[INFORMATIVE]
GENERIC MFM DELIVERY PROCEDURE
UNDER WORKING GROUP ON MASS FLOW METERING

Mass Flow Metering Delivery Procedure for Bunkering

Date: July 2014

Prepared and certified by:

Name:	Company's Stamp:
Designation:	
Signature:	

Approved by:

Name:	Company's Stamp:
Designation:	
Signature:	

- Controlled copies shall be kept by SPRING Singapore, MPA, Bunker Supplier, Bunker Craft Operator and Bunker Tanker
- This procedure shall be kept onboard the bunker tanker and is available for reference to the Chief Engineer and the Bunker Surveyor (if engaged).
- In the context of this procedure, the meter refers to Coriolis Mass Flow Meter only. All references to flow meters mentioned in Singapore Standard SS 600:2008, do not apply.

Record of Changes to the Mass Flow Metering Procedure

No.	Date Entered	Description	Revision No.	Entered By (Name)	Designation

Contents – MT _____ Mass Flow Metering Procedure for Bunkering

CLAUSES

Section One : General

1.1 Scope

The purpose of this Procedure is to cover the pre-delivery, delivery and post-delivery checks and documentation for the delivery of bunker by mass flow metering system specific to the bunker tanker 'MT _____' in the Port of Singapore. This Procedure shall apply in place of all those related to tank gauging for the determination of the quantity of bunker delivered stated in the Singapore Standard SS 600. Specifically the clauses and annexes in SS 600, listed in Annex A herein are not relevant or applicable to this Procedure.

For ease of reference, the terms 'meter' and 'metering system' mentioned in this Procedure refer to the Mass Flow Meter and Mass Flow Metering System. The term 'metering' is the measurement of quantity by the Mass Flow Metering System.

All other clauses and annexes, including but not limited to clauses and annexes on Ethical Practices and Professionalism, Pre-Delivery Conference, Sampling, etc. in SS 600 shall apply.

1.2 Definitions

For the purpose of this procedure, the following definitions shall apply:

1.2.1 Authorised verifier

Authorised Verifiers (AVs) are qualified installers, manufacturers and repairers of weighing and measuring instruments who are designated by SPRING Singapore to perform verification on weighing and measuring instruments for trade use.

1.2.2 Bunker craft operator

The company which operates the bunker tanker

1.2.3 Bunker delivery note (BDN)

A proprietary document of the bunker supplier providing details of the quality and quantity of the bunker(s) delivered by the bunker tanker.

1.2.4 Bunker supplier

The company which contractually agrees with the buyer to deliver the product

1.2.5 Bunker Surveyor

The person who inspects, measures, samples, investigates and reports as required on the bunkering operations

1.2.6 Bunker tanker

The bunker barge or tanker supplying bunker(s) to the vessel.

1.2.7 Bunker(s)

Marine fuel oil (MFO) or marine diesel oil (MDO) or marine gas oil (MGO) for vessel's use.

1.2.8 Cargo Officer

An individual who represents the bunker supplier and is responsible for all bunker operations including the delivery and documentations.

1.2.9 Chief Engineer

The Chief Engineer of the vessel who is responsible for receiving bunkers and documentation of the bunkering operation

1.2.10 Master

The Master of the bunker tanker or the vessel receiving bunker(s) as the case may be.

1.2.11 Vessel

The vessel receiving bunker(s).

1.2.12 Use of "may", "shall" and "should"

1.2.12.1 May – means a possible method or action

1.2.12.2 Shall – means a mandatory requirement

1.2.12.3 Should – means a preferred method or action

1.2.13 Start of delivery

See clause 3.1.3.

1.2.14 End of delivery

See clause 3.1.14

1.2.15 Meter reading

Resettable Totalizer (refers to Mass Total).

Non-resettable Totalizer(s) (refers to Mass Inventory).

1.3 Pre-delivery conference

Singapore Standard SS 600 Pre-delivery conference and Bunkering pre-delivery safety checklist applies.

1.4 Documents and Records

1.4.1 A complete bunkering operation shall include the following documentation that bears the bunker supplier's name and valid bunkering licence number:

a) Bunker Requisition Form (Mass Flow Metering) (Annex B);

b) Mass Flow Metering System Seals Checklist (Annex C);

c) Meter Reading Record Form (Delivery) (Annex D);

d) Bunker Delivery Note (BDN) (Annex E); and

e) Bunker Metering Ticket (Annex F) – shall be printed at the end of delivery and filed for reference.

Bunker suppliers shall have all these documents available on board the bunker tanker.

1.4.2 The Cargo Officer shall prepare the documents for the Chief Engineer without being asked to do so.

1.4.3 Bunker suppliers may have their own formats for the documents as set out in 1.4.1, but the information as set out in the relevant annexes shall be provided. These documents shall not contain terms

which are inconsistent with this procedure. Examples of the documents of 1.4.1 are given in Annexes B, C, D, E and F.

1.5 Bunker specifications

1.5.1 Bunker suppliers shall, unless otherwise agreed by the buyer, supply bunker(s) of a quality which conforms to or is better than the standards set by the International Organization for Standardization (ISO) for "Petroleum products – Fuels (Class F) – Specifications of marine fuels" (ISO 8217). The values of hydrogen sulphide and oxidation stability shall be stated in the certificate of quality issued by the cargo provider based on samples taken at the cargo source. These two values shall be within the limits prescribed in ISO 8217.

1.5.2 For any contracted grade of bunker(s) which is not specified in ISO 8217, the bunker supplier and the buyer shall have prior written agreement with respect to the bunker specifications. The bunker supplier shall warrant that the bunker(s) is/are homogenous and stable.

