Propane Conversion Systems

Installation Instructions:

2S-LIFAN200TM
2S-LIFAN200FM
2S-LIFAN390TM
2S-LIFAN390FM

SAFETY FIRST
PLEASE READ THE ENTIRE INSTRUCTION PROCEDURE AND SAFETY INFORMATION BEFORE ATTEMPTING TO COMPLETE THIS INSTALLATION.
Fuel properties of LPG and propane

- When referring to fuel, this also refers to LPG and to propane.
- An odorant is added to LPG at the production facility prior to shipment by railcar or transport. It is added to be able to detect a leak and presence of LPG. Some refer to the smell of the odorized Propane as the smell of rotten eggs.
- It is a flammable fuel - do not smoke or permit open flames or other sources of ignition if able to smell or detect a leak.
- Do not breathe it. Propane fumes or vapor are non-toxic but as the vapor or gas is heavier than air it will displace the breathing air and if concentrations are high enough it can lead to asphyxiation.
- Do not let LPG come in contact with your skin. Frostbite or freezing of the skin will occur as the liquid vaporizes on the skin.
- Liquid propane expands with temperature. As the temperature of the liquid inside the tank rises, the volume of liquid increases in the tank. If liquid propane reaches 100% of tank capacity the tank safety relief valve will open releasing vapor and/or liquid propane into the atmosphere.
- When your propane power equipment is stored indoors or inside of a transport truck, always close the fuel tank supply valve completely!

Component list

1. Propane carburetor
2. Two gaskets
3. Approved LP thread sealant
4. Choke lever(s), additional (black) lever added for FM style air cleaner
5. Banjo bolt and 2 washers
6. Two rubber vacuum caps
7. High pressure supply line
8. Standard connector fitting w/ nut and locking washers
9. Standard connector bracket and hardware
10. Extended carburetor studs (7HP and less engines only)
   - TM- Top mount air cleaner uses 113mm studs
   - FM- Face mount air cleaner uses 95mm studs
11. High pressure propane supply hose
    - Standard 60” with QCC connector
## Required tool list

1. ¼” metric socket set  
2. Metric open end wrench set  
3. Flat blade screw driver  
4. Phillips head screw driver  
5. Needle nose pliers  
6. Adjustable wrench x2  
7. Vise grips/channel locks  
8. Leak detector solution  
9. Drill bit set  
10. Electric drill

