November 5, 2012 Subject: **Predelivery Inspection Commander™ Electric**

No. **2013-3**

REVISION ▶ 1 ◀
▶ Nov. 29th, 2012 ◀

YEAR	MODEL	MODEL NUMBER	VEHICLE CATEGORY	SERIAL NUMBER
2013	Commander Electric	6MDA/6MDB/6MDC/6UDD	Off-road	All
		6UDB/6UDC/6UDE/6UDF	Low Speed Vehicle (LSV)	

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IMPORTANT NOTICE

To obtain warranty coverage, predelivery inspection must be performed by an authorized BRP Can-Am SSV dealer/distributor.

About this bulletin:

The information and components/system descriptions contained in this document are correct at the time of publication. BRP however, maintains a policy of continuous improvement of its products without imposing upon itself any obligation to install them on products previously manufactured.

Due to late changes, there might be some differences between the manufactured product and the descriptions and/or specifications in this document. BRP reserves the right at any time to discontinue or change specifications, designs, features, models or equipment without incurring obligation.

The illustrations in this document show the typical construction of the different assemblies and may not reproduce the full detail or exact shape of the parts. However, they represent parts that have the same or similar function.

⚠ WARNING

Torque wrench tightening specifications must be strictly adhered to. Where specified, install new locking devices (e.g. lock tabs, elastic stop nuts). If the efficiency of a locking device is impaired, it must be renewed.

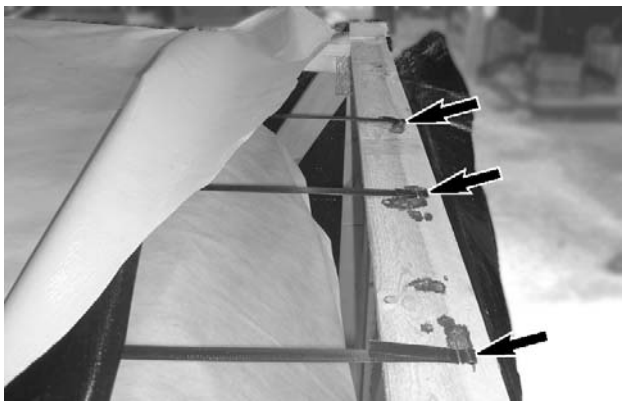
UNCRATING

Crate Cover Removal

1. Carefully lay the crate on its bottom on a firm, level surface.

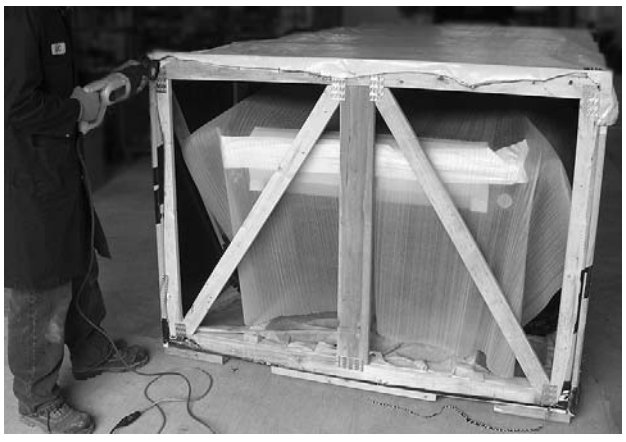
NOTICE Allowing the crate to drop may cause serious damages to vehicle.

2. Remove all screws retaining crate cover to crate base. Screws that are used are Robertson† #2 type that require the use of an appropriate screwdriver.
3. Carefully cut both ends of crate tarpaulin to locate the rear of vehicle.
4. Cut straps on the top of crate.



tbl2012-003-001_a

5. Remove the rear cover end.



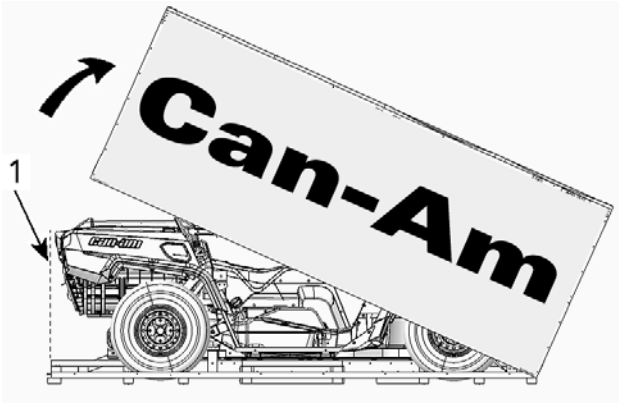
tbl2011-001-020

NOTICE Ensure rear cover end is removed before tilting the crate cover.

6. Assisted by another person, tilt the crate cover.

NOTICE

Remove rear end cover BEFORE top cover.



1. Rear end cover removed

Vehicle Removal from Crate

1. Remove protective wrapping from the vehicle.

tbl2012-003-002_a

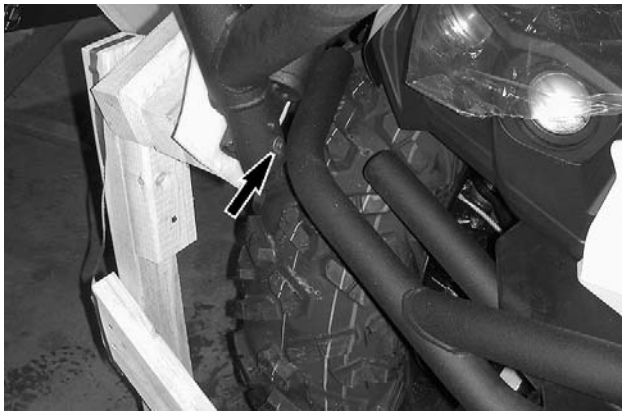
1. Protective wrapping

2. Remove both sections of the cage from vehicle.
   2.1 Cut locking ties securing both sections together.

tbl2011-001-005_a

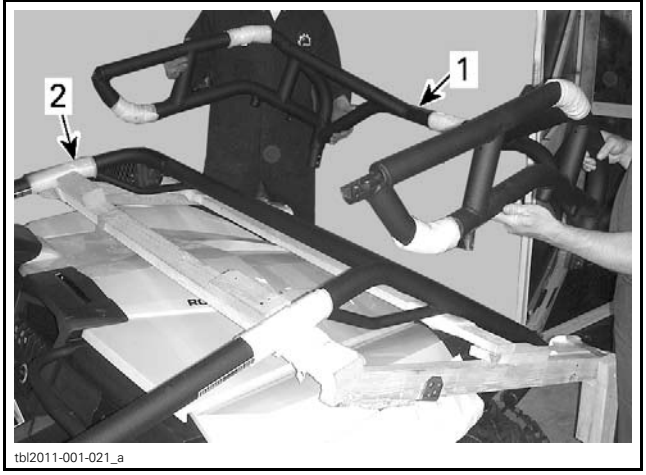
† Robertson is a registered trademark of Robertson Inc.

