CHAPTER PLAN

① SAILING BOAT SUSPENDED RUDDER ASSEMBLY WITHOUT DECK BEARING
② SAILING BOAT SUSPENDED RUDDER ASSEMBLY WITH DECK BEARING
③ SAILING BOAT SUSPENDED RUDDER ASSEMBLY WITH AUTOMATIC BEARING ALIGNMENT
④ RUDDER SYSTEM FOR ANTARES MOTOR BOAT

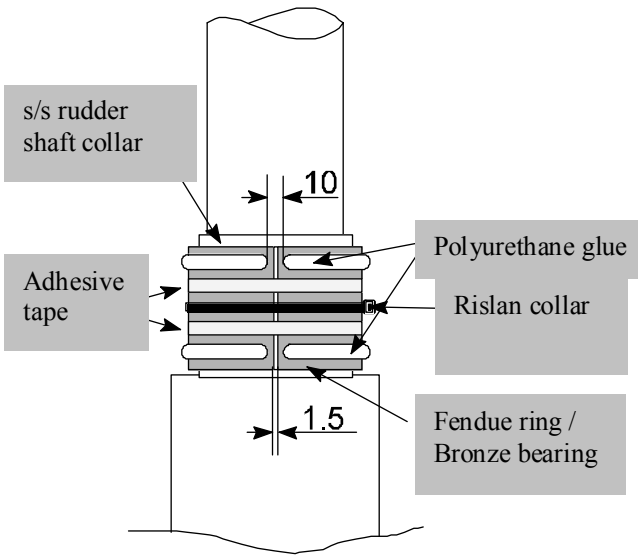
NECESSARY MATERIALS	RÉFERENCES
- Methylethycetone (MEC)	
- PMS 60 polyurethane glue	- 051617
- Grease	
- White silicone	- 068119

NECESSARY TOOLS

- Disposable cleaning cloth
- Fine adhesive tape
- Power drill

PREPARATION GENERALITIES

- Clean the gel coat excess at the rudder tube entrance.
- Check that the stainless steel collar fitted on the rudder shaft is clean. Wipe it carefully if necessary with MEC without scratching the surface.
- Fit the open ring on the stainless steel collar just before fitting the rudder. The slit on the ring must be turned forward.
- Tighten the open ring with a tie-wrap collar. Make sure the slit on the ring is leaving a gap between 1.5 mm +/- 0,5mm.
- Modify carefully if necessary the open ring with a smooth file.
- Maintain the open ring tightened with some adhesive tape.
- Cut the tie-wrap collar.
- Apply some polyurethane glue all around the open ring and stop 10 mm on each side before the opening
- Reinstall the rudder
- Clean the silicone excess.



① SAILING BOAT SUSPENDED RUDDER ASSEMBLY WITHOUT DECK BEARING

- Introduce the upper bearing inside the rudder tube.

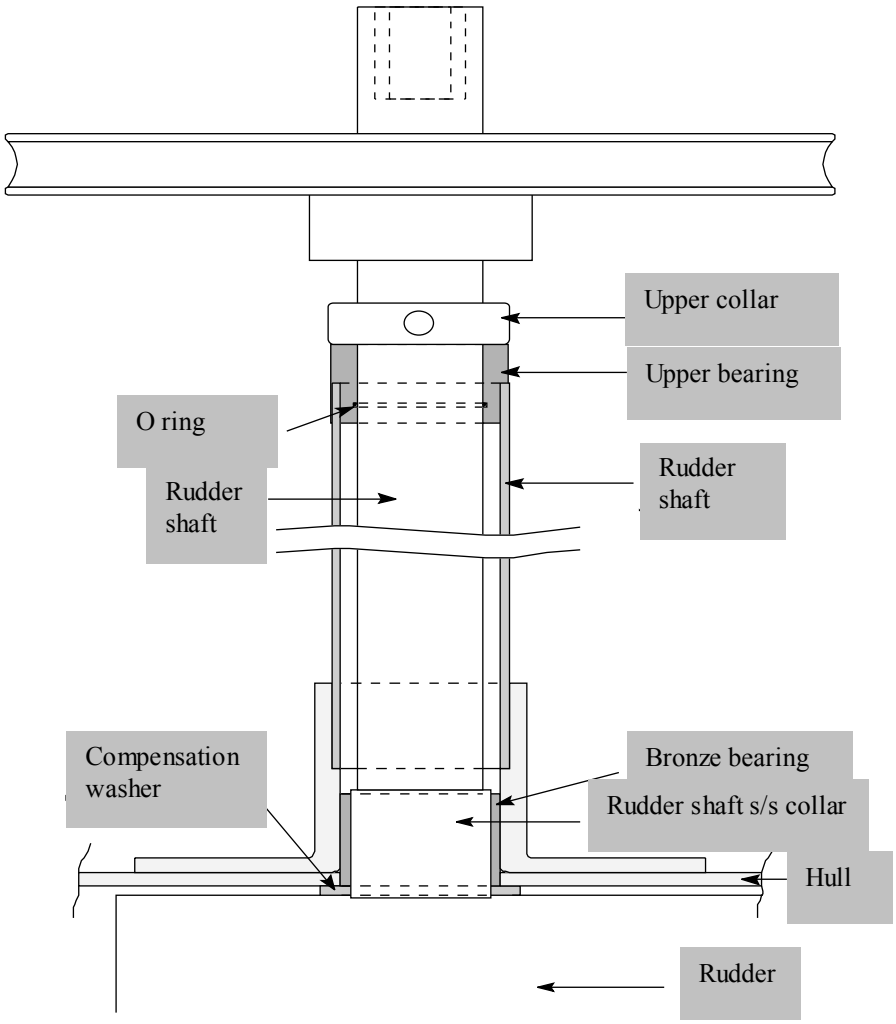
- Stick it with polyurethane glue if there is a gap between the upper bearing and the rudder tube.

