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T-1 T-2

USER MANUAL + INSTALLATION GUIDE

RT2505

M-SERIES ELECTRIC OUTBOARD MOTORS

Momentum M-SERIES Remote System installation manual

This manual describes the installation and operation of the Momentum Remote Throttle and Remote Steering System for use on the Momentum M10 and M6 electric outboard motors.

Please read this manual comprehensively as it contains crucial information on set-up, operation, maintenance and safety. By using this Momentum electric outboard motor, it is deemed that you have read and understood the contents of this user guide and Momentum accepts no liability in the event of misuse of this product.

We reserve the right to update this user guide in-line with any evolution of this product.

Please visit our website for the latest version of this user guide.



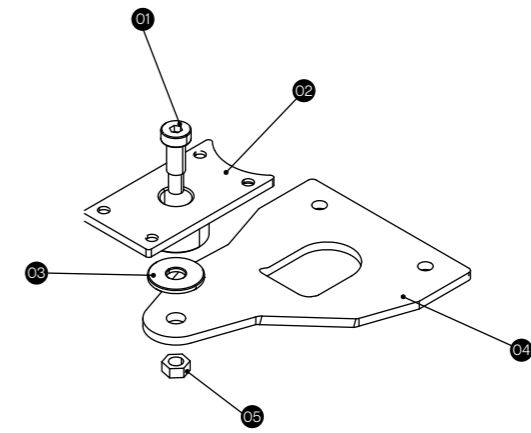
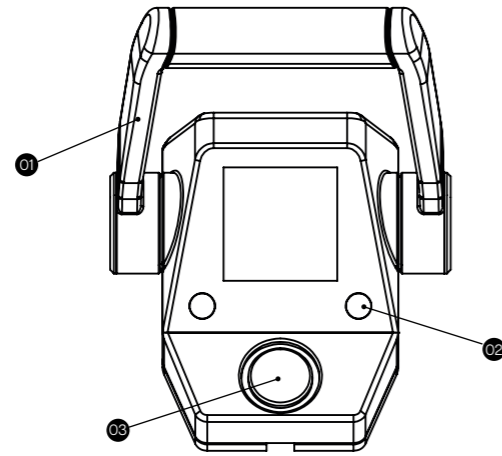
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ANATOMY

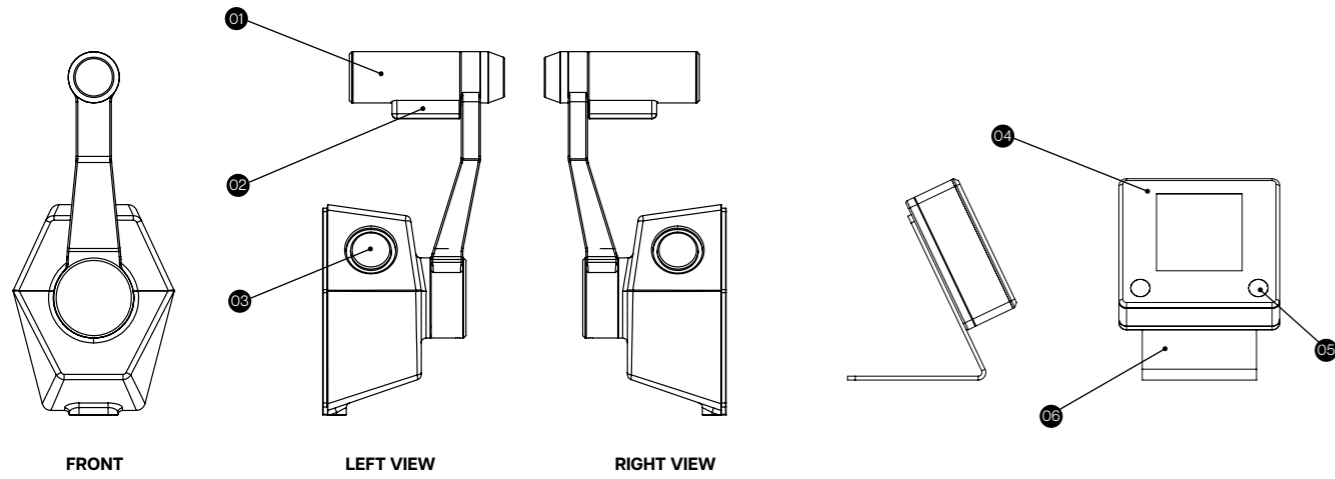
- 01 Throttle lever
- 02 Units selection button
- 03 Killswitch ring



- 01 Shoulder bolt
- 02 Pivot mount plate
- 03 Spacer
- 04 Interface plate
- 05 Nylon locknut

