AP MLT

ALL-PRO MODULAR LONG TRAVEL KIT

INSTALL INSTRUCTIONS

FOR 2005-2023 TOYOTA TACOMA

PART 3 - FRAME PREPARATION
PART 4 - FRAME PLATING
PART 5 - WELDING AND BULKHEAD WORK

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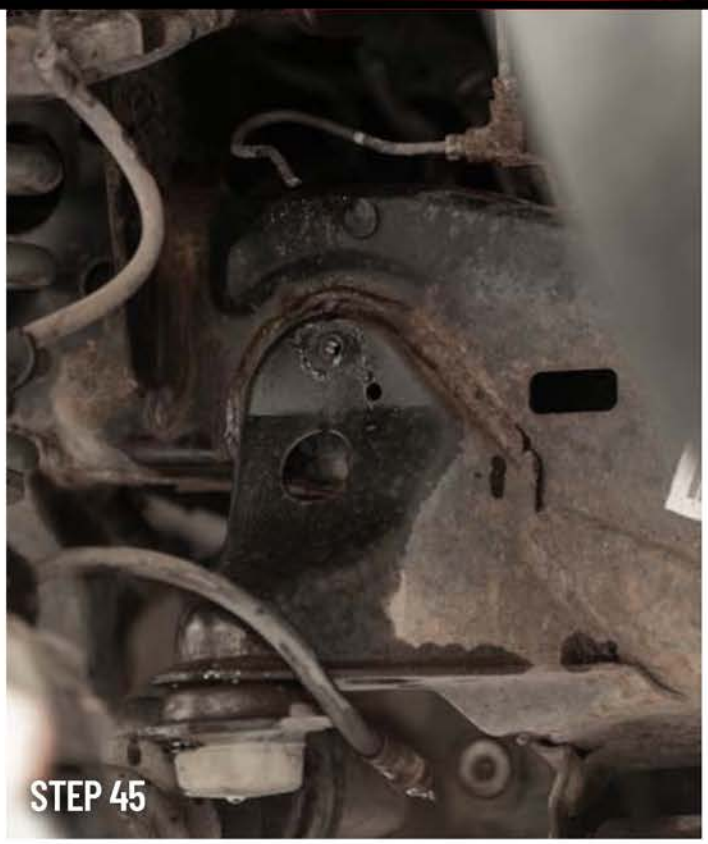
AP-313144

PART 3 - FRAME PREPARATION:

STEP 45

Cut and bend brake lines on the hard line below the 90 degree fittings. Bending it 180 degrees and folding it over seems to work best for keeping grinding dust out of the brake system without having something extra in the way.



STEP 46

Unbolt 90 degree brake fittings from frame and zip tie brake lines out of the way.

STEP 47

Zip tie all lines and other hazards out of the way to prepare for frame cutting.

STEP 48

Depending on factory options and aftermarket wiring, your truck may vary. Please check thoroughly on your specific truck for any hazards. A typical list is below:

a. Electrical lines
b. Coolant lines
c. AC lines
d. Brake lines
e. Ground cables to stock shock tower
f. Plastic clips or covers

PART 3 - FRAME PREPARATION:

STEP 49

Draw cut lines as shown below on all areas to be removed or trimmed.

a. This step and subsequent cut quality is essential for a clean install of the overall kit.

b. LCA mounts are removed completely

c. Front crossmember is removed completely

d. Top coilover mount and UCA mount are removed completely

e. Bumpstop mount will be removed entirely from the frame

f. All parts to be removed are to be made as flat as possible with core frame rails

g. Try not to cut into the main frame rails, even though they will be plated in this kit, they will be used for alignment of welding

PART 3 - FRAME PREPARATION:

STEP 50

Cut with angle grinder and Sawzall

a. A 6 inch Sawzall blade seems to work best, it misses essentials behind a lot of the cuts and makes quick work of odd geometries

b. Cutting is entirely possible with just an angle grinder (we did it on our initial prototype to check), you will just need to take your time and cut sections off at a time

c. Plasma cutters should only be used by experienced installers / users, as the heat from a plasma can damage many important parts attached to the engine behind the parts being cut

PART 3 - FRAME PREPARATION:

STEP 50 - CONT.

