scyuncheng

Motorcycle CNG & LPG Kit Introduction and Installation

Illustrated English technical reference | 20 MPa CNG example | Type 722 wiring

This guide introduces the scyuncheng carbureted motorcycle CNG and LPG conversion arrangements shown in the supplied workshop document. It covers component identification, CNG fuel flow, installation layout, high-pressure tubing, Type 722 wiring and ferrule assembly illustrations. The CNG example describes cylinder filling to 20 MPa. That figure must not be applied to LPG equipment. Confirm the exact kit, cylinder, valves, pressure ratings and vehicle compatibility before installation.

For trained vehicle gas-system installers. This is an illustrated reference, not a vehicle-specific approval or a substitute for the current component instructions. The source does not specify tightening torques, a complete pressure/leak-test procedure or acceptance criteria. Obtain these before commissioning. Do not work on pressurized lines. Do not test for leaks with a flame.

About the illustrations: all 48 source figures are included. Chinese image annotations have been replaced with English and reducer brand logos have been removed for this edition. English captions and connection tables provide additional reference. Five embedded video previews are reproduced as still frames; this PDF does not contain playable videos.



Figure 1. CNG kit



Figure 2. LPG kit

1. Identify the correct gas system

The CNG and LPG sets differ in their reducer, filling valve and fuel-level/pressure components. The LPG reducer illustrated in this document has no coolant circulation connection. The CNG set uses a pressure-sensing unit; the LPG arrangement uses a cylinder multivalve assembly. CNG and LPG components are not interchangeable merely because they look similar.

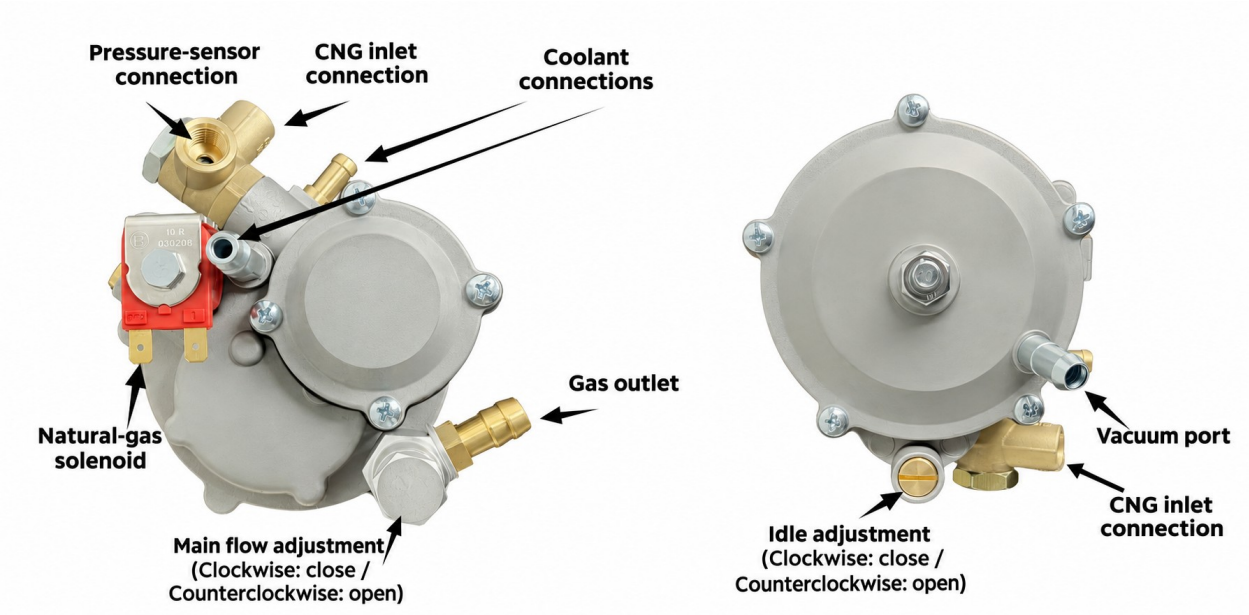


Figure 3. CNG reducer: front and rear views

English figure key: Pressure-sensor connection; CNG inlet connection; coolant circulation connections; natural-gas solenoid valve; gas outlet; main flow adjustment valve (clockwise closes, counterclockwise opens); vacuum port; idle adjustment valve (clockwise closes, counterclockwise opens).

