

SERVICING AND CLEANING PROCEDURE FOR X-RANGE TRACKBALLS

1. X-Range overview

The X-Range Laser Trackerballs™ (see figure 1) are robust, solid state modules designed for controlling a cursor in extreme environments where sealing levels of up to IP68 are required.

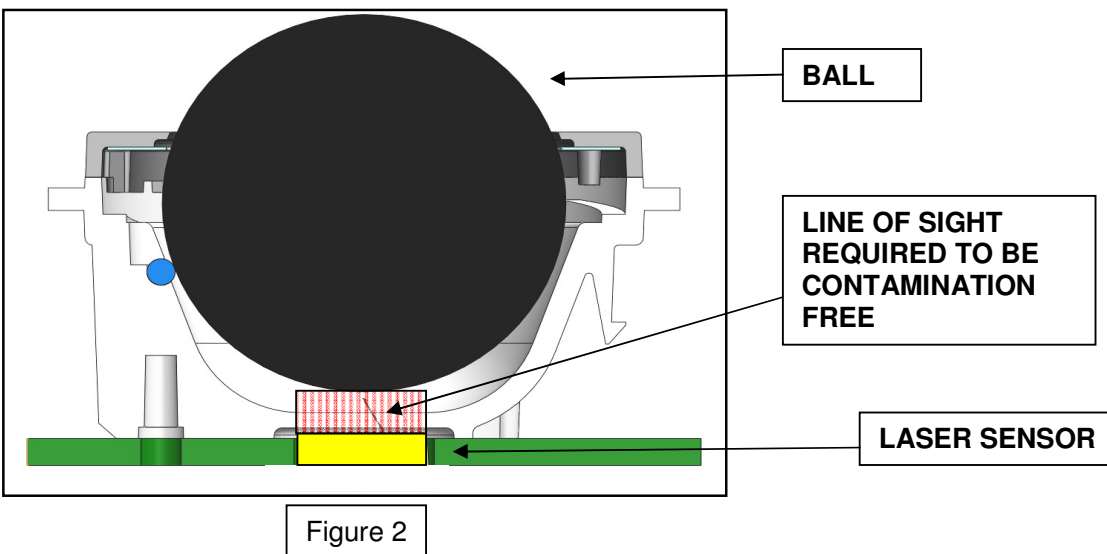
The X-Range design incorporates a removable top ring as standard to allow for easy cleaning, decontamination, sterilisation and maintenance – ensuring continued optimum performance and operation under the harshest of conditions.

This application note details the processes required to clean and decontaminate an X-Range trackball safely and without damaging the module.



2. Why does the trackball have to be cleaned?

In extreme environments, where contamination levels may exceed the IP68 standard, it may be necessary to service the trackball to ensure continued optimum tracking and performance. The laser tracking technology requires an optically clear line of sight from the surface of the laser sensor to the surface of the ball - see figure 2. If the laser beam is impaired by particulate contamination (both fluid and/or solid) the trackball may exhibit some loss of functionality.



3. How often should the trackball be cleaned?

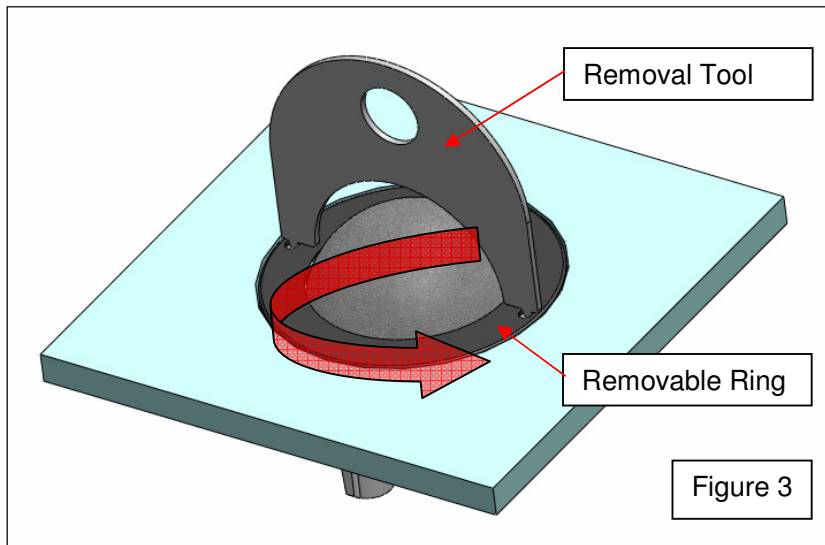
The trackball is designed to eliminate the need for scheduled maintenance, with the typical requirement for maintenance arising due to a direct functional loss of the trackball performance.

