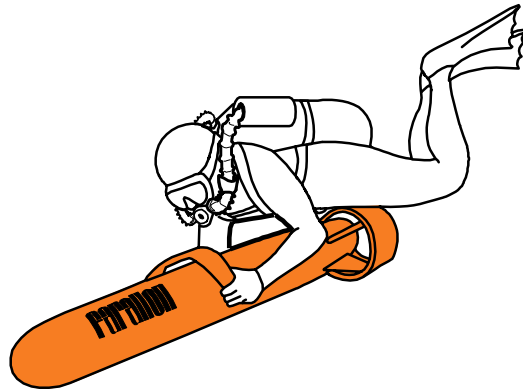


FARALLON USA, INC.

DIVER PROPULSION VEHICLES



Mk7-E

INSTRUCTION and MAINTENANCE MANUAL

*****All information in this operator's manual must be read and the operator must be familiar with all of the functions and safety warnings prior to use of the vehicle.**

CAUTION:

**DO NOT
SPIN
PROPELLER
OUT OF
WATER!!!**

Doing so will cause damage to shaft seal
and will void any and all warranties!!!!

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INTRODUCTION TO DPV DIVING

Congratulations on your purchase of the world's most advanced Diver Propulsion Vehicle. You now have the freedom and access to survey, explore, search and video an entirely new universe and have a great deal of fun doing it!

Along with these new freedoms however come new responsibilities. Use of a Diver Propulsion Vehicle requires careful observance of all diving rules and regulations. Included in this and particularly important in DPV use, is the observance of ascent and descent rates. You should always use your normal ascent and descent rates as taught by your certifying agency. A DPV is NOT to be used for more rapid ascents. Close attention to direction, distance and air supply must also be maintained as the vehicle will allow you to travel greater distances on a single dive than normal means of propulsion.

Once again, congratulations on your purchase and we know that you will have many exciting and wonderful experiences with your vehicle as long as you practice safe diving techniques and perform regular maintenance on your unit.

WARNINGS

THESE MUST BE REVIEWED PRIOR TO USE!

- WARNING:** DO NOT operate a FARALLON DPV unless you are a certified diver and have been trained in the use of diver propulsion vehicles.
- WARNING:** DO NOT operate your FARALLON DPV until all pre-dive and operational checks have been successfully completed.
- WARNING:** DO NOT exceed industry standards for ascent and descent rates.
- WARNING:** DO NOT operate your FARALLON DPV in conditions and/or environments that you are not trained for and/or that exceed your level of expertise and training.
- WARNING:** DIVING in excess of industry standards for maximum depths is not endorsed by FARALLON USA, Inc.
- WARNING:** THE FARALLON DPV is heavy out of the water. Use recognized lifting procedures and/or solicit assistance when moving your FARALLON DPV to and from the water.
- WARNING:** Should the vehicle flood during operation, it will become extremely heavy and should be abandoned if it is too heavy for ascending.
- WARNING:** COMPLETELY remove the batteries from the battery compartment prior to charging. Do not charge batteries in a confined space as this may lead to explosion causing serious injury or death.
- WARNING:** DO NOT smoke or initiate open flame in the vicinity of batteries under charge as this may lead to explosion causing serious injury or death.
- WARNING:** DO NOT place hands or any articles in the propeller area at any time.

PREPARATION FOR USE

-fold out diagram on page 18 prior to reading-

FEATURES:

Your new Mk7-E has several advanced features which you must familiarize yourself with prior to use. Warnings regarding each function and procedure must be reviewed.

Main System On/Off Switch:

The Mk7-E is equipped with a Main System “On/Off” switch (17) which is located on the front plate of the handle assembly. This switch activates the electronics in the unit making the unit operational. The switch is in the “On” position when moved to the far right position. This switch should remain in the far left position when the vehicle is not in use.

WARNING: NEVER depress either motor enable switch while the main system switch, located adjacent to the indicator panel, is in the “On” position; unless the vehicle is submerged and you are in the proper riding position! Doing so will cause the propeller to spin creating a potential hazard to equipment or body.

Keep hands clear of propeller area at all times.

Dual Motor Enable Triggers: (Parts 7 and 8 on the illustration)

Located on the lower portion of either handle is a motor enable trigger (7)(8) which activate the unit. One of these triggers must be depressed to make the unit operational. The release of both triggers will disable the vehicle causing it to stop immediately. During operation these triggers may be alternately held to maintain comfort or to free a needed hand.