Section Two – Pre-delivery Documentations and Checks

2.1 Documentation

2.1.1 The following documents shall be completed/prepared as required at pre-delivery stage:

a) Bunker Requisition Form (Mass Flow Metering);

b) Mass Flow Metering System Seals Checklist; and

c) Meter Reading Record Form (Delivery).

2.1.2 One original and at least two copies of the above documents shall be completed and signed by the Cargo Officer and the Chief Engineer. The original shall be retained by the bunker tanker and the duplicate shall be given to the Chief Engineer. The last copy shall be given to the Bunker Surveyor (if engaged).

2.2 Bunker Requisition Form (Mass Flow Metering)

2.2.1 The Bunker Requisition Form (Mass Flow Metering) is not intended to vary the terms of any pre-existing contract between the buyer and the bunker supplier.

2.2.2 This form shall contain the information as set out in Annex B.

2.2.3 If more than one grade of bunker(s) are to be supplied, the Cargo Officer shall indicate on the form the order in which the grades are to be supplied. To avoid contamination of product, it is recommended that the lighter grade should be supplied first followed by the heavier grade, unless otherwise requested by the Chief Engineer in writing.

2.2.4 The Cargo Officer shall confirm with the Chief Engineer the requirements of the vessel including the quantity, grade of bunker(s) and pumping rate.

2.2.5 All items in this form shall be completed and signed by the Cargo Officer, Chief Engineer and Bunker Surveyor (if engaged) with their names clearly printed. This form shall be endorsed with the bunker tanker's stamp and the vessel's stamp.

2.2.6 Any cancellation or amendment on this form shall be signed by the Cargo Officer and the Chief Engineer.

2.3 Mass Flow Metering System Seals Checklist

2.3.1 Before the commencement of the bunkering operation, the Metering System Diagram and all Sealing Points shall be checked and confirmed to be intact jointly by the Cargo Officer, Chief Engineer and Bunker Surveyor (if engaged).The seal numbers observed shall match the seal numbers recorded in the latest Seal Verification Report onboard the bunker tanker.

2.3.2 Section A of the Mass Flow Metering System Seals Checklist shall be completed and signed by the Chief Engineer, the Cargo Officer and the Bunker Surveyor (if engaged). Refer to Annex C for an example of the Mass Flow Metering System Seal Checklist.

2.3.3 In the event any seal in the metering system is missing or broken or if there is any discrepancy (e.g. seal numbers do not match), the matter shall be reported immediately to the Implementing authority for further advice. The meter shall not be used for the custody measurement of bunker transfers until the missing or broken seal is replaced and approved for use by the Implementing Authority.

2.3.4 If the Chief Engineer declines the invitation, the Cargo Officer shall record this on this form and this shall be endorsed by the Chief Engineer.

2.4 Meter Reading Record Form (Delivery)

2.4.1 The Meter Reading Record Form (Delivery) is to record meter readings as witnessed by the Cargo Officer and the Chief Engineer and the Bunker Surveyor (if engaged).

2.4.2 This form shall contain the information as set out in Annex D.

2.4.3 The Cargo Officer shall invite the Chief Engineer and the Bunker Surveyor (if engaged) to witness and record the opening meter readings of the Non-Resettable totalizers in the Meter Reading Record Form (Delivery), and ensure that the resettable totalizer meter reading is set to zero.

2.4.4 The Chief Engineer is strongly advised to witness the opening meter readings before the commencement of the bunkering operation. If the Chief Engineer declines the invitation, the Cargo Officer shall record this on the form and this shall be endorsed by the Chief Engineer.

2.4.5 Section A in Annex D shall be completed and signed by the Cargo Officer, Chief Engineer and Bunker Surveyor (if engaged) with their names, date and time of signing clearly written. This form shall be endorsed with the bunker tanker's stamp and the vessel's stamp.

2.4.6 Any cancellation or amendment on this form shall be counter-signed [and stamped] by the Cargo Officer and the Chief Engineer.

Section Three – Bunkering Operation

3.1 Delivery Procedure and documentation

3.1.1 It shall be the Chief Engineer's responsibility to prepare the vessel for receiving bunker(s), including removal of the blank flange(s) from the vessel's bunker manifold(s).

3.1.2 It shall be the Cargo Officer's responsibility to ensure that the MFM system integrity is not compromised for the purpose of bunker delivery.

3.1.3 Start of Delivery

Once the pre-delivery requirements have been completed and bunker hose(s) has/have been properly connected and ready to commence pumping, the Chief Engineer and the Cargo Officer shall agree to start the delivery. The following list of actions shall be completed.

a) Recording the non-resettable totalizer reading in Section A of the Meter Reading Record Form (Delivery);

b) Resetting the resettable totalizer; and

c) Recording the start time.

3.1.4 Every measure should be taken to pack the meter as quickly as practicable at the start and throughout the delivery process.

3.1.5 A sufficient trim by stern shall be maintained to minimize stripping time, if required. Any stripping of tanks should be carried out independently when there is no delivery from the other tanks. This is to reduce air entrainment during the delivery process.

3.1.6 Communication between the bunker tanker and the vessel shall be maintained throughout the entire bunkering operation.

3.1.7 The Cargo Officer shall ensure that the agreed pumping rate is adhered to by the bunker tanker within safe operating practices. The agreed pumping rate should not be exceeded unless requested by the Chief Engineer and duly endorsed by him.

