

Destruction of 02Q/02M casings – reasons and solutions

After analysys destructed casings under variouse circumstances we got this results:

1 - fatal breaking of complete gearbox casing

- no matter power of engine, no matter RPM
- couesd by original poor shifting system absolutley not stabill enough for any DOG box and hard shifting (usual on races)
- mostly is couesd by engaging of 2 gears together - especialy 5th + some other, breaking shifting fork 3-4 or breaking rivet of any shifting fork

Solutions:

- A - using heavy duty bolts 8mm (enstead original 6mm rivet) on forks
- B - using heavy duty Alu fork for 3-4 gears
- C - reinforced lever arm of 5-6th shifting fork

2 - breaking gearbox casing as secondary destruction of any internal part (gears, forks...)

- depends espetially on Torque of engine and drivers behaviour
- its impossible protect casing by reinforcement against destruction which is couesd by move shafts from its place if some broken part comes betwin the gears (broken teeth, sleve, fork) - its specific problem of extreme power cars and starts - especialy DRAGs

Solution:

- A - use SQS DOG kits : SHORT-1 and LONG-2 only up to 600Nm (500 Nm 4wd)
- B - for higher torques use SQS DOG kits: BOOST-3 or DRAG-4 which are designed for extreme stress

3 - breaking of bottom of bearings couesd by extreme axial forces pushing on bearings

- depends on engine Torque and force ratios generated by helical gearing

Solution:

- A - extreme boosted cars should use BOOST-3 / DRAG-4 gearkits because that hase optimalsed axial forces which are pushing on casing
- B - use axial reinfoement of bearing bottom in casing

Reinforcement

aginst this

destruction



After introducing BOOST/DRAG kits on market we did not know about ANY casing destruction ! Axial force optimisation is OK and is not necessary use additional casing reinforcements.

02Q casing – especially Mk5 casings have more material around bearings and are better for high torque engines.

For DRAG car with high boost and torque we recommend use only 02Q Mk5 casings with BOOST/DRAG kit, when torque exceed 700 Nm also recommend Reinforce inlet shaft.

02M casing is generally weaker than 02Q but 02M shifting system is more sophisticated, if is gearbox used with less than 500 Nm and SQS DOG kit is installed according manual incl. Shifting system upgrades its good choice e.g. for circles.