

## Introduction

### Purpose





This document provides installation instructions for the NR-H Nozzle Reader (M09677B015) kit.








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### Required Tools













Following tools are required for installing the kit.



Description	Figure
Crimping Tool	
Needle Nose Plier	
Multimeter	
Snips	

Description	Figure
Black or Grey Silicone Compound	
Wirestripper	
Phillips®-head Screwdriver	
Flat-head Screwdriver	
Assorted Tie Wraps	
Razor Knife	
Allen® Wrench	

## Parts List

Following table lists the parts included in this kit.

Description	Quantity	Figure
Receiver-Transmitter Boot	1	
Receiver-Transmitter	1	
Antennae Boot	1	
Antennae	1	
Bushing Tang	2	
Bushing Tang Screw		
Nozzle Antennae Screws		
One-sided Connectors	2	
Butt-splice Connectors	2	
Conduit Fittings	2	
Intermediate Cable	1	
Bushing	1	
Hose Clamps	2	
Tie Wraps	2	

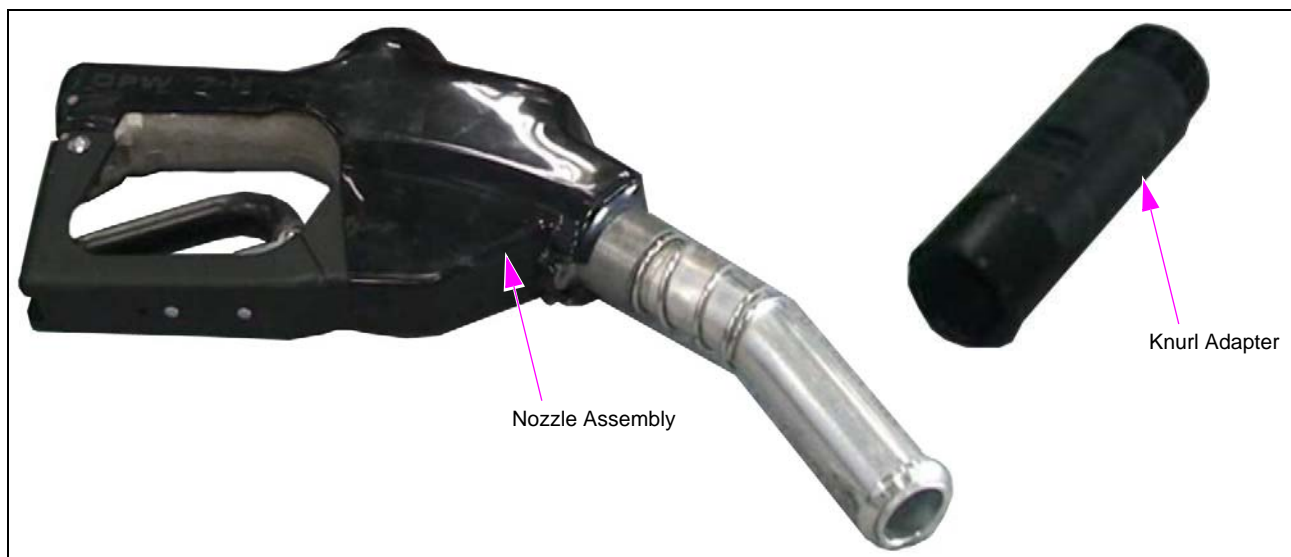
Description	Quantity	Figure
Assorted Mounting Feet	3	
Flex Conduit	1	

### Parts Not Provided in the Kit

Following additional parts not provided in the kit (see [Figure 1](#)) are also required:

- Nozzle Assembly
- Knurl Adapter
- Tools and Sealants (not shown) for installing adapter

**Figure 1: Parts Not Provided in the Kit**



# Important Safety Information

**Notes: 1) Save this Important Safety Information section in a readily accessible location.**

**2) Although DEF is non-flammable, Diesel is flammable. Therefore, for DEF cabinets that are attached to Diesel dispensers, follow all the notes in this section that pertain to flammable fuels.**

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.



## Preliminary Precautions

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.

## Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

**⚠ WARNING**

The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.

You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.

## Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gasboy equipment.

## Evacuating, Barricading and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones or barricades at the affected unit(s)
- A total electrical shut-off of the affected unit(s)

## Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call a Gasboy Authorized Service Contractor or call the Gasboy Service Center at 1-800-444-5529. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

## Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Health Administration (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

## Replacement Parts

Use only genuine Gasboy replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gasboy replacement parts could create a safety hazard and violate local regulations.

## Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

### Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

### Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury or damage to the equipment:



**DANGER:** Alerts you to a hazard or unsafe practice which will result in death or serious injury.



**WARNING:** Alerts you to a hazard or unsafe practice that could result in death or serious injury.



**CAUTION** with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.

**CAUTION** without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

## Working With Fuels and Electrical Energy

### Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF lines.

### No Open Fire



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

### No Sparks - No Smoking



Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

### Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

### Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

### Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

#### WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

#### WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.

## In an Emergency

### Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

#### WARNING



Gasoline/DEF ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.

#### WARNING

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

#### WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs. Keep airway open. Seek medical advice immediately.

#### WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

#### WARNING



Gasoline spilled on skin may cause burns. Wash area thoroughly with clear water. Seek medical advice immediately.

#### WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the work location. Seek medical advice recommended treatment if DEF spills into eyes.

**IMPORTANT:** Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

### Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.

