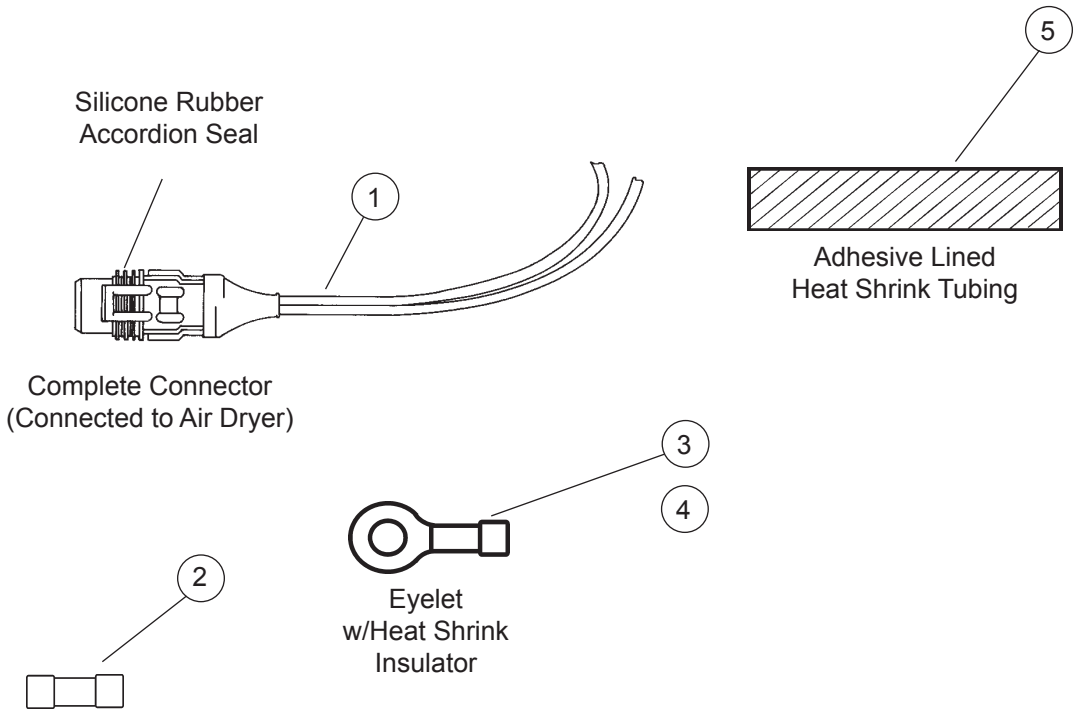
Installation Instructions

AIR DRYER WIRE HARNESS ASSEMBLY AND SPLICE KIT



Kit Contents		
Item No.	Description	Qty.
1	Wire Harness Assembly	1
2	Un-insulated Butt Splice Connector	2
3	1/4" Eyelet w/Heat Shrink Insulator	1
4	3/8" Eyelet w/Heat Shrink Insulator	1
5	2" Length Adhesive Lined Heat Shrink Tubing	2

Figure 1 - Splicing Components

GENERAL KIT INFORMATION

This instruction sheet is a guide for the installation of the air dryer wire harness assembly (1). Be sure to read the General Safety Guidelines before servicing the vehicle.

The splicing materials in this kit must be installed as directed to ensure a good waterproof splice. Waterproof splices will greatly improve the service life of wiring and ensure proper operation of the air dryer heater.

The connector on the wire harness assembly has been waterproofed at the factory and incorporates a silicone accordion seal on the wire harness connector to seal it to the air dryer connector.

GENERAL SAFETY GUIDELINES

WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following guidelines should be observed AT ALL TIMES:

- **▲Park the vehicle on a level surface, apply the parking brakes and always block the wheels. Always wear personal protection equipment.**
- **▲Stop the engine and remove the ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, EXTREME CAUTION should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically-charged components.**
- **▲Do not attempt to install, remove, disassemble or assemble a component until you have read, and thoroughly understand, the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.**
- **▲If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with a Bendix® AD-IS® air dryer system, a Bendix® DRM™ dryer reservoir module, or a Bendix® AD-9si® air dryer, be sure to drain the purge reservoir.**
- **▲Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.**
- **▲Never exceed manufacturer's recommended pressures.**
- **▲Never connect or disconnect a hose or line containing pressure; it may whip and/or cause hazardous airborne dust and dirt particles. Wear eye protection. Slowly open connections with care, and verify that no pressure is present. Never remove a component or plug unless you are certain all system pressure has been depleted.**
- **▲Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, wiring, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.**
- **▲Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.**
- **▲Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.**
- **▲For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.**
- **▲The power MUST be temporarily disconnected from the radar sensor whenever any tests USING A DYNAMOMETER are conducted on a vehicle equipped with a Bendix® Wingman® system.**
- **▲You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.**

