance for In-Mast Furling System

Although your U.S Spars mainsail furling system needs minimum maintenance there is a need to implement a schedule of preventative service. From the first sail of your boat you will need to start your routine maintenance schedule to keep your furling mast in top working order. These simple steps that follow will keep your system working in the best condition possible, giving you years of service.

1. Once your mast is exposed to the elements, air born particles will start collecting on the ball bearing races in your furling drum and boom car. These particles can compact around the bearing housing and significantly disrupt the smooth operation of your system. We recommend that you flush the bearings in the drum or drive unit located in the aft face of the mast just below the boom. You can see the ball bearings at the lower and upper end of the drum; it is these bearings that you must flush. You will get the best flushing results if you unfurl and furl the sail while you flush the bearings. It is best to carry this out with no or little breeze as possible. All you need to flush is fresh water if you happen to be in a marina then a hose can increase pressure which will help disperse any debris build up. Your ball bearing boom car should receive the same treatment. You should also clean the boom track as regularly as possible.

2. The halyard swivel, which is the unit that the head of your sail attaches to and is then raised with the sail, needs very little maintenance as it is well protected by the mast. As part of your maintenance schedule you should remove your mainsail every year and at this time the halyard swivel will be lowered, you can access this unit from one of the four inspection holes above the boom. You can see the lower bearing set in the swivel, this needs to be flushed as you did for the drum.

3. After flushing you will need to lubricate the bearings of the drum, halyard swivel and boom car. There are many different lubricants on the market, we have found that simply using WD40 on the drum and swivel works well, you should be careful of over spray with this product. For the boom car which has Torlon bearings we have found Mc Lube works well. You should avoid any heavy grease lubricant as this will attract more dirt and debris.

4. Changing the furling inhaul line that wraps around the drum is generally needed every couple of years, but this does depend on the condition of the line. If you notice a deterioration of the line then you should replace it. You will need to identify your system to establish the correct line size. Our small unit as used on Beneteau 323, 343, 331, Hunter 27 uses a 5/16 line, our larger system as used on the Beneteau 393, 423, 473 requires a 3/8" line. Lengths vary for individual boat models. As a general rule if you install 60' of line you will have more than enough for any model. Our office can give you exact line lengths for all the models upon request. To identify your systems you need to look at the center of the drum unit. The larger unit has a large central vertical rod, and two smaller vertical side rods. The smaller unit has a solid cast aluminum body with no vertical rods. To replace the line you will need to part way remove the drum from the mast, this is made easier by removing the mainsail first. With the sail off, the system will spin free and all the line can be pulled off the drum. You will notice four main fixings on the aft face of the drum, with our smaller system these will be

either 6mm Allen head bolts or 8mm nuts, the larger system will have 8mm bolts. Remove all four fixings. There will also be two side fixing that hold the rope guard in place. On the smaller system the guard is a cover plate on the port side with a screw fitted top and bottom, the larger system has a vertical rod port and starboard with a tab welded to the center of the rod, the screw goes through the tab, so you have one fixing each side half way up the drum. With all six fixings removed, the drum can be pulled away from the mast. You may need to apply some pressure to the drum to get it moving. Lever the drum away from the mast at the bottom first then the top. The idea is not to completely remove the drum but to allow the bottom of the drum to come clear of the mast which will allow access inside the end of the drum where the line is tied in a knot. Using a pair of long nose pliers you can pull the knot out the end of the drum and untie it; this will allow the line to be pulled totally out of the drum.

5. To re-install a new furling line the procedure is the reverse of the line removal instructions. Push the new line in the drum. Tie the knot, and then replace the drum back in the mast. Install the protection plate or rods, at this point you will need to wind turns of line on the drum, this is done by turning the foil through one of the side inspection holes above the boom. It is advantageous to completely fill the drum with line, if you discover after sailing that you don't need a full drum you can pull some turns off the drum.

6. After a few seasons of sailing you may decide a full service of your furling drum would be of interest. We offer a service whereby you can completely remove the drum and send it to our factory in Florida for a full strip down service. Your drum will be completely stripped down and re-built; the line will be replaced along with any worn parts. The service will take no more than a day, and with UPS air services we can have it back to you the very next day. To completely remove the drum follow the instruction to replace the line, but this time ensure the large tack shackle is removed as this shackle also connects the foil to the drum. As you start to pull the drum away from the mast, keep going, the bottom of the drum will clear the mast, at this point pull the drum towards the deck you will need to support the rod while the drum is being removed, this is best achieved by tying a small line around the foil at one of the inspection windows and then around the mast. Once the drum is all the way out you can lower the foil to the deck, with keel stepped masts it would be best to leave the foil tied. The procedure to replace the drum unit is the reverse of the removal.

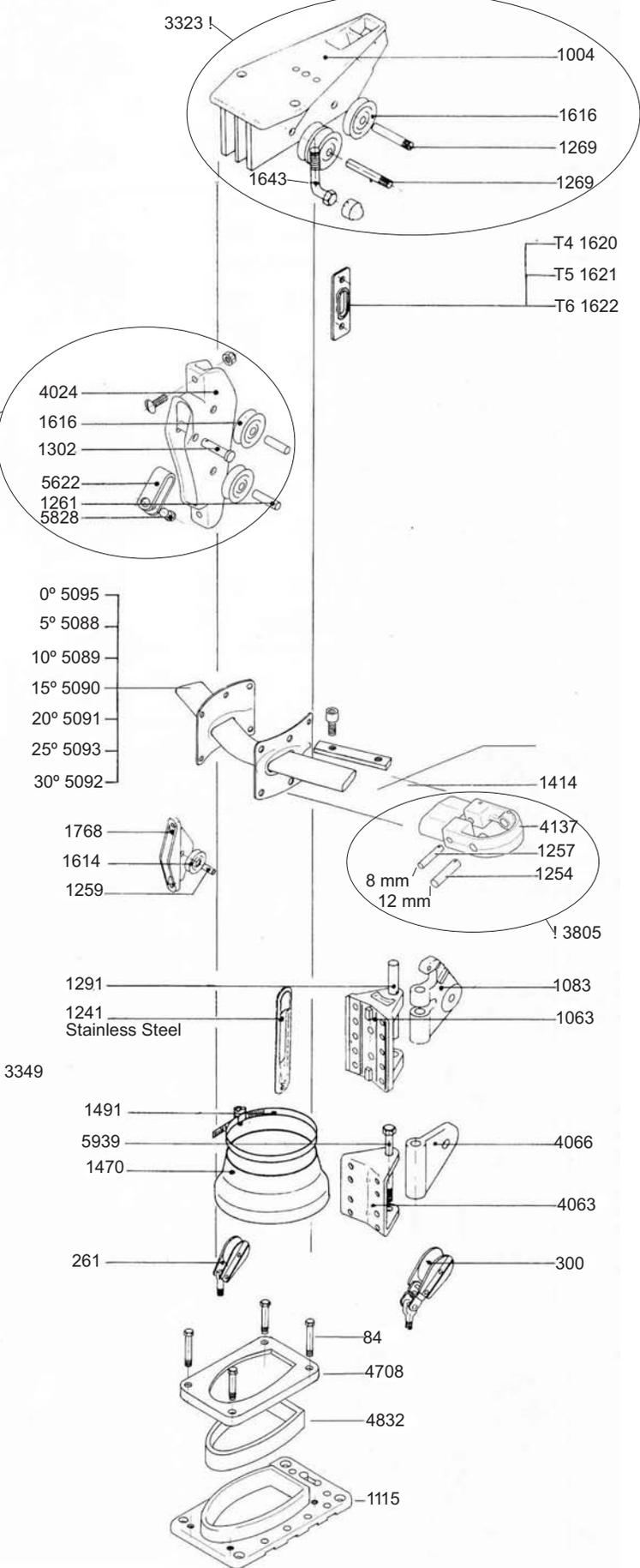
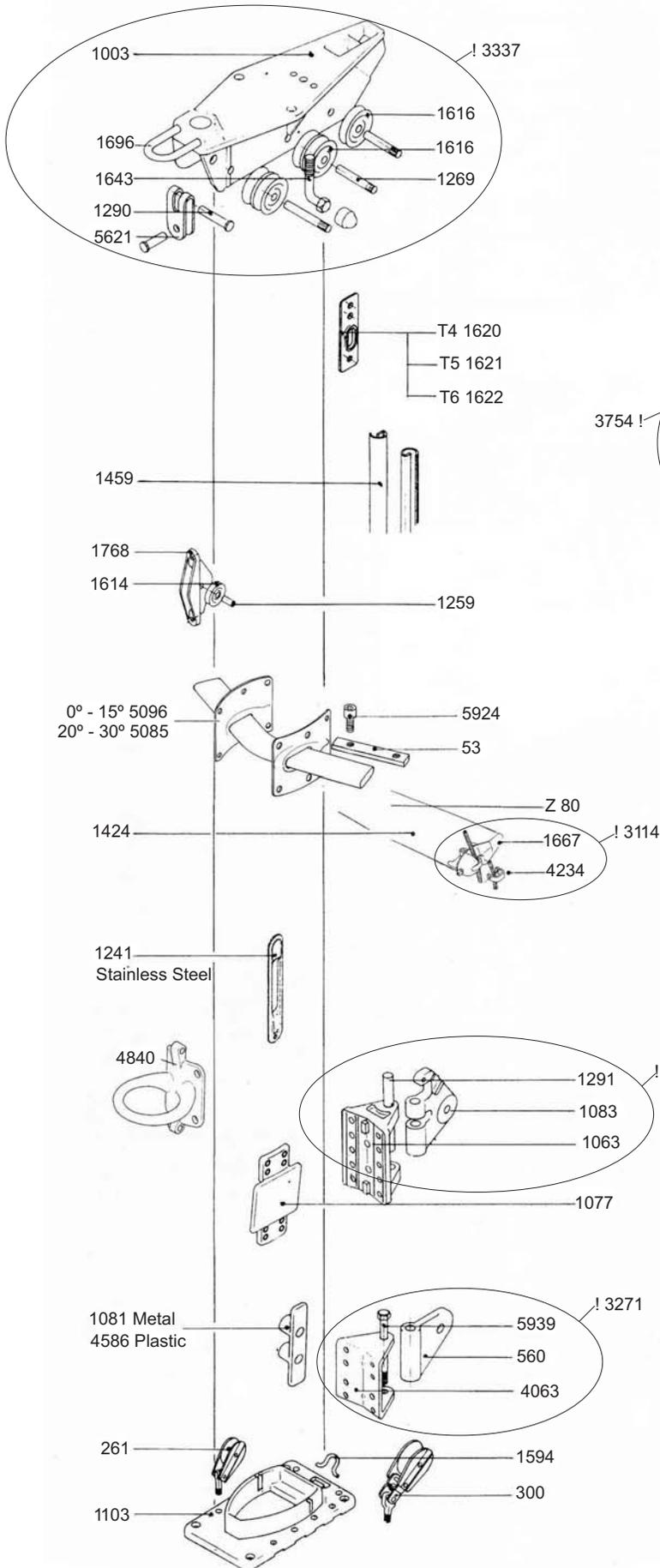
7. Your mainsail will need regular inspection for damage. Generally, sail longevity is affected by location, U.V. degradation and use. Having your sail inspected by a qualified sailmaker every two years is a good practice. They can determine if any small items warrant repair and can offer sail cleaning as well.

If you keep your furling system in good order you will have hours of great sailing without effort.

MASTS

Z 300 E

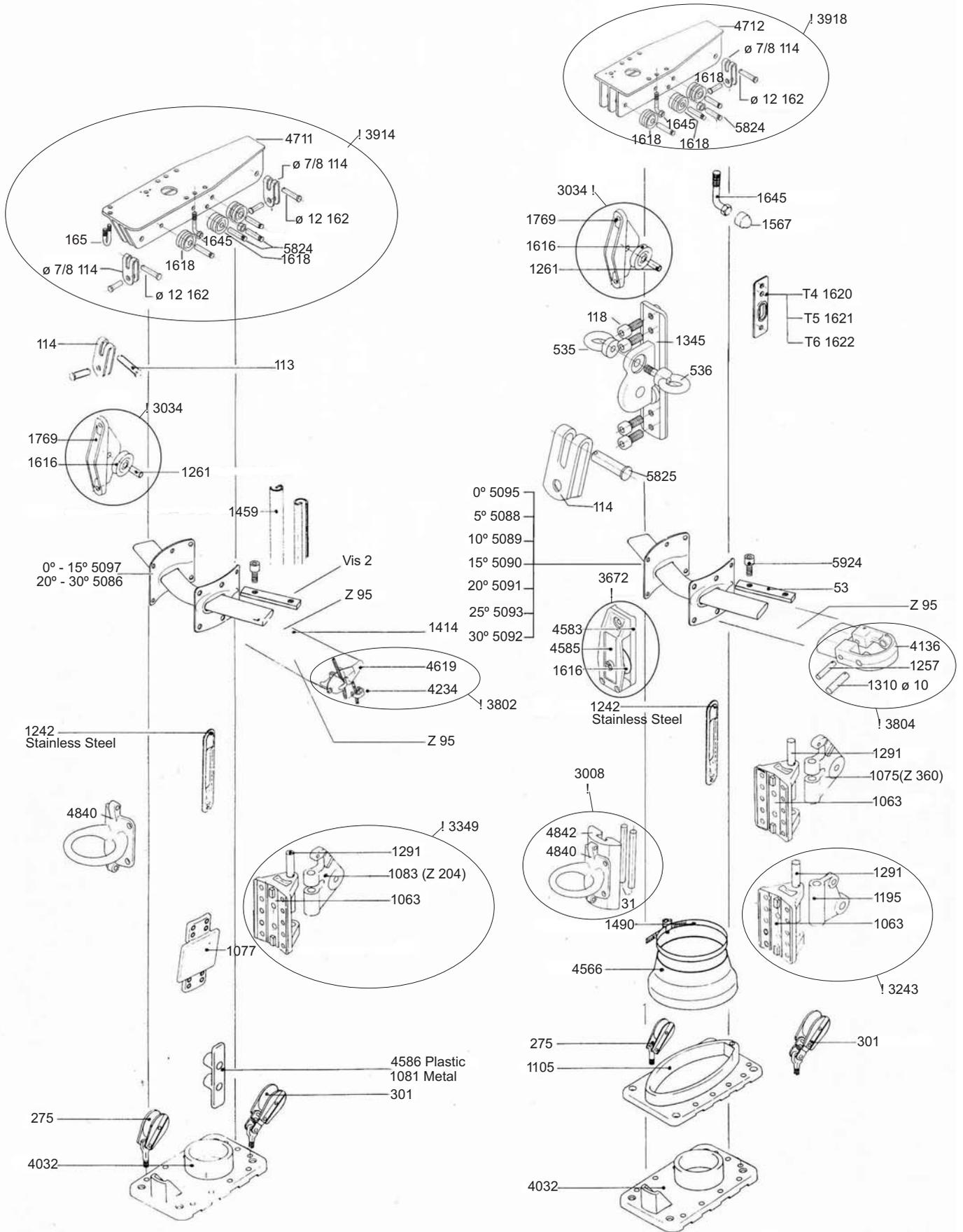
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FURLING MASTS

