
Forum: PowerPlus Chiefs
Topic: Pp100 loose race examination
started by: kevind

Posted by kevind on May 22 2005, 1:

There's been lots of discussion regarding if the race is loose or will it get loose, so I thought an alternative method of 'inspection' would be VERY beneficial.

There is a VERY EASY way to perform an 'inspection' to determine if the cast in race has MOVED. This DOES NOT require engine disassembly. This will not tell you if it WILL MOVE but WILL let you visually identify a cast in race which HAS MOVED.

Included are two pictures showing the method.
This was a 2003 PP100 but should work on '02s as well.

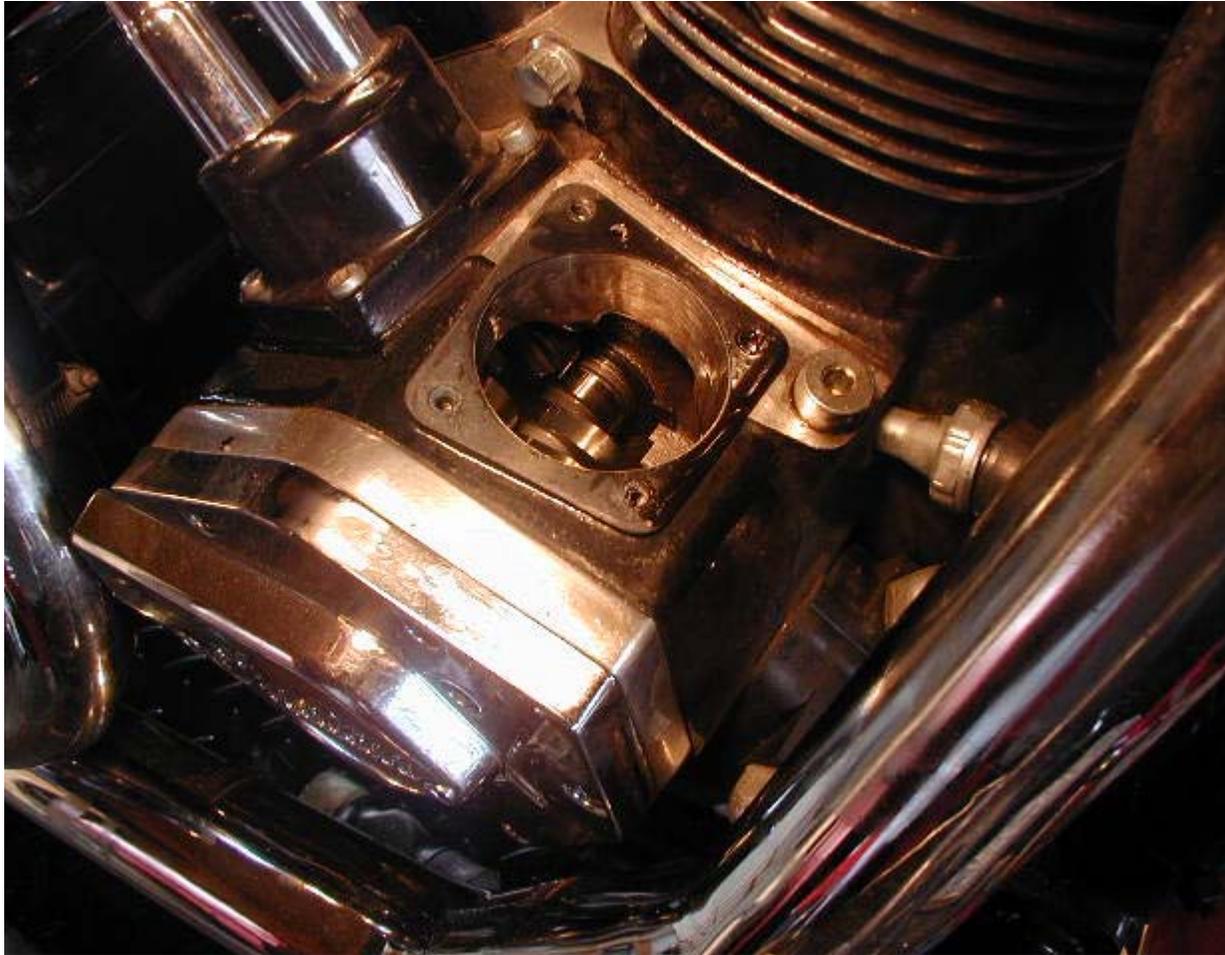
1. Remove the front rocker box top.
2. Remove the push rods and push rod tubes (front only)
3. Remove the front tappet block and lifters.

