

INSTRUCTIONS

916-3903

©Speedway Motors, Inc., December 2008



INSTALLING A GASSER STYLE STRAIGHT AXLE

If you lack experience with chassis fabrication it is advisable to get a good book on chassis construction. It will familiarize you with basic info and terminology, frame mods & strengthening, alignment settings and suspension geometry, as well as brakes and steering systems. We have several good books available, I like "How to build a Hot Rod Chassis," and the "Chassis and Suspension" handbook. Or you can try your local library.

NOTE: This is a universal kit. It is not designed for a specific make, year, or model of vehicle. It has been used successfully on a wide variety of cars from '33 Willys to '63 Galaxies. It is the responsibility of the end user to provide the engineering and fabrication skills required for a safe and functional installation. Due to the universal nature of these parts it is not possible to provide exact dimensions or specific details regarding installation. These instructions are intended only as guidelines for the buildup.

1. Remove all of the original suspension components and prepare frame. Most people will remove the crossmember, box and gusset the frame rails, fill unused holes, add new motor mounts, close in the spring buckets, etc. Basically fill and smooth the frame rails to a nice 4" square for a clean cosmetic appearance.

Some people just unbolt the suspension and leave the frame alone in case they want to go back some day. It doesn't look as good (unless you are going for that "rat" look) and can make it more difficult to mount the new suspension components.

2. Clamp the spring pads onto the leaf springs and install the spring mount on one end of the spring. Many people will loosen the center bolt and remove all but the main leaf. This allows you to work through the trial assembly and mock up stage with a spring that is lighter to handle and compresses easily to check spring travel and shackle location etc.

NOTE: The spring mounts can go to the front or to the rear of the vehicle. (GM and Ford pickups had the mounts at the front, Jeeps had them at the rear.) The important thing to remember is that as the suspension compresses the spring gets longer. It will move the axle toward the shackle end of the spring $\frac{1}{4}$ " to $\frac{1}{2}$ ". Keep this in mind as you establish the wheels position within the wheel opening. The wheelbase of the vehicle is established by the position of the spring mount, not the shackle.

3. Determine the best way to mount your springs. Some secure the spring mounts under the front of the frame rails, others French the spring mount into the frame rail kickup and install the shackles up front under the radiator. Using a plumb bob, square, and tape measure make sure that spring mounts are perpendicular to chassis centerline. Temporarily bolt or tack weld spring mounts to frame.

4. Using a floor jack raise axle tube up into cradle of axle pads (kingpin bosses are angled in at the top). Double check that the axle is centered in wheel opening as desired.

5. Assemble spring shackle and shackle mount to springs. Determine the mounting position for the shackle mount. The shackle should be slightly off vertical (away from the axle) with no weight on front end. When the weight of the car is on the front end at normal ride height and the spring flattens out and gets longer the shackle should be at approximately a 30-45 degree angle. When the proper location is determined, temporarily bolt or tack weld the mount in place. Use the floor jack to raise the axle and compress the springs until the main leaf is flat and check travel and position of shackle. Double check that axle is centered in wheel opening when spring is at full compression.

6. Next is to properly locate the front axle from side to side. Center the axle on the leaf springs. Measure from the end of axle to leaf spring on both sides. Double check by measuring from the outside of frame rail to end of axle. Drop a plumb bob through the kingpin holes and measure back to rear end or rear suspension mounts on chassis. Measure each side and verify by cross measuring. When axle is centered in chassis and perpendicular to the chassis centerline temporarily install king-pins in top half of axle boss. The kingpins should be tilted toward each other at the top. Using an angle finder on the kingpin rotate the axle in the axle pads until you have 6-8 degrees of positive caster (kingpin angled back at the top). With everything in proper position, tack weld axle to the axle pads.

WARNING: Do not weld axle pads to axle with the vehicles weight on the front end! Heat from the weld can cause the axle to bow.

7. Time for the first trial mockup. Install spindles on axle. Install front hubs / rotors on spindles. Install wheels and tires of your desired size. Lower car to the ground until main leaf of front springs have only a slight arch.

CAUTION: If the engine is installed in the car and you are using only the main leaf for mock up purposes you will have to support the weight of the car with jacks, or re-install the removed spring leaves, to support the vehicles weight.

If the ride height is acceptable place the vehicle back on jacks, continue with step #8. If vehicle sits too high for your personal taste, you can either go to a dropped axle, re-locate the spring mounts, or have the springs de-arched.

8. Reinstall leaf springs and axle on vehicle. Jack axle up to normal ride height.

NOTE: If the drive train is installed in the vehicle and it is at or near its final running weight you can install only those spring leaves as necessary to obtain a slight arch in the springs with the vehicle weight on the front axle. Place jacks under axle to support the vehicle at ride height. Temporarily reinstall spindles and hubs. Leave wheels and tires off at this time.

9. Install steering arms on inboard side of the top mount holes of spindle, extending aft. Connect tie rod on the bottom side of steering arms (it may be necessary to use a 1/2" spacer between the arm and rod end in order to clear the leaf spring). Adjust tie rod so that the measurement between the left and right rotor in front of and behind the axle centerline are equal. Final toe-in of 1/16" will be adjusted at completion.

10. Install the tapered tie rod adapter stud on pitman arm of steering box with straight shank facing down. Connect drag link to pitman stud and to the top side of the R/H steering arm (again, a spacer will need to be used in order to clear the leaf spring) the steering arm will be sandwiched in between the tie rod and drag link. The 5/8" bolt on the R/H steering arm must be long enough to go through the drag link, steering arm, spacers (as required) and the tie rod. Use quality hardware on all front suspension components (grade 5 minimum, grade 8 preferable). Turn the wheel lock to lock to make certain there is no interference or binding of any steering components. Move suspension up and down a couple of inches, turn the wheel, and check for interference.

