FireFly® DR31

Field Operations
Quick Reference Guide
for FCC Use

Release 3.0
100-500nn
Rev. A
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Contents

This device complies with Part 15 of the FCC and RSS210 Issue 8 rules. 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Health Canada's Safety Code. The installer of this device should ensure that RF radiation is not emitted in excess of the Health Canada's requirement. Information can be obtained at http://www.hc-sc.gc.ca/ewh-sem/pubs/radiation/radio_guide-lignes_direct-eng.php

Français

Cet appareil est conforme à FCC Partie15 de Industrie Canada RSS210 numero 8 standard exempts de licence(s). Son utilisation est soumise à Les deux conditions suivantes: (1) cet appareil ne peut pas provoquer d 'interférences e (2) cet appareil doit accepter Toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

Per Industry Canada RSS rules:

Cet appareil est conforme avec Santé Canada Code de sécurité 6. Le programme d 'installation de cet appareil doit s' assurer que les rayonnements RF n'est pas émis au-delà de l'exigence de Santé Canada. Les informations peuvent être obtenues: http://www.hc-sc.gc.ca/ewhsemt/pubs/radiation/radio_guide-lignes_direct-eng.php

Warning RF Exposure Compliance

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 120 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Industry Canada Statement:

This device has been designated to operate with the antennas listed below, and having a maximum gain of 5.2 dB. Antennas not included in this list or having a gain greater than 5.2 dB are strictly prohibited for use with the device. The required antenna impedance is 50 Ohms.

Antenna Part Number Format: YK150-W135

Français

Conformité des appareils Warning RF

L'antenne (s) utilisée pour ce transmetteur doit être installé pour fournir une distance de séparation d'au moins 120 cm de toutes les personnes et ne doit pas être co-localisés ou fonctionner en conjonction avec une autre antenne ou transmetteur. Les utilisateurs et les installateurs doivent être fournis avec des instructions d'installation d'antennes et conditions opératoires du transmetteur pour satisfaire la conformité d'exposition aux RF.

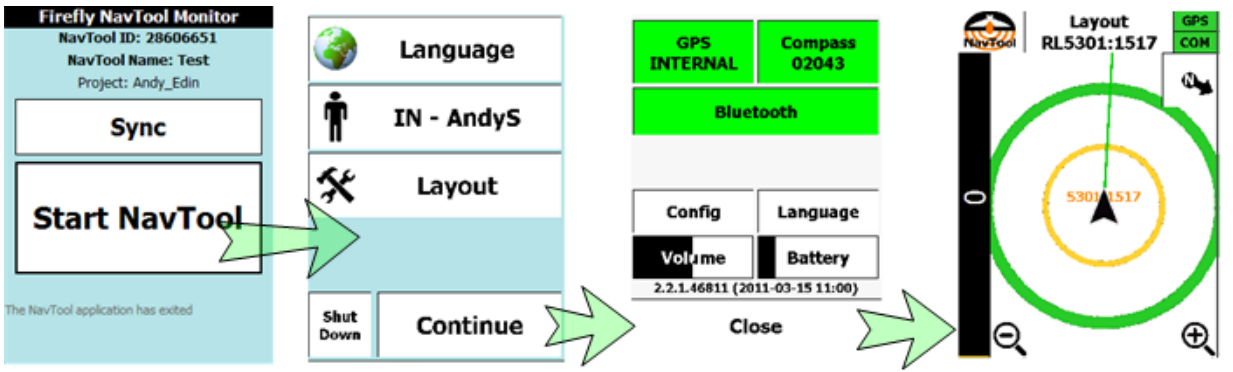
Industrie Canada (CNR-110 Numéro 9 Juin 2007 Section 7.1.5)

Ce dispositif a été désigné pour fonctionner avec les antennes énumérées ci-dessous, et d'avoir un gain maximum de 5,2 dB. Antennes pas inclus dans cette liste ou ayant un gain supérieur à 5,2 dB sont strictement interdites pour l'utilisation avec cet appareil. L'impédance d'antenne requise est de 10 ohms.