Total inspect time 1:30.
Peace of mind.... Priceless!

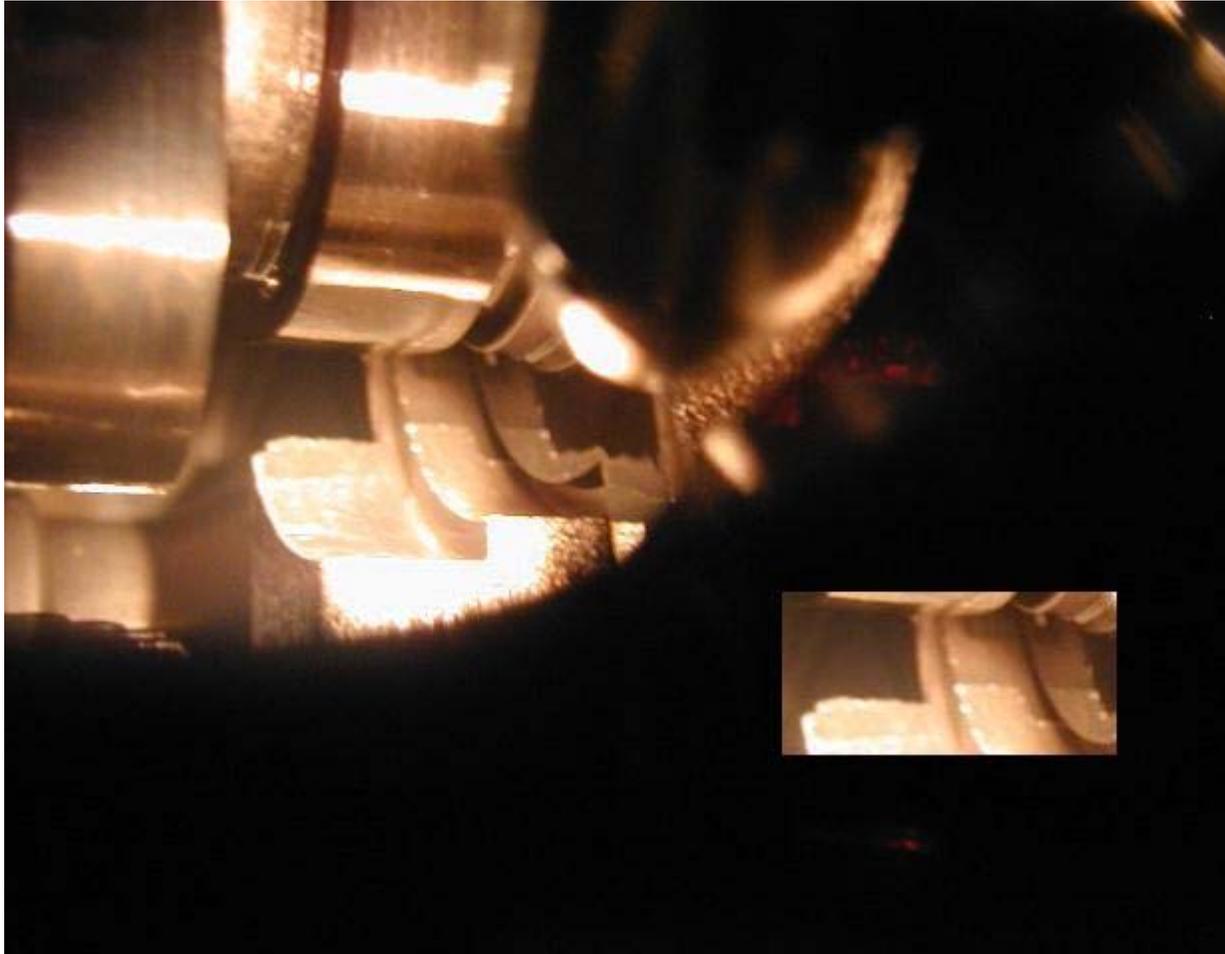
Now, using a penlight or other bright focused light (bore scope if your lucky), look into the front tappet block hole at the end of the cam shaft where it enters the cam shaft bearing (see closeup photo of cam shaft). The surface below this is machined. You will see 2 different colors/textures of metal, blended in the machined surface area. They are the aluminum case and the steel race insert.

