**Reducing risk factors**

**and Familiarization**

1) Main contents

a) The problems and particulars

b) Advise for accident prevention

**BULK FLEET(HANDY SIZE)**

(HJBO, HJBB,HJPB,GTDR)

**AAA. PROBLEMS AND PARTICULAR ITEMS OF HANDY SIZE**

**1. HULL/OUTFITTINGS**

1) BRIDGE MANEUVERING SYSTEM

\* When the power of MAIN/EM’CY POWER of ENGINE CONTROL CONSOLE & BRIDGE CONTROL

CONSOLE etc. is not supplied due to burnt FUSE, and if it doesn’t restored within

Earliest period of time, vessel could be rejected to enter/departure the port by the PILOT.

Counter measure; Attaching power diagram around the Fuse box in each console, and Always

furnish spare fuse and tool. And also, relevant with this, users shall be familiarized with

how to use of these.

2) STARTER

In preparation against electrical troubles of ACC. LADDER WINCHES/ WINDLASS/ MOORING WINCHES/

STEERING GEAR/ PROV. CRANE etc., which are used for arrival/departure,

Posting emergency measurement and pre-inspection is required.

.

3) During the long term anchoring, as a lot of marine growths are on the ship’s hull plating,

Causes speed reduction etc. In this case, arrange the diver, and carry out bottom plate,

propeller polishing at Singapore

Counter measure; During the long term waiting, every 2weeks of period, heave up the anchor

and sail with full speed ahead if prevailing situation allows.

If taking above measurement is not available, ballasting & deballasting can also be an

option. Maintain Ballast condition for a week, and maintain de-ballasted condition for a

week to prevent natural propagation. This operation shall be done after obtaining

port authority’s permission.

4) ) While securing the ANCHOR after anchor hove up, as there is a case that the anchor is half

twisted, while making way on the water, deep into the sea water and heave it back again. Or

Make half turn of chain by using lashing wire, and secure it back. So as the anchor.

Counter measure; Use the anchor alternatively, and before dropping anchor, Walk back enough

for reducing impact from letting go anchor.

Once above case is occurred, it is very hard to take measure, precautions are required on

operation.

5) ) Due to corrosion of Deck fire pipe and branch line, continuous replacing the leaking part.

(Especially, fire hydrant valve lower part and around u-bolt of branch line are frequently

leaked)

Counter measure ; This case could occur serious disadvantage as a major deficiency on P.S.C

Inspection. Therefore, thorough inspection/repair is required. If ship’s time and manpower

is not enough, considering shore support and other active measurement shall be taken.

6) Hatch Cover’s hydro pipe leakage occurs - overall, there are many corroded hydro pipe

Counter measurement ; Thoroughly check working condition before arrival in ample time,

and repair leaking part. Especially, the vessels having hydro operation device shall

maximally take care of leaking parts.

By notifying the facts to all crew, all shall be able to take emergency measures

in case of emergency.

7) Before arrival, after completing ballast exchange, transmit the report to NBIC and agent,

And if the ballast amount is same with the report, it is not needed to report again, but if

the ballast amount is different with sent report, must re-send the report(amended one) to

CSLC.

8) Especially, as CSLC agent always board on the ship at LONG BEACH port, and checks report

and log book record, and ballast log and the position from the chart..

Advise; To exchange the ballast, actual record shall accurately be recorded and it shall be

Same with engine log book.

9) Before departure, obtain signature from L/S INJURIES from FOREMAN

Counter measure ; above document is the evidence of there was no injuries onboard.

Therefore, must draw up the document and keep it onboard especially at Australia, USA

10) Due to smoke problem from the G/E while loading coal in USA, it had been pointed out by

PORT PATROL OFFICER.

Counter measure : See WI of vessel manager. As Some ports are very strict on this matter,

be cautious. For the reference, there are 10 levels on smoke problem, and it is determined by the sight from back of the smoke (density of smoke)

For example, if the sight from backward of smoke is 0, it can be pointed out. -///See the

document///

11) BALLAST AND BILGE VALVE CONSOLE DIMMER IN BCR operation poor condition

Counter measure ; first – Check indicate lamp, and repair the poor part.

When making replacement by the spare, it is simple, and easier than

You thought. Therefore, take proper measures as soon as possible

through the consultation with engine department.

Second – Before the use of hydro valve, mark the level of oil at L.O tank, and must

Check the change of oil. If the oil level lowered more than 1-2cm after use,

Consider it has serious leakage, and check the leakage on the Hydro valve

or pipe in the duck keel, and take measure.

You must care on leakage for the devices operated by the hydro power.

12) CO2 High pressure HOSE wears out due to friction, partially damaged.

Counter measure ; To prevent damage from contact, reinforce the anti-corrosive tape on the

Contact part.

13) Observe the 300% of Tank capacity on Ballast Exchange, not the 300% of loaded ballast

14) During the long term anchoring waiting, food waste shall be kept in frozen. (remove

The water or moisture as much as possible) and take care of it after departure.

15) During the port staying(berth), duty officer shall mark actual draft on the plan on every

sequence.

Advise ; You must record actual draft on the loading/discharging plan on every sequence. Of course, this can be pointed out during P.S.C inspection but, duty officers shall

Record and Calculate the actual draft, and shall compare with PRE LOADING PLAN.

16) On rigging ACC.LADDER, overboard accident caused by not using SAFETY BELT

Advise ; Person shall work in pair, and must wear life jacket and safety belt.

17) Sudden drop of ladder body while rigging ACC.LADDER

Advise : On initial lowering down, while holding it with wire or chain block to the Main deck level to prevent drop of ladder.(While lowering down the LADDER, by using assistance rope as a safe device)

18 On rigging ACC.LADDER, even if there was worker on the ladder body, operated controller,

and as a worker lost his balance, he could fall overboard or slip from the step.

Advise; Before control the controller, check whether there is worker on the ladder or not.

19) Access the HOLD in pair, is secure means of communication.

Advice : Before entering, point and confirmation is required, and must hold proper

lighting and means of communication, gas detector.

20) Safety accident is caused by miss firing while check rocket parachute signal, signal

flare. Especially, a lot of mistakes are occurred that looking down the projectile from

above.(it is extremely dangerous)

Advise : There are lots of history of relevant accident, Officer in charges’ strict

education and management is required.

Must be familiarized with operation method but direct use.

21) Even if Hydrant pipe line is filled with the pressure, opened the cap of valve

Without caution, and cap has hit the body

Advise ; Be careful with hydrant, air cap and opening/closing hydro valve.

22 As there was precedence of overhauling the S.W pump as residual coal flows into the

Sea chest and blocks the impeller of S.W pump due to miss control of SEA CHEST V/V during

C/HOLD DEBALLASTING, while discharging hold ballast, special precaution is required.

Advise : The officer in charge of BALLAST operation shall be familiarized with

Controlling ballast system to prevent accident.

23) On Anchoring operation, sometimes the anchor is not dropped. If you hammer or rotate the

Shaft at no-load condition, it is dropped.

Measure ; First, sufficiently apply greases on working part. If it still doesn’t work

well, request shore inspection and maintenance.

24) Line snap caused by over load(tension) (Post watch man at all time and adjust line

tension)

- If one LINE is snapped, as the tension is concentrated on other line on by one,

Other lines also could be snapped.

Counter measure; Tension of line shall equally be distributed to all lines.

25) Holes around the U-bolt of DECK PIPE are continuously found, and continuous repair

Is required.

Counter measure ; If the hole has been found, replace the pipe, and by covering

The hose suitable to U-BOLT diameter for preventing corrosion. Reinforcement is required

by covering the hose or attaching rudder.

If it has not been carried out at early stage, additional reinforcement on the pipe

Is required as you find the damage. (So as Hydro pipe)

26) After discharging cement, by cleaning the hold with lots of amount of seawater,

Prevent hardening of cement.

27) 7 CRANE HOUSE WATERTIGHT DOORS out of 8, as those are not making WATER TIGHT, you can see

the light came through the water tight door.

  It is considered that there was WATER TIGHT DOOR deformation during the WATERTIGHT

DOOR PACKING GUIDE repair

Counter measure : As the worker replaces deteriorated PACKING CHANNEL BAR in improper way, deformation has occurred.

This is frequently identified problem which can be the major deficiency on

P.S.C inspection.

During the repair, make sure to prevent deformation by working with experienced person or

take great caution.

28) SALT : Applied LIME COATING on 5meters from the bottom after the HOLD CLEANING.

During the HOLD inspection, LIME COATING condition has been satisfied.

Caution : APPLYING LIME COATING is required below T.S.T when the salt is loaded.

See BULK transport instruction for details.

**2. Deck Machineries**

1) MOORING WINCH & WINDLASS

- Trip of NO.1 HYD PUMP frequently occurs during the WINDLASS and MOORING WINCH

operation. After repair, no trouble has occurred.

- Small amount of oil leaks from WINDLASS HYD MOTOR in the BOSUN STORE, but the leaking

Point hasn’t been found. (Engineer in charge and Chief engineer have recognized it.)

- In prevention of inspection, if there is leakage, cleaning is required.

Before the forecastle WINDLASS OPERATION, do the cooling by NATURE VENT by

Opening the SKY LIGHT. If the WINDLASS is operated while the SKY LIGHT is closed,

HIGH TEMPERATURE ALRAM LAMP on and temperature rises rapidly.

- When securing anchor after hove up ANCHOR, if the anchor is half twisted,

Lower down the anchor into the water while the ship is making progress, and

Heave it again to untwist it, or you can restore the twisted anchor chain by using

lashing wire.

- Once a year, carrying out Windlass & Mooring Winch Annual Survey.

- As WINDLASS CLUTCH GEAR wear is progressing, continuously check between Claw clutch

Whether there is a gap or not.

- Poor MOTOR insulation and one-sided wear of Gear teeth in the Gear bow are progressing.

- Addition to wear out on the GEAR TEETH part, as sea water has infiltrated, the gear and

Shaft Get rusted.

- Due to weak motor power, while heaving up the WINDLASS(MOTOR) ANCHOR, the anchor could

not be smoothly hove up even if there is no swell. In this case, if the swell is

prevailing, as the anchor could not be hove up, vessel should properly be prepared.

- In case of the vessels having 3 control stand, as Emcy switch is connected in series

circuit,If it is not cleared all, the controller won’t work.

2) ACC. LADDER & PILOT LADDER

- During Ballast exchange, the sheave at lower part of Gangway is submerged.

(Newly built ship)

3) Others

a) As there was a history of repair due to PIN & PIN HOLE damage of connecting part between PISTON ROD and CRANK SHAFT ARM & JOUNAL which has been caused by the

deterioration and vibration of ELECTRIC HORN, thoroughly inspect the unit.

b) When the AIR HORN is operated, by using S/W and Lever together, prevent WIRE/SHEAVE fixation.

c) As there are GREASE TYPE and NON-GREASING TYPE of WHISTLE, must check it.

d) In case of NAV-LIGHTING SYS, due to infiltration of Seawater as it is deteriorated,

insulation and resistance becomes poor, and LAMP is damaged frequently.

Therefore, shall inspect/repair before Arrival/Departure.

e) Strictly manage maintenance history as deteriorated navigation and communication

equipments are frequently troubled.

**3. Safe equipment**

1) As Fire Valves are deteriorated, many fixation of valve occurs due to rust and corrosion.

Those shall be checked during monthly inspection and before Arrival. Free up the Hose

coupling and Nozzle by greasing, and check rubber condition too.

2) as each doors of LIFEBOAT are leaked during heavy weather and rain, there were lots of

repair history. Therefore, be cautious on wet damage of equipments in the boat. Inspection

shall be carried out after the rain and heavy weather.

3) Due to decrepit of LIFEBOAT, relevant with auto release, as there were frequent repair

history due to large gap between QUADRANT and LOCKING LEVER, continuous observation is

required.

4) Puncture by corrosion on LIFEBOAT ENGINE EXH’ GAS PIPE, Corrosion of BILGE PUMP,

corrosion on SAFETY BELT are frequently occurred, thoroughly check those.

5) As the life jacket can be damaged by the sea water infiltration, frequently check Box door

rubber packing etc, water tight condition

6) If Safety Symbol is not identifiable due to stain or damaged, frequently check and replace

the symbols.

7) Due to decrepit of equipment, water tight condition is not good even if the bottom plug

has been closed during the Life boat launching.

**4. Common machinery problems of Same series Vessels**

1) Due to 27K vessel’s characteristic, as leakage is severe from each part of M/E CYLINDER

COOLING JACKET while the ship is at berth, Leaked Cool water is transferred to the

F.O Drain Tank through the F.O Leakage line. Therefore, during the port stay,

F.O DRAIN TANK HIGH ALARM occurs frequently, and due to too small Tank capacity,

There is difficult when transfers it to the O.B TANK.

Counter measure : During the port stay, keep the in/outlet valve of M/E JACKET CLR S.W

Shut, and maintaining not less than 70’C of Jacket temperature helps on prevention

Of leakage.

**5. Engine machineries requiring extra caution**

1) Maintain not less than 24 ㎥ of M/E L.O SUMP TK level on CRT.

Otherwise, it provide cause of trouble due to over vibration noise of M/E SHUT DOWN, PUMP,

And L.O pressure decrement caused by MAIN L.O PP AIR adulteration.

2) After M/E F.O related work, by stopping SUPPLY & CIRC.P/P, refill the Air of DAMPING VESSEL & MIXING TANK, after all the pressure is out from the Pipe line.

Precaution: After refilling DAMPING VESSEL AIR, Air hose must be removed

(There was a history of STARTING AIR PIPE explosion during departure, as the oil back

flows through the AIR HOSE)

3) Copper material ANGLE PIECE GASKET in the SHIELD CASE is found at main points

In this case, as the Gasket corrodes fast, leakage occurs. Therefore, FLUTED TYPE GASKET

Shall be used for replacement.

4) Carry out periodical retightening of UNIONs of F.O High pressure pipe in the SHIELD

CASE

Cause: It provides F.O high pressure PIPE damage, and F.O leaks

5) While sailing hot area, Emulsion Phenomena occurs by the AIR COMP. C/CHAMBER OIL moisture

occurs frequently.

Must ensure whether h.P & L.P V/V SPRING general newtech supplied items or not before use.

Be cautious on occurrence of BLOW-BY. If 17-21 Kg/Cm2 of pressure is decreased,

Emulsification is improved considerably.

6) As F.O leaks from G/E F.O PUMP side, there are many cases of inflow of F.O into the L.O

SUMP TK, Periodical inspection by opening the Cam Shaft Cover is required.

7) As STERN TUBE SYSTEM OIL GRAVITY TANK(H&L) is located at S/G room, as the pour point

Of SYSTEM OIL becomes higher during the winter season, it OVERFLOWS to the

GRAVITY TANK AIR VENT. Therefore, L.O SUMP TANK HEATING shall be done.

8) Before departure, during M.C.S PUMP operation, When M/E AIR CLR S.W side AIR

Is at TEMP.CONT.3-WAY V/V BY-PASS POISTION, as it flows into the COMMON PIPE of C.S.W

SUCTION SIDE and causes AUX. C.S.W PP pressure drop, occurs S/B pump alternation operation

Or causes problems on G/E, BOILER, AIR CON. Refrigerator etc.

Therefore, before operating M.C.S.W PP on departure, select the 3-WAY V/V position to

FULL OVERBOARD position by adjusting M.C.S W OVBD TEMP. CONTROLLER, then operate

M.C.S.W PUMP.

Once the AIR PURGE is finished in the line, operate with Normal position/ this occurs at

Hot area, port that has too much loading and discharging.

**6. Characteristics of each vessels of same series**

a. HJPB

1) Precautions on G/E HEAD maintenance

a) INTAKE V/V SIDE CARBON deposit and cleaning

As load of ship’s G/E is low during the sailing, much carbon sticks on INTAKE AIR

WAY. Therefore, as Air V/V middle passage part is blocked by the Carbon(condition

can be checked by mirror), penetrating the hole and cleaning shall thoroughly be

done during the HEAD maintenance (OVERHAUL).

b) INTAKE V/V SEAT RING assembling direction

During the HEAD maintenance, if replacement shall be made as it is close to INTAKE

V/V SEAT RING WEAR LIMIT or as its condition is poor, must ensure the SEAT RING

Assembling direction by referring to INS.BOOK. If direction is different, EXH. GAS

Temperature can be increased. When vessel receives INTAKE V/V SPARE, must check

specification whether it is correct type or not.

c) As special device, DE-NOX, is installed at M/E SYSTEM, successor shall inquire to

predecessor and he shall be familiarized on management and operation method.

b. GTDR

1) BOILER Water supply fault

If the ship is sailing ocean, engineers can take proper measure after stopping the

ENGINE, but while the ship is being operated in the port, stopping M/E could

cause major accident and the vessel could be rejected by PORT AUTHORITY.

Counter measure: It is easy to take measure by connecting emergency line if the water

is not supplied due to air filling in the water supply pump or steam back flow of CHECK

V/V by pre-installing V/V and Hose so make General F.W connectable to Boiler water

Supply Pump suction pipe line.

2) BRIDGE MANEUVERING SYSTEM

When the MAIN/EM’CY power of ENGINE CONTROL CONSOLE & BRIDGE CONTROL CONSOLE etc.

is not supplied due to burn damage of FUSE, and if it is not restored early,

entry and departure can be denied by the PILOT.

Counter measure: attach power circuit diagram around the FUSE BOX in each CONSOLE

and furnish spare FUSE and TOOL in the consol.

3) As HATCH COVER HYD JACK CYLINDER has been leaked for several times, replaced OIL SEAL

of ALL CYLINDER , but still oil leaks through the space caused by cylinder wear.

Counter measure: Overall operating condition inspection with enough time before

Port entry/departure, frequently check up during the port staying, and taking temporary

measure on leaking part and cleaning up the oil are required. Secure the spare part

after departure and replace the part.

Active measure is required as above problem may brings seriously large problems

on P.S.C inspection, delay on work, pollution.

4) As vessel had been at Anchor for long period, a lot of marine growths which cause speed

reduction were attached on the ship’s hull plating. Arranged the diver, and carried

out polishing on bottom plate, propeller.

Counter measure; During the long term waiting, every 2weeks of period, heave up the

Anchor and sail with full speed ahead if prevailing situation allows.

If taking above measurement is not available, ballasting & deballasting can also be an

option. Maintain Ballast condition for a week, and maintain de-ballasted condition for

a week to prevent natural propagation. This operation shall be done after obtaining

port authority’s permission.

5) There was repair history as POOP MOORING WINCH HYD PIPE had been leaked before

Berthing at LIANYUNGANG, China.

Counter measure: It is able to take measure on leakage by checking winch operation

condition at least a day before the port entry.

Especially, on visual inspection, carefully see inside that hard to reach the hand

and replace the poor condition part before the leakage occurrence is the efficient way

to deal with the problem.

6) Carrying continuous replacement on leaking part as Deck main fire pipe line and branch

lines are Decrepit corrosion.

(Especially, leakage occurs at low part of fire hydrant valve and around u-bolt of

branch line with high frequency)

Counter measure ; This case could occur serious disadvantage as a major deficiency on

P.S.C Inspection. Therefore, thorough inspection/repair is required. If ship’s time

and manpower is not enough, considering shore support and other active measurement

shall be taken.

7) Hatch Cover’s hydro pipe leakage occurs - overall, there are many corroded hydro

pipe

Counter measurement ; Thoroughly check working condition before arrival in ample

time, and repair leaking part. Especially, the vessels having hydro operation device

shall maximally take care of leaking parts. By notifying the facts to all crew, all

shall be able to take emergency measures in case of emergency.

8) Full closing of NO.3 HOLD STBD BILGE V/V is not made.

As a LOCAL V/V is located inside of DBT, it can only be repaired at light ship

Condition while the vessel is at anchor. At Voy.144, 145, during the Hold cleaning,

While discharging the Bilge to the port side after PLUGING NO.3 HOLD(S) BILGE

V/V or filling up the water into the NO.3 HOLD(S) BILGE WELL, suction condition was

good.

Counter action: Working condition of V/V shall be checked routinely. (Half yearly)

You must bear in mind that the V/V can be at poor working condition at anytime to

Take proper action. Once the problem has been found, notify to C/E as soon as possible

And take proper action through consultation.

9) As MUNUAL HYD’PUMP UNIT is installed at front side of HOLD BILGE V/V UPPER DECK

CRANE HOUSE, by periodically apply Grease on working part to prevent fixation.

10) Closely check Open/close condition of AIR VENT V/V at BLR F.O HEATER side, as

the vessel uses D.O during the sailing and while S/B during entry/departure.

11) The Cool water(F.W) common line had been installed and used for Warming the

Generator halt in the operation, but blind plate has been inserted due to

Poor starting problem. Therefore, currently, each generator’s cool water line is

Separated independently. While sailing tropical area, there will be no problem with

It, but, while sailing cold area, WARMING problem could be caused.

12) While at berth, maintaining proper load of generator is required while BALLAST PP

or DECK CRANE is being used. There are many chances of BLACK OUT.

13) After DRAINING OUT JACKET WATER during the CYL HEAD OVHL or PISTON OVHL, and

While filling it back, check the J.C.F.W PRESS and carry out the test as air pocket

Could occur

14) As HYD HOSE of FEED PUMP OUTLET in the oil tank is damaged, CRANE stopping symptom

Occurs as HIGH TEMP SAFETY DEVICE is activated due to rising OIL TEMP as L.O leaks.

15) LUFFING is elevated even if LUFFING was not operated during the CRANE operation.

Checked the crane, and found the trouble on DERECTION VALVE (2221).

Took out the DERECTION VALVE (2221,3221)at No.2 Crane and installed it at NO.1

CRANE, and it works in normal condition.

16) There are cases of dislocation of DUST SEAL installed at upper side of HYD CYLINDER

Due to frequent H/COVER opening/closing. In this case, if this condition has been

Left for a long time, as impurities are flows into the Cylinder, causes the

Damage and oil leakage. Therefore, at Voy.139, installed No.1~5 HATCH COVER HYD.

JACK PROTECTOR COVER 19PCS and Produced DUST SEAL STOPPER and installed at ALL HYD.

JACK.

17) At the time of departure from TAURANGA port(NEW ZEALAND), due to fixation of

JACKET C.F.W TEMP CONTROLLER, M/E was SHUT DOWN as temperature rises, pushed SHUT

DOWN CANCEL BUTTON, but the M/E was not operated. Eventually ship was ran aground.

After the PCB CARD of M/E BRIDGE MANEUVERING SYSTEM dismantle and cleaning(contact

part),It works in normal condition

18) When receiving the bunker, due to poor No.5 F.O FILLING V/V, small amount of oil

Had been over flown through the AIR VENT

Inspected all bunker supply line, and replaced MANIFOLD STBD side F.O V/V

And No.5 F.O FILLING V/V MANIFOLD side DRAIN V/V.

As a result of inspection of inlet side B/F V/V(Korean product), seat ring was

damaged, and Worm Gear of No.5 F.O FILLING V/V also was damaged by inexperienced

HANDLING. Carried out Air test, and confirmed good water tight condition, completed

bunkering. When other maker’s product other than KEYSTON product is being used,

as it is presumed to be low seat ring life cycle, use it with caution.

19) As EMCY FIRE PUMP ROOM was flooded until MOTOR level, carried out MOTOR OVHL at 30th

Aug. 2011. After the DRY&FLUSHING, current operating condition is normal, but

still, Space Heater condition is poor.

20) As Water infiltrated between damaged part(caused by deterioration) of the pipe which

connects MOTOR BODY and TERMINAL BOX, and causes reduction of insulation and

resistance of NO.1 FAN MOTOR. Replaced Pipe and Bearing.