



# TAKE THIS, AND THAT... AND THE OTHER THING

What tools should you take on a trip to a remote area?  
Mike Smith provides some advice

**"N**avajo just airborne at Birdsville, your gear's not up." I'm sure all 175 pilots on the ground at Birdsville had told me this on the radio by the time I'd got to a safe height, clear of traffic, and started to trouble-shoot the problem. I was at Birdsville with a group of friends for the annual picnic races last September and we'd just taken off to get some photographs before packing up and heading to Longreach.

"Not up" doesn't quite describe the situation, because the gear wasn't down either, and that's not a good thing if you want to land and use the aeroplane again any time soon. Once clear of the circuit and in level flight, I re-selected gear down. Before I had time to remove the cover to the gear extension hand pump, the gear began to travel.

There was the reassuring clunk as all three wheels locked into position, confirmed by three green lights, the nose-wheel down in the mirror and the return of the gear handle to the neutral position.

Back on the ground, a quick check revealed an almost empty hydraulic reservoir. With no obvious signs of fluid loss around the actuators or on the aircraft's belly, a call to the LAME who looks after

the aircraft confirmed the likely cause. During maintenance earlier in the week the reservoir must have been drained while gear retraction tests were done. The first three take-offs and landings were fine, but now, at our most remote location of the trip, the gear had chosen to play up.

MIL H 5606 is the most commonly specified hydraulic fluid in light GA aircraft and we needed about a litre to top up the reservoir. There was none at Birdsville. One wag suggested we take a cup around to other aircraft to borrow some. Eventually our LAME managed to find us a can at William Creek, 241 miles away; it would be flown up the next morning along with a piece of tubing and a squeeze contraction for getting the fluid into the reservoir.

**Basic tools:** We re-erected the camp and spent an unplanned night at Birdsville.

So, will I add a can of hydraulic fluid to my list of maintenance stuff to take on trips to remote areas? Probably not, but what is it sensible to bring along on these flights?

Many of the problems encountered away from home base can be corrected with basic tools. A number of these problems fall within the scope of pilot per-

mitted maintenance. Of course, for other problems the services of a LAME are needed. Some simple preparation before leaving on a trip can save a great deal of inconvenience.

Before any trip away, you should make sure that any maintenance likely to fall due while you are away is either carried out in advance or you arrange to have it done along the way. It's a good idea to add a buffer to the number of hours you plan to fly to allow for unexpected diversions or less favourable winds. Maintenance hours cannot normally be overrun.

During my last trip in my Cessna 172, I had to do a monthly battery service and an engine oil change, both called for on the aircraft's maintenance release

**Maintenance and parts manuals for many light aircraft are now available on CD-ROM... keep it in the glove box or a seat pocket and you'll have it when you need it.**

and both permitted pilot maintenance. Although I am a LAME most pilots can perform these kinds of tasks with appropriate training from a qualified person.

My engine had just been overhauled and was running with "Red Band" oil. I made sure I had enough with me for the change and any top up before I left because it's not always easy to get. Even if you're using the more common ashless dispersant oil, it's a good idea to bring a top up supply.

Your regular LAME should be able to help you arrange for another maintenance shop at a stopover aerodrome to do any more complex work that will fall due during your trip. This should include making sure that the shop has any parts that might be necessary and has access to the maintenance manual for your aircraft. If the aircraft's log-books are required, these should be sent in advance and not carried on board with you.

I usually carry a screwdriver handle with a range of interchangeable tips and a stubby screwdriver with a reversible flat and #2 Phillips bit for working in tight places. I take a small socket set, a good pair of side cutters (for working with lockwire, split pins etc), a small set of ring/open end spanners and a pair of vice grips. Spend the money on reasonable quality tools for your flyaway kit or, the first time you round off a nut or damage a screw slot you'll wish you had.

**Spares:** I have a small tin of common size AN fasteners including screws, washers, nuts and bolts as well as a few split pins, a length of lockwire, and some plastic tie wraps. Other spares worth bringing along include an assortment of light bulbs and fuses appropriate to your aircraft. I decided to add a spare landing light to my list after I spent an unplanned night at Bathurst a few months ago when both failed on my 172 in a short space of time.

All of this gets wrapped up in a canvas tool roll I bought at a car club swap-meet. Canvas tool bags or plastic boxes are better than metal boxes which are heavy and can dent or scratch the plane.

Someone recently told me I should have some gaffer tape for fixing things that move when they shouldn't and some spray lubricant for fixing things that don't move when they should. I'm not quite sure about that but it is worth talking to your LAME about things that might need extra attention, particularly cleaning and relubricating when operating in dusty areas while away.

Fouled spark plugs can be a common problem with some engines so you might add an aircraft plug socket to the kit, along with a spare plug for the engine. If you intend to change or remove a spark plug, make sure you know how to tighten it correctly: too loose and you can interfere with proper heat transfer between the plug and engine cylinder head or risk it coming back out altogether, too tight

and you may damage the thread in the cylinder head.

Access to proper information is invaluable in breakdown situations, but may not be available in remote areas, and the LAME you call on might not have the required manuals. Maintenance and parts manuals for many light aircraft are now available on CD-ROM at quite reasonable prices. If you can get a CD of the latest version for your aircraft, keep it in the glove box or a seat pocket and you'll have it if needed.

You should also take a list of contact details for people you might need to call to help get you out of a jam.

Before you contemplate doing any repairs, you need to understand what maintenance you are entitled to do. Legally speaking, most light GA aircraft are operated as class B aircraft and schedule 8 of the Civil Aviation Regulations 1988 spells out the type of maintenance a pilot is permitted to do under subregulation 42ZC (4).

Schedule 8 is reproduced on the CASA website as part of CAR 1988 ([casa.gov.au/rules](http://casa.gov.au/rules)). You should be familiar with the relevant CASA rules, and be competent (with adequate training) to perform the work, before you contemplate any do-it-yourself repairs. An educational booklet on pilot maintenance is available from CASA. Go to [casa.jsmcmillan.com.au](http://casa.jsmcmillan.com.au) to order on line.

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**Kitted out:** Tools that could come in handy on a trip to the far reaches of Australia.