Replacement Brake Callipers

CLEPA Presentation to GRRF 84
Market

• The market for replacement brake callipers is serviced by:
  - new callipers from OEM suppliers
  - remanufactured* callipers from OEM suppliers
  - new “copy” callipers from non-OEM suppliers
  - remanufactured* callipers from non-OEM suppliers

* Common definition agreed by APRA, CLEPA, FIRM, VDA and ACEA
  
  “A remanufactured part fulfils a function which is at least equivalent compared to the original part[1]. It is restored from an existing part (core), using standardized industrial processes in line with specific technical specifications. A remanufactured part is given the same warranty as a new part and it clearly identifies the part as a remanufactured part and the remanufacturer”

A remanufactured part is different from a reused, repaired, rebuilt, refurbished, reworked or reconditioned part. These categories are not subject to this definition
Background

• In view of the evolution of the market it has been suggested that UN Regulation No. 90-02 should be extended to cover replacement brake callipers – both new “copy” parts and remanufactured units

• During discussions at the R90SIG in Spain (2016) it was envisaged that a legislative regime for new and remanufactured callipers could follow similar lines to existing tyre legislation for new and re-treaded tyres (R.108 PC & R.109 CV) which employ common test regimes but different COP procedures

• CLEPA was asked to consider the matter based on their members experience
CLEPA Position

• CLEPA members have found serious problems in the replacement market with products offered by some non-OEM suppliers.

• These problems are with both new “copy” callipers and (supposed) “remanufactured” parts.

• There are different views within the CLEPA membership as to how best these problems might be addressed.

• CLEPA recognises that for GRRF to consider any proposal for legislation it is essential to establish if a safety risk of sufficient scale exists.

• CLEPA members do not have any vehicle accident statistics directly attributed to brake calliper failures - any information from CP’s would be very welcome - but examples of the type of faults that have been found with new “copy” parts and supposed “remanufactured” parts follow.
“Copy” Callipers – problems identified

• Problems have been found with “copy” callipers that are associated with the use of poor quality/low strength materials
  ➢ Structural failure (carrier) < 700 brake applications of an ISO26965 brake pad test
  ➢ Internal component failures (e.g. actuation levers, roller bearings) during early stages (~ 1000 brake applications) of endurance tests

• Problems have also been found with ”copy” callipers associated with poor tolerancing/manufacture
  ➢ Poor calliper efficiency (< 90%) @ higher pressures
  ➢ Excessive load/unload hysteresis effects
  ➢ Heavy/uneven actuation component wear
“R emanufactured” Callipers – problems identified

• Continued incorporation of worn/damaged parts that should have been replaced
  ➢ e.g. castings/carriers/fasteners/bearings/adjusters

• Use of new components of poor quality/low strength
  ➢ e.g. fasteners/bearings/shafts/tappets

• Poor assembly processes and practices
  ➢ e.g. cleaning/sealing/lubrication/testing/traceability