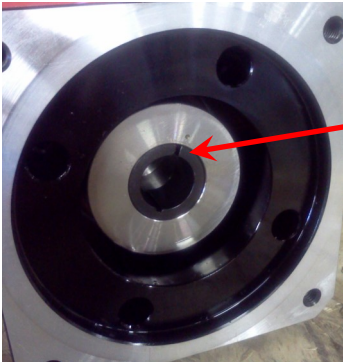


# M-Drive Replacement

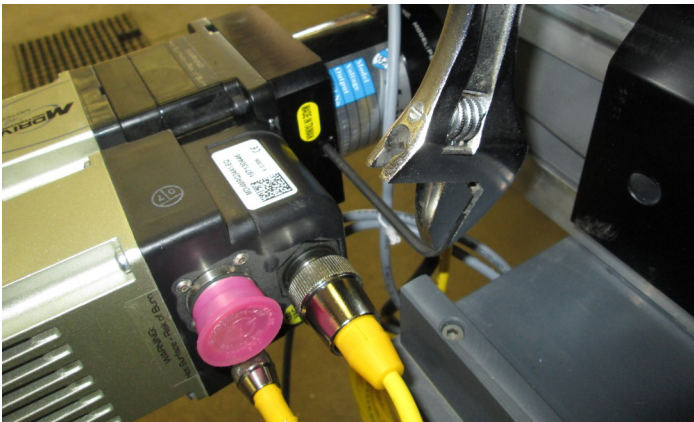
## M-Drive removal from Gearhead used on Razorgage through April 1, 2018

Remove Access Hole Plug. Push the RazorGage Carriage VERY slowly until you see the set screw through the hole. Use a 4mm allen wrench (DO NOT USE A BALL DRIVE) to loosen the set screw



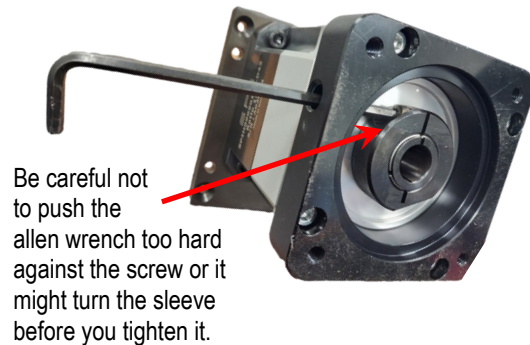
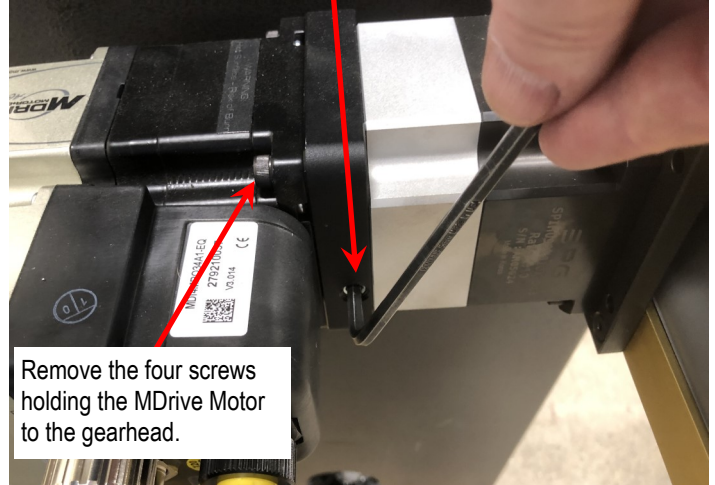
After removing the MDrive, look inside the gearhead to make sure the sleeve is in place and that the slot in the sleeve is not lined up with the set screw you loosened in step one. If it is, rotate it inside the bore so that the slot is not aligned with the set screw.

Install the new MDrive back on the gearhead. Re-install the four mounting screws and lightly tighten them. Tighten the sleeve set screw with a 4mm allen wrench (DO NOT USE A BALL DRIVE) and a cheater. Finish tightening the four mounting screws. Replace the plug.



## M-Drive removal from Gearhead used on Razorgage after April 1, 2018.

Use a 5mm allen wrench to remove the Plug from the access hole. Push the RazorGage Carriage VERY slowly until you see the screw through the hole. Use a 4mm allen wrench (DO NOT USE A BALL DRIVE) to loosen the screw slightly.



