

Appendix B

Engine room checklists and permits

Use these checklists and permits as a guide to create tailored company and/or on board checklists and permits to suit the specific needs of the ship type, trade and crew.

B1 – Preparations for change of watch

Complete engine room round			
Ref	Check	Status	Remarks
1	Water from fuel oil settling and service tanks drained	☐ Yes	
2	Water from air bottles drained	☐ Yes	
3	Boiler, blow through gauge glass and pressure inspected	☐ Yes	
4	Fluid levels in all tanks checked; tanks topped up if required	☐ Yes	
5	Operating parameters within range	☐ Yes	
6	Standby machinery available and in auto	☐ Yes	
7	Leaks and other hazards checked for	☐ Yes	
8	Level in bilges checked	☐ Yes	
9	Auxiliary machinery rooms including purifier room, refrigeration machinery room, etc. inspected	☐ Yes	
10	Emergency generator ready for use	☐ Yes	
11	Lifesaving and firefighting equipment ready for use	☐ Yes	
12	Emergency escape routes well lit and clear of obstructions	☐ Yes	
13	Floor plates secured	☐ Yes	
14	Engine room well lit and lights working	☐ Yes	
Ship status			
Ref	Check	Status	Remarks
15	Port/sea/anchorage/cold ironing	☐ Yes	
16	Ship in ECA	☐ Yes ☐ NA	
17	Permissible discharges checked. All other outlets confirmed shut and locked	☐ Yes	
18	Navigational considerations noted	☐ Yes	

Machinery status (running, standby, auto, not available, etc.)			
Ref	Check	Status	Remarks
19	Main engine	☐ Yes	
20	Steering gear	☐ Yes	
21	Auxiliary engine	☐ Yes	
22	Controllable pitch propeller (CPP)/pods	☐ Yes	
23	Thrusters	☐ Yes	
24	Stabilisers	☐ Yes	
25	Boilers	☐ Yes	
26	Compressors	☐ Yes	
Auxiliary machinery status (running, standby, suction from, discharge to, etc.)			
Ref	Check	Status	Remarks
27	Freshwater generators	☐ Yes	
28	Fuel oil purifiers	☐ Yes	
29	Diesel oil purifiers	☐ Yes	
30	Lube oil purifiers	☐ Yes	
31	Air conditioning system	☐ Yes	
32	Refrigeration system	☐ Yes	
33	Sewage treatment plant	☐ Yes	
34	Oily water separator (OWS)	☐ Yes	
35	Ballast water treatment plant	☐ Yes	
Tank information (filling/in use/standby, next in line, contents, etc.)			
Ref	Check	Status	Remarks
36	Levels of service and settling tanks	☐ Yes	
37	Marine gas oil (MGO) bunker tanks	☐ Yes	
38	Lube oil tank	☐ Yes	
39	Portable water tank	☐ Yes	



40	Distilled water tank	☐ Yes	
41	Bilge holding tank	☐ Yes	
42	Sludge tank	☐ Yes	
Maintenance and permits			
Ref	Check	Status	Remarks
43	Ongoing works in engine room checked	☐ Yes	
44	Work permits for all jobs available	☐ Yes	
45	Checks made as to whether hot work, underwater inspections, enclosed space entry are in progress. If yes, permits and isolation sheets checked	☐ Yes	
46	Machinery and systems unavailable due to breakdown/maintenance	☐ Yes	
47	Machinery/system isolations checked	☐ Yes	
48	Machinery tried out after completion of work	☐ Yes	
Miscellaneous			
Ref	Check	Status	Remarks
49	Instructions for scheduled isolations	☐ Yes	
50	All safety systems are operational and available	☐ Yes	
51	Alarm history checked and if any alarms have been inhibited	☐ Yes	
52	Any other instructions from chief engineer	☐ Yes	

B2 – Preparations for UMS

Ref	Check	Status	Remarks
1	Complete engine room round taken. (See checklist B1)	☐ Yes	
2	Acetylene and oxygen mains shut and line drained	☐ Yes	
3	Welding and other workshop equipment off and secured	☐ Yes	
4	Required auxiliary engines on standby	☐ Yes	
5	Emergency generator in auto	☐ Yes	
6	Engine on bridge control with settings as per chief engineer's instructions	☐ Yes	
7	Checks made to ensure there are no active or isolated alarms unless authorised by chief engineer	☐ Yes	
8	Fire pumps available and ready to operate from bridge	☐ Yes	
9	Fire detection system active for all machinery spaces	☐ Yes	
10	Engine room clear of all crew	☐ Yes	
11	Bridge informed about intention to go UMS	☐ Yes	
12	All entrances to engine room closed and locked	☐ Yes	



B3 – Bunkering (marine fuel oil (MFO))

