

Pre-departure checklist



# MASTER'S PRE-SAILING CHECKLIST

FORM NO: SM/04/03

M/V BEN-MY-CHREE

VOYAGE No: 257 258 259 260

PASSENGERS: 31 155

CREW: 33 41

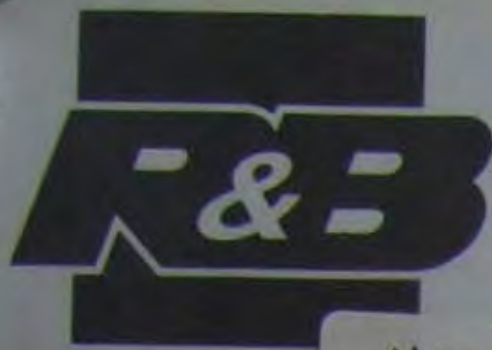
DATE: 28/3/0

Crew complies with statutory requirements	✓	✓		
Crew informed of their emergency duties	✓	✓		
All hull openings (except passenger/vehicle doors in current use) secured	✓	✓		
Telephones, Talkback & P/A Systems: Test	✓	✓		
Portable radios: Test	✓	✓		
VHF: Switch on (16 & Port Ops) and Test	✓	✓		
GPS: Check	✓	✓		
Radars: Switch on and Align - Performance Checked	✓	✓		
Gyro settled and heading checked	✓	✓		
Navigation Lights: Test on main and auxiliary circuits	✓	✓		
Steering gear and rudder indicators	✓	✓		
Telegraphs/Combinators/Pitch Indicators in conjunction with engine room	✓	✓		
Windscreen wipers: Test	✓	✓		
Bridge and Engine Room Clocks: Synchronise	✓	✓		
Whistle/Siren: Test	✓	✓		
AIS Updated	✓	✓		
ECDIS Checked and route verified	✓	✓		
Draught read fore & aft	✓	✓		
Vessel's stability and trim conforms to statutory requirements	✓	✓		
Port control and boatmen advised and clearance obtained	✓	✓		
Passenger count ascertained and passed ashore	✓	✓		
Check traffic movements	✓	✓		
All shore connections (power, water, gangways, ramps) disconnected	✓	✓		
Door condition indicator lights checked	✓	✓		
Video surveillance checked	✓	✓		
Positive confirmation by Officers appointed by the Master that - <b>ALL PASSENGER/CARGO/VEHICLE LOADING DOORS, OILING DOORS, VIZORS, HATCHES AND ALL OTHER HULL &amp; SUPERSTRUCTURE OPENINGS:</b> Closed and secured	✓	✓		
Doors put in 'Seagoing' Mode and Vehicle Deck Fans in 'Sea' Mode.	✓	✓		
Cargo & Vehicles stowed and secured to statutory requirements and own satisfaction	✓	✓		
D/G board and documentation completed and copies ashore	✓	X		
Official Log Book entries as required by statute	✓	✓		
Check thrust and combinator controls are at zero. Propellers clear	✓	✓		
Engine Start. Weather assessed (stabilisers prepared if necessary)	✓	✓		
Master's Broadcast and advice to passengers	✓	✓		
Emergency information to passengers broadcast	✓	✓		
Watertight doors closed	✓	✓		
Engines running at required RPM. Thrust(s) on	✓	✓		
Bridge Control confirmed	✓	✓		

MASTER

Main circuit breaker reports





# Switchgear Services Ltd

DESIGN, MANUFACTURE, INSTALLATION AND SERVICE  
OF QUALITY ELECTRICAL SWITCHGEAR ENGINEERING

Switchgear House  
The Courtyard  
Green Lane  
Heywood  
Lancs. OL10 2EX  
Tel: 01706 369933  
Fax: 01706 364564  
Email:  
Info@rbswitch.co.uk

MAIN SWITCHBOARD CIRCUIT  
BREAKERS

CIRCUIT

## ION CERTIFICATION

ANNUAL INSPECTION CERTIFICATES  
2001

Switchboard /  
Switchboard Section  
Circuit Breaker Duty DIGSEL AM 1  
Circuit Breaker Type SACC FZ  
Schematic Dwg. No. \_\_\_\_\_

Nominal Voltage 440V  
Circuit Breaker Rating 2500A  
Control Voltage 220V  
Manufacturer ABB  
Serial No. MH 357028

### INSPECTION

1. General condition satisfactory	✓
2. No signs of over heating	✓
3. Circuit breaker mechanically undamaged	✓
4. Arc - chutes undamaged	✓
5. Cubicle equipment mechanically undamaged	✓
6. Primary isolating contacts clean & re-lubricated	✓
7. Main contacts clean & re-lubricated	✓
8. Arcing contacts clean & re-lubricated	✓
9. Contact pressure correct	✓
10. Springs inspected for damage	✓
11. Secondary wiring satisfactory	✓
12. Secondary terminals secure & clean	✓
13. All fixing screws secure	✓
14. Lubrication of mechanism satisfactory	✓
15. Anti-bounce catches satisfactory	NA
16. Closing contactor condition satisfactory	NA

### OPERATION CHECKS

Smooth entry & exit to section	✓
Operation of interlocks	✓
Operation of selector switches	✓
Operation of AUX switches	✓
Operation of close mechanism	✓
Operation of trip mechanism	✓
Alignment of main spouts	✓
Operation of shutters	✓
Operation of door interlocks	NA
Tank oil level satisfactory	NA
Re-alignment of gas seal	NA
Castall key operation satisfactory	NA
Circuit Breaker tripped from each protection device	✓
Electrically operated 10 times without failure	✓
Insulation reading satisfactory	✓
Dash pot chamber clean & oil level correct	NA

### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT/Ratio F.L.C.	Serial No.	Cal mark	Set time	Current injected	Trip times in seconds			Indicate if O/L adjusted		
					R	Y	B	R	Y	B
TRIP UNIT OPERATION APPROX OK					1					
					2					
					3					

Reinstate checks carried out 3/2/01

by \_\_\_\_\_

Remarks

TRIP UNIT BATTERY REQUIRES  
CHARGING

Signed \_\_\_\_\_

Date 3/2/01





**GLOBAL**  
SWITCHGEAR SERVICES LTD

## SITE REPORT

IOM Steam Packet Co

# M. V. BEN MY CHREE

CONTRACT: C1701/10

DATE: 08-03-2010

ENGINEER: .



