



Design Your Jeep Build

Part Six Stock Parts to Upgrade

Your parts and mechanics came off the production line to run stock tires. Other parts and pieces must be upgraded in your Build Design and Plan as well.

LadyJeepers.com

It is time for your Design Your Jeep Build Part Six.

In this section I am going to be talking about performance upgrades for your jeep. When I say performance upgrades, it is going to be directly related and go hand in hand with how your Jeep is running and driving. This is going to play a part in drive ability, as well as, the longevity of your jeep. We want it to run as well as it can for as long as it can. I also put in some off-road related upgrades to think about for your trail riding aspects.

It is important to remember that this is your build and it is unique to you. So there is not one way or one answer on what to get. You need to make sure that this build is unique like you.

There are so many different builds on so many different platforms. This is where you need to go with what is unique to you, what builds you like, what stance you like, what you want your ultimate build to be for you and allow your personality to come out in your build.

Like we talked about in our previous sections you need to know what size tire build you are going to do. We talked about using your tire size as your platform and then you are going to design that build around your platform.

Depending on what size tire platform you design your build around, that is going to dictate what other upgrades you are going to have to make.

As you change your stock parts to after market parts or upgrades or you completely take some stock parts off, redesigning, putting things on.....

You need to look at what stock pieces now have added stress on them. You have left stock parts and pieces on your jeep as you have done your build up to this point. There are still stock running gear and parts and pieces in your jeep that we need to talk about. The bigger the tire on the build platform, the more upgrades you are going to have to do because you are having to compensate for this stress that is now being put on those stock parts.

Upgrades

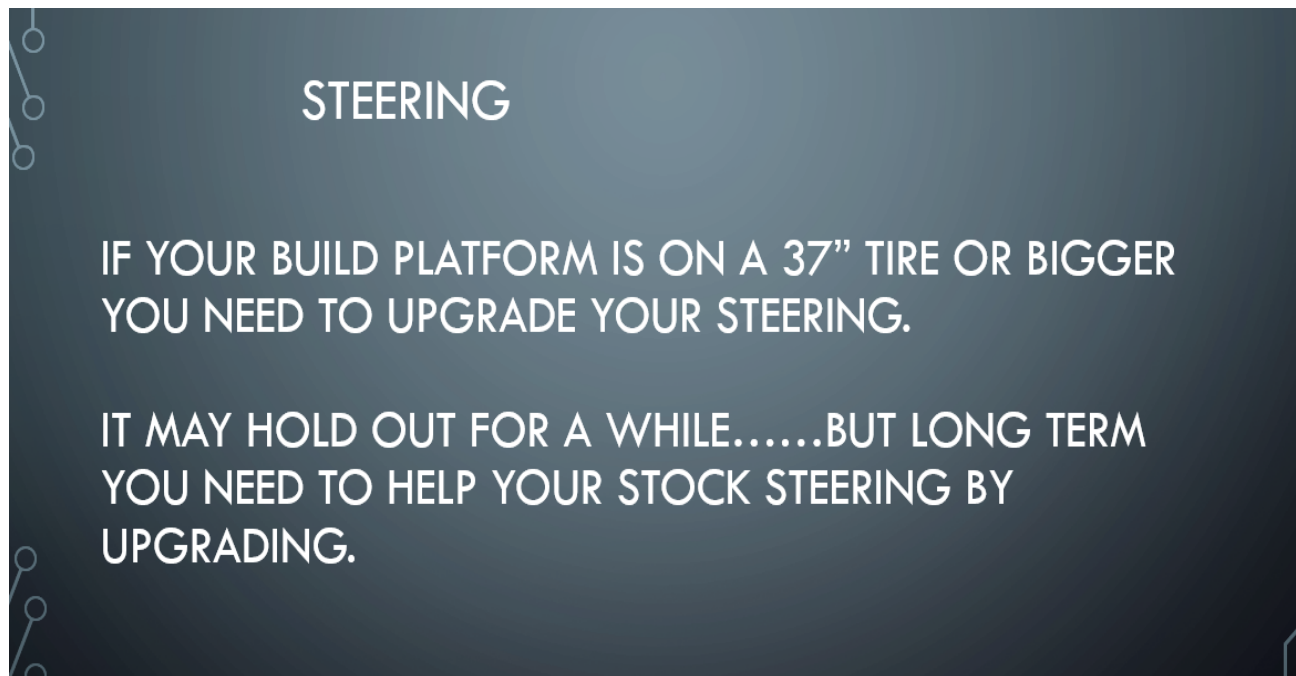
I want to jump in and talk about upgrades.

