



AgriStag Electrical Harnesses Installation Guide and Best Practices

Interpreting this Guide

This Installation and Best Practices Guide has been prepared to assist those preparing to fit harnesses purchased through AgriStag Pty Ltd and, in turn, aims to supplement the AgriStag Terms and Conditions policy. This document has been meticulously prepared to ensure the best longevity of your new AgriStag harness. This guide is not to be interpreted as a guarantee that AgriStag harnesses will not be subjected to possible corrosion, but should be consulted to ensure the risk of corrosion is minimised.

Definition of Terms

“Connector”	for the purposes of this guide, a connector is defined as a plug or receptacle housing pins or socket, who’s purpose it to allow the AgriStag harness to interface with the intended driven component and/or electrical feedback device.
“Dummy Fit”	for the purposes of this guide, the term dummy fit means to connect the harness to all associated equipment via loose means. This would likely be in the form of suspending the harness beneath the implement with zip ties that aren’t tensioned. This would allow the installer to hang the harness from the zip ties to allow for positioning of the harness, drip loops, connectors, and re-route the harness if required.

Fitting the Harness

1. Opening the shipped carton

- 1.1 Dependant on your desire to commence work, you may (or may not) have scanned the QR code on the outside of your shipped carton before opening your shipment. To prevent inadvertent damage to the harness, it is recommended to utilise a blunt cutting tool to open your cartons. There is a risk that the harness has shifted during shipment and the use of a Stanley Knife, or other box cutting tool, may expose the harness to cutting damage.

2. Removing the harness from its packaging

- 2.1 As with opening the shipped carton, it is recommended to utilise a blunt cutting tool to open the shrink wrap covering that has been utilised to keep the harness bundled neatly during transport.
- 2.2 Unfurl the harness. The harness is gently coiled before being placed inside the shrink wrap for transport, carefully straighten the harness on a flat clean surface and inspect for damage. This initial inspection could reveal damage caused to the harness during unboxing, in-effective heat shrinking allowing the braiding to dislodge, or other forms of damage that could be relevant to a warranty. Please ensure to review the “Unloading of Goods” section of the Terms and Conditions, should any damage to the harness be noticed during this initial inspection.

3. Apply corrosion preventative barriers

- 3.1 Once the harness is ready for fitment, it is recommended to apply corrosion preventative barriers to the plug. Plugs are electrical connectors that contain sockets instead of pins. They can often be referred to as male connectors containing female pins. The recommended corrosion preventative barrier to apply to electrical connectors is dielectric grease. This grease is a silicone-based grease that repels moisture and protects electrical connectors against corrosion. Although large amounts of dielectric grease can act as a barrier and



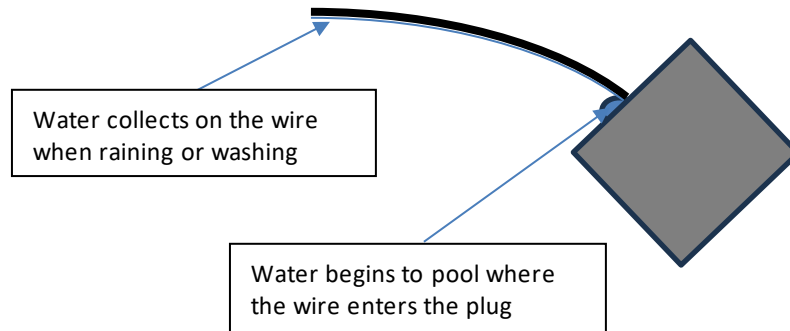
prevent electrical continuity, a small smearing across the face of a plug will allow for dielectric grease to form a barrier around the space where a pin and socket meet and prevent moisture ingress into the electrical connection. One form of dielectric grease utilised by AgriStag that has had broad success in preventing corrosion within electrical connectors is NYK-77.

