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Superseding
Fed Std 807L
October 1, 2004

FEDERAL STANDARD

TRUCKS: HEAVY COMMERCIAL, 6X4 and 6X6 19,500 TO 30,000 KG (43,000 TO 66,000 LBS) GVWR

807	TRUCKS AND TRUCK TRACTORS: Heavy Commercial 6X4 & 6X6, 19,500 TO 30,000 KG (43,000 TO 66,000 LBS) GVW
	Federal Standard Number 807M, October 1, 2005 Superseding Federal Standard Number807L, October 1, 2004

1. SCOPE AND CLASSIFICATION

1.1 PURPOSE.

This document covers new commercially produced, six wheeled, four and six wheel drive (6x4 & 6x6) heavy trucks. It is intended to simplify competitive procurement of commercial vehicles, and achieve a practical degree of standardization within the federal fleet.

1.2 APPLICATION.

This Federal Standard does not include all the varieties of the commodity indicated by the title but is intended to cover only those vehicles generally acquired competitively by the Government. This standard highlights, in concise form, types of trucks with standardized components and equipment. A selection of coded optional additional systems and equipment is included for divergent geographic and operational related needs. Vehicles must meet the integrated requirements of the individual item and the detailed paragraphs (see section 3). The requirements of the standard may be tailored to meet unusual operating conditions, to incorporate special purpose equipment, and to provide for exceptions not otherwise covered.

These trucks are warranted by the contractor/supplier upon delivery as specified in this standard. Vehicle procurement must comply with the Federal Property Management Regulations (FPMR) and the Federal Procurement Regulations (FPR).

1.3 COVERAGE OF TRUCK TYPES.

The types of vehicles covered by this standard are listed below. Additional optional equipment is available depending on Standard Item Number.

Figure 1. Types and Classes

TYPES	NOMENCLATURE	CLASS
I	Chassis, truck, with cab (see 3.5.1)	B C D E
II	Truck, tractor, with cab (see 3.5.2)	B C D E
III	Truck, stake, with cab (see 3.5.3)	B C
IV	Truck, dump, with cab (see 3.5.4)	B C D E

1.4 CLASSIFICATION.

The vehicle(s) are divided into “Types” and “Classes.” The vehicle types are determined by the chassis/body configuration. The “Class” of vehicle(s) shall be determined by the minimum gross vehicle weight rating (GVWR) as follows:

CLASS	B	C	D	E	F
(KG)	19,500	20,900	23,600	28,100	30,000
(LBS)	43,000	46,000	52,000	62,000	66,000

1.5 RESERVED.

1.6 STANDARD TRUCK AND ALTERNATE COMPONENTS.

The following Portable Document Files (PDFs) are an integral part of this document., and the vehicles and equipment listed in the PDF files are covered by and incorporated with the requirements in this document.

Fed Std 807M, Item 824 (Type II 6X6 Tractor), 8.01.2005.pdf

Fed Std 807M, Item 833A (Type III 6X6 Stake), 8.01.2005.pdf

Fed Std 807M, Items 612A-615 (Type I 6X4 Cab-Chassis), 8.01.2005.pdf

Fed Std 807M, Items 622B-625C (Type II 6X4 Tractors), 8.01.2005.pdf

Fed Std 807M, Items 632A-633B (Type III 6X4 Stakes), 8.01.2005.pdf

Fed Std 807M, Items 643A-645 (Type IV 6X4 Dumps), 8.01.2005.pdf

Fed Std 807M, Items 843B-845 (Type IV 6X6 Dumps), 8.01.2005.pdf

The standard truck shown as a "numbered item" and components listed as "GSA Min Req" in the PDF with each such Item are minimum requirements and equipment acceptable. The components designated "STD" shall be furnished in accordance with the referenced specification. A selection of alternate options and equipment is listed under "Options Description" with each Item. Selected optional equipment shall be furnished when the code(s) are specified. NOTE: Payload is reduced by the weight of options specified such as lift gates, winch, snowplow, increased body size, and other equipment not included in the Standard Item.

2. APPLICABLE DOCUMENTS

2.1 ISSUES OF DOCUMENTS.

The following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this standard to the extent specified herein.

Fed. Std. No. 595B -Colors.

Federal standards and specifications are available from:

GSA Specification Section
Suite 8100
470 L'Enfant Plaza, S.W.
Washington, D.C. 20407

Telephone: (202) 619-8925.

Copies of this standard are available on the Internet at www.gsa.gov.

2.1.1 SPECIFICATIONS, STANDARDS, AND HANDBOOKS.

The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, in effect on date of solicitation.

COMMERCIAL ITEM DESCRIPTIONS

A-A-55439 Battery, Storage: Vehicular, Ignition, Lighting and Starting.

A-A-50271 Plate, Identification, instruction and marking.

HANDBOOKS

MIL-HDBK–1223 Nontactical Wheeled Vehicles Treatment, Painting, Identification Marking, and Data Plate Standard.

MIL-HDBK–1791.... Designing for Internal Aerial Delivery in Fixed Wing Aircraft

DH-1-11AFSC Design Handbook.

SPECIFICATIONS

MILITARY

MIL-T-5624 Turbine Fuel, Aviation, Grades JP - 4 and JP-5.

MIL-T-83133 Turbine Fuel, Aviation, Kerosene Type, Grade JP-8.

MIL-PRE-20696 Cloth, Waterproof, Weather Resistant.

STANDARDS

FEDERAL

FED-STD-297	Rustproofing of Commercial (Nontactical) Vehicles.

MILITARY

MIL-STD-209	Lifting and Tiedown Provisions
MS 75020	Connector, Plug, Electrical - 12 Contact, Intervehicular, 28-Volt, Waterproof.
MS 75021	Connector, Receptacle, Electrical - 12 Contact, Intervehicular, 28-Volt, Waterproof.

Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from:

Naval Publications and Forms Center
Military Specifications and Standard,
Bldg. 4D
700 Robbins Avenue
Philadelphia, PA 19111-5094

2.1.2 OTHER GOVERNMENT DOCUMENTS, DRAWINGS, AND PUBLICATIONS.

The following other Government document, drawings, and publications form a part of this specification to the extent specified herein. Unless otherwise specified, the issues are those in effect on date of solicitation.

Department of Commerce (DOC)

Voluntary Product Standard PS 1-95 Construction and Industrial Plywood

Application for copies of DOC publications should be addressed to:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402-9325.)

DEPARTMENT OF TRANSPORTATION (DOT)

Federal Motor Carrier Safety Regulations.

Federal Motor Vehicle Safety Standards.

Application for copies of DOT publications should reference the Code of Federal Regulations, 49 CFR, and the Federal Register, and should be addressed to:

The Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

ENVIRONMENTAL PROTECTION AGENCY (EPA)

Control of Air Pollution from New Motor Vehicles and New Motor Vehicle Engines.

Noise Emission Standards for Transportation Equipment - Medium and Heavy Trucks.

Application for copies of EPA publications should reference the Code of Federal Regulations, 40 CFR, and the Federal Register and should be addressed to:

Superintendent of Documents, U.S.
Government Printing Office,
Washington, DC 20402

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Subpart N Cranes, Derricks, Hoists, Elevators, and Conveyors.

Application for copies of OSHA publications should reference the Code of Federal Regulations, 29 CFR, and the Federal Register and should be addressed to:

The Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402.)

2.2 NON-GOVERNMENT PUBLICATIONS.

The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issued of the documents that are DOD adopted are those listed in the issue of

the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents in effect on the date of solicitation.

THE EUROPEAN TYRE AND RIM TECHNICAL ORGANIZATION (ETRTO)

Standards Manual.

Application for copies of the ETRTO publication should be addressed to:

European Tyre and Rim Technical Organizations
32, Avenue Brugman
1060 Brussels, Belgium

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA No. 70 National Electric Code.

Application for copies of NFPA publications should be addressed to:

The National Fire Association
Batterymarch Park
Quincy, MA 02269

NATIONAL TRUCK EQUIPMENT ASSOCIATION (NTEA)

Conversion Hoist Chart.

Dump Body Hoist Chart.

Application for copies of NTEA publications should be addressed to:

National Truck Equipment Association
38705 Seven Mile Road, Suite 345
Livonia, MI 48152

SAE, INC.

SAE Standards and Recommended Practices

J318 Air Brake Gladhand Service (Control) and Emergency (Supply) Line Couplers - Trucks, Truck-Tractors, and Trailers (DOD adopted).

J350 Spark Arrester Test Procedure for Medium Size Engines (DOD adopted).

J516 Hydraulic Hose Fittings.

J517 Hydraulic Hose.

J537 Storage Batteries.

J551 Performance Levels and Methods Measurement of Electromagnetic Radiation from Vehicles and Devices (30-1000 MHz).

J560 Seven-Conductor Electrical Connector for Truck-Trailer Jumper Cable.

J682 Rear Wheel Splash and Stone Throw Protection (DOD adopted).

J683 Tire Chain Clearance - Trucks, Buses, and Combinations of Vehicles.

J700 Upper Coupler Kingpin - Commercial Trailers and Semi trailers.

J704 Openings for Six- and Eight-Bolt Truck Transmission Mounted Power Take-Offs.

J844 Nonmetallic Air Brake System Tubing (DOD adopted).

J994 Alarm- Backup- Electric.

J1067 Seven-Conductor Jacketed Cable for Truck-Trailer Connections.

J2188 Truck Ability Prediction Procedure (DOD adopted).

(Application for copies of SAE publication should be addressed to SAE, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

THE TIRE AND RIM ASSOCIATION, INC.

Year Book.

Application for copies of Tire and Rim Association publication should be addressed to:

Tire and Rim Association, Inc.,
175 Montrose West Avenue
Copley, OH 44321

THE MAINTENANCE COUNCIL (TMC).

Recommended Maintenance Practices Manual.

RP 105B Battery Cable Assemblies.
RP 109A Battery Ratings and Engine Cranking Requirements
RP 111B Circuit Protections
RP 112 Terminals for Heavy Duty Truck-Tractor Primary Wiring Systems.
RP 113A Electrical Systems Connectors.
RP 114A Harness Protection.
RP 118A Turn Signal Switches.
RP 120A Wiring Systems Identification.
RP 137 Antilock electrical supply for tractors through SAE J560 seven pin connector.
RP 138 Auxiliary forward lighting.
RP 321 Fuel Crossover Line Protection and Configuration Guidelines.
RP 325 Radiator Integrity for Highway Trucks.
RP 329 Specifications for Ethylene Glycol Base Coolant Containing Nitrite.
RP 403 Placement of Safety Equipment.
RP 404B Truck and Tractor Access System
RP 417 Supporting pneumatic electrical lines between cab and trailer.
RP 418 Heavy-duty, in-cab R134A air conditioning systems.
RP 624 Synthetic Lubricants.
RP 637 Air Dryer Guidelines.
RP 710 Overhead door selection.
RP 711 12 year life swing - type freight van, trailer doors.

Applications for copies of TMC publications should be addressed to:

The Maintenance Council
American Trucking Associations
2200 Mill Road
Alexandria, VA 22314-5388.)

2.3 ORDER OF PRECEDENCE.

In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specified exemption has been obtained.

2.4 ABBREVIATIONS AND DEFINITIONS.

Following are the abbreviations or contractions and their meanings as they appear and are used in this standard:

ABBREVIATIONS	DEFINITIONS
AMP	AMPERE
AT	ALL TERRAIN TIRES
AUX	AUXILIARY
BAT	BATTERY
BBC	FRONT BUMPER TO BACK OF CAB
CA	CAB TO CENTER OF REAR TANDEM
CAP	CAPACITY
CM	CENTIMETERS
CYL	CYLINDERS
DIA	DIAMETER (IN INCHES)
FC	FORWARD CONTROL
FT	FOOT OR FEET
FRT	FRONT
GAS	GASOLINE
GAWR	GROSS AXLE WEIGHT RATING
GCWR	GROSS COMBINED WEIGHT RATING
GHP	GROSS HORSEPOWER
GVWR	GROSS VEHICLE WEIGHT RATING
H.D.	HEAVY DUTY
H.D.A.	HEAVIEST DUTY AVAILABLE
HWY	HIGHWAY
HYD	HYDRAULIC
IN	INCHES
KG	KILOGRAMS
L	LITERS
LBS	POUNDS

M .....METERS
MAN .....MANUAL
MAX.....MAXIMUM
MFR.....MANUFACTURER'S
MIN.....MINIMUM
MPG .....MILES PER GALLON
MSPC .....MFR. STD. PAINT COLOR
N/A .....NOT APPLICABLE OR NOT AVAILABLE

ABBREVIATIONS	DEFINITIONS
NHP	NET HORSEPOWER
OEM	ORIGINAL EQUIPMENT MANUFACTURER
OO	ON-OFF ROAD TIRES
OPT	OPTION, OPTIONAL
PASS	PASSENGERS
PTO	POWER TAKEOFF OPENING
RAD	RADIAL
RBM	RESISTING BENDING MOMENT
SPD	SPEED
STD	STANDARD (SPECIFICATIONS)
V	V-TYPE (ENGINE)
W/, & W/O	WITH, AND WITHOUT
/	AND

3 REQUIREMENTS.

3.1 STANDARD VEHICLE AND ACCESSORIES.

The vehicle, components, assemblies, and accessories to be delivered under the contract shall be standard or additional items, which meet or exceed the requirements of this standard and as described in the associated GSA PDF Files. No removal, substitution or alteration of the chassis manufacturer's standard or optional chassis model components shall be made except as detailed herein. All chassis items shall be as represented in the chassis manufacturer's technical data book. Special bodies or mounted equipment shall be as represented in the body and equipment manufacturer's technical data. Capacities shall not exceed those published in the manufacturers' technical data. Technical data shall be limited to specifications and technical material, identical to that furnished to the authorized company representatives for selection of vehicle models and components, and shall be available to the engineering offices of the procuring activity, prior to delivery of the items. The chassis model furnished shall be not older than the chassis manufacturer's current model on the date of invitation for bids.

3.1.1 SPECIAL REQUIREMENTS.

In addition to the standard vehicle and components specified in 3.1, the vehicle shall be furnished with special equipment as specified herein.

3.1.1.1 TREATMENT AND PAINTING.

The vehicle body, including compartments, doors, and tool boxes, except bright finish aluminum and stainless steel, shall be treated and painted in accordance with MIL-HDBK-1223. The manufacturer's standard treatment and painting for cab and chassis is acceptable. Unless otherwise specified, the exterior color shall be selected by the manufacturer from one of the manufacturer's standard, nonmetallic light or medium colors. When specified, color selection will be made after contract award from the standard color charts to be supplied by the manufacturer.

3.1.1.2 DRAIN PLUGS.

Drain plugs installed in manual transmissions, transfer case and rear axles shall be of the permanent magnet type.

3.1.1.3 WOOD TREATMENT.

Unless otherwise specified, the manufacturer's standard wood treatment is acceptable. Soft wood shall be pressure treated with a wood preservative. Hardwood need not be treated. When specified, wood shall be treated in accordance with MIL- HDBK-1223.

3.1.1.4 TOWING DEVICES.

Towing devices consisting of two hooks, loops, eyes or pins or the chassis manufacturer's standard single center mounted eye or pin shall be mounted on the front of the vehicle. All towing devices shall be frame rail mounted or reinforced back to each frame rail.

3.1.1.5 WHEEL SPLASH AND STONE THROW PROTECTION.

Type III stakes and Type IV dumps shall have rubber mud flaps to the rear of the rear wheels. Type II tractors shall have rigid quarter fenders to the front of the rear wheels and rubber mud flaps to the rear of the rear wheels. Tractor mud flaps and their extension supports shall be readily removable, to increase landing wheel clearance, without the use of hand tools. A metal strip not less than 3.2 mm (0.125 in) thick and not less than 25 mm (1 in) wide, extending the entire width of the mud flap, shall be installed to prevent the bolt heads or bolt nuts from damaging the mud flap. As an alternate method of attaching the mud flaps, tabs or clips with minimum surface contact dimensions of 25 mm (1 in) high by 32 mm (1.25 in) wide by 2.4 mm (0.094 in) thick shall be furnished at each bolt. All tilt cabs shall have rubber mud flaps to the rear of the front wheels. All splash shield and mud flap installations, front and rear, shall conform to the rear splash and stone throw protection provisions of SAE J682. The quarter fenders on tractors need extend down only to the height of the centerline of the rear axle. Splash shields shall have no advertising or logos, except that of chassis or body manufacturer.

3.1.1.6 BRUSH GUARD.

6x6 vehicles shall be equipped with a radiator and headlamp brush guard. When the headlamps are recessed into and protected by the front bumper, a headlamp brush guard is not required.

3.1.1.7 6X6 CONVERSION.

The chassis manufacturer's standard 6x4 truck chassis may be modified to provide all-wheel drive conforming to the requirements specified herein if:

(a) The conversion axle manufacturer specifically approves and certifies that all such modifications meet the design requirements and standards of the conversion axle manufacturer. Certification shall be based on both design analysis and proving ground test reports.

(b) The chassis manufacturer's front axle rating before conversion is not exceeded by the conversion axle to be installed.

(c) Components used in the all-wheel drive conversion are of current production.

(d) Components used in the all-wheel drive conversion are approved for the conversion application by the component manufacturers.

(e) The converted vehicle is certified to conform to Federal Motor Vehicle Safety Standard No. 121 by the intermediate or final manufacturer.

(f) Replacement headlights, if required to be added, shall meet the height requirement of not less than 560 mm (22 inches) and not more than 1370 mm (54 inches), measured above the road surface, in conformance with Federal Motor Vehicle Safety Standard No. 108. Replacement headlights shall be equivalent in mounting, protection, range and precision of adjustment to the chassis manufacturer's original standard headlights.

(g) Unused headlight cavities are covered in a neat workmanlike manner, treated and painted to match the chassis cab color with treatment and painting equivalent to the chassis

cab manufacturer's process for the remainder of the chassis cab.

(h) Complete installation drawings for the specific chassis are available.

(i) Warranty and parts service is available at a facility no more distant than the chassis manufacturers nearest authorized dealer.

3.1.2 ELECTRICAL COMPONENTS FOR TRUCK BODIES AND ACCESSORY EQUIPMENT.

Truck bodies and accessory equipment shall conform to TMC RP 105B, RP 111B, RP 112, RP 113A, RP 114A, and RP 120A when applicable.

3.1.2.1 BRAKE LIGHTS.

At least one pair of brake lights shall override the four-way emergency flasher or the two systems shall be independent of each other. Modifications to the manufacturer's standard product to accommodate this requirement shall not compromise conformance to any Federal Motor Carrier Safety Regulation referenced herein or to any Federal Motor Vehicle Safety Standard. If additional lights are added to the vehicle, the lights shall be selected from the chassis manufacturer's standard matching hardware. On truck tractors, the brake lights need to override the four-way flasher only when coupled to a semitrailer, in accordance with TMC RP 118A.

3.1.3 HYDRAULIC SYSTEM GENERAL REQUIREMENTS.

The following requirements shall apply to vocational hydraulic systems installed on vehicles covered by this Standard. Hydraulic tailgates are exempt from these requirements.