Most of these are upgrades that you are probably going to have to make at some point in your build as you are going all the way through to complete your build.

Steering

The first thing that I want to talk about is steering. The reason I want to talk about steering as the first part is because if you added a bigger tire, now all of a sudden your stock steering box and components are going to have more stress added to them. You have added bigger tires, which in turn has added more weight, more resistant, and you are adding that against your stock parts and pieces.

Remember this: stock is designed to turn a stock tire. Now you are going to have to address the stock parts that are left once you have upgraded and put bigger tires and a lift on your Jeep. (I know I sound like a broken record with this concept and idea but I want to make sure I say it enough so there are NO surprises.)



If your build platform is on a 35 inch tire we recommend replacing some of the steering components to upgrade to stronger parts. But you do not have to go all the way to steering box and assistance on the 35" tire.

If you are doing a 37" tire or bigger, you need to upgrade your steering. That is something that you need to take a note of, and go ahead and put this down on your overall build sheet. It may hold for a little while, but long term you are going to need to help your stock steering by upgrading.

That is something you do not want to start having issues with. Fortunately, you have a couple different options.

Stock Parts Upgrade

If you are planning on running a 35 inch tire or bigger as your platform, you can look into upgrading some of the following things.

First thing would be possibly adding a **STEERING STABILIZER**.

What this is going to do, is help with steering and handling. The steering stabilizer helps to eliminate the front end shake or some of that movement in the front end with larger tires. Fabtech makes a steering stabilizer kit, as do many other companies.

STEERING

A STEERING STABILIZER:
HELPS WITH STEERING/HANDLING AS WELL AS
ELIMINATING FRONT END SHAKE OR MOVEMENT FROM
LARGER TIRES.



Fabtech Steering Stabilizer Kit

The next thing you need to think about as I am talking about steering is to upgrade your **TIE ROD**.

In the photo below, this is my stock tie rod on my JKU. This is the front of my JKU and you see highlighted in yellow is your tie rod.

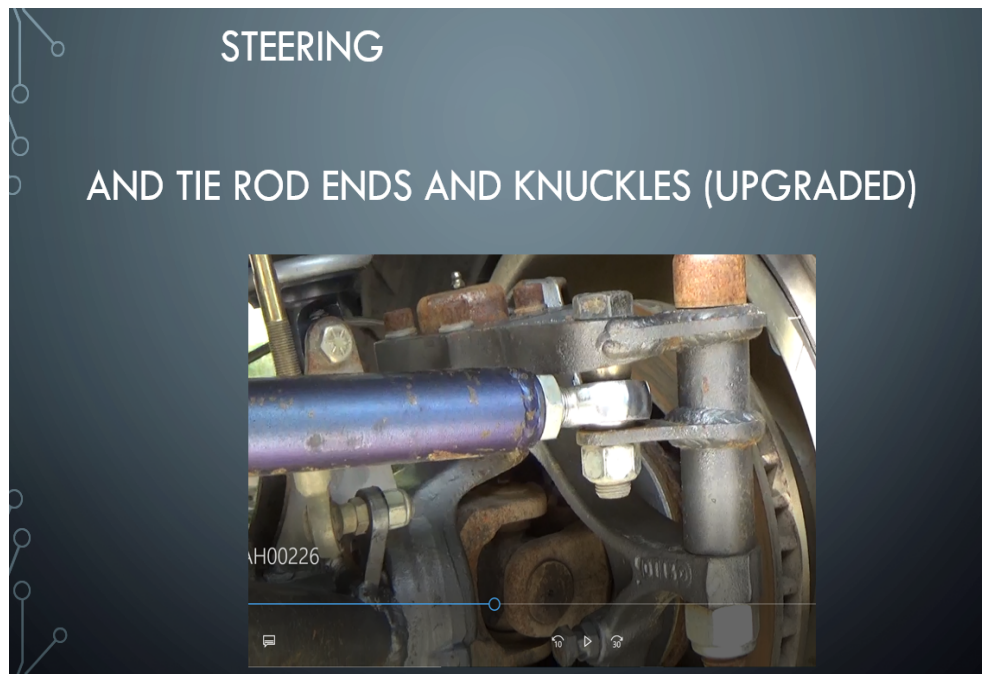
This is definitely something that you want to upgrade once you have added lift and bigger tires. For compensation and strength with durability you need to go to a stronger and heavier duty Tie Rod.

