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FOR SHIPBUILDERS
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AUTOMATION
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Catalogue of
Audio Visual Material Available for
Shipyard Training (AVMAST) Library

U.S. DEPARTMENT OF THE NAVY
David Taylor Model Basin
Carderock Division Headquarters
Naval Surface Warfare Center
in cooperation with
The University of Michigan

NATIONAL SHIPBUILDING RESEARCH PROGRAM

DOCUMENTATION CENTER

A.V.M.A.S.T. Library
(Audio Visual Material Available for Shipyard Training) Library

TOPICAL INDEX AND CONTENT DESCRIPTIONS

November 1992

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◊ U. S. Department of the Navy
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16. Abstract

The National Shipbuilding Research Program (NSRP) has been in existence since 1973. The program is a cooperative effort of the U.S. Navy, the U. S. shipbuilding industry, and selected academic institutions. The program has sponsored research in the areas of shipbuilding which include, but are not limited to: facilities and environmental effects, outfitting and production aids, design and production integration, human resource innovation, shipbuilding standards, welding, industrial engineering, education and training, flexible automation, and surface preparation and coatings.

This report is a revision and update of the catalogue prepared under contract N00167-89-C-0065. It is a compilation of abstracts for all materials that are part of the AVMAST Library including videotapes, audiotapes, slides, films, and other training materials. The catalogue also includes a topical index to assist catalogue users in their search for appropriate materials to meet their training needs.

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FOREWORD

The development and continuing growth of the AVMAST library is one product of many projects managed and cost-shared by the University of Michigan for the National Shipbuilding Research Program. The AVMAST Library is a cooperative effort of the U.S. Navy, the U. S. shipbuilding industry, and selected academic institutions.

This issue, November 1992, of the AVMAST Library Index contains all new acquisitions received since the last issue, February 1991. These latest acquisitions have been identified in the index with an asterisk, and the abstracts have been highlighted as new entries.

INDEX NUMBERS

The following is an explanation of the U of M numbering system:

DE - Deming and Tribus Videotapes on Quality, Productivity and Competitive Position
ED - Educational materials, various producers
PR - Public Relations material, various producers
TR - Training materials, various producers
USN- United States Navy, Naval Sea Systems Command training material.

The number which follows the letter code denotes the chronological order in which the material was received--the higher the number, the more recent the addition of the tape to the library.

BORROWING MODULES

Training modules can be borrowed for a period of twenty-one (21) days for a $15.00 shipping and handling fee.

Although we do not usually convert films or slides to tape, if a videotape is listed in a format that is inconsistent with your equipment, we will make every effort to accommodate your request. Videotapes can be changed from one format to another for a one time changeover fee as follows: to 3/4 inch UMATIC, $75; to 1/2 inch VHS or BETA, $30. These fees include the shipping and handling fee. Please call our office at (313) 936-1051 for updates on format availability. For additional information and an order form for borrowing AVMAST materials, see the Catalogue Appendix.

We have encountered difficulties in the past because a few people who have borrowed tapes from the AVMAST library have attempted to copy them before they were returned. One or two of them were returned in an unusable condition. **Please do not make duplicate copies of our tapes.**

ORDERING DUPLICATE COPIES

Due to our budget constraints, purchased tapes cannot be returned. If you have any doubts about whether or not a tape is appropriate for your education needs, please borrow the tape first. If you decide to purchase a tape which you have borrowed, the shipping and handling fee will be deducted from your purchase price.

The BASIC NAVAL ARCHITECTURE COURSE (ED 23-67) was developed to convey to trade school students the fundamentals of naval architecture. It consists of 45 videotapes, ED 23 - ED 67, as well as an *Instructor Guide and Problem Set* containing notes to instructors, suggested lesson plans, problems and solutions. The level of material presented makes it suitable for: graduate engineers transferring into the field of naval architecture; a college level study course for students not majoring in the field (e.g. Ocean Engineering majors) or a naval or merchant marine officer candidate program. Lesson topics are outlined under each unit in the Catalogue, beginning on page 10. Cost for the entire 45 Unit Course, including all written materials and mylar drawings: $3,375, with videotapes in 1/2 inch VHS format. For individual units (including course materials): with 3/4 inch UMATIC tape, $150; with 1/2 inch VHS tape, $100. If you are interested in purchasing the entire course, or individual units, ordering information is given in the Appendix. More detailed information is included on the order form.

For tapes produced by the National Shipbuilding Research Program, (see list on following page) we would be happy to make a duplicate for you. Costs (including shipping and handling) are: for 3/4 inch UMATIC, $100; for 1/2 inch VHS, $50. Please address any inquiries to: AVMAST Coordinator, Transportation Research Institute, University of Michigan, 2901 Baxter Rd., Ann Arbor, MI 48109-2150, or call (313) 936-1051.

Many of the tapes in our library are copyrighted materials for which we do not own the copyrights. If you would like duplicate copies of any USN tape, or any DE tape, please contact the sources listed below:

For USN TAPES, fill out a copy of the Navy form in the Appendix (NAVCOMPT Form 2275), and mail it to: Terry Reel, Director, Shipyard Instructional Development Center, Norfolk Naval Shipyard (Code 120), Portsmouth, VA 23709-5000. The Navy is as concerned as we are about maintaining a high quality in the reproduction of their tapes. They will duplicate any of their tapes for $60 a copy.

For the Massachusetts Institute of Technology's Video Course of the DEMING VIDEOSERIES (DE 1-21) please contact the MIT Video Course at (617) 253-7444.

We want to make the AVMAST Library a valuable tool in training shipyard personnel. If you have any suggestions toward furthering that goal, we would appreciate hearing from you.

National Shipbuilding Research Program Tapes[1]

[1]These tapes are available at cost from the AVMAST Library. Call (313) 936-1051.

CATEGORICAL DESCRIPTIVE LISTING

Following are two listings of the audiovisual materials in this catalog. The first is a numeric listing of all modules according to their U. of M. Number. The second is an extensive cross listing of the modules according to the topic(s) covered in each module.

U. of M. NUMBER INDEX

TOPICAL INDEX

Deming and Tribus Videotapes on Quality, Productivity and Competitive Position

Educational materials, various producers

Public Relations material, various producers

Training materials, various producers

United States Navy, Naval Sea Systems Command training material

TOPICAL LISTING OF AVMAST MATERIAL

COMPOSITE MATERIALS WORK: METHODS, TOOLS, AND FACILITIES

DESIGN AND PLANNING: Conceptual Design, Functional Design, Product and Process Definition, Work Content, Analysis/Estimating, Work Instruction Development, Computer Aided Design, Computer Aided Process Planning, Producibility, Maintainability, Material Definition

TOPICAL LISTING OF AVMAST MATERIALS

DESIGN AND PLANNING (continued)

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIAL

DESIGN AND PLANNING (continued)

ELECTRICAL WORK: METHODS, TOOLS, AND FACILITIES

TOPICAL LISTING OF AVMAST MATERIALS

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIAL

MATERIAL HANDLING, RIGGING: METHODS, TOOLS, AND FACILITIES

MANAGEMENT AND SUPERVISION TRAINING

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIALS

MANAGEMENT AND SUPERVISION TRAINING (continued)

MACHINE SHOP WORK, CASTING/FOUNDRY WORK: METHODS, TOOLS, AND FACILITIES

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIAL

MACHINE SHOP, CASTING/FOUNDRY WORK (continued)

OUTFITTING (On-Unit, On-Block, On-Board): METHODS, TOOLS, AND FACILITIES

TOPICAL LISTING OF AVMAST MATERIALS

OUTFITTING (On-Unit, On-Block, On-Board) (continued)

OVERHAUL, REPAIR, AND CONVERSION

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIAL

OVERHAUL, REPAIR, AND CONVERSION (continued)

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIALS

OVERHAUL, REPAIR, AND CONVERSION (continued)

PAINTING, SURFACE PREPARATION, CORROSION CONTROL: METHODS, TOOLS, AND FACILITIES

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIAL

TOPICAL LISTING OF AVMAST MATERIALS

QUALITY, ACCURACY CONTROL, AND INSPECTION (continued)

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIAL

QUALITY, ACCURACY CONTROL, AND INSPECTION (continued)

SAFETY AND ENVIRONMENT

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIALS

SAFETY AND ENVIRONMENT (continued)

GENERAL SHIPBUILDING AND MANUFACTURING PROCESSES

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIAL

SHIPBUILDING AND MANUFACTURING PROCESSES (continued)

SHEET METAL WORK: METHODS, TOOLS, AND FACILITIES

STRUCTURAL WORK: METHODS, TOOLS, AND FACILITIES

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIALS

STRUCTURAL WORK (continued)

TESTING

TRADES SKILLS TRAINING - GENERIC

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIAL

TRADES SKILLS TRAINING - GENERIC (continued)

WELDING

*New addition to AVMAST since 2/91

TOPICAL LISTING OF AVMAST MATERIALS

WELDING (continued)

*New addition to AVMAST since 2/91

DE - Deming and Tribus Videotapes on Quality, Productivity and Competitive Position

U M Index Number	Description
DE 1	*Introduction to the Deming Management Philosophy* (Dr. Myron Tribus, Director, Center for Advanced Engineering Study, MIT) The relationship between quality and productivity-The need for a harmonious spirit in the workplace-Group problem-solving-The Deming Cycle: Plan, Check, Act, Do-Techniques for fact-based decision-making. [3/4" UMATIC or VHS...50 min.]
DE 2	*Why Productivity Increases as Quality Improves* What happens when workers really know what their job is- How to measure the performance of management- Learning what management must do- Outline of the 14 steps management must take to improve quality and productivity. [3/4" UMATIC or VHS...45 min.]
DE 3	*The 14 Steps Management Must Take, I* *(Doing one's best is not enough)* Create constancy of purpose-Adopt the new economic philosophy-Require statistical evidence of process control along with incoming parts-Reduce the number of vendors-Use statistical methods to find the source of trouble-Institute modern aids to training on the job-Improve supervision. [3/4" UMATIC or VHS...52 min.]
DE 4	*The 14 Steps Management Must Take, II* Drive out fear-Break down barriers between departments-Eliminate goals and work standards-Institute a training program in statistical methods-Start a program for retraining people in new skills-Make use of statistical knowledge within the company. Obstacles to Success, I - Lack of constancy in purpose-Insulation of top management-Search for examples of success-Lack of technical knowledge Dependence on final inspection for quality. [3/4" UMATIC or VHS...52 min.]
DE 5	*Obstacles to Success, II* Belief that all problems lie in the work force (classic demonstration of the read beads illustrates why a defective product is produced even when workers do their best)-The unmanned computer (equipment is easy to come by, brains are more difficult to find)-Reliance upon meeting specifications-Insistence that help can come only from people who "know the business." [3/4" UMATIC or VHS...52 min.]
DE 6	*Uses of Control Charts* Statistical signals of special causes as they occur-Control and improvement of inspection-Maintenance of standards-Interlaboratory testing. Advantages of achieving Statistical Control - Stable processes result in predictable performance: costs, quality and maximum productivity-Effects of changes in the system measured with greater speed and reliability-Specifications altered for economic reasons and pricing renegotiated-Examples of costly misunderstandings. [3/4" UMATIC or VHS...50 min.]

U M Index Number	Description
DE 7	*Discovery and Correction of Faults of the System, I* Four real-life examples show how statistical methods revealed problems that were eliminated by changes in the system-Bargain thread that proved to be a costly snare-Unexpected maintenance emergencies that become predictable-The performance of service personnel brought into statistical control-Cost saving uniformly of bulk cargo achieved with no one working any harder, just smarter. [3/4" UMATIC or VHS...53 min.]
DE 8	*Discovery and Correction of Faults of the System, II* More real-life examples demonstrate the need to examine components of any system individually-Individual incoming materials-Individual machine units-Individual worker performance-Individual worker training, physical condition and capabilities-Individual territory and product problems related to performance of salesmen. [3/4" UMATIC or VHS...57 min.]
DE 9	*New Principles of Training and Supervision, I* The aim of supervision-To tell or not to tell workers about their mistakes-The importance of statistical methods in training-Examples of bad administration-When further training will not help-Better ways to get a worker to measure up to production standards-Unsatisfactory output after achieving statistical control-Faulty inspection. [3/4" UMATIC or VHS...56 min.]
DE 10	*New Principles of Training and Supervision, II* Faulty inspection caused by fear-Problems of inspection and supervision caused by faulty instruments-Need for statistical control of measurement systems. Quality and the Consumer - What is quality?-The consumer as the most important part of the production line-The real purpose of consumer research-The cost of a dissatisfied consumer-The quality triangle-The product circle-Quality and the plant manager. [3/4" UMATIC or VHS...54 min.]
DE 11	*Inspection of Incoming Materials and Product, I* How much inspection?-Plan for minimizing cost for tests of incoming materials-Simple formula for determining the need for inspection of incoming parts-Case histories: integrated circuits for TV set, engines for automobiles-Using statistical methods to inform workers if they or the system are responsible for defects. [3/4" UMATIC...50 min.]
DE 12	*Inspection of Incoming Materials and Product, II* Multiple critical parts-Increase of probability of defective product-Destructive testing-Difficulties measuring extremely rare defects-Use of redundancy-Economy in intermediate construction of sub-assemblies-Loss from use of cheap method of inspection-Need to close gaps in information about incoming materials-The four categories of incoming materials. [3/4" UMATIC or VHS...50 min.]

U M Index Number	Description
DE 13	*Quality and Productivity in Service Organizations* Differences between and similarities of service industries and manufacturing concerns-Examples and suggestions relating to hotels, airlines, restaurants, city transit systems, motor freight carriers, telephone companies, and department stores-Reduction of mistakes in transactions: case history of a bank-Costs of quality-Two types of quality in any system. [3/4" UMATIC or VHS...43 min.]
DE 14	*Operational Definitions, Conformance, and Performance* Operational definitions of quality needed for understanding between vendor and purchaser-Test of the object or group-Results-Actual practice is more exacting than pure science or education-Examples illustrate that there is no exact, no true value. [3/4" UMATIC or VHS...51 min.]
DE 15	*Dr. Deming Discusses Quality and Productivity* (This is a discussion with Dr. Myron Tribus, Director, Center for Advanced Engineering Study, MIT)-The success of Japanese industry as a result of the total commitment of their top management to statistical techniques-The wasteful effect of defective materials on industrial output-Why better incoming materials will come from fewer vendors-How long will it take for American industry to catch up?-Why top management must establish constancy of purpose and create long-term commitments-The need for educating everyone about the new economic realities. [3/4" UMATIC or VHS...31 min.]
DE 16	*Dr. Myron Tribus Answers Important Questions From Management* In this interview with Richard Noyes, Dr. Tribus answers questions on: Japanese productivity and U.S. capabilities, quality of process, the importance of management's role, the spirit of teamwork, and other topics relative to improving quality, productivity and competitive position. [3/4" UMATIC...30 min.]
DE 17	*Action Plans for Implementing Quality and Productivity (Part 1)* Topics discussed include: 1) your commitment to stay in business; 2) what is quality? 3) how to get quality without inspection; 4) the high cost of the low bidder. [3/4" UMATIC or VHS...30 min.]
DE 18	*Action Plans for Implementing Quality and Productivity (Part 2)* Topics discussed include: 1) pinpoint your problems with statistical methods; 2) train your workforce for new and changing technologies; 3) fear or cooperation; 4) increasing interdepartmental dialogue. [3/4" UMATIC or VHS...33 min.]
DE 19	*Action Plans for Implementing Quality and Productivity (Part 3)* Topics discussed include: 1) stop playing the numbers game 2) it's what's wrong,.not who's wrong; 3) the right training---and retraining; 4) how to make it all happen. [3/4" UMATIC or VHS...29 min.]

U M Index Number	Description

DE 20 *A Call to Arms by William Conway, President, The Nashua Corp.*
Why Nashua turned to the Deming program for improving quality and productivity-implementation of management-directed programs to help people do easier and better work-"Imagineering" and the use of statistical methods to solve problems-Statistical charts, statistical analysis, and design and experimentation-The role of the quality circle--Nashua's success using Dr. Deming's program and why it must be repeated by American industry. [3/4" UMATIC...49 min.]

DE 21 *William Conway, President, Relates the Nashua Corporation's Experience to Richard Noyes*
(MIT/CAES) -Nashua's need to compete with Japanese products-Initial resistance of management to totally new way of doing business-Levels of expertise required-Commitments in time and people for training-Costs and manpower needed-How Nashua dealt with the problem of vendors-Involvement of workers with statistical control charts-Continuing reduction of costs due to consistent quality-What other companies must do to stay in business. [3/4" UMATIC or VHS...29 min.]

DE 22 *Mercury Marine Hourly/Salary*
Is the United States headed for the fate of Great Britain as a declining industrial nation? Currently, U.S. manufacturing accounts for a smaller percentage of gross national product than in any other industrial nation. Using the business management principles of Dr. W. Edwards Deming, Japan has taken over many major manufacturing markets--and these principles can be applied to U.S. industry. [VHS...28 min.]

DE 23 *Roadmap for Change: The Deming Approach*
Industry in the United States has come to a management crisis: how can productivity be improved? How can U.S. products compete in world markets? Dr. Deming's 14 points are illuminated, and the case study of Pontiac Motor Division's Fiero production is presented. [VHS...29 min.]

ED - Educational Materials, various producers

U M Index Number — Description

ED 1 *National Shipbuilding Technology Transfer, March 1982*
This provocative film explains group technology as developed in Japan through the Kaiser Production Method and Dr. Shinto's adaptations. Discusses the theory of group technology through the introduction of Zone Outfitting i.e. On Unit, On Block and On Board Phraseology. Explains the goals of group technology, and how it differs from traditional shipbuilding. [VHS or 16 mm film...20 min.]

ED 4 *National Shipbuilding Technology Transfer, 1980*
Overview of the results of the NSRP and SPC. Film starts with Japanese shipyards in the 1930s to their adoption of the Kaiser shipbuilding methods after WWII. Outline of the reintroduction of those methods into U.S. shipyards since 1979. [VHS, 3/4" UMATIC, or 16mm film...30 min.]

ED 5 *Research and Engineering for Automation and Productivity (IREAPS)*
The Research and Engineering for Automation and Productivity in Shipbuilding program, the history of its conception and purpose. [16mm film...15 min.]

ED 6 *Avondale Semi-Automated Pipe Shop*
1982 tape of Avondale pipe shop in action. [3/4" UMATIC or VHS...29 min.]

ED 7 *Frame Bender*
Naval Ocean Systems Command film describing joint project with NASSCO and Navy to develop hydraulic frame bending machine. Footage of old vs. new. [16mm film...11 min.]

ED 8 *The National Shipbuilding Welding Research Program*
Briefly describes projects of the SP-7 Panel. Examples of automated submerged arc welding, horizontal and vertical welding methods now being employed and investigated, and development of lightweight portable welding machines. [16mm film...15 min.]

ED 9 *Shipbuilding Today*
Outfitting and Production Aids Panel (SP-2) shows projects completed and currently underway. Examples of photogrammetry, electric cable splicing. [3/4" UMATIC or 16mm film...15 min.]

ED 10 *I Christen Thee*
The procedure for launching a Navy cruiser on sliding ways at Newport News Shipbuilding. [16mm film...30 min.]

ED 14 *Outfit Planning*
Sponsored by the Maritime Administration this program covers such topics as group technology, interim products, designing for zone/module construction, palletization and material acquisition and allocation. [35mm color slides & audio-cassette...45 min.]

U M Index Number	Description

ED 17 *Flame Bending/Line Heating-An Accuracy Control Technique*
A thorough overview of the uses of flame bending/line heating in the shipbuilding industry. Standard methods of weld bead size, welding sequence, welding technique, backsetting and tensioning are discussed and their relationship to an overall accuracy control program emphasized. The major aspects of flame bending/line heating such as heat amount, pattern, and location are discussed for both the complex shaping of steel and aluminum, and for simple distortion removal. [35mm color slides & audio-cassette...30 min.]

ED 18 *Statistical Techniques for Quality and Productivity in the Shipbuilding Industry (Session 1) (1985)*
This videotape, which is the first of a four tape series presents an overview of the Deming philosophy and approach to modern management. This tape introduces reasons as to why statistics will play a more important role in the U.S. shipbuilding industry because of our presently poor international competitive position. The concepts of quality and variability are explored and defined. A comparison of traditional MBO methods versus a modified version known as MBWA is presented. [3/4" UMATIC or VHS...33 min.]

ED 19 *Statistical Techniques for Quality and Productivity in the Shipbuilding Industry (Session 2) (1985)*
This videotape which is the second of a four tape series presents an introduction of the use of statistical control charts. The concept of a "random experiment" is defined. The differences between "discrete" and "continuous" random experiments are highlighted with actual ship construction examples. The determinate factors for random experiments of predictability and repeatability are emphasized heavily. Specific causes of variability both natural and unnatural assignable are explained and integrated into the statistical analysis process. Step by step approach for the construction and analysis of application statistical control charts is the final area covered in this session. [3/4" UMATIC or VHS...58 min.]