A. Drive systems.

Hydraulic pumps shall be driven by one of the following:

1. Engine or transmission mounted PTO. Pumps shall be flange mounted for transmission mounted PTO. Drive shafts from the PTO to the pump are not acceptable. Belt drives of any type are not acceptable and shall not be used.
2. Electric motor driven pumps (authorized for hydraulic tailgates only) shall be flange mounted to the electric motor.
3. Engine crankshaft front PTO driven. Only OEM integral frame extensions and OEM approved and furnished chassis for front PTO shall be used.
4. Pump support brackets shall be installed from the transmission to support the pump(s) if the combined weight of the pump(s), hoses, and fittings exceed 40 lbs., of if the combined length of the PTO and pump(s) exceeds 18 inches measured form the center-line of the PTO to the end of the pump(s).
5. PTO's shall be rated at a minimum of 150% of the maximum horsepower requirement of the hydraulic system. The minimum PTO horsepower rating shall be calculated by the following formula:

$$\frac{PV \times 1.50}{1714 \times .85} = \text{Minimum PTO HP Rating}$$

Where P = max working pressure in PSI and V = max flow in GPM

6. PTO's shall be of the power shift design. PTO shift controls shall be electric-over-hydraulic for automatic transmissions, manual transmissions shall have electric shift controls for hydraulic braked chassis and air shift controls for air braked chassis. There shall be a PTO engagement indicator

located in the truck cab, in close proximity to control switch. Over speed engagement protection shall be furnished. PTO shall disengage when pre-set engine RPM is reached.

7. The torque or horsepower required of the hydraulic drive PTO shall not exceed the maximum torque or horsepower rating of the PTO opening on the transmission or PTO drive pad on the engine or engine crankshaft.

8. All PTO's shall be installed within the backlash recommendations of the PTO manufacturer.

B. Hydraulic system hoses, fittings, pressures, and flow rates.

1. Hydraulic hoses shall be rubber covered double wire braid reinforced and comply with SAE 100R2, Type A or AT, or 100R9, type A or AT, of SAE J517. The working pressure of the hose shall exceed the pressure setting of the relief valve. Hoses shall be sized such that the maximum velocity of hydraulic fluid in the hose does not exceed the following:

   a. Fluid velocity in suction lines shall not exceed 4 ft. / sec.

   b. Fluid velocity in discharge lines shall not exceed 25 ft. / sec

2. All hoses shall be installed in accordance with the requirements and recommendations of SAE J1273

3. System working pressures shall not exceed 3500 PSI. A system pressure test port shall be provided. The test port shall be located so that the maximum pressure produced by the system can be monitored without disconnecting any component of the system.

4. Hydraulically actuated implements, such as snowplows, which are deployed while the vehicle is moving, shall be furnished with an automatic reset breakaway mechanism to prevent hydraulic shock if the implement strikes an obstruction while the vehicle is in operation.

5. Hydraulic hose fittings shall comply with the requirements of SAE J516 for permanently attached (crimped) fittings with JIC 37° flare. Field replaceable type fittings are not acceptable. Forged steel hydraulic adapters shall be used. Cast steel fittings are not acceptable.

C. Pressure protection:

All hydraulic systems shall be furnished with either a spring or pilot actuated pressure relief valve. The relief valve shall be used for overpressure protection only and shall not be used for any flow control purpose. In no case shall a relief valve be set at a pressure higher than the working pressure of the lowest rated component (hose, coupler, adapter, cylinder, etc.) in the system.

D. Flow control valves.

Flow control valves shall be of a type (such as open-center valves) that assures that hydraulic fluid is never deadheaded and forced to flow over the relief valve. Flow control valves shall be expandable to control multiple devices, either in parallel or in series. Series designed systems shall not exceed the maximum working pressure of any component in the series. Flow control valve body shall not be mounted inside the cab. Flow

control valves shall be operated through leavers mounted inside the cab within easy reach of the seated driver. Control leavers shall operate flow control valves through flexible cables or air pressure and permit smooth, infinitely variable operation of equipment through the full designed range of operational travel/speed limits of the equipment.

E. Fluid filtration.

A return line hydraulic filter shall be furnished having a minimum efficiency rating of 99% down to 10-micron size particles and meet or exceed the filtration requirements of the pump, motor, or driven device manufacturer. The filter shall be furnished with a pressure differential type service gage or service indicator.

F. Hydraulic system cooling.

Hydraulic systems shall be designed to operate in ambient temperatures ranging from –20 deg F to +120 deg F.

The hydraulic system shall be designed such that the maximum hydraulic oil temperature does not exceed 200 deg. F. For continuously driven devices, such as spreaders and other motor driven applications, auxiliary cooling, such as air-to-oil coolers or water-to-oil coolers, shall be furnished if required to meet the maximum oil temperature requirement. The government reserves the right to request and be furnished test documents showing maximum stabilized temperatures of hydraulic systems.

G. Hydraulic reservoirs.

A stainless steel, aluminum (6061-T6 or 5086-H32 construction only), or other non corroding type hydraulic reservoir shall be furnished and sized such that the reservoir working volume is a minimum of 150% of the maximum hydraulic flow rate. The reservoir shall be furnished with the following:

1. The reservoir shall be furnished with a baffle separating the suction from the return flow.
2. The reservoir shall be furnished with minimum ¾ in. air filtration type breather or combination breather cap with not greater than 10-micron air born particle rating.
3. The reservoir shall be furnished with a sump and valve for draining water from the bottom of the tank and for draining oil.
4. The reservoir shall be furnished with a metal enclosed and protected sight glass for observing oil level.
5. The reservoir shall be furnished with a maximum 300 mesh (50 micron) fill strainer.
6. The reservoir shall incorporate a return tube that discharges return oil below the surface of the reservoir oil.

H. Hydraulic oil.

Hydraulic oils shall meet the minimum requirements of the hydraulic pump or other critical component manufacturer(s). Water based hydraulic fluids shall not be used. A nameplate shall be affixed near the fill cap on the reservoir indicating the type of oil to be used. See 3.1.1.6.

I. Installation and workmanship.

The hydraulic system shall comply with the following requirements:

1. All tapered threaded fittings

shall be installed using an anti-seize thread sealing compound. Teflon tape is not acceptable.

2. Hoses shall be routed for easy tracing of hoses and shall be protected with grommets when passing through bulkheads. Hoses shall be protected from abrasion when routed over or through bare metal edges.

3. Hydraulic hoses shall be supported with metal hose clamps that provide protection for the hose from the metal portion of the clamp. Hoses shall not be allowed to droop or to be entangled with other hoses or lines. The clamps shall be spaced not more than 18 in. apart.

4. Overhanging weight of fittings, hoses, valves, or piping shall be supported from the reservoir to eliminate flexing of sidewalls.

5. All hoses shall be routed and installed in accordance with the requirements and recommendations of SAE J1273. Special attention to routing and installation shall be given to avoid the following:

    a. Tensile loads on the hose
    b. Side loads
    c. Flattening
    d. Kinking
    e. Thread damage
    f. Damage to sealing surfaces
    g. Abrasion
    h. Twisting
    i. Exceeding minimum hose bend radius
    j. Operational Test

The hydraulic system and hydraulically driven components shall be operated and checked for leaks and proper operation. The operational test shall include the maximum requirements (height, extension, speed, etc.) of the driven devices under no-load conditions. No leakage is permitted beyond a class “1” leak in accordance with SAE J1176-External Leakage Classifications for Hydraulic Systems.

3.2 GENERAL DESIGN.

3.2.1 FEDERAL MOTOR VEHICLE SAFETY STANDARDS.

The vehicle furnished accessories shall comply with all Federal Motor Vehicle Safety Standards in effect on the date of manufacture.

3.2.2 AIR POLLUTION CONTROL.

The vehicle shall comply with the Environmental Protection Agency Regulations governing Control of Air Pollution from New Motor Vehicles and New Motor Vehicle Engines in effect on the date of manufacture. Vehicles with a final destination of California or opt-in states shall comply with State of California regulations governing air pollution control in effect on the date of manufacture.

3.2.3 SOUND LEVEL.

The cab interior sound level shall not exceed 84 db(A) when measured in accordance with Federal Motor Carrier Safety Regulation 393.94. The vehicle exterior sound level shall conform to the Environmental Protection Agency Noise Emission Standards for Transportation Equipment, Medium and Heavy Trucks.

3.2.4 CURB WEIGHT.

The curb weight is defined as the empty weight (no payload included) of a fully

equipped truck. Curb weight shall include the chassis-cab, body, all attached devices, equipment, and full complement of fuel, lubricants, and coolants.

3.2.5 GROSS VEHICLE WEIGHT.
The gross vehicle weight (GVW) shall consist of the curb weight, operator and passenger weight (computed at 80 kg (175 lb each) and a payload to provide not more than the specified GVWR.

3.2.6 WEIGHT DISTRIBUTION.
Except as specified in 3.2.6.1 and option codes MPR and MPS, the distribution of GVW for the purpose of establishing suspension, axle and tire capacities shall be determined with the payload uniformly distributed over the load area. For Type II tractors furnished with a sliding fifth wheel, the weight distribution shall be determined with the sliding fifth wheel in its most forward position of adjustment.

3.2.6.1 SPECIFIED GAWR.
When specified (see 6.2), front and rear GAWR shall be designated and 3.2.6 does not apply.

3.2.7 GROSS COMBINATION WEIGHT.
Gross combination weight (GCW) shall consist of the truck or truck tractor curb weight, operator and passenger weight (computed at 80 kg (175 lb) each), and the weight of a trailer loaded to provide not less than the specified GCW. The fifth wheel shall be located so that with the truck tractor loaded to GVWR, the load rating of the chassis components are not exceeded.

3.2.8 RATINGS.
Vehicle ratings shall be the manufacturer's published ratings. Component and vehicular ratings shall not be raised to meet the requirement of this specification. Minimum GVWR and GCWR shall conform to Figure 1 for the specified class of vehicle. All individual components, including engine, transmission, driveline and drive axle, shall have a minimum GCWR specified for each class.

Figure 1

GVWR and GCWR Minimums

VEHICLE CLASS	GVWR, KG (LBS)	GCWR, KG (LBS)
B	19,500 (43,000)	31,800 (70,000)
C	20,900 (46,000)	36,300 (80,000)
D	23,600 (52,000)	40,900 (90,000)
E	28,100 (62,000)	45,360 (100,000)
F	30,000 (66,000)	as specified

3.2.9 OVERALL WIDTH.
The overall width of the vehicle exclusive of tires, wheels, wheel studs and nuts, and safety related items such as mirrors, lights and reflectors shall be not more than 2440 mm (96 inches). The width over the tires shall be:

(a) Not more than 2540 mm (100 inches) for axles rated up to and including 20900 kg (46,000 lb)
(b) Not more than 2590 mm (102 inches) for axles rated at over 20 900 kg (46,000 lb) and up to and including 26300 kg (58,000 lb)

(c) Not more than 2640 mm (104 inches) for axles rated at over 26300 kg (58,000 lb).

3.2.10 ACCESSIBILITY.
The design of the vehicle and optional equipment shall permit access for routine servicing and shall permit access for replacement and adjustment of component parts and accessories with minimal disturbance of other components and systems.

3.2.11 RECOVERED MATERIALS / REGULATORY REQUIREMENTS.
In accordance with Section 23.403 of the Federal Acquisition Regulations, the Government's policy is to acquire items composed of the highest percentage of recovered materials practicable,

consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing supplier's employees to undue hazards from the recovered materials. The term "recovered materials" means materials that have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this document. The use of re-refined oil shall not be prohibited. This does not prohibit vehicle manufacturers from using performance criteria for acceptable oil. Any re-refined oil products shall meet the performance criteria of the vehicle and component manufacturers.

3.3 PERFORMANCE.

3.3.1 MAXIMUM VEHICLE SPEED

The maximum vehicle governed speed shall be not less than 113 km/h (70 mph) or more than 121 km/h (75 mph) for 6x4 and not less than 96 km/h (60 mph) or more than 104 km/h (65 mph) for 6x6 vehicles. Under no circumstance shall the vehicle maximum governed speed exceed the speed rating of any of the furnished tires.

3.3.2 SERVICE BRAKES.

On all vehicles except Type II tractors, the service brakes shall stop the vehicle, loaded to specified GVW, within the stopping distance requirements of Federal Motor Carrier Safety Regulation 393.52. The service brakes on Type II tractors shall stop the tractor-semitrailer combination, loaded to specified GCW, within the stopping distance requirements of Federal Motor Carrier Safety Regulation 393.52. All service brakes shall be of the self-adjusting type.

3.4 CHASSIS COMPONENTS.

3.4.1 ENGINE.

The engine furnished for the specified vehicle class shall be the chassis manufacturer's standard or optional engine for the commercial model truck that meets or exceeds the requirements of this specification.

3.4.1.1 DIESEL ENGINE.

Unless otherwise specified, the vehicle shall be equipped with a liquid cooled, compression ignited, diesel engine, electronically controlled, with not less than six cylinders. When code YD6 through YD45 is specified, the optional diesel engine specified shall be provided.

3.4.1.2 OIL FILTER.

A full flow or combination full flow and bypass oil filter with replaceable element shall be furnished.

3.4.1.3 GOVERNOR.

An engine governor shall be furnished and set and sealed to limit the engine to the engine manufacturer's recommended operating speed.

3.4.1.4 COOLING SYSTEM.

The chassis manufacturer's heaviest duty cooling system for the model provided shall be supplied. The cooling system shall include a surge tank or a coolant recovery reservoir of not less than 1.89 L (two quart) capacity. On tilt cab models, a radiator servicing access door shall be provided if needed to allow verification of the coolant level without tilting the cab. For all Item numbers, the radiator furnished shall conform to TMC RP 325.

3.4.1.5 COOLANT TEMPERATURE CONTROL.

Thermostatic control of engine coolant temperature shall be provided. Control shall include complete thermostatic control of all coolant flow through the radiator.

3.4.1.6 ENGINE COOLANT.
The engine coolant shall be a solution of chassis manufacturers ethylene glycol antifreeze and water or propylene glycol antifreeze and water, in equal parts of antifreeze and water by volume (-36°C (-34°F protection)). The coolant supplied shall comply with TMC-RP329 or TMC-RP330 as applicable.

3.4.1.7 ENGINE BLOCK HEATER.
An engine block heater of the OEM chassis manufacturer's 110/120 VAC design shall be furnished. A 25 ft long commercial grade outdoor rated power cable with inline automatic reset Ground Fault Circuit Interrupter (GFCI) shall be furnished. The furnished cable shall be UL Listed and rated no less than 10% greater than the maximum capacity of the furnished block heater.

3.4.1.8 FAN CLUTCH.
A fan clutch shall be provided. The fan clutch shall reduce the fan speed automatically when the fan is not required for engine cooling. The fan clutch shall be asbestos free.

3.4.1.9 ELECTRONIC THROTTLE CONTROL.
An electronic hand throttle control with quick release shall be furnished.

3.4.2 ELECTRICAL SYSTEM.
The electrical system shall be in accordance with Federal Motor Carrier Safety Regulations 393.27 through 393.31 and 393.33.

3.4.2.1 STARTING SYSTEM.
A 12-volt engine starting system, with 12-volt direct current (DC) lighting system shall be furnished. Engine starting equipment shall include an ether starting system or electric grid heater except when a gasoline engine is specified. If an ether system is furnished in lieu of a grid heater, it shall be of the measured shot type. The measured shot type ether system shall be key operated or manually operated from the driver's compartment, and shall be inoperative with the engine warm. Complete provisions for a replaceable ether reservoir of not less than 355 milliliters (ml) (12 fluid ounces) shall be furnished. A reservoir need not be furnished. On diesel engines 6.6L and larger, the electric starter motor shall be equipped with a thermostat controlled, automatic resetting circuit breaker to protect the motor from over crank heat damage. Easily accessible remote jump - start post(s) shall be furnished, within close proximity to the battery box. Posts shall be furnished with protective rubber or plastic type covers that are tethered to prevent loss.

3.4.2.2 ALTERNATOR.
Unless otherwise specified, a minimum 130-ampere alternator shall be provided. The alternator output with the engine at idle speed shall be not less than 70 amperes.

3.4.2.3 LIGHTING.
All vehicle lights, reflectors, and wiring shall conform to Federal Motor Carrier Safety Regulations 393.19, 393.20 and 393.22 through 393.26(d). Type I chassis need not be furnished with rear identification lamps or clearance lamps and reflectors. Type IV dump rear lighting shall be positioned or guarded to prevent damage during dumping of the cargo. Positioning and guarding shall permit normal replacement of the bulbs and lenses. Lights and reflectors shall not be mounted on vertical surface of rub rails (unless recessed and fully protected) or mounted on vehicle bumpers. When right hand drive is specified by acquisition documents, left-dip headlights shall be provided. Left-dip headlights may be provided as a replacement set, stowed in the cab for shipment. Daytime running

lights shall be furnished, in accordance with FMVSS 108, and TMC RP 138. Truck bodies shall be furnished with conspicuity markings in accordance with FMVSS 49 CFR Part 571.108.

3.4.2.4 TURN SIGNALS.
Turn signal control shall be mounted on the steering column. Type II tractor turn signal units shall be visible when not in combination with a towed vehicle. Turn signals shall have visible flash indicators. Temporary mounting for rear signal units shall be provided on chassis models. Turn signals shall conform to TMC RP 118A.

3.4.2.5 LIGHTING CABLE FOR TYPE II TRUCK TRACTOR.
The semitrailer lighting cable for Type II tractors shall conform to SAE J1067. The cable shall incorporate a connector conforming to SAE J560 on the semitrailer end. The cable shall be coiled and shall have an extended length of not less than 110 inches. The SAE J560 connector shall include a grip for withdrawing from the semitrailer receptacle. Stowage for the cable shall be provided by the means of a hook and hanging loop or a protective holding bracket. When the hook and loop method is used, the cable shall be so attached as to ensure that the plug is pointed down when the cable is stowed. Unless otherwise specified, stowage shall be by:

(a) A hook provided on the rear of the truck tractor cab.

(b) A hook on a pogo-stick type hose tender.

(c) A protective bracket mounted at the rear of the cab below the roofline. Each shall hold the cable plug so as to prevent water from entering the terminals. The lighting cable; when on the hook, loop or protective bracket; shall be accessible to an operator standing on the ground to the rear of the cab, on the street side of the vehicle.

3.4.2.6 BATTERIES.
Each battery shall be of 12-volt potential. The total reserve capacity ratings and the total cold cranking ampere ratings at -18°C (0°F), both measured in accordance with SAE J537, shall be not less than 540 minutes and 1875 Amperes. The batteries shall be of the maintenance-free type having the maintenance-free characteristics listed in A-A-55439. Batteries shall conform to TMC RP 109A.

3.4.2.7 RADIO INTERFERENCE SUPPRESSION.
The vehicle shall be suppressed to limit electromagnetic radiation in accordance with SAE J551. Any body equipment emitting electromagnetic radiation shall be suppressed to the same level as the vehicle chassis.

3.4.3 FUEL SYSTEM.
The fuel system shall conform to Federal Motor Carrier Safety Regulations 393.65 and 393.67.

3.4.3.1 AIR CLEANER.
A dry type air cleaner shall be provided.

3.4.3.2 FUEL TANK(S).
Except as specified for Type II tractors or unless otherwise specified for other vehicle types (see 6.2) fuel tanks shall be not less than 170 L (45 gallons) total capacity. Type II tractors shall be equipped with fuel tank(s) of not less than 378 L (100 gallons) total capacity. When more than one fuel tank is furnished on diesel engine driven vehicles, means shall be provided to assure equalized fuel level in both tanks. When fuel crossover lines are furnished they shall be in accordance with TMC RP 321.

3.4.3.3 FUEL AND WATER SEPARATOR. The manufacturer's standard or optional fuel filter shall be provided. A fuel and water separator shall also be furnished for diesel engines. The separator shall include water coalescent and a drain valve. A combination filter/separator unit may be provided. See option FFS for heated fuel and water separator.

3.4.4 EXHAUST SYSTEM. The exhaust system shall conform to Federal Motor Carrier Safety Regulation 393.83.

3.4.5 TRANSMISSION. Unless otherwise specified, the vehicle shall be equipped with a manual transmission. When specified (see 6.2), the vehicle shall be equipped with an automatic transmission. The input torque capacity of supplied transmission shall be at least equal to the maximum torque delivered by the engine.

