Chapter 2
Vehicle Installation Manual

Version 13.1

GASNGO

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Overview

This chapter details the main parts and components that have to be assembled or installed on vehicles in order to be integrated into a Gasngo system. Descriptions of the parts are accompanied by installation instructions and test procedures if so required.

Tags and meters are the main parts.

Tag

The tag is a passive RFID unit located close to the vehicle fueling inlet. It is used to identify the vehicle.

The vehicle is identified by reading the data on the tag using the Gasngo™ Reader. That data is encrypted and secured and can be read only by a Gasngo™ Reader (For more information about Readers refer to Chapter 3.)

The type of tag to be installed must be adapted to the shape of the fuel inlet.

All tags are for single installation.
When removed from the vehicle, the tag's self-destruct mechanism will be activated.
This prevents abuse and potential fuel theft.

Tag Types

Due to the variance in the types of fueling inlets, three families of tags have been developed.

Each tag family corresponds with the characteristics of various inlets:

- Ring Tag - Installation is described in the
- Ring Tag Installation Instructions section.
- Extension Tags –Adopt the tag to the fueling inlet of the vehicle as described in the
-
-
- Extension Tags section.
- Attendant Tag - For internal gas-station use as describes in Appendix 8 - Using an Attendant Tag.

Guide lines

For optimal operation, the selected tag:

- Must be adapted to the physical structure of the gas fuel inlet.

- Must overcome physical obstacles around the gas fuel inlet.
- Must be installed in a stable and secure way.
- Must perform in optimally during fueling.
- Must be read continuously by the Reader to ensure that the fueling process is not interrpted.

Installation Types

Standard Installation

This installation is the most popular type of installation.

The tag is installed in a vehicle in where the system has been installed before. In such a case, installation information is documented.

In this scenario, installation takes place according to the installation instructions on the Gasngopro website. Before starting the installation, select an installation on www.Gasngopro.com and proceed accordingly.

Expert Installation

In case no system has been installed before in a vehicle and no documentation is available, a suitable tag must be selected. The procedure is shown in the tag selection diagram below.

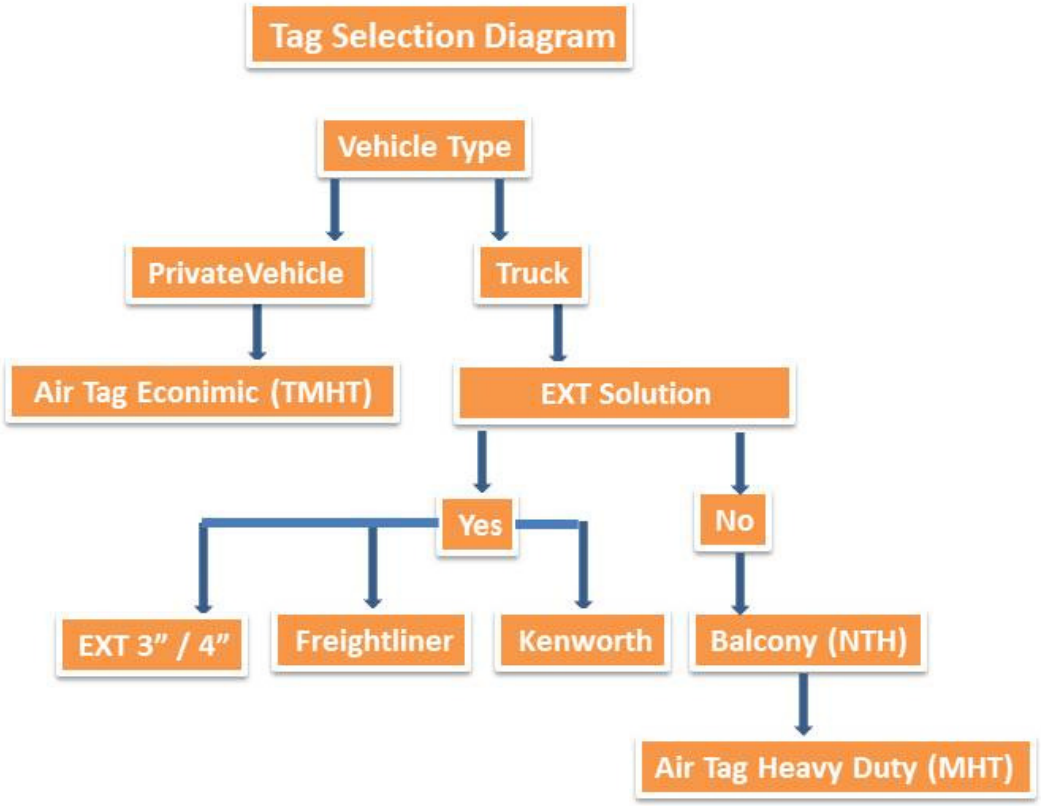


Figure 1: Tag Selection Diagram

Main criteria for successful installation include compliance with the installation and fueling tests.

In case the procedure shown in the diagram above cannot be followed, please contact Gasngo™ for support.

When the installation is completed successfully, document the successful installation on the Gasngopro website.

Tag list

Designation	Description/Function	Illustration
Air Tag Heavy Duty (MHT) TAG-FG0110 – 80mm TAG-FG0111 – 100mm TAG-FG0112 – 120mm TAG-FG0113 – 140mm TAG-FG0114 – 160mm	Used for installation in heavy duty vehicles and rough environment	
Air Tag Economy (TMHT) TAG-FG0123 – 80mm TAG-FG0134 – 90mm TAG-FG0124 – 100mm TAG-FG0125 – 120mm	Flexible Tag used for economic vehicles	
Extension Tag 3" SET-FG0114	Used for bayonet 3" inlet Usually European Tracks or ADblue	
Extension Tag 4" SET-FG0137	Used for bayonet 4" inlet Usually European Tracks	
Extension Tag Kenworth International SET-FG0130 –KW USA pipe SET-FG0131 – KW MEX pipe	Unique Tag for Kenworth International Contains two types of aluminous thread	
Extension Freightliner TAG-FG0117	Unique Tag for Freightliner	

Table 1: Gasngo Tag Families

Meters

The Gasngo system contains two types of Meters:

E.H Meter

This meter records and transmits the mileage and/or engine-hour data of the vehicle.

