

Steps to Troubleshooting Refrigerated Truck Unit Issues

As is known to us all, an efficient transport refrigeration system is mainly composed of engine system, refrigeration unit, backup power and electrical control device. If the refrigeration compressor operates normally, but not cooling down, we conclude the reasons and troubleshooting methods as the following:

◆ The Filter is Blocked

The filter inlet has refrigerant, but there is no refrigerant leaking out when the outlet screw is loosened;

◆ The Thermal Expansion Valve (TEV) is Blocked

the manifestations are dirty blockage and ice blockage; Check whether the filter screen of the TEV is dirty. If yes, it should be cleaned and dried with nitrogen; if not, it should be cleaned with nitrogen too. When the temperature sensing bulb leaks, nitrogen cannot pass through the expansion valve, Then the TEV should be replaced in time;

If there is ice blockage during inspection, the entire truck refrigeration system must be dried with nitrogen to eliminate the ice blockage.

◆ TEV Adjustment

The TEV adjustment is too large or too small;

--Too large, the compressor runs wet, and the suction pressure is low;

--Too small, little frosting occurs;

Check whether there is a leak in the refrigeration system, and adjust the expansion valve to achieve the best cooling effect.

◆ Cooling Fan Issues

Check the evaporator fan motor fuse and load distributor, and replace it in time if damaged. Check whether the voltage of the evaporator fan and the motor is lower than 12V. If so, you should focus on checking the 12V alternator and load distributor; The speed of the evaporator fan motor is not enough, which means that the wind force is weakened and the air volume is small.

◆ Refrigerant Leakage

If there is a refrigerant leak, leak detection should be underwent. The inspection parts include: compressor shaft seal, high-pressure exhaust port, low-pressure air outlet connector, connection of other **TRU parts**, and pipeline welding. Refrigerant leakage can generally be checked with halogen lamps, electronic leak detectors and other equipment. But in actual work, most people use soapy water for leak detection. After the leak point is well-treated, it must be pressurized with nitrogen to 1.2MPa and kept for 24 hours. When the gauge pressure does not drop, it can be evacuated and the refrigerant can be injected.

◆ Lack of Refrigerant

Insufficient refrigerant is manifested as slow cooling. If the liquid in the sight glass is in an intermittent flow state, it is mainly because the suction pressure is low; The reason for the low high pressure and low pressure is the lack of refrigerant.

◆ Too Much Refrigerant

The reasons for both high pressure and low pressure are too much air, too much refrigerant, poor cooling effect of the condenser, and too much opening of the expansion valve. First observe whether there is frost on the low-pressure pipe, if there is frost, the opening of the expansion valve is too large. Rinse the condenser with water again. If the effect is obviously improved, the cooling effect of the condenser is poor. If there is no change, there is air in the system. What's left is too much refrigerant. If there are no air bubbles in the glass eyes when turning on and off the air conditioner, it can be determined that there is too much refrigerant. As long as you let out some refrigerant, the fault can be eliminated. During operation, the low pressure is sometimes a vacuum and sometimes normal, which can diagnose moisture in the system. To re-vacuum, it is necessary to replace the liquid storage dryer, and then refill the refrigerant; the low pressure always indicates the cause of the vacuum: the system is blocked, and the refrigerant does not circulate. Most of the expansion valves and liquid storage dryers are blocked, and they can be replaced. The low pressure is high and the high pressure is low, because the compressor itself is not good. Disconnect the low pressure pipe of the compressor and try to plug the high pressure pipe behind the pressure gauge. Start the engine and connect the 12V power supply to the electromagnetic clutch. If the pressure is lower than 15kg/cm², the compressor is definitely broken. Generally, only the compressor assembly can be replaced.

◆ Dirty Evaporator and Condenser

The surface of the condenser is too dirty, causing blockage of the air passage, which is manifested as high exhaust temperature and poor condensation effect; clean the condenser to improve the condensation effect; the surface of the evaporator is blocked by carton dust or other dirt, and the cold air is blocked; clean the evaporator , remove dirt and reduce cold air resistance;