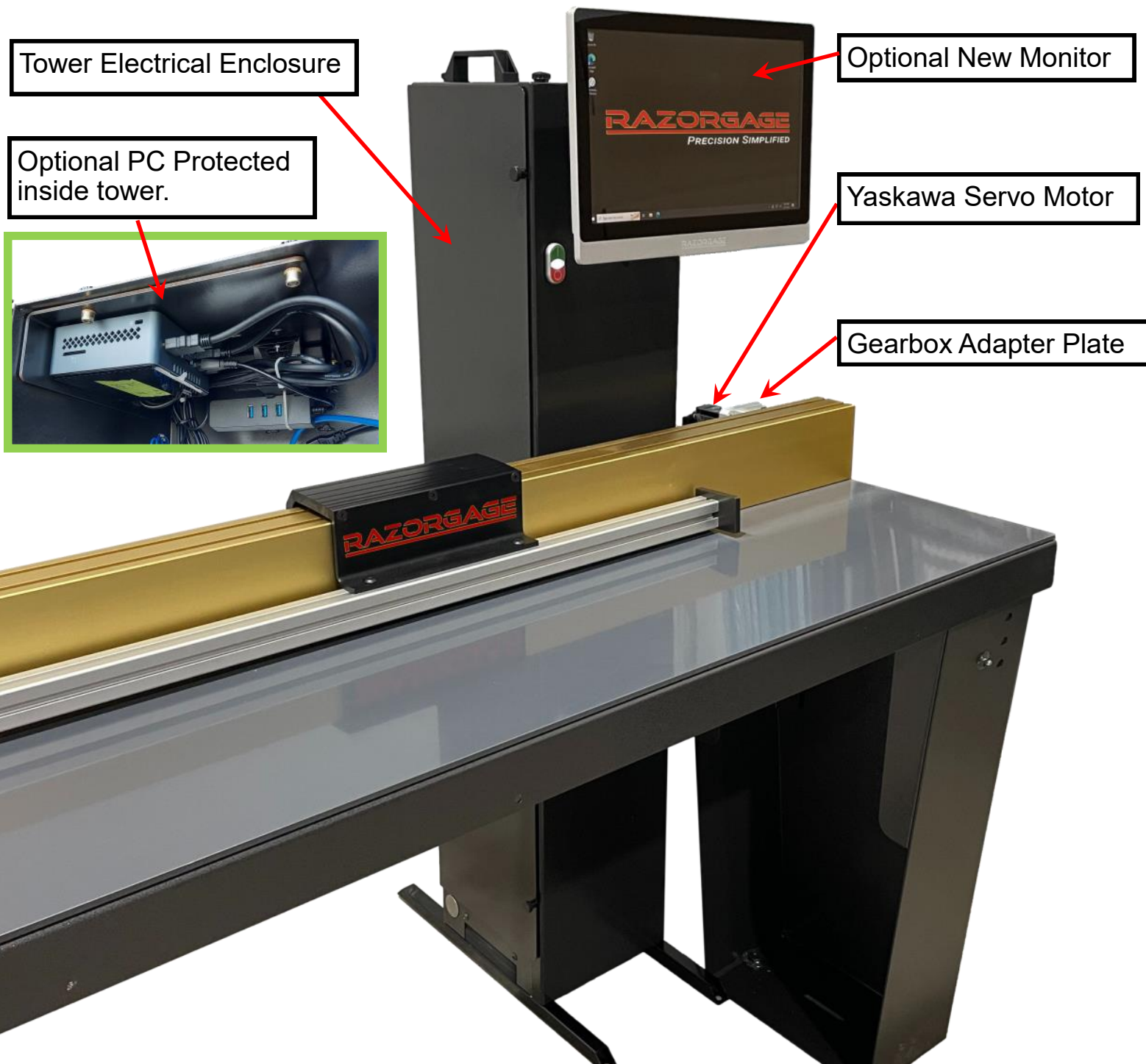# RAZORGAGE
PRECISION SIMPLIFIED

Because MDrive availability continues to be unreliable, we have redesigned the RazorGage to use a Yaskawa servo with completely rewritten Windows software. We're calling this new update the RG3. The RG3 is an order of magnitude better than the MDrive system, being faster, more powerful, the software more intuitive even while being more capable. Yaskawa servo drives are widely considered to be the most reliable in the world and the company has assured us that they place a premium on making new drives backward compatible so that, as their products improve, they will still work in older applications. We have developed the MDrive to RG3 Upgrade package to give our customers the opportunity to upgrade their MDrive based machines to the new technology. The picture below shows the basic components included in the package. See the following pages for more detail.

Tower Electrical Enclosure

Optional PC Protected inside tower.

Optional New Monitor

Yaskawa Servo Motor

Gearbox Adapter Plate

NO MORE HOMING! The RG3 servo motor has an absolute encoder so once you've homed it for the first time, you don't ever have to home it again as long as the motor cables are not unplugged. Also we no longer home to the marker pulse so indexing is also a thing of the past.