## Installing the NR-H Nozzle Reader (M09677B015) Kit

To install the NR-H Nozzle Reader (M09677B015) Kit, proceed as follows:

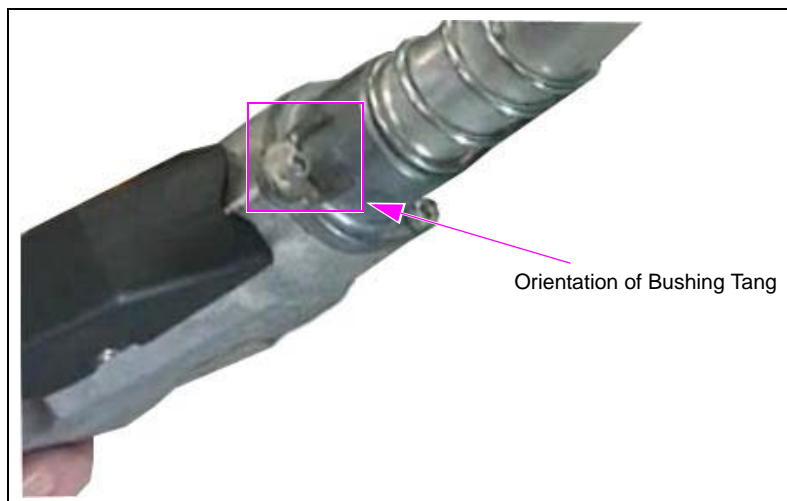
- 1 If attached, remove nozzle boot as shown in [Figure 2](#).

**Figure 2: Removing Nozzle Boot**



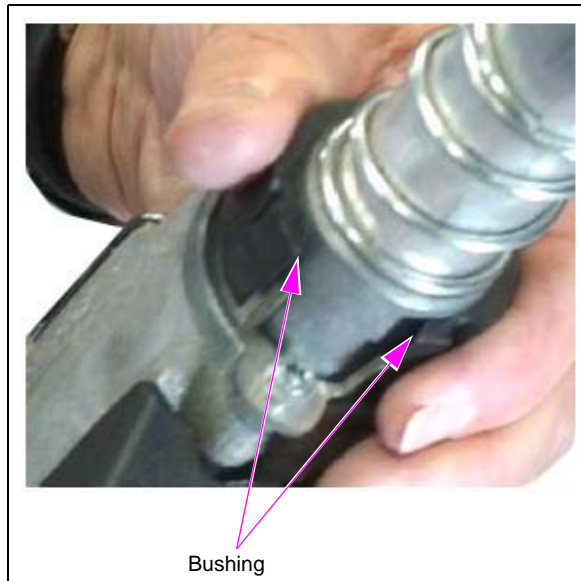
- 2 Secure the bushing tang with a bushing tang screw as shown in [Figure 3](#).

**Figure 3: Bushing Tang and Screw Assembly**



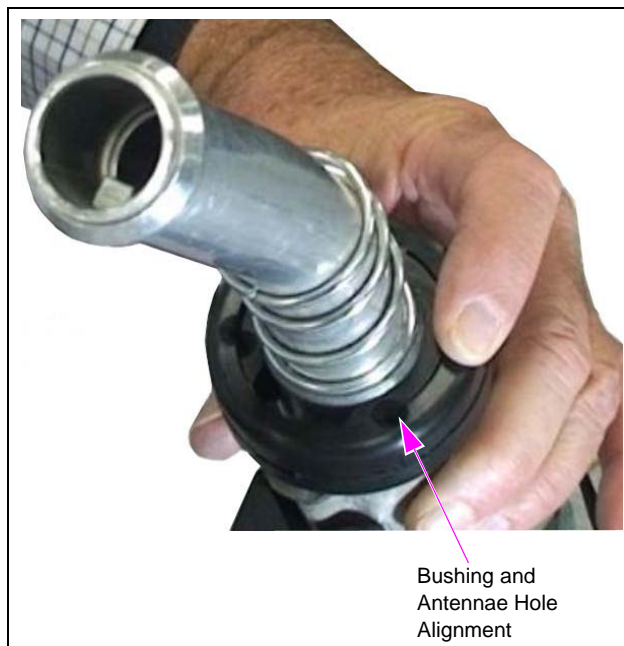
- 3 Assemble bushing with inner bushing located on the outside of tang as shown in [Figure 4](#).

**Figure 4: Bushing Orientation**



- 4 Slide antennae over bushing, lining up holes as shown in [Figure 5](#).

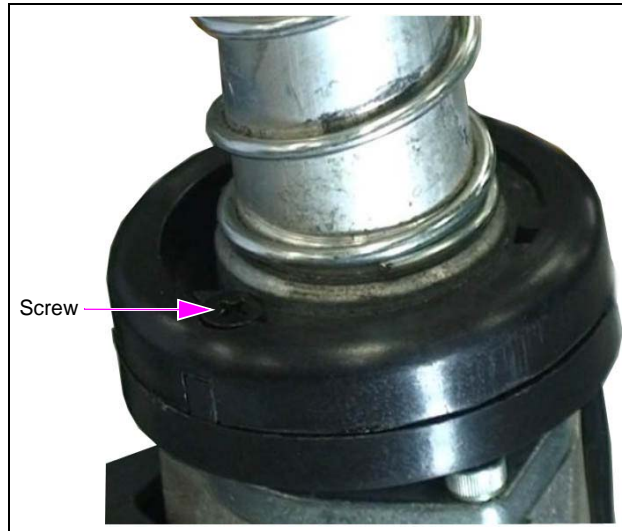
**Figure 5: Aligning Bushing and Antennae Holes**