4. Removing the removable ring and ball

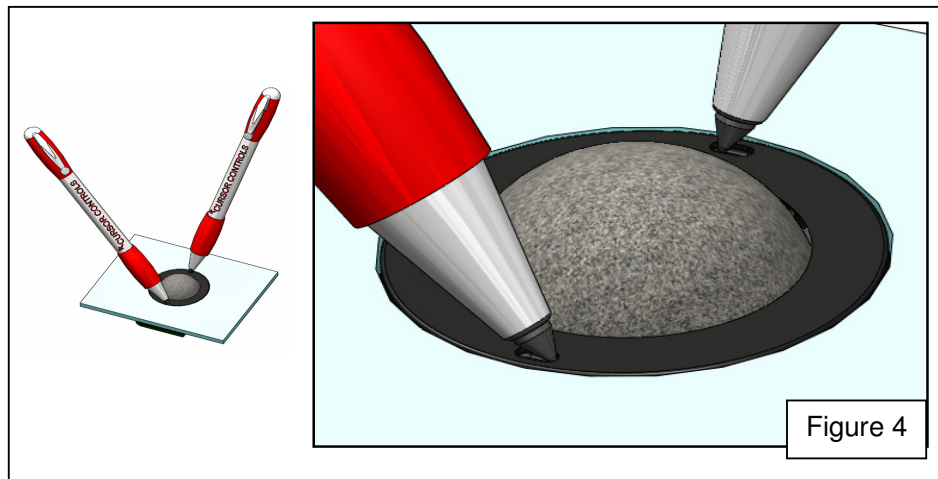


Before proceeding with servicing/maintenance of the trackball please ensure the power to the trackball is turned OFF. If the trackball is installed in a system please ensure the power to the main system is also turned OFF.

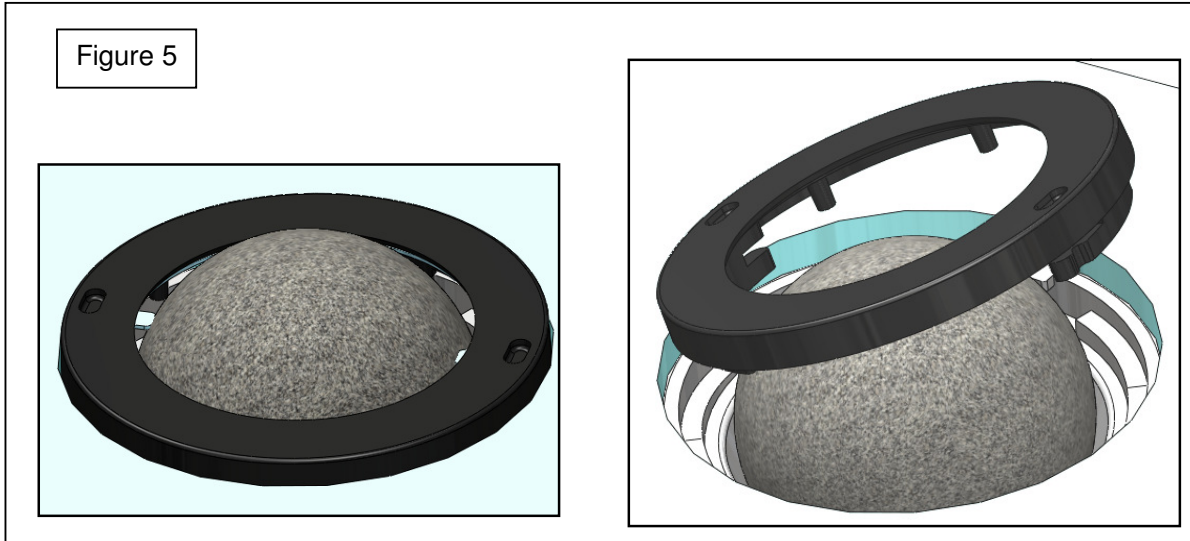
- Insert the appropriate removal tool (supplied separately) into the removable ring location holes. Twist the removable ring anti-clockwise 100 degrees – as the tool is rotated the removable ring will rise above the panel - see figure 3.



