The Incomplete Vehicle Document (IVD) is supplied with each incomplete vehicle, and provides information that should be used by intermediate and final stage manufacturers in determining conformity to applicable Federal Motor Vehicle Safety Standards (FMVSS). The IVD also includes information which must be followed in order to ensure that Environmental Protection Agency (EPA) and California emissions certification requirements and NHTSA Fuel Regulations are met.

This Body Builders Book contains information that may be used in addition to the IVD for any manufacturer making alterations to a complete/Incomplete vehicle. No alteration should be made to the incomplete vehicle which either directly or indirectly results in any component, assembly or system being in nonconformance with any applicable Federal Motor Vehicle Safety Standard or Emission Regulation. Intermediate and final stage manufacturers should be familiar with all Federal Motor Vehicle Safety Standards and Emission Regulations and aware of their specific responsibilities as manufacturers.

For further assistance contact Upfitter Integration at: 1 (800) 875-4742

Section 0 – General Instructions

Check for proper clearance between body members and chassis components which may in any way affect the reliability and performance of the vehicle by developing abrasion and wear points from moving parts or degradation from extreme environment or thermal exposure or may increase interior noise.

Check headlamp aim and all vehicle illumination systems for proper operation when the vehicle has been completed. Re-aim headlamps when necessary. Check for proper operation of windshield washer, wipers and defroster system.

Extreme care must be taken when working on vehicles equipped with Engine Control Module (ECM), Powertrain Control Module (PCM), Transmission Control Module (TCM), Vehicle Control Module (VCM) or any electronic unit associated with an inflatable restraint system. (See Owner’s Manual).

If arc-welding is employed on the chassis, precautions must be taken to protect all vehicle components, especially brake and fuel lines, fuel tank assembly, electrical wiring and ECM/PCM/TCM or VCM. To avoid electronic component damage, disconnect battery (batteries); disconnect the negative cable first, followed by the positive. To reconnect cables; connect the positive first, then the negative.

When welding components to the frame assembly, remove the wax coating in the area of the weld in order to obtain secure welds. After completion of the weld, a compatible corrosion protection should be applied to the affected weld areas.

All labels on the vehicle (any message applied to the vehicle or vehicle component that informs, instructs, or warns) must appear on the completed vehicle so the user can read them easily and without obstruction.

Those installing aftermarket systems should provide information as to where and how to obtain service and replacement parts.

When installing a Power Take-Off (PTO) with hydraulic lines, the following care should be exercised:

- Route and secure all hydraulic lines so that they are not in close proximity to any parts of the exhaust system. Keep all fittings and connections away from the exhaust system. Make sure connections and fittings cannot leak or give off fumes from the exhaust system.
- Exhaust system heat can damage and degrade hydraulic lines and components. Oils and hydraulic fluid coming in contact with a hot exhaust system could result in a fire.

Section 1 – Body

Accessory items such as refrigerator, hot water heater, furnace, etc., which operate on liquid propane gas should be located and protected to prevent exposure to any fire.

Body structures, interior and accessory arrangements must be designed into the vehicle to provide for proper load distribution on both axles and to not exceed any gross axle weight ratings. Lateral load equalization must also be maintained. The resultant Center of Gravity of the unladen vehicle must be within the limits tabulated in the FMVSS 105 section of the Incomplete Vehicle Document.

Body insulation provided by General Motors should not be removed. This includes any thermal or underbody heat shields. This insulation is provided to protect the vehicle body and occupants from excessive heat and/or provide noise attenuation. Any replacement material internal to the occupant compartment must be certified for FMVSS 302 Flammability of Interior Materials. Areas of specific concern, but not limited to are:
Underbody exhaust, muffler and tailpipe shields and insulators.
Rear load floor interior insulation.
Front floor interior insulation.
Dash mat insulation.
Engine cowling insulation - interior and exterior.
Engine cover insulation.

**Conversions**

A minimum of 10° departure angle should be maintained if frame and/or body is extended.

If body builder installs seating other than that supplied with vehicle, it is the body builder’s responsibility to ensure that the seating and restraint systems comply with FMVSS requirements. The restraint systems supplied with the vehicle were designed to accommodate the seating reference points and seat travel of the original equipment seats only.

**Air Conditioning**

For additional information refer to *Engine - Section 6*.

**NOTE:** Air conditioning systems using R-134A refrigerant are equipped with metric fittings to prevent interchange with R-12 refrigerant components. Do not interchange R-134A components, refrigerant oil or service equipment with R-12 components, refrigerant oil or service equipment.

**Rear Air Conditioning**

This unit may be equipped with A/C quick-connect fittings (Option YF7) on the liquid tube (high pressure) and the suction (low pressure) return tube. These fittings are designed to accept matching Aeroquip connecting fittings attached to pre-charged lines. This allows a one time only connection to the O.E.M. charged A/C system without having to discharge, evacuate and recharge for the connection of a rear A/C system.

A modification to the A/C system which causes the A/C plumbing lines to increase in length (such as the addition of a rear after-market evaporator and blower assembly) will necessitate the following changes:

- **Lubrication** – PAG refrigerant oil must be added to rear system to provide lubrication for compressor. Refer to Service Manual for specifications.
- **Refrigerant** – Add R-134A refrigerant to system based on sizing of new tubes, hoses and evaporator. Contact your A/C supplier for recommended charge.

- **Label** – Revise/modify GM charge label (located on top of front evaporator or A/C bottle) from factory recommended charge for a front system only to body builder’s new recommended dual system per SAE J639. This is important for servicing the A/C system so that the technician knows the correct amount to add to the modified system.

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**Section 2 – Frame**

Hole drilling, welding, modifications, or alterations to the frame assembly are the responsibility of persons performing these operations. These same individuals assume complete responsibility for frame assembly reliability, performance after alterations and compliance to applicable FMVSS requirements.

The following procedures and specific precautionary instructions are recommended for proper installation of special bodies and/or equipment on GM frames. Failure to follow these recommendations could result in serious damage to the basic vehicle.

**Flanges**

Do not drill holes in frame flanges.

**Holes**

Holes to mount brackets, supports, and out-riggers must be drilled in the vertical side rail web with the following restrictions:

- **Material between edge of hole and inside of upper or lower flange must not be less than 37 mm (1.50 in.) for low carbon steel (36,000 PSI yield).**
- **The minimum edge distance between any two (2) holes must be larger than twice the diameter of the larger hole.**
- **No holes should exceed 20 mm (0.75 in.) in diameter.**
- **All holes should be drilled in the frame using appropriate drilling practice and safety precautions.**

**Welding**

**CAUTION:** Fuel tank and fuel lines must be drained and all vapors purged to ensure non-combustible mixture before any welding, brazing or soldering.

When welding low carbon steel side rails, crossmembers and brackets (32,000 or 36,000 PSI yield strength), emphasis is placed upon weld application techniques to avoid stress risers that may adversely affect frame operating stresses.
When welding is performed anywhere on the vehicle, precautionary measures should be taken to prevent damage to electrical system wiring or components. Prior to any welding, parts or components which could be damaged by excessive temperatures must be removed or adequately shielded; the battery cables should be disconnected at the battery. Also prior to welding, the area to be welded and surrounding area must be cleaned of all frame protective coating. After welding, when parts are cool, carefully inspect wiring and electrical components for shorts or other damage which could draw excessive currents and possibly cause an electrical system short when the battery is reconnected. Apply protective coating to areas where coating was removed.

**Alterations**

If the wheelbase is modified the alterer must take responsibility for compliance with affected MVSS and/or warranty on items such as driveshafts, universal joints, center bearings and rear transmission tailshaft, transfer case and transmission case fractures, output shaft bushings, bearings, brakes, fuel systems and any other related component failures. Additionally, the customer must be alerted in the modifier’s owner’s manual that parts for the reworked area are not available through the General Motors service parts system.

**Shear Plate Attachments**

Attachments of shear plates should be accomplished by using existing manufacturing holes already available in the frame side rails. Manufacturing holes, normally 16 mm in diameter, are consistently placed along the frame side member in the center of the web on each frame.

When additional holes are required for shear plate attachment, they should be no larger than 19 mm (0.75 in.) in diameter. Holes are to be drilled no closer than 63.5 mm (2.5 in.) apart. For holes drilled forward of the rear axle, centers are to be no closer than 63.5 mm (2.5 in.) from the top or bottom flanges and no closer than 89 mm (3.5 in.) from any suspension attachments. For frame holes drilled rearward of the rear axle, hole centers are to be no closer than 51 mm (2.0 in.) from the top or bottom flange and no closer than 89 mm (3.5 in.) from suspension attachments.

No additional holes or notching of either top or bottom frame flanges is allowed.

**Section 3 – Front Suspension**

Since there is a large variation in completed vehicle front weight due to differences in body weight and equipment, the front suspension alignment must be checked and reset if necessary after the vehicle is completed. Caster and camber should be set with reference to the “A” dimensions. On C3500 HD trucks with I-beams, camber and caster is designed into the axle/suspension and cannot be adjusted.

See Truck Service Manual for complete alignment procedure, specifications and measurement of the “A” dimension under “Diagnosis and Front Alignment” section.

C/K Models are designed such that camber and caster do not need adjustment unless severe road impact or accident deformation occurs. Toe should be reset after the vehicle is completed and while at normal operating load with trim height as specified (K-Model).

The following statement applies to C3500 HD Models with I-Beam Front Axle.

The front crossmember steering gear attachment is a weldment. Under no conditions may the flanges be cut or notched out in any manner. Any alteration would severely affect steering attachment capabilities.

**Section 4 – Rear Suspension**

Clearance to body should be provided for the suspension, axle, driveshaft and tires under the following conditions: (1) Axle in full jounce against the metal-to-metal stop, (2) Axle at 4.5” roll with one side of axle in full jounce at the metal to metal stop and (3) Axle at design position. Allowance for the tire chain clearance shown on a maximum grown tire must allow for 42.2 mm (1.66 in.) clearance to the sides of the tire and 63.5 mm (2.5 in.) to the top of the tire. Be sure sufficient clearance is provided for suspension, axle and tire and wheel in full vertical travel (up and down).

NOTE: Notification to the consumer may be required in certain states if tire chains cannot be used.

Pipes, wiring, conduits and any other related components must not be placed where they cross the path of motion of the rear axle, driveshaft, axle brake pipes, hoses, springs or tires. Such crossing could result in rupture, wear-through, or separation due to normal axle motion.

See chassis data information for additional clearances and for assistance in calculating trim heights.

NOTE: Concerns regarding the addition of leafs or modifying the Rear Suspension on the C-3500 HD Models, refer to Brakes - Section 5 for additional information.

**Section 5 – Brakes**

See Truck Service Manual for brake specifications.
Due to the critical nature of brake systems, anyone making modifications or alterations must assume complete responsibility for system reliability, performance and certification to FMVSS 105 or FMVSS 121.

It is mandatory that no change be made to the brake main cylinder location, brake pedal push rod length or pedal position. Ensure that hydraulic brake system is free of air and hydraulic leaks. Bleed brakes if required, following procedures as outlined in truck chassis service manual. Ensure that vacuum booster system or hydroboost system is functional and free of leaks.

Check master cylinder fluid level and fill as necessary. (Refer to Owner’s Manual)

Check power steering fluid level for models equipped with hydroboost brake. (Refer to Owner’s Manual)

Added floor covering or carpeting must not restrict service or parking brake pedal travel from released position to full pedal travel.

No body part or chassis-mounted component may be located within 2.0 in. of brake hose routing in all wheel and axle positions. All exhaust system components must also have a minimum of 2.0 in. clearance to brake hoses in closest positions. (Be sure to account for brake hose travel with suspension).

Body builder is to verify that the brake warning switch is operative. The brake warning switch on models equipped with vacuum-hydraulic brakes is located adjacent to the master cylinder vacuum unit. This includes both the brake system differential pressure and parking brake actuator switch.

Section 6 – Engine

For additional information refer to Body - Section 1.

Air conditioning and auxiliary belt-driven equipment installation recommendations:

No alterations or additions to the accessory drive belt system will be warranted on serpentine belt systems.

The serpentine belt type of drive is designed as a total system, incorporating a single poly-V belt and an automatic tensioner. In this type of system, degrees of pulley wrap, belt tension, and pulley alignment are very critical factors. Modification is not recommended.

In some single belt serpentine systems, belt tension is determined by the automatic tensioner and its position relative to the belt. No adjustment required.

Due to the critical nature of the accelerator system, anyone making modifications or alterations assumes complete responsibility for system reliability, performance and compliance to FMVSS 124. Caution must be exercised so that the accelerator cable is properly routed. Specifications are as follows:

- Route cable to maximize all bend radii. In no case should bend radii be less than 3 in. (76 mm).
- Minimum distance from exhaust manifold to be 6.0 in. (150 mm), unless a heat shield is provided.
- Do not use accelerator cable or clips to route wires, harnesses or other cables. Cable sheath must be clipped so as not to pinch inner cable. Cable must not be loose in clip allowing sheath to move when accelerator pedal is applied and released.
- Cable must not be subjected to kinking or routing across any sharp edges.
- Cable routing must be perpendicular to the surface of the front-of-dash at the dash fitting. No objects or routings should force cable to have a bend at the dash fitting. Flexible components (hoses, wires, conduits, etc.) must not be routed within 2.0 in. (50 mm) of moving parts or accelerator linkage unless routing is positively controlled.
- Caution must be taken so that the accelerator pedal remains properly located. Guidelines for accelerator pedal locations are as follows:
  1) Ensure that the accelerator can freely operate from idle to wide-open throttle position and return. Make sure that the pedal will not hang up on any nearby items such as carpets, floor, screws, wiring harnesses, etc. Engine cover should have at least one inch (25 mm) clearance to side of accelerator pedal with the carpet mat installed.
  2) Accelerator to brake pedal relationship has been designed to provide minimum driver movement and should not be altered in any way.

Gasoline engine induction and/or ignition system is certified in compliance with the Federal Vehicle Emission Standards. Any alterations to the systems or components could void compliance and render the vehicle illegal. System includes:

- Fuel system – throttle body injector (TBI) or central port injector (CPI) and associated tubes, hoses and pipes, air cleaner outside air hose and spacer heat stove and heat stove pipe, fuel pump and inlet manifold, fuel vapor canister.
- Exhaust system.
- Ignition system distributor and initial spark timing setting, spark plugs, spark plug wires.
- Crankcase ventilation system.
Diesel engine induction and injector pump system is certified to be in compliance with the Federal Vehicle Emission Standards and/or Noise Standards. Any alterations to the system or components could void compliance and render the vehicle illegal. System includes:

- Fuel system – Injection pump, injector lines and injectors, fuel return hoses and pipes, air cleaner, outside air hose, fuel pump, fuel filter, fuel heater assembly and intake manifold.
- Exhaust system.
- Crankcase pressure regulation system.
- Charge air cooler system.
- External engine components such as air cleaner, crankcase pressure regulator valve, alternator, injection pipes, fuel return hoses from injectors, exhaust manifolds, oil fill pipe, etc. must be provided with sufficient clearance for engine roll and torque.
- When a vehicle is equipped with a electronic fuel injection (EFI) engine, it has an engine control module ECM/PCM/TCM or VCM. This ECM/PCM/TCM or VCM must be maintained at a temperature below 185°F at all times. This is most essential if the vehicle is put through a paint baking process. The ECM/PCM/TCM or VCM will become inoperative if its temperature exceeds 185°F. Therefore, it is recommended that temporary insulation be placed around the ECM/PCM/TCM or VCM during the time the vehicle is in a paint oven or undergoing another high temperature process.

Section 7 – Transmission

Light duty models equipped with manual transmission have a clutch-operated safety switch. Starter should operate whenever the ignition is turned to start and the clutch is fully depressed. Readjust if necessary as outlined in the Truck Service Manual.

Models equipped with automatic transmissions have a steering column mounted neutral/park start safety mechanical lockout feature, which interfaces with the steering column ignition switch. Starter should operate only when gear shift lever is in neutral or park position. Readjust the shift linkage if necessary as outlined in the Truck Service Manual.

Power Take-Off (PTO) systems refer to General - Section 0.

