Boats requiring double-axle trailer should be towed by a substanial four-wheel drive.

Road Worthy

How to avoid those trailer-towing disasters, by Bob Maxwell

BEFORE you decide on owning a trailer sailer, you need to have a vehicle that is compatible with the load likely to be imposed by boat and trailer.

Anybody contemplating buying a boat that requires a double-axle trailer should seriously consider a substantial four-wheel drive regardless of the minimum requirements of your state regulations.

Not all of us can afford the $50,000 plus for a new four-wheel drive as well as a boat, but older vehicles can still comfortably handle the stress. I can assure you that it is a great pleasure to engage four-wheel drive in low range to effect an effortless retrieval.

If you believe a standard saloon or station wagon is appropriate for towing your boat, consider an automatic gearbox (to cope with retrievals), adjustable-height rear air-shock absorbers (to ensure the rear of the towing vehicle does not sag) and an additional cooling radiator (for the automatic transmission fluid).

Trailer hubs and bearings

Long-since dead HD/HT Holdens now live on in the hub assemblies that are now purpose-manufactured for trailers. The parts are cheap and are readily available through specialist trailer shops and auto-part shops.

The biggest killer of wheel hub-bearings on boat trailers is seawater immersion. Even if you are a boating novice you will have probably noticed those shiny little additions to boat-trailer hubs; "Bearing Buddies" which help keep the water out of hubs by providing a reservoir of grease under pressure.

These are simple to install by merely knocking them into place on the outside of the wheel hub using a block of wood and hammer. To maintain your bearings in good order, ensure that you occasionally pump up the grease inside the buddy using a standard grease gun loaded with marine grease.

Plastic caps should be added to the buddy to keep out grit and when buying a bearing set, make sure you specify that you have a boat trailer to ensure that you get the best seals for the inner side of the hub.

An option that I have not yet tried is the use of oil-immersion kits for bearings. They are not expensive and I will be installing a pair next time I do my annual bearing maintenance.

Wheel nuts and studs warrant special and individual attention for if not sufficiently maintained, they will surely ruin your day.

After months of repeated sea water immersions it is very likely that the trailer wheel nuts will have rusted solidly onto the studs. As part of the holiday preparation, apply a little kerosene to the wheel nuts and then half an hour later, remove and replace them one at a time, greasing the stud before re-tightening. Remember to put in a lot more attention to tightening the trailer wheel-nuts than you would for a car, because of the extra load factor.

If you don't carry out this maintenance procedure, it is likely that when you discover that you have a flat tyre in the proverbial heat, flies and dust, you will start snapping your studs off when you apply wheel brace and grunt.

My own loose wheel-nut disaster was caused by not sufficiently tightening the wheel nuts after removing and greasing. The lesson is to frequently check the torque on the wheel nuts and if you do hear any wheel-speed "clunk-clunk" noises, stop immediately.

Use your wheel brace to check all of the nuts for torque. Remember that looking at the little blighters doesn't tell you a damn, not unless the wheel is just about to fall off! So use the brace to check.

Brakes

Trailer brakes come in two main categories, either mechanically- or hydraulically operated disc brakes. Beyond a certain trailer weight, you will legally be required to use power-assisted hydraulic brakes; which would have to be the subject of another article.

If you have brake shoes, you are in the Stone Age, throw them away and get a set of disk brakes. I lean heav-

ily towards the use of mechanical disk brakes, as these are dead simple, cheap and very easy to maintain. I prefer to keep away from hydraulic systems that require another level of maintenance to maintain the integrity of hydraulic seals.

Mechanically operated disk brakes work when the tow-bar override pulls on a wire cable connected to a lever on the disk-brake calipers. If you hard stand your boat at your club, you can remove the brake calipers from the hubs by simply undoing only two bolts on each axle and removing the connecting cable. Keep them in your shed while you are doing all those launches from the club ramp. This will protect your brakes and you only need reinstall them before you trailer away on a long trip or on holiday.

Mechanically operated disc brakes are simple to adjust. There is a nut and lock nut to adjust the play on the caliper lever and the cable is easily tensioned at the tow bar end. Make sure the lock nuts on the caliper adjustment and cable adjustment are tight.

Every trailer braking system should also have a hand brake. If you tighten up the free play too much, you won't be able to pull on the hand brake because the brakes are already full on. If you have too much play, the handbrake will not be able to take up all the free play, even when you pull the hand brake full on, which means you will have no brakes at all.

The best strategy is to adjust caliper play so that the wheels will spin with just a little bit of scraping noise from the disk brakes. One more turn on the adjustment nut would cause the brakes to begin binding. Back off the nut and tighten the lock nut.

Fine adjustments can be made to the free-play by adjusting the cable tension separately at the trailer/vehicle coupling. The free-play on the brakes should be such that the brakes take up on the first third or so of the travel on the hand brake.

Common problems associated with trailer brakes include: Improperly-adjusted brakes, leaving the anti-override in place, leaving the trailer hand brake on and allowing the ratchet on the hand brake to operate while towing.

On some tow bars, when the tow-bar override operates as a normal braking operation while towing, the ratchet on the hand brake can operate, leaving the hand brake locked on when you want to take off again. You will then find your vehicle straining and grunting to get away from the traffic lights.

There should be some sort of clip or if not, you should devise a length of shock cord, to keep the ratchet out of harm's way when the trailer is in motion to prevent the hand brake operating when you don't want it to.

Trailer tyres

After towing my boat from Melbourne to Perth, I found out that my tyres, which had been "over-inflated" to 45lb, were showing signs of wear typical of under-inflation. Subjecting a normal car tyre on a trailer to increased pressures and loads is extremely dangerous and can result in catastrophic tyre failure. I use only light truck tyres on my boat trailer, inflated to between 50 and 60lb per square inch, depending on conditions.