Z 400 E

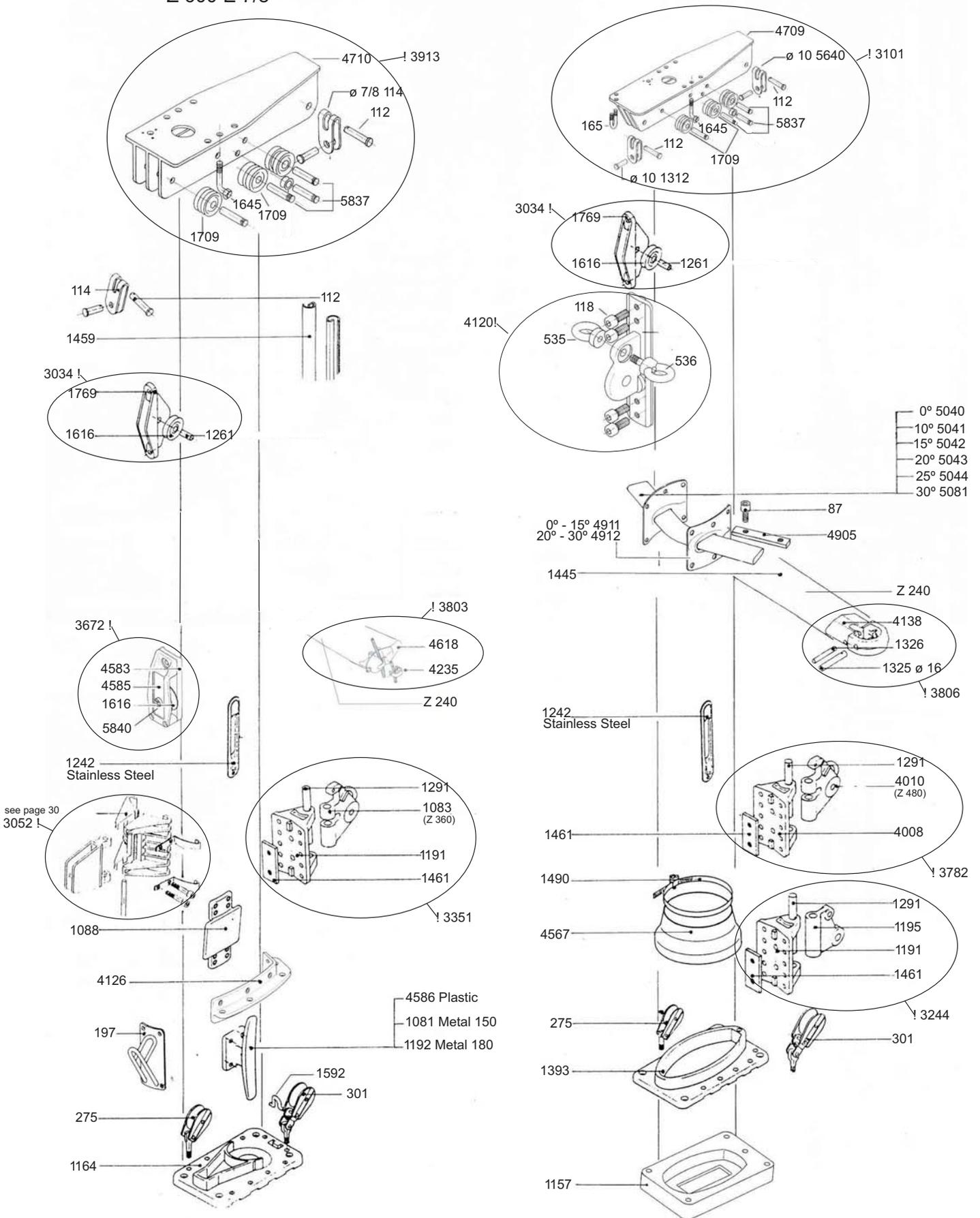
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FURLING MASTS

Z 600 E 7/8

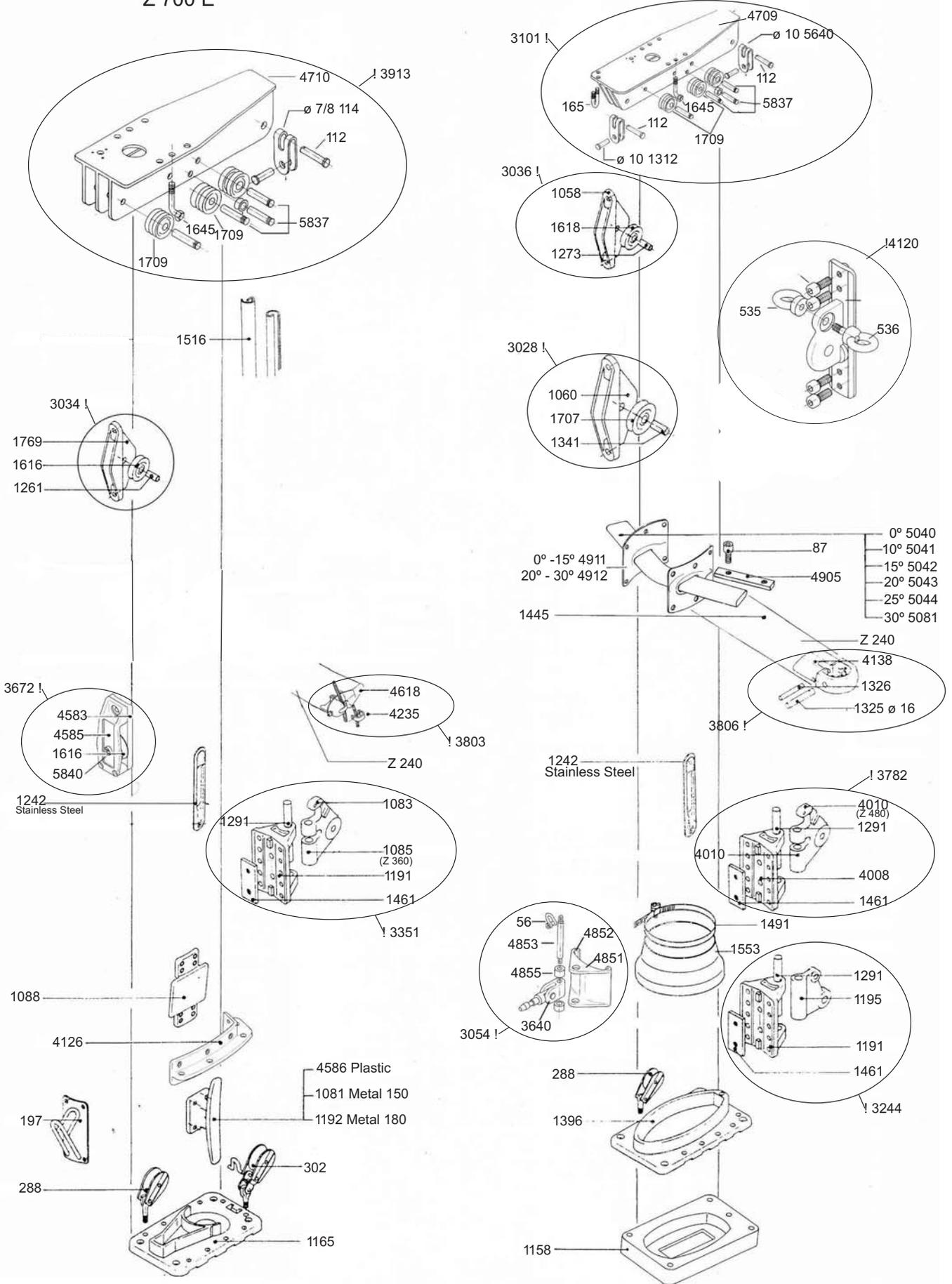
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FURLING MAST

Z 700 E

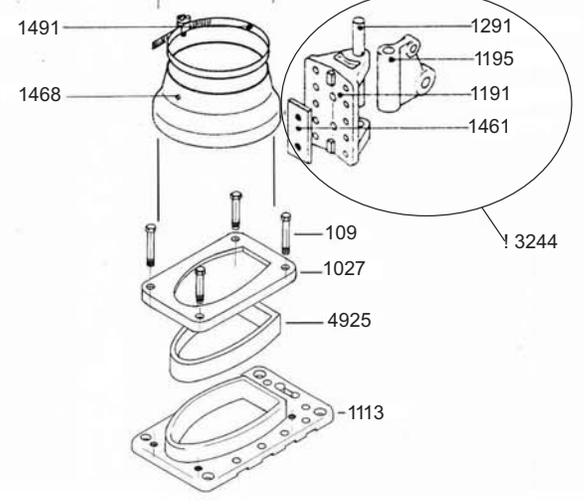
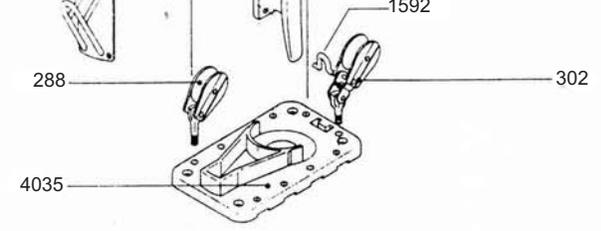
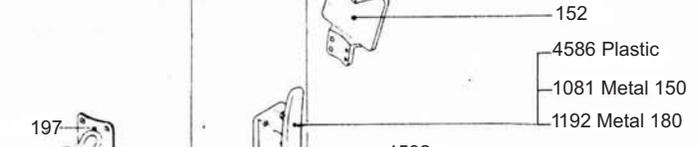
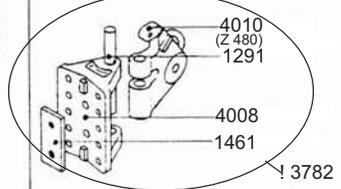
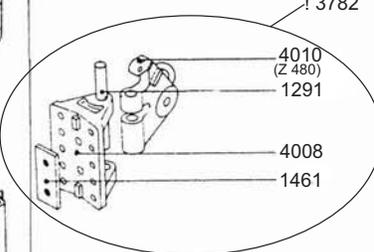
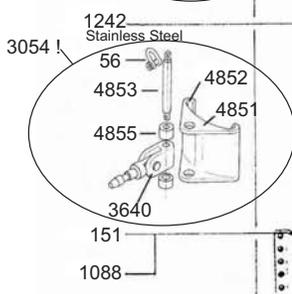
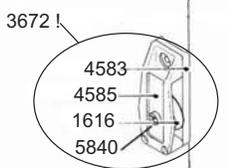
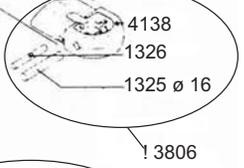
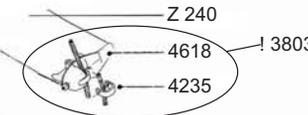
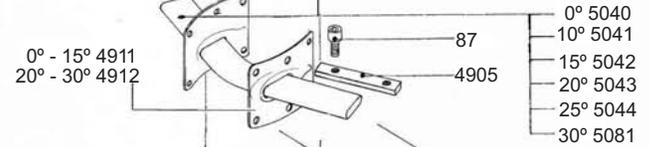
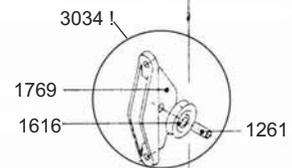
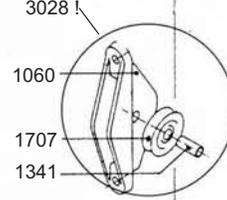
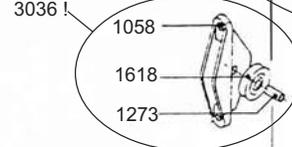
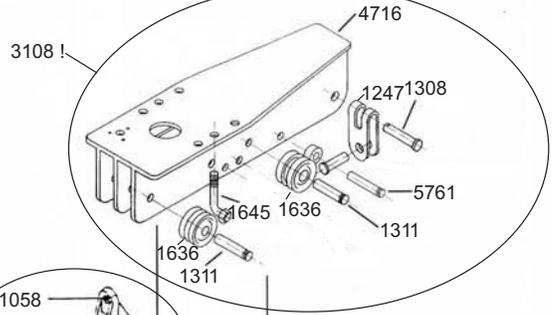
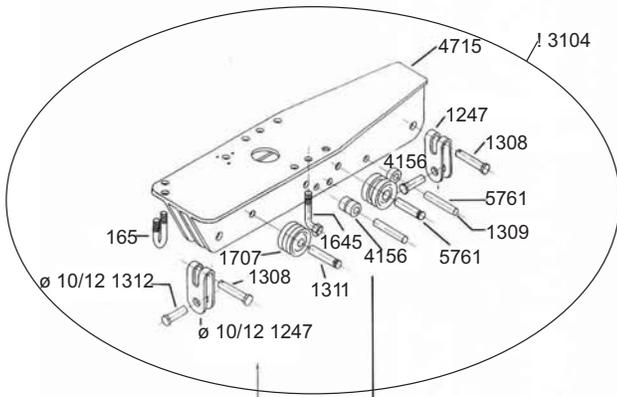
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FURLING MASTS