Stock Parts Upgrade



As you are upgrading your tie rod, you need to upgrade your **TIE ROD ENDS** and there are actually some great kits out there. A lot of different manufacturers offer upgrades for your tie rod ends as you upgrade your tie rod as well. These are two things you want to do together at the same time.

I know when people talk about wheel vibration and death wobble the Tie Rod and Tie Rod Ends are brought up in that equation to replace. These are ALL steering component upgrades that in the long run are going to help with the stability and drive ability of your Jeep.



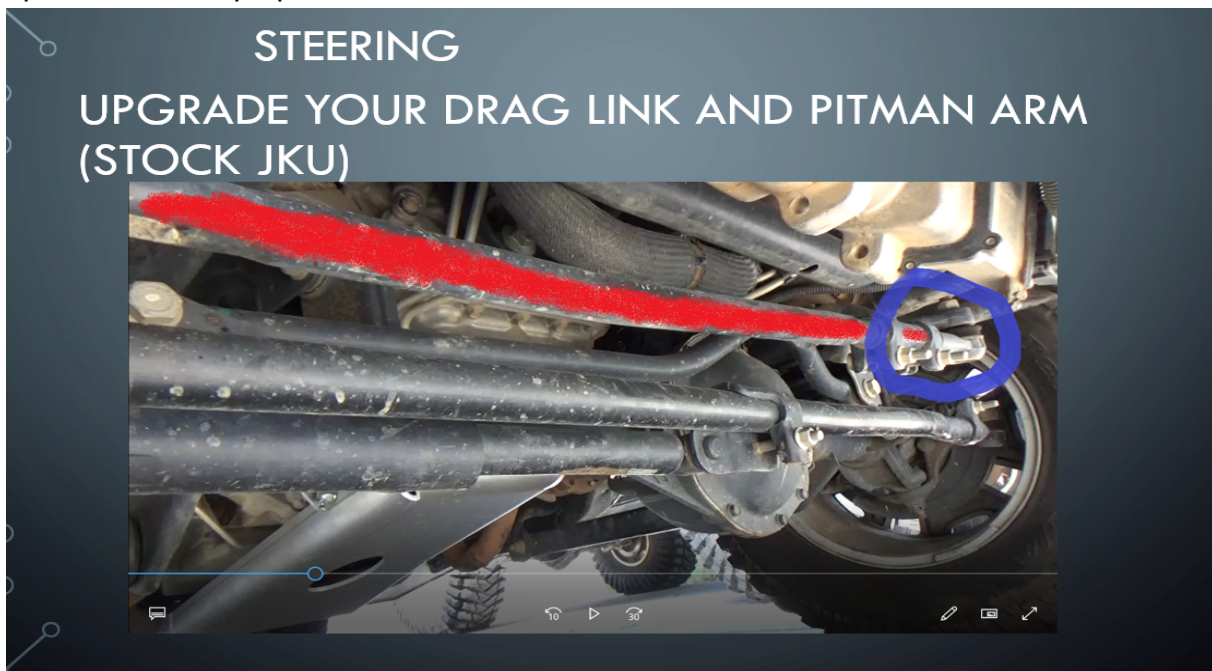
Stock Parts Upgrade

Going along with upgrading your Tie Rod and Tie Rod ends you want to think about upgrading your **KNUCKLES**.

