DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

STANDARDS FOR OVERSEA SHIPMENT OR DOMESTIC ISSUE OF SPECIAL PURPOSE VEHICLES, COMBAT, TACTICAL, CONSTRUCTION, AND SELECTED INDUSTRIAL AND TROOP SUPPORT US ARMY TANK-AUTOMOTIVE MATERIEL READINESS COMMAND MANAGED ITEMS

Headquarters, Department of the Army, Washington, DC
6 August 1977

REPORTING OF ERRORS

You can improve this manual by recommending improvements using DA Form 2028 (Recommended Changes to Publications and Blank Forms) and mail the form direct to Commander, US Army Tank-Automotive Materiel Readiness Command, ATTN: DRSTA-MTP, Warren, MI 48090. A reply will be furnished to you.

SECTION I
INTRODUCTION

1. Purpose. This bulletin establishes standards for overseas shipment or domestic issue of combat, tactical, and special purpose vehicles. These standards are provided to insure that the user is furnished equipment which will perform its mission without early failure or major maintenance problems.

2. Scope. *a*. The standards prescribed by this bulletin provide for a high percentage of remaining life in vehicle equipment; therefore, equipment desig

*This bulletin supersedes TB 9-2300-281-35, 4 December 1970, including all changes.

nated for overseas shipment or domestic issue must qualify under the standards herein before being approved for such issue and/or shipping actions.

b. Standards established by this bulletin apply to all end item vehicles or chassis which are the logistic responsibility of TARCOM and DARCOM.

c. Provisions of this bulletin apply to all US Army agencies/activities selecting or preparing vehicles for domestic issue or shipment to US troops overseas or in CONUS. Provisions of this bulletin will also apply to CONUS troops preparing vehicles for shipment overseas.

d. Provisions of this bulletin do not apply to vehi cles being prepared for shipment to MAP/MAS recipients unless specifically prescribed by the MAP/MAS transaction for the materiel.

SECTION II
SHIPMENT/ISSUE STANDARDS

3. General. *a*. Only vehicles which have been classified as serviceable condition codes A, B or C under AR 725-50 will be considered for overseas shipment or domestic issue. All items of equipment for which an equipment serviceability criteria has been published must, as a minimum, be rated green under the ESC as a prerequisite to overseas shipment or domestic issue. In addition to the condition code standard, as enumerated above, and the required ESC rates prescribed herein, the equipment being considered for overseas shipment or domestic issue must meet the requirements of this bulletin.

b. The ESC will be discontinued as new operator manuals are revised which will be utilized to determine serviceability condition of equipments (per DARCOM Instruction dated 2 June 1976).

c. All URGENT and NORMAL Department of the Army of MWO's, applicable to the specific vehicle being considered for shipment or issue, must have been applied.

4. Hour/Mileage Standards. Serviceable equipment must meet the hour/mileage criteria set forth in table 2-1 for consideration of overseas shipment or domestic issue. No hour/mileage standards have been established for trailers, but all other provisions of this bulletin, pertinent to trailers, will apply. Those vehicles which do not meet the hour/ mileage standards specified in this bulletin, but do meet all other provisions contained herein, will be subjected to the requirements of paragraph 12, section V.

NOTE

To qualify for domestic issue and overseas shipment, equipment mileage or hours of operation, since new or overhauled, may not exceed the values set forth in table 2-1. The recorded miles/hours of operation at the time of replacement of the odometer or hour meter must be added to the current reading to provide an equipment total, since new or overhauled.

Table 2-1. Hour/Mileage Standards

Vehicle	Category	Standard since new or overhauled
Sedans	All	20, 000 miles
Trucks	Less than 21/2 ton,	20, 000 miles
	21/2 ton and up but less than 5 ton,	35, 000 miles
	5 ton and up but less than 10 ton,	25, 000 miles
	10 ton and up	20, 000 miles
Trailers	All	No standards
Combat	All	2, 500 miles or 250 hours
Tanks	All	2, 500 miles or 250 hours
Bridge ferry, MFAB/F	Class 60	7, 000 hours or 5 years
amphibian, LARC	V	7, 500 hours or 5 years
	XV	7, 500 hours or 6 years
	LX	5, 000 hours or 8 years
Launcher, AVLB	Class 60	7, 000 hours or 7 years
generator set	3 KW,	*375 hours or 3 years
	5 thru 10 KW,	*750 hours or 4 years
	15 thru 30 KW,	*2, 500 hours or 6 years
	45 thru 150 KW,	*3, 000 hours or 7 years
	200 KW or over	*4, 000 hours or 10 years
	gas turbine (all sizes)	*750 hours or 13 years

Table 2-1. Hour/Mileage Standards - Continued

Vehicle	Category	Standard since new or overhauled
Rough terrain forklifts	All	3000 hours or 5 years
GED forklifts	All	1000 hours or 5 years
Electric forklifts	All	2000 hours or 9 years
Warehouse tractors & Cranes	All	1000 hours or 5 years -

NOTE

Equipment age, mileage, or hours of operation may not exceed the values set forth in table 2-1. Usage hours not applicable to NICP issue.

*Generator sets over 3 KW, powered by the military standard gasoline engine, must have less than 750 hours on the first engine (3 KW and smaller generator sets must have less than 375 hours on the first engine) to be eligible for overseas shipment.

5. Inspection Standards. Vehicles or electric power generating equipment classified serviceable, which are within the hour/mileage standards, must meet or exceed the inspection standards set forth in table 2-2.