WIRING THE HEATER ASSEMBLY

1. Determine the vehicle's electrical system voltage and make certain that the air dryer that is to be installed contains the same voltage heater. Air dryers are available with either a 12 volt heater, which uses 75 watts of power, or a 24 volt heater, which uses 75 or 100 watts of power. Use the air dryer part number to confirm the proper voltage or refer to the chart below.

Air Dryer Heater Voltage/Wattage	Air Dryer Heater Connector Color
12V-75W	White
24V-75W	Gray
24V-100W	Yellow

2. Obtain power for the air dryer heater assembly from a source that is ON or OFF when the vehicle ignition or engine kill switch is ON or OFF. A fuse should be installed in the wire carrying power; install a 10 amp fuse for 12 volt heaters, and a 5 amp fuse for a 24 volt heater. Locate a good vehicle ground, preferably in a protected location, as close to the battery ground as practical.
3. Use 14 GA wire when running leads from vehicle power and ground to the wire harness assembly (1) provided in this kit. Use the wire splicing materials provided to ensure waterproofed splices.
4. Tie wrap, or support, all electrical wires leading to the air dryer at 6-8 inch intervals.

IMPORTANT: *The lead wires running from the wiring harness connector should have generous bends. Never bend the lead wires at sharp angles. Lead wires running from the wiring harness connector assembly must have sufficient slack to prevent the seals in the connector housing from being distorted (allowing contamination to enter the connector). A factory-installed secondary lock is attached to the wiring harness connector – and adhesive-lined heat shrink applied over the secondary lock and lead wires – to help prevent connector seal distortion.*

5. Before actually splicing the wire harness assembly included in this kit, first review the following sections and determine which type will be used.
   A. REMOTE POWER AND GROUND LEADS
   B. REMOTE POWER AND LOCAL GROUND LEADS

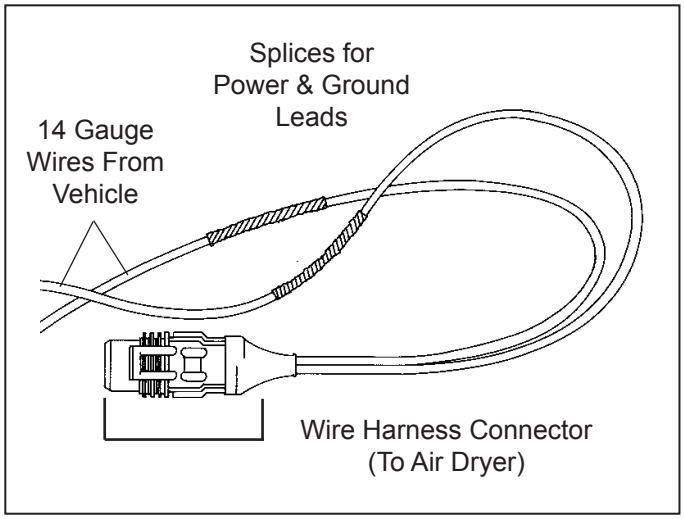


Figure 2 - Remote Power & Ground Wiring

REMOTE POWER AND GROUND LEADS

When a remote power and ground is used, the wire harness in this kit (1) is spliced to 14 GA lead wires from vehicle power and ground.

REMOTE POWER AND LOCAL GROUND LEADS

When a remote power and local ground is used, one wire of the wire harness in this kit is spliced to a 14 GA lead wire from vehicle power. Attach either the 1/4" (3) or 3/8"(4) eyelet to the other lead of the wire harness. Refer to the GENERAL SPLICING INSTRUCTIONS presented elsewhere in this instruction sheet. The eyelet (3) or (4) is then attached to a GOOD FRAME GROUND.

