

The Baseline Specification Program Guide

U. S. Department of Transportation
Maritime Administration



Second Edition
March, 1999

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I. Introduction

A. Baseline Specification Program Guide

This guide provides directions for writing effective shipwork specifications for RRF ships. The instructions in this guide may be followed as described below when writing unique shipwork specifications or shipwork specifications derived from baseline specifications.

To make it easier to write ship-specific shipwork specifications, baseline specifications have been written in advance for a wide variety of shipwork that is commonly required aboard RRF ships. This guide may be used in conjunction with the library of developed baseline specifications to prepare ship-specific shipwork specifications.

B. The Baseline Specification Program

The MARAD Office of Ship Operations (MAR-610) established the Baseline Specification Program for use by personnel involved in the repair and management of RRF ships. These specifications may be used by MARAD personnel for IFB type contracts, and by Ship Managers for Prime/Sub contracts, however, Ship Managers shall use this guide and baseline specifications as required by the provisions of the Ship Manager contract.

The goal of the Baseline Specification Program is to achieve a uniform standard of high quality shipwork throughout the RRF fleet.

C. The Baseline Specification Library

The baseline specification library consists of a group of comprehensive shipwork specifications that have been written to address shipwork that is commonly required aboard RRF ships. The library, comprised of general requirements and technical requirements, will be updated as new specifications are identified and developed. The MARAD Division of Ship Maintenance and Repair (MAR-611) is responsible for maintaining and updating the library of baseline specifications. The library and a copy of this guide are provided to the Regions and Ship Managers on a CD-ROM and in MS Word format for use in preparing shipwork specifications.

D. Use of Baseline Specifications

It is not intended that baseline specifications be used verbatim as vessel-specific shipwork specifications. Instead, baseline specifications shall be used as references or checklists that the writer will selectively utilize to develop ship-specific work specifications that accurately describe the repairs actually needed on the vessel. However, many baseline specification items will contain important requirements that are predicated on mandatory policy guidelines, directives, or regulatory body requirements that the individual who is preparing the specification package may not be aware of or familiar with. Anyone wishing to substantially deviate from requirements contained in a particular baseline specification item must first obtain approval from MAR-611.

If the scope of the baseline specification exceeds the requirements of the actual shipwork, the baseline specification shall be edited to include only the required work. If additional work is required that is not outlined in the baseline specification, the additional work shall be inserted into the actual specification by the person responsible for writing the shipwork specification package.

II. Program Objectives

A. Objective #1: The Baseline Specification Program shall:

1. Provide marine surveyors and port engineers with a library of standardized shipwork specifications for use during the preparation of ship-specific work specifications.
2. Make preparation of shipwork specifications easier and less time-consuming.
3. Improve the quality and uniformity of shipwork specifications.
4. Provide definitive Quality Assurance (QA) requirements, both to ensure quality work and to reduce the burden of on-site vessel shipwork surveillance by Ship Managers, MARAD personnel and their designated representatives.
5. Promote a better understanding of shipwork contracting requirements by RRF contractors, Ship Managers, and MARAD project personnel.

B. Objective #2: Implementation of the Program requires:

1. MARAD to implement a uniform baseline specification program throughout the entire RRF Program and available for use by all Ship Managers.
2. Baseline specifications that are clearly written and technically correct, contractually enforceable, and sufficient to be used by the MARAD regional staffs and Ship Managers for a broad range of shipwork requirements.
3. Baseline specifications that can easily be tailored to the actual shipwork requirements. To accomplish this, the baseline specifications must be self-contained, without the contractor needing to make reference to additional technical documents.
4. Baseline specifications, regionally prepared specifications, and Ship Manager prepared specifications share the same basic format, preparation methodology, and terminology.

III. Preparation of Shipwork Specifications

A. What is a Shipwork Specification?

A shipwork specification is a technical document that describes the minimum ship-specific work requirements in clear, concise, well-defined, and contractually sound terms.

B. Legal Implications of the Specifications

Because shipwork specifications are often developed by engineers, using engineering terms or language, they are often thought to be separate from the contract, and not subject to the rules of contract law. This idea is incorrect. The shipwork specification is an integral part of the contract, and is subject to all of the requirements for drafting and interpreting contract instruments. Because the shipwork specification describes the essential nature of the work to be done by the contractor, and often in language that may not be widely understood, the possibility of misinterpretation is great.

The shipwork specification must be so drafted that its requirements will be enforceable in the courts or before the Boards of Contract Appeals, in the event that legal action becomes necessary. Under normal circumstances, when all goes well between parties during the life of the contract, difficulties over interpreting its language are infrequent. It is only after problems arise and the parties become adversaries, that the need for clarity and precision of a well-drafted shipwork specification becomes significant. Even though litigation is not contemplated upon entering into a contract, a clearly written, well defined and legally enforceable shipwork specification document may have a calming influence on both parties during contract performance and dissuade any thoughts about litigation.

