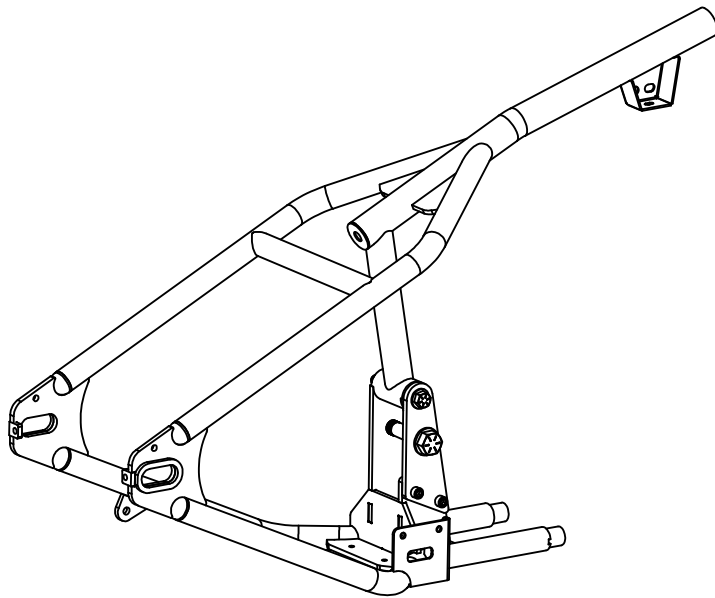


# Gasbox Weld-On Hardtail Rear Frame Section for 2004-2022 Harley Davidson Sportsters



For **2004-2022** Harley-Davidson Sportsters (Except Revolution Max engines).

- Converts the stock Sportster frame to chopper type hard tail rear section.
- The stock front frame section is retained with the steering neck that has the stamped VIN number so the frame conversion keeps the original VIN number and title. This front section and title are not included with the hardtail.
- Highest quality available with perfect fit and finish.
- Made In Cleveland, Ohio, USA.



The Gasbox hardtail frame conversion kit is engineered using the latest CAD technology for high strength, a perfect fit and easy installation. The backbone is thick walled 1-5/8" steel, lower tubes are CNC bent thick walled 1-1/4". The seat post is 1-1/2" diameter. The unique rear engine mount eliminates the stock rubber mounts and cleans up the design for a lean chopper look. All plates are precision CNC laser cut and TIG welded.

Installation involves measuring and marking the stock frame for where to cut, cutting off the rear frame section, bolting in the engine to be used as a welding alignment fixture, and welding the hardtail in place to the stock front frame section. The engine is then removed to finish some frame welds and painting. Tools required will be a cut-off wheel or saw, disc sander for weld prep and paint removal, and a TIG or MIG welder. Inexperienced builders may cut and assemble the frame themselves, and have an experienced weldor do the welding if they feel their welding skills are not up to the task.



ALL PARTS AVAILABLE AT:  
[www.lowbrowcustoms.com](http://www.lowbrowcustoms.com)

