INSTALLATION INSTRUCTIONS FOR QUALIFIED TECHNICIANS

H13741M
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ANSI/CSA NGV1-2017
ISO-14469-2017

FOR USE WITH ANY CERTIFIED ELECTRICALLY CONDUCTIVE HOSE INTENDED FOR FILLING COMPRESSED NATURAL GAS VEHICLES UP TO SERVICE PRESSURE OF 5000 PSI

SECTION A: INTRODUCTION

HOW TO USE THIS MANUAL:

This manual has been prepared as a step-by-step installation guide for the OPW CT series of CNG fueling nozzles. This information is intended as a general outline to familiarize the installer/end user with the techniques and procedures used to install and maintain the nozzle.

GENERAL

These nozzles are intended for use in a Type 1; Class A CNG Vehicle fueling at the tabulated service pressures and receptacle combinations

NOZZLE	NGV 1 Receptacle & Standard	ISO Receptacle & Standard	Service Pressure	Working Pressure	Working Temperature
CT1000P36S	NGV1 P36	ISO-14469 B250	3600 psi / 250 bar	4532 psi / 312.5 bar	-40 C to 85 C (-40 F to 185 F)
CT1000LS	NGV1 P30	ISO-14469 B200	3000 psi / 200 bar	4532 psi / 312.5 bar	-40 C to 85 C (-40 F to 185 F)
CT5000S	NGV1 P30HD	ISO-14469 B200	3600 psi / 250 bar	4532 psi / 312.5 bar	-40 C to 85 C (-40 F to 185 F)

All NGV-1 & ISO-14469 approved nozzles require special installation precautions to ensure safe and reliable operation. The installation shall conform to the requirements of the Authorities having jurisdiction or, in the absence of requirements, with the Standard for Compressed Natural Gas (CNG) Vehicular Fuel Systems, NFPA 52 or the Natural Gas for Vehicles Installation Code, CAN/CGA B149.4, as applicable.

SECTION B: INSTALLATION

Customer Connections: The inlet connection and seal for these nozzles are as follows:

NOZZLE	Inlet Fill Connection	Inlet Fill Connection O-Ring	Vent Connection
CT1000P36S	SAE J1926-6 O-ring boss port, 9/16"-18 UNF	OPW P/N 001146	1/4" Double Ferrule Compression Fitting
CT1000LS	SAE J1926-6 O-ring boss port, 9/16"-18 UNF	OPW P/N 001146	1/4" Double Ferrule Compression Fitting
CT5000S	SAE J1926-10 O-ring boss port, 7/8" -14 UNF	OPW P/N 001127	3/8" Double Ferrule Compression Fitting

IMPORTANT:

- The vent connection must NOT be connected to the high-pressure line. Maximum vent line pressure must be kept below 3.5 bar (50 psi) to allow the nozzle to operate properly.
- NPT (National Pipe Thread) fittings shall NOT be used on these nozzles.
- **DO NOT** use thread sealing tapes or compounds. This may affect conductivity, clog internals and void warranty

INSTALLATION PROCEDURE:

Step 1: Ensure that the threads on the hose fitting as well as the inlet port is clean and free of any debris, oil, grease or Teflon tape.
Step 2: Ensure that the proper sealing O-ring (one provided above) is installed on the male hose fitting according to the fitting and O-ring manufacturer's instruction. For additional O-rings, contact OPW Customer Service.
Order Part #001146 for the CT1000P36S or CT1000LS and Part #001127 for the CT5000S
Step 3. The nozzle should be tightened onto the approved hose fitting to torque value tabulated below:

NOZZLE	Inlet Fill Connection	Type of Wrench	Tighten To:
CT1000P36S	SAE J1926-6 O-ring boss port, 9/16"-18 UNF	27 mm (1 1/16") wrench	Minimum 15 ft-lbs to Maximum 24 ft-lbs Minimum 20 N.m to Maximum 33 N.m
CT1000LS	SAE J1926-6 O-ring boss port, 9/16"-18 UNF	27 mm (1 1/16") wrench	Minimum 15 ft-lbs to Maximum 24 ft-lbs Minimum 20 N.m to Maximum 33 N.m
CT5000S	SAE J1926-10 O-ring boss port, 7/8" -14 UNF	36 mm (1 7/16") wrench	Minimum 18 ft-lbs to Maximum 30 ft-lbs Minimum 24 N.m to Maximum 41 N.m

Step 4. After installation, test the unit for leaks. Slowly pressurize and test the connection using a suitable leak detector (e.g. Snoop®). Cycle the nozzle up to ten (10) times. Test pressures should include low pressures (100 psi /0.86 Mpa) and High (3,000-5,000 psi/20-35 Mpa). For safety reasons, always pressurize at the low pressure first.

WARNING: ENSURE HOSE AND NOZZLE ARE SAFELY DEPRESSURIZED BEFORE REMOVAL OR MAINTENANCE.

SECTION C: OPERATION

CONNECTING TO AN APPROVED VEHICLE RECEPTACLE:

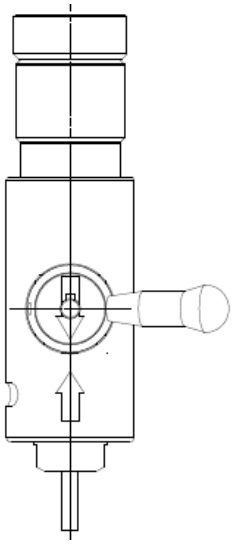
Step 1: Ensure the nozzle and receptacle are compatible using the table above.