In the JL these knuckles are now made out of aluminum but I recommend updating to an after market knuckle for strength and durability. If the aluminum is soft material compound and has give to it, that can cause other problems in your front end for you. If you are going to lift and put bigger tires on your JL my biggest suggestion is to upgrade those aluminum knuckles even if you opt not to upgrade the rest of these parts.

For the other generation Jeeps you still want to think about upgrading your knuckles as well. I would say consider this upgrade at 35 inch tires but anything 37 inch tires and above needs to have this as a must do on your build list.

Continuing with the front end. You will want to upgrade your **DRAGLINK**. The drag link in the photo below is outlined in red. The drag link sits above your tie rod and the drag link is part of your steering set up and upgrade. When you upgrade your steering components this is part of the upgrade kit, but make sure you get a kit that upgrades ALL of your steering components that we have outlined so far. You can change these steering components out a couple parts at a time.



We also are going to have to replace the **PITMANARM**. In this photo you are looking at the front end of my stock JKU. The part that is circled in blue is where the Pitman arm is. As you are thinking about designing your build and your lift and tires, which are big components. You need to be thinking about what else you need to upgrade. Steering needs to be the next piece you are thinking about. When you replace the Drag Link go ahead and replace the Pitman arm at the same time all at once together. These are two parts that go together so you will want to replace them both together and not just opt to do one without the other.

Upgraded Steering Support or Assist

In the previous section, I outlined what parts you need to upgrade as part of your build. You are replacing the stock parts and stock steering parts with after market for added strength.

I want to jump to the next piece which is actually assisting and upgrading the steering itself. This is to help your stock steering box that is only designed to turn a stock tires honestly.

Again, everyone has their own opinions and they have things that they like and they dislike.

Our advice, is if you are going to run a 37 inch or bigger tire, you need to upgrade the steering box itself as well. That is where the assist comes into play. This is just something that we recommend that we use, and it is a hydraulic assist set up system. PSC makes a great system. What this does is it helps to take the stress off of your stock steering box and helps so you do not overheat your steering which in turn means you could lose your steering while you are driving.



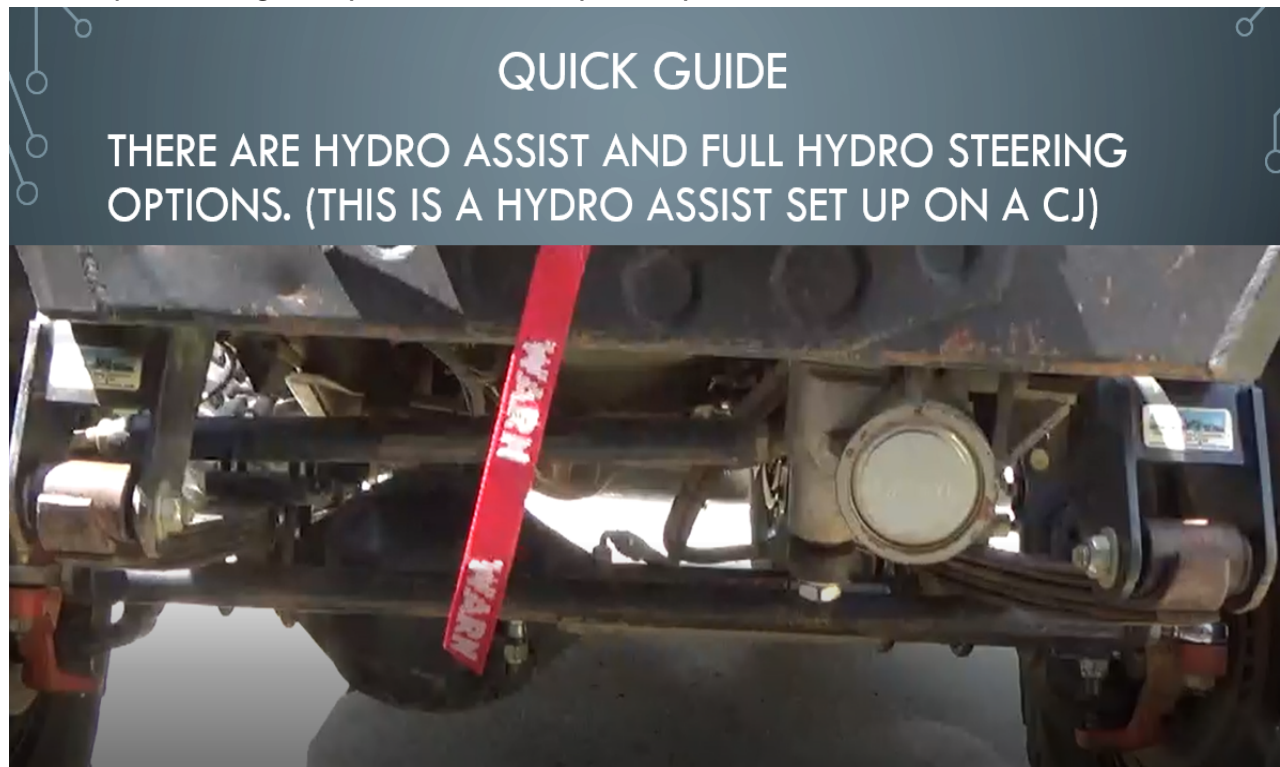
There are different upgrades you can make to help your stock steering box and components. I am going to talk about hydraulic steering. There are two different types of hydraulic steering set ups. One is hydraulic or hydro assist, and the second is full hydraulic steering. You have two different ways you can set it up.