Planning			
Ref	Check	Status	Remarks
1	Loading plan prepared in consultation with master/chief officer	☐ Yes	
2	Crew members identified that are taking part in bunkering operation, keeping in mind work and rest hour requirements	☐ Yes	
3	Adequate number of intrinsically safe portable two-way radios available	☐ Yes	
4	Pre-bunker briefing conducted for all crew involved	☐ Yes	
5	Approved sampling device clean and ready for use	☐ Yes	
6	Sampler and manifold connection gaskets prepared and ready for use	☐ Yes	
7	Manifold flange bolts and nuts cleaned, greased and ready for use	☐ Yes	
8	Clean sample receiver/cubitainer and adequate number of sample bottles available and ready for use	☐ Yes	
9	Adequate number of sample bottle labels available	☐ Yes	
10	Sounding tables, sounding tapes, water/oil finding pastes, clean rags, etc., available and kept ready	☐ Yes	
Pre-bunker briefing (to ensure ship's crew aware of the following)			
Ref	Check	Status	Remarks
11	Designated smoking rooms/areas during bunkering	☐ Yes	
12	Individual responsibilities. Crew involved in bunkering operations should have no other task assigned to them	☐ Yes	
13	Grade and quantity of oil to be bunkered	☐ Yes	
14	Feed rate during starting, bunkering and finishing	☐ Yes	
15	Manifold maximum pressure	☐ Yes	

16	Test of H ₂ S during connection, disconnection and bunkering	☐ Yes	
17	Monitoring sequence (remote/manual)	☐ Yes	
18	Identification and location of bunker tanks to be filled and order of bunkering	☐ Yes	
19	Identification and location of bunker tank filling valves	☐ Yes	
20	Emergency operation of remotely operated valves, if fitted	☐ Yes	
21	Identification of tanks that could be used for emergency filling	☐ Yes	
22	Radio channel to be used for communication during bunkering. A back-up channel to be used if required	☐ Yes	
23	Health and environmental risks associated with bunkering	☐ Yes	
24	Adequate PPE to be worn continuously	☐ Yes	
25	Emergency shutdown procedures	☐ Yes	
26	Oil spill procedures and location of response equipment	☐ Yes	
27	Sampling arrangements and procedures especially for collecting MARPOL sample	☐ Yes	
28	No hot work to be carried out anywhere on the ship during bunkering	☐ Yes	
Checks before bunkering – engine room			
Ref	Check	Status	Remarks
29	High-level alarms for all bunker tanks and overflow tanks tested	☐ Yes	
30	All required internal transfers completed	☐ Yes	
31	Fuel oil and diesel oil settling tanks topped up and overflow tanks empty	☐ Yes	
32	Emergency shutdown for fuel oil and diesel oil transfer pumps tried out	☐ Yes	
33	Transfer pumps stopped, valves closed	☐ Yes	
34	Initial quantities in all tanks checked and recorded	☐ Yes	



Checks before bunkering – deck, accommodation and bridge			
Ref	Check	Status	Remarks
35	Barge has necessary permissions to dock alongside ship	☐ Yes	
36	External doors and ports in accommodation shut	☐ Yes	
37	Accommodation air conditioning on 100% recirculation. Fresh air intake shut	☐ Yes	
38	Radars switched off	☐ Yes	
39	Fixed VHF/UHF transceivers and automatic identification system (AIS) equipment on correct power mode or switched off	☐ Yes	
40	B flag or red light displayed on mast	☐ Yes	
41	All deck scuppers closed	☐ Yes	
42	Adequate lighting for all areas, including manifold, access points to barge and sounding pipe locations	☐ Yes	
43	Barge secured safely with adequate use of fenders	☐ Yes	
44	Access to barge secured safely. Access points to be manned continuously	☐ Yes	
45	Save-all trays for sounding pipes and bunker tank vents empty and drains plugged	☐ Yes	
46	Oil pollution response equipment and fire extinguisher available at the manifold	☐ Yes	
Checks before bunkering – bunker barge			
Ref	Check	Status	Remarks
47	MSDS relevant to the grade being supplied	☐ Yes	
48	Approved sounding tables	☐ Yes	
49	Certified bunker supply hose with adequate length	☐ Yes	
50	Bunker delivery note strictly complies with MARPOL Annex VI requirements	☐ Yes	
51	Tank soundings of all barge tanks taken, quantities checked and recorded	☐ Yes	
52	Flowmeters checked and readings recorded	☐ Yes	

