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by *Walt Sener*

In the good old days, people would greet vendors with a friendly smile. The iceman, postman, milkman and breadman were typical. Gender never seemed to be an issue. Firemen responded promptly, policemen were ever present, and an endless list of servicemen were available to solve daily problems, including those related to the GMC Motorhome.

Point in fact. A service manager in Billings, Montana confirmed my suspicion that a “clicking” constant velocity (CV) joint needed to be replaced. Since all the service bays were busy, he suggested that new components be obtained from the parts counter in the interim. At lunch break, a mechanic would probably be available.

A courteous partsperson identified the GMC Motorhome part number by gazing at a spot on the ceiling. She also suggested a replacement dust cover, citing a different GMC Motorhome part number from the same mysterious source. How did she know? It seems there had been several intensive GMC Motorhome parts seminars, and she had retained the vital group categories of information. Besides, spares were usually in stock.

While waiting, I became fascinated by one mechanic whose sole responsibility was to perform lube, oil and filter (LOF) service...in thirty minutes flat! This, coincidentally, was the same mechanic who, with a sandwich in one hand and borrowed tools in the other, asked me to park my motorhome outside his LOF bay so the CV joint could be replaced. With considerable mental reservation, I complied. The CV joint was installed, the sandwich consumed, a soda swallowed and the wheel jack removed all during lunch break!

Fortunate survivors of World War II came home instilled with a deep sense of discipline, camaraderie and need for recognition. To fulfill this need, practically every fire department in the nation found an excuse for uniformed members to engage in parade competition with other fire companies. Musicians, not unlike Presidents, are

born egotists and are easily induced to provide melodious cadence for any parade. Instead of polishing fire equipment for the next parade, musicians polish technique with a local band, which is most often in dire need of replacement uniforms. Some method must be employed to raise funds. Well, how about selling pies?

Accordingly, the pie committee promptly appointed the (only) member with a motorhome — and his muscular friend Pete — to “fetch” freshly-baked Shoofly pies from a bakery located where else...near Paradise, Pennsylvania. Each pie was sealed in a pie box. There were eight boxes in each two-cubic-foot shipping carton. Weight was estimated at thirty-two pounds per carton. At this point a quick weight and balance computation seemed to be in order. After all, we had promised to pick up two hundred and seventy-two Shoofly pies!

In true GMC Motorhome fashion, four cartons were stashed under the bed, sixteen cartons on top of the bed, two under the (now converted) dinette, eight on top of the dinette bed, two stacked between the barrel chairs, and sixteen individual pie boxes carefully nested on the (clean) floor of the shower.

There were a number of sobering and nostalgic moments experienced on our return journey. First, the motorhome smelled like a bakery — for weeks! Second, the floor of the motorhome was startlingly close to the ground at the entrance door. Third, on the way to the “cockpit,” I was reminded of numerous uphill treks to the “office” of a Douglas DC-3 aircraft. Forward vision was now well above the horizon, and the rear-view mirror revealed approximately sixteen square feet of parking-lot asphalt.

There was a slight rise at the access of our busy highway. At an opportune moment, we expedited our entrance into traffic, and burned rubber for fifty yards before the front wheels finally settled to

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.....
Wes Caughlan
 Editorial Director

.....
Lisa Yanagihara
 Art Director

.....
Lorraine Graham
 Advertising

.....
Walt Sener
 Contributor

.....
Mad Macs
 Graphic Consultants

.....
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WHAT'S NEW

The 3.42 final drive began shipping in July almost 20 years after Oldsmobile engineers designed it for the GMC Motorhome. The original 3.07 final drive was the trailering final drive for the Oldsmobile Toronado passenger car, and it has always been considered too high (too low numerically) and too vulnerable for the GMC Motorhome. The 3.42 final drive was designed for the motorhome's tire size, frontal area and anticipated towing loads. For these reasons, it is a broader-tooth design than the original 3.07 final drive, which has a 14-tooth pinion and a 43-tooth ring gear.

The 3.42 final drive has a 12-tooth pinion and a 41-tooth ring gear. Its design makes the ring and pinion teeth as large as possible to withstand higher motorhome loads. This is the only way to numerically increase the ratio and the load carrying capability of the final drive, because its physical size is fixed. If a GMC Motorhome final drive had been designed from scratch, it would have been larger like the third member (differential) in a motorhome chassis of similar gross vehicle weight rating (gvwr).

The 3.42 ring and pinion gears are manufactured by Ohio-Richmond Gear, which is the largest supplier of aftermarket, third-member gears in the world. Since General Motors no longer cuts gears, it uses Ohio-Richmond Gear to manufacture all of the special gear sets for the GMC Motorsports program, and that's why the company is making the 3.42 gears.

The 3.42 gear manufacturing was directed by John Bachelder who developed third-member gears for Oldsmobile when the 3.07 (E-car) final drives were made. The 3.42 final-drive assembly was supervised by Art Haas who was the general foreman of Oldsmobile's third-member assembly in the 1970s and 1980s. Both of these men are retired from Oldsmobile, and they joined Cinnabar Engineering, Inc. to oversee the 3.42 final-drive program. Working under Cinnabar Engineering's license agreement with General Motors, Duane McCormack found the original drawings and coordinated the program in his retirement from Oldsmobile engineering.

The 3.42 final drive is sold only as an assembled unit, because very few shops have the E-car tools that are needed to properly assemble one. Furthermore, there are more than 60 shim variables that require substantial investment, and most

shops will not spend the money to get it right. The 3.42 final drive carries a 12-month, 12,000-mile limited warranty for normal applications. Here are reports from three regional users:

Increasing the GMC Motorhome engine speed to more closely approximate its originally designed engine speed provides improved acceleration and hill-climbing ability. This has been accomplished by changing the gear ratio between the engine and the drive wheels, commonly referred to as the final-drive ratio. Originally, the gear ratio was 3.07:1, which means the engine turns 3.07 times faster than the driving wheels. Changing this ratio

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GMC MOTORHOME TELEPHONE NUMBERS & BUSINESS HOURS

800-GMC-TRUCK (800-462-8782)

for Recall assistance and general information on GMC products.
 Monday through Friday
 8:00 a.m. to 5:00 p.m. Eastern time.

800-720-CBAR (800-720-2227)

for Genuine GMC Motorhome Parts and GMC Motorhome Operating and Service Publications.
 Monday through Friday
 8:00 a.m. to 5:00 p.m. Eastern time.

810-648-2444

for GMC Motorhome Service.
 Monday through Friday
 8:00 a.m. to 5:00 p.m. Eastern time.

810-648-9858

for GMC Motorhome FAX and Voice Mail.
 Any day at any time.

gmcmh@aol.com

for GMC Motorhome E-Mail.
 Any day at any time on the Internet.

