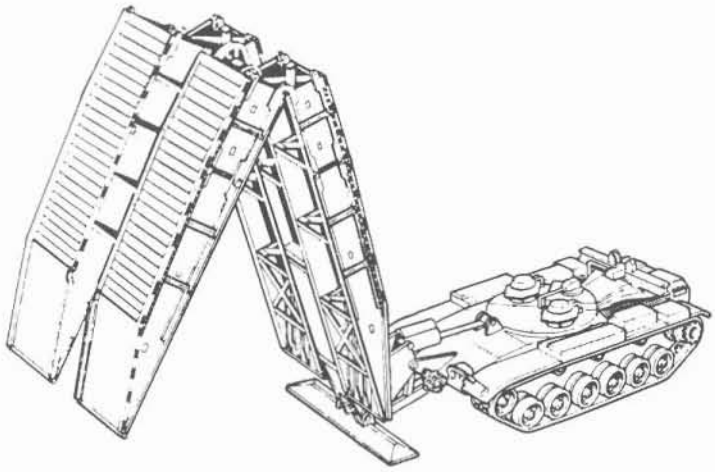

AVLBs/CEVs—Upgrading the Fleets

by MAJ William R. Fast

THE CHALLENGE

Both the M728 combat engineer vehicle (CEV) and the armored vehicle launched bridge (AVLB) have been fielded for more than 20 years, and will continue to support M60A3TTS tanks in reserve components well past their 30-year mark.

Yet these systems now strain to keep pace in maneuvers with the M1 Abrams tank and the Bradley fighting vehicle. They also have logistic problems. Fleets compete with newer equipment for maintenance support, and face directed reductions in PLL/ASL—parts, that is.

For 10 years AVLB/CEV readiness rates have often been below the M60-series tank. In today's Army of Excellence, this cannot continue.

TAKING ACTION

The Army intends to improve and maintain both systems until replacements are fielded. At the urging of the U.S. Army Engineer School, the AVLB and CEV are now readiness report pacing items in engineer companies. They are also targeted for an all-out readiness offensive in the Army Materiel Command.

Tank-Automotive Command (TACOM) and Armament, Munitions, and Chemical Command (AMCCOM) are fixing systemic wholesale level problems with the AVLB/CEV systems, while the Army Logistics Assistance Community helps engineer units solve immediate readiness problems. Their goal?—achieve and maintain the systems at 90 percent fully mission capable.

In 1984, the U.S. Army Materiel Command's Materiel Readiness Support Activity conducted a fielded system assessment of both the AVLB and CEV. Their findings, with ideas from a joint TACOM, Engineer School, and Ordnance School readiness working group, are the foundation of the readiness offensive. Several programs are now upgrading AVLB/CEV assets. They are—

Modification application plan (MAP)

By FY 1989, modification kits and application funds are expected to be available for applying compatible M48/M60-series tank improvements to AVLBs/CEVs. These modifications, shown in the table, enhance survivability, safe operability, and maintainability.

Overhaul program

Depot-level deficiencies qualify many AVLBs/CEVs for overhaul. TACOM's Combat Vehicle Evaluation Team identifies candidates in annual visits to each installation or major command. This year, TACOM programed ten AVLBs and twelve CEVs for overhaul in CONUS and USAREUR. To ensure responsive replacement, future overhaul schedules were designed to minimize overhaul turnaround time.

Request for assistance program

Some commands intensively manage equipment deadlined for over 30 days. TACOM's Director for Readiness validates and expedites repair parts to support this effort. Requests for assistance may be sent directly to Director of Readiness at TACOM by message, letter, or telephone. The supporting logistics assistance office will provide TACOM's response within 5 working days.

Other improvements

Improved training. Three military occupational specialties (MOS) are primarily responsible for operating and maintaining the systems. They

Product Improvements

Popular Name	Application on: AVLB	CEV
Clean Air	x	x
Armored Top Loading Air Cleaners	x	x
RISE Engine (IDS)*	x	x
Engine Smoke	x	x
Smoke Grenade Launcher Adapter Hardware	x	x
Driver's Night Viewer	x	x
Improved Vision Cupola	x	
Passive Night Vision		x
M240 Machine Gun (IDS)		x
Second Magnetic Brake (IDS)		x
AN/VSS-3A Searchlight		x
Automatic Fire Extinguisher System	x	x
Laser Protection	x	x
Secure Lighting (Unit)*	x	

*Improvements are applied by depot-level teams at installation or unit locations. Exceptions are unit-level maintenance *(Unit),* and *IDS* for intermediate direct support. TACOM depot maintenance division and installation modification work order coordinators cooperate to schedule modifications.

are MOS 12F, *Engineer Tracked Vehicle Crewman;* MOS 63Y, *Tracked Vehicle Mechanic;* and MOS 45N, M60A1/A3, *Turret Mechanic.* In addition to normal training patterns, improved instruction for these MOSs includes—

MOS 12F: The Engineer School offers a CEV skill performance aid for all crew positions. The Project Manager, Training Devices, will release CEV video disk gunnery simulators to the field in January 1988.