3.4.5.1 AUTOMATIC TRANSMISSION. Automatic transmissions shall include a hydraulic torque converter and not less than five forward gear ratios. Normal driving range selector position shall provide not less than five gear ratios without movement of the selector. The transmission shall be provided with power takeoff provision. The net torque capacity and the net power rating of the transmission shall exceed the output ratings of the engine.

3.4.5.2 CLUTCH. The clutch shall have a torque capacity exceeding the maximum delivered engine torque. The clutch lining shall be asbestos free. The clutch shall be equipped with spring dampening and a greaseable bearing

3.4.5.3 TRANSFER CASE. A two-speed transfer case shall be provided on 6x6 vehicles. Unless the transfer case is equipped with devices which compensate for differential torque and speeds between front and rear axles, the transfer case shall provide for driver selection of either four-wheel or six-wheel drive. When furnished, inter-axle compensating devices shall provide for positive transfer of power to all driving axles. The speedometer shall read accurate vehicle speed with the transfer case speed selector in high and in low range. An overlay on the speedometer face may be utilized to indicate accurate speed in low range.

3.4.6 DRIVELINE COMPONENTS. Driveline components shall be rated to transmit the maximum delivered torque of the engine, as developed through the maximum gear train reduction. Components shall be rated no less than the GCWR in 3.2.8. Drivelines shall be balanced and free of vibration.

3.4.7 FRAME. The chassis frame shall be the manufacturer's standard for the type and class vehicle furnished. Reinforcements shall extend at least from the rear of the front suspension, rear hanger bracket to the front of the rear spring, front hanger bracket. Reinforcements for Type III stake dumps and Type IV dumps shall provide sufficient structural strength in the chassis frame, through increased resisting bending moment (RBM), to at least equal the loads imposed, with the dump truck loaded to provide specified GVW. Frame rails shall not project beyond the

rear end of the body. Unless otherwise specified, on Type II tractors, the chassis frame rails shall be cut off immediately to the rear of the rear spring rear hanger brackets or the frame crossmember closest to the rear of these brackets. When a RBM is specified, any frame combination of yield strength and section modulus that provides the required RBM is acceptable.

3.4.8 SUSPENSION.

The vehicle shall be equipped with the manufacturer's standard or optional suspension system on the front axle. The rear suspension on all vehicles, except Type II, shall be the manufacture's standard or optional on/off road suspension. Type II vehicles shall be furnished with the manufacturer's standard suspension, unless otherwise specified. Except as specified in 3.2.6.1 components shall have a rated capacity at least equal to the load imposed on each member, measured at the ground, with the vehicle loaded to specified GVW. Hydraulic double-acting shock absorbers shall be provided on the front axle when the front axle rating is 5450 kg (14.000 pounds) or less.

3.4.9 AXLES.

Except as specified in 3.2.6.1 and option codes MPR and MPS, axle ratings shall be at least equal to the load imposed on each axle, measured at the ground, with the vehicle loaded to specified GVW. The wheel bearings and axle spindles shall be oil lubricated except on front drive axles. The hubcaps, except for driving axles, shall have a window for visual determination of oil level. Provisions for venting or withstanding internal pressure buildup and for replenishing the oil supply shall be provided.

3.4.9.1 REAR BOGIE.

A rear bogie of the four-wheel type, complete with axles, springs, torque rods and all other necessary parts shall be provided. The bogie shall be provided with means permitting differential action between the two axles, and a manually or automatically controlled lockout assuring equal power to each rear axle. The manual lockout control used shall be located in the truck cab.

3.4.9.2 TRACTION CONTROL.

Traction control shall be furnished for all Type IV dump trucks and shall be either ATC or D3 for both rear axles. For other vehicle types, ATC, D1 or D3 shall be furnished, when specified.

3.4.10 WHEELS, RIMS AND TIRES

Unless wide base tires are specified, the vehicle shall be equipped with single front and dual rear wheels. Rims and tire ratings shall conform to Tire and Rim Association or European tire and Rim Technical Organization recommendations, for the type and size of tires furnished. Tire and rim sizes shall be the same for all wheels on each vehicle, except for tire and rim sizes on Classes D, E, F, and G. Unless otherwise specified, disc type wheels shall be furnished. Hub-piloted wheels shall be provided.

3.4.10.1 TIRES.

Unless otherwise specified, standard profile steel belted radial ply tires shall be provided. Tires shall have highway tread on 6x4 vehicles and all terrain (AT) tires or on-off road (OO) tires on 6x6 vehicles, and the rear axle of dump trucks. The rear axles of dump trucks shall have Goodyear G244MSD, Michelin XDE M/S or equal tires. Tires shall be of the tubeless type. Except as specified in

3.2.6.1 and option codes MPR and MPS, tires shall be of rated capacity at least equal to the load imposed on each tire, measured at each wheel, at the ground, with the vehicle loaded to specified GVW. Tires shall conform to the Tire and Rim Association or to The European Tyre and Rim Technical Organization recommendations. Under no circumstance shall the vehicle maximum governed speed exceed the speed rating of any of the furnished tires.

3.4.10.2 TIRE CHAIN CLEARANCE.
Tire chain clearance in accordance with SAE J683 shall be provided. Allowance for spring deflection shall be included.

3.4.11 BRAKES.
Brakes shall conform to Federal Motor Carrier Safety Regulations 393.40 through 393.43 and 393.45 through 393.52. Brake linings shall be of non-asbestos material.

3.4.11.1 SERVICE BRAKES.
Vehicles shall be equipped with full-air brakes. The braking system, complete with all necessary components, shall include:

(a) Air compressor, unloader-head type, engine driven and engine lubricated, air or water cooled, and having a capacity of not less than 340 L/min (12 cubic feet per minute (cfm)).
(b) Air storage reservoir(s), each tank equipped with drain, and with safety and check valves between the compressor and the last reservoir tank
(c) Foot control, suspended or treadle type
(d) Air control valves
(e) Air pressure gage, visible to the driver
(f) Low air pressure warning, visible and audible
(g) Service brake stop lamp switch
(h) Automatic moisture ejector on air storage reservoir
(i) Automatic slack adjusters on cam type brakes or internal self-adjusting brakes on wedge and disc type brakes on all axles
(j) Brake dust shields on rear
(k) Spring set parking brake

3.4.11.1.1 AIR DRYER.
An air dryer with a replaceable spin on/off desiccant cartridge shall be installed in the air brake system. The dryer shall have the capability of removing not less than 95 percent of the moisture in the air being dried. The dryer shall have a pre-cooler and a filter to screen out oil and solid contaminants. The dryer shall have an automatic self-cleaning cycle and a thermostatically controlled heater to prevent icing of the purge valve. Air dryer shall conform to TMC RP 637.

3.4.11.2 TRAILER BRAKE CONTROL SYSTEM.
In addition to the components specified in 3.4.11.1 and 3.4.11.1.1, a trailer brake control system shall be furnished for Type II tractors and when a trailer-towing package option code TTP is required. The trailer brake control system shall include:

(a) Identification of emergency and service lines
(b) Coincident control of trailer brakes with prime mover foot control
(c) Independent hand control for trailer brakes
(d) Prime mover protection valve with dash control and automatic breakaway feature
(e) Trailer stoplight control operable with foot brake and with hand control for trailer brakes

(f) Two SAE J844 coiled air hoses, not less than 2800 mm (110 inches) long when fully extended, with SAE J318 glad hand couplers on both ends of hoses (not required for Type II tractors unless a trailer towing package is specified). The hoses shall be packaged and stowed in the vehicle tool compartment for shipment.

(g) Air connectors for trailer with SAE J318 glad hand couplers mounted at the rear of the vehicle, located to prevent interference with a trailer (not required for Type II tractors unless trailer towing package is specified). Air connectors and glad hands on Type IV dumps shall be located to prevent damage during dumping of the cargo.

(h) Two SAE J844 coiled (or when specified (see 6.2), straight) connecting air hoses, not less than 2800 mm (110 inches) in length when fully extended, equipped with coiled spring hose guards, and SAE J318 glad hand quick connector on trailer end of hoses (Type II tractors only).

(i) Unless otherwise specified, supports on the cab or on a pogo stick type hose tender with dummy glad hand connectors to retain hoses when not in use (Type II tractors only). Supports shall not be mounted on the cab roof. The dummy glad-hand couplers shall be located on the street side rear of the cab and shall be accessible to an operator standing on the ground. Supports shall conform to TMC RP 417.

(j) Dummy glad hand couplers with security chains or cables (not required for Type II tractors unless a trailer towing package is specified).

(k) Prime mover only parking brake valve to permit mover parking brakes to be applied while charging the trailer air brake system.

3.4.11.3 ANTILOCK BRAKE SYSTEM.

Vehicles shall be provided with an antilock brake system in accordance with FMVSS 571.121. Type II tractors shall have the SAE J560 seven-pin connector wired to conform to TMC RP 137.

3.4.12 CAB.

Unless otherwise specified, an OEM conventional type full width cab shall be provided, with a BBC of 105 to 114 inches. When a Long Nose cab is specified, a BBC of 116 to 124 inches shall be provided.

Unless otherwise specified, a cab with a forward tilting hood and fender assembly, including tilting and locking mechanism, shall be provided. Tilting shall not interfere with any installed equipment. Both cab doors shall be equipped with locks, operable from inside the cab through mechanical linkages and equipped with external, key operated locks. Drip protection shall be provided above the cab doors. Safety grips or grab handles shall be provided on each side of the cab to assist personnel in entering and leaving the cab and, in addition, for Type II tractors, to assist personnel in climbing onto the truck tractor deck plate. When step height into the cab exceeds 610 mm (24 inches) a secondary step shall be provided, in accordance with TMC RP 404B. When a snowplow or snowplow provisions are specified, service hatches or access or butterfly type hood shall be furnished to provide access for routine engine maintenance with a snowplow attached. Cab equipment shall

include: a 12-volt electrical power point outlet (receptacle), easily accessible to the seated driver; and tinted glass in all windows, where optionally available from the chassis manufacturer.

3.4.12.1 CAB INTERIOR.
Unless otherwise specified, the cab shall have an upholstered, full width, adjustable seat and back or individual, adjustable, driver's seat and individual passenger seat. The color of the upholstery and the interior finish shall be compatible with the exterior color. White upholstery shall not be furnished. Interior lighting shall be provided. Three sets of seat belts shall be installed on bench seats. Outboard seats shall have combination pelvic and upper torso restraint seat belts. A rear cab window shall be furnished, unless a sleeper compartment is specified.

3.4.13 STEERING.
Power steering shall be furnished.

3.4.14 WINDSHIELD
The vehicle shall be equipped with dual windshield wipers and windshield washers. Windshield wipers shall be of the multi-speed intermittent type and operated by electric motor(s).

3.4.15 BUMPER.
Unless the bumper is an integral part of vehicle cab, a channel type front bumper shall be provided on each vehicle.

3.4.15.1 REAR END PROTECTION.
Except for Type I chassis, Type II tractors, and Type IV dumps, the rear end of the vehicle shall be protected in accordance with Federal Motor Carried Safety Regulation 393.86. A rear bumper shall be provided as specified herein for the various vehicle types.

3.4.16 TOOL STOWAGE.
Stowage space of sufficient size to accommodate a vehicle jack, hand tools, anti-skid chains (for outside tires on duals only) and emergency reflective triangles shall be provided. The stowage space shall provide for positive retention of this equipment during vehicle operation. Stowage space for these tools may be furnished in the cab. When stowage space for these tools is located outside the cab, it shall be weatherproof and shall provide for locking with a padlock or integral lock.

3.4.17 HEATER AND DEFROSTER.
The vehicle shall be provided with a hot water heater with fresh air intakes and discharge outlets to the floor and to windshield defroster louvers. The heater shall be complete with blower and mounted controls convenient to the driver.

3.4.18 CONTROLS AND OPERATING MECHANISMS.
All controls and operating mechanisms shall be located for left hand drive. Controls shall be complete and conveniently operable by the driver. Lever controls shall be designed and located to permit easy entrance and exit of the operator to and from the driver's compartment. Instruments and controls shall be identified as to their function and installed in a manner to facilitate removal and servicing. All instruments shall be visible to the driver when seated in the driving position.

3.4.19 ACCESSORIES AND EQUIPMENT.
Chassis equipment shall be complete with all accessories furnished as standard equipment by the manufacturer. The following minimum equipment shall be furnished:

(a) ... Key operated ignition switch

(b) ... Ammeter or voltmeter

(c) ... Fuel gage

(d) ... Oil pressure gage

(e) ... Engine coolant temperature gage

(f)..... High coolant temperature low coolant level and low oil pressure alarm buzzer

(g).... Speedometer with recording odometer

(h).... Dual sun visors

(i)..... Driver's compartment ventilator other than window

(j)..... Tachometer (for diesel engine driven vehicles)

(k).... Front door or seat mounted armrest on driver and on passenger side

(l)..... An engine shutdown system shall be provided. The engine shutdown system shall include an engine coolant temperature, engine coolant level and engine oil pressure red indicator warning light and alarm buzzer. The warning light and buzzer actuation shall precede engine shutdown. The system shall permit engine restart and run for approximately 30 seconds following automatic shutdown. When a Gasoline engine is furnished, engine shutdown feature is not required.

3.4.20 REARVIEW MIRRORS.
Outside rearview mirrors shall be mounted on both sides of the cab. The mirrors shall have flat and convex areas. The flat portion shall have not less than 636 square centimeters (100 square inches) of reflective area. The convex portion shall have not less than 324 square centimeters (50 square inches) of reflective area. The convex portion shall be attached to the lower mirror-supporting arm and shall not interfere with use of the flat mirror.

3.4.21 HORN.
The manufacturer's standard electric horn shall be furnished, and in addition an air operated horn shall be provided.

3.4.22 BACK ALARM
A back-up alarm shall be provided which provides an audible warning whenever the ignition switch is "on" and the vehicle transmission control is in reverse. The alarm shall automatically adjust to ambient noise levels. Alarm shall conform to SAE J994.

3.4.23 AM/FM RADIO.
An OEM AM/FM radio with clock shall be provided.

3.4.24 AIR CONDITIONING.
The vehicle shall be equipped with the chassis manufacturer's standard all weather air conditioner. The use of a Class I or Class II controlled substance refrigerant is prohibited. Air conditioning system shall conform to TMC RP 418.

3.5 VEHICLE TYPES.
The cab-to-axle dimension specified for the various vehicle types may be reduced by not more than 50 mm (two inches) when the vehicle is furnished with tilt type cab (see 3.4.12).

3.5.1 TYPE I (CHASSIS, WITH CAB).
Type I vehicles shall have one of the usable cab-to-trunnion (CA) dimensions shown in Figure 4 , as specified. Usable cab-to-trunnion is defined as the distance from the most rearward vehicle obstruction that would interfere with body mounting to the centerline of the trunnion between the two rear axles. Load area for the purpose of determining weight distribution (see 3.2.6) shall be as specified (see 6.2). Chassis shall be suitable for subsequent mounting of the make, model and type of body and equipment specified if specified (see 6.2). Required CA dimensions must be specified when vehicle order is submitted.

Figure 4

Cab-Trunnion (CA)		
CODE	LENGTHS (for fixed body) (select one)	MAXIMUM BODY SIZE
CABF	210/220 cm (83/84 in)	3.6 m/12 ft
CABJ	260/270 cm (101/108 in)	4.3 m/14 ft
CABM	300/320 cm (119/124 in.)	4.9 m/16 ft
CABP	340/360 cm (136/138 in)	5.5 m/18 ft
CABQ	360/370 cm (138/142 in)	5.5 m/18 ft
CABT	380/400 cm (150/156 in)	6 m/20 ft
CABW	420/440 cm (167/171 in)	6.6 m/22 ft
Specify as needed when other than types covered by Figure 4.		

3.5.2 TYPE II (TRUCK TRACTOR).

Type II tractors shall conform to 3.5.2.1 through 3.5.2.6 with the fifth wheel mounted on an adjustable sliding base. Unless otherwise specified, Type II tractors shall be equipped with a fore and aft rocking, 910 mm (36 inch) diameter air slide fifth wheel with forks and semiautomatic lock for SAE J700 kingpin. The fifth wheel shall be mounted on an adjustable sliding base. The slide locks shall be of the air release type with controls mounted on the instrument panel. The fifth wheel shall have an adjustment range of not less than 580 mm (23 inches) with adjustment increments of not more than 100 mm (4 inches). For safety, the actuating button in the cab shall be interlocked with trailer parking brake.

The fifth wheel shall be capable of being uncoupled by the operator standing on the driver's side of the vehicle. Uncoupling action shall be protected by a secondary manual lock, preventing movement of the uncoupling lever until the secondary lock is manually released. The fifth wheel shall have a visual indicator or latching mechanism to ensure a positive lock of the kingpin. The vertical load capacity and the drawbar pull capacity of the fifth wheel shall be not less than the loads imposed with the vehicle loaded to the required GVW and GCW.

3.5.2.1 FIFTH WHEEL LOCATION.

The location of the fifth wheel, unless otherwise specified, shall load both front and rear axle assemblies to their maximum rating simultaneously. The clearance from the centerline of the kingpin to the cab, or to the vertical spare tire assembly when furnished, or pogo stick type hose tender when furnished, shall be not less than 1620 mm (64 inches). When additional equipment to be mounted behind the cab is specified, the 1620 mm (64 inches) shall be measured to the rearmost point of a pogo stick to be mounted behind the additional equipment. The CT dimension may be increased. Sliding fifth wheels shall be mounted with the rear most position dead center of the tandem axle trunnion or tandem load equalization point.

3.5.2.2 FIFTH WHEEL MOUNTING.

Fifth wheel mounting shall conform to Federal Motor Carrier Safety Regulation 393.70(b).

3.5.2.3 FIFTH WHEEL HEIGHT.

The unladen level height of the fifth wheel shall be 1219 mm (48 inches), plus or minus 25 mm (1 inch), above ground level..

3.5.2.4 RESERVED

3.5.2.5 DECK PLATE.

A self-cleaning grating of sufficient structural strength for use by the operator in connecting air and electric lines between the tractor and a semitrailer shall be installed. The grating shall extend across and shall be bolted or clamped to the frame rails. Grab handle(s) and step(s), to allow safe access to personnel climbing onto the deck plate, shall be furnished. The grating shall be a minimum of 101 CM (40 IN) and the front edge shall be located as close to the cab as possible and shall extend toward the rear of the vehicle. Access through the

grating for maintenance of fittings and other equipment shall be furnished. The deck plate shall be free of ragged or sharp exposed edges.

3.5.2.6 HOSE TENDER.
When a tilt cab is furnished, a pogo stick type hose tender shall be provided behind the cab to accommodate and secure the semitrailer lighting cable and air hoses. A pogo stick shall be provided on all types of cabs and mounted rearward when a rear mounted spare carrier or a rear-mounted winch is furnished. When a conventional cab is furnished without a rear mounted spare carrier and without a rear mounted winch, a cab mounted tender as specified in 3.4.2.5 may be provided in lieu of a pogo stick. Hose tender shall conform to TMC RP 417.

3.5.3 TYPE III (STAKE).
Type III stakes shall have body dimensions as specified per the Standard Item Number, or optional body length per option code. A rear bumper shall be furnished. Stake racks and platform body shall be painted black.

3.5.3.1 STAKE BODY.
The body shall consist of a steel frame platform, wood floor, and side and end racks. When a hydraulic crane, option code SAC, is furnished, the body shall be mounted to provide a space back of cab-to-body of not less than 810 mm (32 inches) for mounting the crane.