231-258-4117

for GMC Motorhome Technical Assistance.
 Monday through Friday
 9:00 a.m. to 5:00 p.m. Eastern time.

COLORING BOOK

The holidays are coming and Cinnabar Engineering, Inc. has just the gift for the children in your family, both big and small. It is the *GMC Motorhome Vacationland Coloring Book*. It was first printed and distributed when the motorhome was introduced in 1973.

When Cinnabar Engineering agreed to put all GMC Motorhome publications back into distribution in 1986, the coloring book was considered very interesting, but not essential. The Operating and Maintenance Manuals had the highest priority, the Parts Book came next, the Service Bulletins and the Recall Campaigns came after that, and the Maintenance Schedule completed the list of essential service publications.

Once these publications were completed, our Art Director, Lisa Yanagihara, couldn't resist the coloring book. It is a work of art. The line drawings wait to be filled in with the colors of the rainbow, and they will warm the hearts of children of all ages.

The colorful book contains 16 pages of drawings featuring the GMC Motorhome. A mother bear and her cub beg for food from the motorhome in Glacier National Park. It appears at a Taos, New Mexico pueblo and at the Alamo in San Antonio, Texas. The motorhome takes its family to a marshmallow roast in the

shadow of the Golden Gate Bridge in San Francisco, and on to Old Faithful in Yellowstone National Park. Sun Valley, Idaho, Mount Rushmore, Sequoia National Park, Baraboo, Wisconsin, Williamsburg, Virginia, Philadelphia, Pennsylvania,



Niagara Falls, and the Maine coast are other destinations pictured. It concludes with dinner and bedtime in the GMC Motorhome.

The coloring book is available for \$6.00 plus applicable tax and shipping charges. An order form appears on page 15 with the subscription renewal form for *GMC Motorhome News*. Any number of coloring books can be ordered. If you have more than one child in your family, one will not be enough. ✨



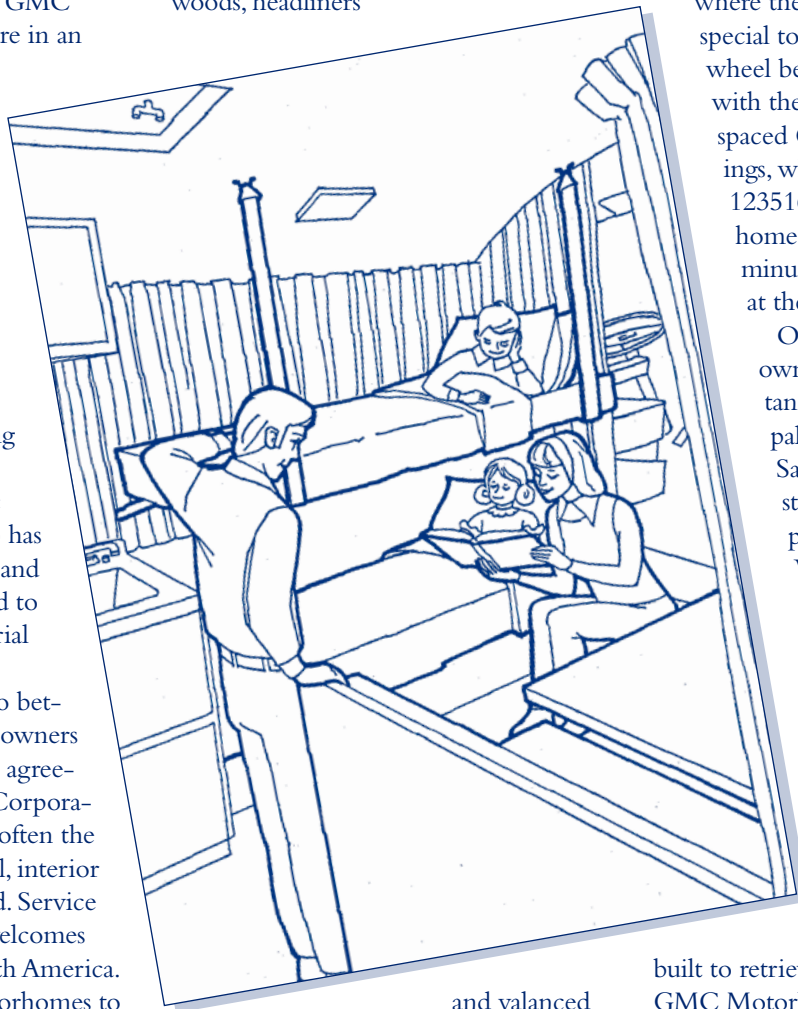
SANDUSKY SERVICE

On September 1, 1995, Cinnabar Engineering, Inc. celebrated its second anniversary of consolidated operation in Sandusky, Michigan. During that two-year period, a lot has happened. Employment has increased to 18; thirteen work in Sandusky and 5 work elsewhere. More than 900 new GMC Motorhome Part Numbers and countless used GMC Motorhome Part Numbers are in an inventory that totals more than 200,000 parts. A 5-workstation computer system has been installed to keep track of more than 7000 GMC Motorhome owners and 6900 GMC Motorhome part numbers listed in the 78Z Parts Book. Three 25,000-pound lifts with 12,000-pound rolling jacks have been installed along with a 6-wheel alignment station and engine diagnostic equipment. The cabinet shop has been enlarged, and the body and paint shop has been upgraded to modern clean-air and industrial safety standards.

All of this has been done to better serve GMC Motorhome owners worldwide under our license agreement with General Motors Corporation. The winter months are often the time to get major mechanical, interior and exterior work performed. Service Manager, Ivan Henderson, welcomes customers from all over North America. They bring their GMC Motorhomes to Sandusky during the off season, and we drive their owners to the Detroit Metropolitan International Airport. When the work on the motorhomes is completed, we store them inside and pick up their owners at the airport when they can conveniently return. Owners from the east and west consider the trips to Sandusky a vacation, because they only have to drive one way each time, and they can often travel a different route coming and going. Check with your travel agent.

Roundtrip airline tickets with distant departure dates are very reasonable and periodically on sale.

During the past two years the exterior group has developed a number of new paint designs that adapt to many different color schemes. The interior group works with these colors to come up with complementary furnishings that usually include matching leathers, hardwoods, headliners



and valanced day/night blinds, which are only found elsewhere in high-line motorhomes. New appliances, air conditioners, water heaters, furnaces and the most sophisticated gadgets abound. The latest stereo and CD players are available as are the new small digital satellite dishes that can be roof mounted along with antennas for a cellular telephone and the usual CB and AM/FM radios. For those interested in shopping at home before coming to Sandusky, photo portfolios can be sent.

