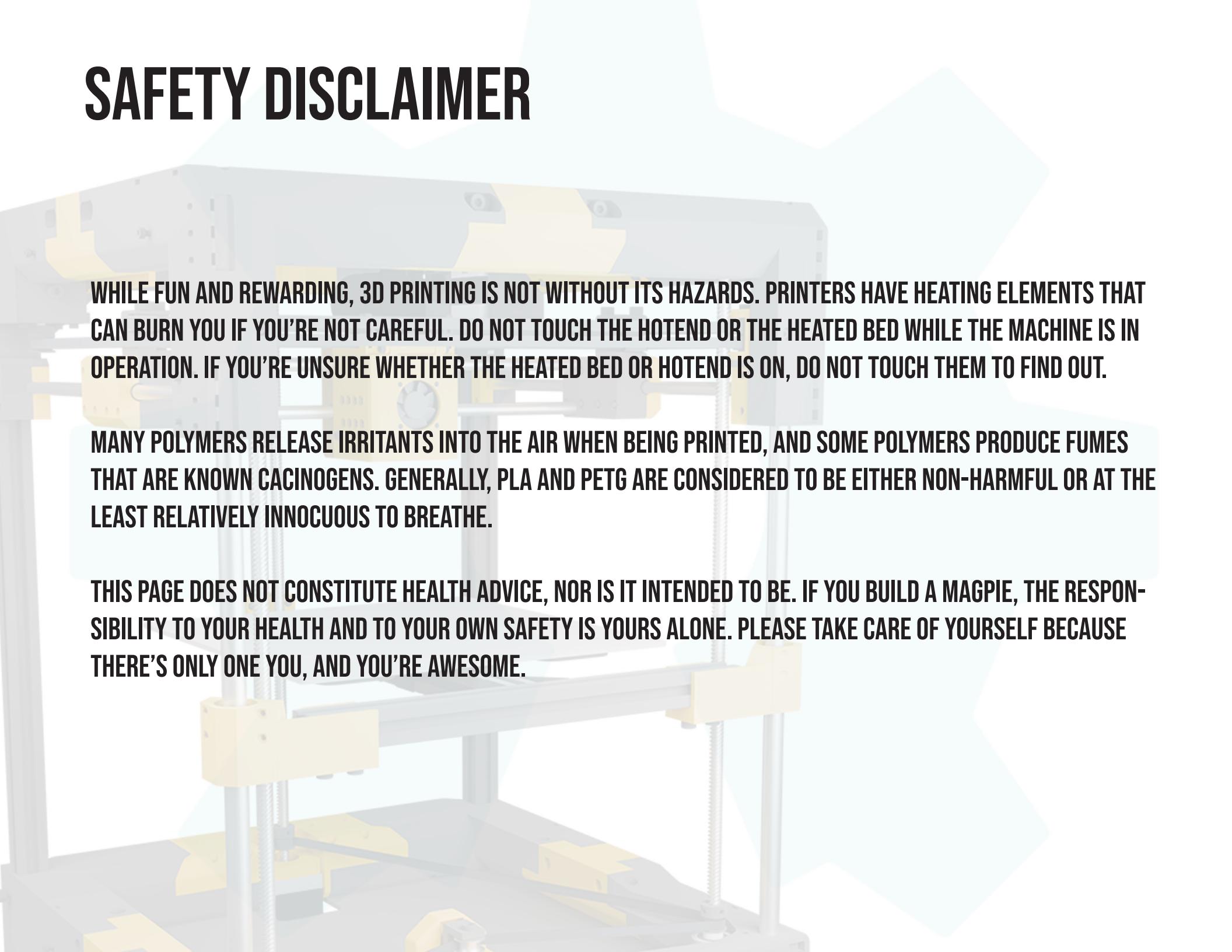


THE MAGPIE

OPEN-SOURCE & EASY TO BUILD

Version 1.0

SAFETY DISCLAIMER

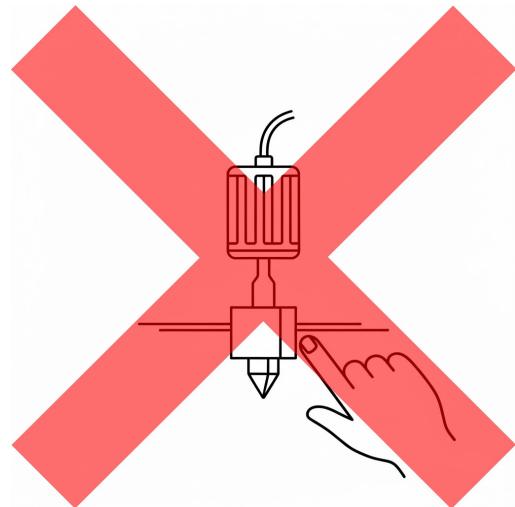


WHILE FUN AND REWARDING, 3D PRINTING IS NOT WITHOUT ITS HAZARDS. PRINTERS HAVE HEATING ELEMENTS THAT CAN BURN YOU IF YOU'RE NOT CAREFUL. DO NOT TOUCH THE HOTEND OR THE HEATED BED WHILE THE MACHINE IS IN OPERATION. IF YOU'RE UNSURE WHETHER THE HEATED BED OR HOTEND IS ON, DO NOT TOUCH THEM TO FIND OUT.

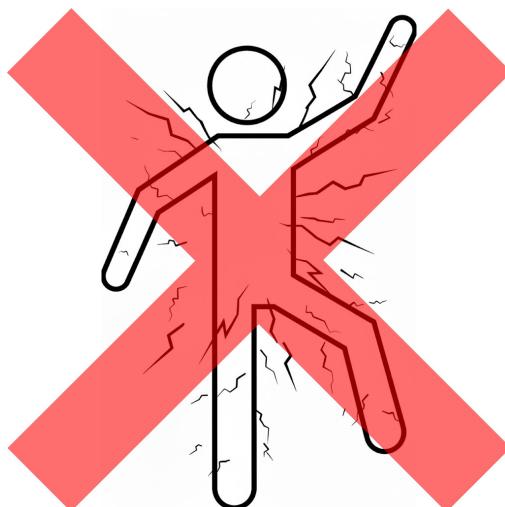
MANY POLYMERS RELEASE IRRITANTS INTO THE AIR WHEN BEING PRINTED, AND SOME POLYMERS PRODUCE FUMES THAT ARE KNOWN CACINOGENS. GENERALLY, PLA AND PETG ARE CONSIDERED TO BE EITHER NON-HARMFUL OR AT THE LEAST RELATIVELY INNOCUOUS TO BREATHE.

THIS PAGE DOES NOT CONSTITUTE HEALTH ADVICE, NOR IS IT INTENDED TO BE. IF YOU BUILD A MAGPIE, THE RESPONSIBILITY TO YOUR HEALTH AND TO YOUR OWN SAFETY IS YOURS ALONE. PLEASE TAKE CARE OF YOURSELF BECAUSE THERE'S ONLY ONE YOU, AND YOU'RE AWESOME.

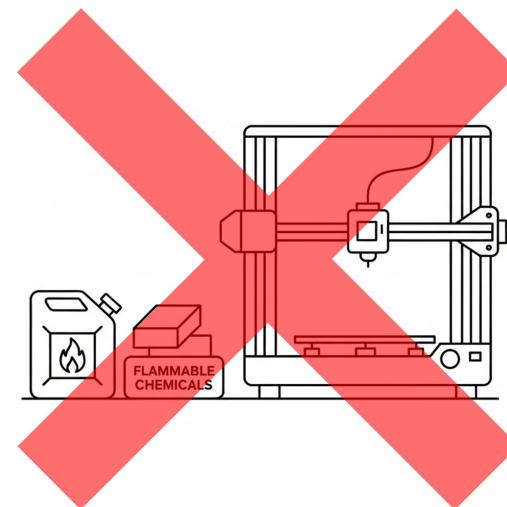
SAFETY TIPS



DON'T TOUCH THE HOTEND



DON'T PLAY WITH MAINS POWER
UNLESS YOU KNOW WHAT YOU'RE
DOING



DON'T PRINT NEAR THINGS
THAT WANT TO BE ON FIRE

PRINTED PARTS SETTINGS

MATERIAL CONSIDERATIONS

ACCEPTABLE MATERIALS ARE: ASA, ABS, PETG, PCTG, PLA

DO NOT ENCLOSE THE PRINTER IF PRINTED FROM PLA

PRINT SETTINGS:

“VORON STANDARD”

LAYER HEIGHT: 0.2MM

EXTRUSION WIDTH: 0.4MM, FORCED

INFILL PERCENTAGE: 40%

INFILL TYPE: GRID, GYROID, HONEYCOMB, TRIANGLE, OR
CUBIC

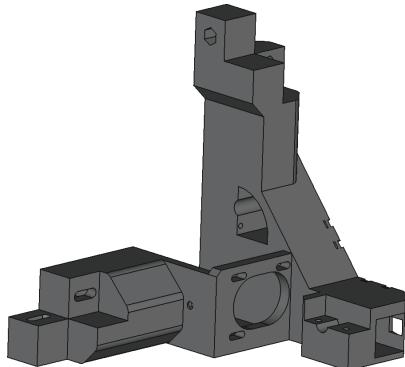
WALL COUNT: 4

SOLID TOP/BOTTOM LAYERS: 5

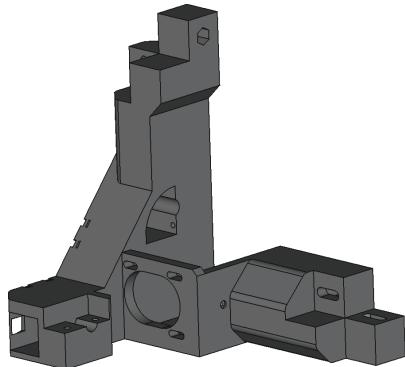
SUPPORTS: NONE

TOP FRAME ASSEMBLY

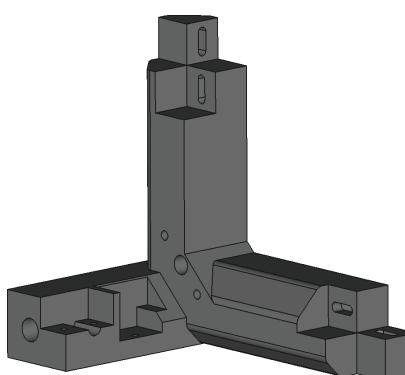
REQUIRED PIECES:



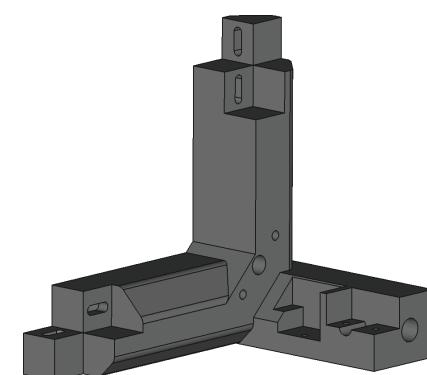
REAR LEFT CORNER



REAR RIGHT CORNER

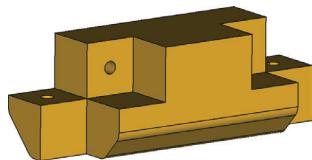


FRONT LEFT CORNER

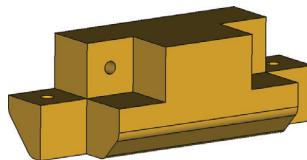


FRONT RIGHT CORNER

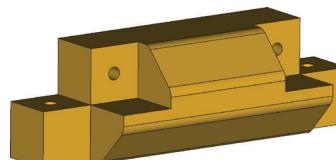
SIDE CONNECTOR (1 OF 2)



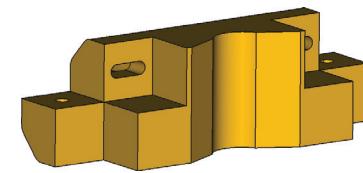
SIDE CONNECTER (2 OF 2)



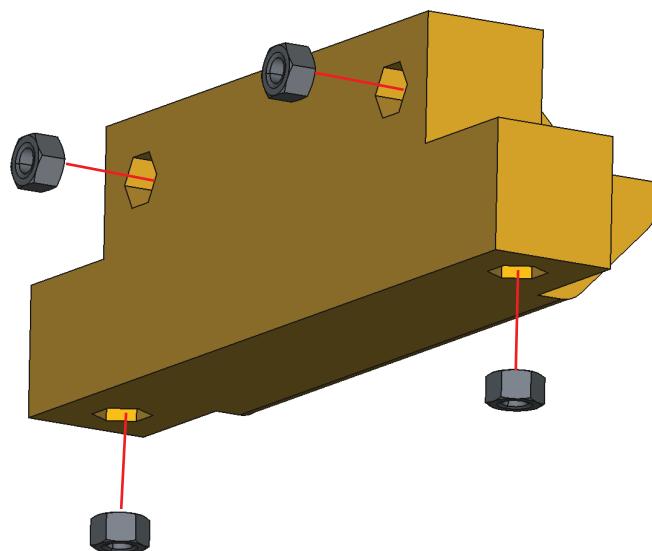
FRONT CONNECTOR



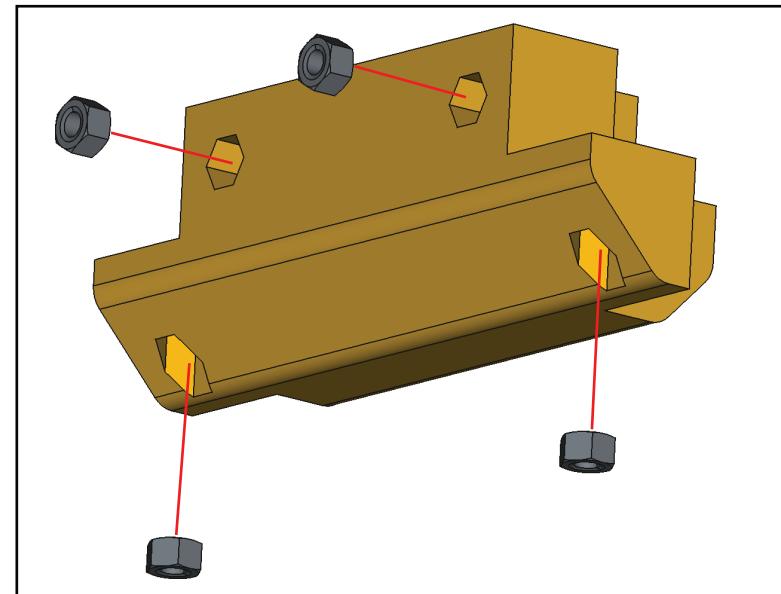
REAR CONNECTOR



TOP FRAME ASSEMBLY

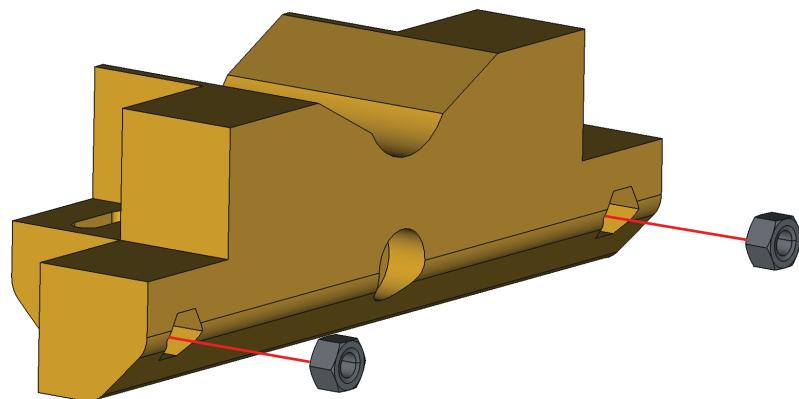


FRONT CONNECTOR

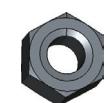


SIDE CONNECTOR

X2

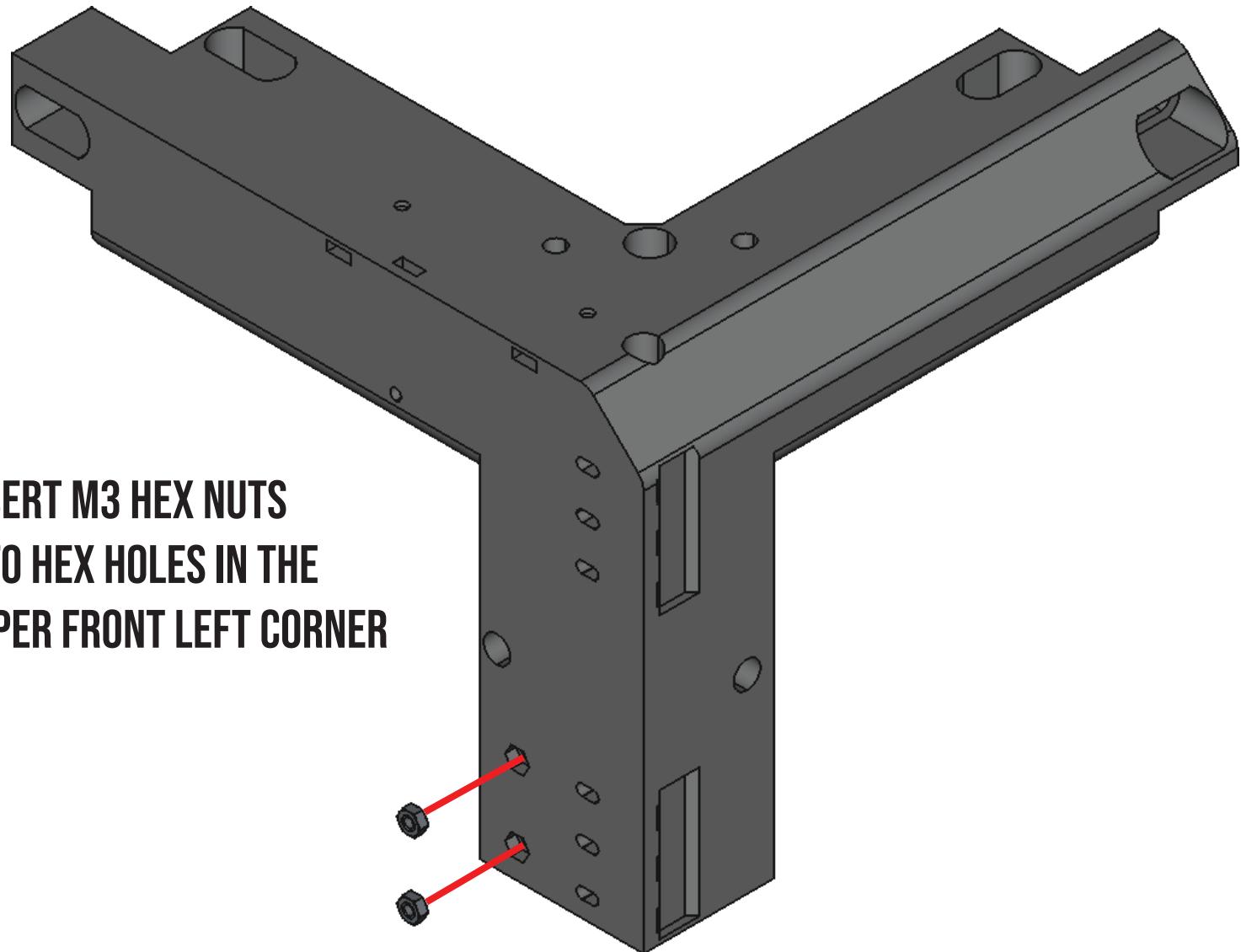


REAR CONNECTOR



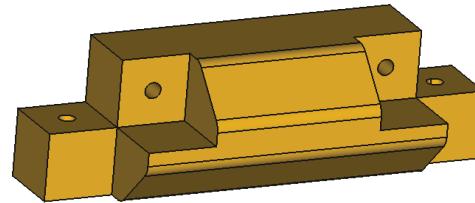
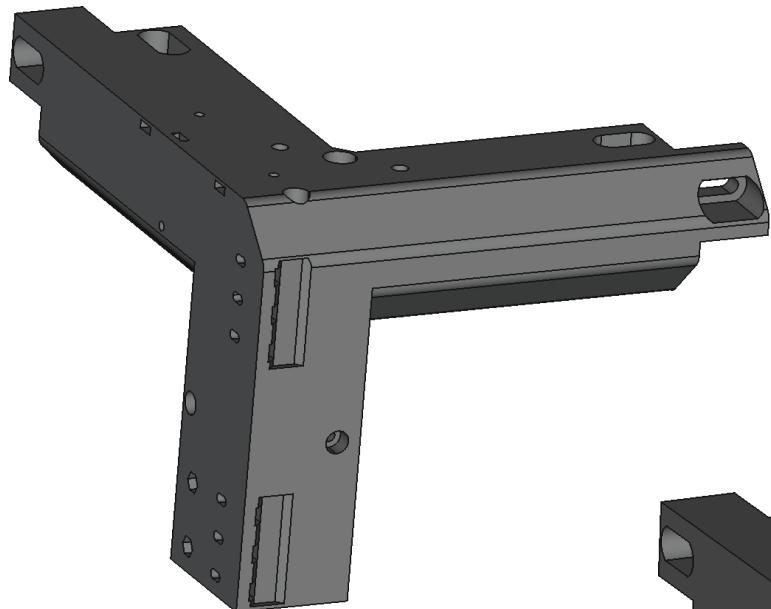
M5 HEX NUT

