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MILITARY SPECIFICATION

PUBLICATIONS, PLANNED MAINTENANCE SYSTEM, FOR TRAINING DEVICES

This specification is approved for use within Naval Air Systems Command of the Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for the development and preparation of Planned Maintenance System (PMS) publications for training devices.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standard. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

MILITARY

MIL-M-38784 - Manuals, Technical; General Style and Format Requirements

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Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Naval Training Systems Center, Code 4323, 12350 Research Parkway, Orlando, FL 32826-3224 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N4618 TMSS

MIL-M-38790 - Printing Production of Technical Manuals General Requirements for.

MIL-M-85337 - Manual, Technical; Quality Assurance Program, Requirement for.

STANDARDS

MIL-STD-12 - Abbreviations for Use on Drawings, Specifications, Standards, and in Technical Documents

(Copies of specifications, standards, handbooks, drawings, publications and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards) the text of this document shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The PMS publications shall provide general and specific instructions required to perform planned maintenance for training devices. The system consists of a series of maintenance requirements that provide a basis for planning, scheduling, and executing scheduled maintenance. Coverage shall be included for vendor procured equipment components, and for operational equipment components unless otherwise specified herein or by the procuring activity. The PMS publications shall consist of Maintenance Requirement Cards (MRCs) (see 3.1.2.1) and a Sequence Control Chart (SCC) (see 3.1.2.2) and shall be prepared in accordance with this specification. Manuscript and reproducible copy shall be delivered as specified in the contract.

3.1.1 Scope of planned maintenance. Planned maintenance pertains to scheduled preventive-type maintenance rather than corrective maintenance. The MRCs shall contain all procedures and instructions required for performance of scheduled maintenance on a training device, and list any special tools and test equipment, consumable material, and replacement parts necessary to perform such maintenance. Performance standards and procedures including key acceptance criteria of those contained in Test Procedures/Factory Acceptance Procedures Reports that will provide a basis for evaluating equipment condition, shall be included. Troubleshooting, repair standard shop practices, and other strictly corrective-type maintenance procedures shall not be included as part of planned maintenance. Theoretical explanations of the equipment except as required in cautions or warnings shall also be excluded.

The scope of the planned maintenance shall not exceed the maintenance concept of the contract. The SCC shall graphically display the sequencing of all planned maintenance actions described in the MRCs.

3.1.2 General manner of preparation. Except as otherwise specified herein, preparation shall be in general accordance with MIL-M-38784.

3.1.2.1 MRC preparation. MRCs shall be prepared for 1:1 printing on preprinted forms supplied by the procuring agency. The image area, centered on the card, shall be 4-1/2 by 7-1/2 inches. On classified supplemental MRCs (see 3.2.1.9), the height of the image area, including security classification markings, shall not exceed 4-1/2 inches. Type size and face shall be the same as or similar to that shown in figures 1 through 25, with 9-point minimum type size. (Note that the figures are enclosed with dashed lines representing the outside edges of the card being illustrated.) Each new MRC procedure shall begin on a new card, followed by the continuation cards as needed until the MRC procedure is completed. See 3.2.1.10 for MRC numbering and 3.1.7 for for preparation of illustration.

3.1.2.1.1 Manuscript. Manuscript copy shall be prepared and submitted on preprinted forms.

3.1.2.1.2 Reproducible copy. Reproducible copy shall be prepared and submitted on preprinted forms.

3.1.2.2 SCC preparation. The SCC shall be prepared for printing on one side only. Minimum size of the chart shall be 20 by 24 inches and maximum size shall be 30 by 36 inches. The size of the SCC shall be determined by the complexity of the device and the number of MRC procedures involved. The image area shall be sized to allow a 3/4-inch border on all sides of the chart. Type size and font shall be the same as or similar to that shown in figure 26. Manuscript copy and reproducible copy shall be full size black on white.

3.1.2.3 Changes and revisions. Changes and revisions to existing PMS publications shall be ordered by the contracting/procuring activity to reflect maintenance requirements and improve text or illustrations.

3.1.2.3.1 Changes. A change is any alteration of the PMS publications already in existence accomplished by replacement, addition, or deletion of cards, but not in sufficient number to require a revision.

3.1.2.3.1.1 Change symbols. Changes to the MRC text shall be indicated by a 1/16-inch vertical line approximately 1/16-inch to the right of the image area margin (figure 16). Symbols shall indicate only those changes made in the current change. Changes to the SCC shall be indicated by shading of the applicable blocks (figure 26). Illustration changes shall be made in accordance with the requirements of MIL-M-38784.

3.1.2.3.1.2 Change number and data. The latest card change number, followed by the date of the change shall be located just above the upper

right-hand card border (figures 10 and 11) of each changed MRC. For the Title Page, the latest change number and date shall be located just below the original date of the PMS publications (figure 1).

3.1.2.3.2 Revisions. A revision shall be necessary when the cumulative total cards affected in a particular card set, including the current changes, plus cards affected by previous changes, total 60 percent or more of the total cards in the card set.

3.1.3 References to other publications. PMS publications shall include all procedures and illustrations required for performance of planned maintenance. When specifically approved by the contracting/procuring activity, referencing may be permitted but only in cases where data can be better presented by reference. When referencing is authorized, the MRC text for each task shall identify the specific paragraphs, procedural steps, and illustrations in the referenced publication. The referenced publication shall be included in the Test Equipment, Parts, Materials, and Special Tools List on the MRC for each task for which referencing is required. Only those publications included in the procured Technical Data Support Package (TDSP) shall be referenced. References to technical manuals supporting operational equipment components of a training device shall be permitted only upon approval by the contracting/procuring activity.

3.1.4 Publication numbers. The MRCs, supplemental classified MRCs, and associated SCC shall be identified by publication numbers (NTSC P-XXXX) and dates assigned by the contracting/procuring activity.

3.1.5 Abbreviations. The use of abbreviations shall be held to a minimum. Abbreviations used shall be in accordance with MIL-STD-12 where applicable or shall be in consonance with applicable approved source data such as device maintenance manuals.

3.1.6 Nomenclature. Hardware nomenclature shall be consistent within the PMS with what is used in device maintenance manuals.

3.1.7 Illustrations. Illustrations shall be prepared in accordance with MIL-M-38784. Where practicable, they shall be identical to those used in the maintenance manuals and shall be utilized for multiple application. Figure numbers shall be omitted. Titles, where applicable, shall clearly identify the illustrations and shall be located on the card immediately above the illustration. The illustration shall immediately follow the text that describes the maintenance procedure which requires illustration.

3.1.7.1 Work area illustrations. Work area illustration cards (figures 5 and 6) and illustrations on SCCs (figure 26) shall be line drawing floor plans/equipment outlines or perspective views of the training device. The work area illustrations shall be prepared in accordance with figure 5 or 6 by dividing the floor plan/equipment into work areas and identifying the areas by numbers as shown. The method selected to illustrate work areas for a training device shall be the same on both the work area card and the SCC. If the

drawing is prepared for the SCC and reduced for the work area card, the reduced drawing lettering shall be no smaller than 9-point. Work area numbers shall normally conform to Unit Reference Designations. Any exception to this conformance must be approved by the contracting/procuring activity.

3.1.7.2 Lubrication symbols. Shapes and relative sizes of authorized lubrication symbols shall be as shown in figure 19. Sizes shall not be reduced to a point where legibility is affected. No other symbols are authorized. Special notes as shown in figure 18 may appear on lubrication illustrations when necessary to explain circumstances not otherwise provided for the standard symbols.

3.1.7.2.1 Symbol application. The lubrication symbol shall have a contrasting leader line extending to the point on the diagram or drawing that requires servicing (figure 17). A point of servicing which has been designated by a lubrication symbol, in one view, shall not be redesignated in another view. The points of servicing shall be designated in the view showing it more clearly. The symbol may designate more than one point of servicing by use of several leader lines branching from the main leader to designate adjacent points of servicing provided the following conditions are satisfied:

a. The points of servicing are located on the same or related parts having the same nomenclature.

b. The points of servicing appear in the same view on the diagram or drawing.

c. The points of servicing require identical service.

3.1.7.2.2 Alternate method. Lubrication charts containing a large number of points of servicing having the same lubrication symbol shall be designated with numbered leader lines as shown in figure 18.

3.1.7.2.3 Symbol arrangement. The arrangement on each succeeding card need not correspond to the arrangement of the first card. Lubrication symbols shall be placed adjacent to but not so close as to crowd the diagram or drawing. Lubrication symbols on charts shall conform to one to the following arrangements:

a. Start at the upper left corner of the chart and progress numerically in a clockwise direction around the diagram or drawing.

b. Arranged in vertical rows from top to bottom.

c. Arranged in horizontal rows from left to right.

3.1.8 Warnings, cautions, and notes. Warnings, cautions, or notes shall be provided on the MRCs in accordance with MIL-M-38784.

3.1.8.1 Warnings and cautions. Warnings and cautions shall precede the instructions to which they apply (figures 13 and 14). Warning and cautions shall not preceded the TEST EQUIPMENT, PARTS, MATERIALS, SPECIAL TOOLS table when it is present on a MRC. A warning shall be used when possible injury or death to personnel could occur if the procedure were not followed carefully. A caution shall be used when damage or destruction to a device or degraded operation could occur if the procedure were not followed carefully.

3.1.8.2 Notes. Notes shall precede the instructions to which they apply (figure 14). A note shall be used when an essential operating or preventive maintenance procedure, condition, or statement must be highlighted. A note shall appear marginally aligned with the arabic numerals of the MRC steps, in upper case letters (NOTE:) followed by a colon. The statement shall be indented two spaces from the colon. Subsequent lines shall begin at the same margin as the word NOTE. A note may precede the TEST EQUIPMENT PARTS, MATERIALS, SPECIAL TOOLS table only when it pertains to assistance required (see figure 14.)

3.2 Specific requirements. The following paragraphs explain the preparation of MRCs (see 3.2.1) and the SCC (see 3.2.2).

3.2.1 Maintenance requirements cards (MRCs). MRCs shall be prepared in accordance with figures 1 through 18 of this specification. The maintenance requirements shall be arranged on the cards in a logical sequence to provide a means of performing the requirements in the most rapid and accurate manner, thereby providing maximum availability of the training device. The MRCs shall be written in a language readily understandable by the technicians having maintenance experience on simular training devices. Technical phraseology requiring a specialized knowledge shall be avoided except where no other wording will convey the meaning. The MRCs shall be prepared as a set utilizing separate card series to perform each major portion of the planned maintenance items. The MRCs shall describe requirements in sufficient detail to stand alone. The card set shall be divided into distinct groups in the following order:

a. Daily maintenance requirements.

(1) Preoperational.

(2) Daily Operational Readiness Test (DORT) or DRT).

(3) Postoperational.

(4) Daily (other than (1), (2), or (3) above).

b. Periodic maintenance requirements.

c. Special maintenance requirements.

3.2.1.1 Title and "A" card. The title card (figure 1) with an "A" card (figure 2) on the reverse side shall be the first card of each set. The title card text shall include the nomenclature of the training device, device number, publication number, and date. When a classified supplemental card set is prepared. A note to that effect shall be included on the title card with figure 1. The "A" card shall be prepared in accordance with figure 2 and shall include the publication number, training device contractual data, list of effective cards, and instructions for obtaining replacement cards. The list of effective cards shall include a list of all cards by title or number and the change number under which card or group of cards was issued (figure 3). The SCC shall also be listed. As required, "A" card data shall be continued on "B" and "C" cards.

3.2.1.2 Introduction (i) card. An introduction ("i") card shall be prepared in accordance with figure 4 and shall contain general information relative to use of the MRCs. When additional space is required, the introduction information shall be continued on the succeeding "ii", "iii", "iv", etc. cards.

3.2.1.2.1 Work area card. The work area card shall immediately follow the introduction cards and shall contain the next consecutive Roman numeral. The format shall be in accordance with figure 5 or 6 as applicable. The work area card shall illustrate the work areas of the training device depicting location, numerical code, and title of work areas referred to in the card set. The work area illustrations shall be prepared in accordance with 3.1.7.1.

3.2.1.2.2 Consumable materials/replacement parts list card. The consumable materials/replacement parts list card shall follow the work area card and shall include all consumables and replacement parts required during 52-week period. The cards shall be numbered consecutively after the work area card(s) using next consecutive Roman numeral (lower case). The format shall be as shown in figure 7.

3.2.1.2.3 Configuration status. The configuration status card shall follow the consumable materials/replacement parts list card. Government Trainer Engineering Change Directives (TECDs) shall be listed as incorporated in the PMS. The card shall clearly identify each change to the MRC deck and the date each change became effective. The format shall be as shown in figure 8. The cards shall be numbered in sequence with the next consecutive Roman numeral (lower case).

3.2.1.2.4 MRC index card. The MRC index card(s) shall immediately follow the configuration status card(s) and shall be prepared in accordance with figure 9. The index card shall include the card number, card title, frequency, and total card time. MRC index card(s) shall be numbered in lower case Roman numerals in sequence immediately following the numbers of the configuration status card(s). All Daily, Periodic, and Special MRCs shall appear on the MRC index card. Preparation of the index card shall be in accordance with the following:

a. Card numbers shall be in numerical sequence.

b. Card titles shall be as they appear on each MRC card.

c. Frequency shall be in abbreviated form as follows:

(1) Daily shall be designated as follows:

DPR Daily Preoperational
DRT Daily Readiness Test
DPO Daily Postoperational
Daily Daily other than above

(2) Periodic shall be designated as the number of weeks in the period.