3.1.8 When an order to stop pumping is given by the vessel, the bunker tanker shall stop the pumping immediately.

3.1.9 All stoppages and reasons for doing so shall be recorded in the bunker tanker's Meter Totalizer Log.

3.1.10 Line clearing of bunker hose(s) shall only be carried out at the end of the pumping operation.

3.1.11 After pumping operation is completed, the bunker(s) contained in the bunker hose(s) shall be cleared into the vessel's tank. The procedure for line clearing the bunker hose(s) is as follows:

a) The Cargo Officer shall notify the Chief Engineer and Bunker Surveyor (if engaged) prior to the commencement of line clearing operation;

b) The Cargo Officer shall close the discharge valve after the pump and build up the pressure in the pipeline by using bunker tanker's pump; and

c) Once the pressure is built up, the Cargo Officer shall open the discharge valve for the remaining bunker(s) in the bunker hose(s) to be cleared into the vessel's tank.

3.1.12 No air compressors or air bottles shall be used by the bunker tanker for the line clearing process.

3.1.13 The line clearing process shall not be repeated more than twice after the completion of the pumping operation.

3.1.14 End of Delivery

After the line clearing process is completed, there is no more back flow of bunker and Meter stopped measuring, the Chief Engineer, Cargo Officer and Bunker Surveyor (if engaged) shall agree that this is the end of the delivery. The Meter Totalizer Readings shall be witnessed by, the Chief Engineer, Cargo Officer and the Bunker Surveyor (if engaged) and recorded in the Meter Reading Record Form (Delivery). Time shall be recorded and Meter Ticket printed. No re-pumping of bunkers shall be allowed and post-delivery checks and documentation shall commence.

3.1.15 During the entire bunkering process, no other bunker tanker shall be allowed to come alongside the bunker tanker delivering bunker(s) to the vessel, unless two different products are to be delivered to the vessel simultaneously.

Section Four - Post-delivery Checks and Documentation

4.1 Documentation

4.1.1 The following documents are to be completed/printed:-

a) Mass Flow Metering System Seals Checklist;

b) Meter Reading Record Form (Delivery);

c) Bunker Metering Ticket; and

d) Bunker Delivery Note (BDN).

4.2 Mass Flow Metering System Seals Checklist

4.2.1 On completion of the bunkering operation, the Cargo Officer shall invite the Chief Engineer and the Bunker Surveyor (if engaged) to verify that the seals remain intact.

4.2.2 The Chief Engineer shall ensure that seals remain intact and the seal numbers match the seal numbers indicated in the latest Seal Verification Report onboard the bunker tanker.

4.2.3 One original and at least two copies of the completed Mass Flow Metering System Seals Checklist shall be signed by the Cargo Officer, Chief Engineer and Bunker Surveyor (If engaged) with their names clearly printed and stamped with the bunker tanker's stamp and the vessel's stamp.

4.3 Meter Reading Record Form (Delivery)

4.3.1 After verifying that the seals are intact, the Cargo Officer shall invite the Chief Engineer and the Bunker Surveyor (if engaged) to witness and record the closing meter totalizer readings in the Meter Reading Record Form (Delivery).

4.3.2 One original and at least two copies of the completed Meter Reading Record Form (Delivery) shall be signed by the Cargo Officer, Chief Engineer and Bunker Surveyor (If engaged) with their names clearly printed and stamped with the bunker tanker's stamp and the vessel's stamp.

4.3.2 If the Chief Engineer has earlier indicated his intention to witness the meter totalizer readings but subsequently declines the invitation to witness the closing meter readings, the Cargo Officer shall indicate the change on the Meter Reading Record Form (Delivery) and such shall be endorsed by the Chief Engineer.

4.4 Determination of Delivered Quantity

The quantity of the bunker delivered is stated in the Meter Reading Record Form (Delivery) as Quantity Delivered (Mass in Air).

4.5 Bunker Metering Ticket

The Bunker Metering Ticket shall contain the following information:

a) Name of bunker tanker and craft licence number (SB no.);

b) Meter Unique Identification Number;

c) Bunker start date & time;

d) Bunker end date & time;

e) Print time; and

f) Mass in Air

An example of the Bunker Metering Ticket is shown in Annex F.

4.6 Bunker Delivery Note (BDN)

4.6.1 The BDN shall contain the information as set out in Annex E and shall comply with the IMO regulation 18(3) of Annex VI MARPOL 73/78.

4.6.2 After end of delivery, the Cargo Officer shall prepare the BDN for the Chief Engineer to sign. The printed Bunker Metering Ticket (Annex F) shall be signed by the Cargo Officer and the Chief Engineer and attached to the BDN.

4.6.3 The BDN shall bear the licensed bunker supplier's name and the valid bunker supplier licence number.

4.6.4 All relevant and applicable columns of the BDN shall be filled in, and "NA" (Not Applicable) shall be inserted in those blank columns.

4.6.5 Any cancellation or amendment on the BDN shall be endorsed and stamped by the Cargo Officer and the Chief Engineer.

4.6.6 One original and at least two copies of the completed BDN shall be signed by the Cargo Officer and the Chief Engineer with their names clearly printed and stamped with the bunker tanker's stamp and the vessel's stamp.

Section Five – Additional requirements for bunker tankers

5.1 Meter Totalizer Log

5.1.1 Every bunker tanker shall keep and maintain a Meter Totalizer Log. An example of the format of the Meter Totalizer Log is shown in Annex G.

