



'63 - '72

CHEVROLET C10

REAR SUSPENSION

-WITH-

WATT'S LINK

INSTALLATION MANUAL

AUGUST 2016

REV A.

'63-'72 REAR SUSPENSION WITH WATT'S LINK INSTALLATION

READ FIRST!

PLEASE READ THROUGH ALL OF THE INSTRUCTIONS AND ENSURE THAT YOU UNDERSTAND THEM. BE SURE THAT YOU HAVE ALL THE REQUIRED GSI COMPONENTS, BASIC TOOLS, AND SKILLS.

CUTTING

THIS KIT REQUIRES SIGNIFICANT CUTTING TO THE EXISTING FRAME. AIR HAMMERS, ABRASIVE CUT-OFF WHEELS, AND RECIPROCATING POWER SAWS (SAWZALL) ARE RECOMMENDED TOOLS. THERE SHOULD BE **NO** NEED FOR ANY MODIFICATION TO THE GSI SUPPLIED PARTS.

WELDING

THIS KIT REQUIRES WELDING TO THE FRAME. MIG (GMAW) WELDING PROCESS WITH A SUITABLE MIX GAS AND ER70S2 WIRE IS RECOMMENDED. ALL COMPONENTS ARE 3/16" OR 1/4" THICK, WELDS SHOULD MATCH THE THICKNESSES OF PARTS BEING WELDED.

DO NOT GRIND ANY WELDS!

DO NOT QUENCH (RAPIDLY COOL) WELDS WITH WATER OR OIL. ALLOW TO AIR COOL.

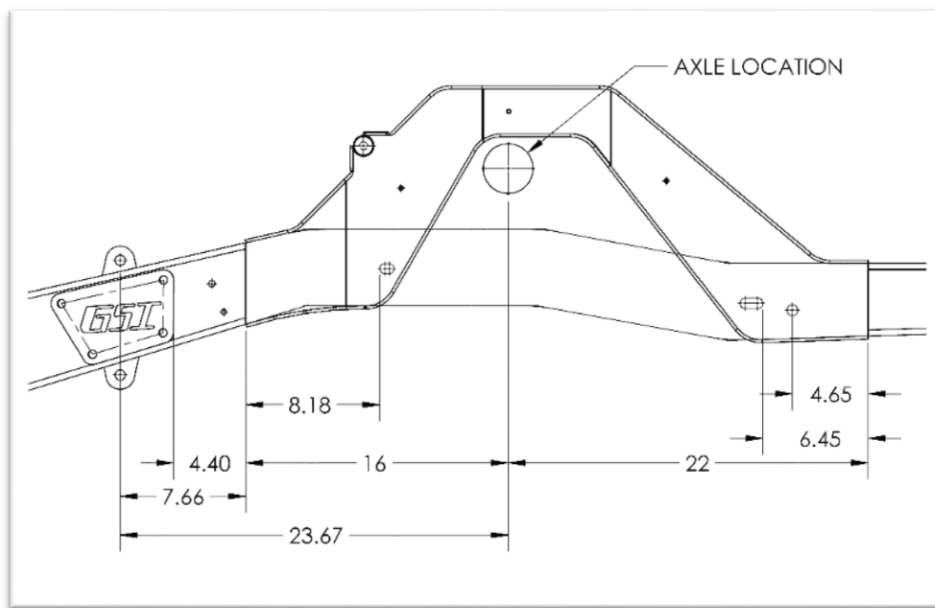
NOTCH AND BRIDGE INSTALLATION

1. STRIP THE REAR FRAME OF ALL SUSPENSION COMPONENTS. **IF YOU PLAN TO REMOVE THE VERY LAST CROSS MEMBER DO NOT DO IT UNTIL FINISHED WITH THIS INSTALL.**

NOTE:

THE NOTCH WAS DESIGNED FROM A 3D LASER SCAN AND SHOULD FIT UP IN THE PROPER LOCATION. IT MAY BE SNUG, AND SOME OF THE INNER FLANGE OF THE FRAME RAIL MAY NEED TO BE TRIMMED.

