



# Beehive Rock and Gem Club

Vehicle Preparedness 2024

By: Tom Larsen

# Disclaimer

It is not necessary for you to have all of the vehicle tools and gear that I will be describing in this presentation. If you don't have something chances are someone in the group will have what you need and the knowledge on how to fix the problem. Don't stress over this issue. Everyone will take of everyone.

# ► The ideal vehicle for rockhounding!



or



Babette and Axel's choice considering the amount of rocks they bring home from a field trip!

Or maybe Jason Meyer. He likes the big heavy rocks!





or



NOT PREFERRED



▶ These type of vehicles may be more realistic!



# ► Proper tires

► Good



► Better



► Best



## ► Tire support items - tire jacks



### Important:

- 1) Know where your jack is located and how to use it.
- 2) Make sure if you have special wheel locks that you have the key.





## ► Tire support items - tire repair kits



These two tire repair items are a life saver. They will fix nail holes and small leaks. They will not fix catastrophic tire failures.



# Spare tire locations

**Note: Make sure that your spare tire is with your vehicle and is in good shape. Know where it is at and how to get to it.**





# ► Tire support items - air pumps

► Good



► Better



► Best



Impact Wrench





The Hi-Lift jack off-road kit has several accessories for winching with a Hi-Lift jack. This off-road-ready recovery kit, which comes in a portable duffle bag, turns your Hi-Lift jack into an even more versatile tool. The Hi-Lift jack off-road recovery kit contains all the accessories needed for winching with a Hi-Lift jack all in one convenient bag.





In some extreme conditions, of which we try to avoid, a wench may be your best bet for getting out of the mess you got yourself into. There are a few people in the group that have wenches on their trucks so this is not an item you absolutely need for your vehicle. **Those people will be required to go on all field trips!**  
**Just joking!**



# Vehicle Clearance

When it comes to off-road vehicles, **ground clearance** is a critical factor. It determines how high your vehicle sits off the ground and affects its ability to tackle challenging terrain. Let's explore some essential aspects of ground clearance:

## 1. What Is Ground Clearance?

1. Ground clearance refers to the vertical distance between the lowest part of a vehicle's undercarriage and level ground.
2. It's not a fixed value and can change based on factors like vehicle load, tire inflation, and suspension setup.

## 2. Why Is Ground Clearance Important for Off-Roading?

1. Vehicles with **higher ground clearance** are better suited for off-roading.
2. They can overcome obstacles like rocks, logs, and uneven terrain without damaging the underside.
3. With more ground clearance, 4x4 vehicles can navigate deep ruts, steep inclines, and challenging conditions better than stock-height rigs.

## 3. How Much Ground Clearance Do You Need?

1. For **basic off-roading** with no serious terrain, aim for at least **8 to 10 inches** of clearance.
2. To tackle rocky terrain, consider **10 inches or more**.
3. If you're driving on well-maintained tracks, **6 inches** should suffice.



# Vehicle Clearance

## 1. Factors Affecting Ground Clearance:

1. **Weight:** Extra weight reduces clearance due to suspension compression.
2. **Tire Inflation:** Under-inflated tires decrease ground clearance.
3. **Suspension Modifications:** Lift kits or modified suspensions can increase clearance.

## 2. Examples of Off-Road Vehicle Ground Clearance:

1. Jeep Grand Cherokee 2019: **6.6 inches**
2. Toyota Tacoma 2019: **9.4 inches**
3. Land Cruiser 200 2019: **9 inches**
4. Ford Ranger 2019: **8.9 inches**
5. Toyota Hilux 2019: **10.9 inches**
6. Jeep Wrangler Rubicon 2019: **10.8 inches**
7. Dodge 2500: **12 inches**

Remember, the right ground clearance ensures you can conquer rough trails with confidence. So, whether you're a seasoned off-road enthusiast or a beginner, understanding this dimension is crucial for an adventurous journey!

# Items to have in case of an emergency

- 1) Extra fuel - inspect can for condition
- 2) Extra engine oil
- 3) Extra coolant and water for your radiator
- 4) Basic tool box with tools appropriate for working on your vehicle - ex: pliers, screwdrivers, socket set, hammer, tie-wraps, bailing wire, duct tape, anything else that you think you need
- 5) Tow straps - kinetic tow rope, soft shackles, shackle hitch receiver
- 6) Top off the Gas – Fill the gas tank prior to every trip. When you reach your destination, top it off again before hitting the trail. The last thing you want to do is start worrying about running out of gas while offroad. Remember the One-Third /Two-Third Rule: Use one-third of a tank to get where you are going and save two-thirds for getting out. If your fuel tank doesn't have the capacity for the offroad portion of the trip, carry extra fuel or re-think your route.







# Engine preparations

- 1) Open the hood and check all hoses, batteries, fan belts and electrical connections. Carry extras if you can
- 2) Check all fluid levels - engine oil, transmission fluid, brake fluid, windshield wiper fluid and radiator levels
- 3) Top off all levels to insure good running condition





**Make sure there are no leaks, everything is at the proper level, and carry extra fluids just in case. Also check the air filter and the air filter box for debris. Also, if you are aware of any mechanical or electrical problems with your 4×4, repair them before going on the trip.**

**You can't anticipate everything that could go wrong but be proactive so you can minimize the issues that may come up. **Such as bad water pumps!!!****

# Vehicle preparations

- 1) Walk around the vehicle and visually inspect the brakes and tires
- 2) Check your fuel levels so you don't run out of gas or diesel
- 3) Check to make sure your headlights and taillights are working properly
- 4) Check spare tire for proper air pressure and tread wear
- 5) Be sure that all tires are inflated to the proper highway speed pressures. Take note of your tread and think about the terrain you will be traveling on. Are you ready for that deep mud hole with that tread?
- 6) Check your shocks for signs of leakage or damage or just plain worn out. You're going to need those shocks where we're going!





