

ARVM TECHNICAL TIPS

TYRE ROTATION IF YOU DO ROTATE THE TYRES, WHAT IS THE SEQUENCE?

An American technical expert suggests the following sequence for tyre rotation on American motorhomes.

Left front to outer twin left rear to inner twin left rear to left front; right front to outer twin right front to inner right rear to right front.

It looks as though the fronts have to stay on the front, and the rears because of their style, must stay on the rear, and ditto on the two inside tyres. That's not what Monaco suggests in the manual I received with my motorhome.

The reason for the rotation is to allow the tyres to wear evenly to get more miles from all six tyres.

Yes, that's correct. Since we RVers typically don't wear tyres to the death like truckers do who travel 100,000 miles or more in a year, it is questionable how urgent tyre rotation is for us. We tend to replace our tyres, or at least should replace them, after about five years (recommended by Monaco) of exposure to sunlight and the elements, regardless of the mileage driven.

Discussing the cost factor alone, does it make financial sense to do this? Multiply the cost of a tyre rotation by the number of times you plan on doing this every 6 or 15 thousand miles. Under ideal conditions you might get 5 or 6 thousand more miles from your tyres. Would you prefer to spend \$1,000 (plus time in the garage) for tyre rotations or buy a new set of tyres 5 to 6 thousand miles early?

If I put 15,000 miles on my RV in a year, which is more than most RVers do. I would put 5 years x 15,000 miles/year=75,000 miles on the tyres before its time to replace them because of age, exposure, etc. I don't intend to keep my coach that long, but let's ignore that for now.

If I rotated every 15,000 miles which, in my case, would be once a year, at a cost of \$75 each time, I would spend 5x\$75=\$375. I can't buy tyres for that amount.

If I rotated every 6,000 miles, which is 2.5 times more frequently, I would spend 2.5 times as much, which is \$375x2.5=\$937.50. Of course, I omitted to add taxes which should also be thrown into the equation.

But what's worse is that over 75,000 miles you can develop a very bad tyre. The developing problem may not even be

visible at 15,000 miles but as things progress it will be too late at some time to 'fix' an uneven tyre by rotating it. *That*, in my opinion is the big reason why RVers should rotate their rubbers. Athousand dollars over five years isn't going to change our lifestyle but the added safety makes me more comfortable.

As for time in the garage, I agree, I wouldn't want to drive there just for a tyre rotation. However, you could combine this chore with another service, if nothing else an oil change, or annual MOT.

HOLDING TANK MONITOR SYSTEM PROBLEMS

How many times have you found out the hard way that your holding tanks were full? If it was only once, it was once too often. You probably asked yourself 'Why did this happen? What happened to the tank monitor?' These are very common questions asked among recreational vehicle owners today. However, the one question you should ask yourself is 'How can I prevent this from happening in the future?'

Firstly, a quick explanation of how the monitoring system works in your holding tanks. On the end of each tank is a series of wires. They include one single wire and a harness of three or four wires. These wires are hooked onto bolts which go into the tank itself. When liquid touches both the single wire bolt and one of the harness wire bolts, a circuit is completed and shows up on the monitor inside. As more of the harness wires come into contact with liquid (i.e. as the tank fills up), a stronger current is supplied to the monitor panel and more indicator lights come on.

If your monitor panel is not reading correctly, either one of the signal wires is damaged or build up has occurred on the inner part of the bolts in the tank. Ensure that all the wires are connected to the terminals on the tank and that there is no corrosion on the connections. If everything looks correct but the indication on the panel is still incorrect it is well worth giving the tanks a thorough clean out before you call in someone to check the system over.

Once you have the monitor system working properly then all you need to do is to keep the tanks clean. The very least that should be done is to keep your tanks well flushed out when the vehicle is not in use. Allowing the tank to sit with any contents for more than a couple of days will ensure some sort of build-up on the monitor probes in the side of the tank and future problems, even if this is the first time you have used your RV. One way to help flush them out is to drain them at the campsite, then fill each tank half full of water for the trip home. The constant agitation while driving home usually does a good job of cleaning the tanks. Drain the tanks completely before parking up.

There are a few things you can do to

help facilitate the cleaning process later. First, you should always use some type of chemical additive in your tanks designed for RV holding tanks and try using toilet tissue designed for recreational vehicles. It will break down farther than residential style tissues.

While parked-up it is always advisable to keep the dump valves closed as the holding tanks cannot be drained properly unless there is a sufficient amount of material to gravity-flow from the tank.

