Abridged:

The information contained in this document is meant to clarify the parts supplying history, and various aspects of the manufacturing processes used in the production of the crankshaft removed from the #6 Rockstar Makita Suzuki ridden by Mat Mladin following the completion of the Superbike race August 17, 2008.

Part Supply History

The crankshaft removed from the #6 Rockstar Makita Suzuki was initially established on January 21, 2005, and is still currently offered as "set" which includes eight (8) thrust bearings under the part number of 12000-41820. With the exception of minor changes to the production methods, the crankshaft remains dimensionally unchanged. This crankshaft has been continuously used in production of the GSX-R1000 imported into the US market since the dated note above. However, because the crankshafts are not uniquely numbered it is not possible to identify which crankshaft batches were placed in which engines.

American Suzuki has continuously homologated the current generation of the GSX-R1000 motorcycles for competition in the AMA Superbike series since 2005. Because the crankshafts have remained dimensionally unchanged and were properly homologated each year, AMA rules allowed for their continued usage in subsequent years. The crankshaft removed from the #6 Rockstar Makita Suzuki is estimated to have been produced in late 2005 or early 2006.

Vendor Information

Suzuki has utilized Kakuta Iron Works Company Ltd as its vendor to produce the crankshaft forgings used in the production of the crankshaft part# 12000-41820 since 2005. This company produces the "rough" forgings which are then supplied to Suzuki Motor Company Ltd. All machining and finishing processes to the production crankshafts are performed in-house.

Forging Process

Kakuta Iron Works uses forging dies to produce the "rough" crankshaft. The vendor has utilized a total of ten (10) forging dies to produce crankshafts for the GSX-R1000 models since 2005. The condition of theses dies are constantly monitored for normal wear and damage throughout their useful life span. Over time, the extreme heat and pressure used in the forging process results in visual and texture changes to the shape and finish of the die. As the condition of the dies changes with age, the surface "finish" deteriorates resulting in changes to the surface of the forging. The photos shown below illustrate the differences in die surface finish between a new die shown in Fig.1 and the same die after approximately 5,000 forgings shown in Fig.2.

Fig. 1 Condition of new forging dies

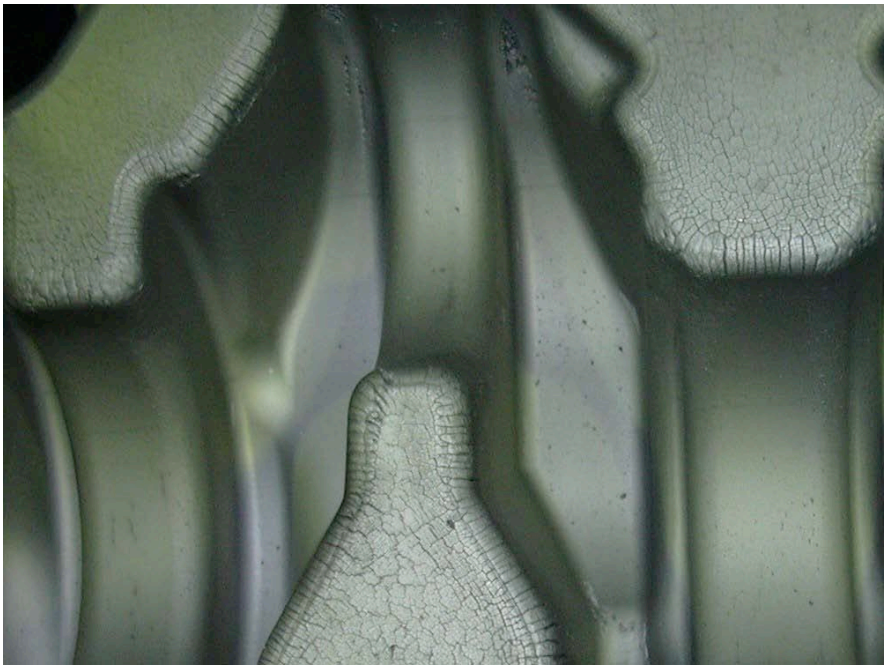

Fig.2 Condition of used forging die

As seen in Fig. 2 the surface finish of the forging die develops a “texture” through normal usage, this “texture” will be transferred to the forging which will result in changes to the surface finish of the crankshafts produced during different stages of the forging die’s life span.