The mechanical shop is now staffed with four certified mechanics, headed by Eric Priemer who is a certified master mechanic. A GMC Motorhome doesn't always have to come to Sandusky to get our expert mechanical attention. Increasing numbers of GMC Motorhome owners are having their local mechanics remove their front hubs every 25,000 miles and ship them to Sandusky where the mechanical shop has the special tools to remove the front-wheel bearings and replace them with the heavy-duty and properly-spaced GMC Motorhome bearings, which are part number 12351677. Longer GMC Motorhome wheel studs for Alcoa aluminum wheels can be installed at the same time.

Other GMC Motorhome owners are strapping their rear tandem-axle assemblies to a pallet and shipping them to Sandusky to have them straightened and have the pins and bushings replaced. When they are returned, all the local mechanic has to do is reinstall them and shim them for proper camber and toe alignment in accordance with instructions and specifications in Maintenance Manual X-7525.

We also have a special truck and trailer combination that was built to retrieve a wrecked or disabled GMC Motorhome. We can send it to get your motorhome, but the various emergency road services will generally cost less. However, many of them will not be willing to deliver your GMC Motorhome to Sandusky.

Everyone at Cinnabar Engineering, Inc. is proud of our Sandusky, Michigan facility. We hope you will come and visit and bring your GMC Motorhome. If you can't bring your motorhome, just give us a call. We'll pick you up at the airport or at the side of the road. ✿

Sewer Odor

While we were visiting in Wisconsin this summer the outdoor temperature soared to 113 degrees F. I had a new holding tank installed in my 1977 Kingsley earlier this year, and we experienced considerable sewer odor in the motorhome when driving in hot weather.

We did everything possible to keep the interior of the coach cool, including driving with the driver- and passenger-side windows open. Even though we used holding-tank chemicals, we could not get rid of the sewer odor. It was particularly noticeable in the galley area.

Do you think my new holding tank is leaking sewer gas into the motorhome? Can you suggest a holding-tank chemical that will at least mask this odor?

*Frank Walton
Rochester, Minnesota*

I doubt if your new holding tank is leaking sewer gas, Frank. The three roof-top vents on your 1977 Kingsley do a more than adequate job of venting the holding tank.

Hot weather causes more sewer gas to be generated, and driving with the driver- and passenger-side windows open creates a partial vacuum in the motorhome. This in turn causes sewer gas to flow down the refrigerator vent and make the coach stink inside, particularly in the galley area.

The primary cure is to keep all side windows closed, and the HVAC blower on high. This will keep sewer gas and road dust out by partially pressurizing the inside of the motorhome. I experienced the same problem with my new 1976 Glenbrook in the summer of 1976. A call to GMC Motorhome Technical Assistance got me this answer, and it solved the problem.

As far as holding-tank chemicals are concerned, only formaldehyde-based chemicals will mask holding-tank odor. The supposedly more environmentally sensitive enzyme chemicals mute holding-tank odors by digesting the waste,

but they can't keep up with it in hot weather and they don't work at all in cold weather because the bugs go to sleep! Thetford's original Aqua-Kem chemical seems to do the best job masking holding-tank odor, and I have tried just about everything in the market.

Liquid Aqua-Kem can be messy, and it will often stain white plastic parts that are commonly found in GMC Motorhome bathrooms. Granular Dri-Kem is a bit more expensive, but it is a lot easier to use and does not make a mess. Simply open the packet, step on the toilet-flush pedal and dump the granules into the open hole. One packet will keep a GMC Motorhome holding tank smelling pleasant in all but the hottest weather. When the weather is really hot, two packets per tank will generally do the job.

Throttle Kicker

The second paragraph on page 6T-8 of Maintenance Manual Supplement X-7725 describes the action of the Throttle Lever Actuator (TLA). The TLA prevents 403-cid engines from going to idle in the deceleration mode. This reduces brake life and makes the motorhome more difficult to stop.

Many years ago I disconnected the TLA on my 1978 Palm Beach. Handling improved when decelerating, particularly when shifting down. I think every GMC Motorhome equipped with a 403-cid engine should have the TLA disconnected. A small ball bearing inserted in the vacuum line will do the job.

*Roy Reitter
Manchester, Missouri*

The TLA on the motorhome has a passenger-car origin, Roy. Both the 455- and 403-cid engines were certified Federally and in California as passenger-car engines. As a result, the GMC Motorhome has the same emission-control devices as the Oldsmobile Toronado with the exception of an EGR valve.

The TLA makes braking more difficult, and it reduces downhill decelera-

tion. Earlier GMC Motorhomes did not have a "throttle kicker," and I can understand why you disconnected it on your motorhome.

Other 1977 and 1978 GMC Motorhome owners with 403-cid engines may want to disconnect their throttle kicker. If the motorhome is registered in a state that periodically inspects emission controls, those who disable the TLA should make sure that the ball bearing or other plug is removed before the next smog inspection.

Oil Consumption

My 1976 Birchaven hasn't been used a lot since I purchased it in 1988 with 50,000 miles on the odometer. It now has only 70,000 miles on it. The 455-cid engine always starts easily, and it runs great.

However, I have been getting only about 500 miles per quart of oil during relatively easy flat-land driving. The engine does not seem to be burning oil because there is no blue smoke. There seems to be some oil-pan wetness around the pan gasket, which appears to be factory original.

A mechanic suggested that I replace the pan gasket, and consider renewing the valve-stem seals. Both of these are onerous tasks which I am reluctant to undertake if there are other things I ought to check out first. I would appreciate your comments on 455-cid engine oil consumption that I may be overlooking.

*Al Schwarz
via the Internet*

Your oil consumption is a bit on the high side, Al, but it is not unusual. When my GMC Motorhome was brand new, it used a quart of oil every 800 to 900 miles. Now, it is using a quart of oil every 600 to 700 miles with 78,000 miles on the odometer.

Engine-oil mileage goes down as vehicle weight goes up. There is a chart in the *Chevrolet Motorhome Chassis Service Guide* that shows acceptable oil consumption as a function of gas mileage, which also

goes down as vehicle weight goes up.

The minimum acceptable oil consumption for an engine getting 7.5 miles per gallon of gasoline is 500 miles per quart of oil. Marginal oil consumption goes down to 250 miles per quart of oil at 7.5 miles per gallon of gasoline. However, marginal oil consumption is usually caused by external leaks, a malfunctioning PCV system or missing, worn or mislocated valve-stem seals.

At 70,000 miles, your oil consumption is a bit on the high side, but I would not worry about it too much. Your valve-stem seals are worn, but probably not enough to justify a valve job. If possible, fix or slow down any leaks and keep an eye on your consumption. If it stays around 500 miles per quart, and the engine runs as well as you say, don't worry about it. I would rather have an engine that uses a bit too much oil than one that doesn't use any oil at all.

