

Safety Defect and Noncompliance Report Guide for Equipment
PART 573 Defect and Noncompliance Report¹

On April 27, 2009, QingQi Group Motorcycle CO. Ltd decided that a noncompliance with Federal Motor Vehicle Safety Standard No. 122 exists in items of motor vehicle equipment listed below, and is furnishing notification to the National Highway Traffic Safety Administration in accordance with 49 CFR Part 573 Defect and Noncompliance Reports.

Date this report was prepared: Original report filed 05/18/2009; New report filed 05/18/2012

Furnish the manufacturer's identification code for this recall (if applicable): Unknown.

1. Identify the full corporate name of the fabricating manufacturer/brand name/trademark owner of the recalled item of equipment. If the recalled item of equipment is imported, provide the name and mailing address of the designated agent as prescribed by 49 U.S.C. §30164.

Manufacturer: QingQi Group Motorcycle Co. Ltd.

Importer and distributor/ brand name owner ZAP, 501 4th Street, Santa Rosa, CA 95401

Identify the corporate official, by name and title, whom the agency should contact with respect to this recall.

Steven Schneider, Chief Executive Officer

Michael Ringstad, Controller

Telephone Number: (707) 525-8658 Fax No.: (707) 525-5692

Name and Title of Person who prepared this report.

Michael M. Ringstad, Controller

Signed: _____

¹ Each manufacturer must furnish a report, to the Associate Administrator for Enforcement, for each defect or noncompliance condition which relates to motor vehicle safety. This guide was developed from 49 CFR Part 573, "Defect and Noncompliance Reports" and also outlines information currently requested. Any questions, please consult the complete Part 573 or contact Mr. George Person at (202) 366-5210, by FAX at (202) 366-7882, or E-Mail to RMD.ODI@dot.gov.

I. Identify the Recalled Items of Equipment

2. Identify the Items of Equipment Involved in this Recall, *for each make and model or applicable item of equipment product line (provide illustrations or photographs as necessary to describe the item of equipment), provide:*

Generic name of the item: **2008 Xebra All Electric Motorcycle**

Make: **ZAP**

Model: **2008 Xebra All Electric Motorcycle**

Part Number: **Various**

Size: **Various**

Function: **Breaking Distance**

Other information which characterizes/distinguishes the items of equipment to be recalled:

Production Dates 01/01/2008 to 12/31/2008

Vin Range Beginning LAEMA246X8G200059 to LAEMA246X8G2000403

See attached list 337 VEHICLES SUBJECT TO RECALL

Vehicle type – MC

Body Style – Sedan

All Steel Body

ZAP has developed a “Kit” to fix the braking distance required by DOT.

See Exhibit A, file brake power upgrade installation procedure.

Make: **ZAP**

Model: **2008 Xebra All Electric Motorcycle**

Part Number: **Various**

Size: **Various**

Function: **Breaking Distance**

Other information which characterizes/distinguishes the items of equipment to be recalled:

Production Dates 01/01/2008 to 12/31/2008

Vin Range Beginning LAEMB246X8G200043 to LAEMB246X8G2000535

See attached list 354 VEHICLES SUBJECT TO RECALL

Vehicle type – MC

Body Style - Truck

All Steel Body /

ZAP has developed a “Kit” to fix the braking distance required by DOT.

See Exhibit A, file brake power upgrade installation procedure.

Identify the approximate percentage of the production of all the recalled models manufactured by your company between the inclusive dates of manufacture provided above, that the recalled model population represents. For example, if the recall involved Equipment equipped with certain items of equipment from January 1, 1996, through April 1, 1997, then what was the percentage of the recalled Equipment of all Equipment manufactured during that time period.

100%

II. Identifying the Recall Population

3. Furnish the total number of items of equipment recalled potentially containing the defect or noncompliance.

ZAP has identified 691 vehicles subject to recall, more specifically as follows:

total vehicles imported	691
sold in foreign countries	(2)
in inventory	(53)
sold – still in inventory	(9)
vehicles in public arena subject to recall	627

Number of Items: **691**

Model Year Potentially Involved: **2008**

Total Number Potentially Affected by the Recall: 691

4. Furnish the approximate percentage of the total number of items of equipment estimated to actually contain the defect or noncompliance: **100%**

Identify and describe how the recall population was determined--in particular how the recalled models were selected and the basis for the beginning and final dates of manufacture of the recalled items of equipment:

Per NHTSA Notification, the manufacturer changed the design from fiberglass body to all steel body increasing the weight. These steel vehicles were manufactured in 2008 only.

III. Describe the Defect or Noncompliance

5. Describe the defect or noncompliance. The description should address the nature and physical location of the defect or noncompliance. Illustrations should be provided as appropriate.

Vehicle Stopping Distance per FMVSS 122. In order to correct braking distance problem, a power booster, different brake shoes and a reappportioning valve have to be installed. See Exhibit A, file brake power upgrade installation procedure.

Describe the cause(s) of the defect or noncompliance condition.

Vehicle breaking distance could not occur at 54 feet from 30mph.

Describe the consequence(s) of the defect or noncompliance condition.

Longer breaking distance could cause accidents.

Identify any warning which can (a) precede or (b) occur.

None.

If the defect or noncompliance is in a component or assembly purchased from a supplier, identify the supplier by corporate name and address.

Unknown.

Identify the name and title of the chief executive officer or knowledgeable representative of the supplier:

Unknown.

IV. Provide the Chronology in Determining the Defect/Noncompliance

If the recall is for a defect, complete item 6, otherwise item 7.

6. With respect to a defect, furnish a chronological summary (including dates) of all the principle events that were the basis for the determination of the defect. The summary should include, but not be limited to, the number of reports, accidents, injuries, fatalities, and warranty claims.

