

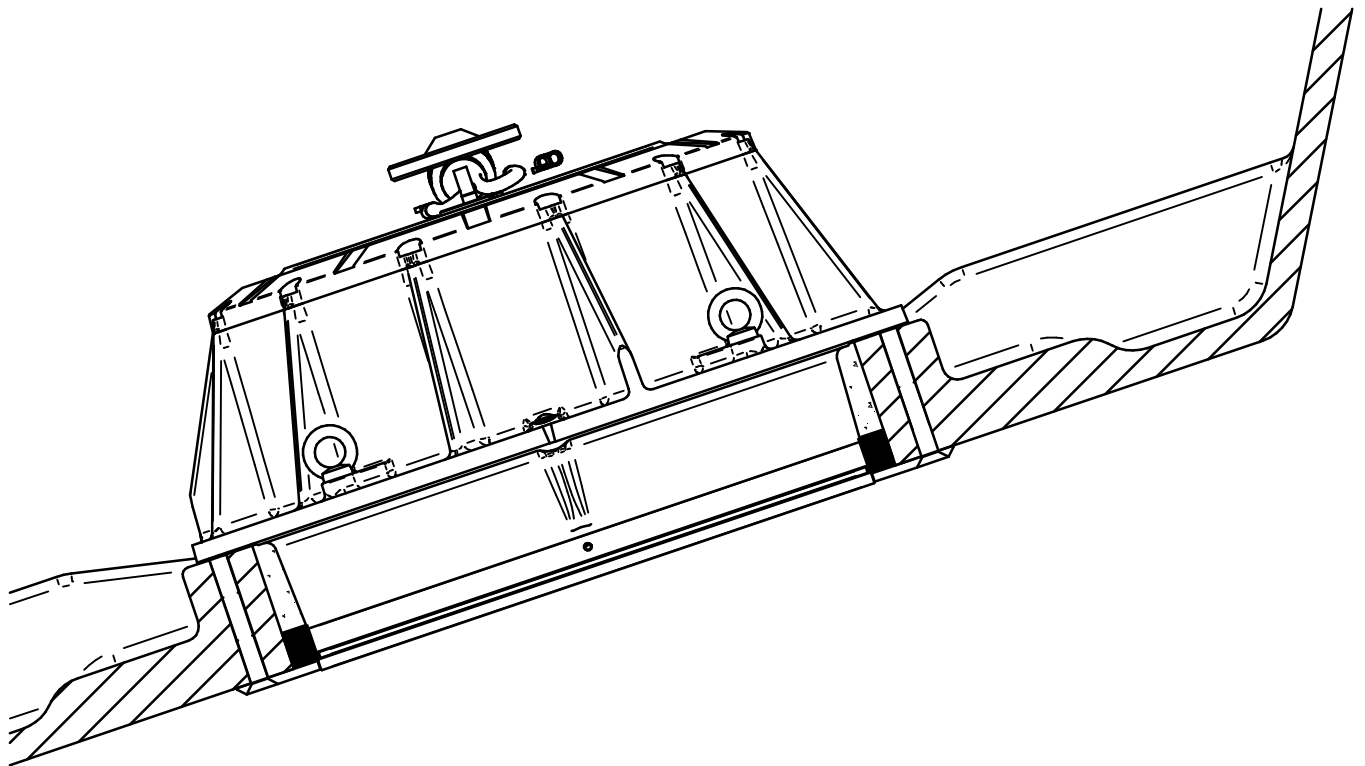
HUMPHREE®

INSTALLATION DRAWING SU553 / SU563, CHOCKFAST

021564-K20_INST_DRAW_SU553_SU563_CHOCKFAST_ENG_2025-01-28.dft

021564 K20

STABILIZING FINS



NOTES:

WARNING! THE HULL REINFORCMENT MUST BE SOLIDLY ANCHORED TO THE HULL. FOR CORED HULLS,CORE MUST BE REMOVED AND A SOLID STRUCTURE MUST BE PRODUCED AS PART OF THE HULL.

APPLY ONLY MARINE ADHESIVE SEALANT. PREPARE THE SURFACE ACCORDING TO MARINE SEALANT SUPPLIERS INSTRUCTIONS.



CAUTION: DO NOT APPLY CHOCKFAST OR ANY OTHER COMPOUND TO THE SURFACE WHERE THE FIN IS ATTACHED TO THE SERVO UNIT.

WARNING! THE POSSIBILITY OF THE VESSEL RUNNING AGROUND MUST ALSO BE CONSIDERED WHEN DESIGNING THE HULL STRUCTURE.

ENSURE THE MOUNTING SURFACE OF THE HULL REINFORCEMENT IS FLAT AND SQUARE (PERPENDICULAR) TO THE HULL BORE. IT IS CRITICAL THAT THE HULL BORE THRU THE REINFORCEMENT PENETRATS THE HULL NORMAL TO THE INBOARD MOUNTING SURFACE. WHEN INSTALLING IN A CURVED AREA OF THE HULL, THE OUTBOARD HULL SURFACE MUST BE FAIRED UNDER THE FLANGE TO BE PARALLEL TO THE INSIDE MOUNTING SURFACE. DO NOT BEND THE OUTER FLANGE TO FIT THE CONTOUR OF THE HULL.

THE CUT SURFACE OF THE HULL BORE AND HOLES MUST BE TREATED WITH THE YARD DESIRED METHOD TO SEAL THE STRUCTURE FROM POSSIBLE WATER CONTAMINATION.

THE MOUNTING BOLT THRU-HOLES MUST BE PARALLEL TO THE HULL BORE AXIS, AND PERPENDICULAR TO THE INBOARD AND OUTBOARD MOUNTING SURFACES. ANGULAR MISALIGNMENT OF THE MOUNTING BOLTS MAY RESULT IN BOLT FAILURE, AND SEAWATER INTRUSION.

THE FINS CAN ROTATE 360° AND MUST BE ABLE TO FREELY ROTATE. REMOVE ALL APPENDAGES WHICH CAN INTERFERE WITH THE FINS.

IF THE FINS ARE SUBJECTED TO A WATER FLOW AND THE SERVO UNITS ARE NOT POWERED UP, THE FINS CAN BE ROTATED OUT OF POSITION AND PROTRUDE OUTSIDE THE HULL SIDE.

REVISION CHANGES

REV	DESCRIPTION	DATE	APPVD
K14	ADDED SU563 AND FINS 1,3 & 1,5m²	20200203	BH
K15	REMOVED 0.45m², CHANGED/REMOVED TEXT	20201216	BH
K16	ADDED 150 A FUSE FOR SU563, UPDDATED TEXT.	20210120	BH
K17	UPDATED FIN BOLT INSTRUCTION	20220127	FA
K18	UPDATED MARINE SEALANT INSTRUCTIONS	2023-03-23	JTO
K19	UPDATE SU563-F	2024-09-17	JTO
K20	ADDED SERVICE SPACE AROUND SERVO	20250128	BH

FIN LOADS:

FIN ANGLES ARE SPEED DEPENDANT.

WARNING:

DESIGN AND FABRICATION OF HULL REINFORCEMENT FOR A SPECIFIC VESSEL IS THE RESPONSIBILITY OF THE INSTALLER. INSTALLER CONSULTATION WITH A NAVAL ARCHITECT TO DETERMINE AN APPROPRIATE STRUCTURE TO SAFELY DISTRIBUTE SERVO UNIT LOADS IS REQUIRED.

0.60m² FIN



FIN CF 060 SU553	Operational forces, SPEED 15 kn	Operational forces, SPEED 20 kn	Max Operational forces, SPEED >28 kn	Grounding force*
Fx (kN)	-4,1	-6,4	-6,8	90
Fy (kN)	16,9	27,7	35,4	-
Fz (kN)	12	12	12	-
Mx (kNm)	7,3	12,0	15,3	-
My (kNm)	1,8	2,8	2,9	-
Mz (kNm)	2	2	2	-



0.8m² FIN



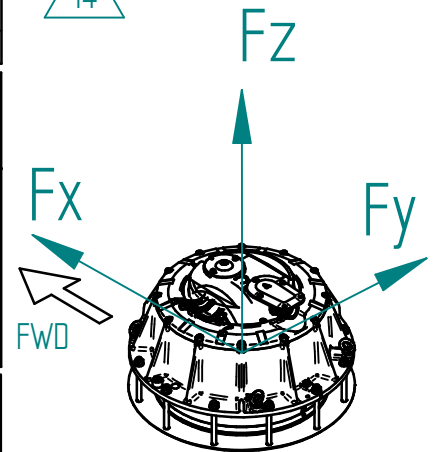
FIN CF 080 SU553	Operational forces, SPEED 15 kn	Operational forces, SPEED 20 kn	Max Operational SPEED >28 kn	Grounding force*
Fx (kN)	-5,5	-8,6	-9,1	90
Fy (kN)	22,6	36,9	47,2	-
Fz (kN)	12	12	12	-
Mx (kNm)	9,8	16,0	20,4	-
My (kNm)	2,4	3,7	3,9	-
Mz (kNm)	2	2	2	-



1.0m² FIN



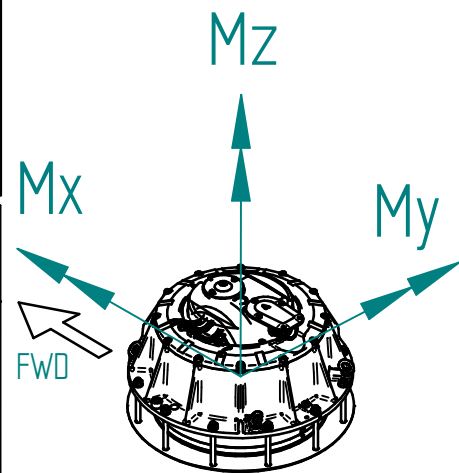
FIN CF 100 SU553 SU563	Operational forces, SPEED 15 kn	Operational SPEED 20 kn	Max Operational SPEED >28 kn	Grounding force*
Fx (kN)	-6,9	-10,7	-11,3	90
Fy (kN)	28,2	46,2	59,0	-
Fz (kN)	12	12	12	-
Mx (kNm)	12,2	20	25,5	-
My (kNm)	3,0	4,6	4,9	-
Mz (kNm)	2/4**	2/4**	2/4**	-



1.3m² FIN



FIN CF 130 SU563	Operational forces, SPEED 15 kn	Operational forces, SPEED 20 kn	Max Operational forces, SPEED >28kn	Grounding force*
Fx (kN)	-8,9	-13,9	-14,7	110
Fy (kN)	36,7	60,0	76,7	-
Fz (kN)	12	12	12	-
Mx (kNm)	15,9	26,0	33,2	-
My (kNm)	3,9	6,0	6,4	-
Mz (kNm)	4	4	4	-



1.5m² FIN



FIN CF 150 SU563	Operational forces, SPEED 15 kn	Operational forces, SPEED 20 kn	Max Operational forces, SPEED >28 kn	Brake off force*
Fx (kN)	-10,3	-16,1	-17,0	110
Fy (kN)	42,3	69,2	88,5	-
Fz (kN)	12	12	12	-
Mx (kNm)	18,3	29,9	38,3	-
My (kNm)	4,4	7,0	7,4	-
Mz (kNm)	4	4	4	-

* In case of hitting an object straight ahead, the fin is designed with a 'fail safe' approach and the break off force is presented as "Grounding force".

