

**BY ORDER OF THE COMMANDER
OKLAHOMA CITY AIR LOGISTICS
COMPLEX**

**OKLAHOMA CITY AIR LOGISTICS
COMPLEX INSTRUCTION 21-203**

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Maintenance



**EQUIPMENT-MAINTENANCE/
INSPECTION AND DOCUMENTATION**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction establishes responsibilities and procedures for the Air Force Technical Order (AFTO) Form 244/245, Industrial/Support Equipment Record or computer-generated equivalent, for equipment delayed discrepancies, corrective actions, record service, periodic and special inspections, record inspection status and historical data in accordance with (IAW) Technical Orders (TOs), Air Force Occupational Safety and Health (AFOSH) Standards (Stds) and local directives. This instruction prescribes responsibilities and provides general instructions for Preventive Maintenance (PM) and Predictive Maintenance (PdM) of Support Equipment (SE). This includes recording the cost of equipment repair and modification IAW Air Force Materiel Command Instruction (AFMCI) 21-127, Depot Maintenance Plant Management. The instruction applies to all personnel within the Oklahoma City Air Logistics Complex (OC-ALC). In the event of conflicting guidance, the most stringent requirements will take precedence. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force (AF) Form 847, Recommendation for Change of Publication; route AF Forms 847 from the field through the appropriate chain of command.

SUMMARY OF CHANGES

Defined responsibilities for the documentation of maintenance accomplished by contractors, defined Red X definition for hoists and defined Red X and Red / definition for priority 3 repair trouble calls. Added requirement for group commander (CC) approval for AFTO Form 244 collocation, added Attachment 10, "76 MXSG Table of Unsupported Equipment" and administrative changes.

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Chapter 1

AFTO FORM 244, DOCUMENTATION REQUIREMENTS

1.1. AFTO Form 244 General Information and Documentation Requirements.

1.1.1. Overdue Test, Measurement and Diagnostic Equipment (TMDE). Owning work centers shall not use the AFTO Form 244/245 to document overdue calibrations. Use the AFTO Form 350, Repairable Item Processing Tag, for this purpose.

1.1.2. AFTO Form 244/245 entries will only be in black (pencil or ballpoint pen), unless otherwise specified.

1.1.3. Minimum signature consists of the first name initial, last name (not necessarily in this order), and employee number, or USERID or equivalent/FAA (Federal Aviation Administration) certification number. Electronic signatures may be used in lieu of these requirements.

1.1.3.1. The OC-ALC may use a production stamp in place of the employee number.

1.1.3.2. Contractors will use their FAA certification number or equivalent in place of the employee number.

1.1.4. All “symbol” block entries will be made in red.

1.1.5. Red symbol entries will never be erased even when entered in error.

1.1.6. All “date” entries will be eight digits in order of year, month and day (yyyymmdd) i.e., 20010306.

1.1.7. Documents will be maintained legible, complete, correct and clean.

1.1.8. AFTO Form 244 will be attached to equipment. Exception: When equipment use or size makes it hazardous or impractical for the form to accompany the equipment, the group CC must designate in writing permission for such forms to be maintained in a separate file. It is the user’s responsibility to review equipment documentation prior to use to ensure that all inspections are current and any discrepancies have been identified on the AFTO Form 244, part V.

1.1.9. Specific inspection criteria for any equipment will be IAW equipment/general TOs, Original Equipment Manufacturers (OEM) manual, AFOSH Stds, engineering documents, similar equipment inspection work cards or local instructions.

1.1.10. Entries will be documented in a sequential order (i.e., either “top-to-bottom” or “left-to-right”).

1.2. AFTO Form 244 Block Identification.

1.2.1. AFTO Form 244, part I, provides a means to identify the SE for which the form is maintained.

1.2.1.1. Block 1. Enter the nomenclature/model number (e.g., air compressor/MC2A).

1.2.1.2. Block 2. Enter the assigned AF registration/serial number. Leave blank if not applicable.

1.2.1.3. Block 3. Enter the identification number (a locally defined equipment-type identifier, for DIPE enter the Oklahoma City (OC) number), if assigned. Leave blank if not assigned.

1.2.1.4. Block 4. Enter the field number. Leave blank if not applicable.

1.2.1.5. Block 5. Enter the Work Unit Code (WUC) if one is assigned. Leave blank if not applicable.

1.2.1.6. Block 6. Enter the assigned organization/work center (e.g., 76 AMXG/MXAATA).

1.2.1.7. Block 7. Enter the date the form was initiated to the 'left' of the word "TO." Once the form is closed out or the equipment is turned into supply/salvage enter the close out date to the right of the word "TO" (e.g., "20040430 TO =" new/current form, "20040430 TO 20041230" = closed out form).

1.2.1.8. Block 8. Leave blank if not applicable. This block may be used for 76 MXSG/CC specific requirements.

1.2.2. AFTO Form 244, part II, provides a means to document the accomplishment of daily or prior to use (Daily/PU) specific operator maintenance (OM) or inspections as outlined on the AFMC Form 306, Preventive Maintenance Instruction (or equivalent), OEM manual, commercial off-the-shelf (COTS) manual, checklist, work card or applicable weapon system peculiar TO and AFOSH std. Daily/PU is defined: These actions are to be reviewed prior to use. Signing off on these actions means you have accomplished all actions required prior to the use of the equipment and you have read, understand and will accomplish those actions required during and after use. These actions are to be reviewed by each shift using the equipment with appropriate actions being accomplished as directed by the AFMC Form 306. These actions and associated sign offs need only be accomplished once per calendar day on those days the equipment is used regardless of multiple shift use.

1.2.2.1. Time Column. Enter the time (in 24-hour military time) the service/prior to use inspection was accomplished. If the unit is equipped with a running time meter, the metered time may be entered in place of the time of day. For SE inspected at hourly intervals, enter the daily/accumulated time.

1.2.2.2. Inspector's Initials Column. Enter the first initial, last initial of the individual completing the inspection.

1.2.2.3. Date Column. Enter the date (yyyymmdd) the inspection was accomplished.

1.2.3. AFTO Form 244, part III, provides a means to document the accomplishment of specific OM or inspections other than Daily/PU as outlined on the AFMC Form 306 (or equivalent), OEM, COTS manual, checklist, work card, or applicable weapon system peculiar TO and AFOSH std. These actions must be accomplished at their set interval regardless of equipment usage. Due-by dates are defined by the last time the action was accomplished plus the defined interval. Actions are required to be accomplished within that interval.

1.2.3.1. Inspection Requirement. In this column, enter the type of inspection due (e.g., weekly, monthly, etc.), periodic inspection, special wheel bearing packing, lubing etc. Any specific operator inspections/maintenance, other than Daily/PU, will be documented

in part III. Initials for the technician performing specific OM will not be required in part III.

1.2.3.2. Interval. In this column, enter the next scheduled inspection interval (e.g., 30-, 60-, and 180-day, or 500-hour, etc.).

1.2.3.3. Date Due. In this column, enter the next inspection due in the next open date due block.

1.2.3.4. Date Completed. Enter the hour/date inspection was completed. Enter a new inspection due date in next Date Due block.

1.2.4. AFTO Form 244, part IV. This form provides a means to document a quality control or supervisory review of the form. Supervisors may also designate, in writing, an individual who will satisfy the review requirement. The letter will be maintained by the work center supervisor. Ensure all the applicable blocks are filled out correctly, operator specific PM inspections are being accomplished on time and documented, and discrepancies corrected are signed off correctly. The interval for this review is every 6 months. This section will not be used for documenting inspection of completed maintenance actions.

1.2.4.1. Employee Number. Enter reviewer's employee number or first name initial, last name and grade (preferred method) or production stamp.

1.2.4.2. Date. Enter the date (yyyymmdd e.g., 20010306) the review was accomplished.

1.2.5. AFTO Form 244/245, part V. This form provides a means to document equipment discrepancies and corrective actions. The following conditions will be recorded in this part of the form.

1.2.5.1. Delayed discrepancies that cannot be corrected as part of the maintenance actions in progress will be scheduled for follow-on maintenance actions.

1.2.5.2. Use a Red X when an inspection renders the SE unsafe or unserviceable.

1.2.5.3. Overdue inspection, including portions of inspections not accomplished during the scheduled inspection (e.g., work card and/or work card items not completed by the end of the due period).

1.2.5.4. Overdue time change, Master Configuration Lists (MCLs) and Time Compliance Technical Orders (TCTOs).

1.2.5.5. Discrepancies discovered by the operator during operation of the system/equipment.

1.2.5.6. Part V will be completed as follows:

1.2.5.6.1. Block 9—TO. Enter the TO number or manufacturer's manual number/title that covers the item identified in block 1.

1.2.5.6.1.1. If a TO or AFOSH std is used, enter the document number.

1.2.5.6.1.2. If an OEM manual or COTS manual is used, enter the manual number or title.

1.2.5.6.2. Block 10—NSN. Enter the assigned National Stock Number or part number for item identified in block 1. Leave blank if not applicable.

1.2.5.6.3. Block 11 and Block 12. These blocks are left blank, unless approved for use by Major Command (MAJCOM).

1.2.5.6.4. Date Discovered. In this column, enter the date the discrepancy is discovered; the original date is brought forward to the new form when entries are carried forward from an old form.

1.2.5.6.5. Discovered By. In this column, the individual discovering the discrepancy will include his/her minimum signature.

1.2.5.6.6. Sup Doc Number. In this column, enter the base supply document number(s). This block is not required for units using Maintenance Information Systems (MIS) or if directed by the maintenance group commander. When two or more supply document numbers are needed to adequately define base supply support for repairing a discrepancy, add all additional supply document numbers needed to correct the discrepancy after the statement of the discrepancy. If necessary, use of the next open discrepancy block is authorized. If the next block is used all adjacent blocks will be lined through. As these requisitions from base supply are received by the requester, draw a single line through the document number to show its receipt.

1.2.5.6.7. Symbol. In this column, enter the applicable red symbol for the discrepancy.

1.2.5.6.8. Discrepancy. In this column, enter the discrepancy or maintenance action required. Only one defect will be entered in each block for each job control or work order number; however, use as many blocks as necessary to completely describe a single discrepancy.

1.2.5.6.9. Job CON/WO Number. In this column, enter the job control or work order number assigned to the discrepancy.

1.2.5.6.10. Corrective Action. In this column, enter the description of the corrective action taken. For Red X and Red Dash discrepancies, include TO (including page and paragraph/figure number or function number), if applicable, or equivalent, in the "Corrective Action" block and enter the date in the "Date Corrected" block. Depot Industrial Plant Equipment (Depot Industrial Plant Equipment (DIPE)) is excluded from this requirement since the TO reference is listed on the equipment. Maintenance group commanders may specify additional minimum TO reference. If more space is needed to make this entry, use the next open block.

1.2.5.6.11. Date Corrected. In this column, enter the date (yyyymmdd e.g., 20010306) the discrepancy is corrected.

1.2.5.6.12. Corrected By. In this column, the individual who corrects the discrepancy will sign his/her signature in this block.

1.2.5.6.13. Inspected By. In this column, the individual clearing a Red - (dash) or Red X will enter his/her minimum signature in this block and last name initial over the Red symbol in the symbol column.

1.2.6. AFTO Form 245. This form provides a continuation to part V of the AFTO Form 244. This form will be completed using the same instructions as provided for part V of the AFTO Form 244.

1.3. AFTO Form 244 Symbols.

1.3.1. Symbol entries will be made in RED to make the important warning signals stand out clearly. All manually entered symbols must be entered in RED, except black name initials placed over the RED symbol.

1.3.2. Red X entries on the AFTO Form 244, for support equipment, can only be cleared by the shop supervisor/work leader or appointee (designated in writing).

1.3.3. RED (X) Symbol.

1.3.3.1. A Red X indicates that the SE is considered unsafe or unserviceable and will not be used until the unsatisfactory condition is corrected and symbol is cleared.

1.3.3.2. Exception: SE with a Red X condition may be operated as necessary to troubleshoot or repair the discrepancy.

1.3.4. RED – (Dash) Symbol.

1.3.4.1. A RED Dash indicates that a required scheduled inspection, special inspection or operation check is overdue.

1.3.4.2. Also used to indicate that the condition of the equipment is unknown and a more serious condition may exist.

1.3.5. RED / (Diagonal) Symbol.

1.3.5.1. A RED Diagonal indicates that an unsatisfactory condition exists on the equipment but is not sufficiently urgent or dangerous to warrant discontinuing use of the equipment.

1.3.6. Changing RED Symbols (After an Original Entry).

1.3.6.1. Symbols/Initials once entered will NEVER be erased even if entered in error.

1.3.6.2. Reasons for changing a RED symbol:

1.3.6.2.1. Condition is more serious than previously entered.

1.3.6.2.2. Condition is less serious than previously entered.

1.3.6.2.3. Symbol/Initials were entered in error.

1.3.7. Clearing RED Symbols:

1.3.7.1. The black last name initial entered over the symbol in the “Symbol” block indicates that the individual whose name appears in the signature block related to the particular entry has accomplished the required maintenance or has inspected the equipment, work accomplished, or system specified and has found the deficiency cleared.

1.3.7.2. The individual who signs off a RED symbol for a specific maintenance task must be authorized, familiar with the task, and knowledgeable of the technical orders required to accomplish the task.

1.3.7.3. When the initial is entered, consider the discrepancy indicated by the symbol cleared and discrepancy has been corrected.

1.3.7.4. When a Red Dash or Red Diagonal is entered in error on a discrepancy or work document, the individual discovering the incorrect entry enters the following statement in the “Corrective Action” block: “Symbol/Initial entered in error, discrepancy and correct symbol/initial reentered on page ___, item ___,” or “Symbol entered in error, no discrepancy exists,” and enter their minimum signature. When required, re-enter the discrepancy, and correct symbol in the next open “Discrepancy” block on the form.

1.3.7.5. If the erroneous symbol is a Red X, the individual discovering the incorrect entry will enter the applicable statement identified in paragraph 1.3.7.4. If they are authorized to clear these symbols, they will complete the “Inspected By” block and initial over the symbol. If they are not authorized to clear these symbols, they will sign the “Corrected By” block. The individual authorized to clear these symbols will place their last name initial over the symbol and complete the “Inspected By” block.

1.3.7.6. If the erroneous item is an initial, clear the discrepancy by entering “Initial entered in error, see Page ___ Item ___,” sign the “Corrected By” block and reenter the discrepancy in the next open block.

1.4. AFTO Form 244 Maintenance and Disposition Instructions.

1.4.1. When carrying the “Discovered By” block forward, print the first initial, last name and grade of the individual that originally discovered the discrepancy.

1.4.2. When closing out the AFTO Form 244, the current date will be entered in block 7 (following the “TO”) and carried forward (CF) will be entered in the Date Compl block of part III followed by the closer’s initials. For each open discrepancy, enter in the corrective action block CF and the closer’s first name initial, last name and grade.

1.4.3. Completed AFTO Form 244/245 or computer-generated equivalent will be kept on file by the shop supervisor for one-year. AFTO Form 244/245 or computer-generated equivalent will be destroyed after one year.

Chapter 2

EQUIPMENT MAINTENANCE

2.1. Maintenance Concept: This chapter provides guidance for maintenance procedures and practices to ensure reliability and mission support capability of Depot Industrial Plant Equipment (DIPE), Non-DIPE, and On-Condition Maintenance (OCM) equipment.

