

# MicroWing™ Installation Procedure



*MicroWing™ designed by Nova Ray®, Inc. for the VideoRay® micro-ROV*

## Step 1

Remove floatation block. Unscrew retaining bolt and lift block straight up.



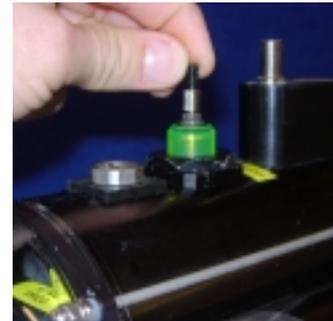
## Step 2

Loosen propeller locking nut (use 7mm wrench); remove propeller by unscrewing from propeller shaft.



## Step 3

Install worm shaft. Screw shaft onto propeller shaft and tighten locking nut against bottom of worm shaft. Caution: Maintain a 1/32" to 3/64" clearance between locking nut and seal spacer to prevent jamming.



## Step 4

Carefully unpack MicroWing™ with attached worm drive gearbox. Ensure that adapter collar is securely inserted into bottom of gearbox (wing is upside down as you do this, so bottom will appear to be the top).



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## Step 5

Hold MicroWing™ in one hand and gearbox in other hand. Place gearbox onto vertical thruster motor shaft seal so that worm shaft engages with gray helical gear in the box. The black crank arm should hang downward toward the VideoRay® body.



## Step 6

Lower MicroWing™ onto base of VideoRay® body. If it does not fit, move elevator to neutral position then insert gearbox again. (Note: elevator and crank arm move freely when gearbox is not engaged to worm shaft or when gears are not jammed). Check firmness of clutch, which should be stiff, by manually moving elevator up and down. If elevator moves too easily, lift wing and gearbox and adjust clutch by holding thumb on edge of gears in gearbox while tightening clutch screw with an 8mm (or 5/16") end wrench. The crank arm should be difficult to move while holding gears.



## Step 7

Insert 1 3/4" cap screws through holes in bottom of tow rail, and in top holes of wing assembly. Gently tighten. The end of tow rail without holes should be towards back end of wing.



## Step 8

Run umbilical connector up through rear access hole.



## Step 9

Attach umbilical connectors and tow restraint to the tow harness. Control rod length is pre-set at factory. When testing elevator movement, elevator should swing about the same amount up and down. Length can be adjusted at clevis end. The MicroWing™ is now ready to deploy. We trust you will be pleased with the improved maneuverability of your VideoRay®.