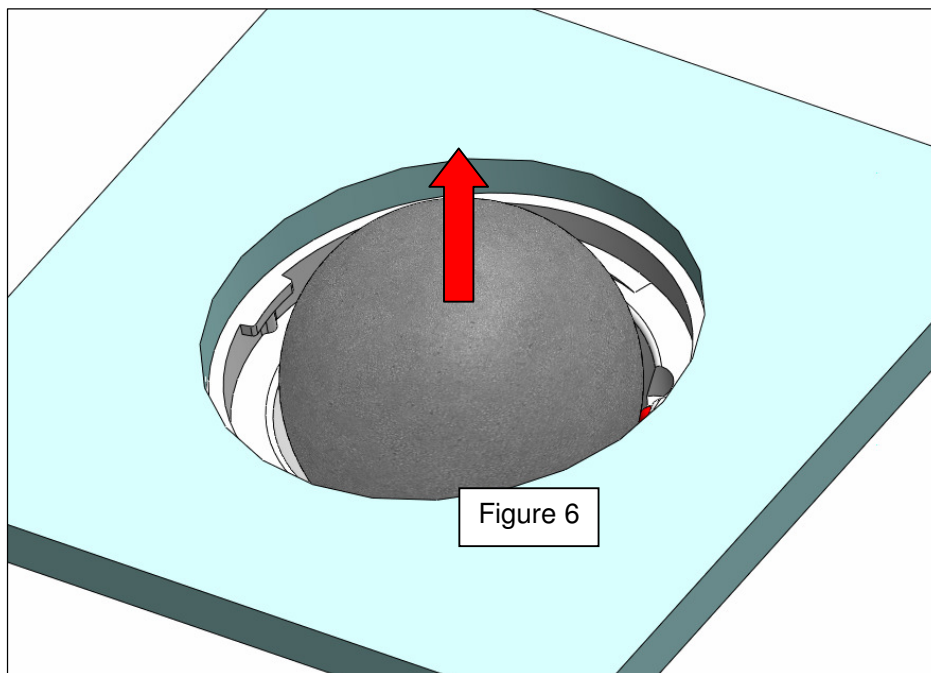
- If a removal tool is not at hand, this process can be achieved by inserting any two blunt instruments into the location holes and rotating. A typical example would be using two ball point pens - see figure 4 below.



- Once the removable ring has been successfully rotated, use your fingers to carefully remove it from the module - see figure 5.

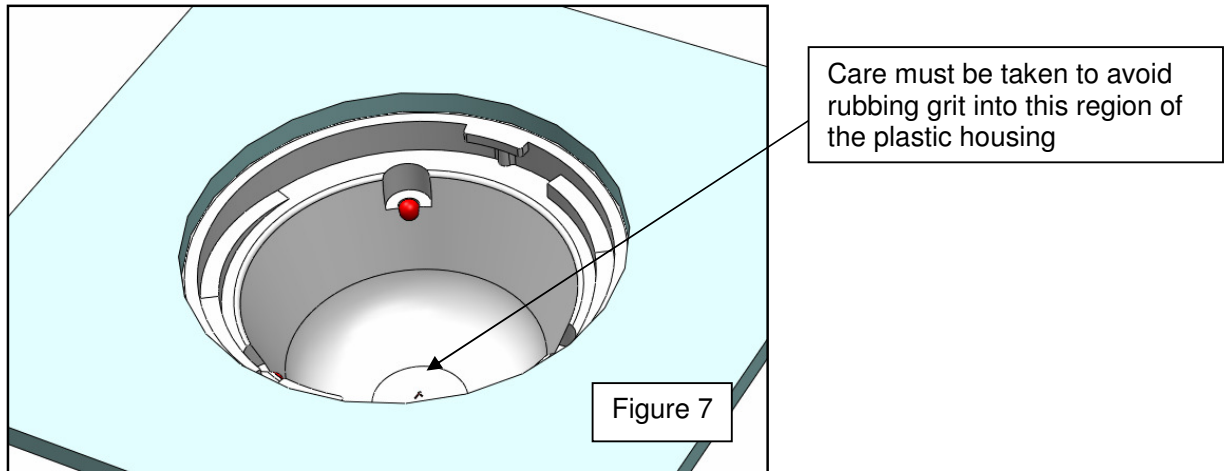


- Carefully lift the ball out of the module - see figure 6.



5. X-Range Trackball Cleaning Instructions

If the trackball is contaminated with particulates such as sand, grit or dust it is very important not to rub this contamination into the optically clear plastic located directly above the laser sensor - see figure 7. This is to prevent scratches which may impair the laser performance. The cleaning procedure for such contaminants is determined by the sealing rating of the keyboard/panel into which the module is integrated. Please see sections below for details.



IP68 Keyboard/Panels

If the keyboard/panel assembly is rated to an IP67/68 level, decontamination is best achieved by flushing out the particulates with a cleaning fluid such as water or rubbing alcohol (IPA)*. Apply a steady stream of the fluid until all the particulates have been washed out (application of fluid is at the user's discretion). Separately, clean both the ball and removable ring using the same method. Dry the device with a lint free cloth.

Alternatively, if a cleaning fluid is not available, the particulates may be removed using pressurized air* (i.e. blown out).