Z 902 E

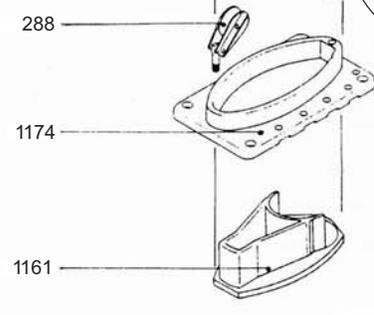
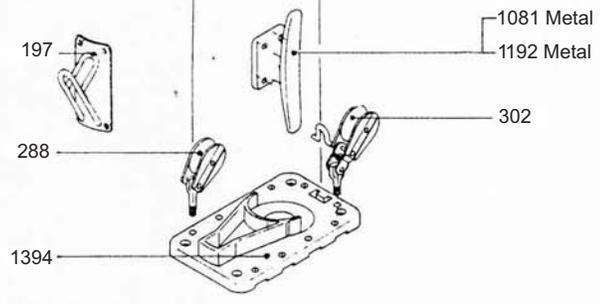
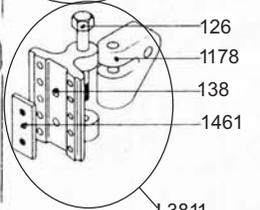
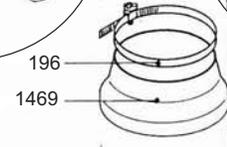
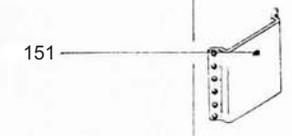
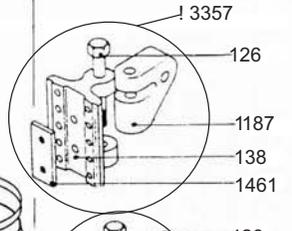
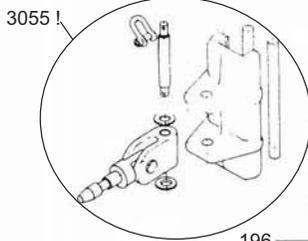
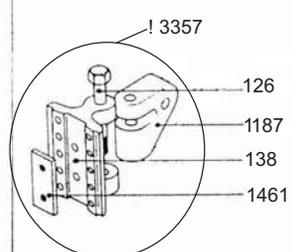
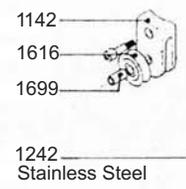
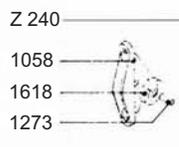
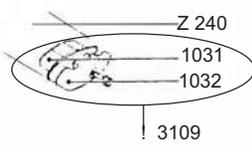
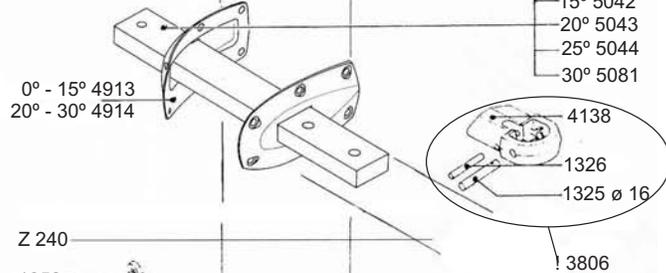
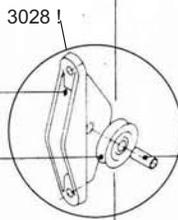
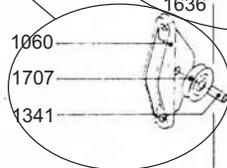
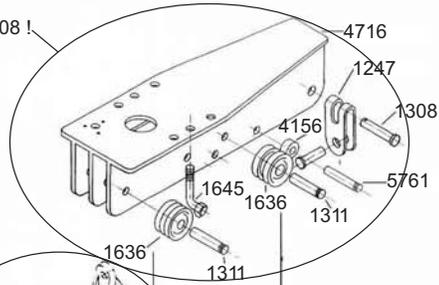
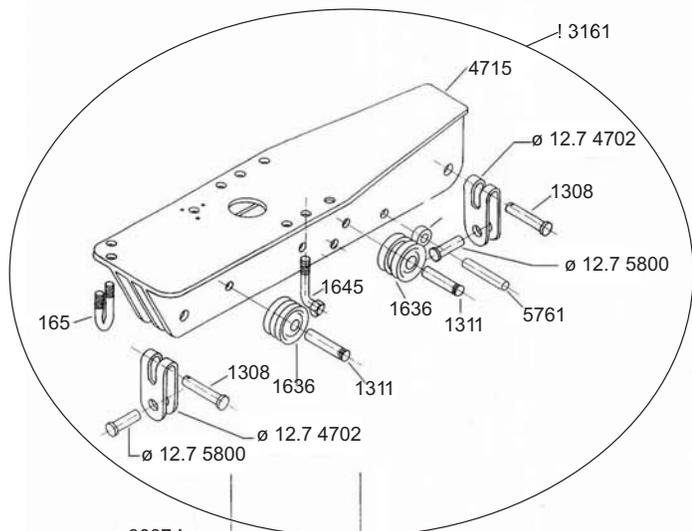
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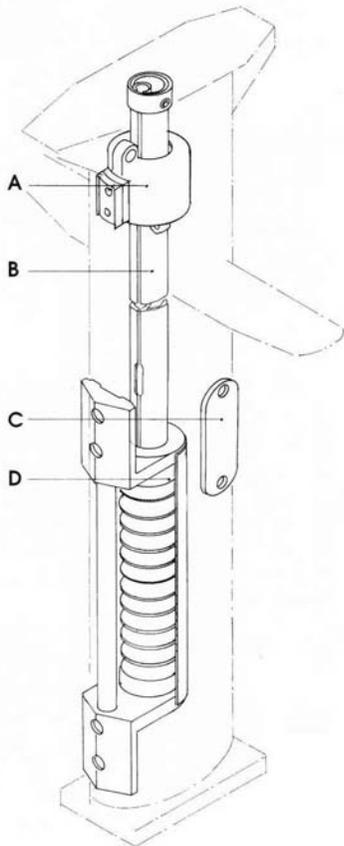
FURLING MASTS

Z 1100 E

Z 1100 E 7/8



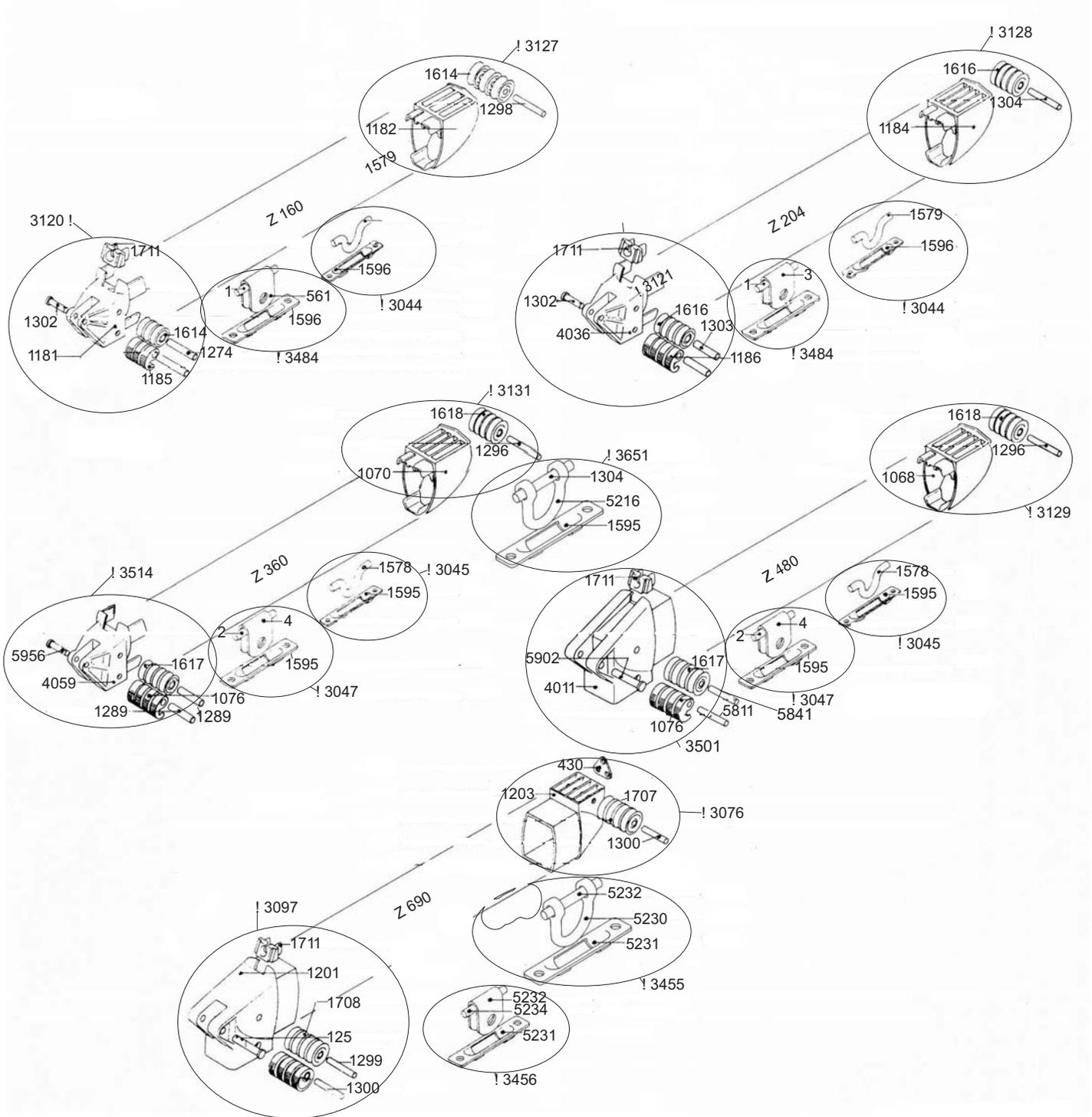
MAST FURLING MECHANISM



Section	Z 230 E	Z 300 E	Z 400 E	Z 500 E	Z 602 E	Z 702 E	Z 902 E	Z 1100 E	Z 1400 E
B Furling extrusion	Z 55	Z 55							
A Halyard swivel	3503	3504	3164	3164	3165	3165	3166	3159	3505
D Furling mechanism	3623								
D Furling mechanism with screw		3626	3626	3626	3625	3625	3622	3627	3627
C Maintenance cap	3247	3247	3247	3247	3247	3247	3247	3245	3245
Tack shackle	3208	3208	3208	3208	3208	3208	3208	3208	3208
Halyard swivel shackle	3168	3168	3168	3168	3168	3168	3168	1562	1562

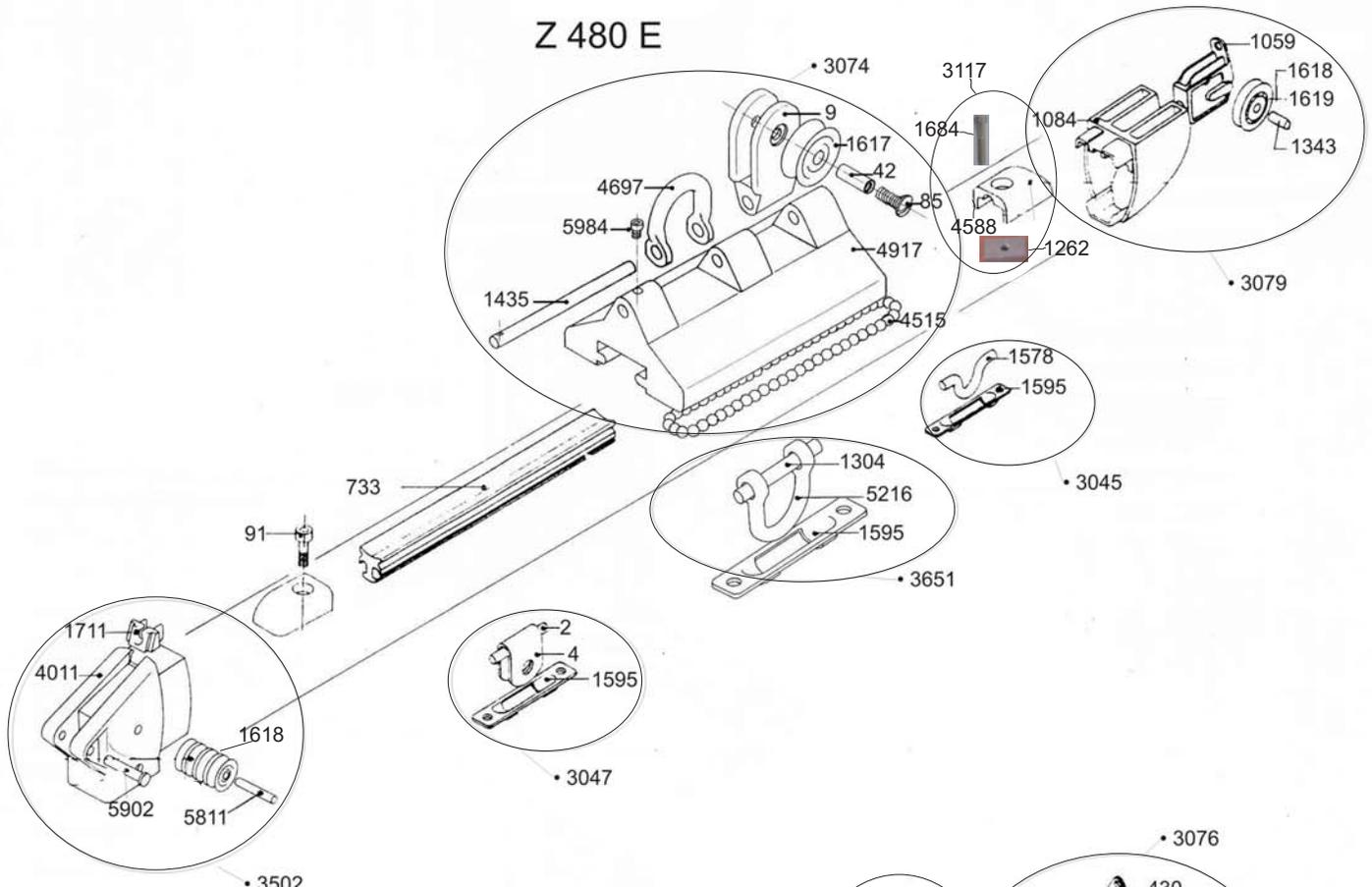
See our website www.usspars.com for more information on the furling system.