# GLOBAL

## SWITCHGEAR SERVICES LTD

Customer I.O.M Steam Packet Co  
Ship/Installation Ben My Chree

Order No  
GSS Contract No C1701/10

### WORK COMPLETION AND RECOMMENDATION REPORT

Main switchboard.

Service eight in number ABB circuit breakers including secondary injection testing of protection units, See individual test sheets for results.

Open up all compartments, clean out & carry out Busbar Tightness Check.

Calibrated Equipment Used & Identification No  
T & R 100 ADM Mk2 Scits Ser No 36TEO 648

Signature of Engineer...

Date 09 / 03 / 2010

Signature of Acceptance... (Customer)

Form No 14 Issue No 02 Date 20/10/98

Unit 19a The Generation Centre, Dane Street, Rochdale, Lancashire OL12 6XB  
Telephone +44 (0) 1706 668662, Fax +44 (0) 1706 668663



# GLOBAL

## SWITCHGEAR SERVICES LTD

### CIRCUIT BREAKER INSPECTION CERTIFICATION

Ship/Installation M V Ben My Chree  
Panel Reference Main switchboard  
Circuit Breaker Duty PTO Driven Alt No1 PS  
Circuit Breaker Type Sace F1

Nominal Voltage 400volt  
Manufacturer ABB  
Circuit Breaker Rating 2500Amp  
Serial No MH507325

Inspection	
General condition satisfactory	Yes
signs of overheating	Yes
Circuit breaker mechanically undamaged	Yes
Arc-chutes clean & undamaged	Yes
Cubicle equipment undamaged	Yes
isolating contacts clean & re-lubricated	Yes
Main contacts clean & re-lubricated	Yes
Contact pressure correct	Yes
Arcing contacts clean & re-lubricated	Yes
Springs inspected for damage	Yes
Secondary wiring satisfactory	Yes
Secondary terminals secure & clean	Yes
All fixing screws secure	Yes
Lubrication of mechanism satisfactory	Yes

Operation checks	
Smooth entry & exit to section	Yes
Operation of interlocks	Yes
Operation of selector switches	N/A
Operation of Aux switches	Yes
Operation of close mechanism	Yes
Operation of trip mechanism	Yes
Alignment of main spouts	Yes
Operation of shutters	Yes
Operation of door interlocks	N/A
C.B tripped from each protection device	Yes
Electrically operated 10 times	Yes
Insulation reading satisfactory	N/A
Voltage pick up of no-volt	N/A
Voltage drop off of no-volt	N/A

### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT Ratio F.L.C. K W.	Serial No	Cal mark	Set time	Current Injected	Trip times in seconds R Y B			Indicate if O/L adjusted		
2500/0.5	G1494H	0.9 A	17-25s	900ma	20.28	20.62	21.07	R	Y	B
		2 D	300-450ms	1.1Amp	468ms	479ms	433ms			
		6	inst	3.3Amp	inst	inst	inst			

#### COMMENTS

Sace PR1 protection unit:: L(I1) set@ 0.9 (t1) set @ A S(I2) set @ 2 (t2) set @ D I (I3) set @ 6  
ACB and protection unit in good working order  
Blue Phase Arcing contact changed using spare off spare Acb.

Signed :



Date 09 / 03 / 2010

Form No 15 Issue No 01 Date 01/04/98

Unit 19a The Generation Centre, Dane Street, Rochdale, Lancashire OL12 6XB  
Telephone +44 (0) 1706 668662, Fax +44 (0) 1706 668663





# GLOBAL

## SWITCHGEAR SERVICES LTD

### CIRCUIT BREAKER INSPECTION CERTIFICATION

Ship/Installation M V Ben My Chree  
Panel Reference Main switchboard  
Circuit Breaker Duty PTO Driven Alt No2 SB  
Circuit Breaker Type Sace F1

Nominal Voltage 400volt  
Manufacturer ABB  
Circuit Breaker Rating 2500Amp  
Serial No MH057326

Inspection	
General condition satisfactory	Yes
signs of overheating	Yes
Circuit breaker mechanically undamaged	Yes
Arc-chutes clean & undamaged	Yes
Cubicle equipment undamaged	Yes
isolating contacts clean & re-lubricated	Yes
Main contacts clean & re-lubricated	Yes
Contact pressure correct	Yes
Arcing contacts clean & re-lubricated	Yes
Springs inspected for damage	Yes
Secondary wiring satisfactory	Yes
Secondary terminals secure & clean	Yes
All fixing screws secure	Yes
Lubrication of mechanism satisfactory	Yes

