

QUIK RANGE & QUANTUM TRIKE – INSPECTION AREAS

These problem areas are not intended to be all-inclusive, but to highlight specific problems that have been found on the Quik and Quantum range of trikes. Normal wear points common to most aircraft have not been covered in this document. It is intended as a guide only and must be used in conjunction with normal BMAA inspector practices.

1. Quik Strut Plates

Check that the front strut plates are not bent, you will need a light and a mirror to check these carefully. We have had one reported case of a failure in flight due to not checking the aircraft properly after a heavy landing.

2. Dents In Keel

If a nose wheel has been subject to excessive loads, the underside of the keel can be dented at steering head. Check and if found the front steering needs dismantling to check all components, particularly the trailing link. (see below) The steering head plates also need checking to ensure that they are flat. The front fork legs should also be checked to ensure that they are straight.



3. Trailing Links.

Early trailing links had the bushes bronze welded in place. Following a couple of failures on gross overloading (see bulletin 85, the design was changed to make the drain hole smaller and the bushes welded in place. A recall should have dealt with all aircraft by replacement, but check for any that slipped through the net. The picture shows both early and modified links after load test.



(Lower Link Correct Style – Note drain hole position.)

4. Bent Brake Ratchets

Brake ratchets have been known to bend through owners applying the brake with their feet. It is then possible for the ratchet to be straightened but left with a twist. A twisted ratchet can jam the brake on, so check that ratchets run freely through the bracket.

5. Throttle

Check the throttle for free action. It is possible for the plastic slider in the duplicator box to swell and jam.

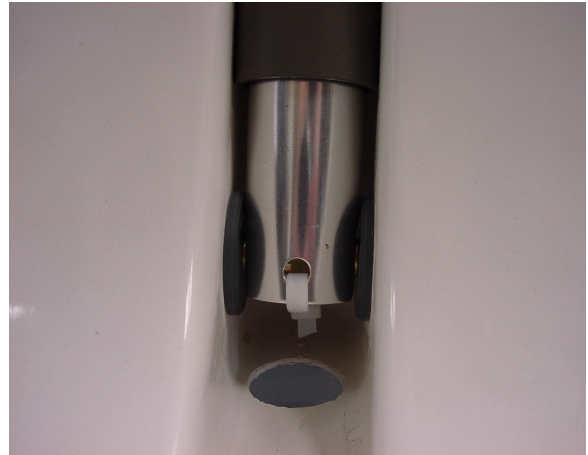
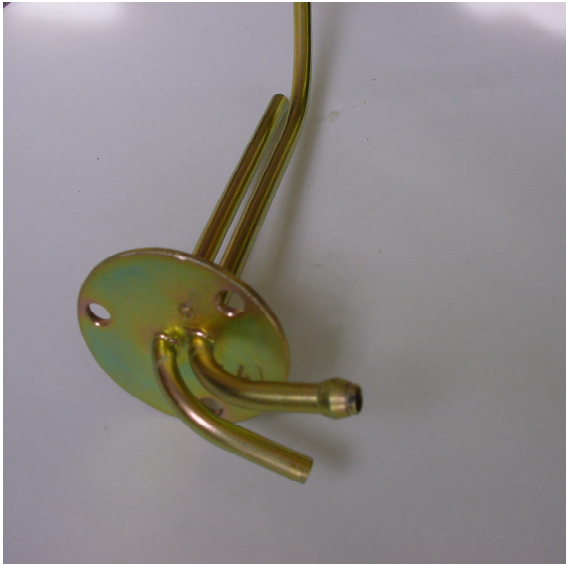
6. Fuel Tank Leaks

A batch of fuel tanks were prone to leaks, see service bulletin 100 for remedial action and ensure owners have fitted the straps on effected trikes.



7. Fuel Pickup Pipes

There is now no reason why the fuel pick up pipes should limit the amount of fuel. If the fuel tank cannot be filled then check to see what the pick up says, and if necessary trim the breather pipe back to allow filling of the fuel tank. A cockpit load Vs weight placard will also need adding to the dash with the new figures.



9. Seat Harness Latches

On a batch of seat belt latches it was found that when under tension the harness latch could not be released. Check the release while pulling on the belt, replace if fault found.



8. Seat Back Tube

The lower end of the pilot's seat back is a tube with a slot located over a bolt and secured by a tie wrap. This arrangement allows the seat to break loose in an accident thus protecting the passenger from upper leg and groin injury. The slot may open up producing cracks, particularly on early models with longer slots.