STANDARD BOOMS

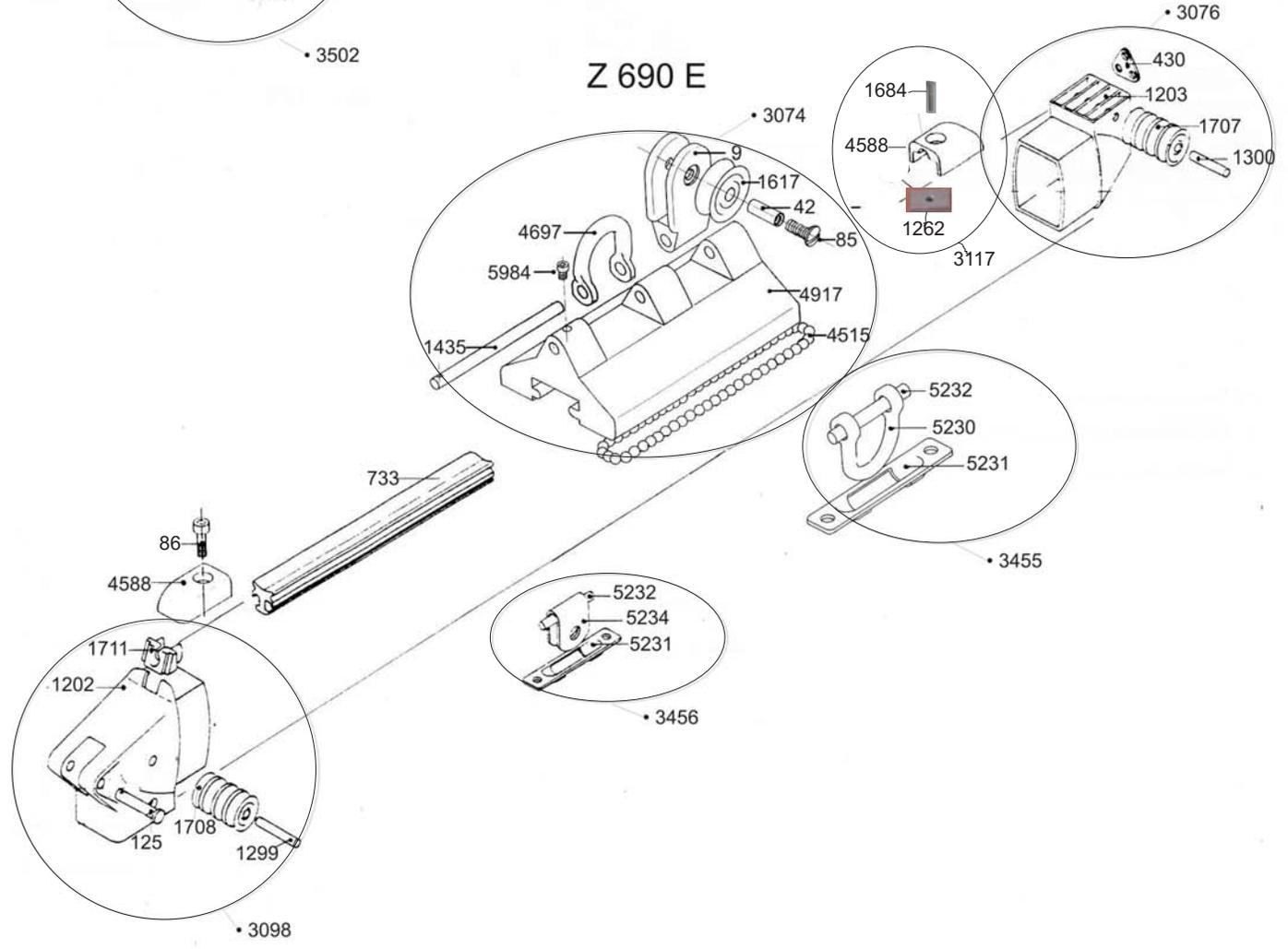


BOOMS FOR FURLING MAST

Z 480 E



Z 690 E



U.S. SPARS BOOM CAR

U.S. Spars TORLON ball bearing boom car comes on its own loading track, this loading track is similar to the boom track on your boom, but unlike your boom track the loading track has no T piece for fixing to the boom section. You will notice a piece of tape at each end of the loading track, this is to prevent the car from sliding off the track and you searching for the bearings, as these are not captive bearings. When you are ready to install the car first remove the end cap at the FORWARD end of your boom track, then remove the old boom car. You can then carefully remove the tape from the end of the track closest to the sheave on the boom car. Place the track on top of your boom with the loading track in contact with the forward end of the boom track, then simply and carefully slide the car from the loading track to your boom track.

If you have any difficulty with the installation of your boom car please do not hesitate to call our technical department who will be more than happy to talk you through any part of the process.



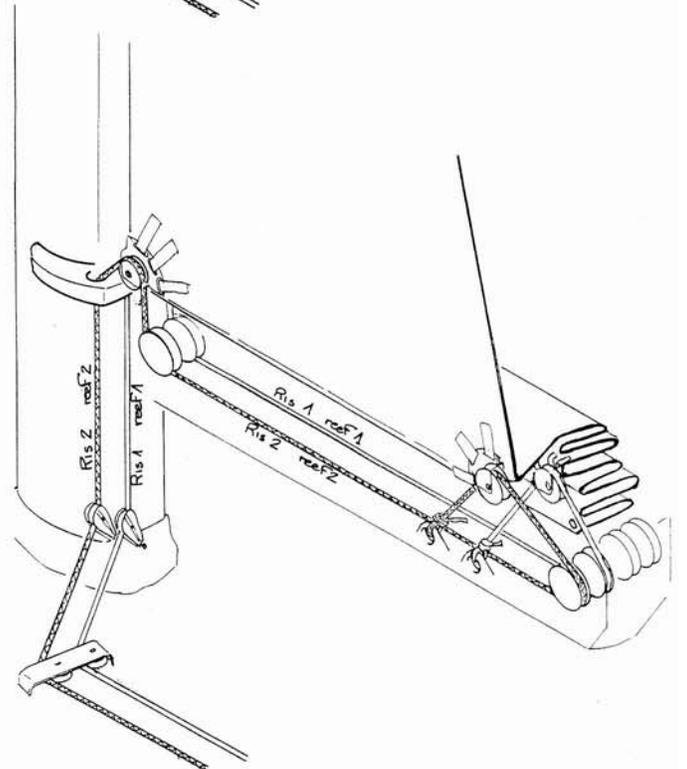
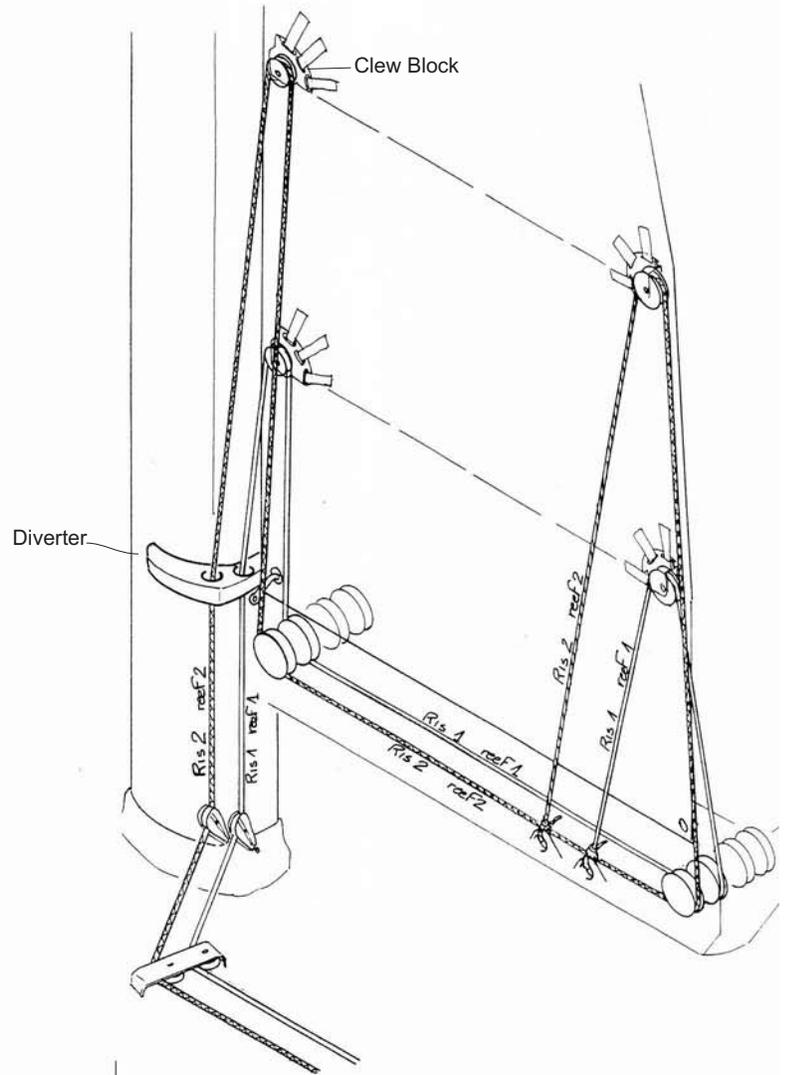
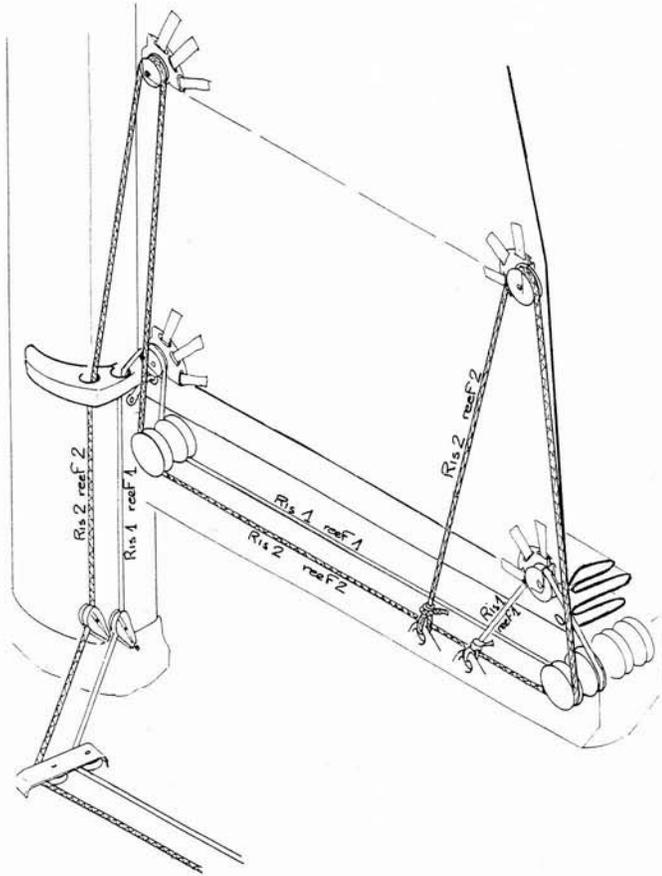
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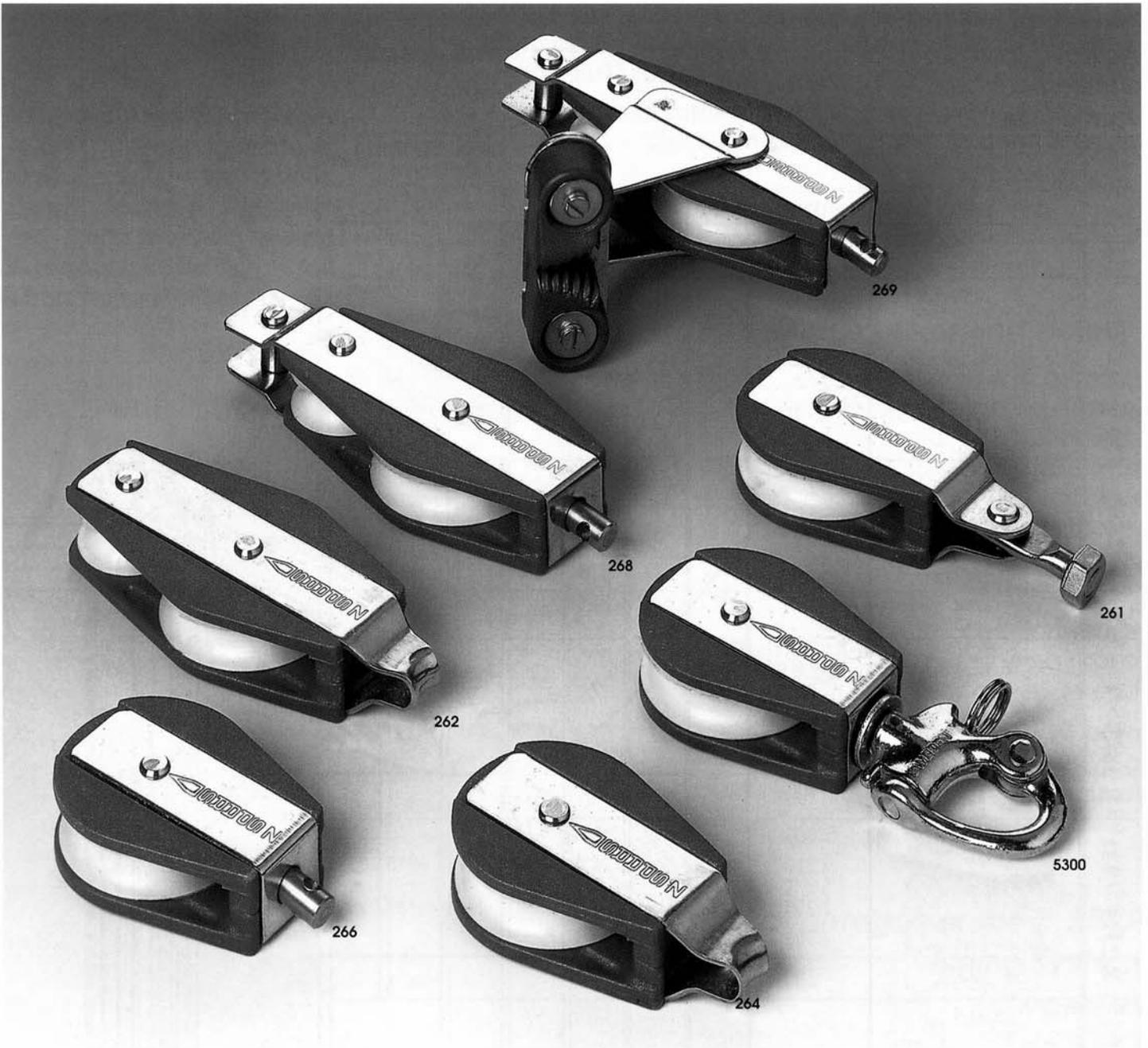
3074

Single Line Reefing System

U.S. Spars single line reefing system is available on all our booms.
Please ask for details.



