GET Detect System

Removal and Installation of Digital Points Models N3, N5, and N7

and

Sensor Commissioning

March 2019

REPLACEMENT OF DIGITAL POINTS

Tools needed

- Fines removal tools such as needle scaler, wire brush, and picks
- Small pry bar
- 1-inch square drive and ratchet.
- For N3 points: 1-1/2” or 38 mm socket, a thin wall (non-impact) type socket is required.

WARNING!

When performing the work described in these instructions, always work safely and use proper safety equipment to help avoid injury.

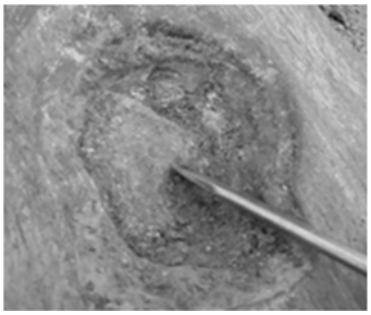
Always wear hard hat, gloves, safety shoes, eye protection, hearing protection and fall protection per regional, national and site requirements (e.g. OSHA, MSHA) when performing maintenance work.

To avoid injury to others, keep bystanders well out of the way.

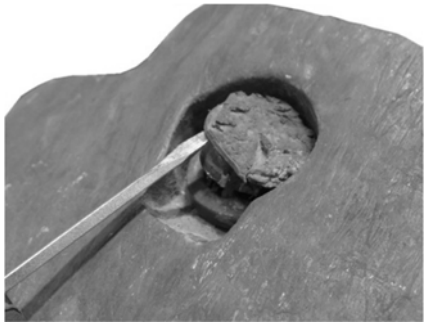
(battery warnings and graphical versions)

Removing a Digital Point

1. Clean out fines until the plastic fines cap and lock top are visible.

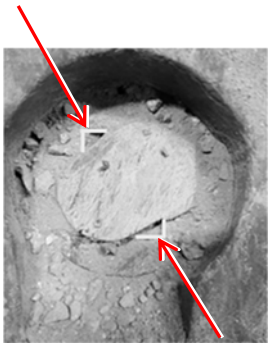


2. If the flange on the fines cap is intact, use a pry bar under the flange to pry off the cap.

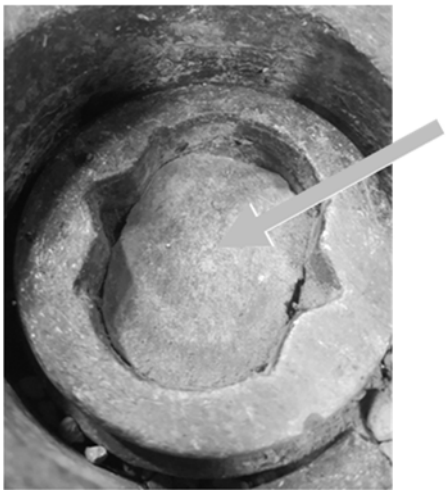


3. If the flange of the cap is worn away, use a pick or pry tool at the locations shown in the photo to remove the cap. Do not drive tools past the bottom of the cap.

There is a triangular space on each side of the cap that can be used as pry locations.

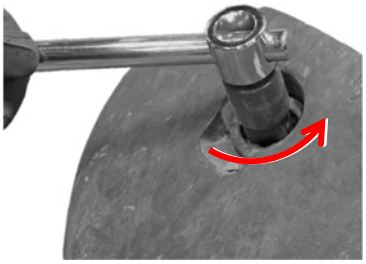


4. There is a plastic plate below the fines cap. This plate can be left in place. The sensor and lithium battery lie below this plate.



5. Using a square drive socket, rotate the lock counter-clockwise until the lock is disengaged from the nose.

Two orientations of 1” square interface



Important! **Give the removed lock to your maintenance department so it can be returned to ESCO.** **(how are we handling disposal)**

[WARNING] Lithium Battery Explosion Hazard **(move earlier and make graphical as able)**

The sensor contains a small lithium battery.