The Tower Enclosure included in the upgrade package will have a swivel knuckel for mounting your monitor or tablet or you can purchase a new monitor with the upgrade.

If your PC looks like this or if it's a Windows Tablet it can be used in the new system.

The Tower Enclosure houses the PC, servo drive, and all electrical components. Compressed foam cable entry closure prevents ingress of contamination, increasing the life of the valuable components inside.

Gearboxes like this use the RGX02682 gearbox adapter.

Gearboxes like those shown above, use the RGX02603 gearbox adapter.

Replaces this plate

Replaces this plate

Replaces this plate

RGX02682

RGX02603

SPG gearboxes like the one shown below, use the RGX02659 gearbox adapter.
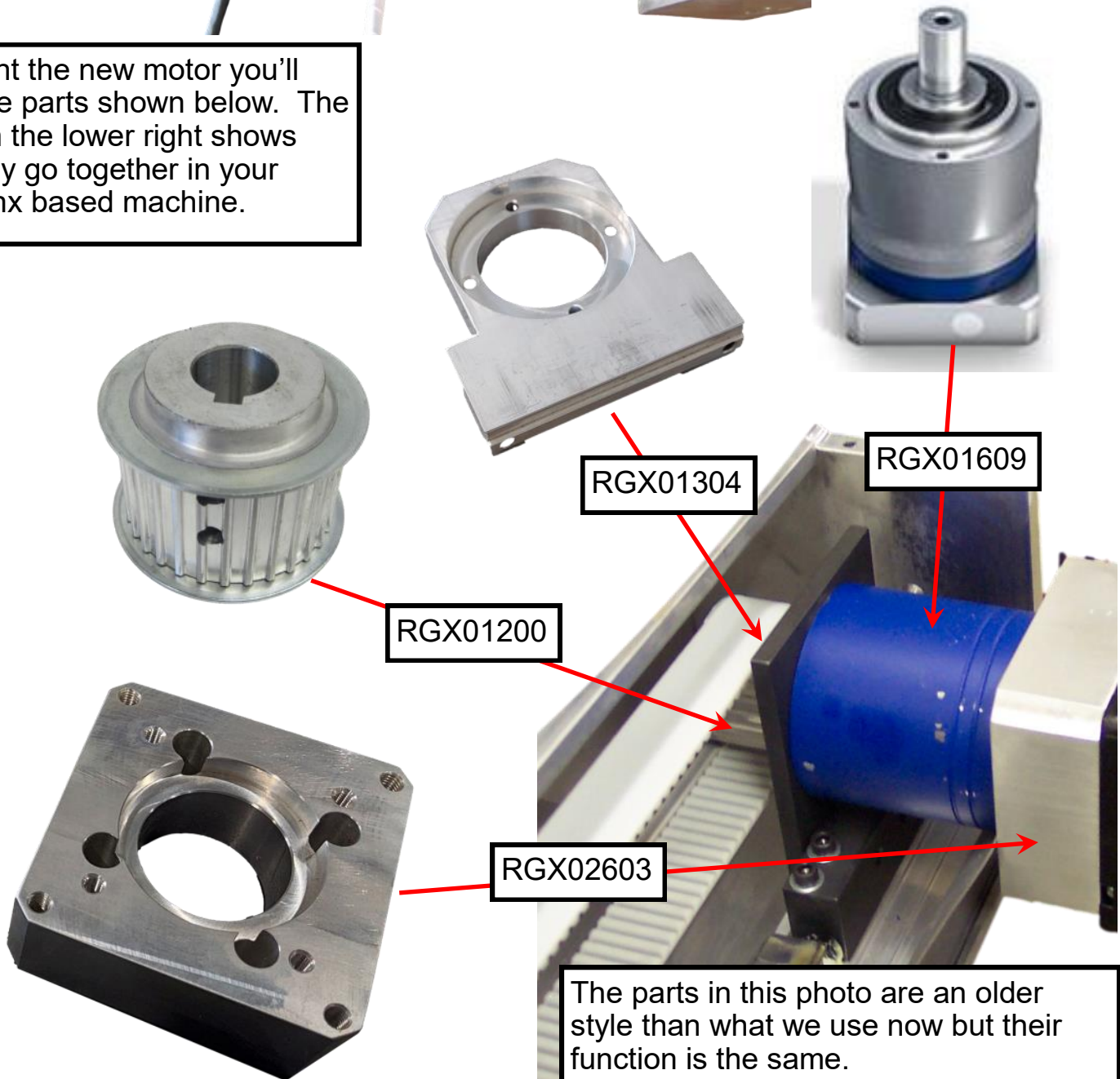
Replaces this plate

RGX02659

Microlynx Based Machines

If you have a Microlynx based machine your drive assembly will look like this.

To mount the new motor you'll need the parts shown below. The photo in the lower right shows how they go together in your Microlynx based machine.