5.1.2 The entries of the Meter Totalizer Log shall contain the following:

a) Date and time of receipts and deliveries;

b) Product grade, totalizer reading, bunker tanker tank numbers and source of receipts;

c) Product grade, totalizer reading, bunker tanker tank numbers and destination of deliveries;

d) Description of documents evidencing receipts and/or deliveries;

e) Summary of the Meter Totalizer Log; and

f) Name and signature of the person preparing the daily entries.

5.1.3 The Cargo Officer shall prepare the entries and sign the Meter Totalizer Log with his name clearly written immediately after any meter totalizer movement.

5.1.4 The relevant pages of the Meter Totalizer Log showing all the Totalizer movements related to the bunker delivery shall be made available for inspection and photocopying by the implementing authority, the Chief Engineer and Bunker Surveyor (if engaged).

5.1.5 The Meter Totalizer Log shall be kept on board the bunker tanker for a minimum period of three months, counting from the current date, and shall be made available to the implementing authority upon request.

5.2 Bunker tanker's plan and diagram

A general layout of the bunker tanker shall be conspicuously displayed on board. The tank capacity plan, piping diagram including sealing points and trim and list tables shall also be available on board for inspection by any party concerned.

5.3 Zero Verification

Zero Verification shall be done quarterly in the first year and six monthly thereafter, subject to review by the authorities. Certified authentic copies of Zero Verification report and zero setting report (if required) must be kept on board the bunker tanker.

5.4 Meter Calibration

The meter shall be calibrated once every three years or as regulated by the implementing authority. A copy of the calibration certificate must be kept on board the bunker tanker and a copy deposited with the implementing authority.

5.5 Documents Carried Onboard the Bunker Tanker

The following documents shall be kept up-to-date and made available onboard the bunker tanker for reference:

a) Meter Calibration Certificate;

b) Metering System Diagram and Sealing Points;

c) Meter Seal Verification Report;

d) Meter Zero Verification Report;

e) Cargo System Piping Diagram;

f) Mass Flow Metering Procedure for Bunkering endorsed by MPA;

g) Mass Flow Metering System Approval Letter from MPA for Custody Transfer; and

h) Copy of Enhanced bunker Cargo Officer course certificates accompanied with photo identity of the Cargo Officer(s)

Section Six - Others

6.1 Metering Stoppage/Failure

6.1.1 In the event that there is a metering stoppage/failure prior to or in the middle of a bunkering operation and the delivery cannot be continued, pumping shall cease immediately and the meter's totalizer readings shall be recorded. The stoppage/failure shall be reported to the implementing authority immediately.

6.1.2 Tank gauging in accordance with Singapore Standard SS 600 shall be used to determine the remaining quantity to be delivered and a separate BDN shall be issued. The final quantity delivered shall be the sum of the quantities determined from the meter readings and the tank gauging recorded in the respective BDNs.

6.2 Quantity Dispute

6.2.1 In the event of any dispute at the end of the delivery with respect to the quantity of bunker(s) delivered, the Cargo Officer shall invite the Chief Engineer and the Bunker Surveyor (if engaged) to re-witness the meter totalizer readings. If the Chief Engineer declines to witness, the Cargo Officer shall record it in the Note of Protest (Annex H) and the Bunker Surveyor (if engaged) shall record this in the Statement of Fact.

The Chief Engineer and the Bunker Surveyor (if engaged) shall carry out the following:

a) re-check all sealing points based on the sealing plan and confirm all seals listed in the seal verification report are intact;

b) confirm that all relevant lines have not been modified from that as stated in the piping diagram;

c) obtain and examine photocopies of the relevant pages of the bunker tanker's Meter Totalizer Log (Annex G) showing all the totalizer movements related to the bunker delivery;

d) examine and obtain copies of certificates/documents listed in clause 5.5;

e) examine and obtain copies of last certificate of quality or equivalent document by the cargo provider (terminal or ship); and

f) If any of the preceding steps are disallowed, the reasons shall be recorded in a note of protest by the Chief Engineer or the Cargo Officer and Statement of Facts by the Bunker Surveyor (if engaged).

6.2.2 The Bunker Surveyor (if engaged) shall record all the relevant details and findings of the dispute in a Statement of Fact. This document should be completed and acknowledged by the Chief Engineer and/or Cargo Officer.

6.2.3 If the dispute remains unresolved, the Chief Engineer shall raise a Note of Protest [see Annex H, example (a)].

6.2.4 The Cargo Officer of the bunker tanker should also raise a Note of Protest [see Annex H, example (b)] if he disagrees with the alleged shortage.

6.2.5 A copy each of the note of protest raised by the bunker tanker and the vessel, together with a copy of the BDN, shall be sent to the "Executive Director, Singapore Shipping Association" and the implementing authority within 14 days after the bunker delivery.

6.3 Quality Dispute

6.31 In the event of any dispute with respect to the quality of bunker(s) delivered, the vessel/buyer should tender a complaint in writing to the bunker supplier within 30 days (or such extended period as may be agreed between the parties) after the bunker delivery.

6.3.2 A copy of the complaint with a copy of the BDN should simultaneously be lodged with the "Executive Director, Singapore Shipping Association" and the implementing authority.

6.3.3 The parties shall have the quality of the mutually agreed sample analysed by a mutually agreed, independent and certified testing laboratory under the national accredited body in accordance with ISO Standard – ISO 8217. For any grade of bunkers other than the categories specified by ISO 8217, the quality shall comply with the bunker specifications as agreed by the bunker supplier and the buyer prior to the bunkering operation.