# Weld-On Hardtail Features

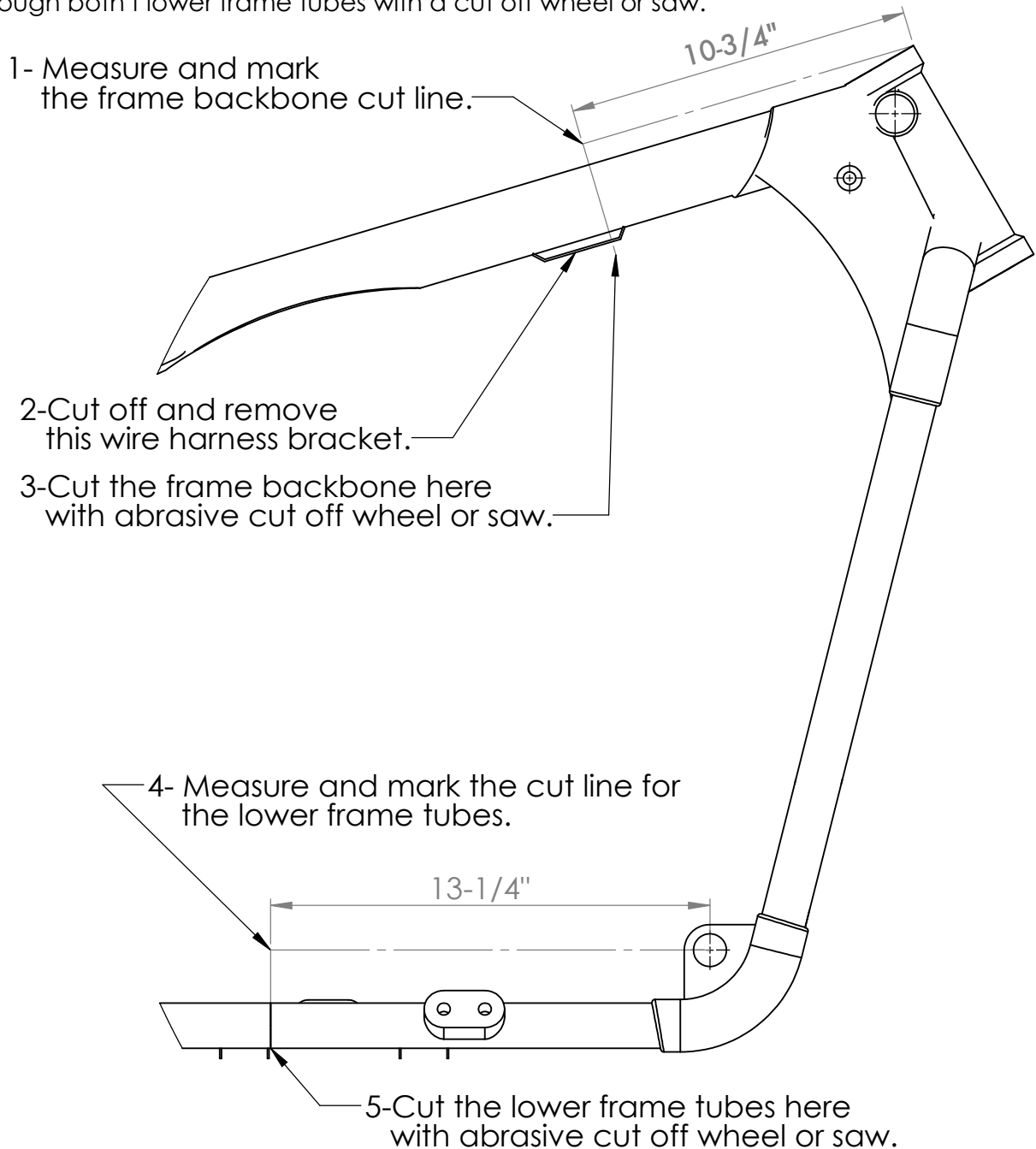


- The hardtail kit eliminates the rubber mounts on the engine and converts the frame to a classic rigid chopper rear end with solid mount engine:
  - The kit comes with spacers and hardware to solid mount the **rear** of the engine.
  - To solid mount the **front** of the engine, a front solid motor mount kit will be required (Lowbrow Customs #014246).
  - To solid mount the **top** of the engine, a bracket such as Gasbox # 003998 will be required.
  - The two stock front rubber mounted rods and brackets will be eliminated as the engine will now be solid mounted.
- The hardtail is designed to fit stock 2004-2020 Sportster rear wheels with 1" or 25mm axles. (2004 stock rear axles measure 3/4" and will need the 2005-UP rear wheel.)
- The hardtail is designed to use the stock length rear axle, eliminating the need for a custom rear axle length. The axle plates are thick, heavy duty, with TIG welded *doubler* plates for the axle head and axle nut. This localizes any paint scratches from axle tightening to the doublers and away from the axle plates.
- The rear brake will require a rigid-type disc brake caliper mount to pivot on the axle with an anchor rod bolted to the frame, as the stock swingarm mounted caliper bracket will not fit. A brake rod tab is included with the hardtail kit to weld into place.
- Bracket for a rear brake master cylinder Lowbrow Customs #011468 (Harley OEM# 42456-87C) is pre-mounted. This will allow either stock Mid footpegs and brake pedal or stock forward mount pegs, with appropriate length brake rod. The stock rear brake master cylinder and bell crank are removed and not used.
- Belt to chain final drive conversion is required because of the 2" stretch.
- The hardtail retains the stock kickstand, Mid footpeg mounts and stock forward control (foot rest) mounting points.
- The hardtail frame conversion retains the stock front half of the backbone with 2-1/8" diameter tube, gas tanks will need to fit this backbone size. Good choices for gas tanks are 2004-UP stock carburetor or EFI gas tanks (or other tanks with this style of mount), or Frisco tanks such as Lowbrow Customs #004530 or other Frisco style tanks. Frisco style tanks mount *above* the backbone and don't use a deep tunnel. Mounts will need to be welded in for the gas tank.
- The backbone tubes are hollow to allow wires to be routed through the frame.
- Frame is pre-drilled to fit Gasbox #013519 battery box adapter plate to mount the Gasbox #009408 Universal Battery Box. This adapter plate comes with a bracket for lower rear fender mounting.
- The axle plates are pre-drilled for sissy bars or rear fender mount struts, a good choice for a fender mount bracket is Lowbrow Customs #008626 Weld-On Fender Mount Tab.

# Measure and Cutting the Frame



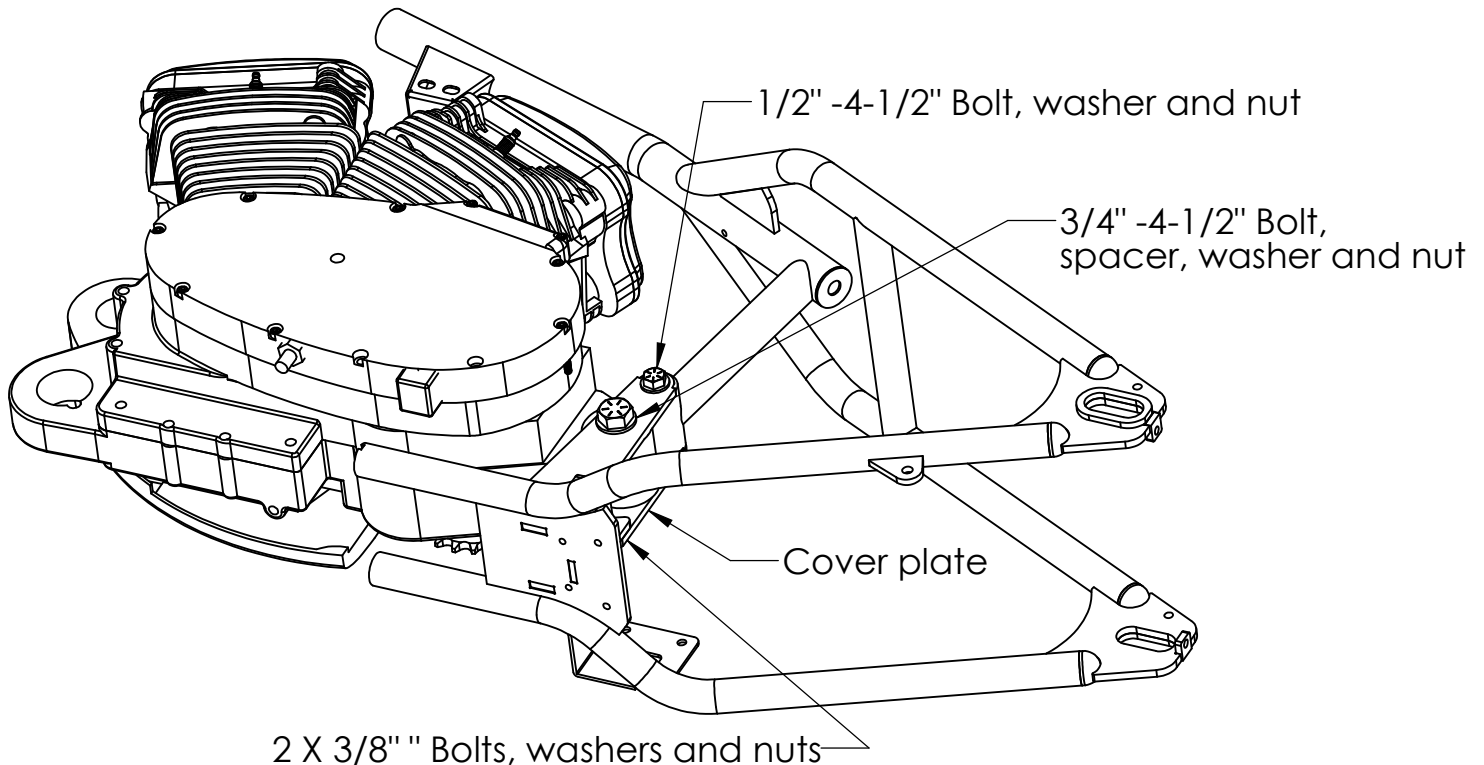
- Cutting the frame and welding the hardtail requires a frame with engine and all components removed.
- Carefully measure the backbone cut line as measured from the front top of the steering neck as shown. Measure along the backbone, the cut will be perpendicular to the frame tube. Mark or scribe the frame backbone for the cut, masking tape and marker works well.
- Cut off and remove the wire harness bracket on the underside of the backbone.
- Cut through the frame backbone with an abrasive cut off wheel or metal saw.
- Measure from the center of the lower engine mount hole rearward along the frame and scribe or mark the cut line as shown. The cut line will be just in front of the lower U-shaped cross member.
- Cut through both of lower frame tubes with a cut off wheel or saw.



