



AMERICAN SUZUKI MOTOR CORPORATION

September 25, 2003

Mr. Richard Boyd, Chief
MHD Branch
Office of Defects Investigation
U.S. Department of Transportation
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, DC. 20690

RECEIVED
SEP 26 10 33 AM '03

Re: NVS-214jry
PE03-033

Dear Mr. Boyd:

On behalf of Suzuki Motor Corporation and American Suzuki Motor Corporation (collectively referred to as "Suzuki"), this responds to your letter dated July 25, 2003, which requests information to assist in the National Highway Traffic Safety Administration's ("NHTSA's") investigation (PE03-033) relating to reports of recall remedy cam chain tensioner problems in 1999 model year GSX-R600 and GSX-R750 motorcycles subject to recall 99V-132.

Your requests and our corresponding replies are provided below.

1. State the number and provide copies of all of the following information. This should include all information in Suzuki's possession or control, or of which it is otherwise aware, which relates or potentially relates to the alleged defect and/or the reports enclosed with this letter.
 - a. Owner complaints;
 - b. Repair shop reports;
 - c. Field reports;
 - d. Crash reports;
 - e. Subrogation claims;
 - f. Lawsuits; and
 - g. Third-party arbitration proceedings where Suzuki is a party to the arbitration.

Please organize the documents responsive to this request by category (i.e., "a" through "g") and claim date. If not contained in the documents for each claim, please provide the incident date, the owner name, owner address, owner phone number, dealer location, vehicle identification number, build date, vehicle in-service date, repair date, repair mileage, repair order number, part numbers of subject

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components replaced, model, model year, and the current status of Suzuki's response to the report/incident.

For "d", identify all crashes by date, location, and names of parties involved. For "e", identify all subrogation claims and lawsuits by caption, court, and docket number. Provide a separate analysis and description of each item "e" through "g" identifying the vehicle (by model year, build date, and VIN) and the vehicle owner (by name, address, and telephone number). Include all police reports known to Suzuki. Clearly describe the sequence of events leading up to any accident(s), the approximate vehicle speed, approximate vehicle mileage, and any personal injuries, vehicle damage, or property damage that may have occurred.

Provide all related material and information even if it has not been verified by Suzuki. Indicate if no information exists for any category.

Following is a description of the information Suzuki has identified in each of the categories listed above. In some cases, the documents that were identified do not contain all of the requested information. Because it would be a tremendous burden to attempt to provide all of the requested information for all of the incident reports by searching other data sources, Suzuki has provided only the information that is in the report documents themselves. Additional information can be furnished to NHTSA upon request.

It is also important to note that for some information categories (e.g. consumer complaints and dealer Techline calls) it is very difficult to determine whether the vehicle involved was a subject vehicle (i.e. whether the recall repair was performed prior to the complaint/report). Some of the complaints/reports that we have provided may involve motorcycles which had not yet received the recall repair at the time of the complaint/report.

(a) Consumer complaints

To respond to this request, ASMC conducted a search of its customer complaint records to identify all complaint records involving a subject vehicle, which are coded as engine-related, and which potentially relate to the alleged defect. Attachment A contains copies of 55 customer complaint records identified by this search.

(b) Repair shop reports

Suzuki does not have any repair shop reports which relate to the alleged defect in the subject motorcycles.

(c) Field reports

ASMC has the following two types of reports that can be considered to be "field reports": records of dealer calls to Suzuki's Techline (Techline is a toll-free telephone call system set up by Suzuki to respond to dealer technical questions); and reports prepared by ASMC field personnel.

ASMC conducted a search of its Techline call records¹ to identify all dealer contacts involving a subject motorcycle, which are coded as engine-related, and which potentially relate to the alleged defect. Attachment B1 contains copies of 147 dealer Techline call records identified by this search.

Attachment B2 contains copies of 29 reports from ASMC field personnel which potentially relate to the alleged defect in the subject motorcycles.

(d) Crash reports

To respond to this request, ASMC conducted a search of the customer complaints, Techline call records, and field reports identified in (a) and (c) above, for any reports which indicate that a crash occurred and may have involved the alleged defect. No crash reports were identified by this search.

(e) Subrogation claims

Suzuki has not received any subrogation claims which relate to the alleged defect in the subject motorcycles.

(f) Lawsuits

Attachment C contains a copy of one lawsuit complaint which may relate to the alleged defect in a subject motorcycle. The complaint alleges a malfunction of a 1999 GSX-R750X motorcycle which the plaintiff claims had the cam chain tensioner replaced under a recall conducted by ASMC. The

¹ ASMC began using an electronic database to record Techline calls in April, 2000. Attachment B1 only contains records of Techline calls received after ASMC began using the electronic database.

complaint does not provide any details about the alleged incident.

Attachment C also contains a copy of one claim letter which involves a subject motorcycle, but which contains insufficient information for Suzuki to determine whether the claim relates to the alleged defect.

(g) Third-party arbitration proceedings where Suzuki is a party to the arbitration

Suzuki has not been a party to any third-party arbitration proceedings.