** This fin can be installed on both servo unit SU553 or SU563.

IMPORTANT WARNING:

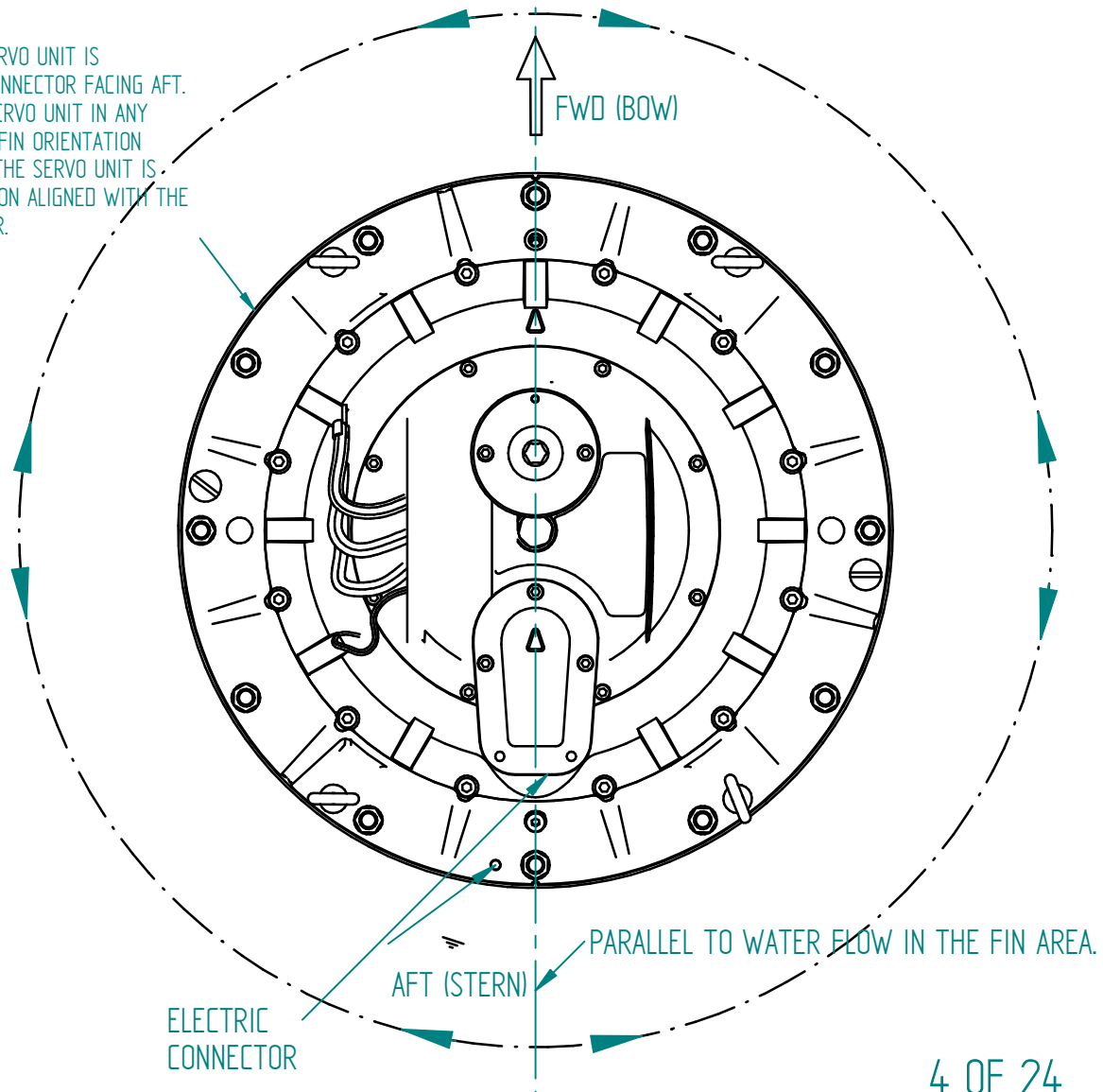
THE ILLUSTRATIONS SHOWN ON THIS DRAWING ARE TYPICAL HULL REINFORCEMENT STRUCTURES AND MATERIALS, AND ARE INTENDED AS A GENERAL GUIDE ONLY.

EACH VESSEL'S REINFORCEMENT STRUCTURE MUST BE CONSIDERED A UNIQUE DESIGN DUE TO VARIETY OF FORCES DISTRIBUTED TO THE HULL RESULTING FROM VARIOUS INDIVIDUAL VESSEL PARAMETER. THESE PARAMETERS INCLUDE, LONGITUDINAL AND TRANSVERSE LOCATION, THE MAXIMUM OPERATIONAL SPEED OF THE VESSEL, THE VESSEL DISPLACEMENT, CENTER OF GRAVITY, TRANSVERSE AND LONGITUDINAL METACENTER, HULL FORM, PURPOSE AND USAGE, ROLLING AND PITCHING TENDENCIES AND FORCES, AS WELL AS ADJACENT EQUIPMENT, STRUCTURES AND UNDERWATER APPENDAGES.

THE POSSIBILITY OF THE FIN STRIKING AN UNDERWATER OBJECT AND THE POSSIBILITY OF THE VESSEL RUNNING AGROUND MUST ALSO BE CONSIDERED WHEN DESIGNING HULL STRUCTURES.



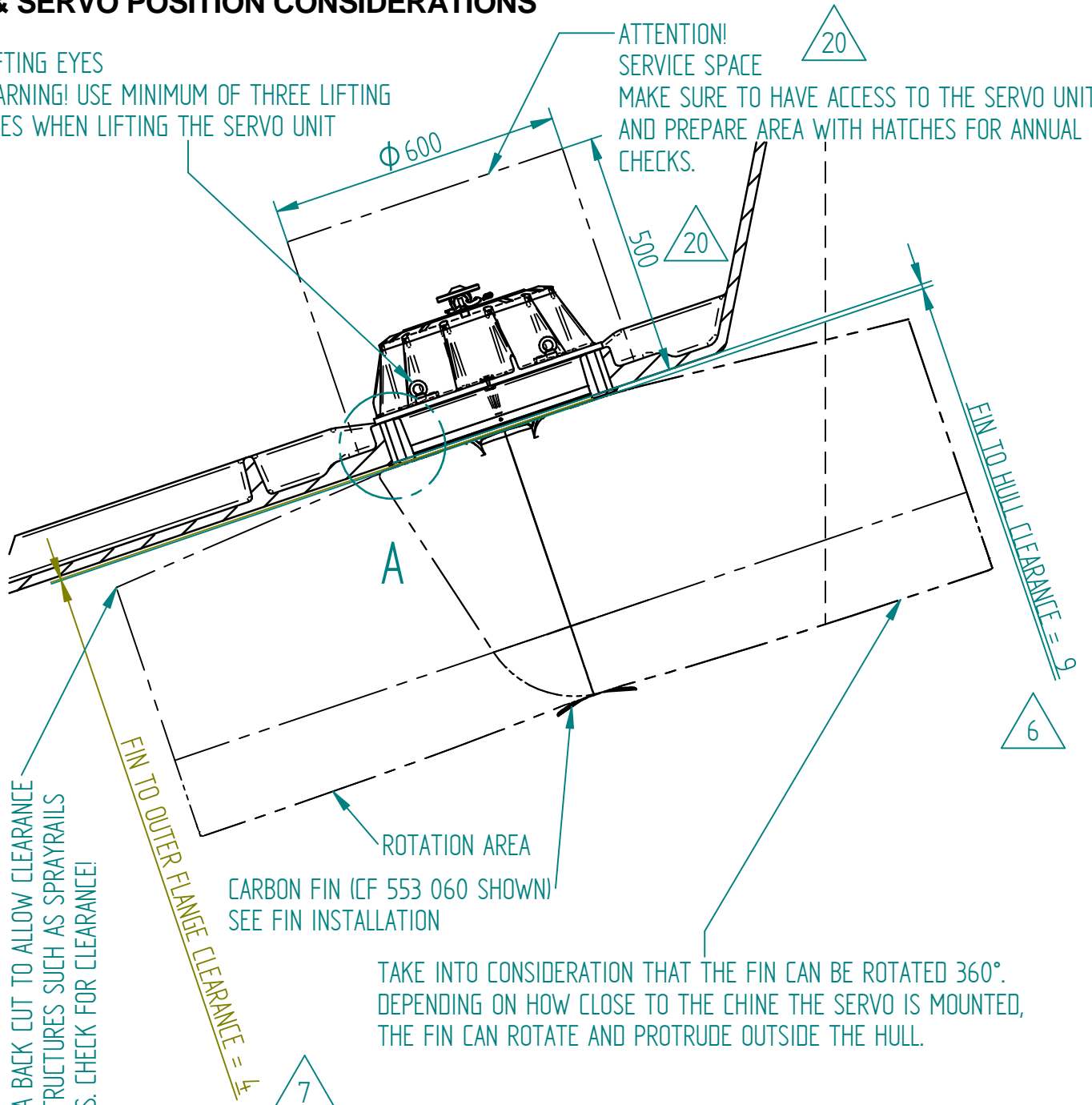
IT IS RECOMENED THAT THE SERVO UNIT IS INSTALLED WITH THE ELECTRIC CONNECTOR FACING AFT. IT IS POSSIBLE TO INSTALL THE SERVO UNIT IN ANY ROTATION BUT IN THIS CASE THE FIN ORIENTATION MUST BE CHANGED ELECTRICALLY. THE SERVO UNIT IS DELIVERED WITH THE FIN ORIENTION ALIGNED WITH THE ARROW ON THE CONNECTOR COVER.



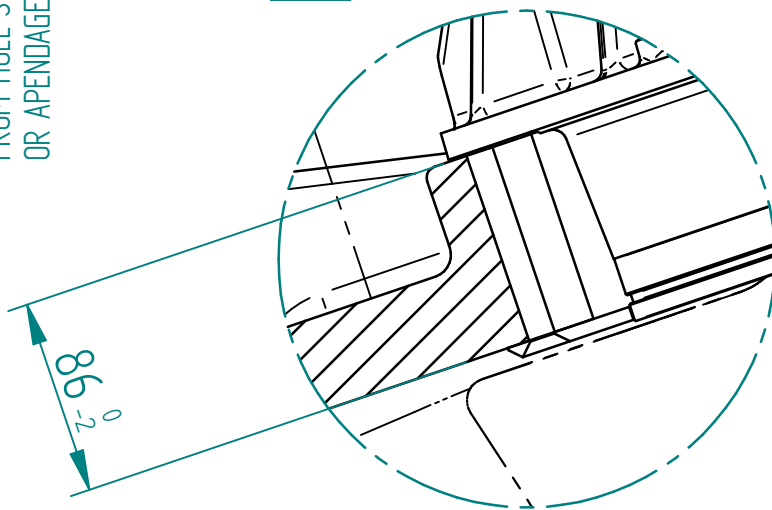
FIN & SERVO POSITION CONSIDERATIONS

LIFTING EYES
 WARNING! USE MINIMUM OF THREE LIFTING EYES WHEN LIFTING THE SERVO UNIT

ATTENTION!
 SERVICE SPACE
 MAKE SURE TO HAVE ACCESS TO THE SERVO UNIT AND PREPARE AREA WITH HATCHES FOR ANNUAL CHECKS.



TAKE INTO CONSIDERATION THAT THE FIN CAN BE ROTATED 360°. DEPENDING ON HOW CLOSE TO THE CHINE THE SERVO IS MOUNTED, THE FIN CAN ROTATE AND PROTRUDE OUTSIDE THE HULL.



DETAIL A
 HULL THICKNESS

IMPORTANT WARNING

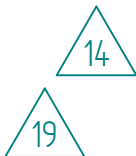
THE ILLUSTRATIONS SHOWN IN THIS INSTALLATION MANUAL ARE TYPICAL HULL REINFORCEMENT STRUCTURES AND MATERIALS, AND ARE INTENDED AS A GENERAL GUIDE ONLY.

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THE POSSIBILITY OF THE FIN STRIKING AN UNDERWATER OBJECT AND THE POSSIBILITY OF THE VESSEL RUNNING AGROUND MUST ALSO BE CONSIDERED WHEN DESIGNING HULL STRUCTURES.



PARTS			
ITEM	QTY	PART NAME	PART NO.
1	1	SU553, SU563	-
2	1	OUTER FLANGE	021218



MOUNTING KIT SU553/563 FOR GRP 021548 or 033060			
ITEM	QTY	PART NAME	PART NO.
5	1	CHOCKFAST FOAM	021418
6	1	CHOCKFAST HOSE 1m	021417
7		Power & Servo Cables	
8	12	BOLT M10x120 MF6S A4	021423
9	12	Washer M10 A4	011016
10	12	NUT M10 LM A4	011017

MOUNTING KIT SU553/SU563 FOR ALU/STEEL HULL 022200 or 033061			
ITEM	QTY	PART NAME	PART NO.
5	1	CHOCKFAST FOAM	021418
6	1	CHOCKFAST HOSE 1m	021417
7		Power & Servo Cable	
11	12	BOLT M10x25 MF6S A4	022199
12	12	BOLT M10x50 MC6S A4	022198
9	12	WASHER M10 A4	011016

SEE HCS5 CONNECTION DIAGRAM FOR THE SPECIFIC VESSEL PROJECT

INSTALLATION AND CHOCKFAST

READ, UNDERSTAND AND PREPARE FOR THIS ENTIRE PROCEDURE BEFORE BEGINNING.

STEP 1. CREATE A TEMPLATE FIN FROM A STIFF PLYWOOD OR CORD PLASTIC SHEET WITHOUT THE MOUNTING FLANGE. TEST THE FIN ROTATION IN THE AREA TO MAKE SURE IT DOES NOT HIT ANY OBSTICAL OR CHINE. A PROFILE OF THE FIN IS PRINTED ON THE FIN BOX.

