TECHNICAL BULLETIN

STANDARDS FOR OVERSEAS SHIPMENT OR TRANSFERS BETWEEN ARMY ACTIVITIES OF ENGINEERING AND CONSTRUCTION, SURFACE TRANSPORTATION, BRIDGING, ELECTRIC POWER GENERATING, SELECTED INDUSTRIAL, AND SELECTED TROOP SUPPORT (U.S. ARMY AVIATION AND TROOP SUPPORT COMMAND MANAGED ITEMS)

***This Bulletin supersedes TB 750-105, 4 MAY 1992.**

HEADQUARTERS, DEPARTMENT OF THE ARMY
29 APRIL 1994

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON D.C., 29 April 1994

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You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedure, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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*This Bulletin supersedes TB 750-105, 4 May 1992.

Section I. INTRODUCTION

1. Purpose. This bulletin establishes standards for overseas shipment or transfers between Army Activities of engineering and construction, surface transportation, bridging, electric power generating, selected industrial, and selected troop support equipment. These standards are provided so 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 USAATCOM equipment, therefore, equipment designated for overseas shipment or transfers between Army Activities must qualify under the standards herein before they can be approved for such issue and/or shipping actions.

b. Standards established by this technical bulletin apply to all end item equipment which are the logistic responsibility of USAATCOM.

c. Provisions of this bulletin apply to all U.S. Army Agencies or Activities selecting or preparing equipment for transfers between Army Activities or shipment to U.S. Troops overseas or to U.S. Troops in CONUS. Provisions of this bulletin will also apply to CONUS Troops preparing vehicles or electrical power generating equipment for shipment overseas.

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

e. The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on 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 Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St Louis, MO 63120-1798. A reply will be furnished to you.

Section II. SHIPMENT

3. General. *a.* Only equipment which has been type classified standard or limited procurement will be considered for overseas shipment or transfer between Army Activities. Materiels submitted to a direct support or general support level of maintenance activity for repair and return to user, for transfer or turn-in will be serviced and repaired to the standards specified in material publications which apply to the maintenance level. The maintenance standards are the PMCS inspection column and any other maintenance instructions provided in the TM.

b. All Urgent and Normal Department of the Army Modification Work Orders, applicable to the specific vehicle or electrical power generator set being considered for shipment or issue, must have been applied.

4. Age/Mileage Standards. Serviceable equipment must meet the age/mileage (or hours) criteria set forth in table 1 for consideration for overseas shipment or transfers between Army Activities.

Table 1. Age/Mileage and Hour Standards

Vehicle or Generator Set	Category	Standard
Bridge Ferry, MFAB/F	Class 60	7,000 hours or 5 years
Amphibian, LARC	V	7,500 hours or 5 years
	XI	7,500 hours or 6 years
	LX	5,000 hours or 8 years
Launcher, AVL	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

Equipment age, mileage or hours of operation may not exceed the values set forth in this table. The recorded miles or 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 since overhauled.

Note: Usage hours not applicable to NICP issue.

*Generator sets over 3KW, 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 shipments.

No age/mileage (or hours) standards have been established for equipment not included in table 1, but all other provisions of this bulletin apply to those equipments.

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

Table 2. Inspection Standards

Item	*Inspection standards*
Paint	Painted and undercoated surfaces must be in good condition and free of rust, scratches and peeling. In addition to the minimum serviceability requirements of 75 percent of the original life expectancy of the equipment, appearance shall be above average. When spot painting of 25 percent or more becomes necessary, the item will be completely repainted. Unit and non-standard markings will not be permitted.
Pintles, towing ..... hooks lifting and Tie-down eyes clevises, centering devices, cables and turnbuckles	Must be free of rust, cracks and breaks, or other obvious defects, and operating parts must function properly.
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 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 are tight and free from leaks.
Air Compressor:..... Refrigerant system, air purifier, air separator, water pump, fuel pump, blowers and 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 which are wet and show only slight drip after standing or operation are considered as seeping and are acceptable. Seals which show a definite constant drip that will affect or otherwise impair operation of unit are not acceptable.
Air system	Inspect air brake system. Ensure that cleaning and testing of the air brake equipment, hammer and Hydro test of main reservoirs and orifice test of the air compressor have been performed.
Automatic safety..... devices	Check for leakage of liquid or gases, missing or damaged electrical equipment, switches, fuses, circuit breakers, gages, lights, lamps, etc.
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. Ensure that winch and emergency steer pump on amphibious equipment have at least 50 percent of useful life remaining.
Axle assemblies	Must be properly bolted, lubricated and free of water.
Battery, storage	All storage batteries must be clean with no indication of leakage, broken case, or loose parts. The electrolyte must be at the proper level and the battery must be date stamped as to activation date. Be sure battery is of correct size and capacity for the specific application. Electric Power Generating Equipment storage battery or batteries will be removed from the equipment battery carrier, packaged separately and secured to base of shipping container in accordance with applicable packaging and preservation procedures.
Battery, non-storage	Dry cells and other non-storage type batteries must be fresh and capable of performing their intended function.