LPG reducer connections

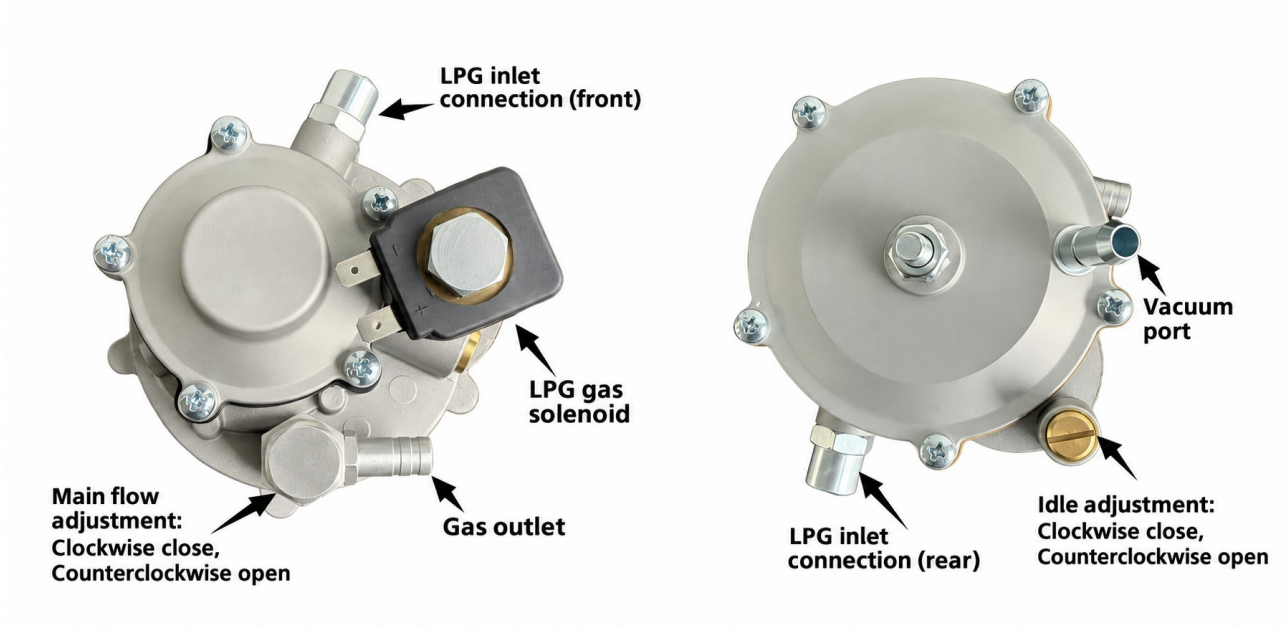


Figure 4. LPG reducer: front and rear views

English figure key: LPG inlet connection; LPG gas solenoid valve; gas outlet; main flow adjustment valve (clockwise closes, counterclockwise opens); vacuum port; idle adjustment valve (clockwise closes, counterclockwise opens).

The illustrated LPG reducer has no coolant connection. Do not use the CNG filling pressure as an LPG specification.

2. CNG kit components



Figure 5. CNG reducer

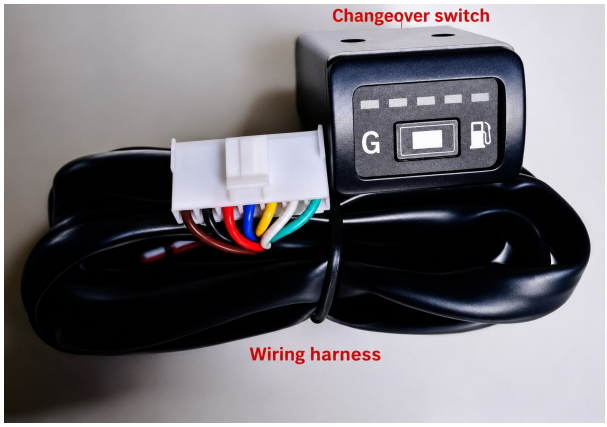


Figure 6. Changeover switch and wiring harness

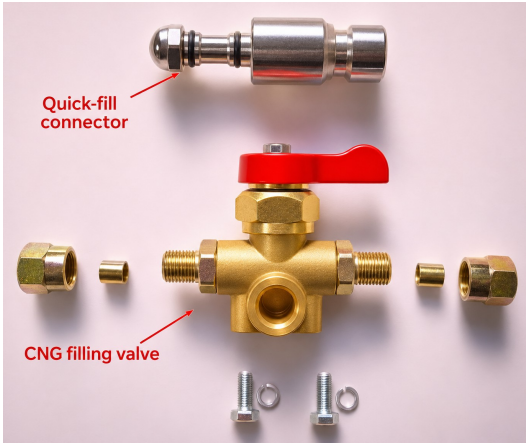


Figure 7. Quick-fill connector (top); CNG filling valve (bottom)



Figure 8. Filling valve



Figure 9. Mixer (left); mixer rubber sleeve (right)