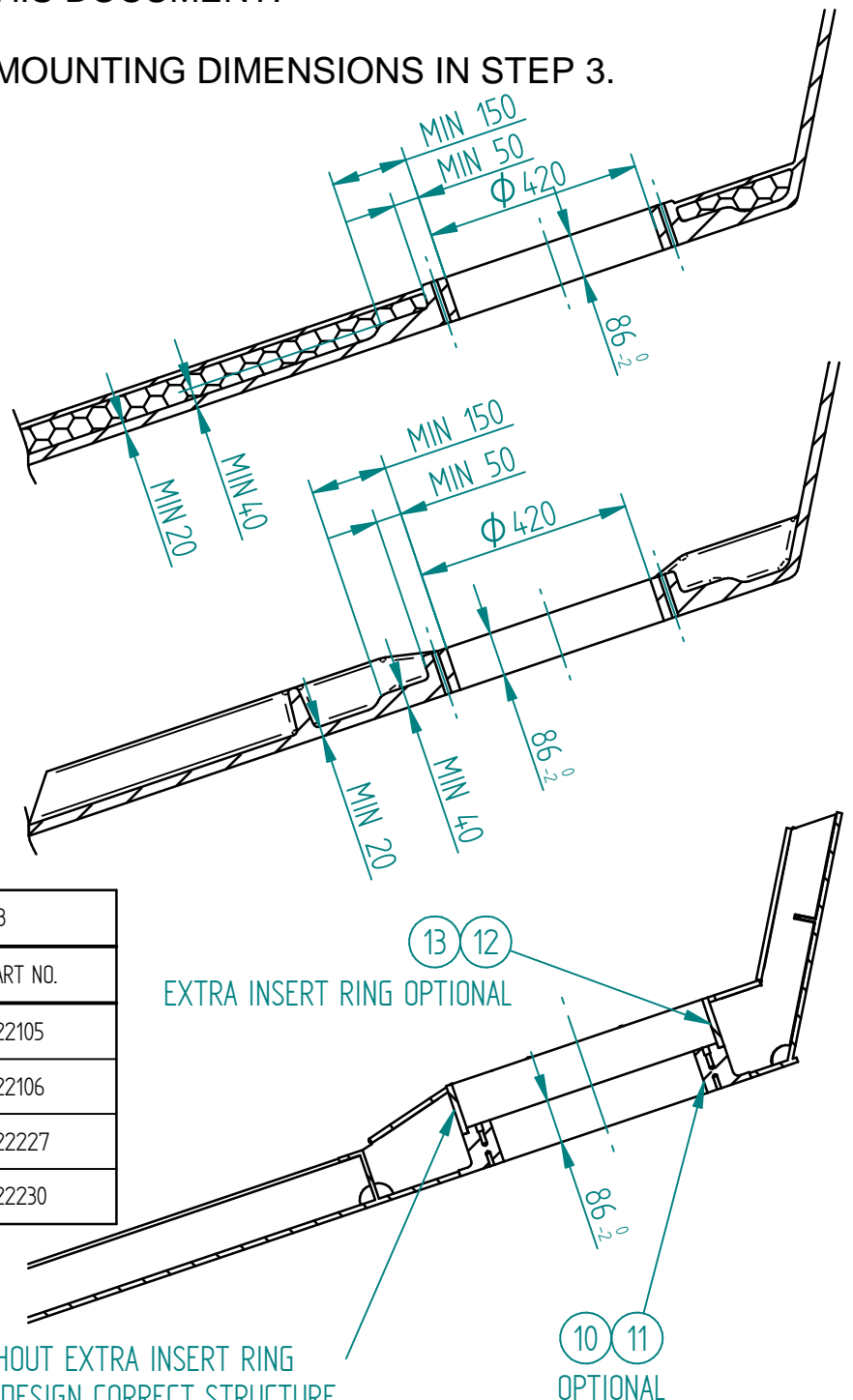
PREPAIR THE HULL BY MAKING A $\phi 420$ mm HOLE FOR THE SERVO UNIT AND BY CREATING A FLAT SURFACE ON THE INSIDE AND OUT SIDE WITH A DIAMETER OF 510mm FOR THE OUTER FLANGE AND SERVO IN A DESIRED POSITION. THE THICKNESS OF THE HULL MUST BE ACCORDING TO THE DIMENSION ON SHEET 5 OF THIS DOCUMENT.

SEE SERVO BOLT AND HOLE MOUNTING DIMENSIONS IN STEP 3.

GRP with SANDWICH

GRP

ALU/STEEL



OPTIONAL ALU/STEEL HULL INSERT FOR SU553/SU563			
ITEM	QTY	PART NAME	PART NO.
10	1	HULL INSERT ALUMINIUM	022105
11	1	HULL INSERT STEEL	022106
12	1	HULL INSERT RING ALUMINIUM	022227
13	1	HULL INSERT RING STEEL	022230

CAN BE DESIGNED WITH OR WITHOUT EXTRA INSERT RING REFER TO NAVAL ARCHITECT TO DESIGN CORRECT STRUCTURE.

2

STEP 2. IF IT IS DESIRED TO LOCATE THE FIN IN A POSITION THAT IT COULD HIT THE CHINE THEN CHOOSE TO MODIFY THE HULL OR THE FIN.

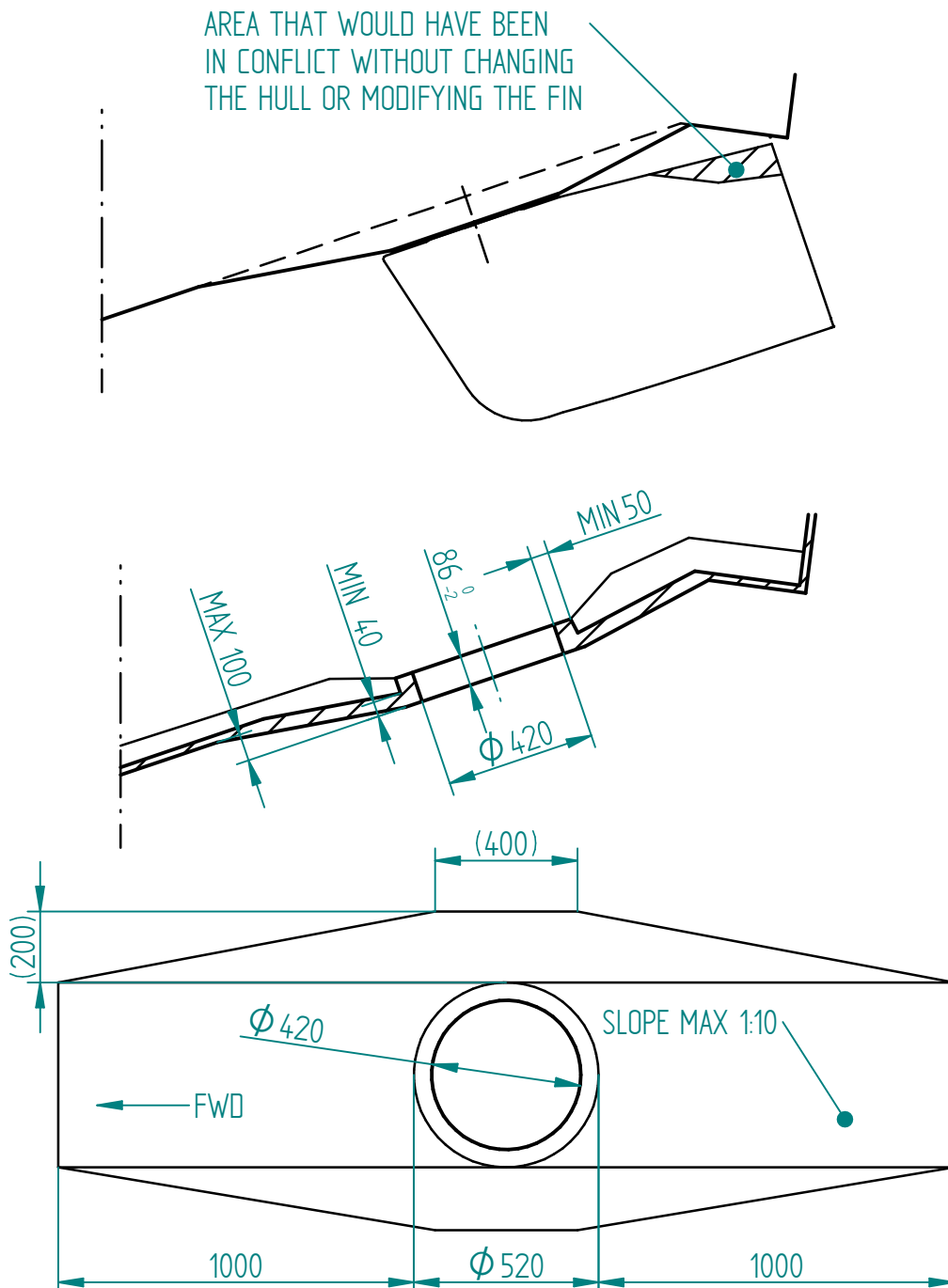
HULL MODIFICATION

FOR MAX 30 KNOTS:

PRODUCE A POD WITH A LEAD IN CHAMFER SURFACE MINIMUM 1 METER BEFORE AND AFTER THE FIN TO ALLOW THE WATER FLOW TO BE SMOOTH AROUND THE FIN.

ABOVE 30 KNOTS:

A SPECIAL DESIGN IS REQUIRED. CONTACT A NAVAL ARCHITECT TO GET THE DESIGN.



FIN MODIFICATION

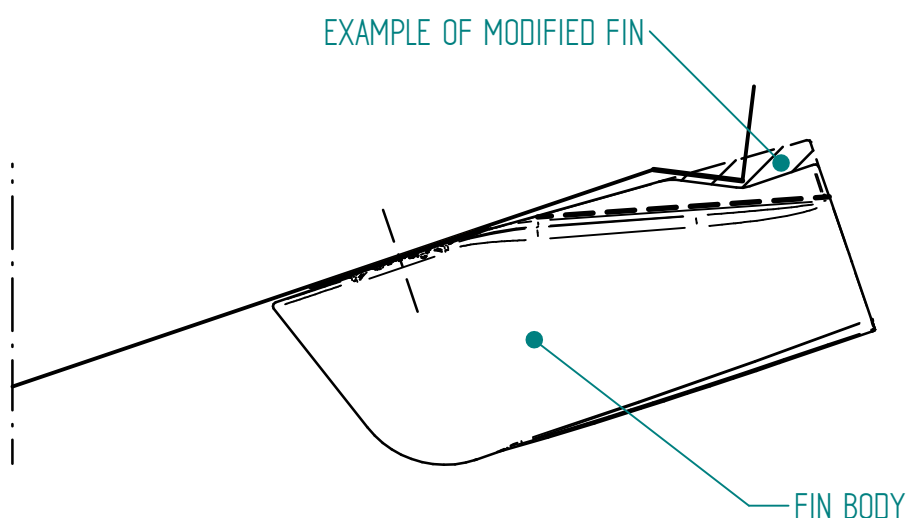
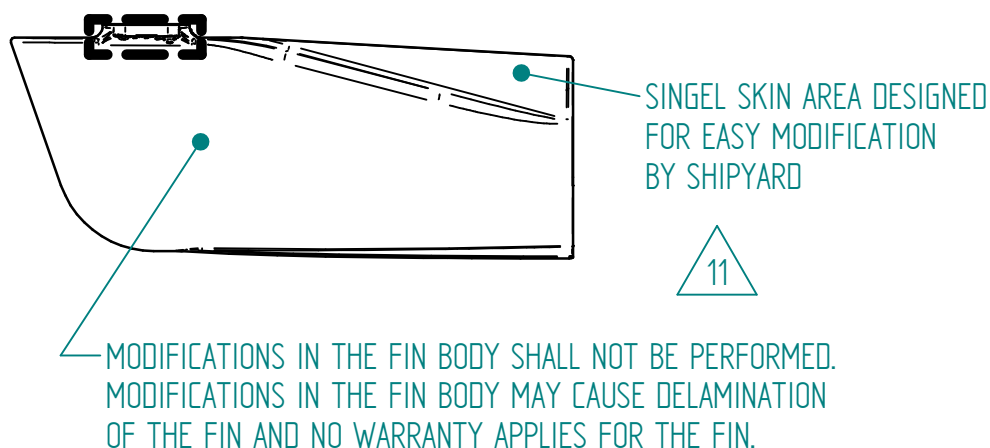
THE FIN CAN BE FREELY MODIFIED IN THE THIN SOLID STRUCTURE BY JIGSAW OR GRINDER IN THE UPPER BACK PART OF THE FIN.

THE MODIFICATIONS MUST BE 10 MM ABOVE THE RADIUS. THE AREA IS MARKED BY BROKEN LINE AND DASHED LINES.

IF THE FIN IS MODIFIED, THE NEW SECTION SHOULD BE SANDED SMOOTHLY AND A NEW LAYER OF EPOXY SHOULD BE APPLIED TO AVOID WATER INTRUSION IN TO THE COMPOSITE LAMINATE.

NOTE!

MODIFYING THE FINS WILL REDUCE THE EFFICIENCY OF ZERO SPEED MODE. CHOOSE LARGER FIN IF POSSIBLE.

