Annex 1

Master's Standing Orders, Night Order and
Watch Record from *Gas Monarch*

LPG/C GAS MONARCH
BAHAMAS

MASTER'S STANDING ORDER

1. ALWAYS REFER TO APPROVED PASSAGE PLAN.
2. POSITION FIXING SHOULD BE AT LEAST MORE THAN ONE METHOD.
3. BEARING, RANGE AND COORDINATES TO BE WRITTEN IN THE POSITION LOG.
4. FOLLOW CHART SEQUENCE MARKED ON THE PAPER CHART.
5. WHEN CHANGING PAPER CHART, LAST POSITION ON THE PREVIOUS CHART MUST BE SHOWN ON THE NEXT CHART.
6. ALWAYS USE LARGEST SCALE POSSIBLE AS APPROPRIATE.
7. POSITION INTERVAL AS PER PASSAGE PLAN.
8. UNDERKEEL CLEARANCE TO BE OBSERVED, MINIMUM UKC 0.6 METERS.
9. NOON POSITION TO BE ENTERED IN GMDSS LOGBOOK.
10. TEST ALL GMDSS EQUIPMENT BEFORE VESSEL SAIL AND ENTER IT ON THE GMDSS LOGBOOK.
11. SET PARALLEL INDEX ESPECIALLY ON COASTAL. USE ECHO-SOUNDER IF APPROPRIATE.
12. PROPER LOOK-OUT TO BE POSTED AT ALL TIMES, BRIDGE SHALL NOT BE LEFT UNATTENDED.
13. DON'T HESITATE TO ASK MASTER/PILOT WHEN ORDERS ARE NOT CLEAR.
14. CHECKED COMPASS ERROR AT LEAST ONCE A WATCH AND AFTER MAJOR ALTERATION OF COURSE.
15. MASTER HAS NO RESTRICTION OF USING THE ENGINE, STEERING AND ANY APPROPRIATE MEANS FOR SAFE NAVIGATION, NEVER RELY ON USING THE VHF FOR COLLISION AVOIDANCE.
16. FIRE AND SAFETY CHECKS DURING NIGHT SHOULD BE DONE AFTER EACH WATCH ONLY.
17. ALWAYS GIVE A WIDE BERTH TO ALL TRAFFIC (MINIMUM CPA 1.0 NM), AND IF HAVING DIFFICULTY IN MAINTAINING MINIMUM CPA PLEASE CALL THE MASTER
18. CALL MASTER ANYTIME IN DOUBT.

FOR STRICT COMPLIANCE,

EITZEN GROUP
Est. 1883

LPG/C GAS MONARCH
BAHAMAS

MASTER INDIVIDUAL ORDER
NAVIGATING IN RESTRICTED VISIBILITY

1. CALL MASTER IMMEDIATELY WHEN VISIBILITY DROPPED TO 3.0 NM.
2. INSTRUCT ENGINE ROOM WATCH TO COMMENCE PREPARATION FOR SPEED REDUCTION AND GIVE STANDBY, SPEED REDUCTION IN CONSULTATION WITH MASTER.
3. CHANGE OVER TO HAND STEERING.
4. IN TRAFFIC DENSITY POST ADDITIONAL WATCHMAN.
5. CHECK NAVIGATION LIGHTS ON AND FUNCTIONING, COMMENCE FOG SIGNAL AS PER COLREGS.
6. BOTH RADARS ON WITH OBSERVATION OF TRACKING TARGETS.
7. SWITCH-ON ECHO-SOUNDER, IF IN SOUNDING RANGES.
8. VERIFY REGULARLY VESSEL'S POSITION AND LOG.
9. VHF WATCH MAINTAINED ON CHANNEL 16 AND LOCAL WORKING CHANNEL IF APPLICABLE.
10. REMOVE ANCHOR LASHING, IF VESSEL WITHIN ANCHORING DEPTH IN CONSULTATION WITH MASTER.
11. STOP ANY NOISY WORK THAT MAY INTERFERE WITH KEEPING A PROPER " LISTENING " WATCH.
12. KEEP IN MIND THE BLIND AND SHADOW SECTOR OF THE RADAR. SUPPRESS MARKER FREQUENTLY TO CHECK FOR ECHOES ON HEADING LINE. KEEP ONE RADAR ON LONGER RANGE, UPRANGE FREQUENTLY IN ORDER TO GET DISTANT WARNING OF POTENTIALLY DANGEROUS TARGETS.
13. NEVER USE VHF FOR COLLISION AVOIDANCE IN RESTRICTED VISIBILITY.
14. MERE PRESENCE OF THE MASTER ON THE BRIDGE DOES NOT RELIEVE THE OOW OF HIS DUTY UNLESS THE MASTER STATES THAT HE IS " TAKING OVER THE CONNING ".

FOR STRICT COMPLIANCE.

EITZEN GROUP
Est. 1883

EMS

VESSEL: LPG/C GAS MONARCH

MASTER'S NIGHT ORDER

DO NOT HESITATE TO CALL ME WHEN THE FOLLOWING SITUATION OCCUR DURING YOUR NIGHT WATCH.

a) if the visibility deteriorates to the level laid down in the bridge, Masters Standing orders;
b) if the movement of other vessel are causing minor/major concern;
c) if the difficulty is experienced in maintaining course due to heavy traffic or to meteorological or sea conditions;
d) on failure to sight land or a navigation mark or to obtain soundings by the expected time;
e) if either land or navigation mark is sighted unexpectedly or if an unexpected reduction of sounded depth occurs;
f) on the breakdown of the engines, steering gear or any essential navigational equipment;
g) if in any doubt about the possibility of weather damage;
h) in any other situation which is causing concern or doubt.

YOUR ATTENTION IS ALSO NEEDED FOR THE FOLLOWING NIGHT ORDER.

1) Always adhere to the collision regulation (COLREGS) when meeting/crossing and when you are in heavy traffic.
2) Always take gyro and compass error when there is a possibility, and apply it to your laid down course.
3) Use any means, VHF radio, Whistle, Aldis Lamp, to call the attention of any vessel, in which his intention is causing major/minor concern, and talk about safe passage and don't make any arguments, in which it will jeopardized the position of the vessel.
4) Always keep at least 1 radar running during your coastal and sea navigation.
5) It is also obligatory that you consult the "Bridge Masters Standing Order and the Bridge Check List, in any situation you are in.
6) Report to traffic reporting station if there is any, and always stay on the right way on the traffic separation scheme

LASTLY, AGAIN DO NOT HESITATE TO CALL ME ANYTIME YOU ARE IN DOUBT.

Master / GAS MONARCH

ORDER ACKNOWLEDGED BY:

1) Ch Off. _____

2) 2nd Off _____

3) 3rd Off _____

M.V./M.T. GAS MONARCH

From IMMINGHAM To LEIXOES

Date Time	Captains Night Orders	Signature of O.O.W.
16.04.07	1) PLS. ADHERE TO MASTER'S	
1900	STANDING ORDERS.	
	2) MONITOR RADIO BROADCASTS AND	
	OTHER SAFETY MSGS.	
	3) POST LOOKOUT AND IF REQUIRED TO	
	USE MANUAL STEERING AT ONCE	
	HOT HELMSMAN CHANGEOVER TO MANUAL.	
	4) USE ENGINES WHEN REQUIRED TO	
	REDUCE TO KEEP CLEAR OTHER VSLS.	
	5) IF IN DOUBT CALL BY VHF OTHER	
	VSLS MOVEMENTS.	
	6) CALL MASTER ANYTIME YOU	
	NEED HIS PRESENCE AND WHEN	
	VISIBILITY IS REDUCED.	
	7) CALL MASTER ON AREA MARKED	
	ON CHART.	
	GOOD WATCH!	

Annex 2

Extract from *Gas Monarch*'s Radar Operations Manual
- Performance Monitor Operations

..... Performance Monitor Operations .....

Use the following procedure to operate an NJU-63/64 performance monitor:

Procedures **1 Method of operation**

If a radar interswitch is provided, set the master radar mode.

1 Press the MENU switch. This opens the main menu.

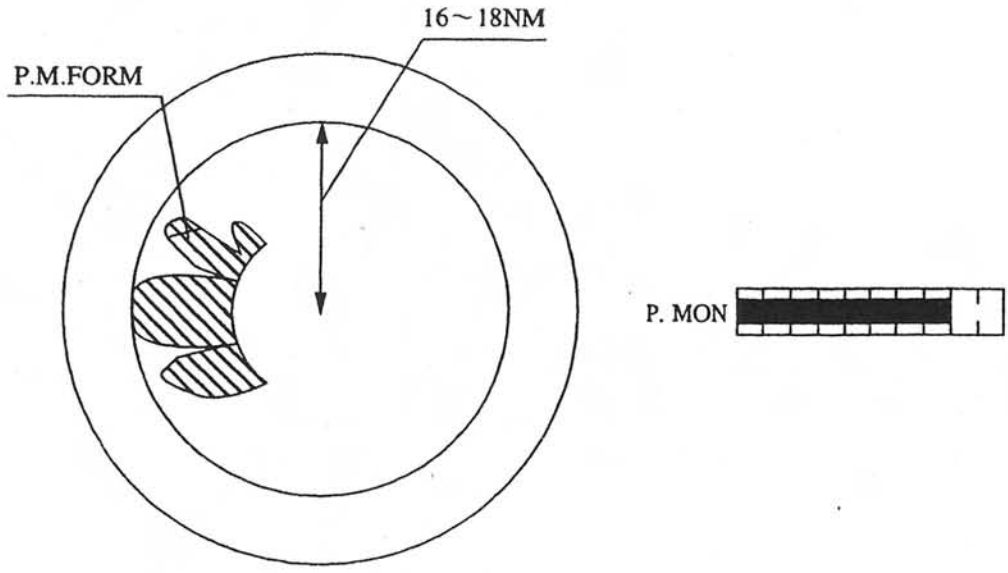
2 Press keys 1, 4, and SET, in that order. This makes menu item 14 P.MON valid.

3 Press key 1. This makes menu item 1 MODE valid.

4 Press key 2. This makes menu item 2 ON valid and sets the radar to the RM (relative motion), OFF CENTER off, and 24-nm range mode. At the same time, a performance monitoring pattern (PM pattern) is displayed for receiver circuit checking. Also, "TUNE" at the bottom left of the display changes to "P.MON" to allow transmission power to be checked.

Exit **5 Press key 9. This returns control to the main menu.**

6 Press the MENU switch. This closes the main menu.



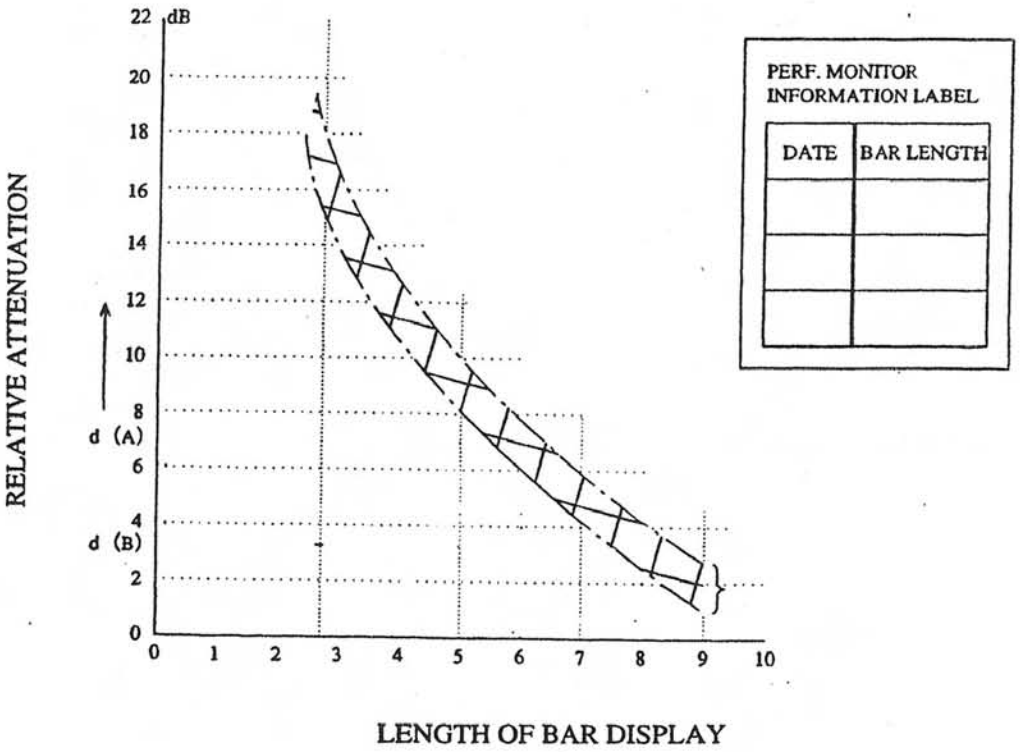
2 Transmission power check

The "P.MON" bar indicator at the left bottom of the display indicates the current transmission power level. If the bar indication is much shorter than its initially checked length, the transmitter circuits require close checking by a service engineer.

