

ATTACHMENT 0005  
MAINTENANCE ANALYSIS (MA) DATA

SUMMARY TITLE: Maintenance Analysis (MA) Data

DATA ELEMENT SPECIFICATION: All data elements listed in this table shall be provided for all components, assemblies, subassemblies, and piece parts for the Self Propelled Concrete Saw (SPCS) unless specified elsewhere in this attachment. If there are concerns as whether or not a data element is required for specific components, assemblies, subassemblies, or piece parts then the contractor shall consult the Government for a final decision.

1. Part Number (Include both Prime and Supplier Part Numbers)
2. Item Name
3. Commercial Government Entity (CAGE) Code
4. Unit of Measure Price (UM PRICE)
5. Maintenance Function (i.e., replace, repair, test, etc.)
6. Task Times
7. Common Tool Requirements (common tool sets only, not individual tools)
8. Special Tools Requirements (Include Vendor, Part Number, and Cost)
9. Task Frequency
10. Mean Time Between failure (MTBF) Predicted
11. Mean Time To Repair (MTTR)

Notes:

- a) Delivery is to be Microsoft Excel compatible, See Sample Format Attachment.
- b) Additional data elements may be added at contractor's discretion.
- c) See MA Data Element Definitions for additional information.

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**MAINTENANCE ANALYSIS (MA) DATA ELEMENT DEFINITIONS**

**PART NUMBER** – The Part Number is referred to as the primary number used to identify an item used by the manufacture (individual, company, firm, corporation, or government activity) which controls the design, characteristics and production of the item by means of its engineering drawings, specifications, and inspection requirements.

**ITEM NAME** – The item name shall be the common commercial/industrial name used to refer to an item.

**COMMERCIAL AND GOVERNMENT ENTITY (CAGE) CODE** - A five-character code assigned by the DLIS to the design control activity or actual manufacturer of an item as contained in the Cataloging Handbook H4/H8 Series. Assistance in finding CAGE codes may be found at [http://www.dlis.dla.mil/cage\\_welcome.asp](http://www.dlis.dla.mil/cage_welcome.asp). If the CAGE for a vendor/supplier the companies name shall be used in place of the Commercial and Government Entity (CAGE) Code.

**UNIT OF MEASURE PRICE (UM PRICE)** – The price for one unit of measure of the part stated in dollars and cents; the last two positions are cents, the decimal point is understood. This price must reflect the best estimated price the government would pay for the item from the original manufacture contractor.

**MAINTENANCE FUNCTION** - Identifies each operator/maintenance task associated with particular items under analysis. Listed below are the approved maintenance tasks that shall be identified for the End Item, Assemblies, Subassemblies and repair parts that are not part of an assembly or subassembly. Repair parts shall not include common hardware which is defined as nuts, bolts, washers, o-rings etc.

- a) Adjust - To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.
- b) Inspect - To determine the serviceability or detect incipient failures by comparing an item's physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).
- c) Lubricate - To apply a substance (e.g., oil, grease, graphite), This task is for grease fitting or other lubrication points.
- d) Rebuild - Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original

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manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/ miles, etc.) considered in classifying equipments/components.

- e) Remove and Replace - To substitute a serviceable spare part for a malfunctioned, damaged, or worn-out part. This function should only be used when the item represented by the LCN against which the task is being documented is being replaced. Remove and Replace actions will include discrete sequences for fault location, correction of the fault or malfunction by removal of the item and replacing it with a spare, and verification that the fault has been corrected. The fault location and verification may be documented one indenture above the Remove and Re place action.
- a) Repair - Utilized as a corrective maintenance action or task function to restore to a serviceable condition an end item, assembly, subassembly, module, or component. Also to be utilized as maintenance action or task function to restore an item removed from the end item through replacement of lower-order nonrepairable items and through rework such as patching, welding, grinding, straightening, facing, machining, or resurfacing to correct a specific fault. Repair actions will include discrete sequences for fault location, correction of the fault or malfunction, and verification that the fault has been corrected
- b) Service - Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

**TASK TIMES** – The time required to complete a maintenance task. Use clock hours with one decimal place.

**COMMON TOOLS** – Tools having multiple applications

**SPECIAL TOOLS** – Special tools are defined as tools, Test Measurement and Diagnostics Equipment (TMDE), or other support equipment designed and developed to perform a specific maintenance operation on specific assemblies or subassemblies of the SPCS.

**TASK FREQUENCY** - The number of annual occurrences of a maintenance task. Annual Operating Requirement (AOR) for the SPCS used for this delivery is 1600 hours. This AOR was derived from a typical season of 10 months. Assume 20 working days at 8 hours per day.

- a) Daily Task Frequency = 200.000 (200 working days in 10 months), unless the procedure needs to be done more than once per day of operation.

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b) Monthly Tasks = Task Frequency of 10.000

c) Annual Tasks = Task Frequency of 1.000

**MEAN TIME BETWEEN FAILURE (MTBF)** - The total elapsed time (clock hours) for corrective maintenance divided by the total number of corrective maintenance actions during a given period of time. MTTR may be calculated by the following formula:

$$N$$
$$\sum_{i=1} (TF_i) \times (ET_i)$$
$$MTTR = \frac{N}{\sum_{i=1} TF_i}$$

Where:

i = On equipment corrective maintenance actions

TF<sub>i</sub> = Task frequency of "i" on equipment maintenance action

N = Total number of on equipment corrective maintenance actions charged against the item

ET<sub>i</sub> = Mean elapsed time of the "i" on equipment corrective maintenance action

MTBF is only to be provided for the End Item, Assemblies Subassemblies.

**MEAN TIME TO REPAIR (MTTR)** - The total elapsed time (clock hours) for corrective maintenance divided by the total number of corrective maintenance actions during a given period of time. MTTR may be calculated by the following formula:

$$N$$
$$\sum_{i=1} (TF_i) \times (ET_i)$$
$$MTTR = \frac{N}{\sum_{i=1} TF_i}$$

Where:

i = On equipment corrective maintenance actions

TF<sub>i</sub> = Task frequency of "i" on equipment maintenance action

N = Total number of on equipment corrective maintenance actions charged against the LCN/ALC item under analysis

ET<sub>i</sub> = Mean elapsed time of the "i" on equipment corrective maintenance action

MTTR is only to be provided for the End Item, Assemblies Subassemblies.