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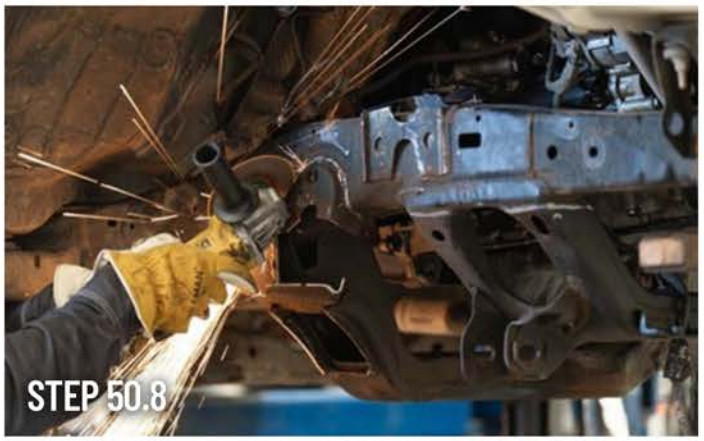


PART 3 - FRAME PREPARATION:

STEP 51

Clean frame rails with a flap disc to prepare for frame plating and welding

a. Flap disc can be used for the top of the frame rails and anywhere that there used to be a metal bracket to bring it even with the frame rail

b. A paint removal disc can be used on the rest of the frame area to be welded, it will allow faster removal with relatively little material removal from the frame rail itself

c. Top of frame will need to be as flat as possible to allow for better alignment of bulkhead

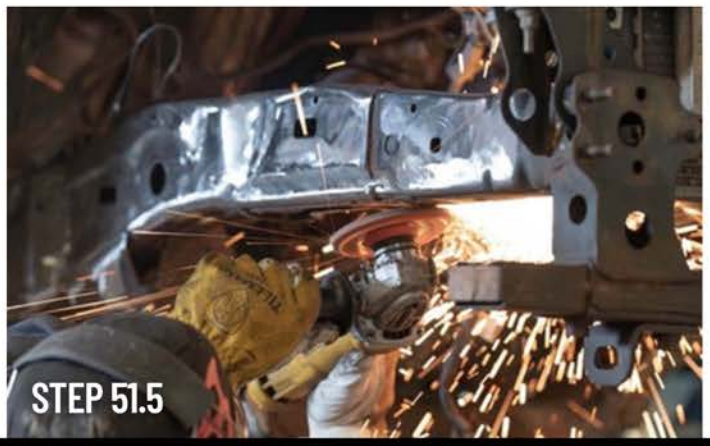
d. Small pieces of front crossmember that are left on the inside of the frame can be difficult to access, but the more of this material that is removed, the easier the welding process is. We recommend the frame is as clean as you can reasonably get it without going into the base material.


STEP 51.1


STEP 51.2


STEP 51.3


STEP 51.4


STEP 51.5


STEP 51.6

PART 4 - FRAME PLATING:

STEP 52

Tack weld main frame plates on both sides, aligning it as shown in the picture below

a. As shown in the pictures, ensure the plate is centered on the frame and the kit will sit flat on the frame.

b. The gap on the top and bottom of the frame needs to be approximately even


STEP 52.1


STEP 52.2


STEP 52.3


STEP 52.4


STEP 52.5


STEP 52.6

PART 4 - FRAME PLATING:

STEP 53

Tack weld in the LCA cover plates, making sure they are as close to vertical as possible. These are an aesthetic plate that is visible in the final product, so please take some time to make sure this is straight.

