REPORT WRITING FOR ENGINEERS

PURPOSE OF THE REPORT

A report contains **detailed information**, which may be a:

A personal account.	Of an event or incident.
Routine report.	Factual / statistical information
Special report.	Investigations of methods, machinery or systems etc with recommendations for improvements
Ship Incident reports	These are often a combination of the above reports and are typical of machinery failure reports required for examination answers.

PRODUCING A REPORT

Before starting it must be clear **what the purpose** of the report is and **whom the report** is for.

All information must be gathered regarding the subject before creating a **rough draft** of the report.

The structure of the report will be along the following lines:

- Who is the report from: Rank/Ship/Location/date
- Title/subject of report
- What happened (Summary including Time, date etc)
- Has there been any personal injury or pollution
- What was the immediate affect - ship / personnel
- What was your first line corrective action
- Who have you informed (Class, authorities, P&I etc)
- What assistance do you require?

Consider now if you have sufficient information to draw conclusions or can you only recommend the next stages of investigation.

- What do you suggest as long term corrective action.

Having created the rough draft its content **is revised and clarified** before printing the **second draft.**

It should now be a matter of checking the **spelling, punctuation and grammar** before printing the final report.

EXAM QUESTIONS

There are two types of exam report questions, one which lays out the report structure for you with marks allocated for each section and those which simply ask for a report covering certain points with no breakdown of marks. It is vital that the content of your report justifies the award of marks for each section.

Whilst proceeding on passage the oil mist detector alarm indicated high mist levels in the main engine crankcase. Subsequent investigation indicated a wiped top end bearing and badly scored crosshead pin as well as a damaged bottom end bearing and pin on the same unit. Write a report to the ship managers/operators about the incident indicating:

a) your actions upon discovering the damage
b) your actions to ensure that the ship could safely proceed on its voyage
c) your advise on the full repair strategy
d) your recommendations for reducing the risk of future incidents of this nature.

The ship on which you are serving as Chief Engineer has suffered sudden failure of a turbo-charger bearing at sea. During the subsequent period when action was taken to deal with the problem a member of your staff was injured. Write a letter to the ship owner/manager explaining the problem and your action with respect to the turbo-charger and the member of staff.

APPLICATION OF REPORT RECIPE TO ANSWER

Whilst proceeding on passage the oil mist detector alarm indicated high mist levels in the main engine crankcase. Subsequent investigation indicated a wiped top end bearing and badly scored crosshead pin as well as a damaged bottom end bearing and pin on the same unit. Write a report to the ship managers/operators about the incident indicating:

a) your actions upon discovering the damage
b) your actions to ensure that the ship could safely proceed on its voyage
c) your advise on the full repair strategy
d) your recommendations for reducing the risk of future incidents of this nature.

REPORT SECTION	CONTENT	MK
Who is the report from: Rank/Ship/Location/ date	a) your actions upon discovering the damage	
Title/subject of report		
What happened (Summary including Time, date etc)		
Has there been any personal injury or pollution		
What was the immediate effect- ship / personnel		
What was your first line corrective action	b) your actions to ensure that the ship could safely proceed on its voyage	
Who have you informed (Class, authorities, P&I etc)		
What assistance do you require?	c) your advise on the full repair strategy	
What do you suggest as long term corrective action.	d) your recommendations for reducing the risk of future incidents of this nature.	

REPORT SECTION	CONTENT	MK
Who is the report from: Rank/Ship/Location/date	From: CEO: J Smith M V South Tyneside Newcastle – Hamburg 14 February 2000	
Title/subject of report	**Failure of ME No 3 United X-head and Bottom End Brg**	
What happened (Summary including Time, date etc)	At 10.00 hours 12/02/00 the ME OMD alarm sounded and the auto slow down activated. The OMD indicated high mist from No 3 unit, the bridge was informed and gave permission to stop. This action avoided a primary explosion and any personnel injury	
Has there been any personal injury or pollution	After 20 minutes cooling with staff remaining at a safe distance, the engine was isolated and crankcase opened and ventilated. Initial inspection revealed white metal protruding from both X-head and B/E bearings. The lubrication oil supply linkage was also found detached and hanging loose.	
What was the immediate effect¬ ship / personnel		
What was your first line corrective action	Bridge informed of damage and expected delay of at least 12 hours. The B/E Brg lower half was dismantled and severe scoring to the crankpin found. There was also clear signs of cross-head pin damage. Running gear + X-head was suspended, the top half of B/End removed and Con-Rod secured in c/case. Oil, air and services also blanked off unit as per manufacturers instruction. Before re-starting all swinging links inspected and all piston cooling low flow and LO pressure & temp alarms tested and found OK. Engine restarted at 22.00 hours and ship proceeded at maximum safe speed with ER manned at all times.	
Who have you informed (Class, authorities, P&I etc)	Damage to the crank-pin will require grinding undersize and the cross¬ head pin and brgs replacing. Class and P&I have been requested to attend vessel next port.	
What assistance do you require?	We have onboard a spare X-head pin and bearing set. Please arrange for extra labour to dismantle running gear and specialists for the re-grinding operation and NDT. I have raised provisional orders for undersize bearings (2 off) X-head pin + shells, swinging link and attachments.	
What do you suggest as long term corrective action.	The cause of this damage was failure of the swinging link supplying oil to the X-head and B/end. The drop in LO pressure was insufficient to initiate the alarm consequently the unit ran for several minutes starved of oil. The bolts holding the swing link were found to have stripped I believe due to them being the wrong grade (Mild steel should be HT Din 8.8) and also 12mm shorter than genuine originals in adjacent units. Last overhaul of unit in d/dock 10/99. I intend to check all swinging link bolts and locking devices fitted to all units, raise oil pressure alarm set point and lower X-head brg temperature set points.	