ED 20 *Statistical Techniques for Quality and Productivity in the Shipbuilding Industry (Session 3) (1985)*
This tape which is the third of a four tape series covers basic statistical theory for discrete random experiments. Histogram development is covered. The different types of summary measures are defined and related to various histogram examples. Computation of the central tendency and upper/lower control limits of example control charts are presented. [3/4" UMATIC or VHS...45 min.]

ED 21 *Statistical Techniques for Quality and Productivity in the Shipbuilding Industry (Session 4) (1985)*
This tape is the fourth of a four tape series and will focus on basic statistical theory for continuous random experiments. [3/4" UMATIC or VHS...45 min.]

U M Index Number — Description

ED 22 *Dimensional Accuracy Control and Statistical Methods* **MISSING**
A lecture by Howard M. Bunch, NAVSEA Professor of Ship Production, at Newport News Shipbuilding in October, 1983. Purpose of the lecture was to introduce Newport News production supervisors to statistical concepts utilized in accuracy control programs; the necessity of implementing the concepts is stressed, and an overview of the concepts using simplified terms is given. [VHS...65 min.]

ED 23 *Basic Naval Architecture - Introduction*
Scope and coverage of course. Text, references, materials required. Background required. Math diagnostic examples. [3/4" UMATIC or VHS...45 min.]

ED 24 *Basic Naval Architecture - Ship Types and Ship Systems - 1*
The ship as an element in a transportation system. Photos of ship types. General cargo, container, RO/RO, passenger/car ferries. [3/4" UMATIC ...34 min.]

ED 25 *Basic Naval Architecture - Ship Types and Ship Systems - 2*
Photos of ship types continued. Tugs, offshore supply boats, integrated tug-barge, river towboats. SWATH, catamaran, SES, ACV, planing boats, hydrofoil craft, offshore drilling and production rigs. Naval ships, submarines, battleship, aircraft carrier, destroyer, cruiser, FFG-7 frigate, "bear" class CG cutter, PD-214 container. [3/4" UMATIC...34 min.]

ED 26 *Basic Naval Architecture - Ship Types and Ship Systems - 3 Nomenclature - 1*
Merchant ship types by trade. Naval ships as elements in a warfare system. Ship types classified by type of support. Nomenclature - units. Directions on board ship. Ship dimensions. Weight, displacement, tonnage, load lines. [3/4" UMATIC or VHS...37 min.]

ED 27 *Basic Naval Architecture - Nomenclature - 2*
Parts of a ship. Decks and bulkheads. Doors, hatches, scuttles, manholes. Spaces on board ship. Anchoring and mooring. [3/4" UMATIC or VHS...39 min.]

ED 28 *Basic Naval Architecture - Nomenclature - 3*
Boat handling equipment. Cargo handling equipment. Dunnage, sparring and ceiling. Structural nomenclature. Strakes, stringers, floors, double and single bottoms, keels, stem castings, stern castings. [3/4" UMATIC or VHS...37 min.]

ED 29 *Basic Naval Architecture - Dimension, Form and Flotation - 1*
Ship geometry. Dimensions. Freeboard and draft. Displacement and tonnage. Lines drawing. Form coefficients. [3/4" UMATIC or VHS...28 min.]

U M Index Number	Description
ED 30	*Basic Naval Architecture - Dimension, Form and Flotation - 2* Form coefficients example. Centers - center of gravity, center of buoyancy, metacenter, GM. Moments. Example of longitudinal center of gravity calculation. [3/4" UMATIC...34 min.]
ED 31	*Basic Naval Architecture - Dimension, Form and Flotation - 3* Archimedes Principle. Curves of form and hydrostatic parameters. Bonjean's curves. [3/4" UMATIC or VHS...28 min.]
ED 32	*Basic Naval Architecture - Dimension, Form and Flotation - 4* Differentiation and integration. Trapezoidal rule. Simpson's rule. Sectional area curve. Displacement calculation example. [3/4" UMATIC or VHS...43 min.]
ED 33	*Basic Naval Architecture - The Ship at Rest - Static Stability - 1* Stable, neutral, unstable equilibrium. Position of the metacenter and equilibrium. GM, GZ, righting moment. Static stability curve. Weight shifts. BM. Moment of inertia. Rectangular barge example. [3/4" UMATIC or VHS...32 min.]
ED 34	*Basic Naval Architecture - The Ship at Rest - Static Stability - 2* Transverse weight shift example. Inclining experiment, example. Cross curves of stability. Corrections for actual KG. Corrections to static stability curve. [3/4" UMATIC or VHS...34 min.]
ED 35	*Basic Naval Architecture - The Ship at Rest - Static Stability - 3* Negative GM. Longitudinal weight shift example, change of trim. Small weight additions. [3/4" UMATIC...27 min.]
ED 36	*Basic Naval Architecture - The Ship at Rest - Static Stability - 4* Multiple weight additions. Tabular format, example. New drafts. Angle of list. Weight removals. [3/4" UMATIC...27 min.]
ED 37	*Basic Naval Architecture - Ship Hazards and Vulnerability - 1* Floodable length definitions. Floodable length curve. Free surface. Virtual rise of G. Pocketing. [3/4" UMATIC or VHS...30 min.]
ED 38	*Basic Naval Architecture - Ship Hazards and Vulnerability - 2* Free communication effect. Added weight versus lost buoyancy. Shock. USN intact stability criteria. CFR 46 stability criteria. [3/4" UMATIC or VHS...36 min.]
ED 39	*Basic Naval Architecture - Ship Hazards and Vulnerability - 3* Subdivision of naval ships. Protection of vital spaces. Assumed damage conditions. CFR 46 requirements. Grounding and stranding. [3/4" UMATIC or VHS...36 min.]

U M Index Number	Description
ED 40	*Basic Naval Architecture - Ship Hazards and Vulnerability - 4* Dry docking. Stability during docking. Example. Freeboard and load lines, merchant ships and naval ships. [3/4" UMATIC...28 min.]
ED 41	*Basic Naval Architecture - Submarine Hydrostatics and Stability* Submarine types and features. Ballast tanks. Submerging and surfacing. Submarine stability. [3/4" UMATIC or VHS...30 min.]
ED 42	*Basic Naval Architecture - Forces Opposed to Propulsion - 1* Background. Wave making resistance. Frictional resistance. Froude's Law of Comparison. Residuary resistance. Model testing. Ship wave systems. Resistance coefficients. [3/4" UMATIC or VHS...36 min.]
ED 43	*Basic Naval Architecture - Forces Opposed to Propulsion - 2* Correlation allowance. Friction formulations. C_f, C_w, C_t curves. Form drag. Bulbous bows. [3/4" UMATIC or VHS...35 min.]
ED 44	*Basic Naval Architecture - Forces Opposed to Propulsion - 3 Propulsive Forces and Propulsion Systems - 1* Resistance of submarines. Appendage resistance. Resistance in shallow water. Added resistance in a seaway. Hull roughness. Types of propulsors. Powering definitions and efficiencies. The screw propeller. [3/4" UMATIC or VHS...36 min.]
ED 45	*Basic Naval Architecture - Propulsive Forces and Propulsion Systems - 2* Momentum theory. Propeller geometry, wake, slip. Propeller curves. Propeller design. [3/4" UMATIC or VHS...36 min.]
ED 46	*Basic Naval Architecture - Propulsive Forces and Propulsion Systems - 3* Number of blades. Hull-propeller interactions. The efficiency chain. Cavitation, super-cavitating propellers. Water jets controllable pitch propellers Kort nozzles. Vertical axis propellers. [3/4" UMATIC or VHS...65 min.]
ED 47	*Basic Naval Architecture - Propulsive Requirements and Power Selection - 1* Hull types and speed regimes. Scaling laws. Example. Model test expansion - example. [3/4" UMATIC or VHS...37 min.]
ED 48	*Basic Naval Architecture - Propulsive Requirements and Power Selection - 2* Power prediction example. Standard series. Service power margin. Engine selection. Diesel engines. Combined plants. Gas turbines. Steam propulsion. Nuclear power. Comparisons. [3/4" UMATIC or VHS...37 min.]

U M Index Number	Description
ED 49	*Basic Naval Architecture - Maneuverability and Ship Control* The rudder; force, lift-drag, torque, aspect ratio. Rudder types. Motion of a ship in a turn. Thrusters. Z-drive systems. Active rudders. Comparisons. [3/4" UMATIC...37 min.]
ED 50	*Basic Naval Architecture - The Ship in Motion with the Sea - 1* Definitions. Sinusoidal waves. Trochoidal waves. Regular and irregular waves. Long-crested and short-crested waves. Seaway descriptions. Sea spectra. Ship motion computer programs. [3/4" UMATIC or VHS...38 min.]
ED 51	*Basic Naval Architecture - The Ship in Motion with the Sea - 2* Designing for ship motions. Rolling. Pitching. Yawing. Translational motions. SWATH ships. [3/4" UMATIC...36 min.]
ED 52	*Basic Naval Architecture - The Strength and Structure of Ships - 1* Basic concepts, stress, strain. Stress-strain diagram. Hooke's Law. Neutralaxis. The flexure formula. Section Modulus. Beams in bending. [3/4" UMATIC or VHS...36 min.]
ED 53	*Basic Naval Architecture - The Strength and Structure of Ships - 2* Bending moment. Simple supports. Fixed-end supports. Bending moment and shear force diagrams. Steel handbook. [3/4" UMATIC or VHS...29 min.]
ED 54	*Basic Naval Architecture - The Strength and Structure of Ships - 3* Section modulus example. Stress analysis example. [3/4" UMATIC or VHS...33 min.]
ED 55	*Basic Naval Architecture - The Strength and Structure of Ships - 4* Loads on the ship's structure. Barge bending moment and shear force example. Stresses in deck and bottom. [3/4" UMATIC or VHS...35 min.]
ED 56	*Basic Naval Architecture - The Strength and Structure of Ships - 5* Ship bending moment, shear force and stress diagrams in still water and in trochoidal waves. ABS requirements. Bending moment estimates. Strength and stiffness. [3/4" UMATIC or VHS...34 min.]
ED 57	*Basic Naval Architecture - The Strength and Structure of Ships - 6* Properties of shipbuilding materials. Shipbuilding steels, ductility, toughness, Aluminum, GRP. Steel shapes, designation. Steel plate. Stiffened plating. [3/4" UMATIC or VHS...35 min.]
ED 58	*Basic Naval Architecture - The Strength and Structure of Ships - 7* Failure modes for steel structures. Plasticity. Buckling. Fracture, fatigue. Stress concentrations. Structural continuity. Crack arrestors. Causes for cracking. [3/4" UMATIC or VHS...34 min.]

U M Index Number	Description

ED 59 *Basic Naval Architecture - The Strength and Structure of Ships - 8*
Framing systems. Structural terminology. Double bottom, single bottom construction. Bow and stern construction. [3/4" UMATIC or VHS...31 min.]

ED 60 *Basic Naval Architecture - The Strength and Structure of Ships - 9*
Bulkheads. ABS requirements. Hatch corners, intersections, connections, brackets. Deckhouses. Foundations. [3/4" UMATIC or VHS...35 min.]

ED 61 *Basic Naval Architecture - The Strength and Structure of Ships - 10*
The midship section drawing. Section modulus calculation. Typical midship sections. Mariner, FFG-7, "Bear" class cutter, tanker, bulk carrier, RO/RO ship, SL-7 container ship. The weight estimate. [3/4" UMATIC or VHS...37 min.]

ED 62 *Basic Naval Architecture - The Ship Design Process - 1*
Merchant vessel design. Mission requirements. The design spiral. Parametric design studies. Feasibility studies. Concept, preliminary, contract design phases. Deliverables. Detail design. [3/4" UMATIC or VHS...29 min.]

ED 63 *Basic Naval Architecture - The Ship Design Process - 2*
Concept design example. [3/4" UMATIC or VHS...31 min.]

ED 64 *Basic Naval Architecture - The Ship Design Process - 3*
Steps in preliminary design. Contract design. Design margins. Naval ship design and procurement. [3/4" UMATIC or VHS...29 min.]

ED 65 *Basic Naval Architecture - Shipbuilding Methods - 1*
Use of the computer in design and manufacturing. CAD/CAM drafting, lofting, shell plate development, nesting. Scheduling and critical path analysis, production control. Work measurement and analysis, ordering and inventory control, weight management and control. [3/4" UMATIC or VHS...31 min.]

ED 66 *Basic Naval Architecture - Shipbuilding Methods - 2*
Steel cutting methods, cold forming and hot forming processes. Older shipbuilding methods. Modern shipbuilding methods. Design for ship production. Modules and subassemblies. Zone outfitting. Design of details for ease of construction. Production assembly line. Panel lines and subassembly fabrication. [3/4" UMATIC or VHS...44 min.]

ED 67 *Basic Naval Architecture - Shipbuilding Methods - 3*
Launching methods. End launching, key events. Side launching. Launch from floating dry dock, graving dock, and moveable platform (Synchro-Lift type). Course closure. [3/4" UMATIC or VHS..39 min.]

U M Index Number	Description

ED 68 *Just In Time - Hewlett Packard*
This videotape demonstrates Stockless Production, and discusses its advantages. Production materials travel directly from vendor to line, eliminating the stockroom. Batching is done only when the next stage of production is ready. Instead of the old method of "Pushing out the old," batching is done by "Pulling in the new." Smaller batches result in less work space, and a tighter production line. Problems that might remain undetected are found sooner, resulting in a reduction of rework quantities. The sum of the advantages of this system: reduced space and inventory; reduced work in progress; increased worker participation; and improved quality control. [VHS...29 min.]

ED 69 *Navy Best Manufacturing Practices (1988)*
This tape is a brief overview of the Navy "Best Manufacturing Practices" (BMP) Program. The benefits for a company wishing to participate in the program are emphasized. Included is a survey by experts of the government to identify company practices which could be helpful to industry and those which could be improved by implementation of practices from other companies. Instructions for participation in the program are provided. [VHS...13 min.]

ED 70 *Continuous Improvement*
This tape shows how Ford Motor Company learned to use Statistical Quality Control (SQC) to minimize and manage transmission part variation. The Ford employees discuss how they learned that customer needs are more important than specifications. [VHS...15 min.]

ED 71 *If Japan Can, Why Can't We? CBS White Paper* **MISSING**
This tape presents a thorough discussion of the differences between Japanese and American cultures with respect to business and manufacturing. Topics discussed are: research and development; training; capital investment; government regulations; government and industry relations; labor relations; measures of productivity; quality; etc. Many examples are presented in shipbuilding, steel manufacturing, automobile manufacturing, computer manufacturing, agriculture, and more. [VHS...75 min.]

ED 72 *Society of Manufacturing Engineers - Manufacturing Insights, Preview*

Preview of a series of videotapes on the latest technological advances in manufacturing systems. Each topic in the video series will be dealt with in three parts: 1) Trends in Technology; 2) Case Studies documenting successful application of the technology; and 3) Future Trends discussed by industry experts. This preview contains an example in each of the three parts: 'Trends in Technology' examines composites in manufacturing; a 'Case Study' examines Caere Corporation's microcomputer system; and 'Future Trends' examines robotics at GMF Robotics. Information on ordering the entire series is given at the end of the video. [VHS...25 min.]

U M Index Number	Description

ED 73 *Society of Manufacturing Engineers - Manufacturing Insights, CAD/CAM Networking*
This video explores facets of CAD/CAM networking including such topics as development, applications, and future trends. Three case studies examine achievements in CAD/CAM networking:. an airplane plant where CAD/CAM networking controls a system used to produce over 33,000 parts maintained in a design data library; an injection molding plant where the entire operation, from mold manufacturing to production, is controlled by a CAD/CAM network; and a plant where precision hydraulic and pneumatic cylinders are produced using data transmitted though a CAM network. [3/4" UMATIC or VHS...36 min.]

ED 74 *The New Manufacturing Challenge - Preview*
This is a preview of a 10 session videotape training course by The Society of Manufacturing Engineers and Kiyoshi Suzaki. Is industry meeting today's competitive challenge? This is addressed by looking at the fundamentals of manufacturing activities: studying techniques, and looking at how actual companies are meeting this challenge. Sessions: 1) Eliminating Waste; 2) Back to Basics; 3) Meeting Diversified Customer Needs with Short Lead Times; 4) Flow Production and Skill Development; 5) Strengthening Nerves and Muscles; 6) Problem Solving; 7) Scheduling for Better Production Control; 8) Redefining the Role of Transportation; 9) Supplier Involvement; 10) People Make It Happen. [VHS...27 min.]

ED 75 *Introduction to Lineheating and Flame Bending*
An actual application of methods in the Philadelphia Naval Shipyard on the USS Kitty Hawk: describing and showing a high technology approach to replacing a bow section; and combining the use of CAD/CAM technology, photogrammetry, and the Japanese proven method of lineheating to make the repairs. [3/4" UMATIC...5 min.]

ED 76 *Ford Motor Company Statistical Quality Control Kickoff*
Presented in three parts: 1) a presentation by the Ford Motor Company chief executive officer to all company employees about Statistical Quality Control (SQC); 2) a portion of the CBS White Paper, "If Japan Can, Why Can't We?" covering SQC implementation at Nashua Corporation; 3) a presentation given by the Nashua Corporation chief executive officer to Ford executives about SQC. [VHS...50 min.]

ED 77 *Robot Revolution, NOVA 1985*
This tape is an overview of computer driven automation. Computer driven automation is discussed for use in information control, design, fabrication, assembly, inspection, and material handling. Flexible automation, expert systems, artificial intelligence, computer integrated manufacturing, computer vision, and Just-In-Time material handling are discussed. Cultural and social implications of computer driven automation are also discussed. [VHS...60 min.]

U M Index Number — Description

ED 78 *Energizing for Excellence - Florida Power and Light*
Starting with a short history of American industry, this tape is an introduction to Florida Power and Light's Quality Improvement Program (QIP). QIP is based on their "Priciples of Quality Management:" 1) customer satisfaction; 2) management by fact; 3) the plan-do-check-act cycle; and 4) respect for people. These are implemented through policy deployment, quality improvement teams, and quality in daily work. Included are materials from Florida Power and Light's Quality Improvement Seminar: slide presentation guide, a description of the program, and a list of Total Quality Management training courses and workshops available. [VHS...14 min.]

ED 79 *Total Quality Management - U.S. Army Visual Information Center*
This video begins with a statement by former Secretary of Defense Frank Carlucci on the commitment of the Department of Defense (DOD) to Total Quality Management (TQM): quality will be the key to DOD improvement, and to meeting future budget constraints. Robert Costello, former Undersecretary of Defense for Acquisition, then introduces Dr. William Scherkenbach who presents a detailed seminar on TQM to top DOD management. NOTE: This video (along with **ED 80** and **ED 81**) is part of a series documented DOD briefings on TQM. While the video quality of visual aids, such as overhead projections and slides, is rather poor, the value and quality of the material presented amply compensates. [VHS...105 min.]

ED 80 *Total Quality Management Briefing - Mr. Wayland Hicks*
Mr. Wayland Hicks, Executive Vice President for Marketing and Customer Operations, presents the case of Xerox Corporation: how the successful strategies of the Japanese in the copier market forced Xerox to review and change management and marketing strategies. See NOTE of **ED 79**. [VHS...90 min.]

ED 81 *Total Quality Management - Mr. Christopher Galvin/Motorola*
Mr. Christopher Galvin, presents the case of Motorola. Beginnning in the late 70's and early 80's, Motorola is guided by their role as a competitor in Japan, and as a supplier to Ford Motor Company, to implement a policy of "Quality is Everything." See NOTE of **ED 79**. [VHS...90 min.]

ED 82 *Industrial Engineers in the Shipbuilding Industry - The CEO's Perspective*
This video is designed to inform shipyard CEOs of the work of the SP-8 panel. It features testimonials from Rear Admiral Horne of NAVSEA and a fellow shipyard CEO on the value of industrial engineering. Also shown are an SP-8 meeting and examples of cost-saving programs implemented by shipyard industrial engineers. [VHS...19 min.]

U M Index Number	Description

ED 83 *Industrial Engineers in the Shipbuilding Industry - A Resource for Foremen and Supervisors*
This video is designed to show production foremen the abilities industrial engineers have to help solve their problems. The tape begins with an overview of the industrial enginerring profession. It depicts examples of the ways industrial engineers have improved productivity and quality in industry, with special emphasis on examples in shipyards. [VHS...15 min.]

ED 84 *Industrial Engineers in the Shipbuilding Industry - The New Industrial Engineer's Challenge & Opportunity*
This video is designed to show industrial engineering strudents and entry-level industrial engineers the impact they may hae by using traditional enginering techniques such as work sampling and mehtods engineering. The significant impact that may be made by applying fundamentals such as material handling and manufacturing systems is shown, as is the probability that sophoisticated mathemetical modelling, although useful, will only result in marginal productivity improvements over basic techniques. [VHS...18 min.]

ED 85 *NSRP SP-5 Panel, Human Resource Innovations - Video on Worker Injuries*
This videotape contains three modules: *It's Forever: The Back Injury; Scripps Clinic and Research Foundation;* and *Physical Therapy.* [VHS...38 min.]