The meter receives pulses/voltage data from the vehicle and translates it into mileage/engine-hours.

a. To monitor and document the vehicle's mileage, the meter is connected to the VSS signal for counting pulses.
   Those pulses are converted into mileage data.
   The mileage data is in turn transmitted to the system installed in the station.

b. To measure engine hours cumulatively, including by the last trip, the Meter receives voltage data from the vehicle's ignition switch.

c. Every meter is assigned in a logical way to a specific tag installed in a specific vehicle.
   It is identified by the serial number burned on the Tag.

d. The meter has four wires or one harness with one wire:

   - Connection to power – (Red).
   - Connection to ground (Black).
   - Connection to the vehicle VSS signal (Green).
   - Connection to the output voltage from the ignition (white) for the engine-hours meter. Connection can also be from any '+' cable that is not connected directly to the battery but functions only when the ignition is switched on..

OBD Meter

The OBD reading device transmits vehicle data and has more than 20 vehicle parameters including:

- Odometer
- Engine Hours
- Fuel level
- Idle time
- Maximum RPM
- Maximum speed

- PTO
- Oil level
- Maximum oil temperature
- Maximum oil pressure
- Engine coolant
- Battery voltage

That data is transmitted to the wireless communicator unit which is connected by harness to vehicle's OBD/J1939 port.

Gasngo™ Meters

The following table lists the various Gasngo meters.

Designation	Description/Function	Illustration
Engine-Hour Meter MTR-FG0102	Records and transmits the vehicle's mileage and/or engine-hour data Relies on the Pulse Per KM sensor of the vehicle (PPK))	
OBD Meter SET-FG0119 – cable with connector J1962 SET-FG0118 – cable with connector J1939 SET-FG0124 – cable with connector J1939 - Y	The OBD device transmits vehicle data as including more than 20 vehicle parameters	

Table 2: Meters

Designation	Description/Function	Illustration
GPTC GPB-FG0101 – GPTC with Tag burner GPT-FG0101- GPTC without tag burner.	This technician console is used to set and calibrate meters parameters This console also burns data on tags when there is a tag burner inside	
Reader LED SET-FG0123	The reader LED is used to test the tag operations and installations.	

Table 3: Technician tools

Installation Adapters for Tags

To ease installation of the tags use adopters listed below.

Designation	Description/Function	Illustration
NTH (Balcony) For Part Numbers refer to Table 10: List of Heavy-Duty + NTH Tag and Adapter sizes	This metal tag adapter is installed around the tank inlet to create a standard surface for tag installation	
Sun TAC-FG0101	This metal tag adapter is installed around tank inlet It provides a standard surface for tag installation in cases when there is no NTH (balcony) available for the inlet	
P-clips GEN-009 – 12.7 (MHT) GEN-010 – 9.5 (TMHT) SCR-048 –(screw)	Used to connect the Economic Tag (TMHT) to the vehicle Apply physical force to secure the installation	
Wiggins Inlet GEN-FG0101	Used for Wiggins inlets	
Metal Tie TIE-002	The metal tie is used to secure the tag to the adaptor in the installation	

Table 4: Tag Installation Adapters Functions

Burning Devices

Technician Console- GPTC + Tag burner

The technician console is used:

- To connect to a meter for installation and calibration.
- To burn the tag before installation.

  To burn the tag, place that tag on the burner as shown in the illustration.

  The burning software is described in Section 4.

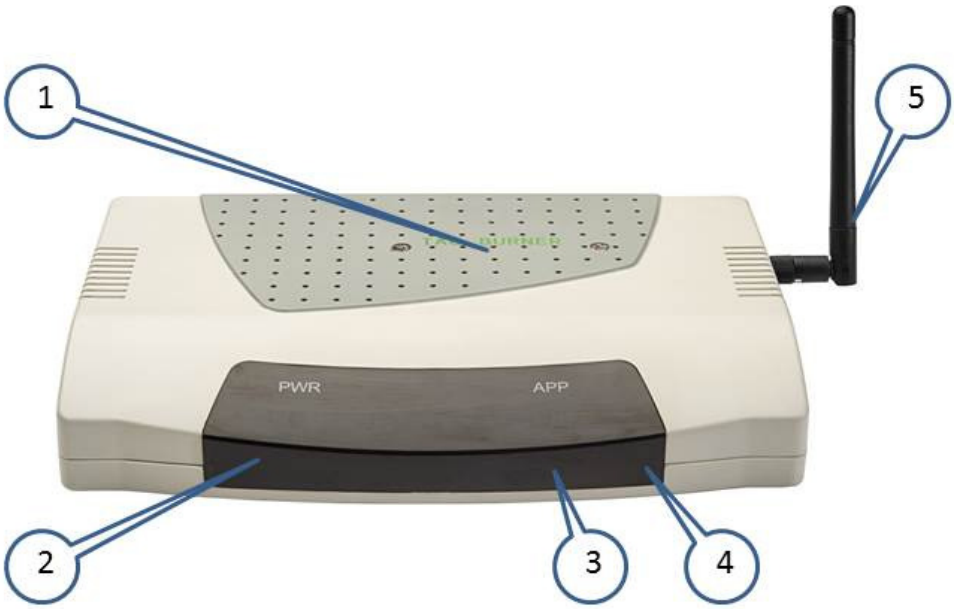


Figure 2: GPTC Technician Console – Front View

#	Designation
1	Tag burner
2	PWR
3	APP
4	Communication LED
5	Antenna

Table 5: GPTC Technical Console Elements - Front

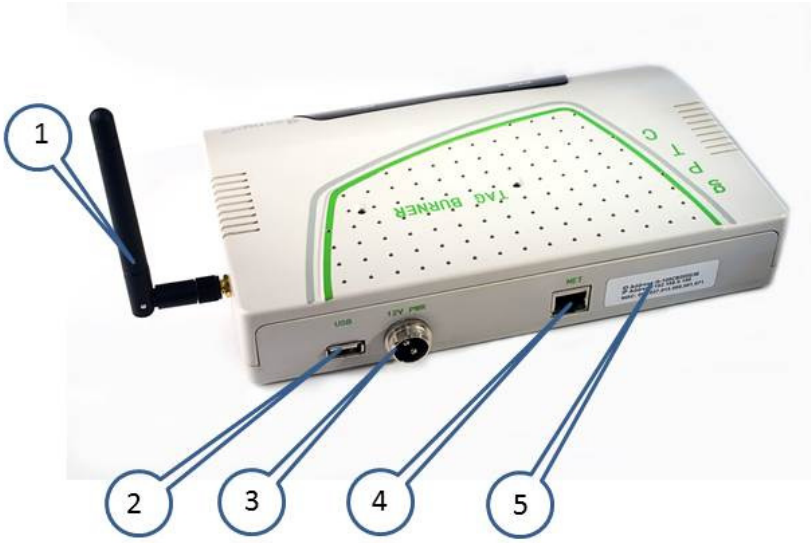


Figure 3: GPTC Technician Console – Rear View

#	Designation
1	Antenna
2	USB connector
3	Power Connector
4	RJ-45 / TCP-IP connector
5	S/N Label

Table 6: GPTC Technical Console Elements - Rear

Burning bed (Tag burner)

The tag burner is a mall portable device connected by a USB wire.

