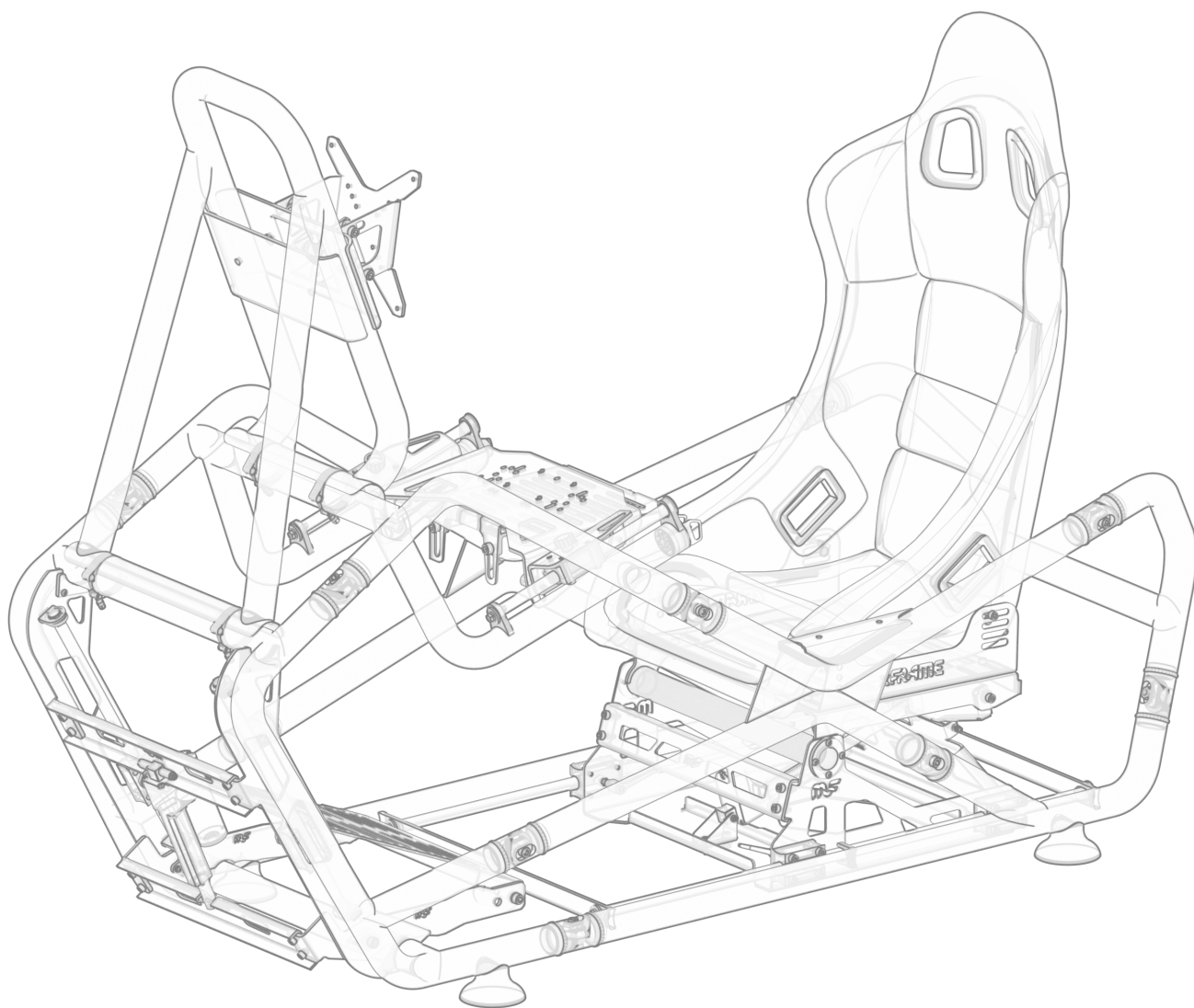


xFRAME

Owners Manual



Magnaflow xFrame Racing Simulator Cockpit

MAGNAFLOW
www.magnaflow.com

Introduction

xFRAME

Welcome to xFrame and the MagnaFlow family! We took our 42 years of automotive industry expertise and crafted the most robust and purpose-built sim racing chassis. We are proud you have chosen xFrame as the foundation of your new sim rig, now it's time to start turning those wrenches and setting down some blistering lap times. Congratulations, thank you, and good luck racers!



Visit www.magnaflow.com for more info, accessories, and support. Tag us @MagnaFlow and use #xFrame so we can see your rig in action!

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STOP, READ THESE WARNINGS!

Please read and follow all warnings, instructions, and procedures outlined in this manual before using xFrame. It is the owner's responsibility to ensure that all users are aware of all warnings and precautions detailed herein. Use xFrame only as described, as misuse of this product could result in serious injury or death. MagnaFlow is not responsible for damage to your xFrame, personal property, or for any injury caused by inappropriate or incorrect use of xFrame.

As with all video games and simulators, always remain alert while using xFrame and avoid excessive play. Just like a real car or truck, do not operate xFrame if you are under the influence of drugs or alcohol. If your hands, wrists, arms, legs, feet or eyes become tired or sore while playing, or if you feel symptoms such as tingling, numbness, burning or stiffness, stop playing immediately and rest for several hours before playing again. If you continue to have any of the above symptoms or other discomfort during or after play, stop playing and see a doctor.

xFrame is intended for adult users or adolescent users with thorough instruction and supervision. Individuals under the age of 16 must be given supervision or instruction prior to using xFrame. Users operating xFrame from inside the device must weigh at least 60 lbs. [27 kg] and must not exceed 250 lbs. [114 kg.] xFrame was designed to accommodate user heights between 4'10" and 6'8". If you fall outside of the specified height range, take caution during setup and adjustment of xFrame as you may experience fitment issues that could lead to injury. If you are above the specified weight range, refer to page 83.

xFrame is for indoor use only. Do not store or operate xFrame outdoors, at high humidity levels, or in damp or wet locations. Set up and operate xFrame on a solid, level surface and in an area not accessible to children, pets, or anyone else who should not have access to xFrame. Make sure xFrame rests on a surface that is not prone to slipping or sliding. Do not store xFrame on elevated surfaces. Keep children, pets, and friends/spectators clear and safely away from xFrame at all times. Keep the area around xFrame clear of furniture or other unrelated objects at all times. Keep all objects clear of all moving linkages. Never put anything under xFrame or reach under xFrame while it is powered on. Avoid leaning, resting, or climbing on xFrame in order to prevent unintentional tipping of xFrame.

Ensure that the power supply is plugged into a dedicated outlet that supports 15 amps in the US and Canada, 13 amps in the UK or 16 amps in Germany and complies with local building codes. Avoid using xFrame with GFCI outlets. The power cord and power supply housing must never rest near the moving assemblies. When exiting or leaving xFrame unattended, always make sure the unit is powered off and remove the safety key. Always store the safety key away from xFrame and out of the reach of children under the age of 16. Familiarize yourself with emergency stop procedures before using xFrame.

Never operate xFrame if it is not working properly, or if you believe it to not be working properly, or if the power cord has been damaged, split, or has broken or exposed cords or wires. Keep all cords away from heated surfaces, sharp edges, and water. Make sure that the AC Adapter cord is fully inserted into the wall outlet or extension cord. Do not use xFrame during a lightning storm. There could be a risk of electric shock from lightning. Always carefully disconnect all plugs by pulling on the plug and not on the cord. Make sure xFrame power button is turned off before removing the AC Adapter cord from an outlet.

Be careful when entering and exiting xFrame. Never enter or exit while xFrame is in motion. Use exterior frame tubing for support and avoid stepping directly on any flat, machined, or precise metal components. xFrame was designed for one user (driver) at a time and should never be operated by or have more than one person inside of xFrame under any circumstances.

xFrame weighs well over 200lbs when assembled. Do not attempt to transport xFrame with fewer than two people. Do not attempt to transport xFrame if you are injured or have limited strength or mobility. Do not lift xFrame overhead or in any manner which could risk dropping xFrame or injuring yourself. Do not transport xFrame vertically, upside down, with moving straps, or in any other way that could risk dangerous weight imbalance and sudden falling or dropping of xFrame.

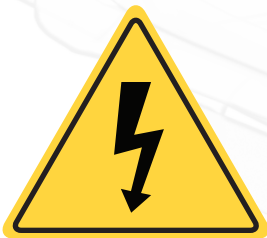
Do not allow children of any age to perform work or maintenance of any kind to xFrame. Inspect xFrame for loose, worn, damaged, or incorrect parts every time before use. Do not use xFrame during maintenance or before any loose or worn parts have been replaced, repaired, or tightened. Use only original parts from MagnaFlow. Unauthorized changes, modifications, or attachments will void your warranty and could further damage xFrame, impair its operation, or result in serious injury. Should your xFrame require repaired or replacement parts, please contact MagnaFlow [see Warranty & Contact Info] to order replacements, or receive instructions on compatible replacement hardware in select situations.

While cleaning xFrame, always switch the power off, unplug xFrame, and remove the safety key before cleaning. Do not soak or spray xFrame surfaces with any liquid. Only clean using a damp cloth. Ensure all precision moving surfaces on xFrame are free of dirt and debris prior to operation. Should precision moving surfaces require cleaning and re-lubrication, avoid the use of solvents and degreasers, and only lubricate as outlined in the Assembly Instructions.



WARNING: Moving Linkages!

Keep objects and all body parts away from moving linkages to avoid damaging xFrame, other objects, or causing serious injury.



WARNING: Powered Device!

To minimize the potential of electrical shock or fire, do not use if there are exposed wires or damage to any of the electrical system.

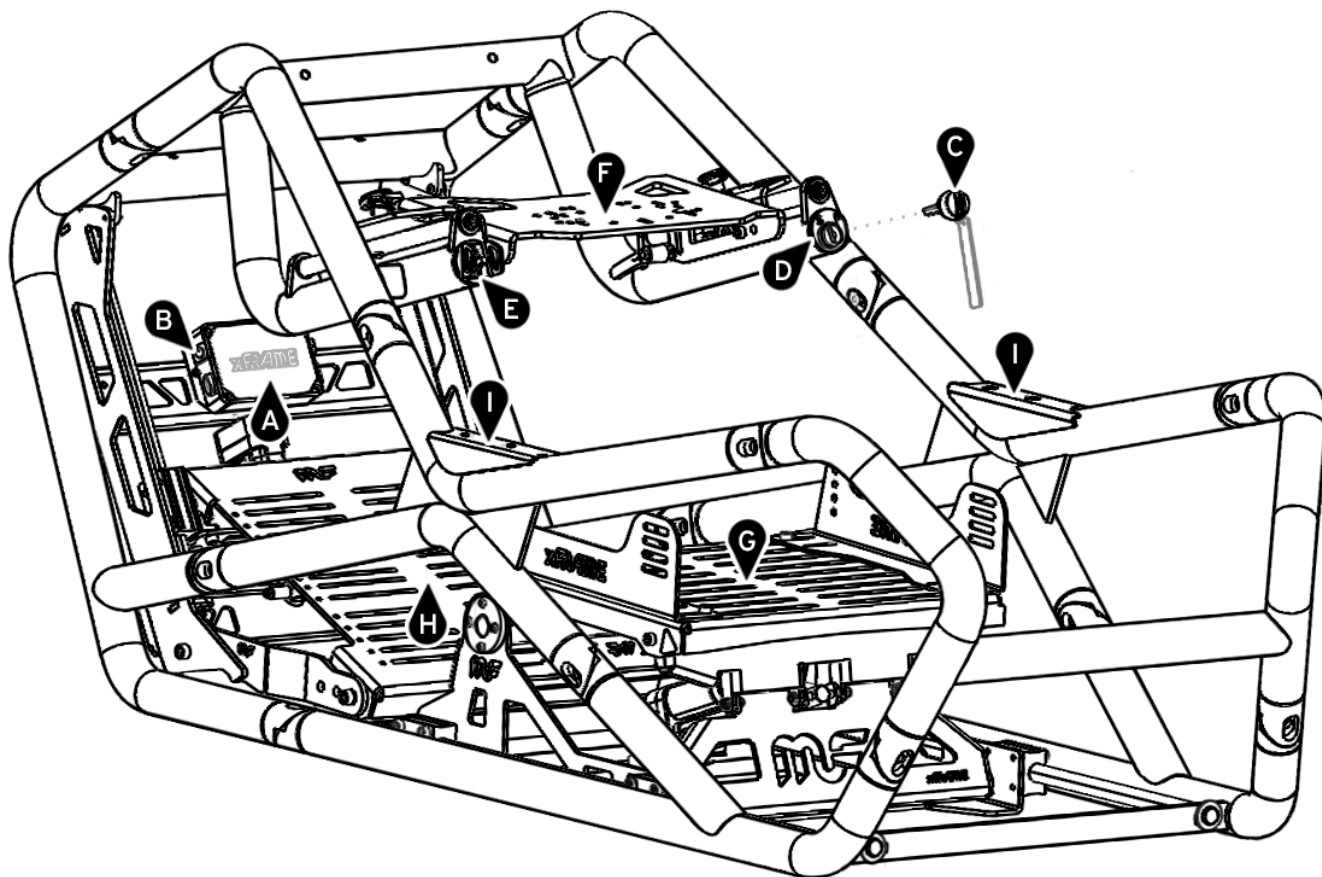


WARNING: Choking Hazard!

Product contains a large number of small parts and hardware. Keep away from children and pets.

STOP, READ THESE WARNINGS!

Below is a general overview of xFrame and the chassis elements you need to know before you get started on the assembly process.



- A:** Electrical Control Box
- B:** Master On/Off Switch
- C:** Selector Safety Key [shown with MagnaFlow flight tag]
- D:** Selector Switch
- E:** Adjuster Switch
- F:** Steering Mounting [bottom mount shown as standard]
- G:** Seat Mounting [shown with seat brackets installed]
- H:** Pedal Mounting
- I:** Accessory Mounting Points

Section 1: xFrame Chassis

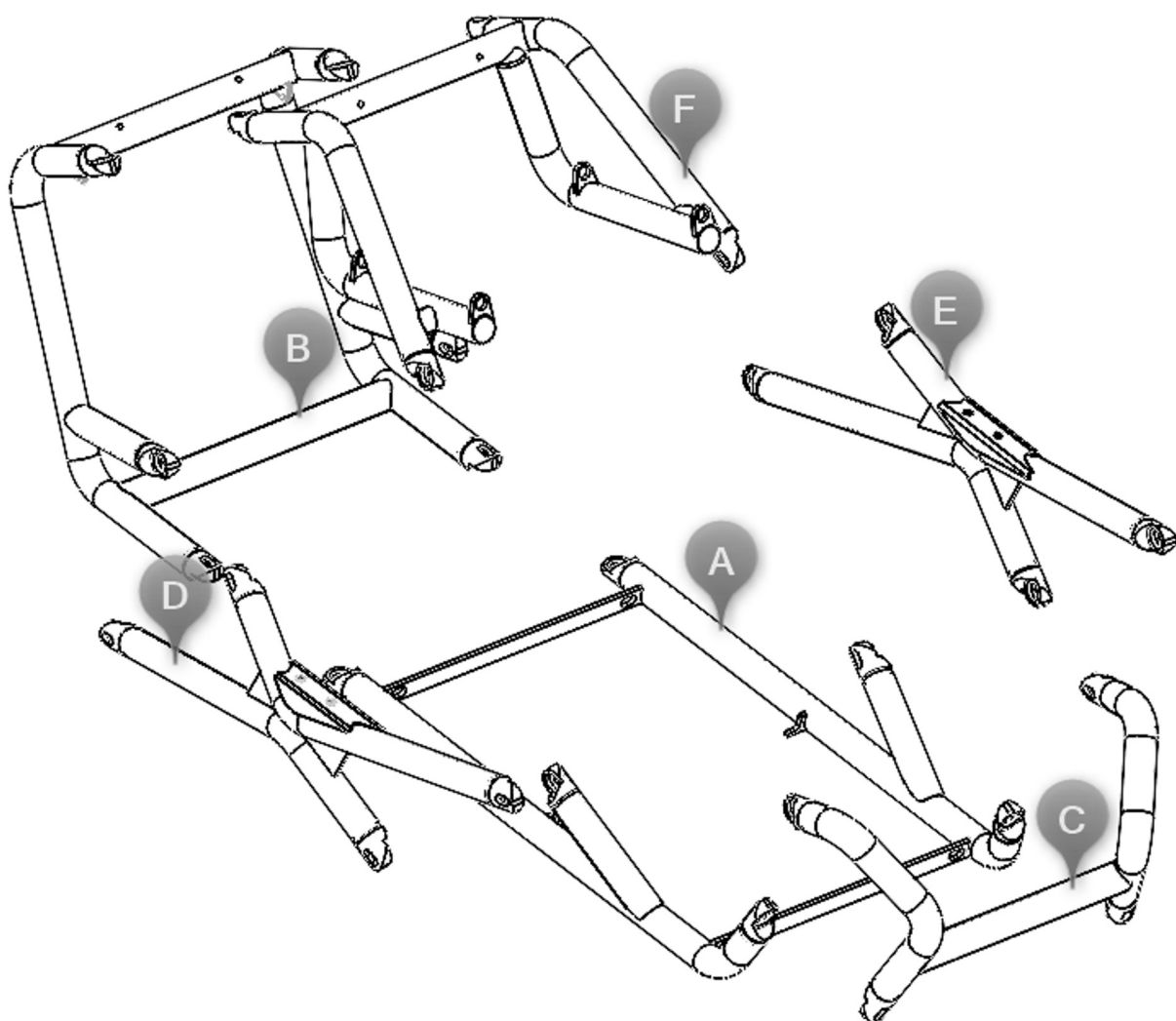
Required Tools:

- Allen keys: 8mm

Hardware Bag[s]:

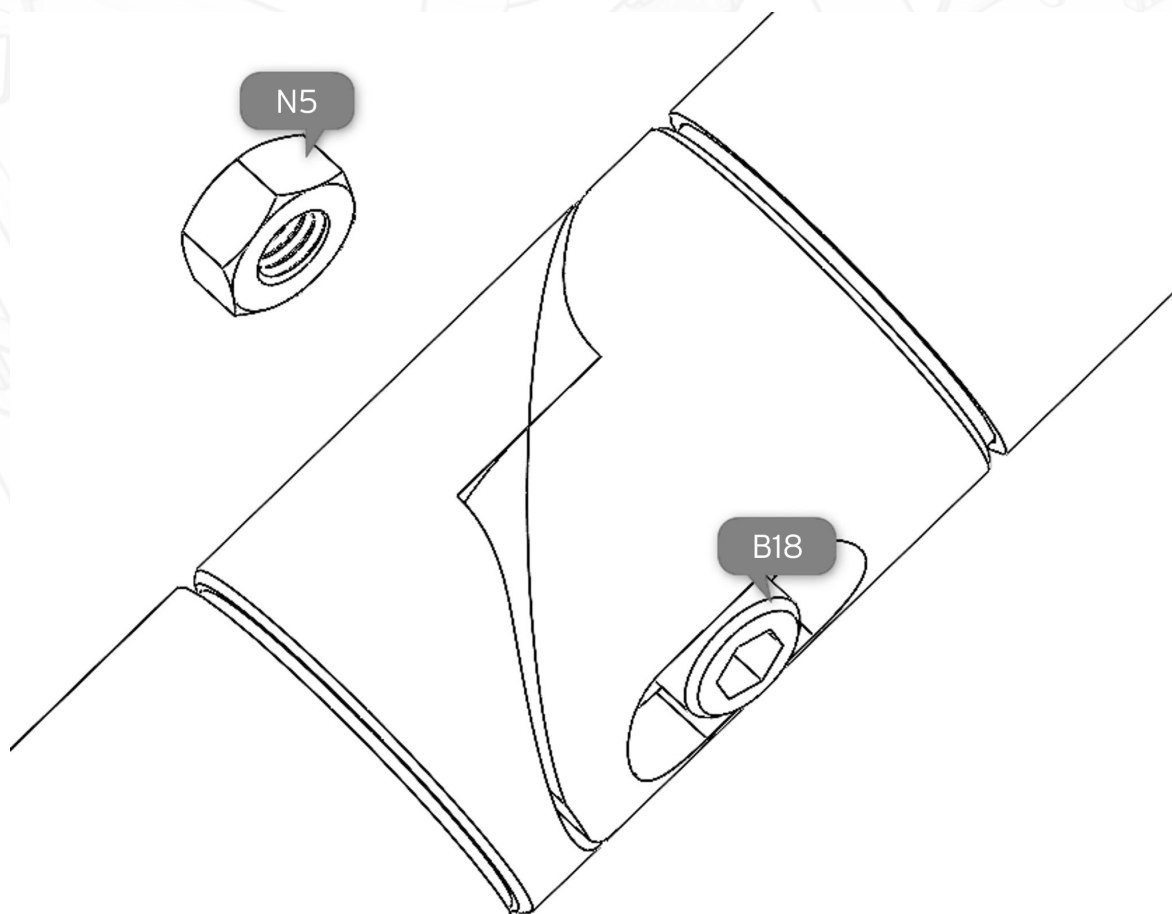
- Chassis hardware bag
- Chassis Hardware ID Sheet

NOTE: When assembling each of the welded tubular sub-assemblies, leave the connector bolts hand-tight until all sub-sections (A-F) are joined together.



Please assemble in the following sequence:

1. Place component A [Seat tubular sub-assembly] securely on a safe, flat surface.
2. Install component B [Pedal tubular sub-assembly]
3. Install component C [Rear tubular sub-assembly]
4. Install component D [Left X tubular sub-assembly]
5. Install component E [Right X tubular sub-assembly]
6. Install component F [Steering tubular sub-assembly]
7. Tighten all connector nuts & bolts until bottomed out and frame connectors in solid contact, then turn an additional quarter-turn of rotation to reach appropriate torque.



Section 2.1: Dynamic Formula/GT Seat

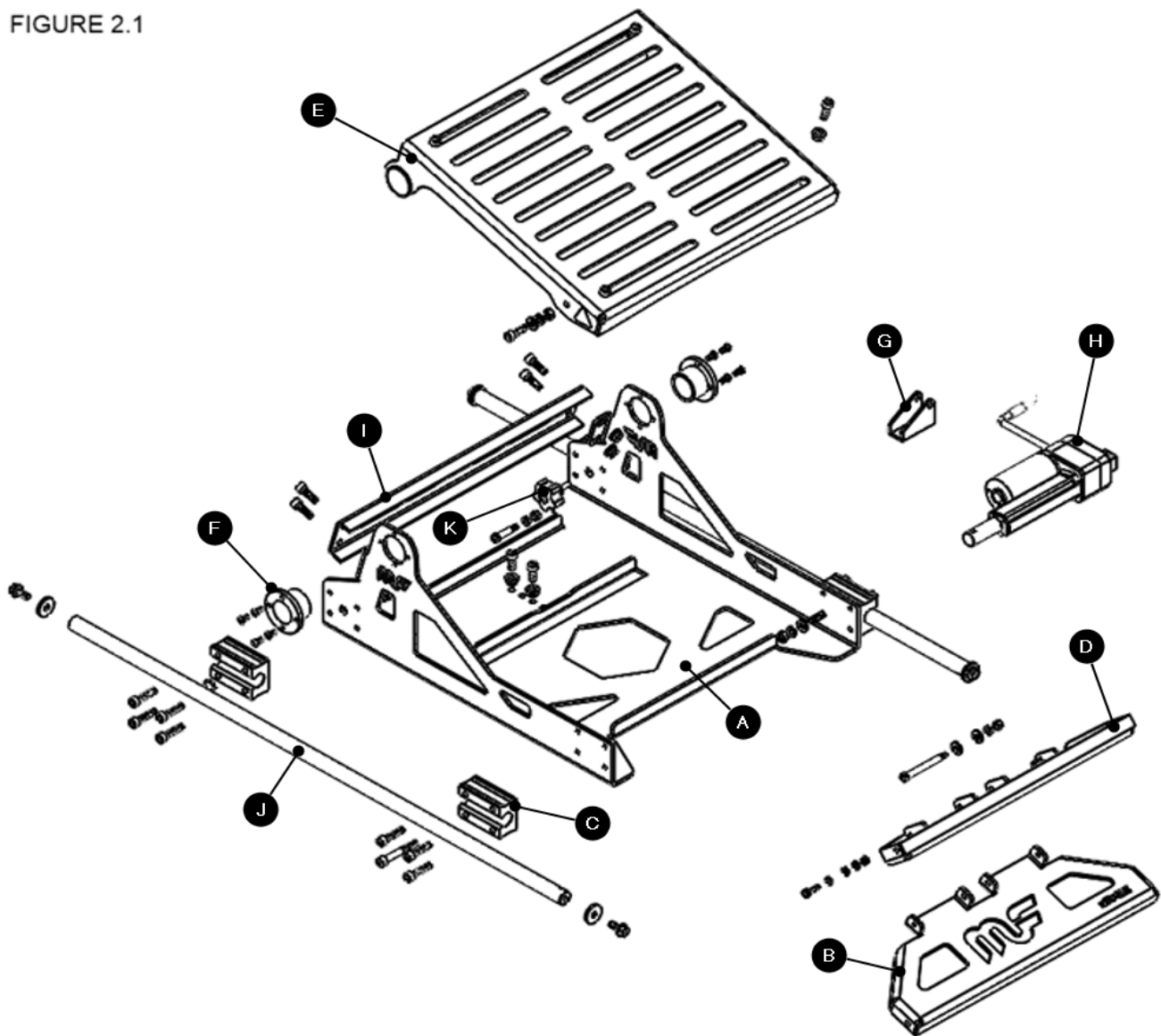
Required Tools:

- Allen keys: 4mm, 5mm, 6mm
- Box wrench: 10mm, 11mm, 13mm

Hardware Bag[s]:

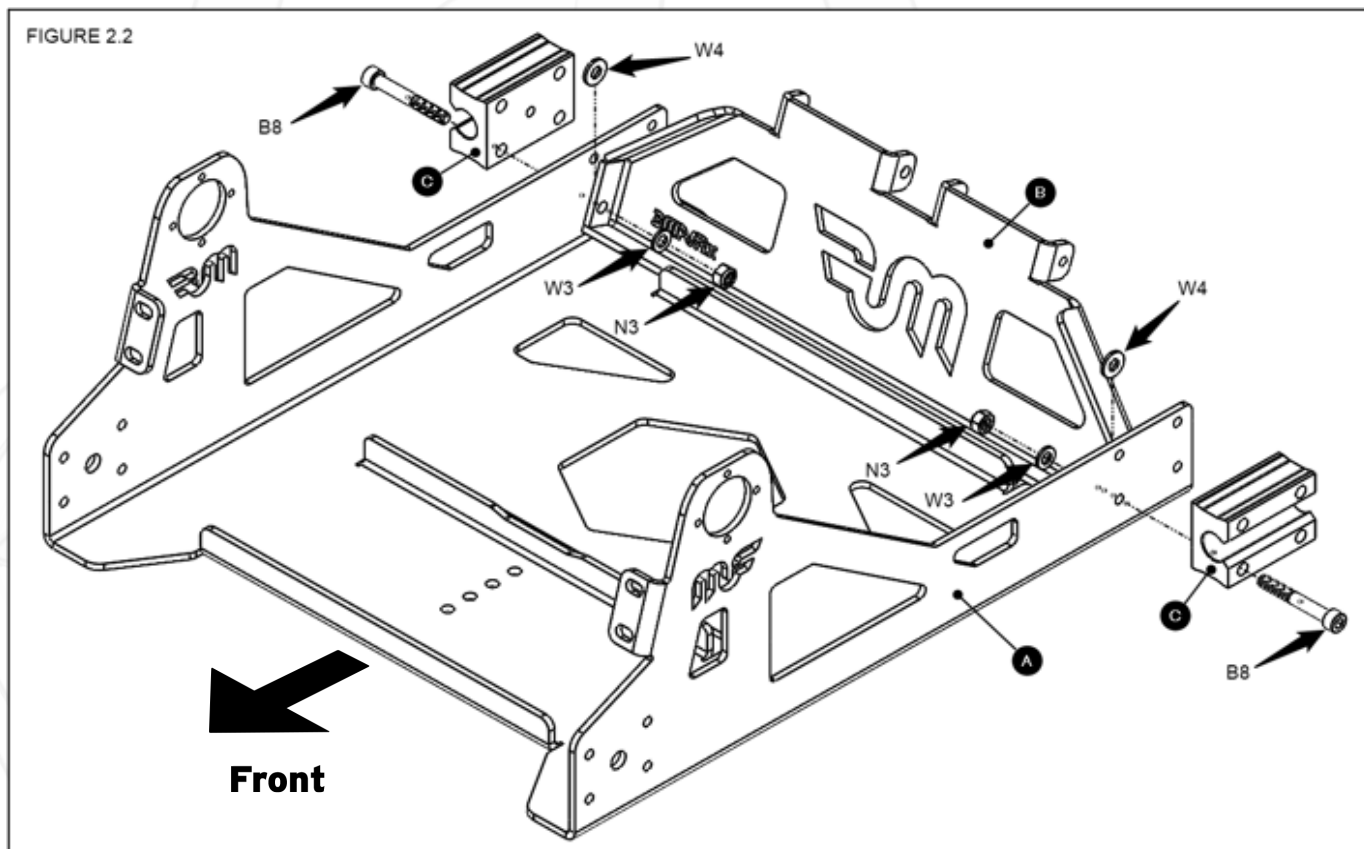
- Seat hardware bag
- Seat Hardware ID Sheet

FIGURE 2.1

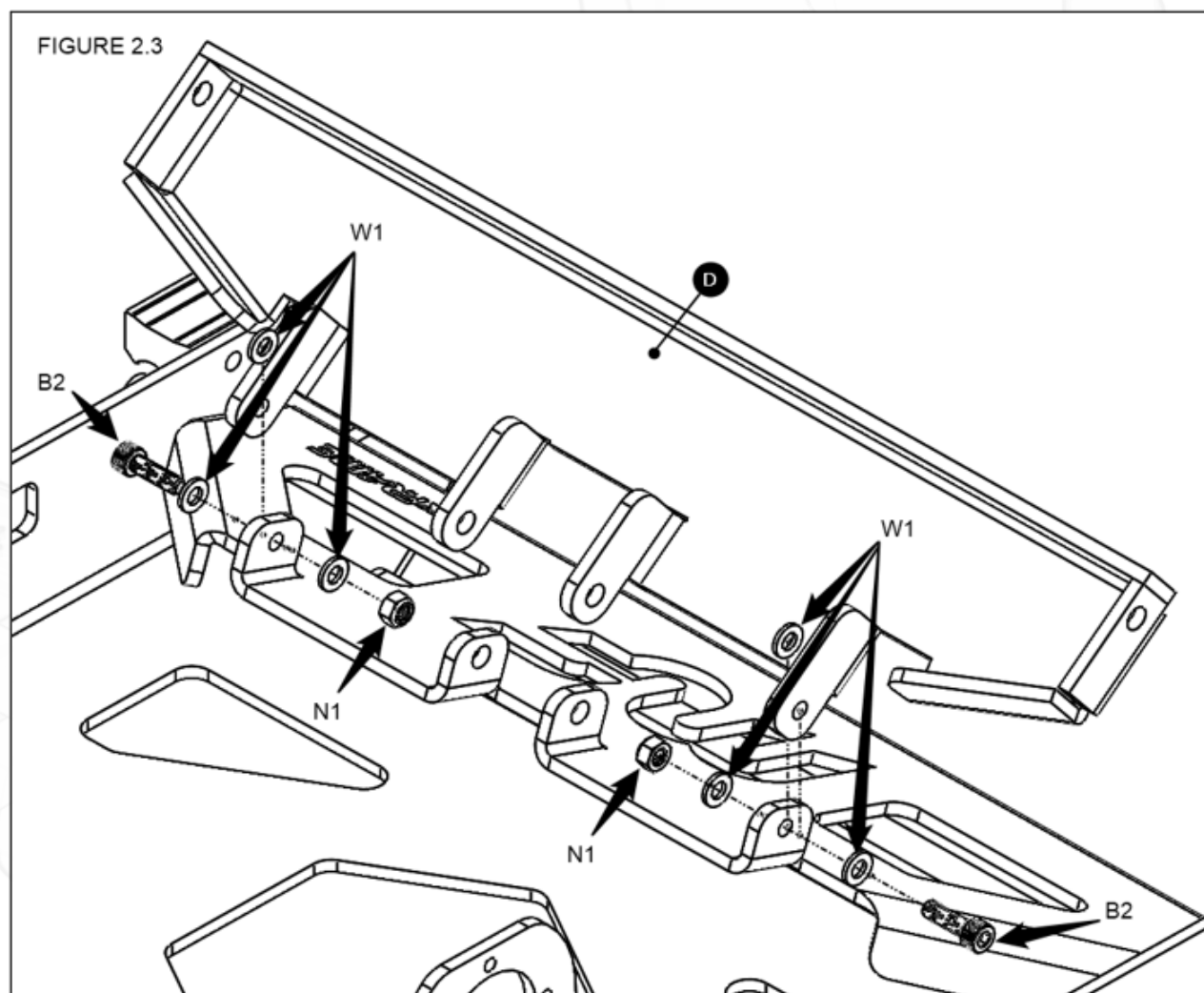


1. Set component A [seat base upright] securely on a flat surface.
2. Install component B [lower arm] into component A, with the two rear slider blocks [components C] in as shown in Figure 2.2.

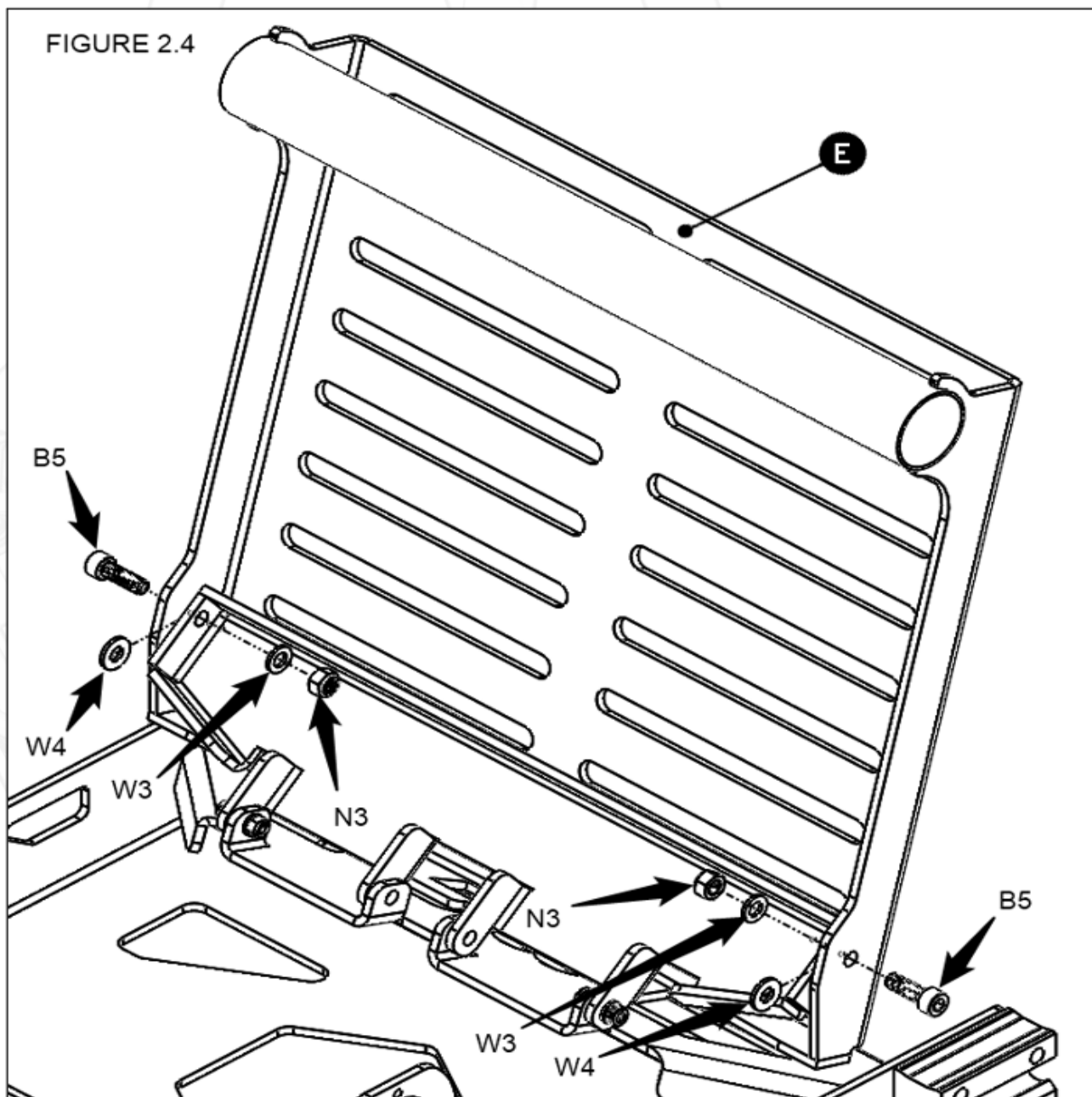
FIGURE 2.2



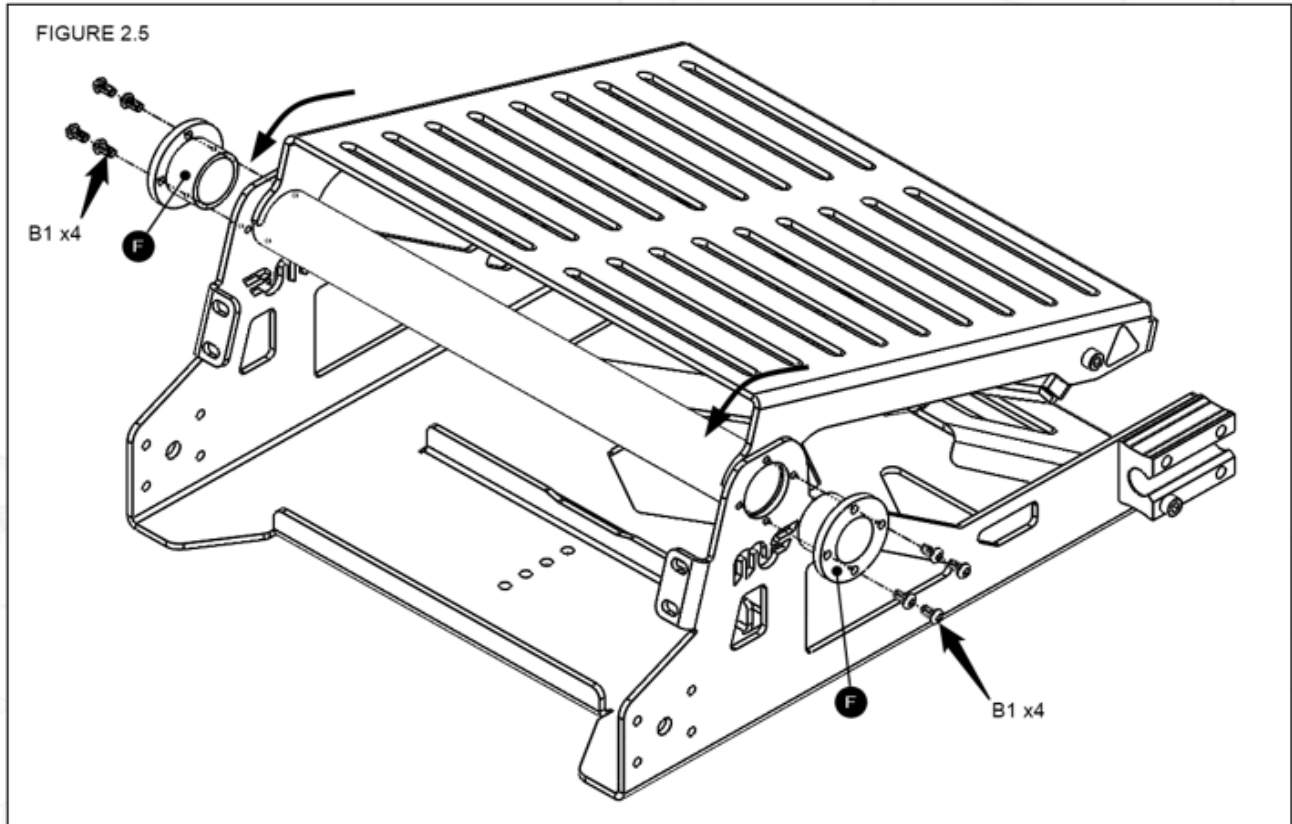
3. Install component D [upper arm] into component B in as shown in Figure 2.3.



