NOTICE: Some warranty and policies in this manual have changed since the MV-1 vehicle has transferred to Mobility Ventures. The manual is posted as a convenience of the owner/end-user of this specific model year.

MVI®

Owner's Manual

PART NUMBER PT000441

OWNER'S MANUAL

Warranty

SECTION 1

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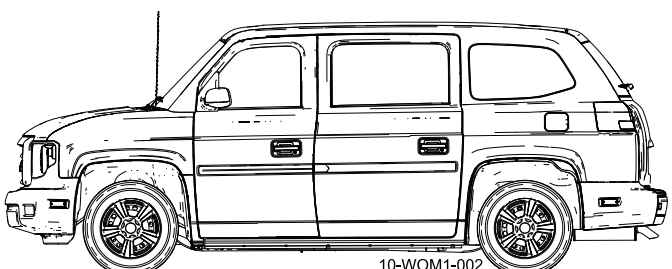

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MV-1 BASIC BUMPER-TO-BUMPER LIMITED WARRANTY

All The Vehicle Production Group LLC (VPG) warranties cover the costs of replacement parts and labor at no charge to the owner within the specified warranty period and as per the conditions described within this Owner's Manual.

New Vehicle Limited Warranties

The New Vehicle Limited Warranties apply to the first owner and all subsequent owners of the vehicle during the warranty period, which begins upon receipt of your vehicle. The warranty coverage terms are summarized below:

COVERAGE	18 Months 18,000 mi. (30,000 km)	3 Years 36,000 mi. (60,000 km)	5 Years 75,000 mi. (120,000 km)	5 Years 100,000 mi. (160,000 km)
• Bumper-to-Bumper	→	→		
• Battery (Proration applies after 18 mos.)	→	→		
• Powertrain	→	→	→	
• Wheelchair Access Ramp	→	→	→	
• Rust-through Sheet metal (5/100k)	→	→	→	→

Battery Warranty Coverage

VPG will warranty the original equipment battery for the term of 3 years or 36,000 miles, whichever comes first. The battery coverage is 18 months or 18,000 miles for 100% coverage. From 19 to 36 months or 18,001 to 36,000 miles, battery replacement is subject to proration charges. Refer to the following chart for proration percentages:

VPG Battery Proration Chart

Months of Use	Owner Portion	Warranty Portion
0-18	0%	100%
19	10%	90%
20	15%	85%
21	20%	80%
22	25%	75%
23	30%	70%
24	35%	65%
25	40%	60%
26	45%	55%
27	50%	50%
28	55%	45%
29	60%	40%
30	65%	35%
31	70%	30%
32	75%	25%
33	80%	20%
34	85%	15%
35	90%	10%
36	95%	5%
37+	100%	0%

Powertrain Warranty Coverage

The VPG Powertrain Warranty coverage applies to the repair or replacement of major internal components or assemblies of the engine, transmission and drive axle. Powertrain warranty coverage is for 5 years or 75,000 miles, whichever comes first.

Engine

- All Internally Lubricated Parts
- Cylinder Block
- Cylinder Heads
- Electrical Fuel Pump
- Electronic Engine Control Unit (ECM)
- Engine Mounts
- Flywheel
- Manifold (Intake or Exhaust)
- Manifold Bolts
- Oil Pan
- Oil Pump
- Seals and Gaskets
- Thermostat
- Thermostat Housing
- Timing Chain Cover
- Timing Chain
- Valve Covers
- Water Pump

Transmission/Drive Axle

- All Internal Transmission Parts
- Seals and Gaskets
- Torque Converter
- Transmission Case
- Transmission Mounts
- Axle Shafts
- Wheel Bearings (Front or Rear)
- Center Support Bearing
- Drive Axle Housing
- Drive Shaft/Propeller Shaft
- Retainers
- Supports
- Seals and Gaskets
- Universal Joints
- Constant Velocity Joints

Wheelchair Access Ramp and Mechanisms Warranty Coverage

The VPG Wheelchair Access Ramp and all related mechanisms are covered for a term of 5 years or 75,000 miles, whichever occurs first. This applies to either the power ramp option or the manual ramp system and covers all parts associated with ramp functionality. Any ramp failure that is a result of improper use or damage is not covered.

Rust-Through Sheet Metal

VPG warrants original sheet metal against rust-through perforation for 5 years or 100,000 miles, whichever comes first. Paint bubbling and surface corrosion are not covered by this warranty.

Items Not Covered by Warranty

The repairs listed below are not covered under the New Vehicle Limited Warranty:

- Tire and Wheel Damage or Wear
  (Tires will be covered under the tire manufacturer's warranty that is provided with your vehicle.)
- Damage Due to Accidents, Misuse or Alterations
- Damage Due to Impact, Use, or the Environment
- Maintenance
- Damage or Corrosion Due to Environment, Chemical Treatments or Aftermarket Installations/Products
- Damage or Failure Due to Lack of Maintenance
- Non-VPG Parts and Accessories or Alterations to Original Vehicle Equipment
- Damage Due to Contaminated or Poor Quality/Improper Fuel
- Aftermarket Engine Performance Enhancement Products and Modifications

FEDERAL REQUIREMENTS FOR EMISSIONS WARRANTIES

Your MV-1 is covered under two emissions warranties that VPG provides, in compliance with Federal requirements. The Warranties are the Emissions Defect Warranty and the Emissions Performance Warranty.

For full details on emissions control coverage, see:

- *Emissions Defect Warranty Coverage* on page 6
- *Emissions Performance Warranty* on page 7
- *What is Covered?* on page 7
- *What is Not Covered?* on page 9

FEDERAL EMISSIONS DEFECT WARRANTY COVERAGE

During the warranty coverage period, VPG warrants that:

- your vehicle is designed, built, and equipped to meet - at the time it is sold - the emissions regulations of the U.S. Environmental Protection Agency (EPA).
- your vehicle or engine is free from emission-related defects in factory-supplied materials or workmanship, which are defects that could prevent the vehicle from conforming with applicable EPA regulations.
- you will not be charged for diagnosis, repair, replacement, or adjustment of parts containing an emissions-related defect. Applicable parts are listed under *What is Covered by the Emissions Defect Warranty?* on page 7.

The warranty coverage period for:

- Passenger cars, light duty trucks
  - 8 years or 80,000 miles (whichever occurs first) for catalytic converters, electronic engine control unit (ECU), transmission control module (TCM), and any other onboard emission diagnostic module.
  - 3 years or 36,000 miles (whichever occurs first) for all other covered parts.

See *What is Covered by the Emissions Defect Warranty*? on page 7 for a list of covered parts.

FEDERAL EMISSIONS PERFORMANCE WARRANTY COVERAGE

Under the Federal Emissions Performance Warranty Coverage, VPG will repair, replace, or adjust - with no charge for labor, diagnosis or parts - any emissions control device or system, if you meet all of the following conditions:

- You have maintained and operated your vehicle according to the instructions on proper care in the Scheduled Maintenance section of this manual.
- Your vehicle fails to conform, during the warranty coverage period, to the applicable national EPA standards, as determined by an EPA approved inspection and maintenance program.
- You are subject to a penalty or sanction under local, state, or federal law because your vehicle has failed to conform to the emissions standards. (A penalty or sanction can include being denied the right to use your vehicle).
- Your vehicle has not been tampered with, misused or abused.

The warranty coverage period for:

Passenger cars, light duty trucks

- 8 years or 80,000 miles (whichever occurs first) for catalytic converters, electronic emission control unit (ECU), transmission control module (TCM), and any other onboard emissions diagnostic module.
- 2 years or 24,000 miles (whichever occurs first) for all other covered parts.

See below for a list of covered parts.

Note that the warranty period begins the date you receive the vehicle.

What is Covered by the Federal Emissions Performance Warranty?

For your vehicle, if these parts contain an emissions-related defect, they are covered by both the Emissions Defect Warranty and the Emissions Performance Warranty.

- Air Flow Sensor
- Air/Fuel Feedback Control System and Sensors
- Air Induction System
- Auxiliary Body Control Module*
- Catalytic Converter
- Cold Start Enrichment System
- Controls for Deceleration
- Electronic Ignition System
- Exhaust Pipe (Manifold to Catalyst)
- Electronic Engine Control Sensors and Switches

- Evaporative Emission Control System
- Exhaust Gas Recirculation (EGR) System
- Exhaust Manifold
- Fuel Filler Cap and Neck Restrictor
- Fuel Injection System (Gas)
- Fuel Injection System (CNG)
- Fuel Injection Supply Manifold (Gas)
- Fuel Injection Supply Manifold -IPTS Sensor Included (CNG)
- Fuel Temperature and Pressure Sensors
- Fuel Temperature and Pressure Sensors - IPTS (CNG)
- Fuel Tank (Gas)
- Fuel Tank Assembly - Front (CNG)
- Fuel Tank Assembly - Middle (CNG)
- Fuel Tank Assembly - Rear (CNG)
- Fuel Tank Pressure Control Valve
- Idle Air Bypass Valve
- Ignition Coil and/or Control Module
- Intake Manifold
- Malfunction Indicator Lamp (MIL) Cluster/On-Board Diagnostic (OBD) System
- PCV System and Oil Filler Cap
- Powertrain Control Module (PCM)*
- Spark Control Components
- Spark Plugs and Ignition Wires
- Synchronizer Assembly
- Thermostat
- Throttle Body Assembly (MFI)

*Includes hardware and emissions related software changes only.

Important Information About List of Parts

Also covered by the two emissions warranties are all emissions-related bulbs, hoses, clamps, brackets, tubes, gaskets, seals, belts, connectors, fuel lines, sensors, and wiring harnesses that are used with components on the list of parts, above.

Concerning parts that should be replaced on a certain maintenance schedule, these parts remain under warranty until:

(a) the first replacement time that is specified in the Scheduled Maintenance section of your Owner's Manual; or

(b) the time or mileage limits of the Federal Defect and Performance Warranties (whichever occurs first). Your VPG service center maintains a complete list of parts covered by emissions warranties. For more details about the specific parts covered by the Emissions Defect Warranty, contact your service center.

What is Not Covered by the Federal Emissions Performance Warranty?

VPG may deny you emissions warranty coverage if your vehicle or a part does not contain an emissions-related defect or has failed because of abuse, neglect, improper maintenance, unapproved modifications, or any items included in *Items Not Covered by Warranty* on page 5.

If you need more information about getting service under the Federal Emissions Performance Warranty, or if you want to report what you believe to be violations of the terms of this warranty, you may contact:

Manager, Certification and Compliance Division (6405J)
Warranty Claims
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

CALIFORNIA REQUIREMENTS FOR EMISSIONS WARRANTIES

Quick Reference: Emissions Warranty Coverage

This chart shows the emission warranty that VPG provides for your vehicle under the emissions control warranty in accordance with the regulations of the California Air Resources Board. This coverage is in addition to Federal Emissions Warranties on pages 6 and 7.

For vehicles with a Gross Vehicle Weight Rating of 14,000 lbs or less	
Performance Warranty	3 years or 50,000 miles
Defects Warranty	7 years or 70,000 miles

Vehicles Eligible for California Emission Warranty Coverage

California emission warranty coverage applies if your vehicle meets the following two requirements:

- Your vehicle is registered in California or other states adopting California emission and warranty regulations, *

  and

- Your vehicle is certified for sale in California as indicated on the vehicle emission control information label.

* Other states adopting California emissions and warranty regulation:

Passenger Car & Light-duty Trucks (up to 8,500 pounds GVWR) - California, Connecticut, Maine, Massachusetts, New Jersey, Oregon, Pennsylvania, Rhode Island, Vermont and Washington.

NOTE: New York adopted California emissions standards, but not the California Emissions Warranty; the Federal Emissions Control Warranty applies to all non-PZEV vehicles in New York.

Explanation of California Emissions Warranties

Your Warranty Rights and Obligations

The California Air Resources Board and VPG are pleased to explain the emission control system warranty on the vehicle. In California, new motor vehicles must be designed, built, and equipped to meet the State's stringent anti-smog standards.

VPG must warrant the emission control system on your vehicle for periods of time listed on page 11, provided there has been no abuse, neglect, or improper maintenance of your vehicle. Your emission control system may include parts such as the fuel injection system, the ignition system, catalytic converter, and the engine computer. Also included may be hoses, belts, connectors, and other emissions-related assemblies.

Where a warrantable condition exists, VPG will repair your vehicle at no cost to you including diagnosis, parts, and labor.

Manufacturer's Warranty Coverage

For vehicles eligible for California Emission Warranty Coverage, if Gross Vehicle Weight Rating is 14,000 lbs. or less:

For 3 years or 50,000 miles (whichever first occurs):

1. If your vehicle fails a Smog Check inspection, all necessary repairs and adjustments will be made by VPG to ensure that your vehicle passes inspection. This is your emission control system PERFORMANCE WARRANTY.

2. If any emissions-related part on your vehicle is defective, the part will be repaired or replaced by VPG. This is your short-term emission control system DEFECTS WARRANTY. For 7 years or 70,000 miles (whichever first occurs): If an emissions-related part listed on page 12 with coverage for 7 years or 70,000 miles is defective, the part will be repaired or replaced by VPG.

Owner's Warranty Responsibilities

As the vehicle owner, you are responsible for the performance of the required maintenance listed in your owner's manual. VPG recommends that you retain all receipts covering maintenance on your vehicle, but VPG cannot deny warranty coverage solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

You are responsible for presenting your vehicle to a VPG service center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. As the vehicle owner, you should also be aware that VPG may deny you warranty coverage if your vehicle or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, or if you want to report what you believe to be violations of the terms of this warranty, you may contact the VPG Customer Relationship Center at 1-877-681-3678 or the California Air Resources Board at:

State of California Air Resources Board
Mobile Source Operations Division
P.O. Box 8001
El Monte, California 91731-2990

What is Covered by the California Emissions Defect Warranties?

If the parts on the following list contains a defect that affects emissions, they are covered by the California Emissions Defect Warranties.

- Air Flow Sensor
- Air/Fuel Feedback Control System and Sensors
- Air Induction System
- Auxiliary Body Control Module*
- Catalytic Converter
- Cold Start Enrichment System
- Controls for Deceleration
- CNG Tanks
- Electronic Ignition System
- Exhaust Pipe (Manifold to Catalyst)
- Electronic Engine Control Sensors and Switches
- Evaporative Emission Control System
- Exhaust Gas Recirculation (EGR) System
- Exhaust Manifold
- Fuel Filler Cap and Neck Restrictor
- Fuel Injection System
- Fuel Pressure Regulator
- Fuel Temperature and Pressure Sensors
- Fuel Injector Supply Manifold
- Fuel Tank
- Fuel Tank Pressure Control Valve
- Ignition Coil and/or Control Module
- Intake Manifold
- Malfunction Indicator Lamp (MIL)/On-Board Diagnostic (OBD) System
- PCV System and Oil Filler Cap
- Powertrain Control Module (PCM)*
- Spark Control Components
- Spark Plugs and Coil Assembly
- Thermostat
- Throttle Actuator Control

* Includes hardware and emissions related software changes only

Important Information about List of Parts

There may be additional coverage for these parts through the Bumper-to-Bumper or Powertrain limited warranties. In any case, the warranty with the broadest coverage applies. Also covered by this warranty are all emissions-related bulbs, hoses, clamps, brackets, tubes, gaskets, seals, belts, connectors, non-diesel fuel lines, and wiring harnesses that are used with components on the list of parts above.

Concerning parts that should be replaced on a certain maintenance schedule: these parts remain under warranty until the first required replacement time that is specified in Scheduled Maintenance section of this manual.

> **NOTE:** If the diagnosis does not reveal a defect, the Defects Warranty does not apply. Your VPG service center maintains a complete list of covered parts. For more details about the specific parts that are covered by the Defects Warranty, contact your service center.

What is Not Covered by the California Emissions Defect Warranties?

VPG may deny you emissions warranty coverage if your vehicle or a part does not contain a defect that affects emissions or has failed because of abuse, neglect, improper maintenance, unapproved modifications, or any items included in *Items Not Covered by Warranty* on page 5.

VPG PARTICIPATION IN THE BETTER BUSINESS BUREAU MEDIATION/ARBITRATION PROGRAM

Customer Assistance and Dispute Resolution

Satisfaction with your new MV-1 is very important to us. If you have a problem with your vehicle, please follow these steps:

Step 1

Contact your MV-1 authorized service center. Customarily, most issues are resolved at this level. If the service center sales or service department or the general manager do not address your issue to your satisfaction, then:

Step 2

Contact VPG Auto Customer Relations at 877-MV1-FORU (877-681-3678). When you call, please have the following information to provide the Customer Relations specialist:

- Vehicle Identification Number (VIN) - this can be found on the vehicle registration or title or on the driver's side corner of the dashboard under the windshield.
- Service center name and location.
- Vehicle's current mileage.

VPG Customer Service will work with your service center to try and resolve your issue.

Step 3

If we are unable to resolve the problem, you may file a claim with the Better Business Bureau (BBB) Auto Line Program. This is an out of court program to settle automotive disputes involving vehicle repairs or coverage under the New Vehicle Limited Warranty. This program is free of charge to you and consists of two parts, mediation and arbitration. With mediation the BBB staff will facilitate negotiation between the parties to try and reach a mutually acceptable resolution. If the mediation is unsuccessful or you do not agree to mediate, you may request arbitration. This will involve an impartial third-party arbitrator rendering a decision after an informal hearing process.

The BBB claims resolution process normally results in a decision within 40 days from the time a claim is filed. The decision is not binding on you and, if you do not agree with it, you may pursue other avenues of relief. Note, however, that you are required to use the BBB arbitration mechanism before exercising rights or seeking remedies under the federal Magnuson-Moss Warranty Act or under the warranty enforcement laws ("lemon laws") of some states.

You may contact the BBB Auto Line at:

BBB Auto Line Program
Council of Better Business Bureaus, Inc.
4200 Wilson Blvd.
Suite 800
Arlington, VA 22203-1838
Tel. 1-800-955-5100
www.dr.bbb.org/goauto

When you contact the BBB Auto Line, you should be prepared to provide the following information:

Your name and address
Vehicle Identification Number (VIN)
Make, model, and model year of your vehicle
A description of the problem

Eligibility for this program may be limited by the component or part involved, vehicle age, mileage, or other factors. VPG Auto reserves the right to change eligibility limitations and/or discontinue participation in this program.

Notice to California Purchasers

VPG Auto participates in the Better Business Bureau (BBB) Auto Line Program. This is an out of court program to settle automotive disputes involving vehicle repairs or coverage under the New Vehicle Limited Warranty. VPG Auto and BBB Auto Line have been certified by the Arbitration Certification Program of the California Department of Consumer Affairs.

If we are unable to resolve your problem, you may file a claim with the BBB Auto Line. To file a claim, you will be asked to provide your name and address; the brand and Vehicle Identification Number of your vehicle; the approximate date you acquired the vehicle; the vehicle's current mileage; the approximate date and mileage when the problem was first brought to the attention of VPG Auto or an authorized VPG Auto service center; a description of the problem; and a statement of the relief you are seeking.

The BBB Auto Line program is free of charge to you and consists of two parts, mediation and arbitration. With mediation the BBB staff will facilitate negotiation between the parties to try to reach a mutually acceptable resolution. If the mediation is unsuccessful or you do not agree to mediate, you may request arbitration. This will involve an impartial third-party arbitrator rendering a decision after an informal hearing process.

The BBB claims resolution process normally results in a decision within 40 days from the time a claim is filed. There may be a delay of 7 days if you did not first contact VPG Auto about your problem, or up to 30 days if the arbitrator requests an inspection/report by an impartial technical expert or further

investigation and report by BBB Auto Line.

The arbitrator's decision is not binding on you, and, if you do not agree with it, you may pursue other avenues of relief. However, you are required to use the BBB Auto Line before asserting in court any rights or remedies under the federal Magnuson-Moss Warranty Act or California's Lemon Law.

Introduction

SECTION 2

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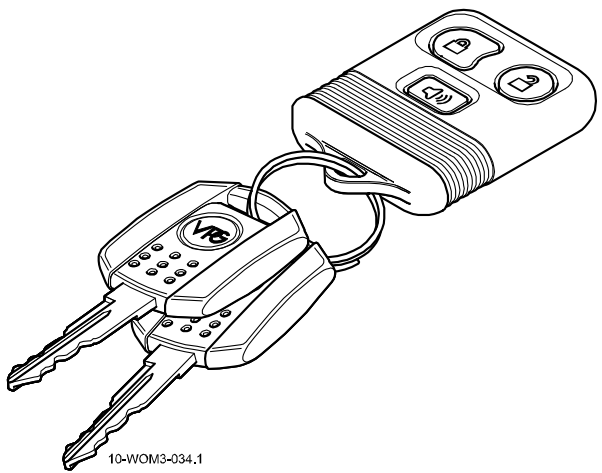

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WELCOME

Dear MV-1 Owner,

Thank you for purchasing the all new and exciting MV-1. We are committed to making your ownership experience exceptional in every way. The MV-1 was designed from the ground up for wheelchair accessibility, and it is proudly built in America.

As you may know, the MV-1 is the only factory-built vehicle that meets or exceeds the Americans with Disabilities Act (ADA) vehicle guidelines and it is proudly assembled at the AM General plant in Mishawaka, Indiana. We know you will find it to be the world-class vehicle it was designed and manufactured to be.

This MV-1 Owner's Manual contains very specific information about your vehicle, its features, and necessary care and maintenance. If you have any questions or concerns, please don't hesitate to contact us, either online at www.vpgautos.com, or at 877-MV1-FORU (877-681-3678). Your feedback is very important to us.

From the entire team at The Vehicle Production Group LLC (VPG), we welcome you to the MV-1 family and wish you safe travels and an enjoyable ride in your new vehicle.

GENERAL INFORMATION

The Owner's Manual contains information that will familiarize you with the operation, maintenance, and safety instructions regarding your MV-1. Please read the entire manual completely and carefully. Also, have anyone else who may be operating your vehicle read the manual in its entirety. When you have finished reading the manual, store it in the vehicle for future reference. It is important that you follow the recommendations and guidelines within the manual to help assure enjoyable and safe vehicle operation.

Some of the information in the manual will not apply to your particular vehicle. Although this publication attempts to include all optional equipment information, the equipment may not be identified as either standard or optional.

Design and specification changes may occur following the release of this publication. VPG reserves the right to change the vehicle without notice and without incurring obligation.

For further information regarding vehicle familiarization, call your authorized MV-1 service center.

VEHICLE SYMBOL GLOSSARY

These are some of the symbols you may see on your vehicle.


Safety Alert


Fasten Safety Belt


Child Seat Tether Anchor

Anti-Lock Brake System


Traction Control/Electronic Stability Control System


Master Lighting Switch


Headlamps


High Beams


Front Airbag


Child Seat Lower Anchor


Brake System

Parking Brake System


Speed Control


Autolamps Off

Autolamps On


Windshield Wiper


Power Steering Fluid


Service Engine Soon


Check Fuel Cap


Engine Oil


Engine Coolant Temperature


Parking Lamps


Panel Dimmer Control


Intermittent Windshield Wiper


Windshield Washer


Rear Window Wiper


Fuse Compartment


Ramp Controls Override Indicator light


Panel Dimmer Control


Vehicle System Malfunction Indicator Light


Avoid Smoking, Flames and Sparks


Air Recirculation


Battery


Windshield Defrost/Demist


Rear Window Washer


Rear Window Defroster

Ramp Controls Override


Fan Warning


Do Not Open When Hot


Battery Acid


Rear Window Defrost


See Owner's Manual

Maintain Correct Fluid Level


Low Tire Pressure Warning


Hazard Warning Flasher


Anti-Theft System


Low Fuel


Shield Eyes from Explosive Gases


Air Conditioning

Traction Control System Disable

WARRANTY INFORMATION

Warranty information is available in Section 1. Read the section carefully to learn the warranty coverage on your vehicle and to understand your rights and responsibilities as the owner.

Tires are covered by the tire manufacturer's warranty. Information concerning warranty coverage on the tires can be obtained from the tire manufacturer’s warranty information provided with the Owner's Manual.

SAFETY INFORMATION

Throughout this manual, you will find WARNINGS and CAUTIONS regarding proper operation and safety practices. WARNINGS indicates potential safety hazards and must be followed to avoid personal injury. The warnings are in red type face, italicized and proceeded by this heading:

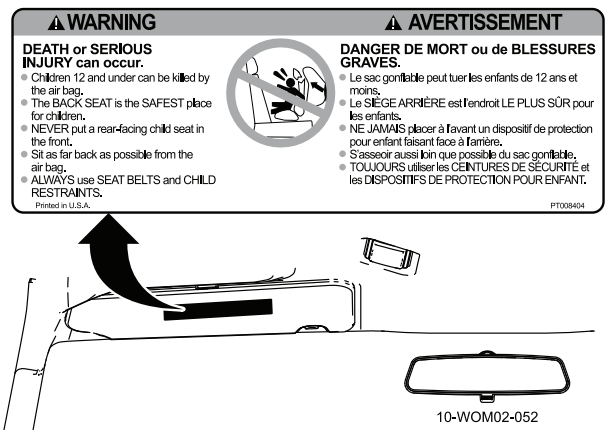
⚠ WARNING ⚠

CAUTIONS indicate potential equipment damage, and must be followed to avoid damage to components or systems. CAUTIONS are in black type face and italics.

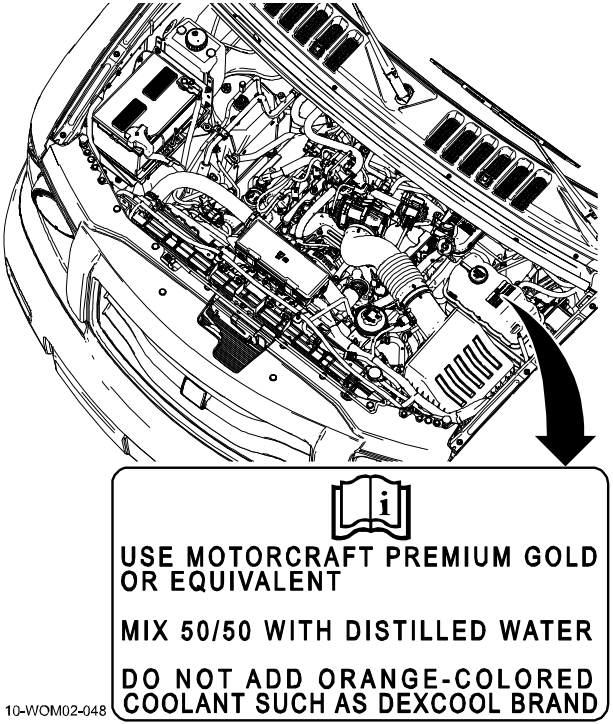
WARNING LABELS

Warning labels are located on the vehicle to alert the operator and/or any service technicians who may be working on the vehicle to potential safety hazards that exist, and to the related precautions that must be taken. Always follow these warnings to avoid serious personal injury and to ensure safe vehicle operation and maintenance. If any of these labels become damaged, painted over, missing, or unreadable, have it replaced immediately. Locations of the warnings are indicated below.

This warning decal is located on both the driver’s and passenger’s side visors.

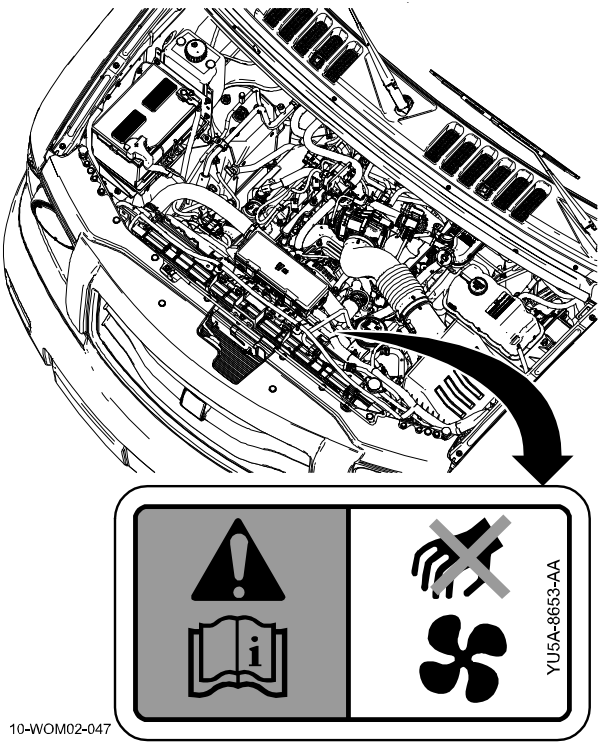


This warning is imprinted into the coolant surge tank cap.



10-WOM02-048

This warning decal is located on the fan shroud.



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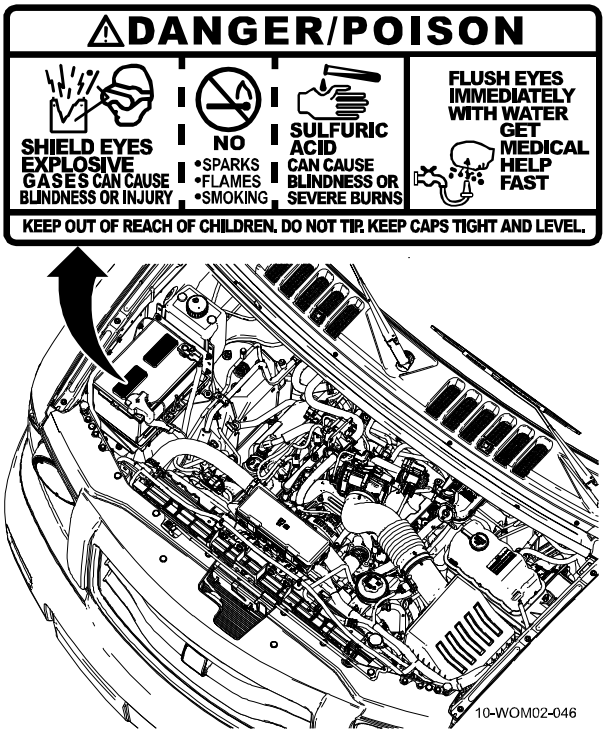
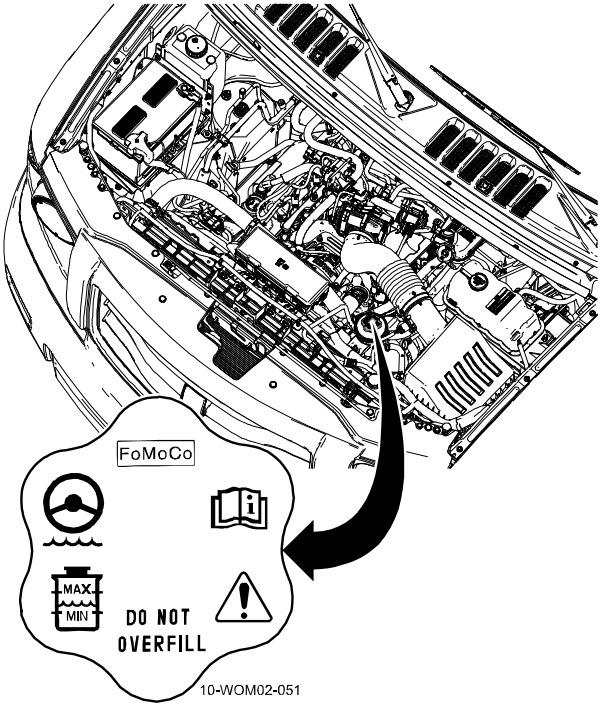
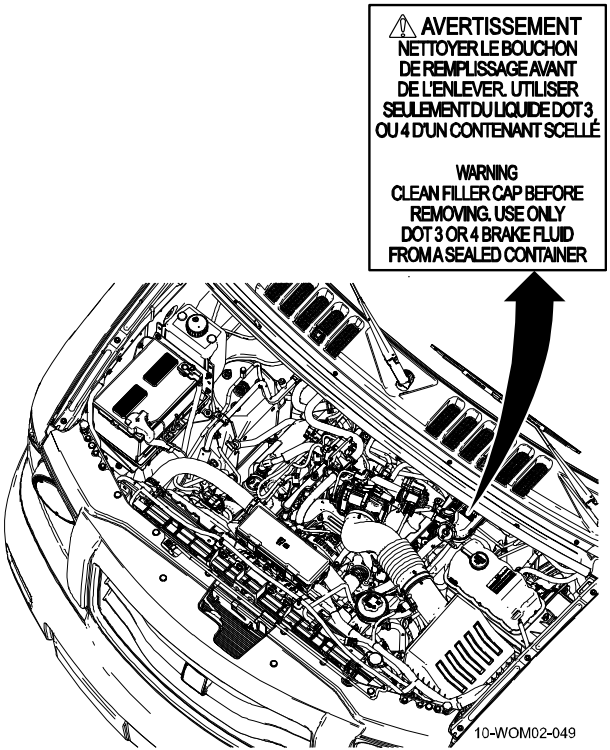
This warning is located on both of the battery caps.



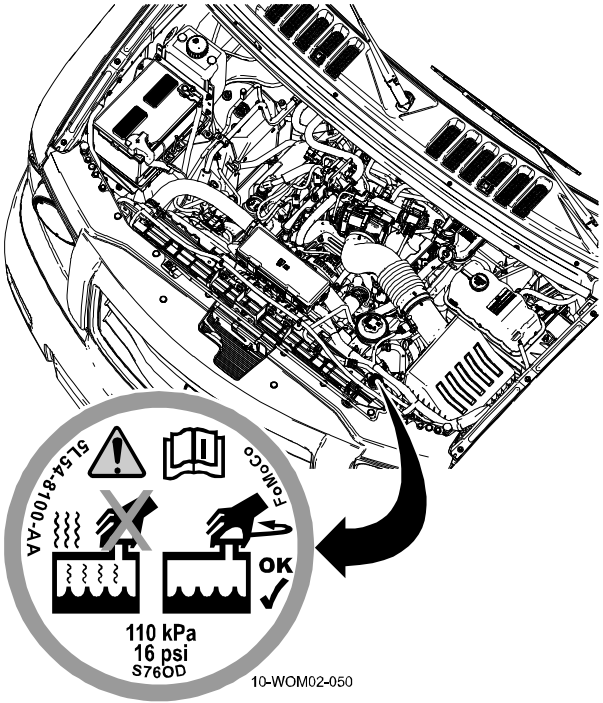
This warning is located on the steering fluid reservoir cap.



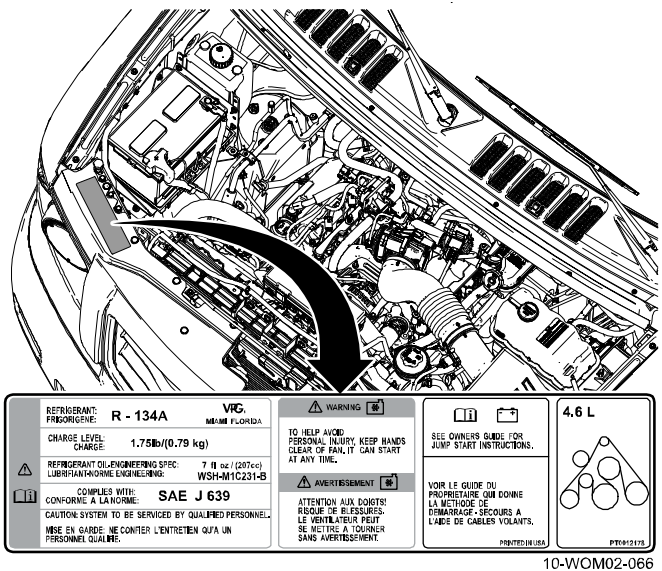
This warning is located on the brake fluid reservoir.



This warning is located on the radiator fill cap.



This refrigerant warning is located by the battery.



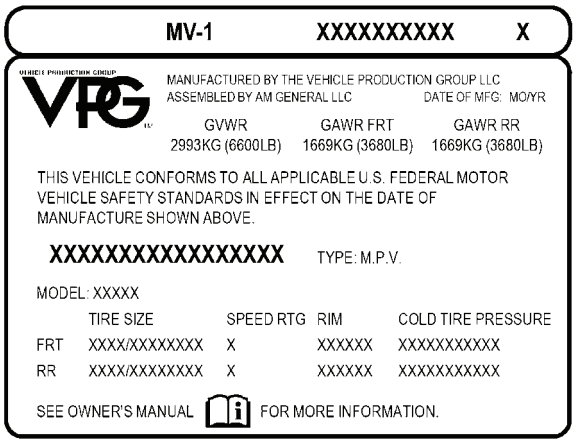
10-WOM02-066

SAFETY CERTIFICATION DECAL

The safety certification decal is located on the driver's side door post. The decal is required by the National Highway Traffic Safety Administration (NHTSA) and includes a self-destructive, tamper-proof feature. If the decal is tampered with, a "VOID" pattern will appear across the decal. Notify VPG if the decal is missing or displays a "VOID" pattern.

The decal contains the name of the manufacturer, the month and year the vehicle was manufactured, the certification statement, the VIN, and the vehicle model type. It also contains the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating (GAWR), and wheel and tire information.

United States Label



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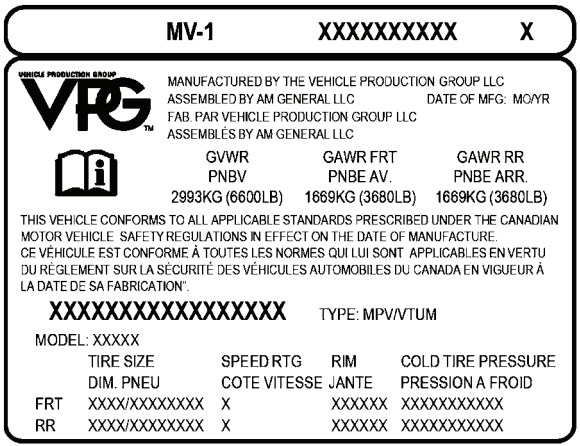
Canada Label



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EXHAUST AND CHEMICAL WARNING

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the state of California to cause cancer and birth defects and reproductive harm. In addition, certain fluids contained in vehicles and certain products of component wear contain or emit chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

FEDERAL HIGHWAY ADMINISTRATION REGULATION

Regulations such as those issued by the Federal Highway Administration or issued pursuant to the Occupational Safety and Health Act (OSHA), and/or state and local laws and regulations, may require additional equipment for the way you intend to use the vehicle. The registered owner is responsible for determining which laws and regulations are applicable to the intended use of the vehicle, as well as arranging for the installation of any required equipment. Contact your authorized service center for information regarding optional equipment available for your vehicle.

REPORTING SAFETY DEFECTS

If you believe your vehicle has a defect which could cause an accident, injury, or death, immediately contact the National Highway Traffic Safety Administration (NHTSA) in addition to notifying VPG, either online at www.vpgautos.com, or at (877) MV1-FORU (877-681-3678). If NHTSA receives similar complaints, it may open an investigation. If it is found that a safety defect exists within a group of vehicles, NHTSA may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your service center, or VPG.

To contact NHTSA, you may either call the Auto Safety Hotline at 1-800-424-9393 (or 1-202-366-0123) in the Washington D.C. area), or write to: NHTSA, U.S. Department of Transportation, Washington, DC 20590, or e-mail at www.nhtsa.dot.gov. You can also obtain other information about motor vehicle safety from the hotline.

CALIFORNIA PROPOSITION 65 WARNING

⚠ WARNING ⚠

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. In addition, certain fluids contained in vehicles and certain products of component wear contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

PERCHLORATE MATERIAL

Certain components of this vehicle such as airbag modules, seat belt pretensioners, and button cell batteries may contain Perchlorate Material – Special handling may apply for service or vehicle end-of-life disposal.

See www.dtsc.ca.gov/hazardouswaste/perchlorate.

BREAKING-IN YOUR VEHICLE

Your vehicle does not need an extensive break-in. Try not to drive continuously at the same speed for the first 1,000 miles (1,600 km) of new vehicle operation. Vary your speed frequently in order to give the moving parts a chance to break in. Do not add friction modifier compounds or special break-in oils since these additives may prevent piston ring seating. See *Engine Oil* on page 224 for more information on oil usage.

VEHICLE MODIFICATIONS

Installation and operation of non-VPG approved accessories such as, but not limited to, alarms, radios, amplifiers, radar detectors, wheels, suspension components may cause extensive damage to the vehicle, interfere with the vehicle's electrical system or affect the validity of the VPG New Vehicle Limited Warranties.

IMPAIRED DRIVING

Drugs

⚠ WARNING ⚠

DO NOT drive when under the influence of drugs.

REASON: Driving under the influence of drugs can lead to an accident and serious bodily injury or death. Illegal drugs and some medications can impair your ability to focus, affecting your judgment and reflexes.

Never drive under the influence of illegal drugs. Drugs can affect your judgment, reflexes and perception in unexpected ways, which could lead to an accident.

You should also carefully read the warnings on any prescription and over the counter medications you take before driving to ensure that it does not cause drowsiness or other side effects which may impair your driving and lead to an accident.

Alcohol

⚠ WARNING ⚠

DO NOT drink and drive.

REASON: Drinking after driving can lead to an accident and serious bodily injury or death. Your perceptions are not as sharp and your reflexes are slower. Your judgment may be impaired when you have been drinking.