2.2. Maintenance Program Determination.

2.2.1. Types of Equipment. The 76th Maintenance Support Squadron (76 MXSS), with the aid of the maintenance groups, determines which equipment requires specific operator maintenance (OM) and the equipment to be included in the preventive maintenance (PM) and predictive maintenance (PdM) programs managed by the 76 MXSS.

2.2.1.1. DIPE is defined as permanently affixed/fixed location equipment not readily movable or other equipment as determined by the 76 MXSS Equipment Specialists. DIPE will be identified with a 76 MXSS identification number (e.g., OC number). The following criteria will be applied to determine if equipment will be included in the maintenance management PM and/or PdM program.

2.2.1.1.1. Equipment creating an unsafe or hazardous environment if failure occurred, due to lack of PM and/or PdM, will be included.

2.2.1.1.2. All weapon peculiar equipment having specific PM and/or PdM requirements delineated by an applicable TO will be included.

2.2.1.1.3. Equipment subject to breakdown repairs that are expensive compared to PM and/or PdM will be included.

2.2.1.1.4. Equipment critical to production and where failure would result in costly downtime will be included.

2.2.1.1.5. Equipment not critical to the depot maintenance process (e.g., small drill press) that can be repaired without regard to downtime or equipment availability should be excluded.

2.2.1.1.6. Equipment of small dollar value, where the cost of PM and/or PdM is likely to exceed the cost of replacement upon failure, should be excluded.

2.2.1.2. Attachment 10 contains a list of examples of items that will be excluded. The list is not all inclusive and exceptions can/may be made.

2.2.1.3. Non-DIPE is defined as any support equipment that is not classified as DIPE and does not have a 76 MXSS identification number, IAW AFMCI 21-127, *Depot Maintenance Plant Management*, Chapter 2.

2.2.1.4. OCM is defined as depot machinery and shop equipment which has no periodic, recurring inspections and does not have a 76 MXSS identification number.

2.3. Preventive Maintenance.

2.3.1. PM consists of equipment maintenance actions performed on a periodic basis according to a specific set of instructions and a predetermined time schedule. The objective

of PM is to protect the equipment capability and investment by removing causes of failure and making adjustments to compensate for normal wear before failures occur.

2.3.2. PM for OC-ALC equipment will be performed by the operator, 76 MXSS or contractor personnel, on a periodic basis according to a predetermined schedule. The description of operator and 76 MXSS PM and level of accomplishment is as follows:

2.3.2.1. Operator PM consists of two categories, general and specific, and is performed by the operator on each shift (or if only used periodically) upon the initial starting of equipment.

2.3.2.1.1. General Operator PM applies to all equipment to ensure serviceability of equipment prior to use. It consists of a review of equipment documentation for current status (AFTO Form 244, DD Form 1577-2, *Unserviceable (Repairable) Tag-Material*, or the user interface to Facilities and Equipment Maintenance (FEM) System [FEMWEB], if applicable) and a Daily/PU visual inspection of equipment for conditions; such as malfunctions, damage, cleanliness, proper lubrication, and potential safety/fire hazards. Any of these conditions, which cannot be corrected by the operator, will be called to the attention of the supervisor for corrective action. No daily certification of this inspection is required to be documented on AFTO Form 244. Equipment will be cleaned and lubricated at intervals consistent with equipment care and good housekeeping standards.

2.3.2.1.2. Specific Operator PM includes, but is not limited to, maintenance of a critical nature which, if neglected, could result in costly equipment damage or create an unsafe condition. The performance of this maintenance will be documented on AFTO Form 244, part II, for daily specific operator PM and part III, for all other specific PM requirements. The inspection requirements are listed on the AFMC Form 306 (or equivalent), applicable equipment/general TO and AFOSH stds, commercial operator manuals, etc.

2.3.2.1.3. The shop supervisor/appointee (appointed by letter) will monitor both general and specific operator maintenance to ensure accomplishment by reviewing the AFTO Form 244 for accuracy and completeness. The supervisor/appointee will document the review on part IV of the AFTO Form 244 every 6 months (paragraph 1.2.4.).

2.3.2.2. 76 MXSS PM is performed by the Plant Management Flight (76 MXSS/MXDVA) and the Precision Measurement Equipment Laboratory (PMEL) Flight (76 MXSS/MXDCA) on a scheduled basis (e.g., monthly, quarterly or yearly).

2.3.2.3. PM performed on DIPE by contractors will be tracked and documented on the AFTO Form 244 or in the FEM System.

2.3.2.3.1. Existing contracts include the requirement for the contractor to document PM on the AFTO Form 244 or in the Facilities and Equipment Maintenance (Facilities and Equipment Maintenance (FEM)) System.

2.3.2.3.2. All new contracts that are awarded are to include the requirement for the PM to be documented in the FEM System.

2.4. Predictive Maintenance Work is a process of using electrical and mechanical testing and diagnostic devices to predict when a piece of equipment is deviating from its normal operating parameters. It is also designed to protect equipment capability and investment by removing causes of failure and making adjustment to compensate for normal wear before failure or an unsafe condition occurs. The Predictive Maintenance Team will provide necessary trending data and analytical reports to management and initiate a work order in the FEM system.

2.4.1. Predictive Maintenance Includes:

2.4.1.1. Infrared Thermography: Infrared thermography can detect electrical anomalies such as loose connections, overloaded circuits and failed motors. It can also detect failing bearings, steam systems, coupling and alignment problems, air leaks, fluid levels, and blocked heat exchangers.

2.4.1.2. Oil Analysis: Immediate benefits are from the decrease in oil purchases by changing the oil based on condition versus changing the oil based on time. Impending equipment failures such as failed bearings and gears can be detected.

2.4.1.3. Vibration Analysis: The vibrations that exist in all rotating machinery have unique “signatures.” Detailed analysis makes it possible to identify abnormal signals and determine appropriate corrective action.

2.4.1.4. Ultrasonic Analysis: Identifies various types of leaks, e.g., compressed air, process gases, vacuum, steam, hydraulic and refrigerants. These are used to trend mechanical operations and detect electrical discharges such as corona, tracking and arcing.

2.4.1.5. Laser Alignment: Positioning two or more machine components so that their rotational centerlines are collinear at the coupling point under operating conditions. The PdM team may assist technicians with the operation of laser shaft alignments.

2.4.1.6. Motor Analysis: Identifies and analyzes electrical defects using all major electric tests including surge, polarization index, DC hipot, megohm, and winding resistance. It also identifies power quality issues, machine and motor performance and estimates energy savings, detects voltage levels and unbalance, rotor cage condition, efficiency, under/over current, harmonic and total distortion, torque ripple and load history.

2.5. Responsibilities.

2.5.1. The maintenance groups (76 AMXG, 76 CMXG, 76 MXSG, 76 PMXG, 76 SMXG, etc.) will:

2.5.1.1. Submit a completed Department of Defense (Department of Defense (DD)) Form 2875, *System Authorization Access Request (SAAR)*, to OC-ALC/ITED (IT System OPR) for a minimum of one primary and one alternate who will be the Contract Maintenance Liaison (Contract Maintenance Liaison (CML)) responsible for managing FEM work orders for tasks accomplished by contractors required to use FEM, but do not have access to FEM, on DIPE within their group. This will ensure that FEMWEB accurately reflects equipment status (i.e., Red X, Red / & Red -) when maintenance is accomplished by contractors required to use FEM, but do not have access to FEM. Contractors that are required to use FEM and have access to FEM (security clearance,

FEM account, crew Identification (ID) Identification (), etc.) will manage their own FEM work orders. Contact information for OC-ALC/ITED (IT System OPR) is available at <https://wwwmil.tinker.af.mil/ites/sysInfo.asp?sysId=D130>

2.5.1.1.1. Equipment owners within the groups are responsible for ensuring that contractor maintenance is satisfactorily accomplished and the equipment is in serviceable condition before accepting the equipment. When the work is accomplished by contractors required to use FEM, but do not have access to FEM, documentation for the acceptance of work accomplished by contractors will be forwarded to the group primary or alternate CML so the work orders can be closed.

2.5.2. Engineering organization within the applicable maintenance groups will:

2.5.2.1. Complete Parts I and II of AFMC Form 388, *Machine Tool and Equipment Historical Record*, and forward, with a copy of maintenance/parts manuals or applicable TOs, to Equipment Engineering Flight (76 MXSS/MXDEA) for DIPE only (see Attachment 2 for complete instructions). Use the following workflow e-mail address “76 MXSS Equipment Engineering” 76mxss.equipment.engineering@us.af.mil for routing electronic versions or deliver in person to the Equipment Engineering office in building 3001, located at column 2U73.

2.5.2.2. Notify 76 MXSS/MXDEA when modifications have been made to TOs that affect DIPE maintenance requirements. Use 76 MXSS Equipment Engineering workflow e-mail address 76mxss.equipment.engineering@us.af.mil.

2.5.2.3. Notify 76 MXSS/MXDEA when modifications need to be made to the contents of the AFMC Form 306 for DIPE in their organization. Use 76 MXSS Equipment Engineering workflow e-mail address 76mxss.equipment.engineering@us.af.mil.

2.5.2.4. Ensure any modifications made to equipment, such as installation of safety guards, interlocks, etc., are brought to the attention of 76 MXSS/MXDEA. Subject modifications can then be incorporated into the AFMC Form 388 and the appropriate PM requirements can be determined.

2.5.2.5. Ensure that all engineering requests/inquires relative to equipment in the FEM system reference the 76 MXSS identification number (e.g., OC number) assigned to the particular piece of equipment.

2.5.2.6. Determine if equipment that is no longer in use for an extended period (e.g., intermittent workload) will be needed for future workload.

2.5.2.6.1. If the equipment is not going to be needed to support future workloads, it must be either transferred to another organization or turned in to Supply/Defense Reutilization Marketing Office (DRMO).

2.5.2.6.2. If the equipment is needed to support future workloads, it must be determined whether Maintenance Support and/or Operator PM will be continued or suspended.

2.5.2.6.2.1. If PM is to be suspended, notify 76 MXSS/MXDEA by letter or email. Use 76 MXSS Equipment Engineering workflow e-mail address 76mxss.equipment.engineering@us.af.mil. The FEM equipment record will be changed to reflect a not in use (NIU) and Red X status.

2.5.2.6.2.2. When equipment is returned to service, notify 76 MXSS/ MXDEA by letter or email so that PM can be re-established. Use 76 MXSS Equipment Engineering workflow e-mail address 76mxss.equipment.engineering@us.af.mil.

2.5.2.6.2.3. Ensure corrosion preventive measures are accomplished, as needed, while not in use.

2.5.2.7. Determine required PM actions and frequencies for non-DIPE and provide the requirements to the shop supervisor on AFMC Form 306, applicable equipment/general TO, commercial operator manual, work card or checklist. If the AFMC Form 306 is used, the forms will be maintained by the applicable engineering organization.

2.5.3. The maintenance group shop supervisor/appointee will:

2.5.3.1. Depot Industrial Plant Equipment (DIPE).

2.5.3.1.1. Assist 76 MXSS/MXDEA in determining required PM actions and frequencies.

2.5.3.1.2. Ensure there is an operator AFMC Form 306, *Preventive Maintenance Instructions* (or equivalent) on or near the applicable DIPE prior to putting the DIPE into service/use. If missing, contact 76 MXSS/MXDEA at 736-5958 to receive a replacement. Use 76 MXSS Equipment Engineering workflow e-mail address 76mxss.equipment.engineering@us.af.mil.

2.5.3.1.2.1. For DIPE with specific operator PM that is put into service/use prior to receiving the AFMC Form 306 from 76 MXSS/MXDEA, ensure that the guidance (manual, technical order, AFOSH standard, etc.) is with the equipment and that the accomplishment is documented on the AFTO Form 244, parts II and/or III.

2.5.3.1.2.2. Supervisor/operator will verify that PM tasks contained on the AFMC Form 306 can be accomplished prior to placing the DIPE into serviceable use condition for production. Any condition which cannot be corrected by the operator will be called to the attention of the supervisor to facilitate correction by Plant Management.

2.5.3.1.3. Ensure all specific operator maintenance is performed by the operator/appointee at the frequencies prescribed on the AFMC Form 306 and documented on the AFTO Form 244, part II and/or part III, IAW paragraphs 1.2.2. and 1.2.3. of this instruction.

2.5.3.1.4. Accomplish the supervisory review of the AFTO Form 244 IAW paragraph 1.2.4.

2.5.3.1.5. Monitor the user interface to FEM (FEMWEB) daily and ensure all equipment with past due PM (**Red X** condition) is removed from service by tagging the equipment with a DD Form 1577-2. For equipment other than hoists and cranes, PM is considered past due when the due date is exceeded by one frequency cycle or 60 days, whichever is less. For hoists and cranes, PM is considered past due on the first day of the month following the month documented on the sticker on the item.

2.5.3.1.5.1. FEM will contain the red symbols for maintenance support and contractor PM actions on DIPE except contractor PM actions by contractors that are not required to use FEM. These symbols will be monitored using FEMWEB. The symbols will be cleared when the work order is closed.

2.5.3.1.6. Use FEMWEB to initiate repair trouble calls and set priority of work orders (paragraph 3.5.4.). Priorities are as follows:

2.5.3.1.6.1. FEM will contain the red symbols for maintenance support and contractor repair actions on DIPE except contractor repair actions by contractors that are not required to use FEM. These symbols will be monitored using FEMWEB. The symbols will be cleared when the work order is closed. Documentation of these trouble call/work orders on AFTO Form 244/245, part V will not be required.

2.5.3.1.6.2. **Priority Code 5 = Red X.** This is repair work that demands immediate response to prevent injury to personnel due to a safety hazard. Equipment will be immediately removed from service by temporarily tagging with an AF Form 982, *Do Not Start Tag*, until Maintenance Support determines the need for and accomplishes lockout tag out in accordance with Air Force Instruction (Air Force Instruction (AFI)) 91-203, *Air Force Consolidated Occupational Safety Standard*.

2.5.3.1.6.3. **Priority Code 4 = Red X.** This is repair work that demands immediate response to correct critical workload stoppage or involves risk of major damage to government property. Equipment items in this category will be removed from service and tagged with a DD Form 1577-2.

2.5.3.1.6.4. **Priority Code 3 = Red X or Red /.**

2.5.3.1.6.4.1. **Red X-** This is repair work of a routine nature where the equipment is unserviceable, but does not cause a critical workload stoppage. Equipment items in this category will be removed from service and tagged with a DD Form 1577-2.

2.5.3.1.6.4.2. **Red / -** This is repair work of a routine nature that is not sufficiently urgent to warrant removing the equipment from service.

2.5.3.1.6.5. **Priority Code 2 = Red /** Routine Repair.

2.5.3.1.6.6. **Priority Code 1 = Red /** Repair work that can be deferred.

2.5.3.1.7. Forward a letter or an e-mail notification to 76 MXSS/MXDEA when DIPE is removed or relocated. Use 76 MXSS Equipment Engineering workflow e-mail address 76mxss.equipment.engineering@us.af.mil. Relocation notification will include the maintenance support squadron identification number (e.g., OC number), building/post location, routing symbol and point of contact. Removal notification will include the 76 MXSS identification number (e.g., OC number) and point of contact.

2.5.3.1.8. Notify production engineering office when modifications need to be made to the contents of the Air Force Material Command (Air Force Material Command (AFMC)) Form 306 for DIPE in their organization.