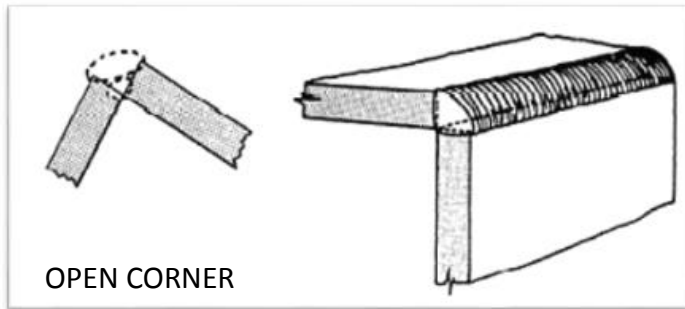
1. PLACE REAR NOTCHES ONTO THE FRAME USING THE BELOW DIAGRAM (ALL DIMENSIONS IN INCHES). METHODS 1.1 – 1.3 ARE IN ORDER OF BEST POSSIBLE METHOD DEPENDING ON YOUR FRAME:



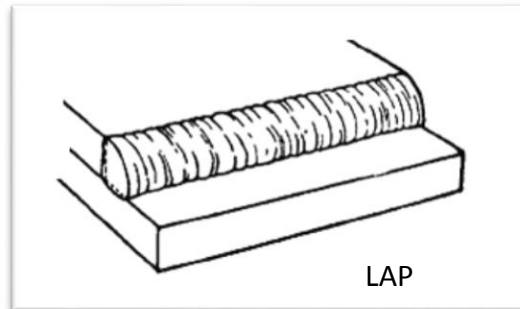
- 1.1. OUR PREFERRED METHOD OF LOCATING THE NOTCH IS BASED FROM 2 SLOTS AND 1 HOLE THAT ARE OFTEN FOUND IN FRAMES, USING THE 8.18" FROM THE FRONT OF THE NOTCH, AND 4.65" AND 6.45" FROM THE REAR OF THE NOTCH AS SHOWN. HOWEVER, WE HAVE FOUND THAT SOME FRAMES MAY NOT HAVE ALL 3 HOLES.
- 1.2. IF YOU ARE USING A LEAF SPRING TRUCK, CAREFUL REMOVAL OF THE FRONT LEAF SPRING PERCH LEAVES THE 4 RIVET HOLES, THAT OUR 4 LINK MOUNT USES ONCE DRILLED OUT TO $\varnothing 1/2"$. THE 4.40", 7.66", OR 23.67" MAY BE THE BEST OPTION. (REFER TO "INSTALLATION OF THE 4 LINK" SECTION FOR THE PROCEDURE IF YOU NEED TO INSTALL THE 4 LINK).
- 1.3. FINALLY, ORIGINAL AXLE LOCATION MAY BE USED IN THE EVENT OF A TRAILING ARM TRUCK WITH NO SLOTS OR HOLES FROM 1.1 OR LEAF SPRING PERCH FROM 1.2. YOU WILL NEED TO USE THE 16", 22", AND 4.40" DIMENSIONS. THEN USE THE 4LINK FRAME DRILL TEMPLATE (A SEPARATE 11X17 SHEET OF PAPER) TO LOCATE THE 4 LINK HANGER IN RELATION TO THE INSTALLED NOTCH.
2. WITH THE NOTCHES PLACED TO THE BEST OF YOUR ABILITY, INSTALL THE BRIDGE SECTION WITH THE $\varnothing 3/8"$ **BRIDGE TO NOTCH** HARDWARE. CHECK FIT, ADJUST NOTCH AND FRAME AS NEEDED.

NOTICE!

THE FRAME MAY HAVE EXPANDED FROM CROSSMEMBER REMOVAL OR BE DAMAGED. STRAPS OR CLAMPS MAY BE NEEDED TO PULL EVERYTHING TOGETHER.

