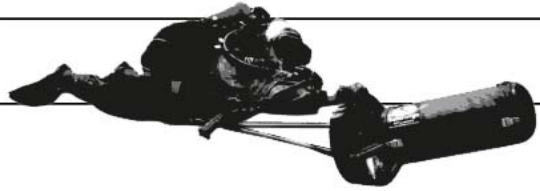




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Assembly directions for MINNUS DPV

The Minnus DPV may require the installation of the battery pack upon delivery. THE ORIENTATION OF THE BATTERY PACK IS IMPORTANT. Failure to correctly orient the battery will result in incorrect trim of the scooter (handle not at the 3o'clock position at rest) and possible short circuit causing the battery pack fuse to blow and/or electronics failure.



STEP 1

WARNING terminals are **LIVE** use caution to avoid a short circuit.

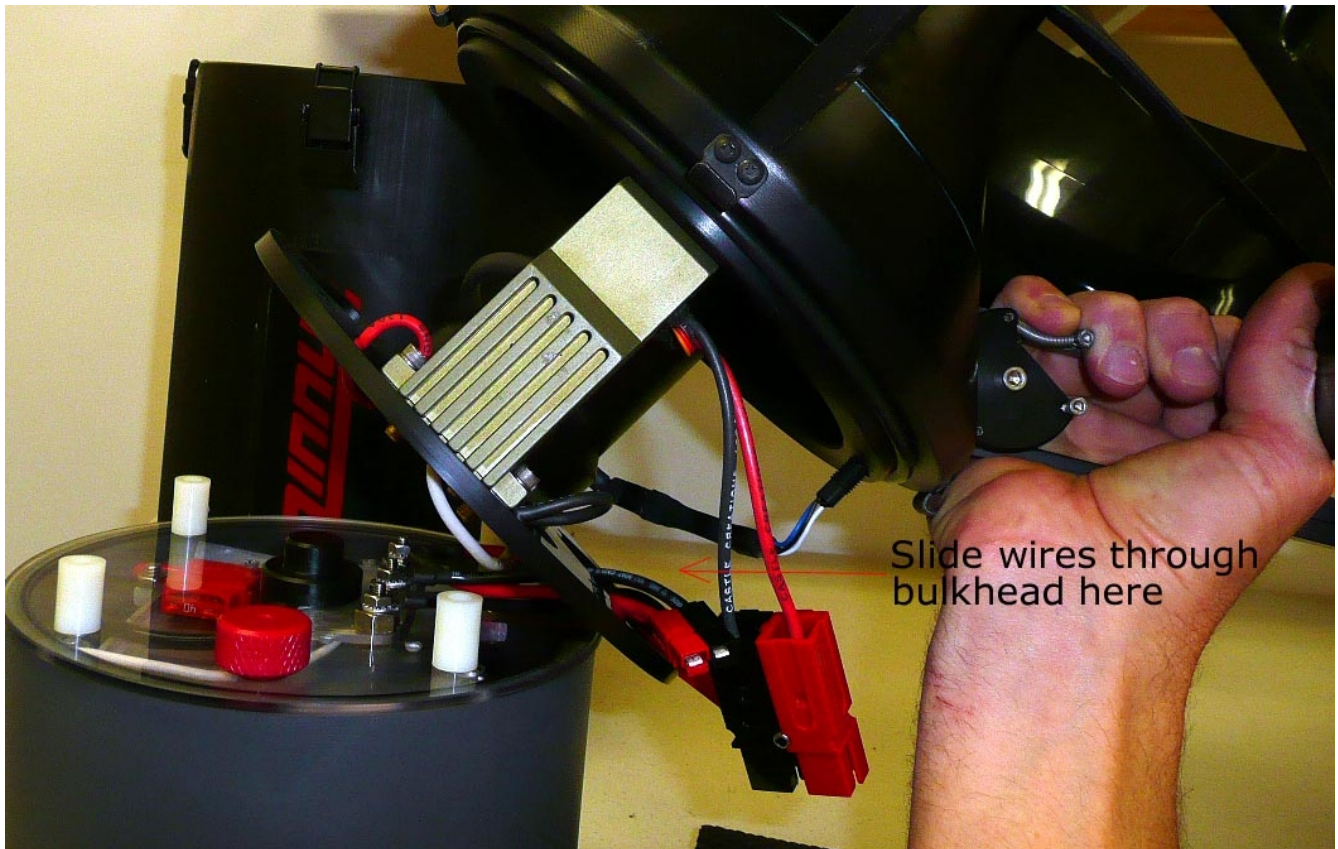
Place battery pack on level surface, with terminals on right hand side and red port plug towards you. Balance the 4 white plastic stand-offs over the 4 threaded holes in the plastic cap.