Misusing a lithium battery can result in fire or explosion which can cause serious injury. To avoid this hazard:

- **Do not expose a sensor to heat sources.**
- **Do not store sensors in high-temperature locations.** **(how hot?)**
- **Do not strike or step on a sensor or otherwise subject it to strong impacts.**
- **Do not attempt to disassemble a sensor.**

6. Following your site’s approved standard procedure, remove the points from the shovel.

   For reference, see the *ESCO NEMISYS Mining Tooth System Installation and Removal* manual.

TIPS:

In situations where the head of the lock is significantly worn, the plastic plate can be removed to gain additional tool engagement. Caution must be used to not damage the sensor below the plate. A pick can be used to in the locations shown to remove the plate.

If welding or other hot work needs to be conducted near the lock, the lock should be removed from the point or the sensor removed from the lock.

Start by removing the plate from the lock as described above.

Use a pick to apply pressure to the underside of the sensor. Levering off the latch rubber can be useful. Use caution to not puncture the sensor casing.

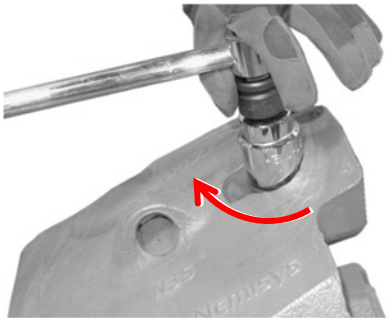
Installing a Digital Point

1. Check you are within the use by date and that sensor ID is present and ledgible.

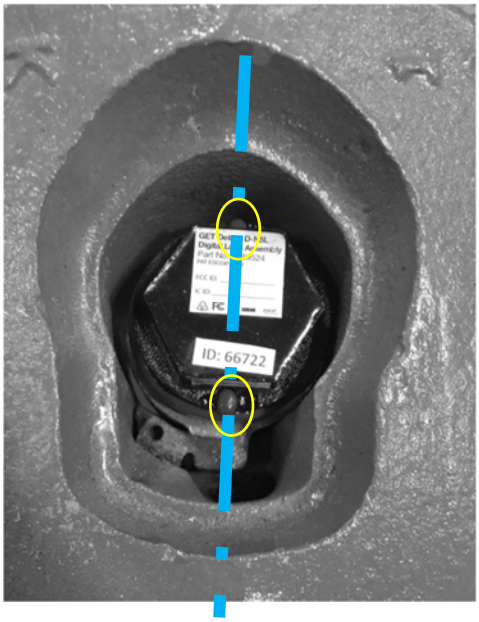
2. Following your site's approved standard procedure, install the new digital points (which have sensor in the locks) onto the shovel.

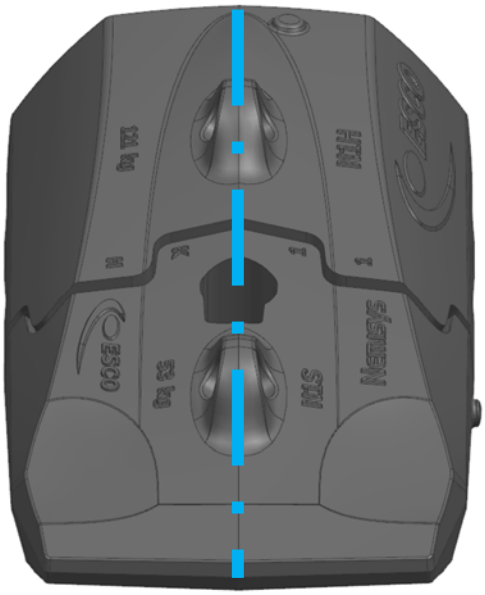
   For reference, see the *ESCO NEMISYS Mining Tooth System Installation and Removal* manual.

3. Using the 1" Square Drive (1-1/2 inch socket for N3), rotate the lock clockwise until it clicks into the install position.



4. Confirm lock is fully installed. The two lugs should be oriented along the point axis





5. The point is now ready to be commissioned. Begin commissioning or note IDs and positions for later commissioning.

To Commission Point GET Detect Sensors

Commissioning is the process of linking the signals from newly installed points and shrouds to the shovel's in-cab display (ICD) tablet.

Prerequisites

All ESCO GET Detect components have been installed according to the instructions provided with the installation kits and are communicating normally.

The shovel's ICD is powered on and has a sufficient charge to perform the commissioning.