It is used for burning tags

This device can be supplied integrated in the GPTC or as a standalone unit.

Figure 4: Burning Bed

Vehicle Installation Checklist

1. Before installation, search installations on the www.gasngopro.com website to determine the type of tag and the location of the tag and meter.
2. Make sure the vehicle acceptance form is signed.
3. Thoroughly clean the surface around the fuel inlet.
4. Install a burned tag on the fuel inlet.
5. For meter/engine-hour meters:

    1) Open the appropriate panels.

    2) In case of an Engine-Hour Meter, please refer to the **installation instructions in the Engine Hours (EH) Meter** section.

        - Connect the Meter to the VSS signal, power and ground.
        - Connect the engine-hour cable to the ignition switch.

    3) In case of an OBD Meter, please refer to the installation instructions in the

OBD/FMS Meter installation procedure section.

- Connect the harness to the OBD Port.
- Connect the white E.H. wire to the ignition switch.

4) Configure the parameters of the meter.

6. Test the installation of the tag and meter.
7. Connect the meter to body of the vehicle.

Gasngo Tags

Ring Tag Installation Instructions

Overview

The Ring Tag is a generic solution for all types of vehicles.

It is installed by attaching it around the gas fuel inlet of the vehicle or by using dedicated adapters.

Data and Measures

Tag Type	Picture	Inlet material	Dimensions				
Air Tag Heavy Duty (MHT)		Generic	80 mm	100 mm	120 mm	140 mm	160 mm
Air Tag Economy TMHT		Generic	80 mm	90 mm	100 mm	120 mm	

Table 7: Installing Ring Tags – metal/tail/heavy duty

Highlights and Notes

When working with chemicals such as glue and cleaning materials, always use gloves and goggles.

When working with screws near the gas fuel inlet, use a container or piece of cloth to prevent screws from falling into the fuel tank.

When using metal strips, be aware of the sharp edges of the metal trips.

The tag is secured to the vehicle by a sticker and mechanical fastening (Ties/P-clips).

From the moment the tag is installed do not remove it!
Any attempt to detach the tag from the vehicle will cause it to stop operating.

Ring tags contain two self-distract mechanisms.
One mechanism is located at the end of the tail.
The is located beneath one of the tag legs(optional).

There are two types of Air Tags:

1. **Heavy Duty (MHT**)

   These tags are normally used for installation in:

   - Trucks
   - Heavy duty machines
   - Vehicles in rough environment

   The heavy duty tags are made from hard plastic and designed to be installed on flat surfaces.

2. **Economic Air Tag (TMHT**)

   These tags are used in economy/private vehicles.

   These tags have some protection or are function in mild environmental conditions.

   The economic tag is made of elastic materials. This enables oval installation and installation on uneven surfaces.

Both types are illustrated below.

Economic Air Tag (TMHT)

Heavy Duty (MHT) Tag

Figure 5: Air Tag

Installation

Before installing the tag, make sure to select the correct tag and position it correctly.

Verify the optimum and maximum distance between the surface of the tag and area around the gas fueling inlet.

Verify that there are no obstacles that could interfere with the closing of the gas fuel inlet cap.

If adapters are required plan the optimal location (see Appendix 7 – Tag Adapters).

1. Test the installation position of the tag with the Reader.

   The Reader is fitted on the actual nozzle that is used at the (refueling) site.

   This ensures stable refueling under real conditions.

2. Apply some physical force to tighten the ties / P-clips.
3. Use an alcohol wipe/sponge to clean the surface to which the tag will be affixed.

   Make sure the surface is free of dirt, oil, adhesives etc.

The adhesion surface must be clean
Any dirt could damage the operation of the tag.

3. Peel off the paper liner from the sticker and use it to secure the tag.
4. Apply gentle pressure on the tag to make sure the sticker is secured.

5. Use P-clips and self-drill screws to fasten the tag to the vehicle inlet.

In case of installation with an NTH, use metal strips ties to secure the tag to the adaptor.

For more information, please refer to the **Error! Reference source not found.** section on page 19.

For more information on C- clips, please refer to the **Heavy-Duty Tag installation on NTH** page 27.

- In case a customer disapproves of drilling, MP55310 glue can be used instead of C-clips (not recommended).

  The tag needs to be completely secured and stable. Therefore C-clips provide the optimal way for installation.

Figure 6: Tag in Private Vehicles

6. Verify that the tag does not interfere with opening/closing the gas fuel inlet cap.
7. Place the sticker on the P-clip screws to avoid access to the screws.

- In case a self-destruct tag is installed, apply the sticker to fasten the tag to the surface.
- In case of a Heavy-Duty Tag with NTH is installed, add a reinforcing point to each of the tag's legs (See
- **Ring Tag Installation** Instructions on page 17).

8. Select a location for securing the tag tail to the body of the vehicle or the fuel tank.

9. Reinforce the chip by placing the sticker on top of the chip on the vehicle body.

10. Test the installation as follows:

    - Verify that the gas fuel inlet cap is fully closed and sealed.
    - Verify that the tag does not shift from its location after it is affixed.
    - Verify the stability of the sticker.
    - Verify the reading process by using a Test Reader.

Figure 7: Securing the tail with the sticker

The tag was successfully installed.

Tag Adjustment

It is possible to cut the legs of the tag when they are obstructing the installation.

The only tag leg that cannot be cut is the one containing the self-destruct mechanism.

The legs should be cut depending on the type of the leg.

When cutting a tag leg, do not cut over the ring line (red).

Cutting the tag legs may affect the tag's reading range.

Figure 8: Cutting the Tag Leg - 1

Use a side cutter or saw to cut the legs.