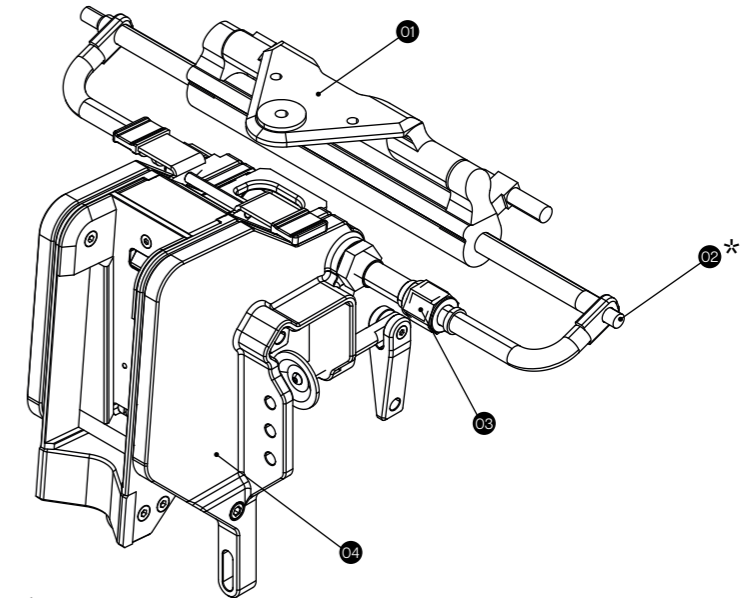
ANATOMY M-SERIES REMOTE STEERING INTERFACE

ANATOMY MT-1 TOP MOUNT REMOTE THROTTLE



- 01 Throttle lever
- 02 Throttle lever release
- 03 Killswitch ring

- 04 Remote display unit
- 05 Units selection button
- 06 Remote display stand



- 01 Hydraulic steering cylinder pivot plate
- 02 Hydraulic steering cylinder
- 03 Mount nut
- 04 M-SERIES transom mount

*BayStar H4647-3 Hydraulic Cylinder, with HA4641 Kit Plate, shown. Not included in supply.

ANATOMY MT-2 UNIVERSAL SIDE MOUNT REMOTE THROTTLE

ANATOMY M-SERIES TRANSOM MOUNT SHOWN WITH 3RD PARTY HYDRAULIC STEERING CYLINDER*

INSTALLATION

Tools & parts required

Standard metric hand tools are required for the tasks.

- Full allen key wrench set
- Full socket wrench set
- Full wrench set

Consumables required are:

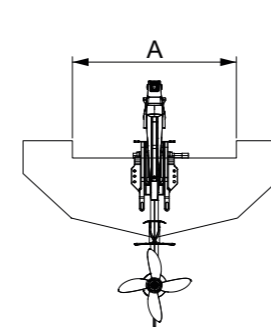
- Tefgel anti-corrosion/anti-seize
- marine grease

Parts that are not included in this package:

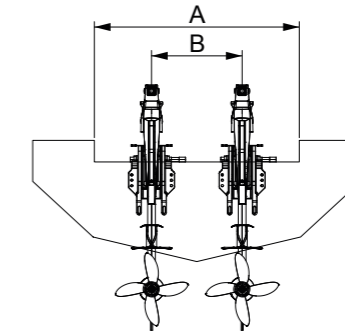
Hydraulic steering cylinder–The recommended hydraulic cylinder is the BayStar H4647-3 Hydraulic Cylinder, with HA4641 Kit Plate. If you have a different existing hydraulic steering cylinder, please consult your dealer to customise the interface plate.

Twin remote steering tierod–Depending on the available transom opening and required steering angle, the length of the tie rod linking the OBMs will vary. Please consult your dealer to customise the tierod to fit the supplied rod ends.

PRE INSTALLATION CHECK



Single OBM installation



Twin OBM installation

Transom thickness

For single and twin OBM installations, ensure that there is adequate transom thickness as shown below.

Transom Thickness Range	
Minimum	3.81cm (1.5 in.)
Maximum	6.8cm (2.65 in.)

Transom opening

The minimum transom opening required is determined by the maximum steering angle and whether the tiller is installed.

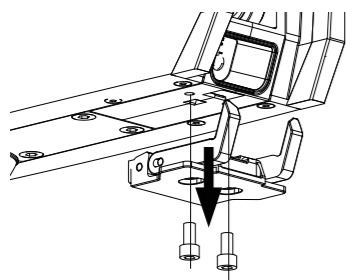
The M10 is capable of a maximum steering angle of +/- 60 degrees. To achieve the full range of steering, the minimum transom openings for a single and twin OBM installation are shown below.

Minimum Transom Opening (A)	
Single Remote OBM without tiller	75cm (29.6 in.)
Single Remote OBM with tiller	81cm (31.9 in.)
Twin Remote OBM without tiller	125cm (49.2 in.)
Twin Remote OBM with tiller	131cm (51.6 in.)