3.5.3.2 STAKE BODY FRAME.
Body framing shall be completely welded structure with members of minimum gage thickness specified in Figure 5 for carbon steel; high tensile steel may be furnished in two gages lighter weight in accordance with US Standard gage sizes. Crossmembers shall have no more than 40 cm (16 inch) center spacing, including ends and stub crossmembers as required for proper spacing over axle. Not less than five additional full width cross members on shall be provided in the area of the rear bogie. The additional cross members may be joined by welding to the normally located cross members in the rear bogie area. Crossmembers shall be of full channel construction, or equal, with a minimum RBM of 55,000 in. / lb. reinforced by gusset plates or brackets at points of attachment to longitudinal sills, and contact edges of welded reinforcements shall be welded for not less than 50 percent of the edge length. Longitudinal sills shall be constructed of structural steel channels or formed channels. Formed channel sills shall be reinforced within the sill, at each crossmember or body mounting point, with formed channel reinforcements.

Figure 5

FRAMING MEMBER	STANDARD GAGE NO.	EQUIVALENT MILLIMETER	EQUIVALENT INCHES
Cross-member	10	3.416	0.1345
Side and end rails	10	3.416	0.1345
Longitudinal sills	8	4.176	0.1644
Reinforcement	8	4.176	0.1644
Rack post	11	3.038	0.1196

Wiring harness across the rear apron shall be enclosed in conduit or polyethylene loom except at terminal ends and shall be secured by rubber insulated metal cable clamps to the under body structure on not more than 12 inch centers.

3.5.3.3 STAKE BODY FLOORING.
The platform shall be floored with wood, or when specified, with steel. Wood parts shall be treated in accordance with 3.1.1.3.

3.5.3.4 STAKE BODY WOOD FLOORS.
Wood floors shall be apitong, hardwood or pressure treated dense southern yellow pine not less than 33 mm (1-5/16 in) thick (finished dimension) Plywood type floors shall not be acceptable. Wood floors shall

"run" longitudinally with either shiplap or tongue-and-groove joints.

3.5.3.5 SIDE AND END RACKS.
A full width front rack section, not less than three removable rack sections on each side, and two removable rack sections across the rear shall be provided. Each rack shall be equipped with a locking device to lock the rack to the body. Body hardware shall be attached to the rack slats with not less than 75 mm (3 inches) total weld for each fastener or bolted with not less than four bolts for each fastener. Upright posts shall be steel sections. Rack slats shall be steel of not less than 16 gauge with not less than 3 reinforcing ribs. The width of individual slats shall be manufacturer's standard providing that total of slat widths is not less than 60 percent of total rack height. Not less than four slats per rack shall be provided. Slat edges and end corners shall be rounded or enclosed to protect cargo and personnel from sharp edges. Slats shall be riveted, bolted or welded to the inside (load side) of the upright posts, with rivet or bolt heads against the slats. When welded construction is used, not less than 4 welds shall be applied at each upright post and slat intersection. The front rack section shall be capable of withstanding a horizontal static load equal to one-half the payload capacity of the vehicle without permanent distortion of the rack section or its mounting. When a hydraulic tailgate of the type that folds against the rear side racks is furnished (option code HTG), the two removable rack sections across the rear of body are not required and each side rack section at the rear of body shall be provided with draw-down type of fastening equipped with a locking nut to secure the side racks in place. Rack height shall be a minimum of 102 cm (40 inches). When a hydraulic crane option code SAC, is furnished, the front rack height may be reduced as necessary to avoid interference with the crane operations.

3.5.3.6 BODY MOUNTING.
Body shall be secured with U-bolts, twin studs, or brackets. Body shall be mounted in full accordance with the chassis and body manufacturer's recommended practice.

3.5.3.6.1 U-BOLTS OR TWIN STUDS.
When U-bolts or twin studs are used, there shall be not less than four U-bolts or twin studs per side each having 14 mm (0.563 inch) body diameter with 16 mm (0.625 inch) minimum thread diameter. Tieplates shall be at least 13 mm (0.5 inch) thick and a slight deformation upon assembly is permissible. The vehicle chassis frame shall be protected from crushing by using spacer blocks at each mounting point unless the mounting point is located at a full depth frame crossmember. Blocks shall incorporate a keeper strap or groove for the mounting bolt, and shall be of a width and thickness to assure retention. Two tieback straps shall be provided, one bolted to each side of the rear portion of the body subframe, to maintain body alignment on the vehicle chassis. Forward body mounting bolts shall be located to the rear of the tapered portion of the breaker strips.

3.5.3.6.2 BRACKETS.
When brackets are used, they shall be bolted to the web of the chassis frame rails. The body mounting brackets shall provide means for drawing down the body on the chassis rails, and provisions shall be made to prevent lateral shifting of the breaker strips. When additional holes are required to secure the mounting brackets to the chassis frame rails, they must be located within the area of the rail which is designated as being safe for drilling in accordance with the chassis manufacturer's body builders layouts.

Attachments shall neither interfere with nor obstruct chassis components.

3.5.4 TYPE IV (DUMP).

Type IV vehicles shall have a hydraulic hoist operated dump body. A rear bumper is not required. Unless otherwise specified by option code, the body shall have dimensions and level capacity of not less than that specified per the Standard Item Number.

3.5.4.1 DUMP BODY CONSTRUCTION.

Body sides and front head shall be constructed from not less than 8 gauge (4.176 mm) (0.1644 in) A570 (50,000 psi yield strength) steel. Body floor shall be no less than 1/4 inch AR235, (100,000 psi yield strength) steel. The front head shall be capable of withstanding a horizontal static loan equal to one-half the payload capacity of the vehicle without permanent distortion. When body floor is constructed in two or more pieces, a continuous seam weld having full penetration shall be provided. Full length, formed rub rails of minimum width to cover rear dual tire treads shall be provided. Triangular or box-section side braces, of the minimum width quantities specified in Figure VII for the respective body length and vehicle classes, shall be constructed of not less than 8 gauge (4.176 mm) (0.1644 in) steel. One horizontal brace (per side) running the entire length of the body, tied into the front and rear corner pillars is acceptable in lieu of vertical braces. They shall be sloped and continuously welded or formed into each side of the body. Side braces shall be equally spaced on each side of the body, between the head sheet and full box type rear corner posts, and welded to body side plates. Front head sheet shall be formed or reinforced for rigidity. Head sheet and tailgate shall be not less than 200 mm (8 in) higher than the sides. Sides shall have pockets provided at each end for insertion of side boards. The interior of the body shell and the side reinforcements shall be welded with continuous welds. The top rail, sides and tailgate shall be completely boxed and continuously welded. The body shall have sloping running boards and sloping horizontal tailgate braces to minimize the buildup of dirt. Wiring harness across the rear apron shall be enclosed in conduit or polyethylene loom except at terminal ends and shall be secured by hangers to the under body floor, on not more than 12 inch centers.

Figure VII - TYPE IV Dump Truck Requirements

Capacity (m^3 / cu. yd)	6.1/ 8	7.6/ 10	9.2/ 12 Code B15 =11.5/15
Body Length (mm / in.)	3960/144	4270/168	4570/180
Number of cross members	11	13	14
Vertical brace per side, if provided	4	5	5
Horizontal braces per side	1	1	1

3.5.4.2 CAB PROTECTOR.

A cab protector shall be attached to the front end of the body. The cab protector shall extend the full width of the cab. The cab protector shall extend not less than 1020 mm (40 inches) forward from the front of the dump body. The cab protector shall be not less than 8 gage (4.176 mm) steel or 10 gage (3.416 mm) (0.1345 inch) high tensile, 345 MPa (50,000 psi) yield strength steel. The cab protector shall be capable of supporting an evenly distributed load of not less than 910 kg (2,000 pounds). The cab protector is not

intended to be used for additional payload capacity. When specified, and for overseas destinations, even if not specified, the cab protector shall be removable and shall be secured in the dump body for shipment. Fasteners and components shall be packaged, boxed, marked and secured in the vehicle.

3.5.4.3 DUMP BODY TAILGATE.

The tailgate panel shall be not less than 8 gage (4.176 mm) (0.1644 inch) A570 steel (50,000 pounds psi yield strength). The tailgate shall be double acting, opening from top and bottom. The tailgate shall include hardware, support chains, and tailgate latch. The latch shall be operable by a control at the left front corner of the vehicle body. All pivot points on the tailgate release shall be furnished with grease fittings, including top pivot pin. The tailgate shall be reinforced to prevent deformation under load.

3.5.4.4 DUMP BODY UNDERSTRUCTURE.

The dump body understructure shall conform to 3.5.4.4.1 or option code UN, at the manufacturer's option except when specified by customer.

3.5.4.4.1 CHANNEL OR I-BEAM UNDERSTRUCTURE.

Body longitudinal sills each having a minimum section modulus equivalent to that provided by a 150 mm (6 inches), 12.2 kg/m (8.2 pounds-per-foot) structural channel for Class B; 175 mm (7 in.), 14.6 kg/m (9.8 lb/ft.) for Class C, D, and E, shall be provided to support hoist load. The minimum number of crossmembers specified in Figure VII for respective body sizes shall be provided. Each crossmember shall have a minimum section modulus equivalent to that provided by a 100 mm (4 inch) 11.5 kg/m (7.7 pounds-per-foot) I-beam. Construction shall provide a body structure capable of supporting a uniformly distributed load of not less than 1800 kg/m^2 (370 pounds per square foot) of floor area throughout the full lift range. Crossmembers shall be welded to the body shell with not less than 100 mm (4-inch) lengths of weld, front and rear of both ends of each crossmember and with staggered, intermittent welds of not less than 100 mm (4-inch) lengths, on not more than 300 mm (12-inch) centers. Contact edges of crossmembers with longitudinal sills, and contact edges of welded reinforcements shall be welded for not less than 50 percent of the edge length. Crossmembers shall be welded to the sloped outer rub rail to limit twisting. Gussets, 3/16 inches thick, shall be welded to every other crossmember and each longitudinal to provide reinforcement.

3.5.4.5 HYDRAULIC HOIST.

The hoist class shall be as specified in the item minimums, and shall be in accordance with the National Truck Equipment Association Dump Body Hoist Chart. The hoist shall be a telescopic type. Hoist hydraulic cylinders shall be chrome plated. The hoist shall lift the body to a minimum dumping angle of 50 degrees from the top of the truck chassis frame. The hoist shall be capable of lowering the raised body by gravity when the pump is disabled. The pump shall be the direct mount type. The power take off, and valve shall be the manufacturer's standard for the hoist model furnished. The valve and power takeoff controls shall be located in the cab. A two-position lever or a two-speed hoist lowering valve to provide "feather down" capability shall be provided.

3.5.4.6 SAFETY LOCK.

A mechanical safety lock permanently affixed to the dump body or hoist shall be furnished. The safety lock shall provide positive retention of the dump body with the body in the up position for servicing or

repair. Safety lock mechanism shall not interfere with the operation of the body under any operating conditions.

3.5.4.7 DUMP BODY MOUNTING.
The body shall be located on the vehicle chassis in accordance with manufacturer's standard commercial practice except that pivot point shall be 300 mm to 480 mm (12 to 18 inches) from the rear of the body. Full length rivet pads or a full length subframe shall be attached to the top of the chassis frame rails. The pads or frame rails shall prevent the body longitudinal sills from contacting and chafing against the chassis frame rails.

3.5.4.8 DUMP BED COVER.
A dump bed cover with front wind protector and operated from ground level shall be provided. Dump bed cover shall be polypropylene, knit-mesh material with 70% (nominal) mesh content.

3.6 OPTION CODES AND REQUIREMENTS

3000 AUTOMATIC TRANSMISSION
When code 3000 is specified, an Allison 3000RDS torque converter type 5 speed overdrive automatic transmission having a minimum gross input capacity of no less than the output of the supplied engine shall be supplied. Power take-off provisions shall be supplied.

3500 AUTOMATIC TRANSMISSION
When code 3500 is specified, an Allison 3500RDS torque converter type 5 speed overdrive automatic transmission having a minimum gross input capacity of no less than the output of the supplied engine shall be supplied. Power take-off provisions shall be supplied.

4000 AUTOMATIC TRANSMISSION
When code 4000 is specified, an Allison 4000RDS torque converter type 5 speed overdrive automatic transmission having a minimum gross input capacity of no less than the output of the supplied engine shall be supplied. Power take-off provisions shall be supplied.

4500 AUTOMATIC TRANSMISSION
When code 4500 is specified, an Allison 4500RDS torque converter type 5 speed overdrive automatic transmission having a minimum gross input capacity of no less than the output of the supplied engine shall be supplied. Power take-off provisions shall be supplied.

A14 ALTERNATOR 145 AMP
When code A14 is specified, a minimum 145-ampere alternator shall be provided. The alternator output with the engine at idle speed shall be not less than 70 amperes.

AAS ASPHALT SPREADER FLOOR EXTENSION.
When code AAS is specified, a minimum floor extension of 30 cm (12 in) shall be provided. The floor extension shall be constructed of 6.35 mm (.25 in) thick, 50,000 psi yield strength material. Extension shall be full width of floor with vertical end caps at each end that are angled from rear edge of extension to body rear corner post. Extension shall be supported underneath by a minimum of six (6) braces angled from extension to body rear cross member/floor support.

End caps shall be placed so as not to interfere with operation of tailgate in any manner. Support and end cap shall be a minimum of 6.35 mm (.25 in) thick, 50,000 psi yield strength material and be welded to the extension as well as the body. Truck rear axle brake chambers shall be positioned so that interference with spreading machine is not encountered when truck is dumping into the hopper of a spreading machine.

AERO AERODYNAMIC PACKAGE

When code AERO is specified, manufacturer's standard aerodynamic package, including as a minimum an aerodynamically faired cab, fenders, bumper combination, and side cab extenders, shall be provided.

AICE CHAINS-TIRE-AUTOMATIC

When code AICE is specified, the vehicle shall be equipped with automatic tire chains on the rear axle. The chains shall be permanently mounted to the rear suspension. Controls to engage and disengage the chains shall be located in the cab, and be easily accessible to the seated driver. Activation of the chains shall be accomplished without stopping the vehicle, to enhance braking and traction in forward and reverse speeds. When activated the chains shall provide improved traction under tires on the rear axle. Installation of the chains shall be in accordance with the application requirements of the manufacturer of the automatic tire chains.

ART AIR RELEASE TAILGATE

When code ART is specified, the dump body tailgate bottom latch shall be air released.

ARW1 EXTRA HEAVY DUTY FIFTH WHEEL

When code ARW1 is specified, the truck tractor shall be equipped with an extra HD sliding fifth wheel. The fifth wheel shall have a rated capacity of not less than 70,000 lb. vertical load and 200,000 lb. draw bar.

AS14 14,000 LB. GAWR FRONT SUSPENSION

When code AS14 is specified, a front suspension with a minimum GAWR of 6350 kg (14,000 lb) shall be provided.

AS16 16,000 LB. GAWR FRONT SUSPENSION

When code AS16 is specified, a front suspension with a minimum GAWR of 7256 kg (16,000 lb) shall be provided.

AS18 18,000 LB. GAWR FRONT SUSPENSION

When code AS18 is specified a front suspension with a minimum GAWR of 8163 kg (18,000 lb) shall be provided.

AS20 20,000 LB. GAWR FRONT SUSPENSION

When code AS20 is specified, a front suspension with a minimum GAWR of 9070 kg (20,000 lb) shall be provided.

ASI **AIR CLEANER SERVICE INDICATOR (DASH MOUNTED)**
When code ASI is specified, a re-settable dash mounted service indicator or warning light that registers the highest air restriction reading shall be furnished.

ATC **TRACTION CONTROL-AUTOMATIC**
When code ATC is specified, automatic traction control through the ABS system shall be supplied.

ATR **AIR TRANSPORTABLE-C-130, C-141,C-5, & C-17 AIRCRAFT**
When code ATR is specified, air transportability requirements shall include air transport certification in C-130, C-141, C-5, and C-17 aircraft in accordance with the guidelines in MIL-HDBK-1791. In addition, all vehicles must be equipped with military standard tie down provisions as specified in MIL-STD-209 and option code TDN. See 4.4

ATR2 **AIR TRANSPORTABLE-C-5 & C17 AIRCRAFT ONLY**
When code ATR2 is specified, air transportability requirements shall include air transport certification in C-5 and C-17 aircraft (not C130 or C141) in accordance with the guidelines in MIL-HDBK-1791. In addition, all vehicles must be equipped with military standard tie down provisions as specified in MIL-STD-209 and option code TDN. See 4.4

ATT **PINTLE HOOK, AIR CUSHIONED RIGID TYPE**
When code ATT is specified, a rigid type pintle hook with air operated plunger cushion shall be installed on the chassis frame with reinforcements to transfer a vertical tongue load of not less than 3175 kg (7000 lb) and a horizontal drawbar load of not less than 31750 kg (70000 lb) directly to the chassis rails. Code ATT is not available when code HTG, HTGU, or HTGX is specified.

AUXL **AUXILIARY LIGHTS**
When code AUXL is specified, two auxiliary lights shall be provided. Lights shall be mounted at the top corners of the cab protection rack and shall not protrude above the rack. Wiring shall be protected. The switch to operate the lights shall be located in the cab and shall be easily accessible to the seated driver. The lights shall be PAR 36 sealed beams Number 4411-1, 35 watts and shall be mounted in waterproof, adjustable, rubber automotive housings. Lights shall be capable of illuminating the entire frame to the rear of the cab protection rack.

B16 **16 FT. BODY**

B18 **18 FT. BODY**

B20 **20 FT. BODY**

B22 **22 FT. BODY**

BBS BULKHEAD STAKE BODY

When code BBS is specified, a permanently attached solid front bulkhead, constructed of not less than 12 gage steel with a screen opening behind the cab window shall be provided in lieu of front end racks.

BDF2 HEAVY DUTY FLOOR

When BDF2 is specified, the body floor shall be diamond tread steel, with a minimum thickness of 5 mm (3/16 in) and additional lateral support provided at the wheel wells. Two-piece floors shall be spliced longitudinally and completely welded the full length of the splice. One completely welded lateral steel floor splice is acceptable on bodies over 4880 mm (16 feet) in length.

BDF3 APITONG FLOOR

When code BDF3 is specified, apitong wood floors shall be provided for the body.

BDF4 FLOORING-BED-RECYCLED MATERIAL

When option code BDF4 is specified, recycled tire and plastic plank boards, Rumber Materials Inc. or equal, shall be furnished. Plank boards shall be a minimum of 1½ in. tongue and grove secured to bed frame with minimum ¼ in. stainless steel self tapping countersunk screws. The installation procedures and plank width shall be in accordance with the manufacturer's recommendation.

BDS DUMP STAKE BODY

When code BDS is specified, a dump stake/platform body shall be provided. The stake/platform body shall be as specified in 3.5.3 through 3.5.3.6 for the vehicle class furnished, except the rear end racks shall be the manufacturer's standard swing type, hinged to each side rack. The stake/platform body shall be adequately reinforced to provide support for an evenly distributed payload (GVW minus curb weight and operator weight). The body shall be mounted to a hydraulic hoist unit. Locking devices shall be provided near the center of the rear racks to lock closed and to lock the racks to the body. All locking devices shall be operable from the ground. A rear bumper is not required. When a steel floor is furnished on dump stakes, it shall have a smooth finish.

The body shall be mounted to the hoist unit in accordance with the hoist manufacturer's recommendations and shall be reinforced, for added strength when necessary, for hoist operations. Rear body mounting shall include hinges securely welded to the body longitudinal sills, a connecting cross shaft, and a plate securely bolted to the chassis main frame rails.