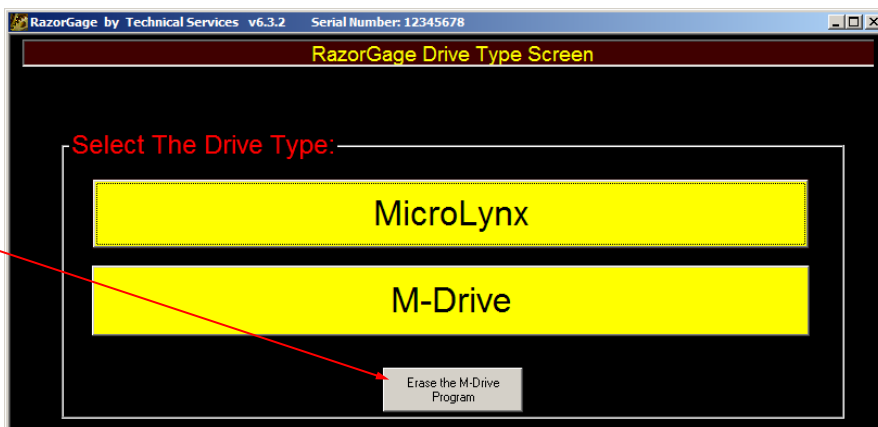
After removing the MDrive, look inside the gearhead to make sure the sleeve is in place and that the screw lines up with the access hole.

Install the new MDrive back on the gearhead. Re-install the four mounting screws and lightly tighten them. Tighten the coupling screw with a 4mm allen wrench (DO NOT USE A BALL DRIVE) and a cheater. Finish tightening the four mounting screws. Replace the plug using a 5mm allen wrench.



Now that you have installed the MDrive, start up the RazorGage software. When the software starts up it will detect that there is no program installed in the MDrive and display the screen at right:

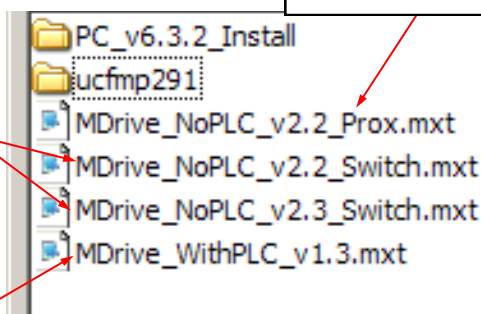
Press the "Erase the M-Drive Program" button.



On older RazorGages you may be asked to browse to find the folder in which the programs are stored. If that is the case, browse to C:\Program Files\RazorGage. Most RazorGages, however will automatically find the install folder and you will see a list of programs to install. Below are two examples of the choices you will encounter depending on the version of your software:

(Rare) Std. RazorGage with either no Tool Safe Sensor or with a Proximity Switch Tool Safe Sensor.

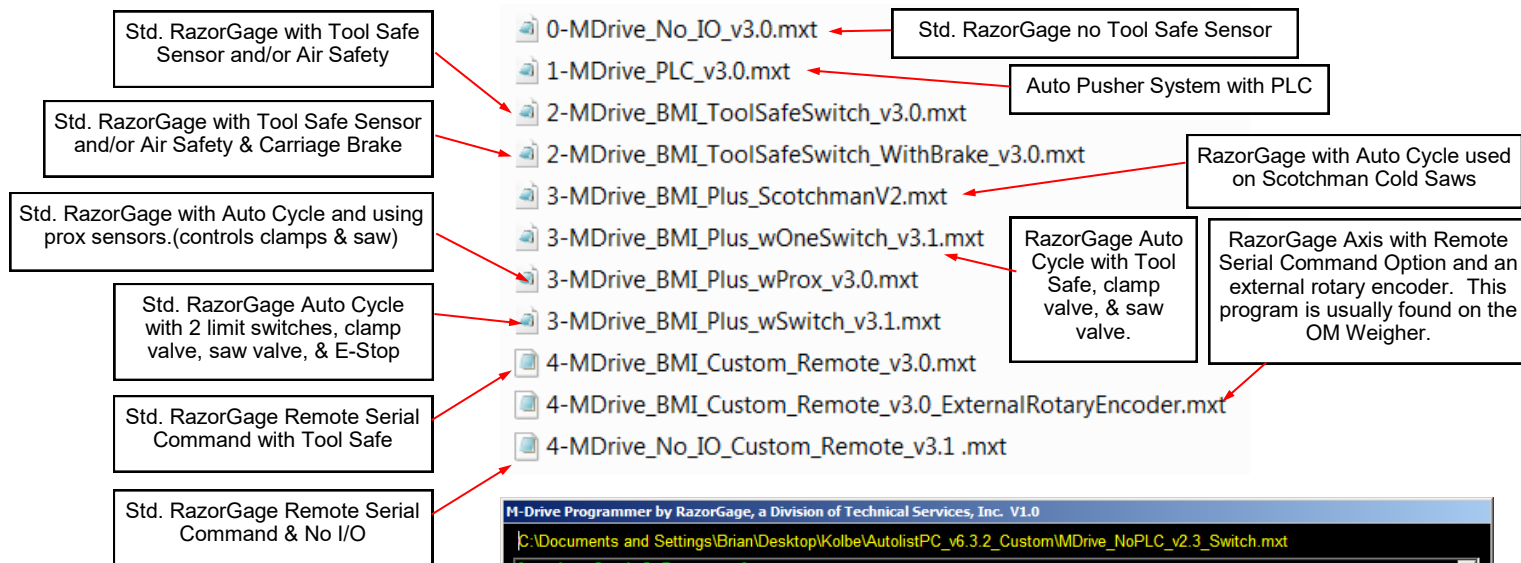
(Common) Std. RazorGage with either no Tool Safe Sensor or with a Limit Switch Tool Safe Sensor. If your software displays two or more versions of the same name as is shown at right, use the one with the highest version number.