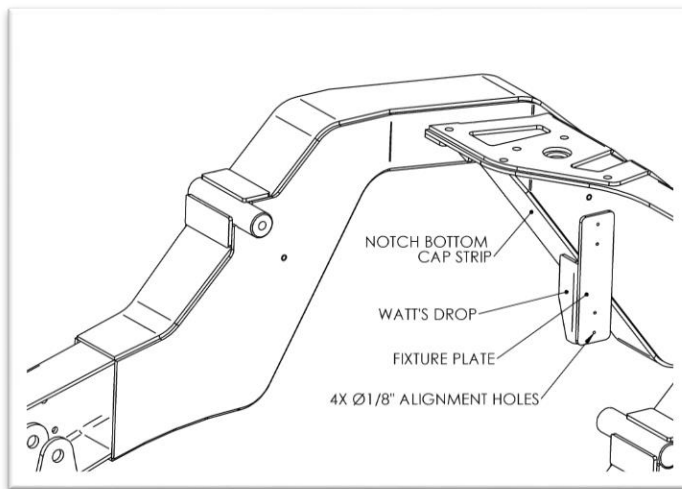


OPEN CORNER



LAP

3. LAP WELD NOTCHES TO FRAME ON THE TOP AND OUTSIDES. **DO NOT WELD THE BOTTOM CAPS YET!**
4. ONCE WELDED USE THE INSIDE SURFACES OF THE NOTCH AS A GUIDE TO SAWZALL THE PORTION OF THE FRAME TO BE REMOVED UNDER THE NOTCH AND CUT IT OUT. **DO NOT CUT THE NOTCHES THEMSELVES!**
5. PLACE THE NOTCH BOTTOM CAP STRIP UNDER THE NOTCH, THEN TACK WELD THEM.



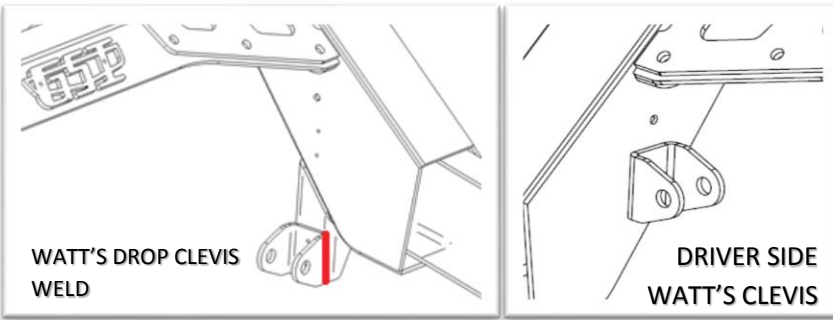
NOTE

BEFORE WELDING THE NOTCH BOTTOM CAP STRIP, MAKE SURE THE WATT'S DROP, AND FIXTURE PLATE LINE UP USING THE FOUR Ø1/8" ALIGNMENT HOLES. USE Ø1/8" WELDING ROD, PINS, OR CLECOS IN THE HOLES.

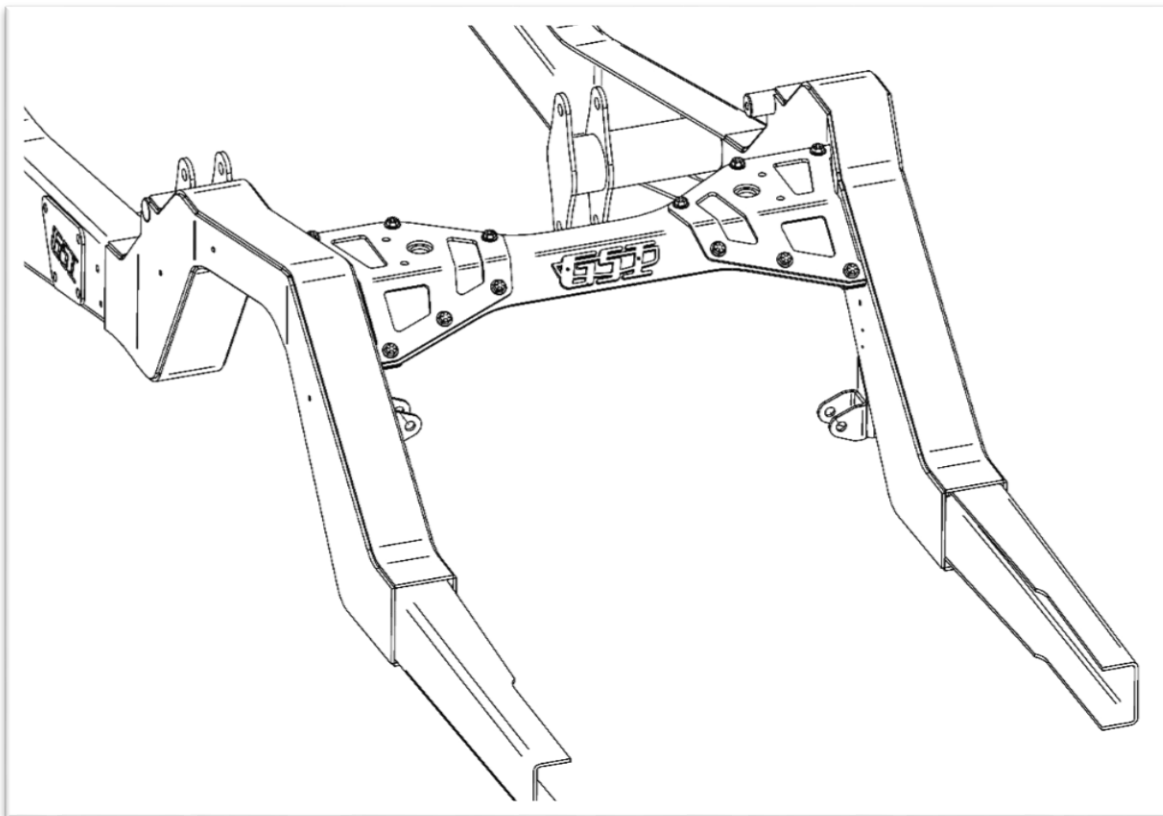
PROPER PLACEMENT OF THE WATT'S DROP IS CRITICAL!