A hydraulic conversion type hoist shall be furnished. Unless otherwise specified (see 6.2), the conversion hoist shall have a minimum lifting capacity rating of Class D hoist for Class C vehicles, Class E hoist for Class D vehicles and Class F hoist for Class F vehicles. Conversion hoist ratings shall be in accordance with the National Truck Equipment Association Conversion Hoist Chart. The hoist shall be a double-acting scissors or under body type with

an internal bypass system. Hoist hydraulic cylinder piston rods shall be chrome plated. The hoist shall lift the body to a minimum dumping angle of 45 degrees measured from the top of the truck chassis frame. The hoist shall be capable of lowering the raised body by gravity when the pump is disabled. The controls shall be located in the truck cab and shall be accessible to the seated driver. The location of the controls shall not interfere with the entry and exit of the driver. Hydraulic system and pumping unit shall comply with 3.1.1.11.

A mechanical safety lock, permanently affixed to the body, shall be furnished. The safety lock shall provide positive retention of the body in the up position for servicing or repair. The safety lock mechanism shall not interfere with the operation of the body under any operating conditions.

BSF2 SMOOTH STEEL FLOOR

When BSF2 is specified, smooth steel floors, one or two-piece, 4.8 mm (3/16 in) thick, shall be provided for the body with additional lateral support provided at the wheel wells. Two-piece floors shall be spliced longitudinally and completely welded the full length of the splice. One completely welded lateral steel floor splice is acceptable on bodies over 4880 mm (16 feet) in length.

BSR SWING, RIGHT & LEFT SIDE CENTER RACKS

When code BSR is specified, the center racks on both sides shall be the manufacturer's standard swing type, for easy side loading.

BSU DOUBLE ACTING UNDERBODY TYPE HOIST

When code BSU is specified, a double acting scissors or underbody type hoist, with an internal bypass system, shall be provided.

BTC TOOL COMPARTMENT, STEEL WITH LATCH

When code BTC is specified, a toolbox shall be provided. The toolbox shall provide for storage in addition to that required by 3.4.16. Minimum dimensions shall be 457 mm (18 in) by 457 mm (18 in) by 609 mm (24 in). A door opening size of not less than 482 mm (19 in) by 330 mm (13 in) shall be furnished. The toolbox shall be fabricated of not less than 14 gage (2.657 mm) (0.1046 in) steel or of equivalent strength aluminum. The toolbox shall be weatherproof and shall provide for locking. The toolbox shall be mounted as close as possible to the rear of the cab, on the curbside of the vehicle.

CC CREW-CAB, 4 DOOR

When code CC is specified, a four-door, full width crew cab shall be provided. The cab shall be equipped with two upholstered, full width seats and backs. The front seat shall be adjustable. With the front seat adjusted to the extreme forward

position there shall be not less that 760 mm (30 inches), measured in a horizontal plane, between the front of the rear seat back and the rear of the front seat back. A kick-space height of not less than 70 mm (2.75 inches) shall be maintained between the floor and the rear of the front seat in all positions of adjustment. Legroom and space forward of the front seat shall be equivalent to that provided ahead of the seat in a two-door standard cab. Three pairs of seat belts shall be installed for both the front and rear seats. Front outboard seats shall have combination pelvic and upper torso restraint seat belts. Cab doors shall be equipped with locks operable from inside the cab through mechanical linkages, with both front doors equipped with an external key operated lock. Cab doors shall have windows with crank operated window regulators. A rear window shall be provided. Interior lighting shall be provided. Safety grips or grab handles shall be provided at each door of the cab to assist personnel climbing into the cab. The cab roof shall be of one-piece construction; or, if welded, the roof shall give the appearance of one piece, with weld seams being continuous, waterproof, and free of visible bumps or protrusions. Full-length drip moldings shall be mounted above the doors.

CE **CAB, EXTENDED STYLE**

When code CE is specified a chassis OEM extended cab having an inside length (from firewall to back of cab) of not less than 78 In. nor more than 81 In. shall be provided.

CLN **CAB, LONG NOSE STYLE**

When code CLN is specified, a conventional long length nose cab with BBC of 116 to 124 inches shall be provided

COE **TILT CAB**

When code COE is specified, a cab-over-engine (tilt cab) shall be provided. Provisions to facilitate cleaning the windshield shall be provided by means of a bumper step, or bumper step cutouts, and a grab handle located under the windshield.

CPR **CAB PROTECTION RACK**

When code CPR is specified, a cab protection rack shall be provided. The cab protector rack shall be mounted behind the cab and shall be the full width (+2/-3 inches) of the regular non-sleeper cab. Cab protector rack shall be the same height (+5/-5 inches) as the regular non sleeper cab. The cab protector rack for sleeper cabs shall be a minimum of 86 inches wide X 75 inches high. The cab protector rack shall permit driver visibility of the vehicle rear frame area through the rear window; when a rear window is furnished. The cab protector rack shall conform to Federal Motor Carrier Safety Regulation 393.106.

CPR1 **CAB PROTECTION RACK, PLUS**

When code CPR1 is specified, a cab protection rack meeting the requirements for code CPR and furnished with a locking chain rack, and full width locking tool tray (minimum 10 inches high

and 8 inches deep) shall be provided.

CPT **PAINT-CUSTOM COLOR**
When code CPT is specified, a custom or Federal Standard 595 color shall be provided.

CSN **CAB, SHORT NOSE CONVENTIONAL**
When code CSN is specified, a conventional short length nose cab with BBC of 94 to 101 inches shall be provided.

CTIS **CENTRAL TIRE INFLATION SYSTEM**
When code CTIS is specified, a central tire inflation system shall be provided. The system shall include but not be limited to the following components:

(a) 850 L/min (30 CFM) air compressor with 14 liter engines and above; 453 L/min (16 CFM) with engines between 10 liters and 14 liters; and 373 L/min (13.2 CFM) with engines less than 10 liters

(b) Compressor with automatic moisture ejector

(c) Axles compatible with installation of the Central Tire Inflation System

(d) 10 hole disc type wheels, all axles

(e) Front axle-standard profile tires with highway type tread (low profile acceptable on 18000/20000 lb axles)

(f) Rear axle-standard profile tires with traction type tread

(g) Electronic Control Unit (ECU)

(h) Operator Control Panel (OCP)

(i) Pneumatic Control Unit (PCU)

(j) Distribution Manifold (DM)

(k) Wheel Valves

(l) Pressure Switch

(m) Speed Sensor

(n) Air Lines

(o) Wiring Harness

The system shall allow the driver to adjust vehicle tires to any of four pre-set tire pressures (highway and off-highway for both loaded and unloaded conditions) on up to three separate channels (steer/drive/trailer) and shall include an emergency key and a run flat key. System shall provide for manual tire inflation/deflation capability, an air priority system, and speed/pressure control, and warning at OCP.

D1 **DIFFERENTIAL LOCK OUT**
When code D1 is specified, a driver controlled differential lockout shall be provided.

D3 **SPECIAL TRACTION DIFFERENTIAL**
When code D3 is specified, the differential traction control shall actuate automatically to ensure that power is transmitted to the wheel having traction when the opposite wheel loses traction.

DA **DELETE AIR CONDITIONING**
When code DA is specified, the vehicle supplier shall furnish the

vehicle without air conditioning components.

DBC **DELETE OPEN BODY COVER**
When code DBC is specified, the dump bed cover shall be deleted.

DBEM **DELETE SIDE AND END RACKS**
When code DBEM is specified, side and end racks shall not be provided and code BBS shall be provided.

DDR **DEALER DELIVERY**
When dealer delivery is specified, the contractor shall have the final predelivery inspection and servicing performed at an authorized dealer of the same make nearest to the destination. Following predelivery servicing, the dealer shall notify the person/office designated on the delivery order that the vehicle is ready for pick up.

DHD **HEAVY DUTY BODY**
When code DHD is specified, a heavy-duty dump body shall be provided. The sides and front shall be constructed of not less than 7 gauge (0.1792 in.) A570 steel (65,000 psi tensile strength/50,000 psi yield strength). The floor shall be constructed of not less than ¼ inch AR400F one-piece steel (180,000 psi tensile strength/145,000 psi yield strength). A tailgate having not less than six sections shall be provided.

DRLD **DAYTIME RUNNING LIGHTS-DELETE**
When code DRLD is specified, daytime running lights shall not be provided.

DSS **DRIVER'S SEAT, SUSPENSION TYPE**
When code DSS is specified, a driver's individual, adjustable suspension seat and an individual passenger seat shall be provided. The driver's suspension seat shall be the manufacturer's air ride suspension type.

DSS2 **DRIVER & PASSENGER'S SEAT, SUSPENSION TYPE**
When code DSS2 is specified, the driver seat and the passenger seat shall conform to the requirements of code DSS.

ECB **ENGINE COMPRESSION BRAKE**
When code ECB is specified, a system which opens all or some of the engine exhaust valves near the end of the compression stroke, thereby converting vehicle motion to a pumping loss (engine compression break), shall be furnished. A dash mounted switch shall be provided to activate, modulate, or cut the brake augmentation. The switch shall be marked to indicate its position. When active, the system shall be fully controlled by means of the conventional driving controls to apply retardation during vehicle deceleration, and to cut it out in the other operating modes. The retarder shall be approved by the engine manufacturer.

EDR **RETARDER-DRIVELINE-ELECTROMAGNETIC**
When code EDR is specified, an electromagnetic or hydrodynamic drive shaft retarder shall be furnished. A dash mounted switch shall be provided to activate, modulate,

or cut the brake augmentation. The switch shall be marked to indicate its position. When active, the system shall be fully controlled by means of the conventional driving controls to apply retardation during vehicle deceleration, and to cut it out in the other operating modes.

EHM **ENGINE HOUR METER**

When code EHM is specified, an engine hour meter shall be provided. The meter shall have a totalizing mechanism of not less than 9,999 hours for the chassis engine to register accurately the number of hours of operating time. The meter shall be of rugged construction to ensure continuous trouble-free performance under severe operating conditions. The meter shall be mounted on the cab instrument panel or in the engine compartment in a readable location.

EXB **ENGINE EXHAUST BRAKE**

When code EXB is specified, a controlled gate valve in the exhaust manifold, which produces backpressure on the engine pistons during the exhaust stroke (engine exhaust brake), shall be furnished. A dash mounted switch shall be provided to activate, modulate, or cut the brake augmentation. The switch shall be marked to indicate its position. When active, the system shall be fully controlled by means of the conventional driving controls to apply retardation during vehicle deceleration, and to cut it out in the other operating modes. The retarder shall be approved by the engine manufacturer.

FEX **SAFETY KIT, FIRE EXTINGUISHER & ETC.**

When code FEX is specified, emergency equipment in accordance with FMCSR 393.95 shall be provided. Equipment shall consist of 393.95: (a)(2)(i) fire extinguisher, min 10 B:C; (c) spare fuses if electrical overload protection devices is not of the reset type; and (f)(z)(i) reflective triangles, in accordance with TMC RP 403.

FFE **FRONT FRAME EXTENSIONS**

When code FFE is specified, an integral front frame extension, minimum 45 cm (18 in) ahead of grille shall be provided, with a radiator and hood compatible for the installation of a front crankshaft PTO to accommodate pumps, winches, or other equipment and a stationary grill shall be furnished. The FFE bumper shall be the chassis manufacturer's swept-back full width channel front bumper.

FFP **COOLANT HEATER-FUEL FIRED**

When code FFP is specified, a diesel fuel fired engine water heater shall be provided to preheat the engine. The heater shall include a timer, a thermostat and a circulating pump, and shall be connected to the engine coolant system. The heater shall be capable of starting and operating at -51°C (-60°F) and shall heat the engine to 4°C (40°F) from -51°C (-60°F) in not more than 1 hour. The system shall be equipped with a start light, visible to the seated driver, to indicate that the preheater is operating.

FFS **FUEL/WATER SEPARATOR, HEATED**
When code FFS is specified, a heated fuel and water separator shall be the supplied.

FHD **HEAVY DUTY FRAME**
When code FHD is specified, a heavy-duty frame having the following minimum RBM shall be provided.

Heavy Duty Frame Requirements

CLASS	RBM MINIMUM IN LB
B,C	1,800,000
D	2,370,000
E	2,700,000
F,G	As Required

FJP **JET FUEL COMPATIBLE ENGINE (DIESEL ONLY)**
When code FJP is specified, the engine shall operate satisfactorily using grade JP-5 fuel conforming to MIL-T-5624 under emergency, short duration conditions and on grade JP-8 fuel conforming to MIL-T-83133 under normal conditions. A power loss when operating on JP-5 or JP-8 is acceptable.

FPH **HAZMAT PLACARD HOLDERS**
When code FPH is specified, hazardous material placard holders in accordance with 40 CFR Part 172 shall be installed on each side and each end of the vehicle.

FTC **70 GALLONS MINIMUM FUEL CAPACITY**
When code FTC is specified, fuel tank(s) totaling not less than 265 L (70 gallons) shall be provided.

FTD **100 GALLONS FUEL CAPACITY**
When code FTD is specified, fuel tank(s) totaling not less than 380 L (100 gallons) shall be provided.

FTE **FUEL CAPACITY 200 GALS.**
When code FTE is specified, dual 378 L (100 gallons) capacity tanks shall be providing a total fuel capacity of 757 L. (200 gallons)

FTR **EXTENDED TAPERED FRAME**
When code FTR is specified, the frame rails shall extend and shall taper from maximum cutoff position so as to form a ramp to assist in coupling to a semitrailer.

GNT **EQUIPMENT-TRACTOR-FOLDING GOOSENECK TRAILER**
When code GNT is specified for Class G vehicles, the truck tractor shall be fully equipped for use with folding gooseneck semi trailers and shall include a rear winch (see 3.5.2.11.1) and all related accessories (see 3.5.2.11.2). The cab-to-trunnion dimension shall be not greater than 3050 mm (120 inches). Otherwise, the truck tractor and accessories shall conform to 3.5.2 through 3.5.2.6.
The winch assembly shall be mounted on the chassis frame behind the cab. The winch shall be operated by a power takeoff of the main or auxiliary transmission. The winch controls shall be located in the driver's compartment, accessible to the seated driver. Winch controls shall be located so as to provide no interference with the entrance or exit of the driver. An integral, adjustable, automatic safety brake shall be provided. The winch shall have two forward

speeds, a neutral position, and a reverse speed or, if hydraulic, infinitely variable forward and reverse speeds and a neutral position. The winch shall have a single line pull capacity of not less than 133 kN (30,000 pounds) on the bare drum. The winch shall conform to SAE J706. The winch shall be wound with not less than 46 m (150 feet) of 19 mm (3/4-inch) diameter improved plow steel, independent wire rope core (IWRC), regular lay wire rope, equipped with a full capacity clevis hitch and hook eye.

The following equipment, complete with associated accessories, shall be mounted on the truck tractor:

(a) Rear-mounted tail roller, 200 mm (8-inch) minimum diameter. The installation of the winch drum and tail roller shall provide a clearance of not less than 50 mm (2 inches) between the winch cable and the top of the fifth wheel with the cable extended down over the tail roller as in lifting operations;

(b) A cab protector of sufficient structural strength to protect the back and roof of the cab from a winch cable whip-backlash accident;

(c) Approach ramps designed for lifting folding gooseneck semi trailers onto the fifth wheel with the winch; also for coupling and uncoupling fixed gooseneck semi trailers to and from the tractor;

(d) Fifth wheel tilt limit devices to ensure the fifth wheel will be slightly higher than the top of the approach ramps during loading, unloading, coupling and uncoupling operations.

H4 **COOLANT-PROTECTION-TO–50 DEG C (-60 DEG F)**

When code H4 is specified, the percentage of antifreeze in the cooling system shall be increased to provide protection against freezing down to -50° C (-60° F).

HF **HIGH FLOTATION TIRES**

When code HF is specified, wide base type tires and single wheels for front and rear axles shall be provided. Unless otherwise specified, steel belted radial ply tires shall be provided. Wide base wheels shall be interchangeable without the use of an adapter. The front track of wide base tires shall be within plus or minus 25 cm (10 in) of the rear track. Unless otherwise specified disc type wheels shall be furnished. When the front tires extend beyond the cab fenders, rubber fender extensions extending at least to the outside of the tire tread shall be furnished. Under no circumstance shall the vehicle maximum governed speed exceed the speed rating of any of the furnished tires or wheels.

HTG **HTGC** **HTGU** **HYDRAULIC TAILGATES.**

When code HTG is specified, the tailgate shall fold vertically against the rear of the vehicle for travel. Unless otherwise specified (see 6.2), the hydraulic tailgate shall have a rated capacity of not less than 1361 kg (3,000 lb). When code HTGC is specified, a spring loaded cart-stop retention system shall be furnished on the end of the

platform. The cart-stop shall spring up to a vertical position when the foot control is depressed. The cart-stop may be manually returned (with a maximum force of 25 pounds required) to the plane of the horizontal tailgate platform and automatically lock in place. The cart-stop shall remain locked in horizontal or vertical position until the foot control mechanism is depressed.

When code HTGU is specified, the tailgate shall manually fold under the vehicle for travel and manually unfold for use. Hydraulically powered raising and metered lowering shall be provided. The tailgate platform width shall not be less than 2135 mm (84 in). Rear bumperettes extending to the rear beyond the stowed tailgate shall be provided on each side of the rear, beyond the 2135 (84 in) platform width. Additional rear end protection need not be furnished.

REQUIREMENTS for when HTG, HTGC or HTGU is specified.

The vehicle shall be equipped with an electric motor driven hydraulic tailgate. All tailgate operations shall be hydraulically powered or metered, providing for raising, lowering, folding and unfolding without manual assistance. The hydraulic system shall comply with the requirements in paragraph 3.1.1.11. All hydraulic cylinders shall be provided with flow restrictors in the down port of the cylinders to prevent the tailgate from falling rapidly in the event of a hydraulic system failure. The tailgate platform shall be of the ramping type and shall have a depth of not less that 810 mm (32 in) exclusive of the ramp. The ramp shall taper down to ground level to facilitate loading with a wheeled handcart. Platform loading area shall be of nonskid sheet steel. The tailgate shall have devices for holding the platform in stowed position for vehicle travel. When the tailgate is in position for loading the vehicle, the clearance between the rear edge of the vehicle and the tailgate shall be not more than 19 mm (0.75 in) and the tailgate shall be on the same level as the body floor. Controls shall be mounted outside the body on the curbside of the vehicle and shall include an electric control station with environmentally sealed connections, that the operator can reach easily while standing on the ground, or riding on the platform. The vehicle ignition switch or a separate switch in the driver's compartment shall allow the driver to disconnect the power source to the tailgate. A 150-ampere minimum, automatic reset circuit breaker shall be furnished with the electric system of the tailgate, to protect the electric system of the vehicle. A minimum of 2-gage wire shall be furnished on the power cables for maximum operating efficiency and increased electrical component life. A rustproof enclosure shall be furnished to protect the pump motor from dirt and weather. Self-lubricated bearings shall be furnished on all load bearing rollers and hinges. All hydraulic lines shall be grommeted where they are routed through walls

and supports and furnished with clamps for protection from damage. The hydraulic system shall comply with the requirements in paragraph 3.1.1.11.

The hydraulic tailgate operating instructions, the hydraulic fluid identification information and the power takeoff caution notice shall be on a standard decal or plate from the supplier of that item. The decal or plate describing operation of the hydraulic tailgate shall be provided in close proximity to the hydraulic tailgate controls.

Unless otherwise specified (see 6.2), the hydraulic tailgate shall have a rated capacity of not less than 3,000 lb. Platform width shall be not less than 2290 mm (90 in) for Type III stakes. Rear bumper and additional rear end protection need not be furnished.

Hydraulic tailgates must conform to FMVSS-223 and 224.