ED 86 *Adhesively Bonded Marine Structures*
Produced by the Univesity of Glasgow, this videotape demonstrates ongoing research on the potential for adhesive bonding in marine structures. Adhesive bonding is discussed as an alternative to more traditional jointing technologies such as welded fabrication. Curing and stress tests are shown. [VHS...8 min.]

NEW **ED 87** *MSO Homeward Bound by Super Servant*
This video discusses the transport of ships and craft on heavy lift ships, and the capability of such ships in the commercial industry. Detailed is the transportation of three United States Navy minesweepers from Bahrain, in the Persian Gulf, to Seattle, Washington, on the semi submersible transport MV Super Servant III. (Paper included). [VHS...25 min.]

U M Index Number	Description

NEW ED 88 *CALS Shared Resource Center: Business & Technology in Action*
The Computer Aided Acquisition & Logistic Support (CALS) is an initiative of the Department of Defense (DoD), the National Institute of Standards, DoD prime contractors, and other Government Agencies. CALS was created to establish an electronic means for storage, exchange, and processing of complex data associated with the design manufacture and procurement of military parts and systems. This video gives an overview of the tasks of the program, the CALS Shared Resource Center (CSRC), and where to obtain more information. [VHS...5 min.]

NEW ED 89 *Electroslag Surfacing*
This video is an overview of research and application of electroslag surfacing done by the Oregon Graduate Institute of Science and Technology, under the auspices of the U.S. Navy Manufacturing Technology Program and the National Center for Excellence in Metalworking Technology in Johnstown, PA. Electroslag surfacing has proved superior to other surfacing techniques for protecting and refurbishing steel shafts on ships. Potential cost savings and other applications are reviewed, and information is given on where to obtain more information. [VHS...18 min.]

NEW ED 90 *National Shipbuilding Research Program - An Overview*
This video gives an overview of the National Shipbuilding Research Program: its history, program management and structure, current research, and resources available through the program. The NSRP's eight active panels and their research are detailed: SP-1, Facilities and Environmental Effects; SP-3, Surface Preparation and Coatings; SP-4, Design/Production Integration; SP-5, Human Resource Innovations; SP-6 Marine Industry Standards; SP-7 Welding; SP-8, Industrial Engineering; SP-9 Education and Training. Also included is information on the NSRP Documentation Center: the Microfiche Library Service, the AVMAST Library, the annual Ship Production Symposium, the *NSRP News* and the *Journal of Ship Production.* [VHS...13 min.]

PR - Public Relations material, various producers

U M Index Number	Description

PR 1 *Skill and Sophistication*
A dramatic view of OPPAMA Shipyard in Japan. Yard operations are depicted with an emphasis on heavy lift capabilities and automation of steel plate fabrication and welding. [16mm film, 3/4" UMATIC, or VHS..20 min.]

PR 2 *Mitsubishi Heavy Industries, Ltd.*
The facilities of Mitsubishi Heavy Industries, Ltd. around the world, from automotive to shipbuilding. [16 mm film or 3/4" UMATIC...25 min.]

PR 3 *Tokyo Maru*
Modern shipbuilding at Ishikawajima-Harima Heavy Industries Co., Ltd. in Japan. The building of the Tokyo Maru, the first 200,000 DWT tanker. [16mm film or VHS...30 min.]

PR 4 *Hyundai Heavy Industries Co., Ltd.*
In this promotional film Hyundai Heavy Industries Co., Ltd. is discussed. All facets of the corporation are shown including the shipyard, the electrical plant, the engine fabricating facilities, etc. The film also describes the typical life of a Korean production worker centering on quality of life aspects offered by the company. [Beta or VHS...18 min.]

PR 5 *China Shipbuilding, Republic of China*
This film was produced at China Shipbuilding Corporation. The film discusses the past and present efforts of China Shipbuilding. It also discusses the capability of the Chinese shipyards focusing primarily on their processes, facilities, and methods of production. The final segment of the film discusses the typical lifestyle of a shipyard employee, going into the substantial benefits offered by the corporation. [VHS...30 min.]

PR 7 *Building a Wooden Ship, Peterson Builders*
Peterson Builders has developed an intriguing film which uses the fabrication of wooden ships as its subject. In this film methods of fabrication, materials, and skills are discussed regarding this highly specialized shipbuilding endeavor. [VHS...20 min.]

PR 8 *Delivery of the M.V. Hunter Armstead*
This film deals with the launch, sea trials, and naming ceremony of the M.V. Hunter Armstead. The viewers are led through the ship on an inspection of the engine room, cargo tanks, and operations center. Also, the activity prior to the launch of the vessel and the actions carried out during her sea trials are discussed. Finally, the christening ceremony is performed. [VHS...40 min.]

U M Index Number	Description

PR 9 *This is Newport News*
Newport News Shipbuilding is discussed. Such topics as the yard layout, shipyard facilities, fabrication processes are discussed. Also, a short history of the shipyard is given along with an indication of the type of ships the shipyard produces. [3/4" UMATIC or VHS...21 min.]

PR 10 *For Years to Come!-Chrysler Corporation*
The renaissance of the Chrysler Corporation since its brush with bankruptcy in 1979 is documented in this presentation. The recovery is of special interest to those with a professional concern about the everyday problems faced by today's manufacturing industries and how those problems can be solved. In particular, students of business management and of engineering and technology are sure to be interested in seeing for themselves how "high-tech" is put to work in a major industry. [3/4" UMATIC...26 min.]

PR 11 *Dupont Presents -- Caring About Tomorrow (Supervisors Version)*
This presentation documents DuPont's past and present commitment to the occupational health of its employees. DuPont's belief that all accidents can be prevented is presented. This belief is clearly explained by linking employee performance, training, attitude, and communication skills directly to the causes and results of most industrial accidents. [3/4" UMATIC...27 min.]

PR 12 *TTS Dual Walking Beams & TTS Shipyard Production Line*
Total Transportation Systems Inc. has developed a ship block handling system for moving ship sections in any direction with little or no special surface weight bearing requirements. The second portion of the videotape deals with TTS's development of economical panel and section assembly lines and documents their present use worldwide. [VHS...16 min.]

PR 13 *SP-9 Education and Training Research Panel Overview (1985)*
An overview of the NSRP decisions leading to the creation of the SP-9 panel is presented. Recently completed SP-9 panel projects are highlighted as well as presently under-way projects and future project concepts. [3/4" UMATIC or VHS...5 min.]

PR 14 *MCMV Landsort in Sandwich GRP Construction*
This non-technical promotional tape briefly describes the stages of construction for a Mine Counter Measure vessel built for the Swedish Navy. The molded construction techniques used for the hull, the joining of the molded bulkhead and superstructure, outfitting and seatrials are depicted. (This tape was donated by Diab-Barracuda, Inc. of Grand Prairie, Texas in March, 1987.) [VHS...10 min.]

U M Index Number	Description

PR 15 *SP-5 Safety Action Team*
This videotape was developed to be used with a National Shipbuilding Research Program (NSRP) publication recently issued by the SP-5 panel: *Organizational Innovations in Shipyard Safety.* The purpose of the report is to evaluate the effectiveness of small work teams in the identification and solution of safety related problems in a shipyard environment. This accompanying tape gives a brief overview of the Safety Action Team established at Peterson Builders, Inc. using Quality Circles training and techniques. (This tape has been "copied from a copy," so the quality of the tape is somewhat inferior.) [VHS...16 min.]

PR 16 *S.E.S., Catamaran "Norcat"*
This new catamaran, designed by the Norwegian Cirrus firm and built at the Brodrene Aa shipyard, accelerates from 0 to 40 knots in 45 seconds, and has half the fuel consumption of normal catamarans. Included is an explanation of the F.R.P Sandwich Construction, and an overview of the catamaran's operating systems. [VHS...15 min.]

PR 17 *Divinycell Divilette - Training Tape by Diab Barracuda*
Divinycell Divilette is a polyester resin based putty, which is applied between an outer skin laminate and a structural foam core, as "the solution to void free construction." This video includes a step by step demonstration of its application: pre-mixing; catalyzing; and then sprayer or hand application. [VHS...6 min.]

PR 18 *Bath Iron Works Presents - PROSHAPS*
In conjuction with the Navy Manufacturing Technology Program, Bath Iron Works has replaced their old labor intensive system of making structural shape parts. The new Programmable Robotics Shapes Processing Systems (PROSHAPS) uses computer graphics and robotic processing. This video demonstrates the new system, and project benefits are enumerated. [VHS...10 min.]

PR 19 *FRP Large Boat Hull Construction with the Venus Impregnator*
The Venus Impregnator is a production tool used for impregnating (wetting out) dry reinforcing fibers for laminating in the fiber reinforced plastics (FRP) industry. Typical hand layup techniques involve: 1) manually rolling out and cutting the dry reinforcement (usually E-glass fabrics); 2) carrying the fabric into the hull; 3) spraying catalyzed resin into the mold; 4) pushing the dry fabric into the resin; 5) spraying on more resin; and 6) rolling these layers together. The impregnator eliminates most of these steps and also improves the quality of the laminate. The impregnator pulls the dry fabric through a catalyzed resin bath and deposits the wetted composite into or over the FRP part from overhead rails. The laminator's responsibility is reduced to rolling the wetted fabric into the mold. Handling time is reduced by as much as 75%, glass content is increased, emissions are reduced, and the overall quality of the laminate is enhanced. [VHS...13 min.]

U M Index Number	Description

PR 20 *Sea Trials*
In four parts: 1) a series of interviews with government and Navy officials, and shipbuilders discussing the need for a strong Navy, a merchant marine under the American flag, and the maintenance of the U.S. shipbuilding industrial base; 2) an overview of design and construction of Aegis class cruisers at Bath Iron Works; 3) activities during the Bravo sea trials on the USS Gates; 4) shock test footage aboard the USS Bunker Hill. [VHS...55 min.]

PR 21 *Reflections of You, Newport News Shipbuilding Apprentice School (1986)*
An overview of the apprentice school program at Newport News Shipbuilding. This video discusses craft training, academic instruction, extra curricular activities, program selection criteria, and how to obtain further information. [VHS...22 min.]

PR 22 *Promotional Video on CO_2 Cleanblast Cleaning by Alpheus Technologies*
CO_2 Cleanblast Cleaning is designed to fill the gap between old cleaning techniques such as grit blasting, chemical solvents, steam cleaning, and manual scrubbing, and the maintenance requirements of new technologies. Carbon dioxide pellets are propelled at high velocities at the surface being cleaned, whereupon they transform from a solid to a gaseous state. The benefits of this system include reduced costs, improved cleaning, and a cleaner environment. [VHS...9 min.]

PR 23 *The Fight for the Frigates - ANZAC Frigate Competition*
This video describes the acquisition process of frigates by the Royal Australian and Royal New Zealand Navies. Various foreign shipyards bid on the design for the frigates, which are to be constructed in Australia. [VHS...8 min.]

NEW **PR 24** *Introduction to NASSCO*
This employee orientation video gives a brief overview of the location and function of the extensive physical facilities which support the National Steel and Shipbuilding Co.'s new construction, repairs, work conversion and industrial fabrication. [VHS...8 min.]

NEW **PR 25** *The Story of Newport News*
An overview of shiptypes and integration of trades and technology at Newport News Shipbuilding. Features modular construction. [VHS...9 min.]

U M Index Number	Description

NEW **PR 26** *On The Leading Edge*
A description of the computer tools used to keep Newport News Shipbuilding "On the Leading Edge." This video feautres the VIVID 3-D solid modelling computer system; the Integrated Logistic Support System for ship documentation; the Integrated Publishing System for technical documentation; Interactive Video for training; and NNS' Computer Expert Systems. [VHS...14 min.]

NEW **PR 27** *Partnership Forged in Steel*
This video traces the history of the use of airplanes by the military and aircraft carriers. Newport News Shipbuilding's relationship with the U.S. Navy began during World War II, when they produced 8 aircraft carriers during the war at the rate of one every 3 months. NNS has continued to produce naval ships, but now using modular construction techniques, most recently the Nimitz class nuclear powered super carriers, which are capable of carrying 6,000 personnel and 100 aircraft. [VHS...13 min.]

NEW **PR 28** *SHI Technology in Harmony with Nature*
Since the passage of the Oil Pollution Act of 1990 (OPA), the only type of newly built oil tankers which have access to U.S. territorial waters are double hulled tankers. This video traces the construction of the Olympic Serenity, built at the Sumitomo Heavy Industries' Oppama Shipyard, and the world's 1st double hull tanker contracted and delivered since the passage of the OPA. [VHS...14 min.]

NEW **PR 29** *Venus Products' PCX Chop-Hoop and Helical Winder*
A semi-automated machine for applying composite materials in the manufacture of pipe and similar objects is shown, without any narrative. The process depicted shows setting up mandrels on the winder, wrapping the mandrel with a plastic release film, application of chopped strand mat and continuous glass filaments with resin to the turning mandrel, and removal of the finished product. Auxiliary machinery shown are end cutters and roll goods applicators. Application of continuous fibers as continuous filaments and chopped into mat is much less expensive than hand application of roll goods both for labor and materials. [VHS...17 min.]

U M Index Number	Description

NEW **PR 30** *Large Tank Production With the Venus Products' Chop-Hoop Winder*
A semi-automated machine for applying composite materials in the manufacture of large cylindrical objects such as storage tanks and chemical process tubes is shown. Narrative is provided. The process depicted shows setting up mandrels on the winder, wrapping the mandrel with a cardboard liner and plastic release film, application of chopped strand mat and resin by spray along with continuous glass filaments to the turning mandrel, removal of the semi-finished product, joining of end caps, and application of the exterior coating. A roll goods applicator is also shown. A description of the many items produced at the Texas plant is given. Application of continuous fibers, either as continuous filaments or chopped into mat, is much less expensive than hand application of roll goods both for labor and materials. [VHS...15 min.]

TR - Training materials, various producers

U M Index Number	Description
TR 1	*The Apprentice Experience* The Newport News Shipbuilding apprentice program is explained. [16mm film...25 min.]
TR 2	*Shipbuilding--Trades That Make It Happen* The different production trades at Newport News Shipbuilding are discussed. [16mm film...25 min.]
TR 3	*Corrosion Control* This is the 1st video of the series "Paint and Surface Preparation Training Series." Topics addressed in the tape include: corrosion control, corrosion zones, design affects corrosion, the cost of controlling corrosion and controlling corrosion by painting. [3/4" UMATIC or VHS...12 min.]
TR 4	*Properties of Shipyard Paints* This is the 2nd video of the series "Paint and Surface Preparation Training Series." Topics addressed include: the three components of paints, paint storage and handling, paint viscosity, thixotropic paints, induction time, mixing paints and mixing two package paints. [3/4" UMATIC or VHS...17 min.]
TR 5	*Quality Control--Extending the Life of the Coating* This is the 3rd video of the series "Paint and Surface Preparation Training Series." Topics addressed include: dry film thickness, wet film thickness, wet film thickness gauge, dry film thickness formula, surface coverage calculations, elcometer inspector thickness gauge, pencil pull off gauge, positector dry film thickness gauge, holiday detector, cured vs. dry paint, dry times and paint curing. [3/4" UMATIC or VHS...20 min.]
TR 6	*Failures Resulting from Paint Film Defects* This is the 4th video of the series "Paint and Surface Preparation Training Series." Topics include: paint wear, paint discontinuities, loss of adhesion, cratering/pitting, pinholes, fish eyes, dirt under the finish, blistering, orange peel, blushing, fading, uneven gloss, checking and cracking. [3/4" UMATIC...9 min.]
TR 7	*Quality Control -- The Importance of Surface Preparation* This is the 5th video of the series "Paint and Surface Preparation Series." Topics addressed include: mill scale, rust, dirt and dust, salts, oil and grease, old paint, SSPC visual one pictorial representation of surface cleanliness standards, NACE encapsulated plates, surface profile, surface profile comparator, depth micrometer and test tape. [3/4" UMATIC...18 min.]

U M Index Number	Description
TR 8	*Methods of Surface Preparation* This is the 6th video of the series "Paint and Surface Preparation Training Series." Topics addressed include: hand tool cleaning, power tool cleaning, solvent or chemical washing, steam cleaning, water blasting, blast cleaning and choosing the right cleaning method. [3/4" UMATIC or VHS...14 min.]
TR 9	*Blasting and Basic Equipment Set-up* This is the 7th video of the series "Paint and Surface Preparation Training Series." Topics addressed include: components of a blasting rig, air compressors, air hoses, blast hoses, blast nozzles, abrasives, proper angle of attack, proper distance between the nozzle and the surface and rules for efficient blasting. [3/4" UMATIC...23 min.]
TR 10	*Quality Control--Testing the Ambient Conditions* This is the 8th video of the series "Paint and Surface Preparation Training Series." Topics addressed include: ambient conditions, sling psycrometer, motor driven psycrometer, U.S. weather bureau tables and surface temperature thermometer. [3/4" UMATIC or VHS...9 min.]
TR 11	*Methods of Paint Application* This is the 9th video of the series "Paint and Surface Preparation Training Series." Topics addressed include: brushing, rollers, spray painting, conventional spray painting and airless spray painting. [3/4" UMATIC or VHS...9 min.]
TR 12	*Conventional and Airless Spray Equipment* This is the 10th video of the series "Paint and Surface Preparation Training Series." Topics addressed include: basic parts of a conventional spray system, air compressor, air pressure, air volume, paint tanks, air hoses, fluid hose, conventional gun and basic parts, spray gun lubrication, cleaning, spray guns, equipment set-up conventional system, basic parts of an airless spray system, high pressure paint pump, paint hose, airless spray gun, cleaning an airless tip, equipment set-up (airless) and shutting down the airless system. [3/4" UMATIC or VHS...21 min.]
TR 13	*Proper Spraying Techniques and Safety Procedures* This is the 11th video of the series "Paint and Surface Preparation Training Series." Topics addressed include: proper spray patterns, typical faulty spray patterns of a conventional gun, typical faulty spray patterns of an airless gun, proper stroking techniques and safety rules and procedures. [3/4" UMATIC or VHS...19 min.]

U M Index Number — Description

TR 14 *The Importance of Trained Shipyard Personnel*
This is the last (12th) video of the series "Paint and Surface Preparation Training Series." It describes and explains the effects of trained personnel in the blasting and painting trades. [3/4" UMATIC or VHS...8 min.]

TR 15 *Shipyard Management Module 1 (1985)*
The first videotape of a two tape series. Orientation for first line supervisors in a shipyard is the theme of this videotape. The objectives listed below are covered as an overview of the material. This series of tapes (TR 15 & TR 16) is intended to be used in conjunction with the series of tapes entitled Supervisory Skills in Shipyard Trades; TR 17, TR 18, TR 19, & TR 20. This tape is a result of a National Shipbuilding Research Program project.
Videotape Module 1 Objectives:
1. To illustrate the line supervisor's role in the organizational structure.
2. To contrast the supervisor's role in traditional construction with the supervisor's role in modular construction.
3. To examine the differences between ship construction and repair.
4. To discuss the supervisor's role in assuring quality and accuracy
5. To explore the impact of changes in the industry.

(Instructors guide and workbook available for the series.)
[3/4" UMATIC or VHS...20 min.]

TR 16 *Shipyard Management Module 2 (1985)*
This is the second tape of a two tape series dealing with the orientation of first line supervisors to a modern shipyard environment. The objectives listed below are covered as an overview of the material. This series of tapes (TR 15 & TR 16) is intended to be used in conjunction with the series of tapes entitled Supervisory Skills in Shipyard Trades; TR 17, TR 18, TR 19, & TR 20. This tape is a result of a National Shipbuilding Research Program project.
Videotape Module 2 Objectives
1. To introduce the skills needed for effective supervision.
2. To illustrate types and levels of communication.
3. To review and update effective communication skills.
4. To examine some reasons why workers are motivated.
5. To explain the supervisor's role in maintaining discipline.
6. To stress the necessity for planning.
7. To introduce a method for sound decision-making.
8. To discuss a participatory management technique.

(Instructors guide and workbook available for the series.)
[3/4" UMATIC...20 min.]

U M Index Number — Description

TR 17 *Supervisory Skills in Shipyard Trades Module 1*
This tape is the introductory tape of a four tape series for improving first line supervisor skills. This series of tapes (TR 17, TR 18, TR 19, & TR 20) is intended to be used in conjunction with the series of tapes entitled Shipyard Management; TR 15 & TR 16. This tape is a result of a National Shipbuilding Research Program project.

Videotape Outline, Module 1- Introduction

I. Review of shipyard organization
   Management/Labor Structure
   Channels of Communication
II. Statement of purpose for following modules.
   Importance of five basic supervisory functions.
   The need to develop the skills to carry out those functions.

(Instructors guide and workbook available for the series.)
[VHS...8 min.]

