# TECHNICAL MANUAL

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND
SPECIAL TOOLS)

### **FOR**

RECOVERY VEHICLE, FULL TRACKED: HEAVY M88A2 (NSN 2350-01-290-4683)
(EIC: ACQ)

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HEADQUARTERS
DEPARTMENT OF THE ARMY
U.S. MARINE CORPS
WASHINGTON, D.C., 01 JANUARY 2002

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE REPAIR PARTS
AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS)

#### **FOR**

# RECOVERY VEHICLE, FULL TRACKED: HEAVY M88A2 (NSN 2350-01-390-4683)

### **CURRENT AS OF 01 JANUARY 2002**

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# DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

#### INTRODUCTION

#### **SCOPE**

This RPSTL lists and authorizes spares and repair parts; special tools; test, measurement, and diagnostic equipment (TMDE); other special support equipment required for performance of direct support; and general support equipment required for performance of the M88A2 Recovery Vehicle. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the Source, Maintenance, and Recoverability (SMR) codes.

#### **GENERAL**

In addition to the Introduction work package, this RPSTL is divided into the following work packages.

- 1. Repair Parts List Work Packages. Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustration.
- Special Tools List Work Packages. Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DE-SCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components to common tool sets and/or Class VII are not listed.
- 3. Cross-reference Index Work Packages. There are two cross-reference index work packages in this RPSTL: the National Stock Number (NSN) and the Part Number (P/N) index work packages. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

#### EXPLANATION OF COLUMNS IN THE REPAIR PARTS AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

**SMR CODE** (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout:

Source	Maintenance		Recoverability
Code	<u>Code</u>		<u>Code</u>
XXxxx	<u>xx<b>XX</b>x</u>		xxxx <b>X</b>
1 <sup>st</sup> two	3 <sup>rd</sup> position:	4 <sup>th</sup> position:	5 <sup>th</sup> position:
positions:	Who can in-	Who can do	Who determines
How to get an	stall, replace,	complete repair*	disposition action on
item.	or use the item.	on the item.	unserviceable items.

<sup>\*</sup>Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

**Source Code**. The source code tells you how you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Source Code	<u>Application/Explanation</u>
PA	Stock items; use the applicable NSN
PB	to requisition/request items with these
PC	source codes. They are authorized to
PD	the level indicated by the code entered

# EXPLANATION OF COLUMNS IN THE REPAIR PARTS AND SPECIAL TOOLS LIST WORK PACKAGES - CONTINUED

PE in the 3<sup>rd</sup> position of the SMR code.

PF

PG

**NOTE** 

Items coded PC are subject to deterioration.

KD

KF

KB

Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the 3<sup>rd</sup> position of the SMR code. The complete

kit must be requisitioned and applied.

MO-Made at unit/

AVII M level

kit must be requisitioned and applied.

Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the P/N in the DESCRIPTION

AVILM level identified by the P/N in the DESCRIPTION MH-Made at GS AND USABLE ON CODE (UOC) column level and listed in the bulk material group work ML-Made at SRA package of the RPSTL. If the item is

MD-Made at depot

authorized to you by the 3<sup>rd</sup> position code of the SMR code, but the source code indicates

it is made at higher level, order the item
from the higher level of maintenance.

AO-Assembled by
Items with these codes are not to be
requested/requisitioned individually. The
AF-Assembled by

DS/AVIM level

The requisitioned or febricated and assembled

DS/AVIM level be requisitioned or fabricated and assembled at the level of maintenance indicated by the Source code. If the 3<sup>rd</sup> position of the SMR code authorizes you to replace the item, but the source code indicates the item is

SRA but the source code indicates the item is assembled at a higher level, order the item depot from the higher level of maintenance.

XA Do not requisition an "XA" coded item.
Order the next higher assembly. (Refer

to NOTE below.)

XB If an item is not available from salvage,

order it using the CAGEC and P/N.

XC Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's

P/N.

XD Item is not stocked. Order an XD-coded item through

normal supply channels using the CAGEC and P/N

given, if no NSN is available.

#### NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

**Maintenance Code**. Maintenance codes tell you the level(s) of maintenance authorized to use the repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance:

# EXPLANATION OF COLUMNS IN THE REPAIR PARTS AND SPECIAL TOOLS LIST WORK PACKAGES - CONTINUED

Maintenance <u>Code</u>		Application/Explanation
С	-	Crew or operator maintenance done within unit/AVUM maintenance.
0	-	Unit level/AVUM maintenance can remove, replace, and use the item.
F	-	Direct support/AVIM maintenance can remove, replace, and use the item.
Н	-	General support maintenance can remove, replace, and use the item.
L	-	Specialized repair activity can remove, replace, and use the item.
D	-	Depot can remove, replace, and use the item.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

#### NOTE

Some limited repair may be done on the item at the lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

Maintenance <u>Code</u>		Application/Explanation				
О	-	Unit/AVUM is the lowest level that can do complete repair of the item.				
F	-	Direct support/AVIM is the lowest level that can do complete repair of the item.				
Н	-	General support is the lowest level that can do complete repair of the item.				
L	-	Specialized repair activity is the lowest level that can do complete repair of the item.				
D	-	Depot is the lowest level that can do complete repair of the item.				
Z	-	Nonreparable. No repair is authorized.				
В	-	No repair is authorized. No parts or special tools are authorized for maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.				

**Recoverability Code**. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

Recoverab Code	oility	Application/Explanation
Z	-	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
0	-	$Reparable item. \ When une conomically reparable, condemn and dispose of the item at the unit level.$
F	-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support level.
Н	-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D	-	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item is not authorized below depot level.
L	-	Reparable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).

# EXPLANATION OF COLUMNS IN THE REPAIR PARTS AND SPECIAL TOOLS LIST WORK PACKAGES - CONTINUED

A - Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

**NSN** (Column (3)). The NSN for the item is listed in this column.

**CAGEC** (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

**PART NUMBER** (Column (5)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

#### NOTE

When you use an NSN to requisition an item, the item you receive may have a different P/N from the number listed.

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following information:

- 1. The federal item name, and when required, a minimum description to identify the item.
- 2. P/Ns of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.
- 3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from Electromagnetic Pulse (EMP) damage during a nuclear attack.
- 4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

#### **EXPLANATION OF CROSS-REFERENCE INDEX WORK PACKAGES FORMAT AND COLUMNS**

1. National Stock Number (NSN) Index Work Package.

**STOCK NUMBER** Column. This column lists the NSN in National Item Identification Number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN.

(e.g., 5385-<u>01-574-1476)</u> When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

**FIG.** Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.

**ITEM** Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

2. Part Number (P/N) Index Work Package. P/Ns in this index are listed in ascending numeric-alpha sequence (vertical arrangement of number and letter combinations which places the first digit or letter of each group in order 0 through 9, followed by the letters A through Z and each following digit or letter in like order).

**PART NUMBER** Column. Indicates the P/N assigned to the item.

**FIG.** Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.

**ITEM** Column. The item number is in the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

#### SPECIAL INFORMATION

**UOC.** The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC:..." in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the UOCs used in the RPSTL are:

<u>Code</u>	<u>USED ON</u>
CDT	XT-1410-4 Transmission
TWC	XT-1410-5A Transmission
APW	Model DJBMA (ONAN) Diesel Engine
APH	Model 2G40-HDA9304 (HATZ) Diesel Engine

**Fabrication Instructions.** Bulk materials required to manufacture items are listed in the bulk material functional group of this RPSTL. Part numbers for bulk material are also referenced in the Description Column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in TM 9-2815-247-34.

**Item Numbers.** Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN / P/N index work packages and the bulk material list in the repair parts list work package.

**Associated Publications.** The publications listed below pertain to Recovery Vehicle, Full Tracked, Medium M88A1 and Recovery Vehicle, Full Tracked, Heavy M88A2.

<u>Publication</u>	Short Title
TM 9-2350-292-10	Operator's manual for Recovery vehicle, full tracked, heavy M88A2 (NSN 2350-01-390-4683)
TM 9-2350-292-20	Organizational maintenance manual: Recovery vehicle, full tracked, heavy M88A2 (NSN 2350-01-390-4683)
TM 9-2350-292-34	Direct and general support maintenance manual: Recovery vehicle, full tracked, heavy M88A2 (NSN 2350-01-390-4683)
TM 9-2815-247-34	Direct support and general support maintenance manual: Engine with container; turbosupercharged, oil-cooled generator, diesel (Model ADVS-1790-8CR)
TM 9-2815-247-34P	Direct support and general support maintenance repair parts and special tools list (including depot maintenance repair parts and special tools): Engine AVDS-1790-8CR
TM 9-2920-232-34&P	Direct support and general support maintenance manual (including repair parts and special tools list) for Starter assembly, engine
TM 9-2920-252-34&P	Direct support and general support maintenance manual (including repair parts and special tools list) for Generator asembly, engine (650 AMP)
DMWR 9-2920-252	Depot Maintenance Work Requirements: 650 AMP generator (NSN 2920-00-441-8137)
TM 9-2990-205-34&P	Direct support and general support maintenance manual (icluding repair parts and special tools list) for Turbosupercharger, engine

#### **HOW TO LOCATE REPAIR PARTS**

1. When NSNs or P/Ns are not known.

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN is known.