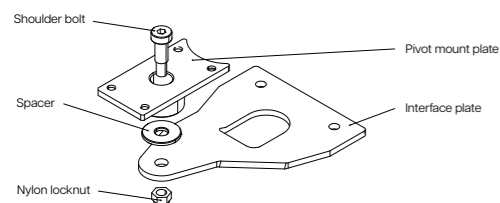
IMPORTANT SAFETY NOTICE

Should there be insufficient transom opening on the boat to achieve the maximum steering angle of +/- 60 degrees, the maximum steering angle must be limited on the hydraulic steering cylinder to an angle that avoids contact between the OBM and the hull, and between port and starboard OBMs, in the case of a twin OBM installation.

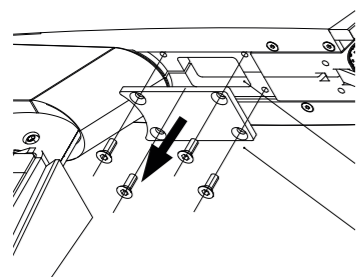
Minimum Transom Opening (A) *LIMITED STEERING ANGLE = +/-45!!*	
Single Remote OBM with or without tiller	46cm (18.1 in.)
Twin Remote OBM with or without tiller	88cm (34.7 in.)



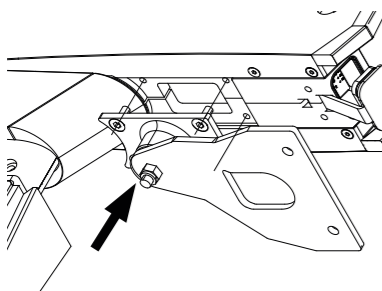
Dia. 1.1.a



Dia. 1.1.b



Dia. 1.1.c

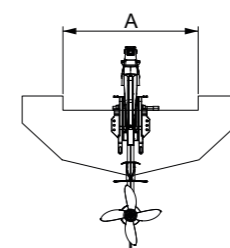


Dia. 1.1.d

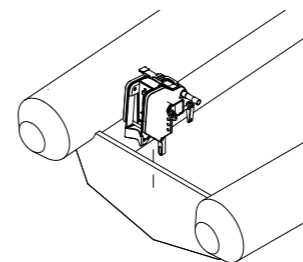
SINGLE OBM SET UP

Preparing the OBM for remote steering

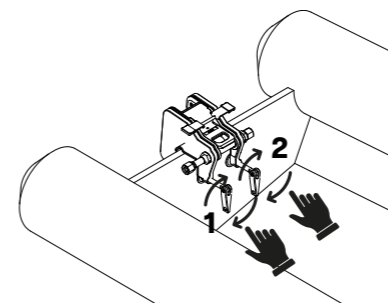
- 1.1.1. Remove the local clamp, if installed, from the aft tiller. (Dia. 1.1.a)
- 1.1.2. Attach the interface plate and spacer to the pivot mount plate and secure with the shoulder bolt and nylon locknut. (Dia. 1.1.b)
- 1.1.3. Remove the pivot blanking plate from the aft tiller. (Dia. 1.1.c)
- 1.1.4. Install the pivot mount plate with interface plate onto the aft tiller. Apply Tefgel on each screw before installing screws. (Dia. 1.1.d)