4. Join component E [seat base] to component D in the way shown in Figure 2.4. Ensure that the nylon washers [component W4] are placed properly between each metal junction.



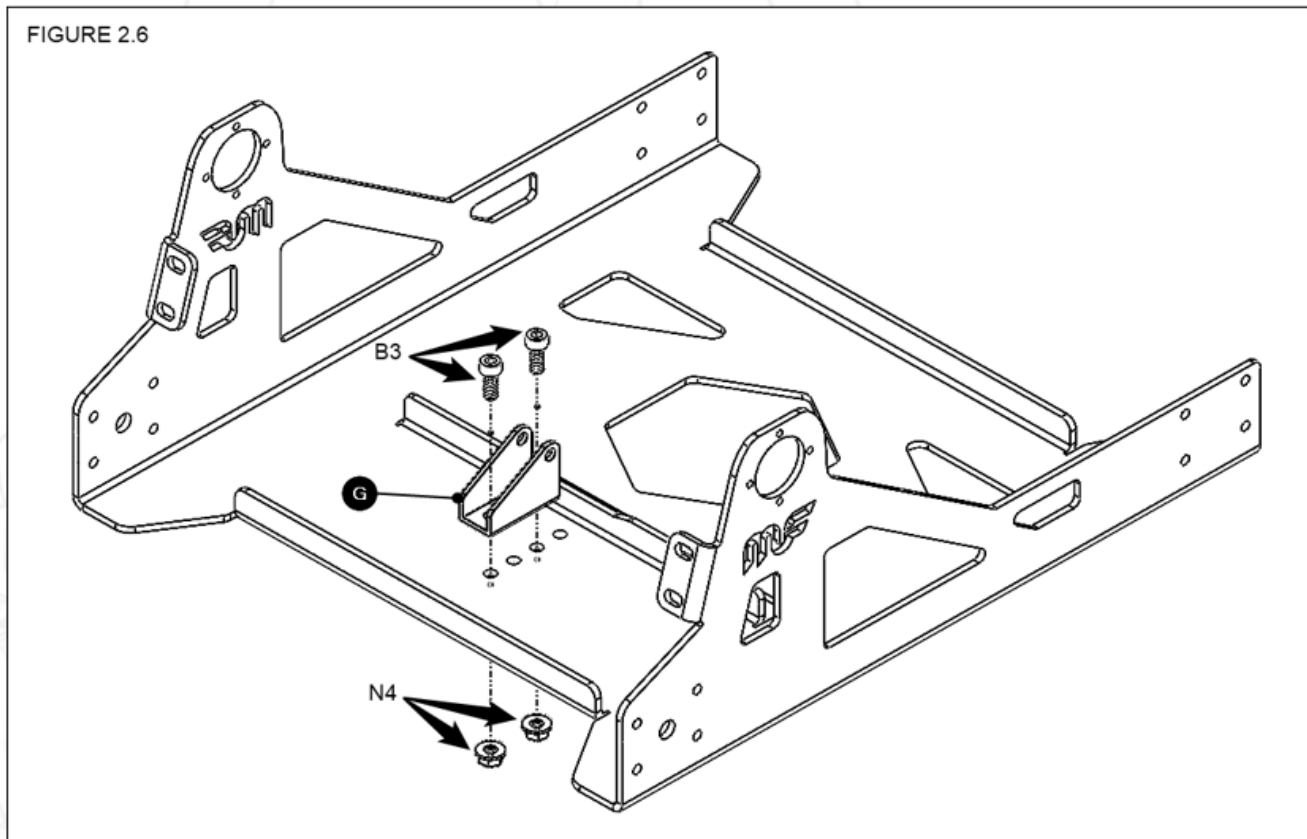
5. Rotate components B, D, and E into position as shown in Figure 2.5 and insert components F in the manner shown.



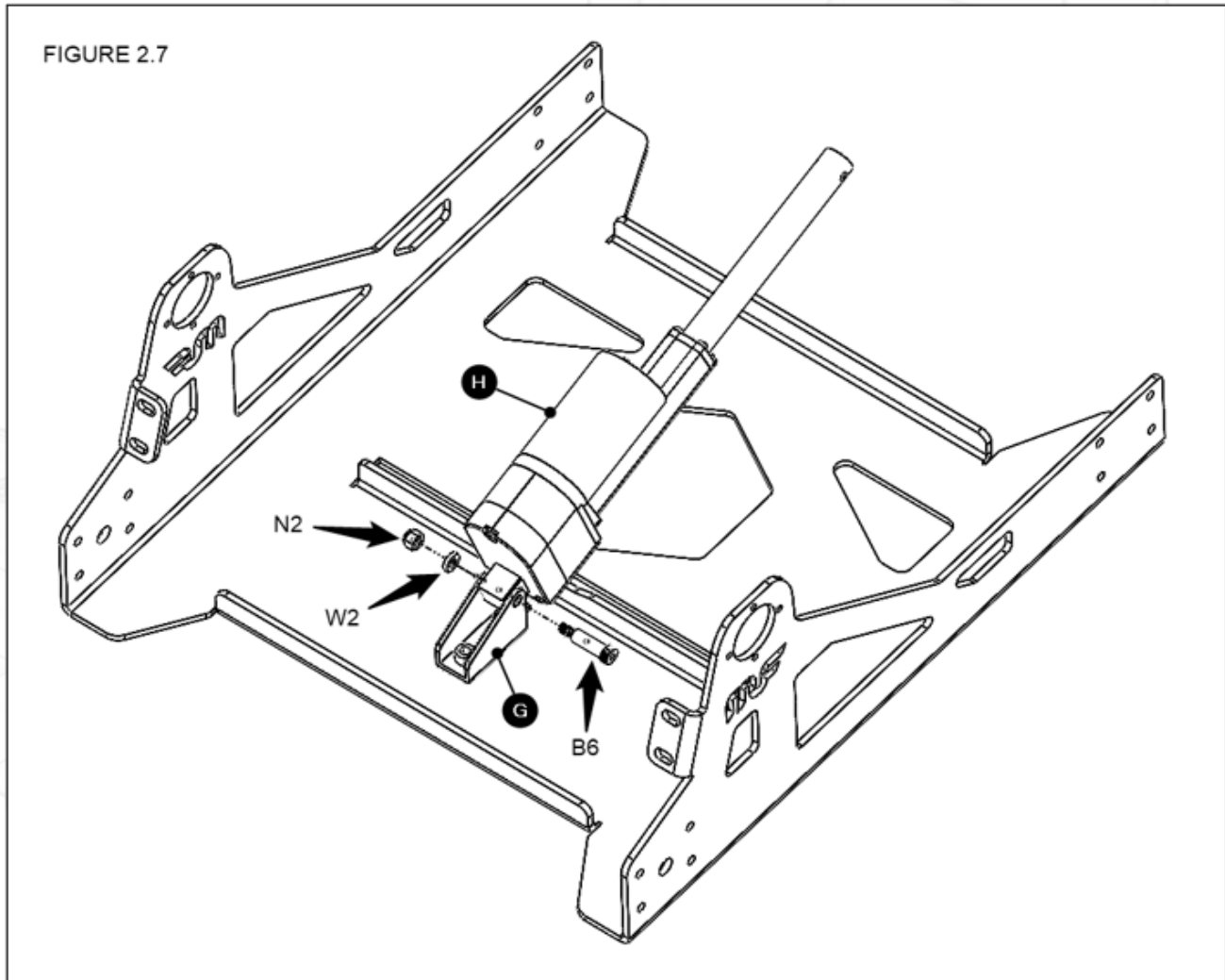
NOTE: It can be helpful to apply a small amount of petroleum lubricant to the edges of the tube on the Seat Base Assembly where you will be inserting components F in order to prevent potential noise or friction when assembled.

6. Install component G [sheet metal hanger] on component A [seat base upright] with the indicated hardware Figure 2.6.

FIGURE 2.6



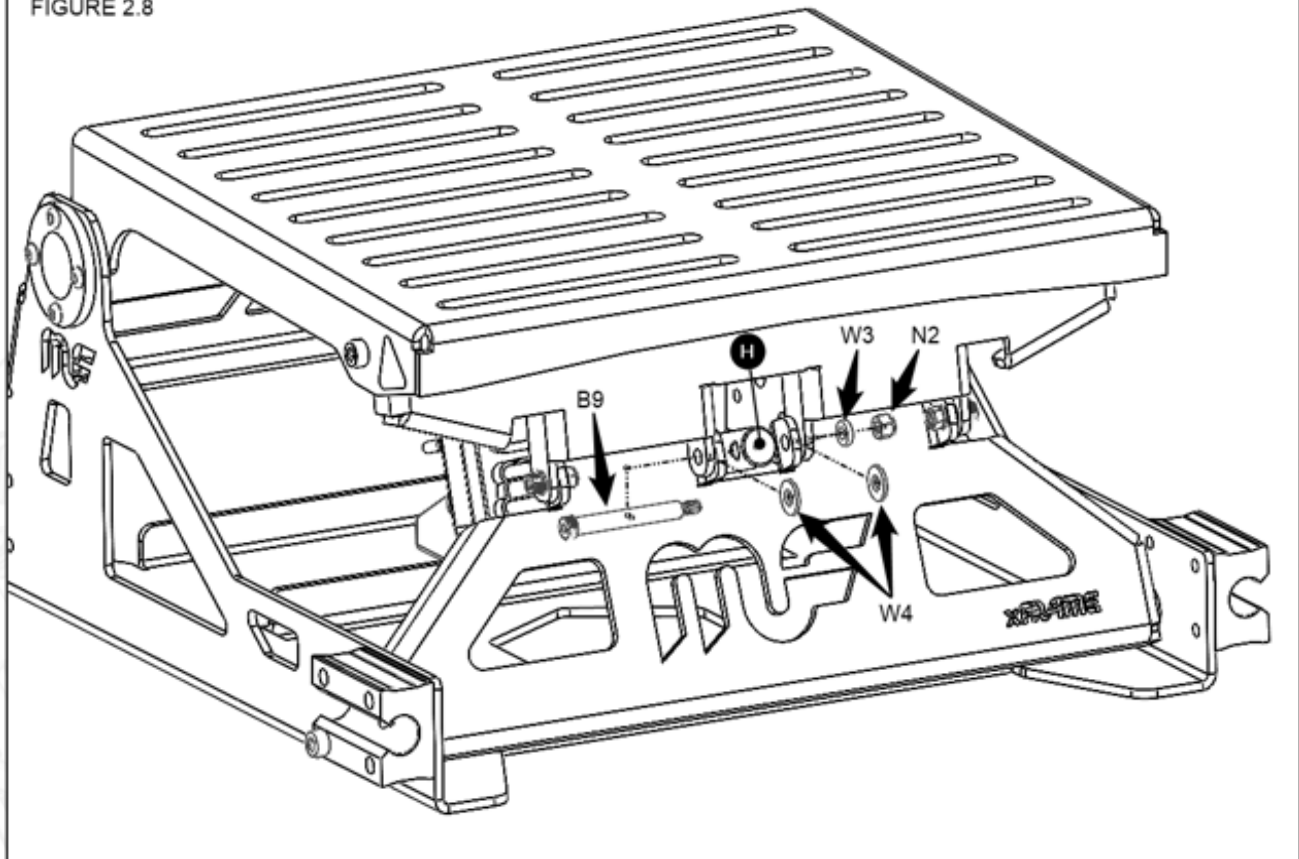
7. Install the linear actuator assembly [component H] onto the seat base upright by attaching it to the sheet metal hanger in the orientation indicated in Figure 2.7.



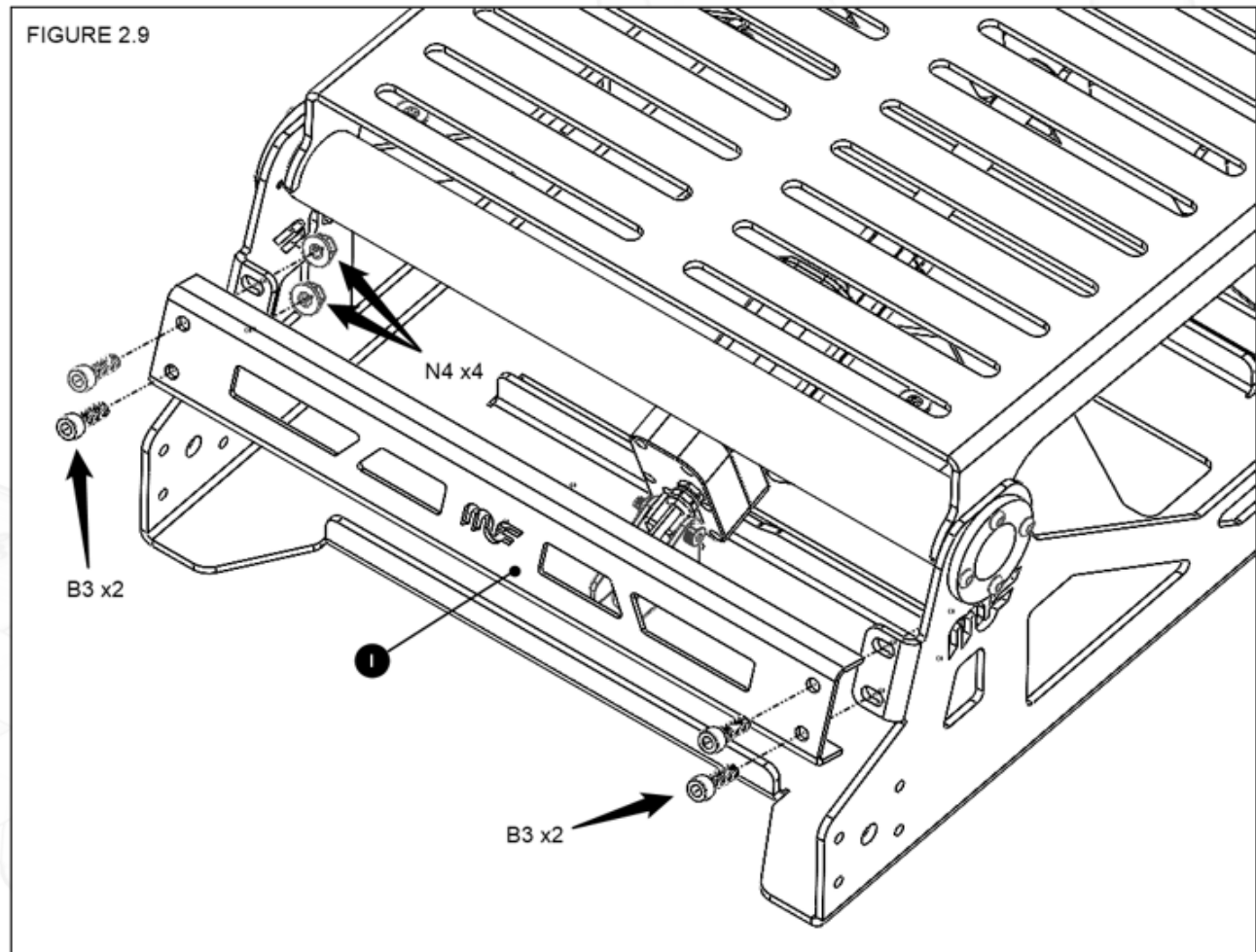
Make sure to use the extended linear actuator in this step. Using the retracted actuator will cause difficulty in accessing and assembling this assembly moving forward.

8. Join the shaft of the linear actuator [component H] to the arm assembly in the manner shown in Figure 2.8. Ensure that the nylon washers [component W4] are placed properly between each metal junction.

FIGURE 2.8

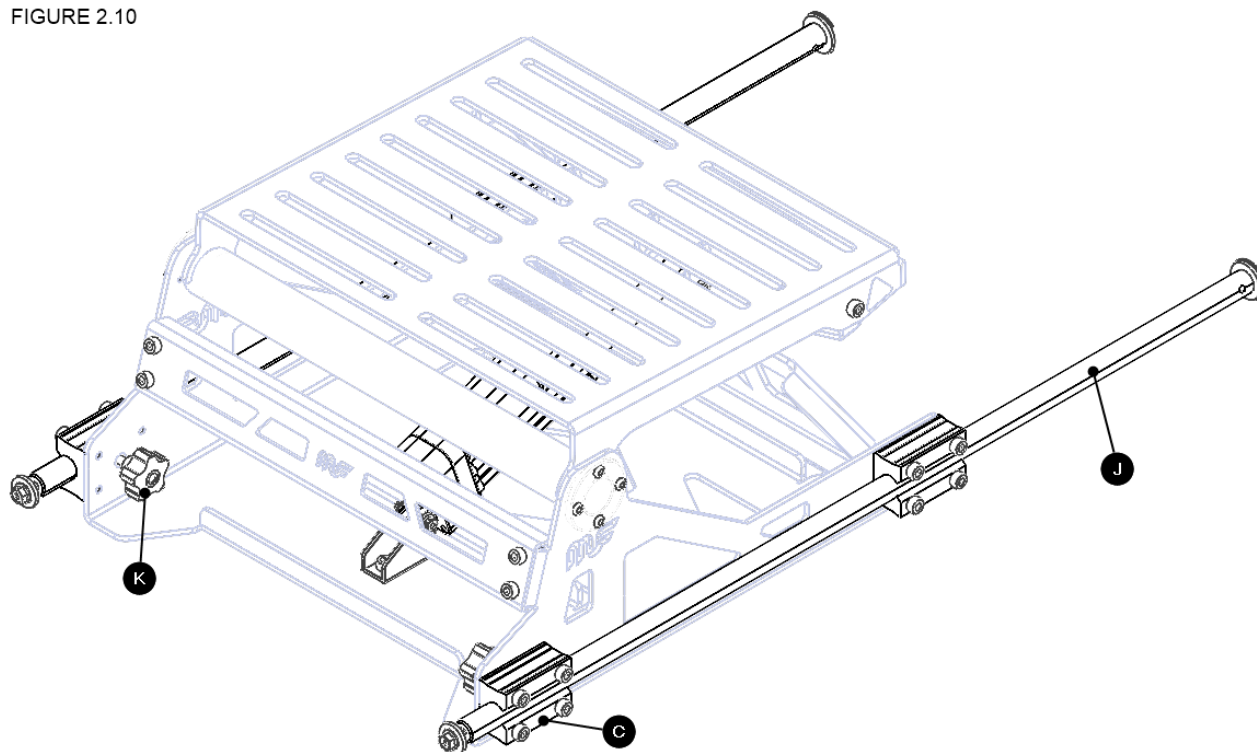


9. Install the seat assembly brace [component I] in the location indicated in Figure 2.9.



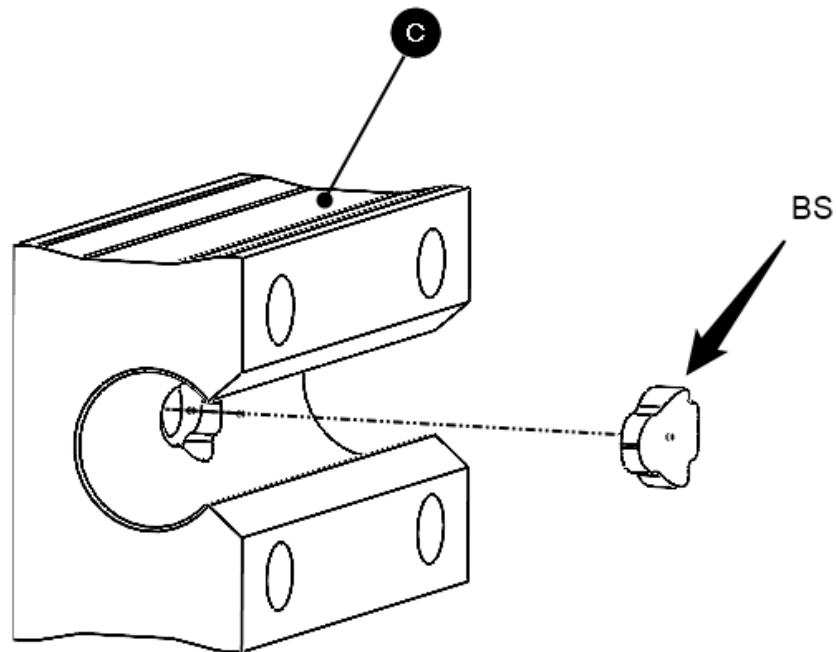
Section 2.2A: Seat Linear Rail System

FIGURE 2.10



1. Install the linear rail locking shoe [Hardware ID: BS] into the two linear sliders [component C] as shown in Figure 2.11.

FIGURE 2.11

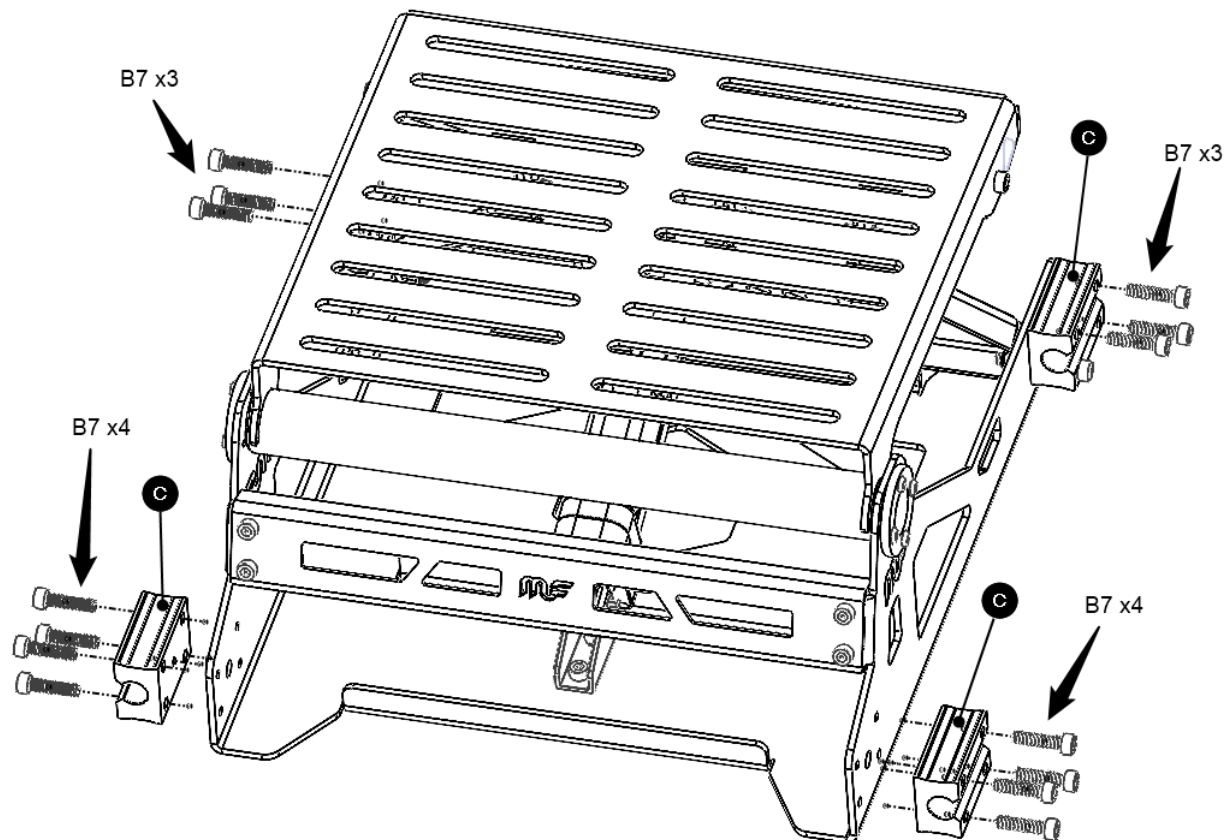


NOTE: It can be helpful to apply a small dab of petroleum jelly to the back side of the linear rail locking shoe to help hold it in place during installation.

2. Install both front locking slider assemblies onto the seat assembly in the location indicated in Figure 2.12. **Leave the eight [8] M8 mounting bolts hand-tight.**

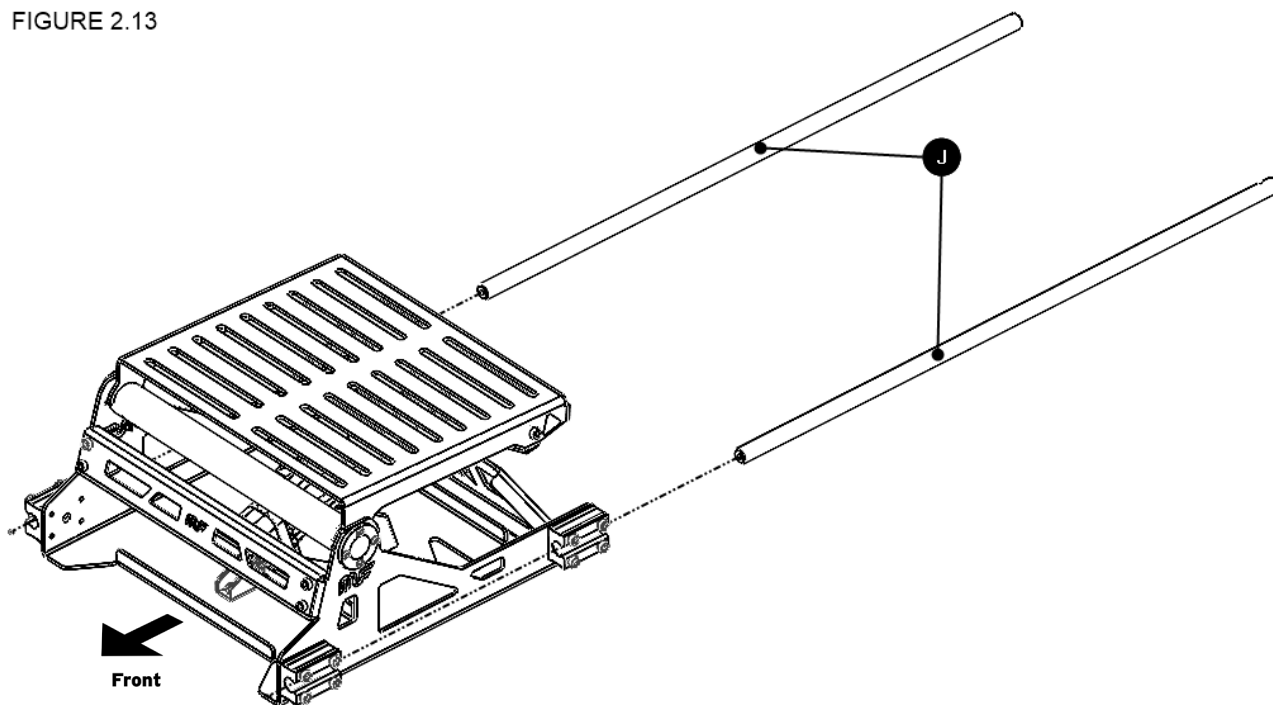
3. Install both rear linear sliders onto the seat base assembly as indicated in Figure 2.12. **Leave the six [6] M8 mounting bolts hand-tight.**

FIGURE 2.12



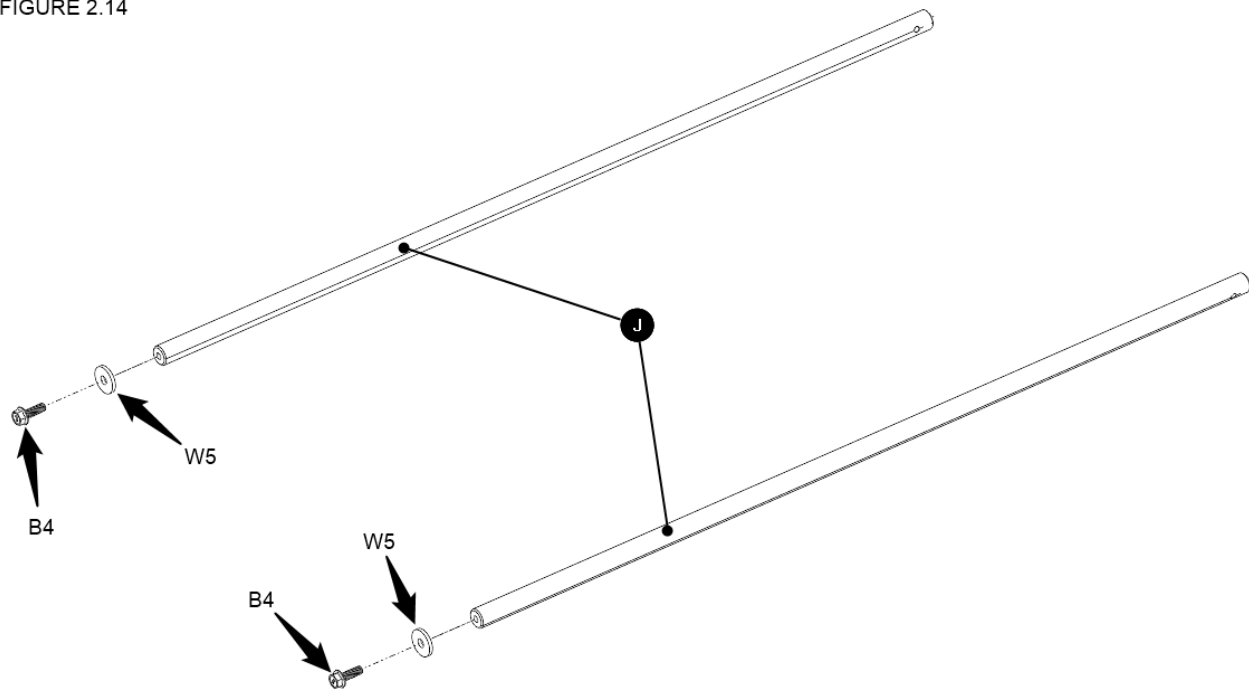
4. To align all four [4] of the linear sliders, insert both linear shafts [components J] fully through the linear sliders as shown in Figure 2.13. Fully tighten all eight [8] M8 bolts securing the front linear sliders in place. **Leave the rear linear sliders loose for now.**

FIGURE 2.13



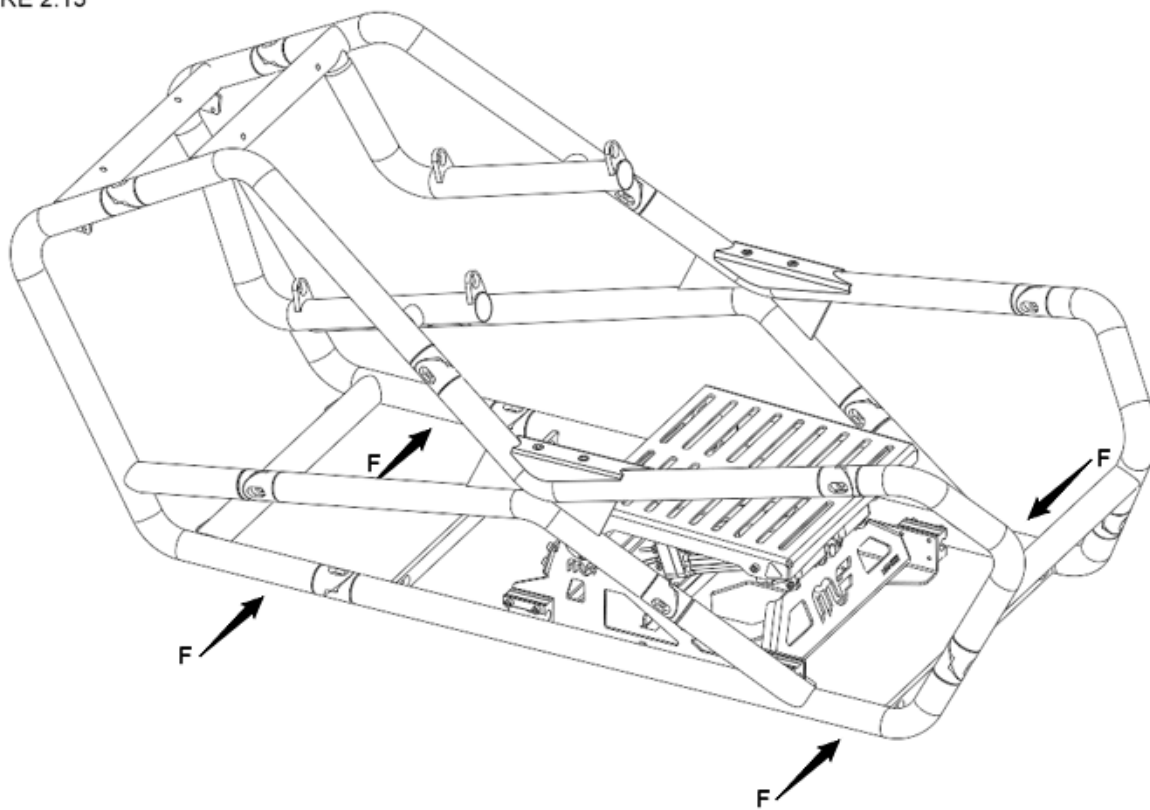
5. Remove both linear rails from the seat base assembly, and install the linear rail retaining hardware [Hardware ID: B4 & W5] on one side of both rails as indicated in Figure 2.14

FIGURE 2.14



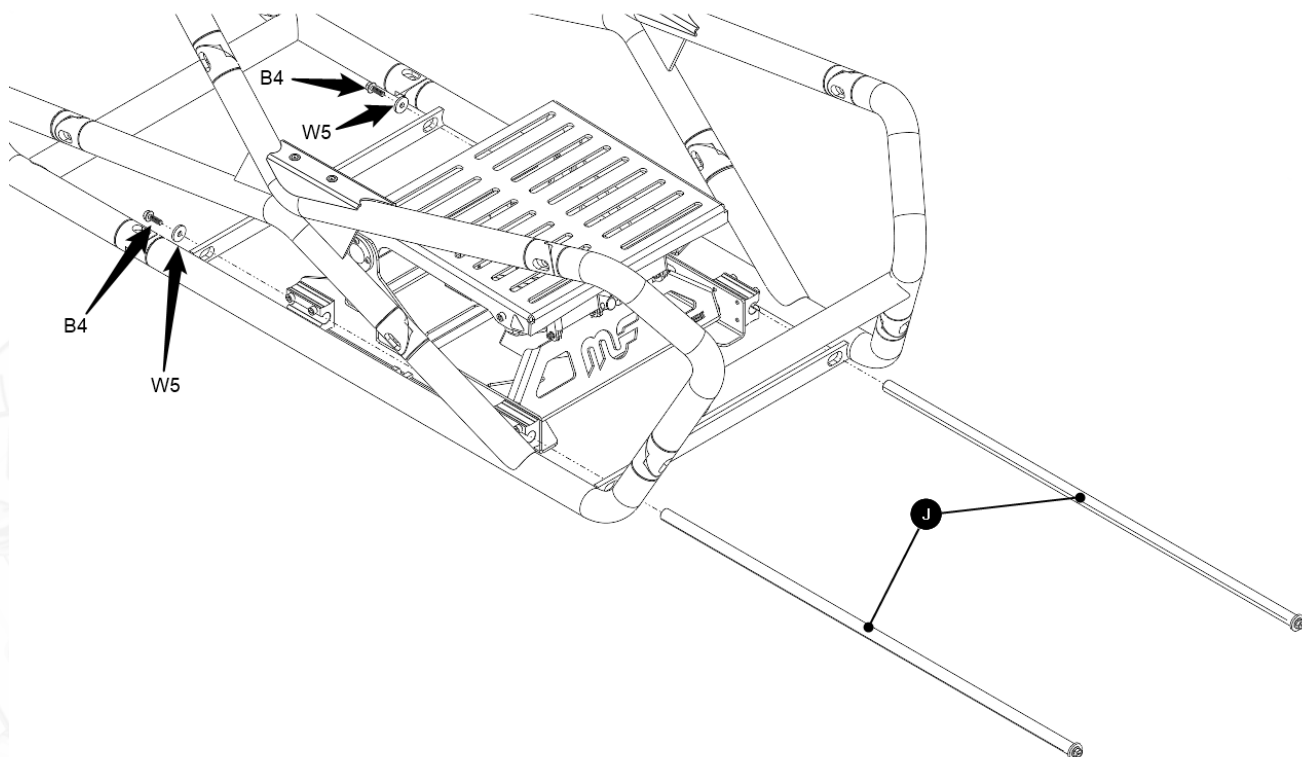
6. Lift and insert the completed F-GT seat assembly into position as shown in Figure 2.15. Then, lift the chassis [one side or end at a time] and place the chassis support feed underneath in the locations specified in Figure 2.15.