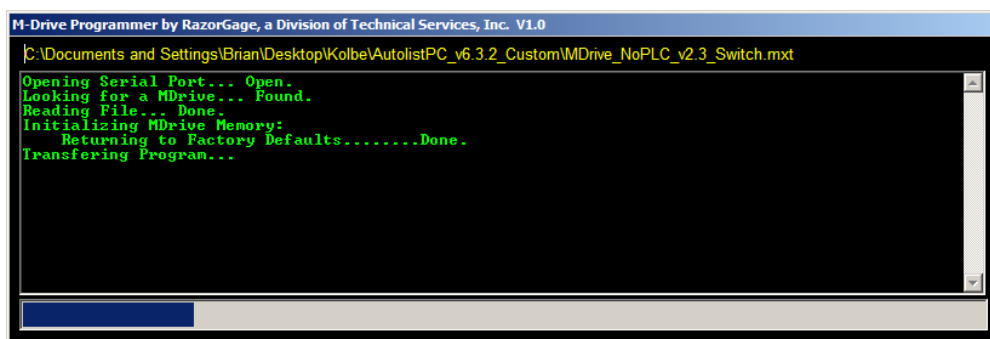
MDrive\_WithPLC\_vx.xx is typically only used on RazorOptimal or Automatic Pusher systems. If your system has a PLC the RazorGage enclosure will have a component that looks just like the one shown in the picture at right:



RazorGages built in 2013 or later will include some or all of the program files shown below:



You should see this screen during download.



After the program is loaded into the MDrive, the following screens will appear.

The correct values should already be selected when you get to the screen. If they look good, press SAVE. Otherwise check the correct buttons as described below.

Choose Units

Choose Encoder Type - Rotary is by far the most common. There are only a few Linear Encoder Mdrive RazorGages.

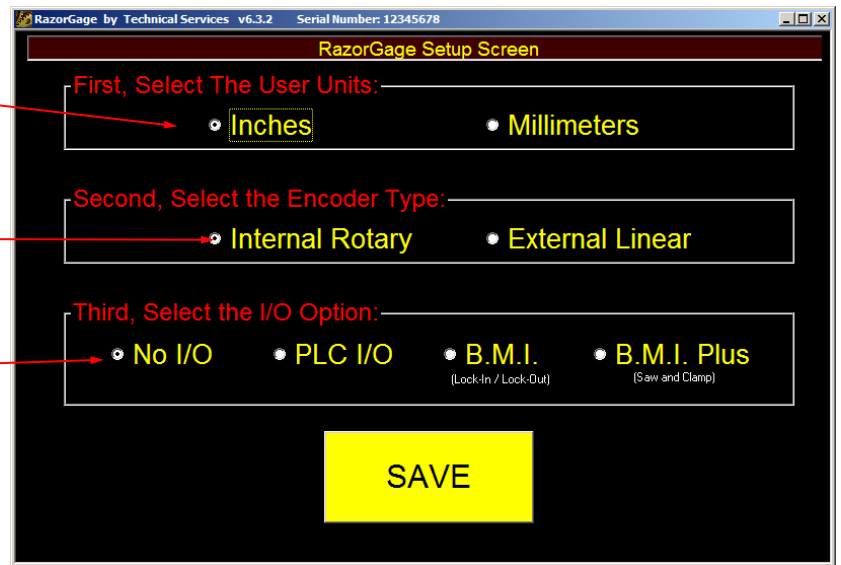
For Standard RazorGages chose No I/O

For RazorOptimals chose PLC I/O

If you have a RazorGage with BMI option such as a tool safe sensor or air safety chose BMI.

