

Final Report

UMTRI 97-35

NSRP 0488

**STANDARDS DATABASE
MAINTENANCE PHASE II**

Submitted to:

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16. Abstract <p>The objective of the standards database projects has been to develop and maintain a compendium of standards (from international, national, government and regulatory bodies) that have relevance to the U.S. shipbuilding and repair industry. The first project in the current series was reported as NSRP 0361. It had standards titles, numbers, and issuing organizations cross-referenced by Ship Work Breakdown Structure (SWBS) numbers. The second was NSRP 0456 and was intended as a follow-on to NSRP 0361, but the timing was such that 0456 was essentially a new database index.</p> <p>This report is another new database index of shipbuilding-related standards. It is an expanded and updated version of 0456 with over 37,000 (up from 17,000) standards listed. This database should provide shipyards and related marine industries with a ready reference to standards that are of use to shipbuilding, and avoid the development of new standards where acceptable standards exist.</p>					
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EXECUTIVE SUMMARY

The objective of the standards database projects has been to develop and maintain a compendium of standards (from international, national, military, and regulatory bodies) that have relevance to the U.S. shipbuilding, repair and related industries. The first compendium in the current series was reported as NSRP 0361 and accomplished to replace an older database (NSRP 0088) that was available only in printed form. It has standards titles, numbers, and issuing organizations cross-referenced by Ship Work Breakdown Structure (SWBS) numbers and contains about 10,400 titles. It is still available on a single 3.5 inch floppy disk but has been superseded by the current report. The second compendium was NSRP 0456 and was intended as a follow-on to NSRP 0361, but the timing was such that 0456 was essentially a new database index with 17,000 standards. It is still available on two (2) 3.5 inch floppy disk but has also been superseded by the current report

This Phase II (contractually Phase II of the same contract that produced report NSRP 0456) is a new database index of shipbuilding related standards. It is an expanded and updated version of 0456 with over 37,000 standards indexed and cross-referenced by SWBS numbers. This database should provide shipyards and related marine industries with a ready reference to standards that are of use to shipbuilding, and avoid the development of new standards where acceptable standards exist

The database is accessible directly from the World Wide Web at:

<http://www.umich.edu/~umtrim/d/docctr/edocs/index.htm>

and can be downloaded and installed on a personal computer of reasonable capacity (486/66 minimum) that runs Microsoft Windows 95[®] or Windows NT[®]. It is basically a Microsoft ACCESS[®] database packaged with a stand alone search engine. It can also be loaded into the Microsoft ACCESS[®] software and searched through that program.

STANDARDS DATABASE MAINTENANCE PHASE II

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INTRODUCTION and BACKGROUND

This report is a product of a program directed by the National Shipbuilding Research Program (NSRP) and the Ship Production Committee (SPC) of the Society of Naval Architects and Marine Engineers (SNAME). Newport News Shipbuilding was the prime contractor, with the University of Michigan Transportation Research Institute (UMTRI) working under a subcontract.

Under the SPC Panel SP-6 proposal, the technical objective of this project is to maintain and expand a compendium of standards (international, national, military, and regulatory) that have relevance to the U.S. shipbuilding and repair industry. The intended benefits are to provide shipyards with a ready reference to standards that are of use to shipbuilding and to eliminate the need for development of new standards where acceptable standards exist.

The project was performed at UMTRI by Albert W. Horsmon, Jr. and Scott B. Clapham. Thomas Lamb was project director.

Standards are a key element in the efficient design, construction, and repair of ships and vessels in all shipyards. As a result, there is a continuous need by many designers, engineers, managers, and other people associated with marine work to reference standards from a wide range of regulatory bodies, government agencies, technical societies, and private industry groups. For this database, standards include:

- Consensus standards, such as those developed by the American Society of Testing and Materials (ASTM),
- Government regulations and requirements, such as U.S. Coast Guard regulations,
- Military Specifications (MilSpecs), and
- Related rules requirements.

Traditional methods of locating standards center around referencing many documents and books of standards issued by diverse individual organizations. Copies of the standards on microfiche may have reduced the volume of the references but not the difficulty in searching for information. Computerized versions of the standards made searches faster, but frequently gave users more information than they needed for initial investigations. This can be not only time consuming, but may result in either not finding a standard or developing a new standard where a suitable one may already exist.

The first shipbuilding standards compendium for the NSRP was completed as NSRP 0088 in September of 1979 under an NSRP Project titled "A Compendium of Shipbuilding Standards." It was produced as a hard copy database with 2,580 entries, predominately from domestic agencies. It was issued in hard copy format sorted by four methods, but without provision for maintenance. In a short period of time it was outdated.

As a result, the Marine Industry Standards Panel (SP-6) of the Ship Production Committee of SNAME identified the need for a computerized compendium of standards pertinent to shipbuilding and ship repair. The first project in the current series was reported as NSRP 0361 in 1992. It has standards titles, numbers, and issuing organizations cross-referenced by Ship Work Breakdown Structure (SWBS¹) numbers. It contains about 10,400 titles from 50 organizations, both domestic and international. The database was supplied compressed on a single floppy disk as a Borland

¹ SWBS - Ship Work Breakdown Structure. A systems-oriented coding structure used by the U.S. Navy to classify components from design through the life of the ship. A listing is provided in the Appendix.

dBASE IV® file, overcoming some of the limitations of the earlier project. It is still available on a single 3.5 inch floppy disk but has been superseded by the current report.

As standards changed, the NSRP 0361 database became somewhat outdated. The SP-6 Panel recognized the need for maintenance of this (NSRP 0361) database and planned a follow-on maintenance project, but the follow-on project was not funded until nearly two years later. The maintenance project was planned as a two year project. NSRP 0456 (the Phase I report) was intended as the follow-on to NSRP 0361, but the timing was such that NSRP 0456 was essentially a new database index with 17,000 standards. NSRP 0456 is supplied compressed onto two floppy disks in a number of different database formats as requested by subscribers. However, it has also been superseded by the current report

This report completes Phase II of the maintenance project and is an expanded and updated version of the NSRP 0456 database, with over 37,000 standards indexed and cross-referenced by SWBS numbers. The database is available directly from the World Wide Web and can be downloaded and installed on a personal computer of reasonable capacity. A minimum of a 486/66 machine with 16M of RAM should be used to look at the database. It is basically a Microsoft ACCESS® database packaged with a stand alone search engine.

GETTING TO THE DATABASE

To access the Phase II Standards Database for Windows 95 and NT machines, on the World Wide Web go to:

<http://www.umich.edu/~umtrimisd/docctr/edocs/index.htm>

Once there click on NSRP Report 0488 - it will download the zipped file to your desktop. These instructions or updates to them are also located there.