TR 18 *Supervisory Skills in Shipyard Trades Module 2*
This tape is the second tape of a four tape series for improving first line supervisor skills. Five basic supervisory functions are covered in detail. This series of tapes (TR 17, TR 18, TR 19, & TR 20) is intended to be used in conjunction with the series of tapes entitled Shipyard Management; TR 15 & TR 16. This tape is a result of a National Shipbuilding Research Program project.

Videotape Outline, Module 2 - Understanding Your Job

I. Five Basic Supervisory Functions
   Planning: time/cost relationship, supervisor's responsibilities.
   Organizing: the key to efficiency.
   Staffing: more than just hiring and firing.
   Directing: building a productive work force.
   Controlling: monitoring feedback.

(Instructors guide and workbook available for the series.)
[VHS...15 min.]

TR 19 *Supervisory Skills in Shipyard Trades Module 3*
This tape is the third tape of a four tape series for improving first line supervisor skills. Meeting shipyard goals by having "Big Picture" skills is covered in detail. This series of tapes (TR 17, TR 18, TR 19, & TR 20) is intended to be used in conjunction with the series of tapes entitled Shipyard Management; TR 15 & TR 16. This tape is a result of a National Shipbuilding Research Program project.

Videotape Outline, Module 3 - Looking at the "Big Picture"

I. Meeting the shipyard goals.
   Solid decision-making process
   Problem solving techniques
   Time management techniques

(Instructors guide and workbook available for the series.)
[VHS...13 min.]

U M Index Number — Description

TR 20 *Supervisory Skills in Shipyard Trades Module 4*
This tape is the last tape of a four tape series for improving first line supervisor skills. The development of the interpersonal skills necessary to get the job done and maintain a productive work environment is covered in detail. This series of tapes (TR 17, TR 18, TR 19, & TR 20) is intended to be used in conjunction with the series of tapes entitled Shipyard Management; TR 15 & TR 16. This tape is a result of a National Shipbuilding Research Program project.

Videotape Outline, Module 4 - Working With Your Crew

I. Interpersonal Skills
- Leadership - what makes an effective leader.
- Applying leadership skills.
- Communication within the organization.
- Conflict management: the supervisor's role.

(Instructors guide and workbook available for the series.)
[VHS...20 min.]

TR 21 *Techniques for Writing Shipyard Reports -- Part I (1986)*
This is the first videotape in a two tape series. This tape is a direct result of a National Shipbuilding Research Program project. The purpose of the series is to help shipyard engineers, managers, and other professionals to improve the efficiency and quality of their writing. It identifies specific problem areas in shipyard writing and suggests approaches toward solving these problems. This first module covers: 1) writing technical documents specifically for the audience you wish to address; 2) writing effective titles and subject lines; 3) getting started on a technical report; and 4) developing a document design to address different audience needs.
(Instructors guide and workbook available for the series.)
[3/4" UMATIC or VHS...44 min.]

TR 22 *Techniques for Writing Shipyard Reports -- Part II (1986)*
This is the second videotape in a two tape series. This tape is a direct result of a National Shipbuilding Research Program project. The purpose of the series is to help shipyard engineers, managers, and other professionals to improve the efficiency and quality of their writing. It identifies specific problem areas in shipyard writing and suggests approaches toward solving these problems. This second module covers: 1) The principles of paragraph design; 2) format considerations; and 3) editing the technical document for optimum readability.
(Instructors guide and workbook available for the series.)
[3/4" UMATIC or VHS...59 min.]

U M Index Number	Description

TR 23 *Meetings--Isn't There A Better Way (1981)*
This videotape is based on the research of Michael Doyle and David Straus of Interactions Associates, Inc., authors of *How To Make Meetings Work.* The concepts and techniques discussed are designed to increase group involvement in and commitment to decision-making and to improve the overall meeting process. (Workbook/Personal Action Planning Guide). [3/4" UMATIC or VHS...33 min.]

TR 24 *Paint and Surface Preparation - A Training Program for Shipyard Personnel (Revised 1984)*
This training module is intended for the use of shipyard painting and coating supervisors/trainers who have responsibility for improving the skills of today's blasters and painters. The material is presented in a straightforward manner reflecting the practical realities of shipyard painting practices. (This manual, without slides, is also available in microfiche or hard copy format through the NSRP Microfiche Library: NSRP #0097) (Training Manual and 35mm slides)

TR 25 *Industrial Engineering: Work Simplification (Module l)*
This is the first in a series of three videotapes (to be used in conjunction with NSRP Report #0276) produced by the National Shipbuilding Research Program's Industrial Engineering Panel (SP-8). The series discusses three industrial engineering concepts applied to shipyard operations. These tools will help to identify and solve problems, teach how to do a job better with less effort, and help to increase shipyard productivity. [VHS...34 min.]

TR 26 *Industrial Engineering: Work Sampling (Module ll)*
This module discusses work sampling as a tool to look at a sample of work in order to get an idea of the total picture. This sample enables you to identify future problems and improve results. It catches errors in advance, saves time, and allows you to allocate your time according to need and to supervise more efficiently. [VHS...38 min.]

TR 27 *Industrial Engineering: Communication (Module lll)*
This module discusses the foundations for communication: how to better communicate on the job, sell your ideas, and then put them into action. Your ideas may be excellent, but you have to communicate them to others before they can be implemented. [VHS...38 min.]

USN - United States Navy, Naval Sea Systems Command Training Material

U M Index
Number Description

USN 1 *Rigging--Removing of Large Shipboard Objects*
A video tape dealing with important procedures to follow when planning and moving large ship-board objects. [3/4" UMATIC/VHS...18 min.]

USN 2 *Body Bound Bolts*
A video tape explaining the procedure for planning, function, drilling and installation of body bound bolts. [3/4" or VHS...18 min.]

USN 3 *Submarine Docking*
A video tape covering all aspects of drydocking a submarine. [VHS or 3/4" UMATIC...13 min.]

USN 4 *Ship Nomenclature*
A video tape explaining construction terminology, shipboard directions and compartment numbering for surface ships. [3/4" UMATIC or VHS...20 min.]

USN 5 *Training for Readiness*
A video tape prepared for NAVSEA to up-date the skilled trades training tape. (TV-5-81-106) [3/4" UMATIC...15 min.]

USN 6 *Shaft Alignment - Shaft Alignment*
A video tape explaining the tools, materials and reasoning behind shaft alignment, presented in a "how to" format. [3/4" or VHS...10 min.]

USN 7 *Valve Seat Repair*
A video tape which explains the what, where, how, and why, of valve seat repair. [3/4" UMATIC...15 min.]

USN 8 *Fabric Worker*
A three part program that explores the fabric worker trade and the operation of the dielectric sealer. [3/4" UMATIC...18 min.]

USN 9 *Babbit Sleeve Bearings*
A video tape which deals with the installation of babbit sleeve bearings. [3/4" UMATIC or VHS...14 min.]

USN 10 *Pipe Template Bending*
A video tape explaining the proper terminology and procedures in pipe template bending. [3/4" UMATIC...15.min.]

USN 11 *Electroplating*
A video tape which deals with the electroplating process, in the naval shipyards, covering the what, how, and why's. [3/4" UMATIC...6 min.]

USN 12 *Cleanliness Control on Shipboard Piping Systems*
A video tape designed to teach the importance of maintaining cleanliness in a ship's piping system. [3/4" UMATIC...15 min.]

U M Index
Number Description

USN 13 *Welding*
Gas welding terminology and joint design. [3/4" UMATIC...13 min.]

USN 14 *Rigging--Crane Safety and Signals*
Instructions for the ground crew on day-time hand signals, night-time light signals and crane safety. [3/4" UMATIC...18 min.]

USN 15 *Electroplating*
Video tape description of the process steps for applying hard chromium to an outside cylindrical surface using the deep tank electroplating process. [3/4" UMATIC...15 min.]

USN 16 *Cable Markers*
A training aid to introduce two types of cable markers and to demonstrate the procedure of installation. [3/4" UMATIC...18 min.]

USN 17 *Painting*
Describes the procedures for proper storage of paint, proper mixing, and proper thinning. [3/4" UMATIC...23 min.]

USN 18 *Pouring Speltered Sockets*
Describes the procedures for pouring speltered sockets including gathering the tools, preparing the wire rope, and the final steps. (Instructor Guide and Student Guide). [3/4" UMATIC...21 min.]

USN 19 *Stuffing Tubes*
Describes the procedures for proper selection, use of charts, and installation. (Instructor Guide and Student Guide). [3/4" UMATIC or VHS...23 min.]

USN 20 *Multi-Cable Transits*
Describes the procedures for running multi-cable transits including principal parts, advantages, log-out, and installation. [3/4" UMATIC or VHS...22 min.]

USN 21 *Arc Welding Fundamentals*
Basic steps and principles of arc welding. [3/4" UMATIC...11 min.]

USN 22 *Welding I (Do-All)*
Safety precautions and equipment for shielded metal inert gas welding. [3/4" UMATIC...11 min.]

USN 24 *Welding III (Do-All)*
Welding with M.n.G. on butt joints, tee joints, and outside corner joints in the flat and horizontal position. [3/4" UMATIC...12 min.]

U M Index
Number Description

USN 25 *Machine Technology*
A video tape describing the methods and procedures for grinding the square, convex, concave, radius, and v-shaped forming tools. [3/4" UMATIC...30 min.]

USN 26 *Shipyard Security for Ships Force*
Security briefing on rules and regulations concerning access to the shipyard, traffic and parking, and restrictions on personal property. [3/4" UMATIC...17 min.]

USN 27 *Shipyard Signs and Signals*
A video tape describing the various signs and symbols used in the shipyards. [3/4" UMATIC or VHS...5 min.]

USN 28 *Hydrostatic Testing of Boilers*
Procedure for doing hydrostatic testing on boilers. [3/4" UMATIC...10 min.]

USN 29 *Blueprint Reading*
This course introduces workers to blueprint reading. (Instructor Guide, Student Guide, and a criterion test.)

USN 30 *Painting Corrosion and Contaminants*
This module addresses the task of identifying chemical corrosion and contaminants. (Instructor Guide and Student Guide [3/4" UMATIC...20 min.]

USN 31 *Boiler Superheater Repair I-Introduction*
Course consists of seven (7) videotapes (USN31-USN37), 48 vu-graphs, Instructor Guide and Student Guide. This training package addresses the task of removing and replacing superheater header tubes. [3/4" UMATIC...8 min.]

USN 32 *Boiler Superheater Repair II*
Segment 1. Cutting the tube; Segment 2.Milling the weld;
Segment 3. Removing the stub. [3/4" UMATIC...14 min.]

USN 33 *Boiler Superheater Repair III*
Preheating the header for repair by welding. [3/4" UMATIC...13 min.]

USN 34 *Boiler Superheater Repair IV*
Simple non-weld header repair. [3/4" UMATIC or VHS...10 min.]

USN 35 *Boiler Superheater Repair V*
1. Overview; 2. Tube fabrication; 3. Installing the tube; 4. Expanding the tube. [3/4" UMATIC...12 min.]

USN 36 *Boiler Superheater Repair VI*
1. Preparation; 2. The process. [3/4" UMATIC...14 min.]

U M Index Number — Description

USN 37 *Boiler Superheater Repair VII*
Handhole seats and closure. [3/4" UMATIC...16 min.]

USN 38 *Repairing Gate Valves (Non-Nuclear)*
This training package was developed by NAVSEA in order to teach students how to disassemble, inspect, and reassemble a gate valve. The material is presented in two lessons. The first is designed to teach the students the parts of the gate valve and the second gives the steps in disassembling, inspecting and reassembling a gate valve. The material is self-paced and designed to allow each student to learn at his own rate of speed. (Student Guide and Instructor Guide).

USN 39 *NAVSEA Cost Estimating Workshop*
This is a condensed version of a series of lectures sponsored by NAVSEA that were given at a seminar concerned with cost estimating practices of shipwork. [3/4" UMATIC...60 min.]

USN 40 *File Maintenance and Management System (FM & M System)*
This videotape documents the automation of the Norfolk Naval Shipyard's planning department by the use of specially developed computer software. [3/4" UMATIC...30 min.]

USN 41 *Weight Control of U.S. Naval Ships*
This NAVSEA lecture deals with the various components of a sound weight control program. Available aids and techniques for classifying, monitoring and reporting shipboard weights are discussed. [3/4" UMATIC...30 min.]

USN 42 *Crane Safety*
This NAVSEA sponsored lecture deals in depth with the various aspects of crane safety. Safe practices, crane inspection, and unsafe crane practices are some of the topics that are covered. [3/4" UMATIC...60 min.]

USN 43 *Quality Circles/A Time for People Building and Management Support*
These two NAVSEA lectures dealing with quality circle implementation in a shipyard environment have been combined onto one videotape. The first portion of the videotape deals with the development and implementation of quality circle concepts at Norfolk Naval Shipyard. The second portion of this videotape deals with the subject of upper and middle managements' role and responsibility in the successful integration of quality circle concepts within any shipbuilding organization. [3/4" UMATIC...52 min.]

USN 44 *The Use of Respirators*
This video tape deals in depth with the proper use and care of respirators in a shipyard environment. [3/4" UMATIC...60 min.]

U M Index Number — Description

USN 45 *Hull Insulation Fire Precautions (1984)*
The first half of this videotape deals with submarine hull thermal insulation fire hazards. The latter half of the videotape deals with necessary precautions to insure that a safe shipboard working environment can be maintained during the ship's stay at the shipyard/overhaul/repair facility. [3/4" UMATIC...8 min.]

USN 46 *Manufacturing Equipment Protecting Covers (1984)*
The tasks of design, layout, fabrication and installation of fabric protective covers for shipboard equipment are presented in detail. [3/4" UMATIC...11 min.]

USN 47 *Introduction to the Pilgrim Nut (1985)*
The uses of a hydraulic jacking device known as a pilgrim nut in the removal and installation of ship propellers is shown. A propeller fit-up operation using a pilgrim nut is documented in detail. [3/4" UMATIC...11 min.]

USN 48 *Basic Handtools--Metal Cutting Tools (1985)*
The proper selection use, and care of hacksaws, chisels, and files are presented. Proper safety precautions to be used while operating these hand tools are reviewed. [3/4" UMATIC...17 min.]

USN 49 *Basic Handtools--Turning and Twisting Tools (1985)*
This presentation covers the proper selection, use, and care of wrenches and screwdrivers. Proper safety precautions to be followed when using these hammers are reviewed. (Instructor Guide and Student Guide). [3/4" UMATIC...32 min.]

USN 50 *Basic Hand/Power Tools--Striking Tools (1985)*
Hammers, mallets and sledges are covered in his video tape. Proper use and care of these striking tools is examined. Necessary safety precaution, while using these tools, are reviewed. (Transparencies, Instructor Guide and Student Guide). [3/4" UMATIC...7 min.]

USN 51 *Use of Handtools in Surface Preparation (1985)*
The proper selection, use and care of scrapers, wire brushes, abrasive cloth, chipping hammers, and putty knives are thoroughly presented. Identification of the limitation of hand tools when compared to power tools is shown. Proper safety precautions to be followed while using these surface preparation hand tools are demonstrated in detail. (Instructor Guide and Student Guide). [3/4" UMATIC...15 min.]

USN 52 *Cables/Cableways Removal and Installation Techniques*
Step by step procedure for the removal and installation of shipboard cable is outlined in detail. Explanation of acceptable methods for pulling and securing cable are provided. [3/4" UMATIC...15 min.]

U M Index Number — Description

USN 53 *Cable/Cableways Dead-Ending Cables (1985)*
Definition for dead-ending cable is provided. Procedure for cable end sealing and dead ended cable is developed. Tape presents U. S. Navy standard practice regarding procedures, tools and material necessary to perform cable end sealing to Navy requirements. [3/4" UMATIC...7 min.]

USN 54 *Stuffing Tubes (1985)*
The types and uses of stuffing tubes are presented. Use of tube selection charts is covered. Installation of tubes is covered in a step by step fashion. [3/4" UMATIC...24 min.]

USN 55 *Introduction to Gate Valves (1985)*
The different types and uses of gate valves are presented. Cross-sectional views of some typical gate valves are shown. A thorough review of all the parts that make up a gate valve and how each of these parts function in the valve. [3/4" UMATIC or VHS...12 min.]

USN 56 *Gate Valves (1985)*
A demonstration of the steps required to disassemble, inspect, and reassemble a high-pressure steam gate valve. Careful consideration is given to maintaining and repacking the valve prior to reassembly are covered in depth. [3/4" UMATIC...36 min.]

USN 57 *Refrigeration (1985)*
Basic principles of refrigeration are explored. The concept of heat transfer is explained in a simple straight forward manner. Various types of heat are explained. Basic heat measurement parameters are discussed. Changes of state (solid, liquid, vapor) are introduced through the concept of latent heat addition and removal. The role that pressure can play in controlling the amount of heat necessary to induce changes of state is mentioned briefly. [3/4" UMATIC...12 min.]

USN 58 *Evacuating an R-12 System (1985)*
Removal of moisture and contaminants from a R-12 refrigeration system during overhaul/installation of the system is presented. The evacuation process is broken down to a series of steps that are presented clearly in this tape. Leak testing and troubleshooting due to loss of vacuum during evacuation are also covered. [3/4" UMATIC...11 min.]

USN 59 *Charging an R-12 System (1985)*
The five steps involved in charging an R-12 refrigeration system are demonstrated in full detail. The five steps covered in this presentation are: preparation, purging, breaking vacuum, charging and pumping down. Careful consideration is given to safety procedures to be followed during the charging operation. [3/4" UMATIC...26 min.]

U M Index Number — Description

USN 60 *Introduction to Dielectric Heat Sealing (1985)*
Dielectric sealing, the fusing of two or more layers of thermoplastic material into one bonded layer is explored. Equipment set-up, energy source and basic vocabulary related to the dielectric sealing process are presented. [3/4" UMATIC...14 min.]

USN 61 *Bilge Cleaning with Citric Acid (1983)*
The adaption of citric acid cleaning for use in bilge areas where sandblasting is inappropriate is documented. Bilge cleaning systems set-up and basic vocabulary are established. Step by step procedure for the application of citric acid cleaning to ship bilges is outlined. Safety practices regarding proper chemical use and equipment use are reviewed. [3/4" UMATIC...17 min.]

USN 62 *Danger--Lead Dust (1985)*
The danger of external/internal exposure to lead dust is presented. Protective equipment required for personal safety is reviewed. Proper safety procedures are presented in an easy to follow step by step manner. [3/4" UMATIC...13 min.]

USN 63 *Welding Trade Safety I--Personal Protection (1984)*
Safety precautions necessary to safeguard against eye injuries, hearing loss and burns resulting from shipyard work are covered in depth. [3/4" UMATIC or VHS...8 min.]

USN 64 *Welding Trade Safety II--Tools (1985)*
Taking proper precautions when using tools is important. Proper use of and care of hand tools, portable power tools, machines and utilities are thoroughly presented. [3/4" UMATIC or VHS...7 min.]

USN 65 *Eye Protection (1985)*
An examination of how important proper eye protection is in the shipyard. The extent of eye injury as far as cost and loss or impairment of sight is explored. [3/4" UMATIC or VHS...14 min.]

USN 66 *The Electronics Mechanic in the Naval Shipyard 1985*
This videotape was developed to familiarize workers with the training and duties of electronics mechanics in naval shipyards. [3/4" UMATIC...11 min.]

USN 67 *Cable/Cableways, Multicable Penetrators-1985*
This video discussed the task of selecting and installing multicable penetrators when running electrical cables aboard: installing a multiplug and adding cable to an existing MCP. (Transparencies, Student Guide, and Instructor Guide). [3/4" UMATIC...34 min.]

U M Index Number	Description

USN 68 *Cables/Cableways, Cable Splicing 1986*
This lesson teaches the task of using correct splices and splicing procedures in running electrical cables aboard ship. (Student guide, Instructor Guide). [3/4" UMATIC...21 min.]

USN 69 *Cable/Cableways, Chafing Rings - 1986*
This presentation concerns the importance of proper shape and size selection of chafing rings and their installation in running electrical cable aboard ship. (Instructors Guide, Practice Exercise Book, Transparencies). [3/4" UMATIC...17 min.]

USN 70 *Cable/Cableways, Hangers 1985*
This lesson discusses the use of hangers in running electrical cable aboard ships: the different types as well as the correct selection and installation including proper bend radius and proper spacing between hangers. (Transparencies, Instructor Guide, Student Guides). [3/4" UMATIC...19 min.]

USN 71 *Cable/Cableways, Cable Banding 1985*
Proper cable protection, approved materials, and proper procedures for cable banding are discussed. (Transparencies, instructor guide and student guide.) [3/4" UMATIC...19 min.]

USN 72 *Thermal Spray 1986*
This videotape was developed to familiarize painters with the purpose tools and procedures used in thermal spraying. [3/4" UMATIC...17 min.]

USN 73 *Basic Hand Tools--Woodcutting Tools 1985*
This videotape presented in four parts, addresses the task of using saws, planes, auger kits, and wood chisels in the course of ship repair. (Student Guide and Student Guide). [3/4" UMATIC...18 min.]