(3) Special shall be designated as the amount of time between each performance.

d. Card Time shall be the same as appears in the Card Time block on the basic MRC.

3.2.1.3 Procedure cards. Basic procedure cards and continuation procedures cards in the MRC set shall be prepared in accordance with figures 10 through 16 and shall be designated as Daily, Periodic, or Special as defined in 3.2.1.3.1 through 3.2.1.3.4. The card blocks shall be completed in accordance with instructions contained in 3.2.1.3.5. The cards shall include progressive accomplishment of all preventive maintenance requirements. The following minimum requirements shall be included:

a. Applicable key procedures delineated in the "Test Procedures Report," "Factory Acceptance Procedures," or equivalent acceptance documents. The PMS shall include periodic reaccomplishment of the key acceptance criteria in sufficient detail to identify device degradation normally identified during rework or overhaul. Delineate equipment systems tests (computer system, motion system) on separate MRCs (basic system, motion system) on separate MRCs (basic and continuation cards) and identify each acceptance criteria MRC on the SCC by preceding the card number with an asterisk. If a Government publication number has been assigned to the test or acceptance report, the actual detailed procedures need not be duplicated on the MRCs, but referenced to the specific steps in the report that are to be performed shall be included on the MRCs for each applicable task. Reference to the report shall be included in the TEST EQUIPMENT, PARTS, MATERIALS, SPECIAL TOOLS on the MRC for the task.

b. Electromechanical inspection requirements.

c. Lubrication/cleaning/servicing procedure requirements.

d. Procedures required to support diagnostic-type computer programs when such programs can be used as a means of determining equipment condition (especially during readiness tests).

e. A full description of the setup procedures and the use of all special tools and test equipment required for the tasks.

3.2.1.3.1 Daily MRCs. Daily MRC header block content shall be in accordance with figures 10 and 11. Text content shall be in accordance with figures 10 through 15, and shall contain only those minimal maintenance requirements including servicing requirements that shall be accomplished every working day. The preventive maintenance requirements shall be designed to detect degradation and potential defects. The requirements shall be arranged for accomplishment in an orderly, logical sequence. Daily inspection/servicing requirements that must be accomplished prior to operation of the training device shall be entitled, "DAILY PREOPERATIONAL" and shall be the first cards in the set. These cards are followed by those cards which make up the Daily Operational Readiness Test (DORT or DRT). Daily inspection/maintenance requirements that must be accomplished subsequent to operation of the training device shall be entitled, "DAILY POSTOPERATIONAL," and shall be the third group of procedure cards in the set. All other Daily cards shall be entitled, "DAILY." Daily MRCs shall contain all those tasks that must be performed once each working day and which are not specifically required prior to operation or following operation. The "DAILY" cards shall be the fourth group in the set. When applicable, a fifth group of cards entitled, "DAILY BETWEEN MISSIONS/EXERCISES" shall also be included and identified on the SCC. Total times for performance of Daily Between Missions/Exercises MRCs shall not exceed 30 minutes. Total times for performance of all other Daily MRCs shall not exceed one hour.

3.2.1.3.2 Periodic MRCs. Periodic MRCs shall be prepared in accordance with figures 12 and 13, and shall delineate the minimum preventive maintenance requirements. They shall contain clearly established procedures designed to detect material and functional degradation that may have occurred since original Government acceptance. The MRC requirements shall ensure satisfactory computer software (tapes and discs) and appropriate and quality control inspections. Elapsed calendar time of only 1, 2, 4, 13, 26 and 52 weeks shall be used as the periodic maintenance interval. Other intervals of periodic requirements that exceed 52 weeks shall be included under special requirements. The MRC procedures shall be such that each period of time being predicated upon the assembly and procedure complexity/reliability. The maintenance requirement block of the Periodic MRCs shall be entitled, "PERIODIC" followed by the periodicity of the requirement; 1 WEEK, 13 WEEKS, and 52 WEEKS. All cards in the Periodic section of the MRC set shall be arranged by order of periodicity.

3.2.1.3.3 Special MRCs. Special MRCs (figures 14 and 15) shall include the preventive maintenance requirements other than those of daily or periodic intervals as described in 3.2.1.3.1 and 3.2.1.3.2. Special MRCs shall be

written to satisfy specific minimum requirements/periodicities, special extended calendar intervals, number of cycles (for training devices such as ejection set trainers), and running hours. The maintenance requirement interval block of the special MRCs shall be entitled, "SPECIAL" followed by the periodicity of the requirement (100 RUNNING HOURS, 104 WEEKS, 50 FIRINGS). The SPECIAL MRCs shall be arranged in sequence of their probable frequency of recurrence assuming normal usage as defined in the device engineering design specification, except that all cycle/event type special MRCs shall precede all running hour MRCs.

3.2.1.3.4 Lubrication MRCs. The lubrication requirements shall be included (as required) in the Daily, Periodic, and Special MRCs. These MRC requirements shall contain all of the training device lubrication requirements and shall be prepared in accordance with figures 16, 17, and 18. A lubrication diagram shall be imposed on the reverse side of each lubrication MRC showing points to be lubricated, type of lubricant by military specification number, and method of application (can, hand, and brush). Lubrication symbols shall be in accordance with 3.1.7.2.

3.2.1.3.5 MRC block content. The card block content of the MRC procedure (basic) card, continuation card, and illustration card shall be prepared as follows. The numerals following the card block titles below identify the respective card blocks on figures 20, 21, and 22.

a. Card number (1). See 3.2.1.10 for details concerning this block.

b. Work area (2). This block shall identify the work area(s) in which the requirement is to be performed utilizing numerical codes selected from the work area card (figures 5 and 6). All work areas involved shall be listed. In the event a requirement affects the entire training device, or more than five work areas, the words "as Indicated" shall be used in the work area block.

c. Card time (3). This block shall contain the elapsed clock time in minutes or in hours and minutes required to perform all inspection requirements on the basic card and the associated continuation cards; thirty minutes, :30; one hour and eight minutes, 1:08; five minutes, :05. When an assistant is required to accomplish one or more tasks on the card, the total time the assistant is required will be shown in the upper right-hand corner of the task description area.

d. Publication number and date (4). This block shall contain the appropriate card set publication number and date assigned by the Contracting/Procuring Activity. The publication number shall appear on all printed card sides. Publication date is required only on the basic procedure card. The entire publication number, NTSC P-XXXX, shall appear on each card.

f. Maintenance requirement interval (5). This block shall identify the periodicity of each requirement as follows:

(1) Daily Preoperational (on continuation card, use "DPR").

(2) Daily Operational Readiness Test (on continuation card either "DORT" or "DRT" may be used).

(3) Daily Postoperational (on continuation card, use "DPO").

(4) Daily Between Missions/Exercises (on continuation cards use "DBM" or "DBM/E").

(5) Daily (on continuation cards use "Daily" for all other daily cards).

(6) Periodic, followed by the requirement periodicity (periodic interval is not required on continuation cards).

(7) Special, followed by the requirement periodicity (periodic interval is not required on continuation cards).

Periodicities shall be stated in terms such as 13 WEEKS, 500 HOURS, or 50 FIRINGS, etc. on Periodic and Special MRCs.

f. Task title (6). This block shall contain the descriptive title identifying the tasks delineated on the card. Continuation cards shall contain the task title of the associated basic procedure card.

g. Electrical power statue (7). When it is mandatory that power be on during accomplishment of the tasks listed on the card, an "X" shall be placed in the "ON" block. When it is mandatory that power be off during accomplishment of the tasks listed on the card, to assure that personnel or the training device are not endangered, an "X" shall be placed in the "OFF" block. When application of power is not required for the task, and it is not essential that the power be off during performance of the task (such as working near exposed high voltage), an "X" shall be placed in the "N/A" block. In those instances where power is required for only some portions of the task, and "X" shall be placed in the "OFF" blocks on each card side wherein no power is required and in the "ON" blocks on each card side wherein power is required for all or a portion thereof. In the latter instance, a caution or warning preceding the first step of the applicable side shall qualify at what step power is to be applied: "CAUTION": Do not apply power before step 10. Additionally, the step at which power is first applied shall be designated by an asterisk preceding the step number.

h. Task time (vertical column) (8). This block shall contain the task time in hours and minutes required to accomplish each individual maintenance requirement appearing on the card. The initial times shall be established by the contractor during validation, and shall be commensurate with the numbers and skill levels of personnel recommended to perform the tasks. The time shall be finalized during the verification. On procedure cards that contain a series of short time items (one minute or less) a horizontal dash may be placed on the line of all but the first item of the group, with the total time for the group entered opposite the first item (see figures 15 and 16). Time entries shall be entered as follows: thirty minutes, :30; one hour and twenty minutes, 1:20; five minutes, :05. The time required to obtain tools, equipment, replacement parts, consumables, or time lost due to adverse working conditions shall not be included. Total times for each card must correspond to that indicated in the card time block on the basic procedure card (see 3.2.1.3.5(c)).

i. Work area (vertical column) (9). This column shall contain the numerical code of the work area in which the maintenance requirement is to be accomplished. Work areas shall coincide with the diagram on the Work Area Card. When a requirement affects more than one work area, all affected work areas shall be identified. In the event that a requirement affects the entire device the word "ALL" shall be used in the work area column. If more than five work areas are listed, the procedure shall be divided into two or more steps.

j. Change number (10). The latest card change number shall be specified just above the upper right-hand card border. Enter change number, day, month, and year (C2, 15 July 1986).

k. Task description (11). This portion of the MRCs shall delineate the MINIMUM preventive maintenance requirements and, when applicable, the supplemental classified maintenance requirements necessary to support a realistic and adequate preventive maintenance program for the training device. The requirements shall be presented in a clear, concise, and logical manner. Each requirement shall be complete and technically correct using approved maintenance practices/procedures based on factual data, experience, sound engineering principles and techniques, engineering analyses, service experience, performance data on similar items, and applicable reliability and maintainability data. Specific tasks shall be included to verify the existence of proper conditions or reveal deficiencies in equipment. The requirements shall monitor values such as voltages, frequencies, waveforms, clearances, tolerances, pressures, and operating values/limits. Measurement values shall be indicated in either plus or minus, or high and low limits as appropriate. The preferred format for stating maintenance requirements is the action required "verb"

followed by the adverse condition to be sought; (check gear housing for cracks and corrosion). However, imperative statements made in other format are acceptable. Each task description shall be single-spaced. Double spacing shall be utilized between tasks.

(1) Assistant statement (11). When a task requires the use of an assistant whose responsibilities are such that he does not require a card of his own, the total time the assistant is utilized shall be shown in the upper right-hand corner of the procedure card task description area; "Assistance is required for step ___ (1 hr 15 min)" (see figures 12 and 14). When two or more assistants are required, they shall be listed one under the other. The card text shall identify those tasks the assistant(s) will accomplish. The total task time of the card shall not include the time of the assistant(s).

(2) Illustration (11). When an illustration is required on an MRC, the format shall be in accordance with figure 22. The illustration card format is not the same as the continuation card format.

3.2.1.3.6 MRC task development. The following procedures shall be followed for MRC task development, arrangement, and grouping:

a. List each system, subsystem, assembly, subassembly, and component comprising each system in the training device.

b. Continue this breakdown of each system as necessary to provide a component or subassembly of that component which is sufficiently complicated to enable it to be subjected to a process of critical examination.

c. List all possible maintenance actions defined below, regardless of the periodicity of the requirements, that apply to each unit in the above breakdown:

(1) Inspection. The process of examining an item to determine if conditions exist that are detrimental to the continued use of the item at its designed effectiveness or efficiency. (List all inspections required at each level of equipment breakdown. Inspection and removal of printed circuit cards to check integrated circuit chips shall not be part of the PMS. Removal and reinsertion unnecessarily can loosen contacts and create malfunctions where none existed previously.)

(2) Tests. The process of measuring the performance of an item to determine if the performance is within predetermined tolerances or standards. (List all tests required at each level of equipment breakdown. This shall include key "Test Procedures Report/Factory Acceptance Procedures" or

equivalent.) Noncritical tests, which include removal of printed circuit cards for testing, shall not be included in the tests.

(3) Adjustment. The act of physically repositioning an item or control within specified limitations, to compensate for wear, degeneration, change in value or quality either in that item or other functionally related items. (List each adjustment separately. This shall include all minor adjustments necessary to maintain performance as required by the "Test Procedures Report/Factory Acceptance Procedures" or equivalent).

(4) Lubrication. The process of applying a lubricant for the purpose of reducing friction and preserving equipment. (List all lubrication requirements to the detail of number of lubrication points and type of lubricants)

(5) Cleaning. The process of removing foreign matter from equipment and spaces for the purpose of preventing degeneration of performance, restoring proper operation or improving appearance. (List each cleaning requirement separately, cleaning and waxing of trailer exteriors, if applicable, shall be included. Air conditioner filters, computer fan filters, power supply filters shall be included.)