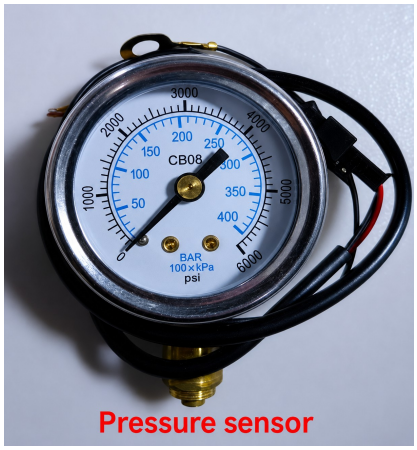


Figure 10. Pressure-sensing unit: front

CNG fittings and accessories

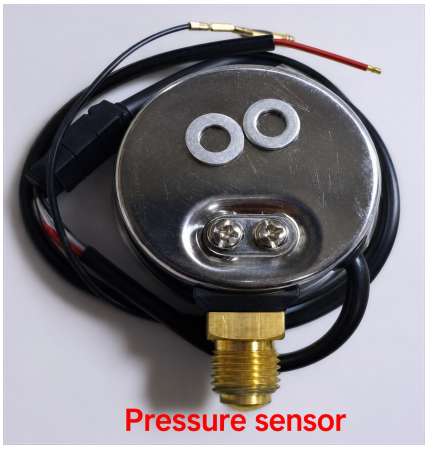


Figure 11. Pressure-sensing unit: rear



Figure 12. Petrol solenoid valve



Figure 13. Steel tube

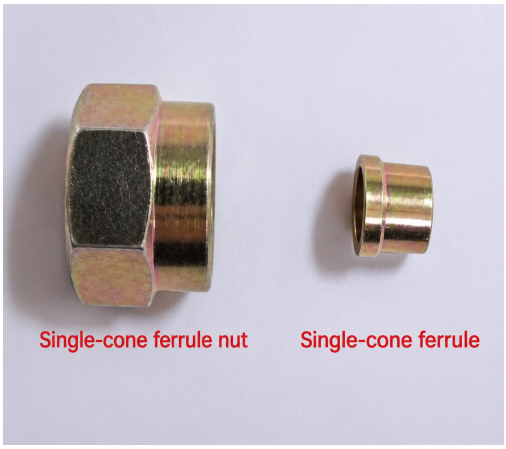


Figure 14. Single-cone ferrule nut (left); ferrule (right)

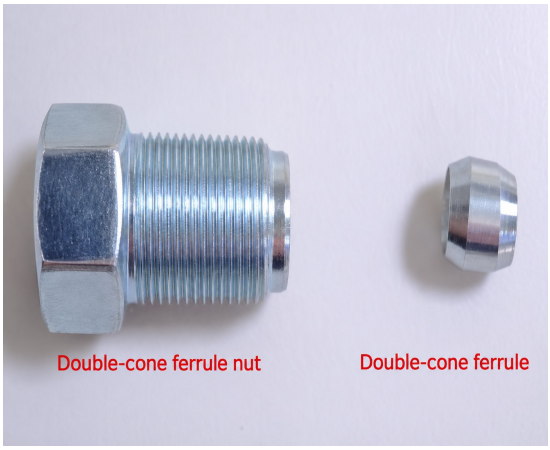


Figure 15. Double-cone ferrule nut (left); ferrule (right)



Figure 16. Low-pressure gas hose

Ferrule names describe the illustrated source shapes. Select the complete matching nut, ferrule, tube and fitting; do not mix fitting designs.

Mounting accessories and LPG parts

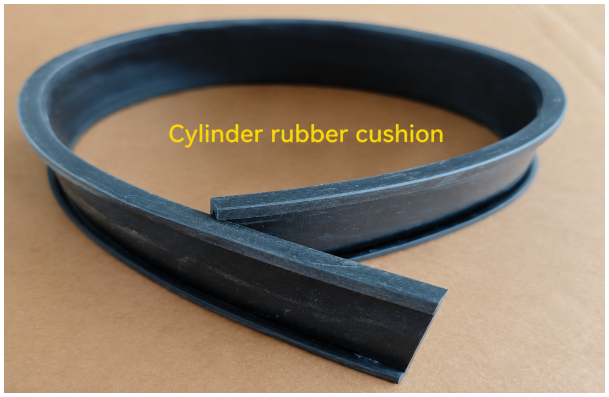


Figure 17. Cylinder rubber cushion



Figure 18. Coolant tee



Figure 19. Accessory pack



Figure 20. LPG reducer



Figure 21. LPG filling valve



Figure 22. LPG cylinder multivalve assembly

3. How the carbureted CNG system works

Subsystem	Components
Gas storage	Filling valve, cylinder, high-pressure lines and fittings, pressure-sensing unit and fuel-level display.
Gas supply	Reducer, main gas-flow adjustment valve and mixer.
Fuel changeover	Fuel selector switch, gas solenoid valve and petrol solenoid valve.

The conversion retains the motorcycle's original petrol supply system and adds a vehicle CNG system. Either petrol or CNG can be selected. In the source example, a filling station fills the CNG cylinder through the filling valve to 20 MPa.

In GAS mode, the natural-gas solenoid opens and the petrol solenoid closes. High-pressure CNG passes from the cylinder through the high-pressure line to the three-stage reducer. The source describes progressive reduction to a vacuum-demand stage. Gas then passes through the main flow adjustment valve and low-pressure hose to the mixer, where it mixes with filtered air before entering the engine through the carburetor passage.

The main flow adjustment valve changes the gas passage area and therefore affects the air-fuel mixture. Its setting must be confirmed during professional commissioning; the photographs do not provide a universal setting.

In PETROL mode, the gas solenoid closes and the petrol solenoid opens. Petrol flows through its solenoid valve to the carburetor and is drawn into the engine.

The three-position selector has a center OFF position that closes both solenoids. The source uses this position during the petrol-to-CNG transition to consume petrol remaining in the carburetor float bowl before selecting gas. Do not intentionally supply both fuels together in this carbureted arrangement. Use the switching procedure specified for the actual installed system.

4. Cylinder placement and mounting

Follow the principles of safe placement, sensible routing and secure mounting. Maintain clearance from the engine and transmission. The source suggests the rear of the vehicle; on passenger tricycles it illustrates installation beneath the rear seat, and on cargo tricycles it suggests the area below the rear cargo body. These are layout examples, not approval for every vehicle.