2.2 Remove screws securing the rear section of the cage to wood frame.


tbl2011-001-006_a


tbl2011-001-007_a

2.3 Remove rear and front sections of cage from vehicle.



tbl2011-001-021_a

1. Rear section of cage
2. Front section of cage

3. Remove screws retaining wood frame to steel supports.


tbl2011-001-010_a

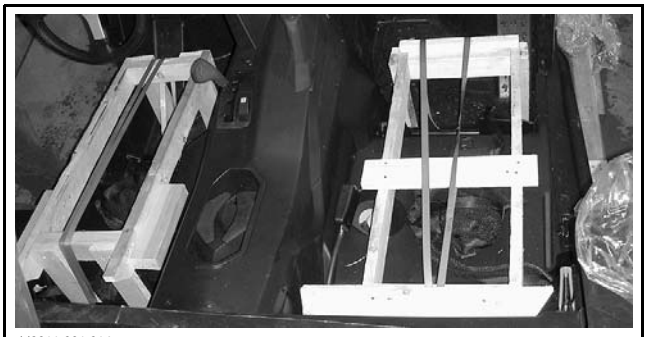
4. Move the wood frame forward and remove it.
5. Remove steel supports from the front fenders. Discard bolts and support.


tbl2011-001-009

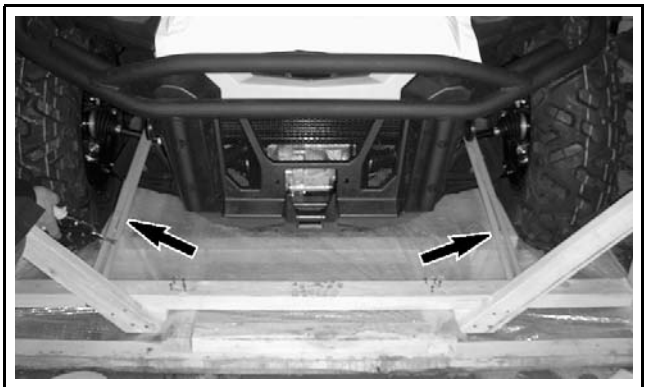
6. Remove seats from vehicle.
   6.1 Remove screw securing the top of the backrest to wood support.


tbl2011-001-013

   6.2 Lift the bottom of the seat and remove seat from vehicle.
7. Cut retaining straps and remove wood support.


tbl2011-001-014

8. Cut front and rear straps retaining the vehicle to crate base.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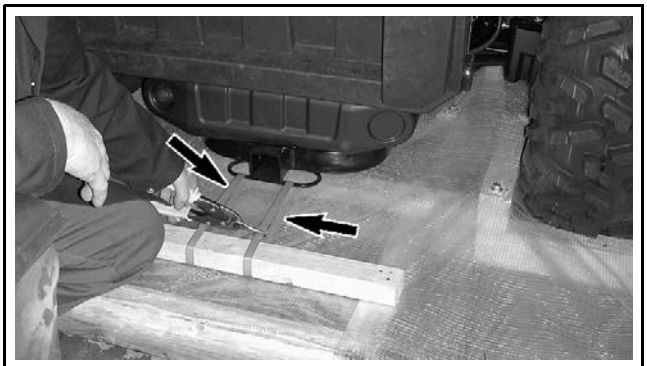
FRONT OF VEHICLE


tbl2011-001-016_a

REAR OF VEHICLE

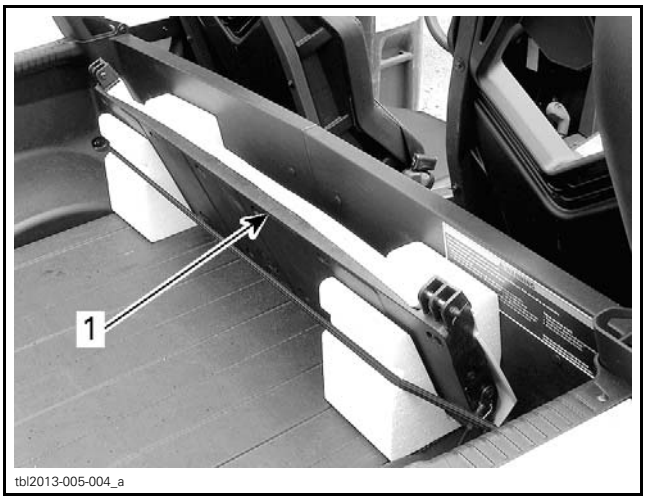
9. Remove parts from the rear cargo lower compartment.


tbl2011-001-017

TYPICAL

Unlatch tail gate and discard bungee cord and packing material.

Remove tail gate from cargo box.



tbl2013-005-004_a

1. Tail gate

10. Cut the front and rear of crate base.


tbl2011-001-055

FRONT OF VEHICLE

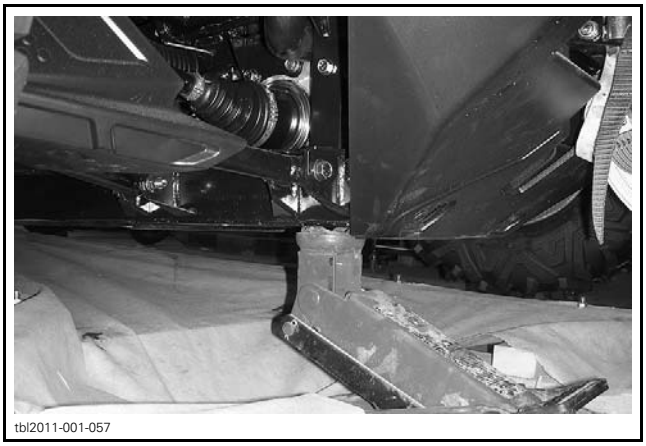

tbl2011-001-056

REAR OF VEHICLE

11. Prepare the following wood studs:

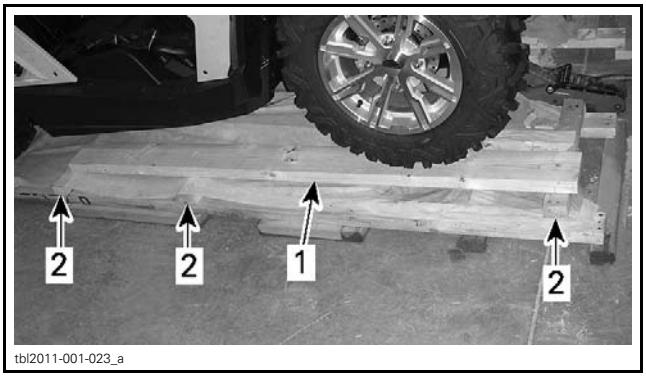
STUD SIZE	STUD LENGTH	QUANTITY
2 x 6	1.80 m (70 in)	2
2 x 6	1.30 m (50 in)	2

12. Install the jack under a frame member, in line with a suspension arm.


tbl2011-001-057

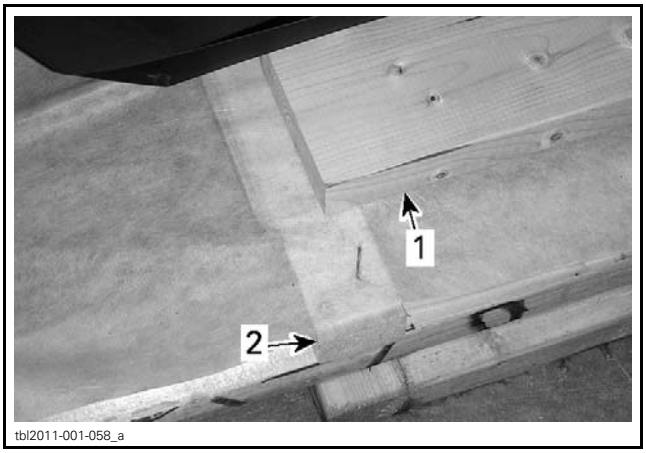
13. Lift the front of vehicle until tires are 8 cm (3 in) off the ground.
14. Position the 2 x 6 longer studs (1.80 m (70 in)) over crate braces underneath tires.