To access the Standards Database through an FTP server go to the FTP site:

141.211.187.96

Log in as "anonymous," use your email address as the password. Once into the site, open the folders "doccen" and in doccen open "reports." In the reports folder download the one titled DBinstal.zip to your desktop.

On your desktop, double click the DBinstal.zip folder and your host unzip program will unzip the files into the specified folder. In the unzipped group of files, find and double click the "setup.exe" file and it will create a StandardsDB folder on your C drive. After the files are installed, Double Click the Standards.exe file in the StandardsDB folder and you should be ready to search.

More complete instructions, including special search instructions, are in Appendix A. Appendix B is a listing of SWBS numbers and titles. Appendix C is a listing of the organizations whose standards are listed in the database and the acronyms used to identify them. Appendix D has sample printouts from the database

CONCLUSIONS

The Phase II standards database is an easy to use comprehensive index of marine related standards that should give the user a good first cut at finding which standards are applicable to a specific subject.

Appendix A

Installation and Usage Instructions

Installation and Usage Instructions

OBTAINING THE DATABASE

To access the Phase II Standards Database for Windows 95 and NT machines, on the World Wide Web go to:

<http://www.umich.edu/~umtrimds/docctr/edocs/index.htm>

Once there click on NSRP Report 0488 - it will download the zipped file to your desktop. These instructions or updates to them are also located there.

To access the Standards Database through an FTP server go to the FTP site:

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Log in as "anonymous," use your email address as the password. Once into the site, open the folders "doccen" and in doccen open "reports." In the reports folder download the one titled DBinstal.zip to your desktop.

To obtain some other form of the database, contact UMTRI directly or by email at seai@umich.edu.

INSTALLATION

Run the installation program, "Setup.exe." The program must be installed in the directory C:\StandardsDB." The setup program will install a number of files on the computer. Dynamic Link Libraries (DLLs) will be placed in your Windows directory. The executable file, "StandardsDB.Exe," will be placed in C:\Standards, and the database of standards, DB2.Mdb, will be placed in C:\StandardsDB

USAGE

Without the Search Utility

The standards database, DB2.Mdb, is a Microsoft ACCESS 7.0[®] database. It can be opened and modified like any other ACCESS database. It may also be opened in any other compatible database program.

With the Search Utility

The Search Utility that has been included with the database allows users to search by any combination of criteria, and view and print the results in three different formats.

There are four different titled criteria that can be used for searching: SWBS number, entering a keyword in the "Title" box, "Originating Organization," and "Standard Number." To search by a criterion, the corresponding box on the left must be checked and a search criterion entered. The search criterion may be an exact entry, such as for the SWBS field "120," or it may include wildcard characters such as *, ?, and #. The most powerful wildcard operator is the *. To search for all standards with the word "pipe" anywhere in their title the following (without quote marks) would be entered into the box to the right of the keyword, "*pipe*." Examples of the other more restrictive operators are given below.

Installation and Usage Instructions

Kind of match	Pattern	Match	No Match
Multiple characters	"a*a"	"aa", "aBa", "aBBBa"	"aBC"
	"*ab*"	"abc", "AABB", "Xab"	"aZb", "bac"
Special character	"a[*]a"	"a*a"	"aaa"
Multiple characters	"ab*"	"abcdefg", "abc"	"cab", "aab"
Single character	"a?a"	"aaa", "a3a", "aBa"	"aBBBa"
Single digit	"a#a"	"a0a", "a1a", "a2a"	"aaa", "a10a"
Range of characters	"[a-z]"	"f", "p", "j"	"2", "&"
Outside a range	"[!a-z]"	"9", "&", "%"	"b", "a"
Not a digit	"[!0-9]"	"A", "a", "&", "~"	"0", "1", "9"
Combined	"a[!b-m]#"	"An9", "az0", "a99"	"abc", "aj0"

The abbreviation for the organization search criterion may be entered manually or selected from the drop down list. Once a search has been completed the number of matches is displayed on the right side of the screen. The user may then view the results ordered by Standard Number, Organization, or SWBS by clicking on the appropriate radio button and clicking the "View Results" button. The results will be displayed in a new window. This window can be printed by clicking on the printer icon. The results can be paged through by clicking on the arrows. The view can be zoomed in and out by clicking on the magnifying glass icon. When the user has finished viewing the results the "Close" button should be pressed and the Search Utility will be displayed.

The Search Utility also allows the user to search the results of a previous query. This allows more than one keyword to be used. To search the results of the last query for additional criteria, select the "Search Previous" option, enter the new criterion, and click the "Search Database" button.

MAINTAINING THE DATABASE

Users who would like to add additional standards to the database may do so using Microsoft Access 7.0. The Standards Database is entitled DB2.Mdb. Any number of records may be added or deleted and the field entries modified. However, the layout of the table must remain the same and the field names must not be changed.

Appendix B

SWBS Numbers

SHIP WORK BREAKDOWN STRUCTURE TITLES

Group 0-99 General Guidance and Administration

000	General Guidance and Administration
010	Combat Capabilities (Offensive and Defensive)
011	Air Weapons Vs. Air Targets
012	Air Weapons Vs. Surface Targets
013	Air Weapons Vs. Underwater Targets
014	Surface Weapons Vs. Air Targets
015	Surface Weapons Vs. Surface Targets
016	Surface Weapons Vs. Underwater Targets
017	Underwater Weapons Vs. Surface Targets
018	Underwater Weapons Vs. Underwater Targets
020	Strategic and Special Capabilities
021	Surface Based Deterrents
022	Underwater Based Deterrents
023	Amphibious Warfare
024	Mine and Mine Countermeasure Warfare
025	Inshore Warfare
030	Tactical and Strategic Oper. Support Capabilities
031	Command/Control/Communications
032	Surveillance/Reconnaissance/Intelligence
033	Electronic Warfare and Nuc/Bio/Chemical Defense
034	Logistics/Sealift
035	Other Support
040	Ship System Management
041	Project Management
042	General Administrative Requirements
043	Life Cycle Costing
044	Ship Operation
050	Ship System Performance
051	Ship System Performance Concepts
052	Ship Subsystem Performance Concepts
053	Selected Concepts
054	Component Development
060	Subsystem Characteristics (Interfaces and CNO Cont.)
061	Hull Structure
062	Propulsion Plant
063	Electric Plant
064	Command and Surveillance
065	Auxiliary Systems
066	Outfitting
067	Weapons
068	Integration and Engineering