# Assemble the Engine and Frame Parts



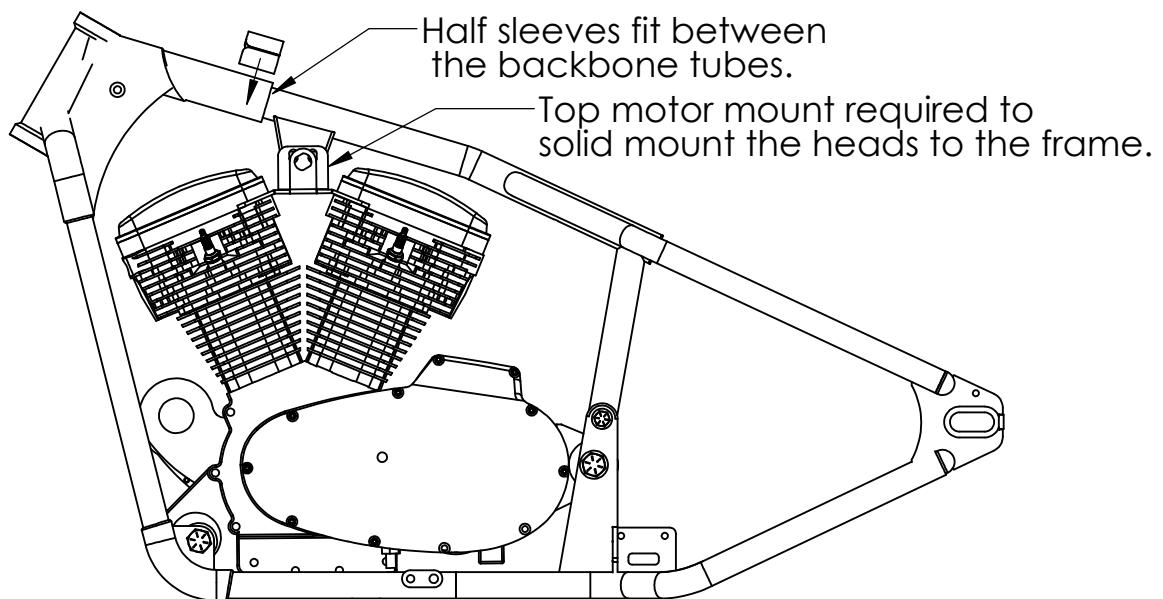
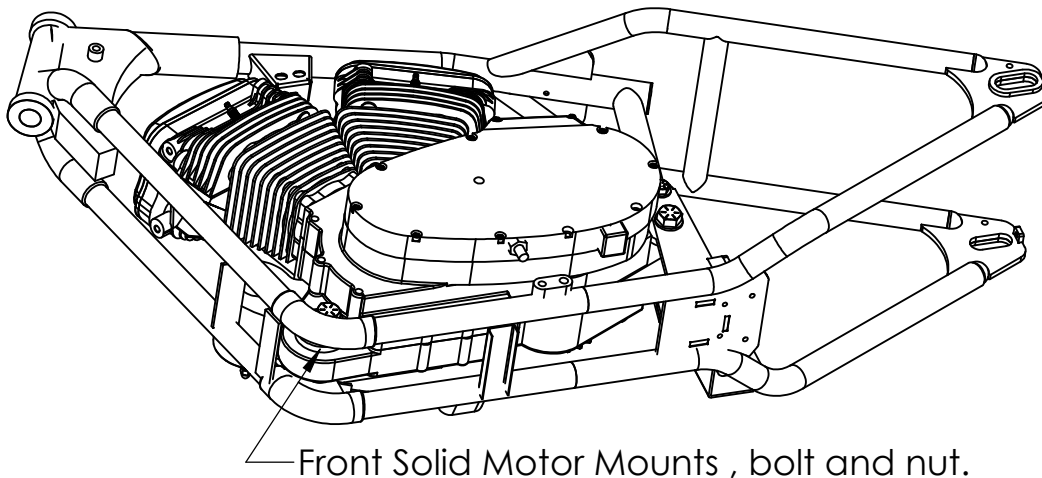
- **Prep** the front frame section by sanding away paint and any rust from the weld areas, deburr the inside of the tubes.
- **Prep** the engine for assembly and welding by draining the oil, removing the intake manifold, the belt drive pulley cover and the pivot tube for the swingarm. Avoid pinching or cutting oil lines or wires, tape or tie them out of the way when handling the engine. The engine will need to be laid down on it's side, protect the cases with tape and lay the engine down on cardboard so it doesn't get scratched.
- **Assemble** both frame halves and the engine. The front and rear frame parts will be bolted to the engine, the engine will serve to hold and align the frame halves for welding. The hardtail has an extended backbone to slide into and center the backbone for welding, and the hardtail lower frame tubes have bungs to insert into the lower frame tubes to center the tubes and strengthen the weld joint.
- Support the engine laid down on its right side (horizontal) on blocks of wood. Two stacked 2X4" blocks to support under the countershaft and rear head, and the same under the front head.
- Carefully lay the rear hardtail section down over the engine and line up the rear engine mount hole to the crankcase hole where the swingarm pivot came from. Install the rear engine spacer into the engine case and align with the hardtail hole. Install the 3/4" X 4-1/2" bolt, cover plate, 1/2" bolt and 3/8" bolts. Leave the bolts finger tight at this time.