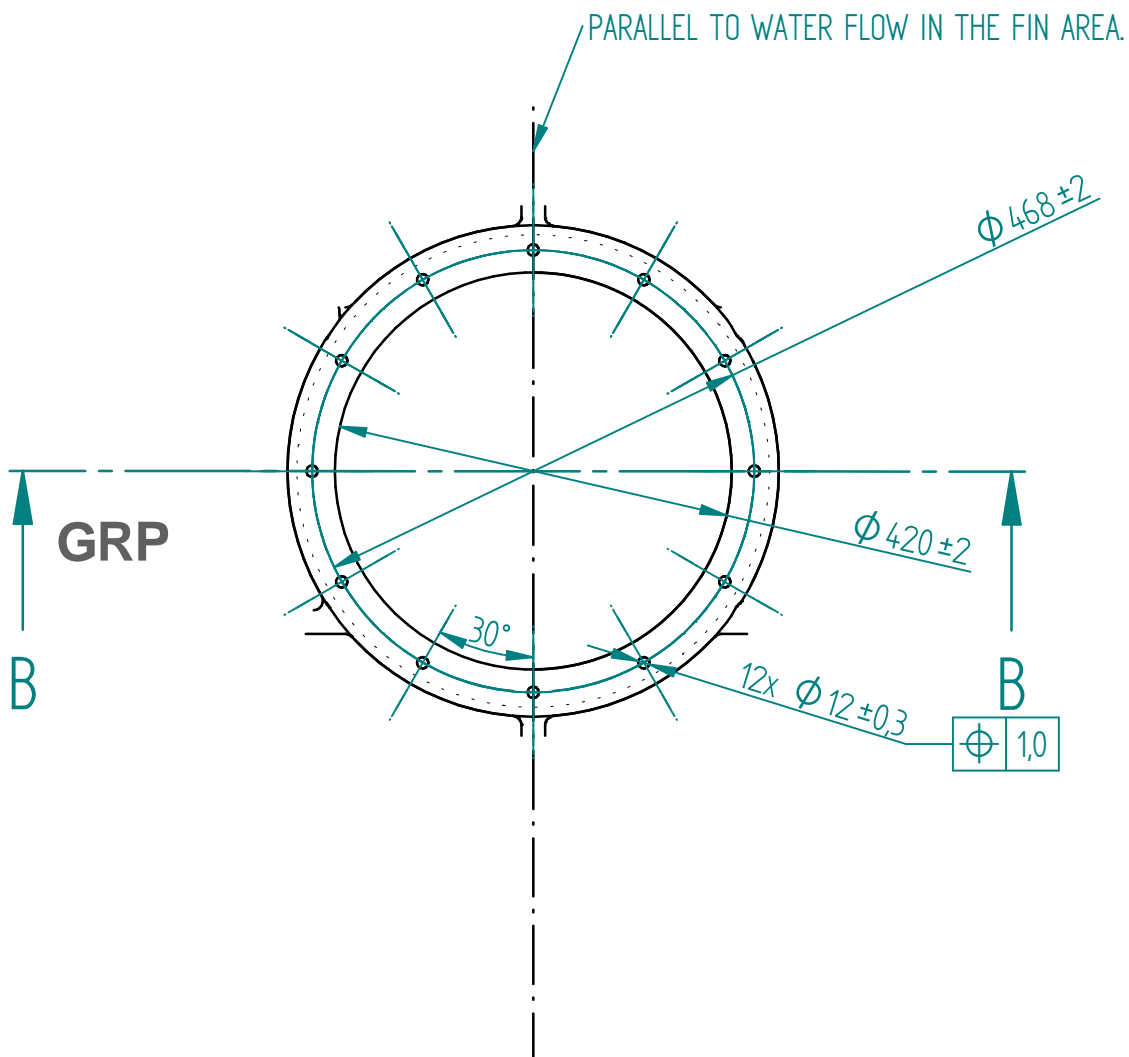


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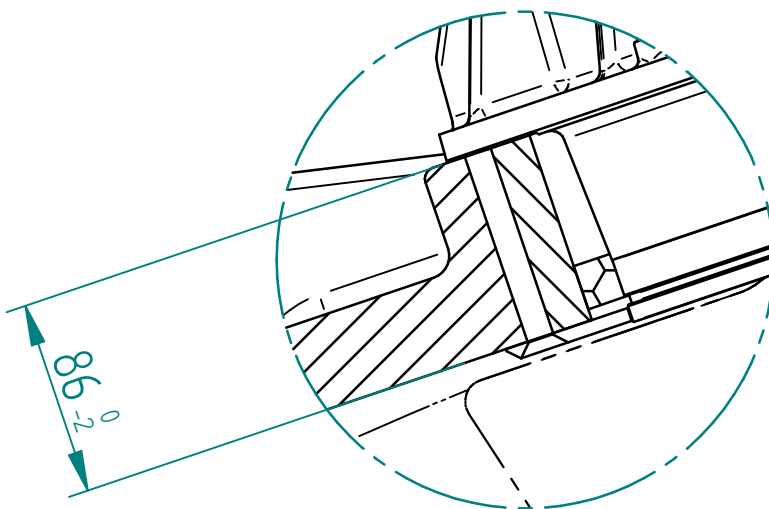
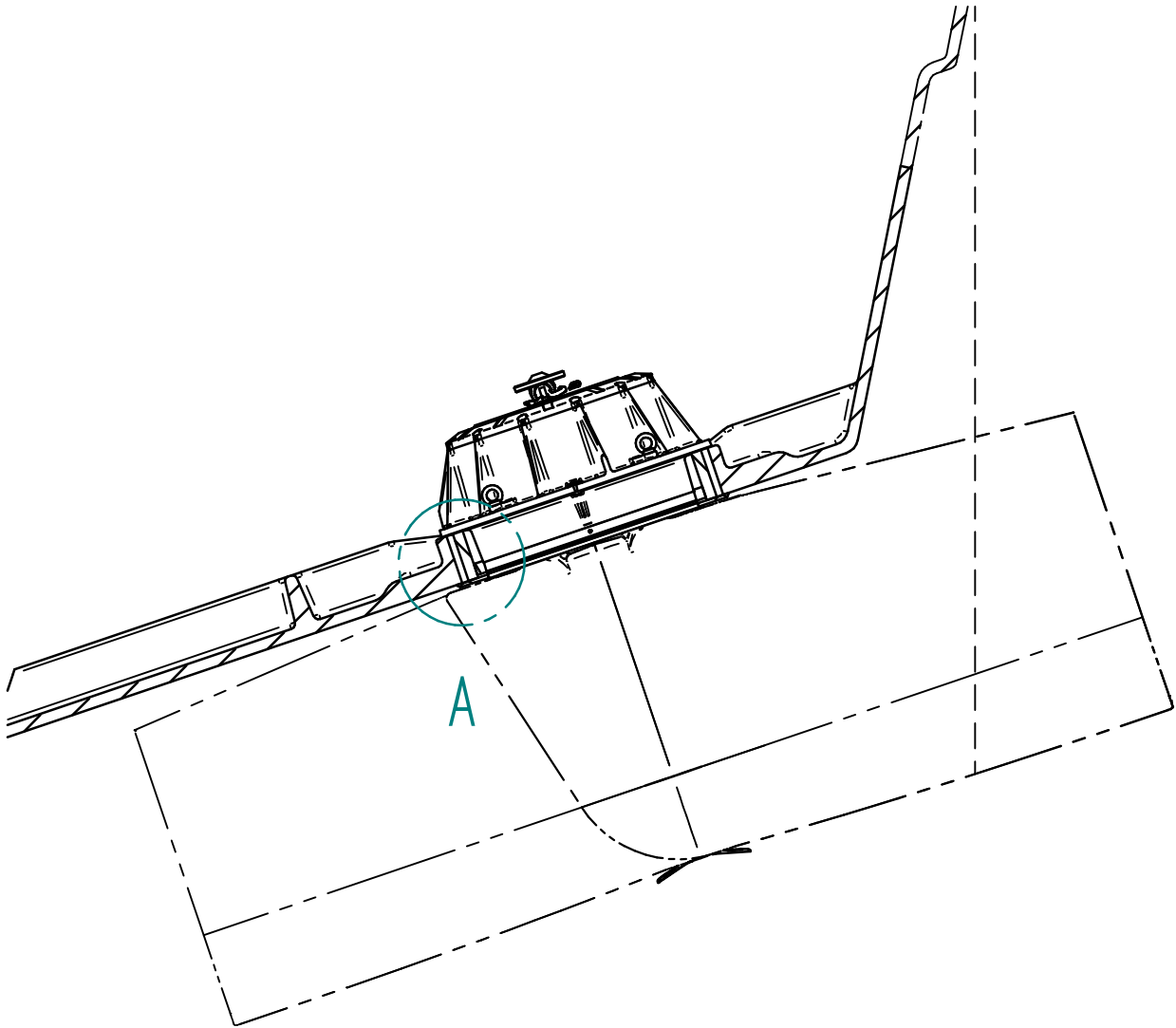
HULL DESIGN FOR SERVO UNIT

STEP 3. FOR GRP HULLS CUT THE 420mm HOLE. ALIGN THE HOLE PATTERN FOR THE M10 BOLTS PARALLEL TO THE WATER FLOW IN THE FIN AREA. USING A DRILL GUIDE, DRILL THE 12 x $\phi 12$ HOLES PERPENDICULAR TO SURFACE. ALL THE HOLES MUST BE PREPARED WITH YARD DESIRED SURFACE FINISHING TO ELIMINATE WATER INTRUSION.

BEFORE INSTALLING THE SERVO UNIT INTO THE HULL, THOROUGHLY CLEAN, DEGREASE AND PROTECT THE INSIDE HULL DIAMETER, HOLES AND THE LOWER END OF THE SERVO UNIT FROM CONTAMINATION.

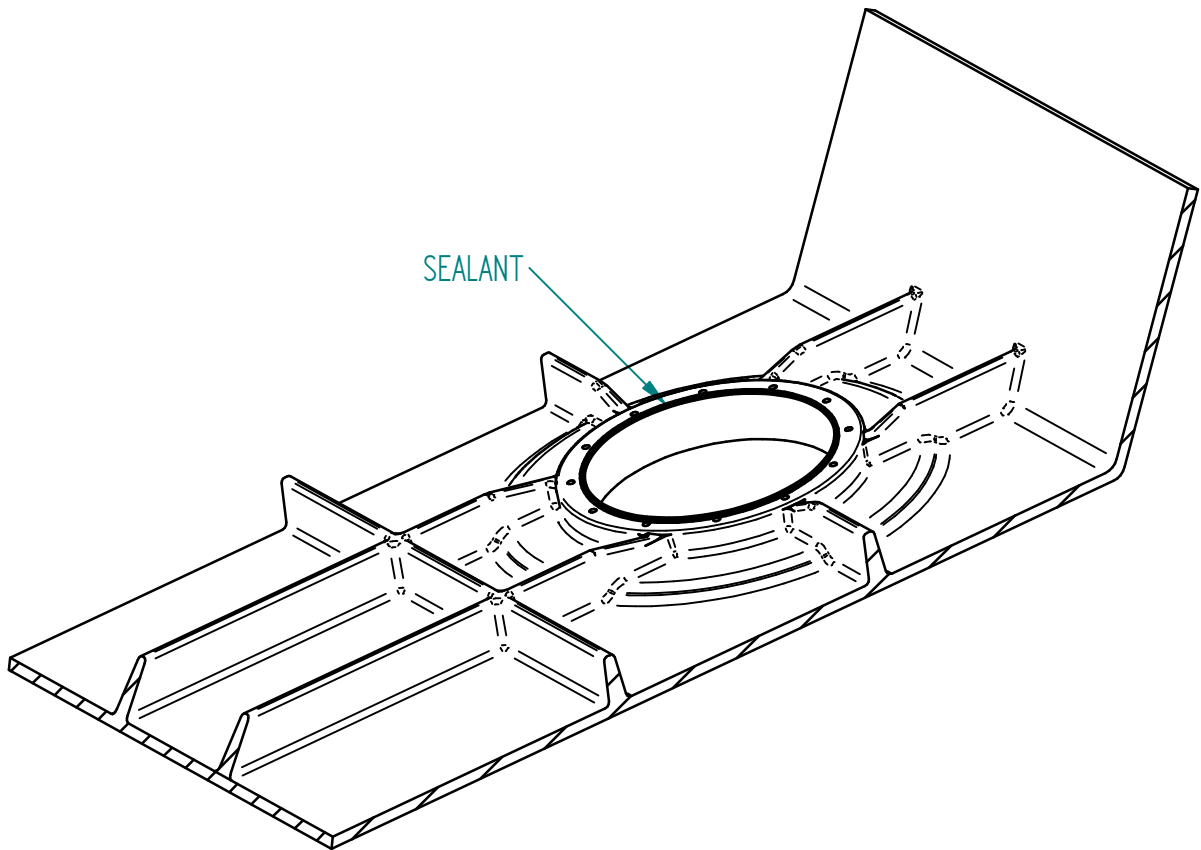


STEP 4. CHECK THE THICKNESS OF THE HULL THAT IT CORRESPONDS WITH THE TOLERANCE BELOW. SEE ALSO NOTES ON SHEET 4.