Format antenne Référence: YK150-W135

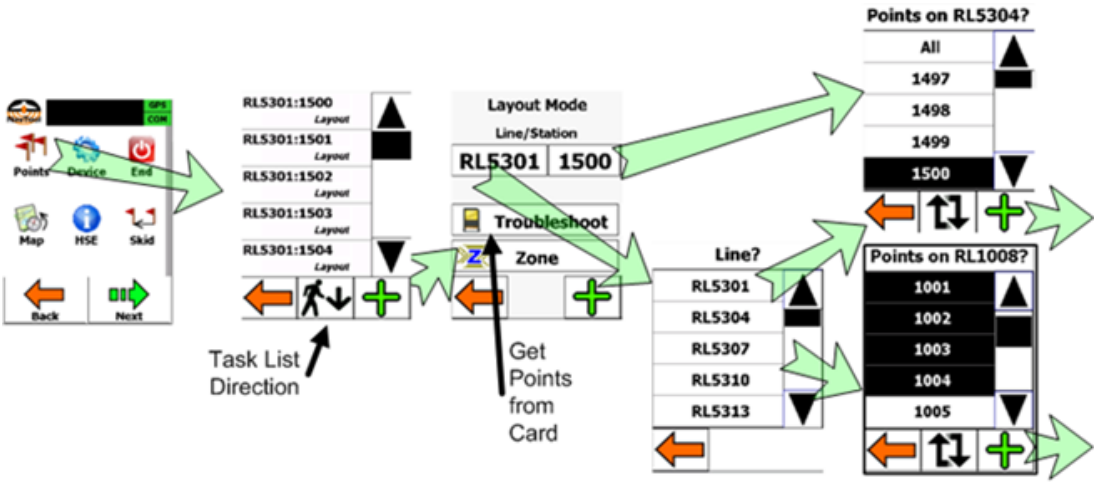
NavTool Start Up

1. Turn on NavTool and click **Start NavTool**.
2. Select **Language**, **Crew** and **Operator**, and **Continue**.
3. If **messages** appear, read and tap **OK**.
4. Tap **Close** to show map.



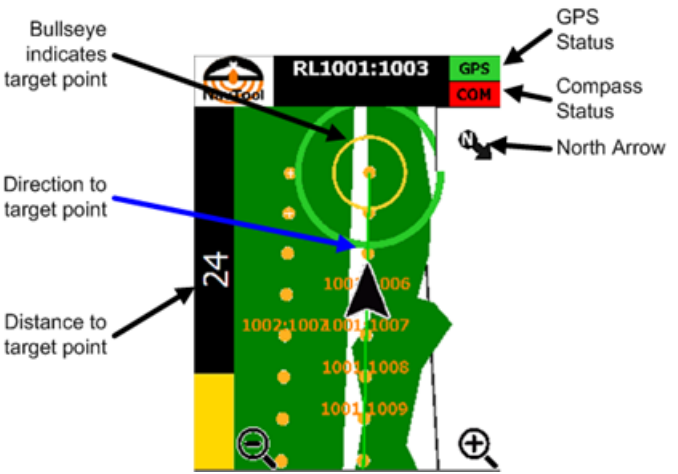
NavTool Point Selection

1. From the main Menu select **Points.**
2. Tap + to add points.
3. Tap **Line** to display the list of lines.
4. Select the Line to choose points from.
5. Select the points to add then tap + :
   - All for all points on a given line
   - Range for a range of points (select the first and last point to add all points in the range
   - Single Point

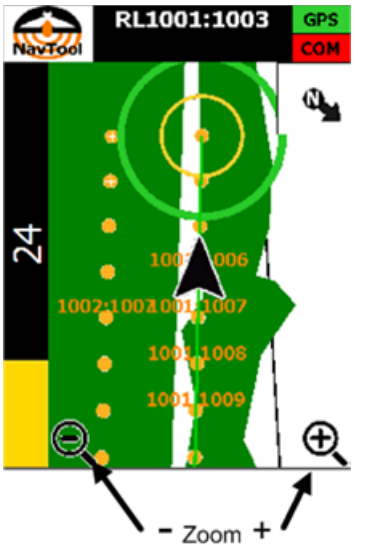


NavTool Map

The Map/Navigation screen shows you the direction and distance to your next task. It also shows hazards/exclusions, nearby roads and buildings, etc.