# Assemble the Engine and Frame Parts



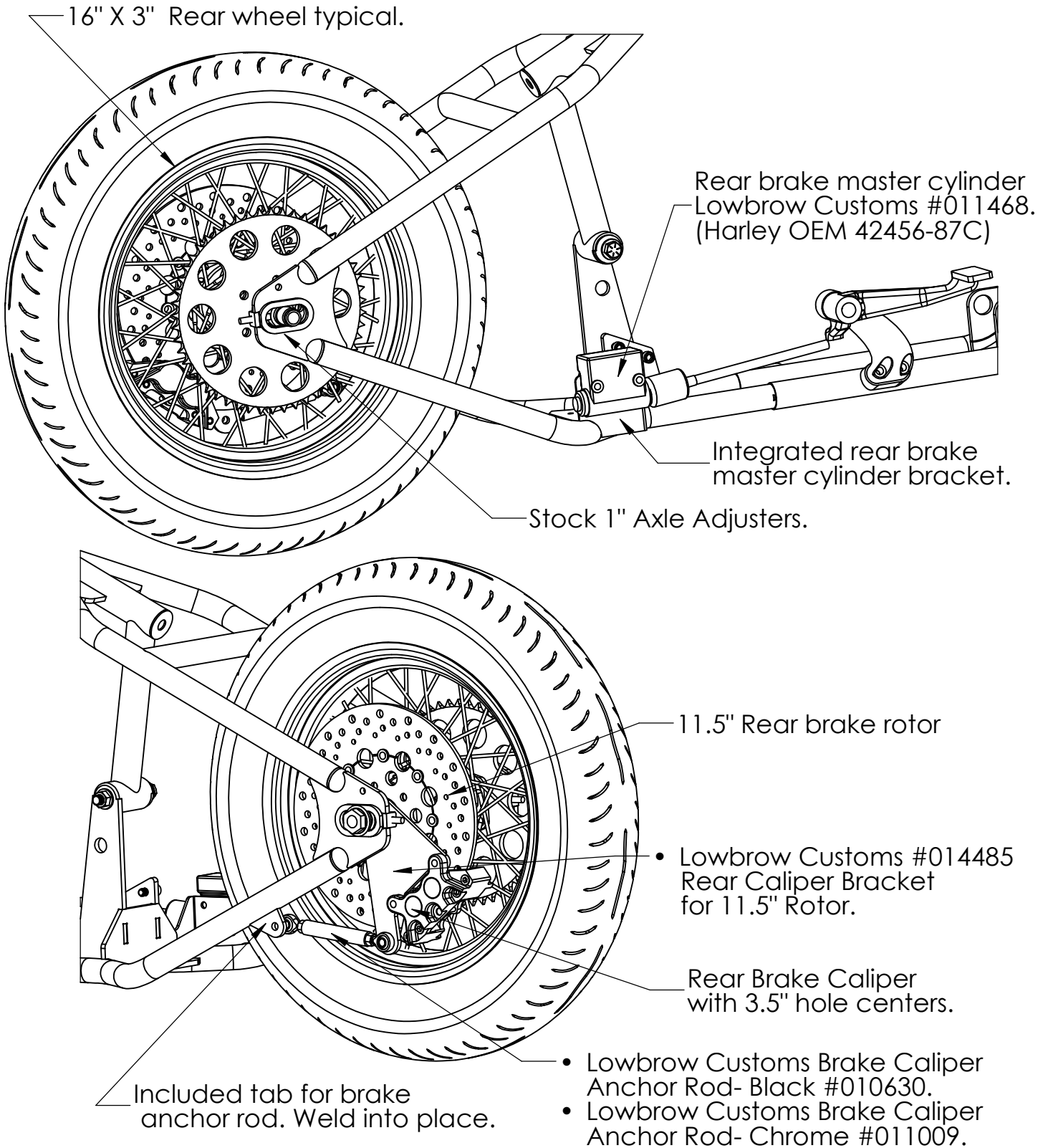
- Fit the front frame section to the hardtail. Fit the backbone first, then slide the lower tube bungs into the lower frame tubes.
- Install the aluminum Front Solid Motor Mounts and bolts, finger tight.
- Raise the engine and frame upright, then fit the two half sleeves between the hardtail backbone and frame backbone, these will center and align the backbone tubes for welding. Install the first half sleeve, rotate to the bottom, then install the second sleeve. Use a punch or flat screwdriver and hammer to move the sleeves into place.
- Install the top motor mount to solid mount the heads to the frame. Tighten all mounting bolts around the frame. The engine and two frame halves are now firmly bolted together and aligned. A small gap between the lower tubes will allow welds to penetrate down into the bungs and the tubes together.
- Weld the frame parts together as much as is accessible. Best practice is to place heavy tacks at each tube joint first, then go back and finish weld.
- Unbolt and remove the engine to finish weld around all of the tube joints.



# Rear Wheel and Brake



- The rear axle plates accepts a 1" or 25mm stock axle.
- Center the rear wheel in the frame with suitable 1" axle spacers.
- Use lock nuts or thread lock on all brake components.