Cruise Control Feature: (Parts 6 and 9 on the illustration)

Located on the upper portion of each handle grip are the speed control operating triggers (6)(9). The upper RIGHT trigger (6) is the “Up” speed control which, when depressed together with one or both motor enable trigger(s), will run the speed up digitally to any speed desired by the operator. It is not necessary to “click” the trigger to increase speed. When the maximum r.p.m. is attained the “Maximum Speed” indicator light (Red LED) (20) will illuminate. The trigger can then be released and the speed will be maintained.

The speed is reduced by depressing the upper LEFT trigger or the “down” speed control trigger (9) located on the upper portion of the left handle. (Or by releasing both motor enabler triggers or by moving the Main On/Off switch (17) to the “OFF” position). The “down” speed trigger will run the speed down to zero speed which will be indicated by a green light being illuminated (21). When the light comes on, the down speed trigger may be released to maintain zero speed.

Either speed control trigger, “up” or “down”, may be released at any time to maintain desired speed. Additionally, both motor enable switches may be released at any time to cease operation of the vehicle.

Pre-dive Electronics Function Test:

WARNING: **DO NOT** depress the motor enabler switches (7)(8) while performing the following checks.

Prior to use, the “up” and “down” speed functions can be checked by operating the speed control triggers **WITHOUT** depressing the motor enabler triggers. Switch the main system “On/Off” switch to the “ON” position. Depress the “up” speed control until the maximum speed indicator light (red LED) comes on. Then release the “up” speed trigger and depress the “down” speed trigger until the minimum speed indicator (green LED) is illuminated.

If the LED lights on the speed indicator do not function during this pre-dive system check, check the following:

If the top green light on the battery status indicator (see “Battery Status Indicator) is not illuminated check the Main System “On/Off” switch to ensure it is in the “ON” position. Then check the battery connection at the bulkhead (10), the battery terminals and the batteries themselves for adequate charge status. If the problem remains check the electronics system connection at the bulkhead (12). If the unit still does not respond return the unit to the dealer for service.

Battery Status Indicator:

Your Mk7-E is equipped with a “battery status” indicator display located in the center of the handle assembly (18). This LED display monitors your battery charge status as recommended by the battery manufacturer. When the Main System switch is turned to the “ON” position the top green LED should be visible indicating a charge of approximately 30% to 100% available. Due to the non-linear discharge nature of the batteries, the different color LED lights do not represent the discharge in 1\3 increments, rather the lights move through their sequence during the final 30 minutes of the life of the battery charge. The operator should run the unit in a protected environment to get familiarized with the LED movements and corresponding run times. Medium speed runs will typically see a 30 minute run time when the LED lights begin to move. When you reach the minimum recommended charge a warning light (19) will begin to flash indicating that the unit should be deactivated and supplied with a fresh set of batteries or returned to re-charge the existing battery pack. (See Cautions and Warnings regarding Battery Replacement and Charging Page 11.)

ASSEMBLY OF YOUR DIVER PROPULSION VEHICLE

Now that you have familiarized yourself with the operational features, it is time to prepare your new Mk7-E for use. Open the unit by disengaging the body joint clips (13) located on the outer housing. After separating the two sections, carefully slide the battery pack into the battery tray (23) and secure with securing bracket (24).

NOTE: It is very important that the thumb securing screws for the battery stop bracket are properly installed.

Place the two sections close together and plug in the electronic connector (22). When this connector is secured plug the battery lead connector (16) into the bulkhead battery receiver (10).

MAKE SURE THE “O” RING ON THE BODY JOINT IS LUBRICATED WITH A THIN COATING OF SILICONE GREASE. THIS WILL PROTECT THE SEAL AND EASE THE ASSEMBLY OF THE TWO SECTIONS.

Slide the two sections together and secure all body latches on the body joint closing the opposing latches in pairs.

To attach the saddle slide the tube into the collar located on the propeller shroud. Secure the saddle by sliding the clevis pin through the collar and into the saddle tube locking it in place with the cotter pin.

ASSEMBLY TIP: Place the front housing slightly elevated at the joint area when preparing to assemble. When the unit is properly assembled run operational tests on the electronics as described on page 6.

