

multisteer

SINGLE BALANCED ALUMINIUM PRO SERIES INBOARD CYLINDER

Instruction Manual,
Installation And
Maintenance Guide





Dear Customer

It gives us immense pleasure to welcome you to the **multisteer** family.

We appreciate your decision to use **multisteer** products. With over two decades of experience, **multisteer** is one of the leading manufacturers of Steering and Control Products for the boating industry.

multisteer products can be sourced in 80 countries through a wide distribution network.

Our range of products includes -

- ⬆ Power Steering System
- ⬆ Hydraulic Steering Systems
- ⬆ Mechanical Steering Systems
- ⬆ Engine Control Cables & Control Boxes
- ⬆ PWC Cables
- ⬆ Steering Wheels
- ⬆ Boat Trailer Rollers
- ⬆ Mooring Compensators

multisteer Steering Products are tested and conform to :

Recreational Craft and Personal Watercraft Directive 2013/53/EU.

Extensive research, innovation and technology allows us not only to ensure reliability and quality of products but also helps us to increase our product offerings to our customers, including customization of products and services.

Our true endeavor is to present you with the best quality products and excellent services, thus building a strong foundation to our relationship with you.

Warm regards,

Team Multisteer

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A. ABOUT THE MANUAL



- ▲ The Instruction Manual contains all the essential information for the users regarding the purchased Multiflex product. This document is to be given along with the product.
- ▲ ALL RIGHTS ARE RESERVED. Distributing Rights, Part Numbers, Pictures, Text or any content of Multiflex products incorporated in this Instruction Manual property of Multiflex.
- ▲ Use this product only for its intended use as described in this Instruction Manual.
- ▲ This Instruction Manual itself is an important part of the purchased Multiflex product.
- ▲ The Instruction Manual includes - Description of the Products, Safety Warnings and Step wise Procedures for Handling, Assembling, Installation, Maintenance, Disassembling and Replacement of the Products.
- ▲ The user must be aware of the content of this Instruction Manual. No activities regarding the product (like its Assembling, Disassembling, Maintenance, Transport etc.) should be carried out without carefully reading this Instruction Manual.
- ▲ Immense care has been taken in collecting and checking the information contained in this Instruction Manual to make it as accurate and understandable as possible.

Nothing in this Instruction Manual should be understood as a warranty or a guarantee for the products. Nothing contained in this Manual can be interpreted as an amendment or confirmation of the terms of any purchase contract.

Multiflex reserves all the rights to alter the Instruction Manual format if another format is more suitable for the particular product.

Multiflex takes no responsibility for any possible mistakes due to printing errors in this Manual.

NOTE : It is very important to read this Instruction Manual carefully before carrying out any activities involving the product, its handling and unloading.

B. DOCUMENT REVISIONS



REV.	DATE	REVISION DESCRIPTION
1	September-2021	First Edition IC-A-IM1

C. SAFETY SYMBOLS

The following Symbols / Terms define the various HAZARD identifications in this Instruction Manual to ensure User Safety and to assure correct Installation and Operation of the Product.



DANGER :

The “DANGER” symbol indicates an immediate hazardous situation which, if not avoided, will result in death or serious injury.



WARNING :

The “WARNING” symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION :

The “CAUTION” symbol indicates attention to unsafe practices which, if not avoided, could result in minor or moderate injury or component damage.



NOTICE :

The “NOTICE” symbol indicates important information for the correct installation and for maintenance that does not cause personal injury or component damage.



SKILLED LABOUR REQUIRED :

The adjacent symbol indicates that all the activities should be carried out by a Professional Marine Technician.

D. SAFETY WARNINGS



It is very important to read this section carefully to avoid any personal harm or injury and also to prevent machinery damage.

Multisteer shall not be responsible for any damage because of the user's negligence.

NOTE : It is advised to read the other manuals as well which are provided with the Steering System Components.



DANGER :

- ⚠ DO NOT PUT YOUR HANDS BETWEEN MOVING PARTS.
- ⚠ Do not disable the safety devices.
- ⚠ Do not use this equipment for a purpose different from the one it has been designed for, which is specified in the Installation and Maintenance Manual.
- ⚠ Do not let unskilled staff perform the Installation.



WARNING :

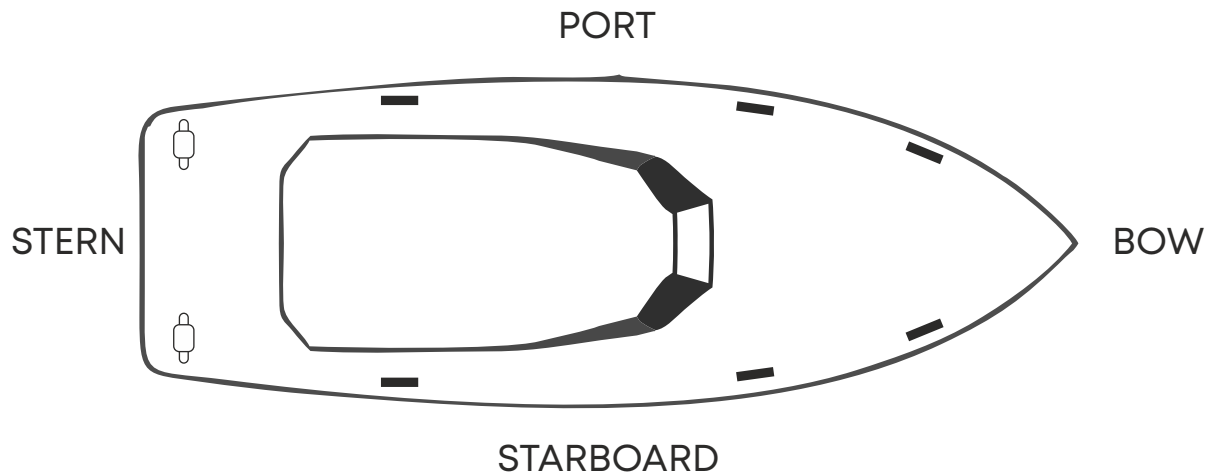
DO NOT operate boat if any component is not in proper working condition.

SAFETY RULES :

DURING INSTALLATION :

- ⚠ DO NOT modify or substitute any component without written approval from Multiflex.
- ⚠ Conform with all system ratings / regulations.
- ⚠ Hydraulic Cylinder must be compatible with the rated power of engine / engines.
- ⚠ Hydraulic Cylinder must be compatible with the engine / engines installed.
- ⚠ Make sure that the Steering Cylinder can be fully extended / retracted in both directions and fully tilt and trim without stretching, rubbing the Hydraulic Hoses.
- ⚠ Check fluid level in Helm Pump. Also check all fittings for leakage.
- ⚠ Conform that extruded nylon tubing has NOT been substituted for Multisteer Steering Hose.
- ⚠ Never use a wire coil type trim switch with a Hydraulic Steering System . This may lead to winding up the wire tight around the Steering Wheel Shaft which will avert further Steering.

E. NAUTICAL WORD REFERENCE



F. WARRANTY



PRODUCT WARRANTY

MULTISTEER* warrants all products for a period of One (1) year from the date of purchase by the consumer or Two (2) years from the month of manufacture. In both cases, serial number of the product or kit should be shared with Multisteer. Multisteer products are to be free from any defects due to material or manufacturing workmanship. This will be subject to exclusions listed below. Improper installation automatically voids this warranty. Installation is to be performed by a qualified marine technician only. Should the products be altered / disassembled in any manner the warranty shall be void.

If the products are used commercially or in any rental or income generating activity, the warranty shall be:

- ▲ For Mechanical Product: 90 days/3 months from the date of purchase
- ▲ For Hydraulic Product: 180 days/6 months from the date of purchase

(It is mandatory to provide proof of purchase for warranty claim. No claim shall be entertained without the proof of purchase)

EXCLUSION

- ▲ Failure caused by normal wear and tear, climate conditions, miss-use, neglect, lack of proper maintenance, accidents, fire, racing, overloading, modification, beaching or grounding of vessels, collision, impacts, towing, use during war or hostilities, commercial use
- ▲ Components not manufactured by MULTISTEER
- ▲ Cost of removal, re-installation of any component (including components manufactured by MULTISTEER) disassembly or reassembly of any parts, units or products containing the component
- ▲ Components not manufactured by MULTISTEER whether warranted by the other manufacturer
- ▲ Any product that has not been properly and professionally installed
- ▲ Any product that has been installed other than as recommended in our installation or operation instructions or specifications
- ▲ Has been used on boat / engine combination where the engine horsepower exceeds the rating defined by the boat manufacturer
- ▲ Has been used with other products that in the opinion of Multisteer are not compatible

LIMITATIONS

The repair or replacement of any defective parts shall be the PURCHASERS SOLE and EXCLUSIVE Remedy and MULTISTEER's sole and exclusive liability under this warranty. LABOR FOR ANY REMOVAL, REINSTALLATION OR REPLACEMENT IS NOT INCLUDED. MULTISTEER's obligation under this warranty is limited to the repair or replacement of product identified by MULTISTEER as defective, when delivered by the purchaser pursuant to written authorization and instructions from MULTISTEER. Shipping will be prepaid to MULTISTEER's manufacturing facility or any other designated plant or repair facility. Repaired or replaced items are warranted as provided herein for the unexpired portion of the applicable warranty period.