- Put the compensation ring on the rudder.

- Introduce the rudder shaft inside the rudder tube. Take care not to damage the bearing O rings inside the bearing.

- Place the upper collar to lock the rudder. Drill a hole into the rudder shaft through the hole's pin of the collar (some rudder shaft are already drilled).

- Insert the collar pin or tighten the top rudder shaft square to finish.



② SAILING BOAT SUSPENDED RUDDER ASSEMBLY WITH DECK BEARING

- Put some silicone all way around on the deck contact surface with the top of bearing.

- Bolt the bearing putting silicone on each bolt.

- Put on the compensation ring on the rudder.

- Pull the rudder up into the rudder tube.

- Slip the rubber seal if there is one.

- Introduce the rudder shaft inside the upper bearing and the rubbing ring.

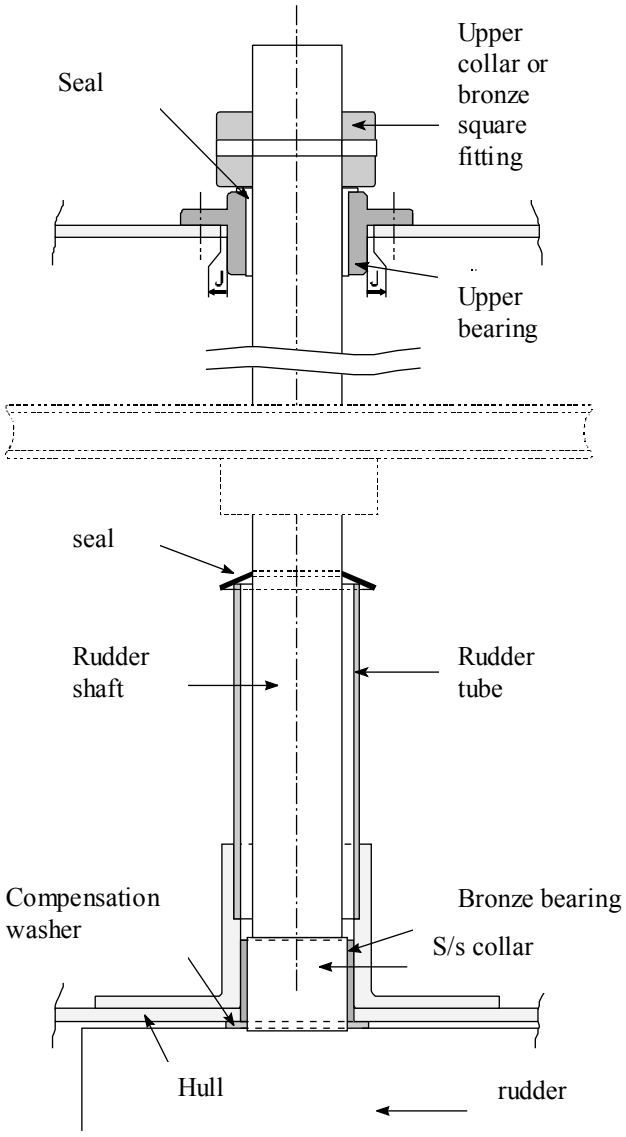
- Keep the rudder in position.