Contents of Annexes
Page

Annexes

Annex A

Clauses and annexes in SS 600 : 2008 that are not relevant or applicable to this Procedure

The following clauses and annexes contained in SS 600:2008 are not relevant or applicable to this Procedure:

Clause 1.3.12	Gross observed volume (GOV)
Clause 1.3.13	Gross standard volume (GSV)
Clause 1.3.15	Oil-indicating paste
Clause 1.3.19	Water-indicating paste
Clause 1.6	Documentation
Clause 1.8	Bunker requisition form
Clause 1.9	Non-cargo tank declaration / inspection form
Clause 1.10	Tank gauging / calculation form
Clause 1.12	Delivery procedure and documentation
Clause 1.13	Tank gauging / calculation form
Clause 1.14	Verification of delivered quantity
Clause 1.15	Bunker delivery note (BDN)
Clause 1.16	Stock movement logbook
Clause 1.17	Bunker tanker's plan and diagram
Clause 1.24.1	Quantity Dispute
Clause 2.9.2.2.8	Free water check
Clause 2.9.2.2.9	Temperature check
Clause 2.9.2.3.2	Draught, trim and list
Clause 2.9.2.3.4	Bunker tanker calibration tables
Clause 2.9.2.3.5	On board quantity measurement
Clause 2.9.2.3.7	Free water check
Clause 2.9.2.3.8	Temperature check
Clause 2.9.2.3.9	Stock movement logbook
Clause 2.9.2.3.11	Tank gauging / calculation form
Clause 2.9.2.3.12	Zero dip volume application
Clause 2.9.4.1	Bunker tanker
Clause 2.11.1	Disputes
Annex D	Example of a bunker requisition form (informative)
Annex E	Example of a non-cargo tank declaration / inspection form (informative)
Annex F	Example of a tank gauging / calculation form (informative)
Annex G	Example of a bunker delivery note (informative)
Annex H	Tank gauging procedure
Annex N	Example of daily entries of stock movement logbook (informative)
Annex X	Example of a surveyor's bunker tanker measurement report (informative)
Annex Z	Procedure to calculate the delivered / received quantity

Annex B

Example of Bunker Requisition Form (Mass Flow Metering)

BUNKER REQUISITION FORM
(MASS FLOW METERING)

The Chief Engineer
MV/SS : _____

Date : _____
Location : _____

Dear Sir,
We have been nominated to supply you the following grade(s) for bunker:

_____ Tonnes of Marine Fuel Oil of _____ cSt.
_____ Tonnes of Marine Diesel Oil/ Gas Oil

We undertake to supply you with the above grade(s) of bunkers. Some basic characteristics of the bunkers are as follows:

Product Name	Product was blended on board in advance? (Yes / No)	Kinematic Viscosity @ 40°C or 50°C, mm^2/s ISO 3104	* COQ Density @ 15°C, kg/m^3 ISO 3675 ISO 12185	Water Content % V/V ISO 3733	Flash Point °C ISO 2719	Sulphur Content %, m/m ISO 14596 ISO 8754

* The COQ (Certificate of Quality) Density stated above is for fuel specification only and not for custody transfer quantity determination.

We will supply _____ first, followed by _____. The approximate delivery temperature is _____°C.
The rated pumping capacity of our bunker tanker is _____ tonnes per hour.

1) What pumping rate do you require?
   Marine Fuel Oil _____ tonnes per hour
   Marine Gas/ Diesel Oil _____ tonnes per hour
2) Will you be witnessing our meter reading? #Yes / No
3) Will you be witnessing custody transfer sampling on your vessel? #Yes / No
4) Will you allow line clearing at the end of bunkering to clear the bunkers in the hose? #Yes / No
5) Is you vessel under any fuel quality testing programme? #Yes / No

Note - For analysis of bunker quality, only the representative sample collected as per SS 600's sampling procedure shall be used.

Acknowledge by:

Signature of Cargo Officer	Signature of Chief Engineer	Signature of Bunker Surveyor(if engaged)
Name in Full: _____ (Block Letters)	Name in Full: _____ (Block Letters)	Name in Full : _____ (Block Letters)
Bunker Tankers's Stamp : _____	Vessel's Stamp : _____	Company's Stamp : _____
Date/ Time : _____	Date/ Time : _____	Date/ Time : _____

Custody Transfer Sampling is compulsory. If custody transfer sample(s) cannot be taken at the bunker manifold of the vessel, describe the physical limitation/ constraint encountered.

_____
_____

Signature of Cargo Officer	Signature of Chief Engineer	Signature of Bunker Surveyor(if engaged)
Date/ Time : _____	Date/ Time : _____	Date/ Time : _____

#Delete as necessary NA- Not Applicable

Annex C

Example of Mass Flow Metering System Seals Checklist

Mass Flow Metering System Seals Checklist

Bunker tanker : _____ Bunker No. : _____

Date : _____ Location : _____

Seal Verification Report No.: _____

All questions should be joinly answered by the Cargo Officer and the Chief Engineer by clearly initialing in the appropriate box.

No.	Item Description		Tag No.	Seal No.	Section A Before delivery Intact		Section B After delivery Intact		Remarks
					Yes	No	Yes	No	
1	Mass Flow Metering Instrument*	Mass Flow Meter	MFT-01						WMO Seal
2		Junction Box (P)	MJB-02						
3		Junction Box (S)	MJB-03						
4		Pressure Transmitter (P2)	MPT-04						
5		Pressure Transmitter (P1)	MPT-05						
6		Temperature Transmitter	MTT-06						
7		Bunker Metering Computer	MFC-07						
8	Pipe Line System*	Pipe Flange Blank (Port)	PF-2P-01						
9		Pipe Flange Blank (Stbd)	PF-3S-02						
10		Pipe End Blank (Port)	PB-4P-03						
11		Pipe End Blank (Stbd)	PB-5S-04						
12									
13									
14									
15									
16									

Declaration

We, the undersigned have jointly checked all items on this checklist.