RGX01304

RGX01609

RGX01200

RGX02603

The parts in this photo are an older style than what we use now but their function is the same.
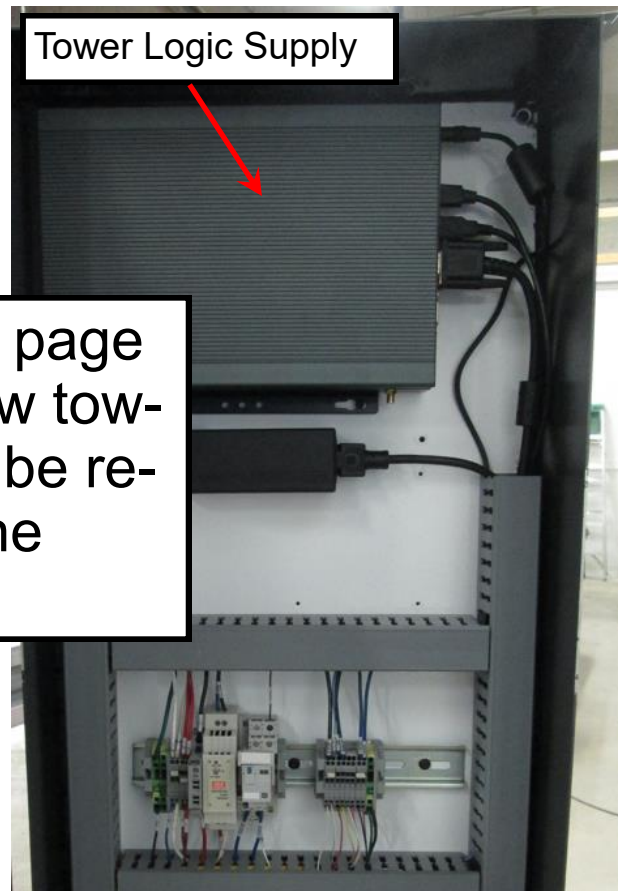
Windows tablets have a mounting bracket that can be mounted to the knuckle that comes with the RG3 tower so they can be used with the RG3 upgrade.
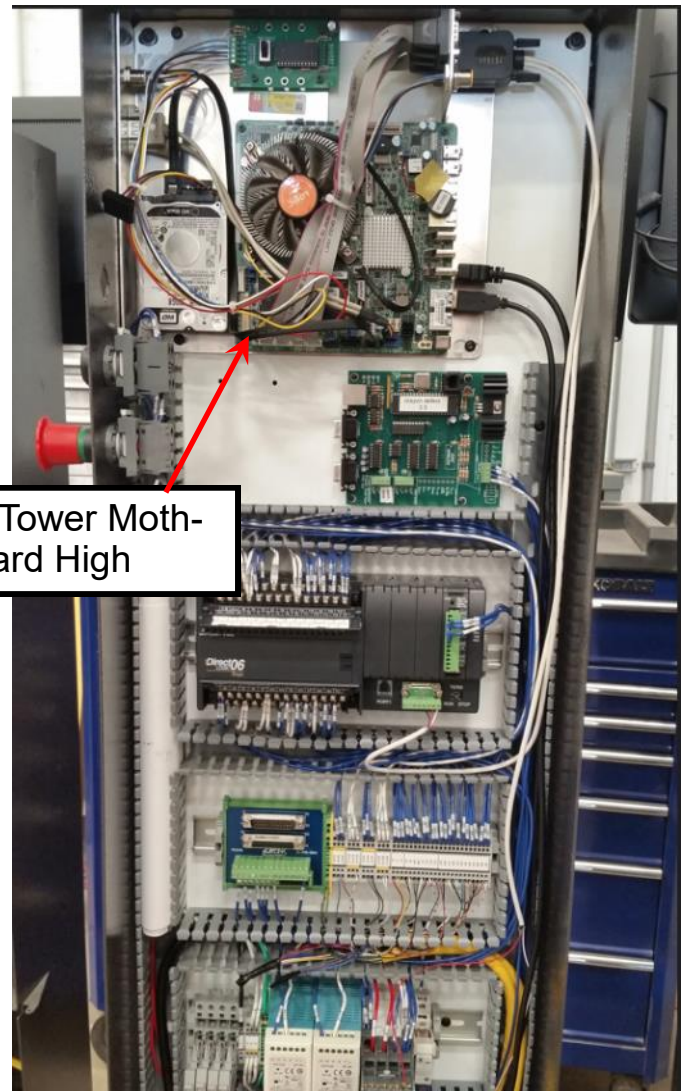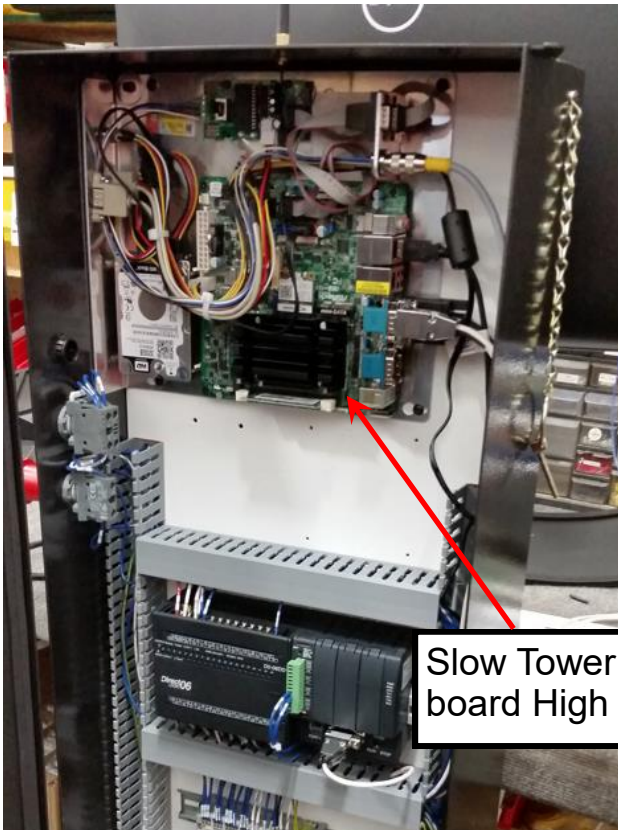
Tower Motherboard Low