The machined areas should still be smooth and match perfectly if the race HAS NOT ROTATED. If the mating line is gapped at all or the surface of the race extends above the machined line then the race has moved.

This is like stacking unlike materials in a sandwich and slicing through the sandwich to get a cross section. The cross section will be smooth (showing different colored layers) UNLESS the sandwiched layers have slipped. Slippage would be obvious, even if only a few 1000's of an inch.



Tappet block removed for access to visually inspect race.



Different colored surfaces in the circular machined area are the steel race insert and the aluminum block. The 2 materials were machined 'in common' after the race was cast in. Therefore the surfaces should match perfectly with no obvious gaps etc...

There is a particular area in a tight radius which is very pointed and would 'immediately' show a separate movement was occurring. This race is obviously very tight yet. At least if not tight it has not moved.



This picture is NOT the ENGINE pictured above but is included to show the relationship of the cam shaft machined area and the pinion shaft machined area.

This engine has 3600 miles on it. It had the S&S flywheel put in 1600 miles ago with .017 runout. The race appears tight as it does now.

The engine has had a hard life since the flywheel change. It was immediately, with NO BREAK IN put on a dyno and used to map the new Indian EFI. Total run on the dyno 8 hours. Those are maximum load runs from 1024 RPM to 5600 RPM. It has had NO easy life.

This does not resolve the 'will it or will it not' question. It does, however, provide a means to get a 'piece of mind' in regards as to whether your race is 'currently' wobbling around or is apparently tight.

I'm content to perform this test every 2500 miles or so (longer as it proves to stay tight) or 'if' I think I detect a change in the motor vibration or noise I can quickly 'check it' for a piece of mind.

I was beginning to hear 'gremlins', I thought, now I know it was probably just in my head. I'm off to ride!

Good luck!

Kevin Dudley

Posted by Last Resort on May 22 2005, 1:

Thanks Kevin,

Posted by Scottdog on May 22 2005, 1:

It's kind of hard to tell where I should be looking Kevin.
Could you draw an arrow on that picture for us?

I can walk you through how to do it if you need help.
PM me if you do. I would do it for you but I'm not clear on it.

Posted by Gary2Wheels on May 22 2005, 1:

 ...Kevin..I believe you are referring to the area approx 1/3 over from the left of the picture, beneath the second cam lobe..am I correct?Thanks,Gar

RIDE SAFE...LIVE LONG 

Posted by kevind on May 22 2005, 1:

Picture modified with added view to show the area. I think this will clarify. If not let me know and I'll do more.