(6) Replacement. The act of substituting a new or repaired item for a like used item for the purpose of preventing an imp]ending malfunction or to restore proper operation. (List each replacement item and part number in the Test Equipment, Parts, Materials, Special Tools list at the beginning of the basic procedure card)

d. Critically examine the system, by examining the necessity for each preventive maintenance requirement listed. Consider replacement costs, criticality and safety versus potential damage to equipment and man-hours and skill level required to perform preventive maintenance in determining whether preventive maintenance requirements should logically be included in the MRCs instead of merely replacing or repairing the items when they malfunction.

e. Critically examine each maintenance action listed as a result of the above procedure. The examination for the need and frequency of the maintenance actions is predicated upon the following definition of minimum maintenance requirements: Minimum maintenance requirements are those actions essential to maintaining the equipment in a state of operational readiness to achieve ninety five percent training availability. The results of this critical examination are the minimum maintenance requirements and maximum periodicities between requirements.

f. Consolidate results of step e sequence ring them by frequency requirements.

g. Group maintenance requirements within each frequency (periodicity) into related steps to compose the MRCs

h. Confine requirements for Periodic or Special MRCs, where practicable, to single systems or subsystems

i. Group requirements, where practicable, to single work areas or a limited number of work areas. Assure that cards are sequenced in appropriate order. If a one week card, for example, contains a procedure which must be accomplished before another one week card, then the first card in the sequence shall precede the card which contains the following procedure. If any special tools are required to perform two or more MRC procedures, which have the same periodicity, then such cards shall be consecutively sequenced wherever possible.

j. Determine location of personnel and equipment warnings, cautions, and notes in the established MRC requirements.

k. Prepare each MRC ensuring that the steps are in proper sequence.

l. Validate and rewrite the procedures described on the MRCs for correctness, technical accuracy, and nomenclature by performing the MRC tasks on the equipment. Validation, in-process review, and verification shall be in accordance with MIL-M-81203.

m. Attempt, where practicable, to maintain elapsed time of a basic Periodic or Special task card and the associated continuation cards to less than four hours. Such tasks as periodic draining and replacement of hydraulic fluid in motion systems are exceptions. (See 3.2.1.10 concerning numbering of MRCs.)

3.2.1.4 Operational equipment. Maintenance requirements for unmodified operational equipment shall include only organizational level preventive maintenance requirements unless otherwise specified by the contracting/procuring activity. Existing operational equipment publication(s) shall be utilized to prepare the preventive maintenance requirements for the training device. The unmodified operational equipment is exchangeable through supply support or has a means of being processed into the intermediate level maintenance activity and, therefore, does not require intermediate preventive maintenance to be accomplished by training device personnel. The MRCs for modified operational equipment shall normally include all preventive maintenance requirements. Exceptions must be approved by the contracting/procuring activity.

3.2.1.5 Training device peculiar support equipment. MRCs shall be prepared for training device peculiar support equipment such as assembly testers, built-in-test equipment (BITE), voltage ratio meters, which have specific application only to the specific training device. The MRCs shall be integrated into the MRC set and prepared as DAILY, PERIODIC, or SPECIAL, as appropriate.

3.2.1.6 Standard and common support equipment. Existing ship, air, and ordnance MRCs shall be utilized to accomplish the preventive maintenance on standard and common support equipment. These MRCs will be supplied to the developing activity by the contracting activity and shall be integrated in the device MRC set. They shall be listed on the SCC in the applicable category; (daily, periodic, and special). The requirement to submit applicable equipment for calibration at appropriate intervals shall also be included.

3.2.1.7 Quality control requirements. Maintenance requirement tasks that may endanger human lives if accomplished improperly shall be monitored by quality control (QC) procedures. The procedures shall be included in the MRCs to provide a means of ensuring the integrity of the above type systems/components that have been disturbed, reconnected, or replaced during preventive maintenance. The QC procedures shall establish requirements to inspect for proper installation of assemblies/components and the associated locking devices. The QC inspection may be accomplished in one of the two following methods, as appropriate:

a. Over-the-shoulder QC inspection. The designated QC inspector shall observed the work being performed by the technician while the task is being accomplished. In this instance, a note shall be included in the basic MRC that over-the-shoulder QC is required.

b. After work is completed. The designated QC inspector shall inspect completed work in the designated area. In this instance, a separate QC MRC shall be written

3.2.1.8 Test equipment, parts, materials, special tools. When applicable, the task section of MRCs shall begin with a list of "TEST EQUIPMENT, PARTS, MATERIALS, SPECIAL TOOLS," in upper case letters, prepared in the format shown with figure 12. The items shall be listed in three columns entitled: "Nomenclature," "Part/Type/Model/Spec," and "Quantity." Special tools for MRC application shall include those tools which are peculiar to the repair or adjustment of the specific equipment referenced in the task and any other tools not normally included in tool sets available to the technician.

3.2.1.9 Classified supplemental MRCs. When classified supplemental MRCs are necessary, they shall be promulgated as a classified supplement to the basic MRC set and the basic set shall remain unclassified. Security requirements, downgrading instructions, and security classification of the supplemental MRCs shall be in accordance with MIL-M-38784. Classification shall be marked on each classified MRC in accordance with figures 12, 23, and 24. The contractor shall make every effort to limit or entirely eliminate the

need for classified maintenance requirements. The supplemental MRC sheet shall be prepared in accordance with the format established for the basic MRCs and shall contain a title card; "A" card (additional "B", "C", etc. cards as necessary); all appropriate "i" cards including a classified supplement MRC index page listing all classified MRCs; and the procedure cards. The title card shall be prepared in accordance with figure 23, "A" card format shall be in accordance with 3.2.1.1. The supplementary introductory "i" card shall be prepared in accordance with figure 24. Classified manuscript MRCs shall be reproduced on pink card stock.

3.2.1.9.1 Reference to supplemental MRCs. When classified supplemental MRCs are necessary, procedure cards in the basic card set shall be annotated to direct the user to specific classified supplemental MRCs. The basic set of procedure cards may contain inspection requirements augmented by the classified MRCs or may merely contain a notation directing the user to refer to certain classified supplemental cards related to the same task. The supplemental MRCs shall contain the same general heading information; (card title, work area, rating, card time). Exception: the supplemental procedure cards shall be numbered with Arabic numerals commencing with number one; (the front of the first basic card in the classified set shall be numbered "1", the back of the card shall be numbered "2"). This different numbering system for the supplemental MRCs is to facilitate security/protection of the classified MRCs.

3.2.1.10 MRC numbering. The MRCs shall be numbered in accordance with the following paragraphs.

3.2.1.10.1 Front matter cards. The front matter card pagination shall be placed on the lower left-hand corner of the cards as shown in figures 2 through 9 and figure 24.

3.2.1.10.2 Procedure cards. Procedure cards shall be numbered with Arabic numerals in the card number blocks, upper left-hand corner. The front of the first card shall be numbered 1 and the back 1.1 (including illustrations). Maintenance requirements of a specific periodicity and title shall be continued on continuation cards until the complete requirement is delineated. For example: Assume that a 13-week maintenance requirement entitled, "Instructor's Malfunction Controls Checkout" required both sides of three cards to delineate the requirement. The basic procedure card would be numbered with a whole number such as 16 and the back would be numbered 16.1. The other two cards would be continuation cards numbered 16.2, 16.3, 16.4, and 16.5. The elapsed time required to accomplish the basic card and all of the continuation cards shall be summed and shown as total time in the card time block of the basic procedure card. When a task continues on two or more cards, the word, "continued" shall be printed on the lower right-hand corner of all except the last card. The words "End of Card" shall be printed on the lower right-hand corner of the last card. Basic cards (procedure card and necessary continuation and illustration cards) shall be numbered consecutively, excluding no numbers.

3.2.1.10.3 Added cards. When a new card is added to an existing card set as a change, the new card shall be identified by using the appropriate existing card number plus an alphabetical suffix; a change card inserted between cards 11 and 12 shall be identified as 11A, 11A1; between 11.3 and 11.4 shall be identified as 11.3A, 11.3A1. Cards added shall be placed at the end of the periodicity section to which they belong, a card to be added with a periodicity of 4 weeks, shall follow all other 4-week cards and precede all 13-week cards. Exceptions are allowed when it is necessary for a new card to immediately follow an existing card not at the end of the periodicity group because of sequencing or other relationships.

3.2.1.10.4 Deleted cards. During changes, it is sometimes necessary to delete existing MRCs. This may be due to replacement equipment or obsolete procedures. In this case it is permissible to substitute a new MRC for the old one (changing entry on MRC index page as well) provided the periodicity is the same for both cards. If no replacement is available, then the card shall be deleted. On the MRC index page the card number shall remain, but in the card title block DELETED shall appear whenever change pages shall be procured.

3.2.2 Sequence control chart (SCC). The SCC shall be prepared in accordance with the following instructions:

3.2.2.1 General. The SCC shall be designed to provide a convenient, logical scheduling of MRCs (other than Daily MRCs) and to provide for reasonably equal work distribution throughout a standard 52-week period.

3.2.2.2 Content. The SCC shall be prepared in general accordance with figure 26 and shall include the following:

a. Heading.

b. Publication number and date.

c. Work area illustration and legend.

d. List of consumables required for a 52-week period.

e. Card listing including instructions and inclusive card numbers for Daily, Periodic, and Special MRCs.

f. Chart indicating schedule for each Periodic MRC for a 52-week period.

g. Chart listing Special MRCs and frequency of accomplishment.

3.2.2.2.1 Periodic MRC chart. The selected maintenance requirements for each periodic requirement shall be programmed on the sequence chart in vertical columns, listed by basic MRC numbers, in the recommended order of accomplishment. The sequencing procedure may require early accomplishment of certain 4, 13, 26, or 52-week requirements to initially balance the workload.

3.2.2.2.2 Special MRC chart. The special MRCs shall be programmed on the sequence chart in vertical columns by MRC number and inspection frequency in an order as illustrated in figure 26. In the event that numbers of cycles/events, running hours are required. Cycle/event requirements shall be listed before running hour requirements. The columns of the chart shall also include space for inserting due time or date as shown in figure 26.

4. QUALITY ASSURANCE PROVISIONS

4.1 The quality assurance provisions of MIL-M-38784 and MIL-P-38790 shall apply.

4.2 Validation. A validation program shall be developed that will ensure that the PMS publications are validated prior to preliminary delivery and are accurate and adequate to support the device. The contractor shall be responsible for accomplishing all validation actions.

4.2.1 Recording keeping. The validation program shall include a system of recordkeeping which will continuously document the validation effort. These records, certified by a Publication QA Representative, shall be made available for review by the procuring activity.

4.2.2 Validation certificate. The contractor shall submit a validation certificate to the procuring activity with the preliminary submittal.

5. PACKAGING

5.1 Packaging, packing, and marking for shipment shall be in accordance with MIL-M-38784.

6. NOTES

This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.

6.1 Intended use. Publications prepared in accordance with this specification are intended for use during scheduled maintenance of training devices.

6.2 Technical manual acquisition. This specification must be listed on the Contract Data Requirements List (DD Form 1423) in order to acquire the technical manuals described by this specification, except where DoD FAR Supplement 27.475-1 exempts the requirements for a DD Form 1423.

6.3 Supersession data. This specification supersedes MIL-P-29005A (TD) dated 1 January 1976.

6.4 Definitions.

6.4.1 Training device. Equipment which is designed exclusively for training purposes to demonstrate or illustrate a concept or to provide a simulated or stimulated system in order that an operator's skills or techniques are developed or improved. Training devices are further defined as devices which involve simulation of some type in their construction or operation.

6.4.2 Operational equipment. Unmodified hardware systems or assemblies that are identical to those contained in the weapon system, aircraft, ship, etc., that is to be simulated by the training device.

6.4.3 Vendor procured equipment. Unmodified off-the-shelf commercial equipment such as power supplied, general purpose computers and associated input-output peripheral equipment, and plotting boards.

6.5 Subject term (by word) listing.

a. Planned Maintenance System (PMS)
b. Maintenance Requirements Cards (MRC)
c. Sequence Control Chart (SCC)
d. Work Area Card (WAC)
e. Procedure Card

6.6 Assistance in publications preparation. Contractors are encouraged to request assistance from the procuring activity in the application of this specification. Such requests should be made in time to meet contract schedule requirements.