SHIP WORK BREAKDOWN STRUCTURE TITLES

069	Ship Assembly
070	General Requirements for Design and Construction
071	Access
072	Shock
073	Noise and Vibration
074	Casting, Welding, Riveting, Allied Processes (General)
075	Threaded Fasteners Standards
076	Reliability ad Maintainability
077	Safety
078	Materials
079	Seaworthiness
080	Integrated Logistic Support Requirements
081	Maintenance
082	Support and Test Equipment
083	Supply Support
084	Transportation and Handling
085	Engineering Drawings
086	Technical Manuals and Other Data
087	Facilities
088	Personnel and Training
089	Training Equipment
090	Quality Assurance Requirements
091	Ship Inspections
092	Ship Tests
093	Combat Systems Checkout
094	Regular Ship Trials
095	Whole Ship Testing
096	Weight Control
097	Inclining Experiment and Trim Dive
098	Models and Mockups
099	Photographs

Group 1 Hull Structure

100	Hull Structure, General
101	General Arrangement-Structural Drawings
110	Shell and Support Structure
111	Shell Plating, Surf. Ship and Submarine Press. Hull
112	Shell Plating, Submarine Non-pressure Hull
113	Inner Bottom
114	Shell Appendages
115	Stanchions

SHIP WORK BREAKDOWN STRUCTURE TITLES

116	Longit. Framing, Surf. Ship and Submarine Press. Hull
117	Transv. Framing, Surf. Ship and Submarine Press. Hull
118	Longit. and Transv. Submarine Non-press. Hull Framing
119	Lift System Flexible Skirts and Seals
120	Hull Structural Bulkheads
121	Longitudinal Structural Bulkheads
122	Transverse Structural Bulkheads
123	Trunks and Enclosures
124	Bulkheads in Torpedo Protection System
125	Submarine Hard Tanks
126	Submarine Soft Tanks
130	Hull Decks
131	Main Deck
132	2nd Deck
133	3rd Deck
134	4th Deck
135	5th Deck and Decks Below
136	01 Hull Deck (Forecastle and Poop Decks)
137	02 Hull Deck
138	03 Hull Deck
139	04 Hull Deck and Hull Decks Above
140	Hull Platforms and Flats
141	1st Platform
142	2nd Platform
143	3rd Platform
144	4th Platform
145	5th Platform
149	Flats
150	Deck House Structure
151	Deckhouse Structure to First Level
152	1st Deckhouse Level
153	2nd Deckhouse Level
154	3rd Deckhouse Level
155	4th Deckhouse Level
156	5th Deckhouse Level
157	6th Deckhouse Level
158	7th Deckhouse Level
159	8th Deckhouse Level and Above
160	Special Structures
161	Structural Castings, Forgings, and Equiv. Weldments
162	Stacks and Macks (Combined Stack and Mast)
163	Sea Chests
164	Ballistic Plating

SHIP WORK BREAKDOWN STRUCTURE TITLES

165	Sonar Domes
166	Sponsons
167	Hull Structural Closures
168	Deckhouse Structural Closures
169	Special Purpose Closures and Structures
170	Masts, Kingposts, and Service platforms
171	Masts, Towers, Tetrapods
172	Kingposts and Support Frames
179	Service Platforms
180	Foundations
181	Hull Structure Foundations
182	Propulsion Plant Foundations
183	Electric Plant Foundations
184	Command and Surveillance Foundations
185	Auxiliary Systems Foundations
186	Outfit and Furnishings Foundations
187	Armament Foundations
190	Special Purpose Systems
191	Ballast, Fixed or Fluid, and Buoyancy Units
192	Compartment Testing
195	Erection of Sub Sections (Progress Report Only)
198	Free Flooding Liquids
199	Hull Repair Parts and Special Tools

Group 2 Propulsion Plant

200	Propulsion Plant, General
201	General Arrangement-Propulsion Drawings
202	Machinery Plant Central Control Systems
210	Energy Generating System (Nuclear)
211	(Reserved)
212	Nuclear Steam Generator
213	Reactors
214	Reactor Coolant System
215	Reactor Coolant Service System
216	Reactor Plant Auxiliary Systems
217	Nuclear Power Control and Instrumentation
218	Radiation Shielding (Primary)
219	Radiation Shielding (Secondary)
220	Energy Generating System (Non-Nuclear)
221	Propulsion Boilers
222	Gas Generators

SHIP WORK BREAKDOWN STRUCTURE TITLES

223	Main Propulsion Batteries
224	Main Propulsion Fuel Cells
230	Propulsion Units
231	Propulsion Steam Turbines
232	Propulsion Steam Engines
233	Propulsion Internal Combustion Engines
234	Propulsion Gas Turbines
235	Electric Propulsion
236	Self-Contained Propulsion Systems
237	Auxiliary Propulsion Devices
238	Secondary Propulsion (Submarines)
239	Emergency Propulsion (Submarines)
240	Transmission and Propulsor Systems
241	Propulsion Reduction Gears
242	Propulsion Clutches and Couplings
243	Propulsion Shafting
244	Propulsion Shaft Bearings
245	Propulsors
246	Propulsor Shrouds and Ducts
247	Water Jet Propulsors
248	Lift System Fans and Ducting
250	Propulsion Support Sys. (Except Fuel and Lube Oil)
251	Combustion Air System
252	Propulsion Control System
253	Main Steam Piping System
254	Condensers and Air Ejectors
255	Feed and Condensate System
256	Circulating and Cooling Sea Water System
258	H.P. Steam Drain System
259	Uptakes (Inner Casing)
260	Propulsion Support Systems (Fuel and Lube Oil)
261	Fuel Service System
262	Main Propulsion Lube Oil System
263	Shaft Lube Oil System (Submarines)
264	Lube Oil Fill, Transfer, and Purification
290	Special Purpose Systems
298	Propulsion Plant Operating Fluids
299	Propulsion Plant Repair Parts and Special Tools

Group 3 Electric Plant

300	Electric Plant, General
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SHIP WORK BREAKDOWN STRUCTURE TITLES

301	General Arrangement-Electrical Drawings
302	Motors and Associated Equipment
303	Protective Devices
304	Electric Cables
305	Electrical Designating and Marking
310	Electric Power Generation
311	Ship Service Power Generation
312	Emergency Generators
313	Batteries and Service Facilities
314	Power Conversion Equipment
320	Power Distribution Systems
321	Ship Service Power Cable
322	Emergency Power Cable System
323	Casualty Power Cable System
324	Switchgear and Panels
330	Lighting System
331	Lighting Distribution
332	Lighting Fixtures
340	Power Generation Support Systems
341	SSTG Lube Oil
342	Diesel Support Systems
343	Turbine Support Systems
390	Special Purpose Systems
398	Electric Plant Operating Fluids
399	Electric Plant Repair Parts and Special Tools

