

Nonexplosive Oilfield Products

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NeoNEST Run-In & Plug Setting Procedures Document # DRI-9100-0000

1. Always test stroke the NeoNEST before attaching the bridge plug and before RIH.

Always Soft-Start NeoNESTs

- A shooting panel cannot be used when powering a NeoNEST. Always use a 300 V_{dc} or 600 V_{dc} power supply. Contact NeoProducts for a quotation if a power supply is needed for your location.
- Never apply instant-on voltage to NeoNESTs.
- Never repeatedly toggle on/off switches or power leading to NeoNESTs.
- **Whenever powering up NeoNESTs, start at zero voltage and increase the voltage at a slow-to-moderate rate. As you are increasing the voltage, watch the current increase on the power supply display. Once the current suddenly drops back down to 0 mA, stops increasing the voltage. Record this voltage reading since this voltage reading is the point where you have exceeded 260 V to the motor, resulting in the tool to stop operating. Slowly decrease the voltage until you notice the current begin to increase again. At this point, the voltage to the motor is now below 230 V again and is operating as expected. Increase the voltage to 10 volts less than the voltage where the current dropped to 0 mA. This will be the voltage used to operate the NeoNEST.**
- 10,000+ ft of WL or a WL Simulator Box (set at 20,000-30,000ft) should always be located between the power supply and NeoNESTs when applying voltage to the tools.
- Before RIH, make sure the Ball Seat Fixture of the Reset Tandem Sub is threaded in the closed position. Failure to close the Ball Seat Fixture will result in the NeoNEST not stroking. **Tighten the Ball Seat Fixture with a torque rating of 8-11 foot-pounds (ft-lbs).**

2. Connect the power supply to the collector ring so that there is 10,000+ ft of WL between the power supply and the NeoNEST.

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3. Start at zero voltage and send power down the WL by increasing the voltage at a slow-to-moderate rate to the voltage determined above. Closely observe the voltage and current.
4. Allow the **Neo**NEST to stroke for 8 minutes and then stop supplying any power to the tool by turning the voltage on the power supply back down to 0 V. Turn the power supply off.
5. Measure the stroke length of the **Neo**NEST and divide this length by the 8 minutes of stroke time. Note: This value will give you the stroke rate (in/min) of the tool. Record this stroke rate.
Stroke Time: 8 minutes
Stroke Length: _____
Stroke Rate: _____
6. Reset the **Neo**NEST with the supplied 5/16" allen wrench. Note: You should only have to unscrew the Reset Screw one full turn to visibly see the **Neo**NEST resetting. Once the tool has completely reset, tighten the Reset Screw. **Tighten the Ball Seat Fixture with a torque rating of 8-11 foot-pounds (ft-lbs).** *See last page for Reset Procedures.
7. Attach the bridge plug or packer per standard procedures.
8. Perform the following setting operations come the time to set the plug:
 - a. Using safe standard operating procedures, run the plug in the hole and locate the plug at the desired setting depth.
 - b. Once the plug setting cycle is to begin, prepare to monitor and write down the power supply voltage & current, and the line weight vs. time. Start at zero voltage and send power down the WL by increasing the voltage at a slow-to-moderate rate to the voltage determined above. Closely observe the voltage and current.
 - c. Monitor the current very closely during the setting cycle. Pay close attention to the ebb and flow of current as the various plug elements are deployed.
 - d. Closely observe the current and the weight indicator for signs of a stud breaking.
 - e. **The final stage of the setting operation will be a steep ramping increase of current as the seal elements are energized and the slips are set. The current will continuously increase with time whereupon the stud breaks and the current will suddenly drop to a very low value. Due to a voltage drop to the motor during this current increase, voltage on the power supply should be increased for every 200 mA that the current increases during this final ramp in current. Depending on the resistance in the line, you should increase the voltage by the following volts per 200 mA current increase:**

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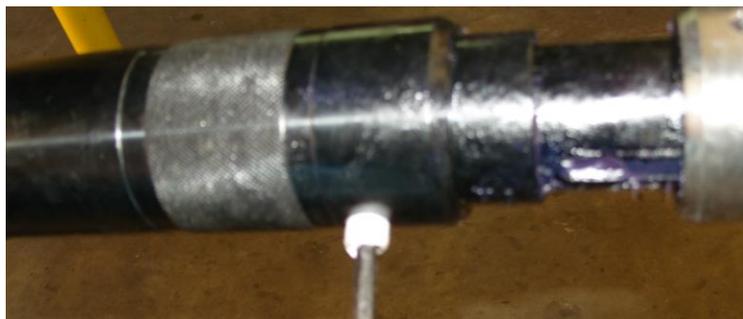
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Resistance of Wireline (ohms)	Voltage Increase Needed per 200 mA increase (V)
50	10
100	20
150	30
200	40
250	50
300	60

- f. Allow the tool to run for 15 more seconds after the abrupt drop in current. Then, remove the power to the tool. Continue to record line weight.
 - g. Slowly and carefully perform the routine operations used to verify that the plug is set in place.
9. Continue with the remainder of the service operations once the plug is shown to be set.
10. Before resetting the **Neo**NEST upon return of the BHA to the surface, clean the lower BST with water by using the Water Flushing Tool. Unthread the pipe plug and install the Zerk Fitting in order to apply grease to the tool.



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11. When daily operations are complete, wash and wipe down the **NeoNEST** with fresh water.
12. Inspect the **NeoNEST** for apparent service worthiness. Remove the tension stud remnant.
13. Write a service report on the service conditions encountered by the **NeoNEST**. These conditions will be added to the service history for the **NeoNEST** to facilitate appropriate Redressing and maintenance of the **NeoNEST**
14. Remove the setting sleeve adapter. Using fresh water and the Water Flushing Tool, hose down the Piston Rod and Setting Mandrel to remove salt and other debris from the lower BST.
15. Stow the **NeoNEST** in its shipping container and place it out of direct sunlight and nature's elements.

Lubricate O-Rings and threads appropriately. The threaded connections should be service ready. Take care not to damage the O-rings during assembly.

At the end of each day that the **NeoNEST** is used, back off about three threads on each threaded connection in order to apply the supplied grease to the threads. Applying the supplied grease to each of the threaded connections will allow you to easily disassemble the tool when a complete redress and oil change is required.

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NeoNEST Reset Procedures

1. Upon return to the surface, lower the bottom of the **NeoNEST** out the bottom of the lubricator so that the Reset Valve is readily accessible.
2. Inspect the **NeoNEST**. The GAP, shown in the Reset Schematic, is confirmation that the **NeoNEST** stroked and broke the stud in the previous run. The GAP must be closed in order to reset the **NeoNEST** and run the next plug. Before closing the GAP, rinse the GAP out with fresh water using the Water Flushing Tool to clean out any debris that may be in the **NeoNEST**.
3. Place a 5/16" Allen Wrench into the Ball Seat Fixture of the Reset Valve. Open the Reset Valve by rotating counter-clockwise one full turn.



4. The **NeoNEST** will reset within seconds. The GAP will diminish as the **NeoNEST** resets. Reset is achieved when the GAP is totally eliminated.
5. Close the Reset Valve by inserting the 5/16" Allen Wrench into the Ball Seat Fixture of the Reset Valve and rotating clock-wise. Make sure to completely tighten the Ball Seat Fixture. **Tighten the Ball Seat Fixture with a torque rating of 8-11 foot-pounds (ft-lbs).**

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