CUSTODIAN:
Navy-TD

PREPARING ACTIVITY:
Navy-TD
Project TMSS-N160

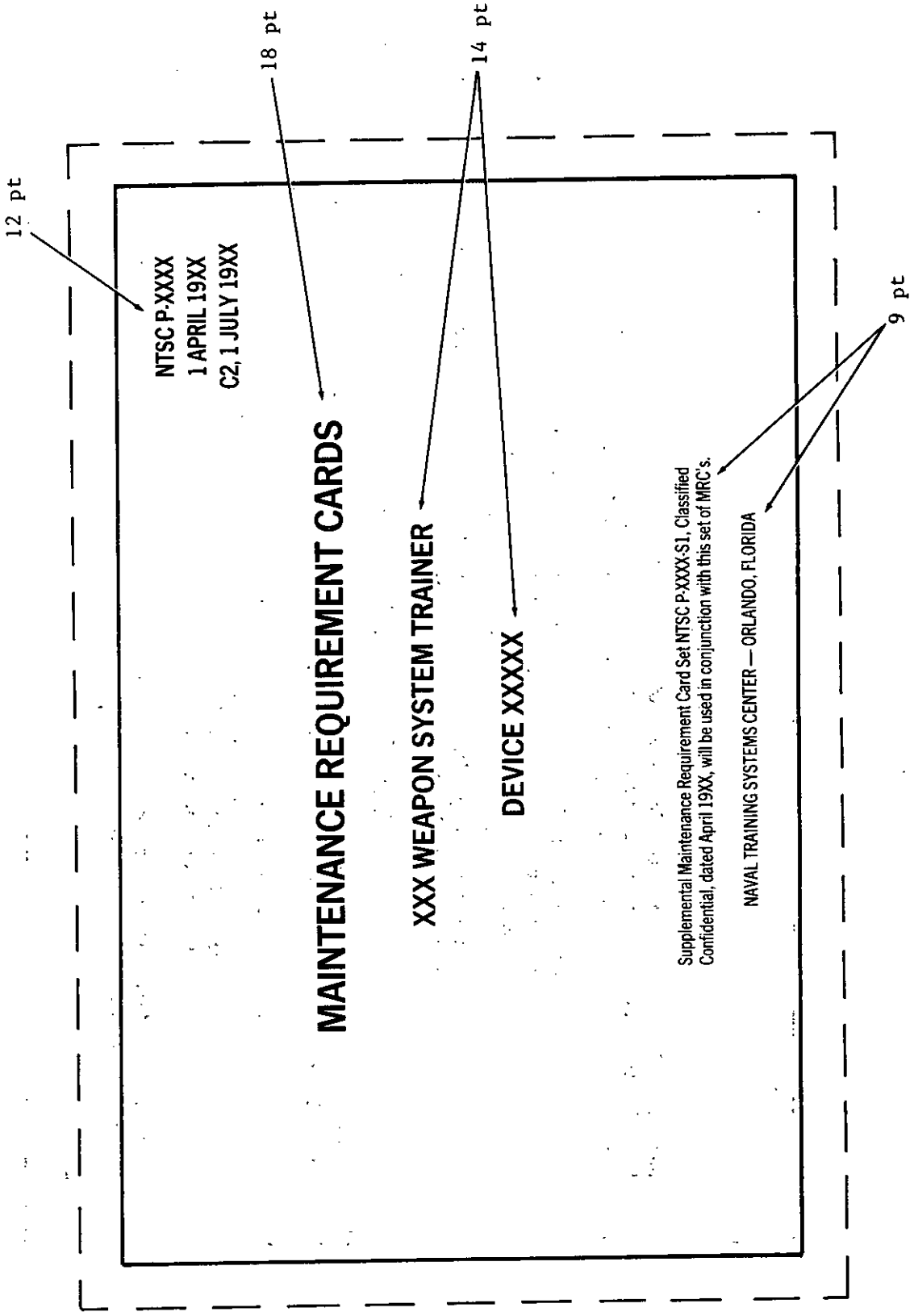


Figure 1. Sample Title Card Format (Unclassified)

CONTRACTUAL DATA

Device XXXXX was manufactured by XXXX XXXXX, XXXX, XXXXX under Contract N61339-XX-C-XXXX. This publication was prepared for the Naval Training Systems Center, Orlando, Florida, under Specification MIL-P-29005B(TD).

LIST OF EFFECTIVE CARDS/CHART

Insert latest changed or supplemented cards and chart. Destroy superseded cards and chart in accordance with applicable regulations.

NOTE: The portions of the text affected by the current change are indicated by a vertical line in the right margin area. Changes to the Sequence Control Chart are indicated by shaded areas.

This Planned Maintenance System consists of one Sequence Control Chart and 142 Maintenance Requirement Cards issued as follows:

A

Figure 2. Sample "A" Card Format

NTSC P-XXXX

Card No./Title	*Change No.
Title	2
A	2
B/C Blank	2
i-v/vi Blank	0
1-15.2	0
15.3-15.9	1
16.0-45.3	2
45.4-74.1	0
74.2-74.3	2 (Deleted)

Sequence Control Chart

Change 1

* Zero in this column indicates original.

Requests for replacement copies of this publication should be made through the local Supply Officer in accordance with NAVSUP Publication 2002, Navy Stock List of Forms and Publications.

B

Figure 3. Sample "B" Card Format

INTRODUCTION

This card set provides the minimum preventive maintenance requirements in check list form for this training device and shall be used as a guide in performing maintenance to ensure that no requirements are overlooked. The size of the Maintenance Requirement Card (MRC) affords convenient handling by maintenance personnel performing the work. The requirements are arranged in a logical sequence by work areas and systems to provide efficient maintenance planning and work assignments. The MRC set is divided into Daily, Periodic and Special requirements. Daily requirements consist of one to four types of minimum daily requirements that are to be accomplished each normal working day as follows: MRCs entitled Daily Preoperational (prior to training session), MRCs entitled Daily Postoperational (after training is concluded), and MRCs entitled Daily before or after training session as desired. Periodic MRCs contain detailed inspection requirements scheduled on the Sequence Control Chart in 1, 2, 4, 13, 26 and 52 WEEK intervals. Special MRCs contain detailed inspection requirements scheduled separately on the chart in other than calendar weeks (i.e. running hours, cycles/events). The Sequence Control Chart provides a graphic presentation of the order in which Periodic and Special Periodic MRCs shall be accomplished. The cards are sequenced to accomplish the maintenance requirements in the most rapid, accurate manner possible while maintaining maximum training device operational status. The work area diagram on the "ii" card and the chart indicates the location, numerical code and title of the work areas referred to in this card set. Instructions in the use of this system are contained in the Planned Maintenance System Handbook, NAVTRADEV P-3622. Recommendations proposing changes to this set are encouraged and should be submitted to the Naval Training Systems Center, Code 42, Orlando, Florida 32826-3224.

i

Figure 4. Sample "i" Card Format

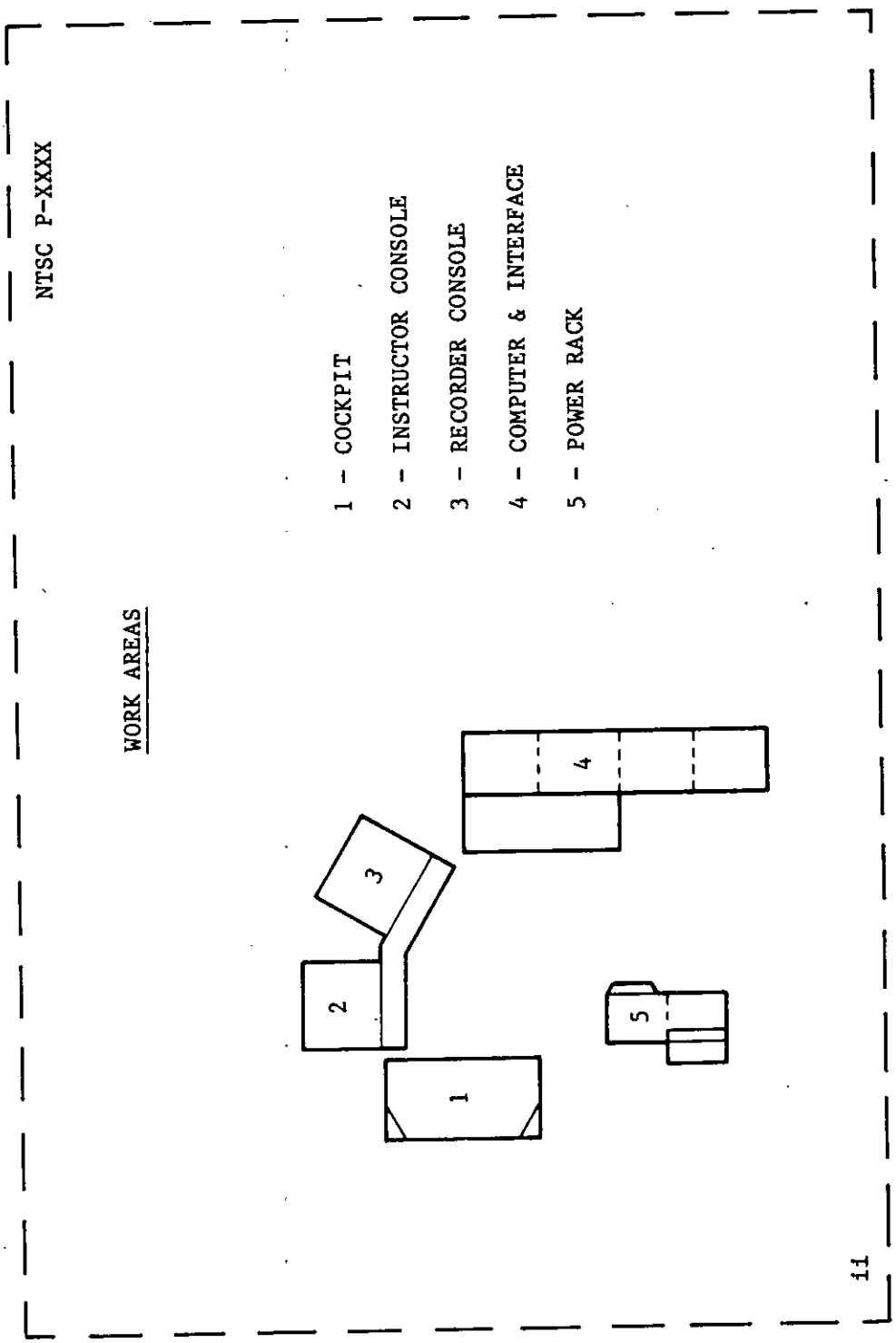


Figure 5. Sample Work Area Illustration Card

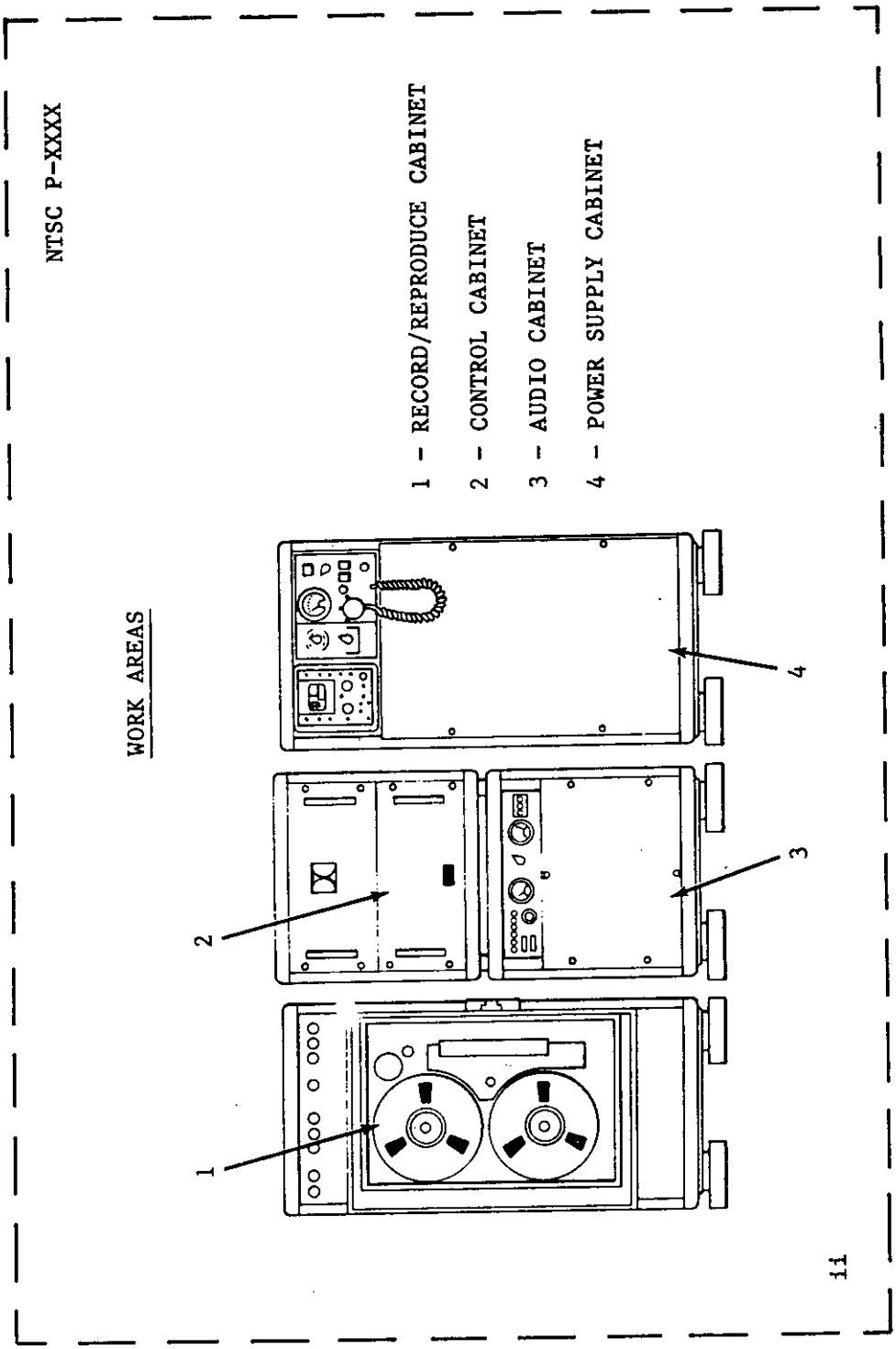


Figure 6. Sample Work Area Illustration Card

NTSC P-XXXX

CONSUMABLE MATERIALS/REPLACEMENT PARTS LIST

The following consumable materials/replacement parts are required for one complete MRC cycle:

Nomenclature	Part/Stock No.	Quantity
Cloth, Lint-free	NSN 7920-00-205-3453	1 Pkg.
Filter-Coat	FSCM 82866, Spec #411 NSN 6850-00-169-4717	4 Cans
Grease, Bearing, Low-Temp.	MIL-G-7711A-1 NSN 9G9150-00-257-5361	1 Lb.
Grease, General Purpose	MIL-G-23827 NSN 9G9150-00-985-7246	1 Lb.
Oil, General Purpose	MIL-L-15016, Symbol 2135 (SAE 20) NSN 9150-00-235-9069	1 Qt.
Oil, Instrument	MIL-L-6085 NSN 9150-00-225-4129	1 Qt.
Oil, Multipurpose	MIL-L-6086B NSN 9G9150-00-240-2235	1 Pt.
Solvent, Dry-Cleaning	Fed Spec P-D-680-2 NSN 6850-00-664-5685	1 Gal.

iii

Figure 7. Sample Consumable Materials/Replacement Parts List Card

CONFIGURATION STATUS

Device 2FXXX simulates F-XX Aircraft, Serial Number 142244. The following 2FXXX TECD's are incorporated in the Maintenance Requirements of this MRC set:

TECD No.	*Change No.	Date
1-14	0	15 Jun 85
15-19	1	30 Nov 86

* Zero in this column indicates original.