FIGURE 2.15



7. Insert both linear shafts [components J] through the frame and seat assembly with the preinstalled hardware facing the rear of the frame. Install front rail hardware [Hardware ID: B4 & W5] to secure the seat assembly in position as shown in Figure 2.16.

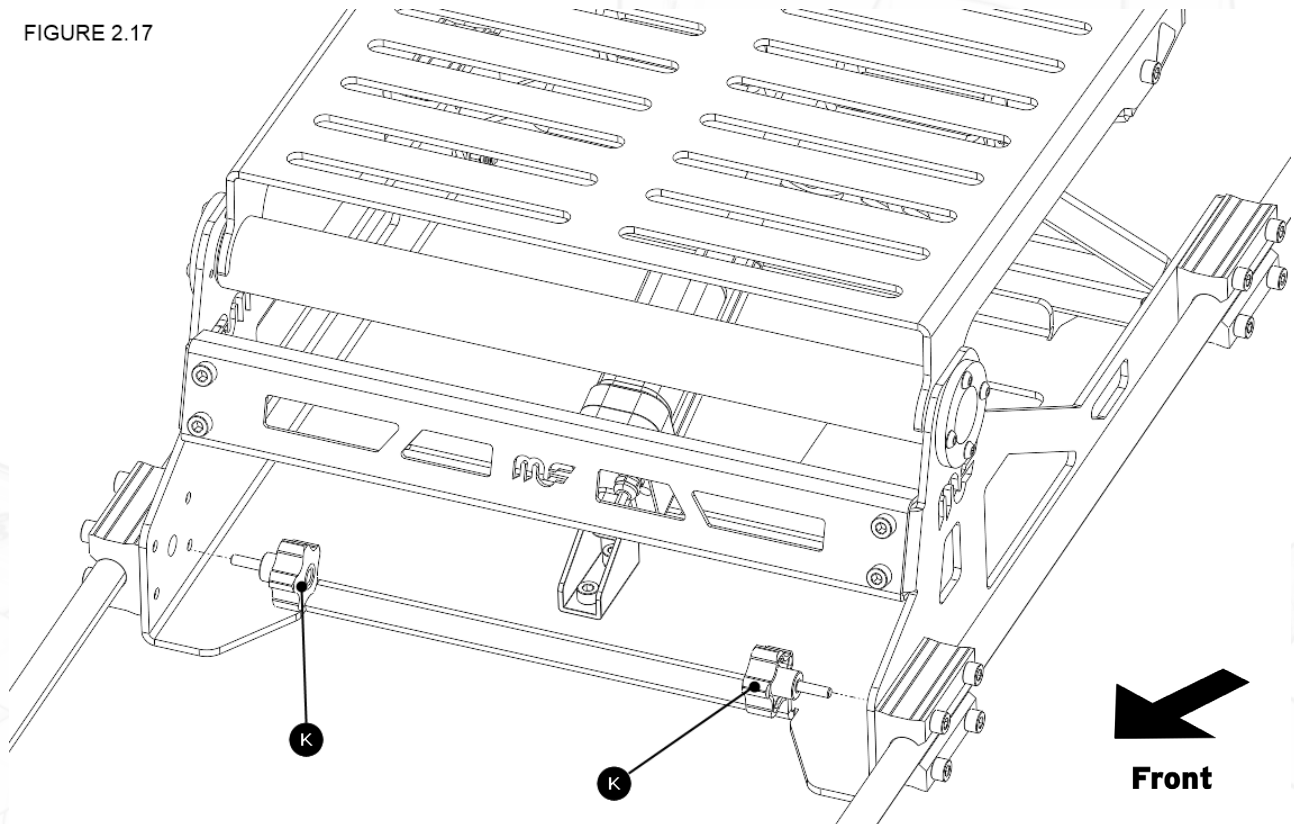
FIGURE 2.16



8. Tighten the front rail retaining hardware till they bottom, then a half turn more.

9. Thread in both seat locking knobs [components K] as shown in Figure 2.17. Leave these knobs backed slightly off of tight so the seat base can still be moved freely.

FIGURE 2.17



Section 2.3: Seat Linear Rail Tensioning and Slider Alignment

10. If you are using the xFrame Seat Brackets and Sparco Seat, complete Section 2.4 before continuing. If you are using a seat and bracket combination of your own, install them now.

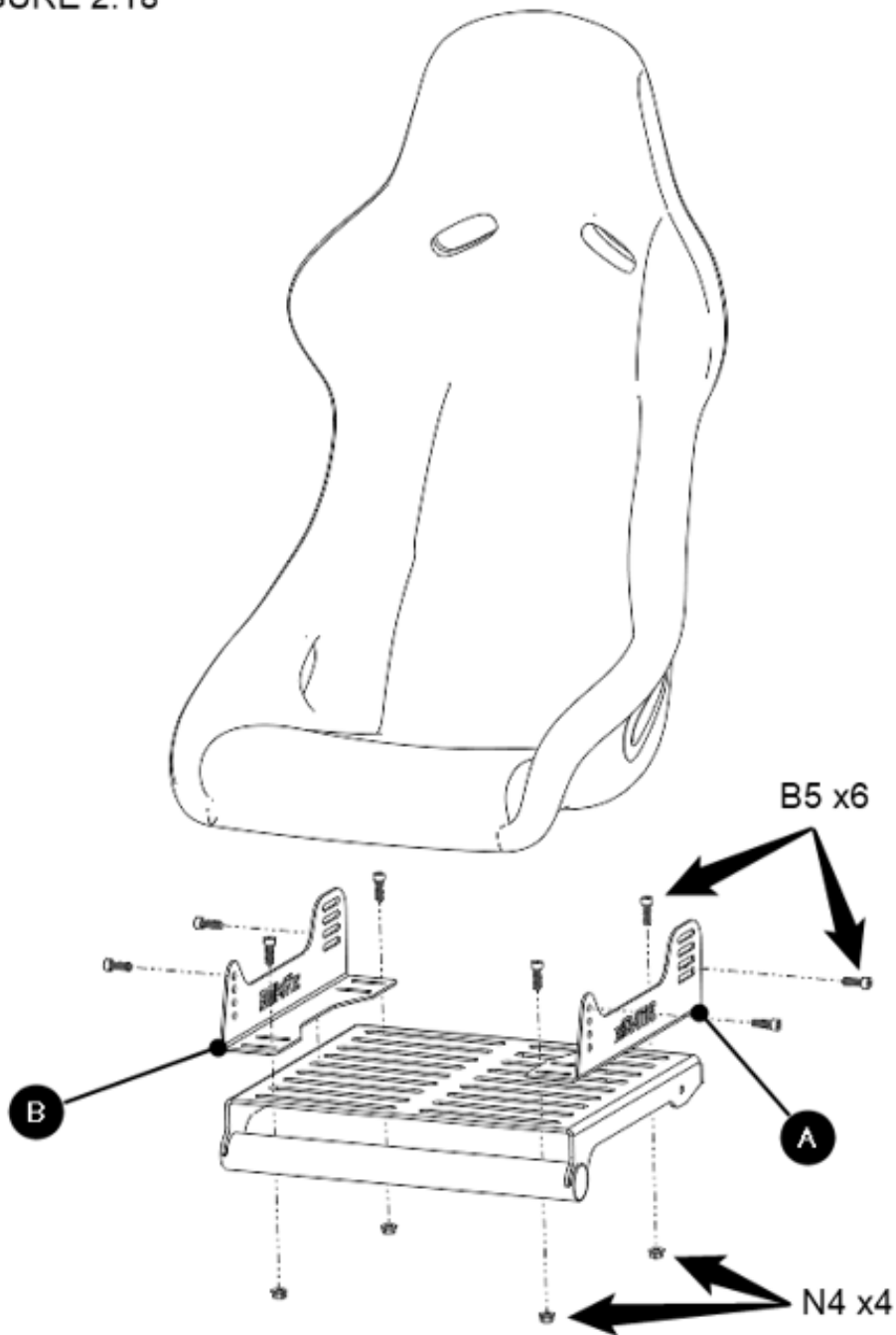
11. Sit in the seat, or have a second person sit in the seat, and tighten the rear linear sliders that were left loose in step 3 of Section 2.2A.

12. With the rear sliders securely fastened, check the translating motion for F/GT seat assembly to insure there is no binding or sticking.

NOTE: *If the seat assembly does not slide freely, verify the locking knobs are loose and the assembly is free of any obstructions. If binding persists, loosen the rear sliders and repeat Step 11.*

Section 2.4: Bucket Seat Installation

FIGURE 2.18



If you are using the xFrame Side-Mount Seat Brackets and Sparco EVO XL QRT Seat, proceed as follows:

1. Install the left and right universal seat brackets [components A and B respectively] onto the F/GT seat assembly in the orientation shown in Figure 2.18
2. Leave the four [4] M8 mounting bolts that secure the universal seat mounts hand tight until the Sparco bucket seat is in position and securely fastened to both universal seat brackets.
3. Fully tighten the four [4] M8 bolts from Step 2.
4. With the bucket seat fully installed, you may apply the provided xFrame decal if you wish to do so.



Section 3.1: Pedal Base Plate Assembly

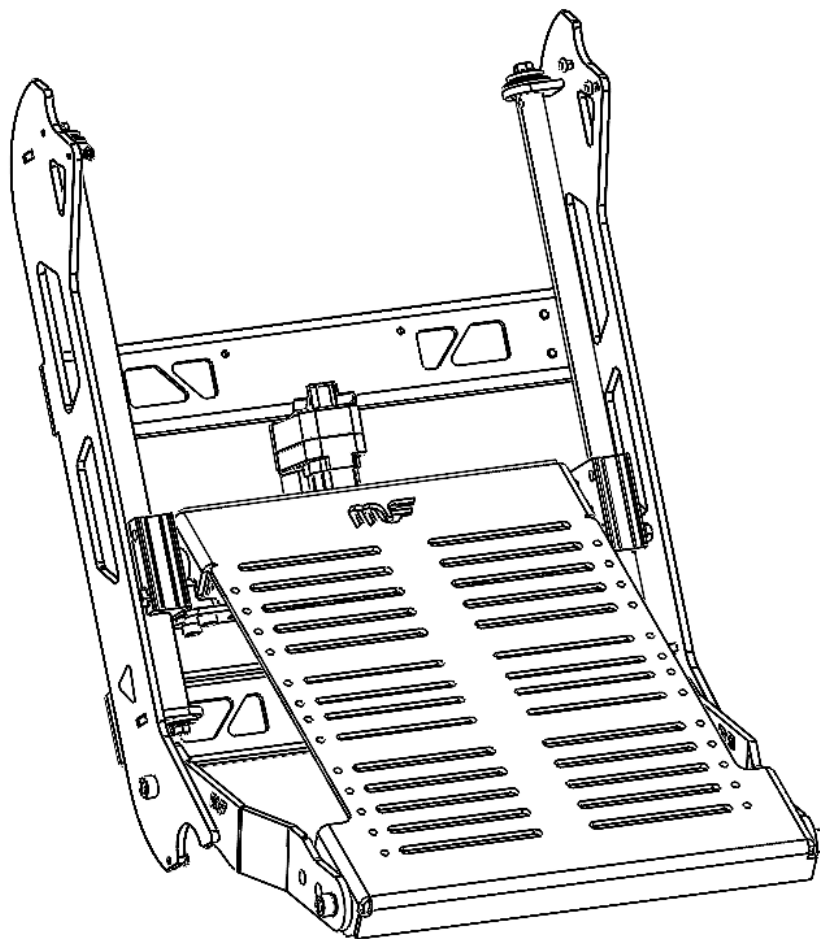
Required Tools:

- Allen keys: 4mm, 5mm, 6mm
- Box wrench: 10mm, 13mm, 17mm

Hardware Bag[s]:

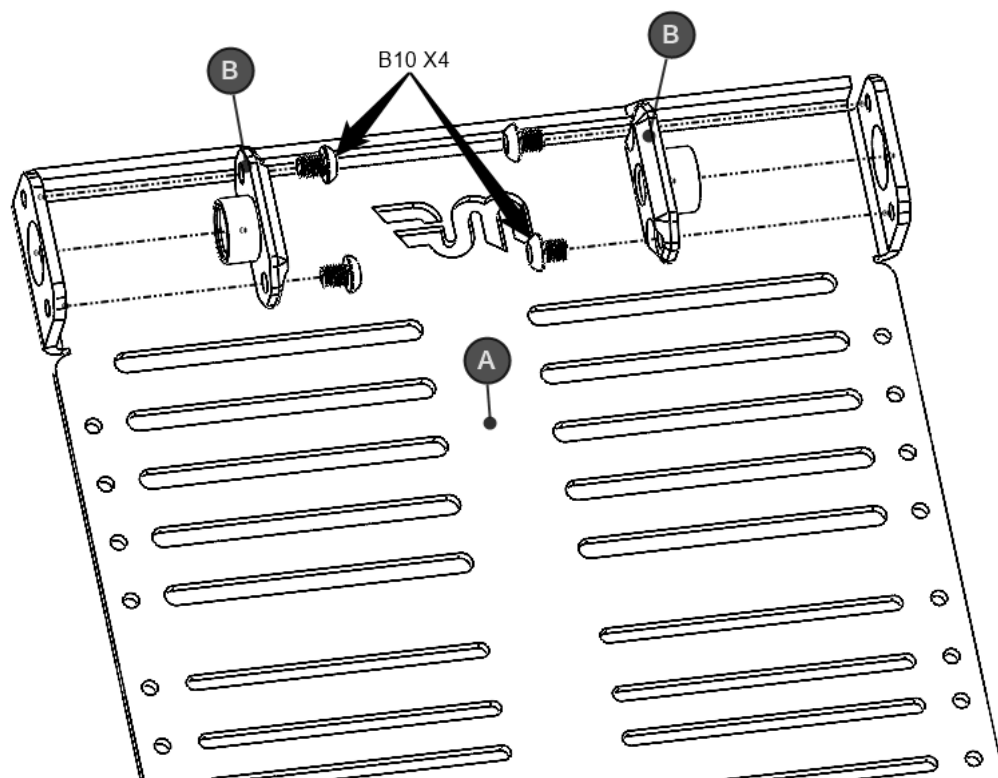
- Pedal hardware bag
- Pedal hardware ID Sheet

FIGURE 3.1



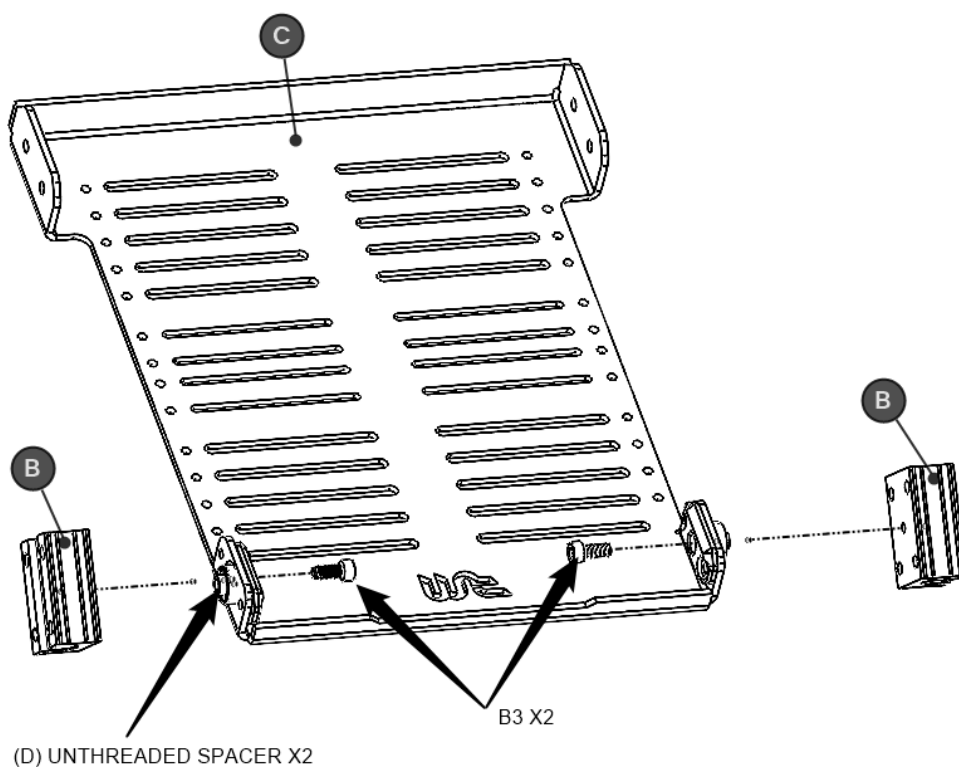
1. Locate component A [pedal base plate] and install components B [left and right pillow block bearings] as shown in Figure 3.2. Use four [4] B10 bolts to secure.

FIGURE 3.2



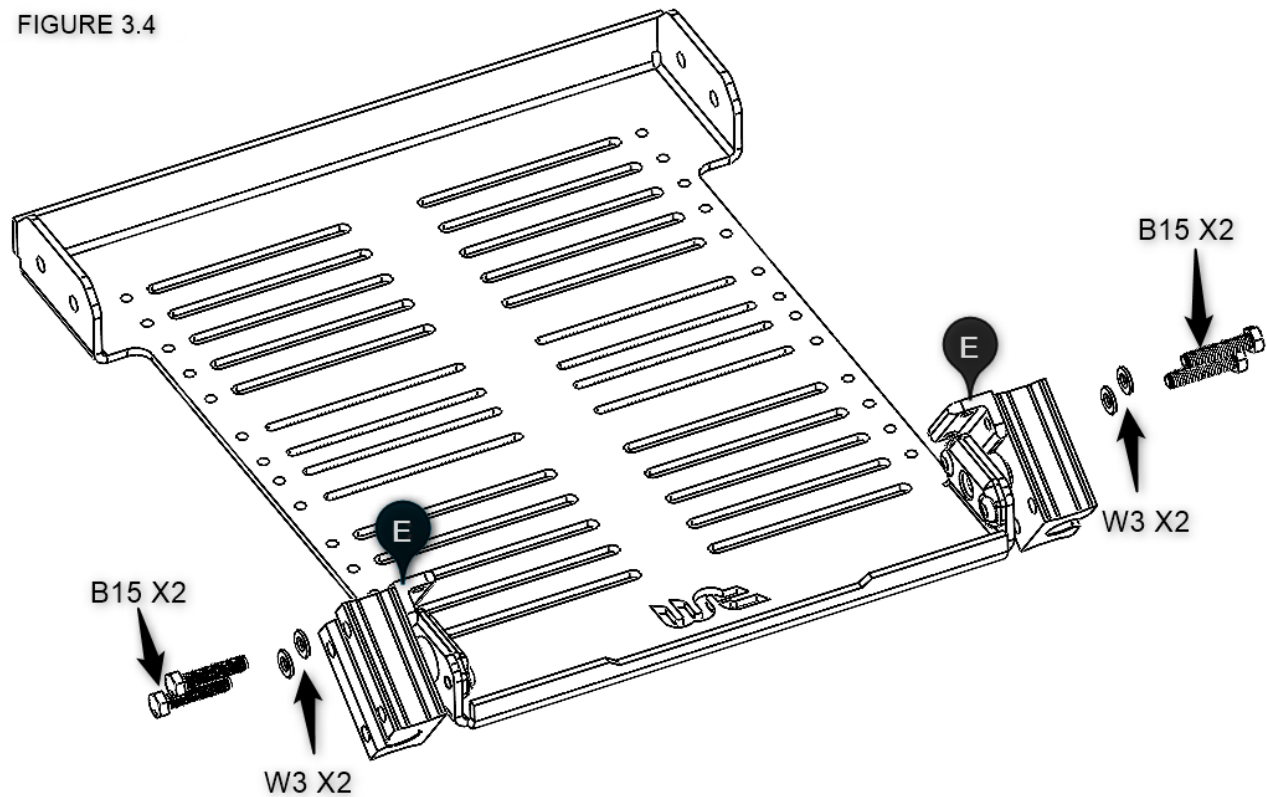
2. Join components C [left and right linear sliders] to component B as shown in Figure 3.3. Be sure to have the small, unthreaded spacer in place [component D] when assembling.

FIGURE 3.3



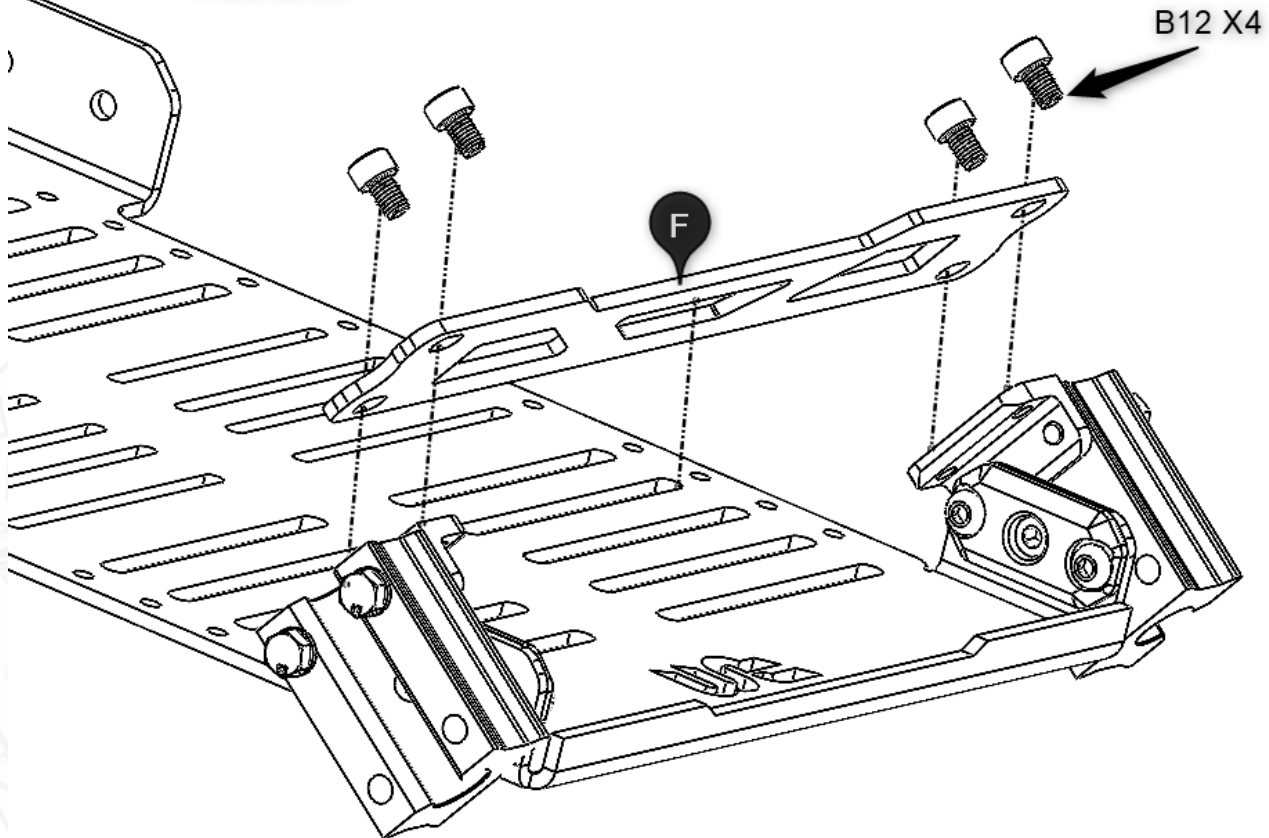
3. Install the left and right cross brace adapters [components E] to the left and right linear sliders [components C] as shown in Figure 3.4. **Leave this hardware hand-tight.**

FIGURE 3.4



4. Install the linear slider cross-brace [component F] in orientation shown in Figure 3.5. As with the previous step, leave these bolts hand-tight for now as well.

FIGURE 3.5



Section 3.2: Pedal Rail Upright Installation

1. Install the left and right pedal uprights [components G and H respectively] into the pedal tubular sub-assembly [chassis component B] as shown in Figure 3.6.

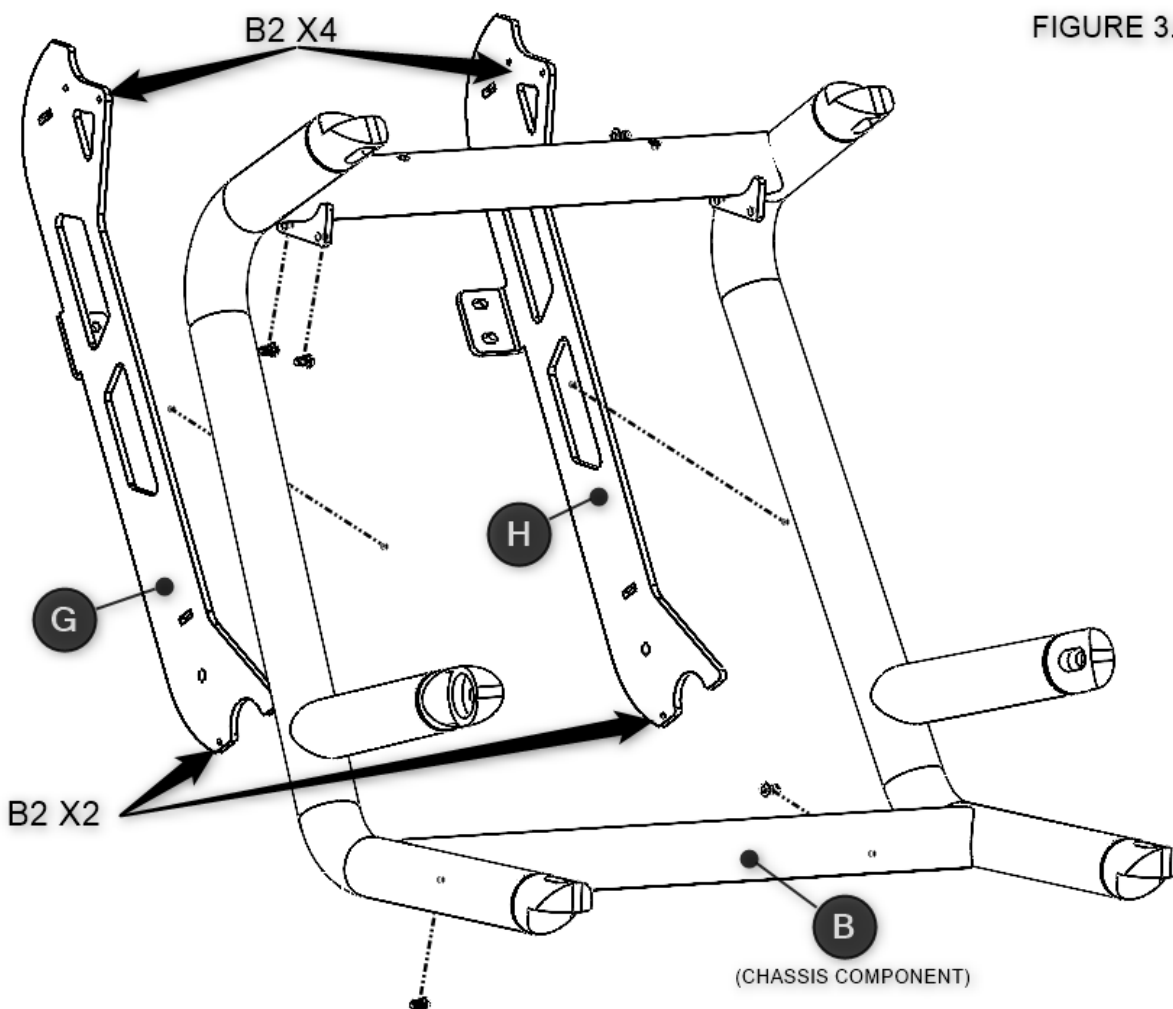
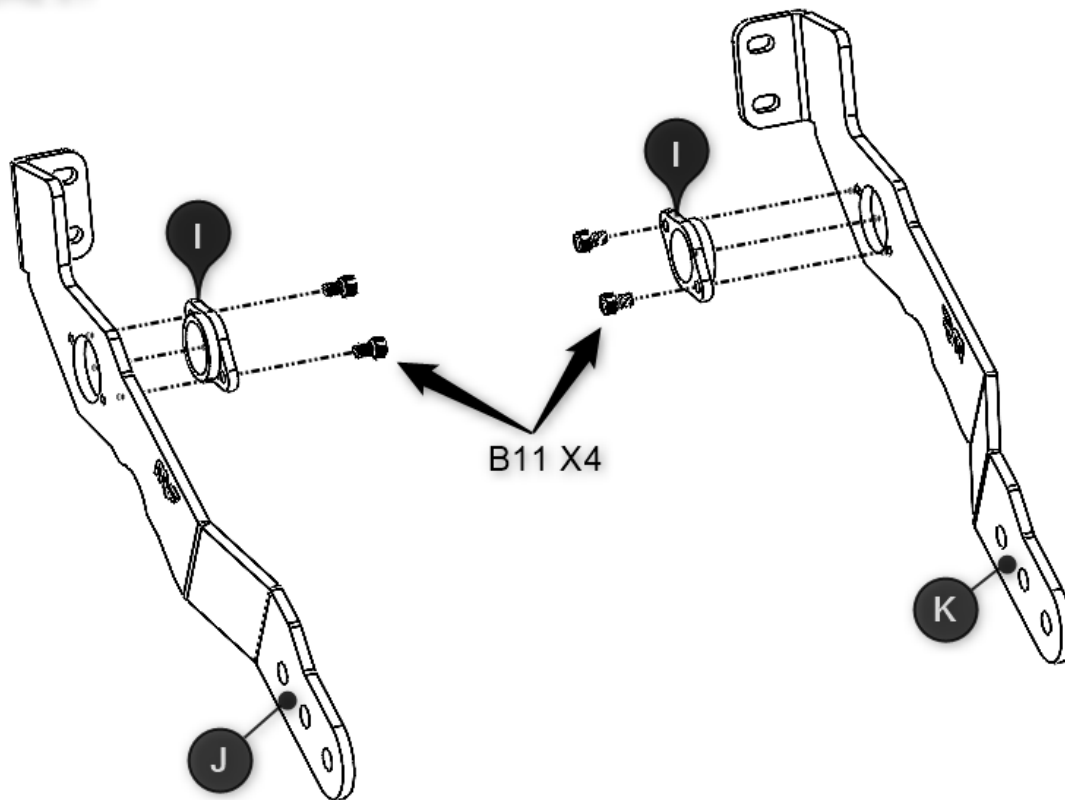


FIGURE 3.6

2. Install the left and right pedal angle arm bearing blocks [components I] into the left and right pedal angle arms [components J and K respectively] in the orientation shown in figure 3.7.

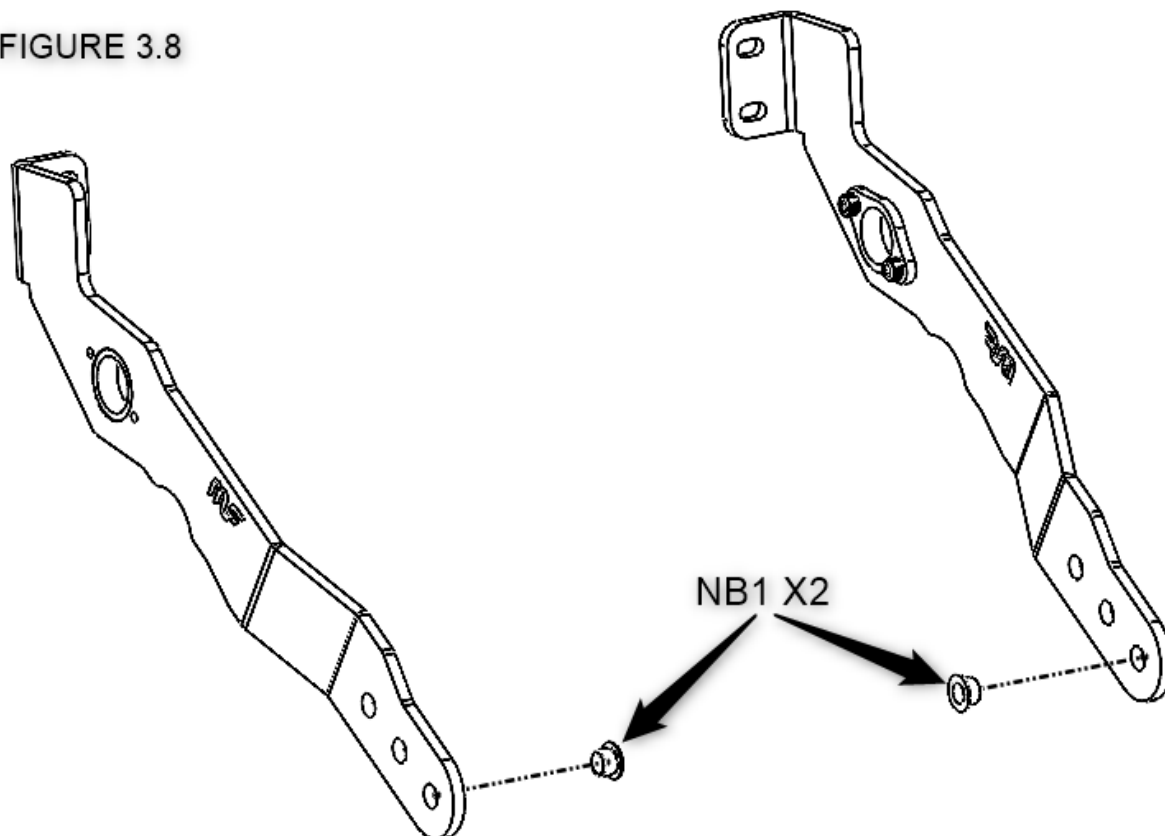
FIGURE 3.7



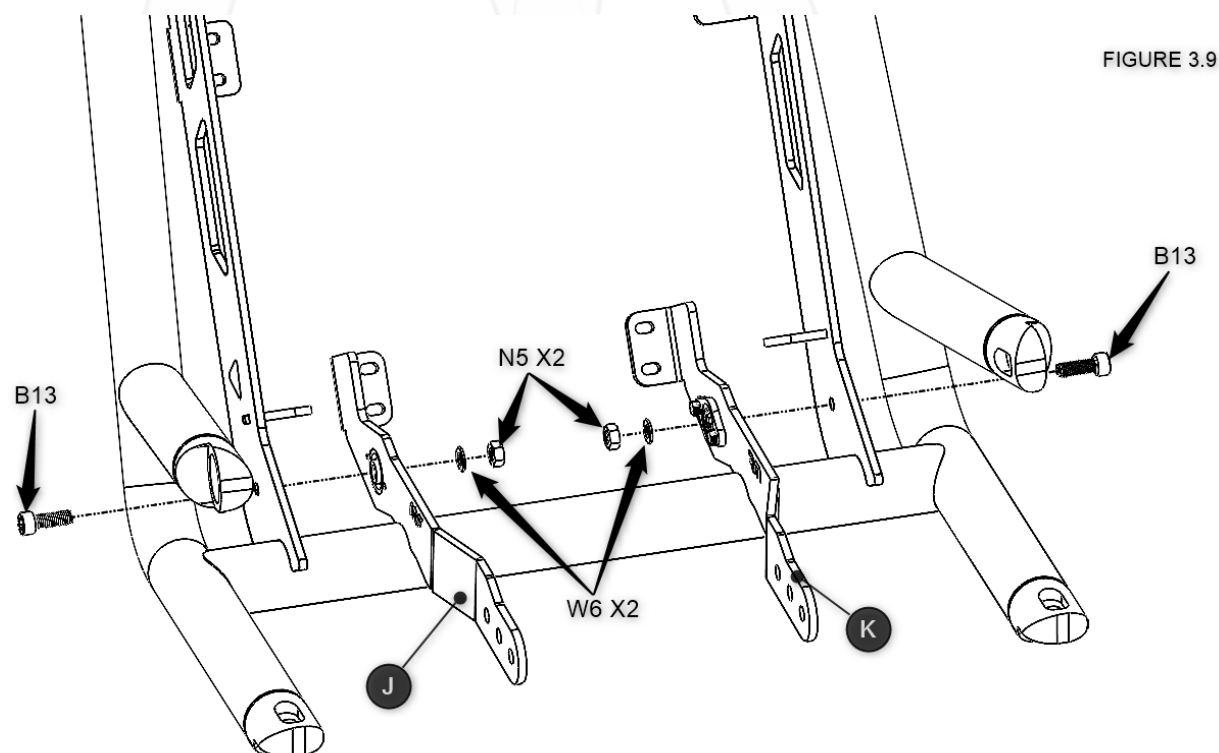
NOTE: Component I often comes with small set screws in the central bearing hole. If yours has these, remove and dispose of them as they can cause issues with hardware clearance later on.

3. Install the blue nylon bushing [Hardware ID: NB1] into both left and right pedal angle arms in the orientation shown in Figure 3.8.

FIGURE 3.8



4. Install both left and right Pedal Angle Arms [components J and K respectively] into position as indicated in Figure 3.9.



5. Install the Articulating Linear Actuator Brace [component M] and the Fixed Brace [component N] in the orientation shown in Figure 3.10.