IMPORTANT: *Do not attach the ground lead of the wire harness to the air dryer! If the wire harness ground lead is not long enough to reach a frame ground, splice in the proper length of 14 GA.*

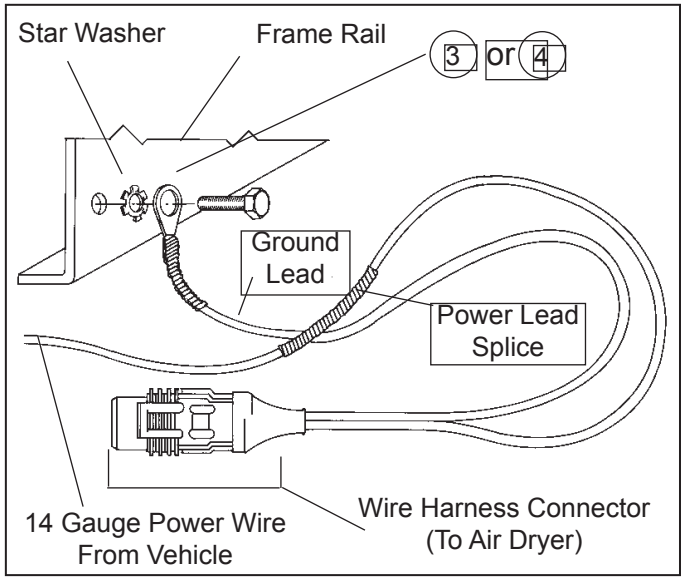


Figure 3 - Remote Power & Local Ground Wiring

GENERAL SPLICING INSTRUCTIONS

1. Strip 1/4" of insulation from the end of each lead wire. (Both leads of the wire harness (1) provided are pre-stripped.) Note: It is important to strip the correct amount of insulation to ensure the proper installation of the butt connectors (2).

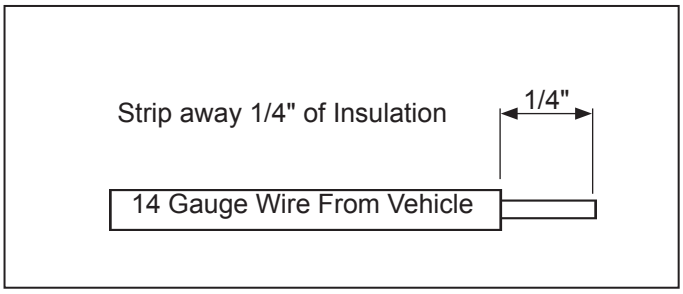


Figure 4 - Preparation for Splicing - Wire Stripping

2. Slide the two inch shrink tubing (5) over the lead wire and insert one of the lead wires into the butt connector (2) until the center stop (in the connector) is contacted. ***Note: If the correct amount of insulation was stripped, the exposed wire will contact the center stop in the butt connector (2) and the insulation will rest against the edge of the butt connector (2).*** Firmly crimp the butt connector to the lead.

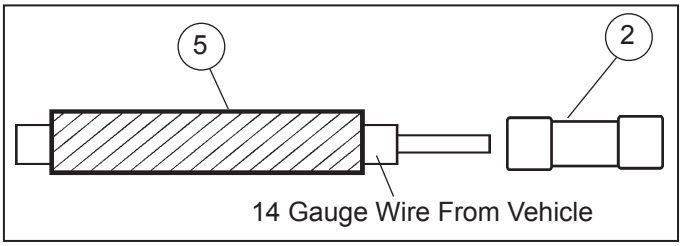


Figure 5 - Preparation for Splicing - Tubing & Connector

3. Insert the other wire harness lead (1) into the butt connector (2) and firmly crimp.
4. Center the two inch shrink tubing (5) over the butt connector (2) and – using a heat gun, or other appropriate heat source – heat the shrink tubing (5) until it surrounds the wire and forms a waterproof seal.
5. Repeat steps 2-4 for the other lead wire or refer to steps 6 and 7 for the installation of an eyelet (3) or (4).
6. If an eyelet, rather than a splice, is required at the end of one of the wire harness leads, make certain 1/4" of insulation is stripped from the 14 gauge lead wire. Insert the wire into the eyelet (3) or (4) until the insulation rests against the stop inside the eyelet heat shrink insulator, then firmly crimp the eyelet (3) or (4) to the lead wire.
7. Using a heat gun, or other appropriate heat source, heat the heat shrink tubing (5) until it surrounds the wire harness lead (1) and forms a waterproof seal between the eyelet (3) or (4) and wire harness lead (1).
8. Plug the air dryer connector into the air dryer and perform the Electrical Check detailed in these instructions.