Figure 8. Sample Configuration Status Card

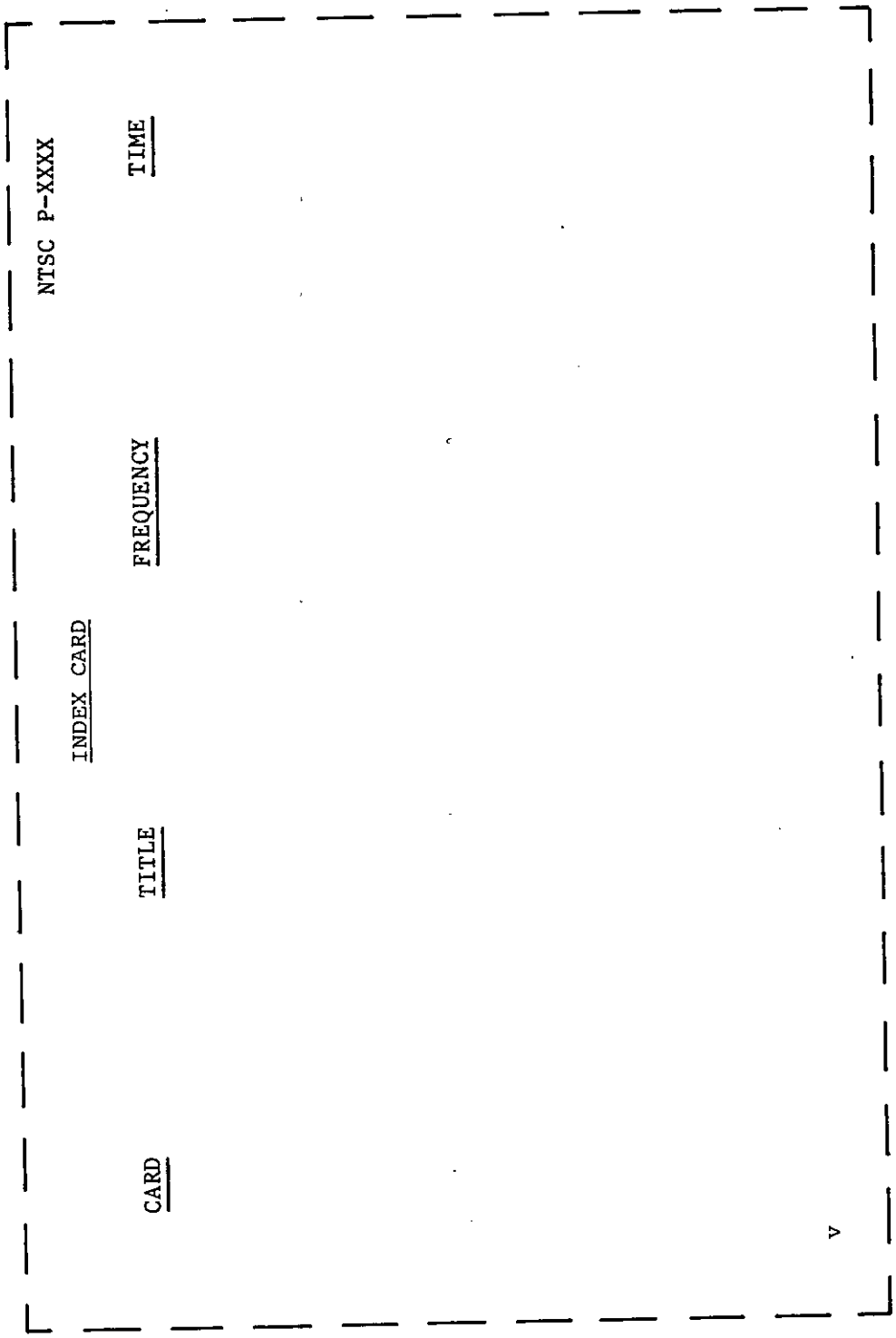


Figure 9. Sample MRC Index Card

PROCEDURE CARD

C2, 1 JULY 19XX

CARD NO.	WORK AREA(S)	RATING	CARD TIME	PUBLICATION NO. & DATE
8	4,6		:10	NTSC P-XXXX, 1 JANUARY 19XX

TASK TIME	WORK AREA	DAILY PREOPERATIONAL FLIGHT CHECKS - FUEL SYSTEM TRANSFER FUNCTIONS	ELECTRICAL POWER [X] ON [ ] OFF [ ] N/A
		Assisted by TDAN (10 min)	
:02	4,6	1. At PILOT Station, set FUS FUEL TRIM Switch to NOSE DOWN. WINGS Switch to TRANS - Instructor WINGS SW TRANS Light ILLUMINATED. Note Fuel Quantity in wing tanks DECREASING and Fuel Quantity in FWD Tank INCREASING.	
-	4,6	2. At PILOT Station, set WINGS Switch to OFF; Instructor WINGS SW TRANS Light EXTINGUISHED, and Fuel Transfer STOPS.	
:01	4,6	3. At B/N Station, set FUEL CONTROL Switch to AUTO: Instructor FUEL CONT SW AUTO Light ILLUMINATED. Note transfer of Fuel from WING Tanks to AUX Tank.	
-	4,6	4. Set FUEL CONTROL Switch to OFF: Instructor FUEL CONT SW - AUTO Light EXTINGUISHED; Fuel transfer STOPS.	
:01	4,6	5. At B/N Station, set FUEL CONTROL Switch to MAN: Instructor FUEL CONT-MAN Light ILLUMINATED; Fuel transfers from WING Tanks to AUX TANK.	
		CONTINUED	

Figure 10. Sample DAILY MRC (Basic)

C2, 1 JULY 19XX

TASK TIME	WORK AREA	CARD NO. 8.1	DPR	NTSC P-XXXX	ELECTRICAL POWER [X] ON [ ] OFF [ ] N/A
			FLIGHT CHECKS - FUEL SYS TRANS FUNCTIONS		

-	4,6	6. Set FUEL CONTROL Switch to OFF; Instructor FUEL CONT-MAN Light EXTINGUISHED: Fuel Transfer STOPS.
-	4,6	7. At PILOT Station, set WINGS Switch to PURGE; Instructor WINGS PURGE Light ILLUMINATED.
:01	4	8. Set WINGS Switch to TRANS; NO TRANSFER of Fuel occurs.
-	4,6	9. At PILOT Station, set AIR/REFUELING/NORMAL Switch to AIR REFUELING and back to NORMAL; Instructor WINGS PURGE Light EXTINGUISHED; Fuel now TRANSFERS.
:01	4	10. Set WINGS Switch to OFF; Fuel Transfer STOPS.
-	4,6	11. At PILOT Station, set FUEL DUMP Switch to WINGS; Instructor DUMP SW-WINGS Light ILLUMINATED. Fuel begins to DUMP from WING Tanks.
-	4,6	12. Set FUEL DUMP Switch to OFF; FUEL DUMP stops; Instructor DUMP SW-WINGS Light EXTINGUISHED.

CONTINUED

Figure 11. Sample DAILY MRC (Continuation)

CLASSIFICATION

PROCEDURE CARD

CARD NO.	WORK AREA(S)	RATING	CARD TIME	PUBLICATION NO & DATE
36	AS INDICATED		1:08	NTSC P-XXXX, 1 OCTOBER 19XX

TASK TIME	WORK AREA	PERIODIC	13 WEEKS	ELECTRICAL POWER
		OWN SHIP SONAR PARAMETERS		[X] ON [ ] OFF [ ] N/A

Assistance is required for step - (20 min)

TEST EQUIPMENT, PARTS, MATERIALS, SPECIAL TOOLS

Nomenclature	Part/Type/Model Spec	Quantity
Stopwatch	-	1

:02	5	1. Assign OWN SHIP - DESTROYER
-	25	2. FREEZE the Problem, and select Instructor Control of OWN SHIP.
-	5	3. Enter the following OWN SHIP parameters: a. X - 0 YARDS b. Y - 0 YARDS c. RUDDER - 0 DEGREES d. COURSE - 0 DEGREES e. SPEED - 20 KNOTS

CONTINUED

CLASSIFICATION

Figure 12. Sample PERIODIC MRC (Basic)

TASK TIME	WORK AREA	CARD NO.	PERIODIC	NTSC P-XXXX	ELECTRICAL POWER
		80.4	ALTIMETER SERVO		☐ ON ☐ OFF ☐ N/A

:15	58	3. Disassemble GEARBOX assembly. Clean all electromechanical components either by brushing with a CLEAN, DRY, SOFT, nonabrasive brush, wiping with a clean lintless cloth, blowing gently with CLEAN, DRY AIR, or any combination of these methods.
		CAUTION Sintered bronze bearings, roller bearings and nonrotating shafts should never be cleaned in a liquid solvent.
:02	58	4. Clean all sintered bronze bearings, roller bearings and nonrotating shafts by the methods specified in Step 3.
:10	58	5. Clean all remaining gearbox components in liquid cleaning solvent (Fed Spec P-D-680-2 or equivalent). If required, a soft nonabrasive brush may be used to dislodge foreign materials.
:07	58	6. Examine all GEARS for signs of UNUSUAL or EXCESSIVE WEAR, BROKEN or CHIPPED TEETH and BURRS.

CONTINUED

Figure 13. Sample PERIODIC MRC (Continuation)

PROCEDURE CARD

CARD NO.	WORK AREA(S)	RATING	CARD TIME	PUBLICATION NO. & DATE
18	2		:04	NTSC P-XXXX, 1 MAY 19XX

TASK TIME	WORK AREA		ELECTRICAL POWER
		SPECIAL 300 SHOTS	
		EJECTION SEAT ASSEMBLY	☐ ON ☒ OFF ☐ N/A

Assistance is required for step ____ (2 min)

NOTE: Assistance required for Step 1 only.

TEST EQUIPMENT, PARTS, MATERIALS, SPECIAL TOOLS

Nomenclature	Part/Type/Model/Spec	Quantity
Ratchet Wrench	Type SW418 w/2" Extension bars, 9/16" square sockets	2

WARNING

Inadvertent firing of ejection seat may cause injury or death. Assure that seat is NOT ARMED and that all electrical systems are OFF.

TASK TIME	WORK AREA	
:02	2	1. Place ratchet wrenches on square head bolts at ends of clutch shafts and simultaneously wind up seat into PRE-LOAD position. Two men are required, one to operate each wrench.

CONTINUED

Figure 14. Sample SPECIAL MRC (Basic)

TASK TIME	WORK AREA	CARD NO.	SPECIAL	NTSC P-XXXX	ELECTRICAL POWER
		18.1	EJECTION SEAT ASSEMBLY		☐ ON ☒ OFF ☐ N/A
:02	2	2. Check seat for side and front/rear play. Play shall not exceed 1/8 inch. If play is excessive, replace or adjust worn rollers or other associated parts, as required.			
–	2	3. Check all bolts for security and signs of wear.			
–	2	4. Check seat belt, harness and associated fittings for integrity and wear.			
–	2	5. Lower seat to PRE-EJECTION position and secure.			
		End of Card			

Figure 15. Sample SPECIAL MRC (Continuation)

PROCEDURE CARD

C2, 1 JULY 19XX

CARD NO.	WORK AREA(S)	RATING	CARD TIME	PUBLICATION NO. & DATE
240	19		:05	NTSC P-XXXX, 1 MAY 19XX

TASK TIME	WORK AREA	PERIODIC	13 WEEKS	ELECTRICAL POWER
		LUBRICATION OF HYD SYSTEM SCAVENGER PUMP MOTOR		☐ ON ☒ OFF ☐ N/A

TEST EQUIPMENT, PARTS, MATERIALS, SPECIAL TOOLS

Nomenclature	Part/Type/Model/Spec	Quantity
Oil Can	Pushbottom Type	1
Oil, Lubricating	MIL-O-6081	As Required
Rags	-	As Required

-	19	1. Wipe area clean around oil chambers prior to filling.
:05	19	2. Fill oil chambers with oil (MIL-O-6081).
-	19	3. Wipe away excess oil.