STEP 2

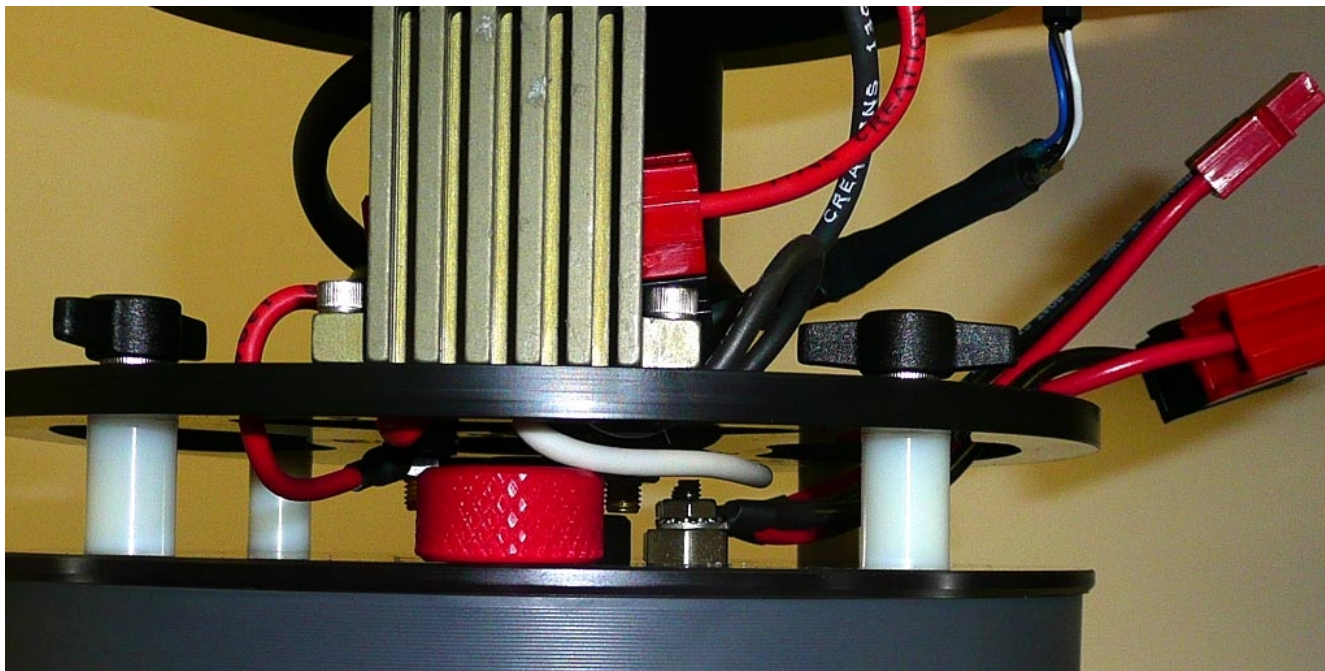
Holding the motor section with the green electronics housing facing you, slide battery wires through round black bulkhead as shown. Then, balance the motor section on the 4 white plastic stand-offs. Install 4 thumb screws snugly.

(note: check the thumb screws are snug before each use.)



STEP 3:

BEFORE attempting to connect battery pack to electronics, carefully inspect terminlas to ensure they are not touching. Check image below for correct assembly. Note the terminals are not touching.

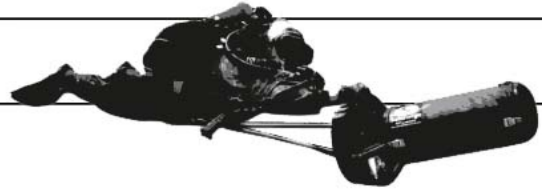


Finito! Almost ready to dive.





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INSTRUCTION MANUAL MINNUS DPV

Charging scooter:

Charging of the scooter must always be done under supervision. **Do not leave the battery pack charging unattended. Always charge the scooter away from any flammable materials.** Do not charge batteries after any mechanical damage.

To charge the scooter, simply remove the hull of the scooter, disconnect the motor from the battery pack, and plug in the charger to the battery pack. (There is a separate connector for charging). Once the charger has changed color from the charge color to the fully charged color, leave the charger connected to the battery pack for an additional 30 minutes to 1 hour, to ensure a good balancing of all the cells. **DO NOT** leave the charger connected to the battery pack for extended periods, doing so may damage the battery pack.

We recommend you purchase a Watt's Up meter or utilize a volt meter to determine the state of charge of the battery pack. 23volts= low charge. 25 volts= half charge. 28.5+ volts = full charge. Volt readings can be taken from the battery connectors.

Charge time: up to 10 hours.

Diving scooter:

We highly recommend a DPV instruction before DPV use. Unintended powered ascents can lead to decompression sickness. The Magnus is a ultra high performance DPV and should not be taken on any demanding dive until you have full acquainted yourself with it's operation in a controlled environment.

To dive the scooter, with the hull removed, attach the battery pack to the motor electronic speed control (large red/black connectors). A series of beeps will follow the connection. Once connected, check that the scooter will start by rotating the trigger. (be sure there are no obstructions in the propellers). If the scooter does not start, try disconnecting and then re-connecting the battery pack.