THIS WARRANTY, AND THE RIGHTS AND REMEDIES UNDER IT, IS EXCLUSIVE AND IS GIVEN IN PLACE OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED. INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WHETHER ARISING BY LAW, CONDUCT OR USAGE OF TRADE, PURCHASER'S REMEDIES SHALL BE LIMITED AS STATED HEREIN AND MULTISTEER SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES OR LOSSES RESULTING FROM DEFECTS. ANY ADDITIONAL SELLERS BE IT WHOLESALE OR RETAIL ARE NOT A CO-WARRANTOR AND ARE NOT AUTHORIZED BY MULTISTEER TO AMEND OR MODIFY THIS LIMITED WARRANTY IN ANY MANNER.

MULTISTEER employees or associates or representatives oral or any other written statements shall not constitute warranties and should not be relied by the customers and are not part of the warranty stated herein.

WARRANTY MAY NOT BE TRANSFERRED TO SUBSEQUENT PURCHASERS.

MISCELLANEOUS

MULTISTEER reserves the right to make changes in the design, construction, and manufacturing of its products at any time without notice and without any obligation to incorporate such changes into products of prior manufacture. This limited warranty applies to new components only sold by MULTISTEER and its group. This limited warranty contains the entire agreements between MULTISTEER and its group and the purchaser and supersedes all prior agreements, discussions, negotiations, commitments, and representations, whether oral or written, between them regarding MULTISTEER and its group's warranty.

OUR PRODUCTS ARE NOT INTENDED FOR USE IN RACING APPLICATIONS WHETHER PROFESSIONAL AMATEUR. OUR WARRANTY DOES NOT COVER LABOR, TOWING, OR ANY OTHER ASSOCIATED EXPENSES. FURTHER, IT DOES NOT COVER PRODUCTS THAT HAVE BEEN IMPROPERLY INSTALLED, DAMAGED DURING INSTALLATION, MISAPPLIED, OR MISUSED.

MULTISTEER shall be THE SOLE ENTITY FOR DETERMINATION OF A DEFECTIVE PRODUCT. DEFECT WILL NOT BE DETERMINED UNTIL SAID PRODUCT HAS BEEN INSPECTED BY MULTISTEER AND ITS GROUP AT THEIR MANUFACTURING FACILITY SPECIFIED AT TIME OF CLAIM.

Any product that is presumed to be defective should be reported to MULTISTEER and its group within 48 hours of discovery. Upon notification MULTISTEER and its group will attempt to troubleshoot the problem with our customer over the phone / email. If we are unable to resolve the problem MULTISTEER and its group will issue a Returns Material Authorization Code and ask that the product in question be sent back to MULTISTEER and its group specified facility with all parts and original packaging. All returned products must be returned freight prepaid.

If any part of the Limited Warranty is determined to be void or illegal the remainder shall remain in full force and effect.

If you need to begin the warranty process, please email what your product is, current issue, name and contact number to **technical@multiflexmarine.com**

A team member will review your inquiry and get back to you within 48 hours.

***Multisteer is a brand owned by GMG Techno Trades Pvt. Ltd., India.**

SECTION 1 - PRODUCT DESCRIPTION

1.1 FUNCTION OF A HYDRAULIC STEERING SYSTEM IB :

The Multisteer Hydraulic System Inboard conform to Recreational Craft and Personal Watercraft Directive 2013/53/EU in accordance with EN ISO 10592:1995 / A1:2000.

The Steering System is designed to operate in an ambient temperature ranging between -20°C (4°F) and +60°C (+140°F).

All the components of system are explicitly manufactured considering marine environment.

It offers great durability and safety even in extreme environments.

The Multisteer Hydraulic Steering Product consists of :

Single Balanced Aluminium Pro-Series Inboard Cylinder

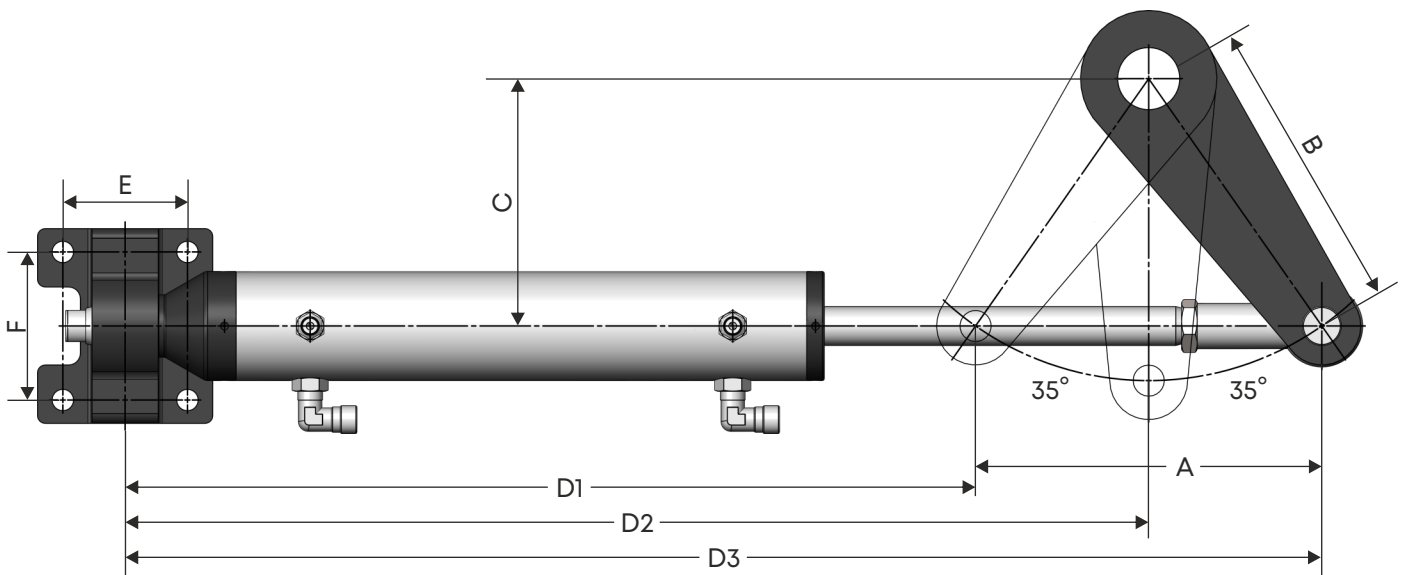
The Cylinder provides linear movement to the Engine or Rudder depending on application, Steering the boat to Starboard or Port.

For selecting the Helm pump, one must consider the volume of the Cylinder. The number of Steering Wheel turns from left to right (lock to lock) is determined by the ratio between the volume of the Cylinder to the volume of pump in one rotation.