DO NOT WELD THE FIXTURE PLATE, IT IS A THROW AWAY PART!

6. ONCE THE WATT'S DROP IS TACK WELDED TO THE NOTCH BOTTOM CAP, REMOVE THE FIXTURE PLATE, AND LOCATE THE WATT'S LINK CLEVIS USING THE Ø1/8" PINS AGAIN AND WELD AT LEAST 2 FULL LENGTH WELDS, ONE ON EACH SIDE OF THE CLEVIS AS SHOWN IN RED.
7. INSTALL THE DRIVER SIDE WATT'S LINK CLEVIS USING THE TWO Ø1/8" ALIGNMENT HOLES ON THE INSIDE OF THE RIGHT NOTCH. AND WELD THE SAME AS STEP 8.

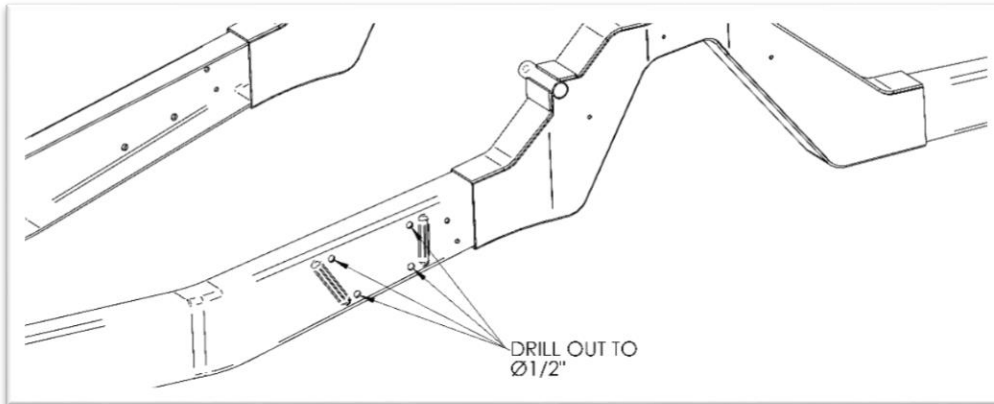


8. STAND BACK, AND ENJOY THE VIEW WHILE LETTING EVERYTHING AIR COOL. QUENCHING THE WELD WITH WATER OR OIL COULD CAUSE THE WELD TO CRACK.



INSTALLATION OF THE 4 LINK

9. REMOVE THE FORWARD REAR LEAF SPRING MOUNTS JUST AHEAD OF THE NOTCHES. USE CARE IN REMOVING THE RIVETS AS THEIR HOLES WILL BE REUSED.
10. ONCE REMOVED, DRILL OUT THE OLD RIVET HOLES TO $\varnothing 1/2"$. YOU CAN PLACE THE 4 LINK HANGERS UP TO THE HOLES FOR A GUIDE, BUT DO NOT MODIFY THE HOLES IN THE HANGERS.