Non-sealed Trackballs

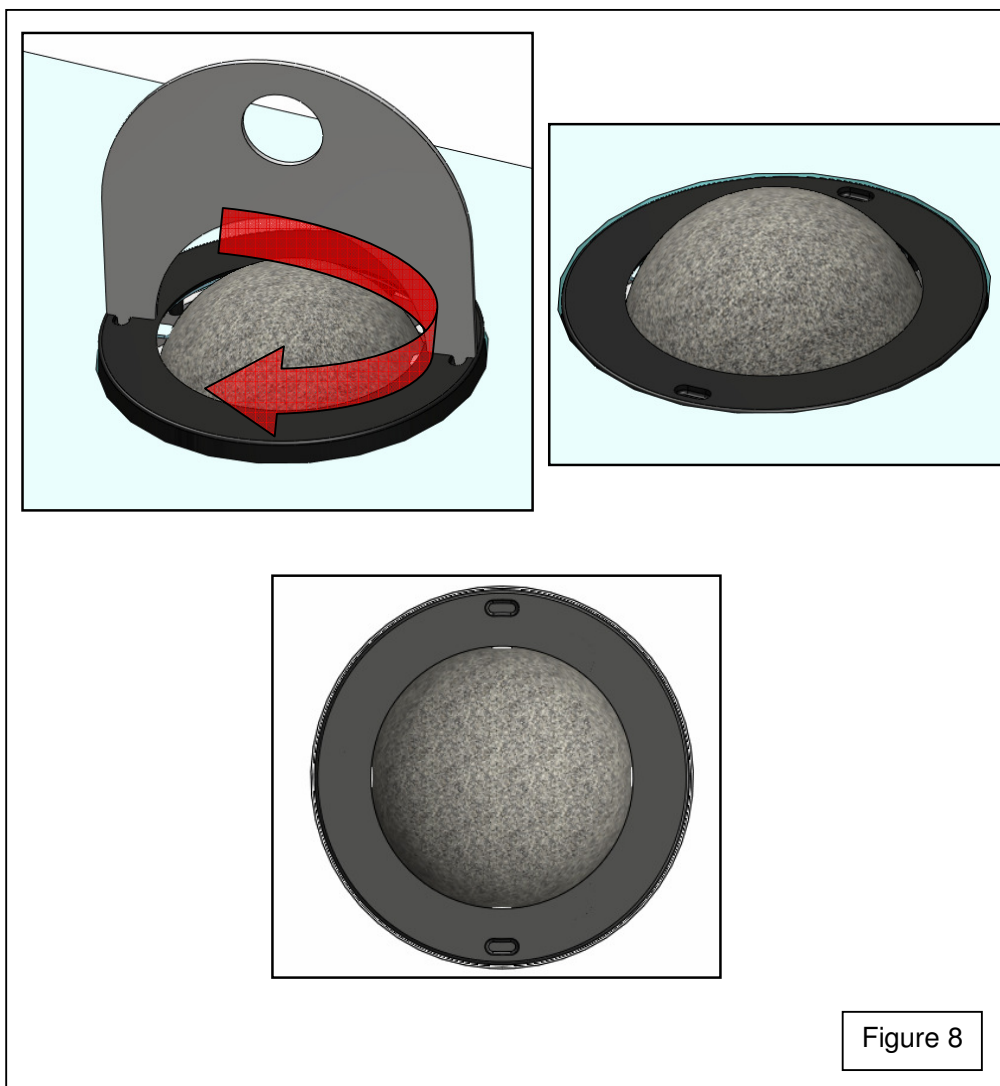
If the keyboard/panel assembly is not rated to an IP67/68 level, more care must be taken with the application of any cleaning solutions. In keyboards/panels such as this it may not be possible to flush out the contaminants as described in the procedure above. In this instance apply a small measure of IPA* cleaning fluid to a lint free cloth and gently wipe the bowl area of the trackball. Do not wipe the bowl area with a contaminated cloth and check that all streaks and marks have been removed.

*Suitable eye protection and precautions should be observed when working with IPA or pressurized air.

6. Refitting the Top Plate and Ball

Once the components have been cleaned, replace the ball into the trackball module and relocate the removable ring into assembly. Insert the necessary tool into the location holes. Alternatively use a blunt instrument if a removal tool is not available (see section 4 above for details). Rotate the removable ring clockwise until it sinks into - and is flush with - the panel (see figure 8). A noticeable click should be felt when the removable ring is fully located. The location holes should also be square in the panel.

The servicing procedure is now complete.



7. Document History

Issue	Date	Author	Remarks
A	30.11.09	SdB	Document released
B	21.01.11	N.S	ECN 1223