Table 2. Inspection Standards - Continued

Item	*Inspection standards*
Belt, V, flat conveyor.....	Must be in place, tensioned correctly and not worn or cracked. On conveyor belting watch for inverted assembly, bad fasteners, excessive wear. Multi V-belt application must be matched sets and not bottom in pulleys. Tension adjustment shall be in accordance with applicable TM or manufacturer's manual.
*Body or hull, cab, deck, floors, hoods, sides and enclosures, skidframe, fenders, hand rails, grab irons, steps and footboards, ladders	Must be free of breaks and cracks. Doors, hatches, other enclosures and associated hardware must fit and function properly
Brakes and drums.....	Brake drums will 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. Watch for leakage in wheel and master cylinder.
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	Watch for insufficient lubricant, cables impregnated with sand or other foreign material. Broken or misalined sheaves. Improper size, lay, for application, frayed ends or splices and missing or damaged preformed eyelets or clamps. Length of cables will not be less than 90 percent of original length.
*Canvas, side and cab . top	Must be free of tears, rips and unsightly or excessive patching: fit properly; and be in good usable condition. Check for bad zippers.
Compass needles, level vials, compass ring graduation's, lens, cross wires, prisms and accessories	Check for fogged, broken, etched or dirty lens prisms, vials; missing cross wires; damaged graduations on vertical and/or vernier, horizontal circles, micrometer circles; missing, broken or damaged indicating hands, pointers, pivots. Missing 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, in good serviceable condition so that it will operate only in land operation.
Counterweights.....	Must be fastened tight and be of correct size and weight for application. Weep holes in counterweight boxes must be open.
*Cushions, seats.....	Seats, back rests, steady rests and other cushions or cushion-like parts must have no sagged or broken springs or parts, must be adequately supported and be 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 and..... generator assemblies (other than engine accessories), starter switches, switches, receptacles, thermostats, instrument and interior lights	Starter switches shall not be burned, corroded or show signs of wear. Wiring terminals shall 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 from dirt, rust and corrosion. Contact point switches shall be correctly adjusted. Electric motors and generator assemblies shall not show excessive end play, excessive vibration, worn brushes or worn commutator. Frames shall not be cracked or broken, wiring and cables shall be free of dirt, grease and oil.
Electrical system or..... equipment	Starter, alternator, switches lights, horn, instruments, circuit breakers, gages, relays, meters, wiring, plugs; commutators, armatures, string-bands, brushes, pigtails, brush-holders, insulators, field coils and insulation of all rotating equipment; throttle or controller contacts, air operated contractors, reverser, relays, voltage and load regulators and interlocks of the control