1.2 MOUNTING DIMENSIONS

SINGLE BALANCED ALUMINIUM PRO SERIES INBOARD CYLINDER

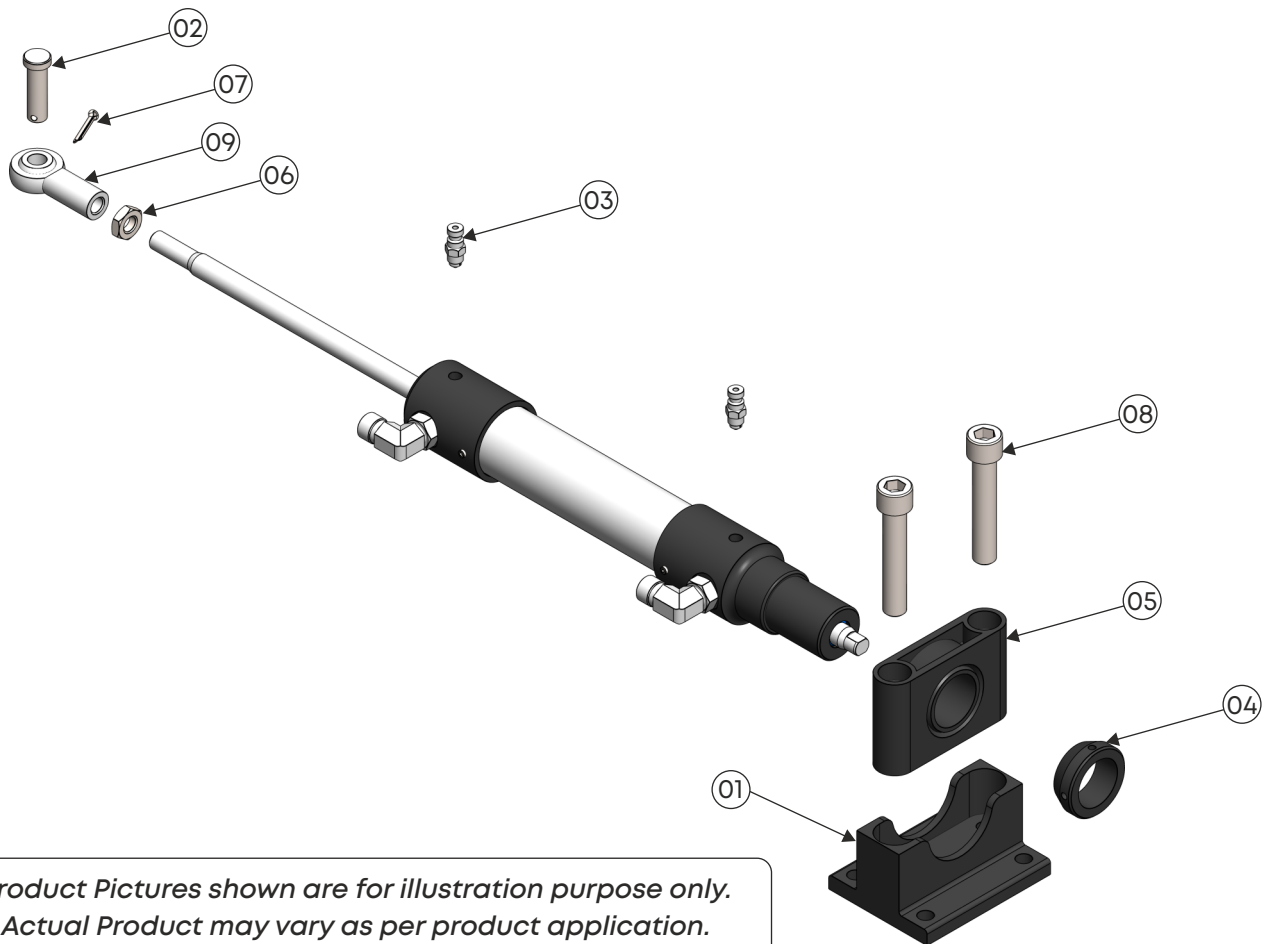
Model No.	Dimensions (mm)							
	A	B	C	D1	D2	D3	E	F
IC-25-A	160	140	115	321	401	481	50	70
IC-32-A	178	155	127	354	443	532	50	70
IC-32-A1	225	196	161	395	507.5	620	50	70
IC-40-A	178	155	127	437	526	615	64	76
IC-40-A1	228	200	163	487	601	715	64	76



*Product Pictures shown are for illustration purpose only.
Actual Product may vary as per product application.*

1.3 PRODUCT EXPLODED VIEW

SINGLE BALANCED ALUMINIUM PRO SERIES INBOARD CYLINDER



Item No.	Description	Qty.
1	Base Coupling	01
2	Re Pin	01
3	Air Bleed Plug	02
4	Lock Nut E C	01
5	Pillow Block Bearing	01
6	Hex Nut - M10 X 1.25	01
7	Split Pin - 3.2 X 18	01
8	Socket Head Cap Screw - M10 X 1.5 X 60 Lg.	02
9	Sph. Rod End	01

1.4 TECHNICAL SPECIFICATION

SINGLE BALANCED ALUMINIUM PRO SERIES INBOARD CYLINDER

Model No.	Max Torque at 70 Bar (Kgm)	Volume CC	CI	Stroke (mm)	Tiller Plate (mm)	Port Threads	Applicable Vessel Length (Meter)	Applicable Engine (HP)
IC-25-A	31	60	3.6	160	140	9/16-24 UNEF	UPTO 6	UPTO 50
IC-32-A	59	116	7.0	178	155	9/16-24 UNEF	UPTO 6	UPTO 100
IC-32-A1	74.5	146	8.9	225	196	9/16-24 UNEF	UPTO 8	UPTO 150
IC-40-A	85.5	168	10.2	178	155	9/16-24 UNEF	UPTO 10	UPTO 200
IC-40-A1	110	215	13.1	228	199	9/16-24 UNEF	UPTO 11	UPTO 250



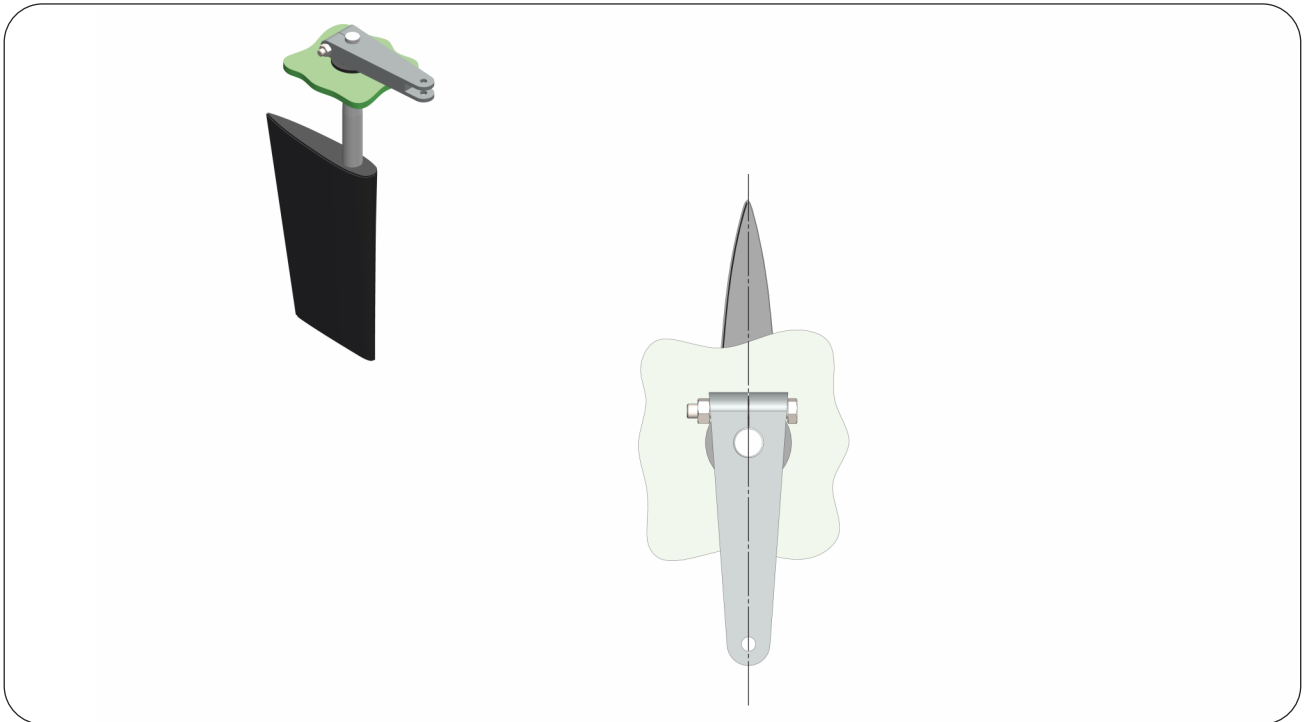
*Product Pictures shown are for illustration purpose only.
Actual Product may vary as per product application.*