Do not reduce the vehicle's ground clearance or ability to pass obstacles. Place rubber cushioning at least 2 mm thick between the cylinder and its clamps. Use secure mounting and locking provisions on fasteners. Apply the torque specified for the actual mounting hardware; the source gives no torque value.

After tightening, the cylinder must not move relative to its clamps in any of the six directions: up, down, left, right, forward or backward. Check axle loads, vehicle load limits, structural suitability and local requirements before accepting a mounting location.

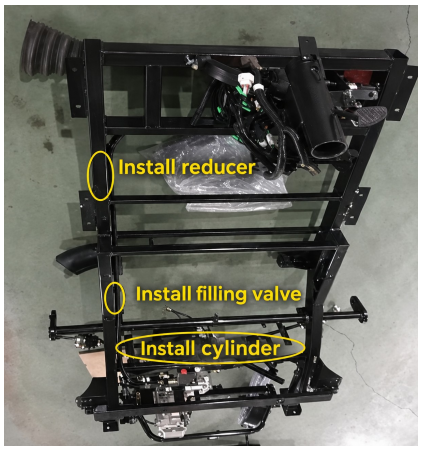


Figure 23. Example vehicle layout: reducer at top; filling valve in middle; cylinder at bottom



Figure 30. Example cylinder mounting

5. Reducer installation and orientation

Mount the reducer near the carburetor in a location with relatively low vibration, such as a suitable point on the frame. Do not mount it directly on the engine. Connect it to the mixer with suitable flexible hose.

For the reducer illustrated, the source calls for the diaphragm plane to be vertical and aligned with the vehicle's direction of travel. Confirm the current instructions for the exact reducer before using this orientation.

For the illustrated coolant-heated CNG reducer, connect the appropriate engine coolant circuit to the reducer's heating passages. The source calls for sufficient pressure differential to maintain circulation. It also says coolant circulation may be omitted where year-round ambient temperature is around 20 C. This is a source-specific statement, not a general exemption: confirm heating requirements with the supplier, especially for air-cooled engines. The illustrated LPG reducer is a different design with no coolant circulation.

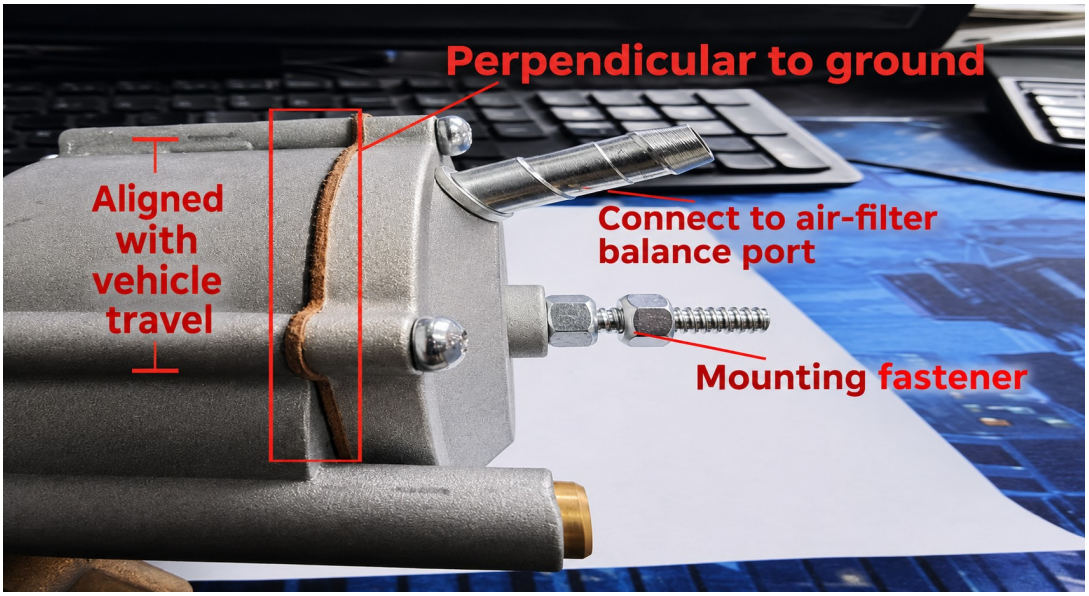


Figure 24. Reducer mounting orientation

English figure key: Diaphragm aligned with the direction of vehicle travel; perpendicular to the ground; connect the indicated upper port to the air-filter balance port; mounting fastener.

6. Pressure sensing and intake connections

Install the pressure-sensing unit on the reducer using the specified thick aluminum sealing washer supplied on the back of the unit. The source shows a flat washer seal. Confirm the actual fitting type and do not substitute another sealing method without the component instructions.