*See footnote at end of table, p. 6

Table 2. Inspection Standards - Continued

Item	*Inspection standards*
	circuit should be in good condition and free of any obvious or visually apparent defects. Apply a Dielectric, Insulation and Megger Test when applicable.
Engine.....	Must be in good serviceable condition with oil level up to the full mark and free of any obvious visual defect Must have no broken, loose or missing components, bolts, nuts or screws. The engines will be securely mounted in place. Watch for fuel, water and lubricating oil leaks. Compression pressures shall be measured after the engine has been run at normal operating temperature. The compression pressure in any one cylinder shall not be less than manufacturers minimum. The variation in compression pressure between cylinders of the engine shall not exceed the manufacturers specifications.
Feet.....	Check for any loose or missing feet on sheepsfoot rollers.
Filters: air, oil, water	Must have been recently serviced, as called out in applicable TM.
Fire extinguishers and... CBR equipment	Equipment must be fully charged or replenished, securely mounted in accordance with the latest instructions, and ready for use in the intended manner.
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 .... crossmembers	Must be free of breaks, cracks and broken welds, and must be in proper alinement.
Hydraulic, cooling, ... exhaust and heating systems	Must be filled to proper level with liquid appropriate for the current or anticipated climatic conditions. Hoses must be new or equal to new condition. Connections and components of the system must be free of leaks. Appropriate filters must be in place. Mufflers and exhaust manifolds must be in good condition. Heat control valve must be complete and operate freely.
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, 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.
Hoist, winch, capstan,... windlass, power control unit and power take-off	Check for cracks in housings or covers, oil leaks, missing or broken control levers, sheaves, pins, 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 inch wheels - 1/4 inch, from 16 to 20 inch wheels- 3/8 inch and wheels greater than 20 inches- 1/2inch.
Modification Work..... Orders (MWO's).	Ensure that all required MWO's have been applied and properly recorded
Moldboards, cutting ..... edge, bits, teeth, tines, knives, sickle bars, etc.	Ensure 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.

Table 2. Inspection Standards - Continued

Item	*Inspection standards*
*Oil consumption	Compute the oil consumption from the log book entries for the period between the last two oil changes. (Do not include change oil in the computation.) The maintenance standards are the PMCS inspection column and any other maintenance instructions provided in the TM.
Pneumatic ponton ..... floats	Must be in good serviceable condition with all bulkheads intact and tested in accordance with SB 740-97-2 and SB 790-99-1. 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. Wooden parts must have no indication of slivering, dry rot or fungus.
Roller circle, roller, ... ring gear	Must be free of cracks, seized or damaged rollers; misalinement; missing or damaged grease fittings; 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, rolls, jaws	All components must be in good 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 should 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 percent of its useful life remaining and have all normal and/or special purpose. Modification kits and/or components properly installed. If shipment/issues standards have not been published ensure that the equipment will perform adequately.
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.
Suspension.....	Must function properly and be free of cracked broken, sagged or bent parts. Torsion bar attachment (if applicable) must be firm. Shock absorbers must function and be free of leaks.
Tires and tubes	Tires may be new, used or recapped. Used tires shall have a like new appearance and approach original serviceability. Tires which are obviously worn, cracked, scuffed, or bruised will not be acceptable. Recapped tires shall have new or equal to new tread and have good appearance. Side walls should not be excessively scuffed or weather cracked; new tread shall be full recap and joined to the casing in a workmanlike manner. Direct and non-directional type tread shall not be mixed on vehicles. Tires should have new or like new tubes as required.
Track and road wheels .	Must be in good serviceable condition and free of any obvious or visually apparent defects. Look for excessive track wear, seized or misalined track rollers or

* See footnote at end of table p.6

Table 2. Inspection Standards - Continued

Item	*Inspection standards*
	idlers, improper track tension; damaged sprockets; misaligned track frame; seperation of bonded rubber track pads; missing or damaged rock, mud or dust bellows. Track must have at least 1/4 of original grouser height left. Wheels must be properly bolted and rim free of dents.
Trailer landing gear..... and leveling devices	Must operate properly in the manner intended and be free of rust, cracks and broken parts.
Transmission and ..... transfer assemblies	Must be in good serviceable condition with oil level up to the full mark and free of any obvious visual or audio apparent defects. There must be no broken, loose, dirty, or missing components, bolts, nuts or screws. Watch for leaking seals, gaskets and clogged breathers.
Underframe draft gears, couplers, running gear	Inspect components for breaks, cracks and broken welds.
Universal joints, drive ... shafts, right angle drives and propellers	Joints must be properly lubricated, firm of movement and all bolts securely fastened. Drive shafts must be straight and in proper alinement. Right angle drives must be properly bolted, lubricated and free of water. On amphibians the propellers must be free of nicks and cracks. Blades are not to be distorted. Front wheel disconnects should not have excess amount of play on the output shaft bushing.
*Wooden 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.