Drinking and driving is very dangerous and could cause serious injuries or death to yourself or others. Statistics reveal that about half of all motor vehicle fatalities are alcohol-related. Over 20,000 motor vehicle-related deaths occur each year because of alcohol, and thousands of people are injured. Even a small amount of alcohol can affect your reflexes, judgment, and perception. Our advice is simple:

DON'T DRINK AND DRIVE, OR RIDE WITH A DRIVER WHO HAS BEEN DRINKING.

If you or a friend has had too much to drink, call a cab, call another friend, or find another way to get home. By doing this you may not only be saving your own life, but other lives as well.

VPG supports the recommendation of the Presidential Commission on Drunk Driving.

BE SMART: DON'T DRINK AND DRIVE.

DISTRACTED DRIVING

⚠ WARNING ⚠

Use extreme caution when using any device that may take your focus off of the road. Your primary responsibility as the driver is the safe operation of your vehicle. Only use cell phones and other devices not essential to driving when it is safe to do so.

REASON: Driving while distracted can result in loss of vehicle control, accident and serious bodily injury or death.

The use of mobile communications equipment and other electronics have become increasingly important in the conduct of business and personal affairs. Drivers must not, however, compromise their own and others' safety when using such equipment.

Mobile communications can enhance personal safety and security when appropriately used, particularly in emergency situations. Safety must be paramount when using mobile communications equipment to avoid negating these benefits.

Mobile communications equipment includes, but is not limited to: cellular phones, pagers, portable e-mail devices, in-vehicle communications systems, telematics devices and portable two-way radios.

PASSIVE ANTI-THEFT SYSTEM

Your MV-1 is equipped with a passive anti-theft system, which is an engine immobilization system. This system is designed to help prevent the engine from being started unless a coded key programmed to your vehicle is used. The use of the wrong type of coded key may lead to a "no-start" condition.

Your vehicle comes with two coded keys; additional coded keys may be purchased from your authorized service center. The authorized service center can program your spare keys to your vehicle or you can program the keys yourself. Refer to Programming spare keys on the next page for instructions on how to program the coded key.

NOTE: The passive anti-theft system is not compatible with aftermarket remote start systems. Use of these systems may result in vehicle starting problems and a loss of security protection.

NOTE: Large metallic objects, electronic devices that are used to purchase gasoline or similar items, or a second coded key on the same key chain may cause vehicle starting issues. You need to prevent these objects from touching the coded key while starting the engine. These objects will not cause damage to the coded key, but may cause a momentary issue if they are too close to the key when starting the engine. If a problem occurs, turn the ignition off, remove all objects on the key chain away from the coded key and restart the engine.

Anti-Theft Indicator

The anti-theft indicator light is located in the instrument cluster.

Vehicles equipped with the passive anti-theft system behave as follows:

- When the ignition is in the off position, the indicator will flash once every two seconds for a total of 10 seconds to indicate the passive anti-theft system is functioning as a theft deterrent.
- When the ignition is in the ON position, the indicator will glow for three seconds to indicate a programmed key has been validated and the passive anti-theft system has enabled the engine.

Automatic Arming

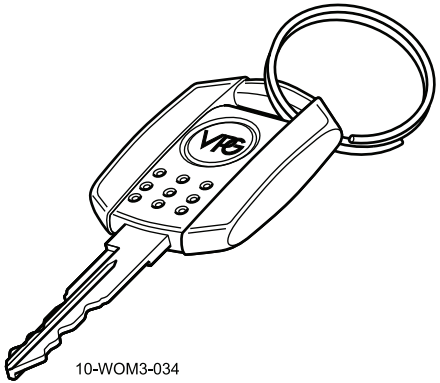
The vehicle is armed immediately after switching the ignition to the off position.

Automatic Disarming

Switching the ignition to the on position with a coded key disarms the vehicle.

KEYS

The key operates all locks on your vehicle. You should always carry a second key with you in a safe place in case you require it in an emergency.



Your vehicle is equipped with a passive anti-theft system, and your keys are electronically coded to your vehicle; using a non-coded key will not permit your vehicle to start.

NOTE: Do not leave a duplicate coded key in the vehicle. Always take your keys and lock all doors when leaving the vehicle.

Replacement Keys

If your keys are lost or stolen and you don't have an extra coded key, you will need to have your vehicle towed to an authorized service center. The key codes need to be erased from your vehicle and new coded keys will need to be programmed.

Replacing coded keys can be very costly. Store an extra programmed key away from the vehicle in a safe place to help prevent any inconveniences. Additional spare or replacement keys can be purchased from an authorized service center.

Programming Spare Keys

A maximum of eight keys can be coded to your vehicle. Only keys for this anti-theft system can be used. To program a coded key yourself, you will need two previously programmed coded keys (keys that already operate your vehicle's engine) and the new unprogrammed key(s) readily accessible.

> **NOTE:** If two previously programmed coded keys are not available, you must bring your vehicle to your authorized service center to have the spare key(s) programmed. This service may require a labor charge for programming.

Please read and understand the entire procedure before you begin.

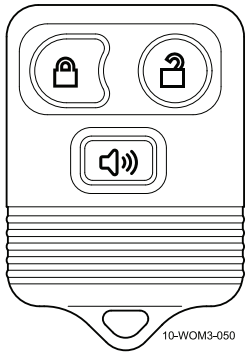
1. Insert the first previously programmed coded key into the ignition and turn the ignition from the OFF position to the ON position. Leave the key in the ON position for at least one second but for no more than 10 seconds.
2. Turn the ignition from the ON position back to the OFF position in order to remove the first coded key from the ignition.
3. Within 10 seconds of removing the first coded key, insert the second previously programmed coded key into the ignition and turn the ignition from the OFF position to the ON position. Leave the key in the ON position for at least one second but no more than 10 seconds.
4. Turn the ignition from the ON position back to the OFF position in order to remove the second coded key from the ignition.
5. Within 10 seconds of removing the second coded key, insert the new unprogrammed key into the ignition and turn the ignition from the OFF position to the ON position. Leave the key in the ON position for at least one second, but for no more than 10 seconds. This step will program your new key to a coded key.

6. To program additional new unprogrammed key(s), repeat steps 1 through 5.

If successful, the new coded key(s) will start the vehicle's engine and the anti-theft system indicator will illuminate for three seconds then go out.

If programming is not successful, the new coded key(s) will not start the vehicle's engine and the anti-theft indicator will flash on and off. Repeat steps 1 through 5 to try to program the key(s) again. If the failure repeats, take your vehicle to your authorized service center to have the new spare key(s) programmed.

REMOTE ENTRY SYSTEM



The remote entry system allows you to lock or unlock all vehicle doors without a key.

NOTE: The lock and unlock features work when the ignition is in any position. The panic feature is active when the ignition is in either the ACCESSORY, OFF or ON positions.
If there are any problems with the remote entry system, take ALL remote entry transmitters with you to the authorized service center

Interference Statement

This device complies with part 15 of the FCC rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The typical operating range for your remote entry transmitter is approximately 33 feet (10 meters). A decrease in operating range could be caused by:

- weather conditions,
- nearby radio towers,
- structures around the vehicle, or
- other vehicles parked next to your vehicle.

Unlocking the Doors

Two Step Door Unlocking

1. Press and release to unlock the driver's door.

   NOTE: The interior lamps will illuminate when the button is pressed.

2. Press and release again within three seconds to unlock the passenger doors and the liftgate latch.

The battery saver feature will turn off the interior lights 15 minutes after the ignition is turned to the OFF position.

One Step Door Unlocking

If the one step door unlocking feature is activated, press and release once to unlock the passenger doors and the rear cargo doors.

NOTE: The interior lights will illuminate when the button is pressed.

Switching from Two Step to One Step Door Unlocking

Your MV-1 comes with two step unlocking enabled. With the vehicle locked, unlocking can be switched between two step and one step door unlocking by pressing and holding both the and buttons simultaneously on the remote entry transmitter for approximately four seconds. The park lights will flash twice to indicate that the vehicle has switched to one step unlocking. Repeat the procedure to switch back to two step unlocking.

Locking the Doors

1. Press and release to lock all the doors. If all doors are closed the park lights will flash once.
2. Press and release again to confirm that all the doors are closed and locked.

   NOTE: The doors will lock again, the park lights will flash and the horn will chirp once. If any door is ajar, the park lights will not flash and the horn will chirp twice.

Car Finder

Press twice within three seconds. The horn will chirp and turn signal lights will flash. It is recommended that you use this method to locate your vehicle, rather than using the panic alarm.

Sounding the Panic Alarm

Press to activate the alarm. Press the control again, or turn the ignition to the ACCESSORY or ON position to deactivate the alarm.

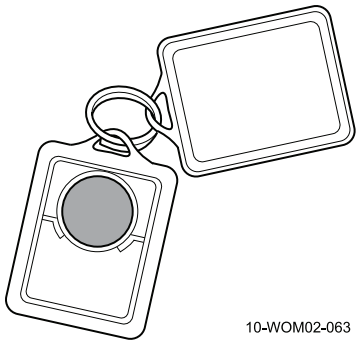
NOTE: The panic alarm will only operate when the ignition is in the off position.

Replacing the Battery

The remote entry transmitter uses one coin-type three-volt lithium battery CR2032 or equivalent.

To replace the battery:

1. Twist a thin coin between the two halves of the remote entry transmitter near the key ring.

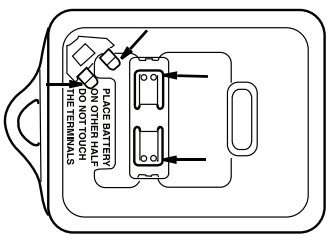


CAUTION: *DO NOT take the rubber cover and circuit board off the front housing of the remote entry transmitter.*

REASON: Removing the circuit board could cause the transmitter to fail.

2. Do not wipe off any grease on the battery terminals on the back surface of the circuit board.

Arrows indicate terminal locations



3. Remove the old battery.

   NOTE: Please refer to local regulations when disposing of transmitter batteries.

4. Insert the new battery. Refer to the diagram inside the remote entry transmitter for the correct orientation of the battery. Press the battery down to ensure that the battery is fully seated in the battery housing cavity.

5. Snap the two halves of the transmitter back together.

   NOTE: Replacing the battery will not deprogram your remote transmitter. The remote transmitter should operate normally after battery replacement.

Replacing or Adding Remote Entry Transmitters

If you would like to have your remote entry transmitter reprogrammed because you lost one, or would like to buy additional remote entry transmitters, you can either reprogram them yourself, or take all remote entry transmitters to your authorized service center for reprogramming.

How to Reprogram your Remote Entry Transmitters

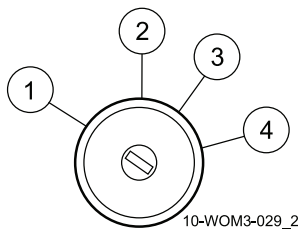
You must have all remote entry transmitters (maximum of four) available before beginning this procedure. Any remote entry transmitter that is not present during the programming procedure will no longer operate the vehicle.

NOTE: Ensure the brake pedal is not depressed during this sequence.

To reprogram the remote entry transmitters:

1. Unlock all of the doors using the power door lock/unlock control

2. Insert a key and turn the ignition from the 1 (OFF) position to the 3 (ON) position then cycle between those two positions eight times in rapid succession (within 10 seconds) with the eighth turn ending in the 3 (ON) position. The locks will then lock and unlock to confirm that the programming mode has been entered.



3. Within 20 seconds after the locks have cycled, you can program a remote transmitter by pressing any button on the transmitter. The locks will then lock and unlock once

to confirm that the remote transmitter has been programmed.

NOTE: If more than 20 seconds pass before pressing a remote transmitter button, the programming mode will exit and the procedure will have to be repeated.

4. Repeat the previous step to program additional remote transmitters. The locks will cycle once to confirm that each remote transmitter has been programmed.
5. When you have completed programming the remote transmitters, turn the ignition to the 1 (OFF) position or wait 20 seconds. The doors will lock and unlock to confirm programming has been completed.

Illuminated Entry

The interior lights will illuminate when the remote entry system is used to unlock the door(s) or sound the personal alarm.

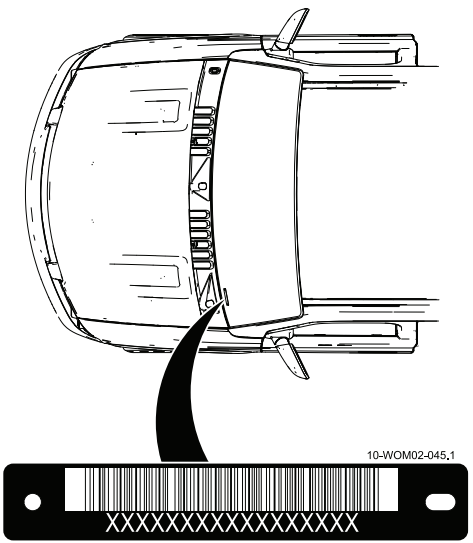
The illuminated entry system will turn off the lights if:

- the ignition switch is turned to the ON position, or
- the remote transmitter lock control is pressed, or
- after 25 seconds of illumination.

VEHICLE IDENTIFICATION NUMBER (VIN)

The vehicle identification number (VIN) is located on the driver's side instrument panel and is visible through the windshield.

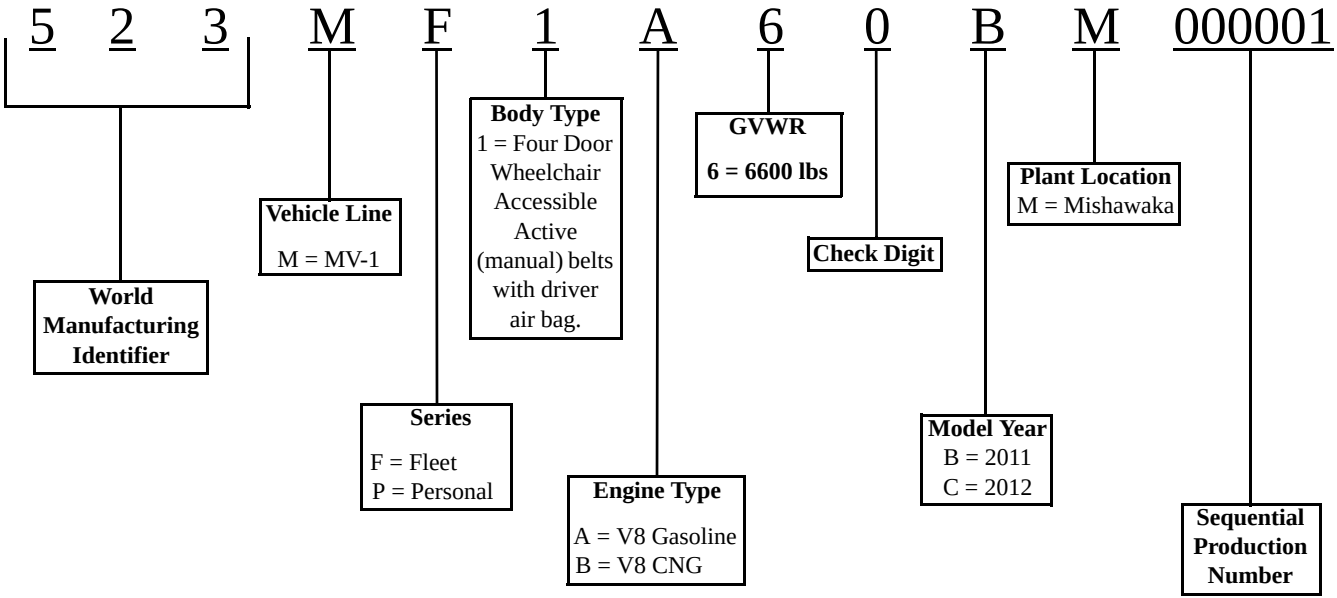
NOTE: In the graphic XXXX is representative of your vehicle identification number.



The chart on the next page explains what each letter and number of the VIN means.

Include the VIN whenever you contact an authorized service center about your vehicle.

Vehicle Identification Number Decoding Chart



Instrument Cluster

3

SECTION 3

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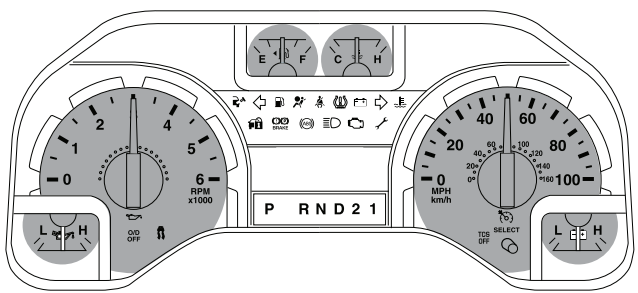

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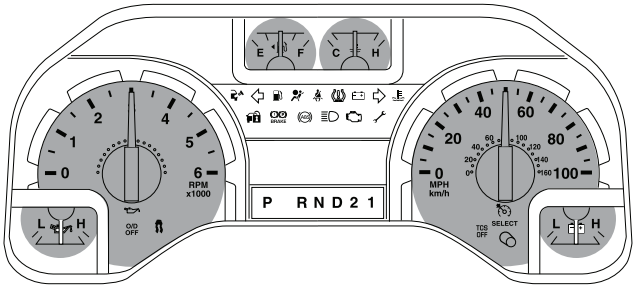
WARNING LIGHTS



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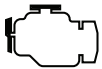
Warning lights and gauges can alert you to a vehicle condition that may become serious enough to cause expensive repairs. A warning light may illuminate when a problem exists with one of your vehicle's functions. Many lights will illuminate when you start your MV-1 to make sure the bulb works. If any light remains on after starting the vehicle, refer to the respective system warning light for additional information.

Service Engine Soon



The *Service Engine Soon* indicator light illuminates when the ignition is first turned to the ON position to check the bulb and to indicate whether the vehicle is ready for Inspection/Maintenance (I/M) testing. Normally, the *Service Engine Soon* light will stay on until the engine is cranked, then turn itself off if no malfunctions are present. If the vehicle is not ready for I/M testing the *Service Engine Soon* light blinks eight times after the engine has been on or running for 15 seconds.

Solid illumination after the engine is started indicates the On Board Diagnostics System (OBD-II) has detected a malfunction.

⚠ WARNING ⚠

If the light is blinking, engine misfire is occurring, which could damage your catalytic converter.

REASON: Under engine misfire conditions, excessive exhaust temperatures could damage the catalytic converter, the fuel system, interior floor coverings or other vehicle components, possibly causing a fire and resulting in serious injury or death. If this condition occurs, drive in a moderate fashion (avoid heavy acceleration and deceleration and have your vehicle serviced immediately by your authorized service center.

Brake System Warning Light

⚠ WARNING ⚠

Driving a vehicle with the Brake System Warning light on is dangerous.

REASON: If the light is on, a significant decrease in braking performance may occur and it will take you longer to stop the vehicle. Have your vehicle checked by your authorized service center. Driving extended distances with the parking brake engaged can cause brake failure and increase the risk of personal injury.

The Brake System Warning Light will momentarily illuminate to confirm the light is functional when the ignition is first turned to the ON position before the engine is running, in a position between ON and START, or when applying the parking brake when the ignition is turned to the ON position. If the Brake System Warning Light does not illuminate during any of these situations, seek service immediately from your authorized service center.

Illumination after releasing the parking brake indicates a low brake fluid level and the brake system should be inspected immediately by your authorized service center.

Anti-Lock Brake System (ABS)

If the ABS light stays illuminated or continues to flash, a malfunction has been detected and the system should be serviced immediately by your authorized service center. Normal braking is still functional unless the brake warning light is also illuminated.

Traction Control System (TCS)/ Electronic Stability Control System (ESC)

This indicator light will flash two times per second when either the Traction Control System or Electronic Stability Control System is active. If the light remains on, have the system serviced immediately by your authorized service center. For further information, see *Traction Control* on page 100 and *Electronic Stability Control* on page 101. When the Traction Control System is off, the TCS OFF indicator light in the instrument cluster will illuminate.

⚠ WARNING ⚠

Your vehicle is designed to be operated with TCS. If the light indicates the system is not functioning properly, reduce speed and proceed to an authorized service center to have the system serviced immediately.

REASON: Driving without TCS could make it more difficult to keep control of your vehicle while driving on slippery roads, which could increase your risk of an accident.

Engine Oil Pressure

Displays when the oil pressure falls below the normal range. See *Engine Oil* on page 224 for more information.

Low Fuel

Displays when the fuel level in the fuel tank is at or near empty. See *Fuel Gauge* on page 49 for more information.

Airbag Readiness

If the Airbag Readiness light stays illuminated or continues to flash, a malfunction has been detected and the system should be serviced immediately by your authorized service center. A chime will sound if the indicator light is malfunctioning.

Low Tire Pressure Warning

Illuminates when your tire pressure is low. If the light remains on at start up or while driving, the tire pressure should be checked. See *Wheels and Tires* on page 209 for more information. When the ignition is first turned to on, the light will illuminate for three seconds to ensure the bulb is working. If the light does not turn on, begins to flash or remains constantly on, have the Tire Pressure Monitoring System (TPMS) inspected by your authorized service center. For more information on this system, refer to *Tire Pressure Monitoring System (TPMS)* on page 143.

Charging System

Displays when the battery is not charging properly. If it stays on when the engine is not running, there may be a malfunction with the charging system. This indicates a problems with the electrical system or a related component. Contact your authorized service center as soon as possible.

Engine Coolant Temperature

Displays when the engine coolant temperature is high. Stop the vehicle as soon as possible, switch off the engine and let cool. See *Engine Overheating* on page 142 for other procedures to follow when the engine coolant temperature is too high.

⚠ WARNING ⚠

NEVER remove the coolant reservoir cap while the engine is running hot.

REASON: Steam or hot coolant escaping could cause injury.

Vehicle System Malfunction Indicator

Displays when the engine has defaulted to a “limp-home” operation, which may result in reduced power and/or limited gear ranges. This could also display when there is a malfunction in the Automatic Leveling Control (ALC) system. Report the fault to a service center at the earliest opportunity.

WARNING CHIMES

Key-in-Ignition Warning Chime

Sounds when the key is left in the ignition in the OFF or ACCESSORY position and the driver’s door is open.

Headlamps On Warning Chime

Sounds when the headlamps or parking lamps are on, the ignition is off (the key is not in the ignition) and the driver’s door is opened.

Parking Brake On Warning Chime

Sounds when the parking brake is set, the engine is running and the vehicle is driven more than 3 mph (5 km/h).

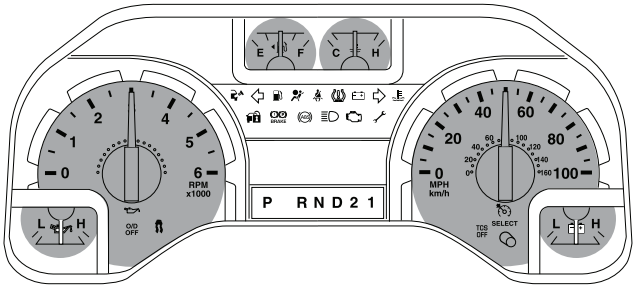
Ramp Override Warning Chime

Sounds three times when the Power Ramp Deploy switch on the right rear door is pressed while the “Ramp OFF” Switch in the center switch bank is active.

BTSI (Brake Transmission Shift Interlock) Warning Chime

Sounds five times when the brake pedal is depressed and the operator cannot shift out of park because the right rear door is open (signifying that the ramp may not be properly stowed).

INDICATOR LIGHTS



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Indicator lights illuminate to remind you to perform a function or to show that a feature is active. Many lights will illuminate when your start your vehicle to make sure that the bulb works.

Check Fuel Cap

Displays when the fuel cap may not be properly installed. Continued driving with this light on may cause the Service Engine Soon warning light to come on. See *Fuel Filler Cap* on page 215 for more information.

Turn Signals

Illuminates when the left or right turn signal or hazard lights are turned on. If the indicators flash faster than normal, check for a burned out bulb.

Safety Belt

Illuminates to remind you to fasten your safety belt. A chime will also sound to remind you to fasten your safety belt.

Anti-Theft System

Light flashes when the Passive Anti-Theft System has been activated.

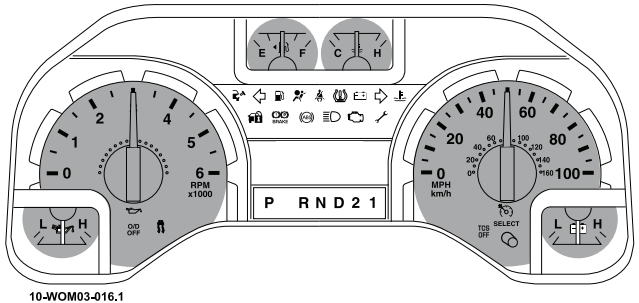
High Beams

Illuminates when the high beam headlights are turned on.

Speed Control

Illuminates when the speed control is activated. Turns off when the speed control system is deactivated.

GAUGES



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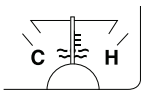
Engine Coolant Temperature Gauge



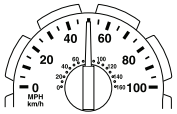
Indicates engine coolant temperature. At normal operating temperature, the needle will be in the normal range (between “H” and “C”). If the needle enters the red section, the engine is overheating. Stop the vehicle as soon as safely possible, switch off the engine and let the engine cool. You should then have your vehicle checked by your authorized service center as soon as possible.

⚠ WARNING ⚠

Never remove the coolant reservoir cap while the engine is running or hot.

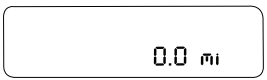
REASON: Steam or hot coolant escaping can cause injury.

Speedometer



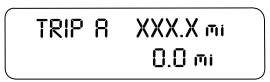
Indicates the current vehicle speed in miles per hour and kilometers per hour.

Odometer



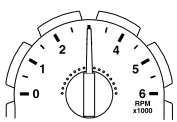
Registers the total miles of the vehicle.

Trip Odometer



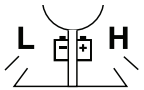
Registers the miles of individual journeys. Press the SELECT/RESET stem once to switch from the odometer to the trip odometer. Press the stem again to select Trip A and Trip B features. To reset the trip, press and hold the stem again until the trip is reading 0.0 miles.

Tachometer



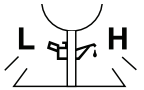
Indicates the engine speed in revolutions per minute. Avoid operating the engine at high RPM for extended periods of time. The red line indicates the maximum RPM tolerable.

Battery Voltage Gauge



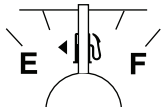
Indicates the battery voltage when the ignition is in the ON position and the engine is off. While the engine is running, the voltage indicated is the alternator output. If the pointer moves and stays outside the normal operating range, have the vehicle's electrical system checked by your authorized service center as soon as possible.

Engine Oil Pressure Gauge



Indicates engine oil pressure. The needle should stay in the normal operating range (between "L" and "H"). If the needle falls below the normal range, stop the vehicle, turn off the engine and check the engine oil level. Add oil if needed. If the oil level is correct, but the needle still falls below the normal range, have your vehicle checked by your authorized service center.

Fuel Gauge



Indicates approximately how much fuel is left in the fuel tank (when the ignition is in the ON position). The fuel gauge may vary slightly when the vehicle is in motion or on a grade. The FUEL icon and arrow indicates which side of the vehicle the fuel filler door is located.

If your vehicle is equipped with the CNG fuel option, there are some unique characteristics you need to understand regarding the fuel gauge reading and operation. Because of the properties of Compressed Natural Gas, the gauge reading will temporarily read higher than actual, based on outside temperature and the heat that is generated during refueling.

As you fill the vehicle, the gas in the tanks will compress to operating pressure as it is pumped in. This causes heat to be transferred to the shell of the tanks. After the tanks are full, the temperature of the tanks is higher than the outside temperature. Once the tanks cool to the outside temperature, the fuel pressure in the tanks will drop slightly resulting in a fuel gauge reading less than full.

The lower the fuel level is when the vehicle is refueled, the greater variation can be expected with the fuel reading. If the temperature outside is very cold and the fuel level was nearing empty, it could be possible to see a fuel level reading drop as much as 1/8 of a tank due to the contraction of the Compressed Natural Gas inside the tanks.

See *Gasoline Fuel System* on page 213 or Compressed Natural Gas on page 218 for more information.

Vehicle Controls

4

SECTION 4

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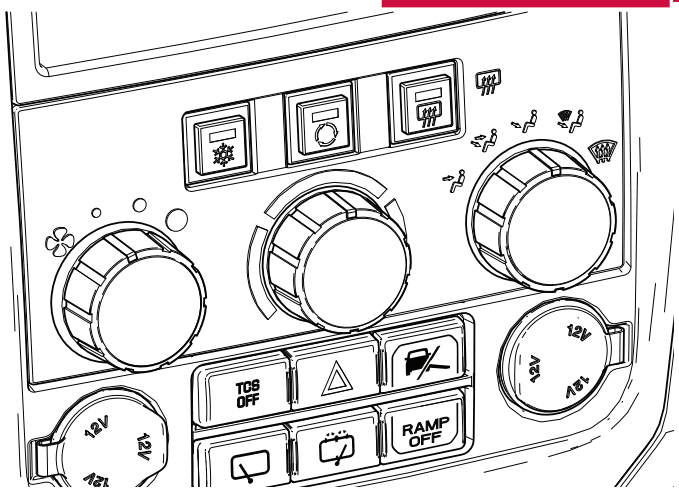

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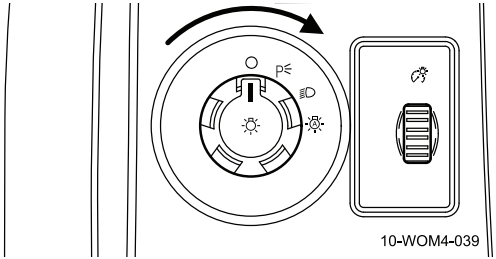
LIGHTS



Headlamp Control

Rotate the headlamp control knob clockwise to the first position to turn on the parking lamps. Rotate clockwise to the second position to also turn on the headlamps.

Autolamp Control

The autolamp system provides light sensitive automatic on-off control of the exterior lights normally controlled by the headlamp control.

The autolamp also keeps the lights on for a predetermined amount of time after the ignition switch is turned to off.

- To turn autolamps on, rotate the control to .
- To turn autolamps off, rotate the control to .

High Beams

Pull the multi-function lever toward you to activate. Push towards the instrument panel to deactivate. The indicator light in the instrument cluster will illuminate when the high beams are activated.

Flash-to-Pass

Pull the multi-function lever towards you slightly to activate and release to deactivate.

Daytime Running Lamps (DRL)

⚠ WARNING ⚠

Always remember to turn on your headlamps at dusk or during inclement weather. The Daytime Running Lamp (DRL) system does not activate the tail lamps and generally may not provide adequate lighting during these conditions.

REASON: Failure to activate your headlamps under these conditions may result in a collision.

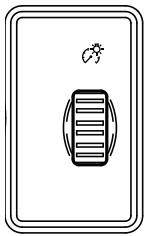
Turns the headlamps on with a reduced output.

In order for the DRLs to function:

- the ignition must be in the START position,
- the headlamp control is in the OFF ◯ position, and
- the vehicle is in gear.

PANEL DIMMER CONTROL

Use the panel dimmer control thumbwheel to adjust the brightness of the instrument panel when exterior lights are on.



- Rotate the thumbwheel up to brighten the instrument panel.
- Rotate the thumbwheel down to dim the instrument panel.
- Rotate fully up (past detent) to turn on interior lights and the ramp lights on the door.
- Rotate down (past detent) to turn off the interior lights and the ramp lights and to disable the illuminated entry feature. When the control is completely in the down position, it acts as a dome lamp defeat/override.

NOTE: If the battery is disconnected, discharged, or a new battery is installed, the dimmer switch requires recalibration. Rotate the dimmer switch from the full dim position to the full dome/on position to reset. This will ensure that your displays are visible under all lighting conditions.

MIRRORS

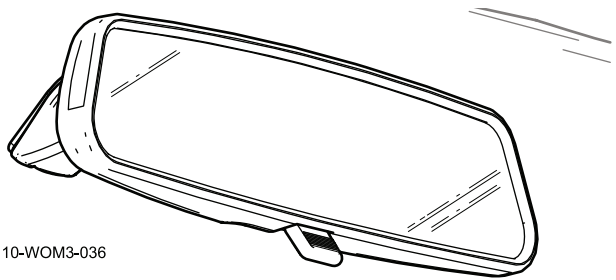
Rearview Mirror

⚠ WARNING ⚠

Do not adjust the mirror while the vehicle is in motion.

REASON: Driving while distracted can result in loss of vehicle control, accident and serious bodily injury or death.

The interior rear view mirror has two pivot point on the support arm which lets you adjust the mirror up or down and from side to side.



10-WOM3-036

The mirror can also be adjusted to reduce the glare from the headlights of the vehicle behind you. Push the adjusting tab away from you for daytime operation. Pull it toward you for nighttime operation.

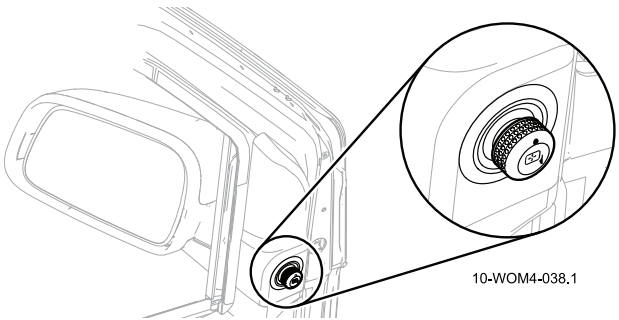
Power Outside Mirrors

⚠ WARNING ⚠

Do not adjust the mirrors while the vehicle is in motion.

REASON: Driving while distracted can result in loss of vehicle control, accident and serious bodily injury or death.

The power mirror feature enables you to adjust the outside mirrors in any direction from inside the vehicle. The power mirror switch is located on the driver's door.

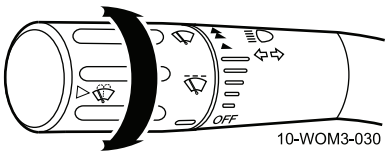


To adjust a mirror, turn the knob left for the driver's side mirror or right for the passenger's side mirror then toggle the knob until the mirror is in the desired position. Once the mirror is adjusted, turn the knob to the center position to lock the position into place.

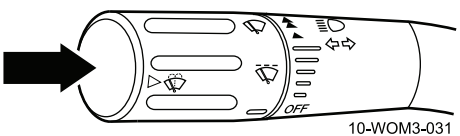
MULTI-FUNCTION LEVER

Windshield Wiper

Rotate the end of the control away from you to increase the speed of the wipers; rotate towards you to decrease the speed of the wipers.



Windshield Washer



When you press the end of the stalk...

- briefly: the wipers will swipe once without washer fluid.
- with a quick press and hold: the wipers will swipe three times with washer fluid.
- with a long press and hold: the wipers and washer fluid will be activated for up to ten seconds.

Courtesy Wipe Feature

One extra wipe will occur a few seconds after washing the front window to clear any excess washer fluid remaining on the windshield.

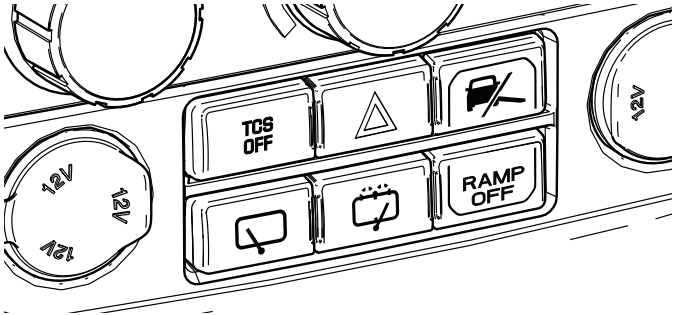
CAUTION: *Do not operate the washer when the washer reservoir is empty.*

REASON: The washer pump to could overheat and the wiper motor could burn out if the washer is used when the washer reservoir is empty.

CAUTION: *Check the washer fluid level frequently. Do not operate the wipers when the windshield is dry. Before operating the wiper on a dry windshield, always use the windshield washer. In freezing weather, be sure the wiper blades are not frozen to the windshield before operating the wipers.*

REASON: Operating the wipers when the windshield is dry or frozen to the windshield may scratch the glass, and/or damage the wiper blades.

REAR WINDOW WASHER AND WIPER



The rear window wiper and washer buttons are located in the center console under the climate controls.

Wiper - Press the button once to turn on the wiper. The wiper will swipe once every three seconds until the button is pressed again.

Washer - Press and hold for the desired amount of spray. Once the button is released the wiper will swipe three times.

SPEED CONTROL

With speed control set, you can maintain a set speed without keeping your foot on the accelerator pedal.

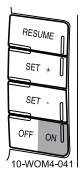
⚠ WARNING ⚠

Do not use the speed control in heavy traffic, traffic that varies in speed, or on roads that are winding, hilly, slippery or unpaved.

REASON: When using speed control in the conditions listed above you may not be able to react quickly enough to changing traffic and/or road conditions. This could result in loss of vehicle control and serious bodily injury or death.

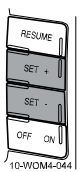
Setting Speed Control

The controls for using your speed control are located on the steering wheel for your convenience.



10-WOM4-041

1. Press the ON control and release it.
2. Accelerate to the desired speed.
3. Press the SET + or SET - control and release it.
4. Take your foot off the accelerator pedal.
5. The indicator light on the instrument cluster will turn on.



10-WOM4-044

NOTE:

- Vehicle speed may vary momentarily when driving up and down a steep hill.
- If the vehicle speed increases above the set speed on a downhill, you may want to apply the brakes to reduce the speed.
- If the vehicle speed decreases more than 10 mph (16 km/h) below your set speed on an uphill, your speed control will disengage.

Disengaging Speed Control

To disengage the speed control, depress the brake pedal.

Disengaging the speed control will not erase previous set speed.

Resuming a Set Speed

Press the RESUME control and release it. This will automatically return the vehicle to the previously set speed.

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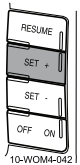
SECTION 4

Increasing Speed while using Speed Control

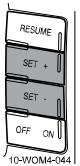
There are two ways to set a higher speed:



- Press and hold the SET + control until you get to the desired speed, then release the control. You can also use the SET + control to increase the speed incrementally. When you press and release the SET + control, the set speed will increase by 1 mph (1.6 km/h).
- Use the accelerator pedal to obtain the desired speed. When the vehicle reaches that speed, press and release the SET + control.

Reducing Speed while using Speed Control

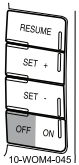
There are two ways to reduce a set speed:



- Press and hold the SET - control until you get to the desired speed, then release the control. You can also use the SET - control to decrease the speed incrementally. Press and release the SET - control and the vehicle set speed will decrease by 1 mph (1.6 km/h).
- Depress the brake pedal until the desired vehicle speed is reached and press the SET + control.

Turning Off Speed Control

There are two ways to turn off the speed control:

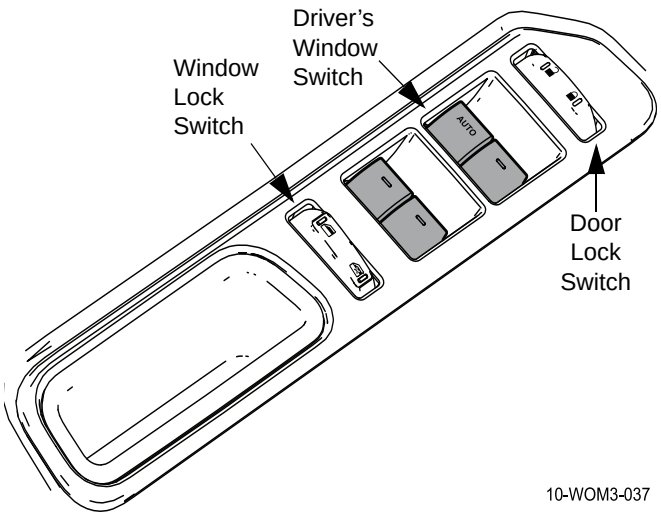


- Depress the brake pedal. This will not erase your vehicle's previously set speed.
- Press the speed control OFF control.

NOTE: When you turn off the speed control or the ignition, your speed control set speed memory is erased.

DOOR AND WINDOW CONTROLS

Door Locks



The driver's and front passenger's door both have a door lock switch. To open all of the doors, (including the rear hatch) press the left side of the door lock switch. Press the right side of the switch to lock all of the doors. Any of the doors can be manually locked or unlocked by pushing down or pulling up on the door lock rod.

Window Operation

To open any of the windows, push down and hold the switch to open the window. To close, pull up on the switch. There is also a window switch on each of the passenger doors.

⚠ WARNING ⚠

Before closing the power windows, you should verify they are free of obstructions and ensure that children and/or pets are not in the proximity of the window openings.

REASON: Children and/or pets could get trapped between the window and the door frame as the window closes, causing serious bodily injury or death.

One Touch Down

Allows the driver's window to open fully without holding the control down. Press the switch completely down to the second detent and release quickly. The window will open fully. Momentarily press the switch to any position to stop the window operation.

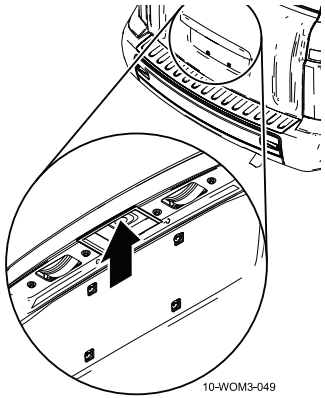
Window Lock

The window lock feature allows only the driver to operate the power windows from the controls on the driver's door.

