

IAPP

International Air Pollution Prevention

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M.V. Ship's Name



1. GENERAL

From May 19th 2005 the first piece of MARPOL Annex VI came into force.

Essentially this first piece of legislation limits the Sulfur level of bunkers used on board ships to 4.5%.

As from this same date, Suppliers have a duty to provide the ship with a Bunker Delivery receipt containing the following information:

1. Name & IMO number of Receiving Ship
2. Bunker Port
3. Date of commencement of delivery
4. Name, Address & Telephone number of Supplier
5. Product Name
6. Quantity – Metric Tons
7. Density @ 15°C
8. Sulfur content (% m/m)
9. A Declaration signed and certified by the fuel Supplier's representative that the fuel oil supplied is in conformity with the MARPOL Regulations (*see Sample on next page*)

Test methods for Density & Sulfur are to be ISO 3675 & ISO 8754.

The Supplier must take a representative sample of the bunkers supplied; the MARPOL recommendation is that this sample be taken by continuous drip at the ship's receiving manifold. This sample needs to be signed and sealed by the Supplier and be marked "MARPOL". The seal number on this sample should be written on the Bunker Receipt.

The MARPOL sample must be retained on board the ship with the Bunker Delivery receipt for at least one year. This sample must not be used for testing. It should only be released to an officer representing a Port or State authority, if requested. If this sample or any Bunker receipt is handed over to such a person, the Captain must obtain a signature for custody transfer.

The new requirements do not change the situation regarding the taking of "commercial" samples. Ship's staff should continue to take samples at their receiving manifold. One sample is sent for testing, one is issued to the Supplier and the other retained on board for future testing if required. It is also possible that the Supplier may issue another sample to the ship, in the usual manner. This (not the MARPOL sample) may be used for testing in case of any quality dispute.

It is not recommend that the Ship's staff take charge of obtaining, labeling, and sealing the MARPOL sample; this is the duty of the Supplier. If the MARPOL sample is taken by Ship's staff and later found to be not representative, the Supplier could blame the Ship and a complicated legal dispute could arise. However, we have included the additional bottle for the MARPOL sample to assist the process if the Supplier does not have a proper bottle.

According to MARPOL Annex VI, the Supplier has to provide an extra bottle of the fuel supplied for the C/E to keep onboard the vessel. This is the dedicated MARPOL sample and should be kept onboard under safe custody for a minimum of one year. The volume of the bottle should be at least 400 ml. The bottle label should contain the following information:

- 1) Location at which and the method by which, the sample was taken
- 2) Bunker Date
- 3) Bunker Port
- 4) Name of Bunker Barge / bunker installation
- 5) Name and IMO no. of the vessel
- 6) Supplier Name
- 7) Name and Signatures of Supplier's representative and Ship's representative
- 8) Details of Seal Identification
- 9) Bunker Grade

Although it is the Supplier's responsibility to take this sample and provide this extra bottle, vessel is also able to provide an extra bottle, should the Supplier not have a proper bottle.

The responsibility for the Supplier's MARPOL sample rests with the Supplier. If ship-staff draw the sample and give it to the Supplier, he could very well say that it is not his sample. Please recognize this important intent of the MARPOL VI regulation.

To ensure Compliance with MARPOL specifications, the vessel strictly adheres to the following –

- A defined sample collecting procedure
- A defined oil sample dispatch procedure.
- Proper Labeling and dispatch & storing of oil samples

2. Bunker Delivery Note

MARPOL SPECIFICATION FORM	
SHIP NAME	SHIP IMO NUMBER
BUNKER PORT	BUNKER DATE
SUPPLIER NAME	SUPPLIER ADDRESS
DATE OF COMMENCEMENT OF DELIVERY	BARGE NAME
<u>BUNKER INFO</u>	
FUEL GRADE:	SULPHUR: % m/m
QUANTITY: MTons	DENSITY: kg/m ³ @ 15°C
This is to certify that the fuel oil supplied conforms to MARPOL regulations.	
_____ Signature of Chief Engineer	_____ Signature of Supplier Representative