MOS 63Y: Beginning in FY 1988, mechanics will get 5 more weeks of training in basic automotive maintenance. This training should improve their ability to troubleshoot and diagnose problems.

MOS 45N: The Ordnance School is preparing an exportable training package for CEV turret repair.

Better technical manuals. All AVLB technical manuals have been revised to reflect product improvements through the MAP (see the table). Scissors bridge manuals will be revised in the near future. CEV maintenance manuals are now revised, and a total revision of CEV repair parts manuals has begun.

Improved bridge serviceability and repair. Until the scissors bridge technical manual is revised, a general repair procedure has been issued to field units. Depot-level repair procedures are being developed to return unserviceable panels and components to stock. The bridge will probably become reportable as a component of the AVLB under the next revision of AR 700-138, *Army Logistics Readiness and Sustainability.* This will give the bridge needed visibility at all levels of management.

Faster spares acquisition. Secondary spares for both the AVLB hydraulic launcher system and the scissors bridge were part of the Army's FY 1986 procurement of launcher mechanisms and bridges for the AVLB conversion program. This measure reduced costs and improved prospects for receiving quality items on time.

Uniform AVLB fleets. Many Active Army units have both M48A5 and M60A1 AVLBs on hand. Their suspension systems and automotive controls differ. To reduce logistical problems, AVLB fleets should be uniform at battalion level. Where possible, assets should be transferred to achieve uniformity. The TACOM AVLB Item Manager now coordinates issues of newly converted or overhauled AVLBs to avoid mixing the fleets.

Enhancing technical assistance. Selected TACOM logistics assistance representatives (LARs) in CONUS recently trained on AVLB/CEV operation and maintenance so they could better serve their units. In AMCCOM, they already monitor the status of M728 CEV turrets and provide unit-level assistance. Units should report any nonmission-capable supply parts requisitions to the supporting LAR. Maintenance assistance is only a phone call away.

COMMAND RESPONSIBILITY

Until now, we've focused on management efforts to improve AVLB/CEV readiness. There is, of course, another key player—the commander. Without command emphasis, efforts of AMC and TRADOC will be in vain.

Monthly reports by LARs show that readiness degradation is often caused by inadequate training and discipline. Here are the findings:

- Drivers and crews inadequately trained.

- AVLB/CEV operated with incomplete crew.
- Inadequate inspection of automotive systems.
- Improper use of diagnostic tools and gages.
- Poor troubleshooting, resulting in incorrect use of parts.
- Overworking vehicles, especially speeding or overusing CEV's blade.
- Infrequent operation and failure to exercise hydraulic systems regularly.
- Failure to perform organizational and support maintenance.

These deficiencies have been brought to the attention of the service schools. Still, increased emphasis on proper operation and maintenance procedures is needed at all levels.

THE FUTURE

Although new equipment is projected for the mid-1990s, the AVLB and CEV may have to fill the gap until the year 2000. Improvements in training, maintenance, supply, and command emphasis are keys to readiness. The 90-percent fully mission-capable goal can be met only if all concerned address their areas of responsibility. All engineer soldiers are challenged to do their part to keep the AVLB and CEV ready.

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Engineer Solution

1. Initial bridge length: Add the gap, safety setbacks, and roller clearances. Remember, since a panel is 10 feet long, the bridge must be built in 10-foot increments.

Gap		58 feet
Safety setbacks (prepared abutments)	Near side	3.5 feet
	Far side	3.5 feet
Initial roller clearance	Near side	2.5 feet
	Far side	2.5 feet

Initial bridge length

58 + 3.5 + 3.5 + 2.5 + 2.5 = 70 feet

2. Construction type:

Design load classification	60W/60T
Construction type	Double-single (DS)

3. Initial grillage type: Determine the actual soil bearing capacity (SBC). You may have to round down to a selected value. Note, always use grillage type 1 at a minimum.

	Actual SBC	Selected SBC	Grillage Type
Near side	5	3.5	1
Far side	5	3.5	1

4. Roller clearance: Determine the distance from the center of clearance of the rocking roller to the center of clearance of the base plate.

Near side	4.5 feet
Far side	4.5 feet

5. New bridge length: Remember, since a panel is 10 feet long, the bridge length must be rounded up to the nearest 10 feet.

58 + 3.5 + 3.5 + 4.5 + 4.5 = 74 feet or 80 feet

6. New truss type:

Triple-single (TS)