- The NV4500 manual 5-speed heavy-duty overdrive transmission (RPO MW3) requires the use of special synthetic lubricant to reduce transmission internal operating temperatures. The lubricant is installed in all NV4500 transmissions at the factory.
- In instances where it is necessary to drain and refill or add fluid to the transmission, such as when installing PTO, DO NOT substitute any other lubricant. Installation of other lubricants may result in internal transmission damage.
- Castrol Syntriq GL4 is the only synthetic lubricant currently approved for use in the NV4500. This product can be secured through your local GM dealer under GM part number 12346190 per quart.
- Transmission lubricant capacity is 8.5 pints.

Models equipped with manual transmission use a hydraulic clutch actuator. Check fluid level as outlined in the vehicle owners manual.

It is mandatory that no change be made to the clutch master cylinder location, clutch master or slave cylinder push rod length, or pedal position.

Section 8 – Fuel and Exhaust

Fuel Systems

The fuel evaporative emission control equipment is certified to be in compliance with the Federal and California Vehicle Emission Standards. Metal fuel lines and fuel tanks have a surface coating to reduce corrosion on inside and outside surfaces to comply with useful life requirements. All fuel hoses are made of a low permeation multi-layer material to comply with enhanced evaporative emission requirements. Any alterations to systems or components including materials, hose lengths and their location, except as described in the fuel fill system modifications section, could void compliance. The system includes:

- Fuel tank, fuel level sender, fuel fill and vent hoses and pipes, emission canisters, fuel feed, fuel return and vapor lines, purge control solenoids, fuel fill cap, canister vent solenoid.

For these reasons,

NO ALTERATION OF THE FUEL SYSTEM IS RECOMMENDED

Fuel Fill

It is recommended that when mounting the fuel filler pipe assembly and vent hose that a minimum of 3.0 in. clearance be provided to any body component to prevent contact between hoses and/or mating parts and that retention be provided to ensure routing and prevent failure due to wear and fatigue. Both the fill and vent hoses must be routed (and supported, if needed) such that there are no sags or kinks. As viewed from the filler neck, pipes and hoses must have a downward slope toward the tank.
There should be a minimum of 4° of downward slope in the fill and vent pipe at any location. No fuel traps are allowed. Alterations of fuel line routings could affect the ability of the completed vehicle and are, therefore, not desirable. The complete fuel system must comply with FMVSS 301.

If additional hose is required when installing fuel tank filler neck, this hose must be suitable for use with unleaded fuels or diesel fuel respectively and must allow the vehicle to meet enhanced evaporative emissions requirements.

**Fuel Lines**

Fuel line routing precautions:

- 12 in. minimum clearance to exhaust system is required or a metal shield must be provided.
- Fuel lines should be clipped to chassis to prevent chafing. Metal clips must have rubber or plastic liners.
- Use corrosion resistant steel tubing with short sections of approved hose to connect components. Hose-to-tube connections should be clamped for diesel systems. Steel tube ends should be beaded for hose retention. Fuel supply is pressurized by an in-tank pump for TBI and CPI systems. Coupled hose or nylon quick-connects must be used. Clamped hose is not acceptable for TBI and CPI systems.

All engines require a fuel return system which returns excess fuel from the injection pump and injector nozzles back to fuel tanks. Care should be taken that these lines are not blocked nor their hoses pinched. The engine may run poorly or stall if these lines are restricted or blocked.

All gasoline engine vehicles are equipped with fuel evaporative emission control equipment which is certified to be in compliance with the Federal or applicable California vehicle emission standards. Alterations to fuel tank and metering unit, lines, canister or canisters, canister filters, canister purge control valves, relay switches, tank auxiliary vent valve, engine speed controller, or other devices/systems are therefore not allowable since vehicle adherence to C.A.R.B. and Federal regulations may be affected.

Diesel powered vehicles incorporate water drain provisions in the fuel system. These valves are only to be opened when siphoning water and contaminants from the fuel system.

Body attachment brackets and u-bolts must be located such that there is adequate clearance to all fuel system components, such as the fuel lines and the fuel level sending unit, under all operating conditions.

**Fuel Tank**

For vehicles with full frames, the tank must have a minimum clearance of 2 in. top, front, rear and sides to body and other supports.

Tank may be pressurized to 1.25 PSI maximum to check for final line leakage or for forcing fuel through the system. Pressures greater than this amount may be detrimental and affect tank durability.

**The use of auxiliary fuel tanks is not recommended.** If an auxiliary fuel tank is added, the alterer must take responsibility for compliance with affected motor vehicle safety standards. Also, if an auxiliary fuel tank is added to a gasoline-powered vehicle, the fuel must be drawn through a pipe at the top of the tank (balance line between tanks is not permitted).

Gasoline fueled vehicles are now equipped with a fuel pump return line. If an auxiliary tank is added, the tank selector valve must include a return port which returns fuel to the tank from which the fuel is being drawn.

In gasoline engines the fuel pump is located in the fuel tank. The battery must be disconnected before starting any work on the fuel system.

**Gaseous Fuel Conversions**

All truck gasoline engines may be converted to use liquified petroleum gas (LPG) or natural gas (NG); GM only approves the conversion of vehicles with option KL5 in combination with engine L31 (5.7L). However, some conversions may cause harmful effects to the engine. Such fuel systems may require assurances from alternate fuel system manufacturers and/or installers that the equipment will not cause damage to the engine or the exhaust system.

In the use of dual fuel systems, the vehicle operator should strictly adhere to the manufacturer’s procedures for switching from gasoline to gaseous fuel operation. Improper switching procedures may result in overheating and damage to the exhaust system and the vehicle. The gaseous fuel tank should not be mounted in an enclosed area of the vehicle, such as the passenger compartment, truck, etc., and the system should be vented to the outside of the vehicle. In addition, vehicles converted to gaseous fuels should not be stored in enclosed places such as garages. Further, General Motors cautions purchasers that the design, location and installation of any type of fuel storage system involves significant technical and engineering considerations and that these statements on gaseous fuel conversions should not be interpreted to be an approval by General Motors of any modification to the original equipment fuel system.
Conversions to gaseous fuel should be made in conformance with applicable Federal and State regulations. Removal of emission-control components, or the addition of gaseous fuel systems which could damage or reduce the longevity of those components and could also cause the mechanical and emission performance warranty to be voided.

Exhaust System

Particular care should be taken to prevent the possibility of exhaust fumes and carbon monoxide exposure to vehicle occupants in units completed by body builders. Holes and openings through the floor and all other parts of the body must be permanently and adequately sealed by the body builder to avoid exhaust intrusion into any occupant area. If it is necessary to change the exhaust outlet location, the exhaust discharge must be unobstructed and directed away from occupant areas. Alteration of the exhaust outlet or its position may increase exhaust noise and render the vehicle illegal in those areas with pass-by noise regulations. All vehicles >10,000 lbs. GVRW come under Federal noise regulations, vehicles <10,000 lbs. GVRW are regulated by various state and local regulations of the Environmental Protection Agency; see those regulations for rules, test procedure and noise levels permitted.

Tail pipe outlet location must be tested statically and with the vehicle in motion to ensure that exhaust gases do not penetrate side or rear windows or under body seams and holes. Auxiliary power plants should also be tested under the same conditions. Tail pipe exit ahead of rear wheels is not recommended.

Check for leaks in exhaust systems and repair as required.

Exhaust temperatures can exceed 1600°F under extreme operating conditions, with pipe surface temperatures slightly less than this. Extreme care must be used when placing body components in the proximity of the exhaust system so as not to exceed the rated temperature limits of the components. Due to variants in underbody configurations of the vehicles, we are not in a position to make recommendations on how to insulate or design components in the proximity of the exhaust system.

Each manufacturer must make temperature checks of critical areas of his vehicle and adjust his design accordingly, or provide shielding to ensure safe operation of his body components.

The same can be said for the engine compartment. Obviously there will be additional heat radiated from the engine. How much is retained in the area will depend on how well this area is ventilated in your individual designs. Here again, temperature checks of interior areas surrounding the engine should be made to determine if your insulation is adequate. This is the same engineering practice we have followed on our complete vehicles incorporating these exhaust systems.

Exhaust system materials are selected and tested to withstand the operating environment of the vehicle. Do not modify the exhaust system in any way. The tail pipes are made of 409 stainless steel.

Heat shields are mounted to the underbody and/or exhaust system components (catalytic converter and muffler). Shields for the propshaft hanger bearings are also provided in some vehicles.

Section 9 – Steering

Check power steering fluid level and system operations. (Refer to Owner’s Manual)

Steering wheel and horn pad must not be altered or replaced.

The steering column mast jacket not to be altered.

Section 10 – Tires

Check wheel lug nuts for proper torque; specifications are provided in the Owner’s Manual.

Substitution of tires of greater capacity than those offered as original equipment by vehicle manufacturer is not approved for use on original equipment wheels. Any usage of higher capacity tires must be accompanied by higher capacity wheels. However, the wheel offset and distance from centerline of rim to wheel mounting face must be the same as the replaced original equipment wheel to ensure proper wheel bearing loading and clearance of tires to body and chassis components. Increasing tire and wheel capacity does not necessarily increase vehicle GVRW ratings.

Any substitution of tires may affect Speedometer/Odometer accuracy.

It is recommended that tire chain clearance guideline, J683 from the Society of Automotive Engineers be adhered to in designing rear wheelhouse clearance.

Check tires and inflate to recommended tire pressure according to the tire pressure information provided in Owner’s Manual and tire inflation label provided with vehicle.
The vehicle battery should be located and positioned to make use of the existing battery cables. If the battery requires relocation and longer cables are required, a proportionately larger gauge wire must be used. If in relocating the battery the negative ground cable is attached to frame rail, a cable of similar gauge be provided between the frame rail and the engine. This is required due to the heavy electrical loads imposed by the starting circuit. To ensure proper operation of the battery cables the following chart on length, gauge and materials must be strictly adhered to:

<table>
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<tr>
<th>Cable Gauge</th>
<th>Cable in Inches (Copper)</th>
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<tr>
<td>4</td>
<td>66</td>
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<tr>
<td>2</td>
<td>107</td>
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<tr>
<td>0</td>
<td>170</td>
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If the battery is remotely mounted (other than in the engine compartment) the ‘sense’ circuit in the generator regulator shall be used. The sense circuit consists of a 7.76 OHM 1/4 watt resistor connected in series between the ‘S’ terminal of the generator and the B+ terminal of the battery.

Auxiliary Battery (Gasoline Engines Only)

If an auxiliary battery is to be retro-fitted, the electrical schematic for option TP2 is recommended as a guide. This will result in the auxiliary battery being connected to the vehicle load and charging circuit when the ignition switch is ‘on’ (fuse block terminal “Acc.Ign.Fused”). When the ignition switch is turned off, the interlocking relay is disengaged and the auxiliary battery is disconnected from the vehicle circuit.

Modifications/add-on wiring must be carefully reviewed to ensure compatibility with the base vehicle wiring by reviewing system schematics, wire routing paths, harness connections, etc. Due to the wide range of modifications that may be required for vocational needs, it is not feasible for the O.E.M. to take into account all potential revisions. For this reason, any person modifying existing vehicle wiring must assume responsibility that the revisions have not degraded the electrical system performance. Any add-on wiring must be properly fused and routed to prevent cut, pinch, and chafe problems, as well as avoid exposure to excessive heat. Care must be exercised that existing vehicle interfaces do not have their current load capabilities exceeded, and that the respective control devices are not overloaded. Added wire size should be at least as large as the the wire to which it is attaching in order for fuse protection to be maintained.

A Packard electric wiring repair kit is available through Kent–Moore (GM P/N 12085264, Kent–Moore P/N J38125-4). This kit contains instructions, tools and components for making repairs to wiring harness components. This kit would also greatly assist in accomplishing necessary add-on wiring such as body marker lamps, so that system reliability/durability is maintained.

Electrical wiring components can be obtained through your authorized GM dealer. Many Packard Electric components are also available through Pioneer Standard Company (1-800-PACKARD). Pioneer may also be able to assist in making necessary wiring additions by providing custom wiring stubs or jumpers to your specifications.

**Fusible Link Repair Procedure:**

1. Cut damaged fusible link from wiring harness assembly splice.
2. Strip insulation from harness wire as required to splice on new fusible link.
3. Fabricate a new fusible link wire approximately 6 to 8 in. long from the same wire size as the original link. (Acceptable fusible link material will be imprinted with the wire size and the wording to identify it as fusible link. Fusible link cable is not the same as normal vehicle wiring.)
4. Terminate fusible link harness wire with a suitable compression splice clip, and solder with an electrical grade rosin core solder. Splice area with heat shrink tubing to provide electrical insulation, as well as mechanical strain relief at the splice.
5. Strip, terminate, solder, and insulate remaining end of fusible link with appropriate termination to be compatible with the rest of the electrical system.
6. For further information, refer to the instruction manual in the wiring repair kit referenced elsewhere in this section.

**Accessory Power Supply Feed**

For power requirements to service additional devices to be added by Body Builders/Uplifter, the power supply source may be at either of the two fuse center output studs at the underhood fuse center. Each stud is protected by a 30-amp Maxi fuse inside the fuse center. If more than 30-amp is required, the battery should be used as a power supply source.
To provide satisfactory engine cooling, the following conditions must be met:

1. Do not locate any large objects in front of the radiator core or grille such as batteries, spare tires, lights/sirens, etc. They restrict air flow into the radiator core and influence fan blade stress.

2. Grille opening, size configuration and the external baffles provided should not be altered in any manner. Any reduction in cooling ability may adversely affect engine/transmission performance.

3. Fan clutches not conforming to the original equipment specifications may not operate correctly and may stay “on” continuously, never come on, or cycle on and off excessively. This will result in a reduction of fuel economy, engine overheat at times, and annoying cycling respectively.

4. Heavy duty cooling equipment is required when air conditioning, auxiliary belt driven equipment, snow plows, winches, etc. are installed.

5. Continuous coolant flow is necessary from heater connection on engine-to-heater connection on radiator to control transmission oil temperatures during closed thermostat (warm-up) operation. Do not alter this flow as it may result in premature engine or transmission failure.

6. If a heater unit is not installed in the vehicle or a heater shut-off valve is required, a line connecting the heater connection on the engine to the heater connection on the radiator must be installed. When a shut-off valve is required in heating system, it must be teed into the system in such a manner as to maintain continuous flow between engine heater connection - radiator heater connection at all times.

Do not install any internal flow restrictors.

- Heater hose:
  3-way or 4-way valves must be used to provide constant water flow through the intake manifold pad area used to mount the TBI unit.

**NOTE:** TBI unit does not have internal coolant passages.

- If in-line shut-off valve is used in combination with 3 way valves, shut-off valve must not be closed until 3-way valve at engine is in the proper position.

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<thead>
<tr>
<th>Valve Sources</th>
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<td>3 Way</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>4 Way</td>
</tr>
</tbody>
</table>

Be sure to add coolant to system after adding capacity to system (heaters).
C 30903 (9000 GVWR) Regular Cab, 2 Wheel Drive w/6.5T Diesel Engine
C (107/207)53 Extended Cab, 2 Wheel Drive w/6.5T Diesel Engine

**DEVELOPMENT DIMENSIONS**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIM</strong></td>
<td><strong>AA</strong></td>
<td><strong>BB</strong></td>
</tr>
<tr>
<td>103.2</td>
<td>385.4</td>
<td>899.0</td>
</tr>
<tr>
<td></td>
<td>(4.075)</td>
<td>(15.33)</td>
</tr>
<tr>
<td><strong>CC</strong></td>
<td><strong>DD</strong></td>
<td><strong>EE</strong></td>
</tr>
<tr>
<td>126.9</td>
<td>34.0</td>
<td>134.0</td>
</tr>
<tr>
<td>(5.00)</td>
<td>(1.35)</td>
<td>(5.28)</td>
</tr>
</tbody>
</table>

**NOTES:**

- All dimensions are to outside of metal.
- UNLESS OTHERWISE SPECIFIED.