To lock out all the window controls (except for the driver's) press the right side of the switch. Press the left side of the switch to restore all the window controls.

NOTE: The rear window switches will not illuminate when the window control is in the locked position.

LIFTGATE



The liftgate is locked and unlocked by the master door lock switch on the driver's door panel.

To open the liftgate, press the button under the handle and lift. There is a grab handle on the inside of the hatch to help pull the hatch down so it can be closed. Make sure the liftgate is closed before starting the vehicle.

⚠ WARNING ⚠

DO NOT drive with the liftgate open.

REASON: Passengers and cargo are at risk of falling out of the vehicle and driving with the liftgate open can cause damage to the liftgate and its components. In addition, engine exhaust, which contains carbon monoxide, can enter the vehicle. Carbon monoxide can cause drowsiness and even death. See *Exhaust Fumes* on page 94 for more information on exhaust fumes and carbon monoxide.

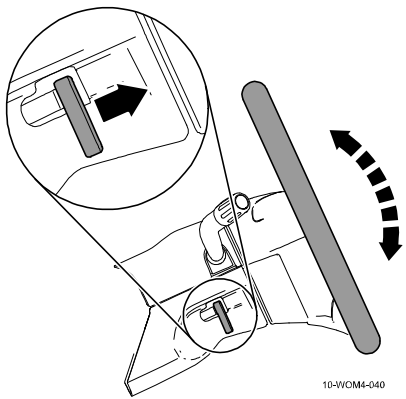
If you must drive with the liftgate open, make sure to close the windows and turn the fan on your climate controls to the highest speed and select the setting that will force outside air into the vehicle. See the *Climate Control System* on the next page for information on setting your controls.

TILT STEERING WHEEL

⚠ WARNING ⚠

NEVER adjust the steering column when the vehicle is moving.

REASON: Driving while distracted can result in loss of vehicle control, accident and serious bodily injury or death.



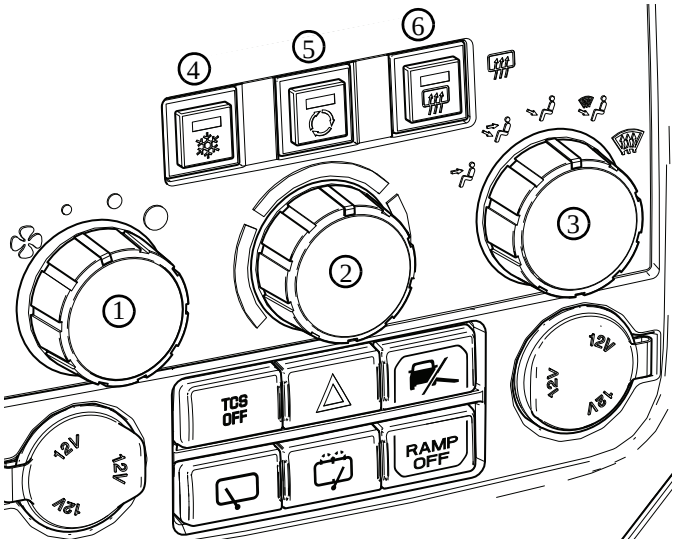
1. Pull and hold the steering wheel release control toward you.

2. Move the steering wheel up and down until you find the desired location.

3. Release the steering wheel release control. This will lock the steering wheel in position.

CLIMATE CONTROL SYSTEM

Description of Controls



1. **Fan Speed Adjustment** - Controls the system on/off and the volume of air circulated in the vehicle.
2. **Temperature Selection** - Controls the temperature of the airflow in the vehicle.

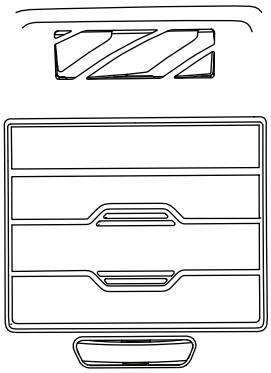
   NOTE: There is slight delay when switching between heat and A/C temperature modes.
3. **Air Flow Selections** - Controls the direction of the airflow in the vehicle.

   NOTE: For the best air flow to the rear of the vehicle, use the dash, dash/floor or floor modes.

   - - Distributes air only through the dash vents.
   - - Distributes air through dash and floor vents.
   - - Distributes air only through the floor and side defroster vents.
   - - Distributes air only through the windshield defroster vents, side defroster vents and floor vents.
   - - Distributes air only through the windshield and side defroster vents.
4. - **A/C** - Supplies power to the A/C compressor to use cold air to cool the vehicle.
5. - **Air Recirculation** - Recirculates interior air in any mode. Recommended for maximum cooling of the vehicle, not for defrost or defog purposes.
6. - **Rear Window Defrost** - Supplies power to the rear window defroster grid.

Vents

There are three types of vents in your MV-1.



Dash Vents - There are four dash vents like the one shown at the right. One on each side of the dash, and two in the middle, immediately above the stereo. These vents have inside louvers that can be adjusted side to side and outside louver that can be adjusted up and down.

Defroster Vents - There are four defroster vents in the vehicle. Two side vents, like the one shown to the right and two vents along the bottom of the windshield. None of these vents are adjustable.

Floor Vents - There are three floor vents, one on the driver's side, one on the front passenger's side and a vent under the driver's seat that directs air to the rear of the vehicle. None of these vents are adjustable.

Rear Window Defroster Operation

The Rear Window Defroster works to clear fog and light ice from the rear window. To use the defroster:

- Ensure that the ignition is either in the ON position or the vehicle is running.
- Press the Rear Window Defroster button. The indicator light will illuminate when the system is working. The rear defroster will automatically shut down after 10 minutes of operation.

CAUTION: *Do not use razor blades or other sharp objects to clean the inside of the rear window or to remove decals from the inside of the rear window.*

REASON: This may cause damage to the heated grid lines and will not be covered by your warranty.

Climate Control System Operating Tips

To ensure that your MV-1 Climate Control System operates effectively:

- remove any snow, ice or leaves from the air intake areas at the base of the windshield.
- do not put objects behind the front seat that will interfere with the air flow to the back seats.

Follow the tips below and on the next page for suggestions on the best settings for various weather conditions.

Window Fogging - In mild, but rainy or humid weather, windows may fog on the inside. To clear the fog off all the windows, turn on the air conditioning. Adjust the temperature and fan control to maintain comfort. Position the Air Flow Selection dial to “Defrost” to quickly remove windshield fogging.

Summer Operation - Air-conditioned vehicles must be protected with a high-quality antifreeze/coolant during summer to provide corrosion protection and to raise the boiling point of the coolant for protection against overheating. A 50% concentration is recommended. For best performance in very hot and/or humid conditions, the system should be operated in the Max A/C mode.

Winter Operation - When operating the climate control system in winter weather, make sure the air intake is free of ice, slush, snow or other obstructions. Set the blower speed to low until the engine heats up.

WEATHER	CONTROL SETTINGS
Hot weather and vehicle interior is very hot 	Start the vehicle, select "Dash" mode then press the A/C and Recirculation buttons. Set the Fan Speed to the highest setting. Roll the windows down to flush out hot air. Roll the windows up after hot air is expelled. Set the fan speed to High for maximum cooling, then adjust the fan and temperature as desired once the vehicle has cooled down.
Warm weather 	Press the A/C and Recirculation buttons in sunny weather, select the "Dash" setting then set the fan and temperature as desired. For cloudy or dark conditions, select the "Dash/Floor" position.
Cool or cold, humid conditions 	Select the "Dash/Floor" setting in sunny weather. In cloudy or dark conditions, Select "Floor" then adjust the fan and temperature as desired.
Cold, dry conditions 	Select the "Defrost" and the "Defrost/Floor" positions in cold, sunny weather. Choose the "Floor" position in cloudy or dark conditions. Recirculating interior air is not recommended in these conditions.

Seating and Safety Restraints

5

SECTION 5

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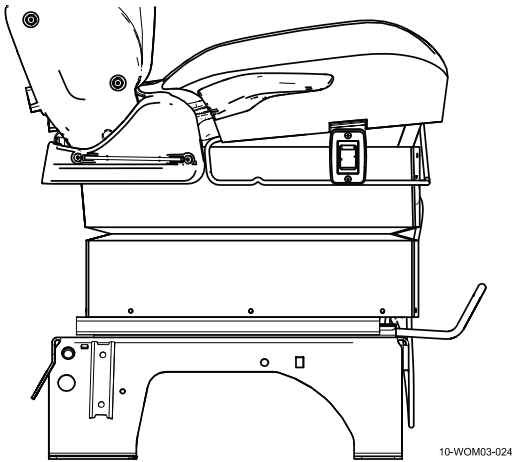

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SEATS

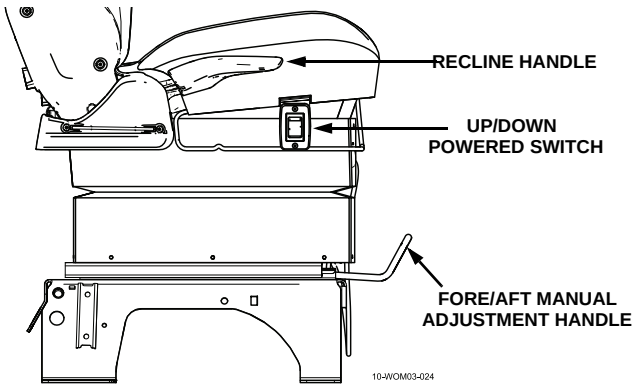
Driver's Seat Controls

⚠ WARNING ⚠

DO NOT attempt to adjust your seat while driving.

REASON: Being distracted from driving could cause you to lose control of the vehicle, which could result in serious bodily injury or death.

The driver's seat has three controls to adjust the seat as shown below:



- **Recline Handle** - Reclines the seatback to the desired position, or moves it to an upright position. To move the seatback upright, lean forward and pull the recline handle up. To recline, pull the handle up and lean back.
- **Powered Switch** - Moves the seat up and down. To move the seat, press the up or down side of the toggle switch until the seat is at the desired height.
- **Fore/Aft Manual Adjustment Handle** - Moves the seat forward or back. To move the seat, pull up on the manual adjustment handle and move the entire seat into the desired position.

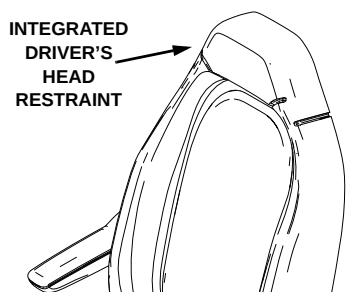
⚠ WARNING ⚠

Occupants should not ride in a moving vehicle with the seatbacks fully reclined.

REASON: When the seatbacks are fully reclined while the vehicle is moving, the wearer could slide under the seat belt during a collision, resulting in serious bodily injury or death.

Driver's Seat Head Restraint

Your driver's seat has a built-in head restraint in the seat back. There is no need for adjustment as it is integrated into the padding of the seatback.



Jump Seat

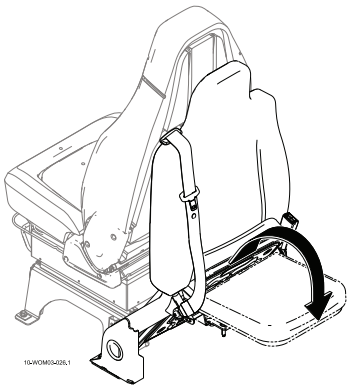
Your MV-1 may be equipped with the optional jump seat. The jump seat is attached to the floor behind the driver's seat and faces the rear seats.

⚠ WARNING ⚠

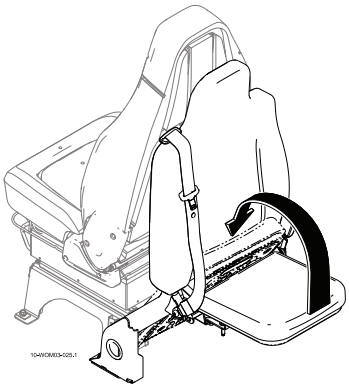
The jump seat is NOT designed to be used with a child safety seat or a booster seat.

REASON: Any child that still needs to use a safety seat or booster should be properly secured in the rear seats.

To use the jump seat, pull the seat base out completely and pivot it downward until it locks into place, then lower it until it is horizontal.



To stow the jump seat, pull up on the seat base, then slide it back into the stowed position.



SEAT BELT WARNINGS

⚠ WARNING ⚠

Seat belts are designed to bear upon the bony structure of the body, and should be worn low across the front of the pelvis, or the pelvis, chest and shoulders as applicable; wearing the lap section of the belt across the abdominal area must be avoided.

Seat belts should be adjusted as firmly as possible, consistent with comfort, to provide the protection for which they have been designed. A slack belt will greatly reduce the protection afforded to the wearer.

Care should be taken to avoid contamination of the webbing with polishes, oils and chemicals, and particularly battery acid. Cleaning may safely be carried out using mild soap and water. The belt should be replaced if webbing becomes frayed, contaminated or damaged.

It is essential to replace the entire assembly after it has been worn during severe impact even if no damage is apparent. Belts should not be worn with straps twisted.

Each belt assembly must be used by only one occupant; it is dangerous to put a belt around a child being carried on the occupant's lap.

No modifications or additions should be made which will either prevent the seat belt adjusting devices or assembly from operating to remove slack.

SEAT BELTS

Seat Belt Operation and Adjustment

⚠ WARNING ⚠

ALWAYS wear seat belts. Buckling up will prevent injuries and save lives.

REASON: The use of seat belts is essential to the safety of all occupants. During an accident, a seat belt can help prevent an occupant from being thrown against the inside of the vehicle, thrown against other occupants, or thrown from the vehicle. Seat belts also help restrain you and any passengers during certain driving situations, such as hard braking or rough terrain operation.

Your vehicle is equipped with combination lap and shoulder belts for all seating positions. Seat belt and adjustment instructions will be applicable to all vehicle seat belts.

If you do not have your seat belt fastened when the key is turned to the ON or START positions, a seat belt reminder chime will sound six times then the seat belt indicator light will remain on solid until the seat belt is fastened.

If a seat belt is too short even when fully extended, one seat belt extender can be obtained from your authorized service center free of charge. Additional extenders can be purchased, if necessary. Seat belt extenders should be used only if the existing belt is not long enough. When it is not required, it must be removed and stored in a secure place.

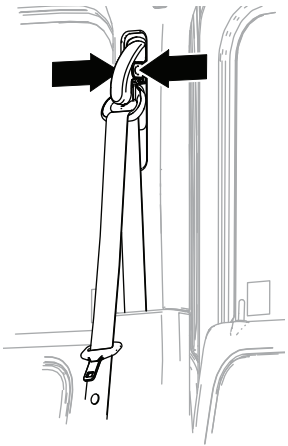
Seat Belt Height Adjuster

Before you fasten your seat belt, it is important that the seat is in the proper position for driving and the seat belt height adjuster is set for your height so that the top of the seat belt is just over the shoulder of the wearer.

To set the seat belt height adjuster:

1. Push the buttons in on both sides of the adjuster as shown.

2. Slide the adjuster up or down to find the proper seat belt height. Release the buttons and the adjuster will click into place. There are four level settings on the adjuster. If you release the buttons between levels, the adjuster will click into place at the lower level.



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Once the height is adjusted, you can fasten the seat belt.

To fasten the belt, pull the shoulder harness strap and lap belt across your body and fasten the latch plate to the belt buckle. Ensure the seat belt is not twisted in any way.

Adjust the seat belt by pulling the shoulder harness strap through the latch plate. Remove the slack by gently pulling down on the shoulder harness strap and releasing.

To unfasten the seat belt, push the release button on the belt buckle and release the latch plate.

Seat Belt Pretensioner

Your MV-1 is equipped with a seat belt pretensioner for the driver's seating position.

The seat belt pretensioner removes some slack from the safety belt at the start of a crash. The seat belt pretensioner uses the same crash sensor as the front air bag system. When the seat belt pretensioner deploys, the lap and shoulder belts are tightened.

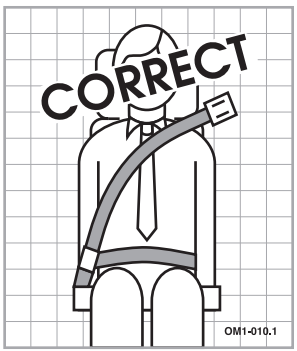
⚠ WARNING ⚠

The driver's safety belt system (including retractors, buckles and height adjusters) must be replaced if the vehicle is involved in a collision that results in deployment of the front air bag and safety belt pretensioners.

REASON: Failure to replace the seat belt assembly under the above conditions could result in serious bodily injury or death in the event of a collision.

Wearing Seat Belts Properly

A seat belt is most effective when worn properly. A seat belt worn improperly will not provide the necessary restraining capabilities that a properly worn seat belt provides. This section outlines some general rules that must be followed in order to obtain maximum seat belt performance. These rules, which appear as warnings, are extremely important in maintaining proper seat belt usage. Read these warnings thoroughly to ensure you and your passengers use seat belts properly.



⚠ WARNING ⚠

To help avoid serious personal injury or death, ALL vehicle occupants must ALWAYS wear properly adjusted seat belts during vehicle operation. This INCLUDES pregnant women. ALL passengers MUST be securely buckled in BEFORE the vehicle is started.

REASON: When a seat belt is worn properly, it is less likely that an unborn child will be hurt in a collision. Also, wearing a lap belt snugly and low across the hips helps prevent you from sliding under the lap belt during a collision, and reduces injury to the abdomen. During a collision, the belt forces will be applied at the strong hip and pelvic bones, not across the abdomen, which could cause serious internal injuries.

⚠ WARNING ⚠

EACH shoulder harness strap MUST fit snugly against the chest and on the outside shoulder. Sit upright, NOT in a slouched position.

REASON: Seat belts will lock only during sudden stops or impacts. If a seat belt has slack, it will NOT prevent the user from moving forward during a collision. This increases the risk of injury.

⚠ WARNING ⚠

NEVER use one seat belt for MORE than one person.

REASON: The seat belts are designed to help restrain one person at a time in one seating position. One seat belt does not safely secure more than one occupant in the same seat. Two occupants using one seat belt can collide during an accident, causing serious injury.

⚠ WARNING ⚠

NEVER allow ANY passenger to hold an infant or child in the passenger's lap while the vehicle is moving. ALWAYS use proper infant and child restraints in accordance with the manufacturer's instructions. Refer to “Seat Belts For Children” on page 74 for more information.

REASON: The passenger will not be able to protect an infant or child from injury during an accident or sudden stops. The force needed to hold even an infant is too great during an accident, even for an adult.

⚠ WARNING ⚠

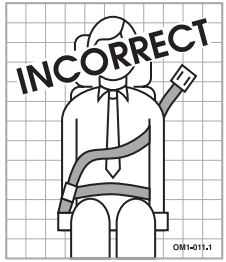
NEVER allow passengers to ride in the cargo area of the vehicle. All passengers must wear a safety belt at all times. Failure of passengers to wear safety belts may lead the passenger(s) to sustain personal injury or death in case of an accident or sudden violent maneuver.

REASON: Passengers not riding in a seat with a fastened seat belt can be thrown from the vehicle during an accident or rough road driving, resulting in serious injury or death.

⚠ WARNING ⚠

NEVER wear the shoulder harness strap under the arm.

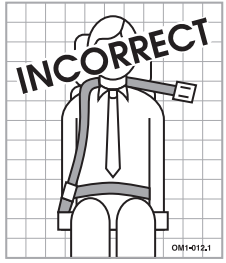
REASON: During a collision, the upper body could move too far forward, increasing the chance of head and neck injuries. In addition, a belt worn under the arm is more likely to cause injury to the ribs, which are not as strong as the shoulder bones.



⚠ WARNING ⚠

NEVER wear the shoulder harness strap around the neck and over the inside shoulder.

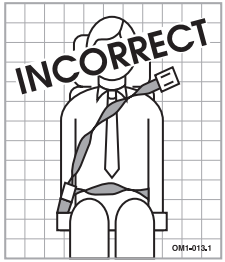
REASON: During a collision, the upper body could move too far forward, increasing the chance head and neck injuries. The shoulder harness strap MUST be worn over the outside shoulder and snug against the chest.



⚠ WARNING ⚠

NEVER twist ANY part of a seat belt in ANY way.

REASON: A twisted seat belt will not be able to use its full width to take impact forces, increasing the risk of injury in an accident. If the seat belt is twisted, try to straighten it out by hand. If this does not work, have it straightened by an auth-orized service center.



⚠ WARNING ⚠

ALWAYS remove ALL slack from seat belt.

REASON: During a collision, the upper body could move too far forward, increasing the chance of head and neck injuries.

⚠ WARNING ⚠

Shoulder harness strap MUST fit snugly against the shoulders and chest. Lap belt MUST fit snugly and as LOW as possible across the hips, NOT across the waist.

REASON: Slack will be reduced and belt forces will be applied properly on the chest and shoulder, reducing the risk of injury in an accident.

Seat Belt Maintenance

Periodically inspect all seat belts for any noticeable damage. Check all attaching hardware for security of mounting. Check all retractors, latch plates, belt buckles, and release buttons for proper operation. Inspect straps for rips, tears, or any signs of wear.

⚠ WARNING ⚠

ALWAYS thoroughly inspect ALL seat belts straps, latching mechanisms, retractors, and attaching hardware for damage PRIOR to each use.

REASON: A frayed or torn seat belt strap may rip apart during a collision. Damaged latching mechanisms, such as a latch plate or belt buckle, will fail to hold during a collision. A damaged retractor will not lock during sudden stops or impact, and loose attaching hardware will not properly secure seat belt components. All these conditions could result in seat belt failure, resulting in serious injury.

If any damage is found, or you suspect that the seat belts are not functioning properly, immediately have them checked at an authorized service center.

Seat Belts For Children

Seat belts are not for adults only. Infants, toddlers, and children smaller than adults need to be properly secured in a seat to ensure their safety. Every U.S. state and Canadian province requires the use of a seat belt, or child and infant restraint, for all children. Always follow all safety instructions when securing children in the vehicle.

⚠ WARNING ⚠

NEVER leave children unattended in the vehicle.

REASON: Children could play with vehicle controls, which could result in serious bodily injury or death.

Infants and Toddlers

⚠ WARNING ⚠

ALWAYS SECURE infants and toddlers in an infant or child restraint.

ALWAYS use proper infant AND child restraints in accordance with the manufacturer's instructions.

The restraint MUST be appropriate for the size of the child.

REASON: An infant or child restraint is absolutely necessary for the safety of your child. Without the aid of an infant or child restraint, the seat belts in your vehicle will not safely protect your child during a collision or sudden stops. The lap belt portion of the vehicle seat belt will not fit as low as possible across a small child's hips. Instead, the lap belt will likely be over the child's abdomen. During an accident, the child could be seriously or fatally injured. Also, the shoulder harness strap will likely cross in front of the child's face and neck. A sudden stop or collision may cause serious face and neck injuries.

⚠ WARNING ⚠

NEVER allow ANY passenger to hold an infant or child on the passenger's lap while the vehicle is moving.

ALWAYS use an appropriate infant or child restraint.

REASON: The passenger will not be able to protect an infant or child from injury during an accident, or sudden stops. The force needed to hold even an infant is too great during a collision, even for an adult.

⚠ WARNING ⚠

NEVER position a shoulder harness strap so that it crosses in FRONT of a child's face OR neck.

REASON: A sudden stop or collision may cause serious face and neck injuries. The belt should go over the shoulder and across the chest. A booster seat should be used, if necessary, to ensure that the belt is positioned properly.

⚠ WARNING ⚠

NEVER allow a child to wear the safety belt with the belt behind their backs.

REASON: A child can be seriously injured by not wearing the lap-shoulder belt properly. In a collision, a child would not be restrained by the shoulder belt, and could move too far forward during impact, which could increase the chance of a head and neck injury. The child might also slide under the lap belt. The belt force would then be applied right to the abdomen, causing serious bodily injury or death.

⚠ WARNING ⚠

ALWAYS SECURE the infant or child restraint in the vehicle seat even if a child is NOT in it.

REASON: A loose child restraint can become a dangerous projectile during a sudden stop or collision, and could cause serious personal injury.

⚠ WARNING ⚠

ALWAYS remove ALL slack from seat belts.

REASON: Seat belts will only lock during sudden stops or impacts. During a sudden stop or impact, the restraint will move too far forward, increasing the chance for head and neck injuries.

⚠ WARNING ⚠

ALWAYS SECURE children with seat belts when in the vehicle.

REASON: Children who are not buckled up can be seriously or fatally injured in an accident, and can collide with other occupants in the vehicle.

Larger Children

A child too large to fit in a child restraint should always use the vehicle's seat belts, and a booster seat, if necessary. Statistics reveal that a child restrained in a rear seat is safer than a child restrained in a front seat. Refer to "Wearing Seat Belts Properly" on page 71 for important rules that must be followed in order to obtain maximum seat belt performance.

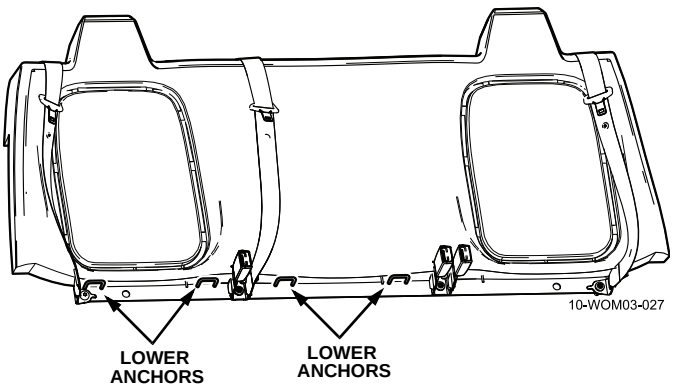
⚠ WARNING ⚠

Never use a seat belt equipped with a seat belt extender to fasten a child safety seat.

REASON: A seat belt extender cannot adequately secure a child safety seat in the case of a collision. The child will not be properly restrained.

Attaching Child Safety Seats with LATCH (Lower Anchors and Tethers for CHildren) Attachments

The LATCH system is composed of three anchor points: two lower anchors located where the vehicle seat back and seat cushion meet (called the “seat bight”) and one top tether anchor located behind that seating position.



LATCH compatible child safety seats have two rigid or webbing mounted attachments that connect to the two lower anchors at the LATCH equipped seating positions in your vehicle. This type of attachment method eliminates the need to use safety belts to attach the child seat. For forward-facing child seats, the top tether strap must also be attached to the proper top tether anchor, if a top tether strap has been provided with your child seat. VPG recommends the use of a child safety seat having a top tether strap.

⚠ WARNING ⚠

NEVER attach two child safety seats to the same anchor.

REASON: In a crash, one anchor may not be strong enough to hold two child safety seat attachments and may break, causing serious injury or death.

If you install a child seat with rigid LATCH attachments, and have attached the top tether strap to the proper top tether anchor, do not tighten the tether strap enough to lift the child seat off the vehicle seat cushion when the child is seated in it. Keep the tether strap just snug without lifting the front of the child seat. Keeping the child seat just touching the vehicle seat gives the best protection in a severe crash.

Each time you use the safety seat, check that the seat is properly attached to the lower anchors and tether anchor, if applicable. Tug the child seat from side to side and forward and back where it is secured to the vehicle. The seat should move less than one inch when you do this, indicating a proper installation.

Combining Safety Belt and LATCH Lower Anchors for Attaching Child Safety Seats

When used in combination, either the safety belt or the LATCH lower anchors may be attached first, provided a proper installation is achieved. Attach the tether strap afterward, if included with the child seat.

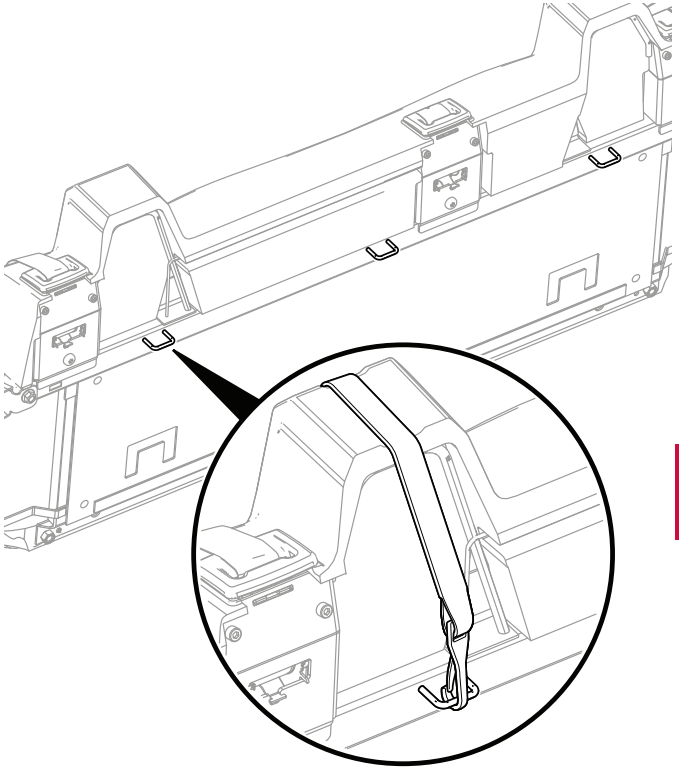
Attaching Child Safety Seats with Tether Straps

Many forward-facing child safety seats include a tether strap which extends from the back of the child safety seat and hooks to an anchoring point called the top tether anchor. Tether straps are available as an accessory for many older safety seats. Contact the manufacturer of your child seat for information about ordering a tether strap, or to obtain a longer tether strap if the tether strap on your safety seat does not reach the appropriate top tether anchor in the vehicle.

The rear seat of your MV-1 is equipped with three built-in tether strap anchors located behind the seats as shown.

Attach the tether strap only to the appropriate tether anchor as shown. The tether strap may not work properly if attached somewhere other than the correct tether anchor.

Once the child safety seat has been installed using either the safety belt, the lower anchors of the LATCH system, or both, you can attach the top tether strap.



WHEELCHAIR RESTRAINTS

Your MV-1 may be equipped with the QRT MAX wheelchair securement system, manufactured by Q-Straint®. This system uses floor tracks and belts with retactors to hold the wheelchair in place. The system also includes lap and shoulder belts and full instructions on how to secure the occupant's wheelchair in the vehicle. A securement system will be needed for each wheelchair in the vehicle.

⚠ WARNING ⚠

ALWAYS secure all wheelchairs in the vehicle with securement systems before putting the vehicle in motion.

REASON: Unsecured wheelchairs can move during a collision, causing serious bodily injury or death

The MV-1 designed around the usage of the WC19 wheelchair transit standard developed by the American National Standards Institute (ANSI), which calls for a four-point, strap-type tiedown system and a wheelchair with easily accessible tiedown points.

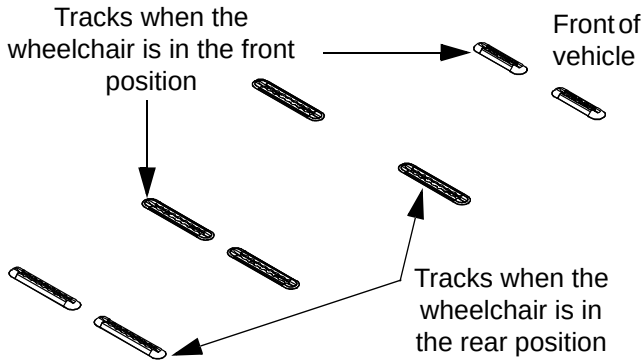
⚠ WARNING ⚠

NEVER leave an adult that normally requires the assistance of others alone in the vehicle.

REASON: The adult would not be able to exit the vehicle in case of an emergency, which could result in serious bodily injury or death.

Wheelchair Securing

There are four sets of floor tracks in your vehicle for securing two wheelchairs in a forward-facing position. They are on the passenger side of the vehicle, from the front console to the rear seat.



⚠ WARNING ⚠

DO NOT alter any of the restraint system belts, retractors or components. Always keep the belts and retractors and instructions together as a complete kit.

REASON: If the restraint kit is altered or incomplete, the wheelchair may not be secured correctly. This could cause in the wheelchair to break loose during a collision, causing serious bodily injury or death.

Before securing a wheelchair, make sure that all the parts of

the restraint system are in good working order and that the tracks are free from dirt and debris.

Although either securement positions can be used, the rear position is recommended because it exceeds the ADA wheelchair space guidelines of 30 x 40 inches (76 x 102 cm).

The rear wheelchair securement position will be shown for illustration purposes.

To secure a wheelchair in your vehicle:

1. Load the wheelchair and occupant into the vehicle.

   NOTE: For information on ramp deployment and wheelchair loading procedures, see the Ramp section in this manual.

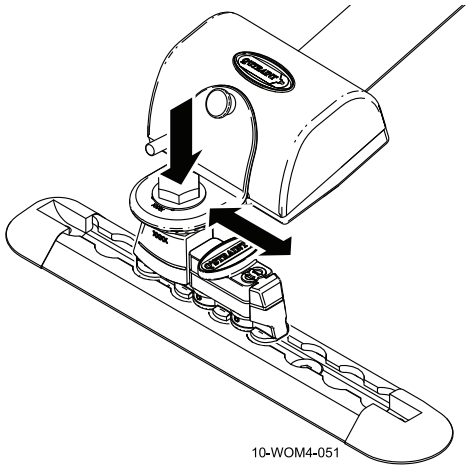
2. Position the wheelchair so the occupant is facing forward, then move the wheelchair closer to the front console, making sure to keep the wheelchair in alignment with the rear restraint tracks on the floor.

3. Install the rear retractors into the tracks by pushing the locking mechanism into the track then sliding the retractor into place. The lock release on top of the locking mechanism can be pulled up to aid in sliding the mechanism along the track.

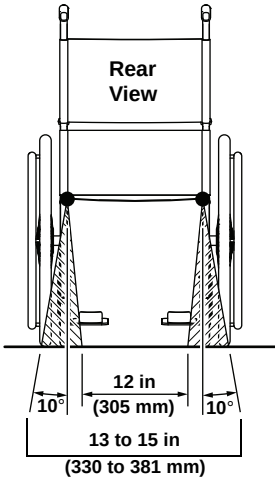
   NOTE: The four retractors are interchangeable between the front and back.

CAUTION: *DO NOT leave the retractors in the tracks when they are not being used.*

REASON: There is a possibility of galvanic corrosion if the retractors are left in the tracks. Retractor and tie-downs should be properly stored in their pouch when not in use.

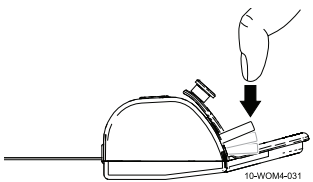


Rotate the retractors 90 degrees so the securing hooks are aligned with the wheelchair to check that the retractors are properly spaced. For common wheelchair sizes, the center to center measurement for the rear retactors should be between 13 and 15 inches (330-381 mm). This will allow for the retactors to be 10 degrees out from the securing hook attachment points.



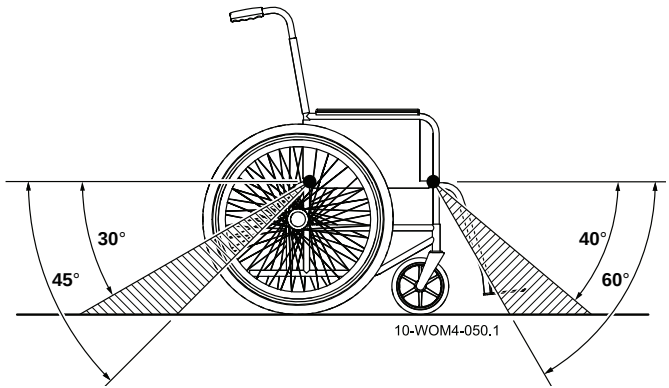
NOTE: Wheelchairs that are exceptionally large or small may require anchorage spacing that differs from these recommendations.

4. Once the retractors are in the desired position for that wheelchair, roll the wheelchair back towards the rear retractors. Hold down the red release lever on one of the retractors to release the belt. Pull the belt out and attach the securing hook to a rigid frame member towards the back of the wheelchair.



NOTE: The open end of the securement hook should be facing up when attached to the securement point.

The attachment angle of the rear straps should be between 30 and 45 degrees.



⚠ WARNING ⚠

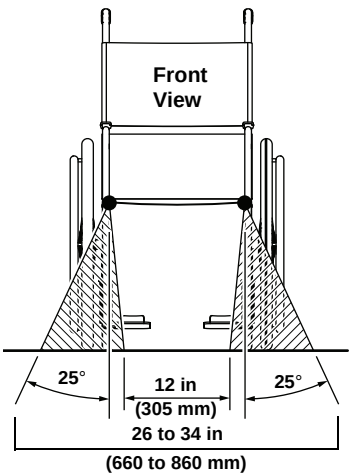
DO NOT attach securing hooks to wheels, armrests or seats.

REASON: Those parts of a wheelchair may not be strong enough to keep a wheelchair secured in the event of a collision, and could lead to injury or death.

NOTE: Not every wheelchair will have the same securement points. Consult the wheelchair manufacturer's instructions for the recommended securement points.

5. Repeat for the other side. Once both of the rear tiedown straps are secured, roll the wheelchair in the desired position and the retractors will tighten the straps. The wheelchair wheels can then be locked.

6. Install the front retactors into the tracks then rotate the retractors 90 degrees so the securing hooks are aligned with the wheelchair to check that the retractors are properly spaced. For common wheelchair sizes the center to center measurement for the front retactors should be between 26 and 34 inches (660-860 mm). This will allow for the retactors to be approximately 25 degrees out from the securing hook attachment points.



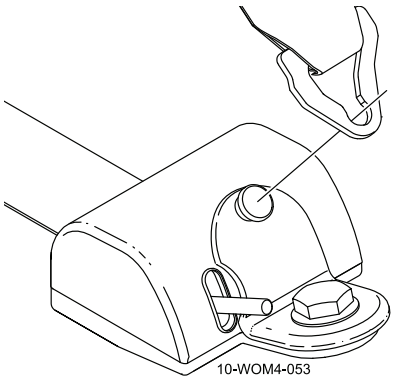
7. Once the retractors are in the desired position for that wheelchair, hold down the red release lever on one of the retractors to release the belt. Pull the belt out and attach the securing hook to a rigid frame member towards the front of the wheelchair. The attachment angle of the front tiedown straps should be between 40 and 60 degrees. Once both of the straps are secured, the retractors will tighten the straps. When the wheelchair is secured properly there should be no more than two inches of movement in any direction when the vehicle is operated under normal driving conditions.

Occupant Restraints

The QRT MAX wheelchair securement system comes equipped with a two-piece lap belt and a shoulder belt, all of which can be adjusted to fit most wheelchairs and occupants.

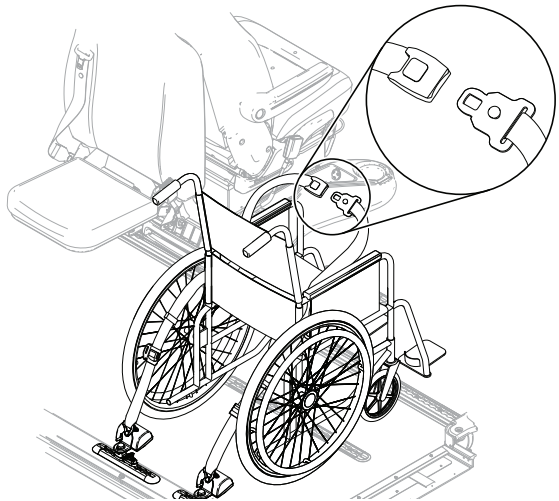
To install the lap belt:

1. Attach the lap belt with the buckle to the pin connector on the rear retactor that is closest to the driver's side. Pull the belt to make sure that the attachment plate is completely pulled up on the pin.



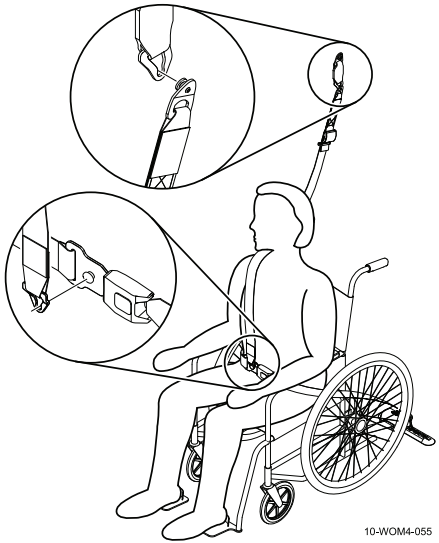
2. Attach the lap belt with the latch plate to the pin connector on the rear retractor that is closest to the right side of the vehicle.

3. Pull both belts around to the front, making sure that the lap belt is not held away from the body by wheelchair components or parts such as the armrest or wheels. The lap belt should be worn low across the front of the pelvis like a conventional seat belt.



4. Attach the portion of the shoulder belt with the adjuster to the shoulder belt attachment point hanging above the rear grab handle.

5. Attach the other end of the shoulder belt to the pin on the latch plate of the lap belt, making sure that the belt is not twisted.