It is important to note that a shipwork specification is a legally binding contractual document that is the key piece of evidence identifying what work the government requires the Ship Manager to accomplish on Prime/Sub contracts, and the repair contractor to accomplish under IFB type contracts. Consequently, the shipwork specification must provide sufficient information to effectively carry out the required work, and simultaneously be free of superfluous language that might cause confusion.

C. Writing an Effective Shipwork Specification

A shipwork specification must be written to logically describe the chronological sequence of work required.

For example, a typical sequence of work may include removal; disassembly; inspection; reporting; repairing; reassembly; re-installation; and testing requirements. A specification must be written to minimize the use of arbitrary statements, such as, "Additional repairs will be specified by Delivery Order to be issued by the COTR", or "Additional repairs will be specified by Change Order by the Ship Manager."

Every shipwork specification must be "complete in itself." The expression "complete in itself" means that a contractor, using the only information contained in the specification (including any references), can conduct the required repairs in a finished, technically satisfactory, and cost-effective manner. The work requirements of the shipwork specification must include tests and inspections required ensuring that all work is satisfactorily accomplished.

Correct preparation of a shipwork specification requires the inclusion of substantial information. If possible, information shall be taken from physical documentation of actual ship conditions. Information from RRF-MARTS, survey reports, sea trials, contractor reports, and technical manuals shall be used to prepare accurate shipwork specifications.

Shipwork specification writers may select an appropriate specification from the baseline specification library to use as a guide/template for preparing the ship-specific shipwork specification. When the required shipwork cannot be adequately described using a baseline specification, a unique specification shall be prepared from scratch. In both cases, the format and content guidelines contained in this guide may be followed.

A shipwork specification usually describes what work is to be done. A specification normally does not describe how the work is to be done. However, there may be unique cases where the government requires that the work be accomplished in a specific manner. In such cases, the work procedure must be clearly defined, but not worded so narrowly that it limits competitive bidding for the work.

D. Growth Work

When preparing for an upcoming ship repair project, the possibility of additional work must be carefully considered. It is extremely important to anticipate growth work, especially when the possibility of growth work is high and resulting repairs may be costly.

Good examples of typical shipwork items that have a high potential for growth are: structural repairs to uncoated salt water ballast tanks; re-coating internal areas suspected of containing lead-based paint; oil contamination of tanks; and examination of a salt water circulating pump that has no record of casing repair during its previous 20-year service life.

Shipwork specification writers shall use their professional judgment to make a contingency plan for accomplishing growth.

For example, when planning for ABS examination of a salt water pump, it is prudent to plan for a requirement to renew the wearing rings, the packing sleeves, and the bearings. These requirements shall be reflected in the language of the initial or parent work specification. This will reduce unanticipated growth work, increase the accuracy of the repair budget, and allow for a better-managed availability.

E. Pre-bid Ship Inspection by the Ship Manager or Government Representative

Although planning for growth work and writing work items is important, it should not be used in place of thorough ship survey and deficiency identification. The commitment of additional time and money in the pre-bid planning phase to properly survey the ship and to accurately identify the scope of repairs needed is of the utmost importance. Minimizing all emergent work, both growth work and new work will lessen the probability of claims by the ship repairer. In other words, it will lessen the time and costs of repair, and it will make the task of managing the availability less difficult.

When there is a high probability of growth repair work and consequent high cost, the Ship Manager or government representative shall conduct a comprehensive physical inspection of the ship before shipwork specifications are written. Consideration may be given to the inclusion of Regulatory Body attendance (i.e., ABS, USCG) for their input and comments relative to this inspection. The goal of the physical inspection is to verify actual shipboard conditions compared to deficiencies documented in MARTS. This may require additional effort; such as initiative by the project manager to obtain industrial assistance to open and ventilate tanks, sample for hazardous materials, or open machinery for inspection. However, the effort expended will result in specifications that more accurately describe the required shipwork, and consequently will contribute to an efficient, low-growth shipyard repair period.

Where physical inspection is not possible, shipwork that has potential for growth related repairs shall be covered by either supplemental or optional open/inspect/report work item in the bid-phase of the work package. Such specifications shall require unit prices for finite quantities, for bidding purposes only. Such growth items shall be numbered to correspond or relate back to the original or parent work.

F. Open-and-Inspect Shipwork Items

When "open and inspect" shipwork items are included in a specification package they must be scheduled and accomplished early in the availability. If no time requirement is specified, and "open and inspect" items are accomplished late in the availability, the potential for schedule disruption, contractor claims, and contract extensions is significant. Therefore, a requirement shall be included in the work order or specification that requires open-and-inspect work within a specific number of days from the start of the availability or within a definitive time-frame, such as within the first 25% of the availability. Items potentially requiring long lead-time material ordering should be accomplished immediately after contract award. Also, supplemental and optional items must be identified by the Ship Manager or COTR and issued to the contractor or subcontractor as early as possible in the availability to minimize the chance of them adversely affecting the availability milestones.