Table 2-2. Inspection Standards

Item	Inspection standard
Armament	Inspect all armament components to insure that they are free from rust and capable of operating in the intended manner. Major caliber gun tubes shall have at least 50% life remaining prior to overseas shipment or 20% life remaining prior to domestic shipment. See table 2-3 for standards of tubes condemned, based on wear measurements. See table 2-4 for standards of tubes condemned, based on metal fatigue (EFC round count). Remaining tube life will be determined in accordance with TM 9-1000-202-14. Refer to pertinent direct support maintenance technical manual for detailed small arms weapons standards. Elevating cylinder must show no evidence of leaks. Replenisher and major caliber gun mount shall have been exercised by mechanical means or by firing within the time limits prescribed in TB 9-1000-234-35 (determine by examination of Equipment Logbook); there must be no evidence of leaks. Replenisher hose shall be new or in good serviceable condition.
Accessories	Inspect accessories (life raft, life preserver, tools, lines, trouble lights, signal lights and anchors) to insure they are free from rust, cracks, breaks and deterioration, and are in a good operable condition.
Air cleaner (includes hoses etc.)	The air cleaner shall not be bent, cracked or damaged and shall not restrict the free flow of air. Base of the air cleaner shall form a tight fit on top of carburetor or air tube. Oil reservoir or dry-type filter body gaskets shall be in good condition and all hose connections shall be tight and free from leaks.
Air compressor, refrigerant system air purifier, air separator, oxygen Co2, mea, scrubber, water and fuel oil pumps, blowers, and acetylene generator	Must be filled to proper level with liquid and/or lubricant appropriate for current or anticipated climatic conditions. Pump packing shall show no signs of leakage. Seals that are wetwhich show only a slight drip after standing or operation are considered to be seeping and are acceptable. Seals that show a definite constant drip, which will affect or other wise impair operation of unit, are not acceptable.
Auxiliary equipment	Inspect (snatch blocks, chains, lifting hooks, etc.) to insure they are free from rust, cracks and breaks, and are in good operable condition. Insure that winch and emergency steer pump on amphibious equipment have at least 50% of useful life remaining.
Axle assemblies	Must be properly bolted, lubricated, and free of water.
Air system	Inspect air brake system to insure that cleaning and testing of the air brake equipment, hammer, and hydrotest of main reservoirs, and orifice test of the air compressor, have been performed.
Automatic safety fuses, circuit breakers, gages, lights, lamps, etc.	Check for leakage of liquid or gases, missing or damaged electrical equipment, switches, devices

Table 2-2. Inspection Standards - Continued

Item	Inspection standard
Battery	All storage batteries must be clean with no indication of leakage, broken case or loose parts. The electrolyte in each cell must be at the proper level and have a minimum specific gravity of 1,250 with not more than 0.040 difference in specific gravity between any of the cells. The battery must be date stamped with activation date (TM 9-6140-00-200-12). Not more than 12 months must have elapsed since battery activation at time a vehicle is shipped between points in one theater. Nonrechargeable batteries (primary or dry-cell type)will have an expiration date stamped on them. Such batteries may be shipped with the vehicle only when the shipping - date is before the expiration date.
Maintenance free battery	Check vent opening on side of battery case. Charge indicator should be green; if not, test and charge.
Battery, nonstorage	Dry cells and other nonstorage type batteries must be fresh and capable of performing their intended function.
Belt, V, flat	Must be in place, tensioned correctly, and not worn or cracked.
conveyor	On conveyor belting, belts should be checked for inverted assembly, bad fasteners, and excessive wear. Multi V-belt application must be with matched sets, and not bottom in pulleys. Tension adjustment shall be in accordance with applicable TM or manufacturer's manual.
Body or hull	Must be free of breaks and cracks. Doors, hatches, closures, and associated hardware must fit and function properly.
Brake, clutch and drums	Must operate properly and be in correct adjustment, if examination of the logbook (section III) indicates excessive mileage since relining, disassemble only to the extent necessary to measure lining thickness. Lining must have 50% remaining use. Brakedrums shall be free of cracks, deep ridges, hub lubricant, and brake cylinder leakage. Brake lines are to be free of leaks; brake hoses shall not be weather cracked or show signs of any damage or deterioration. Wheels and master cylinder shall be examined for leaks.
Brooms, brushes cores, spray system, magnets	Check for missing or damaged parts on sweeper, spray, blower, and magnet components. Look for split, rotten or damaged broom core, worn out fibers or metal brushes.
Cable assemblies	Check for insufficient lubricant, cables impregnated with sand or other foreign material, broken or misalign sheaves, improper size, lay, application, frayed ends or splices, and missing or damaged preformed eyelet's or clamps. Length of cables will not be less than 90% of original length.
Canvas, side and cab top	Must be free of tears, rips, and unsightly or excessive patching should fit properly, and be in good usable condition. All zippers, fasteners, hooks, and attacking hardware must be present and function properly.
Compass needles, vials, ring graduations, lens, cross wires, prisms, and accessories	Check for fogged, broken, etched or dirty lens, prisms, vials; missing cross wires, damaged level graduations on vertical gages and/or vernier, horizontal, micrometer circles, missing, compass broken or damaged indicating hands, pointers, pivots, and accessories.
Controls	Must not be bent or cracked. Springs must be in place and control linkage properly tightened.
Cooling fan clutch	Must be properly fastened, and in good serviceable condition so that it will operate under all conditions.
Counterweights	Must be fastened tightly and be of correct size and weight for application. Weep holes in counterweight boxes must be open.
Cushions, seats	Seats, backrests, steady rests, and other cushions or cushion like parts must have no sagged or broken springs or parts, must be adequately supported, and free of ripped, torn or deteriorated covering.
Dunnage	Must fit properly and have no broken, loose or missing parts. Wood must have no indication of slivering, dry rot or fungus.
Electric motors generator assemblies than engine accessories), starter switches, receptacles, thermostats, instrument and interior lights	Starter switches shall not be burned, corroded or show signs of wear. Wiring terminals shall and be clean and tight. Entire circuits shall be checked for frayed, missing, burned, chafed, broken cracked, bare, cut or deteriorating wiring. Connections must be tight and free , (other from dirt rust and corrosion. Contact point switches shall be correctly adjusted. Electric motors and generator assemblies shall not show excessive end play, excessive hes or vibration worn brushes worn commutator. Frames shall not be cracked or broken; be wiring and cablesdirt, grease, and oil.
Electrical system or equipment	Inspect the starter, alternator, switches, lights, horn instruments, circuit breakers, gages, relays, meters wiring, plugs; commutators, armatures, stringbands, brushes, pigtails, brush