2.5.3.1.9. Release equipment, in a timely manner to the appropriate 76 MXSS maintenance organization or contractor personnel, to ensure that PM and Corrective Maintenance (CM) are completed promptly and as scheduled.

2.5.3.1.10. Ensure the accomplishment of calibration on Precision Measurement Equipment (PME) items (gages, meters, etc.), attached to DIPE, IAW TO 00-20-14, *Air Force Metrology and Calibration Program*, section 3.

2.5.3.1.10.1. Remove DIPE from service and attach a DD Form 1577-2 annotating "Overdue Calibration" to equipment.

2.5.3.1.10.2. The supervisor/work leaders of the owning/using organization will ensure serviceability and remove/discard the DD Form 1577-2 after the PME technician has completed the calibration actions.

2.5.3.1.11. Ensure an AFTO Form 244/245 is maintained for DIPE under their control that has specific operator PM (an AFTO Form 244 is not required on DIPE that does not have specific operator PMs documented on AFMC Form 306).

2.5.3.1.12. Notify production engineering office when DIPE is no longer in use for an extended period (e.g., intermittent workload). Attach a DD Form 1577-2 with the annotation "NOT IN USE; ALL PM SUSPENDED" to the DIPE in a visible location.

2.5.3.1.13. Notify production engineering office when not in use DIPE needs to be returned to service. The DD Form 1577-2 will remain on the DIPE and the equipment will not be used until all PMs are accomplished and the form is removed by the 76 MXSS maintenance organization.

2.5.3.1.14. Notify the Bioenvironmental Engineering Flight (BEF), 76 MXSS/MXDEB Environmental office and 76 MXSS/MXDEA when a change occurs in parts processed or media used in the process (e.g., blast media, chemicals) which changes the occupational health assessment as reported in the shop's current Industrial Hygiene Assessment letter from BEF. IAW Oklahoma City Air Logistics Complex Operating Instruction (Oklahoma City Air Logistics Complex Operating Instruction (OC-ALCOI)) 32-7, *Hazardous Material Management*, Chemicals/HAZMAT must be approved before being brought on base. Use 76 MXSS Equipment Engineering workflow e-mail address 76mxss.equipment.engineering@us.af.mil.

2.5.3.2. Non-DIPE.

2.5.3.2.1. Coordinate with Production Engineering office to determine required PM actions and frequencies. The PM requirements will be referenced on AFMC Form 306, applicable equipment/general TO and AFOSH Stds, commercial operator manual, work card or checklist.

2.5.3.2.2. Ensure the applicable PM requirements are on or near the equipment. If missing, contact your Production Engineering office to receive a replacement.

2.5.3.2.3. Ensure all specific operator maintenance is performed by the operator/appointee at the prescribed frequencies and documented on the AFTO Form 244, part II and/or III, IAW paragraphs 1.2.2. and 1.2.3. of this instruction.

2.5.3.2.4. Accomplish the supervisory review of the AFTO Form 244 and document in part IV, IAW paragraph 1.2.4. of this instruction

2.5.3.2.5. Annotate all unscheduled discrepancies on the AFTO Form 244/245, part V, IAW paragraph 1.2.5. of this instruction.

2.5.3.2.6. Use FEMWEB to initiate repair trouble calls and set priority of work orders for repairs that cannot be accomplished by the owning work center (paragraph 3.5.4.). Documentation of these trouble call/work orders **must** be annotated on AFTO Form 244/245, part V. **Note: If the trouble call work order is cancelled by maintenance support, the original write-up is still valid until appropriate actions are taken to fix the discrepancy.** The original write-up will be cleared by the individual/organization who accomplishes the repair IAW chapter 1. Priorities are as follows:

2.5.3.2.6.1. **Priority Code 5 = Red X.** This is repair work that demands immediate response to prevent injury to personnel due to a safety hazard. Equipment will be immediately removed from service by temporarily tagging with an AF Form 982, until Maintenance Support determines the need for and accomplishes lock-out tag-out IAW AFI 91-203.

2.5.3.2.6.2. **Priority Code 4 = Red X.** This is repair work that demands immediate response to correct critical workload stoppage or involves risk of major damage to government property. Equipment items in this category will be removed from service and tagged with a DD Form 15772.

2.5.3.2.6.3. **Priority Code 3 = Red X or Red /.**

2.5.3.2.6.3.1. **Red X-.** This is repair work of a routine nature where the equipment is unserviceable, but does not cause a critical workload stoppage. Equipment items in this category will be removed from service and tagged with a DD Form 1577-2.

2.5.3.2.6.3.2. **Red /-.** This is repair work of a routine nature that is not sufficiently urgent to warrant removing the equipment from service.

2.5.3.2.6.4. **Priority Code 2 = Red /.** Routine Repair.

2.5.3.2.6.5. **Priority Code 1 = Red /.** Repair work that can be deferred.

2.5.3.2.7. Ensure the accomplishment of calibration on PME items (gages, meters, etc.), attached to Non-DIPE, IAW TO 0020-14, *Air Force Metrology and Calibration Program*, Section 3.

2.5.3.2.7.1. Remove Non-DIPE from service and attach a DD Form 1577-2 annotating "Overdue Calibration" to equipment.

2.5.3.2.7.2. The supervisor/work leaders of the owning/using organization will ensure serviceability and remove/discard the DD Form 1577-2 after the PME technician has completed the calibration actions.

2.5.3.2.8. Ensure all discrepancies are signed off in accordance with chapter 1.

2.5.3.2.9. Ensure AFTO Form 244/245 is maintained for equipment under their control.

2.5.3.3. OCM Depot Machinery and Support Equipment.

2.5.3.3.1. In conjunction with production, engineering functions will review and document which equipment items require only OCM. An OCM equipment master listing, signed by the approving engineering office and production supervisor, will be maintained by the production supervisor.

2.5.3.3.2. Ensure all unserviceable/repairable OCM equipment are removed from service and tagged with a DD Form 1577-1, *Unserviceable (Condemned) Tag-Materiel*, or DD Form 1577-2 with the discrepancy and work order number (if applicable) annotated on the back of the form.

2.5.3.3.3. Use FEMWEB to initiate repair trouble calls and set priority of work orders for repairs that cannot be accomplished by the owning work center (paragraph 3.5.4.). Priorities are as follows:

2.5.3.3.3.1. **Priority Code 5 = Red X.** This is repair work that demands immediate response to prevent injury to personnel due to a safety hazard. Equipment will be immediately removed from service by temporarily tagging with an AF Form 982, until maintenance support determines the need for and accomplishes lock-out tag-out IAW AFI 91-203.

2.5.3.3.3.2. **Priority Code 4 = Red X.** This is repair work that demands immediate response to correct critical workload stoppage or involves risk of major damage to government property. Equipment items in this category will be removed from service and tagged with a DD Form 15772.

2.5.3.3.3.3. **Priority Code 3 = Red X or Red /.**

2.5.3.3.3.3.1. **Red X-.** This is repair work of a routine nature where the equipment is unserviceable, but does not cause a critical workload stoppage. Equipment items in this category will be removed from service and tagged with a DD Form 1577-2.

2.5.3.3.3.3.2. **Red /-.** This is repair work of a routine nature that is not sufficiently urgent to warrant removing the equipment from service.

2.5.3.3.3.4. **Priority Code 2 = Red /.** Routine Repair.

2.5.3.3.3.5. **Priority Code 1 = Red /.** Repair work that can be deferred.

2.5.3.3.4. Ensure the DD Form 1577-2 is removed and discarded when the discrepancy has been corrected.

2.5.4. 76 MXSS/MXDEA will:

2.5.4.1. Perform the following tasks on newly acquired DIPE:

2.5.4.1.1. Assign and permanently attach a maintenance support squadron identification number (e.g., OC number) and annotate the number on the AFMC Form 388. Coordinate with the predictive maintenance team for insertion of the applicable predictive maintenance technologies and actions required.

2.5.4.1.2. Add DIPE to FEM by the 76 MXSS identification number (e.g., OC number), noun, model, serial number, national stock number, priority code, manufacturer, location, owning organization, date installed, purchase date and acquisition cost as is available. This is the FEM Equipment File, which is a facsimile of the AFMC Form 388.

2.5.4.1.3. Develop required specific operator and/or 76 MXSS/MXDVA and/or 76 MXSS/MXDCA and/or contractor PM on new equipment as needed by utilizing sources such as TOs, vendor's manuals, industrial standards and other available data. AFMC Form 306 (or equivalent) or FEM will be used to document these instructions.

2.5.4.1.4. Add a statement to FEM, that will print on all work orders, warning the technicians of occupational health hazards associated with materials used in the process the equipment will be used for, as identified by the supervisor.

2.5.4.1.5. Develop PM automated scheduling through FEM for the 76 MXSS shop or the contractor shop (if available) that is responsible for performing the PM actions. For contractors required to use FEM, but do not have access to FEM, the PMs will be scheduled for the maintenance group (paragraph 2.5.1.1.1.). A shop identifier (Crew ID) will be created in FEM for the 76 MXSS maintenance shops, contractor and/or maintenance groups as is appropriate.

2.5.4.1.6. Attach one copy of the PM instructions to AFMC Form 388 and file in equipment number sequence.

2.5.4.1.7. Place a copy of the operator AFMC Forms 306 (or equivalent) on applicable DIPE and identification tag on all DIPE.

2.5.4.2. Perform the following tasks on existing DIPE:

2.5.4.2.1. Review requests to modify the contents of the AFMC Form 306 for DIPE received from the maintenance group engineering organizations and implement modifications as needed (76 MXSS/MXDEA has final determination concerning the contents of the AFMC Form 306 for DIPE).

2.5.4.2.2. Accomplish all FEM updates and inventory changes except work order record completion which is accomplished by the 76 MXSS shop, the contractor shop (if available) that is responsible for performing the PM actions or, for contractors who do not have access to FEM, by the maintenance group (paragraph 2.5.1.).

2.5.4.2.3. On at least a weekly basis, generate PM work orders within FEM for actions due within the next month.

2.5.4.2.4. When equipment is to be removed for turn in, delete the item from FEM.

2.5.4.2.5. Provide necessary analysis and status reporting to management.

2.5.5. The PMEL Flight (76 MXSS/MXDCA) and/or the Plant Management Flight 76MXSS/MXVA) will:

2.5.5.1. DIPE.

2.5.5.1.1. Perform PM, PdM and CM according to the work schedule in FEM.

- 2.5.5.1.2. When the work is completed, complete the FEM work order record as follows:
 - 2.5.5.1.2.1. Priority 1, 2 and 3 work orders; the technician will add actual hours, materials expended, personal identification information, and then close the work order.
 - 2.5.5.1.2.2. Priority 4 and 5 work orders; the technician will add actual hours, materials expended and personal identification information. These work orders can only be closed by supervisors/work leaders.
 - 2.5.5.1.3. Provide feedback information to 76 MXSS/MXDEA using the FEMWEB “PM/BOM Request/Modification” page, concerning changes needed on AFMC Form 306 (or equivalent) or in FEM (equipment location changes, PM action changes, materials needed to accomplish the PM actions, etc.).
 - 2.5.5.1.4. Initiate a 76 MXSS trouble call for repair in excess of normal PM.
- 2.5.5.2. Non-DIPE and OCM.
 - 2.5.5.2.1. Review CM work orders and determine if requested repairs are justified. If the work order is not justifiable, the reporting work center will be notified in writing.
 - 2.5.5.2.2. Accomplish CM on justified work.
 - 2.5.5.2.3. When the work is completed, complete the FEM work order record as follows:
 - 2.5.5.2.3.1. Priority 1, 2 and 3 work orders; the technician will add actual hours, materials expended, personal identification information and then close the work order.
 - 2.5.5.2.3.2. Priority 4 and 5 work orders; the technician will add actual hours, materials expended and personal identification information. These work orders can only be closed by supervisors/work leaders.
- 2.5.6. The Maintenance Contracting Support office (OC-ALC/OBWK) will:
 - 2.5.6.1. Include the Equipment Engineering office (76 MXSS/MXDEA) in multi-function team (MFT) meetings for DIPE.
 - 2.5.6.2. Coordinate the development of Service Contract Purchase Request (PR) requirements, including the Performance Work Statement (PWS), for contracts that include DIPE, with 76 MXSS/MXDEA.
 - 2.5.6.3. Schedule a post award meeting with 76 MXSS/MXDEA, Contracting Officer Representative (COR) and contractor to verify data in the FEM contracting module, job plan accuracy and PM work order scheduling.

Chapter 3

FACILITIES AND EQUIPMENT MAINTENANCE SYSTEM

3.1. FEM System Definition. The FEM system is an approved United States Air Force (USAF) Computerized Maintenance Management System (CMMS). This system is used to track maintenance accomplished by 76 MXSS or contractor on DIPE, Non-DIPE and OCM. This system contains all DIPE equipment records, maintenance history and Non-DIPE, OCM work order maintenance history.

3.2. FEMWEB System Definition. The user interface to FEM is FEMWEB. Any employee with a Tinker Domain account has access to FEMWEB. It provides users with SE work order status information, DIPE inventory listings, DIPE automated AFMC Form 306, DIPE PM status, automated work order submission tool and work order history reports. FEMWEB can be accessed from the 76 MXSS internet home page.

3.3. FEMWEB Unscheduled Outage. In case of an unscheduled FEMWEB outage 76 MXSS will be contacted for assistance. For repair work that demands immediate response to prevent injury to personnel due to a safety hazard or for repair work that demands immediate response to correct critical workload stoppage or involves risk of major damage to government property, the equipment will be removed from service and tagged or locked out IAW Chapter 2.

3.4. FEMWEB Scheduled Outage. In case of a scheduled FEMWEB outage, 76 MXSS will contact the production groups and inform them of the outage schedule. The production group shop supervisors will print the FEMWEB Industrial Plant Equipment Status Report Summary for use during the outage.

3.5. Responsibilities. The maintenance group shop supervisor/appointee will:

3.5.1. Monitor FEMWEB daily and ensure all DIPE with past due PM (**Red X** condition) is removed from service by tagging the equipment with a DD Form 1577-2. For equipment other than hoists and cranes, PM is considered past due when the due date is exceeded by one frequency cycle or 60 days, whichever is less. For hoists and cranes, PM is considered past due on the first day of the month following the month documented on the sticker on the item.

3.5.2. Use FEMWEB to initiate DIPE repair trouble calls and set priority of work orders (paragraph 3.5.4.).

3.5.3. Use FEMWEB to initiate Non-DIPE and OCM repair trouble calls on discrepancies that cannot be repaired by production (paragraph 3.5.4.). **These trouble call/work orders will be documented on AFTO Form 244/245, part V.**

3.5.4. Prepare and forward to Industrial Services a computer generated work request (trouble call/work order) via FEMWEB at the following location: <https://3r68d130-ti/femweb//wogen/wosub.aspx>

3.5.4.1. The following information will be provided:

3.5.4.1.1. Equipment identification number (for DIPE).

3.5.4.1.2. Equipment location (for non-DIPE and OCM).

3.5.4.1.3. Owning organization symbol.

3.5.4.1.4. Phone number.

3.5.4.1.5. Description of the problem with the equipment.

3.5.4.1.6. Skill required.

3.5.4.1.7. Priority.

Chapter 4

LOCALLY MANUFACTURED OR DEVELOPED/MODIFIED SUPPORT EQUIPMENT

4.1. General. Overarching definitions and descriptions of Support Equipment (SE) are outlined in TO 00-20-1, Chapter 7 and appendix A. For the purposes of this chapter, the term SE will refer to items of equipment designed, developed, manufactured and/or modified by a local element within the OC-ALC that perform a mission support function, except that which is an integral part of mission equipment. This chapter is not applicable to any item that is managed or configuration controlled by local or remote item managers, item specific TO or has been assigned a permanent NSN. Overarching guidance for inspection requirements, servicing inspection, operator inspection, scheduled inspections / lubrications, acceptance inspections and transfer inspection requirements for SE can be found in TO 00-20-1, Chapter 7 and augmented throughout this document as necessary for local implementation.