- Make sure the rudder shaft is not constrained between the two up and down bearings (rudder shaft alignment).

- Position the upper collar or the bronze square fitting onto the rudder shaft head to block it.

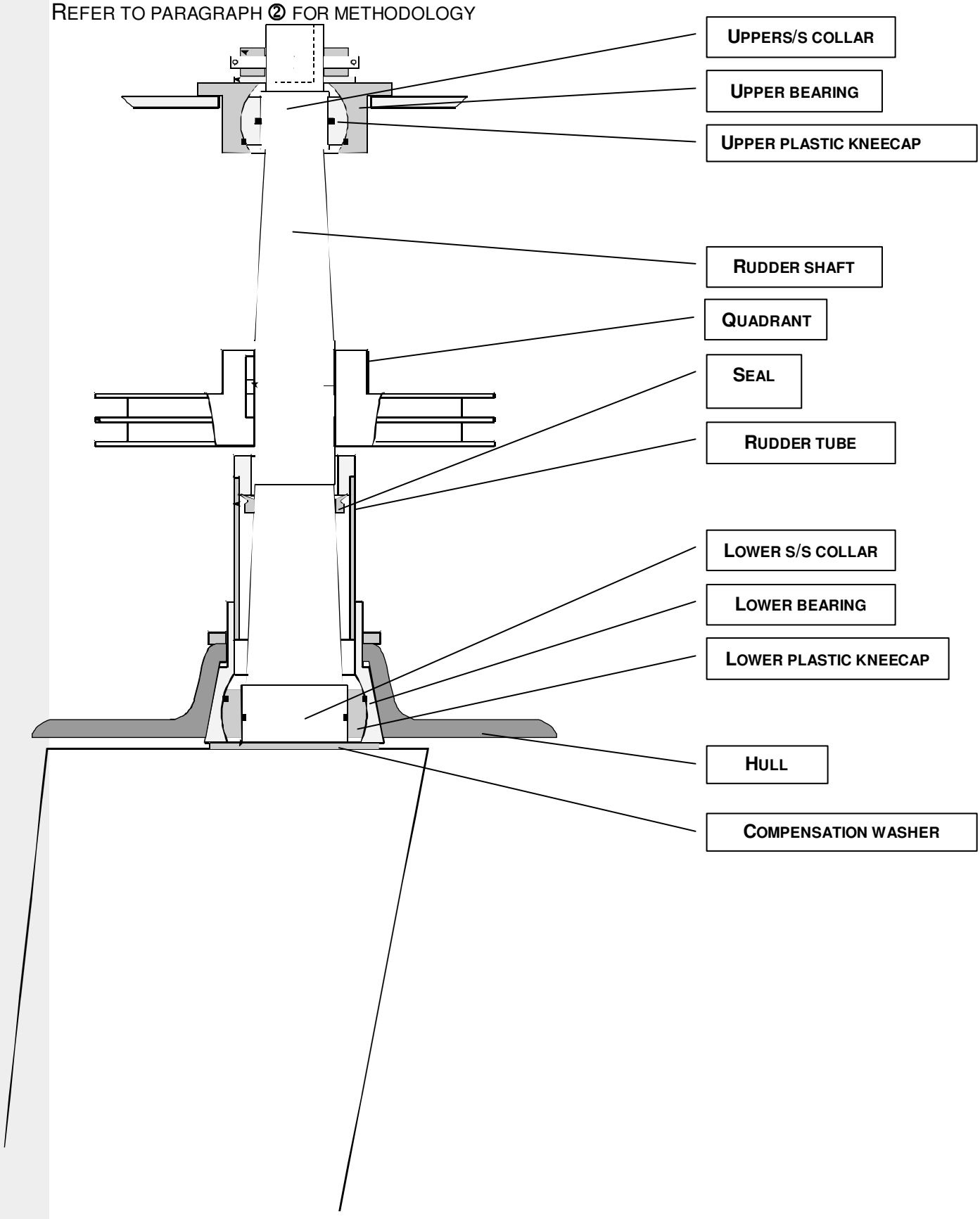
- Drill the rudder shaft to fix the locking pin through the upper collar and shaft (some rudder shafts are already drilled).

- Fix the collar pin or tighten the bronze square fitting.