53	Appropriate reducers and connectors available	☐ Yes	
54	Signs and signals for emergency stop agreed	☐ Yes	
55	Pumping rate during starting, maximum pumping rate and for tank top ups agreed	☐ Yes	
56	Sequence of bunkering agreed	☐ Yes	
57	Sampling arrangements agreed. MARPOL sample taken at receiving ship's inlet manifold	☐ Yes	
58	Communication method between ship and barge agreed (hand signals, portable two-way radios, etc.)	☐ Yes	
Hose connection			
Ref	Check	Status	Remarks
59	Manifold drip tray empty and drip tray drain plugged	☐ Yes	
60	Manifold valves shut before removing blanks. Sampling equipment fitted	☐ Yes	
61	Hose long enough to accommodate movement between ship and barge	☐ Yes	
62	Hose and coupling inspected for defects	☐ Yes	
63	Hose well supported, without any kinks and with adequate radius at the bends	☐ Yes	
64	Transfer hose properly rigged, flanges fully bolted and secured to manifold on ship and barge	☐ Yes	
65	Manifold blanked and fully bolted on the non-bunkering side	☐ Yes	
Start of bunkering			
Ref	Check	Status	Remarks
66	Manifold valve opened and confirmed that relevant valves have been adequately set	☐ Yes	
67	Barge/terminal informed of readiness to start	☐ Yes	
68	Bunkering started at minimum pumping rate	☐ Yes	
69	Bridge informed of start time	☐ Yes	
70	Manifold gauge monitored for pressure	☐ Yes	
71	No leaks from connection flanges at the manifold	☐ Yes	



72	No leaks from the manifold on the non-bunkering side	☐ Yes	
73	Oil is filling into the required tanks only. Sounding/ullage checked to confirm. Air escaping from air vents of the tank being filled checked	☐ Yes	
During bunkering			
Ref	Check	Status	Remarks
74	Manifold and access to be manned continuously	☐ Yes	
75	Deck inspected for any leaks on deck or overside	☐ Yes	
76	Regular soundings/ullages taken and required quantities are filling into the required tanks at the required rates	☐ Yes	
77	H ₂ S gas concentrations checked for: to be always below 2ppm. Bunkering stopped and barge informed if 2ppm is exceeded	☐ Yes	
78	Benzene concentration checked for	☐ Yes	
79	Sampling rate throughout bunkering checked	☐ Yes	
80	If any scupper plugs need to be removed to drain water on deck, they should be continuously manned and closed immediately after the draining operation is completed	☐ Yes	
81	Communication with the barge checked at regular intervals especially before critical operations such as topping up tanks or changing over tanks	☐ Yes	
82	Tank loading sequence and topping up requirements agreed with chief officer	☐ Yes	
83	Bridge informed when topping up or changing over tanks	☐ Yes	
84	Barge notified to reduce pumping rate when changing over or topping up tanks	☐ Yes	
85	Hose blown through once pumping finishes. Sounding/ullage pipes shut during blow-through procedure	☐ Yes	
86	Once barge gives confirmation of completion of bunkering, manifold valves closed and bridge informed	☐ Yes	

Checks after bunkering			
Ref	Check	Status	Remarks
87	All hoses fully drained	☐ Yes	
88	All tanks on ship and barge sounded to confirm that adequate quantity of bunkers have been transferred	☐ Yes	
89	Disconnected hose and couplings blanked off	☐ Yes	
90	Manifold connections closed and blanked off	☐ Yes	
91	Details provided in the bunker delivery note checked. MARPOL sample seal number on bunker delivery note recorded. In case of any disputes about quantity or quality of fuel bunkered, appropriate letters of protest to be given and all parties to be informed immediately	☐ Yes	
92	All samples labelled, signed and handed over/stored as required	☐ Yes	
93	All the valves in the bunker system lined up as appropriate	☐ Yes	
94	Transfer system and pumps put back into normal operation	☐ Yes	
95	Oil record book and all other appropriate documents updated	☐ Yes	
96	Relevant samples for laboratory analysis sent ashore	☐ Yes	



B4 – LNG bunkering

Ref	Check	Status	Remarks
1	Person-in-charge (PIC) assigned	☐ Yes	
2	All ship-specific limitations communicated with the bunkering facility, including: • Operating pressures; • Alarms; • Moorings; • Type of LNG tanks (whether atmospheric or pressurised); and • Compatibility between bunker vessel and the ship.	☐ Yes	
3	Joint plan of bunkering agreed with terminal	☐ Yes	
4	Hose connected	☐ Yes	
5	Tank inerted	☐ Yes	
6	Tank purged and cooled down	☐ Yes	
7	LNG transfer commenced	☐ Yes	
8	Tank topped up	☐ Yes	
9	LNG transfer stopped	☐ Yes	
10	Line drained	☐ Yes	
11	Tank inerted	☐ Yes	
12	Hose disconnected	☐ Yes	

B5 – Fuel changeover

This checklist is an example of the information that might be part of a ship-specific changeover procedure. It is for a particular type of fuel system that has separate service tanks for low sulphur and high sulphur residual fuel oil, and a separate storage, processing, settling and service system for distillate fuel.

Checks in green need special attention as they will vary depending on the types of fuels involved in the changeover process. The checklist user should read note 1 when they reach these checks.