USN 74 *Basic Hand and Portable Power Tools -- Miscellaneous Tools (1986)*
Developed to familiarize all trades with the various hand tools used in the shipyard setting, e.g. punches, reamers, taps, countersinks and extractors. (Student Workbook, Instructor Guide, Transparencies). [3/4" UMATIC...15 min.]

USN 75 *Plating Bath Fundamentals (1986)*
Divided into three parts, this tape demonstrates the task of properly electroplating components. It describes the five main parts of a plating bath and how they work together in the electroplating process. (Student Workbook, Instructor Guide, and Test). [3/4" UMATIC...34 min.]

U M Index Number — Description

USN 76 *Welding Trade Safety III--Shipboard Work 1986*
Safety shipboard practices as they apply to welding are thoroughly discussed specifically gas, fires and fire watches and oxyacetylene. (Student and Instructor Guides). [3/4" UMATIC or VHS...8 min.]

USN 77 *Basic Hand Tools and Portable Power Tools -- Holding Tools 1986*
This course was developed by NAVSEA to introduce all shipyard production employees to holding tools: pliers, vises and clamps. The module consists of an instructor guide and a student guide.

USN 78 *Fundamentals of Pipefitting - Pipefitter Mechanical Drawing 1986*
This module introduces shipyard pipefitters to the drafting and mechanical drawing methods needed to produce working drawings. (Instructor Guide, Student Guide, a pipefitter mechanical drawing test and test answer key).

USN 79 *Boilermaker Personal Safety 1986*
Developed to familiarize boilermakers with the safety procedures needed to maintain an accident-free work environment; this course was designed to make the apprentice aware of the dangers surrounding him and other workers. It teaches the basic rules for the development of safe work habits. (Student Guide, Instructor Guide, and Test). [3/4" UMATIC...13 min.]

USN 80 *Basic Soldering Techniques for the Electrical/Electronics Worker 1986*
This lesson is designed to teach how to solder and desolder wires and various components to a terminal board, a multi-pin connector and a printed circuit board, using several methods and techniques. (Student Guide, Instructor Guide, Test, and Transparencies). [3/4" UMATIC...25 min.]

USN 81 *Portable Power Tools--Handle With Care 1986*
A lesson on the various portable power tools used within the industrial complex. Specifically it addresses the operation of a portable power drill, disc sander, grinder and impact wrench and all applicable safety precautions. (Instructor Guide). [3/4" UMATIC or VHS...21 min.]

USN 82 *Welding Trade Safety 1986*
This fourth in the series of safe shipboard practices as applied to welders discusses "Good Housekeeping" and "Welding Craft Hazards." (Student and Instructor Guides). [3/4" UMATIC or VHS...6 min.]

U M Index Number	Description

USN 83 *Cables/Cableways, Inspection of Cables and Cableways (1986)*
The objective of this lesson is to provide the electrician with the proper skills to identify and correct electrical cable and cableway deficiencies and hazards. (Practice exercise books, instructors guides, module/lesson test.)

USN 84 *Hand Safety (1986)*
This videotape is made for workers in a shipyard environment to familiarize them with hand safety. [3/4" UMATIC...12 min.]

USN 85 *Miller Swivels, Bearing Alignment*
This tape is to familiarize crane maintenance workers with the operation of the Miller Swivel in lifting. It is designed for those who must work on the installation and maintenance of Miller Swivels. [3/4" UMATIC...7 min.]

USN 86 *Prevention of Contamination in Shipyard Work - Boiler Contamination (1986)*
This tape addresses the need to prevent and control contamination. It instructs the worker in techniques of good work practices for boiler corrosion and contamination control, types and characteristics of contamination/control and code/shop responsibilities for boiler lay ups during an overhaul period using the hot air method. (Student Guide, Instructor Guide, Test, Test Answers). [3/4" UMATIC...6 min.]

USN 87 *Basic Layout Techniques (1986)*
This module teaches the student to lay out regular and irregular geometric figures. (Student Guide, Instructor Guide, Test, Test Answers, Transparencies.)

USN 88 *Surface Preparation and Painting - Paint Preparation and Mixing (1986)*
This module addresses safety and fire prevention precautions for mixing paint, paint storage, types of shipboard paint, and mixing and thinning of paint. (Student Guide, Instructors Guide). [3/4" UMATIC...21 min.]

USN 89 *Welding Trade Safety V - Hot Work (1986)*
This tape describes safe shipboard practices as they apply to welding. [3/4" UMATIC or VHS...8 min.]

USN 90 *Docking and Undocking of Submarines in Graving Drydocks - Docking Papers (1986)*
This module teaches students to make a set of docking papers in accordance with shipyard practices and standards. (Student Guide, Instructor Guide, Test, Test Answers). [3/4" UMATIC...13 min.]

U M Index Number	Description

USN 91 *Principles of Rigging - Removal of Large Shipboard Objects (1986)*
This module teaches the student to use manufacturer's plates, labels, and engineering drawings to determine the approximate weight of a load, as well as its center of gravity. (Instructor Guide, Student Guide). [3/4" UMATIC...18 min.]

USN 92 *Basic Tools and Portable Power Tools - Measuring Tools (1986)*
This module is designed to introduce apprentices in naval shipyards to measuring tools: rules, tapes, calipers, micrometers, squares, gages, dividers and levels. (Instructor Guide, Student Guide).

USN 93 *Boiler Components I and II (1986)*
This two-tape module is designed to familiarize apprentices in the boiler trade with the basic structural components of a boiler. Part I introduces the initial components of the boiler, traces the steam-water mixture through the boiler, and shows how the combustion of fuel occurs. Part II introduces the external fittings and connections on the boiler (blow valves, safety valves, water level indicators, soot blowers, foundation and supports) and traces the exhaust gas path from the economizer into the atmosphere. (Instructor Guide, Student Guide). [3/4" UMATIC...17/16 min.]

USN 94 *Hand Operated Sheet Metal Machines - Metal Cutting Machines (1986)*
This module is designed to teach trainees in the sheet metal trade how to use seven hand operated cutting machines: The squaring, slitting, lever, scroll, rotary, circle, and ring and circle shear. (Instructor Guide, Student Guide).

USN 95 *Rigging - Crane Safety and Hand Signals (1986)*
This package should also be used with USN-91, *Principles of Rigging: Removal of Large Shipboard Objects*. It is designed to provide information needed to perform crane operation safety checks and to safely hoist and move a load. (Instructor Guide, Student Guide). [3/4" UMATIC...18 min.]

USN 96 *Electroplating - Masking Techniques I, II, III (1986)*
The intent of this module is to teach techniques of masking generally used in electroplating as performed in naval shipyards. The module: instructs in the types and characteristics of masking materials; discusses the approaches and techniques of masking; and provides demonstrations and practice in developing the basic skills needed to apply maskants properly. (Instructor Guide, Student Guide). [3/4" UMATIC...55 min.]

U M Index Number	Description

USN 97 *Basic Principles of Refrigeration (1986)*
This module is designed to teach the air conditioning and refrigeration mechanic the basic underlying concepts behind air conditioning and refrigeration technology from its early stages of development to its modern uses in Navy ships. (Instructor Guide, Student Guide). [3/4" UMATIC...12 min.]

USN 98 *Hand Operated Sheet Metal Machines - Metal Bending Machines (1986)*
This module is designed to teach a trainee in the sheet metal trade how to use three different machines to bend sheet metal: the bar folder, the slip forming machine, and the rod bending machine. (Instructor Guide, Student Guide). [3/4" UMATIC...16 min.]

USN 99 *Power Tools For Surface Cleaning (1986)*
This package provides information about six air-powered tools used to prepare metal shipboard surfaces for coating. Four major aspects of these tools are discussed: safety precautions and personal protective equipment, special features and uses, parts, operation and maintenance. This package provides information about six air-powered tools used to prepare metal shipboard surfaces for coating. Four major aspects of these tools are discussed: safety precautions and personal protective equipment, special features and uses, parts, operation and maintenance. (Instructor Guide, Student Guide). [3/4" UMATIC...11 min.]

USN100 *Crane Hand Signals (1986)*
This lesson is designed to provide the knowledge needed by the rigger to safely direct the crane operator in hoisting, moving, and lowering loads. (It is intended to be accompanied by USN95, a videotape entitled *Rigging : Crane Safety and Hand Signals*.) (Instructor Guide, Student Guide).

USN101 *Submarine Hull Treatment - Water Jet Tile Removal*
This training module gives information on the use of the Jet Pac system and removal of submarine hull treatment. (Instructor Guide and Student Guide).

USN102 *How To Hand Fit Antenna Mast Bearings (1986)*
This videotape describes the step-by-step process of how to hand fit antenna mast bearings on 688-Class submarines. [3/4" UMATIC..17 min.]

USN103 *Supervisory Awareness Pendant Controlled Cranes (1986)*
This videotape is intended to instruct supervisors in an increased awareness of the safe operation of pendant controlled cranes: who may operate them, how they are inspected, and how they are safely operated. [3/4" UMATIC...16 min.]

U M Index Number — Description

USN104 *Temporary Cleanliness Seals and Plugs (1986)*
This module is designed to teach pipefitters how to install and remove temporary cleanliness seals that cover exposed pipe and components during ship overhaul, transit, and storage. It also covers the installation and removal of temporary internal plugs used inside piping to maintain cleanliness, and why proper installation and removal are so important. (Instructor Guide, Student Guide). [3/4" UMATIC...14 min.]

USN105 *Multi-Purpose Cranes (1986)*
This videotape details the successful modification of a commercially manufactured hydraulic excavator crane to perform critical shipyard functions including propeller and shaft removal and installation, pad eye pull testing (to stimulate underway cargo/fuel replenishment at sea), setting keel blocks, and other applications. [3/4" UMATIC...15 min.]

USN106 *Docking and Undocking of Submarines in Graving Drydocks - Shape Layout*
This training module provides information on: estimating material, laying out a shape table, laying out and cutting a shape template, and measuring, marking and cutting side block and centerline shapes. (Instructor Guide and Student Guide). [3/4" UMATIC...13 min.]

USN107 *Docking and Undocking of Submarines in Graving Drydocks - Drydock Layout*
This training module details how to: make the stern reference point; establish the fore and aft alignment lines; establish the centerline of the setting; shoot land reference points; and make centerline and side block layouts. (Instructor Guide and Student Guide). [3/4" UMATIC...21 min.]

USN108 *Docking and Undocking of Submarines in Graving Drydocks - Buildup of Blocks*
This training module presents details on: setting centerline and side blocks; establishing a base line, building a fence; and positioning oak caps. (Instructor Guide and Student Guide). [3/4" UMATIC...22 min.]

USN109 *Docking and Undocking of Submarines in Graving Drydocks - Line Handling*
Segment One of this videotape details safety factors and required equipment. Segment Two describes line handling terms, techniques and procedures. The videotape demonstrates the steps used in handling lines to dock and undock a naval vessel. [3/4" UMATIC...22 min.]

USN110 *Docking and Undocking of Submarines in Graving Drydocks - Caisson Removal and Installation*
This videotape describes two methods of removing and installing a caisson: using dock capstans or yard service craft. [3/4" UMATIC...14 min.]

U M Index Number **Description**

USN111 *Docking and Undocking of Submarines in Graving Drydocks - Surface Vessel Overview*
This videotape illustrates an overview of the docking and undocking procedures of a surface vessel. [3/4" UMATIC...12 min.]

USN112 *Load Testing of Portal Cranes*
This training module instructs in load testing of portal cranes to insure safety reliability and optimum performance. Inspection procedures are detailed: an initial inspection without weights and an actual load test. [3/4" UMATIC or VHS...20 min.]

USN113 *Practical Layout and Template Construction*
This module is designed to teach the fabric worker two common methods of laying out a product: parallel line and radial line development. The module covers the details of layout and the step-by-step procedures for laying out a cube, a truncated rectangular prism, a cone, a pyramid, and the frustrums of both a cone and a pyramid. (Instructor Guide and Student Guide).

USN114 *Electroplating - Metal Verification I, II, III*
This training module describes the verification of metals by the chemical spot check method: comparing color, magnetic characteristics and chemical behavior to a standard reference metal. (Instructor Guide, Student Guide, and Job performance Aid). [3/4" UMATIC...50 min.]

USN115 *Special Tools in Air Conditioning and Refrigeration, II - Dial-a-Charge Portable Charging Cylinder*
This module describes the use of the Dial-a-Charge: filling and connecting it, charging the refrigeration system, and removing the charging equipment. [3/4" UMATIC...24 min.]

USN116 *Surface Preparation and Painting - Masking for Shipboard Paint Application*
This module covers the reasons for shipboard masking: the types, uses, and characteristics of masking materials; the shipboard items that are not to be painted; and the guidelines for applying and removing masking materials. A slide presentation divides the topic into application of masking materials in compartments and in tanks. (35 mm slides, Instructor Guide and Student Guide).

USN117 *Welding Trade Theory IV - Fuels and Other Gases*
This lesson material provides the welder with important terms, characteristics and safety knowledge for working with, and around, fuels and other gases. (Instructor Guide and Student Guide).

U M Index Number — Description

USN118 *Crimping Techniques*
This videotape on crimping techniques describes how to prepare a jumper conductor; crimping the lugs onto the leads; inspection; installing the conductor; stripping insulated conductor ends; inspection and use of a crimper; and testing and overall inspection. [3/4" UMATIC...19 min.]

USN119 *Small Pipe Staging*
This videotape describes the basic tools, planning, and components necessary for erecting a staging. [3/4" UMATIC...16 min.]

USN120 *The Swage Press*
This videotape involves working with wire rope in relation to the operation, controls, maintenance and parts of the swage press. [3/4" UMATIC or VHS...21 min.]

USN121 *Supervisory Awareness - Fork Lift Safety*
This videotape details licensing requirements, inspections, and safe operating procedures for using the fork lift. [3/4" UMATIC...15 min.]

USN122 *Hand Operated Sheet Metal Machines - Metal Forming Machines.*
This module demonstrates how to form sheet metal using the Standard Brake and the Box/Pan Brake. (Instructor Guide and Student Guide). [3/4" UMATIC...16 min.]

USN123 *Surface Preparation and Painting - Abrasive Blasting of Shipboard Tank and Hull Surfaces*
This training module provides information about blasting for paint application: the reasons for abrasive blasting, equipment used, characteristics of the surface profile and finishes, and the procedures used. Equipment setup, inspection and testing, equipment operation, cleanup of tank and hull surfaces, and equipment cleanup, maintenance and storage are discussed in the videotape. (Instructor Guide and Student Guide). [3/4" UMATIC or VHS...12 min.]

USN124 *Electricity for Welders*
This module instructs in the terms and principles of electricity as they relate to the welding trade. (Instructor Guide and Student Guide).

USN125 *Direct Current Fundamentals - Fundamentals of Electricity*
This module is the first in a series of 10. It has been designed to introduce terms and principles that will be applied in the remaining modules. (Instructor Guide and Student Guide).

U M Index Number — Description

USN126 *Introduction to Shielded Metal Arc Welding - Arc Welding Fundamentals*
This module is an overview of the SMAW process. The videotape describes the 3 basic steps of arc welding: heat control, molten edge bonding, and cooling the metal. It also covers correct current settings, length of arc, correct electrode angle, speed of travel, and sequence increments of the weld bead. (Instructor Guide and Student Guide). [3/4" UMATIC...11 min.]

USN127 *Removal Requirements for Shipboard Electronic Equipment*
This module is designed for use by electronics mechanics, and instructs in the requirements necessary before removal of shipboard electronic equipment, units, or system. (Instructor Guide and Student Guide).

USN128 *Hand Tools - Electrical/Electronic Hand Tools*
The hand tools covered in this module are: electrical knife, Stakon, spintite wrench, barrel nut driver, and screw starter. (Instructor Guide and Practice Exercise Book)

USN129 *Surface Preparation and Painting Precautions - PPE for Abrasive Blasting of Shipboard Tank/Hull Surfaces*
This videotape describes the personal protective equipment necessary for personal safety in the abrasive blasting of tank and hull surfaces. (Instructor Guide and Student Guide). [3/4" UMATIC...12 min.]

USN130 *Gas Metal Arc Welding Introduction*
This module has three segments: the types of metal transfer, shielding gases and the equipment used in gas metal arc welding. (Instructor Guide and Student Guide). [3/4" UMATIC...11 min.]

USN131 *Shipchecking - Structural Design*
This module (relating to the repair and overhaul of ships) discusses the importance of communication on a shipcheck, common situations involved in shipchecking, and ways to find solutions to occurring problems. (Reference Guide). [3/4" UMATIC or VHS...10 min.]

USN132 *Shipchecking - Mechanical Design*
This module depicts common situations and solutions for the mechanical design role. (Reference Guide). [3/4" UMATIC or VHS...12 min.]

USN133 *Shipchecking - Electrical Design*
This module depicts common situations and solutions for the electrical design role. (Reference Guide). [3/4" UMATIC or VHS...10 min.]

U M Index Number — Description

USN134 *Shipchecking - Your Duties as a Shipchecker (Overview)*
This overview of shipchecking discusses what you can expect in your job: your preparation, orientation and a walk-through of the ship. (Reference Guide). [3/4" UMATIC or VHS...11 min.]

USN135 *Electroplating - Safety in the Plating Shop*
This training module gives an overview of electroplating and discusses plating shop chemicals, handling these chemicals safely and concludes with a discussion of lifting safety. (Instructor Guide and Student Guide). [3/4" UMATIC...52 min.]

USN136 *Basic Steam Cycle I - Introduction*
This module is the first in a series of training sessions on the basic steam cycle. It includes an introduction, basic elements of steam and phases and energy changes. (Instructor Guide and Student Guide). [3/4" UMATIC...14 min.]

USN137 *Basic Steam Cycle II - Generation Phase*
This module details the parts of the boiler and how the boiler works. (Instructor Guide and Student Guide). [3/4" UMATIC...10 min.]

USN138 *Basic Steam Cycle III - Expansion Phase*
This expansion phase module discusses turbine energy changes, turbine components and steam flow. (Instructor Guide and Student Guide). [3/4" UMATIC...7 min.]

USN139 *Basic Steam Cycle IV - Condensation Phase*
The condensation phase of the basic steam cycle series details the main condenser and other components. (Instructor Guide and Student Guide). [3/4" UMATIC...11 min.]

USN140 *Basic Steam Cycle V - Feed Phase*
This training module discusses the components of the feed phase and concludes with a view of the basic steam cycle series. (Instructor Guide and Student Guide). [3/4" UMATIC...13 min.]

USN141 *Cable Terminators (Basic)*
This module discusses the basic steps involved in installing an RF connector and installing a multi-pin connector. (Instructor Guide and Student Guide). [3/4" UMATIC...25 min.]

USN142 *Boiler - Hydraulic Pull-Stretch Method*
This module discusses the hydraulic pull-stretch method for removing boiler tube stubs: the equipment and set-up necessary as well as the pulling and stretching process. [3/4" UMATIC...13 min.]

U M Index Number — Description

USN143 *Cable/Cableways - Wiring Techniques I*
This module details how to connect individual conductors using proper wiring techniques: the correct routing of conductors, hook-up document, how to route and lay out the conductors in an enclosure and install the lead markers, and how to form a wire harness and install the terminal lugs. (Instructor Guide and Student Guide). [3/4" UMATIC...22 min.]

USN144 *Cable/Cableways - Wiring Techniques II*
This module discusses the proper procedure to use in forming a wire harness using lacing cord. (Instructor Guide and Student Guide). [3/4" UMATIC...14 min.]

USN145 *Pumps I - Introduction to Pumps (Parts 1 and 2)*
Part 1 discusses uses and elements common to all pumps, as well as characteristics related to pumping. Part 2 discusses the principle of pump operation, pump types and classifications. (Instructor Guide and Student Guide). [3/4" UMATIC or VHS...22 min.]

USN146 *Pumps II - Centrifugal Pumps (Parts 1 and 2)*
Part 1 explains how centrifugal pumps work and their operational characteristics; Part 2 discusses single stage and double stage pumps. (Instructor Guide and Student Guide). [3/4" UMATIC/VHS...31 min.]

USN147 *Welding Trade Theory V - Oxyacetylene Flame Cutting I*
This module discusses the basic set-up for oxyacetylene cutting, equipment, hookup, and operation. (Instructor Guide and Student Guide). [3/4" UMATIC...16 min.]

USN148 *Welding Trade Theory V - Oxyacetylene Flame Cutting II*
This second module on oxyacetylene flame cutting considers the selection of the cutting tip, piercing holes, and safety and fire protection. [3/4" UMATIC...12 min.]

USN149 *Pipefitting Mechanical Joint Makeup, Part I - Bolted Flanges*
This module discusses the proper methods for installing bolted flanges: the preparation, makeup (installation), and how to do the job right the first time and prevent accidents. (Training Guide). [3/4" UMATIC...18 min.]

USN150 *Pipefitting Mechanical Joint Makeup, Part II - O-Rings Introduction*
This module discusses the preparation for installation, installation, and removal of O-Rings. (Training Guide). [3/4" UMATIC...14 min.]