CONTINUED

Figure 16. Sample Lubrication MRC (Basic)

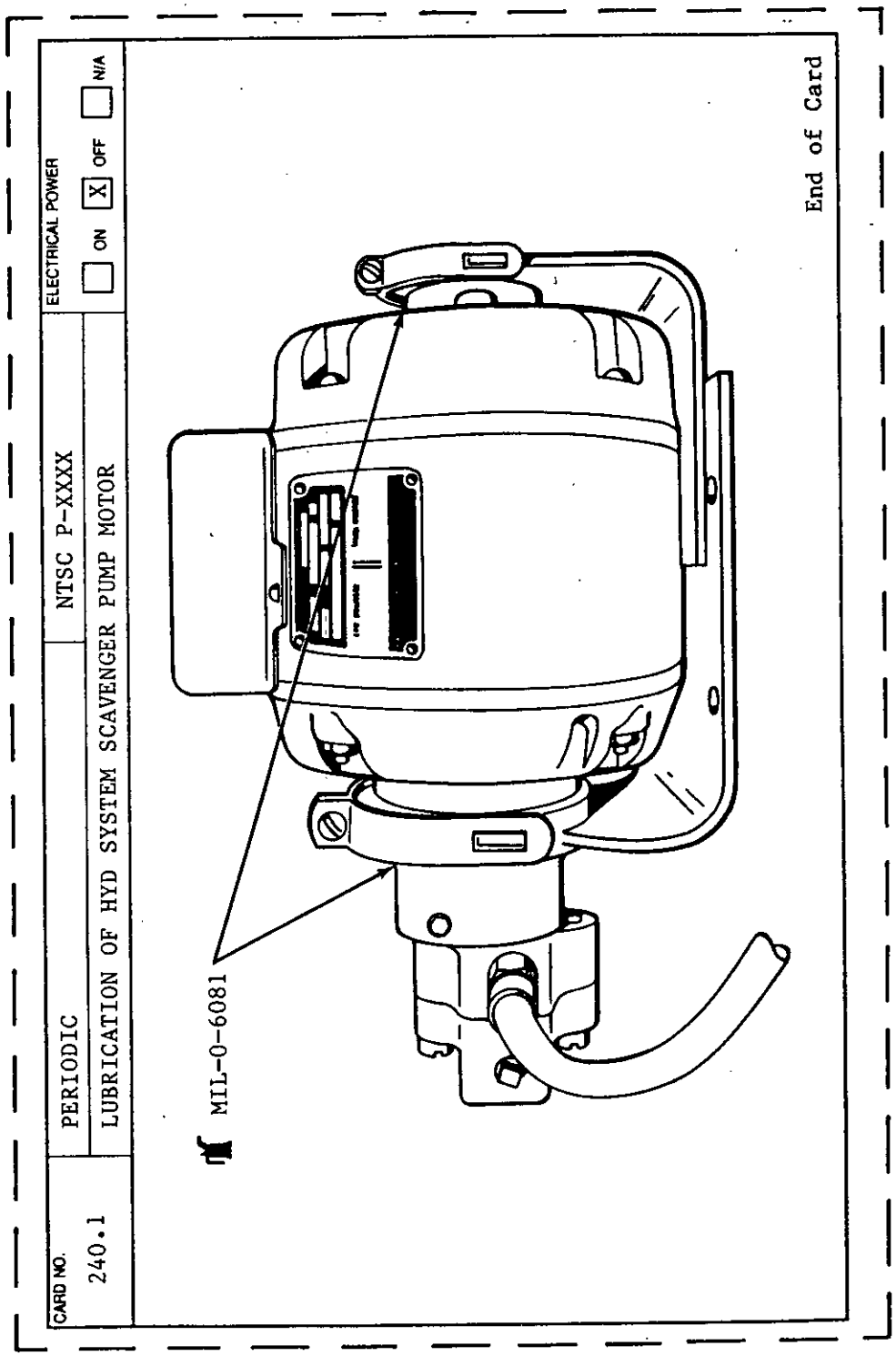


Figure 17. Lubrication Illustration Card

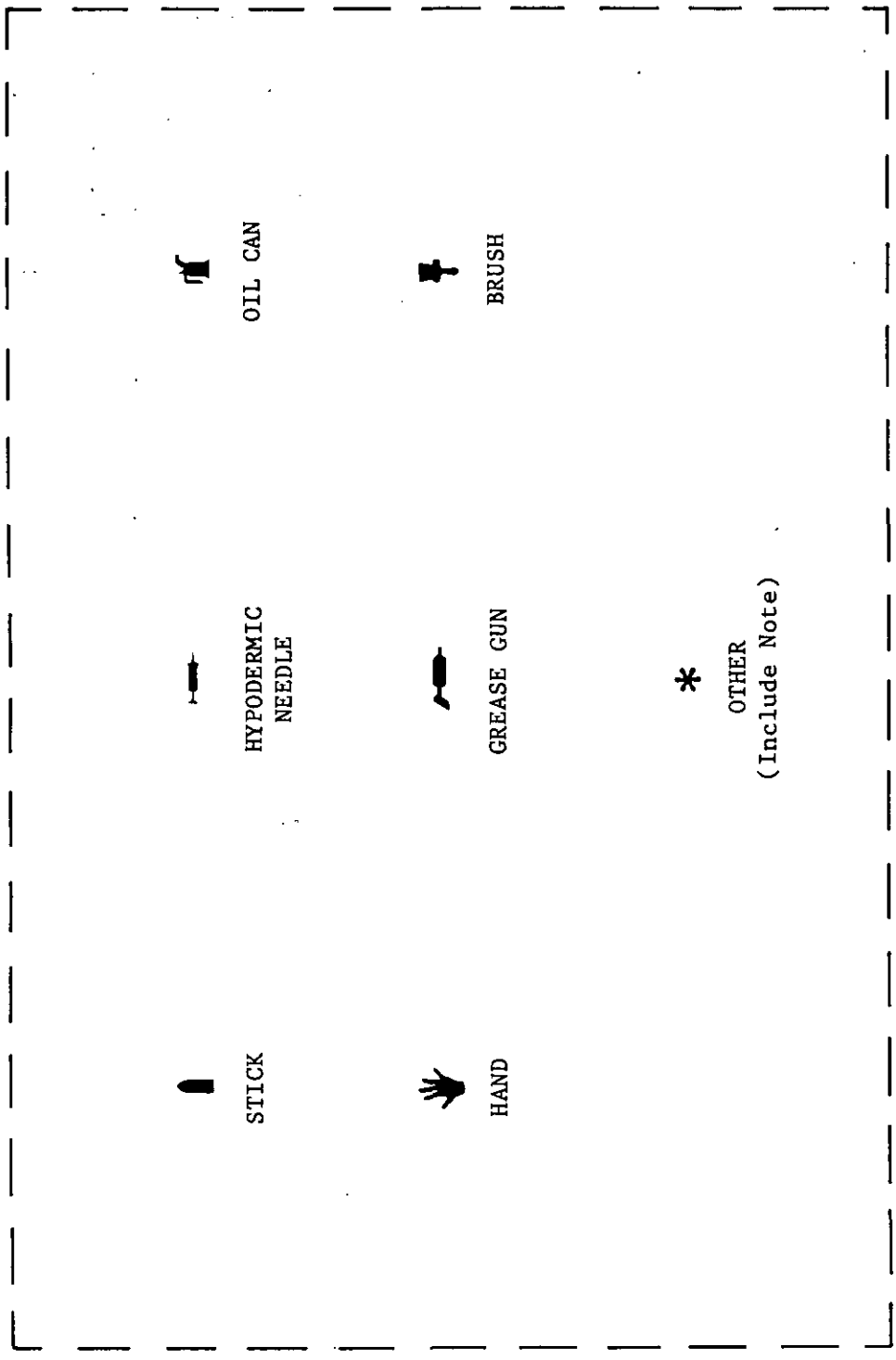


Figure 19. Lubrication Symbols

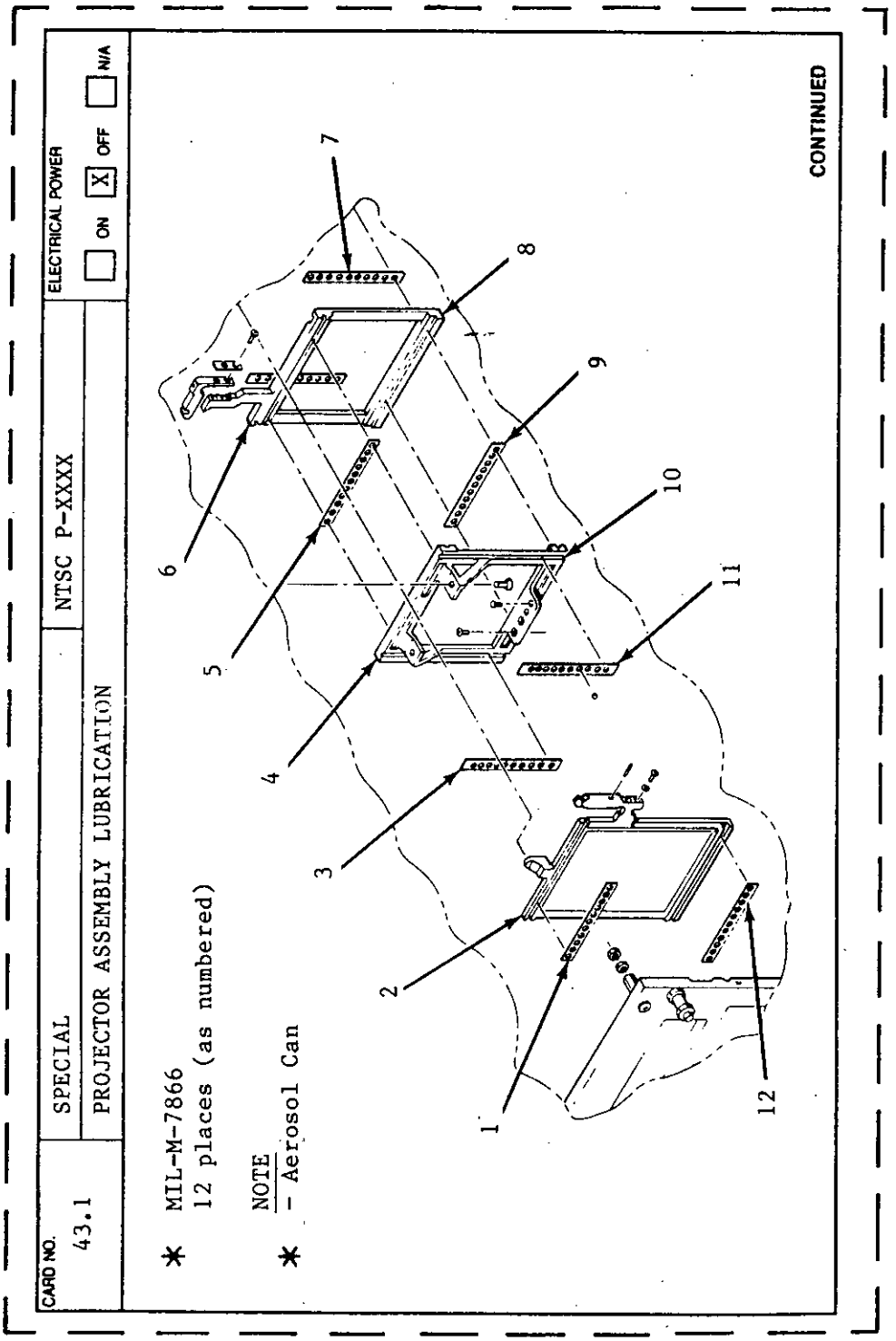
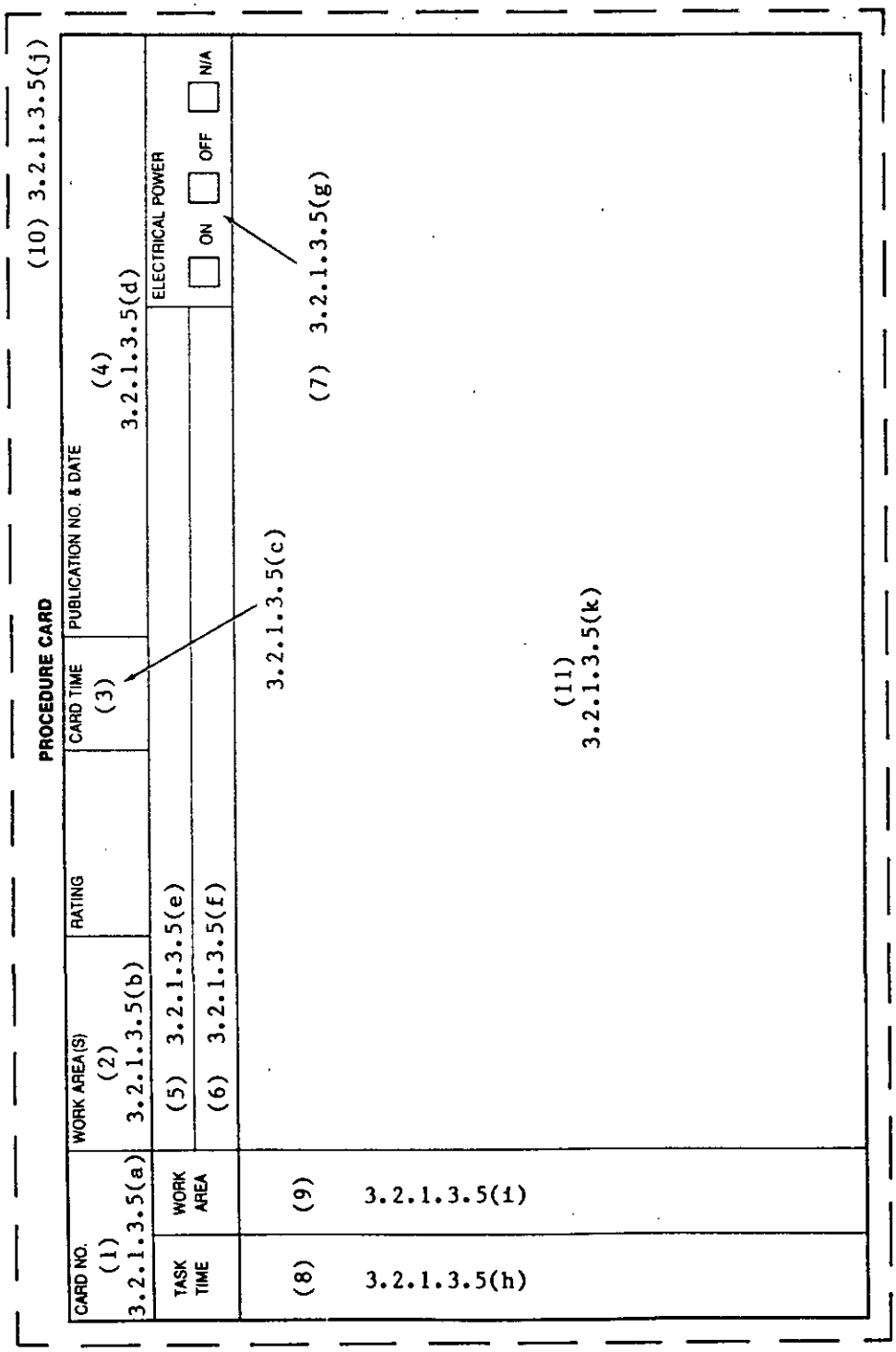
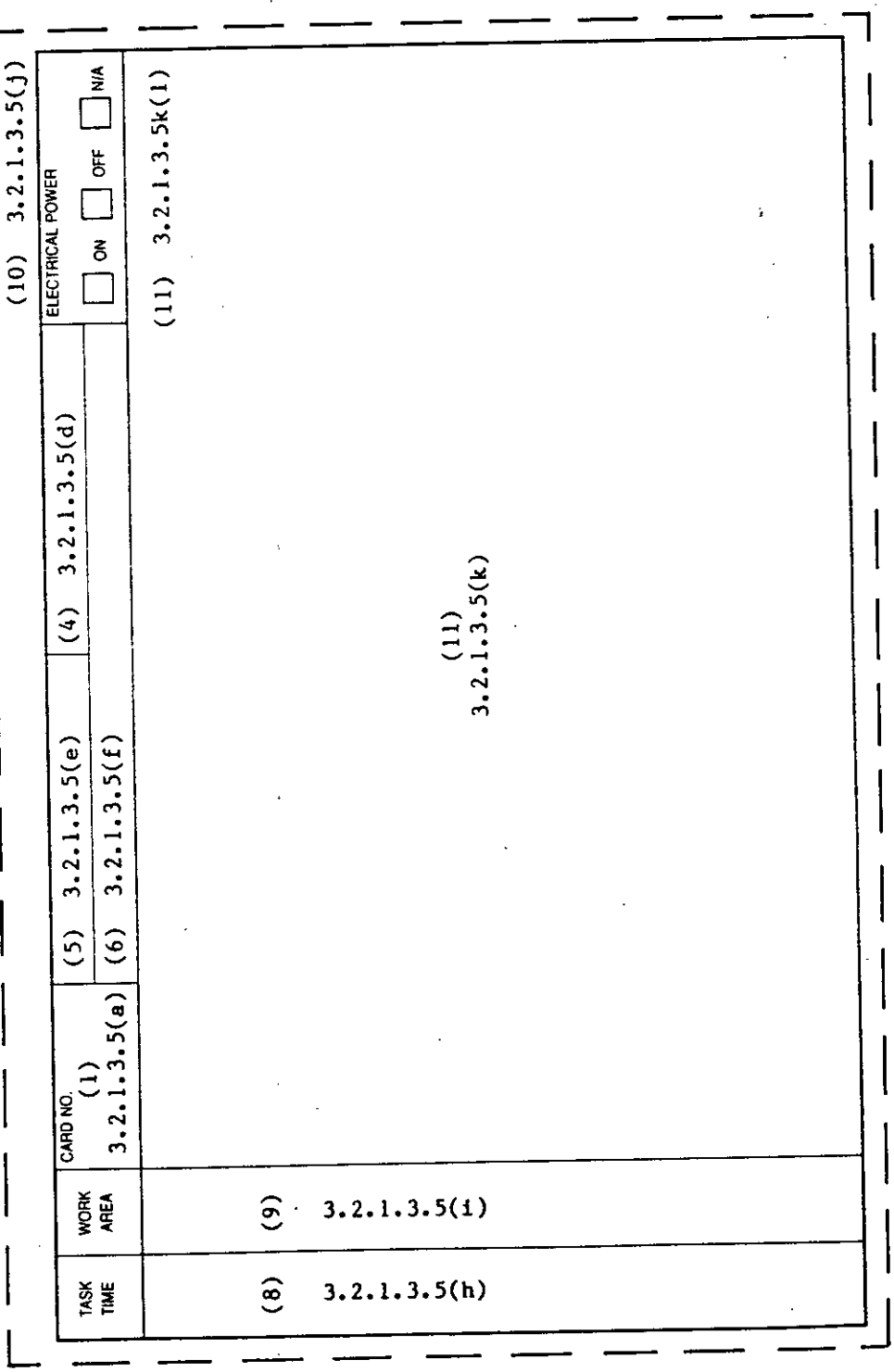


Figure 18. Lubrication Illustration Card (Alternate Symbol Arrangement)