In addition to the surface condition of the forging die described above, another factor affecting the surface appearance of the crankshaft can result from the initial cleaning process applied to the crankshaft forging. Following the initial forging process the crankshaft surface is covered with a type of "flashing" (See Fig. 3) which must be removed. One type of cleaning method used by Kakuta Iron Works is called "shot peening". It is a type of blasting to remove the "flashing." Fig. 4 shows examples of the crankshafts following this process. As can be seen in Fig.4, this kind of blast cleaning can cause the rough appearance found in many areas of the finished crankshaft. Differences in blast media and air pressures used in the cleaning process can also result in minor variances in surface finish of the crankshaft.

Fig. 3 Raw forging prior to cleaning

Fig. 4 Forgings after "blast" cleaning

Crankshaft Color

A difference in color was noted between the crankshaft removed from the #6 motorcycle and the crankshaft taken from the homologated sample unit supplied to the AMA. The color change exhibited on the #6 crankshaft is consistent with a crankshaft that has been in service over a period of time. Several factors can affect the color of the crankshaft; some common factors are:

- Hardening Processes applied during production of the crankshaft
- Long term exposure to engine oil and oil additives
- Extreme heat resulting from race applications
- Cleaning solvents used during routine engine maintenance

The conditions noted above are also confirmed in an independent expert analysis complete by Falicon Crankshaft Components of Clearwater FL. A copy of Falicon report is attached for your reference.

In addition, a sample crankshaft taken from a warranty repair of a GSX-R1000K6 (VIN# JS1GT76A9621XXXXX) was shipped to AMA Pro Racing for their inspection. This crankshaft exhibits much the same colorization and oil hole chamfer found on the crankshaft removed from the #6 motorcycle following the race on August 17, 2008.

Oil Hole Chamfer

The purpose of the chamfer found on the bearing journal oil holes is to remove any machining "burs" remaining from the production process. The Suzuki Engineering Standards specify the maximum allowable chamfer that is acceptable. Additionally normal wear and journal polishing which is allowed under the AMA rules will also reduce the level of chamfer at the oil hole locations.

Crankshaft Identification Marking Methods

During the production period of the crankshaft Part# 12000-41820 Suzuki has used two methods of applying production and bearing information on the crankshaft web. The method used from initial production in 2005 through part of 2006 was a "semi-permanent" ink stamping. It was noted near the end of initial production cycle that one of the machining lines was producing a stamping which was "lighter" than the current markings. Thus, in 2006 a transition was begun to an alternative machining line which uses the current stamping method to record the information on the crankshaft web. This transition was completed by the middle of 2006 and thereafter the crankshafts were marked using the current stamping method.

Summary

In summary, it is Suzuki's contention that the minor differences noted on the crankshaft removed from the #6 motorcycle on August 17, 2008 are within normal production standards and are consistent with a crankshaft used in high performance conditions. This crankshaft meets all the requirements and specifications currently outlined in the AMA regulations. It is, in all important respects, identical to the homologated part. This is further supported by the independent expert analysis complete by Falicon Crankshaft Components.

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September 4, 2008

Mr. Don Sakakura
President
Yoshimura Racing

Re: GSXR-1000 Crankshaft P/N 12000-41820-000 and FIM E11 part code 12220-41G00 Expert Opinion

Dear Mr. Sakakura

We received the two crankshafts on the 23rd of September.
I will refer to the new and unused part as crankshaft A. The referenced crankshaft B has been in an engine and is the same component as referenced to the drawings and specifications as the #6 VIR Mat Maladin crankshaft.

Our task was to compare the two crankshafts and report:

1. Visual differences
2. Measured differences using comparison and blueprint FIM E11 part code 12220-41G00
3. Supply an opinion and summary on our findings

Visual Differences

Both crankshafts are 41G forgings which are typically a part number used by the forging company to mark the unfinished part. It appears that part B was made in die #1 and part A was made in die #2. This method is used to trace the parts origin to a particular tool, as the tool does wear significantly during the forging process. The tool must be "re sunk" when the part grows out of tolerance. The forging process is quite severe and the crankshaft initial shape is accomplished when the part is heated over 1700 degrees farenheiht. The wear of the tool is rapid as the hot metal is formed using hundreds of tons of pressure to extrude the shape. Therefore forging tolerances are generous and a worn tool will make larger (and somewhat heavier) part. There is a second number on crankshaft B is marked (2) and crankshaft A is marked (V) which would likely refer to the operator of the forging machine or a vendor who supplied the part using the forging die supplied by the Suzuki subcontractor. As popular as the GSXR 1000 is in the market there are most likely several dies and more than one vendor.