Step 2: Remove the nozzle from the rest position and verify the indicating arrows are opposing (OFF position) with the handle in the 3 o'clock position (Figure 3). This opens the jaws and vents the nozzle.

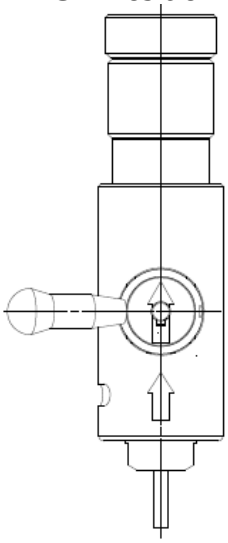
Step 3: Connect by pushing the nozzle forward onto the receptacle, then rotate the handle clockwise until the indicating arrows are in line (ON position) with the handle in the 9 o'clock position. Complete engagement of the nozzle and receptacle will ensure a correct connection and allow the handle to move freely. **NOTE:** If the nozzle will not connect to the receptacle, ensure that the nozzle is fully vented and in the "OFF" position.

WARNING: DO NOT APPLY EXTREME FORCE TO THE NOZZLE HANDLE. INTERNAL COMPONENTS MAY BE DAMAGED BY HIGH TORQUE ON THE OPERATING HANDLE.

OFF Position



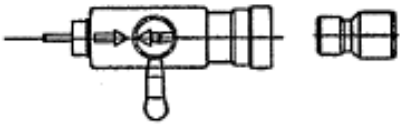
ON Position



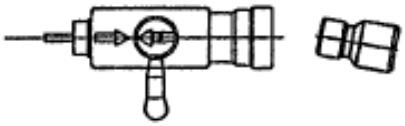
VENT Position

IMPORTANT: DO NOT ATTEMPT TO COUPLE THE NOZZLE AND RECEPTACLE WHEN THE RESPECTIVE AXIS OF THE NOZZLE AND RECEPTACLE ARE OFFSET OR AT AN ANGLE AS SHOWN BELOW.

Proper Coupling Alignment



Improper Coupling Alignment



DISCONNECTING FROM AN APPROVED VEHICLE RECEPTACLE:

Step 1: When fueling is complete, turn the station dispenser OFF per manufacturer's procedure.

Step 2: Turn the nozzle handle counterclockwise to the 6 o'clock position so that the arrows are perpendicular. This stops the flow of gas. Turn the handle slowly to the vent position (about 5 o'clock) to relieve the internal pressure of the nozzle. This only vent the nozzle, the hose remains pressurized.

NOTE: THERE IS A BRIEF SOUND OF GAS VENTING WHEN GOING THROUGH THE DISCONNECT MOTION. THIS IS NORMAL.

If a popping sound is heard during venting:

- This is an indication that there is an obstruction in the vent or,
- The nozzle handle was rotated rapidly, not allowing sufficient time for gas to vent properly

If the nozzle is difficult to disconnect from the receptacle or venting does not stop after a few seconds, return the nozzle handle to the fill position, close the vehicle manual shut-off valve on the vehicle and repeat from Step 2 above. If problems persist, the entire supply to the nozzle and vent lines must be depressurized and thoroughly inspected. If station inspection reveals nothing, return the nozzle to OPW immediately with a full description of the problem.

Step 3: Further rotate the nozzle handle counterclockwise to the 3 o'clock position so that the arrows are lined up. This releases the receptacle.

SECTION D: SERVICE

Nozzles must be stored in a clean protected area. The nozzle must not be exposed to debris, dirt, water or chemicals. Service life is dependent on handling and care of the nozzle. Contamination increases the potential for nozzle malfunction. Unusual operation must be reported to OPW or the service representative immediately. NOTE: These nozzles have an internal filter to prevent damage caused from gas-borne debris. This filter is not serviceable or maintainable in the field and requires the nozzle to be returned to OPW for repair.

ROUTINE MAINTENANCE

Step 1: Inspect the jaws and clean any dirt, grease, or oil from the stainless-steel exhaust valve with a clean, lint free cloth. Do not use any solvents as this may result in seal degradation and create the likelihood of personal injury with subsequent use.
Step 2: The entire nozzle should be cleaned periodically by wiping with a cloth or rag. This should occur on average twice per month, more frequently if the nozzle is constantly in use or is used under extremely dirty conditions.
Step 3: Repeatedly depress the exhaust valve to ensure smooth operation. If the valve remains depressed, do not attempt to dislodge it. Call OPW or the local service representative immediately.

Every four months, the inside diameter at the front opening of the nozzles should be measured.
For CT1000 series nozzles, if the inside diameter is greater than 24.7mm, then the nozzle should be returned to OPW for repair.
For CT5000 series nozzles, if the inside diameter is greater than 34.7mm, then the nozzle should be returned to OPW for repair.

OPW offers a proprietary inspection tool that may be purchased.
JAWGO-001 for the CT1000 series and JAWGO-005 for the CT5000 series nozzles.

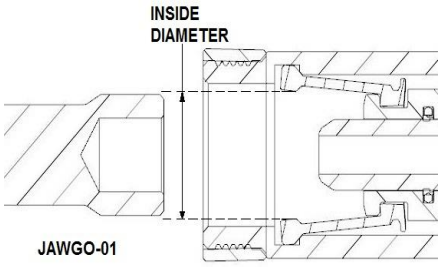


Figure 7: Front Opening

After One Year of Service, The nozzle should be routinely checked for leaks while under service pressure.
After Four Years of Service, The unit should be returned to OPW for inspection and refurbishment of all seals. This period should be reduced to twenty-four (24) months if the potential exists for misuse, abuse, or the nozzle is used in extreme environmental surroundings.