Figure 9: Cutting the Tag Leg - 2

A leg can be cut partly or entirely.

In order to avoid potential damage or adversely affect the tag's performance, it is stringly recommended to cut no more than two legs.

Tag Installation with P-clip and Screws

Materials:

P-Clip

Self-Drilling Screws

Figure 10: Tag installation with P-clip and Screws

- Recommended screw:
  Drilling screws with a maximum length of 20 mm
- Recommended P-clips:
  12.7mm for heavy duty tags (MHT)
  9.5mm for economy tags (TMHT)

The installation must be performed with 1-3 claws corresponding to the points of the tag.

The clip should be mounted on the tag prior to installation.

Figure 11: Tag with mounted Clips

Tag Installation

1. Plan the installation and select the correct tag.
2. Place the tag on the gas fuel inlet in the optimal position and test with the test reader.
3. Verify that there will not be a problem to drill a screw in the clip from the other side of the installation area.

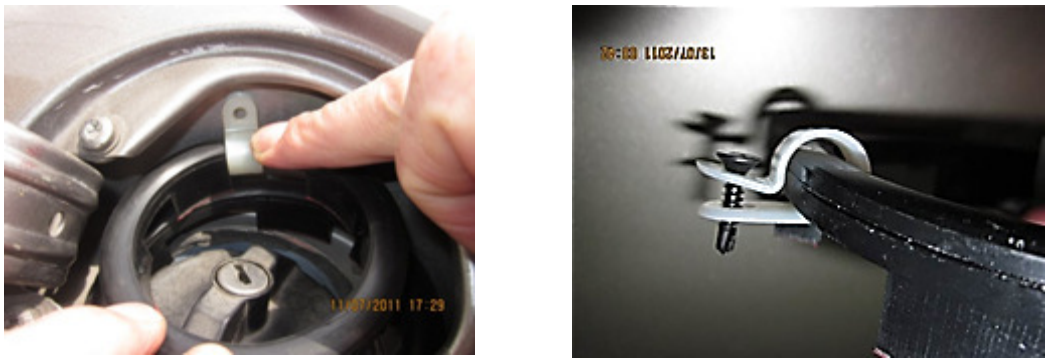


Figure 12: Preparing Tag Installation

4. Drill the screws and affix the tag at the appropriate place.
5. After drilling the screws, apply the sticker on the head of the screw and on the tag legs.

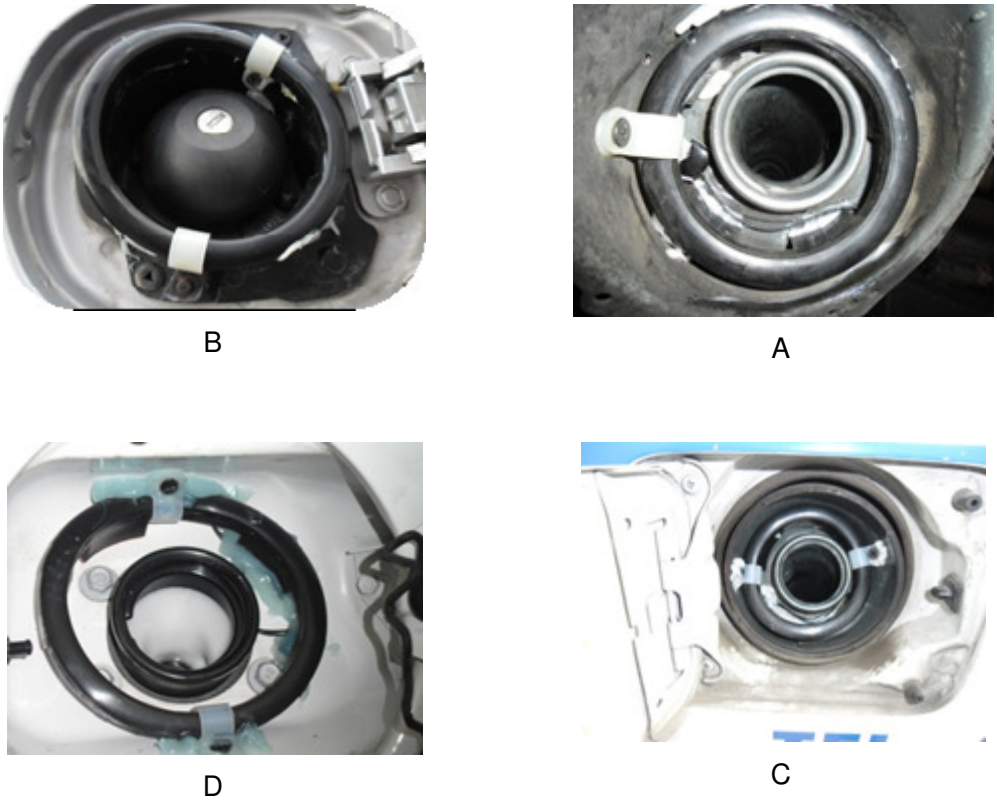


Figure 13: Tag Installation Steps

Another option is to drill a screw directly into the leg of the tag and secure the installation with the sticker.

Do not drill in the self-destruct leg.

Figure 14: The Self-Destruct Leg

Testing the tag must be done using the actual nozzle at the site.

Heavy-Duty Tag installation on NTH

Overview

For a heavy-duty truck environment, the Ring Tags are installed on a metal NTH Adapter that surrounds the gas fuel inlet.

Figure 15: Heavy Duty Installation with NTH Adapter

#	Designation
1	Tail
2	Reinforcing screw
3	Tag leg
4	NHT adapter
5	Heavy duty tag

Table 8: Heavy Duty Installation - NTH Adapter elements

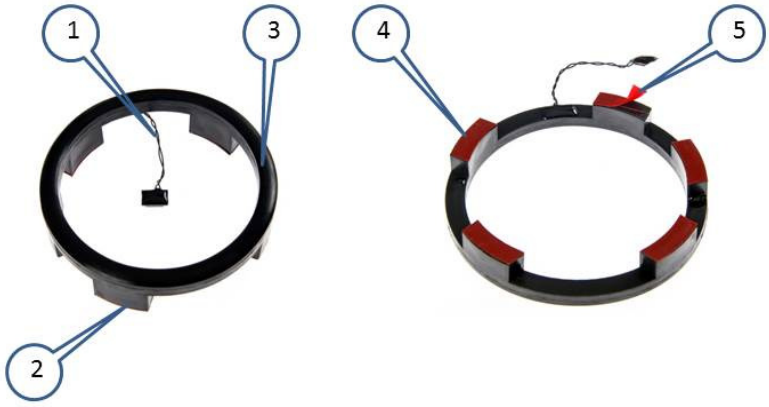


Figure 16: Heavy Duty Tag

#	Designation
1	Tail
2	Tag leg
3	Tag
4	Plastic liner
5	Main tag leg

Table 9: Heavy Duty Tags elements

NTH (Balcony) Data and Sizes

- A – Adapter screw protrudes from the Adapter's circumference.
- B – Adapter screw inside the Adapter's circumference.