USN151 *Pipefitter - Precision Measuring for Pipe Fit-up, Part I*
This discussion of micrometers and vernier calipers covers: 1) graduated scales; 2) techniques; and 3) choosing the proper instrument and using it. (Practice Exercise Book). [3/4" UMATIC...15 min.]

U M Index Number — Description

USN152 *Pipefitter - Precision Measuring Instruments, Part II - Torque Wrenches*
This module discusses the basic procedures for and applications of torque wrenches: deflecting beam, dial indicating and micrometer setting. [3/4" UMATIC...8 min.]

USN153 *Pipefitter - Blueprint Reading*
The five sections of this module on blueprint reading are: an overall description of blueprints; the alphabet of lines to be interpreted; dimensions; nautical terms; visualizing the blueprint; and visualizing the piping run. (Blueprint Symbols Handbook). [VHS or 3/4" UMATIC...20 min.]

USN154 *Pipefitter - Template Bending for Submarines*
This training module covers the steps needed to accomplish template bending for submarine work. (Training Guide). [3/4" UMATIC...10 min.]

USN155 *Piping Components*
This lesson material details an example of a complete ship system with it's five basic parts: the supply source, the power source, the conduit, the controls (fittings and valves) and the purpose (the job performed). It discusses many of the fittings that join pipe and the valves that control the flow of fluid. (Student Guide and Instructor Guide). [3/4" UMATIC...16 min.]

USN156 *Asbestos Hazards*
This module discusses the hazards and harmful effects of asbestos on the human body, its dangers and the safety procedures to follow. (Student Guide and Instructor Guide). [3/4" UMATIC...9 min.]

USN157 *Electroplating - Cleaning Fundamentals II*
This video discusses alkaline degreasing, hard cleaning, and acid cleaning. [3/4" UMATIC...15 min.]

USN158 *Introduction to Electrical Components - Circuit Control Devices; Switches*
This module addresses the types, classification, rating and maintenance of switches. (Student Guide and Instructor Guide).

USN159 *Electrical Blueprint Reading*
This module is designed to teach electrical and electronic personnel to interpret electrical diagrams. (Instructor Guide and Practice Exercise Book).

USN160 *Plating - Basic D.C. Electricity*
This module is designed to provide the knowledge and skill needed to use D.C. electricity to successfully electroplate any item. (Self-Paced Student Guide and Instructor Guide).

U M Index Number — Description

USN161 *Penetration (Piping and Electrical) - Layout, Repaint and Installation*
This module has been designed to give an overview of the processes used in the removal and installation of hull penetrations. (Student Guide and Instructor Guide).

USN162 *Introduction to Electronics - Electronics Mechanic Personal Safety*
This training module addresses the safety precautions and practices with which an electronics mechanic must comply. (May be used with USN27) (Student Guide and Instructor Guide).

USN163 *Shipboard Foundation Removal/Installation*
This module presents the procedures/requirements involved in the removal/reinstallation of shipboard foundations. (Instructor Guide).

USN164 *Special Tools - Air Conditioning/Refrigeration Trade (Part I)*
This module presents the basic uses of four specialized tools: the flare nut wrench, the bushing wrench, the tubing cutter, and the 45-degree and 37-degree tubing kits. (Student Guide and Instructor Guide).

USN165 *Gaskets, Packing and Mechanical Seals*
This module is presented in three parts: 1) How to cut and install gaskets for a pump housing; 2) How to use packing to control leakage along pump shafts and valve stems; 3) Mechanical seals and how they prevent leakage along equipment shafts. (Training Guide). [3/4" UMATIC...60 min.]

USN166 *Freehand Sketching*
This module is designed to teach fabric workers the basic skills they'll need to make freehand sketches of various objects encountered when manufacturing products. (Instructor Guide).

USN167 *Installation Requirements for Shipboard Electronic Equipment*
Designed for use by electronics mechanics, this module provides requirements for connecting and installing shipboard equipment, units or systems. (Student Guide and Instructor Guide).

USN168 *Product Protection*
Damage and carelessness push up the cost of the product. This video addresses the subject of product protection with a "lighthearted" approach. [3/4" UMATIC...10 min.]

USN169 *Docking and Undocking Submarines in Graving Drydocks - Docking Papers*
This module is designed to provide a part of the knowledge and skills needed to enhance an understanding of docking papers. The information is basic and would be useful in an apprentice training program. (Instructor Guide and Student Guide).

U M Index Number	Description

USN170 *Asbestos Control Procedures for Insulators - Respiratory Protection*
This module is designed to teach insulators the need for respiratory protection when working in and around hazardous atmospheric conditions. It also contains information for other trades working under these same conditions. (Instructor Guide and Student Guide).

USN171 *Asbestos Control Procedures for Insulators - Asbestos Removal Techniques - Equipment and Preparation*
This module is designed to teach the insulator the steps required to layout and prepare a work area for the removal of asbestos. (Instructor Guide and Student Guide).

USN172 *Pouring Babbitt Sleeve Bearings (Parts I and II)*
Part I discusses: an overview, cleaning and inspecting, babbitt removal, and tinning. Part II discusses: centrifugal casting, static casting, and machinery and RTD installation. (Instructor Guide and Student Guide). [3/4" UMATIC or VHS...31 min.]

USN173 *Sheet Metal - Press Brake, Shears and Power Roll Operations*
This video presents an overall look at the different kinds of machines, how they work, their mechanical features, and safe operating methods. [3/4" UMATIC...24 min.]

USN174 *Fiber Optics - An Introduction*
This video covers the history, the pioneers, and significant events that led to the first operating fiber optics system. It discusses basic theory, fiber manufacturing, how the new technology is used in private industry, and how the Navy is using light guide technology aboard ship. It concludes with the advantages and disadvantages of fiber optics and testing and maintaining fiber optics systems. [3/4" UMATIC or VHS...14 min.]

USN175 *Bolting Technology - Joint Make-up*
This video is presented in three segments: 1) the introduction, proper assembly, torque tension, indirect measurement, and friction; 2) joint assembly - proper preparation, direct torque measurement; and 3) other tensioning methods. [3/4" UMATIC...18 min.]

USN176 *Shipfitter - Work Procedures - Structural Layout Using Templates*
This module is designed to teach the shipfitter the types and functions of various templates, information they communicate, and procedures for using templates to lay out structural plates and structural shapes. (Instructor Guide and Student Guide).

U M Index Number — Description

USN177 *Shipfitter - Work Procedures - Structural Layout Without Templates*
This module is designed to teach procedures in laying out structural plates and shapes without the assistance of templates. These include procedures for laying out structural plates and shapes for shaping, conserving materials, laying out materials for burning and/or shearing, and laying out material before and after shaping. (Instructor Guide and Student Guide).

USN178 *Shipfitter - Work Procedures - Structural Layout Terminology*
This module is designed to provide the shipfitter with common terms, template symbols, and markings necessary in performing structural layout procedures. (Instructor Guide and Student Guide).

USN179 *Pipefitting - Sketching for Pipe Bending*
This videotape is designed to tell the pipe bender exactly how pipe should be bent. It discusses the 3 views that should be sketched. [3/4" UMATIC...7 min.]

USN180 *It's Your Life*
This videotape lecture discusses shock hazard: the problems of complacency and carelessness, and rules for safety. [3/4" UMATIC...14 min.]

USN181 *Insulator - Portable Insulation - Addressing the Template*
This module takes a look at the systems to be insulated, and determines the required thickness of insulation for each system. Additionally, it concentrates on methods used for addressing the template. (Instructor Guide and Student Guide)

USN182 *Asbestos Control Procedures for Insulators - Removal and Cleanup Techniques*
This module concentrates on the procedures for the removal of asbestos from piping and machinery, cleanup and disposal of the asbestos debris, and handling of an asbestos spill in a space or area. (Instructor Guide and Student Guide)

USN183 *Non-Nuclear Steam and Electric Plant Quality Improvement Program - Switchboard & Components SSN-637*
The contents of this module cover the areas of rip out, wiring identification, overhaul, and reinstallation of switchboards aboard a 637-class submarine. (Job Briefing Guide Only)

USN184 *Non-Nuclear Steam and Electric Plant Quality Improvement Program - Miscellaneous Electrical SSN 637*
The contents of this module cover the areas of rip out, wiring identification, overhaul and reinstallation of miscellaneous electrical systems aboard 637-class submarines. (Job Briefing Guide Only)

U M Index
Number Description

USN185 *Non-Nuclear Steam and Electric Plant Quality Improvement Program - Main Lube Oil System SSN 637, Testing and Setting the Back Pressure Regulator Valves LOS 32/34*
This module is designed for inside machinists and marine machinery mechanics. It covers procedures to test and set the BPRVs in a manner that will ensure their proper operation shipboard. (Instructor Guide and Student Guide).

USN186 *Steam Plant Cleanliness*
To avoid expensive rework, cleanliness and the removal of foreign substances are essential. In this training module, the problem areas of cleanliness control are discussed: minimizing corrosion, foreign material control, and the establishment and verification of cleanliness. (Training Guide). [3/4" UMATIC...17 min.]

USN187 *Subsafe Awareness*
Scope, re-entry control, material control, special process control, recertification and testing. "Make big issues out of little ones so we never have a really big problem." [3/4" UMATIC...12 min.]

USN188 *Hotwell Level Control - Transducer Overhaul*
This, first of a three-part series on Hotwell Level Controls, begins (as does each of the three modules) with a system overview. It then discusses overhaul of the transducer: maintaining condensate levels, prestaging, disassembly, and reassembly. (Training Guide). [3/4" UMATIC...21 min.]

USN189 *Hotwell Level Control - Askania Controller Overhaul*
This, second of a three-part series on Hotwell Level Controls, discusses the overhaul of an askania controller: disassembly and the tools required. (Training Guide). [3/4" UMATIC...25 min.]

USN190 *Hotwell Level Control - Static Motor Controller Overhaul*
This, third of a three-part series on Hotwell Level Controls, discusses the overhaul of a 10-HSP Cutler Hammer static controller: prestaging, disassembly, cleaning and inspection, reassembly, and testing. (Training Guide). [3/4" UMATIC...29 min.]

USN191 *Sheetmetal - Spot Welding Operations*
This training module contains a description of spot welding and its most common usages. Segment 1 - Overview; Segment 2 - Controls; Segment 3 - Set-up; and Segment 4 - Spot weld. (Training Guide). [3/4" UMATIC...20 min.]

USN192 *Flux Cored Welding*
This module contains a description of flux cored welding: what it is, where it's used and why, features of the equipment used, safety, set-up, and problems and solutions. [3/4" UMATIC...24 min.]

U M Index Number	Description

USN193 *Balanced Doors - Parts I and II*
Part I gives an overview of what a balanced door is and what its uses are; Part II discusses preparation for installation and installation. (Training Guide). [3/4" UMATIC...17 min.]

USN194 *Welding - Inert Gas Purge for Pipe Welds*
This module provides information on methods used to shield pipe welds from undesirable contaminants. (Training Guide). [3/4" UMATIC...24 min.]

USN195 *Introduction to Electrical Components - Circuit Control Devices - Relays*
This module is designed to introduce relays as a circuit control device. It addresses the Types, classification, and maintenance of relays, as well as the procedure for checking for defects. (Instructor Guide and Student Guide Only)

USN196 *Temporary Electrical Service - Cam-Lock Installation, Vulcanizing, Cold Casting*
This module presents information on the techniques of cam-lock installation, vulcanizing, and methods of vulcanizing cable splices. (Job Performance Aid). [3/4" UMATIC...11 min.]

USN197 *Shipfitter - Flange Turning Operations*
This module is designed to show how ferris and non-ferris metals are flanged, turned and shaped. Topics covered: techniques of flange turning; flange turning equipment; end products. (Training Guide). [3/4" UMATIC...17 min.]

USN198 *Temporary Electrical Service - Hypot Testing, Visual Inspection, Cable Splicing*
This module is designed to test electrical components prior to giving temporary electrical service to ships in port for repairs or refitting. Discussed in three parts. (Job Performance Aid). [3/4" UMATIC or VHS...12 min.]

USN199 *Surface Preparation and Painting - Precautions & PPE for Abrasive Blasting of Shipboard T/H Surfaces*
This video stresses clothing for safety and the importance of personal protective equipment (PPE) when preparing to do abrasive blasting of shipboard surfaces. [3/4" UMATIC...11 min.]

USN200 *Abrasive Blasting of Shipboard Tank and Hull Surfaces*
This module covers the steps for abrasive blasting of the tank and hull surfaces: 1. equipment setup; 2. inspection and testing; 3. equipment operation; and 4. equipment cleanup, maintenance and storage. [3/4" UMATIC...11 min.]

U M Index
Number Description

USN201 *Handling Armatures*
Basic information needed to safely deliver an armature, undamaged, to the appropriate location. Focus on planning, equipment operation, and required safety precautions. [3/4" UMATIC...13 min.]

USN202 *Halocarbon Freon Safety*
This video presents information about the hazards and properties of halocarbon freon. It focuses on the adverse health effects, safe working practices, and personal protective equipment used when working with or around halocarbons. [3/4" UMATIC...15 min.]

USN203 *Non-Nuclear Temporary Services for Submarines*
This videotape presents an overview of non-nuclear temporary services, focusing on the responsibilities of the temporary services manager and the assistant temporary service installation. [3/4" UMATIC...23 min.]

USN204 *Cable/Cableways - Planning Cable Routes*
Segment. 1: Cable Routing Principles. Segment 2: Problem Solving. [VHS or 3/4" UMATIC...16 min.]

USN205 *Hoses for Temporary Services*
This videotape provides information on hose makeup, hydrostatic testing, and dockside-to-shipboard installation. It focuses on hose inspection, installation of fittings, and testing procedures. [3/4" UMATIC...20 min.]

USN206 *Gas Free Monitoring*
This videotape is designed to provide information on the types of confined spaces, gas-free certificates, and safety procedures necessary when working in a confined space. The video focuses on the four classes of confined spaces and equipment used to determine the classification. [3/4 " UMATIC...22 min.]

USN207 *Turbine Technology Part I - Introduction, Disassembly, Inspection & Repair*
These modules, **USN207** and **USN208**, provide the knowledge and demonstrate the skills needed to disassemble, inspect, repair, and reassemble the turbine. They also contains a segment on turbine nomenclature. [3/4 " UMATIC or VHS...56 min.]

USN208 *Turbine Technology Part II - Reassembly*
See **USN207**. [3/4 " UMATIC or VHS...30 min.]

U M Index Number — Description

USN209 *Structural Blueprint Reading (Revised)*
This module is designed to provide basic information on blueprint layout, drawing lines, dimensioning, drawing views, welding symbols, and structural shipbuilding/blueprint terms. This information will give the trainee the knowledge to properly interpret structural blueprints for the purpose of fabricating and assembling various ship structures and foundations. Also included is a blueprint "Skid Foundation, NAVSEA drawing 3745652" and a Training Guide. [3/4 " UMATIC...32 min.]

USN210 *Thread Manufacturing Technology - Machining*
This module presents information and procedures for machining external screw threads in accordance with specifications, given work and technical documents and a blank workpiece. In three segments: Preparing the Blank; Setting Up the Lathe; and Machining the Thread. (Training Guide). [3/4 " UMATIC...19 min.]

USN211 *An Introduction to the Sheetmetal Trade*
This video provides a look at the sheetmetal: cutting, joining, planning, installation, concept in drawings modifications, sketching, patterns, forming, and CAD/CAM. [3/4 " UMATIC...11 min.]

USN212 *Workflow in the Shipfitter Shop*
This module gives a brief description of the different sections of a shipfitter shop: planning, lofting, layout or duplicating, flange turning, machine, assembly, and shipping. It examines each section and describes the type of work it performs and how the workpiece gets from one section to another section. [3/4 " UMATIC...9 min.]

USN213 *Shipwright/Woodcrafter - Sheet Goods Deck Covering*
This module presents information and procedures of old deck cover removal, installation of underlayment, and installation of new sheet goods deck covering. (Training Guide). [3/4 " UMATIC...15 min.]

USN214 *Resurfacing Handhole Seats*
This video shows how to clean seats, inspect for defects, take thickness measurements, and resurface handhole seats. It focuses on the setup and use of the T. C. Wilson handhole seat resurfacing tool. [3/4" UMATIC...15 min.]

USN215 *Welding - Orbital Head Pipe Welding*
This video demonstrates the basic operational steps of Models 215 and 81 welding heads as used on Schedule 80 pipe. [3/4 " UMATIC...17 min.]

USN216 *Rigger - Wire Rope End Fittings - Speltered Sockets*
This video covers material needed, necessary preparations, and procedures for pouring speltered sockets. It also focuses on attaching the end-fittings. Included is the Job Performance Aid: "Pouring Speltered Sockets." [3/4" UMATIC...17 min.]

U M Index Number — Description

USN217 *Wire Rope End Fittings - Rotary Press*
This video provides information and procedures on the installation and limitation of the straight and ball shank terminals on wire rope. It focuses on the uses of a bench rotary press. [3/4" UMATIC...15 min.]

USN218 *Central Tool - Inspecting Hand Tools*
This module provides direction and procedures for inspecting hand tools that are standard, hydraulic, pneumatic and electrical, as well as nuclear and non-nuclear test instruments and gages. Included is the Job Performance Aid: "Inspection of Hand Tools: For Tool Crib Attendants." [3/4" UMATIC...12 min.]

USN219 *Shipwright - Terrazzo Deck Covering*
This video presents information and procedures about the removal of old deck covering, installation of underlay, and installation and repair of terrazzo. It focuses on grinding and smoothing the deck material. (Training Guide). [3/4" UMATIC...20 min.]

USN220 *Introduction to Ball Valve Repair*
This module presents information and procedures of parts identification, methods of repairing, usage limits of the repair methods, and safety for ball valve repair. (Training Guide). [3/4" UMATIC...10 min.]

USN221 *Ball Valves II - Removal, Disassembly, Cleaning and Inspection*
This module presents information and procedures for removal, disassembly, cleaning and inspection of ball valves. (Training Guide). [3/4" UMATIC...15 min.]

USN222 *Ball Valves III - Epoxy Repairs*
This module presents the information and procedures for preparation and repairing ball valves by the three epoxy repair methods: electrostatic epoxy spray; plug molded epoxy or epoxy cold patch; and epoxy bonded shims or bushings. (Training Guide). [3/4" UMATIC...14 min.]

USN223 *Introduction to Wire Rope End Fittings*
This package includes four Job Performance Aids: "Splicing: Liverpool, Marine-Tapered, Lock-Tuck;" Rotary Swaging Machine: Equipment, Layout-Setup;" "Swaging;" and "Seizing." In addition a demonstration diagram of modified Liverpool splicing is included. [3/4" UMATIC...18 min.]

USN224 *Wire Rope End Fittings - Fiege-Type Fittings*
This module shows the general applications of wire rope and glass reinforced plastic fiege-type end fittings. It provides procedures for installing the fittings on common types of wire ropes in the Navy. Included are Job Performance Aids: :"Wire Rope End Fittings: Fiege-Type Fittings" and "Wire Rope End Fittings: Installation of Fiege-Type Fittings for Glass Reinforced Plastic." [3/4" UMATIC...15 min.]

U M Index Number — Description

USN225 *Wire Rope End Fittings - The Swage Press*
This video introduces riggers to the ESCO Mark 75 and 250 swage presses and explains the limitations, maintenance schedule, controls and operation. It also details the step-by-step process of making different sized pennants using one-piece and two-piece duplex sleeves. [3/4" UMATIC...26 min.]

USN226 *Reconditioning and Alignment of Machine Ways - Introduction*
This module describes the common types of machines and their machine ways. It discusses machine way problems and methods used to recondition and align them. The types of ways shown in this package are the dovetail, inverted "T," flat, and the square. (Training Guide). [3/4" UMATIC...12 min.]

USN227 *Electrician - Troubleshooting Motors*
This module provides information and procedures required to properly troubleshoot electrical motors and associated cables. Required equipment is discussed, including test instruments, safety items and the necessary tools, with emphasis on safety precautions. (Training Guide). [3/4" UMATIC...10 min.]

USN228 *Shipwright - Plastic Fabrication*
This module provides information and procedures required to properly apply foam plastic to voids and how to clean up and dispose of the debris after application. It also shows the hazards involved and the safety equipment required when working the foam plastic. (Training Guide). [3/4" UMATIC...16 min.]

USN229 *CASCON - Casualty Control*
This video provides demonstrations on how to report emergencies using the CASCON remote station and how to recognize casualty control signals. It focuses on responsibilities of the person manning the casualty control center and the person reporting the emergency. [3/4" UMATIC...15 min.]

USN230 *Pipefitter - Pipebending 1 and 2, Introduction to Bending Machine Setup*
This module gives information and procedures needed to bend pipe while maintaining an accurate fit. It discusses advantages, terms, tools, and operation of various bending machines. (Training Guide). [3/4" UMATIC...30 min.]