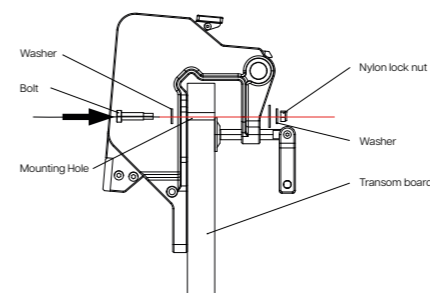
Dia. 1.2.a



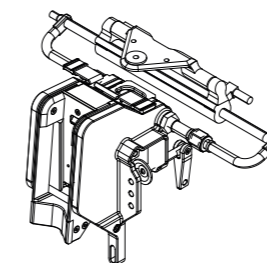
Dia. 1.2.b



Dia. 1.2.c

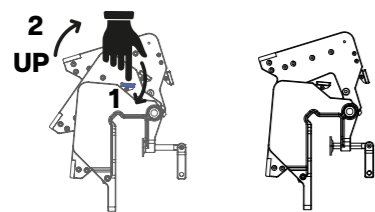


Dia. 1.2.d

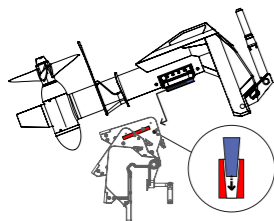


Installing single transom mount with remote steering

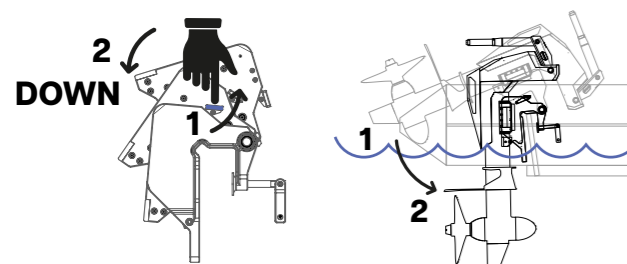
- 1.2.1. install the mount dead-centre to the transom of your boat as shown in the diagram above. (Dia. 1.2.a)
- 1.2.2. secure the mount clamps to the transom with hand tightness. (Dia. 1.2.b)
- 1.2.3. In addition, the mount can be bolted onto the transom via the bolt holes on the transom mount, using 4 bolts. (Dia. 1.2.c)
- 1.2.4. Apply a suitable silicon sealant (Fixall Flexi or equivalent) to the mounting holes on the transom and the transom mount.
- 1.2.5. Secure the transom mount with the bolts, washers and locknuts. Apply the specified torque for the bolt/nut that is also suitable for the boat transom strength, to avoid damage to the transom.
- 1.2.6. Install the hydraulic steering cylinder onto the transom mount, according to the hydraulic steering cylinder manufacturer's instructions. (Dia. 1.2.d)
- 1.2.7. Connect the hydraulic hose and steering helm, according to the hydraulic steering cylinder manufacturer's instructions.



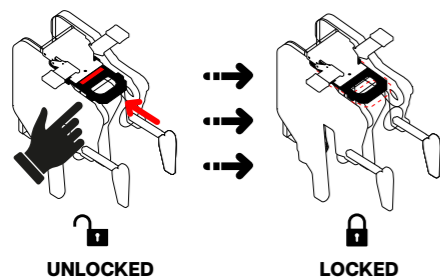
Dia. 1.3.a



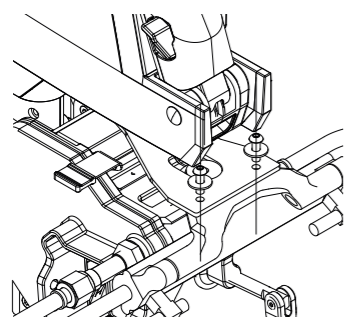
Dia. 1.3.b



Dia. 1.3.c



Dia. 1.3.d



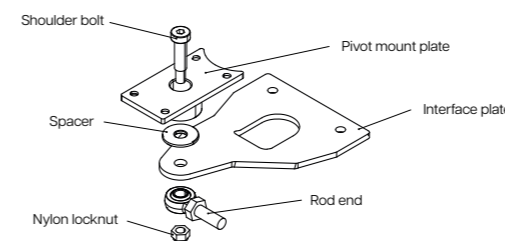
Dia. 1.4.a

Installing single OBM

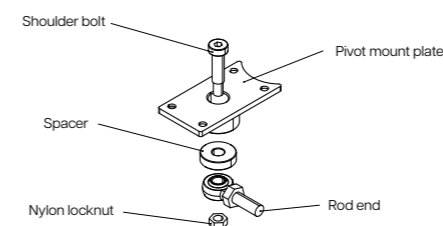
- 1.3.1. Press down on the trim lever to tilt the mount to the highest position to install the outboard. (Dia. 1.3.a)
- 1.3.2. With the outboard inside the boat, secure the outboard safety line to a fixed point in the boat before installing it. Aim the dovetail mount into the tapered receiver of the mount until you hear a positive click. (Dia. 1.3.b)
- 1.3.3. Press down on the trim lever to lower the outboard into the water. (Dia. 1.3.c)
- 1.3.4. Important! -Lock the outboard to the mount by pushing in the locking handle as shown in the diagram. (Dia. 1.3.d)
- 1.3.5. Fold the tiller over the OBM.

Connecting the single remote steering system

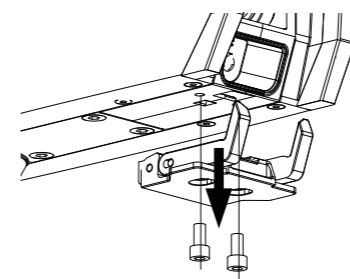
- 1.4.1. Center both the OBM and hydraulic steering cylinder and bolt the interface plate onto the hydraulic steering cylinder pivot plate. (Dia. 1.4.a)
- 1.4.2. Check that the OBM can be steered from hard port to hard starboard and back to hard port without obstruction. Should there be any obstruction, limit the maximum steering angle on the hydraulic cylinder.
- 1.4.3. Check that the OBM can be trimmed and tilted without obstruction.