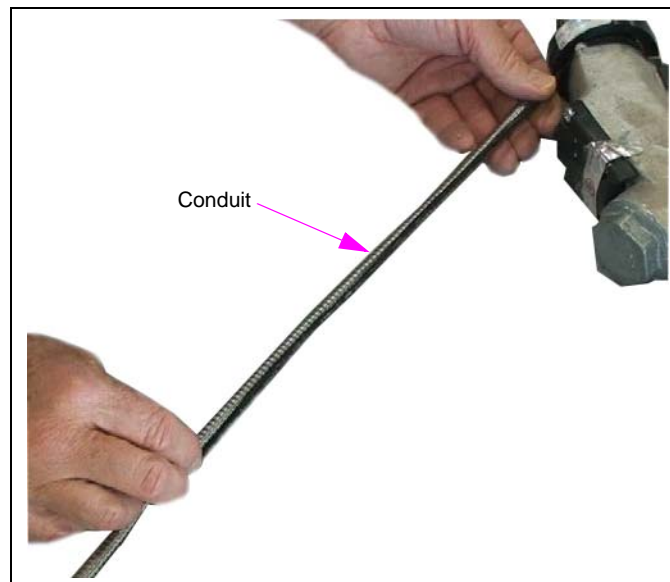
- 5 Tighten screws until just flush with top surface of antennae as shown in [Figure 6](#). DO NOT OVER-TIGHTEN as it will strip the threads.

**Figure 6: Antennae Screw**

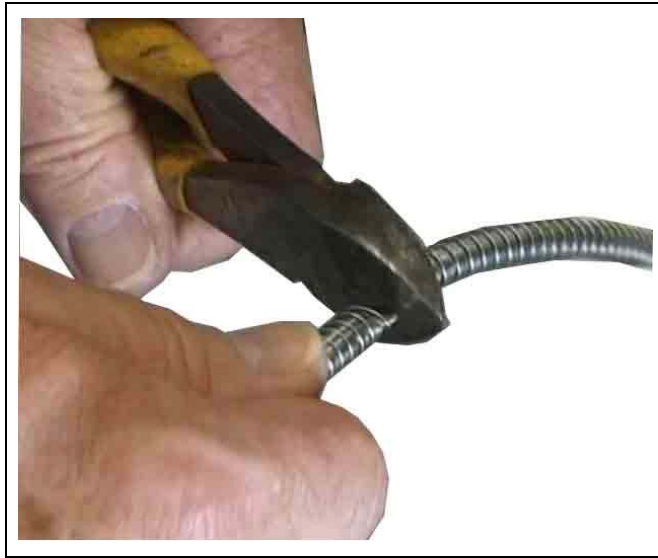


- 6 Measure the unstretched conduit to be 2-3 inches shorter than the antennae cable as shown in [Figure 7](#), and then cut it as shown in [Figure 8](#) on [page 10](#).

**Figure 7: Measuring Unstretched Conduit**



**Figure 8: Cutting Conduit to Length**



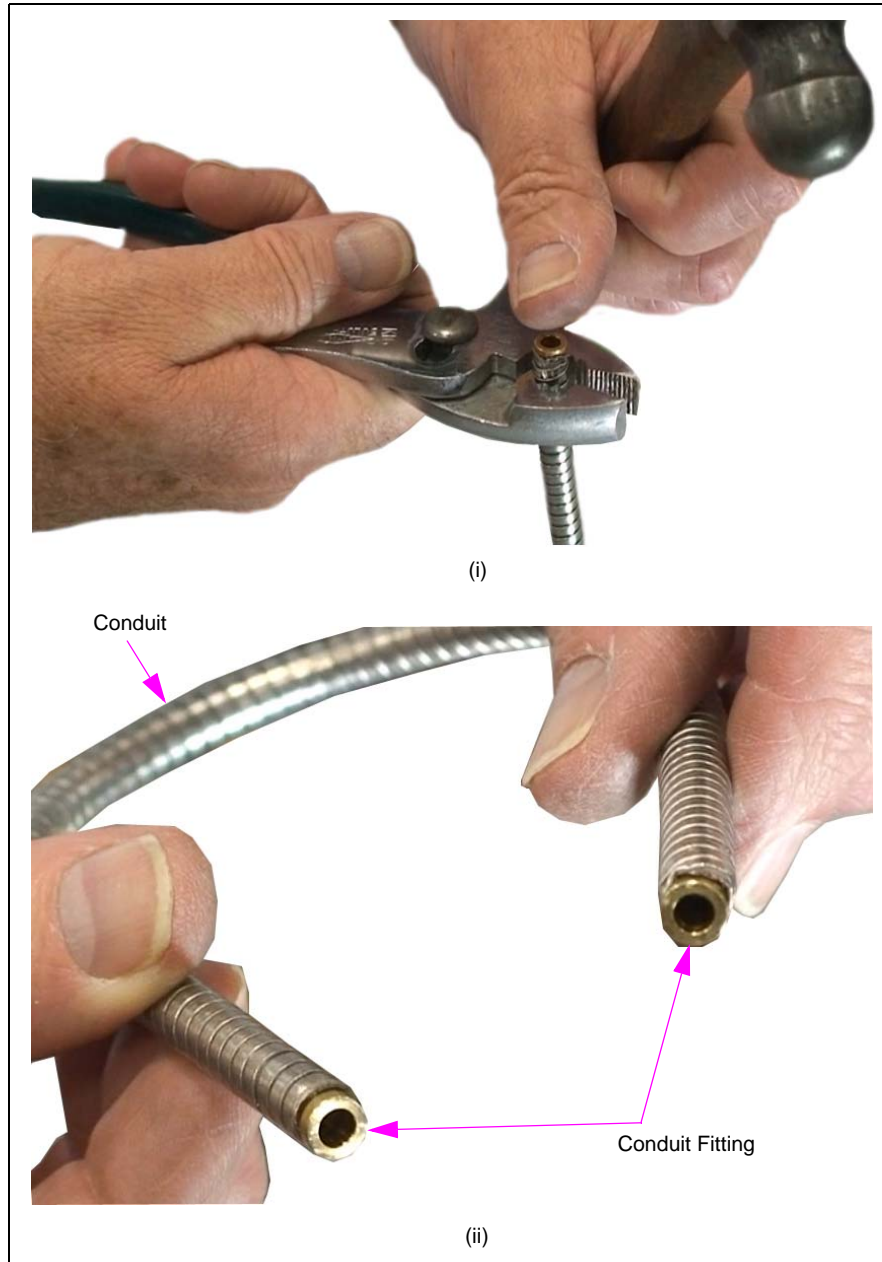
- 7 The cut end of the tube will be crimped. Open it up with a combination of standard and needle-nose pliers as shown in [Figure 9](#).