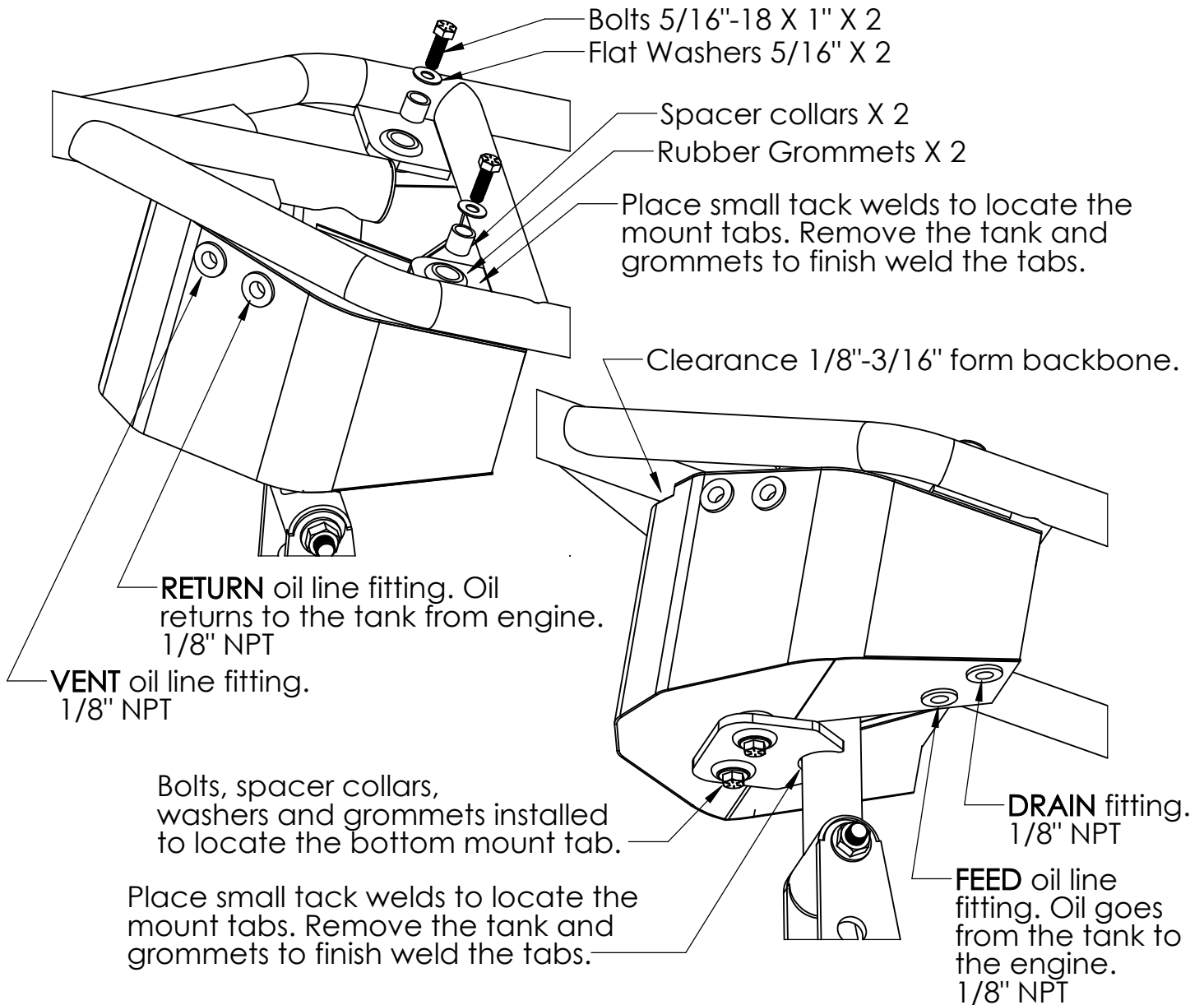


# Sportster Horseshoe Oil Tank



**Lowbrow Customs #010404.** The tank kit has mounting tabs that requires welding to the frame to complete installation:

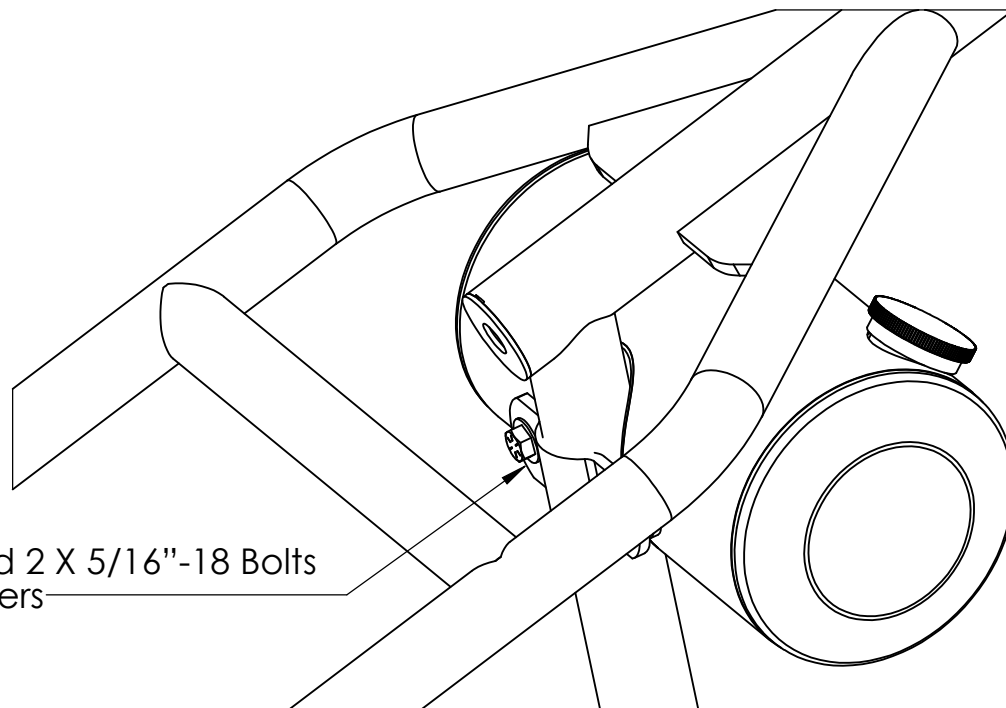
- Install the top and bottom mount tabs on the oil tank with the supplied rubber grommets, spacer collars, bolts and washers.
- Position the top of the tank for clearance to the frame backbone, typical clearance is 1/8"-3/16". Remove and trim the tabs as needed to fit between the frame tubes.
- Place small tack welds to secure the mount tabs. Too much heat will melt the rubber grommets, so take your time.
- Remove the tank and grommets to finish weld the mounting tabs.



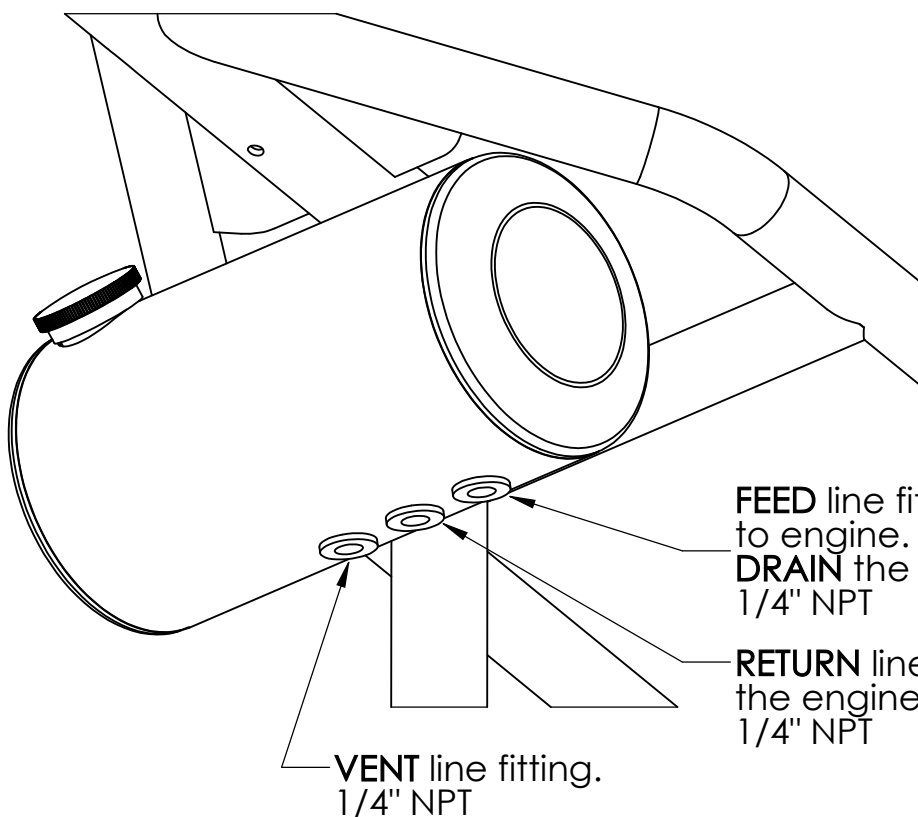


# Clamp On Sportster Oil Tank

- Lowbrow Customs #012459 Dished Clamp-On Steel Oil Tank.
- No welding is required to mount tank.
- Clamps onto any seat post with a diameter of 1-1/2".



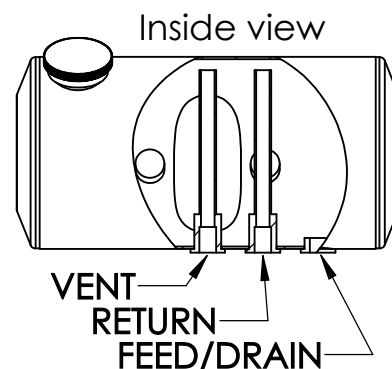
Clamp and 2 X 5/16"-18 Bolts and washers



VENT line fitting.  
1/4" NPT

FEED line fitting. Oil goes from tank to engine. Remove this line to DRAIN the oil tank.  
1/4" NPT