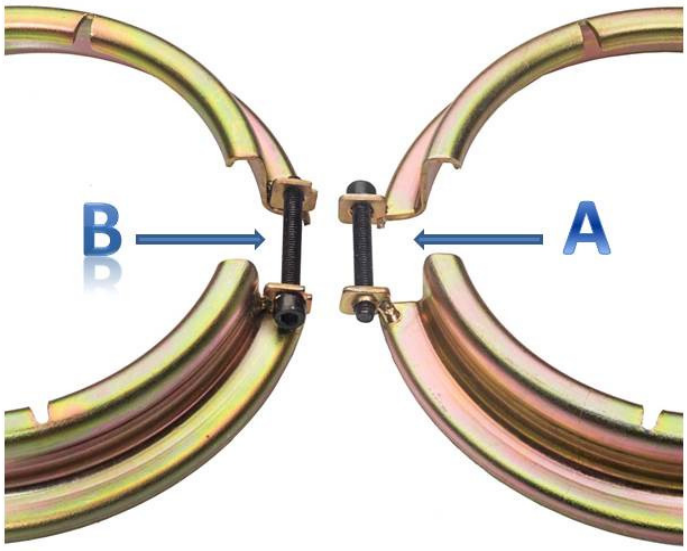


Figure 17: Adapter Screws Types

Type	Range	Description	Part No.
A	42 - 50	Balcony 48/+2mm -6mm/Tag 100	TAC-FG0145-01
B	42 - 50	Balcony 48/+2mm -6mm/Tag 100	TAC-FG0146-01
A	46 - 53	NTH 53/-7MM/ TAG 80	TAC-FG0131-00
B	46 - 53	NTH 53/ -7MM/ TAG 80	TAC-FG0116-00
A	48 - 54	Balcony 53/+1mm -5mm/Tag 120	TAC-FG0148-00
B	48 - 54	Balcony 53/+1mm -5mm/Tag 120	TAC-FG0149-00
A	54 - 54	NTH 57/+1MM -3MM/ TAG 100	TAC-FG0112-00
A	52 - 58	NTH 57/+1MM -5 MM/TAG 100	TAC-FG0112-01
B	54 - 58	NTH 57/+1MM -3MM/ TAG 100	TAC-FG0111-00
B	52 - 58	NTH 57/+1MM -5MM/ TAG 100	TAC-FG0111-01
A	57 - 63	Balcony 62/+1mm -5mm/Tag 120	TAC-FG0139-00
B	57 - 63	Balcony 62/+1mm -5mm/Tag 120	TAC-FG0140-00
A	59 - 65	Balcony 64/+1mm -5mm/Tag 120	TAC-FG0137-00
B	59 - 65	Balcony 64/+1mm -5mm/Tag 120	TAC-FG0138-00
A	62 - 68	NTH 66/+2MM-4MM/ TAG 100	TAC-FG0126-00
B	62 - 68	NTH 66/+2MM-4MM/ TAG 100	TAC-FG0127-00
A	71 - 79	NTH 78/+1MM -7MM/ TAG 120	TAC-FG0132-00
B	71 - 79	NTH 78/ +1MM -7MM/ TAG 120	TAC-FG0117-00
A	79 - 87	Balcony 85/+2mm -6mm/Tag 120	TAC-FG0150-00
B	79 - 87	Balcony 85/+2mm -6mm/Tag 120	TAC-FG0151-00
A	84-88	Tag adaptor NTH 88/140	TAC-FG0113-00
B	84-88	NTH 88/-4 MM/ TAG 140	TAC-FG0114-00
A	83 - 91	Balcony 90 SCN/+1mm -7mm/Tag 140	TAC-FG0135-01
B	83 - 91	Balcony 90 SCN/+1mm -7mm/Tag 140	TAC-FG0136-01
A	85 - 93	Balcony 91/+2mm -6mm/Tag 160	TAC-FG0141-00
B	85 - 93	Balcony 91/+2mm -6mm/Tag 160	TAC-FG0142-00

B	86 - 98	KW Balcony 92/+-6mm KW / TAG 160 B	TAC-FG0154
B	89 - 96	NTH 94/+2 MM-5MM/TAG 140	TAC-FG0124-00
A	91 - 96	NTH 96/-5MM/TAG 140	TAC-FG0104-00
B	91 - 96	NTH 96/-5MM/TAG 140	TAC-FG0106-00
A	96 - 104	NTH 104/-8MM/TAG 140	TAC-FG0133-00
B	96 - 104	NTH 104/ -8MM/ TAG 140	TAC-FG0118-00
A	110 - 119	NTH 116/ +3MM -6MM/ TAG 160	TAC-FG0130-00
B	110 - 119	NTH 116/ +3MM -6MM/ TAG 160	TAC-FG0115-00
A	109 - 117	NTH 117/ GA-8MM/TAG 140	TAC-FG0128-00
B	109 - 117	NTH 117/GA-8MM/ TAG 140	TAC-FG0129-00
B	116 - 119	NTH 119/-3MM/TAG 140	TAC-FG0107-00
A	116 - 119	NTH 119/-3MM/TAG 140	TAC-FG0108-00
B	119 - 127	NTH 125/+2MM -6MM/ TAG 160	TAC-FG0120-00
A	119 - 127	NTH 125 +2MM -6MM/ TAG 160	TAC-FG0121-00
A	127 -135	NTH 133/+2MM -6MM/ TAG 160	TAC-FG0122-00
B	127 -135	NTH 133/+2MM 6MM/TAG 160	TAC-FG0123-00

Table 10: List of Heavy-Duty + NTH Tag and Adapter sizes

Installation Instructions

1. Measure the outer diameter of the fuel inlet.

   It is recommended to use a caliber tool for accurate results.