STEP 54

Finish weld the LCA cover plates into place, grind as desired.

PART 4 - FRAME PLATING:

STEP 55

With the main frame plate aligned, weld to the frame entirely

a. All edges should be welded, as well as all slots

b. This plate, while not the only welding surface for the kit, is the main backing for the final kit. Please take care to weld sufficiently.

PART 4 - FRAME PLATING:

STEP 56

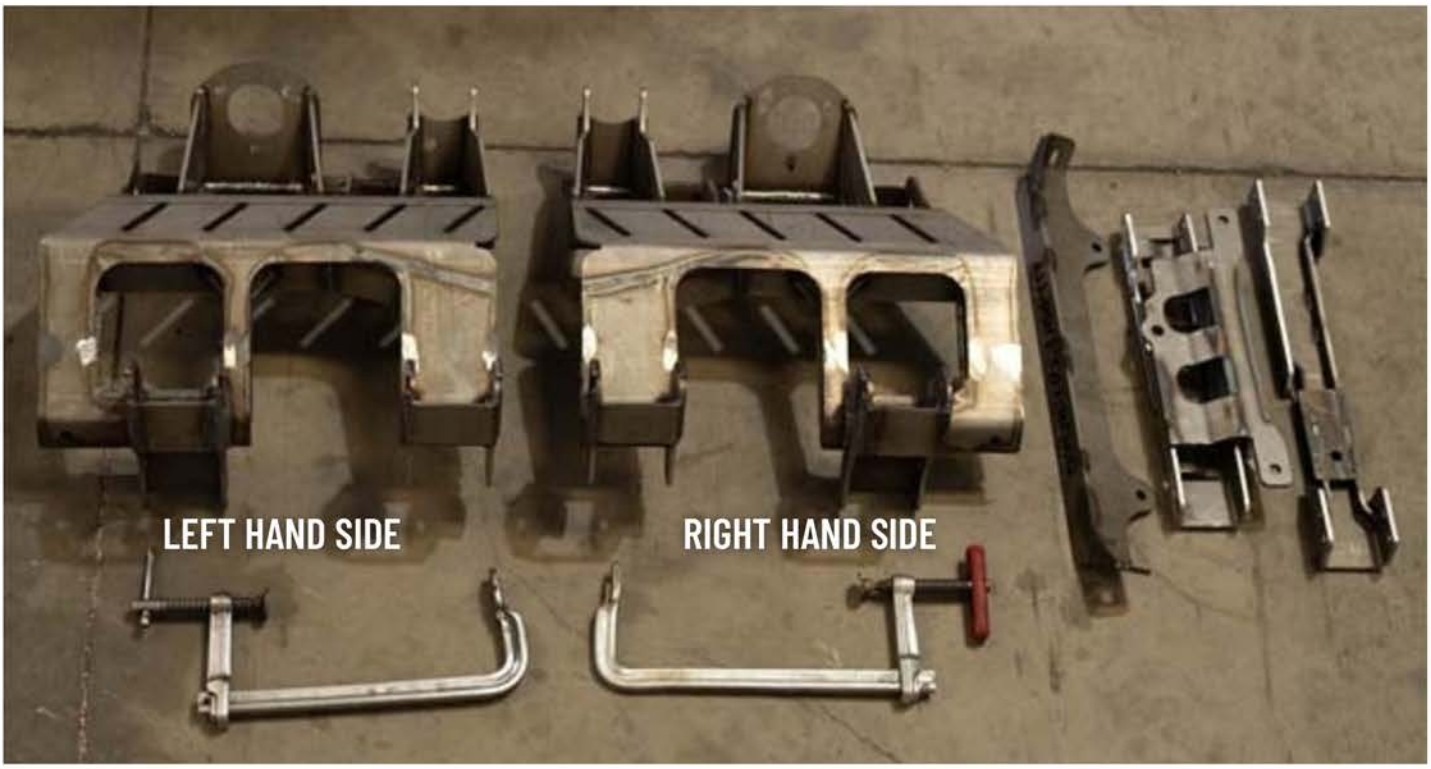
Grind the main frame plates flat, making sure that no welds sit above the surface of the plate


