

MAST JACK MANUAL CC192-C193

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- Fitting tie rod
- Stepping and tuning
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ATTENTION!

High loads – keep clear to avoid injuries.

Always keep an eye on the rig to avoid over-tensioning – lowers and intermediates must be slack before pumping up the mast.

General

- This instruction describes how to install, use and maintain a Seldén integrated mast jack system D65.
- Two people are required for the installation job.
- On C193, the sail track forward wall must be cut to make room for the cylinder, see drawing PS792.
- On CC192, the mast jack system may only fitted if there is 475mm of external reinforcement visible.
- Pump is factory set to 300 bar. System components are designed for max 300 bar.
- Separate pump instructions are supplied with the pump unit.
- Load/pressure conversion tables can be found on page 7 (tab. 3.a) and on top of hand pump.
- All quick couplings are leakage free.
- To ensure low friction between mast and deck ring wedges, silicone (or Teflon™) spray should be used. Spray on mast. Do not spray on deck ring or on wedge surfaces facing deck ring.
- See drawing PS791 for mast jack and pump main dimensions.

Mast sections:	Mast jack system:	Max load at 300 bar:
CC192, C193	System D65 (Cyl. Ø 65 mm):	100 kN (~10 tons)

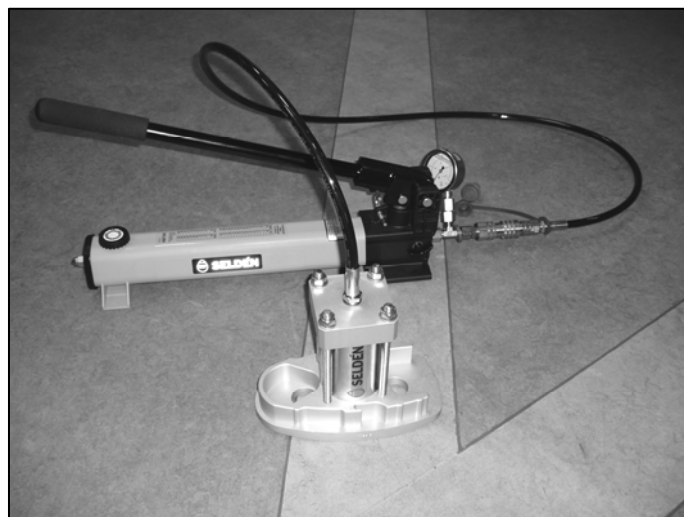


Fig. 1

Replacing mast heel C193 (CC192 only if fitted with 475 mm reinforcement)

Note! On C193 masts, the sail track forward wall must be cut to make room for the cylinder. Use a **reciprocating saw** to remove enough material for the cylinder to fit properly inside the mast. After sawing, smooth all sharp edges with a grinder

Tools needed:

Drilling machine	Fine file (half-round)	M6 tap
Drill bits Ø 6.5 mm & Ø 4.9-5.0 mm	Pop rivet gun	Tap wrench
Hole saw Ø 28-29 mm	Torx key T30	Silicone spray
reciprocating saw (C193 only)	Locking adhesive (Loctite 639)	

