



SURVIVAL PAPER #SP84-20

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SURVIVAL TRANSPORTATION

This paper was originally written in 1984. It was very good then and is still valid in many points today. However, 12 years have gone by and there have been some very important technological advances that were just dreams 12 years ago or were not even considered then. So this paper is intended to update this subject and add the new advantages that have come about since 1984.

WARNING

This paper is intended to give the reader the basic knowledge to make informed decisions. Additional study and lots of experimentation will need to be done, by the reader, in order to assure that each person makes the best survival transportation choices for themselves and their situations.

Regrettably, there is not one single vehicle that is best for a survival situation. Rather, each choice is a matter of compromise and of decisions, by the reader, in deciding for themselves which vehicle to own for everyday and survival situations.

It is unlikely that the great majority of readers are financially able to just buy any number of vehicles that they want. All of us have to weigh financial considerations into the equation. However, it is advisable to purchase as good a quality as you can afford. Remember, you usually get what you pay for. Also, remember to shop around for the best price.

STEALING, BORROWING, APPROPRIATING TRANSPORTATION

Ethically, stealing cars, trucks or other transportation is not a good idea! Remember, you represent survivalists all over the country and world. Anytime your actions are not squeaky clean, then folks will get a bad impression of who and what survivalists are. Stealing is not a good thing and can and will land you in jail. **DO NOT TAKE THIS CHANCE! YOU CANNOT MAKE SURVIVAL PREPARATIONS OR HELP YOUR FAMILY OR NATION IN JAIL!**

Borrowing, with the owner's permission, is another thing. If you have friends who have extra vehicles or has a used car lot, then if you can convince them to let you borrow their vehicle for a while, then go for it. Remember, bring the vehicle back in good condition – better condition than it was in originally if you can, and be prepared to buy the vehicle in the event of an accident. **DISCUSS THIS WITH YOUR FRIEND BEFORE YOU BORROW! IT MIGHT SAVE YOUR FRIENDSHIP.**

Who can you borrow from? Friends, family, and usually for a price, repair shops, rental car agencies, work and possibly your church.

Appropriating transportation is the next category. What I mean here usually has a cost involved, possibly in time instead of money. If there is a junkyard near your home, you might check into helping/volunteering to help around the yard on your off hours. Initially you tell the owners that you do not need pay, just some parts. Have a goal and you will be able to build a car or truck from these parts.

Another option is to find a person with an old vehicle that can be brought back to life and to work or buy this old car and restore it. Other options include fixing up wrecked cars for the vehicles themselves, bartering at work or contacting insurance companies or repossession companies and pricing up some good deals from these companies.

APPROPRIATING VEHICLES IS NOT THE SAME AS STEALING! YOU ARE PAYING FOR THE VEHICLE IN LABOR OR MONEY OR BARTER. YOU ARE NOT PAYING THE FULL PRICE OF THE VEHICLE THOUGH, AND MANY CAN BE HAD FOR A SONG.

HIKING

Strolling, a walk through the woods, a cross-country hike or an afternoon day hike -- all are good for you. Hiking offers unparalleled mobility, and the only cost is the clothes you wear and the equipment you carry. Something you need to start on now anyway! While hiking you will be able to hear anyone coming towards you from a long way off. Even other hikers make noise and can be heard from a distance.

To be good at hiking, you have to practice it. Backpacking and camping clubs would be a good start, and friends. Try short one to three-mile hikes first. Then up the distance to 5 miles and in a couple of months you can go as far as 10 miles a day, if you are in reasonable shape and start out early enough. Keep your pack weight down to 20 or 25% of your bodyweight. (Example: If you weigh 100 pounds, you need to carry 25 pounds or less of equipment; if you weigh 200 pounds, then you should be able to carry 50 pounds of equipment.) Hiking in winter often means snowshoeing or skiing. Learn how.

A good backpack, a tent that weighs 5 pounds or less, and a sleeping bag that weighs 5 pounds or less are essential. A cook stove (to prevent smoke from a campfire from giving yourself and your camp away) will be your major expenses. If you watch the trader type of papers or read the classifieds, you might be able to find these items at a very reasonable price.

Clothing, something you should already have, is next. I like natural fibers, cottons for summer, wools for winter, though many newer clothing technologies are out. Gortex, which is excellent, Polypropylene garments, nylon outer shells, Thermax insulated coats, wool or Gortex-type socks and good boots with ankle support are essential. I also like moccasins or other slippers for around camp or home when I do not need my boots.

If you do not know which equipment to buy, go to a sporting goods store and talk to a salesman. They are very helpful. DO NOT FORGET WATER FILTERS. Check out brand names and feel and try on the garments to get a feel for them. You can then decide if you need to buy them.

Another good source are the hiking and backpacking magazines that are out. They usually have articles that deal with certain types of equipment and some even offer equipment reviews.