**VIEW IN DIRECTION OF ARROW 2**

**SPECIFICATIONS:**

- **ENGINE:**
  - 6.5T Diesel Engine

**REV.:**

- Rev. 12/98
- Rev. 11/99

---

**CK Rev. 12/98 Rev. 11/99**
C/K Truck (Current)

K (107/207)53 Extended Cab, 4 Wheel Drive w/6.5T Diesel Engine

DEISEL EXHAUST DIMENSIONS

<table>
<thead>
<tr>
<th>DIM</th>
<th>AA</th>
<th>DD</th>
<th>BB</th>
<th>CC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2303.0</td>
<td>2307.0</td>
<td>1180.0</td>
<td>1180.0</td>
</tr>
<tr>
<td></td>
<td>(90.56)</td>
<td>(90.56)</td>
<td>(46.50)</td>
<td>(46.50)</td>
</tr>
</tbody>
</table>

NOTES

() = INCHES
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE TO OUTSIDE OF METAL
C/K Truck (Current)

C (109/209) 53 Extended Cab, 2 Wheel Drive w/6.5T Diesel Engine
C 20953 & C6P (8600 GVWR)/C 30953 (9000 GVWR) Extended Cab, 2 Wheel Drive w/6.5T Diesel Engine

(Note: Dimensions are in inches and millimeters. All dimensions are to outside of metal.)
K 20953 & C6P (8600 GVWR)/K 30953 (9200 GVWR) Extended Cab, 4 Wheel Drive w/6.5T Diesel Engine

5 Deg. 30 sec.
DRAWING NOT AVAILABLE AT TIME OF PUBLICATION
DRAWING NOT AVAILABLE AT TIME OF PUBLICATION
C/K Truck (Current)

C (310/314)03 Chassis Cab, Regular Cab, 2 Wheel Drive, 10,000/11,000 GVWR w/6.5T Diesel Engine

C/K T

RUCK

(CURRENT)

REV. 12/98
REV. 11/99

C (310/314)03 Chassis Cab, Regular Cab, 2 Wheel Drive, 10,000/11,000 GVWR w/6.5T Diesel Engine

5 Deg. 30 sec.
K (310/314)03 Chassis Cab, Regular Cab, 4 Wheel Drive, 12,000 GVWR w/6.5T Diesel Engine
C (310/314/318)03 Chassis Cab, Regular Cab, 2 Wheel Drive, 15,000 GVWR w/6.5T Diesel Engine

**Diagram:**
- Refer to frame arrangement.
- Refer to suspension bracket drawing.
- Refer to fuel drawing.

**Dimensions:**
- Refer to body outline drawing.

**Notes:**
- Data based on C51603 & LMS & C509
- CK Rev. 12/98 Rev. 11/99

**Specifications:**
- Chassis Cab, Regular Cab, 2 Wheel Drive
- 15,000 GVWR
- 6.5T Diesel Engine

**Measurements:**
- 5 Deg. 30 sec.
C/K Truck (Current)

C (109/209)06 Suburban, 2 Wheel Drive w/6.5T Diesel Engine

CENTERLINE OF FRONT WHEELS

228.0 (9.02) FROM INSIDE TOP OF FRAME TO BOTTOM OF MUFFLER

194.0 (7.64) INSIDE METAL TO BOTTOM OF CONVERTER

HEAT SHIELD

147.5 (5.76) INSIDE METAL TO CENTERLINE OF TAIL PIPE

316.5 (12.44) INSIDE METAL TO CENTERLINE OF TAIL PIPE

327.2 (12.88) INSIDE METAL TO BOTTOM OF PLASTIC SHIELD

916.0 (36.06)

610.0 (24.02)

882.0 (34.72)

4072.8 (160.36)

2289.8 (89.96)

344.0 (13.62)

608.6 (24.00)

4340

1000

604.5 (23.60)

604.5 (23.60)

1781.7 (70.15)

(109/209)06 Suburban, 2 Wheel Drive w/6.5T Diesel Engine

C10906 & L65 SHOWN

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO INSIDE OF METAL

C K Rev. 12/98 Rev. 11/99
K (109/209)06 Suburban, 4 Wheel Drive w/6.5T Diesel Engine

- Centerline of front wheels
- 42 gal. draw capacity
- Heat shield
- 316.5 (12.44) inside metal to centerline of tailpipe
- 327.2 (12.88) inside metal to bottom of plastic shield

Notes:
- 1" = INCHES
- K10906 & L31 shown
- Unless otherwise specified, all dimensions are to inside of metal

CK Rev. 12/98 Rev. 11/99
C/K TRUCK (CURRENT)

C 10516 Utility, 2 Wheel Drive, 2 Door

NOTES:
( ) = INCHES
ALL DIMENSIONS ARE TO INSIDE OF METAL UNLESS OTHERWISE SPECIFIED

REFER TO GAS EXHAUST DRAWING

30 GAL DRAW CAPACITY

463.0 (18.23)

348.9 (13.74)
TOP OF FRAME TO BOTTOM OF SHIELD

595.1 (23.43)

319.9 (12.59)
TOP OF FRAME TO CENTERLINE OF TAILPIPE

0000

1000

38.32
### Pickup, Cargo Box Weight Distribution

<table>
<thead>
<tr>
<th>Model</th>
<th>Wheelbase (in.)</th>
<th>Pickup-Cargo Box Weight Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>% Front</td>
</tr>
<tr>
<td>C/K 1500</td>
<td>117.5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>131.5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>141.5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>155.5</td>
<td>4</td>
</tr>
<tr>
<td>C/K 2500</td>
<td>131.5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>141.5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>155.5</td>
<td>4</td>
</tr>
<tr>
<td>C/K 3500</td>
<td>131.5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>141.5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>168.5</td>
<td>4</td>
</tr>
</tbody>
</table>

**Regular Cab**

<table>
<thead>
<tr>
<th>WB</th>
<th>OAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>117.50</td>
<td>194.52</td>
</tr>
<tr>
<td>131.50</td>
<td>213.42</td>
</tr>
</tbody>
</table>

**Extended Cab**

<table>
<thead>
<tr>
<th>WB</th>
<th>OAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>141.50</td>
<td>218.54</td>
</tr>
<tr>
<td>155.51</td>
<td>237.43</td>
</tr>
</tbody>
</table>

**Crew Cab**

<table>
<thead>
<tr>
<th>WB</th>
<th>OAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>168.50</td>
<td>256.30</td>
</tr>
</tbody>
</table>
Chassis Cab, Body Cargo Weight Distribution

DIMENSIONS SHOWN ARE NOMINAL
ESTIMATES BASED ON EVEN DISTRIBUTION OF WEIGHT
PERCENTAGES ALLOW FOR 3” CB (CAB/BODY CLEARANCE)

\[
\text{CA} - \text{CB} = \left(\frac{1}{2} \times \text{BODY LENGTH} \right)
\]

\[
\text{WB} = \text{PERCENT BODY AND PAYLOAD WEIGHT AT FRONT AXLE}
\]

<table>
<thead>
<tr>
<th></th>
<th>D M A</th>
<th>D M B</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-12000 LB. GWV</td>
<td>899.4</td>
<td>2820.3</td>
</tr>
<tr>
<td></td>
<td>(35.4)</td>
<td>(111.0)</td>
</tr>
<tr>
<td>15000 LB. GWV</td>
<td>965.0</td>
<td>2866.0</td>
</tr>
<tr>
<td></td>
<td>(37.9)</td>
<td>(113.6)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEL</th>
<th>W/B</th>
<th>CA</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/K31003</td>
<td>135.5</td>
<td>60</td>
<td>7/93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C/K31403</td>
<td>159.5</td>
<td>84</td>
<td>9/87</td>
<td>9/91</td>
<td>6/94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C31803</td>
<td>183.5</td>
<td>108</td>
<td>15/82</td>
<td>15/85</td>
<td>11/89</td>
<td>8/92</td>
<td>5/95</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEL</th>
<th>W/B</th>
<th>CA</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/K31403</td>
<td>159.5</td>
<td>84</td>
<td>6/94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C31803</td>
<td>183.5</td>
<td>108</td>
<td>5/95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Front Mounted Accessories

% Front/Rear Weight Distribution for Equipment Mounted Ahead of Front Axle

<table>
<thead>
<tr>
<th>Wheelbase</th>
<th>Overhang (Center of Front Axle to the Equipment Center of Gravity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30&quot;</td>
<td>36&quot;</td>
</tr>
<tr>
<td>117.5</td>
<td>125/–25</td>
</tr>
<tr>
<td>131.5</td>
<td>123/–23</td>
</tr>
<tr>
<td>135.5</td>
<td>122/–22</td>
</tr>
<tr>
<td>141.5</td>
<td>121/–21</td>
</tr>
<tr>
<td>155.5</td>
<td>119/–19</td>
</tr>
<tr>
<td>159.5</td>
<td>119/–19</td>
</tr>
<tr>
<td>183.5</td>
<td>116/–16</td>
</tr>
</tbody>
</table>

Example:
When mounting equipment with the center of gravity 30 inches ahead of the front axle centerpiece on a truck with 131.5 wheelbase, the chart indicates the front/rear percentage to be 123/–23. If the front mounted accessory weighs 150 lbs, the front axle is equal to 150x1.23, or the weight is decreased by 23% (or 150x0.23), which equals–33 lbs. In effect, the weight on the front axle is increased by the weight of the equipment and payload plus the weight transferred from the rear.

Rear Mounted Accessories

% Front/Rear Weight Distribution for Equipment Mounted Behind Rear Axle

<table>
<thead>
<tr>
<th>Wheelbase</th>
<th>Overhang (Center of Rear Axle to the Equipment Center of Gravity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30&quot;</td>
<td>36&quot;</td>
</tr>
</tbody>
</table>

Example:
When mounting an item of equipment with the center of gravity 48 inches behind the center of rear axle on a truck with a wheelbase of 159.5 inches, the chart shows the front/rear percentage to be –30/130. If the tailgate weighs 600 lbs. 3.32 (30%) times 600 lbs. equals minus –180 lbs. Mounting the liftgate makes the front axle 180 lbs lighter. The rear axle weight is increased by 1.30 (130%) times 600 lbs. equals 780 lbs. In effect, 180 lbs. are transferred from the front to the rear axle and the weight is increased by the transferred weight plus the weight of the tailgate, or 780 lbs.

Chassis Cab Payload Weight Distribution

C/K Crew Cab Chassis Cab (%Front/Rear)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Dimensions (IN)</th>
<th>Body Lengths – FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WB</td>
<td>CA</td>
</tr>
<tr>
<td>C 30943</td>
<td>168.5</td>
<td>55.9</td>
</tr>
<tr>
<td>C 30943 w/R05</td>
<td>168.5</td>
<td>55.9</td>
</tr>
<tr>
<td>K 30943</td>
<td>168.5</td>
<td>55.9</td>
</tr>
<tr>
<td>K 30943 W/R05</td>
<td>168.5</td>
<td>55.9</td>
</tr>
</tbody>
</table>

C/K Chassis Cab (%Front/Rear)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Dimensions (IN)</th>
<th>Body Lengths – FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WB</td>
<td>CA</td>
</tr>
<tr>
<td>C 20903</td>
<td>131.5</td>
<td>55.9</td>
</tr>
<tr>
<td>C 30903</td>
<td>131.5</td>
<td>55.9</td>
</tr>
<tr>
<td>C 31003</td>
<td>135.5</td>
<td>60.0</td>
</tr>
<tr>
<td>C 31403</td>
<td>159.5</td>
<td>84.0</td>
</tr>
<tr>
<td>K 20903</td>
<td>131.5</td>
<td>55.9</td>
</tr>
<tr>
<td>K 30903</td>
<td>131.5</td>
<td>55.9</td>
</tr>
<tr>
<td>K 31003</td>
<td>135.5</td>
<td>60.0</td>
</tr>
<tr>
<td>K 31403</td>
<td>159.5</td>
<td>84.0</td>
</tr>
</tbody>
</table>

C/K 3500 HD Chassis Cab (%Front/Rear)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Dimensions (IN)</th>
<th>Body Lengths – FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WB</td>
<td>CA</td>
</tr>
<tr>
<td>C 31003</td>
<td>135.5</td>
<td>60</td>
</tr>
<tr>
<td>C 31403</td>
<td>159.5</td>
<td>84</td>
</tr>
<tr>
<td>C 31803</td>
<td>183.5</td>
<td>108</td>
</tr>
</tbody>
</table>
**K 35000 Power Take Off (PTO) Transfer Case**

---

**TABLE OF TRANSFER CASE POWER TAKE-OFF DATA—PTO: DRIVE GEAR**

<table>
<thead>
<tr>
<th>TRANSFER CASE</th>
<th>SAE PTO OPENING</th>
<th>NUMBER OF TEETH</th>
<th>NORMAL PITCH</th>
<th>PITCH DIAMETER</th>
<th>ANGLE &amp; HAND OF HELIX</th>
<th>NORMAL PRESSURE ANGLE</th>
<th>REDUCTION AT PTO DRIVE GEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>BORG WARNER 1370 (4401)</td>
<td>6 BOLT RH</td>
<td>57</td>
<td>243.9578 (9.6045)</td>
<td>167.1246 (6.5829)</td>
<td>21.6° LH</td>
<td>20°</td>
<td>1.0</td>
</tr>
<tr>
<td>BORG WARNER 4470</td>
<td>6 BOLT RH</td>
<td>57</td>
<td>243.9578 (9.6045)</td>
<td>167.1246 (6.5829)</td>
<td>21.6° LH</td>
<td>20°</td>
<td>1.0</td>
</tr>
</tbody>
</table>

---

**TRANSFER CASE PTO AVAILABLE WITH RPO HDS ONLY**

- **BORG WARNER 1370 (4401)**
  - 1000 RPM
  - Input: 1671
  - Distance from PTO to Centerline of Gear: 109.202 (4.2993) 28.14 (1.108)
  - Same as engine

- **BORG WARNER 4470**
  - 1000 RPM
  - Input: 1671
  - Distance from PTO to Centerline of Gear: 108.202 (4.2993) 28.14 (1.108)
  - Same as engine
C/K 309(03/53) & C/K (310/314)03 Power Take Off (PTO) Transmission

PTO INSTALLATION NOTICE
GM NV4500 MANUAL, 5 SPEED TRANSMISSIONS HAVE BEEN FACTORY FILLED WITH SYNTHETIC GEAR LUBE.

WHEN THESE TRANSMISSIONS ARE DRAINED FOR PTO INSTALLATION, THEY MUST BE REFILLED WITH CASTROL SYNTROQ LT SYNTHETIC GEAR LUBE, GM PART NUMBER 12346190 QT (LUBE CAPACITY 8.5 PINTS) 12346191 GAL.