NHTSA self – generated a report from an outside laboratory. We were notified on or about 4/09/2009 that a state of noncompliance may exist. No accidents or incidents have been reported to us.

7. With respect to a noncompliance, identify and provide the test results or other data (in chronological order and including dates) on which the noncompliance was determined.

Stopping distance at 30 MPH exceeded 54 feet. See Exhibit B, test results completed by Transportation Research Center, Inc on 11/08/2010.

V. Identify the Remedy

8. Furnish a description of the manufacturer's remedy for the defect or noncompliance. Clearly describe the differences between the recall condition and the remedy.

ZAP has developed a remedy for the noncompliance. A power booster, proportioning valve, new master cylinder w/duel reservoirs and brake lines need to be replaced and installed to meet the required testing. See Exhibit A, file brake power upgrade installation procedure.

Clearly describe the distinguishing characteristics of the remedy component/assembly versus the recalled component/assembly.

The remedy “kit” has many components. See Exhibit A, file brake power upgrade installation procedure.

Identify and describe how and when the recall condition was corrected in production. If the production remedy was identical to the recall remedy in the field, so state. If the product was discontinued, so state.

The product was discontinued in 2008.

VI. Identify the Recall Schedule

Furnish a schedule or agenda (with specific dates) for notification to other manufacturers, dealers/retailers, and purchasers. Please, identify any foreseeable problems with implementing the recall.

On 5/15/2013 ZAP delivered a vehicle for retesting to Karco. ZAP's technician who accompanied the vehicle will stay until the first test is successfully completed. At this juncture, ZAP does not foresee any problems with obtaining certification and subsequently implementing the recall.

Once ZAP has obtained the certification, ZAP will send notices to all purchasers of the MY 2008 ZAP Xebra sedan. Upon receiving responses from purchasers, ZAP will either send each customer an installation kit or have the customer send the vehicle back to ZAP in order that ZAP may complete the installation.

VII. Furnish Recall Communications

9. Furnish a final copy of all notices, bulletins, and other communications that relate directly to the defect or noncompliance and which are sent to more than one manufacturer, distributor, or purchaser. This includes all communications (including both original and follow-up) concerning this recall from the time your company determines the defect or noncompliance condition on, not just the initial notification. *A DRAFT copy of the notification documents should be submitted to this office by Fax (202-366-7882) or by E-Mail (RMD.ODI@dot.gov) for review prior to mailing.*

Note: These documents are to be submitted separately from those provided in accordance with Part 579.5 requirements.

See attached Exhibit C.

XEBRA 2008 – DEALER POWER BRAKE RECALL FIX - Version 7

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Background:

Recent testing has shown that certain 2008 Xebra models failed to meet braking stopping distance and pedal brake pressure requirements of NHTSA for motorcycles. The following Power Brake Installation will improve the Xebra to meet or exceed these requirements. To ensure correct stopping distance, lower pedal pressure and to ensure that the system operates with dual brake reservoir and warning system, the following procedure must be followed and components installed.

Summary:

The Power Brake Kit consists of:

PARTS KIT FOR RECALL 09V-177; 09V-385

12/1/2011		
QTY	PARTS	DESCRIPTION
2	260-3394	FILLER, 4.0 OZ, M/C, REMOTE TYPE
2	210-3397	O-RING, MOUNTING BRACKET, 1.12, RMTE M/C RESERVOIR, 210A/B/K
2	260-3393	CLAMP, RESERVOIR, M/C, WILWOOD REMOTE TYPE
2	250-3381	BRACKET, MOUNTING,RESERVOIR, M/C, WILWOOD, REMOTE TYPE
1	220-3357	HOSE, M/C, REMOTE TYPE, 3/8 ID X 5/8 OD X 30.0
2	260-10342	CLAMP, HOSE, 1.12 DIA X 5/16 SS BAND BLK
3	220-8371	FLEXLINE, BRAKE, 20IN. OAL, -3 HOSE -3 FEMALE, DWG. 1449B1A REV U
3	220-10416	FITTING BANJO, -3 MALE TO 10MM .388-.425 MOUNT
3	220-6413	FITTING. ADAPTOR, TUBING -3 TO 10MM X 1.0 IF, STEEL, ZINC
1	Z-260-9500	VALVE, PROPORTIONING, COMPACT ASSY, KNOB TYPE, WWE, BULK PACK
2	300-11181	SWITCH, PRESSURE, 1/8 NPT
2	210-11141	SEAL, DUST BOOT, PRESSURE SWITCH
4	300-11182	PIGTAIL, PRESSURE SWITCH, BLADE STYLE
2	220-11656	FITTING ADAPTOR, .125NPT TO M10 X 1.0 BRASS
3	300-6416	CLIP, FITTING ADAPTOR, BRAKE LINE
6	240-5227	WASHER, .406 ID X .625 OD X .063 COPPER, SOFT TEMPERED, 4913B1S A
3	150-11654	PAD, D177-SG, 55 THK, 2-PK
2	100-12111	WARNING LABELS FOR RESERVOIRS 31MM X 44MM
1	23-XEFL-2011	FAULT LIGHT INDICATOR MODULE
1.5	FL1819R	SETS BRAKE PADS
1	FL2204	VACUUM PUMP/PARTS
1	FL2104	MASTER/BOOSTER
1	FL2115	INLINE CHECKVALVE
1	DK23908	BRAKE RESERVOIR
1		BRAKE FOOTWELL STRENGTHENING BRACKET
2		CONNECTOR, TO FLOAT CAPS
1		RESERVOIR MOUNTING BRACKET
1		12" STEEL BRAKE LINE M10 X 1.0MM
2		BRAKE SENSOR MODULE
4		M6 X 1.0 X 30MM BOLT