RETURN line fitting. Oil goes from the engine into the tank.  
1/4" NPT



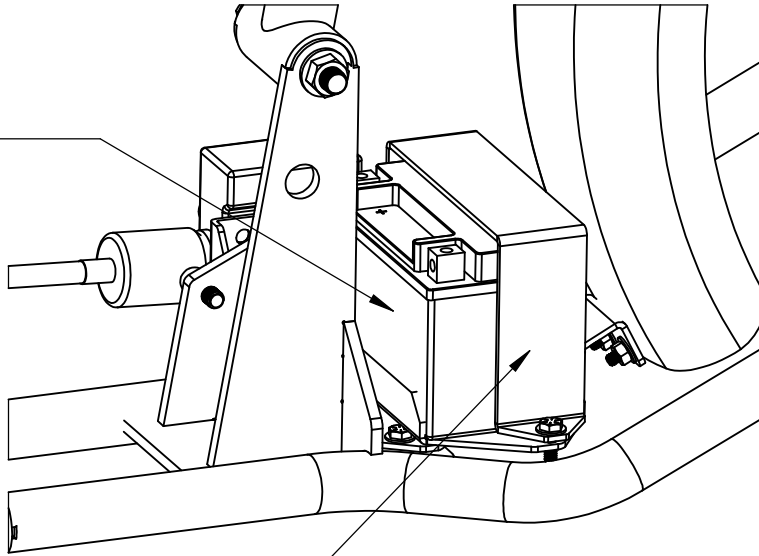


# Battery Mounting



- The hardtail has holes pre-drilled to install Gasbox #013519 Battery Box Adapter Plate to mount the battery in front of the rear fender.
- The adapter plate can fit:
  - Gasbox #009408 Universal Battery Box for YTZ-12S electric start battery.
  - Gasbox #004489 Antigravity 12 Cell Universal Battery Box.
- The adapter plate has an adjustable tab for rear fender mounting.

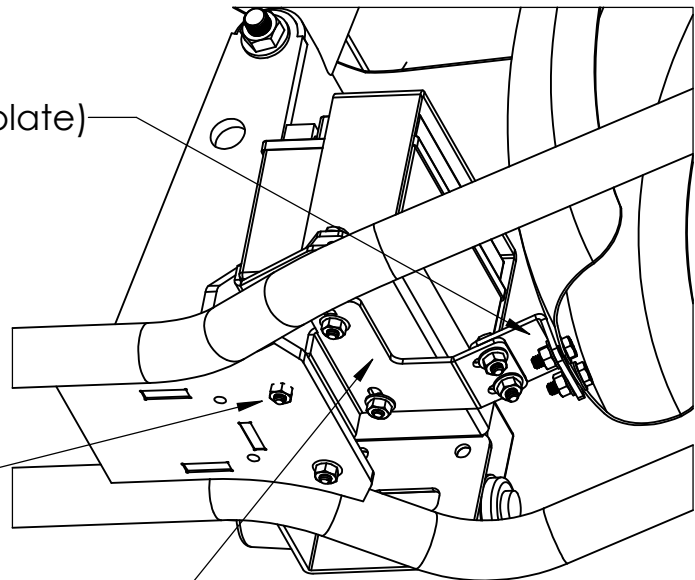
- Lowbrow Customs #013002 YTZ-12S AGM electric start battery.
- Lowbrow Customs #002656 Antigravity 12 Cell Lithium battery.



- Gasbox #009408 Universal Battery Box for YTZ-12S electric start battery.
- Gasbox #004489 Universal Battery Box for Antigravity 12 Cell Lithium battery.

Rear fender mount tab  
(comes with the adapter plate)

All hardware 1/4"-20



- Gasbox #013519 Battery Box Adapter Plate.

# Fender Mounting



- There are many options for rear fender mounting, three versions are shown:
- Use lock nuts or thread lock on all fender components.

- Gasbox #011897 Box Tail Light  
Universal Fender Mount Bracket.

- Gasbox #010566 Shorty DIY Sissy  
Bar Kit.

- Lowbrow Customs #002715 Box  
Chopper Tail Light.

- Lowbrow Customs  
#008626 Weld-On  
Fender Mount Tab

Upper Sissy Bar bolts 5/16"

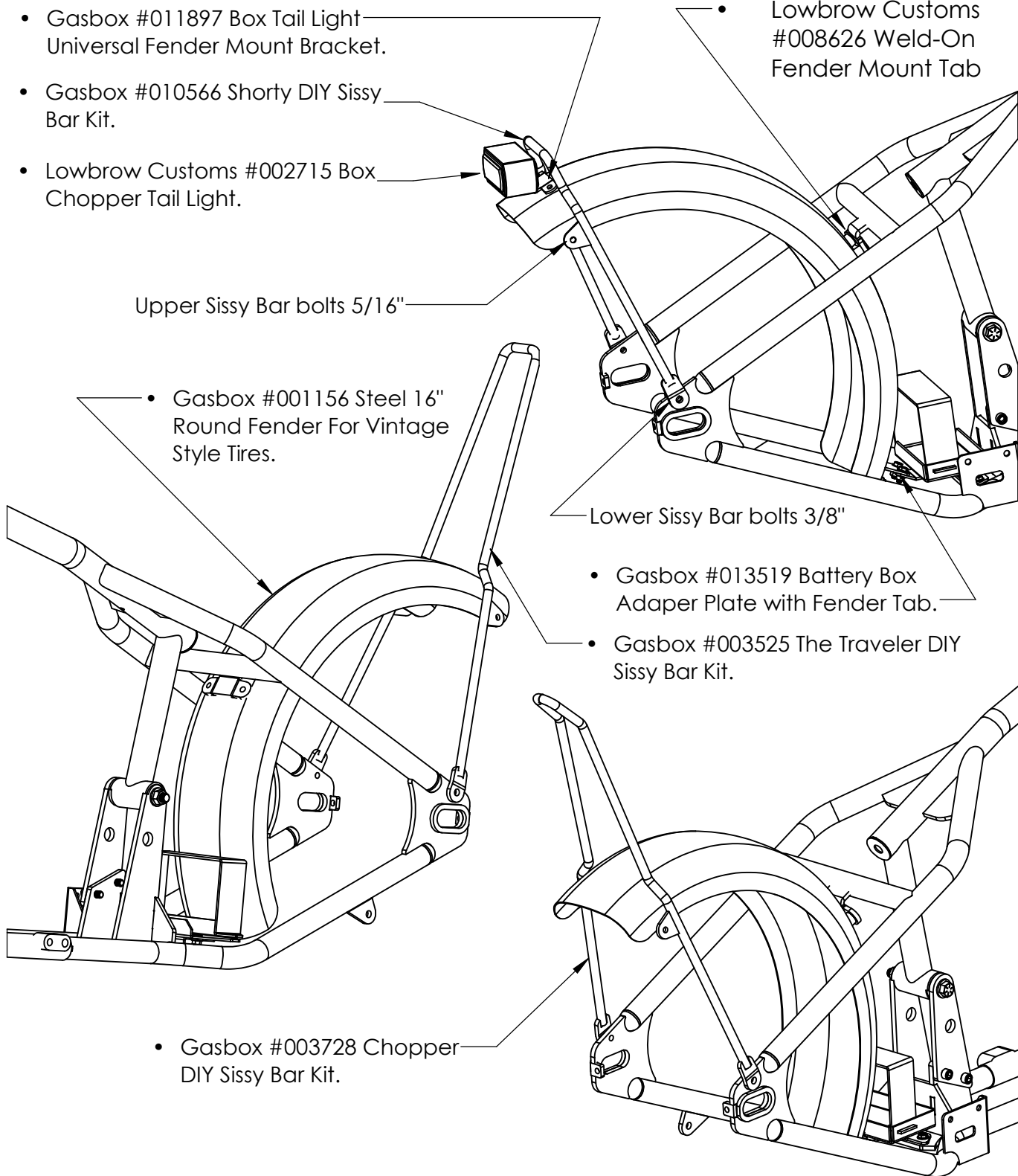
- Gasbox #001156 Steel 16"  
Round Fender For Vintage  
Style Tires.