The new A crankshaft has a silver color appearance and the used B crankshaft has a patina color that is somewhat gold in color. Since we are a crankshaft specialist, I reviewed a number of customer cranks that we had in our shop and found that a used crankshaft will typically vary toward the gold appearance, a result of heating the crankshaft during its operation and flooding it with oil. Various brands of oils and heat cycles will vary the result. One area of a crank may be a different color because of a tight bearing (heat) for example.

Crankshaft A has bearing codes etched into the counterweights, crankshaft B did not have bearing codes. Better to have no marking than incorrect marking! This would not be unusual and we often remove and re-mark the bearing sizes for customers who have us repair a crankshaft rod journal. On a race bike, real numbers (actual measurements) would be used and not a somewhat generic color match process. A race engine is subject to much more severe environment; therefore it may use different oils, which have a different specification (viscosity, high pressure additives etc.). Any of this may require other than an OEM bearing fit.

Visual Differences Continued

Crankshaft A has somewhat dull surface finish on the bearing surfaces; Crankshaft B has a brighter more reflective finish. The crankshaft bearing areas have an appearance of being moderately polished; this process would change the bearing size by a very small but relevant amount. Race bearing clearances might be more or less than the normal OEM specification as determined by the engine builder.

Both crankshafts have drilled holes for balancing that were located on the edge of the counterweights. This is common practice.

Both crankshaft have a shot peened finish, one has a slightly different texture than the other, which is not uncommon as the peening process is varied by the length of time, size of the media (shot) and other factors such as the air pressure used and the nozzle size which also is a wear part in the process. Dirty parts with a lot of forging scale will require a longer or double cycle to remove the skin that is formed when the part is cooled from the forging temperature. There is no indication of smoothing or streamlining the crankshaft, all of the forging trim areas are "as forged" on both samples.

The oiling methodology, cross drilling and drill size are identical on both crankshafts. Crankshaft A has oil holes that have a slightly larger oil hole chamfer than crankshaft B. Some of this is purely visual as the polished bearing areas on crankshaft B blend the two surfaces together. Actually, I would have expected crankshaft B to have the larger oil hole chamfer as this is common practice on race cranks.

The bolt on counterweight on one end of each crankshaft are identical. The bolts on crankshaft B have punch marks to restrict the loosening of the same. This was done as an extra safety to prevent the bolts from loosening under vibration.

Crankshaft A has a manufacturing date stamped on one end, crankshaft B does not have a date, only a serial or control number (61) for identification purposes.

Measured Differences

We measured all of the rod and main journals on each crankshaft. There were no significant differences; the B crankshaft had all of the journals exactly in the center of the OEM published tolerances.

Using drawing E11 Part Code 12220-41G00 as reference, we measured all of the marked dimensions and notations to machined areas. Both the A and the B crankshaft comply with the drawing. There were no measurable differences to the drawing.

We dynamically spun each of the crankshafts on our balancing machine. Each were within 3 grams from end to end. Each had the same identical dynamic characteristics. Crankshaft A was approximately 4 ounces lighter than crankshaft B; most likely a result of forging "growth" as discussed earlier which is attributed to a small amount of forging die wear. This is well within a normal production variation.

We inspected the clutch and the counterbalancer gears. Each had the same amount of teeth, pitch diameter and pressure angle. The finish and condition of the gears were the same. The spline on one end of the crank have the identical number of segments and are arranged in the same pattern.

We confirm that all measurements were within normal production tolerances and that all dimensions were within the published standards in the Suzuki GSXR 1000 service manual.

Opinion of Falicon Crankshaft

My opinion as an engineer and as a manufacturer of crankshafts:

- I cannot detect any relevant difference in the two sample crankshafts that were provided. This is especially true with regard to any performance advantage from one over the other.