Quick Coupler

I recently acquired a 1977 Royale, and had problems with the air suspension. After reading copies of your preventive maintenance articles that were published in 1980, I upgraded my Electro Level I air-suspension control system. The air suspension now works better than I had imagined, and campsite leveling is a joy.

If the air-suspension control system can pump up two air bags and keep them properly inflated, why can't it pump up a tire or other inflatable things like a basket ball? Also, I have a large compressor in my work shop. Why can't I turn off the little, twin-cylinder compressor and use my shop air when the motorhome is parked near my shop?

*Warren Baldwin
Nashville, Tennessee*

You can do both, Warren. Let's take them one at a time. The twin cylinder compressor will pump up a tire if you let it do so in stages. Pumping up a GMC Motorhome tire to 75 psi is like pumping up a whole bunch of air bags. It will easily top off all of your tires without a rest, but it should be allowed to rest and cool once or twice when pumping up an

entire tire. Keeping the motorhome engine running or boosting the battery to allow the converter to keep the voltage up at the compressor will expedite the process.

If you go back to the 1980 articles, you will notice there is a brass quick coupler attached to the air tank in the pictures. This is the way you get the air out of 1973 through early 1976 Power Level air-suspension control systems. Simply plug in an air hose with an attached inflator, start the motorhome engine or boost the engine battery to keep the voltage up, and go for it!

Getting the air out of an Electro Level I air-suspension control system is almost

as simple. A 1/4-inch, female-pipe opening must be created to install the quick coupler. Replacing the 1/4-inch street elbow that connects the air tank to the Electro Level I manifold with a 1/4-inch male-branch tee is the easiest, and it makes the quick coupler readily accessible.

Alternatively, you can attach a clip-on air chuck to the Schrader valve at the bottom of the air tank, but it often supplies rusty water and debris along with the air. As a result, the Schrader valve should only be used as a drain and then sealed with a pressure-sealing valve cap.

Once the quick coupler is installed, the Electro Level I procedure is the same as the Power Level procedure with a couple

of exceptions. Turn the ignition on or to the accessory position. In addition to starting the motorhome engine or boosting the engine battery to keep the voltage up, the motorhome should be at normal ride height and the center control switch should be put in the Travel Auto position. The compressor will only operate in this position and not change normal ride height. If the motorhome is not at normal ride height, the system will adjust the air suspension to normal ride height at the same time it is being used as an inflator.

Using an Electro Level II system to supply air is not as easy, because there is no air-storage tank and the little compressors do not pump a lot of air.

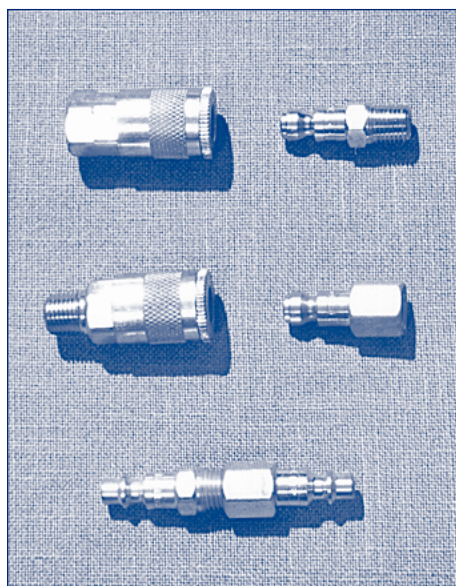


An upgraded Electro Level I module with a quick coupler, copper air-cooling loop, stainless-steel check valve, 5-micron filter, pressure-relief valve, pressure gauge and brass air-brake fittings. A dual-foot inflator is attached to a 25-foot air hose.



A clip-on chuck can be used to access an Electro Level II system.

One of the compressors can be used to supply air by attaching a clip-on chuck to the Schrader valve in its head, turning the ignition on or to the accessory position, starting the motorhome engine or boosting the engine battery to keep the voltage up, and switching the center control switch to the Travel Auto position when the motorhome is at normal ride height. Initially, air will come from the air bag that the compressor normally supplies. When the height control sensor detects a lowering ride height on that side, the



Male and female couplers and nipples make connections easy. Air can be added with a double-nipple adapter.

compressor will start and attempt to pick up the inflation chore.

By creating a double-nipple adapter from a 1/4-inch male and a 1/4-inch female nipple, air can be added to Power Level and Electro Level I air-suspension control systems from an external source, such as your shop compressor. Since Power Level systems do not require the ignition switch to be turned on or to the accessory position to operate the valves, simply plug the shop air into the air tank and set the dashboard controls.

Electro Level I systems can be operated similarly with two exceptions. The ignition switch must be turned on or to the accessory position, and the twin-cylinder compressor must be turned off. Turning the compressor off can be as simple as unplugging its red lead from the wiring harness. However, that may be easier said than done, because the connection may not be readily accessible. The easiest way to turn an Electro Level I compressor off while using shop air is to install a pressure switch that has a manual switching lever. Furnas makes such a switch, and it is available from Grainger outlets throughout the U. S. It is Grainger no. 4A088, which is Furnas part no. 69MB7L.

Adding air to an Electro Level II system is also quite simple. A clip-on chuck at the end of a shop-air hose is attached to the Schrader valve on one or the other Electro Level II compressors. Like Electro Level I, the ignition switch must be turned on or to the accessory position, and the compressor must be turned off. The best way to turn an Electro Level II compressor off is to unplug it.

Refrigerant Choice

According to my local mechanic, Freon (R12) can no longer be manufactured after the end of this year. It is the refrigerant that was used in all GMC Motorhome dashboard air-conditioning systems.

Every spring, I have to top off my air conditioning system when I prepare my 1976 Eleganza II for the season. Up until a year or so ago, I purchased little 12-ounce containers of Freon and did it myself. Now, I have to go

to a certified facility to get it done. In addition, the Freon has become very expensive.

What will I do next year to top off my system? Is there a replacement gas? Or, will I have to install a new dashboard air-conditioning system?

*Jerry Sanders
Omaha, Nebraska*

For the next couple of years, Jerry, you will be able to continue as in the past. While Freon (R12) cannot be manufactured after the first of the year, most service-oriented companies have been stockpiling it. General Motors has advised Cinnabar Engineering, Inc. that it will be able to supply R12 for at least 2 more years. However, it must be installed by a certified facility that has recovery equipment, and the gas itself has become relatively expensive.

A new refrigerant called R134A has been installed in new vehicles for the past few years. Initially it was not as efficient as R12, but component redesign has just about eliminated performance differences. Unfortunately, R134A is not compatible with the mineral oil used in an R12 system, and the entire system should be replaced to avoid contamination and provide proper containment.