Later seat back tubes have an additional insert to help prevent cracking.

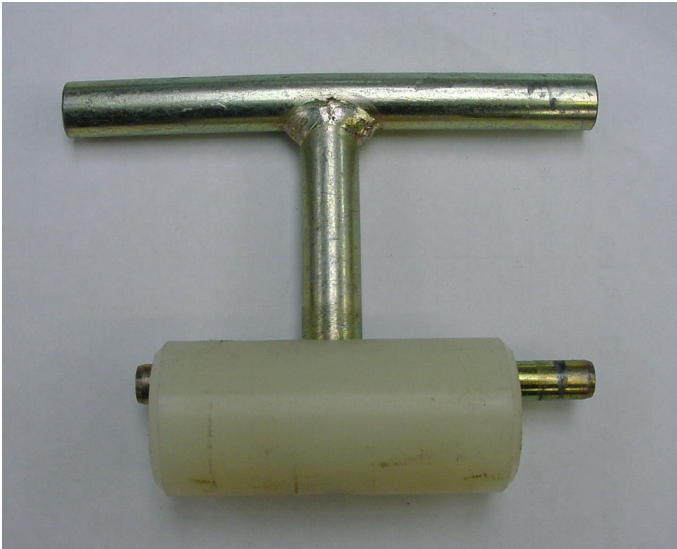
The seat back should also be checked for security on the tube.



10. Rear Harness Shoulder Straps

We have heard of owners removing the shoulder strap. These straps are there to protect the pilot from the passenger's head and must be worn. Do not pass a trike that has no shoulder straps.

11. Pylon Over Centre Catch



The catch pin is glued into the nylon, a few cases of the pin drifting out of position were found. On later versions the pin was ground away in the centre to provide a key for the glue.

With the introduction of the Quik, this pin was replaced with an AN5 bolt and nut, which further helps prevent the pylon guide opening up in the event of an accident.

The Overcentre Catch Guard was also removed, so not always present on aircraft.

12. Undercarriage Leg



The Quantum undercarriage leg suspension shock absorber assembly is held together by a nut locking the rose joint thread into place in the shaft. Although the nut is visible, the thread in the shaft inside the leg tube is not. We have known of 3 cases where the

thread completely came away and the undercarriage leg came apart. The rose joint nut security can be inspected by rotating each undercarriage leg, the rotation should be limited to the play in the rose joint bearing. If the leg rotates without the bearing, then the leg must be dismantled and service bulletin 82 carried out. It is absolutely essential that the service bulletin action has been completed, so check that it is logged.

Note that aerofoil side struts have a different method of assembly which eliminates this problem.

14. Suspension Shock Absorbers



A batch of shock absorbers was cured with the wrong process. Consequently when compressed they did not return to full length. Check for free play in the shock absorber at the top of the undercarriage legs. The photo shows bad specimens against a good one.

15. Pylon Rubbing Strips & Sub Frame Channel

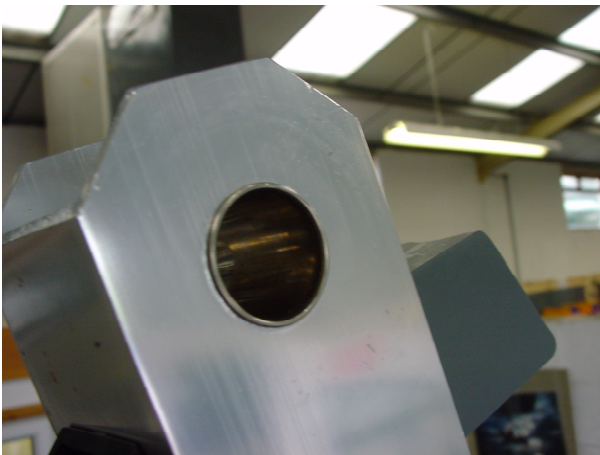
Check the rubbing strips that guide the pylon into the sub frame channel for loose rivets or that the channel has squeezed in and is compressing the pylon. During manufacture a hydraulic press is used to open this up. If the aircraft is transported with the pylon down then the channel will close up.

16. Front Strut Top Brackets – Quantum and Quasar

Service Bulletin 126 highlights a front strut top bracket failure caused by fitting the front strut with the bracket upside down. The bracket must be free to rotate as people swivel the front strut around the windscreen during rigging and de-rigging. A placard must be placed adjacent to the bracket showing the correct orientation.