NOTE: The rear of the 2 x 6 studs must be halfway on braces.



tbl2011-001-023_a

1. 2 x 6 longer stud (1.80 m (70 in))
2. Crate braces



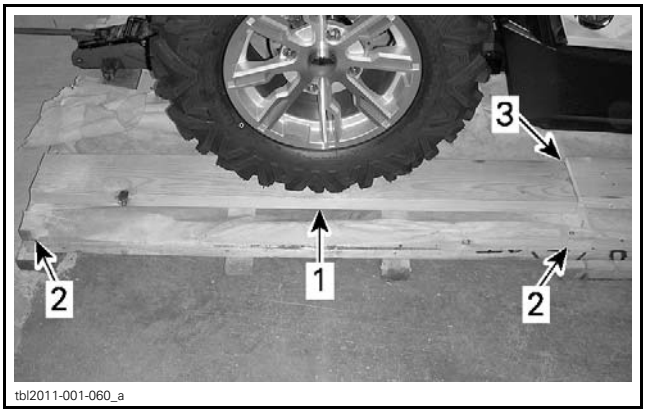
tbl2011-001-058_a

1. 2 x 6 longer stud
2. Crate braces

15. Lower the front of the vehicle.
16. Place the jack under the hitch to lift the rear of the vehicle.


tbl2011-001-059

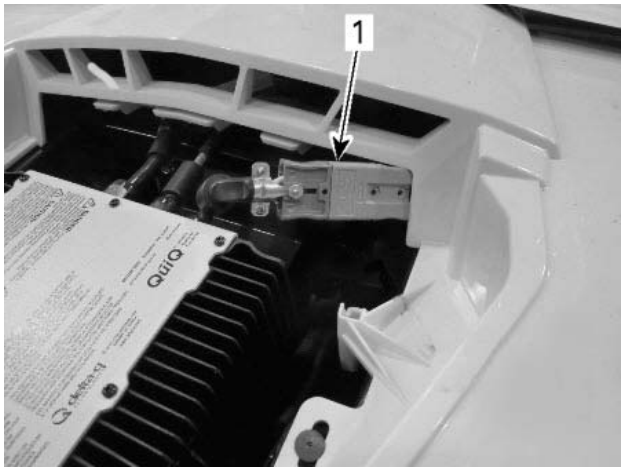
17. Position the 2 x 6 shorter studs (1.27 m (50 in)) on crate braces. Place both 2 x 6 studs end to end.



tbl2011-001-060_a

1. 2 x 6 shorter studs (1.27 m (50 in))
2. Crate braces
3. Studs positioned end to end

18. Lower the vehicle.
19. Remove the front access panel.
20. Connect the blue connector of the battery charger/converter.



tbl2013-004-001_a

1. Blue connector

21. Turn power switch to ON.
22. Place the shift lever on N position and carefully move the vehicle **forward** out of the crate base.
23. Position the shift lever on PARK.

PARTS TO BE INSTALLED

Shock Absorber Installation and Disc Brake Cleaning

Shock Absorber Identification

When installing shock absorbers, make sure not to mix front and rear shock absorbers.

Front and rear shock absorbers can be easily identified by comparing the lower attachment point.

tbl2011-001-063_a

1. Rear shock absorber
2. Front shock absorber

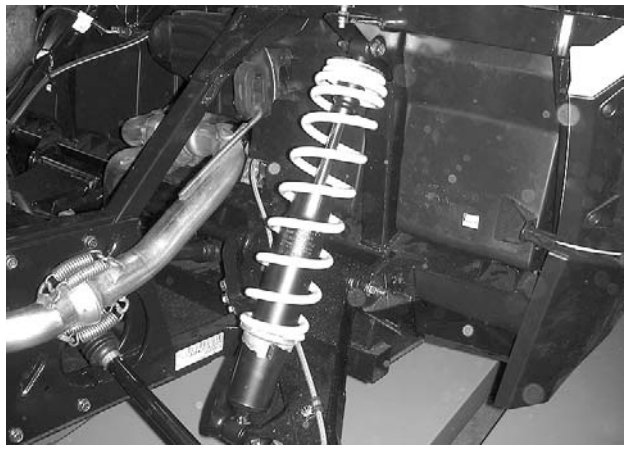
Rear Shock Absorber Installation

1. Block front wheels.
2. Loosen rear wheel lug nuts.
3. Place the jack under the hitch and lift the rear of vehicle.
4. Install jack stands to support the vehicle.
5. Remove wheels.
6. Remove the suspension bracket. Discard bolts and nuts.

NOTE: To ease access, tilt the cargo box.

7. Install shock absorbers.

PDI KIT PARTS	QTY
M10 x 55 hexagonal flange bolts	4
M10 elastic flange nuts	4


tbl2011-001-039

TYPICAL

PARTS	TORQUE
Shock absorber nuts	48 N•m (35 lbf•ft)

8. Clean brake disc. Use the XPS BRAKES AND PARTS CLEANER (USA) (P/N 219 701 705) and a clean rag.

NOTICE **A thin layer of anticorrosion product can be present on the brake disc and must be removed before using the vehicle. Not conforming to this procedure may lead to a brake chattering and the brake pads replacement would be necessary to solve the problem.**

9. Install wheels.
10. Lower the vehicle and remove the jack.
11. Tighten wheel lug nuts.

PARTS	TORQUE
Wheel lug nuts	100 N•m (74 lbf•ft)

12. Close the cargo box.

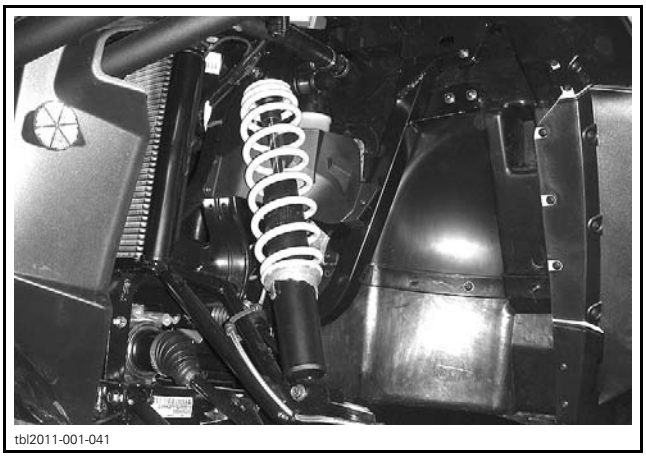
Front Shock Absorber

1. Block rear wheels.

2. Loosen front wheel lug nuts.
3. Lift the front of vehicle and support it securely.
   3.1 Insert the jack under the vehicle by the side, behind front wheels.
   3.2 Place the jack under the central beam.
   3.3 Lift the front of vehicle.
4. Remove front wheels.
5. Remove the suspension brackets. Discard bolts and nuts.
6. Install shock absorbers.

NOTE: Make sure to position nuts rearward.

PDI KIT PARTS	QTY
M10 x 55 hexagonal flange bolts	4
M10 elastic flange nuts	4


tbl2011-001-041

TYPICAL

PARTS	TORQUE
Shock absorber nuts	48 N•m (35 lbf•ft)

7. Clean brake disc. Use the XPS BRAKES AND PARTS CLEANER (USA) (P/N 219 701 705) and a clean rag.

NOTICE **A thin layer of anticorrosion product can be present on the brake disc and must be removed before using the vehicle. Not conforming to this procedure may lead to a brake chattering and the brake pads replacement would be necessary to solve the problem.**

8. Install wheels.
9. Lower the vehicle.
10. Tighten wheel lug nuts.

PARTS	TORQUE
Wheel lug nuts	100 N•m (74 lbf•ft)

Cage Installation

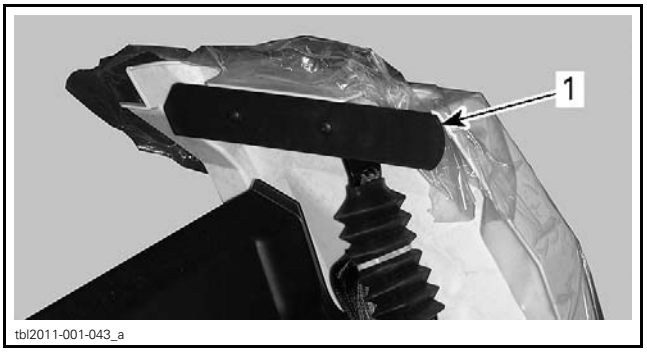
1. Assemble the cage.