Replacing the entire GMC Motorhome dashboard air-conditioning system is not as bad as it may sound, because all of the systems are getting up in years. Air-conditioning compressor and other component replacement is common, and changing to an R134A system at that time should save money in the long run.

Alternatively, new gases are coming into the market that are compatible with the R12 mineral oil, but all of these gases require new connection fittings and containment hoses. They cannot be used to top off an R12 system like you have been doing in the past, but they can be used to replace R12, which can be removed from the system.

The first new gas approved by the Environmental Protection Agency (EPA) is called Frigc. It was recently covered by U. S. Patent 5,425,890, and it is manufactured by Intermagnetics General of Lath-

am, New York. Another new gas is R406a, which is covered by U. S. Patents 5,151,207 and 5,214,929. According to its manufacturer, Monroe Air Tech Incorporated of Bloomington, Indiana, R406a is more efficient than R12, and it will be available for automotive air conditioning systems in early 1996.

At the moment, Frigc is considerably more expensive than R12 or R134a. However, now that the patent has issued, the manufacturer says large-scale manufacturing should bring the price down. Even if the cost is higher, Frigc or R406a may be the most economical alternatives once R12 supplies are exhausted. Frigc is currently selling for around \$25.00 a pound, and a GMC Motorhome takes 3 to 4 pounds. The material cost to change a GMC Motorhome dashboard air-conditioning system from R12 to Frigc should not exceed \$100.00. Considering that R134a retrofit parts will cost more than those for Frigc or R406a, these alternative gases may become one of the better bargains in the market.

For the time being, I would just sit and watch. The retrofit market has not developed because R12 is still available. As its availability declines, more alternatives may appear.

Transfer Switch

I have a 1978 Royale that has 2 roof air conditioners and a microwave oven. The 120-volt AC shore-power cord is rated at 30 amps. When I am hooked up in a campground, I can run the front air conditioner and the microwave. If I want to run the rear air conditioner, I have to start the Onan generator.

When I leave the campground, I can only run the rear air conditioner when I start the generator. No other 120-volt AC circuit is active unless I fold up the bed, remove an upholstered panel, and turn the shore-power breaker off and the generator breaker on. There is a flipper on one of these breakers that won't let me turn them both on at the same time. I suspect that is to prevent one circuit from feeding back into the other.

I have thought about having an electrician move the circuit-breaker panel to a more acces-

sible location, but that wouldn't be cheap. Recently, a friend came to visit in a 1994 Holiday Rambler motorhome that had a similar 30-amp shore-power cord. Even though his motorhome was plugged into only a 15-amp outlet at my home with an adapter, he could run both air conditioners and all other 120-volt AC appliances by simply starting his 6.5 kw auxiliary generator. When he unplugged, the same was true and he didn't have to change any of the circuit-breaker switches.

How does a 1994 Holiday Rambler motorhome completely switch to generator power automatically? How can I make my 1978 Royale do likewise?

*Ken Parks
Tulsa, Oklahoma*

Holiday Rambler does it with a transfer switch, Ken. In fact, almost all new motorhomes use transfer switches that are made automatic with solid-state electronics that did not exist in 1978.

There are several automatic transfer switches in the market. Todd Engineering's TS-30 can eliminate the two break-



A Royale 30-amp, 120-volt AC panel with two main breakers and a flipper. The breaker with the flipper can be eliminated with an automatic transfer switch.



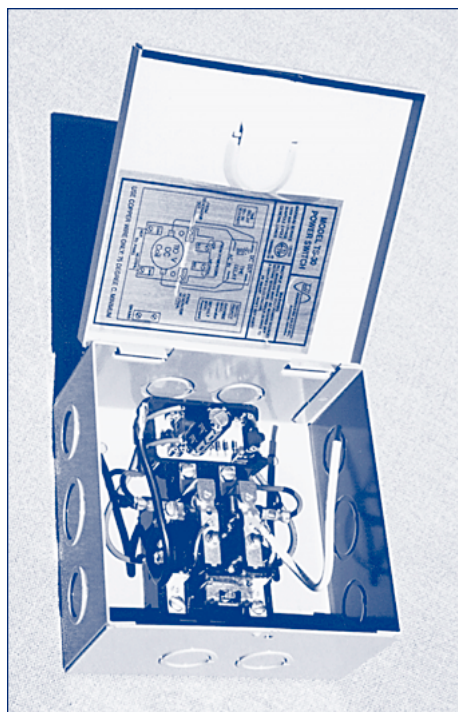
The Todd TS-30 has a 20- to 30-second time delay to let the generator warm up.

ers in your Royale, and you will not have to fold up the bed to have 120-volt AC power whenever you want it.

Most Royales with two air conditioners have two circuit-breaker panels. The Onan generator supplies one panel that has a 20-amp breaker for the rear air conditioner and a 40-amp breaker that supplies a neutral-switching, 30-amp main breaker in the second panel. A second neutral-switching, 30-amp main breaker in the second panel is supplied by the shore-power cord. The flipper on one of these breakers prevents them from being turned on simultaneously.

The second panel has 15- and 20-amp branch breakers. They supply the front air conditioner, the microwave oven and the 120-volt AC receptacles. This panel is basically a 30-amp panel, and it needs only one 30-amp main breaker. A transfer switch can supply the main breaker with either generator or shore power, eliminating the need for the second main breaker and the flipper.

A Todd TS-30 transfer switch costs about \$75.00, and it is easy to install. Simply choose one 30-amp breaker as the main breaker and abandon the other. Remove the generator wires from one 30-amp breaker and attach them to the generator input terminals on the transfer switch. Remove the shore-power wires from the other 30-amp breaker and attach them to the shore-power input



The transfer switch switches both the hot and the neutral circuits. The pigtails are for the generator connection.

terminals on the transfer switch. Before making these connections, make sure the neutral wires are attached to the neutral terminals and the hot wires to the hot terminals. Then, run a pair of 10 AWG wires from the output of the transfer switch to the chosen 30-amp main breaker. Finally, ground the transfer switch by attaching a length of chassis-grounded 8 AWG copper wire to the ground bar in the box.

The generator will now supply the rear air conditioner and the transfer switch. The shore-power cord will supply the transfer switch which defaults to shore power. It will automatically switch to generator power after a 20- to 30-second time delay when the solid-state electronics detect 120 volts AC at the generator terminals. The time delay allows the generator time to warm up.

After installing the transfer switch, plug the shore-power cord into a 30-amp, 120-volt AC receptacle. With the exception of the rear air conditioner, all 120-volt AC circuits should be active. Unplug the shore-power cord and start the Onan

generator. After a 20- to 30-second time delay all 120-volt AC circuits should be active, including the rear air conditioner.