STEP 56.1


STEP 56.2


STEP 56.3

PART 5 - WELDING AND BULKHEAD WORK:



STEP 57

Test fit the bulkhead halves to determine if there are any interferences, removing and grinding more as necessary. The corner where the bulkhead plate meets the stock crossmember is typically the worst point, pictured below. The bulkhead halves should fit against the frame well, with little to no gap to the factory rear crossmember and little to no gap to the frame rail itself. There will also need to be some minor trimming on the inner fender as pictured.

PART 5 - WELDING AND BULKHEAD WORK:

STEP 57 - CONT.


STEP 57.4

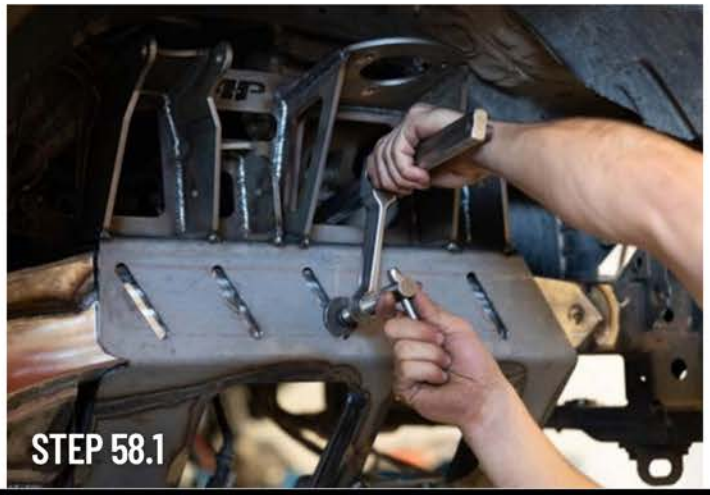

STEP 57.5


STEP 57.6


STEP 57.7

STEP 58

Clamp the bulkhead halves to the frame lightly, just enough to keep them in place.

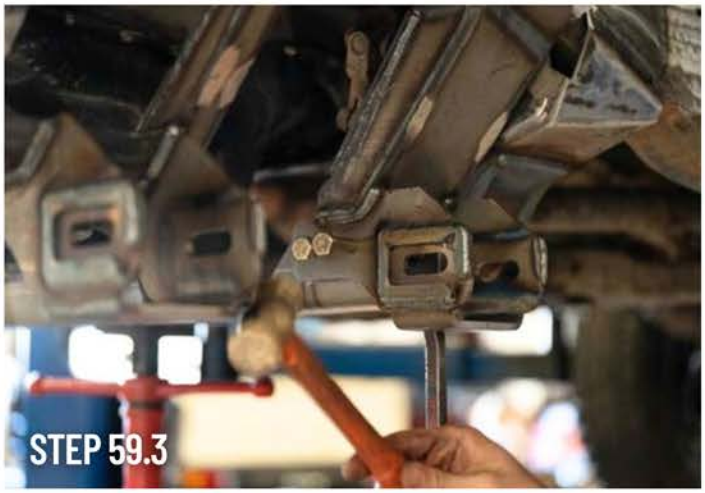

STEP 58.1


STEP 58.2

PART 5 - WELDING AND BULKHEAD WORK:

STEP 59

Install all three crossmembers using the provided hardware. These bolts are made to fit very tightly, so a brass hammer is recommended for installation.



STEP 60

Snug down all the bolts in all 3 crossmembers, this will lock the bulkhead assembly in place for tacking and welding.

STEP 61

Adjust the bulkhead assembly as necessary to make sure it is straight on the frame and even from side to side.