TOP FRAME ASSEMBLY

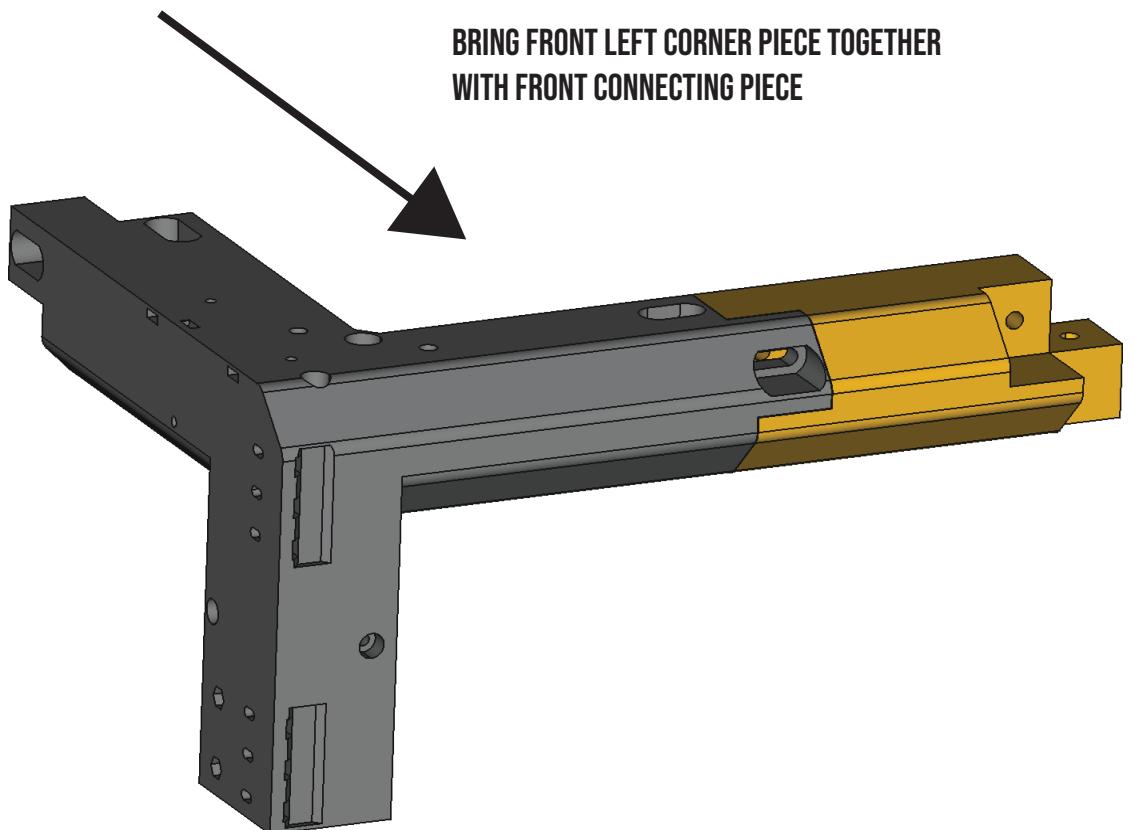


M3 HEX NUT

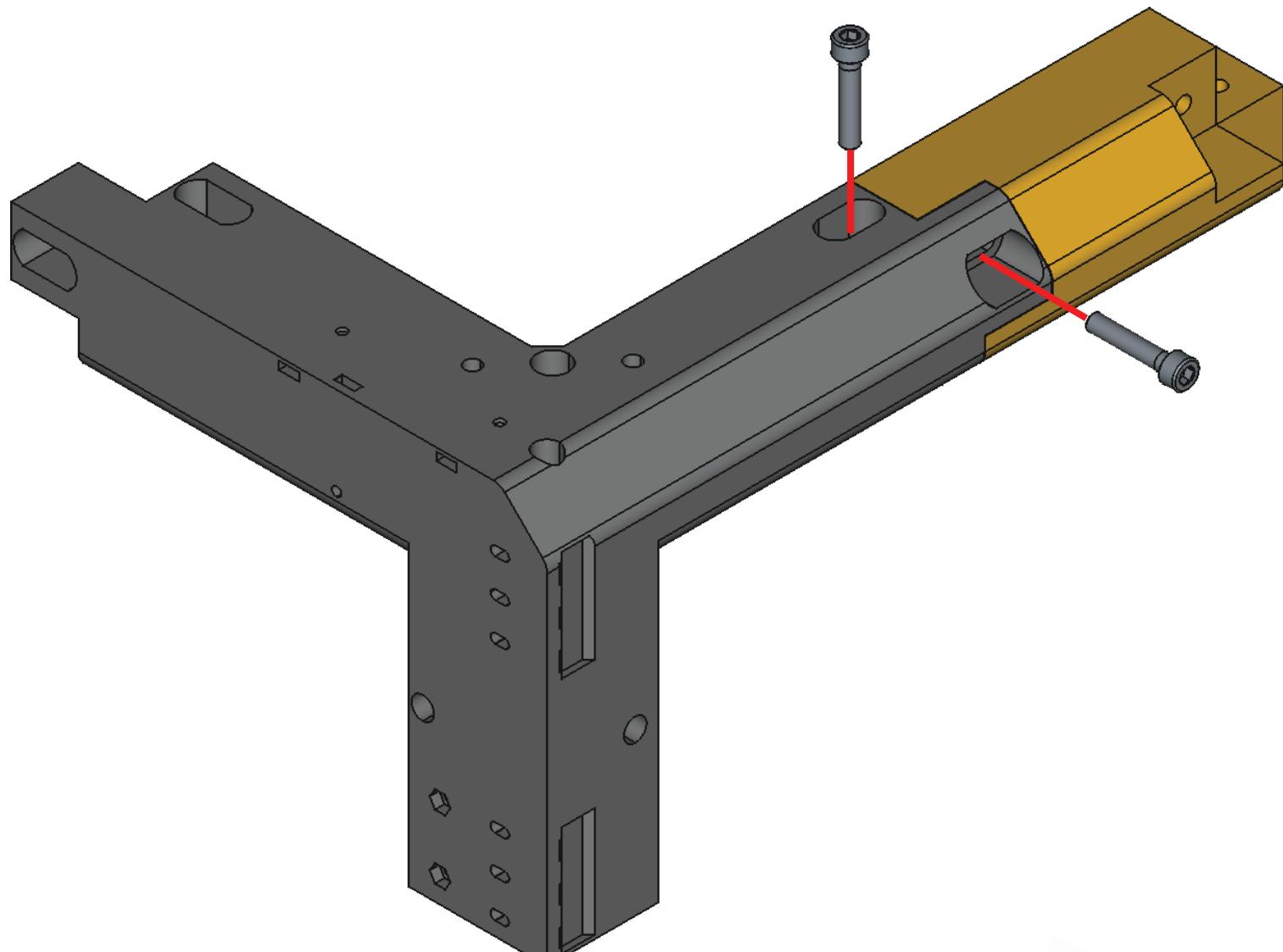
TOP FRAME ASSEMBLY



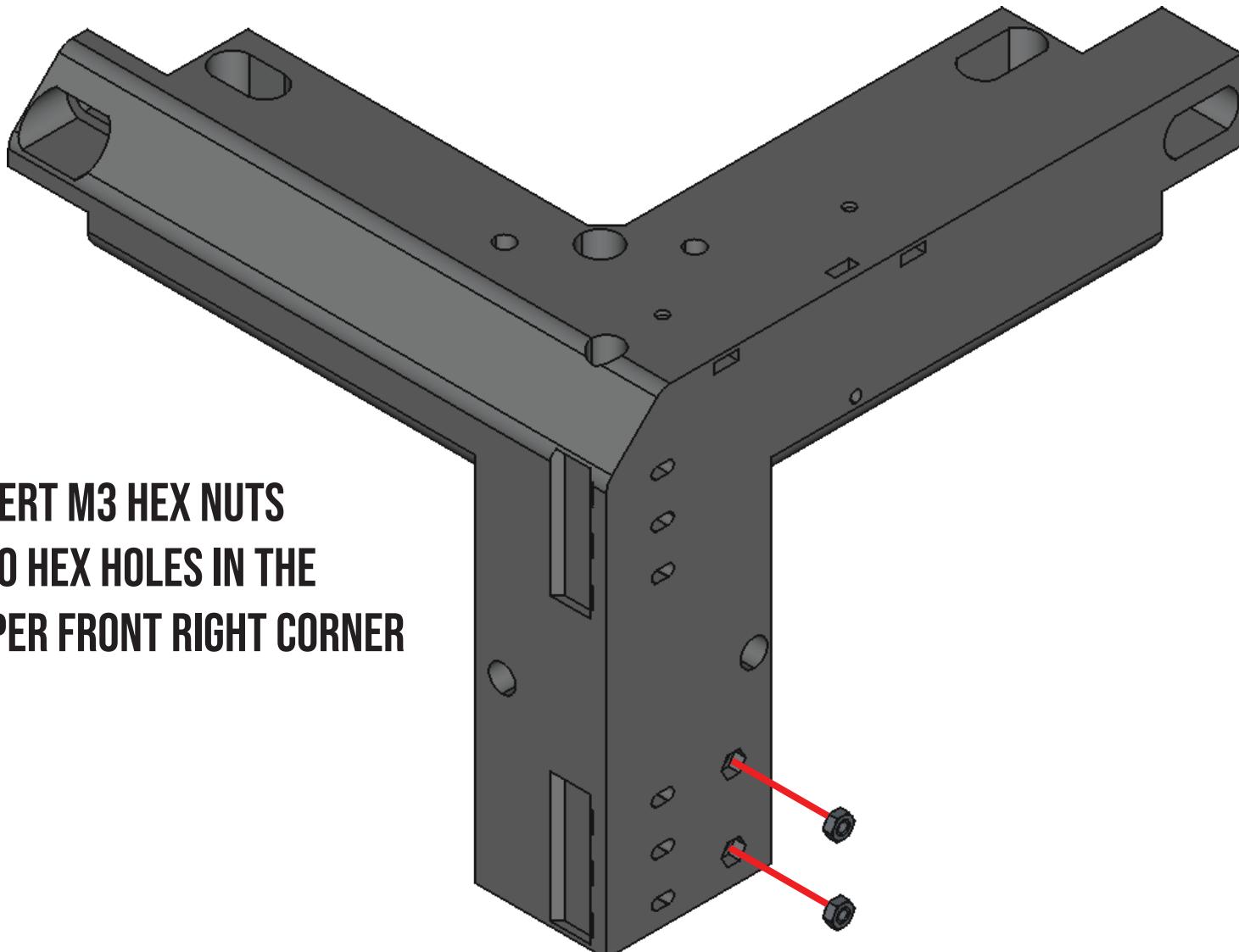
BRING FRONT LEFT CORNER PIECE TOGETHER
WITH FRONT CONNECTING PIECE



TOP FRAME ASSEMBLY



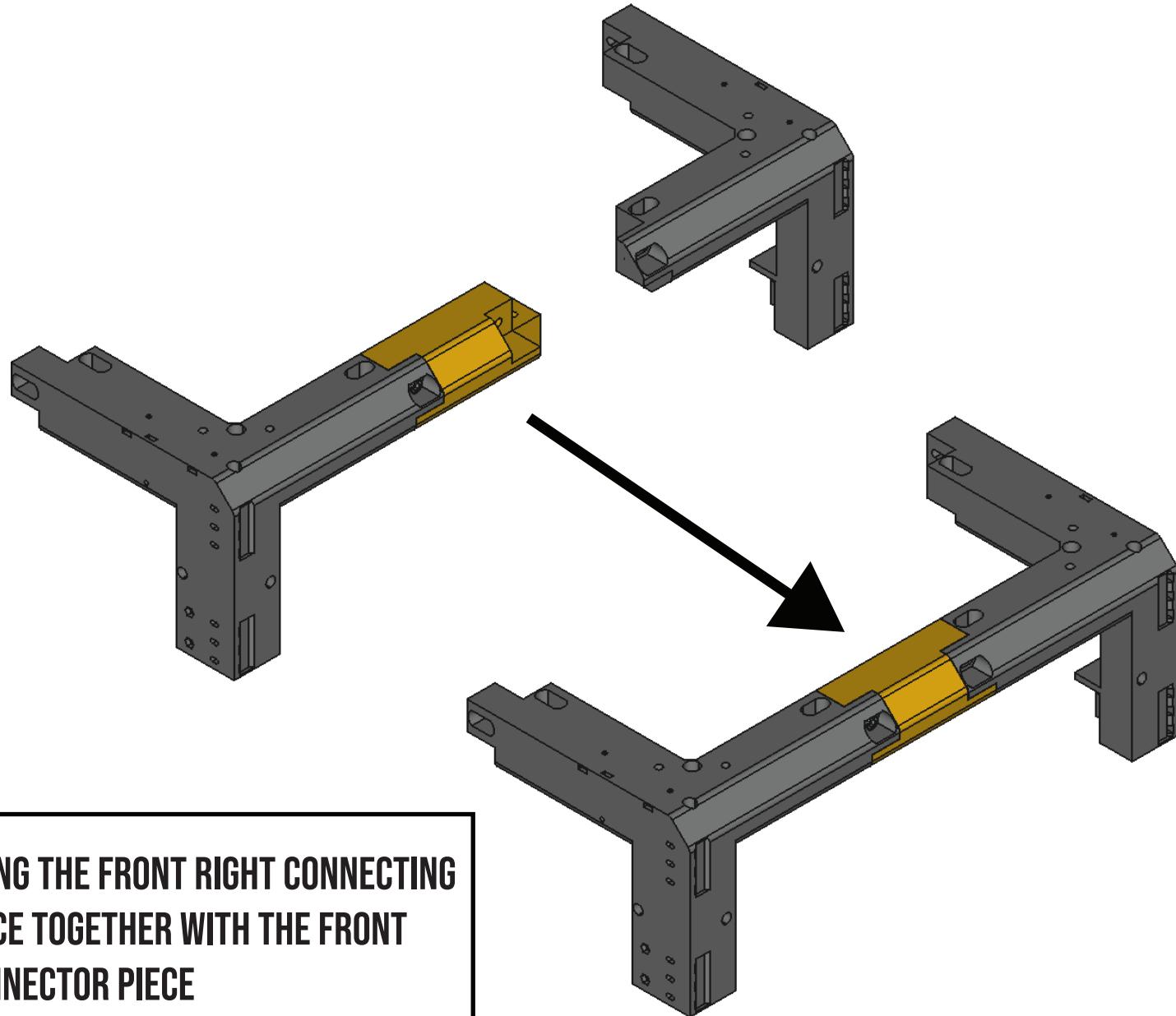
TOP FRAME ASSEMBLY



INSERT M3 HEX NUTS
INTO HEX HOLES IN THE
UPPER FRONT RIGHT CORNER

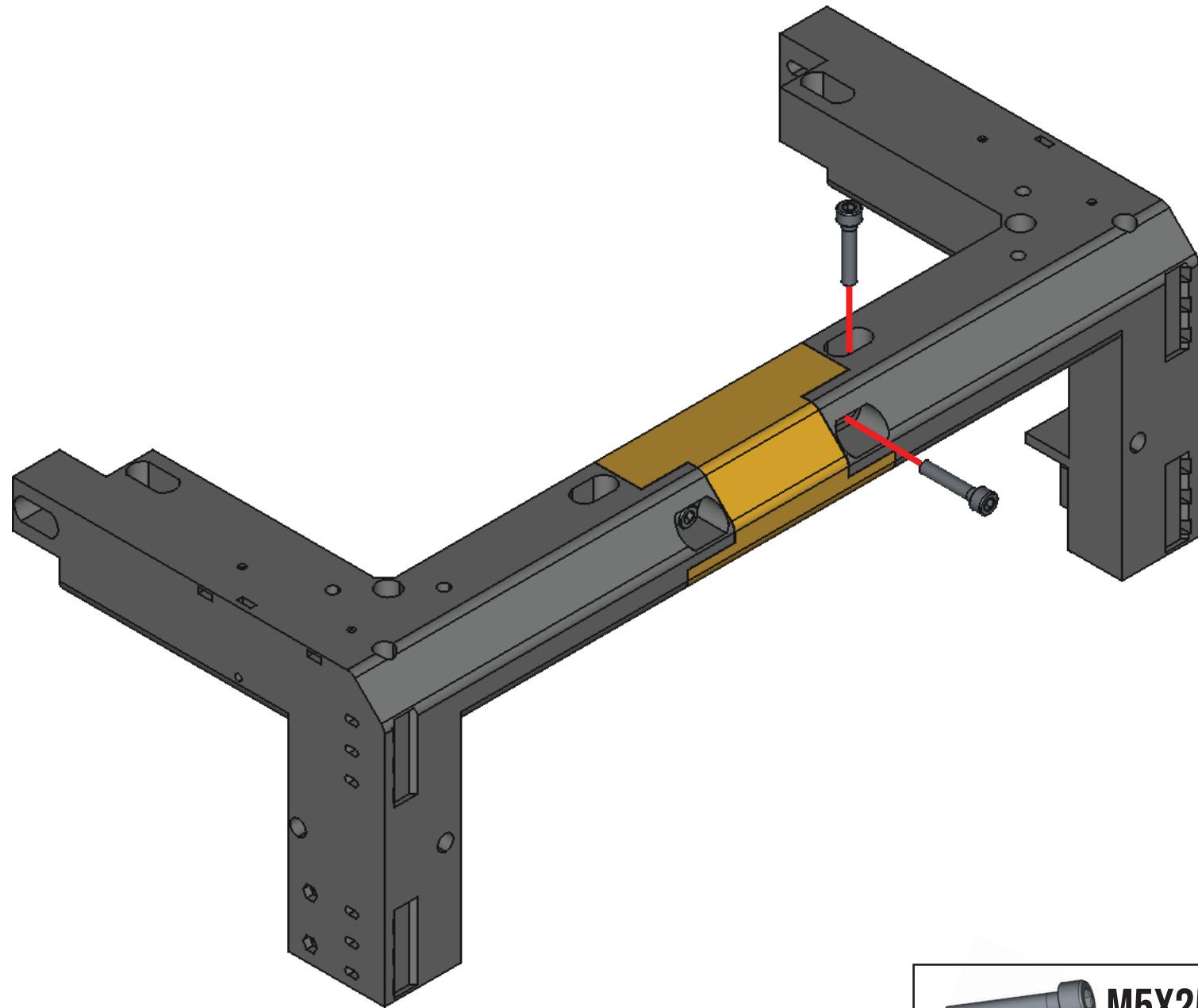
 M3 HEX NUT

TOP FRAME ASSEMBLY



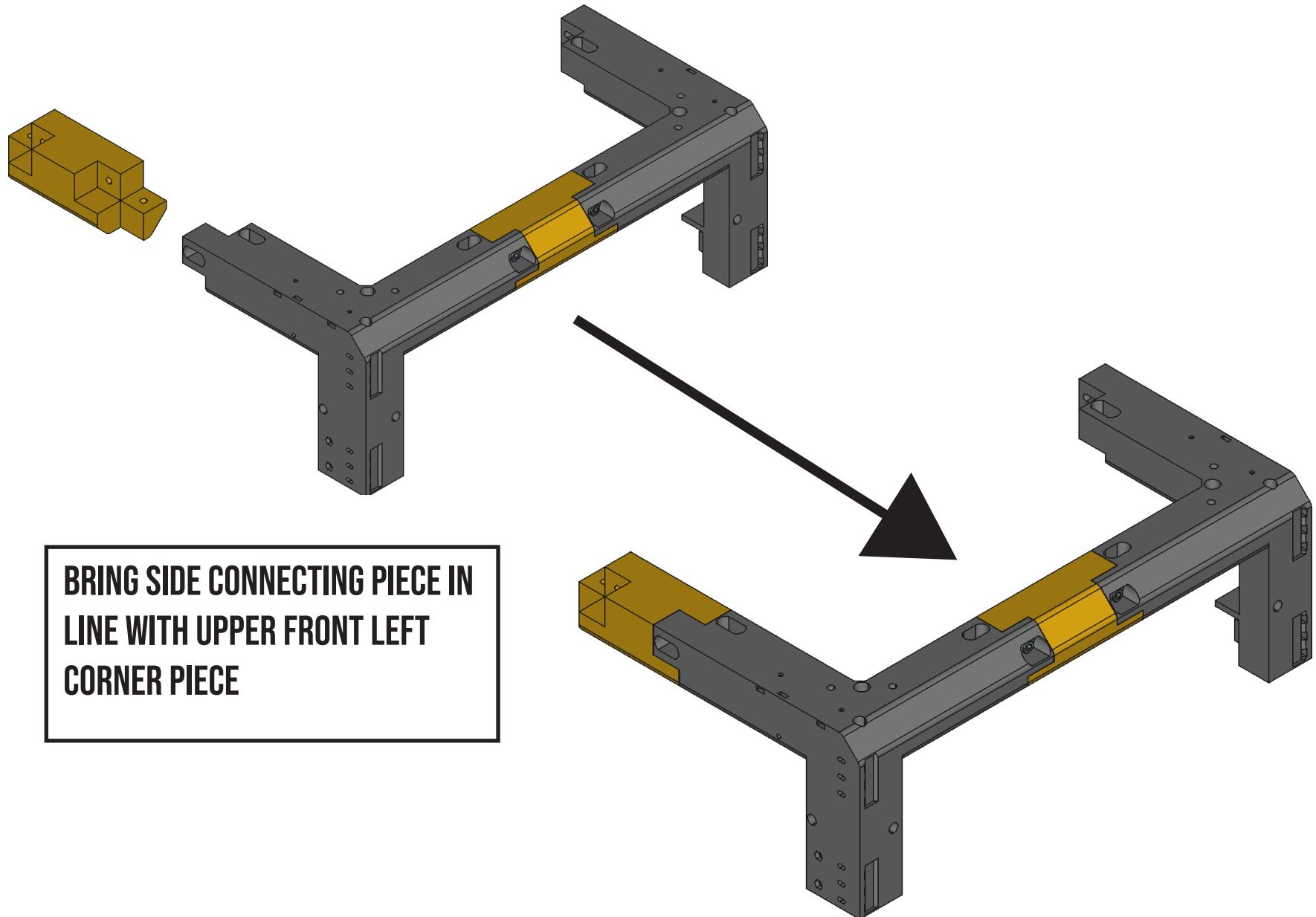
BRING THE FRONT RIGHT CONNECTING
PIECE TOGETHER WITH THE FRONT
CONNECTOR PIECE

TOP FRAME ASSEMBLY

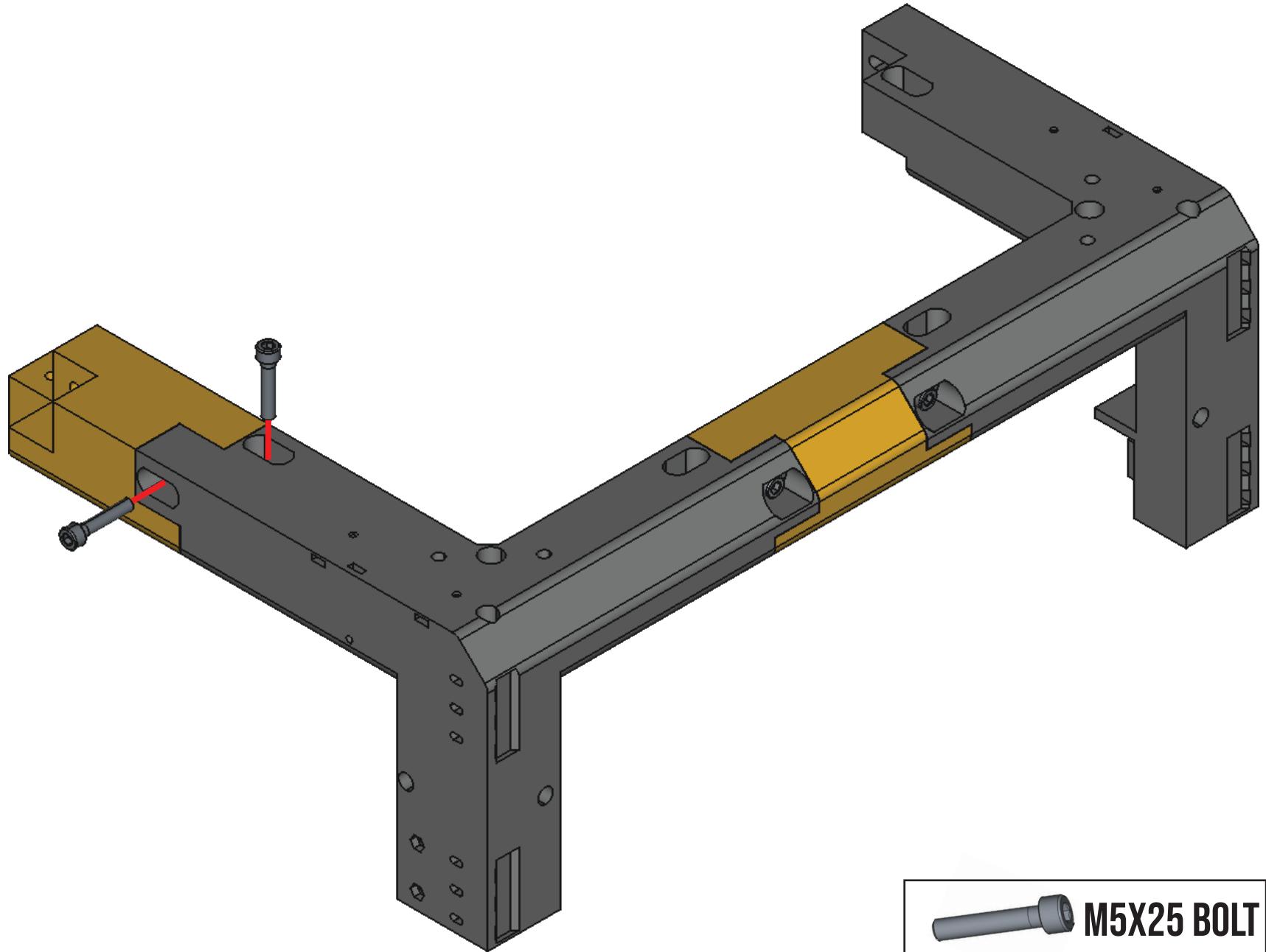


M5X25 BOLT

TOP FRAME ASSEMBLY

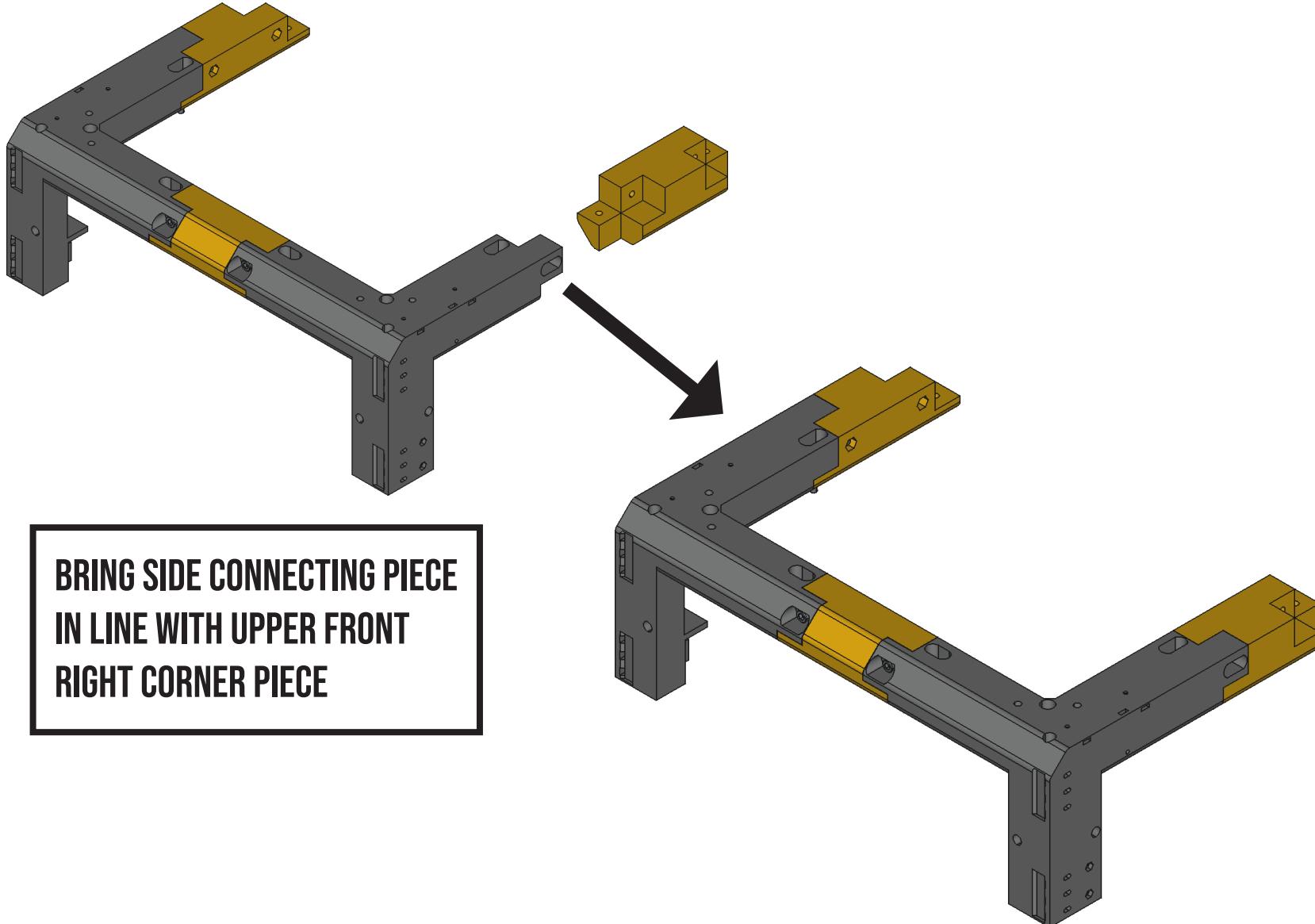


TOP FRAME ASSEMBLY



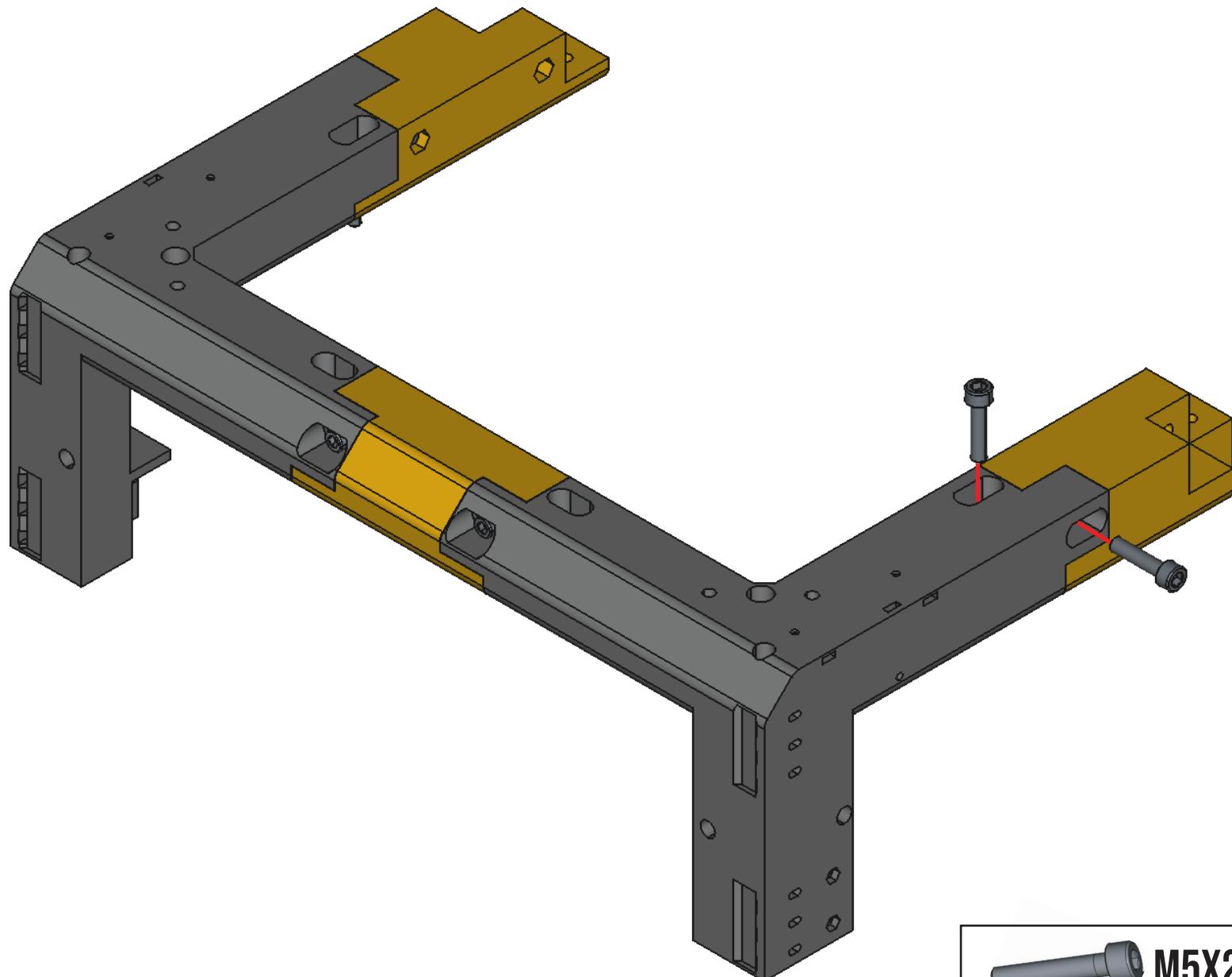
 M5X25 BOLT

TOP FRAME ASSEMBLY



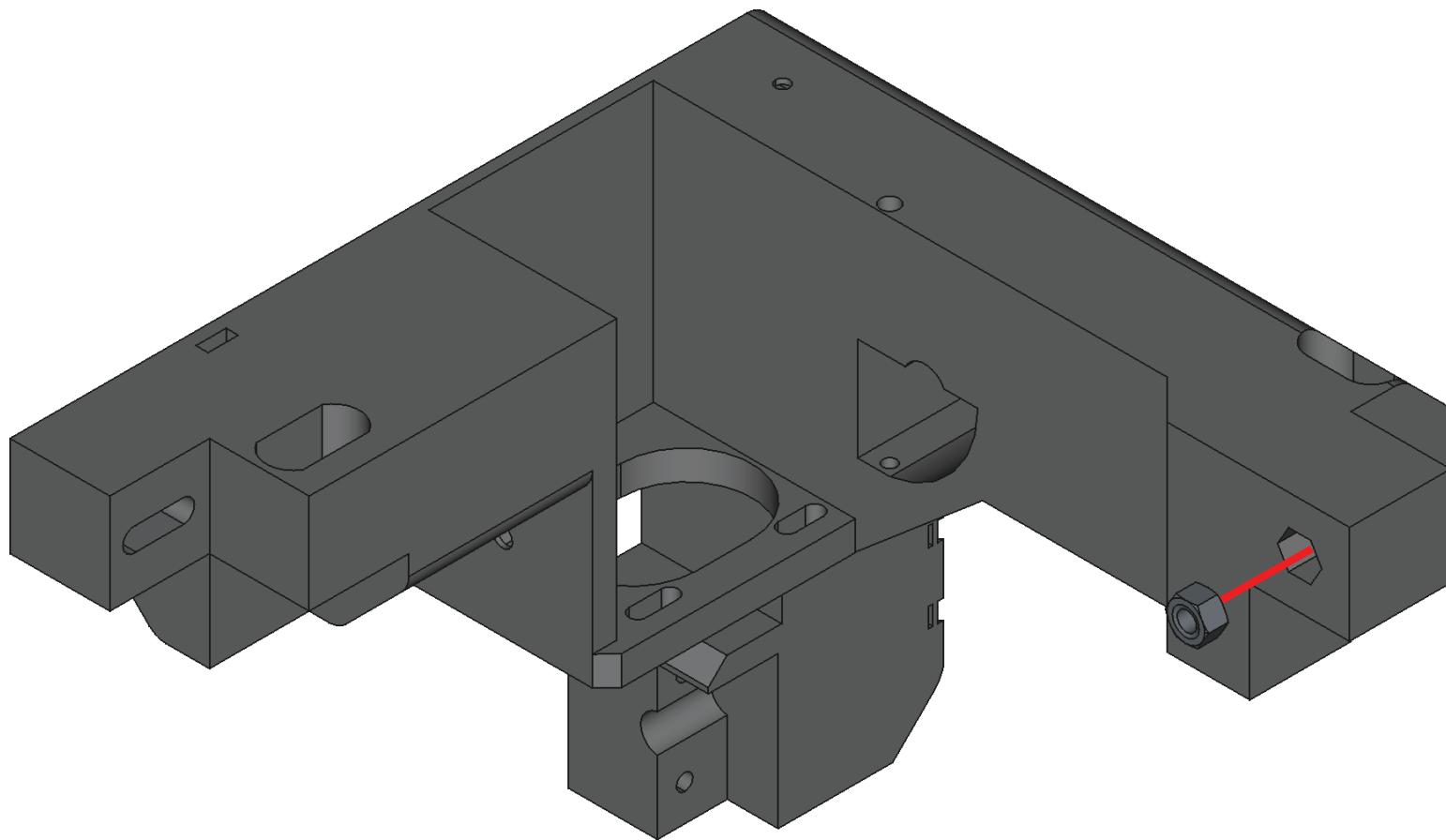
**BRING SIDE CONNECTING PIECE
IN LINE WITH UPPER FRONT
RIGHT CORNER PIECE**

TOP FRAME ASSEMBLY



M5X25 BOLT

TOP FRAME ASSEMBLY

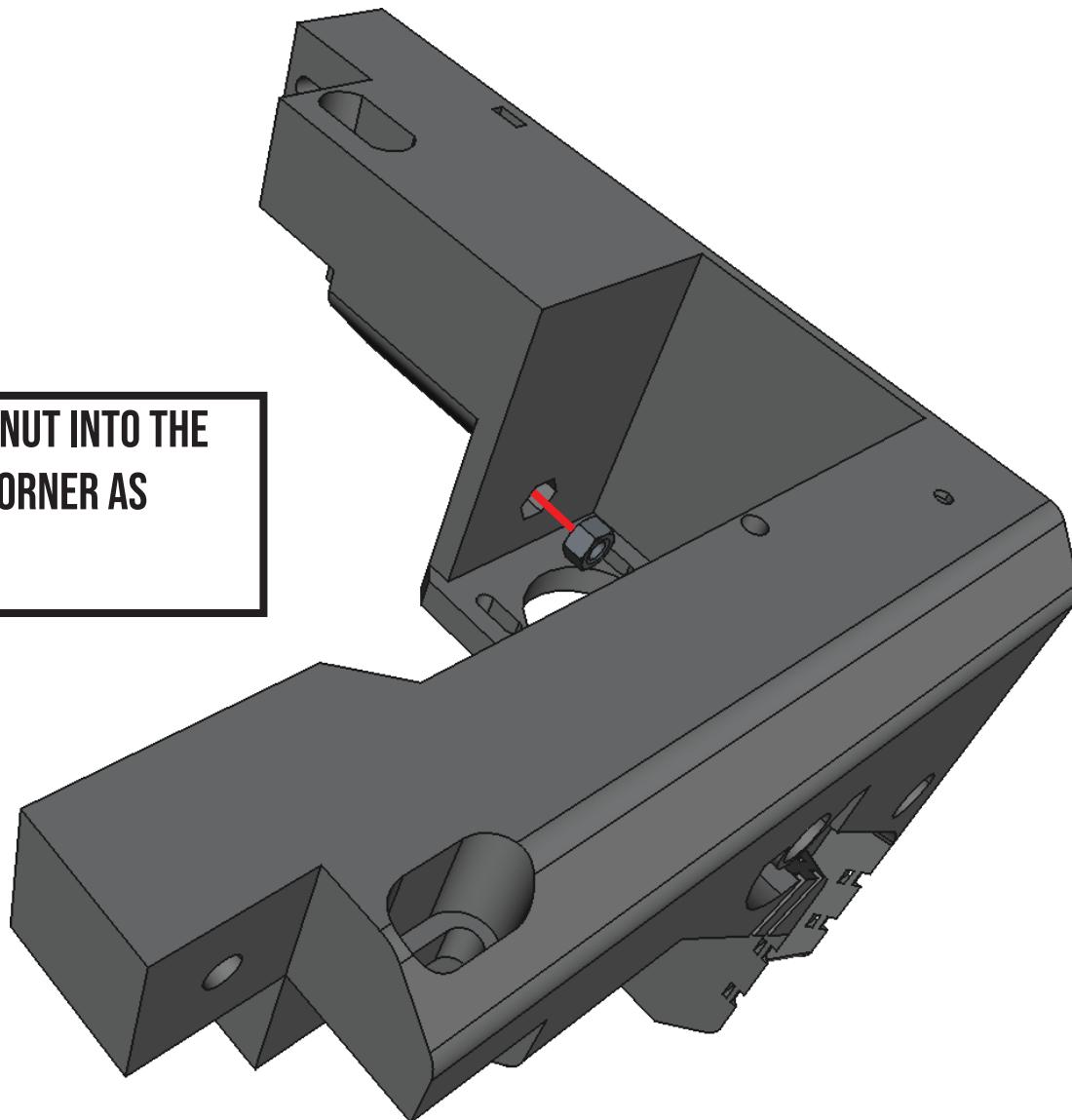


PUT THE M5 HEX NUT INTO THE
TOP REAR LEFT CORNER AS
SHOWN



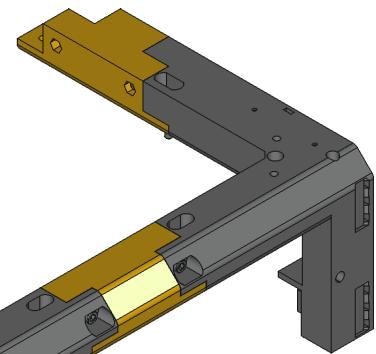
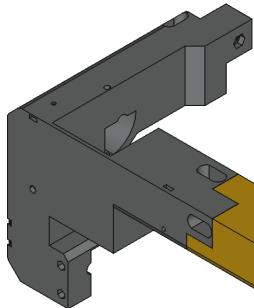
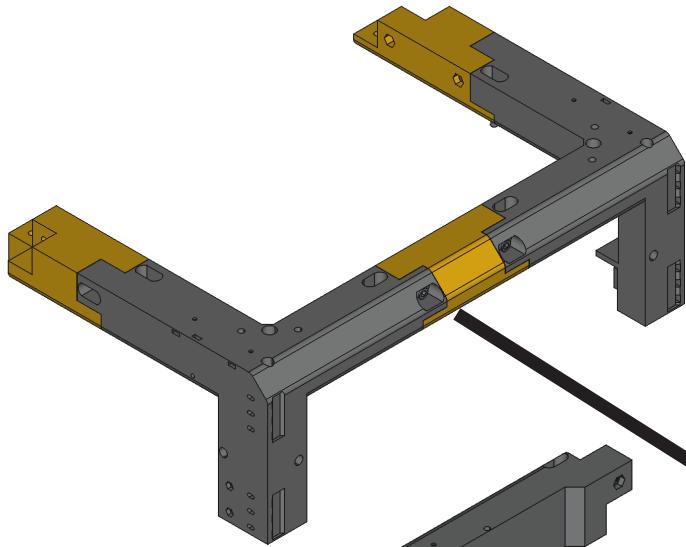
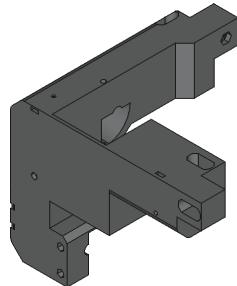
TOP FRAME ASSEMBLY