Shut down the Onan and the transfer switch will turn off all AC power. Plug the shore-power cord back into the 120-volt AC receptacle, and AC power will be restored to everything but the rear air conditioner. Now, start the Onan without unplugging the shore-power cord. Again, after a 20- to 30-second time delay all 120-volt AC circuits should be active, including the rear air conditioner. Even though the shore-power cord is still plugged in, all 120-volt AC power will be coming from the generator. When the transfer switch switches from shore power to generator power there will be a momentary power interruption. That tells you there will be no feedback in either direction.

One word of caution. Even though a time-delay transfer switch is controlling 120-volt AC power, do not start or stop the Onan generator with any 120-volt AC appliance turned on. Make sure that all AC appliances are turned off before starting or stopping the generator to prevent variable voltage problems.

Hitch Weight

I recently bought a 1976 Royale, and just had a set of 8.75R16.5 LRE Michelin XPS tires installed on it. I also own a Harley-Davidson motorcycle. Can I hang a 400-pound Harley on the back of my GMC Motorhome without compromising anything?

Irving "RJ" Mace
Ware, Massachusetts

You can hang anything you want on the back of your GMC Motorhome, RJ, but your new Michelin rear tires and you won't like a 400-pound motorcycle back there. Why? The answer is quite simple.

The rear bumper is almost 9 feet behind the center of the tandem axle, and the center of a motorcycle rack would be about 10 feet back. A 400-pound motorcycle would put more than a 4000-foot-pound lever on the rear axle. This in turn

would transfer weight from the front to the rear and partially unload your front axle, which is already too light to maintain really good traction. The end result would be overloaded rear tires and wheels, and lousy steering and stability.

The *Chevrolet Motorhome Chassis Service Guide* gives the formulas for calculating the weight transfer. Let's take a look.

Your 1976 Royale has a 160-inch wheelbase, and your 400-pound motorcycle will be about 120 inches behind the center of the rear axle. Since 120 is 75 percent of 160, your rear axle weight will increase by 400 pounds plus 75 percent of 400 pounds (300 pounds), which totals 700 pounds! Your front axle load will decrease by 300 pounds, which will simply exacerbate the GMC Motorhome's inherent front-traction problem. I call this the teeter-totter effect.

We have long said that hitch weight on a GMC Motorhome should not exceed 100 pounds. If it does, a load-equalizing hitch is necessary to maintain stability. In addition, any added weight should be braked, and that has become quite an issue in the motorhome industry today. If you put your motorcycle on a trailer, the trailer can have brakes. A braked trailer will probably have less than 100 pounds of hitch weight, and you and your Harley will be happy campers!

Run On

I had the carburetor remanufactured on my 1976 Palm Beach early this summer. After getting it back, I started experiencing run on when I shut the 455-cid engine down with the transmission in Park.

The motorhome has 106,000 miles on it, but otherwise it runs great. What is causing the run on and what can be done to stop it?

John Schwieter
Rapid City, South Dakota

A number of things cause run on, John. Since the ignition is off, something has to cause ignition. In an older engine it is usually hot carbon deposits in the engine, and your engine qualifies in that regard.

Vaporized fuel and air also must be present to sustain run on. Today's reformulated gasolines, which vary in volatility, and hot summer weather are often all it takes to keep some vaporized fuel flowing into the engine after shut down. When the transmission is in Park, very little fuel is required to sustain run on. If

the engine is shut down when the transmission is in Drive or Reverse, the load will usually prevent run on under these circumstances.

When your carburetor was remanufactured, the idle-mixture and slow-idle adjustments were arbitrarily set. Final adjustments cannot be made until the

carburetor is installed on the engine. The adjustment procedures are described in maintenance manual X-7525. If the final adjustments have not been made, the carburetor may be contributing to the problem with an overly rich idle mixture or an improper throttle-valve position.

Oil Dilution

Thank God for the return of intelligent commentary on GMC Motorhome problems! I have incurred a problem and need your help.

On my last trip I noticed that my crankcase had about 4 quarts more oil in it when I returned than when I left town. I immediately assumed that the fuel pump was leaking and replaced it. On a try-out run of several miles, I again found that my oil was contaminated with gasoline.

What is causing this dilution? How can it be stopped?

*Milton Kielsmeier
Forestville, California*

Your carburetor is dumping gasoline into your engine, Milt. This can seriously damage the engine because it washes down cylinder-wall lubrication.

If your fuel delivery system is working properly and has not been modified with an auxiliary electric fuel pump, the cause is the float valve in the carburetor. It is similar to the float valve in a toilet. Either the float is saturated with gasoline and not rising in the bowl, or the valve is sticking open. Both conditions are easy to fix during a minor carburetor overhaul.

However, check the fuel pressure at the OEM fuel pump first. It should not exceed 5 psi at the inlet when the engine is idling. If it does, excessive pressure may be forcing the float valve open, causing the carburetor bowl to become overfilled. This will allow gasoline to overflow into the engine.

Excessive fuel-pump-inlet pressure can be caused by unregulated, auxiliary electric fuel pumps that are pressure additive, such as an AC EP12S or an AC EP89. A plugged liquid/vapor separator or carbon canister also can cause excessive fuel-pump inlet pressure, particularly when a

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bad gas cap does not relieve fuel-tank pressure between 2 and 3 psi in accordance with specifications.

Sooty Vents

Recently, both the water heater and the furnace vents have been turning a deep black on my 1977 Royale. I cleaned both burners and had the regulator tested by a gas company. The technician told me that the pressure was too low, so I purchased a new regulator and had the pressure set.

I blew out all of the burners with compressed air and still have the problem. There are also strong fumes from the stove burners. Please tell me what I can do to eliminate this problem.

George McManus
Peoria, Illinois

Normally, sooty deposits on exhaust vents indicate too much LP-gas pressure, George. They also can indicate insufficient combustion air, and I suspect

that is your problem assuming your new regulator is delivering 10.5 to 11 inches water-column pressure to the affected appliances.

Strong fumes from the stove burners are a clue, because that indicates a build-up of odor agent in your propane tank. The odor agent is a "perfume" that is mixed with propane to give it a smell, and it is slightly heavier than propane. Over the years perfume builds up in the bottom of any propane tank, and it can create quite a stink in a motorhome, particularly when the tank is close to being empty. To get rid of the smell, have a knowledgeable LP-gas service facility drain the tank and then pressure purge the tank with propane vapor to eliminate introduced air.

More importantly, this perfume attracts insects. Mud dauber insects are the most common. These pesky rascals crawl into combustion-air vents and build nests that substantially reduce combustion-air flow.

For some reason they rarely block a combustion-air passage completely so the appliance works, but it soots badly.