4	M6 X 1.0 NYLOCK NUT
1	BRAKE FLUID DOT 4 14OZ.
8	M6 WASHER STEEL

Figure 1A. Power Brake Upgrade Kit for Brake System



1.) Subassemblies

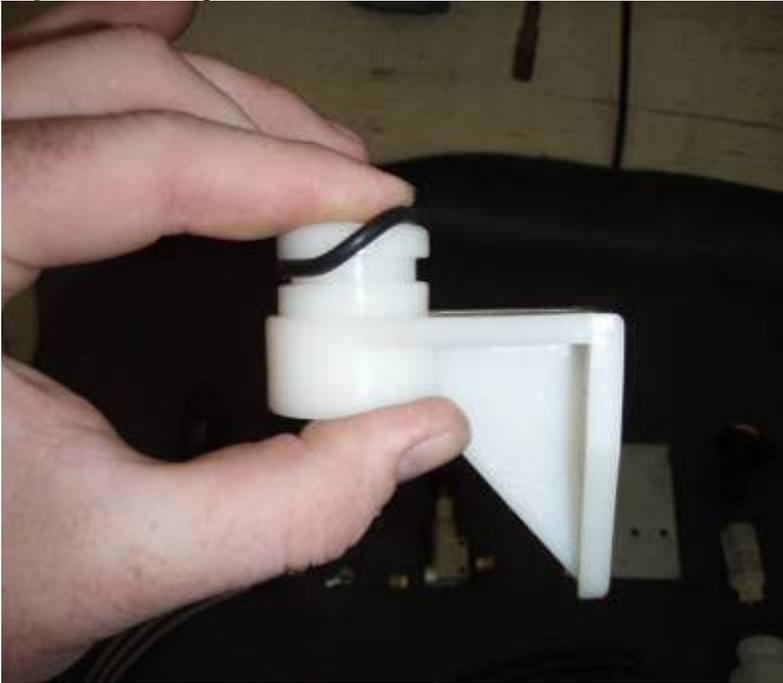
A.) Reservoirs

Start by sanding down the flash on the reservoir mounting brackets inside the o-ring slot using 400 grit sand paper; this helps ensure a proper seal. Blow out any debris in the reservoirs and o-ring slot to prevent contamination of the brake system.

Figure 2. Reservoir



Figure 3. O-rings



B.) Install O-rings

C.) Slide clamp onto reservoir and slide over O-ring seal, tighten the clamp so the O-ring is in between the two straps.

Figure 4. Clamp



D.) inset the micro screens, push down until it is flush with the top of the reservoir neck.

Figure 5. Micro Screen



E.) Cut the length of hose in half with a hose cutter or razor.

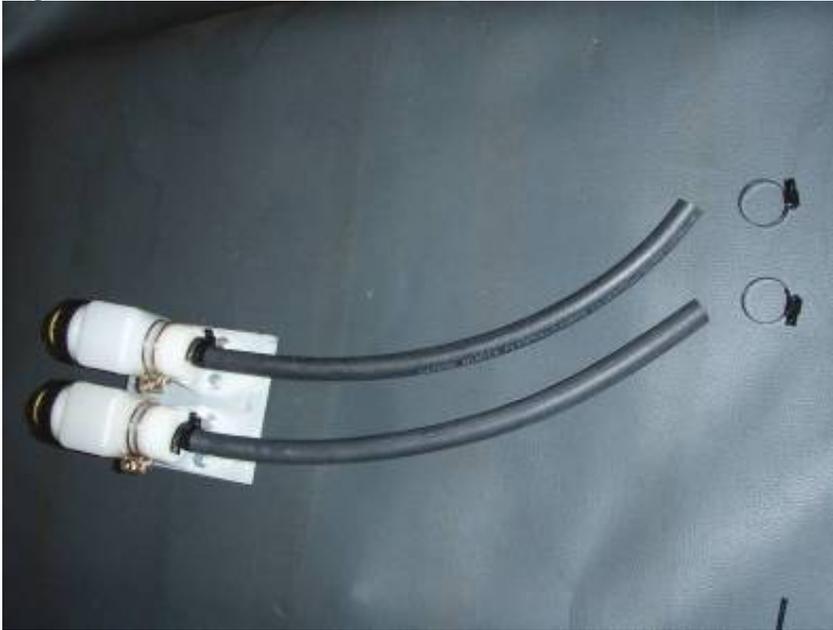
F.) Install hoses onto the barb on the bottom of the brake reservoir mounting bracket and clamp. Let the natural curve of the hose go to the right when the reservoir is facing you. Put the float tops on to prevent anything from getting in the reservoirs.

Figure 6. Hoses



G.) Bolt reservoirs to mounting plate with the M6 bolts provided and this assembly is complete.

Figure 7. Bolt Reservoirs



Proportioning Valve

A.) Mount the adaptors on the In and Out then tighten until snug, remember that these are soft metals don't strip them out.

Figure 8. Proportioning Valve



Pressure Sensors

A.) Mount the adaptors to the pressure sensors again remembering that these are soft metals.

B.) Push the wires through the dust covers and set aside until wiring.

Brake Lines

A.) Put one of the loop adaptors on one end and one of the line adaptors on the other end of the braided steel line.