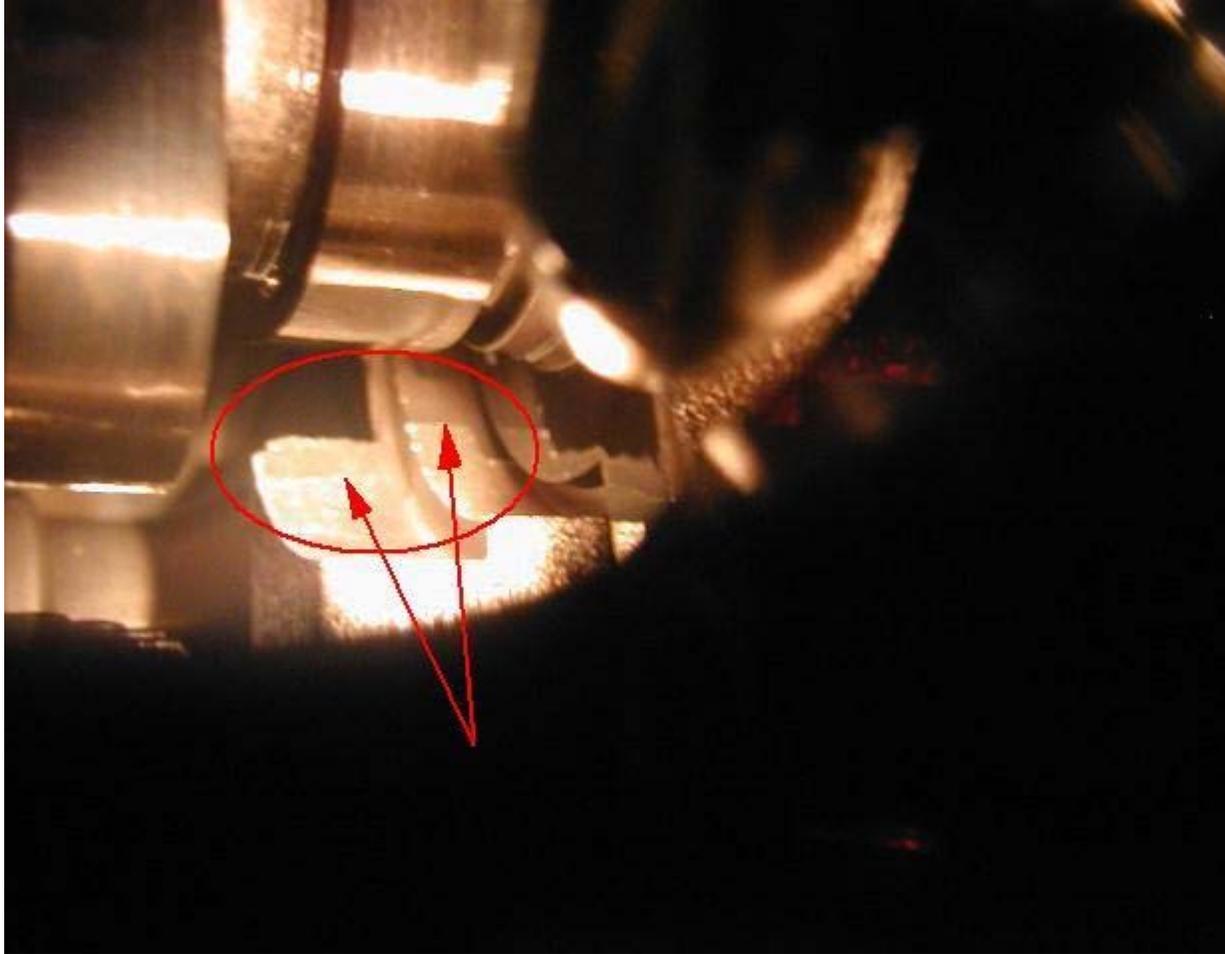
The darker smoother grey is the bushing. The lighter area the aluminum. Where the two meet is the machined line and should be almost invisible (if the race has not moved).

Hard to know when you know what your looking at.

Thanks.....

Posted by Scottdog on May 22 2005, 1:

Is this it?



Posted by kevind on May 22 2005,2

Quote (Scottdog @ May 22 2005,18:53)

That picture is not clear at all.
Isn't that the cam we're looking at?
Not the pinion shaft?

Yes, you are looking at the 'cam' on top.

Picture this. The cam is OVER the pinion shaft just as in the number '8'. Top of the eight is the cam shaft and the bottom of the eight is the pinion shaft. Now if you machine the top of the '8' you will cut into the '1 part' of the bottom half of the '8'. What you see of the race is the 'top' of the race where it was machined the machining of the 'top of the 8' (the cam shaft/bearing).



Here is a picture of an engine with the cam removed. The pictures in the 'examination' post are looking at the same object from the 'upper right' of this picture.

Does this help?