G. Means, Methods, and Sequence of Shipwork Items

Avoid specifying the means, methods, and sequences of accomplishing work when writing shipwork specifications. Generally, means, methods, and sequences "belong" to the shipwork

contractor and are his responsibility. There may be particular occasions where the government wants to specify means, methods, and sequences, but it should be the exception and not the rule.

An example of a situation where the government may want to specify the sequence of work is directing the contractor that painting of the engine room will not be accomplished concurrently with the reduction gear casing being lifted. While this may a prudent measure to prevent contamination of the reduction gears, it must be recognized that such a requirement acts to restrict the contractor to schedule the required work and deploy his resources to accomplish that work. Such restrictions are the genesis of many contractor claims.

H. Hazardous Materials

Identify known or suspected hazardous material in the specification in order to fix the cost of its removal and disposal. Do not fail to identify hazardous materials in a specification and subsequently assume that it is the contractor's responsibility to determine the presence of hazardous material during a pre-bid ship inspection and include the cost of removal and disposal of hazardous material in his bid. If hazardous materials are not identified in the bid specification, the cost of its removal and disposal will be significantly greater when, during the availability, the contractor "discovers" hazardous materials in the course of conducting the repair work.

For example, if a main steam line is scheduled for repair, and asbestos insulation is suspected to be present, the insulation should be tested prior to writing the specification. A statement should be included in the specification stating that asbestos is suspected. The specification should then require the contractor to submit a price for the work in two ways. First, one which includes the cost of accomplishing the work along with asbestos testing, removal and disposal in accordance with local, state, and federal safety regulations. Secondly, one which addresses accomplishing the work as if no asbestos is present. If it is later determined that no asbestos is present, the contract can be modified to delete the removal and disposal requirements of the specification.

If hazardous materials are known or suspected to be generally present aboard the ship in the area where repair work has been scheduled, a supplemental shipwork specification can be written. This supplemental specification should then specify the testing, removal and disposal of quantities of hazardous materials for the contractor to submit unit prices with his bid.

IV. Common Errors Made When Writing Shipwork Specifications

The shipwork specification should contain language free of vague and ambiguous terms, and simple phrases that will convey the author's intended meaning should be used. Consistency in terminology will enhance the clarity and usefulness. Sentences should be short, concise, and to the point. Sentences with compound clauses should be made into short and concise separate sentences.

There is no substitute for using good judgment and forethought when writing a shipwork specification. No matter how technically correct a specification is, if the wording is misunderstood or causes confusion, the specification is not a satisfactory contractual document.

The following paragraphs outline some common grammar, style, and technical errors that are commonly made when writing shipwork specifications.

A. Words in Context

The language of the shipwork specification will be read by the courts and boards in context, i.e., its words will be interpreted as a whole, rather than taking a single word, phrase or sentence out of context with the balance of the document. Where examples are used to explain a definition, caution should be exercised to tell the reader whether these examples are only illustrations, or they constitute a complete list of all examples covered by the definition. Where examples are included as illustrations, a qualifying statement should be included, e.g., "such as, but not limited to." This will ensure that the contractor knows that the list is not all-inclusive.

B. Consistency of Words

The same words or phrases should be used throughout the shipwork specification to express the same meaning. This can be quite difficult to control, particularly if different individuals author individual sections of the shipwork specification.

It is extremely important that the use of nomenclature to describe hardware or parts thereof be consistent throughout the text. For example, a part, once described as a "plate", should not be referred to elsewhere as a "cover." It is natural that when the reader of a shipwork specification observes a variation in a word or phrase of definition or nomenclature, he will look for new meaning, and ambiguity or outright contradiction may be the result. The contractor will always interpret an unclear word, phrase, or specification to his advantage.

C. Ambiguous Writing

It is particularly important to avoid words and phrases that obscure meaning and hinder communication. Some types of words and phrases are particularly susceptible to misinterpretation, and therefore should be avoided.

Ambiguous writing may result from poor sentence structure or grammar. Ambiguous writing may cause the contractor to improperly interpret the specification. Improper interpretation may, in turn, result in inaccurate bidding for the work or unsatisfactory work performance. Note that contractors will invariably choose the least costly (to the contractor) interpretation of the specification.

For example, consider the following wording:

"Install 12 storage bins (2 ft. X 2 ft.) in the GSM (fr. 4-107-2) and dry provision (fr. 4-107-1) storerooms."

The specification wording is ambiguous. Does the specification require the installation of 12 or 24 bins?

Another example of ambiguity:

The phrase "and/or" is an ambiguity in a class by itself. It should not be used in a shipwork specification. More often than not, in using this phrase, the author attempts too much and interpretations that were not intended may result.

D. Misuse of Terms

Make sure that mandatory language is properly used. Use the word "shall" whenever there is a need to express a provision that is binding. Use "should" and "may" whenever it is necessary to express a desire or preference. It may be necessary to use "will" in cases where a future need is required, i.e., power for the motor will be supplied by the ship.