Group 4 Command and Surveillance

400	Command and Surveillance, General
401	General Arrangement-Command and Surveillance
402	Security Requirements
403	Personnel Safety
404	Radio Frequency Transmission Lines
405	Antenna Requirements
406	Grounding and Bonding
407	Electromagnetic Interference Reduction (EMI)
408	System Test Requirements
410	Command and Control Systems
411	Data Display Group
412	Data Processing Group
413	Digital Data Switchboards
414	Interface Equipment

SHIP WORK BREAKDOWN STRUCTURE TITLES

415	Digital Data Communications
417	Command and Control Analog Switchboards
420	Navigation Systems
421	Non-Electrical/Electronic Navigation Aids
422	Electrical Navigation Aids (Incl Navig. Lights)
423	Electronic Navigation Systems, Radio
424	Electronic Navigation Systems, Acoustical
425	Periscopes
426	Electrical Navigation Systems
427	Inertial Navigation Systems
428	Navigation Control Monitoring
430	Interior Communications
431	Switchboards for I.C. Systems
432	Telephone Systems
433	Announcing Systems
434	Entertainment and Training Systems
435	Voice Tubes and Message Passing Systems
436	Alarm, Safety, and Warning Systems
437	Indicating, Order, and Metering Systems
438	Integrated Control Systems
439	Recording and Television Systems
440	Exterior Communications
441	Radio Systems
442	Underwater Systems
443	Visual and Audible Systems
444	Telemetry Systems
445	TTY and Facsimile Systems
446	Security Equipment Systems
450	Surveillance Systems (Surface)
451	Surface Search Radar
452	Air Search Radar (2D)
453	Air Search Radar (3D)
454	Aircraft Control Approach Radar
455	Identification Systems (IFF)
456	Multiple Mode Radar
459	Space Vehicle Electronic Tracking
460	Surveillance Systems (Underwater)
461	Active Sonar
462	Passive Sonar
463	Multiple Mode Sonar
464	Classification Sonar
465	Bathythermograph
470	Countermeasures

SHIP WORK BREAKDOWN STRUCTURE TITLES

471	Active ECM (Incl Combination Active/Passive)
472	Passive ECM
473	Torpedo Decoys
474	Decoys (Other)
475	Degaussing
476	Mine Countermeasures
480	Fire Control Systems
481	Gun Fire Control Systems
482	Missile Fire Control Systems
483	Underwater Fire Control Systems
484	Integrated Fire Control Systems
489	Weapon Systems Switchboards
490	Special Purpose Systems
491	Electronic Test, Checkout, and Monitoring Equipment
492	Flight Control and Instrument Landing Systems
493	Non Combat Data Processing Systems
494	Meteorological Systems
495	Special Purpose Intelligence Systems
498	Command and Surveillance Operating Fluids
499	Command and Surv. Repair Parts and Special Tools

Group 5 Auxiliary Systems

500	Auxiliary Systems, General
501	General Arrangement-Auxiliary Systems Drawings
502	Auxiliary Machinery
503	Pumps
504	Instrument and Instrument Boards
505	General Piping Requirements
506	Overflows, Air Escapes, and Sounding Tubes
507	Machinery and Piping Designation and Marking
508	Thermal Insulation for Piping and Machinery
509	Thermal Insulation for Vent and A/C Ducts
510	Climate Control
511	Compartment Heating System
512	Ventilation System
513	Machinery Space Ventilation System
514	Air Conditioning System
515	Air Revitalization Systems (Submarines)
516	Refrigeration System
517	Auxiliary Boilers and Other Heat Sources
520	Sea Water Systems

SHIP WORK BREAKDOWN STRUCTURE TITLES

521	Firemain and Flushing (Sea Water) System
522	Sprinkler System
523	Washdown System
524	Auxiliary Sea Water System
526	Scuppers and Deck Drains
527	Firemain Actuated Services-Other
528	Plumbing Drainage
529	Drainage and Ballasting System
530	Fresh Water Systems
531	Distilling Plant
532	Cooling Water
533	Potable Water
534	Aux. Steam and Drains Within Machinery Box
535	Aux. Steam and Drains Outside Machinery Box
536	Auxiliary Fresh Water Cooling
540	Fuels and Lubricants, Handling and Storage
541	Ship Fuel and Fuel Compensating System
542	Aviation and General Purpose Fuels
543	Aviation and General Purpose Lubricating Oil
544	Liquid Cargo
545	Tank Heating
549	Special Fuel and Lubricants, Handling and Stowage
550	Air, Gas, and Misc. Fluid Systems
551	Compressed Air Systems
552	Compressed Gases
553	O2 N2 System
554	LP Blow
555	Fire Extinguishing Systems
556	Hydraulic Fluid System
557	Liquid Gases, Cargo
558	Special Piping Systems
560	Ship Control Systems
561	Steering and Diving Control Systems
562	Rudder
563	Hovering and Depth Control (Submarines)
564	Trim System (Submarines)
565	Trim and Heel Systems (Surface Ships)
566	Diving Planes and Stabilizing Fins (Submarines)
567	Strut and Foil Systems
568	Maneuvering Systems
570	Underway Replenishment Systems
571	Replenishment-At-Sea Systems
572	Ship Stores and Equip. Handling Systems

SHIP WORK BREAKDOWN STRUCTURE TITLES

573	Cargo Handling Systems
574	Vertical Replenishment Systems
580	Mechanical Handling Systems
581	Anchor Handling and Stowage Systems
582	Mooring and Towing Systems
583	Boats, Boat Handling and Stowage Systems
584	Mechanically Operated Door, Gate, Ramp, Turntable Sys.
585	Elevating and Retracting Gear
586	Aircraft Recovery Support Systems
587	Aircraft Launch Support Systems
588	Aircraft Handling, Servicing and Stowage
589	Miscellaneous Mechanical Handling Systems
590	Special Purpose Systems
591	Scientific and Ocean Engineering Systems
592	Swimmer and Diver Support and Protection Systems
593	Environmental Pollution Control Systems
594	Submarine Rescue, Salvage, and Survival Systems
595	Towing, Launching and Handling for Underwater Sys.
596	Handling Sys. for Diver and Submersible Vehicles
597	Salvage Support Systems
598	Auxiliary Systems Operating Fluids
599	Auxiliary Systems Repair Parts and Tools

Group 6 Outfit and Furnishings

600	Outfit and Furnishings, General
601	General Arrangement-Outfit and Furn. Drawings
602	Hull Designating and Marking
603	Draft Marks
604	Locks, Keys, and Tags
605	Rodent and Vermin Proofing
610	Ship Fittings
611	Hull Fittings
612	Rails, Stanchions, and Lifelines
613	Rigging and Canvas
620	Hull Compartmentation
621	Non-Structural Bulkhead
622	Floor Plates and Gratings
623	Ladders
624	Non-Structural Closures
625	Airports, Fixed Portlights, and Windows
630	Preservatives and Coverings