Figure 25. Pressure-sensing unit installation



Figure 26. Mixer: upper connection to air filter; lower connection to carburetor

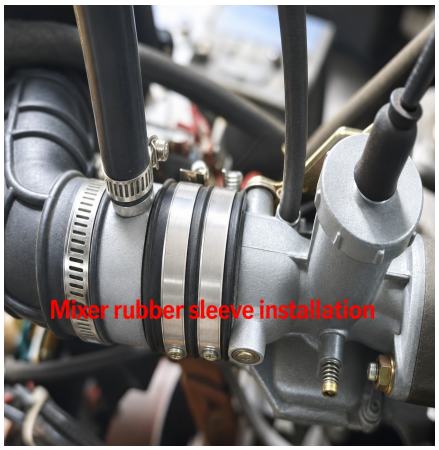


Figure 27. Mixer rubber sleeve installation



Figure 29. Mixer sides: upper view to air filter; lower view to carburetor



Figure 31. Low-pressure gas hose connection

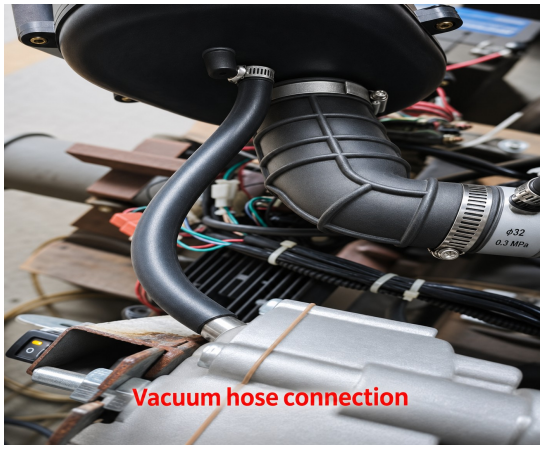


Figure 32. Vacuum hose connection

7. High-pressure tubing and filling valve

Mount the filling valve where it is protected and accessible for refueling. Where practical, route the cylinder, filling valve and reducer high-pressure tubing along the same side of the vehicle.

Cut the high-pressure tube to the required length with a tube cutter. Produce a flat cut perpendicular to the tube centerline. Remove internal and external burrs and contamination. Reject tube with visible scoring, dents, surface defects or corrosion.

Fit the nut and ferrule in the orientation shown for the exact fitting. The source says the ferrule's cutting edge faces the tube end. Start the nut by hand, then tighten with the proper tools according to the fitting manufacturer's instructions. The source gives no tightening torque or number of turns. Leave about 30 mm of straight tube near the nut for service access.

Arrange tubing neatly with clearance from adjacent components. Prevent impact and abrasion. The source specifies support-clamp spacing no greater than 1 m. Use rubber protection where a line contacts a neighboring part or passes through a panel opening.

Provide for thermal expansion, contraction and vibration. The source illustrates O-shaped or omega-shaped expansion loops. Bend radius, routing and support must still meet the tube and vehicle requirements.

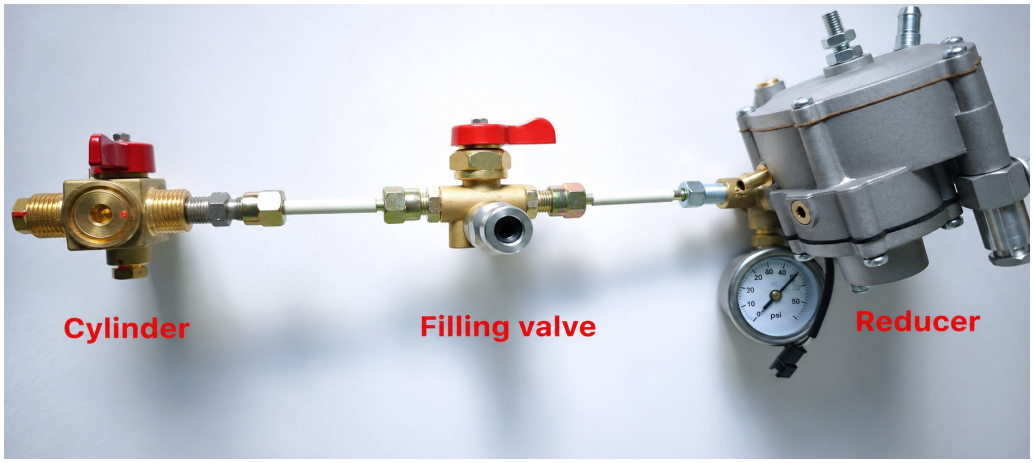


Figure 28. Example high-pressure line layout

English figure key: Left: cylinder; center: filling valve; right: reducer.

8. Petrol solenoid and electrical installation

Fit the petrol solenoid in the petrol line between the fuel pump and the carburetor, near the carburetor inlet, where that arrangement applies. Keep the coil upward and away from the exhaust and ignition system. Follow the marked inlet/outlet direction and inspect connections for leakage.

Install the selector where the rider can operate it conveniently. Route the harness along the original vehicle wiring and secure it. Mate each connector firmly with its corresponding component. Verify the actual pinout, voltage, protection and grounding before energizing.

Both the reducer gas solenoid and the petrol solenoid require a ground/earth connection. Wire colors and the Type 722 diagrams below apply only to the harness illustrated; they are not universal motorcycle wiring conventions.