Stock Parts Upgrade

In the photo below, you see a hydraulic or (hydro for short) assist set up. This means you have the hydraulic assistance added to your stock steering box and still have a mechanical steering linkage along with the hydraulic lines that aid in the steering and take some of the load off of the steering box.

This set up also makes it easier to steer when you are driving off-road on the trail and have your front lockers on. You will notice an increased ability to steer even with the lockers engaged and you will not be "fighting" the steering.

This set up is street legal and you can use this on your daily driver.



Most of you are going to be looking at the hydro assist option. That way you can still legally drive your jeep on the road. It is legal, it is going to help, it is going to handle better. This set up will alleviate running into steering issues.

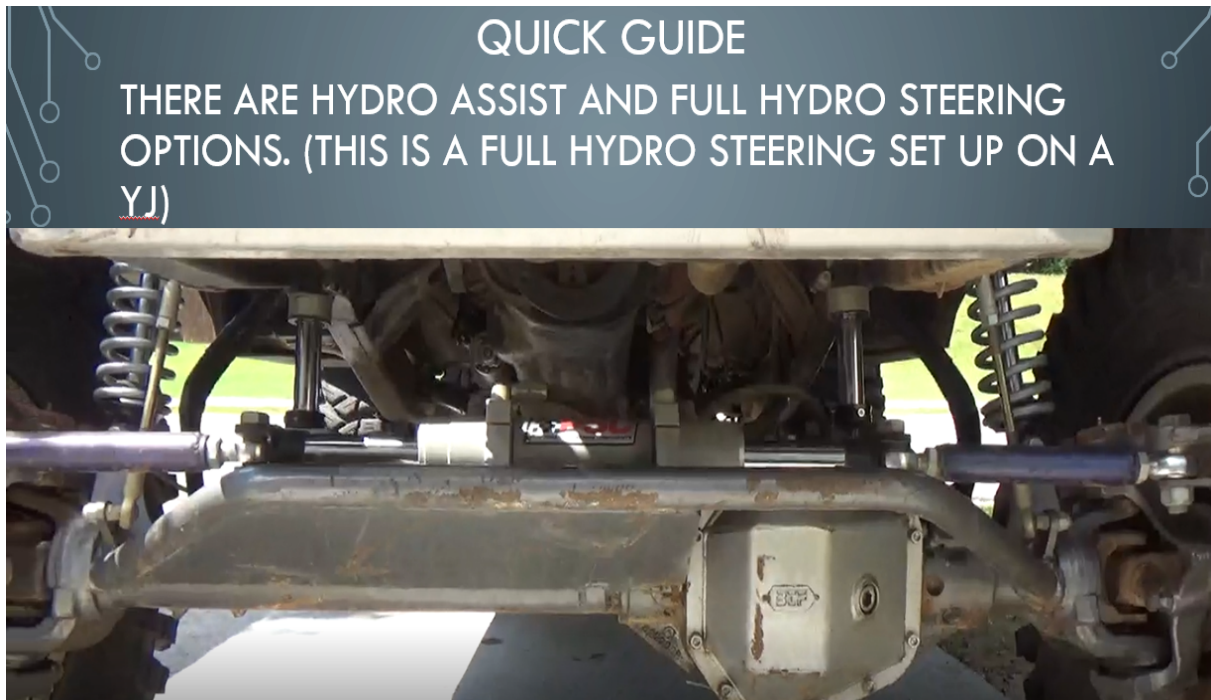
I know I keep saying this over and over, but again this is where knowing your build that you are designing for you is important.