<u>Equipment</u>	<u>Price Range</u>
<u>Backpack</u> (external frame-4,000cu.in. or more)	\$100 to \$250
<u>Backpack</u> (internal frame-4,000cu.in. or more)	\$150 to \$500

*Both backpacks are good. Choose whichever feels better when you try it on. If you do not do too many trips, the external frame is simpler and easier to maintain and keep up.

<u>Tents</u> - A good light, (5 lbs or less if you can find one) should sleep two at a minimum. There are models on the market that sleep 4 and are under or just over the 5 lb. Limit, so look around.	\$150 to \$650
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<u>Water Filters</u> (you want a minimum of one pint a minute	\$40 to \$150
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output with a pore size of not more than .4 and possibly using an iodine-based element.)

<u>Sleeping Bags</u> (this will depend on your local weather. A waterproof or Gortex outer material is good but will increase prices. I like synthetic fills that keep you warm even if the bag gets wet. Temperature ratings and prices are listed. All bags come in one standard size. For taller folks, 6' tall and over, this means you have to special order your bags for your height. Weight should be kept to around 5 lbs or less.)	20°F \$100 to \$200 10°F \$120 to \$400 0°F \$145 to \$500 -10°F \$180 to \$500 -20°F \$250 to \$600 -30°F \$250 to \$670 -40°F \$370 to \$700
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<u>Camp Stoves</u> (multi-fuel capability and lightweight – under 24 oz – are essential.)	\$60 to \$80
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This completes your basic set ups for backpacking.

Clothing

Wool shirt	\$30 to \$100
Wool pants	\$30 to \$100
Wool socks	\$5 to \$20
Wool Watch Cap	\$10 to \$20
Polypropylene long underwear	\$20 to \$30
Cotton pants	\$10 to \$30
Cotton shirt – short sleeve	\$10 to \$30
Cotton Socks	\$1 to \$5
Cotton Underwear	\$5 to \$10
Moccasins	\$15 to \$40
Boots	\$50 to \$300
First Aid Kits	Various – Start at \$10

BICYCLES

Bicycles are fun, good exercise and are an efficient method of transportation. Many bicycles have been used throughout history as instruments of war. In WWI, bicycles were used by both sides to help transport troops, equipment and supplies to the troops at the front lines. More recently the Viet Cong used bicycles to transport personnel, supplies and equipment to their forces in the south. They transported nearly 500,000 troops, over 1,000,000 tons of supplies, and about another 1,000,000 tons of equipment to the south in spite of the American efforts to bomb the Ho Chi Minh trail out of existence.

Technology today has resulted in many great bicycles for our consideration. They are tough, lightweight and capable of going almost anywhere. They may look like the bicycles you used to know and ride as a child, but they are much superior.

The tires of bicycles have also been influenced by technology. Your best bet is to stick with standard tire sizes and if you can afford them, to purchase puncture resistant tires or the airless type of tires (no flat tires).

What bicycles should you consider? How about a Mountain Bike? It is made for cross-country travel and is popular among many folks today. They are fairly expensive, but the possibility of buying one used does exist.

Another option is to take an old bike and repair it and rebuild it to suit your survival needs.

Once you have your bike, don't forget tools you might need to keep your bike running and to repair any damage. Wrenches, special chain and gear tools, minor metal tools, and don't forget duct tape and other items to help make temporary repairs. Another tool which is essential is the air pump, if you have a regular tire and the tube patch kit.

The other tools are bags and other items to help you carry your survival gear while you are riding.

Don't forget clips for your trousers. It is dangerous and could be embarrassing to get the cuffs of your trousers caught in the bicycle chain.

Some sources you might consider are the bicycle magazines that are out nowadays. An old one listed is "DeLong's Guide to Bicycles and Bicycling". (DeLong is an older source and does not list the new mountain bikes but does have some excellent information on what you might term regular bikes.)

Bicycles provide quiet transportation. They can carry a rider, his gear, and the tools necessary to keep the machine operating for quite some time. They are very mobile and can go through traffic jams, up narrow trails or through wooded areas with little difficulty. Bicycles are also relatively quiet which would allow you as the rider to hear vehicles or people approaching and give you the opportunity to get out of the way or hide if you felt you needed to.

Do not forget safety gear: helmets, knee pads and elbow pads, gloves and other items that would help in both survival situations as well as in bike riding situations. (The Israeli Kevlar helmet is remarkably similar to many models of bike safety helmets, and paint will not affect the protection of the helmet.)

Other items you might like to consider:

- A stand, so you can practice riding your bike in the safety of your home. Many have progressive resistance built into the stand so you can even feel like you are riding up a hill
- A small generator that hooks to the frame of your bike, and by your pedaling you can recharge some batteries to provide electricity - a way to turn your exercise into a useful by-product. Example: Have a deep cycle battery in your home or apartment hooked up to a DC television. You are only allowed to watch TV based on the juice you provide the battery. A one-battery set up will last for about 3 hours before you need to pedal for a while.
- Bike lights for riding at night - I prefer the battery backup with the current supplied directly from the generator while you are riding your bike.
- Water carriers – canteens, water bottle or the newest system called Camelbak. All are good and all have a place in your survival gear. The only disadvantage to Camelbak is that if you carry it full, it is heavy! Remember, if you have your water filter then you do not need a whole lot of water to carry, just enough to get you to your destination.