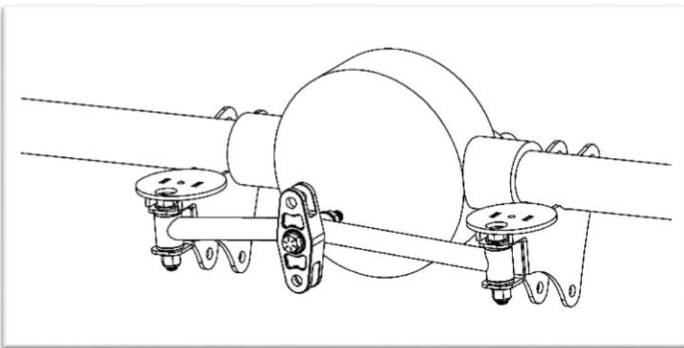


11. AS MENTIONED IN STEP 1.3, FOR A TRAILING ARM TRUCK THERE MAY NOT BE SPRING PERCH RIVET HOLES TO USE AS A GUIDE. IN THIS CASE, YOU WILL NEED TO USE THE SUPPLIED 4 LINK FRAME DRILL TEMPLATE.
12. INSTALL THE 4 LINK HANGERS ON BOTH SIDES TO THE INSIDE OF THE FRAME USING THE $\varnothing 1/2"$ **4 LINK HANGER TO FRAME** HARDWARE. THERE ARE LEFT AND RIGHT 4 LINK HANGERS'!

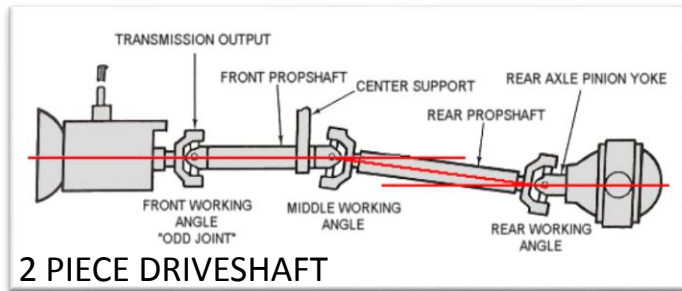
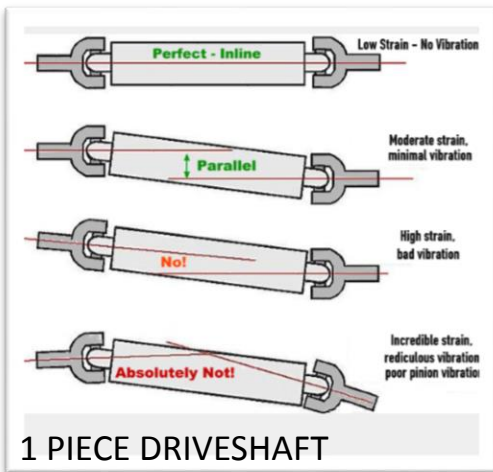
NOTE

THE MOUNTING PLATE ON THE 4LINK BRACKET MAY NEED TO BE BEVELED TO FIT FLUSH TO THE INSIDE OF THE FRAME RAIL.

13. CLEAN ALL BRACKETRY OFF OF THE 3" DIAMETER AXLE TUBES. DO NOT ALTER THE CENTER HOUSING (PUMPKIN), OR THE AXLE FLANGES (BRAKE FLANGES) ON THE ENDS FOR THIS INSTALL.
14. INSTALL THE WATT'S LINK MOUNTING BAR TO THE 4 LINK AXLE HANGERS WITH THE $\varnothing 5/8"$ **WATT'S TO AXLE** HARDWARE. **DO NOT FULLY TIGHTEN, IT WILL BE REMOVED FOR FINAL WELDING TO PROTECT THE RUBBER BUSHINGS FROM HEAT.** USE THE MOUNTING BAR TO POSITION THE WIDTH OF THE 4 LINK BRACKETS ON THE AXLE SYMMETRIC ABOUT THE VEHICLES CENTERLINE. THE BRACKETS SHOULD BE INLINE WITH THE 4 LINK HANGERS, SO THAT THE 4 LINK BARS GO STRAIGHT BACK AND PARALLEL WITH THE FRAME.



15. THE 4 LINK IS DESIGNED TO MAINTAIN A CONSTANT PINION ANGLE THROUGH THE TRAVEL OF THE REAR SUSPENSION. THIS IS IMPORTANT TO HELP PREVENT DRIVESHAFT WEAR AND VIBRATION. THE FOLLOWING GRAPHICS SHOW IDEAL ALIGNMENT OF ALL THE COMPONENTS.