HTR **HIGHWAY TRANSPORTABILITY**

When code HTR is specified, highway transportability requirements for class C, D, E and F vehicles shall include unrestricted highway transport in both the Continental United States (CONUS) and Outside the Continental United States (OCONUS) in accordance with the interface criteria published in "http://www.tea.army.mil/pubs/nr/deploy/transinstruction/MIL-STD-1366D.pdf" \t "_blank", for unrestricted highway transport. In addition, all vehicles with a highway transportability requirement must be equipped with military standard tie down provisions as specified in MIL-STD-209 and option code TDN (section 3.1.1.21.6) also see 3.1.1.21. See 4.4

LED **LIGHTS, LIGHT EMITTING DIODES (LED)**

When code LED is specified, all added stop/tail directional, and marker lights shall be light emitting diodes. LED lights shall be installed with tamper resistant hardware.

LS12 **SUSPENSION, AUXILIARY LIFTABLE SUSPENSION 12,000 LB. CAPACITY**

When code LS12 is specified, the vehicle shall be equipped with a liftable auxiliary suspension and steerable axle located forward of the leading tandem axle. The auxiliary suspension and axle shall have a rated capacity of not less than 12,000 lb. The suspension shall be equipped with dual air spring lifting devices with controls located inside the cab. The in cab controls shall consist of a switch to raise and lower the suspension, and adjustable air regulator for controlling the downward air pressure and a air pressure gauge to monitor the downward air pressure. Additionally, the suspension shall be equipped with a reverse lock out feature that automatically raises the suspension when the vehicle is moving in reverse. The axle shall be equipped with dual self-centering stabilizers, 15" x 4" s-cam brakes with automatic slack adjusters. The axle shall be fitted with single tire and wheels to match those on the vehicle. When code LS12 is specified, GVW will increase proportionately.

LS20 SUSPENSION, AUXILIARY LIFTABLE SUSPENSION 20,000 LB. CAPACITY

When code LS20 is specified, the vehicle shall be equipped with a liftable auxiliary suspension and axle located forward of the leading tandem axle. The auxiliary suspension and axle shall have rated capacity of not less than 20,000 lb. The suspension shall be equipped with dual air spring lifting devices with controls located inside the cab. The in cab controls shall consist of a switch to raise and lower the suspension, an adjustable air regulator for controlling the downward air pressure and an air pressure gage to monitor the downward air pressure. The axle shall be equipped with 16.5" x 7" brakes, automatic slack adjusters, and type 24 brake chambers. The axle shall be fitted with dual tires and wheels to match that on the vehicle. When code LS20 is specified, GVW will increase proportionately

LSD SYNTHETIC LUBE – DIFFERENTIAL

When code LSD is specified, differentials shall be provided with synthetic lubricant. Synthetic lubricant supplied shall be approved by the component manufacturer and furnished by the chassis OEM.

LST LUBRICANT, SYNTHETIC FOR MANUAL TRANSMISSION

When code LST is specified, the manual transmission shall be provided with synthetic lubricant. Synthetic lubricant supplied shall be approved by the component manufacturer and furnished by the chassis OEM.

LTD LIFTING AND TIEDOWN PROVISIONS.

When option code LTD or MTR is specified, the vehicle shall be equipped with four (4) lifting provisions and four (4) tie down provisions to ensure interoperability between transported equipment and lifting and tie down devices commonly used in the transportation environment. Lifting and tie down provisions shall conform to MIL-STD-209 for both Type I and Type II equipment. The contractor shall perform a structural analysis of the tie down and lifting provisions and the surrounding structural elements in accordance with MIL-STD 209 requirements. In cases when the structural analysis indicates the provisions will clearly pass the requirements, actual physical testing may not be necessary. In cases when where the structural analysis indicates the provisions will marginally pass the requirements, redesign or testing shall be recommended to the contractor. In cases where the structural analysis indicates the provisions will clearly fail the requirements, a redesign of the provisions shall be required.

A shipping data plate shall be furnished and shall conform to composition A (class 1 or 2) or composition C of A-A-50271. The shipping data plate shall be inscribed with a diagram showing the lifting attachments and lifting slings, the capacity of each attachment, and the

required length and size of each sling cable. A silhouette of the vehicle showing the center of gravity shall be provided on the transportation plate. Stenciling or other suitable marking shall identify all lifting and tie down attachments. Tie down markings shall clearly indicate that the attachments are intended for the tie down of the equipment on the carrier (also see 3.1.1.21). See 4.4

MHW **WINCH HYDRAULIC**

When code MHW is specified, a winch assembly mounted on the front of the vehicle shall be provided. The winch shall be powered by the manufacturer's standard power takeoff or powered hydraulically. If hydraulically powered, the hydraulic system shall comply with the requirements in paragraph 3.1.1.11. The winch shall conform to SAE J706. The winch shall be of the single drum type and shall have one forward and one reverse speed. All winch controls shall be mounted inside the cab. Winch controls shall be located to provide no interference with the entrance or exit of the driver. The winch shall have a rated single line pull capacity of not less than 89 kn. (20,000 pounds) pull on the bare drum. The winch line speed on the bare drum shall be between 4.6 and 9.1 meters/min (15 and 30 feet per minute) at an engine speed equal to 35 percent at engine-governed speed. The winch shall be wound with not less than 56 m (185 feet) of 16 mm (0.625 inch) diameter, preformed, 6x37, improved plow steel, independent wire rope core (IWRC) and shall be equipped with end chain and hook. An integral, adjustable, automatic safety brake shall be provided. The winch shall be equipped with a roller guide. Angles of the winch driveline U-joints shall be not greater than 16.5 degrees.

A winch drum guard shall be furnished. The guard shall confine the cable to the area between the drum flanges. The guard shall consist of not less than 6.4 mm (0.25 inch) vertical side plates, conforming to the outside radius of the drum flanges. Six bars, 9.5 mm by 32 mm (0.375 inch by 1.25 inches), shall be welded to the vertical side plates. Three bars shall be located on the top and spaced equally on the top radius, and three bars shall be located on the bottom and spaced equally on the bottom radius. The vertical distance between the vertical side plates and the drum flanges shall be not more than half the specified cable diameter.

The chassis bumper shall be mounted forward of the winch. The bumper shall be either a channel or a pipe type front bumper. When a pipe type front bumper is furnished, the nominal diameter shall be not less than 75 mm (three inches), and the wall thickness shall be not less than that specified in schedule 40 of ASTM A53. The pipe type front bumper shall have half-round ball ends. The open area on either side of the winch between the bumper and grill/fenders shall be covered with a combination step plate/gravel guard. The step

plate/gravel guard shall be secured to the front bumper and shall be not less than 6.4 mm (0.25 inch) or greater than 9.5 mm (0.375 inch) from the chassis sheet metal. The step plate/gravel guard shall be fabricated of not less than 14 gage (1.897 mm) (0.0747 inch) steel tread plate exclusive of projections. The step plate/gravel guard shall be capable of supporting 1460 kg/m2 (300 pounds per square foot). The step plate/gravel guard shall be supported so that it will not deflect more than 3.2 mm (0.125 inch) under the required load.

MIL DATA PLATES AND DD250

When code MIL is specified, the following shall be supplied.
1. A Nameplate as described in paragraph 5.6.1 of MIL-HDBK-1223 "NONTACTICAL WHEELED VEHICLES TREATMENT, PAINTING, IDENTIFICATION MARKING AND DATA PLATE STANDARDS". The nameplate/data plate shall be completed in accordance with requirements of receiving military service and attached to the vehicle(s). No other exterior military markings shall be furnished.
2. DD Form 250 "MATERIAL INSPECTION AND RECEIVING REPORT" furnished in lieu of a GSA form 308.

MPN SNOWPLOW, ONE-WAY

When code MPN is specified, the plow shall be of the one-way type with a cut of not less than 2440 mm (96 inches) with a blade angle of 35 degrees plus 2 degrees, minus 0 degrees. The actual length of the moldboard shall be not less than 3050 mm (10 feet). The moldboard of the one-way snowplow, exclusive of the snow deflector, shall have a vertical height of not less than 780 mm (30 inches) on the left side (street-side), 1370 mm (54 inches) on the right side (curbside). The one-way snowplow shall have a minimum of two angle adjustments. The plow shall be shipped in the load space and lights shall be shipped within the cab when possible. Brackets and connections shall be installed on all vehicles to enable ready installation for the lights and snowplow at the destination. Snowplow and lights shall be installed on the first vehicle to assure proper operation, and they may be removed for shipment after Government inspection. When code MPN is specified, a chassis hood that will permit checking of normal maintenance items such as oil and water with the snow plow attached shall be supplied. The front GAWR shall be not less than the load imposed by the furnished snowplow, in raised position, plus the front axle portion of the required payload for the Federal Standard Item No. plus the actual front axle curb weight for the vehicle. The rear GAWR shall be not less than the load imposed by the required payload for the Item No. without the snowplow plus the chassis and body rear axle weight. Note: when code MPN is specified, a significant increase could be required in the chassis GVWR when a snowplow is installed. The increased GVWR could change a non-FET chassis to a chassis that requires FET.

MPP POWER ANGLING OF SNOW PLOW

When code MPP is specified, the snowplow moldboard shall have a power angle capability, with controls located in the cab.

MPR SNOW PLOW PROVISION

When code MPR is specified to accommodate future installation of a snowplow, a chassis hood that will permit checking of normal maintenance items such as oil and water with the snow plow attached shall be supplied. The front GAWR shall be not less than the load imposed by an 860 kg (1,900 lb) load located 1520 mm (60 in) forward of the centerline of the front axle plus the front axle portion of the required payload for the Federal Standard Item No. plus the actual front axle curb weight for the vehicle. The rear GAWR shall be not less than the load imposed by the Item No. required payload without the snowplow plus the chassis and body rear

MPS SNOWPLOW, REVERSIBLE

When code MPS is specified, a hydraulically operated snowplow shall be provided. A chassis hood that will permit checking of normal maintenance items such as oil and water with the snow plow attached shall be supplied. The front GAWR shall be not less than the load imposed by the furnished snowplow in raised position plus the front axle portion of the required payload for the Federal Standard Item No. plus the chassis and body front axle curb weight. The snowplow shall be complete with a moldboard, a tripping device, a hitch, a hydraulically operated lifting mechanism, a set of auxiliary lights, a snow deflector or radius curve edge and all other necessary mounting and operating apparatus. The plow shall be shipped in the load space and lights shall be shipped within the cab when possible. Brackets and connections shall be installed on all vehicles to enable ready installation of the lights and snowplow at the destination. Snowplow and lights shall be installed on the first vehicle to assure proper operation, and they may be removed for shipment after Government inspection.

The moldboard assembly of the reversible type snowplow, exclusive of the snow deflector, shall have a vertical height of not less than 810 mm (32 inches) for classes B through E and shall be capable of clearing a path of not less than 2620 mm (8 feet and 7 inches) at a blade angle of 30 degrees, plus 2 degrees, minus 0 degrees. The actual length of the moldboard shall be not less than 3050 mm (10 feet). The moldboard shall be of not less than 7 gage (4.554 mm) (0.1793 inch) high tensile steel or a one piece (not spliced) sheet of 9.5 mm (0.375 inch) thick polyethylene material. The polyethylene material shall not become brittle in temperatures as low as -54°F), shall not corrode, and shall have an abrasion resistance factor at least equivalent to steel. A snow deflector shall be provided the full length of the top of the moldboard. The snow deflector shall be of the manufacturer's standard design to prevent snow

from topping the snowplow. The snowplow shall be equipped with two heavy duty steel casting, full swivel shoes or tow caster wheels for classes B through E. Both the caster wheels and swivel shoes shall be adjustable. The caster wheels shall be roller or ball bearing mounted, shall be of the shielded type to prevent entrance of water and foreign matter, and shall have lubrication fittings.

The push-frame assembly shall attach to the moldboard and hitch in a manner to provide ample road clearance of the assembly and permit sufficient oscillation for the snowplow to follow road contour and clear snow evenly. The positioning of the snowplow moldboard to the right and to the left shall be of the manual angling type and shall be capable of being accomplished by one man without the use of tools. The snowplow shall have a minimum of two angle adjustments both to right hand cast and left hand cast. A shear pin shall be used to lock the snowplow in any of its five plowing positions. Under normal plowing conditions, the shear pin shall be designed to minimize damage to the snowplow and vehicle should the snowplow's leading edge come into contact with an immovable object.

The plow hitch shall be of the push-frame type designed to be attached to and transmit the entire plowing thrust to the truck frame in such a manner that no plowing thrust shall be absorbed by the truck front axle. Front axle hitch supports, when used, shall be attached in a manner to prevent chafing or other damage. Hitch mainframe members and lift frame vertical and horizontal members shall be of adequate size, properly braced, and reinforced to sustain the loads imposed under severe operating conditions. The hitch shall be removable.

The hydraulic system shall consist of a power operated pumping unit, a hydraulic fluid reservoir or a reservoir integral with the hoist, controls, cylinder, hoses, piping, and all other parts essential for normal operation. The hydraulic system shall comply with the requirements in paragraph 3.1.1.11. Controls to the pumping unit shall be operable by the truck driver in his normal seated operating position and shall not interfere with the operation of any truck controls. The hydraulic pump shall be powered by the engine crankshaft or transmission mounted PTO. The snowplow hoist cylinder shall have sufficient travel to hoist the plow to not less than 200 mm (8 inches) ground clearance. The hoisting mechanism, hoist cylinder and hydraulic system shall be capable of holding the snowplow in the fully raised position while the truck is driven over secondary gravel roads at speeds up to 48 km/h (30 mph). Hydraulic lines to the hydraulic cylinder and the pump shall be provided with quick disconnect hose couplers. Hose caps, pump caps and hydraulic cylinder caps shall be provided if no other protection system is provided. Caps shall be secured with a corrosion-resistant security device to prevent loss. Caps shall prevent entrance of contaminants into the hydraulic system when disconnected.

A set of raised auxiliary dual beam headlights, parking, and turn signal

lights shall be provided for use with the snowplow. Parking and turn signal lights shall use a single light bulb. Mounts, adapters and an appropriate wiring harness shall be provided. Quick disconnect plugs and receptacles shall be provided and shall be weatherproof, or shall be located in a weatherproof location. A high beam indicator light shall be provided and shall be readily visible to the driver when in the driving position.

Snowplow markers shall be provided for the street side and curbside of the snowplow. The markers shall be removable when not in use. The markers shall eliminate guesswork as to position of the snowplow caused by blind spots.

MS **MUD & SNOW TIRE**

When code MS is specified on 6x4 vehicles, mud and snow tread shall be provided on rear axles.

MTL **TRAILER LIGHTING CABLE 110 INCHES**

When code MTL is specified, a trailer lighting cable conforming to SAE J1067 shall be provided. The cable shall be coiled and shall be not less than 2800 mm (110 in) long when fully extended. Both ends of the cable shall be equipped with a round plug conforming to SAE J560. The plugs shall be equipped with a grip for withdrawing from the connector sockets. The cable shall be packaged and stowed in the vehicle tool compartment.

MTR **MARINE TRANSPORTABILITY**

When code MTR is specified, marine transportability requirements for class C, D, E and F vehicles shall include unrestricted water transport by all standard military and commercial watercraft in accordance with the interface criteria published in “MIL-STD-1366 Transportability Criteria”. In addition, all vehicles must be equipped with military standard lifting and tie down provisions (option LTD) as specified in MIL-STD-209 and option code LTD (section 3.1.1.21.5) also see 3.1.1.21. See 4.4

NAS **SPREADER TAILGATE**

When code NAS is specified, an under-tailgate type sand and salt spreader shall be provided and shall be easily removable. When only code NAS is specified, the sand and salt material feed auger and spreader shall be hydraulically powered by a PTO mounted hydraulic pump or by its own auxiliary engine driven hydraulic pump. Controls shall be located in the cab. Hydraulic lines shall be provided with quick disconnect hose couplers. Hose caps, pump caps and hydraulic motor caps shall be provided if no other protection system is provided. Caps shall be secured with a corrosion-resistant security device to prevent loss. Caps shall prevent entrance of contaminants into the hydraulic system when disconnected.

NSP **SAND AND SALT SPREADER**

When code NSP is specified, a skid mounted sand and salt

spreader with a material hopper of not less than 3.8 cubic meters (5 cubic yards) capacity shall be provided. The sand and salt material feed auger and spreader shall be hydraulically driven by the snowplow hydraulic system when code MPS is specified. When code NAS is specified, the sand and salt material feed auger and spreader shall be hydraulically powered by a PTO mounted hydraulic pump or by its own auxiliary engine driven hydraulic pump. Controls shall be located in the cab. Hydraulic lines shall be provided with quick disconnect hose couplers. Hose caps, pump caps, cylinder caps and hydraulic motor caps shall be provided if no other protection system is provided. Caps shall be secured with a corrosion-resistant security device to prevent loss. Caps shall prevent entrance of contaminants into the hydraulic system when disconnected.

PH **PINTLE HEIGHT 510 MM (20 INCHES)**
When code PH is specified, the pintle height, measured to the centerline at the pintle, shall be 510 mm (+125 mm, - 0) (20 in [+5, -0]). Note: option not available when code HTG, HTGU, or HTGX is specified.

PL **POWER LOCKS**
When code PL is specified, OEM power door locks shall be supplied on all cab doors.

PSM **PARTS AND SERVICE MANUALS**
When code PSM is specified, a parts list, or book, all shop repair manual(s) for the vehicle and equipment shall be provided.

PSMA **PARTS AND SERVICE MANUALS – AIR FORCE**
When code PSMA is specified, 2 sets of parts & service manuals shall be sent to Warner Robins Air Force Base as detailed in the vehicle vendor's contract.

PSME **PARTS AND SERVICE MANUALS ELECTRONIC**
When code PSME is specified, the parts and service manual shall be furnished in electronic format (CD or web-based).

PWO **POWER WINDOWS**
When code PWO is specified, an OEM power windows shall be supplied.

RACS **AM/FM RADIO WITH CASSETTE PLAYER**
When code RACS is specified, an OEM AM/FM/clock radio with integrated cassette player shall be provided.

RAD **AM/FM RADIO WITH COMPACT DISC PLAYER**
When code RAD is specified, an OEM AM/FM/clock radio with integrated compact disc player shall be provided.

RM3 **MOTORIZED RIGHT SIZE MIRROR (INCLUDES RM4)**
When code RM3 is specified, the curbside flat mirror shall be of the motorized type, with remote control. The mirror motor shall provide not less than 60 degrees horizontal rotational viewing range. Code RM3 shall

include the requirements of code RM4. Mirror remote controls shall be within reach of the seated driver.

RM4 **HEATED FLAT MIRRORS**

When code RM4 is specified, the flat mirrors shall be electrically heated. Mirror heating controls shall be within reach of the seated driver.

RTH **TOWING HOOKS/LOOPS AT REAR**

When code RTH is specified, additional towing devices shall be mounted on the rear of the vehicle.

RTR **RAIL TRANSPORTABILITY.**

When code RTR is specified, rail transportability requirements for class C, D, E and F vehicles shall include unrestricted rail transport in both the CONUS and OCONUS, unless otherwise specified, as described below and in accordance with the interface criteria published in "http://www.tea.army.mil/pubs/nr/deploy/transinstruction/MIL-STD-1366D.pdf" \t "_blank", for unrestricted rail transport.