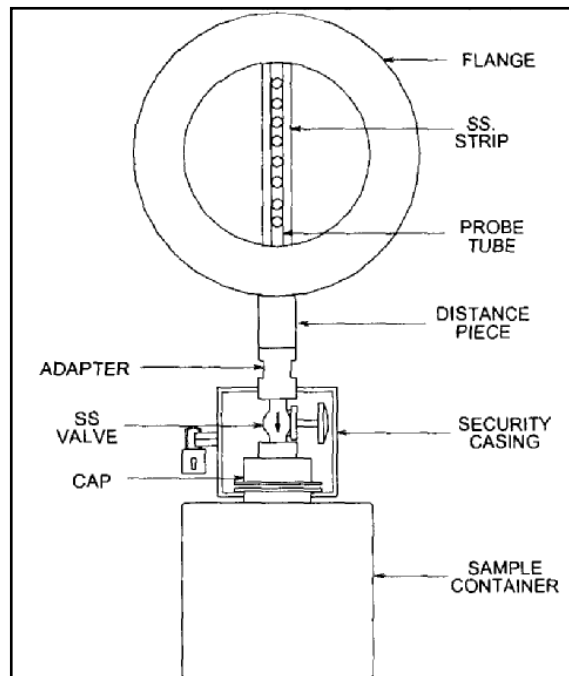
3. SAMPLING PROCEDURE

Sampling is carried out by the continuous drip method throughout the period of fuel transfer. At the beginning of bunkering; 4 to 5 liters of fuel are flushed into a waste container by opening the needle valve completely. The needle valve on the probe is adjusted to the appropriate setting to ensure collection of a representative sample.

The sample is collected in a thoroughly clean, dry disposable plastic cubitainer, which is supported by a rigid outer box. A 4-liter container is recommended for this purpose. minimum of 1.5 liters and a maximum of 3 liters of sample are to be collected during bunkering. The neck of the cubitainer is recessed to minimize storage space. By pulling firmly on the cubitainer neck, the threaded portion may be extended to allow connection to the brass cap of the sampler. The valve and the top of the cubitainer are enclosed the security mechanism and locked. *See illustration.*

In case of any substantial change in the rate of fuel flow, the valve may have to be adjusted to compensate for the change in flow rate.

When bunkering is completed, the protective casing is unlocked and opened. If the line fuel is being sucked by the shore facility shut the needle valve to prevent cubitainer contents from getting sucked back. The needle valve is opened fully to allow the oil in the sampler to drain into the cubitainer. The cubitainer is removed and capped. It is then shaken vigorously for a minimum of 30 seconds to ensure homogeneity of the sample.



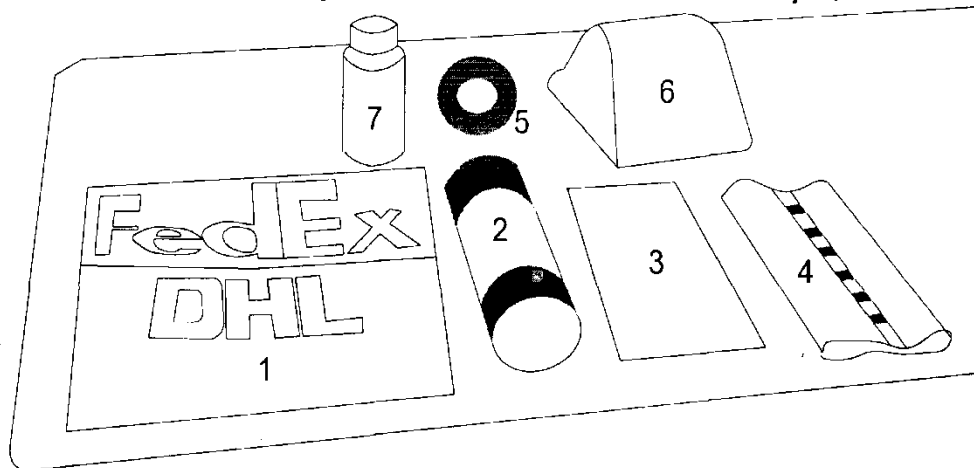
The contents of the cubitainer may then be poured into sample bottles. When filling the bottles, the sample should be distributed evenly among the sample bottles in three or four passes, filling each bottle partially with each pass. Each sample bottle is then sealed and labeled for identification. One bottle is sent to the VLC laboratory for testing. One bottle is given to the supplier or his representative. One bottle is to be stored in a safe place in case of any contingency and for future reference.