IT IS OFTEN RECOMMENDED THAT THE “REAR WORKING ANGLE” OR “PINION ANGLE” IS PARALLEL TO THE TRANSMISSION TAIL SHAFT (OR FRONT DRIVE SHAFT FOR 2 PIECE SHAFTS). THIS IS OFTEN 3° TO 4° (DEGREES). WITH THE AXLE SET AT THE PROPER ANGLE, PLACE A LEVEL ON THE LOWER AIRBAG MOUNT PLATE AND MAKE IT PARALLEL TO THE GROUND.

16. WHEN YOU ARE SURE OF POSITION AND PINION ANGLE, BE SURE TO CLEAN THE AREA ON THE AXLE TO BE WELDED TO BARE METAL AND TACK WELD THE AXLE BRACKETS ON IN POSITION.

NOTES

DO NOT FULLY WELD AXLE MOUNTS. TACK FIRST, AND CONTINUE MOCKING UP 4 LINK BARS, SHOCKS, ETC. FULLY WELD ONLY WHEN SURE EVERYTHING WORKS! GRINDING OFF FULLY WELDED AXLE BRACKETS IS NOT FUN.

REMOVE WATT'S LINK MOUNT SO THAT ITS URETHANE BUSHINGS DO NOT MELT DURING FINAL WELDING. AGAIN ALLOW TO COMPLETELY AIR COOL.

INSTALLING THE 4 LINK BARS AND SHOCKS

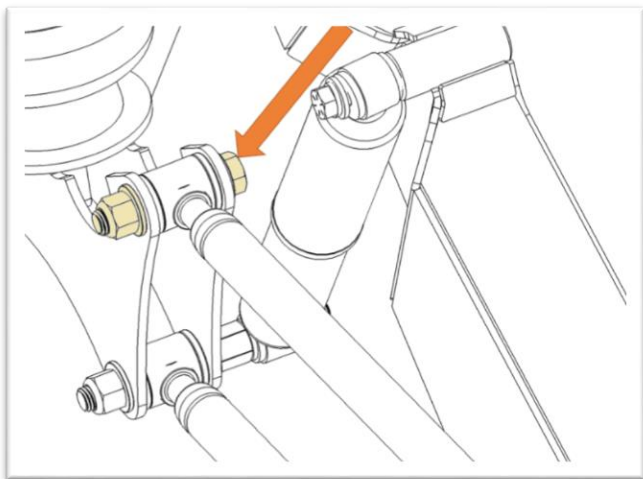
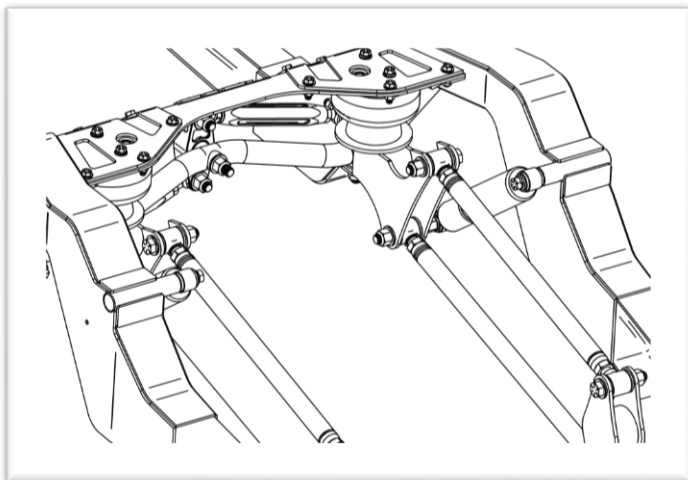
17. BOLT THE SHOCKS TO THE UPPER SHOCK BUNGS USING $\varnothing 1/2"$ **SHOCK HARDWARE**, USE A SPLIT LOCK WASHER!

18. ADJUST YOUR 4 LINK BARS WITH ROD ENDS INSTALLED AS FOLLOWS:

- a. UPPER 4 LINK BAR SHOULD MEASURE 21.9" INCHES BETWEEN CENTER OF THE ROD ENDS
- b. LOWER 4 LINK BAR SHOULD MEASURE 25.0" INCHES BETWEEN CENTER OF THE ROD ENDS