Indiscriminate use of words that have varying meanings may cause costly disagreements between the contracting parties.

For example, avoid using misleading terms such as replace, refurbish, renovate, rejuvenate, or relocate. If one or more of these terms does have to be used, use it with consistent meaning throughout the work specification. Provide definitions in the specification for terms that are subject to varying interpretation.

The following terms are defined in Baseline Specification 011-001.G "GENERAL CRITERIA", but others may be added as necessary:

1. **Remove** means to take the existing off the ship without replacement.
2. **Renew** means to remove the existing, then furnish and install with new approved for the purpose.
3. **Repair** means to fix the existing, thereby restoring it to its original capabilities.
4. **Install** means to establish new where there was no prior existing installation.

5. **Provide** means to furnish and install all services, materials, equipment, and systems to accomplish the specified requirements.

E. Non-definitive Work Requirements

Non-definitive work requirements occur when appropriate accept/reject criteria are ambiguously or inadequately described in the shipwork specification.

Examples of non-definitive work requirements are:

1. "Check bearing temperature and vibration."
2. "Support new pipe with adequate hangers."
3. "Prove gaskets and bolting satisfactory."
4. "Close up as original."
5. "Supply suitable fire pump."

Non-definitive work requirements can be avoided by accurately specifying what work, equipment, tests, or performance, is required by the contractor. When specifying equipment that cannot be sole-source from a specific vendor or model, list the main features that are required.

For example, when specifying a pump, write, "Install a 250 GPM at 50 FT TDH, bronze body pump with monel shaft and impeller, mechanical seals, and motor, Worthington model 3LR-O or equal." Compare this language with item #5 above that calls for a "suitable" fire pump. Clearly, the latter statement more accurately describes the desired pump, and will contractually obligate the contractor to provide the type of pump actually required.

It is important to note that the marine surveyor or port engineer must be able to use the language of the shipwork specification to conclusively determine whether or not the contractor's work is in compliance with the requirements of the contract.

F. Non-definitive Phrases

Use of non-definitive phrases may lead to the issuance of a non-definitive work requirement by the contractor, and thus delay or thwart the accomplishment of the required ship repair work.

Examples of non-definitive phrases are:

1. "As applicable."
2. "In accordance with latest requirements."
3. "Or other recognized methods."

4. "As practicable" or "As necessary."
5. "Or other suitable method."
6. "Check for proper values."
7. "Suitable."
8. "In accordance with good marine practice."
9. "Provide a positive means of."

G. Catch-all Phrases

Similar to the preceding paragraph, do not use catch-all phrases to attempt to avoid issuing change orders during the availability. The use of catch-all phrases usually proves more costly to the Ship Manager and government than the issuance of a change order when required. During the bid phase of the work, the contractor will increase the amount of the contract bid to ensure adequate funding for accomplishment of work described by catch-all phrases.

Examples of catch-all phrases are:

1. "Included but not limited to."
2. "As required."
3. "Any and all."
4. "Each and every."
5. "When and where necessary."
6. "Etc."

H. Vague Words

Selecting and using the word of the desired specificity or exactness is always difficult. Among the more commonly used words that may create difficulty are: "augment," "concept," "functional," "implement," "parameters," "substantial," "thresholds," and "workmanlike." When it is necessary to use words such as these, care should be taken to assure that they are clarified in the adjacent text or otherwise defined.

I. Words With Multiple Meanings

The word "include," for example, may mean "included but not limited to" - or, it could mean, "consists of." Other words of this type are "guide," "guidance," "or equal," and "average." If it is necessary to use such words, their exact meaning should be defined.

Other examples of such phrases are:

1. “As directed by”
2. “To the satisfaction of”
3. “In accordance with instructions of”
4. “Unless otherwise directed by”
5. “As determined by”
6. “In the judgment of”
7. “In the opinion of”
8. “In strict accordance with”
9. “In accordance with best commercial practice”
10. “In accordance with best commercial standards”
11. “In accordance with best modern standard practice”
12. “In accordance with the best engineering practice”
13. “In accordance with good marine practice”
14. “In accordance with applicable published specifications”
15. “Accurate workmanship”
16. “Workmanship shall be of the highest grade”
17. “Workmanship shall be of the highest quality”
18. “Installed in a neat and workmanlike manner”
19. “Skillfully fitted”
20. “Securely mounted”
21. “Properly assembled”
22. “Properly connected”
23. “Good working order”
24. “Of standard type”

25. "Of an approved type"
26. "Good materials"
27. "Products of a recognized reputable manufacturer"
28. "Materials shall be of the highest grade, free from defects or imperfections, and grades approved by"
29. "Carefully performed"
30. "Suitably housed"
31. "Neatly finished"
32. "Pleasing lines"
33. "Smooth surfaces"
34. "Metal parts shall be cleaned before painting"
35. "Kinks and bends may be cause for rejection"
36. "Testing will be accomplished unless waived"
37. "All reasonable requests of _____ shall be complied with"
38. "Furnish, if requested"
39. "Photographs shall be taken when and where directed by"

J. Arbitrary Phrases

Use of arbitrary statements may result in the improper assignment of authority to a supervisor, another individual, or activity. Avoid using arbitrary statements in the specification.