6. Buckle the lap belt and pull the belt so that the buckle is to the left hip of the occupant, which ensure proper alignment with the shoulder belt. The shoulder belts should then be tightened as firmly as is comfortably possible for the user. See “Seat Belt Warnings” on page 69. and “Wearing Seat Belts Properly” on page 71 for more information.

AIR BAG SUPPLEMENT RESTRAINT SYSTEM (SRS)

Your MV-1 is equipped with a driver's air bag SRS. The SRS is designed to work with the safety belt to help protect the driver from certain upper body injuries.

Important SRS Precautions

Air bags DO NOT inflate slowly; there is a risk of injury from a deploying air bag. Follow the warnings below to avoid being injured by the air bag during a collision.

⚠ WARNING ⚠

All occupants of the vehicle, including the driver, should always properly wear their safety belts, even when an air bag supplemental restraint system (SRS) is provided.

⚠ WARNING ⚠

National Highway Traffic Safety Administration (NHTSA) recommends a minimum distance of at least 10 inches (25 cm) between an occupant's chest and the driver air bag module.

⚠ WARNING ⚠

Do not put anything on or over the air bag module. Placing objects on or over the air bag inflation area may cause those objects to be propelled by the air bag into your face and torso causing serious injury.

⚠ WARNING ⚠

Never place your arm over the air bag module as a deploying air bag can result in serious arm fractures or other injuries.

To properly position yourself away from the air bag:

- *Move your seat to the rear as far as you can while still reaching the pedals comfortably.*
- *Recline the seat slightly one or two degrees from the upright position.*

⚠ WARNING ⚠

Do not attempt to service, repair, or modify the air bag supplemental restraint systems or its fuses. Contact your authorized service center as soon as possible.

⚠ WARNING ⚠

Modifying or adding equipment to the front end of the vehicle (including frame, bumper, front end body structure and tow hooks) may affect the performance of the air bag system and sensors, increasing the risk of injury. Do not modify the front end of the vehicle.

How Does the Air Bag Supplemental Restraint System Work?

The air bag SRS is designed to activate when the vehicle sustains a longitudinal deceleration sufficient to cause the air bag sensors to close an electrical circuit that initiates air bag inflation. The fact that the air bags did not inflate in a collision does not mean that something is wrong with the system. Rather, it means the forces were not sufficient enough to cause activation. Air bags are designed to inflate in frontal and near-frontal collisions, not rollover, side-impact, or rear-impacts unless the collision causes sufficient longitudinal deceleration.

The air bags inflate and deflate rapidly upon activation. After air bag deployment, it is normal to notice a smoke-like, powdery residue and smell the burnt propellant. This may consist of cornstarch, talcum powder or sodium compounds which may irritate the skin and eyes, but none of the residue is toxic.

While the SRS is designed to help reduce serious injuries, contact with a deploying air bag may also cause abrasions, swelling or temporary hearing loss. Because air bags must inflate rapidly and with considerable force, there is the risk of death or serious injuries such as fractures, facial and eye injuries or internal injuries, particularly to occupants who are not properly restrained or are otherwise out of position at the time of air bag deployment. It is extremely important that occupants be properly restrained as far away from the air bag module as possible while maintaining vehicle control.

The SRS consists of:

- Driver air bag module (which includes the inflator and air bag)
- One or more impact and safing sensors
- Safety belt pretensioners
- A readiness indicator light and chime
- A diagnostic module
- And the electrical wiring which connects the components

The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system wiring (including the impact sensors), the system wiring, the air bag system readiness light, the air bag back up power and the air bag ignitors.

⚠ WARNING ⚠

Do not touch the air bag system components after inflation.

REASON: Several air bag system components get hot after inflation and could cause serious bodily injury.

⚠ WARNING ⚠

If the air bag has deployed, the air bag will not function again and must be replaced immediately.

REASON: Failure to replace the air bag will increase the risk of serious bodily injury or death in a collision.

Determining if the System is Operational

The SRS uses a readiness indicator light in the instrument cluster or a chime to indicate the condition of the system. Refer to *"Air Bag Readiness"* on page 45 for more information. Routine maintenance of the air bag is not required.

A difficulty with the system is indicated by one or more of the following:

- The readiness indicator light will either flash or stay lit.
- The readiness indicator light will not illuminate immediately after ignition is turned on.
- A series of five beeps will be heard. The chime pattern will repeat periodically until the problem and/or light are repaired. If any of these things happen, even intermittently, contact your authorized service center as soon as possible. Unless serviced, the system may not function properly in the event of a collision.

Disposal of Air Bags and Air Bag Equipped Vehicles (including pretensioners)

Contact your authorized service center as soon as possible. Air bags MUST BE disposed of by qualified personnel.

EVENT DATA RECORDER

This vehicle is equipped with an event data recorder (EDR). The main purpose of an EDR is to record, in certain crash or near crash-like situations, such as an air bag deployment or hitting a road obstacle, data that will assist in understanding how a vehicle's systems performed. The EDR is designed to record data related to vehicle dynamics and safety systems for a short period of time, typically 30 seconds or less. The EDR in this vehicle is designed to record such data as:

- How various systems in your vehicle were operating;
- Whether or not the driver and passenger safety belts were buckled/fastened;
- How far (if at all) the driver was depressing the accelerator and/or brake pedal; and,
- How fast the vehicle was traveling. These data can help provide a better understanding of the circumstances in which crashes and injuries occur.

NOTE: EDR data is recorded by your vehicle only if a non-trivial crash situation occurs; no data is recorded by the EDR under normal driving conditions and no personal data (e.g., name, gender, age, and crash location) is recorded. However, other parties, such as law enforcement, could combine the EDR data with the type of personally identifying data routinely acquired during a crash investigation. To read data recorded by an EDR, special equipment is required,

and access to the vehicle or the EDR is needed. In addition, to the vehicle manufacturer, other parties, such as law enforcement, that have the special equipment, can read the information if they have access to the vehicle or the EDR.

Driving

6

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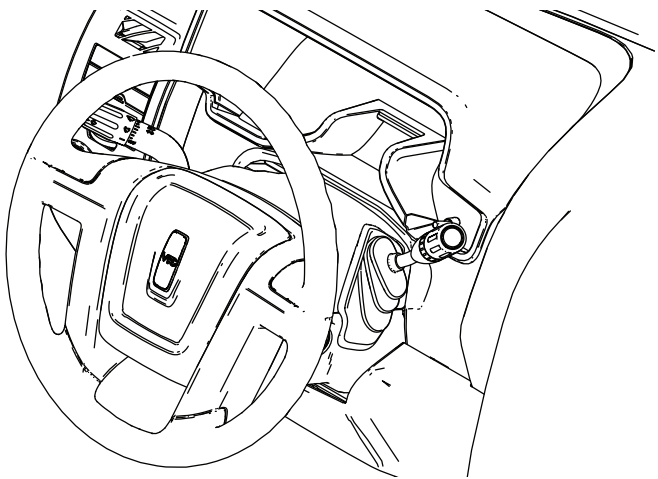

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DRIVING RESPONSIBLY

Staying Focused

As the driver, you are responsible for keeping yourself, your passengers and others on the road safe by making sure you are ready to focus on the task of driving. See pages 30 and 31 for information on Impaired Driving and Distracted Driving.

Using Safety Restraints

You should also ensure that you and all of your passengers are using seat belts, and all necessary restraints and child seats properly. In addition, you should follow all safety precautions about See the Seating and Safety Restraints section for more information.

Passenger Safety

⚠ WARNING ⚠

NEVER leave children unattended in the vehicle.

REASON: Children could play with vehicle controls, which could result in serious bodily injury or death.

⚠ WARNING ⚠

NEVER leave children, adults who normally require the assistance of others, or pets in the vehicle in hot weather.

REASON: The temperature inside the vehicle can rise quickly, which could lead to serious bodily harm or death.

Cargo

⚠ WARNING ⚠

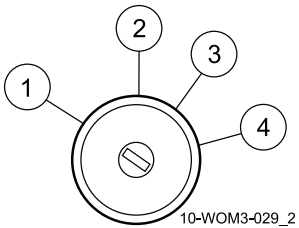
Before starting the vehicle, ensure that all cargo is properly secured and not piled higher than the rear seatbacks.

REASON: Unsecured cargo that is piled higher than the seatbacks can become projectiles during a collision, possibly causing serious bodily injury or death.

If you have a CNG MV-1, the fuel tank cover reduces the amount of cargo you can store in the area behind the seats.

STARTING THE VEHICLE

Ignition Positions



1. OFF - locks the automatic transmission gearshift lever and allows key removal.

   NOTE: The ignition key cannot be removed from the ignition unless the gearshift lever is securely latched in P (Park).

2. ACCESSORY - allows the electrical accessories, such as the radio, to operate while the engine is not running.
3. ON - all electrical circuits operational. Warning lights illuminated. Key position when driving.
4. START - cranks the engine. Release the key as soon as the engine starts to crank.

Preparing to Start Your Vehicle

When starting a fuel-injected engine, don't press the accelerator before or during starting. For more information on starting the vehicle, refer to *Starting the Engine* on 93.

⚠ WARNING ⚠

Extended idling at high engine speeds can produce very high temperatures in the engine and exhaust system, creating the risk of fire, which could cause vehicle damage and/or serious injury or death.

⚠ WARNING ⚠

Do not park, idle, or drive your vehicle in dry grass or other dry ground cover like paper or leaves that could touch hot exhaust parts under the vehicle and ignite, causing vehicle damage and/or serious injury or death.

⚠ WARNING ⚠

Do not start your vehicle in a closed garage or in other enclosed areas. Exhaust fumes can be toxic. Always open the garage door before you start the engine. See Exhaust Fumes on page 94. in this chapter for more instructions.

⚠ WARNING ⚠

If you smell exhaust fumes inside your vehicle, have your service center inspect your vehicle immediately. Do not drive if you smell exhaust fumes.

Before Starting the Vehicle

1. Make sure all occupants buckle their safety belts. For more information on safety belts and their proper usage, refer to the Seating and Safety Restraints chapter starting on 65.
2. Make sure the headlamps and electrical accessories are off.
3. Make sure the gearshift is in P (Park).

Starting the Engine

1. Turn the key to 3 (ON) without turning the key to 4 (START).

> **NOTE:** Some warning lights will briefly illuminate. See Warning Lights on 43 in the Instrument Cluster chapter for more information regarding the warning lights.

2. Turn the key to 4 (START), then release the key as soon as the engine begins to crank. Excessive cranking could damage the starter. Your vehicle has a computer-assisted starting system that finishes the engine startup process. After releasing the key from the 4 (START) position, the engine may continue cranking for up to ten seconds or until the vehicle starts.

When the engine starts, the idle RPM runs slightly faster to warm the engine. If the engine idle speed does not slow down automatically, have the vehicle inspected.

After idling for a few seconds, apply the brake, shift into gear and drive.

> **NOTE:** The vehicle will not shift out of park if the right rear door is open.

> **NOTE:** If the engine does not start within five seconds on the first try, turn the key to 1 (OFF), wait 10 seconds and try again. If the engine still fails to start, press the accelerator to the floor and try step 2 again; this will allow the engine to crank with the fuel shut off in case the engine is flooded with fuel.

Starting a CNG-Powered Vehicle in Very Cold Weather

If the outside temperature is below -5° F (-20° C), the engine may be harder to start or may exhibit a rough idle for a short period of time after startup. There is no risk of damage.

If your CNG vehicle came equipped with the optional engine block heater, it is suggested to plug in the block heater when temperatures are below 0° F (-17° C) to avoid cold start performance complications. If your vehicle does not have the optional VPG engine block heater, consider having one installed if you frequently use your vehicle in the low temperature conditions described above.

EXHAUST FUMES

⚠ WARNING ⚠

Engine exhaust and a wide variety of automobile components and parts, including components found in the interior furnishings in a vehicle, contain or emit chemicals known to the State of California to cause cancer and birth defects and reproductive harm. In addition, certain fluids contained in vehicles and certain products of component wear contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

⚠ WARNING ⚠

ALWAYS use adequate ventilation to prevent poisoning from exhaust fumes.

REASON: Exhaust fumes can be fatal because of the presence of carbon monoxide. Although carbon monoxide is colorless and odorless, it is harmful and could cause death.

THE BEST DEFENSE AGAINST EXHAUST POISONING IS ADEQUATE VENTILATION.

Take the following precautions to avoid exposure to exhaust fumes:

- NEVER operate the vehicle engine in enclosed areas.
- NEVER idle the vehicle in closed areas or with the vehicle windows closed.
- NEVER sit in a parked or stopped vehicle for more than a few minutes with the engine running. Exhaust fumes may build up.
- ALWAYS open windows and adjust heating or air conditioning to bring in fresh outside air if the engine is idling while you are stopped for a long period of time.
- ALWAYS be alert for exhaust odors. If you EVER suspect or smell exhaust fumes inside your vehicle, have it inspected IMMEDIATELY. NEVER drive your vehicle if you smell exhaust fumes.
- ALWAYS be alert for exhaust poisoning symptoms. These are headaches, tunnel vision, dizziness, sleepiness, and loss of muscular control.
- ALWAYS be alert for exhaust system sounds that are strange or different.

AUTOMATIC TRANSMISSION OPERATION

Your vehicle's automatic transmission is equipped with a special shift strategy that ensures maximum heater performance during cold weather operation.

When ambient temperature is 23°F (–5°C) or below and the engine coolant temperature is below 100°F (38°C), light throttle upshifts may be slightly delayed. Once the engine coolant temperature reaches 160°F (71°C) the normal shift strategy will resume. This is normal operation and will not affect the function or the durability of the transmission.

CAUTION: *If the normal shift strategy does not resume once the engine coolant temperature reaches the normal operating temperature, or if the downshifts and other throttle conditions do not function normally, have an authorized service center inspect your vehicle as soon as possible.*

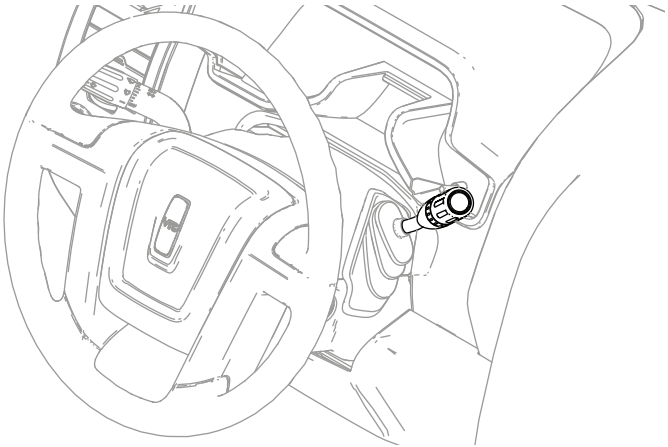
REASON: When the downshifts and other throttle conditions do not function normally, fuel economy will be diminished and engine damage is possible.

Adaptive Transmission Shift Strategy

Your vehicle is equipped with an Adaptive Transmission Shift Strategy. Adaptive Transmission Shift Strategy offers the optimal transmission operation and shift quality. When the vehicle's battery has been disconnected for any type of service or repair, the transmission will need to relearn the normal shift strategy parameters, much like having to reset your radio stations when the battery in your vehicle has been disconnected. The Adaptive Transmission Shift Strategy allows the transmission to relearn these operating parameters. The learning process could take several transmission upshifts and downshifts; during this learning process, slightly firmer shifts may occur. After this learning process, normal shift feel and shift scheduling will resume.

Gearshift Lever

Your automatic transmission gear shift lever is on the right side of the steering column.



To shift from park into a gear:

- Press the brake pedal
- Start the engine

  NOTE: You MUST still depress the brake pedal to shift out of PARK, when the engine is running or in the Accessory position.

- Pull the gearshift lever on the right side of the steering column towards you
- Move the lever up or down into the desired gear

Gearshift Positions

P R N D 2 1

P (Park)

This position locks the transmission and prevents the rear wheels from turning.

R (Reverse)

With the gearshift lever in R (Reverse), the vehicle will move backward.

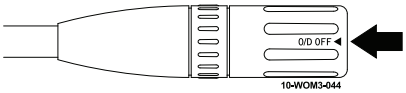
> ***CAUTION:*** *Always come to a complete stop before shifting into and out of reverse.*
>
> **REASON:** Damage to the driveline could result from shifting in or out of reverse before coming to a complete stop.

N (Neutral)

With the gearshift lever in N (Neutral), the vehicle can be started and is free to roll. Hold the brake pedal down while in this position.

D (Overdrive)

This is the normal driving position for the best fuel economy. The transmission will operate in gears one through four.



Overdrive can be deactivated by pressing the transmission control switch on the end of the gearshift lever. The vehicle will return to Overdrive each time the key is turned off.

Drive (not shown)

Drive is activated when the Overdrive Off switch, located on the end of the gearshift lever, is pressed.

- This position allows for all forward gears except overdrive.
- O/D OFF lamp is illuminated.
- Provides engine braking.
- Use when driving conditions cause excessive shifting from O/D to other gears. Examples: heavy city traffic when continuous shifting in and out of overdrive occurs, hilly terrain, and heavy loads.
- To return to O/D (Overdrive), press the O/D OFF switch again. The O/D OFF lamp will shut off.

2 (Second)

This position allows for second gear only.

- Provides engine braking
- Use to start-up on slippery roads.
- To return to D (Overdrive), move the gearshift lever to D (Overdrive) position.
- Selecting 2 (Second) at higher speeds will cause the transmission to downshift to second gear at the appropriate vehicle speed.

1 (First)

- Provides maximum engine braking.
- Allows upshifts by moving the gearshift lever.
- Will not downshift into 1 (First) at high speeds; allows for 1 (First) when vehicle reaches slower speeds.

Forced Downshifts

- Allowed in D (Overdrive) or Drive.
- Press the accelerator to the floor.
- Allows transmission to select an appropriate gear.

BRAKES

⚠ WARNING ⚠

Braking and/or steering functions can be affected in the event of a engine cutoff while driving.

REASON: The power steering and braking systems provide their assistance while the engine is running. In the event of a stall, those systems will be affected and it may require additional effort to stop or steer the vehicle.

Occasional brake noise is normal. If a metal-to-metal, continuous grinding or continuous squeal sound is present, the brake linings may be worn-out and should be inspected by an authorized service center. If the vehicle has continuous vibration or shudder in the steering wheel while braking, the vehicle should be inspected by an authorized service center. Refer to Brake System Warning Light in the Instrument Cluster chapter for information on the brake system warning light.

Four-Wheel Anti-Lock Brake System (ABS)

Your vehicle is equipped with an Anti-lock Braking System (ABS). This system helps you maintain steering control during emergency stops, keeping the brakes from locking. Noise from the ABS pump motor and brake pedal pulsation may be observed during ABS braking, and the brake pedal may suddenly travel a little farther as soon as ABS braking is done and normal brake operation resumes. These are normal characteristics of the ABS and should be no reason for concern.

Using ABS

When hard braking is required, apply continuous force on the brake pedal; The ABS will be activated automatically, allowing you to retain steering during hard braking and on slippery surfaces. ABS does not decrease stopping distances, however.

⚠ WARNING ⚠

DO NOT pump the brake pedal during hard braking or on slippery surfaces.

REASON: Pumping the brake pedal will reduce the effectiveness of the ABS and will increase your vehicle's stopping distance, which could result in a collision and serious bodily injury or death.

ABS Warning Lamp

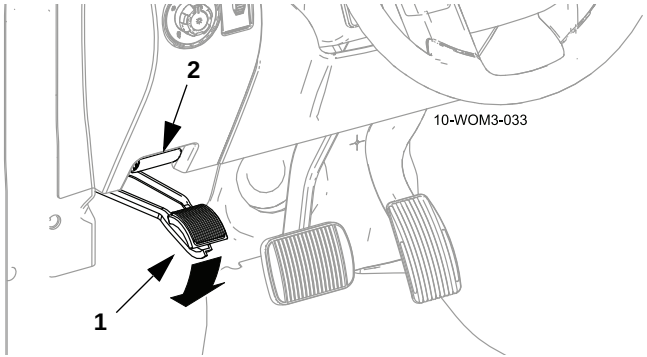
The ABS lamp in the instrument cluster momentarily illuminates when the ignition is turned on. If the light does not illuminate during start up, remains on, or flashes, the ABS may be disabled and may need to be serviced.

Even when the ABS is disabled, normal braking is still effective. If your BRAKE warning lamp illuminates with the parking brake released, have your brake system serviced immediately by an authorized service center.

Parking Brake

To set the parking brake (1) press the parking brake pedal down until the pedal stops.

To release, pull the lever (2).



⚠ WARNING ⚠

When using the parking brake make sure that the parking brake is set fully and that the gearshift is securely latched in P (Park) before exiting the vehicle.

REASON: The vehicle could roll if the parking brake is not fully set or the gearshift is not fully in P (Park).

The BRAKE warning light will illuminate and will remain illuminated until the parking brake is released.

The parking brake is not recommended to stop a moving vehicle, but if the normal brakes fail, the parking brake can be used to stop your vehicle in an emergency. Since the parking brake applies only to the rear brakes, the vehicle's stopping distance will increase greatly and the handling of your vehicle will be adversely affected while braking.

TRACTION CONTROL ™

Your vehicle is equipped with a Traction Control system. This system helps you maintain the stability and steering ability of your vehicle, especially on slippery road surfaces such as snow- or ice-covered roads and gravel roads. The system will allow your vehicle to make better use of available traction in these conditions.

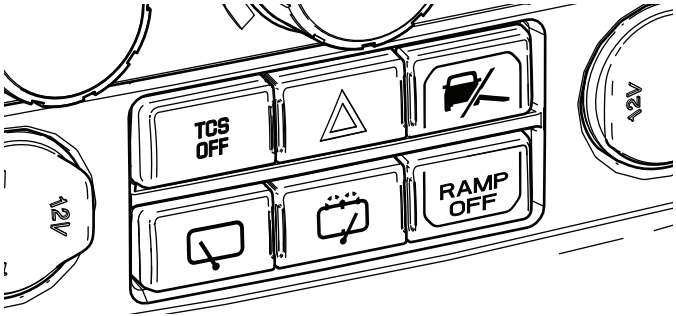
During Traction Control operation, the traction control active light will flash and the engine will not “rev-up” when you push further on the accelerator. This is normal system behavior and should be no reason for concern.

⚠ WARNING ⚠

If you experience a severe road event, SLOW DOWN.

REASON: Aggressive driving in any road conditions can cause you to lose control of your vehicle, increasing the risk of severe personal injury or property damage. The occurrence of a Traction Control event is an indication that at least some of the tires have exceeded their ability to grip the road; this may lead to an increased risk of loss of vehicle control, vehicle rollover, personal injury and death. The Traction Control switch, located on the center console, has an indicator light that illuminates steadily in the instrument cluster when the system is off.

The Traction Control system will automatically turn on every time the ignition is turned off and on. The Traction Control system should normally be left on.



If you should become stuck in snow or ice on a very slippery road surface, try switching the Traction Control system off. Remember to switch the Traction Control system back on once the vehicle is no longer stuck.

If a system fault is detected, the Traction Control active light will illuminate steadily in the instrument cluster, the Traction Control button will not turn the system on or off and your vehicle should be serviced by an authorized service center.

ELECTRONIC STABILITY CONTROL

Electronic stability control (ESC) may enhance your vehicle's directional stability during adverse maneuvers, for example when cornering severely or avoiding objects in the roadway. ESC operates by applying brakes to one or more of the wheels individually and, if necessary, reducing engine power if the system detects that the vehicle is about to skid or slide laterally.

ESC is always "ON" but inactive. When the ESC is active, the stability control light in the instrument cluster will flash. Certain adverse driving maneuvers may activate the ESC system, including but not limited to:

- taking a turn too fast.
- maneuvering quickly to avoid an accident, pedestrian or obstacle.
- driving over a patch of ice or other slippery surfaces.
- changing lanes on a snow-rutted road.
- entering a snow-free road from a snow-covered side street, or vice versa.
- entering a paved road from a gravel road, or vice versa.

DRIVING IN ADVERSE CONDITIONS

Road conditions can change quickly due to the weather. It is important to adjust your driving to the road conditions and always keep your vehicle, especially the tires, in good repair.

Driving in Rain and on Wet Roads

It is wise to slow down and be cautious when it begins to rain because you cannot stop, accelerate or turn as well on wet pavement due to reduced tire-to-road traction.

You should also allow some extra following distance, and be particularly careful when you pass another vehicle. Allow yourself more clearance room ahead and be prepared to have your view restricted by road spray.

It is also important to make sure that your tires and wiper equipment are in good shape at all times. Keep your windshield washer tank filled with washer fluid and replace your windshield wiper inserts when they show signs of streaking, or missing areas on the windshield, or strips of rubber start to separate from the inserts.

Driving Through Water

Driving Through Standing Water

CAUTION: *If you drive too quickly through deep puddles or standing water, the water can come in through your engine's intake and badly damage your engine. NEVER drive through water that is just slightly lower than the underbody of your vehicle. If you do need to drive through deep puddles or standing water, do so very slowly.*

Driving Through Flowing Water

⚠ WARNING ⚠

DO NOT ignore police warning signs, and otherwise be very cautious about trying to drive through flowing water.

REASON: Flowing or rushing water creates strong forces. If you try to drive through flowing water, your vehicle can be carried away. As little as six inches of flowing water can carry away a smaller vehicle. If this happens, you and the other vehicle occupants could drown.

Hyrdroplaning

Hydroplaning happens when so much water builds up under your tires that they actually ride on the water with little or no contact with the road. Hydroplaning is most likely to occur when there is standing water on the road and you are going at higher speeds. The best defense against hydroplaning is to slow down on wet roads and make sure that your tires have a good amount of tread because hydroplaning is more likely to occur when your tires are worn.

Winter Driving

You should always be prepared for deteriorating road conditions during the winter. Make sure your MV-1 is ready for winter driving. Tires, brakes and wipers should all be in good working order. You should also avoid driving with low fuel in the tanks during the winter so you do not run out of fuel during poor weather conditions and to keep condensation from forming in the tanks because of the cold.

It is also a good idea to store some winter emergency supplies in your vehicle. Include an ice scraper, small brush or broom, extra windshield washer fluid, flashlight, a red cloth and reflective warning triangles. You may also want to include a small bag of sand and a piece of old carpet or burlap bags to provide traction in case you get stuck in the snow. Make sure to properly secure all items in your vehicle.

If your vehicle is operated in a heavy snow storm or blowing snow conditions, the engine air induction may become partially clogged with snow and/or ice. If this occurs, the engine may experience a significant reduction in power output. At the earliest opportunity, clear all the snow and/or ice away from the air induction inlet.

Driving on Snow or Ice

Any time there is snow or ice on the road, you can have a loss of traction. You should always exercise caution in snowy or icy conditions.

Your anti-lock brakes will improve your vehicle's stability when you make a hard stop on a slippery road, but you will still want to begin stopping sooner than you would on dry pavement.See *Four-Wheel Anti-Lock Brake System (ABS)* on page 98 for more information. Whatever the road conditions, loose or packed snow, ice, and/or freezing rain, you need to drive with caution.

- Allow for more space between you and the vehicle in front of you when there are slippery road conditions.
- Watch for slippery spots on otherwise clear roads. Icy patches may appear in shaded areas where the sun cannot reach, like behind buildings, around clumps of trees and under bridges. Sometimes the surface of a curve or an overpass may remain icy when the surrounding roads are clear. If you see a patch of ice ahead of you, brake before you reach the ice, do not try to brake while you are on the ice and avoid sudden steering maneuvers.

Blizzard Conditions

Heavy snowfall and/or blizzard conditions can cause road conditions to deteriorate quickly and it may be necessary to stop driving until the conditions clear. Being stopped by heavy snow is a potentially dangerous situation, but there are steps you can take to help keep you and your passengers safe.

- Stay with your vehicle unless you know that you are close to help and can hike through the snow.
- Turn on your hazard flashers.
- Tie a red cloth to your vehicle to alert others that you have been stopped by the snow.
- Put on any extra clothing, or wrap a blanket around you to keep warm.

You can also run the engine for short periods of time as need to keep warm, but follow the safety precautions below to keep engine exhaust from entering the vehicle:

⚠ WARNING ⚠

Before running the engine for warmth, clear snow away from around the base of your MV-1 because snow can trap exhaust gases underneath the vehicle. This condition could allow exhaust to enter the vehicle.

REASON: Engine exhaust contains carbon monoxide (CO) which cannot be seen or smelled. Carbon monoxide can cause unconsciousness and even death.

- Periodically check to make sure snow is not collecting around the base of the vehicle. See *Exhaust Fumes* on 94 for exhaust warnings.
- Open the window about two inches (5 cm) on the side of the vehicle that is not facing the wind to bring fresh air into the vehicle.
- Fully open the air outlets under the instrument panel.
- Adjust the climate control system to a setting that circulates the air inside the vehicle and set the fan speed to the highest setting. See *Climate Control System* on page 61 for more information.
- Run the engine as little as possible to save on fuel. When you do run the engine, run it a little faster than idle by pushing on the accelerator slightly. This uses less fuel for the heat and keeps the battery charged. You will need a well-charged battery to restart the vehicle, and possibly for signaling with your headlamps.
- Let the heater run long enough to warm the interior of the vehicle, then shut the engine off and close the window almost all the way to preserve the heat. Start the engine again only when you feel really uncomfortable from the cold.

Ramp

7

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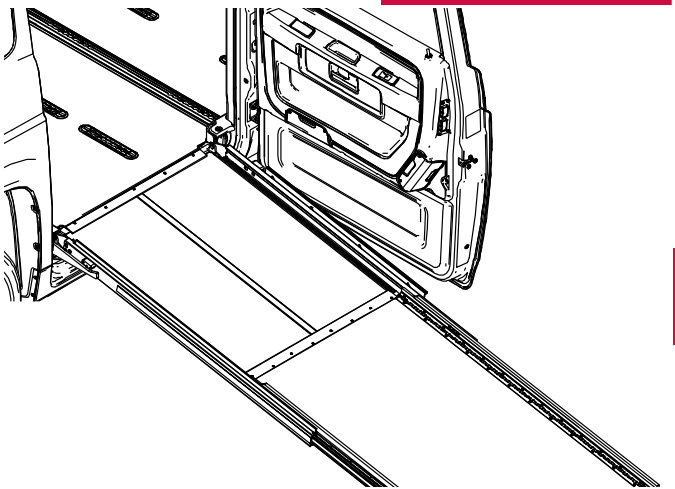
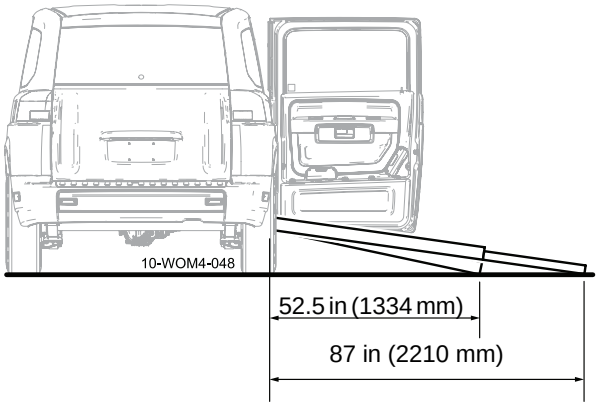


POWER RAMP

Your MV-1 may be equipped with a power ramp that can be deployed to various heights and terrain conditions. There are two deployment options:



- **Short Deployment** - A steeper 1:4.4 ratio slope where the ramp only partially telescopes to 52.5 in (1334 mm), not including space to maneuver.
- **Long Deployment** - A more gradual 1:6 ratio slope where the ramp fully telescopes to 87 in (2210 mm), not including space to maneuver.

NOTE: Long deployment is recommended whenever possible, provided there is adequate space to safely deploy the ramp and load or unload wheelchair-bound passengers.

NOTE: For information on the proper loading and securing of wheelchair-bound individuals, see the *Wheelchair Restraints* on page 78.

The load limit for both the short and long deployment is 660 lbs (299.6 kg).

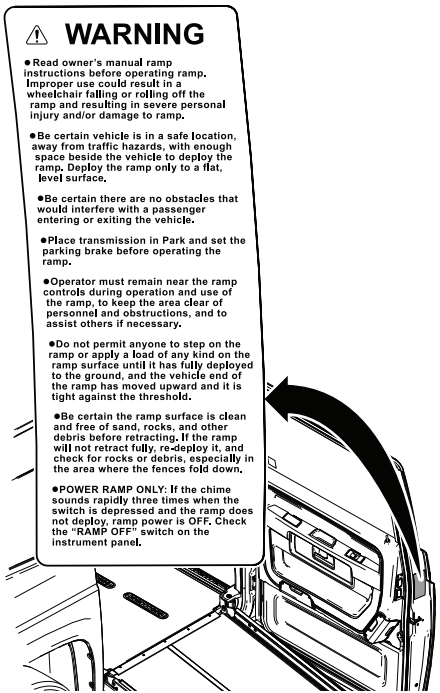
⚠ WARNING ⚠

DO NOT exceed the load limit on the ramp.

REASON: Exceeding the load limit could cause damage to the ramp, serious personal injury or death.

SECTION 7

This warning sticker, affixed to the door next to the ramp switches, outlines the safety procedures you should follow while using the power ramp.



Ramp Deployment

⚠ WARNING ⚠

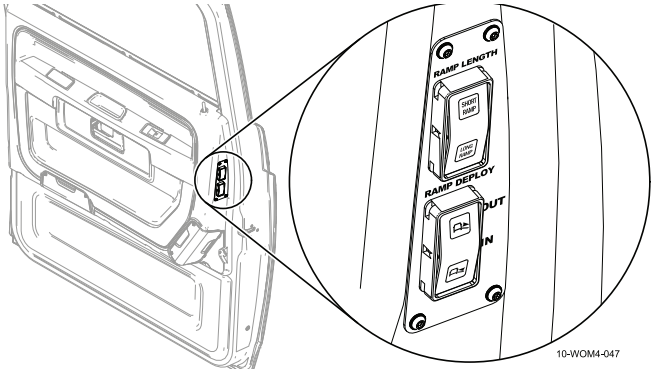
Check to make sure path for the ramp deployment is clear of people and objects.

REASON: Damage to the ramp mechanism or serious personal injury could result.

- Place the vehicle in PARK.

  NOTE: The ramp will not function if the vehicle is not in park.

  NOTE: The ramp will not function if the vehicle is running and the Ramp OFF switch, located in the center switch bank under the HVAC controls, is activated.
- Engage the parking brake.
- Open the right rear door to the full open position. Make sure there is at least 60 in (152.4 cm) of clearance around the ramp deployment area.
- Select the deploy length (SHORT RAMP or LONG RAMP) with the selector switch located along the right rear door edge.
- Press and hold the OUT rocker switch. The ramp will deploy and an audible chime will sound. If three chimes sound and the ramp does not deploy, power to the ramp has been turned off. Restore power by pressing the Ramp OFF switch in the center console.



NOTE: The ramp will stop deploying if you release the OUT rocker switch or press the IN rocker switch.

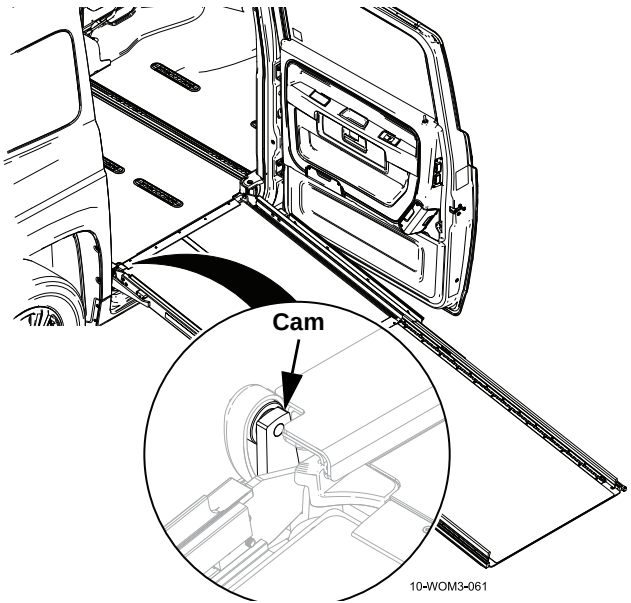
- As the ramp is deploying, it will extend out of the vehicle horizontally and drop to the ground near the end of the long ramp deployment. This allows the ramp to facilitate loading to uneven ground, sloped terrain, and various curb heights and locations relative to the vehicle.

⚠ WARNING ⚠

DO NOT deploy the ramp in any conditions or areas where wheelchair loading or unloading cannot be safely performed.

REASON: Loading or unloading in areas where the ramp is not stable could cause serious personal injury or death.

- Near the end of ramp deployment, fences will swing up on both sides of the ramp to help prevent wheelchair run-off.
- Hold the OUT rocker switch until the ramp is fully deployed. The ramp is fully deployed when the ramp is secured against the threshold and the cams are locked as shown below. There will be a two second tone at the end of the deploy cycle. Continue to hold switch down until the tone has ended.

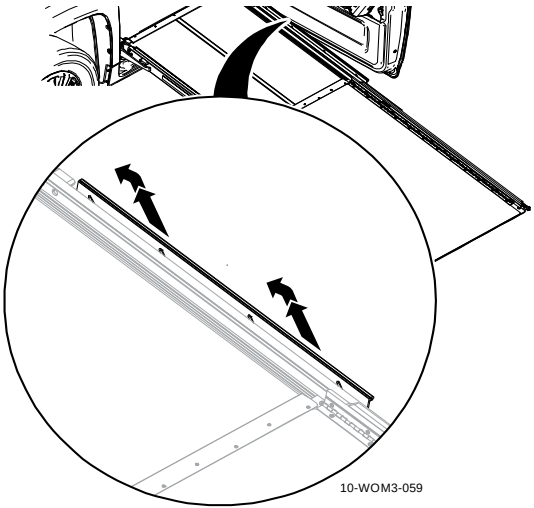


⚠ WARNING ⚠

DO NOT step onto the ramp, or apply a load of any kind to the ramp surface until it has fully deployed, the cams are locked and the ramp has fully secured against the threshold.

REASON: Damage to the ramp and serious personal injury or death could occur.

NOTE: After full deployment on the long ramp, pull up the manual fence on the upper right side of the ramp to prevent wheelchair run-off on the top portion of the ramp.



Obstacle Detection Feature

The power ramp is equipped with an Obstacle Detection Feature. If an obstacle is preventing the ramp from completing the deployment, the ramp will stop its deployment trajectory and rapidly chime four times. Once the obstacle is removed, the deployment button can be pressed again and the deployment can be completed.

Ramp Retraction

CAUTION: *Make sure the ramp surface is clean and free of sand, rocks and other debris before starting the retraction procedure.*

REASON: Foreign objects retracted into the ramp deployment mechanism could cause damage to the ramp.

NOTE: An audible chime will sound five times and the ramp indicator light will flash five times if shifting out of park is attempted while the ramp is deployed.

- Press and hold the IN rocker switch. The ramp will rise off the ground and begin to retract horizontally and an audible chime will sound.
- The fences, including the one at the top of the ramp, will automatically lower to a stowed position.
- Continue to hold the IN rocker switch until the ramp is fully retracted. The audible chime will switch off when the ramp is fully retracted.

- If the ramp will not retract fully, re-deploy it and check for rocks or other debris on the ramp surface, especially where the fences fold down.
- Shut the right rear door so the vehicle can be put into gear.

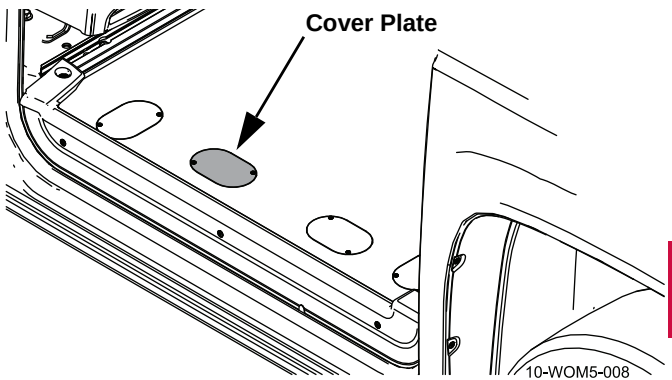
NOTE: The vehicle will not be able to be shifted out of park unless the ramp is in a stowed position.

Ramp Retraction - Mechanical Override

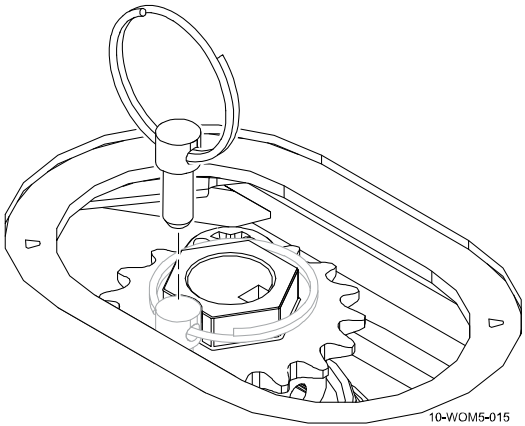
In the event of loss of power to the power ramp, you can retract the ramp by hand so the door can be closed and the vehicle driven.