Prices for a good mountain bike start around \$500 and go up from there.

Used Bikes – if they are in good condition can be decent buys. Used bikes can be bought from rental firms (places that rent these bikes out to tourists) if they are in good condition, or by individuals if they have kept their mountain bike up. Some bike shops may have some rentals. If so, check out their prices.

Converting a regular bike might be an economical way to go if you are handy with the mechanics of working with metal and have the basic frame that is in good condition already. Basically you will need a good front shock, a sturdy hub, oversized brakes, a good sturdy wheel to replace the cheap fragile wheels of street bikes, a shock system for your bike (you can get by without this but the ride is softer on your anatomy with shocks), and maybe a new set of handlebars. You could conceivably get by with less than \$200 if you shopped around and did your own work.

The biggest disadvantage to a bicycle is like walking. It is relatively slow. In walking, an average person can travel about 10 miles a day. Riding a bike, the average person might be able to travel 50 miles a day. How far or fast will you be able to go with your bike and yourself loaded down with your survival gear? At best, not far enough or fast enough for most folks. If you have time and advanced warning, walking or bike riding might be feasible alternatives. And if this is all you have then you are better off doing something than doing nothing. But while walking and bike riding are fun and good exercise, they are my second and third lines of transportation. My first, like most folks, will be my vehicle.

MOPEDS, MOTORCYCLES, MOTORIZED SKATEBOARDS, ETC.

Unlike many, I have difficulty accepting motorcycles or mopeds as survival vehicles. Oh, don't misunderstand. I can see situations where they might be useful, but not as a survival situation type of vehicle. They make a lot of noise. They are too small to carry a sufficient amount of spare parts for any lengthy trip. They are a pain in the neck to work on. There is little space for carrying extra fuel or supplies. That said, they are a lot of fun to operate. They will get you fairly quickly from point A to point B (at least faster than walking or bicycle riding), and they are fairly mobile in tight situations.

Mopeds are an attempt to mix the benefits of a bicycle and a motorcycle together. The result is a bicycle that is too heavy to pedal far, and a motorcycle whose engine is too weak to carry it far. One other thing about mopeds – if you weight over 200 pounds, you will find that the moped motor will not let you go anywhere except down a hill. They were not too popular 12 years ago and they aren't too popular today.

Mini-bikes are small motorbikes. Some can be bought with Briggs & Stratton engines for them. These engines have spare parts readily available and can be worked on fairly easily. A little care will cause the engine to last for a very long time. Regrettably, minibikes are too small to carry much of a load, probably only about 400 to 500 pounds, and then only at low speeds and on flat ground.

Motorized skateboards usually just have a weedeater two-stroke engine. These small engines do not go very fast nor will they carry very much weight.

Trail bikes are like motorized mountain bikes, but beefed up with an adequate engine. They usually don't do too well on the road. They are too light and were designed for offroad use primarily. They are possible contenders for scout vehicles in a survival situation, but they are way too small to carry much more than a survival bicycle would. They are also fairly easy to break, so the maintenance requirements would be high with them.

Regular motorcycles, like the Harley Davidson motorcycles, are excellent bikes. But again, they are specialized, mainly for road use. Get it off the road into a field and it is likely to get stuck or wreck. It is an excellent bike, but even with a sidecar attachment, you would not be able to carry much gear in a survival situation. This is why motorcycle gangs always have a pick-up truck or two with them when they go on a trip, to carry spares and to carry the bikes if they break down.

Snowmobiles are the last class that I have here. Regrettably, snowmobiles are not very well thought of. They break down easily. They usually can't tow or carry a large load and they are heavy. They may be useful getting around in town or in a local area where the ability to walk home is available. But, if this option is not open for you, forget snowmobiles. The inability to carry spares, the inability to carry a larger load, and the inability to carry the tools or fuel necessary to keep and maintain the vehicles themselves, all argue against using these as survival vehicles. For scouting missions, for re-supply efforts (if you have the 3 or 4 wheel varieties) and for small maintenance tasks, motorcycles might do the job, if you had your place (base) stocked with fuel, spare parts and tools and you had the knowledge to use them. Without being prepared to use these assets in the most economical way, then the mere purchase of these vehicles takes away money from your preparations and degrades your survival preparedness. Realistically, these vehicles are not going to be useful to you in a survival transportation manner.