Examples of arbitrary statements are:

1. "When directed by ship's force."
2. "To the satisfaction of MARAD or Ship Manager representative."
3. "In accordance with MARAD or Ship Manager directives."

Be wary of the word **approval**. This is especially important when addressing contractor requirements related to schedules, drawings or documents. The word approval means an "endorsement as accurate" and even ownership. A schedule developed and submitted by the contractor to the Ship Manager or to the government for approval may contain logic, sequence, or

duration flaws. If the Ship Manager or government "approves" the schedule, they endorse it as being completely accurate. Once the Ship Manager or government approves a schedule, drawings, or other documents of the contractor, they are bound to the terms contained therein, whether or not they are correct or accurate. Because of this, the word **acceptance** should be used instead of approval. The word **acceptance** means that you have "taken receipt" of the schedule or documents, but have not necessarily endorsed them as being accurate. By simply using the word acceptance instead of the word approval the Ship Manager or government will not be bound by mistakes in the contractor's schedules or documents.

K. Unknown Conditions

Do not attempt to write an exact shipwork specification if the scope of work is unknown at the time the specification is written. Instead, unknown or poorly defined work must be written as a general "Open, inspect, and report" specification. The shipwork specification shall contain anticipated work provisions and quantities to assist the contractor to submit an accurate bid. Direct the contractor to bid the work in a unit-work price quote manner, (e.g., square feet of coatings, tons of steel, gallons of "slops" removal, and so forth). Then, during the course of actual repairs, specific amounts of work can be effectively required by issuance of a delivery order(s) based on unit-work price quotes previously bid by the contractor.

L. Exact Quantities

If the exact quantity of material required to accomplish the work is known, state it in the specification. However, if the exact quantity is not known do not specify quantities of material in the specification. Instead, give a definitive description of what work is required. A definitive description of what work is required will enable the contractor to determine the quantity of materials required to complete the specified work. This avoids disputes over exact quantities and will reduce the chance of the contractor submitting a claim.

For example, instead of writing, "Renew 175 feet of 4-inch extra-heavy black iron pipe in the Storeroom (XYZ)," write, "Renew the 4-inch extra-heavy black iron pipe in Storeroom (XYZ) from the first flange forward of the after bulkhead to the first flange aft of the forward bulkhead." In the latter case, the contractor can determine the exact quantities needed during the pre-bid ship inspection period or when doing material take-off from available drawings.

M. Glossary of Preferred Terms

Following is a list of preferred terminology that should be used when applicable:

PREFERRED	NOT DESIRED
Accomplish the requirements	Accomplish the work, or Comply with
Accomplish	Conduct, or Perform (Conduct may be used for an operational test)

Remove

Remove existing and install (or renew)

Disconnect

Preserve (or coat)

Inspect

Fabricate

Measure

Shall be

(Specify a Quantity)

Verify

Ensure

Listed

Through

Drain

Replace, or Unship new

Unbolt

Paint

Check

Make

Take

Is to be, Should be, Must, May be

All

Demonstrate, Prove

Assure, or Insure

Identified

Thru

V. DO's and DON'Ts of Specification Writing

A well-written shipwork specification contains no textual references, contains all required information and data, and, in effect, “stands on its own” as far as bidding on and carrying out the required work is concerned. Consider the following Do’s and Don’ts when writing specifications.

A. DO the following:

1. **DO** use clear, simple language that is free of ambiguous terms.
2. **DO** write so that those who read your specification can understand it.
3. **DO** describe the full scope and intent of the required work. Describe exactly what work the contractor is expected to accomplish.
4. **DO** write the specification as if you had no knowledge of who would perform the work or where it would be done.
5. **DO** ensure that shipboard locations and conditions are accurately described in the specification.
6. **DO** define unusual terms that may be subject to conflicting interpretation.
7. **DO** make use all available background and technical reference material during preparation of specifications. Your memory is not infallible.
8. **DO** ensure that technical manuals and drawings that are referenced in the specification are relevant to the required work and available to the contractor.
9. **DO** include guidance drawings, sketches, or data if they will assist the contractor to efficiently accomplish the required work.
10. **DO** avoid telling contractors "how" to accomplish the work. Instead, state "what" is to be accomplished.
11. **DO** use the word "shall" when the requirement is mandatory.
12. **DO** use the word "may" when requirement is optional.
13. **DO** use the word "will" when describing a simple future tense or to express a declaration of purpose on the part of the government.
14. **DO** identify known or suspected long lead-time Contractor Furnished Equipment (CFE) and Contractor Furnished Material (CFM) items.