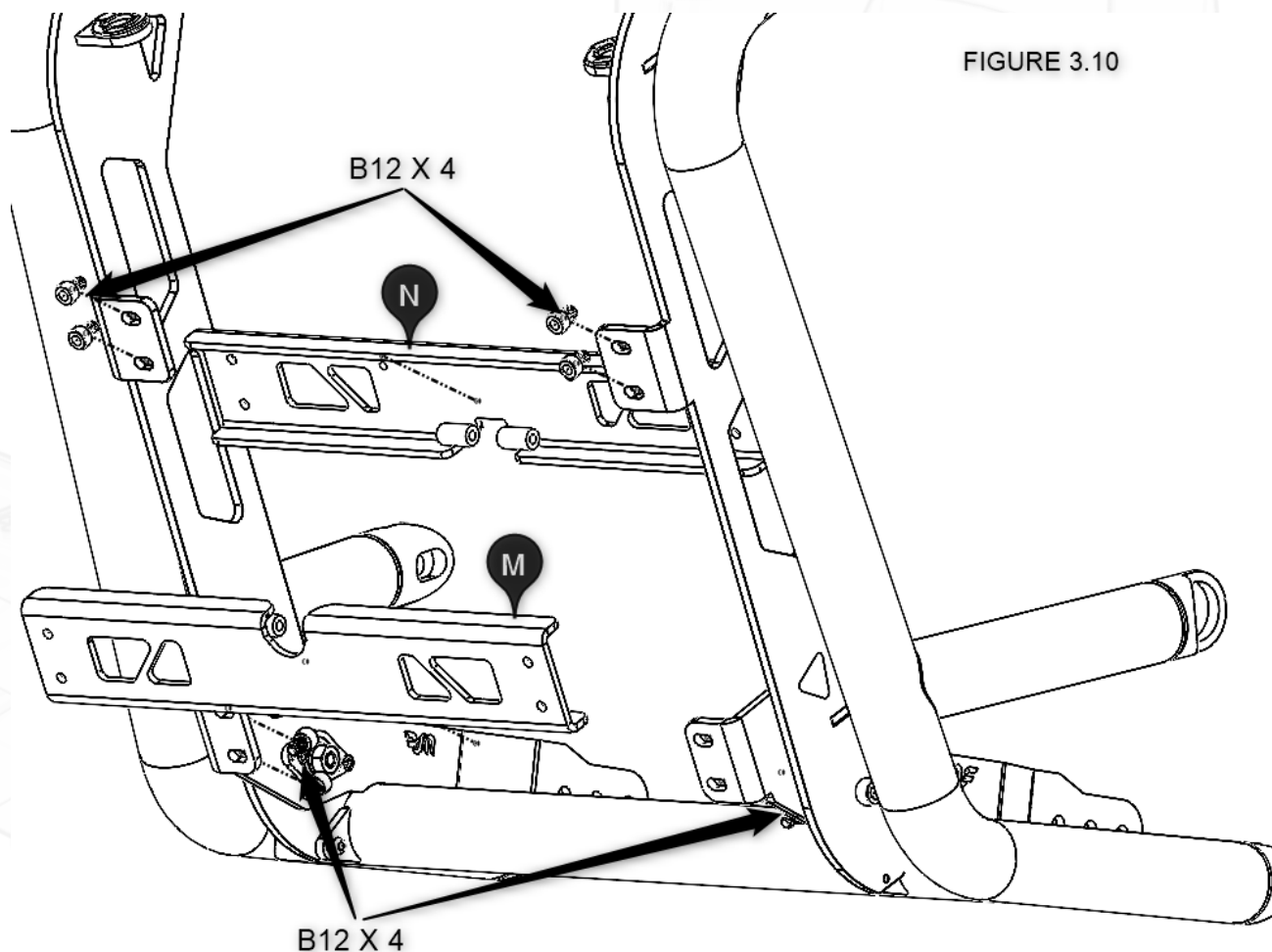


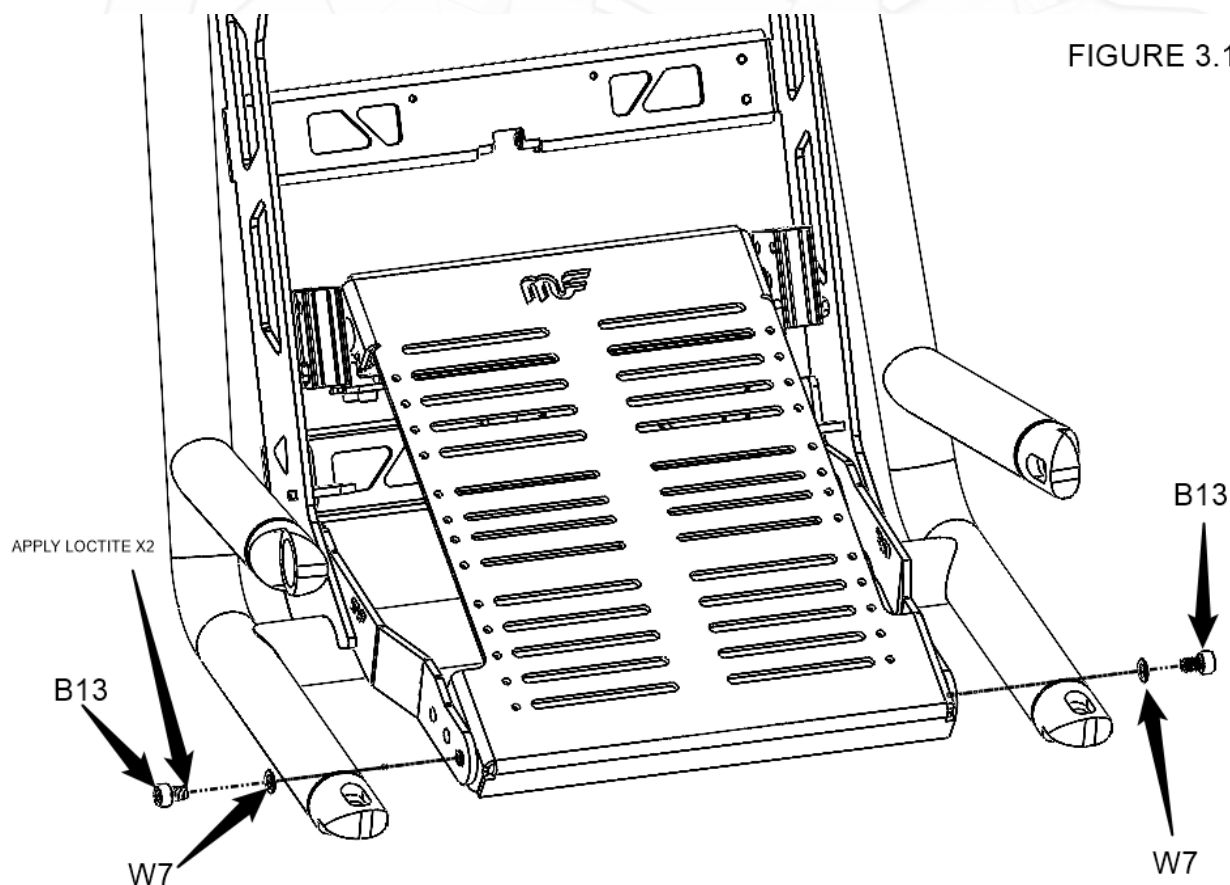
FIGURE 3.10

NOTE: Make sure the lower brace is centered between both pedal angle arms prior to tightening the hardware.

Section 3.3 Pedal Base Plate Installation

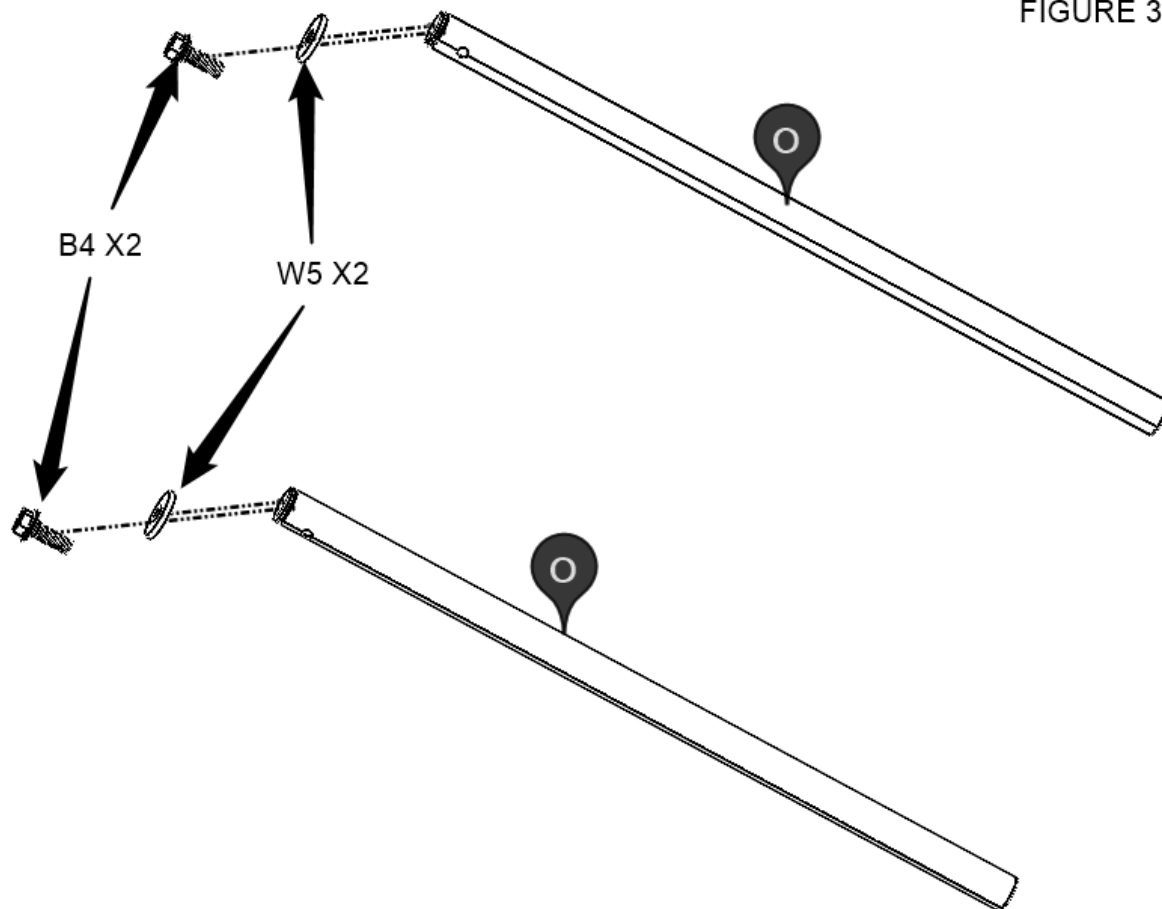
1. Retrieve the finished pedal base plate subassembly from Section 3.1 and mount it to the finished sub assembly from Section 3.2 in the orientation shown in Figure 3.12.

Be sure to apply 2-3 drops of Loctite thread locker to the bolt threads prior to installation [Hardware ID: B13]. This will help prevent unintended loosening through prolonged use.



2. Install and fully tighten the retaining hardware on the pedal linear rails [components O] as shown in Figure 3.13.

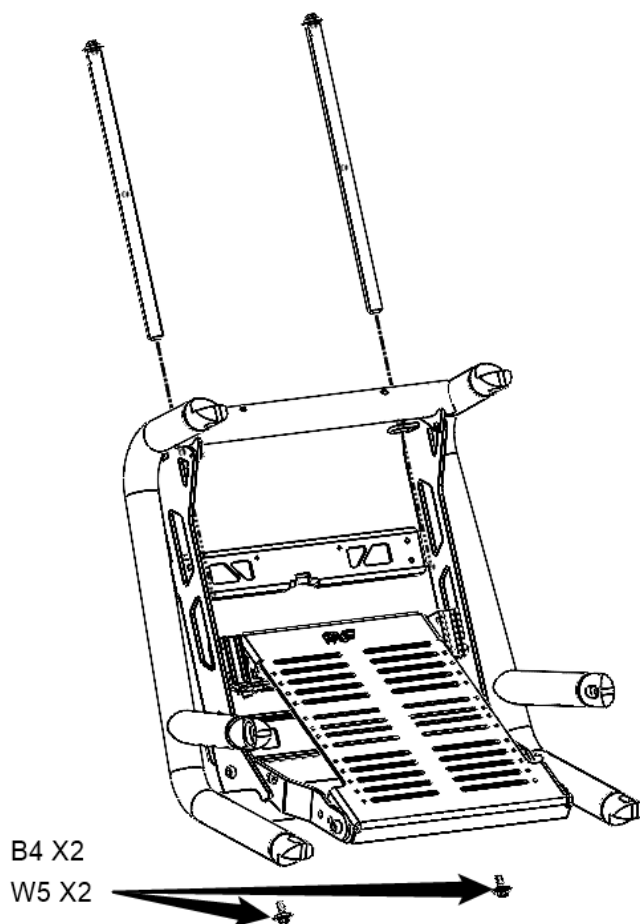
FIGURE 3.13



NOTE: Install the hardware onto the end of the rods with the machined hole (as shown above).

3. Position the linear sliders so that each rail can be inserted through both retaining rings of the pedal rail uprights [components G and H from step 1 of section 3.2] and through the linear sliders. Insert one rail at a time in the orientation indicated in Figure 3.14.

FIGURE 3.14



4. Install and hand tighten the lower retaining hardware until they bottom, then apply an additional half-turn to finish tightening.

NOTE: *Over-tightening of the lower rail hardware may result in damage to the pedal rail upright.*

5. Fully tighten the eight [8] M8 bolts from steps 3 and 4 of section 3.1.

6. Locate and install the two [2] unthreaded sleeves [component I] into the retracted linear actuator [component J] as in figure 3.15.

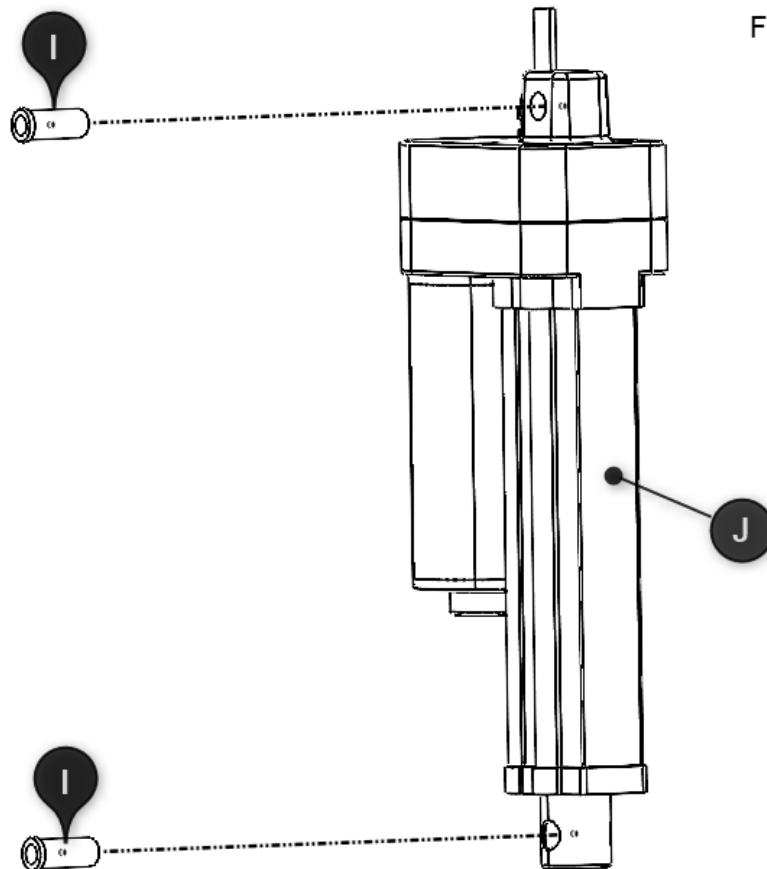
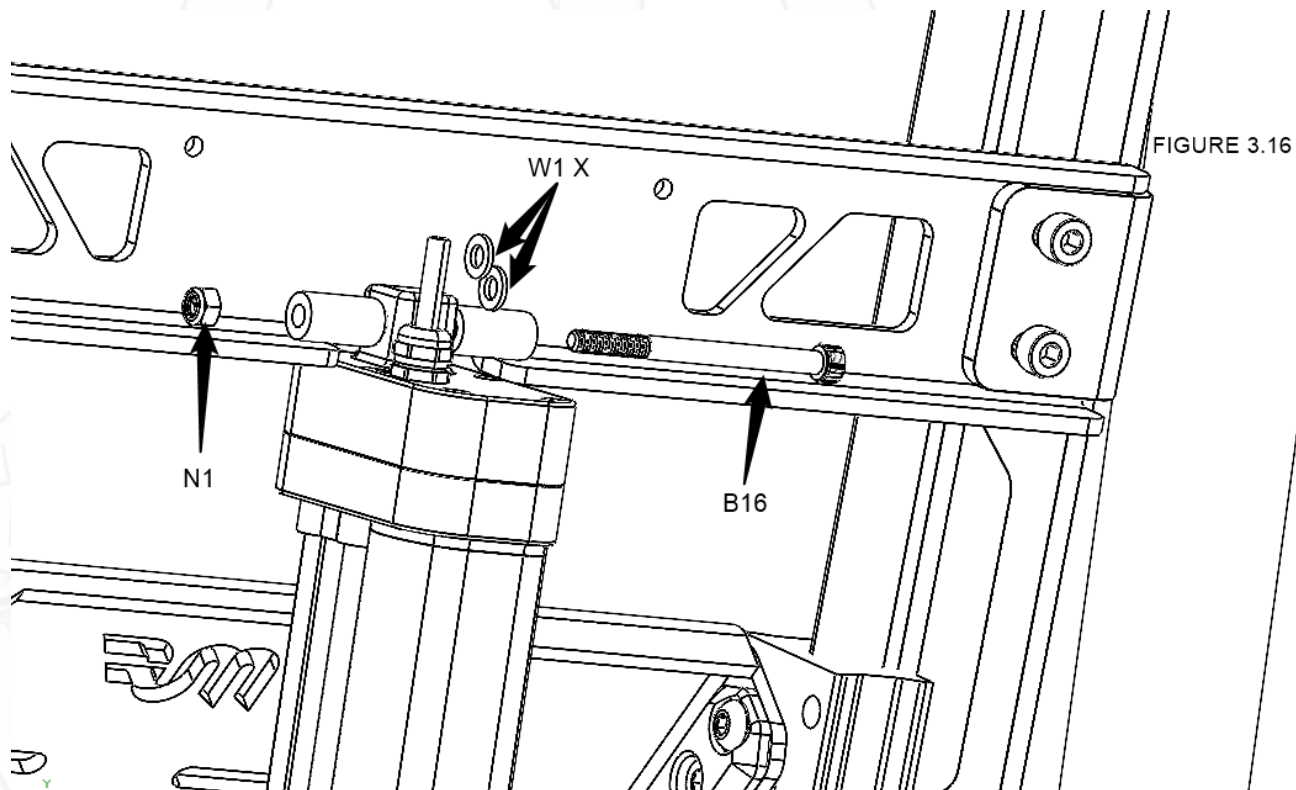


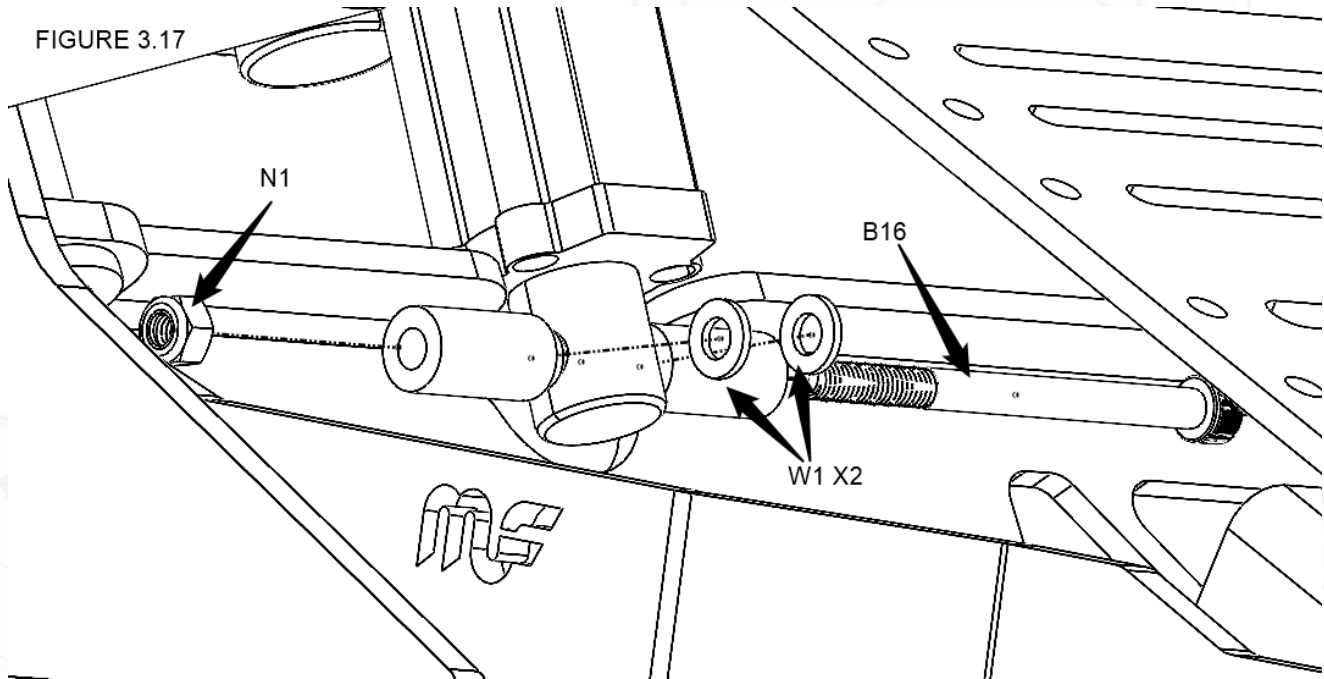
FIGURE 3.15

7. Install the linear actuator with the supplied hardware in the orientation shown in Figure 3.16. Ensure the washers [Hardware ID: W1] are placed correctly between the actuator and brace.



8. Fully tighten the upper and lower retaining bolts from step 7 using the 5mm Allen key and 10mm box end wrench found in the tool kit. Ensure the washers [Hardware ID: W1] are placed correctly between the actuator and brace.

FIGURE 3.17



9. Finally, Install the two Locking Shaft Collars onto the rail, and above both linear sliders [component C], one Locking Shaft Collar per side.

WARNING: Leave the Locking Shaft Collars loose for now. See xFrame Tuning section for instructions on proper setup and usage.

Section 4 Steering Assembly

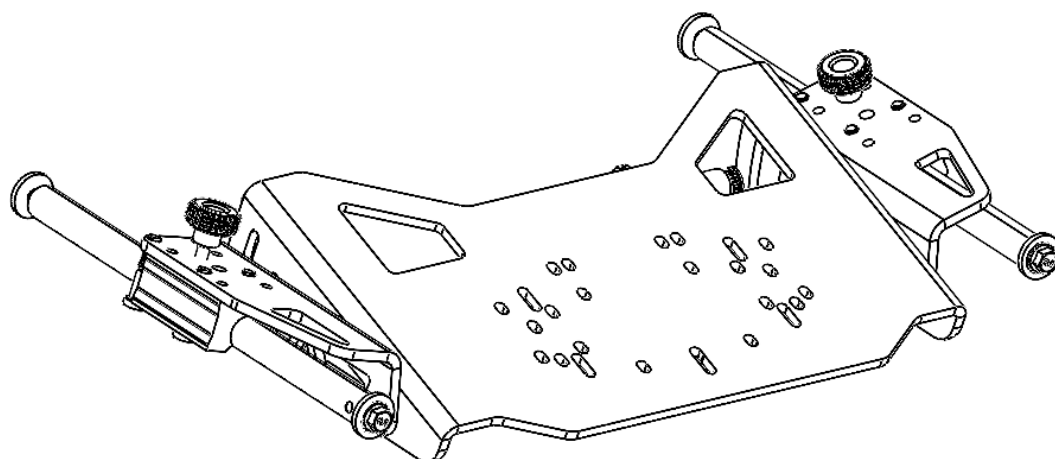
Required Tools:

- Allen keys: 5mm, 6mm
- Box wrench: 13mm
-

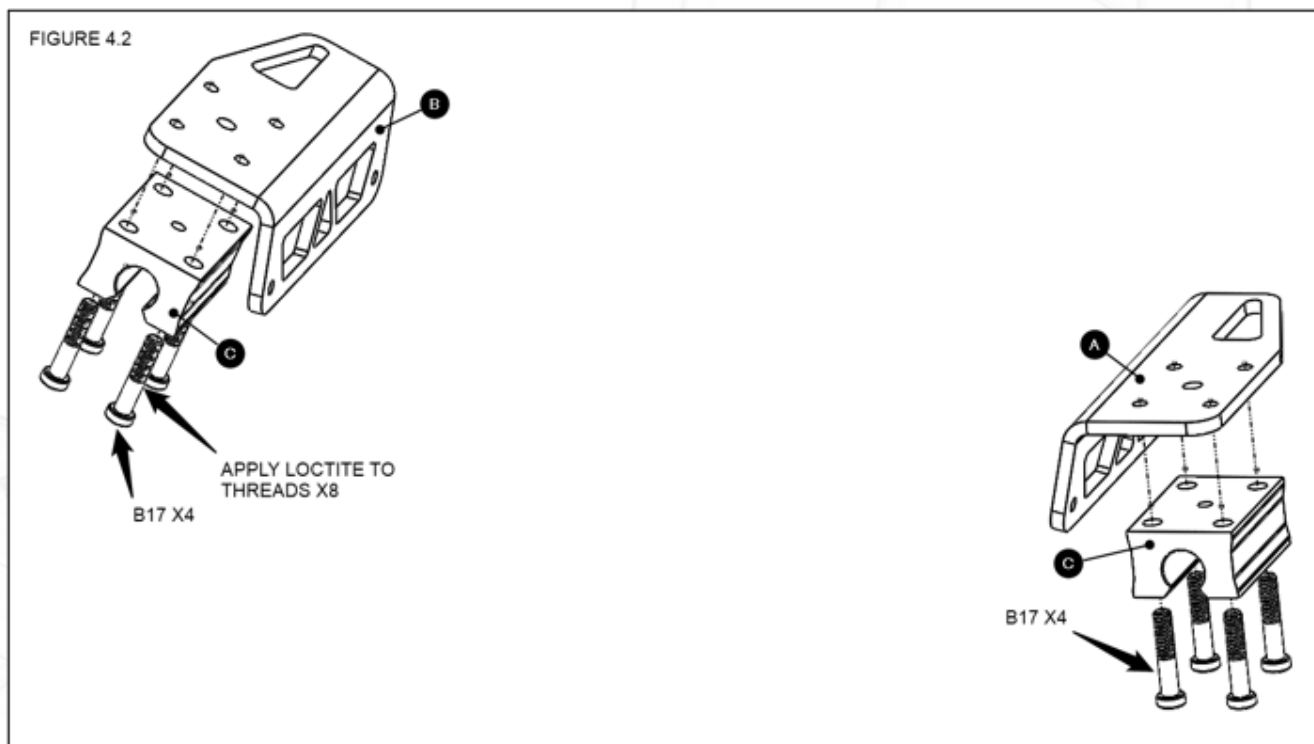
Hardware Bag[s]:

- Steering hardware bag

FIGURE 4.0



1. Locate the left and right steering slider brackets [components A and B respectively] and fasten them to the linear shaft sliders [components C] in the orientation shown in Figure 4.2. Apply 2-3 drops of Loctite thread locker to each bolt's threads.



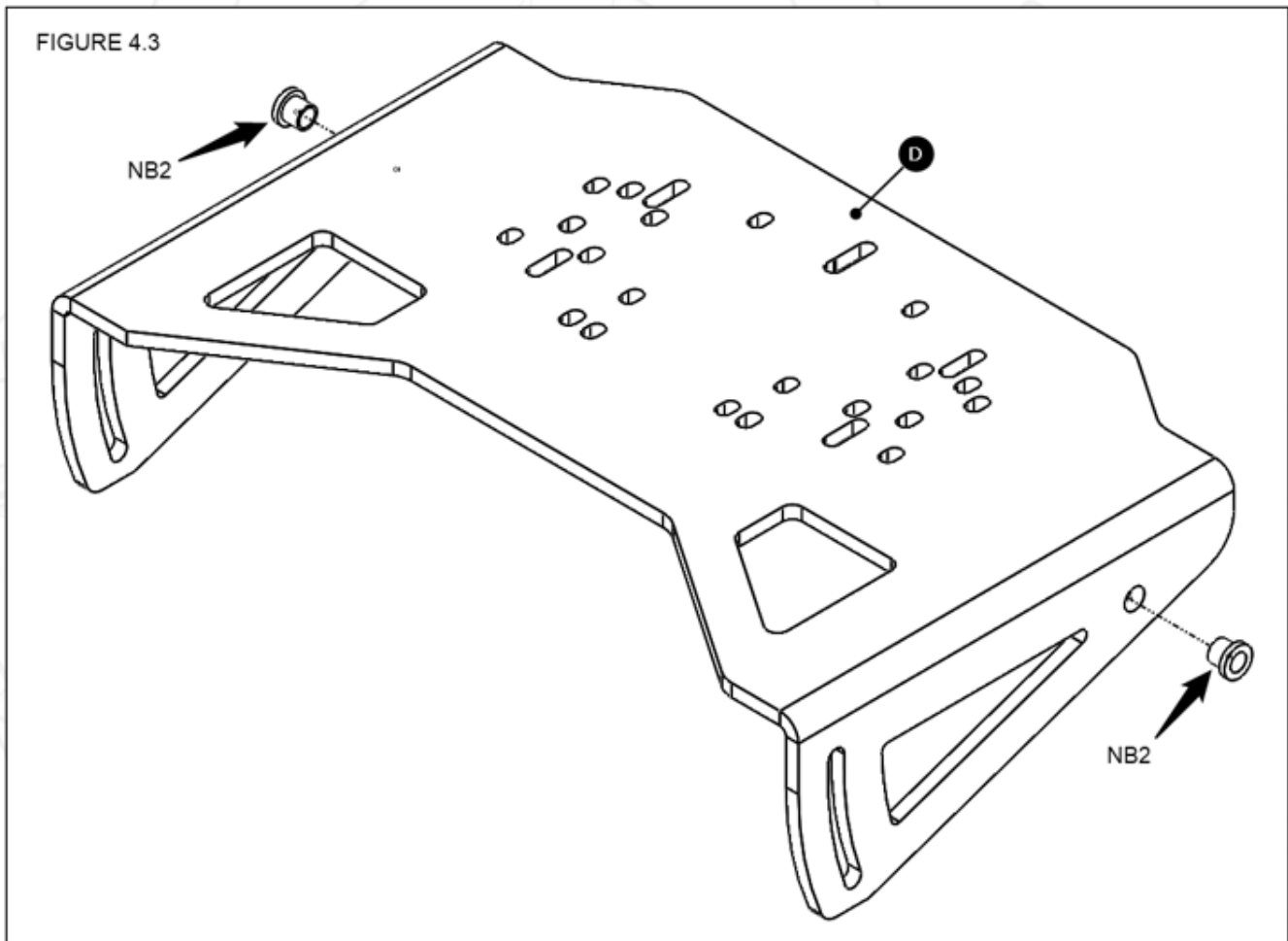
2. Fully tighten the eight [8] M8 bolts from Step 1.



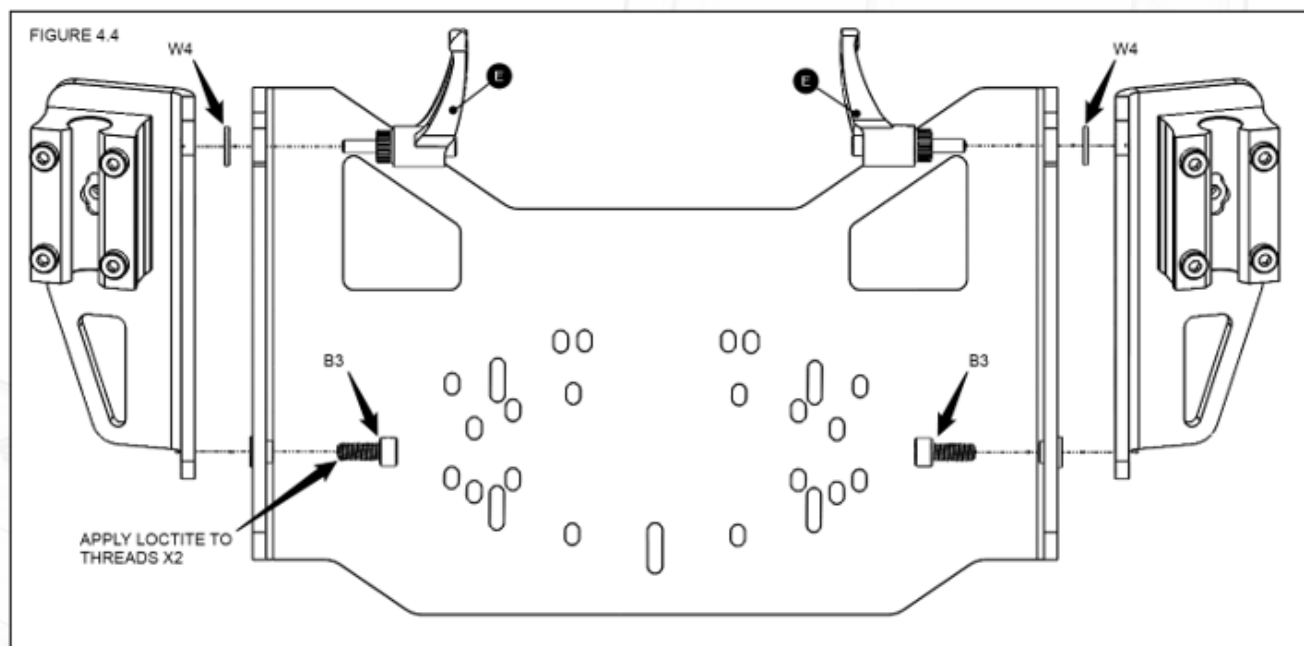
If you are using the xFrame Front Steering Mount, skip to Section 8 before continuing. If you are using the included Bottom Mount, continue to step 3.

3. The following steps reference the bottom-mount wheelbase plate but are the same for the front-mount.

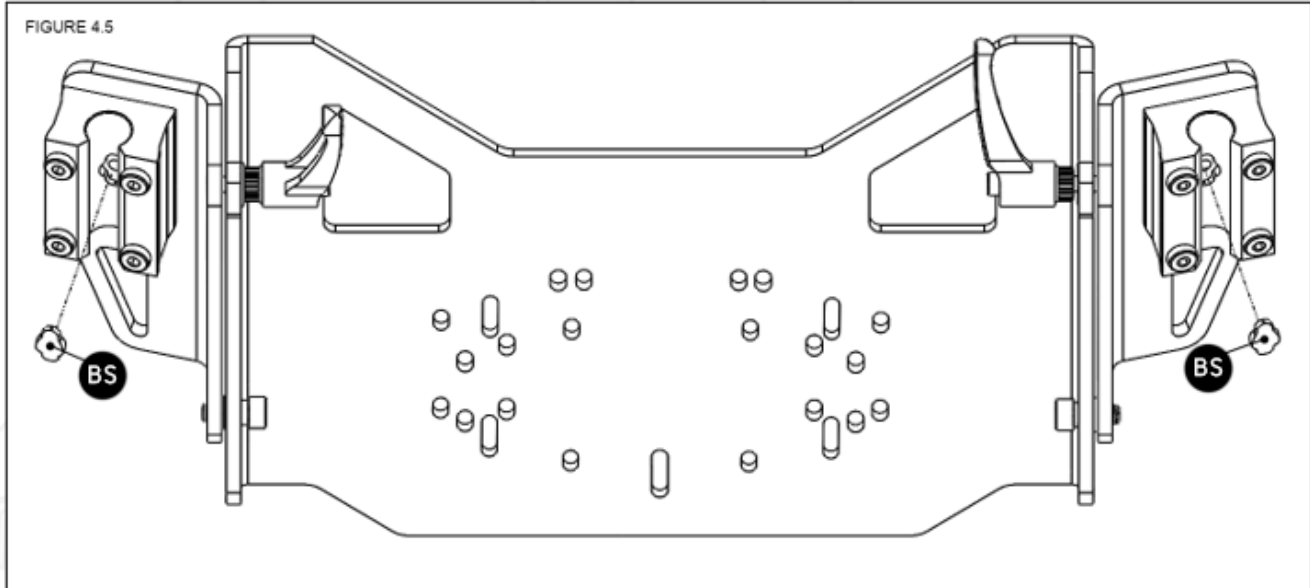
4. With the wheelbase plate of your choice [component D, bottom mount shown] install the two [2] nylon bushings [Hardware ID: NB2] in the orientation shown in Figure 4.3



5. Fasten the left and right slider brackets from Step 1 onto the bottom mount wheelbase plate in the orientation shown in Figure 4.4 using 2-3 drops of Loctite thread locker on only the bolt threads [Hardware ID: B3]. Install the adjustable locking handles, but DO NOT apply Loctite thread locker to their threads.