PDI KIT PARTS	QTY
M10 x 30 Torx screws	4

NOTE: DO NOT TIGHTEN screws until installation.

2. Open the rear cargo box.
3. On both side of vehicle, remove support plates.

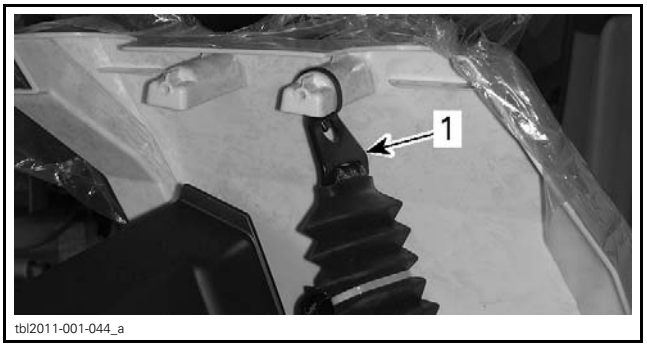
NOTE: Keep screws for reinstallation.



tbl2011-001-043_a

LH SIDE OF VEHICLE SHOWN
1. Support plate

4. Cut locking ties securing the seat belts.



tbl2011-001-044_a

LH SIDE OF VEHICLE SHOWN
1. Seat belt attachment

5. Using a hoist, lift the cage assembly over the vehicle and carefully position it on vehicle. Insert the rear of cage first.

NOTE: As an alternate method, 1 person at each attachment point can position the cage on the vehicle.

⚠ **CAUTION** **To avoid injury or vehicle damages, never handle the cage alone.**


tbl2011-0011-024

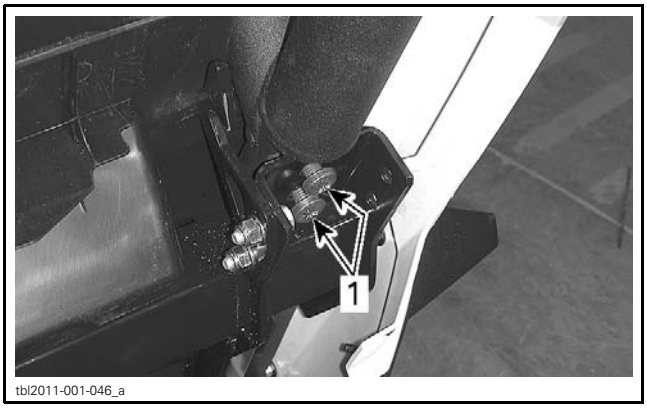
TYPICAL

6. Secure the cage to vehicle.

PDI KIT PARTS	QTY
M10 x 30 Torx screws	8


tbl2011-001-045

TYPICAL – RH FRONT CAGE ATTACHMENT POINT



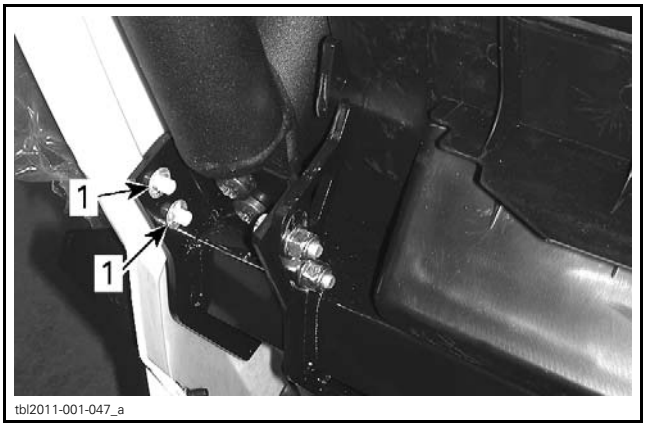
tbl2011-001-046_a

TYPICAL – RH REAR CAGE ATTACHMENT POINT
1. M10 x 30 Torx screws

7. Tighten all cage screws.
   - Front attachment points
   - Rear attachment points
   - Joints between front and rear portion of cage.

PARTS	TORQUE
M10 x 30 Torx screws	48 N•m (35 lbf•ft)

8. Secure rear lateral panels using **NEW** push nuts (from PDI kit).

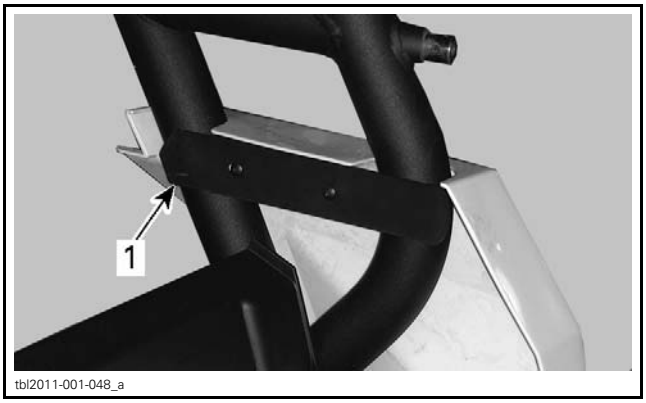


tbl2011-001-047_a

TYPICAL
1. Push nuts

9. Install support plates to retain the top of the rear lateral panels.

PARTS	TORQUE
K50 x 16 Torx screws (previously removed)	Hand torque only



tbl2011-001-048_a

LH SIDE OF VEHICLE SHOWN
1. Support plate

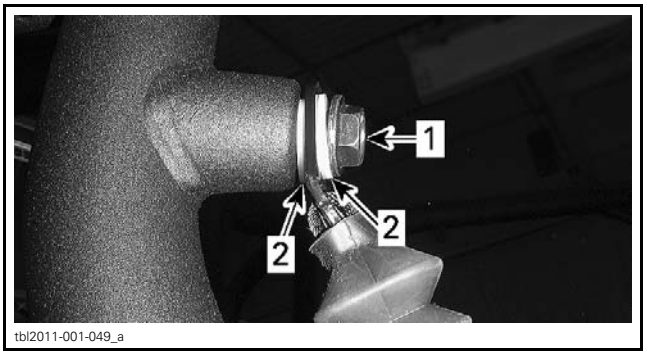
Seat Belts Installation (Off-road Model)

1. Cut locking tie attaching seat belt.
2. Secure the seat belt to cage post.

PDI KIT PARTS	QTY
7/16-20 x 1 shoulder bolts	2
7/16-20 elastic nuts	2
Nylon flat washers	4

⚠ WARNING

Make sure seat belt is not twisted.