**Figure 9: Opening Crimped Tube**



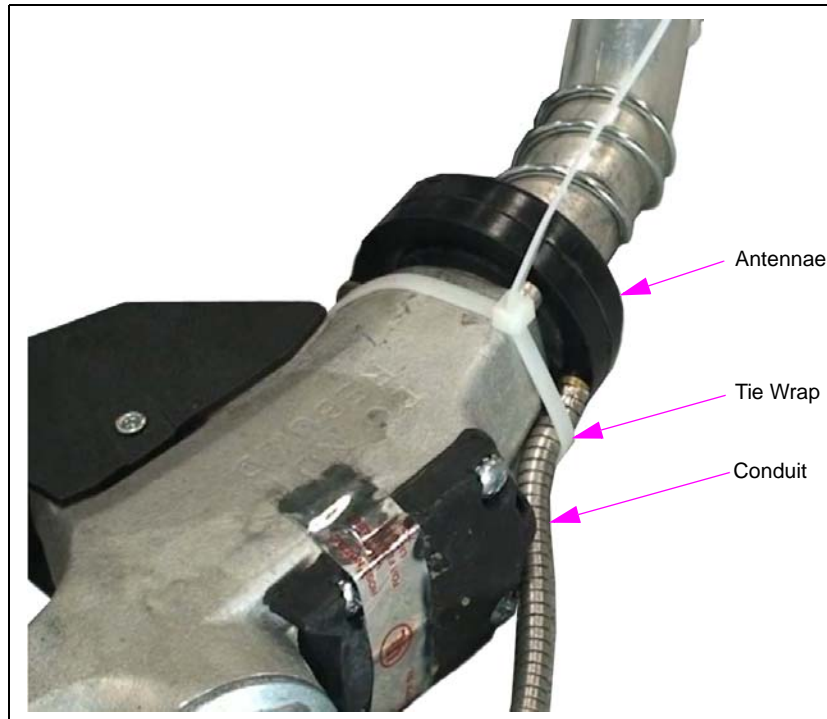
- 8 Insert conduit fittings as shown in [Figure 10](#). A hammer may be required to tap the fitting into place.

**Figure 10: Inserting Conduit Fitting**



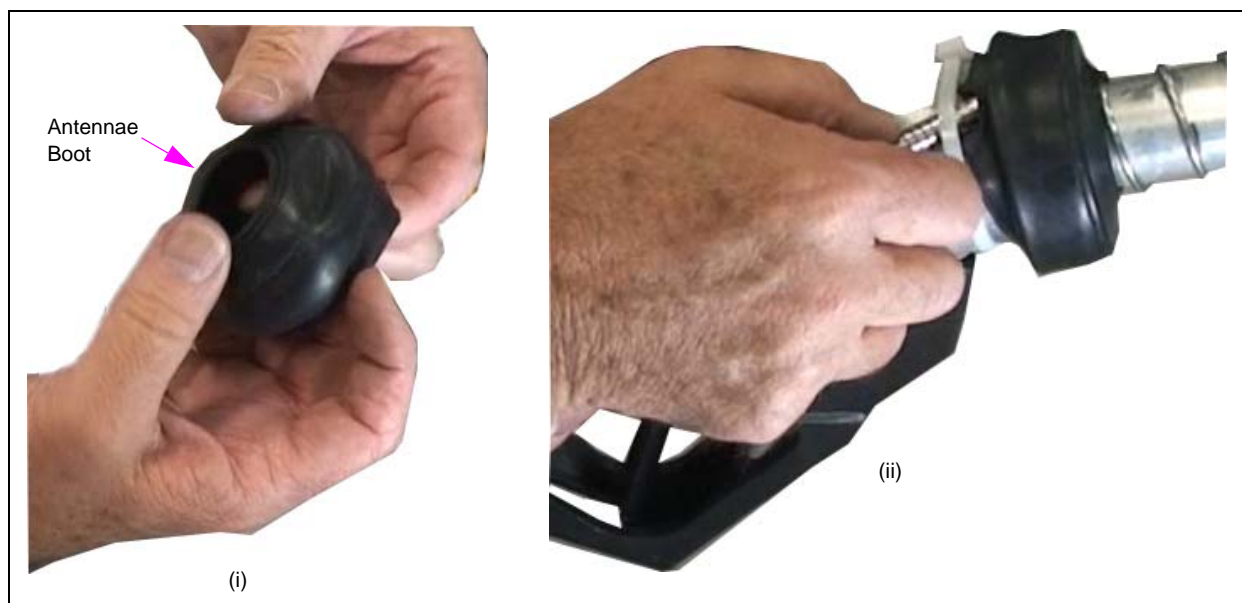
- 9 Slide the conduit over the antennae wire and use a tie wrap to loosely secure it in place as shown in [Figure 11](#).