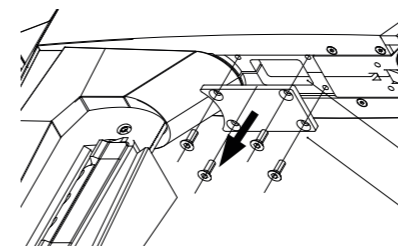
Dia. 2.1.a



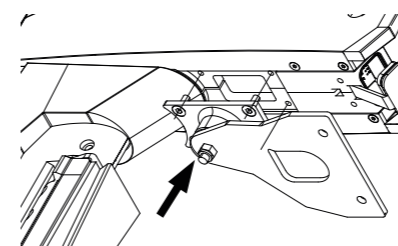
Dia. 2.1.b



Dia. 2.1.c



Dia. 2.1.d



Dia. 2.1.e (Master OBM shown)

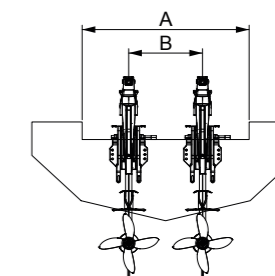
TWIN OBM SET UP

Preparing the OBMs for remote steering

- 2.1.1. On the master OBM, attach the interface plate and spacer to the pivot mount plate, together with the rod end, and secure with the shoulder bolt and nylon locknut. (Dia. 2.1.a)
- 2.1.2. On the slave OBM, attach the spacer and rod end to the pivot mount plate and secure with the shoulder bolt and nylon locknut. (Dia. 2.1.b)
- 2.1.3. Remove the local clamp, if installed, from the aft tiller of both OBMs. (Dia. 2.1.c)
- 2.1.4. Remove the pivot blanking plate from the aft tiller of both OBMs. (Dia. 2.1.d)
- 2.1.5. Install the pivot mount plate onto the corresponding aft tiller. Apply Tefgel on each screw before installing screws. (Dia. 2.1.e) (master OBM shown)

Installing twin transom mounts with remote steering

- 2.2.1. Install the transom mounts equal distance away from the centre of the transom, with the Outboard-to-Outboard Centreline distance (B) as shown below.
- 2.2.2. Secure the transom mounts and install the hydraulic steering cylinder on the master OBM mount as per single OBM installation.



Outboard-to-Outboard Centreline (B)	
Twin Remote OBM	50cm (19.7 in.)

*IMPORTANT SAFETY NOTICE

Should there be insufficient transom opening on the boat to achieve the maximum steering angle of +/- 60 degrees, the maximum steering angle must be limited on the hydraulic steering cylinder to an angle that avoids contact between the port and starboard OBMs. For a +/- 45 degree steering angle, achieved by limiting the hydraulic steering cylinder, the minimum Outboard-to-Outboard Centreline distance (B) is shown below.

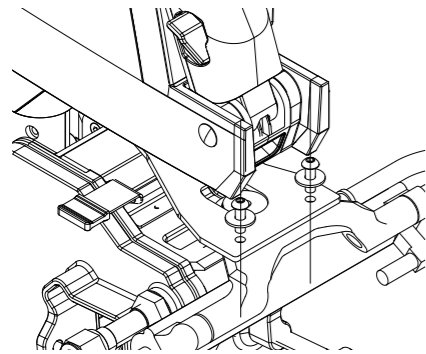
Minimum Outboard-to-Outboard Centreline (B) *LIMITED STEERING ANGLE = +/-45!*	
Twin Remote OBM	42cm (16.5 in.)

Installing twin OBMs

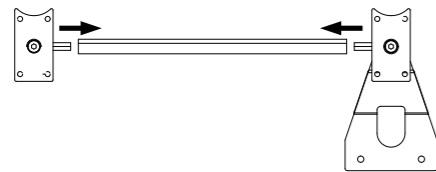
- 2.3.1. Install the OBMs as per single OBM installation. (See 1.3.1 – 1.3.5)

Connecting the twin remote steering system

- 2.4.1. Center both the master OBM and hydraulic steering cylinder and bolt the interface plate onto the hydraulic steering cylinder pivot plate. (Dia. 2.4.a)
- 2.4.2. Connect the tierod between the master and slave OBMs, ensuring that both the master and slave OBMs are centered. (Dia. 2.4.b)
- 2.4.3. Check that the OBMs can be steered from hard port to hard starboard and back to hard port without obstruction.
- 2.4.4. Check that at hard port, the starboard OBM propeller tip is at least 6 cm away from the port OBM motor case.
- 2.4.5. Check that at hard starboard, the port OBM propeller tip is at least 6 cm away from the starboard OBM motor case.
- 2.4.6. Should there be contact between the OBMs or with the boat hull, increase the separation between the two OBMs and/or further limit the maximum hydraulic steering angle on the hydraulic steering cylinder.
- 2.4.7. Check that the OBMs can be trimmed and tilted without obstruction.