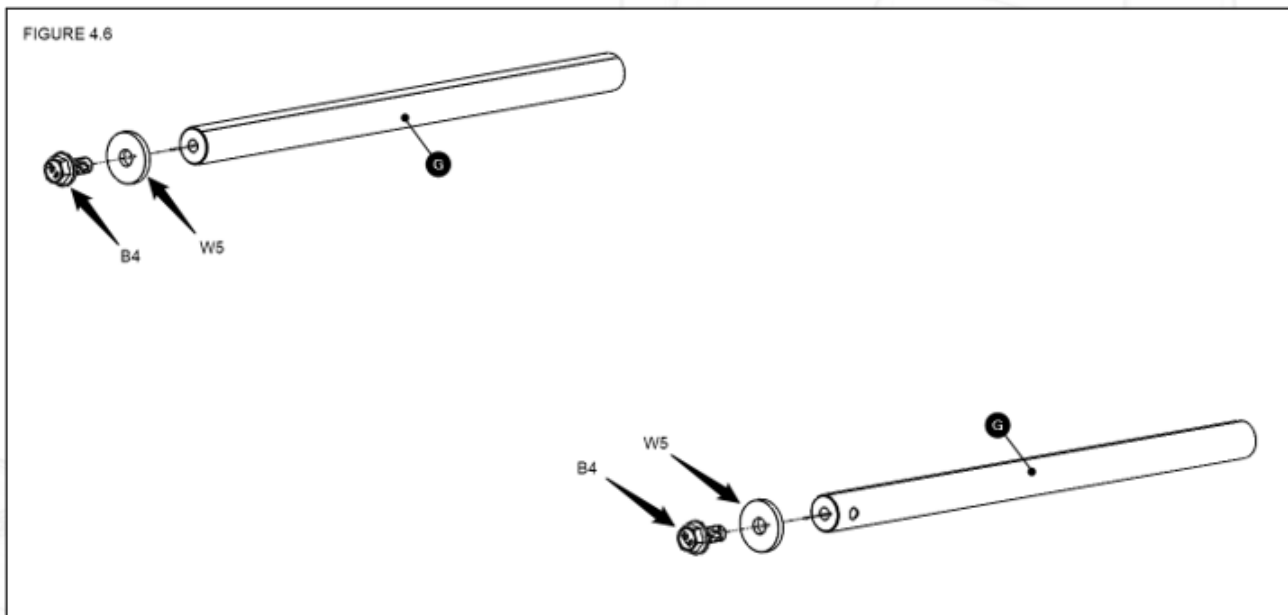


6. Locate the linear slider locking shoes [Hardware ID: BS] and insert them into the linear slider blocks in the orientation shown in Figure 4.5



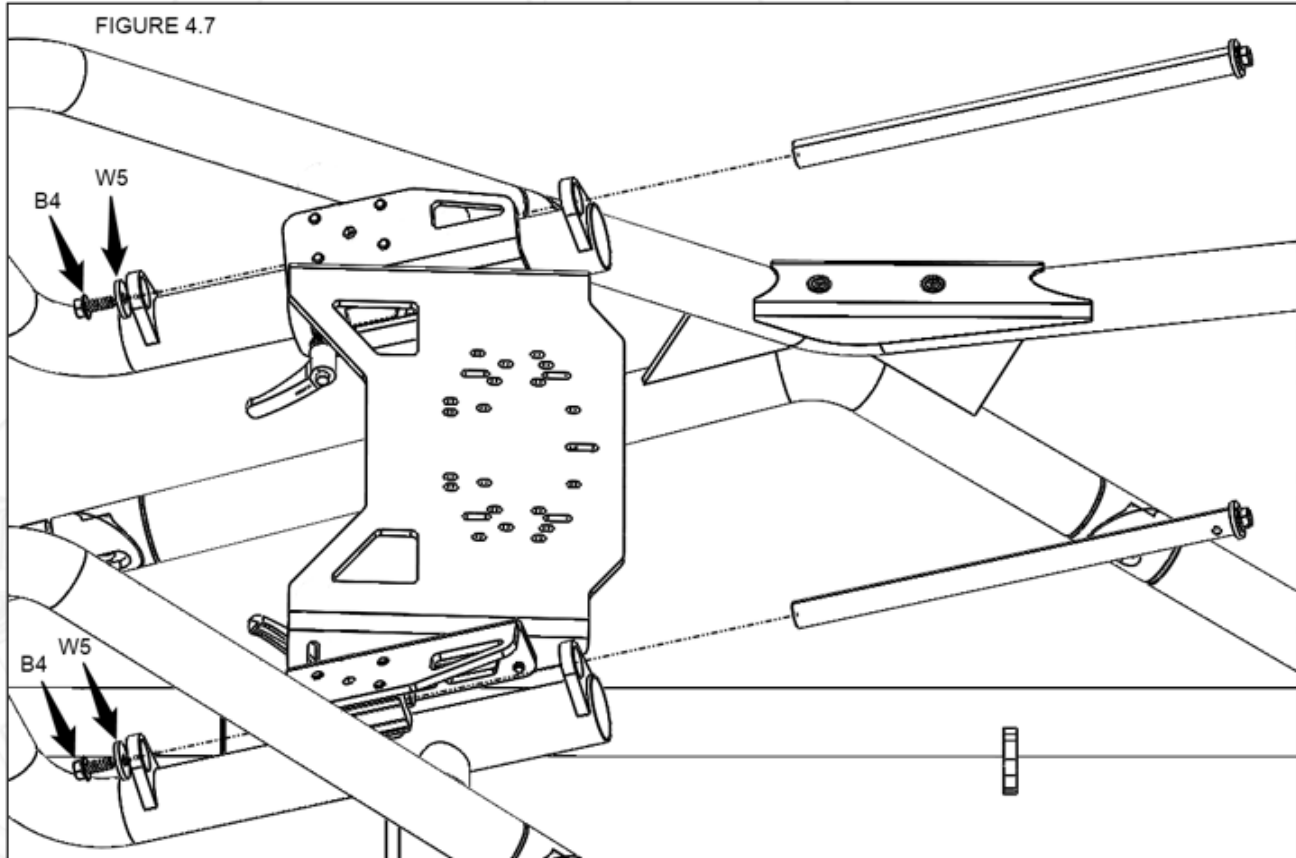
NOTE: It will be helpful to apply a small amount of rail lubricant to the locking shoes to help hold them in place while inserting the linear rails.

7. Locate the steering linear rails [component G] and install the locking hardware on the appropriate end as shown in Figure 4.6.



NOTE: Install the hardware onto the end of the rods with the machined hole (as shown above).

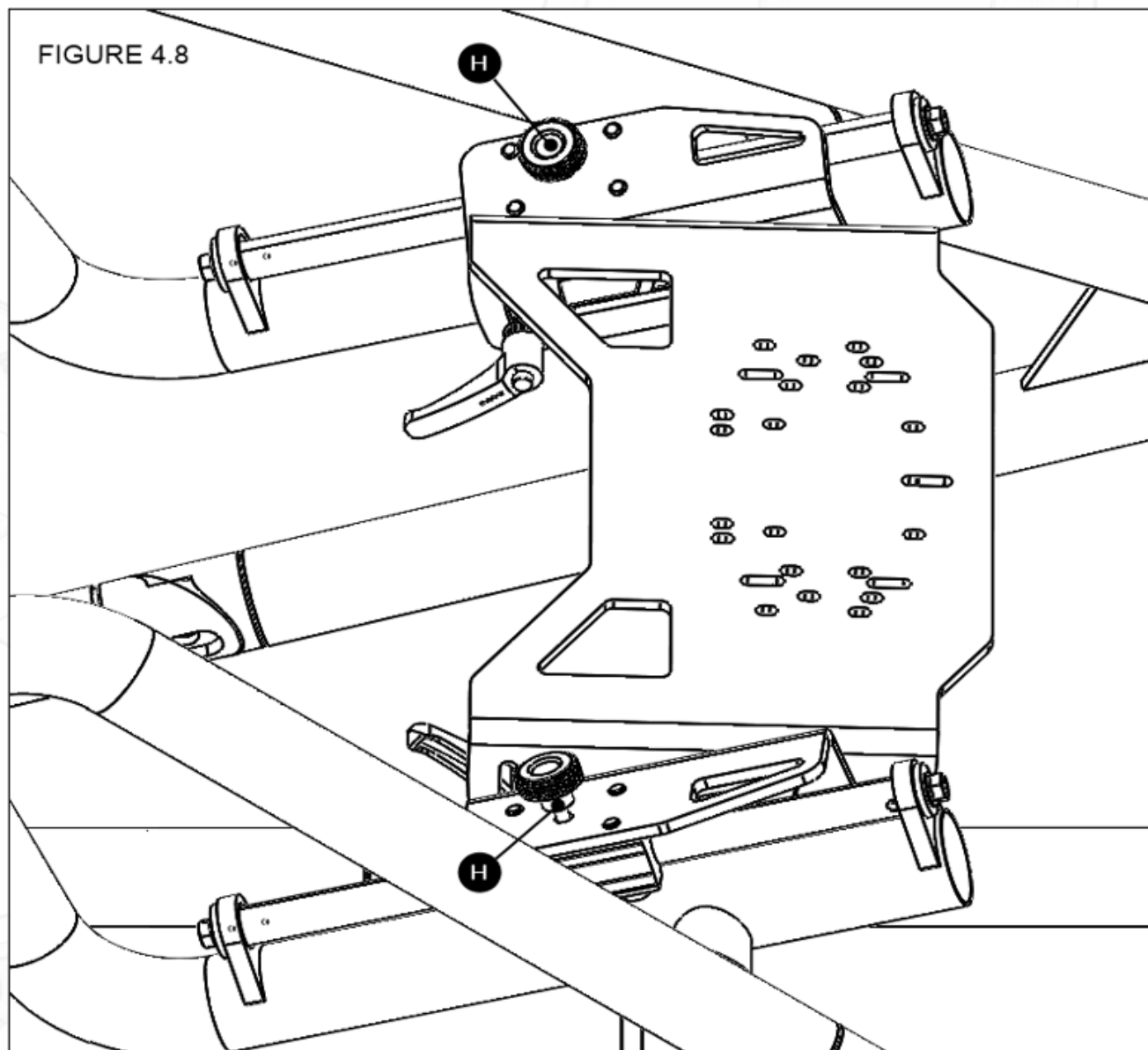
8. Orient the completed steering sub-assembly in the manner shown in Figure 4.7 and insert each linear rail, one at a time.



NOTE: It may be easier to rest the steering sub assembly on the steering weldment tubes and insert one rail at a time. Be sure to wrap the steering weldment tubes with a lint-free cloth to avoid scratching the powder coat in these areas.

9. Install the two retaining bolts on the back side on the rails. Leave these snug, then telescope the steering sub assembly forward and backward to ensure there is no sticking or binding of the linear sliders. Once operating smoothly, fully tighten the retaining bolts.

10. Install both locking knobs [components H] into the linear sliders as in figure 4.8.

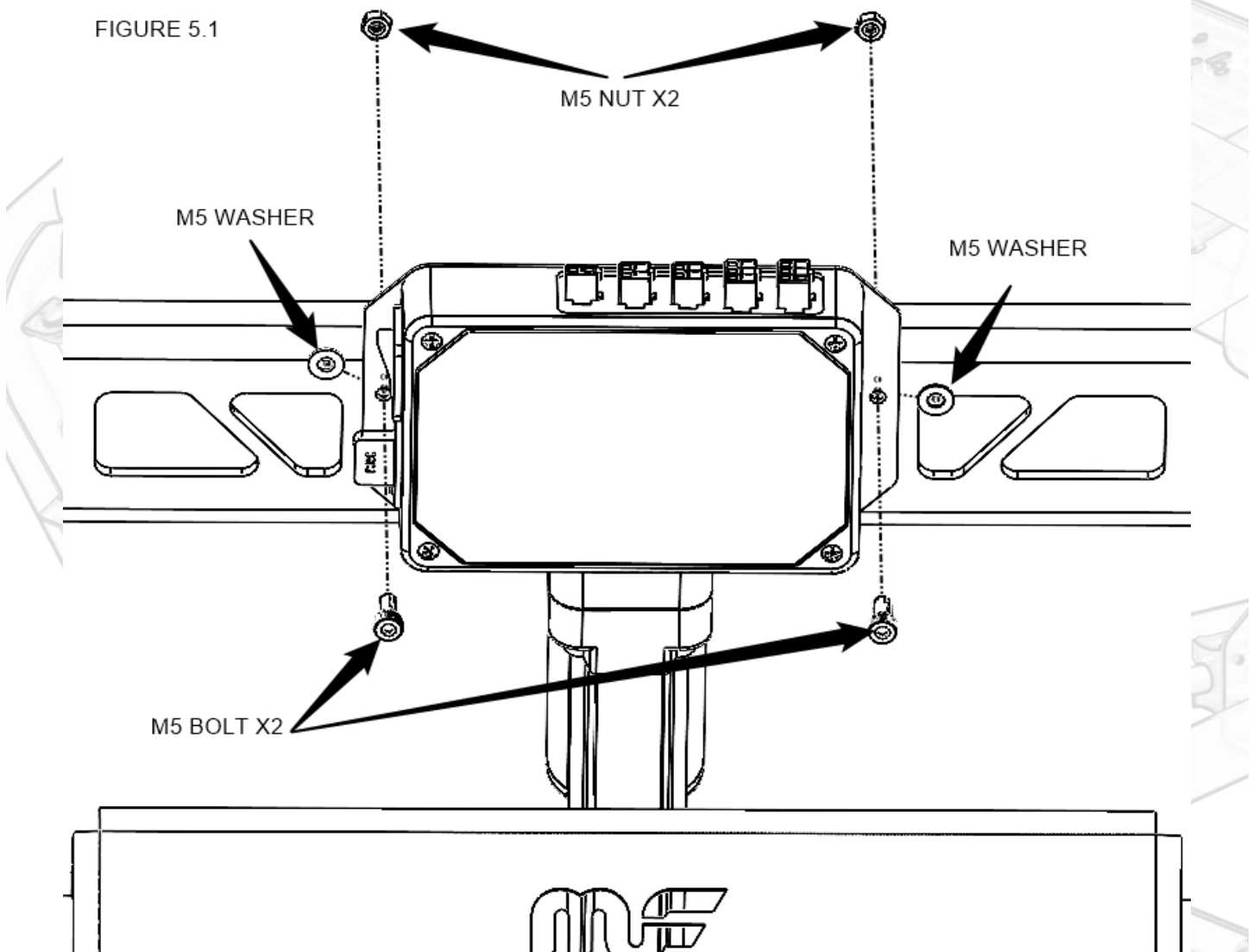


Section 5.1: Electrical Control Box Installation

1. Locate the xFrame electrical control box and securely fasten it to the Fixed Cross Brace of the pedal assembly in the orientation shown in Figure 5.1.

NOTE: Locate the two nylon washers between the electrical control box and the Fixed Cross Brace. The hardware for this comes pre-installed on the box.

FIGURE 5.1



Section 5.2: Control Switch Installation

Required Tools:

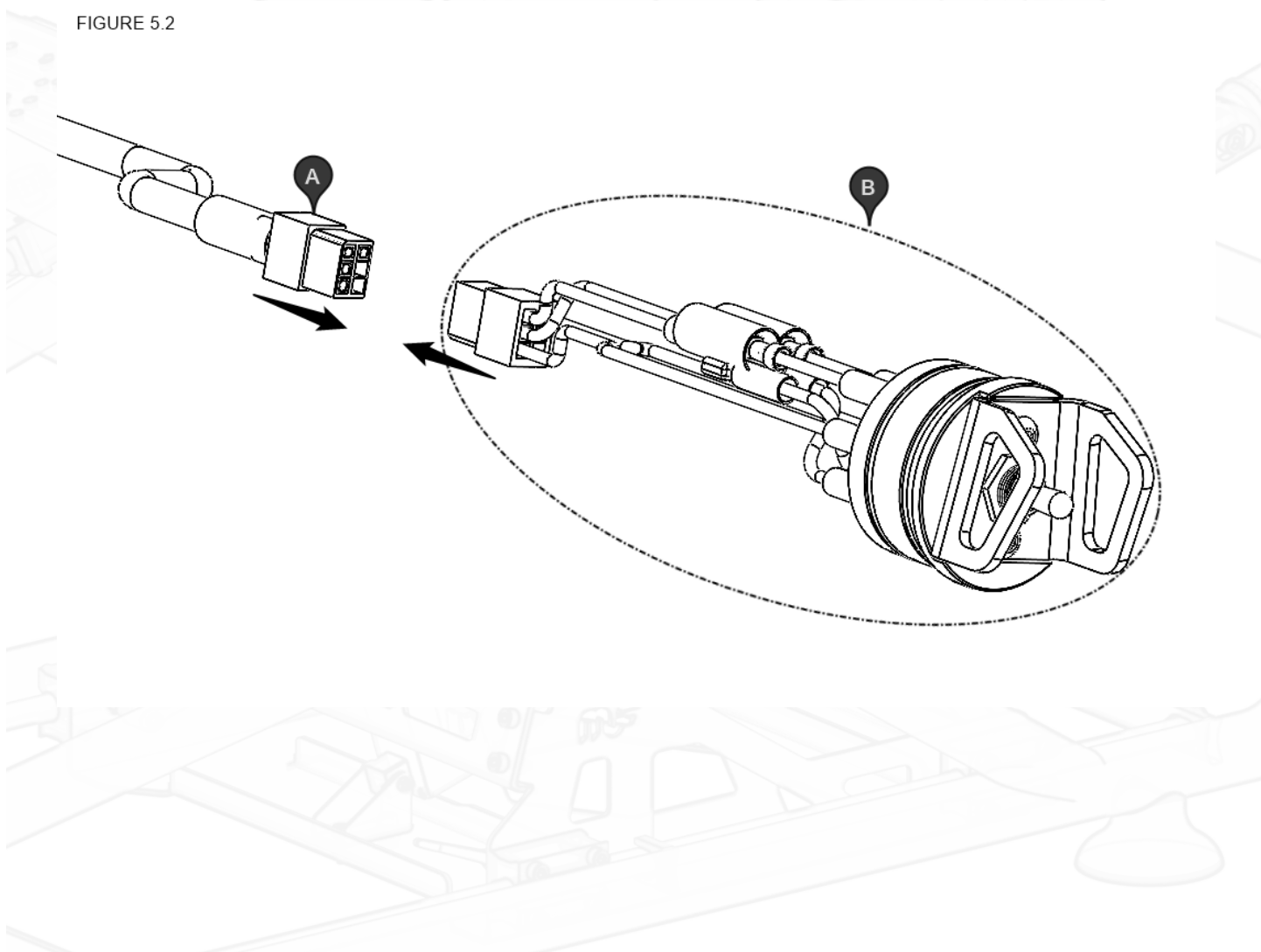
- Allen keys: 4mm

Hardware Bag[s]:

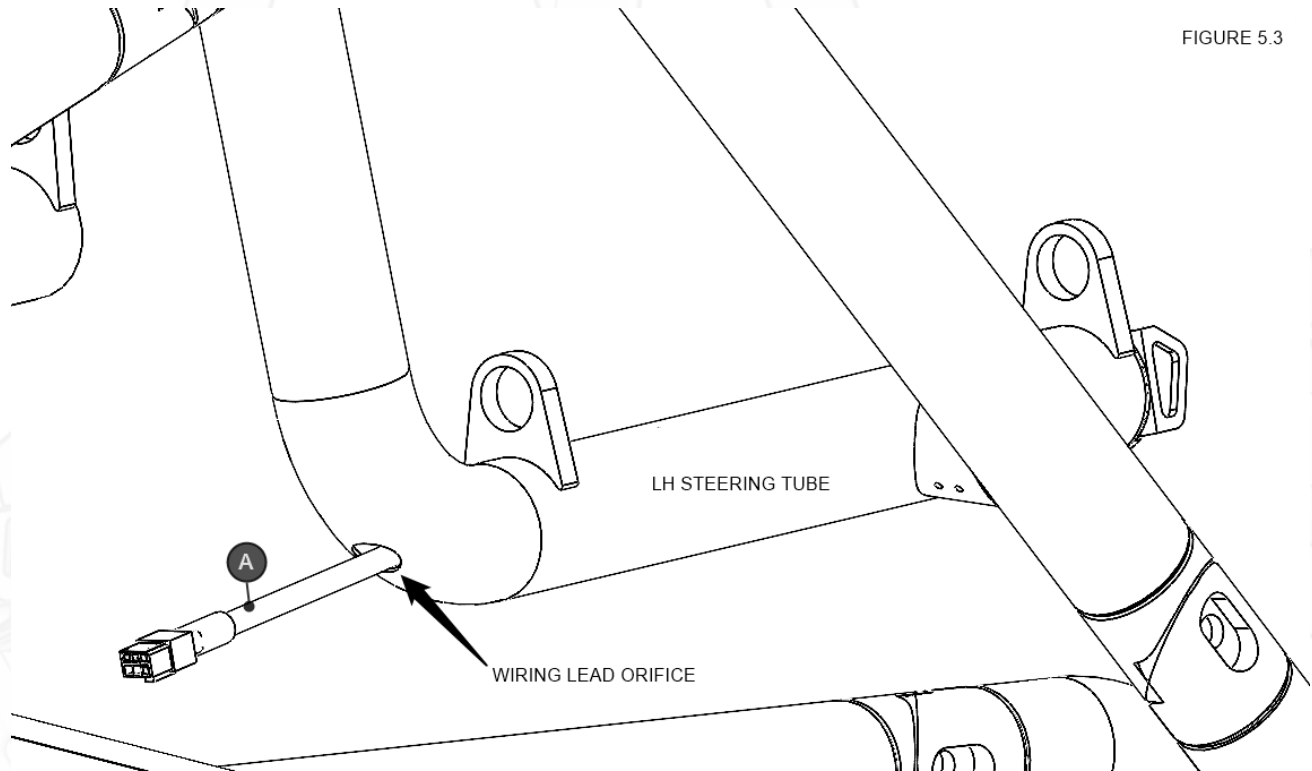
- Electrical Hardware Box
- Electrical Hardware ID Sheet

1. Locate one [1] of the 54" long double four-pin wire leads [component A] and connect one end to the linear actuator Toggle Switch [component B] in the manner shown in Figure 5.2.

FIGURE 5.2



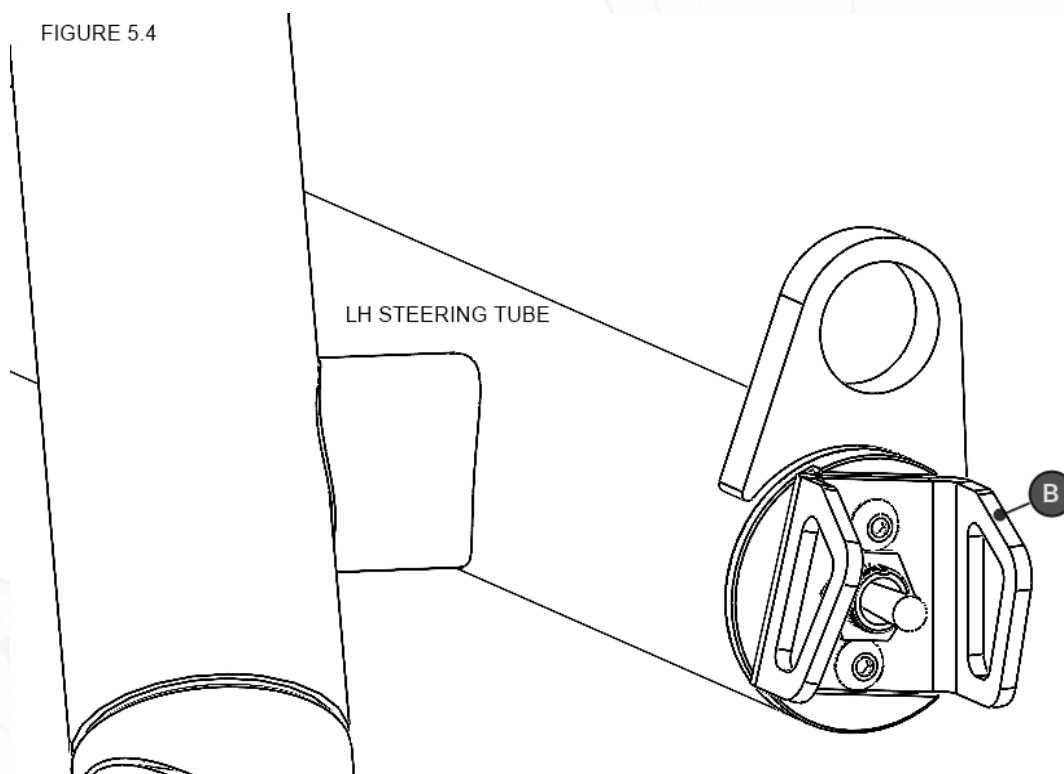
2. Feed the wire lead through the opening of the left-hand steering weldment and out of the orifice on the bottom of the tube as indicated in Figure 5.3.



3. Install the Linear Actuator Toggle Switch in the left-hand tube of the steering weldment in the orientation shown in Figure 5.4 [see next page]. Make sure the angular orientation of the switch is appropriate, then firmly press the switch into the tube until it bottoms.

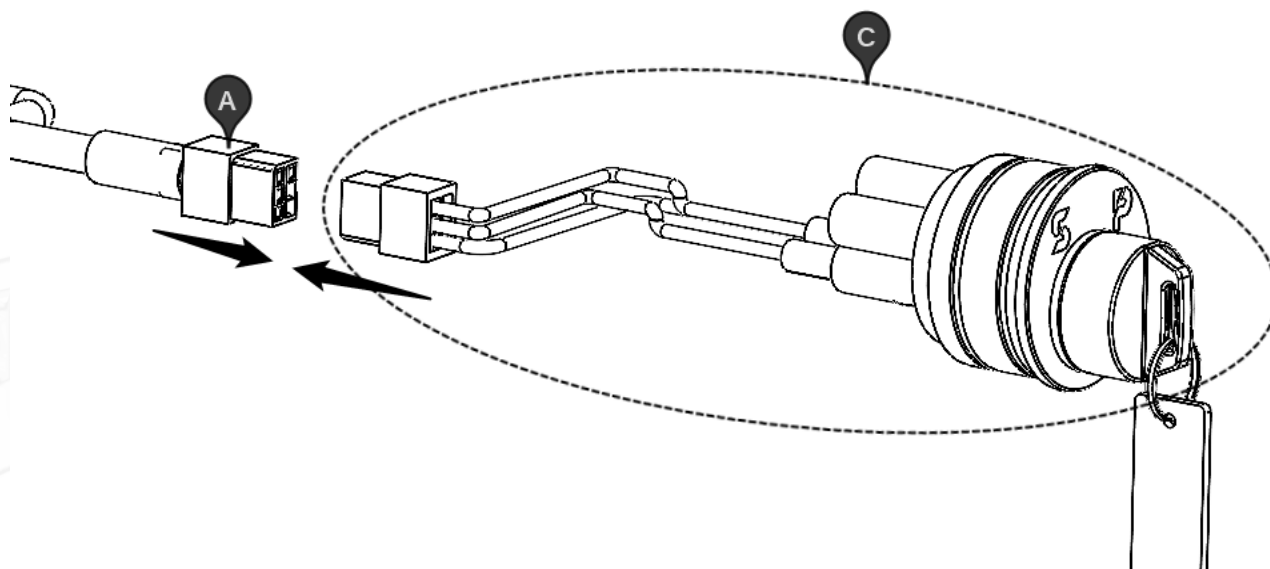
NOTE: Apply a thin layer of assembly lube to the o-rings on the toggle switch and to the inner surface of the steering weldment tubes.

FIGURE 5.4



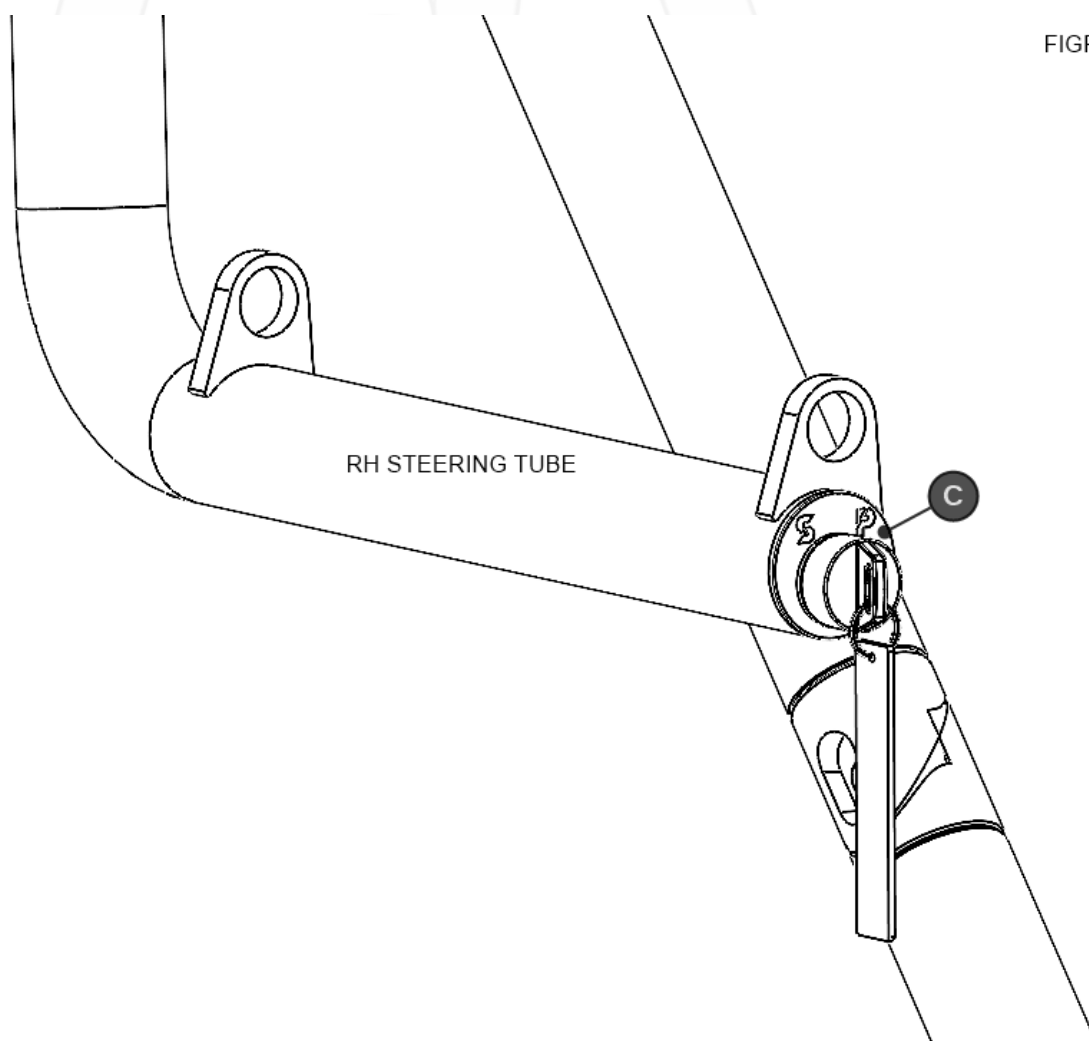
4. Locate the second 54" long double four-pin wire lead [component A] and connect one end to the Linear Actuator Selector Switch [component C].

FIGURE 5.5



5. Feed the unplugged end of the 54" long double four-pin wire lead [component A] through the opening of the right steering tube and out of the wiring orifice in the same manner as in step 2.

FIGURE 5.6

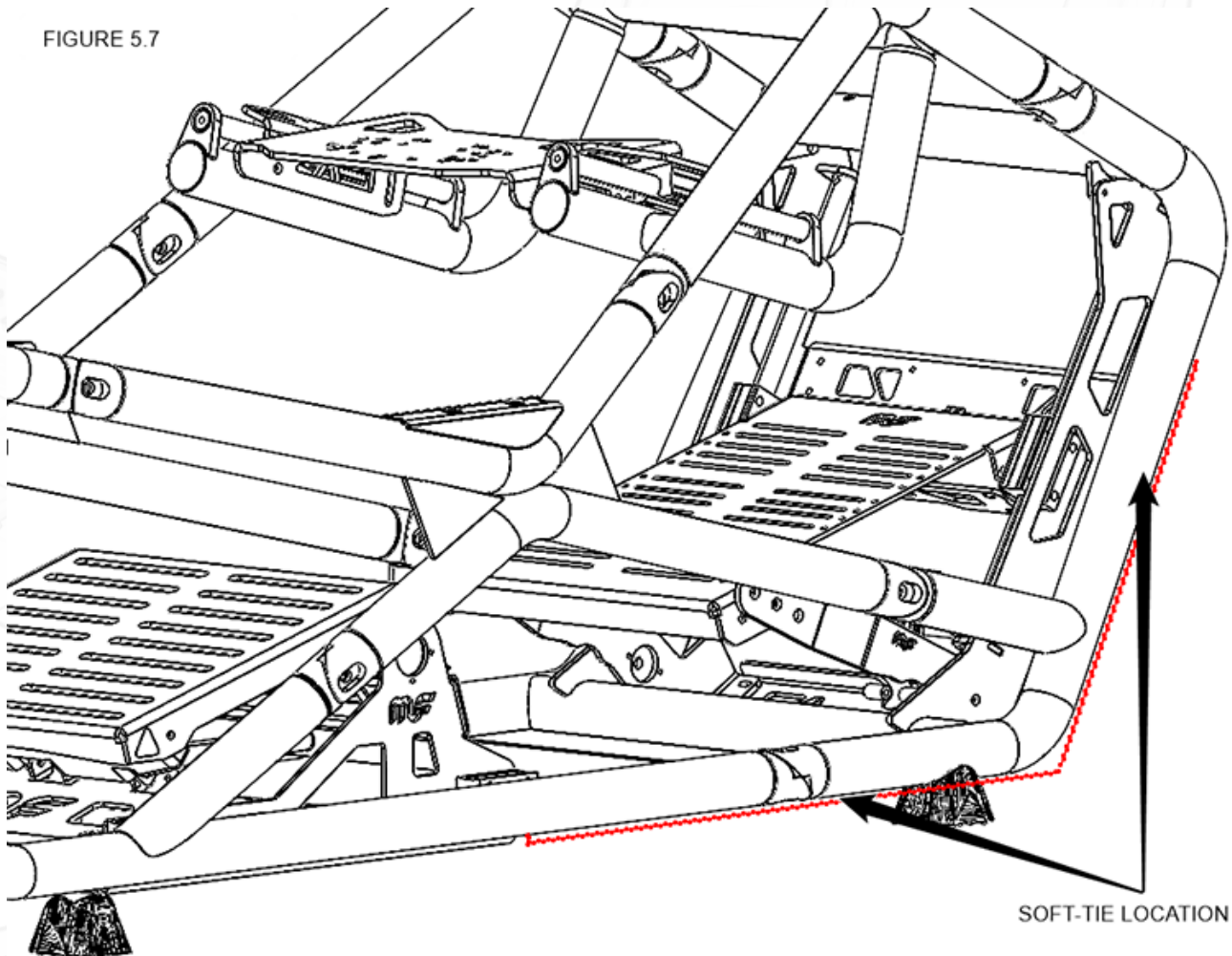


NOTE: Apply a thin layer of assembly lube to the o-rings on the selector switch and to the inner surface of the steering weldment tubes.

6. Locate the 12" long Pedal Linear Actuator Lead and connect one side to the pedal linear actuator and the other to the Pedal Linear Actuator "PED" output on the electrical control box. [As shown in Figure 5.8]

7. Locate the remaining double two-pin cable and connect one side to the seat linear actuator power lead. Route the cable through the rectangular slot in the seat base upright, along the bottom of the right chassis tube in the manner shown in Figure 5.7

FIGURE 5.7



8. With both switches installed in their respective locations, it is time to connect both switches to the electrical control box from Section 1. Please refer to Figures 5.8, 5.9, 5.10 and 5.11 for proper cable routing and soft-tie locations.