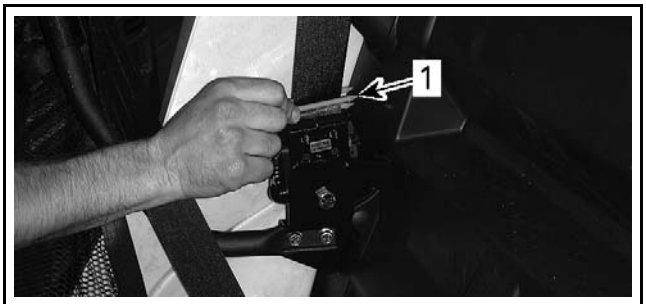


tbl2011-001-049_a

1. Shoulder bolt
2. Nylon flat washer

PART	TORQUE
7/16-20 x 1 shoulder bolts	60 N•m (44 lbf•ft)

3. Remove and discard the ORANGE belt lock near seat belt mechanism.



tbl2011-001-050_a

1. ORANGE belt lock

Seat Belt Installation (LSV Model)

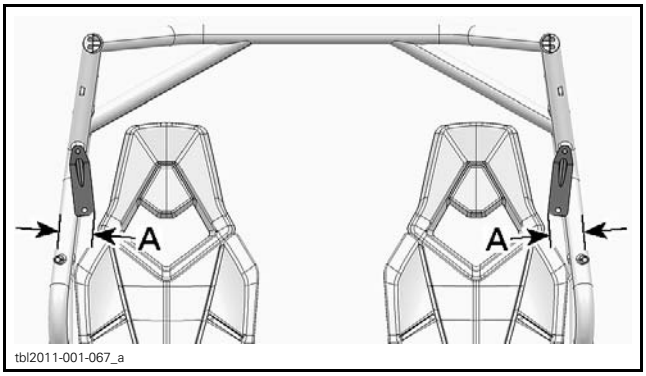
1. Cut locking tie attaching seat belt.
2. Secure the seat belt to cage post.

PDI KIT PARTS	QTY
7/16-20 x 1 hexagonal flange bolts	2
7/16-20 elastic nuts	2

⚠ WARNING

Make sure seat belt is not twisted.

Position seat belt bracket as per the following illustration.



tbl2011-001-067_a

A. Approximately 90 mm (3-17/32 in)

PART	TORQUE
7/16-20 x 1 hexagonal flange bolts	60 N•m (44 lbf•ft)

3. Remove and discard the elastic retaining drive belt.

tbl2012-003-036_a

1. Remove and discard this elastic

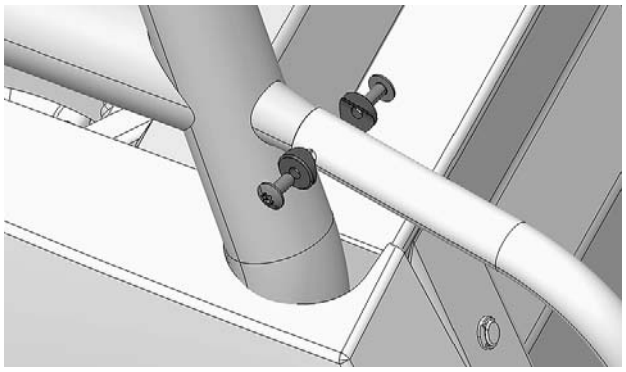
Shoulder Guards Installation

1. Slide shoulder guard into lateral net hoops.


tbl2011-0011-030

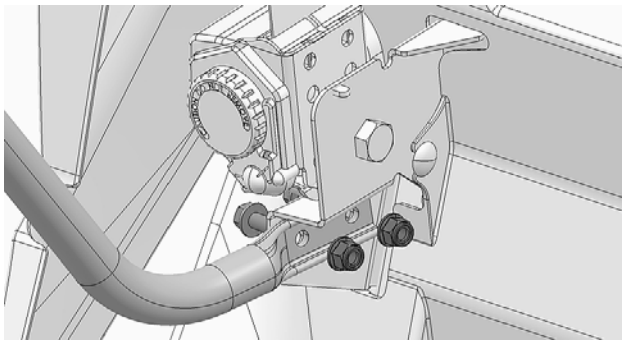
2. Install shoulder guard to frame.
   2.1 Secure the top of the shoulder guard.

PDI KIT PARTS	QTY
M6 x 14 Torx screws	2
Support washers	2


tbl2011-0011-032

2.2 Secure the bottom of the shoulder guard to seat belt mechanism bracket.

PDI KIT PARTS	QTY
M8 x 20 hexagonal flange bolts	2
M8 elastic flange nuts	2


tbl2011-0011-031

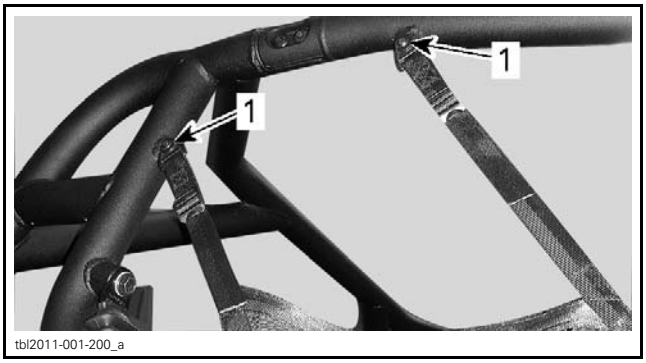
Lateral Nets Installation

1. Buckle the lateral net.


tbl2011-001-051

2. Attach the top of lateral net to the cage.

PDI KIT PARTS	QTY
M5 x 14 Torx screws	4

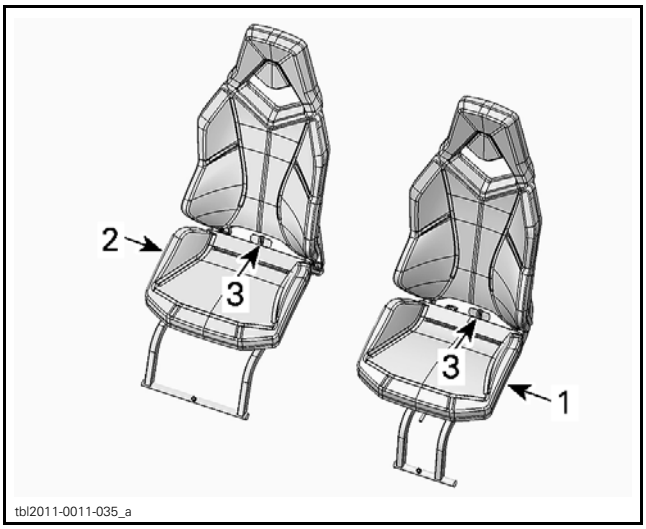


tbl2011-001-200_a

1. M5 x 14 Torx screws

3. Adjust the length of the lateral net straps.
4. Buckle off the lateral net.

Seats



tbl2011-0011-035_a

1. Driver's seat
2. Passenger's seat
3. Latch to release the seat

1. Insert the seat in the cockpit.
2. Install the seat support into retaining brackets.
3. Push down the backrest to latch the seat.

Seat Latch Adjustment

If the seat is hard to lock, the seat latch pin must be readjusted.