Dia. 2.4.a

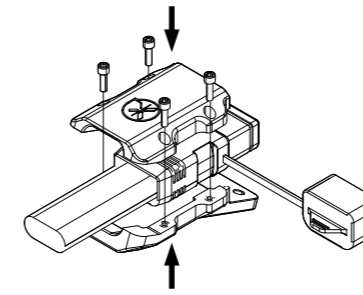


Dia. 2.4.b

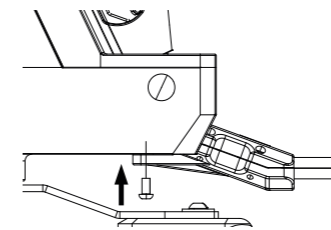
REMOTE POWER CABLE

Connecting the power cable

- 3.1.3. Ensure that the remote clamp is tightly fastened over the female connector of the power cable. (Dia. 3.1.a)
- 3.1.4. Insert the power cable fully into the OBM.



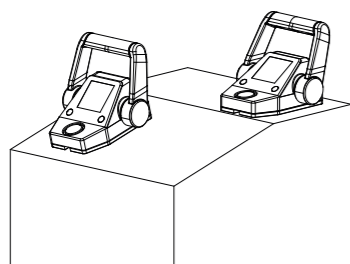
Dia. 3.1.a



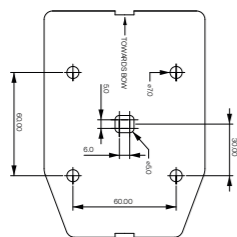
Dia. 3.1.b

Securing the power cable

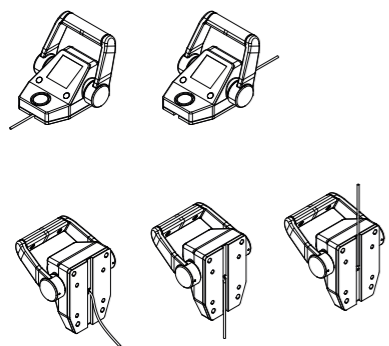
- 3.1.5. Use the two screws provided to secure the remote clamp to the aft tiller. Apply Tefgel on each screw before installing screws. (Dia. 3.1.b)
- 3.1.6. Check that the OBM can be steered from hard port to hard starboard and back to hard port without snagging the power cable.



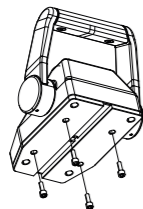
Dia. 4.1.a



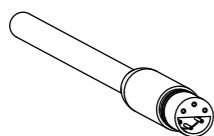
Dia. 4.1.b



Dia. 4.1.c



Dia. 4.1.d

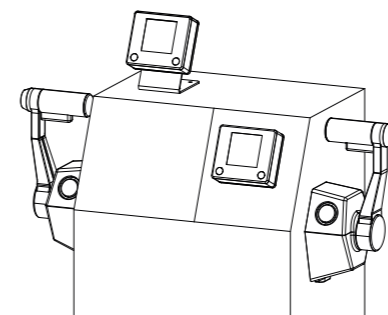


Dia. 4.1.e

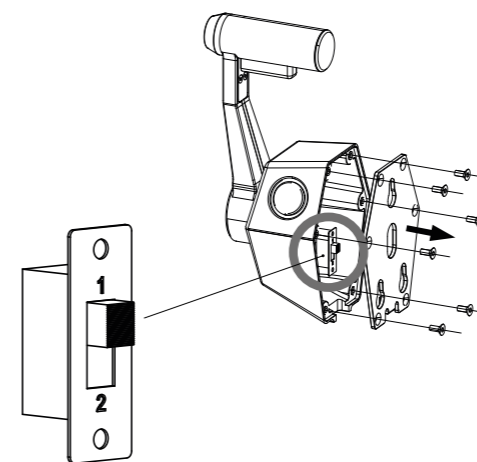
REMOTE THROTTLE

Top Mount Throttle (MT-1)

