



# Service News



## Misfire of The Pilot Burner

Miura Service News, Volume No.21 would like to explain the countermeasure against misfire of the pilot burner installed the boiler and the thermal oil heater.

The pilot burner supplies Diesel Oil (D.O.) and has an easy ignition structure; however, sometimes it takes lots of time and efforts to solve the trouble. We would appreciate it if you learn and make good use of this News for the early solution of the trouble.

### ----- Cleaning and check the burner size -----

If the pilot burner is stained with carbon and unburned matter, clean it well and check the burner assembly size. You can find the size in the Instruction Manual, Maintenance Report and Final Drawing. Finally, clean the distributor inside of the nozzle tip, with cleaning oil, and then reassemble the nozzle tip certainly. (Instruction Manual: Refer to the page for the Nozzle tip.)

### ----- Main cause and Phenomenon -----

1. Misfire caused by the over air-quantity  
The damper opening changes to be on the small condition at pilot burner ignition. Check that the damper opening needle points at ordinary evaluated position when the damper motor operates. If the needle does not work, check the damper motor inferiority, coupling inferiority and adherent on the damper plate. We recommend recording ordinary blower current value and dumper opening at pre-purge ignition, low combustion and high combustion for your reference. When the blower current value is almost rating or the damper opening needle shows over 1/2 (50%) at ignition, it may be over air quantity.
2. Misfire caused by spark inferiority and the deterioration of the ignition transformer
  1. Misfire is caused by the bad condition of the ignition cord and plug cap on the secondary side (high pressure side) of the ignition transformer, and the abnormal position of the lead insulator and spark rod. Check the crack on cord, flaw on the spark cap, lead insulator, does not touch at the burner nozzle and window box and the size of the spark rod and nozzle tip is proper.
  2. The deterioration of the ignition transformer can not form normal spark and causes misfire. In this case, spark and the flame of the pilot burner are unstable.

Gradually, the frequency of misfire increases. It needs lots of time and efforts to solve the problem because it is difficult to be discerned from the appearance. If you find the spark inferiority caused the deterioration of the ignition transformer, replace them with the spare parts earlier and observe it.

3. Fuel oil is not sprayed or the bad condition of spray

1. Proper air-quantity, stable spark and good condition of fuel spray state can form flames; however, the bad condition of fuel spray state causes misfire. Check the oil pump for the pilot burner reaches proper pressure with the pressure gauge. Usually, when the solenoid valve opens and the fuel is sprayed at ignition, the needle of the pressure gauge points low for the moment.

2. Remove the burner from the boiler and if the spray stain of fuel oil on pilot burner, check the nozzle tip or change it with a new one. If you misunderstand it is good spray state because there is a spray stain, it will take longer time to solve the trouble.

4. Property inferior of fuel oil

The property equals to D.O. is requires as the fuel for the pilot burner. However, pilot burner misfire is caused by the property which does not satisfy the spec., too much water and sludge contained in oil, and error of the valve operation mixes C.F.O. in the D.O. service tank. The fuel consumption of the pilot burner is very low, and it takes long time after property of fuel oil becomes bad and misfire is caused. In this case, even maker's service engineers need lots of time and efforts to solve the problem. Then, the check of the daily amount of discharge and property of drain and sludge from a strainer seems to be necessary. If the trouble cannot be found after checking the above-described 1-3 and the property inferior of fuel oil seems to be a cause of misfire, try temporary piping to provide D.O. from the suction side of the oil pump for pilot burner.

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We hope to receive your continuous support in the future.