Table 2-2. Inspection Standards - Continued

Item	Inspection standard
Electrical system or equipment - Cont.	holders, insulators, field coils and insulation of all rotating equipment; throttle or controller contacts, air operated contactors, reverser, relays, voltage and load regulators and interlocks of the control for breaking, chafing, cracks, bared wires, loose connections as well as correct operation.
Engine	See appropriate technical manual for inspection criteria.
Fenders	Must be firmly attached and free of rattles, breaks or tears.
Feet	Check for any loose or missing feet on sheeps foot rollers.
Filters, air, oil, water	Must have been recently serviced (refer to applicable TM).
Fire control, general	Check all instruments for completeness and general appearance. The painted surfaces shall be free of bare spots. Windows shall not be cracked or broken. Rubber eyeshields headrests and bellows shall not be torn or deteriorated. Seals shall be intact. There shall be no evidence of moisture internally. Level vials will be intact and all graduations legible. There shall be no signs of corrosion. Numbers, lettering, and engraving on name plates, scales, and indices will be clearly defined and all pertinent decals shall be intact All instrument lights and lighting devices will light when activated.
Azimuth indicator	The azimuth indicator shall be firmly seated in place and the reset knobs shall function smoothly.
Ballistics computer	The super-elevation handcrank, range correction knob and ammunition selector handle shall function smoothly. Output and input shaft shall not be bent. Rotation of rheostat knob shall cause light intensity to vary from dim to bright. All meters and knobs on electronic computers shall be intact and operative. Cords and cables of electronic computers shall not be worn or frayed and will be properly anchored. Plugs and sockets shall be clean and plug caps in place when plugs are not in use.
Ballistics drive	Qualifying plates shall be intact with graduations clearly legible. Linkage shall be firmly attached.
Telescope and periscope mounts	Headrest assembly shall be adjustable. The outside shield shall open and close. Clamping screw assemblies shall function properly. All knobs, latches, and slip scales shall function smoothly. All latches shall produce definite locking action. If mount possesses cross-leveling and elevation knobs, the movements shall be smooth and even over entire range.
Periscope and sights	The headrest shall hold firmly when clamped. The head assemblies shall be intact and rigidly secured to the body portion. All optics shall be free of defects that may affect the field of view. All eyepieces shall function smoothly. The boresight knobs shall function smoothly when engaged.
Elevation quandrant	All counters will function smoothly throughout their range. Receptacles, cable, and lamp assemblies will not be damaged. The movements of cross-leveling and elevation knobs shall operate smoothly.
Range finders	The headrest shall be complete and function smoothly. Eyepieces will operate smoothly. The interpupillary knob shall function properly. Boresight knobs and auxiliary boresight knobs shall function smoothly without friction or looseness. All locking levers shall lock effectively. The range knob shall function smoothly throughout its entire travel. Filter lever shall introduce the filters to both left and right optical systems. With range finder energized at 24volt power, the ranging pips, boresight reticles, and range scale shall be illuminated and clearly visible. The toggle switches shall function as indicated on the instrument. When viewing through the eyepieces of the range finder, there shall be no obstruction to the field of view. All external optics will be free of defects that may affect the optional performance of the instrument.
Infinity sight	The rheostat will function properly when the instrument is connected to a 24-volt direct current source and control the illumination of the reticle. The azimuth and elevation adjusting scress and corresponding knobs will rotate freely.
Telescopes	The boresight knobs shall function smoothly. The boresight knobs shall lock effectively. If the telescope is articulated, the head of the instrument shall function smoothly. All external optics will be free of defects that would affect optical performance. When viewing through the eyepiece, there shall be no internal obstruction to the field of view. The eyepiece will function smoothly. Dovetailed slots and illumination windows shall be clean in regard to dirt and paint.
Reflex sights	The power plug shall not be damaged and the cap shall be securely fastened to the housing by the chain. The azimuth and elevation eccentric locking screws shall rotate freely. The sight shall be securely held in the desired position when the eccentric locking screws are tightened. The amount shall be free to slide off the dovetail lug and shall be securely attached to the sight assembly when the locking lever is loosened or tightened.
Computing sights	The speed knobs shall indicate positive detent action when rotates throughout their limits of travel. The graduation marks shall align at each detent stop. The computer drive and climb bail shall move in either direction and hold in position of the bail shall not be disturbed when the speed knobs are rotated. The computer positioning handwheel shall operate in either