<table>
<thead>
<tr>
<th>SERIES</th>
<th>C</th>
<th>C/K 309(03/53)</th>
<th>C/30953</th>
<th>96.9 (3.81)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C20953 &amp; C6P</td>
<td>97.7</td>
<td>C30953</td>
<td>20953</td>
<td>96.9 (3.81)</td>
</tr>
<tr>
<td>C20953 &amp; C6P</td>
<td>97.7</td>
<td>C30953</td>
<td>20953</td>
<td>96.9 (3.81)</td>
</tr>
<tr>
<td>K20953 &amp; C6P</td>
<td>64.7</td>
<td>K30953</td>
<td>20953</td>
<td>64.7 (2.55)</td>
</tr>
<tr>
<td>C31003 - C5B</td>
<td>98.1</td>
<td>C31403 - C5B</td>
<td>31003</td>
<td>98.1 (3.86)</td>
</tr>
<tr>
<td>K31003 - C5B</td>
<td>66.1</td>
<td>K31403 - C5B</td>
<td>31003</td>
<td>66.1 (2.66)</td>
</tr>
</tbody>
</table>

TRANSMISSION MODEL | SAE PTO OPENING | NUMBER OF TEETH | NORMAL PITCH | DIAMETER | ANGLE & HAND OF HELIX | NORMAL PRESSURE ANGLE | REDUCTION AT PTO DRIVE GEAR |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MW3-5 SPEED</td>
<td>6 BOLT L/H &amp; RH</td>
<td>30</td>
<td>(7.9366)</td>
<td>(4.3647)</td>
<td>30° RH</td>
<td>22.4987</td>
<td>.579</td>
</tr>
</tbody>
</table>

TABLE 1: POWER TAKE-OFF DATA - PTO, DRIVE GEARS

PTO GEAR 1000 RPM INPUT TO TRANS PITCH ERR VELOCITY OF PTO @ 1000 RPM FT/MIN DISTANCE OF GEAR FACE FROM CENTERLINE OF OPENING D/W/A PTO MOUNTED ON SHAFT DISTANCE FROM PAD TO CENTERLINE OF GEAR | DISTANCE FROM OUTSIDE SURFACE OF CASE (MACHINED SURFACE) TO PITCH LINE OF GEAR | DIRECTION OF ROTATION |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>579</td>
<td>675</td>
<td>12.40 (0.488)</td>
<td>579</td>
<td>675</td>
<td>83.7184 (3.296)</td>
<td>(1.1137)</td>
<td>OPPOSITE ENGINE</td>
<td></td>
</tr>
</tbody>
</table>
**C/K Truck (Current)**

**C (310/314/318)03 Power Take Off (PTO) Transmission**

---

**POWER TAKE-OFF OPENING LOCATION**

**TRANSMISSION MW3**

**SIDE VIEW**

**REAR VIEW**

---

**PTO INSTALLATION NOTICE**

GM NV4500 MANUAL 5 SPEED TRANSMISSIONS HAVE BEEN FACTORY FILLED WITH SYNTHETIC GEAR LUBE. WHEN THESE TRANSMISSIONS ARE DRAINED FOR PTO INSTALLATION, THEY MUST BE REFILLED WITH CASTROL SYNTRIQ LT SYNTHETIC GEAR LUBE, GM PART NUMBER 12346190 QT (LUBE CAPACITY 8.5 PT) 12346191 GAL 12547885 BULK

---

### TABLE OF POWER TAKE-OFF DATA - PTO, DRIVE GEARS

<table>
<thead>
<tr>
<th>TRANSMISSION MODEL</th>
<th>SAE PTO OPENING</th>
<th>NUMBER OF TEETH</th>
<th>NORMAL PITCH</th>
<th>PITCH DIAMETER</th>
<th>ANGLE &amp; HAND OF HELIX</th>
<th>NORMAL PRESSURE ANGLE</th>
<th>REDUCTION AT PTO DRIVE GEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>MW3 - 5 SPEED</td>
<td>6 BOLT LH &amp; RH</td>
<td>30</td>
<td>(7.9366)</td>
<td>(4.3647)</td>
<td>30° RH</td>
<td>22.4987</td>
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</table>

**NOTE:**

( ) = INCHES

---

**MW3 TRANSMISSION RATIOS**

<p>| | |</p>
<table>
<thead>
<tr>
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<td>REVERSE</td>
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<td>SECOND</td>
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<tr>
<td>FIFTH</td>
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---

**579**

**675**

**12.40 (0.488) FORWARD**

**83.7184 (3.296) (1.1137) OPPOSITE ENGINE**

---

CK Rev. 12/98 Rev. 11/99
C/K Truck (Current)

SNOWPLOW INSTALLATION

Model Availability, Recommended Procedures and Guidelines

The chart on the following page shows GMTG approved models available with snow plow prep package—option VYU.

The following models produced by General Motors Truck Group are not recommended for snowplow application:

- K Series—4x4-2 door and 4 door utilities (Tahoe/Yukon)
- K Series—4x4-Suburbans and Crew Cab Pickups

General Motors recommends that when a snowplow is mounted on a vehicle, only one passenger should accompany the driver. More than one passenger may exceed Front Gross Axle Weight Ratings.

Prior to installing a front mounted snowplow, the following process should be followed and necessary information obtained.

- Establish vehicle curb weight
- Establish chassis manufacturers front and rear axle weight ratings
- Chevrolet and GMC truck dealers can provide availability, specifications, weights, Gross Vehicle Weight Ratings (GVWR) and Front and Rear Gross Axle Ratings (GAWRF/GAWRR). (For vehicles already built, this information can be found on the certification label installed on drivers door/door frame or provided on cover of incomplete vehicle document).

The following information should be obtained and provided by the manufacturers of snowplows and salt spreaders:

- Specifications, weights and center of gravity data
- Vehicle installation guidelines and instructions
- Calculation of weight distribution for the front and rear axles

The loaded vehicle with driver, passengers, aftermarket accessories, snowplows, spreader, and cargo must not exceed Gross Vehicle Weight Rating (GVWR), Front and Rear Gross Axle Weight Ratings.

Ballast Compensating Weight

The use of ballast weight may be required to prevent exceeding the Gross Axle Weight Rating of the front axle. Ballast should be securely attached in the pickup box or behind the rear axle of vehicle.

1999 Snowplow Prep Package—Option VYU

GMTG: Chevrolet/GMC

<table>
<thead>
<tr>
<th>Model</th>
<th>K20753</th>
<th>K20903</th>
<th>K20953</th>
<th>K30903</th>
<th>K30953</th>
<th>K20903</th>
<th>K30903</th>
<th>K31003</th>
<th>K31403</th>
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<tbody>
<tr>
<td>Cab</td>
<td></td>
<td></td>
<td></td>
<td></td>
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Engine Availability with VYU

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<tbody>
<tr>
<td>Gas-V8 (350 CID) Vortec 5700</td>
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<tr>
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<tr>
<td>Diesel-V8 (395 CID) 6.5T</td>
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CK Rev. 12/98 Rev. 11/99
## C/K Truck (Current)

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<thead>
<tr>
<th>Chassis Cabs</th>
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<td>Model</td>
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</tr>
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<td>Cab</td>
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<td>Wheelbase</td>
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<td>Pickup Box Length</td>
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<tr>
<td>GVWR</td>
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<td>GAWR-Frt.</td>
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### Base (B) Equipment Includes:

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### Snowplow Prep Package Includes:

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<tr>
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### Suggested Optional Equipment

<table>
<thead>
<tr>
<th>Opt. Code</th>
<th>Alternator 140 Amps</th>
<th>Locking Differential</th>
<th>Battery 770 CCA Not Available with L65</th>
<th>Cold Climate Package (Incls. Engine Block Heater)</th>
<th>Dual Alternators 100 Amps (L65 Only)</th>
<th>Rear Window Defogger</th>
<th>Skid Plates</th>
<th>Sliding Rear Window Not Available with C49</th>
<th>Cabs Marker Lamps</th>
<th>HD Rubber Mats</th>
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<tr>
<td></td>
<td>8A5</td>
<td>G80</td>
<td>7Y9</td>
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<td>8Z4</td>
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<td>N/A</td>
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</tr>
</tbody>
</table>

* – HD power steering cooler is standard on K2500 series with option code L29 (7.4L gas) or option code L65 (6.5T Diesel) engines.

A – Available / B-Base / S-Standard / X-Included / 1)-Included with R05 Dual rear wheels

The K2500 and K3500 series vehicles with GVWR's of 8600 lbs. or above will have increased Front GAWR from 4250 lbs. to 4500 lbs.
The following information is for vehicle alterers who intend to remove Pickup boxes from C/K Trucks and install second unit bodies on these vehicles. This information applies only to those vehicles which have a Gross Vehicle Weight Rating (GVWR) of 6100 lbs. up to and including 10,000 lbs. (Vehicles listed in Table ‘A’)

**Alterations To Completed Vehicles**

Persons who alter complete (certified) Pickup Trucks by removal of the Pickup box should be aware that this type of activity would impose upon them the corresponding responsibility for ensuring that the units as sold are in compliance with all applicable safety and/or emissions (including noise and RFI) requirements. Specific questions concerning compliance or certification to these requirements should be directed to the vehicle alterer’s legal counsel or the National Highway Traffic Safety Administration, The Environmental Protection Agency, The California Air Resources Board, or, in Canada, The Ministry of Transport or The Canadian Department of Commerce.

The Environmental Protection Agency has provided an explanation of the policy they will follow regarding the modification by the secondary manufacturers of complete Light Duty Trucks prior to sale and delivery to the ultimate purchaser. This explanation is contained in a letter from C. N. Freed of the EPA to M. M. McBride of the Recreation Vehicle Industry Association, dated July 13, 1979. A portion of this letter states:

"...secondary manufacturers are not manufacturers under the act when the following conditions are met:

1. The vehicles produced by a secondary manufacturer conform in all material respects to the design specification in the original manufacturer’s application for certification (hereafter ‘application’); and

2. The weight of the vehicles produced by a secondary manufacturer, including the weight of fuel at nominal tank capacity, is no more than 500 lbs. above the maximum vehicle weight."

No frontal area restrictions will apply to secondary manufacturers who comply with the conditions above. However, every vehicle sold to an ultimate purchaser must be covered by the Emission warranty mandated by Section 270(a) of the Act. Secondary manufacturers who do not meet the above conditions will be considered manufacturers under the Act and will be required to ensure that the vehicles they produce are covered by a certificate of conformity.

The maximum vehicle weight for a given vehicle is determined by:

**Vehicle:**

A. Subtracting 300 lbs. from the highest loaded vehicle weight (see 40 CFR 86.079-2 for loaded vehicle weight definition and the table at 40 CFR 86.129-80) associated with the test weight listed in the application for the vehicle in question, and

B. Adding the weight of all options that are offered by the original manufacturer for the applicable truck line that were not included in the curb weight reported in the application.

In the case of mutually exclusive options, only the weight of the heavier option is to be used when computing the maximum vehicle weight.

Some original manufacturers provide their sales organizations with a “Data Book” that lists the curb weights of complete Light Duty Trucks equipped with standard equipment (not including the weight of any optional equipment). The “Data Book” also describes the options (including their weight) the original manufacturer offers. A secondary manufacturer may use the “Data Book” curb weight and option weights to determine the maximum vehicle weight for a given vehicle by adding the weight of every option offered by the vehicle for the curb weight in the “Data Book”. In the case of mutually exclusive options, only the weight of the heavier option is to be added to the “Data Book” curb weight. The weight of optional engines, transmission and emission control systems is added to the “Data Book” weight only when the vehicle in question actually contains these options.

Those who wish to remove the Pickup box from a Pickup Truck for the purpose of installing special equipment or another type of body should be further advised that a Pickup may require modification in one of the following areas. Before a decision is made to alter a C/K Pickup Model, please be advised of the following considerations:

**Service Parts:**

The service parts and related service part numbers as outlined in the four areas of modification may be ordered throughout your local Chevrolet/GMC Dealer. Contact your Dealer’s Service Parts Representative for availability and price.

**Areas of Modification**

1. Fuel filler neck assembly and housing.
2. Tail lamp, tail lamp wiring harness and license plate bracket assembly.
3. Fuel tank filler pipe ground strap.
4. Spare tire mounting.
### Fuel Tank Filler Neck (Gasoline)

<table>
<thead>
<tr>
<th>Items</th>
<th>Part Description</th>
<th>Part Number</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pipe Asm–L29/L30/L31/L35 without RPO NM8</td>
<td>15728448</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>Pipe Asm–L29/L30/L31/L35 with RPO NM8</td>
<td>15156558</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Band (TY Wrap)</td>
<td>790992</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Clamp</td>
<td>3817244</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Clamp</td>
<td>2464901</td>
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</table>
## Fuel Tank Filler Neck (Diesel)

<table>
<thead>
<tr>
<th>Items</th>
<th>Part Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Housing -Fuel Tank Upper</td>
<td>15629096</td>
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<tr>
<td>2</td>
<td>Pipe Asm -with Engines L56/L65 without RPO NM8</td>
<td>15640372</td>
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<td>3</td>
<td>Band</td>
<td>790992</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Hose -Fuel Tank Filler</td>
<td>15640379</td>
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<tr>
<td>5</td>
<td>Hose -Fuel Tank Vent</td>
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<tr>
<td>6</td>
<td>Clamp</td>
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</tr>
<tr>
<td>7</td>
<td>Strap</td>
<td>15560979</td>
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<td>8</td>
<td>Clamp</td>
<td>2464901</td>
<td>4</td>
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<tr>
<td>9</td>
<td>Bolt/Screw</td>
<td>11514546</td>
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<tr>
<td>10</td>
<td>Cap Asm</td>
<td>15671703</td>
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</table>
The following dimensions and diagrams should be followed when using the original fuel fill and vent system that was installed on the vehicle. If the replacement fuel fill and vent system, which is available from your Chevrolet/GMC Dealer, is used, see the fuel fill system modifications on pages 39-40.

**Recommended Fuel Fill Access Zone**

<table>
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<tr>
<th>Model</th>
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<tr>
<td>C 100-200-300</td>
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<tr>
<td></td>
<td>11.50</td>
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<tr>
<td>K 100-200-300</td>
<td>12.00</td>
</tr>
<tr>
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<td>13.00</td>
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</table>

**NOTE:** Body Builder to trim fuel filler and vent hose to desired length. Fuel and vent line must maintain a downward flow to fuel tank. Hose must be installed so that no fuel may be trapped.
Fuel Fill System Modifications–Connector & Label (Diesel Vehicles Only)

<table>
<thead>
<tr>
<th>Items</th>
<th>Part Description</th>
<th>Part Number</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>1</td>
<td>Pipe Fuel Tank Fill Instruction-Fuel Tank Fill Pipe</td>
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<td>Clamp Assembly-Fuel Tank Fill Pipe</td>
<td>3817244</td>
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</tr>
<tr>
<td>3</td>
<td>Label-Diesel Fuel Only</td>
<td>14039900</td>
<td>1 Only</td>
</tr>
<tr>
<td></td>
<td>Label-Diesel Fuel Only (Canadian)</td>
<td>52350605</td>
<td>1 Only</td>
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Pickup Box Removal Fuel Fill System Modifications (Diesel)

Parts are provided through your Chevrolet/GMC Dealer to convert the fuel fill and vent system to meet the packaging requirements of the particular bodies that are installed on the chassis. See pages 40 and 42 for part numbers and diagrams.

Certain guidelines must be adhered to in modifying the fuel fill and vent system to ensure that the completed product meets the manufacturers requirements.

1. The fuel fill and vent system must be installed such that there is adequate clearance between the fuel fill and vent system and the tires under all operating conditions. Body attachment brackets and U-bolts must also be located such that there is adequate clearance to all fuel system components, such as the fuel lines and the fuel level sending unit, under all operating conditions.
2. Splice joint (tube 2.0 inches dia. x 3.0 inches long) may be used to adjust the length and orientation of hose between the two 90° bends. To do this, the hose should be cut, the required length removed and the remaining two sections of hose reassembled using the splice joint. The hose sections must be pushed over the retaining bend and up to the stop bead in the center of the splice joint. The two clamps are to be placed between the retaining beads and the stop bead (Figure 1).

3. The fuel vent hose should be shortened by an amount equal to that removed from the fuel fill hose, that length should be taken from the fuel tank end only.

4. A minimum of 8.0 inches of fill hose must be maintained between the filler neck and the fuel tank as measured in an outboard direction from the tank surface (at the fill hose nipple) to the outlet end of the filler neck.

5. Both the fill and vent hoses must be routed (and supported, if needed) such that there are no sags or kinks. As viewed from the filler neck, both hoses must be level or sloping downward toward the tank.

6. Fuel fill hose clamps are to be driven to 19-25 lbs. in torque.

7. Fuel fill vent hose clamps are to be driven to 13-18 lbs. in torque.

8. If the application requires removal of the factory installed “Diesel Fuel Only” label the label must be replaced (Figure 2).

---

**Pickup Box Removal Fuel Fill System Modifications (Gasoline)**

Parts are provided through your Chevrolet/GMC Dealer to convert the fuel fill and vent system to meet the packaging requirements of the particular bodies that are installed on the chassis. See page 39 for part numbers and diagrams.

Certain guidelines must be adhered to in modifying the fuel fill and vent system to ensure that the completed product meets the manufacturers requirements.

1. The fuel fill and vent system must be installed such that there is adequate clearance between the fuel fill and vent system and the tires under all operating conditions. Body attachment brackets and U-bolts must also be located such that there is adequate clearance to all fuel system components, such as the fuel lines and the fuel level sending unit, under all operating conditions.

2. The fuel fill and vent pipe system available from the dealer includes a number of additional hose retaining beads. The pipes can be trimmed at the hose retaining beads to adjust for the various chassis lengths and body widths. The pipes must be trimmed only at locations where a hose retaining head is present. A hose retaining bead must be present at each pipe to hose interface in a modified fuel fill and vent system. Pipe ends must be free of burrs which may be detrimental to satisfactory assembly and/or function.

3. A minimum of 8.0 inches of fill hose must be maintained between the filler neck and the fuel tank as measured in an outboard direction from the tank surface (at the fill hose nipple) to the outlet end of the filler neck.