Figure 9. Brake Lines



This is what the sub assembled kit should look like:

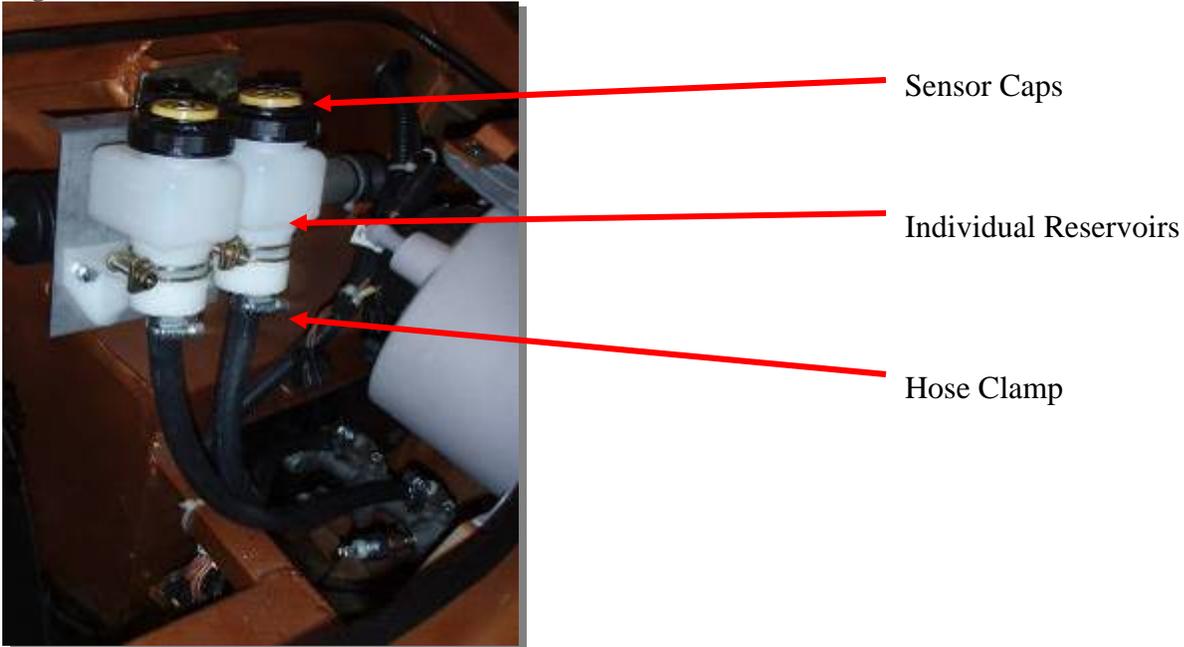
Figure 10. Sub Assembled Kit



2.) Replacing the Brake Reservoir

Remove the old brake reservoir and the new ones as shown. You can recycle two of the bolts removed to mount the new reservoir mount plate. Remove as much of the fluid as you can before starting and use a drip pan to catch any fluid that may drip.

Figure 11. Brake Reservoir



Place Warning Labels as noted on each Brake Reservoir.

Figure 11a. Warning Labels

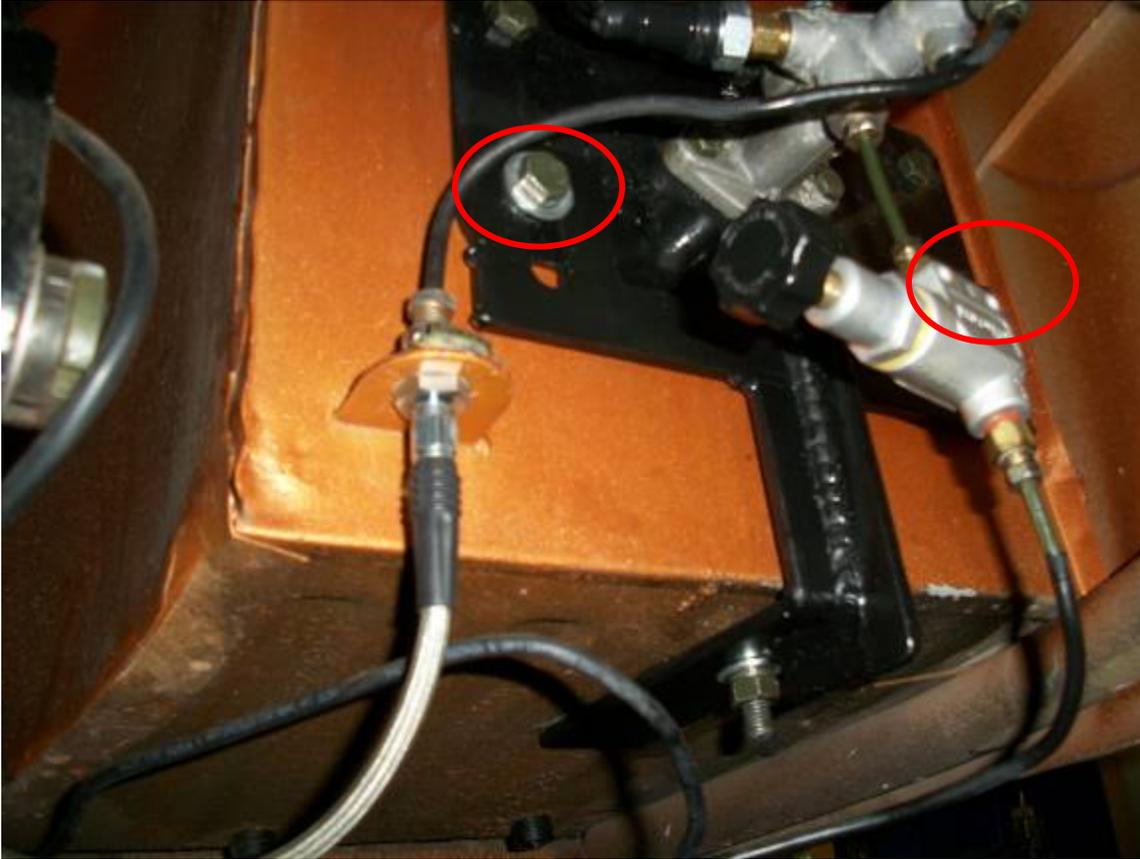


Note: Warning Labels should be adhered and visible as seen. **Use Only DOT 4 Brake Fluid As Specified In 49 CFR 571.116. Clean Filler Cap Before Removing.**

2A. Pedal Brake Bracket Installation.