Table 2-2. Inspection Standards - Continued

Item	Inspection standard
Computing Sights - Cont.	direction with moderate pressure. The handwheel shall display a positive action when rotated and impart movement to the computer and the reflex sight support shaft. There shall be no play in the elevation drag link rod. The computer head shall remain level within the travel limits of gun elevation and depression.
Plotting boards	All scales shall be flat and free from distortion. Fiducial edges shall be straight; all clamping or stripping lever assemblies shall operate properly. Vernier assemblies shall slide freely over the entire length of the arms, and the indicator wires shall be tight. Snap-type pivots shall properly retain the scale arms. Drafting machines mounted on boards shall operate roperly and with proper tension. Plastic boards and arms shall be free from damage or separation of layers. Covers shall have no signs of mildew, rot, tears or ripped seams. The packing and accessory chests shall not be cracked or warped, and all blocking and packing shall be in good condition and fastened into position. Hinges, catches, and carrying handles shall be in good working order.
Sight units	Inspect telescope for visual obstruction of target image and illumination with light source applied. Check mechanical operation. Knobs, levers, and scales shall operate smoothly and evenly with no binding throughout their intended range. Lock knobs and wingnuts, when operated, shall serve their intended function. Locking latch or clamp secures telescope when in locked position. Level vials shall not be cracked, broken or loose in mountings. Mounting surfaces or dovetail shall be free from irregularities to insure proper seating with mating mount or weapon component.
Controller drive	Check for completeness of hardware or loose or missing parts. Gaskets shall provide adequate sealing. Receptacles and male and female contacts shall not be bent and threads shall not be stripped. Switches shall operate smoothly. Handgrips shall be free of grease and cracks and operate smoothly in either axis returning to neutral after release.
Instrument lights (all types) service lights	The instrument light shall be free of corrosion. Check for deterioration of cables, dented or' cracked case, and deformed clamps. With batteries installed, check condition of switches, rheostats, lamps, and cables. Check male dovetails and dovetail slots for nicks or burs. Clamp hinges and clampnuts shall turn freely. Ends of lucite rods and windows should beclean and free of scratches, insuring free passage of light.
Gunner's quandrants	All movable parts shall function properly showing no signs of looseness or friction. The plunger compression spring shall have sufficient tension to maintain firm contact between plunger teeth and frame. The level vial covers shall turn freely and snap into the detent in both open and closed positions. Level vial shall not be 'racked, broken or loose in the holder.
Fuze setter	The handle or socket shall snap into the detent and held securely. When the thumbscrew is loosened, the handle or socket shall be free to turn to permit the second scale to be set. The thumbscrew shall lock the scales firmly in position. Socket receptacle shall be free of nicks, scratches or burs. Fuze setters with lights shall have no flicker or illumination failure.
Fire extinguishers and CBR equipment	Equipment must be fully charged and securely mounted in accordance with the latest instructions, and ready for use in the intended manner. Filters and hoses must be serviceable and blower must function properly. It must be free of breaks, cracks, and broken welds and must be in proper alignment.
Fixed and floating bridge sets	Must be complete and in good serviceable condition. All metal components must be free of breaks, bends, cracks, missing or loose bolts, nuts, screws, and rivets and free of rust, scale or peeling paint. Pins, bolts, nuts and threaded items will be treated with preservative compound conforming to MIL-C-16173. All wood components will be treated and/or painted in accordance with specifications MIL-T-704.
Frame, side rails and cross members	Must be free of breaks, cracks, and broken welds, and must be in proper alignment.
Fuel lubricating, hydraulic and cooling system.	Must be filled to proper level with liquid appropriate for the current or anticipated climatic conditions. Hoses must be new or in good serviceable condition. Connections and components cooling systems of the system must be free of leaks. Coolant protection agent will be installed in all vehicles equipped with liquid cooled, power plants when destination is to climates where temperatures fall below +32°F. hydraulic systems. Inspect hydraulic systems to insure they are leak free and no deterioration of hoses or seals is evident.
Generator, starter and regulator switches, panel light and wiring	The generator and/or alternator shall be free of perceptible bearing play when the pulley is shaken by hand. Rotate pulley to check for rough bearings. The inspection bands on generator and starting motors shall be removed to check for bad commutators, brushes, springs, etc. Entire circuit shall be checked for frayed, missing, burned, chafed, broken, cracked, bare, cut or deteriorated wiring. All generator regulators shall be checked and adjusted in accordance with TM's or manufacturers specification.
Glass	Must be clean, whole and free of cracks. Mounting and frames must be secure and weather-tight if this is the intended function. Windows shall be of an approved safety glass.