The shovel's bucket has been commissioned to the ICD. See *Commission the Shovel's Bucket using the ICD.*

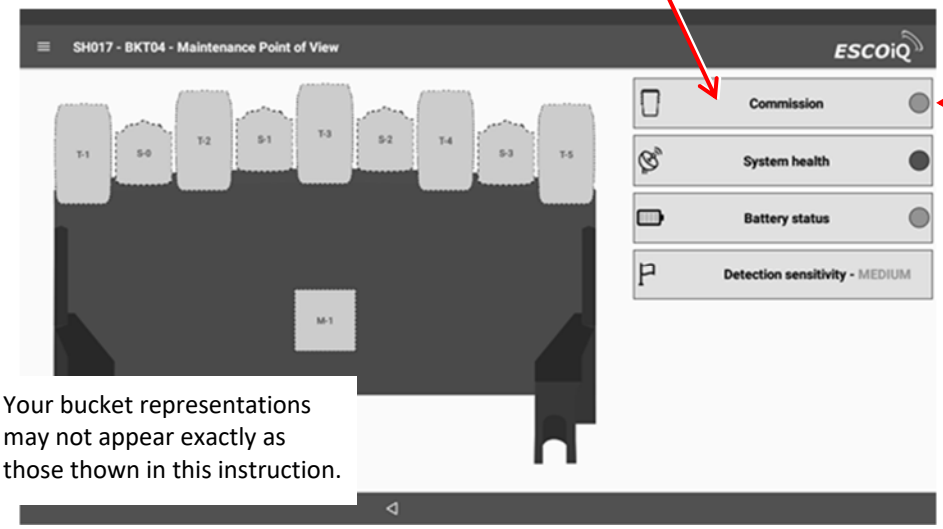
To begin, you should have the shovel's ICD in-hand.

1. Stand in front of the bucket where you can see the tags on the sensor caps.
2. Turn on the tablet.

   Wait for the tablet to initialize and the GET Detect software to load.

3. Tap the “Commission” widget.

“Commission” widget.



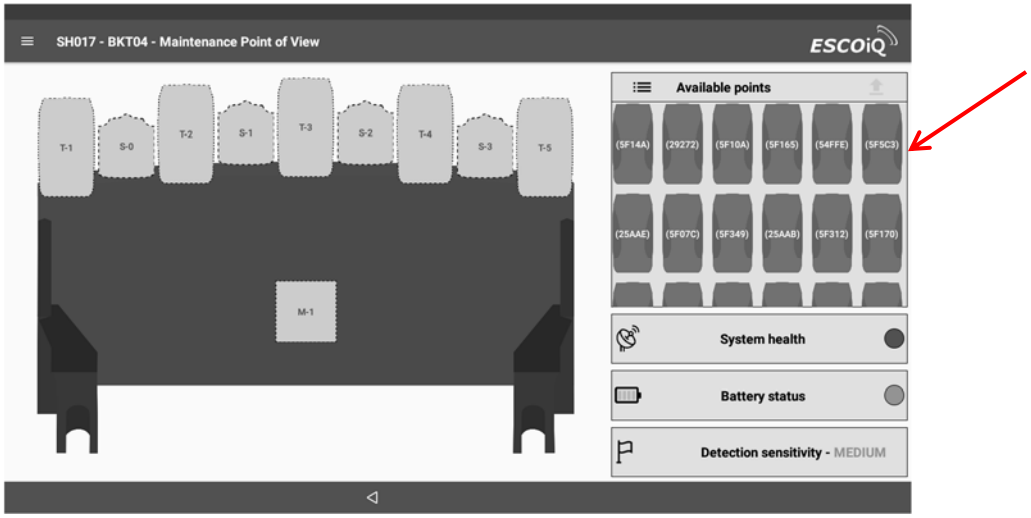
Widget indicator:

Green = No pending upload to the ECM.

Yellow = Sensor configuration has changed--upload pending.

Your bucket representations may not appear exactly as those thown in this instruction.

The widget will expand to reveal nearby GET Detect sensors. It may take 5-10 seconds to fully populate as it scans (by default, it looks for points first).



By default, points are shown.

By tapping the menu icon, you may choose to see shroud sensors or bucket modules.