Checking procedure

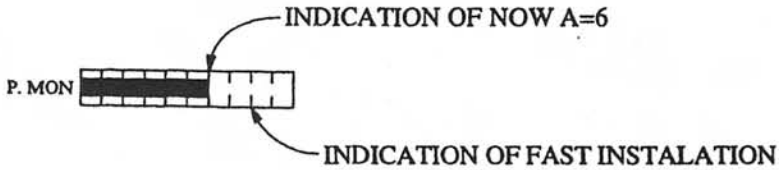
(1) Read current bar indication A.
(2) Use calibration curve I and calculate the amount of relative attenuation, d(B), that corresponds to initial bar indication length B recorded on the INFORMATION LABEL.
(3) Use calibration curve I and calculate the amount of relative attenuation, d(A), that corresponds to value A mentioned above. The difference between d(A) and d(B) denotes the current amount of attenuation in transmission power, compared with its initial level.
(4) If the difference between d(A) and d(B) is 10 decibels or more (this implies that the life of the magnetron has been reached), then the transmitter circuits require close checking by a service engineer.

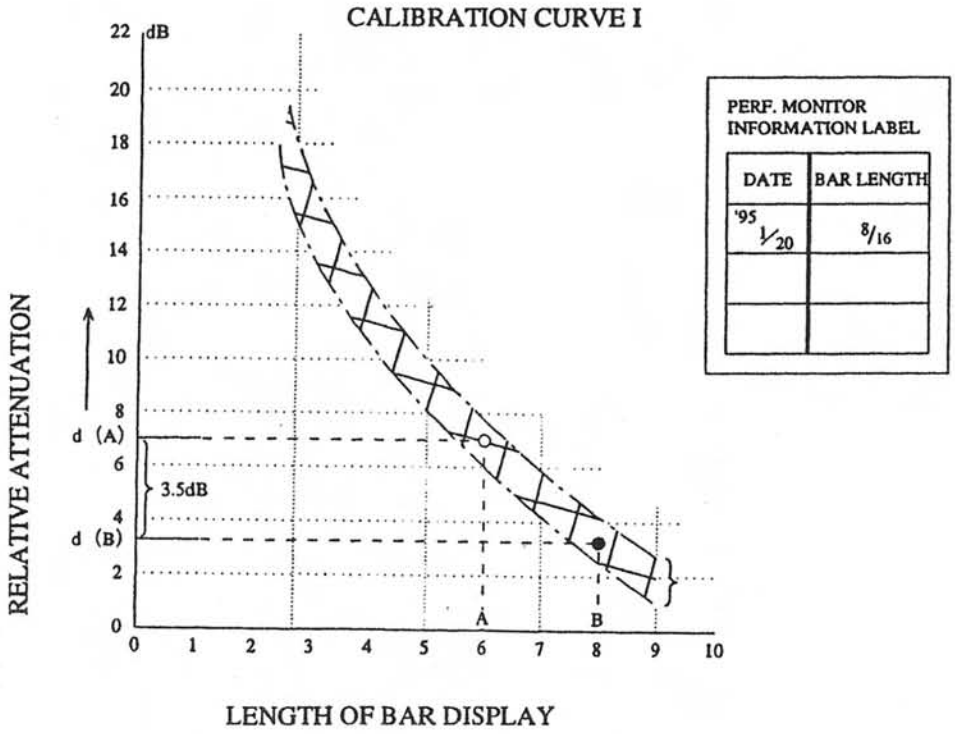
CALIBRATION CURVE I



Example)

Supposing that the current bar indication, A, is 6 and that the indication of first instalation, B, is 8, one can see from calibration curve I that d(A) is 3.5 decibels and that d(B) is 7 decibels. Then, (d(A)-d(B)) is 3.5 decibels, and it can be seen that the current transmission power has decreased by about 3.5 decibels.





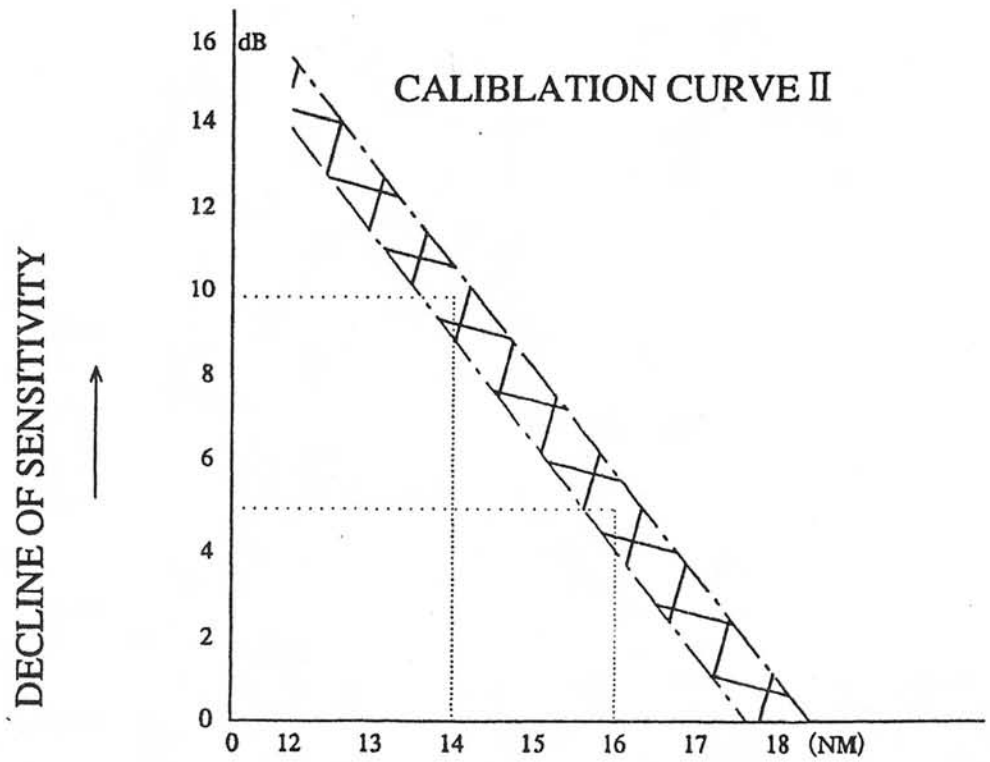
3 Receiving sensitivity check

The maximum range of the PM pattern on the display denotes decreases in the sensitivity of the receiving circuits.

Checking procedure

(1) Use a VRM and measure the maximum range, rmax, from the center of the PPI display area to the peak edge of the PM pattern on the display.

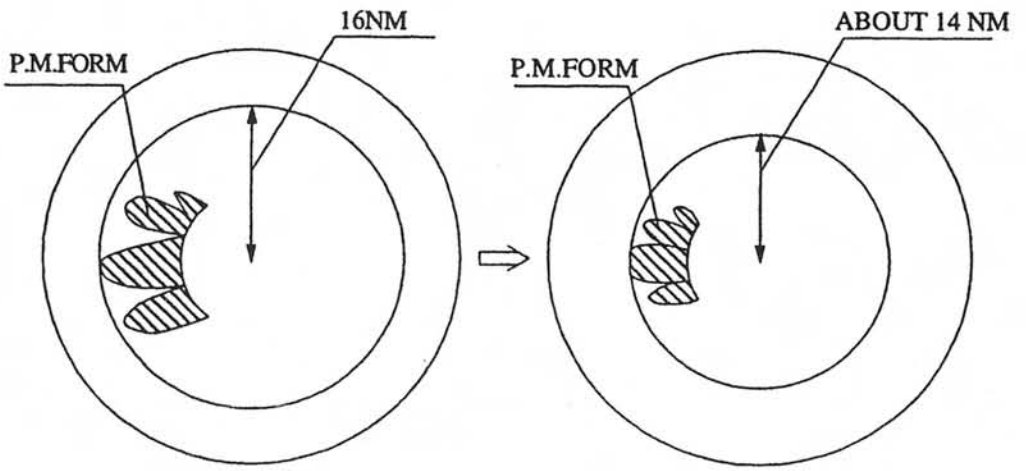
(2) Use calibration curve II and calculate the amount of sensitivity decrease, R (rmax), that corresponds to the maximum distance, rmax, mentioned above. The value of R (rmax) is the current amount of decrease in receiving sensitivity.

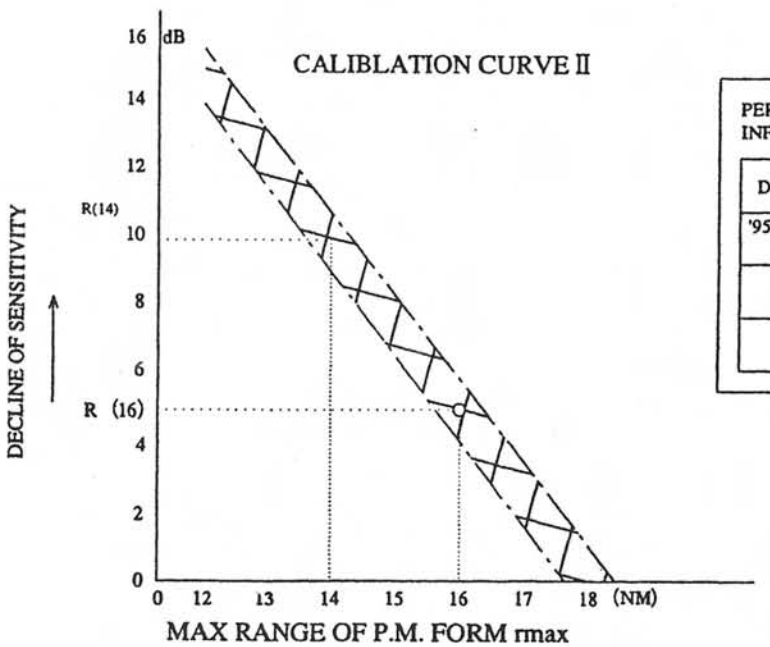


MAX RANGE OF P.M. FORM rmax

Example)
Supposing that the maximum range of the current PM pattern, rAmax, is 16 nm and that the maximum range, rBmax, of an initial PM pattern recorded on the INFORMATION LABEL is 18 nm, one can see from calibration curve II that the amount of sensitivity decrease, △R (rmax), is 5 decibels. Thus, it can be seen that receiving sensitivity has decreased by about 5 decibels.

Example of receiving sensitivity checks Navigation Line Presentation





PERF. MONITOR INFORMATION LABEL

DATE	BAR LENGTH
'95 1/20	8/16

Annex 3

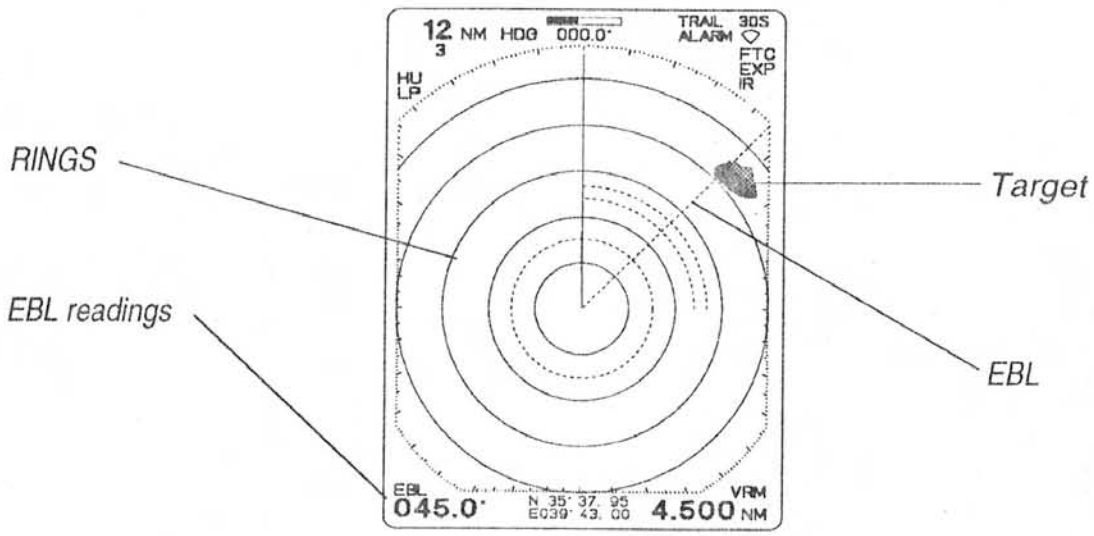
Extract from *Whispa*'s Radar Operations Manual
- Measuring Bearing of Target by Using EBL

Measuring Bearing of Target by Using EBL

The bearing of target referring to the boat's heading or true north can be measured with the electronic bearing line (**EBL**).