FIGURE 5.8

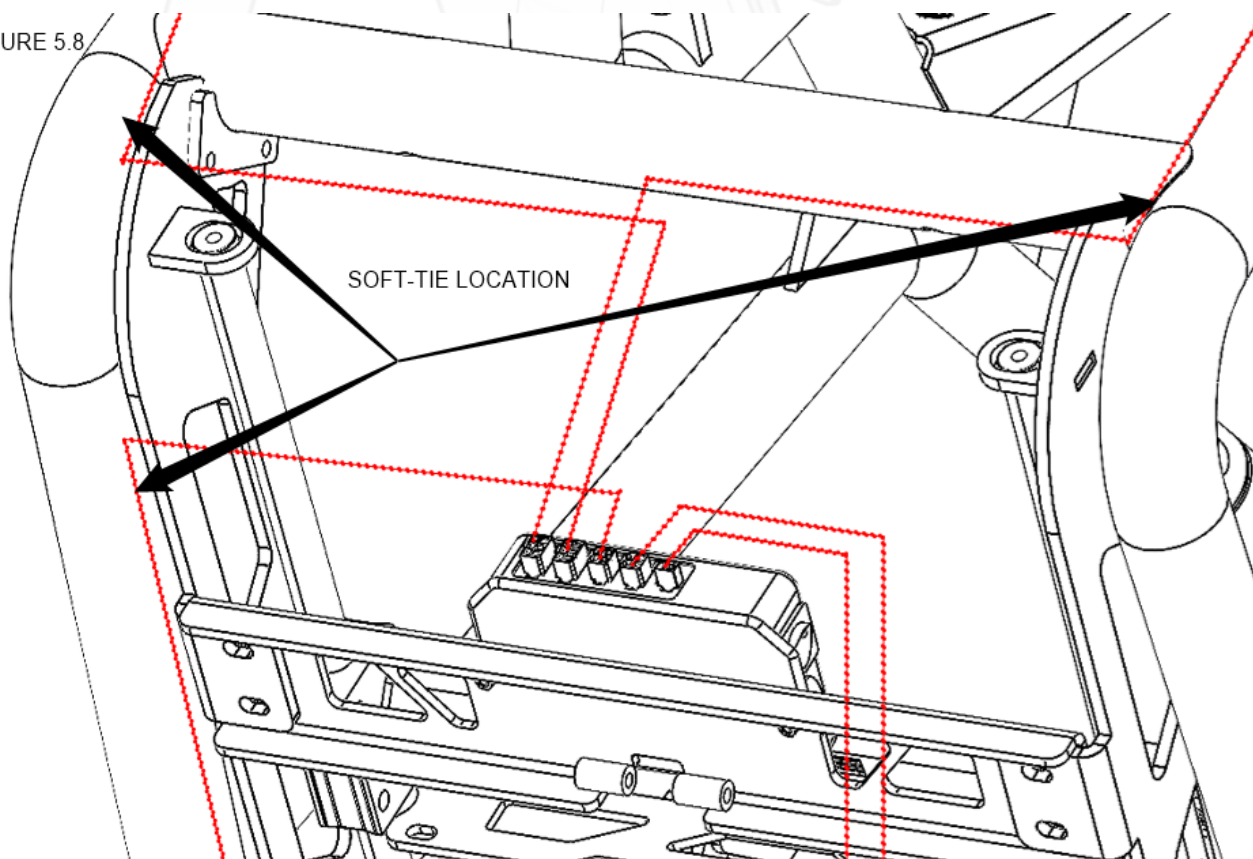


FIGURE 5.9

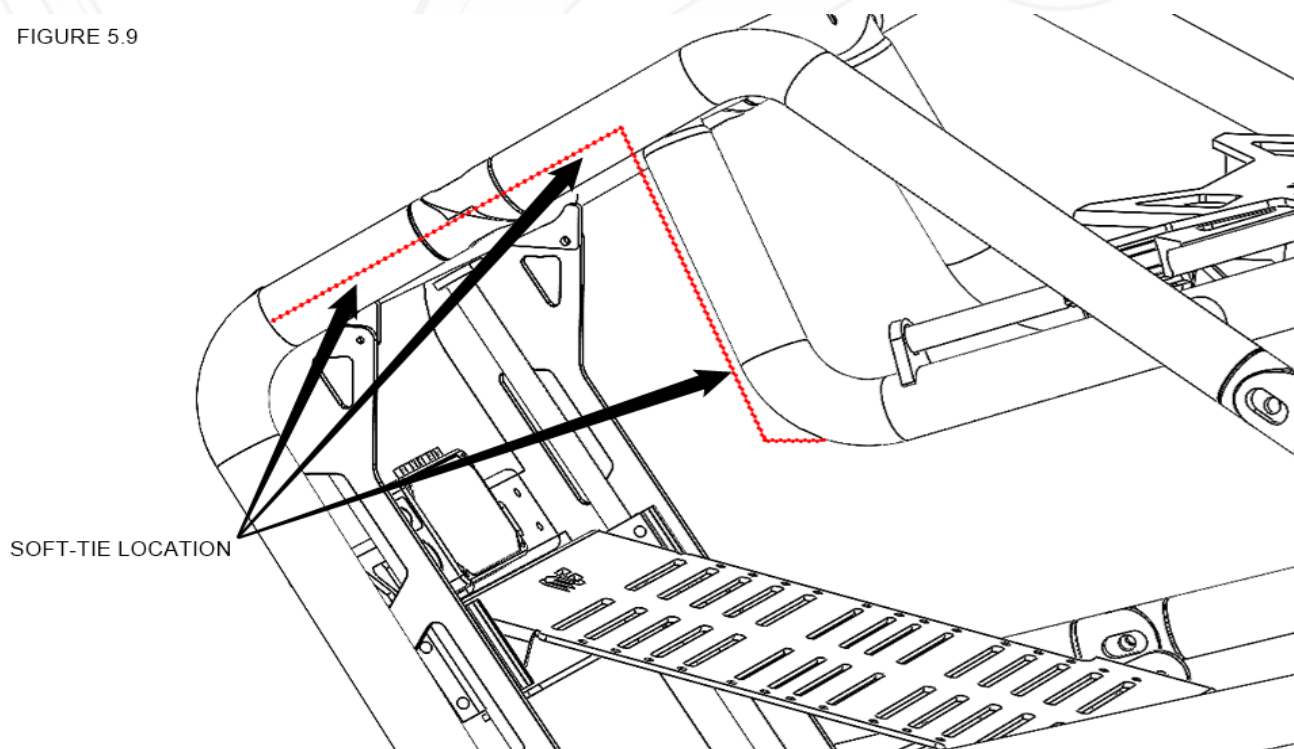
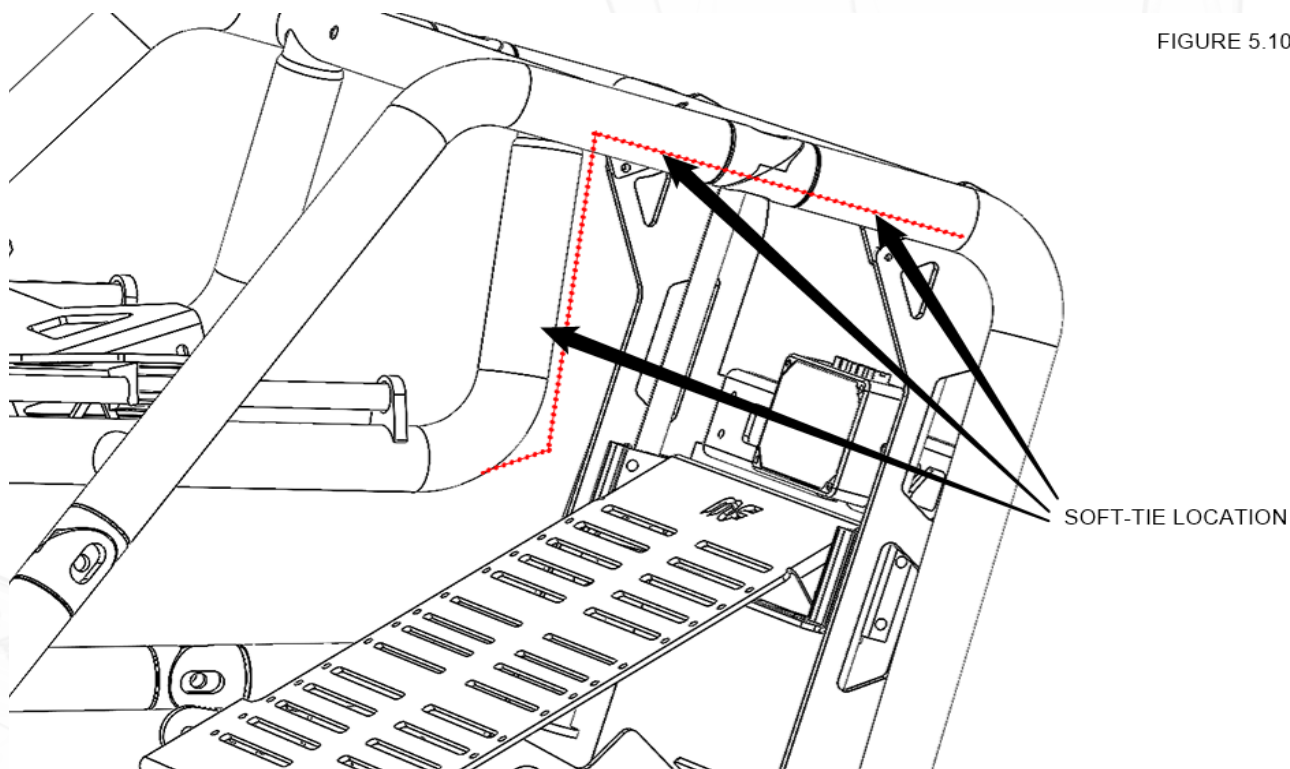


FIGURE 5.10



9. Once all control and actuator cables are installed and secured, connect the power supply lead into the PWR plug on the electrical control box. Then plug the power supply itself in to a non-GFCI wall socket, or a surge protector/power strip.

NOTE: Make sure any excess cable is appropriately managed, and out of the way of any articulating or moving components.

Section 6.1: Shifter Mount Installation

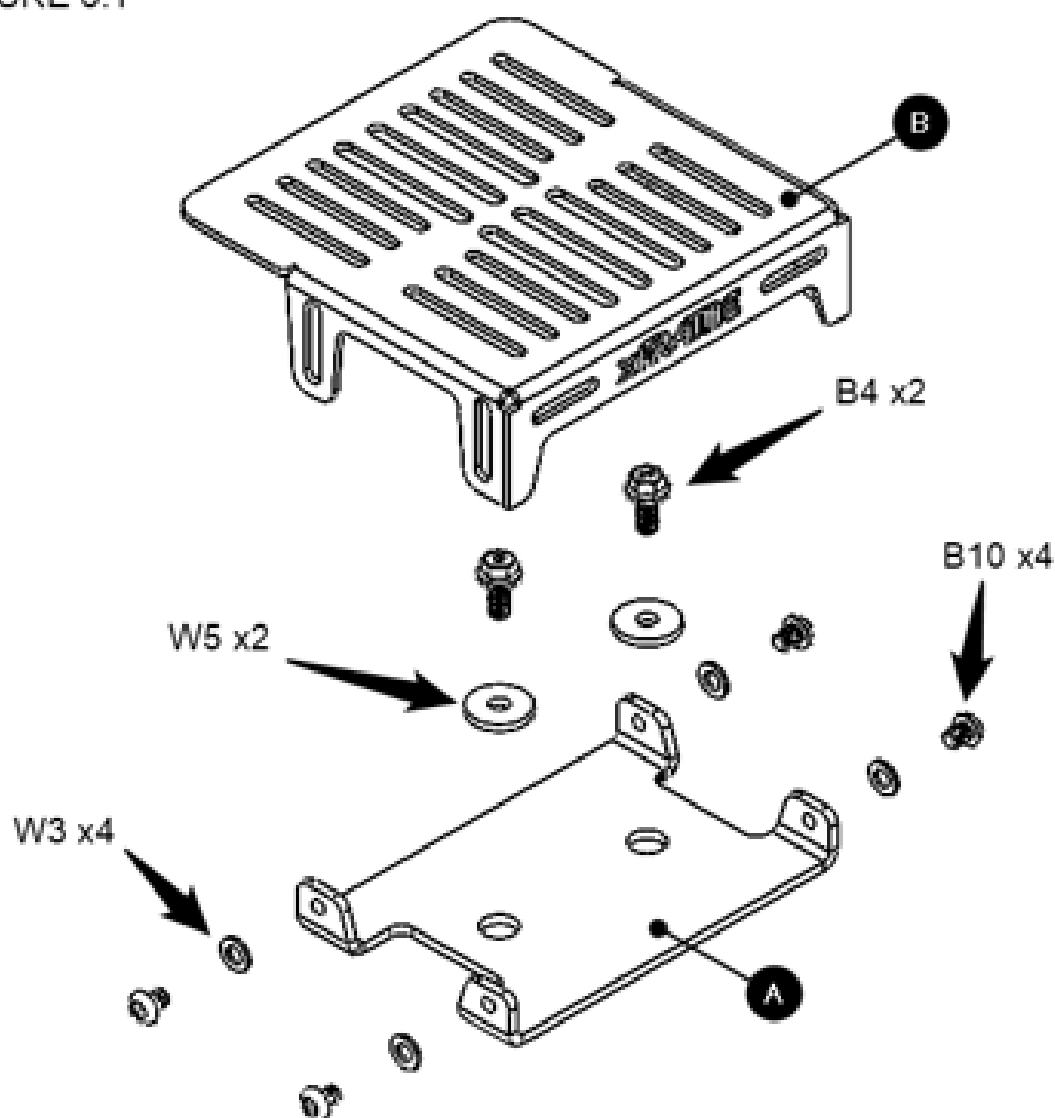
Required Tools:

- Allen keys: 5mm, 6mm

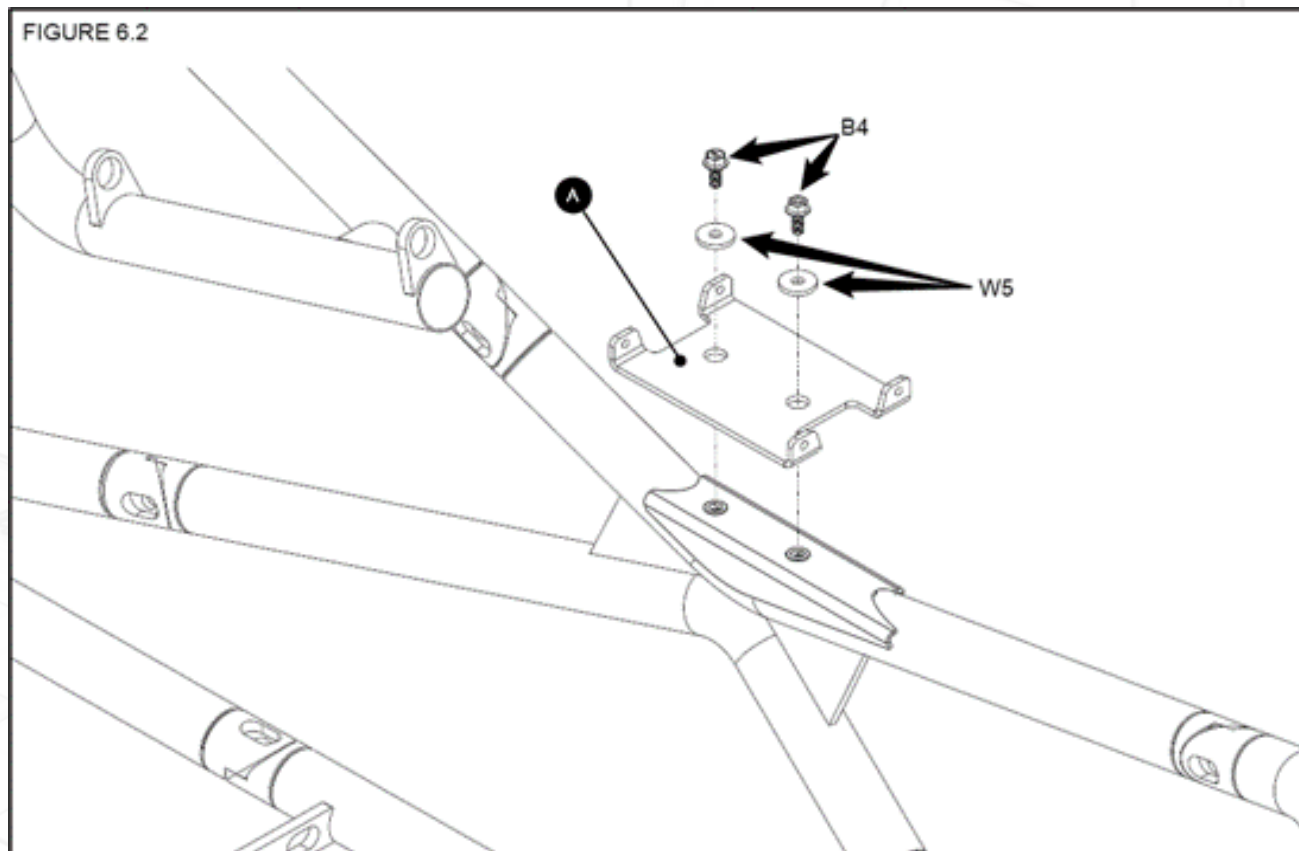
Hardware Bag(s):

- Shifter hardware bag

FIGURE 6.1

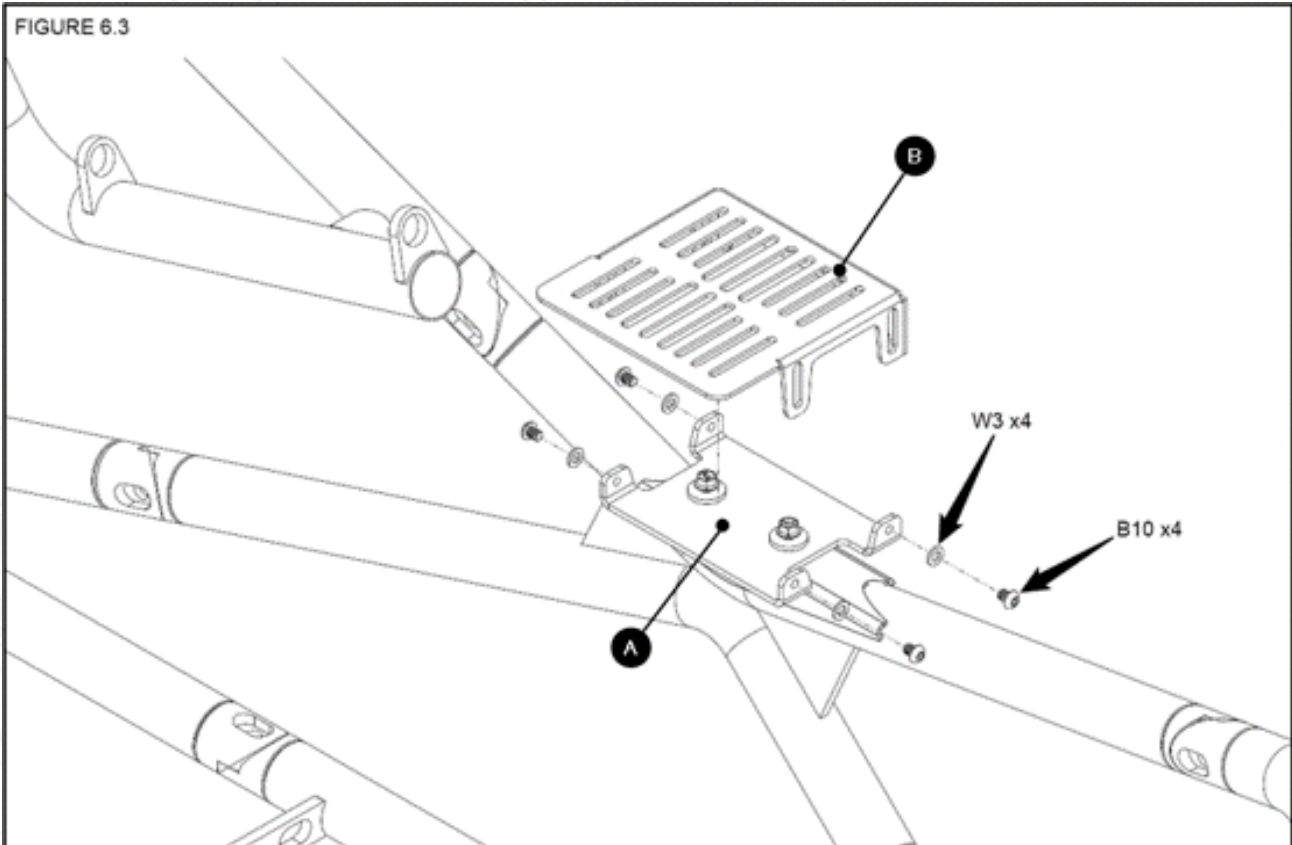


1. Install the Shifter Interface Plate [component A] to the desired accessory mount location [Left or Right] as shown in Figure 6.2.



NOTE: Do not over-tighten the two shifter interface bolts. Doing so may cause damage to the threaded frame insert.

2. Install the Shifter Base Plate [component B] in the orientation shown to the Shifter Interface Plate [component A] as indicated in Figure 6.3.



Section 7.1 Monitor Mount

Required Tools:

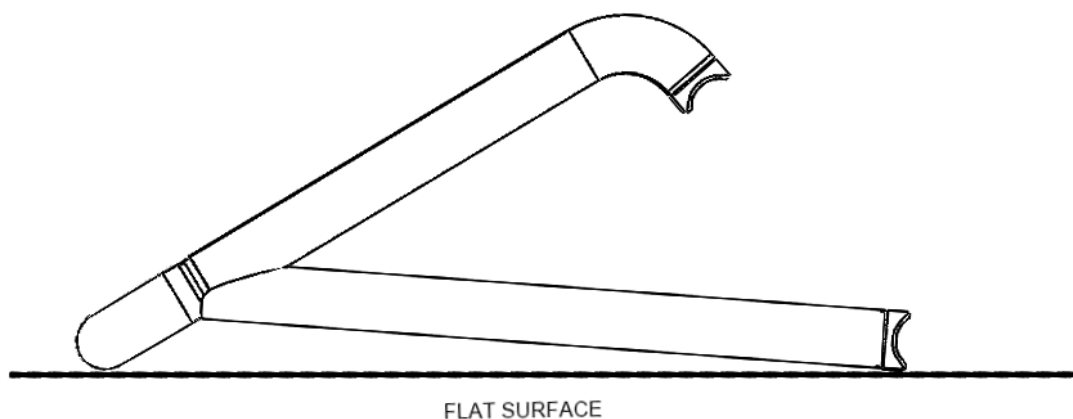
- Allen keys: 5mm, 6mm

Hardware Bag[s]:

- Monitor Mount hardware bag

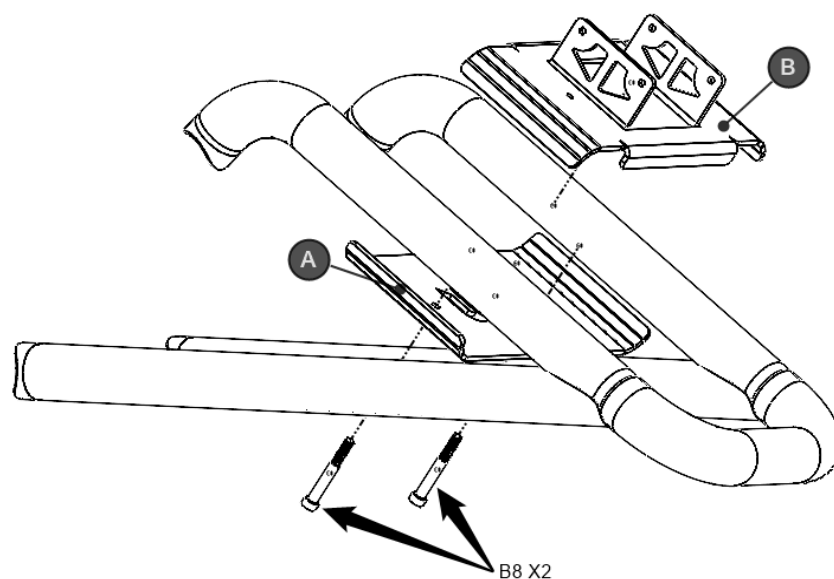
1. Locate the monitor mount tubular structure [component A] and place securely on a flat surface. Orient it such that the long, straight tubes are coincident to the surface and the bent ones are in the air.

FIGURE 7.1



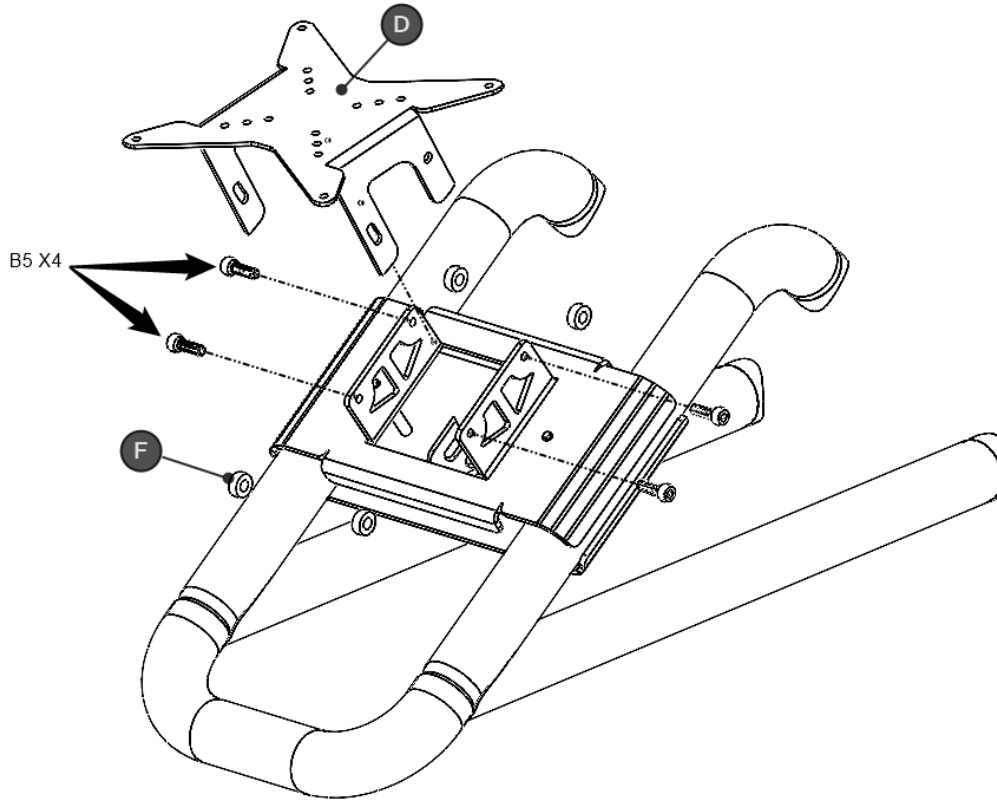
2. Locate the VESA Clamp Back [components A] and VESA Clamp Front [component B] and secure them to the two from tubes as shown in Figure 7.2

FIGURE 7.2



3. Install the VESA Mount Adapter [component D] onto the VESA Clamp Front in the orientation shown in Figure 7.3. Be sure to include the four [4] aluminum spacers [component F] BETWEEN the Mount Adapter and Front Clamp at each bolt junction.

FIGURE 7.3

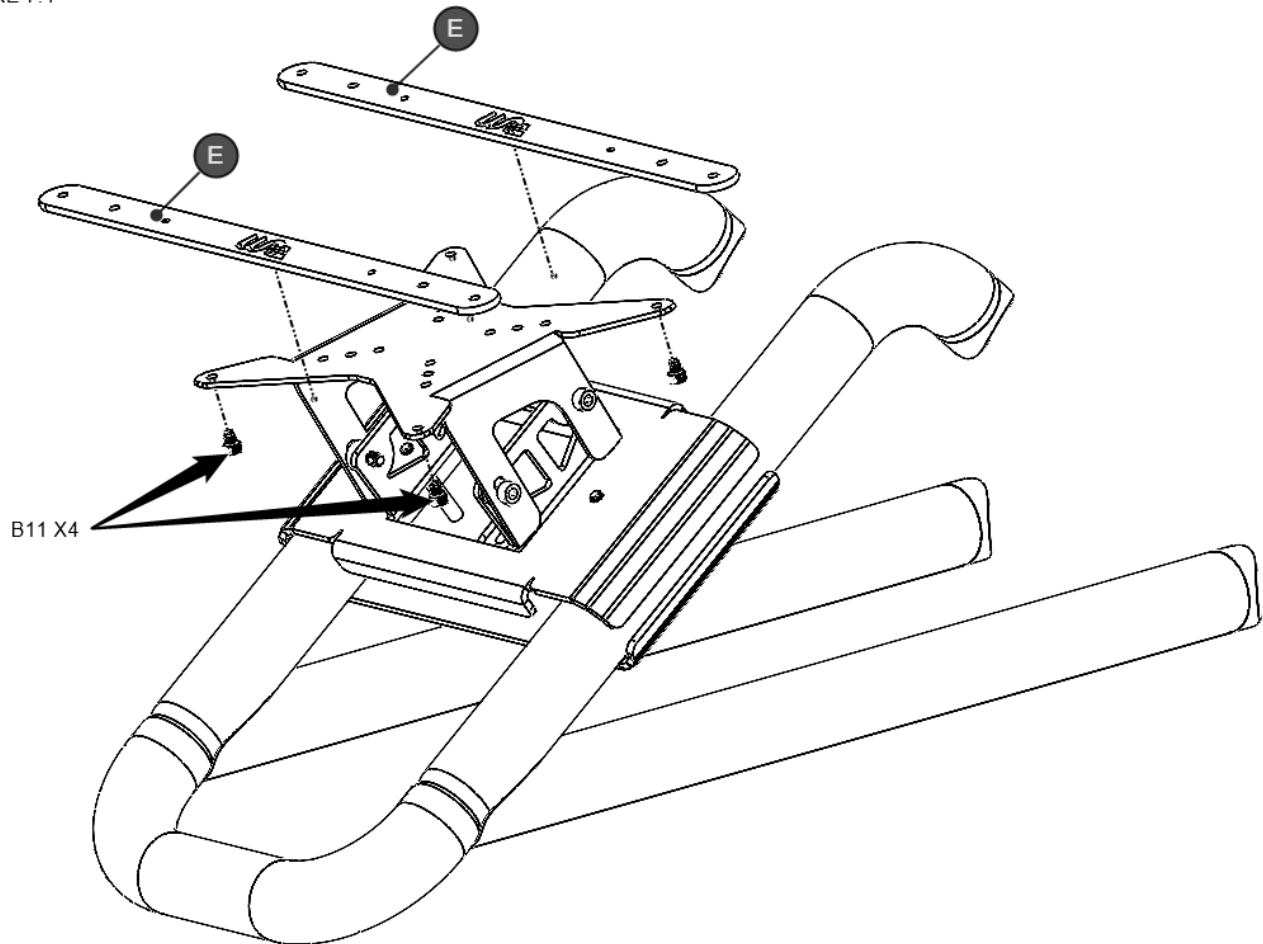


NOTE: Do not over-tighten the VESA clamping bolts. Doing so may strip your display hardware, and could result in serious injury or damage.

Complete Step 4 only if your display's bolt pattern is not on the VESA Mount Adapter.

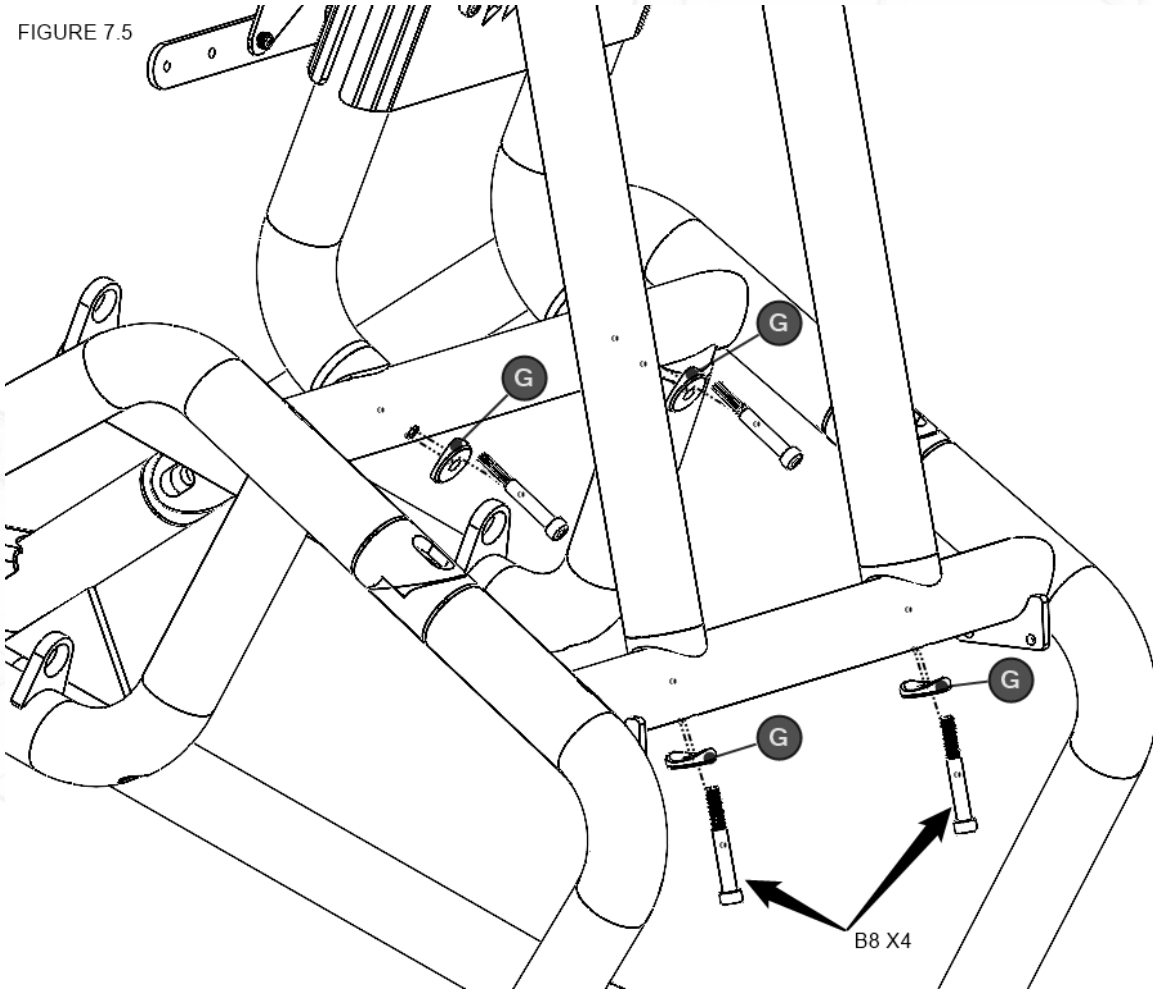
4. If the monitor you intend to use on your xFrame monitor mount has a bolt pattern that is larger than what is provided on the VESA Mount Adapter, use the supplied VESA Mount Extenders [component E], and install in the orientation shown in Figure 7.4

FIGURE 7.4



5. Install the completed monitor mount assembly onto the xFrame chassis in the orientation shown in Figure 7.5. Make sure the orient the four [4] aluminum profiled spacers [components G] such that the profiled side is fully contacting the chassis.

FIGURE 7.5



Section 8: Front Mount Wheelbase Plate Assembly

If you have purchased the Front Steering Mount for use with a front-mounted wheelbase, proceed with Section 8. If not, you can ignore this section.

Required Tools:

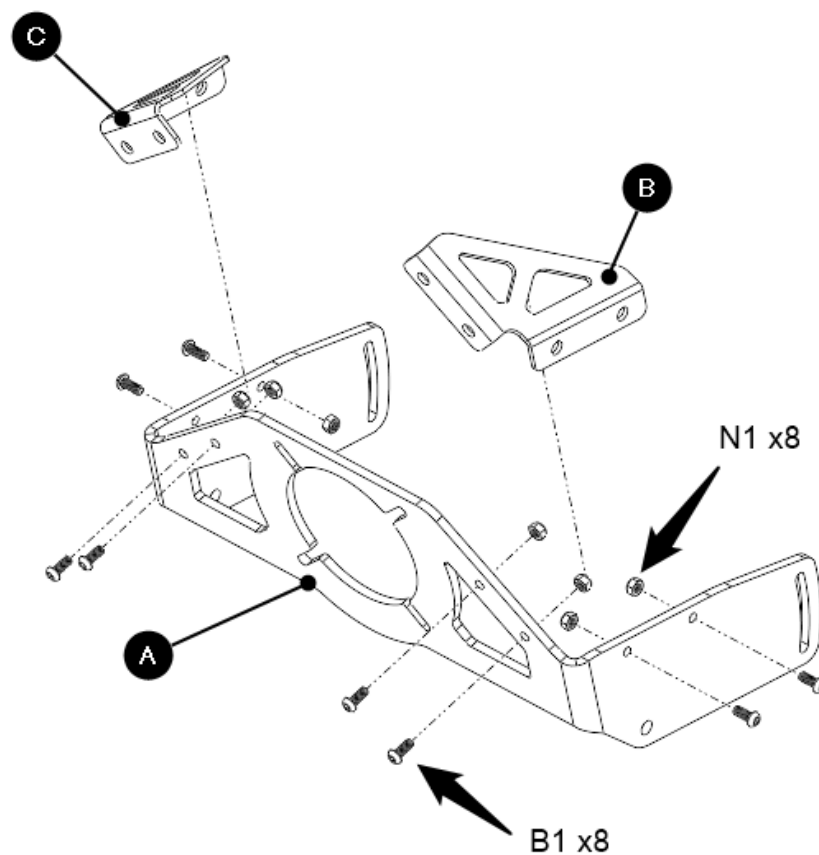
- Allen keys: 4mm, 5mm

Hardware Bag[s]:

- Steering Mount hardware bag

1. With the Front-Mount wheelbase plate uninstalled from the simulator, install the aluminum lateral braces [components B & C] in the orientation shown in Figure 8.1

FIGURE 8.1



2. With both braces securely fastened, install the assembly into the steering weldment the same way as the bottom mount wheelbase plate. Refer back to Assembly Section 4.