Table 2-2. Inspection Standards - Continued

Item	Inspection standard
Heating and air conditioning equipment	Inspect heaters and/or air conditioning equipment to insure satisfactory operation and freedom from fuel or contaminated air leakage.
Hoist, winch, capstan, windlass and power take-off	Check for cracks in housings or covers, oil leaks, missing or broken control levers, sheaves, pins, power control unit brake or clutch bands, cables, bolts, springs cams, etc.
Hubs and wheels	Must be in a safe and serviceable condition, free of any visible defects. Wheels shall not wobble in excess of the following amounts measured by obtaining the difference between high and low points on wheel adjacent to tread of tire while wheel is mounted on vehicle; up to and including 16 to 20-inch wheels-l/4-inch; play from 16 to 20-inch wheels-3/s-inch; play and wheels greater than 20-inches-1/2-inch play.
Modification Work Orders (MWO's)	Insure that all required MWO's have been applied and are properly recorded in accordance with TM 38750.
Moldboards, cutting edges, bits, teeth, tines, knives, sickle bars, etc.	Insure that moldboards are not bent or warped; cutting edges, end bits, teeth, tines, cutting knives, sickle bars, etc., must be new or in like new condition.
Oil consumption	Compute the oil consumption from the logbook entires for the period between the last oil changes. (Do not include oil change in the computation.) Oil consumption must be no greater than shown in table 2-5.
Paint	Painted and undercoated surfaces must be in good condition and free of rust, scratches, and peeling. Organizational and nonstandard markings will not be permitted. Standard markings will be as required by AR 750-58 and TB 43-0209.
Pintles, towing hooks, lifting and tiedown eyes	Must be free of rust, cracks, and breaks or other obvious defects, and operating parts must function properly.
Pneumatic pontoon floats	Must be in good serviceable condition with all bulk heads intact and tested in accordance with change 1, SB 740-97-2. Emergency repair kit must be complete. Skirts, straps, and connecting eye must be properly laced. The floats must be completely deflated, properly rolled, and laced in carrying cases.
Racks and bows	Must fit properly and have no broken, loose, or missing parts. Must be sound and usable for the intended purpose. Wood parts must have no indication of slivering, dry rot or fungus.
Roadwheels	Inspect roadwheels, idlers, and support rollers in accordance with TM 9-2530-200-24, and comply with condition codes specified in table 2-6.
Roller circle, rollers, ring gear	Must be free of cracks, seized or damaged rollers, misalignment, missing or damaged grease fittings, and broken or damaged ring gear teeth.
Sawmill components	Check for damaged or missing conveyor, carriage, sawdust blower or trackway components. Saw blades must not be cracked, warped, out-of-round or have loose damaged or broken teeth.
Screening and feed mechanism, rools, jaws	All components must be in go(d serviceable condition and be free of any obvious or visually apparent defects. Jaws and crusher rollers must be new or equal to new condition.
Sheaves, drum, cable clutch and brake bands	All components must be in good serviceable condition, free from any obvious or visible defects. Clutch and brake bands shall be in new or equal to new condition so as not to impair the operation of the applicable crane/shovel components
Special purpose equipment	Special purpose equipment, mounted on the vehicle must have at least 50% of its useful life remaining and have all normal and/or special purpose modification kits and/or components properly installed. If shipment/issue standards have not been published, insure that the equipment will perform adequately. Special purpose equipment, such as a flame thrower, mounted on the vehicle, must have at least 50% of its useful life remaining. If shipment/issue standards have not been published, insure that the equipment will perform adequately. If necessary, a test will be accomplished by qualified personnel to prove operation without malfunction.
Suspensions	Must function properly and be free of cracked, broken, sagged or bent parts. Torsion bar attachment must be firm. Shock absorbers must be free of leaks. Sprockets cannot have been reversed.
Spray equipment and components	Check for damaged or clogged intake filter, broken or collapsed suction hoses, leaking seals, packing, gaskets, etc.
Steering system	Must be free of cracked, broken, sagged or bent parts. Steering gear must be free of leaks and fastened securely. Check for correct caster, camber, toe-in, toe-out. Check for air and oil leaks.
Wood components	Shall not be in such condition as to impair their structural strength. Those having cracks that do not affect their strength are acceptable. Wood will crack and check from natural causes without necessarily having its strength impaired.

Table 2-3. Tubes Condemned Based on Wear Measured by Pullover Gage

Major Items	Cannon model	Criteria for overseas shipment			Criteria for domestic shipment		
		Bore measure ment	Percent life remaining	EFC remaining	Bore measure ment	Percent life remaining	EFC remaining
GUN, SP, FT 40-mm, M42 M42A1.	M2A1	1.594	50	6000	1.612	20	2400
TANK, COMBAT, FT 76-mm gun, M41A3	M32 (T91E3)	3.062	50	175	3.087	20	70
TANK, COMBAT, FT 90-mm gun, M48A1 M48A2C M48A3.	M41	3.663	50	350	3.712	20	140
TANK, COMBAT, FT M60 M60A 1.	M68 (T254E1)	4.172	50	200	4.194	20	80

Table 2-4. Tubes Condemned Based on Metal Fatigue (EFC Round)

Major items	Cannon model	Bore measure-ment	Percent life remaining	EFC remaining	Bore measure-ment	Percent life remaining	EFC remaining
HOWITZER, SP, FT 105-mm M52A1	M49(T96E1)	N/A	50	3750	N/A	20	1500
HOWITZER, SP, FT 105-mm M108	M103	N/A	50	1500	N/A	20	600
	M81 and M81 Modified	N/A	50	100	N/A	20	40
AR/AAV 152-mm M551	M81E1	N/A	50	300	N/A	20	120
HOWITZER, SP, FT 155-mm M109	M126	N/A	50	2500	N/A	20	1000
	M126A1 (M126E1)	N/A	50	3750	N/A	20	1500
HOWITZER, SP, FT 8 inch M55	M47(T89)	N/A	50	1000	N/A	20	400
HOWITZER, SP. FT, 8 inch M110	M2A2 (M2A1E1)	N/A	50	3750	N/A	20	1500
GUN, SP, FT 175-mm M107	M113	N/A	50	200	N/A	20	80
	N113A1 (M113E1)	N/A	50	600	N/A	20	240
TANK, COMBAT, FT 152-mm GUNLAUNCHER M60A2	M162	N/A	50	400	N/A	20	160

Table 2-5. Maximum Oil Consumption

Vehicle	Oil consumption
1/4-ton truck	1.5 qu/1,000 miles
1/2-ton carrier	1.5 qt/50 hours
3/4-ton truck	2 qt/1,000 miles
Less than 2½ ton	2.4qt/1,100 miles
2½ ton truck - gasoline	6 qt/1,000 miles
GMC gasoline	4 qt/1,000 miles
multi-fuel	4 qt/1,000 miles
5 ton truck - gasoline	8 qt/50 hours
multi-fuel	8 qt/50 hours
diesel	8 qt/50 hours
10 ton truck - gasoline	10 qt/50 hours
diesel	10 qt/50 hours
25 ton truck - diesel	8 qt/10 hours
Light amphibious vehicle	2 qt/hour

Table 2.5. Maximum Oil Consumption -Continued

Vehicle	Oil consumption
Combat vehicles (all) Tank (medium) (all)	See applicable ESC oil consumption data for green rating
Tank (heavy) (all)	
Rough terrain forklifts	9 qt/100 hours
GED forklifts	6 qt/100 hours
Electric forklifts	N/A
Warehouse tractors & cranes	6 qt/100 hours