ANIMALS

Horses, mules, and oxen are all animals that can be tamed and used in survival situations. They can and should be used to help plow the garden, as well as to pull a wagon. A pack horse or pack mule can carry an enormous amount of goods. When hooked up to a wagon, this amount can be further increased. Although I have seen people ride oxen (castrated cattle), they are much more useful pulling a wagon than being a riding animal. Horses, mules and oxen all need feed during the winter months, especially if you intend to get any work out of them. During the summer they can forage for grass/grains themselves. Regrettably, this option is open only to a few of us, those who have a barn or enough property to raise horses, mules or oxen. Remember, mules are sterile so you will have to breed a horse and mule to get another male mule. Oxen are castrated cattle so they too are sterile. Horses can reproduce, but you need the large Morgan type breed to pull wagons. Clydesdales are excellent horse breeds, but they are expensive also. You will also have to know how to shoe horses and keep them healthy in order to keep your horses fit.

Wagons are expensive, as is the tack and saddles and other necessary items for use with animals. Also with large animals this size, you will need about one acre of pasture per animal or you will have to buy feed for them. It is also necessary for these animals to have a place to stay in bad weather, a barn or some similar structure. Building one of these can get pretty expensive. If you have the land and the money and love working with animals, then this might be for you. Your mobility will be similar to a 4-wheel drive vehicle. Your hauling power will depend on your animals and their power and your experience. You can travel up to 25 to 50 miles a day, depending on your load and the road.

Animals may be for some of us, but for the rest, we need to consider something that takes a lot less care and doesn't cost as much as animals end up costing. Dogs and dogsleds are similar propositions to horses, mules and oxen. Thankfully, the majority of us do not face the conditions of Alaska that require dog sleds for travel to lay in supplies, etc. Raising dogs is hard work and training them is difficult also. Remember, a dog team requires constant training, a lot of food that you will have to raise or buy, and they will need some place to live that is sheltered from wind, rain and bad weather. Dogs can and are a joy to work with. They are fun to be around. But if you have any enclosed area under 1 or 2 acres, then they will feel crowded and will require exercise daily to keep them in shape. Again, if you have the money, time, and love animals, then this might be for you.

RIDING THE RAILS

I have heard that hopping a freight train is popular again. My suggestion is to not do this. First, because it is dangerous. You could get hurt doing it and if you are injured, you will lose some money which you might otherwise spend on increasing your survival preparedness. Secondly, hopping a freight train is illegal. It is the same as stealing. It is the same as stealing a seat on an airline or on a bus, i.e. hopping a plane by boarding the plane without a ticket. If you get caught, you might do jail time. And if you are in jail, you cannot make survival preparations! Third, you could be mugged or robbed by professional train hoppers. Don't get me wrong here. Not everyone who hopped a train is a crook or a mugger. In fact, some are very nice fellows. Regrettably, there are a remarkable number of roughs who are on the trains who would like nothing better than to take advantage of a person's weakness getting on or off a train to rob them.

There is a way though, you might be able to use the railroad beds or the old facilities that have been abandoned by railroads. Nielson has a book out called Right of Way: A Guide to Abandoned Railroads in the U.S. This gives maps and descriptions of railroad beds (known as rights of way), old railroad tunnels, old railroad bridges, etc., from WWII to the present. If you have one of these in your area, then you might be sitting near a perfect sight for a retreat route or even a retreat site. The rails may have been taken up, and the bridges probably no longer exist. (If they do, they should be considered unsafe.)

But you can be sure they did not cave in any old tunnels, nor would they have torn up the beds anymore than necessary to take the old tracks up. Just remember, the premises belong to the railroad, so don't invest a lot of money making things comfortable. If the place is torn up, then you can see if the locals have been in there trashing the place. So you might not want to leave marks of your having been there. If you can get a long-term lease from the railroad or the county for the property, then it might be OK to invest in it, but don't count on it.

MOTOR HOMES, TRAVEL TRAILERS, ETC.

A lot of folks think getting in a motor home and heading out will provide the comforts of home with the advantages of being able to dodge trouble. And a motor home makes sense as a command center for a group for when they first evacuate an area. Cooking, communications and a place out of the weather can all be accommodated. You can also drive away in it. But you usually don't travel far or fast. The range is usually similar to a car and the motor home uses a lot more fuel. Unless the motor home is a dual axle or heavier, then the towing or loaded weight is not as great as it could be. This might be improved if you gutted the motor home of non-essentials and used lightweight alternatives in fixing up the place afterwards.

Travel trailers/camper trailers are similar except you need a vehicle large enough to tow the trailer. Again, stripping the trailer and replacing lighter and better materials might not be a bad idea. Take out the toilet facilities. These take a lot of space and are not comfortable, nor are they practical. They also have water-holding tanks and waste storage tanks. Without the shower and toilet facilities, you can divert the water to cooking, cleaning uses. Toilet facilities can be set up with portable sun shower bags for cleaning and chemical toilets or dug outhouse-style toilets when you get to your survival location. REMEMBER, THE COFFEE TASTES BETTER IF YOU DO YOUR TOILET BUSINESS DOWNSTREAM!