ELECTRIC STEP RETRACTION WARNING LIGHT

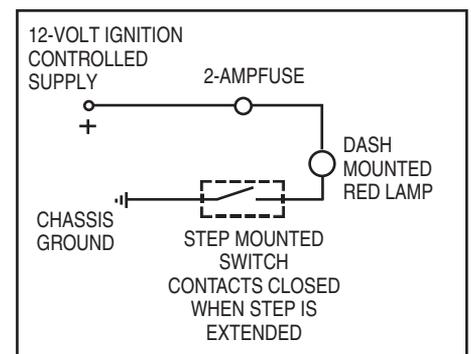
Have you had the misfortune of having the electric step on your motorhome fail to retract when the ignition switch was turned on, as it is designed to do? If you have, then you will know what damage can be done to the mechanism when the extended step contacts a kerb or some other solid object. Unfortunately the motorhome will also suffer damage, particularly if the step is ripped off its mounting points.

To prevent a recurrence of this misadventure you can purchase a suitable waterproof two-way micro switch and a red 12-volt indicator lamp from an electronic component retailer, such as Tandy. Mount the switch on a bracket on the step so that when the step is fully retracted it depresses it and opens the circuit to the indicator lamp, cutting off the 12 volt supply. If the lamp remains off when the step is out and comes on when it is retracted then change the connections over on the switch.

The 12 volt supply for the warning device should be obtained from an ignition switch controlled circuit under the dash. Run a wire via a small in-line fuse to the dash mounted red light and then to the switch mounted on the step and connect the other switch terminal to a good ground near the step.

As the switch contacts are normally closed whilst the step is extended the circuit to ground will be complete and the red light will illuminate as soon as you turn the ignition on. Provided the step retracts whilst the ignition is on the red light will go out as soon as it is fully retracted.

This is a very easy and cheap warning system which can potentially save you hundreds of pounds in repair bills.



SPANNERMAN ANSWERS YOUR QUESTIONS

FUELADDITIVES

I have been reading a great deal about the effects of the new reformulated petrol and low-sulphur diesel fuel on engine life and fuel mileage. The offered solutions vary from adding oil or brake fluid to the fuel to using formulated fuel additive products. First, is this really a problem, and if so, how big a problem? Second, if it is a problem, what is the best solution short of changing the regulations? Has anyone done any testing to evaluate the available fuel additive products? I have a 1983 motorhome with a Chevrolet 454 engine. It has about 70,000 miles on it, and I would like it to keep going with problems.

Your coach's 1983 454 engine has induction-hardened valve seats, and you should have many miles left on it without having to worry about a condition caused by today's petrol.

I have not noticed any serious effects of the low-sulphur diesel fuel in engines. This is confirmed by discussion with diesel mechanics. I have heard of people with an injector or pump problem blaming the problem on low sulphur fuel, but it really isn't known whether the work would have been necessary if the fuels hadn't been changed.

The issue of low or no-lead petrol has been discussed at length over the last couple of years but many of the predictions of doom and gloom do not seem to have come to anything.

I have also heard that many people blame the new petrol grades for the need to have work done on their engines but this has not been confirmed.

A good tip, particular for diesel owners, is to refill only at the larger fuel outlets as this will ensure you are using fresh fuel.

MISFITTING MANIFOLDS

A mechanic told me that the Chevy 454 engine runs very hot, in fact, so hot that the exhaust manifolds glow. He said that is especially bad on the right side, even with the air-baffle plate installed, as recommended in the *Chevrolet Motor Home Chassis Service Guide*. Further, he explained that the heat is so high, it accelerates deterioration of the spark-plug wires and hoses in that area.

Finally, he said that the engine was not meant to power a heavy motorhome, especially not one towing a car. He recommended that I trade it in for a mechanically injected (not an electronically injected) diesel.

Is he right? If so, can something be done to the engine or the compartment to cure the problem, short of trading it in? I've had a number of exhaust-manifold leaks, and just last month had an intake-manifold leak.

Incidentally, my experience has been that knowledgeable RV mechanics are few. Also, motorhome-equipment

suppliers are quick to make a sale, but then don't respond to questions. It's as though once they have sold you something they don't want to hear from you again.