**Figure 11: Conduit Covered Antennae Cable**



- 10 Turn antennae boot inside out and then roll it onto the antennae as shown in [Figure 12](#).

**Figure 12: Installing Antennae Boot**



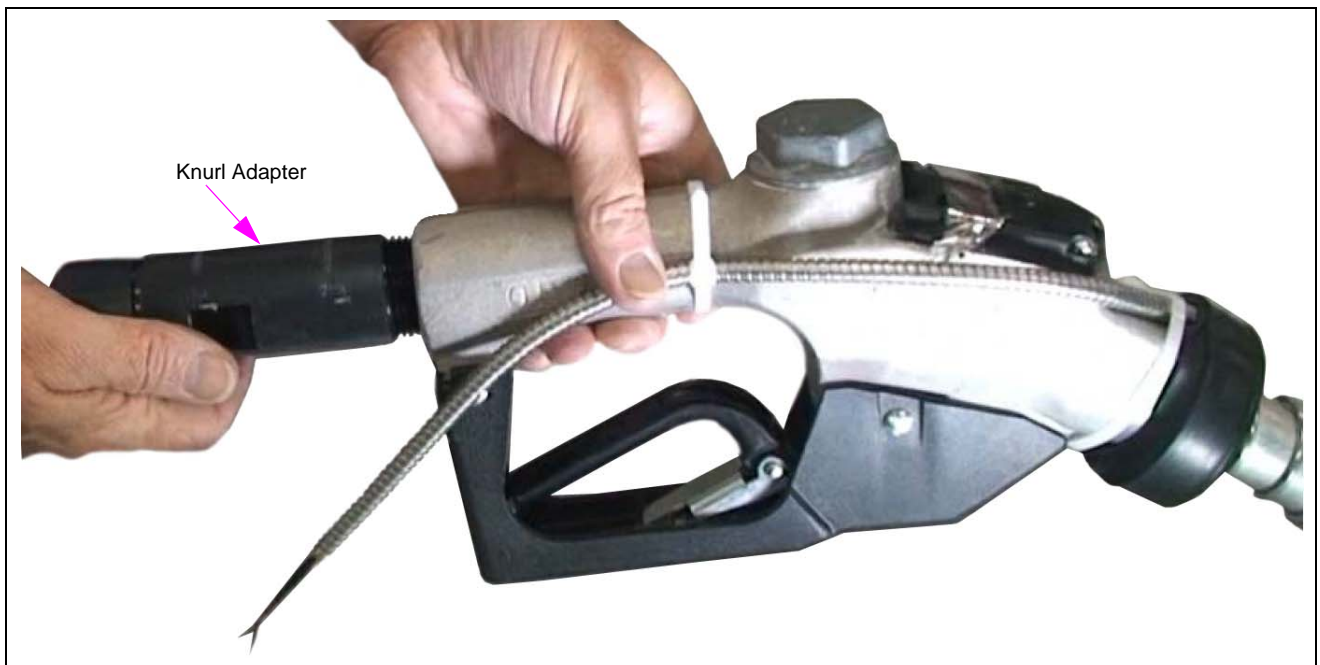
- 11 Loosely secure the conduit with a second tie wrap to the side of nozzle assembly as shown in [Figure 13](#).

**Figure 13: Conduit Secured to Side of Nozzle Assembly**



- 12 Using the appropriate industry-standard thread compound, torque, and so on for adapter installation, install the knurl adapter to the nozzle assembly as shown in [Figure 14](#).