The ship on which you are serving as Chief Engineer has suffered sudden failure of a turbo-charger bearing at sea. During the subsequent period when action was taken to deal with the problem a member of your staff was injured. Write a letter to the ship owner/manager explaining the problem and your action with respect to the turbo-charger and the member of staff.

REPORT SECTION	CONTENT	MK
Who is the report from: Rank/Ship/Location/ date		
Title/subject of report		
What happened (Summary including Time, date etc)	explaining the problem	
Has there been any personal injury or pollution	member of your staff was injured	
What was the immediate effect-ship / personnel		
What was your first line corrective action	your action with respect to the turbo-charger and the member of staff	
Who have you informed (Class, authorities, P&I etc)		
What assistance do you require?		
What do you suggest as long term corrective action.		

REPORT SECTION	CONTENT	MK
Who is the report from: Rank/Ship/Location/date	From: CEO: M V Newcastle – Hamburg 14 February	
Title/subject of report	**Failure of Fwd M.E. Turbo Charger and injury of 3rd Eng during repairs**	
What happened (Summary including Time, date etc) **Has there been any personal injury or pollution** **What was the immediate effect-ship / personnel**	At 16.00 hours 12/02/00 Main engine auto slow down activated due to high exhaust temperature. Initial investigation revealed the forward turbo charger had stopped rotating and there was considerable local overheating. The bridge was informed and gave permission to stop. After allowing the components to cool for 30 minutes the end covers were removed and it was confirmed the exhaust end bearing had collapsed. At this point it was clear the oil pump suction pipe had dropped off before the failure (Found undamaged in the oil). Bridge informed delay of 6 hours minimum expected. During this initial investigation the 3rd Engineer (J Bloggs) sustained injury to his right ankle after mistakenly thinking he could remove the cover with bare hands. Finding it to hot to hold he dropped it allowing it to strike his right ankle, sustaining sever bruising and lacerations	
What was your first line corrective action	In view of the casing and rotor damage it was decided to remove the rotor and fit the blanking plates. This was completed satisfactorily by 21.00 hrs. Before re-starting the engine, the aft T/C oil pumps were inspected and although the pipes found tight the used locking plates had not been tabbed over. After replacing and locking them, the engine was re-started at 22.00hrs and proceeded at maximum safe revs, limiting output to maintain acceptable exhaust gas temperatures and ER manned at all times.	
Who have you informed (Class, authorities, P&I etc)	Class and P&I have been requested to attend vessel next port to survey damage and re-assembly of blower. The personnel department have been informed by the Master that J Bloggs will need to be repatriated and a relief arranged before sailing deep sea.	
What assistance do you require?	The ship has sufficient spares onboard to re-build the turbo-charger and I have raised orders to cover replacements. In order to reduce the delay in the next port, please arrange for specialist assistance with the rebuild work.	
What do you suggest as long term corrective action.	Initial investigations indicate the failure was due to poor assembly practice by dockyard staff at lay-by 30/12/99. Work was rushed due to the Holidays and the tab washers had not been renewed or tabbed over. Having checked the other machine I feel any immediate danger has been removed. However I do recommend we fit oil flow monitoring to each blower bearing which is an available option from the manufacturers. The accident I feel was a case of lack of experience (Mr Bloggs is 1st trip in the rank) and failure of ourselves to closely monitor his work. We are currently reviewing the risk assessment for this T/C work which will be complete before any further work on the T/C is carried out.	