4. Both the fill and vent hoses must be routed (and supported, if needed) such that there are no sags or kinks. Excess hose length may be removed as required provided hose does not kink. As viewed from the filler neck, pipes and hoses must have a downward slope toward the tank. There should be a minimum of 4° of downward slope in the fill and vent pipe at any location.

5. The fuel fill and vent system should be restrained in the upfit vehicle. This is necessary to avoid chaffing, fretting, rubbing, etc. which may cause wear to the pipes or hoses.

6. Fuel fill hose clamps are to be tightened to 19-25 lbs. in torque.

7. Fuel fill vent hose clamps are to be tightened to 13-18 lbs. in torque.
### Tail Lamp Assembly

#### Federal Motor Vehicle Safety Standards

**FMVSS 101 – Controls and Displays**

This vehicle, when altered, will conform to FMVSS 101 providing no alterations are made which affect the size, location, identification or illumination of the controls and displays identified below or the location, travel and type of seat. If the seat is installed by the final stage manufacturer, the visibility and operation of the controls and displays listed below must meet the requirements of paragraph S5 of the standard:

Vehicle and system controls and displays including:

| Hazard warning signal control and tell-tale | Engine coolant temperature display |
| High beam control and indicator | Rear window defrosting and defogging controls |
| Steering wheel | Manual transmission shift lever, except transfer case |
| Service brake | Heating system controls (including fan) |
| Accelerator | Air conditioning system controls (including fan) |
| Horn control | Engine start control |
| Clutch | Engine stop control |
| Ignition control | Hand throttle control |
| Gear position display | Clearance lamp control |
| Headlamp control | Side marker lamp control |
| Turn signal, control and display | Identification lamp control |
| Brake failure warning display | Windshield defrosting and defogging controls |
| Illumination intensity control | Speedometer display |
| Fuel level display | * Odometer (must be metric) |
| Windshield wiper control | * Trip recorder (must be metric) |
| Windshield washer control | * Hub odometer (must be metric) |
| Oil pressure display | Automatic vehicle speed control |
| Electrical charge display | Seat belt tell-tale |
| Manual choke control | Anti-lock brake failure warning display |
| Tail lamps/control | Air bag tell-tale (if so equipped) |

If the alterer installs any of the aforementioned controls and displays, those controls will also have to meet the requirements of this standard.

* For Canada MVSS only, when Canadian option is specified.

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<table>
<thead>
<tr>
<th>Items</th>
<th>Part Description</th>
<th>Part Number</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Lamp Assembly-Left hand and Right hand</td>
<td>15684994/5</td>
</tr>
<tr>
<td>2</td>
<td>Bolt/Screw</td>
<td>15965179</td>
</tr>
<tr>
<td>3</td>
<td>Harness Assembly</td>
<td>15302486</td>
</tr>
<tr>
<td>4</td>
<td>Strap</td>
<td>11501906</td>
</tr>
<tr>
<td>5</td>
<td>Washer</td>
<td>11501869</td>
</tr>
<tr>
<td>6</td>
<td>Bolt/Screw</td>
<td>11504585</td>
</tr>
<tr>
<td>7</td>
<td>Bolt/Screw</td>
<td>11604106</td>
</tr>
</tbody>
</table>
FMVSS 102 – Transmission Shift Level Sequence, Starter Interlock and Transmission Braking Effect

This vehicle, when altered, will conform to FMVSS 102 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Transmission control and identification system, including but not limited to:

- Automatic transmission assembly (A/T)
- A/T control from steering column to transmission linkage
- A/T control from floor shift mechanism to transmission linkage
- A/T steering column assembly
- A/T floor shift mechanism
- A/T neutral safety back-up switch assembly and wire
- Chassis wiring harness
- A/T position indicator dial
- A/T position indicator pointer
- A/T position indicator actuating linkage
- Transmission shift position pattern (knob, plate or label)

FMVSS 103 – Windshield Defrosting and Defogging Systems

This vehicle, when altered, will conform to FMVSS 103 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Windshield defrosting and defogging systems, including but limited to:

- Windshield assembly
- Heater and defroster control
- Vacuum control hoses
- Heater and defroster assembly (electrical, mechanical, vacuum) (including motor and blower)
- Heater and water hoses/hose assemblies
- Heater blower motor resistor assembly
- Defroster air duct assembly (it affects high blower speed)
- Engine water outlet thermostat assembly
- Heater and air conditioning wiring harness
- Engine wiring harness
- Windshield wiper arm assembly
- Windshield wiper blade assembly
- Windshield wiper linkage assembly
- Windshield wiper/washer control
- Windshield wiper/washer motor/pump assembly
- Windshield module attachments
- Windshield washer fluid reservoir
- Washer reservoir cap
- Windshield washing system hoses
- Windshield washer nozzle
- Chassis wiring harness

FMVSS 104 – Windshield Wiping and Washing Systems

This vehicle, when altered, will conform to FMVSS 104 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Windshield wiping and washing systems, including but limited to:

- Windshield assembly
- Windshield washer fluid reservoir
- Windshield wiper arm assembly
- Washer reservoir cap
- Windshield wiper blade assembly
- Windshield washing system hoses
- Windshield wiper/washer control
- Windshield wiper/washer motor/pump assembly
- Windshield module attachments
- Chassis wiring harness

FMVSS 105 – Hydraulic Service Brake, Emergency Brake and Parking Brake Services

Allowable center of gravity variation (C/K).

These charts detail the envelope of allowable center of gravity variation for completed vehicles. This is significant for the lightly loaded portion of FMVSS 105, which is defined as curb plus 400 pounds distributed in the driver-passenger area of the vehicle.

The lightly loaded center of gravity of complete vehicles needs to be restricted so it will meet FMVSS 105 stopping distances. The laden center of gravity does not need to be specified as it is controlled within the FMVSS 105 test procedure by specific instructions as to how ballast is to be placed (while height is not controlled, it is assumed that for test purposes it would be reasonable).

For Body Builder’s use, the center of gravity location can be approximated by the following formula:
\[
\begin{align*}
    d &= \frac{(W_{rc} + W_{rb} + 150) \ W.B.}{W_t} \\
    h &= \frac{(h_1 W_c + h_2 W_b + 10,000)}{W_t}
\end{align*}
\]

- \(d\) = horizontal distance from front wheels to completed vehicle center of gravity (inches)
- \(h\) = vertical distance from ground to completed vehicle center of gravity (inches)
- \(W_{rc}\) = rear component of bare chassis weight (pounds)
- \(W_{rb}\) = rear component of body weight (pounds)
- \(W_{B.}\) = vehicle wheelbase (inches)
- \(W_t\) = total weight of chassis, body (pounds) plus 400 pounds
- \(h_1\) = center of gravity height from ground of the bare chassis, selected from
- \(W_c\) = total weight of Bare Chassis (pounds)
- \(h_2\) = center of gravity height of body from ground (inches)
- \(W_b\) = total weight of body (pounds)
- 150 = rear component of 400 pounds (from lightly loaded definition)
- 10,000 = 400 pounds (from lightly loaded definition) multiplied by its vertical center of gravity height (assumed) of 25 inches

**NOTE:** An alternate method of center of gravity calculation may be found in the current issue of the General Motors Body Builders Book in the general instruction section and in SVIE Bulletin #39.

**Allowable Center of Gravity Chart:**

C.G. of vehicle in FMVSS unladen condition (Curb + 400 lbs.) must be inside shaded area – that is, it must be within the trapezoid formed by the coordinates A, B, C, D, H1 & H2, plus it must be to the rear of vertical line E and forward of vertical line F.
## Pickup Box Removal Vehicles

<table>
<thead>
<tr>
<th>Model</th>
<th>GVWR</th>
<th>Brake System</th>
<th>Coordinates of Allowable C.G. Variation at FMVSS Unladen (Curb + 400 lbs.)</th>
<th>C.G. Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>♦ H₁  H₂  A  B  C  D  E  F</td>
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<tr>
<td>C 10953</td>
<td>6200</td>
<td>SW JB5 JD5</td>
<td>15  48  52  85  93  124</td>
<td>52  124</td>
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<td>C 20953</td>
<td>7200</td>
<td>SW JB7 JD7</td>
<td>12  48  50  73  76  97</td>
<td>50  95</td>
</tr>
<tr>
<td>C 30903</td>
<td>9000</td>
<td>SW JB8</td>
<td>15  48  59  85  75  110</td>
<td>59  100</td>
</tr>
<tr>
<td>C 30903</td>
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<td>DW JB8</td>
<td>12  48  50  76  87  113</td>
<td>54  109</td>
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<tr>
<td>C 30943</td>
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<td>SW JB8</td>
<td>15  45  50  76  87  113</td>
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<tr>
<td>C 30943</td>
<td>9600</td>
<td>SW JB8</td>
<td>15  45  50  76  87  113</td>
<td>54  109</td>
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<td>C 30943</td>
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<tr>
<td>C 30953</td>
<td>9000</td>
<td>SW JB8</td>
<td>15  48  46  70  80  104</td>
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<tr>
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<td>DW JB8</td>
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<td>59  116</td>
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<td>15  48  52  85  93  124</td>
<td>52  124</td>
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<tr>
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<td>15  48  39  59  68  88</td>
<td>42  85</td>
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<td>DW JB8</td>
<td>12  48  57  81  76  100</td>
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</tr>
<tr>
<td>K 30943</td>
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<td>15  48  75  100  96  124</td>
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<td>K 20953</td>
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<td>SW JB7 JD7</td>
<td>12  48  52  78  83  106</td>
<td>52  106</td>
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<tr>
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<td>9200</td>
<td>SW JB8</td>
<td>15  48  46  70  80  104</td>
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<td>K 30943</td>
<td>9200</td>
<td>SW JB8</td>
<td>15  48  75  100  96  124</td>
<td>75  124</td>
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<tr>
<td>K 30953</td>
<td>10,000</td>
<td>DW JB8</td>
<td>12  48  59  86  89  116</td>
<td>59  116</td>
</tr>
</tbody>
</table>

- **SW** = Single Wheel
- **DW** = Dual Wheel
- **C.G.** = Center of Gravity
- ♦ JB5, JB6 and JB7 ................................. Vacuum Powered Diaphragm Booster
- ▪ JB8, JD5, JD6 and JD7 ............................... Hydraulic Boosters
**FMVSS 106 – Brake Hoses**

This vehicle, when altered, will conform to FMVSS 106 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

- Hoses and hose end fittings

**FMVSS 108 – Lamps, reflective Devices and Associated Equipment**

This vehicle, when altered, will conform to FMVSS 108 if it is completed with a body over 80 inches wide providing the following conditions are met:

1. Each of these devices must be properly installed on the completed vehicle and meet all the requirements of FMVSS 108:
   a. The following devices when provided, located and/or wired by General Motors meet the requirements of this standard:
      - Headlamps and/or foglamps
      - Front side marker reflex reflectors
      - Front turn signal lamps
      - Turn signal operating unit
      - Vehicle hazard warning signal operating unit
      - Mud flaps w/reflectors (Tractor only)

   b. No part of the completed vehicle shall be installed so as to prevent any of the devices listed in (a) above from meeting their required photometric output at the specified test points. If such interference exists, the applicable devices may have to be relocated or additional devices added to meet the requirements of FMVSS 108. Any FMVSS 108 part shall not be painted.

   c. The following additional devices must be installed on the van body and meet all the requirements of this standard:
      - Rear side marker lamps
      - Front and rear clearance lamps
      - Intermediate side marker lamps

   d. The following additional devices must be installed on the van body and meet all the requirements of this standard if the overall vehicle length is 30 feet or greater:
      - Intermediate side marker lamps

2. No alterations (other than any relocation of items in 1(a) which may be necessary to conform to the standard) should be made which affect the location, mounting surfaces, function, environment or visibility clearance of the above listed devices which have been installed on this incomplete vehicle.

**FMVSS 111 – Rearview Mirrors**

This vehicle, when altered, will conform to FMVSS 111 providing no alterations or substitutions to the outside or inside mirrors furnished with the vehicle, the driver’s seat location is not altered and the body width is not increased.

**FMVSS 112 – Headlamp Concealment Devices**

Conformity with FMVSS 112 is not substantially affected by the design of this incomplete vehicle and General Motors makes no representation as to the conformity with this standard.

**FMVSS 113 – Hood Latch System**

This vehicle, when altered, will conform to FMVSS 113 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

- Hood latch systems, which may include but are not limited to:
  - Hood latch (catch) assembly
  - Hood latch support assembly
  - Hood latch pilot
  - Hood latch striker plate (hook)

**FMVSS 114 – Theft Protection**

This vehicle, when altered, will conform to FMVSS 114 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

- Steering column lock assembly
U.S. CFR 49, PART 567/CMVSS 115 – Vehicle Identification Number

This vehicle, when completed, will conform to CMVSS 115 and U.S. CFR 49, part 567, providing no alterations are made to the Vehicle Identification Number or to the environment, location, vital spatial clearances or visibility of the VIN Plate.

FMVSS 116 – Motor Vehicle Brake Fluids

This vehicle, when equipped with approved hydraulic brake fluid will conform to FMVSS 116 providing no alterations are made which affect the physical or chemical properties of the brake fluid.

FMVSS 120 – Tire Selection and Rims for Vehicles Other than Passenger Cars

This vehicle, when completed, will conform to FMVSS 120 providing no alterations are made which affect the function, physical or mechanical properties or the attachment of the wheels and tires.

The tire and wheel information shown on the Incomplete Vehicle Document Label must be transferred to the final stage manufacturer’s Certification label or Tire Information Label providing no equipment changes are made.

FMVSS 124 – Accelerator Control Systems

This vehicle, when altered, will conform to FMVSS 124 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Accelerator control systems, including but not limited to:

- Lever, throttle or accelerator and supporting bracket
- Cable or rod, throttle or accelerator and support bracket including seals
- Electronic throttle control assembly and related wiring
- Cruise control module, wiring and cable (if so equipped)
- Spring(s)-throttle or accelerator return
- Pedal-throttle or accelerator and attachments
- Floor covering material must not be installed under pedal nor within 1 inch of side of pedal
- Attachment pin, hole or ball stud to carburetor/port fuel injection unit throttle lever

FMVSS 201 – Occupant Protection in Interior Impacts (GVWR of 10,000 Pounds or Less)

This vehicle, when completed, will conform to FMVSS 201 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

- Instrument panel
- Seats
- Interior compartment doors
- Sunvisors
- Arm rests

FMVSS 202 – Head Restraints (GVWR of 10,000 Pounds or Less)

This vehicle, when altered, will conform to FMVSS 202 providing no alterations or substitutions are made to the seat assemblies.

FMVSS 203 – Impact Protection for the Driver from the Steering Control System (GVWR of 10,000 Pounds or Less)

Conformity with FMVSS 203 is not substantially affected by the design of this incomplete vehicle and General Motors makes no representation as to the conformity with this standard.

FMVSS 204 – Steering Control Rearward Displacement (GVWR of 10,000 Pounds or Less)

This vehicle, when altered, will conform to FMVSS 204 providing no alterations are made to the cab and front end sheet metal and structural components, roof, hood, hood mechanism, doors, fenders, pillars, fender reinforcement, cowl, bumpers and bumper mounting system, frame/frame reinforcement, front suspension and front cross-member or steering control system or other components that would affect the steering control system displacement in a 30 m.p.h. fixed barrier impact.

FMVSS 205 – Glazing Materials

This vehicle, when altered, will conform to FMVSS 205 providing no alterations are made which affect the physical or chemical properties of the glazing material or the monogram or the visibility of the monogram.
FMVSS 206 – Door Locks and Door Retention Components
(Not Applicable to Bus)

This incomplete vehicle, when completed, will conform to FMVSS 206 providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

Door and pillar systems, including but not limited to:
- Door lock
- Inside lock control linkage
- Door latch
- Door wedges
- Door latch striker plate
- Door hinge
- Exterior door handles

FMVSS 207 – Seating Systems

This vehicle, when altered, will conform to FMVSS 207 providing no alterations are made which affect the function, physical or mechanical properties, environment, location and vital spatial clearances of the components, assemblies or systems provided and identified below:

Seating systems, including but not limited to:
- Seat assembly
- Seat adjuster assembly
- Seat or seat back latch assembly
- Seat or seat back latch release control
- Seat anchorages brackets, reinforcements, attachment hardware, etc.
- Door latch
- Door strike plate
- Door hinge
- Exterior door handles

If the intermediate or final stage manufacturer installs any additional seats, they will also have to meet the requirements of this standard.