BLOCKS 45mm SHEAVES



Specifications	
Sheave breaking load	1100 kg
Sheave working load	550 kg
Sheave diameter	45 mm
Maximum rope diameter	12 mm

	Type
5300	Not available in USA
261	Mast base block
264	Single block
262	Fiddle block
266	Swivel block

BLOCKS 60mm SHEAVE



Specifications	
Sheave breaking load	1800 kg
Sheave working load	900 kg
Sheave diameter	60 mm
Maximum rope diameter	14 mm

	Type
301	Swivel base block
5301	Not available in USA
275	Mast base block
277	Single block
278	Fiddle block
279	Swivel block
280	Fiddle swivel block
3259	Clew block

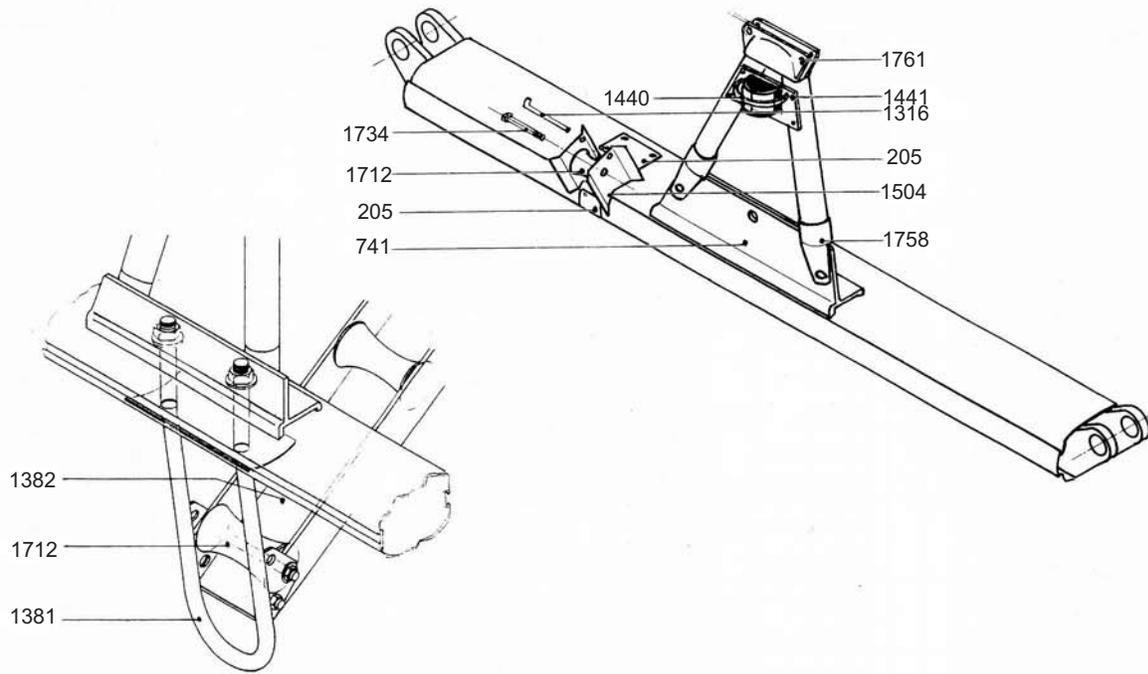
BLOCKS 80 mm SHEAVES



Specifications	
Sheave breaking load	2600 kg
Sheave working load	1300 kg
Sheave Diameter	80 mm
Maximum rope diameter	16 mm

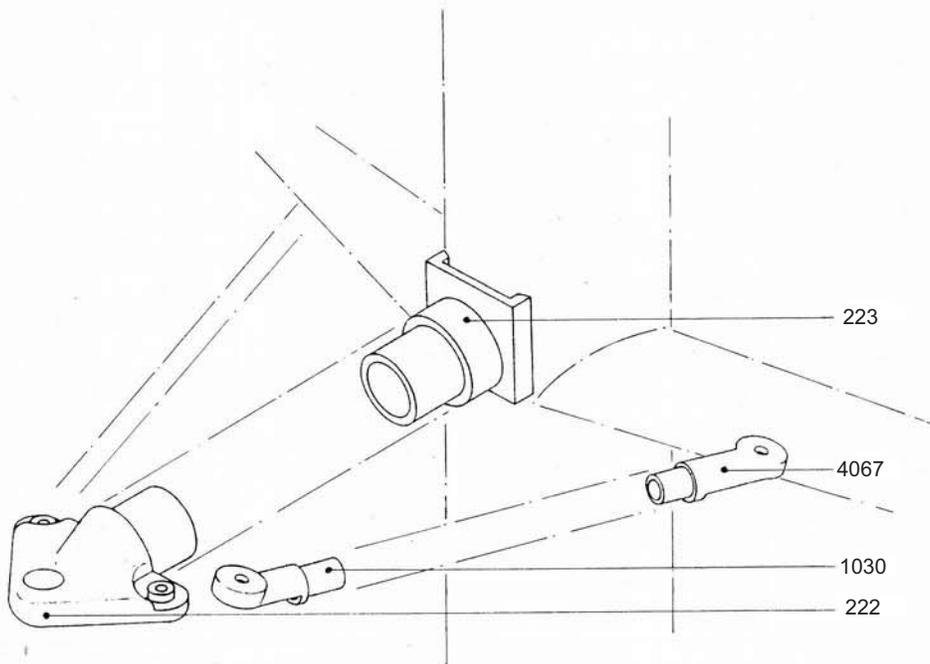
	Type
288	Mast base block
290	Single block
291	Fiddle block
292	Swivel block
293	Fiddle swivel block

CATAMARAN BEAMS

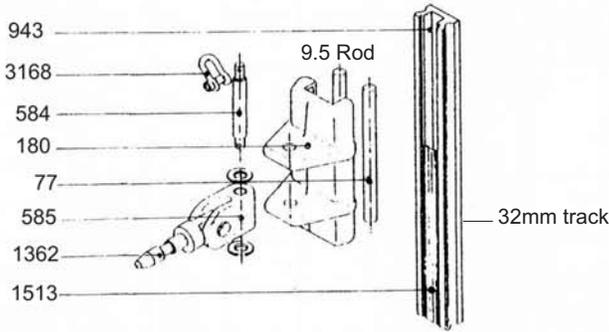


Section	Beam Ends Starboard	Beam Ends Port
Z 400		40
Z 600		41
Z 501		40
Z 701		41

TRIANGULATION STRUT TO SPREADER

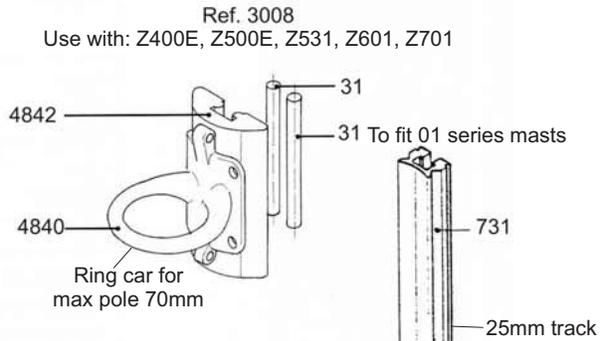


SPINNAKER POLE, TRACK AND CAR SYSTEMS



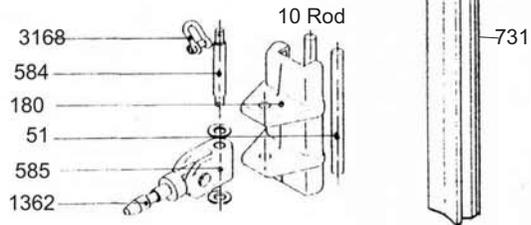
Ref. 3055

Use with: Z600E, Z700E, Z900E,
Z901, Z1100E, Z1001



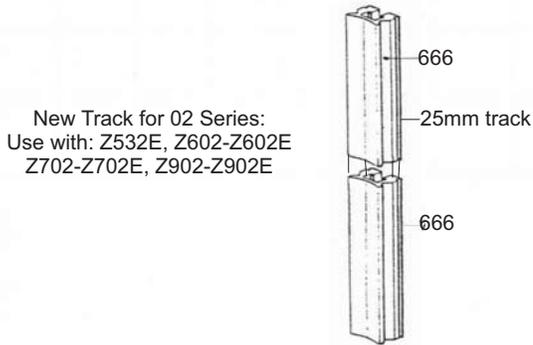
Ref. 3008

Use with: Z400E, Z500E, Z531, Z601, Z701



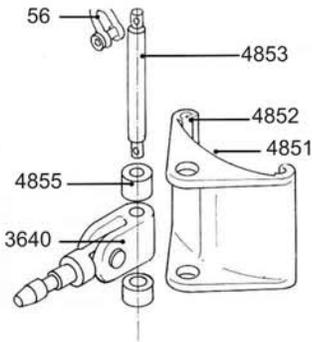
Ref. 3077

Use with: Z600E, Z700E



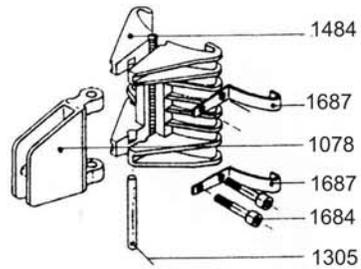
New Track for 02 Series:
Use with: Z532E, Z602-Z602E,
Z702-Z702E, Z902-Z902E

U.S. Spars pole cars can be converted to fit other manufacturers poles. Please ask for details.



Ref. 3054

Use with: Z600E, Z700E, Z900E only
or
3054F with Forespar Finger Attachment



Ref. 3052

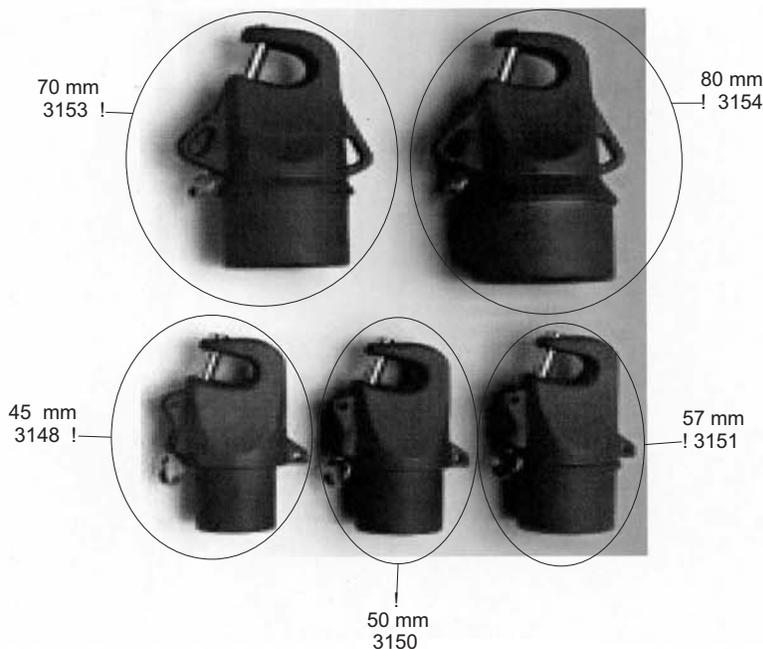
Use with: Z600-Z700E only

U.S. SPARS POLES

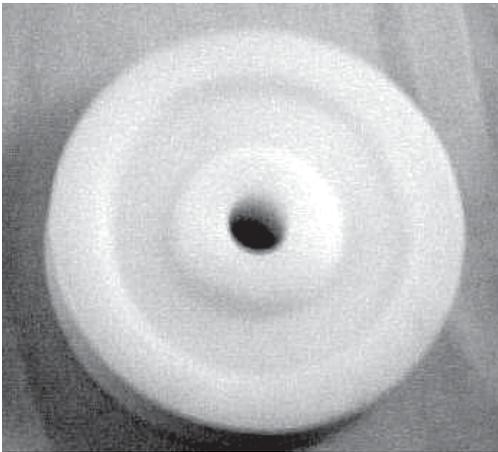
Pole tubes are made from aluminum alloy. The spinnaker pole length normally equals your yacht's J measurement (distance from mast to forestay at deck). Longer poles can be supplied.

Note: we do not guarantee our pole ends if not set on a Z Spars mast with our fittings. An incompatible mast fitting may result in breakage of the pole end.

POLE Part #	POLE SIZE O/D	Standard Pole Length (J)	Weight LB	Wall mm	Inner End	Outer End	Pole Price
7667IA	45mm	2900mm	8	2	Piston	Piston	\$182.99
7666IA	50mm	3000mm	10	2	Piston	Piston	\$208.04
7665IA	57mm	3000mm	11	2.1	Piston	Piston	\$281.17
7663IA	70mm	4500mm	14	2.5	Piston	Piston	\$416.60
7664IA	80mm	5000mm	17	2	Piston	Piston	\$428.40
<small>cone end</small> 7666IA	80mm	5000mm	17	2	Z-Cone	Piston	\$408.40
<small>cone end</small> 7657IA	100mm	6000mm	22	3	Z-Cone	Piston	\$808.65
7657IA	100mm	6000mm	24	3	Harken Cone	Harken Piston	\$1009.45

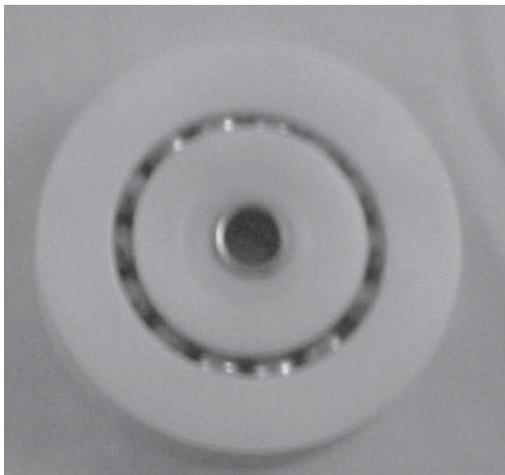


US SPARS SHEAVES



DELRIN

<u>PART #</u>	<u>SIZE D x W x PIN</u>
1614	28 x 9.5 x 6
1616	45 x 13 x 8
1617	35 x 16 x 8
1618	60 x 16 x 8
1707	80 x 17 x 14
1708	70 x 16 x 16
1709	70 x 16 x 10



**DELRIN WITH
BALL BEARING**

1619 60 x 16 x 8



**ALUMINUM WITH
COMPOSITE
BUSHING**

**60001
HI-TECH**

60 x 16 x 8

ALLOY SHEAVES AVAILABLE

US SPARS RIGID VANGS

Our rigid vang have a stainless steel spring operation, which works in compression.
With our vang fitted there is no need to use your boom topping lift.