4.2. Duties and Responsibilities. The respective production group engineering and planning offices will have approval authority for locally manufactured, modified, developed or special end item unique support equipment as well as their inspection requirements and intervals not published in technical data.

4.2.1. Production group shop supervisors will:

4.2.1.1. Submit all requests for locally manufactured, modified, developed SE, with the appropriate documentation as defined in AFI 21-101, AFMCSUP, Chapter 10, including the intended use, to their production group planning office for validation, tracking and documentation.

4.2.1.2. Ensure the preventive maintenance inspections, as documented on the SE end item AFMC Form 306, have been accomplished and properly documented on the AFTO Form 244, IAW Chapter 1 of this instruction.

4.2.1.3. Ensure the AFTO Form 244 and AFMC Form 306, where required, are on or near the SE end item.

4.2.1.4. Ensure all locally manufactured, modified, developed SE requiring no preventive maintenance are documented on an approved OCM listing.

4.2.1.5. Use FEMWEB to initiate repair trouble calls and set work order priorities for SE end item repairs that cannot be accomplished by the owning production group.

4.2.1.6. Verify all locally manufactured, modified, developed SE end items are marked with a locally assigned tracking designation. If not, request supporting Production Group Planning Office provide as needed.

4.2.1.7. Verify load and/or torque ratings are clearly visible on the SE end item where required. If not, request supporting production group engineering office mark as needed.

4.2.1.8. Identify all SE end items no longer required to support current mission requirements to supporting production group planning office for reallocation, storage or disposal.

4.2.2. Production Group Planning Office will:

4.2.2.1. Review the requests for locally manufactured, modified, developed SE received from production supervisors for compliance with current workload task needs, quantity and availability of non-locally manufactured, modified, developed equivalent SE. If suitably equivalent non-locally manufactured, modified, developed equivalent SE exists or requested SE end item is not required to support the specified task then the request will be returned to the requesting supervisor with explanation of determination.

4.2.2.2. Forward all approved and necessary requests for locally manufactured, modified, developed SE with complete documentation package to supporting production group engineering office for determination of requirements for level of engineering design, preventative maintenance, operator inspections and method of periodic repair/maintenance.

4.2.2.3. Review all SE end item documentation (drawings, sketches, material lists, costs estimates, etc.) received from the supporting production engineering office, assign a local stock number and process for procurement/manufacture.

4.2.2.4. Determine the source of fabrication and forward the SE end item documentation package, including local stock number, as needed, for manufacture or modification.

4.2.2.5. Where requested SE end item may affect weapon system form, fit or function coordination with the supporting Aircraft Sustainment Wing Engineering Office is required to be maintained in the SE documentation package.

4.2.2.6. Forward completed SE end item to supporting production group engineering office for validation of design characteristics, fabrication methods and development of final operator inspections, preventative maintenance requirements, including the preparation of an AFMC 306, where required.

4.2.2.7. Ensure a copy of all AFMC Form 306s received from the supporting production group engineering office are forwarded to the requesting production group shop supervisors.

4.2.2.8. Ensure all locally manufactured, modified, developed SE is identified on work control documents prior to being released for continuous use not requiring significant modification or technical oversight.

4.2.3. Production group engineering office will:

4.2.3.1. Establish and manage a local designation tracking system that uniquely identifies all requests for locally manufactured, modified or developed SE end items. Provide access to this local tracking system to the supported production planning office and production support offices for reference and interrogation or provide supporting data upon request.

4.2.3.2. Review all requested locally manufactured, modified, developed SE documentation packages for technical accuracy, compliance with other overarching directive and consistency with requested tasks for lifting, loading, restraining and/or torque requirements.

4.2.3.3. Assign a local tracking designation and establish an engineering request file, identified with the local tracking designation, to house all pertinent documents for the

locally manufactured, modified or developed SE end item request. Electronic files and local tracking designation may be used in support of this directive.

4.2.3.4. Based on documentation package received, prepare a level-of-effort technical analysis to determine the minimum technical data required to support the manufacture or modification required to complete the SE end item construction. This analysis will identify material requirements, special fabrication methods, assembly interconnections, load ratings, torque values man-machine interfaces. For limited effort requirements this analysis can be captured as a list of salient characteristics or shown on a simple sketch. More complex assemblies, materials, fabrication methods or technical data requirements may require the development and management of engineering technical drawings. In either case, the complete analysis and supporting engineering drawings, and/or sketches to produce the list of salient characteristics will become part of the official engineering request file.

4.2.3.5. Based on documentation package received, determine if specific PM inspections are required.

4.2.3.5.1. If no PM is required, document on the engineering analysis package and SE end item that "No PM Required"

4.2.3.5.2. If PM is required, document the requirements in the engineering analysis package, develop an AFMC Form 306 and attach the AFMC Form 306 to the engineering analysis package.

4.2.3.6. Retain copies of all approved locally manufactured, modified, developed SE requests, drawings, analysis and AFMC Form 306, if applicable. These documents will be reviewed and documented every 2 years.

4.2.3.7. Upon request, evaluate and document existing locally manufactured, modified, developed SE end items not previously approved by engineering. Document the review/analysis as if this were an original request for manufacture or modification.

4.2.3.8. Perform system safety analysis on all locally manufactured, modified, developed SE and forward those with unmitigated potential risk to person or government property to OC-ALC/SE Safety Office for coordination.

Chapter 5

HOIST INSPECTION AND DOCUMENTATION

5.1. General. This chapter establishes responsibilities and procedures for use, inspection, maintenance, testing and safe operation of hoists (electric, chain, pneumatic and portable hand-operated). This instruction pertains to all organizations using hoists.

5.2. Duties and Responsibilities.

5.2.1. Supervisor/Appointee will:

5.2.1.1. Attend initial supervisor training course provided by the 72d Education and Training Flight (72 MSS/DPE) on proper use and care of hoists.

5.2.1.2. Use a lesson plan to train all personnel utilizing hoists on proper procedures and inspections. The training will include at the minimum: familiarization with all operating controls of the hoist, instructions in the operations to be performed, warnings on the hoist, instructions on inspections to be performed, and emphasis on the restriction of lifting loads that are heavier than the lowest rating of the hoist/supports. Document the training in the Training Scheduling System/Production Acceptance Certification (TSS/PAC).

5.2.1.3. Ensure personnel accomplish and document Daily/PU and monthly inspections.

5.2.2. Employees will:

5.2.2.1. Attend initial training course taught by supervisor/appointee on the proper use and care of hoists.

5.2.2.2. Perform and document Daily/PU and monthly inspections on AFTO Form 244 as required.

5.2.2.3. Consult with their supervisor before handling the hoist whenever there is a doubt concerning safety. If adjustments or repairs are necessary, or any defects are known, report promptly to the supervisor.

5.2.3. Production Engineering Office will:

5.2.3.1. Determine hoist requirements to include capacity and clearance.

5.2.3.2. Establish an OC number on newly acquired hoists in accordance with chapter 2.

5.2.4. The Facility Engineering Flight (576 MXSS/MXDEA) will:

5.2.4.1. Determine or obtain maximum load capacity data (safe working loads) on hoists, hoist supports, connecting fixtures and portable hoists.

5.2.4.2. Design the supporting structure including tripod, trolley, monorail, crane or facility beam to withstand the loads and forces imposed by the hoist.

5.2.5. The Equipment Engineering Flight (76 MXSS/MXDEA) will determine or obtain test procedures on hoists, hoist supports, connecting fixtures and portable hoists. The testing load for portable hoists can be determined as 125 percent of “manufacturers” rated load on hoist or rail, whichever is less.

5.3. Inspection. A visual inspection will be performed by the operator or designated person Daily/PU. A more thorough monthly visual inspection of all hooks, ropes and chains that are accessible to the operator will be accomplished by the supervisor or an individual properly trained and designated. A person is designated if they have been properly trained with the training documented as prescribed in paragraph 5.2.1.2. The daily/PU inspection shall be documented on the AFTO Form 244, part II, and the monthly inspection shall be documented on the AFTO Form 244, part III IAW Chapter 1. The AFTO Form 244 will be kept in a location readily accessible to the supervisor, operator and appropriate maintenance personnel. Reference the applicable AFMC Form 306 (or equivalent) or FEMWEB for inspection requirements. **NOTE:** If any discrepancies are noted, immediately discontinue use of the equipment, tag unit out of service and notify the supervisor who will, in turn, call the appropriate maintenance personnel.

5.4. Annual Certification/Inspections. The certification/inspections will be performed by Maintenance Support and documented in FEM. FEMWEB for inspection requirements.

5.5. Removal and Installation of Fixed Hoists.

5.5.1. Hoists that have been removed from a monorail will be secured to prevent pilferage by placing them in a locked container or area.

5.5.2. Hoists will be load tested at the time of installation and following repairs such as replacement of the motor or gears, or adjustment/replacement of the friction brake assembly or components. If a hoist is moved and re-installed, it must be recertified prior to use. Hand-operated hoists will not be disassembled if gears are factory sealed.

5.5.3. Only authorized maintenance personnel will remove or install hoist from the hoist support beam for which it is certified.

5.6. Use of Hoists.

5.6.1. The hoist will not be loaded beyond its rated load except for test purposes. When component parts of a lifting system (e.g., crane, jib, bridge, sling, lifting fixture) have different load limits stenciled on their surfaces, the lowest load stenciled on any component will be the maximum certified load limit.

5.6.2. For proper operation of hoist, refer to AFI 91-203.

Chapter 6

LIFTING AND RESTRAINING DEVICES INSPECTION AND DOCUMENTATION

6.1. General. This instruction establishes responsibilities and procedures for inspection, maintenance, testing, and safe usage of lifting/restraining devices. This instruction pertains to all lifting and restraining devices.

6.2. Responsibilities.

6.2.1. 551st Commodities Maintenance Squadron/Commodities Tubing and Cable Subunit, (551 CMMXS/MXDRAD) will:

6.2.1.1. Serve as the load test inspection facility for Tinker AFB.

6.2.1.2. Locally manufacture and repair wire rope slings.

6.2.2. 552d Commodities Maintenance Squadron/Textile and Life Support Section (552 CMMXS/MXDRAA), will manufacture and repair synthetic cloth webbing slings.

6.2.3. Production Supervisors/Appointee will:

6.2.3.1. Attend Hoist and Sling Training, Course Code TE01309 - Hoist (Underhung) and Slings for Supervisors course, provided by the OC-ALC/DPDET training organization. Supervisor will ensure all personnel who use slings and lifting/restraining devices are properly trained. Training will include specific instruction for specialized lifting devices, if required.

6.2.3.2. Ensure that all slings and lifting/restraining devices are serviceable at the time of use and are marked with the "Next Inspection Due" date or a "Void After" date.

6.2.3.3. Ensure that all slings and lifting/restraining devices are properly identified by drawing number and/or manufacturer's part number.

6.2.3.4. Ensure that all slings and lifting/restraining devices are marked with the maximum capacity for which it is to be used. Ensure personnel do not exceed the maximum capacity of the lifting device when used.

6.2.3.5. Ensure the accomplishment of the daily/prior to use, monthly, and annual inspection requirements IAW technical orders, commercial manuals, TO 35D6-1-106, *Aircraft and Engine Slings (General) and Restraining Devices*, and AFI 91-203. Specific operator inspections will be documented on AFTO Form 244, parts II and III, IAW Chapter 1.

6.2.3.6. Ensure applicable web strap slings are destroyed by the "Void After" date or when the "Void After" date becomes illegible. Destroy the sling by cutting it in half or by delivering the sling to 552 CMMXS/MXDRAA for proper disposal.

6.2.3.7. Assign separate serial numbers where multiple identical synthetic cloth webbing slings without identifying numbers exist. The serial numbers shall be written on the synthetic cloth webbing slings with a permanent marker. Duplicate slings that are not of the synthetic cloth webbing type shall be routed to 551 CMMXS/MXDRAD using an AFMC Form 137 for the attachment of a metal tag showing the assigned lab number.

6.2.3.8. Initiate AFMC Form 137, *Routed Order*, and route item to 551 CMMXS/MXDRAD for load testing and 76 CMXG/Sheetmetal/Tube and Cable/Tank and Cooler Section (551 CMMXS/MXDRAD) for Non-Destructive Inspection (NDI) IAW applicable directives (e.g., original equipment manufacturer manuals/support equipment TOs, TO 35D6-1-106, AFI 91-203, local manufacturer drawings). If the NDI requirements exceed the capabilities of the NDI facility in 551 CMMXS/MXDRAD, the device may be routed to other NDI facilities.

6.2.3.9. Route items that are authorized for repair to 551 CMMXS/MXDRAD.

6.2.3.10. Before placing a new sling or lifting/restraining device in service, provide documentation to 551 CMMXS/MXDRAD that the device has been load tested and inspected by the manufacturer. 551 CMMXS/MXDRAD shall then provide an inspection tag or stencil the "Next Inspection Due" date on the sling.

6.2.3.11. Obtain engineering approval prior to purchasing any sling/restraining device. Engineering approval shall also be obtained prior to the modification of any sling/restraining device.

6.2.3.12. Remove from service any sling or lifting/restraining device that has an expired or illegible "Next Inspection Due" date or "Destroy After" date or that does not meet the inspection criteria detailed in AFI 91-203. Oil or fuel soaked synthetic cloth slings must be replaced.

6.2.4. Users will:

6.2.4.1. Visually inspect lifting/restraining devices daily or prior to each use. Perform a thorough inspection once a month in addition to pre-use inspections.

6.2.4.2. Use slings and lifting/restraining devices only for the purpose they are intended and in a manner consistent with AFI 91-203 and applicable technical orders.

6.2.5. The 76 MXSS/MXDVBBD will:

6.2.5.1. Issue expendable synthetic cloth webbing slings to authorized personnel upon request and stencil a "Void After" date (one year after the date of issue) on the sling.

6.2.5.2. Ensure all expendable synthetic cloth webbing slings have a "Date Load Tested" on the sling prior to issuing to production.

6.2.6. Applicable engineering offices will:

6.2.6.1. Assign engineer(s) that are knowledgeable in sling design and related directives to determine load test and NDI requirements for all slings and lifting/restraining devices. Slings shall be designed IAW American Society of Mechanical Engineers (ASME) and American National Standards Institute (ANSI) Standard B30.9, *Slings*, and other applicable standards.

6.2.6.2. If periodic load test is not required, provide a written statement to the shop supervisor stating that only NDI is required on all locally manufactured and/or non-TO referenced slings.

6.2.6.3. Maintain or create drawings and specifications that include load test diagrams, rated capacities, material requirements, manufacturer's code, NSN, part number and other pertinent data.

6.2.6.4. Determine individual component test requirements if the entire lifting/restraining device cannot be tested as an assembly.