Look at the floors. Normally these are made of fiberboard or some other composition board. Tear this out and replace it with pressure-treated plywood. Throw the carpet away and put linoleum down. Not only is plywood lighter than the fiberboard, but the linoleum will prevent spills from soaking through to the plywood and possibly warping the board.

Next, look at the storage space. Then look at sitting space. You need storage space more than you need a bed or a lot of sitting space. If you have room, a small workshop or tool storage section should be built into the vehicle. Next is space for communications equipment and batteries to run this stuff. If you have weapons, a space for them needs to be built in and concealed while you are building these shelves. Your cooking area or kitchen should have a gas/propane stove with an oven for baking. Since you have gas for your stove/oven, how about a refrigerator that uses gas to cool with? A generator and possibly a battery bank will help any electrical appliances function properly. You could also use solar panels to produce electricity. DC (direct current) appliances are available so you should have all the comforts of home. Insulation is a must and if you don't have enough in your vehicle, you need to make some for it. Using Mylar type insulation and sewing it into individually made cloth cases linked together with Velcro, you can provide an amazing amount of insulation for little effort or cost. The problem with trailers or motor homes is that they are not particularly fast. They will get stuck in a heartbeat. And they can be expensive.

If you are a good mechanic and handyman, then fixing up an old one might be a solution for you to consider. Lots of travel/camper trailers are available. Some are very decent costs. However, to get a good deal on one, you have to be willing to invest your time, money and labor into restoring one.

Trailers, motor homes and campers are also not very agile when it comes to negotiating traffic. Be aware of this fact or you will get stuck in traffic or will cause an accident.

There are some negatives, but on the whole, trailers, campers and motor homes are not a bad choice for a survival transport, especially if you are with a group who will help you finance and modify your vehicle.

AIRCRAFT

Since 1984 technology has transformed aircraft into some interesting variations that are worth considering. None of these aircraft are really survival transportation vehicles. They are more along the lines of scout, supply and courier or intelligence types of vehicles, similar to the motorcycles listed earlier. They may, however, be useful in helping one or two persons evacuate an area or to take casualties to a hospital quickly.

Light personal aircraft – Commercially available aircraft that a person might buy for their personal use. Examples of this are the Piper or Beech aircraft. They might carry one or two people comfortably or three or four in a crowded environment. They need a long, prepared runway for takeoff and would not be suitable for folks who do not have enough land to build a runway for themselves. They are very expensive. They are very reliable and are useful for short trips (1,000 miles or less). If you are a businessman who travels regularly, i.e. weekly, to the same place over 300 miles then this might be for you, as a short 300-mile trip would not take long and you could be at your destination and back before someone driving could make it to the destination. This would be good for fast getaways.

Gliders are the next aircraft to consider. Many now have motors to help the glider take off, then the glider can ride the air currents to the destination and come in for a landing. This option gives you more range, but the wind currents do not always cooperate. The motor can then power the glider to the next ridge and the pilot can go from there. Even with motors, gliders are cheaper than private, light, personal aircraft. Regrettably, gliders do not have big engines and do not have a lot of speed. Nor do they have a lot of range with the engine. Sure it would get you in the air and probably take you another 2 or 300 miles, but it does not have the power or fuel capacity to go much further than this. A glider might carry two people at once, but this is usually the limit.

Experimental or home-built aircraft. This is another option. These aircraft can be really fun. They can also be killers. If you do not know what you are doing, don't try to make one at your home. Your life is not worth it. Hire someone to build it for you, or buy a ready, factory-made version. These aircraft are usually only for one or two folks, although there are several passenger type kits available. The expense with these aircraft can be as much as a factory-built personal light aircraft. If you help build it though, you should be able to help maintain it. Some experimental aircraft are basically hang gliders with 2-cycle big weedeater type engines attached. These fabric-winged aircraft fold up and store in any garage. They are fairly slow -- usually top speed is 30 to 40 mph. They are not strong enough to stand the wind of a big storm and they usually only carry one or two persons maximum. These aircraft are usually the cheapest, but again, they are not suitable for survival situations.

Helicopters are the aircraft to consider. Personal helicopters are on the market in kit form or for a little more money in completed condition. They are around \$40,000 completed and if you put one together, you might be able to get by with \$15,000. Usually they only have the power to lift one or two people. They also do not have a lot of storage space.

Hang Gliders, motorized or unmotorized. These are good solid aircraft that can be fun, although I do not see much survival application to them.

As you can see, aircraft have come a long way since 1984 and are still improving. But, I cannot see any practical applications for aircraft as a survival vehicle. It might be a good escape vehicle if you have a landing field in your backyard and can get to your aircraft. But, for the vast majority of us, this is not an option. Aircraft are good for scouting, transporting supplies or messages of a high value, nature or for intelligence operations. But for the survivalist, I can see little value in them. Learning to fly is usually not too expensive. Getting your license is. You have to rent an aircraft for a minimum of 35 more hours of solo time before you will get your ticket. This is another factor in ruling out the aircraft as a survival vehicle.