PART 5 - WELDING AND BULKHEAD WORK:

STEP 62

Measure as shown below in several places. This step is absolutely crucial for final alignment.

a. The bulkhead should sit evenly front to back, side to side, and top to bottom on the frame.


STEP 62.A1


STEP 62.A2

b. It should come as close as possible to the factory rear crossmember, not to exceed approximately 1/8" gap unless you are installing with an abnormal front stretch. If the rear crossmember is almost touching the bulkhead, we expect it to be approximately 3 inches forward from stock, allowing for larger than stock tire sizes.


STEP 62.B1


STEP 62.B2


STEP 62.B3


STEP 62.B4

PART 5 - WELDING AND BULKHEAD WORK:

STEP 62 - CONT.

c. The sides of the bulkhead should be vertical relative to the frame of the truck. We cannot predict how far from vertical your truck can be without causing alignment issues, so please take your time on the bulkhead alignment.


STEP 62.C1


STEP 62.C2


STEP 62.C3

d. The top of the bulkhead is designed to be 90 degrees to the side of the frame. If the bulkhead does not easily slide on the frame, this can cause deformation. The top being at 90 degrees is also imperative to the final alignment of the vehicle.

e. Please measure to the front of the frame and to the rear of the frame, gathering several reference points before tack welding. We have found several inconsistencies in factory frame locations, so please be sure you are measuring off of consistent points. Factory crossmembers have been our most consistent reference, both in the front and to the transfer case crossmember.


STEP 62.E1


STEP 62.E2


STEP 62.E3


STEP 62.E4

PART 5 - WELDING AND BULKHEAD WORK:

STEP 63

Tack weld the bulkhead to the frame of the truck

PART 5 - WELDING AND BULKHEAD WORK:

STEP 64

Check alignment once again, confirming that the bulkhead is in the correct position when the clamps are removed.

a. If at all hesitant about your alignment, please skip ahead in this instruction manual and test fit your arms. You can temporarily install the LCA and UCA bolts, bolt in the Spindles, and take a camber and caster measurement off of the hub mounting surface. This is the only way to be certain of your final alignment.

b. We provide our custom alignment tabs for final adjustments which allow more than ½" of camber adjustment at the LCA in both directions

c. Our alignment range is approximately 4 to 7 degrees of caster at ride height and relatively neutral camber. The larger the tire size, the more caster you will need. 4 degrees is recommended for the smaller tires, 5 is recommended for the 35s / 37s and 6+ is recommended for 40s and above.

STEP 65

Position and tack in the frame fill plates provided with the kit.

a. Large plates with the circular cutout go along the rear crossmember to the stock rear crossmember in the truck. This is the only structural fill plate set, gaps ideally are to be kept to a minimum.

b. Small plates fit into the gaps along the frame as pictured below. The small rectangular plates provided go on the front and back at the top of the OEM frame.

c. These plates provide additional support, as well as for water sealing / rust prevention. Tack weld where they fit best, allowing for a full weld completely sealing the area that they cover.


STEP 65.1


STEP 65.2

PART 5 - WELDING AND BULKHEAD WORK:

STEP 66

Finish weld in both the bulkhead halves and all the fill plates. Heat can be a problem during this process, so please alternate sides, take breaks, and keep a close eye for fire hazards.

a. a. Diagonal plug welds can be ran slightly hotter than the edge welds as you have 3/16" more material between the bulkhead half and the OEM frame.

b. Edge welds can cross thinner areas in the OEM frame and blow through, so please watch for holes / single layer sections / etc.

c. Welds on the inside of the frame are sometimes hard to get to depending on engine package and welding equipment. The goal should be to get to as much of the frame as possible, but small gaps in welding on the inside of the frame are permissible. These gaps will need to be sealed with silicone after painting for water ingress / rust.

d. Crossmember fitment is dependent on warping during this weld process. Excessive warping can cause crossmembers to need significant force for removal/installation in the future.