6.2.6.5. Determine if damaged slings or lifting/restraining devices are repairable. If so, determine proper repair procedures.

6.2.6.6. Determine specific NDI acceptance/rejection criteria for slings and lifting/restraining devices, when such information is not available in existing technical data.

6.2.6.7. Provide technical assistance, upon request, regarding specialized sling use.

6.3. Certification Procedures.

6.3.1. Prior to the expiration of the load test due date, the using organization shall provide the sling or lifting/restraining device and all its components to 551 CMMXS/MXDRAD. A completed and signed AFMC Form 137, all supporting technical data, including load test diagram, if applicable, must also be provided to 551 CMMXS/MXDRAD prior to testing/certification.

6.3.2. The 551 CMMXS/MXDRAD shall perform annual inspections of all slings or lifting/restraining devices prior to load test or NDI, as directed by specific TO.

6.3.3. Component parts found defective during prior to use, daily, unscheduled, monthly or annual inspections shall be repaired and/or tested in accordance with applicable directives (e.g., original equipment manufacturer manuals/support equipment technical orders, TO 35D6-1-106, AFI 91-203, local manufacturer drawings).

6.3.4. The 551 CMMXS/MXDRAD shall accomplish the required load tests as outlined in ASME/ANSI B30.9. Load tests shall be performed as directed by specific TO, AF blueprint/drawing, "X" drawings, or by AFMC Form 202, and documented.

6.3.5. New or repaired slings and lifting/restraining devices must be load tested prior to being placed in service, unless factory certification is obtained from the manufacturer. Crash recovery slings that are infrequently used shall not require annual load testing; however, these devices must be inspected annually IAW TO 35D6-1-106.

6.3.6. If the sling or lifting/restraining device fails the initial load test and repair is authorized by TO 35D6-1-106 or applicable engine/support TO, 551 CMMXS/MXDRAD will route item to the appropriate shop for repair. After repairs are made, load testing will be repeated.

6.3.7. The 552 CMMXS/MXDRAA may manufacture new straps IAW applicable drawings or technical data for non-expendable synthetic cloth webbing slings that do not pass inspection or load test. Load testing will be repeated after the repair.

6.4. NDI Requirements.

6.4.1. If required, will be performed after load test. Specific NDI acceptance/rejection criteria shall be obtained from appropriate technical data or locally developed procedures.

6.4.2. The 551 CMMXS/MXDRAD shall disassemble sling components and lifting/restraining devices as necessary to enable NDI of those critical parts specified by the applicable engineering section.

6.4.3. Unless applicable engine/support equipment TOs state otherwise, ferromagnetic materials shall be tested using the Magnetic Particle Method IAW American Society for Testing and Material (ASTM) E1444, *Standard Practice for Magnetic Particle Examination*. Non-ferromagnetic materials shall be tested using the Fluorescent Penetrant Method IAW ASTM E1417, *Standard Practice for Liquid Penetrate Testing*.

6.4.4. Slings and lifting/restraining devices with rubber/plastic coated attachment fittings are exempt from NDI requirements per TO 35D6-1-106 and shall be load tested IAW ASME/ANSI B30.9.

6.4.5. Local NDI may be performed on extremely large lifting/restraining devices in the absence of TO requirements with written authorization from the applicable engineering section.

6.4.6. The 551 CMMXS/MXDRAD shall reassemble items that pass NDI. If an item fails NDI, and repair is authorized, 551 CMMXS/MXDRAD shall route item for repair or replacement of components. Load test, if required, and final NDI will be performed after repair or replacement of components.

6.4.7. If an item fails load test/NDI and cannot be repaired, 551 CMMXS/MXDRAD will notify the appropriate supervisor. The applicable engineering section will be contacted for assistance in determining the proper action.

6.4.8. The 551 CMMXS/MXDRAD shall update or prepare and attach an inspection tag to all non-fabric slings or lifting/restraining devices after successful completion of load test and/or NDI.

6.4.9. 551 CMMXS/MXDRAD shall stencil the "Next Inspection Due" date or "Destroy After" date on all fabric slings or lifting/restraining devices on which a metal tag presents a cutting hazard when they are issued.

6.4.10. If a tag is damaged or lost, a replacement tag may be requested from 551 CMMXS/MXDRAD on AFMC Form 137.

Chapter 7

TRAILER INSPECTION AND DOCUMENTATION

7.1. Background. Preventive Maintenance (PM) consists of equipment maintenance actions performed on a periodic basis according to a specific set of instructions and a predetermined schedule. The objective of PM is to protect the equipment investment by removing causes of failure and making adjustments to compensate for normal wear before failures occur.

7.2. Description of PM. PM for OC-ALC trailers will be the responsibility of the owner/operator. It will be done on a periodic basis IAW criteria defined in the applicable TO guidance for each specific type of trailer (engine, rail, flatbed or special purpose).

7.3. Operator PM.

7.3.1. Operator PM consists of two categories, general and specific, and is performed by the operator prior to towing or upon the initial use of the trailer. The supervisor will ensure operators are aware of and trained to perform PM prior to towing or initial use.

7.3.1.1. General Operator PM is a prior-to-use visual inspection of the trailer for conditions such as malfunctions, damage, cleanliness, proper lubrication and potential safety/fire hazards. This inspection does not require documentation on the AFTO Form 244. Problems that cannot be corrected by the operator will be annotated on the trailer's AFTO Form 244, part V, and called to the attention of the supervisor for corrective action. When trailers are considered unsafe to operate, immediately contact the appropriate trailer maintenance shop for repair.

7.3.1.2. Specific Operator PM includes, but is not limited to, maintenance of a critical nature, which, if neglected, could result in costly equipment damage or create an unsafe condition. The inspection requirements are listed on the AFMC Form 306, checklist, work cards or applicable technical orders. This inspection will be documented IAW chapter 1.

7.3.1.2.1. The specific daily inspections will be conducted by the person using the trailer each time the trailer is used (moved from one location to another). The accomplishment of these inspections will be documented on AFTO Form 244 upon the first use of the day.

7.4. Monitor Maintenance. The trailer user/owner will monitor general and specific operator maintenance to ensure accomplishment.

7.5. Six Month Scheduled PM. If a 6-month scheduled PM is required, users can call the applicable trailer maintenance shop to schedule service. The applicable trailer maintenance shop supervisor will maintain a maintenance log and schedule of required PM.

7.6. Unscheduled Maintenance or Wheel Bearing Pack (WBP). When unscheduled maintenance or WBP is required, users must off load trailer, remove all foreign objects, and deliver it to the applicable trailer shop or unserviceable staging area. The trailer should be tagged with DD Form 1577-2 annotated with user/owner's name, phone number and discrepancy. The AFTO Form 244 must be properly annotated with required maintenance and/or discrepancy in accordance with Chapter 1.

7.7. Repair Centers. The 76th Aircraft Maintenance Group Trailer Repair Shop, 566 AMXS, is the primary repair center for 76 AMXG trailers. 547 PMXS is the primary repair center for 76 PMXG engine trailers that accompany applicable engines. 76 MXSG/MXDVABB is the primary repair center for 76 MXSG non-engine trailers. Each repair center will be responsible for intermediate PM (e.g., monthly, semi-annual or annual) inspections and other required maintenance.

7.8. Trailer Configuration Changes or Modifications. The user/owner will provide the applicable trailer repair center with information on any trailer configuration changes or modifications as they occur.

7.9. Trailer Painting Requirements. Trailers will be painted in accordance with the specific equipment TO or TO 35-1-3, *Corrosion Prevention and Cleaning, Painting, and Marking of USAF Support Equipment (SE)*. The specific equipment TO will take precedence.

7.10. Responsibilities.

7.10.1. Operator Responsibilities. Prior to towing or using each trailer, the user will:

7.10.1.1. Ensure AFTO Form 244, and AFMC Form 306, applicable equipment/general TO, commercial operator manual, work card or checklist are attached and required PM is current. If the PM is not current, the user will annotate the AFTO Form 244 IAW Chapter 1. If the forms are missing, the user will obtain new forms, perform and document the prior-to-use inspection, as well as document the scheduled inspection (e.g., 180 day, WBP) due dates.

7.10.1.2. Perform visual inspection IAW the AFMC Form 306, checklist, work cards or applicable TOs.

7.10.1.3. Annotate the AFTO Form 244 IAW Chapter 1.

7.10.1.4. Trailers with discrepancies, which render trailer inoperable or unsafe, will not be used. If trailer is loaded, it will be unloaded, freed of foreign objects and brought to unserviceable staging area.

7.10.1.5. Ensure cotter pin or safety locking pin is inserted in the pintle hook at all times.

7.10.2. Trailer repair centers will:

7.10.2.1. Maintain and repair all trailers owned by their organization (paragraph 7.7.).

7.10.2.2. Establish and maintain a trailer maintenance schedule to ensure that all maintenance is complied with.

7.10.2.3. Ensure trailers are identified and marked with a locally assigned identification number using a three or four letter group identifier and a sequential number starting with 001. Trailers will be marked in accordance with the specific equipment TO or TO 35-1-3. The specific equipment TO will take precedence.

7.10.2.4. Determine when trailers require complete or touch-up painting to maintain the appearance of the trailers.

7.10.2.5. Ensure that AFMC Form 306, *Preventive Maintenance Instructions*, are provided with the AFTO Form 244 and is attached to each trailer.

7.10.3. Trailer PM and CM will be documented on the AFTO Form 244 IAW Chapter 1. PM is considered past due when the due date is exceeded by one frequency cycle or 60 days, whichever is less.

Chapter 8

MOBILE MAINTENANCE STANDS/FIXTURES/CARTS/PLATFORMS/TABLES/ CABINETS AND DEXION CARTS SECURING

8.1. General. Mobile maintenance stands/fixtures/carts/platforms/tables/cabinets and dexion carts will be secured by setting all brakes and locking devices, if so equipped. If not equipped, the owning organization will determine the need for securing devices.

8.1.1. Any item that requires securing devices will be retrofitted with locks and/or brakes. A minimum of two securing devices will be installed and operational. Approved chocks can be used as a temporary securing device until permanent devices are installed. Locking devices will be set while in use or in storage.

8.1.2. All B series maintenance stands will be modified by the addition of a safety chain to be latched across the access opening side of the platform when employees are working on the platform. The chain is designed as an awareness tool only, not as fall protection. The safety chain is designed to alert employees when they are close to the open edge of the platform and may be in danger of stepping off of the platform.

8.1.2.1. Employees will not take any action to remove or bypass this safety device in an effort to render it unserviceable. The safety chain will not be used as a seat.

8.1.2.2. Should a safety chain be found damaged/unusable, the employee who discovers the discrepancy will annotate the AFTO Form 244, Part V, with a **Red X** IAW Chapter 1 and the stand will be considered unserviceable until the discrepancy is corrected.

8.1.2.3. It is not necessary to latch the safety chain when descending the stand or when personnel are not present on the platform.

8.2. Push Carts. Securing devices will not be required on manual push carts that are being used to transport aircraft parts from one location to another. These carts will not be towed.

Chapter 9

OVERHEAD CRANE OPERATIONS

9.1. Roles and Responsibilities.

9.1.1. Oklahoma City Air Logistics Complex (OC-ALC) provides:

9.1.1.1. Initial training for all operators to consist of testing on material covered and hands on evaluation (AFOSHSTD 91-46).

9.1.1.2. Management of Preventive Maintenance and Inspection (PMI) program based on the manufacturer's preventive maintenance recommendations, for non-real property listed cranes. These cranes will be identified as DIPE, will have an OC number, and will be managed in FEM.

9.1.2. 72d Air Base Wing/Civil Engineering (72 ABW/CE) provides:

9.1.2.1. Management of PMI program, based on the manufacturer's preventive maintenance recommendations, for real property listed cranes.

9.1.3. Supervisors will:

9.1.3.1. Select the most qualified employees (as noted by AFI 91-203) to be trained as crane operators. Personnel selected for training must be scheduled for initial crane operator training through the unit training monitor. Once an employee has completed the required training, it must be documented in the TSS/PAC.

9.1.3.2. When an employee is selected to operate the crane **from the cab**, send the designated employee's name, social security number, and organizational routing symbol to the 72d Aeromedical Squadron Occupational Medicine Flight (72 AMDS/SGPO) requesting an annual overhead crane physical. Note: Employee is not required to have an annual physical if they will only be operating the crane with the remote control.

9.1.3.3. Ensure crane operators follow safe and good housekeeping practices.

9.1.3.4. Evaluate each task to determine required PPE and ensure employees comply with the required PPE.

9.1.3.5. Provide an annual overhead crane operator safety briefing to qualified crane operators using the Overhead Crane Operator Annual Safety Briefing Outline (Attachment 9). The briefing will focus on safely operating overhead cranes IAW applicable standards. Ensure the briefing is documented in TSS/PAC.

9.1.3.6. Use the guidelines provided in AFI 91-203 to disqualify an operator when evidence of physical defects or emotional instability exists which could render a hazard to the operator or others, or in the supervisor's opinion, could interfere with the operator's performance.

9.1.3.7. When adjustments or repairs are needed for non-real property listed cranes (identified as DIPE, have an OC number, and managed in FEM), or if it has any known defects, use FEMWEB to initiate a repair trouble call IAW Chapter 2.5.3.1.6. of this document.

9.1.3.8. When adjustments or repairs are needed for real property listed cranes, or if it has any known defects, report to the 72 ABW/CE work order desk at 734-3117.

9.1.4. Training Monitors will:

9.1.4.1. Submit a training request using TSS.

9.1.4.2. Ensure the employee's initial crane operator course completion is entered in TSS/PAC under course MTEINP006278BR - Hi Bay Crane Operations Training.

9.1.4.3. Ensure the employee's annual safety briefing completion is entered in TSS/PAC under course MTEINP0006275BR - Overhead Crane Operator Annual Safety Briefing.

9.1.4.4. Ensure employee's appropriate three year skill evaluation is entered in TSS/PAC.

9.1.5. Overhead Crane Operators will:

9.1.5.1. Successfully complete crane operator training prior to operating a crane. Requalification is only required if the supervisor deems necessary for the safe operation of the crane (AFI 91-203).

9.1.5.2. Pass physical examination annually as required, meeting the following requirements:

9.1.5.2.1. Vision of at least 20/30 Snellen in one eye, and 20/50 Snellen in the other, with or without corrective lenses.

9.1.5.2.2. Ability to distinguish colors, regardless of position of colors.

9.1.5.2.3. Adequate hearing, with or without hearing aid, for a specific operation.

9.1.5.2.4. Sufficient strength, endurance, agility, coordination, and speed of reaction to meet the demands of the equipment operation.

9.1.5.2.5. Normal depth perception, field of vision, reaction time, manual dexterity, or no tendencies to dizziness.

9.1.5.3. Be disqualified when evidence of poor physical condition, physical defects, seizures, or emotional instability exists which could render a hazard to the operator or others, or in the opinion of the examiner or supervisor, that could interfere with the operator's performance IAW AFOSHSTD 91-46.

9.1.5.4. Wear the following PPE as required:

9.1.5.4.1. Hard hats will be worn, IAW applicable standards, if there is a potential for injury from falling objects or moving equipment.

9.1.5.4.2. Steel toe shoes or protective toe guards will be worn by all personnel involved in material handling, when there is a danger of foot injuries.

9.1.5.4.3. Safety glasses and/or goggles will be worn as required by AFI 91-203_OC-ALCSUP, *Air Force Consolidated Occupational Safety Instruction*.