# Safety tips

- 1) Never go out 4 wheeling without another vehicle
- 2) If you get separated from the group and get stranded stay with your vehicle until someone finds you
- 3) Always have the proper clothing for the weather conditions
- 4) Have food and water available
- 5) Make sure your first aid kit is up to date and available
- 6) **Communications to the World – Pack a cell phone and give it a full charge before departing. Pack the phone car adapter or the 12 volt charger along with a power inverter. When you're remote and offroad, you can still find a signal even if its atop a ridge or up a tree. Be aware that if you are out of signal range, your cell phone will be hunting for a signal and this will deplete your cell phone's battery quicker than just sitting in standby when in range.**







Tow straps and shackles



Tow strap shackle mount



Don't get stuck!



While most 4WD vehicles are better equipped for bad weather than street-only cars, adverse weather conditions can present unique challenges to the off-roader. Checking the weather conditions before departing can help avoid getting caught in a massive storm of rain, snow, or sleet.



# Rock Trip Preparation and Tips and checklist

(Some of these are obvious but it's just a reminder to check off.)

Child or Pets Care, if bringing - Nearest Hosp. or Vet? Shots updated?

## 1) Over-Night or Week-End trips

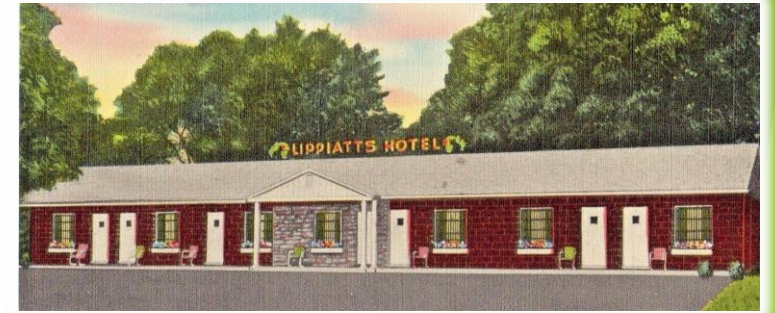
**Motel** – Request early, nearby ones may be full, plan travel time to site so you can meet with group on time. (Same for RV Park.)

**Trailer** – Check propane, water, tires, lights and batteries, (usually will not be hook-ups at site, occasionally may be RV Park near.)

**Tent** – Check condition, **fly, poles** and **stakes**? May have windy or rainy weather. Check **air beds** and **sleeping bags**. Plan for cooking. (May or may not be able to have campfire.) **Stove**, sufficient **fuel**, matches/**lighter**, **Cooler**. (Potty and toilet paper.)

Plan easy or pre-cooked meals. Ask if there will be a **Pot-Luck Dinner** for full weekend trips. Bring our own dishes & utensils. Include serving bowl/plate/utensil.

Plan for personal **medical or prescription** needs, and pack these first. Let Trip Guide know of any serious medical conditions for emergencies.





**2) Charge phone** just before leaving or bring a charger. (We may not have service in the trip area. You could set up a “call-time” with family when you will be going back into a serviceable area and call.)

If you are bringing a camera bring extra batteries or charger. (It's fun to have pictures to share.)

We usually meet and travel together, but a personal marked map would be useful in case you are late or get separated.

Portable solar panels are a great way to keep your phone and electrical items charged up while in the back woods.

**3) Clothing** - You will want to bring layers of Clothes. Trips may be in Mts. or weather may change unexpectedly. Even deserts get cool in evenings.

T-Shirt

Long-sleeve Shirt (also good for sun-cover)

Hooded Sweatshirt

Wind-proof jacket

Sturdy pants

Hat

Poncho (disposable one that can be carried in a pocket)



Boots (water-proofed) Extra socks

**Gloves** – 2 types: Light weight, plastic or rubber-coated palms only, And Heavy-Duty Gloves for large rocks or clearing brush

**4) Buckets** – will want several, or have some heavy duty totes to empty buckets into at your truck. (Smaller full buckets are easier to carry!)

**5) Tools** –

Dandelion digger, Small hand trowel, Shovel, Rock Hammer

(For Day trips the above may be all you need.)

**Optional tools:**

Prying bar

Chisel

Safety Glasses

Spray bottle (with water)

Stiff brush or old toothbrush to clean them at camp

Extra Jug of water (for washing rocks or hands)

Long screwdriver (to probe for topaz in small cavities)

(Headlamp for caves)

Small markers (like ribbon on a stake) could be helpful.

Remember we have to carry the tools or return to our vehicle to get them. I found a simple dandelion digger best for most smaller rocks, but petrified wood and geodes required some moderate digging, and some large rocks required hammers, chisels, or pry-bars.





6) **Food** – Lunch needs to be taken in trucks as we will eat in the field or on the way. We may or may not be near eating facilities. If we bring pets remember their needs; food/water dishes, leash and tie-outs.

7) **First Aid kit** or at least some Band-Aids

Insect repellent

Sunscreen

8) **Toilet paper**, (and shovel)

9) **Shade Fly**, poles & stakes for relaxing or for serious digging in sunny areas.

10) **Chairs** - There will actually be times to sit and visit, except for Day trips.

11) **Flashlight** and extra batteries

12) **SPARE TIRES** for vehicles or trailers, and jacks!

13) **Wood** – A small amount of wood to donate for campfires is always nice for weekend trips.

14) **GPS** – always good to have a reliable handheld GPS



▶ If you have any questions regarding Vehicle Preparedness please contact Tom Larsen at 801 390 8270 and email: [tomlarsen36@gmail.com](mailto:tomlarsen36@gmail.com)