Tower Logic Supply

PCs shown on this page will not fit in the new tower and will need to be replaced as part of the RG3 upgrade.
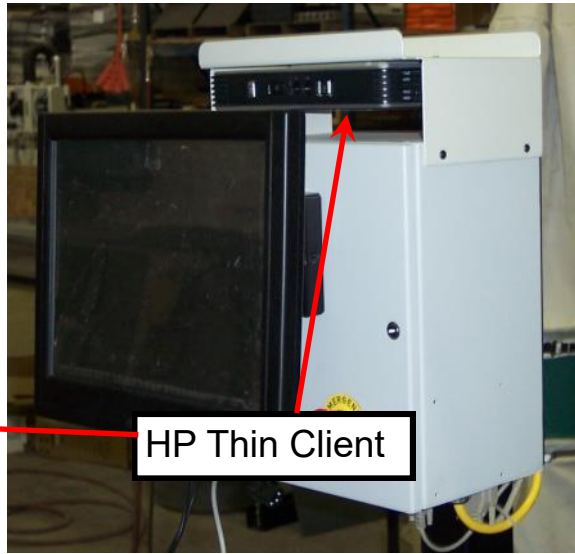
Fast Tower Motherboard High

Slow Tower Motherboard High

PCs shown on this page will not fit in the new tower and will need to be replaced as part of the RG3 upgrade.
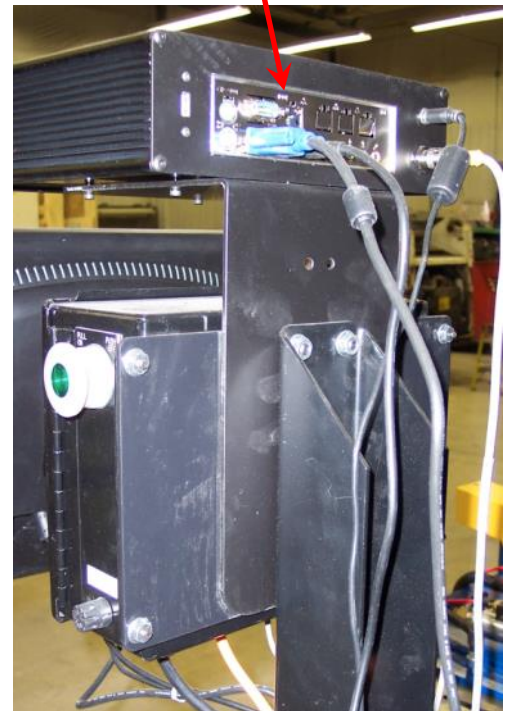
HP Thin Client

TSI External Box PC

External Desktop Tower

MDrive to RG3 Upgrade Instructions

Step 1 | Remove the MDrive from the gearbox.

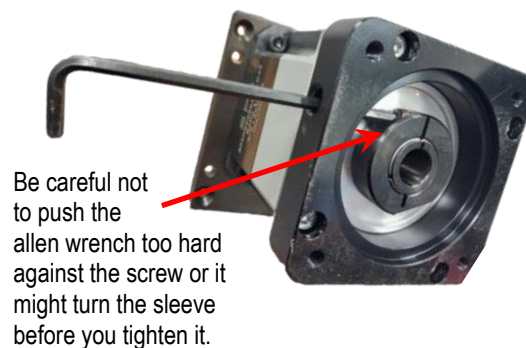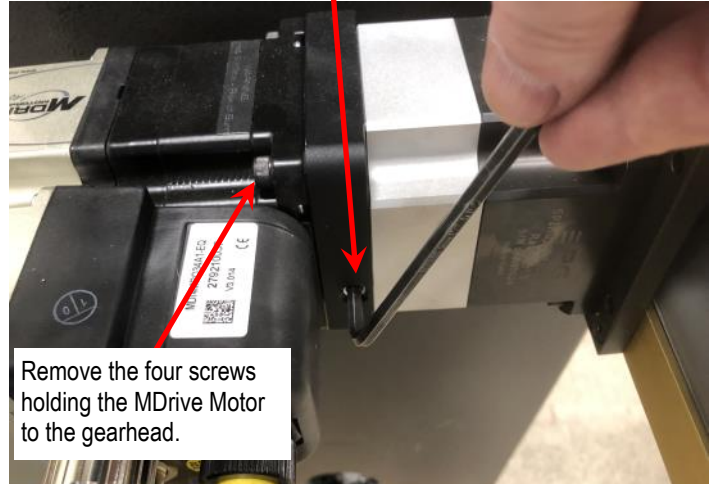| **M-Drive removal from Gearhead used on Razorgage through April 1, 2018**	**M-Drive removal from Gearhead used on Razorgage after April 1, 2018.**