9.1.5.4.4. Gloves will be worn by workers performing hooking, unhooking, loading, handling tag lines or unloading operations, when there is a potential for injury from punctures, severe cuts, lacerations and abrasions.

9.1.5.5. For non-real property listed cranes (identified as DIPE, have an OC number, and managed in FEM) perform and document inspections IAW Chapter 2 of this document.

9.1.5.6. For real property listed cranes, perform an operational inspection before use of a crane as follows:

9.1.5.6.1. The first employee to use the crane for the day will use OC-ALC Form 105, *Overhead Crane Operator Inspection Checklist* (Attachment 7), to inspect the crane and ensure it is safe for use.

9.1.5.6.2. The checklist may be laminated and securely attached to the remote or pendant control for convenience. Personnel may use wax pencils or dry erase pens to annotate satisfactory/unsatisfactory/not applicable on the checklist.

9.1.5.6.3. Once the inspection is complete and the crane is found to be operating satisfactorily, personnel will document the inspection on the AFTO Form 244.

9.1.5.6.4. Employees are instructed to annotate any discrepancies found on the AFTO Form 244. Suspend all operations immediately if any of the items indicated on the checklist with an asterisk (*) are observed to be in an unsatisfactory condition. In addition to suspending the operation when any unsafe condition is observed, immediately notify the workplace supervisor.

9.1.5.6.5. The AFTO Form 244 will be maintained with the remote control if the crane is so equipped.

9.1.5.7. Not engage in operation of the crane hoist when physically or otherwise unfit.

9.1.5.8. Consult their supervisor before handling the crane hoist whenever there is doubt as to the safety of the crane, and may refuse to operate the crane until the safety problem is corrected.

9.1.5.9. Be familiar with the crane hoist care. If adjustments or repairs are necessary, or any defects are known, report promptly to the supervisor and refuse to operate until the crane is adjusted or repaired.

9.1.5.10. Ensure cables and slings are inspected and current prior to use. **Note:** Only wire cables or web slings will be used; no ropes or chain slings. Damaged or unserviceable slings must be destroyed to prevent reuse and disposed of as refuse.

9.2. Maintenance of Overhead cranes.

9.2.1. Maintenance of non-real property listed cranes (identified as DIPE, have an OC number, and managed in FEM). Perform and document inspections IAW Chapter 2 of this document.

9.2.2. Maintenance of Overhead Real Property Cranes. The PMI program is based on the manufacturer's recommendations, AFOSHSTD 91-46, Occupational Safety and Health Administration (OSHA) 1910.179, *Overhead and Gantry Cranes*, and other applicable standards. All PMI will be documented as noted in paragraph 9.4. of this document and will be maintained by Civil Engineering (CE) indefinitely as historical records IAW Records Information Management System (RIMS).

9.2.2.1. All maintenance and periodic inspections are accomplished by Civil Engineering (CE) personnel as shown on Attachment 8, *Overhead Crane Maintenance and Inspection Schedule*. Requests for maintenance will be called in to the CE Work Order Desk at 734-3117.

9.2.2.2. When an overhead crane (bay) is locked out, the bays on either side of it must also be locked out to prevent re-energizing of the crane. The Maintenance Operations Center (MOC), 736-2500, will be informed by those locking out the bays. The MOC will then contact the appropriate tool cribs informing them to refrain from issuing remote controls until the locked out crane is once again operational.

9.3. Safe Practices. For the protection of all personnel, operators and maintenance personnel will use all safeguards provided and will obey all regulations and established requirements.

9.3.1. **Ascending or descending ladders.** Personnel will use both hands while ascending and descending ladders. Any tools, toolboxes, or materials will be hoisted and lowered with a rope.

9.3.2. **Bridges and Cranes.** Bridges and cranes may be pushed when necessary to perform maintenance only. Operators are strictly prohibited from pushing bridges and cranes solely for the purpose of personal convenience to exit the cab or the overhead crane.

9.3.3. **Capacity.** Under no circumstances will a crane hoist be used for lifting loads above the posted capacity.

9.3.4. **Carrying Loads.** Loads shall not be carried over employees below.

9.3.5. **Centering.** The point of lift of cranes will be centered directly over the load to avoid lifting the load from an angle, thus eliminating additional strain on the hoist or swinging the load when lifted.

9.3.6. **Expansion Joints and Turntables.** Only CE maintenance personnel are authorized to operate cranes over bridge rail expansion joints or on turntables and then the operator will take precaution and proceed at the slowest possible speed.

9.3.7. **Fuses.** Under no circumstances will the operator change or replace blown fuses.

9.3.7.1. For non-real property listed cranes (identified as DIPE, have an OC number and managed in FEM), use FEMWEB to initiate a repair trouble call IAW Chapter 2.5.3.1.6. of this document to accomplish this task.

9.3.7.2. For real property listed cranes, notify the CE Work Order Desk at 734-3117 to accomplish this task.

9.3.8. **Ground Crew.** Personnel operating the remote control will not be considered part of the ground crew. Signal men/spotters will be used, as required, by applicable standards.

9.3.9. **Hoisting.** Operators will not move the load, to include hoisting, lowering, swinging, or traveling, while anyone is on the load or hook.

9.3.10. **Hook in Low Position.** When the hook is in the extreme low position, at least two complete wraps of wire rope must remain on the drum. Wire rope ends shall be safely and securely attached to the drum by means of a clamp or socket arrangement approved by the

crane or wire rope manufacturer. **NOTE:** When traveling with an empty hook, keep hook above head level.

9.3.11. **Kinks.** Permanent damage will result from kinked cables when the kink has been pulled through by tension on the cable. In such cases, the cable will not be used and will be replaced immediately.

9.3.12. **Limit Switches.** The trip setting of hoist limit switches shall be determined by pre-operation tests with an empty hook.

9.3.13. **Loose Objects.** Operators will ensure that all loose objects, such as tools, are removed or secured prior to moving cranes.

9.3.14. **Other Bridges.** All other bridges must be left in an unlocked position when not in use.

9.3.15. **Performing Work on Cranes.** Prior to maintenance being performed, the crane bay in need of repair and the bays on either side of it must be locked out to prevent reenergizing of the crane. No maintenance personnel will perform any work on a crane, for any purpose, without first notifying the operator. Maintenance personnel must ensure the operator understands what is to be done and what part the operator is to take in the work.

9.3.16. **Rated Load.** The rated load of the crane shall be plainly marked on each side of the crane and clearly legible to the operator.

9.3.17. **Safety Latches.** Safety latches will be used on hooks to prevent slings from separating from hooks while hoisting or lowering is in progress. Do not use slings or crane hooks without safety latches.

9.3.18. **Sharp Corners.** Considerable care will be used if the load to be lifted has sharp corners, or if there will be sharp bends over an unyielding surface.

9.3.19. **Side Pulls.** Cranes shall not be used for side pulls except when specifically authorized by OC-ALC (for non-real property listed cranes) or CE (for real property listed cranes) maintenance personnel who have determined the equipment will not be damaged and that various parts of the equipment will not be overstressed.

9.3.20. **Suspended Load.** Never leave a hanging or suspended load unless personal safety is in jeopardy. Ground the load to relieve the tension on hoisting equipment. If unable to land load, rope off affected area and post warning signs.

9.3.21. **Tag Lines.** Tag lines will be used for all free-swinging loads.

9.3.22. **Travel.** In all lifting operations by horizontal cranes, the vertical movement will be completed before starting the horizontal movement.

9.4. Historical Records.

9.4.1. For non-real property listed cranes (identified as DIPE, have an OC number, and managed in FEM) historical records will be maintained IAW Chapters 1 and 2 of this document.

9.4.2. For real property listed cranes, the AFTO Form 244 will be used to document the preoperative/daily inspection conducted by the operator, and maintenance conducted by CE. The form will be kept on file by the shop for a minimum of one year.

9.4.3. For real property listed cranes, the AFTO Form 95, *Significant Historical Data* (or electronic equivalent) will be used to document the monthly and annual/periodic inspections and significant repairs and test conducted by CE. The AFTO Form 95 is maintained indefinitely by CE for the lifespan of the equipment and must be readily available.

9.5. Training/Safety Briefings. Initial overhead crane operator training is provided by the OC-ALC and documented in ETMS and/or TSS.

DONALD KIRKLAND, Brig Gen, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION***References*

ANSI/ASME Safety Standard B30.2, *Overhead and Gantry Cranes*, 2011

ANSI/ASME Safety Standard B30.9, *Slings*, 2010

ANSI/ASME Safety Standard B30.11, *Monorails and Underhung Cranes*, 2010

ANSI/ASME Safety Standard B30.16, *Overhead Hoists*, 2012

ASTM E1417, *Standard Practice for Liquid Penetrate Testing*, 2013

ASTM E1444, *Standard Practice for Magnetic Particle Examination*, 2012

CFR 1910.184, *Slings*, 3 October 2013

OSHA 1910.179, *Overhead and Gantry Cranes*, 3 February 2004

TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, 15 June 2013

TO 00-20-14, *Air Force Metrology and Calibration Program*, 30 September 2013

TO 34-1-3, *Inspection and Maintenance of Machinery and Shop Equipment*, 8 October 2012

TO 33B-1-1, *Non-Destructive Inspection (NDI) Methods, Basic Theory*, 1 January 2013

TO 35-1-3, *Corrosion Prevention and Control, Cleaning, Painting, and Marking of USAF Support Equipment (SE)*, 5 August 2013

TO 35D6-1-106, *Aircraft and Engine Slings (General) and Restraining Devices*, 24 August 2013

TO 36-1-121, *Standardization of Lunette and Pintle Hook (Type I, Class I and II) Towing Attachments*, 24 August 2007

TO 36-1-191, *Technical and Managerial Reference for Motor Vehicle Maintenance*, 17 July 2013

AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*, 15 June 2012

AFI 91-203_OC-ALCSUP, *Air Force Consolidated Occupational Safety Instruction*, 6 May 2014

AFMCI 21-127, *Depot Maintenance Plant Management*, 23 June 2005

OC-ALCOI 32-7, *Hazardous Material Management*, 21 December 2009

Prescribed Forms

OC-ALC Form 105, *Overhead Crane and Operator Inspection Checklist*

Adopted Forms

DD Form 1577-1, *Unserviceable (Condemned) Tag-Materiel*

DD Form 1577-2, *Unserviceable (Repairable) Tag-Materiel*

DD Form 2875, *System Authorization Access Request (SAAR)*

AF Form 55, *Employee Safety and Health Record*

AF Form 483, *Certificate of Competency*

AF Form 847, *Recommendation for Change of Publication*

AF Form 982, *Danger Tag: Do Not Start*

AFTO Form 95, *Significant Historical Data*

AFTO Form 244/245, *Industrial/Support Equipment Record*

AFMC Form 137, *Routed Order*

AFMC Form 306, *Preventive Maintenance Instruction*

AFTO Form 350, *Repairable Item Processing Tag*

AFMC Form 388, *Machine Tool and Equipment Historical Record*

Abbreviations and Acronyms

72 ABW/CE—72d Air Base Wing/Civil Engineering

72 AMDS/SGPO—72d Aeromedical Squadron Occupational Medicine Flight

72 MSS/DPE—72d MSS Education and Training Flight

76 AMXG—76th Aircraft Maintenance Group

76 AMXG/OB—76th Aircraft Maintenance Group/Resources Management Division

564 AMXS—564th Aircraft Maintenance Squadron

551 CMMXS/MXDRAD—551st Commodities Maintenance Squadron/Commodities Tubing and Cable

552 CMMXS/MXDRAA—552nd Commodities Maintenance Squadron/Commodities Life Support and Textile

551 CMMXS/MXDRAD—551ndst Commodities Maintenance Squadron/Commodities Sheet Metal Manufacturing

576 MXSS/MXDEA—576th Maintenance Support Squadron Facility Engineering Flight

76 PMXG—76th Propulsion Maintenance Group

76 MXSG—76th Maintenance Support Group

76 MXSS—76th Maintenance Support Squadron

76 MXSS/MXDCA—76th Maintenance Support Squadron Precision Measurement Equipment Laboratory (PMEL) Flight

76 MXSS/MXDVA—76th Maintenance Support Squadron Plant Management Flight

76 MXSS/MXDEA—76th Maintenance Support Squadron Equipment Engineering Flight

76 MXSS/MXDVBBD—76th Maintenance Support Squadron Tool Control Center

AF—Air Force

AFI—Air Force Instruction
AFMAN—Air Force Manual
AFMC—Air Force Materiel Command
AFMCI—Air Force Materiel Command Instruction
AFOSH—Air Force Occupational Safety and Health
AFOSHSTD—Air Force Occupational Safety and Health Standard
AFTO—Air Force Technical Order
ANSI—American National Standards Institute
AOC—Account Organization Code
ASME—American Society Mechanical Engineers
BEF—Bioenvironmental Engineering Flight
BOM—Bill of Material
CE—Civil Engineering
CF—Carried Forward
CFR—Code of Federal Regulations
CM—Corrective Maintenance
CMMS—Computerized Maintenance Management System
COR—Contracting Officer Representative
COTS—Commercial Off The Shelf
Daily/PU—Daily or Prior To Use
DIPE—Depot Industrial Plant Equipment
DRMO—Supply/Defense Reutilization Marketing Office
ETMS—Education/Training Management System
FAA—Federal Aviation Administration
FAS—Functional Address Symbols
FEM—Facilities and Equipment Maintenance
FEMWEB—Facilities and Equipment Maintenance Web Application
IAW—In Accordance With
IMT—Information Management Tool (Form)
IPE—Industrial Plant Equipment
LSV—Low Speed Vehicle
MAJCOM—Major Command

MAS—Maintenance Action Sheet
MCL—Master Configuration List
MFT—Multi-Function Team
MIS—Maintenance Information Systems
MOC—Maintenance Operations Center
NDI—Non-Destructive Inspection
NON—DIPE —Non-Depot Industrial Plant Equipment
NSN—National Stock Number
OC—ALC —Oklahoma City Air Logistics Complex
OC—ALC/CC —Oklahoma City Air Logistics Complex Commander
OC—ALC/QP —Depot Maintenance Transformation, Quality Assurance and ESOH Division
OC—ALC/QPQA —Quality Metrics and Analysis Section
OC—ALC/QPE —Safety and Environmental Compliance Branch
OC—ALC/SEG —Oklahoma City Air Logistics Complex Ground Safety
OC—ALCOI — Oklahoma City Air Logistics Complex Operating Instruction
OCM—On-Condition Maintenance
OEM—Original Equipment Manufacturer
OI—Operating Instruction
OM—Operator Maintenance
OPR—Office of Primary Responsibility
OSHA—Occupational Safety and Health Administration
PdM—Predictive Maintenance
PM—Preventive Maintenance
PMI—Preventive Maintenance and Inspection
PME—Precision Measurement Equipment
PMEL—Precision Measurement Equipment Laboratory
PPE—Personal Protective Equipment
RCC—Resource Control Center
RIMS—Records Information Management System
SE—Support Equipment
SPO—System Program Office
TCTO—Time Compliance Technical Order

TI—Tinker Instruction

TO—Technical Order

TSS—Training Schedule System

VA—Visual Aid

WBP—Wheel Bearing Pack

WUC—Work Unit Code

Terms

Bridge—The part of a crane consisting of girders, trucks, end ties, footwalks, and drive mechanism which carries the trolley or trolleys.