If you are building a jeep that is going to be spending majority of its time in the woods, off-roading, trails or are going to events then that is where you would add this full hydraulic steering setup.

Stock Parts Upgrade

I want to make sure that everyone understands full hydraulic steering. (In the photo below)

If you do a full hydraulic steering setup it is **not** street legal. I want to say that again. This is a full hydraulic (hydro) steering set up. And this is **not** street legal.



One thing you are going to notice right away with this full hydraulic steering set up is that you no longer have a drag link or pitman arm to upgrade or replace. It has been done away with by adding this full hydraulic steering set up. You will also no longer have a gear box for your steering. You now have hydraulic lines and hoses that run by a ram that controls the now two small tie rods on each side of your PSC set up.

This is what makes the Jeep or the Full Hydraulic Steering set up no longer street legal. You do not have a cable or any mechanical device that is controlling your steering. If you had an issue with a hydraulic line or pressure you would no longer have steering and they are outlawed on street driving vehicles. If your Jeep is going to be a daily driver on the street, then you do not want to go with the full hydraulic steering set up like this one.

As you can see from the photo, everything is upgraded to a much stronger and bigger material. It is going to hold up and last longer and be able to turn the bigger tire. You will also feel no resistance, drag or force in the steering wheel when the locker is engaged. It will steer with ease when it is locked in the front.

For this full hydraulic setup, I just wanted to show it to you as we are talking about options. That way you understand and can see the full hydraulic set up. Knowing and understanding all aspects of build options is important.

Truss Your Axles

The next thing I want to talk about upgrading is your axle strength. I talked about axles and gears and understanding that in one of our other sections. So this is the next step now that you have decided on what axle you are going to have long term.



What does trussing your axle do?

It gives you strength and more longevity and durability as well. Instead of just having the axle strength based on the size of your axles and the axles tubes. By trussing your axle, you are upgrading your axles strength especially for when you are out on trails and put more stress on the axles.

The after market truss in the photo above is the Artec truss. That is what I have on my Jeeps. Most of the brands out there are pretty similar because what they are trying to achieve is all the same thing. Some of the different axle truss may look a little bit different, but basically they are all the same thing. Just make sure that the material the truss is build out of is a high quality and high strength material. Remember even if you have an upgraded axle, by doing a truss you are adding stability and strength to that axle as well. When you start to take your Jeep on more off-road adventures or are driving on some not so great roads around town with large tires, you know you have extra support for that axle.

Stock Parts Upgrade

The truss is designed to hold the center of the axle and keep the axle from being able to twist and break as easily. The axle truss upgrade follows the same principles for upgrades as most of the other components. If you are going to do a 35 inch tire build you should think about doing this upgrade for your axles. If you are doing a 37 inch or bigger tire size platform build then you need to put this on your upgrade build list.

The amount you will be driving your Jeep off-road does factor into this decision. If you are going to build on a 37 inch platform but daily drive and only do very easy and light trails you do not have to truss your axle right away. However, as soon as you start to push your Jeep a little harder and want to do more out on the trails with it then you need to add a truss to your axle.

Our goal is for you to have longevity and durability so that you are not having to go back and rebuild again. I call this list for your Jeep Build Design, your performance build. These are the things that are going to directly relate to the drive ability and the performance and handling of your vehicle.