SHIP WORK BREAKDOWN STRUCTURE TITLES

631	Painting
632	Zinc Coating
633	Cathodic Protection
634	Deck Covering
635	Hull Insulation
636	Hull Damping
637	Sheathing
638	Refrigerated Spaces
639	Radiation Shielding
640	Living Spaces
641	Officer Berthing and Messing Spaces
642	Noncommissioned Officer Berthing and Messing Spaces
643	Enlisted Personnel Berthing and Messing Spaces
644	Sanitary Spaces and Fixtures
645	Leisure and Community Spaces
650	Service Spaces
651	Commissary Spaces
652	Medical Spaces
653	Dental Spaces
654	Utility Spaces
655	Laundry Spaces
656	Trash Disposal Spaces
660	Working Spaces
661	Offices
662	Machinery Control Centers Furnishings
663	Electronics Control Centers Furnishings
664	Damage Control Stations
665	Workshops, Labs, Test Areas (Incl Portable Tools, Equip)
670	Stowage Spaces
671	Lockers and Special Stowage
672	Storerooms and Issue Rooms
673	Cargo Stowage
690	Special Purpose Systems
698	Outfit and Furnishings Operating Fluids
699	Outfit and Furnish. Repair Parts and Special Tools

Group 7 Armament

700	Armament, General
701	General Arrangement-Weaponry Systems
702	Armament Installations
703	Weapons Handling and Stowage, General

SHIP WORK BREAKDOWN STRUCTURE TITLES

710	Guns and Ammunition
711	Guns
712	Ammunition Handling
713	Ammunition Stowage
720	Missiles and Rockets
721	Launching Devices (Missiles and Rockets)
722	Missile, Rocket, and Guidance Capsule Handling Sys.
723	Missile and Rocket Stowage
724	Missile Hydraulics
725	Missile Gas
726	Missile Compensating
727	Missile Launcher Control
728	Missile Heating, Cooling, Temperature Control
729	Missile Monitoring, Test and Alignment
730	Mines
731	Mine Launching Devices
732	Mine Handling
733	Mine Stowage
740	Depth Charges
741	Depth Charge Launching Devices
742	Depth Charge Handling
743	Depth Charge Stowage
750	Torpedoes
751	Torpedo Tubes
752	Torpedo Handling
753	Torpedo Stowage
754	Submarine Torpedo Ejection
760	Small Arms and Pyrotechnics
761	Small Arms and Pyrotechnic Launching Devices
762	Small Arms and Pyrotechnic Handling
763	Small Arms and Pyrotechnic Stowage
770	Cargo Munitions
772	Cargo Munitions Handling
773	Cargo Munitions Stowage
780	Aircraft Related Weapons
782	Aircraft Related Weapons Handling
783	Aircraft Related Weapons Stowage
790	Special Purpose Systems
792	Special Weapons Handling
793	Special Weapons Stowage
797	Misc. Ordnance Spaces
798	Armament Operating Fluids
799	Armament Repair Parts and Special Tools

SHIP WORK BREAKDOWN STRUCTURE TITLES

Group 8 Integration/Engineering (Shipbuilder Response)

800	Integration/Engineering (Shipbuilder Response)
801	Shipbuilders Information Drawings
802	Contract Drawings
803	Standard Drawings
804	Type Drawings
806	Study Drawings
810	Production Engineering
811	Configuration Management
812	Change Proposals, Scoping and Shipchecking
813	Planning and Production Control
820	Special Drawings for Nuclear Propulsion Systems
830	Design Support
831	Construction Drawings
832	Specifications
833	Weight Engineering
834	Computer Programs
835	Engineering Calculations
836	Models and Mockups
837	Photographs
838	Design/Engineering Liaison
839	Lofting
840	Quality Assurance
841	Tests and Inspection, Criteria, and Procedures
842	Trials Agenda Preparation, Data Collection and Anal.
843	Inclining Experiment and Trim Dive
844	Combat Systems Checkout Criteria and Procedures
845	Certification Standards
850	Integrated Logistic Support Engineering
851	Maintenance
852	Support and Test Equipment
853	Supply Support
854	Transportation
855	Engineering Drawings and Specifications
856	Technical Manuals and Other Data
857	Facilities
858	Personnel and Training
859	Training Equipment
890	Special Purpose Items
891	Safety

SHIP WORK BREAKDOWN STRUCTURE TITLES

892	Human Factors
893	Standardization
894	Value Engineering
895	Reliability and Maintainability
896	Data Management
897	Project Management

Group 9 Ship Assembly and Support Services

900	Ship Assembly and Support Services
901	901 Thru 979 Reserved for Ident. of Assemblies
980	Contractual and Production Support Service
981	Insurance
982	Trials
983	Delivery
984	Open and Inspect (Conversions Only)
985	Fire and Flooding Protection
986	Tests and Inspection
987	Weighing and Recording
988	Contract Data Requirements (Administration)
989	Fitting-Out
990	Construction Support
991	Staging, Scaffolding, and Cribbing
992	Temporary Utilities and Services
993	Material Handling and Removal
994	Cleaning Services
995	Molds and Templates, Jigs, Fixtures, and Spec. Tools
996	Launching
997	Drydocking

Appendix C

Organizations and Acronyms

ORGANIZATIONS AND ACRONYMS IN DATABASE

ORG	Name
A.G.A.	American Gas Association
A.P.I.	American Paper Institute
AA	Aluminum Association
AAMA	American Architectural Manufacturers Association
ABMA	American Bearing Manufacturers Association
ABMA.	American Boiler Manufacturers Association
ABS	American Bureau Of Shipping Rules for Building and Classing Steel Vessels
ABS01	ABS Rules for Nondestructive Inspection of Hull Welds
ABS02	ABS Requirements for Approved Welding Consumables
ABS03	ABS Rules for Building and Classing Mobile Offshore Drilling Units
ABS04	ABS Rules for Building and Classing Steel Barges
ABS05	ABS Bulk Carriers for Service on the Great Lakes
ABS06	ABS Rules for Steel Vessels on Rivers
ABS07	ABS Guide for Inert Gas Systems
ABS08	ABS Rules for Certification of Cargo Containers
ABS09	ABS Manual for Making Bronze Propeller Repairs
ABS10	ABS Guide for Repair and Cladding of Shafts
ABS11	ABS Guide for Burning Crude Oil & Slops in Main & Auxiliary Boilers
ABS12	ABS Rules for Steel Floating Drydocks
ABS13	ABS Guide for Underwater Inspection in Lieu of Drydocking Survey
ABS14	ABS Guide for Construction of Shipboard Elevators
ABS15	ABS Requirements for Certification of Cargo Gear on Merchant Vessels
ABS16	ABS Requirements for Certification of Self-Unloading Cargo Gear on Great Lakes VsIs
ABS17	ABS Requirements for Single Point Moorings
ABS18	ABS Rules for Aluminum Vessels
ABS19	ABS Rules for Classification of Nuclear Ships
ABYC	American Boat And Yacht Council
ACCA	Air Conditioning Contractors Of America
AEIC	Association Of Edison Illuminating Companies
AES	Audio Engineering Society
AFNOR	Association Francaise De Normalisation
AFS	American Foundrymen's Society
AGMA	American Gear Manufacturers Association
AICHE	American Institute Of Chemical Engineers
AIHA	American Industrial Hygiene Association
AISC	American Institute Of Steel Construction
AISG	American Insurance Services Group Inc.
AISI	American Iron And Steel Institute
AITC	American Institute Of Timber Construction
ALCA	American Leather Chemists Association
AMCA	Air Movement And Control Association
ANSI	American National Standards Institute
ANSI/A.G.A.	American National Standards Institute
ANSI/ABMA	American National Standards Institute
ANSI/ABYC	American National Standards Institute