Bridge Travel—Crane movement in a direction parallel to the crane runways.

Cab Operated Crane—A crane controlled by an operator in a cab located on the bridge or trolley.

Crane—A machine used for lifting and lowering a load and moving it horizontally, with the hoisting mechanism being an integral part of the machine.

Crane Operator—An employee who is qualified to operate an overhead crane.

Floor Operated Crane—A crane that is pendant or nonconductive rope controlled by an operator on the floor or an independent platform.

Overhead Crane—A crane with a moveable bridge carrying a moveable or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

Remote Operated Crane—A crane controlled by an operator not in a cab or pulpit. It is controlled by any method other than pendant or rope control (ie., radio, voice, remote hydraulic control).

Trolley—The unit which travels on the bridge rails and carries the hoisting mechanism.

Trolley Travel—The trolley movement at right angles to the crane runway.

Real Property Cranes—Cranes that were installed as part of the original design of the facility, or do not have OC numbers.

Attachment 2

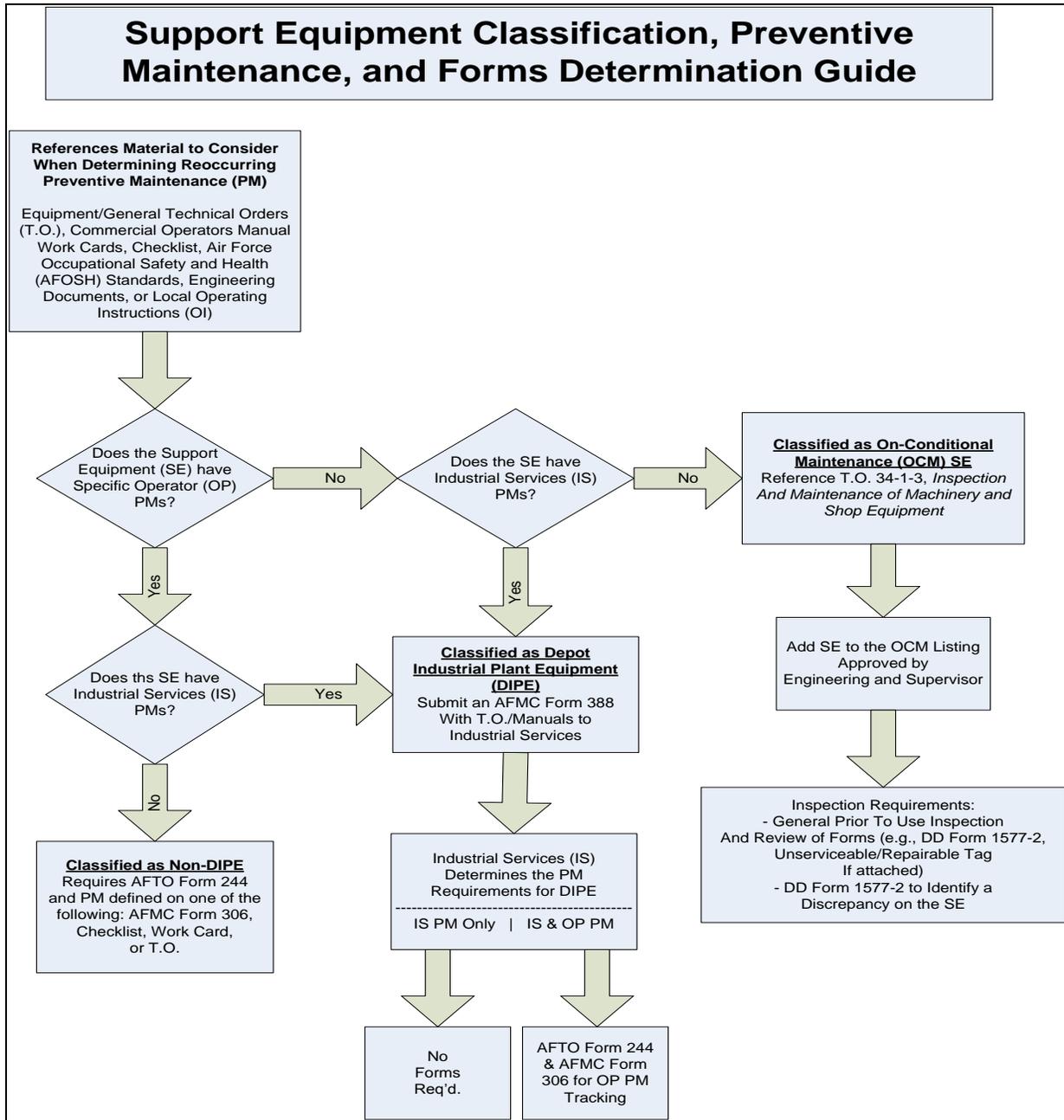
**COMPLETION INSTRUCTIONS FOR AFMC FORM 388, MACHINE TOOL AND
EQUIPMENT HISTORICAL RECORD**

Figure A2.1. Completion Instructions for AFMC Form 388, Machine Tool and Equipment Historical Record (Include as much information as is available)

| <u>PART</u> | <u>ENTRY</u> |
|---------------------|---|
| PART 1 | |
| 1. Nomenclature | Enter the manufacturer's equipment number and, if available, the equipment type for more complete identification. |
| 2. Manufacturer | Enter name of manufacturer. |
| 3. Model Number | Enter manufacturer's model number. |
| 4. Serial Number | Enter the serial number of the equipment (as shown on the serial plate). |
| 5. Size/Capacity | Enter the size or capacity of the equipment. |
| 6. Cost | Enter initial cost or price as listed in the federal stock catalog. |
| 7. Date Purchased | Enter month and year purchased. |
| 8. NSN | Enter appropriate federal stock classification and national stock number. |
| PART II | |
| Production Section | Enter the designation of the appropriate production section or Account Organization Code (AOC). |
| Building Number | Enter the building number where equipment is located. |
| Zone Code | Enter the code of the zone in which the equipment is located, if applicable. |
| Column | Enter the designation column nearest the equipment. |
| Reference to Column | Enter the coordinates and distances of the equipment from the nearest column. |
| Date Installed | Enter date of installation. |
| Point of Contact | Name and extension of individual familiar with equipment |

Attachment 3
SUPPORT EQUIPMENT

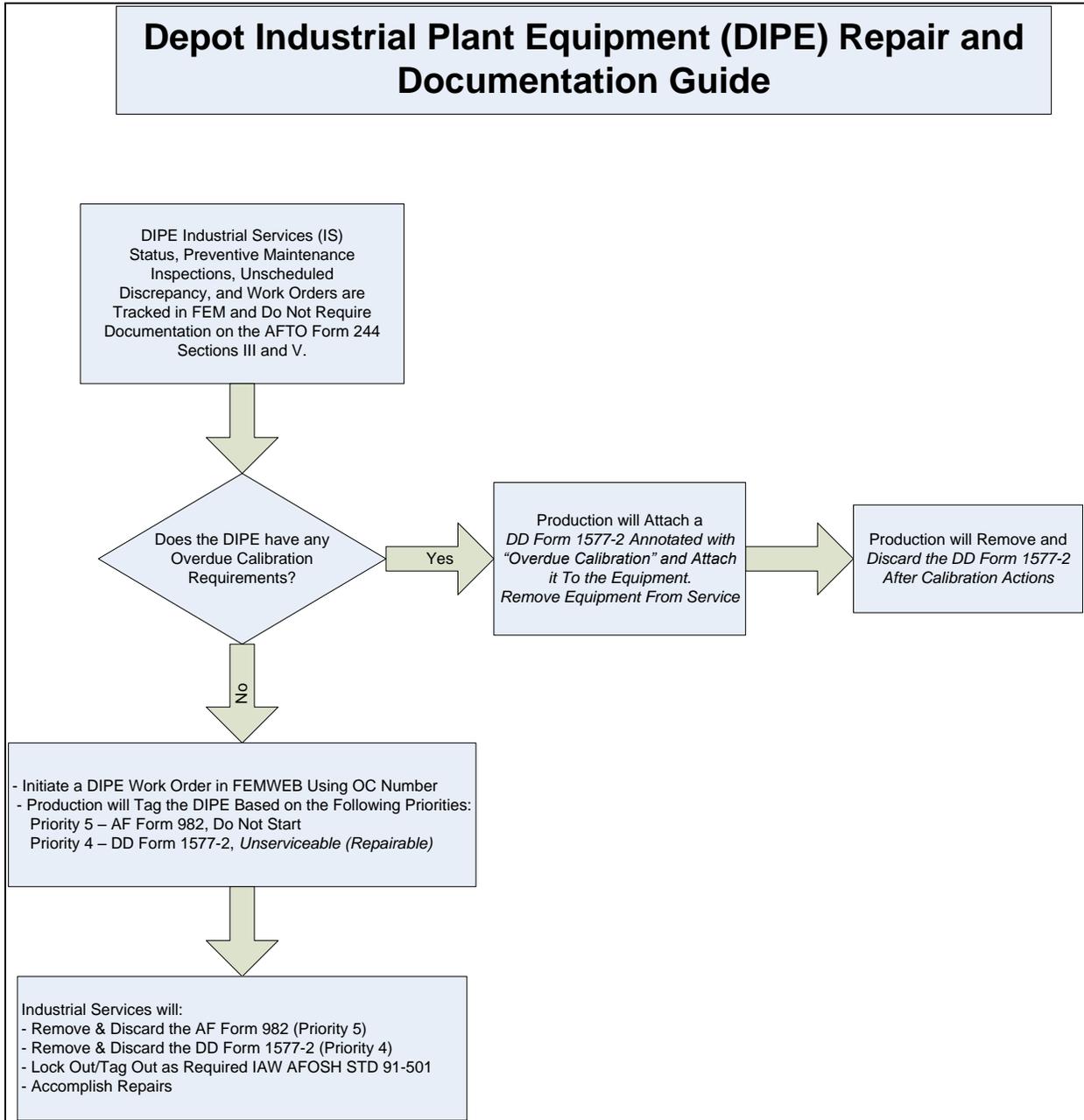
Figure A3.1. Support Equipment



Attachment 4

DEPORT INDUSTRIAL PLANT EQUIPMENT (DIPE) REPAIR AND DOCUMENTATION GUIDE

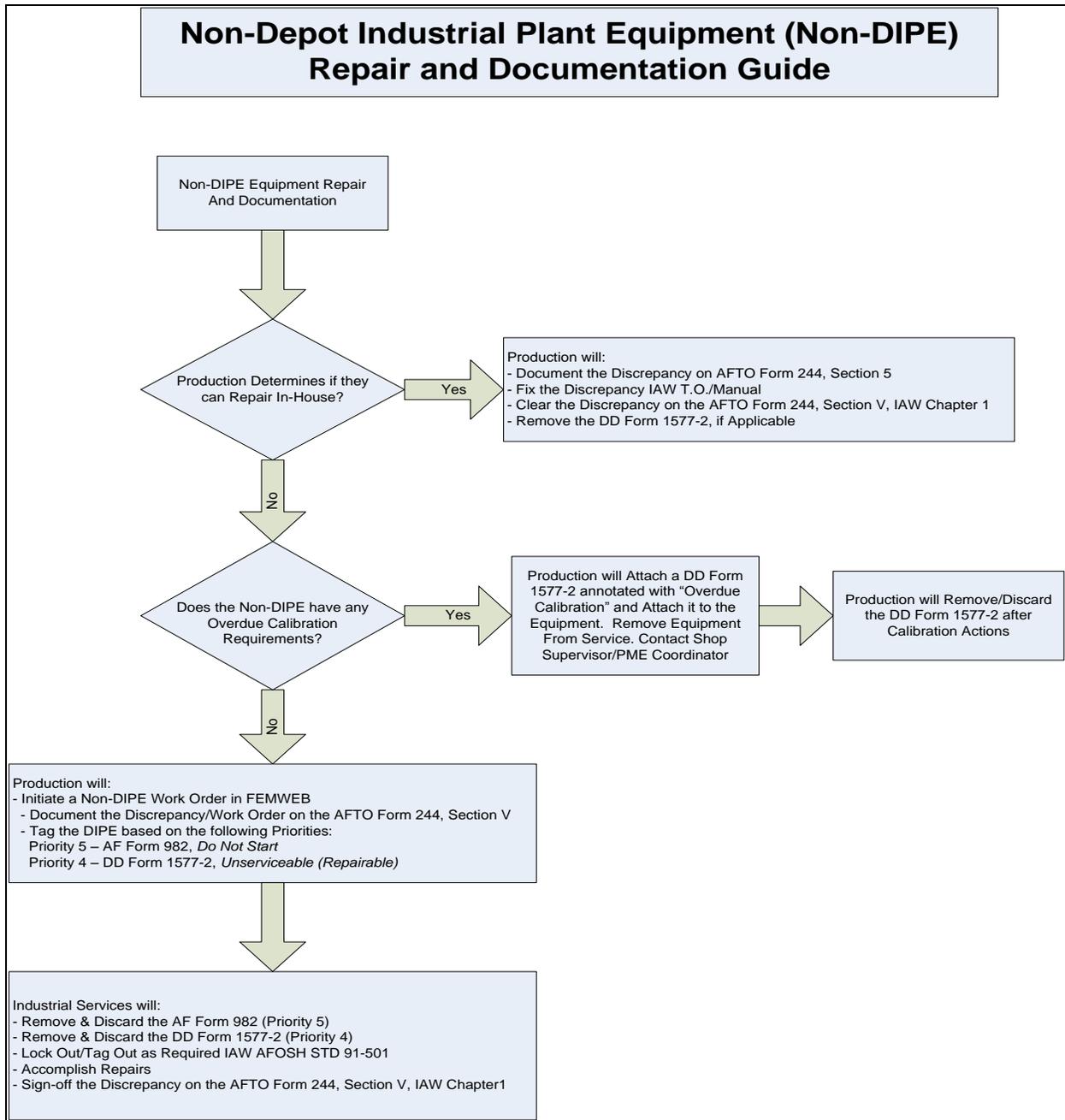
Figure A4.1. Deport Industrial Plant Equipment (DIPE) Repair and Documentation Guide