Never use second-hand or old tyres as the demands on a boat trailer are far greater than can be expected for normal use. Just make sure your tyres are in top condition. Sure, keep your crappy tyres for club launching, but never take them out on the highway.

Small-diameter trailer tyres make launching a lot easier because they leave the boat closer to the water. However, make sure those little tyres are sufficient for highway towing by checking their ply or load rating against the load you will be expecting them to carry. Also remember that those tyres are not so readily available as standard-sized tyres in an emergency situation on a weekend or holiday, so carry two spares rather than one.

A set of tyres that has been on the hard stand for three or four years may look all right, but could be a disaster waiting to happen. Repeated salt immersion and exposure to heat and sunlight will perish your tyres eventually. To be really road-wise, keep your expensive tyres in your garage/shed together with your brake calipers and detachable licence/light bar and only install them for highway use.

Preparing for the highway

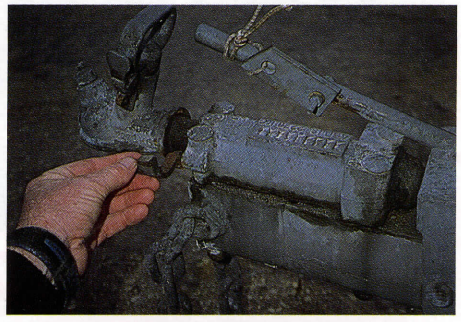
Regardless of how assiduously you have been pumping grease into your bearings; once a year, you still need to jack up each wheel in turn and pull the hubs off and have a look at the surface of the bearing.

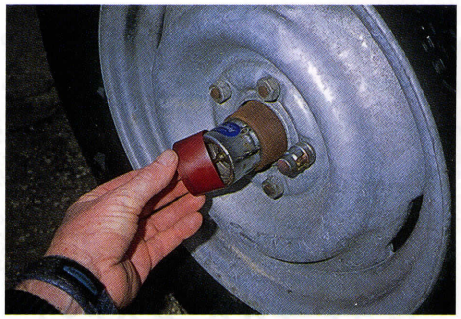
Spinning the wheels and listening for a rumble is not good enough. This little diagnostic practice is only good enough to let you know if the trailer bearings are likely to disintegrate within the first 50 kilometres of your trip!

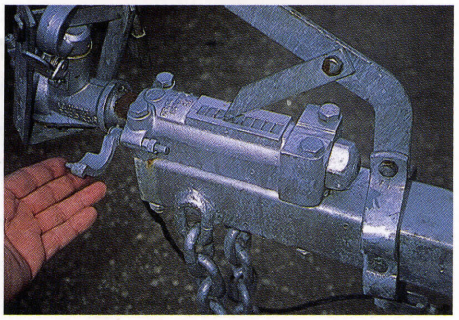
When each hub is off, remove the bearings and then check the quality of the grease inside the hubs. If you find a dirty brown or cream emulsion, this means water has got into the hub and you will need to replace the bearing set.

If the grease is in reasonable condition your bearings could also be OK. Scoop out the grease from the hub and wash the hubs out with a brush and kerosene over an ice-cream container or bucket, preparatory to re-packing with new grease.

You should not wash out the bearing







BELOW: Bearing Buddy's plastic dust cap is removed to show the grease nipple. TOP LEFT & BOTTOM LEFT: Make sure the reversing anti over-ride on the trailer coupling is out of the way and that the hand brake is securely tied off when towing.

cage with solvent as this can scratch the surface of the bearings. If the grease shows signs of having been emulsified with water, then new bearings will be needed anyway. If there are any signs of marks or black stains on the bearing shells, install new bearing sets.

If you need to be told how to dismantle your hub, replace bearing shells or set the castellation or hub-nut tension then I suggest you get a more experienced friend to guide you though the process or refer to an auto manual for the general principles involved.

When you remove the hubs, you will have to remove the brake calipers, which is a good time to install new brake pads if needed.

Boat balance

Maintenance time is also a good time to check the balance of your boat on the trailer. If the boat is too evenly balanced on the trailer and there is not sufficient weight on the tow bar, your trailer can become alarmingly unstable with any disturbance such as rough patches on the road or air-pressure waves from overtaking semi-trailers. It is a simple matter to move the position of the boat an inch or so further forward on the trailer, if there is room on the draw bar for moving the winch pillar forwards. It is worthwhile finding out the maximum weight that may be vertically imposed on your tow bar, as opposed to the towing weight.

Carry spares

Despite your best efforts at maintenance, you should still carry spares for replacing a bearing set or mangled studs. These should include at least one bearing set, marine grease, an old paint brush, an ice cream container and a some kerosene or spare petrol (kept in a container designed for inflammables) for cleaning out a hub. Also include a few spare studs and wheel nuts.

Your tools should include a jack capable of lifting your trailer axles, a four-pound hammer, cold chisel and/or a stout punch capable of knocking out bearing shells and mangled or sheared wheel studs.

I know of someone who thought the mechanical jack that went with the car would be just fine for the boat trailer. With the inevitable flat tyre, he discovered that a hydraulic jack would be needed to lift the combined weight of boat and trailer.

As a last precaution while towing, keep a weather eye on your engine-temperature gauge and adjust your speed accordingly. Hot weather, the air-conditioner blasting away and the "pride and joy" in tow may just overload the cooling system of your car.

The "simple" trailer can be the source of many problems. The best you can do for yourself and the sanity of the first mate is to compile a towing checklist. List the jobs to be done in the week or so before you intend leaving and items to be checked before taking off with the boat and trailer behind you so you do not forget critical safety items. ◢