PUT THE M5 HEX NUT INTO THE
TOP REAR LEFT CORNER AS
SHOWN



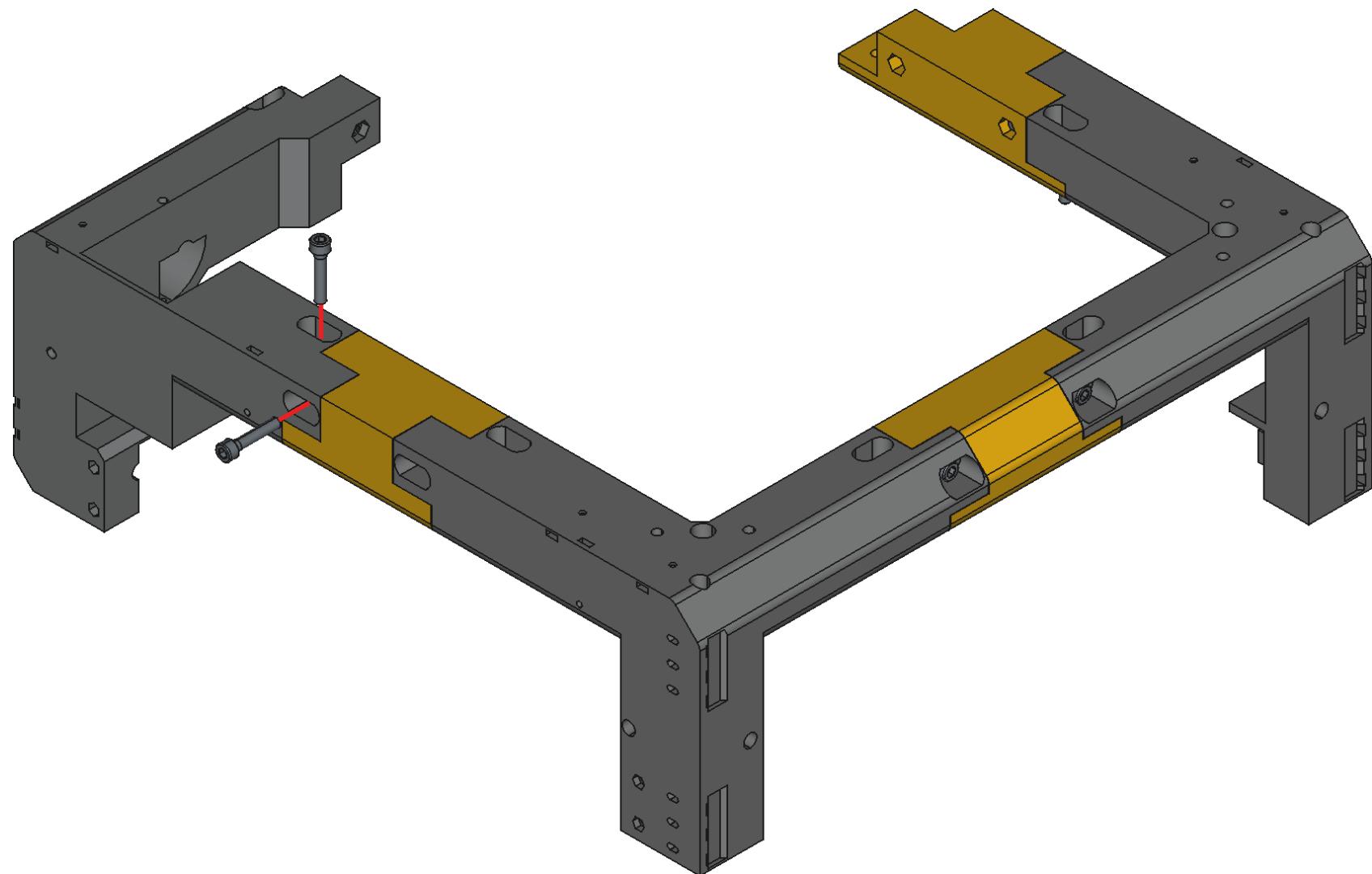
M5 HEX NUT

TOP FRAME ASSEMBLY

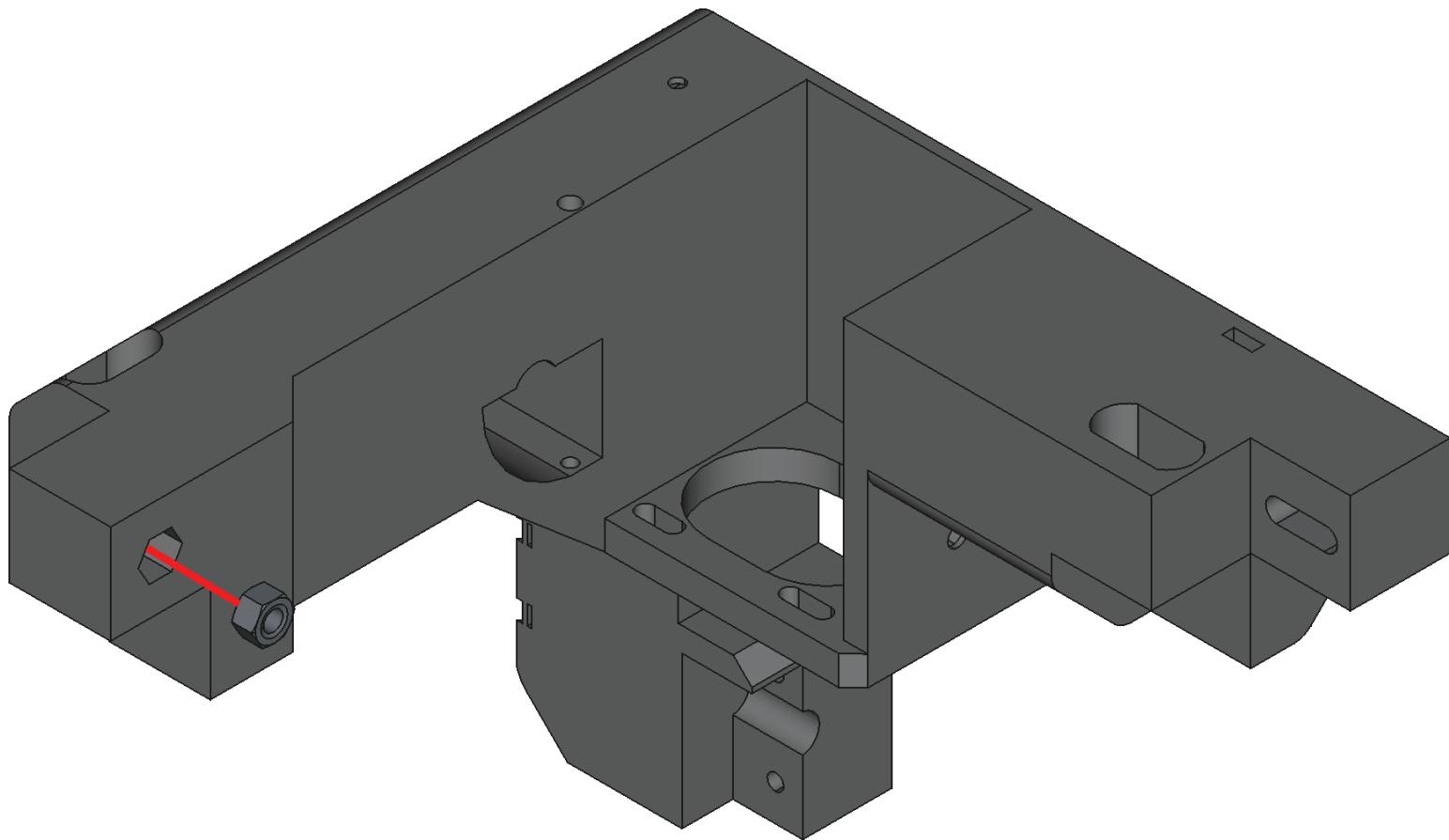


**BRING TOP REAR LEFT CORNER IN
LINE WITH ASSEMBLY**

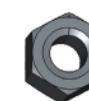
TOP FRAME ASSEMBLY



TOP FRAME ASSEMBLY

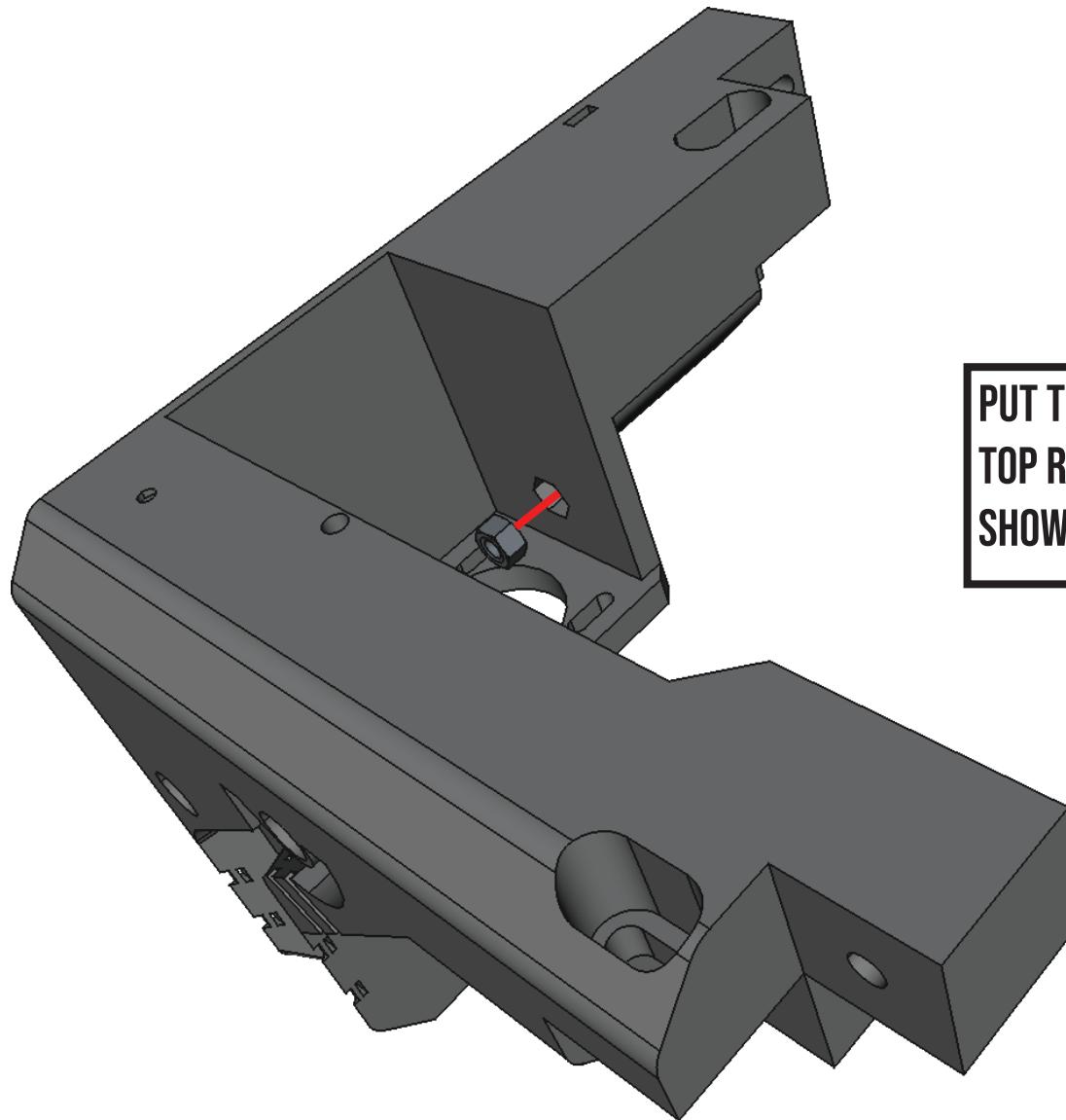


PUT THE M5 HEX NUT INTO THE
TOP REAR RIGHT CORNER AS
SHOWN



M5 HEX NUT

TOP FRAME ASSEMBLY

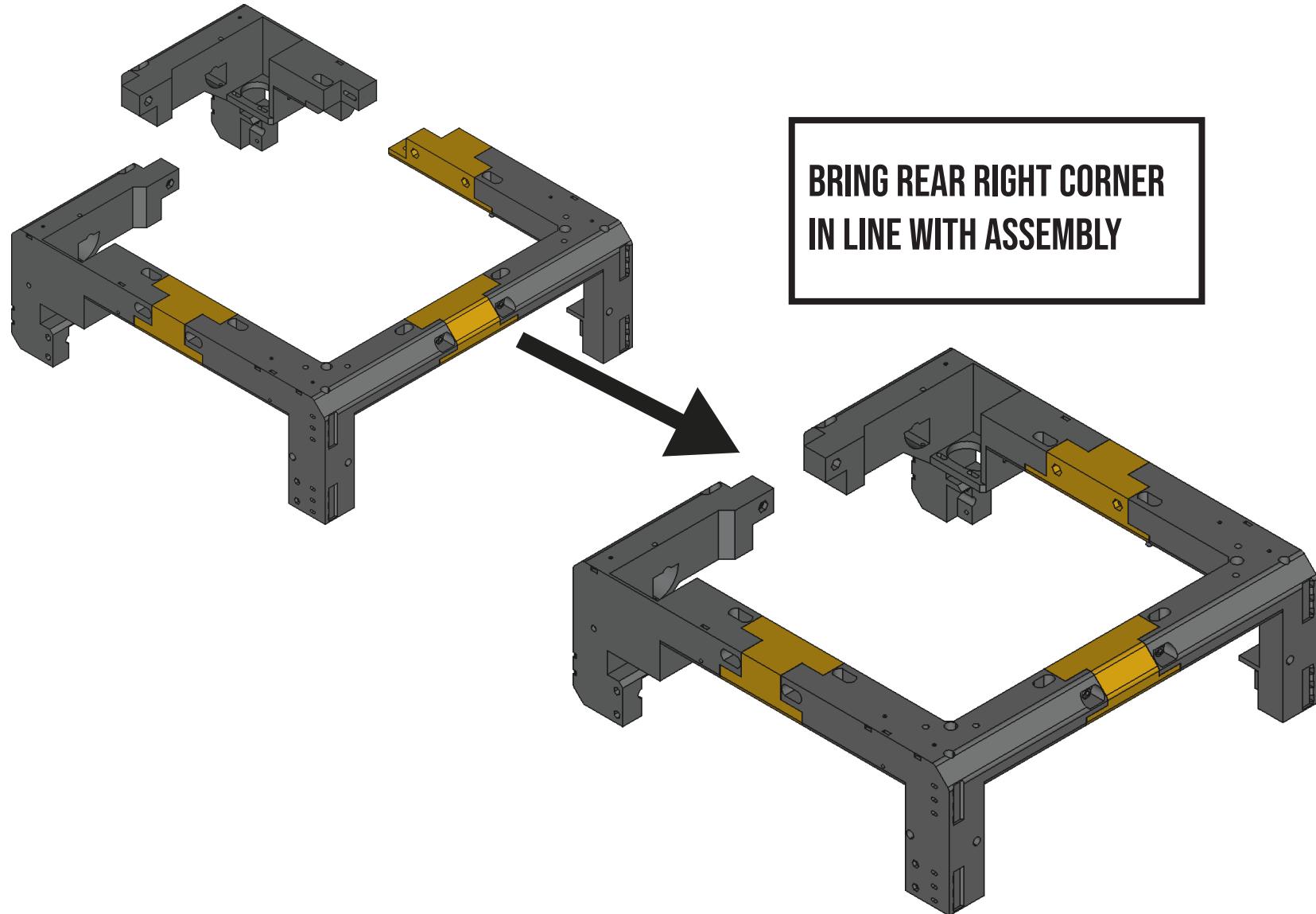


PUT THE M5 HEX NUT INTO THE
TOP REAR RIGHT CORNER AS
SHOWN

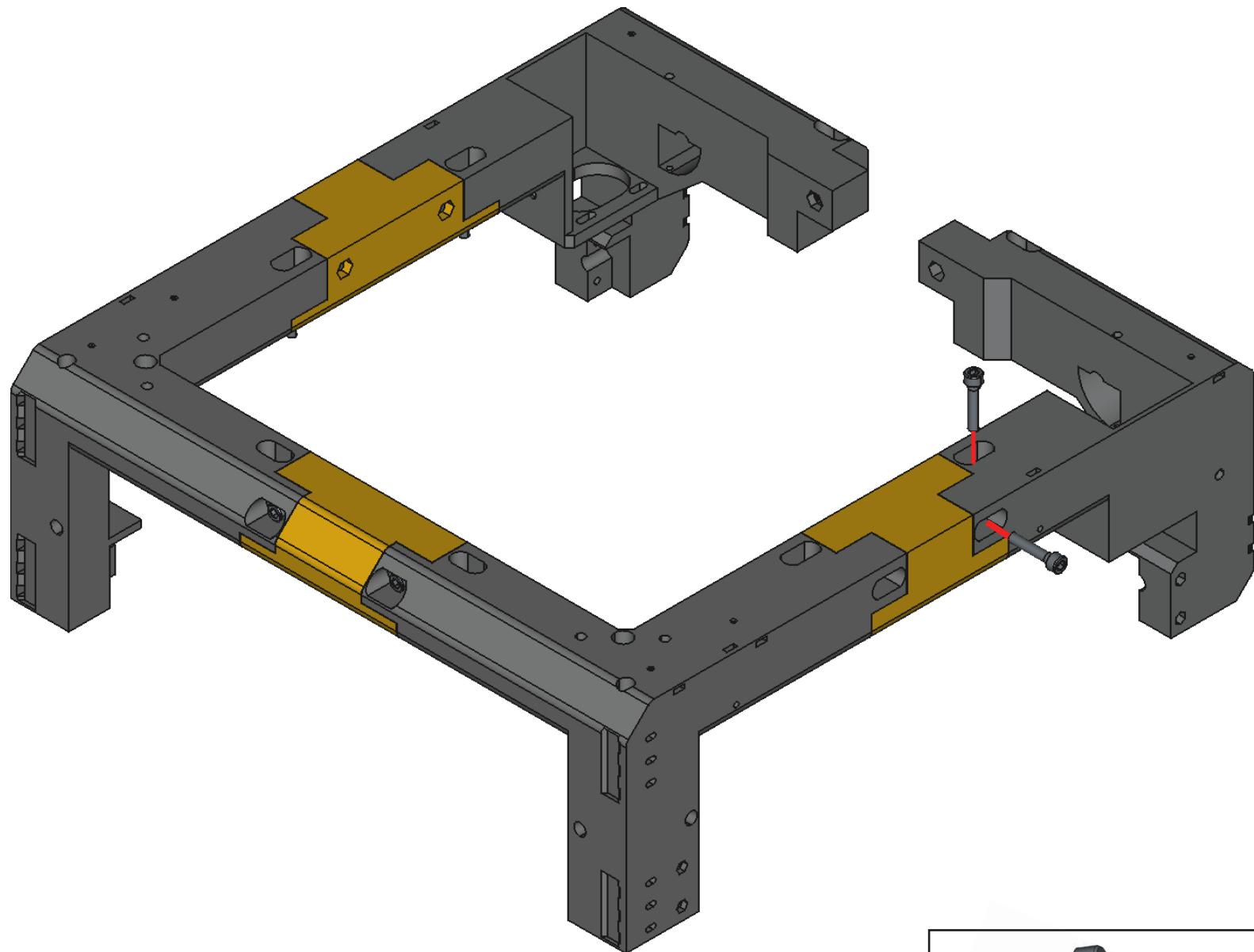


M5 HEX NUT

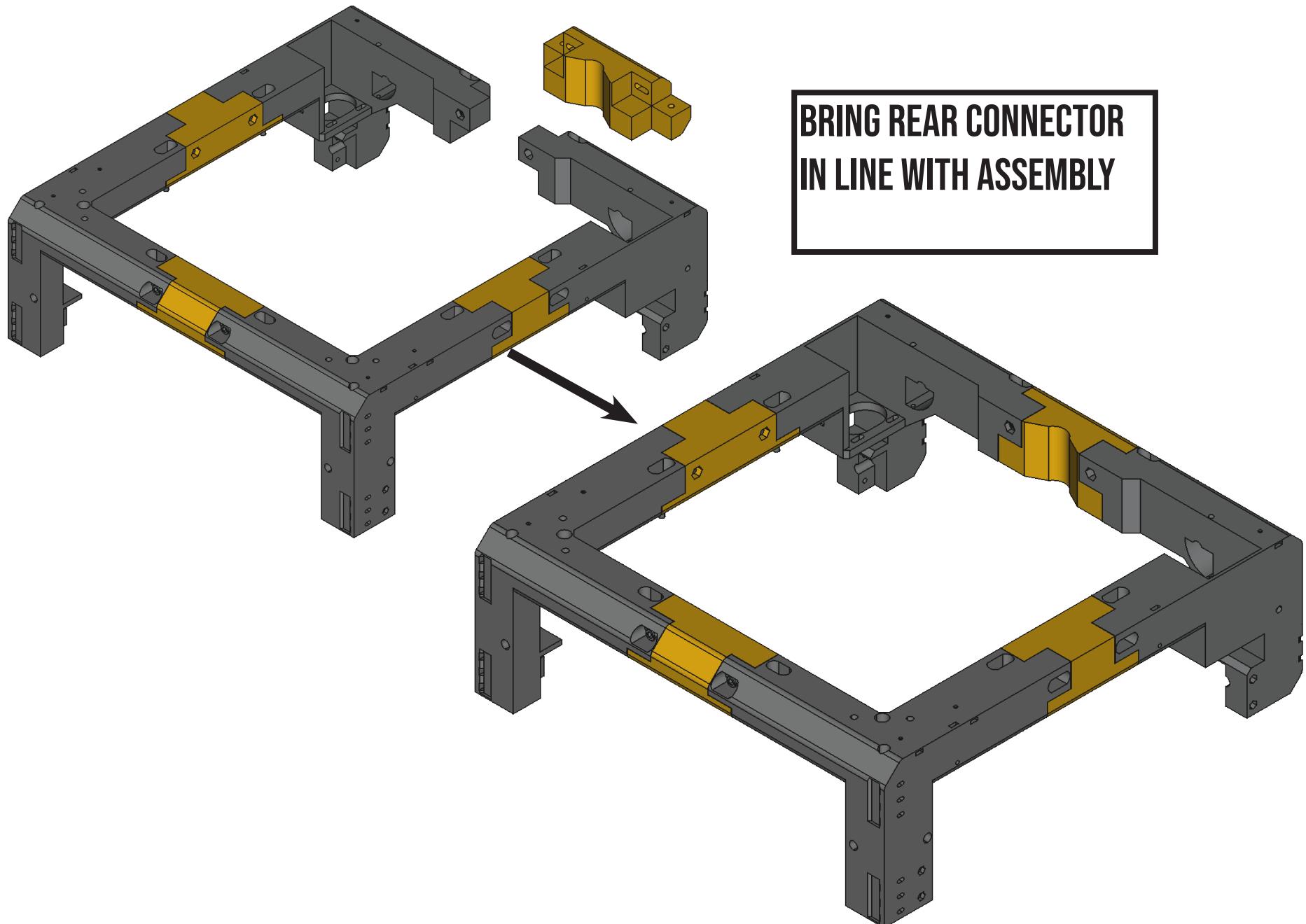
TOP FRAME ASSEMBLY



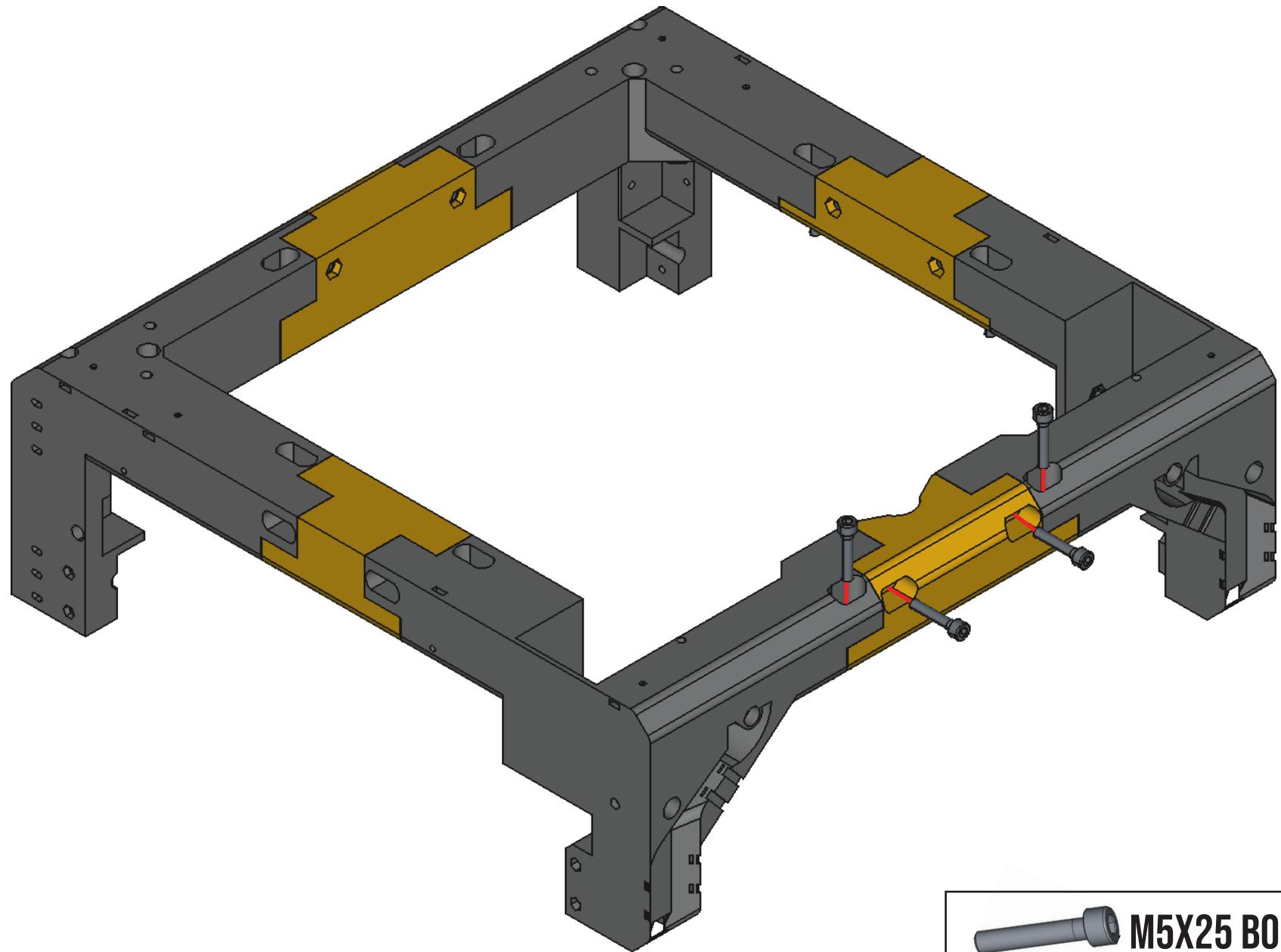
TOP FRAME ASSEMBLY



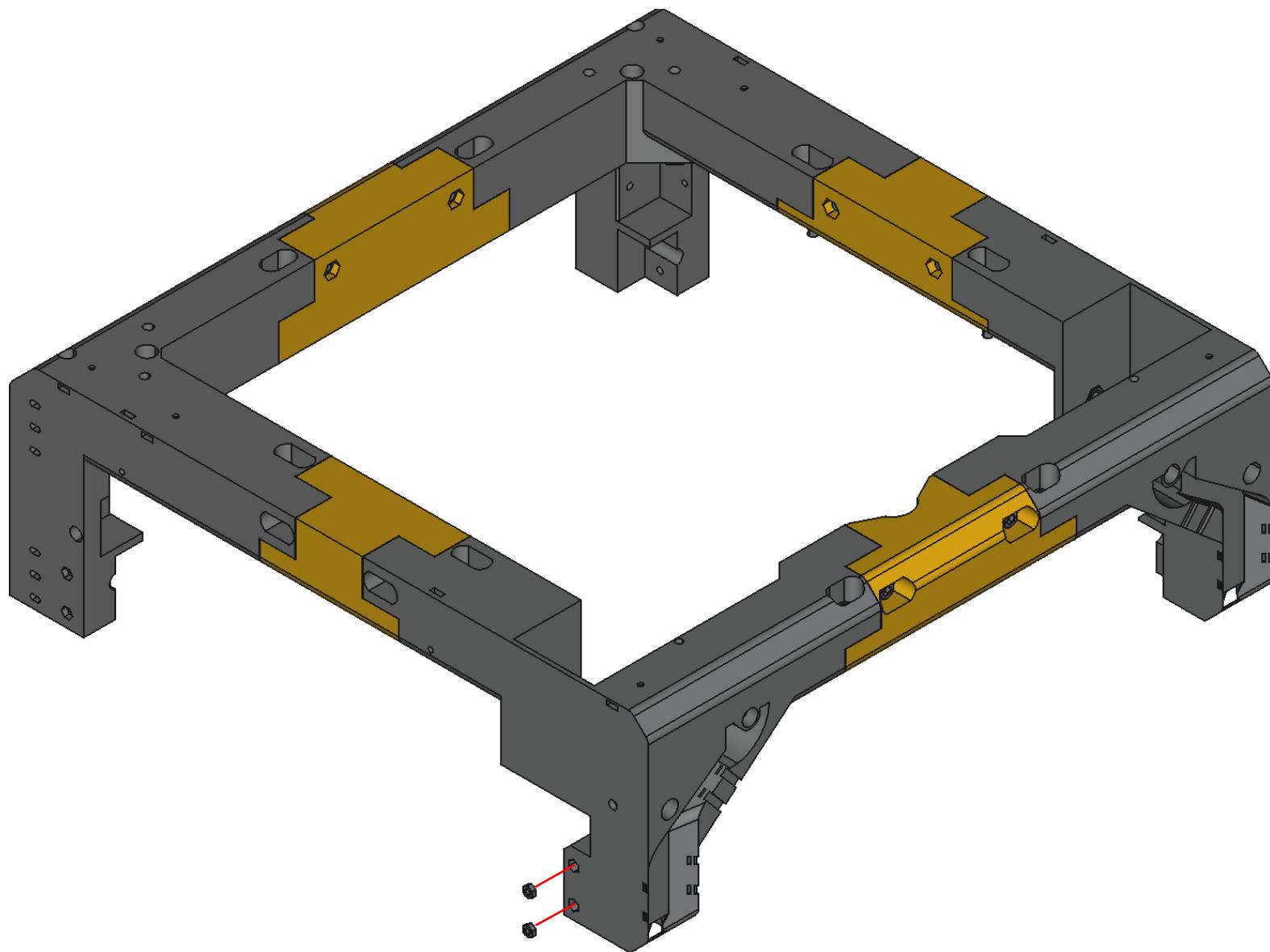
TOP FRAME ASSEMBLY



TOP FRAME ASSEMBLY

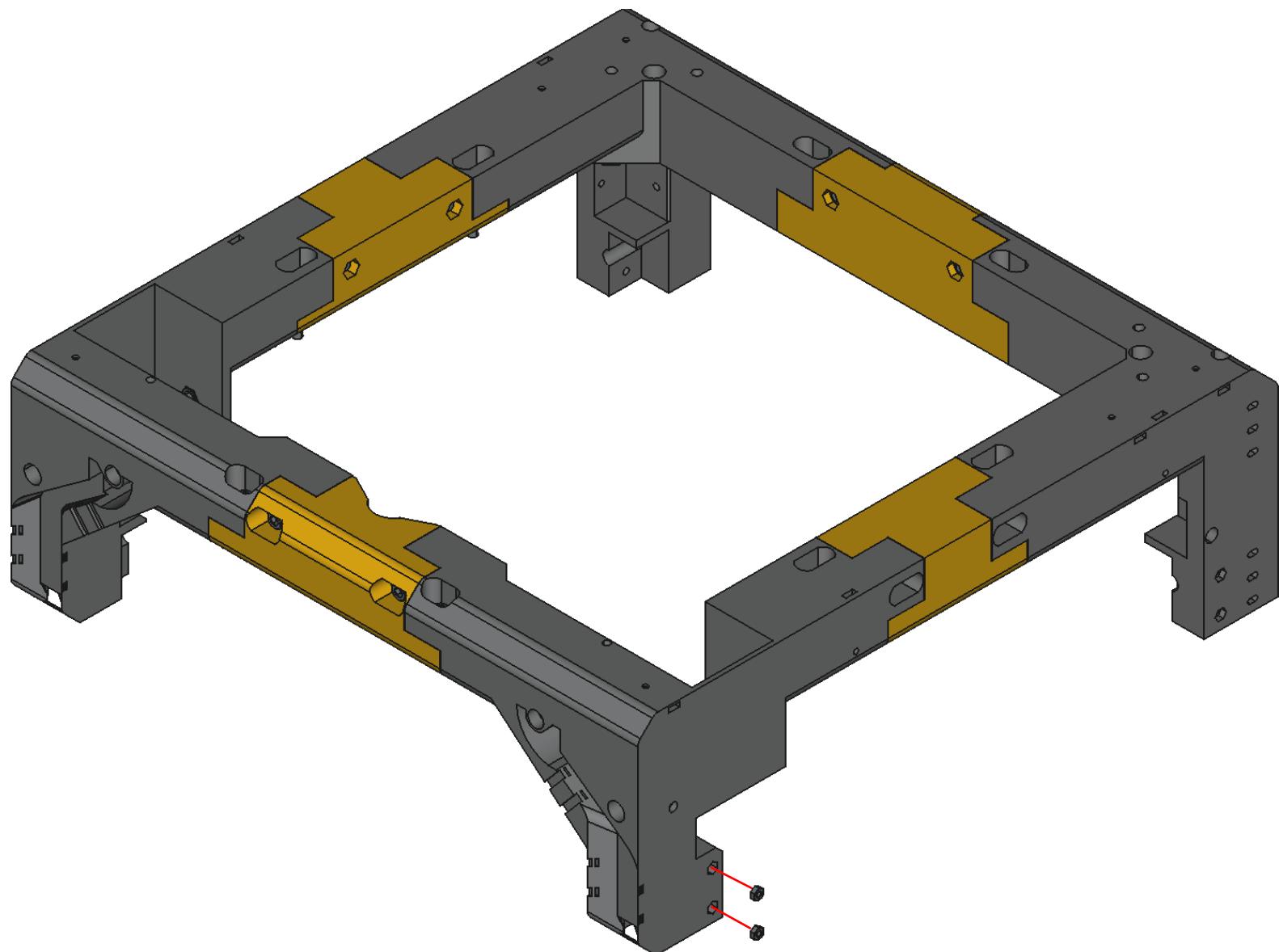


TOP FRAME ASSEMBLY



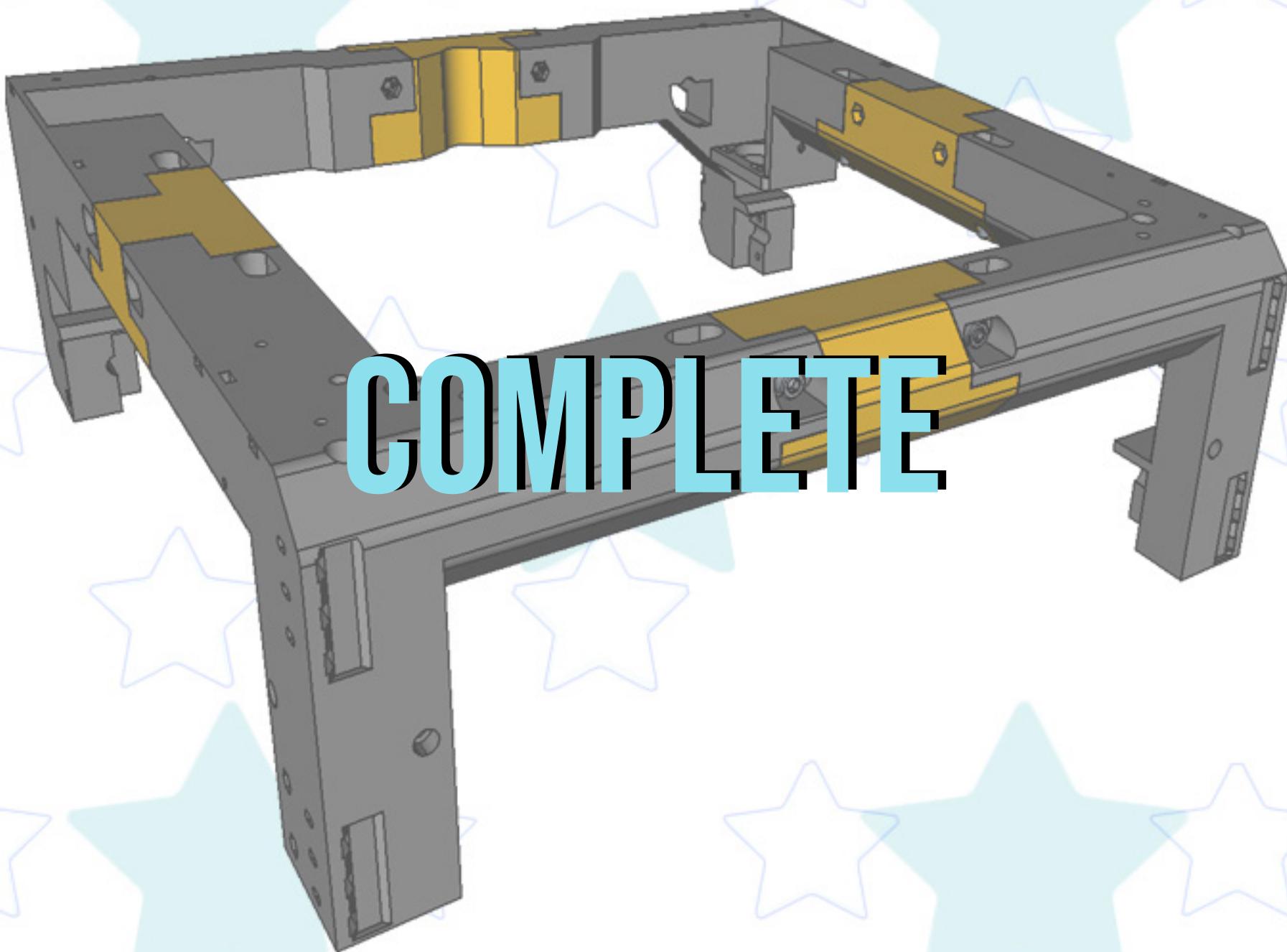
M3 HEX NUT

TOP FRAME ASSEMBLY



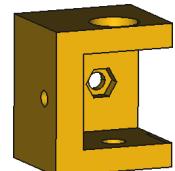
 M3 HEX NUT