NOTE: Paragraph numbers of pertinent descriptive text are included.

Figure 20. MRC Format, PROCEDURE (Basic)



NOTE: Paragraph numbers of pertinent descriptive text are included.

Figure 21. MRC Format, PROCEDURE (Continuation)

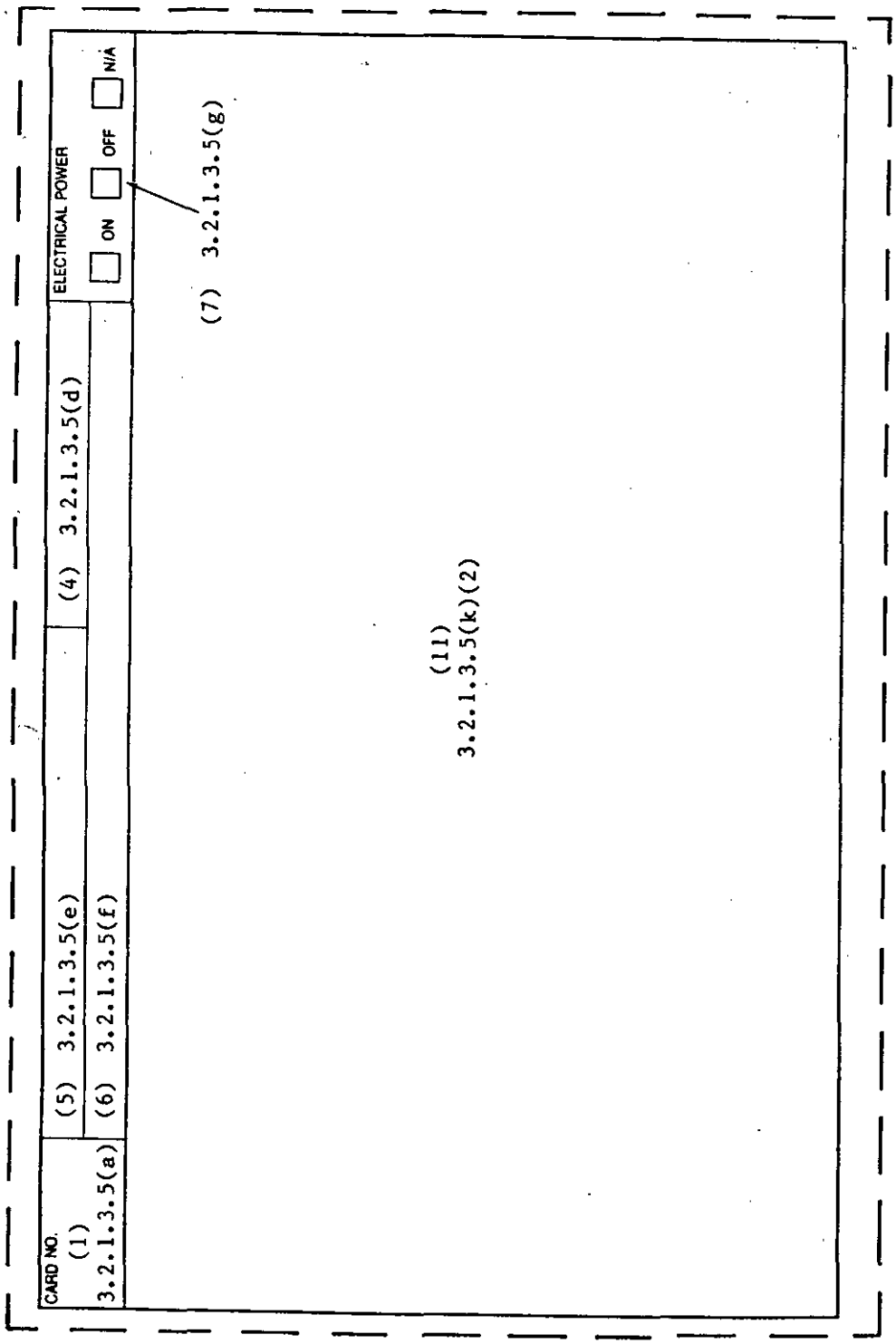


Figure 22. MRC Format, Illustration (Continuation)

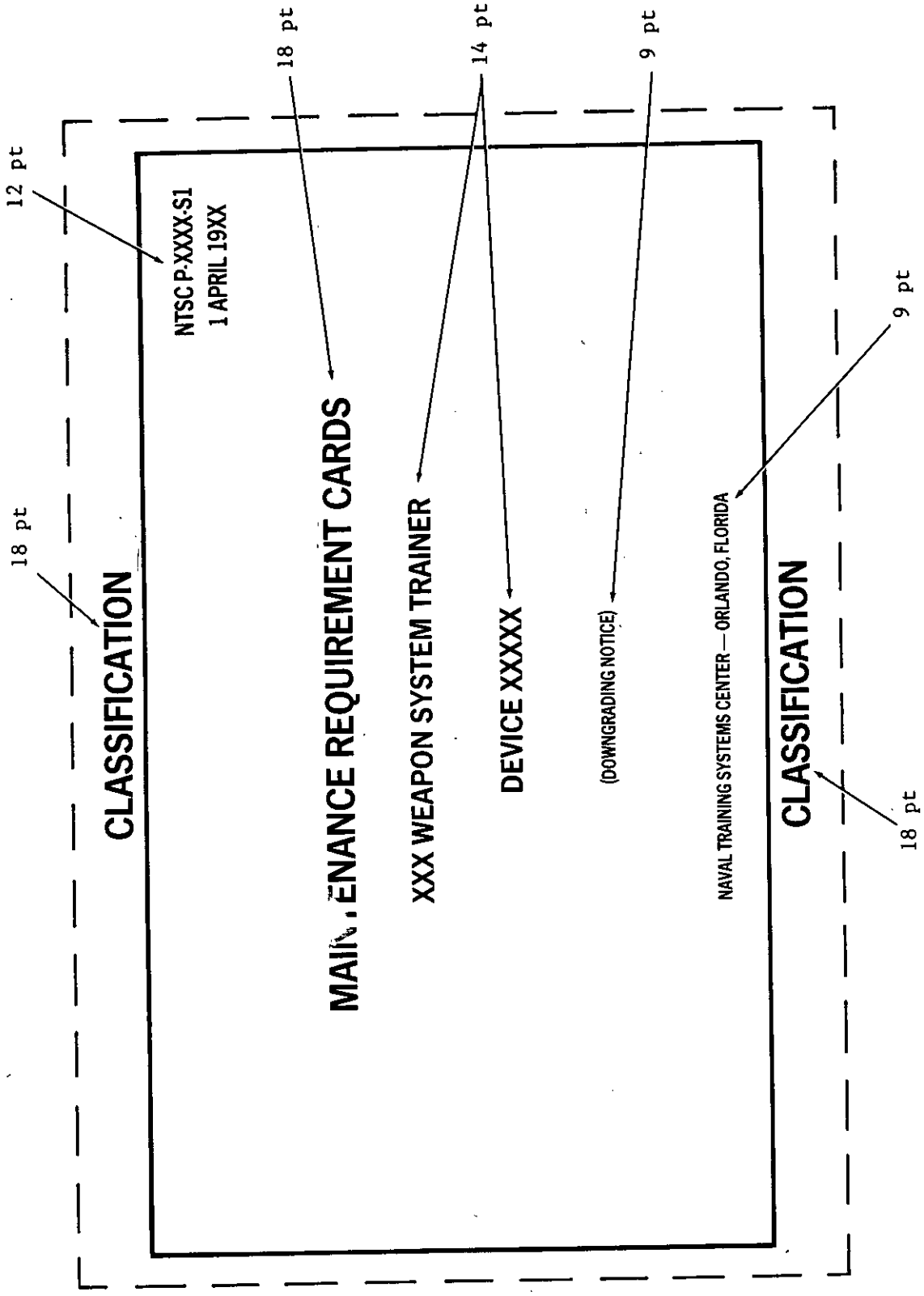


Figure 23. Sample Title Card Format (Classified)