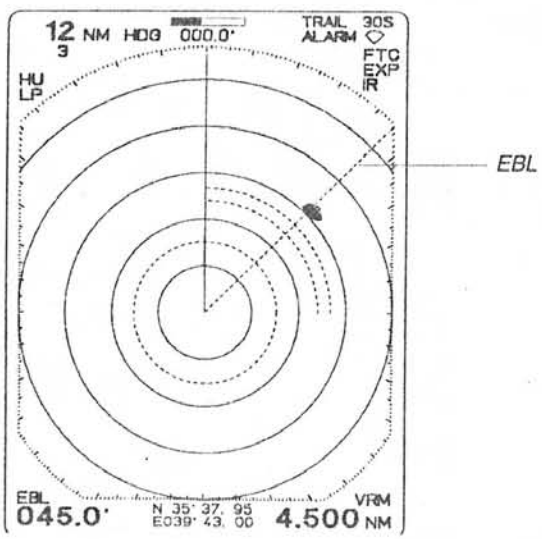
SET ——— Press **SET** key, and **EBL** will appear on the screen.

EBL ——— Rotate **EBL** to align with the target. The bearing readings are shown on lower-left corner of the screen.



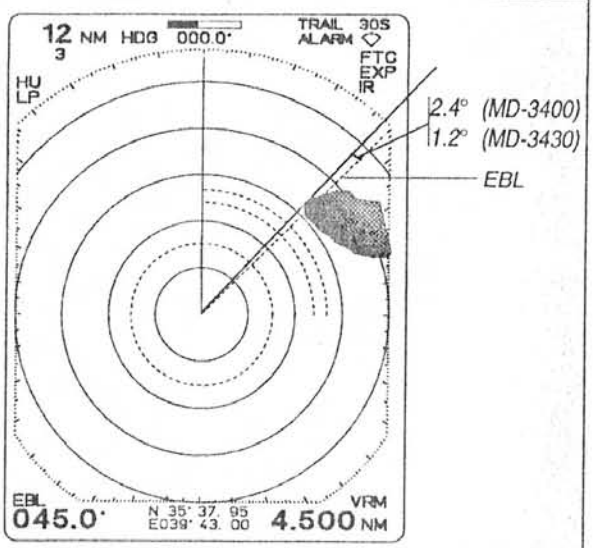
SET ——— Press **SET** key again, and **EBL** will turn off.

Small target



Align the EBL with the center of target.

Point of Island or land mass

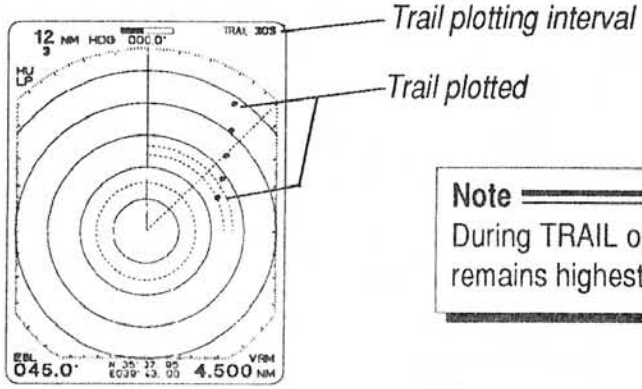


Set the EBL:
2.4° inward the land from the measuring point for MD-3400
1.2° inward the land from the measuring point for MD-3430

Displaying Other Boat's Trail

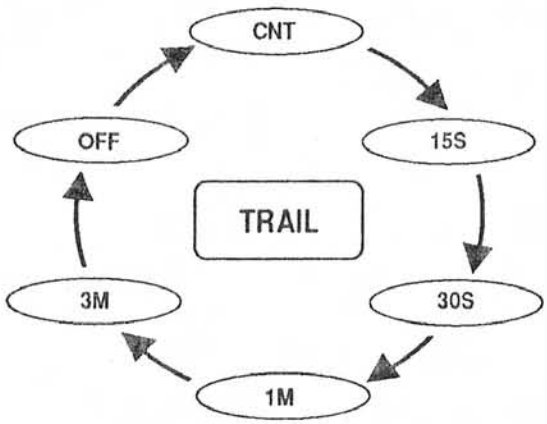
The movements of other boats can be displayed as plotted trails on the screen. The plotting interval is selectable as shown below.

TRAIL ——— Press **TRAIL** key until **TRAIL** mark and trail plotting interval readings are displayed in the upper right-hand corner of the screen. The trail is displayed in the lowest brightness level on the screen.



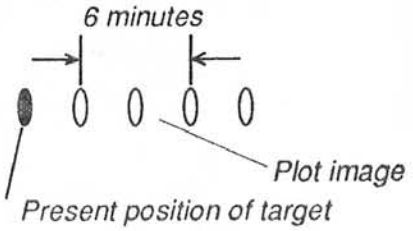
Note
During TRAIL operation, the image brightness remains highest (level 1).

Every press of **TRAIL** key rotates the trail plotting interval in the direction of the arrow as shown below. **CNT**: Continuous plotting



Measuring relative speed of other ship

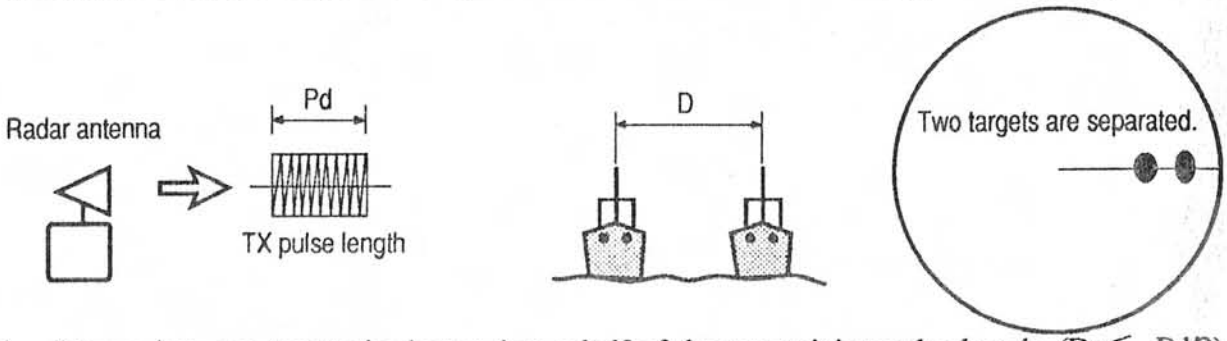
(1) Turn on the plotting function in 3-minute intervals.
(2) Measure the distance between two points in 6-minute intervals.
(3) Multiply the measured distance by ten which gives the relative speed of the target to own ship.



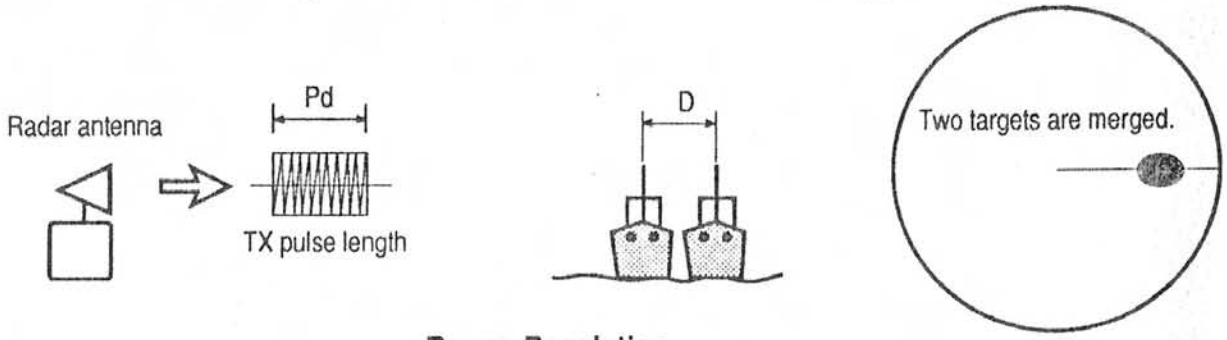
Range resolution

The range resolution is defined as the minimum distance between two targets in the same bearing which are discriminated as two images on the CRT screen.

a. When the distance between targets is longer than a half of the transmitting pulse length; (D > Pd/2)



b. When the distance between targets is shorter than a half of the transmitting pulse length; (D ≦ Pd/2)

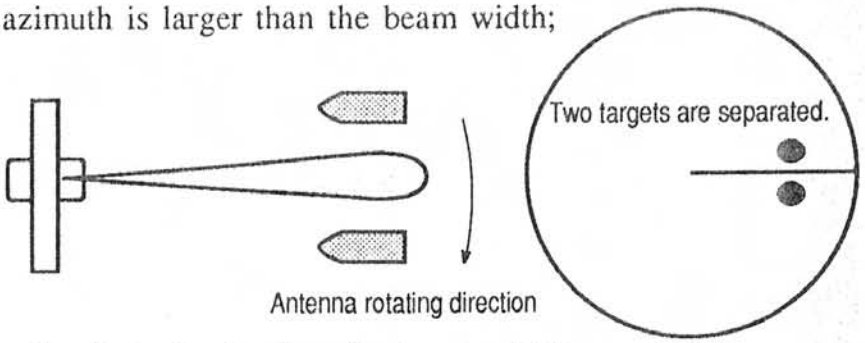


Range Resolution

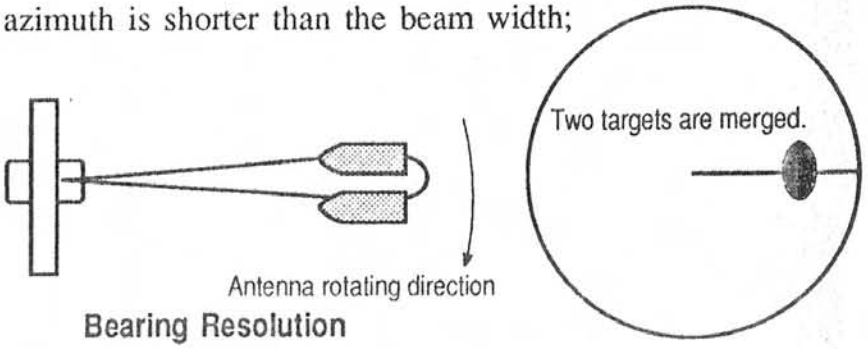
Bearing resolution

The bearing resolution is defined as the minimum bearing where the two targets of the same distance are displayed separately as two independent images on the screen, and it is determined by the antenna horizontal beam width.

a. When the targets distance in azimuth is larger than the beam width;



b. When the targets distance in azimuth is shorter than the beam width;



Bearing Resolution

Annex 4

Extract from the International Regulations for Prevention of Collisions at Sea 1972, as amended. (COLREGS)

Extract from the International Regulations for Prevention of Collisions) at Sea 1972, as amended. (COLREGs)

Rule 2

Responsibility

(a) Nothing in these rules shall exonerate any vessel, or the owner, master or crew thereof, from the consequences of any neglect to comply with these Rules or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

(b) In construing and complying with these Rules due regard shall be had to all dangers of navigation and collision and to any special circumstances, included the limitations of the vessels involved, which may make a departure from these Rules necessary to avoid immediate danger.

Rule 5

Look-out

Every vessel shall at all times maintain a proper lookout by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

Rule 6

Safe speed

Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

In determining a safe speed the following factors shall be among those taken into account:

(a) By all vessels:

(i) the state of the visibility;

(ii) the traffic density;

(iii) the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions;

(iv) at night the presence of background light such as from shore lights or from back scatter of her own lights;

(v) the state of the wind, sea and current, and the proximity of navigational hazards;

(vi) the draught in relation to the depth of water.

(b) Additionally, by vessels with operational radar:

(i) the characteristics, efficiency and limitations of the radar equipment;

(ii) any constraints imposed by the radar range scale in use;

(iii) the effect on radar detection of the sea state, weather and other sources of interference;

(iv) the possibility that small vessels, ice and other floating objects may not be detected by radar at a adequate range;

(v) the number, location and movement of vessels detected by radar;

(vi) the more exact assessment of the visibility that may be possible when radar aids used to determine the range of vessels or other objects in the vicinity.