*It is impossible to provide specific standards for some items. In these cases, reliance is placed on the inspector's experience with identical or similar equipment. His judgement must be based on willingness to accept or reject equipment in like condition for the users which his activity supports.

6. Operation Standards. *a.* Each vehicle as listed will be operated over a test course as follows:

Equipment		*Desired test*		*Minimum test*
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

Note: Mileage standards have not been established for other types of equipment.

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

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

c. Operating standards are set forth in Table 3 and each equipment must successfully complete these tests (as applicable) to qualify for overseas shipment or transfer between Army Activities.

Table 3. Operating Standards

Item	*Operating standards*
Air compressor, re- ..... frigeration system, air purifier, air seperator, oxygen pump, CO_2 pump, auxiliary pump, electric motors, acetylene generators, welding machines, generators, water purifier.	Operate under load to ensure proper operation. Observe all gages, controls and safety devices for proper operation. Observe all sight glasses and flow gages for proper flow or 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 required pressure and the leakage rate shall not exceed that stated in the

Table 3. Operating Standards - Continued

Item	*Inspection standards*
	applicable Technical Manual All components must be in a serviceable condition and operate properly.
Amphibious vehicles	Operate in a full intended manner on land and water to prove waterborne operation is satisfactory and that controls are in proper adjustment. Ensure that ramps, bilge plug openings and seals are adequate and that bilge pumps perform satisfactorily. Be sure vehicle steers equally well to the left or right. Use emergency steer pump to turn wheels full right and left without the engines running.
Automatic safety..... devices	Insure that all devices operate in the manner intended.
Auxiliary engine	Operate and test run the engine(s) to ensure proper function. If its purpose is to operate a generator, observe instruments and assure that generator is charging properly. If its purpose is pumping ensure that instruments indicate properly and that there is no restriction to flow.
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 adjustments, broken or leaking hose, tubing or connections.
Battery	See that the battery accepts a charge and performs intended function without effort.
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 check for proper function inspecting for leaks and adjustments. Inspect and operate each generator set winterization system to ensure proper heating.
Boom, hook block, ... shovel front, back hoe, buckets, pile drive, cables, tagline, grader blades, end bits, circle gear, pinion and rack teeth, ball joints and caps, scraper, teeth, steering clutch miser drum, skip, water discharge, spreader, vibrator, apron feeder, strainer, paddle arms, tamper, hopper bars, power hoist, screed, agitator revolving frame, travel, swing brake, lift, rolls, roller wheels, rotary drills, tillers, drill rods, etc.	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 out of adjustment parts or components and that performance is adequate for intended use. All improper operations must be investigated and corrected.
Bridge superstructure:... interior bay and end bay	Operate the interior bay in full intended manner if possible, to prove satisfactory operation of the hydraulic cylinder, rotation cylinders 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 sec tion must not be folded unless mated to an interior bay. The ramp hydraulic operation may be tested in its road position by raising the ramp to approximately 30° and lower to folded position.
Brooms, brushes, ... shakers, blowers, and filter bags	Operate in full intended manner to ensure trouble free performance, proper adjustment and freedom from broken or badly worn parts.
Capstan	Operate under load to check for proper function. There must be no leaks in the hose, tube or connections. Assure that hydraulic motor performs properly.
Conveyors, feeders, ... crushers, screeners, conveyors 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 check for proper function. Inspect for leaks and adjustment.