BOATS

The sea or a large lake are ideal places for some privacy. You can get away from it all and can usually carry enough supplies to keep you or your group alive for some time.

Small Boats are good for one- or two-person type groups or for weekend paddling. A small boat can carry an enormous amount of supplies and can be propelled through the water by paddle or by a small motor. Canoes, flat-bottom John boats, rubber rafts, bass boats, etc., all fit into this small boat category. Aluminum, Kevlar, or ABS plastic type of boats are available, as is fiberglass. These boats come in 10-foot lengths all the way up to 26 feet. The John boats, canoes and rafts can all be purchased for prices in the \$100 to \$600 range. A bass boat can cost up to \$20,000 depending on the make, model or accessories you get. Personally, I will go with the canoes, John boats and rubber rafts any day. One small boat that I have not mentioned is the jet ski. I know they are fun, but I can't see where they would be a viable survival vehicle.

Sailboats can be small one- or two-person day boats or larger ocean boats. If you are considering sailboats, anything under 18 feet is probably too small to do you any good. And unless you are on the ocean, anything bigger than a 25 or 30-foot model will be too big to get you anywhere safely. Larger boats are for ocean sailing and can be very well equipped. Regrettably, all sailboats are fairly expensive. Also, if you are landlocked, a sailboat is not an investment you should consider, since where would you go – around your lake? If you are near the ocean though, a sailboat could be the exact thing you need.

Pontoon boats are one form of power boat that I have ridden on and are stable platforms for lake or river travel. The pontoons though are usually the weakest link and a small pinhole could sink the boat without any warning. If you want a power boat, you might be better served by getting a V-hulled vessel, about 18 feet or longer with an enclosed cabin if possible. The cruising range is usually great enough to get you 300-400 miles away before you have to refuel. They are usually faster than most other boats around, and they often have some amenities like a stove and refrigerator.

The primary drawbacks to power boats are their cost. However, if you plan to use your boat like a motor home and use it as your communications HQ on your way to and after you reach your survival location, then this might be the way to go. It is likely that water avenues of escape will be open to all those with watercraft to use them. The biggest drawback is that you and your boat will be exposed when passing towns or banks that might want your boat and cause them to ambush them.

Barges are the last consideration here. These are like huge John boats and are used to carry corn, wheat and other produce from terminal to terminal along our nation's rivers. Barges do not have motors, but can be pushed by other boats to their destination. They can carry up to five railroad car's worth of supplies or cargo, and can be converted as a houseboat for living quarters. Without any means to move though, these barges are not a good survival vehicle. Unless someone in your group is a tugboat captain, then this might not be a wise move.

If you are not sure whether a boat is for you, look at a map and see if you have lakes/streams that join up and go to other rivers that lead to the sea. If you do, you might have the makings of the perfect survival vehicle in a boat.

PRIVATE PASSENGER VEHICLES

CARS, VANS, PICK-UP TRUCKS, 4-WHEEL DRIVE VEHICLES. ETC.

Cars come in all shapes and forms, from compacts to luxury models. Choosing the right one is not easy. When choosing, be sure to choose a model that you can work on, a model that will last, and a

model that has a history of reliability. Also a good idea is to choose a popular model. That way you can be assured of spare parts and used parts.

Compact models – By compact models I mean one that one or two persons can travel in with relative comfort and have a medium-sized load of equipment. An example of these cars is the VW Beetle, Subaru Justy, VW Thing, Rabbit, Ford Escort, Chevy Cavalier, Dodge Neon, or Shadow. These cars can pull a small trailer. You can mount roof racks to them and they have adequate space to store equipment and survival gear. In theory, you could haul enough parts, tools and fuel along with your survival gear to be truly self-sufficient for a good while. In reality though, do not expect to haul everything you need. You do need to have enough tools and parts to take care of minor emergencies. **THIS IS ESSENTIAL WITH ALL VEHICLES THAT WE WILL DISCUSS FROM THIS POINT ON!**

So what do you need?

- A spare set of belts for your vehicle for the alternator and generator and oil pump, etc.
- A spare set of radiator and heater hoses
- A thermostat
- Assorted fuses that fit your vehicle
- Spark plug set
- Distributor cap/electronic ignition module
- Fuel filter
- Points and condenser, if your vehicle uses them
- Assorted metal screws, rivets, nuts and bolts, and even possibly some nails
- Assorted electrical wire, electrical connectors, electrical pliers, tape
- Assorted electric bulbs for the lights in your vehicle
- Engine oil and brake fluids
- Spark plug wires
- Transmission fluid

All the above repairs can be done with a bit of training and are the most important steps you can take to keeping your vehicle alive and running well. Anything more major than the above repairs usually involves specialized tools (often different tools for each model or make of vehicle) and a highly specialized education on repairing and fixing vehicles. Also, more major repairs take time and involve parts that are often difficult to find when no emergency is looming, much less when you need your transportation right now.