ORGANIZATIONS AND ACRONYMS IN DATABASE

ANSI/AGMA	American National Standards Institute
ANSI/API	American National Standards Institute
ANSI/ARI	American National Standards Institute
ANSI/ASHRAE	American National Standards Institute
ANSI/ASME	American National Standards Institute
ANSI/ASSE	American National Standards Institute
ANSI/ASSE.	American National Standards Institute
ANSI/ASTM	American National Standards Institute
ANSI/AWS	American National Standards Institute
ANSI/AWWA	American National Standards Institute
ANSI/CEMA	American National Standards Institute
ANSI/DISA	American National Standards Institute
ANSI/EIA	American National Standards Institute
ANSI/HI.	American National Standards Institute
ANSI/IAPMO	American National Standards Institute
ANSI/IEEE	American National Standards Institute
ANSI/ISA	American National Standards Institute
ANSI/NACE	American National Standards Institute
ANSI/NEMA	American National Standards Institute
ANSI/NFP(A)	American National Standards Institute
ANSI/NFPA	American National Standards Institute
ANSI/NSF	American National Standards Institute
ANSI/SAE	American National Standards Institute
ANSI/SDI	American National Standards Institute
ANSI/SIA	American National Standards Institute
ANSI/UL	American National Standards Institute
APA	The Engineered Wood Association
API	American Petroleum Institute
ARI	Air-Conditioning And Refrigeration Institute
ARM	Asphalt Roofing Manufacturers
ASCE	American Society Of Civil Engineers
ASHRAE	American Society Of Heating, Refrigeration, And Air-Conditioning Engineers
ASME	American Society Of Mechanical Engineers
ASNT	American Society For Nondestructive Testing
ASSE.	American Society Of Safety Engineers
ASTM	American Society For Testing And Materials
ATA.	American Trucking Association
AVS	American Vacuum Society
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BIA.	Brick Institute Of America
BSI	British Standards Institution
Bundesam	Bundesam
BV	Bureau Vistas

ORGANIZATIONS AND ACRONYMS IN DATABASE

CAA	Civil Aviation Authority
CCTI	Composite Can And Tube Institute
CDA	Copper Development Association
CECC	Cenelec Electronic Components Committee
CED	Civil Engineering Data
CEMA	Conveyor Equipment Manufacturers Association
CEN	European Committee For Standardization
CENELEC	Cenelec Electronic Components Committee
CEPT	Conference Europeenne Des Administrations Des Postes
CFFA	Chemical Fabrics And Film Association
CGA	Compressed Gas Association
CGNVIC	US Coast Guard Navigation And Vessel Inspection Circular
CGSB	Canadian General Standards Board
CHI	Chlorine Institute
CI	Cordage Institute
CIMA	Construction Industry Manufacturers Association
CINS	Composites Institute
CMAA	Crane Manufacturers Association Of America
CNS	Chinese National Standards
CPB	Contractors Pump Bureau
CPPA	Canadian Pulp And Paper Association
CSA	Canadian Standards Association
CSI	Construction Specifications Institute
CSMA	Chemical Specialties Manufacturers Association
CTI	Cooling Tower Institute
DEF S	British Defense Standards
DFI	Deep Foundations Institute
DHI	Door And Hardware Institute
DIN	Deutsches Institut Fur Normung
DIN ENGLISH	Deutsches Institut Fur Normung (English)
DISA	Data Interchange Standards Association
DNV	Det Norske Veritas
DNV FOI	Det Norske Veritas
DNV HSLC	Det Norske Veritas (High Speed Light Craft)
DNV MOU	Det Norske Veritas (Mobile Offshore Units)
DOD	Department Of Defense
DOL	Department Of Labor
EC	European Council
EIA	Electronic Industries Association
EPA	Environmental Protection Agency
ETSI	European Telecommunications Standards Institute
FCI	Fluid Controls Institute
FED-SPEC	Federal Specification
FMERC	Factory Mutual Engineering And Research Corp.
GL	Germanischer Lloyd
GMA	Grocery Manufacturers Of America

ORGANIZATIONS AND ACRONYMS IN DATABASE

GPA	Gas Processors Association
HEI	Heat Exchange Institute
HI	Hydronics Institute
Hi.	Hydraulic Institute
IAEA	International Atomic Energy Agency
IAPMO	International Association Of Plumbing And Mechanical Officials
ICAC	Institute Of Clean Air Companies
ICAO	International Civil Aviation Organization
ICI	Investment Casting Institute
IEC	International Electrotechnical Commission
IECQ	IEC Quality Assessment System
IEEE	Institute Of Electric And Electronics Engineers
IESNA	Illuminating Engineering Society Of North America
IFAI	Industrial Fabrics Association International
IFI	Industrial Fasteners Institute
IAR	International Institute Of Ammonia Refrigeration
IMCO	Intergovernmental Maritime Consultive Organization
IPC	Institute For Interconnecting And Packaging Electronic Circuits
IPCEA	Insulated Cable Engineers Association
IRI	Industrial Risk Insurers
ISA	International Society For Measurement And Control
ISDSI	Insulated Steel Door Systems Institute
ISO	International Organization For Standardization
ISS	Iron And Steel Society
ITU-R	International Telecommunications Union
ITU-T	International Telecommunications Union
JIC	Joint Industrial Council
JIS	Japanese Industrial Standards
JTC1	Joint Technical Committee
KS	Korean Standards Association
LIA	Lead Industries Association
Lloyds	Lloyd's Register Of Shipping
MARAD	Maritime Administration
MASS	MARAD Standards Specification
MASSD	MARAD Standards Specification (Diesel)
MHI	Material Handling Institute
MICA	Midwest Insulation Contractors Association
MOD UK	British Defense Standards
MPIF	Metal Powder Industries Federation
MSS	Manufacturers Standardization Society Of The Valve And Fittings Industry
NAAMM	National Association Of Architectural Metal Manufacturers
NACE	NACE International
NACM	National Association Of Chain Manufactures
NAIMA	North American Insulation Manufacturers Association
NAPCA	National Association Of Pipe Coating Applicators
NAPHCC	National Association Of Plumbing-Heating-Cooling Contractors