Changing over from high sulphur residual fuel to low sulphur residual fuel			
Ref	Check	Status	Remarks
1	Fuel in low sulphur bunker tank heated	☐ Yes	
2	The time needed to ensure a complete changeover of the system including the combustion units calculated. Using this value, the following steps to be taken early enough to ensure that the ship is burning compliant low sulphur fuel well before entering the ECA. (See note 1)	☐ Yes	
3	Low sulphur bunker tank to the low sulphur settling tank transfer completed. If there is no dedicated low sulphur settling tank, the level of the settling tank is minimised, the remaining fuel is drained into high sulphur bunker tanks via the overflow tank (depending on the system), and the settling tank filled with low sulphur fuel oil. (See note 2)	☐ Yes	
4	Settling tank maintained at a high enough temperature to aid the separation of water. Settling tank regularly drained of water	☐ Yes	
5	Low sulphur service tank filled using the purifiers dedicated for low sulphur fuel operation	☐ Yes	
6	Low sulphur fuel oil service tank main outlet valve opened	☐ Yes	
7	The required valves changed over so that the system fuel suction is from the low sulphur service tank*	☐ Yes	
8	Once the time calculated for complete changeover of the system elapses, the return line valves to the low sulphur service tank are opened. The high sulphur fuel oil service tank main outlet valve and return line valves are closed	☐ Yes	



9	Fuel pressure and other parameters monitored after changing over	☐ Yes	
10	Once changeover is complete, sulphur content of both fuels, date, time and ship's position for the start and finish of the changeover process, and quantity remaining in all fuel tanks recorded in the fuel changeover log. Changeover details recorded in the oil record book	☐ Yes	
11	Engine cylinder oil grades changed over as required	☐ Yes	
Changing over from high sulphur residual fuel to low sulphur distillate fuel			
Ref	Check	Status	Remarks
12	Enough time allowed to ensure a complete changeover of the system including the combustion units. Using this value, the following steps are started early enough to ensure that the ship is burning compliant distillate fuel well before entering the ECA. (See note 1)	☐ Yes	
13	Fuel topped up in the distillate settling and service tanks, and tanks drained of any water	☐ Yes	
14	Trace heating for the fuel lines and for fuel oil filters closed	☐ Yes	
15	Fuel heating regulated so that the fuel temperature is gradually reduced to the value required for marine diesel oil (MDO)/MGO operation as per engine manufacturer's recommendations. (See note 3)	☐ Yes	
16	The return line set up so that cross contamination with the residual fuel in the fuel lines is minimised*	☐ Yes	
17	Position of automatic valves verified	☐ Yes	
18	The main outlet valve of the distillate fuel service tank opened	☐ Yes	
19	If fitted, the inlet and outlet valves of the fuel oil cooler opened and the bypass closed	☐ Yes	
20	The required valves changed over so that the system fuel suction is from the distillate service tank*	☐ Yes	
21	The residual fuel service tank main outlet valve closed	☐ Yes	
22	Fuel pressure and other parameters monitored after changing over	☐ Yes	

23	Once changeover is complete, record sulphur content of both fuels, date, time and ship's position for the start and finish of the changeover process, and quantity remaining in all fuel tanks in the fuel changeover log. Record the changeover details in the oil record book	☐ Yes	
24	Engine cylinder oil grades changed over as required	☐ Yes	
Changing over from low sulphur residual fuel to high sulphur residual fuel			
Ref	Check	Status	Remarks
25	Fuel topped up and heated in the high sulphur settling and service tanks, and water drained off	☐ Yes	
26	The changeover procedure started only after exiting the ECA	☐ Yes	
27	The main outlet valve of the high sulphur fuel oil service tank opened	☐ Yes	
28	The required valves changed over so that the system fuel suction is from the high sulphur service tank*	☐ Yes	
29	Return line valves to high sulphur service tank opened. Low sulphur fuel oil service tank main outlet valve and return line valves closed	☐ Yes	
30	Fuel pressure and other parameters monitored after changing over	☐ Yes	
31	Once changeover is complete, sulphur content of both fuels, date, time and ship's position for the start and finish of the changeover process, and quantity remaining in all fuel tanks recorded in the fuel changeover log. Changeover details recorded in the oil record book	☐ Yes	
32	Engine cylinder oil grades changed over as required	☐ Yes	
Changing over from low sulphur distillate fuel to high sulphur residual fuel			
Ref	Check	Status	Remarks
33	Fuel topped up and heated in the high sulphur settling and service tanks, and water drained off	☐ Yes	
34	Changeover procedure started only after exiting the ECA	☐ Yes	