1.5 INSTALLING INBOARD CYLINDER

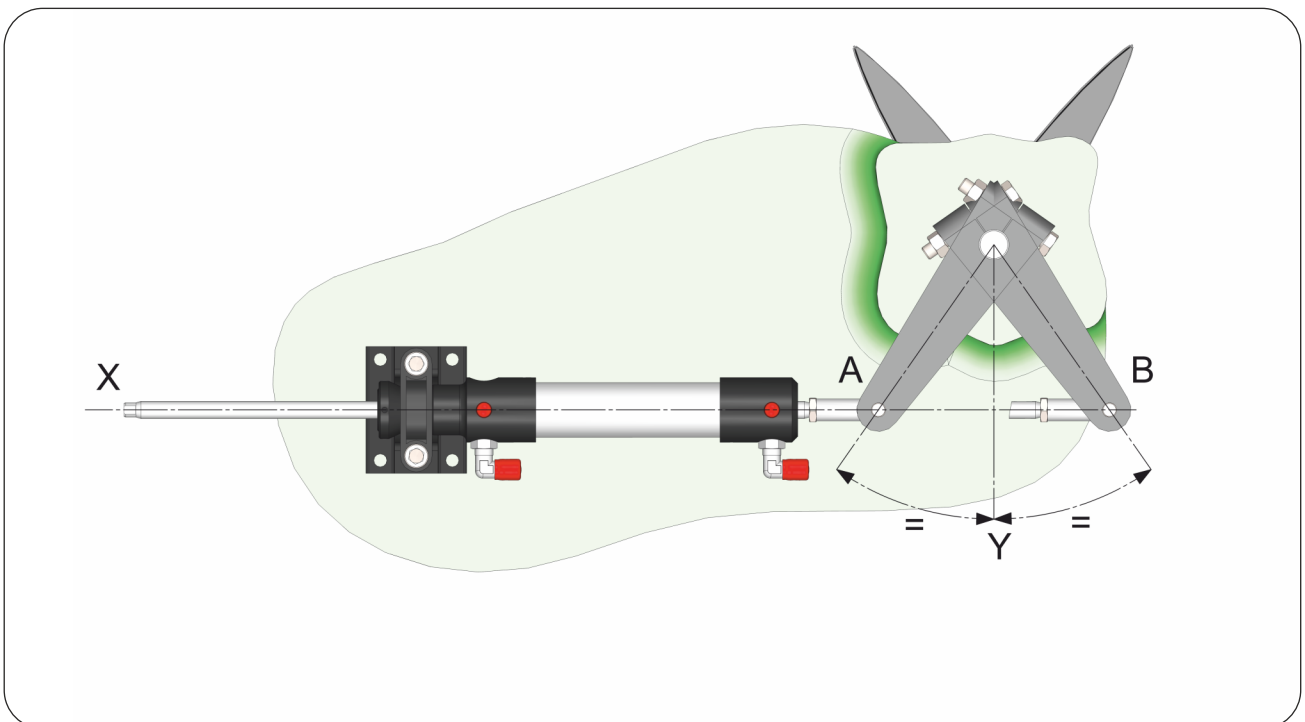


SKILLED LABOR REQUIRED :

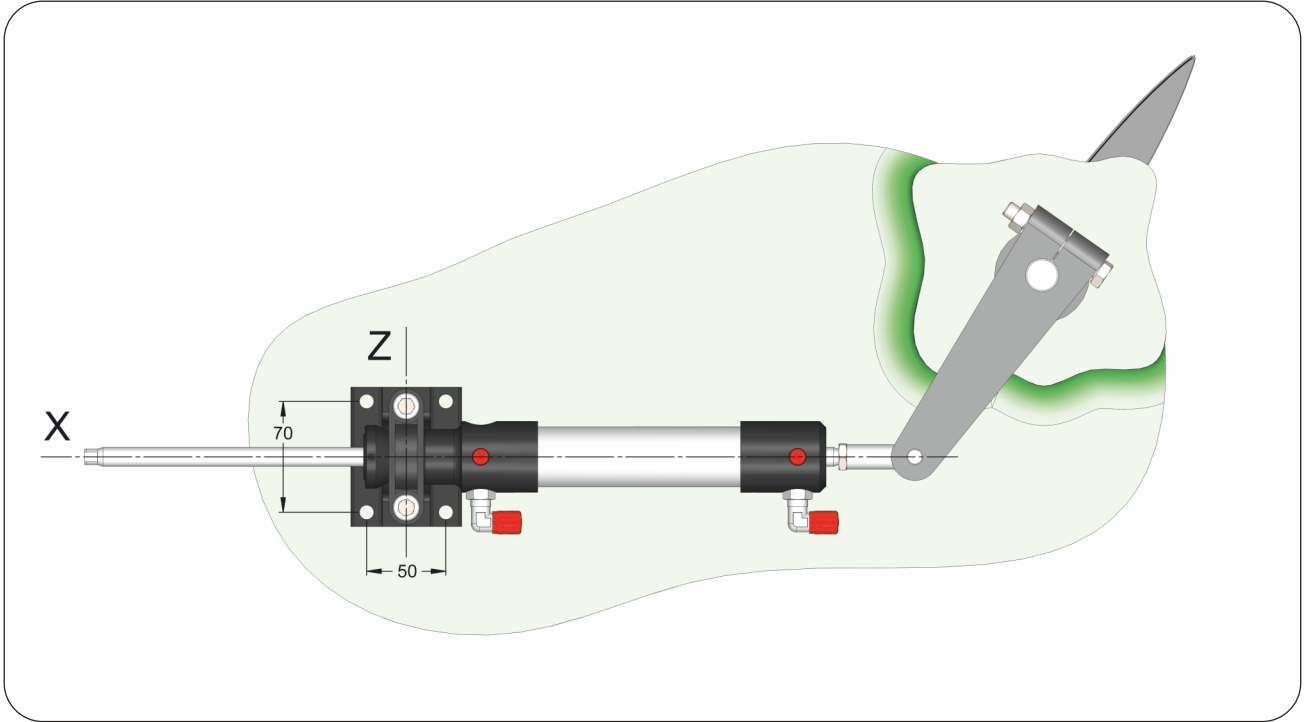
STEP1: Check if the Tiller arm and the Rudder are aligned, then center them to the longitudinal axis.



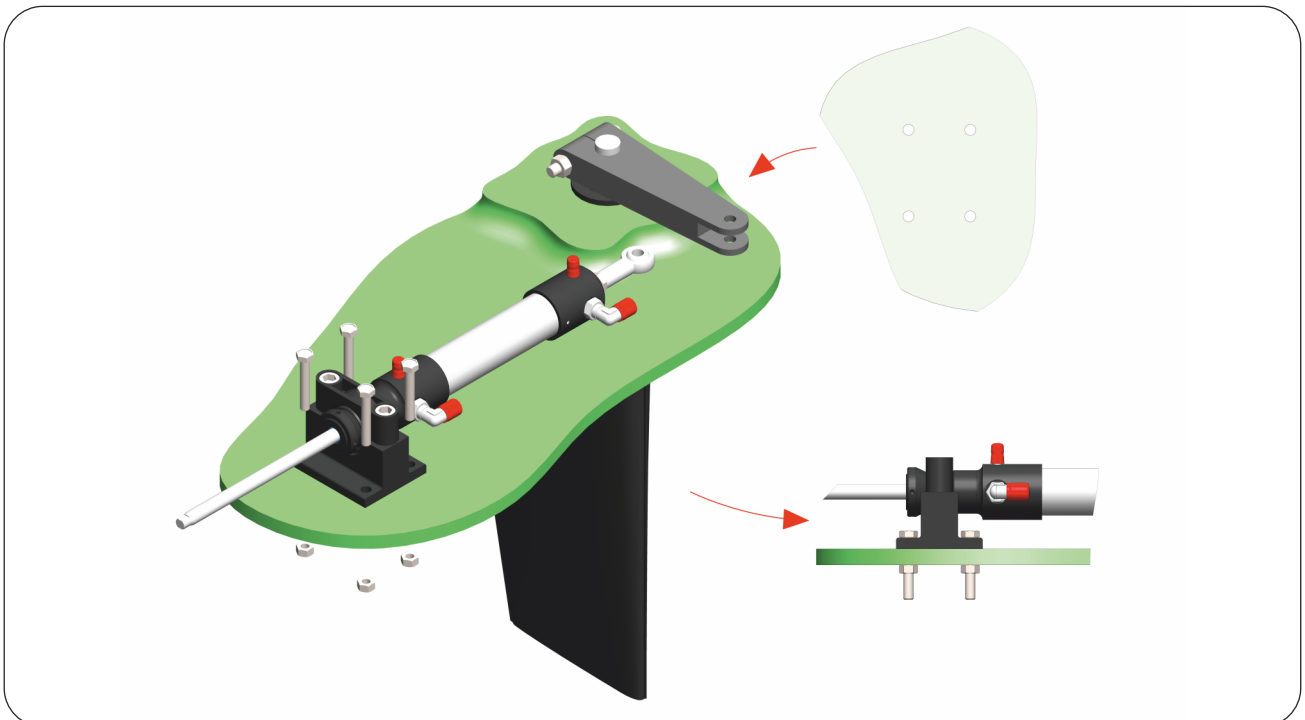
STEP 2 : Mount it by looking for the "x" imaginary line parallel to the transom. It joins the arm hole in the two "A" and "B" end stroke positions of the cylinder when the angles between the two "A" and "B" positions and the "y" longitudinal axis are the same ones. This line will be the mounting axis of the cylinder.