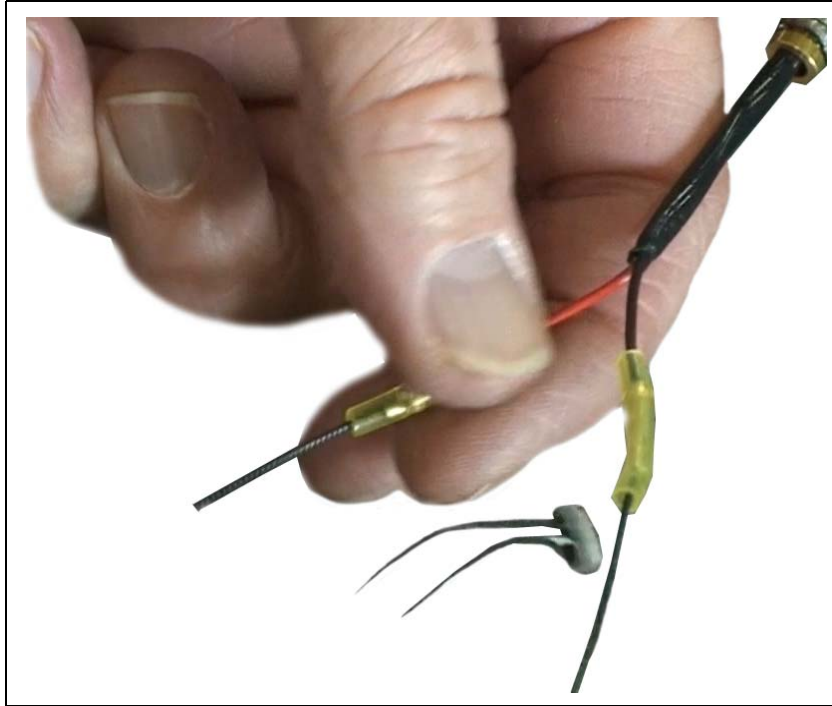
**Figure 14: Installing Knurl Adapter**





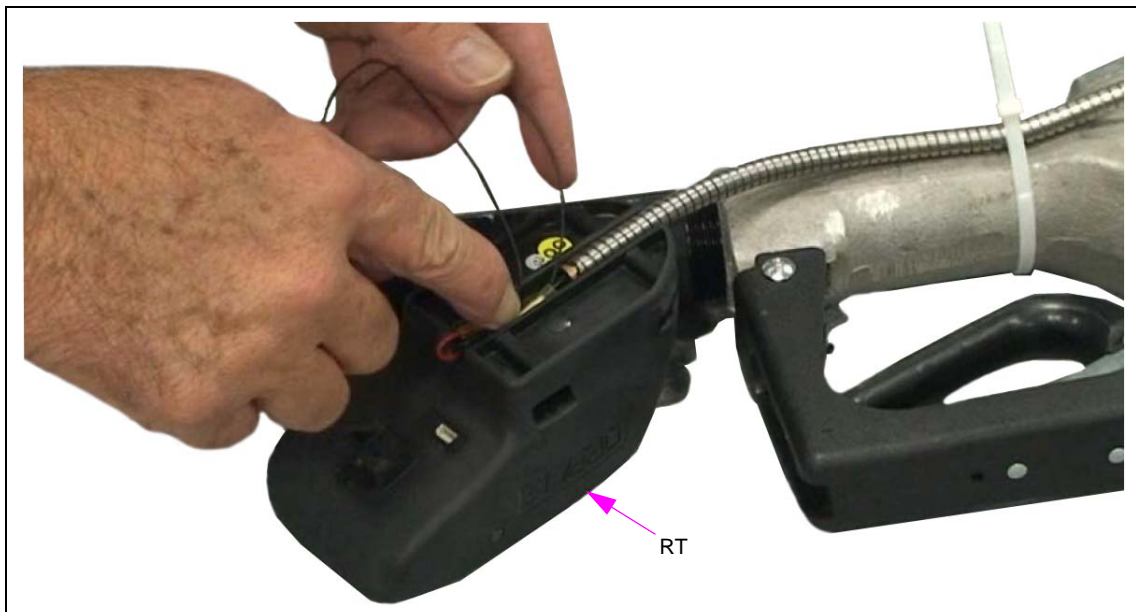
- 13 Join the antennae leads with the intermediate cable leads using the butt-splice connectors as shown in [Figure 15](#).

**Figure 15: Joining Antennae and Intermediate Cable Leads**



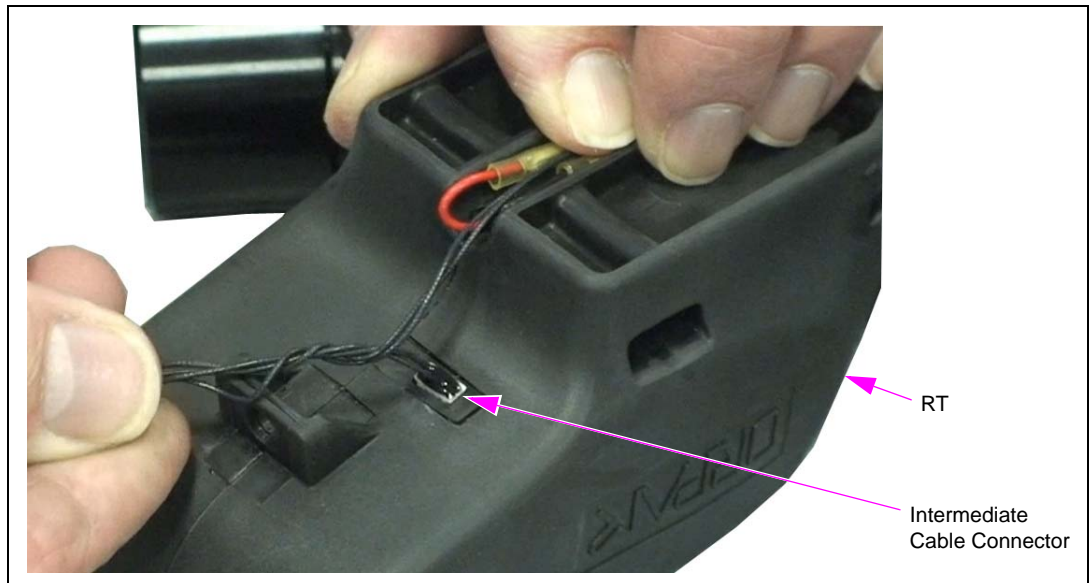
- 14 Position the conduit and butt-splices into the Receiver-transmitter (RT) channel as shown in [Figure 16](#).

**Figure 16: Positioning Conduit and Butt-splices**



- 15 Insert the intermediate cable connector into the RT and twist the loop as shown in [Figure 17](#).

**Figure 17: Inserting Cable Connector**



- 16 Thread the twisted loop through RT mounting eye and loosely double-back as shown in [Figure 18](#).