These upgrades in this section have nothing to do with putting the special touches on your Jeeps. These upgrades are 100% about the drive ability of your vehicle. We want that longevity and durability there so that once you go through this checklist and you have done all these things, you don't need to go back and Redo anything.

Upgrades for Performance

A **Tuner, SuperChip or i-Drivesystem** for your Jeep. When you think performance you do not usually think about a Jeep. They are not made to be fast vehicles, but there are some upgrades you can make that will help the drive ability and throttle control. Either of these three systems are going to help you get a better throttle (gas pedal) response from your Jeep. It will increase power and the ability off the line as well. Do not expect your Jeep to drive like a sports car, because it is not, but this will help with some of that "lag" in the gas pedal. The new vehicles no longer use a throttle cable but a wire throttle. This means that it uses a sensor that sends that information to the engine computer. Any of these upgrades change the sensor response to the computer so that you have more control over the acceleration response. It helps to eliminate that delay or lag by changing the communication to the computer. You have multiple driving option choices based on how you want your Jeep to respond when you apply the gas.



Stock Parts Upgrade

The **COLDAIRINTAKE** system is a great upgrade for performance as well as changing the intake position. The cold air intake system actually brings your air filter up out of the engine compartment. By doing this it allows more air to be sucked into the engine. This in turn means more power. It also means that the air filter is up higher for water crossings when you are driving off-road. This does not protect your Jeep from high water but it gives you more clearance before your engine would start sucking in water compared to the stock placement position.



Upgrades for Protection

This next section is all about the upgrades to make for the protection of your Jeep, let's go.

This does not go with direct performance of your Jeep, but I felt like it was important to cover in this section. I wanted to add this in here, and I am now going to tell you a little bit about myself. I have a purple JKU Rubicon and she is my baby. At the time I ordered her, you could not get a purple Rubicon JKU. I custom ordered her directly from Jeep, and I absolutely love my jeep. One of the many things that I love about my Jeep is the color.

I will be totally honest here, one of my biggest concerns, and I am getting better about it, when trail riding I do not want anything to happen to the body or paint. I want to protect that. It does not change the Jeep's performance capability, but it changes my driving capability and what I am willing to do in the Jeep because of protection. I am not as fearful that I am going to hurt her.

I wanted to talk about the protection because to me that mentally change you as a driver, which then is going to change the performance aspect of your jeep of what you are asking it to do. There are a couple of different things that you can do to help add protection and peace of mind to your Jeep build.

UPGRADES FOR PROTECTION

THESE UPGRADES ARE MEANT TO HELP WITH YOUR OFF-ROAD AND TRAIL RIDING ABILITIES AND/OR PROTECTION FOR THE JEEP ITSELF OFF-ROAD.

- BODY ARMOR
- SKID PLATES
- ROCK SLIDERS
 - CORNERS
 - LIMB RISERS

The first piece of protection I want to talk about is the **BODY ARMOR**. This is going to go on the outside of your jeep. They make different body armor panels that you can add for protection. There is also a magnetic version as well that you can use for trail rides to keep your body panels from getting scratched up and remove after the ride.

There are **SKID PLATES** which are going to go underneath your jeep. Yes, your Jeep comes with stock skid plates to protect the important aspects of your Jeep. The after market skid plates are made with a little tougher material and will add more protection to the under side of your Jeep. This is especially important if you go on trails with rocky terrain where your under carriage is going to make contact with rocks. The full belly skid was one of the first things that I added. We ride in very rocky terrain so I got this right away for peace of mind and protection to know that the underneath of my jeep has added strength.

Another upgrade to consider adding is the **ROCKSLIDER**. The rock slider is designed to help protect the side of your jeep at the door frames. Your Jeep comes stock with a rock slider type protection on it but an upgraded rock slider is made of a heavier duty material. This allows for more impact to the rock slider with less damage. There are many different designs of the rock slider. There are flush rock sliders that do not stick out but are flush against your body. There are rock sliders that also act as steps. Then there are angled rock sliders that stick out slightly from the body to help protect the side of the jeep from impact of a rock or tree or whatever you may come up against as well. The design and look are something you can pick out for yourself. The only thing you need to pay attention too is the material strength the rock slider is made out of. Make sure it is a good quality steel or aluminum so it will hold up to the abuse if it is used for the purpose it was designed for.