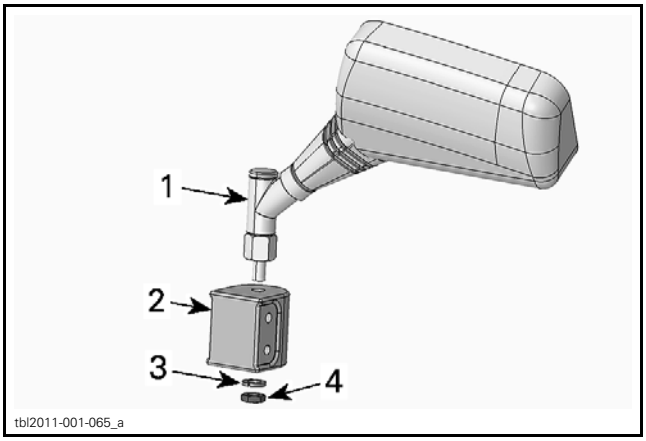
Loosen retaining screws and reposition the seat latch pin.


tbl2011-001-062

Mirrors (LSV Model Only)

LH Mirror

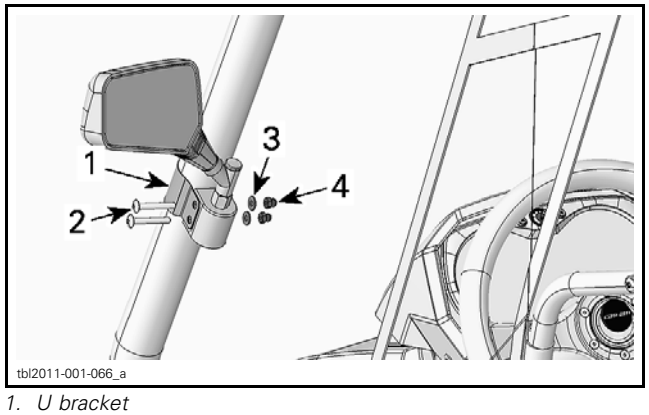
1. Remove mirrors from the glove box.
2. Assemble the LH mirror on its adaptor.
   2.1 Insert threaded rod of mirror into adaptor hole.
   2.2 Secure mirror using M8 lock washer and M8 nut. Do not torque yet.



tbl2011-001-065_a

1. LH mirror
2. Adaptor
3. M8 lock washer
4. M8 nut

3. Install the LH mirror on cage post.
   3.1 Install the U bracket around the LH cage post.
   3.2 Install the mirror between U bracket ends.
   3.3 Secure them using M6 x 45 Torx screws, M6 flat washers and M6 cap nuts. Do not torque yet.



tbl2011-001-066_a

1. U bracket
2. M6 x 45 Torx screw
3. M6 flat washer
4. M6 cap nut

4. Position mirror as per owner preference and tighten all nuts.

PART	TORQUE
Mirror nut	24.5 N•m (18 lbf•ft)

PART	TORQUE
M6 cap nut	10 N•m (89 lbf•**in**)

Central Mirror

1. Install the U bracket in center of the front transversal cage tube.
2. Install the central mirror.
3. Secure them using M6 x 45 Torx screws, M6 flat washers and M6 cap nuts.
4. Tighten cap nuts.

PART	TORQUE
M6 cap nut	10 N•m (89 lbf•**in**)

Windshield (LSV Model)

Polycarbonate Windshield

For installation, refer to *WINDSHIELD KIT (P/N 487800415)*. The instruction sheet is available on BOSSWeb (www.bossweb.brp.com).

Glass Windshield

For installation, refer to *GLASS WINDSHIELD AND WIPER PACKAGE KIT (P/N 715 001 678)*. The instruction sheet is available on BOSSWeb (www.bossweb.brp.com).

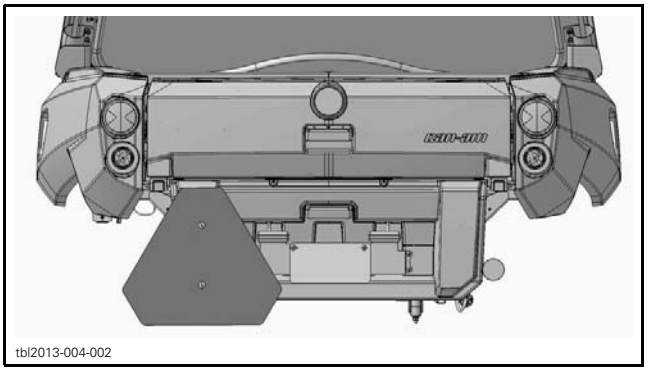
Wiper (LSV Model with Glass Windshield)

For installation, refer to *GLASS WINDSHIELD AND WIPER PACKAGE KIT (P/N 715 001 678)*. The instruction sheet is available on BOSSWeb (www.bossweb.brp.com).

Orange Triangle Warning Sign (LSV Model for Canada Only)

Install the warning sign on the lower tailgate of the cargo box.

NOTE: The apex of the triangle must be upwards.



Accessories Installation

1. Install accessories (if any) as per their installation instructions (included in each kit).
2. Install any other equipment required by law (if any).

Vehicle Decals

1. Install decals on vehicle in the language according to local legislation (if required) or to customer's preferred language (check availability).
2. Ensure that the new decals are installed at the same location and over the factory installed decals.

SET-UP

Battery Charging

Charge batteries for at least 8 hours as per following instructions.

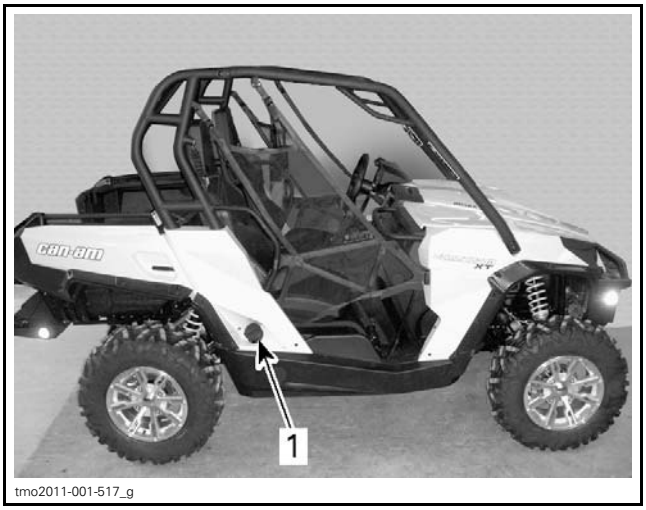
BATTERY CHARGING REQUIREMENT
110 V AC grounded outlet
10 GA extension cord, max length 30 m (100 ft)

NOTICE Do not charge batteries when temperature is below -10°C (14°F) as this will reduce battery life.

⚠ WARNING

Never charge a frozen or damaged battery.

1. Place shift lever to the (P) park position and turn key to the OFF position.
2. Connect a 10 gauge extension cord no longer than 30 m (100 ft) to the vehicle.



TYPICAL
1. Power outlet

3. Connect 10 gauge extension cord to power outlet.

⚠ CAUTION

– Ensure to use a ground protected outlet
– Never use an out of specification extension cord.

4. Allow battery to charge completely.

NOTE: The vehicle should be left plugged when not in use to keep batteries fully charged at all times.

NOTICE Failure to maintain a maximum battery charge when vehicle is not in use will reduce the battery useful life.

Tire Pressure

From factory, tires air pressure could be different from the recommended air pressure. To ensure proper seating of the tire bead, inflate tires at 200 kPa (30 PSI) THEN set tire pressure to vehicle specification. Refer to the following table.

NOTICE Always check pressure when tires are cold.

NOTICE Low pressure may cause tire to deflate and rotate on wheel. Overpressure may burst the tire. Always follow recommended pressure. Since tires are low-pressure type, a manual pump should be used.

NOTE: Tire pressure varies with temperature and altitude.

Off-road Models

TYPE	TIRE PRESSURE - FRONT	TIRE PRESSURE - REAR
MAXXIS Bighorn 2	69 kPa (10 PSI) Minimum 83 kPa (12 PSI) Maximum	83 kPa (12 PSI) Minimum 152 kPa (22 PSI) Maximum
Kenda Terra Trac	124 kPa (18 PSI)	124 kPa (18 PSI)

LSV Models

TIRE PRESSURE - FRONT	TIRE PRESSURE - REAR
124 kPa (18 PSI)	124 kPa (18 PSI)

Protective Materials

Ensure that all protective materials are removed from vehicle.

Recall or Factory-directed Modification

Complete applicable recall or factory-directed modification.

ADJUSTMENTS

All adjustments have already been performed at factory, it is only necessary to validate them.