③ SAILING BOAT SUSPENDED RUDDER ASSEMBLY WITH AUTOMATIC BEARING ALIGNMENT

REFER TO PARAGRAPH ② FOR METHODOLOGY



④ RUDDER SYSTEM FOR ANTARES MOTOR BOAT

MOUNTING OF THE RUDDER LAYED ON TO A BRACKET

- Check the cleanness of the rudder shaft. Clean it with MEC if necessary, without scratching it.

- Fit the quadrings inside the bearings (lips downwards) with grease.

- Wipe and degrease the bearings deck surface, the hull liner and the bearing too with MEC.

- Apply a track of white silicone on the supporting surface, and on the bearings.

- Bolt on the bearings and watertight the bolts with white silicone.

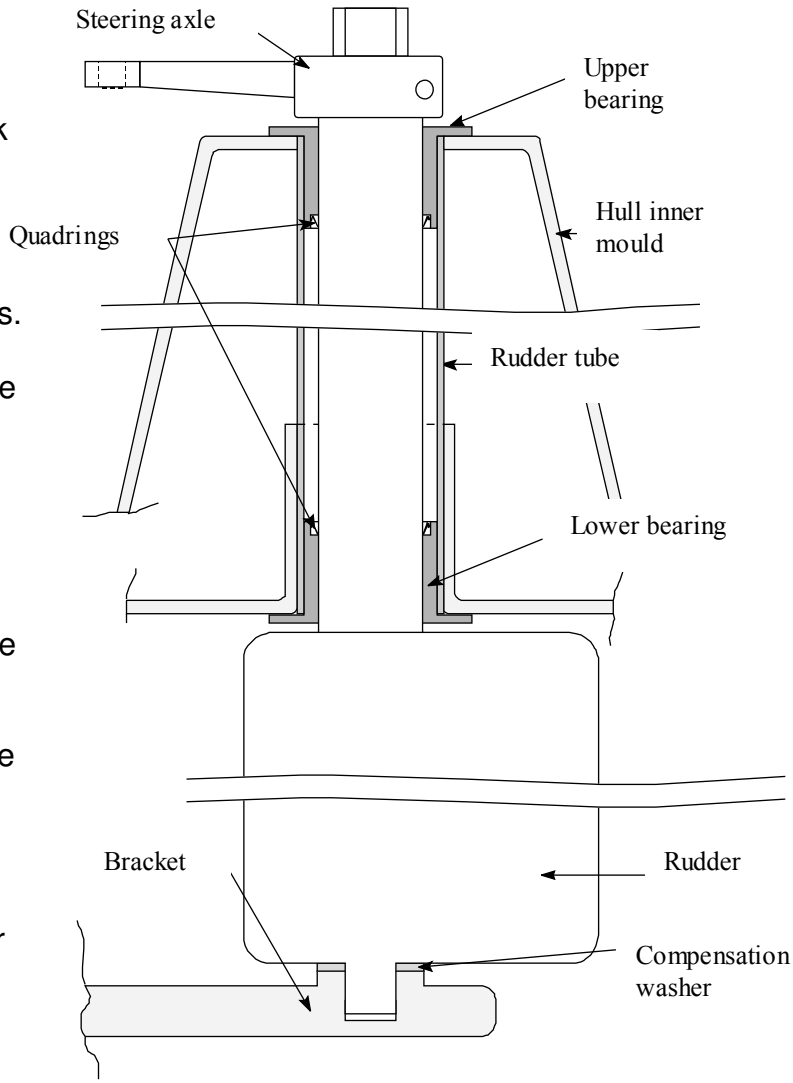
- Pull the rudder up inside the rudder tube. Be careful not to damage the quadrings.

- Maintain the rudder in position with the appropriate tools.

- Mount the compensation ring on to the bottom of the rudder shaft.