The combustion-air tube on most water heaters is relatively easy to clean with a bottle brush and other small tools that are usually necessary to break the insect nests loose. Cleaning the combustion-air passages in a furnace is another matter. The furnace usually has to be removed from the motorhome and disassembled. This work is generally best performed by a service center for the particular furnace.

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Continued from Page 1
the road surface. What amazing power! The ol' Glenbrook felt like a big boat out of water.

One sneaky way to encourage audience attendance at summer-in-the-park events is to wait until after the band concert to distribute 1088 pounds of mouth-watering Shoofly pies. With each carton removed from the motorhome, there would be a disconcerting hiss of air from the height-control valves. The ladies were not impressed with the strange hissing sound. Someone even suggested that it sounded like a mechanical sigh of relief. Ol' Glenbrook even hissed at our mailperson when she bounced by with a blond pony tail and really short, short shorts. That hiss to me seemed to be more a hiss of delight than anything else.

Pete, now known as the pieperson,

remarked how high the rear of the motorhome seemed to ride, minus all those pies. To me, it seemed once again to be the inimitable GMC Motorhome.

On the way home, by a majority vote, we were coerced into a circuitous detour by way of the local ice-cream emporium. Six 10.7-ounce sections of Shoofly pie were smothered with ice cream and served. Pete insisted this action was essential to stabilize our motorhome's center of gravity by four pie pounds. Under the circumstances, who in the world could turn down Shoofly pie a la mode served by Pete The Pieperson.

.....
Walt Sener has played the trumpet since 1929, had a newspaper route and was a gymnast of note. He retired after 37 years with the Department of Defense and has been writing anecdotes about the GMC Motorhome since the 1970s. ✍

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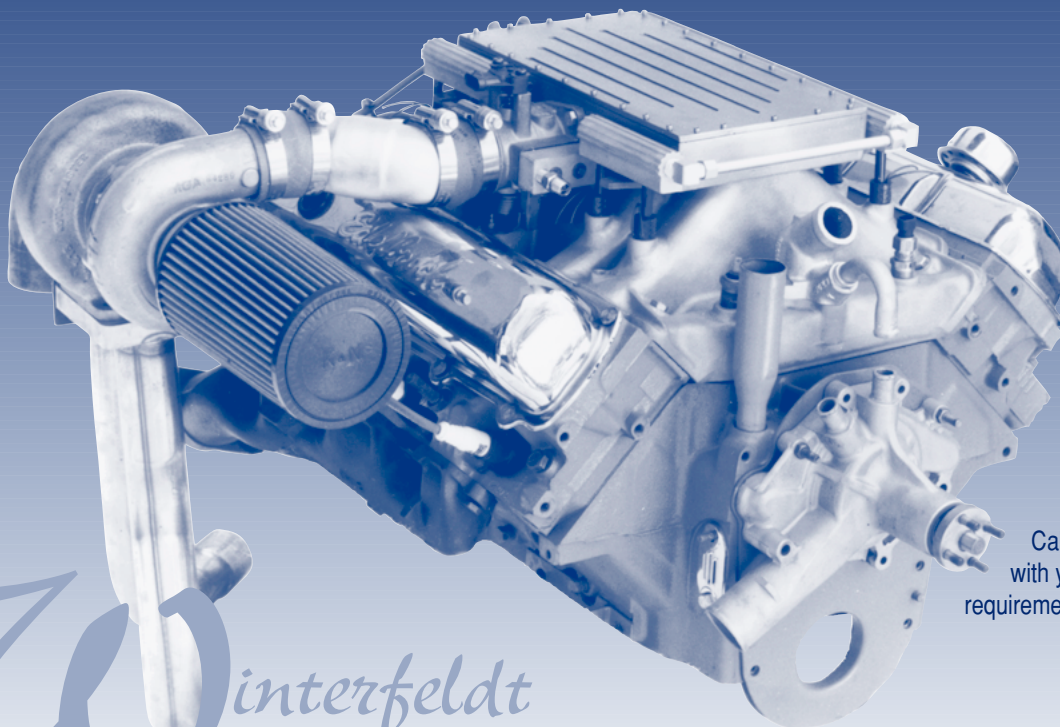
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47,000 Original Miles. Original Owner. Tub/Shower, Generator, Roof Air, Pod, TV, Microwave. Sleeps 6. Whistle Clean. Smooth Riding Classic. \$20,000. Frank Towle, Scottsdale, AZ; 602-860-6996.

1978 Eleganza II 26-foot, Side Bath.

Full Cabinets, Microwave Oven, 6kw Onan, TV Antenna, Roof Storage Pod, Awnings, Central Vacuum, CB Radio. Non Smokers. \$27,500. Bruce Smallman, Phoenix, AZ; 602-973-1035.

1977 Eleganza II 26-foot, Side Bath.

New Engine with Warranty. Completely Redone Inside and Outside. New AC, Furnace, Water Heater, Transmission, Tires, Bearings, Brakes, Bilsteins. \$30,000. Paul Kane, Mesa, AZ; 602-924-7370.

1977 Royale 26-foot, Twin Beds.

56,000 Original Miles. Dry Bath, 455-cid Engine. New Interior, Refrigerator, Mini Blinds, Valances. \$23,500. Doug Laubhan, Woodward, OK; 405-256-7177.

1977 Kingsley 26-foot, Side Bath.

85,000 Original Miles. Clean Inside. New Radiator, Tires, Furnace. Spare Air Bag and Maintenance Manuals. Non-Smokers. \$22,000. John Mathison, Brookings, OR; 503-469-6930.

1977 Birchaven 23-foot, Side Bath.

61,000 Original Miles. 455-cid Engine. \$10,000 in Renovations. Pleated Blinds, Berber Carpet, Michelins, Bilsteins. New Windshields. Stored Inside. Lynn Street, Young America, MN; 612-467-3375.

1977 Royale 26-foot, Dry Bath.

Two Roof Air Conditioners, 403-cid Engine. Three-Speed Roof Vent, 6 kw Onan, Storage Pod, Parts Book and Maintenance Manuals. Real Nice Coach. \$22,500. Robert Duncan, Roodhouse, IL; 217-587-2861 After 6:00 P.M.

1977 Royale 26-foot, Rear Bath.

73,500 Original Miles. Upgraded Air Suspension, 455-cid Engine. New Front Shocks, Hoses, AC Condenser, Air Bags. Need Larger Coach. Trade for 1988+ 28- to 31-Foot RQB Coach, or \$19,500. James Lingle, Cobden, IL; 618-893-2829.

1976 Glenbrook 26-foot, Side Bath.

65,000 Original Miles. New Carpet and Drapes. Stored Inside. Excellent Condition. \$26,000. Paul Heltzel, Niles, OH; 216-544-4025.