Stock Parts Upgrade

If you do not go with body armor panels a good choice for protection are **CORNERS**. The corner goes on the back corners of your Jeep. They start at the tail gate hinge or tail gate opening on the off side. They then wrap around the corner and come up to the door opening. They protect the back section, corner and rear side panel of your Jeep. You can get them in black steel or silver aluminum and have them painted or powder coated to match the color of your Jeep. People do run them black as a two tone against the full color Jeep as well and it looks really sharp. That again is a personal choice you can make based on the look that you want for your Jeep. The purpose of the corner is if you were to slide or accidentally rub something (a tree or rock) the corner is giving you added protection between that element and your Jeeps body.

LIMBRISERS are something you do not see as often on the Jeeps. They are not as popular but they give you protection to the hood and windshield frame of your Jeep. They look like a line/string coming down, one on each side of the front of the Jeep. They mount to the top of the windshield frame and mount down to the front of the Jeep on either side of the hood. The purpose of the limb riser is to give brush or low lying branches a path to take to go up and over the jeep without impact to the hood and windshield frame.

There is no one way or right way or anything like that when we are talking about this protection aspect. There are many different ways you can start adding that protection to your Jeep. This really is about your personal likes and looks.

Upgrades for Ease of Off-Road

UPGRADES TO ADD FOR OFF-ROAD DRIVING

- SWAY BAR QUICK DISCONNECTS
 - ONBOARD AIR
 - HIGH LIFT JACK
 - WINCH

These upgrades are not performance and handling but since we are talking about build upgrades I wanted to make sure and put these in here as well. These upgrades are going to help with the ease of your Off-road experience.

The first thing you want to upgrade (do not have to in Rubicon with sway bar disconnect) is to upgrade to the

Stock Parts Upgrade

sway bar quick disconnect ends. This will save a lot of time and hassle when you need to disconnect your front sway bar for your trail ride. This does play a role in the handling and performance of your Jeep off-road. The sway bar needs to be disconnected to give your Jeep a smoother ride and also allow the suspension system to utilize travel. You want the suspension to be able to have full travel ability upward and downward for negotiating obstacles and terrain while you are out on the trail.

Something else that is great to have, especially for trail riding is **on-board air**. On-board air gives you the ability to air your tires back up after a great ride. Most parks have air available but it is nice to always know you will be able to air up no matter where you are. On-board air is also nice to have if you get a low or flat tire on your Jeep. It gives you the ability to be able to air up right where you are in any situation.

If you have upgraded to a larger tire size than your stock tires you will need to get and carry **high lift jack** with you in your Jeep. The stock jack will not be able to go up high enough with a larger tire to allow for you to change a flat tire. The high lift jack is heavy so I recommend a side or rear mount for your high lift jack. That way it is easier to get it down if you need it. Make sure you have training on how to safely and properly use the high lift jack as it can be a tougher piece of equipment to use. (We have training in the members area on using the high lift jack for you.)

If trail riding is on the books, you will want to upgrade to a **WINCH**. A 9,000 pound capacity or higher is our recommendation to you. You want a bigger capacity Winch then what you will hopefully need. A stuck Jeep can weigh more and take more weight capacity to recovery, especially if you are stuck down in the mud. You do not want to worry if you are going to burn your winch motor up during recovery. You will need a winch bumper with this upgrade. There are many after market winch bumper upgrades, or if you have a JL Rubicon or upgraded JL you will have a steel winch bumper stock on your Jeep. (Jump into the Winch Training Class in the Members Area)

GO ONE STEP AT A TIME AND ONE PIECE OF YOUR BUILD
AT A TIME!

ENJOY THE ENTIRE PROCESS!!

Think about going one step at a time, one piece at a time for your build. You do not have to go out and do everything at once. Make sure to enjoy the entire process. You can go piece by piece, step by step, but just know all the pieces that you are going to add for that build before you get started. Just make sure it is all outlined on your list so that nothing is a surprise and you have all the details laid out and outlined upfront.



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