

## TECHNICAL MANUAL UNIT MAINTENANCE

**CARRIER, PERSONNEL,  
FULL TRACKED, ARMORED, M113A2  
2350-01-068-4077**

**CARRIER, COMMAND POST,  
LIGHT TRACKED, M577A2  
2350-01-068-4089**

**CARRIER, MORTAR, 107-MM, M30;  
SELF-PROPELLED, M106A2  
2350-01-069-6931**

**CARRIER, MORTAR, 81-MM, M29A1;  
SELF-PROPELLED, M125A2  
2350-01-068-4087**

**CARRIER, MORTAR, 120-MM, M121;  
SELF-PROPELLED, M1064  
2350-01-338-3116**

**CARRIER, SMOKE GENERATOR,  
FULL TRACKED, M1059  
2350-01-203-0188**

**COMBAT VEHICLE, ANTI-TANK,  
IMPROVED TOW VEHICLE, M901A1  
2350-01-103-5641**

**CARRIER, STANDARDIZED INTEGRATED  
COMMAND POST SYSTEM, M1068  
2350-01-354-5657**

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This manual supersedes TM 9-2350-261-20-2 dated July 1985, including all changes.

**DISTRIBUTION STATEMENT A:**

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Technical Manual

No. 9-2350-261-20-2

HEADQUARTERS  
DEPARTMENT OF THE ARMY

*Washington, D.C., 11 July 1990*

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2350-01-103-5641**

**CARRIER. STANDARDIZED INTEGRATED COMMAND POST SYSTEM, M1068  
2350-01-345-5657**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes, or if you know a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual, directly to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN:AMSTA-AC-NML, Rock Island, IL 61201-9948. A reply will be furnished to you.

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## HOW TO USE THIS MANUAL

This manual tells you how to perform unit maintenance for the M113A2, M106A2, M125A2, M577A2, M741A1, M1059, M1064, M1068, and M901A1 Carriers.

Before starting a task or procedure, read HOW TO USE THIS MANUAL and CHAPTER 2, PRINCIPLES OF OPERATION.

### USING YOUR MANUAL ON THE JOB

The best way to learn about this manual is to practice using it. Knowing how to use this manual will save both time and energy.

#### *WHICH TYPE OF TASK DO YOU USE?*

There are two different types of tasks in this manual. They are maintenance tasks and troubleshooting tasks. Decide which type of task you need to use.

#### *TROUBLESHOOTING TASKS*

Troubleshooting tasks help you locate faulty parts. They direct you to the maintenance task to correct these faults. CHAPTER 3, TROUBLESHOOTING, contains detailed information on how to perform troubleshooting tasks. Read CHAPTER 3, Section I, before performing the troubleshooting tasks in the chapter.

#### *MAINTENANCE TASKS*

Doing maintenance tasks will keep the carrier in shape to operate. Maintenance tasks are used to present maintenance instructions. Each maintenance task details steps which you need to perform. If the vehicle and parts need maintenance that is not included in any task in the manual, report this to your supervisor.

#### *HOW DO YOU FIND THE CORRECT TASK?*

Pick a key word from the carrier part or system to be used during the task. Look in the ALPHABETICAL INDEX for this key word or the name of the action you will perform. Turn to the page indicated.

The ALPHABETICAL INDEX lists each task under one or more headings. The task, REPLACE TOWING PINTLE, could be found:

Under "P"

Pintle, towing:

Repair: 24-4

Under "T"

Towing pintle:

Repair: 24-4

#### *HOW DO YOU READ MAINTENANCE TASKS?*

Be sure to read all warnings, cautions, and notes. These are in all types of tasks. They help you avoid harm to yourself, other personnel and equipment. They also tell you things you should know about the task.

## HOW TO USE THE REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL) WITH THIS MANUAL

The RPSTL (TM 9-2350-261-24P) gives the National Stock Number NSN required to order parts used in the maintenance tasks. To use the RPSTL to identify and order a part, do the following:

1. In this manual, turn to the first page of the task to be performed.
2. Find Materials/Parts under INITIAL SETUP, and read the part(s) that need replacement. If required, find the illustrated part in the task steps.
3. Go to the RPSTL and find the same illustrated part. That part will have an item number assigned to it. Look this item number up in the listing for that figure. The NSN can be found in the NSN column.
4. If you inspect an item and find that it is damaged, go to the RPSTL and find the SMR code for the item. If the SMR code does not authorize you to repair the item, reassemble it and send it to the authorized level of maintenance.
5. The usable on code in the RPSTL appears in the lower left corner of the Description column heading. Usable encodes are shown as 'UOC . . . . . ' in the Description Column (justified left) on the first line following the item description/homenclature. Uncoded items are applicable to all models. Identification of the usable on codes in the RPSTL are:

<b>Code</b>	<b>Used On</b>
<b>V35</b>	M113A2 Carrier, Personnel
<b>V36</b>	M125A2 Carrier, 81 mm Mortar
<b>V37</b>	M577A2 Carrier, Command Post
<b>V38</b>	M106A2 Carrier, 107 mm Mortar
<b>V83</b>	M981 Carrier, Personnel, Armored Fire Support
<b>V95</b>	M741A1 Chassis, 20 mm Anti-Aircraft Gun
<b>011</b>	M901A1 Combat Vehicle, Anti-Tank Improved TOW Vehicle
<b>056</b>	M1059 Carrier, Personnel, Smoke
<b>120</b>	M1064 Carrier, 120 mm Mortar
<b>ACP</b>	M1068 Carrier, Standardized Integrated Command Post System

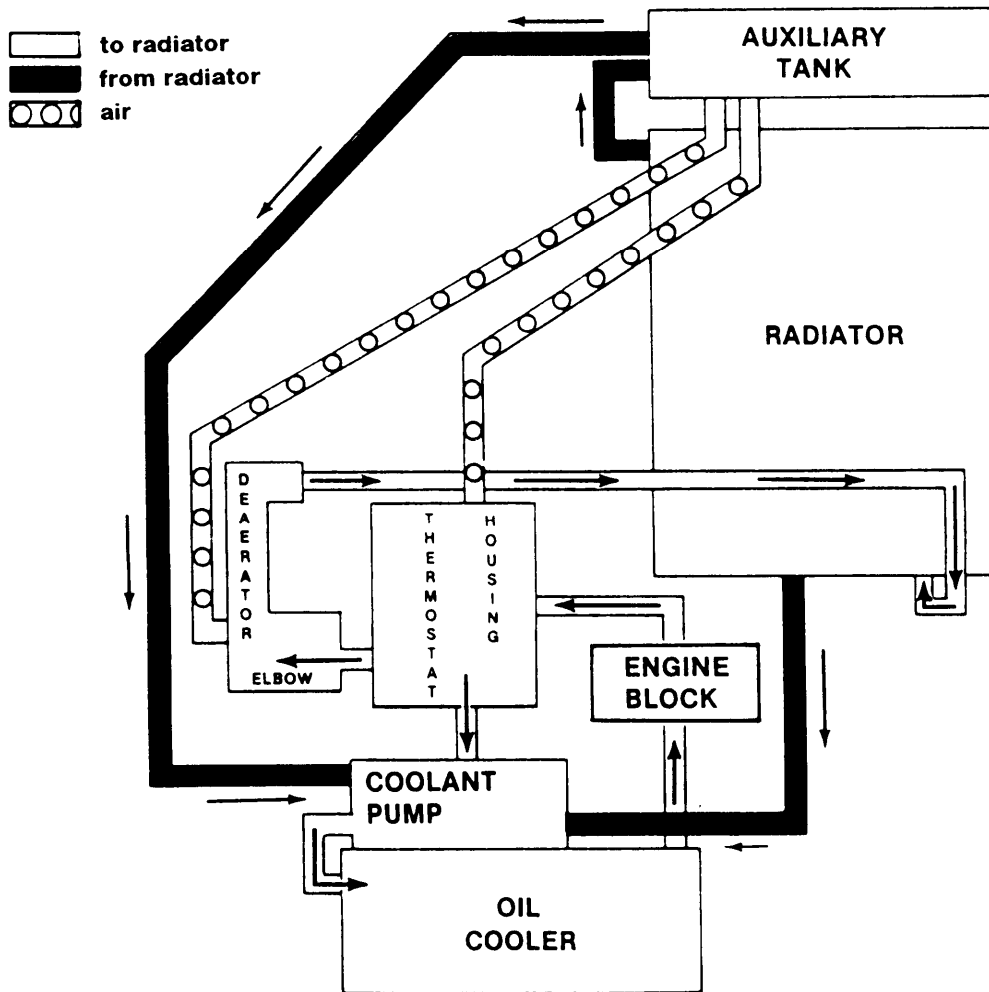
**CHAPTER 8  
COOLING SYSTEM MAINTENANCE**

**Section I. ENGINE COOLANT PUMP, RADIATOR, AND TUBES**

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**COOLANT FLOW DIAGRAM**



Engine coolant maintains normal operating temperatures. Coolant flow is as follows:

Coolant is drawn from the radiator by the coolant pump. It is pumped through the oil cooler, and the engine block, up to the cylinder heads, and into the thermostat housing. The coolant then passes through a deaerator elbow and back to the radiator. The deaerator elbow swirls the coolant to remove air. This air is vented back to the auxiliary tank.