TOP FRAME ASSEMBLY

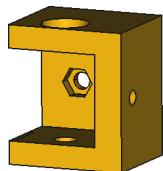


COMPLETE

X/Y GANTRY & MOTION COMPONENTS

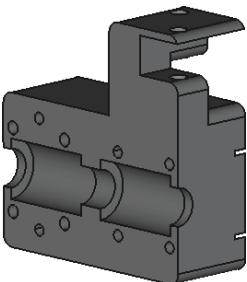


X1

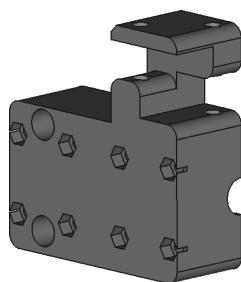


X1

RIGHT IDLER CARTRIDGE



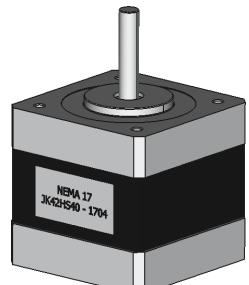
X1



X1

Y-CARRIAGE LEFT

Y-CARRIAGE RIGHT



NEMA 17 STEPPER

X2



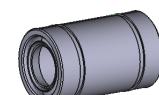
F695 BEARING

X16



GT2 MOTOR PULLEY
(20 TEETH)

X2



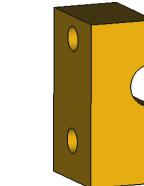
LM8UU LINEAR BEARING

X6



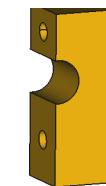
M5 WASHER (OR PRECISION SHIM)

X14



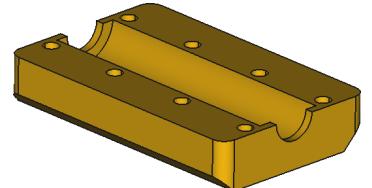
X2

FRONT ROD HOLDER



X2

BACK ROD HOLDER



X2

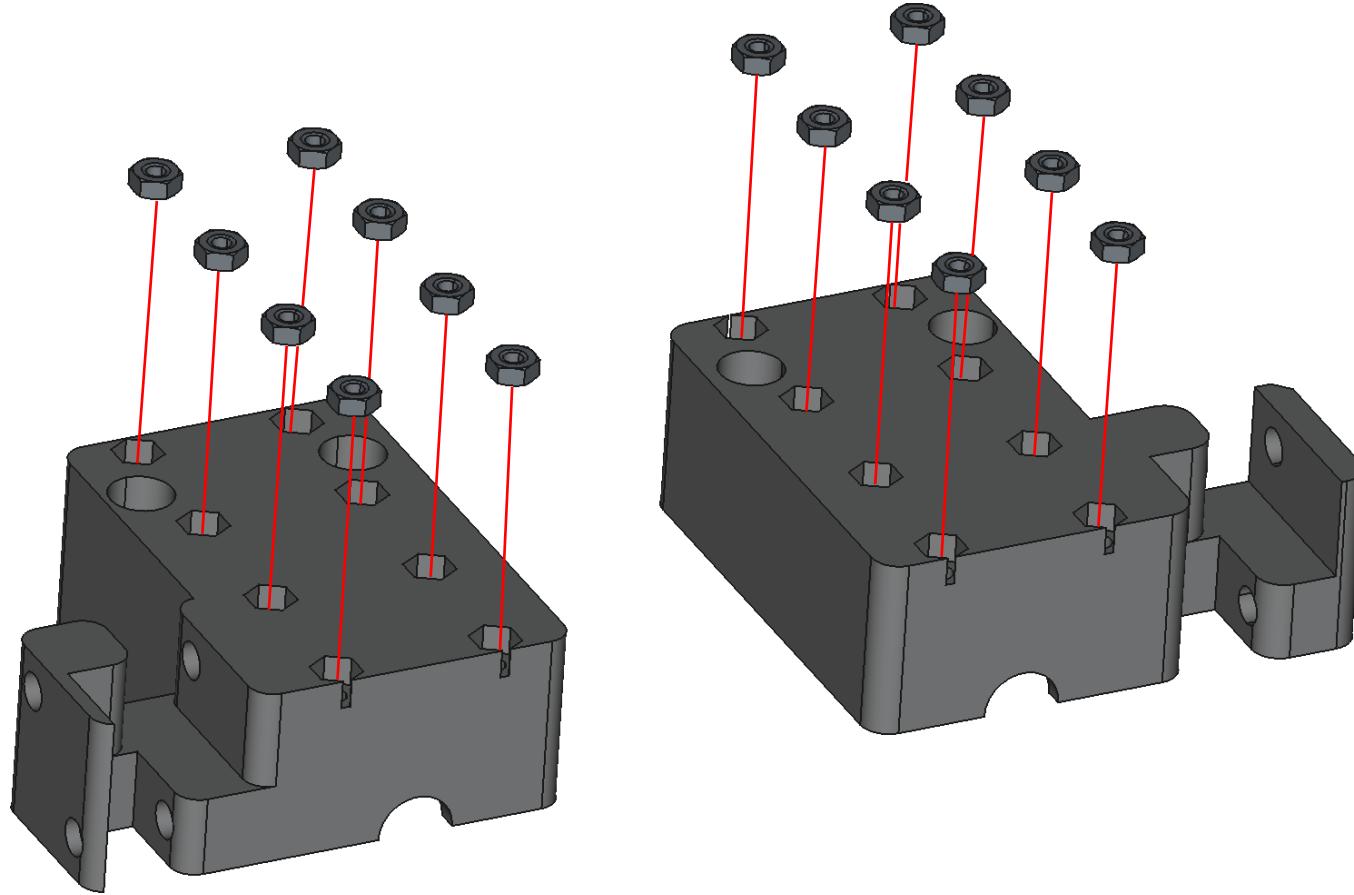
Y CARRIAGE CLAMP



X4

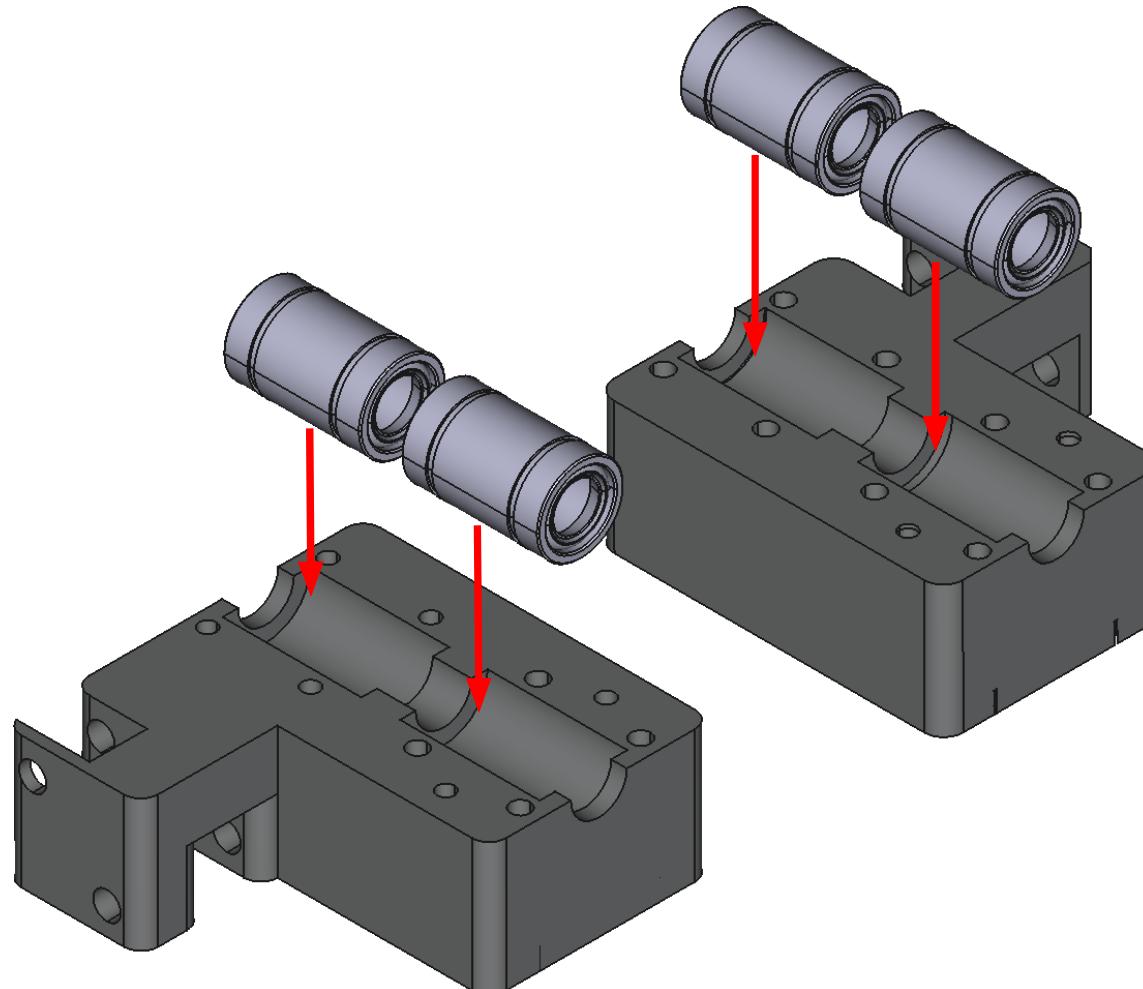
320MM LONG LINEAR ROD WITH 8 MM DIAMETER

X/Y GANTRY & MOTION COMPONENTS



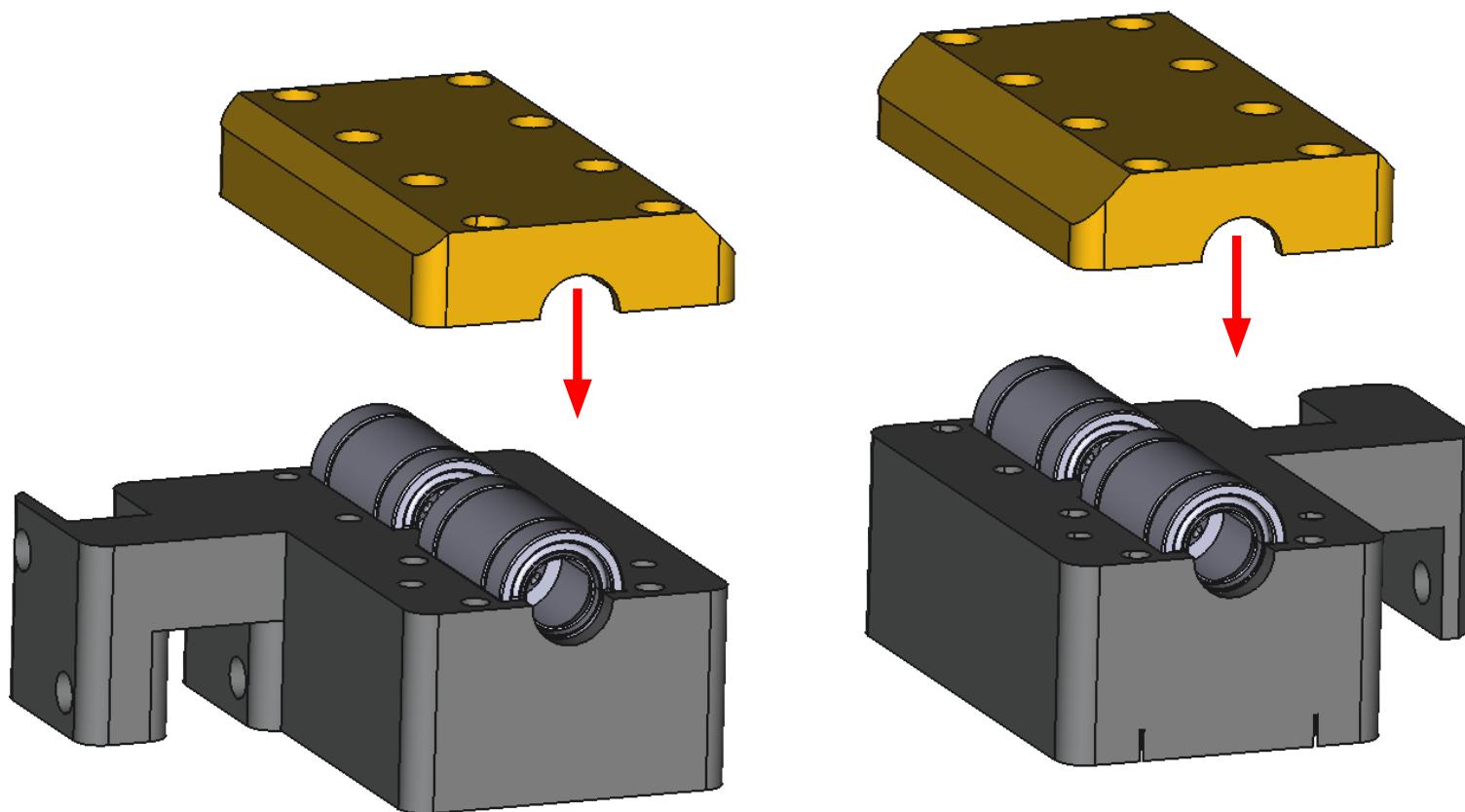
 M3 HEX NUT

X/Y GANTRY & MOTION COMPONENTS

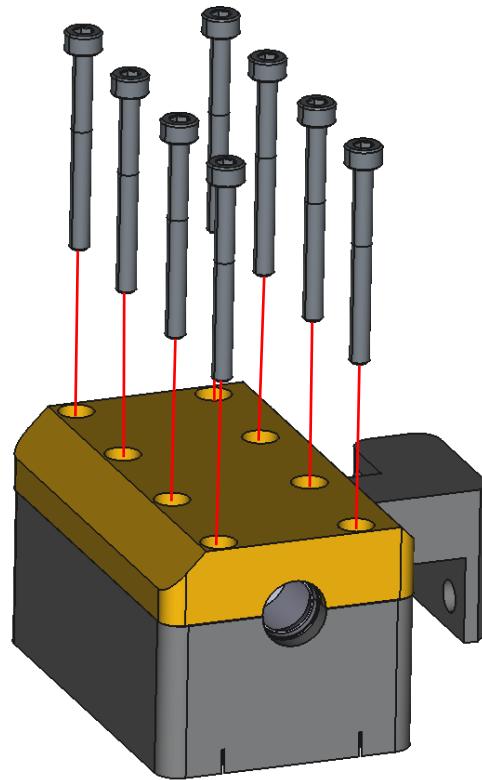
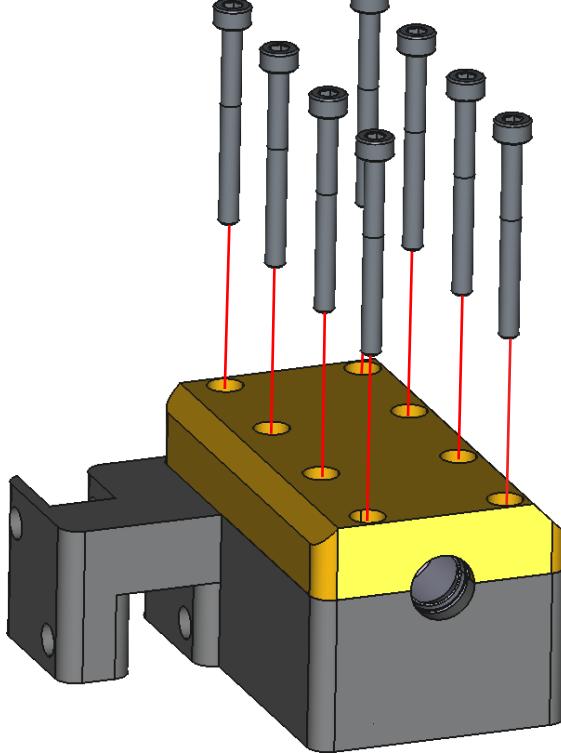