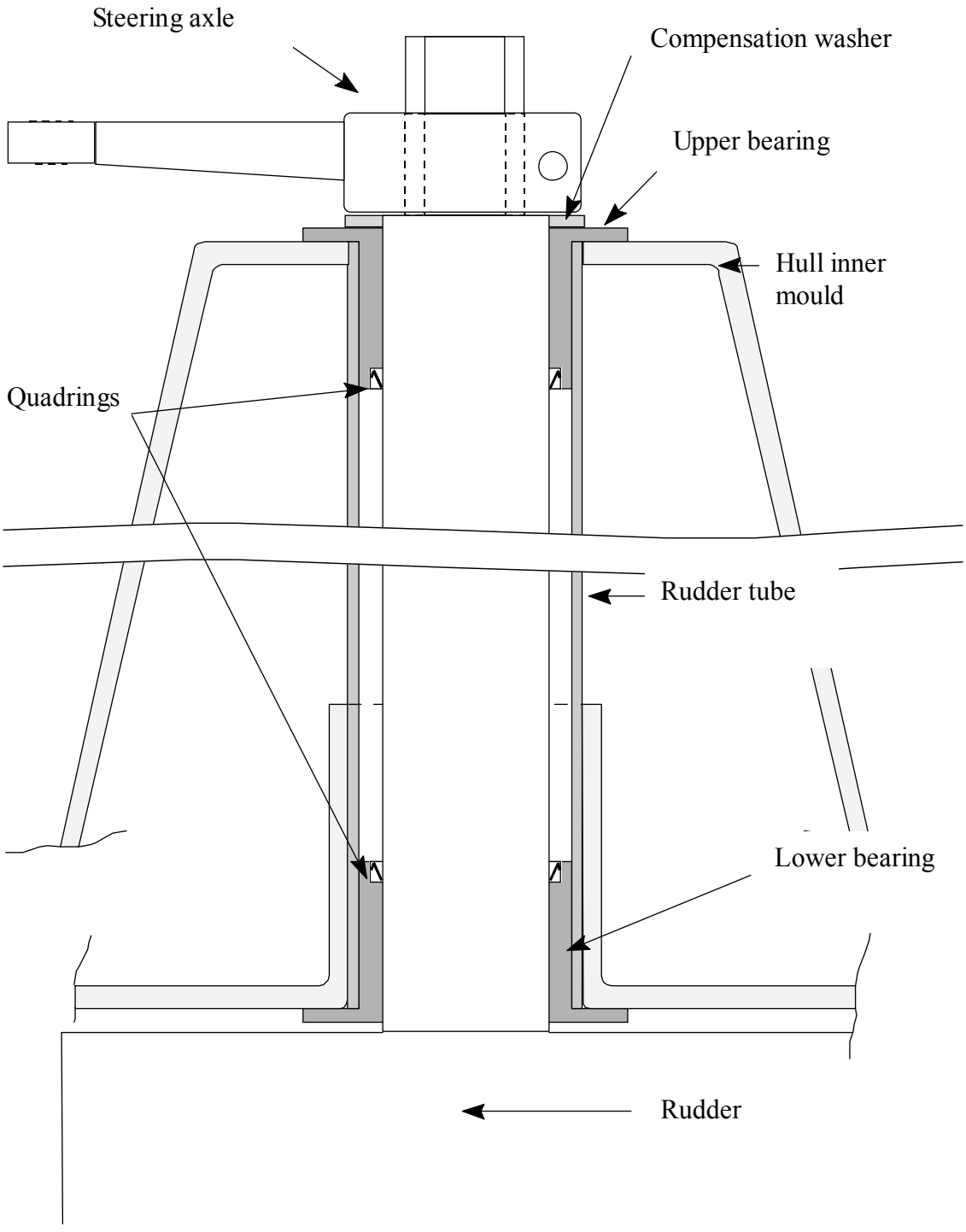
- Mount the bracket.

- Tighten the spindle axle on the rudder shaft head.



MOUNTING OF A SUSPENDED RUDDER WITHOUT DECK BEARING

- Proceed the same as for the mounting on the bracket but mount the compensation ring on the deck. The stub axle is used as vertical stop.



MOUNTING OF THE RUDDER WITH DECK BEARING FITTED ON THE BRACKET

- Drill the deck in a larger diameter than required for the upper bearing. (D+ approx 5 mm).

- Position the top bearing in the hole but DO NOT FIX IT YET.

- Wipe of dust and degrease the surfaces to seal on the bottom bearing with rag paper and MEC.

- Put a track of white silicone on the leaning part of the bottom bearing.

- Screw the bottom bearing with silicone on each screw.

- Pull the rudder up in the rudder tube while positioning the stub axle and the rubber seal which have been previously greased.

- Introduce the top of the rudder shaft in the top bearing.

- Maintain the rudder in this position with the appropriate tools.

- Check that the rudder shaft is not blocked between the top and bottom bearings alignement. In such case, remove the top bearing and enlarge the hole so that the top bearing can go freely.

- Mark the position of the top bearing bolts axis.

- Remove the rudder.