11. To fabricate shock mounts, start by measuring from top of axle tube to approximately the center of the frame rail directly above the axle, this is the installed length of the shock you need.. Go to your local NAPA or Advanced Auto parts store and find a shock that will equal that dimension. (Example: your measured installed length is 12". You find a shock which measures 10" collapsed and 15" extended. This puts it in the middle of its travel at ride height.) Or get a pair of our 582-sm500 chrome shocks if you prefer chrome. Attach two (2) of the 910-07225 mount tabs on the lower shock eye (1 on each side). Install one shock mount stud (910-36096) in upper shock eye. The lower mount tabs can be on the front or top of the axle tube, but often interfere with steering linkage if placed on the aft side of axle tube. Hold shock in position and determine the best location for the shock mount stud. Shock should be vertical or tilted back slightly at

the top (5 degrees). When proper location is determined drill a hole through the outside of the frame rail and install the upper shock stud. Position lower mount tabs on axle tube in desired location and tack weld in place. Check for interference during suspension travel and when turning the steering wheel lock to lock. Remove shock to finish weld tabs to axle. Again, do not weld on axle with the vehicles weight on the front end.

12. **RE-MEASURE EVERYTHING!** Make certain that axle is square and centered in car. Make certain that steering operates smoothly, with no interference or binding.

13. Fabricate replacement brake lines and hoses as required for your particular vehicle.

WARNING: Do not finish weld components to axle with the vehicles weight on the front end! Heat from the weld can cause the axle to bow.

14. Disassemble everything. Finish weld all components. If you lack the proper equipment or expertise, hire a certified welder to come in and finish all welding. Paint or plate components as desired. Reassemble front end using the instruction sheets provided with the kingpin and brake kits. Connect brake hoses and bleed brake system.

15. With vehicle complete, at normal weight, with steering wheel centered, at ride height adjust final toe-in (1/16" to 1/8").

16. **CAUTION,** vehicle may ride and handle completely differently than it did before. Use caution for the first few miles until you get used to the feel of your new Gasser.



Chevy spindle with heim joints



Ford spindle with heim joints



Ford spindle with tie rod ends

IMPORTANT

DISCLAIMER In an effort to offer our customers the low prices, quick service and great value, Speedway Motors reserves the right to change suppliers, specifications, colors, prices, materials. Each of the previous items is subject to change without notice. Speedway is not responsible for any typographical errors or misinterpretations. Quantities are limited on some items.

WARRANTY DISCLAIMER The purchaser understands and recognizes that racing parts, specialized street rod equipment, and all parts and services sold by Speedway Motors, Inc. are exposed to many and varied conditions due to the manner in which they are installed and used. Speedway Motors, Inc. makes no warranties, either express or implied, including any warranty of merchantability or fitness for a particular purpose other than those contained in its current catalog with respect to the goods identified on the face of the invoice. There is no warranty expressed or implied as to whether the goods sold hereby will protect purchaser or ultimate user of such goods from injury or death. Speedway Motors assumes no liability after this period.

DAMAGE CLAIMS Always inspect your package upon delivery. Inspect all packages in the presence of the delivery driver. The driver must note any damage. Ask the driver the Carrier's procedures for handling damage claims. You must hold the original box, packing material and damaged merchandise for inspection or the carrier will not honor the claim. Notify Speedway Motors customer service department for instructions on returning damaged goods. Speedway is not responsible if no notification is given within 5 days of receipt.

SHORTAGES Always check the contents of your delivery to insure all the parts that you ordered were received. Please read the invoice. Double check all packing materials, small items may be wrapped inside with these products. Shortages may occur from damage to the box, so save all packing materials. Inspect the box for holes that would allow parts to fall out. If you are missing any item(s) be sure to check your invoice for back orders or canceled items before calling the customer service department. If Speedway has to split a shipment into multiple boxes, packages may be delivered on different days. You need to contact the customer service department within 5 days of delivery to assure the prompt replacement. Speedway Motors assumes no liability after this period.

REFUSALS All refused COD customers will be billed a 15% restocking charge plus freight to and from the destination! If you have questions please contact Speedway's customer service department.

WARRANTY CLAIMS If an item has a manufacturer's warranty as being free from defects we will exchange only. If the item has been used and you are requesting warranty work, this may take up to 30 days as warranty work is done by the manufacturer NOT Speedway Motors. If you have any questions please contact customer service.

RETURNS Speedway wants you to be satisfied with your purchase. If within 30 days after you receive your shipment you are not satisfied, you may return the item for refund or exchange. All exchanged or returned merchandise must be in original factory condition with no modifications or alterations. Returned merchandise must include all packaging materials, warranty cards, manuals, and accessories. If the items being returned need to be repackaged there will be a re-packing charge. Repack the item in a sturdy box and include a copy of your invoice and complete the form on the back of the invoice. You must ship orders back **PRE-PAID. WE DO NOT ACCEPT COD SHIPMENTS.** All exchanges need to have reshipping charges included. Items that are returned after 30 days are subject to 15% restocking charges. All fiberglass returned will have 15% restocking charge. No returns on electrical parts, video tapes, and books. Absolutely no returns on special order or close out merchandise.

FREE CATALOGS Speedway Motors offers FREE catalogs for Race, Street, Sprint and Midget, Sport Compact and Pedal Car restoration.

**Some items are not legal for sale or use in California on pollution controlled motor vehicles. These items are legal in California for racing vehicles only which may never be used upon a highway.



Speedway Motors Inc., P.O. Box 81906
Lincoln, NE 68501 (402) 323-3200
www.speedwaymotors.com