Spring Preload Adjustment (Front and Rear)

Shorten the spring for a firmer ride and rough riding condition or when pulling a trailer.

Lengthen the spring for a softer ride and smooth riding condition.

Suspension Adjustments Guideline

Vehicle handling and comfort depend upon suspension adjustments.

⚠ WARNING

Suspension adjustment could affect vehicle handling. Always take time to familiarize yourself with the vehicle's behavior after any suspension adjustment has been made.

Choice of suspension adjustments vary with vehicle load, personal preference, riding speed and terrain condition.

The best way to set up the suspension, is to start from factory settings, then customize each adjustment one at a time.

Front and rear adjustments are interrelated. It may be necessary to readjust the rear shock absorbers after adjusting front shock absorbers for instance.

Test run the vehicle under the same conditions; trail, speed, load, etc. Change one adjustment and retest. Proceed methodically until you are satisfied.

Following are guidelines to fine-tune suspension.

Suspension Factory Settings

For adjustment procedures, refer to *SPRING PRELOAD ADJUSTMENT (FRONT AND REAR)* and *SHOCK DAMPING ADJUSTMENTS (FRONT AND REAR)* in this section.

To adjust compression and rebound to factory settings, proceed as follows:

1. Turn adjuster clockwise until it stops.
2. Turn adjuster counter clockwise by the specified amount, see table below.

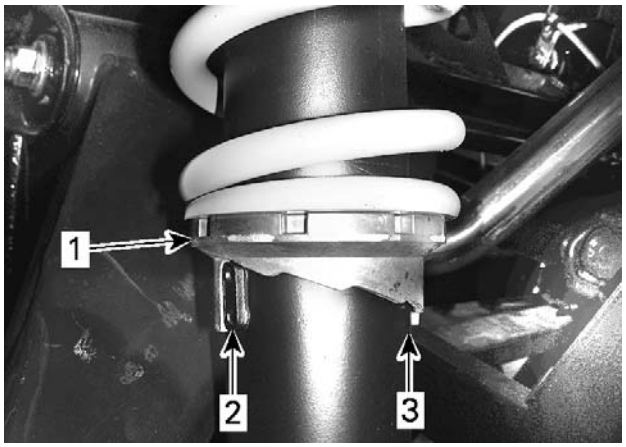
SUSPENSION FACTORY SETTINGS	
Spring preload (front and rear)	Cam position 1 (soft)

⚠ WARNING

The left and right shock adjustment on front or rear suspension must always be set to the same position. Never adjust one shock only. Uneven adjustment can cause poor handling and loss of stability, which could lead to an accident.

Lift the vehicle. Spring length should be measured without load on the wheels.

Adjust by turning adjusting cam. Use tool from vehicle tool kit.



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TYPICAL
1. *Turn adjusting cams*
2. *Smooth adjustment*
3. *Hard adjustment*

KEY PROGRAMMING

Two keys are provided with the vehicle:

– Black key (programmed at factory)
– Grey key (not programmed at factory).

To program a key, you must use the *COMMANDER ELECTRIC DIAGNOSTIC TOOL*.

Diagnostic Tool Download

Download the *COMMANDER ELECTRIC DIAGNOSTIC TOOL*. Go to BOSSWeb:

– Select Document in ComCenter

Enter the following information to search the diagnostic tool:

– Document Type: Diagnostic Software
– Product Line: Side by Side

Copy the Zip file and download the diagnostic software on the PC.

Diagnostic Connector Location

The diagnostic connector is located under the dash board on the driver's side. It is stored in it's protective cap on the lower RH side of the battery rack.

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1. Diagnostic connector

Connecting the PC to the Vehicle

REQUIRED TOOLS	
MPI-2 DIAGNOSTIC CABLE (P/N 710 000 851)	
MPI-2 INTERFACE CARD (P/N 529 036 018)	

1. Locate the 6-pin diagnostic connector.
2. Disconnect the 6-pin diagnostic connector from it's holder (protective cap).
3. Connect one end of the MPI-2 diagnostic cable to the vehicle connector.


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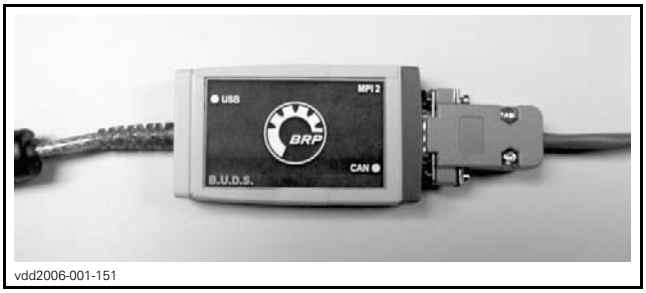
4. Connect the other end of diagnostic cable to the MPI-2 interface card.



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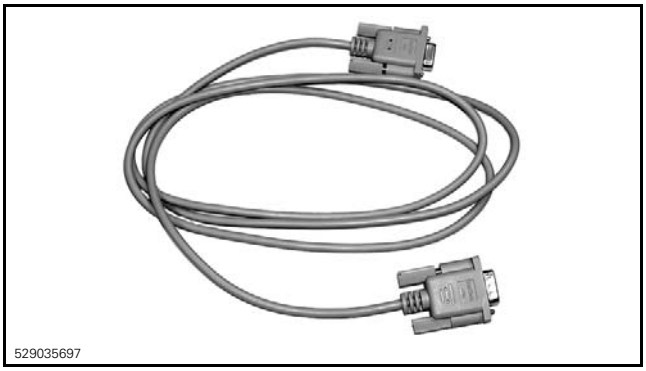
DIAGNOSTIC CABLE CONNECTED TO MPI-2 INTERFACE CARD

NOTE: An optional MALE-FEMALE EXTENSION SERIAL CABLE (P/N DB9) available at electronic retail outlets can be used between diagnostic cable and MPI-2 interface. Do not exceed 7.6 m (25 ft).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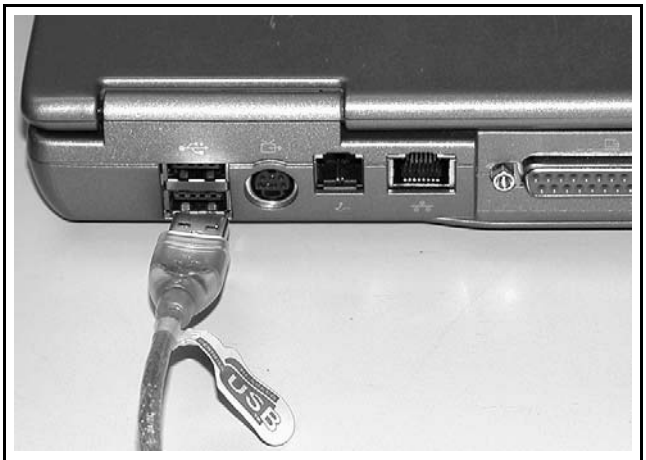
OPTIONAL MALE-FEMALE EXTENSION SERIAL CABLE

5. Connect the MPI-2 interface card to the USB port of a PC (personal computer).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MPI-2 INTERFACE CARD CONNECTED TO USB PORT

Key Programming

1. Open the *COMMANDER ELECTRIC DIAGNOSTIC TOOL*.
2. Insert key to be programmed in the power switch.
3. Turn key to ON.
4. Click on Enable in the Diagnostic box.
5. Click on Learn.
6. Click on Save.
7. Click on Close.
8. Turn key to OFF.

Key is now programmed.

FINAL INSPECTION

Assembly Inspection

Inspect the following:

1. Steering operation
2. Cotter pins of ball joints and tie rods are correctly installed.

Vehicle Test Run

Ride the vehicle to ensure proper operation of all systems and components.