Remove Access Hole Plug. Push the RazorGage Carriage <u>VERY</u> 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

Use a 5mm allen wrench to remove the Plug from the access hole. Push the RazorGage Carriage <u>VERY</u> 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.

Remove the four screws holding the MDrive Motor to the gearhead.

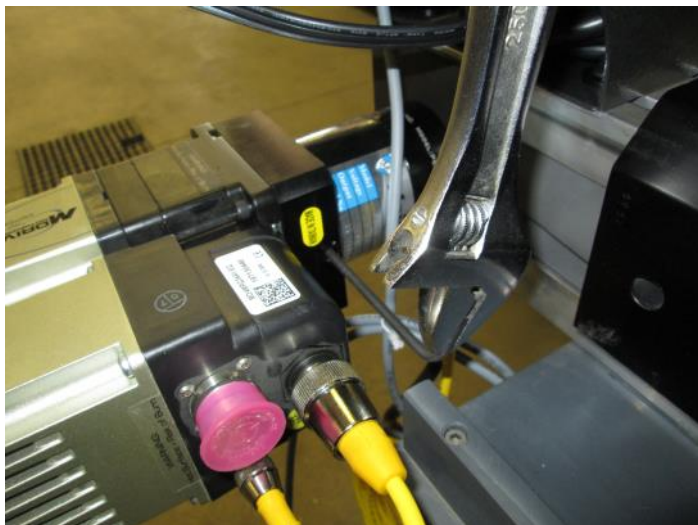Remove the four screws holding the MDrive Motor to the gearhead.

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.

Be careful not to push the allen wrench too hard against the screw or it might turn the sleeve before you tighten it.

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.

The photos to the right and left show ways to loosen and tighten the gearbox coupling screw.

MDrive to RG3 Upgrade Instructions

Step 2 — Remove the MDrive mount flange from your existing gearbox and replace it with the new Yaskawa mounting flange included with your upgrade package.

Step 3 — Install the Yaskawa motor using the 4 screws provided. Tighten the gearbox input clamp as referenced in step 1.

Step 4 — The motor power & encoder cables come from the bottom of the tower enclosure. Install them on the motor as shown.
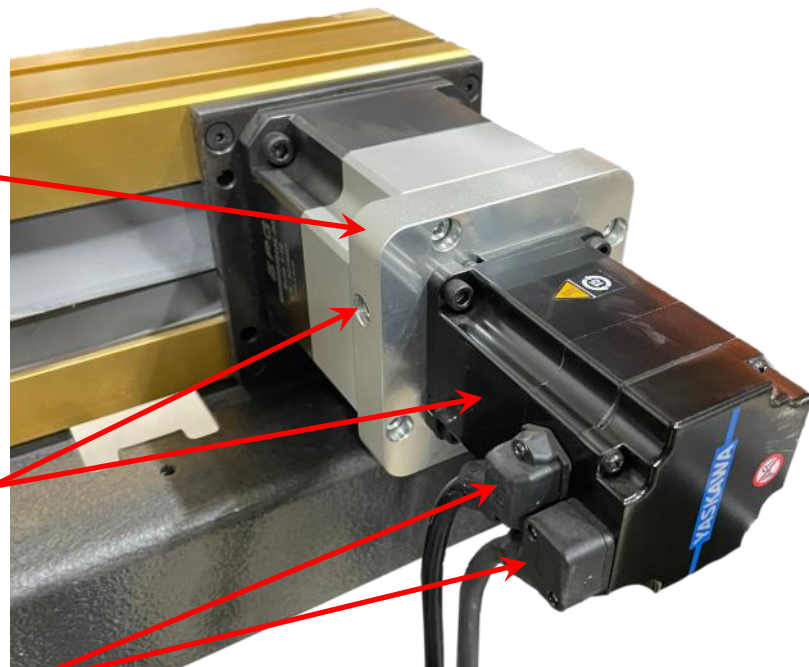
DO NOT PLUG CABLES INTO MOTOR UNDER POWER

CABLES MUST BE ORIENTED AS SHOWN

Cables MUST be oriented this way.

Step 5 — Move the Tower Enclosure behind the RazorGage as shown and mount the swivel knuckle and monitor to the front of the tower and plug in the monitor cables.