2. Select the Adapter size from the NTH list.

   Identify the suitable tag diameter. The tag diameter is also the last number at the end of the product description.

   Select the relevant A/B screw type that would fit the gas fuel inlet and can be screwed easily.

3. Open the gas fuel inlet cap, locate the NTH Adapter and lower it to the length of the inlet while the screw is loose and facing downwards.

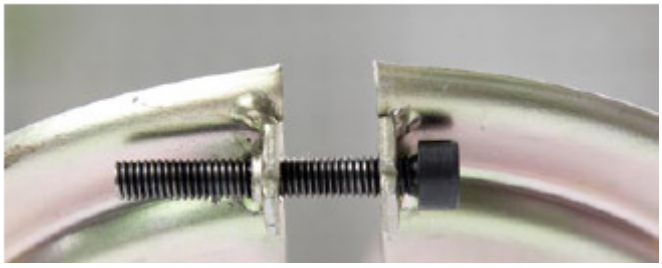


Figure 18: NTH Adapter tightening Screw

4. Close the cap of the gas fuel inlet.
5. Lift the adapter to the maximum point where it does not interfere with opening/closing of the gas fuel inlet.
6. Position the adapter by closing the screw without tightening it.
7. Mark the lower point to which the gas fuel inlet cap reaches.
8. Place the tag on the adaptor.
9. Verify that the tag does not interfere with opening/closing of the gas fuel inlet cap.
10. Open the gas fuel inlet cap.
    - Make sure that the adapter reaches the mark and does not interfere with the cap.

      Take the height of the tag into consideration.
    - Place the screw in a hidden, internal place as much as possible.

      This prevents damage.
11. Tighten the Adapter's screw using an Allen screwdriver.

12. Test the installation position of the tag with the Reader.

    The Reader is located on the nozzle. The Reader is used at the site to ensure the applicability of the installation.

It is recommended to place the tail wire inside one of the dedicated slots in the Adapter (See Figure 19).

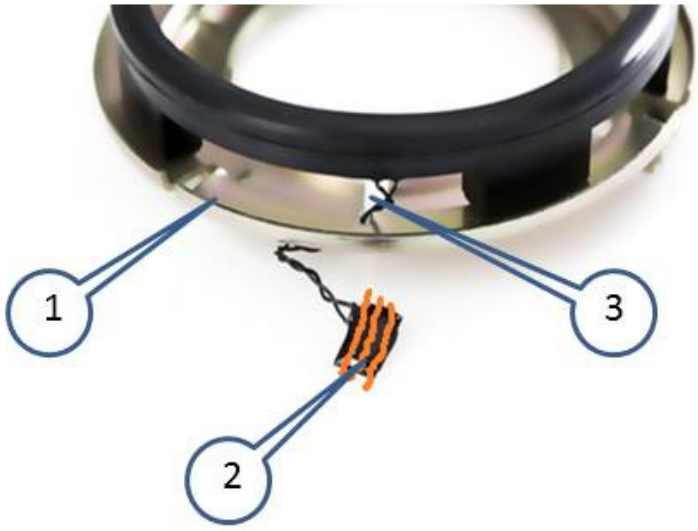


Figure 19: Tail location

#	Designation
1	NTH adopter
2	Tail with sticker
3	Tail position in a NTH tag

Table 11: Tail Location Elements

13. Take the Tag off.
14. Clean the Adapter with an alcohol wipe/sponge.
15. Prepare the tag for the sticker:
    - Do not remove the plastic liner from the tag legs if the self-destruct mechanism is not used.
16. Affix the tag to the adapter.
    - Verify that the tag legs rest on a smooth surface without gaps
    - Verify that the tail wire passes through the dedicated gap.

From the moment the tag is installed, it should not be removed!
The installation is irreversible.
Any attempt to remove the tag from the adapter will cause the tag to stop operating.

17. Apply pressure on the tag for 5 seconds.

18. Use 3-4 metal/plastic ties to fasten the installation of the tag where possible.
    Place the ties around the tag on top of one of the legs and inside the NTH Slots.
    Apply the sticker to prevent easy opening.

Wrong Right

Figure 20: Installation with Strips

19. Affix the tail to the body of the vehicle in a hidden place.
    - Select a location in the metal area of the vehicle's body that is difficult to access.
    - Make sure that this location is hidden from sight.
    - Make sure that this location is secure (i.e. protects the tail from becoming detached) when cleaning the vehicle with high-pressure water.
    - It is recommended to place the tail at a higher location in order to avoid fuel leakage from the nozzle which may damage the tag.
20. Affix the tail to the body of the vehicle, not to the adapter.
21. Test the installation as follows:
    - Verify that the gas fuel inlet cap is fully closed and sealed.
    - Verify that the adapter is secured around the inlet.
    - Verify that the tag does not shift from its location after it is affixed to the adapter.
    - Verify the reading process with a Test Reader.
22. The tag must be tested using the actual nozzle at the site.
23. The tag was successfully installed.

Extension Tags

Overview

The extension tags provide a dedicated solution for trucks.

They should be used on the appropriate truck as an extension of the truck's tank inlet.

The tag of the truck is installed on the fuel inlet.

The original cap is closed on top.