To retract the ramp:

1. Obtain the ramp tool kit located in left side of the vehicle rear compartment next to the tire inflator kit.
2. Remove the screws on large cover plate on the floor of the driver's side of the vehicle with the 2 mm Allen socket tool. To use the tool, attach it to the extender then to the to the T-handle tool that was included with your vehicle.



3. Remove the cover plate then pull up on the ring to remove the release pin from the drive sprocket.



⚠ WARNING ⚠

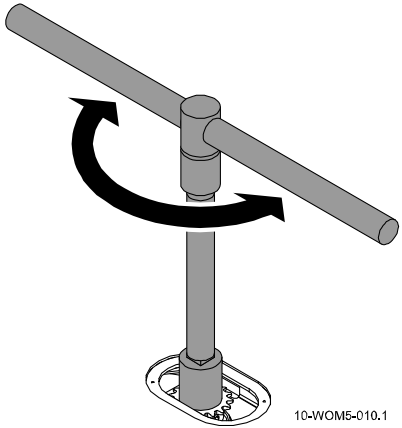
Keep fingers away from pinch points when removing the pin.

REASON: Personal injury could result.

4. Insert the T-handle tool with the extender and included socket on the drive sprocket. Begin to retract the ramp by turning the T-handle with a clockwise rotation.

NOTE: Grip the outermost edges of the tool for best leverage.

NOTE: Manually lifting the end of the ramp 6 to 12 inches will ease the retraction effort.



5. Once the ramp is fully retracted, realign the hole in the sprocket with the hole in the gear case drive, remove the T-handle tool and insert the pin back into the drive socket.

6. Reinstall the floor cover.

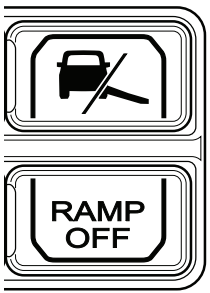
If the ramp would not retract because a fuse in the ramp circuit has blown, the brake shift interlock mechanism will also be disabled and you will not be able to shift out of PARK. To restore the shifter function, you can either:

- Replace the fuse in the Power Distribution Block located at

the front and center of the motor compartment. It will restore power to the circuit and the operation will be able to shift out of PARK. The ramp circuit is a 40a fuse, in location #21.

- Override the brake shift interlock by using on *Brake Shift Interlock Override* on page 153.

Ramp Controls - Ramp OFF Switch



Power to the ramp deployment and retraction switches on the door can be shut off from inside the vehicle. The Ramp OFF Switch is in the center console. To disable the door ramp controls, press the bottom portion of the Ramp OFF switch. The top portion of the switch will remain illuminated as long as the switch is active.

To enable the door ramp controls, press The Ramp OFF Switch again. The light will go out and the door ramp controls will function. Even if the Ramp OFF Switch is active when the vehicle is shut off, the door ramp controls will automatically be active the next time the ramp door controls are pressed, even if the engine is still off.

NOTE: The Ramp OFF Switch will start flashing after 7,500 cycles as a signal that a ramp adjustment maintenance is due.

MANUAL RAMP

⚠ WARNING ⚠

Check to make sure path for the ramp deployment is clear of people and objects.

Your vehicle may be equipped with a manual ramp. This ramp extends out to 52.5 in (1334 mm) 1:4.1 ratio slope and can be pulled out and stowed by one person. The load limit for the manual ramp is 660 lbs (299.6 kg).

⚠ WARNING ⚠

DO NOT exceed the load limit on the ramp.

REASON: Exceeding the load limit could cause damage to the ramp, personal injury or death.

NOTE: For information on the proper loading and securing of wheelchair-bound individuals, see the *Wheelchair Restraints* on page 78.

Ramp Deployment

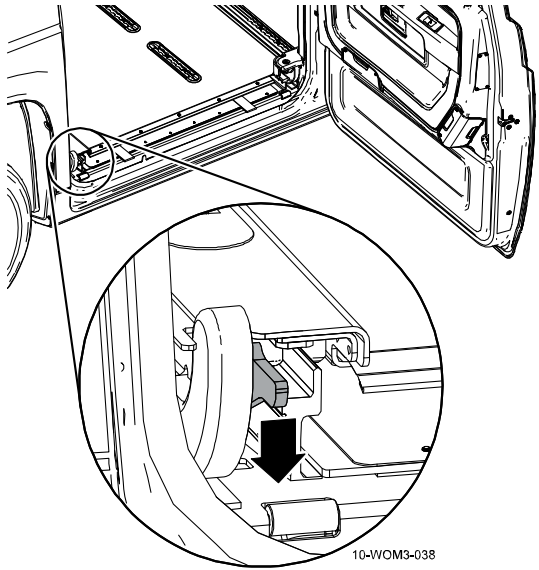
⚠ WARNING ⚠

DO NOT deploy the ramp in any conditions or areas where wheelchair loading or unloading cannot be safely performed.

REASON: Loading or unloading in areas where the ramp is not stable could cause serious personal injury or death.

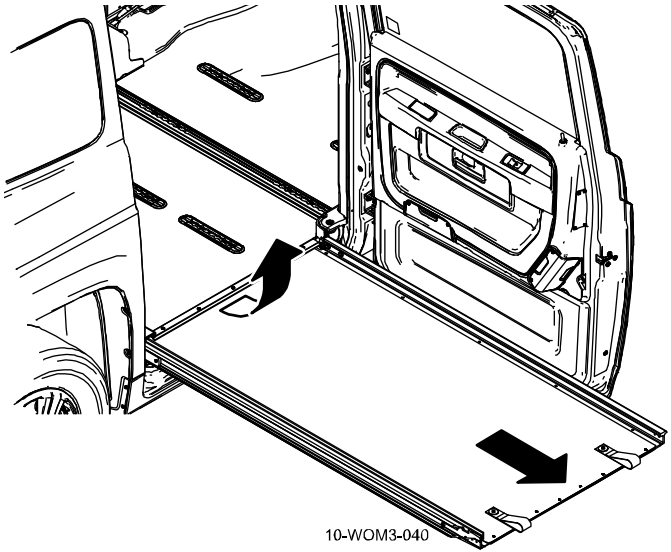
To pull out the manual ramp:

1. Hold down the storage latch on the left side of the ramp.

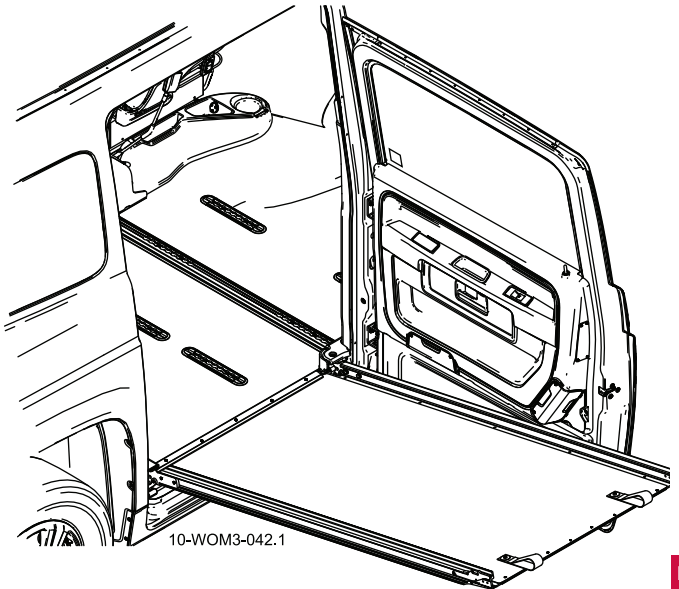


2. Pull the ramp out by the loops until it locks into place.

   NOTE: When the ramp is locked into place, there will be no gap between the ramp and threshold.



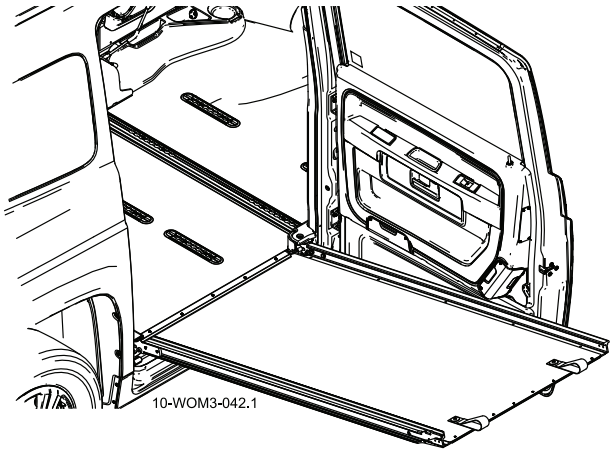
3. Lower the ramp to the ground. Fences will automatically swing up on both sides of the ramp to help prevent wheelchair run-off.



Ramp Stowage

NOTE: An audible chime will sound five times if shifting out of park is attempted while the ramp is deployed.

1. Lift the ramp by the loops high enough to release the latches.



2. Push the ramp back in until the storage latch clicks into place. The fences on either side of the ramp will fold down as the ramp as the ramp slides into the vehicle.

WHEELCHAIR LOADING

⚠ WARNING ⚠

ALWAYS assist a wheelchair during loading and unloading during a short (both manual and power) deploy. Assistance at all times is also is strongly recommended on the long deploy

REASON: The short deploy has a steeper angle than the long deploy, which could make it more difficult to navigate without assistance and could result in serious bodily injury or death.

- The ramp should be checked to ensure it is free from debris and has adequate clearance before loading.

⚠ WARNING ⚠

Extra care should be used when loading and/or unloading in inclement weather.

REASON: The surface of the ramp could become slippery, which could make it more difficult to navigate and increase the risk of injury.

- Persons in wheelchairs, assisted or unassisted, should always go up and down the ramp facing forward.

NOTE: See the Seats and Safety Restraints section in this manual for information on securing wheelchairs in the vehicle.

Features

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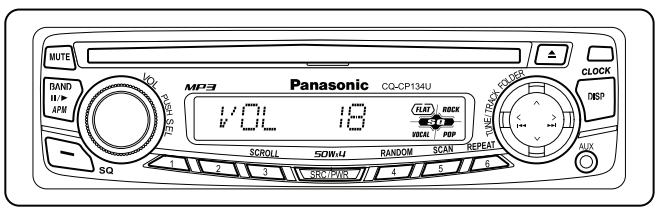

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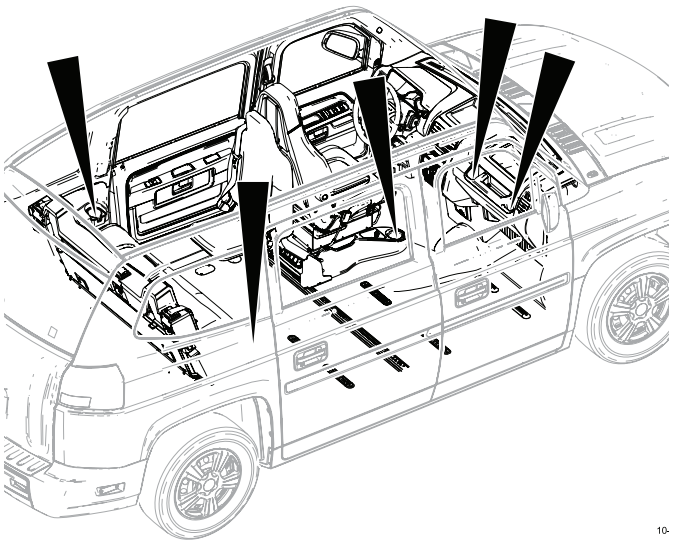
CUP HOLDERS

There are up to five cup holders in your MV-1. There are two in the passenger's right side dash panel, two on either side of the rear seat and one with the optional floor console as shown below.



GRAB HANDLES

There are three grab handles in the MV-1 to make entering and exiting the vehicle easier. One for the driver's side rear door, and two for the passenger (ramp) side door.

COAT HOOKS

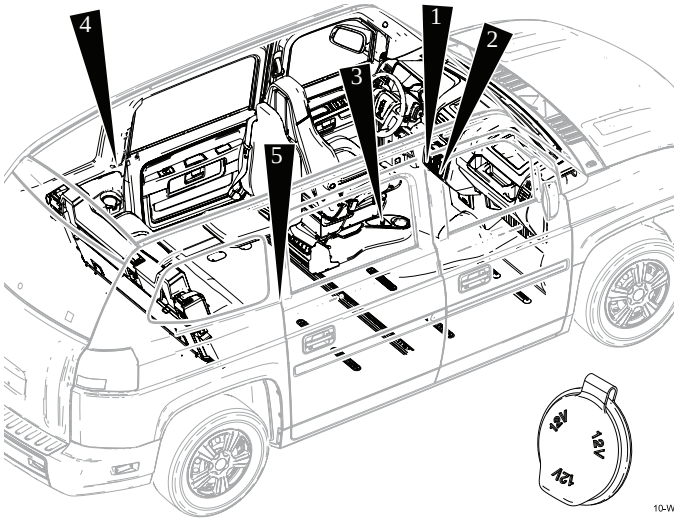
Your MV-1 has two coat hooks. One on the pillar after the driver's side rear door and one on the pillar between the front and rear passenger door.

SUN VISORS

The sun visors for the driver and front passenger can be rotated to the side windows for coverage in that area. The driver's visor also has a strap for holding maps and papers.

AUXILIARY POWER POINT (12V DC)

Your MV-1 is equipped with up to five auxiliary power points. All the power points are capped as shown and can be found in the following locations:



1 & 2 - In the center console.

3 - In the optional floor console next to the cupholder.

4 & 5 - Under the grab handles.

⚠ WARNING ⚠

Power outlets are designed for accessory plugs only. DO NOT insert fingers or any other object in the power outlet. Do not hang any type of accessory or accessory bracket from the plug. Improper use of the power outlet can cause damage not covered by your warranty.

REASON: Inserting objects other than plugs will damage the outlet and blow the fuse and improper use of the power outlet can cause damage not covered by your warranty.

Always keep the power point caps closed when not being used.

To prevent the fuse from being blown, do not use the power point(s) over the vehicle capacity of 12V DC/180W. If the power point is not working, a fuse may have blown. Refer to *"Fuses And Relays" on page 155* for information on checking and replacing fuses.

To have full capacity usage of your power point, the engine is required to be running to avoid unintentional discharge of the battery. To prevent the battery from being discharged:

- do not use the power point longer than necessary when the engine is not running,
- do not leave battery chargers, video game adapters, computers and other devices plugged in overnight or when the vehicle is parked for extended periods.

AUDIO SYSTEM

Your MV-1 may be equipped with a Panasonic® MP3 CD Player/Receiver. Read the operating instructions carefully before using this system so it can be operated in a safe and effective manner. Panasonic assumes no responsibility for any problems resulting from failure to observe these instructions.

⚠ WARNING ⚠

Do not give extended attention to entertainment tasks while driving your vehicle.

REASON: Taking your eyes off the road to operate the system will distract you from the road and can cause accidents that can result in injury or death.

⚠ WARNING ⚠

Refer fuse replacement to qualified service personnel.

REASON: When the fuse blows out, eliminate the cause and have it replaced with the fuses of the same specified rating (15 A) by a qualified service engineer. Using substitute fuses with higher ratings, or connecting the unit directly without a fuse could damage the unit or cause a fire which could result in serious bodily injury or death.

⚠ WARNING ⚠

Do not open covers and do not repair by yourself.

REASON: This product utilizes a class I laser. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. In addition, there is a risk of shock or fire, all of which could cause serious bodily injury or death. Refer servicing to qualified personnel.

CAUTION: *Do not insert any foreign object into the disc slot of this unit*

REASON: A foreign object could damage the deck mechanism.

CAUTION: *Do not disassemble or modify the unit.*

REASON: Do not disassemble, modify or attempt to repair the unit yourself. If a repair is necessary, consult your service center or an authorized Panasonic Servicenter.

CAUTION: *Do not use the unit when it is out of order.*

REASON: If the unit is out of order (no power, no sound) or in an abnormal state (has foreign objects in it, is exposed to water, is smoking, or smells), turn it off immediately and consult your service center.

CAUTION: *Keep the sound volume at an appropriate level.*

REASON: Keep the sound level low enough to be aware of road and traffic conditions when driving.

CAUTION: *Do no operate the unit for a prolonged period with the engine turned off.*

REASON: Operating the audio system for a long period of time with the engine turned off will drain the battery.

CAUTION: *Do not expose the unit to direct sunlight or excessive heat.*

REASON: Excessive heat will raise the internal temperature of the unit, and may lead to smoke, fire, or other damage to the unit.

CAUTION: *Do not use the product where it is exposed to water, moisture, or dust.*

REASON: Exposure to water, moisture, or dust may lead to smoke, fire or other damage to the unit. Make especially sure that the unit does not get wet in car washes or on rainy days.

CAUTION: *Set the volume level to low level before the AUX connection is completed.*

REASON: Sound from the external device may be much louder than expected through the audio system, which could damage your hearing, speakers and external device.

The following applies only in the United States.

Part 15 of the FCC Rules on Frequency Interference

FCC Warning: Any unauthorized changes or modifications to this equipment would void the user's authority to operate this device.

Customer Service

To obtain Panasonic product information and operating assistance, locate your nearest service center or Servicenter, purchase parts and accessories, or make customer service and literature requests visit:

http://www.panasonic.com/support

or contact Panasonic via the web at:

http://www.panasonic.com/contactinfo

You may also contact Panasonic direct at 1-800-211-PANA (7262) Monday-Friday 9 am - 9 pm; Saturday-Sunday 10 am - 7 pm EST.

Powering on the First Time

Set your MV-1's ignition switch to the ACC or ON position. Press the **SCR/PWR** button.

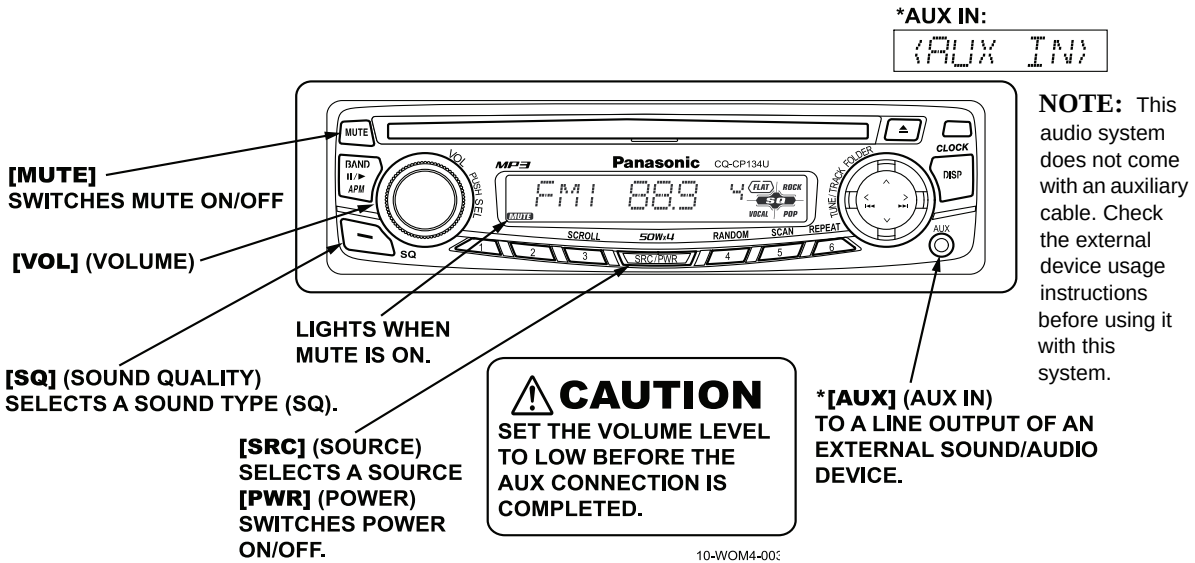
Setting the Clock

The 12-hour system is used for the clock. To set the clock:

1. Press the **DISP** button to get to the ADJUST mode on the display.
2. Hold down the **DISP** button for more than two seconds to get to the hour adjust mode FM1 12:00 where the hour blinks.
3. Adjust the hour by using the left and right Tune button arrows. The [>] arrow sets the hour ahead and [<] sets the hour back.
4. Once the desired hour is set, press the **DISP** button again and the minute blinks FM1 00:00. Adjust the minutes by using the arrow buttons. The [>] sets the minute ahead and [<] sets the minute back.

   NOTE: Hold down the [>] or [<] to change numbers rapidly.
5. Press **DISP** again when you are finished changing the minutes to complete the setting the clock.

General Controls



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Power On/Off

Set your car's ignition switch to the ACC or ON position.

Power on: Press **SCR/PWR**.

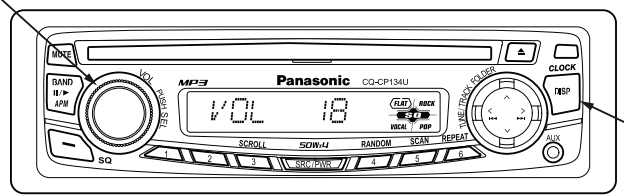
Power off: Hold down **SCR/PWR** for more than one second.

Source Selection

Press the **SCR/PWR** button to change the output source. Radio is the default source. Press the button once for the Disc Player, twice for Aux In or three times to get back to radio.

Audio Settings

[VOL.]
SELECTS A VALUE IN THE AUDIO MENU.
(PUSH SEL) (PUSH TO SELECT)
SELECTS ITEMS IN THE AUDIO MENU.



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[DSP] (DISPLAY) **EXITS FROM THE AUDIO MENU.**

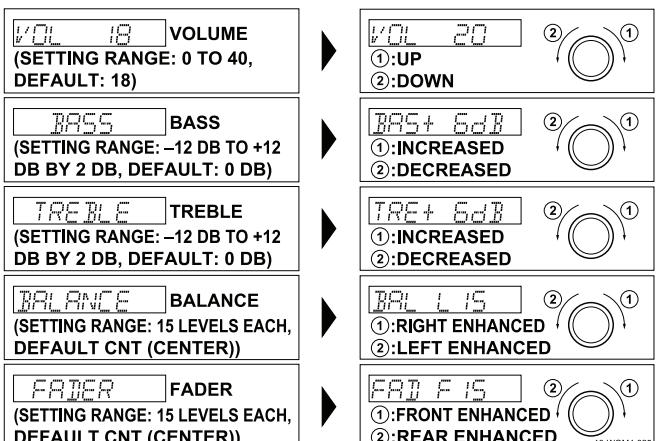
1. Press **VOL (PUSH SEL)** to display the audio menu display.

   NOTE: If no operation takes place for more than five seconds in the audio menu (two seconds in the Main volume adjustment), the display returns to the regular mode.

2. Press **VOL (PUSH SEL)** to select a mode to be adjusted.

   NOTE: If the fader is set to front, the pre-amp, output (rear) is decreased.

3. Turn **VOL** clockwise or counterclockwise to adjust.



Volume Adjustment

Turn the **VOL** knob to the left for down and the right for up. The volume setting range is 0 to 40. The default volume setting is 18.

Mute

On: Press the **MUTE** button. Mute will light in the display.

Off: Press **MUTE** again.

SQ (Sound Quality)

SQ is a function that can call up various sound types at the touch of a button in accordance with your listening preferences.

Press **SQ** to select the sound type as follows:

> **NOTE:** Settings of SQ, bass and treble are influenced by one another. If such an influence causes distortion to the audio signal, readjust bass/treble or the volume.

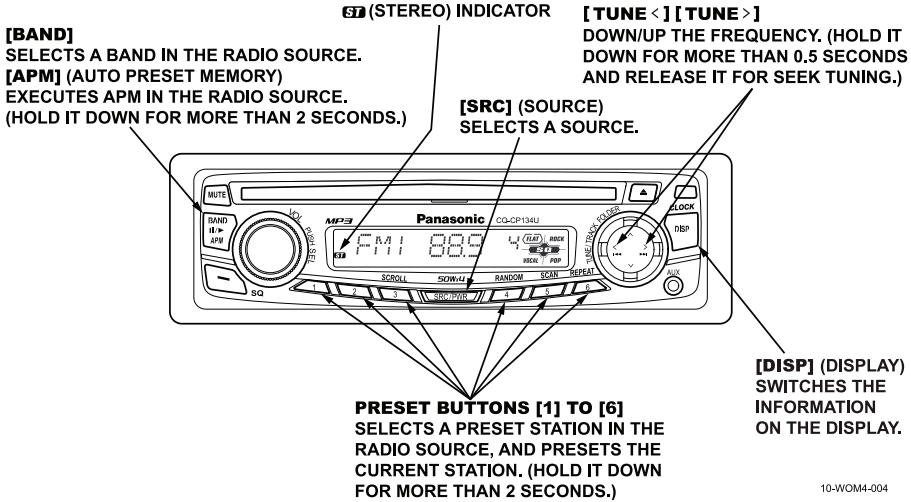
(FLAT) flat frequency response: does not emphasize any part (Default)

(POP) wide-ranged and deep sound: slightly emphasizes bass and treble

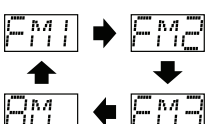
(ROCK) speedy and heavy sound: exaggerates bass and treble.

(VOCAL) clear sound: emphasizes middle tone and slightly emphasizes treble.

Radio (AM/FM)



Band and Station Selection



Press **SCR** to select the radio source. Press **BAND** to select a band. The four bands available are shown on the right. Once the desired band is selected, press the [<] for lower frequency and [>] for higher. Hold down either of the buttons for more than 0.5 seconds and release for seek tuning.

Station Preset

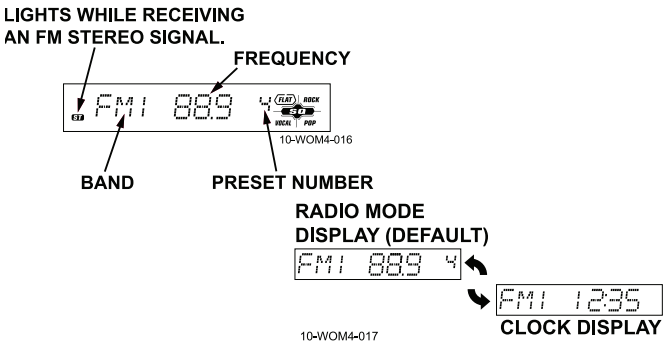
Up to six stations can be set in each of the available bands, AM. FM1, FM2 and FM3. To manually preset a station:

Select a band. Tune into a station then hold down one of the preset buttons from [**1**] to [**6**] for more than two seconds.

New preset stations will overwrite existing saved stations.

Preset Station Selection

Press the corresponding preset button from [**1**] to [**6**] to tune in a preset station.The default display while playing a preset station will look similar to the one below.



Press the **DISP** button to change the display from the default radio mode display to a clock display.

Auto Preset Memory (APM)

With this operation, stations with good receiving conditions can be automatically stored in the preset memory.

Select a band. Hold down **BAND/APM** for more than two seconds.

The preset stations under the best receiving conditions are received for five seconds each after presetting the stations (SCAN). To stop scanning, press one of the buttons from [**1**] to [**6**].

New stations will overwrite existing saved stations.

Audio Settings

Press **VOL/PUSH SEL** to display the audio menu display.

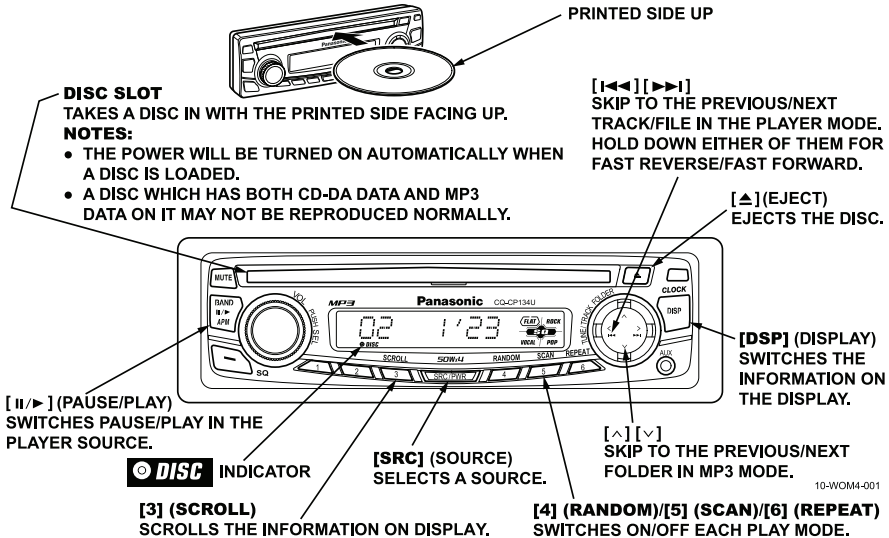
If no operation takes place for more than five seconds in the audio menu (two seconds in Main volume adjustment), the display returns to the regular mode.

Press **VOL/PUSH SEL** to select a mode to be adjusted.

If the fader is set to front, the pre-amp. output (rear) is decreased.

Turn **VOL** clockwise or counterclockwise to adjust.

Disc Player



Operating the Disc Player

Press **SCR** to select the Disc Player source. Insert disc, printed side up into the disc slot. See *Notes on CD Media* page 132 for information on recording discs and disc care.

CAUTION: *Do not insert a disc when the* DISC *indicator lights.*

CAUTION: *This unit does not support 3 in (8 cm) discs.*

If you insert a 3 in (8 cm) disc and cannot eject it:

1. Turn the ignition key to the ACC OFF position once.
2. Turn the key to the ACC ON position again.
3. Press **[▲]** (Eject).

Track/File/Folder Selection

Press **[I◄◄] / [►►I]** to select a track or file on the CD. Hold down either button for fast forward/reverse.

- Disc Player (CD-DA disc): Previous/next track
- Disc Player (MP3 disc): Previous/next file

For an MP3 disc, press **[∧] / [∨]** to skip to the previous or next folder on the disc.

Skip to the previous/next folder.

Pause

Press **BAND [II/►]** to pause a CD. Press the button again to cancel.

Random, Repeat, Scan

Random Play

All the available tracks/files are played in a random sequence. To activate random play press **[4] (Random)**. Press again to cancel.

Folder Random Play (MP3)

All the available files in the current folder are played in a random sequence. To activate, hold down **[4] (Random)** for more than two seconds. Hold down again to cancel.

Repeat Play

The current track/file is repeated. To activate press **[6] (Repeat).** Press again to cancel.

Folder Repeat Play (MP3)

The current folder is repeated. To activate press **[6] (Repeat)** for more than two seconds. Hold down again to cancel.

Scan Play

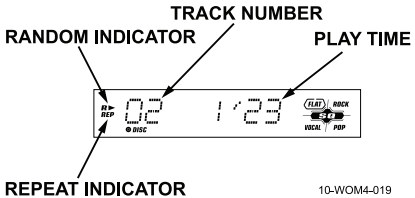
The first 10 seconds of each track/file is played in sequence. To activate press **[5] (Scan)**. Press again to cancel.

Folder Scan Play (MP3)

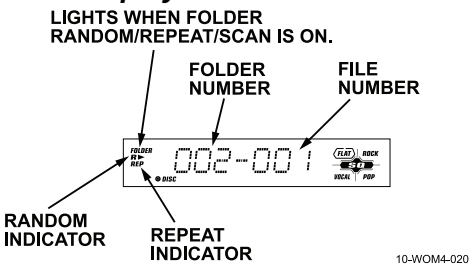
From the next folder, the first 10 seconds of the first file in each album is played in sequence. To activate hold down **[5] (Scan)** for more than two seconds. Hold down again to cancel.

Player Source Display

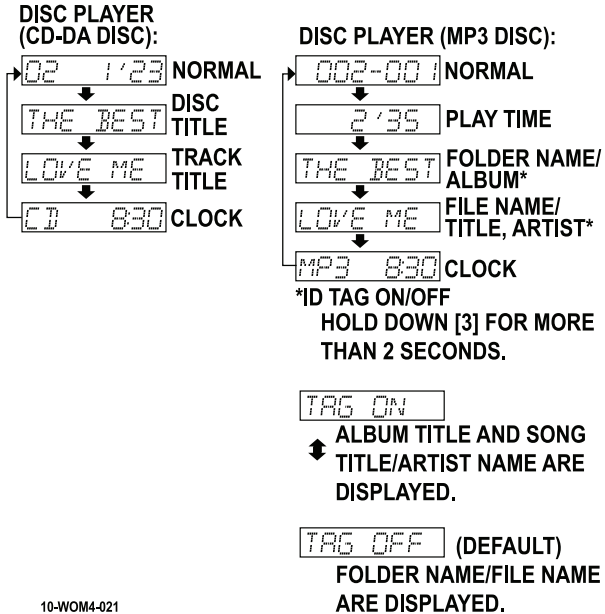
CD-DA Mode Display



MP3 Mode Display



Display Change



NOTES:

- For scrolling text, press **[3] (Scroll)**.
- "**NO TEXT**" is displayed when there is no information on the disc.

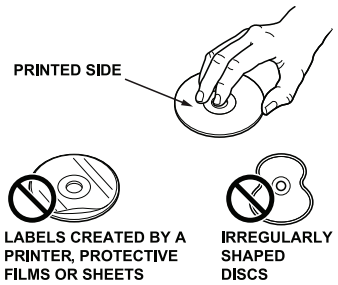
Notes on CD Media

NOTE: If you use commercial CDs, they must have one of the labels shown below.

Some copy-protected music CDs are not playable.

How to hold the disc:

- Do not touch the underside of the disc.
- Do not scratch on the disc.
- Do not bend the disc.
- Keep the disc in a case when not in use.



Disc issues:

Make sure that your discs are in good condition. Poor quality discs may not play properly.

- Do not write on disc with a ballpoint or other hard-point pen.
- Do not use discs with irregular shapes or adhesive labels because they may become stuck in the player.

Do not leave discs in the following places:

- In direct sunlight
- Near car heaters
- Dirty, dusty or damp areas
- On seats and dashboards

Disc cleaning

Use a dry, soft cloth to wipe from the center outward.

Notes on CD-Rs/RWs

- You may have trouble playing back some CD-R/RW discs recorded using CD recorders (CD-R/RW drives), either due to their recording characteristics or dirt, fingerprints, scratches, etc. on the disc surface.
- CD-R/RW discs are less resistant to high temperatures and high humidity than ordinary music CDs. Leaving them inside a car for extended periods may damage them and make playback impossible.

- Some CD-R/RWs cannot be played back successfully due to incompatibility among writing software, a CD recorder (CD-R/RW drive) and the discs.
- This player cannot play the CD-R/RW discs if the session is not closed.
- This player cannot play CD-R/RW discs which contain other than CD-DA data or MP3.
- Be sure to observe the instructions of the CD-R/RW disc for proper handling procedures.

Recording MP3 Files on a CD Media

- **Do not make discs that contain both CD-DA and MP3 files.**
- **If CD-DA files are on the same disc as MP3s or other files, the songs may not play in the intended order or some songs may not play at all.**
- Do not record files other than MP3 files and the necessary folder on a disc.
- The name of the MP3 file should be added by rules as shown in the following descriptions and also comply with the rules of each file system.
- You may encounter trouble in playing MP3 files or displaying the information of MP3 files recorded with certain writing software or CD recorders.
- The file extension ".mp3" should be assigned to each file depending on the file format.
- This unit does not have the play list function.
- Although multi-session recording is supported, the use of Disc-at-Once is recommended.

Supported File Systems

ISO 9660 Level 1/Level 2, Apple Extension to ISO 9660, Joliet, Romeo

NOTE: Apple HFS, UDF 1.50, MIX mode CD, CD Extra is not supported.

Compression Formats

- **MPEG 1 audio layer 3**
  Bit rate: 32 k-320 kbps
  VBR: Yes
  Sampling frequency: 32, 44.1, 48 kHz
- **MPEG 2 audio layer 3**
  Bit rate: 8 k-160 kbps
  VBR: Yes
  Sampling frequency: 16, 22.05, 24 kHz

Notes on MP3

NOTE: MP3 encoding and writing software is not supplied with this unit.

Points to Remember when Making MP3 Files

- High bit rate and high sampling frequency are recommended for high quality sounds.
- Selecting VBR (Variable Bit Rate) is not recommended because playing time is not displayed properly and sound may be skipped.
- The playback sound quality differs, depending on the encoding circumstances. For details, refer to the user manual of your own encoding software and writing software.
- It is recommended to set the bit rate to “128 kbps or more” and “fixed”.

CAUTION: *Never assign the “.mp3” file name extension to a file that is not in the MP3 format.*

REASON: This may produce noise that could damage your speakers and your hearing.

Display Information

Displayed Items

- **CD-TEXT**
  Disc title⟶Track title
- **MP3**
  Folder name⟶File name
- **MP3 (ID3 tag)**
  Album name⟶Title name/Artist name

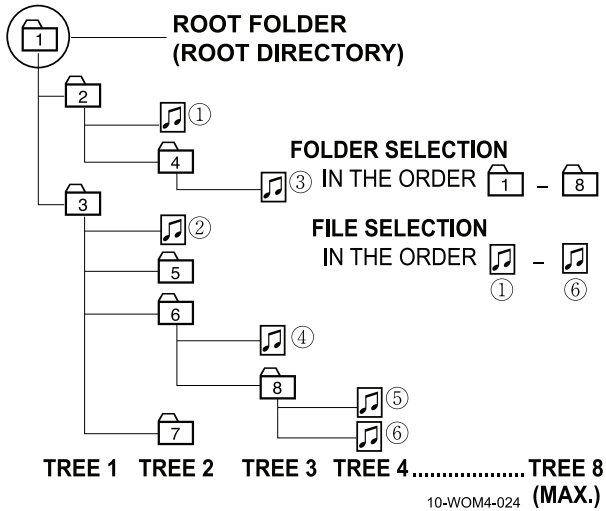
Displayable Characters

- Displayable length of file name/folder name: within 32 characters. (Unicoded file and folder names are reduced by half in the number of displayable characters).
- Name files and folders in accordance with the standard for each file system. Refer to the instructions of writing software for details.
- ASCII character set and special characters in each language can be displayed.

NOTES:

- Character information may not display correctly with some software if the MP3 format files have been encoded.
- Undisplayable characters and symbols will be converted into an asterisk (*).

Folder Selection Order/File Playback Order



Maximum Number of Files/Folders

- Maximum number of files: 999
- Maximum number of files in one folder: 225
- Maximum depth of trees: 8
- Maximum number of folders: 225 (Root folder is included.)

NOTES:

- This unit counts the number of folders irrespective of the presence or absence of an MP3 file.
- If the selected folder does not contain any MP3 files, the nearest MP3 files in order of playback will be played.
- Playback order may be different from other MP3 players even if the same disc is used.
- “ROOT” appears when displaying the root folder name.

Copyright

It is prohibited by copyright laws to copy, distribute and deliver copyrighted materials such as music without the approval of copyright holder unless it is for your personal enjoyment.

No Warranty

Above description complies with our investigations as of December 2006. It has no warranty for reproducibility and displayability of MP3.

MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and Thomson.

Troubleshooting

If You Suspect Something is Wrong

⚠ WARNING ⚠

Do not use the unit in an irregular condition, for example without sound, or with smoke or a foul smell.

REASON: When the unit is operating irregularly it can catch fire or cause an electric shock, which could cause serious bodily injury or death. Immediately stop using the unit and consult your service center.

⚠ WARNING ⚠

Do not open covers and do not attempt repairs by yourself.

REASON: This product utilizes a class I laser. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. In addition, there is a risk of shock or fire, all of which could cause serious bodily injury or death. Refer servicing to qualified personnel.

Check and take steps as described below. If the described suggestions do not solve the problem, it is recommended to take the unit to the nearest authorized Panasonic Servicenter. The product should be serviced only by qualified personnel. Please refer the checking and repair to professionals. Panasonic shall not be liable for any accidents arising out of neglect of checking the unit or your own repair after your checking.

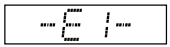
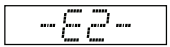
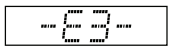
⚠ WARNING ⚠

Never try to troubleshoot problems with the unit, unless it is one of the check points indicated in italics in the following troubleshooting chart.

REASON: All other check point procedures could cause a shock or fire, which could lead to serious bodily injury or death.

Trouble	Check Point
Common	
No Power	• *Start the engine. (Or turn the ignition switch to the ACC position.)* • Verify the wiring. (battery lead, power lead, ground lead, etc.) • Fuse blown (Contact the nearest Panasonic Servi-center.) • Ask a professional for fuse replacement. • Be sure to use the same rated fuse.
No Sound	• *Disable the mute function.* • *Wait until the dew disappears before turning on the unit.* • Verify the wiring.
Noise	• Make sure that grounding is established properly.
No sound from left, right, front, or rear speaker	• *Adjust the balance and fader.* • Verify the wiring.
Left and right sounds are reversed	• Connect the speaker lead correctly.

