



OVERLAND



LRO's expeditions expert Jack Jackson begins a two part special on the perils of water

Bridges are broken or swept away, ferries are crude and poorly maintained and pistes become shallow rivers in the wet season – just some of the problems of driving in Third World countries. Treat Third World ferries with caution. Embark and disembark in four-wheel drive with any centre differential locked in, so you do not push the ferry away from the bank, leaving your vehicle in the water.

Preparation

The latest vehicles may be fitted with catalytic converters; in rough terrain these break up and cold water destroys hot catalysts. For Third World use, remove the unit to avoid an expensive replacement on returning to Europe. If you cannot do this, or will be wading in Europe, fit a raised exhaust outlet,



Above, with a plastic sheet across the engine bay this vehicle crosses deep water, demonstrating a good bow

though any serious wading in cold water will damage the catalyst.

For petrol engined vehicles, coat all ignition components with silicone sealant, including any breather holes in the bottom of the distributor, (clear these breather holes as soon as possible after the crossing). Plastic or rubber gloves, or the bottom of a plastic drinks bottle inverted over the distributor will help to keep contacts dry. Silicone sealant is preferable to silicon grease, which in hot climates can melt and run onto contacts.

Fit the clutch bell housing wading plug and where supplied, the camshaft drive belt housing wading plug. These plug holes drain any leaking oil to prevent it getting onto the camshaft timing belt or clutch driven plate. Remove them within a few days of wading.

For vehicles regularly used for wading, leave these plugs fitted, but remove them weekly, allowing any oil to drain out and then replacing them. Consider using a sodium based grease on all grease points – it will form a more efficient seal by emulsifying with water.

Late vehicles have remote axle breather tubes, venting above the engine – make sure you check their condition regularly. Older vehicles have poppet valves. Check these are clean and in working order. Hot axles with poppet valves, if stuck in water for long, will suck water in through oil seals and a vacuum is produced as they cool down. So it's worth converting poppet valve systems to remote breather tubes.

Stop and inspect the water on foot first. In warm climates, avoid wading in bare feet; in slow-flowing water there may be schistosomiasis (bilharzia) and in Africa never go about in bare feet, because of worm or tick infections. Waders are more sensible than wellingtons as there may be unseen deeper sections.

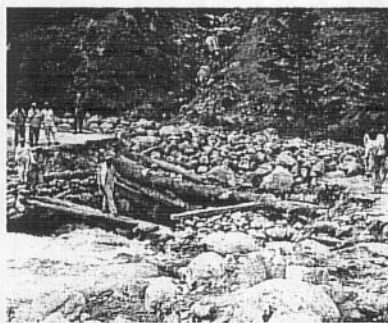
Use a shovel or staff to prod for bad sections. How deep is it? Will it come above the exhaust, cooling fan, air intake or vehicle floor? Is the bottom solid or moving? Are there large holes caused by previously stuck vehicles, which must be filled in or avoided?

Is there a sensible angle into the water and out on the other side? You may flood your engine if the angle in is too steep and you may not be able to get up the other side if the angle is too difficult. If the river bed is soft, lower the tyre pressures.

Is there a current fast enough to necessitate your aiming upstream to get straight across? Fast flowing rivers will be faster and deeper, with more difficult entry and exit, where they narrow. Moving or stagnant water with an unbroken surface may be deep and is more likely to have a silt bottom that vehicles could sink into. Moving water with a rippling or broken surface usually denotes a stony bottom. This will be shallower, clear of silt and is easier to cross. If there are dry patches, you can break up your crossing into stages.

Rivers fed by glaciers or melting snow will be at their slowest and lowest level at dawn and fastest and highest level in the late evening.

If the route across has to avoid obstacles, mark it out with stones or sticks according to depth. If it



Above, a broken bridge like this will hamper your route

reaches above bumper level, fix a waterproof sheet across the front of the vehicle to help create an efficient bow wave. If one is unavailable, consider crossing in reverse.

Remove the fan belt if the water rises above it. This will cut down the spray onto ignition components and is important with nylon or aluminium fan blades, which may flex and damage the radiator core. Only remove a fan belt for short periods as the water pump no longer operates.

If the water will come above the floor, raise any articles that could be damaged. The vehicle may float slightly and therefore lose traction. Have the rear door open, but make sure all baggage is lashed down.

A pre-attached tow rope or pre-extension of the winch cable, either hooked to the roof rack or tucked in through a rear window, WD40 and tools and tissues to hand will make life easier if you get stuck.

If a turbocharger is fitted, allow it to cool before entering water. Convoy vehicles should cross one at a time. On a deep crossing, the rear of a vehicle and its chassis take in water, which pours out on climbing the far bank, making this slippery and difficult for following vehicles.

If possible, they should try alternative exits, or allow time for the exit to drain and dry out.