RIDING YOUR DIVER PROPULSION VEHICLE

Enter the water with your vehicle. Check for bubbles around the display panel on the main handle assembly, around the propeller and around the main body joint. If the bubbles do not stop within a minute after submersing the vehicle remove the vehicle immediately and check the security of the seals. This **must** be done each time the unit is placed into the water.

Once you have determined that the seals are working properly, proceed with riding instructions.

Place your legs on either side of the Saddle (25) and slide under the “T” bar portion of the saddle until the bar is comfortably between your legs. Hold both handles and **check that your equipment is clear of the propeller shroud and guard** (26). It is highly recommended that a wet suit or skin be worn to avoid having loose clothing pulled into the propeller. Additionally, your mask, weight belt strap and regulator should be checked for position and security.

Turn the Main System switch (17) to the “ON” position and look for your battery status and minimum speed indication. If the lights are both green, depress one or both motor enabler trigger(s), (7)(8) and the “up” speed trigger (6) and obtain a comfortable speed setting. If the light on the low speed indicator is not illuminated, depress the “down” speed trigger until the light is illuminated and then proceed to depress the motor enable and “up” speed triggers. Maintain maximum parallel position to the vehicle for the most efficient riding position. Pulling your body forward may increase your operating efficiency.

NOTE: The vehicle is steered by the operator’s body positioning and fin movements. These maneuvers should be practiced in shallow water and at slow speeds until the operator is proficient in the operation of the vehicle. It is recommended that operator be experienced in the operation of a DPV prior to open water use.

WARNING: Should the vehicle begin to flood it must be turned off immediately. The unit should be abandoned if it becomes too heavy causing problems with your buoyancy. As a precaution, a lift bag may be carried (120 lb. of lift) to prevent the loss of the vehicle in this situation.

TIPS FOR USE OF THE VEHICLE ON A BOAT:

The first step when planning a boat dive with the Mk7-E is to inform the boat captain prior to your arrival at the boat. Let the captain know the physical size of the unit and

your space requirements. The captain will greatly appreciate this information prior to the dive date. It is good to get the specifications of the boat at this time also so that you may plan your dive with the Mk7-E.

The unit should be equipped with a 25 foot long tether line. When the boat arrives at the dive site you should connect the tether line immediately and lower the unit into the water. Make certain that the unit is lowered down current from the boat. In the ocean the unit will sink only slightly. You may now proceed with preparing your dive equipment as with any standard dive, being cautious to secure loose or dangling lines.

Once in the water, grab the vehicle and assume the proper riding position, making certain that all of your equipment is clear of the propeller guard. Release the vehicle from the tether and proceed with your dive.

Following the dive and following standard safety ascent rates, re-attach the vehicle to the tether line. Make sure that the main system “On/Off” switch is in the “Off” position at this time. This should put you at approximately 20 feet a good place to do a safety stop. Once you are on the boat remove your gear and pull the unit to the side of the boat or to the platform. With the help of a buddy diver lift the vehicle carefully onto the boat deck and secure for travel to the next dive or back to the dock. If you are going to use the vehicle for a second dive, check the battery status prior to placing the unit back into the water.

CARE OF THE VEHICLE AFTER EACH USE

Following the use of the vehicle, several steps should be taken to ensure proper storage or battery replacement. **The exterior housing, trigger areas and shaft area must be rinsed with fresh water to protect the seals and hardware.** The main body joint should then be wiped dry to prevent water from entering the battery compartment when the unit is opened. The unit should then be opened (fore and aft sections separated and the battery and electronics connectors disconnected) and the batteries completely removed for charging or replacement. The battery compartment should be inspected at this time for signs of leakage.

The unit should be stored with the fore and aft sections assembled with main body O ring removed and placed in the front housing for storage. The batteries should be stored separately and fully charged.

BATTERY CHARGING and REPLACEMENT

WARNING: Charging batteries while they are located in vehicle may produce off-gassing which could lead to an explosion causing death or serious

injury.

The Farallon MK7E is equipped with a 24 Volt Battery Pack. Using the Farallon battery charger there is no need to change any of the wire harness configuration.

The operator should remove the battery completely from the front housing by first disconnecting the cable from the bulkhead. Second, the battery stop bracket (24) should be removed and the batteries carefully pulled completely out of the housing. Prior to charging, batteries should be inspected for cracks and potential leaks. If cracks are observed the battery should no longer be used. The Farallon charger may then be connected directly to the battery plug and turned on to charge.