If you have a RazorGage with the BMI Plus Option (Automated Clamping and Saw Cycle) chose BMI Plus.

When you're done, press SAVE and the following screen will appear. If you are using these instructions downloading a different MDrive program only and you haven't changed the actual MDrive then the values should be the same as they were before. Press SAVE ALL if the values look correct. You can come back and change them later if necessary.



At this point the machine should go through the Homing process. You're done with the software portion of the installation. Now proceed to the next page to check the indexing.

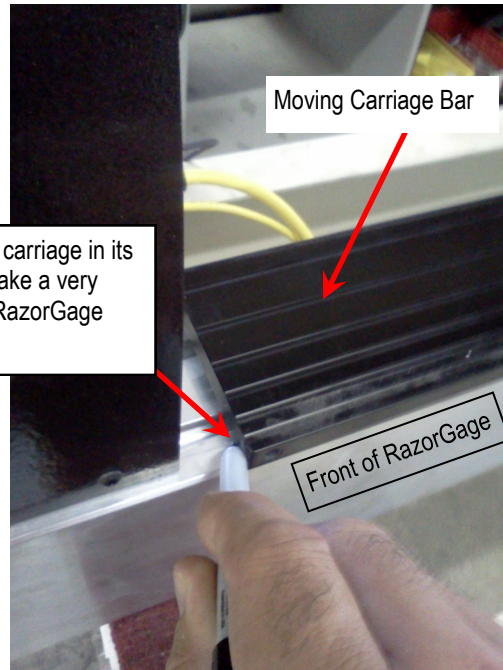
From the main screen press the SETUP SCREEN button in the upper right corner.

On the SETUP SCREEN near the lower left corner there is a button labeled HOME THE POSITIONER. Press that button to home the RazorGage.

Using a sharpie or pocket knife use the edge of the black moving carriage bar as a guide to make an accurate mark on the RazorGage extrusion as shown in the picture at right. This mark will help us determine now and in the future if the RazorGage is repeatedly homing in the same place. Take your time to make a clean mark that is perfectly aligned with the edge of the moving carriage.

Using the edge of the moving carriage in its HOME position as a guide, make a very accurate mark the top of the RazorGage extrusion as shown.

Now that you've made your mark, use the same button we used before, HOME THE POSITIONER, to put the RazorGage through its homing cycle 10 times. After each homing cycle compare the edge of the carriage bar to the mark to make sure they are lined up exactly. If the carriage is not lined up with the mark after a homing cycle, record the distance from the mark to the carriage edge and proceed until you've finished the 10 homing cycles.



If the RazorGage is homing in the same place every time when homing begins from the position the carriage is in after completing the Homing sequence, the next step is to move the RazorGage carriage to a position at least 24" away and start the Homing sequence from there. Home the RazorGage 10 times with the homing sequence starting from a position at least 24" away from the final Home position. After each Homing sequence check to make sure the moving carriage bar is perfectly aligned with the mark you made earlier. To move the RazorGage carriage after homing is complete, go back to the Main Screen, enter a number such as 24 as a Target Position and press Enter. Then press the Setup Screen button and press Home the RazorGage. If the RazorGage homes in EXACTLY the same place every time whether homing from close or far then you're finished and can begin using the machine. If the stop did not go to the same place every time, continue to the next page.

If the moving carriage did not return to the same spot each time after homing, then either the gearbox input shaft coupling is slipping and you need to tighten the set screw more or the motor is very near the home marker when the carriage hits the hard stop. Home the Razorgage one more time but this time notice how far the carriage moves back once it has hit the hard stop. If that distance is around 5/16" then all that needs to be done is to tighten the gearbox set screw tighter. If the distance is less than 1/4" then we should run the Indexing routine. CLOSE THE RAZORGAGE SOFTWARE, then use Windows to navigate to C:\Program Files\RGST\. Then double click on the file named IndexLocator.exe and precisely follow the instructions indicated in the software.

