

April--2010

Messrs,

Subject; Safety Precaution of Volcano gun type burner  
Type VJ installed on your auxiliary boiler

Dear sirs,

We are writing to you concerning an incident recently occurred on our gun type oil burner type VJ that is installed on the auxiliary boiler plant.

We hereby again wish to remind our customers of importance of adhering to safety bulletin, which was sent before by us and has been again enclosed herewith.

1. Incident;

On November 18, 2008, auxiliary boiler furnace installing our VJ type oil burner flashed back and a ship's engineer was burned.

The detail is shown in the report issued by Australian Transport Safety Bureau (ASTB).

( [http://www.atsb.gov.au/publications/investigation\\_reports/2008/mair/258-mo-2008-010.aspx](http://www.atsb.gov.au/publications/investigation_reports/2008/mair/258-mo-2008-010.aspx) )

2. The root cause of the incident;

It is highly likely that the repeated unsuccessful attempts of relighting the burner without eliminating the cause of ignition failure allowed unburned fuel to accumulate until explosive vapor was preset in the furnace. Under such condition, the flashback was caused.

(This warning is clearly described in our safety bulletin.)

3. Safety recommendation;

1) We like you to make sure that our safety bulletin sent before by us and enclosed herewith again should be in hand of ship crews who handle a boiler and instruct them to read carefully. If necessary, please arrange necessary training of ship crews for safety operation.

2) We also strongly remind you that the operation and the maintenance service should be done strictly by adhering to the safety bulletin

If not, you will be exposed to the risk of same kind of accident as described

in ASTB`s report.

4. Other information;

As per ASTB`s report, we will advice as follows;

We have many types of burners. One of such burners is  
“ direct ignition” type oil burner ,named “VJ” and we have other type of pressure jet  
type burner fitted with the pilot burner, named “VJP”.

If you wish to have a burner fitted with pilot burner, we advise that the existing  
burner could be replaced with VJP type burner or could be modified.

If you are interested to know how much cost is required for the replacement and how  
different two models are, we are happy to give you necessary information.

Click the followings for reading:

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1. ATSB TRANSPORT SAFETY INVESTIGATION REPORT  
Marine Occurrence Investigation Report No.258 Final  
( [http://www.atsb.gov.au/publications/investigation\\_reports/2008/mair/258-mo-2008-010.aspx](http://www.atsb.gov.au/publications/investigation_reports/2008/mair/258-mo-2008-010.aspx) )
  2. SAFETY PRECAUSIONS
  3. WARNING PLATES (2sheets)
- 

If you have any question, please feel free to contact persons mentioned below.

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Yours faithfully

Volcano Co.,Ltd

Takashi Kurimoto

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Combustion Engineering Div.,


## SAFETY PRECAUTIONS

1. Before handling this equipment, be sure to read this instruction manual for familiarizing yourselves with the principle to operate or maintain the whole of the equipment.

Operate and maintain the equipment carefully. Otherwise incorrect handling which may lead to such critical accidents incident as explosions, flashbacks etc.

2. To specify the degree of injury and danger, the following cautionary instructions are classified into three degrees of urgency, namely, "DANGER", "WARNING" and "CAUTION". This is intended for the safe and proper use of products for the prevention of injury and damage to yourselves and other persons. These cautionary instructions together with other safety rules should always be followed since they cover important contents on safety.

 <b>DANGER</b>	This sign indicates such an imminently hazardous situation as will result in user's death or serious injury, if incorrectly handled.
 <b>WARNING</b>	This sign indicates the case where such a possibility as could result in user's death or serious injury is presumable, if incorrectly handled.
 <b>CAUTION</b>	This sign indicates the case where such a possibility as may result in user's injury or occurrence of only material damage is presumable, if incorrectly handled

It should be noted that even such cases as will correspond to  CAUTION may lead to critical accidents depending upon the circumstances. Therefore, be sure to follow the instructions.