1. Remove the old mast heel. Use drill bit 6.5 mm to remove the rivets.
 2. Cut out for cable and hose exits, see fig. 2. Grind edges carefully.
 3. On carbon mast CC192, the heel insulator must be replaced with the new one supplied for the mast jack heel.
 4. Cut away ~100 mm of the cable conduit. Use a compass saw and take care not to damage the electric cables.
 5. On mast section C193; remove ~60mm from the front wall of the sail track, see drawing PS792.
 6. Feed all electric cables out through the new exit hole (not through the hydraulic hose exit).
 7. New holes must be drilled for fasteners approximately 20 mm aft of the old ones.
 8. Insert mast jack assembly and keep the heel pushed up/forward tightly against the mast (heel max forward with no gap between mast and heel) and drill-mark the holes for the new fasteners.
 9. Remove mast jack assembly and drill (Ø 4.9-5.0 mm) and tap M6 for the new fasteners.
 10. Insert mast jack assembly and feed the hydraulic hose out through the hose garage exit. Make sure that the electric cables are clear.
 11. If an internal hose garage is to be used, go to steps 13~15 before fastening the heel.
 12. Remove all metal or carbon chips and dirt and fasten mast jack assembly with screws. Use plenty of locking adhesive on the screws to avoid corrosion.
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13. If a hose garage is to be used: use hose garage as a template and mark the holes before drilling 6.5 mm. Use insulating lacquer on contact surfaces to prevent corrosion.
 14. Drill hole #1 with garage as template, then place a pop-rivet in the hole to keep the “garage/template” in position and drill hole #2. Place a pop-rivet in the second hole...etc. until all four holes are drilled.
 15. Spray the hydraulic hose with silicone spray to make it slide easily inside the mast.
 16. Feed the hydraulic hose into the mast and out through the hose exit hole and hold the heel close to the mast end so that the hose forms a bend inside the mast
 17. Fit hose garage inside mast with pop rivets. See fig. 2. Make sure that the hydraulic hose is lead down into the garage from above and that it can be slid easily up and down through the garage/exit.
 18. Remove all metal or carbon chips and dirt and fasten mast jack assembly with screws. Use plenty of locking adhesive on the screws to avoid corrosion.