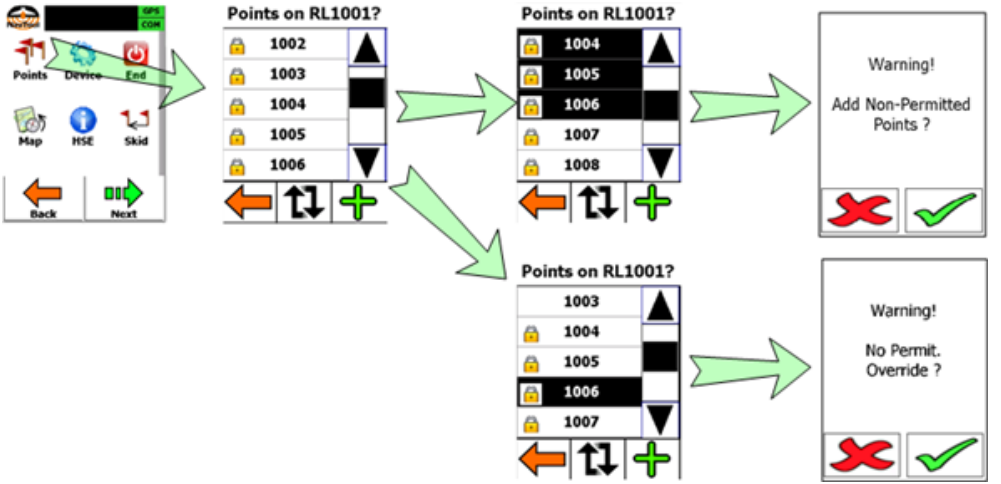
- Zoom in and out by tapping + and -.
- Pan the map by dragging your finger across the screen.
- Reset the map view by tapping the center of the screen.



No Permit

The NavTool allows you to override a point that is currently set as **No-Permit**.

1. A No Permit point is displayed in the Points list with a Padlock.
2. Add either a range of No-Permit points (override the No-Permit setting) or a single point:
   - To add a range of points, select the first and last point in the range (the selection will turn black).
   - To add a single point, select the desired point from the list.
3. Tap ✓ to override the point setting.

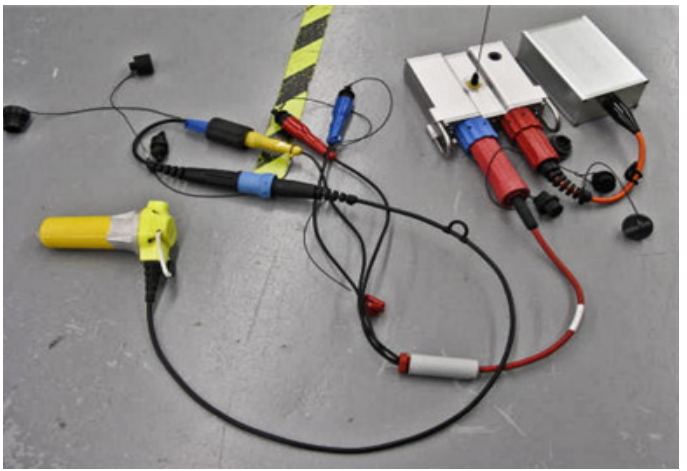


Receiver Station Equipment

SVSM Station

From Left to Right:

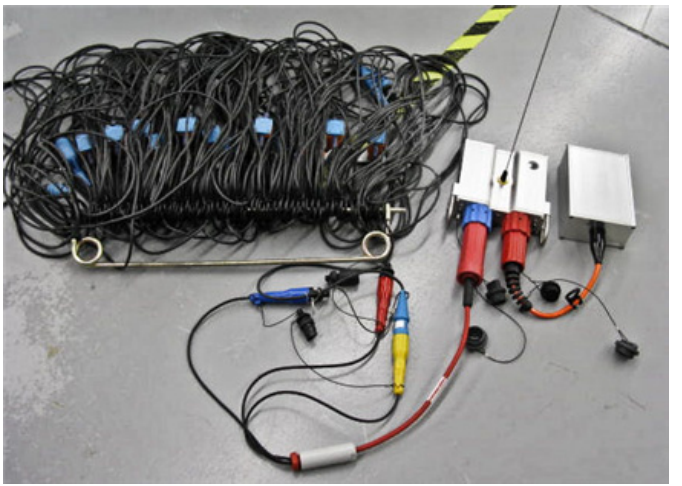
SVSM
FSU w/Antenna
Battery



GDU Station

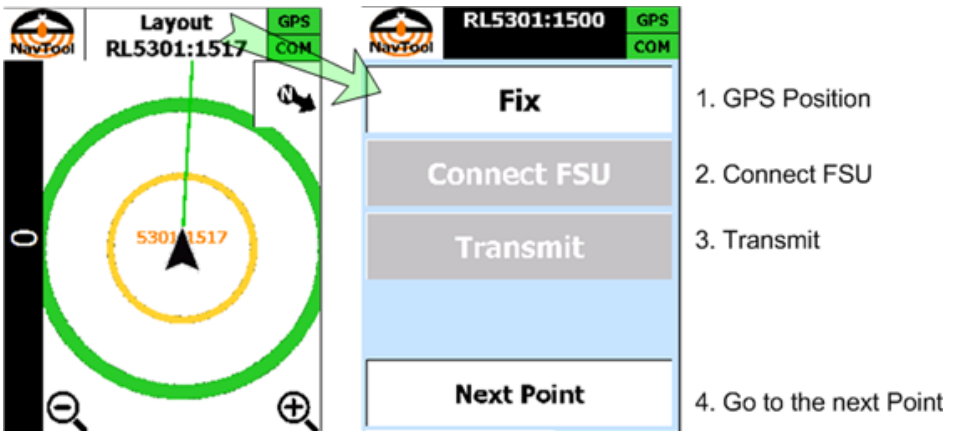
From Left to Right:

GDU (connected to String)
FSU w/Antenna
Battery



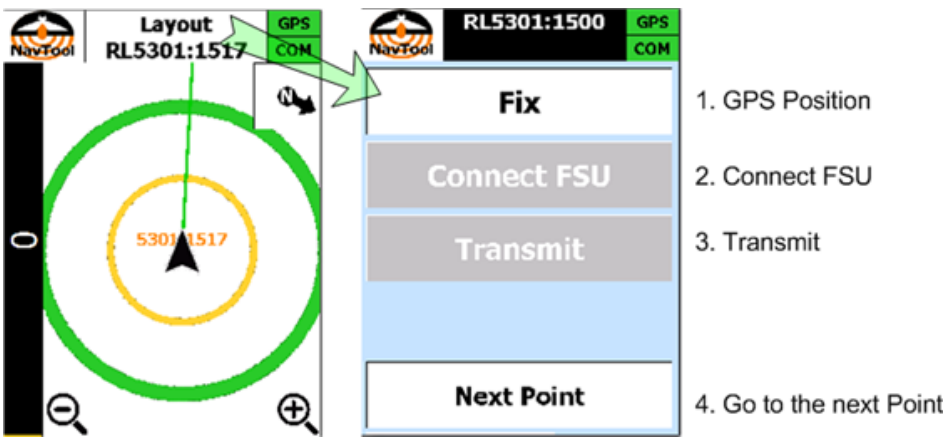
Task – Layout/Deployment (SVSM)

1. **Locate Station** using NavTool map.
2. **Auger** hole and **Plant SVSM**.
3. Connect Equipment in this order:
   a. ***S*ensor** (SVSM)
   b. ***A*ntenna**
   c. ***P*ower** (Battery)
4. Place **Pole on Sensor**.
5. (*NavTool*)Tap **Layout**, then **Fix**, then **Connect FSU**, then **Transmit**.
6. (*NavTool*) Tap **Next Point**.



Task – Layout/Deployment (GDU/Geophone String)