PACKING, SEALING AND DISPATCH OF SAMPLE

Please follow instructions in sequence (same order as given below)

SEQ	ITEM	FIGURE	ACTION IN SEQUENCE
A	Ziplock bag	3	Inside the box all papers are kept in ziplock bag. Keep all papers together for action later. First, fill "Request to witness fuel test sampling" form and get supplier's signature.
B	Cubitainer	6	Collect sample into cubitainer from drip sampler. Close with cap. Shake well and pour into 3 bottles – 60/70 ml at a time over 4 passes.
C	Bottles	7	Receive sample fuel from the cubitainer. Do not fill up to top – leave 1" (2.5cm) empty at the top. Close bottles with cover. One bottle is for lab analysis, one for supplier and one for the ship.
D	Black Tape	5	Put black tape around bottles to seal. Fill in labels, including seal/tamper proof bag #. Sign and have supplier sign. Paste it on bottles. Give one bottle to supplier. Keep one with you. Send one to the lab by courier service – FedEx/DHL.
E	Plastic Tubes with 2 caps	2	Put one bottle into the plastic tube (fig 2). Close the tube with caps on both sides. Use black tape (fig 5) and wind round cap to seal and prevent any leak.
F	Tamper-proof bag (envelope)	4	Put plastic tube (fig 2) into tamper-proof bag (fig 4). Fold this bag at the top and press it. The bag is sealed. Once sealed you cannot open this bag. Each bag has number printed on the outside. This is the tamper-proof seal number. Note this down. Do likewise for other 2 bottles and record sample details on the outside of tamper proof bags.
G	All papers:	3	First, fill out the Fuel Information Form. Write the serial number that is on the tamper-proof bag. Fill in the other details. Make 1 copy of this form and retain the copy onboard. Once the sample has been handed over to the agent/courier, fax us this copy to follow up in case of inordinate delay. (Our fax number: +1 713-842-1981)
	Fuel Information Form		
	FedEx/DHL envelope	1	
	Commercial Invoice		Put the Fuel Information Form and tamper-proof bag with the sample into the FedEx/DHL envelope. Close the envelope. Next fill in the Commercial Invoice and FedEx/DHL airway bill. Put both in the pouch on the FedEx/DHL envelope. Send the FedEx/DHL envelope to us.

Please send only one bottle to lab for fuel oil analysis



Labeling of FO Samples

**Name and Address of
Oil Analysis Laboratory**

OIL SAMPLE FOR ANALYSIS

Vessel Owner

Vessel Name

IMO No.

Port / Location

Sampling Date / Grade

Supplier

Barge / Terminal

Sample Pt. / Method

Seal # Qty Mtons

Remarks

Vessel Rep Supplier Rep

Name: Name:

Sign Sign

5. Procedure for Changing FO to Main Engines

1. Close the Steam inlet and return valves to the M/E Fuel oil heaters.
2. Let the temperature in the fuel circuit fall down to about 100 degrees Celsius. This will take approximately 55 minutes.
3. Start reducing the ME RPM to 80.
4. When at 80 RPM, change over the Change over (3 Way) inlet valve (between IFO service tank and MDO service tank) to MDO position.
5. Return line to be kept to Mixing tank for proper mixing and subsequent filling with MDO.
6. Check the FO return line to confirm that line contains MDO.