What else might you need for your vehicles? Tool kits, of course, to be able to accomplish these repairs. How about tools to get you out of a ditch? Yes, come-a-longs, hand winches, shovels, traction devices to get unstuck, even carpenter's mason's tools, etc. are all handy in some cases. How about a navigation kit? After all, you have to have a plan to know where you are going, or at least you should.

A battery-powered kit with flashlight, radio, set of walkie talkies and spare batteries at a minimum should be in your car.

First Aid Kits – Basic or more advanced, depending on your education and the availability to get and use them.

Clothing kit – A spare set of clothes in your survival vehicle is not going to hurt either. Pack for hot and cold weather and you will always have extra clothes available. Don't forget boots, camp shoes, etc. Also think about rain.

Personal Kit – Always include money, prescription drugs if you need them, extra glasses in case you break the one you have, and other items you feel you might need, such as weapons, ham radio gear, extra food, special tools, battery-powered computers, etc.)

Believe it or not, a compact car can and will carry all this. I know. I own both a Ford Escort and a Subaru Justy and both cars will fit these kits and have room for me and my wife and our survival gear. I do admit it is a tight squeeze, but it can be done.

Medium-sized cars offer more room and therefore more comfort. An in some of these, you could conceivably pack for a whole family for survival situations. Examples of medium-sized cars are Ford Taurus, 4-door Chevy Baretta, Dodge Diplomat, etc. Some of the medium-sized cars come in station wagon size. These they are better suited for family survival transportation than the regular medium-sized cars are because they have more room. In fact, I class these cars above even the luxury models listed below.

Luxury models are usually good because they offer more room and more comfort for survival vehicles. Examples of these vehicles are Lincoln Town Car, Ford Crown Victoria, Buick Regal and some of the larger Cadillac models. These cars cost usually in the \$25,000 and above range and are very good cars. But as survival vehicles, give me a station wagon for a family just about any day and my change, thank you.

Mini-vans are the next category and like station wagons, they are a great choice for a family. They are not a bad choice for only one or two folks either as they are fairly easy on fuel. They hold an enormous amount of survival supplies. And many of them have roof racks or you can get them for the vehicles. In my opinion, Dodge makes the best mini-vans, but Ford is good also, as are Toyotas and some of the other models.

Regular vans are a good choice for families. Again, they hold an unbelievable amount of supplies and can be equipped with roof racks and other space savings devices. The biggest drawback is fuel efficiency. They are also usually only 2-wheel drive, but if you are careful and have chains for icy weather driving, you should get around fairly well.

Pick-up trucks – Either small $\frac{1}{4}$ ton or the regular $\frac{1}{2}$ ton or the larger $\frac{3}{4}$ or the dualie 1 ton trucks are good for survival vehicles. Most of them are 2-wheel drive, but some can come in 4-wheel-on-demand drive. Whatever you get, you can haul a large amount of equipment and with a camper even have a place to sleep out of the rain. Roof racks, the ability to haul a trailer of large size, and the ability to haul survival supplies in the bed of the truck, are all major advantages that trucks have over regular cars. The largest disadvantages are fuel economy, which is usually very poor. You can't usually haul more than one or two persons as passengers without crowding things. And there is little storage space behind the seats to put things out of sight. 4-wheel drive vehicles can be very useful. They can also be a major pain. Usually when a vehicle is designed for 4-wheel drive, two things occur, which is good for off road but not so good for on the road. First is the vehicle is made taller, so you have more ground clearance. Second, the wheelbase is shortened to make turning shorter. This is good for the trail but can cause the vehicle to tip over or wreck on the road.

Consider power inverter for whatever vehicle you get, own or use for your survival transportation. Consider solar cells to keep your battery charged or maintained. Consider a winch for your larger vehicles (van size and up if it will fit). Consider DC appliances for your vehicle and extra batteries if you have a way of charging them. It sure makes cooking, cleaning, etc., easier if you have these appliances.

RENTAL TRUCKS, TRACTOR TRAILER TRUCKS, ETC

Ryder, U-Haul and many other places rent trucks of various sizes to help persons move in. These vehicles would be excellent for a survival transportation situation since they can haul such a load. However, their gas mileage is usually poor and their ability to carry passengers is usually limited to only one or two persons.

Tractor trailer trucks is another option, but you must know how to drive one. Air brakes have to build up pressure before you can drive anywhere. Unless they have a sleeper cab they can usually only carry one or two persons, and they can carry an enormous amount of goods in the trailer behind them. These vehicles might be better suited to group use than an individual use, but it is still an option to consider.