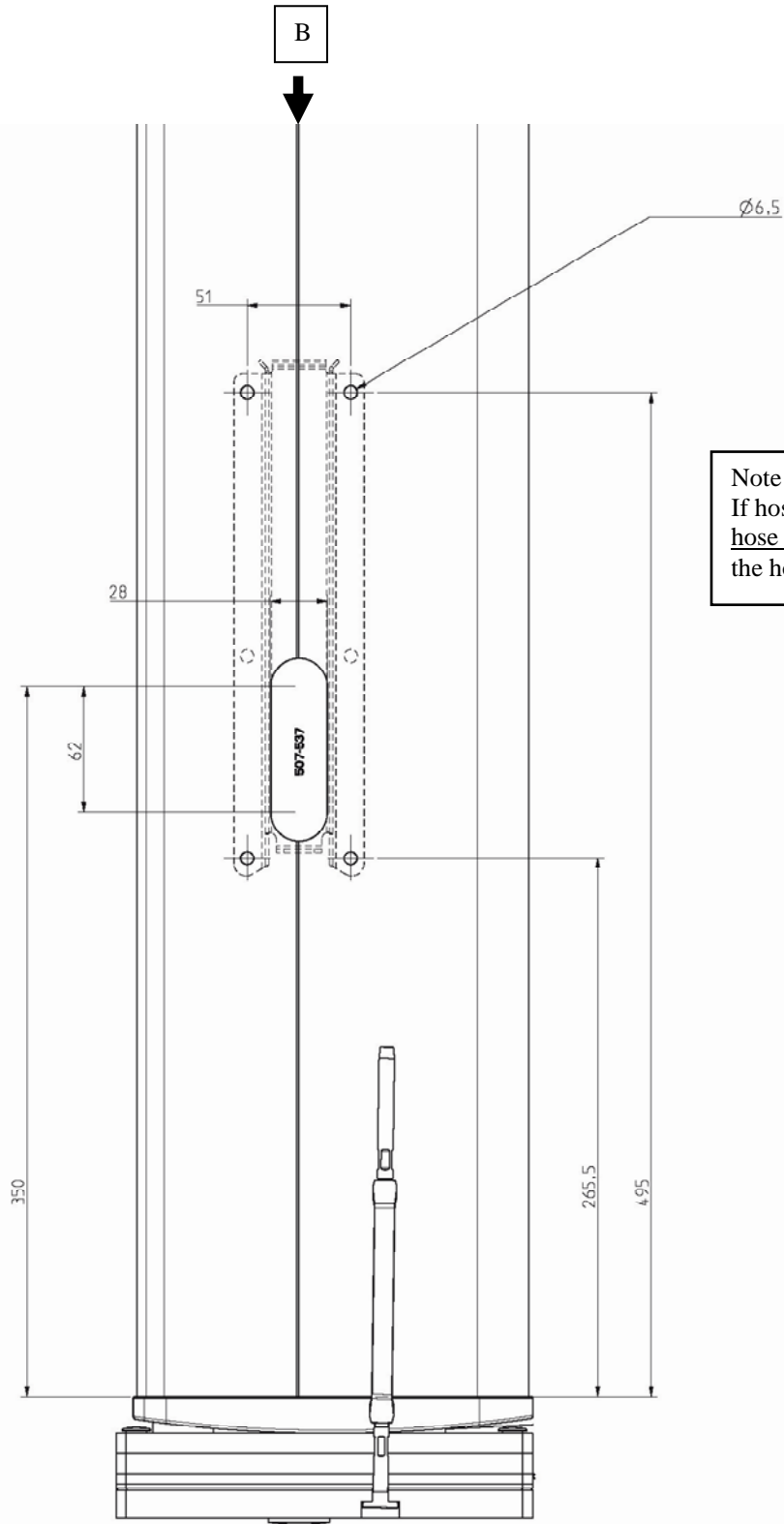


Fig. 2

Replacing mast base

1. Remove old mast base.
2. Fit new mast base with supplied washers and screws.

Note: adjusting mast base location can not be done once the mast is raised.