The form- fit and function of each crankshaft and tolerances measured would permit each crankshaft to be switched from one engine to another without any special methodology; without any change in engine performance. All components to do this (bearings for example) are available from the OEM manufacturer as a standard. Variations in color, texture and informational differences such as identification marking is insignificant and irrelevant to any performance gain. We cannot measure any differences in the dynamics or structure that would make one crankshaft perform better than the other. There are normal production variances and in my opinion the two crankshafts are well within what we would expect in a production OEM crankshaft.

Please let me know if I can be of further service.

Best Regards,

Glenn Salpaka

President
Falicon Crankshaft Components Inc.

Team SUZUKI

Team Rockstar Makita Responds To Recent AMA Statement Regarding Mladin Appeal

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BREA, Calif. (Sept. 11, 2008) – American Suzuki Motor Corporation and Yoshimura Racing believe that it is imperative to respond to AMA Pro Racing's recent position statement concerning the disqualification in order to uphold Mat Mladin's integrity and good reputation, and to make it clear to the public that the crankshaft in the #6 bike raced at Virginia International Raceway was a stock/production part as specified in the AMA rules. Simply stated, Mladin's victories at VIR were the result of his championship riding ability and not an illegal advantage.

In a situation where a championship hangs in the balance, and the reputation of a rider of Mladin's caliber is at stake, it is in everyone's best interests to err on the side of fairness and impartiality. An independent appeal board must hear all of the relevant evidence before imposing what amounts to a terminating sanction based primarily upon unfounded and clearly partisan suspicions.

In its position statement, issued 30 minutes after Suzuki and Yoshimura Racing submitted their appeal documentation, AMA Pro Racing concludes that it acted fairly and abided by its rules when it disqualified Mladin at VIR. American Suzuki Motor Corporation and Yoshimura Racing are incredulous at this assertion, categorically disagree with it, and maintain that it is yet another reason the public needs to be fully informed of all of the events that have led to this unfortunate decision.

AMA Pro Racing based the disqualification on three areas of concern relating to the #6 crankshaft, which were: (1) variances in coloration, smoothness and texture; (2) oil delivery hole chamfering; and (3) date stamping differences. All of these areas of concern were easily explainable and related to the manufacturing process and legally permissible race preparation. Detailed information and photographs were supplied to AMA Pro Racing describing the production history and manufacturing process of GSX-R1000 crankshafts and showing that the #6 crankshaft was, in fact, a production part. (A nearly identical crankshaft taken from a production motorcycle sold in the United States was given to AMA officials as well.)

In addition, the independent analysis of Glenn Salpaka of Falicon Crankshaft Components, Inc. was submitted to AMA Pro Racing. This expert carefully inspected and compared crankshafts identical to those in AMA Pro Racing's possession and affirmed that there were no measurable differences in the "dynamics or structure that would make one crankshaft perform better than the other." He also determined that the differences noted by AMA Pro Racing technical officials were related to high performance wear and tear and were "normal production variances" which were well within what would be expected in "production OEM crankshafts." Ultimately, it was Mr. Salpaka's opinion that the #6 crankshaft did not enhance or improve engine performance.

AMA Pro Racing has obviously abused its discretion and has wrongfully tarnished Mladin's reputation in the public eye by disqualifying him and ignoring the evidence offered in good faith. The clear implication of the sanctioning body's conduct in this case is that it feared the outcome if a neutral tribunal had been convened.

American Suzuki Motor Corporation and Yoshimura Racing believe it is essential to openly document the critical evidence they submitted which AMA Pro Racing spurned. They are therefore releasing, for the general public's review, the extensive written history and outline that was provided to the AMA about the OEM crankshaft manufacturing process and the Salpaka analysis.

American Suzuki Motor Corporation and Yoshimura Racing recognize that, notwithstanding the deplorable actions of AMA Pro Racing in this matter, it is better for everyone involved and the sport as a whole to move beyond this unfortunate situation. The Rockstar Makita Suzuki team and all its riders intend to go on to Laguna Seca at the end of this month and prove that their dominance of the Superbike field is thanks to the native talent and skill of their racers and the superiority of the Suzuki GSX-R1000 motorcycle.

For more details about Rockstar Makita Suzuki Factory Racing, please log on to www.teamsuzuki.com.

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