RTR TESTING REQUIREMENTS

Vehicles must be capable of successfully completing the military standard rail impact test as prescribed in MIL-STD-810 using standard tie down procedures as illustrated in "http://www.tea.army.mil/pubs/nr/deploy/fgpamplets/PAM_55-19.pdf" \t "_new". In addition, all vehicles must be equipped with military standard tie down provisions as specified in MIL-STD-209 and option code TDN (section 3.1.1.21.6) also see 3.1.1.21. See 4.4

SAC **MATERIAL HANDLING CRANE**

When code SAC is specified, a one-man operated, fully hydraulic, articulated boom type crane, mounted on the truck frame between the cab and the platform/stake body shall be provided. The crane shall conform to all applicable ANSI and OSHA requirements and regulations including OSHA 1926.550. The boom shall consist of an upper and lower section and a hydraulically operated extendable jib(s), and no more than one manual extension capable of extending to a lateral reach not less than 7.3 m (24 ft). Double-acting hydraulic outriggers independently controlled and integrally mounted to the crane base shall be furnished. With the outriggers in the down position, the crane shall be capable of lifting a minimum load of 700 kg (1,500 pounds) when the load is located at a radius of 7.3 mm (24 feet), without causing the vehicle to become unstable. Vehicle shall be deemed unstable when any one of the vehicle wheels lifts off the ground. The boom, when fully extended, shall have a normal lifting range of 7600 mm (25 feet) above ground level and shall fold to a travel height, between the stake body and the truck cab, not more than 2130 mm (84 inches) above the truck chassis frame. Crane controls shall be provided on each side of the vehicle. Crane and outrigger controls shall be accessible from ground level.

Each outrigger control shall be located on the same side of the vehicle as the outrigger. Each outrigger landing pad shall be not less than 900 sq. cm (140 square inches).

A hydraulic pump driven from a power takeoff controlled from inside the truck cab shall be provided to furnish power for the crane. The pump shall be of the positive displacement type and shall provide a working pressure of not less than 12.4 megapascals (MPa) (1,800 psi). Controls shall be of the self-centering, fail-safe type with hydraulic bypass overload valves, and a check valve type locking system in boom and outriggers to prevent the load dropping due to hydraulic or power failure. Controls shall have fine metering qualities to provide variable raising, lowering and rotating motions of the crane boom. The crane hydraulic system shall comply with the requirements in paragraph 3.1.1.11 and contain the following minimum safety features:

(a) Check valve system in boom and outrigger system to prevent load drop due to hydraulic system failure.

(b) Flow valve in hydraulic lines or cylinder to prevent boom damage due to sudden load-lowering stops.

(c) Cushioning valves in boom rotating hydraulic system for rack-and-pinion mounted cranes to prevent damage due to sudden stops.

(d) Pressure relief valve to prevent loading beyond lifting capacity.

(e) Devices to limit vertical creep of the boom to not more than 25 mm (1 inch) per hour.

(f) Signs with 25 mm (1 inch) lettering visible to the operator at both sets of controls reading: OUTRIGGERS MUST BE IN PLACE BEFORE LIFT IS MADE.

SAR **SUSPENSION-AIR SPRING-REAR.**

When code SAR is specified, an air suspension shall be provided on the rear axles. The suspension system shall have not less than 55 percent of the sprung weight carried on the air springs. The air suspension system shall incorporate at least two track bars to control lateral movement. Each end of the track bars and of the torque rods, if so equipped, shall be equipped with rubber bushings that do not require periodic lubrication. The suspension system shall incorporate leveling valve(s) with time delay or other devices to minimize constant air consumption. On Type II tractors, the system shall be equipped with an air pressure dump valve. Controls shall be located in the cab, accessible to the seated driver. Hydraulic double-acting shock absorber(s) shall be provided near each of the air springs. The air suspension system shall include mechanisms to prevent damage from excessive extension when lifting and towing the vehicle.

The suspension shall be provided with a mechanism at each wheel to assure lifting of the wheel and axle when jacking the vehicle from the applicable jacking location. Note: option not available on Type IV dumps.

SEHB **OIL PAN HEATER**

An oil pan heater of the permanent external surface mount or immersion type that meets the following requirements shall be installed.

(1) Immersion type - not more than 11 W/L (10 watts per quart) or less than 5W/L (5 watts per quart) heating capacity.

(2) Surface type - not more than 2.8 watts per square centimeter (W/cm2) (18 watts per square inch) or less than 1.4 watt/sq. cm (9 watts per sq. in.) heating capacity.

The oil pan heater shall conform to all requirements of Federal Motor Carrier Safety Regulation 393.77(b) (7).

SEHE **AN IN-LINE FUEL WARMER**

An in-line fuel warmer of the electrically heated type shall be provided and conform to all requirements of SAE J 1422 and Federal Motor Carrier Safety Regulation 393.77(b) (7).

SK **METRIC ODOMETER**

When code SK is specified, the odometer shall show cumulative distance in kilometers.

SKS **SPARK ARRESTER, EXHAUST SYSTEM**

When code SKS is specified, a spark arrester shall be provided. The spark arrester shall provide a minimum of 80 percent arresting efficiency when rated in accordance with SAE J350. Note: not available on vehicles with diesel engines.

SLP **LOW PROFILE TIRES**

When code SLP is specified, low profile tires shall be provided.

SLP1 **SHORT SLEEPER COMPARTMENT**

When code SLP1 is specified, a sleeper cab meeting the requirements of 3.4.12 and 3.4.12.1 shall be provided with the following additional space, equipment and features: The sleeper compartment shall be not less than 914 mm (36 inches) in depth and fitted with a foam or inner spring mattress not less than 863 mm (34 inches) in depth, and a sleeper occupant restraint system. A luggage compartment with locking access doors on each side of the cab shall be provided. Curtains and a dome light shall be provided. The sleeper compartment shall have heating and air conditioning. Auxiliary air temperature controls or louvers shall be provided in the sleeper compartment. The controls or louvers shall provide for remote regulation of both heating and air conditioning from within the sleeper compartment.

SLP2 **LONG SLEEPER COMPARTMENT**

When code SLP2 is specified, a sleeper cab meeting the

requirements of 3.4.12 and 3.4.12.1 shall be provided with the following additional space, equipment and features: The sleeper compartment shall be not less than 1524 mm (60 inches) in depth (1371 mm/54 inches if integral with cab) and fitted with a foam or inner spring mattress not less than 863 mm (34 inches) in depth, and a sleeper occupant restraint system. A luggage compartment with locking access doors on each side of the cab shall be provided. Curtains and a dome light shall be provided. The sleeper compartment shall have heating and air conditioning. Auxiliary air temperature controls or louvers shall be provided in the sleeper compartment. The controls or louvers shall provide for remote regulation of both heating and air conditioning from within the sleeper compartment.

SRP **RUSTPROOFING**

When code SRP is specified, the vehicle shall be rustproofed in accordance with FED-STD-297.

STA **SPARE TIRE ASSEMBLY**

When code STA is specified, a spare tire assembly for the front axle shall be provided. The spare tire assembly shall be identical to those on the axle for which it is intended. The spare tire assembly shall include an inflated spare tire(s) mounted on the spare wheel(s).

STB **SPARE MATCH REAR**

When code STB is specified, a spare tire assembly for the rear axle shall be provided.

STC **OUTSIDE SPARE TIRE**

When code STC is specified, a carrier for a spare tire assembly shall be provided. The carrier design shall enable safe removal or mounting of a spare tire assembly using only the tools specified in option JT. The carrier shall enable the safe removal and installation of the spare tire assembly from and to the vehicle and carrier without personnel positioning themselves or any part of their body under the spare tire assembly. Threaded fasteners, when used to secure the spare tire assembly in the carrier, shall be constructed of or plated with corrosion resistant material. The carrier shall be installed in a readily accessible location on the vehicle.

STF **STAGGERED FRAME**

When code STF is specified, the frame shall be staggered behind the cab to lower the height of the rear frame by the amount the frame was raised to accomplish the 6X6 conversion.

T1 **RETARDER-AUTOMATIC TRANSMISSION-INTEGRAL**

When code T1 is specified, a hydrodynamic retarder integral with the automatic transmission (transmission retarder), shall be furnished. A dash mounted switch shall be provided to activate, modulate, or cut the brake augmentation. The switch shall be marked to indicate its position. When active, the

system shall be fully controlled by means of the conventional driving controls to apply retardation during vehicle deceleration, and to cut it out in the other operating modes.

TBE **ELEC. TRAILER BRAKE CONTROL**

When code TBE is specified, an electric trailer brake controller shall be provided. The controller shall be installed in the truck cab and wired through the lighting socket. The controller shall operate on the 12-volt electrical system of the vehicle and shall include the load control, hand lever, and accessories.

TBT **TOWING BRAKE CONTROL**

When code TBT is specified, the vehicle shall be provided with a system for controlling the brakes from a towing vehicle (wrecker). The installation shall be complete with air brake couplers, relay emergency valve with no-bleed-back feature (except when spring applied emergency brake is furnished), additional air lines and fittings. The service and emergency couplers shall be mounted on the front in a protected position providing for ready attachment of air hoses from a towing vehicle. The service and emergency couplers shall be identified and provided with dummy glad-hand couplers with chains. The system shall not compromise conformance to any Federal Motor Carrier Safety Regulation referenced herein or to any Federal Motor Vehicle Safety Standard.

TDN **TIEDOWN PROVISIONS.**

When option code TDN, ATR, HTR or RTR is specified, the vehicle shall be equipped with four (4) tie down provisions to ensure interoperability between transported equipment and tie down devices commonly used in the transportation environment. Tie down provisions shall conform to MIL-STD-209 for both Type I and Type II equipment. The contractor shall perform a structural analysis of the tie down provisions and the surrounding structural elements in accordance with MIL-STD 209 requirements. In cases when the structural analysis indicates the provisions will clearly pass the requirements, actual physical testing may not be necessary. In cases where the structural analysis indicates the provisions will marginally pass the requirements, redesign or testing shall be recommended to the contractor. In cases where the structural analysis indicates the provisions will clearly fail the requirements, a redesign of the provisions shall be required.

A shipping data plate shall be furnished and shall conform to composition A (class 1 or 2) or composition C of A-A-50271. The shipping data plate shall be inscribed with a diagram showing the tie down attachments, the capacity of each attachment, and the recommended tie down pattern for securing the equipment during transport. A silhouette of the vehicle showing the center of gravity shall be provided on the transportation plate. Stenciling or other suitable marking shall identify tie down

attachments. Tie down markings shall clearly indicate that the attachments are intended for the tie down of the equipment on the carrier (also see 3.1.1.21). See 4.4.

TJ **TOOLS-TIRE REMOVAL AND JACK**

When code TJ is specified, tools for changing a mounted tire assembly with the spare assembly shall be provided. Tools shall include at least a hydraulic jack, jack handle and wheel nut wrench. The jack shall be of such closed height as to permit its location under an axle, or other satisfactory lift point at any wheel with the tire flat. The jack, without blocking, shall be capable of raising any wheel of the loaded vehicle to a height adequate to permit removal and replacement of a wheel and tire assembly.

TMA **FULLY AUTOMATED MECHANICAL TRANSMISSION**

When code TMA is specified, the vehicle shall be furnished with a shift by wire, fully automated mechanical transmission (two pedal vehicle operations). The transmission shall utilize a mechanical clutch and provide a power takeoff opening. The input torque capacity of the transmission shall be at least equal to the maximum torque delivered by the engine. Transmission shall utilize SAE J-1939 protocol and be compatible for interface with electronic engine.

TP **TWO TONE PAINT**

When code TP is specified, any of the manufacturer's production multi-tone paint combinations may be selected.

TS **TILT STEERING**

When code TS is specified, the vehicle shall be equipped with the chassis OEM tilt steering column.

TSTF **SYNTHETIC AUTOMATIC TRANSMISSION FLUID**

When code TSTF is specified, the automatic transmission shall be furnished with synthetic lubricant. Lubricant supplied shall be approved by the component manufacturer and furnished by the chassis OEM.

TSW **RATCHET BINDERS**

When code TSW is specified, load securing straps and winch binders shall be provided. Code TSW shall include the following:

a) 4 inch wide by 27 feet long (minimum) nylon straps webbing, breaking strength 20000 lb/9074 kg, assembled breaking strength 15000 lb/6805 kg., working load limit 5000 lb/2270 kg. Flat hook working load limit 5000 lb/2270 kg on one end with aluminum abrasion clip to prevent chaffing.

b) Sliding steel track on curbside, welded to bottom of crossmembers from first crossmember to last crossmember, with removable stop at each end to prevent winches from being lost. Flat steel

bar of adequate strength welded to bottom of crossmembers on street side, allowing strap hook to not protrude past side rail of body.

c) Storable winch binders, capable of storing a 4 inch A 27 feet strap placed in the slide track. A standard winch bar shall be provided, for use in winching down load straps.

Quantities of straps and winch binders shall be 6 each for 16 to 18 foot bodies and 7 each for 20 foot bodies and longer.

TTP **TRAILER TOWING PACKAGE**

When code TTP is specified, a trailer-towing package shall be provided. Note: option not available when code HTG, HTGU, HTGX, or BDS is specified. The trailer towing package shall consist of a pintle, safety chain attachment devices, a lighting receptacle, a trailer brake control system (see 3.4.11.2), and associated reinforcements and wiring, and shall be installed on the rear of the vehicle. The pintle shall be of the rotating type conforming to MS 51118-1. The pintle shall be installed on the chassis frame with reinforcements to transfer a vertical tongue load of not less than 1815 kg (4,000 lb) and a horizontal drawbar load of not less than 178 kilonewtons (kN) (40,000 lb) directly to the chassis rails. Except on Type II tractors, the rear most portion of the pintle shall be forward, but not more than 100 mm (4 in) forward, of the rear most part of the vehicle. Two trailer safety chain attachment devices, one adjacent to each side of the pintle, shall be provided. Each attachment device shall provide an ultimate strength of at least 40,000 lbs. The attachment devices shall be capable of accommodating a standard grab hook [116 mm (4-9/16 in) wide, 30 mm (1-3/16 in) thick, 19.8 mm (25/32 in) throat width)] for a 16 mm (5/8 in) chain. The lighting receptacle, conforming to SAE J560, with its conductors connected and color-coded or number coded, shall be mounted in a readily accessible location near the pintle. The lighting receptacle on Type IV dumps shall be located to prevent damage during dumping of the cargo.

TRAILER BRAKE CONTROL SYSTEM.

In addition to the components specified in 3.4.11.1 and 3.4.11.1.1, a trailer brake control system shall be furnished when a trailer-towing package code TTP is required. The trailer brake control system shall include:

(a) Identification of emergency and service lines

(b) Coincident control of trailer brakes with prime mover foot control

(c) Independent hand control for trailer brakes

(d) Prime mover protection valve with dash control and automatic breakaway feature

(e) Trailer stoplight control operable with foot brake

and with hand control for trailer brakes

(f) Two SAE J844 coiled air hoses, not less than 2800 mm (110 inches) long when fully extended, with SAE J318 glad hand couplers on both ends of hoses. The hoses shall be packaged and stowed in the vehicle tool compartment for shipment.

(g) Air connectors for trailer with SAE J318 glad hand couplers mounted at the rear of the vehicle, located to prevent interference with a trailer. Air connectors and glad hands on Type IV dumps shall be located to prevent damage during dumping of the cargo.

(h) Dummy glad hand couplers with security chains or cables.

(i) Prime mover only parking brake valve to permit mover parking brakes to be applied while charging the trailer air brake system.

TWD TRACTOR WIND DEFLECTOR

When code TWD is specified, a wind deflector shall be installed or shall be furnished with the vehicle for subsequent installation on the cab roof by the receiving activity. The deflector shall be of molded fiberglass reinforced plastic; shall be not less than 1600 mm (63 inches) wide; and, unless otherwise specified (see 6.2), shall be of a height suitable for use with the vehicle cab furnished in combination with semitrailer vans having a level height of 3810 mm (12 feet 6 inches) at an upper fifth wheel height of 1250 mm (49 inches). Mounting and support ribs and any other components that require manufacturer installation from the inside of the cab shall be installed by the cab manufacturer. Installation openings shall be sealed to prevent air and water from entering the cab. The deflector, including exterior mounting and supporting hardware, support ribs and the installation instructions, shall be securely stowed on the vehicle for shipment.

UN UNDERSTRUCTURE, NESTED (DUMP BODY)

When code UN is specified, a dump body with nested understructure shall be provided. The floor of the dump body shall directly contact and be supported by the longitudinal sills as well as the crossmembers. Longitudinal sills shall be capable of supporting the hoist load. Longitudinal for class D, E, F and G shall have a RBM of not less than 52,000 N-m (460,000 inch pounds). Crossmembers shall provide support under the floor every 380 mm (15 inches) or less. Each crossmember shall pass through the longitudinal and be shall be securely welded to longitudinal. Crossmembers shall have a RBM of not less than 12 300 N.M. (109,000 inch pounds). Crossmembers shall be capable of supporting an evenly distributed load of not less than 6800 kg (15,000 lbs) for class C, 9070 kg (20,000 pounds) for class D, 10 900 kg (24,000 pounds) for class E body and 1800 kg/m2 (370 pounds

per square foot) of floor area for class F and G bodies. Longitudinals and crossmembers shall be welded for not less than 50 percent of the contact edges to the body floor. Longitudinals shall be welded for not less than 50 percent of contact edges with the body ends. Crossmembers shall be welded for not less than 50 percent at the contract edges with the body side rub rails.

VES **VERTICAL EXHAUST SYSTEM**

When code VES is specified, a vertical exhaust pipe shall be provided. The vertical exhaust pipe shall be equipped with a heat shield and turnout tail pipe or hinged rain cap. Vertical exhaust pipe is not available on gasoline engine driven vehicles.

VMS **VERTICAL SPARE TIRE CARRIER**

When code VMS is specified, a vertical carrier for a spare tire assembly shall be provided. The carrier shall be mounted behind the cab above the chassis frame for Type II tractors or Type IV dumps. When code VMS is specified, for Type III stakes, a vertical carrier for a spare tire assembly shall be provided. The carrier shall be mounted behind the cab on the front rack or bulkhead.

VOL **24 VOLT TRAILER SYS**

When code VOL is specified, an auxiliary 24-volt system, with a trailer receptacle assembly, shall be provided. Either a converter type (see below) or an alternator type (see below) system, meeting specified requirements, shall be provided. A trailer receptacle, conforming to MS 75021-2, with cover assembly, shall be provided in an accessible location on the rear end of the vehicle. A 12-conductor truck tractor cable, not less than 3048 mm (10 ft) long with both ends of cable equipped with connectors conforming to MS 75020-1 and MS 75020-2, shall be furnished. The cable assembly shall be stowed in the vehicle. The 24-volt, service lighting circuit shall be connected through the appropriate lighting controls to terminals B, D, E, J and L of MS 75021-2. On Type II tractors, a pogo stick type hose tender shall be provided behind the cab to accommodate and secure the 24-volt cable.

CONVERTER TYPE 24-VOLT SYSTEM.

The 12- to 24-volt converter(s) shall operate from the 12-volt battery (see 3.4.2.6). The output capacity shall be not less than 24 amperes. More than one converter may be provided to furnish a total of 24 amperes.

ALTERNATOR TYPE 24-VOLT SYSTEM.

The alternator type 24-volt system shall be separate from the 12-volt vehicle lighting and ignition system and shall include:

(a) Nominal 24-volt alternator with not less than 25 amperes rated capacity and capable of providing not less than 7 amperes dc output at normal engine idle speed.

(b) Two 12-volt batteries with a combined capacity of at

least 40 ampere-hours at a 20 hour rate or one 24-volt battery with at least 20 ampere-hours capacity at a 20 hour rate.

(c) Voltage regulating device.

(d) An ammeter for the 24-volt system, mounted on the instrument panel.

WLP WHEELS, PAINTED CAB COLOR

When code WLP is specified, the wheels shall be painted the same color as the cab.

WSB AXLE, FRONT SETBACK

When code WSB is specified, front axles shall be setback configuration and distance between bumper and centerline of front axle shall be not less than 99 cm (39 inches).