Lower Sissy Bar bolts 3/8"

- Gasbox #013519 Battery Box  
Adaper Plate with Fender Tab.

- Gasbox #003525 The Traveler DIY  
Sissy Bar Kit.

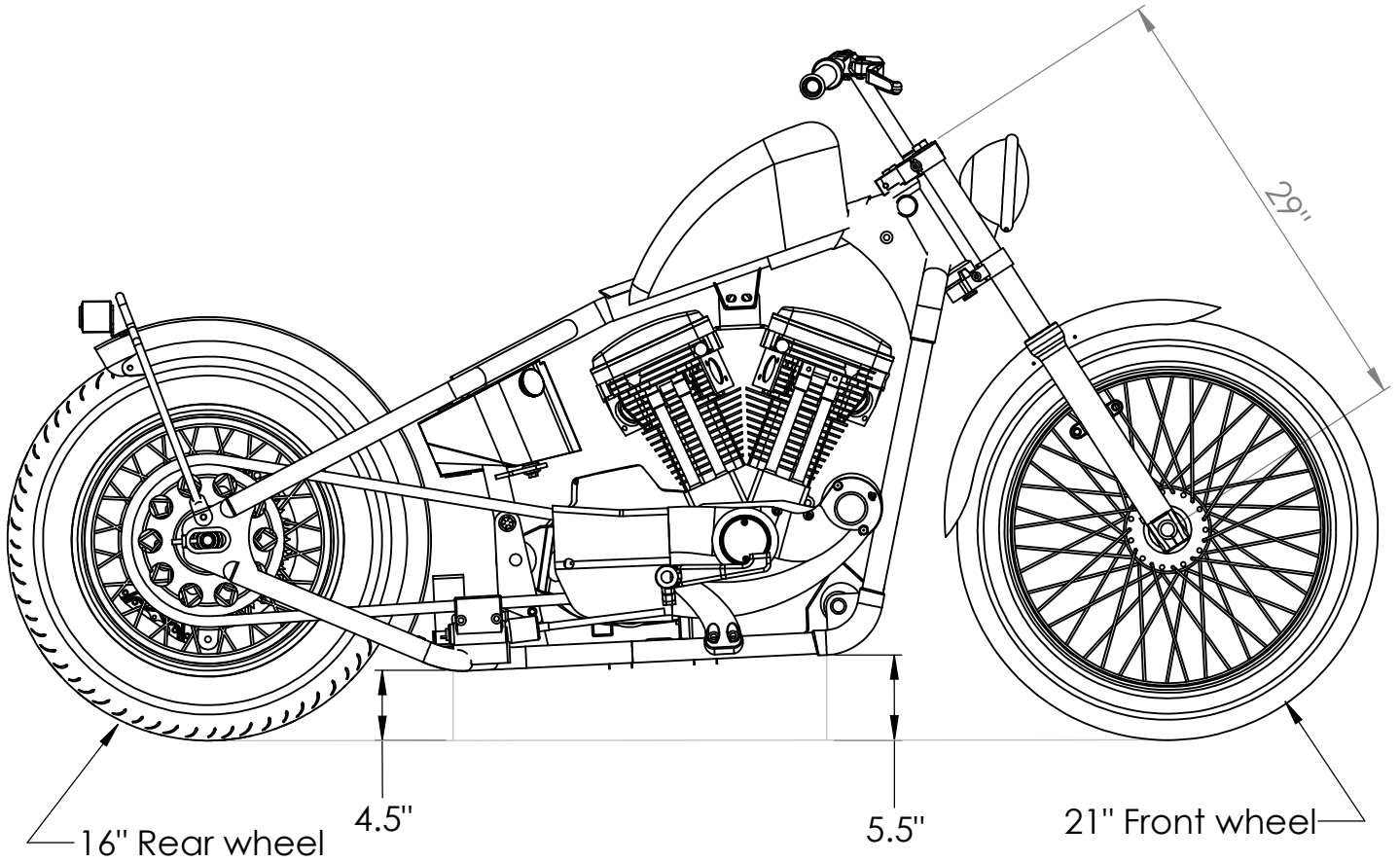
- Gasbox #003728 Chopper  
DIY Sissy Bar Kit.



# Stance



Fork length sets the stance of the motorcycle. 2", 4" and 6" over Sportster fork tubes are available at Lowbrow Customs. A one inch rise from the rear to front of the lower frame tubes is recommended.