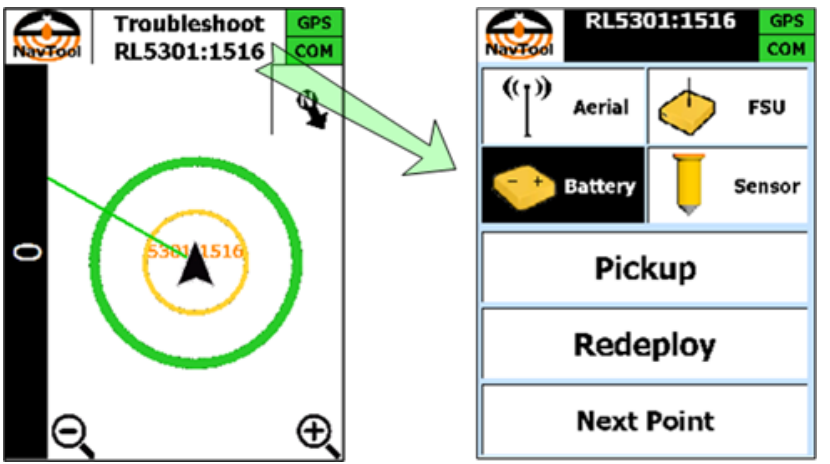
1. **Locate Station** using NavTool map.
2. Plant geophone array.
3. **Connect** Equipment in this order:
   a. ***S*ensor (Geophone String to GDU** and **GDU to FSU)**
   b. ***A*ntenna**
   c. ***P*ower** (Battery)
4. (*NavTool*)Tap **Layout**, then **Fix**, then **Connect FSU**, then **Transmit**.
5. (*NavTool*) Tap **Next Point**.



Task – Battery Swap

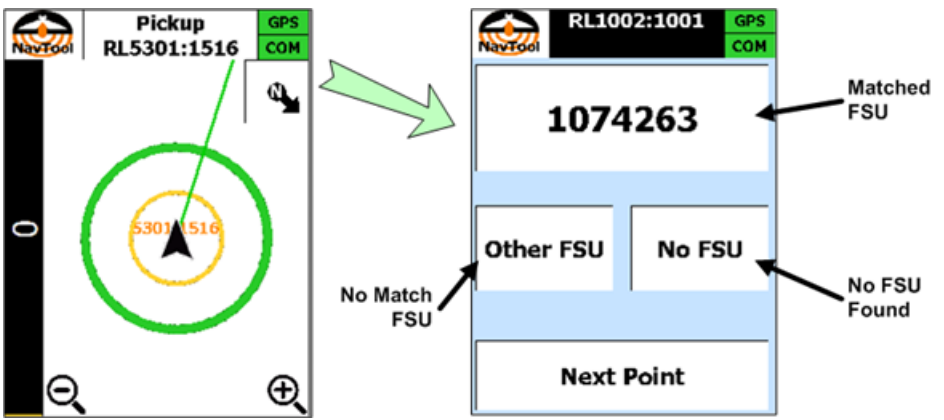
A Battery Swap is done with a **Troubleshoot** task.

1. **Locate Station** using NavTool map.
2. (*NavTool*) Tap **Troubleshoot**.
3. (*NavTool*) Tap **Battery**.
4. **Unplug Old** battery.
5. **Plug in New** battery.
6. (*NavTool*) Tap **Next Point**.



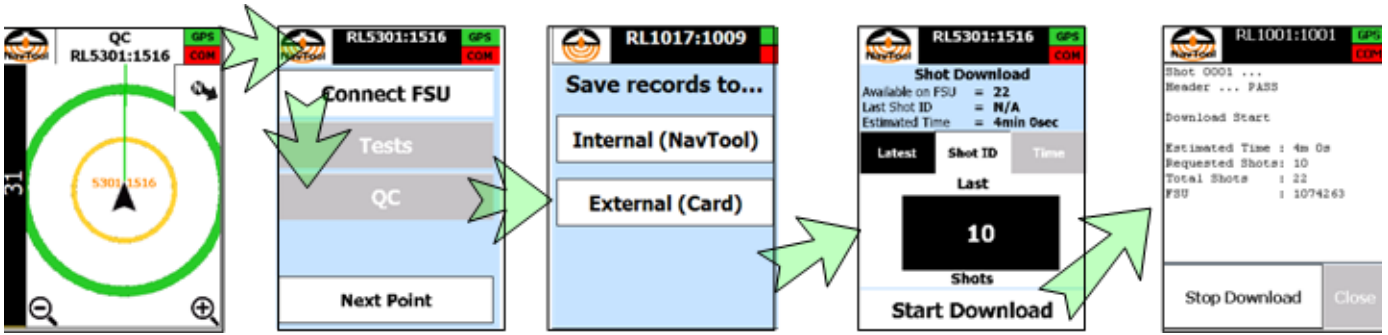
Task – Pickup

1. **Locate Station** using NavTool map
2. (*NavTool*) Tap **Pickup**.
3. (*NavTool*) **Confirm FSU ID:**
   a. **Match?** - Tap **FSU ID**.
   b. **No Match?** - Tap **Other FSU**, and enter ID of FSU picked up.
   c. **No FSU?** - Tap **No FSU**.
4. **Disconnect** Equipment in this order:
   a. ***P*ower** (Battery)
   b. ***A*ntenna**
   c. ***S*ensor (GDU then Geophone String,** or **SVSM)**
5. (*NavTool*) Tap **Next Point**.