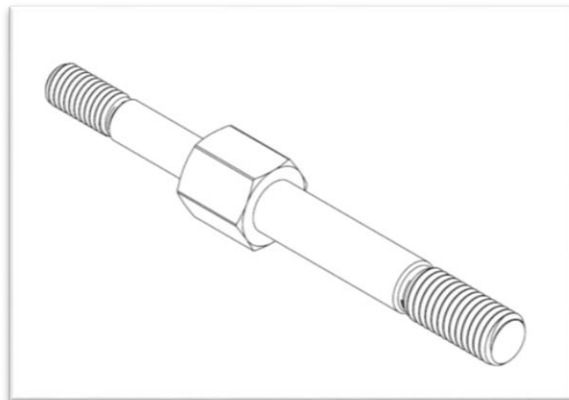
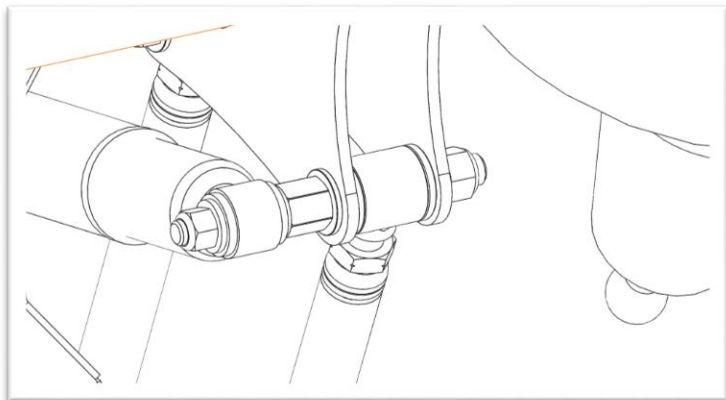
NOTE:

DEVIATION FROM THE NUMBERS IN a AND b IS **OKAY** AS LONG AS IT WORKS. EVERY TRUCK INSTALL WILL BE DIFFERENT. THESE ARE THE "DESIGN" LENGTHS. TRY TO BE AS CLOSE TO THESE NUMBERS AS POSSIBLE.



19. INSTALL $\varnothing 5/8$ **4 LINK** HARDWARE INTO ALL OF THE ROD ENDS, FOR THE 4 LINK HANGERS AND THE AXLE BRACKETS. NOTE THE BOLT CLOSEST TO THE SHOCK HAS ITS HEAD TOWARD THE SHOCK FOR CLEARANCE.

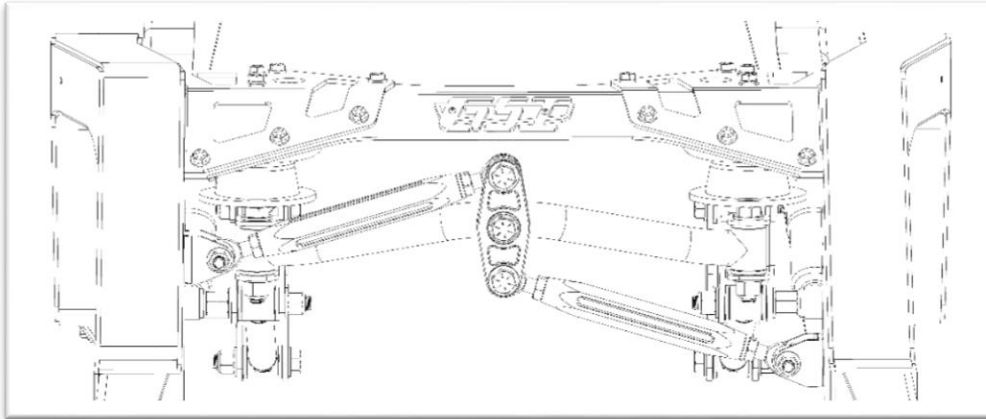
20. THE LOWER AXLE BRACKETS USE THE **GSI SUPER SHOCK BOLT** HARDWARE KIT. IT IS A CUSTOM MANUFACTURED GRADE 8 EQUIVALENT DOUBLE ENDED BOLT. THE $\varnothing 5/8$ PORTION IS DESIGNED TO HOLD THE LOWER 4 LINK BAR ROD ENDS TO THE AXLE, WHILE THE OPPOSITE $\varnothing 1/2$ " PORTION IS DESIGNED TO SECURE THE LOWER EYE OF THE SHOCK. USE THE SUPPLIED WASHERS AND NYLOCK NUTS JUST AS YOU WOULD WITH ANY BOLT.