35	If fitted, the bypass valve of the fuel oil cooler opened and the inlet and outlet valves closed	☐ Yes	
36	The residual fuel service tank main outlet valve opened	☐ Yes	
37	The required valves changed over so that the system fuel suction is from the residual service tank*	☐ Yes	
38	The distillate fuel service tank main outlet valve closed	☐ Yes	
39	The fuel heating regulated so that the fuel temperature is gradually reduced to the value required for MDO/MGO operation as per engine manufacturer's recommendations. While changing the temperature of fuel in a system, the change should be limited to a maximum of 2°C per minute to avoid thermal shock. (See note 3)	☐ Yes	
40	The return line back to the residual fuel tanks set up	☐ Yes	
41	Once the viscosity of fuel in the system is high enough, trace heating for fuel oil lines and fuel oil filters opened	☐ Yes	
42	Once changeover is complete, sulphur content of both fuels, date, time and ship's position for the start and finish of the changeover process, and quantity remaining in all fuel tanks recorded in the fuel changeover log. Changeover details recorded in the oil record book	☐ Yes	
43	Change over engine cylinder oil grades as required	☐ Yes	
Changing over from high sulphur fuel oil to low sulphur fuel oil			
Ref	Check	Status	Remarks
44	The time needed to ensure a complete changeover of the system including the combustion units calculated. Using this value, the following steps are started early enough to ensure that the ship is burning compliant low sulphur fuel well before entering the ECA. (See note 1)	☐ Yes	
45	Low sulphur fuel oil settling tanks and service tanks topped up and any water drained off	☐ Yes	
46	All engines and boilers changed over as per the ship-specific changeover plan	☐ Yes	

47	Enough time allowed (taking into account the value derived by the fuel changeover calculator as specified in 10.3.4) to complete the changeover before ship enters the ECA	☐ Yes	
48	Once changeover is complete, sulphur content of both fuels, date, time and ship's position for the start and finish of the changeover process, and quantity remaining in all fuel tanks recorded in the fuel changeover log. Changeover details recorded in the oil record book	☐ Yes	
49	Low sulphur fuel oil continued as long as ship is in the ECA	☐ Yes	
50	Changeover procedure back to high sulphur fuel oil only started after exiting the ECA. Ship-specific changeover procedure followed in the reverse order	☐ Yes	

Notes:

1. Factors that the ship-specific changeover calculator should take into account are:
 - a. The sulphur content of the fuel changed over from, and the fuel changed over to;
 - b. The ship-specific settling and service tank arrangement;
 - c. The volumetric capacity of the combustion unit fuel system, including the settling tank, service tank, transfer piping and the combustion unit; and
 - d. The transfer and processing capacity pumps and purifiers.

Changeover calculators provided by many classification societies should be used for this.

2. Throughout this process ensure that the level of the high sulphur service tank does not fall below a level where the fuel pumps lose suction.
3. While changing the temperature of fuel in a system, try to limit the change to a maximum of 2°C per minute to avoid thermal shock.

* Action required will be in line with the ship-specific changeover procedure.



B6 – Preparations for alkali bunkering

Ref	Check	Status	Remarks
1	All personnel attending trained in alkali bunkering procedures	☐ Yes	
2	Alkali storage tank levels checked and compared against the local level indicator readings	☐ Yes	
3	Enough free volume in alkali storage tanks to receive the ordered amount	☐ Yes	
4	Bunkering line lined up	☐ Yes	
5	Unloading area secured with 'Do not enter' barrier tape and plate	☐ Yes	
6	All personnel wearing appropriate PPE	☐ Yes	
7	Safety showers available	☐ Yes	
8	Portable eyewash stations on site	☐ Yes	
9	Radio communications checked between all personnel and the tank truck operator	☐ Yes	

B7 – Alkali bunkering

Ref	Check	Status	Remarks
1	Bunkering hose connected to the ship connection at bunker station	☐ Yes	
2	Ship's end hose connection is tight and spray shielded	☐ Yes	
3	One engineering officer always in the engine room during the operation	☐ Yes	
4	Periodic checks along bunker lines observed for any leaks	☐ Yes	
5	Bunkering stopped when storage tank level reached or high-level alarm triggered	☐ Yes	



B8 – After alkali bunkering

Ref	Check	Status	Remarks
1	Filling lines blown empty with compressed air from the truck end	☐ Yes	
2	Alkali bunkering hose, cap hose and ship connections detached	☐ Yes	
3	All bunkering valves closed	☐ Yes	
4	Technical water hose connected and bunker system flushed	☐ Yes	
5	All safety barriers, hoses and other equipment removed and stored	☐ Yes	
6	Medical personnel, environmental officer and duty engineer informed of completion of alkali bunkering	☐ Yes	

B9 – Enclosed space entry

GENERAL			
Location of enclosed space:			
Reason for entry:			
This permit is valid:	From:	hrs	Date:
	To:	hrs	Date:
(See note 1)			