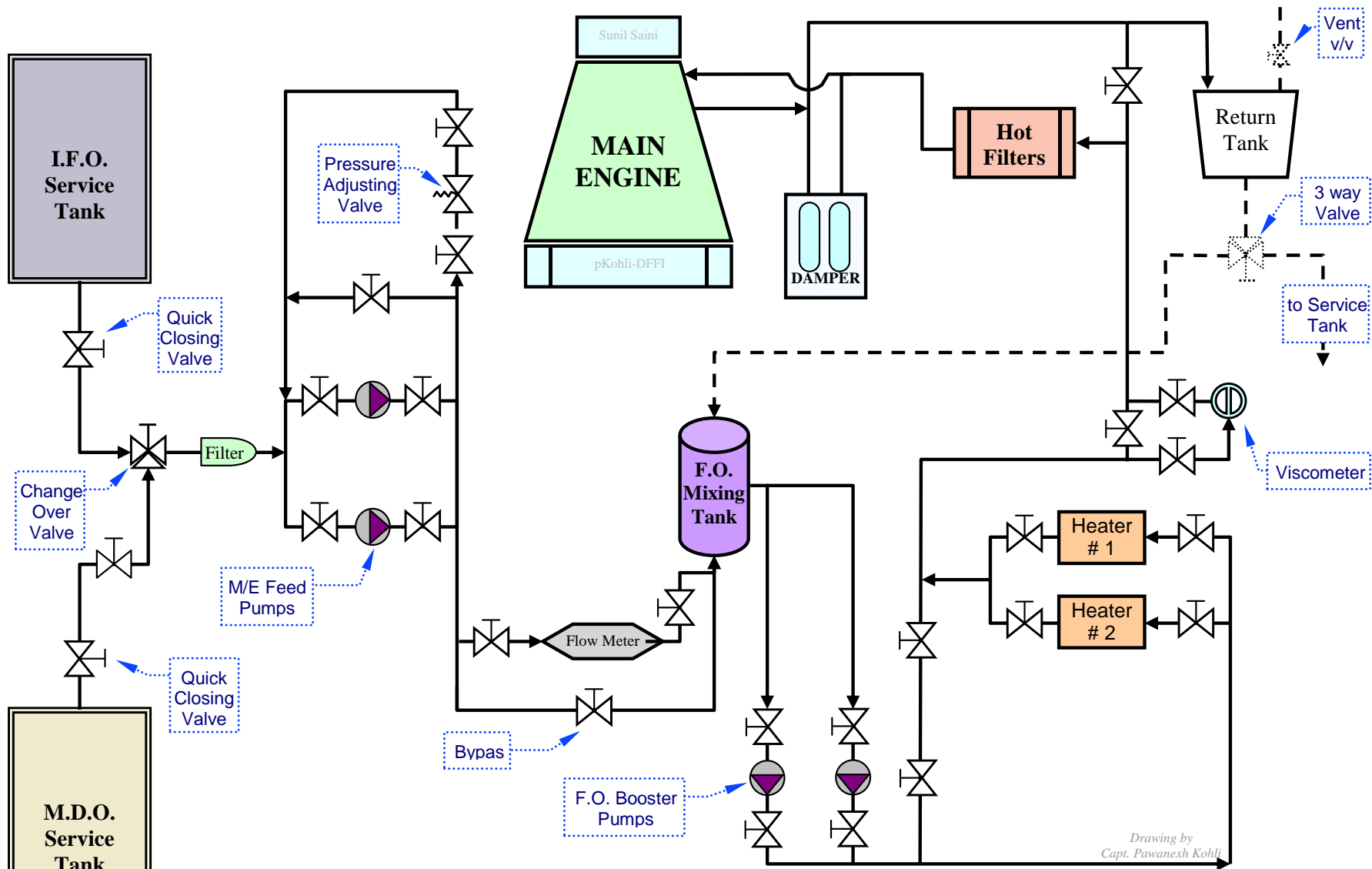
For faster change over, the return line to the Mixing tank can be diverted to the HFO Service tank. Though, once MDO is confirmed in the return line, this should then be re-routed to return to the Mixing tank.