LM8UU BEARING

X/Y GANTRY & MOTION COMPONENTS



X/Y GANTRY & MOTION COMPONENTS

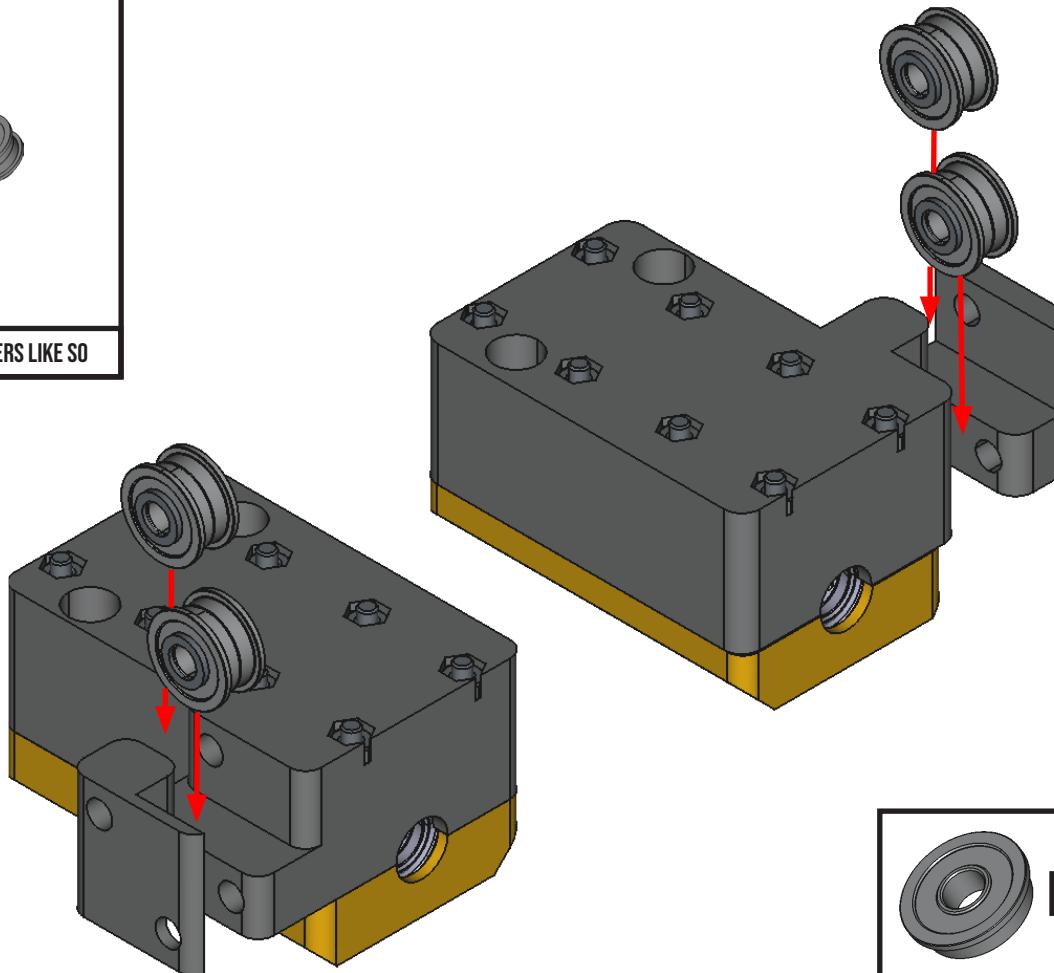
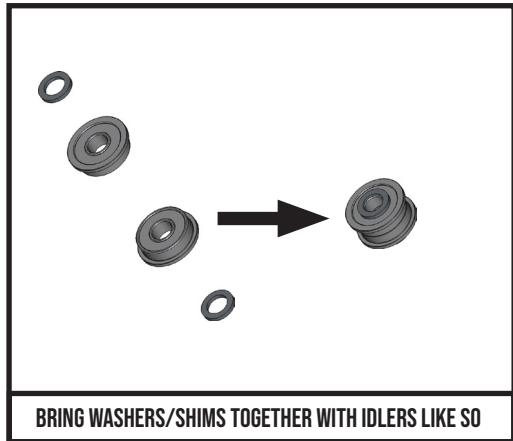


THE REASON FOR THE LARGE AMOUNT OF SCREWS IS JUST SO THAT THE LOAD IS ADJUSTABLE IN DIFFERENT PLACES ON THE BEARINGS.

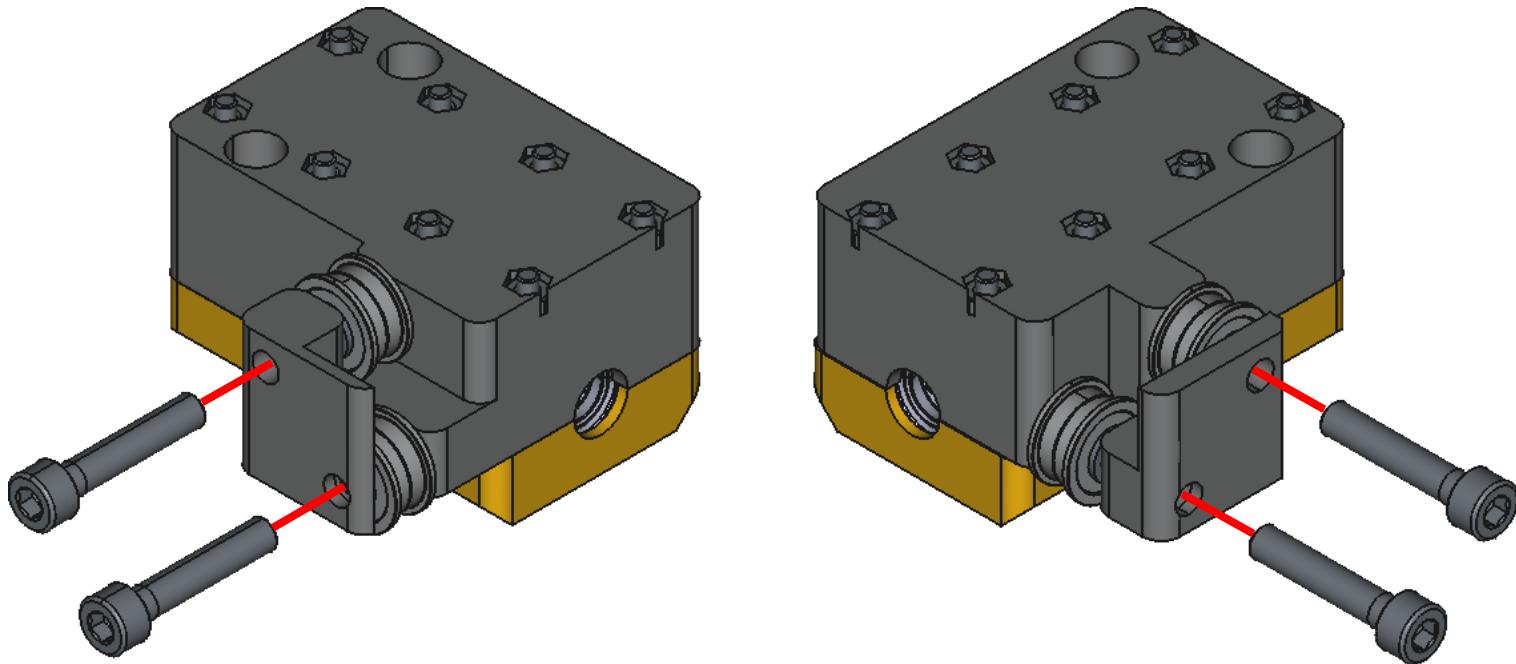


M3X30 BOLT

X/Y GANTRY & MOTION COMPONENTS

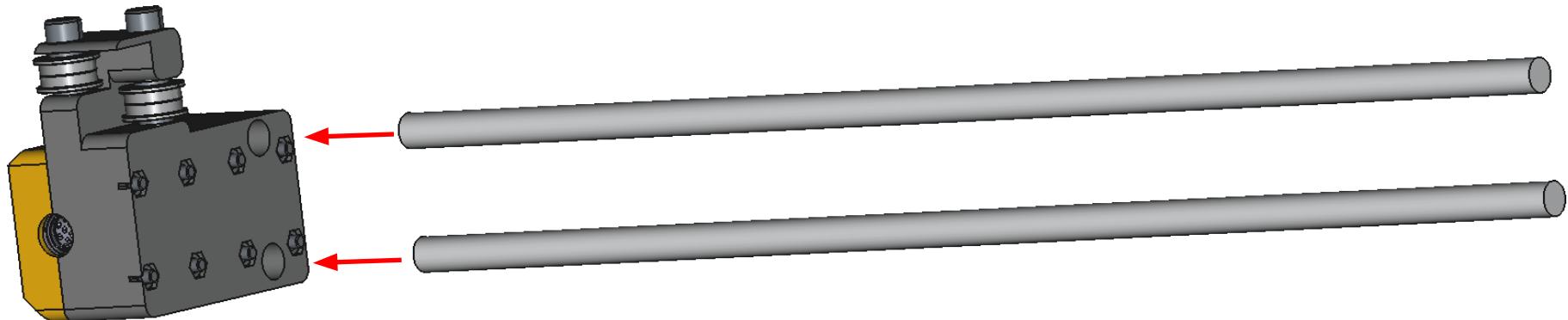


X/Y GANTRY & MOTION COMPONENTS



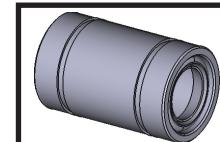
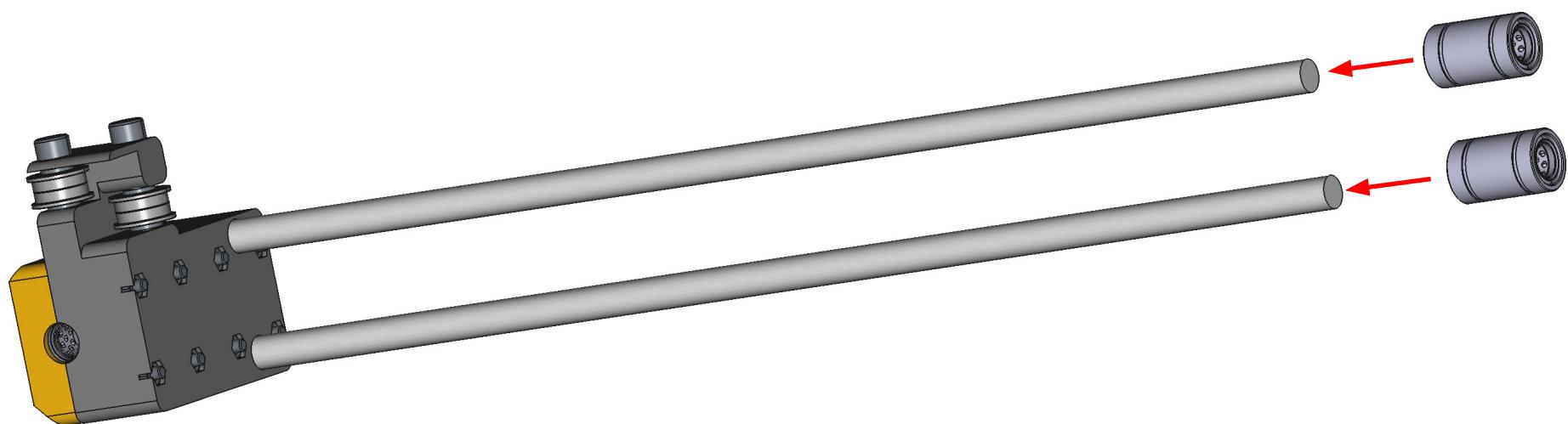
X/Y GANTRY & MOTION COMPONENTS

PRESS THE LINEAR RODS INTO THE HOLES
ON THE LEFT Y-CARRIAGE AS SHOWN.



320MM LONG LINEAR ROD WITH 8 MM DIAMETER

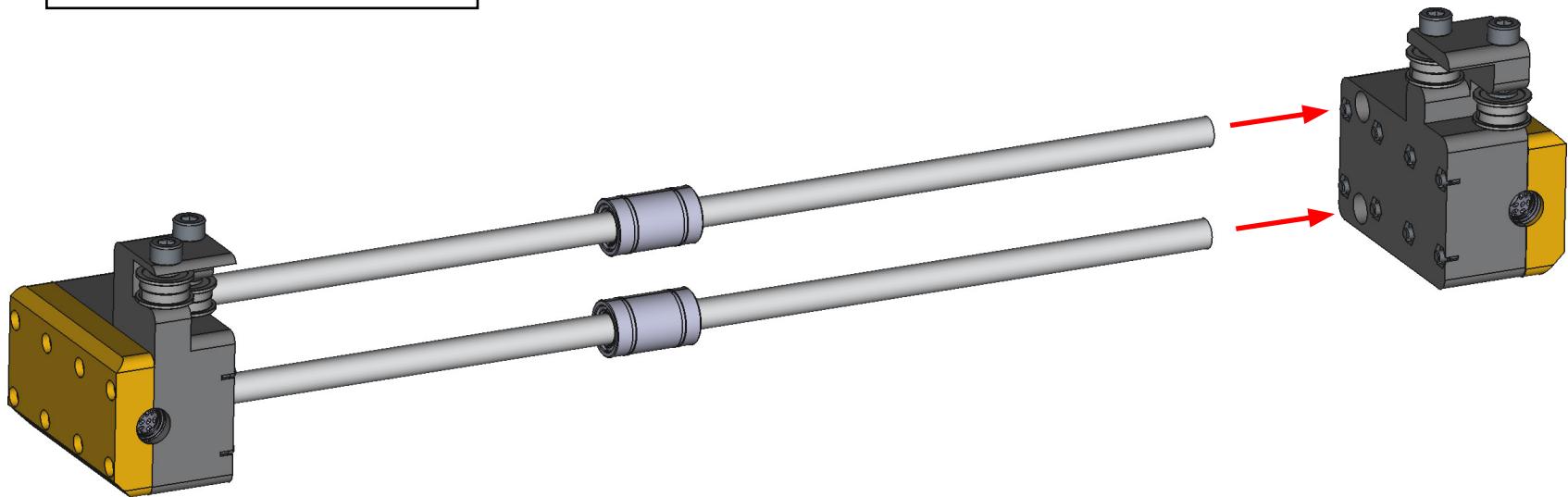
X/Y GANTRY & MOTION COMPONENTS



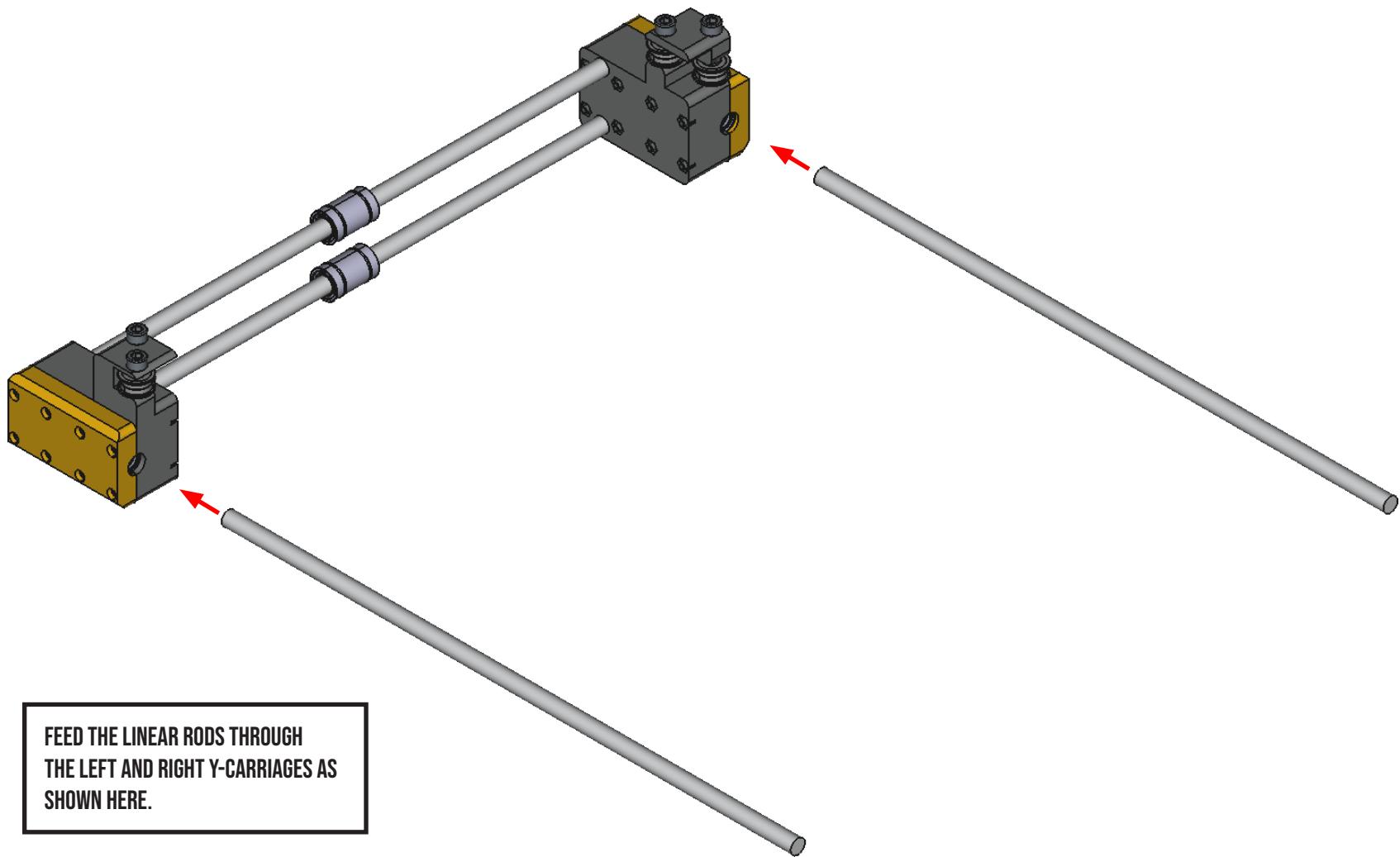
LM8UU BEARING

X/Y GANTRY & MOTION COMPONENTS

PRESS THE LINEAR RODS INTO THE HOLES
ON THE RIGHT Y-CARRIAGE AS SHOWN.



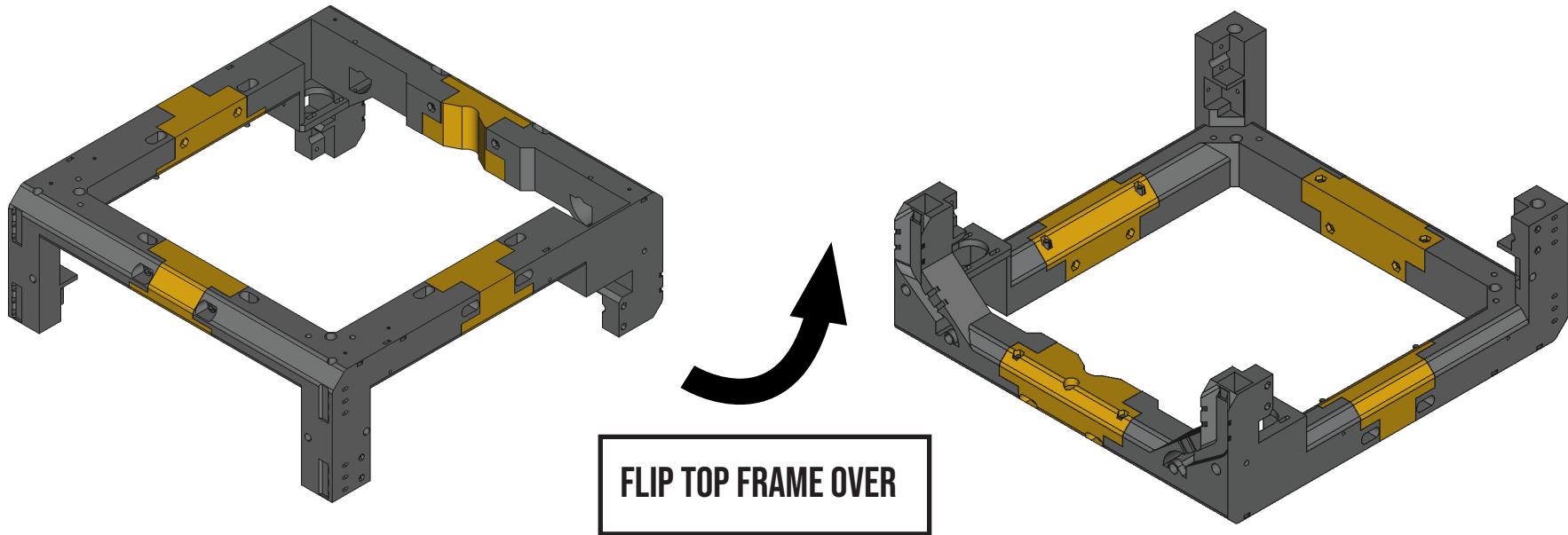
X/Y GANTRY & MOTION COMPONENTS



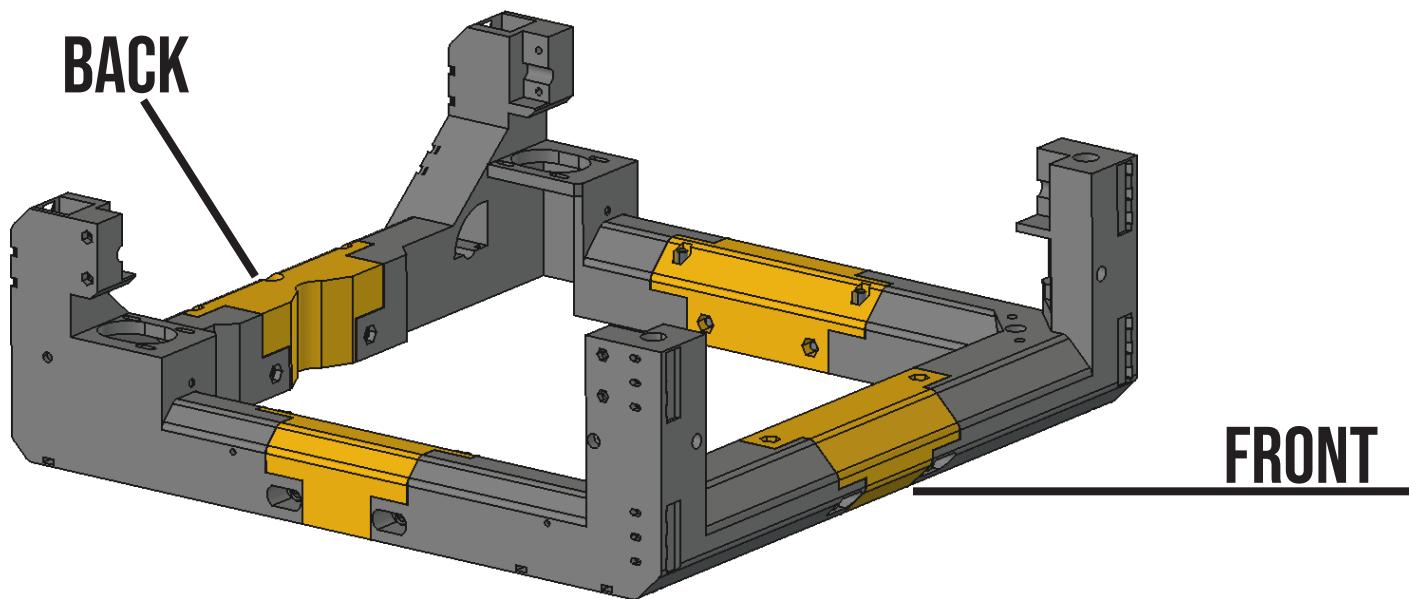
FEED THE LINEAR RODS THROUGH
THE LEFT AND RIGHT Y-CARRIAGES AS
SHOWN HERE.

320MM LONG LINEAR ROD WITH 8 MM DIAMETER

X/Y GANTRY & MOTION COMPONENTS



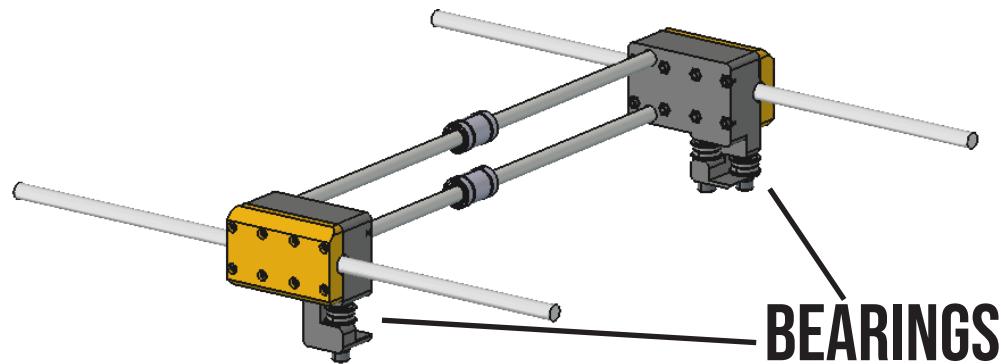
X/Y GANTRY & MOTION COMPONENTS



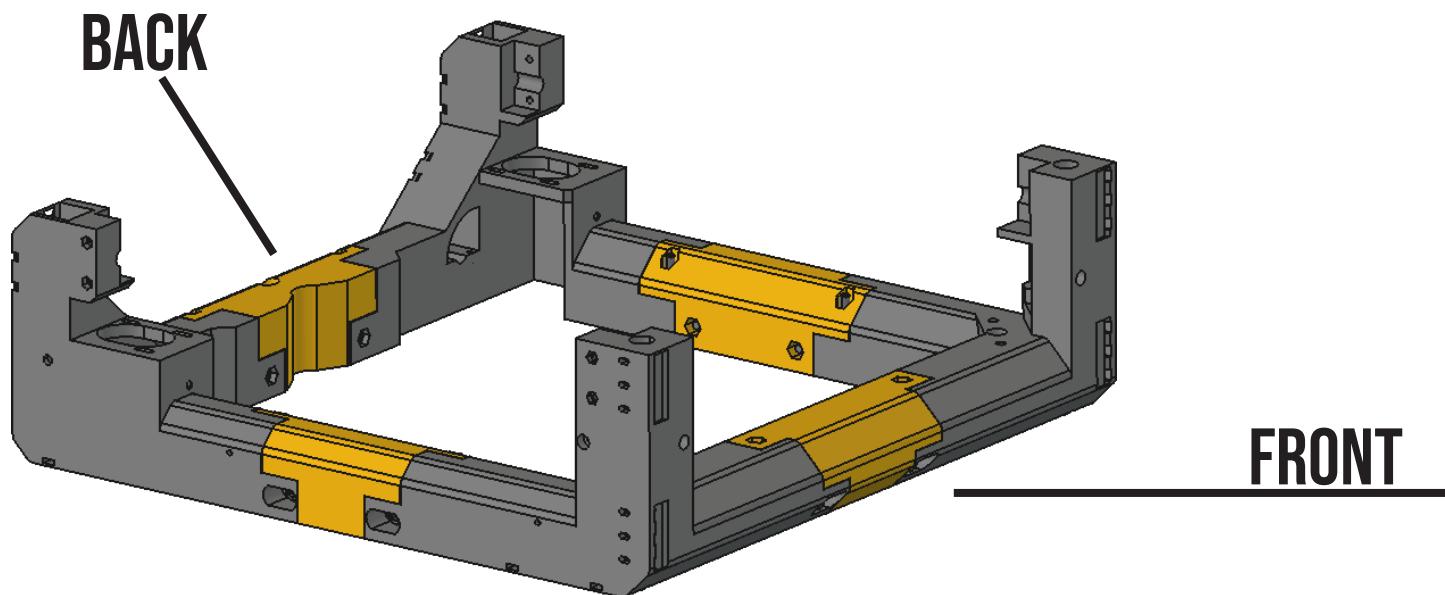
TAKE NOTE OF THE TOP FRAME AND ITS
ORIENTATION.