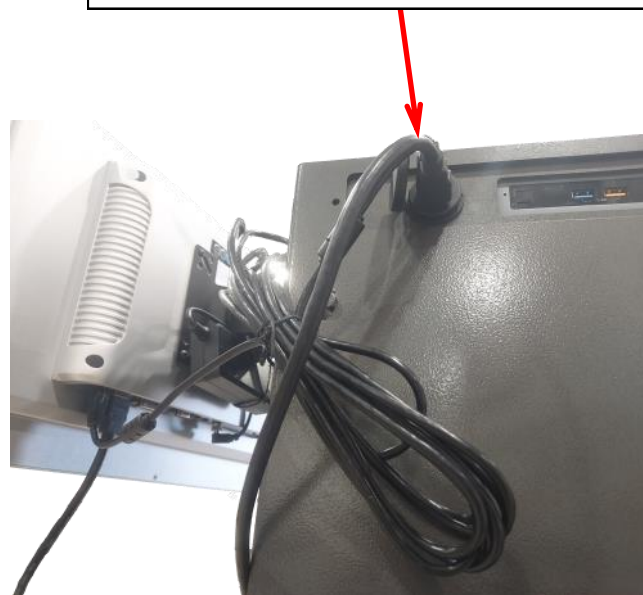Mount the Touchscreen Monitor to the Mid-Tower using the supplied bracket.

Plug the power cable coming from the Tower Enclosure into the power receptacle in the monitor. Plug USB and HDMI cables into the connectors on the right side of the Tower Enclosure.

Next, power up your RazorGage.

1. Plug the tower in and turn on the control power by pressing the green button on the front.

RazorGage Power

2. Turn on the PC by pressing the PC power button on the side.
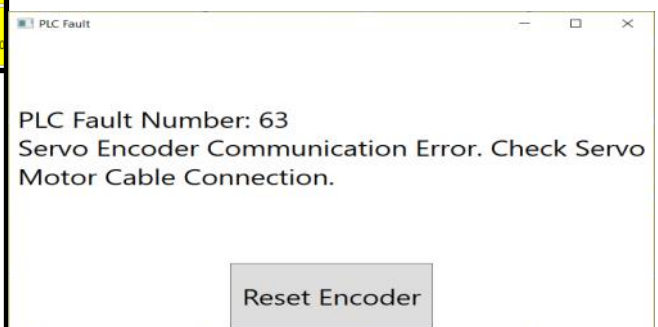

PC Power

Starting the Software

Step 1: Open the software on the desktop and the Keypad Screen will appear with no errors showing.

Step 2: Input 10 on the keypad, press GO and an error will show up.

Step 3: Press the "Reset Encoder" button. At this point, wait 50 seconds. After 50 seconds it should home and the gage should be able to be moved.