**Figure 18: Thread and Double-back Twisted Loop**



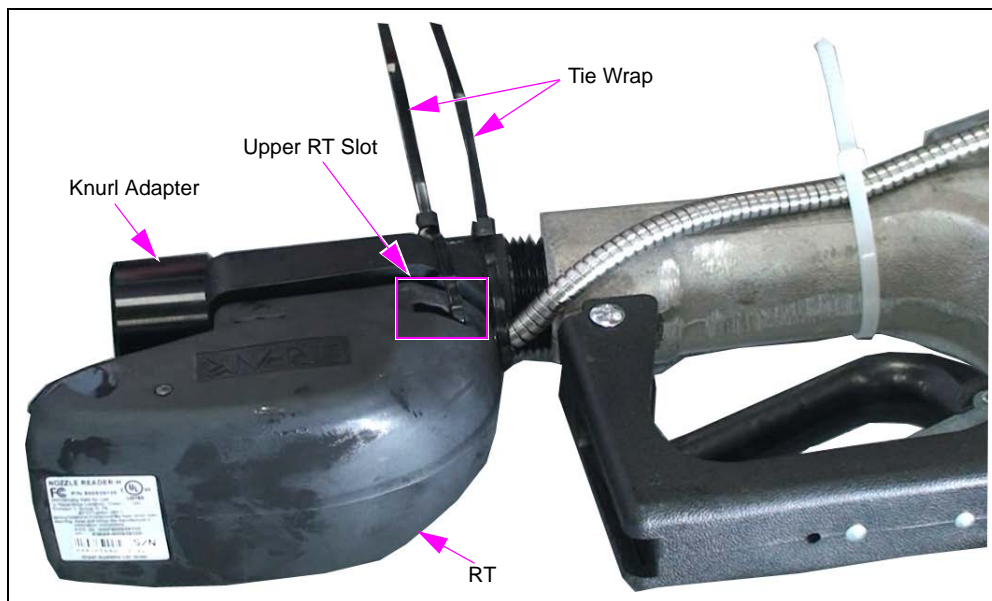
- 17 Apply the silicone gasket compound generously to the connector and butt-splices as shown in [Figure 19](#).

**Figure 19: Applying Silicone Compound**



- 18 Temporarily secure the RT to the knurl adapter with a tie wrap in the upper RT slot, using the appropriate mounting foot as shown in [Figure 20](#). Also, use a tie wrap to temporarily secure the conduit in place as shown in [Figure 20](#).

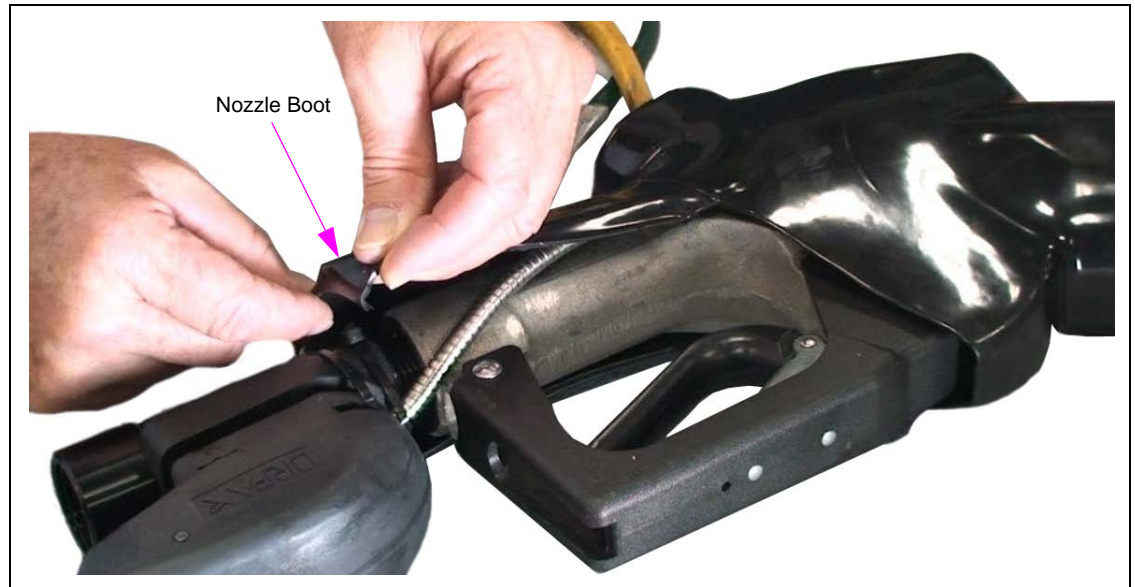
**Figure 20: Securing RT**



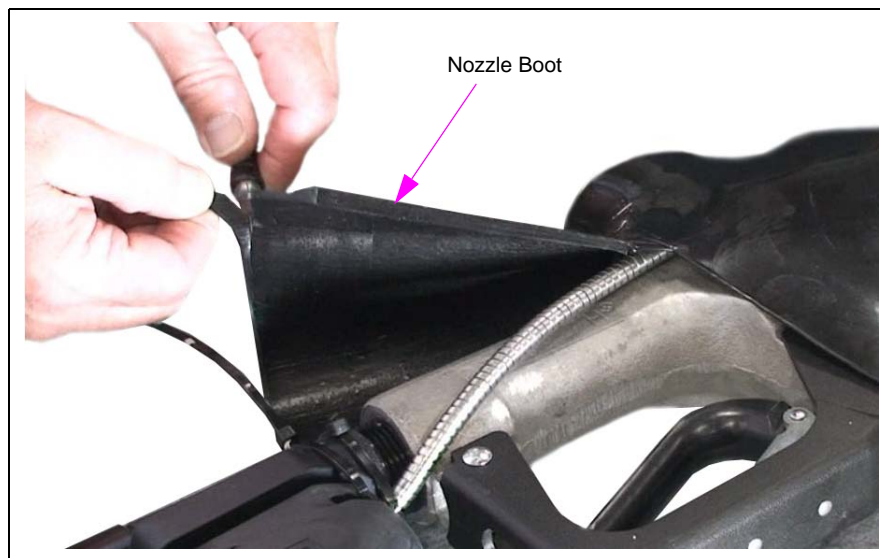


- 19 Reinstall the nozzle boot as shown in [Figure 21](#), and, if required, trim the bottom edge as shown in [Figure 22](#).

**Figure 21: Reinstalling Nozzle Boot**



**Figure 22: Trimming Bottom of Nozzle Boot**



- 20 Replace the zip tie that holds the bottom of conduit with a new one that wraps around the nozzle boot as shown in [Figure 23](#).