Loosen lower Pedal Bracket bolts and fasten supplied Brake Pedal Support Bracket. Tighten lower bolts as shown. Drill floor hole. Then fasten as shown. This support bracket will help reduce pedal box flex during excessive pedal pressure.

Figure 12. Brake Pedal Bracket



Note: Steel Pedal Bracket only installed on Steel sedans.

3.) Remove and Replace the Master Cylinder.

1. Disconnect primary and secondary brake tubes from the master cylinder
2. Install plugs at all open brake tube outlets on master cylinder assembly.
3. Remove master cylinder from under the hood
4. Clean area where original master cylinder attaches to booster using a suitable brake cleaner product
5. Remove plate to which brake pedal is mounted.
6. Drill bigger hole following the steps mentioned below

Remove the brake pedal mounting assembly from the car after removing the master cylinder.

Take a steel strip (2" * 10") or a wooden strip to mark the hole



Drill holes to attach the strip to the brake pedal mounting plate



Use 2" hole saw and a punch to mark the center on the strip



Drill a center hole for hole saw



Drill through the brake pedal mounting plate using the hole saw.



Glue the booster mounting template onto the brake plate so that the center hole is matching



Drill four holes matching the template pattern and try mounting the booster assembly



Attach the brake pedal mounting plate onto the firewall



After securing the plate firmly to the firewall, use the hole saw to drill a bigger hole on the firewall. The four mounting holes for the booster assembly will also have to be drilled.



Mount the brake booster assembly using the four holes



Mount the brake pedal to the mounting plate and the master cylinder.



Adjust brake pedal position so that the pedal is 6" from bottom of floor

4. Mount the Vacuum Pump

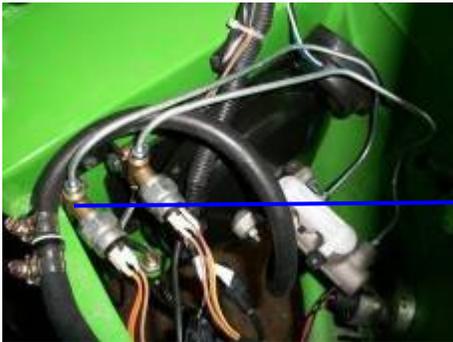
Apply the supplied bracket and attach the Vacuum Pump and Vacuum Reservoir to the vehicle core support.



Vacuum Pump

5. Connect the brake lines to the T valves

Use the provided brake lines to connect the master cylinder and the Tvalves. The other outlet of the t-valve is connected to the wheels. The top of the valve houses the pressure sensor switch



T-valve

6. Connect Vacuum lines

Connect the reservoir line to the vacuum line from the pump. Connect the other line from the box to the booster.



Pressure switch

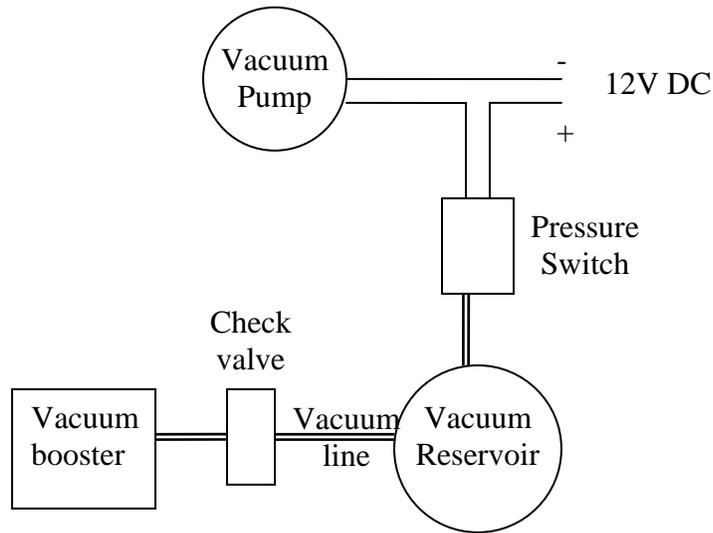
7. Connect Vacuum pump and Pressure switch to 12V

Connect the pressure sensor switch across the 12V supply to the pump from the DC-DC converter. Follow the schematic provided below for wiring the pump and the switch.



DC – DC converter
in front of the
passenger seat.

Vacuum Pump setup schematic:



8.) Replace flexible brake lines

- A.) Place the vehicle on a car lift and remove all of the wheels. Remove the lines one at a time with the drip pan underneath it. Start with the treaded connection, unscrew the hard brake line then loosen the flexible line from the mount.
- B.) Remove the banjo bolt and crush washers from the other end of the flexible line.
- C.) Reinstall the banjo end of the new steel braded line using the new crush washers, do not reuse the old crush washers as they may not seal properly.

Figure 13. Banjo Connector



- D.) Insert the clip end of the flexible line through the mount hole and install the clip making sure that it is secure. Reinstall the hard line to the new braded brake line.

E.) **Figure 14.** Brake Line



F.) Make sure that the line is routed so that it will not touch any moving parts especially the tire. You can loosen the banjo bolt and turn the line to reposition as shown.

G.) Repeat this procedure for the other two wheels.

9.) Replace the brake pads

A.) Remove Brake Caliper Slide Bolts and slide the caliper off and secure it. Do not let it hang by the line. Take note of the position of the pad clips. If you replace the pads one at a time the clips won't fall out.

Figure 15. Brake Slide Bolts



Figure 16. Brake Pad



B.) You may need to push the cylinder on the caliper in with a C-clamp but do this gently.