Rule 7

Risk of collision

(a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.

(b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.

(c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.

(d) In determining if risk of collision exists the following considerations shall be among those taken into account:

(i) such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change;

(ii) such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

Rule 8

Action to avoid collision

(a) Any action taken to avoid collision shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.

(b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.

(c) If there is sufficient sea room, an alteration of course alone may be the most effective action to avoid a close quarters situation provided that it is made in good time, is substantial and does not result in another close quarters situation.

(d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.

Rule 19

Conduct of vessels in restricted visibility

(a) This Rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.

(b) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate manoeuvre.

(c) Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules of section 1 of this part.

(d) A vessel which detects by radar alone the presence of another vessel shall determine if a close-quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration of course, so far as possible the following shall be avoided:

(i) an alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken;

(ii) an alteration of course towards a vessel abeam or abaft the beam.

(e) Except where it has been determined that a risk of collision does not exist, every vessel which hears apparently forward of her beam the fog signal of another vessel, or which cannot avoid a close-quarters situation with another vessel forward of her beam, shall reduce her speed to the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over.

Rule 35

Sound signals in restricted visibility

In or near an area of restricted visibility, whether by day or night, the signals prescribed in this Rule shall be used as follows:

(a) A power-driven vessel making way through the water shall sound at intervals of not more than 2 minutes one prolonged blast.

(b) A power-driven vessel underway but stopped and making no way through the water shall sound at intervals of not more than 2 minutes two prolonged blasts in succession with an interval of about 2 seconds between them.

(c) A vessel not under command, a vessel restricted in her ability to manoeuvre, a vessel constrained by her draught, a sailing vessel, a vessel engaged in fishing and a vessel engaged in towing or pushing another vessel shall, instead of the signals prescribed in paragraphs (a) or (b) of this Rule, sound at intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts.

(d) A vessel engaged in fishing, when at anchor, and a vessel restricted in her ability to manoeuvre when carrying out her work at anchor, shall instead of the signals prescribed in paragraph (g) of this Rule sound the signal prescribed in paragraph (c) of this Rule.

(e) A vessel towed or if more than one vessel is towed the last vessel of the tow, if manned, shall at intervals of not more than 2 minutes sound four blasts in succession, namely one prolonged followed by three short blasts. When practicable, this signal shall be made immediately after the signal made by the towing vessel.

(f) When a pushing vessel and a vessel being pushed ahead are rigidly connected in a composite unit they shall be regarded as a power-driven vessel and shall give the signals prescribed in paragraphs (a) or (b) of this Rule.

(g) A vessel at anchor shall at intervals of not more than one minute ring the bell rapidly for about 5 seconds. In a vessel of 100 metres or more in length the bell shall be sounded in the forepart of the vessel and immediately after the ringing of the bell the gong shall be sounded rapidly for about 5 seconds in the after part of the vessel. A vessel at anchor may in addition sound three blasts in succession, namely one short, one prolonged and one short blast, to give warning of her position and of the possibility of collision to an approaching vessel.

(h) A vessel aground shall give the bell signal and if required the gong signal prescribed in paragraph (g) of this Rule and shall, in addition, give three separate and distinct strokes on the bell immediately before and after the rapid ringing of the bell. A vessel aground may in addition sound an appropriate whistle signal.

(i) A vessel of 12 metres or more but less than 20 metres in length shall not be obliged to give the bell signals prescribed in paragraphs (g) and (h) of this Rule. However, if she does not, she shall make some other efficient sound signal at intervals of not more than 2 minutes.

(j) A vessel of less than 12 metres in length shall not be obliged to give the above-mentioned signals but, if she does not, shall make some other efficient sound signal at intervals of not more than 2 minutes.

(k) A pilot vessel when engaged on pilotage duty may in addition to the signals prescribed in paragraphs (a),(b) or (g) of this Rule sound an identity signal consisting of four short blasts.

Annex 5

Marine Guidance Note MGN 63 (M+F)
Use of Electronic Aids to Navigation
February 1998

MARINE SAFETY AGENCY

MARINE GUIDANCE NOTE

MGN 63 (M+F)

Use of Electronic Aids to Navigation

Notice to Owners, Masters, Skippers, Officers and Crews of Merchant Ships and Fishing Vessels

This Guidance Note supersedes Merchant Shipping Notice No. 1158

Summary

This note emphasises the need for correct use of navigational equipment by watchkeepers.

Key Points:-

- Be aware that each item of equipment is an aid to navigation
- Be aware of the dangers of over-reliance on the output from and accuracy of a single navigational aid
- Recognise the importance of the correct use of navigational aids and knowledge of their limitations
- Appreciate the need to cross check position fixing information using other methods
- Be aware of the factors which affect the accuracy of position fixing systems

1. NAVIGATIONAL EQUIPMENT

Provision of Navigational Equipment on Ships

1.1 The Merchant Shipping (Navigational Equipment) Regulations 1993 (SI 1993 No 69) require certain ships to be provided with a magnetic compass installation and other specified ships to be fitted additionally with a direction finder, an echo sounder, a gyro compass, radar and ARPA installations, a speed and distance measuring installation and a rate of turn indicator.

1.2 Provision is also made in the Regulations in respect of siting and serviceability of the installations and, in the case of radar and ARPA installations, the qualifications of the radar observers.

1.3 A number of recent accidents have been caused by over-reliance on a single electronic navigational aid. Watchkeepers must always ensure that positional information is regularly cross-checked using other equipment, as well as visual aids to navigation.

1.4 Some radars are equipped with Auto-Tracking Aids (ATA) which enable targets to be acquired manually and automatically plotted. Such systems do not provide all the functions of ARPA. Radars for smaller vessels may be provided with Electronic Plotting Aids (EPA) which require the operator to plot each target manually. EPA provides the target calculations for each manual plot. Operators should be aware of the functional limitations of ATA and EPA.

2. THE USE OF RADAR AND PLOTTING AIDS

General

2.1 Collisions have been caused far too frequently by failure to make proper use of radar and ARPA in both restricted visibility and in clear weather. A common error has been altering course on insufficient information and by maintaining too high a speed, particularly when a close quarters situation is developing or is likely to develop. Information provided by radar and ARPA/ATA in clear weather conditions can assist the watchkeeper in maintaining a proper lookout in areas of high traffic density. It cannot be emphasised too strongly that navigation in restricted visibility is difficult and great care is needed even with all the information available from the radar and ARPA/ATA. Where continuous radar watchkeeping and plotting cannot be maintained even greater caution must be exercised. A "safe speed" should at all times reflect the prevailing circumstances.

Interpretation

2.2 It is essential for the observer to be aware of the current quality of performance of the radar (which can most easily be ascertained by the Performance Monitor) and to take account of the possibility that small vessels, small icebergs and other floating objects such as containers may not be detected. When video processing techniques are employed, caution should be exercised.

2.3 Echoes may be obscured by sea or rain clutter. Correct setting of clutter controls will help but will not completely remove this possibility. When plotting larger targets on a medium range scale, the display should be periodically switched to a shorter range, and the clutter controls adjusted, to check for less distinct targets.

2.4 The observer must be aware of the arcs of blind and shadow sectors on the display caused by masts and other on-board obstructions. They must be plotted on a diagram placed near the radar display which must be updated following any changes which affect the sectors.

Plotting

2.5 To estimate the degree of risk of collision with another vessel it is necessary to forecast the closest point of approach. Choice of appropriate avoiding action is facilitated by the knowledge of the other vessel's track. This can be obtained by manual plotting methods or using EPA, or automatically, using ATA or ARPA. The accuracy of the plot, however obtained, depends upon accurate measurement of own ship's track during the plotting interval. Observers should be aware that an inaccurate compass heading or speed input will greatly reduce the accuracy of true vectors when using ARPA or ATA, and should therefore treat the apparent precision of the digital display with caution. This is particularly important with targets on near-opposite courses where a slight error of own-ship's data can make the difference between a target apparently crossing ahead or passing clear.

Choice of range scale

2.6 Although the choice of range scales for observation and plotting is dependent upon several factors such as traffic density, speed of own ship and the frequency of observation, it is not generally advisable to commence plotting on a short range scale. Advance warning of the approach of other vessels, changes in traffic density, or proximity of the coastline, should be obtained by occasional use of longer range scales. This applies particularly when approaching areas of expected high traffic density when information obtained from the use of longer range scales may be an important factor in determining a safe speed.

Appreciation

2.7 A single observation of the range and bearing of an echo will give no indication of track of a vessel in relation to own ship. To estimate this, a succession of observations must be made over a known time interval. The longer the period of observation, the more accurate the result. This also applies to ARPA/ATA which requires adequate time to produce accurate information suitable for assessing collision risk and determining appropriate manoeuvres.

2.8 Estimation of the target's true track is only valid up to the time of the last observation and the situation must be kept constantly under review. The other vessel, which may not be keeping a radar watch or plotting, may alter its course and/or speed. This will take time to become apparent to the observer on own ship. Neither ARPA nor ATA will detect any alteration immediately and therefore should also be monitored constantly.

2.9 It should not be assumed that because the relative bearing of a target is changing, there is no risk of collision. Alteration of course and/or speed by own ship may alter the relative bearing. A changing compass bearing is more reliable. However, account should be taken of the target's range because, at close quarters, risk of collision can exist even with a changing compass bearing.

2.10 Radar should be used to complement visual observations in clear weather to assist assessment of whether risk of collision exists or is likely to develop. It also provides accurate determination of range to enable appropriate action to be taken in sufficient time to avoid collision, taking into account the manoeuvring capabilities of own ship.

Clear weather practice

2.11 It is important that all using radar and ARPA/ATA should obtain and maintain experience in its operation by practice at sea in clear weather. This allows radar observations and ARPA/ATA vectors to be checked visually. Thus misinterpretation of the radar display or false appreciation of the situation, which in restricted visibility could be potentially dangerous, is highlighted. By keeping themselves familiar with the process of systematic radar observation, and the relationship between radar and electronically plotted information and the actual situation, watchkeepers will be able to deal rapidly and competently with the problems which will confront them in restricted visibility.

Operation

2.12 The radar display should be kept on at all times when weather conditions indicate that visibility may deteriorate, and at night wherever fog banks, small craft or unlit obstructions such as icebergs are likely to be encountered. This is particularly important when there is a likelihood of occasional fog banks so that vessels can be detected before entering the fog. The life of components, and hence the reliability of the radar, will be far less affected by continuous running, than by frequent switching on and off.

Radar watchkeeping

2.13 In restricted visibility the radar display should be permanently on and observed. The frequency of observation will depend on the prevailing circumstances, such as own ship's speed and the type of craft or other floating objects likely to be encountered.

Parallel index techniques

2.14 Investigation of casualties where radar was being used as an aid to navigation prior to the vessel grounding have indicated that inadequate monitoring of the ship's position contributed to many of the accidents. Parallel index techniques provide valuable assistance to position monitoring in relation to a pre-determined passage plan, and would have helped to avoid these groundings. Parallel indexing should be practised in clear weather during straightforward passages, so that watchkeepers become thoroughly familiar with the technique before attempting it in confined difficult passages, or at night, or in restricted visibility.

2.15 The principles of parallel index plotting can be applied, using electronic index lines, to both relative and true motion displays. These index lines can be stored and called up when required on all modes of display. Electronic index lines also enable the operator to switch ranges. With such a facility, care must be taken during passage planning to ensure that the correct parallel index lines for the intended voyage are available for retrieval.

2.16 On a relative motion display, the echo of a fixed object will move across the display in a direction and at a speed which is the exact reciprocal of own ship's ground track. Parallel indexing uses this principle of relative motion, and reference is first made to the chart and the planned ground track. The index line is drawn parallel to the planned ground track with a perpendicular distance (cross index range or offset) equal to the planned passing distance off the object. Observation of the fixed object's echo moving along the index line will provide a continuous indication of whether the ship is maintaining the planned track. Any displacement of the echo from the index line will immediately indicate that own ship is not maintaining the desired ground track, enabling corrective action to be taken.

2.17 Electronic parallel index lines are drawn and used in the same way on true motion displays in both sea-stabilised and ground-stabilised mode. Parallel index lines are fixed relative to the trace origin (ie to own ship), and will consequently move across the display at the same rate and in the same direction as own ship. Being drawn parallel to the planned charted track, and offset at the required passing distance off the selected fixed mark, the echo of the mark will move along the index line as long as the ship remains on track. Any displacement of the fixed mark's echo from the index line will indicate that the ship is off track enabling corrective action to be taken.