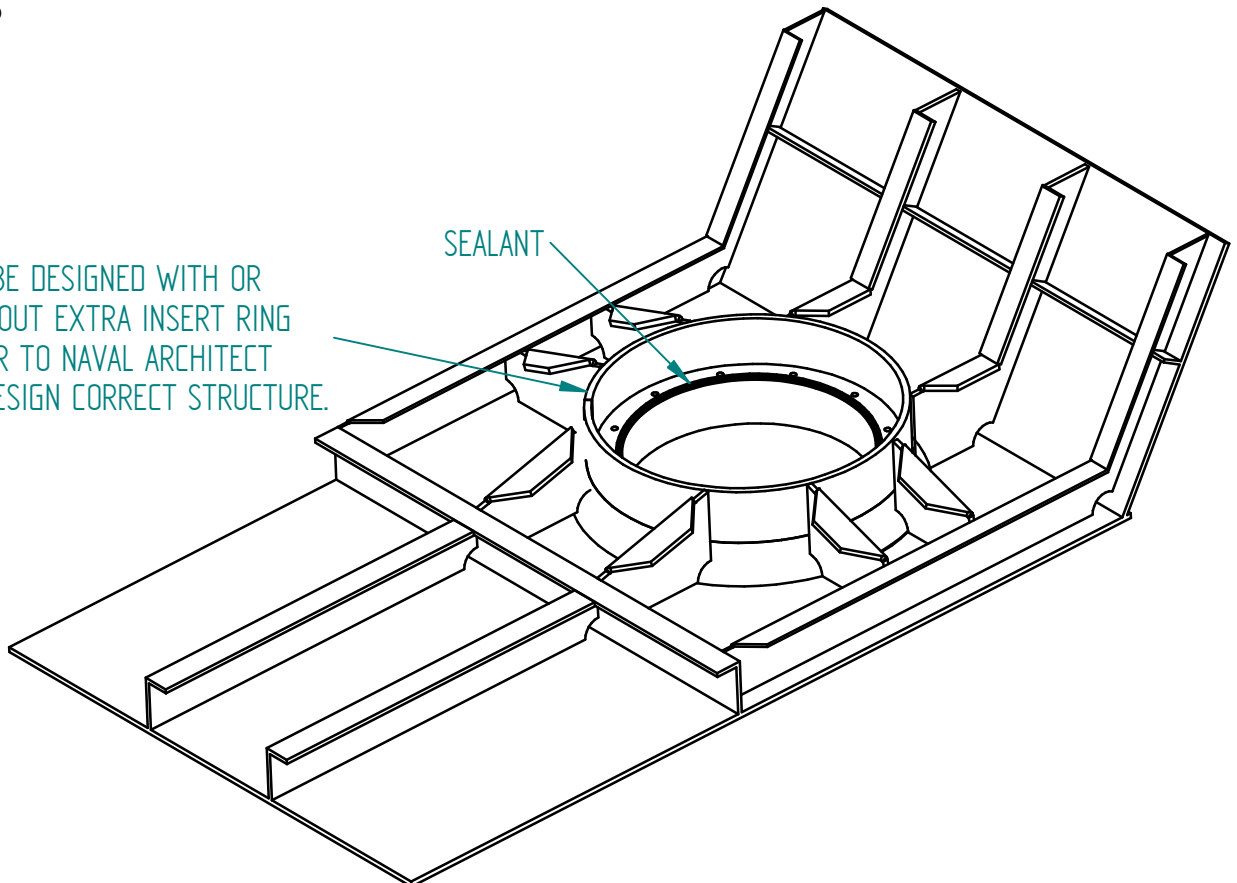
DETAIL A
HULL THICKNESS

5 **STEP 5. APPLY MARINE SEALANT AROUND THE EDGE OF THE HULL STRUCTURE CREATING A SEAL FOR THE CHOCKFAST.**



GRP

CAN BE DESIGNED WITH OR WITHOUT EXTRA INSERT RING REFER TO NAVAL ARCHITECT TO DESIGN CORRECT STRUCTURE.

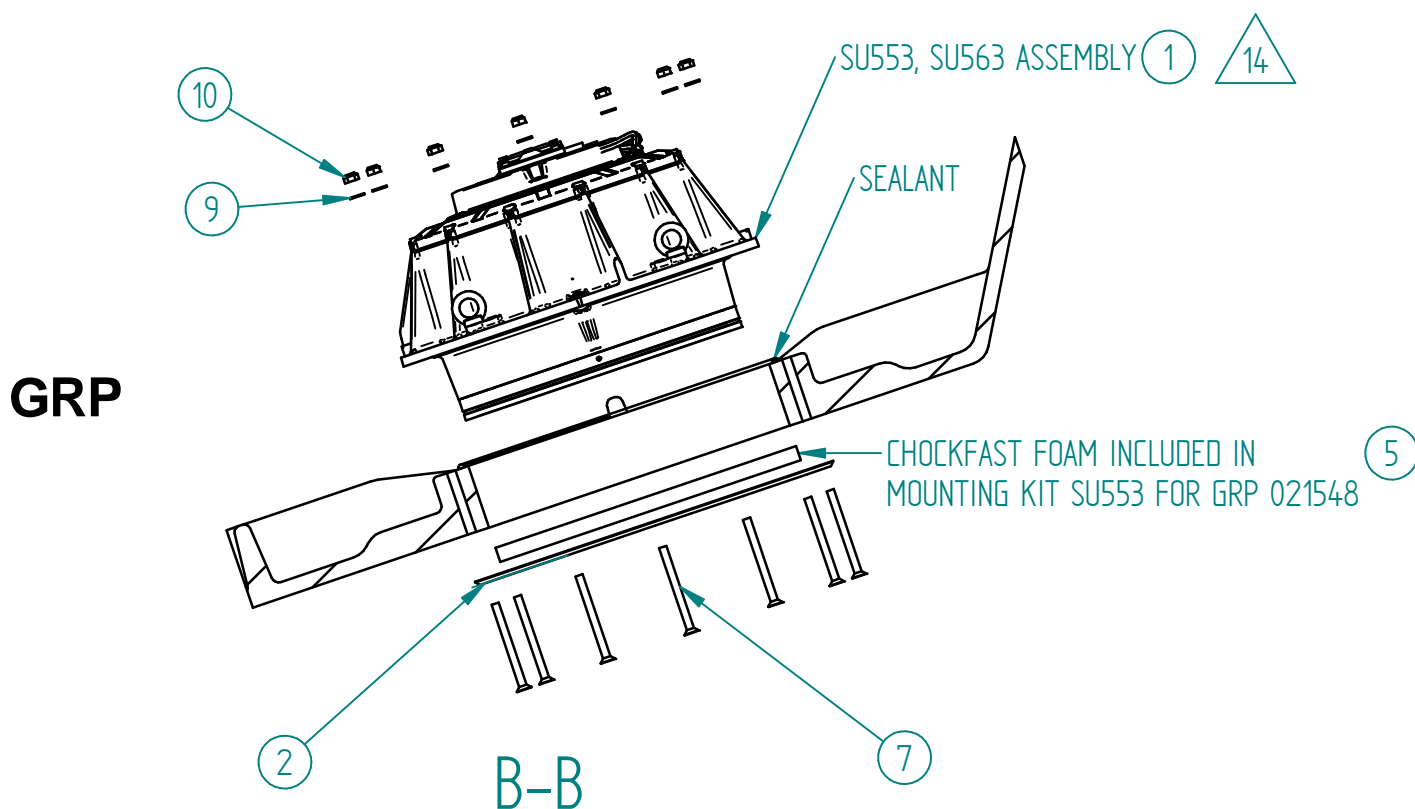


ALU/STEEL

STEP 6. GRP HULL. ALIGN THE SERVO WITH THE CONNECTOR FACING AFT.

LIFT THE SERVO UNIT WITH MINIMUM THREE LIFTING EYES. DO NOT LIFT AT AN ANGLE OF MORE THAN 45° OF THE LIFTING EYE BOLT. THE SERVO ITSELF HAS NO RESTRICTIONS ON HOW LARGE ANGLES IT CAN WITHSTAND FOR SHORT PERIODS OF TIME.

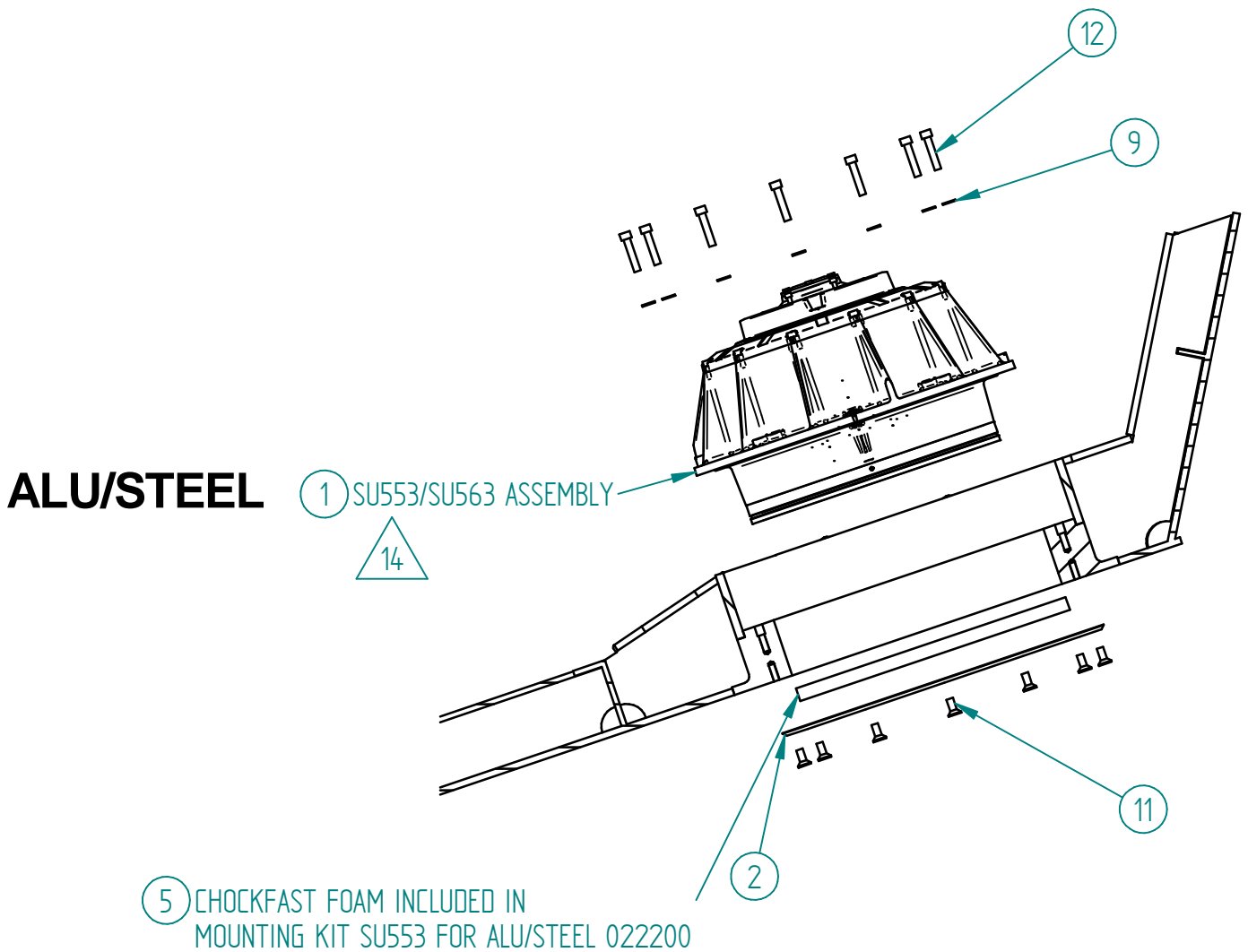
GENTLY GUIDE THE SERVO UNIT INTO THE HULL STRUCTURE AT THE PROPER ORIENTATION AND POSITION. ALIGN THE HOLES IN THE SERVO UNIT SU553/SU563 WITH THE HOLES IN THE HULL STRUCTURE. PLACE FOUR SHORT M10 BOLTS IN FOUR HOLES OF THE SERVO FLANGE TO KEEP THE SERVO UNIT SU553 FROM MOVING OUT OF CENTERED POSITION IN THE HOLE. KEEP THE SERVO UNIT SUPPORTED BY THE LIFTING DEVICE UNTIL THE MAIN M10 BOLTS ARE PREINSTALLED.