Section A - Before Delivery	Section B - After Delivery
Signature of Chief Engineer: Name: Date / Time:	Signature of Chief Engineer: Name: Date / Time:
Signature of Cargo Officer: Name: Date / Time:	Signature of Cargo Officer: Name: Date / Time:
Signature of Bunker Surveyor (if engaged): Name: Date / Time:	Signature of Bunker Surveyor (if engaged): Name: Date / Time:

* Please refer to document "Seal Verification Report For M/T _____ (SB _____)"

Annex D

Example of Meter Reading Record Form (Delivery)

Meter Reading Record Form (Delivery)

Bunker Tanker's Name : _____ SB No. : _____

Vessel's Name : _____ Meter Serial No. : _____

BDN No. : _____ Bunker Metering Ticket (BMT) No. : _____

Section A- Before Delivery

Delivery Meter Totalizer Reading (MT) [A] (Mass in Air)		Loading Meter Totalizer Reading (MT) [X] (Mass in Air)	

Sampling container seal no._____ Needle valve seal no._____

Vessel has sufficient tank space for line clearing : Yes / No

Remarks (if any) : _____

Bunker Tanker's Representative	Vessel's Representative	Bunker Surveyor (if engaged)
_____ Signature of Cargo Officer	_____ Signature of Chief Engineer	_____ Signature of Bunker Surveyor
Name in full : _____	Name in full : _____	Name in full : _____
Date/Time : _____	Date/Time : _____	Date/Time : _____
Bunker Tanker's Stamp : _____	Vessel's Stamp : _____	Company's Stamp : _____

Section B- After Delivery

Delivery Meter Totalizer Reading (MT) [B] (Mass in Air)		Loading Meter Totalizer Reading (MT) [Y] (Mass in Air)	

Quantity Delivered (MT) [(B-A) – (Y- X] (Mass in Air)	

Bunker Tanker's Representative	Vessel's Representative	Bunker Surveyor(if engaged)
_____ Signature of Cargo Officer	_____ Signature of Chief Engineer	_____ Signature of Bunker Surveyor
Name in full : _____	Name in full : _____	Name in full : _____
Date/Time : _____	Date/Time : _____	Date/Time : _____
Bunker Tanker's Stamp : _____	Vessel's Stamp : _____	Company's Stamp : _____

Annex E

Example of Bunker Delivery Note (BDN)

BUNKER DELIVERY NOTE

BDN NO.

Bunker Metering Ticket No. : _____

Port	: _____	Date	: _____
Delivery Location	: _____	Vessel's Name	: _____
Bunker Tanker's Name	: _____	Vessel's IMO No.	: _____
SB No.	: _____	Gross Tonnage	: _____
Alongside Vessel	: _____ (Date/Time)	Owner/Operator	: _____
Commenced Pumping	: _____ (Date/Time)	ETD	: _____
Completed Pumping	: _____ (Date/Time)	Next Port	: _____

PRODUCT SUPPLIED

Product Name		Flash Point °C (ISO 2719)	
Viscosity @40°C or 50°C, mm/s (ISO 3104)		Sulphur Content % m/m (ISO 14598 or ISO 8754)	
COQ* density at 15°C, kg/m3 (ISO 3675 or ISO 12185)		Metric Tons Delivered	
Water Content % V/V (ISO 3733)			

SUPPLIER'S DECLARATION

We declare that the bunker fuel supplied conforms with Regulations 14(1) or 14(4) and Regulation 18(1) of MARPOL 73/78 Annex VI

For _____

Company's Name and Stamp

_____

Signature of Cargo Officer

_____

Full Name in Block Letters

_____

Bunker Tanker's Stamp

MASTER'S/ CHIEF ENGINEER'S ACKNOWLEDGEMENT

We acknowledge receipt of the above product and confirm that the following samples were jointly taken by the continuous drip sampler at the vessel's manifold, sealed and numbered:

	Seal No.	Counter Seal No. (if any)
Vessel: _____		
_____ (MARPOL)		
Bunker Tanker: _____		
Surveyor: _____		
Other: _____ (To specify)		(To specify)

Was a copy of MSDS received? Yes / No

CUSTOMER FEEDBACK

The following rating is satisfaction level of the bunkering operation (Please Circle);