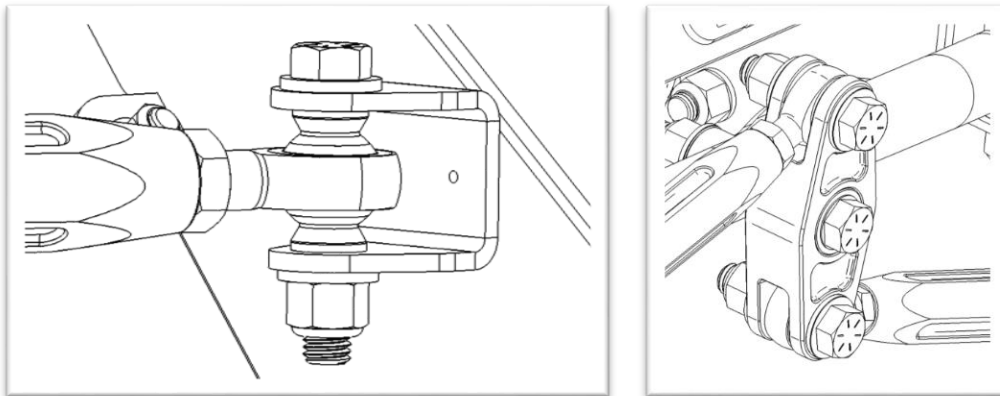
INSTALL WATT'S LINK COMPONENTS

21. REINSTALL THE WATT'S LINK MOUNTING BAR TO THE AXLE BRACKETS ONCE COOL.

22. CHECK THAT THE TWO LINKS THAT GO FROM THE CENTER LINK TO THE NOTCHES ARE 12-5/16" BETWEEN CENTER OF THE FK ROD ENDS. LIKE THE NOTE IN STEP 18, THESE ARE THE "DESIGN" LENGTHS. TRY TO BE AS CLOSE TO THESE NUMBERS AS POSSIBLE.
23. INSTALL THE WATT'S LINK COMPONENTS PER THE DIAGRAM BELOW, USING THE **WATT'S LINK** HARDWARE. HIGH MISALIGNMENT SPACERS ARE USED ON THE FRAME CLEVIS ENDS.



24. WATT'S LINK CLEVIS DETAIL SHOWING HIGH MISALIGNMENT SPACERS INSTALLED.



WATT'S LINK CENTER DETAIL. NO HIGH MISALIGNMENT SPACERS ON THE CENTER FK ROD ENDS. NOTE THAT ON BOTH SIDES OF THE PRESSED IN BEARINGS THERE ARE THIN STAINLESS WASHERS THAT MUST BE BETWEEN THE BOLT HEAD AND THE BEARING, AND BETWEEN THE BEARING AND THE WATT'S LINK MOUNT.

CENTER LINK MOVEMENT!

WITHOUT THE TWO STAINLESS WASHERS THE BEARINGS WILL NOT WORK!

IF THE CENTER Ø5/8 BOLT IS TIGHTENED TOO MUCH IT WILL "FREEZE" THE BEARINGS. **DO NOT OVERTIGHTEN.**
THE CENTER LINK SHOULD BE ABLE TO FREELY MOVE ON THE BEARINGS.

NOTE:

CYCLE SUSPENSION TO ENSURE ALL LINKAGE WORKS PROPERLY TOGETHER AND FULLY WELD REMAINING TACKED PARTS.

AIRBAGS AND FINAL ASSEMBLY

25. INSTALL AIRBAGS USING Ø3/8 **AIRBAG HARDWARE** USE THE SPLIT LOCK WASHERS. 2 ON TOP AND 1 ON BOTTOM. YOU WILL NEED TO INSTALL AIR FITTINGS AS NEEDED FOR YOUR AIR SYSTEM.

26. FINAL CHECK:

- a. DOUBLE CHECK THAT ALL FASTENERS ARE TIGHT.
- b. ENSURE THE REAR SUSPENSION FREELY MOVES THROUGH ITS ENTIRE TRAVEL.

27. FIRST DRIVE:

- a. USE EXTREME CAUTION THE FIRST TIME YOU DRIVE.
- b. PLAN THE DRIVE. STAY AWAY FROM BUSY ROADS AND PLACES WHERE IT IS NOT EASY TO PULL OVER AND PERFORM MAINTENANCE. DO NOT GO ALONE. HAVE A CHASE CAR. STAY CLOSE.
- c. LISTEN FOR ANY UNUSUAL SOUNDS.
- d. PERIODICALLY STOP AND INSPECT THAT ALL HARDWARE IS STILL TIGHT.

ENJOY!