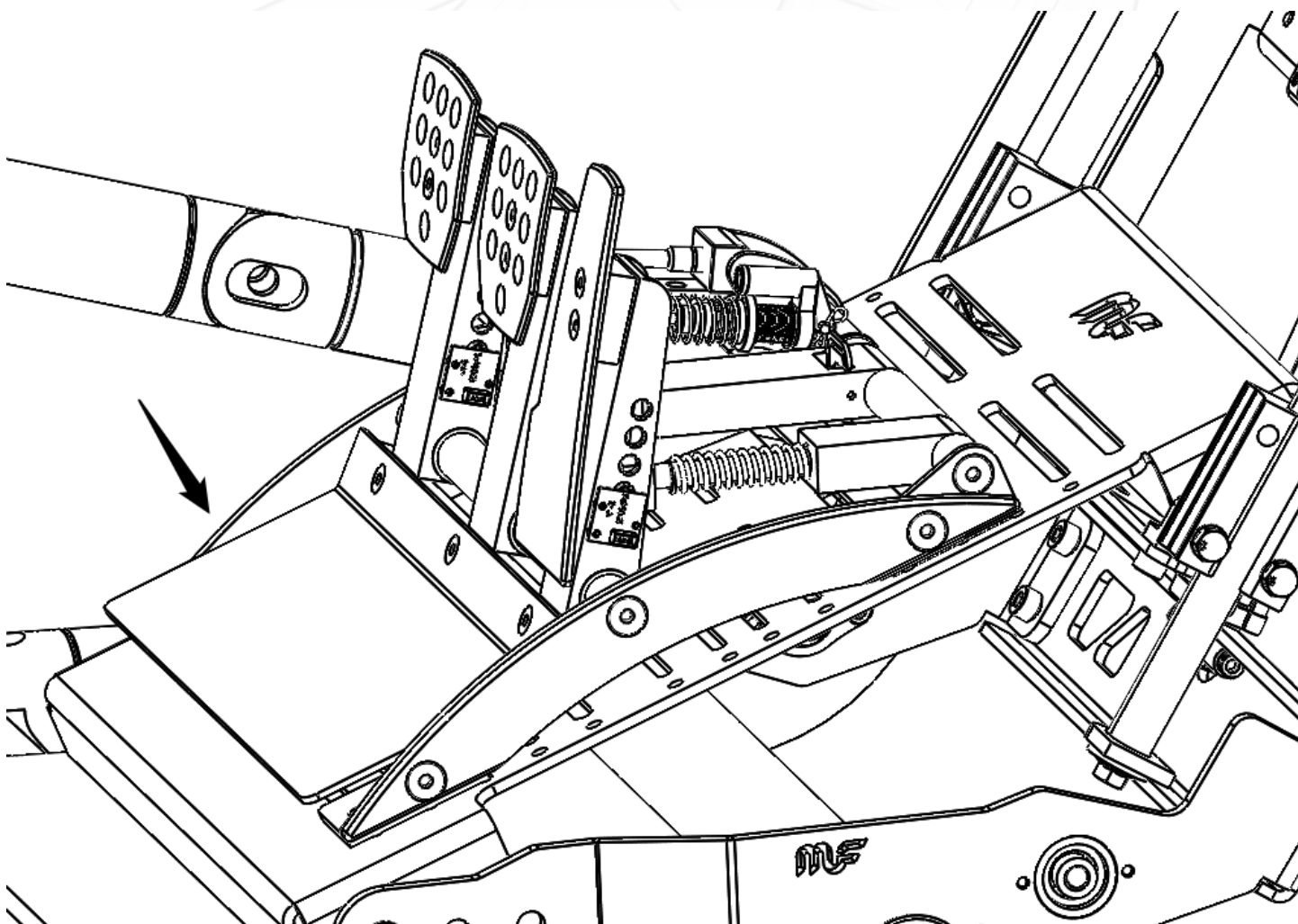
• Pedal Tuning & Adjustments



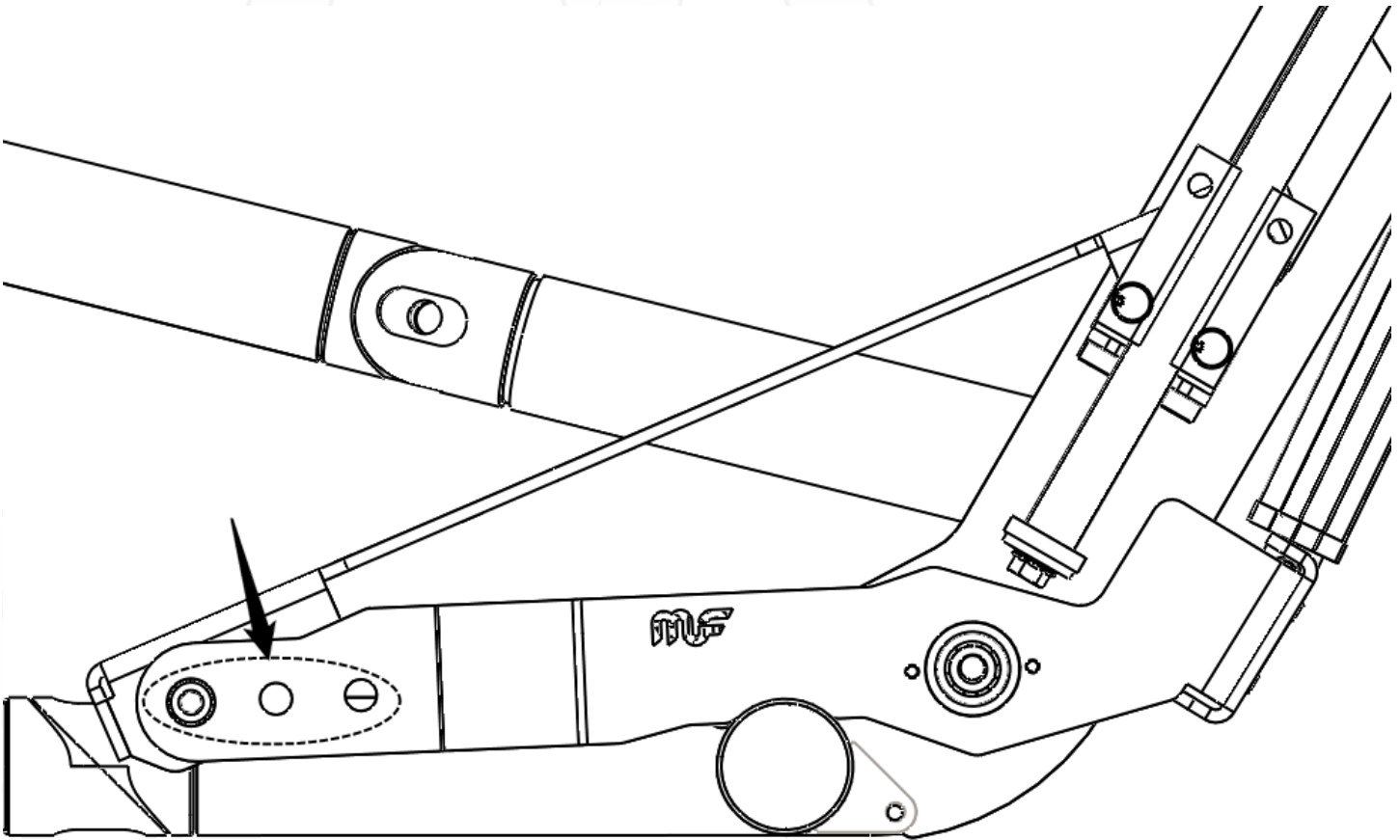
Prior to first use or after any installation of different pedals, the pedal stops must be set accordingly. The pedal stop collars are designed to set the height of your pedals for your desired Formula seating position. The pedal stop collar position can vary between different pedal control models or manufacturers.

Instructions:

1. Install and tighten pedal controls to the pedal base plate. Placing pedals towards the bottom edge of the baseplate is common for most users [taller users may prefer pedals attached farther up the baseplate for more leg clearance].

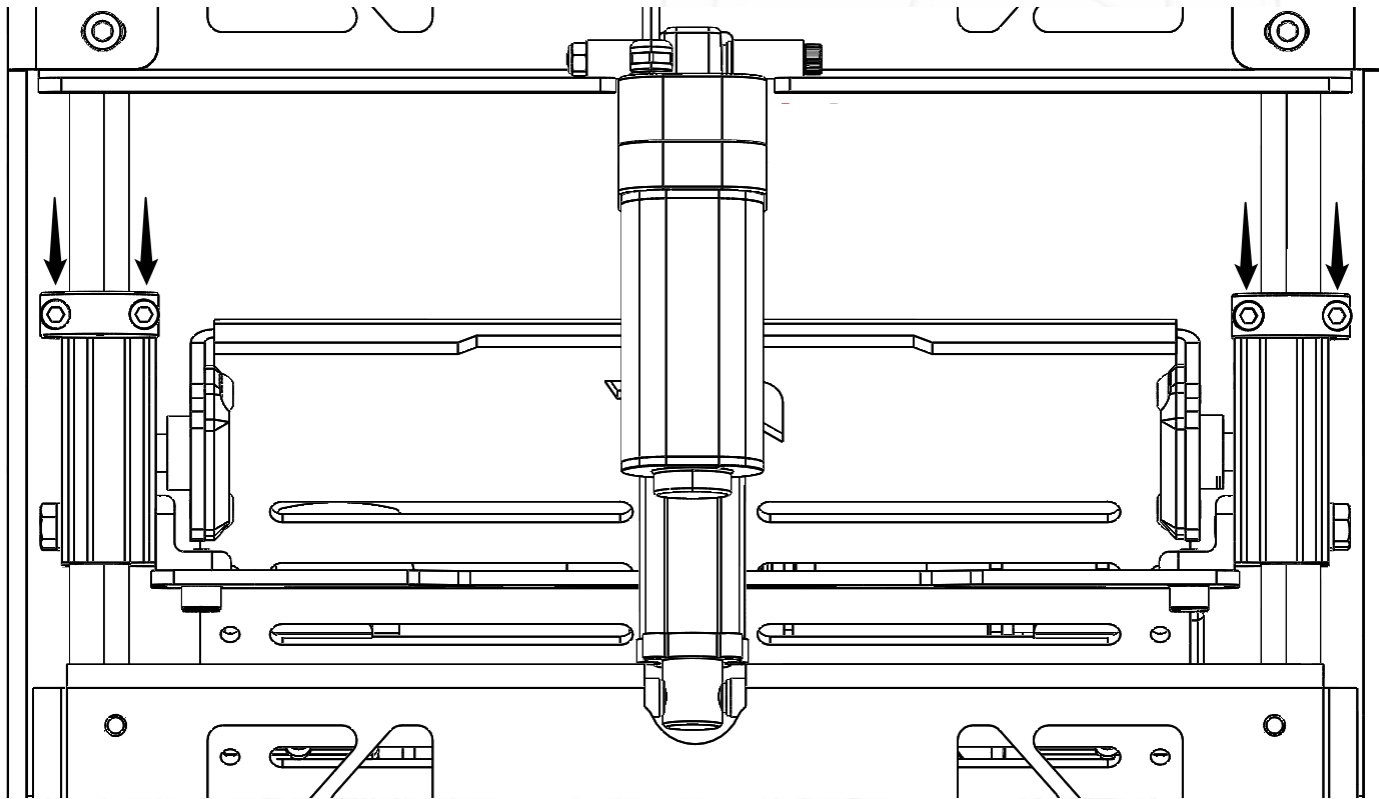


2. Select desired pedal base plate angle adjustment holes and securely fasten.

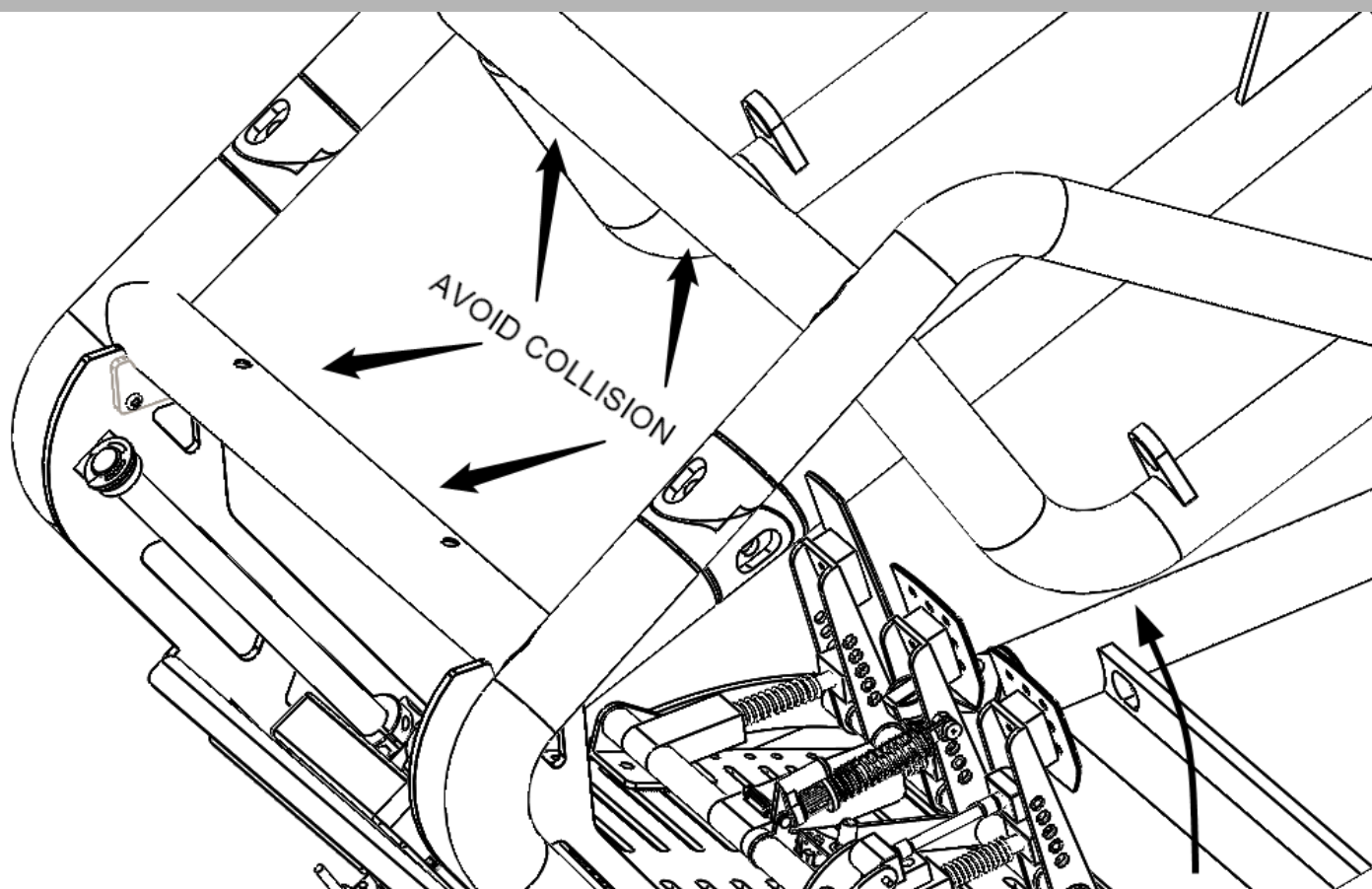


NOTE: The outer-most hole [shown at left above] will create a Pedal Base Plate angle that is MORE LEVEL. Conversely, the inner-most hole [shown at right above] will create a Pedal Base Plate angle that is MORE VERTICAL.

3. Loosen both pedal stop collars without fully removing. Make sure the pedal stop collars freely slide along the pedal rail and rest them on the aluminum slider blocks.



4. Actuate the pedal assembly all the way up to the maximum pedal base plate height, while watching to avoid any collision with pedal controls and the frame. If it looks like there will be any collisions, **IMMEDIATELY STOP ACTUATION** and re-position the pedals on the base plate such that the collision will be avoided/eliminated.

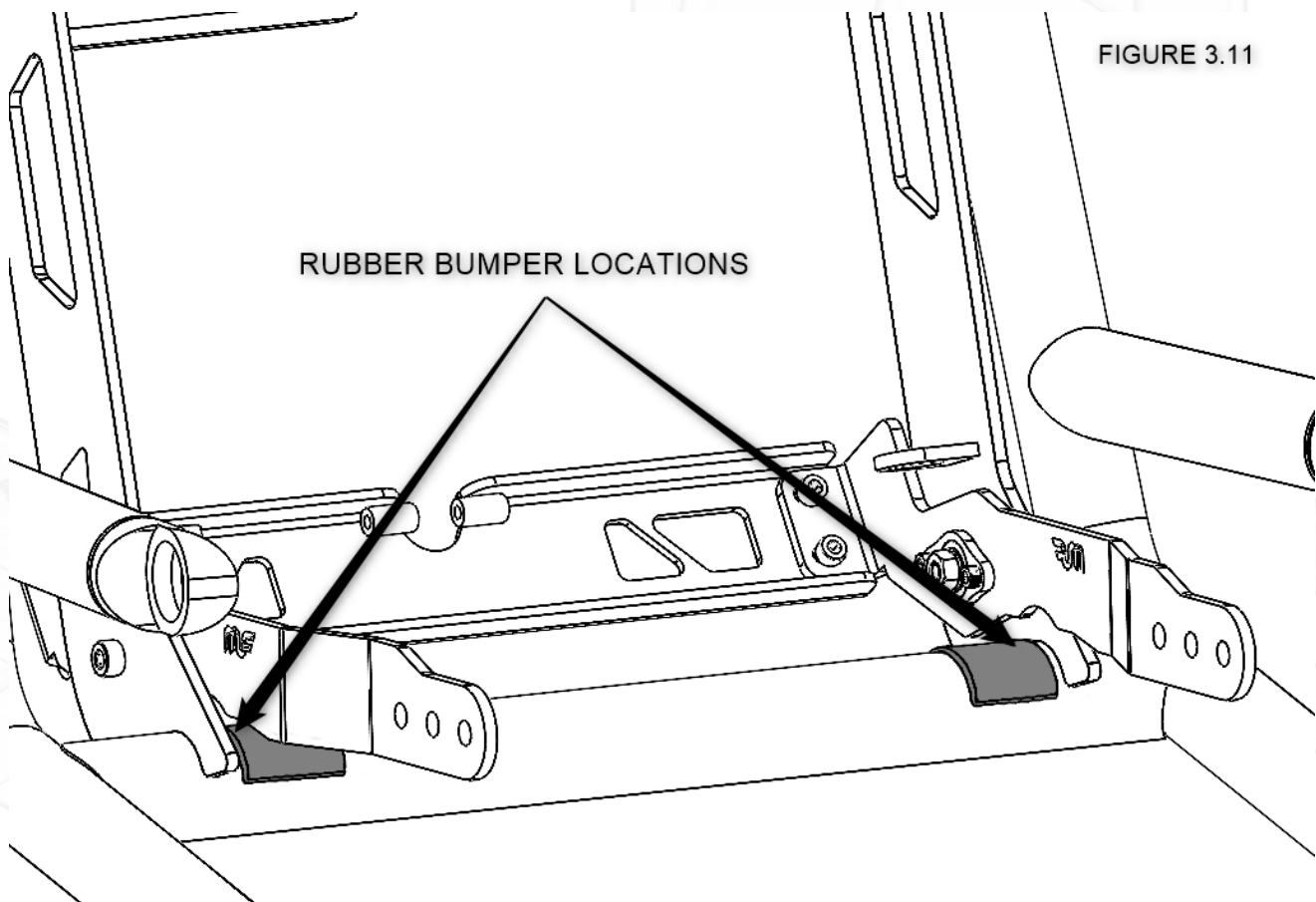


5. With the Pedal Base Plate at its highest location, sit inside the simulator [with the seat in formula position as well] and ensure the pedal face angle is satisfactory. If adjustment is required, simply repeat step 2 until the angle is correct.
6. Your Formula pedal configuration is now complete! Secure both Pedal Stop Collars by evenly tightening the two [2] Allen screws on each collar.
7. Test that the pedal stop collars can stop the pedal assembly without sliding or slipping. If not, repeat steps 3-5, and tighten further.



If the pedal stop collars are set to any position other than maximum possible actuator travel, users must take care and release the adjuster switch when the pedal slider blocks touch the pedal stop collars. Failure to do so will result in damage or premature wear.

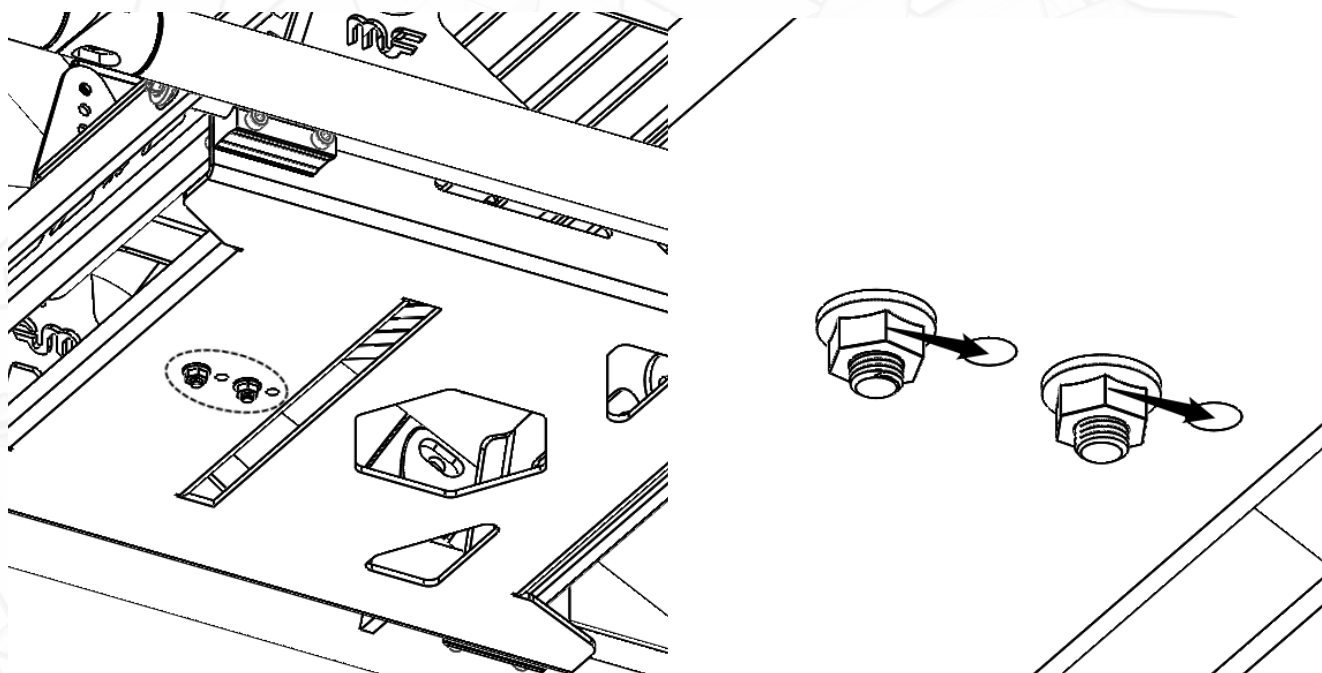
8. With your pedal stop collars set, move the pedals upwards enough to access the chassis cross tube beneath the pedal angle arms. Install the two [2] square stick-on rubber bumpers found in the User Assembly kit in the locations indicated in figure 3.11.



NOTE: The stick-on rubber bumpers are used to help secure the entire pedal assembly at the lowest GT position by being compressed. xFrame will function without them, but you can experience small amounts of movement in the lowest GT position if used without them.

• Seat Tuning & Adjustments

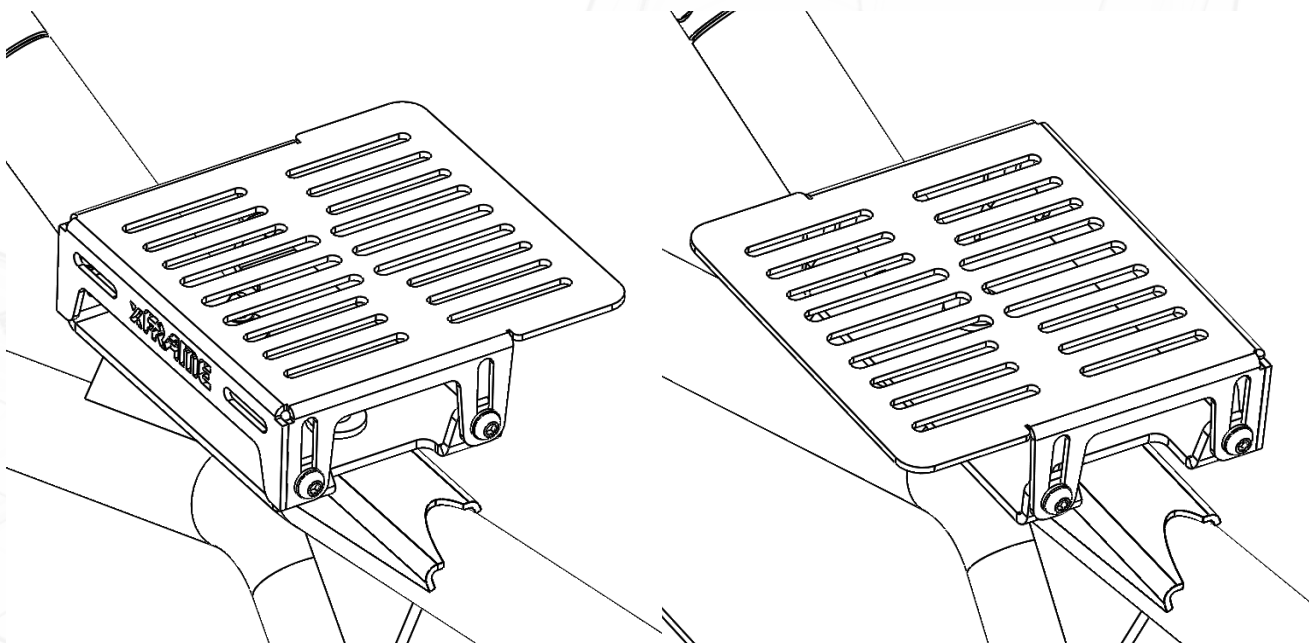
While the electronic seat actuation mechanism is designed to ideally operate with a user weighing less than 210lbs, it is rated to effectively lift a user up to 250lbs. Users weighing more than 210lbs may notice a reduction in actuation speed. If this is the case, you may opt to switch the linear actuator hanger to the alternate ,more rearward set of hardware holes [described previously in Seat-Sub Assembly instructions].



Selecting this secondary set of holes for the linear actuator hanger will result in a reduction of how low the seat is able to recline [at maximum reclination], but will increase the system's mechanical advantage, allowing an occupant on the heavier end of our specified weight range to actuate up and down more quickly.

• Shifter Tuning & Adjustments

The Shifter Base Plate can be installed in an inboard or outboard orientation, depending on the desired shifter location. An outboard configuration, as described in Section 6 of Assembly Instructions, will place the shifter base plate [and shifter] farther away from the user. If a closer lateral placement of the base plate is preferred, simply unbolt and flip the Shifter Base Plate 180 degrees, then re-install.



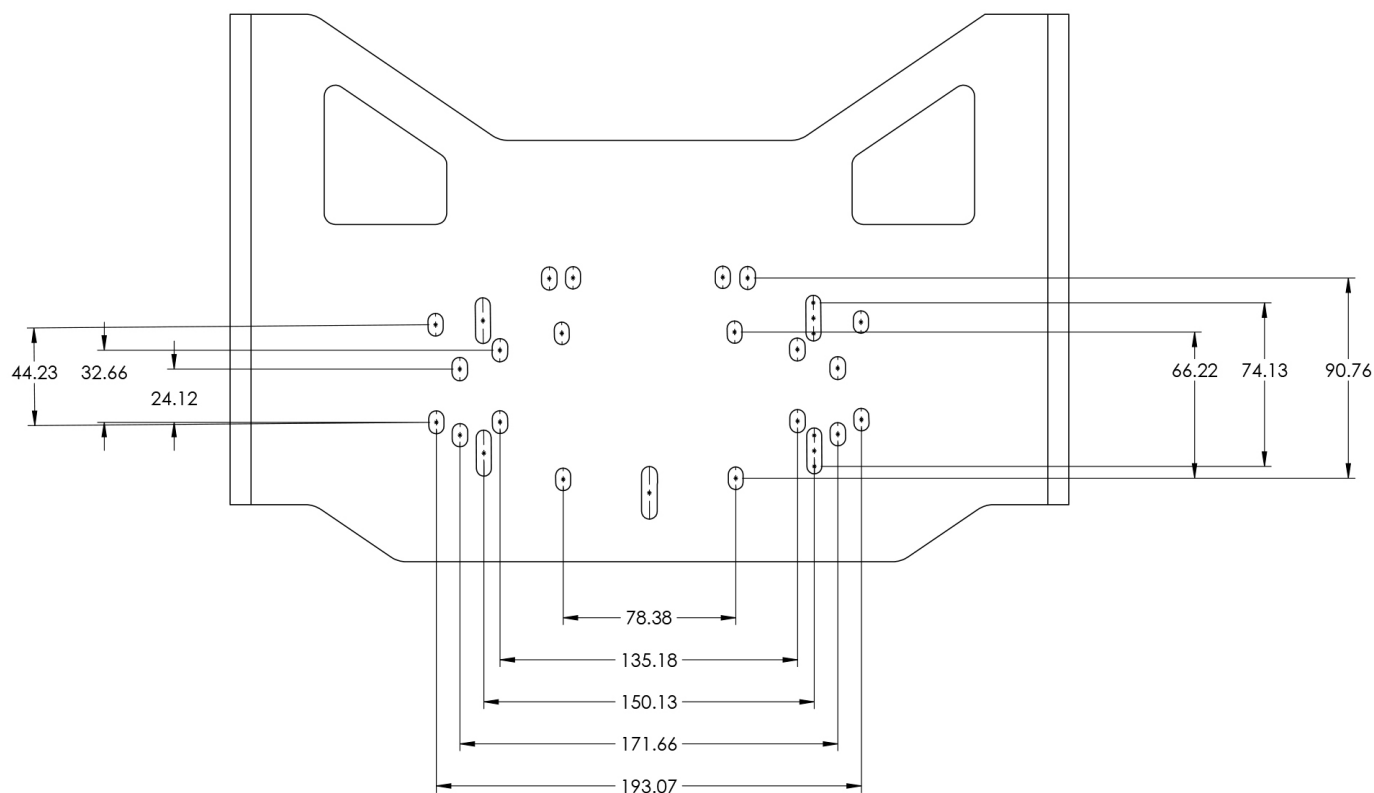
Additionally, the complete shifter assembly can be placed on the left or right side of the simulator chassis to emulate a right-hand-drive or left-hand-drive vehicle layouts.

xFrame was designed to fit controls from leading simulation brands. A list of peripheral compatibility is below, with bolt patterns for all mounting points provided in following pages. If your hardware is not listed, compare measurements to determine compatibility.

	xFrame Part	Compatible Brand	Compatible Product
PEDALS	xFrame Pedals	Fanatec	ClubSport Pedals V3 Inverted ClubSport Pedals V3 CSL Elite Pedals V2
		Heusinkveld	Ultimate+ Sim Pedals Sim Pedals Sprint
		Logitech	G25, G27, G29, G920 Pedals Pro Racing Pedals
		Thrustmaster	T-LCM Pedal Set T3PA Pedal Set T-80 2-Pedal Set
BOTTOM MOUNT	xFrame Bottom Mount Plate	Fanatec	Gran Turismo DD Pro Wheel Base Podium Wheel Base DD1
		Thrustmaster	T300RS Wheel Base T300 Wheel Base TX Wheel Base TMX Wheel Base
		Logitech	G29 Wheel Base TRUEFORCE Wheel Base PRO Wheel Base
		SIMXPERIENCE	AccuForce Pro V2 Steering System AccuForce Your Way V2 Steering System
FRONT MOUNT	xFrame Front Mount Plate	Simucube	Simucube 2 Pro Simucube 2 Sport Simucube 2 Ultimate
		Simagic	Alpha Alpha Mini
		MiGe	130ST
		VRS	Direct Force Pro
		Ricmotech	Mini-Mite
		IMMSOURCE	ET3 ET5
		AccuForce	V1 V2
SHIFTER MOUNT	xFrame Shifter Plate	Fanatec Shifters	
		Thrustmaster Shifters	
		Heusinkveld Shifters	
		Simagic Shifters	
		Pro-Sim Shifters	
		Frex Shifters	
		Aiologs Shifters	

• Bottom Mounted Steering Wheelbases

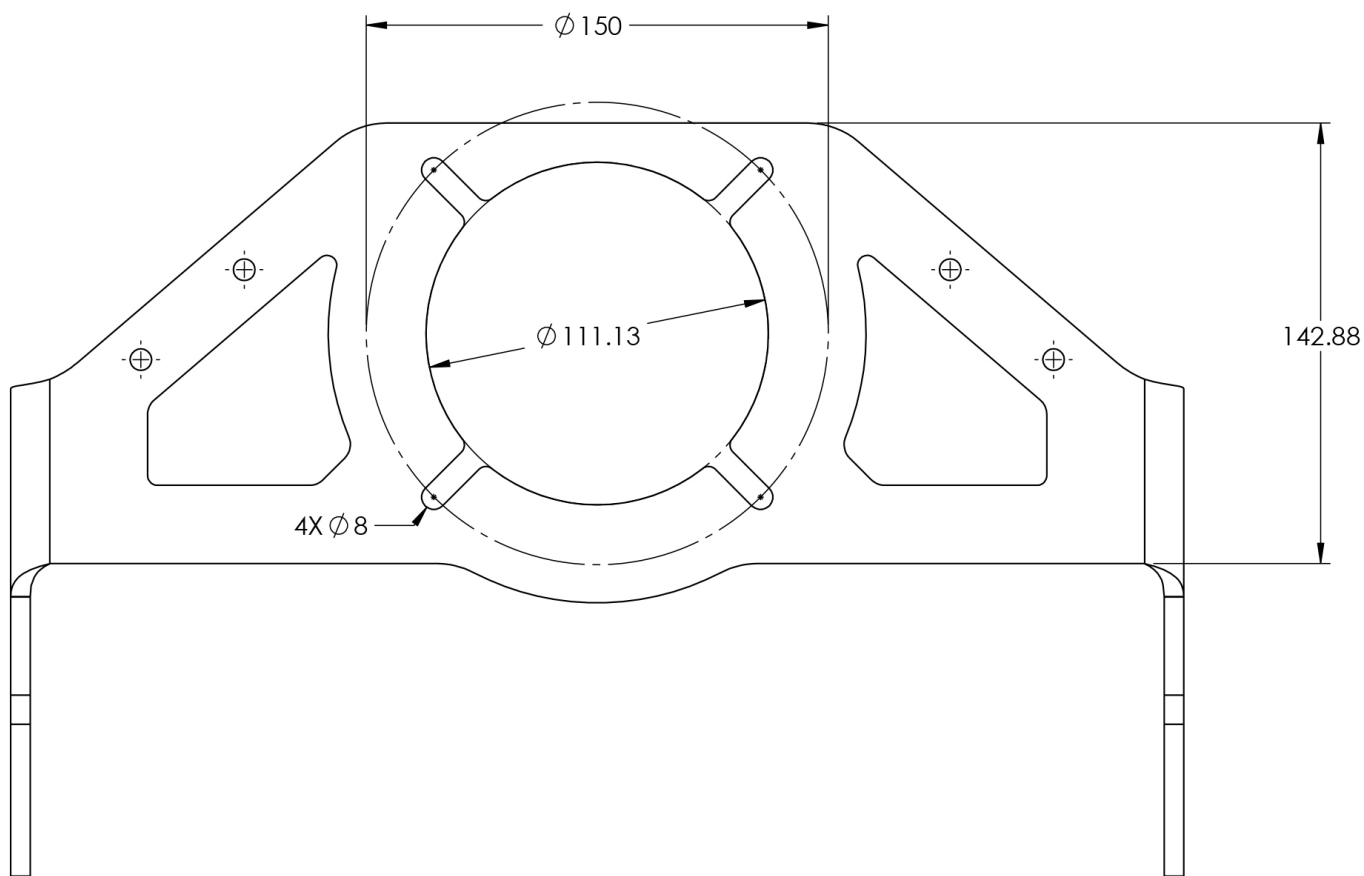
xFrame comes out of the box with a bottom mount compatible wheelbase plate. Refer to the compatibility sheet on the first page of this section for known compatible parts, or cross-reference the below drawing to check fitment of other wheelbases.



NOTE: All measurements shown in millimeters.

• Front Mounted Steering Wheelbases

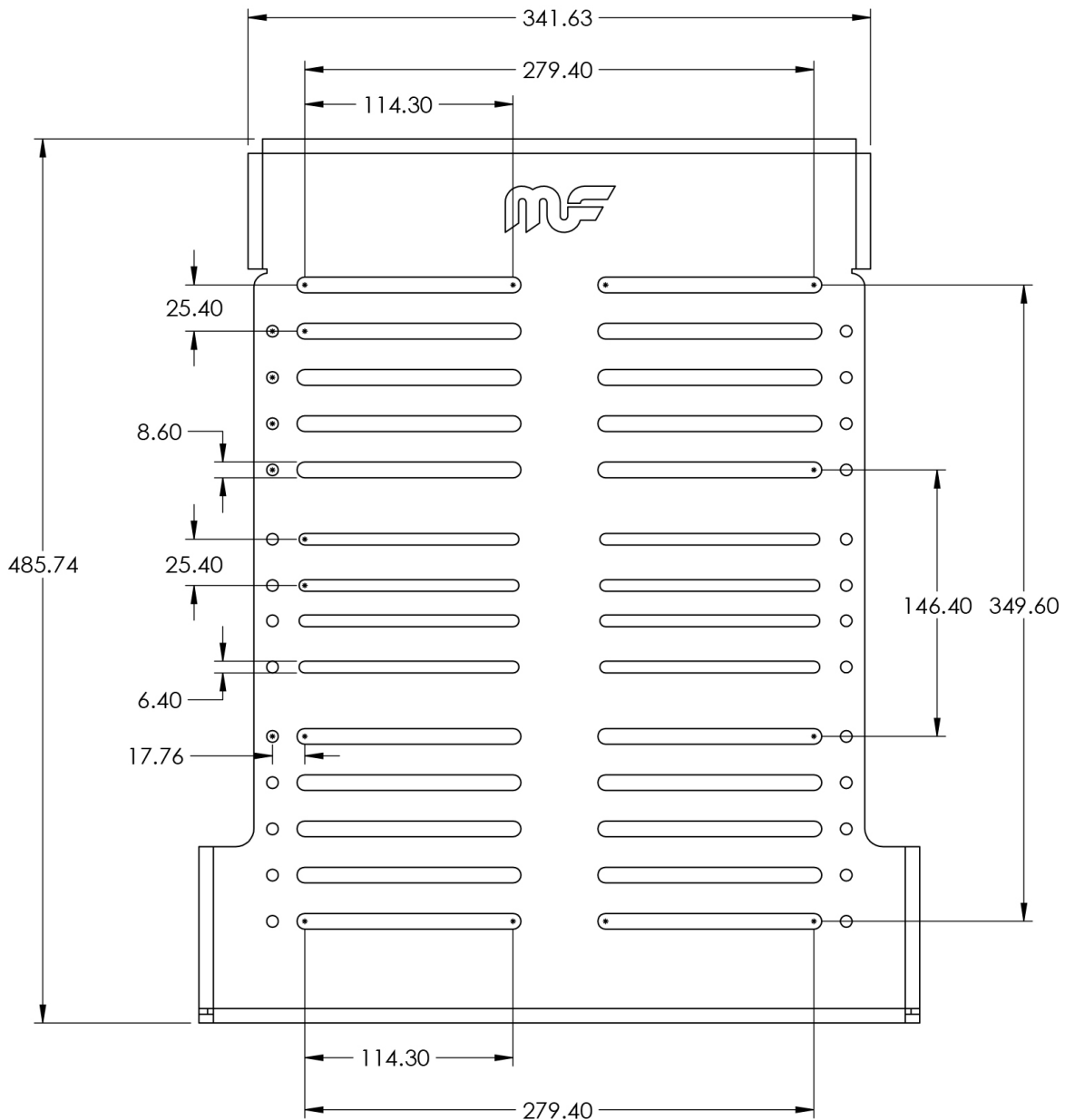
The xFrame Front Steering Mount is an accessory designed for those who want to utilize a wheelbase that is front-mount compatible. Our 4 slot design gives the freedom to accommodate many different wheelbase flange patterns. Refer to the compatibility sheet on the first page of this section for known compatible parts, or cross-reference the below drawing to check fitment of other wheelbases.