Trouble	Check Point
Radio	
Frequent noise	• *Tune into another station of high-intensity waves.* • Make sure that the antenna mounted point is grounded properly.
Preset data deleted	• *The preset memory is cleared to return to the original factory setting when the power connector or battery is disconnected.*
No sound, or disc is automatically ejected	• *Load the disc correctly.* • *Clean the disc.*
Sound skip, poor sound quality	• *Clean the disc.* •
Sound skip due to vibration	• The maximum permissible tilt angle is 30°. • Secure the unit.
No sound from left, right, front, or rear speaker	• *Adjust the balance and fader.* • Verify the wiring.
Disc will not eject	• *Press [⏏]. If the disc still is not ejected, contact the nearest Panasonic Servicenter.*
Error Display Messages	

Trouble	Check Point
Error Display Messages	
	The disc is ejected automatically. The disc is dirty or upside down. The disc has scratches. • *Check the disc.*
	
	No operation by some cause. • *If normal operation is not restored, consult your service center or the nearest Panasonic Servicenter to ask for repairs.*
	Cannot read the file. • *Check the file.*

Roadside Emergencies

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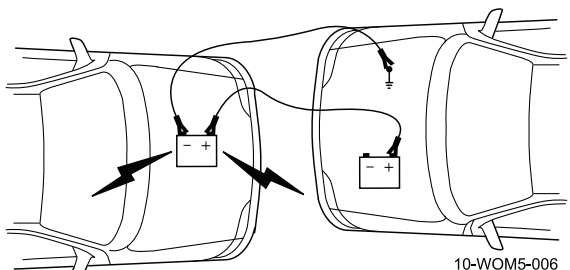

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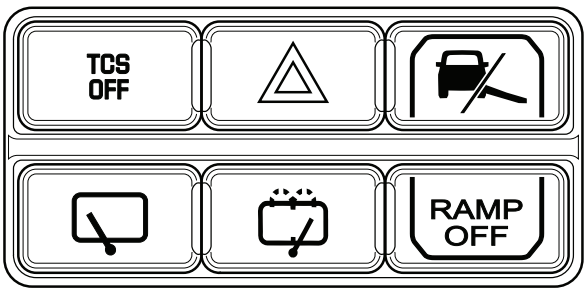
HAZARD FLASHER CONTROL

Your MV-1 is equipped with a hazard flasher control for use if your vehicle is disabled and creating a safety hazard for other motorists.

The hazard flasher control is located in the center console under the climate controls. The hazard flashers will operate when the ignition is in any position or if the key is not in the ignition.



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To use the hazard flasher, push in the flasher control button and all front and rear directional signals will flash and there will be an audible ticking as long as the flashers are in use. Press the flasher control again to turn them off.

NOTE: The hazard flasher may run down your battery with extended use.

FUEL PUMP SHUT-OFF (GAS ENGINE ONLY)

In the event of a moderate to severe collision, this vehicle is equipped with a fuel pump shut-off feature that stops the flow of fuel to the engine. Not every impact will cause a shut-off.

Should your vehicle shut off after a collision due to this feature, you may restart your vehicle by doing the following:

1. Turn the ignition switch to the OFF position.
2. Turn the ignition switch to the ON position.

In some instances the vehicle may not restart the first time you try to restart and may take one additional attempt.

⚠ WARNING ⚠

ALWAYS have your vehicle inspected for fuel leaks after a collision.

REASON: Failure to inspect and, if necessary, repair fuel leaks after a collision may increase the risk of fire and serious injury.

IF THE FUEL SYSTEM IS LEAKING (CNG ONLY)

During refueling it is normal to detect a slight natural gas odor for a few moments after the refueling process. If you smell natural gas at any other time or hear a hissing sound, however, your MV-1's fuel system may have a leak.

If you smell natural gas other than when refueling, or you hear a hissing sound, follow the directions below:

1. Park your vehicle in a well-ventilated area, and apply the parking brake. Keep heat, sparks, and flame away. Open all the windows and liftgate lid for ventilation.
2. Turn the ignition switch to the LOCK position. This should stop the leaking although it may take several minutes to an hour or more for the leak to stop, depending on the size of the leak. The vehicle should then be towed to a service center to have the vehicle immediately inspected.

⚠ WARNING ⚠

ALWAYS follow these safety instructions if you suspect a fuel leak.

REASON: Compressed natural gas is flammable and highly explosive. You could be killed or seriously injured if leaking natural gas is ignited.

ENGINE OVERHEATING

⚠ WARNING ⚠

NEVER open the hood if steam is seen OR heard from UNDER the hood. If steam or coolant escapes from the system, shut off the engine and get away from the vehicle. DO NOT open the hood.

REASON: Escaping steam or coolant can cause serious bodily injury.

Operating your vehicle at excessive engine coolant temperatures can damage your engine and lead to injury from escaping steam or coolant. If your Engine Coolant Temperature warning light (shown above) illuminates, first try reducing your speed. If it is necessary to pull over to the side of the road or you are stuck in traffic with high coolant temperature, raise the RPM to double the idle speed (no more than 1500 RPM) to return the temperature to a normal range. Operating the heater with the fan on high speed will also help reduce the coolant temperature. If these remedies do not lower the coolant temperature after 10 minutes, pull over as soon as safely possible and park the vehicle.

You should also park your MV-1 if you see steam or coolant escaping from the coolant system. Shut off the engine and get away from the vehicle. DO NOT open the hood, have the vehicle towed to a service center.

FLAT TIRES

Each tire including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. (If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.)

As an added safety feature, your vehicle has been equipped with a Tire Pressure Monitoring System (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated. Accordingly, when the low tire pressure warning light illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.

TIRE PRESSURE MONITORING SYSTEM (TPMS)

Your vehicle has also been equipped with a Low Tire warning light to indicate when the TPMS system is not operating properly. When a system malfunction is detected, the warning light will begin flashing. This sequence will continue upon subsequent vehicle start-ups as long as the malfunction exists. When the Low Tire warning light is illuminated and flashing, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation or replacement of alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the Low Tire warning light after replacing one or more tires or wheels on your vehicle to ensure that the replacement or alternate tires and wheels allow the TPMS to continue to function properly.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS Low Tire warning light.

The Tire Pressure Monitoring System complies with part 15 of the FCC rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that

may cause undesired operation.

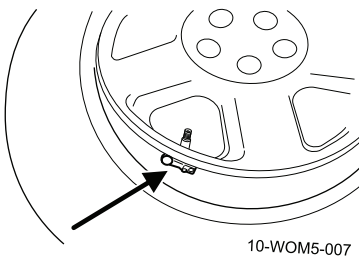
⚠ WARNING ⚠

Make sure to check your tire pressure on a regular basis.

REASON: The Tire Pressure Monitoring System is NOT a substitute for manually checking tire pressure. The tire pressure should be checked periodically (at least monthly) using a tire gauge. Failure to properly maintain your tire pressure could increase the risk of tire failure, loss of control, vehicle rollover and serious bodily injury or death.

Changing Tires with TPMS

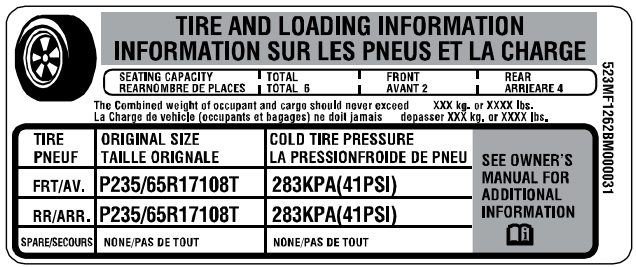
Each road tire is equipped with a tire pressure sensor located inside the tire/wheel cavity. The pressure sensor is attached to the valve stem. The pressure sensor is covered by the tire and is not visible unless the tire is removed. Care must be taken when changing the tire to avoid damaging the sensor.



10-WOM5-007

It is always recommended that you have your tires serviced by an authorized service center.

The tire pressure should be checked periodically (at least monthly) using an accurate tire gauge. Tire pressures are posted on the tire label shown below. The tire label is located on the edge of the driver's door.



10-WOM9-002

Understanding Your Tire Pressure Monitoring System (TPMS)

The Tire Pressure Monitoring System measures pressure in your four road tires and sends the tire pressure readings to your vehicle. The Low Tire warning light will turn ON if the tire pressure is below the minimum pressure. Once the light is illuminated, one or more of your tires is under-inflated and needs to be inflated to the manufacturer's recommended tire pressure. Even if the light turns ON and a short time later turns OFF, your tire pressure still needs to be checked.

When You Believe Your System is not Operating Properly

The main function of the Tire Pressure Monitoring System is to warn you when your tires need air. It can also warn you in the event the system is no longer capable of functioning as intended. Please refer to the following chart for information concerning your Tire Pressure Monitoring System:

LOW TIRE PRESSURE WARNING LIGHT	POSSIBLE CAUSE	CUSTOMER ACTION REQUIRED
Solid Warning Light	Tire(s) under-inflated	1. Check your tire pressure to ensure tires are properly inflated. 2. After inflating your tires to the manufacturer's recommended inflation pressure as shown on the Tire Label. the vehicle must be driven for at least two minutes over 20 mph (32 km/h) before the light will turn OFF.
	TPMS malfunction	If your tires are properly inflated and the light remains ON, have the system inspected by your authorized service center.
Flashing Warning Light	Tire without the TPMS monitor in use	A tire without the TPMS monitor is in use. Repair the damaged road wheel and re-mount it on the vehicle to restore system functionality.
	TPMS malfunction	If your tires are properly inflated and all the tires on the vehicle have TPMS monitors, but the TPMS warning light still flashes, have the system inspected by an authorized service center.

When Inflating Your Tires

Your MV-1 also comes equipped with a tire inflation kit. This portable unit plugs into any of the vehicle's 12 volt power points and can either add air to the tire or fix a leak with a ethylene glycol tire sealant. Instructions on how to properly inflate or seal a tire are printed on the kit components.

When putting air into your tires (such as at a gas station or in your garage), the Tire Pressure Monitoring System may not respond immediately to the air added to your tires.

It may take up to two minutes of driving over 20 mph (32 km/h) for the light to turn OFF after you have filled your tires to the recommended inflation pressure.

Using the Tire Sealant

The tire sealant that is included with your tire inflation kit should only be used in *emergency* situations. You should not drive more than 50 mph (80 km/h) if you have used sealant on any of the tires.

Once you have used the sealant on any of the tires, the sensor and valves of your TPMS system must be replaced, which will not be covered under your "New Vehicle Limited Warranties" on page 3.

CAUTION: *Before installing a new tire, all of the sealant must be removed from the tire/wheel assembly.*

REASON: Failure to remove all of the sealant can cause the TPMS system to give false tire pressure measurements and cause the new sensor to fail.

How Temperature Affects Your Tire Pressure

The Tire Pressure Monitoring System (TPMS) monitors tire pressure in each pneumatic tire. While driving in a normal manner, a typical passenger tire inflation pressure may increase approximately 2 to 4 psi (14 to 28 kPa) from a cold start situation. If the vehicle is stationary overnight with the outside temperature significantly lower than the daytime temperature, the tire pressure may decrease approximately 3 psi (20.7 kPa) for a drop of 30° F (16.6° C) in ambient temperature. This lower pressure value may be detected by the TPMS as being lower than the recommended inflation pressure and activate the TPMS warning for low tire pressure. If the low tire pressure warning light is ON, visually check each tire to verify that no tire is flat. (If one or more tires are flat, repair as necessary.) Check air pressure in the road tires. If any tire is underinflated, carefully drive the vehicle to the nearest location where air can be added to the tires. Inflate all tires to the recommended inflation pressure.

JUMP STARTING

⚠ WARNING ⚠

Never smoke or have open flames near the battery.

REASON: Open flames, sparks, or a lit cigarette can cause the gases surrounding the battery to explode, resulting in serious personal injury and damage to the vehicle.

⚠ WARNING ⚠

ALWAYS take care when working with or around batteries.

REASON: Batteries contain sulfuric acid which can burn skin, eyes and clothing, if contacted.

FIRST AID: if battery acid comes in contact with skin or eyes, IMMEDIATELY flush with water for 15 minutes AND promptly seek medical attention. If battery acid is swallowed, call a physician IMMEDIATELY.

CAUTION: *Do not attempt to push-start your automatic transmission vehicle. Automatic transmissions do no have push-start capability.*

REASON: Attempting to push-start a vehicle with automatic transmission may cause transmission damage.

NOTE: When the battery is disconnected or a new battery is installed, the automatic transmission must relearn its shift strategy. As a result, the transmission may have firm and/or soft shifts. This operation is considered normal and will not affect the function or durability of the transmission. Over time the adaptive learning process will fully update the transmission operation.

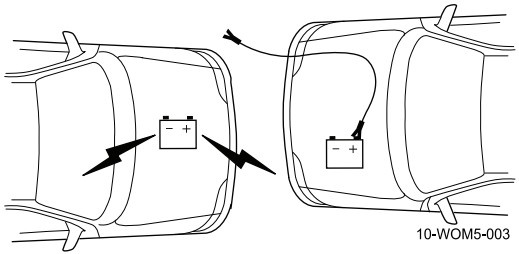
Preparing Your Vehicle

1. Use only a 12-volt supply to start your vehicle.
2. Do not disconnect the battery of the disabled vehicle as this could damage the vehicle's electrical system.
3. Park the booster vehicle close to the hood of the disabled vehicle, making sure the two vehicles **do not** touch. Set the parking brake on both vehicles and stay clear of the engine cooling fan and other moving parts.
4. Check all battery terminals and remove any excessive corrosion before you attach the battery cables. Ensure that the vent caps are tight and level.
5. Turn the heater fan on in both vehicles to protect from any electrical surges. Turn off all other accessories.

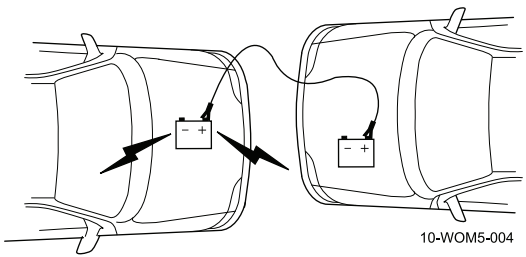
Connecting the Jumper Cables

NOTE: In the illustrations, *lightning bolts* are used to designate the assisting (boosting) battery.

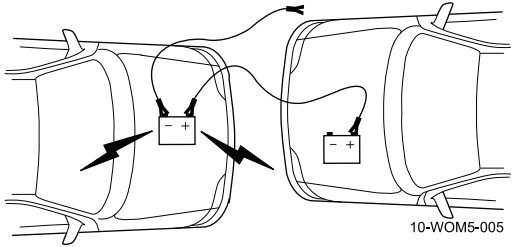
1. Connect the positive (+) jumper cable to the positive (+) terminal of the discharged battery.



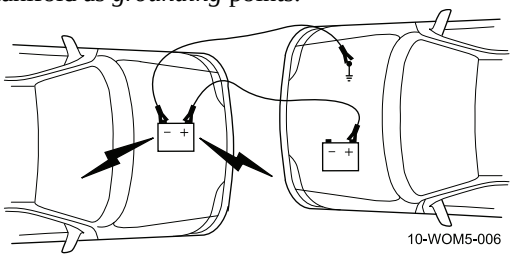
2. Connect the other end of the positive (+) cable to the positive (+) terminal of the assisting battery.



3. Connect the negative (-) cable to the negative (-) terminal of the assisting battery.



4. Make the final connection of the negative (-) cable to an exposed metal part of the stalled vehicle's engine, away from the battery and the carburetor/fuel injection system. **Do not** use fuel lines, engine rocker covers or the intake manifold as *grounding* points.



⚠ WARNING ⚠

Do not connect the end of the second cable to the negative (-) terminal of the battery to be jumped.

REASON: A spark may cause an explosion of the gases that surround the battery.

5. Ensure that the cables are clear of fan blades, belts, moving parts of both engines, or any fuel delivery system parts.

Starting the Vehicle

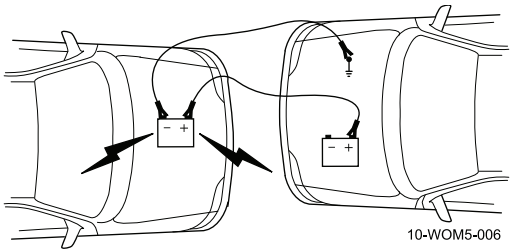
1. Start the engine of the booster vehicle and run the engine at moderately increased speed.
2. Start the engine of the disabled vehicle.
3. Once the disabled vehicle has been started, run both engines for an additional three minutes before disconnecting the jumper cables.

Removing the Jumper Cables

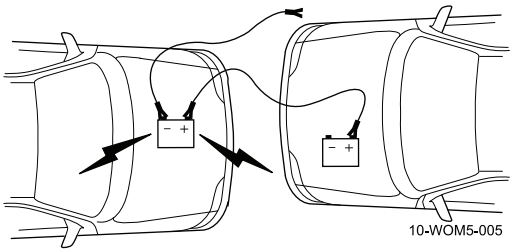
NOTE: In the illustrations, *lightning bolts* are used to designate the assisting (boosting) battery.

Remove the jumper cables in the reverse order that they were connected.

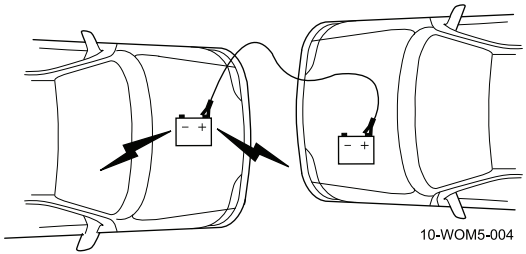
1. Remove the jumper cable from the *ground* metal surface.



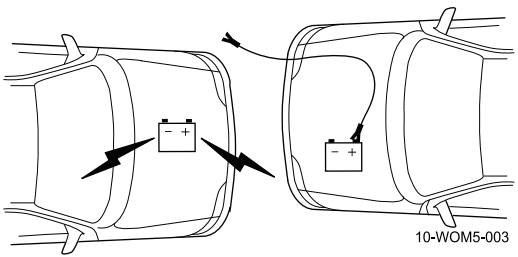
2. Remove the jumper cable from the negative (-) connection of the assisting battery.



3. Remove the jumper cable from the positive (+) terminal of the assisting battery.



1. Remove the jumper cable from the positive (+) terminal of the disabled vehicle's battery.



After the disabled vehicle has been started and the jumper cables removed, allow it to idle for several minutes so the engine computer can *relearn* its idle conditions.

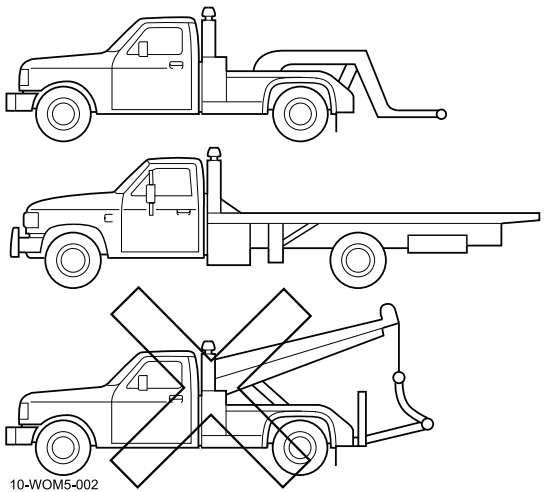
WRECKER TOWING

If you need to have your MV-1 towed, contact a professional towing service, or if you are a member of a roadside assistance program, your roadside assistance provider.

Your vehicle should be towed with a wheel lift or a flatbed.

CAUTION: *Do not have the vehicle towed with a slingbelt.*

REASON: Towing your MV-1 with a slingbelt could cause damage to the front end of the vehicle.



It is acceptable to tow your vehicle with the front wheels on the ground (without dollies) and the rear wheels off the ground.

⚠ WARNING ⚠

NEVER ride in a vehicle that is being towed.

REASON: The vehicle could become detached from the tow truck, which could cause serious injury or death.

EMERGENCY TOWING

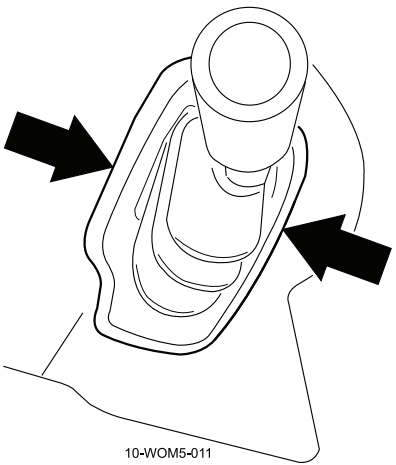
In the case of a roadside emergency with your vehicle where there is not access to wheel dollies, a car hauling trailer or flat-bed transport vehicle, your vehicle can be flat-towed (all wheels on the ground) under the following conditions:

- The vehicle is facing forward so that it is being towed in a forward direction.
- Place the transmission in N (Neutral). If you cannot move the gear shift lever, refer to the *Brake Shift Interlock Override* instructions on the next page.
- Maximum speed is not to exceed 35 mph (56 km/h).
- Maximum distance is not to exceed 50 miles (80 km).

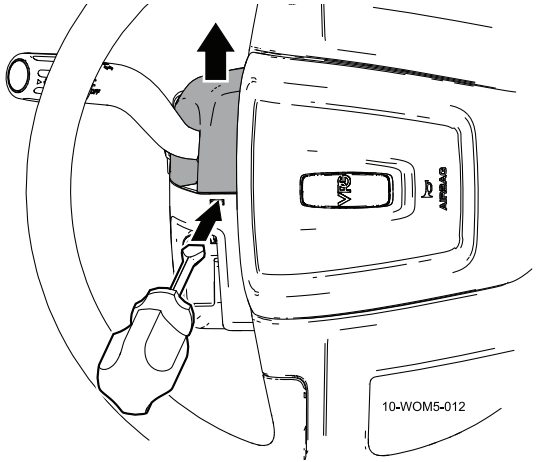
BRAKE SHIFT INTERLOCK OVERRIDE

If the selector lever cannot be moved out of the PARK position when the ignition is in the ON position and the brake pedal is applied:

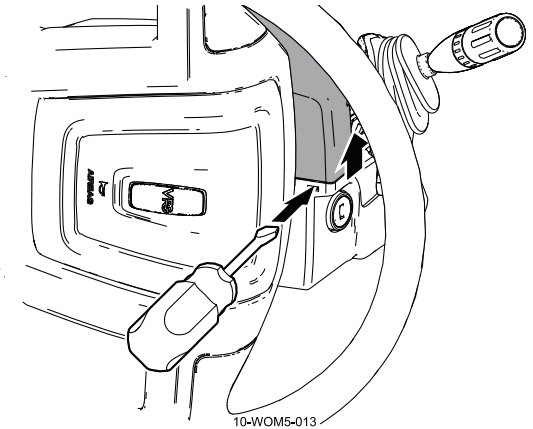
1. Apply the park brake and turn the ignition switch to the OFF position.
2. Move the selector lever boot by pressing in on the edges and moving it up the selector lever.



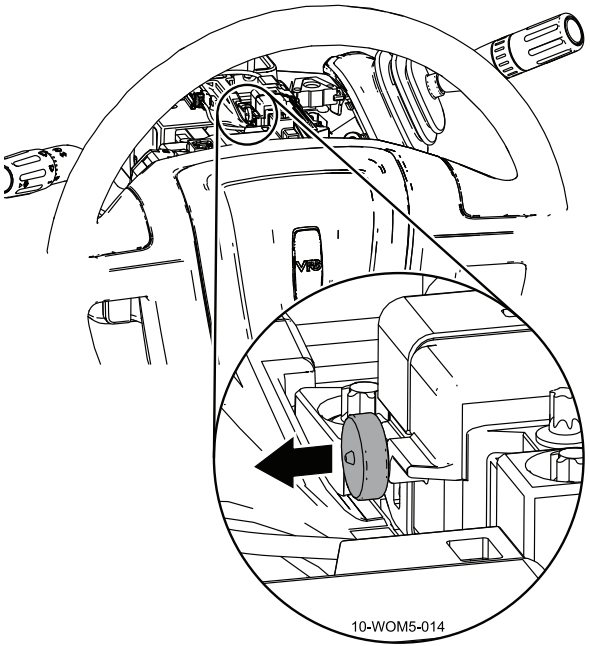
3. Turn the steering wheel one-half turn to access the slots on each side of the steering column shroud.



4. Insert a suitable tool into each slot to unsnap and remove the steering column upper shroud. Rotate the upper shroud on its hinges and pull rearward to remove the shroud from its hinges.



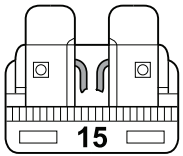
5. Turn the ignition switch to the ON position. Pull back on the brake shift interlock plunger, apply the brake and shift the transmission into neutral.



FUSES AND RELAYS

Fuses

If electrical components in the vehicle are not working, a fuse may have blown. Blown fuses are identified by a broken wire within the fuse. Check the appropriate fuses before replacing any electrical components.



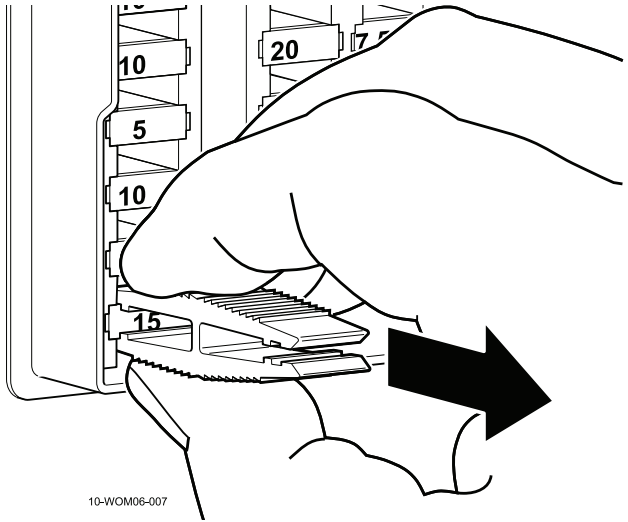
CAUTION: *Always replace a fuse with one that has the specified amperage rating.*

REASON: Using a fuse with a higher amperage rating can cause severe wire damage and could start a fire.

Fuse Removal

There is a fuse removal tool attached to the inside of the Smart Junction Box cover. The Smart Junction Box is located inside the vehicle beneath the center console.

To remove a fuse, grasp the fuse with the tool and pull straight out as shown below.

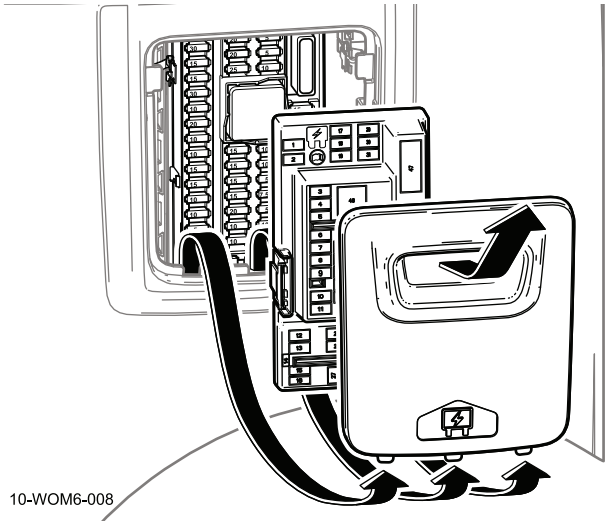


Standard Fuse Amperage Rating and Color

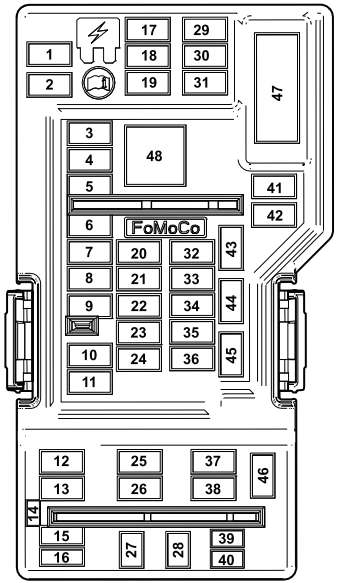
COLOR					
FUSE RATING	**MINI FUSES**	**STANDARD FUSES**	**MAXI FUSES**	**CARTRIDGE MAXI FUSES**	**FUSE LINK CARTRIDGE**
2A	Grey	Grey	-	-	-
3A	Violet	Violet	-	-	-
4A	Pink	Pink	-	-	-
5A	Tan	Tan	-	-	-
7.5A	Brown	Brown	-	-	-
10A	Red	Red	-	-	-
15A	Blue	Blue	-	-	-
20A	Yellow	Yellow	Yellow	Blue	Blue
25A	Natural	Natural	-	-	-
30A	Green	Green	Green	Pink	Pink
40A	-	-	Orange	Green	Green
50A	-	-	Red	Red	Red
60A	-	-	Blue	Yellow	Yellow
70A	-	-	Tan	-	Brown
80A	-	-	Natural	Black	Black

Smart Junction Box

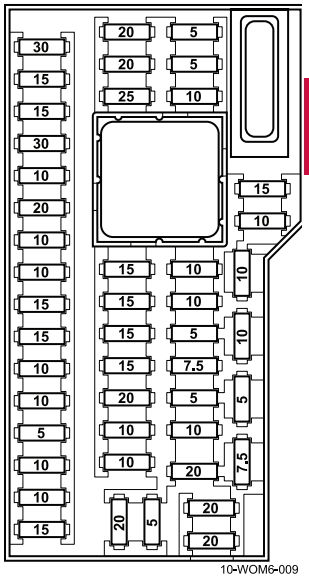
The Smart Junction Box is located inside the vehicle beneath the center console.



To remove the outer cover, pull straight up on the handle. To remove the inside cover, press the sides of the cover and pull. The inside cover shows the fuse/relay location. The numbers on the cover correspond to the numbers in the chart on the next page.



Inside Cover



Fuses

SMART JUNCTION BOX		
FUSE/RELAY LOCATION	FUSE AMP RATING	PROTECTED CIRCUITS
1	30A	Not Used
2	15A	Not Used
3	15A	Not Used
4	30A	Not Used
5	10A	SPDJB micro, Brakeshift Interlock
6	20A	Turn Signals/Hazards/Stop Ips
7	10A	Left Low Beam
8	10A	Right Low Beam
9	15A	Courtesy Lights
10	15A	Cluster/Panel Illumination
11	10A	Not Used
12	10A	Not Used
13	5A	Exterior Power Mirrors
14	10A	Not Used
15	10A	Not Used
16	15A	Not Used
17	20A	Power Door Locks

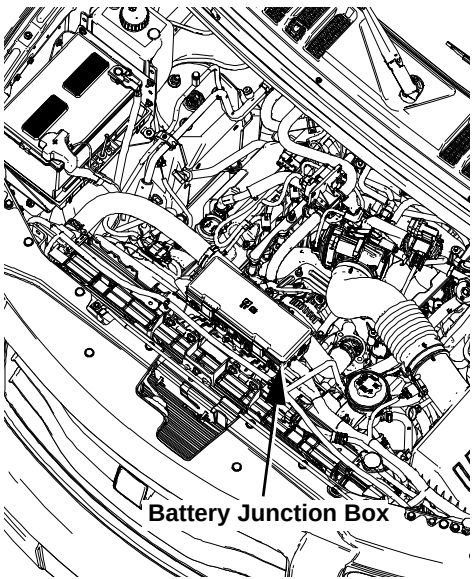
SMART JUNCTION BOX		
FUSE/RELAY LOCATION	FUSE AMP RATING	PROTECTED CIRCUITS
18	20A	ABC VBAT 2 Rear Wiper, Rear Washer, Liftgate Latch
19	25A	Not Used
20	15A	Diagnostic Conn Power
21	15A	Not Used
22	15A	Parking/License Lights
23	15A	High Beams
24	20A	Horn
25	10A	Not Used
26	10A	Cluster (Battery)
27	20A	Ignition Switch Feed (Battery)
28	5A	Not Used
29	5A	Cluster (R/S)
30	5A	Not Used
31	10A	Not Used
32	10A	Restraints Module (R/S)
33	10A	Not Used
34	5A	ABC Module (R/S)

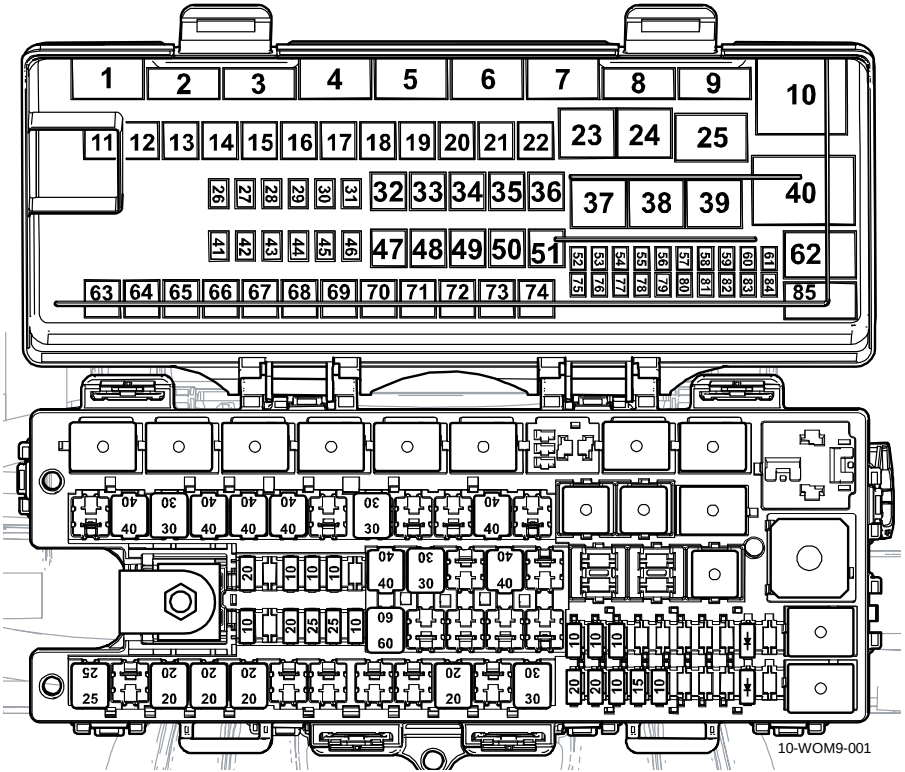
SMART JUNCTION BOX		
FUSE/RELAY LOCATION	**FUSE AMP RATING**	**PROTECTED CIRCUITS**
35	7.5A	Not Used
36	5A	PATS (R/S)
37	10A	Climate Control Head, Door Actuators, Coolant Control Valve (R/S)
38	20A	Not Used
39	20A	Radio Power
40	20A	Not Used
41	15A	Radio On/Off Sw Illum (Del/Accy)
42	10A	Not Used
43	10A	Rear Defrost Relay Coil, Front Wiper Motor, Relay Coils, Blower Relay Coil (R/A)
44	10A	Not Used
45	5A	Not Used
46	7.5A	Not Used
47	30A Circuit Breaker	Power Windows (Del/Accy)

SMART JUNCTION BOX		
FUSE/RELAY LOCATION	**FUSE AMP RATING**	**PROTECTED CIRCUITS**
48	-	Delayed Accy

Battery Junction Box

The Battery Junction Box is located in the engine compartment. It contains high-current fuses that protect your vehicle's main electrical systems from overloads.





BATTERY JUNCTION BOX		
FUSE/RELAY LOCATION	**FUSE AMP RATING**	**PROTECTED CIRCUITS**
1	HC Micro Relay	PCM
2	HC Micro Relay	Starter Solenoid
3	HC Micro Relay	Rear Defrost
4	HC Micro Relay	HVAC Blower Motor
5	HC Micro Relay	Fuel Pump
6	HC Micro Relay	Washer Pump
7	–	Not Used
8	HC Micro Relay	Front Wiper High
9	HC Micro Relay	Front Wiper Low
10	–	Not Used
11	–	Not Used
12	40A**	Engine Cooling Fan #1
13	30A**	Starter Solenoid Relay
14	40A**	Run Start Relay
15	40A**	Engine Cooling Fan #2
16	40A**	Auto Level Compressor Motor
17	–	Not Used

BATTERY JUNCTION BOX		
FUSE/RELAY LOCATION	**FUSE AMP RATING**	**PROTECTED CIRCUITS**
18	30A**	Auto Level Exhaust Valve
19	–	Not Used
20	–	Not Used
21	40A**	ABC VBAT 1 Module (Power Ramp Motor)
22	–	Not Used
23	G8VA relay	A/C Clutch
24	G8VA relay	Front Wiper Low
25	HC Micro relay	Run/Start
26	20A*	Washer Pump
27	–	Not Used
28	20A*	Back Up Lamp
29	10A*	A/C Clutch
30	10A*	Stoplamp Sw
31	–	Not Used
32	40A**	Blower Motor
33	30A**	Rear Defrost

BATTERY JUNCTION BOX		
FUSE/RELAY LOCATION	FUSE AMP RATING	PROTECTED CIRCUITS
34	–	Not Used
35	40A**	PCM VPWR (Main)
36	–	Not Used
37	–	Not Used
38	–	Not Used
39	G8VA relay	Back Up LP
40	ISO relay	Engine Cooling Fan Hi/Low
41	10A*	Auto Level Control Module
42	–	Not Used
43	20A*	Fuel Pump (Gas), Tank Valves (CNG)
44	25A*	High Wiper
45	25A*	Low Wiper
46	10A*	PCM KA Power/Can Vent/PCM Relay Coil
47	60A**	ABS Pump Motor
48	–	Not Used

BATTERY JUNCTION BOX		
FUSE/RELAY LOCATION	FUSE AMP RATING	PROTECTED CIRCUITS
49	–	Not Used
50	–	Not Used
51	–	Not Used
52	10A*	Auto Level Control R/S
53	10A*	ABS Module R/S Feed
54	10A*	Fuel Pump Relay Coil (Gas), Tank Valve Relay Coil (CNG), PCM R/S
55	–	Not Used
56	–	Not Used
57	–	Not Used
58	–	Not Used
59	–	Not Used
60	Mini Diode	Start
61	–	Not Used
62	HC Micro relay	Engine Cooling Fan #2 (High)

BATTERY JUNCTION BOX		
FUSE/RELAY LOCATION	**FUSE AMP RATING**	**PROTECTED CIRCUITS**
63	25A**	Engine Cooling Fan #1 & #2 (Low)
64	–	Not Used
65	20A**	Power Point 2 (IP)
66	20A**	Power Point 3
67	20A**	Power Point 1 (IP)
68	–	Not Used
69	–	Not Used
70	–	Not Used
71	–	Not Used
72	20A**	Cigar Ltr
73	–	Not Used
74	30A**	Power Seat
75	20A*	VPWR 1 PCM PWR (Secondary)
76	20A*	VPWR 2 PC Mil
77	10A*	VPWR 3 PCM non ML

BATTERY JUNCTION BOX		
FUSE/RELAY LOCATION	**FUSE AMP RATING**	**PROTECTED CIRCUITS**
78	15A*	VPWR 4 GAS Ign Coils
79	10A*	VPWR 5 Trans
80	–	Not Used
81	–	Not Used
82	–	Not Used
83	Mini Diode	Fuel Pump (Gas), Tank Valves (CNG)
84	–	Not Used
85	HC Micro relay	Engine Cooling Fan #1 (High)
*Mini fuses **A1S fuses		

Maintenance

10

SECTION 10

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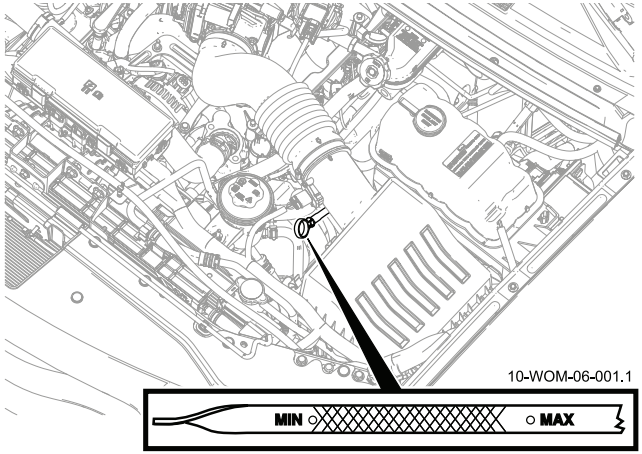

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MAINTENANCE SCHEDULE AND RECORD LOG

Get the Most from Your Vehicle with Routine Maintenance

Routine maintenance is the best way to help ensure you get the performance, dependability, long life and resale value you expect from your MV-1. This is exactly why we put together the Maintenance Schedule. It outlines the services required to properly maintain your vehicle and when they should be performed.

> ***CAUTION:*** *ALWAYS have your vehicle serviced on schedule and follow all maintenance instructions in this section. Use a service center whenever possible for maintenance.*
>
> **REASON:** Maintaining your vehicle while it is running great goes a long way toward preventing repairs and expenses later.

Here are a few suggestions to help you get started on the road to routine maintenance:

- Familiarize yourself with your vehicle by going through the whole Owner's Manual.
- Take a few minutes to review the Maintenance Schedule.
- Make a habit to use this guide to record scheduled mantenance.

Protect Your Warranty!

Routine maintenance is not only the best way to keep your vehicle running well, it is also the best way to protect your warranty. While maintenance and repair services may be performed by your service center or by any automotive service provider you choose, it is your responsibility to see that all scheduled maintenance is performed and that the materials used meet VPG engineering specifications. Failure to perform scheduled maintenance specified in this guide may invalidate warranty coverage on parts affected by this lack of maintenance. We cannot stress enough how important it is to keep records of all maintenance. This guide will help you do just that. VPG will not deny a warranty claim simply because there is no documentation. **However, damage or failures due to neglect or a lack or proper maintenance are not covered under warranty.**

Keeping Maintenance Records Is Easy With The Maintenance Schedule

It is important to document the maintenance of your MV-1. Every time you bring your vehicle in for scheduled maintenance, be sure to present your Owner's Manual and certify the work. Also record the date of service, mileage at time of service and attach your receipt. This will make record keeping easy and, should your vehicle ever require warranty coverage, you will have all the documentation to show you have properly maintained the vehicle.