There is a warning beep which sounds every 60 seconds, this alerts you to the fact that the controller is powered up. It is also a good reminder to disconnect the controller whilst the scooter is in storage, or else the controller will completely drain the battery pack if left connected for a long period (depending on the state of charge, as little as 1 week).

NEVER LEAVE THE BATTERY PACK CONNECTED TO THE MOTOR SECTION for more than 24 to 48 hours after a dive.. Doing so can permanently damage the battery pack.

Once the battery pack is charged, and plugged into the motor, install the hull and nose cone. Be sure the nose cone is not obstructed by any objects on top of the battery pack, such as trim weights. Obstructions can cause the scooter to flood as it can prevent the nose cone from sealing correctly.

To check the the scooter o-rings will seat correctly, you can remove the lower o-ring, replace the hull, then use the loose o-ring as a gauge... the o-ring should not fit between the sealing surfaces at any point around the hull.

Entering the water:

Be sure that all 4 main hull clips are secured. (It's a good idea to re-check this on the last deco stop, as the scooter will only leak at the surface if a latch is unsecured. At depth, the pressure keeps the scooter sealed.)

Before placing the scooter in the water, set the variable pitch adjustment knob (in the center of the propellers, at the very rear of the scooter) to a low setting. #5 is a good start. Also, lock off the thumb screw which is on the left hand side of the trigger/handle. This will prevent unintended scooter starts whilst lifting the scooter.

Do not place the scooter half in and half out of the water. Place the scooter completely in the water, and observe the scooter for at least 60 seconds, looking for any leaks. If the scooter is floating, but starts sinking after a time, and/or any bubbles emerge from the O-ring areas, the scooter is leaking.

Starting off:

The Minnus has 2 methods of speed control, electronic and mechanical which together allow almost any speed to be achieved between the minimum and maximum speed.

The mechanical speed control is achieved by adjusting the pitch/angle of the propellers, using the pitch adjustment knob at the end of the propeller/hub assembly. There are small white position indicators on the end of the propeller assembly. The mechanical control can only be adjusted while the scooter is "off". It can be adjusted during the dive at any time the scooter is turned off. We recommend setting the pitch to #6 or #7. (Maximum speed will be achieved by setting pitch to #9).

The electronic speed control is actuated via the trigger on the handle of the scooter. There are 3 electronically controlled speeds. When you first turn on the trigger, the scooter starts off on speed 1. On your 1st dive, get used to this speed for a few minutes, and adjust the tow rope, and tighten the sliding knots, before attempting the use of speed 2 or 3.

Once speed 1 is engaged, turning the trigger off and back on quickly (<0.5 seconds) shifts the scooter up 1 speed. To obtain top speed, To go down a speed, you must let off the trigger for 1 second, and the speed re-sets to start off on # 1. You can click the trigger quickly 2 or 3

times and the scooter will skip speed 1 or 2 and go directly to your chosen speed.

During the dive: **We recommend to use speed # 3 only when you need it, but not 100% of the time on every dive**, as it cuts down your run time by at least 50% compared to speed #2. (It could also shorten the life of the battery pack)

For the majority of your dive time, USE ELECTRONIC SPEED #1 or #2 TO OPTIMISE THE SPEED-RUNTIME TRADE-OFF.

Matching speeds with your dive partner: We recommend matching speeds on Electronic speed#2, which is your cruise speed for technical diving. Have the faster diver start off at a medium pitch setting (eg, #6 or 7) and the slower diver can then set his scooter to run on pitch #8 or 9.

General notes:

Be careful when disconnecting the motor from the electronics, as the wires can be broken. (requiring new electronics)

When installing the hull, be careful that all wires kept inside the hull.

Opening the battery canister voids all warranty on the battery pack. The battery pack is high voltage (29 volts) so use caution at all times.

Plugging in the electronics with the wrong polarity will destroy the electronic speed controller (and possibly the battery BMS)

Minimum recommended propeller pitch setting #5 (lower settings produce cavitation/prop stall at high rpm's) If you want to go slower, use the electronic speeds.

STORING LITHIUM BATTERY PACKS:

#1 is ensure you dis-connect the battery pack from the electronics!

#2 is the storage temperature is important! High temperatures will shorten the life of the pack.

It is sometimes recommended to store lithium battery packs at approximately 50% state of charge. However, we do not recommend any complicated procedures to store the pack at an exact voltage.

Our first recommendation is to charge the pack to 100% if you plan to use the scooter in the next 10 to 30 days. This will prevent last minute disasters if you forget to charge your scooter the night before the next dive!

For longer term storage, a rule of thumb would be to check the voltage after a dive. If it is above 26 volts, don't charge it, store as is. Do not bother trying to discharge the pack, it's not worth the effort, and you might end up damaging the pack inadvertently.

If it is below 26 volts, you should charge it up to approx 26 to 27 volts. This requires you to monitor the voltage at intervals during the charge.

Nevertheless, storing a pack at 100% charge is not very harmful. If you plan to use the scooter often, I would charge it to 100% after each dive.