ORGANIZATIONS AND ACRONYMS IN DATABASE

NATO	North American Treaty Organization
NBBP	National Board Of Boiler And Pressure Vessel Inspectors
NCRP	National Council On Radiation Protection And Measurements
NEBB	National Environmental Balancing Bureau
NEMA	National Electrical Manufacturers Association
NFP(A)	National Fluid Power Association
NFPA	National Fire Protection Association
NIST	National Institute Of Standards And Technology
NLA	National Lime Association
NNI	Netherlands Standards Institute
NPGA	National Propane Gas Association
NSC	National Safety Council
NSF	NSF International
NTIAC	Nondestructive Testing Information Analysis Center
NWWDA	National Wood Window And Door Association
OCIMF	Oil Companies International Marine Forum
PCC	Panama Canal Company
PDCA	Painting And Decorating Contractors Of America
PFI	Pipe Fabrication Institute
PHILIPPINE	Philippine National Standards
PLASTECH	Plastics Technical Evaluation Center
PPI	Plastics Pipe Institute
PTI	Post-Tensioning Institute
RAC	Reliability Analysis Center
RIA	Robotic Industries Association
RMA	Rubber Manufacturers Association
RWMA	Resistance Welder Manufacturers Association
SAA	Standards Association Of Australia
SACMA	Suppliers Of Advanced Composite Materials Association
SAE	Society Of Automotive Engineers
SASO	Saudi Arabian Standards Organization
SCA	Suez Canal Authority
SDI	Steel Door Institute
SDI.	Steel Deck Institute
SEMI	Semiconductor Equipment And Materials International
SFSA	Steel Founders Society Of America
SIA	Scaffold Industry Association
SIRIM	Standards And Industrial Research Institute Of Malaysia
SISIR	Singapore Institute Of Standards And Industrial Research
SJI	Steel Joist Institute
SMACNA	Sheet Metal And Air Conditioning Contractors National Association
SNAME	Society Of Naval Architects And Marine Engineers
SNZ	Standards New Zealand
SOLAS	Safety Of Life At Sea
SPIB	Southern Pine Inspection Bureau
SPII	Society Of The Plastics Industry

ORGANIZATIONS AND ACRONYMS IN DATABASE

SSFI	Scaffolding And Shoring And Forming Institute
SSPC	Steel Structures Painting Council
SSPMA	Sump And Sewage Pump Manufacturers Association
STI	Steel Tank Institute
TAPPI	TAPPI
TEMA	Tubular Exchange Manufacturers Association
TTMA	Truck Trailer Manufacturers Association
UBPPA	Uni-Bell PVC Pipe Association
UL	Underwriters Laboratories
ULC	Underwriters Laboratories Of Canada
USCG	United States Coast Guard
USDA	United States Department Of Agriculture
USN	United States Navy
USPHS	United States Public Health Service
VDE	Verband Deutscher Elektroniker
VDI	Verin Deutscher Ingenieure
WEF	Water Environment Federation
WRI	Wire Reinforcement Institute

Appendix D

Sample Search Printouts

Search under Organization for ASTM, last 3 of 73 pagesAppendix D-1
Search under SWBS 220 (Energy Generating System)Appendix D-4

Standards Database Search Results

Organization	Title	Stand. Num.	SWBS	Date	Modified In	Status
ASTM	Casting, Steel, High Temperature	A356	074		1996	
ASTM	Steel, Testing Charpy V-Notch	A370	078		1996	
ASTM	Casting, Iron, High Temperature	A395	074		1996	
ASTM	Casting, Ductile Iron	A536	074		1996	
ASTM	Steel Bar	A582	078		1996	
ASTM	Plate, Steel, Low Temperature, Tank, Cargo	A658	078		1996	
ASTM	Forging, Steel	A668	074		1996	
ASTM	Standard Specification for High- Strength Low-Alloy Steel H-Piles and Sheet Piling for Use in Marine Environments	A690/A690M REV	078		1996	
ASTM	Wire, Copper	B003	304		1996	
ASTM	Wire, Copper	B008	304		1996	
ASTM	Wire, Copper	B033	304		1996	
ASTM	Pipe, Metal	B042	505		1996	
ASTM	Pipe, Metal	B043	505		1996	
ASTM	Condenser Tube, Copper And Copper Alloy, Ferrule Stock, Copper And Copper Alloy; Tube Condenser	B111	255		1996	
ASTM	Paint Testing	B117	630		1996	
ASTM	Casting, Sand, Aluminum Bronze	B148	074		1996	
ASTM	Wire, Copper	B174	304		1996	
ASTM	Wire, Copper, Lead Or Lead Alloy-Coated	B189	304		1996	
ASTM	Plate, Aluminum Alloy, Low Temperature, Tank, Cargo	B209	078		1996	
ASTM	Tailshaft	B492	243		1996	
ASTM	Casting, Sand, Copper Alloy	B584	074		1996	
ASTM	Flash Point Test	D 0093	092		1996	
ASTM	Color, Evaluation	D 2244	630		1996	
ASTM	Insulation, Electrical	D-0295	300		1996	

Organization	Title	Stand. Num.	SWBS	Date	Modified In	Status
ASTM	Asbestos Fiber, Magnetic Rating, Test For	D-1118	078		1996	
ASTM	Fuel Oil	D0396	540		1996	
ASTM	Plastic	D1248	078		1996	
ASTM	Pipe, Plastic, Plastic Pipe	D1503	505		1996	
ASTM	Plastic Terminology, Terminology, Plastic	D1600	078		1996	
ASTM	Plastic	D1784	078		1996	
ASTM	Pipe, Plastic, Plastic Pipe	D1785-E	505		1996	
ASTM	Plastic	D1788	078		1996	
ASTM	PIPE, PLASTIC, PLASTIC PIPE	D2153	505		1996	
ASTM	Pipe, Plastic, Plastic Pipe	D2290	505		1996	
ASTM	Standard Test Method for Inorganic Particles in Marine Residual Fuel Oils by Selective Centrifugal Separation (Withdrawn - 1994)	D4484	540540		1996	
ASTM	Plastic	D707-A	078		1996	
ASTM	Plastic Terminology, Terminology, Plastic	D883-A	078		1996	
ASTM	Charpy Testing, Metal Testing	E-023	078		1996	
ASTM	Metal Testing, Ductility Testing	E-208	078		1996	
ASTM	Metal Testing, Tensile Testing	E008	078		1996	
ASTM	Metal Testing, Chemical Analysis	E059	078		1996	
ASTM	Metal Testing	E112	078		1996	
ASTM	Standard Guide for Conducting Sediment Toxicity Tests with Marine and Estuarine Polychaetous Annelids	E1611	841		1996	
ASTM	Magnaflux Testing, Non-Destructive Testing	E309	078		1996	
ASTM	Standard Specification for Drawers, Furniture, Marine, Steel	F0825	600		1996	
ASTM	Elevators, Shipboard, Electromechanical Passenger, and Stores, Spec. for	F0916	500		1996	
ASTM	Chocks, Ship Mooring, Cast Steel, Spec. for	F0937	582		1996	
ASTM	Panama Canal Pilot Platform, Spec. for	F0985	169		1996	