### WARNING

#### 3. IN THE EVENT OF IGNITION FAILURE AT BURNER START:

Adhere to the burner instruction manual of the following guidance.

The burner is automatically shutdown with the furnace purging for 60 seconds in each

ignition failure. The F.D fan is stopped and the burner servicing becomes ready.

\*Never use manual switches to relight the burner. and

\*Never attempt to relight the burner in each ignition failure BEFORE looking into and eliminating the cause as mentioned below :

- 1) Clean the ignition electrode and check for possible wear, oxide film, cracks, etc
- 2) Check the temperature of fuel if it is risen up to the specified level.
- 3) Check the atomizer and fuel pipe for possible clogging.
- 4) Check the damper plate position if it is fully closed for start up.
- 5) Clean the flame eye element, check for the flame eye activation by a lamp light. If not, check further for the wiring and relays activation.

Upon completion of the mending work mentioned on the above, relight burner with the reset button. As above never use manual switches to relight the burner because the burner shut down function against unsuccessful relighting does not work in the manual mode.

This manner of operation is intended to prevent the unsuccessful attempts to relight the burner that allows unburned fuel to accumulate until an explosive vapor is present in the boiler furnace. It becomes the root cause of explosions or flashbacks which may cause a danger of injury to servicing personnel.

#### WARNING

#### 4. IN THE EVENT THAT AN ACCUMULATION OF EXPLOSIVE VAPOR BE SUSPECTED UNDER the circumstance of :

Should the accidentally repeated attempts to relight the burner by manual switches and or the reset button be made or should the leakage of fuel from its connection pipe and the FO magnetic valve to the boiler furnace be suspected, it is already an entire hazardous condition to which the following emergency steps must be taken to protect yourself against a danger of injury.

- 1) Never open the maintenance cover until a thorough air purging has been

completed, otherwise opening of the maintenance cover may lead to flashback.

The resultant hot gas blast may cause a danger of burns.

- 2) Observe at once the funnel exhaust.

Should vapor smoke as white smoke be observed, regard this state that there is a significant amount of the accumulation of fuel vapor that present a high explosion potential.

- 3) Proceed the purging until no vapor smoking is observed.

Then put the fan in a standstill for a period of 10 minutes or more and start manual purging again for a while for confirming no further build up of vaporization in the boiler furnace with no observation of white smoke.

- 4) Although it would require a lengthy purging time, with a special preparation of the engine room plants operations, the highest priority should be given to the recovery of safe condition by a through purging of the boiler furnace by which the servicing personnel can be relieved from the risk of a boiler flashback and the danger of injury.

 WARNING

#### 5. INSPECTION & MAINTENACE WORK

- 1) Maintenance personnel should wear leather gloves, long-sleeved working clothes, safety glasses to prevent getting burned and eye injury from the heated pressurized gas and flying particles.
- 2) Check if igniters are sparking properly. Improper sparking may lead to an ignition failure.
- 3) Check if there are any oil leakage from fuel pipeline joints and the fuel oil magnetic valve. Otherwise fuel oil dripping into the furnace may lead to cause explosions flashbacks.
- 4) Check the state of combustion and smoke generation from the funnel periodically. Improper combustion will cause unburned fuel oil to scatter inside the furnace and

accumulate on the furnace bottom, leading to a cause of backfire.

- 5) Carry out maintenance and inspection work of stabilizer, atomizer and igniter once a week. Continued operation of them in as-stained condition may lead to occurrence of poor combustion and ignition failure..

 CAUTION

- 6) In conducting maintenance and service work, do not take off the maintenance cover while F.D. fan is running (in the state where wind pressure is built up inside the casing). If the maintenance cover is taken off while F.D. fan is running, there is a danger of the maintenance cover being blown off.

Except for the case where the fan is allowed to run in the state of the maintenance cover being taken off for inspection purpose, be sure to stop the fan when remounting the maintenance cover.