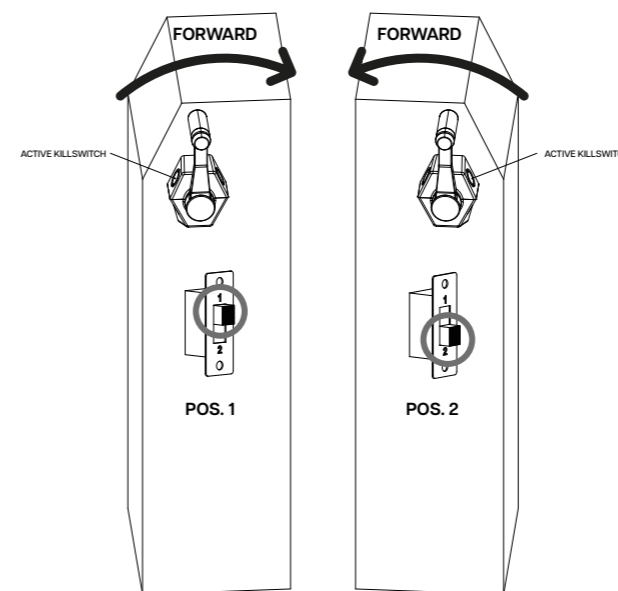
- 4.1.1. The MT-1 throttle can be mounted on the horizontal or inclined console top. (Dia. 4.1.a)
- 4.1.2. Using the drilling template provided, drill holes on the console for the cable(s) and screw holes of the top mount remote throttle base plate. (Dia. 4.1.b)
- 4.1.3. Pass the cable(s) through the hole in the console. Alternatively, the cable can be exposed at the front or back of the remote throttle and run on the surface of the console. (Dia. 4.1.c)
- 4.1.4. Secure the top mount throttle on the console with the provided screws. (Dia. 4.1.d)
- 4.1.5. Connect the 6-pin connector on the remote throttle to the 6-pin connector from the remote power cable. (Dia. 4.1.e)



Dia. 4.2.a



Dia. 4.2.b



Dia. 4.2.c

Side Mount Throttle (MT-2)

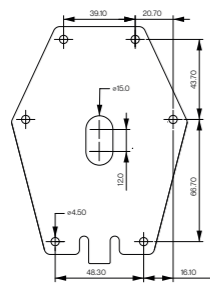
Setting Throttle Direction

- 4.2.1. The MT-2 throttle can be mounted on either side of the console. The MT-2 display can also be mounted in two ways – directly onto the console or via the bracket provided. (Dia. 4.2.a)
- 4.2.2. The forward direction of the throttle lever is determined by a switch inside the throttle, which can be accessed by removing the back cover. (Dia. 4.2.b)
- 4.2.3. Select the appropriate switch position based on the intended direction of travel. Only the facing kill switch will be active. (Dia. 4.2.c)
- 4.2.4. Re-install the back cover after setting the switch position.

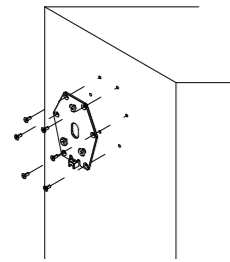
***IMPORTANT SAFETY NOTICE**

Failure to set the switch position correctly can result in the boat moving in the opposite direction as intended. Always check that the throttle direction is correct before driving the boat after installing the remote throttle.

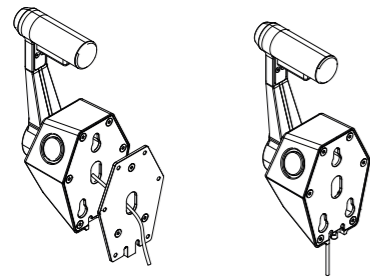
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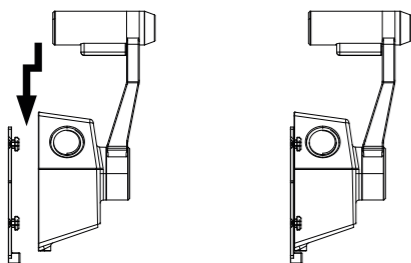
Dia. 4.2.d



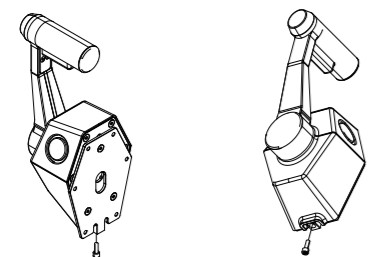
Dia. 4.2.e



Dia. 4.2.f



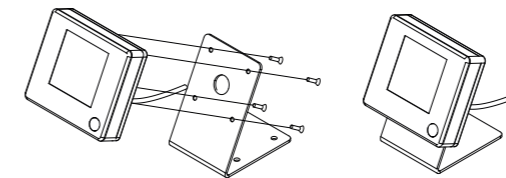
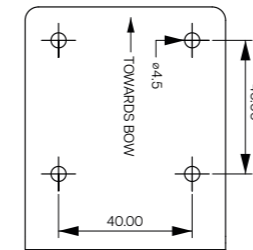
Dia. 4.2.g