2.18 Parallel indexing is an aid to safe navigation and does not replace the requirement for position fixing at regular intervals using all appropriate methods available including visual checks.

2.19 When using radar for position fixing and monitoring, check:

(a) the radar's overall performance,

(b) the identity of fixed objects,

(c) the gyro error and accuracy of the heading marker alignment,

(d) the accuracy of the variable range marker, bearing cursor and fixed range rings,

(e) that parallel index lines are correctly positioned on a suitable display.

2.20 Some older radars may still have reflection plotters. It is important to remember that parallel index lines drawn on reflection plotters apply to only one range scale. In addition to all other precautions necessary for the safe use of radar information, particular care must therefore be taken when changing range scales.

Regular operational checks

2.21 Frequent checks of the radar performance must be made to ensure that the quality of the display has not deteriorated.

2.22 The performance of the radar should be checked before sailing and at least every four hours whilst a radar watch is being maintained. This should be done using the performance monitor.

2.23 Mis-alignment of the heading marker, even if only slight, can lead to dangerously misleading interpretation of potential collision situations, particularly in restricted visibility when targets are approaching from ahead or fine on own ship's bow. It is therefore important that checks of the heading marker should be made periodically to ensure that correct alignment is maintained. If misalignment exists it should be corrected at the earliest opportunity. The following procedures are recommended:

(a) Check that the heading marker is aligned with the compass heading of the ship.

(b) Ensure that the heading marker line on the display is aligned with the fore-and-aft line of the ship. This is done by selecting a conspicuous but small object with a small and distinct echo which is clearly identifiable and lies as near as possible at the edge of the range scale in use. Measure simultaneously the relative visual bearing of this object and the relative bearing on the display. Any misalignment must be removed in accordance with the instructions in the equipment manual.

2.24 To avoid introducing serious bearing errors, adjustment of the heading marker should not be carried out by using the alignment of the berth on a ship which is alongside in harbour; nor should it be carried out using bearings of targets which are not distinct, close to the vessel or have not been identified with certainty both by radar and visually.

Electronic radar plotting aids (ARPA and ATA)

2.25 In addition to the advice given above and the instructions contained in the Operating Manual, users of ARPA /ATA should ensure that:

(a) the test programmes are used to check the validity of the ARPA/ATA data,

(b) the performance of the radar is at its optimum,

(c) the heading and speed inputs to the ARPA/ATA are satisfactory. Correct speed input, where provided by manual setting of the appropriate ARPA/ATA controls or by an external input, is vital for correct processing of ARPA/ATA data. Serious errors of output data can arise if heading and speed inputs to the ARPA/ATA are incorrect. Users should be aware of possible hazards of using ground stabilised mode with ARPA/ATA when assessing risk of collision with approaching vessels, particularly in areas where significant tidal streams and/or currents exist. When course and speed inputs are derived from electronic position fixing systems (eg LORAN, GPS and DGPS) the display is ground-stabilised. The output data of tracked targets will relate to their ground track and, although accurate, may be highly misleading when assessing target aspect and determining collision-avoidance manoeuvres. In cases of gyro failure when heading data is provided from a transmitting magnetic compass, watchkeepers should remember to determine and apply the errors of the magnetic compass.

2.26 The use of audible operational warnings and alarms to denote that a target has closed on a range, transits a user-selected zone or breaks a pre-set CPA or TCPA limit does not relieve the user from the duty to maintain a proper lookout by all available means. Such warnings and alarms, when the ARPA is in automatic acquisition mode, should be used with caution especially in the vicinity of small radar-inconspicuous targets. Users should familiarise themselves with the effects of error sources on the automatic tracking of targets by reference to the ARPA Operating Manual.

2.27 Information on detection and use of Search and Rescue Transponders (SARTs) is provided in Chapter 4 of Volume 5 of the Admiralty List of Radio Signals.

3. TERRESTRIAL HYPERBOLIC POSITIONING SYSTEMS

General

3.1 With world-wide coverage by satellite navigation systems, the use of hyperbolic positioning systems at sea is declining. The Omega system has ceased operation, and under present plans the Decca Navigator System will cease to operate in Europe around the year 2000. LORAN C, however, is to be retained for the time being in certain areas. It will be available to maritime users as the terrestrial electronic position fixing service to back-up global satellite systems.

3.2 The use of lattice charts with hyperbolic positioning systems has declined, because most receivers convert the readings to latitude and longitude. These receivers display positions referred to a particular horizontal datum (eg WGS 84). This may not be the datum of the chart in use. The user must still remember that hyperbolic systems have inherent errors, and that the apparent accuracy of the displayed positions should be treated with caution.

3.3 Some equipment processes data from several electronic positioning systems (eg Decca, LORAN and GPS) and computes the best possible position, so providing a valuable check of one system against another. The use of such equipment does not remove the responsibility of the navigator to check the position periodically using other means, including visual aids.

3.4 Users should be vigilant when receivers are capable of reverting to dead reckoning (DR) mode. Serious accidents have occurred when faults in sensors and antennae connections have caused the receiver to switch to DR mode undetected by the watchkeepers.

3.5 Some terrestrial hyperbolic navigation receivers give a numerical indication of positional accuracy in the form of values of Horizontal and Positional Dilution of Precision (HDOP and PDOP). Users should refer to the equipment manual, as the receiver will not necessarily allow for fixed or variable errors in the system.

3.6 Further information on hyperbolic position fixing systems as well as up to date details of their operational status and coverage can be found in the *Admiralty List of Radio Signals, Volume 2.*

The Decca Navigator System

3.7 Decca Marine Data Sheets give the fixed errors for geographical areas where these are known. Where no errors are given, it should not be assumed that no error exists. In areas where no fixed errors are given, Decca positions should be treated with caution, especially when near the coast and in restricted waters. Receivers which convert positional data to latitude and longitude may not take fixed errors into account.

3.8 Decca is also subject to variable errors which depend on the time of day, season and distance from the transmitters. The error in a given location is not constant, and the Decca Marine Data Sheets give diagrams and tables which can be used to predict an approximate error based on a 68% probability level, (ie they are not likely to be exceeded on more than one in three occasions).

Lane Slip

3.9 Particularly at night, there is a possibility of slipping lanes due to interference such as excessive Decca skywave signals, external radio interference and electric storms. The possibility of this happening is small at short range, but increases towards the edge of Decca coverage. Fouling of the Decca antenna and disruptions to the power supply can also cause lane slip. It can best be detected by plotting the ship's position at regular intervals and comparing with fixes obtained by other means.

The LORAN C system

3.10 LORAN C has a greater range than Decca and is based on the measurement of time difference between the reception of transmitted pulses. The ground-wave coverage is typically between 800 and 1200 miles, although the accuracy of positional information will depend upon the relative position of the transmitters.

3.11 When entering the coverage, or when passing close to transmitters on the coast, the receiver may have difficulty in identifying the correct ground-wave cycle to track. Care should be taken to ensure that it is tracking on the correct cycle.

3.12 The fixed errors of the LORAN C system are caused by variations in the velocity at which the pulses travel. Additional Secondary Factor (ASF) corrections are provided to allow for these errors. Account should be taken of ASF corrections which may be very significant in some areas. Some receivers automatically allow for calculated ASF values and display a corrected position.

4. GLOBAL POSITIONING SYSTEM (GPS)

4.1 The NAVSTAR GPS Standard Positioning Service (SPS) now provides a global positioning capability giving a 95% accuracy in the order of 100 metres. The system is capable of much greater accuracy, but the commercial service is deliberately degraded by Selective Availability (SA). Differential GPS (DGPS) is also becoming more widely available. DGPS receivers apply instantaneous corrections to raw GPS signals determined and transmitted by terrestrial monitoring stations. Positional accuracy of better than 5 metres may be possible.

4.2 The GLONASS system is fully operational and available to commercial users. The system is similar to GPS and also provides global positioning for 24 hours a day. Some receivers use both GPS and GLONASS signals to compute a more precise position. The repeatable accuracy of GLONASS is higher than GPS as there is no degrading of signals by SA. When navigating in confined waters, navigators must bear in mind that the displayed position from any satellite positioning system is that of the antenna.

4.3 Serious accidents have occurred because of over-reliance upon global satellite positioning equipment. In one case a passenger vessel grounded in clear weather because the watchkeepers had relied totally upon the GPS output which had switched to DR mode because of a detached antenna. The switch to DR mode was not detected by the watchkeepers. Checking the position using other means, including visual observations, would have prevented the accident.

Datums and Chart Accuracy

4.4 GPS positions are referenced to the global datum WGS 84. This may not be the same as the horizontal datum of the chart in use, meaning that the position when plotted may be in error. The receiver may convert the position to other datums. In this case the observers must ensure that they are aware of the datum of the displayed position. Where the difference in datums is known, a note on the chart provides the offset to apply to positions referenced to WGS 84, but where this is not given the accuracy of the displayed position should be treated with caution. DGPS positions are normally referenced to WGS 84 though local datums may be used (eg NAD 83 in the USA). Also, when using DGPS, it is possible that the positioning of charted data may not be as accurate as the DGPS position. Mariners should therefore always allow a sensible safety margin to account for any such discrepancies.

4.5 From April 1998, a new Volume 8 of *The Admiralty List of Radio Signals*, entitled *Satellite Navigation Systems* will contain full descriptions of all satellite systems, including GPS and DGPS, as well as notes on their correct use and limitations. Also included will be descriptions and examples of over-reliance on GPS, together with the advantages and disadvantages of using DGPS, and a full account of the problems caused by differing horizontal datums. Mariners using satellite navigation systems are strongly advised to study the information and follow the advice contained in this publication.

5. ELECTRONIC CHARTS

5.1 A number of vessels now use electronic charts. Mariners should be aware that the only type of electronic chart system with performance standards adopted by IMO is the Electronic Chart Display and Information System (ECDIS). One requirement of an ECDIS is that it must only use official vector data produced by a national hydrographic office. At present, this Electronic Navigational Chart (ENC) data is not widely available and the use of ECDIS is limited. An ECDIS using official ENC data satisfies the SOLAS Chapter V requirement for vessels to carry up to date charts.

Vector charts

5.2 The ENC is a database of individual items of digitised chart data which can be displayed as a seamless chart. ENCs of appropriate detail are provided for different navigational purposes such as coastal navigation, harbour approach and berthing. The amount of detail displayed is automatically reduced when the scale of a particular ENC is reduced, in order to lessen clutter. Individual items of data can be selected and all relevant information will be displayed (for instance, all the available information relevant to a light or navigation mark.) ECDIS is therefore very much more than an electronic version of the paper chart. With vector charts the data is "layered", enabling the user to de-select certain categories of data, such as a range of soundings, which are not required at the time. This facility, as well as reducing chart clutter, enables the user to select a depth contour so providing an electronic safety contour which may automatically warn the watchkeeper when approaching shallow water. Mariners should use the facility to de-select data with extreme caution as it is possible accidentally to remove data essential for the safe navigation of the vessel.

5.3 Unless using an ECDIS meeting the relevant international performance standards in an area where ENC data is available, navigation must be carried out on an up-to-date paper chart. A number of vector chart systems are available which use commercially produced data for which the manufacturers accept no liability. These systems vary in capability and are termed Electronic Chart Systems (ECS). Such systems have no IMO adopted standards. If an ECS is carried on board, the continuous use of paper charts is essential.

Raster charts

5.4 Another type of electronic chart system is the Raster Chart Display System (RCDS). This uses Raster Nautical Charts (RNCs), which are exact facsimiles of hydrographic office paper charts, for which hydrographic offices take the same liability as for their paper products. There are at present no IMO performance standards for RCDS and they too must only be used in conjunction with paper charts.

General

5.5 Electronic chart systems are integrated with an electronic position-fixing system (LORAN, GPS or DGPS) enabling the vessel's position to be continuously displayed. Problems may arise caused by the possible differences in horizontal datums referred to above. Electronic charts may also be integrated with the radar and electronically plotted data from ARPA, ATA or EPA, with part or all of the radar display overlaid or under-laid on the chart display. There is a danger that the combined display may become over-cluttered with data. The combining of target data on an electronic chart does not reduce the need for the targets to be observed on the radar display. Mariners should also exercise caution where target vectors based on the vessel's water-track are overlaid on an electronic chart which displays the vessel's ground track.

5.6 Electronic charts will become an essential part of the navigation system of the modern bridge and contribute greatly to navigational safety. However such systems must be used prudently bearing in mind the proliferation of approved and unapproved equipment and the current scarcity of official vector data.