**Figure 23: Replacing Zip Tie**



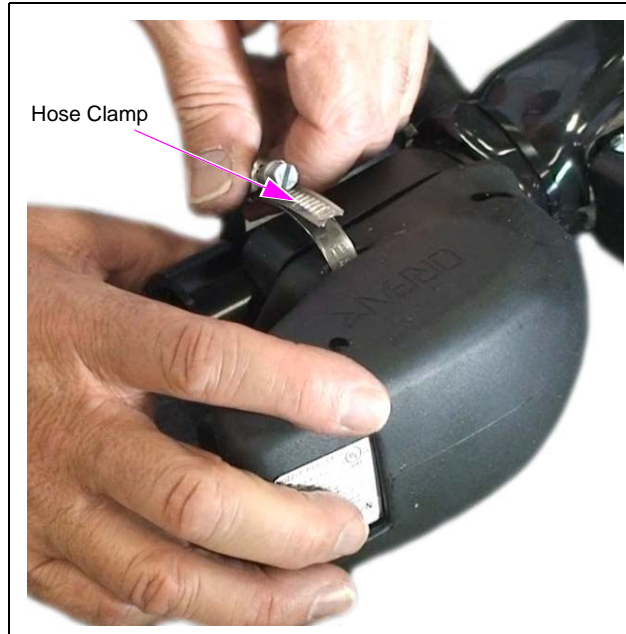
- 21 Attach a second tie wrap through the bottom of the RT, turn the RT boot inside out, and roll it onto the RT as shown in [Figure 24](#).

**Figure 24: Attaching Second Tie Wrap**



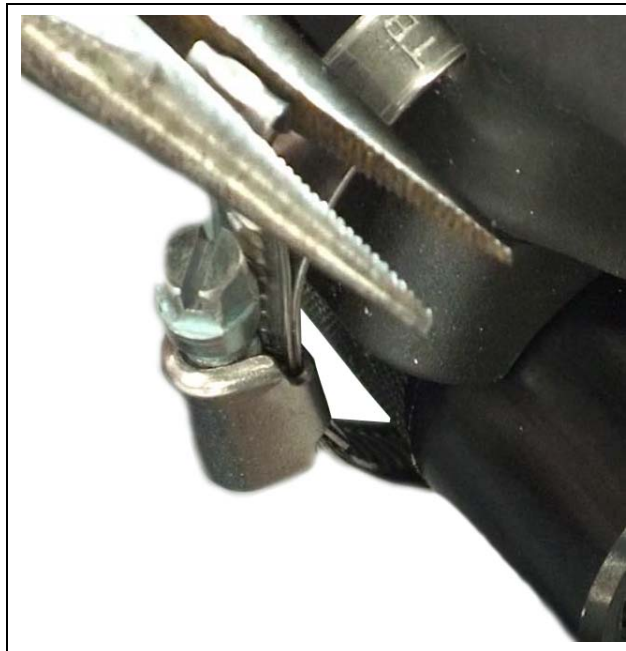
- 22** Remove a tie wrap from one of the RT slots and replace it with a hose clamp as shown in [Figure 25](#). Leave the tie wrap in the other slot in place for now.

**Figure 25: Installing Hose Clamp**



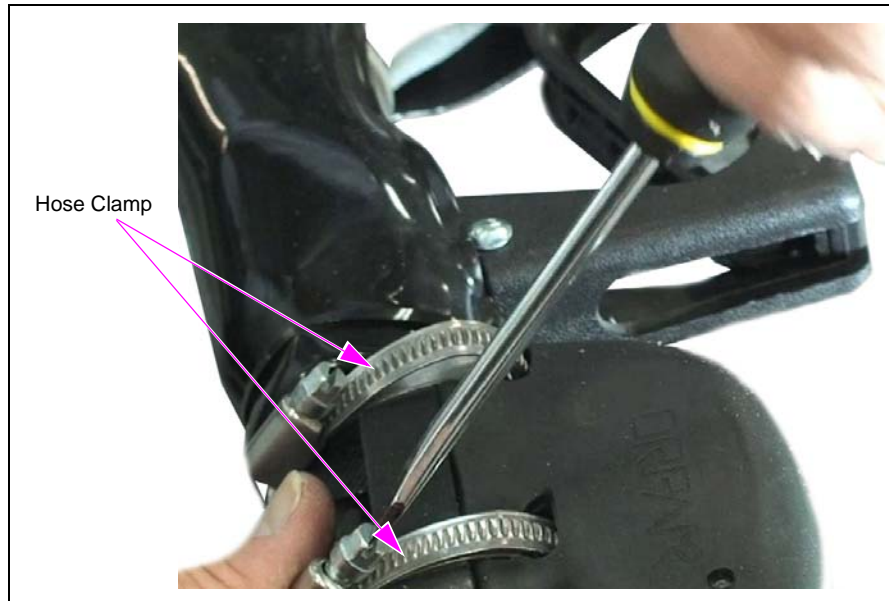
- 23** Bend under the tip of the hose clamp as shown in [Figure 26](#). This will prevent the tip from snagging as it double-backs into the RT slot.

**Figure 26: Bending Hose Clamp Tip**



- 24** Double-back the tip of the clamp into the RT slot and snugly tighten the clamp with a screwdriver until the clamp visibly compresses the RT and mounting foot. Remove the tie wrap in the other RT slot and replace it with the second hose clamp in the same way as the first as shown in [Figure 27](#). After completing, the RT must look like [Figure 28](#).

**Figure 27: Tightening Hose Clamps**



**Figure 28: Completed Assembly**



The installation of NR-H Nozzle Reader (M09677B015) kit is now complete.

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