Maintenance Intervals

VPG establishes recommended maintenance intervals based upon engineering testing to determine the most appropriate mileage to perform the various maintenance services. This protects your vehicle at the lowest overall cost to you. VPG recommends that you not deviate from the maintenance schedules presented in this manual.

Your vehicle is very sophisticated and built with multiple complex performance systems. Every manufacturer develops these systems using different specifications and performance features. That's why it's important to rely on your service center to properly maintain, diagnose and repair your vehicle.

Choosing a Maintenance Schedule to Follow

It is important to follow the maintenance schedule that most closely mirrors your driving habits and the conditions under which you drive. For this reason, the Maintenance Schedule is divided into two basic maintenance schedules; the **Normal Schedule** and the **Special Use Schedule.**

It is easy to determine which maintenance schedule you should use. Use the normal schedule if you drive your vehicle under everyday conditions. If, however, one or more of the special operating conditions outlined below better describes how you typically operate your MV-1, you will need to perform some maintenance services more often than the normal schedule recommends.

- Routinely carrying heavy loads
- Extensive idling and/or driving at low speeds for long distances
- Commercial fleet driving
- Driving in dusty conditions

Oils, Fluids and Flushing

In many cases, fluid discoloration is a normal operating characteristic and, by itself, does not necessarily indicate a concern or that the fluid needs to be changed. However, discolored fluids that also show signs of overheating and/or foreign material contamination should be inspected immediately by a qualified expert. Your vehicle's oils and fluids should be changed at the specified intervals or in conjunction with a repair. Flushing is a viable way to change fluid for many vehicle sub-systems during scheduled maintenance. It is critical that systems are flushed only with new fluid that is the same as that required to fill and operate the system, or using an approved flushing chemical.

Chemicals and Additives

Non VPG-approved chemicals or additives are not required for factory recommended maintenance. In fact, VPG recommends against the use of such additive products unless specifically recommended by VPG for a particular application.

Owner Checks and Services

It is recommended that the following basic maintenance checks and inspections be performed at the designated time intervals. Check the other sections in the owner's manual for more information.

Maximum Oil Change Interval

- ❑ Normal Schedule: 7,500 miles or 6 months, whichever occurs first.
- ❑ Special Operating Conditions: 5,000 miles, 6 months, or 200 hours of engine operation, whichever occurs first.

Engine Coolant Change Interval

- ❑ 6 years or 105,000 miles - change coolant (whichever comes first). Use coolant specified in Capacities on page 240.
- ❑ After initial change - change coolant every 6 years or 100,000 miles.

Check Every Month for All Vehicle

- ❑ Check function of all interior and exterior lights.
- ❑ Check tires for wear and proper inflation (41 PSI/283 KPA).
- ❑ Check engine oil fluid level.
- ❑ Check windshield washer fluid level.
- ❑ Check ramp operation and clean ramp panels with bristle brush and water.

Check Every Six Months for All Vehicles

- ❑ Check lap/shoulder belts and seat latches for wear and proper operation.
- ❑ Check power steering fluid level.
- ❑ Check check windshield/rear window washer operation.
- ❑ Check condition of wiper blades (replace blades as necessary).
- ❑ Check parking brake for proper operation.
- ❑ Check and lubricate upper and lower door hinges and door check straps.
- ❑ Check safety warning lamps (ABS, Check Engine, etc.) for operation.
- ❑ Check engine coolant level.
- ❑ Check battery connections and clean if necessary.

Every three years for CNG Vehicles

- ❑ Inspection for all CNG tanks by your trained MV-1 technician

Every 7,500 Ramp cycles or five years, whichever occurs first

- ❑ Ramp Service Adjustment.

Retightening Lug Nuts

- ❑ Refer to Tire Rotation on page 212 for the proper lug nut torque specifications.

Tires

Proper tire maintenance and replacement are critical to your vehicle's performance and helps keep you and your passengers safe. Only use replacement tires and wheels that are the same size, load index, speed rating and type (such as P-metric versus LT-metric or all-season versus all-terrain) as those originally provided by VPG. The recommended tire and wheel size may be found on either the Safety Compliance Certification Label or the Tire Label which is located on the B-Pillar or edge of the driver's door.

If this information is not found on these labels then you should consult your service center. Use of any tire or wheel not recommended by VPG can affect the safety and performance of your vehicle, which could result in an increased risk of loss of vehicle control, vehicle rollover, personal injury and death. Additionally, the use of non-recommended tires and wheels could cause steering, suspension, axle or transfer case/power transfer unit failure. If you have questions regarding tire replacement, see an authorized service center.

If your service center sells the name-brand tire, they can also honor the tire manufacturer's warranty.

Tires degrade over time depending on many factors such as weather, storage conditions, and conditions of use (load, speed, inflation, etc.) the tires experience throughout their lives. In general, tires should be replaced after 6 years, regardless of tread wear. However, heat caused by hot climates or frequent high loading conditions can accelerate the aging process and may require the tires to be replaced more frequently.

Oils and Lubricants

It is important to follow a regular maintenance schedule for changing your vehicle's oil and lubricants. VPG recommends using Motorcraft® Oils and Lubricants. Motorcraft Oils are formulated to reduce engine friction, improve fuel economy, and protect against deposits and wear. Motocraft oil is certified by The American Petroleum Industry.

Collision

An accident is an upsetting experience and collision repair is often complicated and confusing. Know your rights as a conumer during the collision repair process and make sure your vehicle is properly repaired with the right parts. Properly repairing your vehicle will help maintain its value.

Your Rights As A Consumer

As a consumer, you are within your rights to insist on original equipment replacement parts. These genuine parts are made by the manufacturer to meet stringent criteria for fit, finish, structural integrity, corrosion protection and dent resistance, just like the parts that were originally on your vehicle.

Multi-Point Inspection

To keep your MV-1 running properly, it is important to have the systems on your vehicle checked regularly. This can help identify potential issues and prevent major problems. VPG recommends the following multi-point inspection be performed at every scheduled maintenance interval to help ensure your vehicle keeps running well.

Multi-Point Inspection (Recommended at Every Visit)
❑ Check and top-up fluid levels: brake, coolant recovery reservoir, transmission, power steering and window washer.
❑ Inspect tires for wear and check air pressure.
❑ Check exhaust system for leaks, damage, loose parts and foreign material.
❑ Check battery performance.
❑ Check operation of horn, exterior lamps, turn signals and hazard warning lights.
❑ Check radiator, coolers, heater and air conditioning hoses.
❑ Inspect windshield washer spray and wiper operation.
❑ Check windshield for cracks, chips and pitting.
❑ Inspect for oil and fluid leaks.
❑ Inspect engine air filter.
❑ Inspect half shaft dust boots, if equipped.
❑ Check shocks and struts and other suspension components for leaks and damage.
❑ Inspect steering and linkage.
❑ Inspect accessory drive belt(s).
❑ Inspect ramp condition and clean panels as necessary.
❑ Inspect/remove any debris from ramp tracks.

Maintenance Schedule for Normal “Non-Commercial” Driving Conditions

7,500 miles/12,000 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Replace differential fluid	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

15,000 miles/24,100 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

22,500 miles/ 36,200 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	
❑ Inspect automatic transmission fluid level.	Date:
❑ Inspect engine coolant level.	Mileage:
❑ Change high pressure and low pressure CNG filters (CNG only)	RO#:

30,000 miles/ 48,300 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Serivce Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

37,500 miles/ 60,330 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

45,000 miles/ 72,400 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	
❑ Inspect exhaust system and heat shields.	Date:
❑ Inspect engine cooling system and hoses.	Mileage:
❑ Change high pressure and low pressure CNG filters (CNG only)	RO#:

52,500 miles/ 84,500 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Replace differential fluid.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

60,000 miles/ 96,500 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses	RO#:

67,500 miles/ 108,600 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

75,000 miles/ 120,700 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

82,500 miles/ 132,700 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

90,000 miles/144,800 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

97,500 miles/156,900 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

105,000 miles/169,000 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Replace differential fluid	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

112,500 miles/181,000 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

120,000 miles/193,100 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

127,500 miles/205,100 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

135,000 miles/217,200 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

142,500 miles/229,300 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

150,000 miles/241,400 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Inspect differential fluid.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

157,500 miles/253,400 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

165,000 miles/266,300 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

172,500 miles/277,600 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

180,000 miles/289,600 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

187,500 miles/301,700 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

195,000 miles/313,800 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

Maintenance Schedule for Special Use “Commercial Fleet” Driving Conditions

5,000 miles/8,000 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Replace differential fluid.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

10,000 miles/16,000 kilometers	
❑ Perform 5,000 mile/8,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

15,000 miles/ 24,100 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

20,000 miles/ 32,200 kilometers	
❑ Perform 5,000 mile/8,000 kilometer service.	Serivce Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

25,000 miles/ 40,200 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

30,000 miles/ 48,300 kilometers	
❑ Perform 5,000 mile/8,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

35,000 miles/ 56,300 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

40,000 miles/ 64,400 kilometers	
❑ Perform 5,000 mile/8,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

45,000 miles/ 72,400 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

50,000 miles/ 80,500 kilometers	
❑ Perform 5,000 mile/8,000 kilometer service..	Service Center:
❑ Replace engine air filter.	
❑ Replace differential fluid.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	
❑ Inspect exhaust system and heat shields.	Date:
❑ Inspect engine cooling system and hoses.	Mileage:
❑ Replace transmission fluid.	RO#:

55,000 miles/ 88,500 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

60,000 miles/96,500 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

65,000 miles/104,600 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

70,000 miles/112,600 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

75,000 miles/120,700 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

80,000 miles/128,800 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

85,000 miles/136,800 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

90,000 miles/144,800 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

100,000 miles/160,900 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Replace differential fluid.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Replace automatic transmission fluid.	Mileage:
❑ Replace engine coolant.	RO#:

105,000 miles/169,000 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Inspect differential fluid.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

110,000 miles/177,000 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

115,000 miles/185,000 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

120,000 miles/193,000 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

125,000 miles/201,100 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

130,000 miles/209,200 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

135,000 miles/217,200 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

140,000 miles/225,270 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

145,000 miles/233,300 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

150,000 miles/241,400 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect differential fluid.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

155,000 miles/249,400 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

160,000 miles/257,400 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

165,000 miles/265,500 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

170,000 miles/273,500 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

175,000 miles/281,600 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

180,000 miles/289,600 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

185,000 miles/297,700 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

190,000 miles/305,700 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Inspect automatic transmission fluid level.	Mileage:
❑ Inspect engine coolant level.	RO#:

195,000 miles/313,800 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

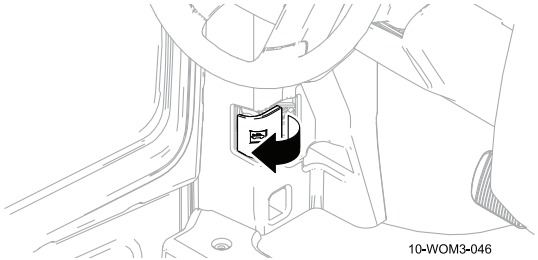
200,000 miles/321,800 kilometers	
❑ Change engine oil and replace oil filter.	Serivce Center:
❑ Rotate tires, inspect tires for wear and measure tread depth.	
❑ Replace differential fluid.	
❑ Inspect ramp operation and check tracks for debris and clean as necessary	
❑ Inspect the wheels and related components for abnormal noise, wear, looseness or drag.	
❑ Lube all body hinges.	
❑ Inspect engine air filter.	Date:
❑ Replace automatic transmission fluid.	Mileage:
❑ Replace engine coolant.	RO#:

205,000 miles/330,000 kilometers	
❑ Perform 7,500 mile/12,000 kilometer service.	Service Center:
❑ Replace engine air filter.	
❑ Lubricate and inspect steering linkage, ball joints, suspension, tie rod ends, driveshaft, and U-joints.	
❑ Inspect brake pads, rotors, and lines/hoses, and parking brake system. Ensure proper brake fluid level.	
❑ Inspect rear axle shaft boots.	Date:
❑ Inspect exhaust system and heat shields.	Mileage:
❑ Inspect engine cooling system and hoses.	RO#:

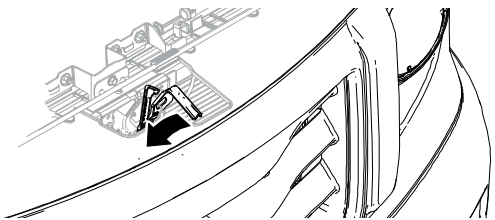
HOOD

Raising

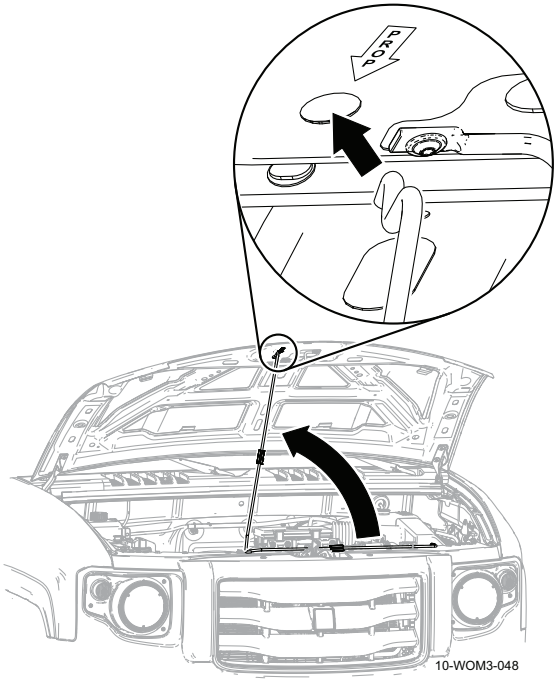
1. Pull the hood release latch located under the bottom left corner of the instrument panel towards you.



2. Go to the front of the vehicle and pull up slightly on the hood to access the safety latch. Push the latch to the left and lift the hood.



3. Lift the hood and secure it with the prop rod.



Lowering

1. Slightly lift the hood.
2. Remove the prop rod and stow in the proper location.
3. Close the hood, making sure that it latches.

⚠ WARNING ⚠

The hood must be completely closed and latched before driving.

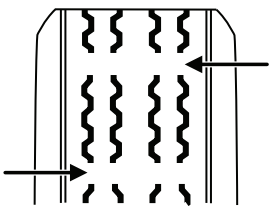
REASON: The hood could open while driving, obscuring your vision and causing a collision which could result in serious bodily injury or death.

WHEELS AND TIRES

Inspection and Care

Frequent inspection of the tires will prevent tire failure and possible loss of vehicle control. Check the tires and wheels for noticeable damage regularly. See the Maintenance Schedule at the beginning of this section for proper maintenance intervals.

Tire Wear



When the tire tread is worn down to 3/32th of an inch (2 mm), tires must be replaced to help prevent your vehicle from skidding and hydroplaning. The tires have built-in treadwear indicators or “wear bars”, which look like narrow strips of smooth rubber across the tread that will appear on the tire when the tread is worn down to 3/32th of an inch (2 mm).

Damage

Uneven wear, gouges, cracks, cuts, bulges, or any exposed body ply cords indicates tire damage that should be addressed immediately. Tires will wear more quickly when they are kept at improper tire pressures or when wheels are not aligned properly. If you find any noticeable damage, have the tires checked at an authorized service center.

All tires will wear out faster when subjected to high speeds as well as hard cornering, rapid starts, sudden stops and frequent driving on roads which are in poor condition. Roads containing holes, rocks or other objects can damage tires and cause misalignment of your vehicle.

Rotation

Rotating your tires regularly extends tire wear life and prevents any abnormal, uneven wear. Rotate the tires every 7,500 mi (12,000 km) according to the diagram on page 212. After each rotation, adjust individual tire pressures to the recommended pressure for your tires. Tighten the wheel lug nuts to 96 lb-ft (130 Nm) and check the torque periodically thereafter.

Replacement

Any tire that shows a wear bar or noticeable damage should be replaced immediately. Replacement of unevenly worn tires may be necessary even before a wear bar appears.

Inflation

Follow the manufacturer’s guidelines for the proper inflation pressures.

Snow Tires and Chains

Your MV-1 comes equipped with all-weather treads to provide traction in rain in snow. In some climates, you may need to use snow tires and chains.

⚠ WARNING ⚠

When selecting snow tires for your MV-1, ensure that the tires are the same size, load index and speed rating as those originally provided with the vehicle.

REASON: Use of any tire that is not the recommended size, load index and speed rating can affect the safety and performance of your vehicle. This could result in a loss of vehicle control, leading to serious bodily injury or death. Non-recommended tires could also cause damage to the steering, suspension and axle.

If you need to use snow tires and chains, follow these guidelines:

- If you hear the chains rub or bang against your vehicle, stop and retighten the chains. If this does not work, remove the chains to prevent damage to your vehicle.
- Avoid fully loading your vehicle, if possible.
- Use only SAE Class S chains.
- Install chains securely, making sure that the chains do not touch any of the wiring, brake lines or fuel lines.
- Remove the tire chains when they are no longer needed. Do not use tire chains on dry roads.

⚠ WARNING ⚠

If you are driving in slippery conditions that require tire chains or cables, it is critical that you drive cautiously. Drive at lower speeds, allow for longer stopping distances and avoid aggressive steering.

REASON: Slippery conditions may increase the chance for loss of vehicle control which could lead to serious bodily injury or death.

INFORMATION ABOUT UNIFORM TIRE QUALITY GRADING

Tire Quality Grades apply to new pneumatic passenger car tires. The quality grades can be found where applicable on the tire sidewall between tread shoulder and maximum section width. A sample tire quality grade would be: Treadwear 200 Traction AA Temperature A

These Tire Quality Grades are determined by standards that the United States Department of Transportation has set.

Tire Quality Grades apply to new pneumatic passenger car tires. They do not apply to deep tread, winter-type snow tires, temporary use spare tires, light truck or "LT" type tires, tires with nominal rim diameters of 10 to 12 inches or limited production tires as defined in Title 49 Code of Federal Regulations Part 575.104(c)(2).

U.S. Department of Transportation - Tire Quality Grades

The U.S. Department of Transportation requires VPG to give you the following information about tire grades:

Treadwear

The treadwear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one and one-half (1 1/2) times as well on the government course as a tire graded 100. The relative performance of tires depends upon the actual conditions of their use, however, and may depart significantly from the norm due to variations in driving habits, service practices, and differences in road characteristics and climate.

Traction Grades (AA, A, B, C)

The traction grades, from highest to lowest are AA, A, B and C. The grades represent the tire's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.

The traction grade assigned to this tire is based on straight-ahead braking traction tests, and does not include acceleration, cornering, hydroplaning or peak traction characteristics.

Temperature Grades (A, B, C)

The temperature grades are A (the highest), B and C, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tire to degeneration and reduce tire life. Excessive temperature can lead to

sudden tire failure. The grade C corresponds to a level of performance which all passenger car tires must meet under the Federal Motor Vehicle Safety Standard No. 139. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

The temperature grade established for the MV-1 tire is for a tire that is properly inflated and not overinflated. Excessive speed, underinflation, or excessive loading, either separately or in combination, can cause heat buildup and possible tire failure.

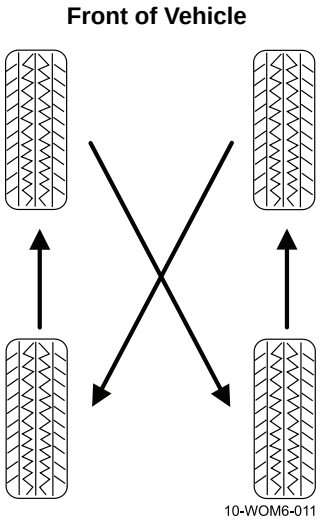
TIRE AND WHEEL ALIGNMENT

A bad jolt from hitting a curb or pothole can cause the front end of your vehicle to become misaligned or cause damage to your tires. If your vehicle seems to pull to one side when you are driving, the wheels may be out of alignment. Wheel misalignment in the front or rear can cause uneven and rapid treadwear of your tires and should be corrected by an authorized service center.

The tires should also be balanced periodically. An unbalanced tire and wheel assembly may result in irregular tire wear.

Tire Rotation

Regular tire rotation will help your tires wear more evenly, providing better performance and longer tire life. You should rotate your tires every 7,500 miles (12,000 km) for normal use or every 5,000 miles (8,000 km) for commercial fleet use. The illustration at the right shows the recommended tire rotation for your rear-wheel drive MV-1. Tighten the wheel lug nuts to 96 lb-ft (130 Nm) and check the torque periodically thereafter.



Sometimes irregular tire wear can be corrected by rotating the tires

NOTE: If your tires show uneven wear, ask an authorized service center to check for and correct any wheel misalignment, tire imbalance or mechanical problem involved before tire rotation.

NOTE: After having your tires rotated, check tire pressure and adjust to the recommended inflation pressure.

GASOLINE FUEL SYSTEM

Fuel Filter

Your vehicle filter is equipped with a lifetime fuel filter that is integrated with the fuel tank. Regular maintenance or replacement is not needed.

Important Safety Precautions

Always the safety gasoline fuel system precautions below. Gasoline is flammable and can cause serious bodily or death is misused or mishandled.

⚠ WARNING ⚠

Do not overfill the fuel tank. The pressure in an overfilled tank may cause leakage and lead to fuel spray and fire.

⚠ WARNING ⚠

The fuel system may be under pressure. If the fuel filler cap is venting vapor or if you hear a hissing sound, wait until it stops before completely removing the fuel filler cap. Otherwise, fuel may spray out and injure you or others.

⚠ WARNING ⚠

If you do not use the proper fuel filler cap, excessive vacuum in the fuel tank may damage the fuel system or cause the fuel cap to disengage in a collision, which may result in serious personal injury.

⚠ WARNING ⚠

Fuel ethanol and gasoline may contain benzene, which is a cancer-causing agent.

Observe the following guidelines when handling automotive fuel:

- Extinguish all smoking materials and any open flames before fueling your vehicle.
- Always turn off the vehicle before fueling.
- Automotive fuels can be harmful or fatal if swallowed. Fuels such as gasoline and ethanol are highly toxic and if swallowed can cause permanent injury or death. If fuel is swallowed, call a physician immediately, even if no symptoms are immediately apparent. The toxic effects of fuel may not be visible for hours.
- Avoid inhaling fuel vapors. Inhaling too much fuel vapor of any kind can lead to eye and respiratory tract irritation. In severe cases, excessive or prolonged breathing of fuel vapor can cause serious illness and permanent injury.
- Avoid getting fuel liquid in your eyes. If fuel is splashed in the eyes, remove contact lenses (if worn), flush with water for 15 minutes and seek medical attention. Failure to seek proper medical attention could lead to permanent injury.

- Fuels can also be harmful if absorbed through the skin. If fuel is splashed on the skin and/or clothing, promptly remove contaminated clothing and wash skin thoroughly with soap and water. Repeated or prolonged skin contact with fuel liquid or vapor causes skin irritation.
- Be particularly careful if you are taking “Antabuse” or other forms of disulfiram for the treatment of alcoholism. Breathing gasoline and/or ethanol vapors, or skin contact could cause an adverse reaction. In sensitive individuals, serious personal injury or sickness may result. If fuel is splashed on the skin, promptly wash skin thoroughly with soap and water. Consult a physician immediately if you experience an adverse reaction.

⚠ WARNING ⚠

Your vehicle does not contain flexible fuel components and should only use standard unleaded gasoline fuels.

⚠ WARNING ⚠

When refueling, always shut the engine off and never allow sparks or open flames near the filler neck. Never smoke while refueling.

REASON: Fuel vapor is extremely hazardous under certain conditions. Care should be taken to avoid inhaling excess fumes.

⚠ WARNING ⚠

Do not pump fuel into an ungrounded fuel container.

REASON: The flow of fuel through a fuel pump nozzle can produce static electricity, which can cause a fire.

Refueling

⚠ WARNING ⚠

Fuel vapor burns violently and a fuel fire can cause severe injuries. To help avoid injuries to you and others:

•Read and follow all the instructions on the pump island.

•Turn off your engine when you are refueling.

•Do not smoke if you are near fuel or refueling your vehicle.

•Keep sparks, flames and smoking materials away from fuel.

•Stay outside your vehicle and do not leave the fuel pump unattended when refueling your vehicle - this is against the law in some locations.

•Keep children away from the fuel pump; never let children pump fuel.

•Do not use personal electronic devices while refueling.

Use the following guidelines to avoid electrostatic charge build-up when filling un ungrounded fuel container:

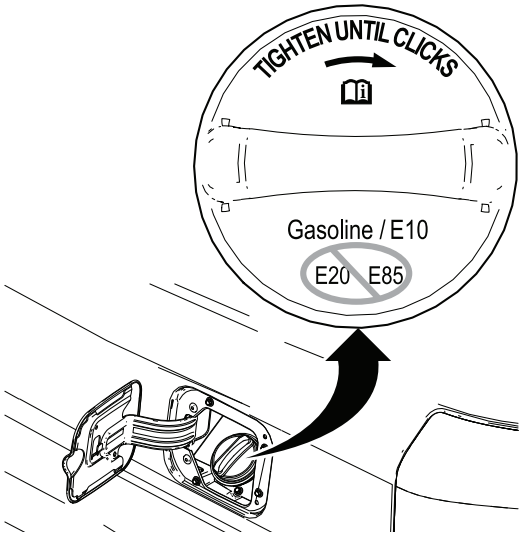
•Place approved fuel container on the ground.

•DO NOT fill a fuel container while it is in the vehicle (including the cargo area).

•Keep the fuel pump nozzle in contact with the fuel container while fueling.

•DO NOT use a device that would hold the fuel pump handle in the fill position.

Fuel Filler Cap



Your fuel tank filler cap has an indexed design with a 1/4 turn on/off feature.

When fueling your vehicle:

1. Turn the engine off.
2. Carefully turn the filler cap counterclockwise until it pops out.
3. Pull to remove the cap from the fuel filler pipe.
4. To install the cap, align the tabs on the cap with the notches on the filler pipe.
5. Turn the filler cap clockwise 1/4 of a turn until it clicks at least once.

If the Check Fuel Cap indicator light illuminates in the instrument cluster next to the odometer, the fuel filler cap may not be properly installed. The light can come on after several driving events after you've refueled your vehicle.

At the next opportunity, safely pull off of the road, remove the fuel filler cap, align the cap properly and reinstall it. The Check Fuel Cap indicator light may not reset immediately; it may take several driving cycles for the light to turn off. A driving cycle consists of an engine start up (after four or more hours with the engine off) followed by city and highway driving.

If you must replace the fuel filler cap, replace it with a fuel filler cap that is designed for your vehicle. The customer warranty may be void for any damage to the fuel tank or fuel system if the correct fuel filler cap is not used.

⚠ WARNING ⚠

The fuel system may be under pressure. If the fuel filler cap is venting vapor or if you hear a hissing sound, wait until it stops before completely removing the fuel filler cap.

REASON: Fuel may spray out and injure you or others.

⚠ WARNING ⚠

ALWAYS use the proper fuel filler cap.

REASON: Excessive vacuum in the fuel tank may damage the fuel system or cause the fuel cap to disengage in a collision, which may result in serious bodily injury.

Choosing the Right Fuel

Your vehicle is NOT a flexible fuel vehicle (FFV). Only use UNLEADED fuel or UNLEADED fuel blended with a maximum of 10% ethanol. DO NOT use fuel ethanol (E85), diesel, methanol, leaded fuel or any other fuel.

The use of leaded fuel is prohibited by law and could damage your vehicle.

Your vehicle was not designed to use fuel or fuel additives with metallic compounds, including manganese-based additives.

CAUTION: *Do not use of any fuel other than those recommended.*

REASON: Use of non-recommended fuels may cause powertrain damage, or a loss of vehicle performance. Repairs are not covered under warranty.

Octane Recommendations

Your vehicle is designed to use "Regular" unleaded gasoline with a pump (R+M)/2 octane rating of 87. Some stations offer fuels posted as "Regular" with an octane rating below 87, particularly in high altitude areas. Fuels with octane levels below 87 are not recommended.

Do not be concerned if your engine sometimes knocks lightly. However, if it knocks heavily under most driving conditions while you are using fuel with the recommended octane rating, see your authorized service center to prevent any engine damage.

Fuel Quality

If you experience hard starting, rough idle or hesitation driveability problems during a cold start, try a different brand of "Regular" unleaded gasoline. "Premium" unleaded gasoline is not recommended for vehicles designed to use "Regular" unleaded gasoline because it may cause these problems to become more pronounced. If the problems persist, see your authorized service center.

Running Out of Fuel

Avoid running out of fuel. This situation may have an adverse effect on powertrain components.

If you have run out of fuel:

- You may need to cycle the ignition from OFF to ON several times after refueling to allow the fuel system to pump the fuel from the tank to the engine. On restarting, cranking time will take a few seconds longer than normal.
- Normally, adding 1 gallon (3.8L) of fuel is enough to restart the engine. If the vehicle is out of fuel and on a steep grade, more than 1 gallon (3.8L) may be required.
- The Service Engine Soon indicator light may illuminate. For more information on the service engine soon indicator, refer to *Warning Lights* on page 43 and *Warning Chimes* page 46.

COMPRESSED NATURAL GAS FUEL SYSTEM

If your vehicle is a Compressed Natural Gas (CNG) model, it runs on a highly pressurized version of the same natural gas used in many homes. Your CNG MV-1 operates and performs much like the gasoline-powered MV-1, but there are a few differences that are listed in this section and other places in this manual.

The CNG system in your vehicle, including the tanks and hoses, has been designed to hold the gas at this high pressure, and has been tested for safety. You should never smell gas or hear a hissing sound unless you are refueling. If you do, shut down the CNG system by following the procedure in *If the Fuel System is Leaking* on page 142.

⚠ WARNING ⚠

NEVER attempt to modify the fuel system and always have the fuel system maintenance performed by an authorized service center.

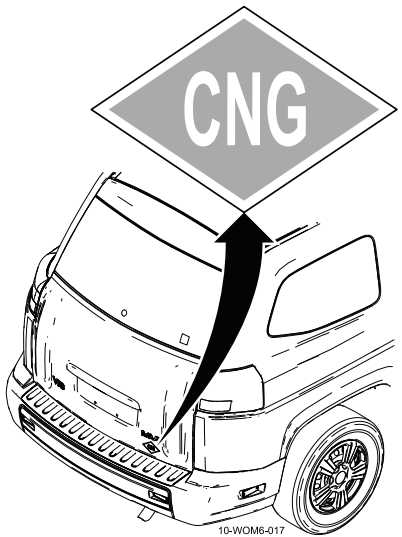
REASON: Tampering with, or improperly maintaining the high-pressure fuel system can cause a dangerous condition in which you can be killed or seriously injured.

CNG Fuel Cutoff System

The cutoff valve for the fuel tanks is controlled by the ignition switch. When the ignition switch is in the OFF position, the valves are closed, shutting off the fuel flow out of the tanks. It opens when the ignition switch is turned to the ON position. This is similar to how an electric fuel pump works in a gasoline-powered vehicle.

CNG Identification

Your MV-1 has an identifying CNG label attached to the liftegate next to the license plate. Do not remove this label. This label is necessary for insuring your vehicle. Driving without this label may violate laws or regulations in some locations.



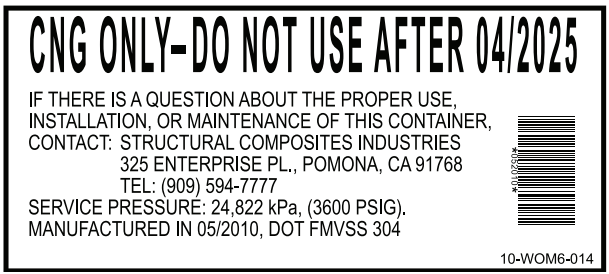
CNG Fuel Tank

Your MV-1 is equipped with three lightweight Type III tanks that meet the safety standards of NFPA-52/DOT NHTSA FMVSS 304. The fuel tanks should be inspected every three years after the vehicle's production date.

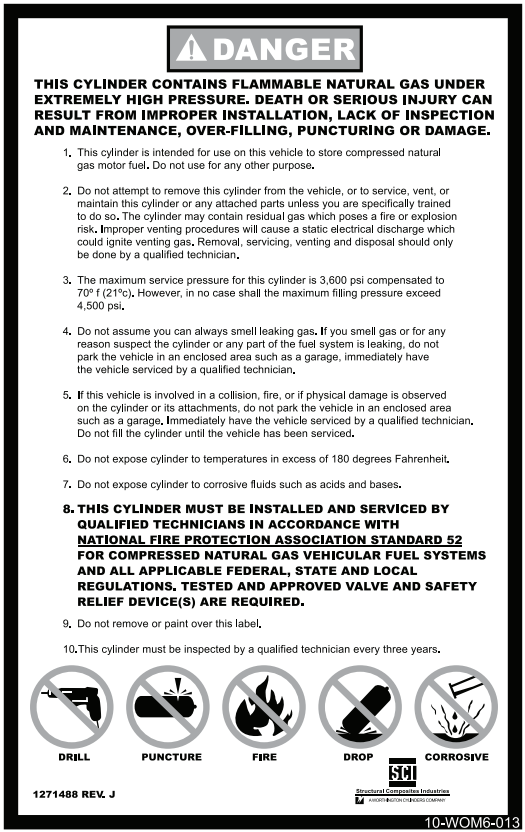
Have your authorized service center or a qualified natural gas vehicle technician inspect the fuel tanks for damage or leaks.

You should also have the fuel tanks inspected after a collision.

The fuel tanks must be replaced 15 years after they were manufactured. The expiration date of the fuel tanks is on a label adhered to each of the fuel tanks.



Have your authorized service center or a qualified natural gas vehicle technician replace the fuel tanks. Do not reuse the old fuel tanks. See the labels on the fuel tanks for inspection and service life information.



CNG Fuel Economy

Your CNG MV-1 has a 250 mile range when the three fuel tanks are full. The EPA estimated fuel economy for your vehicle is 11 mpg city and 16 mpg highway.

Finding CNG Fueling Stations

Most larger cities in the United States will have CNG fueling stations, but you can check availability in your area by going to **http://www.afdc.energy.gov/afdc/locator/stations/** which is the U.S. Department of Energy's alternative fuel locator. The DOE also has a mobile smart phone application for locating alternative fueling stations, **http://www.afdc.energy.gov/stations/m**.

For the availability of fueling stations in Canada, go to the Canadian Natural Gas Vehicle Alliance website at: **http://www.cngva.org/en/home/vehicles--stations/natural-gas-refueling-stations.aspx**.

CNG Refueling

There are two methods for refueling your vehicle; fast-fill or slow-fill.

Fast-fill is normally what you would find at commercial filling stations. It will take several minutes to fill up the fuel tanks using the fast-fill method.

Slow-fill is done with a vehicle refueling appliance. Refueling will take about 1 hour per gasoline gallon equivalent with this method.

> ***CAUTION:*** *Only use slow-fill equipment when ambient temperatures are below 4°F (-16°C).*
>
> **REASON:** Using fast fill equipment at temperatures below 4°F (-16°C) may damage the fuel system, potentially causing a leak.

When refueling, you should use a fuel fill nozzle that complies with ANSI/AGA NGV1-2006 standards. A fuel fill nozzle that meets those standards will not permit a gas flow unless there is a positive connection between the fill nozzle and the vehicle receptacle. It will also not release the vehicle receptacle until the gas flow has stopped and the captured gas has been safely vented.

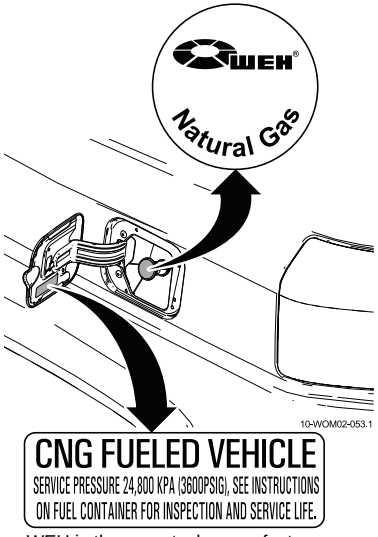
Nozzles are designed according to their maximum fill pressure: P24 for 2,400 psi (pounds per square inch), P30 for 3,000 psi and P36 for 3,600 psi.

> **⚠ WARNING ⚠**
>
> *ALWAYS observe all safety recommendations and operating instructions on the refueling equipment.*

The maximum fill pressure for your MV-1 is 3,600 psi (24,800 kPa), so you should use a P36 nozzle when available. You can fill from P30 or a P24 nozzles, but they will not fill the tank as completely as the P36.

To fuel your CNG MV-1:

1. Park with the driver's side of the vehicle closest to the fueling station.
2. Turn the ignition switch to the OFF position.
3. Open the fuel receptacle door and pull the dust cap off to access the fueling receptacle.
4. Attach the fueling nozzle from the dispenser to your vehicle's fueling receptacle. The nozzle will fit around the receptacle, and once the locking mechanism is engaged, the fueling will begin.



WEH is the receptacle manufacturer

NOTE: The design of fueling nozzles may vary from station to station. Follow the instructions on the pump to make sure the fueling nozzle is connected properly.

While refueling, you may hear a chattering sound. This is normal. If you hear or see fuel and/or vapor leaking from the nozzle-receptacle connection, stop refueling immediately. Dirt or debris may be preventing a positive connection. Turn off the refueling station, remove the nozzle, then reconnect it to the receptacle. If it continues to leak, the vehicle should be inspected by an authorized dealer because the sealing o-ring in the receptacle may be damaged.

5. Refueling will stop automatically when the tanks are full. Follow the instructions on the fueling station to turn it off.

NOTE: It is a normal occurrence that heat is generated in the CNG fuel tanks during refueling. This is a result of friction during the compression of the fuel. This becomes more pronounced the lower the fuel level is when refueling. As cooling occurs this may affect fuel level reading. See *Fuel Gauge* on page 49 for more details.

6. Disconnect the fill nozzle from the vehicle's fuel receptacle according to the instructions on the fueling station. You may hear a brief hissing sound as a small amount of gas escapes. This is normal.

NOTE: If dirt or other debris is adhering to the inside of the fuel receptacle, gas may continue to escape after refueling. If this happens, clean the fill nozzle with a clean dry cloth.

7. Put the dust cap securely on the fuel receptacle.
8. Close the fuel receptacle door.

ESSENTIALS OF GOOD FUEL ECONOMY

Measuring Techniques

Your best source of information about actual fuel economy is you, the driver. You must gather information as accurately and consistently as possible. Fuel expense, frequency of fill-ups or fuel gauge readings are NOT accurate as a measure of fuel economy. We do not recommend taking fuel economy measurements during the first 1,000 miles (1,600 km) of driving (engine break-in period). You will get a more accurate measurement after 2,000 miles-3,000 miles (3,000 km-5,000 km).

Filling the Tank

The advertised fuel capacity of the fuel tank on your vehicle is equal to the rated refill capacity of the fuel tank as listed in *Capacities* on page 240.

The advertised capacity is the amount of the indicated capacity and the empty reserve combined. Indicated capacity is the difference in the amount of fuel in a full tank and a tank when the fuel gauge indicates empty. Empty reserve is the small amount of fuel remaining in the fuel tank after the fuel gauge indicates empty.

The amount of usable fuel in the empty reserve varies and should not be relied upon to increase driving range. When refueling your vehicle after the fuel gauge indicates empty, you might not be able to refuel the full amount of the advertised capacity of the fuel tank due to the empty reserve still present in the tank.

For consistent results when filling the fuel tank:

- Turn the engine/ignition switch to the off position prior to refueling.
- Use the same filling rate setting (low - medium - high) each time the tank is filled.
- Allow no more than two automatic click-offs when filling a gasoline engine.
- Always use fuel with the recommended octane rating.
- Use a known quality gasoline, preferably a national brand.
- Use the same side of the same pump and have the vehicle facing the same direction each time you fill up.
- Have the vehicle loading and distribution the same every time.
- Your results will be most accurate if your filling method is consistent.

Calculating Fuel Economy

1. Fill the fuel tank completely and record the initial odometer reading (in miles or kilometers).
2. Each time you fill the tank, record the amount of fuel added (in gallons or liters).
3. After at least three to five tank fill-ups, fill the fuel tank and record the current odometer reading.
4. Subtract your initial odometer reading from the current odometer reading.
5. Follow one of the simple calculations in order to determine fuel economy:

Calculation 1: Divide total miles traveled by total gallons used.

Calculation 2: Multiply liters used by 100, then divide by total kilometers traveled.

Keep a record for at least one month and record the type of driving (city or highway). This will provide an accurate estimate of the vehicle's fuel economy under current driving conditions. Additionally, keeping records during summer and winter will show how temperature impacts fuel economy. In general, lower temperatures give lower fuel economy.