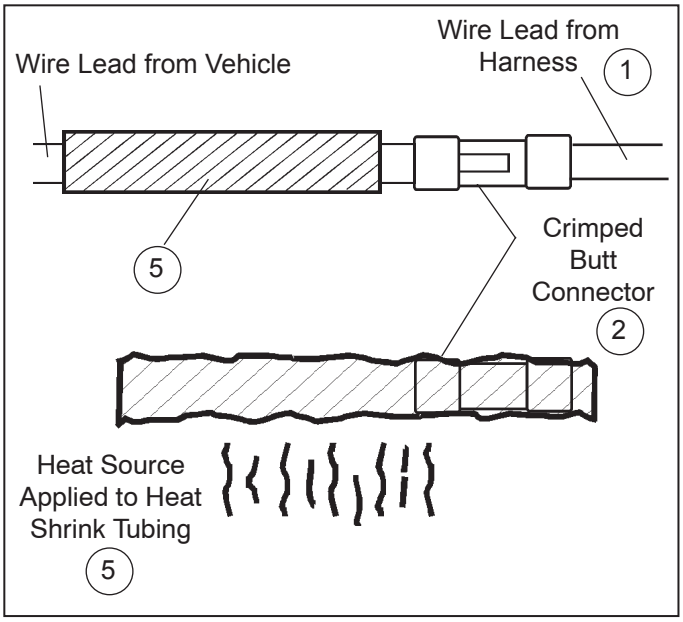


Figure 6 - Splicing - Crimping Connector & Heating The Tubing

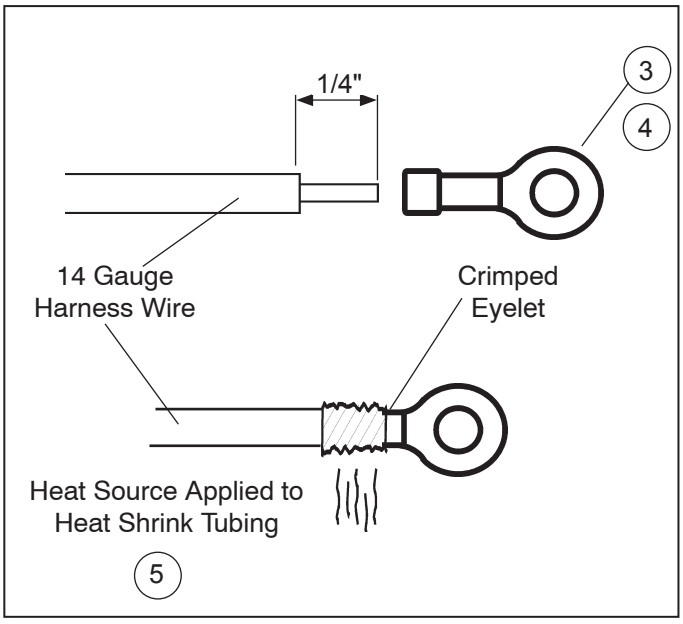


Figure 7 - Eyelet Installation

ELECTRICAL CHECK

Check the operation of the end cover heater and thermostat assembly during cold weather operation as follows:

A. Electric Power to the Dryer

With the ignition or engine kill switch in the ON position, check for voltage to the heater & thermostat assembly using a voltmeter or test light. Unplug the electrical connector at the air dryer and place the test leads on each of the pins of the male connector. If there is no voltage, look for a blown fuse, broken wires, or corrosion in the vehicle wiring harness. Check to see if a good ground path exists. *Refer to Figure 3.*

B. Thermostat and Heater Operation

Turn off the ignition switch and cool the end cover assembly to below 40°F. Using an ohmmeter, check the resistance between the electrical pins in the female connector. The resistance should be between 1.0 and 3.0 ohms for the 12 volt heater assembly, and 4.8 to 9.0 ohms for the 24 volt heater assembly. If the resistance is higher than the maximum stated, replace the heater & thermostat assembly. Note that heater and thermostat assembly may not be serviceable on older air dryers and may require the replacement of the purge valve assembly.

Warm the end cover assembly to over 90°F and again check the resistance. The resistance should exceed 1000 ohms. If the resistance values obtained are within the stated limits, the heater & thermostat is operating properly. If the resistance values obtained are outside the stated limits, replace the heater & thermostat assembly.

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