Extension 3" Tag

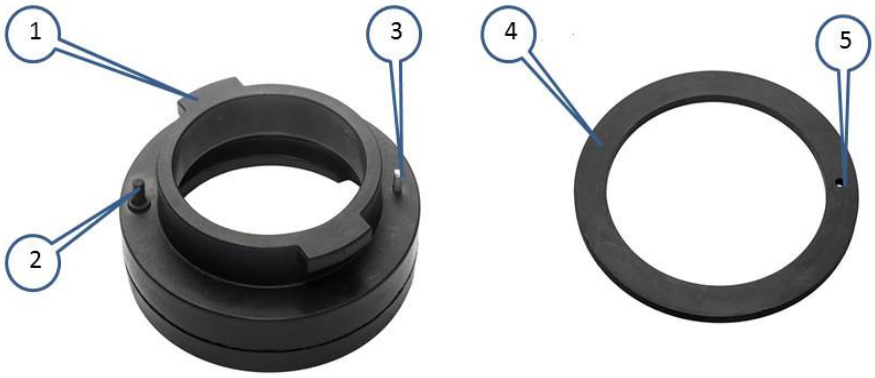


Figure 21: Extension 3" Tag

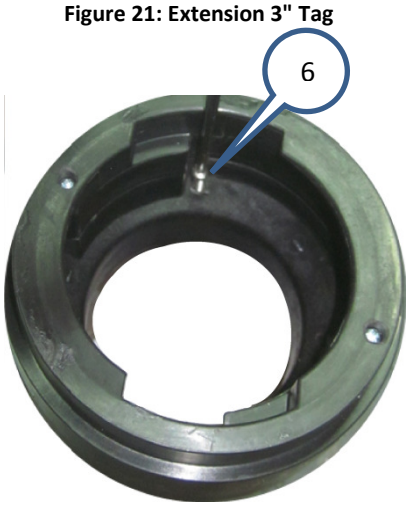


Figure 22: Extension 3" locking screw Tag

#	Designation
1	Self-destruct pin
2	Locking teeth
3	Locking pin
4	Rubber seal
5	Hole for locking pin
6	Locking screw” Only for 3" old model

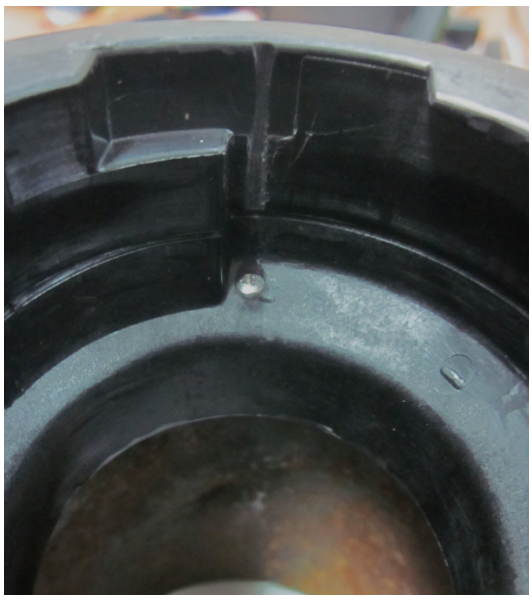
Table 12: Extension Tags Elements

EXT3" Installation Procedure

1. Lubricate the upper section of the trucks' fuel tank inlet.
2. Test that the cap can close and can be locked properly on the EXT Tag.
3. Select the seal with appropriate thickness from the set (2.5, 3, 3.5mm).
4. Test the thickness of the three rubber seals in the set by installing the test EXT from the survey kit. Check the tag without a locking pin and self-destruct pin to select the correct right one to use.

   It is recommended to use a test tool. Test an extension tag without a self-destruct mechanism and without a locking pin by installing the seal and removing the tag again without damaging it. This makes it easy to determine the appropriate seal thickness.
5. Place the rubber seal on the tag and insert the locking (silver) pin in the hole and the black (self-destruct) pin in the metal plate.

6. Install the extension tag on the gas fuel inlet and turn it until the end.
   Use grease on the inlet flange to make the installation easier.
7. Close the locking screw all the way with screw driver.



8. Test the installation:

   - Verify that the cap closes and seals properly.
   - Verify that the tag is securely in place after the cap is screwed on.
   - Test the installation with the Reader.

     The Reader is installed on the nozzle that is used at the site.

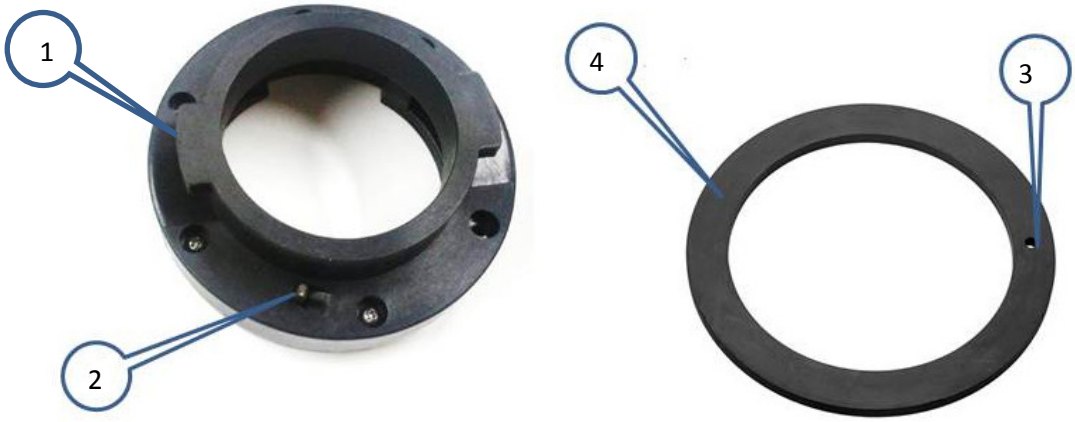
9. The Extension Tag was installed successfully.

Once the Extinction 3" Tag installation procedure is started, it cannot be interrupted.

When the tag is lifted, the self-destruct mechanism will be activated!

In case of corrosive materials (e.g., biodiesel and ethanol or fuel with additives), please install Viton™ rubber seals.

Extension 4" Tag



#	Designation
1	Locking teeth
2	Locking screw (unique only for 3" old model)
3	Hole for locking pin
4	Rubber seal

Table 13: Extension 4" Tag Elements

Extension 4" Installation Procedure

1. Lubricate the upper section of the fuel tank inlet of the truck.
2. Test if the cap closes and can be locked properly on the EXT Tag.
3. Select the seal with appropriate thickness from the set (2.5, 3, 3.5mm).
4. It is recommended to use a test tool.
   Test an Extension Tag without a self-destruct mechanism and without a locking pin that can be used to install the seal and remove the tag again without damaging it.
   This will determine the appropriate seal thickness.
5. Place the rubber seal on the tag and insert the locking (silver) pin in the hole.
6. Install the Extension Tag on the fuel inlet and turn it until it locks in place.
   Verify that the locking pin is actually locked on the rim of the inlet.
   Use grease on the inlet flange to make the installation easier.

7. For better sealing between the tag and the cap, insert the Gasngo rubber seal on the cap.
    - Place the rubber seal as described.

    - Hold the locking teeth with a flat screw driver and press the ring in place from both sides.

8. Test the installation:
    - Verify that the cap closes and seals properly.
    - Verify that the tag is securely in place after the cap is screwed on.
    - Test the installation with the Reader.