15. **DO** identify known sources of CFE, CFM, and contractor-furnished Technical Representatives.
16. **DO** avoid supplying technical representatives, subcontractors, and Ship Manager or government furnished material. Poor performance or late delivery by the Ship Manager or government may result in delay and disruption claims by the contractor.
17. **DO** provide accurate and detailed acceptance criteria for determining acceptable work quality for each particular specification work item. Clearly define accept/reject criteria.
18. **DO** release a specification only when you are sure that the task can be satisfactorily accomplished, with no further communication between you and the contractor.

B. DON'T do the following:

1. **DON'T** use colloquial language or slang terms.
2. **DON'T** use non-definitive phrases such as "as required" or "as directed."
3. **DON'T** use statements that assign arbitrary authority to a supervisor, or other activity or individual. (e.g., "To the satisfaction of the COTR or Port Engineer".)
4. **DON'T** use "catch-all" phrases such as "etc.", "as necessary", "excessive", or "as required" to attempt to avoid the possibility of having to issue change orders.
5. **DON'T** use generalized or extraneous phrases such as "thoroughly clean" or "extreme care is to be taken." Instead, say "clean" or "care is to be taken."
6. **DON'T** repeat general requirements in technical shipwork specifications that should be covered once in the general requirement specifications. (e.g., issues such as contractor furnished material, cleanliness, cleaning and coating of disturbed surfaces, and so forth.)
7. **DON'T** say, "Obtain the services of a Marine Mechanical Engineer to supervise." Instead, say, "Obtain the services of a Marine Mechanical Engineer to provide technical assistance."
8. **DON'T** provide bills of material for CFE. Let the contractor determine the materials needed to accomplish the work.
9. **DON'T** direct the contractor to make "temporary accesses" unless there is a compelling reason to specify the access.
10. **DON'T** use abbreviations or acronyms. Instead, spell out the full word. For example, don't use "IAW" (In accordance with).
11. **DON'T** include redundant statements in an attempt to clarify or emphasize a specification. Make each statement complete enough to stand by itself.

12. **DON'T** put multiple thoughts into a single subparagraph. Each subparagraph shall be short, complete, concise, and shall convey a single thought or requirement.
13. **DON'T** use such words as "proper" or "adequate" to define acceptance criteria. Instead, include definitive acceptance or rejection criteria.
14. **DON'T** try to "salvage" a poorly written sentence or specification by indiscriminately, including additional, and perhaps improper, words. Instead, rewrite the sentence or specification in accordance with this guide.
15. **DON'T** issue a specification that attempts to address unresolved problems. Doing this may confuse the contractor. For example, a specification for a motor driven pump with severe vibration problems should not direct specific repairs until the cause of the vibration, and possible damage from the vibration, has been determined.
16. **DON'T** refer to attachments, enclosures, or references to avoid writing the work requirements into the specification.
17. **DON'T** use symbols to define dimensions. For example: (") for inch; (') for foot. Spell out the dimension words: "one foot;" "2 feet;" "24 inches".
18. **DON'T** refer to references unless they are available to the contractor.
19. **DON'T** refer to an item as "plate" in one sentence and "plating" in another sentence, or "cable" in one sentence and "wire" in another sentence. Be consistent in the description of the item throughout the specification.
20. **DON'T** use the numeral 1 alone. It can be mistaken for a lower case L. Instead, write the numeral 1 out as "one."
21. **DON'T** include phrases in a specification that are not necessary to describe the required work.
22. **DON'T** use technical test definitions or requirements such as "1.5 times the working pressure." Instead, specify the exact test parameter, "Test to 150 PSIG." Always give definitive test criteria.
23. **DON'T** include sentences that direct the contractor to "provide and install." The contractor is required to provide all material that is not specifically furnished by the Ship Manager or government, namely, Owner Furnished Equipment (OFE), or Government Furnished Equipment (GFE).
24. **DON'T** routinely require the Ship Manager Port Engineer or Contracting Officer Technical Representative (COTR) to approve selection of subcontractors in a work item. Instead, specify that the contractor shall be fully responsible for the selection and performance of subcontractors.

25. DON'T direct the contractor to “replace with material in kind” or “replace with material same as existing.” The existing material may be the cause of the failure or problem. Specify the material to be used.

VI. Contents of the Shipwork Specification

A. Use of Baseline Specifications

Baseline specifications are not intended for use in their original format. Properly prepared ship-specific specifications shall be based upon the basic format and content of a baseline specification, whenever practicable. The specification writer shall use baseline specifications as a "template" and checklist for preparing a specification that accurately describes the required ship repair work.

At a minimum, the specification writer shall add information such as location of work, identification of equipment, and quantity of equipment. Such information will be inserted into the baseline specification in order to modify it into a unique shipwork specification. The Work Description paragraph of the baseline specification shall be modified to ensure that the actual deficiencies and required repairs are accurately stated.

The Baseline Specification Program was developed to describe repairs common to RRF ships. Each baseline specification was written generically, yet comprehensively, to cover commonly encountered shipwork. The main advantage of using a baseline specification to prepare a ship-specific specification is that most of the work involved with writing the specification is already accomplished. Instead of writing the specification from scratch, you can save effort by editing the baseline specification to suit the requirements of a particular ship.