VANG SIZE	Load KG	Range mm	Use with boom	Vang price	Mast fitting	Boom fitting
Small 25/30	100	100	Z160 Z204	\$259.09	3271 \$61.29	3484 \$33.85
Medium 45/57	250	180	Z360 Z480	\$385.00	3241 \$114.36	3047 \$43.96
Large 57/70	500	150	Z690	\$695.71	3811 \$219.71	3456 \$56.65

VANG END DATA

Vang Size	Fork Gap	Pin Size
Small	7mm	8mm
Medium	13mm	10mm
Large	28mm	12mm

Boom End



Mast End

- 1/ The optimum angle for your U.S.Spars vang to be effective is 30* this is governed by the position of the mast and boom fitting
- 2/ The mast attachment is best located as close to the deck as possible, we recommend 80mm above deck to the underside of the bracket.
- 3/ Your U.S.spars rigid vang will come to you overlong and may need to be shorted to achieve the correct boom support. Shorting the vang is simply as case of reducing the length of the inner or smaller tube by pulling the two tubes apart and cutting the inner tube.
- 4/ Fit the vang to the mast and boom fittings, large tube to the boom leave the boom fitting loose in the track (use the boom topping lift to raise the boom enough to install the rigid vang).
- 5/ With the sail installed release the topping lift and with no tension on the vang line check the boom angle. You may need to move the vang boom fitting aft to lower the boom, keep in mind the 30* optimal angle.
- 6/ Once you are happy that your vang is supporting the boom above horizontal pull the boom down using the mainsheet until it grounds out, this is the maximum compression of the vang and the boom should now be approximately 4* under horizontal. If the vang ground out before the boom is under horizontal then the vang is too long and damage will accoure if used.
- 7/ Shorten vang as required.
- 8/ Once you have achieved the desired vang length fit the boom fitting in place (to check that the position is correct we recommend a temporary fixing, and test the vang under sailing conditions before final positioning).
- 9/ The vang comes with its own 4-1 purchase installed; the rope must exit the final sheave at the boom end and run back to the base of the mast. Use a base block to run the vang line aft to the cockpjt.
- 10/ When boat is at rest at its berth attachet the boom lift and release pressure from the vang.
- 11/ If you have any question regarding the installation of your U.S.Spars vang please contact our technical department on 386.462.3760. U.S.Spars can hold no responsibility for incorrect installation of the vang and any subsequent damage this will cause.

U.S. Spars Rigging:

U.S. Spars is proud to announce the launch of our rigging department. After many years of producing quality yacht spars the next step for US Spars is standing rigging, which will complement our other marine products.

We can now truly offer our customers a total package from the deck up which means one stop shopping and ensures total customer satisfaction.

Our line-up now includes: Quality mast up to 60' in one piece, booms, spinnaker poles and accessories, jib furling systems and now standing and running rigging.

Our rigging shop uses only the highest quality products; our stainless steel wire rope is all 316 grade, as are all of our swage fittings, with turnbuckles being chrome bronze.

The extension to our building has allowed us to custom design and install a rigging manufacturing faculty that is new from the ground up. We use the best swaging machines on the market to insure all rigging is produced to the highest standards.

We have a complete range of fittings all made by our company which gives us total control over inventory and also design and development of new fittings.

Our standing rigging packages will all be marked with a part number to allow us to track standing rigging on any boat anywhere around the world.

The U.S. Spars rigging department is under the management of Rick Pantall formally the owner of Rigging and Canvas. Rick come to us with over 20 years of rigging expertise in our industry, he has also been involved in selling and installing many U.S. Spars masts. Rick is on hand to answer any rigging or spar questions and help you through the process of ordering new U.S. Spars products.

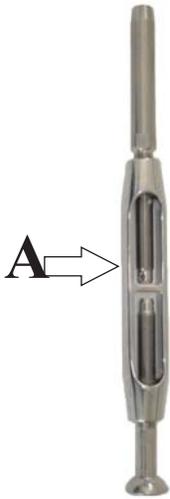
Please contact our rigging department anytime.

**U.S. Spars Rigging
6320 NW 123 Place Gainesville FL 32653
1-800-928-0786 or 386-462-3760
Fax: 386-462-3448
Email: rigging@usspars.com**

STANDING RIGGING

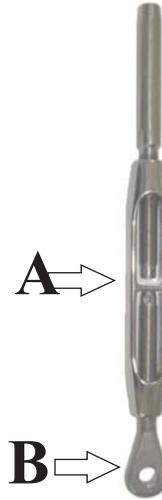
BALL TURNBUCKLE

<u>WIRE SIZE</u>	<u>PART #</u>	<u>THREAD</u>	
		<u>A</u>	<u>SIZE</u>
4	493		5/16
5	494		3/8
6	495		3/8
7	496		1/2
8	497		1/2
10	498		5/8
12	499		3/4



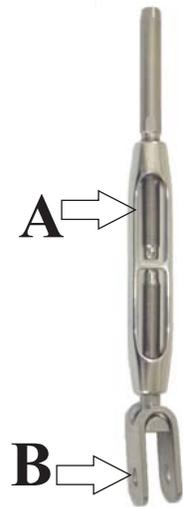
EYE TURNBUCKLE

<u>WIRE SIZE</u>	<u>PART #</u>	<u>THREAD HOLE</u>	
		<u>A</u>	<u>B</u>
4	5422	5/16	8
5	5431	3/8	10
6	5432	3/8	10
7	5433	1/2	12
8	5434	1/2	12
10	5435	5/8	16mm
12	5443	3/4	16mm



OPEN BODY TURNBUCKLE

<u>WIRE SIZE</u>	<u>PART #</u>	<u>THREAD HOLE</u>	
		<u>A</u>	<u>B</u>
4	422	5/16	8
5	5423	3/8	10
6	5424	3/8	10
7	5425	1/2	12
8	5426	1/2	12
10	427	5/8	16
12	428	3/4	19



EYE TERMINAL

<u>WIRE SIZE</u>	<u>PART #</u>	<u>HOLE</u>
		<u>B</u>
4	444	8
5	445	10
6	446	10
7	447	12
8	44	12
10	449	16
12	450	16
12	5647	19



STANDING RIGGING



TOGGLE TERMINAL

<u>WIRE SIZE</u>	<u>PART #</u>	<u>HOLE</u>
4	464	8
5	465	10
6	466	10
7	467	12
8	468	12
10	469	16
12	470	16



BALL TERMINAL

<u>WIRE SIZE</u>	<u>PART #</u>
4	434
5	435
6	436
7	437
8	438
10	439



T TERMINAL

<u>WIRE SIZE</u>	<u>PART #</u>
4	472
5	473
6	474
7	521



CUP WASHER

<u>WIRE SIZE</u>	<u>PART #</u>	<u>DIAMETER HOLE</u>	
		<u>A</u>	<u>B</u>
D 001	487	18	6.5
D 018	492	18	9.5
D 002	488	26.5	12.5
D 003	489	26.5	14.5
D 004	490	34	19

Z-FURL

GENOA FURLING SYSTEM

Z-Spars Genoa furling system has been used throughout Europe for many years and is now fitted on hundreds of sailing yachts around the world. To complement our range of spars and rigging U.S.Spars is now producing the Z-Furl system in the U.S.

System size	Approximate boat length	Forestay Size	Foil length	System price \$
Z560	24'-26'	5mm (3/16")	10.5 (34')	\$770.00
Z560	27'-31'	6mm (1/4")	11.0 (36')	\$785.00
Z780	32'-35'	7mm (9/32)	13.0 (43')	\$960.00
Z780	35'-38'	8mm (5/16)	14.0 (46')	\$972.00
Z1012	38'-41'	10mm (3/8")	16.0 (52')	\$1560.00
Z1012	42'-48'	12mm (1/2")	17.0 (55')	\$1687.00

The Z-Furl system comes with a unique one piece foil, this is especially beneficial as it can be shipped with your new mast assembled and ready to sail. For after market orders, a well engineered join system is available.

Some of the many advantages of our system include: Stainless steel bearings in both drum and swivel, all drums accept standard turnbuckles with our unique toggle fitting; foil with double luff groove, PVC liner protects full length of forestay. All systems include a furling line.

Our systems are all built with the highest quality materials and are engineered to cope with the rigors of modern sailing. The price of our systems are the most competitive on the market today, this along with our 30 years experience of manufacturing marine products, means you get the very best sailing products available anywhere.

For more details of the Z-Furl system please contact your U.S.Spars dealer or our main office in Florida.

Z-Furl Accessories

Accessories	Z560	Z780	Z1012
Extra foil 2.0mt	\$24.00	\$39.90	\$42.00
Foil join system	\$62.00	\$84.00	\$116.00
Stanchion block	\$19.00	\$19.00	\$44.00

Z-Furl Forestays

All forestays are made from 316 Stainless steel 1x19 wire, and come complete with turnbuckle and “Sta-Lok” stud.

Forestay size	Max length	Pin size	price
5mm (3/16")	11.5 (37')	10	\$120.12
6mm (1/4")	12.0 (39')	10	\$151.15
7mm (9/32")	14.0 (45')	12	\$211.60
8mm (5/16")	15.0 (49')	12	\$274.87
10mm (3/8")	17.0 (55')	16	\$418.49
12mm (1/2")	18.0 (59')	16	\$656.06



U.S.Spars, Inc 6320 NW 123 Place Gainesville Florida 32653 USA
 Tel: 800-928-0786 or 386-462-3760 Fax: 386-462-3448 www.usspars.com

US Spars, Inc.

6320 NW 123rd PL, Gainesville, FL 32653
Tel 1-800-928-0786 or (386) 462-3760 Fax (386)462-3448
www.usspars.com

Genoa Furling System.

List of Components

- 1 Halyard Diverter (type may vary)
NB a diverter MUST be fitted: See drawing ref FS-3
- 2 PVC Sleeving
- 3 Swivel
- 4 Head Shackle
- 6 Aluminium Luff Foil
- 7 Drum Screws
- 8 Tack Eye
- 9 Guard
- 10 Drum
- 11 Guard Attachment
- 12 Locking Joint
- 13 Locking Screw
- 14 Bushing for Lower Drum Bolt
- 15 Lower Drum Bolt
Z560 = M10 x 60
Z780 = M12 x 75
Z1012 = M16 x 100
- 16 Foil Connecting Screws
- 17 Foil Connector
- 18 Bottom Plastic Stopper
- 19 Bottom Foil with sail entry
- 20 Top Foil
- 21 Foil End Cap
- 22 Inner Half Bearings for 21
- 23 Double Hole Toggle
- 24 Lower Drum Tube
- 25 Upper Drum Tube

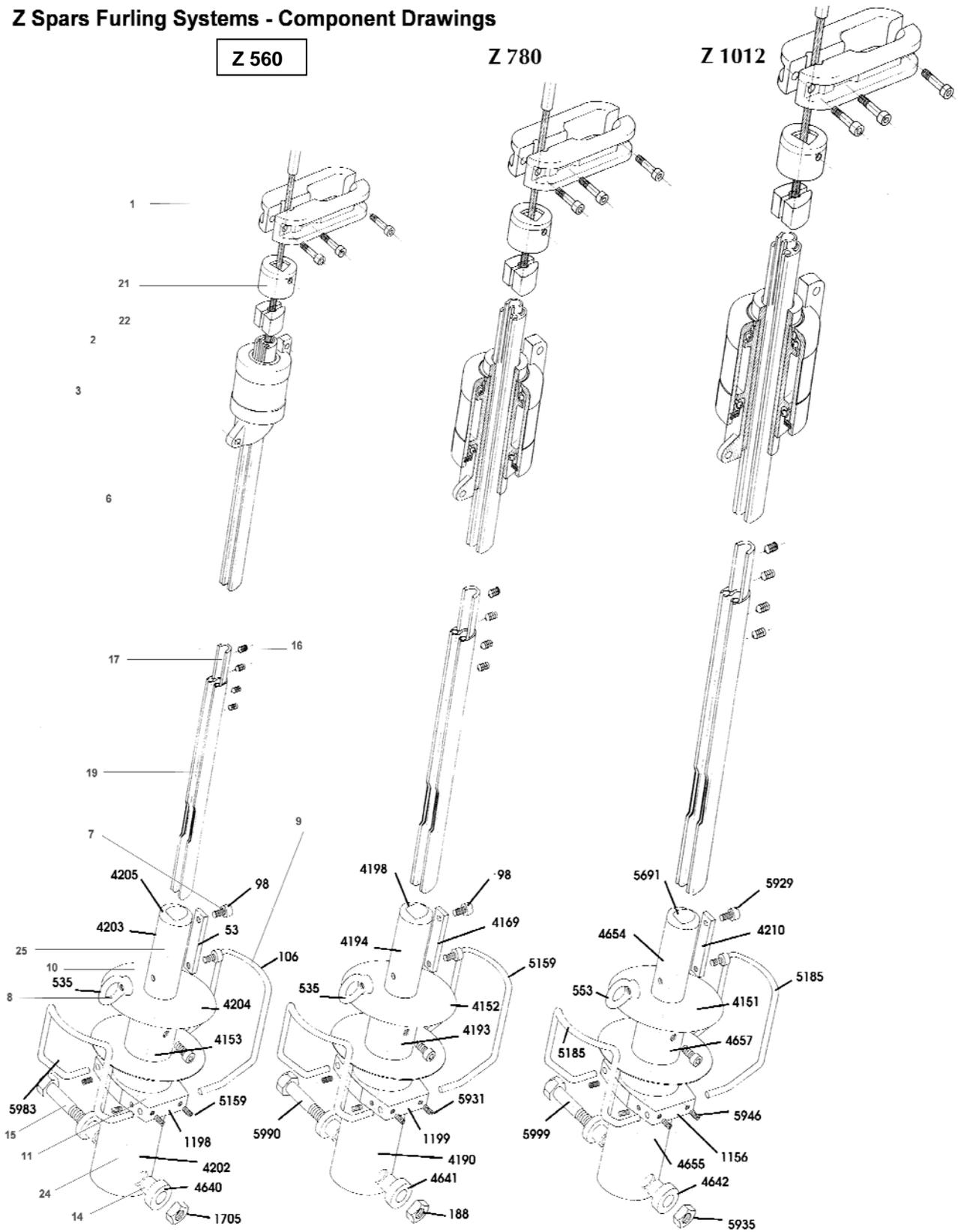
2 Alloy Rivets for Foil End Cap

Z Spars Furling Systems - Component Drawings

Z 560

Z 780

Z 1012





Z-Furl jib furling systems sizes 560, 780, and 1012.