PLC Fault Number: 63
Servo Encoder Communication Error. Check Servo Motor Cable Connection.
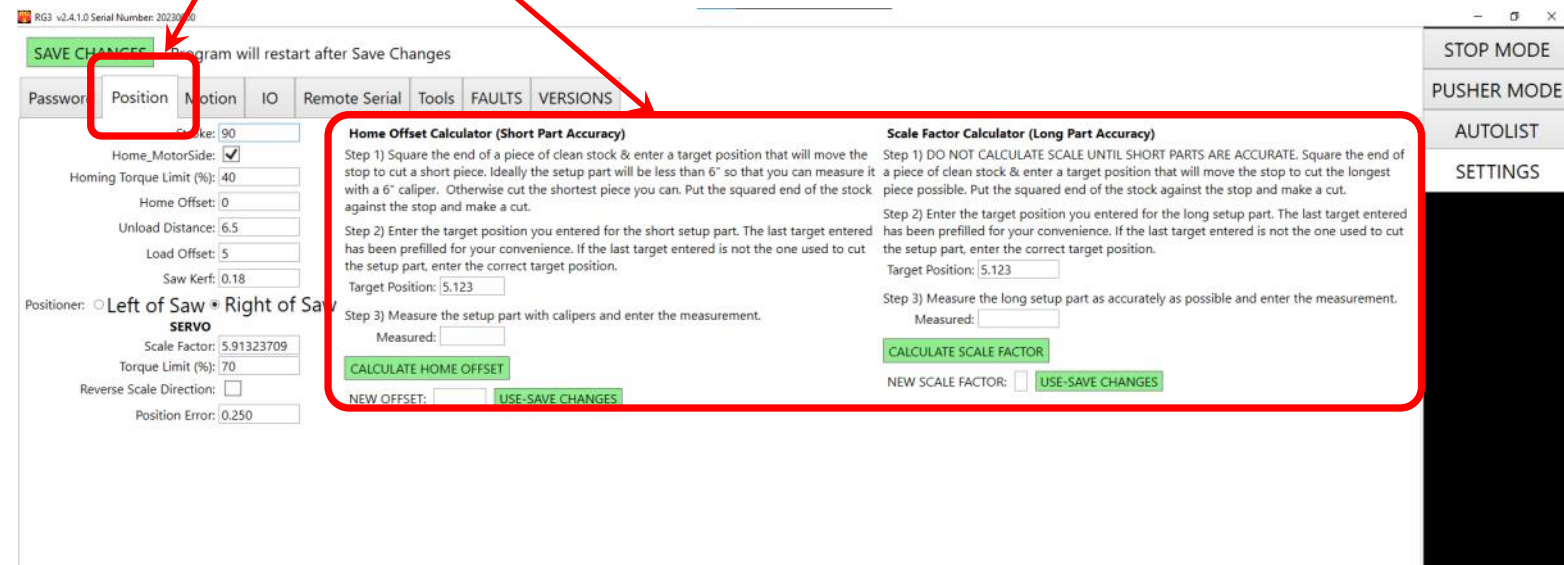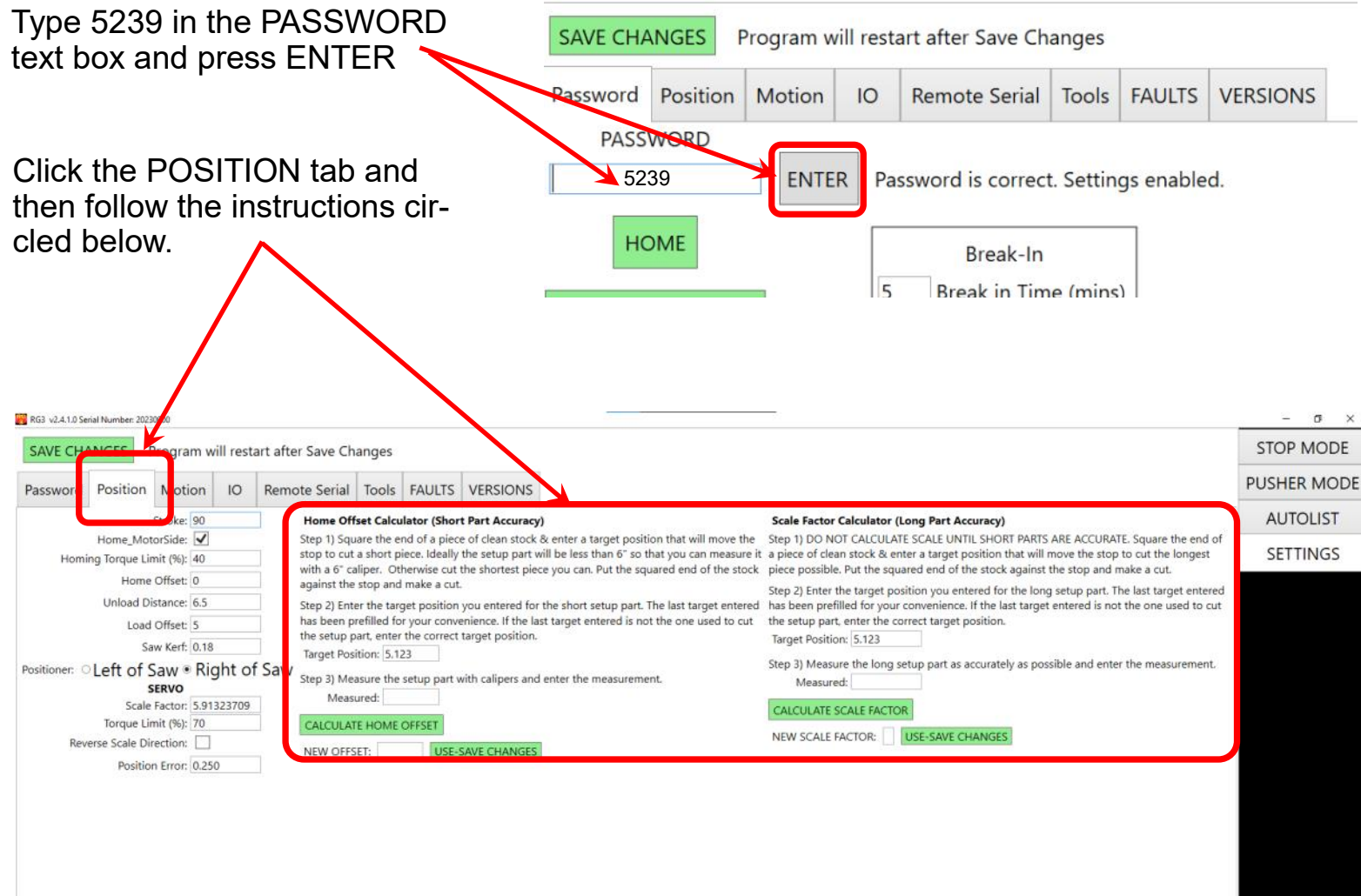
Reset Encoder