Other approximate parameters taken into account are:

- Volume of oil in Pipelines: 170 Liters.
- Volume of oil in pumps & other accessories: 45 Liters
- Fuel consumption: 1.4 MT/Hour
- Time taken for c/o: 95 Minutes)

Note: The values quoted in this procedure are when changing over from IFO 500

Refer to Line diagram on next Page.



M.E. Fuel Oil Line Diagram
M.V. Ships Name

7. Procedure for Changing FO to Auxiliary Engines

AA.

When required to change over FO to a particular Auxiliary Engine:

- a. Confirm the particular AE"s on which FO requires to be changed over.
- b. Ensure that the MDO feed pumps are running.
- c. On this (or each) particular AE, the change over can be affected by using the individual change over valves on its inlet and return lines.

Note: In case of blackout/initial start up the Boiler MDO tank can be used to have gravity head pressure in the MDO lines.

BB.

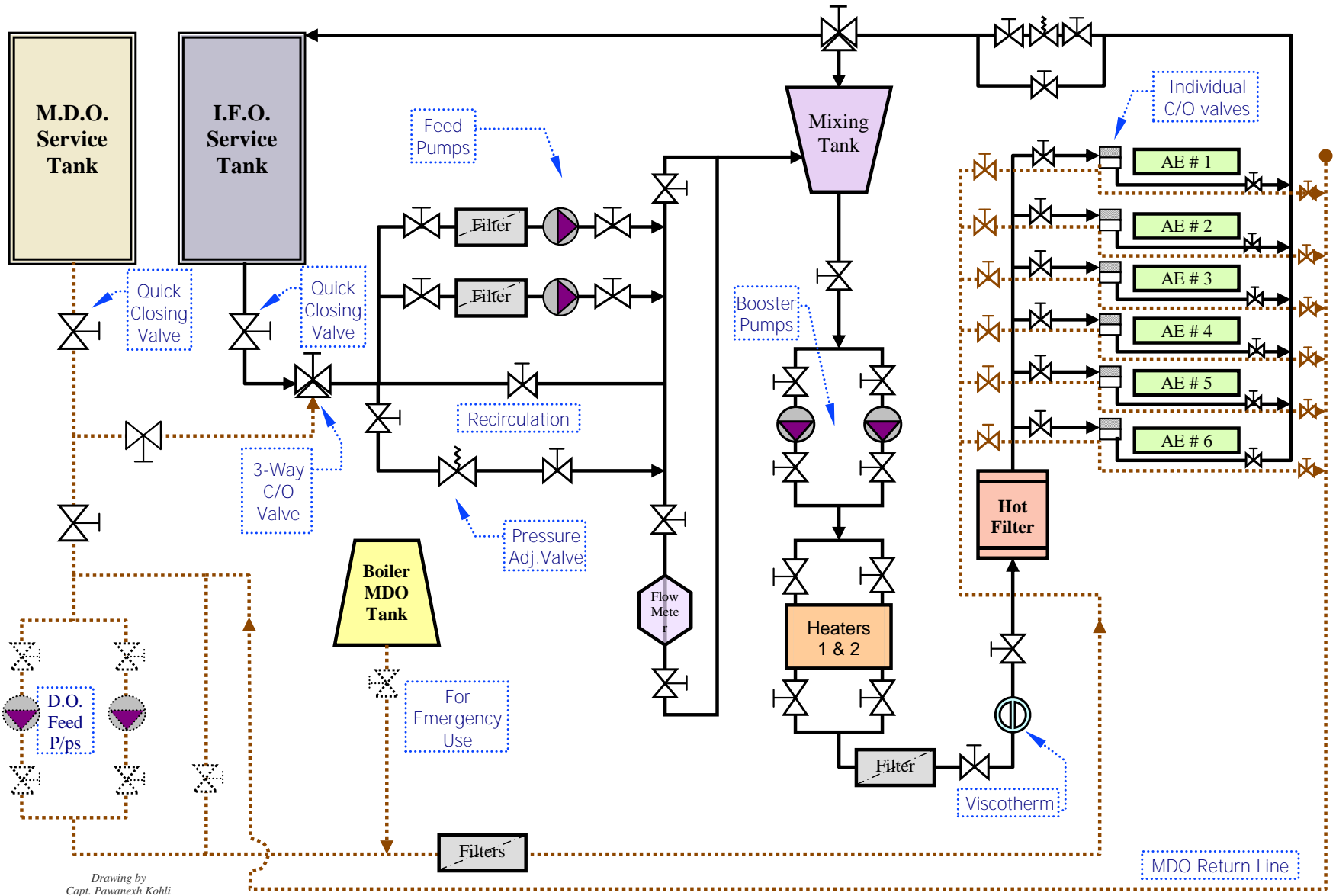
When required to change over FO to all Auxiliary Engines:

- a. Close the steam inlet and return valves to the AE Fuel oil heaters.
- b. Let the temperature in the circuit fall down to about 100 degrees Celsius. (approximately 120 minutes)
- c. Change over the 3 way inlet valve (between IFO service tank and MDO service tank) to MDO position.
- d. Run the AE"s on load for at least 90 minutes.
- e. Check the return lines to confirm that the line contains MDO.
- f. Return line should be set to return FO to the mixing tank.

Approximate parameters taken into account are:

- Volume of oil in pipelines: 400 Liters.
- Volume of oil in pumps & other accessories: 50 Liters.
- Time taken for complete c/o: 2 hours.

Refer to Line diagram on next Page.



Drawing by
Capt. Pawanexh Kohli

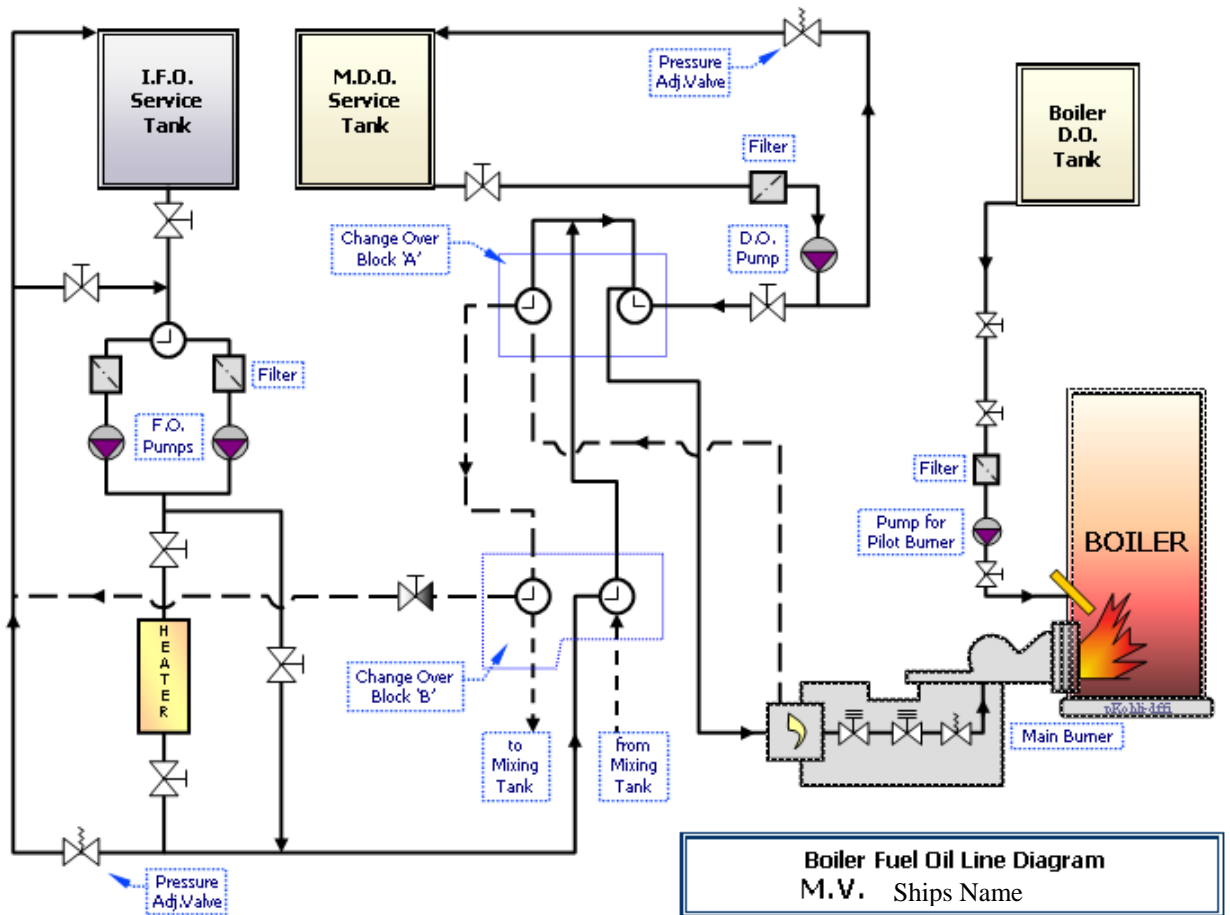
A.E. Fuel Oil Line Diagram
M.V. **Ships Name**