Figure 17. Brake Caliper



C.) Reinstall the Brake Caliper slide bolts using Medium Thread lock, make sure to align the flats on the end of the slide bolts with the flats machined on the caliper.

Figure 18. Brake Slide Bolts



D.) Repeat for the other two wheels.

10.) Proportioning valve.

- A.) Do not adjust the proportioning valve it is preset from the factory.
- B.) Remove the single line coming from the master cylinder in front and bend it to the right about 90 degrees making sure not to crimp it closed. A brake line bender is recommended.

Figure 19. Proportioning Valve



C.) Install the Proportioning Valve noting that the line coming from the master cylinder is going to the “IN” side of the valve and the “OUT” side is connected to the “T” splitter with the new 12” bent hard line. Make sure that the valve is clear of the gearbox it is rubber mounted and can move some.

Figure 20. T Splitter



Install the proportioning valve in the rear in the brake line connecting to the rear brakes

Figure 20a. Master Cylinder Line



Line connecting to the proportioning valve

11. Wiring

7.) Brake Upgrade Wiring

- A.) Locate the brake sensors and pigtails that were removed. Cut the old brake sensors off as close to the sensor as possible and keep the pig tail. Also, Cut the cut the brake reservoir off in the same manor.

Figure 21. Brake Sensor

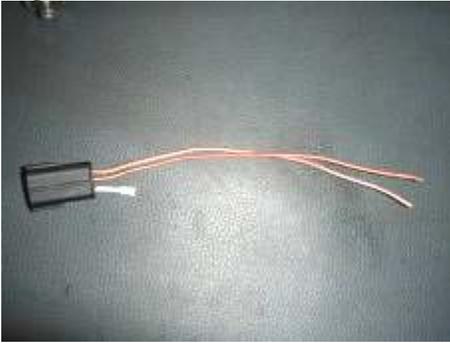


Figure 21A. Brake sensor Connector



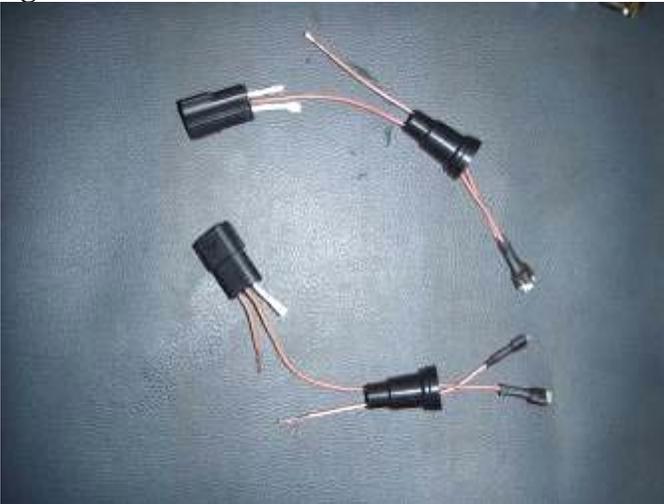
- B.) Next, cut off the orange wires you don't need them. Cap them off with shrink tube at the connector. The brown wires with the white stripe cut one off near the connector and cap it but save the wire, the other one cut off about 2" up from the connector and strip the end of the wire from the connector.

Figure 22. Sensor Connector



- C.) Feed the wires through the dust boots.
- D.) Strip the ends of the wires.
- E.) Put shrink tube on the wires just barely long enough to cover the connectors.
- F.) Put female spade connectors on the ends of all four wires.
- G.) Solder on the spade connectors.
- H.) Shrink the shrink tube.

Figure 23. Wired Sensor Connector



- I.) Cut four pieces of 18 AWG wire two that are 6" long one red and one black, and two 8" long one red and one black.
- J.) Strip the ends of all four pieces of wire and the ends of the wires on the connector removed from the reservoir.
- K.) Hook the ends of the wires on the connector and on one end on each of the four wires. Next, connect the black wires to the one black wire on the connector and the red ones to the one red wire. Solder and shrink tube the wires.

Figure 24. Connector



L.) Crimp and solder pins on for the connector to the reservoir float caps.

Note: we do not have the connectors for the reservoir float caps and are awaiting a part number from the manufacturer.

M.) Connect the float sensor harness using the connector. The black wires to the float cap should be connected to the middle position and the red wires to the pin to the right the pin on the left is unused.

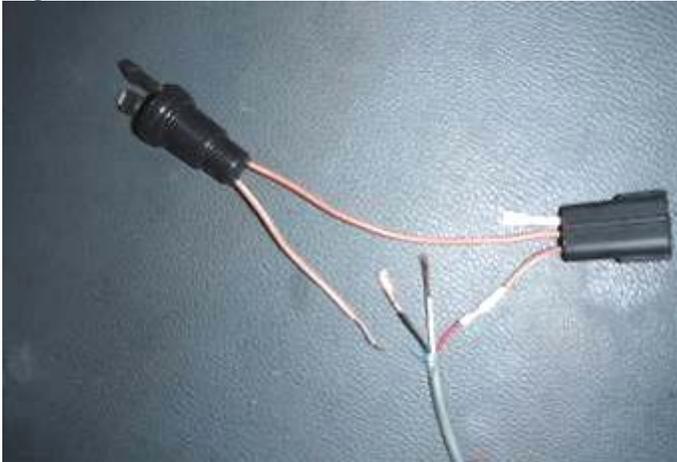
Figure 25. Dual Reservoirs



Sensor and Module wiring

A.) Connect , solder, and shrink tube the red wire in the com cable to the red “fault” wire to the brown wire with the white stripe that runs back to the car through the connector.