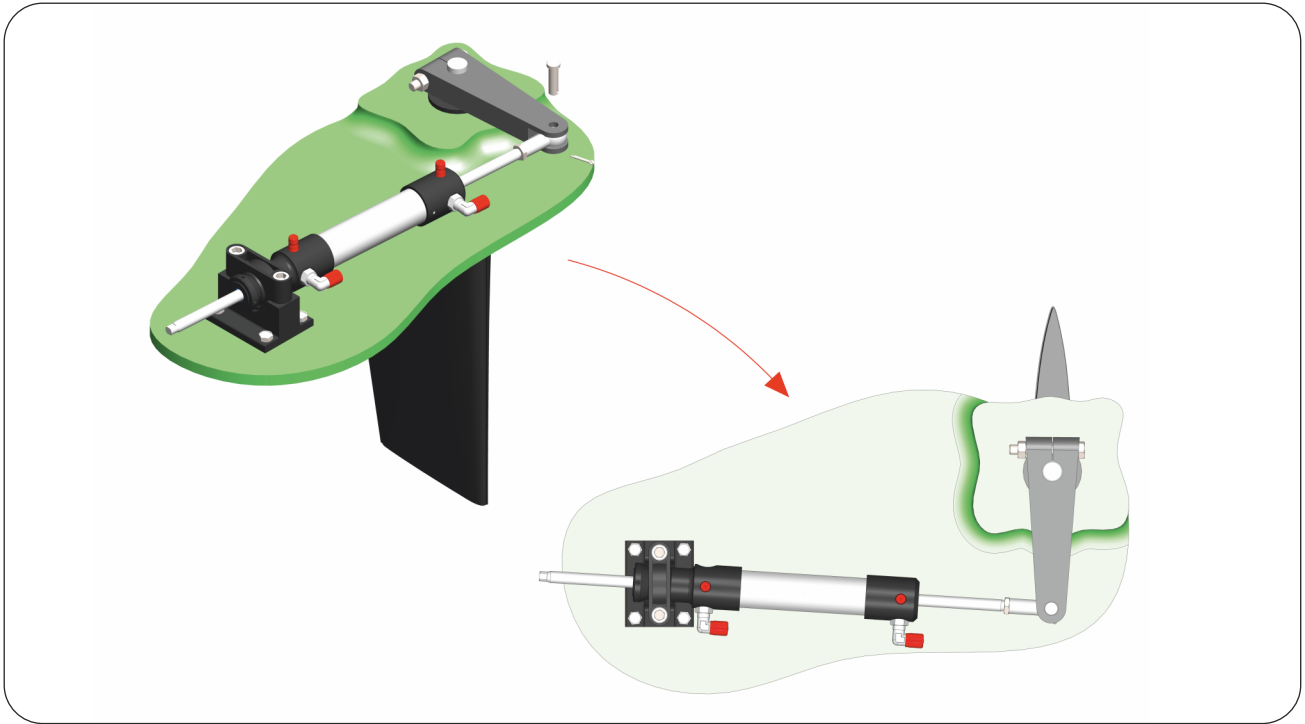
STEP 3 : Check if the "z" axis of the bracket is perpendicular to the "x" axis of the cylinder. Fix the bracket on a proper support with 4 screws diagram.



STEP 4 : Then Lock the Position of Cylinder with the Help of Hex Bolt, Washer and Nuts. Make sure the Cylinder should be Straight as shown in Figure.



STEP 5 : Connect the joint to the arm; the arm must be under the joint; (follow the instructions of the arm manufacturer).



1.6 HOSE CONNECTION



SKILLED LABOR REQUIRED :

Hydraulic Hose Kits and the way they are installed are very critical to the safe operation of The Steering System. Multisteer Recommends the use of Multisteer Hose Kits or exact equivalent ONLY. Use of any other Hoses may drastically reduce or affect the performance of the Steering System and Safety.



WARNING :

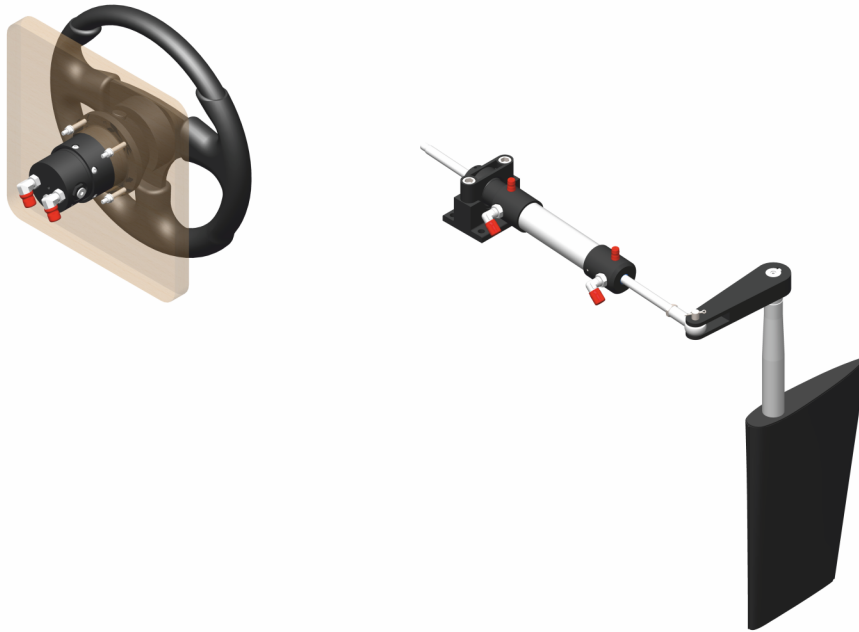
DO NOT cut the Multiflex Hoses. Cutting the Hoses will make it useless.

POINTS TO READ BEFORE CONNECTING HOSES:

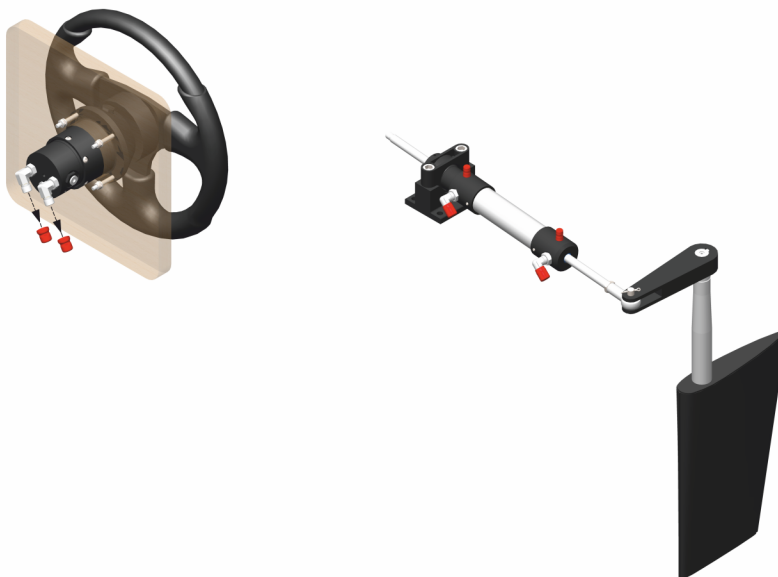
1. DO NOT use any pipe / plumbing sealant on the Hose or fitting.
2. DO NOT remove protective covers at the end fittings until the Hoses have been properly routed and are ready to be connected to the Helm pump or Hydraulic Cylinder.
3. Before, during and after the connection of Hoses, they MUST be protected from chaffing, rubbing and contact or interference with assembly screws or sharp edges of any type.
4. DO NOT install Hoses in the area where they are exposed to high heat or highly corrosive areas.
5. Minimum Bend Radius for Hoses is 100 mm (4 Inches). DO NOT bend the Hoses more than 100 mm (4 Inches) of radius.
6. Ensure sufficient Hose lengths to allow Cylinder movement throughout the turning arc and UP / DOWN trim / tilt settings of engine / engines.