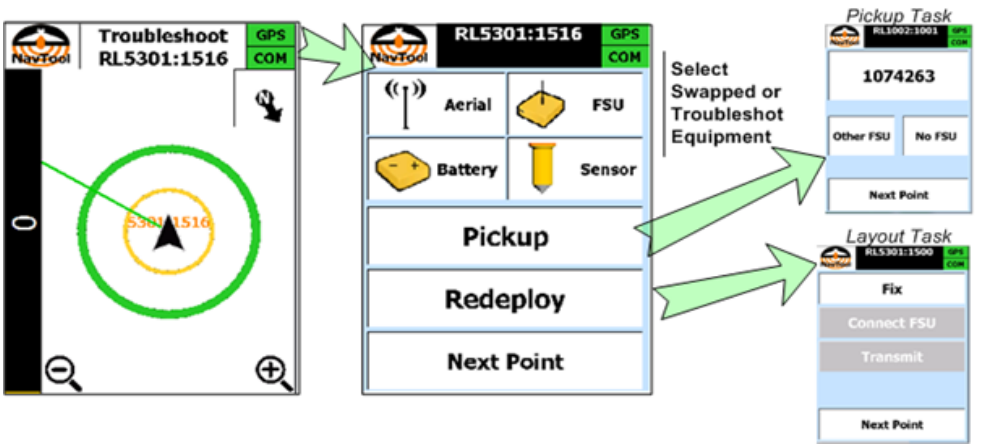
Task – QC

1. **Locate Station** using NavTool map.
2. **Magnet Swipe FSU**
3. (*NavTool*) Tap **QC** then **Connect FSU**.
4. (*NavTool*) Select FSU.
5. (*NavTool*) Put Records where…?
   a. Tap **Internal** to save to device.
   b. Tap **External** to save to SD Card.
6. (*NavTool*) Choose **Download Type**.
   a. **Latest -** Enter number of shots to download.
   b. **Shot ID** - Enter F**irst** and **Last shot IDs** to download.
7. (*NavTool*) Tap **Start Download**.
8. (*NavTool*) When download completes, tap **Next Point**.



Task – Troubleshoot

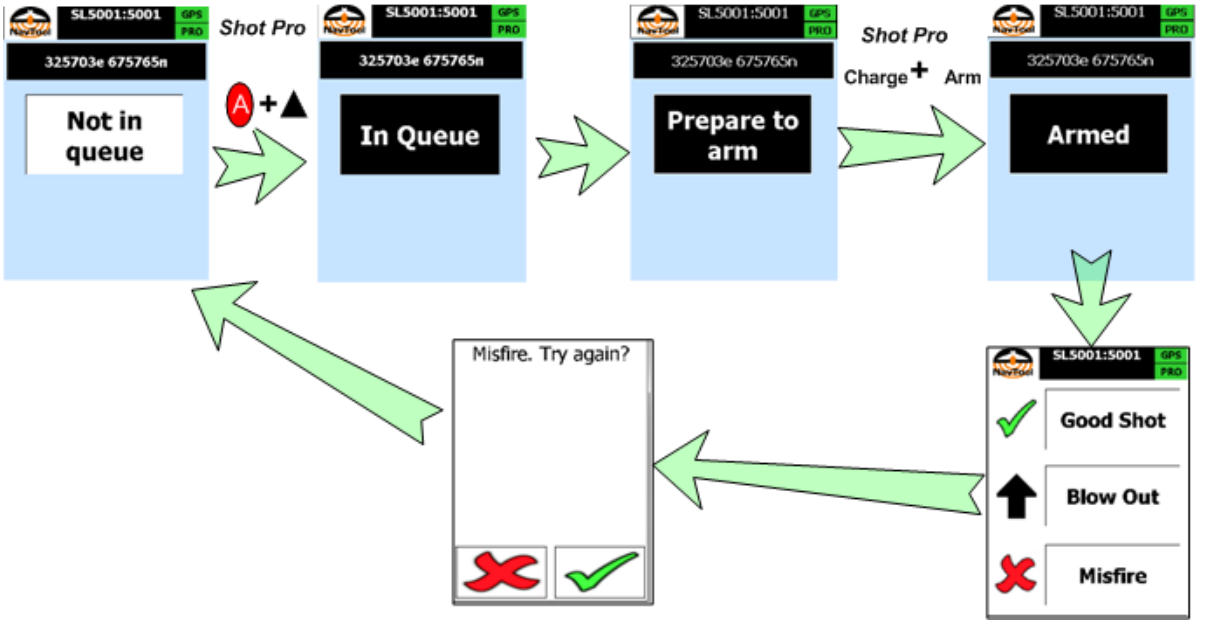
1. **Locate Station** using NavTool map.
2. (*NavTool*) Tap **Troubleshoot**.
3. (*NavTool*) Select Equipment that was troubleshot or swapped.
   a. **FSU**
   b. **Battery**
   c. **Sensor** (SVSM or GDU & Geophone string)
   d. **Antenna** (Aerial)
4. **Pickup?** – If picking up *all* equipment tap **Pickup** to perform Pickup task**.**
5. **Redeploy?** – If redeploy is required (indicated by **!!**) tap **Redeploy** to perform Layout task.
6. Tap **Next Point.**