      The Reader is installed on the nozzle that is used at the site.
9. The Extension Tag was successfully installed.

In case of corrosive materials (e.g., biodiesel and ethanol or fuel with additives), please install Viton™ rubber seals.

Sealing-ring for EXT type - Resistance Factor

In case of installing Nitrile or Viton filing-rings, the following resistance factors should be considered.

Nitrile has high resistance to:

- Aliphatic hydrocarbons
- Petroleum
- Fuels
- Mineral Oil
- Vegetable oil
- Hydraulic fluids
- Alcohol
- Various acids
- Abrasive materials

Nitrile has low resistance to:

- Ozone
- Acetone
- Methyl Ethyl Ketone
- Chlorinated Hydrocarbons
- Ethers and Esters

Viton® (FKM) has high resistance to:

- Hydrocarbons
- Various aggressive chemicals
- Diluted acids
- Weak Alkalis
- Mineral oils
- Aliphatic and Aromatic Hydrocarbons
- Chlorinated Hydrocarbons
- Sunlight
- Ozone

Viton® (FKM) has low resistance to:

- Ketones
- Acetone

Kenworth EXT Tag

There are two designated universal screwed tag inlet solutions Kenworth fuel tanks (88mm diameter). Prior to installation (during survey) please verfiy and choose the correct type of extension aluminum threaded pipe.

Kenworth Tag Installation Components

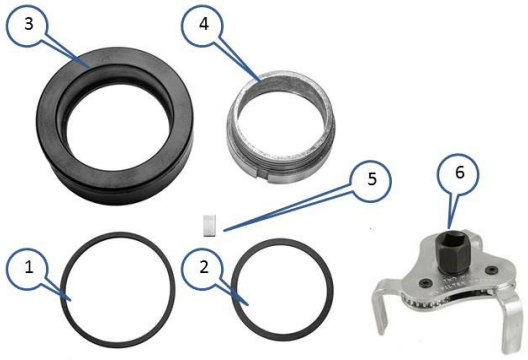


Figure 23: Installation Components

#	Designation
1	Big sealing rubber ring (soft) X2
2	Small sealing rubber ring X2
3	KW Extantion Tag
4	KW extension aluminum threaded pipe
5	Metal locking pin
6	Locking tool

Table 14: Kenworth EXT Tag Elements

Kenworth Tag Installation instructions

1. Verify that the KW extension aluminum threaded pipe fits the tank inlet and cap.
2. Place the two big rubber rings (one on top of the other) on the KW Tag.

Figure 24: Placing the Big Rubber Ring on the KW Tag

3. Place the tag around the vehicle tank inlet.

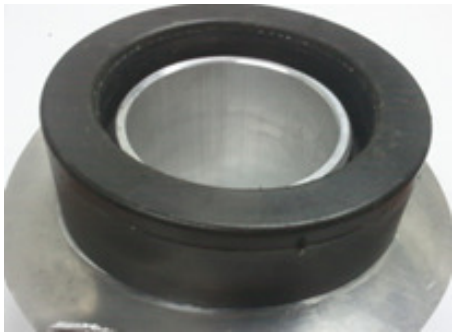


Figure 25: Placing the Tag

4. Insert two sealing rubber rings (one on top of the other) around the KW aluminum pipe. See Figures 26 and 27.

Figure 26: Inserting the Sealing Rubber Ring

Figure 27: Aligning the Sealing Rubber Ring

5. Assemble and tighten the pipe.

   Prevent the KW extension from rotating.

Figure 28: KW Tag Assembled

6. Tighten the EXT aluminum pipe with the locking tool.

Figure 29: Tightening the KW Tag

7. Verify the sealing by trying to move the sealing ring.

If the sealing rubber ring stays firm, sealing is OK.

If the sealing rubber ring shifts, repeat steps 4 and 5.

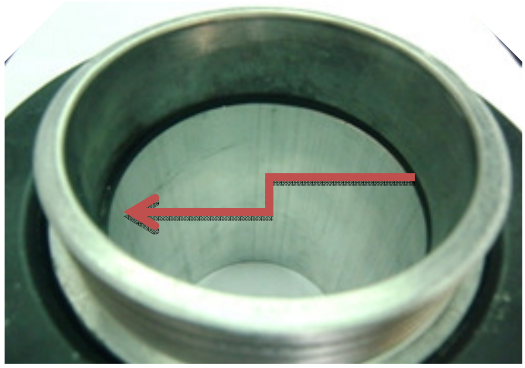


Figure 30: Metal Plate Insert

8. Insert the metal plate into the designated slot.

Use a hammer to install the metal plate.

9. Check that the EXT does not shift.

10. Complete the installation by testing it with the Reader.

    The Reader is installed on the nozzle.

Freightliner Extension Tag

Figure 31: Freightliner Extension Tag Overview

Freightliner Extension Tag Parts

The following picture illustrates the parts of the Extension Tag.

Figure 32: Extension-Tag Parts

#	Designation
1	Extension Tag
2	Sailing rubber ring
3	Locking pin
4	Locking pin location

Table 15: Freightliner Extension Tags Elements

Freightliner trucks have two types of inlets that slightly differ from each other.

1. Flat inlet lips
2. O-Ring lips.

These small differences are important when installing the extension tag.

There are two types of sealing rings to choose from when installing the tag.

Inlet with O-Ring **Inlet with flat lips**

Figure 33: Freightliner Inlet Types

Freightliner Installation instructions

1. Open the fuel tank cap.
2. Check for the inlet lips type.
3. In case of O-Ring lips take the O-Ring **out**
4. Choose the right sealing ring for the inlet

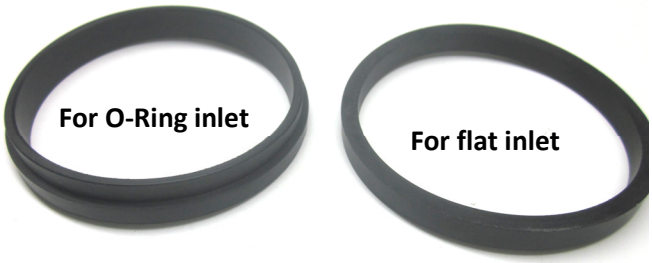


Figure 34: Freightliner Inlet Types

5. Insert the sealing rubber ring at the bottom of the Extension Tag and push it inside using a finger. In case of an O-ring, install it with the thin side of the sealing ring at the outside.