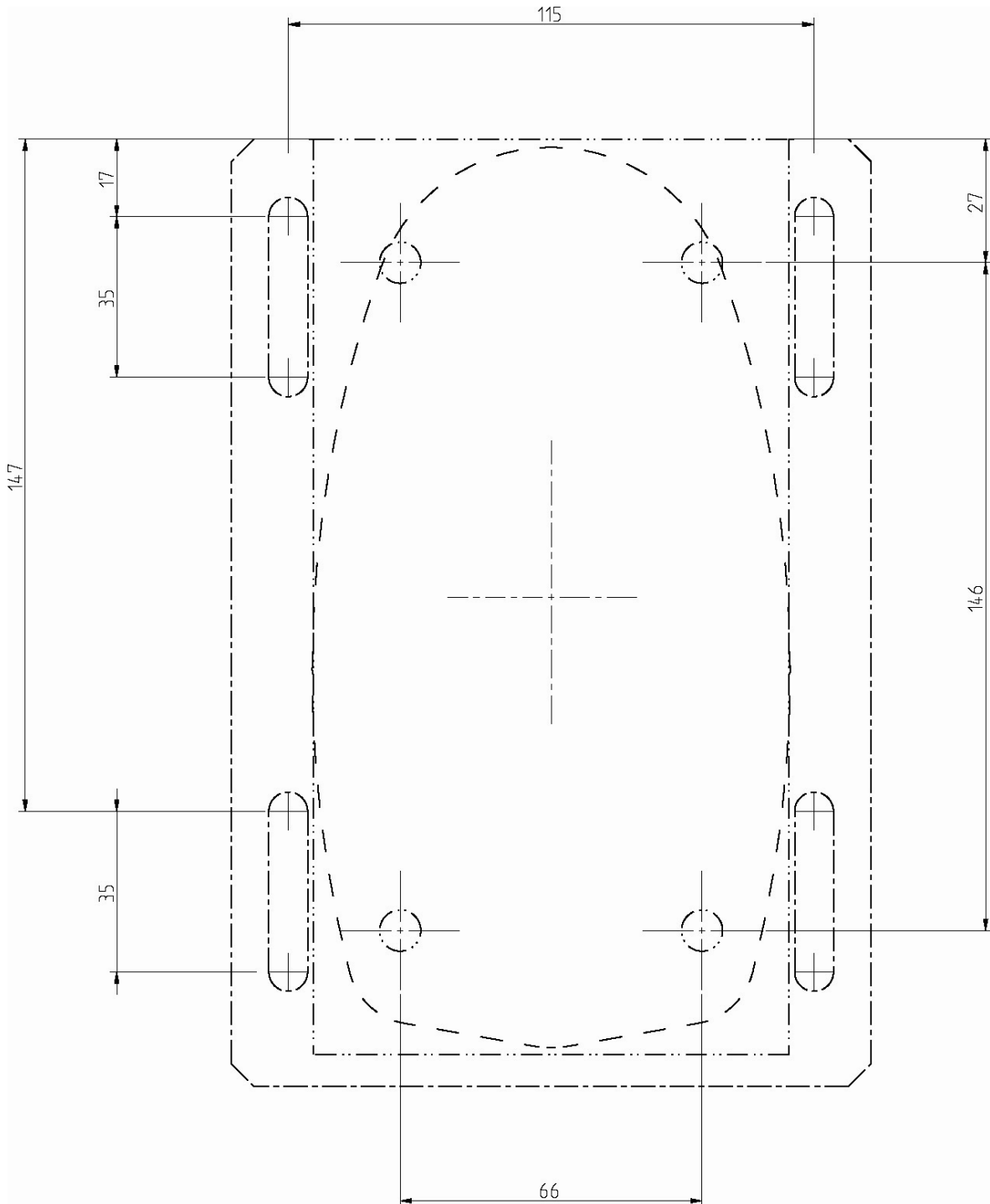


Fig. 3

Fitting the tie rods

1. Unscrew the rigging screw, feed the wire through the tie rod hole in deck ring.
2. Attach the threaded stemball in the mast base, connect the rigging screw.
3. Tighten rigging screw to eliminate slack in the wire before pumping the mast up.

Stepping and tuning

- Before stepping the mast make sure that the right amount of shims is used, see table 2. Also make sure that the shims are secured with the supplied locking pins.
- To ensure low friction between mast and deck ring wedges, silicone (or Teflon™) spray should be used. Spray on mast. Do not spray on deck ring or on wedge surfaces facing deck ring.

Important! Thickest shims on top.

1. When stepping the mast, make sure to keep cables and hydraulic hose clear.
2. Apply silicone (or TEFLON™) spray on the mast and/or on the deck ring pads – MAST SIDE ONLY! – to ensure low friction between mast and pads as the mast moves up and down.
3. Tune the mast as you normally would, see *Hints and Advice*. Max pre-tension 25% of wire breaking strength.
Note! All shims to be in place when pre-tensioning the rig.

Mast section	Total height of shims included in mast base (mm)
CC192, C193	27 (10+10+5+2)

Table 2

Fitting leash

Some ocean racing rules require arrangements to keep the mast fixed to the boat in the event of mast failure. If a mast leash is required, fit a padeye or similar to the hull in front of the mast base. After the mast is stepped and tuned for racing (max amount of shims under the mast heel), stretch the leash and position the leash eye on the forward centreline. Move the eye down 5mm (to accommodate future higher mast positions) and mark for the holes on front of mast. On carbon CC192, the eye should be attached with M6 screws and threaded insert 170-116.

Releasing rig tension

Before releasing rig tension by lowering the mast, check that crew members are clear of moving parts both at keelson and at deck level. Remove mast coat if necessary. Also keep an eye on the deck ring pads. They should slide against the mast. If necessary, apply silicone (or TEFLON™) spray between mast and pads.

1. Make sure that the pump valve is open before connecting pump to mast jack. Open by turning wheel counter clockwise. See fig. 5.
2. Connect the pump by pushing the male and female quick couplings together. The quick coupling can be locked by turning the ring on the female coupling on the pump.
3. Close the pump valve by turning the wheel clockwise.
4. Pump the mast up just so that the shims can be removed.
5. Remove the desired amount of shims.
6. Carefully and slowly release pressure (Turn wheel on pump unit counter clockwise).
7. Before disconnecting pump, make sure that the pump valve is open.