Table 2-6. Track and Roadwheel Limitations

Vehicle application	Track model	Condition track	Cole roadwheel
M42 Series Motor Carriage, 40MM Gun	T91E3	B	B
M48 Series Tank, Medium	T98E2 or T142	B	B
M67 Tank, Flame Thrower	T97E2 or T142	B	B
M60 Series Tank, Medium	T142	B	B
M88 Series Tank Recovery Vehicle	T107	B	B
M116 Series Carrier, FT	T125	B	B
M113 Series Carrier, FT	T130 or T130E1	B	B
M113A1 Series Carrier, FT T130 or	T130E1	B	B
M548 Carrier FT T130 or	T130E1	B	B
M727 Carrier, Missile T130 or	T130E1	B	B
M730 Carrier, Missile T130 or	T130E1	B	B
M741 Chassis, Gun, Vulcan T130 or	T130E1	B	B
XM501 Series Loader, Missile Transporter	T144	B	B
M103 Series Tank, Heavy	T107	B	B
M107 Series Carriage, Howitzer	T132E1	B	B
M108 Series Carriage, Howitzer	T136	B	B
M109 Series Carriage, Howitzer	T136	B	B
M 110 Series Carriage, Howitzer	T136	B	B
M114 Series Carrier, C&R	T135E1	B	B
M551 Armored Recon Airborne Assault Veh	T138	B	B

*Refer to TM 9-2530-200-24 for inspection standards and condition codes.

6. Operating Standards. *a*. Each vehicle will be deprocessed, as necessary, and operated over a test course as follows:

Equipment	Desired test	Minimum test
Wheeled vehicles	10 miles	5 miles
Tracked vehicles	3 miles	1 mile
Amphibious vehicles:		
Land	3 miles	1 mile
Water	1 mile	1/2 mile
Bridge Ferry, AVL	5 miles	3 miles
Amphibian, Larc V	Land 3 miles	1 mile
	Water 3 miles	2 miles
XV	Land 1 mile	1/2 mile
	Water 2 miles	2 miles
LX	Land 1/2 mile	1/4 mile
	Water 1 mile	1 mile
Launcher, AVL	3 miles	1 mile

b. All electric power generating equipment will be operated at 50% of the rated load for 1 hour and at 100% load for the remaining test as follows:

Equipment	Size
Desired test	Minimum test
Gen Set 4 hrs	2 hrs 0 thru 10 KW
Gen Set 8 hrs	4 hrs 15 thru 30 KW
Gen Set 16 hrs	8 hrs 45 KW or over
Gen Set 8 hrs	4 hrs Gas Turbine, (All sizes)

NOTE

Operating standards are set forth in table 2-7 and equipment must successfully accomplish these test (as applicable) to qualify for overseas shipment or transfer between Army activities.

Table 2-7. Operating Standards

Item	Operating standards
Air compressor, refrigeration system, air purifier air separator, oxygen pump, CO_2 pump, auxiliary pump, electric motors, acetylene generators, welding machines, generators, water purifier	Operate under load to insure proper operation. Observe all gages, controls, and safety devices for proper operation. Observe all sight glasses and flow gages for proper flow of refrigerant and/or lubricant. Observe all drive belts for proper operation. Listen and watch for unusual noises, excessive vibration, overheating, and loose or missing parts.
Air system	The system shall develop the required pressure, be drained of accumulated moisture, function properly, and the leakage rate shall not exceed that stated in the applicable technical manual.
Amphibious vehicles	Operate in water, as well as on land, to prove waterborne operation is satisfactory and that controls are in proper adjustment. Insure that ramps and other submerged closures are adequate and that bilge pump and other submerged pumps perform satisfactory. If, because of local situation, waterborne operation is not possible, inspect seals carefully and test bilge pump operation by introducing water into the bilge and pumping it out.
Armament (main weapon and mount, small arms weapons and mounts, elevating system, and commander's cupola).	Operate main armament breech mechanism either mechanically or electrically, utilizing dummy round or missile aft cap to determine proper functioning of breech components. Remove and inspect mechanical firing mechanism to determine proper condition. Inspect electrical firing probes, utilizing on-vehicle equipment firing probe tester. Operate small arms weapons, utilizing dummy cartridges, to insure proper function of receiver components. Elevate and depress main weapon through full range of movement to insure proper function of elevating system. Traverse commander's cupola and elevate and depress machine gun through full range of movement to insure adequate and proper function.
Automatic safety devices	Insure that all devices operate in the manner intended.
Battery	Insure that battery accepts a charge.
Blower	Operate wheel well blowers in full intended manner (in water if possible) to prove satisfactory operation of the blower.
Boiler, hot water heater and winterization system	Operate under load to insure proper function, inspecting for leaks and adjustments. Inspect and operate each generator set winterization system to insure proper heating.
Boom, hook block, shovel front, back hoe, buckets, pile drive, cables, dragline, grader blades, end bits, circle gear, pinion and rack teeth, ball joints and caps, scarifier, teeth, steering clutch mixer drum, skip, water discharge, spreader, vibrator, apron feeder, strainer, paddle arms, tamper hopper bars, power hoist, screed, agitator revolving frame,	Operate all attachments under load in all ranges to prove performance adequate to required mission and that there are no broken, unduly worn, inoperative, or maladjusted parts or components and that performance is adequate for intended use. All improper operations must be investigated and corrected.