9. Procedure for Changing FO to Boiler

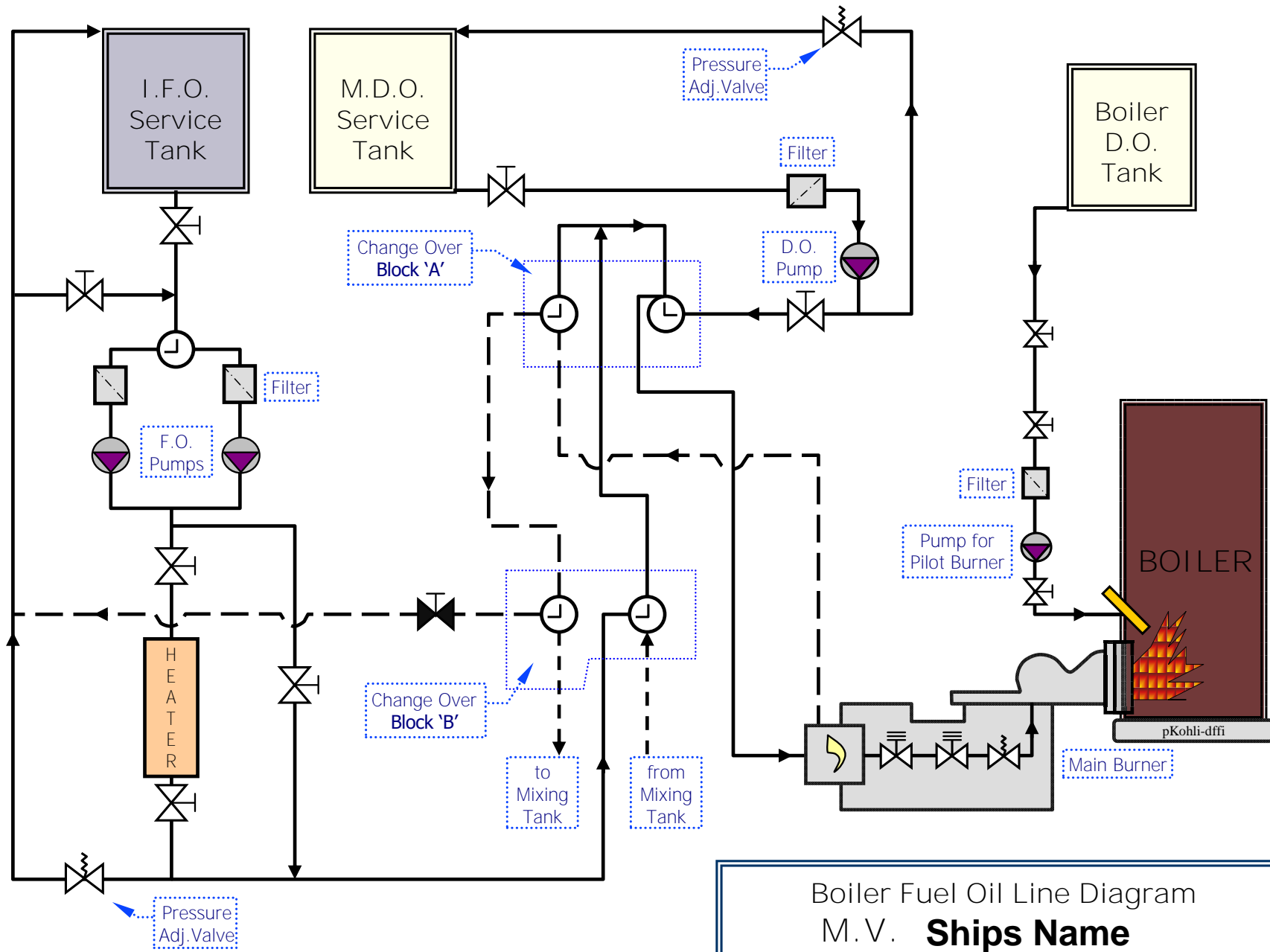
The Boiler can be fired directly on MDO.