The auxiliary tank provides for coolant overflow from the radiator. The tank also vents air out through its cap.

---

## DRAIN COOLANT SYSTEM

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### INITIAL SETUP

#### Tools:

General Mechanics Tool Kit (Item 30, App D)

#### Materials/Parts:

Suitable container

#### Personnel Required:

Unit Mechanic

#### References:

See your -10

#### Equipment Conditions:

Engine stopped/shutdown (see your -10)  
 Carrier blocked (see your -10 )  
 Trim vane lowered and power plant front access door open (see your - 10 )  
 Hull bottom access cover removed (page 24-32)  
 Driver's power plant access panel removed (page 24-25)  
 Power plant rear access panel removed (page 24-27 or 24-29)

---

### DRAIN



#### WARNING

Hot radiator coolant can burn you. Remove cap only if cool to touch. Drain cocks may be hot. Turn cap slowly to release pressure. Replace cap by pressing down and turning until tight.

#### CAUTION

Coolant in the cooling system must flow freely. If rust, scale, or sediment prevent the free flow of coolant, flush system per TB 750-651. This is to be done only as necessary. Do not operate engine above 230°F (110°C). Serious engine damage can result.

#### NOTE

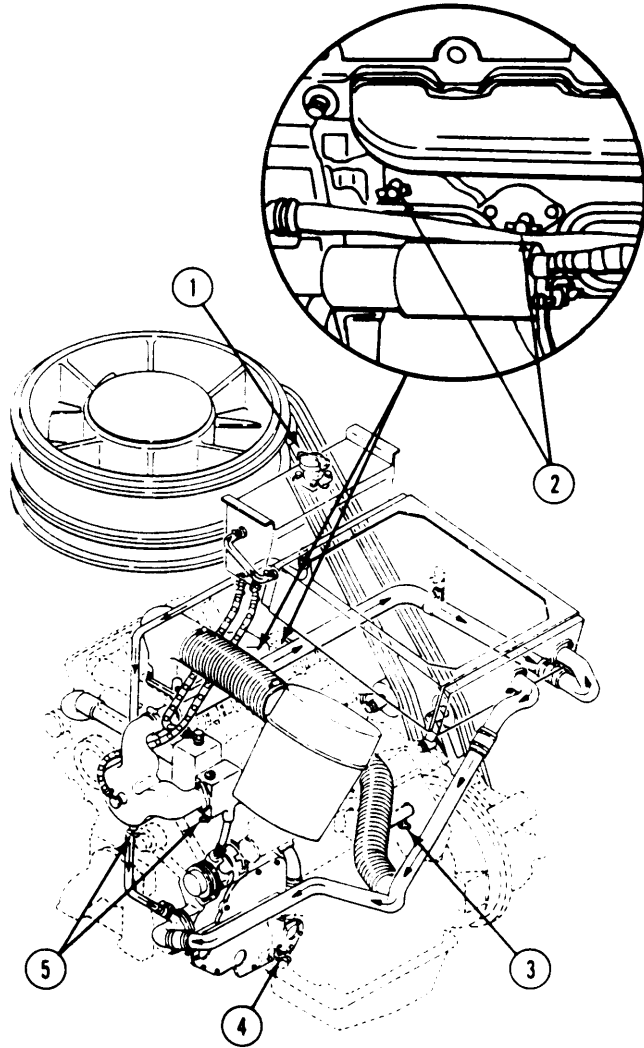
For partial drain, attach a length of 1/2 inch (13mm) hose to the drain cock on thermostat housing or on deaerator elbow. Drain coolant into a clean container. Save coolant for reuse. Close drain cock.

GO TO NEXT PAGE



**WARNING**  
Hot radiator coolant can burn you. Drain cocks may be hot. Remove cap only if cool to touch.

1. Remove coolant filler cap (1) slowly to relieve pressure.
2. Place clean containers under drain cocks (2, 3, 4, and 5).
3. Open oil cooler drain cock (4).
4. Open three engine block drains cocks. One cock (3) is on left side of block. The other two cocks (2) are on right side.
5. Open thermostat and deaerator elbow drain cocks (5). Allow system to drain.
6. After system is drained, close six drain cocks (2, 3, 4, and 5). Replace filler cap (1).
7. Tag master switch to warn others that engine coolant has been drained.
8. Save coolant for reuse, unless check shows coolant should be changed.