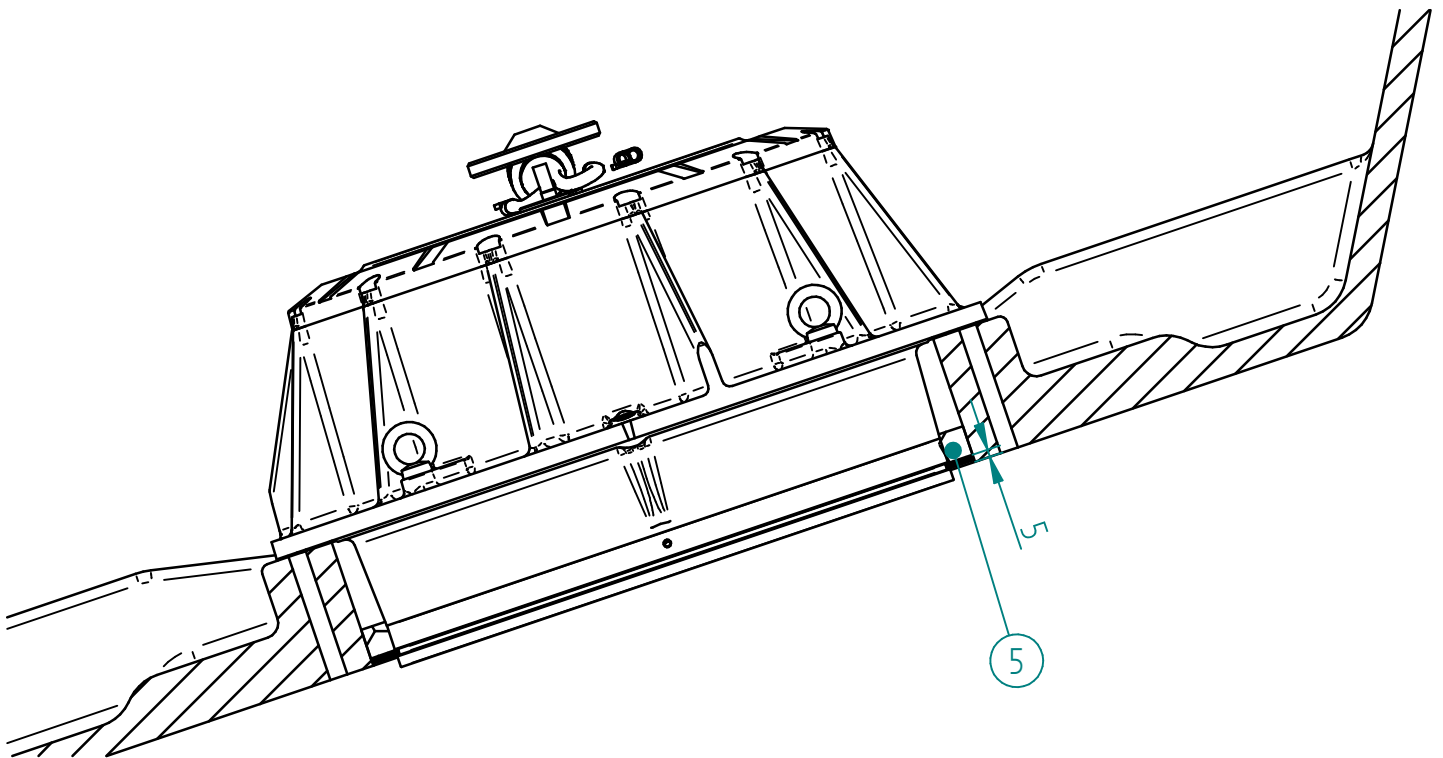
6 STEP 6. ALUMINIUM OR STEEL HULL. ALIGN THE SERVO WITH THE CONNECTOR FACING AFT.

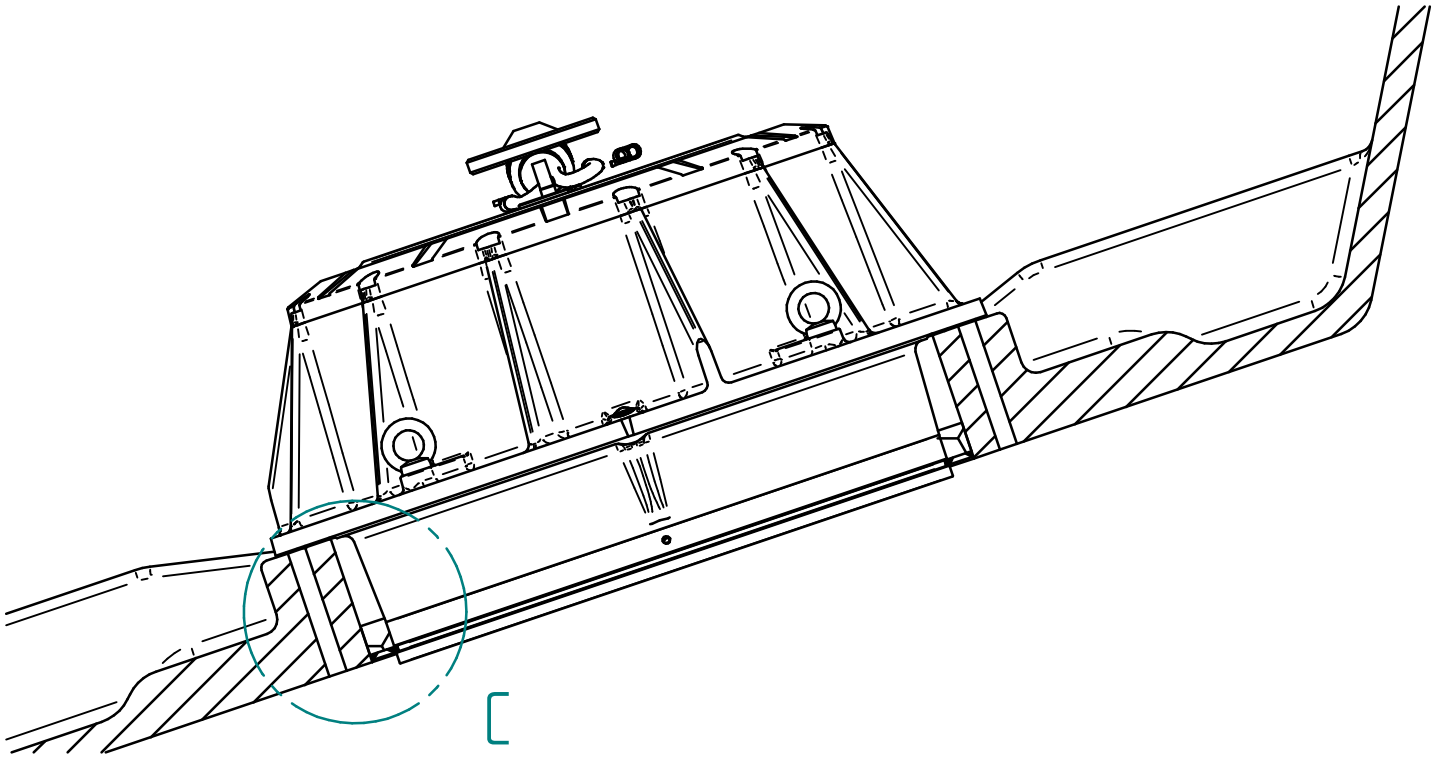
LIFT THE SERVO UNIT WITH MINIMUM THREE LIFTING EYES. DO NOT LIFT AT AN ANGLE OF MORE THAN 45° OF THE LIFTING EYE BOLT. THE SERVO ITSELF HAS NO RESTRICTIONS ON HOW LARGE ANGLES IT CAN WITHSTAND FOR SHORT PERIODS OF TIME.

GENTLY GUIDE THE SERVO UNIT INTO THE HULL STRUCTURE AT THE PROPER ORIENTATION AND POSITION. ALIGN THE HOLES IN THE SERVO UNIT SU553/SU563 WITH THE HOLES IN THE HULL STRUCTURE. PLACE FOUR SHORT M10 BOLTS IN FOUR HOLES OF THE SERVO FLANGE TO KEEP THE SERVO UNIT SU553 FROM MOVING OUT OF CENTERED POSITION IN THE HOLE. KEEP THE SERVO UNIT SUPPORTED BY THE LIFTING DEVICE UNTIL THE MAIN M10 BOLTS ARE PREINSTALLED.

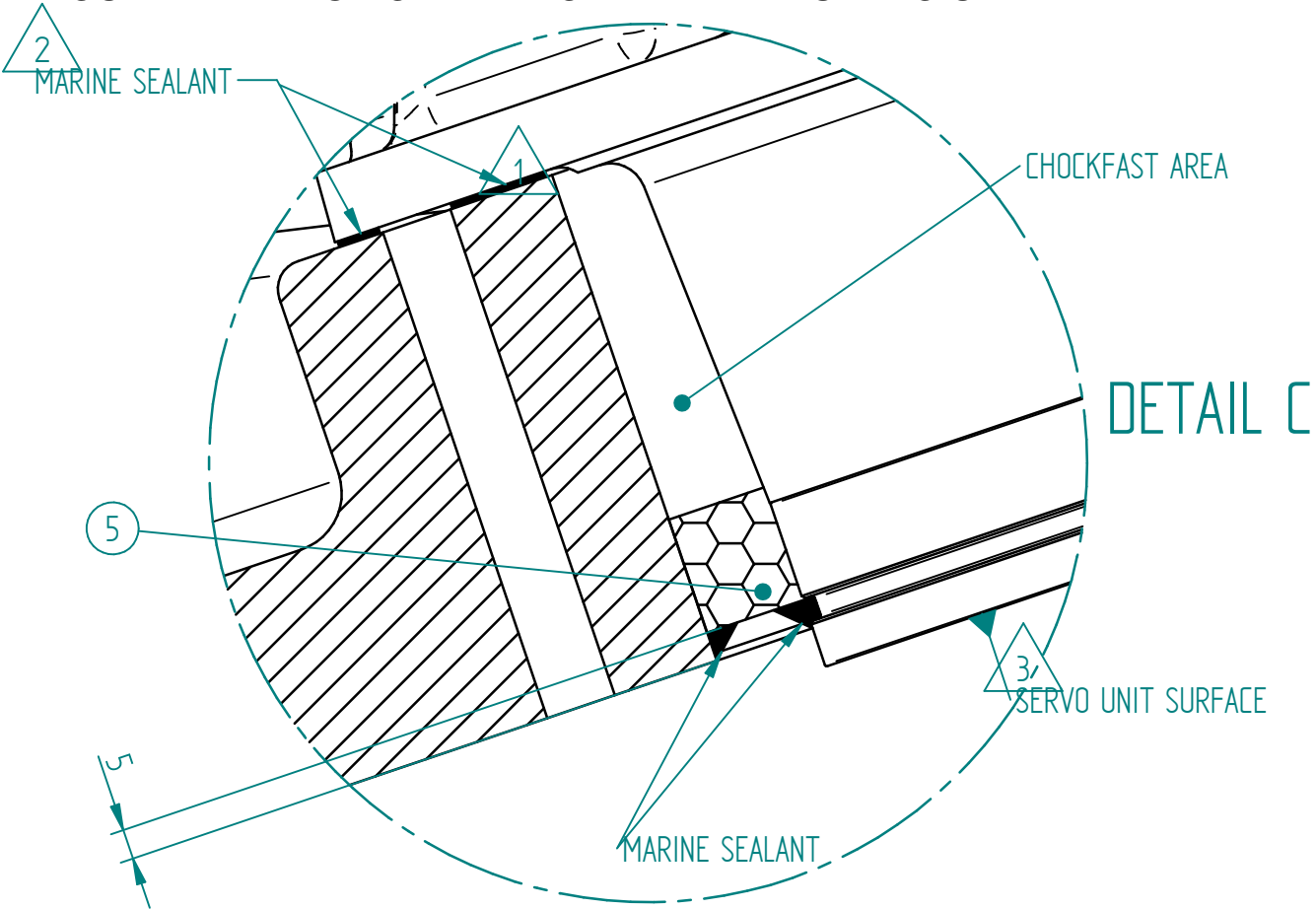


STEP 7. FROM OUTSIDE THE HULL INSTALL THE CHOCKFAST FOAM (ITEM 5) IN THE GROOVE BETWEEN THE HULL AND THE SERVO UNIT BY PRESSING IT IN PLACE. CUT THE CHOCKFAST FOAM TO A PERFERED LENGTH SO THE ENDS MEET TIGHTLY TOGETHER AND APPLY MARINE SEALANT TO SEAL THE ENDS. MAKE SURE NOT TO PUSH IT TO FAR IN TO THE GROOVE. MEASURE 5mm AROUND THE WHOLE EDGE.





STEP 8. USE MARINE SEALANT TO SEAL THE CHOCKFAST FOAM (ITEM 5) AROUND THE EDGE OF THE HOLE AND THE SERVO UNIT.