First. If you have the NSN, look in the Stock Number column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When P/N is known.

First. If you have the P/N and not the NSN, look in the Part Number column of the P/N index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

#### **ABBREVIATIONS**

<u>Abbreviation</u>	Explanation
BOI	Basis of Issue
FIG	Figure
MAC	Maintenance Allocation Chart
NSN	National Stock Number
RPSTL	Repair Parts and Special Tools List
SMR	Source, Maintenance, and Recoverability
TMDE	Test, Measurement, and Diagnostic Equipment
UOC	Usable on Code

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#### **END OF WORK PACKAGE**

**Engine Assembly with Container** 

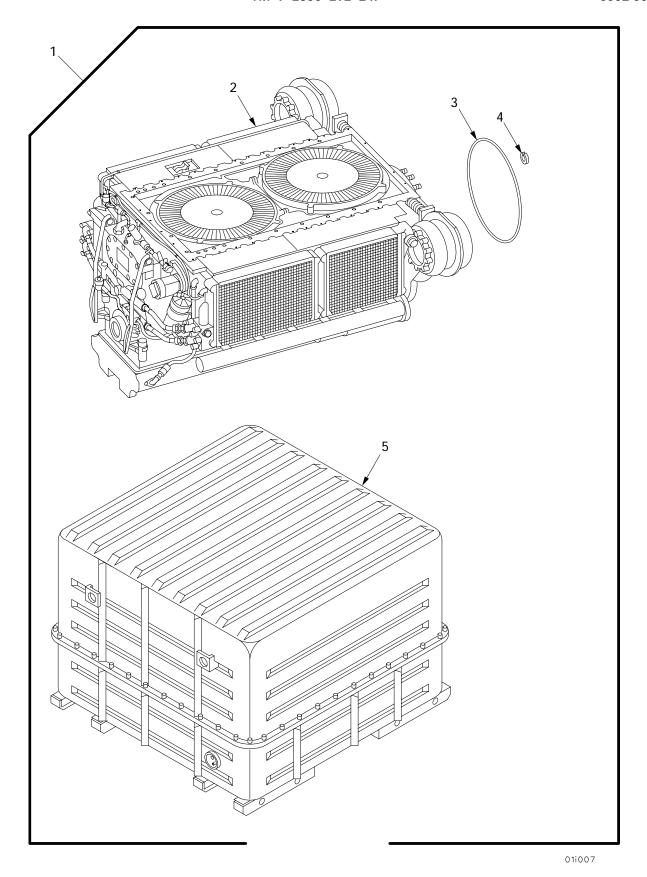


Figure 1. Engine Assembly with Container

TM 9-2350-292-24P 0002 00

(1)	(2)	(3)	(4)	(5)		(6)	1	(7)
ITEM	SMR	NSN		PART	DES	CRIP	TION AND	
NO			CAGE	NUMBER	USABL	USABLE ON CODE (UOC)		QTY
					GROUP	01	ENGINE	
					GROUP 0	100	ENGINE ASSEMBLY	
					FIGURE	1	ENGINE ASSEMBLY WITH	
							CONTAINER	
1	PAFHD	2815-01-414-6821	06085	12366412	ENGINE, DI	ESEL.		1
2	XAHFD		06085	12364800	.ENGINE			1
3	PAFZZ	5330-00-291-1720	19207	7359808	.SEAL,NON	METAI	LIC RO	1
4	PAOZZ	5310-00-584-5272	96906	MS35338-48	.WASHER,L	OCK.		24
5	PAFDD	8145-00-856-8147	19207	10912269	.SHIPPING	AND	STORAG	1