Table 2-7. Operating Standards - Continued

Item	Operating standards
travel swing brake, lift, rolls, roller wheels, rotary drills, tillers, drill rods, etc.	
AVL launcher	Operate in intended manner, if possible, to prove operation is satisfactory and controls are properly adjusted. Make sure the launcher steers equally well to the left or right and performs properly in neutral steer. Check for proper adjustments, broken or leaking hose, tubing or connections.
Bridge super-structure; interior bay and end bay	Operate the interior bay in full intended manner, if possible, to prove satisfactory operation of the hydraulic lift cylinder, rotation cylinder, locking pin cylinder and curb cylinders. Assure that there are no bent, broken, unduly worn or inoperative components. The hydraulic cylinders, hose, tubing and connections must be free of leaks. Operate the end bay in the same manner as the interior bay above except as noted below.
	CAUTION **The folded ramp section must not be unfolded unless mated to an interior bay. The ramp hydraulic operation may be tested in its road position by raising the ramp to approximately 30°, then lowering to folded position.**
Booms, brushes, shakers, blowers and filter bags	Operate in full intended manner to insure trouble free performance, proper adjustment and freedom from broken or badly worn parts.
Bulldozer blades, spades, and their operating mechanisms	Operate in full intended manner if possible. If this cannot be done, operate to the full extent possible to insure trouble free performance, proper adjustment, and freedom from broken or leaking parts or assemblies.
Capstan	Operate under load to insure proper function. There must be no leaks in the hose, tube or connections. Assure that hydraulic motor performs properly.
Communication system	Installed radio receiver and transmitter, and intercom systems are to be operated in their intended manner to insure proper function.
Heaters and air conditioners	Operate heaters and/or air conditioners to insure adequate and safe function.
Conveyors, feeders crushers, screeners, conveyor belts, buckets and discs	Operate all components in intended manner to prove operation is satisfactory and that there are no missing, damaged or worn parts. Inspect while in operation for any required adjustments or leaks.
Crane, hoist, turntable, winches	Operate hoists under load to insure proper function. Inspect for leaks and adjustment. Operate crane forward, reverse and traverse hoist boom to insure adequate maneuverability.
Cutter bars mower knives	Operate equipment in its intended manner. Correct any deficiency in operation. All cutters and knives must be sharp.
Electrical power generating equip ment, electrical magnets, radio suppression, trailer couplings	Perform sequence test and operate to the full load to insure trouble free performance.
Engine, clutch is transmission, transfer, steering suspension, brakes horn	Operate vehicle in all gear ranges, on side slope, grade, cross country, etc. to prove performance adequate to the required mission and that there are no broken, unduly worn, inoperative, or maladjusted parts or components, and that performance is adequate for intended use. If, because of local situation, testing must be performed on improved roads, "Desired Test" miles will be the minimum test mileage (table 7a). Observe instruments while operating vehicle to assure proper function. Starter and generator must perform adequately and the battery must accept a charge. All unusual noises or hard handling must be investigated and corrected.
Excavator, bucket, dozers, scraper bowl, apron, tail-gate tilt floor, moldboards, wear shoes, skid plates, rotors, augers, fan blades, spades and bulldozer blades, springs, shock absorbers, hydraulic system	Operate all components under load in all ranges to prove that performance is adequate for required mission and that there are no broken, unduly worn, inoperative or maladjusted parts or assemblies and that performance is adequate for intended function. All improper operations must be investigated and corrected.

Table 2-7. Operating Standards - Continued

Item	Operating standards
Fifth wheel assembly	Operate fifth wheel hook-up so as to determine if it will hold to pull load; that it does not shift or oscillate; center pin latch locks and releases; and determine that the trailer tracks correctly.
Food preparation equipment	Insure that all components are clean and function properly.
Gages (nonelectrical) weighing and measuring devices	Observe the operation of all nonelectrical recording devices for broken cables, spasmodic action etc., and correct all deficiencies.
Landing gear and leveling jacks	Operate through full range to determine if jacks will perform their intended purpose.
Lights	Observe all lights including headlights, clearance, blackout, infrared and turn signals (if installed) for proper function and for correct adjustment; correct or replace if necessary.
Auxiliary engine or equipment	Operate the auxiliary engine or auxiliary equipment to insure proper function. If its purpose is to serve as a generator, observe instruments and assure that battery accepts a charge. If Its purpose is pumping, insure that instruments indicate properly and that there is no restriction to flow.
Marine drive	Operate in full intended manner (if possible in water) to prove that unit performs as intended. Insure that the lower and stow marine drive extend and retract properly. Propeller and nozzle must be free of cracks, bent or distorted condition. Hydraulic hoses must be new or in like new condition. Hose, tubing and connections must be free of leaks. **CAUTION** **Test operation of marine drive out of water must not exceed 5 minutes or severe damage can occur.**
On board equipment	Insure that equipment is completely supplied with on board spares of equipment listed in applicable TM and Basic Issue Items Lists.
Personnel heater	Operate in full intended manner. To prove satisfactory operation, hose and tubing must be new or in like new condition.
Precision instruments and systems, mechanical electrical or electronic theodolite, surveying instruments, azimuth tellurometer, geodimeter, alidade dumpy level transit	Operate all instruments in intended manner to insure trouble free performance, proper adjustments and freedom from broken, dirty, mislained, bent, worn or missing parts or components. Correct deficiencies as required.
Ramp	Operate for proper opening and closing. Inspect seals. No rips or tears should be present. The ramp sealing area shall prevent any water from entering the cargo deck of amphibious equipment's.
Rear pilot station	Operate in full intended manner (in water if possible)to prove that the unit performs as intended. Assure that there are no bent, broken or loose components. Hose must be new or in like new condition. Hydraulic hose, tubing and connections must be free of leaks. Observe instruments on rear pilot stand while in operation to assure proper performance.
Sawmill, carriage, conveyor, mandrel edger, etc	Operate equipment in all phases Correct any deficiencies in operation. Saw teeth must be sharp and in equal to new condition. Watch for bent, warped or cracked saw blades.
Snow removers and track maintenance equipment	Operate in intended manner if possible, if this is not possible, operate to insure trouble free performance, proper adjustments and freedom from broken or leaking parts.
Sprayer, insecticide	Operate in intended manner and correct any deficiencies
Superstructure connector and locking pins	Operate the hydraulic operated connector and locking pins in the bridge superstructure to assure proper operation of cylinders, pins and locks. Hose and linkage must be in good serviceable condition. There must be no leaks in the system.
Wheel suspension amphibious vehicles	Operate in water to assure satisfactory performance of the system. Assure that there are no bent, broken or unduly worn components The cylinders, hose, boots and connections must be free of leaks.
Winches and hoists	Operate winches and hoists under load to insure proper function. Inspect while operating for leaks and adjustment. Operate jacks and leveling devices. Extend and traverse hoist boom to insure adequate maneuverability.
Windshield wipers	Operate windshield wipers to insure proper operation and full contact and sweep of the wiper blades **NOTE** **All threaded items, connecting pins and exposed cylinder rod ends will be treated with an approved rust inhibitive compound.**