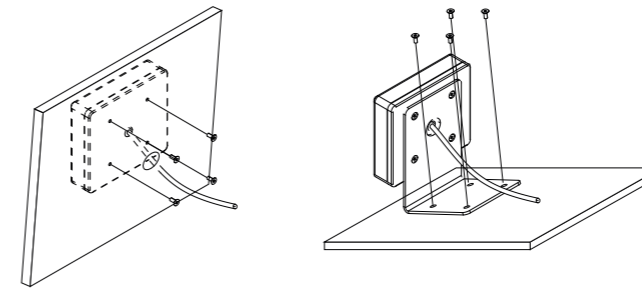
Dia. 4.2.h

Installing the Throttle unit

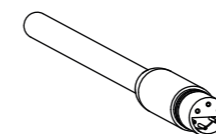
- 4.2.5. Using the drilling template provided, drill holes on the side of the console for the cable and screw holes of the side mount throttle interface plate. (Dia. 4.2.d)
- 4.2.6. Secure the side mount throttle interface plate on the side of the console with the provided screws. (Dia. 4.2.e)
- 4.2.7. Pass the side mount throttle cable through the hole in the console. Alternatively, the cable can be exposed at the base of the remote throttle and run on the surface of the console. (Dia. 4.2.f)
- 4.2.8. Attach the side throttle to the interface plate, and push downwards to engage the 3 guide pins. (Dia. 4.2.g)
- 4.2.9. Secure the side mount throttle to the interface plate with the screw provided. Apply Tefgel on the screw before installation. (Dia. 4.2.h)



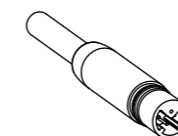
Dia. 4.2.i



Dia. 4.2.j



Dia. 4.2.k

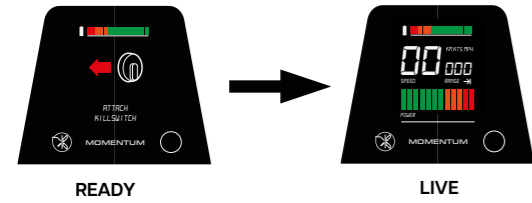


Dia. 4.2.l

Installing the display unit

- 4.2.10. The remote display can be mounted flush on the console or on the stand provided. Using the drilling template provided, drill holes on the top of the console for the cable and screw holes of the remote display or display stand. (Dia. 4.2.i)
- 4.2.11. Pass the remote display cables through the hole in the console. Alternatively, the cable can be run on the surface of the console using the display stand. Secure the remote display/display stand onto the console with the screws provided. (Dia. 4.2.j)
- 4.2.12. Connect the 4-pin connector from the side mount throttle to matching connector on the remote display. (Dia. 4.2.k)
- 4.2.13. Connect the 6-pin connector from the remote display to the remote power cable. (Dia. 4.2.l)

OPERATION



Dia. 5.1.a

Throttle

- 5.1.1. When the top/side mount throttle is connected to the remote power cable, the kill-switch and throttle on the tiller(s) are automatically disabled.
- 5.1.2. Check that the throttle lever(s) are free to move forward and astern. Before turning on the battery, ensure that both throttle levers are at the zero position.
- 5.1.3. The top/side mount throttle is powered when the battery is turned on and will display the ready screen.
- 5.1.4. Attach the killswitch to the top/side mount throttle and the screen will switch from the READY screen to the LIVE screen. (Dia. 5.1.a)
- 5.1.5. On the top mount throttle, there is an indent to indicate when the throttle lever is at the zero position. On the side mount throttle, the throttle lever will lock at zero position and the throttle lever release must be pulled up to allow the lever to go forwards or backwards.

Trim/Tilt

- 5.2.1. The OBM can still be manually trimmed or tilted with the hydraulic steering cylinder attached to it.

Emergency backup

- 5.3.1. In the event of a failure of the hydraulic steering system, releasing the two screws between the interface plate and pivot plate will allow the OBM to be steered using the tiller
- 5.3.2. In the event of a failure of the remote throttle system, disconnecting the remote throttle 6-pin connector from the remote harness will reactivate the killswitch and throttle on the tiller for local throttle control.

TROUBLESHOOTING

A fault/warning message(s) will appear on the display in the event of an outboard/battery fault or warning. The messages that appear on the remote throttle screen are the same as what would appear on the OBM screen when used with the tiller.

OPERATING FAULT TABLE

Description of Observation	Likely Cause	Solution
Remote throttle screen does not light up or lights up intermittently.	Loose connector.	Check that the power cable connectors are firmly inserted into the battery and OBM. Check that the remote throttle cable is firmly connected to the remote power cable.
For the top mount remote, the port lever controls the starboard OBM and vice versa.	The remote power harness connectors are connected in reverse.	Swap the 6-pin remote throttle connectors.
Attaching the killswitch to the OBM tiller does not change the OBM screen from "READY" to "LIVE" / tiller throttle is inactive.	Killswitch is not placed on the remote throttle. In remote throttle configuration, the tiller killswitch and throttle are deactivated.	Place killswitch on the remote throttle and use the remote throttle.
The remote steering interface plate does not fit the hydraulic steering cylinder.	The hydraulic steering cylinder design and mounting holes are not the same as the recommended hydraulic steering cylinder.	Consult Momentum dealer.

USER NOTES