USN231 *Inside Machinist - Graphing for Pump Alignment*
This module provides information and procedures to graph the misalignment in coupled pumps. It covers the rim and face method for vertical and horizontal alignment and the double dial reverse method for vertical alignment. (Training Guide). [3/4" UMATIC...14 min.]

U M Index Number — Description

USN232 *Foreman Training - Project Organization (Revised)*
The first in a five-videotape series (**USN232, USN233, USN282, USN283, USN284**), this video is designed to help the new foreman develop needed supervisory skills and focuses on project organization. Included is the Job Performance Aid: "Facts At A Glance: Information About the Duties of a Shipyard Foreman." [3/4" UMATIC...10 min.]

USN233 *Foreman Training - Project Execution (Revised)*
The second in a five-videotape series (**USN232, USN233, USN282, USN283, USN284**), this video is designed to help the new foreman develop needed supervisory skills and focuses on project execution. [3/4" UMATIC...11 min.]

USN234 *Electrical Safety for Shop 99 Electricians*
These modules, **USN234** and **USN235** present safety requirements for temporary services electricians and include measurement of circuit voltage and the inspection of cableways and connectors. They focus on dockside and shipboard installation of panels, rigs, sets, systems, and stations. (Training Guide). [3/4" UMATIC...14 min]

USN235 *Installing Electrical Systems in Shop 99*
See **USN234.** [3/4" UMATIC...9 min.]

USN236 *Insulator - Insulation Prefabrication Center*
This video provides a demonstration of procedures and functions of the Insulation Prefabrication Center, including cost comparisons showing the man-hours and labor saved by this method. [3/4" UMATIC...10 min.]

USN237 *Shipfitter - Tank/Compartment Testing with Ultrasound*
This module provides information and procedures required to test a chamber for leaks using ultrasound. It also identifies tools and equipment required and demonstrates how to charge the tone generator after use. (Training Guide). [3/4" UMATIC...16 min].

USN238 *Shipfitter - Repairing Watertight Seals on Doors, Hatches, and Scuttles*

This module presents information and procedures for inspection, disassembly, repair, and assembly of doors, hatches, and scuttles. Tools and materials are listed, and each part of the door, hatch, and scuttle is identified. (Training Guide). [3/4" UMATIC...17 min.]

USN239 *Inside Machinist - Coupled Pump Overhaul and Repair*
This module provides information and procedures needed to properly overhaul and repair coupled pumps. (Training Guide). [3/4" UMATIC...16 min.]

U M Index Number	Description

USN240 *Electrical - Troubleshooting Motor Controllers*
This module presents information and procedures to troubleshoot a motor circuit, stop/start control circuit, motor and control cycle circuit, and safety checks of the complete system. (Job Performance Aid). [3/4" UMATIC...10 min.]

USN241 *Welder - Thermal Spray Corrosion Control*
This module presents information, methods, and techniques of thermal spraying for corrosion control. Step-by-step demonstrations cover the thermal spray process. (Training Guide). [3/4" UMATIC...21 min.]

USN242 *Heat Exchanger/Condenser Repair, Part 1*
These modules, **USN242** and **USN243**, present information and procedures to test, remove, and install heat exchanger tubes. They also show a method for inspecting and two methods for cleaning heat exchangers. Part 1 covers: introduction and pre-hydro testing; temporary plugging of a tube and final hydro; permanent plugging of a tube; and cleaning and inspecting. (Training Guide). [3/4" UMATIC or VHS...15 min.]

USN243 *Heat Exchanger/Condenser Repair, Part 2*
See **USN242**. Part 2 covers: Tube Removal; Retubing; and Partial Tube Removal and Replacement. (Training Guide). [3/4" UMATIC...12 min.]

USN244 *Inside Machinist - Submarine Shaft*
This module provides procedures for inspection of main propeller shafts. It is designed as a guideline for shaft inspection and an introduction to main shaft repair. Included is a step-by-step Job Performance Aid: "Main Shaft Inspection." [3/4" UMATIC...13 min.]

USN245 *Rigger - Calculating Volume/Estimating Weight*
This module presents information, procedures, and application of formulas to calculate the weight for large load lifting. It fully discusses sling angles, stress, and strength for safely lifting large loads. (Training Guide). [3/4" UMATIC...17 min.]

USN246 *Shipfitter - People's Process - The Mechanic*
This video shows a system that's been developed to help mechanics increase their performance and productivity. It provides information on what the process is designed to do, how it works, and how it will affect the mechanic's job performance. [3/4" UMATIC or VHS...7 min.]

USN247 *Shipfitter - People's Process - The Manager*
This video shows the people's process and provides information on how it works. It focuses on the basic skills and knowledge needed to be a better people's process manager. [3/4" UMATIC...8 min.]

U M Index Number	Description

USN248 *Polymers - A New Solution to Hotwork Problems*
This video was developed for use by shops that perform hotwork or the cleanup for hotwork. It provides information and procedures on fire tech (fire barriers), and waste tech (chemical and waste cleanup), with examples of use and preparation of both products. [3/4" UMATIC...10 min.]

USN249 *Riggers - Handling Main Turbine Rotors*
This video is designed to provide basic information needed to safely deliver a main turbine rotor, undamaged, to the appropriate location. It focuses on planning, equipment, operation, and required safety precautions. [3/4" UMATIC...8 min.]

USN250 *Inside Machinist - Thread Manufacturing Technology, Gaging with Indicating Gages*
This module provides information and procedures required to set up and measure external threads with indicating thread gages and troubleshoot machining errors, and standards used to manufacture threads. [3/4" UMATIC or VHS...20 min.]

USN251 *Rigging Trade Overview*
This video provides information about jobs and responsibilities of the rigger trade. Some of the major jobs covered are multipoint suspension techniques, hoist engineering, seamanship, and weight handling tests. [3/4" UMATIC...10 min.]

USN252 *Photogrammetry*
This video shows the process of photogrammetry and provides information on how it works. It focuses on four recent jobs completed at naval shipyards. [3/4" UMATIC or VHS...16 min.]

USN253 *Small Boat Safety and Operation*
This video provides information on safely operating and handling a small boat. It covers some basic rules of the road, and boat handling in tides, winds, and currents. [3/4" UMATIC...8 min.]

USN254 *MLSR - Missing, Lost, Stolen, Recovered Program*
Security is everyone's responsibility, and this video outlines sensible procedures to prevent the loss of materials. This video is directed at first line supervisors, who are responsible for filling out the Navy's "Lost Materials Report," the specifics of which are outlined. [3/4" UMATIC...11 min.]

USN255 *Painting with Powder Coating*
This module introduces powder coating painting. The focus is on the procedures for preparing a surface and the application of powder coating. (Job Performance Aid). [3/4" UMATIC...13 min.]

U M Index Number — Description

USN256 *Cleaning and Repairing Respiratory Protective Equipment I - MSA Parts 1 & 2*
This videotape, along with **USN257** and **USN258**, presents information and procedures required to properly inspect, repair, assemble, and clean respirators while focusing on the use of required safety equipment. It also discusses and identifies all parts of seven different respirators. [3/4" UMATIC...23 min.]

USN257 *Cleaning and Repairing Respiratory Protective Equipment I - MSA Parts 3 & 4*
See **USN256**. [3/4" UMATIC...46 min.]

USN258 *Cleaning and Repairing Respiratory Protective Equipment II - Automated Cleaning and Repair Facility*
See **USN256** [3/4" UMATIC...9 min.]

USN259 *Water Jet Cleaning - On-Site Equipment Repair*
This module familiarizes the student with major components of the water jet, and it demonstrates how to make safely inspections. It also shows how to troubleshoot and repair the equipment. [3/4" UMATIC...19 min.]

USN260 *Water Jet Cleaning - Operations and Safety*
This module demonstrates how to set up and operate water jet equipment, run hoses and communication lines, and properly use the cleaning chemicals. It also shows how to water jet a boiler tube and clean internal surfaces of drums and headers while focusing on safe performance of all tasks. (Training Guide). [3/4" UMATIC...16 min.]

USN261 *Pipe Hanger, Manufacturing*
This videotape discusses general types of pipe hangers and demonstrates the procedure used to fashion raw materials into finished pipe hangers. [3/4" UMATIC...12 min.]

USN262 *Pipe Hanger, Installation*
This videotape discusses general types of pipe hangers and demonstrates the procedure to install them at different locations under various conditions. [3/4" UMATIC...9 min.]

USN263 *Pipefitter, Preparing Pipe for Welding*
This module demonstrates how to perform piping weld end preparations. It examines various portable end prepping machines, their capabilities, major parts, setup procedures, and safety features. (Job Performance Aid). [3/4" UMATIC...19 min.]

U M Index Number — Description

USN264 *Mast Fairing - Camouflage Painting*
This videotape discusses general types of safety precautions associated with hazardous materials used with painting mast fairing. It also demonstrates procedures used to inspect, prepare, repair and paint the mast. [3/4" UMATIC...16 min.]

USN265 *Pipefitter - General Shipboard Cleanliness*
This videotape explains how good general shipboard cleanliness helps to reduce fire and safety hazards and systems contamination. It also shows how cleanliness affects control of temporary leads and lines. [3/4" UMATIC...15 min.]

USN266 *Central Tool - Inspection Procedures for Machine Shop Machinery*
This module shows the steps involved in a thorough inspection of a punch machine used with the sheet metal shop. This includes an electrical and a mechanical inspection while following local safety requirements. (Training Guide). [3/4" UMATIC...12 min.]

USN267 *Bearing Mast Technology - Mast Clamps and Rigging Equipment*
This eight part series **USN267**, **USN268**, **USN269**, **USN270**, **USN271**, **USN272**, **USN273**, and **USN274**, provides guidance for the use of various clamps, lifting rigs, megohmmeter, multimeter, special tools, and the TEKTRONIC 1502 TIME DOMAIN REFLECTOMETER. The tapes also cover cable banding, troubleshooting methods, and hydrostatic and vacuum tests to ensure water tight integrity. This information is used to focus on the overhaul of the dash pot and the AN/BRA-24. [3/4" UMATIC...12 min.]

USN268 *Bearing Mast Technology - Torque Theory and Application*
See **USN267.** [3/4" UMATIC...11 min.]

USN269 *Bearing Mast Technology - Cable Protection*
See **USN267.** [3/4" UMATIC...7 min.]

USN270 *Bearing Mast Technology - Resistance and Megger Testing*
See **USN267.** [3/4" UMATIC...9 min.]

USN271 *Bearing Mast Technology - Time Domain Reflectometer*
See **USN267.** [3/4" UMATIC...20 min.]

USN272 *Bearing Mast Technology - Hydrostatic Pressure and Vacuum Testing*
See **USN267.** [3/4" UMATIC...17 min.]

USN273 *Bearing Mast Technology - Special Tools*
See **USN267.** [3/4" UMATIC...13 min.]

USN274 *Bearing Mast Technology - Dash Pot Overhaul*
See **USN267.** [3/4" UMATIC...11 min.]

U M Index Number — Description

USN275 *Fabric Worker - Containment Layout and Fabrication*
This module demonstrates the procedure for layout and fabrication of a containment, which includes zippered access, gloves, and sleeves. (Job Performance Aid). [3/4" UMATIC...19 min.]

USN276 *Shipwright - Mast Fairing Repair*
This module presents information and procedures for repairing damaged areas on a fiberglass mast fairing including the needed equipment, tools, and materials. (Training Guide). [3/4" UMATIC...18 min.]

USN277 *Electrical - Tank Level Indicators*
This module presents information and procedures required to properly test and repair tank level indicators. Major components are discussed thoroughly, and a section on operational checks of transmitters is included. (Training Guide). [3/4" UMATIC...10 min.]

USN278 *Pipefitter - Interpreting a Piping Modification Blueprint*
This module provides detailed instruction for interpreting a piping modification blueprint. It focuses on planning work through discussions on information blocks, a ripout view, and an installation view. (Training Guide). [3/4" UMATIC...12 min.]

USN279 *Rigger - Inspection and Maintenance of Synthetic Fiber Rope*
This module presents information and procedures required to maintain and inspect constructed synthetic fiber and wire rope. It includes information on the equipment, tools, and material used to maintain and inspect the ropes. To be used in conjunction with **USN292**. (Training Guide). [3/4" UMATIC...20 min.]

USN280 *Hazardous Waste Minimization*
This video is designed to be shown to employees throughout the naval shipyard community with a follow-up discussion on methods, techniques and instruction/information regarding your shipyard HWM program. The video focuses on several techniques/methods now in use by the naval shipyards to minimize generation of hazardous waste. [3/4" UMATIC...23 min.]

USN281 *Naval Shipyard Industrial Process Improvement*
This videotape provides information on the value of industrial process improvement for naval shipyards. In today's competitive environment, it is vital that naval shipyards respond to the driving forces of safety, schedule, quality, and cost reduction. Successes of process improvement are documented. [3/4" UMATIC...19 min.]

USN282 *Foreman Training - Looking at the Big Picture*
This tape is the third in a five-videotape series (**USN232, USN233, USN282, USN283, USN284**). The series is designed to help the new foreman with needed supervisory skills and necessary duties. [3/4" UMATIC...15 min.]

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USN283 *Foreman Training - Communication Skills*
This tape is the fourth in a five-videotape series. See **USN282.** [3/4" UMATIC...16 min.]

USN284 *Foreman Training - Administrative Duties*
This tape is the last in a five-videotape series. See **USN282.** [3/4" UMATIC...18 min.]

USN285 *Rigger - Inspection Testing and Stroage of Rope and Rigging Gear*
This videotape provides information and procedures on the inspection, testing, and storage of rigging gear. It focuses on fiber and synthetic rope. [3/4" UMATIC...15 min.]

USN286 *Inside Machinist - Close-Coupled Pump Overhaul*
This module provides information and procedures for overhauling close-coupled pumps. It covers the sequence of overhaul steps and demonstrates some repair work that may be required. (Training Guide). [3/4" UMATIC...22 min.]

USN287 *Marine Machinist - Repair of Series 500 High-Pressure Emergency Main Ballast Tank (E.M.B.T.) Valves*
This module provides information and procedures for the disassembly, inspection, repair, and reassembly of the 500 series HP E.M.B.T. valves. It includes an introduction to required documentation. (Training Guide). [3/4" UMATIC...27 min.]

USN288 *Shipfitter - Riveting*
This module provides information and procedures on riveting an angle iron plate and a bulkhead plate together. Caulking riveted seams of the two plates and testing for watertightness complete the process. (Training Guide). [3/4" UMATIC...10 min.]

USN289 *Shipfitter - Introduction to the Shipfitter Trade*
This video provides a promotion video of the shipfitter trade with scenes on photogrammetry, quality improvement, blueprint reading, CAD/CAM, technical excellence, and various other shipfitter trades. [3/4" UMATIC...12 min.]

USN290 *Shipfitter - Crane Overload Protection*
This video is designed to create awareness among responsible shipyard personnel of crane overload problems and methods available for protecting against overloading. It focuses on several inexpensive alarm devices. [3/4" UMATIC...10 min.]

USN291 *Temporary Services - Installation of Shore Power Systems*
This video provides information and installation procedures for the following types of shore power: surface craft, normal and alternate, super and D.C. [3/4" UMATIC...19 min.]

U M Index Number — Description

USN292 *Rigger - Maintenance and Inspection of Wire Rope*
This video presents information and procedures required to maintain and inspect wire rope and should be used in conjunction with **USN279.** It includes information on the equipment, tools and material used to maintain and inspect the rope. [3/4" UMATIC...16 min.]

USN293 *Gas Tungsten Arc Welding of Carbon Steel Pipe*
This video provides information and procedures on gas tungsten arc welding of carbon steel pipe. It discusses the manual straight process and shows how the weld puddle should appear during and after process. [3/4" UMATIC...16 min.]

USN294 *Central Tool - Calibrating of Micrometer Depth Gauges*
This module demonstrates how to inspect, test, disassemble, reassemble, and properly secure the micrometer depth gauge. It also presents the correct preparation of the work area, including environmental control. It focuses on the use of a checklist which includes test points and tolerances. [3/4" UMATIC...15 min.]

USN295 *Machinist - Shop 31 Automation - Computer Numerical Control Systems*
This video discusses computer Numerical Control (NC) Systems being established in Shop 31. This videotape introduces new NC milling and turning machinery by demonstrating how one NC machine works and comparing it to the productivity of traditional manual machinery. [3/4" UMATIC...8 min.]

USN296 *Surface Mount Technology - Introduction*
This video gives a general look at surface mount technology (SMT), what it is, what it can do, and how it is used in the Navy. To be used in conjunction with **USN297.** [3/4" UMATIC...24 min.]

USN297 *Surface Mount Technology - Gearing Up*
This video gives an introductory look at equipment and methods needed to repair electronic equipment that uses SMT. It briefly focuses on test equipment, conductive and convective soldering techniques, and how replacement SMT boards can be designed using computer aided design and manufacturing equipment. **USN296** offers an introduction to the subject of SMT. [3/4" UMATIC...17 min.]

USN298 *Sheet Metal - Grinding, Buffing, and Polishing*
This video demonstrates methods used with different tools to grind, buff, and polish various metals. Safety practices are constantly stressed. [3/4" UMATIC...11 min.]

U M Index
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USN299 *Shipfitter - Lineheating*
This module provides training in bending Grade-A curvatures by line heating. It includes a step-by-step procedure on compound bending and details on the use of templates and special markings. [3/4" UMATIC...53 min.]

USN300 *Electrical - General Electric MK 68 Train Type Amplidyne Test - Part I*
This module provides an overview of the videos which comprise the package and provides information and procedures for testing General Electric's MS 68 Train Amplidyne, **USN301**, **USN302**, **USN303**, and a study guide. This package discusses types of test equipment and their use, resistance and running checks, load and quadrature axis test, gain under load, and residual voltage test. A section on inspecting and adjusting the commutor and brush assembly is included. (Study Guide). [3/4" UMATIC...16 min.]

USN301 *Electrical - General Electric MK 68 Train Type Amplidyne Test - Part II*
See **USN300.** [3/4" UMATIC...19 min.]

USN302 *Electrical - General Electric MK 68 Train Type Amplidyne Test - Part III*
See **USN300.** [3/4" UMATIC...12 min.]

USN303 *Electrical - General Electric MK 68 Train Type Amplidyne Test - Part IV*
See **USN300.** [3/4" UMATIC...20 min.]

USN304 *Overhauling Electrostatic Precipitators, Part I*
This module, along with **USN305**, provides information and procedures on disassembly, reassembly, testing troubleshooting, and repair of electrostatic precipitators while focusing on proper safety precautions. (Job Performance Aid: troubleshooting chart, ionizer) [3/4" UMATIC...14 min.]

USN305 *Overhauling Electrostatic Precipitators, Part II*
This module, along with **USN304**, provides information and procedures on disassembly, reassembly, testing troubleshooting, and repair of electrostatic precipitators while focusing on proper safety precautions. [3/4" UMATIC...13 min.]

USN306 *Comparing Welding Processes*
This module provides a thorough comparison of the listed welding processes: SMAW, FCAW semi-automatic, GMAW semi-automatic, and GTAW. It includes the cost of labor and overhead, shielding gas, and electric power. (Includes *Major Welding Processes Cost Comparison Chart*) [3/4" UMATIC...12 min.]

U M Index Number	Description

USN307 *Hand-Held Plasma Cutting I- Introduction*
This module, **USN307** and **USN308** provides information on plasma cutting advantages and applications, and describes its operation and differences from similar cutting processes. The package also shows procedures for equipment setup and operation, emphasizing good safety practices. (Job Performance Aid: Hand-Held Plasma Arc Cutting Chart). [3/4" UMATIC or VHS...16 min.]

USN308 *Hand-Held Plasma Cutting II - Basic Operation*
See **USN307**. [3/4" UMATIC or VHS...17 min.]

NEW **USN309** *Temporary Service - Freeze Protection*
This videotape provides information on installing and monitoring freeze protection devices in enclosures, and ship space heating. Three types of steam heating, various electric heaters, and three types of fluid system protection are discussed thoroughly. [3/4" UMATIC...23 min.]

NEW **USN310** *Quality Improvement Process (Generic)*
(Training Guide). [3/4" UMATIC...40 min]

NEW **USN311** *Sheetmetal - Switchboard Spray-Tight Shielding*
This module is not releasable to foreign nationals. This module provides information and procedures concerning spray-tight shielding of submarine switchboards. It includes inspections, repair steps, installation of new gaskets and reassembly. (Job Performance Aid). [3/4" UMATIC...10 min.]

NEW **USN312** *Rigger - Material Handling - Fork Lift Safety and Operation*
This videotape provides information about material handling and lifting techniques, plus forklift safety and operations. It covers load and weight distribution, load positioning, and some securing devices. Safely moving and storing material with a forklift are thoroughly covered. [3/4" UMATIC...11 min.]

NEW **USN313** *Shipfitter - Foundation Installation*
This module demonstrates how to install a foundation and provides information on the three stages of this task. It focuses on areas most likely to cause rework, such as improperly established reference lines, inadequate foundation scribing, and careless blueprint reading. (Job Performance Aid). [3/4" UMATIC...19 min.]

