

Mitsubishi Turbocharger Overhaul instruction

TD015~TD13

Before you need this instruction, I have to say sorry my English is not that good to describe well about how to rebuild turbocharger. If there is anything wrong or any better words or suggestion for this instruction, just email me to Kansai_sport@hotmail.com.

Eiji Takada in Osaka, Japan.

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Now, let's see how to take apart of MHI turbocharger:



After you remove the turbine housing, you will see the CHRA with cover.



Remove the C-clamp and then you can remove the CHRA from compressor housing.



Use very little power to harm the edge of cover on different position. And then you can take apart of char and cover easily. Don't use too much power to harm same position. It might destroy compressor wheel.



Before you take apart of CHRA, please make sure to scribe a line across the compressor wheel, nut, and the end of the shaft at this time. If you do not bolt it back together with ALL of the lines lined up, your turbo may end up being out of balance, and it can quickly destroy itself.



Place the turbine blade "nut" in a vice, and either use a T-handle socket to remove the compressor blade nut, or when using the ratchet, make sure to hold the socket so that the ratchet is only twisting the nut, not placing any side load on the center shaft. Evidently it is easy to bend the center shaft if you place too much of a side load on it when removing the nut. When I removed the one in the picture, I was very careful to grab the ratchet at the rotating end and put all the twisting force directly through the socket, without putting any side load on the shaft.

Be VERY careful of the wheels, the blades can really tear your hands up. It is safest to wrap them in towels, because if the nut breaks free and your hands hit either wheel, you could be seeing a *lot* of blood.



Remove the turbine wheel and then you can take off the journal bearing and heat shield



Remove the clamp



Place 2 flatblade screwdrivers 180 degrees apart under this lip, and carefully pry the end cap up and out of the center section. You might need to move the screwdrivers around the lip and gradually pry it out, depending on how tight it is in there



You will see Oil deflector, insert and flinger with piston ring





Remove the O-ring and then we can take off the thrust bearing, thrust ring and another journal bearing.





Please remove piston ring (Seal Ring) on turbine shaft and clean the carbon on shaft groove and shaft. Remove the used piston ring and Polish up the shaft using **1200 grit** sand paper to remove surface varnish then polish it with some kind of metal polish. For best operation the turbo shaft should shine with no scoring marks or dull spots. Rinse the shaft and exhaust wheel assembly under petroleum ether to get rid of all the polish



The pictures shows the turbine shaft after we clean carbon on the groove and shaft



Please remove all the carbon you can see on the turbo.



Here is the new rebuild kit



There are two types of insert and flinger on MHI turbo. One is with super back as left side, another one is with flat back as right side. If your turbo goes with different parts as Kansai_sport offers, Please use your used one. Both part is very strong and not that easy to be damaged. It will still work very well if you use your used one. Just use it.

After you clean all the carbon on bearing housing and turbine shaft / wheel, let's start to install new kits into bearing system and assemble CHRA.



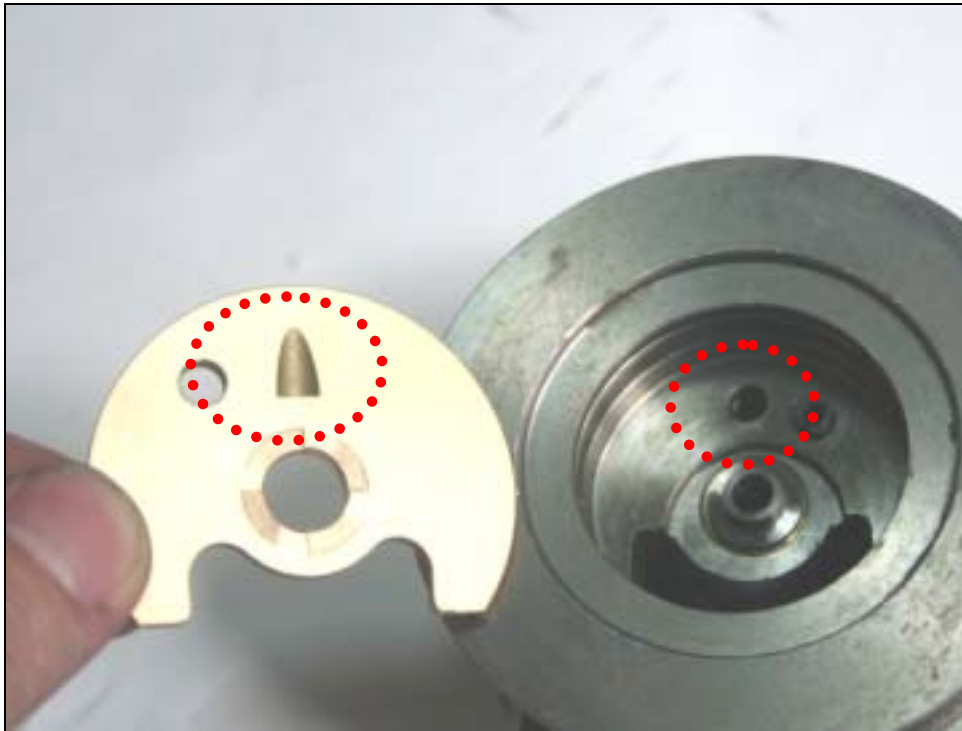
Install new journal bearing to right position as following picture





Then put the thrust ring on the right position





Both red circle shows oil feeding to entire thrust bearing system



Now let's assemble oil deflector and flinger kit





Press the piston ring into the flinger.