1 **2** **3** **4** 5

Very Unsatisfied Very Satisfied

REMARKS _____

_____

_____

Was a Note of Protest issued? Yes / No

Acknowledged by

_____

Signature of Master/ Chief Engineer/ Date and Time

_____

Full Name in Block Letters

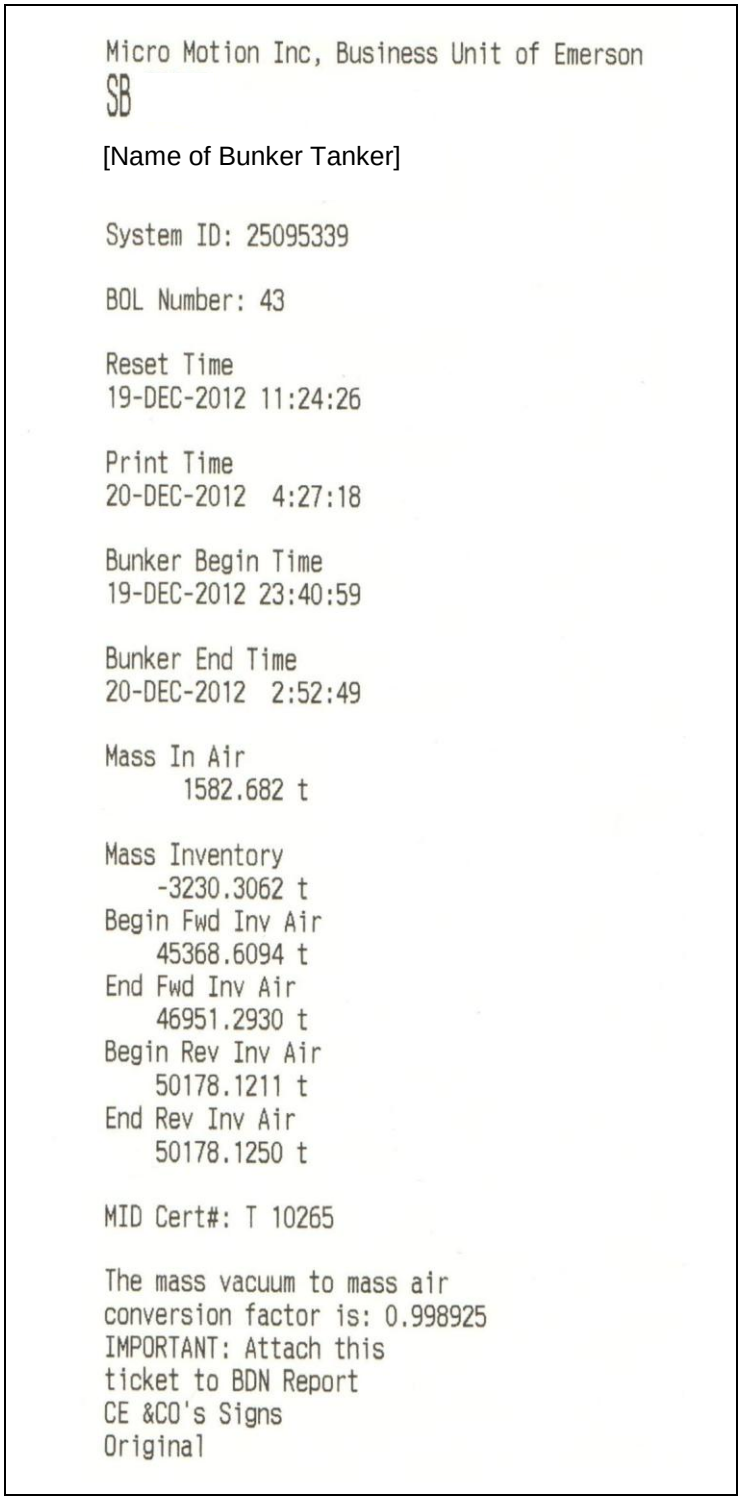
_____

Vessel's Stamp

*The COQ (Certificate of Quality) Density stated above is for fuel specification only and not for transfer quantity determination.

Annex F

Example of Bunker Metering Ticket



Micro Motion Inc, Business Unit of Emerson
SB

[Name of Bunker Tanker]

System ID: 25095339

BOL Number: 43

Reset Time
19-DEC-2012 11:24:26

Print Time
20-DEC-2012 4:27:18

Bunker Begin Time
19-DEC-2012 23:40:59

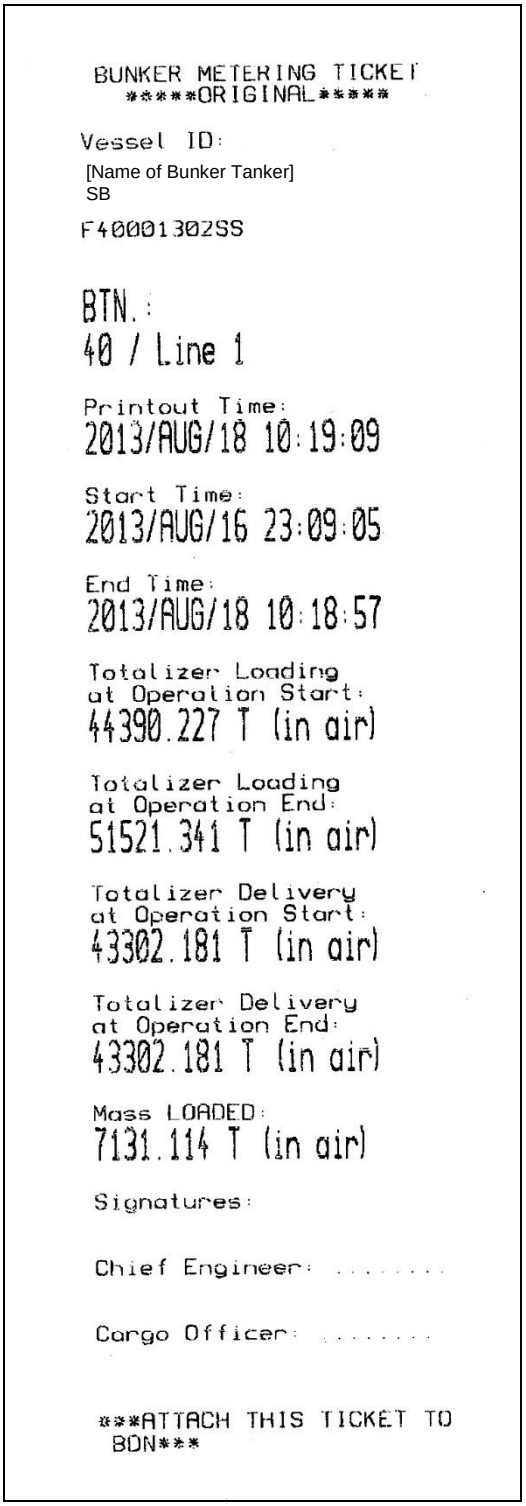
Bunker End Time
20-DEC-2012 2:52:49

Mass In Air
1582.682 t

Mass Inventory
-3230.3062 t
Begin Fwd Inv Air
45368.6094 t
End Fwd Inv Air
46951.2930 t
Begin Rev Inv Air
50178.1211 t
End Rev Inv Air
50178.1250 t