Ensure the following have been adopted:

- On the change over Block „A“ the position to be set for MDO intake.
- The MDO feed pump to be kept running.



Refer to Enlarged Line diagram on next Page



Boiler Fuel Oil Line Diagram
M. V. **Ships Name**

11. Details of OZONE Depleting Substances on Board

- **UTILITY** – Refrigerants are the only substances specified as Ozone depleting on board the vessel. The following list details the services using ozone depleting substances (refrigerants).

#	Service	Location	Model	Refrigerant Used	Quantity of Refrigerant Used
1.	Accommodation AC Plant 1	E/R 1 st Flat Stbd For ^d	xyz	R22 (HCFC 22)	71.0 Kg
2.	Accommodation AC Plant 2	E/R 1 st Flat Stbd For ^d	xyz	R22 (HCFC 22)	71.0 Kg
3.	ECR AC Plant 1	Main Deck aft of ECR	xyz	R22 (HCFC 22)	-
4.	ECR AC Plant 2	Main Deck aft of ECR	xyz	R22 (HCFC 22)	-
5.	Provision Room Plant 1	E/R 1 st Flat Port For ^d	xyz	R22 (HCFC 22)	19.5 Kg
6.	Provision Room Plant 2	E/R 1 st Flat Port For ^d	xyz	R22 (HCFC 22)	19.5 Kg

TOTAL Refrigerant in Use on Board: 180.8 Kg

- **REFRIGERANT STORE (Recharging bottles)**
 - *Refrigerant Stored at:* **Freon Storage Room**
 - *Located At:* **Main Deck Port aft of Central Store**
 - *Quantity Stored:* **5 bottles x 60 kg each**

- **REFRIGERANT RECOVERY EQUIPMENT**

Equipment to recover refrigerant has been installed on board. Details are as follows:

- *Manufacturer:* **ABCXYZ**
- *Capacity:* **58 Ltrs.**

12. Handling Of Ozone Depleting Substances

- No Ozone depleting substance is allowed to escape to atmosphere.
- Refrigerant Recovery Equipment is used to recover refrigerant from services as and when required.
- If refrigerant is not contaminated, it is reused to recharge.
- When refrigerant is contaminated, it is landed for authorized disposal.
- Operating Manual of the recovery equipment is attached.

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