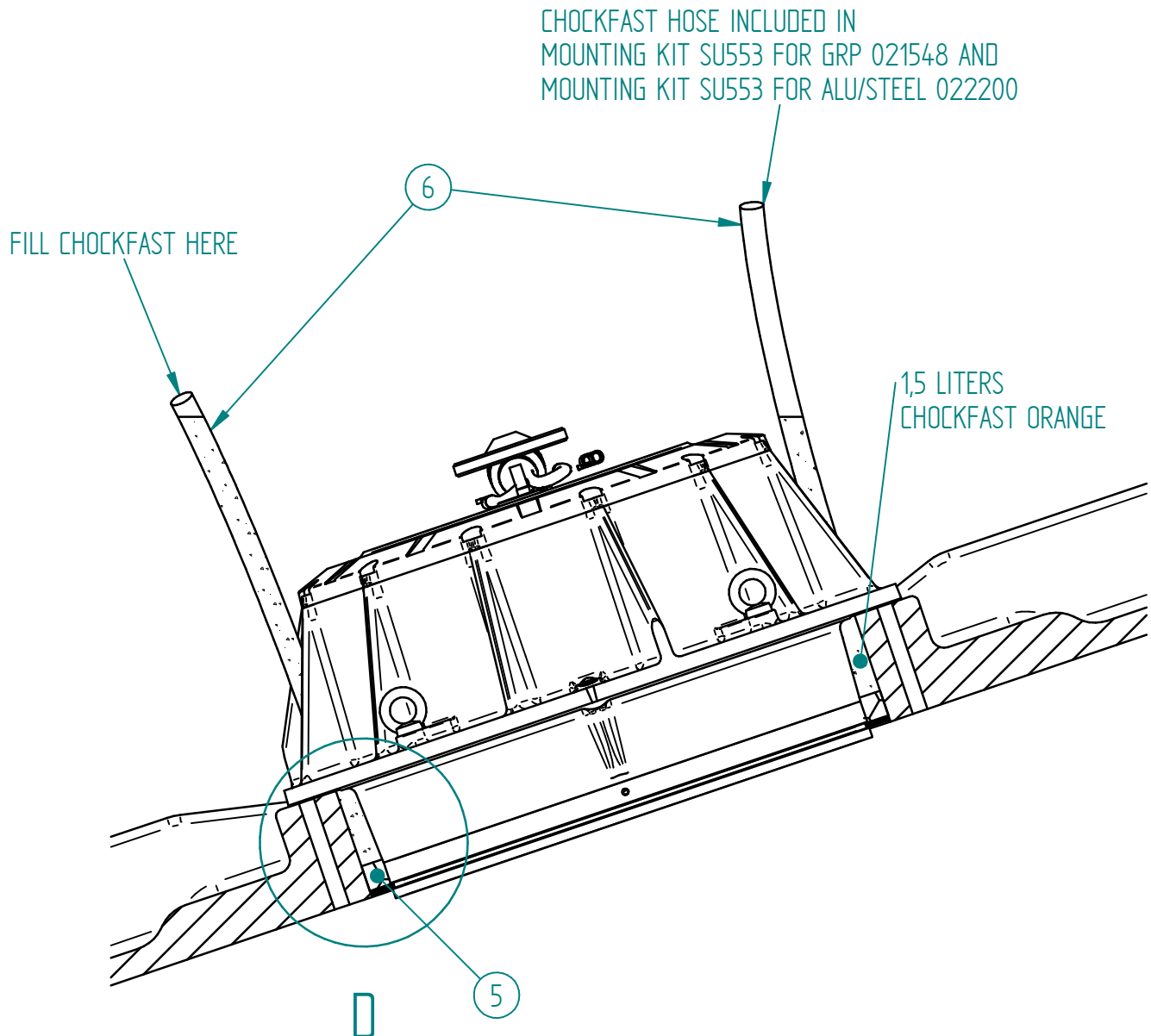
APPLIES TO GRP AND ALU/STEEL HULLS
NOTE! THERE ARE DIFFERENT BOLTS
DEPENDING ON HULL MATERIAL

STEP 9. CUT THE CHOCKFAST HOSE (ITEM 6) IN THE MIDDLE AND INSTALL THEM IN THE UPPER AND LOWER LARGE HOLES WHICH GO THROUGH THE SERVO HOUSING INTO THE CHOCKFAST AREA. MAKE SURE THE HOSES ARE SECURED.

FILL 1,5 LITERS CHOCKFAST INTO THE LOWEST HOSE AND FILL UP THE CHOCKFAST AREA UNTIL CHOCKFAST IS SEEN IN THE UPPER HOSE.



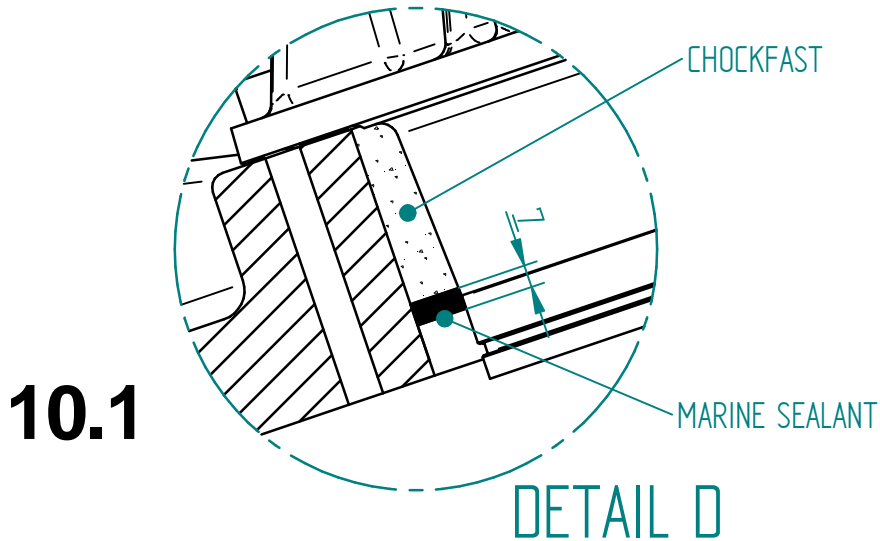
WAIT UNTIL CHOCKFAST HAS CURED BEFORE REMOVING THE HOSES.



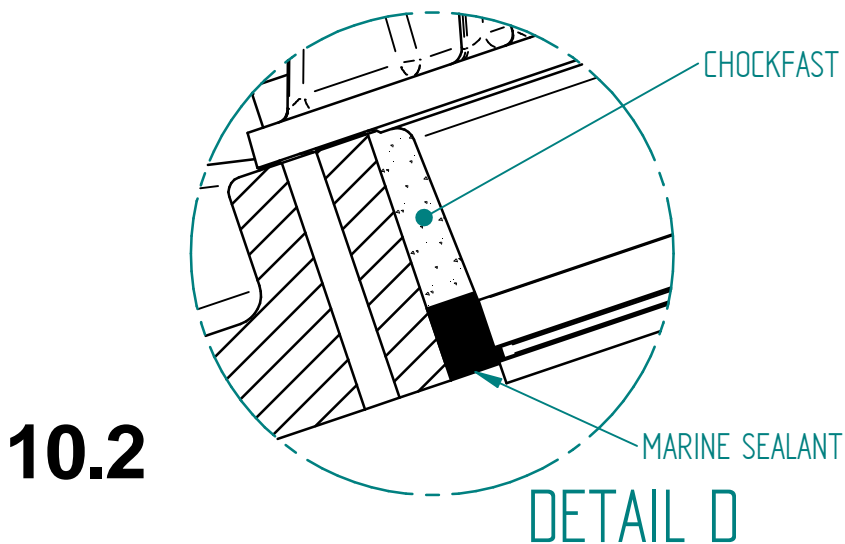
10

STEP 10. AFTER THE CHOCKFAST HAS CURED REMOVE THE CHOCKFAST FOAM (ITEM 5) AND SEAL BY FILLING THE AREA WITH MARINE SEALANT.

START BY FILLING A ~7mm THICK SEAM AND LET IT DRY

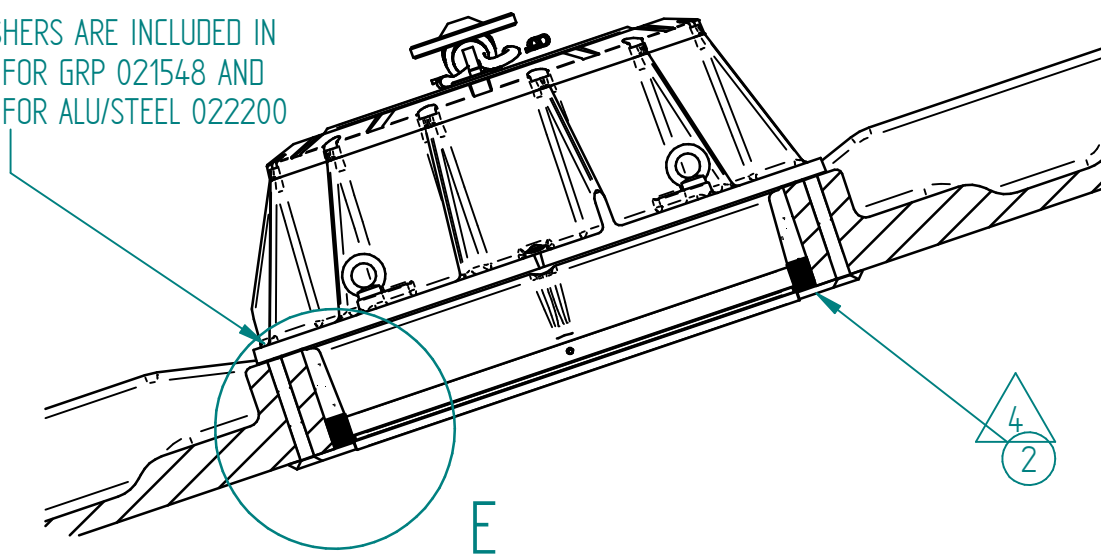


FILL THE REST OF THE VOID WHEN THE FIRST SEALANT HAS DRIED TO MAKE SURE THE SEALANT HAS FULLY BEEN CURED.

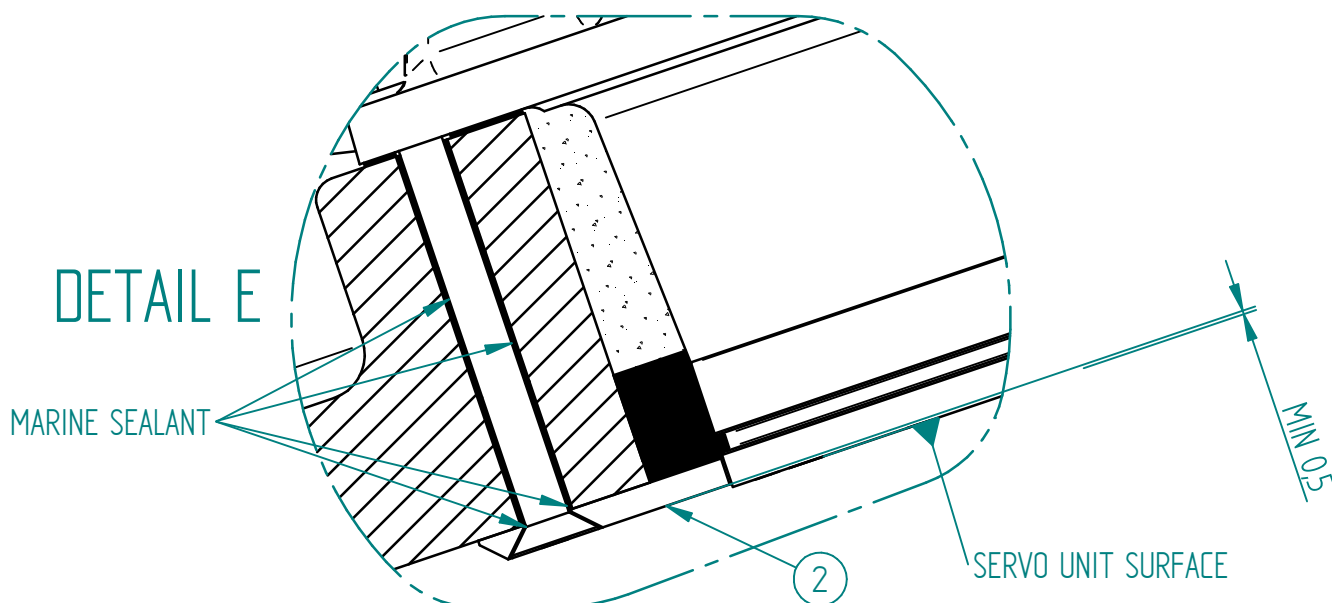


STEP 11. APPLY MARINE SEALANT ON THE OUTER FLANGE SURFACE WHICH FACES THE HULL. INSTALL THE OUTER FLANGE (ITEM 2) AND WHILE MOUNTING THE M10 BOLTS, COAT THE CYLINDRICAL SURFACE OF THE BOLT AND UNDER THE HEAD WITH MARINE SEALANT TO SEAL THE BOLT PASSAGE. INSTALL ALL THE M10 BOLTS, WASHERS AND NUTS. RELEASE THE LIFTING DEVICE. FOR ALL THREE INSTALLATIONS TYPE : TIGHTEN THE M10 BOLTS TO 45 Nm IN A CROSS PATTERN. MAKE SURE TO APPLY SEALANT TO ALL THROUGH HOLE SURFACES TO ASURE A WATER TIGHT FIT. WAIT FOR THE SEALANT TO DRY BEFORE PROCEEDING.