USED VEHICLES

Used vehicles can be good investments. An older vehicle can usually be worked on with few specialized tools. Parts are usually easily available, especially if the used vehicle was a popular model. Do not get one that is already broken. If it does not run or if it needs a new engine or transmission, you may be looking at some major expenses. **HAVE THE VEHICLES CHECKED OUT BY A MECHANIC YOU TRUST AND WHO WILL GO WITH YOU TO LOOK OVER THE VEHICLE.** This can help you in negotiating for the price of a vehicle also. Check with the NADA (National Association of Dealers of America), available by request at most used car lots at the suggested price. Then offer less than this for the vehicle, especially if it has a few flaws or needs some work, (and what used car doesn't?). Try to buy from individuals, municipalities, colleges, etc., directly instead of going through a used car dealer. Remember, a good used car can be better than the most expensive new car if it is in good shape or can be put that way with a little effort. Do not waste your money if you don't have to. Buy only the better vehicles that do not need much work.

LAYERING

I am sure you have heard the term layering in dressing for cold weather. Well the same applies to survival transportation. Your first layer, your primary survival transportation, is your vehicle. In this vehicle you have all the supplies you think you might need for breakdowns, survival situations, and evacuation. The next layer is your secondary survival transportation. This might be a bicycle or a motorcycle or a horse or whatever. Just remember that you have to tow or pack your secondary survival transportation along with you. The secondary survival transportation is in case you have an accident or in case you get stuck in traffic and still need to travel away from one place towards another. Your secondary or primary transportation might be a boat, if you are near enough to water for this to be an option for you. Your last layer of survival transportation is, of course, your feet. So packing ready for a hike is not too bad an idea.

FUEL

It is crucial that the fuel used in your survival vehicles all be the same. In the majority of cases, this will be gasoline. Gasoline is hazardous to store in your home and does not store too well unless preservatives are added to keep it from losing its power. (Stabil is one of the best preservatives on the market.) At best, gasoline will store for a year without any preservatives added. Five gallon Jerry cans are what many suggest. And these are great mobile containers that would be perfect for this use. They are a bit expensive and you would need at least two to fill up an economy car sized fuel tank, but they would definitely work. Remember, your vehicle will use more gas when loaded down than it does when it is not loaded down.

55-gallon drums have been suggested, and if you have a pickup truck or van, this might be an option you want to explore. You will have to have a special pump to transfer fuel from the tank to the gas tank of your vehicle. Also, you will need some way to load it onto your vehicle as a 55-gallon drum of fuel is heavy! If you have a secure place and own your own property, you might consider a large fuel tank that might be buried or put in your backyard. Ones that are 150 to 300 gallons are usually available at the co-op stores for sale or rent, and they keep it filled up and serviced. Be aware that many states will not allow you to bury these tanks anymore because of pollution concerns, so be ready to camouflage or conceal these tanks.

It might not be a bad idea to store fuel elsewhere also in the event you might need it later on. For example, on a friend's property, family farms, the shed at work, or concealed along the roads. Be careful of discovery and be prepared to lose and write these off, especially if you do not have the permission of the folks who own the property if you store fuel on their property. Stick to friends, family or like-minded individuals if you can to be sure your fuel will be kept safely. Inspect it at least once a year, and if your friend is using it, then write this off as if an emergency comes up, he will take your fuel and leave you nothing.

Some vehicles use propane as a fuel. If yours is one then be sure you have propane stored and have the equipment to tap into other propane sources in the event of an emergency. Propane is a great fuel for cooking and to provide lights for a campsite. So you may want to plan on having some of it available.

Kerosene is also good for heating and for having a kerosene lantern or for cooking in some cases. So this is another fuel you might want to have around. (Kerosene keeps longer than gasoline, but you still need to add preservative to it to keep it useful over a long-range time.)

Coleman fuel is good for cooking or lighting. It is really too specialized for most uses. Coleman makes dual or triple fuel types of stoves and lanterns. Get them and use them instead of relying on Coleman fuel.

Having a generator to provide electricity would be a good idea and if you kept it using the same fuel as your cars or other vehicles, then this would be available for your use for some time.

CUSTOMIZING

Many customizations can be done on most cars, from James Bond-like oil slicks to bulletproofing your vehicles. These tend to be fairly expensive, they reduce the carrying capacity of your survival vehicle, and may not be needed. I prefer the following customization:

- Roof racks to increase carry loads and survival gear.
- Solar cells for battery chargers or battery maintainers.
- Winches if the vehicle is large enough to have room for one.
- Camper tops for pickup trucks.
- Racks for 5-gallon Jerry cans.
- Power inverter than runs off of batteries or off of the cigarette lighter of a vehicle. Should be powerful enough to run a ½ inch drill or a power saw.
- Extra batteries, if you have a way to keep them charged.
- A towing ball, if the vehicle can accommodate it.
- Run flat tires might not be a bad idea if you can find or afford them.
- If you feel you need a bulletproof car after this, then by all means, look into conversions that help with this.

Obviously we have not examined all combinations of survival vehicles. Nor have I included traveling through fallout in this paper. Military vehicles require special training to operate and are not recommended. Traveling through fallout is a special subject in and of itself.

No single vehicle is ideal for all survival situations. You must decide and tailor your decisions for yourself and your situations.