Task – Shooting

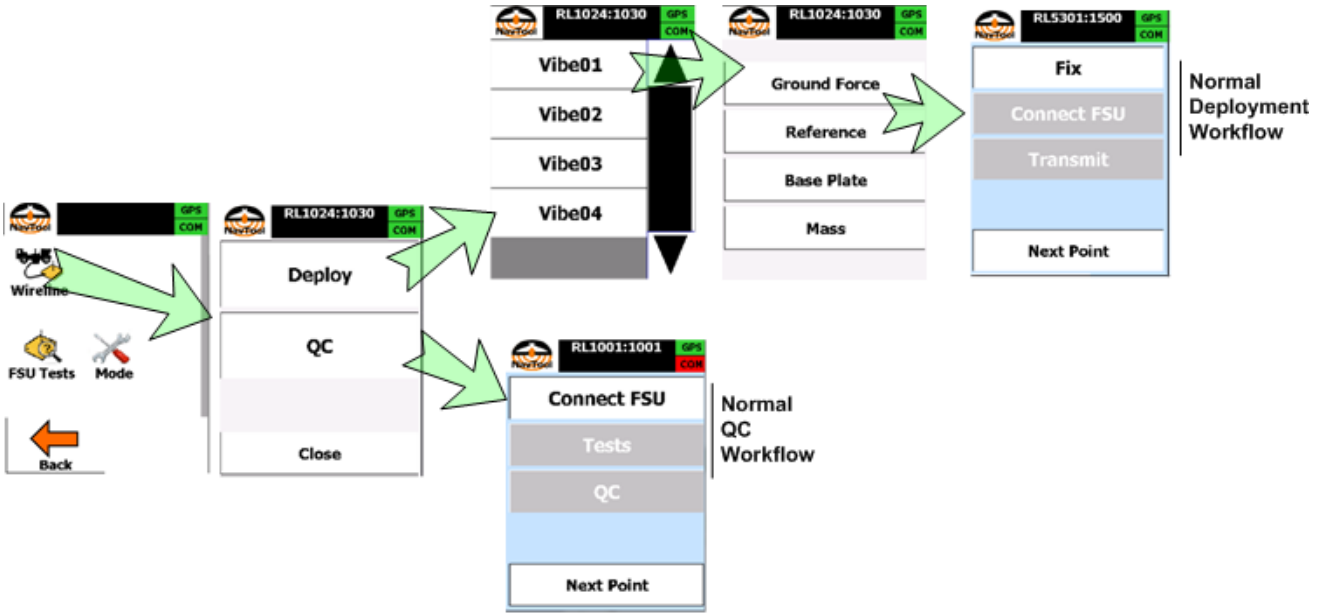
1. **Locate Station** using NavTool map.
2. (*NavTool*) Tap **Shoot** then **Fix** above shothole.
3. Connect **Firing line** to cap lead.
4. Plant **Uphole phone**.
5. ***Back Off*** to safe distance.
6. (*Shot Pro*) Arm Shot Pro - press [ ] on the Shot Pro, then [ ] to arm the pack.