Figure 26. Module Connector



- B.) In the same manor solder the white wire to the wire with the spade connector for the rear pressure switch and the black wire to the one for the front. Shrink tube over the communications wires to protect them.
- C.) Connect the spade connectors to the pressure switches the three pin connectors run the communications cable through the hole in the barrier wall that the other wires are routed through.
- D.) Strip the ends of the communications cable wires about a ¼ “ back and tin them.
- E.) Install the wires into the properly marked terminals:

Red-fault
White-sense 1
Black-sense 2

Figure 27. Module



F.) Assemble power wire harness for the sensor module.

aa.) Cut two peaces of 18AWG that are 4" long one red and one black, and two that are 18" long one red and one black.

bb.) Strip 1/4" of insulation off of each end of the wires.

cc.) Put a wire loop on one end of the long black wire and tin the other end.

Figure 28. Wire Connector



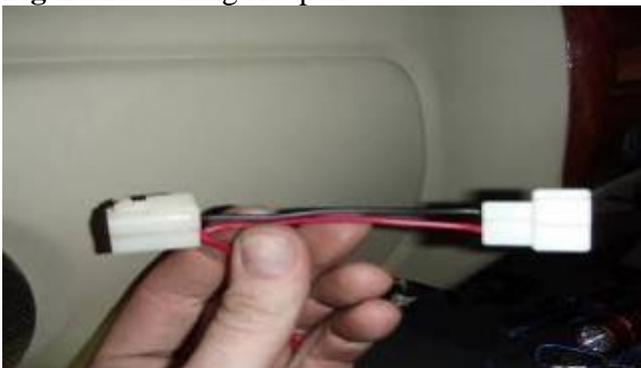
dd.) Put a male and female spade connector on the ends of the short black wire.

ee.) crimp one end of the short red wire and one end of the long red wire into the female spade connector. Tin the other end of the long wire and crimp a male spade connector on the other end of the short wire.

ff.) Clip the black wire into the top positions of the connector (closest to the clip) it is a good idea to check voltage and polarity on the power source to the brake pedal switch as different revisions of the car were wired slightly differently.

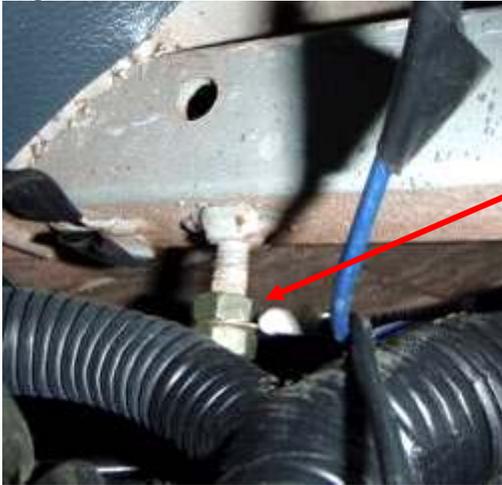
insert the red wires into the bottom of the connectors (this needs to be the hot side when the ignition is on.

Figure 29. Wiring Adapter



F.) Locate the brake light pedal switch and plug harness into it and connect the ground loop to the ground bolt that is welded to the frame directly above the accelerator pedal under the dashboard.

Figure 30. Brake Pedal



Grounded Frame Bolt

Figure 31a. Brake Pedal

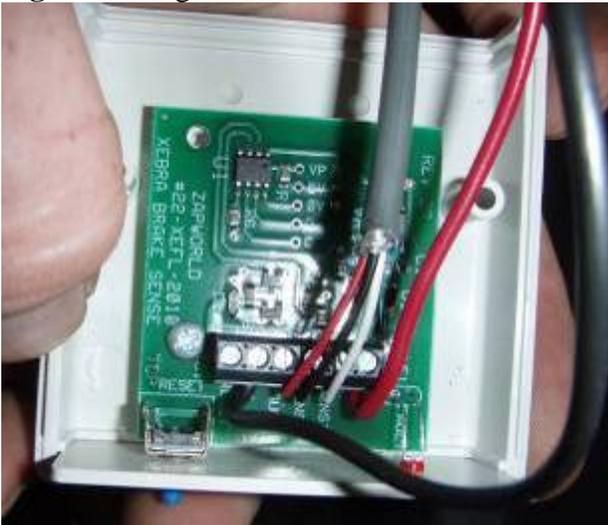


Figure 31. Brake Pedal Wiring Adapter



- I.) Connect the run the red and black wires to the connectors inside the module box.
Red wire -12v
Black wire - 0v