Assembly Instructions: Z SPARS Genoa Furling System

ALL SYSTEMS ARE SUPPLIED WITH A NEW FORESTAY. TYPICALLY THIS WILL HAVE A RIGGING SCREW AT THE BASE.

Establish the length of the forestay before determining the foil length. This can be done by calculation or by trial installation of the forestay on the mast etc.. Do not swage the lower terminal on the Forestay until assembly of the Furling System is complete.

NB In all cases the Forestay Rigging Screw MUST be compatible with the Furling Drum and must have the special double hole toggle fitted to the lower end. (see drawing FS-1).

Assembly of the Luff Foil

The length of the foil required can be determined by reference to our technical sheet. The foil length must be trimmed from the top as the bottom end has a machined sail entry slot and it is essential that its position relative to the lower end of the foil be maintained.

If the luff foil (6) is not supplied in one complete section, connect the aluminium sections that make up the foil using the Foil Connector Sleeves (17) and socket set screws m6x8 (16). Use Loctite 638 on the threads. These screws are best inserted from **inside** the foil, not from the outside.

Forestay top terminals vary from boat to boat. If the Foil End Cap (21) will not fit over the forestay top terminal, feed the Foil End Cap onto the forestay from the bottom of the forestay at this stage.

Feed the pvc sleeving onto the wire from the end and then feed the forestay into the foil before fitting the lower terminal. If this operation is difficult, reduce friction by applying washing up liquid to wire before inserting into the sleeve.

The Swivel & Foil End Cap

Slide the swivel (4) onto the foil making sure the outer casting of the swivel is at the top and the inner casting is at the bottom.

The Foil End Cap (21) consists of 3 parts: an outer plastic end cap and two inner half bearings (22). Before fitting the end cap, check that the hole in the plastic inner half bearings is the correct size for the forestay. Drill out if necessary to forestay diameter + 1mm.

Fit end cap to foil as follows: slide plastic end cap over forestay eye terminal* and over the two profiled plastic half bearings while holding the latter together around the forestay. Fit bearings into top of foil and rivet the cap to the foil using the two alloy rivets supplied.

* If the top fitting on your forestay is too large to pass through the end cap aperture you will need to run the forestay through the end cap from the lower end before installing the forestay into the foil.

The Furling Drum

The drum assembly consists of an upper (torque) tube, two flanges and a lower tube. The rigging screw will pass through these tubes. Connection of the foil to the upper tube is made by 2 x M6 x 12mm socket capscrews. These engage both the foil and double hole threaded stainless steel plate which has been glued into the foil.

Tap bottom plastic stopper (18) into the bottom of the foil. This prevents the pvc sleeving from falling down inside the foil.

Assembly on the mast

When all the above assembly operations are completed, hook up the forestay to the mast. Be careful to ensure that the assembly passes on the correct side of all halyards at the front of the mast and the drum is inside the guard rails. Fit a diverter (see below).

Halyard diverter

Please note that it is **essential** to fit a diverter to the foresail halyard above the top swivel of the furling system (see drawings FS3, FS3a, FS3b). The purpose of the diverter is to stop any tendency of the halyard to wrap around the furling mechanism. If this happens, the system can jam on the forestay and cause rotation of the latter, with potentially disastrous results - the forestay can break.

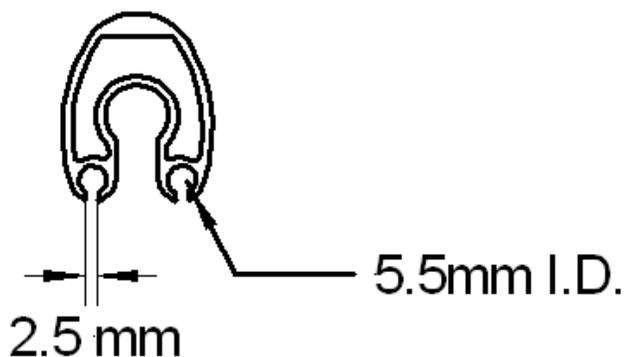
If the diverter is fitted to the mast, it should be located so that the halyard makes an angle of 15° to 20° with the forestay. This angle should be verified with the mast in the boat and the foresail fully hoisted. This is not necessary if a clamp-on type of diverter is fitted on the forestay.

It is **essential** to maintain tension in the forestay and halyard when furling/unfurling - **a diverter will be ineffective if the rig is slack.**

NOTE on dimensions of sail luff tabling.

Your sailmaker needs to be aware of the following:

All sizes of Z Spars luff foil have an 5.5mm internal diameter sail slot, with a minimum slot width of 2.5mm.



**Z-Furl 780 system
with halyard swivel
and one piece foil.**



OPERATION

The sail is furled (partially or completely) by slackening the foresail sheets and pulling on the drum rope. This causes the sail to be wound round the luff foil. Cleat the rope when the desired amount of sail is set.

We recommend that the first turn of the sail is across the aft face of the foil, e.g. if the sail is in the port luff groove, the drum should rotate clockwise (when viewed from above) to furl.

To unfurl the sail, release the drum rope and pull on the foresail sheet. Cleat the drum rope when the desired amount of sail is set.

MAINTENANCE

Flush with fresh water all parts exposed to salt water.

Adjustment of Forestay Tension (or Length) with Z Spars Genoa Furling Systems

1. Remove the sail from the foil completely.
2. Connect the halyard to the Drum Tack Eye (8) and take up a slight tension.
3. For safety reasons bring the spinnaker halyard (or alternative) onto the pulpit and tension up.
4. Disconnect the foil from the drum assembly: while holding the foil, remove the two socket-headed Drum Screws (7) from the upper drum tube, then allow the foil to gently lower into the upper drum tube. (This operation is not necessary if there is sufficient length of forestay above the top of the foil to raise the foil and drum and thus expose the rigging screw).
5. Remove the Lower Drum Bolt (15) which passes through the lower drum tube and prevents the lower part of the drum from rotating when in use. Note: If our recommended set-up is adhered to this does not disconnect the forestay. It is then possible to hoist the drum assembly up the foil by hand or by using the genoa halyard. (See Step 2).
6. With the drum now lifted clear, adjustment to the forestay rigging screw or chainplates is possible.
7. After refitting the drum by reversing the above procedure, it is advisable to tape over the socket headed Drum Screws (7) to prevent any possibility of these coming undone and being lost.

If you have any queries contact US Spars, Inc. at 800-928-0786 or www.usspars.com.

Z-Furl 10-12 system shown in black anodized finish.



Troubleshooting

1. The foresail will not unfurl

NB. DO NOT USE FORCE TO UNFURL SAIL, otherwise damage to forestay may result.

Causes:

a. The jib halyard has wrapped round the luff foil.

Action: ease the jib halyard and re-furl. Free the halyard. Fit a diverter to the halyard if one is not already installed.

b. The furling line is fouled.

Action: Free the furling line. Possibly adjust position of lead blocks, especially the one nearest the drum. Ensure that the furling line passes through the stainless steel drum guard (9) without touching it (possible chafe point).

c. The forestay is too slack.

Action: Tension the forestay.

d. The halyard is too tight.

Action: Ease off the halyard a small amount.

2. The foresail will not furl

Causes:

a. The jib halyard has wrapped round the luff foil.

Action: ease the jib halyard and try to unfurl. Free the halyard. Fit a Diverter to the halyard.

b. No line remaining on the drum.

Action: Unfurl the sail and undo the sheets. Gather the sail round the luff foil, then wind more line on the drum.

c. The forestay is too slack.

Action: Tension the forestay.

d. The jib sheet is not released.

Action: release the sheet.

e. The halyard is too tight.

Action: Ease off the halyard.

f. Furling line fouled on the drum.

Action: Unfurl & remove the sail. Rewind the furling line. Unfurl with slight tension on the line. Do not have excessive number of turns on the drum.

g. Furling line leads have too much friction and/or are showing signs of chafe.

Action: Use low friction blocks for furling line instead of fairleads. Ensure that the furling line is not fouling the drum guard (9).

3. The sail is difficult to hoist

Causes:

a. The sail luff rope is too thick - maximum 5mm finished size allowed (see page 5).

Action: refer to sailmaker.

b. Luff groove is obstructed

Action: clean groove.

c. The sail is wrongly positioned for entry.

Action: re-position the sail on the deck so that luff rope is more in line with direction of feed.

4. The luff cannot be tensioned sufficiently.

Causes:

a. The sail luff is too long for the foil.

Action: Shorten luff (refer to sailmaker).

b. The halyard is not sufficiently in line with the forestay.

Action: re-locate halyard diverter.

5. The sail cannot be lowered

Causes:

a. Halyard wrapped round top of foil.

Action: Slacken the halyard and try to untwist via the drum. Fit a diverter.

b. The halyard is stuck.

Action: check halyard routing (sheaves etc).

Z SPARS FORESAIL FURLING SYSTEM

DRAWING REF: FS-1/456 gen456ss-2005.skf 14 April 2005

ALL MEASUREMENTS IN MILLIMETRES

TYPE: Z560

CUSTOMER: _____

DATE: _____

FORESTAY DIA.: _____

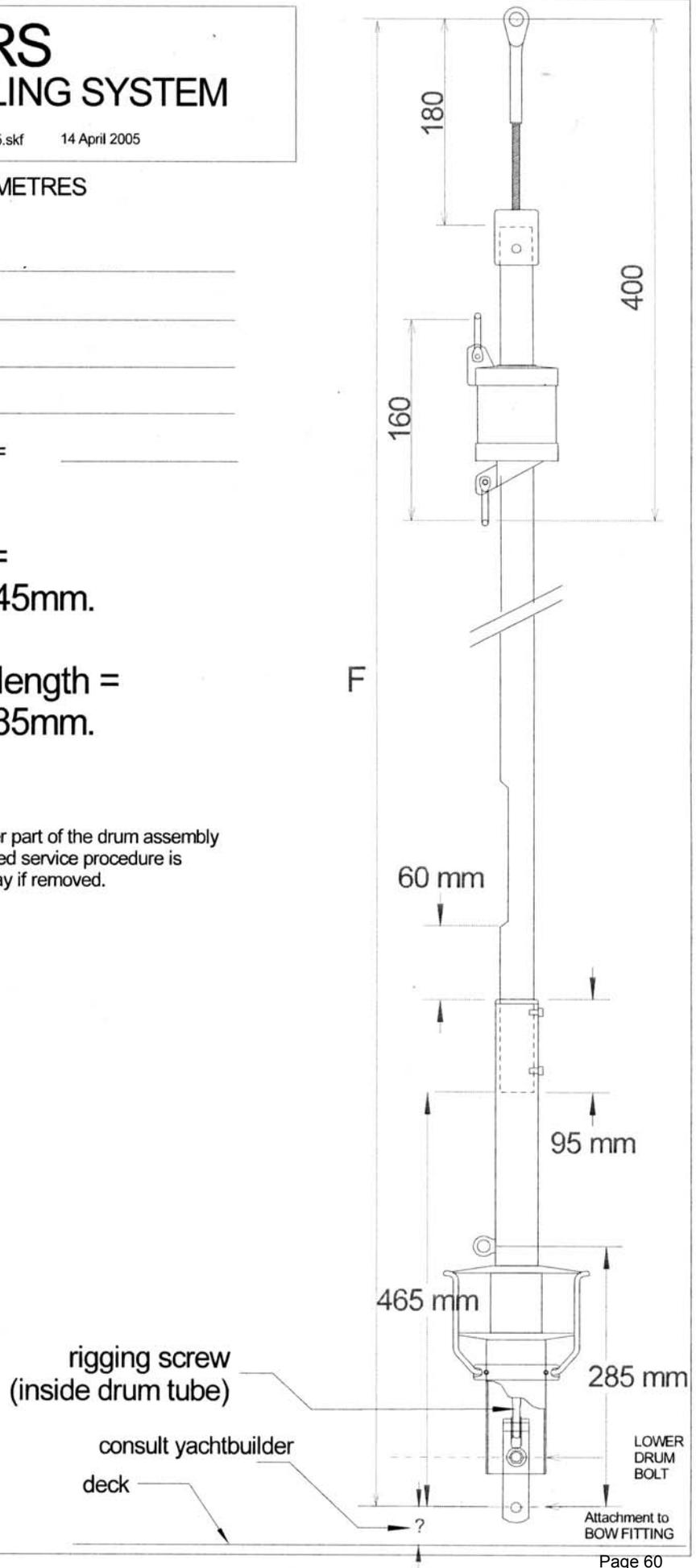
TOTAL FORESTAY LENGTH F = _____

Maximum foil length =
forestay length (F) - 645mm.

Maximum foresail luff length =
forestay length (F) - 685mm.

NOTES:

The LOWER DRUM BOLT prevents the lower part of the drum assembly from rotating when in use. If our recommended service procedure is adhered to, it does not disconnect the forestay if removed.