- Wipe and degrease with MEC.

- Position a track of white silicon on the leaning area of the top bearing.

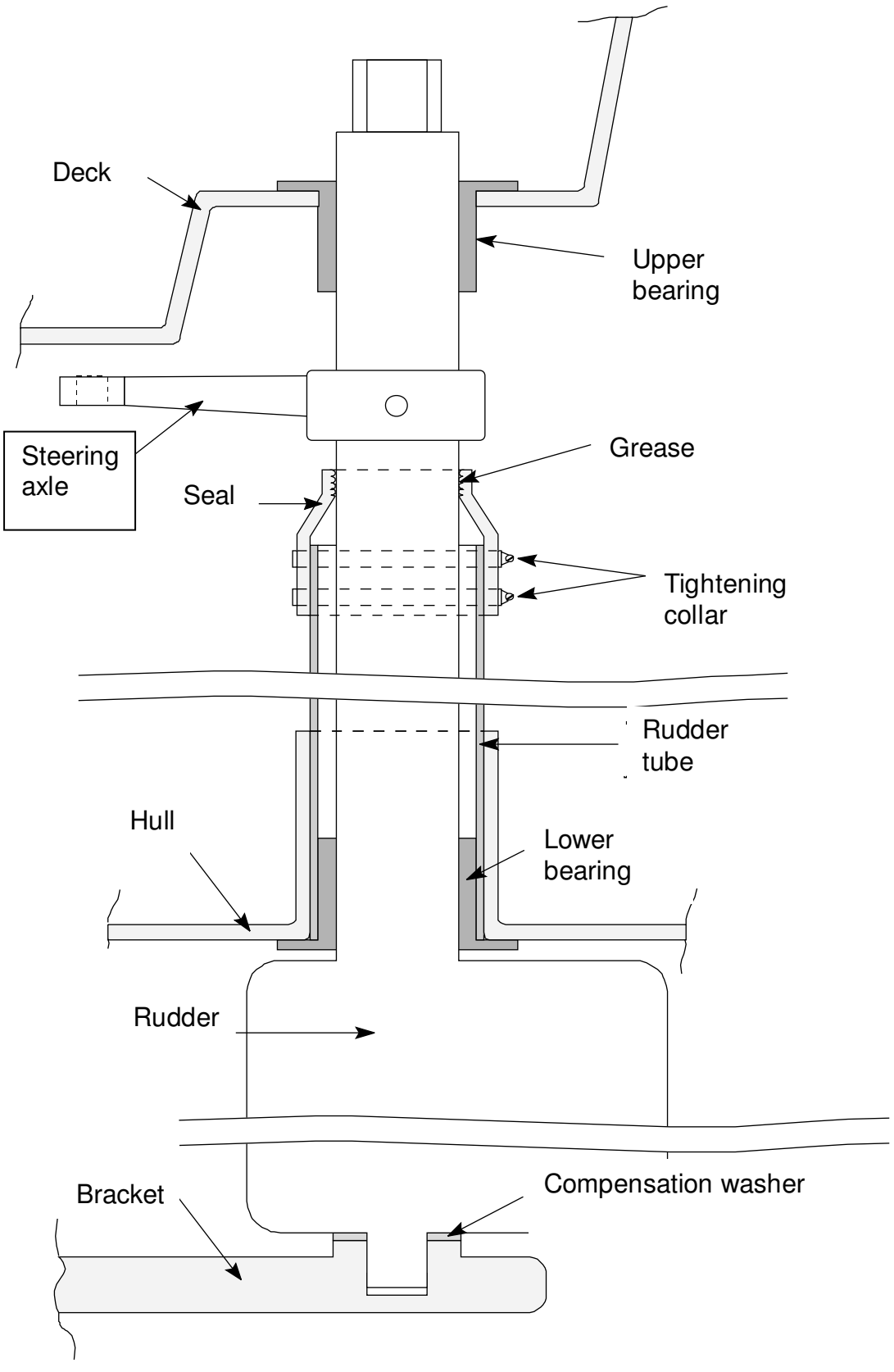
- Screw the bearing with white silicon on screws.

- Mount the compensation ring on the rudder.

- Fix the bracket.

- Tighten the rubber seal on the rubber tube with two stainless steel collars.

- Tighten the stub axle on the rudder shaft.


Deck
Upper bearing
Steering axle
Seal
Grease
Tightening collar
Rudder tube
Hull
Lower bearing
Rudder
Compensation washer
Bracket