



2006 AKA MANUAL

ADDENDUM No.30

Issued: 31 March 2006

To be implemented immediately

On the NKC telephone conference held on 29 March 2006, approval was given for the following amendment to Chapter 26 – Rule 26.04 and Rule 26.04.1

Chapter 26 – Generic Compliance Checks

Amendment to wording of Rule 26.04

Amend to read:

26.04 Port timing Check with AKA Piston Travel Gauges

Note: The PTG gauge is available from your State Secretary

Step 1 Set Gauge

Screw the body unit of the Piston Travel Gauge into the spark plug hole and insert the rod for the type of engine being checked.

*Note: The rods are engraved on the head with **S** for KT100s or Formula Australia engines, "**J** for KT100J, **R** for Rotax and **L** for Leopard Engines."*

Turn the engine in its direction of rotation till the conrod reaches its highest point of the engine stroke TDC, adjust the head of the gauge body to line up with the bottom mark of the rod.

Step 2 Check Stroke

Slowly turn the engine in its direction of rotation till the rod is at its lowest point BDC and the top mark on the rod should line up with the head.

The stroke is: -

46.13mm for KT100S and ARC SPEC 100A, Spec100W and Hybrid

50.05mm for KT100J Rotax 54.52(max) **54.00mm Leopard**

Step 3 Check Exhaust Duration

Place the 5 mm pin in the top of the Exhaust Port and slowly turn the engine in direction of rotation until the top of the piston touches the 5mm pin which is then "rolled" between the top of the piston and exhaust port to find the highest point of the Exhaust Port. Using very light pressure to hold the pin in place the next or second mark on the gauge should not be showing or is in line with the head of the gauge body, if the line is above the head of the gauge body the barrel has exceeded the maximum exhaust port high allowed.

Exhaust duration measured from TDC is: -

30.8mm for KT100S and ARC SPEC 100A, Spec100W and Hybrid

38.3mm for KT100J

32.0mm min, 33.8mm max for Rotax 125Max, **38mm (min) Leopard**

Note: early model KT100S engines have one side of the Exhaust Port slightly higher than the other.

Step 4 Check Inlet Duration

Maintain the 5mm pin in the exhaust port, adjust the head of the gauge unit till it lines up with the second mark then remove the pin from the exhaust port.

Turn the engine to TDC and insert the 5mm pin into the inlet port and turn engine slowly till piston comes in contact with 5mm pin which is to be "rolled" between the bottom of the inlet port and the piston skirt to find the lowest position of the piston, the third line on the rod should be above the head of the gauge body or in line. If it is below then the piston is too short and does not conform.

Inlet duration measurement is: -

14.8mm for KT100S and ARC SPEC 100A, Spec100W and Hybrid

26.8mm for KT100J 21.4mm for Comer S80 (dial indicator)

Step 5 Leopard Exhaust to Main Transfer 8.8 mm min

Check Transfer split. Maintain the 5mm rod in the exhaust port by holding gentle pressure with the piston, adjust the head of the gauge until it lines up with the second mark on the rod, rotate the motor to allow the AKA transfer checking tool to be inserted into one of the main transfer ports, bring the piston up to gently hold pressure on the tool at this point the third mark must be visible above the head of the gauge, repeat the process on the opposing transfer port

Step 6

If the engine fails the field test the competitor can request it is to be sealed and sent to the State Technical Officer for second and final verification of compliance using an analogue or digital indicator.

26.04.1 Piston Travel Compliance Check as conducted by a State Technical Officer.

Step 1 Set Gauge

Screw the body unit of the Piston Travel Gauge or a suitable Dial gauge holder into the spark plug hole fitted with a digital or analogue dial gauge is then screwed into the spark plug hole. The crankshaft of the engine is turned to bring the piston up to TDC and the dial gauge zeroed. A degree wheel may be used to ascertain true TDC, by rotating the engine 10deg BTDC and 10deg ATDC.

Step 2 Check Stroke

After the gauge is zeroed the crankshaft is turned to take the piston down to BDC to check stroke

The stroke is: -

46.13mm for KT100S and ARC SPEC 100A, Spec100W and Hybrid

50.05mm for KT100J Rotax 54.52 (max) **Leopard 54mm**

Step 3 Check Exhaust Duration

The 5mm rod is then held at the top of the exhaust port and the crankshaft turned till the dial gauge **reads 38.3mm for KT100J engines, 30.8mm for KT100S and ARC FA engines** 32.0mm min, 33.8mm max for Rotax 125Max **Leopard 38mm (min)**. Then if the 5mm pin can be removed from the port without any resistance from the piston or port edge, the engine is non compliant on exhaust duration.

Step 4 Check Inlet Duration

If the piston holds the pin before it reaches the distance prescribed in step 3, the dial gauge is re-zeroed with the piston holding the 5mm rod with gentle pressure on the crankshaft.

Once the dial gauge has been re zeroed the 5mm pin can be removed from the exhaust port and the crankshaft turned to bring the piston up to TDC. Place the 5mm pin in the bottom of the inlet port and turn the crankshaft till the dial gauge **reads 26.8mm for KT100J or 14.8 for KT100S and ARC FA 21.4mm for Comer S80** if the 5mm pin is not being held by the piston skirt and port edge the engine fails on piston length.

Step 5

Leopard Minimum split exhaust to main transfers 8.8 mm.

Method, Fit indicator holder into spark plug thread, install a suitable indicator, insert 5mm rod into exhaust port and gently bring the piston up to the rod, zero the indicator then rotate the motor to allow the AKA transfer checking tool to be inserted into one of the main transfer ports, bring the piston up to gently hold pressure on the checking tool, then repeat the process on the opposing port.

Pam Arnett
National Secretary
Australian Karting Association