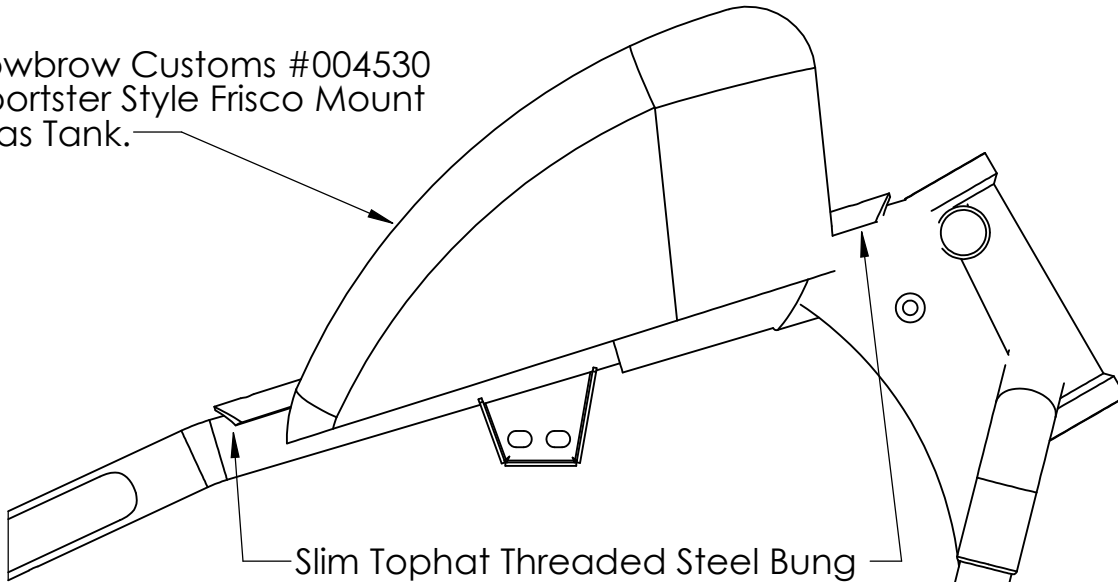


# Gas Tank Mounts



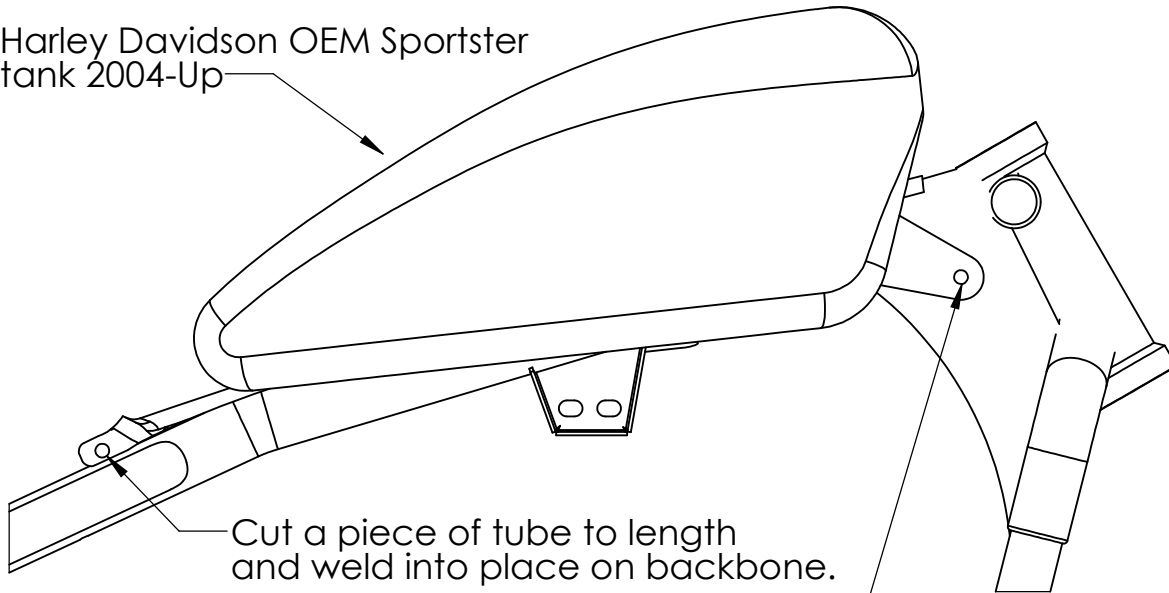
Mounts for the gas tank will need to be welded in. Shown are two styles of tanks:

Lowbrow Customs #004530  
Sportster Style Frisco Mount  
Gas Tank.



Slim Tophat Threaded Steel Bung  
5/16"-18 Lowbrow Customs #003730.  
Drill hole in the backbone tube  
and weld into place.

Harley Davidson OEM Sportster  
tank 2004-Up



Cut a piece of tube to length  
and weld into place on backbone.

Stock mounting bung on frame.

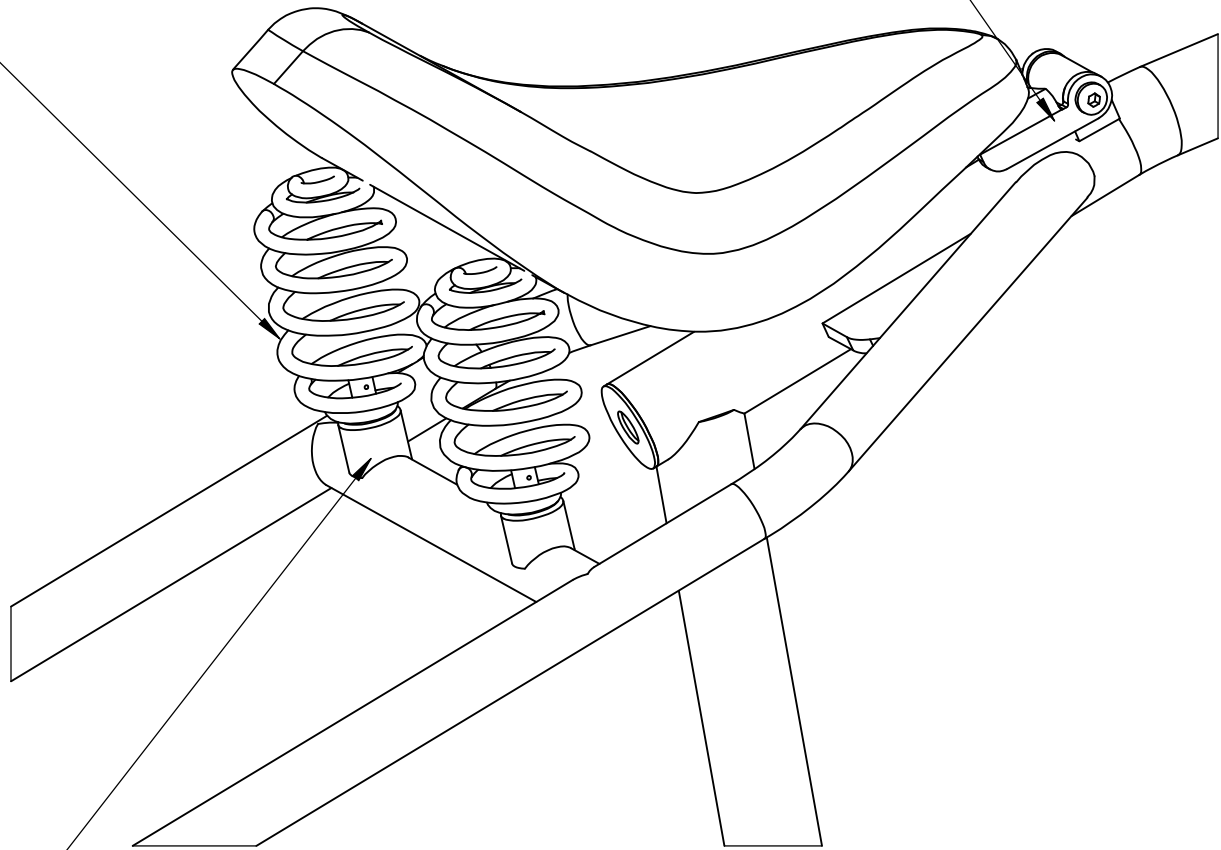
# Seat Mounting



- There are many options for seats, one option is shown:

- Lowbrow Customs #009495 Black Steel Solo Seat Hinge/Pivot Bracket Weld-On.

- Lowbrow Customs #001475 Solo Seat Springs- Barrel Style- 3 Inch chrome



- Lowbrow Customs #000456 Solo Seat Weld-On Spring Mounts/Perches