Vehicle Cleaning

1. Wash and dry the vehicle.

NOTICE Never use a high pressure washer to clean the vehicle. USE LOW PRESSURE ONLY (like a garden hose). The high pressure can cause electrical or mechanical damages.

2. Remove any dirt.
3. Clean vinyl and plastic parts, using a chamois, a flannel cloth or a microfiber cloth with XPS MULTI-PURPOSE CLEANER (P/N 219 701 709).

NOTICE It is necessary to use a chamois, a flannel cloth or a microfiber cloth on plastic parts to avoid damaging surfaces. Never clean plastic parts with strong detergent, degreasing agent, paint thinner, acetone, products containing chlorine, etc.

DELIVERY TO CUSTOMER

The *PREDELIVERY CHECK LIST* provided with the vehicle must be reviewed, completed and signed by the dealer and customer. A copy should be given to the customer.

Any person who rides this vehicle should read and understand all the information given on hang tag and safety labels before riding.

TECHNICAL SPECIFICATIONS

MODEL			COMMANDER Electric
MOTOR			
Motor type			48 V AC Induction motor
Motor power rating			8.3 KW 23 KW (30 hp) peak
Motor RPM limiter setting in High mode			6400 RPM MAX
BATTERIES			
Type			AGM Sealed Lead-Acid Batteries
Rated voltage			12 volts (48 volts for vehicle and motor total)
Charging			110 V AC grounded power outlet
GEARBOX			
Type			Helicoidal gears
Gearbox oil	Capacity		450 ml (15 U.S. oz)
	Recommended		XPS synthetic gear oil (P/N 293 600 043) or a 75W 90 API GL-5
ELECTRICAL SYSTEM			
Headlights			4 x 60 W
Taillight			2 x 8/26 W
Fuses	Lamp relay (RL)		20 A
	Tail lamp relay (RT)		20 A
	Bypass Drive (BP1)		10 A
	Main Relay (RM)		20 A
	Fuse key (FK)		5 A
	Fuse speedo (FS)		20 A
	Fuse lamp (FL)		20 A
	Fuse CE kit (FCE)		5 A
	Fuse accessory (FACC)		5 A
	Fuse outlet 2 (FDC2)		15 A
	Fuse outlet 1 (FDC1)		15 A
	Fuse unswitched (FU)		15 A
	Fuse VCM low power (FVCM)		5 A
	Fuse bypass Drive (FBP1)		10 A
DRIVE SYSTEM			
Drive system type			Selectable 2WD/4WD
Front/rear Differential oil	Capacity	Front	650 ml (22 U.S. oz)
		Rear	850 ml (28.7 U.S. oz)
	Type	Front	XPS Synthetic gear oil (75W 90 API GL-5) (P/N 293 600 043) or synthetic oil 75W 90 API GL5
		Rear	XPS Synthetic gear oil (75W 90 API GL-5) (P/N 293 600 043) or synthetic oil 75W 90 API GL5
Front drive			† front differential
Front drive ratio (4WD models)			3.7:1
Rear drive			Electric Lockable rear differential

MODEL			COMMANDER Electric
DRIVE SYSTEM (cont'd)			
Rear drive ratio			3.7:1
CV joint grease			CV joint grease (P/N 293 550 019)
STEERING			
Steering wheel			Adjustable tilt steering
Turning radius			240 cm (94.5 in)
Total toe (vehicle on ground)			0° ± 0.2° (±)
Camber angle (vehicle on ground)			0.7° positive
FRONT SUSPENSION			
Suspension type			Double suspension-arm with dive-control geometry
Suspension travel			254 mm (10 in)
Shock absorber	Qty		2
	Type		Oil 5 settings
REAR SUSPENSION			
Suspension type			Torsional Trailing arm Independant (TTI) with external sway bar
Suspension travel			254 mm (10 in)
Shock absorber	Qty		2
	Type		Oil 5 settings
BRAKES			
Front brake	Type		Dual 214mm ventilated disc brakes with hydraulic twin-piston calipers
Rear brake	Type		Dual 214 mm ventillated disc brakes with hydraulic single piston calipers
Brake fluid	Capacity		125 ml (4.2 U.S. oz)
	Type		DOT 4
Caliper			Floating
Brake pad material	Front		Metallic
	Rear		Organic
Minimum bake pad thickness			1 mm (.039 in)
Minimum brake disc thickness	Front		4.1 mm (.161 in)
	Rear		4.1 mm (.161 in)
Maximum brake disc warpage			0.2 mm (.008 in)
TIRES (OFF-ROAD MODELS)			
Pressure (min/max)	MAXXIS Bighorn 2	Front	69 kPa (10 PSI) / 83 kPa (12 PSI)
		Rear	83 kPa (12 PSI) / 152 kPa (22 PSI)
	Kenda Terra Trac	Front	124 kPa (18 PSI) / 124 kPa (18 PSI)
		Rear	124 kPa (18 PSI) / 124 kPa (18 PSI)
Minimum tire thread depth	MAXXIS Bighorn 2		3 mm (.118 in)
	Kenda Terra Trac		6.35 mm (1/4 in)
Tire size	MAXXIS Bighorn 2	Front	27 x 9 x 12 (in)
		Rear	27 x 11 x 12 (in)
	Kenda Terra Trac	Front	25 x 9 x 12 (in)
		Rear	25 x 11 x 12 (in)

MODEL			COMMANDER Electric
TIRES (LSV MODELS)			
Pressure (min/max)		Front	124 kPa (18 PSI) / 124 kPa (18 PSI)
		Rear	124 kPa (18 PSI) / 124 kPa (18 PSI)
Minimum tire thread depth			3 mm (.118 in)
Tire size		Front	26 x 9 x 14 (in)
		Rear	26 x 11 x 14 (in)
WHEELS (OFF-ROAD MODELS)			
Type	MAXXIS Bighorn 2		Aluminum
	Kenda Terra Trac		Steel
Rim size	MAXXIS Bighorn 2	Front	14 x 7 (in)
		Rear	14 x 8.5 (in)
	Kenda Terra Trac	Front	12 x 6 (in)
		Rear	12 x 8 (in)
Wheel nuts torque			100 N•m ± 10 N•m (74 lbf•ft ± 7 lbf•ft)
WHEELS (LSV MODELS			
Type			Aluminum
Rim size		Front	14 x 7 (in)
		Rear	14 x 8.5 (in)
Wheel nuts torque			100 N•m ± 10 N•m (74 lbf•ft ± 7 lbf•ft)
CHASSIS			
Cage type			50 mm (2 in) diameter, high strength steel
Hitch support			50.8 mm (2 in) x 50.8 mm (2 in)
DIMENSIONS			
Overall length			300.4 cm (118.3 in)
Overall width			148.9 cm (58.6 in)
Overall height			182.9 cm (72 in)
Wheelbase			192.4 cm (75.7 in)
Wheel track	Front		125.7 cm (49.5 in)
	Rear		121.9 cm (48 in)
Ground clearance		With rim size 14 in	29.2 cm (11.5 in)
		With rim size 12 in	26.7 cm (10.5 in)
LOADING CAPACITY AND WEIGHT			
Dry weight (models without accessories)			850 kg (1,874 lb)
Weight distribution (front/rear)			40 / 60
Cargo box capacity	Total		272 kg (600 lb)
	Upper		181 kg (400 lb)
	Lower		272 kg (600 lb)
Total vehicle load allowed (including driver, passenger, all other loads and added accessories)			363 kg (800 lb)
Gross vehicle weight rating			1 360 kg (2,998 lb)
Towing capacity			680 kg (1,500 lb)