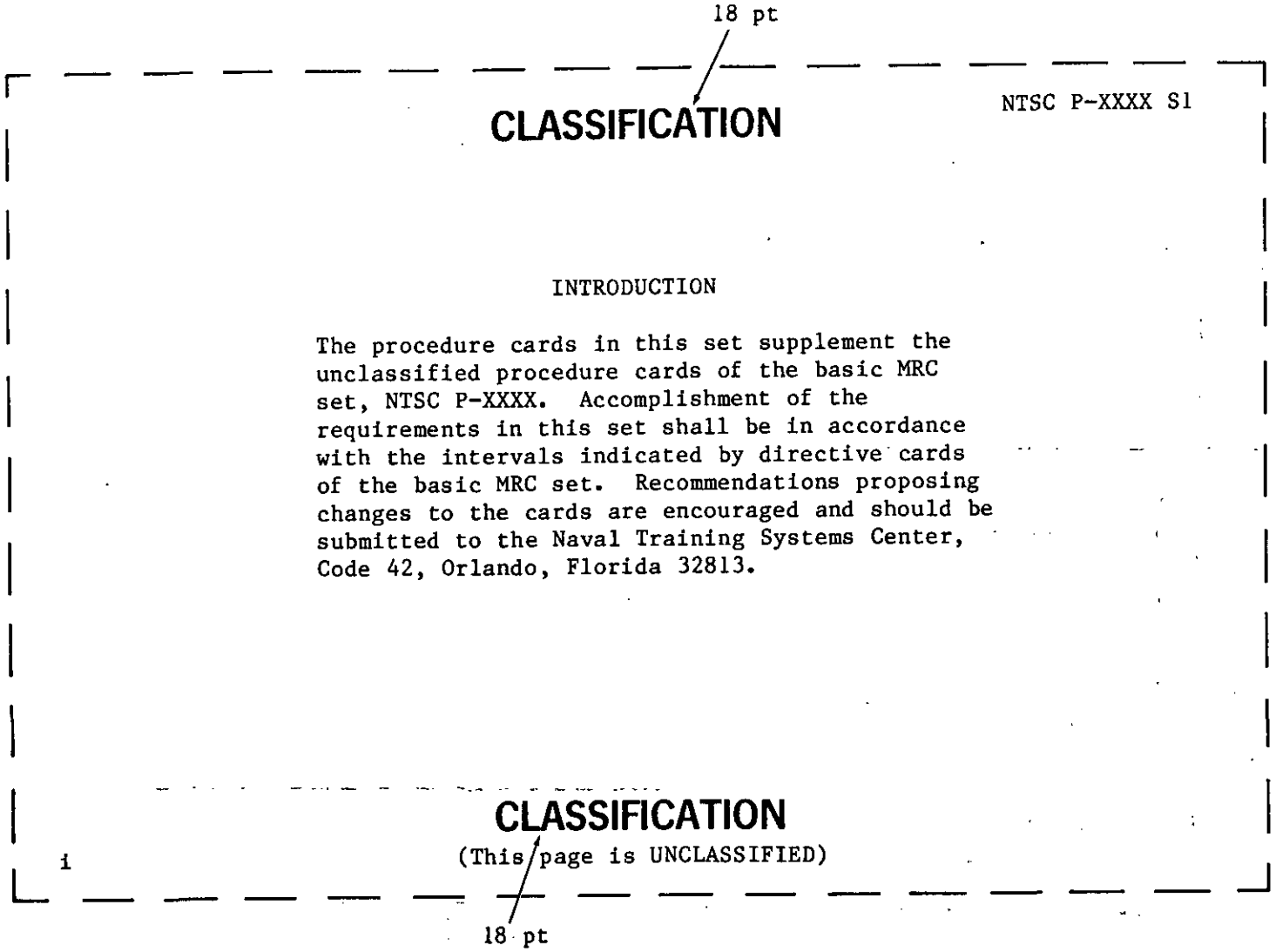


Figure 24. Sample Introduction Card Format (Supplemental MRC Set)

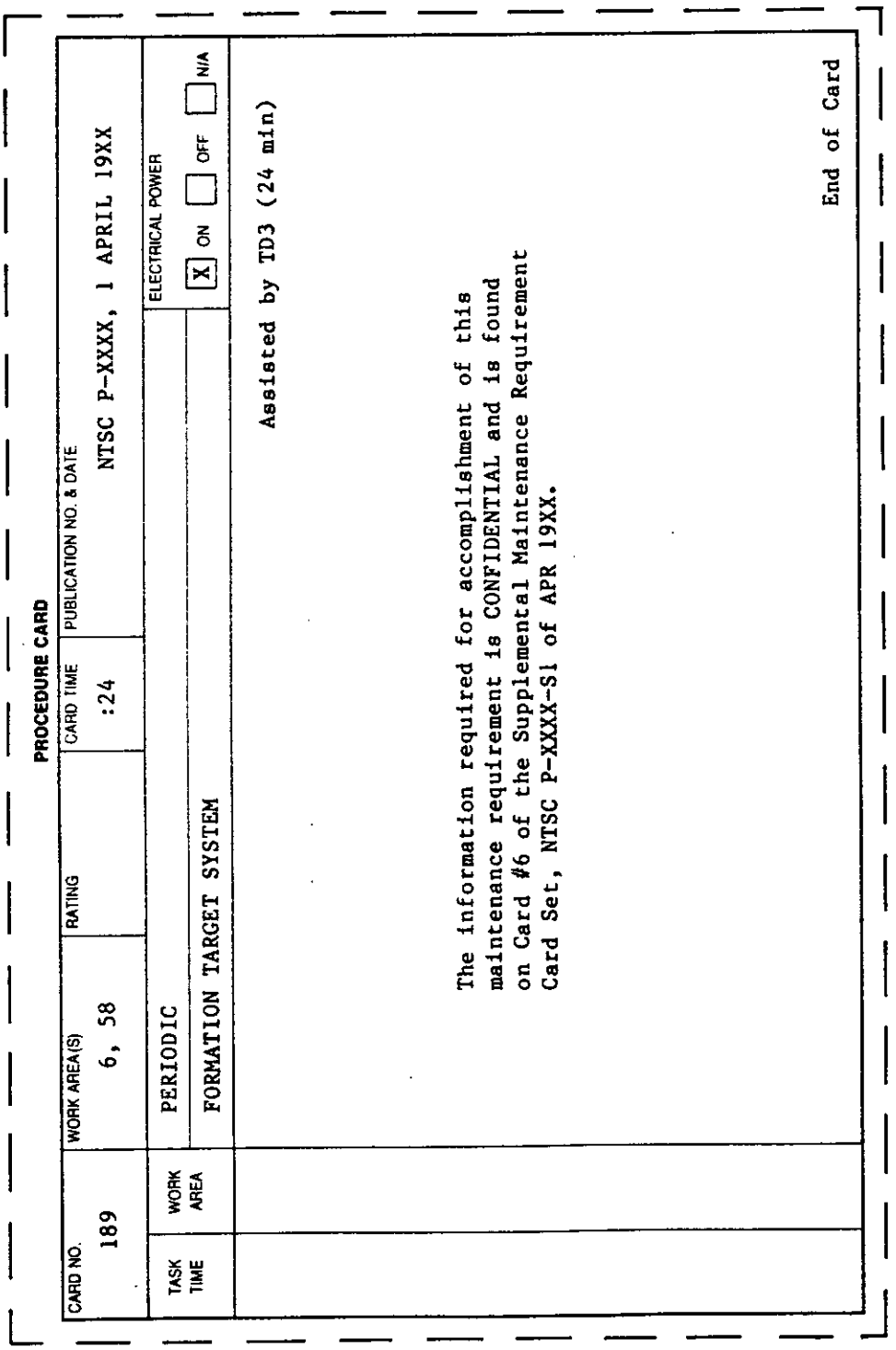


Figure 25. Sample Directive Card Format

*U.S. GOVERNMENT PRINTING OFFICE: 1989--604-033/11709

LEGEND

Minimum type sizes shall be as follows:

1. 72 point
2. 36 point
3. 24 point
4. 18 point
5. 16 point
6. 14 point
7. 10 point

TYPE STYLE SHALL BE DETERMINED BY SIZE AS FOLLOWS:

All type greater than 16 point shall be News Gothic Bold or equivalent. Type which is 16 point or smaller shall be News Gothic Bold Condensed or equivalent.

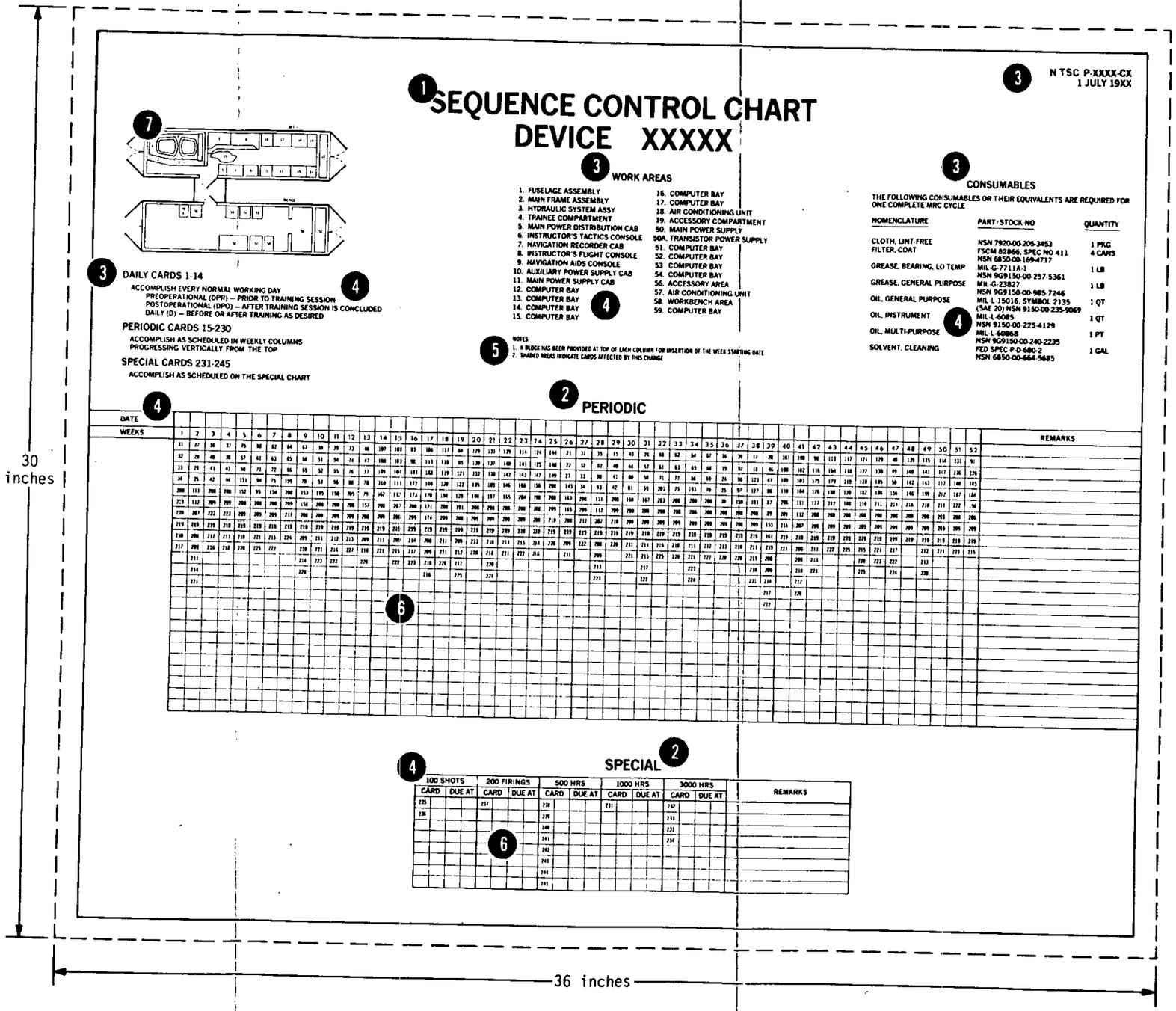


Figure 26. Sample Sequence Control Chart

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-P-29005B (TD)	PUBLICATIONS, PLANNED MAINTAINANCE SYSTEM, FOR TRAINING DEVICES

3a. NAME OF SUBMITTING ORGANIZATION

b. ADDRESS *(Street, City, State, ZIP Code)*

4. TYPE OF ORGANIZATION *(Mark one)*

- ☐ VENDOR
- ☐ USER
- ☐ MANUFACTURER
- ☐ OTHER *(Specify)*: _____

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

(TO DETACH THIS FORM, CUT ALONG THIS LINE.)

DD FORM 82 MAR 1426

PREVIOUS EDITION IS OBSOLETE.

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