mainair sports

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JAH/EEW

SERVICE BULLETIN No. 27 - Circulation all owners

Item 1

WING RIGGING CABLES

A failure has been noted in a rear flying wire. This was on an aircraft which had done 90+ hours and broken strands were found where the wire enters the swaged termination. All owners should carefully inspect each end of every wire (there are only 8 wires on the bottom and 4 on the top) and look carefully for signs of strand failure. This is the only reported case of a 3mm wire failure we have had, and although we have not seen the broken wire, the description fits a fatigue failure case and the main reason this can occur is if insufficient movement of the termination takes place. All terminations must be fitted allowing free and easy movement, which means the bolts must not be tight and the terminal must lie in plane with the angle of the wire.

The main flying wires are 'lifed' at 250 hours and we have raised the subject to owners on frequent occasions. It may be that we have to consider giving a 'life' to other cables on the aircraft and any owners finding suspect wires should send them to us after replacement.

Item 2

PROPELLER/REAR WIRE CONTACT

A Gemini Flash 2 Alpha was parked, one wing down in a 7/8 knot wind on an airfield. Both pilots got in and 15/20 seconds after engine start a bang was heard and the rear wire found to have contacted the propeller blade and broken in a tensile failure at the termination. The propeller was a 3-blade and had a small groove 12mm down from the tip of one blade.

This is an alarming and inexplicable accident. We have tried hard to simulate the accident using the same propeller but the clearances are in excess of the CAA requirements even in the worst rigging case (front hole).

It has been pointed out to us that owing to the tight rigging, some owners slacken off the top rigging adjuster. We supply the wings rigged very tight to cater for wire stretch and the frame bedding in and leave adjustment so that owners can tighten up again after a period of flight. If an owner slackens off a new wing to make it easier to rig, then when the natural stretch takes place the rigging will go slack and reduce the clearances.

We believe that these are the circumstances behind this accident and urge all owners to check their aircraft for wire tension before the next flight. It's very easy to take up the adjustment on the top rigging, and when a dealer of ours did this to

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the aircraft in his hangar, clearances on all the aircraft increased substantially.

Owners are also reminded that parking one wing down in even a reasonable wind puts a very high load on the top rigging. This naturally leads to slackening of the lower wires. When engines start they can run roughly and this can cause oscillation in slack cables. We also point out that leaving an aircraft parked in this manner can allow the trike unit to 'creep' forward twisting the wing and this misalignment may also reduce the clearances. It only needs two or three factors to come together and the inexplicable can happen. Be vigilant.

Item 3

ROTAX UPRIGHT ENGINES

A customer discovered that the anti-kink spiral winding around a fuel pipe was wearing into the rubber boot on an ignition coil. This could bring about a failure of the ignition system.

Recommendation It's very hard to secure every cable, tube and fitting to prevent chafing. Vigilance is the watchword and at the first sign of unwanted chafing, re clip the component using plastic tie wrap to eliminate contact.

Item 4

UPRIGHT ENGINE FUEL TANKS

Contact can be made between the plastic fuel tank and the bolt head which secures the front seat tank locator bracket. This seems to occur whilst the trike unit is trailered folded down with the rear tanks full or mainly full. Production aircraft have had a design change to eliminate this fixing, but problems on existing aircraft can be eliminated by covering the head with a strip of propeller tape or fitting a plastic nut cap.

Item 5

WHEEL SPATS - All trike units but particularly Alpha

Mud is heavy. After each day's flying you must hose out the accumulated mud which gets into the rear wheel spats and other areas of the aircraft. The Alpha spat is narrower and more prone to mud sticking problems, which because of the additional weight at the end, leads to fixing problems. Owners who leave their aircraft in hangars on grass fields may not have access to a hose but should still scrape out the spats to avoid future problems. It's good practice after a day's flying to simply run out the hose, and whilst the machine is still on the trailer hose up all the underside and inside the spats and cockpit. Good maintenance starts with a clean aircraft.

Item 6

ALPHA WINDSCREEN/FRONT STRUT FIXING

We always try to standardise on parts to ease future service, and the Gemini and Alpha trike units therefore have the same windscreen. However, early Alpha owners will be aware of the problem of fixing the front strut bolt owing to the narrow access. A simple fix is to drill the screen with a 7/8" dia electrical conduit cutter and to fix a ring grommet inside the hole. Any owner who wants a grommet for his machine can have one free of change by requesting one and including a stamped addressed envelope.

Item 7

ALUMINIUM FUEL FILTERS

We have been notified of air leaks into these filters, particularly on early Geminies where the filter was fitted before the fuel pump. The leaks are caused by the rubber sealing washer contracting with age and losing its resiliance. An immediate cure is to replace the washer with a new one, although rubbing down the sintered filter a few thou' (on emery, on glass) is a useful way of providing an immediate cure.

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As a general note, fuel is the life blood of the engine and your fuel system should be subjected to frequent and careful checks. Rubber perishes and goes hard with time and replacement of fuel line on an annual basis or as soon as it shows signs of age is a good idea.

Item 8

ALPHA REAR STEERING We have developed our standard rear steering kit into a unit which can be taken off without significant work. Owners who have a requirement for rear steering are best selecting the new systen since it can be taken off when the aircraft is sold. We do not recommend rear steering for general use, but it is an advantage if you carry out training or allow other pilots to fly from the front seat.

Item 9

ALPHA REAR SUSPENSION SPRINGS Later Alphas are fitted with slightly stiffer rear springs - identified by colour white. We are developing an even stiffer set for use in training schools and for aircraft used frequently at or near maximum all-up weight or from particularly bad fields.

Item 10

DUAL-SEATER TYRES We will shortly have a better quality tyre available for the Alpha. Although not having any major problems, the quality is not as high as it could be and continuous improvement is our watchword.

Item 11

EXHAUST GUARD We have a fibreglass exhaust/elbow guard available which looks very smart and operates much better than the 'P' type. It means changing the LH engine mount but can be fitted to all Gemini and Alphas. Please contact us for details.

Item 12

SEAT LOCKING PINS We have had problems caused by the seat locking 'R' pin dropping through the hole in the fabric and causing a tear as the trike is erected. The cure is to shorten the wire attachment, and if you post the 2 clips to us along with a stamped addressed envelope we will do this free of change for you.

Item 13

ALPHA FRONT SUSPENSION 1988 models are fitted with front suspension which uses external aluminium sliders over the fork legs and hydragas dampers instead of internal sliders and springs. This is a superior suspension system and all Alphas can be modified if required. It requires returning the fork and wheel assembly to us and costs around £80. Please contact us for details.