FMVSS 208 – Occupant Crash Protection

This vehicle, when altered, will conform to FMVSS 208 providing it is completed in accordance with the following specific conditions by the final stage manufacturer:

1. The front seat belts provided by General Motors will conform to the requirements of FMVSS 208, providing no alterations are made to:
   a. the number, location or configuration of the designated seating positions; and
   b. the number, placement, installation or model number of the seat belt assemblies provided; and
   c. the instrument panel or its mounting, the steering column/shaft or its mounting, the knee bolster or its mounting, the steering wheel, horn pad, driver air bag module or its mounting and covering, passenger air bag module or its mounting or covering (if so equipped), air bag crash sensors, Sensor Diagnostic Module (SDM) in C/K, and all air bag system wiring. Do not relocate or move the SDM.
   d. Do not obstruct the path of air bag deployment. (see restricted area reference in appendix.)
   e. Do not mount any components that produce more than a 20 Gauss magnetic field as measured at the SDM. Speakers/magnets must be located at least 5 inches from the SDM.

   You must disconnect the SDM before doing any welding on the vehicle, otherwise do not disconnect the SDM.

   If the sunshade is removed or altered, a new Inflatable Restraints System Caution label must be installed per the sketch found in Part III of this document. A label has been shipped loose. In order to be in compliance with FMVSS 208 no other label shall be installed on the same side of the sunvisor as the Inflatable Restraint Caution (Air Bag ) label. Instrument panel temporary warning label must not be removed.

   NOTE: Most air bag wiring is wrapped with yellow tape and all air bag components have yellow connectors.

   CAUTION: To help avoid Personal Injury Due to unwanted air bag inflation, observe the following precautions!

   Do not weld, solder, braze, hammer, machine, drill, heat, electrical splice, add onto, remove, relocate, test, paint, loosen or in any way alter air bag components or wiring or fuses. Carpet may be put over the SDM if an appropriate moisture barrier (such as a rubber matted backing) is supplied.

   When performing any operation around air bag components or wiring including but not limited to any operations around the instrument panel, electrical wiring and fuse block, steering column/wheel, and the engine compartment you must disable the air bag system prior to the operation. If the vehicle is equipped with an SDM, you must disable the air bag system prior to upfitting. Note: Striking or dropping a powered SDM may cause air bag deployment. The air bag system must be enabled after operation completion. This must be verified before shipping the vehicle. Instructions for disabling and enabling the air bag system can be found in the GM service manual for the specific product line.

   d. the vehicle frame, front bumper system, front sheet metal or other front structure, roof structure, doors, floor pan, driveline or contents of the engine compartment by any subsequent manufacturer which would result in any difference from the modified vehicle’s deceleration if the modified vehicle were to be subjected to barrier impact tests conducted per FMVSS 208.

2. The rear seat belts provided by General Motors will conform to FMVSS 208 providing no alterations are made to the number, location or configuration of the designated seats/seating positions or to the number, placement, installation or model number of the seat belt assemblies of this incomplete vehicle.
FMVSS 209 – Seat Belt Assemblies

The seat belt assembly provided by General Motors, at any designated seating position, will conform to the standard providing no alterations or substitutions are made to the seat belt assembly, attachment hardware, Owner’s Manual Instructions or seats provided. For vehicles having GVWR of 8500 pounds or less, the vehicle model number as shown on the label on the cover of this document must be included on the final stage manufacturer’s certification label.

FMVSS 210 – Seat Belt Assembly Anchorages

This vehicle, when altered, will conform to FMVSS 210 providing no additional occupant seats or seat belt assembly anchorages are added and no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:

- Seat belt systems, including but not limited to:
  - Seat assemblies
  - Floor pan assembly
  - Seat belt routing

FMVSS 212 – Windshield Mounting

(GVWR of 10,000 Pounds or Less)

This incomplete vehicle, when completed, will conform to FMVSS 212 if:

1. No alterations are made to the cab and front end structural components including roof, hood and hood mechanism, doors, fenders, pillars, fender reinforcement, cowl, bumpers and bumper mounting system, windshield and windshield mounting system and frame/frame reinforcement.
2. The maximum weight of the body and/or equipment installed must be such that the completed vehicle’s unloaded vehicle weight does not exceed the values specified in Table “A” (page 54).
3. The center of gravity for the respective body type of the installed body and accessories does not exceed the maximum center of gravity height specified in Table “A” (page 54).
4. The height above the frame of the body or accessories does not exceed the maximum body height specified in Table “A” (page 54).
5. The clearance between the rear most part of the cab and the front of the body is not less than the minimum cab to body clearance specified in Table “A” (page 54).
6. The minimum vertical clearance between the cab roof and any portion of the installed body or accessories that extends over the cab roof must not be less than eight inches.

7. The maximum body weight does not exceed the value specified in Table “A” (page 54).
8. During a 30 m.p.h. frontal barrier impact test, no component installed by any subsequent manufacturer shall move forward from its permanently mounted position.

FMVSS 214 – Side Impact Protection

(GVWR of 10,000 Pounds or Less)

This incomplete vehicle, when completed, will conform to FMVSS 214 providing no alterations are made to the cab, roof, floor, side pillars, fuel system, chassis, structural components and door assemblies.

FMVSS 216 – Roof Crush Resistance

(GVWR of 6000 Pounds or Less)

This vehicle conforms to FMVSS 216 providing no alterations are made to the cab, roof, side pillar, structural components and door assemblies.

FMVSS 219 – Windshield Zone Intrusion

(GVWR of 10,000 Pounds or Less)

This incomplete vehicle, when completed, will conform to FMVSS 219 providing:

1. No alteration is made to the cab and front end structural components, the hood and hood mounts; the vehicle does not exceed the Chassis Cab unloaded vehicle weight specified in Table “A”; and during a 30 m.p.h. frontal barrier impact test: (1) no component installed by any manufacturer shall prevent the hood from folding upward along the lateral centerline; and (2) no component installed by any manufacturer shall penetrate the windshield or protected zone.

FMVSS 301 – Fuel System Integrity MPV’S, Trucks and Buses

(GVWR of 10,000 Pounds or Less)

This vehicle, when altered, will conform to FMVSS 301 providing it is completed in accordance with the following specific conditions by the final stage manufacturer:

1. The following items when installed by General Motors will conform providing no alterations are made which affect the function, physical or mechanical properties, environment, location or vital spatial clearances of the components, assemblies or systems identified below:
   - Fuel feed pipes-front, rear and intermediate
   - Fuel return pipes-front and rear
   - Fuel feed and return hose-front rear and intermediate
   - Fuel tank assembly
   - Fuel vapor lines and canister
2. This incomplete vehicle, when completed, will conform to FMVSS 301 Fuel System Integrity if:

a. No alterations are made to the fuel system and attaching or protective structure.

b. The unloaded cab chassis vehicle weight of the completed vehicle does not exceed the weight listed in Table “A” (page 54).

c. Any subsequent manufacturer completes the fuel filler neck installation according to the instructions available in the current year’s Body Builders’ Book.

d. During all barrier impact tests:

1. No component installed by any subsequent manufacturer impinges or causes distortion to the fuel system with sufficient energy to puncture or separate the fuel system.

2. No vehicle modification by any subsequent manufacturer results in any portion of the vehicle impinging upon or causing distortion to the fuel system with sufficient energy to puncture or separate the fuel system. Care should be taken that the structural integrity of the vehicle is restored following any modification of the structure.

FMVSS 302 – Flammability of Interior Materials

This vehicle, when altered, will conform to FMVSS 302 providing no alterations or substitutions are made which affect any materials, parts or components identified below and installed on the Chassis Cab by General Motors:

- Engine assembly
- Ignition system
- Exhaust emission control system
- P.C.V. system
- Exhaust system
- Fuel system
- Transmission assembly
- Tires
- Diesel fuel injection controls
- Carburetor and choke controls
- A.I.R. system
- Crankcase emission control system
- Intake system
- Catalytic converter
- Evaporative emission control system
- Axle
- Fan and drive
- Turbocharger and associated controls

When completed, it should conform to CMVSS 1106 providing no alterations are made to the noise attention components identified thus* in the above list.

Canadian Radio Frequency Interference Regulations

This vehicle, when altered, will conform to the above regulations providing no alterations or substitutions are made which affect any parts of components identified below:

- Distributor
- Ignition wires
- Spark plug wires

Canadian Motor Vehicle Safety Standards

CMVSS 1101–Emission Device

CMVSS 1102–Crankcase Emission

CMVSS 1103–Exhaust Emission

CMVSS 1104–Opacity (Diesel Engine Only)

CMVSS 1106–Noise
Light Duty trucks (Light and Medium Duty in California) are certified by the primary manufacturer and the vehicle is labeled as being in compliance with emission and fuel economy requirement.

In addition, all gasoline powered Federal/California Light Duty, Medium Duty and Heavy Duty vehicles are required to have an approved fuel evaporative emission control system. Vehicle certified to Heavy Duty emission standards also require special evaporative emission labeling. In order to assure that Environmental Protection Agency (EPA), National Highway Traffic Safety Administration (NHTSA), and California Emission Certification and/or Fuel Economy regulations are met, this vehicle must be completed in strict accordance with all instructions contained in this manual, especially the following instructions which relate to:

A. Emission Related Components

Further compliance of this vehicle with EPA and/or California Emission Certification requirements will be maintained providing no alterations (except where noted) are made to the components identified below:

- Engine assembly
- Fuel system
- Transmission assembly
- Axle ratio
- Tires
- Diesel fuel injection controls
- Turbocharger and associated controls
- Electronic closed loop carburetor
- Engine electronics
- Exhaust oxygen sensor
- EGR system
- Ignition system
- Exhaust emission control system
- Crankcase emission control system
- Evaporative emission control system
- Air inlet system
- Exhaust system
- Catalytic converter
- TBI unit
- Electronic closed loop TBI system

* Applicable only to Light Duty Trucks.

** All Federal/California gasoline powered Heavy Duty vehicles will have an evaporative emission control system that is certified for a fuel tank capacity not to exceed the amount shown on the Vehicle Evaporative Emission Control Information Label located on the air cleaner. Persons wishing to add fuel tank capacity above the amount shown must contact California Air Resources Board and/or submit a written statement to the EPA Administrator that the Hydrocarbon storage system has been upgraded according to the requirements of 40 CFR 86.088-35 (g) (2).

In addition, compliance with applicable fuel evaporative emission regulations will be maintained if no alterations are made to the fuel filler neck(s) and any subsequent manufacturer completes the fuel filler neck installation(s) and fuel level sender installation(s) according to the instructions which are furnished in the current year’s Body Builders’ Book.

B. Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks (applicable only to California gasoline powered vehicles).

This vehicle, will conform to Title 13, California Administrative Code Chapter 3 Air Resources Board Subchapter 7, “Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks” if no alterations are made to the fuel filler neck(s) and any subsequent manufacturer completes the fuel filler neck installation(s) according to the instructions which are furnished in the current year’s Body Builders’ Book.
Table 'A'

These Pickup vehicles when altered will conform to FMVSS 212, 219, 301 providing the following conditions are met:

<table>
<thead>
<tr>
<th>Model/ Wheelbase</th>
<th>General Body Type</th>
<th>Maximum Body Ctr of Gravity Height (Inches)</th>
<th>Maximum Body Height (Inches)</th>
<th>Minimum Cab to Body Clearance (Inches)</th>
<th>** Maximum Unloaded Vehicle Weight (Pounds) **</th>
<th>Body Weight (Pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/K 20903 w/C6P C/K 30903</td>
<td>Low Service (C/K) High Service (C)</td>
<td>14.0 20.3</td>
<td>Under 62.0 62.0 &amp; Over</td>
<td>3.0</td>
<td>6,470</td>
<td>1,700 2,600</td>
</tr>
<tr>
<td>131.5 WB 56” CA Regular Cab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C/K 30943 C/K 30953</td>
<td>Low Service (C/K) High Service (C)</td>
<td>14.0 20.3</td>
<td>Under 62.0 62.0 &amp; Over</td>
<td>3.0</td>
<td>6,470</td>
<td>1,700 2,600</td>
</tr>
<tr>
<td>164.5 WB 56” CA Crew Cab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C/K 20953 w/C6P C/K 30953</td>
<td>Low Service (C/K) High Service (C)</td>
<td>14.0 20.3</td>
<td>Under 62.0 62.0 &amp; Over</td>
<td>3.0</td>
<td>6,470</td>
<td>1,700 2,600</td>
</tr>
<tr>
<td>155.5 WB 56” CA Extended Cab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These dimensions are measured vertically form top of frame directly behind cab.

** Unloaded vehicle weight means the weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle, but without cargo or occupants. The body weight (+) the vehicle weight must not exceed the “Maximum Unloaded Vehicle Weight”.

- On vehicles of 8,500 pounds GVWR or less, see the Vehicle Emission Control Information, Engine Exhaust Emission Control Information or Important Engine Information Label in the vehicle engine compartment for completed vehicle curb weight requirements.

- Weight of Pickup Box

Note: Bumper weight of 35 lbs. is not included.
C/K TRUCK (CURRENT)

C/K (107/207)53, Extended Cab, Exterior w/E24 Rear Access Door

Dimensions marked thus * are for "53" model with AM7

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

HEIGHT:
FR 618,0
RR 663,0

TOP OF REAR BODY MOUNT

TOP OF REAR BODY MOUNT

HEIGHT:
FR 618,0
RR 663,0

WIDTH:
FR 618,0
RR 663,0

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

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NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

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NORMAL TOP INSIDE OF FRAME C 100/200/300

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CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR ADDITIONAL INFORMATION SEE CONVENTIONAL CAB 03 MODEL

CHMSL/CARGO LAMP

NORMAL TOP INSIDE OF FRAME C 100/200/300

DIMENSIONS MARKED THIS *

NOTE: FOR AD...
C/K Truck (Current)

C/K (207/307/309) 43 Crew Cab, Interior

VIEW IN DIRECTION OF ARROW A
Front Full Bench Seat RPO A52

VIEW IN DIRECTION OF ARROW A
Front Split Bench Seat RPO AE7

VIEW IN DIRECTION OF ARROW A
Front Hi-Back Bucket Seats RPO A95

H POINT FOREMOST POSITION
H POINT REARMOST POSITION

H POINT FOREMOST POSITION
H POINT REARMOST POSITION

H POINT REARMOST POSITION

<table>
<thead>
<tr>
<th>X</th>
<th>308.6</th>
<th>299.0</th>
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<tbody>
<tr>
<td></td>
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<tr>
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<td>119.2</td>
<td>294.0</td>
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<td>-------</td>
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<td>(4.73)</td>
<td>(11.57)</td>
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<table>
<thead>
<tr>
<th>X</th>
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<th>301.0</th>
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<td>(12.24)</td>
<td>(11.85)</td>
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<tr>
<td>Y</td>
<td>112.1</td>
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<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>(44.13)</td>
<td>(48.00)</td>
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( ) = Inches
C/K TRUCK (CURRENT)

C/K (207/307/309)43 Crew Cab, Exterior
C/K Truck Pickup Box, Fleetside/Wideside, 8 ft.

NOTE:
SEE FLEETSIDE BODY
ER3 WITH CONVENTIONAL
CAB (93) FOR OPTIONAL
DUAL REAR TIRE
EQUIPMENT.