WARNING: The battery should be allowed to remain in a well ventilated area for a minimum of one (1) hour after being taken off charge!

1. Batteries:

The Farallon Mk7E uses (2) 12 volt, 18 amp/hr, rechargeable, sealed lead acid batteries wired as a 24 volt pack which has no memory, thereby making it possible to recharge on less than full discharge. The operator should always store the batteries fully charged.

2. Charge Time:

Using the supplied Farallon brand charger 6hours are required to obtain a 90% charge. Using the Farallon CVCC-6 charger only 6 hours are required to obtain a full charge. Faster chargers are available from other manufacturers but these may deplete the cycles in the batteries and void the warranty. A 100% charge (24 hours) is recommended to maintain the life of the batteries and to produce maximum usable run time for your DPV.

3. Battery Tray Removal and Installation:

Should the battery tray need to be removed from the housing for any reason the following steps should be taken. First, remove the securing screw located in the front of the tray. Next, turn the tray counter clockwise (approximately 45° angle) and very slowly pull the tray out, being careful not to catch the electronics cable coming out from the front housing. Reverse the process to replace the battery tray.

ELECTRICAL SYSTEM

Your Mk7-E is equipped with a fully digital electronic speed control and monitoring system designed for ease of use and durability. The electrical system incorporates the use of two printed circuit boards; one for control and one for monitoring. The control board is located in the sealed aft section compartment and the display board is located behind the indicator panel on the handle assembly. Neither board shall be removed or repaired except by an authorized Farallon dealer or by Farallon USA, Inc.

Anti-fouling (Current Limiting) Feature:

The system is also equipped with an anti-fouling feature which will protect the motor and electronics in the event of an overload caused by a locked propeller or other overload condition. In the event of one of these conditions the control board will automatically shut down the system when it detects an unusually high current draw by the motor.

If this should occur during operation your vehicle will shut down. The operator should turn the vehicle's main system switch "OFF" immediately. Any obstruction should then be cleared from the propeller. The operator can then resume the riding position and turn the vehicle to the "ON" position. The vehicle at this time will have automatically re-set itself to the lowest speed.

If the system does not re-set there may be an electrical problem and the vehicle should be returned to the manufacturer or abandoned in the event of an emergency.

TROUBLE SHOOTING

Problem	Cause	Solution
	13	

	Unit Not Turned On	Move On/Off Switch to "ON" Position
	Motor Enable Switch not Depressed	Depress Motor Enable Switch
Motor will not run	Batteries Discharged	Recharge Batteries
	Battery Terminal Connections	Secure Connection
	Battery Lead Connection	Secure Connection
	Electronic Lead Connection	Secure Connection
	Fuse Blown	Replace Fuse
	Malfunctioning Electronics	Return to Dealer
	Motor runs but propeller does not turn	Propeller is obstructed
Loose propeller screw		Tighten/Replace propeller screw
Drive Train problems		Return to Dealer
Moisture has entered the battery compartment	Failed View Port Seal	Return to Dealer
	Failed Body Joint O ring	Replace/Grease main joint O ring
	Failed Body Clip	Replace Body Clip
Moisture has entered the motor compartment	Failed Shaft Seal	Return to Dealer
	Failed Bulkhead Seal	Return to Dealer

MAINTENANCE

The Farallon DPV requires regular maintenance to keep it operating properly and to maintain the maximum life of the vehicle.

1. Batteries:

Batteries should be replaced every 200 cycles or sooner if a 60% discharge level is repeatedly exceeded. The batteries should be checked for cracks or other physical damage and should be replaced immediately if a problem exists.

2. Catalyzers:

The catalyzers absorb the hydrogen gases expelled by batteries during operation. While your unit is equipped with batteries that do not off-gas during normal operation, these catalyzers are provided as an extra safety precaution and should be replaced every 2 years or immediately if they become cracked or damaged. They are located on the far end of the battery tray. (See battery tray removal)

3. Propeller:

The propeller should be replaced when damaged to ensure the most efficient operation of your vehicle.

4. Printed Circuit Boards:

The printed circuit boards should not be replaced by the operator as this will result in the voiding of the warranty. The boards should be kept in their respective housings and returned to the dealer. There is no regular maintenance scheduled for the printed circuitry boards.