4. Make a plan for fitment

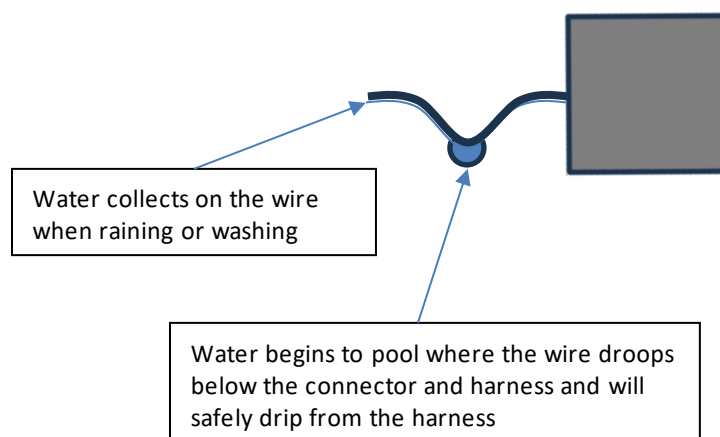
4.1 This rudimentary step can mean the difference between a successful install and wasted time. It is recommended to dummy fit the harness before securing it in its final routed position. Plan where in the harness drip loops will be positioned and how connectors will be secured. The proverbial “Prior Preparation” will prevent the risk of cutting zip ties off the secured harness and risking damage to the braid or electrical conductors.

5. Securing the harness

5.1 To combat water ingress into the connector via the backshell, it is important to mount electrical connectors in a horizontal plane. This will prevent water that is coating the wire insulation from resting on the face of the environmental barrier and seeping into the connector.



5.2 To further combat water ingress into the connector via the backshell, it is important to allow for a drip loop to allow the water to find a place to detach from the wire. By placing a drip loop as part of the harness routing, water will drain away from instead of towards electrical connectors.



5.3 Secure the remaining unsecured harness through either p-clamps or zip ties. When utilising p-clamps, it is recommended that the appropriate size clamp is utilised. Over-clamping the wire can cause bruising to the insulation and inner conductor. Likewise, if zip ties are utilised over p-clamps it is recommended to utilise a zip tie gun to tension zip ties to prevent excessive tensioning. Excessive force to the outer casing of the wire



from p-clamps or zip ties can cause internal damage, resulting in breaks and/or an increase in the electrical resistivity of the wire. This increase in resistance can cause excessive current draw which can cause damage to electrical drivers. An increase in resistance can also result in incorrect and/or erroneous sensor feedback messages.

Repairing the Harness

6. Cuts or breaks

- 6.1 In the event that the harness is damaged, AgriStag highly recommends not attempting to solder it.
- 6.2 Incorrect soldering techniques can cause dry sockets, where the solder creates an insulative barrier between the electrical conductors and increases the wire's resistance. Overheating due to incorrect soldering techniques can burn the wire, increasing its resistance, damaging its insulation, and potentially allowing water ingress and corrosion.
- 6.3 **Soldering should only ever be attempted by a certified auto-electrician and not a mechanic.**
- 6.4 To accommodate electrical repair from non-auto electricians, AgriStag recommends the use of environmentally sealable crimp-able splices. These splices are available from Narva, and where possible, heat-shrinkable crimps should always be favoured over non-heat-shrinkable alternates.
- 6.5 AgriStag also recommends protecting the splice with either self-vulcanising tape or dual wall heat shrink.
- 6.6 **Electrical tape is not suitable for environmental protection and will not prevent water or oil ingress into the electrical conductor.**
- 6.7 Partial cuts of the inner core should be removed with side cutters and the wire should be appropriately spliced together as mentioned above.
- 6.8 AgriStag does not endorse more than 1 splice per wire. If an additional splice is required, it is recommended to route a new wire.

7. Crush damage

- 7.1 Crush damage should be treated similarly to Partial cuts as mentioned above.
- 7.2 Crush damage can be difficult to diagnose as some forms of crush, can damage the inner conductor whilst causing no visible signs of damage to the insulation. Crush damage will generally not present as an increase in resistance from a multimeter. Instead, circuit load testing should be carried out with the aid of an incandescent bulb-type testing light. Low resistivity in the circuit will cause the bulb to shine brightly, whereas high resistivity will cause the bulb to shine dull. It is recommended that should the harness be suspected to have sustained crush damage to contact a certified auto-electrician to attempt circuit repair.

8. Replacing pins or socket

- 8.1 Re-termination of pins or sockets should be conducted following the manufacturer's pin removal, insertion, and crimping instructions. For identification of unknown connectors and for breakdown spares, please contact AgriStag at agristag@outlook.com.