HOSE CONNECTION

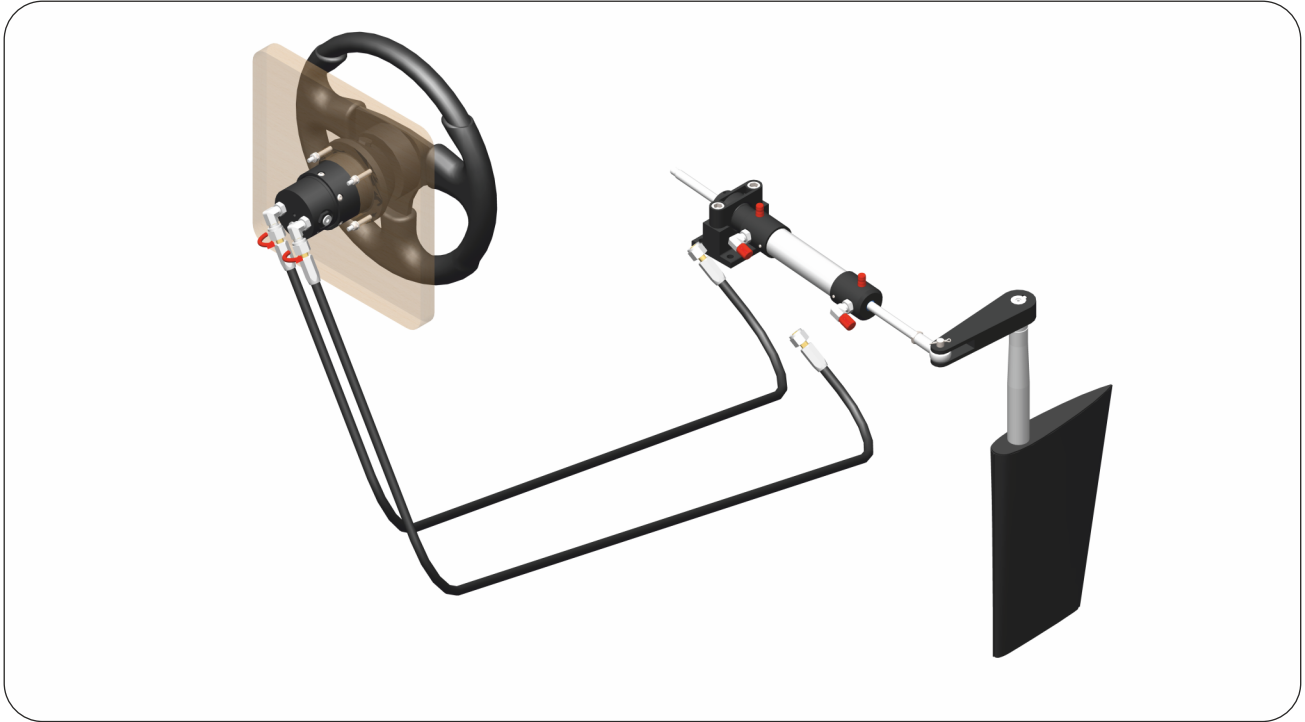
STEP 1 : While installing Hoses, ensure that the Cylinder is in the Middle of the stroke. Before going for installing Hose, please check Oil Purging process given below.



STEP 2: Remove the thread protector caps from both the Elbows of Helm.



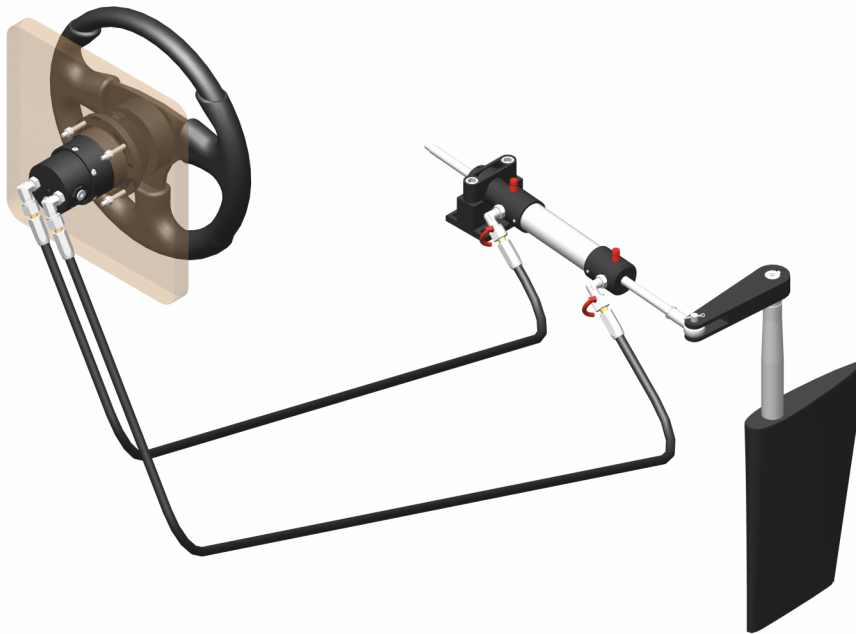
STEP 3: Insert the Hose Fittings into both the Elbows of Helm. Tighten the Hex Nut on the Hose Fitting by using 19 mm Wrench with a torque of 15Nm (52 lb Ft).



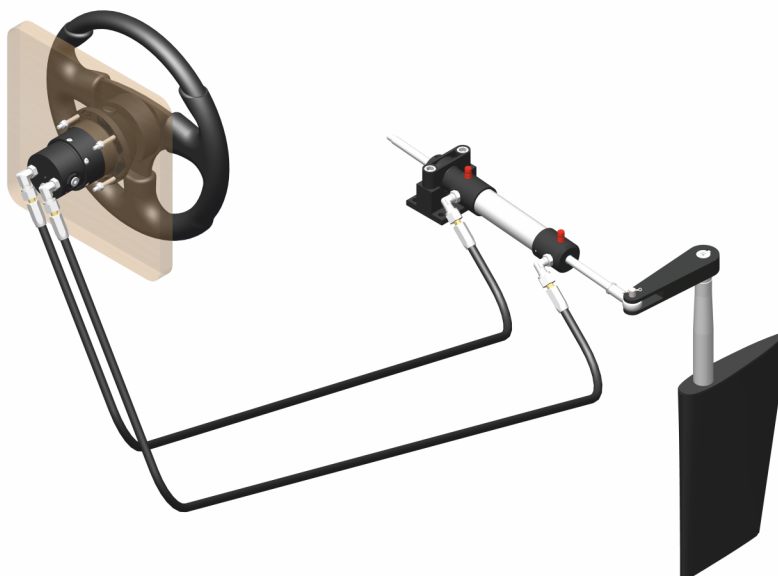
STEP 4: Remove the thread protector caps from both the Elbows Hose Side Port of Cylinder.



STEP 5 : Insert the Hose Fitting from Starboard Side of Helm into the Starboard Side Hose Fitting of Cylinder & vice versa. Tighten the Hex Nut on the Hose Fitting by using 19 mm Wrench with a torque of 15 Nm (52 lb ft).



STEP 6 : Ensure that all the Hose Fittings should be tighten properly. Hoses should not be bent in excess. Minimum Hose bent radius is 100 mm (4 Inch). Ensure that there should be no interference during engine tilting as well as no interference with the transom.