7. (*NavTool*) Wait for the following screens:
   - **In Queue**
   - **Prepare to Arm**
   - **Arm ShotPro**
8. (*ShotPro*)Press **Charge** and **Arm** buttons together to arm, and **wait for the Fire Command**.
9. (*NavTool*) Select **Shot Status**:
   - Good Shot
   - Blowout
   - Misfire
10. (*NavTool*) If a **Misfire**, select to **Try Again** or **Abort**.
11. (*NavTool*) Tap **Next Point**.


SL5001:5001
GPS PRO
325703e 675765n
Not in queue
Shot Pro
A + ▲
SL5001:5001
GPS PRO
325703e 675765n
In Queue
SL5001:5001
GPS PRO
325703e 675765n
Prepare to arm
Shot Pro
Charge + Arm
SL5001:5001
GPS PRO
325703e 675765n
Armed
SL5001:5001
GPS PRO
Good Shot
Blow Out
Misfire
Misfire. Try again?

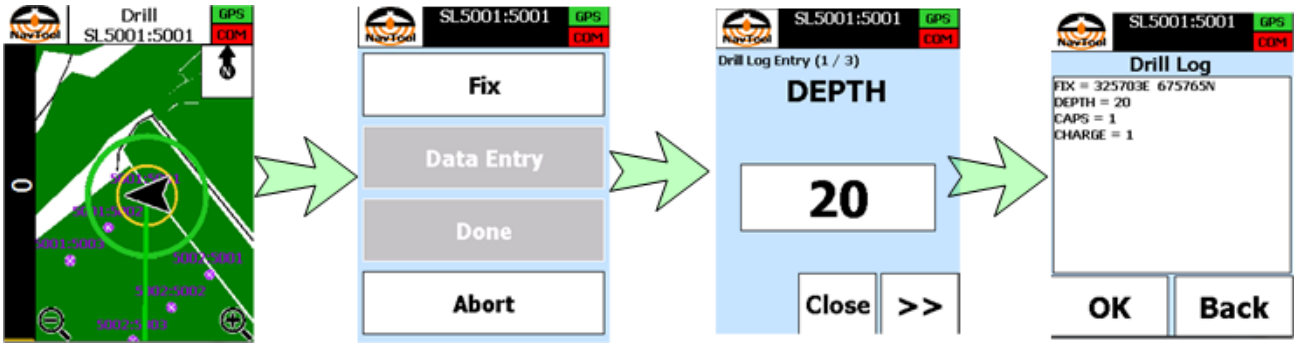
Task – Wireline Sims

1. **For Each Sim to be recorded** (*all* traces on *all* vibes to be tested):
   a. Connect **FSU to GDU.**
   b. Connect **GDU to Truck Wireline cabling.**
2. (*NavTool*) Tap **Menu** then **Wireline Sims.**
3. (*NavTool*) **Deploy FSUs.** For each FSU:
   a. Tap **Deploy** and **Select Vehicle.**
   b. Select **Trace Type** (Ground Force, Reference, etc.)**.**
   c. Follow **Normal GDU Layout** workflow (page 13).
4. **Contact Observer** to **Run Sim(s).**
5. (*NavTool*) **QC FSUs.** For each FSU:
   a. Tap **QC.**
   b. Follow **Normal QC** workflow (page 16).
6. (*NavTool*) Tap **Close.**


RL1024:1030
Vibe01
Vibe02
Vibe03
Vibe04
RL1024:1030
Ground Force
Reference
Base Plate
Mass
RL5301:1500
Fix
Connect FSU
Transmit
Next Point
Normal
Deployment
Workflow
Wireline
FSU Tests
Mode
Back
RL1024:1030
Deploy
QC
Close
RL1001:1001
Connect FSU
Tests
QC
Next Point
Normal
QC
Workflow

Task – Drilling

1. **Locate Station** using NavTool map.
2. Drill shothole.
3. (*NavTool*) Tap **Drill** then **Fix** above shothole.
4. (*NavTool*) Tap **Data Entry**.
5. Check and edit each **Shot Log** value and tap **>>**
6. Tap **Close** to finish ShotLog entry.
7. Tap **Done**.
8. **Review Drill Log**.
9. Tap **OK**.



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