PAY CLOSE ATTENTION TO WHICH SIDE IS
THE FRONT AND WHICH IS THE BACK

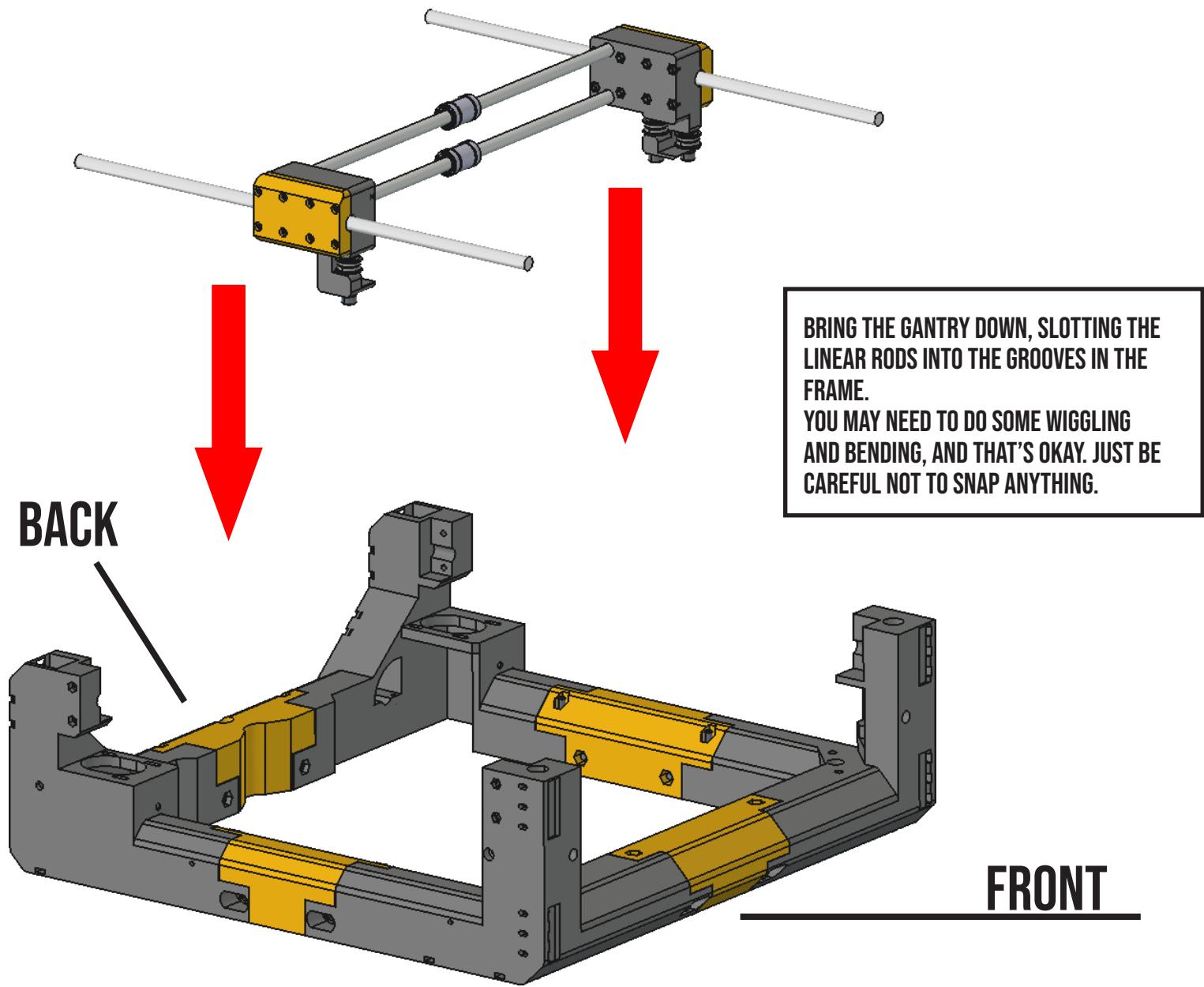
X/Y GANTRY & MOTION COMPONENTS



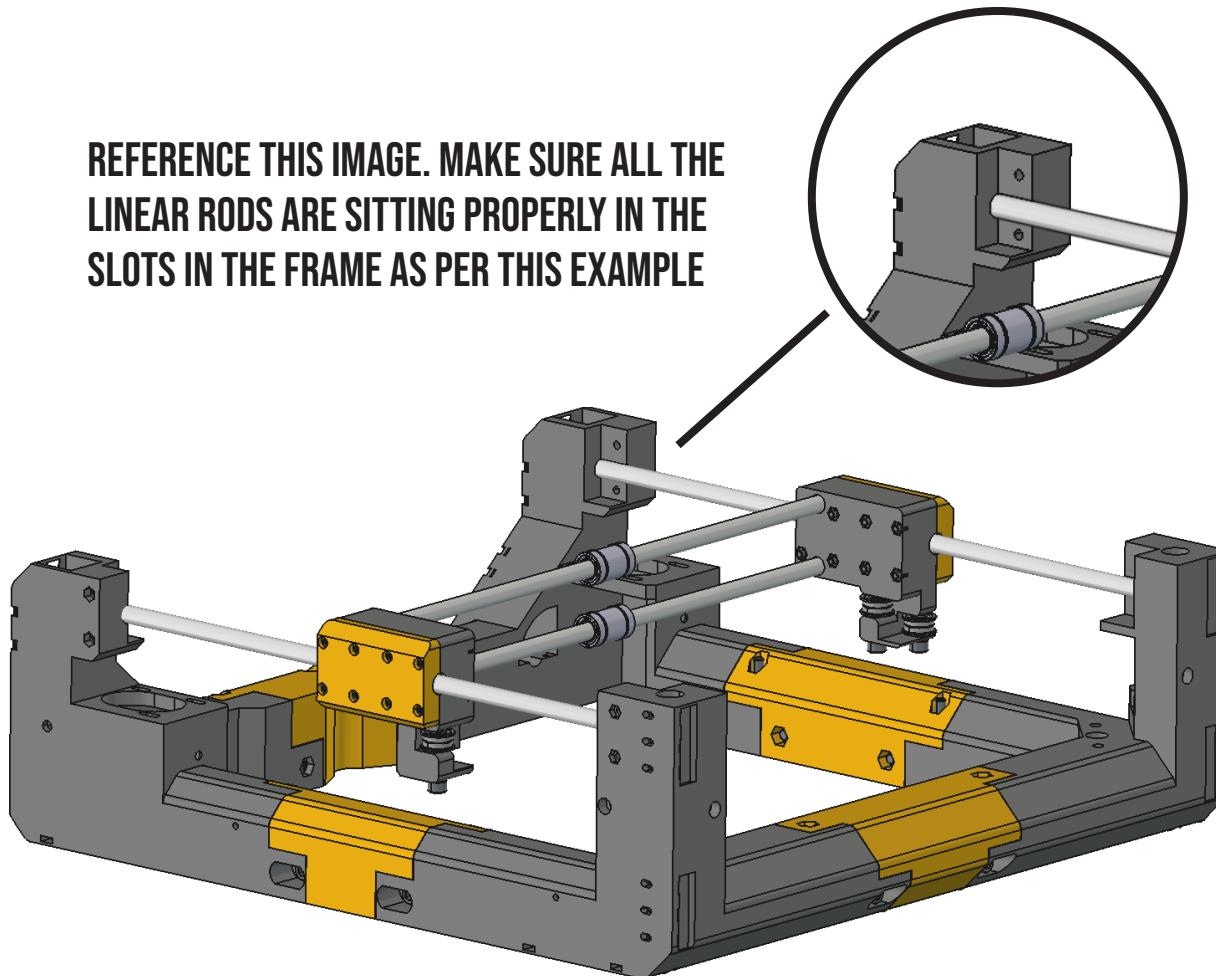
MAKE SURE TO ORIENT THE LEFT AND RIGHT Y CARRIAGE SO THAT THE BEARINGS ARE CLOSER TO THE FRONT OF THE FRAME AS SHOWN.



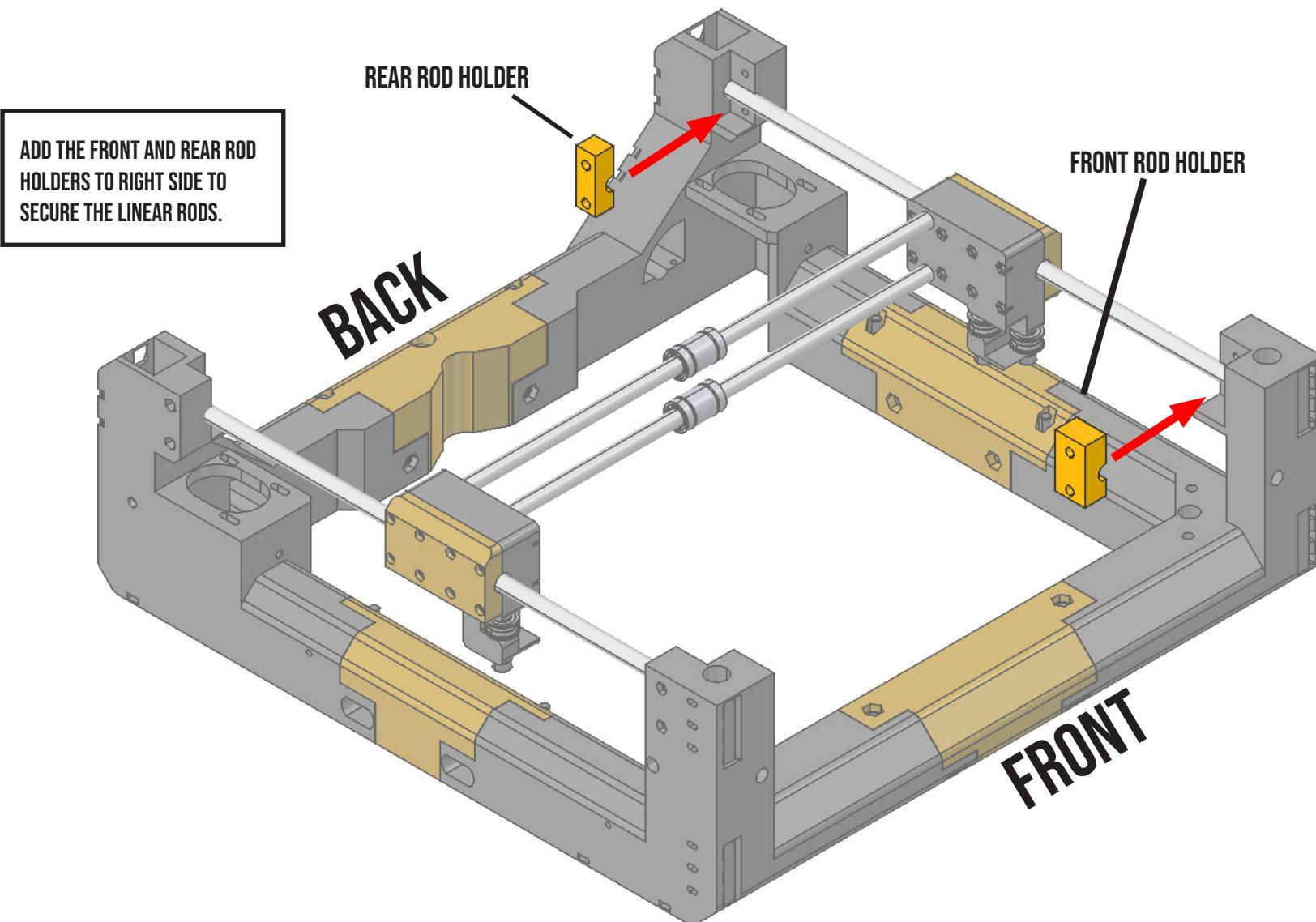
X/Y GANTRY & MOTION COMPONENTS



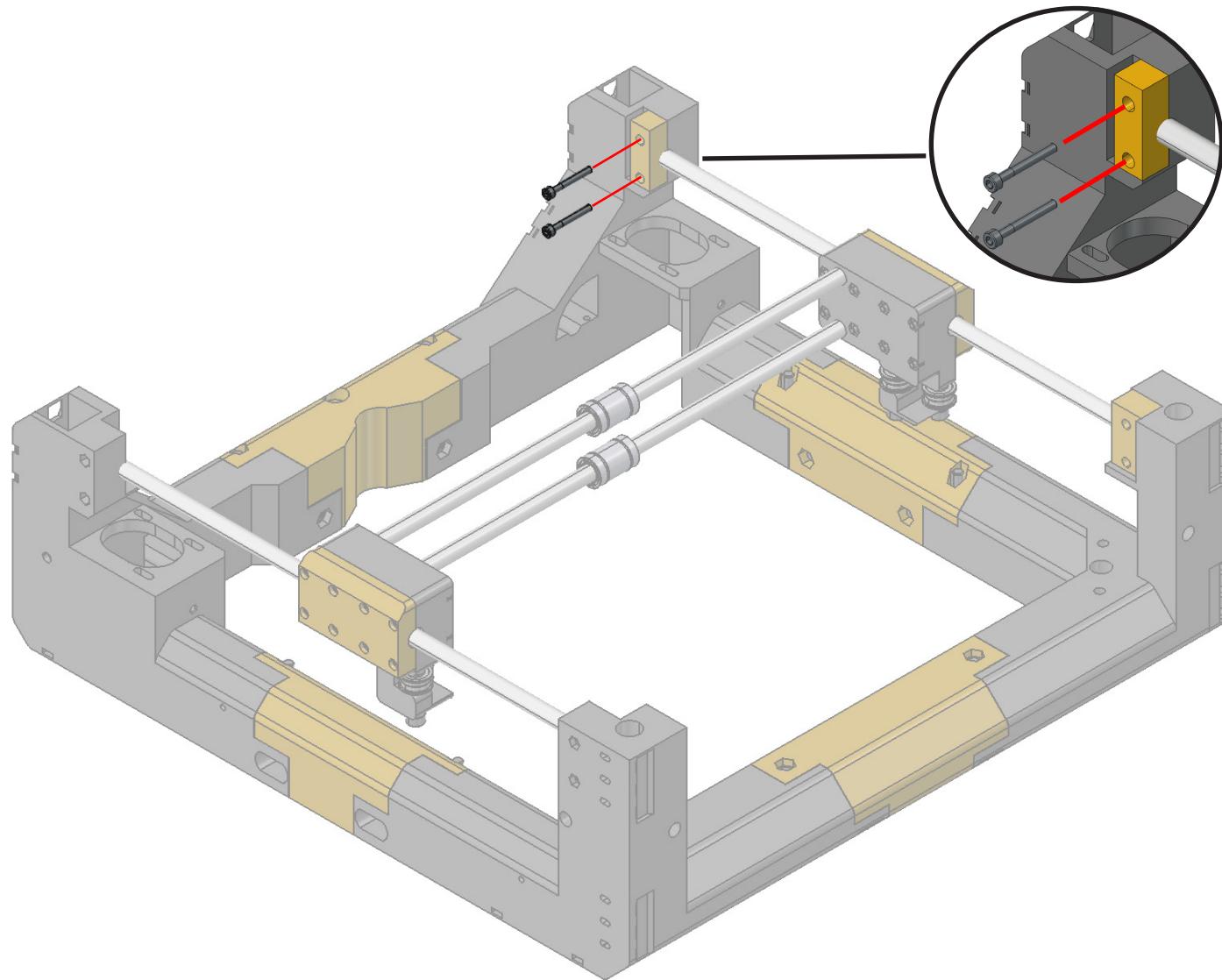
X/Y GANTRY & MOTION COMPONENTS



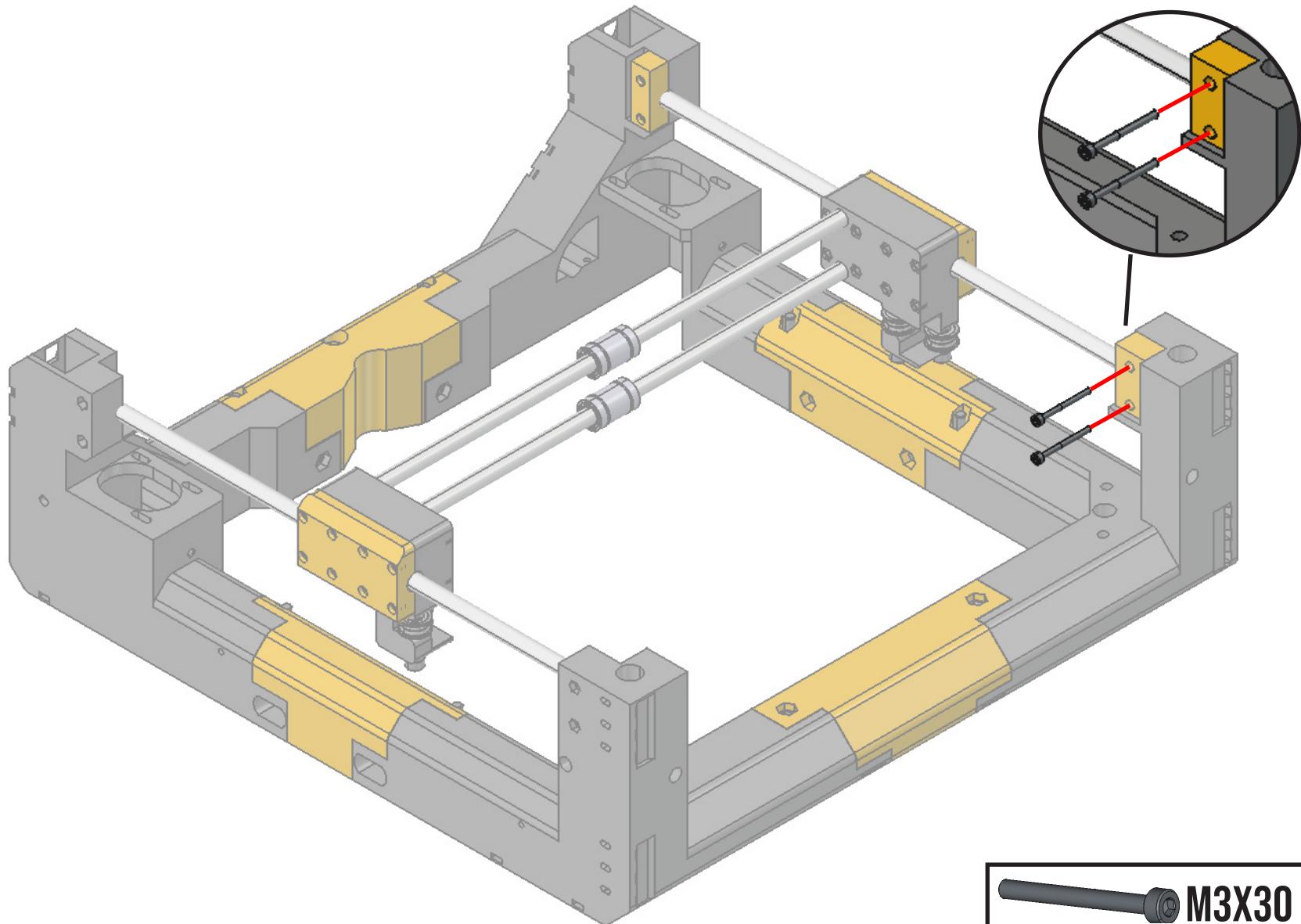
X/Y GANTRY & MOTION COMPONENTS



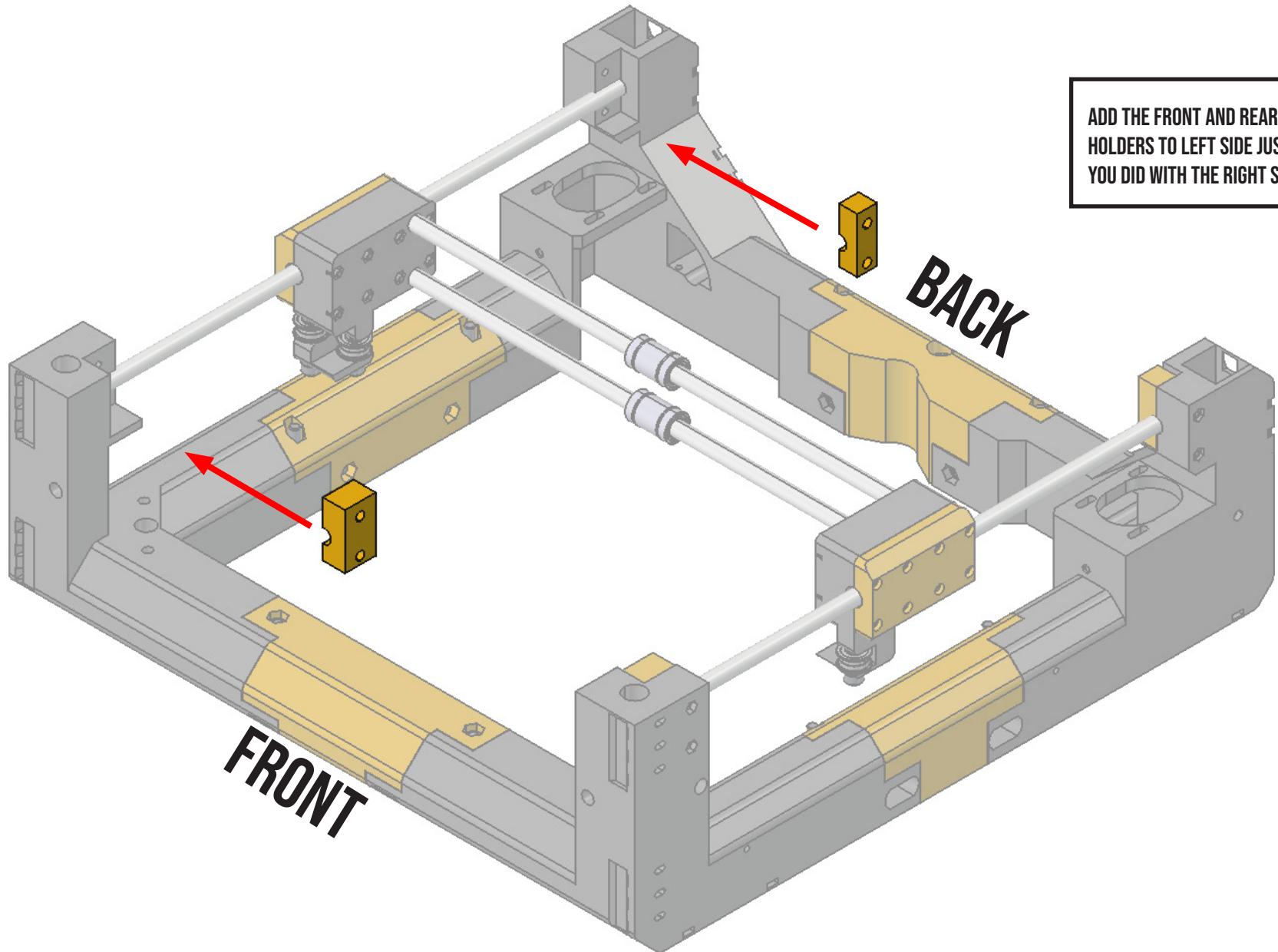
X/Y GANTRY & MOTION COMPONENTS



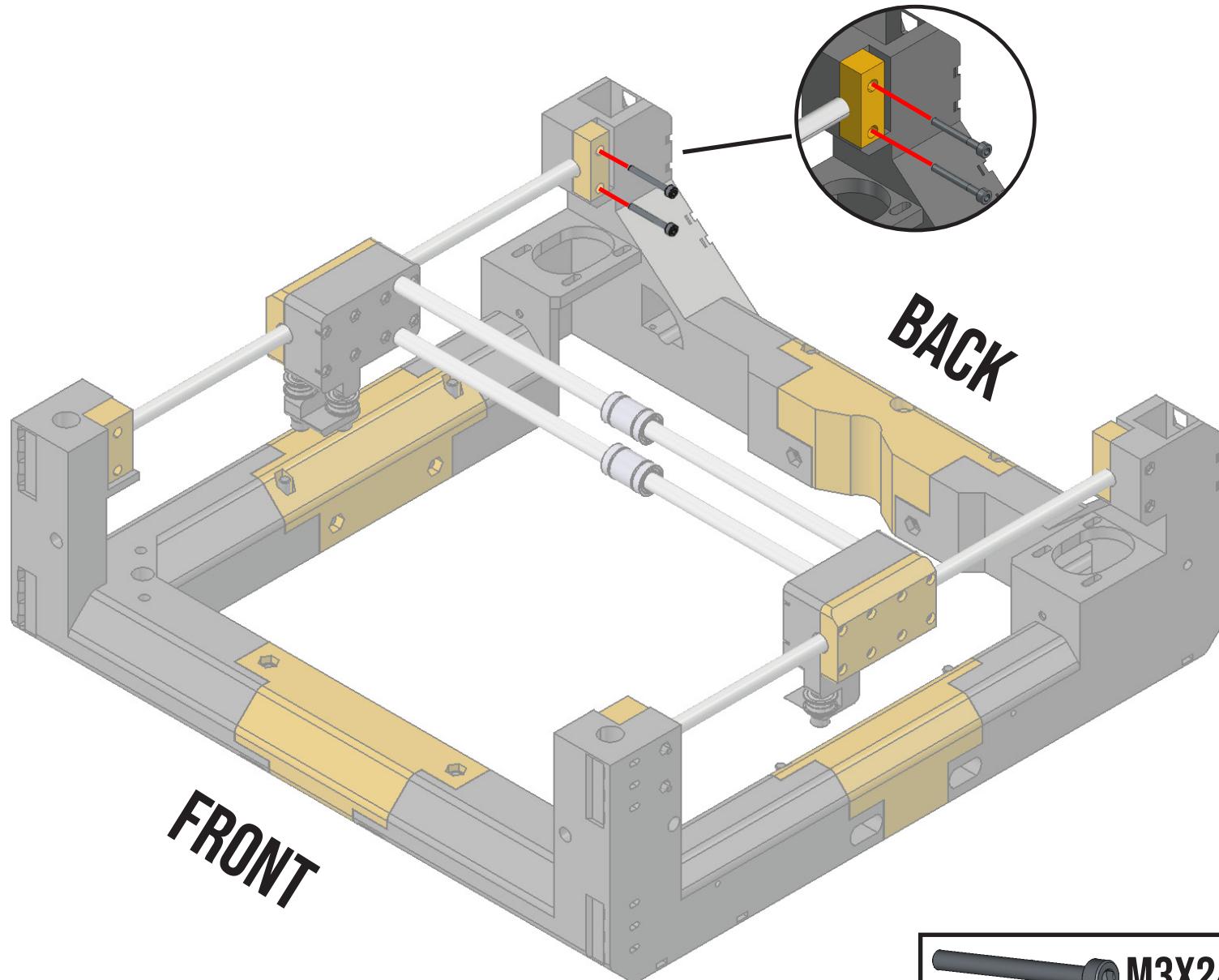
X/Y GANTRY & MOTION COMPONENTS



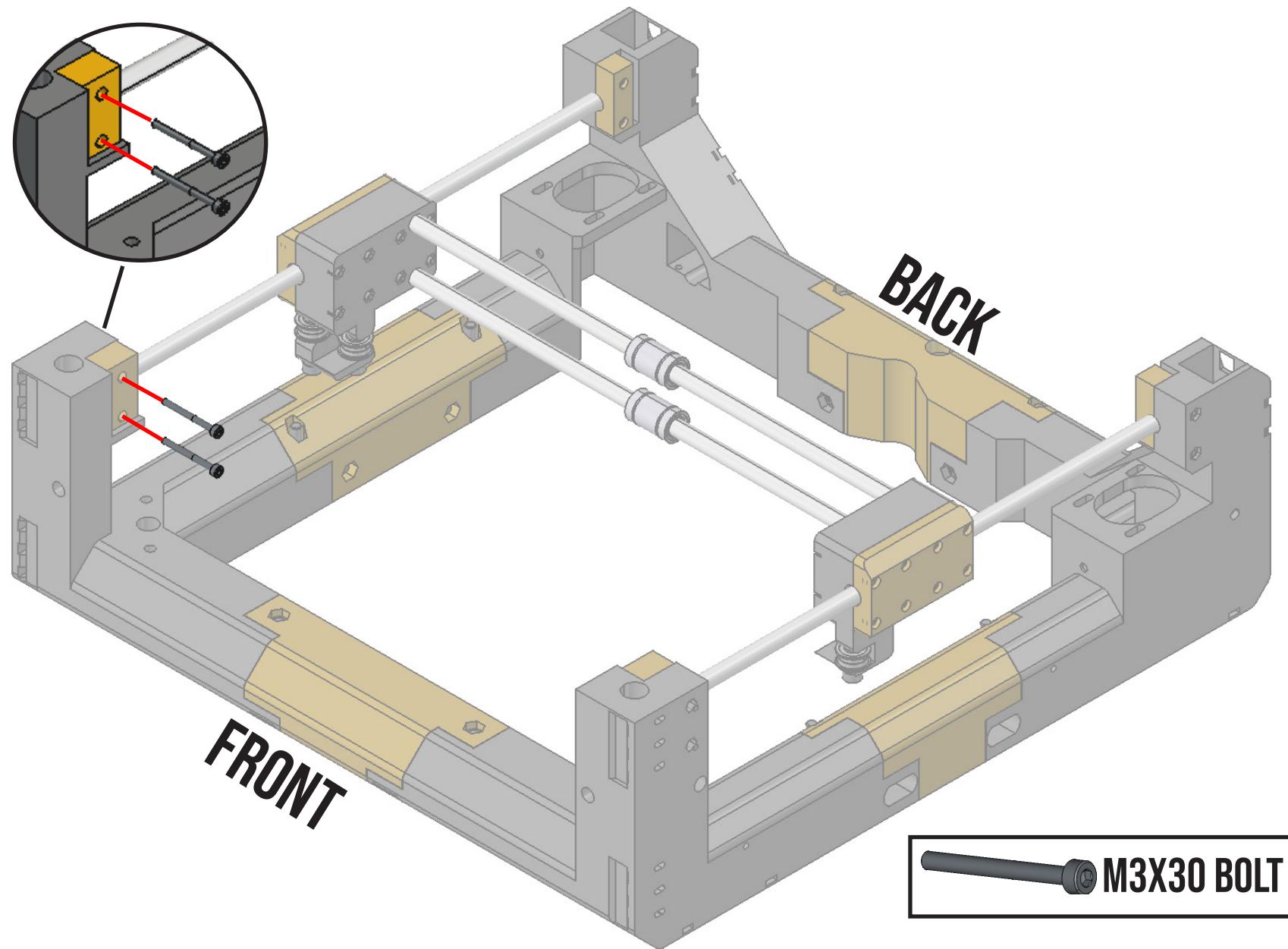
X/Y GANTRY & MOTION COMPONENTS



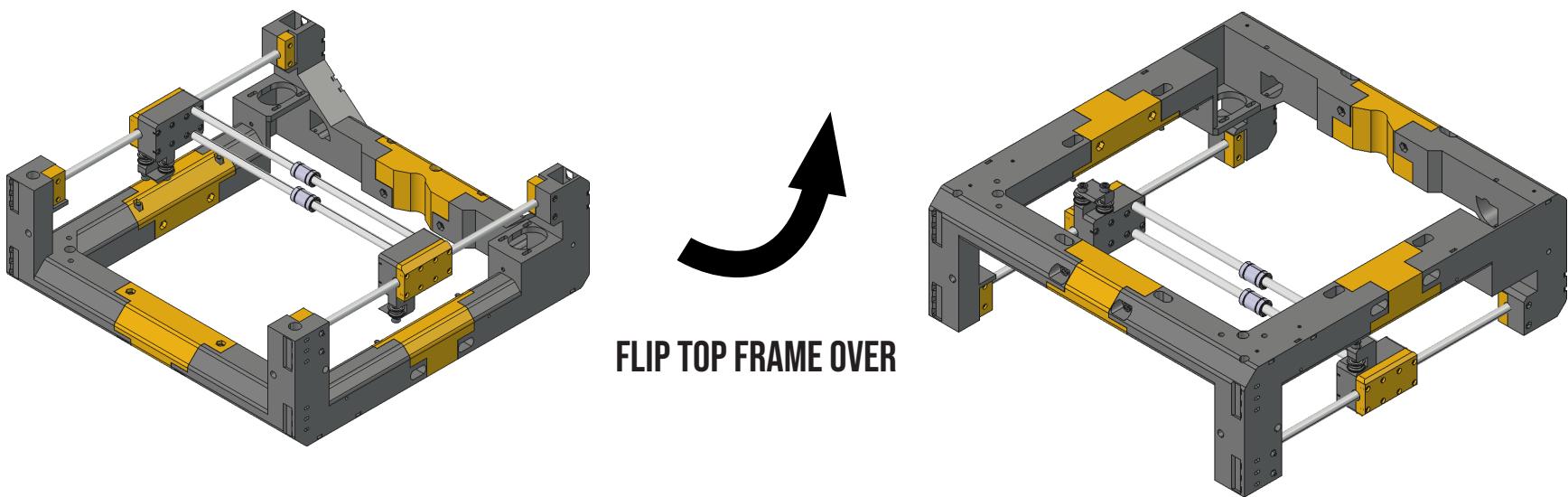
X/Y GANTRY & MOTION COMPONENTS



X/Y GANTRY & MOTION COMPONENTS

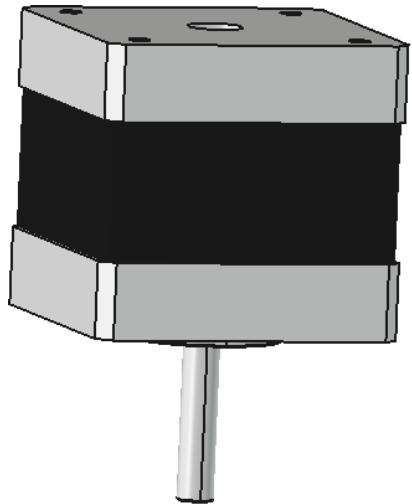


X/Y GANTRY & MOTION COMPONENTS

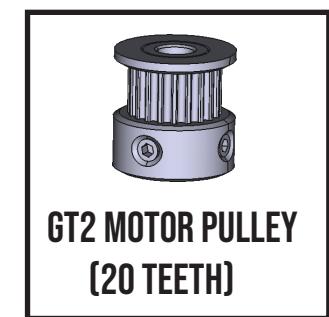
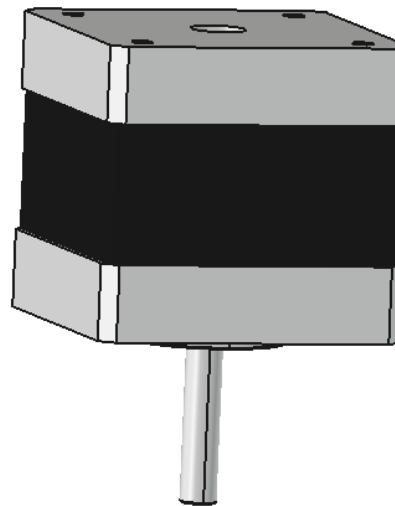