END OF FIGURE

**Engine Shroud Seals, Air In-take Elbow and Engine Mount Assembly** 

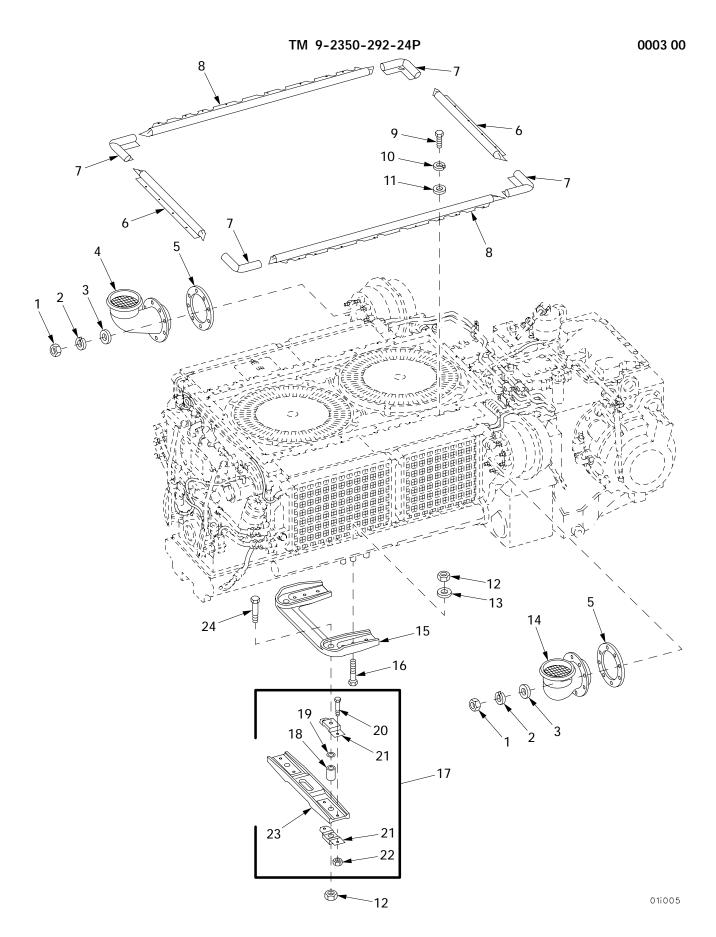


Figure 2. Engine Shroud Seals, Air In-take Elbow and Engine Mount Assembly

TM 9-2350-292-24P 0003 00

(1) ITEM	(2) SMR	(3) NSN	(4)	(5) PART	(6) DESCRIPTION AND	(7)
NO			CAGE	NUMBER	USABLE ON CODE (UOC)	QTY
					GROUP 0100 ENGINE ASSEMBLY FIGURE 2 ENGINE SHROUD SEALS, AIR IN-TAKE ELBOW AND ENGINE MOUNT ASSEMBLY	
1	PAOZZ	5310-00-880-7746	96906	MS51968-5	NUT, PLAIN, HEXAGON	16
2	PAOZZ		80204	W211NAA0031NN038 NNCG1	WASHER, LOCK	16
3	PAOZZ	5310-00-081-4219	96906	MS27183-12	WASHER, FLAT	16
4	PAOZZ	4730-01-435-0964	06085	12365436	ELBOW ASSEMBLY, PIPE	1
5	PAOZZ	5330-00-678-3488	19207	8762780	GASKET	2
6	PAOZZ	5330-00-625-3345	19207	11671483	SEAL ASSEMBLY	2
7	PAOZZ	5640-00-102-9929	19207	10863508	INSULATION SLEEVING	4
8	PAOZZ	5330-00-622-7391		11671978	SEAL, NONMETALLIC SP	2
9	PAOZZ		80204	S210NA38FAK16354 BNCG1	SCREW	28
10	PAOZZ	5310-00-637-9541	80204	W211NAA0037NN038 NNCG1	WASHER, LOCK	28
11	PAOZZ		80204	W221NAAN037SN038 NNCG1	WASHER, FLAT	28
12	PAOZZ	5310-00-832-9719	96906	MS51922-61	NUT, SELF-LOCKING, HE	8
13	PAOZZ	5310-00-809-8533	96906	MS27183-23	WASHER, FLAT	6
14	PAOZZ	4730-01-429-6979	06085	12365435	ELBOW ASSEMBLY, PIPE	1
15	PAOZZ	2815-00-621-1361	19207	11671085	ENGINE, MOUNT	1
16	PAOZZ	5306-00-678-4262	19207	10863824	BOLT, MACHINE	6
17	PA000	5342-00-808-5391	19207	8383247	MOUNT, RESILIENT	1
18	PAOZZ	5365-00-625-3340	19207	7360492	.SPACER, SLEEVE	2
19	PAOZZ	5365-00-545-1804	19207	7360488	.SHIM	v
20	PAOZZ	5305-00-269-3242	80204	B1821BH038F200N	.SCREW, CAP, HEXAGON H	4
21	PAOZZ	2510-00-692-9216		7360494	.MOUNTING, ASSEMBLY E	4
22	PAOZZ	5310-00-225-6408		12448584	.NUT, SELF-LOCKING, HE	4
23	XAOZZ			7360495	.SADDLE	1
24	PAOZZ	5305-00-928-9636	96906	MS90727-199	SCREW, CAP, HEXAGON H	2

END OF FIGURE