EPA Fuel Economy Estimates

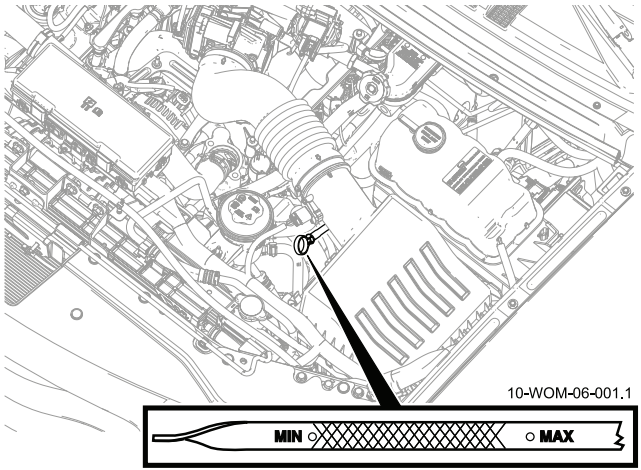
Every new vehicle should have a sticker on the window called the Monroney Label which contains EPA fuel economy estimates. Contact your authorized service center if the Monroney label is not supplied with your vehicle. The EPA fuel economy estimates should be your guide for the fuel economy comparisons with other vehicles. Your fuel economy may vary depending upon the method of operation and conditions.

ENGINE OIL

Checking the Engine Oil

Refer to the Maintenance Schedule at the beginning of this section for the appropriate intervals for checking the engine oil.

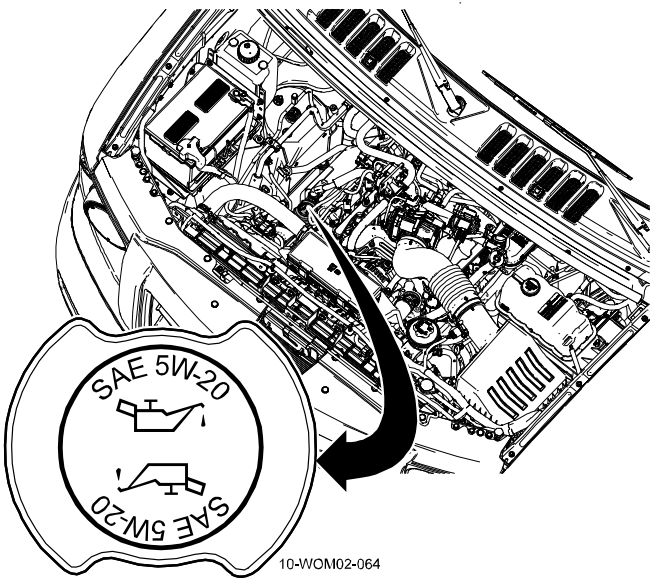
1. Make sure the vehicle is on level ground.
2. Turn the engine off and wait 15 minutes for the oil to drain into the oil pan.
3. Set the parking brake and ensure the gearshift is securely latched in P (Park).
4. Open the hood. Protect yourself from engine heat.
5. Locate and carefully remove the engine oil level dipstick. The dipstick location is shown in the illustration on the right.
6. Wipe the dipstick clean. Insert the dipstick fully, then remove it again.
   - If the oil level is between the lower and upper holes or between the MIN and MAX marks (depending on application), the oil level is acceptable. DO NOT ADD OIL.
   - If the oil level is below the lower hole or the MIN mark, add enough oil to raise the level within the lower and upper holes or within the MIN-MAX range.
   - Oil levels above the upper hole or the MAX mark may cause engine damage. Some oil must be removed from the engine by an authorized service center.



7. Put the dipstick back in and ensure it is fully seated.

Adding Engine Oil

1. If the engine oil level is not within the normal range, add only certified engine oil of the recommended viscosity. Remove the engine oil filler cap shown below and use a funnel to pour the engine oil into the opening.



2. Recheck the engine oil level. Make sure the oil level is not above the normal operating range on the engine oil level dipstick.
3. Install the dipstick and ensure it is fully seated.
4. Fully install the engine oil filler cap by turning the filler cap clockwise 1/4 of a turn until three clicks are heard or until the cap is fully seated.

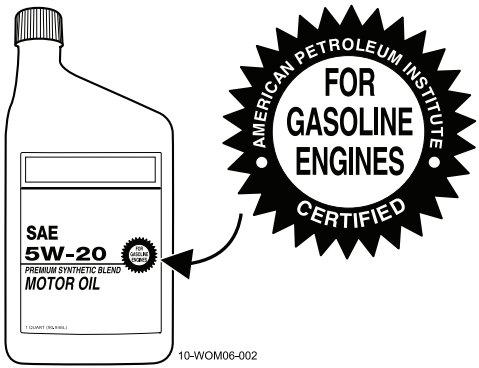
⚠ WARNING ⚠

To avoid possible oil loss, DO NOT operate the vehicle with the engine oil level dipstick and/or the engine oil filler cap removed.

REASON: Operating a vehicle with the dipstick or filler cap removed will cause oil spatter on hot engine compartment parts and cause a fire, which could result in serious bodily injury or death.

Engine Oil and Filter Recommendations

Look for this certification trademark.



Use SAE 5W-20 Engine Oil

Only use oils certified for gasoline engines by the American Petroleum Institute (API). An oil with this trademark symbol conforms to the current engine and emission system protection standards and fuel economy requirements of the International Lubricant Standardization and Approval Committee (ILSAC), comprised of U.S. and Japanese automobile manufacturers.

To protect your engine and the engine's warranty, use SAE 5W-20 motor oil. SAE 5W-20 oil provides optimum fuel economy and durability performance meeting all requirements for your vehicle's engine. VPG recommends using Motorcraft® oil and filters. Refer to *Capacities* on page 240 for more information.

⚠ WARNING ⚠

DO NOT use supplemental engine oil additives, cleaners or other engine treatments.

REASON: Supplemental additives and treatments are unnecessary and could lead to engine damage that is not covered by the warranty.

Change your engine oil and filter according to the appropriate schedule listed in the scheduled maintenance information.

Production and replacement oil filters are designed for added engine protection and long life. If a replacement oil filter is used that does not meet design specifications, start-up engine noises or knock may be experienced.

ENGINE COOLANT

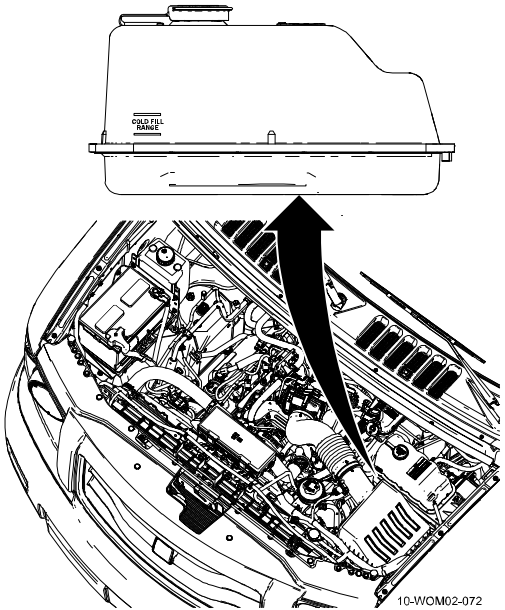
Checking Engine Coolant

The concentration and level of engine coolant should be checked at the intervals listed in *Maintenance Schedule* at the beginning of this section. The coolant concentration should be maintained at 50/50 Motorcraft® Premium Gold Engine Coolant coolant and distilled water, which equates to a freeze point of -34°F (-36°C). Coolant concentration testing is possible with a hydrometer or antifreeze tester. The level of coolant should be maintained at the “FULL COLD” level or within the “COLD FILL RANGE” in the coolant reservoir. If the level falls below, add coolant per the instructions in *Adding Engine Coolant* on page 228.

Your vehicle was factory-filled with a 50/50 engine coolant and water concentration. If the concentration of coolant falls below 40% or above 60%, the engine parts could become damaged or not work properly. A 50/50 mixture of coolant and water provides the following:

- Freeze protection down to -34°F (-36°C).
- Boiling protection up to 265°F (129°C).
- Protection against rust and other forms of corrosion.
- Proper function of calibrated gauges.

When the engine is cold, check the level of the engine coolant in the reservoir.



The engine coolant should be at the “FULL COLD” level or within the “COLD FILL RANGE” as listed on the engine coolant reservoir.

If the engine coolant has not been checked at the recommended interval, the engine coolant reservoir may become low or empty. If the reservoir is low or empty, add engine coolant to the reservoir.

CAUTION: *Automotive fluids are NOT interchangeable. Do not use engine coolant, antifreeze or windshield washer fluid outside of its specified function and location.*

REASON: Using the wrong fluids can cause component failure.

Adding Engine Coolant

When adding coolant, make sure it is a 50/50 mixture of engine coolant and distilled water. **When the engine is cool,** add the mixture to the coolant reservoir until the appropriate fill level is obtained.

⚠ WARNING ⚠

DO NOT add engine coolant when the engine is hot.

REASON: Steam and scalding liquids released from a hot cooling system can cause serious bodily injury.

⚠ WARNING ⚠

DO NOT put engine coolant in the windshield washer reservoir.

REASON: Engine coolant sprayed on the windshield could obscure your vision, possibly leading to a collision, serious injury or death.

Use of Motorcraft® Cooling System Stop Leak Pellets or an equivalent product meeting Ford specification WSS-M99B37-B6, may darken the color of Motorcraft® Premium Gold Engine Coolant from yellow to golden tan.

- **Do not add/mix an orange-colored, extended life coolant such with the factory-filled coolant.** Mixing orange-colored extended life products with your factory filled coolant can result in degraded corrosion protection.
- A large amount of water without engine coolant may be added, in case of emergency, to reach a vehicle service location. In this instance, the cooling system must be drained and refilled with a 50/50 mixture of engine coolant and distilled water as soon as possible. Water alone (without engine coolant) can cause engine damage from corrosion, overheating or freezing.
- **Do not use alcohol, methanol, brine or any engine coolants mixed with alcohol or methanol antifreeze (coolant).** Alcohol and other liquids can cause engine damage from overheating or freezing.
- **Do not add extra inhibitors or additives to the coolant.** These can be harmful and compromise the corrosion protection of the engine coolant.

For vehicles with overflow coolant systems with a non-pressurized cap on the coolant recovery system, add coolant to the

coolant recovery reservoir when the engine is cool. Add the proper mixture of coolant and water to the "FULL COLD" level. For all other vehicles which have a coolant degas system with a pressurized cap, or if it is necessary to remove the coolant pressure relief cap on the radiator of a vehicle with an overflow system, follow these steps to add engine coolant.

⚠ WARNING ⚠

MAKE SURE the engine is cool before unscrewing the coolant pressure relief cap.

REASON: The cooling system is under pressure; steam and hot liquid can come out forcefully when the cap is loosened slightly, causing serious bodily injury.

Add the proper mixture of coolant and water to the cooling system by following these steps:

1. Before you begin, turn the engine off and let it cool.
2. When the engine is cool, wrap a thick cloth around the coolant pressure relief cap on the coolant reservoir (a translucent plastic bottle). Slowly turn cap counterclockwise (left) until pressure begins to release.
3. Step back while the pressure releases.
4. When you are sure that all the pressure has been released, use the cloth to turn it counterclockwise and remove the cap.
5. Fill the coolant reservoir slowly with the proper coolant mixture, to within the "COLD FILL RANGE" or the "FULL COLD" level on the reservoir. If you removed the radiator cap in an overflow system, fill the radiator until the coolant is visible and radiator is almost full.
6. Replace the cap. Turn until tightly installed. Cap must be tightly installed to prevent coolant loss.

After any coolant has been added, check the coolant concentration. Refer to *Checking Engine Coolant* on page 227. If the concentration is not 50/50 (protection to –34°F/–36°C), drain some coolant and adjust the concentration. It may take several drains and additions to obtain a 50/50 coolant concentration.

Whenever coolant has been added, the coolant level in the coolant reservoir should be checked the next few times you drive the vehicle. If necessary, add enough 50/50 concentration of engine coolant and distilled water to bring the liquid level to the proper level.

CAUTION: *If you have to add more than 1.0 quart (1.0 liter) of engine coolant per month, have your authorized dealer check the engine cooling system. Your cooling system may have a leak.*

REASON: Operating an engine with a low level of coolant can result in engine overheating and possible engine damage.

TRANSMISSION FLUID

Checking Automatic Transmission Fluid

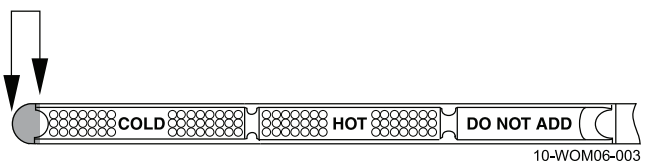
Refer to your scheduled maintenance information for scheduled intervals for fluid checks and changes. Your transmission does not consume fluid. However, the fluid level should be checked if the transmission is not working properly. For example, if the transmission slips or shifts slowly or if you notice some sign of fluid leakage.

Automatic transmission fluid expands when warmed. To obtain an accurate fluid check, drive the vehicle until it is at normal operating temperature (approximately 20 miles [30 km]). If your vehicle has been operated for an extended period at high speeds, or in city traffic during hot weather, the vehicle should be turned off for about 30 minutes to allow fluid to cool before checking.

1. Drive the vehicle 20 miles (30 km) or until it reaches normal operating temperature.
2. Park the vehicle on a level surface and engage the parking brake.
3. With the parking brake engaged and your foot on the brake pedal, start the engine and move the gearshift lever through all of the gear ranges. Allow sufficient time for each gear to engage.
4. Latch the gearshift lever in P (Park) and leave the engine running.
5. Remove the dipstick, wiping it clean with a clean, dry lint free cloth. If necessary, refer to the engine components graphic on the back cover for the location of the transmission dipstick.
6. Install the dipstick, making sure it is fully seated in the filler tube.
7. Remove the dipstick and inspect the fluid level. The fluid should be in the designated area for normal operating temperature or ambient temperature.

Low Fluid Level

Do not drive the vehicle if the fluid level is at the bottom of the dipstick and the ambient temperature is above 50°F (10°C).

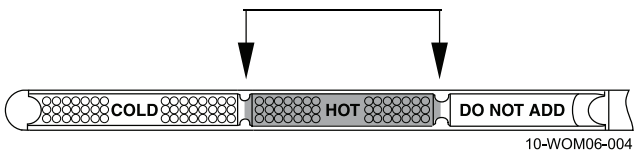


Correct Fluid Level

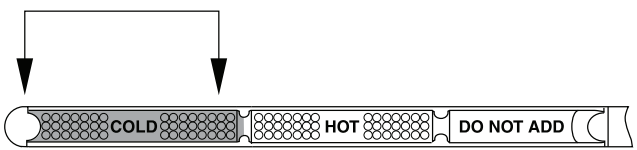
The transmission fluid should be checked at normal operating temperature 150°F - 170°F (66°C - 77°C) on a level surface. The normal operating temperature can be reached after approximately 20 miles (30 km) of driving.

You can check the fluid without driving if the ambient temperature is above 50°F (10°C). However, if fluid is added at this time, an overfill condition could result when the vehicle reaches normal operating temperature.

The transmission fluid should be in this range if at normal operating temperature (150°F - 170°F [66°C - 77°C]).



The transmission fluid should be in this range if at ambient temperature (50°F - 95°F [10°C - 35°C]).

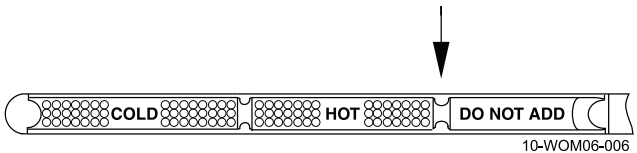


High Fluid Level

CAUTION: *DO NOT overfill the transmission.*

REASON: Fluid levels above the safe range may result in transmission failure. An overfill condition of transmission fluid may cause shift and/or engagement concerns and/or possible damage.

High fluid levels can also be caused by an overheating condition.



Adjusting Automatic Transmission Fluid Levels

Before adding any fluid, make sure the correct type is used. The type of fluid is normally indicated on the dipstick. VPG recommends using Mercon® LV Transmission Fluid.

CAUTION: *Make sure you that you use only the recommended transmission fluid type.*

REASON: Use of a non-approved automatic transmission fluid may cause internal transmission component damage.

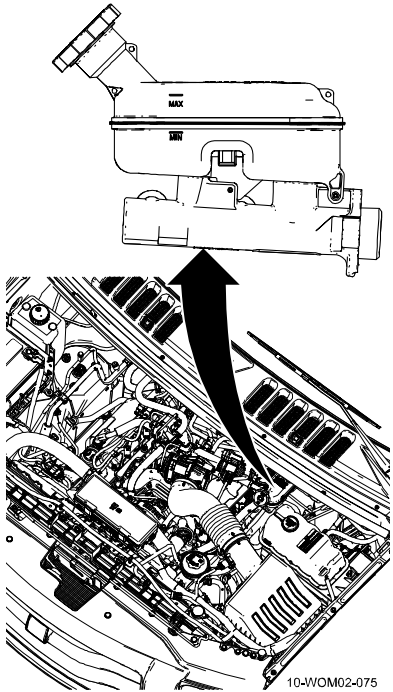
If necessary, add fluid in 1/2 pint (250 ml) increments through

the filler tube until the level is correct. If an overfill occurs, excess fluid should be removed by an authorized service center.

Do not use supplemental transmission fluid additives, treatments or cleaning agents. The use of these materials may affect transmission operation and result in damage to internal transmission components.

BRAKE FLUID

The fluid level will drop slowly as the brakes wear, and will rise when the brake components are replaced. Fluid levels between the “MIN” and “MAX” lines are within the normal operating range; there is no need to add fluid.



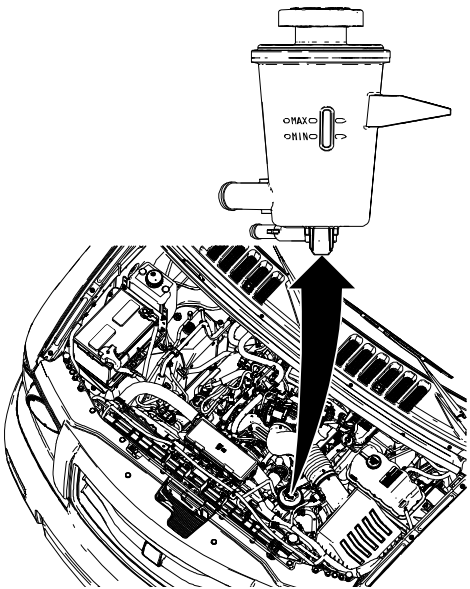
If the fluid levels are outside of the normal operating range the performance of the system could be compromised; seek service from your authorized service center immediately.

VPG recommends using DOT 3 brake fluid.

POWER STEERING FLUID

Check the fluid level when it is at ambient temperature, 20° – 80° F (-7° – 25° C):

1. Check the fluid level reservoir. It should be between the MIN and MAX indicators. Do not add fluid if the level is within this range.



2. If the fluid level is low, start the engine.
3. While the engine idles, turn the steering wheel left and right several times.
4. Turn the engine off.

5. Recheck the fluid level on the reservoir. Do not add fluid if the level is between the MIN/MAX levels.

6. If the fluid is low, add power steering fluid in small amounts, continuously checking the level until it reaches the proper range. VPG recommends using Mercon® 5 Power Steering Fluid.

BATTERY

Your MV-1 is equipped with a Group 65 750 cold-cranking amp maintenance-free battery which normally does not require additional water during its life of service.

For longer, trouble-free operation, keep the top of the battery clean and dry. Also, make certain the battery cables are always tightly fastened to the battery terminals.

If you see any corrosion on the battery or terminals, remove the cables from the terminals and clean with a wire brush. You can neutralize the acid with a solution of baking soda and water.

When the battery is disconnected or a new battery installed, the transmission must learn its adaptive strategy. As a result of this, the transmission may shift firmly. This operation is considered normal and will fully update transmission operation to its optimum shift feel.

> **NOTE:** Electrical or electronic accessories or components added to the vehicle by the dealer or the owner may adversely affect battery performance and durability.

It is recommended that the negative battery cable terminal be disconnected from the battery if you plan to store your vehicle for an extended period of time. This will minimize the discharge of your battery during storage.

⚠ WARNING ⚠

When working near the battery, ALWAYS shield your face and protect your eyes. Always provide proper ventilation and do not allow flames, sparks or lighted substances to come near the battery.

REASON: Batteries normally produce explosive gases which can cause serious bodily injury or death.

⚠ WARNING ⚠

ALWAYS lift the battery with a carrier or with your hands on opposite corners.

REASON: When lifting a plastic-cased battery, excessive pressure on the end walls could cause acid to flow through the vent caps, resulting in serious bodily injury and/or damage to the vehicle or battery.

⚠ WARNING ⚠

Keep batteries out of the reach of children. Avoid contact with skin, eyes, or clothing. Shield your eyes when working near the battery to protect against possible splashing of acid solution.

REASON: Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Shield your eyes when working near the battery to protect against possible splashing of acid solution. In case of acid contact with skin or eyes, flush immediately with water for a minimum of 15 minutes and get prompt medical attention. If acid is swallowed, call a physician immediately.

⚠ WARNING ⚠

ALWAYS wash hands after handling a battery.

REASON: Battery posts, terminals and related accessories contain lead and lead components.

Relearn After Battery Replacement

Because your vehicle's engine is electronically controlled by a computer, some control conditions are maintained by power from the battery. When the battery is disconnected or a new battery is installed, the engine must relearn its idle and fuel trim strategy for optimum drivability and performance.

1. With the vehicle at a complete stop, set the parking brake.
2. Put the gearshift in P (Park), turn off all accessories and start the engine.
3. Run the engine until it reaches normal operating temperature.
4. Allow the engine to idle for at least one minute.
5. Turn the A/C on and allow the engine to idle for at least one minute.
6. Release the parking brake. With your foot on the brake pedal and with the A/C on, put the vehicle in D (Drive) and allow the engine to idle for at least one minute.
7. Drive the vehicle to complete the relearning process.

- The vehicle may need to be driven 10 miles (16 km) or more to relearn the idle and fuel trim strategy
- If you do not allow the engine to relearn its idle trim, the idle quality of your vehicle may be adversely affected until the idle trim is eventually relearned.

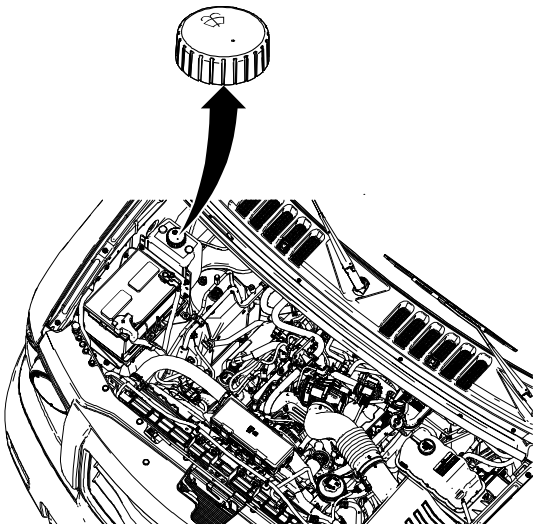
If the battery has been disconnected or a new battery has been installed, the clock and radio settings must be reset once the battery is reconnected.

Battery Disposal

Always dispose of automotive batteries in a responsible manner. Follow your local authorized standards for disposal. Call your local authorized recycling center to find out more about recycling automotive batteries.

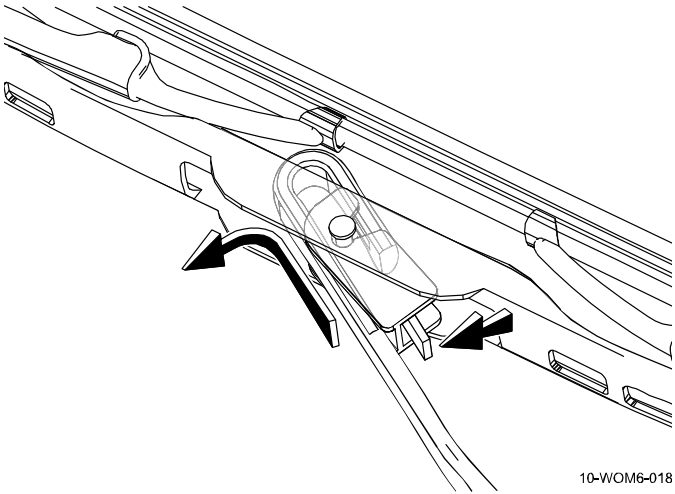
WINDSHIELD WASHER FLUID

Add fluid to fill the reservoir if the level is low. The capacity of the reservoir is 1.0 gal (3.8 L). In very cold weather, do not fill the reservoir completely. VPG recommends using Motorcraft® PremiumWindshield Washer Concentrate. Do not use any special washer fluid such as windshield water repellent type fluid or bug wash. They may cause squeaking, chatter noise, streaking and smearing.



WIPER BLADES

1. Pull the wiper arm away from the vehicle. Turn the blade at an angle from the wiper arm. Push the lock tab to release the blade and pull the wiper blade down toward the windshield to remove it from the arm.



2. Attach the new wiper to the wiper arm and press it into place until a click is heard.

Replace wiper blades at least once per year for optimum performance. Poor wiper quality can be improved by cleaning the wiper blades and the windshield. Refer to *Windows and Wiper Blades* on page 238.

To prolong the life of the wiper blades, it is highly recommended to scrape off the ice on the windshield before turning on the wipers. The layer of ice has many sharp edges and can damage the micro edge of the wiper rubber element.

CLEANING INSTRUCTIONS

⚠ WARNING ⚠

ALWAYS follow the manufacturer's instructions AND allow proper ventilation when using cleaning products.

REASON: Cleaning products can be hazardous to your health and damaging to the vehicle.

Exterior

CAUTION: *NEVER allow water to enter the air cleaner assembly.*

REASON: The engine will be damaged.

Washing the outside of your vehicle regularly helps to protect the body panels and undercarriage components from corrosion caused by dirt, road salts, and other corrosive materials that your vehicle is exposed to over time. Always wash your vehicle in the shade, away from direct sunlight, using a mild car-washing soap and a soft cloth. Rinse the body panels thoroughly with clear, cold water. Avoid using abrasive cleaners or brushes that can scratch or diminish the paint's glossy finish.

To dry the vehicle, use a clean, soft chamois to prevent water spots, streaks, and scratches. If insects or tar accumulate on your vehicle, wash it as soon as possible. If your vehicle is exposed to tree sap, bird droppings, or pollen, wash the vehicle immediately to prevent any paint damage.

Wax your vehicle's body panels as necessary. Frequent waxing will remove deposits from the vehicle's surface and protect the vehicle's finish. The undercarriage should be hosed off occasionally to remove any dirt and road salt build-up.

Headlights

Clean the headlights with a mild detergent and a soft cloth. Dirty headlights reduce your visibility to see, as well as your ability to be seen. Avoid using abrasive cleaners that can scratch the headlight lens.

Tires and Wheels

Clean the tires and wheels with the same solution used to clean the outside of the vehicle. Commercial tire cleaners may be used if desired. Do not use acid-based cleaning agents on aluminum wheels.

Ramp

Clean the ramp with non-abrasive soap, water and a mild scrub brush, if necessary. Use a hose with some pressure to remove dirt and debris.

CAUTION: *Spray down the ramp. DO NOT allow pressurized water to come in contact with interior components.*

REASON: Damage to interior components and the electrical system may result.

Windows and Wiper Blades

The windshield, rear and side windows and the wiper blades should be cleaned regularly. If the wipers do not wipe properly, substances on the vehicle’s glass or the wiper blades may be the cause. These may include hot wax treatments used by commercial car washes, water repellent coatings, tree sap, or other organic contamination; these contaminants may cause squeaking or chatter noise from the blades, and streaking and smearing of the windshield. To clean these items, follow these tips:

- The windshield, rear windows and side windows may be cleaned with a non-abrasive cleaner.
- The wiper blades can be cleaned with isopropyl (rubbing) alcohol or VPG recommended Motorcraft Premium Windshield Washer Concentrate®. This washer fluid contains special solution in addition to alcohol which helps to remove the hot wax deposited on the wiper blade and windshield from automated car wash facilities.
- Be sure to replace wiper blades when they appear worn or do not function properly.
- • Do not use abrasives, as they may cause scratches.
- • Do not use fuel, kerosene, or paint thinner to clean any parts.

- If you cannot remove those streaks after cleaning with the glass cleaner or if the wipers chatter and move in a jerky motion, clean the outer surface of the windshield and the wiper blades using a sponge or soft cloth with a neutral detergent or mild-abrasive cleaning solution. After cleaning, rinse the windshield and wiper blades with clean water. The windshield is clean if beads do not form when you rinse the windshield with water.

Interior

Vinyl and Plastic

Remove loose dirt and dust from any vinyl or plastic surface with a vacuum cleaner or soft cloth. To clean the surface, use a vinyl cleaner and a soft cloth. To remove spots, clean the surface with a soft cloth and a mild detergent. Wipe the surface clean with a soft cloth and dry the surface with a dry, soft cloth.

TECHNICAL DATA

Capacities

DESCRIPTION	CAPACITY		RECOMMENDED BRAND AND/OR FILL TYPE
	Standard	Metric	
Fuel Tank (Gasoline)	24 gal	90.8 L	87 Octane Gasoline
Fuel Tank (CNG)	—	21.6 gge	Compressed Natural Gas
Engine (crankcase with new filter)	6.0 qt	5.7 L	Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil
Cooling System (Gasoline)	17.4qt	16.4 L	Motorcraft® Premium Gold Engine Coolant with Bittering Agent
Cooling System (CNG)	17.7 qt	16.7 L	Motorcraft® Premium Gold Engine Coolant with Bittering Agent
Transmission (drain & refill)	13.9 qt	13.2 L	Mercon® LV Transmission Fluid
Rear Differential	1.1 qt	1.0 L	75W90 Synthetic Axle Lubricant with Limited Slip Additive
Power Steering	15.0 fl oz	440 mL	Mercon® 5 Power Steering Fluid
Brake Master Cylinder	16.4 fl oz	481.9 mL	DOT 3 Brake Fluid
Total Brake System	1.09 qt	1.03 L	DOT 3 Brake Fluid
Windshield Washer Fluid	1.0 gal	3.8 L	Motorcraft® PremiumWindshield Washer Concentrate
Air Conditioner	28 oz	828 mL	R134A Refrigerant

ENGINE DATA

	Gasoline	CNG
Type:	Ford 4.6L V8	Ford 4.6 L 2V EFI V8
Horsepower (net rating):	248 hp @ 4750 rpm	213 hp @ 4750 rpm
Torque:	294 ft-lb @ 4000 rpm	294 ft-lb @ 4000 rpm
Governor Type:	Electronic	Electronic
Displacement:	281 ci (4.6 L)	281 ci (4.6 L)
Bore and Stroke:	3.55 x 3.54 in (90.2 x 90.0 mm)	3.55 x 3.54 in (90.2 x 90.0 mm)
Compression Ratio:	9.4:1	9.4:1
Idle Speed (engine rpm):	Drive = 580/Park = 600	Drive = 580/Park = 600
Oil Type:	SAE 5W-20 Premium Synthetic Blend	SAE 5W-20 Premium Synthetic Blend
Oil Pressure Minimum at Idle or 3,250 rpm (hot):	40-75 psi (275-517 kPa)	40-75 psi (275-517 kPa)

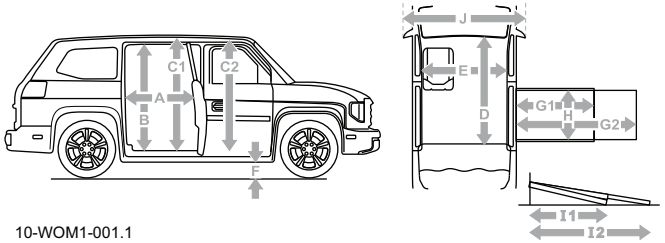
COOLING SYSTEM DATA

Cap Pressure:	16 psi
Thermostat:	195°F (90.5°C)
Radiator:	2 Core
Fan:	Electric
Normal Operating Coolant Temperature:	205°F (96.1°C)

TRANSMISSION DATA

Model:	Ford 4R75E
Type:	4-speed automatic with Overdrive
Oil Type:	Mercon® LV
Gear Ratios:	2.84, 1.33, 1.00, 0.70

VEHICLE DIMENSIONS



10-WOM1-001.1

Wheelbase:	—	122.0 in	3099 mm
Length	—	205.0 in	5207 mm
Height:	—	75 in	1905 mm
Width:	—	79.4 in	2017 mm
Turning Circle:	—	42.8 ft	13045 mm
Access Door Opening Usable Width:	A	36 in	914 mm
Access Door Opening Usable Height:	B	56 in	1422 mm
Interior Height at Rear Wheelchair Position:	C1	59.5 in	1511 mm
Interior Height at Forward Wheelchair Position:	C2	58.3 in	1481 mm
Overall Interior Floor Length:	D	81.5 in	2070 mm
Interior Width at B-Pillars:	E	64.5 in	1638 mm
Vehicle Ground Clearance (minimum):	F	6 in	152 mm
Ramp Extension - Short Deployment:	G1	52.5 in	1334 mm
Ramp Extension - Long Deployment	G2	87 in	2210 mm

Useable Ramp Width:	H	30 in	762 mm
Ramp Angle - Short Deployment (Manual):	I1	1:4.1 ratio	
Ramp Angle - Short Deployment (Power):	I1	1:4.4 ratio	
Ramp Angle - Long Deployment:	I2	1:6 ratio	
Mirror to Mirror Width:	J	79.69 in	2024 mm
	(folded)	71.73 in	1822 mm
Track:	Front & Rear	68.3 in	1735 mm
Head Room:	Front/Rear	41.7/43.4 in	1059/1101 mm
Hip Room:	Front/Rear	63/69 in	1600/1761 mm
Leg Room:	Front/Rear	40/36.6 in	1067/1168 mm
Shoulder Room:	Front/Rear	65.3/66.9 in	1658/1700 mm
Cargo Volume Index:	Gasoline	36.4 ft^3	1031 L
	CNG	29.1 ft^3	824 L
Curb Weight:	Gasoline	5,055 lbs	2293 kg
	CNG	5,312 lbs	2409 kg
Payload:	Gasoline	1,545 lbs	700.80 kg
	CNG	1,350 lbs	613.35 kg
Gross Vehicle Weight Rating (GVWR):		6,600 lbs	2994 kg
Gross Axle Weight Rating (GAWR Front):		3,600 lbs	1633 kg
Gross Axle Weight Rating (GAWR Rear):		3,600 lbs	1633 kg

METRIC/U.S. EQUIVALENTS

Multiply	By	To Get	Multiply	By	To Get
Inches	2.54	Centimeters	Centimeters	0.394	Inches
Feet	0.305	Meters	Meters	3.280	Feet
Miles	1.609	Kilometers	Kilometers	0.621	Miles
Square Inches	6.451	Square Centimeters	Square Centimeters	0.155	Square Inches
Cubic Inches	16.39	Cubic Centimeters	Cubic Centimeters	0.061	Cubic Inches
Fluid Ounces	29.573	Milliliters	Milliliters	0.034	Fluid Ounces
Pints	0.473	Liters	Liters	2.113	Pints
Quarts	0.946	Liters	Liters	1.057	Quarts
Gallons	3.785	Liters	Liters	0.264	Gallons
Pounds	0.454	Kilograms	Kilograms	2.205	Pounds
Short Tons	0.907	Metric Tons	Metric Tons	1.102	Short Tons
Pound-Inches	0.113	Newton-Meters	Newton-Meters	8.851	Pound-Inches
Pound-Feet	1.356	Newton-Meters	Newton-Meters	0.738	Pound-Feet
Pounds Per Square Inch	6.895	Kilopascals	Kilopascals	0.145	Pounds Per Square Inch
Miles Per Gallon	0.425	Kilometers Per Liter	Kilometer Per Liter	2.352	Miles Per Gallon
Miles Per Hour	1.609	Kilometers Per Hour	Kilometers Per Hour	0.621	Miles Per Hour
Temperature	32° Fahrenheit = 0°Celsius		212° Fahrenheit = 100° Celsius		
Temperature Conversion	5/9 (°F - 32) = °C		9/5 (°C + 32) = °F		

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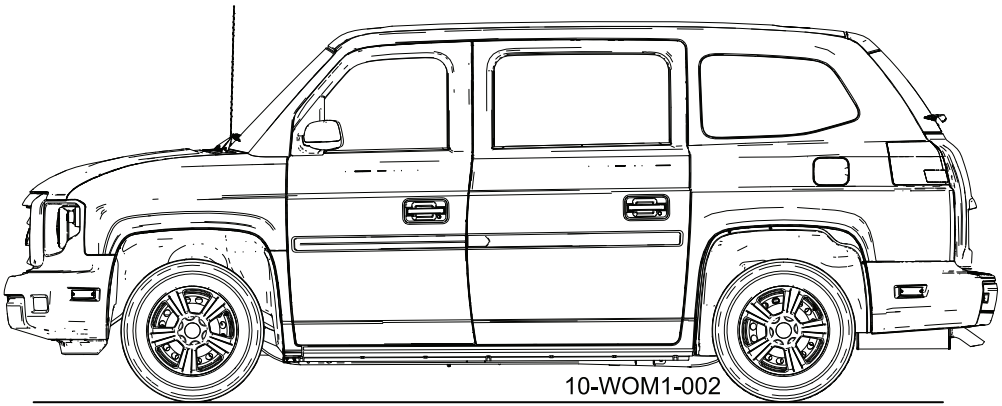
11

SECTION 11



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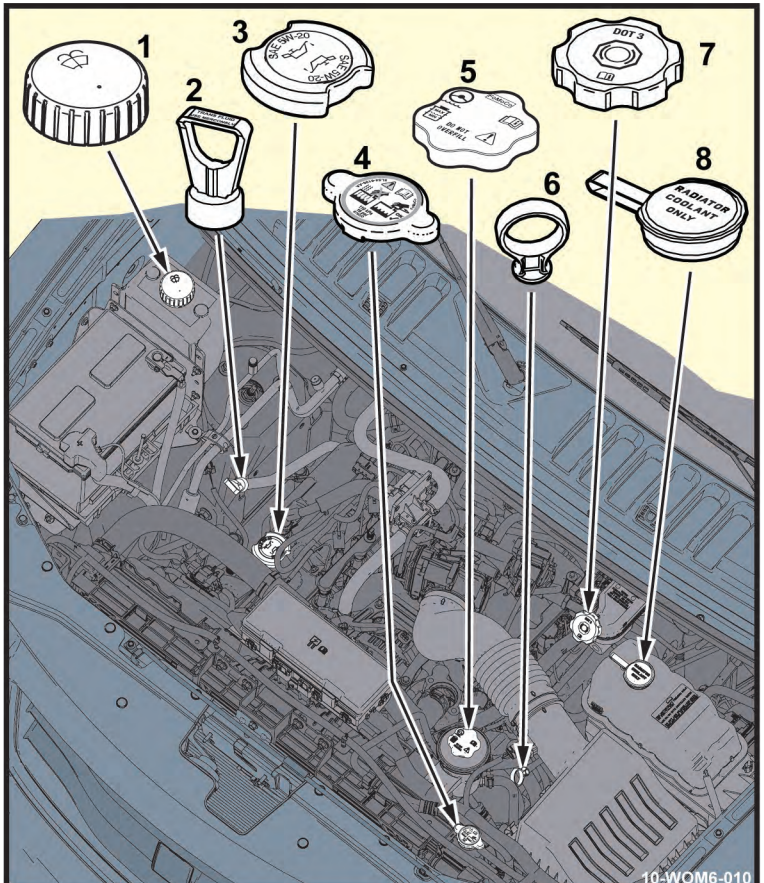

P/N PT000441

Regular Maintenance Quick Reference

1. **Windshield Washer Fluid** reservoir should be filled with Motorcraft® Premium Windshield Washer Concentrate. The capacity of the reservoir is 1.0 gal (3.8 L). See page 236.
2. **Transmission Fluid** should be checked with the vehicle at normal operating temperature with the transmission in Park. The level should be in the "Hot" range on the dipstick. Add Mercon® LV Transmission Fluid through the dip stick tube. See page 230.
3. **Engine Oil Fill.** Add SAE 5W-20 motor oil using a funnel after checking oil level. See page 224.
4. **Engine Coolant** level should be checked when the engine is cold. If the level is below the Cold Fill line on the coolant recovery reservoir (number 8 in the illustration), add a 50/50 mixture of Motorcraft® Premium Gold Engine Coolant and distilled water to the reservoir. See page 227.
5. **Power Steering Fluid** level should be checked when the engine is not running, and at ambient temperatures, between 20° - 80° F (-7° – 25° C). If the fluid level is low add Mercon® 5 Power Steering Fluid in small amounts, continuously checking the level until it reaches the proper range. See pg. 233.
6. **Engine Oil Level** should be checked after the engine has been off for 15 minutes to allow the oil to drain into the oil pan. Remove the dipstick and wipe clean. Insert the dipstick fully, then remove again and check the oil level. The level should be between MIN and MAX on the dipstick. Add SAE 5W-20 motor oil. See page 224.
7. **Brake Fluid** level should be between the MIN and MAX levels on the reservoir. If needed, add DOT fluid only. If the fluid levels fall outside the normal operating range, seek service from an authorized service center immediately. See page 232.
8. **Coolant Recovery Reservoir.** See Engine Coolant (number 4 in the illustration) and page 227.