FOR ADDITIONAL INFO
SEE CAB PAGE.
CHASSIS DATA AND
CHASSIS '93 MODEL

() = INCHES

ENLARGED TYPICAL
SECTION C-C

TAIL GATE
OPENING TOP

TOP OF REAR
BODY MOUNT

GAS FILLER DOOR

GROUND LINE

TOP OF BEAD

RR STAKE
(60.24 POCKET)

TAIL GATE
OPENING BOTTOM

REFERENCES:

CK Rev. 12/98
Rev. 11/99
C/K Truck Pickup Box, Fleetside/Wideside and Heavy Hauler/Big Dooley

- **Overall Length**: L507
- **Flange Width (Top)**: 1656.0 (65.20)
- **Flange Width (Top)**: 3.02
- **Inside Width Top Rear Flange**: 1572.0 (61.89)
- **Inside Width to Inner Panel**: 1644.0 (64.72)
- **Between Stake Pockets**: 1637.5 (64.27)
- **All Stake Pockets are Approximately**: 37.7 x 53.7 (1.44) (2.11)

*Auxiliary Fender for Camper Package RPD 281 with Dual Rear Wheels RPO RS6 and Fleetside Body RPO E63*
## C/K Truck Pickup Box, Fleetside/Wideside and Heavy Hauler/Big Dooley

<table>
<thead>
<tr>
<th>Series</th>
<th>C/K 107/207(53)</th>
<th>C/K 30903</th>
<th>C/K 30953</th>
<th>C/K (207/307)43</th>
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<tbody>
<tr>
<td>A</td>
<td>2540.0 (100.00)</td>
<td>3020.0 (118.90)</td>
<td>3020.0 (118.90)</td>
<td>2540.0 (100.00)</td>
</tr>
<tr>
<td>B</td>
<td>1961.0 (77.20)</td>
<td>2441.0 (96.10)</td>
<td>2441.0 (96.10)</td>
<td>1961.0 (77.20)</td>
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<tr>
<td>C</td>
<td>549.0 (21.61)</td>
<td>681.0 (26.81)</td>
<td>681.0 (26.81)</td>
<td>549.0 (21.61)</td>
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<tr>
<td>D</td>
<td>1998.0 (78.66)</td>
<td>2478.0 (97.56)</td>
<td>2478.0 (97.56)</td>
<td>1998.0 (78.66)</td>
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<tr>
<td>E</td>
<td>—</td>
<td>1154.0 (45.43)</td>
<td>1154.0 (45.43)</td>
<td>—</td>
</tr>
<tr>
<td>F</td>
<td>1827.5 (71.95)</td>
<td>2307.5 (90.85)</td>
<td>2307.5 (90.85)</td>
<td>1827.5 (71.95)</td>
</tr>
<tr>
<td>G</td>
<td>2095.0 (82.48)</td>
<td>2575.0 (101.38)</td>
<td>2575.0 (101.38)</td>
<td>2095.0 (82.48)</td>
</tr>
<tr>
<td>H</td>
<td>3595.0 (141.50)</td>
<td>3340.0 (131.50)</td>
<td>3950 (155.51)</td>
<td>3925.0 (154.5)</td>
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<tr>
<td>J</td>
<td>1064.0 (41.89)</td>
<td>1419.0 (55.87)</td>
<td>1419.0 (55.87)</td>
<td>1064.0 (41.89)</td>
</tr>
<tr>
<td>K</td>
<td>194.2 (7.65)</td>
<td>397.0 (15.63)</td>
<td>397.0 (15.63)</td>
<td>194.2 (7.65)</td>
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<tr>
<td>L</td>
<td>5550.9 (218.54)</td>
<td>5420.9 (213.42)</td>
<td>6030.0 (237.40)</td>
<td>5880.9 (231.53)</td>
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<tr>
<td>M</td>
<td>1056.5 (41.59)</td>
<td>1181.5 (46.52)</td>
<td>1181.5 (46.52)</td>
<td>1056.5 (41.59)</td>
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<tr>
<td>N</td>
<td>35.0 (1.38)</td>
<td>35.0 (1.38)</td>
<td>35.0 (1.38)</td>
<td>35.0 (1.38)</td>
</tr>
</tbody>
</table>
C/K TRUCK (CURRENT)

C/K (109/209)06 Suburban, Interior Trim

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

110.507 (43.33)

1123.15 (44.22)

1177.80 (46.37)

802.30 (31.58)

530.70 (20.89)

1041.93 (41.02)

( ) = INCHES
C/K TRUCK (CURRENT)

C/K (109/209)06 Suburban, Seating, Intermediate/Rear

VIEW IN DIRECTION OF ARROW B
INTERMEDIATE 40/60 SEAT RPO A15

VIEW IN DIRECTION OF ARROW C
REAR SEAT RPO A53

( ) = INCHES
DIMENSIONS OF SHEET
METAL FORM ARE
LESS INTERIOR TRIM

DIMENSIONS OR FORM
FEATURES ARE ± 5.0MM

RPO E-55

1494.30
(58.83)

865.00
(34.06)

RPO D48

1644.20
(64.73)

2394.94
(94.29)

RPO E-55

649.0

C/K TRUCK (CURRENT)

C/K (109/209)06 Suburban, Exterior, End Gate
C/K Truck (Current)

C/K (1/2) 0906 Suburban, Side Step Running Boards, Option BVE

<table>
<thead>
<tr>
<th>BOTTOM OF RUNNING BOARD</th>
<th>RUNNING BOARD STEP-IN HEIGHT</th>
<th>RAMP OVER ANGLE COORDINATE DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>125.0 (4.92)</td>
<td>52.0 (2.05)</td>
<td>1670.05 (65.75)</td>
</tr>
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</table>

{ } = INCHES
C/K Truck (Current)

C/K 10516 Utility, Seating, Front/Rear

( ) = INCHES

<table>
<thead>
<tr>
<th>X</th>
<th>308.6 (12.14)</th>
<th>299.0 (11.77)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>119.2 (4.69)</td>
<td>294.0 (11.57)</td>
</tr>
</tbody>
</table>

H POINT

H POINT REARMOST POSITION

VIEW IN DIRECTION OF ARROW A
FRONT BUCKET SEATS RPO A50

VIEW IN DIRECTION OF ARROW A
FRONT SPLIT BENCH SEAT RPO AE7

VIEW IN DIRECTION OF ARROW A
FRONT HI-BACK BUCKET SEATS RPO A95

VIEW IN DIRECTION OF ARROW B
REAR SEAT RPO AMY

CK Rev. 12/98 Rev. 11/99
UNLESS OTHERWISE SPECIFIED
DIMENSIONS OF SHEET METAL
FORM ARE LESS INTERIOR TRIM.
DIMENSIONS OF FORM FRATURES
ARE ± 5.0MM

C/K 10516 Utility, Exterior, End Gate

Dimensions in Millimeters (mm)
C/K Truck (Current)

C/K 10516 Utility, Side Step Running Boards, Option BVE

<table>
<thead>
<tr>
<th>BOTTOM OF RUNNING BOARD</th>
<th>RUNNING BOARD STEP-IN HEIGHT</th>
<th>RAMP OVER ANGLE COORDINATE DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>125.0 (4.92)</td>
<td>53.2 (2.09)</td>
<td>1416.05 (55.75)</td>
</tr>
</tbody>
</table>

( ) = INCHES
C/K TRUCK (CURRENT)

C/K 10706 Utility, Exterior

* SET FRONT END SHEET METAL FOR OPTIONS

( ) - INCHES
C/K Truck (Current)

C/K 10706 Utility, Seating Arrangement

- ACCELERATOR: 653.9 mm (25.74"
- BRAKE: 578.5 mm (22.78"
- SEATS: 1158.5 mm (45.61"

- SHOULDER: 1642.8 mm (64.68"
- HIP: 1515.1 mm (59.65"
- "H" POINTS: 1519.1 mm (59.65"

- AG5-FRT HIGH BACK BUCKET SEATS: 449.0 mm (17.68"
- AE7-BASE FRT SPLIT BENCH: 449.0 mm (17.68"
- AM7-SPLIT FOLDING REAR SEAT (REAR VIEW): 449.0 mm (17.68"
- "H" POINTS (REAR VIEW): 449.0 mm (17.68"

CK Rev. 12/98 Rev. 11/99
C/K Truck (Current)

C/K (1/2/3)0000 Mirror Options, General Arrangement

*OPTION D35 AVAILABLE CK 20903, 30903, 31903, 31403, 31803 ONLY
NOTE: MIRRORS SHIPPED LOOSE

*OPTION D62 AVAILABLE
NOTE: MIRRORS SHIPPED LOOSE

*OPTION D91 FOR CK 10703 ONLY

*BASE D48 BASE ON CK 10706
D48 (ELECTRIC) & DE2 (MANUAL)

*OPTION D44 BASE FOR MODEL 31803 ONLY
OPTION D44 (PAINTED) OPTION D45 (STAINLESS)

* CHECK WITH DEALERS FOR OPTION AVAILABILITY

() = INCHES
C/K Truck, Front Floor Seat Mounting

Front Bucket Seat Mounting
RPO A95/A50
M10 x 1.5 - 4 places each side
Marked A

Floor Console Mounting
RPO D55/YF7
M10 x 1.0 - 4 places each side
Marked B

Seat Mounting

Dimensions:
- 342.0 (13.46)
- 341.0 (13.42)
- 33.0 (1.30)
- 130.0 (5.12)
- 638.0 (25.04)
- 573.0 (22.56)
- 271.0 (10.67)
- 2237.0
- 649.0
- 35.0 (1.50)
- 93.5 (3.68)

CK Rev. 12/98 Rev. 11/99
C/K Truck (Current)

C (1/2)0753 Extended Cab Pickup, Crossmember Arrangement

Frame Outline Dimensions are Symmetrically Opposite About Centerline of Vehicle

Pickup Box Mounting Holes Located Gauss Marked

Thus A & B Places Dimensions of Mounting Holes Are Symmetrically Opposite About Centerline of Vehicle

( ) = Inches
NOTES:
FRAME OUTLINE DIMENSIONS ARE SYMMETRICALLY OPPOSITE ABOUT CENTERLINE OF VEHICLE.
PICKUP BOX MOUNTING HOLES ARE MARKED THUS △ 8 PLACES.
( ) = INCHES.
C/K Truck (Current)

C (1/2/3)0953 Extended Cab Pickup, Crossmember Arrangement

![Diagram of C/K Truck Extended Cab Pickup Crossmember Arrangement]

- M30 (LH)
- 355.17 (14.00)
- 168.4 (6.64)
- 188.8 (74.40)
- 138.7 (54.70)
- 110.87 (43.75)
- M30 (RH)

CK Rev. 12/98 Rev. 11/99

( ) = INCHES

(1/2/3)0953 Extended Cab Pickup, Crossmember Arrangement

- 680.2 (26.87)
- 2783.4 (109.40)
- 2768.6 (109.77)
- 2711.3 (106.74)
- 68.0 (2.68)
- 116.0 (4.57)
- 119.8 (4.72)
- 175.5 (6.91)
- 136.7 (5.39)

NORMAL TOP OF FRAME

FRONT WHEELS

123.7 (4.87)

431.0 (17.05)

466.0 (18.35)

VEHICLE

123.7 (4.87)

342.0 (13.46)

448.5 (17.66)

600.0 (23.62)

1100.0 (43.29)

675.0 (26.56)

1400.0 (55.12)

A 2637.0 (103.82)

A 3058.0 (120.28)

A 3117.0 (122.72)

A 4588.0 (180.63)

A 4993.0 (196.67)

FRONT WHEELS

123.7 (4.87)

342.0 (13.46)

448.5 (17.66)

600.0 (23.62)

1100.0 (43.29)

675.0 (26.56)

1400.0 (55.12)

A 2637.0 (103.82)

A 3058.0 (120.28)

A 3117.0 (122.72)

A 4588.0 (180.63)

A 4993.0 (196.67)

FRONT WHEELS

123.7 (4.87)

342.0 (13.46)

448.5 (17.66)

600.0 (23.62)

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A 3058.0 (120.28)

A 3117.0 (122.72)

A 4588.0 (180.63)

A 4993.0 (196.67)

FRONT WHEELS

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342.0 (13.46)

448.5 (17.66)

600.0 (23.62)

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A 3058.0 (120.28)

A 3117.0 (122.72)

A 4588.0 (180.63)

A 4993.0 (196.67)

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600.0 (23.62)

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A 4588.0 (180.63)

A 4993.0 (196.67)

FRONT WHEELS

123.7 (4.87)

342.0 (13.46)

448.5 (17.66)

600.0 (23.62)

1100.0 (43.29)

675.0 (26.56)

1400.0 (55.12)

A 2637.0 (103.82)

A 3058.0 (120.28)

A 3117.0 (122.72)

A 4588.0 (180.63)

A 4993.0 (196.67)

FRONT WHEELS

123.7 (4.87)

342.0 (13.46)

448.5 (17.66)

600.0 (23.62)

1100.0 (43.29)

675.0 (26.56)

1400.0 (55.12)

A 2637.0 (103.82)

A 3058.0 (120.28)

A 3117.0 (122.72)

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A 3117.0 (122.72)

A 4588.0 (180.63)

A 4993.0 (196.67)
K (1/2/3)0953 Extended Cab Pickup, Crossmember Arrangement

Frame outline dimensions are symmetrically opposite about center line of vehicle. Pickup box mounting holes are marked thus △ B places.

* = #208 w/CBP/309
* = K208/209 w/o CBP
( ) = Inches
C/K Truck (Current)

C (1/2)0906 Suburban, Crossmember Arrangement

- M39 (LH): 978.2 (38.51)
- M39 (RH): 1035.1 (40.75)
- M11: 1142.6 (44.98)

*M39 ONLY: LH CENTERLINE IS 56.9 (2.24) FORWARD OF RH CENTERLINE

- CENTERLINE OF ENGINE
- CENTERLINE OF VEHICLE

- 3.4 (0.13)
- 160.0 (6.30)
- 184.0 (7.24)
- 1452.0 (57.17)
- 2945.0 (115.94)
- 3340.0 (131.50) WHEELBASE

- 235.0 (9.25)
- 969.0 (38.15)
- 129.5 (44.43)
- 855.0 (33.66)
- 775.6 (30.53)

- 146.0 (5.75) INSIDE TO INSIDE END OF FRAME
- 144.0 (5.67) INSIDE METAL TO INSIDE TOP OF FRAME

- 680.2 (26.78)
- 1269.5 (49.98)
- 921.6 (36.20)

- 3286.0 (129.37)
- 2845.9 (111.97)
- 801.8 (31.57)
- 858.2 (33.79)

( ) = INCHES

C10906 & L31 SHOWN
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE OF METAL.
K (1/2)0906 Suburban, Crossmember Arrangement

NOTES:
K10906 & L31 SHOWN
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO INSIDE OF METAL
C (310/314)03 Chassis Cab, 10,000 and 11,000 lb. GVWR, Crossmember Arrangement
C (310/314) 03 Chassis Cab, 10,000 and 11,000 lb. GVWR, Frame Reinforcement
K (310/314)03 Chassis Cab, 12,000 lb. GVWR, Crossmember Arrangement
**K (310/314)03 Chassis Cab, 12,000 lb. GVWR, Frame Reinforcement**

Diagram showing the frame reinforcement details for the K (310/314)03 Chassis Cab with a GVWR of 12,000 pounds.
C/K Truck (Current)

C 10516 Utility, 2 Door, Crossmember Arrangement

NOTES:
( ) = INCHES
ALL DIMENSIONS ARE TO INSIDE OF METAL UNLESS OTHERWISE SPECIFIED
K 10516 Utility, 2 Door, Crossmember Arrangement

NOTES:
( ) = INCHES
ALL DIMENSIONS ARE TO INSIDE OF METAL UNLESS OTHERWISE SPECIFIED

CENTERLINE OF ENGINE
CENTERLINE OF VEHICLE
WHEELBASE
CENTERLINE OF REAR AXLE
C/K 10706 Utility, Spare Tire Carrier
C/K 10706 Utility, Platform Hitch Mounting

- Centerline of vehicle
- Dimensions:
  - 274.0 (10.79)
  - 236.0 (9.29)
  - 146.1 (5.75)
  - 70.0 (2.76)
  - 5.9 (.23)
  - 9.5 (.37)
  - Ø 13.00 +0.03 -0.25 HOLE 3 PLACES
  - TRAILER HITCH

- Dimensions:
  - 116.8 (4.60)
  - 210.3 (8.28)

CK Rev. 12/98 Rev. 11/99
# C 1500/2500/3500 Front Axle/Tire Data Chart, 2 Wheel Drive

![Diagram of front axle and tire data](image)

*Minimum ground clearance to be calculated by using gross axle weight and recommended tire pressure.*

1 in = Inches

* = FRT gross axle weight rate

<table>
<thead>
<tr>
<th>MODEL</th>
<th>TIREF</th>
<th>MAX GOW</th>
<th>REAR WHEEL</th>
<th>TRACK</th>
<th>WHEEL OFFSET</th>
<th>GROUND CLEARANCE</th>
<th>MAX TIRE WIDTH</th>
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# K 1500/2500/3500 Front Axle/Tire Data Chart, 4 Wheel Drive

**C/K Truck (Current)**

---

**MINIMUM GROUND CLEARANCE TO BE CALCULATED BY USING GROSS AXLE WEIGHT AND RECOMMENDED TIRE PRESSURE**

( ) = INCHES

---

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<th>MODEL</th>
<th>TIRE</th>
<th>MAX GVW</th>
<th>REAR WHEEL</th>
<th>TRACK</th>
<th>WHEEL OFFSET</th>
<th>GROUND CLEARANCE</th>
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CK Rev. 12/98 Rev. 11/99
# C/K Truck (Current)

## C 3500HD Front Axle/Tire Data Chart, Chassis Cab, 15,000 GVWR

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*Minimum ground clearance to be calculated by using gross axle weight and recommended tire pressure.