SECTION III
LOGBOOK

7. Logbook Entries. *a*. All logbook entries required by TM 38-750 must be complete and up to date, including those covering any repairs, replacements or adjustments made in complying with this bulletin.

b. Insure that MWO's required, and applied, are properly recorded.

c. Inspect the logbook to assure that appropriate ESC's are present, if required (including installed communications and missions essential special purpose equipment).

d. Examine logbook entries to determine whether there is an indication of possible incipient faults which may lead to an early failure. Check for excessive mileage or use since brakes or clutch were relined, starter or generator replaced, etc.

SECTION IV
SHIPMENT OR ISSUE

8. Organizational Spare Parts, Tools and Equipment Vehicles must be complete with all items required by applicable Department of the Army Publications, including those in the Basic Issue Item List of the appropriate operator's manual.

9. Publications. Operator publications applicable to the vehicle and the equipment logbook must accompany the vehicle.

10. Documentation. Prepare DA Form 2408-9 (Equipment Control Report), at time of overseas shipment or issue to another stock record or property book account in accordance with the provisions of TM 38-750, change 1.

11. Preparation. Process vehicle for shipment as required by shipping documents and pertinent regulations.

SECTION V
DEVIATIONS

12. Request for Deviation. If shipment/transfer is urgent and an equipment does not meet one or more of the standards of this bulletin, a request for deviation will be forwarded to the Commander, US Army Materiel Development and Readiness Command, with a copy to Commander, US Army Tank-Automotive Materiel Readiness Command. The request must specify the equipment serial number and registration number, US road number or hull number and design. It will set forth all the pertinent facts in the case, including the specific standards of this bulletin on which a deviation is requested. The equipment will not be shipped or transferred until a letter or message has been received granting the deviation. A copy of the deviation approval will accompany the shipping documents and be so annotated on the Transfer Report, DA Form 2408-7.

SECTION VI
DISPOSITION

13. Disqualified Vehicles. *a*. Those vehicles which do not qualify for shipment or issue will either be redistributed with the post, camp, or station; be repaired; or become candidates for overhaul, cannibalization, or other disposition as required by existing regulations (DOD 4160. 21-MO). Tactical vehicles which have reached the end of their economical life expectancy (TB 43-0002-81) will not be eligible for reissue unless depot overhauled to a zero mileage criteria as directed by appropriate authority.

b. In case of urgent shipping requirements which cannot be satisfied by any other means, a waiver may be granted to the provisions of this bulletin by the gaining Command for any particular end item being considered for issue, deployment, or shipment. Such waivers may be requested and granted when all of the following conditions exist:

(1) Repair parts in required quantities to permit the item to meet the requirements of this bulletin cannot be obtained from the supply system prior to required delivery of the end item.

(2) The gaining Command concurs in the receipt of the end item for limited use or storage until required repair parts become available.

(3) Department of the Army approval is obtained on a case-by-case basis.

(4) Required repair parts are requisitioned by the issuing Command for delivery to the gaining Command.

APPENDIX
REFERENCES

Organizational Care, Maintenance and Repair: Pneumatic Tires, Inner Tubes and Radical Tires.	TM 9-2610-200-20
Color, Marking, and Preparation of Equipment for Shipment	AR 746-1
Color, Marking and Camouflage Painting of Military Vehicles, Construction Equipment and Materials Handling Equipment.	TB 43-0209
Defense Disposal Manual.	DOD 4160.21-M
Maintenance Expenditure Limits for Tactical Wheeled Vehicles only; FSC Group 23, FSC Classes 2320 and 2330.7	TB 43-0002-81
Organizational, Direct Support and General Support Maintenance Manual Standards for Inspection Classification of Tracks, Track Components and Solid-Rubber Tires (FSC 2530).	TM 9-2530-200-24
Operator and Organizational, Maintenance Manual for Lead-Acid Storage Batteries.	TM 9-6140-200-12
Processing and Deprocessing Record for Shipment, Storage and Issue of Vehicles and Spare Engines.	DD Form 1397
Army Materiel Maintenance Concepts and Policies.	AR 750-1
Requisitioning, Receipt, and Issue System	AR 725-50
Standard Study Number System and Replacement Factors, Standard Study Number (SSN) Master File Cross-Reference Index	SB 710-1-1
The Army Maintenance Management System (TAMMS).	TM 38-750
Preservation of USAMECOM Mechanical Equipment for Shipment and Storage	TB 740-97-2
Equipment Improvement Report and Maintenance Digest Tank-Automotive Equipment.	TB 43-0001-39-1

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General, United States Army
Chief of Staff

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PAUL T. SMITH
Major General, United States Army
The Adjutant General

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