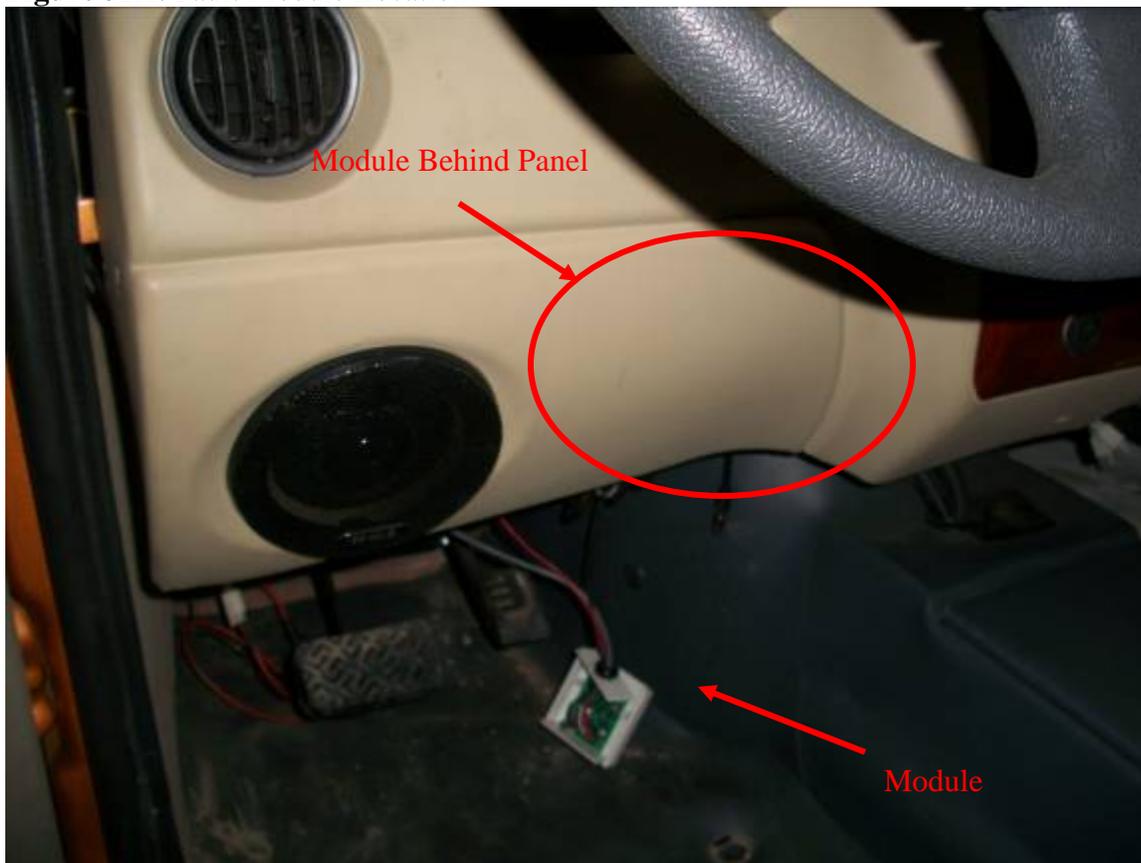
Figure 32. Light Module



Reassemble the module box.

- J.) Secure the box and the wires under the dash using zip ties so that there are no wires hanging down and making sure that the wiring in no way interferes with the operation of the foot pedals.

Figure 32A. Fault Module Location

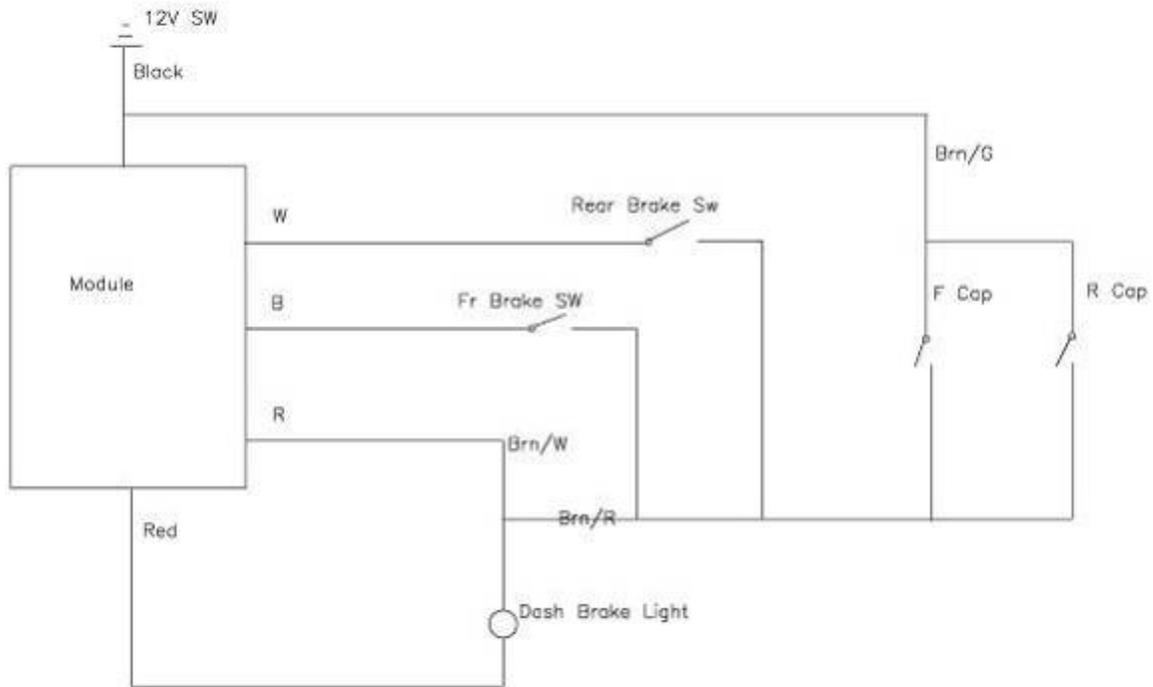


The Brake warning light is located on the lower portion of the AMP gauge (the gauge on the far right) it is illuminated for the purpose of this picture.

Figure 33. Xebra Dashboard



Figure 34. Wiring Diagram Module



ELECTRIC CIRCUIT FOR BRAKE UPGRADE AND BRAKE WARNING/FAILURE LIGHT

12.) Bleed System

A.) Pressure sensors

Fill the Brake Fluid reservoirs with DOT 4 fluid, leave the sensors just loose enough to leak where the sensor is treaded into the adaptor. Have the drip pan underneath it have someone apply GENTLE pressure to the brake pedal until you see the bubbling stop around the treading, tighten the sensor before releasing the brake pedal. Do this one at a time for front and back. You may have to repeat this procedure several times to purge all of the air out.

B.) Tighten the pressure sensors all of the way.

C.) Manually bleed the brakes until you get no more air starting at the farthest caliper RR, then LR, then F.

D.) Reinstall the wheels and torque to 42 ft/lbs check tire pressure for the proper rating for those tires.

13.) Tighten front shock

Using Spanner wrenches tighten the spring so that about 1.75 inches of thread is showing.