1976 Birchaven 23-foot, Rear Bath.

34,000 Original Miles, Sleeps 4. New 10-Ply Rated Radial Tires. Original Paint, Well Maintained. \$5000 in Updating, Including a Screen Door. A Super Coach Ready to Travel. \$26,000. R. E. Monk, Monticello, IA; 319-465-3346.

1976 Eleganza II 26-foot, Side Bath.

56,000 Original Miles. Nevada Coach. New Carpet, Full Size Rear Bed, Barrel Chairs, Couch, Venetian Blinds. New Engine, Transmission, Tires, Shocks, 3-inch SS Exhaust. \$22,500 OBO. Will Trade Up, Down or Sideways. Keith Rush, Las Vegas, NV; 702-361-5322.

1976 Glenbrook 26-foot, Side Bath.

52,000 Original Miles. Stored Inside and Well Maintained. Excellent Condition. \$25,000. Ruby Crispell, Norwich, NY; 607-334-8533.

1976 Birchaven 23-foot, Side Bath.

Rebuilt Engine and Transmission. Custom Window Decoration. Many New Parts. Records and Receipts. \$15,000. Ron Porter, Redford, MI; 313-534-8147.

1976 Eleganza II 26-foot, Side Bath.

84,000 Original Miles. Custom Leather Interior. New Refrigerator, Headliner, Carpet, Drapes. Corian Counter Tops. Two Roof AC. Excellent Mechanical with Updates. See To Believe. \$24,500. R. B. King, Florence, SC; 800-467-5464.

1976 Birchaven 23-foot, Rear Bath.

78,000 Original Miles. New Paint and Interior. Microwave, 4 kw Generator, CB Radio, Stereo, Roof Pod. \$22,500. Dick McGuire, Amarillo, TX; 806-355-8757.

1975 Eleganza II 26-foot, Side Bath.

Nearly New Tires, Carpet, Two-Way Dometic Refrigerator, Bilstein Shocks. Stored Inside. \$17,000. Wayne Cramer, Bondurant, WY; 307-733-5618.

1974 26-foot, Side Bath.

455-cid Engine, 6.5 kw Generator, Two Roof AC. Extra Engine, Transmission and Final Drive. \$18,500. Jerry Hudson, Jasper, AL; 205-384-4612.

1973 Custom 26-foot, Side Bath.

90,000 Original Miles. Fuel Injected HEI 455-cid Engine. Gaggenau Stove, Corian Counter Tops, Awnings, Chrome Wheels, New Tires, Screen Door. Loaded With Much More. \$23,000 OBO. Gene Trester, Los Angeles, CA; 213-291-0508.

1973 Canyon Lands 26-foot.

53,000 Original Miles. Completely Rebuilt. Many Custom Items. Built-In Couch, New Air Suspension, Wallace Hubs, Bilstein Shocks. New Appliances. \$20,000 OBO. Ed Harris, Columbus, GA; 706-568-6759.

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Continued from Page 2
to 3.42:1 increases the engine speed to approximately the same revolutions per minute (rpm) it turns in an Oldsmobile Toronado at the same highway speed. In my 1978 Palm Beach with an original 403-cid engine and transmission, and half-worn 8.75R16.5 tires, engine speed increased almost 300 rpm at normal highway speeds. At 55 miles per hour engine speed with the 3.07 final drive was 2100 rpm. With the 3.42 final drive, engine speed increased to 2400 rpm at 55 miles per hour, and it rose to 2800 rpm at 65 miles per hour, which is where the engine likes to cruise.

Road testing has demonstrated improved response when accelerating to pass or when climbing a hill. If you have a vacuum gauge, you will notice a higher reading at the same highway speeds. Also, the vacuum reading drops

hour and 3 inches of mercury vacuum with the original 3.07 final drive. With the 3.42 final drive, the motorhome topped the hill at 49 miles per hour and 5 inches of mercury vacuum.

Starting down a 6 percent grade at 25 miles per hour in second gear with the 3.07 final drive, the motorhome reached the bottom at 50 miles per hour. With the 3.42 final drive, the motorhome reached the bottom at 43 miles per hour, which is 14 percent slower.

The original torque and horsepower curves for the 455-cid engine indicate 2600 rpm is about the ideal cruising speed for the engine. With the original 3.07 final drive, the engine never reaches that speed within maximum speed limits on most highways. With the 3.42 final drive, the engine reaches 2600 rpm between 60 and 65 miles per hour.



less when accelerating or climbing a hill. The higher vacuum provides quicker and smoother transmission shifting closely approximating that of a passenger car. From 55 to 65 miles per hour, the 3.42 final drive caused my engine vacuum to increase by more than 1-inch of mercury, which should reduce fuel consumption in the long run.

There is a definite improvement in deceleration braking such as off-ramp slowing or downhill braking. The improved responsiveness of the GMC Motorhome with the 3.42 final drive provides better handling and passenger comfort. It gives me the feeling that I'm driving my old 1973 Sequoia with its 455-cid engine instead of my 1978 Palm Beach with its 403-cid engine!

Roy Reitter
Manchester, Missouri

If I were asked for an off-the-cuff opinion as to the benefit of the 3.42 final drive, I would say approximately a 10 percent or better performance increase could be expected throughout the operating range. My 1977 Palm Beach with a 455-cid engine is far from stock. It has Thorley headers, new LT225/75R16 tires and a number of other goodies. Nevertheless, at 65 miles per hour my engine speed increased from 2500 rpm with the 3.07 final drive to 2700 rpm with the new 3.42 final drive, and vacuum rose from 11 to 13 inches of mercury.

On a 6 percent uphill grade in third gear and at full throttle, the motorhome topped the hill at 45 miles per

Speedometer correction varies with tire size. Mine was corrected with a Stewart Warner adapter that is put in line with the speedometer cable. The correction was 0.918, but I understand that other corrections range to 0.905. The cost of the adapter is about \$90.00, and the correction can be made by any speedometer shop that has a cable-turn counter.

Bob DeSaussure
San Rafael, California

I installed the 3.42 final drive and took off on a business trip to Oregon. The motorhome was noticeably more responsive going up and down hills, and the increased engine speed caught my attention.

Upon returning home, I had to accompany my wife to Minnesota to bring back a trailer load of her mother's belongings. Like most of us, she really loaded that trailer. My gross combination weight on the trip home was 17,000 pounds!

Even though the loaded trailer weighed in the neighborhood of 6000 pounds, the 3.42 final drive allowed me to maintain my usual highway speeds, which I won't mention because they often exceed the speed limit.

The Eisenhower pass was topped 9 miles per hour faster with the 3.42. Frankly, I tried to destroy it with one of my big engines, but couldn't. GM did a great job.

Darrel Winterfeldt
Longmont, Colorado

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