Organization	Title	Stand. Num.	SWBS	Date	Modified In	Status
ASTM	Portable Flush Deck Stanchion, Spec. for	F0987	115		1996	
ASTM	Valve Label Plates, Spec. for	F0992	507		1996	
ASTM	Valve Locking Devices, Spec. for	F0993	507		1996	
ASTM	Design and Installation of Overboard Discharge Hull Penetration Connections, Spec. for	F0994	529		1996	
ASTM	Standard Practice for Estimating Concrete Strength by the Maturity Method	F1074 E1	078		1996	
ASTM	Standard Specification for Rat Guards, Ship's	F1099	605		1996	
ASTM	Standard Practice for Inspecting the Coating System of a Ship's Tanks and Voids (Discontinued - 1993 Replaced by Practice F1130)	F1131	630		1996	
ASTM	Standard Practice for Inspecting the Coating System of a Ship's Decks and Deck Machinery (Discontinued - 1993 Replaced by Practice F1130)	F1132	634		1996	
ASTM	Standard Practice for Inspecting the Coating System of a Ship's Underwater Hull and Boottop During Drydocking (Discontinued)	F1133	997		1996	
ASTM	Standard Specification for Steam Traps and Drains	F1139	258		1996	
ASTM	Standard Guide for Selection of Structural Details for Ship Construction	F1455	100		1996	
ASTM	Metric Practice	L380	070		1996	
ASTM	Carbon Steel Externally And Internally Threaded Standard Fasteners	A-307	075		1996	
ASTM	Seamless Austenitic Steel Pipe for High Temperature Central Station Service	A-376	505		1996	
ASTM	Instrumental Evaluation of Color Differences of Opaque Materials, Method for	D-2244	630		1996	
ASTM	Specifications for Fuel Oils	D-396	540		1996	
ASTM	ASTM/IEEE Standard for Metric Practice	E380	070		1996	

Standards Database Search Results

Stand. Num.	Title	Organization	SWBS	Date	Modified In	Status
BS 1113	1989 Amd 4 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) (Q) (AMD 6717) May 31, 1991	BSI	220	1989-00-00	1997	
BS 1113	1992 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) (Q)	BSI	220	1992-00-00	1997	
BS 1113	1992 Amd 1 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) (AMD 7167) June 15, 1992 (Q)	BSI	220	1901-00-00	1997	
BS 1113	1992 Amd 2 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) (AMD 8178) June 15, 1994 (Q)	BSI	220	1902-00-00	1997	
BS 1113: ENQ CASE 1	1986 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 1: Eddy Current Testing in Lieu of Hydraulic Testing	BSI	220	1986-00-00	1997	
BS 1113: ENQ CASE 10	1995 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 10: Use of Steel 91 (Q)	BSI	220	1995-00-00	1997	
BS 1113: ENQ CASE 2	1990 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 2: Use of ASTM A105, A106, A182, A234, A335, and A312 Materials (Q)	BSI	220	1990-00-00	1997	
BS 1113: ENQ CASE 3	1987 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 3: Local Loads	BSI	220	1987-00-00	1997	
BS 1113: ENQ CASE 4	1989 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 4: Methods for Manual Examination of Fusion Welds in Ferritic Steels	BSI	220	1989-00-00	1997	
BS 1113: ENQ CASE 5	1988 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 5: British Standard Forging and Pipe Materials	BSI	220	1988-00-00	1997	

Stand. Num.	Title	Organization	SWBS	Date	Modified In	Status
BS 1113: ENQ CASE 6	1990 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 6: Use of BS 3604 591 Material	BSI	220	1990-00-00	1997	
BS 1113: ENQ CASE 7	1992 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 7: Use of Butt Welds in Tubes for Manufacture of Coils for Coil Type Boilers/ Superheaters (Q)	BSI	220	1992-00-00	1997	
BS 1113: ENQ CASE 8	1992 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 8: Ultrasonic Acceptance Criteria (Q)	BSI	220	1992-00-00	1997	
BS 1113: ENQ CASE 9	1993 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Case 9: Welding Procedure Specification, Welding Procedure Approval and Welder Approval (Q)	BSI	220	1993-00-00	1997	
BS 1113: ENQ CASE INTRO	1994 Design and Manufacture of Water-Tube Steam Generating Plant (Including Superheaters, Reheaters and Steel Tube Economizers) Enquiry Cases- Introduction (Q)	BSI	220	1994-00-00	1997	
BS 1374	(WITHDRAWN) 1972 Recommendations on the Use of British Standard Log Sheets for Steam and Hot Water Boiler Plants	BSI	220	1972-00-00	1997	
BS 1846: PART 2	1968 Glossary of Terms Relating to Solid Fuel Burning Equipment Part 2: Industrial Water Heating and Steam Raising Installations	BSI	220	1968-00-00	1997	
BS 2885	1974 Amd 1 Code for Acceptance Tests on Stationary Steam Generators of the Power Station Type	BSI	220	1974-00-00	1997	
DI-L-2183	Engine - Module Status Report (Superseded By Di-Ilss-80223)	DOD	220	2/15/83	1997	
DI-MISC- 80853	Heat Balance Calculations And Flow Diagrams For Main Propulsion Plant Systems (Steam Driven Ships)	DOD	220	6/14/89	1997	
J 0620	Flywheels for Industrial Engines Used with Industrial Power Take-Offs Equipped with Driving-Ring Type Overcenter Clutches and Engine-Mounted Marine Gears and Single Bearing Engine	ANSI	220		1996	
MIL-G-17934	Generator Set, Diesel Engine, Ship Propulsion, 1335 Bhp Continuous Rating	DOD	220		1996	H
MIL-T- 17188D CANC NOTICE 1	Tube, Carbon Steel, Electric Resistance Welded, Marine Boiler (Use Astm A1780002)	DOD	220		1996	H