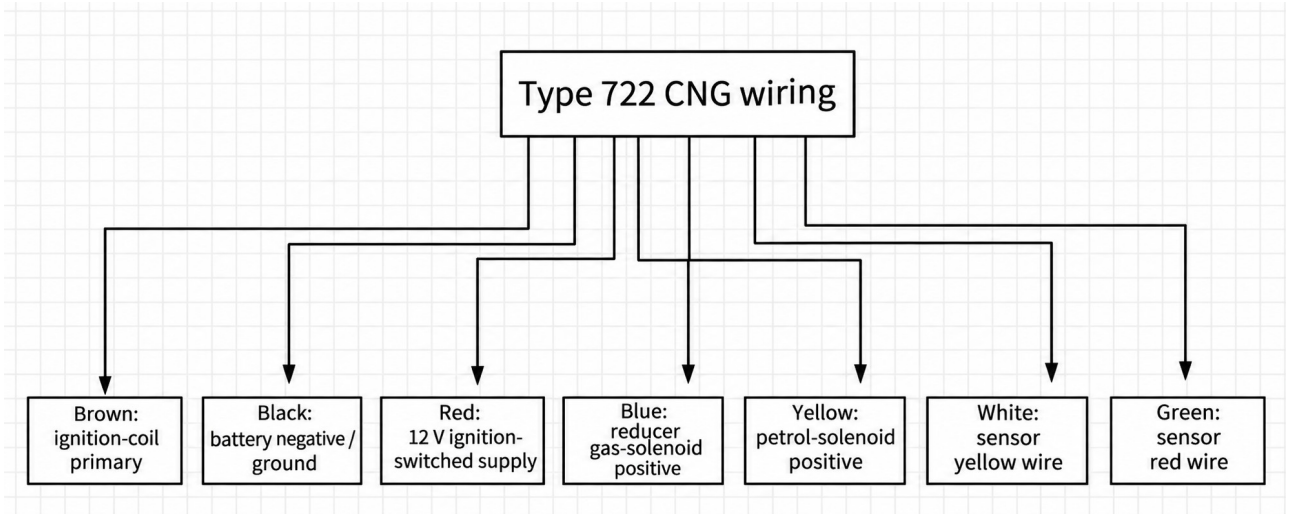


Figure 33. Type 722 CNG wiring diagram

English figure key: Connections are listed in reading order from left to right in the original diagram.

Wire	Connection
Brown	Ignition-coil primary winding
Black	Battery negative / ground
Red	12 V ignition-switched supply
Blue	Reducer gas-solenoid positive
Yellow	Petrol-solenoid positive
White	Pressure-sensor harness yellow wire
Green	Pressure-sensor harness red wire

Pressure-sensor harness connections

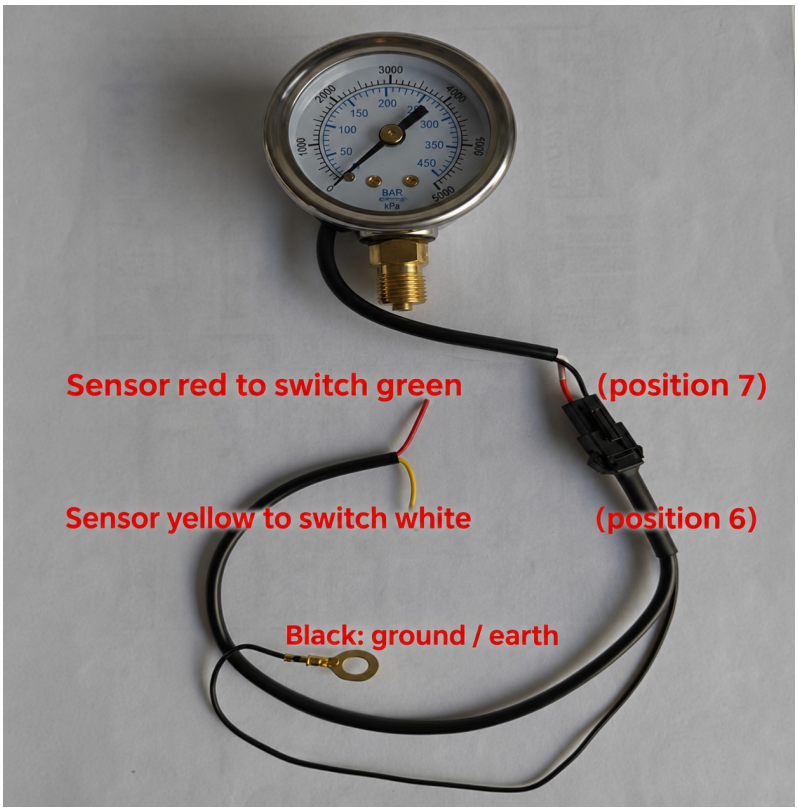


Figure 34. Pressure-sensing unit cable diagram

English figure key: Sensor red to switch-harness green (position 7); sensor yellow to switch-harness white (position 6); black to ground/earth.

Positions refer to the original diagram, not a guaranteed physical connector orientation. Verify the actual connector and sensor specification before applying power.