Resetting rig tension

Before releasing rig tension by lowering the mast, check that crew members are clear of moving parts both at keelson and at deck level. Remove mast coat if necessary. Also keep an eye on the deck ring pads. They should slide against the mast. If necessary, apply silicone (or TEFLON™) spray between mast and pads.

1. Make sure that the pump valve is open before connecting pump to mast jack. Open by turning wheel counter clockwise. See fig. 5.
2. Connect the pump by pushing the male and female quick couplings together. The quick coupling can be locked by turning the ring on the female coupling on the pump.
3. Close the pump valve by turning the wheel clockwise.
4. Pump the mast up just so that the shims can be removed.
5. Pump the mast up just so that the desired amount of shims can be inserted. **Note! Thickest shim on top.**
6. Secure shims with the supplied pins.
7. Carefully and slowly release pressure. (Turn wheel on pump unit counter clockwise).
8. Before disconnecting pump, make sure that the pump valve is open.
9. Refit the mast coat if necessary.

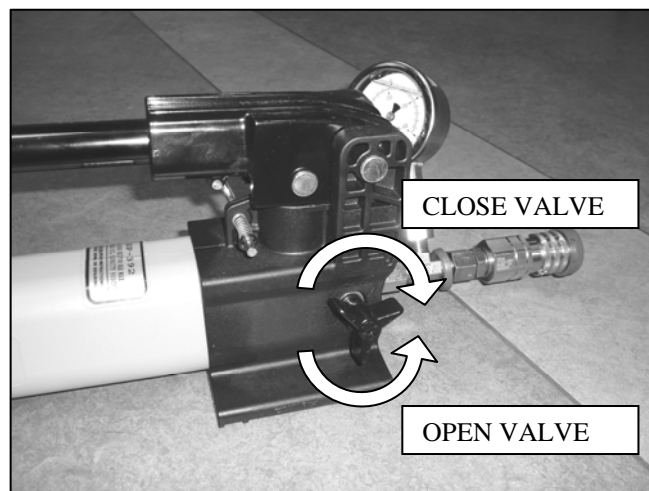


Fig. 5

Conversion tables**SYSTEM D65***(Cyl. Ø 65 mm)*

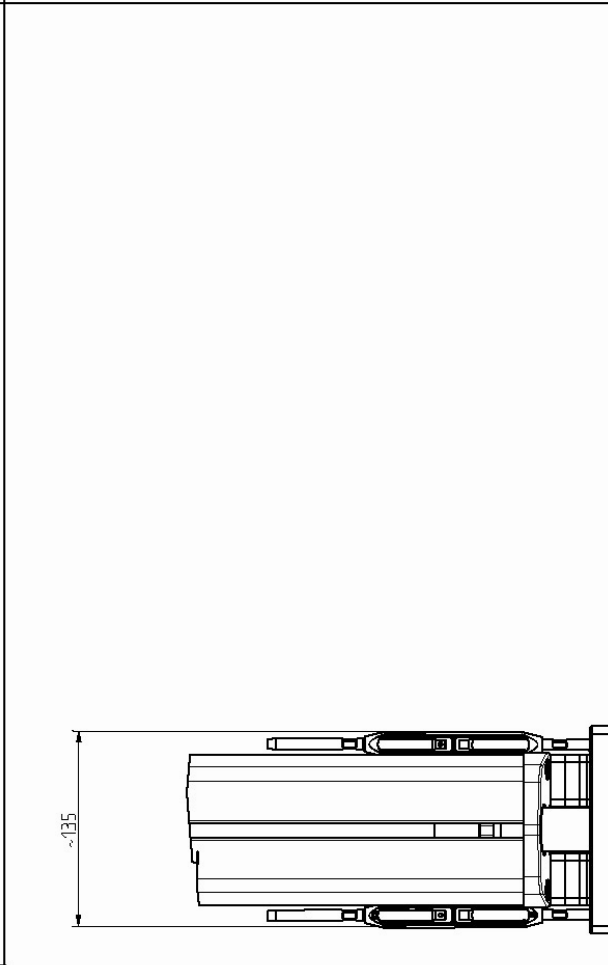
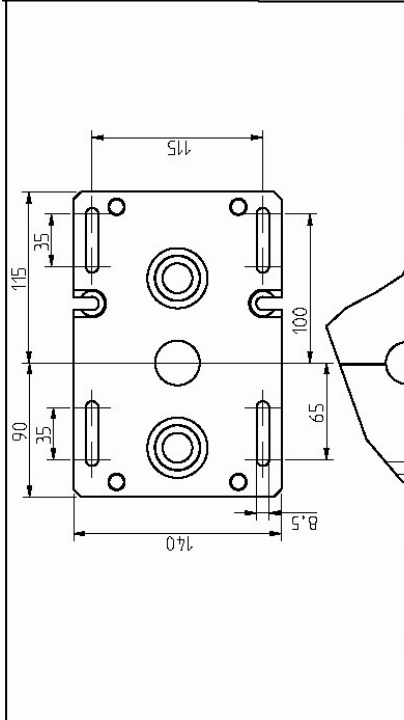
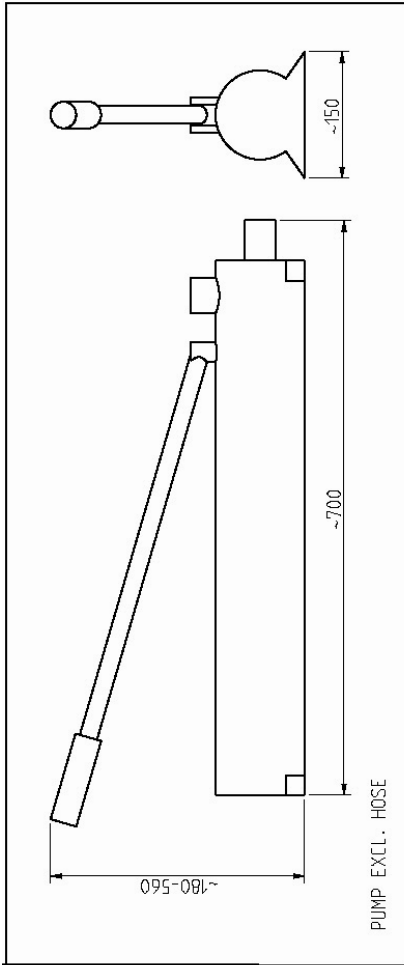
Mast sections:

CC192, C193

Pressure → Load	
BAR	kN
0	0
20	7
40	13
60	20
80	27
100	33
120	40
140	46
160	53
180	60
200	66
220	73
240	80
260	86
280	93
300	100

Load → Pressure	
kN	BAR
0	0
10	30
20	60
30	90
40	120
50	150
60	180
70	210
80	240
90	270
100	300

Table 3.a



SELDÉN

MAST JACK SYSTEM CI93/CC192
 D63
 MAIN DIMENSIONS

Estimated mass properties:	Weight	Volume
Replaced by	Replacing	X
Revision	Release	- Concept
Scale	Date	08-11-25
Tolerance acc. to SS-ISO 2768-x unless otherwise stated	Drawn	JG
	File	1860
	Approved	
	Part No.	MAST_JACK_FF36

No	Qty	Revision	Date	Sign



No	Qty	Revision			Date	Sign
		CUTOUT FOR MAST JACK C193 X X				
Tolerance acc. to SS-ISO 2768-x unless otherwise stated		Estimated mass properties:		Weight 5142,9g	Volume 1904,8cm3	File 1840
Drawn JG	Date 08-11-25	Scale 1:2	Replaced by	Replacing X	Approved	Part No. PS792