SECTION 1: PRE-ENTRY PREPARATION (To be checked by master or nominated responsible person)			
		Yes	No
Has the space been thoroughly ventilated by mechanical means?			
Has the space been segregated by blanking off or isolating all connecting pipelines or valves and electrical power/equipment?			
Has the space been cleaned where necessary?			
Has the space been tested and found safe for entry? (See note 2)			
Pre-entry atmosphere test readings:			
Oxygen	 % vol (20.9%)*	By: Time: (See note 3)	
Hydrocarbon	 % LFL (less than 1%)		
Toxic gases	 ppm (less than 50% OEL of the specific gas)		
Carbon dioxide	 ppm (less than 0.5% (5,000ppm))		
Have arrangements been made for frequent atmosphere checks to be made while the space is occupied and after work breaks?			
Have arrangements been made for the space to be continuously ventilated throughout the period of occupation and during work breaks?			
Is rescue and resuscitation equipment available for immediate use by the entrance to the space?			
Has an attendant been designated to be in constant attendance at the entrance to the space?			
Has the officer of the watch (bridge, engine room, CCR) been advised of the planned entry?			



	Yes	No
Has a system of communication between all parties been tested and emergency signals agreed?		
Are emergency and evacuation procedures established and understood by all crew involved with the enclosed space entry?		
Is all equipment used in good working condition and inspected before entry?		
Are crew properly clothed and equipped?		

* National requirements may determine the safe atmosphere range.

SECTION 2: PRE-ENTRY CHECKS (To be checked by each person entering the space)		
	Yes	No
I have received instructions or permission from the master or nominated responsible person to enter the enclosed space		
Section 1 of this permit has been satisfactorily completed by the master or nominated responsible person		
I have agreed and understand the communication procedures		
I have agreed on a reporting interval of minutes		
Emergency and evacuation procedures have been agreed and are understood		
I am aware that the space must be vacated immediately in the event of ventilation failure or if atmosphere tests show a change from the agreed safe criteria		

SECTION 3: BREATHING APPARATUS AND OTHER EQUIPMENT (To be checked jointly by the master or nominated responsible person and the person who is to enter the space)		
	Yes	No
Those entering the space are familiar with any breathing apparatus to be used		
The breathing apparatus has been tested as follows:		
Gauge and capacity of air supply		
Low pressure audible alarm, if fitted		
Face mask – under positive pressure and not leaking		

	Yes	No
The means of communication has been tested and emergency signals agreed		
All crew entering the space have been provided with rescue harnesses and, where practicable, lifelines		

Signed on completion of sections 1, 2 and 3 by:

Master or nominated responsible person

Date Time

Attendant

Date Time

Person entering the space

Date Time

SECTION 4: PERSONNEL ENTRY

(To be completed by the responsible person supervising entry)

Names	Time in	Time out

SECTION 5: COMPLETION OF JOB

(To be completed by the responsible person supervising entry)

	Date	Time
Job completed		
Space secured against entry		
The officer of the watch has been duly informed		

Signed on completion of sections 4 and 5 by:

Responsible person supervising entry

Date Time

This permit is rendered invalid should ventilation of the space stop or if any of the conditions noted in the checklist change.



Notes:

1. The permit should contain a clear indication as to its maximum period of validity.
2. To obtain a representative cross-section of the space's atmosphere, samples should be taken from several levels and through as many openings as possible. Ventilation should be stopped for about 10 minutes before the pre-entry atmosphere tests are taken.
3. Tests for specific toxic contaminants, e.g. carbon monoxide, benzene or hydrogen sulphide, should be undertaken depending on the nature of the previous contents of the space.

B10 – Hot work

This permit relates to any work involving temperatures that may be high enough to ignite flammable gases, vapour or liquids in or next to the area involved. Before completing this form, refer to the guidance notes below and in section 11.12 of this Guide.

Guidance notes for hot work permit

Section I. Must be completed in all cases.

Section II. Applies to work not involving naked flames or continuous spark production, which has a significant potential for producing sparks and includes the use of electrical equipment, mechanically powered tools, air-driven rotary equipment, sand or grit blasting, hammering and chipping, and movement of equipment or materials over or near to machinery that is operating.

Section III. Applies to all hot work involving high temperatures, open flame, electric arc or continuous source of sparks, etc. This type of work includes welding, burning and grinding.

Section IV. Must be completed in all cases.

All the following steps and precautions should be undertaken for each hot work task, depending on the nature of the work.

Section I

MV Permit #

This permit is valid*: From hrs Date
To hrs Date

* Start and finish times must not exceed the authorised signatory or personnel working hours.

Exact location of hot work:

Has an enclosed space entry permit been issued? Yes ☐ N/A ☐

Description of hot work (to include type of equipment to be used):

Crew carrying out hot work:

Rank Name Signature

Rank Name Signature

Person responsible for hot work:

Rank Name Signature

Person responsible for safety:

Rank Name Signature



Section II

		Yes/No/NA	Time
1	Has the hot work area been checked with a flammable gas indicator for the presence of flammable vapours?		
2	Has the surrounding area been made safe?		