Type 722 LPG wiring

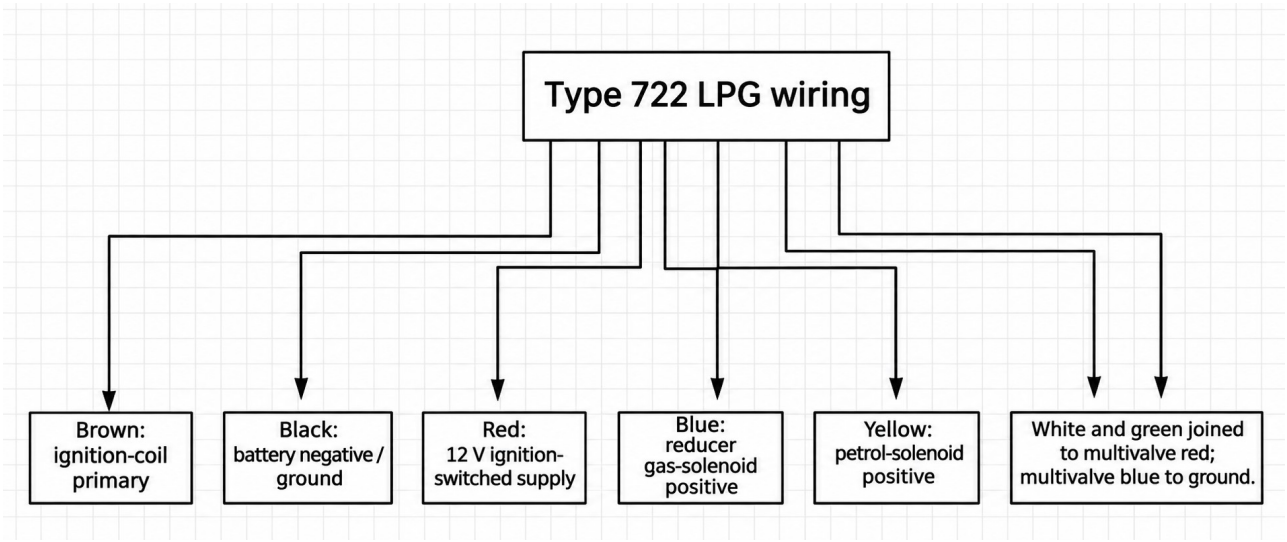


Figure 35. Type 722 LPG wiring diagram

English figure key: Connections are listed in reading order from left to right.

Wire	Connection
Brown	Ignition-coil primary winding
Black	Battery negative / ground
Red	12 V ignition-switched supply
Blue	Reducer gas-solenoid positive
Yellow	Petrol-solenoid positive
White and green	Join as shown to the multivalve red wire
Multivalve blue	Ground / earth

Ground both solenoid valves. The source shows a specific LPG multivalve wiring arrangement. Confirm that it matches the supplied multivalve and harness.

9. Single-cone ferrule assembly illustrations

Use the tube preparation and fitting instructions in Section 7. These images identify assembly stages; they do not establish tightening torque, a number of turns or a leak-test acceptance criterion.