X/Y GANTRY & MOTION COMPONENTS

LEFT STEPPER MOTOR



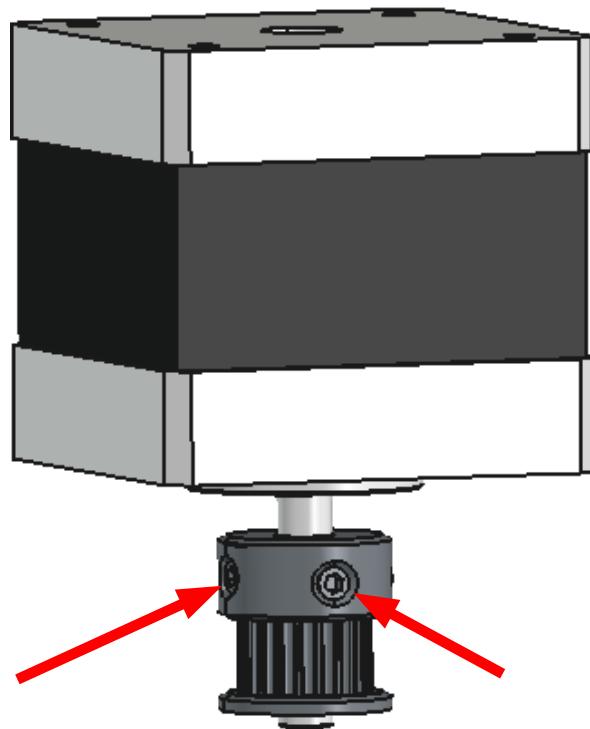
RIGHT STEPPER MOTOR



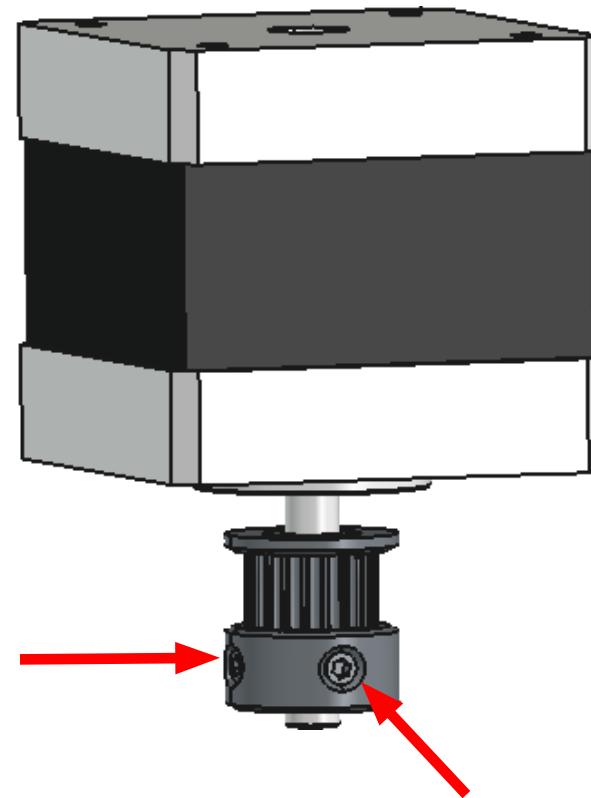
GT2 MOTOR PULLEY
(20 TEETH)

X/Y GANTRY & MOTION COMPONENTS

LEFT STEPPER MOTOR

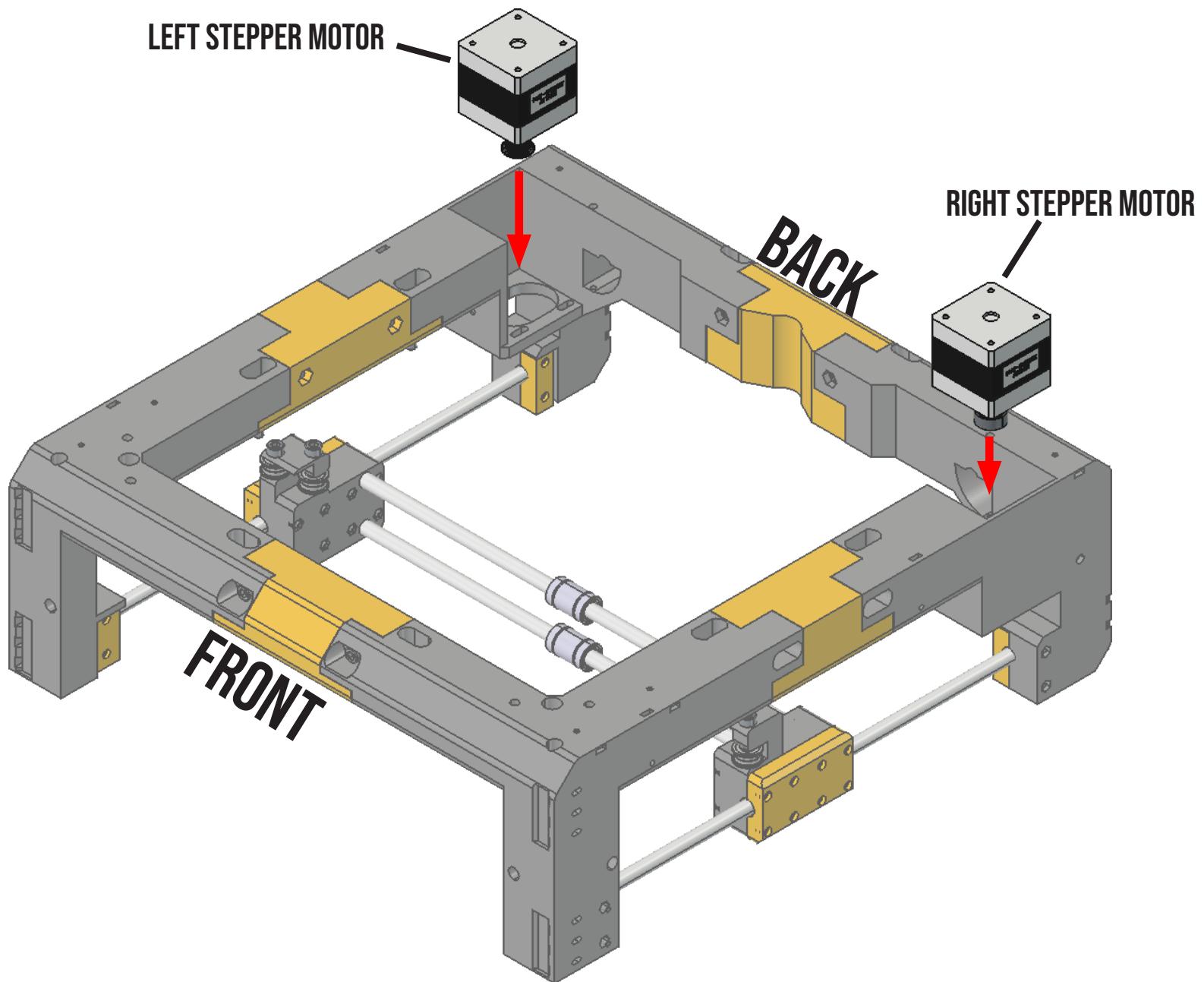


RIGHT STEPPER MOTOR

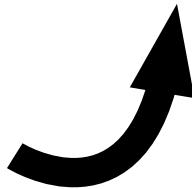
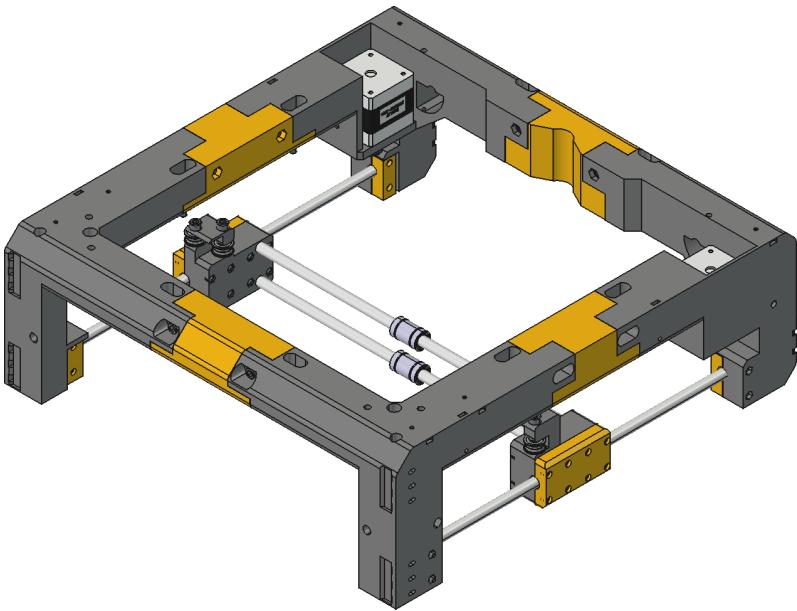


TIGHTEN SET SCREWS

X/Y GANTRY & MOTION COMPONENTS

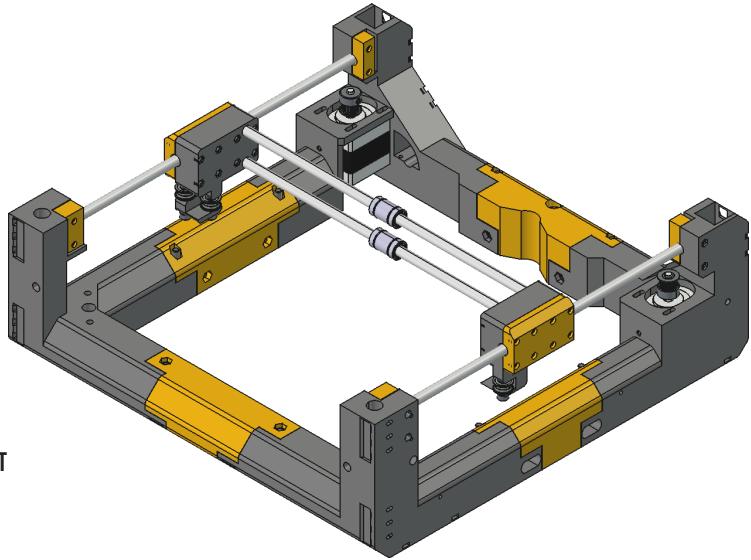


X/Y GANTRY & MOTION COMPONENTS

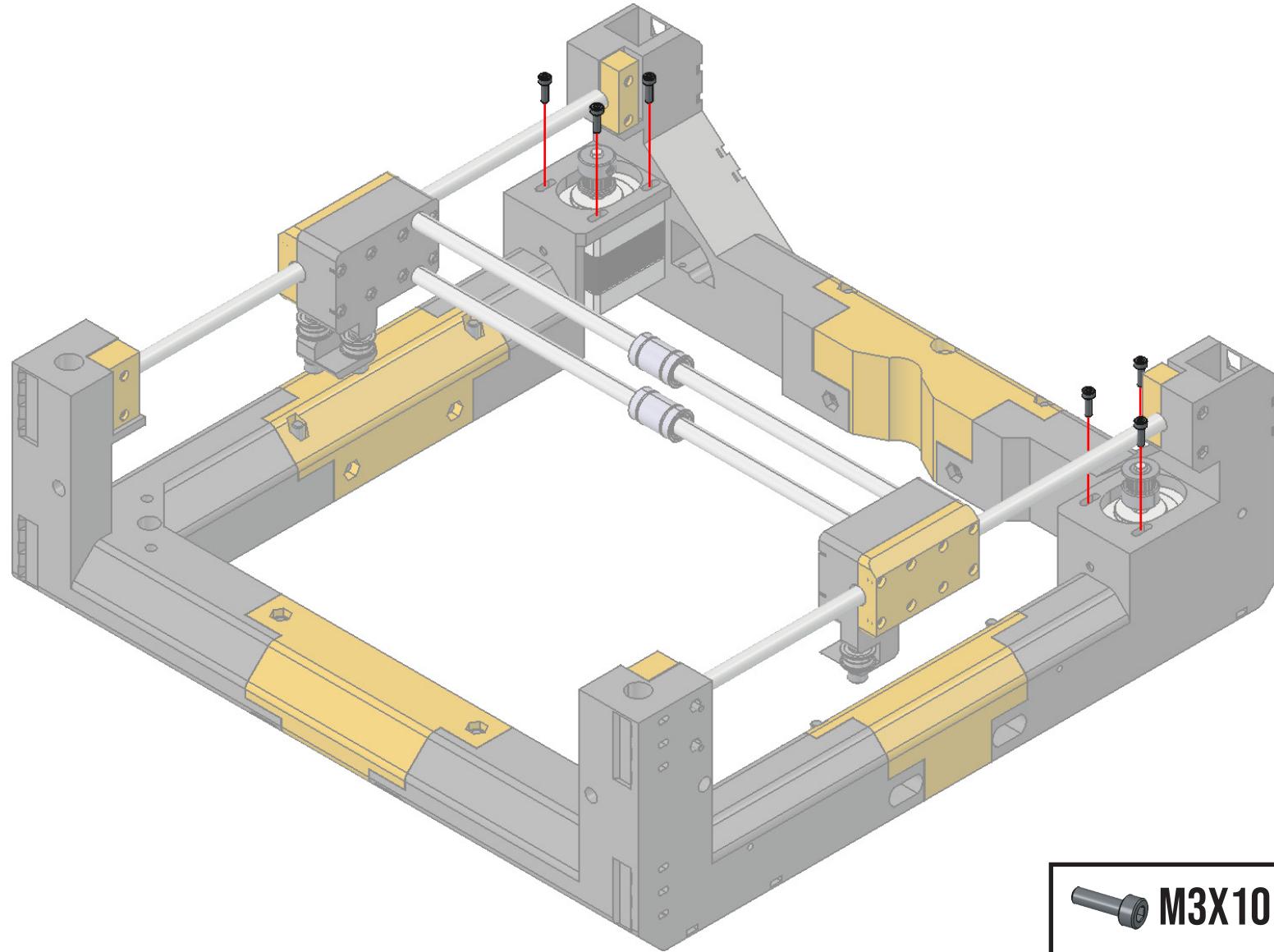


FLIP TOP FRAME OVER

*YOU'LL PROBABLY HAVE TO HOLD THE
STEPPER MOTORS IN PLACE AS YOU FLIP IT

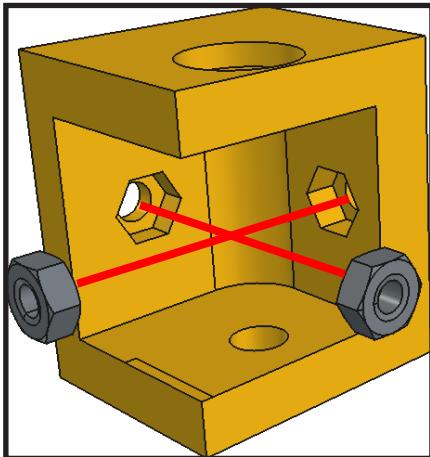


X/Y GANTRY & MOTION COMPONENTS

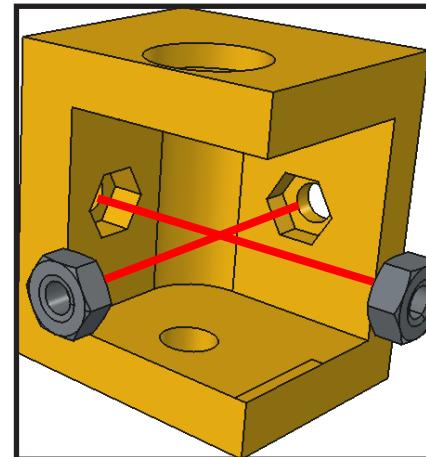


X/Y GANTRY & MOTION COMPONENTS

LEFT IDLER CARTRIDGE



RIGHT IDLER CARTRIDGE



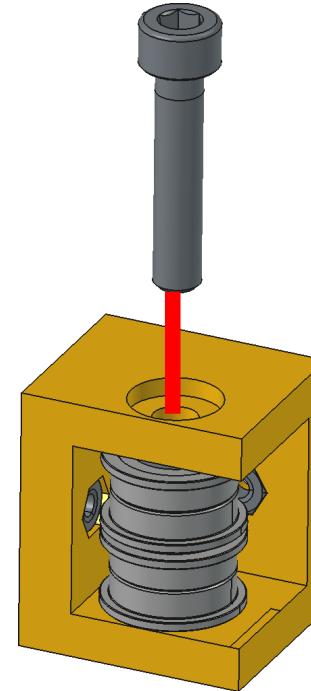
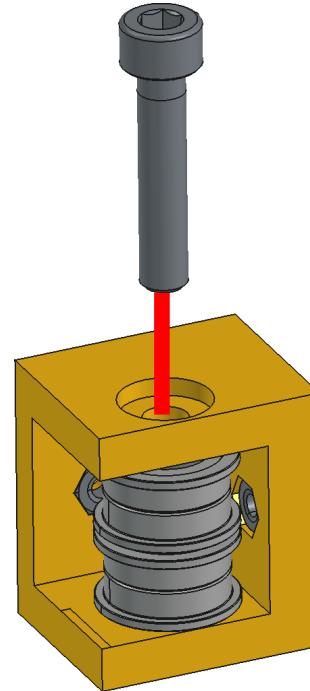
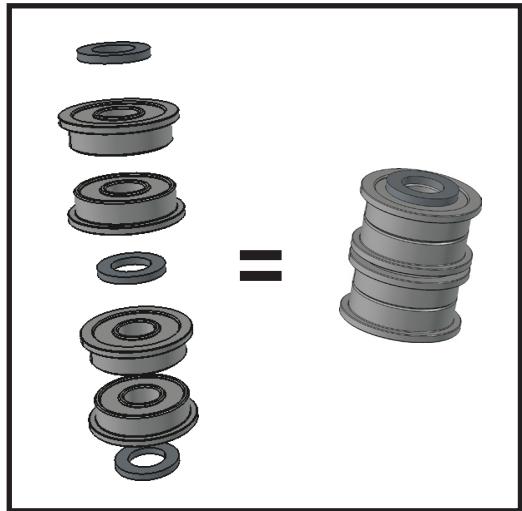
INSERT NUTS INTO THE PARTS AS SHOWN

THE LEFT AND RIGHT IDLER CARTRIDGE ARE IN FACT DIFFERENT, AND
WON'T FIT WHERE THEY AREN'T SUPPOSED TO. WHEN YOU INSERT THEM
INTO THE FRAME, JUST SWAP THEM IF THEY DON'T FIT.