B. Formatting Conventions of the Shipwork Specification

As a reminder, this Baseline Specification Program Guide may be used for specification preparation for both IFB and Prime/Sub type contracts. The following formatting conventions shall be considered when writing shipwork specifications.

C. Format of the Specification

Shipwork specifications shall be written using the standardized baseline specification format contained in **Appendix A** of this guide. A shipwork specification should consist of a heading section followed by five separate sections or paragraphs. Use of a "narrative" style specification, absent a format of logical sections, is not only more difficult to write and understand, but will often result in work requirements and performance criteria being missed by the contractor. The basic elements of a shipwork specification are:

1. The **Heading** Section
2. Paragraph or Section 1: **Item Name**
3. Paragraph or Section 2: **Scope of Work**
4. Paragraph or Section 3: **Work Description**

- 5. Paragraph or Section 4: **Performance Criteria or Deliverables**
- 6. Paragraph or Section 5: **Notes**

There are distinct requirements for each paragraph or section of the shipwork specification. Discussion of these requirements follows.

1. The Heading Section

The Heading Section is used to provide important basic identification information about the shipwork specification. The Heading Section consists of the following six parts:

a. Shipwork Specification Item Number

Shipwork specifications must be numbered in some way for tracking purposes.

b. Baseline Specification Number

The baseline specification number is the item number of the corresponding baseline specification (if applicable) that was used as a template from which to develop the work item. This number is based on a Work Breakdown Structure (WBS) system of codes.

c. Date

The date is the date that the work specification is written.

d. Deficiency Sequence Number (DSN)

The Deficiency Sequence Number (DSN) is the code that is taken from MARTS for identifying deficiencies. The DSN shall be included with every specification.

e. Vessel

Vessel is the name of the appropriate vessel where the work is to be performed.

f. Originator/Writer

Originator/Writer is the name of the person originating or writing the work item.

2. Item Name

Paragraph one of the shipwork specification is always Item Name. Paragraph one is mandatory. Item Name is the noun name of the general requirement, system, structure, machinery, equipment, or component that is the subject of repair, followed by a descriptive adjective. Following the noun name, provide a short descriptive verb phrase of the required repairs.

Examples of correct Item Names are:

"PUMP(S), Main Feed; Overhaul", or, "SHOREPOWER; Provide."

3. Scope of Work

Paragraph two of the shipwork specification is always Scope of Work. Paragraph two is mandatory. The Scope of Work paragraph consists of three subparagraphs, as follows:

- a. **Intent:** A short plain language statement shall be included to summarize the intent of the specification. The intent paragraph is mandatory.

For example, "The intent of this specification is to clean, prepare, and preserve the shaft alley bilges."

- b. **Location of Work: Compartment name and frame/deck number designation shall be** used to describe the location of the work. Where several locations are involved, the term "Throughout the ship" shall be used followed by a reference in the work description wherein each specific repair location will be listed. If the location of the work is not necessary, enter "N/A".

- c. **Identification:** A complete description of the machinery or equipment shall be made, using manufacturer, model, serial number, or equipment designation, to describe the equipment. If identification of the machinery or equipment is not necessary, enter "N/A".

4. Work Description

Paragraph three of the shipwork specification is always **Work Description**. Paragraph three is mandatory. The Work Description paragraph shall describe the minimum work and material requirements to be accomplished by the contractor. Paragraph three shall contain the following twelve elements, as required, to describe the scope and extent of the work description:

- a. **General Description of the Work**

The written work description shall be logically arranged, and describe the normal sequence of required work. For complex items, where a normal sequence would be confusing, a trade or component work description breakdown may be used. However, within the trade or component breakdown, a normal sequence, (e.g., a chronological breakdown of the required work) shall be described.

- b. **Check Points**

Requirements for check points shall be inserted into the specification to correspond to stages of work where it is necessary for the government to verify or check the progress of the contractor's work. Normally, check points are required in the production cycle where critical work or tests are performed, or where subsequent production would mask

previously performed work. Definitive Accept-Reject criteria must be included in the Check Point description and must be accurate.

The word "**CHECK POINT**" shall be inserted in upper-case **BOLD** letters at the left margin, immediately following the text paragraph describing the last work operation that the contractor must perform prior to notifying the Ship Manager or COTR of the check point. After the word "CHECK POINT", insert a short phrase, in parentheses, describing the check point.

For example, **CHECK POINT - (Hydrostatic Test)**.

If there is a requirement for more than four hours advance notice before conducting a check point, the requirement shall also be inserted within the parentheses.

The paragraph immediately following the words **CHECK POINT** shall describe the check point requirements and any accept/reject criteria.

c. Regulatory Requirements

Regulatory or Classification test and inspection requirements shall be listed as a **CHECK POINT** if they are known and definable at the time the work specification is written.