Figure 36. Components before assembly



Figure 37. Tube and nut positioning



Figure 38. Fitting assembled on valve

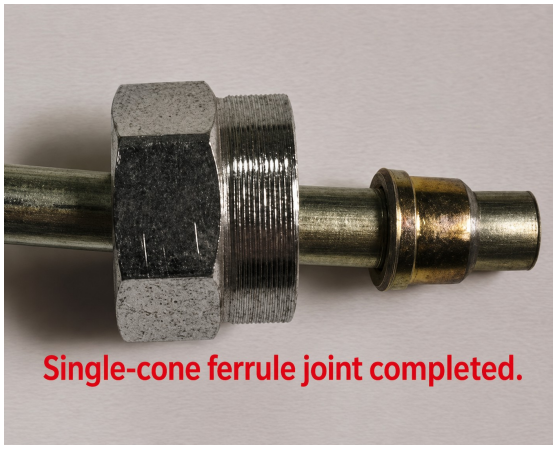


Figure 39. Completed ferrule joint



Figure 40. Source video still: wrench operation



Figure 41. Source video still: ferrule close-up

10. Double-cone ferrule assembly illustrations

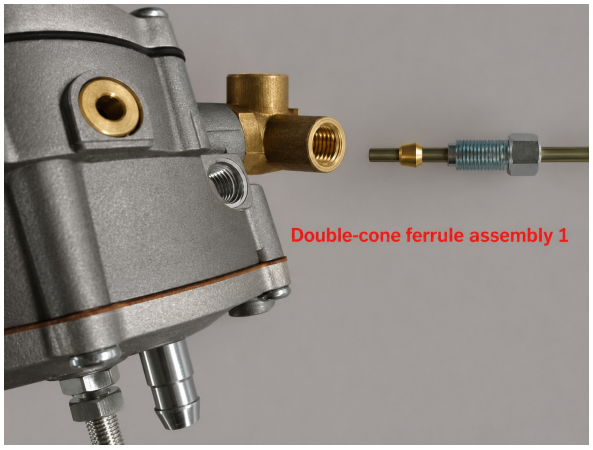


Figure 42. Components before assembly

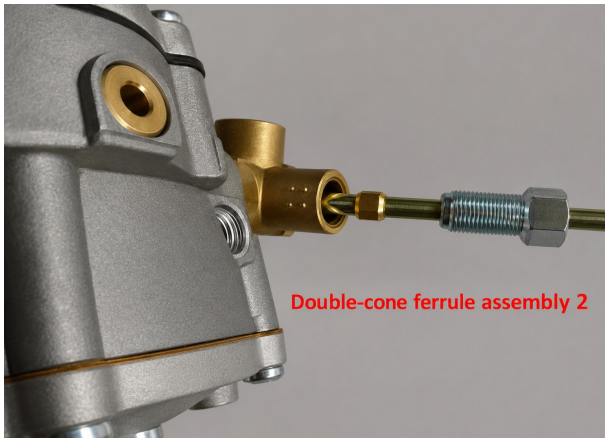


Figure 43. Tube and ferrule positioning

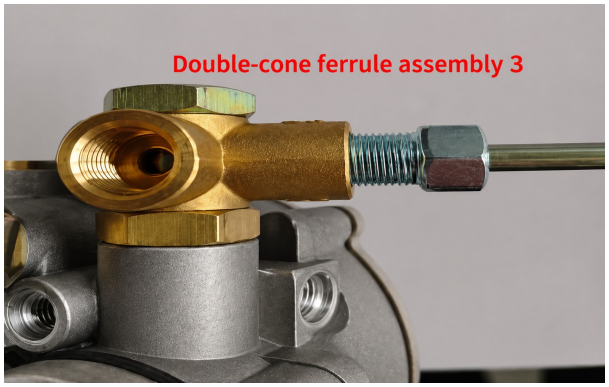


Figure 44. Nut and fitting assembly



Figure 45. Completed ferrule and nut



Figure 46. Source video still: prepared tube end

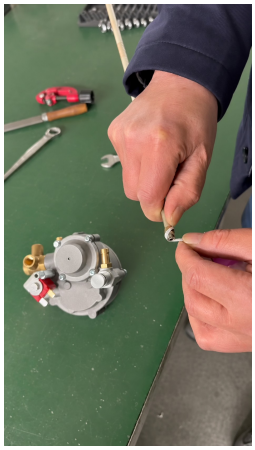


Figure 47. Source video still: joint inspection

11. Tube-cutting illustration and handover



Figure 48. Source video still: rotary tube cutter

Cut squarely, deburr and remove contamination as described in the source. Do not work on a pressurized tube.

Editorial handover checklist: obtain the correct torque and fitting instructions; verify component pressure ratings, wiring and grounds; complete the required professional pressure/leak tests; confirm secure mounting, fuel changeover and stable engine operation; provide the operator with the approved refueling and emergency procedures. These checks supplement the source and do not constitute a complete commissioning procedure.

Appendix A. Original benefits and stated limitations

The following translates the original discussion with explicit qualifications. Numerical claims are retained for completeness, not presented as independently tested product specifications.

The source describes natural gas as having an ignition temperature above 650 C, compared with 427 C for petrol, and therefore being harder to ignite. Ignition temperature alone does not establish the safety of a complete vehicle installation.

The source calls natural gas non-toxic, non-carcinogenic and non-corrosive, and gives a relative density of 0.48 compared with air. Escaping natural gas can displace oxygen; leakage is hazardous. LPG behaves differently and must not be assumed to disperse upward like natural gas.

The source quotes an octane value as high as 130 and a flammability range of 5-15 percent in air. Actual composition and test conditions matter. These figures are not component certifications.

The source describes cooling around a release point as compressed gas expands. This does not make a leak safe or remove fire, pressure or cold-injury hazards.

The original claims reductions of 80 percent for carbon monoxide, 60 percent for hydrocarbons and 70 percent for nitrogen oxides, and says the exhaust contains no sulfur compounds or lead. No test method, vehicle, baseline or report is supplied. These figures are original-source claims reproduced here for completeness, not verified scyuncheng performance guarantees.

The source uses an equivalence of 1 cubic meter of natural gas to 1.1 liters of petrol and claims fuel-cost savings above 50 percent. No local fuel prices or duty-cycle data are supplied. Actual cost per kilometer and payback must be calculated from measured consumption and local prices.

Appendix B. Operating and project limitations

The source says compressed storage has lower volumetric energy density and quotes range around one quarter of petrol for the same storage-container volume. Cylinder weight and limited mounting space can restrict range. This ratio is not a guaranteed range figure for a particular motorcycle.

The source attributes reduced power in a petrol engine converted without changes to compression ratio, ignition and intake to intake-air displacement and different combustion behavior. It quotes a 5-15 percent power reduction. No test report or engine configuration is provided, so this is not a guaranteed result.

The original gives a theoretical natural-gas air-fuel ratio of 10:1 and says gas occupies about 10 percent of intake volume. The basis of that ratio is unspecified; do not use it as a calibration target.

Cylinders occupy space otherwise used for luggage or tools and add vehicle mass. High-pressure filling, leakage and incorrect operation can cause serious hazards, including fire or explosion.

The source concludes that fuel cost, energy availability and environmental policy may support future CNG vehicle development. Local refueling access, approvals and measured project economics still determine whether a motorcycle conversion is practical.

Source: customer-supplied Chinese document, CNG/LPG Motorcycle Kit Introduction and Installation. English editorial edition prepared November 2026.

Product information and current documentation: https://www.scyuncheng.com/Motorcycle2/

Download center: https://www.scyuncheng.com/download/