MSAS(A) Navigation & Communications
Marine Safety Agency
Spring Place
105 Commercial Road
SOUTHAMPTON
SO15 1EG

Tel 01703 329138
Fax 01703 329204

February 1998

MNA 051/17/001

Safe Ships Clean Seas

An executive agency of
THE DEPARTMENT OF THE ENVIRONMENT, TRANSPORT AND THE REGIONS

Annex 6

Merchant Shipping Notice MSN 1808 (M)
The Merchant Shipping (Inland Waterways and Limited Coastal Operations)
(Boatmasters' Qualifications and Hours of Work) Regulations 2006
- Structure and Requirements and associated annexes
December 2006

Maritime and Coastguard Agency

MERCHANT SHIPPING NOTICE

MSN 1808 (M)

The Merchant Shipping (Inland Waterways and Limited Coastal Operations) (Boatmasters' Qualifications and Hours of Work) Regulations 2006 – Structure and Requirements

Notice to all operators and masters of passenger ships and non-passenger vessels on inland waterways and on limited coastal operations.

This notice should be read in conjunction with the regulations above and with MGN 334 on local information and local knowledge. Further information is available in MGN 333 on transitional arrangements for Existing Masters, and MGN 264 on medical requirements. It supersedes M1525.

PLEASE NOTE:-
Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel and you should consider seeking independent legal advice if you are unsure of your own legal position.

Summary

- The Merchant Shipping (Inland Waterway and Limited Coastal Operations) (Boatmasters' Qualifications and Hours of Work) Regulations come into force on 1 January 2007 and introduce new requirements for those operating commercial vessels on inland waterways and in limited coastal areas.
- The new licence supersedes the previous passenger boatmasters' licence that was introduced in 1993 as was described in Merchant Shipping Notice M1525.
- "Inland Waterways" means waters of Category A to D as defined and listed in Merchant Shipping Notice (MSN) 1776, and any non-categorised inland waters.
- "Limited coastal area" means no more than 3 miles from land and no more than 15 miles from point of departure.
- This MSN gives information about the structure and requirements of the new Boatmasters' Licence for all passenger ship and non-passenger vessel operators within the UK.
- The new Boatmasters' Licence regulations apply only to the master of the vessel, not to other crew members.
- The licence does not apply to pleasure vessels or leisure users of self-drive hire boats.
- Transitional arrangements for those already working as masters on 1 January 2007, and requiring a licence for the first time under these Regulations, are set out in MGN 333.
- Information about the Hours of Work Code for self-employed boatmasters, and other working time regulations is in MSN 1778(M).

1. Introduction/ Background

1.1 The Merchant Shipping (Inland Waterway and Limited Coastal Operations) (Boatmasters' Qualifications and Hours of Work) Regulations come into force on 1 January 2007 and introduce new requirements for those operating commercial vessels on inland waterways and in limited coastal areas. The new regulations introduce a new Boatmasters' Licence for all those commercially operating. It replaces the previous passenger boatmasters' licence that was introduced in 1993.

1.2 The aims of the new Boatmasters' Licence are to underpin safety standards whilst helping facilitate trade and movement of labour on the UK's inland waterways, and on those in other EC countries.

1.3 Boatmasters' Licence candidates who wish to be assessed for a licence after 1 January 2007 will need to fulfil the training requirements, and undergo a practical and oral assessment, as set out in this and related notices. Existing boatmasters or skippers (at 31 December 2006) can apply for a new licence on the strength of their existing licence or, if they do not currently hold a licence, on the basis of their skills and recent experience. Marine Guidance Note (MGN) 333 "New Boatmaster's Licence – Guidance on the Application Provisions for Existing Masters of Vessels" sets out the arrangements for this.

2. Definitions

2.1 For the purpose of this MSN, the following definitions apply:-

"boatmaster" means the person in command of an inland waterways vessel.

"inland waterways" means:-

- Categorised Waters A, B, C and D as defined and listed in Merchant Shipping Notice (MSN) 1776, as amended; and,
- Any non-categorised inland waters.

"limited coastal area" means an area of no more than 3 miles from land and no more than 15 miles from point of departure (excluding waters of category A, B, C or D).

"limited coastal operations" means voyages within a **limited coastal area**.

"small commercial vessel" means a vessel certificated to operate under MCA's Small Commercial Vessel and Pilot Boat (SCV) Code(s).

3. Application and scope of the new Licence

3.1 The new Boatmasters' Licence (BML) is required for the masters of:-

- passenger ships (carrying more than 12 passengers)
- non-passenger vessels of 24m and over, which includes:-
  - cargo vessels;
  - tankers;
  - tugs and pusher craft engaged in cargo operations;
  - workboats
  - dredgers

  when they are operating in inland waterways or in limited coastal areas.

3.2 The new BML is also suitable for vessels carrying no more than 12 passengers in inland waterways and other small commercial vessels (under 24m) in the same operating areas as above. With a "sea" endorsement the BML is valid for operations up to 60 miles from a safe haven on a small commercial vessel.

3.3 Where local authorities' byelaws or other local legislation require those operating in their waters to hold a local licence or other master's qualification, the holder of a relevant BML is not subject to those local requirements. [Pilotage requirements are not affected.]

3.4 The new BML is required only for the master of a vessel, not for other crew members.

3.5 The licence does not apply to those in charge of a pleasure vessel or hire boat being used as a pleasure vessel, or to fishing vessels.

4. Alternative qualifications for small vessels

4.1 The regulations allow alternative equivalent qualifications to be used on vessels under 24m load line length or which carry no more than 12 passengers. These are listed at Annex 1.

4.2 These Regulations will supersede the recommendations at section 26 of the MCA/Association of Inland Navigation Authorities' Inland Waters Small Passenger Boat Code[1], in respect of the qualification of the master of small passenger vessels (carrying no more than 12 passengers) which do not go to sea.

4.3 Small commercial vessels are not covered by the regulations, and may continue to operate in Category A to D waters and limited coastal areas with a skipper holding one of the qualifications stipulated under the Small Commercial Vessel and Pilot Boat (SCV) Code(s).

5. Other alternative qualifications

5.1 The regulations provide for equivalent or higher sea-going qualifications to be used on suitable vessels in inland waters. These are-

(a) STCW Inshore Tug Certificate of Competency (Master), for inshore tugs.[2]
(b) STCW (Category D waters) Certificate of Competency (Master II/3), for domestic vessels operating in Category C and D waters ie. which do not go to sea.
(c) Any STCW command qualification, for vessels under 24m load line length or carrying no more than 12 passengers.

5.2 Certain marine operations in harbour areas are subject to the Port Marine Safety Code, which specifies a suitable level of training for those working in such operations. For harbour towage (which is understood as "assistance to working self-propelled vessels while they are subject to the powers of/under the direction of the competent harbour authority"), the tug master is required to hold as a minimum the STCW Inshore Tug Certificate of Competency (see MGN 209(M)). [TGWU and BTA have agreed that this should apply to any vessel over 24m in length or with a bollard pull of more than 20 tonnes bollard pull].

5.3 Every other vessel must be in the command of the holder of a BML.

6 Two Tier System for the Boatmasters Licence (BML)

6.1 In order to reflect differing conditions and operations, a two-tier system has been developed for the new BML. Both Tier 1 and Tier 2 versions are based on the same overall competency standards, but the level of training and validation is higher for Tier 1.

6.2 The **Tier 1** BML is a national licence, which is transferable between different areas. Subject to any local knowledge requirements, Tier 1 is available for operating a vessel anywhere on the UK's inland waters (Categories A to D) and for limited coastal operations. Tier 1 can also be taken only for operation on non-tidal waters (Category A and B and non-linked Category C waters).

[1] Available on MCA website, under Guidance and Regulations/Inland Waterways.

[2] "Inshore" means tug operations up to 30 miles from a safe haven on the coast of the United Kingdom and Ireland.

6.3 The Tier 1 BML also provides the basis for the Boatmasters' Certificate (issued under EC Directive 96/50/EC), which will be valid for operations on inland waterways in other member states. It is hoped that it will also provide a stepping stone to the wider maritime qualification structure through the proposed Maritime Studies Qualification under development by the Merchant Navy Training Board.

6.4 The **Tier 2** BML is restricted to the waters and type of operation specified on the licence. This may include a restriction to a local area. If a Tier 2 BML holder subsequently wishes to change the area or type of operation specified on their licence, they will normally require an assessment and a new licence. For new entrants after 1 January 2007, Tier 2 is valid only for operating within Category A and Category B, and on non-linked Category C waters (eg. lakes).

Section A - The Tier 1 Boatmasters' Licence

7 Tier 1 Levels and Structure

7.1 There are two levels of the Tier 1, national BML: one valid for operations in Categories A to D and limited coastal areas (Level 2); and the other for Categories A and B and non-linked Category C waters only (Level 1). For both levels, the Tier 1 BML has a modular structure comprising the following elements:-

- a main **generic** section - for all candidates;
- ancillary **safety training** – for all candidates;
- one or more **specialist endorsements** for the type/s of vessel or operation on which the candidate will be working;
- a **local knowledge endorsement** – for operation in specified areas only.

7.2 The **generic** licence covers the "core" competencies and boatmanship skills needed for operating in the relevant water category/ies. These generic competencies are divided into the following sections for all candidates:- Bridge watchkeeping; Meteorology; Ship manoeuvring; Vessel handling in extreme weather; Mooring and unmooring a vessel; Ropework and access; Ship knowledge; Basic engineering and machinery; Health and safety; Emergency action; Pollution prevention and waste management. In addition, depending on the categories of waters to be covered, there are sections on Generic chartwork; Compass work; Tides and currents; Anchor work and Locks and bridges. The syllabus is available from MCA.

7.3 On its own, the generic licence is a suitable qualification for operators of workboats and vessels carrying up to 12 passengers.

7.4 Please note that, when being examined for their generic licence, candidates will be expected to demonstrate familiarity with local regulations, byelaws and other navigational requirements for their area of operation and immediately adjacent waterways, to show that they understand the existence and importance of local rules and publications. MGN 334 "New National Boatmasters' Licence - Local Information and Local Knowledge" lists port authorities, main regulations, byelaws etc. for their areas, together with details of where to obtain further information.

7.5 If/when a Tier 1 BML holder moves to a different area, it is their responsibility to contact the responsible port or navigation authority for the waters in question, and to find out about and ensure a similar familiarity with the local navigational requirements in the new area, as a matter of good practice and responsible seamanship.

8 Ancillary Safety Training

8.1 Ancillary safety training is an integral part of the competency requirements for the new Boatmasters' Licence, and must be undertaken by **all candidates**. There are three basic safety courses:

(1). Personal Survival;
(2). First Aid;
(3). Fire Safety.

8.2 Training to the appropriate standard in these topics may be covered by one-day courses for each of the three topics.

8.3 All ancillary training required for issue of an MCA Boatmaster's Licence must be completed at an MCA approved training centre or other organisation accredited by the MCA for delivery of the relevant course. Information will be placed on the MCA website.

9 Specialist Endorsements

9.1 In addition to the generic licence, a Tier 1 BML candidate may need to obtain one or more of the following endorsements listed below, according to his/her type/s of operation.

Name	Limitations (if any)
Cargo - General	Dry cargoes in bulk, packaged dangerous goods, ro-ro operations.
Oil Cargoes	Oil and chemical cargoes in bulk
Dredging	
Towing and Pushing	
Passenger operations - general	No more than 250 passengers
Large Passenger Vessel	More than 250 passengers
Fast craft	(for a specified type of vessel and route)
Radar	
Sea operations	"To Sea" means not more than 60 miles from a safe haven. This endorsement is valid only for small commercial vessels operating under the SCV Code, and is not valid outside the UK.

9.2 The practical competencies for each endorsement are listed in the Task Record Book, and the syllabus and any other qualifying criteria are published by MCA. Minimum ages and Qualifying Service Times for them are included in Annexes 2a and 3.

10 Local Knowledge Endorsement

10.1 In the context of the new Boatmasters' Licence, "Local Knowledge" means knowledge of the features and characteristics within an area that present a hazard to safe navigation, and how to deal with them, beyond what might be expected under the Boatmaster's generic skills. It may also include knowledge of local byelaws, regulations or other requirements which are dealt with separately in MGN 334 "New National Boatmasters' Licence - Local Information and Local Knowledge", under the section on Local Information.

10.2 Because of the comprehensive range of skills demanded by the Tier 1 generic licence, a local knowledge endorsement is not a general requirement. A Tier 1 BML holder would understand the need for knowledge of local rules, and would be able to interpret local charts etc. and will have the skills to allow for local tides, currents and other common navigational features. However, the MCA recognises that, for certain areas, local knowledge is essential for safe navigation. An endorsement is therefore required for operation in those areas where the relevant port or navigation authority has proposed local knowledge requirements to the MCA, and these have been agreed as reasonable and justified, in the interests of safe navigation.