Operation checks	
Smooth entry & exit to section	Yes
Operation of interlocks	Yes
Operation of selector switches	N/A
Operation of Aux switches	Yes
Operation of close mechanism	Yes
Operation of trip mechanism	Yes
Alignment of main spouts	Yes
Operation of shutters	Yes
Operation of door interlocks	N/A
C.B tripped from each protection device	Yes
Electrically operated 10 times	Yes
Insulation reading satisfactory	N/A
Voltage pick up of no-volt	N/A
Voltage drop off of no-volt	N/A

### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT Ratio F.L.C. K W.	Serial No	Cal mark	Set time	Current Injected	Trip times in seconds R Y B			Indicate if O/L adjusted		
2500/0.5	H0101K	0.9 A	17-25s	900ma	21.64	21.50	21.85	R	Y	B
		2 D	300-450ms	1.1Amp	458ms	442ms	434ms			
		6	inst	3.3Amp	inst	inst	inst			

#### COMMENTS

Sace PR1 protection unit:: L(I1) set@ 0.9 (t1) set @ A S(I2) set @ 2 (t2) set @ D I (I3) set @ 6  
ACB and protection unit in good working order

Signed :



Date 09 / 03 / 2010

Form No 15 Issue No 01 Date 01/04/98

Unit 19a The Generation Centre, Dane Street, Rochdale, Lancashire OL12 6XB  
Telephone +44 (0) 1706 668662, Fax +44 (0) 1706 668663





# GLOBAL

## SWITCHGEAR SERVICES LTD

### CIRCUIT BREAKER INSPECTION CERTIFICATION

Ship/Installation M V Ben My Chree  
Panel Reference Main switchboard  
Circuit Breaker Duty Diesel Alt No1 PS  
Circuit Breaker Type Sace F1

Nominal Voltage 400volt  
Manufacturer ABB  
Circuit Breaker Rating 1250Amp  
Serial No MH057328

Inspection	
General condition satisfactory	Yes
signs of overheating	Yes
Circuit breaker mechanically undamaged	Yes
Arc-chutes clean & undamaged	Yes
Cubicle equipment undamaged	Yes
isolating contacts clean & re-lubricated	Yes
Main contacts clean & re-lubricated	Yes
Contact pressure correct	Yes
Arcing contacts clean & re-lubricated	Yes
Springs inspected for damage	Yes
Secondary wiring satisfactory	Yes
Secondary terminals secure & clean	Yes
All fixing screws secure	Yes
Lubrication of mechanism satisfactory	Yes

Operation checks	
Smooth entry & exit to section	Yes
Operation of interlocks	Yes
Operation of selector switches	N/A
Operation of Aux switches	Yes
Operation of close mechanism	Yes
Operation of trip mechanism	Yes
Alignment of main spouts	Yes
Operation of shutters	Yes
Operation of door interlocks	N/A
C.B tripped from each protection device	Yes
Electrically operated 10 times	Yes
Insulation reading satisfactory	N/A
Voltage pick up of no-volt	N/A
Voltage drop off of no-volt	N/A

### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT Ratio F.L.C. K W.	Serial No	Cal mark	Set time	Current Injected	Trip times in seconds R Y B			Indicate if O/L adjusted		
1250/0.5	LO483K	0.8 A	17-25s	800ma	20.18	19.16	20.63	R	Y	B
		2 D	300-450ms	1.1Amp	481ms	471ms	392ms			
		6	inst	3.3Amp	inst	inst	inst			

#### COMMENTS

Sace PR1 protection unit:: L(I1) set@ 0.8 (t1) set @ A S(I2) set @ 2 (t2) set @ D I (I3) set @ 6  
ACB and protection unit in good working order

Signed :



Date 09 / 03 / 2010

Form No 15 Issue No 01 Date 01/04/98

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# GLOBAL

## SWITCHGEAR SERVICES LTD

### CIRCUIT BREAKER INSPECTION CERTIFICATION

Ship/Installation M V Ben My Chree  
Panel Reference Main switchboard  
Circuit Breaker Duty Diesel Alt No2 Mid  
Circuit Breaker Type Sace F1

Nominal Voltage 400volt  
Manufacturer ABB  
Circuit Breaker Rating 1250Amp  
Serial No MH057327

Inspection	
General condition satisfactory	Yes
signs of overheating	Yes
Circuit breaker mechanically undamaged	Yes
Arc-chutes clean & undamaged	Yes
Cubicle equipment undamaged	Yes
isolating contacts clean & re-lubricated	Yes
Main contacts clean & re-lubricated	Yes
Contact pressure correct	Yes
Arcing contacts clean & re-lubricated	Yes
Springs inspected for damage	Yes
Secondary wiring satisfactory	Yes
Secondary terminals secure & clean	Yes
All fixing screws secure	Yes
Lubrication of mechanism satisfactory	Yes

Operation checks	
Smooth entry & exit to section	Yes
Operation of interlocks	Yes
Operation of selector switches	N/A
Operation of Aux switches	Yes
Operation of close mechanism	Yes
Operation of trip mechanism	Yes
Alignment of main spouts	Yes
Operation of shutters	Yes
Operation of door interlocks	N/A
C.B tripped from each protection device	Yes
Electrically operated 10 times	Yes
Insulation reading satisfactory	N/A
Voltage pick up of no-volt	N/A
Voltage drop off of no-volt	N/A

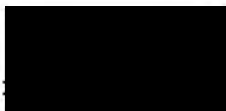
### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT Ratio F.L.C. K W.	Serial No	Cal mark	Set time	Current Injected	Trip times in seconds R Y B			Indicate if O/L adjusted		
1250/0.5	D0190K	0.8 A	17-25s	800ma	21.53	20.77	21.35	R	Y	B
		2 D	300-450ms	1.1Amp	439ms	444ms	443ms			
		6	inst	3.3Amp	inst	inst	inst			

#### COMMENTS

Sace PR1 protection unit:: L(I1) set@ 0.8 (t1) set @ A S(I2) set @ 2 (t2) set @ D I (I3) set @ 6  
ACB and protection unit in good working order

Signed



Date 08 / 03 / 2010

Form No 15 Issue No 01 Date 01/04/98

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# GLOBAL

## SWITCHGEAR SERVICES LTD

### CIRCUIT BREAKER INSPECTION CERTIFICATION

Ship/Installation M V Ben My Chree  
Panel Reference Main switchboard  
Circuit Breaker Duty Diesel Alt No3 SB  
Circuit Breaker Type Sace F1

Nominal Voltage 400volt  
Manufacturer ABB  
Circuit Breaker Rating 1250Amp  
Serial No MH004356

Inspection	
General condition satisfactory	Yes
signs of overheating	Yes
Circuit breaker mechanically undamaged	Yes
Arc-chutes clean & undamaged	Yes
Cubicle equipment undamaged	Yes
isolating contacts clean & re-lubricated	Yes
Main contacts clean & re-lubricated	Yes
Contact pressure correct	Yes
Arcing contacts clean & re-lubricated	Yes
Springs inspected for damage	Yes
Secondary wiring satisfactory	Yes
Secondary terminals secure & clean	Yes
All fixing screws secure	Yes
Lubrication of mechanism satisfactory	Yes

Operation checks	
Smooth entry & exit to section	Yes
Operation of interlocks	Yes
Operation of selector switches	N/A
Operation of Aux switches	Yes
Operation of close mechanism	Yes
Operation of trip mechanism	Yes
Alignment of main spouts	Yes
Operation of shutters	Yes
Operation of door interlocks	N/A
C.B tripped from each protection device	Yes
Electrically operated 10 times	Yes
Insulation reading satisfactory	N/A
Voltage pick up of no-volt	N/A
Voltage drop off of no-volt	N/A

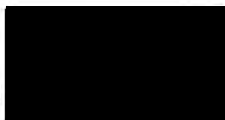
### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT Ratio F.L.C. K W.	Serial No	Cal mark	Set time	Current Injected	Trip times in seconds			Indicate if O/L adjusted		
					R	Y	B			
1250/0.5	13034K	0.8 A	17-25s	800ma	20.02	21.02	21.78	R	Y	B
		2 D	300-450ms	1.1Amp	432ms	498ms	433ms			
		6	inst	3.3Amp	inst	inst	inst			

#### COMMENTS

Sace PR1 protection unit:: L(I1) set@ 0.8 (t1) set @ A S(I2) set @ 2 (t2) set @ D I (I3) set @ 6  
ACB and protection unit in good working order

Signed



Date 09 / 03 / 2010

Form No 15 Issue No 01 Date 01/04/98

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# GLOBAL

## SWITCHGEAR SERVICES LTD

### CIRCUIT BREAKER INSPECTION CERTIFICATION

Ship/Installation M V Ben My Chree  
Panel Reference Main switchboard  
Circuit Breaker Duty Bus tie  
Circuit Breaker Type Sace F1

Nominal Voltage 400volt  
Manufacturer ABB  
Circuit Breaker Rating 2000Amp  
Serial No MCG046591

Inspection	
General condition satisfactory	Yes
signs of overheating	Yes
Circuit breaker mechanically undamaged	Yes
Arc-chutes clean & undamaged	Yes
Cubicle equipment undamaged	Yes
isolating contacts clean & re-lubricated	Yes
Main contacts clean & re-lubricated	Yes
Contact pressure correct	Yes
Arcing contacts clean & re-lubricated	Yes
Springs inspected for damage	Yes
Secondary wiring satisfactory	Yes
Secondary terminals secure & clean	Yes
All fixing screws secure	Yes
Lubrication of mechanism satisfactory	Yes

Operation checks	
Smooth entry & exit to section	Yes
Operation of interlocks	Yes
Operation of selector switches	N/A
Operation of Aux switches	Yes
Operation of close mechanism	Yes
Operation of trip mechanism	Yes
Alignment of main spouts	Yes
Operation of shutters	Yes
Operation of door interlocks	N/A
C.B tripped from each protection device	N/A
Electrically operated 10 times	Yes
Insulation reading satisfactory	N/A
Voltage pick up of no-volt	N/A
Voltage drop off of no-volt	N/A

### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT Ratio F.L.C. K W.	Serial No	Cal mark	Set time	Current Injected	Trip times in seconds			Indicate if O/L adjusted		
					R	Y	B	R	Y	B

#### COMMENTS

ACB in good working order

Signed



Date 09 / 03 / 2010

Form No 15 Issue No 01 Date 01/04/98





# GLOBAL

## SWITCHGEAR SERVICES LTD

### CIRCUIT BREAKER INSPECTION CERTIFICATION

Ship/Installation M V Ben My Chree  
Panel Reference Main switchboard  
Circuit Breaker Duty Bow thruster Aft  
Circuit Breaker Type Sace F1

Nominal Voltage 400volt  
Manufacturer ABB  
Circuit Breaker Rating 2000Amp  
Serial No MG01 4956

Inspection	
General condition satisfactory	Yes
signs of overheating	Yes
Circuit breaker mechanically undamaged	Yes
Arc-chutes clean & undamaged	Yes
Cubicle equipment undamaged	Yes
isolating contacts clean & re-lubricated	Yes
Main contacts clean & re-lubricated	Yes
Contact pressure correct	Yes
Arcing contacts clean & re-lubricated	Yes
Springs inspected for damage	Yes
Secondary wiring satisfactory	Yes
Secondary terminals secure & clean	Yes
All fixing screws secure	Yes
Lubrication of mechanism satisfactory	Yes

Operation checks	
Smooth entry & exit to section	Yes
Operation of interlocks	Yes
Operation of selector switches	N/A
Operation of Aux switches	Yes
Operation of close mechanism	Yes
Operation of trip mechanism	Yes
Alignment of main spouts	Yes
Operation of shutters	Yes
Operation of door interlocks	N/A
C.B tripped from each protection device	Yes
Electrically operated 10 times	Yes
Insulation reading satisfactory	N/A
Voltage pick up of no-volt	N/A
Voltage drop off of no-volt	N/A

### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT Ratio F.L.C. K W.	Serial No	Cal mark	Set time	Current Injected	Trip times in seconds R Y B			Indicate if O/L adjusted		
2000/0.5	LO626F	0.9Min	12-25s	900ma	17.69	16.94	17.71	R	Y	B
		3 Min	80-200ms	1.5Amp	187ms	185ms	185ms			

#### COMMENTS

Sace AR1 protection unit:: L(I2) set@ 0.9 (t1) set @min S(I2) set @3 (t2)set @min  
ACB and protection unit in good working order.  
Charging motor release spring found to be broken new one fitted from spare Acb.

Signed

Date 08 / 03 / 2010

Form No 15 Issue No 01 Date 01/04/98

Unit 19a The Generation Centre, Dane Street, Rochdale, Lancashire OL12 6XB  
Telephone +44 (0) 1706 668662, Fax +44 (0) 1706 668663



# GLOBAL

## SWITCHGEAR SERVICES LTD

### CIRCUIT BREAKER INSPECTION CERTIFICATION

Ship/Installation M V Ben My Chree  
Panel Reference Main switchboard  
Circuit Breaker Duty Bow thruster Fwd  
Circuit Breaker Type Sace F1

Nominal Voltage 400volt  
Manufacturer ABB  
Circuit Breaker Rating 2000Amp  
Serial No MG014950

Inspection	
General condition satisfactory	Yes
signs of overheating	Yes
Circuit breaker mechanically undamaged	Yes
Arc-chutes clean & undamaged	Yes
Cubicle equipment undamaged	Yes
isolating contacts clean & re-lubricated	Yes
Main contacts clean & re-lubricated	Yes
Contact pressure correct	Yes
Arcing contacts clean & re-lubricated	Yes
Springs inspected for damage	Yes
Secondary wiring satisfactory	Yes
Secondary terminals secure & clean	Yes
All fixing screws secure	Yes
Lubrication of mechanism satisfactory	Yes

Operation checks	
Smooth entry & exit to section	Yes
Operation of interlocks	Yes
Operation of selector switches	N/A
Operation of Aux switches	Yes
Operation of close mechanism	Yes
Operation of trip mechanism	Yes
Alignment of main spouts	Yes
Operation of shutters	Yes
Operation of door interlocks	N/A
C.B tripped from each protection device	Yes
Electrically operated 10 times	Yes
Insulation reading satisfactory	N/A
Voltage pick up of no-volt	N/A
Voltage drop off of no-volt	N/A

### CIRCUIT BREAKER OVERLOAD INJECTION TESTS

CT Ratio F.L.C. K W.	Serial No	Cal mark	Set time	Current Injected	Trip times in seconds R Y B			Indicate if O/L adjusted		
2000/0.5	LO628F	0.9Min	12-25s	900ma	19.66	17.45	17.26	R	Y	B
		3 Min	80-200ms	1.5Amp	203ms	202ms	189ms			

#### COMMENTS

Sace AR1 protection unit: L(I2) set@ 0.9 (t1) set @min S(I2) set @3 (t2)set @min  
ACB and protection unit in good working order.  
Latch Release Coil Assembly Loose ( tightened ).

Signed :

[Redacted Signature]

Date 08 / 03 / 2010

Form No 15 Issue No 01 Date 01/04/98

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Telephone +44 (0) 1706 668662, Fax +44 (0) 1706 668663



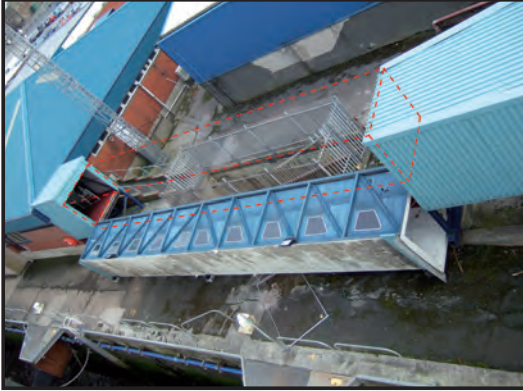
MAIB safety flyer to the shipping industry





## FLYER TO THE SHIPPING INDUSTRY

### ***BEN-MY-CHREE*: COLLAPSE OF THE PASSENGER WALKWAY DUE TO UNINTENDED ENGINE MOVEMENT IN PORT**



After 3 weeks in dry dock, the Isle of Man registered passenger vehicle ferry, *Ben-My-Chree*, undocked on 25 March 2010. Once refloated it was discovered that neither of the two bow thrusters could be started as their main circuit breakers were defective. The crew carried out some temporary repairs to get one bow thruster working and the vessel sailed to her home port of Douglas, Isle of Man and re-entered service.

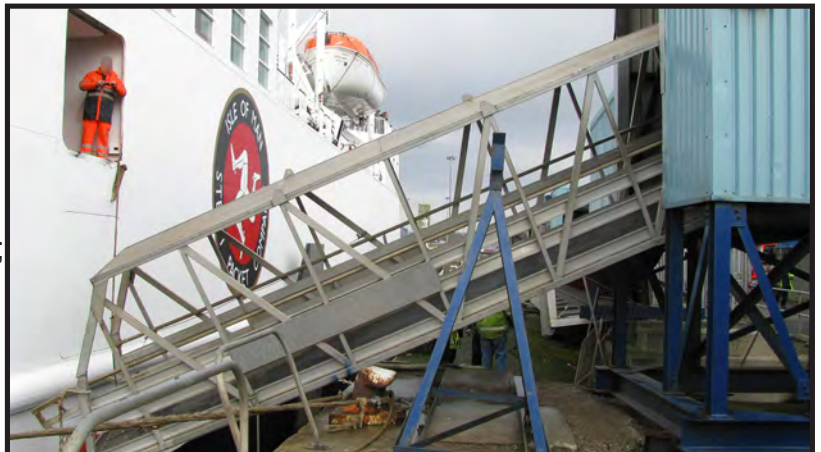
The following afternoon, *Ben-My-Chree* was embarking passengers and loading vehicles at the port of Heysham.

She was moored at the passenger terminal using two head lines and a fore spring forward, and two stern lines and a back spring aft. All the lines except the back spring were kept on autotension at a setting of 25% of the winch rated tension. The weather was calm with light airs.

The chief engineer was monitoring two shore technicians who had boarded the vessel at Heysham to repair the bow thrusters' defective main circuit breakers. The ship was also taking bunkers and the operation, monitored by the third engineer, was nearing completion. The starboard main engine was started by the second engineer at 1338, with the master's permission, in order to run the shaft generator to test the bow thrusters' main circuit breakers. At 1357, the chief officer requested the third engineer for bridge control of main engines as he wished to test controls prior to departure. (The normal practice on board for testing engines was to activate the pitch control levers before the engines were started and observe the pitch response).

The third engineer, who had previously been concentrating on bunkering, transferred controls to the bridge, and the chief officer, not observing that the starboard engine was running, put both engines' pitch control levers to the full ahead position. Within a few seconds, the vessel surged ahead, causing serious damage to the passenger access structure. The foot-passenger walkway detached at both ends and collapsed onto the quayside, and the gangway fell from the vessel's side shell door and was left hanging on a single rope. Fortunately, there were no injuries. Eight passengers were trapped in the gangway compartment of the shore structure and had to be rescued by the fire service.

The Health & Safety Executive (HSE) completed an investigation into the failure of the passenger access structure. The investigation identified that the quay on which the passenger access structure was built had suffered considerable settlement over the years; the walkway was secured to the rest of the structure with only two small bolts at either end; and there were no records of inspections or maintenance



work having been carried out on the structure. The HSE issued several recommendations to Heysham Port, which are relevant to all passenger terminals. These include:

- *An inspection regime, similar to that for bridges, should be adopted with the findings of the inspection recorded and any remedial work identified should be carried out within an appropriate timescale. Particular attention should be given to safety critical parts of the structure. The inspection should be carried out by a competent person.*
- *For the procurement, operation and maintenance of ship to shore structures, reference should be made to the guidance provided in CIRIA Report C518, Safety in Ports, ship to shore linkspans and walkways.*

## SAFETY LESSONS

1. Running main propulsion engines while a vessel is alongside is an extremely hazardous activity and must be controlled carefully. Several accidents in the past have resulted from failure of controllable pitch propeller (CPP) control systems resulting in propeller blades being inadvertently set to ahead or astern pitch. Sufficient safeguards must be put in place to mitigate the consequences if the CPP system fails to maintain the neutral position of the propeller blades and, specifically, to uncouple the hazards of engine operation from passenger or vehicle operations.
2. The use of autotension winches on ro-ro ferries significantly reduces the dependence on the crew to maintain the required tension in the mooring lines. However, opposing spring lines held on autotension winches can cause the vessel to 'walk' along the pier and may not restrain the vessel as well as mooring lines secured on bitts or held on winch brakes. Operators should conduct a detailed assessment to consider the balance of these risks and adapt their procedures accordingly.
3. Regular inspection and maintenance of facilities used by passengers is of paramount importance. Guidance is available for the design and construction of passenger access structures in the form of published reports and British Standards. In particular, the following are most relevant:
  - Safety in Ports, Ship to Shore Linkspans and Walkways (CIRIA report C518)
  - Maritime Structures: Code of Practice for the Design of Ro-Ro Ramps, Linkspans and Walkways (BS 6349-8:2007)
  - Maritime Works: Code of Practice for the Design of Quay, Walls, Jetties and Dolphins (BS 6349-2: 2010).
4. It is crucial that crew members communicate openly and do not make assumptions about each others' actions, especially when performing tasks which are not part of the daily routine.

This flyer and the MAIB's investigation report are posted on our website: [www.maib.gov.uk](http://www.maib.gov.uk)

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December 2010



Local notice to mariners: Use of self tension winches in Portsmouth commercial port



## **Commercial Port – Local Notice to Mariners No. 03/06**

**Dated 25 th May 2006**

### **Use of Self Tension Winches in Portsmouth Commercial Port**

1. **Notice is Hereby Given** that  
due caution must be exercised when using automatic self tensioning winches as part of the vessels mooring arrangements when left in the unattended mode after the mooring party has stood down.
2. Incidents have occurred in the past when these winches have not been set at the correct tension and have "paid out" the mooring line in small increments, as the weight on them increased above the set level. This has resulted in the vessel drifting off the berth, pulling the gangway out and in an extreme case, completely breaking away from the berth.
3. The use of standing lines regularly attended to and made fast to a set of bitts, or on the drum with the brake hard on, to act as a "preventer", is highly recommended.

Harbour Master

Portsmouth Commercial Port



Special risk assessment – M/V *Ben-My-Chree* – Heysham Moorings

## Special Risk Assessment – M/V Ben-my-Chree - Heysham Moorings.

**Purpose:** This report has been compiled in response to joint initiatives by the IOM Steam Packet Company and the MAIB, to avoid a repetition of the gangway accident of February 2010.

**Coverage:** Mooring of M/V Ben-my-Chree in No.1 Linkspan berth, Heysham.

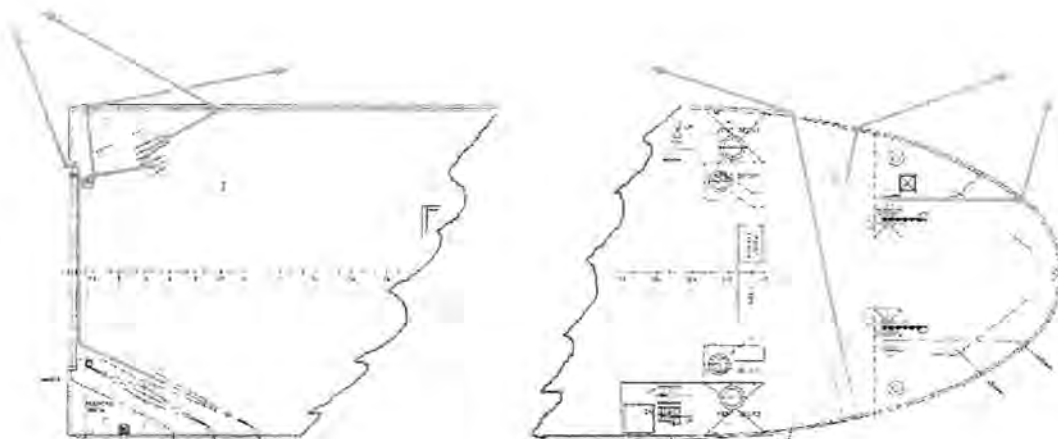
Current practice, risks and future options.

**Aims:** To present the Duty Masters and DPA with a clear picture of the situation and possible options, to enable good risk management to be carried out in all conditions.

### Current Practice:

In normal conditions (i.e. moderate weather and tidal state, with little perceived risk of ranging) the vessel is moored with two headlines, two sternlines, a forward backspring and an after backspring, all led to tension winches as indicated in the plan below and set at 25% with the exception of the after backspring, which is held on the winch brake.

In inclement conditions or when other vessels are expected to be manoeuvring nearby at low water, the tension settings are frequently increased to 50% and/or extra moorings deployed.



All ropes are 64mm 6 strand X-lay Atlas (breaking strain 81 tonnes) fitted with 44mm Dynex tails (breaking strain 148 tonnes) to assist handling. Both types of rope are stated by the manufacturers to have an elasticity to breaking point of about 4% - 6%.

The tails have been adjusted to suitable lengths to avoid fouling the fairleads in both Douglas and Heysham. As the ropes and tails have equally low elasticity, the differences in tail lengths would not seem to be an important feature in assessing rope stretch.



### Past Experience:

In furtherance of this report, I attended the vessel on the evening of 13th November and undertook a round trip to Heysham on Thursday 18<sup>th</sup> November.

During this time, I was able to interview four different Masters (three current and one retired) and several deck officers. None had experienced any previous case of vessel movement with the tension settings (25% - 50%) stated above, except for the retired Master who recalled a short period around the year 2000, when one particular visiting vessel tended to cause ranging in No.1 Berth.

It is of interest to note that this Master (and others at the time) independently experimented with tension settings and found least vessel movement at 25%. Surprisingly, ranging increased when all ropes were held on the brakes. The reasons for this are not known, but may be due to the almost unavoidable slackness in such ropes resulting in subsequent shock load – a concern which all Masters expressed and which is revisited in the conclusions to this report.

### Winch Instruction Manual

The Brohl instruction manual was found to be rather difficult to use from a Deck point of view, being kept in the Control Room and largely of engineering content with just a few pages of concern to Deck Officers. It may be advisable to extract the information in these pages to insert in the Training or other suitable Manual.

The reference to springs, pointed out in the MAIB draft report reads as follows:

“Spring ropes may never be used on automatic winches.”

The manufacturers have confirmed that this prohibition could be misleading in that it refers only to the type of rope (the word ‘spring’ in this context meaning high elasticity) and not to the type of mooring (e.g. headropes, backsprings, etc.). Brohl see no problem with the use of low elasticity ropes such as Atlas being used on tension as backsprings.

The reference to oil industry practice in the draft report suggests that there could be other reasons for caution, but again, this may be because many oil terminals are subject to strong tidal forces. Some of Ben-my-Chree’s moorings are indeed placed on the brakes in Birkenhead, where the vessel is berthed in a tidal stream. Such effects are not experienced in Heysham.

## Summary of Possible Hazards and Current Safeguards.

These include:

Ropes stretching: Both Atlas and Dynex are very low elasticity and no undue stretching has ever been experienced.

Ropes parting: Although unlikely, this is seen as an extremely high-risk occurrence by all Masters, which perhaps leads to a strong preference for using the tension winches (these may pay out, but would eventually restrain the vessel). Ropes are carefully examined for chafe at regular intervals under the PMS. All Masters considered (rightly or wrongly) that this possibility was much more likely if two or more 'opposing' ropes were held on the brake.

Ranging due to other vessel movement: This has not been experienced since 2000, in spite of many thousands of movements of large vessels and is thus not a great concern.

Stresses due to high winds: Although no movement has ever been reported, tension is usually increased to 50% in inclement weather as a precaution.

Slipping or Premature release of winch brake, on or off tension: Winches are serviced regularly and maintained in accordance with makers' instructions. Again, the lack of any reports of such occurrences suggests that the risk level is low and is unlikely to affect more than one rope at a time. However, as the ship becomes older, the possibility may need to be kept in mind.

Movement due to accidental application of propeller or thruster power: Even before this year's incident, running engines in port was regarded with concern by all Masters, but the practice had become accepted as a necessary part of operations – a risk in the same league as, say, entering port in high winds. After several thousand such engine runs without incident, it is perhaps not unreasonable to suppose that Masters, although naturally uneasy about the practice, were moderately satisfied with the procedures then in place.

Those procedures have now been considerably strengthened and personal risk reduced by suspending all other operations during a water-wash.

Uprooting of shore bollards: The strength of Heysham shore bollards is not known. However, some of those in No.1 berth are thought to be quite old and ground subsidence has been a feature of that area in the past. The two stern lines are both led to one such bollard, and although there is no reason to suppose it to be insecure, the possibility should perhaps be considered.

The forward backspring is, of necessity, a fairly short lead with a strong upward pull at high water.

The opinion of Heysham Port Managers may be helpful in this respect.



Failure of onboard winch foundations, barrels, etc.: At the time of writing, the design strength of these items is not known, but it is reasonable to suppose that they are designed with the breaking strain of Atlas ropes (81 tonnes) in mind. This item may need to be checked if, for example, a full length Dynex rope (Breaking strain 148 tonnes) were ever considered for use.

## Conclusions

The MAIB draft report strongly suggests that the fore and aft backsprings should be held on the brakes, and the reasons for this are well explained and understandable.

However, this appears to be at odds with the views of all the Masters and Chief Officers interviewed, for the following reasons:

1. The 10 metre tidal range in Heysham would require almost continual tending and adjustment of these ropes – particularly the short forward spring. This would no doubt be done diligently, but great care would be needed to ensure that no undue slack was allowed to accumulate. It would be unrealistic to suppose that this would never occur – particularly as most seamen would tend to slack off rather more than they should, to avoid constant attendance at the winch.

This may well allow vessel movement, and worse – shock loads – where this does not at present occur. Thus placing two opposing ropes on the brake could replace one unlikely risk with another, possibly more likely one.

2. It cannot be denied that a 'braked' backspring may have restrained the vessel against the application of propeller pitch on the day of the incident, but using tug bollard pull as a rough guide, our estimate of 60 tonnes force could be close to the breaking strain of an Atlas rope if that rope is slack and receives a shock load.

The prospect of the backspring parting in such circumstances is seen by all Masters as even more catastrophic than the actual occurrence.

3. Twelve years' use of current methods has shown that little vessel movement can be expected in circumstances other than an 'engine start,' and it is believed (perhaps wrongly) that in such extreme circumstances, no moorings – whether braked or on tension, would avert serious consequences.

All Masters interviewed were concerned to point out that these views are based on personal experience and there is every possibility that the resources and thorough investigations of the MAIB will reveal (or have already revealed) factors hitherto unrecognised. All will study the recommendations with close interest.



**IOMSPCo  
RISK ASSESSMENT  
FORM**

**Hazard Identification Number:**  
BMC/RA/DECK/0200

**Division:** Marine Operations

**Location:** Ben-my-Chree : Deck dept

**Operation Covered by this Assessment:** General Mooring Arrangements

**Number of People Exposed:** 8 to 12 persons (more if gangway / stern door is affected)

**Frequency / Duration:** up to 4 times daily, 3 hours duration (occasionally 24 hours).

**Perceived Hazard Or Risks:**

Ropes stretching  
Ropes parting  
Ranging due to other vessel movement  
Rope stresses due to high winds  
Slipping or Premature release of winch brake, on or off tension  
Movement due to accidental application of propeller or thruster power  
Uprooting of shore bollards  
Failure of onboard winch foundations, barrels, etc

**Risk Assessment:**

Hazard Severity		Likelihood of Occurrence	
Very High	✓ 5	Very Likely	5
High	4	Likely	✓ 4
Moderate	3	Quite Possible	3
Slight	2	Possible	2
Nil	1	Unlikely	1

Severity x Likelihood =

5 x 4 = 20 (High)

**Control Measures Necessary Or Implemented:**

Mooring pattern decided by Master and supervised/maintained by duty Deck Officers  
Tension winches used to control rope stresses. Low elasticity ropes used.  
Extra moorings / tension settings judged by Master in accord with anticipated stresses.  
Winches / ropes supplied and maintained in accordance with manufacturers instructions.  
Use of engines in port very strictly controlled in accordance with Company Procedures.  
Moorings spread over several shore bollards where possible.

**Result After Control Measures Implemented**

Hazard Severity		Likelihood of Occurrence	
Very High	✓ 5	Very Likely	5
High	4	Likely	4
Moderate	3	Quite Possible	3
Slight	2	Possible	✓ 2
Nil	1	Unlikely	1

Severity x Likelihood =

5 x 2 = 10 (MED)

**Further Action Required:**

All incidents and accidents to be reported.

Signed:

Date:

Review Date: Annually

Position: Marine Manager

21/11/2010