The contractor normally shall be required to identify and coordinate all regulatory-body tests and inspections that are part of the shipwork specification. However, the specification writer shall make every effort to include all known regulatory inspections, tests, and examinations in the specification as work requirements and check points.

The contractor shall identify and schedule all regulatory requirements with the Ship Manager under Prime/Sub contracts or the COTR under IFB type contracts. Contract deliverables such as condition reports, survey and inspection reports, and process control procedures are not check points and shall not be listed as such in shipwork specifications.

d. Process Control Procedure Requirements

Process control procedure requirements shall be included in the Work Description paragraph. Process control procedures shall be used when inspection and tests cannot assure contractual compliance of the product.

Examples of shipwork where a process control procedure might be appropriate include the cleaning and flushing of critical systems, special welding procedures, and so forth. In most cases, the contractor shall be required to develop any required process control procedures for Ship Manager or COTR review and approval at a defined point in time prior to start of work, normally two to four weeks.

e. Technical Representative Requirements

Requirements for technical representative support shall be described in the Work Description paragraph. The specification must state whether the technical representative is to be furnished by the Ship Manager, government, or by the contractor. The technical representative's qualifications and estimated duration of technical representative's work must also be specified. The Ship Manager under Prime/Sub contracts, or the COTR under IFB type contracts shall identify the contractor's selection of required technical representative(s) in advance, for review and approval.

Examples of shipwork that normally requires technical representative support are: paint representatives; OEM representatives for main engines/reduction gears/shaft seals; thruster and controllable-pitch propeller repairs; vibration and thermography analysis; automation and electronics repair; radio room certification and testing; radar repair; boiler controls; underwater hull inspection; and repairs or inspection of other complex equipment and systems.

f. Major Interferences

If major interferences, (e.g., structural members, cables that must be cut, high pressure piping, hydraulic systems, charged systems) exist that are in the way of work described in the specification, removal of those interferences shall be specifically described in the Work Description paragraph.

g. Quality Assurance Requirements

Quality Assurance (QA) requirements or documentation of material to be furnished by the contractor shall be listed in the Work Description paragraph.

For example, the requirement for a technical representative to witness tests of the repairs shall be addressed in the Work Description paragraph.

h. Report Requirements

Reports that the contractor must provide shall be specified the Work Description. Additionally, requirements concerning the timeliness and periodicity of reports must also be specified. This includes condition reports and survey and inspection reports.

i. References

References that are necessary for the contractor to accomplish the stated work must be specified in the Work Description paragraph. Do not cite a reference unless it is available to the contractor.

j. Drawing and Other Technical Requirements

Requirements for drawings, blueprints, instructions, manuals, placards, signs, and other documents to be submitted by the contractor shall be specified in the Work Description paragraph.

k. Definitions

Any definitions necessary to clarify the scope or requirements of the work description shall included in the Work Description paragraph.

l. Hazardous Materials Identification

Hazardous Materials that will affect the contractor's performance of the shipwork specification shall be identified.

For example, the specification shall describe the type, location, extent, and special characteristics of asbestos, compressed gases, lead-based paints, caustic chemicals, or similar products that may be affect the contractor's performance of the required shipwork.

5. Performance Criteria or Deliverables

Paragraph four of the shipwork specification is always **Performance Criteria or Deliverables**. This paragraph shall list all check points, reports, process control procedures, and other deliverables that are listed in paragraph three, (The Work Description), of the specification. Thus, paragraph four will provide the contractor and Ship Manager or COTR with a concise summary list of the checkpoints, deliverables, and other important milestones of the shipwork specification.

If the contractor is required to interface with regulatory agencies, (e.g., USCG, ABS, FCC) to determine what inspections, reports, surveys, and tests are required, then the performance criteria/deliverables may be supplemental to those required by the regulatory bodies. If there are no performance criteria/deliverables for a given item, then "NONE" shall be entered into this element of the specification.

6. Notes

Paragraph five of the shipwork specification is always **Notes**. This paragraph shall be used to list applicable OFM, GFM, OFI, GFI, OFE, and GFE. Paragraph five shall contain explanatory notes or information that is not included elsewhere in the specification. Paragraph five may also be used to list miscellaneous information that impacts the completion, testing, or critical path of the specification. No shipwork requirements shall be placed in paragraph five of the specification.

#

Appendices

Appendix A - Baseline Specification Format

Item No:

Baseline Specification No:

Date:

DSN:

Vessel:

Originator/Writer:

Item Name

Scope of Work:

Intent: (Scope of work statement)

Location of Work: (Compartment/space name and number)

Identification: (Equipment/machinery/component/structure identification)

Work Description:

Complete narrative description of all work to be accomplished (in paragraph format as desired).

- Subparagraphs as appropriate
 - Sub-Subparagraphs as appropriate
 - Sub-Subparagraphs as appropriate
- Subparagraphs as appropriate
 - Sub-Subparagraphs as appropriate
 - Sub-Subparagraphs as appropriate

Performance Criteria/Deliverables:

Notes: (Omit if not applicable)

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