Attachment 5

NON-DEPORT INDUSTRIAL PLANT EQUIPMENT (NON-DIPE) REPAIR AND DOCUMENTATION GUIDE

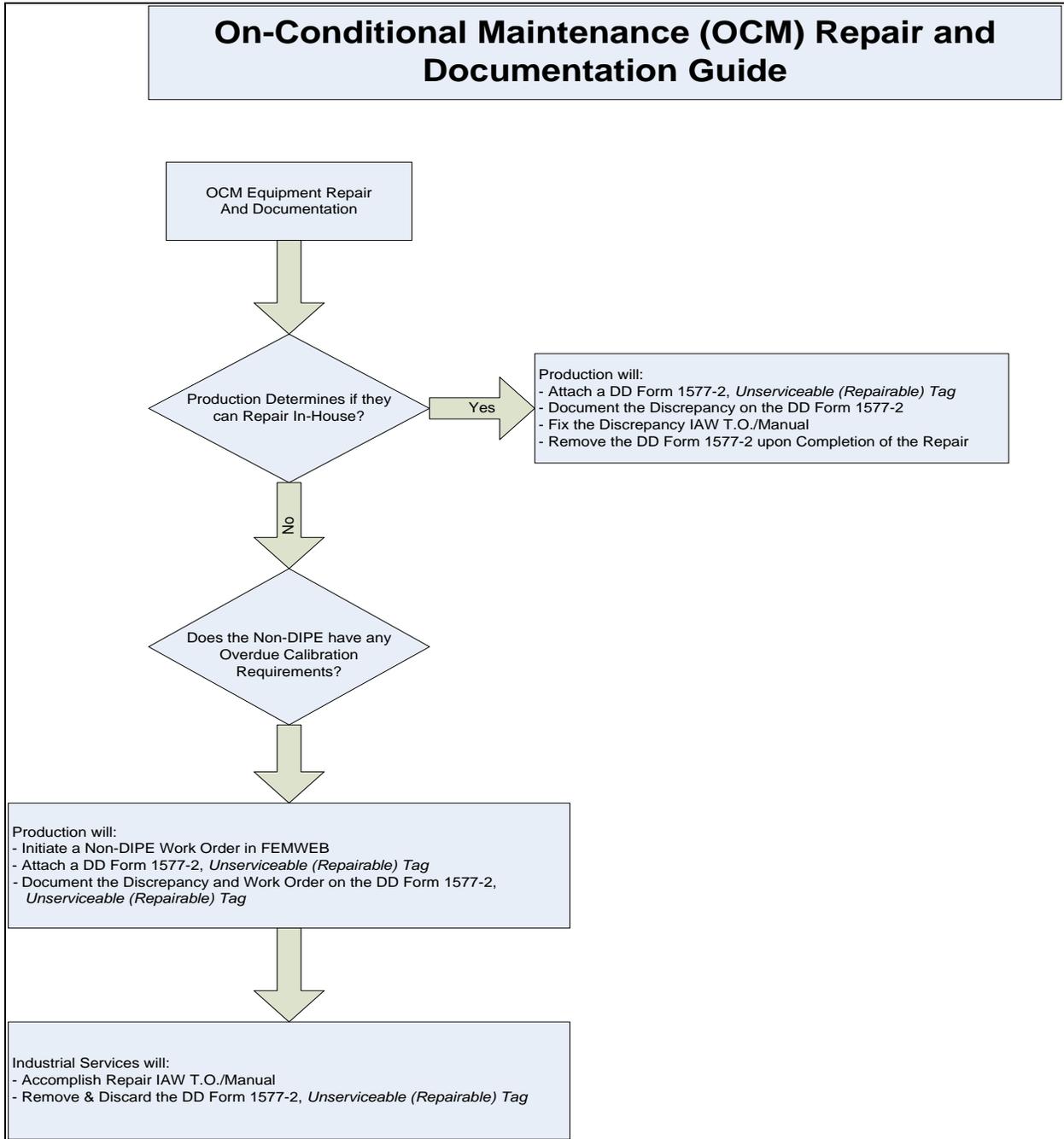
Figure A5.1. Non-Deport Industrial Plant Equipment (Non-DIPE) Repair and Documentation Guide



Attachment 6

ON- CONDITIONAL MAINTENANCE (OCM) REPAIR AND DOCUMENTATION GUIDE

Figure A6.1. On- Conditional Maintenance (OCM) Repair and Documentation Guide



Attachment 7

OC-ALC FORM 105, OVERHEAD CRANE OPERATOR INSPECTION CHECKLIST

Figure A7.1. OC-ALC Form 105, Overhead Crane Operator Inspection Checklist

| OVERHEAD CRANE OPERATOR INSPECTION CHECKLIST | | | |
|--|--------------|----------------|-----|
| <p>INSTRUCTIONS: Before first use of the day, inspect all applicable items. Suspend all operations immediately if any of the items indicated below with an asterisk (*) are observed to be in an unsatisfactory condition. In addition to suspending the operation when any unsafe condition is observed, immediately notify your supervisor.</p> | | | |
| AREAS OF CONCERN Do these items pass inspection? | Satisfactory | Unsatisfactory | N/A |
| WALK AROUND | | | |
| * Wire Rope/Reeving -Check for broken strands or crimping. | ✓ | | |
| * Lower Block & Hook -Loose or missing bolts or screws. | ✓ | | |
| * Hook Safety Latch -Ensure presence of latch. Spring tension must ensure contact with the hook. | ✓ | | |
| General Appearance -Missing pieces, loose or hanging parts. | ✓ | | |
| * Safety Guards (cab operated cranes only) -Presence of safety guard on conductor rail. Plexiglass protector from buss bar to include coupling housings. | | | ✓ |
| * Walks/Ladders/Handrails -Presence of and no loose or missing parts. | | | ✓ |
| CONTROLS | | | |
| * Push Button Station -Cracked or broken housing. No missing or damaged buttons. | ✓ | | |
| * Proper Marking -Weight limit is stenciled on hoist or crane. | ✓ | | |
| * Lever Type Controllers (cab operated cranes only) -Operable and undamaged. | | | ✓ |
| * Remote/Radio -Presence of antennae and no broken or missing parts. Battery check. | | | ✓ |
| * Start/Stop Button -Proper operation. | ✓ | | |
| * Proper Support for Pendant Button Control -Presence of support cable or chain with slack in control power cord. | ✓ | | |
| OPERATIONAL | | | |
| * Brakes -Must stop with coast to avoid swinging load. | ✓ | | |
| * Limit Switch -Proper operation of upper and lower switch. Ensure hook does not reach the floor. | ✓ | | |
| * Hoist Travel -Smooth up and down operation without hesitation. | ✓ | | |
| * Trolley Travel -Proper direction and operable. | ✓ | | |
| * Bridge Travel -Proper direction and operable. | ✓ | | |
| * Electric Disconnect -Turn off power to crane and make sure it is inoperable. | ✓ | | |
| * Emergency Egress System and Fire Extinguisher (cab operated only) -Present and operable. | | | ✓ |
| * Safety Lights, Horns, Sirens, or Alarms -Perform operational check to ensure proper working order | ✓ | | |

Attachment 8

OVERHEAD CRANE MAINTENANCE AND INSPECTION SCHEDULE**Figure A8.1. Overhead Crane Maintenance and Inspection Schedule**

| <u>MAINTENANCE REQUIRED</u> | <u>WHO</u> | <u>REGULATION</u> | <u>FREQUENCY</u> |
|--|-------------------|---|---|
| Hoist hooks – Visual | Operator | AFOSHSTD 91-10 | Daily |
| Hoist Chains – Visual | Operator | AFOSHSTD 91-10 | Daily |
| Funct. Op Mech, - Visual | Operator | AFOSHSTD 91-10 | Daily |
| Crane hooks | Operator | AFOSHSTD 91-10 | Daily |
| Wire ropes | Operator | AFOSHSTD 91-10 | Daily |
| Chains | Operator | AFOSHSTD 91-10 | Daily |
| Brakes | Operator | AFOSHSTD 91-10 | Daily |
| Funct, Op Mech. | Operator | AFOSHSTD 91-10 | Daily |
| Controls | Operator | AFOSHSTD 91-46 | Daily |
| Upper limit switch | Operator | AFOSHSTD 91-46 | Daily |
| Fire extinguishers (if entering the cab) | Operator | AFOSHSTD 91-46 | Daily |
| Hoist running ropes – Visual | Operator | AFOSHSTD 91-46 | Daily |
| Safety lights, horns, sirens or alarms | Operator | AFOSHSTD 91-46 | Daily |
| Fire extinguisher | Operator | TAFBI 32-2001 | Monthly |
| Tasks are defined on Maintenance Action Sheets (MAS) | CE | AFOSHSTD 91-46 ASME B30.11 AFOSHSTD 91-10 Manufacturer | Frequencies are defined on Maintenance Actions Sheets (MAS) |

Attachment 9

OVERHEAD CRANE OPERATOR ANNUAL SAFETY BRIEFING OUTLINE**Figure A9.1. Overhead Crane Operator Annual Safety Briefing Outline**

- A9.1. Overhead Crane Operator Annual Safety Briefing Outline
- A9.1.1. References. Be familiar with and know where to find them for future reference.
- A9.1.1. AFOSH Standard 91-10, Civil Engineering
- A9.1.2. AFOSH Standard 91-46, Materials Handling and Storage Equipment
- A9.1.3. ANSI/ASME B30.2, Overhead and Gantry Cranes
- A9.1.4. ASME B30.11, Monorails and Underhung Cranes
- A9.1.5. OSHA 1910.179, Overhead and Gantry Cranes
- A9.1.6. AFI 91-203_OC-ALCSUP, Air Force Consolidated Occupational Safety Instruction
- A9.2. General Information.
- A9.2.1. Know the characteristics of the particular crane you are operating.
- A9.2.2. Be alert; do not be distracted. Always keep your eyes on a moving load. The operator IS ALWAYS responsible for the lift and movement of the load.
- A9.2.3. Good housekeeping is a must.
- A9.2.4. Ensure PPE is used and is in good repair.
- A9.2.5. Inspect your machine daily before operation.
- A9.2.6. Always have a fire extinguisher on hand and know how to use it.
- A9.2.7. Take signals from only one person and use standards signals (refer to AFOSHSTD 91-46 for hand signals).
- A9.2.8. Never exceed the rated capacity.
- A9.2.9. Make a “dry run” in tight areas.
- A9.2.10. Always maintain at least 2 wraps of wire rope around the drum.
- A9.2.11. Use Tag Lines on loads.
- A9.2.12. No “horseplay;” Don’t be a “cowboy.”
- A9.3. Pre-Operational Inspection. Operators must inspect equipment daily before use, using the OC-ALC Form 105, and document the inspection and any discrepancies on the AFTO Form 244. Report any unsafe condition to workplace supervisor and do not operate crane until repaired.
- A9.3.1. Know the location of the disconnect switch and be sure that it is readily accessible and not blocked.
- A9.3.2. Check the wire rope by lowering the block to the lowest level and looking for kinked, crushed, cut, broken strands, or bird caged wiring.
- A9.3.3. Make sure the wire rope is properly seated in its drum and sheave grooves without any slack or overlapping.
- A9.3.4. Check hooks for cracks, bending, twists or wear. Safety latch must be present. Ensure latch is fully operational. Hooks should rotate freely in block assembly without any grinding.
- A9.3.5. Sheaves should rotate freely without any grinding from the bearings. The sheave guard must be unbroken and intact. No part of the sheave guard should be in contact with the wire rope or sheave.
- A9.3.6. Check the block assembly for structural damage or cracks in any components.
- A9.3.7. Make sure all buttons are labeled correctly.
- A9.3.8. Operate all buttons to ensure they release immediately and do not stick.
- A9.3.9. Check bridge and trolley brakes for hold and no drift. Also must coast to a stop to prevent

load from swinging.

A9.3.10. Check upper and lower hoist limit switches.

A9.3.11. Operate the crane and hoist for several feet in each direction that it travels. Listen for any unusual noises. Look for any jerky movements.

A9.3.12. Trolley and trolley direction and speed must be smooth and operate at all speeds.

A9.3.13. Do not operate a crane or hoist if limit switches, steel ropes, chains, or other components are worn or in disrepair.

A9.3.14. Last but not least, ensure no obstructions will interfere with the normal motion of the hoist, cab, or bridge.

A9.4. Safe Operation Principles.

A9.4.1. Operators must be thoroughly familiar with all applicable standards.

A9.4.2. Do not exceed the rated load capacity of the crane, hoist, chain, slings, or other components.

A9.4.3. Slings, load chains, and other lifting devices must be fully and securely seated in the hook before moving a load. Remove slack from the sling, chain, or cable before lifting a load.

A9.4.4. Ensure PPE is in good repair and used (hard hat, steel toe shoes, safety glasses or goggles, gloves, etc.).

A9.4.5. Workers in the direction of travel must be warned to move and remain clear of a lifted move at all times.

A9.4.6. Do not suspend loads over personnel.

A9.4.7. Under no circumstances may anyone ride the hook or load.

A9.4.8. Directional movement should be made smoothly and deliberately. Avoid rapid movements in any direction. Operate crane at full speed.

A9.4.9. To avoid swinging loads:

A9.4.9.1. Locate the hoist directly above the lifting point of the load before lifting;

A9.4.9.2. Lower loads directly below the hoist;

A9.4.9.3. Keep hoisting ropes vertical;

A9.4.9.4. Do not pull or push the load; and

A9.4.9.5. Use Tag Lines as necessary.

A9.4.10. Take up slack slowly to reduce dynamic stress.

A9.4.11. You may jog load into position if necessary.

A9.4.12. No unauthorized side pulls are allowed.

A9.4.13. Maintain 2 wraps of wire rope around the drum at all times.

A9.4.14. When lifting loads, test the hoist brakes by returning the switch to the "OFF" (neutral) position after raising the load a few inches off the floor. If the brakes do not hold, lower the load and do not operate the crane. Report the failure immediately and DO NOT USE until repaired. Disconnect power and have it Locked Out/Tagged Out.

A9.4.15. Ensure loads are lifted high enough to clear obstructions before moving the bridge or trolley. Whenever possible maintain a minimum clearance of one foot above the loads and to the sides. Raise the load only to the height necessary to clear lower objects.

A9.4.16. Never pull a hoist by the pendent cable.

A9.4.17. Never leave the controls unattended while a load is suspended. If it becomes necessary to leave the controls, lower the load to the floor.

A9.4.18. Know where the disconnect switch is located and make sure that it is readily accessible and not block.

A9.4.19. If loss of electrical power occurs, place controls in the "OFF" position to prevent

unexpected startup upon restoration of power.

A9.4.20. Never operate a crane or hoist that has been Locked Out/Tagged Out or if you feel it is unsafe to operate.

A9.4.21. Keep visual contact with signalman at all times.

Attachment 10**76 MXSG LIST OF “UNSUPPORTED EQUIPMENT”****Figure A10.1. 76 MXSG List of “Unsupported Equipment”**

- A10.1. Slings, lifting cables & spreader bars
- A10.2. Manual hose reels
- A10.3. Pallet jacks/forklifts of any type
- A10.4. Motor pool supported equipment: low speed vehicles (LSV), other motor vehicle conveyances (OGMVC) and anything that is designed to be ridden by the operator.
- A10.5. Fixtures, safety cable guns, tooling & tools managed by the tool crib (exception: some large Torque Wrenches that require preventive maintenance)
- A10.6. Real Property and real property installed equipment systems such as creature comfort HVAC
- A10.7. Port-a-cool fan units & pedestal fans
- A10.8. Non-process refrigerators, ice makers, heaters & air conditioners
- A10.9. Lighting systems not embedded within DIPE (lights within a paint booth are maintained)
- A10.10. Mass communication/notification devices such as break horns and shop speakers
- A10.11. Ground Support Equipment including the newer indoor aircraft work stands (exception: Texas Tower)
- A10.12. Factory sealed equipment related to Fall Protection Devices (FPD) such as Skyhook vacuum systems, retractable FPD reels, etc.
- A10.13. Low Pressure shop air compressors, chillers, boilers, etc. for general shop usage
- A10.14. Centralized breathing air generation systems (however end use breathing air boards will be supported)
- A10.15. Trailers
- A10.16. Housekeeping related equipment such as floor scrubbers, sweepers & shop vacs.
- A10.17. Automated data processing equipment (ADPE) IT systems
- A10.18. High pressure bulk gas systems (will support the low pressure side)
- A10.19. Hand held dryers & blowers
- A10.20. Power trees
- A10.21. Small diaphragm pumps
- A10.22. Small drill presses, notchers, english wheels, etc.