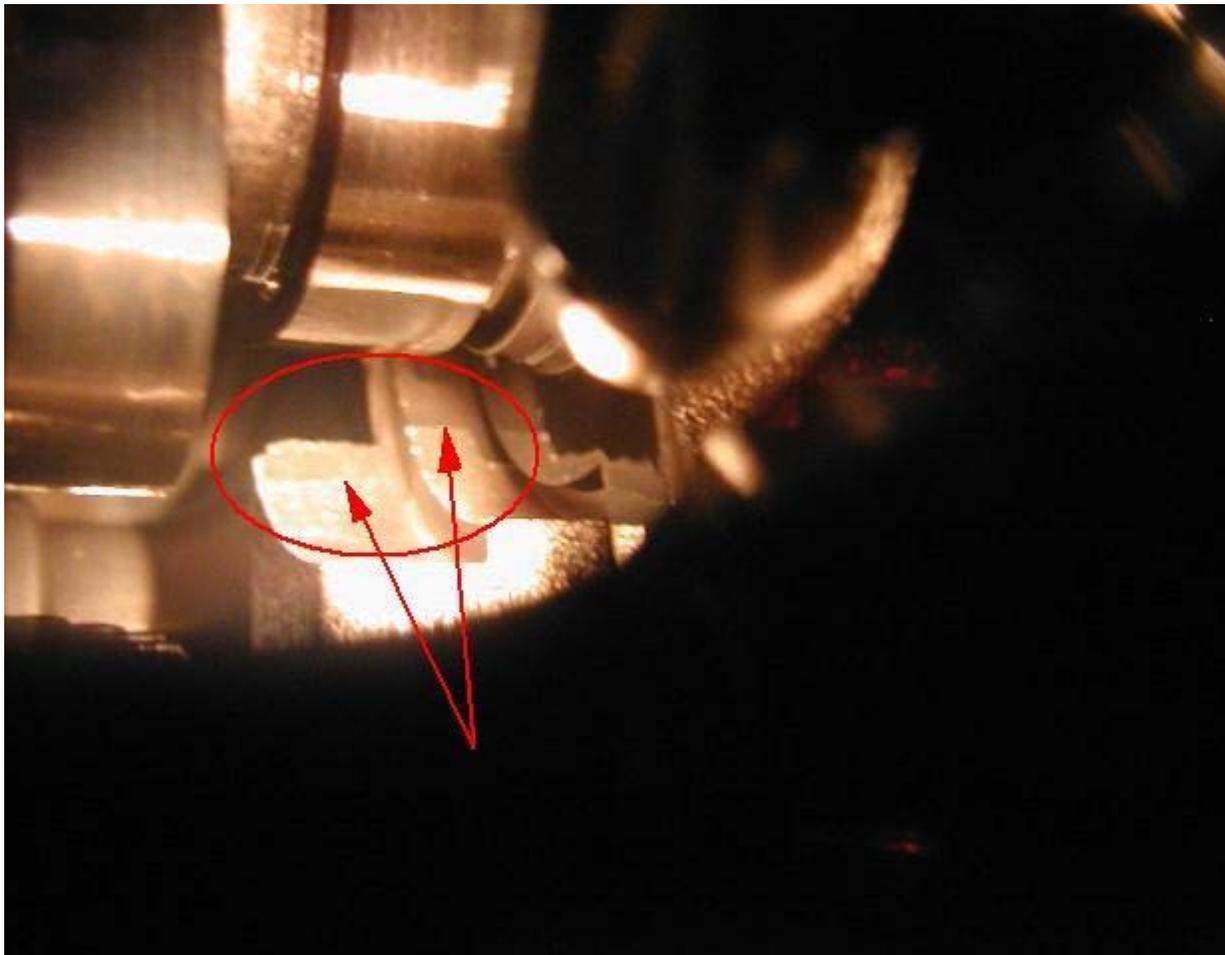
Ever play sherades (sp)?

Sorry, if you don't get it I'll keep trying.

Posted by kevind on May 22 2005,21

Quote (Scottdog @ May 22 2005,18:53)

Is this it?



Yes, and the area a little to the right and up. I posted another reference picture which should help it all to start to make sense.

Sorry for the confusion.

Posted by Scottdog on May 22 2005,2

It makes sense now. You hadn't changed your picture yet when I made my last response. Actually very e to check.

Posted by BlingBling on May 22 2005,2

I've been out smarted again.... darn it.

I was gonna Patent A Process to check the race sleeve through the crankcase drain plug using a mini

surgical fiberoptics camera. No real disassembly needed, and you could charge alot for it. 🤖 🦄



I checked mine, and it aint moving after 24000 miles

Posted by Last Resort on May 22 2005,2

Quote (BlingBling @ May 22 2005,20:47)

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But it will, they all will.