MID Cert#: T 10265

The mass vacuum to mass air
conversion factor is: 0.998925
IMPORTANT: Attach this
ticket to BDN Report
CE &CO's Signs
Original



BUNKER METERING TICKET
*****ORIGINAL*****

Vessel ID:
[Name of Bunker Tanker]
SB

F40001302SS

BTN.:
40 / Line 1

Printout Time:
2013/AUG/18 10:19:09

Start Time:
2013/AUG/16 23:09:05

End Time:
2013/AUG/18 10:18:57

Totalizer Loading
at Operation Start:
44390.227 T (in air)

Totalizer Loading
at Operation End:
51521.341 T (in air)

Totalizer Delivery
at Operation Start:
43302.181 T (in air)

Totalizer Delivery
at Operation End:
43302.181 T (in air)

Mass LOADED:
7131.114 T (in air)

Signatures:

Chief Engineer: .....

Cargo Officer: .....

***ATTACH THIS TICKET TO
BDN***

Annex G

Example of Meter Totalizer Log

Meter Totalizer Log

Bunker Tanker's Name: _____ Serial No.: _____

SB No. : _____ Year: _____

Month: _____

S/N	Date / Time	Product / Grade	Terminal Loaded / Vessel Delivered	Bunker Metering Ticket No.	BDN No. / CQ No.	Reverse Totalizer Reading (Loading)	Forward Totalizer Reading (Delivery)	Meter Qty Loaded / Delivered	Back Flow	Cargo Tank sequence (Loading / Delivery)	Cargo Officer	Remarks
						MT	MT	MT	MT		Name / Sign	
Meter Totalizer Opening on _____												
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

Annex H

Examples of Note of Protest

Example (a)

NOTE OF PROTEST

Date :

Ref :

To : _____
Master/Cargo Officer of bunker tanker

_____
Address

Dear Sirs

NOTE OF PROTEST FOR BUNKERING OPERATION ON _____(date)

I, Chief Engineer of M/V _____*(Name of vessel)* received _____tonnes of _____*(Grade of bunkers)* out of the _____tonnes requested on _____*(Date of bunkers received)*.

The bunkers were supplied by bunker tanker _____ *(Name of bunker tanker)* – SB No.: _____on _____*(Date)* at _____*(Location)*.

I hereby lodge a protest against the delivery. *(Particulars of any undue stoppages or delays may also be set out in this paragraph).*

For more information on the dispute, please contact our shipping agent _____ *(Name of company)* at Tel No: _____, Fax No: _____ or e-mail address: _____.

Yours faithfully

_____
(Name & Signature of Chief Engineer of vessel)

_____
Vessel's stamp

cc 1. Executive Director
Singapore Shipping Association
59 Tras Street
Singapore 078998
Fax No: (65) 62225527
(Enclosing with it a copy of the BDN)

2. Officer-in-charge
Bunker Services Department
Maritime and Port Authority of Singapore
7B Keppel Road
#21-07 Tanjong Pagar Complex
Singapore 089055
Fax No: (65) 62211742
Email address: bsd@mpa.gov.sg
(Enclosing with it a copy of the BDN)

Acknowledged receipt:

_____
Signature of Master/Cargo Officer of bunker tanker

_____
Name of Master/Cargo Officer of bunker tanker

_____
Date/Time

Example (b)

NOTE OF PROTEST

Date :

Ref :

To : M/V _____
(Name of vessel receiving bunkers)

Dear Sirs

NOTE OF PROTEST FOR BUNKERING OPERATION ON _____(date)

I, Master/Cargo Officer of bunker tanker _____*(Name of bunker tanker)* SB No.: _____wish to verify that _____tonnes of _____*(Product)* were delivered to your vessel by my bunker tanker from _____*(Time)* on _____*(Date)*.

However, you have alleged that you have received _____tonnes. In the presence of our Cargo Officer, you and/or your representative have witnessed the meter totalizer readings before and after delivery.

The delivery calculations were also verified by you.

In view of the above, I hereby serve you this letter of protest on your said allegation.

Yours faithfully

_____ _____
(Name & Signature of bunker tanker Master/Cargo Officer) Bunker tanker's stamp

cc 1. Executive Director
Singapore Shipping Association
59 Tras Street
Singapore 078998
Fax No: (65) 62225527
(Enclosing with it a copy of the BDN)

2. Officer-in-charge
Bunker Services Department
Maritime and Port Authority of Singapore
7B Keppel Road
#21-07 Tanjong Pagar Complex
Singapore 089055
Fax No: (65) 62211742
Email address: bsd@mpa.gov.sg
(Enclosing with it a copy of the BDN)

Acknowledged receipt:

_____
Signature of Chief Engineer of vessel receiving bunkers

_____ _____
Name of Chief Engineer of vessel receiving bunkers Date/Time