1.7 OIL FILLING AND PURGING PROCEDURE



SKILLED LABOR REQUIRED :

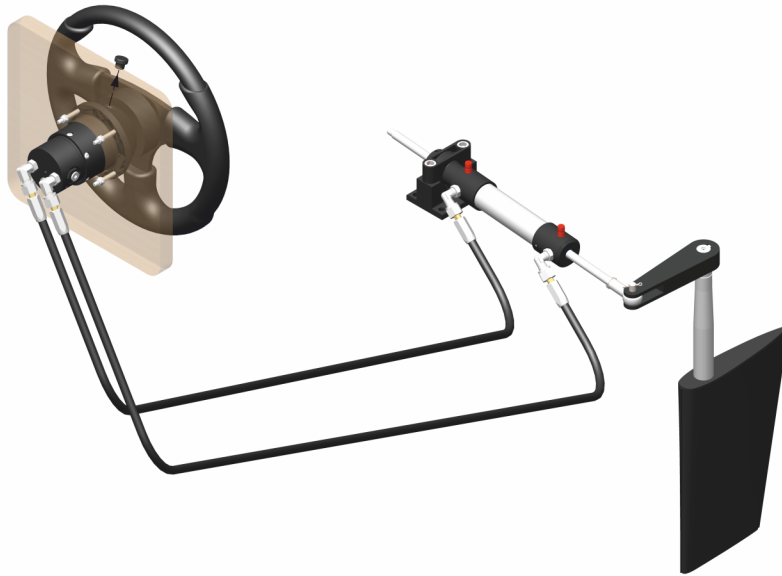
STEP 7: For Oil Filling and Purging, it is necessary to use the Oil Filling Kit.



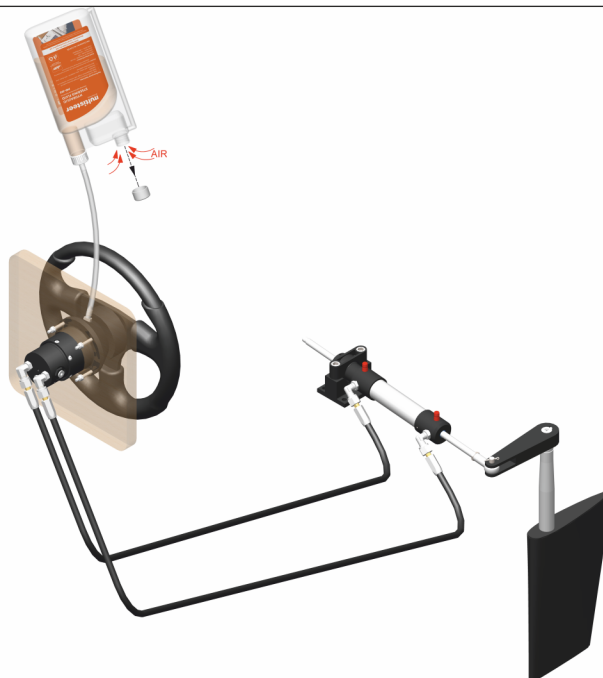
STEP 8: Replace the Oil Bottle fill cap with the Oil Filling Kit cap as shown in the picture.



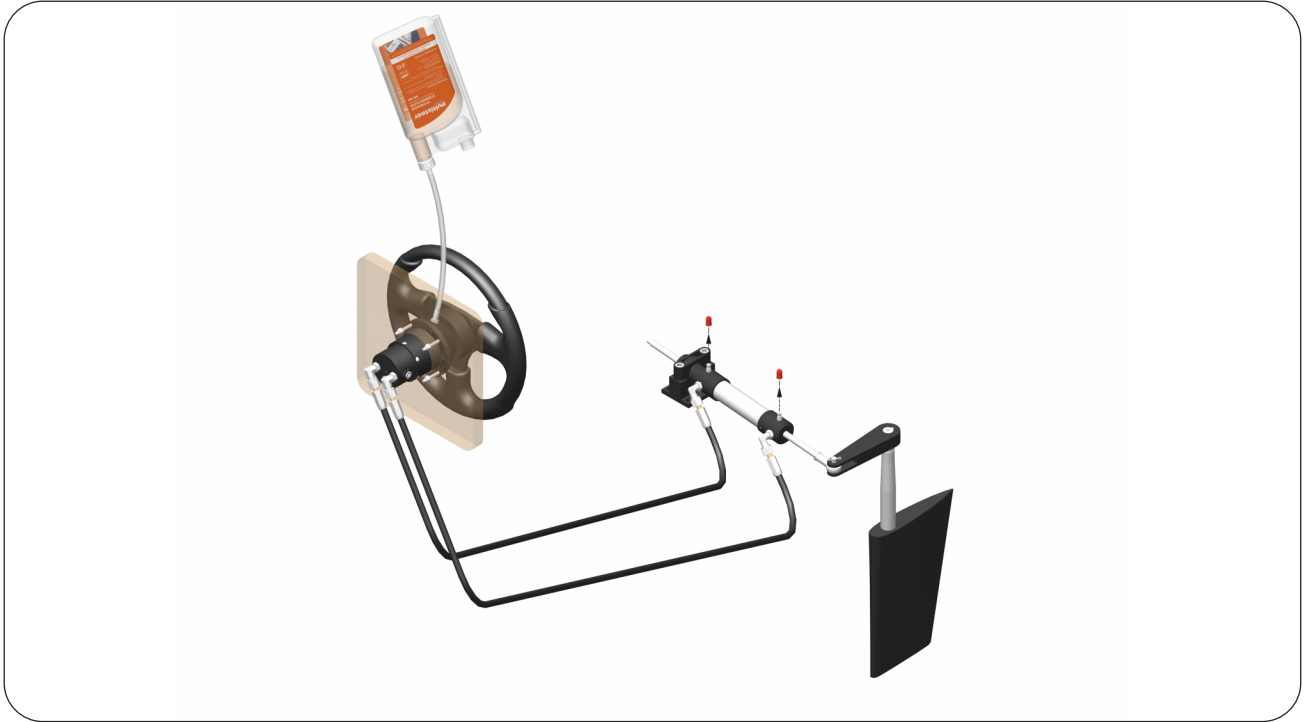
STEP 9 : Remove the oil filling plug of Helm



STEP 10 : Insert the threaded port of pipe into the Oil Filling Port of Helm. Turn the bottle upside down and carefully remove the other side of cap to ease the Oil passage towards the Helm. Fill the Helm until no air bubbles are visible in the pipe.



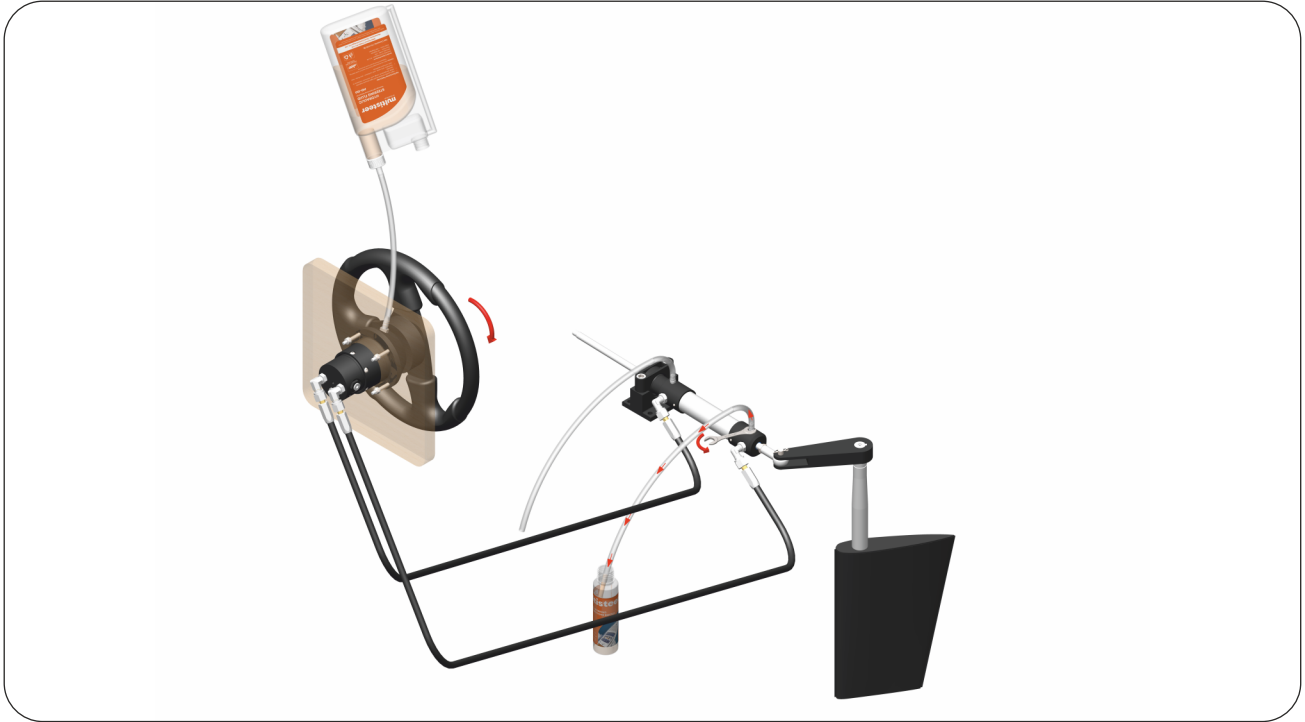
STEP 11: Remove the Protector Cap of both the air bleeders of Cylinder.