XP EXPORT PACKAGE

When Code XP is specified, the vehicle is intended for export (shipment with final destination outside of the 48 contiguous states) and all separable and pilferable items including, but not limited to jacks, spare tires and wheels, mirrors, tarpaulins, etc., shall be boxed, banded, and secured to the vehicle in a manner to reduce as far as practicable the opportunity for theft. When this code is selected the contractor/vendor is to prepare GSA form 1611 and submit the completed form as instructed in box 12B of the MVDO.

YD5 DIESEL ENGINE, 205 HP, 800 LB/FT

YD26 DIESEL ENGINE, 450 HP, 1550 LB/FT

YD30 DIESEL ENGINE, 320 HP, 1150 LB/FT

YD33 DIESEL ENGINE, 350 HP, 1350 LB/FT

YD35 DIESEL ENGINE, 370 HP, 1350 LB/FT

YD36 DIESEL ENGINE, 370 HP, 1450 LB/FT

YD41 DIESEL ENGINE, 310 HP, 1050 LB/FT

YD43 DIESEL ENGINE, 330 HP, 1150 LB/FT

YD44 DIESEL ENGINE, 410 HP, 1450 LB/FT

YD46 DIESEL ENGINE, 300 HP, 860 LB/FT

YD47 DIESEL ENGINE, 275 HP, 860 LB/FT

YD51 DIESEL ENGINE, 245 HP, 660 LB/FT

3.7 WORKMANSHIP.

A. Vehicles shall be free from defects, which may impair their serviceability

or detract from appearance.

B. All bodies, systems, equipment and interfaces with the chassis shall be done in accordance with the OEM's Body Builders Book. Whenever dissimilar metals are used they shall be insulated against corrosive action.

C. All components will be new. Defective components shall not be furnished. Parts, equipment and assemblies which have been repaired or modified to overcome deficiencies shall not be furnished without the approval of the purchaser. Component parts and units shall be manufactured to definite standard dimensions with proper fits, clearances and uniformity. Welded, bolted, and rivet construction utilized shall be in accordance with the highest standards of industry. General appearance of the vehicle shall not show any evidence of poor workmanship.

D. The following shall be reason for rejection:

1. ... Rough, sharp or unfinished edges, burrs, seams, corners, and joints.
2. ... Nonuniform panels. Edges that are not rounded, beveled, etc.
3. ... Paint runs, sags, orange peel, "fish eyes" etc., and any other imperfection or lack of complete coverage of paints or coatings.
4. ... Body panels or components that are uneven, unsealed, or contain cracks, dents or have voids.
5. ... Misalignment of body fasteners, glass, viewing panels, light housings, other items with large or uneven gaps, spacing etc. such as door, body panels and hinged panels.
6. ... Improperly fabricated and routed wiring or harnesses, and electrical connections.
7. ... Improperly supported or secured hoses, wiring harnesses, mechanical controls etc., including interference with other components.
8. ... Interference of chassis components, body parts, doors etc.
9. ... Leaks of any gas, vacuum, or fluid lines (air conditioning, coolant, oil, oxygen, etc.).
10. . Noise, panel vibrations etc.
11. . Inappropriate or incorrect use of hardware, fasteners, components, or methods of construction.
12. . Incomplete or improper welding, riveting or bolting.
13. . Lack of uniformity and symmetry where applicable.
14. . Loose, vibrating abrading body parts, components, subassemblies, hoses, wiring harnesses or trim.
15. . Improper body design or interface with the chassis that could cause injury during normal use or maintenance, and which fail to provide access to perform routine or mandatory repairs or maintenance on vehicle electrical and mechanical systems. In addition, the improper combination of options which by their combination and installation are inherently incompatible with regard to function or safety.
16. . Sagging non-form fitting upholstery or padding, holes, tears, discoloration, etc.
17. . Incomplete or incorrect application of rustproofing.

18. . Visual deformities and equipment malfunctions.

19. . Unsealed appurtenances or other body components, gaskets, etc.

20. . In addition, any deviation from specification requirements or any other item, whether or not stipulated herein, that affects form, fit, function, finish, durability, reliability, safety, performance or appearance shall be cause for rejection.

3.8 STANDARD AND ADDITIONAL REQUIREMENTS.

3.8.1 DECALS AND DATA PLATES.

An identification sticker, label, or plate shall be furnished on the vehicle; that will list the contractor name, point of contact, and phone number of contact. This point of contact will be the source of information for parts, part numbers, service, warranty, and answers to operating questions for the vehicle; including any furnished bodies and/or special equipment. The sticker, label, or plate shall be positioned so that the operator may locate and read it easily.

Unless otherwise specified, a GSA Form 1398 shall be affixed to the front door lock face or door post after final inspection. All marks on windows and other labels (except labels cautioning against drained transmission, crankcase and rear axle) shall be removed. Copies of GSA Form 1398 are available from the Contracting Officer.

3.8.2 OPERATORS, SERVICING AND PARTS MANUALS.

The successful bidder shall furnish at least one operator's and maintenance handbook, including a handbook(s) for any furnished special equipment.

3.8.3 SERVICING AND ADJUSTING.

Prior to acceptance of the vehicle by the Government inspector, the contractor shall service and adjust each vehicle and its mounted equipment for operational use including at least the following: alignment of lights, adjustment of the engine and brake systems; filling and charging of batteries; alignment of front wheels; inflation of all tires; complete lubrication of chassis, engine and running gear with grades of lubricants recommended for the ambient air temperature at the delivery point; servicing of the cooling system in accordance with 3.4.1.4.2; and servicing of the windshield washer reservoir with water and appropriate additives.

3.8.4 DELIVERY.

All vehicles shall receive the manufacturer's suggested complete predelivery service. The vehicle shall be processed for shipment from the manufacturer's plant to the initial receiving activity, in accordance with the manufacturer's standard commercial practice. There are various ways a vehicle may be delivered to the consignee; however, the standard method for heavy trucks is consignee delivery, wheels on ground. Vehicles may be driven, fully decked or partially decked (piggybacked). Regardless of the method used for transporting the vehicle, it is the contractor's (or his subcontractor's) responsibility to present the vehicle(s) to the consignee with all wheels on ground and in normal operating condition. It is not the Government's responsibility to provide undecking facilities or assist in the undecking operation. To facilitate vehicle transporting, some components may be removed and other modifications made to the vehicle(s); however, any and all modifications for transport shall be completely reversed before the receiving agency inspects and accepts delivery of the vehicle(s). It is not the Governments responsibility to reinstall any removed

component or to reverse any modification made to the vehicle for transporting. The consignee, in the presence of the delivering driver, should immediately inspect the vehicle for damage, abuse, loss or theft that may have occurred during transit. Any such findings should be accurately described on the delivery receipt the driver presents for signature. If vehicle(s) are covered with snow or ice so as to prevent a complete inspection at the time of delivery, this is to be noted on the delivery receipt. The driver is required to acknowledge any notation on the delivery receipt by signature. If driver refuses to sign noted discrepancies the consignee must refuse to accept the vehicle(s). A claim for any delivery damage is to be made to the delivering company within 24 hours of vehicle delivery.

3.8.4.1 AUTHORIZED DELIVERY HOURS

All vehicles delivered to the consignee are required to be delivered between the hours of 8:00 am and 4:30 pm Monday through Friday, except Federal holidays. Any attempt by the carrier to deliver vehicles before or after these hours should be refused unless arrangements have been made for authorized, qualified personnel to be available to perform inspections and to accept the delivery. If the carrier is required to return during the specified hours, the Government is not liable, nor is the receiving agency authorized to pay for the return

► 4. QUALITY ASSURANCE PROVISIONS

4.1 RESPONSIBILITY FOR INSPECTION.

Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements (examination and tests) as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 RESPONSIBILITY FOR COMPLIANCE.

All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility for ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 GOVERNMENT VERIFICATION.

Quality assurance operations performed by the contractor will be subject to Government verification at unscheduled

intervals. Verification will consist of observation of the operations to determine that practices, methods and procedures of the contractor's inspection are being properly applied. Failure of the contractor to promptly correct product deficiencies discovered shall be cause for suspension of acceptance until correction has been made or until conformance of product to specification criteria has been demonstrated.

4.3 FIRST PRODUCTION VEHICLE INSPECTION.

When specified, the first vehicle produced under the contract shall be inspected by the contractor at his plant under the direction and in the presence of Government representatives. The purpose of the inspection shall be to determine vehicle conformance to the contract. Acceptance of the first production vehicle shall not constitute a waiver by the Government of its rights under the provisions of the contract.

4.3.1 VEHICLE WEIGHT.

The first production vehicle shall be weighed to determine the curb weight and distribution of the curb weight on front and rear axles. The total imposed loads on front and rear axles shall be computed by the contractor and verified by the Government, using the curb weight, the operator and passenger weight at each seating position at 80 kg (175 pounds) each and the payload required to provide the specified GVW. Except as specified in 3.2.6.1, the calculated imposed loads on the front and rear axles shall be compared to the suspension, axle and tire load capacity ratings to determine if these components are of adequate capacity to meet contractual requirements.

4.3.2 ROAD TEST.

The first production vehicle shall be road tested by the contractor without payload. The road test shall be for not less than 16 km (10 miles) at speeds up to 88 km/h (55 mph).

4.3.3 TRUCK BODY TREATMENT AND PAINTING.

A certification regarding the body cleaning, treating, prime painting and salt spray resistance testing, as required by MIL-HDBK-1223, shall be made to the Government representatives at the first production vehicle inspection. The manufacturer's records shall be available to verify that all wood requiring treatment in accordance with MIL-HDBK-1223 has been treated.

4.4 TRANSPORTABILITY

When vehicles covered by this Standard are to be transported by Air (option ATR), Highway (option HTR), Sea (option MTR) or Rail (option RTR) by the using agency, the following sequence of events shall occur: The agency is to send a written certification request containing a description of the physical characteristics of the vehicle to The Air Transportability Test Loading Agency (ATTLA) when Air Transportability (option ATR) is requested or to The Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) for all other modes of transportability.

Upon receipt of the order the contractor is to contact the customer agency to ascertain if the Customer Agency has made application for Transportability Certification to the ATTLA / SDDCTEA.

The contractor is to make contact with the ATTLA / SDDCTEA and shall provide and submit all related drawings and engineering data, within 90 days after receipt of order, directly to ATTLA / SDDCTEA.

The contractor will continue to work with the ATTLA / SDDCTEA to obtain Transportability Certification for the vehicle(s) ordered. The contractor shall supply the ATTLA / SDDCTEA

certification memo to the customer agency within 120 days after receipt of the vehicle(s) order. A copy of the ATTLA / SDDCTEA certification memo shall be available during the final inspection.

ATTLA (The Air Transportability Test Loading Agency) is located at Wright Patterson Air Force Base and can be contacted via e-mail at "ATTLA@wpafb.af.mil". SDDCTEA (The Military Surface Deployment and Distribution Command Transportation Engineering Agency) is located in Newport News, VA and can be contacted by e-mail at “dpemail@tea.army.mil” or by phone at (757) 599-1113. A transportability report form for SDDCTEA can be obtained at “http://www.tea.army.mil/pubs/nr/deploy/transinstruction/DI-PACK-80880B.pdf” \t “_new”. References, publications, assistance and engineering services are available from SDDCTEA. Testing information can be obtained from the Aberdeen Test Center (ATC). ATC can be contacted through their website at “http://www.atc.army.mil”.

Upon receipt of the request, drawings and data; ATTLA / SDDCTEA conducts an analysis of the item's transportability at no cost to the requesting federal agency. If the Item meets the requirements, ATTLA / SDDCTEA return a certification memo to the customer agency with a copy to the contractor stating the conditions of approval. Otherwise, ATTLA / SDDCTEA recommend changes that will allow the item to meet those requirements. Very rarely an item cannot be airlifted or transported at all. In these cases ATTLA’s / SDDCTEA’s reply will include an explanation of the rejection.

If analysis alone cannot positively determine the transportability of the item, then a test loading may be required. Test loadings are done when the transportability is uncertain. The test loads require a formal test report and usually are conducted as Special Airlift or Transport Missions. The customer agency shall be responsible for all costs associated with test loadings when it is determined to be required.

Removal or relocation of mechanically attached (non-welded, non-riveted, etc.) components with common tools, requiring not more than 1 man-hour total to remove, relocate and tiedown; and not more than 1 man-hour total to return the vehicle to its original, as opposed to reduced, configuration; shall be acceptable. The self-mobility of the vehicle shall not be affected by reducing its configuration. Tie downs for removed or relocated equipment shall be furnished. In addition to the requirements 3.2.6 or 3.2.6.1, as applicable, the rated capacity of the axles and suspension system shall be not less than 1.25 times the load imposed on each by the curb weight of the vehicle. The vehicle shall be transportable as described above without any other special provisions and without any shoring. The vehicle shall not be delivered to the Government in its reduced configuration.

TRANSPORTABILITY VERIFICATION. When transportability (ATR, HTR, MTR or RTR) (see 3.1.1.21) is specified, the vehicle shall be inspected to determine that it conforms to the approved certification memo the contractor received from Air Transportability Test Loading Agency (ATTLA) or Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA). As a minimum, the following angles, dimensions and descriptions shall be checked against approved data and drawings:

a) Angle of approach

b) Ramp breakover angle

c) Angle of departure

d) Height, longitudinal location and

identification of highest component on truck

e) Dimensions and locations of any significant projections on truck

f) Curb weight of each axle

g) Wheelbase

h) Front overhang

i) Rear overhang

j) Articulation of rear suspension, unloaded, each axle (curb weight)

k) Rear axle spacing

l) Axle rating, front, and comparison to 1 ¼ times (curb weight) load

m) Axle rating, rear, and comparison to 1 ¼ times (curb weight) load

n) Suspension rating, front, and comparison to 1 ¼ times (curb weight) load

o) Suspension rating, rear, and comparison to 1 ¼ times (curb weight) load

p) If axle stops are to be removed for ramp loading on aircraft, verification that the driveline remains intact when cresting maximum ramp slope.

4.5 FAILURE.

Failure of the first production vehicle to meet requirements of the contract shall be cause for the Government to refuse acceptance of all vehicles under contract until corrective action has been taken.

4.6 INSPECTION OF PRODUCTION VEHICLES.

The contractor's inspection system shall as a minimum ensure that the vehicle conforms to the physical and dimensional requirements and is capable of meeting performance requirements specified herein. For each vehicle under contract, the contractor shall make available to the Government, at the point of final acceptance, records acceptable to the Government indicating that the servicing and adjusting required by 3.4.25 have been accomplished. For civilian agencies, GSA Form 1455 or an approved equivalent form shall be used.

4.7 PRODUCT CONFORMANCE.

The products provided shall meet the salient characteristics of this standard, conform to the producer's own drawings, specifications, standards, and quality assurance practices and be the same product offered for sale in the commercial market. The Government reserves the right to require proof of such conformance.

► 5. PACKAGING.

5.1 VEHICLE PROCESSING.

The vehicle shall be processed for shipment from the manufacturer's plant to the initial receiving activity, in accordance with the manufacturer's standard commercial practice. When direct consignee delivery is required, each fuel tank shall be filled with a minimum of 10 gallons of fuel.

► 6. NOTES.

6.1 INTENDED USE.

The vehicles covered by this specification are intended for general use by the Government in transporting personnel or cargo; for use in performance of the maintenance and construction tasks indicated; or for the mounting of special bodies or equipment. Agencies shall specify (see 6.2) unusual operating conditions, items and exceptions not specified herein.

6.2 RESERVED.

6.3 PERFORMANCE PREDICTIONS.

SAE Truck Ability Prediction Procedure computations and computations for low speed and maximum geared speed will be required by the contract. The SAE J2188

Work Sheet, Appendix A, should include vehicle model number, engine model number, and vehicle type and class. Unless other conditions are cited in the contract, computations shall be made for normal atmospheric pressure, normal ambient air temperature, and still, dry air. The factors to be used in predicting truck ability (see 3.3.1.) are established in the procedures and tables contained in SAE J2188.

6.4 SUBJECT TERM (KEY WORD) LISTING.

Chassis, truck Truck, commercial

Truck, dump Truck, stake Truck tractor

6.5 WARRANTY.

6.5.1 WARRANTY COVERAGE.
The contractor shall provide the chassis manufacture's commercial warranty and the commercial furnished equipment warranties against parts failure or malfunction due to design, construction or installation errors, defective workmanship, and missing or incorrect parts (6.5.4 exceptions) for a minimum period of 12 months, and 15 months for vehicles outside the (50) states of the United States and District of Columbia, from date of acceptance or 161,000 km (100,000 miles) of operation, exclusive of any authorized accumulated drive away mileage, whichever occurs first. The in-transit mileage accumulation on vehicles driven from the assembly plant to the receiving location shall be made to the OEM for the purpose of adjusting the warranty coverage. If the contractor receives from any supplier or subcontractor additional warranty on the whole or any component of the vehicle, in the form of time or mileage, including any pro rata arrangements, or the contractor generally extends to its commercial customers greater or extended warranty coverage, the Government shall receive corresponding warranty benefits. The warranty begins when the government accepts the vehicle from the contractor FOB point of origin/destination.

6.5.2 DOMESTIC USE.
When vehicles are used within the fifty States of the United States, the District of Columbia, Puerto Rico, and the Virgin Islands, the warranty shall include the furnishing, without cost to the Government (FOB contractors nearest dealer or branch to vehicle's location or station), of new parts and assemblies to replace any that failed or malfunctioned within the warranty period. In addition, when the Government elects to have the work performed at the contractor's plant, branch, dealership, or with the contractor's approval (i) to correct the supplies itself; or (ii) to have them corrected by a commercial garage facility; the cost of the labor involved in the replacement of the failed or malfunctioned parts or assemblies shall be borne by the contractor.

6.5.3 FOREIGN USE.
When vehicles are used outside the fifty States of the United States, the District of Columbia, Puerto Rico, and the Virgin Islands, the warranty shall include the furnishing of new parts or assemblies to replace any returned to the contractor by the Government which failed or malfunctioned within the warranty period The replacement parts or assemblies shall be delivered by the contractor to the port of embarkation in the United States designated by the Government. The contractor will not be required to bear the cost of the labor involved in correcting defects in vehicles operated in foreign countries.

6.5.4 WARRANTY EXCEPTIONS.
Unless within the additional coverage under 6.5.1, the following items are considered normal maintenance and repair for which the contractor need not assume liability for reimbursing the Government regardless of the vehicle age or mileage.

(a) Abuse, negligence, or unapproved alteration of original parts

(b) Damage from accidents

(c) Brake and standard clutch adjustments

(d) General tightening, headlamp adjustments

(e) Wheel alignment or tire balancing

(f) Tires and batteries (if warranted by their manufacturers)

(g) Miscellaneous expenses such as fuel, towing, telephone,

travel, lodging, or loss of personal property.

6.7 STATEMENT OF ORIGIN OR BILL OF SALE.
A manufacturer's statement of origin or bill of sale showing the applicable purchase order number is required for each vehicle procured under this specification. Unless otherwise specified, such documents shall be forwarded to the consignee mailing address.

6.8 OPTION CODE INDEX
Available optional equipment for each Item number is listed with the Item number. A description of the option and the requirements for that option are listed alphabetically / numerically by option code in subparagraph 3.6.

MILITARY INTEREST:
ARMY - AT

NAVY - YD, MC

AIR FORCE – 84, 99

ENGINEERS

DIA

DLA

CIVIL AGENCY COORDINATING ACTIVITIES:

AGRICULTURE	JUSTICE
AAFES	PCC
COMMERCE	POSTAL SERVICE
DC GOVT	STATE
EPA	TRANSPORTATION
ENERGY	TREASURY
GSA	TVA
INTERIOR	VETERANS

PREPARING ACTIVITY:
GSA - FSS – FFAE