2. *Furnish copies of all service or technical bulletins, advisories, or other communications to dealers, zone offices, or field offices pertaining to the alleged defect in the subject vehicles. Briefly explain the purpose of each of these documents. If no such documents or communications have been issued, so state.*

Suzuki has not issued any service or technical bulletins, advisories, or other communications to dealers, zone offices, or field offices pertaining to the alleged defect in the subject motorcycles.

3. *Identify and describe all significant modifications or changes made to a subject component by or on behalf of Suzuki in its manufacture (including quality control), design, and/or material composition. Please include the following information for each such modification or change:*
 - a. *The component name, the original part number, the modified part number, and the approximate date on which the modification or change was incorporated into production;*
 - b. *A description of the modification or change;*
 - c. *The reason for the modification or change; and*
 - d. *Separately, the number of subject components sold before and after the modification.*

In November 1999, the following two changes were made in the manufacture of the recall replacement cam chain tension adjusters: (1) the parts supplier began using a process to "break-in" the new adjusters. The process involved use of a vibration machine at the end of the adjuster push rod to "exercise" the push rod; (2) the parts supplier implemented a

dynamic inspection process involving use of a test engine. The adjusters were inspected to make sure that maximum loads at the adjuster push rod remained between 75 and 150 kgf during operation of the test engine. These changes were made to address owner complaints about noise. The cam chain tension adjuster part numbers (12830-33E13 For the GSX-R600X and 12830-33E01 for the GSX-R750X) were not changed in conjunction with the implementation of the new break-in and inspection process. Cam chain tension adjusters produced using the new procedures can be identified, however, by the presence of a 4-digit date code on the adjuster body. Cam chain tension adjusters produced prior to use of the new procedures do not have a date code.

4. Separately respond to the following warranty-related inquiries:

- a. State the warranty terms as they apply to the subject component(s) in the subject vehicles by model and model year.
- b. State the number of warranty claims, including extended warranty claims, requests for warranty or "goodwill", or other types of adjustments received by Suzuki which relate or potentially relate to the alleged defect. Order this information by calendar month and year and include the part name, part number, labor operation number, problem code, model year, vehicle identification number and dealer identification number. If there are over 100 records, include the same data in a separate enclosure, replacing the calendar month and year by the build date (month and year). All abbreviations must be well defined.

Enclosed is a warranty booklet that describes the warranty coverage applicable to the subject motorcycles.

To respond to NHTSA's request for warranty claim records which relate or potentially relate to the alleged defect, Suzuki conducted a search for all warranty claims, including requests for "goodwill", which involve one of the subject motorcycles and which identify the failed part as one of the following:

12830-XXXXX	Adjuster assy, tensioner
12760-XXXXX	Chain, cam shaft drive
12782-XXXXX	Guide, cam chain #2
99103-11143	GSX-R600X adjuster (recall kit)
99103-11144	GSX-R750X adjuster (recall kit)

Attachment D-1 contains a listing of warranty records identified by this search. There are 44 warranty records for the GSX-R600X model and 129 warranty records for the GSX-R750X model. The warranty records are ordered by repair date, and include the vehicle identification number, claim number, failed part number, failed part name, complaint code (CC), defect code (DC), labor operation code and dealer number. Attachment D-2 contains the same records as Attachment D-1, except that the repair date has been replaced with motorcycle build date. Attachment D-3 contains an explanation of the complaint codes, defect codes, and labor operation codes.

5. The following relate to 99V-132:

- a. State the number of cam chain noise complaints of which Suzuki was aware at the time it decided to conduct this recall.
- b. Identify, by VIN, build date, tensioner type (i.e., OEM or replacement part), and failure mileage, all reports alleging cam chain breakage on Myr 1999 GSX-R750 and -R600 series motorcycles of which Suzuki was aware at the time it decided to conduct this recall.

(a) Cam chain noise complaints

To respond to this request, ASMC conducted a search of customer complaint records and reports prepared by ASMC field personnel, to identify all reports received prior to Suzuki's recall decision which mention cam chain noise or cam chain tension adjuster problems. The number of reports identified by this search are as follows:

Customer complaints	- 70
ASMC field reports	- 48

(b) Reports alleging cam chain breakage

Prior to Suzuki Motor Corporation's decision to conduct recall 99V-132, Suzuki was aware of ten reports alleging cam chain breakage, eight cases in the United States and two cases in France. Attachment E contains a summary of information about the motorcycles associated with these reports.

6. Furnish Suzuki's opinion regarding the possibility that a failure of the remedy tensioner (including those that initially result in chain noise) may result in chain

breakage. Compare and contrast the failure history involving the subject component with that observed by Suzuki prior to launching 99V-132.

Suzuki believes that it is unlikely that cam chain breakage can occur due to failure of the parts included in the "Tension Adjuster Recall Kit" used for recall 99V-132 (service part no. 99103-11143 for the GSX-R600X and service part no. 99103-11144 for the GSX-R750X).