10.3 MGN 334 explains the criteria for proposing local knowledge requirements, and gives the general syllabus for the local knowledge endorsement. That MGN also lists those areas for which local knowledge requirements have been agreed, and an endorsement is therefore required.

10.4 For these areas, an MCA (or MCA-approved) examiner will conduct a test on local knowledge, leading to a formal endorsement on top of the generic Tier 1 Boatmasters' Licence. The current areas for which a local knowledge endorsement is needed, and any additional qualifying requirements, are shown in Annexes 2 and 3 of MGN 334.

11 Qualifying Requirements

11.1 To obtain a Tier 1 BML, the candidate must also fulfil the following:-

- be of the correct **minimum age**;
- present their **Task Record Book (TRB)** completed for the relevant training tasks and other relevant requirements;
- have completed the appropriate **qualifying service time**;
- present evidence from an MCA approved examining body that they have the necessary theoretical and **underpinning knowledge**;
- present a valid **ML5 or ENG 1 medical certificate**[3]**;**
- payment of the **statutory fee**.

11.2 On fulfilling the above requirements, the candidate may apply to the MCA for a practical and oral **on-board assessment** by an MCA examiner.

12 Minimum Age Limits

12.1 The minimum age limit for the Tier 1 Boatmasters' Licence varies according to the category of water and the type of operation. Details are at Annex 2a of this notice, and can also be found in the Task Record Book.

13 Task Record Book

13.1 The Task Record Book (TRB) is an essential and integral part of a candidate's training and certification for the Tier 1 Boatmasters' Licence. It is designed to be kept by the candidate and is his/her personal record of skills mastered, and knowledge and experience gained. The TRB is also important in helping to ensure accountability and transparency in the training process.

[3] Under the Merchant Shipping (Medical Examination) Regulations 2002, a boatmaster in charge of a passenger vessel which proceeds to sea must hold a valid **ENG1** certificate;

13.2 The TRB must be completed in respect of the generic licence and any endorsements the candidate is to take. It lists a number of tasks that must be performed and mastered, and which, together with the relevant underpinning knowledge, will satisfy the competency requirements of the BML. When a task is satisfactorily performed, or an item of learning completed, it should be recorded in the TRB in the spaces provided.

13.3 The completed TRB must be submitted to the examiner for the candidate's on-board practical and oral assessment. The examiner will refer to the TRB in testing the candidate's skills and knowledge during the assessment.

13.4 The TRB is divided into the following main sections:-

- generic requirements for all water categories A, B, C and D;
- other generic requirements for categories A and B only;
- further generic requirements for categories C and D and limited coastal operations;
- specialist endorsement requirements.

13.5 Further details and guidance are given in the TRB itself, which can be viewed and downloaded from the MCA website (www.mcga.gov.uk) under Guidance and Regulations/Inland Waterways. If that is not possible, a copy is available on request; contact details are at the end of this notice.

14 Qualifying Service Time

14.1 Candidates for the Tier 1 BML will have to complete a minimum period of Qualifying Service Time (QST) to be eligible for their licence. Details of QST requirements are set out at Annex 3, and in the Task Record Book.

14.2 For operation in some areas where a local knowledge endorsement is needed, Tier 1 BML candidates may also have to fulfil an additional service requirement. In most cases, this may run concurrently with QST for the generic part of the licence, so will mainly affect those moving areas. However, for the Thames local knowledge endorsement, the additional QST must be served on top of that for the generic licence.

14.3 Qualifying service time must be recorded in a work record – see paragraph 27 below.

15 Underpinning Knowledge

15.1 Candidates for the Tier 1 BML will need to be examined in the theoretical and underpinning knowledge which supports their practical skills. Examination of that underpinning knowledge will be carried out by an MCA-approved examining body. This is to ensure that the Tier 1 BML:-

- is a robust, accountable and transparent qualification, with an examination that is auditable and capable of validation;
- is of an equivalent standard to that required in other EC countries.

15.2 The full syllabus for underpinning knowledge for the generic licence and specialist endorsements is available from the MCA. Details of approved training and examining bodies will also be available from the MCA.

16 **On-board Assessment**

16.1 Having met all of the above criteria, the candidate should apply to the appropriate MCA Marine Office (see paragraph 32 below) for an on-board practical and oral assessment by an MCA examiner. This assessment consists of a practical test of the candidate's seamanship and vessel handling competencies, under various circumstances, and an oral examination that will test the candidate's underpinning knowledge, as well as his/her awareness of local navigation rules (see paragraphs 7.4 and 10.2 above).

16.2 The examiner will normally refer to the candidate's Task Record Book and Work Record before and during the assessment, and may ask questions both relating to what has been entered in it, and to ensure that the candidate meets the competency requirements for any tasks that have not been completed.

17 Validity of the BML

17.1 The Tier 1 BML has a maximum validity of five years. It needs revalidation every five years up to age 65, and annually thereafter. To enable the boatmaster to continue operating, the licence must be revalidated before its expiry date.

17.2 In order to get their Tier 1 licence revalidated, the holder must provide evidence of at least 12 months/120 days operation in a suitable deck capacity in the last five years.

18 Validity on waterways of other Member States

18.1 In order to operate on the inland waterways of another Member State, a Tier 1 BML holder must apply for a Boatmaster's Certificate. There are two grades of Boatmaster's Certificate: Group A for all waterways except Rhine waterways (equivalent to the UK Tier 1 level Tier 2), and Group B for all waterways except "waterways of a maritime character" - tidal waters – (equivalent to the UK Tier 1 level 1) and the Rhine waterways[4].

18.2 The requirements for this are in Annex 4. Please note that a Boatmaster's certificate may NOT be accepted by other Member States for coastal operations.

18.3 A Boatmaster's Certificate (on its own) will not be valid for carrying dangerous goods in other EC countries. The holder will also need to be certificated under the European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN).

Section B - The Tier 2 Boatmasters' Licence

19 **Scope**

19.1 The Tier 2 BML is restricted to UK operations and to the area and type of operation specified on the licence. It is available only for Category A or B (and certain non-linked Category C) waters.

[4] For operation on the Rhine a Rhine Patente is required. The current EC Directive (96/50/EC) is due for review, and one of the objectives of that review will be to bring the Rhine into the scope of certificates issued under the Directive. In the meantime, the UK will submit for UK Tier 1 licence for recognition on the Rhine under separate arrangements.

20 Structure and Requirements

20.1 The Tier 2 BML is based on the same standards as Tier 1 but has no modular structure. Its requirements are as follows:-

- candidates must have reached the appropriate **minimum age**;
- completion of the **Task Record Book** as appropriate to the candidate's vessel and operation/s;
- completion of **sufficient service** (to the satisfaction of the examiner);
- completion of **ancillary safety training**;
- an **on-board** practical and oral **assessment**.

21 Minimum Ages

21.1 For the Tier 2 BML, there are separate minimum age requirements for passenger and non-passenger operators. The details are set out at Annex 2b of the Task Record Book.

22 Task Record Book

22.1 A Tier 2 BML candidate would not be expected to fulfil all of the Task Record Book (TRB) requirements as a Tier 1 candidate would. However, the TRB should be completed for Tier 2 candidates, as far as is appropriate for their area and type of operation and vessel, for the following reasons:-

- it is a valuable personal record of training done and skills mastered, which may also be useful if a new Tier 2 boatmaster changes vessels or employers;
- any training done and skills mastered which are recorded in the TRB can be used towards a Tier 1 licence if the holder wishes later to apply for a national licence;
- it will improve accountability and transparency with regard to the candidate's training; and,
- it will provide a useful quick reference for both the candidate and the examiner.

22.2 There are no endorsements for the Tier 2 BML because it is limited to particular areas and types of operation.

23 Sufficient Service

23.1 There are no set qualifying service periods for the Tier 2 BML. Instead, a candidate must demonstrate that he/she has sufficient experience to be proficient in handling the vessel, and has adequate knowledge of navigation matters, local rules and any necessary, related skills. Examples of these are: methods of controlling and directing passengers (for a passenger operator); or the loading of cargo with regard to stability (for a freight operator).

23.2 In practice, this means that an employed candidate will have to satisfy firstly his employer that he/she should enter for the Tier 2 BML, and then the MCA examiner that he/she has sufficient knowledge and practical skills to gain the licence for operating the vessel in the area for the type of operation concerned.

24 Safety Training Courses

24.1 All Tier 2 candidates will need to undergo training in Personal Survival, First Aid and Fire Safety. As for the Tier 1 BML, the necessary levels of training can be attained by attending one-day courses for each of the three topics. See Section 8 above.

25 On board practical and oral assessment

25.1 The Tier 2 examination is an on—board practical and oral assessment by an MCA examiner. This assessment consists of a practical test of the candidate's seamanship and vessel-handling competencies, and an oral examination that will test the candidate's experience, skills, underpinning knowledge, knowledge of the area in which they are working, navigation rules, emergency arrangements and knowledge of the vessel. The syllabus is available from MCA.

25.2 The examiner will normally refer to the candidate's Task Record Book before or/and during the assessment, and may ask questions relating to what has been entered in it.

26 Validity

26.1 The Tier 2 BML is valid for a maximum of five years up to age 65, and must then be revalidated annually. To enable the boatmaster to continue operating, it must be revalidated before the expiry date.

26.2 In order to get their licence revalidated, a holder must provide evidence of at least 50 days operation as a boatmaster in the last five years (10 days per year pro-rata for those over 65 years).

SECTION C – TIER 1 AND TIER 2 BOATMASTERS

27 Work Record

27.1 All boatmasters should complete a Work Record, to record their service and experience. This Work Record must be submitted to the MCA when candidates first apply for the BML, and when boatmasters who already hold one apply to revalidate it. The record will also be an important personal document if a boatmaster changes employer.

27.2 The Work Record (Form MSF 4366) is reproduced at Annex 5. This is the recommended format but others will be acceptable provided that they show all the details indicated.

27.3 When a candidate is applying for an EC Boatmasters' Certificate, for use on community waterways outside the UK, the MCA will need to validate and endorse the work record.

28 Medical Fitness

28.1 All Boatmasters' Licence candidates will need to show that their health is satisfactory, so as not to jeopardise their own and others' safety. A valid medical fitness certificate, as specified below, must be submitted when applying for a generic BML, for any endorsement and on applying for revalidation.

28.2 Any BML holder wishing to operate a passenger vessel which goes to sea must obtain an ENG1 seafarer medical certificate (or equivalent issued by a recognised country as specified in MSN 1798). These are issued following an examination by an MCA approved doctor (as listed in MSN 1797(M) or on the MCA's website at www.mcga.gov.uk under the Seafarer Information/Health and Safety section). An ENG1 certificate is valid for 2 years up to the age of 65 and then for 1 year.

28.3 For all other applicants an **ML5 Medical Certificate** is required, which should be completed by the candidate's general practitioner or other General Medical Council registered medical practitioner. An ML5 form and certificate (MSF 4112) is available on request from any MCA Marine Office, or may be downloaded from the MCA website – address above.

28.4 The ML5 Medical Certificate is valid for a maximum of 5 years. BML applicants operating on inland waterways need only obtain one when they first apply for a licence, until they reach age 45. From age 45 to 64 the ML5 must be renewed every five years, upon revalidation of the licence. From age 65 the ML5 must be renewed annually, upon revalidation of the licence.

28.5 For those operating at sea on non-passenger vessels the ML5 Medical Certificate needs to be renewed every five years, until the age of 65, and yearly thereafter.

28.6 The MCA may, at its discretion, call for a medical report at other times and has the power to suspend or revoke a licence on the grounds that, for health reasons, the holder is not fit enough to hold it.

28.7 MGN264 and the notes on the ML5 form explain the procedure for obtaining a medical certificate, and the referral procedure if a medical issue is identified.

28.8 All Boatmasters' Licence holders must notify the MCA issuing office about any changes or deterioration in health that might affect their medical fitness to operate a vessel.

29 Penalties

29.1 It is an offence to operate a vessel on inland waterways (or to sea) without a Boatmaster's Licence that is valid for both the area and type of operation. Details of offences and penalties are shown in the Merchant Shipping (Inland Waterways and Limited Sea Operations) (Boatmasters' Qualifications and Hours of Work) Regulations 2006.

30 Fees

30.1 The fees for the Boatmasters' Licence (Tier 1 and Tier 2) are detailed in the Merchant Shipping (Fees) Regulations 2006 (S.I. No. 2006/2055), as amended.