( ) = Inches
C/K TRUCK (CURRENT)

C/K 1500 Series, Rear Axle/Tire Data Chart

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<th>TIRES</th>
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<td>400.0</td>
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</tbody>
</table>

Notes:
- Max crown tire radius on narrowest rim.
- Max crown tire width on widest rim.
- Tire chains not to be used with K1500 and LT265/75R15 & Tires.

CK Rev. 12/98 Rev. 11/99
C/K Truck, Engine, General Arrangement

<table>
<thead>
<tr>
<th>A</th>
<th>ENGINE</th>
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<tr>
<td>711.6 ( (28.02) )</td>
<td>L56/L65</td>
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<tr>
<td>747.2 ( (29.42) )</td>
<td>L29</td>
</tr>
<tr>
<td>883.2 ( (26.90) )</td>
<td>L30/L31</td>
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<tr>
<td>571.5 ( (22.50) )</td>
<td>L35</td>
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</table>
C/K Truck (Current)

C/K (310/314)03 Chassis Cab, 10,000, 11,000 and 12,000 lb. GVWR

Dual fuel tanks are base equipment, to delete rear tank option noz must be specified.
DUAL FUEL TANKS ARE BASE EQUIPMENT, TO DELETE REAR TANK OPTION NOZ MUST BE SPECIFIED.

NOTE:
DATA BASED ON C31003 & L29 & C5R
( ) = INCHES

NOTE:
BODY BUILDERS TO TRIM FILLER AND VENT HOSE TO DESIRED LENGTH.
INSTRUCTIONS FOR FUEL FILL MODIFICATIONS, CONNECTORS AND CLAMPS ARE PROVIDED IN THE GLOVEBOX.
C/K Truck (Current)

C 10706–2 Wheel Drive Utility

560.4 (22.06) outside metal normal top of frame

325.6 (12.82)

29.5 gallon capacity
29.4 gallon draw capacity

386.0 (15.20) outside top of frame to bottom of tank

75.3 (2.96)

406.5 (16.00) outside top of frame to bottom of tank

427.3 (16.82) outside top of frame to bottom of shield

739.8 (29.13)

1482.8 (58.38)

1450.2 (57.09)

892.0 (35.12)

500

500

CK Rev. 12/98 Rev. 11/99
C/K Truck (Current)

K 10706–4 Wheel Drive Utility

Centerline of vehicle

560.4 (22.06) Outside metal normal top of frame

325.6 (12.82)

386.0 (15.05)

115.6 (4.55)

406.5 (16.00) Outside top of frame to bottom of tank

427.3 (16.82) Outside top of frame to bottom of shield

29.5 Gallon capacity
29.4 Gallon draw capacity

270.4 (10.65) Outside of metal top of frame at 1/2 axle

CK Rev. 12/98 Rev. 11/99
C/K TRUCK (CURRENT)

C/K (107/109)(03/53) Pickup, 4.3L Gas Engine, Option L35

<table>
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<tr>
<td>C/K10703</td>
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<td>C/K10753</td>
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<td>(90.64)</td>
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<td>(80.59)</td>
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C10903 W/L35 SHOWN

( ) = INCHES
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE OF METAL

CK Rev. 12/98 Rev. 11/99
C/K TRUCK (CURRENT)

C/K (1/2)(07/09)(03/53) Pickup, 5.0L Gas Engine, Option L30

VEHICLE

15.9 (0.63) K FRAME INSIDE TOP OF FRAME TO TOP OF CONVERTER

249.1 (9.81)

132.8 (5.23)

335.9 (13.22) INSIDE METAL TOP OF FRAME TO BOTTOM OF MUFFLER

604.5 (23.82)

924.5 (36.42)

635.0 (25.00)

687.9 (27.10)

916.0 (36.09)

1000

C FRONT WHEELS

76.5 (3.01) C/FRAME

109.5 (4.31) K/FRAME

0.7 (0.07) C/FRAME

33.7 (1.33) K/FRAME

OF REAR AXLE

348.0 (13.71)

<table>
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<tr>
<th>MODEL</th>
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<td>C/K10903</td>
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C/K (1/2)(07/09)(03/53) Pickup, 5.7L Gas Engine, Option L31

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<tr>
<td>C/K10953</td>
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<td>(104.54)</td>
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C10703 W/L31 SHOWN

() = INCHES

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO INSIDE OF METAL
C/K Truck (Current)

C/K (1/2)0906 Suburban, 5.7L Gas Engine, Option L31 and 7.4L Gas Engine, Option L29

C20906 & L31/L29 SHOWN

() = INCHES
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE OF METAL
C/K Truck (Current)

C/K 30943 Crew Cab, 5.7L Gas Engine, Option L31 and 7.4L Gas Engine, Option L29

C30943 & L31/L29 SHOWN

{ } = INCHES

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO INSIDE OF METAL
C/K (310/314)03 Chassis Cab, 10,000 and 12,000 lb. GVWR, 5.7L Gas Engine, Option L31 and 7.4L Gas Engine Option L29

HEAT SHIELD

C314 & L31/L29 SHOWN

( ) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE OF METAL

CK Rev. 12/98 Rev. 11/99
C/K 10516 w/5.7L Gas Engine, Option L31

K10516 & L31 SHOWN

() = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE OF METAL
C/K Truck (Current)

C/K 10706 w/5.7L Gas Engine, Option L31

(1) = INCHES

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE TO INSIDE OF METAL

C10706 & L31 SHOWN

CK Rev. 12/98 Rev. 11/99
Ordering Information

Electrical diagrams are available from Chevrolet and GMC through service publications. They have contracted the following companies to handle the ordering and shipping of the manuals.

Helm Inc.
P.O. Box 07130
Detroit, Michigan 48207
1 (313) 865-5000 for information and inquiries
1 (800) 782-4356 for credit card orders

Routine orders will be shipped within 10 days of receipt. Rush orders will be accommodated for an additional charge.

Order forms are available upon request and orders can be paid by check or money order, made payable to the mentioned companies. Credit Card orders can be made by phone on the listed toll free phone numbers.

Electrical System Interfacing Guidelines

General Discussion

General Motors recognizes that the completion of manufacture of some cab/chassis vehicles, by Body Builders for specific vocational needs, will require interfacing with portions of the OEM chassis electrical system. The manner in which these interfacing modifications are made can have an adverse effect on chassis electrical operations, in addition to causing problems with the Body Builder electrical system. In some cases, a “no-start” condition can occur. Additionally, an improper interface can cause the engine control computer to set and store fault codes and illuminate service telltale lights. For these reasons, extra care must be taken to ensure that these types of modifications are performed using reliable processes and components.

The following pages describe some of the known electrical system modifications which are being done by ambulance manufacturers, and provides a general definition of the recommended interfacing between the OEM chassis and Body Builder hardware to minimize the impact to the OEM chassis electrical system.
STEP 1. REMOVE GLOVE BOX DOOR ASSEMBLY

STEP 2. REMOVE SMALL BROWN (CENTER) CONNECTOR BY PINCHING PRIMARY AND SECONDARY LOCK TOGETHER

STEP 3. HOLDING CONNECTOR AND USING SMALL SCREW DRIVER, REMOVE SECONDARY LOCK

STEP 4. THE TERMINAL END SHOULD BE INSTALLED INTO SLOT B7 OR B8 OR IN BOTH BASED ON THE PRESET HIGH IDLE SPEED REQUIRED

ROUTE WIRE(S) TO CONTROL SWITCH(ES)

SECONDARY LOCK

SMALL BROWN CONNECTOR

Front
Neutral Safety Switch Connection

If the body builders finds it necessary to electrically interface to the park/neutral circuit of the OEM neutral safety switch, it should be accomplished as follows:

- Locate the neutral safety switch on the automatic transmission.

- Splice a wire onto the 18 gauge (0.8 metric) yellow wire that exits from cavity “A” of the 7 way connector at the switch. Caution must be exercised to assure that only the yellow wire from cavity “A” is spliced into, as there are two other yellow wires exiting from this same switch. The splice should be made in an area that is protected from the environment and should also be sealed to be weather resistant. Note: This circuit is pulled to ground whenever the automatic transmission lever is in “Park” or “Neutral”.

- The maximum body builder electrical load that can be added to this circuit is one (1) ampere. The body builder should incorporate a relay into the system, if the added load will exceed the one ampere maximum limitation. The OEM circuit can then act as a ground signal for the Body Builder relay coil whenever the transmission selector is in “Park” or “Neutral”. The “High” side of the relay coil should be powered by an ignition switch controlled power source so that the relay will not be energized when the ignition key is in the “Off” position.
Procedure for installation of the Electronic Interface of Power Take-Offs (PTO) on 1998 Model Year Gasoline Engines with On-Board Diagnostics II

This procedure is intended as a guide to aid in safely installing an Electronic interface to the 1998 C/K Full Size truck from General Motors in 1998 Model Year with ON–BOARD DIAGNOSTICS II.

This procedure is predicated on a 1998 Vehicle Computer Module (VCM) in a Full Size Truck and the OEM PTO manufacturers instructions for installation. It should be recognized that generalized procedures cannot anticipate all situations.

The following steps are to be followed in making the modifications:

1. Perform a safety inspection of the existing body builders vocation application. Open the hood and remove both the positive and negative cables from the batteries.

2. Shut off all power from the vehicle.

3. Install the Power Take-Off device and the associated hardware, i.e. a Hydraulic Pump or Kits.

4. Remove the 24 pin (black) connector from the VCM and open the wire dress cover to expose rear of connector.

5. Remove Terminal Position Assurance (TPA) clip from front of connector.

6. Using Packard Electric tools modify terminal seal by removing the seal tower from cavity “2” of connector. (Note: Tools available through Pioneer-Standard (1-800-PACKARD).)

7. Crimp terminal P/N 12084912 on to an 18 gauge wire using tool P/N 12125080. (Also available through Pioneer-Standard).

8. Insert terminated lead into cavity “2” of connector until fully seated.

9. Reinstall TPA, close wire dress cover and plug connector into VCM.

10. Protect wire and route/clip to suitable location at PTO control switch. This end of the wire should be switched to ground whenever the PTO system is engaged to bypass OBD II diagnostic operation when PTO is active.
Separated Function Stop/Turn Lamps

C/K cab/chassis vehicles are shipped from the factory with combined function stop/turn lamps. If separated function lamps are desired, the brake lamp circuit must be deactivated and the stop lamps, which are added at the rear of the vehicle by the Body Builder, connected to the center high mounted stop lamp (CHMSL) wire as described below. (Note: If this procedure is implemented, there will be no capability to directly connect to a trailer with combined function stop/turn lamps.)

Procedure:

1. At the rear of the chassis, there is a white wire taped back to the chassis harness just forward of the tail and stop lamp harness connector that is located near the intersection of the left-hand frame rail and rear cross member. This wire is provided to allow for the addition of a “CHMSL” (center high mounted stop lamp) with combined function lamps. This wire can also be used as a feed for dedicated stop lamps if they are added to the vehicle. This circuit can still be used to feed a CHMSL if so desired.

2. In the underhood electrical center, remove the “Brake Lamp Relay” from its socket, and remove the 30 amp maxifuse marked “Stop” from the long row of maxifuses. This will effectively remove the stop lamp input from the steering column, so that the rear turn signal lamps will be “turn only” instead of “stop/turn”.

3. Verify proper operation of turn and stop lamps, and CHMSL if so equipped.

Continuous Powered Memory Circuits (Diesel)

If a “Master Battery Disconnect Switch” is required for a specific vehicle application, it will be necessary to add a wiring circuit to the vehicle to connect direct (fused) battery power to the powertrain control module (PCM) to maintain the continuous powered memory circuits.

To maintain PCM memory, the 18 gauge (0.8 metric) orange wires that are terminated in cavities C-13 and D-13, of the blue 32 pin Micro-Pack connector at the PCM, must be removed from the connector and their ends insulated and taped back on the harness. Body Builder added direct battery feed circuit wires, that are protected by a 20 amp fuse, and have been properly terminated should then be inserted into both of these cavities.
Step 1. Remove glove box door assembly.

Step 2. Remove blue connector by pinching primary and secondary lock together.

Step 3. Holding connector and using small screwdriver, remove secondary lock.

Step 4. The terminal ends should be installed into slots C13 and D13 to enable PCM memory.

Secondary lock

Blue connector

To direct battery circuit
Additionally, the vehicle radio/clock must be powered continuously to maintain the correct time and radio preset stations. To maintain radio/clock memory, the 20 gauge (0.5 metric) orange wire that is terminated in cavity C-10 of the 20 pin (2-10 pin assembly) connector at the back of the radio, must be removed from the connector and its end insulated and taped back on the harness. A body builder added direct battery feed wire, that is protected by a 10 amp fuse, and properly terminated should be inserted into this cavity.

It should be noted that it is the responsibility of the body builder to ensure that power feed wires to these devices are properly fused and routed to prevent damage to the OEM electrical system during subsequent vehicle use.

**Auxiliary Electrical Loads**

When option “YF2” is specified for ambulance conversion, the cab/chassis vehicle will be equipped with a dual generator system. Additionally, an electrical junction block is provided in the engine compartment, mounted to the dash panel on the driver’s side. This junction block functions as an interconnect between the vehicle batteries, generators, and for the purpose of attaching body builder electrical loads. The intent of this block is to provide a convenient location for the body builder to incorporate the electrical shunt for a vehicle ammeter (if required), and also to provide a point where a high current lead can be attached for the ambulance accessories. Please note that the wiring to this block comes directly from the batteries, and that any loads attached at that point would have to have their own circuit protection devices. Refer to the electrical diagram for this system.

Also, for cab/chassis with the “YF2” option, heavy gauge ground straps have been provided between the engine, chassis and body sheet metal near the right rear of the engine for the purpose of providing a robust ground return path from the body or chassis to the battery. The body builder must ensure that the ground returns from their loads provide an adequate ground path into these straps such that voltage drops are minimized.
If it is desirable to activate the OEM A/C system (compressor) from a secondary remote switch, care must be taken to insure that the OEM pressure switches are still active in the system, to maintain proper compressor cycling action and over-pressure protection.

In order to connect a remote HVAC switch (controller) into the base OEM system, it will be necessary to tie into the circuit that runs between the OEM control head and the compressor cycling switch. (This is the light green wire that exits cavity 10 of the OEM controller connector.) A 12 volt DC ignition signal must be applied to this circuit when requesting the HVAC compressor to turn on. The Body Builder may obtain this signal by splicing into the brown wire that exits cavity 5 of the OEM controller connector. It will be necessary to incorporate either diodes or an isolation relay into this circuit to prevent damage to the OEM controller due to unwanted electrical feedback. Note: The compressor cycling switch circuit, that must be spliced into by the Body builder, is an extremely low current circuit and will require the use of a low energy switch to prevent future system malfunctions that can be caused by a film build up on the switch contacts.

A vehicle ignition power feed circuit may be obtained by the Body Builder by connecting to an ignition circuit terminal at the OEM convenience center. The convenience center is located in the passenger compartment, on the left side of the dash panel, outboard of the steering column. A wire of an appropriate gauge size should be properly terminated and inserted into cavity “C” of a Delphi Packard Electric 280 Metric-Pack connector (Part Number 12110777-dark green in color). The connector should then be inserted into the 3-way connector cavity in the convenience center marked “spare”. This circuit may be used for circuit loads of one (1) ampere or less. If power greater than the one ampere maximum limitation is required, this circuit can still be used but only as a signal source to energize a Body Builders supplied relay.