5. Seals:

The **shaft seal** on the Mk7-E should be inspected regularly and replaced every two (2) years depending upon use or sooner if a problem is detected. The **main body “O” ring** should be inspected prior to each dive for cuts or other deformities and should be free of all sand, hair and other foreign substances. The “O” ring should be replaced approximately every twenty-five uses.

WARRANTY CONDITIONS

All Farallon USA, Inc. products are warranted, to the original purchaser only, against any material and manufacturing defects for a period of one (1) year from the date of purchase, under normal scuba use and with proper care and maintenance as required in the Farallon DPV Instruction and Service Manual. Defective products should be returned prepaid directly to Farallon USA, Inc. Farallon USA, Inc. will, at its discretion, repair or replace such products, and will return to customer prepaid.

This warranty covers the following specific components:

1. Main body housing
2. Control housings
3. Propeller shroud
4. Propeller Shaft

The following items are **excluded** from coverage in the warranty:

1. Printed Circuit Boards
2. Batteries
3. Battery Charger
4. Main Housing Coating
5. Propeller
6. Shaft Seal

The printed circuit boards are covered by a 90 day manufacturers warranty. The other exceptions listed above may be covered by a manufacturers warranty. Any returns for warranty service must be accompanied by the original sales receipt and a copy of the owner's portion of the warranty registration card.

This warranty does not apply and may be rendered completely null and void in the event of misuse, abuse, overcharging of batteries, deep discharge of batteries, flooding due to neglect, tampering, lack of care and maintenance, improper storage, or unauthorized service. **Modification or repair by anyone other than a Farallon authorized service dealer will void the warranty.** Farallon will not be responsible for the recovery or replacement of the product in the event of loss or theft. Farallon, its distributors and retailers make no warranties express or implied, with respect to this product or its owner's guide except those stated in the preceding paragraphs. By purchasing this product you agree and understand that in no event will Farallon USA, its distributors or retailers, be held liable for any personal injury resulting from its operation, or for any other damages whether direct, indirect, incidental, or consequential, even if Farallon is advised of such damages. Some states do not allow the exclusion or limitation of implied warranties or liabilities for incidental or consequential damages, so the above limitation may not apply to you.

- An extended warranty up to 36 months is available. Contact your nearest dealer or Farallon USA, Inc. for more information.

FARALLON DPV USE AND MAINTENANCE LOG

Serial number _____

Date of Purchase _____

Purchased From _____

Date: _____ Dive Location: _____ Time: _____
Maintenance Performed: _____

Date: _____ Dive Location: _____ Time: _____
Maintenance Performed: _____

Date: _____ Dive Location: _____ Time: _____
Maintenance Performed: _____

Date: _____ Dive Location: _____ Time: _____
Maintenance Performed: _____

Date: _____ Dive Location: _____ Time: _____
Maintenance Performed: _____

Date: _____ Dive Location: _____ Time: _____
Maintenance Performed: _____

FARALLON DPV BATTERY CHARGING AND MAINTENANCE LOG

DATE: _____

START TIME: _____ END TIME: _____

DATE: _____
START TIME: _____ END TIME: _____

DATE: _____
START TIME: _____ END TIME: _____

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START TIME: _____ END TIME: _____

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START TIME: _____ END TIME: _____

DATE: _____
START TIME: _____ END TIME: _____

FARALLON Mk DPV WARRANTY REGISTRATION

You must read your Farallon Instruction and Maintenance Manual and complete and sign this warranty registration and return within thirty (30) days of date of purchase for your warranty to be validated.

Please Type or Print:

Date of Purchase: _____ Serial Number: _____ Model: _____

=====

By signing below, I attest that I have read the Mk8/Mk-S/Mk7-E Owners Manual and I thoroughly understand the risks involved with operating the Mk8/Mk8-S/Mk7-E Diver Propulsion Vehicle.

Signature

Date

=====

Customer Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: (____) _____ Fax: (____) _____

Purchase Price: _____

=====

Where did you purchase your Farallon Mk DPV?

Occupation: _____ Type of Diving: _____

Will the DPV be used for Business Pleasure Both

--

CUT ALONG DOTTED LINE

RETAIN LOWER PORTION FOR YOUR RECORDS

FARALLON DPV WARRANTY REGISTRATION

Date Purchased: _____ Serial Number: _____

Farallon USA, Inc., P.O. Box 450505, Atlanta, GA 31145