Z SPARS FORESAIL FURLING SYSTEM

DRAWING REF: FS-1/780 gen780ss-2005.skf 15 April 2005

ALL MEASUREMENTS IN MILLIMETRES

TYPE: Z780

CUSTOMER: _____

DATE: _____

FORESTAY DIA.: _____

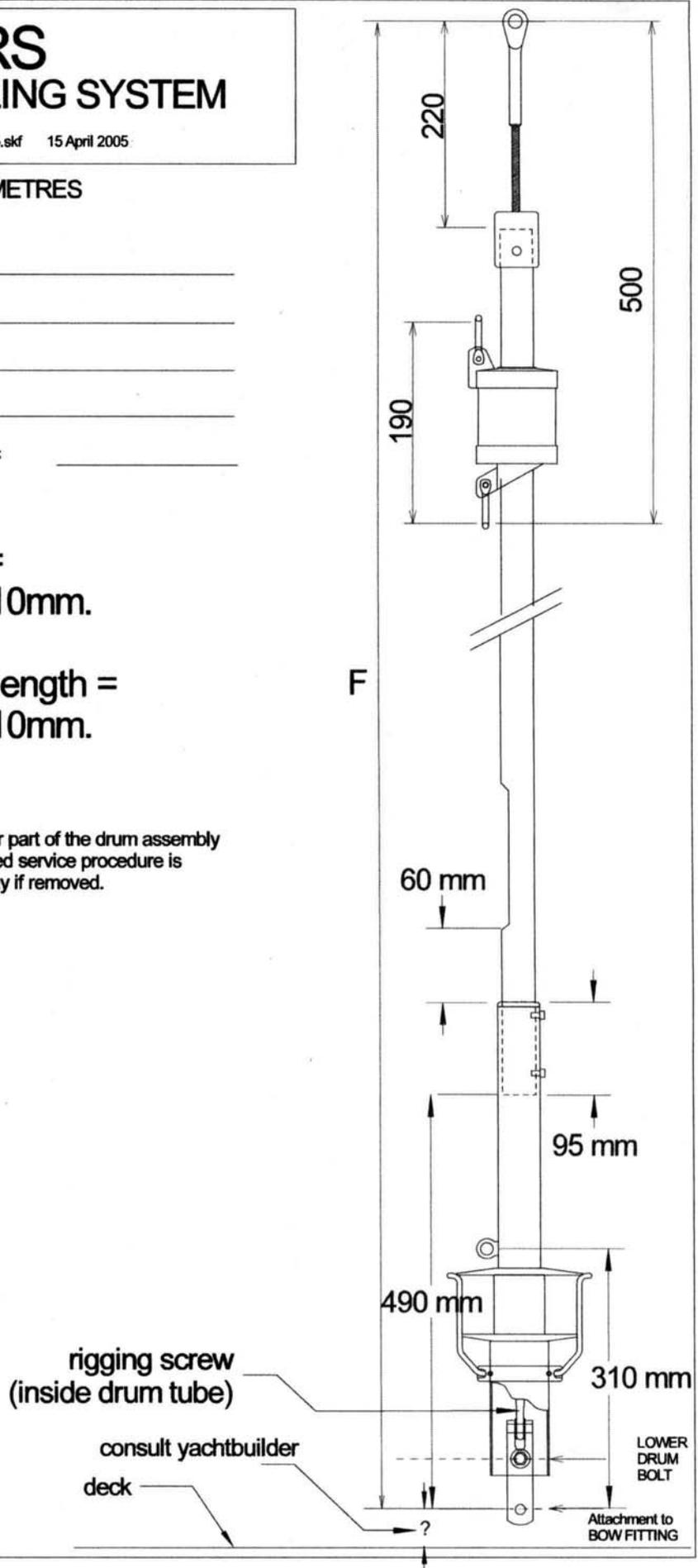
TOTAL FORESTAY LENGTH F = _____

Maximum foil length =
forestay length (F) - 710mm.

Maximum foresail luff length =
forestay length (F) - 810mm.

NOTES:

The LOWER DRUM BOLT prevents the lower part of the drum assembly from rotating when in use. If our recommended service procedure is adhered to, it does not disconnect the forestay if removed.



Z SPARS FORESAIL FURLING SYSTEM

DRAWING REF: FS-1/1012 Gen1012ss-2005.skf 15 April 2005

ALL MEASUREMENTS IN MILLIMETRES

TYPE: Z1012

CUSTOMER: _____

DATE: _____

FORESTAY DIA.: _____

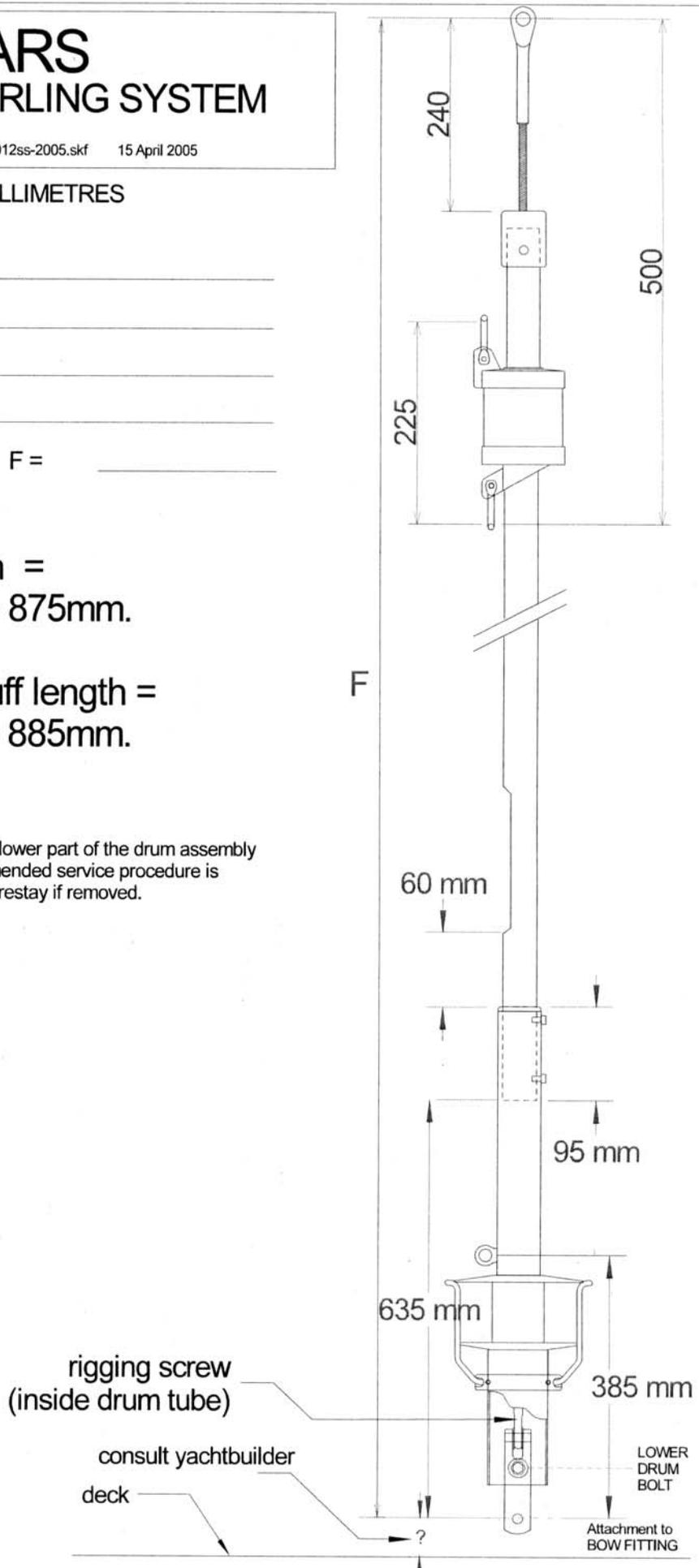
TOTAL FORESTAY LENGTH F = _____

Maximum foil length =
forestay length (F) - 875mm.

Maximum foresail luff length =
forestay length (F) - 885mm.

NOTES:

The LOWER DRUM BOLT prevents the lower part of the drum assembly from rotating when in use. If our recommended service procedure is adhered to, it does not disconnect the forestay if removed.



Z SPARS

DRAWING REF: FS-3

gendv01.skf

29 JUN 98

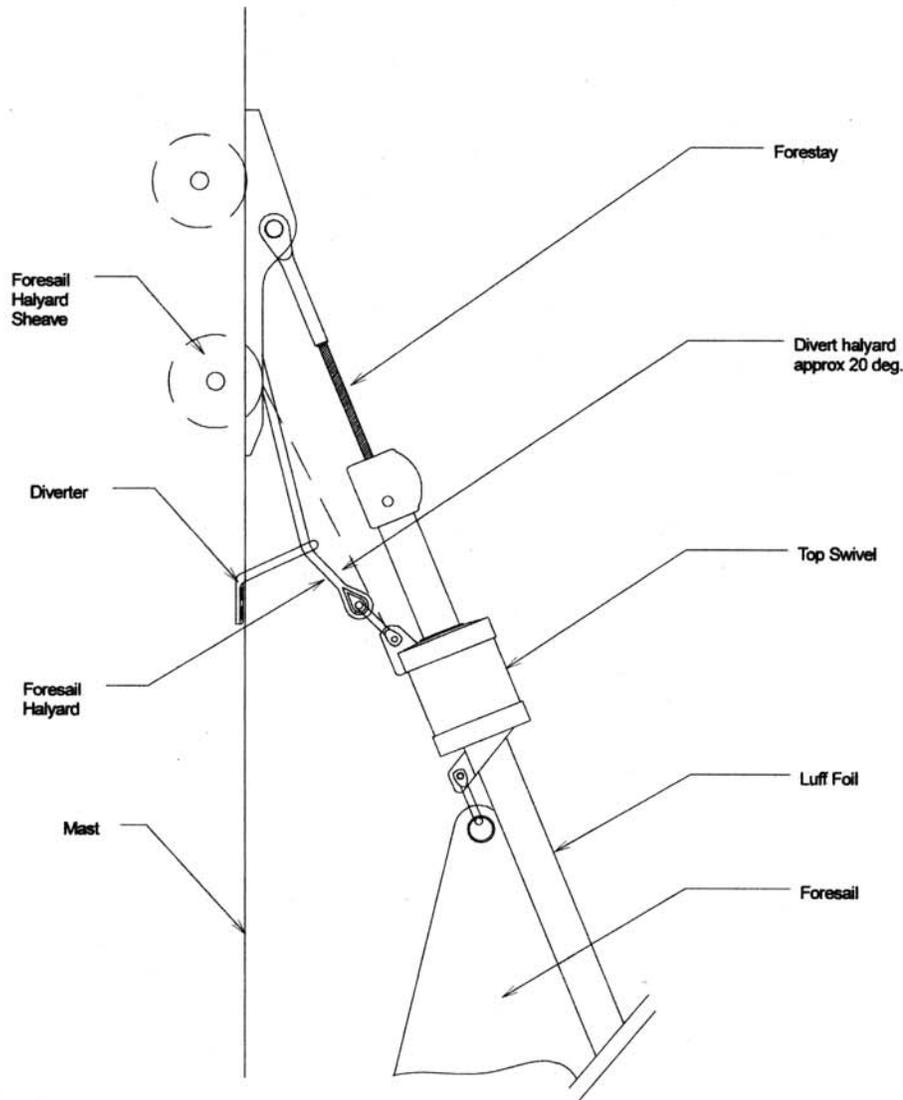
FORESAIL FURLING SYSTEM

POSITIONING OF HALYARD DIVERTER

A diverter **MUST** be fitted to avoid halyard wrap problems

METHOD 1:

BRACKET-TYPE
DIVERTER FITTED TO MAST



NOTES:

Z SPARS

DRAWING REF: FS-3b

gendiv03.skf

29 JUN 98

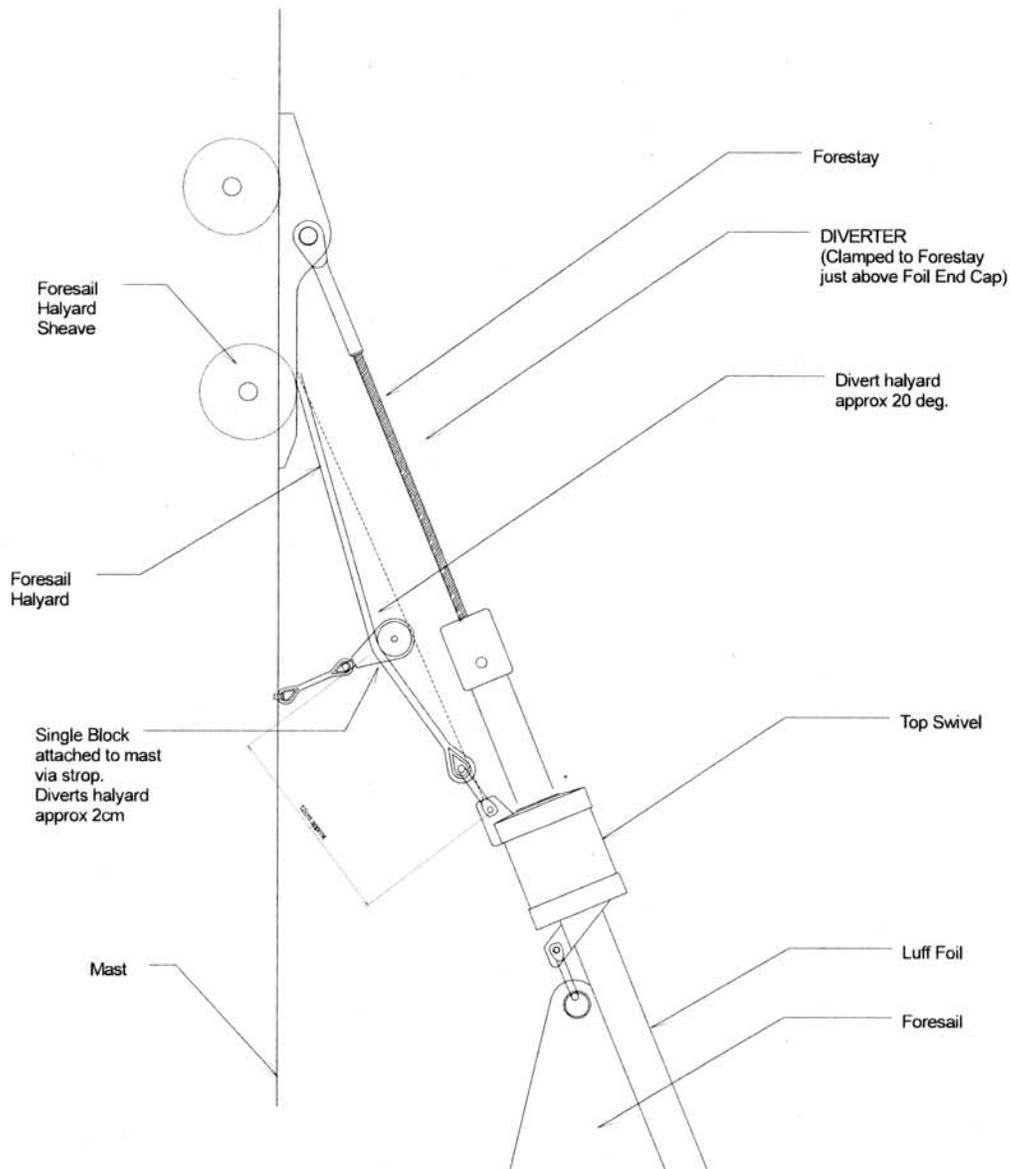
FORESAIL FURLING SYSTEM

POSITIONING OF HALYARD DIVERTER

A diverter **MUST** be fitted to avoid halyard wrap problems

METHOD 3:

BLOCK ON STROP
FITTED TO MAST



NOTES: This method is especially effective where the head of the foresail is some distance from the top of the forestay.



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