This article is intended as a guide for maintenance servicing to be executed by Service Centres or individual customers with advanced technical capability who also have all the tools required for service & repair.

1. **Maintenance Schedule Summar**y

The following schedule can be used as a guide for maintenance servicing. If you use your Hydrofoiler XE-1 frequently or in extreme conditions then you may need to service it at more regular intervals. Further details on each step follow in subsequent sections. If at any time parts are found to be damaged or worn, seek service, repair or replacements from Manta5 or an authorised representative.

Activity Details	**Instruction Reference Section**	**Every 20 hours or Monthly**	**Every 120 hours or 6 Monthly**	**Every 500 hours or 2 Years**
Wash down with fresh soapy water		✓	✓	✓
Inspect the battery		✓	✓	✓
Check and maintain seat-post, saddle & clamp		✓	✓	✓
Check and maintain handlebars, stem & grips		✓	✓	✓
Check cranks torque and pedals fastened		✓	✓	✓
Check buoyancy and cowlings		✓	✓	✓
- Clean chain - Check chain tension/adjust chain - Lubricate chain		✓	✓	✓
- Inspect chain - Check chain wear & replace if needed		✓	✓	✓
Sprocket inspection		✓	✓	✓
eBike motor inspection		✓	✓	✓
Motor cooling system check		✓	✓	✓
Tiller, mini-tiller & front foil		✓	✓	✓
Steering assembly		✓	✓	✓

- Rear foil - Bayonet shoe - Bayonet upright		✓	✓	✓
Inspect gearboxes		✓	✓	✓
Change gearbox oil			✓	✓
Gearbox replacement				✓
Propeller & nose cone		✓	✓	✓

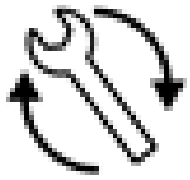
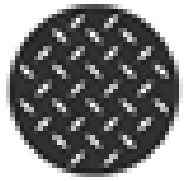
1.1 HYDROFOILER XE-1 BATTERY

1. Remove the battery from the hydrofoiler eBike (refer to DISCONNECT & REMOVE THE BATTERY) , ensuring the battery is powered off.
2. With a soft damp cloth wipe the entire battery down taking care not to scratch or damage the painted surfaces.
3. Check the area around the connector and its pocket to ensure that any sand or trapped material is removed. If necessary use a thin plastic, non-conductive item to clear away any debris from around the rubber sealing ring and taking care not to push the debris into any of the small holes.
4. Dry the entire area with a clean dry cloth. If uncertain, contact or take battery to the nearest Manta5 approved service centre.

NOTICE: For information regarding the maintenance and servicing of your battery, refer to the following sections:

- PART 1 LI-ION BATTERY SAFETY
- PART 1 INSTRUCTION MANUAL/CHARGING THE BATTERY
- PART 1 ASSEMBLY GUIDE / INSTALL THE BATTERY
- PART 2 OPERATING MANUAL/ MANTA5 HYDROFOILER XE-1 STORAGE/BATTERY STORAGE
- PART 2 DISCONNECT AND REMOVE THE BATTERY
- PART 2 TRANSPORT OF THE MANTA5 HYDROFOILER XE-1 BATTERY

1.2 HYDROFOILER XE-1 CONTACT POINTS

	**TORQUE:** Ensure any loosened fasteners are re-torqued to the correct setting.
	**FRICTION PASTE:** It is acceptable to use a thin layer of friction paste on the seat-post clamped surface and stem clamping surfaces to prevent slippage or over-tightening of clamp points.

1.3 SEATPOST AND SADDLE

Insert Seat Assembly Image

1. The Hydrofoiler XE-1 seat post and saddle can easily be removed by loosening the seat-post clamp before withdrawing the seat-post from the frame seat post tube.
2. Remove and clean the seat-post clamp, then clamp before applying Prolan premium grade grease (or similar) to the seat post clamp bolt.
3. Clean the seat post and saddle with warm soapy water if needed, and wash and wipe out any debris from the frame seat tube to ensure a smooth running fit.
4. Inspect the seat post. It will be normal to get wear on the outer surface where the post is clamped into the Hydrofoiler XE-1 frame. Check the condition of the saddle for any signs or wear and tear, and replace it if necessary. Check fastener threads (male & female threads) for signs of corrosion and replace items if necessary.
5. Make sure the seat rails are securely tightened to the seat post.
6. When you are happy with the condition of the parts; check that the saddle post clamp is working properly and securing the post (failure to do so will mean that the saddle will continue to slide down and not hold the correct rider height position), add a small amount of friction paste to the clamp area of the seat post and reinsert it into the frame seat tube with the seat oriented correctly.
7. Adjust the seat height *(refer to Ergonomics section)* with the seat pointing straight forwards, tighten the seat post clamp.

1.4 HANDLEBARS, STEM & GRIPS

1. The handlebars, stem and grips are easily accessed for service and maintenance. The whole assembly can be removed by loosening the stem fasteners at the steering tube clamp.
2. Clean using warm soapy water and a soft brush, especially the clamping surfaces of the stem and the steerer tube.
3. Check that the bar end plugs are inserted. If there is water in the bars, remove the bar end plugs and inspect for damage and replace if necessary. Drain the water and re-insert the end plugs.
4. Inspect the grips for obvious wear and tear and replace if necessary by loosening the grip clamp ring fasteners.
5. If the bars have been rolling (forwards/backwards) within the stem, loosen the stem face plate, remove the bars and clean off the clamp surfaces. Reapply friction paste to clamping surfaces, reassemble and torque, ensuring your bars are centred and oriented to your liking.

6. Check all clamp surfaces have a thin layer of friction paste applied (to prevent over-tightening of clamp points and that the fasteners are all torqued to the correct settings.

1.5 CRANKS AND PEDALS

1. You should be able to access and remove the pedals and crank arms without removing the buoyancy, however, if you feel you would like to remove the buoyancy then please do so.
2. Pedals can be removed using either a 15 mm pedal spanner or a 6 mm hex key.

	NOTICE: It is important to remember that pedal threads are different from left side and right side. The right side pedal has a right-hand thread (removes anti-clockwise, installs clockwise). The left side pedal has a left-hand thread (removes clockwise, installs counterclockwise).

3. Clean the crank splines and crank arms with warm soapy water to remove all dirt, debris and grease.

4. Spin each pedal around on its shaft, they should rotate freely without any obstruction or intermittent stopping. If any obstruction is observed then pedal bearings may need replacing or new pedals fitted.

5. Periodically check that the crank arm securing nuts are tight. If these are loose then this can cause long term wear to arms and or Motor Crank shafts

6. [HAVE PRODUCTION REVIEW THIS STEP] To remove the crank arms, use a crank arm removal tool *[ADD DETAIL].*

LUBRICATE: For crank arm assembly, first lubricate the splines using environmentally friendly marine-grade assembly grease (such as Prolan anti-seize grease, Tef-Gel or Rocol Food Grade Grease).
NOTICE: It is important to remember that crank arms are different from left side and right side. The right side pedal has a right-hand thread (removes anti-clockwise, installs clockwise). The left side pedal has a left-hand thread (removes clockwise, installs anti-clockwise).

7. Inspect the cranks arm threads and splines for wear or corrosion.
8. Re-lubricate the splines of the cranks, check the crank arm marking for L or R to ensure they are assembled to the correct side and are orientated 180 degrees from each other.

9. A plastic or Nylon soft faced assembly hammer will be needed to drive the crank arms onto the spines, before using a torque wrench to tighten the crank bolts to the correct torque. Advance the cranks sufficiently to engage a minimum of two threads on the crank bolt.