5
BOLTS, NUTS AND WASHERS ARE INCLUDED IN MOUNTING KIT SU553 FOR GRP 021548 AND MOUNTING KIT SU553 FOR ALU/STEEL 022200



IMPORTANT: THE SERVO UNIT SURFACE (SHOWN IN DETAIL) MUST BE PROTRUDING ABOVE THE OUTER FLANGE (ITEM 2). MINIMUM DISTANCE IS 0,5mm. IF THE SERVO UNIT SURFACE IS UNDER THE OUTER FLANGE (ITEM 2) THE FIN WILL NOT BE ABLE TO ROTATE FREELY AND CAUSE THE FIN TO MALFUNCTION.



APPLIES TO GRP AND ALU/STEEL HULLS
NOTE! THERE ARE DIFFERENT BOLTS
DEPENDING ON HULL MATERIAL

12

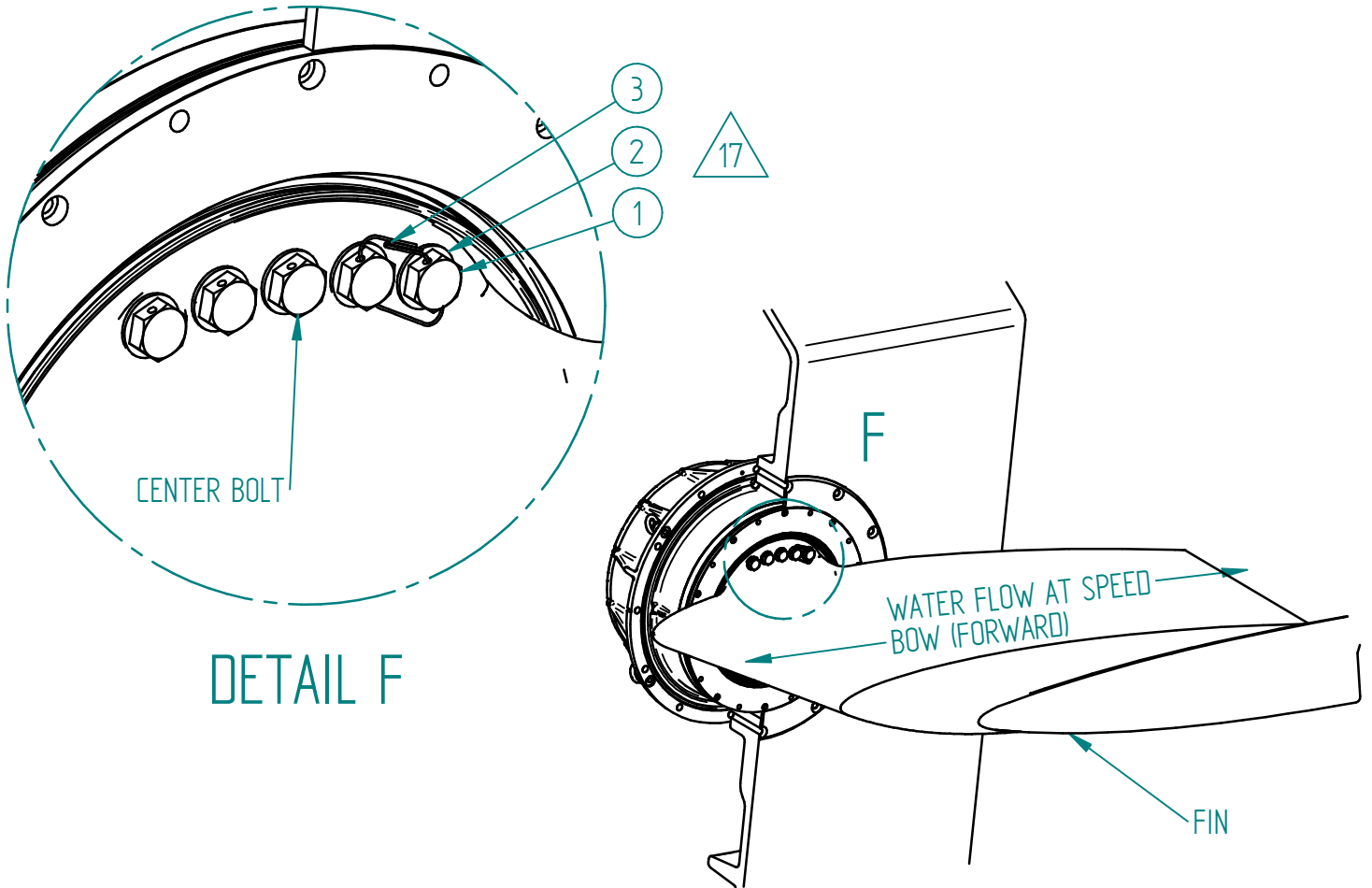
STEP 12. POSITION THE FIN SO THAT THE LEADING FRONT EDGE IS FACING THE BOW. ALIGN THE FIN WITH THE HOLES IN THE SERVO UNIT RECESS. MOUNT THE TEN (10) M12 BOLTS (PART NO. 040425) AND DISTANCE RINGS (PART NO. 023742).



IMPORTANT: TIGHTEN THE CENTER BOLT ON EACH SIDE OF THE FIN FIRST. TIGHTEN THE BOLTS TO 120 NM IN A CROSS PATTERN MOVING OUT TO THE SIDE BOLTS. IMMEDIATELY TIGHTEN ALL BOLTS AGAIN TO 120 NM. WAIT 10 MIN AND TIGHTEN THE BOLTS ONE LAST TIME TO 120 NM.



ON EACH SIDE OF THE FIN, INSERT THE SOLID STEEL WIRE (PART NO. 023806) THROUGH TWO (2) OF THE HOLES IN THE BOLT HEADS. TWIST THE WIRE ENDS TO SECURE THE WIRE. USE A PLIER TO REMOVE THE LEFT-OVER WIRE.



FIN BOLT KIT M12 021550 PARTS			
ITEM	QTY	PART NAME	PART NO.
1	10	BOLT M12x50 M6S A4-80 SPECIAL	040425
2	10	DISTANCE RING	023742
3	2	SOLID STAINLESS STEEL WIRE	023806

STEP 13. CONNECT THE POWER AND COMMUNICATION CABLE(S) TO THE SERVO UNIT.

MOUNT THE CONTROL UNIT BETWEEN THE SERVOS ON A BULKHEAD

SEE THE CONNECTION DIAGRAM TO CONNECT THE COMMUNICATION CABLE TO THE CORRECT PORT OF THE CONTROL UNIT.

CONNECT THE HIGH POWER CABLES (24 VDC) ACCORDING TO THE CONNECTION DIAGRAM.



SU553/SU563 POWER SOURCE REQUIREMENTS

IMPORTANT: BATTERIES ARE REQUIRED BECAUSE OF THE SERVO UNIT'S ABILITY TO REGENERATE POWER. IT IS NOT ALLOWED TO CONNECT THE SYSTEM DIRECTLY TO A GENERATING SET OR A CHARGER WITHOUT A BATTERY IN BETWEEN. SEE TECHNICAL SPECIFICATION FOR GUIDELINES.

POWER UP THE SYSTEM AND SEE THE SETUP MANUAL FOR FIN CALIBRATION AND SETUP.

NOTE! IT IS NOT RECOMMENDED TO CONNECT THE SERVO UNITS TO GROUND.

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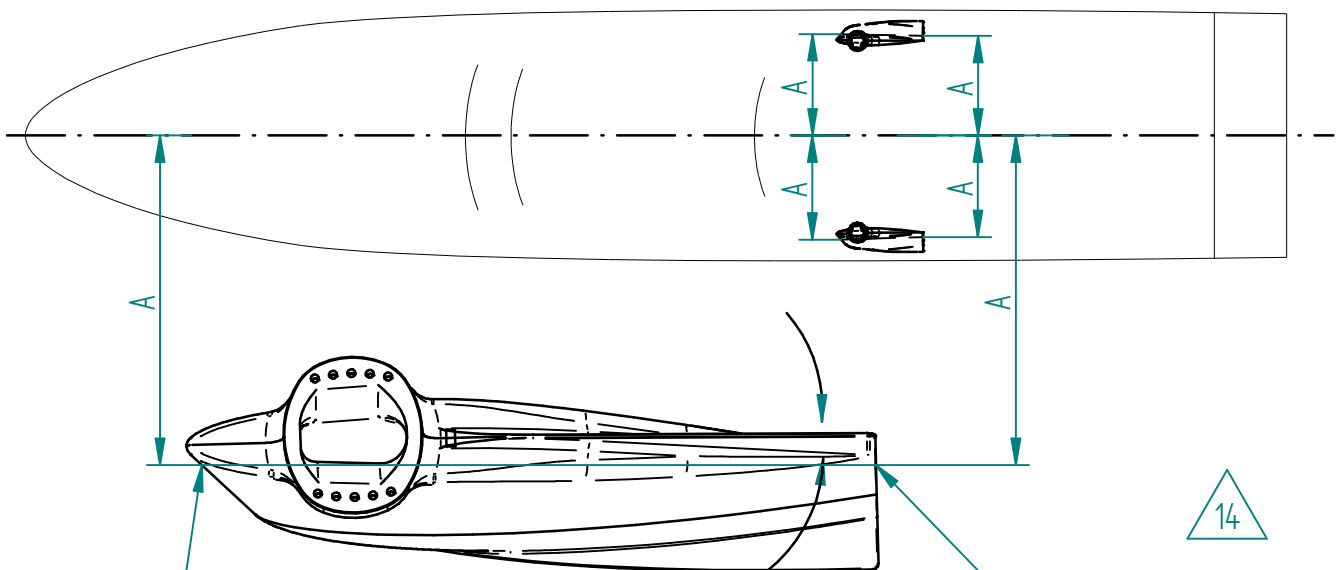
STEP 14. ALIGNING THE FINNS.

ATTENTION: FAILURE TO ALIGN THE FINNS WILL CAUSE THE VESSEL TO PERFORM LESS OPTIMAL.

SEE INSTRUCTIONS ALIGNING FINNS TO ZERO POSITION AND REMOVING FIN LIMITATIONS FOR MORE DETAILS.

ROTATE THE FIN IN CONFIG MODE SO THE AFT EDGE AND THE FIN BOW CENTER OF THE FIN IS AT THE SAME DISTANCE (A) TO THE HULL CENTER LINE.

SET ZERO IN THE CONTROL PANEL MENU. THEN PUT THE FINNS BACK INTO NORMAL MODE.



MEASURE FROM HULL TO HERE

MEASURE SAME DISTANCE FROM HULL TO HERE AS IN THE BOW OF THE FIN

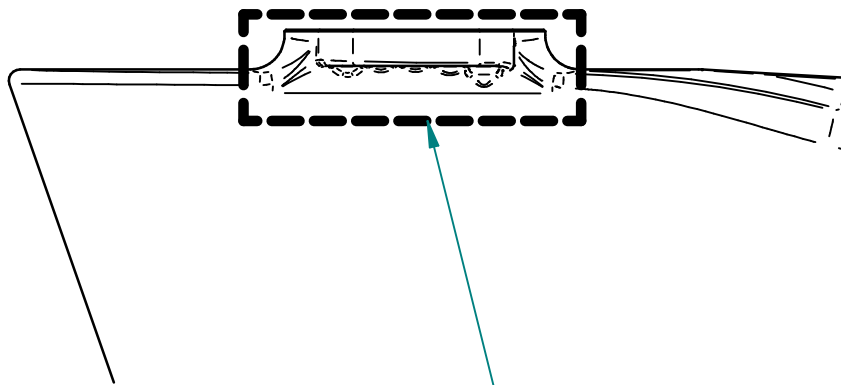
STEP 15. PAINT THE FINS WITH ANTIFOULING PAINT NOT CONTAINING CONDUCTIVE INGREDIENTS SUCH AS ALUMINIUM OR COPPER.



IMPORTANT: PAINT CONTAINING METALLIC POWDER SUCH AS ALUMINIUM OR COPPER MAY CONNECT THE CARBON FIBRE IN THE FIN BLADE WITH THE STAINLESS STEEL AND MIGHT LEAD TO GALVANIC CORROSION.

IF THERE IS UNCERTAINTY OF CONDUCTIVITY FOR THE PAINT, THE FLANGE AND FASTENING BOLTS MUST BE PROTECTED WITH MASKING TAPE TO MAKE SURE THAT THE FLANGE AND BOLTS ARE COMPLETELY FREE FROM PAINT.

HUMPHREE RECOMMENDS THE USE OF ADHESIVE PRIMERS LIKE INTERNATIONAL GELSHIELD 200 WITHOUT GRINDING. IF GRINDING PROVES NECESSARY, EXTREMELY GENTLE GRINDING BY HAND WITH 240-400 GRINDING PAPER CAN BE USED. PAINT WITH HARD ANTI-FOULING PAINT BEFORE THE PRIMERS HAVE CURED COMPLETELY.



NO PAINT WITH CONDUCTIVE INGREDIENTS SHOULD BE USED ON THE FIN FLANGE OR ON THE BOLTS INSIDE THE DASHED BOX.

NOTES: