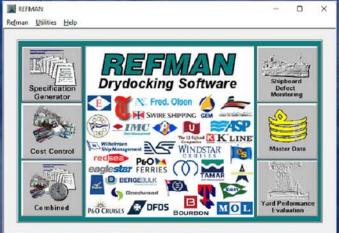
REFINAN Drydocking Software

If you write drydock specifications, **YOU NEED REFMAN'**s

Specification Generator

If you compare tenders from shipyards, **YOU NEED** BEEMAN's

REFMAN's Cost Control



If you want ship's staff involved in specification writing, YOU NEED REFMAN's

Shipboard Defect Recording

If you want standard specifications,

REFMAN's Master Data Maintenance

YOU NEED

If you are responsible for controlling costs during drydocking, YOU NEED REFMAN's Cost Control

for Superintendents & Ship's Officers



Drydocking Software Overview

Writing drydock specifications

Specification Generator is used for compiling and printing Refit, Repair & Drydock Specification documents

... getting ship's staff involved

Shipboard Defect Recording & Monitoring is used by ship's staff to record defects and other ship initiated jobs

REFMAN Refman <u>U</u>tilities <u>H</u>elp Creating 1/1 company 9 Comparing Shipboard Drydocking Software standards Specification Defect shipyard Monitorina Generator Fred. Olsen SWIRE SHIPPING GEM tenders Master Data is **IMC** used for setting K LINE The LL Ugland up standard **Cost Control** is WINDSTAR Master Data Cost Control specification used for recording, PeO templates, TURNING analysing and eaglestar FERRIES (standard job BI BERGEBULK reporting on the descriptions & cost of jobs in standard libraries ard Performa Evaluation Refit, Repair DFDS Combined P&O CRUISES BOURBO & Drydock Specifications Evaluating shipyard

Keeping control of costs & monitoring progress during the drydocking

Specification Generator, Cost Control & Time Management all in one

Yard Performance Evaluation is used to "rate" or "grade" the yard's performance before, during and after the repair period.

performance

Overview

REFMAN is a software package that has been specially designed to allow technical people who are responsible for the day to day running of ships, to take control of the drydocking and ship repair process.

REFMAN has a Specification Generator for compiling and printing specification documents; Cost Control for comparing shipyard tenders and reporting drydocking costs, Shipboard Defect Recording & Monitoring for managing defects and other jobs initiated onboard. There is also a Drawing Package for creating simple drawings, sketches and annotating photographs; a Time Management module for planning and keeping track of the progress of jobs and a Yard Performance Evaluation module for rating the yards performance.

When you use REFMAN to write specifications there are no large word processed documents to manipulate and the software itself handles all of the job numbering, text formatting, collation and merging of attached files and it automatically creates a table of contents and a list of attached files, so that leaves you with a <u>lot more time</u> to concentrate on the technical content of the specification.

Also, all of REFMAN's modules are fully integrated so when you use REFMAN to write a specification the framework for comparing tenders, recording costs, project planning, daily reporting and writing a drydock report is created and updated automatically each time a job is added, removed or cancelled in a specification.

So when you use REFMAN to control your costs, there are no cumbersome spreadsheets to setup, no complex formulas and the software produces all the reports that are needed automatically. The shipyards can even quote electronically so that means less time typing and checking numbers which leaves you a lot more time to concentrate on what the numbers mean.

Minitech Systems Limited. Bridle Way, off St. Vincents Close, Girton, Cambridge, CB3 0PB, U.K. Phone: 01223 277049, e-mail: sales@minitech-systems.com, website: www.minitech-systems.com From Outside U.K. Phone: +44 1223 277049

REFMAN – Specification Generator

REFMAN's Specification Generator has been designed to allow technical people to quickly and easily produce well formatted, professional looking specification documents.

To achieve this, REFMAN allows the creation of Standard Specification templates which can either be 'general' for use with any ship, or they can be tailored to a particular type or class of ship or tailored to an individual ship.

REFMAN encourages a high degree of standardisation, not just in the presentation, style and layout of specification documents, but also in technical content.

Standardisation of content is achieved by making use of previously written job descriptions both as templates for new jobs and as standard work descriptions which can be used over and over again.

This saves both time and effort when preparing new specifications and allows you to refine or 'hone' standard job descriptions each time they are used, giving you the possibility of producing 'tighter' and 'tighter' specifications!

Features include:

- Automatic Job numbering/re-numbering.
- Instant recall of any previous job description.
- Simple to use job writing facilities.
- Simple to use drawing tool for line drawings, sketches & annotating photographs and scanned images.
- Automatic formatting of printed specifications.
- Flexible document printing facilities.
- Automatic table of contents & list of attached drawings.

REFMAN – Shipboard Defect Recording & Monitoring

Recognising the part which ship's Engineers and Deck Officers play in initiating many of the 'repair' type items in a specification, REFMAN has been designed to provide a smooth transition for each specification item from 'defect report', through to inclusion as a 'job' in a specification right through to its eventual completion.

This is achieved by providing an onboard system for recording defects in a format which can be transferred to the Superintendent or Port Engineer and incorporated directly into a specification document with little or no retyping.

This makes it easier and quicker for the Superintendent or Port Engineer to get ship initiated jobs into the specification.

Also, because the Shipboard Defect Recording Module is cross-referenced with REFMAN's Specification Generator,

REFMAN – Cost Control

REFMAN's Cost Control module has been designed to allow technical people who are <u>NOT</u> 'accountants' to quickly and easily forecast the cost of a refit or drydocking, to obtain and compare competing tenders, to monitor and report on costs and keep track of changes during the repair period itself.

In a REFMAN analysis there are no complicated 'accruals', no 'reversals' and no 'balances B/F'. Instead, REFMAN simply uses the 'best' cost information which is available at any particular time. If a job is complete, the 'actual cost' is used, if a job is in progress, the 'bid' is used, and if a job has been included as an 'extra' and the only cost available is an estimate, then that will be used.

By combining these together, at all times before, during and after a repair period, the Superintendent or Port Engineer gets the clearest possible indication of 'how much has to be saved' or 'how much is available to spend'.

Features include:

- Ability to record estimated costs for yard & owners items, yard bid (including contingency for exclusions), and actual yard and owners costs for each job.
- Analysis of job costs against repair, capital, guarantee, insurance and/or individual account/project budgets.
- Ability to send Specifications to the shipyard and for them to submit tenders electronically so avoiding the need to enter prices and comments manually.
- Recording of yard tenders in tender currency with analysis in your own currency.
- Full range of on screen and printed reports in your own or tender currency.

when the final specification is produced, the ship's staff can easily confirm that all of the defects which they have reported actually found their way into the specification.

Features include:

- 'On screen forms' to ensure that the ship's staff supply <u>all</u> the information which the Superintendent needs.
- Automatic defect numbering.
- Simple to use defect writing facilities.
- Simple to use drawing tool for line drawings, sketches & annotating photographs and scanned images.
- Facilities for 'private' or 'departmental' work lists for 'ship's staff' jobs.
- Optional module which allows onboard defects to be monitored from the office and provide feedback to the ship about how each defect is to be dealt with.

System Requirements: Win11/10/8/7 (64 bit) with 4GB RAM or Win10/8/7 (32 bit) with 2GB RAM and 500 MB Free Hard Disk Space.

REFMAN for windows

Specification Generator

Automatic job numbering

Specification Generator Palace of the Seas 2017 DOCKING Reft Contracts - General Conditions

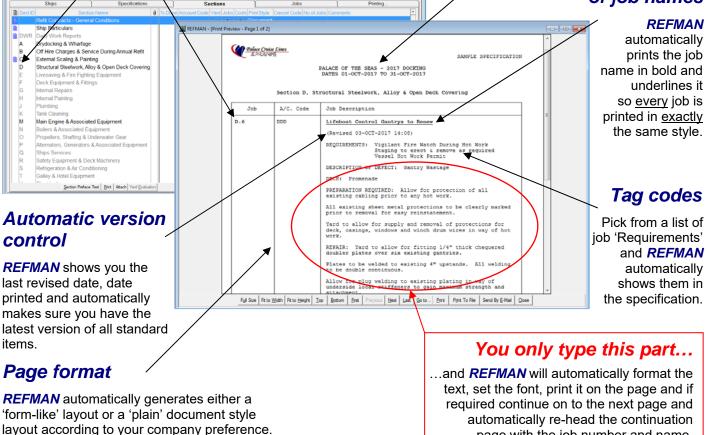
- General Ci

REFMAN automatically assigns each new job the correct number based on the section it is in and re-numbers existing jobs where necessary. So no more duplicated or missing job numbers in your specifications!

Automatic page headers

REFMAN automatically generates the header for each page, containing company logo or name, ship name, title, docking dates, section name and page number.

Automatic formatting of job names



mal Specification Display> 🔚

Overview

REFMAN's Specification Generator has been designed to allow technical people to quickly and easily produce well formatted, professional looking specifications.

To achieve this, REFMAN allows the creation of Standard Specification templates which can either be 'general' for use with any ship, or they can be tailored to a particular type or class of ship or tailored to an individual ship.

REFMAN encourages a high degree of standardisation, not just in the presentation, style and layout of specification documents, but also in technical content.

Standardisation of content is achieved by making use of previously written job descriptions both as templates for new jobs and as standard work descriptions which can be used over and over again.

This all saves both time and effort when preparing new specifications and allows you to refine or 'hone' standard job descriptions each time they are used, giving you the possibility of producing 'tighter' and 'tighter' specifications!

page with the job number and name.

REFMAN's Specification Generator also avoids the need to handle individual document files for each job and the collation problems which go with them and it does this without the need to manipulate large, cumbersome word processed specification documents and the formatting and printing problems which go with them.

REFMAN's Specification Generator is easy to use and handles all of the job numbering, text formatting, collation and/or merging of attached files. It also automatically creates a table of contents and list of attached files. So that all leaves you with a lot more time to concentrate on the technical content of the specification.

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REFMAN – Specification Generator

Provides the Superintendent or Port Engineer with facilities to create refit, repair & drydock specifications, copy and store specifications, add, amend, delete and cancel jobs, move jobs from one specification to another, print specifications and incorporate defect reports and other jobs which have been initiated in REFMAN's Shipboard Defect Recording module.

It also provides powerful logic to control the inclusion of previously prepared standard job descriptions and the use of previously written job descriptions as 'templates' for creating new job descriptions.

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Easy access to previous specifications and ship's defect reports, as well as a means of keeping track of non-drydocking jobs.

REFMAN allows you to create any number of specifications, so you can compile a specification for the next scheduled drydocking whilst simultaneously creating work lists for intermediate repair periods (some of which you may manage yourself such as in water surveys, wet docks, or stand-down periods).

You can also use a REFMAN specification as a 'holding area' for defect reports which have been received from a ship but which need to be inspected before deciding whether or not to include them as jobs in a specification.

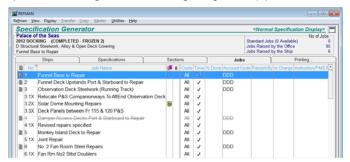
REFMAN also allows you to 'tag' jobs as being of a particular type or as having particular requirements and to use these to group related jobs into work lists.

These work lists or 'mini-specifications' can be useful when you are planning work for an onboard repair team or sea-going maintenance squad or for a specialised squad such as an asbestos abatement team, etc. These can also be used during the repair period itself for extracting just those jobs which are subject to inspection by the classification society or flag state surveyor.

Features

- Complete management of your job description files.
- Standard specification sections tailored for your Company (SFI Group System optional) to ensure standardisation across all specifications.
- Create standard specification templates for an entire fleet, class or type of ship, or for an individual ship.
- Build a library of your own standard job descriptions which can instantly be incorporated into a specification.

- Ability to copy a complete specification for use as a template for the next refit or drydocking specification.
- Easy retrieval, editing and re-use of any job description which has previously been included in <u>any</u> specification on <u>any</u> ship.
- Automatic inclusion of mandatory sections or pages (particularly useful for ship particulars, standard terms & conditions, general instructions, etc.).
- Easy to use facilities which allow jobs to be added, amended or deleted/cancelled at any time.
- Simple to use drawing tool for line drawings, sketches & annotating photographs and scanned images.
- Automatic job number allocation and automatic renumbering when jobs are added, moved or deleted.
- Automatic collation of external Attached files/drawings with automatically generated 'page numbered' list of attachments with direct access via hyperlink.
- Flexible document printing facilities which allows printing of a complete specification; a single section; a single job; just the 'supplementary' items; just jobs of a particular type; or print a summary of the requirements of each job.
- 'Tag' codes to provide each job with a succinct summary of what the job entails and to enable jobs to be grouped into work lists or 'mini-specifications'.
- Automatic generation of title page and 'page numbered' table of contents for 'original' and 'supplementary' specifications as well as for work lists or 'minispecifications' generated using 'Tag' code(s).

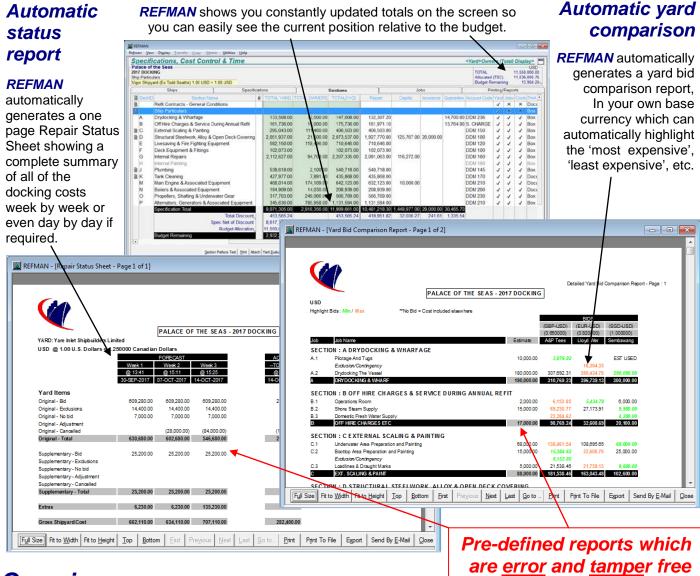


Full control over 'original', 'supplementary' and 'extra' jobs.

- Record 'supplementary' and 'extra' jobs into any section or into separate 'supplementary' or 'extras' sections.
- Separate 'Notes' & 'Remarks' for each job in the specification to enable the Superintendent to record information which will be used to help negotiate the final bill and/or create a post-docking Drydock Report.
- Create 'Daily Reports' which can be sent to the ship owner/manager in an automatically generated email along with 'Notes' and/or 'Remarks' included and Cost and/or Time reports attached.

System Requirements: Win11/10/8/7 (64 bit) with 4GB RAM or Win10/8/7 (32 bit) with 2GB RAM and 500 MB Free Hard Disk Space.





On-screen totalling

Overview

REFMAN' Cost Control module has been designed to allow technical people who are <u>NOT</u> accountants to quickly and easily forecast the cost of a refit or drydocking, to obtain and compare competing tenders, to monitor costs during the repair period itself and to reconcile and negotiate the final bill on completion.

In a REFMAN analysis there are no complicated 'accruals', no 'reversals' and no 'balances B/F'. Instead, REFMAN simply uses the 'best' cost information which is available at any particular time. If a job is complete, the 'actual cost' is used, if a job is in progress, the 'bid' is used, and if a job has been included as an 'extra' and the only information which is available is an estimate, then that is what will be used.

By combining these together, at all times before, during and after the repair period, the Superintendent or Port Engineer gets the clearest possible indication of 'how much has to be saved' to meet the budget or 'how much is available to spend'.

REFMAN's Specification Generator and Cost Control modules are fully integrated so when you use REFMAN to write a specification, the framework for comparing bids, recoding & reporting costs and project planning is created and updated automatically each time jobs are added, deleted or cancelled in a specification.

REFMAN's Cost Control module avoids the need to manipulate large cumbersome spreadsheets with complex formulas and the problems which go with them.

REFMAN's Cost Control module is easy to use and takes care of all the 'accounting and reporting tasks' leaving you free to concentrate on what the numbers mean.

REFMAN – Cost Control

Provides the Superintendent or Port Engineer with facilities for obtaining shipyard tenders electronically and for comparing prices on a job by job basis, in a mix of currencies.

It also provides facilities for recording estimates of the cost of yard work (optional) and sub-contract labour, owner's supply materials and general expense elements of the jobs which have been included in a specification.

Once a yard has been selected and the repair period is underway, REFMAN is used by the Superintendent in the yard (normally on a laptop/notebook computer) to monitor the cost of jobs which arise as 'extras' as well as the cost of variations in the scope of the originally contracted work.

Finally, when it is time to settle the shipyard's invoice, REFMAN provides facilities to record the actual cost of each job and produce reports in 'bid' currency for agreeing or negotiating the final cost.

Features

- Complete management of costs with the ability to record estimated costs for yard & owner's items, yard bid (including contingency for exclusions) and actual yard and owners costs for each job.
- Full control over allocation of account codes to each job and the amount (or proportion) of the cost of each job to allocate against each budget.
- Automatic allocation of costs against budgets for repair, capital (investment) expenditure, insurance (casualty or damage claims) and guarantee work.
- Yard bid comparison which takes account of the cost of yard items, owners items, negotiated discounts, number of repair days and number of deviation days

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7 · · · Fuel Cost · · Discounts: Agreed Lun	FCA=Fuel for d	leviation DEV * 4	0 t.p. d. @ 500	per tonne	f costs)

Support for four levels of shipyard percentage/lumpsum discounts.

 Ability to send Specifications to the shipyard and for them to submit tenders electronically so avoiding the need to enter prices manually. • Facilities to record 'supplementary' jobs which arise after the original yard tender is accepted but before the drydocking begins

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Bid Comparison Screen showing all costs for each shipyard.

• Facilities to record 'extra' jobs into any section or into a separate 'extras' section. Either way, 'extra' jobs are totalled separately from originally contracted work.

Rectifi	cations, Cost Con	trol & Time							<sant-dene< th=""><th>v (Tenel) Ofeinity*</th></sant-dene<>	v (Tenel) Ofeinity*
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Cost of 'original' and 'extra' jobs shown in 'bid' and 'owner's' currency.

- On screen and printed reports to facilitate cost analysis including a one page Repair Status Sheet which shows a complete cost summary/forecast, with the ability to save and recall forecasts.
- Full reporting of the cost of projects, insurance/casualty and guarantee claims.
- Automatic apportioning and allocation of service costs to the cost of projects and claims.
- Full reporting of the cost of owner's supply items with facilities to record up to eight categories for each job and to report by purchase/work order numbers.
- 'Tag' codes to produce cost reports and summaries for jobs of a particular type or category.
- Pre-defined, reports which are easy to produce and free from 'spreadsheet errors' ensure that management always receives accurate information in a consistent format, regardless of which Superintendent is in charge of the docking.

System Requirements: Win11/10/8/7 (64 bit) with 4GB RAM or Win10/8/7 (32 bit) with 2GB RAM and 500 MB Free Hard Disk Space.

REFMANfor windows

Shipboard Defect Recording

...and that is all there is to it ... which should

...and ensure that the description actually contains all

of the information which the Superintendent needs.

ensure that the Superintendent never sees

a 'one-line' defect description again...

- - -

Tag codes

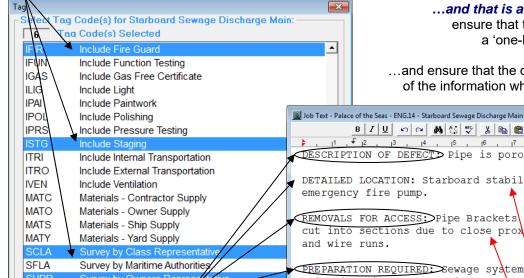
Provide a quick and simple way for ship's staff to indicate what is involved in a defect or job without any typing.

3 Simple steps to writing a defect report

- Type a brief heading/title for the defect.
- Type a few words against the prompts in the standard form.

B Z U 🗠 🗠 👫 🕼 🖤 🐰 🖻 🛍 🕇 🐴 🖧 S 🗞 😥 🔜 🛷

• 'Tick' the tag codes which are relevant.

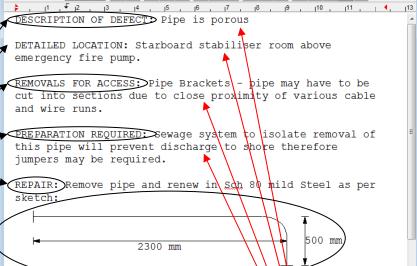


On screen 'forms'

Each time a defect is recorded, **REFMAN** automatically displays a 'company' standard form which contains prompts to remind ship's staff about what information is required for the particular type of defect which is being recorded.

Simple drawing tool

REFDRAW for line drawings, sketches & annotating digital photographs and scanned images.



ship's staff type this

gloss (all fire

Overview

Recognising the part that ship's Engineers and Deck Officers play in initiating many of the 'repair' type items in a refit, repair or drydock specification, REFMAN has been designed to provide a smooth transition for each specification item from 'defect report', through to inclusion as a 'job' in a specification right through to its eventual completion.

This is achieved by providing an onboard system for recording defects in a format which can be transferred to the Superintendent or Port Engineer for approval and incorporated directly into a specification document without any sorting, filing or re-typing.

This makes it quicker and easier for the Superintendent or Port Engineer to get ship initiated jobs into the specification.

REFMAN's Shipboard Defect Recording module is easy to use by ship's Engineer and Deck Officers, even if they have little or no previous computer experience.

Through the use of standard forms in conjunction with standard 'tag' codes, REFMAN's Shipboard Defect Recording module makes it easier for ship's Engineers and Deck Officers to provide the information which the Superintendent or Port Engineer requires in order to prepare the specification.

Also, because the Shipboard Defect Recording Module is cross-referenced with REFMAN's Specification Generator, when the specification is eventually produced, ship's staff can quickly and easily check that all of the defects which they have reported actually found their way into the final specification.

Minitech Systems Limited. Bridle Way, off St. Vincents Close, Girton, Cambridge, CB3 0PB, U.K. Phone: 01223 277049, e-mail: sales@minitech-systems.com, website: www.minitech-systems.com From Outside U.K. Phone: +44 1223 277049

NB: Not to Scale

resistant).

To be given two coats primer and one white

REINSTATE: Pressure test to 5 bar before reliting, leak

test upon completion to second engineers satusfaction.

REFMAN – Shipboard Defect Recording

Provides ship's staff with facilities to record defects on • board, including creating and storing defect lists, adding, amending, deleting and cancelling defects, moving defects from one list to another, printing defect lists and transferring defects reported in a particular period to the Superintendent or Port Engineer.

REFMAN allows you to create any number of defect lists. Lists can be 'exportable', that is to say that the defects they contain can be transferred to the Superintendent or Port Engineer, or they can be 'non-exportable' which means that they can be used as 'private' or 'departmental' onboard work lists for ship's staff.

Jobs in 'private' work lists can start out as 'one-line' items which are simply deleted as they are completed. Those items that cannot be completed by ship's staff in service can later be expanded into a full defect description before being assigned to the 'exportable' list for transfer to the Superintendent or Port Engineer for possible inclusion in a refit, repair or docking specification.



Easy to use by ship's staff.

REFMAN also allows ship's staff to assign codes to jobs to 'tag' them as being of a particular type or as having particular requirements. These 'tag codes' can then be used to produce work lists of similar or related work for use during a stand down period or other *ad hoc* repair periods.

Features

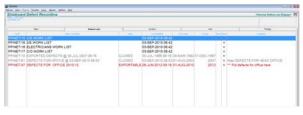
- On board recording of defects and job descriptions.
- Pre-defined sections for ease of use, ease of printing and standardisation of reporting across the fleet.
- On screen forms to ensure that ship's staff are always prompted to provide a full description of every job.
- Simple to use defect writing facilities with drawing tool for line drawings, sketches and annotating photographs and other scanned images.
- Easy to use save and recall facilities which allow defects to be added, amended or cancelled at any time.
- 'Tag' codes to provide defects with a summary of the job content and to enable defects to be grouped into work lists or 'mini-specifications'.

Automatic numbering of defects as they are added to a defect list.

bioboard Defect Recording							riternal 2	Infant Los Draning?
Control of the second se								
	na l'		Largest .			-	. Per	
Bendar Egrava to the second of the second seco	EXPORTED EXPORTED EXPORTED EXPORTED EXPORTED EXPORTED EXPORTED EXPORTED EXPORTED EXPORTED EXPORTED	DEM DEM WMCC WMCC WMCC WMCC WMCC WMCC WMCC WM	Second Engineer Second Engineer	2011/100246	Purifier Room	COOTINUORESLORULON PRESINOT	OT WORK	NET 47 ENG 1 NET 47 ENG 2 NET 47 ENG 2 NET 47 ENG 4 NET 47 ENG 1 NET 47 ENG 1 NET 47 ENG 1 NET 47 ENG 1

Defects transferred to Superintendent are marked as 'exported'.

- Flexible printing facilities which allow printing of a complete defect list; a single section; an individual defect; all defects of a particular type, or print just a summary showing the main job requirements or assigned priority.
- Automatic generation of title page and 'page numbered' table of contents for all defect lists.
- Attach external files/drawings for transfer to the office.
- Ability to transfer defects from ship to Superintendent for easy inclusion into a specification.
- Transfer defects via your standard email client using built in "Send by Email"; via your existing file transfer/ server replication mechanism or by DVD/CD or Memory stick, etc.
- Facilities for each ship's Engineer and Deck Officer to maintain private 'non-exportable' work lists with ability to transfer to/from the exportable defect list.



Easy access to 'exportable', 'private' and 'running' defect lists.

- Ability for Superintendent to include, add and amend ship initiated jobs with little or no re-typing.
- Superintendent has full control over which ship initiated jobs are included in the specification and which are rejected. Accepted jobs may be allocated to any section in any specification. Rejected jobs can be cancelled, referred back to the ship for additional detail or included in another work list.
- Active defects which are still outstanding at the end of a docking or reporting period automatically 'carriedforward' to a new list.

System Requirements: Win11/10/8/7 (64 bit) with 4GB RAM or Win10/8/7 (32 bit) with 2GB RAM and 500 MB Free Hard Disk Space.

REFMANfor windows

Shipboard Defect Status Monitoring

inling.

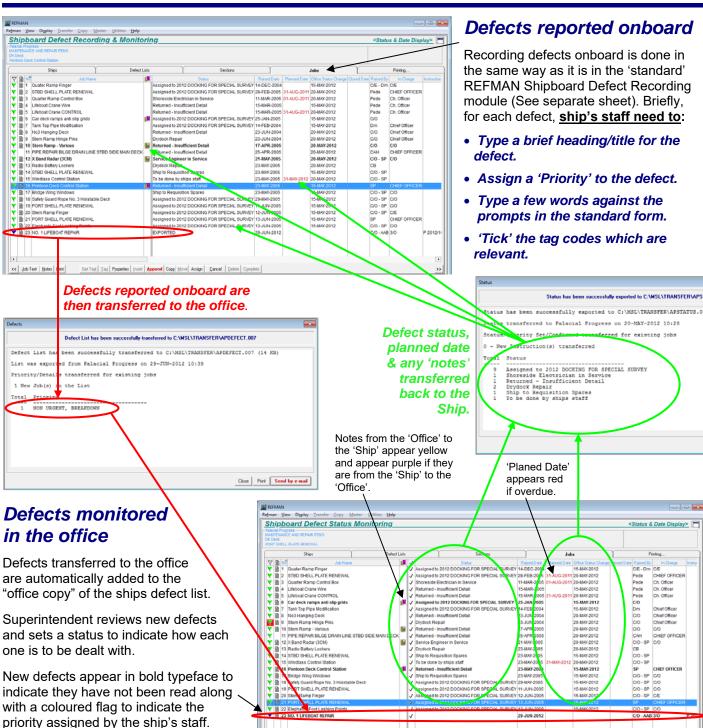
Chief Officer Chief Officer

Chief Officer C/O

EF OFFICE

CHIEF OFFICER

C/O C/E



Overview

Makes Shipboard Defect Recording a "two-way" process rather than the "one-way" operation when REFMAN's original Shipboard Defect Recording module is used alone. Defects are reported onboard using REFMAN's Shipboard Defect Recording module as before except that now the ship must also assign a priority to each defect. Defects are transferred to the office where they can be reviewed, assigned to a specification or have a status and planned date assigned to indicate how and when they are to be dealt with.

The status, planned date and any 'notes' explaining why a particular status has been assigned are then transmitted back to the ship. This provides the ship with confirmation that the reported defects have been received as well as providing positive feedback about how and when each one is to be dealt with. As Defects are rectified they are marked as complete by ship's staff along with a date and code to indicate how and when they were actually dealt with. In this way both office and ship can see the current status of every reported defect.

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cc Job Text Notes Dirk Get Text I as Properties Locate in Spec Copy Move Assign Status Delete

REFMAN – Shipboard Defect Reporting Onboard.

Onboard, ship's staff have access to all the normal facilities provided by the standard REFMAN Shipboard Defect Recording Module, including:

• Pre-defined sections for ease of use and ease of printing.

	RD	FMAN											
R	efm	an ⊻ie	w Display Iransfer	<u>C</u> opy <u>M</u> aster	Utilities	Help							
			ard Defect R	ecording	<u>g & Mo</u>	<u>nitorin</u>	g			<status &="" date="" display=""> 🔚</status>			
ſ	Tancia Program Manthanol And Repart Roles (201 Depart												
			Ships	De	efect Lists		Sec	ions	Jobs	Printing			
	D	ID	Section Name	Account Code	Cancel Code	Not Closed	Not Exported	Comments					
		DK	Deck			23 of 23	0 of 23						
		ENG	Engine			44 of 51	0 of 51						
		ELE	ELECTRICAL			6 of 13	1 of 13						

The number of defects waiting for transfer to the office is shown in red.

- On screen forms to ensure that ship's staff are always prompted to provide a full description of every defect.
- Simple to use defect-writing facilities with drawing tool for line drawings, sketches and annotating photographs and other scanned images. Files can also be attached.
- Easy to use save and recall facilities that allow defects to be added amended or cancelled at any time.
- Automatic numbering of defects as they are added to a defect list.
- Tag' codes to provide defects with a succinct summary of the job contents and to enable defects to be grouped into work lists or 'mini-specifications'.

Additionally, each time a defect is recorded onboard, ship's staff are prompted to assign a priority:

Append Job:						
Job Number.	DK.24					
Job Name:	NO. 1 LIFEBOAT REPAIR					
Short Name:	NO. 1 LIFEBOAT REPAI					
Comments:						
Account Code						
Raised By:	RAB C/O CHIEF OFFICER		•			
In Charge	3/0 THIRD OFFICER	-				
Location:	Boat Deck Stbd					
Planned Maintenance Ref:	2011/100234					
Priority:				-		
	1 Immediate, Ship cannot trade 2 Immediate, Potential stoppage					
	2 Immediate, Potential stoppage Jurgent, Impact Vessel Operation			**	Options	Close OK
	¥ 4 Urgent, Damage			× .	Opuons	Close OK

Can also be used in conjunction with an interface to your PMS.

Defects are then transferred to the office in the normal way. After the defects have been processed in the office, the ship will receive a status transfer that updates the defect list to show how and when the Superintendent has decided to deal with each of the reported defects.

If the status of a defect changes before it is rectified, both the ship and office copy of the list are updated to keep everyone informed. Once a defect has been rectified, the ship marks it as complete, records the date it was completed and assigns a 'user-defined' completion code to indicate how it was actually dealt with.

REFMAN – Shipboard Defect Status Monitoring in the office.

In the office, the Superintendent has access to a complete copy of the ships defect list which is updated each time the ship makes a transfer to the office. When new defects are received these are reviewed by the Superintendent and then processed.

Defects that are to be dealt with during a Refit or Drydocking are assigned to a Specification as normal, but doing this also sets a status in the Defect List showing exactly which specification it has been assigned to.

Defects that are to be dealt with in service which do not need to be assigned to a specification can still have a "planned date" and a 'user-defined' status code assigned to indicate how they are to be dealt with. A status can also be used to instruct the ship to 'cancel' an item or request that they send more detail about a particular job.

Frinklin etner Des Digity Tante Copy Merer					19	181
Shipboard Defect Status Mo	nitoring				<status &="" date="" disp<="" th=""><th>402 T</th></status>	402 T
Starting best	Defect Links	- î	lectore]	July .	Patra	
78 -	in term		1 a a			1.12
1 Tank Top Pipe Modifica B 8 No3 Handing Deck	Set lines a Magazzania			to 2012 DOCKING	FOR SPECIAL SURVEY	14
9 Stern Ramp Hinge Pint 10 Stern Ramp - Various 11 PIPE REPAIR BILGE [12 X Band Radar (3CM) 13 Radio Battery Lockers	Laing Kaser, David Kaser, Art, Code Observe Frankle	No3 Hanging Deck No.3 Hanging Deck	i Mantenance shore technician	-		23 17 25 21 23
14 STBD SHELL PLATE F 15 Windlass Control Statis 16 Pontoon Deck Control 17 Bridge Wing Windows	Parent Date	Assign to CREWY To be don OOCK Drydsck I ELDD Company	Electrician Dryttick	•	a	23 23 23 23 23
18 Safety Guard Rope No 19 PORT SHELL PLATE F 20 Stern Ramp Finger	RENEWAL	RELIS Company RELIO Rejected REG Ship to R SCOD Shoread	Electrican in Senice - Ship to Cancel aguitton Spans - Contractor - drydtockneger - Contractor - In Senice	10 10	FOR SPECIAL SURVEY FOR SPECIAL SURVEY FOR SPECIAL SURVEY	11 12

The Superintendent can also attach notes to a defect to give the ship instructions or further explanation and can also amend the Priority that was assigned by the ship.

At any time, the status, planned date, amended priority and any 'notes' can be transferred back to the ship.

(rame	Defect Status Report		PALACIAL	PROGRESS - MAIN	TENANCE AN	O REPAIR ITEMS		198.1	
	as harts	-	and the second sec	+ C1494	Purket By	Rater Parmet	Table Dispeter Date Date	1.0.0	-0-1-0
	ON: DK DECK								
pk i	Gueter Rains Finger		ATTURNEY	OHENENENEN	CE-DA	14-080-0884	0.789-0112	Assigned to 2012 DOOKING FER	
1.00	STRO D-ELL PLATE REVEALS		TANK DE HATER BALLART	DHEPOPPOER	Pete		16-769-0112	Avegrei Is 2013 DODKING FOR MILLIA, SURVEY	Page: 1
1.1	Gumer Raing Control Buil		Prop Deck	On Officer	Pete		28-349-0212	Assigner to 2012 DOOXING FOR MEDIA, BURNEY	0.000000000
100	Liferant Darie street	1.0	Attribute place for	pi phai	Parts	10.044.000	10.000-0112	Telurat - Institute Data	
100	Lifement Drame CONTROL		Attoorig Date Port	01.07mi	Pair	18-AMP-2009-31-AUG-2011	38-3,9-3013	that he he called takes	
DK.4	Carmen range article gress		Carmon		66	25-4-2005	10-708-0212	Reprint - Stip to Cartal	
267	Tarry Top Fige MacRoster		Pro Tare Tas	Charl Officer	Qm.	14-985-2004 13-989-2012		Brunese Contector - prycolamper	
Di B	had ranging bein		Test Dee	Chef Officer	60	D-Artika	16-789-0212	And and a second	
20.0	team Auroj mega Pera		Iten fans	Draf Office)	0.0	23-04-2284	10-P09-0112	Assigned to 2010 DODKINE FOR BREDW, BURKEY	
11.36	Kinet Rata - Valla		Betters	DHE*DATCES.	00	11499-200 11499-011	2-07-012	To be serve to engineer?	
26.11	PIPE REPAIR BUSE DRAINLINE ETROBOLING DECK	44 8	STRUE OF SAM DECK	CHEROPHCER	Carri	15-A#4-0225	16-408-0012	Registria - Brisi to Carlan	SPEC
жн	K Banz Raiter (1011)		transplated	CHEF CARCER	00-8*	1-04+288	10-709-0112	Assigned to 3012 DOCKING FDR MRECK, SURVEY	
0010	Rack Ballers Linners		Market Mark		C#	ED-MAY-2008	16-798-2212	Waresda Contamin'-in Balance	
36.14	\$790 SHELL PLATE REVENAL	- 1	No 2 Contem		00-88	1340AY-2008	16-P09-0112	Returned - Insufficient Datest	
56.18	HIMDERE CURTOL BURST				00-88	23-44AY-2028	10-705-0112	Returned - macRoem Salad	_
26.18	Policier Des Centre Balleri			CHEFORFICER.	34	254IA7-028	10-709-0112	Assignal to DRYDDICK 2017	-
DC 17	Bridge 10 g millions			DHEFORMORR	00-88	114M-1288	16-789-0212	Assigned to 2011 IN HATER BURNEY & REFARE	
	DK4		leboat Crane Wire	10			161005200		1.00
	DK.5		Neboat Crane CONTRO						
	1.000	- 5							
	DK.6	0	ar deck ramps and slip :	grida					

status of defects.

Reports can be generated in the office showing the defect status for a single ship, a group of ships or the entire fleet.

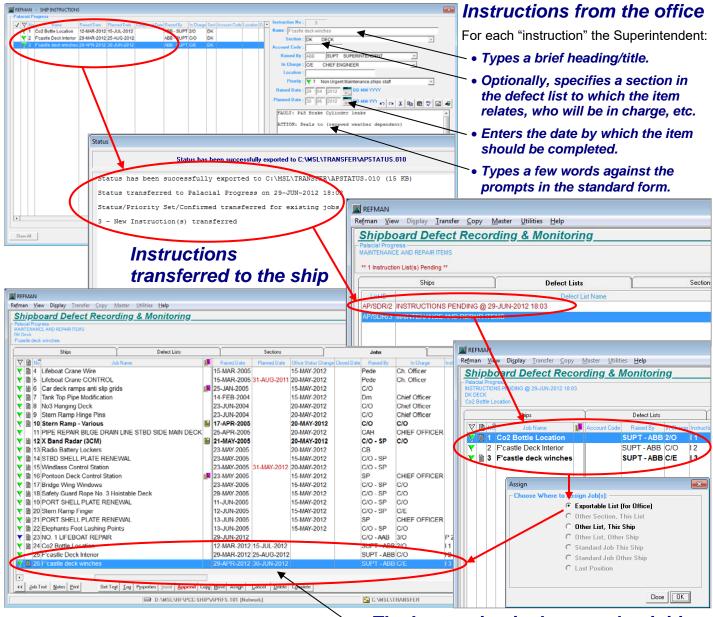
hipboard Defect Statu	s Monitoring					1		
Ships	Deflect Lints	1	Sections	1	Jobe	Paving		
6	Part .		Stan					
Fleet A	Palacia	al Carrier						
Fleet B	Palacia	Palacial Freighter ** 1 of 1 Defect(s) waiting for Office Status **						
Fleet C		Palacial Prestige Palacial Pride						
Vessels No Longer in Se	rvice							
		Palacia	al Progress ** 2	of 86 Defec	t(s) waiting for C	ffice Status **		
		Palacia	al Route					
		Palacia	al Sky					
		Palacia	al Sun ** 0	of 1 Defect	(s) waiting for Off	fice Status **		
		Palacia	al Transporter ** 1	of 1 Defect	(s) waiting for Off	fice Status **		

The number of defects waiting for action by the office is shown in red.

System Requirements: As per REFMAN's Shipboard Defect Recording or Specification Generator module as appropriate.

REFMAN for windows

Ship Instruction & Feedback Module



Overview

REFMAN's Ship Instruction & Feedback module has been designed to provide a simple means of ensuring that defects and other jobs which have been identified by the Superintendent or which have been brought to the Superintendents' attention (after an audit or ship inspection for example) are recorded and dealt with via REFMAN's Shipboard Defect Recording system onboard.

This is achieved by providing the Superintendent with the facility to send "instructions" to the ship which ship's staff can then use to automatically initiate new items in REFMAN's Shipboard Defect Recording system.

Jobs initiated in the Shipboard Defect Recording module in this way are automatically cross-referenced

The Instruction is then used to initiate a new item in the ships' defect list

with the original instruction so that it is easy for ship's staff to track instructions and to check which have been processed and added to the ship's Defect List, which have been completed and which are still outstanding.

When used in conjunction with REFMAN's Shipboard Defect Status Monitoring module in the office, the Superintendent can also easily check the status of each Instruction and see which are overdue.

Used in this way it provides a comprehensive system for dealing with defects identified during ship inspections/ audits, *ad hoc* defects and or jobs that are identified following a Superintendents visit to a ship. Most importantly it provides a means of ensuring that nothing is overlooked and every item is dealt with.

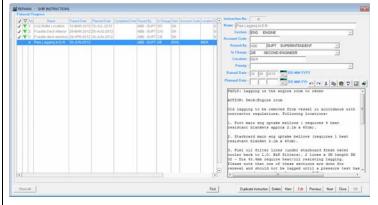
REFMAN – Ship Instruction & Feedback Module in the office.

Provides the Superintendent with the means to create a list of "instructions" in the office that relate to defects or jobs which the Superintendent wants the ships' staff to record and deal with via REFMAN's Shipboard Defect Recording module onboard.

An instruction can just be a simple one-line item to act as a "prompt" or "reminder" to ships' staff to record an item that has previously been raised or discussed:

12-		FaterZate		Rainiby	In Over	e Text All Inst Cod	Mane Frantie	3				_
1 42	Co2 Bottle Location Ficastle Deck Interior	29-MAR-2012	25-AUG-2012	ABB - SUI ABB - SUI	TC/O	DK DK	Section : Account Cade					2
							Raised By In Charge Location	1.2.2	SUPT CHIEF ED	SUPERINTENCENT	+	
							Passify: Record Date:	DA	14 2012	DD HM YYY +> C+)		
							FAULT: F4	5 Brai	te Cylind			ĺ

Alternatively, it can contain detailed instructions about the actions required to rectify a known defect or deficiency:



Instructions are transferred to the ship automatically when a routine "Status" transfer is made from REFMAN's Shipboard Defect Status Monitoring module. Or they can be transferred separately if a status transfer is not due.

K REFMAN			
Refman View Display Tra	nsfer Copy Master Utilities Help		
Shipboard De	Transfer Status & Instructions to Ship		
- Palacial Progress MAINTENANCE AND REPAIL	Transfer Instructions to Ship		
MAINTENANCE AND REPAIL	Re-Transfer Instructions to Ship		
	Transfer to Planned Maintenance System Interface File		
Ship	Receive Defects from Ship	Sections	Jobs
List ID	View Transfer Log		Status Last Modified
AP/SDR/3 MAINTENAN	View Missing Transfer Files		EXPORTABLE 30-JUN-2012 18:2

At any time a printed list of instructions can be produced along with a summary showing the total number of instructions and the numbers that have been completed, transferred, processed onboard, etc.

			PALAC	IAL PROGR	ESS-ACTIVE INSTR	OCTIONS			
	8.00 P		Per Par No.	funet by	1 Charge		Pater Date	Eat Based 0	
	CER BITLES Areations			135 2000	COLOR OFFICER		11-342-3115	\$1.702007 Htt. 2 48 AND 2018	
	Frightle Smith Salestics		24	A44 - FOFT	ITTERCATERCENT.		13-208-2114	01-PE-0004 800 5 15-800-2014	
6	4/8-7-carton-deet		-				*******		
	Coastle dails minihan		14	and stirt	cacar orvines		18-308-2314	41-242-2213 x20 X 25-482-2214	
	Staty Fol Salling Task - Doctation	ied with Polpetgrave					15-708-2116	308.3 25-670-2016	
	Total Busher of Destructions	2							
	Total Closed Instructions	1							
	Socal Transformed to Ship	+							
	Total Included in Kapittable List	¥							
	Suial New Instructions								
	Tiles								

REFMAN – Ship Instruction & Feedback Module onboard.

When new "instructions" are received onboard, they appear as "Pending Items" in the defect list to alerts ships' staff to the new "instruction":

6	REFMAN				
	Refman View Display Iransfer Copy M	Jaster Utilities Help			
	Shipboard Defect Record	ding & Monitoring			
	Palacial Progress MAINTENANCE AND REPAIR ITEMS				
	** 1 Instruction List(s) Pending **				
ľ	** 1 Instruction List(s) Pending ** Ships	Defect Lists	Sections	Ţ.	Jobs
		Defect Lists Defect List Name	Sections	Status	Jobs Last Modified
	Ships	Defect List Name	Sections	Status IMPORTED	
	Ships List ID	UNI-2012 18:03	Sections	IMPORTED	Last Modified

To "clear" the pending item from the list, each new instruction has to be assigned into the ships main defect list. Once in the main defect list, ships' staff can add a full description of the work, insert drawings or images, set tag codes and attach files, in the same way as they would for a new defect or job which is initiated manually.

📓 Job Text - Palacial Progress - DK.26 - F'castle deck winches
B Z U 🗠 🗠 🚧 🍪 🖤 🐰 📾 💼 ୩ 🛳 🐒 🚱 😥 🖾 🛷
FAULT: F&S Brake Cylinder leaks
ACTION: Seals to (renewed weather dependent)
DESCRIPTION OF DEFECT:
LOCATION OF REPAIR Deck:
Location: Port/Starboard/Centre
Frame Numbers:
Drawing/Manual Reference:
CLASS ATTENDANCE REQUIRED: YES/NO
SERVICE ENGINEER ATTENDANCE REQUIRED: YES/NO
Removal/refitting for access:

These defects are then transferred back to the office in the normal way, along with their original Instruction reference where they can be monitored and/or included in a drydock specification.

The instructions can also be displayed in a list on the screen onboard in exactly the same way as they can in the office.

1	7 N	Name	Raised Date	Planned Date	Completed Date	Raised By	In Charge	Sect	Account Code	Location	Export ID	Received By Office
1		Co2 Bottle Location		15-JUL-2012		ABB - SUPT		DK			SDR 3 DK 24 01-JUL-2012	
1	2	Poaste Deox Interior	29-MAR-2013	25-AUG-2012		488 - SUPT	C/0	0K	_		SOR 3 DK 25 01-JUL-2012	Waiting for confirmation
1	3	Ficastle deck winches	29-APR-2012	30-JUN-2012		ABB - SUPT	C/E	DK			SDR 3 DK 26 01-JUL-2012	Waiting for confirmation
			*G:	ick' = Proces men' = Proces	ssed Onboar		ed, wait	ing	for Acknow	ledgem	ent from office	

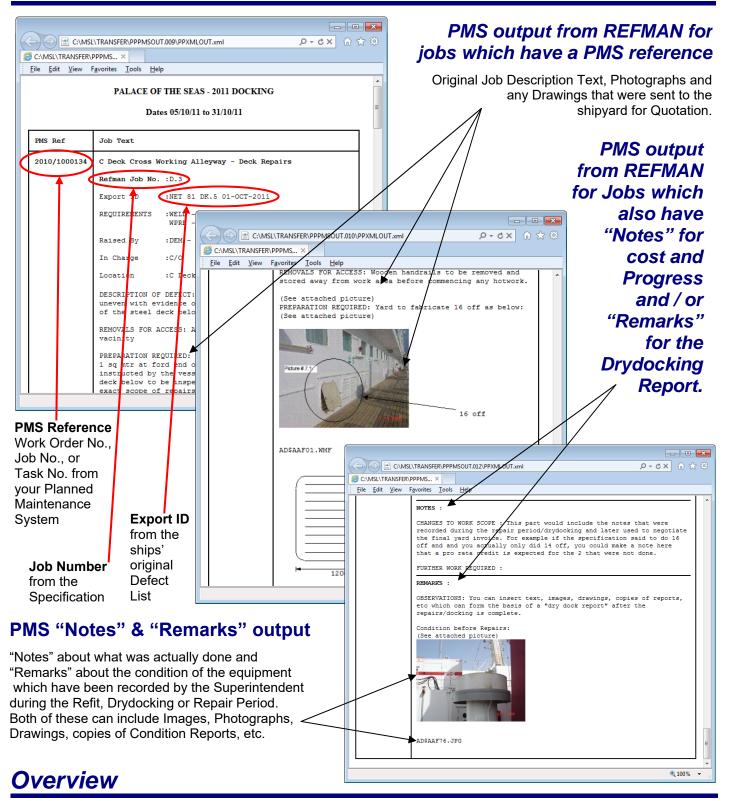
Instructions that have been "processed" onboard and have already been included in a defect list are shown with a "tick". Once transferred to the office an "Export ID" is added which will appear 'green' until they have been acknowledged by the office. Items that have been completed are shown with a green "tick" and items that are overdue have the "Planned Date" shown in red.

In this way, both Superintendent and Ships' staff can see the status of each Instruction that has been issued.

System Requirements: As per REFMAN's Specification Generator or Shipboard Defect Recording module as appropriate.



Interface to Planned Maintenance System (PMS)



This interface is designed to help reduce the amount of work needed after a docking to reconcile the information which is held about jobs in a REFMAN Drydock or Refit Specification, with the records which need to be maintained by an onboard Planned Maintenance System (PMS). In particular, it is designed to make it easier for ships' staff to update the PMS Maintenance History, which in practice, often contains little or no information about jobs completed in a Drydock or Refit.

With this module, when a defect or job is recorded in REFMAN which relates to equipment normally maintained under a PMS, a Reference Number can be recorded which cross references to the PMS (i.e. Work Order, Job or Task No., etc). This reference makes it easy to identify PMS related work in REFMAN, but more importantly, at the end of a Drydock or Refit it can be used to extract all of the information which is held about jobs in REFMAN so that this can be used to update the PMS Maintenance History.

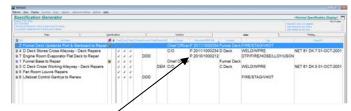
"Manual" Interface to your PMS

Each time a defect is recorded onboard or a job is added to a specification in the office, an option is available to allow a "Reference" to the corresponding Work Order, Job or Task in the Planned Maintenance System to be entered.



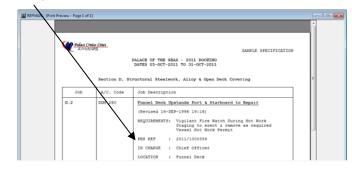
"Planned Maintenance Ref" can be replaced by Work Order No., Job No. or Task No. to reflect whichever Planned Maintenance System you use.

This PMS Reference will be stored permanently against the job and will be transferred to the office as part of the normal transfer process. This means that it can be displayed on the screen (both in the office and onboard) alongside the normal REFMAN job information.

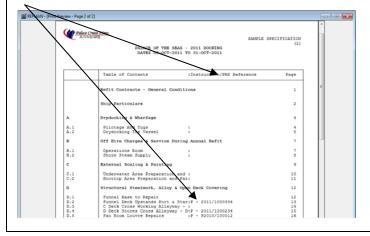


Sort jobs by PMS Reference by clicking on the 'PMS' column heading.

The PMS Reference will also be printed as part of the job description.



There is also an option to show the PMS Reference on a Table of Contents to provide an index to all the PMS related work.



A new option "Transfer to PMS" has been provided for use at the end of a Drydock or Refit which extracts all of the information which REFMAN holds (job Description, cost Notes, condition Remarks along with all associated drawings, photographs, images, etc.,) for jobs that have a PMS Reference. This information is written out to a file that can be sent to the ship and used as a *source document* to update the PMS Maintenance History.

Specificat	Receive Defect List from a Ship Transfer Specification to Ship	-		<normal spec<="" th=""><th>ification l</th><th>Display></th></normal>	ification l	Display>
* 1 Imported Defect	Transfer Instructions to Ship					
Ship	Transfer to Planned Maintenance System	stions	Jobs	1	Printing	9
Spec ID	Reload Rejected Planned Maintenance Import File		Status	Lait Modile	d	From Da
PP/OPS/1	S			03-SEP-2010	07:23	
PP/OPS/2	RIDING SQUAD - WORK LIST			15-NOV-2011	17:45	
PP/OPS/3	ITEMS FOR INSPECTION/DISCUSSION	WITH C/E		15-NOV-2011	17:45	
PP/OPS/4	2007 DOCKING		COMPLETED	15-SEP-2007	17:30	30-SEP-
PP/MOL/2	SECOND SPECIAL DRY DOCKING 2010			08-MAR-201	1 16:03	21-OCT-
BB/OBS/13	2011 DOCKING	с		28-JUN-2012	109-94	DE OCT

A "Send by e-mail" option is also provided which automatically creates an e-mail to the ship and attaches the necessary files to update the PMS Maintenance History:

Planned Maintenance System data has been successfully exported to C.WSL\TRANSFERVPPH/SOUT.001	
Planned Maintenance System data transferred from Palace of the Seas on 28-208-2012	
Size of file(s) : 24 WB	
Data transferred for 3 item(s)	
Flanned Maintenance System data has been successfully exported	
Cons Per Sends	-

The e-mail contains full instructions to tell ships' staff how to use the attached files:

mail M	lessage
	PP@Palace_Cruises.com
. 1	Planned Maintenance System data for PALACE OF THE SEAS
	Attached are lies which contain all the information, that REFMAN currently holds for jobs that have a Planned Maintenance System Reference in specification
	20 DOCKING (ORIGINAL ITEMS WITH BIDS)
	To use these files
	We recommend that you use Windows Explorer to make a new folder inside/underneath the REFMAN Transfer folder
	If you are unsure of the correct location, start REFMAN and the location of the transfer folder can be found on the right hand side of the bottom line of the screen next to a yellow folder icon with two arrows pointing in opposite directions.
	Then use the Save Attachments or Detach file option to save ALL the attached files to the folder that you created in th previous step.
	Open Windows explorer (or similar) navigate to the folder that you created previously, then double click on the following the
	PPXMLOUT.008
	You will then see a form that contains all the information that REFMAN currently holds in connection with each Plan Mantenance System Reference number that was extered into REFMAN, including any images and drawings. You c then use standard Windows Copy and Paste to transfer some or all of the displayed information to your Planned Maintenance System History.
-	ead receipt to the message
rite	NASK NTRANSFERREN SYME OUT OUT SAME AND TO TO T
1	* Coo 5

Files which needed to update the Maintenance History are attached to the message automatically.

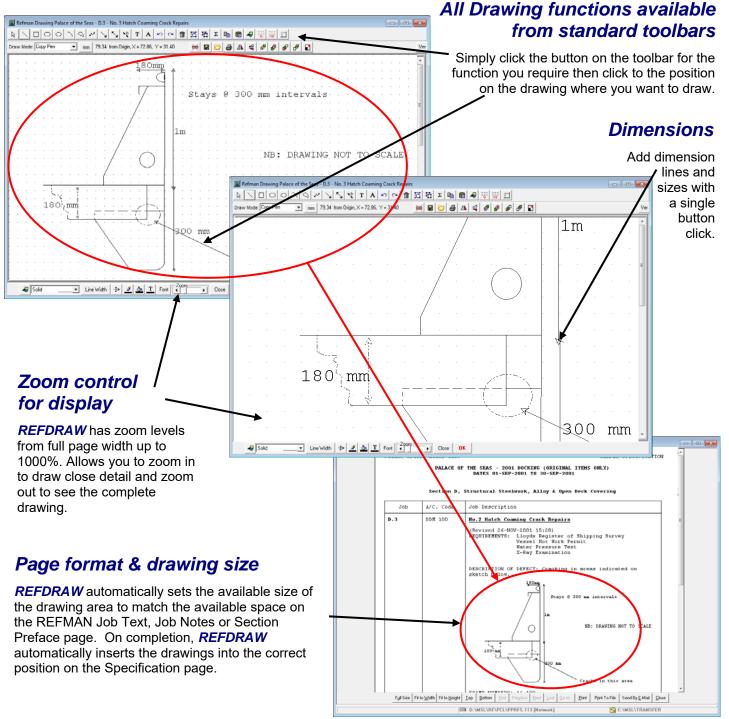
Ships' staff can then "manually" update the PMS Maintenance History using standard Windows "Copy & Paste" functions to transfer the information that has been extracted from REFMAN.

"Automatic" Interface to your PMS

It is possible to fully automatic this interface so that a REFMAN job can be initiated automatically from within a PMS and the relevant information passed to REFMAN. Also, so that the output from REFMAN will be used automatically to update the PMS Maintenance History onboard. However this needs to be developed in co-operation with the supplier of the specific Planned Maintenance System that you use.

System Requirements: As per REFMAN's Shipboard Defect Recording or Specification Generator module as appropriate.





Overview

REFDRAW is a drawing tool designed especially for use in conjunction with REFMAN's Specification Generator and Shipboard Defect Recording modules. It has been designed to be used by anyone who needs to insert images or create simple drawings in a REFMAN Job or Defect Description.

The emphasis throughout REFDRAW is on speed, ease of use and <u>minimising file size</u>. All the main functions are accessible either via buttons on a toolbar or directly from a standard mouse. REFDRAW allows users to create drawings using tools to insert lines, shapes and images/pictures. Items can be referenced individually and moved, re-sized or rotated in the drawing area.

REFDRAW automatically adjusts the size of the available drawing area to match the space that is available on the REFMAN specification page so that it automatically matches 'Full Page' & 'Box Format' Job Text, Job Notes, Job Remarks and Section Preface Text format page layouts.

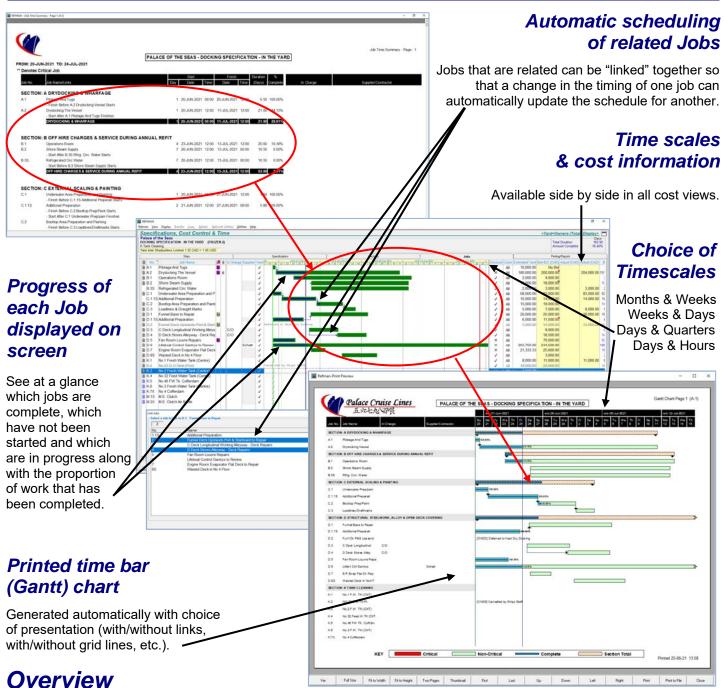
Pofman's Drawing Module

REFURAW – Reiman's Drawing Module	
Main Program Features:	
- Lines – draw lines with control over thickness, colour, and style.	Image: Image: Image: Sector and Sector an
- Rectangles – draw squares and rectangles of any size.	E - Copy selected objects.
- Rounded Rectangles – draw squares and rectangles with rounded corners of any size.	Paste objects that have been copied in the drawing module or have been copied in external software. Use this function to insert pictures and text from other software.
- Ellipses – draw circles /ellipses of any size.	
- Arc – draw arcs of any size and length.	A Sector of the
- Pie – draw pie shapes of any size.	Image: A constraint of the second
Chord - draw chord shapes of any size.	Colour – use standard colours or define custom colours for lines, filling and text.
- Polyline – draw polylines with an unlimited number of points.	• Page Size. Switch between 'box format' and 'full page' layout
Polygon – draw polygons with an unlimited number of points where the last point is automatically joined to the first point making a complete polygon.	- Unit of measurement . Display cursor position and distance from origin (line length) in Inches or in milimetres.
A - Text – insert text which matches the text size and style used in the Specification or Defect List.	- Drawing elements & images automatically 'snap' to grid points for accurate alignment.
Insert Pictures/Images – .BMP, .JPG, .GIF, .PNG, .WMF, .EMF,.DXF (AutoCad) & PDF (Adobe Acrobat) format files. Other formats can be inserted via the Windows clipboard by using the Copy & Paste functions.	 Drawing area displayed with scalable background "grid" for easy and accurate positioning/alignment of drawing elements. Not to Scale – inserts a 'Not to Scale' label
Cropping – to remove unwanted areas around inserted pictures and images.	<i>Line Style - select from solid lines, dash lines, dotted lines, or combinations of these.</i>
- Dimension Lines – insert dimension lines at any	Line Width - select from 1 to 6 point width.
Dimension Lines – insert dimension lines at any angle and length with arrows at both ends. Enter dimension text with control over positioning next to dimension line.	<i>Fill Pattern -</i> includes: transparent, solid, diagonal lines, and vertical lines. Used with rectangles, ellipses, circles, pie, chords and polygons.
- Select individual objects or range of objects.	Zoom – from full screen width to 1000%.
Σ - Select All objects.	Drawing Mode – specify the way in which an objects attributes are combined with objects already in the drawing.
E F - Group and Ungroup selected objects.	-
Delete selected objects.	<u>Built in File Size Reduction Aids</u> – Includes on screen sizing guide points & pop-up tips to reduce the size of inserted images; image save options which ignore the
- Move and resize selected objects.	source file resolution and only save the minimum amount of information which is required to reproduce the image at
<i>• Rotate</i> objects. Control over rotation angle and centre of rotation.	the size it was inserted at and optional company-wide file size limits which prevent images which exceed that limit being inserted.

System Requirements: As per REFMAN's Specification Generator or Shipboard Defect Recording module as appropriate.

REFMAN for windows

Time Management



Overview

REFMAN's Time Management Module has been designed to provide people who are not project management 'experts' with a quick and simple means of keeping track of the progress of jobs during a repair period.

To achieve this, REFMAN automatically creates the framework for scheduling jobs and project planning as the specification is created and is updated automatically whenever jobs are added, deleted or cancelled from that specification. REFMAN also provides a means by which shipyards can supply the estimated start dates and durations for each job electronically so that these can be loaded automatically. Times and durations for other jobs

which are to be carried out by sub-contractors, specialists or ship's crew can then be added. REFMAN's Time Management module then combines this to produce a simple time bar (Gantt) chart which gives a pictorial representation of when each job is expected to start, how long it should take and when it should be finished.

All the Superintendent needs to do to keep this up to date during the repair period is to record which jobs are complete, which jobs are behind schedule and use the built-in "Update" option to set an approximate percentage complete for the remainder. The built-in "Reschedule" option can then be used to produce an up to date time bar (Gantt) chart showing exactly what is outstanding.

Minitech Systems Limited. Bridle Way, off St. Vincents Close, Girton, Cambridge, CB3 0PB, U.K. Phone: 01223 277049, e-mail: sales@minitech-systems.com, website: www.minitech-systems.com From Outside U.K. Phone: +44 1223 277049

REFMAN - Time Management Module

Provides the Superintendent or Port Engineer with facilities to schedule and monitor the progress of all jobs in a REFMAN specification. For each job it is possible to record start date & duration and <u>optionally</u>, specify which jobs must be completed before the next job can start, which jobs must at least have started before the next job can start and which jobs must be finished before the next job can be completed.

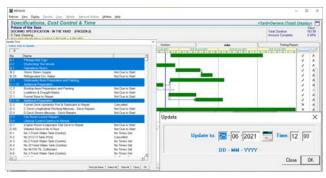
Features

 Complete monitoring of the progress of jobs without the need to learn complicated project management software.



Section progress summary shows overall progress (on its own or alongside cost information in Cost Views).

- Facility to enable the Shipyard to supply the estimated duration and start day (an actual date or a "day number" during the docking) electronically. This information can be requested as part of REFMAN's electronic 'Yard Quotation Package' and loaded up automatically.
- Schedule and monitor jobs carried out by owner's contractors, other specialists and ships crew.
- Full range of links including "later job cannot start before earlier job finishes", "later job cannot start before earlier job starts" and "later job cannot finish before earlier job finishes".

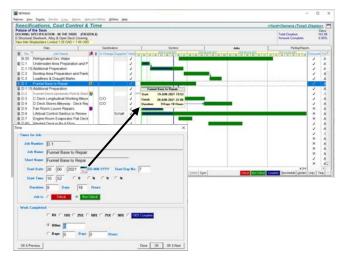


See the progress of each individual job with automatic updating.

- Automatic updating of "Percentage Complete" for jobs that are "on schedule". Update just selected jobs; "all" jobs in a single section; all jobs in "selected" sections or all jobs in "all" sections in a specification.
- Automatic "Rescheduling" of incomplete jobs. Reschedule just selected jobs; "all" jobs in a single section; all jobs in "selected" sections or all jobs in "all" sections in a specification.

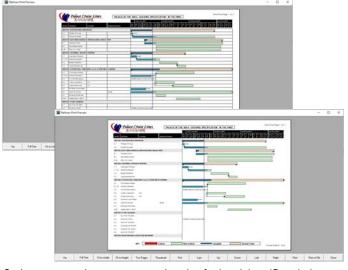
... ideal companion to REFMAN's Specification Generator & Cost Control Modules.

 If an earlier job is re-scheduled and this affects other later jobs (i.e. "linked" jobs) then the later jobs will be rescheduled automatically. If a later job is re-scheduled which is affected by a link to an earlier job, the user will be prompted whether or not to remove the link.



Easy to use, just "drag and drop" to set times & durations.

- Choice of conventional numerical input for "dates & times" or simple to use on-screen "drag and drop" for both scheduling jobs and setting durations.
- On-Screen indicator in section view with pop-up information box to indicate that one job is linked to other jobs in different sections of the specification.
- Automatic Generation of time bar (Gantt) chart for the entire specification or just the jobs in a particular section.



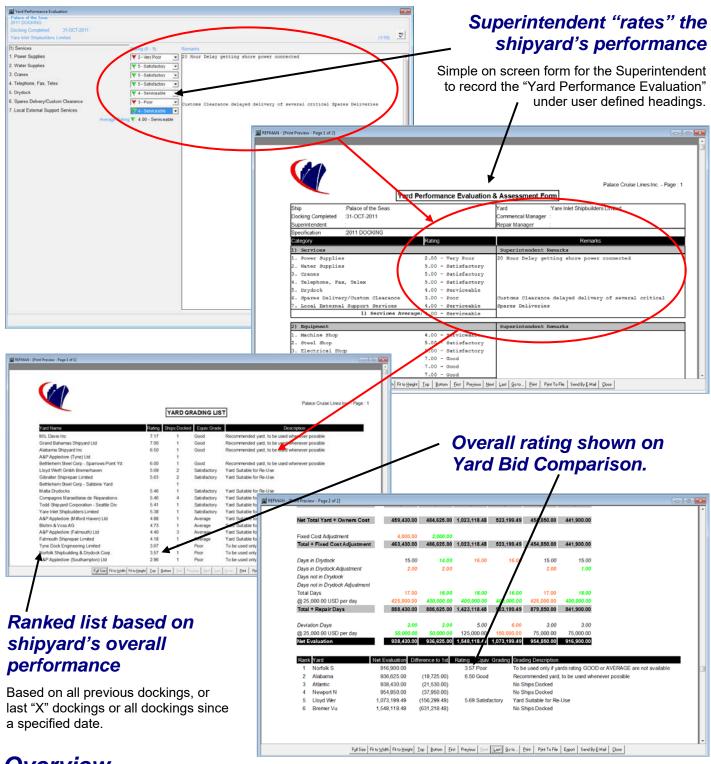
Options to control appearance and scale of printed time (Gantt) chart.

• Flexible printing options which allow time bar (Gantt) chart to be printed with a choice of timescales, with or without links & with and without "gridlines" on the text and/or on the time bars.

System Requirements: As per REFMAN's Specification Generator or Cost Control modules.



Shipyard Performance Evaluation Module



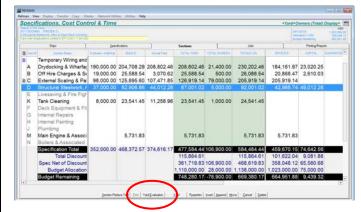
<u>Overview</u>

REFMAN's Shipyard Performance Evaluation Module allows the Superintendent to "rate" a yard's performance during and after a docking. Ratings can be given under any number of user defined headings (for example, Facilities, Services, Equipment, Response Speed, Cooperation, Communication, Engine Work, Steel Work, Safety, Prices, etc.) and the Superintendent can also record comments to qualify these ratings. On completion of the docking, the completed ratings are stored centrally so that an overall average rating can be produced for each shipyard. This overall average can also be shown on the Yard Bid Comparison Report to assist in deciding which yard to nominate. You can also produce a ranked list which shows yards in order of their overall average performance which can help in deciding which yards to invite to tender when sending a specification out.

REFMAN – Shipyard Performance Evaluation Module

Provides a simple means of "grading" or "ranking" shipyards according to their performance in past dockings. Each time a ship is drydocked, the Superintendent completes a simple form giving the yard a numerical "rating" or "score" against various aspects of the Yards performance.

The form can be accessed from the main Cost Control screen which is used by the Superintendent to track costs so the form can easily be completed during the actual docking whilst the "experience" is still "fresh in the mind".



Items such as ratings relating to prices for additional work and negotiating the final bill for example can be completed later once Superintendent returns to the office.

Palace of the Seas				-
Yare brief Shightaliders London				
Specification Rome :	2011 DOCKING			
Spec Shot Name .	CONTRACTOR -			
Superintendent Name :				
Commercial Wanages :				
Repair Manager :				
Dacking Complete Date	21 30 2011 TO 00 HH YOOY			
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Superinterclast Rating Summary		4.00 Serviceable		
	2) Equipment	5.83 Satisfactory		
	3) Rasponse Speed	4.60 Seniceable		
	4) Communication	4 25 Seniceable		
	5) Salety	6.50 Fair		
	(5) Prices/Complete if final cost avail (5.00 Satisfactory		
	T) Yard Staff	7 50 Good		
	General Superintendent Comments	Not Entered		
	General Drydock Estimator Comments	Not Entered		
	General Operations Director Comments	Not Entered		
		Islay 5.38 Saturactory		
	Substactory - Yaod Suitable toi Relifee			
Yard Recommendations				
	Yard rated generally as: Satisfactory			
	Superintendent advises the complexity of this docking with	as considered as: Normal/Average		
	That Yard DD meet the Company's expectation on this o Conclusion. Yard Suitable for Re-Use	ccasion.		
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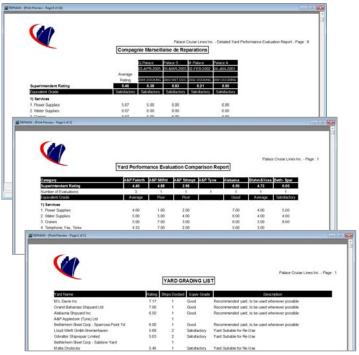
Once all the ratings have been recorded and any qualifying comments have been added, the form is "marked as complete" which posts the results against the Shipyard in the REFMAN Master database. These results are then included when calculating the overall Average Rating.

fard Performance						
Valuation Shaper de Company Lide						
Yards] Evaluations	1 9	ring [Calegop	ben	Rainge
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Atlantic Marine Inc - I		Yard				
A&P Appledore (Abe	rdeen) Ltd	Yard				
A&P Appledore (Cha	tham) Ltd	Yard				
A&P Appledore (Dov	ver) Ltd	Yard				
A&P Appledore (Fair	mouth) Ltd	Yard	4.40	3	Average	
A&P Appledore (Milf	ord Haven) Ltd	Yard	4.88	1	Average	
A&P Appledore (Sou	thampton) Ltd	Yard	2.96	1	Poor	
A&P Appledore (Tyn	e) Ltd	Yard		1		
Alabama Shipyard In	c	Yard	6.50	1	Good	
Blohm & Voss AG		Yard	4.73	1	Average	
Bethlehem Steel Cor	poration	Yard			1 10 10 22 2	
Bethlehem Steel Cor	p - Sparrows Point Yd	Yard	6.00	1	Good	
Bethlehem Steel Cor	n - Sabbine Yard	Yard		1		

All the Evaluations that have been recorded for a particular yard are listed against the shipyard in the Evaluation module where they can be reviewed and if necessary amended. For larger companies, the module can be setup to require Evaluations to be reviewed and "Approved" by the Fleet/Technical manager or other responsible person before they can be included in the overall rating calculation.

Yard Performance E	valuation				
Enroque Residence la Reparatora					
Yarb	Endudines	Petro -	T Category T	here I	Ratego
	The line	DalleyDee	Candin	Darling Name	nergi
Queen's Palace		03-APR-2005	2005 DOCKING	100100	
Palace of the Seas		05-MAR-2003	2003 WET DOCK		
Majestic Palace		02-FEB-2002	2002 DOCKING		

Options are provided to print Detailed Evaluations, Evaluation Comparison and Grading Lists.



The Main Category headings, Item sub-headings, Rating/Score Descriptions and Equivalent Gradings can be tailored to suit each company. Alternatively, a standard Evaluation setup can be supplied.

	- 194									
Yard Performance Eval	wation								-	
1. Decement										ategory
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Services	-			& Remerks		1.00		1		
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) Communication			Items	& Remarks		1		4		
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System Requirements: As per REFMAN's Specification Generator or Cost Control module as appropriate.



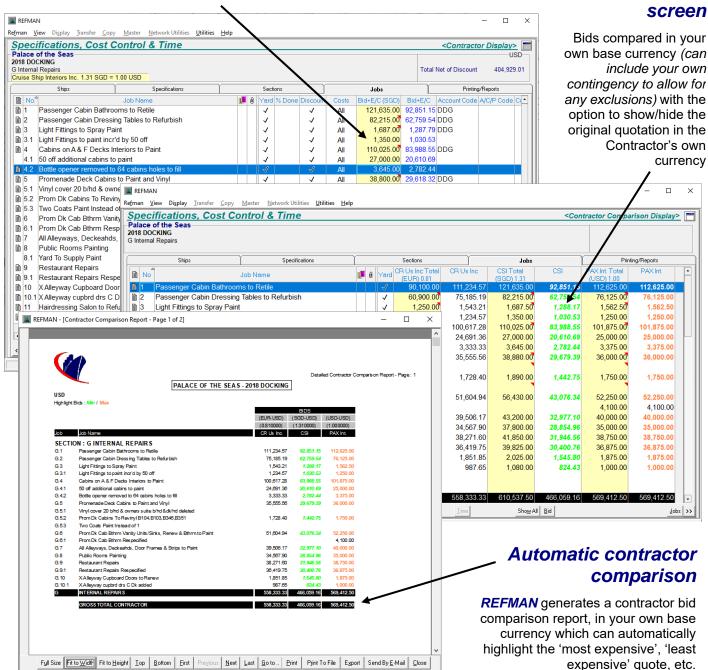
Compare bids

directly on the

from contractors

Contractor display

Bids from Contractors are recorded in the Contractor's own currency or can be loaded electronically when the Contractor quotes using Refman's Contractor Quotation Package.



Overview

REFMAN's Contractor Comparison Module extends the facilities of the Cost Control Module to allow the loading/ recording of bids/quotations from specialist Contractors so that these can be compared against one another and/or compared against quotations from Yards, on a job by job basis in a mix of currencies. Quotations from equipment/spare parts suppliers can also be compared in the same way if required.

The cost of owners arranged contractors will still be included in the specification as an estimated cost in your own base currency under your chosen Owner's Cost Category, exactly the same way as they were previously. However with the Contractor Comparison Module, these costs can be obtained directly from the Contractor's original bid/quotation without the need for a "one-off" manual conversion to your own base currency.

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REFMAN – Contractor Comparison

The Superintendent or Port Engineer first generates a specification which contains only the jobs which a specialist Contractor is being asked to quote for.



Specification for a particular type of specialist Contractor.

A Contractor Quotation Package can then be generated which contains both the specification (in PDF format) and a small program to allow the Contractor to enter their prices. This enables prices to be returned electronically and then loaded directly into the specification. Alternatively, the specification can be printed (output to PDF format with option to merge attached files built in) and sent to the Contractor, but in this case the prices you receive back would need to be entered manually.

inter Bid		>
Contractor :	Cruise Ship Interiors Inc.	
Currency: Bid Currency :	SGD Singapore Dollars	
Exchange Rate :	1.31 SGD = 1.00 USD	
Exchange Date :	DD-MM-YYYY	
Exchange Comments :		
Time:	Contractor Quote Adjustment Total Keyword	
Days Required:	11.00 0.00 11.00 (TRD)	
Discounts:	*	
Agree	ed 🎗 : 🚺 0.00	
Maintain Bids View Quote f	om Contractor	Close OK

Each Contractor has their own exchange rate.

If the Contractor declines to bid for all or part of a job, then the received bid can be adjusted to allow for this by entering an exclusion/contingency so that bids can still be compared on a "like for like" basis.

Job Name:	From Dk Cab Bthrm Respecified			
	Prom Dk Cab Bthrm Re	Account Code:		
	EUR		USD	
Contractor Bid.	0.00	Equivalent To:	0.00	
Exclusion/Contingency:	52,250.00	Í	64,506.17	
(E/C) Total	52,250.00	i i	64,506.17	
Discount:	0.00		0.00	
Total Net of Discount:	52,250.00		64,506.17	
Contractor Discount: (Yes C No			
Comments:	E/C=31 Standard Bathroms estir	nated @ 1000 Each	i.	
? .	E/C=17 Special Bathroms estin	nated @ 1250 Each		_
				_
Contractor's Original Bid:	EUR 0.00			
Comments:	Insufficient Detail, quote on 1	Inspection	6	
	the second			

Once Bids for each Contractor have been loaded/entered, they can then be compared on screen.

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	Pastenger Cabin Bathrooms to Re	70 000 00	96,100,00	111 234 57	121 635 00	92,851,15	112/625.00	112,625.00	1000000000	And the second second
22	Passenger Cabin Dressing Tables 1	60,000.00	60,900.00	75,185.19	82,215.00	62,739,54	76,125.00	76,125.00	125,000.00	108,932.20
23	Light Fittings to Spray Paint	25.000.00	1,250.00	1.543.21	1.687.60	1,284,17	1,562.50	1,562.50	30,000.00	25,423,73
3.1	Light Fittings to paint incid by 50 of	2,600.00	1,000.00	1,234.57	1,350.00	1,030.53	1,250.00	1,250.00	3,000.00	2.542.37
84	Cabins on A & F Decks Interiors to I	80.000.08	81,500.00	100.617.28	110.025.00	83,988,55	101,875.00	101,875.00	140,000,00	118.644.07
4.1	50 off additional cabins to paint	22,700.00	20.000.00	24,691.36	27,000.00	20.010.00	25.000.00	25,000.00	32,000.00	27,118.64
42	Bottle opener removed to 64 cabins	1,000.00	2,700.00	3.333.33	3.645.00	2,782.44	3.375.00	3.375.00	4,700.00	1.983.05
8.5	Promenade Deck Cabins to Paint a	25.000.00	28,800 00	35.555.56	38,880.00	29,479.38	36,000.00	36,000,00	45,000.00	38,135.59
8.1	Vinif cover 20 bitsd & owners suite I	-8.000.00							4,500.00	3,813,56
52	Prom Dk Cabins To Revinit 8104.8		1,400.00	1,728.40	1,890,00	1,442,72	1,750.00	1,750.00	2,400.00	2,033.90
53	Two Coats Paint Instead of 1									
8.6	Prom Dk Cab Bthrm Vanity Units/Si	100 000 00	41,800,00	51 604 94	56 430 00	43.078.34	52 250 00	52,250,00	65.000.00	55.084.75
6.1	From Dk Cab Bthrm Respected	10000					4 100 00	4.100.00	45,000.00	38,135,58
8.7	All Alleyways, Deckeahds, Door Fra		32 000 00	39 506 17	43 200 00	32 977.10	40,000,00	40,000.00	62.000.00	52 542 37
28	Public Rooms Painting	40,000,00	28.000.00	34 567 90	37 800 00	28 854 96	35 000 00	35,500,00	31.000.00	26.271.19

Compare Contractor Quotations against each other and/or against Yard Quotations if Contractors are quoting for the same work as Yards.

The "successful" Contractor is then set for the Job(s) they have been awarded under your preferred Owners Cost category, which then links the Estimated Owners Cost to that Contractor's original Quotation.

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10		Job New				TUTAL(V+D) AccountCode A				
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Contractor/Supplier list also shows total quotation for all the selected Jobs.

Contractor quotes can be linked to a particular yard so that they are only included as part of the costs for that particular yard, or they can be included regardless of which yard the ship eventually goes to (i.e. included for ALL Yards).

Select Success	ful Contractor - Cruise Ship Interiors Inc.
2	Do you want to select Cruise Ship Interiors Inc. as the successful Contractor for the selected Jobs? (Use Bid values from this contractor as Estimated Owners Costs for the selected jobs) NB: A bid value has not been entered for one or more of the selected jobs.
	Yes for ALL Yards Yes for This Yard Only No

Setting the Successful Contractor for one Yard or for all Yards.

If the Contractor will do the work "instead" of the Yard, the program can automatically remove the Yard's Bid for these jobs. Alternatively, if the Contractor will do the work in conjunction with the Yard, the Contractor's bid will appear as an Owners Cost in addition to the Yard Cost.

JUD NI	mber: G.9.1
Restaurant Re	pairs Respecified
Short Name	Rest't Reps Respec'd Account Code:
	Sub Contracted Work: 30,400.76 USD nents: O/C=CSICBIDY(1-CSICDISC)/CSICEX
Use Contractor	
	Value & Comments for this Yard only (Vigor Shipyard (Ex Todd Seattle))

System Requirements: As per REFMAN's Cost Control module.

If using REFMAN helps you avoid just one charge for additional work the next time you drydock each ship in your fleet, the software will pay for itself...

> In practice, the software will pay for itself many times over