Calibration

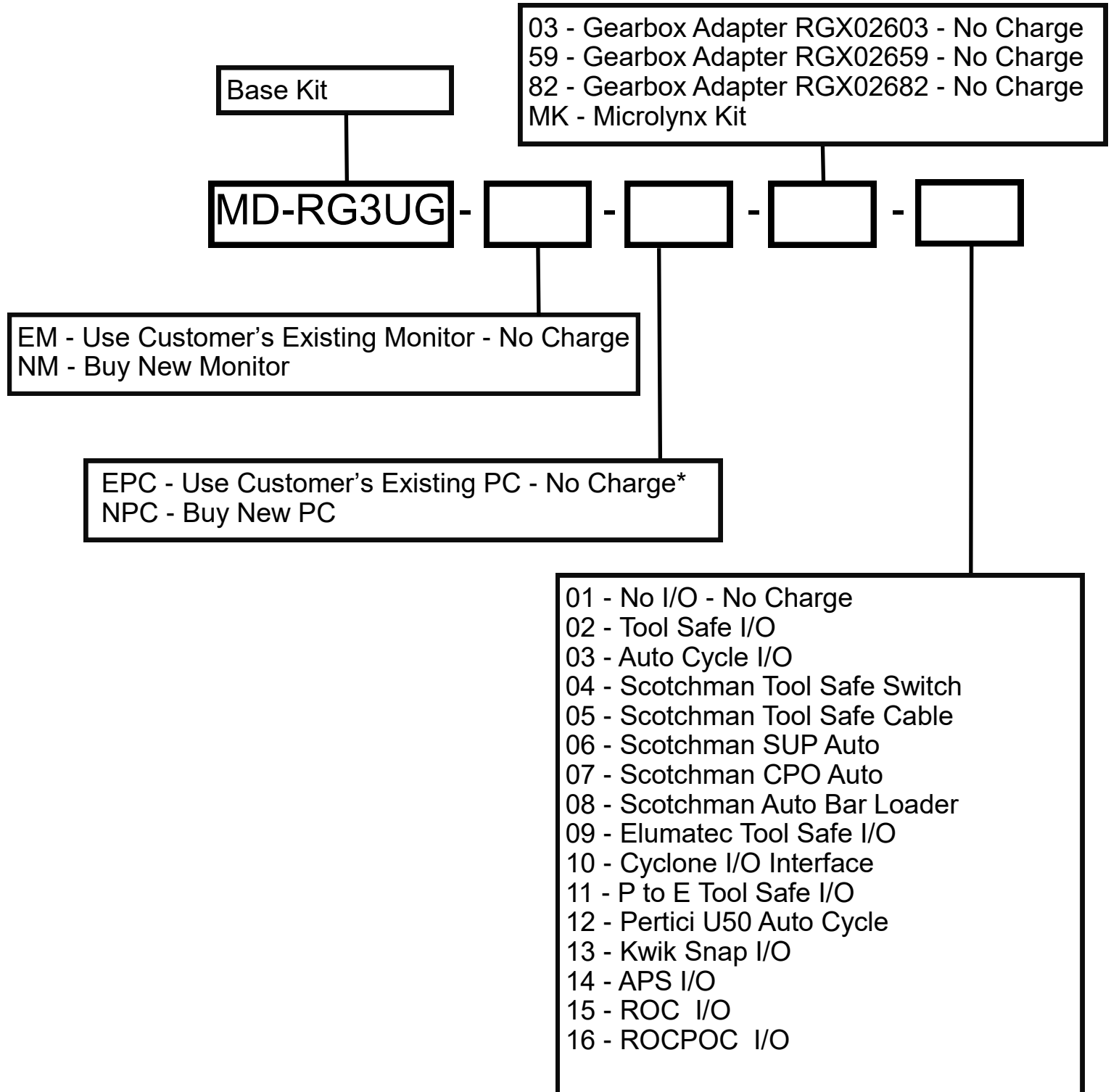From the MAIN SCREEN click SETTINGS.

Type 5239 in the PASSWORD text box and press ENTER

Click the POSITION tab and then follow the instructions circled below.

MDrive to RG3 Upgrade Ordering Guide

Base Kit

03 - Gearbox Adapter RGX02603 - No Charge
59 - Gearbox Adapter RGX02659 - No Charge
82 - Gearbox Adapter RGX02682 - No Charge
MK - Microlynx Kit

MD-RG3UG - ☐ - ☐ - ☐ - ☐

EM - Use Customer's Existing Monitor - No Charge
NM - Buy New Monitor

EPC - Use Customer's Existing PC - No Charge*
NPC - Buy New PC

01 - No I/O - No Charge
02 - Tool Safe I/O
03 - Auto Cycle I/O
04 - Scotchman Tool Safe Switch
05 - Scotchman Tool Safe Cable
06 - Scotchman SUP Auto
07 - Scotchman CPO Auto
08 - Scotchman Auto Bar Loader
09 - Elumatec Tool Safe I/O
10 - Cyclone I/O Interface
11 - P to E Tool Safe I/O
12 - Pertici U50 Auto Cycle
13 - Kwik Snap I/O
14 - APS I/O
15 - ROC I/O
16 - ROCPOC I/O

*Only when your existing PC is a NUC can it be used with the upgrade.

To order, construct the part number using the template above and email us at support@razorgage.com and we'll send you a quote with more instructions.