## Installation Instructions

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<td><strong>1.1</strong></td>
<td><strong>Securing gasoline fuel supply</strong>&lt;br&gt;Close OEM gasoline fuel cutoff located under the fuel tank (if applicable). Fig 1.1</td>
<td><img src="image1.1" alt="Image 1.1" /></td>
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<tr>
<td><strong>1.2</strong></td>
<td>Start and run engine until gasoline in carburetor is completely burned (engine will shut off).&lt;br&gt;Note: This can take several minutes&lt;br&gt;Turn the run switch to the “OFF” position. Fig 1.2</td>
<td><img src="image1.2" alt="Image 1.2" /></td>
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<td><strong>1.3</strong></td>
<td>Disconnect all positive and negative battery connections (on electric start models)&lt;br&gt;Disconnect gasoline fuel lines from the OEM fuel shutoff and fuel tank. Also remove the evap hose from air cleaner box to the fuel tank.&lt;br&gt;Note: Place a catch underneath the OEM fuel shutoff during this operation, as gasoline may still be present and spill&lt;br&gt;Install vacuum plugs on all OEM gasoline hose barbs (fuel petcock, fuel tank vent, etc.) this includes capping the evap port on air cleaner box and vent port on gasoline tank. Fig 1.3</td>
<td><img src="image1.3" alt="Image 1.3" /></td>
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<td><strong>2.1</strong></td>
<td><strong>Removal of air cleaner</strong>&lt;br&gt;Remove air cleaner cover and take out the filter elements and screen. Fig 2.1</td>
<td><img src="image1" alt="Image" /></td>
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<tr>
<td><strong>2.2</strong></td>
<td>Remove the six bolts holding the air cleaner housing (on larger, FM-face mount applications). Fig 2.2</td>
<td><img src="image2" alt="Image" /></td>
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<tr>
<td><strong>2.3</strong></td>
<td>Remove the two 10mm carburetor stud bolts and pull away the air cleaner assembly. Fig 2.3</td>
<td><img src="image3" alt="Image" /></td>
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<tr>
<td><strong>2.4</strong></td>
<td>Disconnect OEM gasoline solenoid wire located underneath carburetor (electric start models) Fig 2.4</td>
<td><img src="image4" alt="Image" /></td>
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| 3.1 | **Removal of gasoline carburetor**  
Disconnect throttle linkage and choke linkage (if applicable) from the top of the carburetor. Fig 3.1  
If your application utilized a cable choke, you will need to remove that assembly. Your kit comes with the appropriate choke lever that will be installed in step 5.  
Carefully remove the gaskets and carburetor from the intake manifold.  
Note: You will need to remove the carburetor studs for engines 7HP or less using vise grips or channel locks. (longer studs are provided in the kit) | ![Image](image1.png) |
| 3.2 | If you are converting an engine 7HP or less, install the longer studs included in your kit now. Fig 3.2  
Note: Engines with top-mounted (TM) air cleaners use 113mm long studs  
Engines with face-mount air cleaners use 95mm long studs | ![Image](image2.png) |
| 4.1 | **Prepare your propane carburetor**  
Remove protective dust cap on the bottom side of the propane carburetor. Fig 4.1 | ![Image](image3.png) |
| 4.2 | Install one (of two) washers onto the Banjo bolt. Fig 4.2  
Slide the Banjo fitting on the hose end onto the banjo bolt.  
Install the second washer onto the bolt. See picture | ![Image](image4.png) |
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<td><strong>4.3</strong></td>
<td>Thread the bolt assembly into the inlet of the propane carburetor. Leave hand tight until the carburetor is on the engine and you know where you want to route the hose assembly. <strong>Fig 4.3</strong></td>
<td><img src="image1.jpg" alt="Image" /></td>
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<tr>
<td><strong>5.1</strong></td>
<td>Installation of the Propane carburetor</td>
<td><img src="image2.jpg" alt="Image" /></td>
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<td></td>
<td>Install gasket one (of two) gasket onto the carburetor studs. Ensure the mating surface of the intake manifold is clean and free of dirt and oil. <strong>Fig 5.1</strong></td>
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<tr>
<td><strong>5.2</strong></td>
<td>Now slide the propane carburetor onto the studs. <strong>Fig 5.2</strong></td>
<td><img src="image3.jpg" alt="Image" /></td>
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<td><strong>5.3</strong></td>
<td>Be sure to hook up you the throttle linkage and install the appropriate choke lever at this point. Note: If you are converting a TM-top mount style air cleaner engine, you will need to utilize the gray choke supplied in your kit. <strong>Fig 5.3</strong></td>
<td><img src="image4.jpg" alt="Image" /></td>
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<tr>
<td>5.4</td>
<td>If you are converting a FM-face mount style air cleaner engine, then you will need to utilize the black choke lever supplied in your kit. Fig 5.4</td>
<td><img src="image1.png" alt="Image" /></td>
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<td>6.1</td>
<td><strong>Install the air cleaner assembly</strong>&lt;br&gt;The installation is the reverse of removing the assembly&lt;br&gt;Slide the housing back over the studs and secure with the two 10mm nuts on the carburetor studs. Fig 6.1</td>
<td><img src="image2.png" alt="Image" /></td>
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<tr>
<td>6.2</td>
<td>Install the air filter and screen. Fig 6.2</td>
<td><img src="image3.png" alt="Image" /></td>
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<tr>
<td>6.3</td>
<td>Install filter housing cover. Fig 6.3</td>
<td><img src="image4.png" alt="Image" /></td>
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<td><strong>7.1</strong></td>
<td><strong>Propane line routing</strong>&lt;br&gt;Locate a spot to secure the bulk head fitting bracket included in your kit. Fig 7.1&lt;br&gt;Drill two holes to secure the bracket to the equipment chassis&lt;br&gt;Secure with the two 5/16” nuts and bolts provided&lt;br&gt;Install and tighten the bulk head fitting to the bracket</td>
<td><img src="image1.png" alt="Image of propane line routing" /></td>
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<tr>
<td><strong>7.2</strong></td>
<td>Route the propane supply line Fig 7.2&lt;br&gt;Note: Ensure the hose is not rubbing or in contact with any part of the engine.</td>
<td><img src="image2.png" alt="Image of propane supply line" /></td>
</tr>
<tr>
<td><strong>7.3</strong></td>
<td>Thread the line end into the bulk head fitting and tighten.&lt;br&gt;-Now tighten the Banjo bolt on the bottom of the carburetor. Fig 7.3&lt;br&gt;You have now successfully installed your propane conversion</td>
<td><img src="image3.png" alt="Image of propane conversion" /></td>
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<td><strong>8.1</strong></td>
<td><strong>Propane supply hose</strong>&lt;br&gt;From the bulk head fitting, apply the propane approved thread sealant supplied in your kit to the ¼” MPT threads.&lt;br&gt;Install and tighten the 90 degree ¼” FMT elbow onto the bulk head fitting. Fig 8.1&lt;br&gt;Your kit comes standard with a 60” propane supply hose. Thread the 3/8” female flared fitting of the hose end onto the 3/8” male flare fitting of the elbow. Fig 8.1</td>
<td><img src="image4.png" alt="Image of propane supply hose" /></td>
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**8.2** | The standard hose supplied is equipped with a QCC fitting that adapts to all certified propane cylinders equipped with an OPD valve. These size cylinders are typically 20lb, 30lb and 40lb. Fig 8.2

Note: There are other hose options available for this kit. Contact your equipment supplier for details and options.

**9.1** | **Checking for leaks**

With your QCC fitting attached to your propane cylinder, slowing turn the valve on top of the cylinder on (counter-clockwise). Fig 9.1

Wait a few seconds to allow the system to pressurize.

**9.2** | Using an approved propane leak detecting solution or soapy water, spray down all connections that were made during the installation. Fig 9.2

If bubbles appear after the leak detector is applied, this indicates a leak in the system. Tighten the fitting until the bubbles dissipate and recheck the system.

If there is any smell of propane during this process than do not proceed until all leaks have been detected and repaired.

**10** | **Starting and stopping procedure**

Make sure your propane fuel supply is turned on.

Turn the power switch to the “ON” position.

Close the choke lever as indicated on the generator.

If it is a manual recoil, pull until the engine starts

For electric start, crank with the key until the engine starts

Slowly open choke once the engine starts.

Allow the engine to “warm up” before applying any load.
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