17. Hang Bracket Pitch Bush

A stainless steel bush is peened into pylon for the nylon pitch bushes to run in. Glue is used to fit the two halves of the nylon pitch bush and occasionally we have come across excessive glue having glued the nylon bushes to the stainless bush. As a consequence the stainless bush has been forced to turn and wear the pylon. Check the peening and that the stainless bush is tight in the pylon. Service Bulletin 117 details this and also introduces a modification to help cure the problem.



18. Harness Plug and Socket

If trikes are stored in damp conditions, the pins in the main electrical harness plug and socket can corrode giving high resistance joints. The most common symptoms are false Flydat readings. Once a Flydat has gone out of limit, a service message is displayed for about 30 seconds on start up. This message can only be cleared by Conair or Skydrive on early Flydats. Later Flydats have a reset button, although sometimes even this does not work.

19. Carburettor Vent Pipes

On early 912s, the carburettor vent tubes were fitted deep into a drain tube and then clamped with a tie wrap. In some cases the clamp was too tight sealing the vent tube to the drain tube. Depending on the air pressure at the drain outlet, the float bowl pressure can be affected, usually causing rich mixture. Ensure that the vent tube is only 10 mm into the drain and that a large air gap is present between the end of the vent tube and the drain tube.

On early Quiks and GT450 a mixture control was added, make sure that the pipes are not full of fuel and that the outlet has a 210 main jet in place.

20. 912 HT Leads

During one stage of 912 production, the HT leads were routed under the expansion tank hoses abrasion and burning on the cylinder fins occurred. Re-route cables where found.

21. Oil Cooler Connection

The oil pipe going in the oil cooler on the 912 aircraft with Rotax Exhaust must have wirelocking to help hold the hose clip and pipe onto the pipe fitting. Repeated tightening of the hose clip can cause the hose to slide off the Rotax fitting. Service Bulletin 118 details this.

22. CKT Exhausts

All CKT exhausts must have the keeper straps welded onto the rear to ensure that if an undetected crack occurs the rear internal baffle is not ejected into the propeller. Service Bulletin 127 details this.

23. Radiator Hoses

Check sufficient hose is located onto all pipes and hose clips secured. Check that the pipes from the coolant pump on the port side are held clear of the engine mount by cable tie. Radiator hose connectors now have bulged ends.

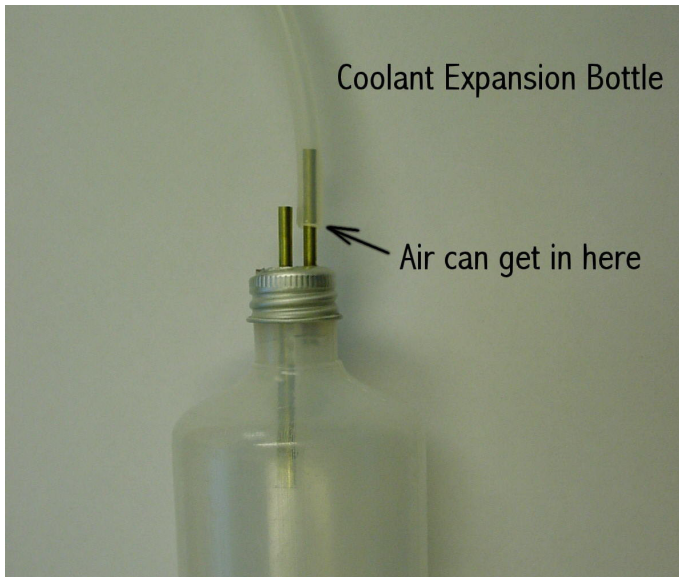
24. Radiator Plugs Leaking

Some radiator blanking plug seals have been found to leak, look for tell tales signs. Sometimes this is only found when the system has cooled.

25. Radiator Failures

Service bulletin 121 details radiators splitting due to overheating. New aircraft are filled with 100% Glycol Antifreeze, and if overheating is found then a water can be added to the mixture. Rotax recommends a 50/50 mix, but with this the CHT limits should also be lowered to prevent localised boiling in the cylinders. This coupled with the Rotax introduction of a 1.2bar pressure cap results in the radiator pressurising and sometimes splitting.

26. Coolant Overflow Bottle



Early coolant overflow bottles had the overflow pipe attached to a brass tube as shown in the picture. It was possible that the air seal was not good and the resulting leak prevented the coolant from being sucked back into the system on cooling. Later versions had no brass tube with the pipe going directly to the bottom of the bottle.

Newer aircraft now have a different style of overflow bottle fitted to the gearbox. Check the pipes for kinking with this design.