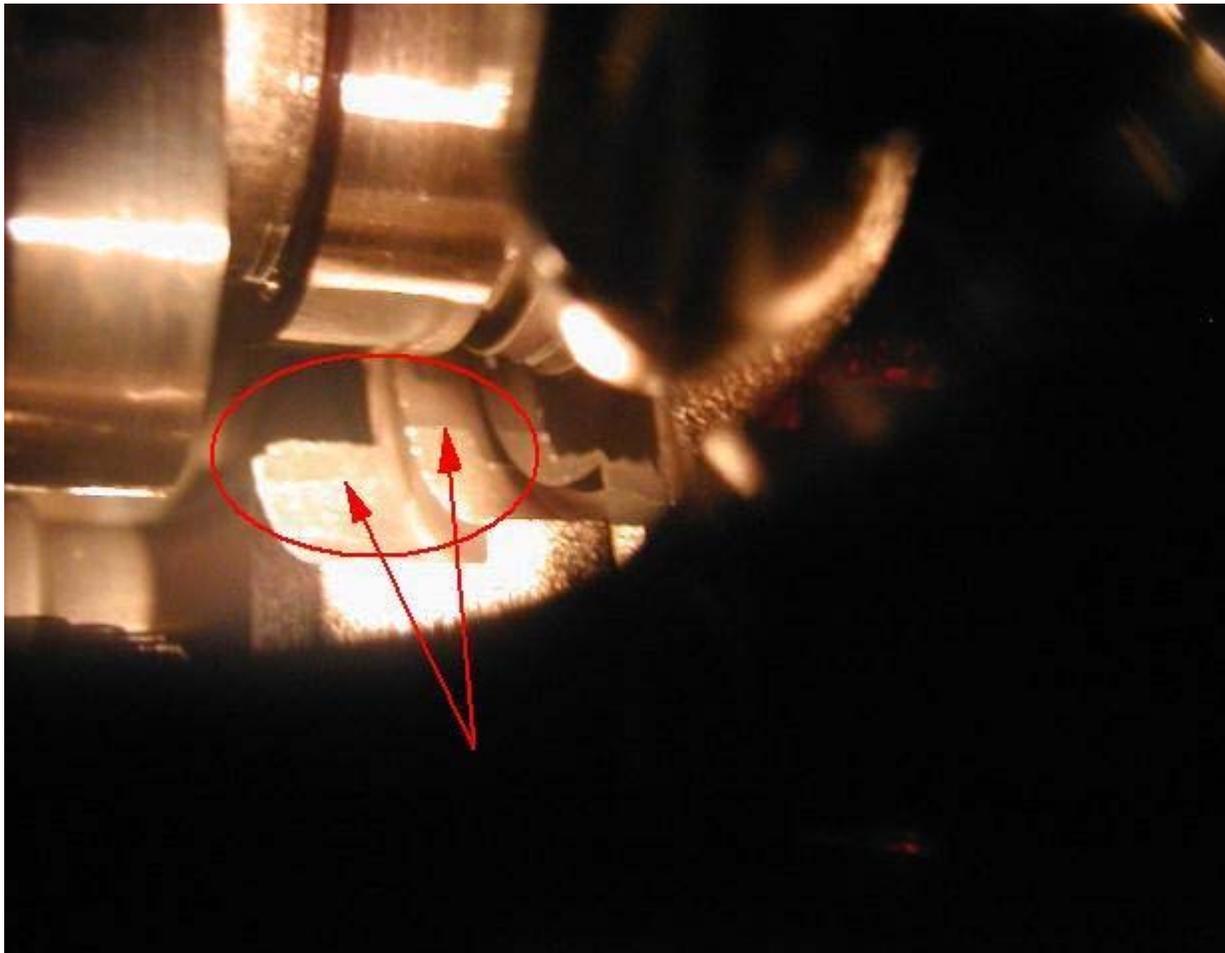
I read about it.
I wrote it down, then I read it.

I believe everything I read.

Posted by Scottdog on May 22 2005,2

Quote (kevind @ May 22 2005,21:11)

Quote (Scottdog @ May 22 1905,18:53)
Is this it?



Yes, and the area a little to the right and up. I posted another reference picture which should help it all to start to make sense.

Sorry for the confusion.

Got a picture of one that's moved?

Posted by BlingBling on May 23 2005,0:

Quote (Scottdog @ May 22 2005,20:12)

It makes sense now. You hadn't changed your picture yet when I made my last response. Actually very easy to check.

So Slotty,

would this be an exceptable way of checking the sleeve? Because the arguement last week was that it would have to be checked through the crankcase side of the motor. This is obviously looking through the cam chest.

Kinda seems like your pretty easy to sway, hey Kevind, did you offer this guy some free parts or somethi



Posted by Scottdog on May 23 2005,1:

Quote (BlingBling @ May 23 2005,10:39)

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Looks good to me, Dingy.



So, is that what you did or were you just blowin' smoke up my ass?



Posted by BlingBling on May 23 2005,1:

Quote (Scottdog @ May 23 2005,10:36)

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me 

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here reading this its not me 

You can't deny it. I got pictures. 