 WARNING

## 7. CAUTIONALY INSTRUCTIONS FOR MANUAL SWITCHES OPERATION

- 1) Manual operation switches are provided for only the cold start of the boiler plant when the boiler is commissioned in use during ship building and docking.

Do not use the switches in the ordinary burner operation except for checking of a failure of activation of the system components such as the electric motor and for an emergency operation.

- 2) At this burner start by manual switches operation, if the burner fails to ignite within 10 seconds after opening the fuel shut-off valve, then set the fuel shut-off valve operation switch to AUTO side to close the valve forthwith. Never attempt lighting repeatedly for the reason of unsuccessful burner ignition.

And carry out the pre-purge before ignition and post-purge after extinction sufficiently (usually for a period of 60 seconds or more).

Otherwise the atomized fuel oil filled up inside the furnace may lead to a danger of

explosions, flashbacks.

4) As the trip function due to flame failure, boiler water level and etc does not work in the manual switching mode, the operator should attend to the boiler front without leaving the spot where he can make an immediate shut down the burner in cases of abnormalities.

5) In case of sequencer failure, contact the maker forthwith for rectifying problems.

In such cases, automatic operation is obviously impracticable but the burner can be operated by manual switches operation as an emergency measure. However, it should be noted that there is a possibility to cause a critical accident such as explosions, flashbacks, dry run or the like, if inadvertent handling be made.

In this emergency operation, as the damper is not automatically put in open position after light up of the burner, upon checking the state of combustion, put the manual operation switch in AUTO position forthwith to put the damper in the state of open position.



## WARNING

Adhere to the following guidance.

### 1. IN THE EVENT OF IGNITION FAILURE AT BURNER START :

\*Never use manual switches to relight the burner. and

\*Never attempt to relight the burner in each ignition failure BEFORE looking into and eliminating the cause as mentioned below :

- 1) Clean the ignition electrode and check for possible wear, oxide film, cracks, etc
- 2) Check the temperature of fuel if it is risen up to the specified level.
- 3) Check the atomizer and fuel pipe for possible clogging.
- 4) Check the damper plate position if it is fully closed for start up.
- 5) Clean the flame eye element, check for the flame eye activation by a lamp light. If not, check further for the wiring and relays activation.

Upon completion of the mending work mentioned on the above, relight the burner with the reset button.

### 2. IN THE EVENT THAT AN ACCUMULATION OF EXPLOSIVE VAPOR BE SUSPECTED UNDER the circumstance of :

Should the accidentally repeated attempts to relight the burner by manual switches and / or the reset button be made or should the leakage of fuel from its connection pipe and the FO magnetic valve to the boiler furnace be suspected,

- 1) Never open the maintenance cover until a thorough air purging has been completed, otherwise opening of the maintenance cover may lead to flashback. The resultant hot gas blast may cause a danger of burns.
- 2) Observe at once the funnel exhaust.  
Should vapor smoke as white smoke be observed, proceed the purging until no vapor smoking is observed.
- 3) Then put the fan in a standstill for a period of 10 minutes or more and start manual purging again for a while for confirming no further build up of vaporization in the boiler furnace with no observation of white smoke.
- 4) Although it would require a lengthy purging time, with a special preparation of the engine room plants operations, the highest priority should be given to the recovery of safe condition by a thorough purging of the boiler furnace.

### 3. ON SERVICING WORK

- 1) Servicing personnel should wear leather gloves, long-sleeved working clothes, safety glasses to prevent getting burned and eye injury from the heated pressurized gas and flying particles.
- 2) Check if there are any oil leaks from each joint of fuel pipeline and fuel solenoid valve, otherwise, fuel oil dripping into the furnace may lead to a hazardous gas accumulation.





## **WARNING**

In the event that an accumulation of explosive vapor be suspected, never open this cover until a thorough air purging has been completed.

Otherwise you may get injured in a possible FLASH BACK.

Follow the description in the "WARNING" plate on the control panel.