Section III

		Yes/No/NA	Time
3	Has a planning meeting been held and a risk assessment completed?		
4	Has shore management agreement for this hot work been obtained?		
5	Has the hot work area been checked with a flammable gas indicator for the presence of flammable vapours and found to be safe?		
6	Has the equipment or pipeline been gas-freed?		
7	Has the equipment or pipeline been blanked?		
8	Is the equipment or pipeline free of liquid?		
9	Is the equipment isolated electrically?		
10	Is the surrounding area safe?		
11	Has adequate firefighting equipment been provided next to the immediate work area?		
12	Is the hot work equipment in good order?		
13	Is a fire watch in place for the duration of the hot work and for 30 minutes after?		
14	Is the fire watchman trained in the use of equipment and familiar with alarms?		
15	Is suitable PPE provided to ensure safety of workers?		
16	Is the OOW (bridge, engine room or cargo control room) aware of the planned work?		
17	Has a means of communication between the fire watchman and person responsible for work been agreed and tested?		
18	Are emergency procedures established and understood by all involved?		

Tests for the presence of flammable gas should be carried out immediately before starting hot work, after each break, and at frequent intervals as long as the work is in progress.

Section IV

I verify that the job area has been examined and authorise hot work to be carried out provided the above conditions are maintained throughout the term of the permit.

Master:

Name Signature

Person in charge of hot work team:

Rank Name Signature

The work has been completed and all crew under my supervision, and all materials and equipment, have been withdrawn.

Officer responsible for hot work:

Rank Name Signature

Time/date



B11 – Isolation/lock out-tag out

This form is to be filled whenever work is needed on any equipment/system that poses a risk of electric shock or accidental start, or exposure to other hazards from a stored energy source (such as uncontrolled spray of hot fuel on to surfaces/crew), if the energy source is not isolated.

Section I

MV Permit #

This permit is valid*: From hrs Date

To hrs Date

* The validity of this permit is not to exceed 24 hours.

Equipment/system where work is to be done	
Description of work	
Has a risk assessment been carried out for this work?	

Crew members carrying out work:

Rank Name Signature

Rank Name Signature

Person responsible for work:

Rank Name Signature

Sources of energy involved		
Electrical 110V ☐	Electrical 220V ☐	Electrical 440V/high voltage ☐
Gas (including inert gas) ☐	Steam ☐	Pneumatic ☐
Hydraulic ☐	Chemical ☐	Water ☐
Thermal ☐	Compressed air ☐	Radiation ☐
Sound ☐	Other (specify) ☐	

Isolation carried out by:

Rank Name Signature

Lock/tag no.	System/valve to be locked out/ tagged out	Lock out/tag out placed		Lock out/tag out removed	
		Date	Time	Date	Time

Measures taken to ensure positive isolation and release of any stored/residual energy before starting any work. (See note 3)	
All relevant crew informed before start of work	

Section II
On completion of work
Work completion authorised by:

Rank Name Signature

Lock out/tag out removed and system restored by:

Rank Name Signature

Notes:

1. The permit should be filled in and a copy provided to crew carrying out the work, who must return it to the responsible officer after the work is completed. A copy should also be displayed in the ECR.
2. A lock out device should only be removed by the responsible engineer/electro-technical officer after the job is over and it is confirmed safe to do so.
3. Tests to ensure positive isolation and the release of any stored/residual energy may include pressing the start button on a piece of machinery after isolation or by opening certain valves to confirm the system is isolated, etc.



B12 – Work on high voltage systems

Section I

MV Permit #

This permit is valid*: From hrs Date
 To hrs Date

* The validity of this permit is not to exceed 12 hours

Equipment/system on which work is to be done	
Location of work	
Description of work	

Person responsible for work (e.g. ETO)

Rank Name Signature

Person carrying out isolation (authorised person)

Rank Name Signature

Personnel carrying out work (competent person)

Rank Name Signature

Section II

Safety precautions		
Description	Yes/No/NA	Initials
If connected to a prime mover, prime mover stopped, isolated and locked out		
Risk assessment carried out and reviewed by the officer undertaking the maintenance work		
Adequate and approved PPE worn. Appropriate firefighting, rescue and resuscitation equipment kept ready for use		
Equipment main supply changed over from remote to local		
Equipment main supply isolated and confirmed		
Isolator withdrawn and locked out		
Fuses removed		
'Do not operate' notices put up		

Secondary low voltage supplies and live circuits from interconnected equipment isolated (if not, identify all live circuits under 'Additional precautions')		
Approved HV isolation test instrument checked and confirmed to be working		
Equipment isolation confirmed by visual inspection and verified by approved HV test instrument		
Isolated circuit earthed		
Equipment confirmed effectively earthed on all phases		
All additional manufacturer's instructions followed		
Additional precautions		

Identification numbers of all locks used for isolation:

Isolation completed:

Person responsible for work Date Time

Signed on completion of isolation by:

Authorised person Date Time

Competent person Date Time

Chief Engineer Date Time

Master Date Time



Section III**Signed on completion of work by:**

Person responsible for work Date Time

Authorised person Date Time

Competent person Date Time

Closing of HV permit		
Description	Yes/No/NA	Initials
Equipment/system earthing removed		
Notices and securing arrangements removed		
Equipment/system returned to in-service condition		
Work area confirmed as in safe condition		

Signed on closing of HV permit by:

Chief engineer Date Time

Master Date Time

B13 – Familiarisation

Description			
Ref	Check	Status	Remarks
1	Roles and responsibilities	☐ Yes	
2	Duties and responsibilities associated with rank	☐ Yes	
3	Obligations and responsibilities as per MARPOL and SOLAS	☐ Yes	
4	Location of statutory documents and company procedures	☐ Yes	
5	Chief engineer's standing instructions	☐ Yes	
6	Location of operation and maintenance manuals, and system drawings	☐ Yes	
7	Action to be taken in emergencies such as fire and flooding (see Appendix C checklists)	☐ Yes	
General safety			
Ref	Check	Status	Remarks
8	Ship's fire control plan	☐ Yes	
9	Emergency signals and their meaning (general emergency, fire, abandon ship, man overboard, security incident, etc.)	☐ Yes	
10	Muster station location	☐ Yes	
11	Emergency escape routes	☐ Yes	
12	Location of portable extinguishers and procedures to operate them	☐ Yes	
13	Location of lifejackets and immersion suits, and procedures to don them	☐ Yes	
14	Location of fire suits, breathing apparatus sets, and other equipment	☐ Yes	
15	Lifeboat and life raft duties including operation and inspection of lifeboat engines	☐ Yes	
16	Smoking restrictions and location of designated smoking areas	☐ Yes	



17	Operating procedures for watertight, splash tight and weather tight doors	☐ Yes	
General pollution prevention and response			
Ref	Check	Status	Remarks
18	Ship's spill response plan	☐ Yes	
19	Location of oil pollution response equipment	☐ Yes	
20	Waste disposal, segregation and treatment procedures	☐ Yes	
Engine room fire safety			
Ref	Check	Status	Remarks
21	Emergency escape routes from the engine room	☐ Yes	
22	Alarms and actions, including CO ₂ alarm	☐ Yes	
23	Fire detection system	☐ Yes	
24	Portable fire extinguishing equipment	☐ Yes	
25	Fire main and associated systems, including emergency fire pump	☐ Yes	
26	Hi fog, high expansion foam, sprinkler and other fixed firefighting systems	☐ Yes	
27	CO ₂ system including bottle room	☐ Yes	
28	Emergency stop locations for all machinery	☐ Yes	
29	Emergency fuel shut-off locations for machinery	☐ Yes	
30	Emergency stop for ventilation fans	☐ Yes	
31	Emergency shut-off mechanism for ventilation and funnel flaps	☐ Yes	
32	Procedures and locations for remote operation of emergency stops, shut-off valves, ventilation, etc.	☐ Yes	
Engine room flooding response			
Ref	Check	Status	Remarks
33	Bilge and ballast system	☐ Yes	
34	Location of emergency bilge injection valves	☐ Yes	

35	Storm and conventional valves	☐ Yes	
36	Downflooding ducts and crossflooding valves	☐ Yes	
37	Engine room contingency measures	☐ Yes	
38	Operation of emergency generator	☐ Yes	
39	Operation of emergency steering	☐ Yes	
40	Operation and inspection of lifeboat engines	☐ Yes	
41	Emergency operation of auxiliary engines and boilers	☐ Yes	
42	Emergency operation of main engine	☐ Yes	
43	Operation of easing gear for steam relief valve and emergency dumping procedure for economisers	☐ Yes	
Engine room pollution prevention			
Ref	Check	Status	Remarks
44	Reporting requirements, operation, maintenance and troubleshooting of bilge storage and treatment system	☐ Yes	
45	Reporting requirements, operation, maintenance and troubleshooting of OWS (including 15ppm monitoring equipment)	☐ Yes	
46	Reporting requirements, operation, maintenance and troubleshooting of on board waste processing equipment including incinerators	☐ Yes	
47	Reporting requirements, operation, maintenance and troubleshooting of ballast water treatment systems	☐ Yes	
48	Reporting requirements, operation, maintenance and troubleshooting of sewage and grey water storage and treatment systems	☐ Yes	
49	Reporting requirements, operation, maintenance and troubleshooting of oil to sea interfaces (e.g. oil lubricated stern tubes, stabilisers, bow thrusters, etc.)	☐ Yes	
50	Refrigeration and air conditioning machinery, including procedures for refrigerant spill response and documentation requirements for ODS	☐ Yes	