You bring up a lot of issues, many of which have been covered before. Consumers are very cost-conscious, and manufacturers have to produce powertrains that are a compromise between cost and long-term durability to remain competitive. The 454 engine works quite well for the majority of motorhome owners for light and moderate use, and many people are satisfied with it. Yes, the same basic engine was used in passenger cars, but heavy-duty 366 and 427 versions were also used in medium-duty and heavy-duty trucks and tractor trailers.

If you intend to travel full-time in the coach and/or tow a heavy vehicle in the mountains often, a diesel pusher may be better suited to your needs. Otherwise, a gas model should get the job done.

At full-throttle, engines pump a tremendous amount of heat into their exhaust manifolds. With gasoline engines, exhaust-gas temperatures at the exhaust port range as high as 1800 degrees Fahrenheit (diesels run about 600 degrees cooler). This is what makes the manifolds glow; it's not that the engine is necessarily overheated. Other brands, like Ford's gas models, can do the same thing.

I believe that one of the reasons for the shortage of good mechanics is the decline of a comprehensive vocational-technical education in modern day schools. This has led to a lack of qualified individuals interested in taking up related careers.

Also, mechanics must have many repair skills, including electronics, plumbing, hydraulics, welding, etc, yet they often make less money than those who specialise in any of those individual areas. Mechanics also have to buy their own tools at great expense, and working conditions can be very difficult and dangerous.

WHEELPROBLEMS

We have a 1983 26ft Class C motorhome built by Skyline. It has a Ford chassis with 8.75x16.5 Budd wheels.

In November 1992 and again in June 1994, all eight studs broke off and left the right rear duals running out past the bumper well before I could come to a stop.

I have talked with Ford customer assistance, and a number of tyre and wheel dealers and I cannot pin down a torque setting for these wheels. I have received recommendations ranging from 105 foot-pounds to the 220 foot-pounds recommended by Bendix and NTDR charts, I am at a loss as to what torque to use. I no longer feel comfortable driving the motorhome for long distances.

I have all the tools and torque wrenches needed but no specs. These are 9/16 inch studs. Do you know the answer, or could one of your readers help with this problem?

During the period of time when your coach

was built, I learned about some instances where the wrong spare wheel was supplied with the coach, and the identical condition resulted when this wheel was used.

Specifically, Ford changed from a cone-type lug nut to an integral two-piece swivelling lug nut. The difference is obvious. As a result, the wheel must match the lug nut. The cone lug nut wheel has a 'V' where the lug nut goes in; the two piece swivelling nut does not. If in doubt, inspect the other wheels to determine whether one is different in the area of holes for the wheel studs. If one is different, specifically the left rear outer wheel, you must obtain the proper wheel.

The wheel torque is 140 foot pounds. The torque sequence for the eight-stud wheel is 12 o'clock, 6 o'clock, 3 o'clock, 9 o'clock, 4 o'clock, 11 o'clock, 2 o'clock and 7 o'clock. When the rear wheels are installed, they have a locating stud. The studs must be clean, dry, and free of dirt and paint. Never use oil or grease on the studs or nuts. The rear lug nuts must be retorqued at 100 and 500 miles after a wheel is removed and reinstalled.

HEAVY TOWING

Articles on towing weights that I have read in various publications recently, give me cause for concern. To my knowledge there is no receiver on the market rated at more than 10,000lb and I believe the receiver on many motorhomes is rated at 5,000lb or less.

I had the unfortunate experience of destroying a custom vehicle and a new car trailer when the receiver parted company with my motorhome.

There are hitches on the market which exceed 10,000lb but generally who needs a hitch to tow this sort of weight. Even 10,000lb (4.5 tonnes) is more than the average RVer will ever tow. On the other hand 5,000lb (2.25 tonnes) could be on the limit if you are towing a trailer with vehicle on it. If, however, you are towing on an A-frame then a 3,500lb (1.5 tonnes) hitch will more than suffice. Many motorhomes only have 3,500lb (Class II) hitches and cannot tow heavy trailers but as I have already said they are more than adequate to tow an average car on an A-frame. Many of the heavier pushers have hitches rated at 10,000lb (4.5 tonnes) or even more. Pushers have a much heavier chassis at the rear than a puller on which to attach a tow hitch and can also cope with a higher download on the hitch.

TECHNICAL QUESTIONS

If you have a technical question that you would like answering please send it to: SPANNERMAN, ARVM, MONTROSE, CROWN HILL, GREAT DALBY, LE14 2ER. Fax. 01664 481400 Email: apbleisure@btinternet.com

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