



Moyer Marine inc.

Parts and Services for the Universal® Atomic 4 Engine



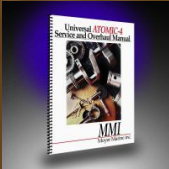
Shifting Cable System Issues

We receive an increasing number of reports each year of someone spending upwards of \$1000 to have their reversing gear repaired or replaced. Most of these costly repairs involve a faulty diagnosis that “the reversing gear had no adjustment left”, and it needed to be removed for repair or replacement.

The good news is that the Atomic 4 reversing gear rarely (if ever) runs out of adjustment, and most of these costly reversing gear repairs can be avoided by a relatively simple readjustment of your shifting cable, or by upgrading your cable support bracket. Even if you have to replace the cable support bracket on your engine, the total cost will be a fraction of replacing the reversing gear. Moyer Marine recently added a [cable support bracket](#) and [clevis](#) to our inventory that was specifically designed for the Atomic 4, available in both [port](#) and [starboard](#) mounting options. With the included shim kit you can mount your cable above or below the bracket for the best alignment.

Therefore, before embarking on any major repair of your reversing gear, remove the clevis pin from the engine shifting lever and use the engine lever itself to engage forward and reverse. If the shifting problem goes away when using the lever on the engine, the problem is logically not with the reversing gear itself, but with the cable system.

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Essential steps for checking and adjusting your shifting cable:

1. Check the size of the shifting cable on your boat. The force required to shift the reversing gear in and out of the forward latch requires heavy duty 6000 series cables which will have 5/16" by 24 fine threads on the clevis ends. 6400 cables will have 4" of total travel which allows use of the outer pin hole in the shifting lever for maximum mechanical advantage. 6300 cables have 3" total travel, and while they can still be used in the outer hole of the shifting lever, they will require more careful adjustment to insure sufficient travel in both forward and reverse directions.
2. Don't overlook the clevis itself: It's extremely difficult to find "off the shelf" clevises with all of the proper dimensions, in which case you may be unable to achieve sufficient over travel in the forward or reverse direction. [The Moyer Marine shifting cable clevis](#) was designed to fit the Atomic 4 shifting handle. We include 2 pin bushings in case your shifting handle holes were ever drilled out and enlarged.
3. Have someone move the cockpit lever into and out of the forward latched mode while you check the cable and attaching hardware for any play or looseness within the system which would limit travel in either direction. Tighten or replace parts as necessary to reduce wasted cable travel.
4. With the clevis pin removed from the shifting lever on the engine, check the cable for full unrestricted travel (4" for 6400 series and 3" for 6300 series). Then place the cockpit shifting lever in the full forward position.

**upgrading
your
cable
support
bracket."**

**"Bottom
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system."**

NOTE 1: If the forward latching force needs adjusting, it should be adjusted at this time. **A good forward adjustment is one that will not allow the forward clutch assembly to slip at your highest power setting, but still does not require a weight lifter to shift in and out of the forward latch.** Remember that adjustments made to the forward adjusting collar only increases or decreases the amount of force applied to the latching mechanism; but will not change the place in the lever's travel where forward is engaged. Adjustments made to the 3/4" reverse brake band adjusting nut will move the point where reverse engages which will in turn increase or decrease the size of the neutral zone.

5. With the lever in the cockpit still in the full forward position, hold the clevis alongside the engine shifting lever. In this position, the pin holes in the clevis should have moved past the pin hole in the engine shifting lever by approximately 1/2" to 7/8". This amount of over travel in the forward position will compensate for any minor looseness or resiliency in the cable and ensure that the forward latch can be reached.
6. With the clevis pin still removed, place the cockpit shifting lever in the reverse position. In this position, the pin holes in the clevis should move approximately 1/2" to 7/8" past the point where reverse is firmly engaged. This amount of over-travel should allow for a good reverse engagement and still keep a comfortably large neutral zone. If you're using a 6300 cable, you may have to tighten up a bit on your reverse adjustment to avoid running out of cable travel in the reverse direction. This adjustment will result in a slightly smaller neutral zone.

NOTE 2: The mechanical neutral point of the shifting mechanism is (by design) at the point where the shifting lever on the engine is approximately 10

degrees forward of the straight up position (12:30 to 1:00 position). If you adjust the clevis on either end of the shifting cable to bring the cockpit lever to the straight up position for neutral, you will lose a bit of travel in the reverse direction. In the case of 6300 cables, this adjustment will probably require using the inner hole on the engine shifting lever which will sacrifice a bit of mechanical advantage during shifting.

Bottom line: Before incurring any repair bills on your reversing gear, check for the proper functioning of your shifting cable system.

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