NOTE: All measurements shown in millimeters.

• Sim Racing Pedals

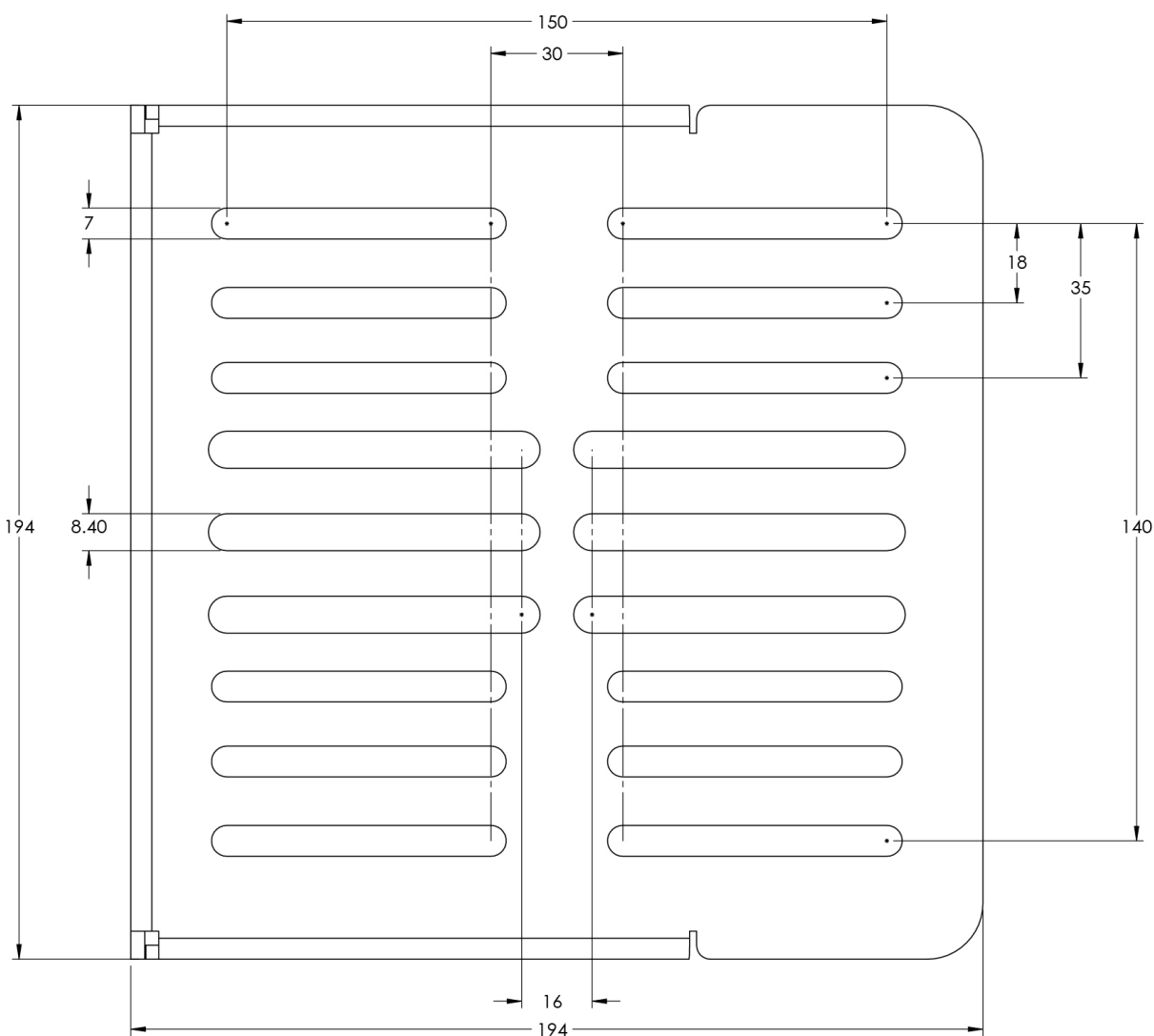
xFrame was designed to accommodate most leading pedal sets as well as individual pedals on its pedal base plate. Refer to the compatibility sheet on the first page of this section for known compatible parts, or cross-reference the below drawing to check fitment of other pedals or pedal sets.



NOTE: All measurements shown in millimeters.

• Sim Racing Shifters & Handbrakes

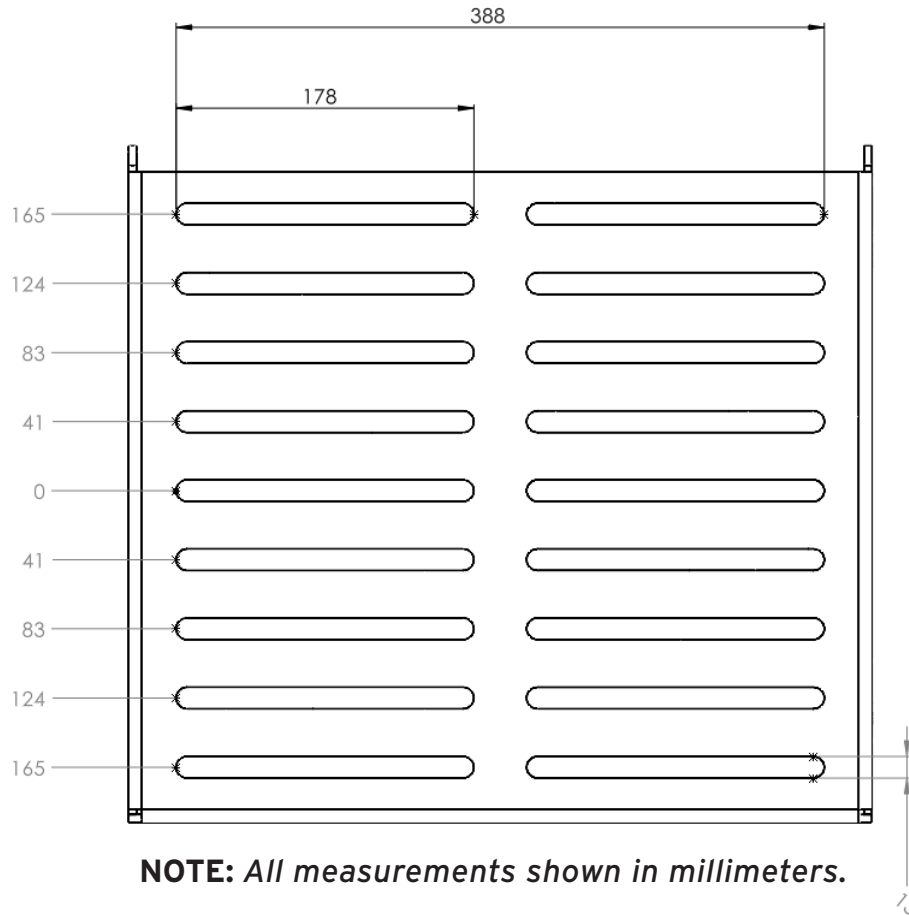
The xFrame Shifter Mount was designed to accommodate most leading sim racing shifters, as well as some handbrakes. Refer to the compatibility sheet on the first page of this section for known compatible parts, or cross-reference the below drawing to check fitment of other shifters or handbrakes.



NOTE: All measurements shown in millimeters.

• Racing Seats

xFrame is designed to accommodate the majority of modern fixed-back racing seats, namely those that are side-mounted using mounting brackets [either our optional xFrame Seat Brackets or others made by seat or aftermarket manufacturers], but in certain cases bottom-mounted seats may be accommodated as well. Please refer to the below diagram to cross-reference bolt patterns of seats and seat bracketry.



• Monitors & Televisions

The Integrated Monitor Mount has been designed to accommodate virtually every monitor on the market today, curved or flat panel, all the way up to 55" displays. As well, it can support up to a 55" class television, with a maximum weight of **no more than 45lbs** [without TV stand].

The Integrated Monitor Mount uses industry-standard VESA mounting patterns to attach your display. The base flange includes **50x50, 75x75, 100x100, and 200x200** patterns [all measured in millimeters]. When the extension bars are added, you gain **300x200 and 400x200** patterns, typically found in larger televisions and monitors.

IMPORTANT!

xFrame has been designed to support seated adjustments [e.g. performing electronic adjustments while a user is sitting in xFrame] for users from **60lbs** [27kg] up to **250lbs** [114kg]. If users in the upper end of this range desire faster actuating motion, they may use the alternative set of seat actuator mounting holes. **See Section 2 of xFrame Tuning for more information.**

If a user is over the designed weight limits, they may still operate and enjoy xFrame [up to a maximum weight of 300lbs or 136kg], but heavier users must make any electronic adjustments outside of xFrame [e.g. not seated, or in any other way loading the electronic actuators with their full or partial body weight]. Failure to do so can lead to potential injury and damage to the electronic actuators ability to lift and lock positions.

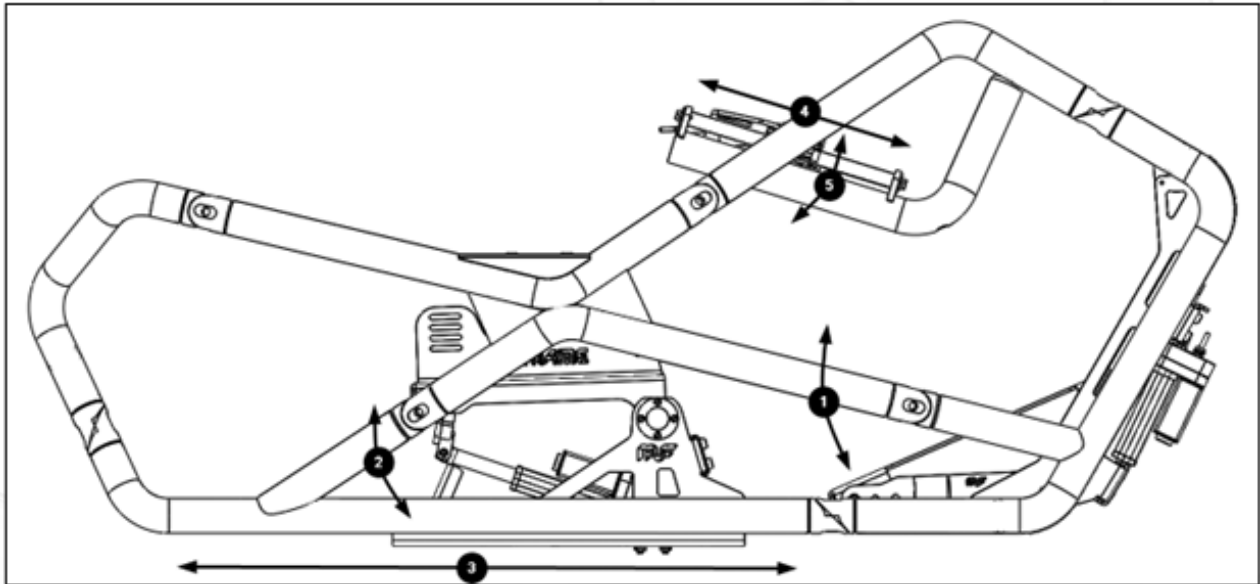
1: Positioning Order of Operations

xFrame allows for quick and easy movement between the traditional upright GT seating position, and the reclined high-legged Formula position, as well as rapidly adjusting between users of different heights/sizes. Below is our recommended order of operations for ensuring fast and correct adjustment.



You are free to adjust and readjust xFrame in any order you choose, but you may experience conflicting movements that require excess readjustments if you deviate from this recommended order.

NOTE: *Be sure to set up your pedal stop collars prior to changing seating positions for the very first time. See the xFrame Tuning section for these instructions. Pedals are intended to be used in either GT position [all the way down, resting against the rubber bumpers], or Formula position [fully elevated, resting against the pedal stop collars].*



1. Pedal Setup

First set your pedals to GT or Formula position to help locate yourself in xFrame.

2. Seat Angle

Before adjusting seat depth, set your seat angle as reclining moves you farther from the pedals and will require sliding the seat farther forward the lower you recline.

3. Seat Depth

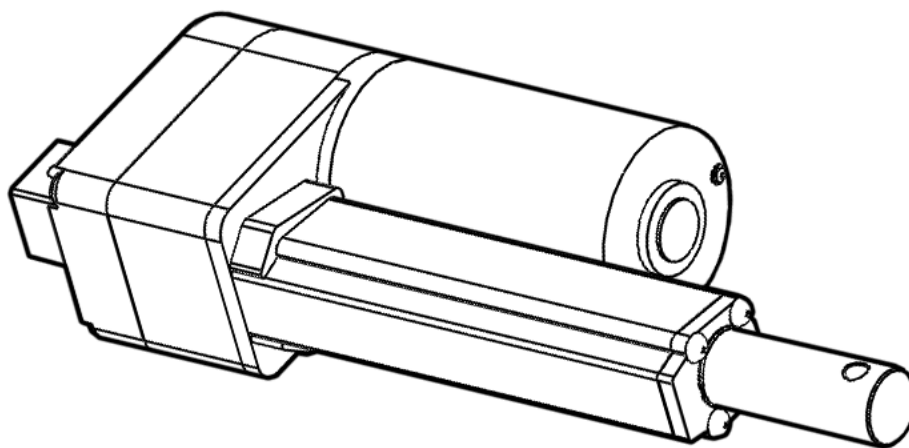
Slide your seat forward to a point where you can comfortably operate all pedals.

4. Steering Depth

Set steering depth to a place where your arms comfortably reach the wheel, and the wheel is at roughly the appropriate height [steps 4 & 5 may be repeated to fine tune].

5. Steering Angle

Lastly, set steering angle to finalize wheel height and wrist angle. Formula tends to have the wheel more vertical, while GT leans the wheel away to increase wrist comfort.



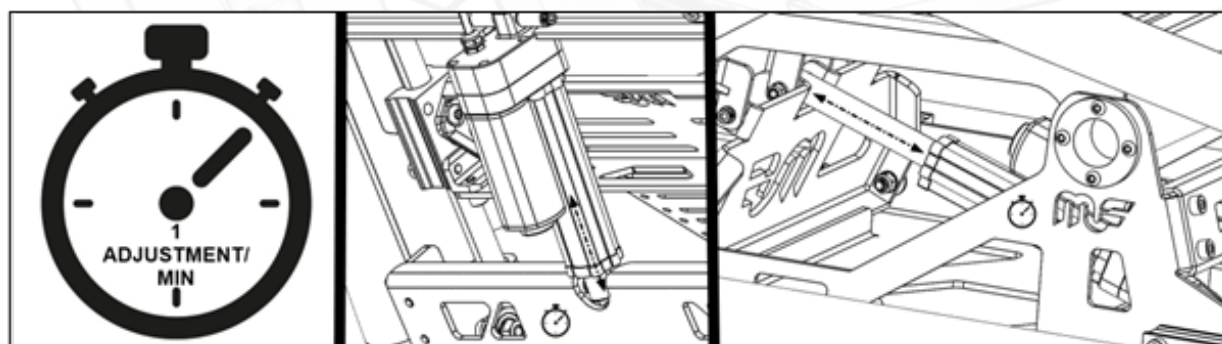
Linear Actuators

xFrame uses two high-force linear actuators to handle the task of adjusting your pedal height and seat inclination. These strong electronic devices are rated to handle the loads and conditions outlined in this manual. Should any issues ever arise with your linear actuators, stop usage and contact MagnaFlow immediately.

Actuator Duty Cycle

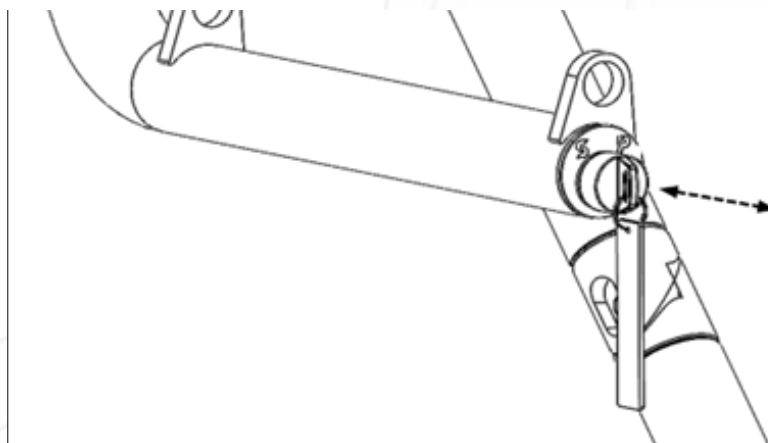
The actuators powering your electronic movements in xFrame **MUST NOT** exceed a duty cycle of 20% per actuator. A simple guideline for following this is to not exceed more than one adjustment per minute per actuator.

Failure to follow this rule can result in reduced actuator performance, premature actuator wear, and reduced or total loss of locking and lifting functions.



• Selector Safety Key

xFrame's electronic system is designed for safety first, and at the heart of that system is the selector safety key. The safety key enables the selector switch to operate, and must be inserted to use any of the electronic adjustment features of xFrame.

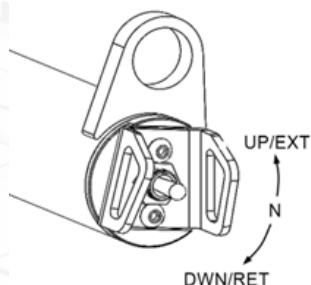


Remove the safety key whenever you exit xFrame to prevent unintentional actuation. Keep the safety key stored out of reach of children and outside of xFrame when not in use. The key must be set to the neutral position [N] in order to be removed.

• Emergency Stop Procedures

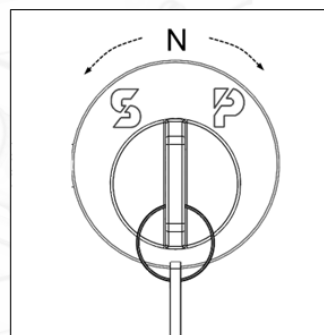
In the event of an emergency or malfunction, there are two methods of emergency stopping xFrame actuation:

Method 1 [primary] - Release the momentary Adjuster Switch. The Adjuster Switch will automatically return to its neutral position [N] and deactivate the linear actuator in motion.



Method 1: Left

Method 2: Right



Method 2 [backup] - In the unlikely event that the Adjuster Switch sticks or malfunctions, simply turn the Selector Switch to the neutral position [N, vertical, centered] to deactivate the linear actuator in motion.

- **Important Notes:**

The Selector Switch must remain in the neutral position [vertical, centered] when adjustments are not actively being made.

Prior to electronic adjustments being made, always check that actuators and connected linkages are clear of any objects, obstructions, or body parts.

Ensure the power switch on the Electrical Control Box is switched to “ON” before attempting any adjustments.

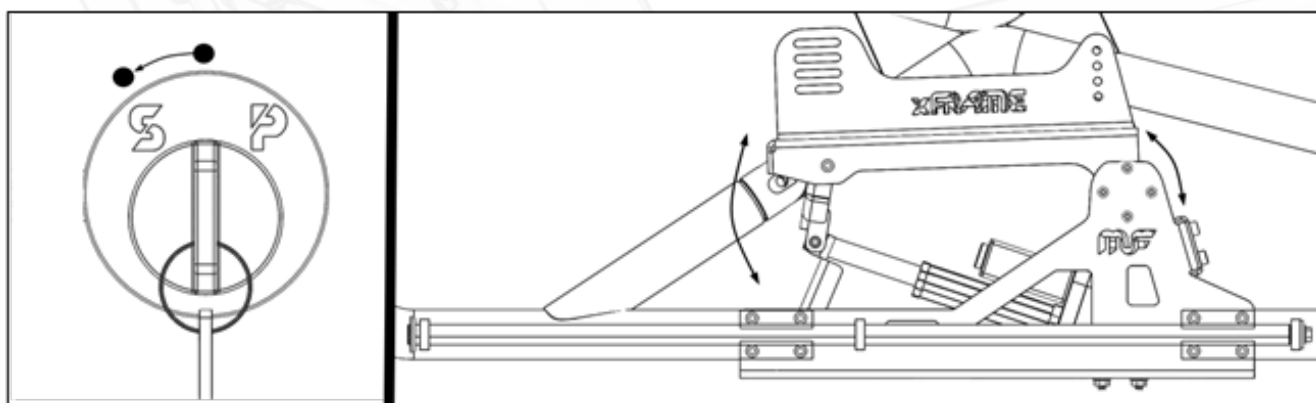
The Electrical Control Box uses an overcurrent protection system that limits the maximum output force of each linear actuator for safety reasons. In the event the overcurrent protection system is tripped [if an occupant weighs too much, or if something obstructs one of the actuators] movement will be temporarily disabled. Please remove any obstructions and allow **up to one minute of inactivity** before re-attempting movement to allow the protection system to reset itself.

Should the overcurrent protection system repeatedly trip while operating xFrame within all specified guidelines, please contact customer support for assistance.

- **Seat Angle Adjustments**

To adjust the angle of your seat, first turn the Selector Switch to the “S” position [Seat]. Then toggle the Adjuster Switch up to incline or down to recline the seat to your taste. Releasing the Adjuster switch will stop movement and set your seat angle.

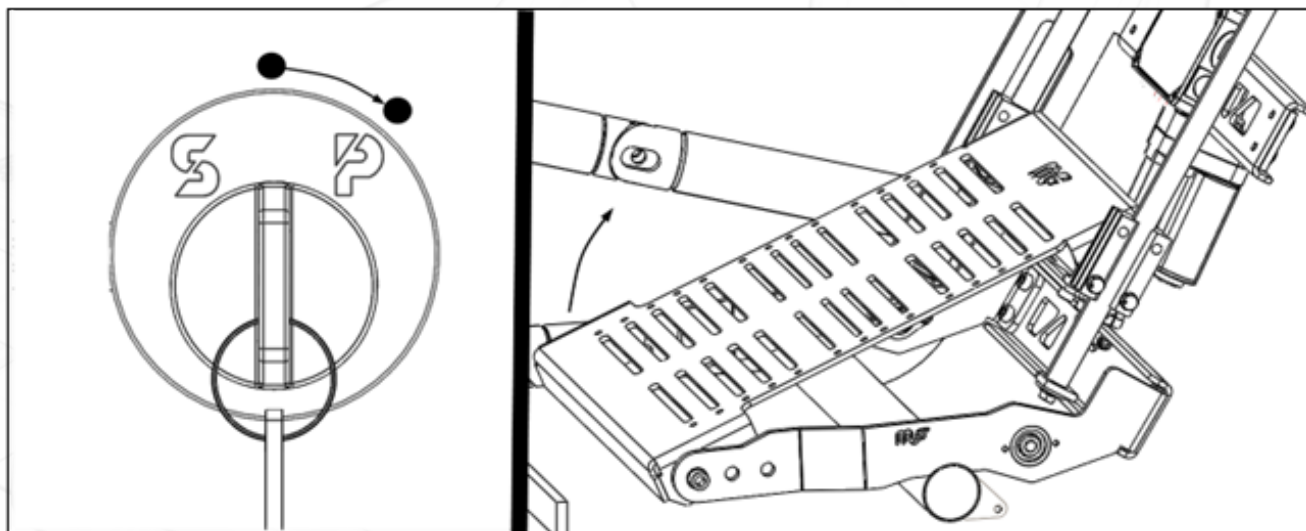
In accordance with the previous section on duty cycle, please take care to not make too many minor adjustments of seat angle without allowing the actuator ample time to come to rest between actuations.



• Pedal Height Adjustments

To adjust the height of your pedals, first turn the Selector Switch to the "P" position [Pedals]. Then toggle the Adjuster Switch up to raise or down to lower your pedals between the GT [fully lowered, against the rubber frame pads] and Formula [fully raised, pressed against the pedal stop collars] positions.

In accordance with the previous section on duty cycle, please take care to not make too many adjustments from GT to Formula and back without allowing the actuator ample time to come to rest between actuations.



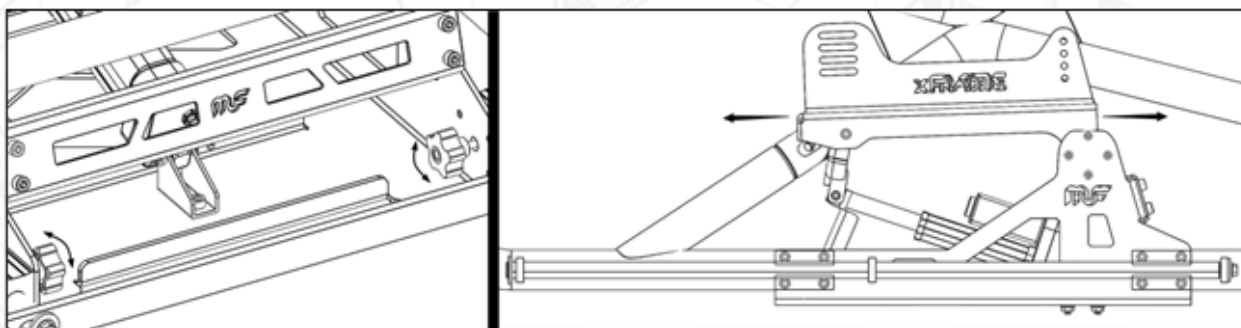
WARNING: As the Pedal Base Plate is actuated upwards, the Articulating Pedal Brace rotates downwards towards the ground, creating a potential pinch point. As a result, objects underneath the front of xFrame can be crushed or damaged, so keep all objects at least one foot away from the front area of the xFrame chassis.

- **Important Notes:**

The remaining adjustment points of xFrame operate using tool-free precision rails and locking knobs or levers. Do not excessively tighten any locking knobs or levers to avoid damaging the rails and if alignment/sliding issues occur, please re-check assembly procedures are correct to ensure free and easy sliding motions.

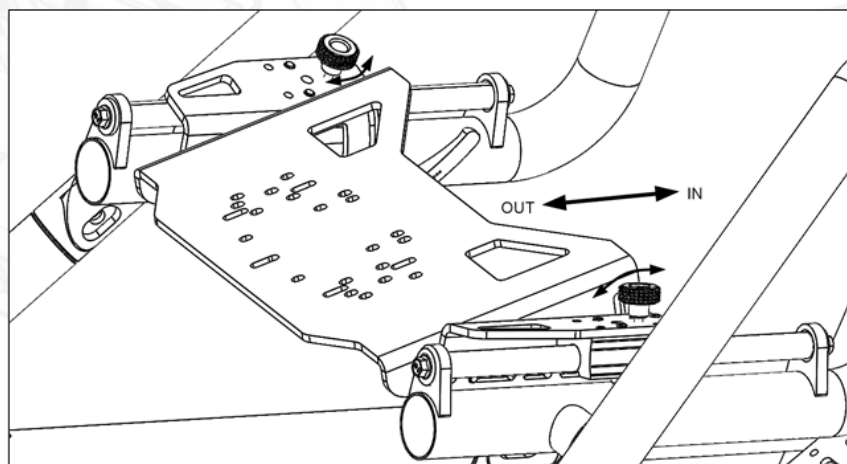
- **Seat Depth Adjustment**

To adjust the depth of your seat [how close or far you are to pedals and steering wheel] first loosen BOTH of the two hand screws located at the lower front of the seat base. Then, grasping onto the tubular portion of xFrame for support if needed, slide your seat forward or backward until your legs rest at a comfortable distance from the pedals. Once in place, firmly lock BOTH of the two hand knobs to secure your position.



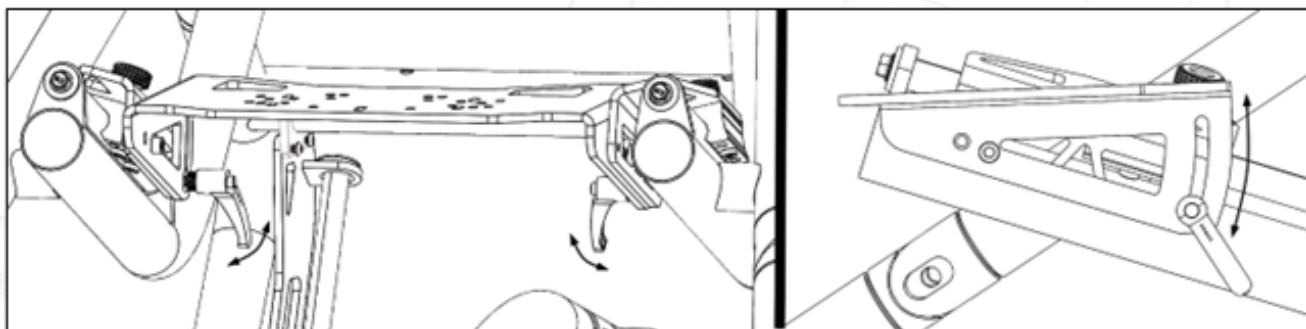
- **Steering Depth Adjustment**

To adjust the depth of your steering [how close or far the steering wheel is to you] first loosen BOTH of the two hand screws located at the top of the steering slider blocks. Then, grasping your steering wheel or wheelbase firmly, slide your in or out until it rests a comfortable distance away from you. Once in place, firmly lock BOTH of the two hand knobs to secure your steering wheel position.



• Steering Angle Adjustment

To adjust the angle of your steering [how vertical or leaned back your steering wheel is] first loosen BOTH of the two indexable screw handles located on the underside of the steering mount plate. Then, grasping your steering wheel firmly, tilt the wheel upwards or downwards until the wheel is at a comfortable angle. Once in place, firmly lock BOTH of the two screw handles to secure your steering wheel angle.



WARNING: All of the manual adjustments on xFrame involve the sliding or moving of heavy metal components, and as such can cause pinching or crushing of objects or body parts. Be careful while moving components, and never leave any adjustments unlocked or unsupported while unlocked.

- **xFrame Maintenance**

Check that all hardware and fasteners are secure and tight before each session using xFrame. If loose, tighten all hardware according to the procedures outlined in the Assembly Instructions sections. Damaged or worn parts must be replaced or repaired as soon as possible, and failure to do so can result in damage, premature wear, or even injury.

Inspect all electrical cables. Do not use xFrame if there are any damaged or exposed wires. Make sure the AC adapter cord is fully inserted into the wall outlet or extension cord. Do not use xFrame if any damage has occurred to the AC power adapter. Do not power xFrame with any power supply unit besides the one originally provided with your xFrame.

- **Cleaning & Appearance Upkeep**

Inspect all linear rails and sliders for dirt, dust, and debris. If necessary, wipe clean with a dry cloth. Reapply lubrication, following the instructions outlined in the Assembly section prior to use.

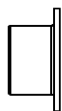
Clean all other surfaces with a damp cloth. Do not soak or spray surfaces with any liquid. Make sure the unit is dry before use.

If you are using xFrame with the optional Sparco Racing Seat, it can be cleaned in the same manner as any other automotive racing bucket seat. See Sparco's web page for further cleaning information and instruction.

NOTE: *All steel components are covered in powder coating, which is a very durable yet chippable finish. In the event the powder coat is damaged, it is recommended to use an automotive quality touch-up pen to cover any chips or exposed metal to help prevent rust or further damage to the remaining powder coat.*

NB1 (x4)

Nylon M10 Bushing
(2 extra as spares)

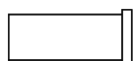


B10 (x4)

Black M8 Button Head Bolt (10mm)

AB (x2)

Aluminum M6 Bushing



B1 (x6)

Stainless M6 Button Head Bolt (12mm)

W1 (x4)

Black Nylon M6 Washer

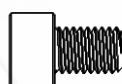


B11 (x4)

Black M6 Socket Head Bolt (10mm)

S1 (x2)

Aluminum .236" Spacer

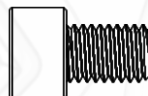


B12 (x12)

Black M8 Socket Head Bolt (12mm)

W3 (x4)

Stainless M8 Washer

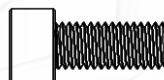
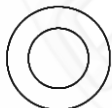


B13 (x2)

Black M10 Socket Head Bolt (15mm)

W6 (x2)

Stainless M10 Washer

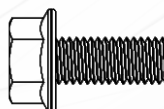
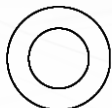


B3 (x2)

Black M8 Socket Head Bolt (20mm)

W7 (x2)

Brass M10 Washer

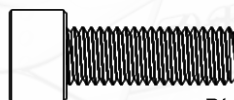


B4 (x4)

Black M8 Hex Head Bolt (20mm)

W5 (x4)

Steel Oversize M8 Washer

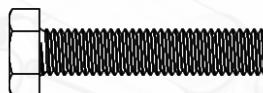


B14 (x2)

Black M10 Socket Head Bolt (30mm)

N1 (x2)

M6 Nylock Nut



B15 (x4)

Black M8 Hex Head Bolt (40mm)

N5 (x2)

Steel M10 Nut



B16 (x2)

Black M6 Socket Head Bolt (80mm)

NOTE: Hardware not to scale, please see ID sheets included with individual hardware bags.

W1 (x6)
Black Nylon M6 Washer



BS (x2)
Aluminum Brake Pads

W2 (x2)
Aluminum 1/8" Spacer



B1 (x8)
Stainless M6 Button Head Bolt (12mm)

W3 (x4)
Stainless M8 Washer



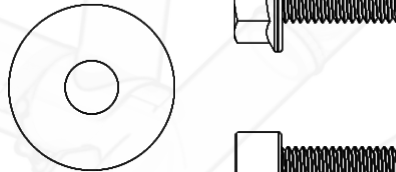
B2 (x2)
Black M6 Socket Head Bolt (20mm)

W4 (x6)
Black Nylon M8 Washer



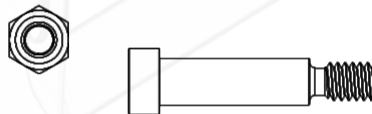
B3 (x2)
Black M8 Socket Head Bolt (20mm)

W5 (x4)
Steel Oversize M8 Washer



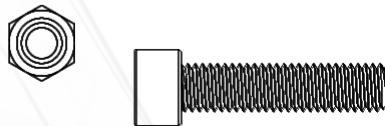
B4 (x4)
Black M8 Hex Head Bolt (20mm)

N1 (x2)
M6 Nylock Nut



B5 (x10)
Black M8 Socket Head Bolt (25mm)

N2 (x2)
1/4"-20 Nylock Nut



B6 (x1)
5/16" Shoulder Bolt (1")

N3 (x4)
M8 Nylock Nut



B7 (x14)
Black M8 Socket Head Bolt (35mm)

N4 (x10)
M8 Flange Nut



B8 (x2)
Black M8 Socket Head Bolt (60mm)

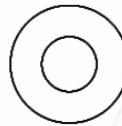
B9 (x1)
5/16" Shoulder Bolt (2.5")

NOTE: Hardware not to scale, please see ID sheets included with individual hardware bags.

BS (x2)
Aluminum Brake Pads



W4 (x4)
Black Nylon M8 Washer



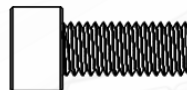
W5 (x4)
Steel Oversize M8 Washer



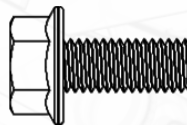
NB2 (x4)
Nylon M8 Bushing
(2 extra as spares)



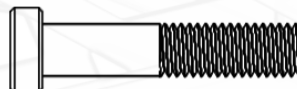
B3 (x2)
Black M8 Socket Head Bolt (20mm)



B4 (x4)
Black M8 Hex Head Bolt (20mm)



B17 (x8)
Stainless M8 Low-Profile Bolt (40mm)



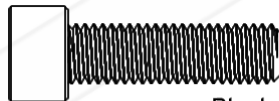
NOTE: Hardware not to scale, please see ID sheets included with individual hardware bags.

PP (x10)
Push-In Panel Plug



B10 (x4)
Black M8 Button Head Bolt (10mm)

N5 (x14)
Steel M10 Nut



B18 (x14)
Black M10 Socket Head Bolt (40mm)

NOTE: Hardware not to scale, please see ID sheets included with individual hardware bags.

- **I'm stuck, part of the assembly process just isn't making any sense...**

Try re-starting whatever stage you may be stuck on, as missing part of the assembly process can lead to confusion in later steps for even the best wrench turners. If you're still stuck, contact us so we can help clarify and get you back on your way to racing.

- **I'm done putting xFrame together, but it's a bit wobbly...**

This isn't uncommon, but the usual fix is very simple. Loosen all 14 of the chassis bolts, enough for them to be easily movable, then re-tighten them starting from the bottom to the top. If the issue persists, retrying this with someone seated in xFrame can help.

- **I'm trying to make a manual adjustment, but the rods aren't smooth...**

The precision rods in xFrame are designed to be very tight tolerance, which can cause issues if the rods are not aligned correctly. First check that your rods are tightened down properly. If so, re-check and follow the assembly steps for the rods in question, as deviation from correct order of assembly can cause mild misalignments.

- **My xFrame won't respond to some/any of the electrical controls!**

If you are having electrical issues, the first step is to be careful! Turn off the main power, and unplug the power supply right away, and inspect xFrame wiring for any obvious issues. If you see no issues, check your connections are all secure and plugged into their correct positions, and that when the power supply is plugged in and the power switch set to on, that you have a red LED light displayed. If not, or if other issues persist, contact us.

- **Will my sim gear fit on or work with xFrame?**

Firstly, please look over the Hardware Compatibility section of this manual for dimensions and info needed to verify product compatibility with xFrame. If needed dimensions aren't present for you, or you're curious about another type of product's compatibility with xFrame, contact us and we can help answer that for you.

Warranty & Contact Information

xFRAME

For warranty information, please visit www.magnaflow.com/pages/warranty to review the most up-to-date information on all our product warranties.

For warranty claims, or any other issues or information not outlined in this manual, call us at 1-800-990-0905 [Option 1 for MagnaFlow] or write us at www.magnaflow.com/pages/contact-us and we'll get you back in the action.



Congratulations on crossing the finish line of xFrame assembly, now hop in, hop online, and get to conquering the sim racing competition!

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