31 Exemptions

31.1 MCA has powers to issue an exemption from the Boatmasters' Regulations requirements for a specified vessel. These powers will only be exercised where there are strong grounds for why the requirements of the Regulations cannot be met in full, and safety is not jeopardised.

31.2 Exemptions will be time-limited, and conditional on the operator satisfying the MCA that the alternative arrangements proposed are equivalent, in terms of the safety of the crew and any passengers carried, to the vessel being manned in accordance with the regulations.

32 How to apply for a Boatmaster's Licence

32.1 **New** entrants must fulfil the requirements explained below, and complete **Application Form MSF 4364.** This will be available from the MCA's website (www.mcga.gov.uk) under Guidance and Regulations/Inland Waterways, or on request from MCA. Candidates will need to decide whether they wish to apply for a Tier 1 or Tier 2 licence (explained above), and complete the Application Form accordingly.

32.2 The form should be sent to the nearest MCA Marine Office together with –

- proof of identity (guidance is on the form)
- a completed Task Record Book (section 13 or 22)
- a completed Work Record (section 27)
- proof of medical fitness (section 28)
- any certificates required for safety training and (Tier 1 only) underpinning knowledge
- the required fee.

33 Further Information

33.1 Further information on the contents of this Notice can be obtained from the MCA at the address given overleaf.

More Information

Inland Waterways Safety Team
Shipping Safety Branch
Maritime and Coastguard Agency
Bay 2/16
Spring Place
105 Commercial Road
Southampton
SO15 1EG

Tel : +44 (0) 23 8032 9209/9507
Fax : +44 (0) 23 8032 9447
e-mail: inlandwaterssstds@mcga.gov.uk

General Inquiries: 24 Hour Infoline
infoline@mcga.gov.uk
0870 600 6505

MCA Website Address: www.mcga.gov.uk

File Ref: MS 84/01/63

Published: Printers to Insert [Month Year]

Safer Lives, Safer Ships, Cleaner Seas

An executive agency of the Department for Transport

Printed on material containing minimum 75% po

Annex 1

Appropriate qualifications for small commercial vessels under 24m load line length and carrying no more than 12 passengers which do not go to sea (see Section 4 of this MSN.)

The possession of a Certificate of Competency or Service should not, on its own, be regarded as evidence of the ability to serve in a particular rank on a specific vessel. The owner(s)/managing agent(s) must ensure that there are sufficient trained personnel on board to work the vessel having due regard for the nature and duration of the voyage.

Certificate	Waters for which it is appropriate under these regulations	
RYA/DfT Certificate of Competency or Service Coastal Skipper *	Categories A, B, C. D and limited coastal operations (Valid up to 20 miles from a safe haven on a Coded vessel)	
International Yachtmaster Training Master of Yachts 200 tons (Coastal)	Categories A, B, C. D and limited coastal operations (Valid up to 20 miles from a safe haven on a Coded vessel)	
RYA/DfT Advanced Powerboat Certificate *	2 years relevant experience	Categories A, B, C. D and limited coastal operations (Valid up to sea 20 miles from a safe haven on a Coded vessel)
	12 months relevant experience	Categories A, B, C, D and to sea, within 3 miles from a nominated departure point(s) named in the certificate and never more than 3 miles from land, in favourable weather and daylight.
RYA/DfT Day skipper theory and practice *	12 months relevant experience	Categories A, B, C. D and limited coastal operations (Valid within 20 miles from a nominated departure point named in the certificate in favourable weather and daylight, on a Coded vessel).
Local Authority Licence for appropriate area	Categories A, B C, D and to sea, within 3 miles from a nominated departure point(s) named in the certificate and never more than 3 miles from land, in favourable weather and daylight;	
RYA/DfT Day Skipper Practical	Categories A, B,C,D and to sea, within 3 miles	

Certificate *	from a nominated departure point(s) named in the certificate and never more than 3 miles from land, in favourable weather and daylight;	
RYA/DfT Powerboat Level 2 Certificate *	12 months relevant experience	Categories A, B, C, D and to sea, within 3 miles from a nominated departure point(s) named in the certificate and never more than 3 miles from land, in favourable weather and daylight;
British Waterways Helmsman	Category A and B waters only unless otherwise specified on the certificate	
National Community Boats Association Certificate of Boat Management	Category A and B waters only unless otherwise specified on the certificate	

* RYA/DfT certificates of competency and/or service should carry the endorsement – "valid for vessels of up to 24m in length used for commercial purposes".

Annex 2a

TIER 1 BML - MINIMUM AGE REQUIREMNTS

Minimum Age

BML Component	Category	Age
Generic	A/B	18
Generic	C/D and limited coastal operations	18
Cargo – General endorsement	All	18 – for vessels under 40m overall length
Cargo – General endorsement	All	21 - for vessels of 40m and over, overall length
Sea operations (valid only for small commercial vessels)	-	18
Passenger operations – General endorsement	All	21
Large Passenger Vessel endorsement	All	22
Radar Endorsement	All	18
All other endorsements	All	21

Annex 2b

TIER 2 BML – MINIMUM AGE REQUIREMENTS
(Categories A, B and non-linked C only)

Passenger Operations	
Numbers	**Age**
- up to 100 passengers - 101 to 250 - more than 250	18 20 21
Non-Passenger Operations	
	18

Annex 3

Tier 1 BML – Minimum Qualifying Service Requirements

GENERIC LICENCE
Candidate must be working in a suitable deck capacity.

Category	Minimum Length of Experience (months)	Minimum Days service
A/B and non-linked Category C waters (Level 1)	12	120
C/D waters and limited coastal operations (Level 2)	24	240

SPECIALIST ENDORSEMENTS

Candidates for a specialist endorsement must complete the minimum number of days service in an appropriate deck capacity on a relevant vessel for the endorsement in question, in addition to their qualifying service for their generic licence.

However, the minimum length of experience may be completed within the same overall period (12 months for Category A/B waters, 24 months for Category C/D waters)

For example: To obtain a licence for Category C and D waters with cargo endorsement:

- The candidate must complete a minimum of 24 months experience, of which 6 months must be on a cargo vessel.
- Within that period, the candidate must complete 240 days general service plus 60 days on a cargo vessel.

There is no qualifying service period for the fast craft endorsement or the radar endorsement.

Towing & Pushing Endorsement

The candidate must be working in a suitable deck capacity on a vessel engaged in towing or pushing. At least half of the required number of days service should be undertaken in the relevant category of waters.

Category	**Minimum Length of Experience (months)**	**Minimum Days of service** (additional to the minimum days for the generic licence)
Level 1	6	60
Level 2	12	120

General Cargo Endorsement

The candidate must be working in a suitable deck capacity on a freight vessel. At least half of the required days service should be undertaken in the relevant category of waters.

Category	**Minimum length of Experience (months)**	**Days of service within period**
Level 1	6	60
Level 2	6	60

Dredging Endorsement

The candidate must be working in a suitable deck capacity on a cargo vessel. At least half of the required number of days service should be undertaken in the relevant category of waters.

Category	**Minimum length of Experience (months)**	**Days of service within period**
Level 1	6	60
Level 2	6	60

Oil Cargoes Endorsement

The candidate must be working in a suitable deck capacity on a freight vessel carrying packaged dangerous goods or dangerous cargoes in bulk. At least half of the required number of days service should be undertaken in the relevant category of waters.

[5] [Note for consultation document: The European Commission is developing proposals for a Directive on the carriage of dangerous goods in land transport, including inland waterways, for implementation by 2009. This will cover both packaged goods and bulk goods cargoes, and the requirements of that directive may impact on the MCA's proposals for a Dangerous Cargoes endorsement on the Boatmaster's Licence. The MCA will work with the Department for Transport's Dangerous Goods Unit to ensure that UK operators are not disadvantaged by the Directive, which is likely to implement the UNECE International Agreement on Carriage of Dangerous Goods on Inland Waterways (ADN) on Community waterways.]

Category	Minimum length of Experience (months)	Days of service within period
Level 1	6	60
Level 2	6	60

General Passenger Operations endorsement

The candidate must be working in a suitable deck capacity on a passenger ship. At least half of the required number of days service should be undertaken in the relevant category of waters.

Category	Minimum length of experience (months)	Minimum days of service
Level 1	6	60
Level 2	12	120

Large passenger vessel endorsement

The candidate must hold a general passenger operations endorsement, and have at least 12 months experience operating as the master of a passenger vessel carrying no more than 250 passengers. In addition, the candidate must meet the following QST requirement on a large passenger vessel working in a suitable deck capacity. At least half of the required number of days service should be undertaken in the relevant category of waters.

Category	Minimum length of experience (months)	Minimum days of service
All	6	60

Sea endorsement

The sea endorsement is valid only for small commercial vessels, and up to 60 miles from a safe haven.

Category	Minimum length of experience (months)	Minimum days of service
All	12	120

Annex 4

BOATMASTERS CERTIFICATE FOR OPERATION ON COMMUNITY WATERWAYS IN OTHER MEMBER STATES

Requirements:

Those who wish to operate a vessel for the carriage of goods or passengers on European waterways outside the United Kingdom will require a Boatmaster's Certificate. The qualifying criteria are:

For carriage of goods (except hazardous/dangerous cargoes[6])

- A UK Tier 1 licence (Level 1 for a Group B Certificate; Level 2 for a Group A Certificate) with a general cargo endorsement and a towing and pushing endorsement;
- At least 48 months qualifying service;
- A current ML5 certificate;
- Underpinning Knowledge (UPK) on the European Code for Inland Waterways (CEVNI);
- UPK on the European inland waterway network;
- Knowledge of the technical standards for inland waterway vessels (Council Directive 82/714/EC).

For passenger operations: a General Passenger Operations endorsement.

For operation with radar: a Radar endorsement.

[6] For carriage of packaged dangerous goods or dangerous cargoes in bulk on inland waterways in other member states, an ADN certificate is required.

Annex 5

Sample of WORK RECORD (Form MSF 4366)

Before you complete this Work Record, please take a few minutes to read through the brief Explanatory Notes on page 3.

Personal details (See Note 1)	
Surname	
Forenames	
Date of Birth	
Place of Birth	
National Insurance Number (UK applicants)	
Passport Number (if held)	
Boatmasters' Licence Number (if held)	
Address	
Address (change)	
Address (change)	
Photograph of Holder (Optional)	
Signature of Holder	I certify that the above details are true and accurate.
Date	

	Dates		**Vessel Details**				**Operating Area or Route**
	From	To	Name	Type/Operation (see Note 2)	Length	No. of Passengers (if appropriate)	(Include the Category of water where appropriate – see note 3)
1	**/**/**	**/**/**/	***** ********	*********	*** x ***	***	
2							
3							
4							
5							
6							
7							
8							

	Function/Type of Work (see note 4)	**No. of Days Service** (See note 5)	**Owner or Employer** (See note 6)	**Employer's/Master's Signature**	**Validation** Official use only (See note 7)
1					
2					
3					
4					
5					
6					
7					
8					

EXPLANATORY NOTES FOR WORK RECORD

General – This is an important document. It is the official record of your work activities and experience which enable you to hold a Boatmasters' Licence. Please make sure that you complete it, have it signed and keep it safe.

Note 1. Please complete the Personal Details section as fully as possible.

Note 2. Please select from the list below – and use the abbreviations if you wish.

Passenger Ship (over 12 and up to 250)	**PAX**	Towing and /or Pushing	**TP**
Large Passenger Ship (Over 250)	**LPAX**	Dredging	**DR**
Non-seagoing Small Passenger Vessel (up to 12)	**SPV**	Non-seagoing Workboat	**WB**
General cargoes (including packaged dangerous goods)	**GC**	Operation as a boatmaster in another EC country	**ECBM**
Oil cargoes (including gas or liquid chemicals in bulk)	**OC**	Any other type of operation/vessel not listed here	**Please describe**

Note 3. In the UK, inland waters are categorised as A, B, C or D. "A" is the lowest category and includes narrow canals; "D" is the highest category and includes some estuaries and open stretches of water. These categories are explained in Merchant Shipping Notice (MSN) 1776 which is available on the MCA's website: www.mcga.gov.uk.

Note 4. Enter your role on board the vessel eg. master, deckhand, mate etc.

Note 5. A "day's service" is a day on which you are physically present, working on the vessel, and for at least part of the day the vessel is in service.

Note 6. Where the Master/Skipper of the vessel was also the employer or owner, he should complete this column and the signature column.

Note 7. Please do not write in the final "Validation" column on page 2. This is provided to enable your record to be periodically verified by the MCA or relevant Navigation/Port Authority.