STEP 12: Insert the other pipe supplied with the Cylinder into the air bleeders for collecting the Oil, coming out from the air bleeders during purging process.



STEP 13 : Turn the Steering Wheel slowly towards Port Side, so that the Oil can come out of Hoses. Unscrew the air bleeder as shown and allow the air & Oil (air bubbles) come out from air bleeder.



STEP 14 : Continue to turn the Steering Wheel towards Port Side. When the Oil comes out from air bleeder without air bubbles then carefully close the air bleeder. Do not overtighten the air bleeder. Continue to turn the Steering Wheel in the same direction to fill the Cylinder chamber. During this phase, the Cylinder body will move to the opposite direction up to the end stroke.



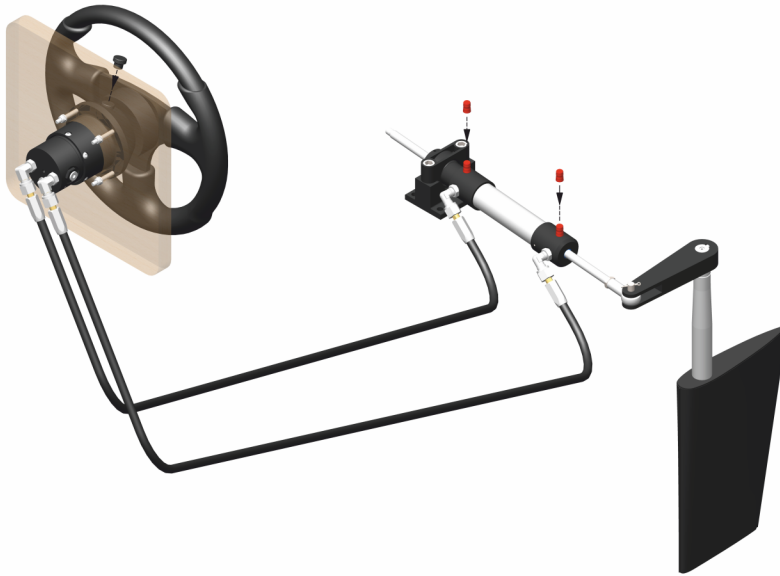
STEP 15 : Turn the Steering Wheel slowly towards Starboard Side, so that the Oil can come out of Hoses. Unscrew the air bleeder as shown and allow the air & Oil (air bubbles) come out from air bleeder.



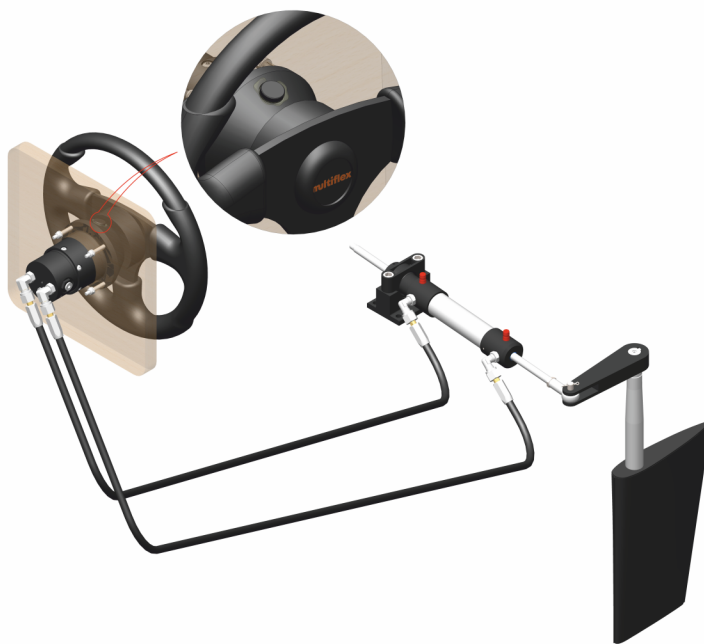
STEP 16 : Continue to turn the Steering Wheel towards Starboard Side. When the Oil comes out from air bleeder without air bubbles then carefully close the air bleeder. Do not overtighten the air bleeder. Continue to turn the Steering Wheel in the same direction to fill the Cylinder chamber. During this phase, the Cylinder body will move to the opposite direction up to the end stroke.



STEP 17 : After completion of purging process, remove the Oil Bottle, Oil Filling Kit & Oil Collection Kit. Insert the Oil Filling Plug and Protective Caps.



STEP 18 : After tightening the Oil Filling Plug, some amount of Oil will come out around the plug for some period of time when the Wheel is turned lock to lock. This Oil seepage will be over when the system is stabilized and no air is trapped inside the system.



SECTION 2 – TROUBLESHOOTING

2.1 FAULTS, CAUSE & SOLUTION

Below are most common faults and their solutions

FAULT	CAUSE	SOLUTION
1. During filling, the Helm becomes Completely jammed.	a) Blockage in Steering System	Remove all Steering line. Blow air through lines. If air is obstructed through the line, then the Steering line should be replaced.
2. System is very difficult to fill, air keeps burping out top of Helm even after system appears full.	a) Air in system b) Bleed Fitting leakage	Bleed the Steering System again. Tighten Bleeder, replace if leaks continues.
3. Steering is stiff & hard to turn, even when boat is Not moving & engines are OFF.	a) Adjusting Nut on support rod is over tightened b) Restriction in Hoses c) Air in system	Nut should be hand tight. Check the right oil way. Bleed the Steering System .
4. Steering is easy to turn at the dock, but becomes hard to turn when system is underway.	a) Steering Wheel is too small b) Incorrect Engine Setting	Fit the proper size Wheel. Adjust the engine tab.

SECTION 3 – MAINTENANCE

3.1 PREVENTIVE MAINTENANCE

Hydraulic Steering System exterior surfaces should be cleaned after every use of the boat. It is very important to clean the Steering System as it is considered a part of your safety gear.

1. When you are in a saltwater environment, the salt will crystallize as the water evaporates and coat all the parts of the Steering Cylinder along with the rest of the boat.
2. We have seen units in the shop that had no seals left; they were being sealed by the salt that had been carried under the wiper seal and then corroded the aluminum away in front of the seal.
3. You must wash this Cylinder with soap and water as frequently as possible in salt water areas.
4. Even if you keep your boat on a trailer but store it near the coast, blowing saltwater will tend to build up salt on the aluminum parts of your system that will corrode over time.
5. Just remember that even stainless will scratch over time from salt crystal deposits. MULTIFLEX recommends after cleaning thoroughly with soap and water use a Corrosion Block product to finish cleaning your Steering Cylinder. (Use it on the Steering Wheel and Shaft also)
6. Get an air compressor with a small tip to blow out the lines.
7. Get all the proper size wrenches that you will need.
8. At this point, if the oil is discolored or muddy looking, you should have your Helm and Cylinder serviced by a qualified shop.
9. While your unit is out being serviced, the rest of the system, Hoses and reservoir, should be thoroughly flushed with mineral spirits and blown dry.
10. Get enough manufacturer's recommended new fluid to fill your entire system. (You MUST NOT reuse the old Oil that was removed from system).
11. Once all your lines and parts are cleaned, put the system back together, refill with new fluid (read the owner's manual) and purge the system.

3.2 ROUTINE MAINTENANCE

Multisteer Steering System if properly installed and maintained, gives you years of safe and reliable performance.



The Steering System CONTAINS POLLUTANT FLUIDS that must be disposed of according to local government regulations.

1. Always check Oil level in Helm Pump.
2. Verify Steering response when turning the Steering Wheel.
3. Inspect Steering Hoses & Fittings for damages, wear & leaks.
4. Check tightness of all Fasteners / Fittings to the system.
5. Check the signs of corrosion.
6. Remove Steering Wheel and re-grease Wheel shaft using approved quality of marine grease.
7. Inspect Hydraulic Oil for cleanliness, flush if required.

UPGRADE TO **STEERLYTE** POWER STEERING SYSTEM



multisteer