Design Improvements for Recall Parts

Figure 1 in Attachment F contains an illustration of the design difference between the cam chain tension adjuster provided in the recall parts kits (improved part) and the cam chain tension adjuster used for motorcycle production (original part). The recall part includes a rubber damper at the end of the adjuster push rod. The rubber damper was added to absorb vibration shock and provided adjustment stability. During high engine speed operation, there is a higher vibration load on the adjuster than at lower engine speeds. Without the damper, the push rod may not be able to reliably move in and out of the adjuster body. If the push rod does not move back in the adjuster body when necessary, the cam chain can become too tight and can break. If the push rod does not move out of the adjuster body when necessary, the cam chain can become slack and can begin making noise. Under certain operating conditions, a slack chain that is making noise can jump to an incorrect position on the intake and exhaust cam sprockets.

To evaluate the effectiveness of the cam chain tension adjuster design change, Suzuki conducted dynamic tests using the original adjusters and improved adjusters. Both types of improved adjusters (before and after implementation of the break-in and dynamic inspection procedures) were evaluated. For this testing, the load at the adjuster push rod was measured as indicated in Figure 2 in Attachment F. Testing was conducted using a test engine which was operated from idle to the engine revolution limit under no load. One hundred of each of the three types of adjusters were evaluated. Figure 3 in Attachment F shows the distribution of maximum loads measured for each of the three types of adjusters. For the original adjusters, there was a broad distribution of loads, indicating adjustment instability. Also, loads approaching and even exceeding the failure limit² of

²The failure limit is the force limit at which prolonged exposure can lead to failure.

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the cam chain (200 kgf) were measured, indicating the potential for cam chain breakage. For the improved adjusters, the distribution of maximum loads was in a much tighter band, indicating adjustment stability, and no loads approaching the failure limit of the cam chain were observed. For the improved adjusters which had been subjected to the break-in and dynamic inspection procedures, the distribution of maximum loads was in an even tighter band, well below the load limit of the cam chain.

Figure 4 in Attachment F contains an illustration of the design difference between the cam chain guide no. 2 provided in the recall parts kits (improved part) and the cam chain guide no. 2 used for motorcycle production (original part). The shape of the cam chain guide was changed to restrict cam chain movement between the cam chain guide and the top of the intake and exhaust cam sprockets. Figure 5 in Attachment F shows, for both the original guide and the improved guide, the clearance between the top of the exhaust sprocket and the bottom of the cam chain guide. For the original guide, the clearance is 7.0 millimeters. Since the height of the cam chain is 6.7 millimeters, it is possible for the cam chain to "jump" on the sprocket when slack is introduced. For the improved guide, however, the clearance between the top of the exhaust sprocket and the bottom of the cam chain guide is only 5.5 millimeters. Since the height of the cam chain is 6.7 millimeters, it is physically impossible for the cam chain to "jump" on the cam sprocket with the improved cam chain guide installed.

Field Experience

Although there are a number of reports of cam chain noise and cam chain tension adjuster problems for motorcycles which have had recall 99V-132 performed, it appears that there is no problem with cam chain breakage. Even prior to Suzuki's recall decision, there were very few cases of cam chain breakage. It appears that many of the complaints for motorcycles which had previously had the recall service performed, are strictly related to noise. In examining the reports which seem to involve physical malfunctions, it appears that many of these problems may relate to improper repair procedures (failure to compress the adjuster push rod before installation, failure to correct errors in valve timing, etc.)

To further evaluate the field performance of the cam chain tension adjuster used for recall 99V-132, ASMC conducted a search

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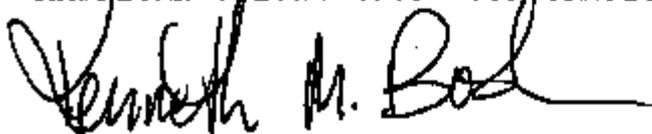
of warranty claims for the 2000 model year GSX-R600Y, which uses the same cam chain tension adjuster as the recall replacement part for the 1999 model year GSX-R600X. The search was conducted to identify all warranty claims to date which identified the failed part as the cam chain tension adjuster, cam chain, or cam chain guide #2. A total of twenty-two warranty claims were identified by this search.

7. State the date that Suzuki ceased collecting information for use in responding to this Information Request. If more than one date applies, please provide the date for each information type (e.g., vehicle population, owner complaints, warranty, etc.)

Suzuki stopped collecting information for use in responding to NHTSA's warranty-related request (request 4) on September 3, 2003. Suzuki stopped collecting information for use in responding to all other requests on September 16, 2003.

Suzuki's response is based on searches of documents where information responsive to the agency's request would normally be found, as well as consultation with personnel who could reasonably be expected to have such information. Consequently, Suzuki's search did not include "... all of its past and present officers and employees, whether assigned to their principal offices or any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Suzuki (including all business units and persons previously referred to)..."

Sincerely,
AMERICAN SUZUKI MOTOR CORPORATION



Kenneth M. Bush
Regulations Manager
Government Relations Department