Table 3. Operating Standards - Continued

Item	*Operating standards*
	Operate crane forward, reverse and traverse hoist boom to ensure adequate maneuverablity.
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 equipment, electrical magnets, radio suppression, trailer couplings	Perform sequence test and operate to the full load to ensure trouble free performance.
Engine, clutch, ... transmission, transfer, fan and fan drive, shutter w/mechanism, turbocharger, steering, brakes, drive gears, horn, gears, suspension, road wheels, sprockets, U joints, angle drives, wheel ends, drive shafts, torque converter, retarder, injection pump, starter, generator and regulator, power control unit and power take-off	Operate Vehicle in all ranges of forward and reverse under load (on side slope grade and crosscountry, etc. if applicable) to prove performance adequate to required mission and that there are no broken, unduly worn, inoperative or out of adjustment parts or components and that performance is adequate for intended use. Observe instruments while operating vehicle to assure proper function. Starter, Generator or Alternator, Voltage Regulator, etc., must perform adequately and the battery must accept charge. All unusual noises or hard handling must be investigated.
Excavator, bucket, ... dozers, scraper bowl, apron, tailgate 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 performance adequate for required mission and there are no broken, unduly worn, inoperative or out of adjustment parts or assemblies and that performance is adequate for intended function. All improper operations must be investigated and corrected.
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	Make sure that all components are clean and function properly.
Gages (non-electrical), . weighing and measuring devices	Observe the operation of all non- electrical 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 clearance, backout and infrared (if installed) for proper function and headlights for correct adjustment.
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 five (5) minutes.
On board equipment	Ensure 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 ensure trouble free performance, proper adjustments and freedom from broken, dirty, misalined, 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 will prevent any water from entering the cargo deck of amphibious equipment.
Rear pilot station.....	Operate in full intended manner (in water if possible) to prove that the unit performs as intended. Assure 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.

Table 3. Operating Standards - Continued

Item	*Operating standards*
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 the intended manner, if possible; if this in not possible, operate to ensure trouble free performance, proper adjustment 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 super-structure 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.

Note: All threaded items, connecting pins and exposed cylinder rod ends will be treated with an approved rust inhibitive compound.

Wheel suspension	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.

7. Equipment Serviceability Criteria. Only equipment which has been type classified standard or limited procurement will be considered for overseas shipment or transfer between Army Activities. Materiels submitted to a direct support or general support level of maintenance activity for repair and return to user, for transfer or turn-in will be serviced and repaired to the standards specified in material publications which apply to the maintenance level. The maintenance standards are the PMCS inspection column and any other maintenance instructions provided in the TM.

Section III. LOG BOOK

8. Log Book Entries. *a.* All log book entries, Equipment Maintenance Log (Consolidated), DA Form 2409, (when applicable) must be complete and up to date, including those covering any repairs, replacements, or adjustments made in complying with this bulletin.

b. Ensure that Modification Work Orders required are accomplished and properly recorded.

Section IV. SHIPMENT OR ISSUE

9. Unit Repair Parts, Tools and Equipment. All equipments must be complete with all items listed in applicable Department of the Army publications.

10. Publications. Unit publications applicable to the equipment and the equipment log book must accompany the equipment.

11. Documentation. Prepare an "Equipment Control Record," DA Form 2408-9 at time of overseas shipment or transfer to another stock record or property book account, in accordance with the provisions of DA PAM 738-750.

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 Commanding General, U.S. Army Materiel Command, with a copy to Commanding General, U.S. Army Aviation and Troop Command. The request must specify the equipment serial number and registration number, U.S. 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 Control Record, DA Form 2408-9.

Section VI. DISPOSITION

13. Qualified Equipments. Those equipments which qualify for shipment or transfer in accordance with this bulletin will be shipped or transferred as directed by competent instructions.

14. Disquallified Equipments. Those equipments which do not qualify for shipment or transfer will either be re-issued to users within the Command (if no transfer to another stock record or property book account is involved) or become candidates for depot overhaul, cannibalization, or other disposition action as required by existing regulations.

APPENDIX

REFERENCES

DA Pam 738-750	The Army Maintenance Management System
TB 43-0151	Inspection and Test of Air and Other Gas Compressors
TB 740-97-2	Preservation of USAMEC Mechanical Equipment for Shipment and Storage
TB 43-0209	Color of marking of Military Vehicles, Construction Equipment and Materials Handling Equipment
DA Form 2258	Depreservation Guide for Vehicles and Equipment
STD Form 4895	Equipment Preservation Data Sheet, Preparation For Shipment and Storage
DD 1397	Processing and Deprocessing Record for Shipment, Storage and Issue of Vehicles and Spare Engines
TB 43-0140	Instructions for Preparation of Request for Disposition or Waiver (DA Form 3590)

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
06691

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PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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