NEW **USN314** *Central Tool - Calibrating Torque Wrenches*
This module provides information and procedures on calibrating torque wrenches, including precalibration inspection, selection and setup of test equipment, calibration procedures, and final inspection. (Training Guide). [3/4" UMATIC...14 min.]

U M Index Number	Description

NEW **USN315** *Shipwright - Bilge-Block Fabrication*
This module demonstrates how to fabricate a bilge block. This includes information on layout and shaping a block cap and proper use of docking plans. (Training Guide). [3/4" UMATIC...16 min.]

NEW **USN316** *Central Tool - Calibrating Vernier Calipers*
This module provides information and procedures on calibrating vernier and dial calipers, including preliminary setup, vernier scale zero test, outside dimension test, and depth gauge test. (Training Guide: *Calibrating Vernier and Dial Calipers*). [3/4" UMATIC...13 min.]

NEW **USN317** *Pulse Purge Welding*
This module demonstrates a new pipe-welding technique. It includes a step-by-step procedure on how to set up and use equipment associated with pulse purge welding. (Job Performance Aid). [3/4" UMATIC or VHS...12 min.]

NEW **USN318** *Inside Machinist - EDM Wire Machines*
This videotape provides information on two Electrical Discharged Machining (EDM) Systems used at Long Beach Naval Shipyard since 1989: wire-cut and plunge-cut. It shows the operation of the equipment and explains how special attachments and fixtures fabricated or manufactured by Long Beach mechanics are used. [3/4" UMATIC... 19 min.]

NEW **USN319** *Boiler - Bottom Blow Nozzle Replacement*
This module provides information and procedures needed to remove and replace bottom blow nozzles. It includes information on the tools and equipment required for the job. (Training Guide). [3/4" UMATIC... 8 min.]

NEW **USN320** *Painter - Hazardous Waste Minimization - Solvent Reclamation*
This module provides instruction on the operation of a reclamation plant to recycle solvents used by painters in the shipyard. The solvent reclamation process is described, and operations such as installing the Stilbag nylon liner and filling and sealing the boiling chamber are covered. (Training Guide). [3/4" UMATIC or VHS...14 min.]

NEW **USN321** *Sheetmetal - Delivering the Goods*
This module provides procedures necessary to properly groom ventilation systems. This includes information on how to visually inspect, repair, and replace items that are damaged, missing and misaligned. It also shows how to complete the required forms and reports. (Training Guide: *Sheetmetal - Grooming Ventilation Systems, Systems Certification*). [3/4" UMATIC...13 min.]

U M Index Number	Description

NEW **USN322** *Pipefitter - Pipe System Inspection and Certification*
This module shows a pipe shop mechanic performing inspections to ensure the job is ready for formal testing and Quality Assurance inspections. (Job Performance Aid). [3/4" UMATIC...10 min.]

NEW **USN323** *Painter - Maintaining Bilge Space Integrity*
This module provides demonstrations and discussions to confirm the Paint Shop's lead role in bilge space integrity and shows how this integrity can be easily maintained. (Module includes Awareness Posters and a Job Performance Aid). [3/4" UMATIC...7 min.]

NEW **USN324** *Boiler - Hydroblast CHT Piping*
This module provides an instructor guide with transparency masters and a student guide that provides the student with information and procedures required to properly and safely hydroblast CHT piping systems. This course does not qualify the student to operate a hydroblast pump. (Instructor and Student Guide Only, no videotape)

NEW **USN325** *Shipwright - Edge-Bleed Vacuum Bag*
This module provides information needed to fabricate molded fiberglass laminates by using the edge-bleed vacuum bag procedure. (Training Guide). [3/4" UMATIC...15 min.]

NEW **USN326** *Shipwright - Shipyard Cleanliness - Choices*
This videotape is designed to make the viewer aware of the importance of keeping a clean workplace. It focuses on production delays and increased costs that are a result of a cluttered workplace. It also shows how the Navy has a choice in where a ship is taken for repair or overhaul. [3/4" UMATIC or VHS...9 min.]

NEW **USN327** *Protection of Insulation to Prevent Rework*
This videotape is designed to inform all shipyard workers of the importance of protecting insulation from damage during shipboard repairs. It focuses on ways in which insulation can be damaged and how this damage can be prevented. [3/4" UMATIC...13 min]

NEW **USN328** *Rigging - Proper Use of Web Slings*
This module provides general information about the proper use of web slings and the care required to extend their service life. (Job Performance Aid). [3/4" UMATIC...17 min.]

NEW **USN329** *Sheet Metal - Blind Drilling*
This module provides information on how to prepare for drilling into a blind area. It also demonstrates some equipment used to prevent unnecessary drill bit penetration. (Training Guide). [3/4" UMATIC... 9 min.]

U M Index Number — Description

NEW **USN330** *Inside Machinist - Rolling and Polishing Internal Bores*
This videotape demonstrates a procedure for rolling and polishing internal bores. It includes information for fabricating the tool used for this process. [3/4" UMATIC...11 min.]

NEW **USN331** *Sheet Metal - Sanding and Grinding Operations Shipboard*
This videotape describes various problems associated with sanding and grinding operations aboard ship, and what efforts and recommendations have been made by Process Improvement Teams (PIT) at Mare Island Naval Shipyard. Emphasis is on management and workers working together to reduce airborne debris and increase productivity. [3/4" UMATIC...11 min.]

NEW **USN332** *Electrical - Vacuum Pressure Impregnation Process*
This module demonstrates a procedure on vacuum pressure impregnation of a motor stator. This process is performed to protect shipboard motors from wet or damp conditions. An A.C. motor is used for the demonstration, but with only slight variations the procedure can be applied to any motor. The procedures shown should not be performed by any facility that has not been certified by NAVSEA (SEA 56Z21) in accordance with the requirements of MIL-STD-2037 of 26 July 1991. A copy of MIL-STD-2037 is included. [3/4" UMATIC...23 min.]

NEW **USN333** *Submarine Drydocking Procedure*
This module is not releasable to foreign nationals. This module discusses and demonstrates Temporary Services' responsibilities during a submarine drydocking. It focuses on motivating all involved Temporary Services' personnel to perform their jobs to the best of their ability and to do them with pride. (Job Performance Aid). [3/4" UMATIC...10 min.]

NEW **USN334** *Rigging - Safe Rigging Practices I*
This videotape is designed to familiarize personnel in the rigging trade with basic safety rules and practices. It is to be used with **USN335**. [3/4" UMATIC...17 min.]

NEW **USN335** *Rigging - Safe Rigging Practices II*
This module is designed to familiarize personnel in the rigging trade with basic safety rules and practices. It includes demonstrations of the dos and don'ts of rigging a job. To be used with **USN335**. (Training Guide). [3/4" UMATIC...10 min.]

NEW **USN336** *Shipwright - Water Jet Cutting System*
This videotape provides information about the operating theory of the water jet cutting systems, its components, and skills and knowledge required of the operator. It also lists the benefits and limitations of this system. [3/4" UMATIC...16 min.]

U M Index Number — Description

NEW **USN337** *Rigging - Fabric Worker, An Overview*
This videotape describes the fabric worker trade and takes the viewer through the steps in creating various projects. It also looks at various tools and machinery used in the trade, skills and knowledge required, and the different environments associated with the fabric worker's job. [3/4" UMATIC...10 min.]

NEW **USN338** *Ship's Service Motor Generators*
This videotape describes troubleshooting and failure analysis of ship's service motor generators. It includes types and causes of problems, ways they compromise the component part, and methods of repairing the trouble. [3/4" UMATIC...30 min.]

NEW **USN339** *Painting - Bilge Space Preservation*
This module describes procedures and methods of ensuring bilge space preservation and reducing rework. It focuses on the importance of trade cooperation, discussion of paint zones, paint removal masking, paint mixing, cure time, ventilation, and safety. (Job Performance Aid booklet included). [3/4" UMATIC...17 min.]

NEW **USN340** *Boilermaker - Boiler Tube Remover*
This module shows various methods of removing boiler tube stubs. These include the flat chisel and gouge method, safety ripping cutter method, and the weld shrink bead method. (Job Performance Aid booklet included). [3/4" UMATIC...18 min.]

NEW **USN341** *Electrical Safety for Shipboard Electricians*
This module shows various reasons for electrical accidents, such as: unauthorized modification of equipment, improper methods of testing equipment, and mechanical failures. It also focuses on the use of safety precautions. [3/4" UMATIC...19 min.]

NEW **USN342** *Electrical - Cable/Cableways - Hangers*
This videotape covers the types of hangers used on board ships, how to select the correct hangers, and how to install the selected hangers on cable runs. The tape has been revised to reflect 1991 changes in the DOD Standard 2003 Electric Plant Installation Methods. [3/4" UMATIC...14 min.]

NEW **USN343** *Electrical - Cable/Cableways - Dead-Ending Cable*
This videotape demonstrates and explains the step-by-step process of properly endsealing any dead-ended cable. The tape has been revised to reflect the 1991 changes in the DOD Standard 2003 Electric Plant Installation Methods. [3/4" UMATIC...8 min.]

U M Index Number	Description

NEW **USN344** *Electrical - Cable/Cableways - It Happened to Others, It Could Happen to You*
This videotape is designed to encourage ships' force to learn how to identify potential cable/cableways problems, and to promote incentive to learn how to correct them before disaster occurs. The tape has been revised to reflect 1991 changes in the DOD Standard 2003 Electric Plant Installation Methods. [3/4" UMATIC...4 min.]

NEW **USN345** *Electrical - Cable/Cableways - Repairing Insulation Damage*
This videotape looks at the kind of insulation damage that often occurs on board ship, causes, and methods to prevent the damage. The tape has been revised to reflect 1991 changes in the DOD Standard 2003 Electric Plant Installation Methods. [3/4" UMATIC...16 min.]

NEW **USN346** *Boiler - Burner Front Casing Repairs*
This booklet provides information for repairing and inspecting burner front casings. It includes charts, diagrams, and specifications required to perform this work. (Job Performance Aid only).

NEW **USN347** *Rigging - Installation of Work Platforms*
This module demonstrates the proper procedure for installation of work platforms. The video takes the viewer through each procedure and the safety of the installation. (Job Performance Aid "Rigging Calculations" included). [3/4" UMATIC...12 min.]

NEW **USN348** *Shipfitting - Theodolites, Aiming for Pinpoint Accuracy*
This videotape demonstrates the use of theodolites. It also shows that by adding a computer to the work station allows the operator to gather data with greater speed and have the results before leaving the work site. [3/4" UMATIC or VHS...16 min.]

NEW **USN349** *Marine Machinist - Principles of Portable Machining - Drilling*
This videotape demonstrates the proper procedure for drilling and tapping a hole with a portable drilling machine. It constantly stresses safety precautions. [3/4" UMATIC...8 min.]

NEW **USN350** *Marine Machinist - Principles of Portable Machining - Tool Selection and Use*
This videotape shows the viewer how to select the correct type of tool and discusses various factors involved in the proper tool setup. It also demonstrates how to achieve the desired cutting action. [3/4" UMATIC...8 min.]

NEW **USN351** *Electrical - Cable /Cableways, Multicable Penetrators*
This videotape demonstrates how to install a multicable transit and multiplug and how to add cable to an existing multicable penetrator. The tape has been revised to reflect 1991 changes in the DOD Standard 2003 Electric Plant Installation Methods. [3/4" UMATIC...28 min.]

U M Index Number	Description

NEW **USN352** *Welding - Submerged Arc Welding*
This videotape demonstrates the submerged arc welding process by welding a "T" joint using three-quarter-inch plates that have been tack welded previously. It includes information on the submerged arc welding machine. [3/4" UMATIC...8 min.]

NEW **USN353** *Sheet Metal - Manufacturing a Feed/Condensate Pump Strainer Assembly - Part 1*
This videotape, along with **USN354**, provides steps and information required to fabricate a feed/condensate pump strainer. The steps included are for planning, layout, shearing, clamping, welding, silverbrazing, final assembly, cleaning, and inspection. [3/4" UMATIC...18 min.]

NEW **USN354** *Sheet Metal - Manufacturing a Feed/Condensate Pump Strainer Assembly - Part 2*
See **USN353.** (Training Guide included). [3/4" UMATIC...53 min.]

Appendix

AVMAST Library Borrowing Policies

1 All orders are to include a check or money order made payable to the University of Michigan.

2 Borrowing fees are $15.00 for each module with a separate Index Number.

3 The borrower is allowed to borrow either two individual films or tapes or one video-series at a time, unless special arrangements have been made.

4 The borrowing period is twenty-one (21) calendar days from the date the film is sent from this office.

5 All material will be sent by standard insured parcel post. If express delivery is required you will be responsible for the additional shipping costs involved.

6 The borrower is responsible for all return shipping costs pertaining to borrowed AVMAST material.

7 The borrower is required to insure each module for $500.00 when returning it to the AVMAST Library.

8 A late fee of $15.50 per week, per module will be assessed if no acceptable reason for the late return of an item is furnished by the borrower.

AVMAST
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EDUCATION AND TRAINING PANEL (SP-9)
-VIDEOTAPE AND FILM LIBRARY-

AVMAST REQUEST FORM:

You may borrow two (2) videotapes or films or training courses, or one (1) video-series at a time for a period of twenty-one (21) days (unless special arrangements have been made). To cover shipping and handling costs, there is a charge of $15.00 per module (charges for training courses will depend on the number of copies ordered). If you wish to have the module converted to a different format, and borrow it, the all inclusive charge will be: to VHS, $30; to BETA, $30; to 3/4" UMATIC, $75. Please include payment with this order form.

****

Please send me the following visual aids:

U of M Index Number	Title	Format Needed
1.		
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Send to: Name _____

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Address (be sure to include **street address** for delivery)

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I have read and understand the "AVMAST Library Borrowing Policies" on p. 84 of the catalogue, and have enclosed $_____ to cover shipping and handling fees associated with my request.

All checks should be made payable to The University of Michigan.

Signature_____
Telephone Number_____

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Return this form to:
Transportation Research Institute
University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109-2150
Attn: AVMAST Library Coordinator
Phone: (313) 936-1051

AVMAST
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Transportation Research Institute
University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109-2150
Attn: AVMAST Library Coordinator
Phone: (313) 936-1051

Order Form: Basic Naval Architecture Video Lecture Course

Please check the following:

o I would like to purchase a complete set of the 45-tape video series *Basic Naval Architecture.* Enclosed is a check or purchase order made out to the University of Michigan in the amount of $3375.00.*

* This price is based on videotapes in 1/2" VHS format. Please call our office if you have other format requirements.

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o I would like to purchase individual tapes from the video lecture series, *Basic Naval Architecture,* at a cost of $100 per tape.*

Enclosed is a check or purchase order made out to the University of Michigan in the amount of _____ to purchase _____ (number of) tapes. I have attached a listing of the videotapes I wish to purchase.

* This price is based on videotapes in 1/2" VHS format. Please call our office if you have other format requirements.

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o I would like to purchase the textbook, *Modern Ship Design,* Second Edition, 1977, Thomas C. Gillmer, United States Naval Institute, Annapolis, MD 21402. (This textbook is an integral part of the course and may be purchased directly from the publisher or through our office. It is used for assigned readings and problem-solving. The cost is $21.95 per book.)

Enclosed is a check or purchase order made out to the University of Michigan in the amount of _____ to purchase _____ (number of) books.

The video course should be shipped to:

Name: _____

Address: _____

_____

_____

Phone: _____

The videotapes and accompanying materials will be shipped UPS. Please allow four weeks for delivery. Special arrangements should be made if express delivery is required.

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Return this order form to:

UMTRI
Marine Systems Division
2901 Baxter Road
Ann Arbor, MI 48109-2150
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National Shipbuilding Research Program Newsletter

The *NSRP News* is a free quarterly newsletter, published by the Education and Training Panel, designed to inform its readers of current events and new technology important to the United States shipbuilding and ship repair industry. We would welcome your suggestions for feature articles, conferences, course offerings, etc. Please let us know if we have your correct name and address. We would also appreciate your suggestions for names to add to our mailing list. Please fill out the form below, or pass it on to one of your colleagues, or call (313) 936-1051.

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Name:_____.
Title:_____.
Organization:_____.
Address:_____.
City_____.
State_____ Zip_____.

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Name:_____.
Title:_____.
Organization:_____.
Address:_____.
City_____.
State_____ Zip_____.

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ORDER FOR WORK AND SERVICES–NAVCOMPT FORM 2275 (2-81) S/N 0104-LF-702-2750 Page 1 of Pages

1. THIS ORDER MUST BE ACCEPTED ON A REIMBURSABLE BASIS ONLY AND IS SUBJECT TO THE CONDITIONS LISTED ON THE REVERSE SIDE.	2. DOCUMENT NUMBER

3. REFERENCE NUMBER	4. FUNDS EXPIRE ON	5. WORK COMPLETION DATE	6. DATE PREPARED	7. AMENDMENT NO.

8. FROM:	9. FOR DETAILS CONTACT:

10. TO: UIC	11. MAIL BILLINGS TO:

12. ACCOUNTING DATA TO BE CITED ON RESULTING BILLINGS

A. ACRN	B. APPROPRIATION	C. SUB-HEAD	D. OBJ. CLASS	E. BU. CONTROL	F. SA	G. AAA	H. TT	I. PAA	J. COST CODE	K. AMOUNT

L.	TOTAL THIS DOCUMENT	
M.	CUMULATIVE TOTAL	

13.

THIS ORDER IS ISSUED AS A ☐ PROJECT ORDER ☐ AN ECONOMY ACT ORDER AND IS TO BE ACCOMPLISHED ON A ☐ FIXED PRICE ☐ COST REIMBURSEMENT BASIS. WHEN THE FIRST BLOCK IS CHECKED, THIS ORDER IS PLACED IN ACCORDANCE WITH THE PROVISIONS OF 41 U.S. CODE 23 AND DOD DIRECTIVE 7220.1. THE FOLLOWING SUPPLEMENTARY ITEMS ON REVERSE ALSO APPLY AND ARE AN INTEGRAL PART OF THIS ORDER:

14. DESCRIPTION OF WORK TO BE PERFORMED AND OTHER INSTRUCTIONS

15. I CERTIFY THAT THE FUNDS CITED ARE PROPERLY CHARGEABLE FOR THE WORK OR SERVICES REQUESTED.	AUTHORIZING OFFICIAL (NAME, TITLE AND SIGNATURE)	DATE

16. THIS ORDER IS ACCEPTED AND THE WORK OR SERVICES WILL BE PROVIDED IN ACCORDANCE HEREWITH.	ACCEPTING OFFICIAL (NAME, TITLE AND SIGNATURE)	DATE

CONDITIONS/INSTRUCTIONS GOVERNING USE OF THIS FORM AND SUPPLEMENTARY ITEMS TO BE CONSIDERED AN INTEGRAL PART OF THIS ORDER

CONDITIONS/INSTRUCTIONS GOVERNING USE OF THIS FORM:

This form will only be used for requesting work and/or services. This form will not be used for requesting local purchases, contractual procurement, or material from stock. The purchase/procurement, or requisitioning from stock, of material incident to the performance of this order, however, is permissible.

Note: Requests for the purchase or contractual procurement of material or services will be accomplished through the use of Request for Contractual Procurement, NAVCOMPT FORM 2276 (2-81).

Requests for standard and/or non-standard stock available within the U.S. Government will be accomplished through the use of DOD Single Line Item Requisition System Documents (DD Form 1348 and/or 1348-6, as appropriate).

SUPPLEMENTARY ITEMS:

1. Written acceptance of this order is required and will be accomplished by completing Block 16 on one copy of this order and returning it to the requesting activity cited in Block 8. Acceptance must be on a reimbursable basis only.

2. Amounts authorized by this document have been reserved by the requesting activity and will be obligated upon receipt of the acceptance copy of this document.

3. Amounts authorized by this document are subject to 3679, R. S. and may not be exceeded. Additional funds, if required, will be requested from the activity cited in Block 8. Approval of such requests will be accomplished by the requesting activity through the issuance of an amendment to this document, appropriately reflecting the amount of additional funds being provided.

4. The funds authorized by the document are available for obligation by the performing activity cited in Block 10 until the date indicated in Block 4, or Block 5, as appropriate. Funds not actually obligated by the performing activity by that date will be returned to the requesting activity via Status of Reimbursable Orders of similar acceptable form.

5. Extension of the work completion date cited in Block 5 of this order, if required, must be requested in writing and is subject to the approval of the requesting activity cited in Block 8. Approval of such requests will be accomplished by the requesting activity through the issuance of an amendment to this document, citing the work completion date.

6. This order is issued as a Project Order, as indicated in Block 13, and is placed in accordance with 41 U.S. Code 23 and DOD Directive 7220.1 (Regulations Governing the Use of Project Orders). Performance of the work and/or services requested must be accomplished in accordance with these same statutes and regulations.

7. Billings will normally be submitted by the performing activity on a monthly basis unless specifically stated in Block 14.

8. This order is placed pursuant to the Economy Act (31 U.S.C. 686) and will be performed in accordance therewith.