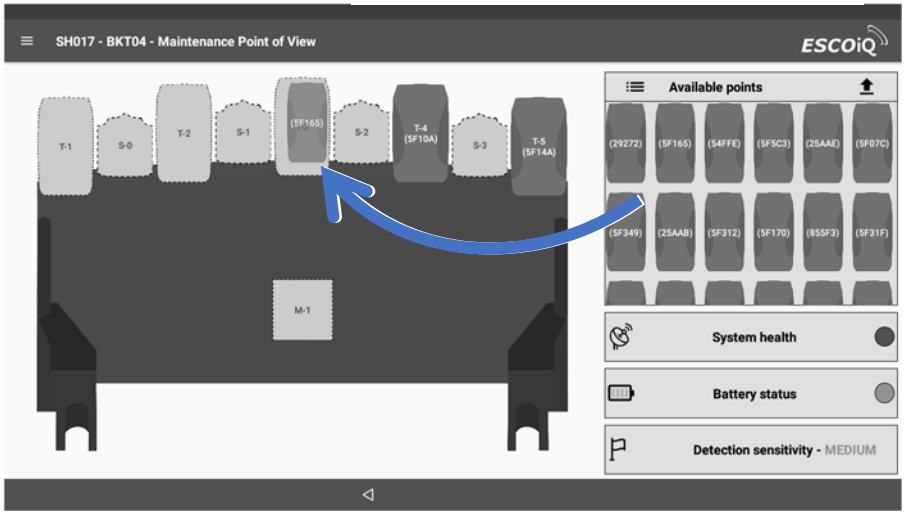
4. Find the icons for the sensors that were just installed with the new points.

   Drag and drop these icons to the proper bucket points.

Make sure that the sensor icon's 5-character ID matches the ID of the sensor installed on the bucket.

To select a sensor icon:

Long-press it for one second. Once you hear a beep and it changes color, you will be able to move it around.



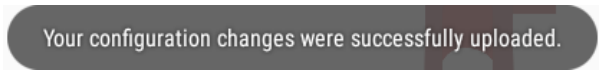
- If you make a mistake, you can drag-and-drop a sensor back to the "Available points" window.
- If you move a sensor already on the bucket to another point on the bucket, the two will swap locations.

To install and commission shroud sensors, refer to *Replacement and Commissioning of Digital Shrouds*.

5. Once you have finished commissioning sensors, tap the upload button.

The commission widget will close and the confirmation message shown will appear for a few seconds.

This means that your changes have uploaded to the shovel's ESCO Control Module (ECM).



If the confirmation message does not appear, the most likely reason is that the ECM is not powered on.

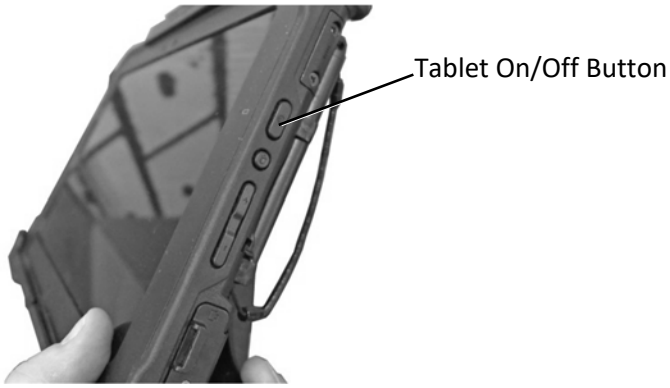
In this case, the upload will be queued to occur the next time the shovel is started (and tablet is on).

The Commission widget indicator will be yellow until the upload is accomplished.

6. Return the ICD to its docking station.

If the shovel will be down longer than the remaining battery life of the IDC, turn off the ICD.

When the shovel is back in service, be sure to turn on the ICD. The tablet will recharge and any pending upload will occur.



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Regulatory Notices

- FCCID: 2ASXK86605
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by un-authorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

ICES-003

- ICID: 24947-86605
- This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
- Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
- Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio nterference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.
- Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.
- This equipment complies with the ICES RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of the human body.
- Cet équipement est conforme aux limites d'exposition aux radiations ICES définies pour un environnement non contrôlé . Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et une partie de votre corps.