Now, let's press the left kit into insert



Press the gap of piston ring and then you can push entire oil deflector kit into insert



Before you place the insert kit into bearing housing, make sure the flinger can spin smoothly.



Place the O-Ring to the groove it should be.





Press the insert kit into bearing housing. Please make sure you push entire insert kit to the bottom as you can.



Place the C-Clamp



Make sure the clamp is in right position if you press the insert kit to the bottom as you can on the last step.





Here shows turbine shaft / wheel and new piston ring.



press the piston ring into groove



place another journal bearing into bearing housing.





Place Heat shield on the bearing housing







Make sure the 3 point go back to the position as a line before you take apart it.



Don't forget. Here is an O-Ring.

Add some oil on the O-ring if it is hard to press CHRA into cover

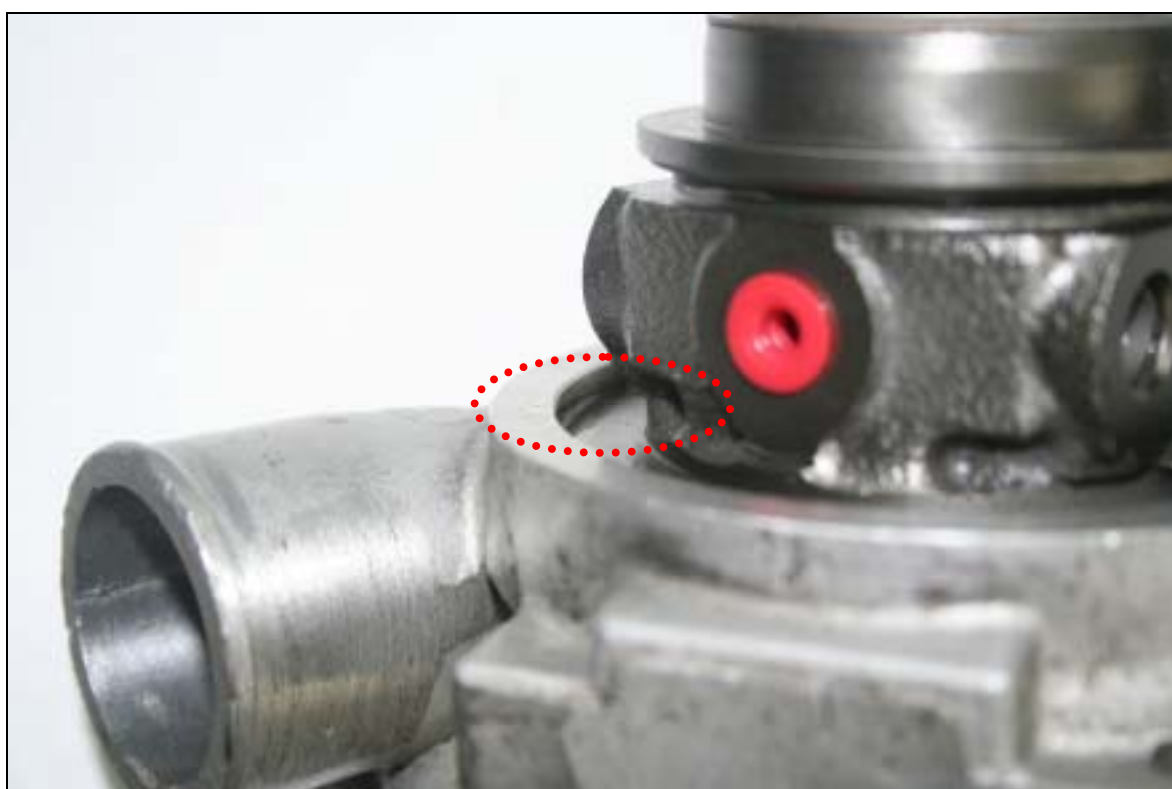


Here is a hole and pin to lock char and make sure it is in right position.
(If you want to rotate the cover to a different direction, please remove the pin)



Push the char into cover as you can.

Be care, Compressor wheel will be damaged or lose compressor ability if you don't push the CHRA to the bottom as you can.



If you push the char to the right position, you can see the entire groove. If you can not see the groove, that means you have to **PUSH IT TO THE END AS YOU CAN AGAIN. Or ADD SOME OIL ON O-RING.**



Now we finish the overhaul job.

Once again to remind you that It is the most common failure reason for those who first repair their turbocharger. Make sure the clamp in correct position.