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## FOLLOW-THROUGH STEPS

1. Install hull bottom access cover (page 24-32).
- 

**END OF TASK**

## FILL COOLING SYSTEM

### INITIAL SETUP

#### Tools:

General Mechanics Tool Kit (Item 30, App D)  
Antifreeze and Battery Tester  
(Item 74, App D)

#### Materials/Parts:

Antifreeze (Item 3, App C)  
Container (14 gallon)

#### Personnel Required:

Unit Mechanic

#### References:

see your -10  
See your -LO

#### Equipment Conditions:

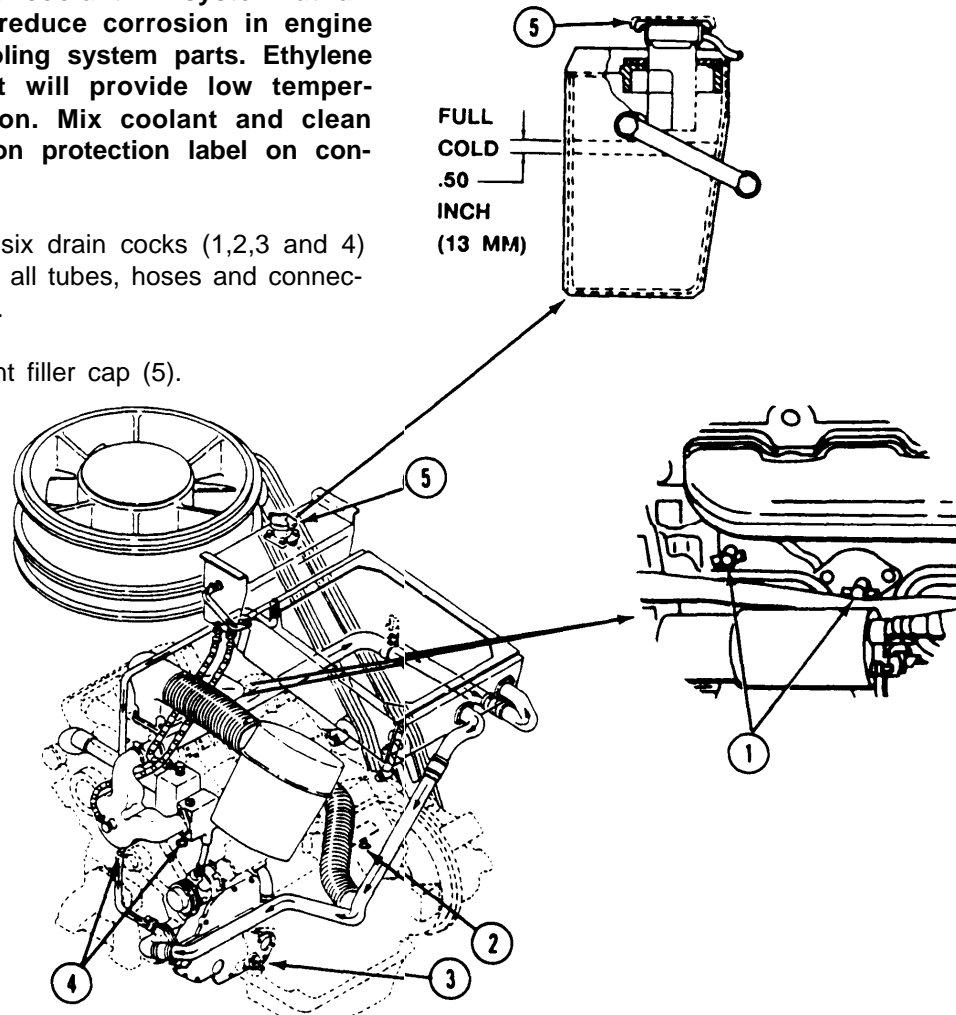
Engine stopped/shutdown (see your -10)  
Carrier blocked (see your -10)  
Driver's power plant access panel removed  
(page 24-25)  
Power plant rear access panel removed  
(page 24-27 or 24-29)

### NOTE

When filling the radiator, add coolant slowly to allow trapped air to escape.

Use antifreeze coolant in system at all times. It will reduce corrosion in engine block and cooling system parts. Ethylene glycol coolant will provide low temperature protection. Mix coolant and clean water based on protection label on container.

1. Make sure all six drain cocks (1,2,3 and 4) are closed and all tubes, hoses and connections are tight.
2. Remove coolant filler cap (5).



GO TO NEXT PAGE