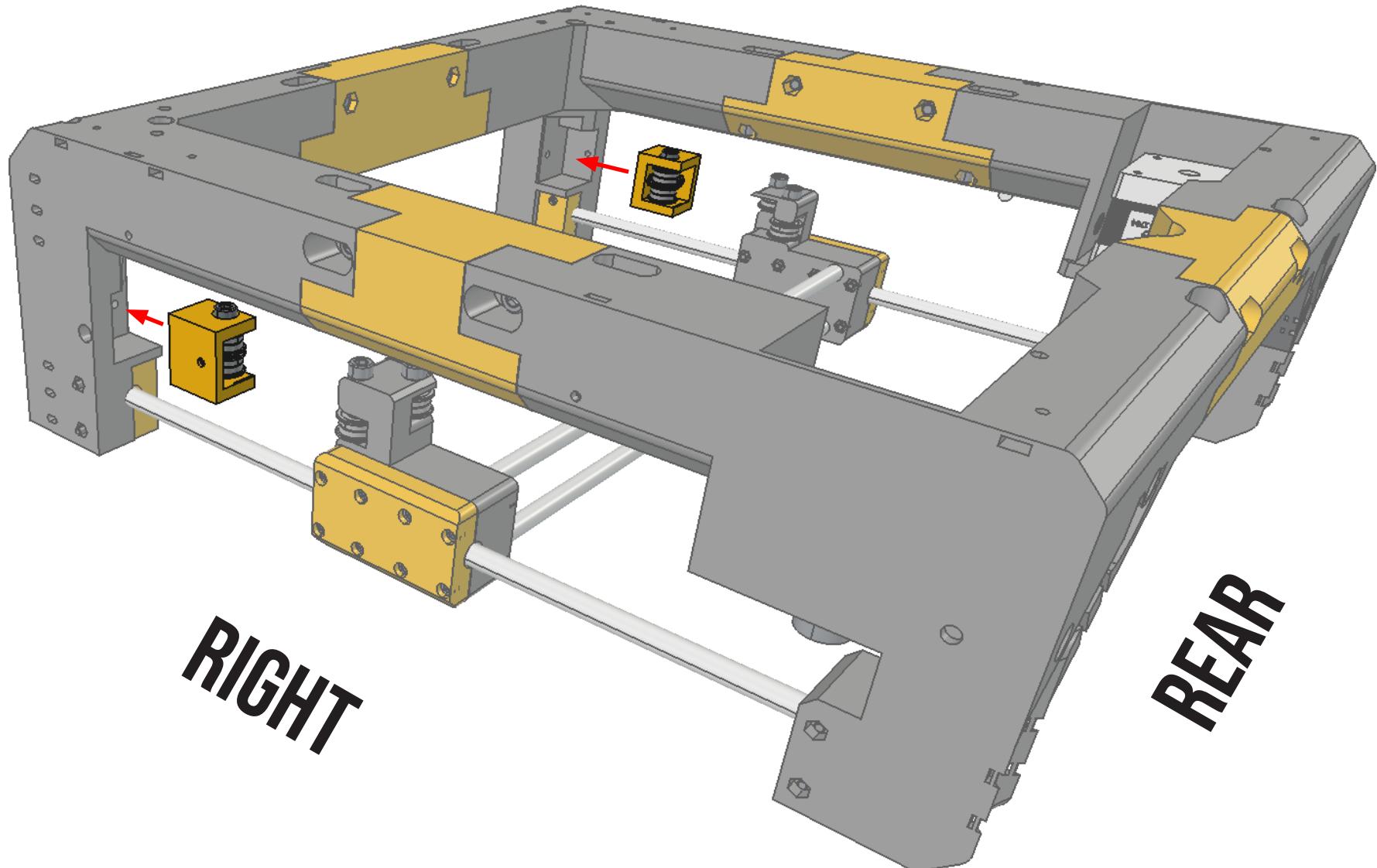


M3 HEX NUT

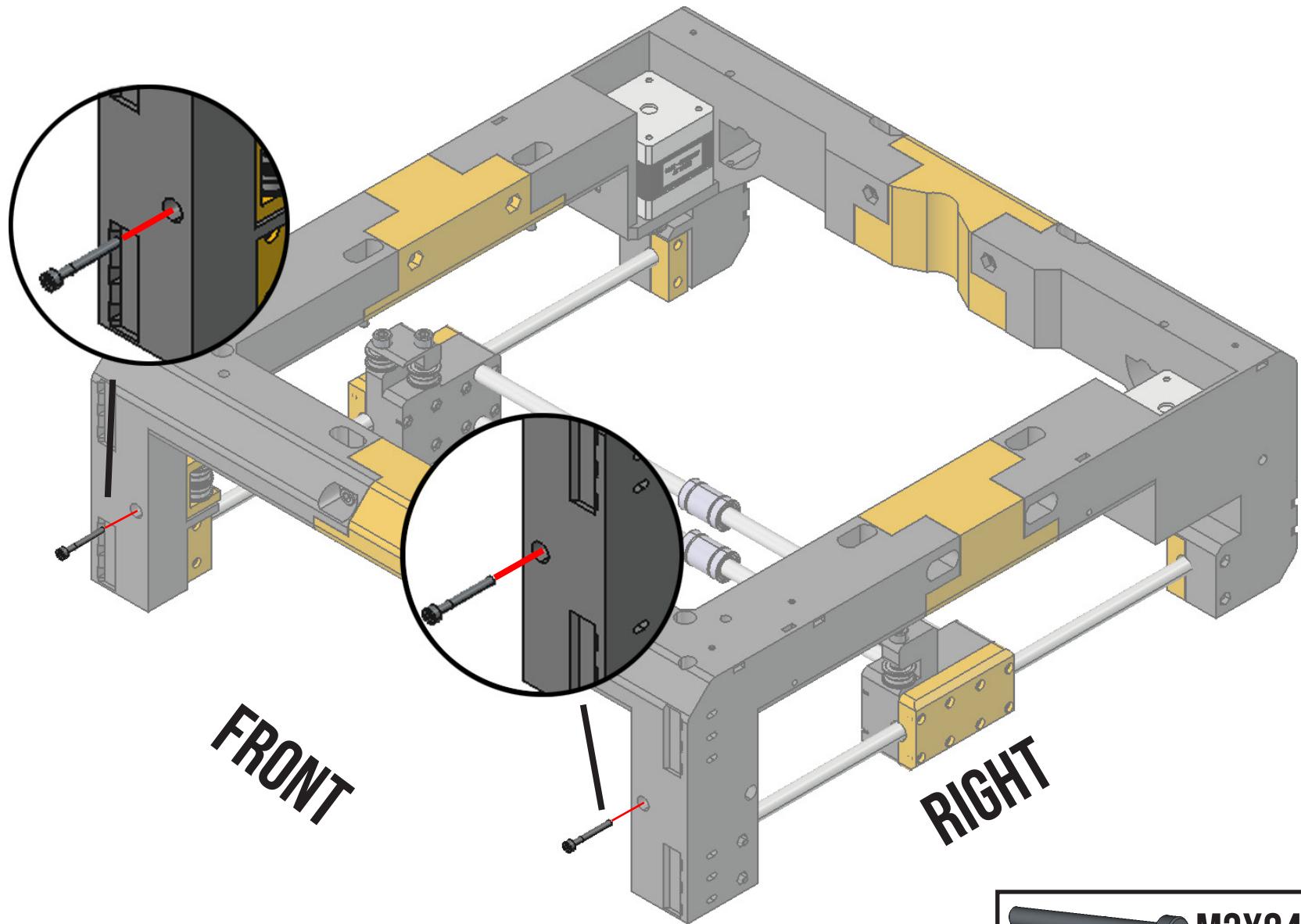
X/Y GANTRY & MOTION COMPONENTS



X/Y GANTRY & MOTION COMPONENTS

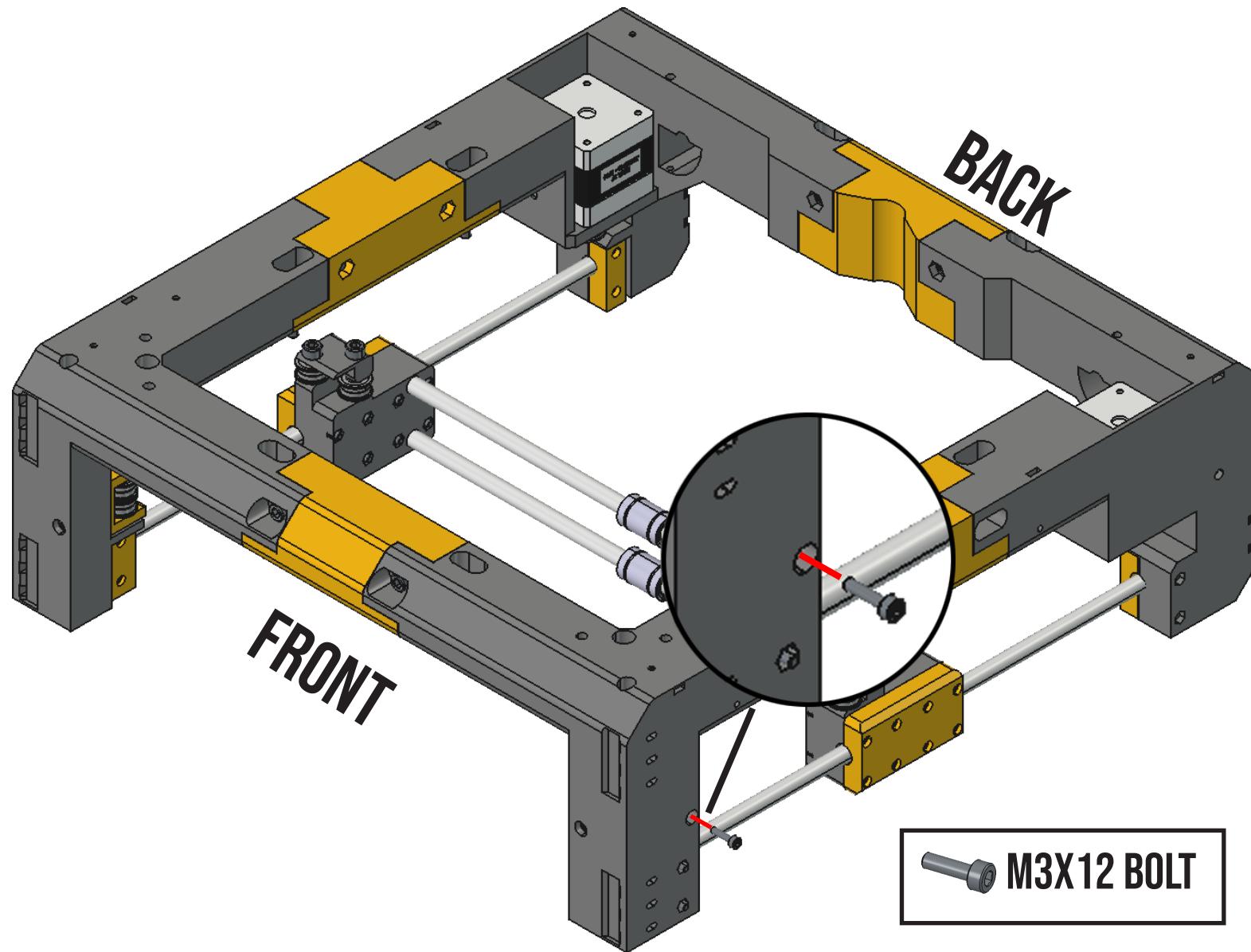


X/Y GANTRY & MOTION COMPONENTS

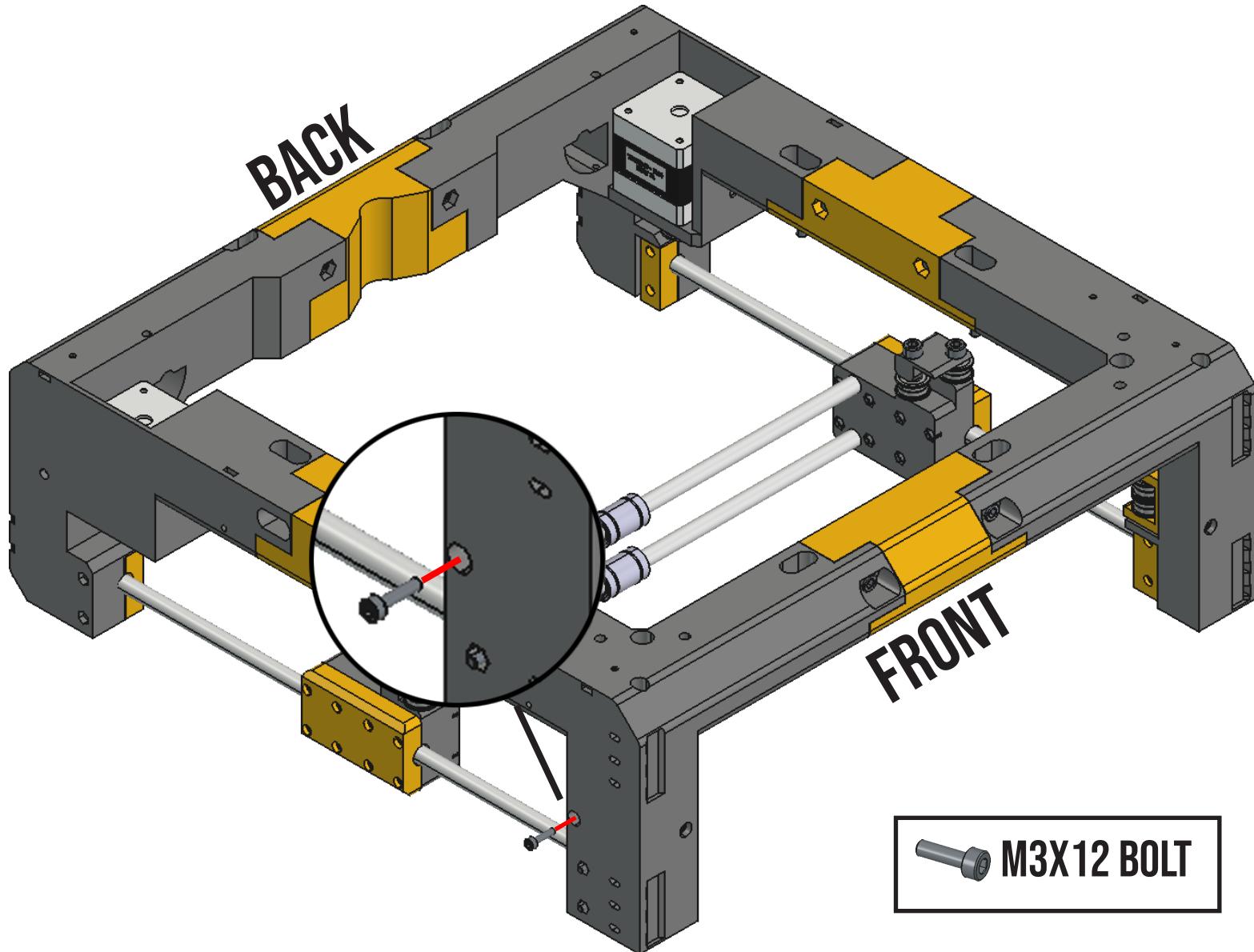


M3X24 BOLT

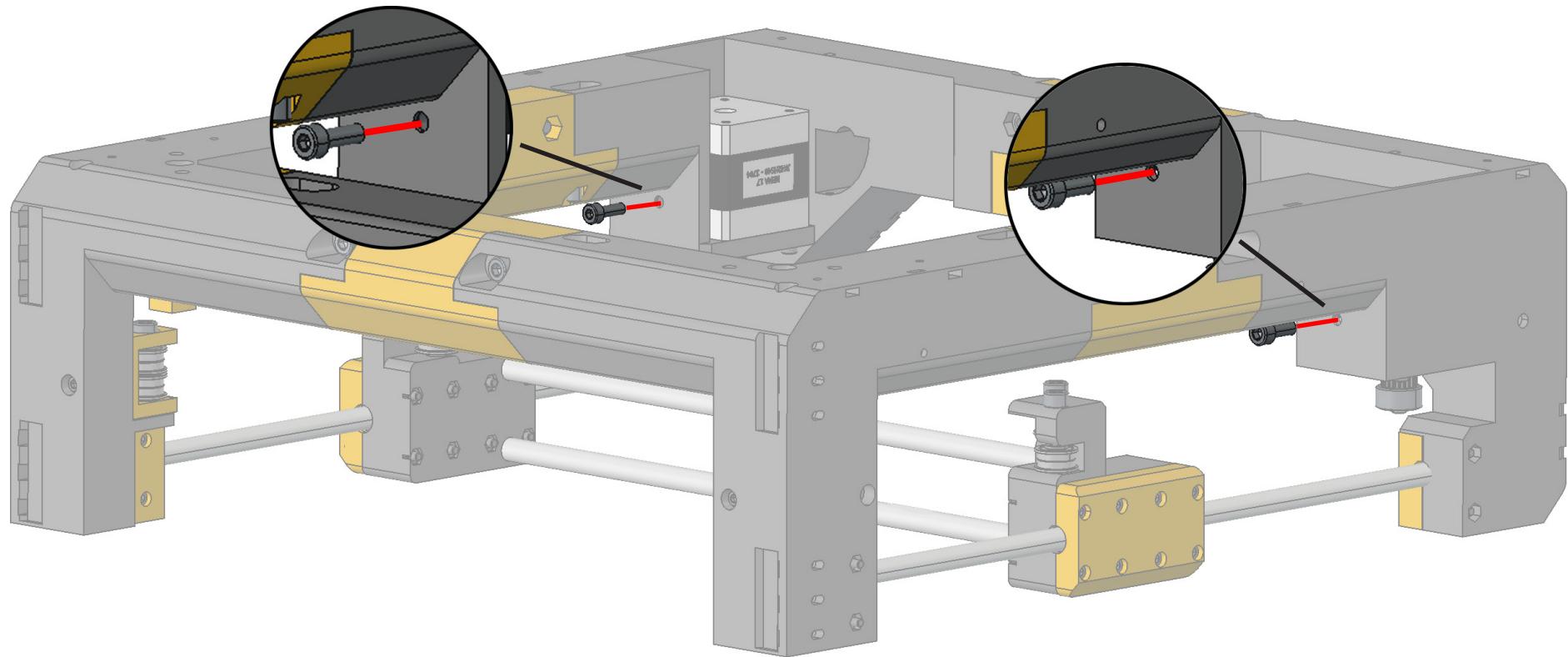
X/Y GANTRY & MOTION COMPONENTS



X/Y GANTRY & MOTION COMPONENTS



X/Y GANTRY & MOTION COMPONENTS



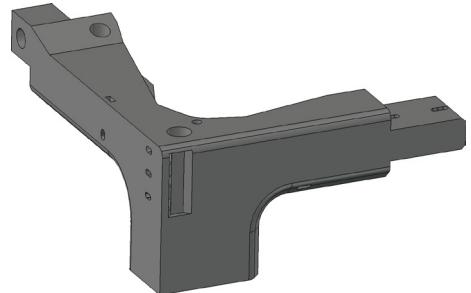
M5X12 BOLT

X/Y GANTRY & MOTION COMPONENTS

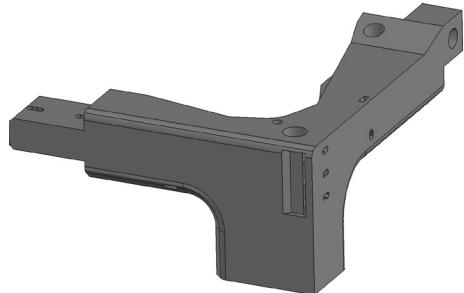
COMPLETE



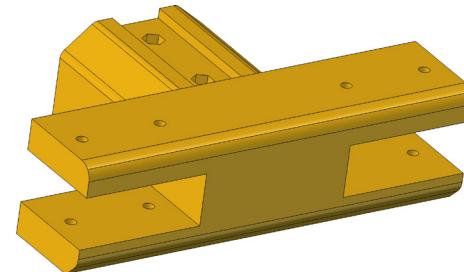
BOTTOM FRAME ASSEMBLY



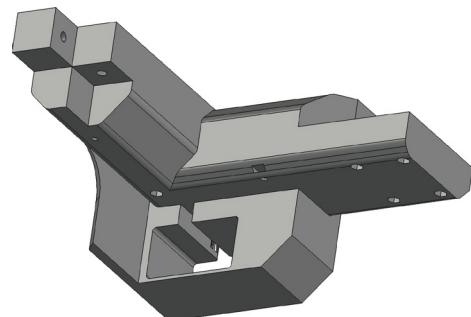
BOTTOM FRONT LEFT CORNER



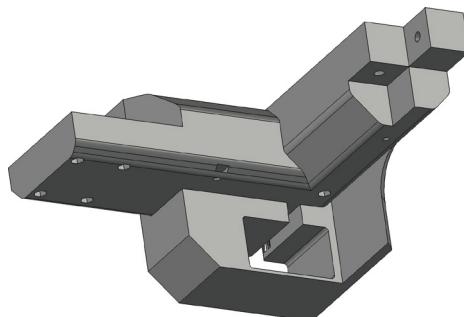
BOTTOM FRONT RIGHT CORNER



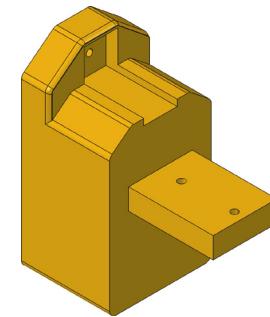
FRONT FRAME TENSIONER



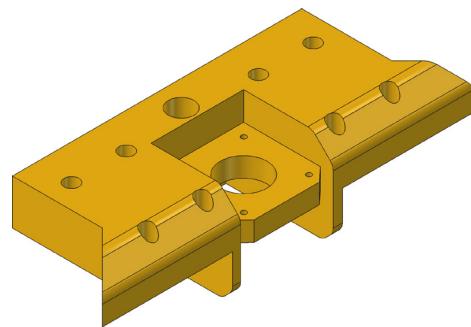
BOTTOM REAR LEFT CORNER



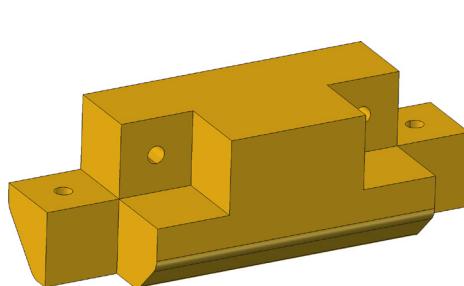
BOTTOM REAR RIGHT CORNER



TENSIONER EXTENSION



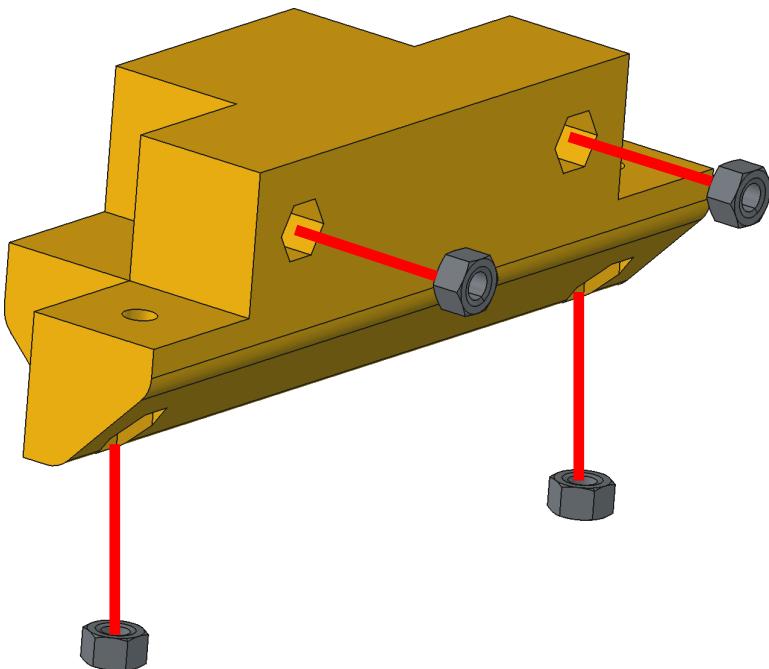
BOTTOM REAR CONNECTOR



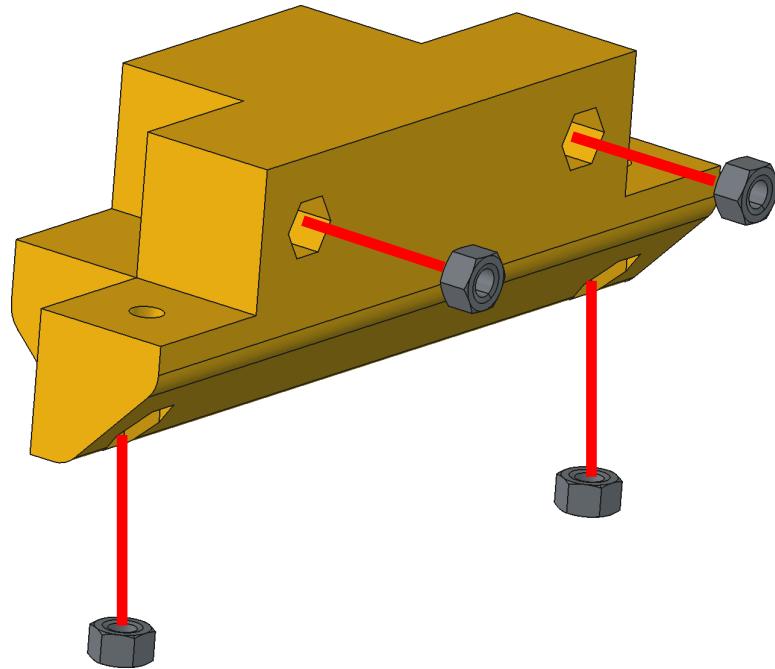
BOTTOM SIDE CONNECTORS

X2

BOTTOM FRAME ASSEMBLY

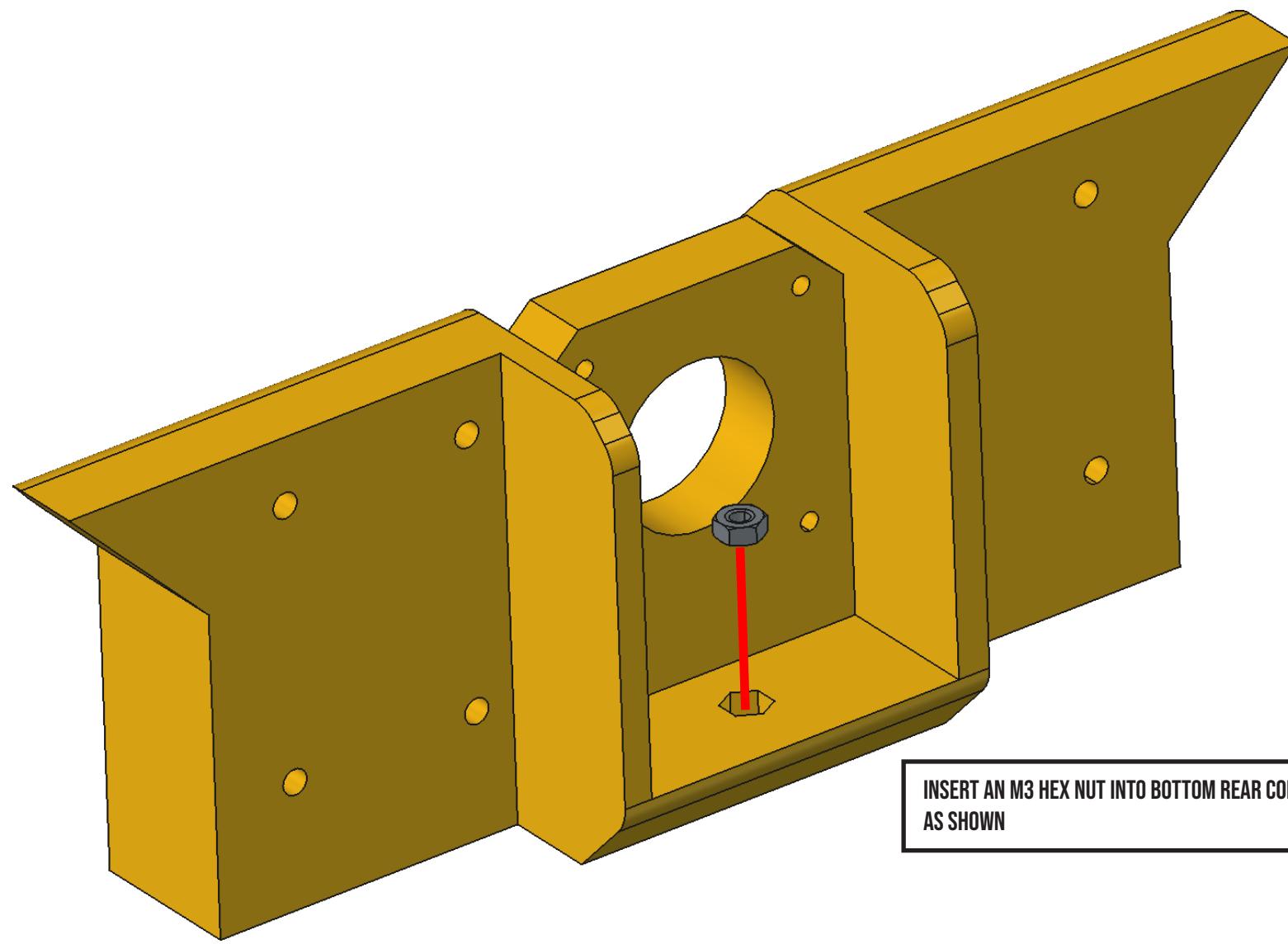


INSERT M5 HEX NUTS INTO THE HEXAGONAL HOLES IN BOTH OF THE BOTTOM SIDE CONNECTORS



M5 HEX NUT

BOTTOM FRAME ASSEMBLY

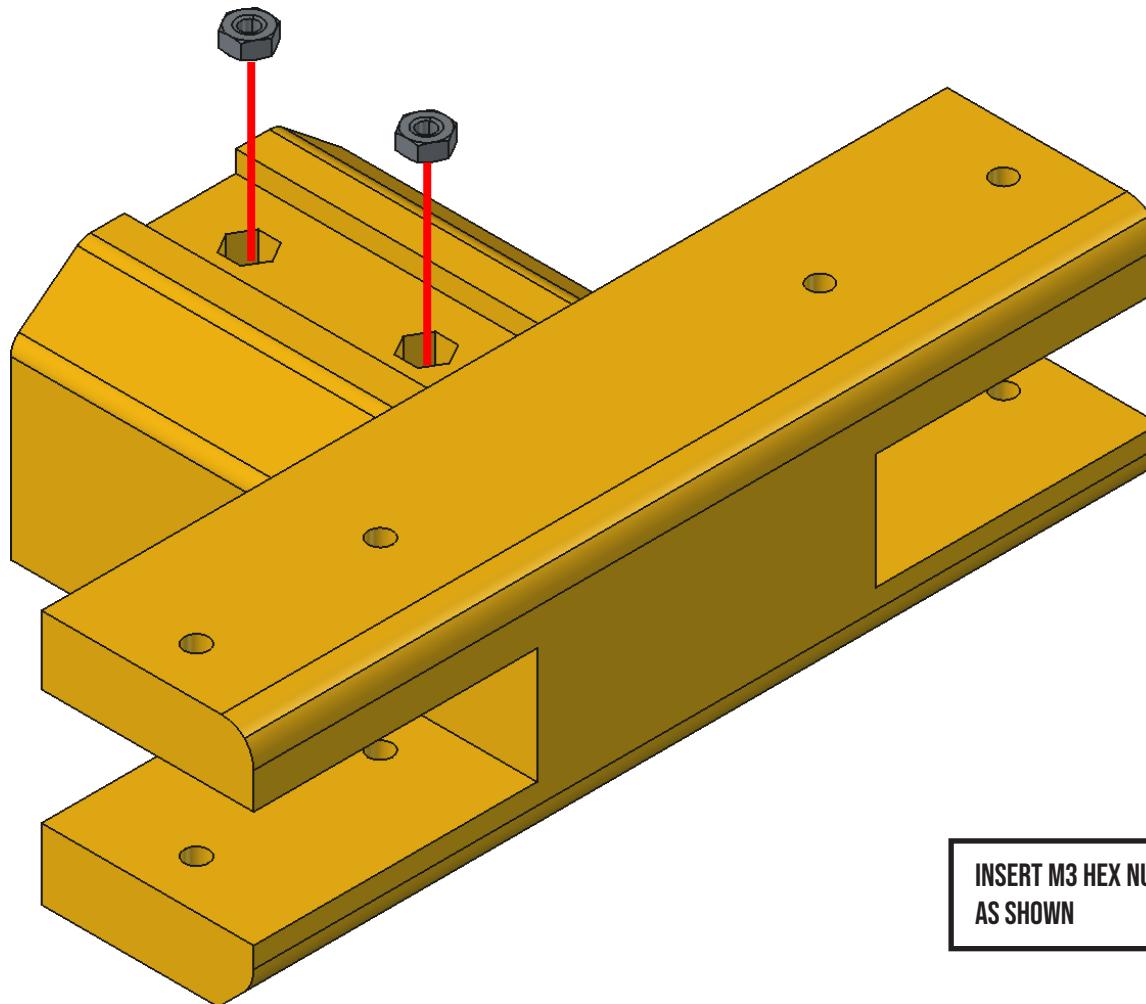


INSERT AN M3 HEX NUT INTO BOTTOM REAR CONNECTOR
AS SHOWN



M3 HEX NUT

BOTTOM FRAME ASSEMBLY

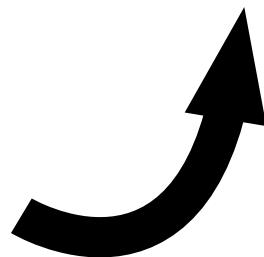
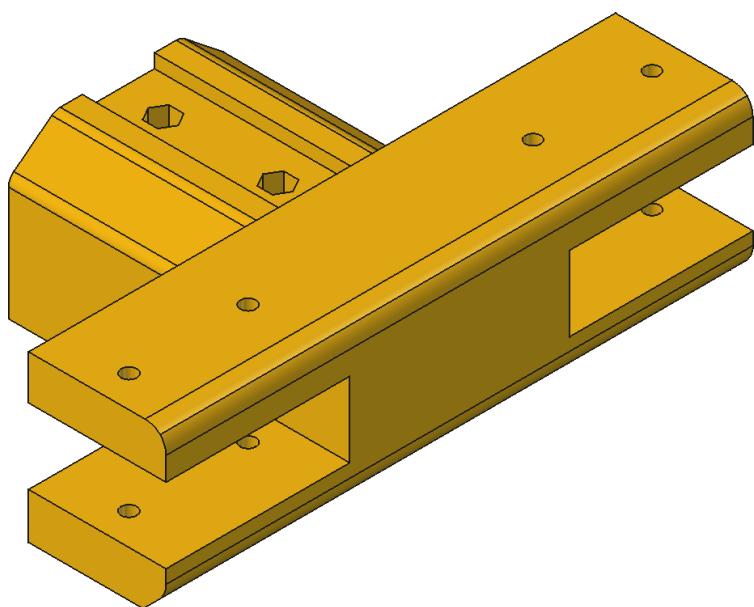


INSERT M3 HEX NUTS INTO THE FRONT FRAME TENSIONER
AS SHOWN

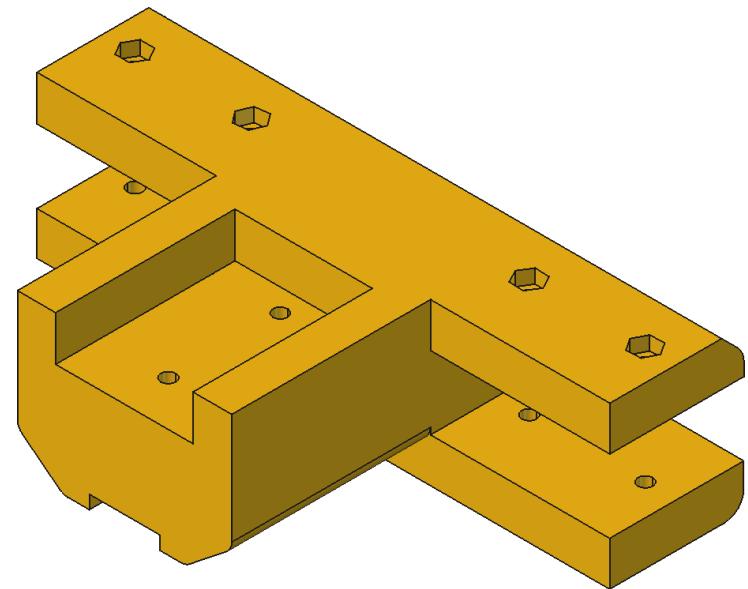


M3 HEX NUT

BOTTOM FRAME ASSEMBLY

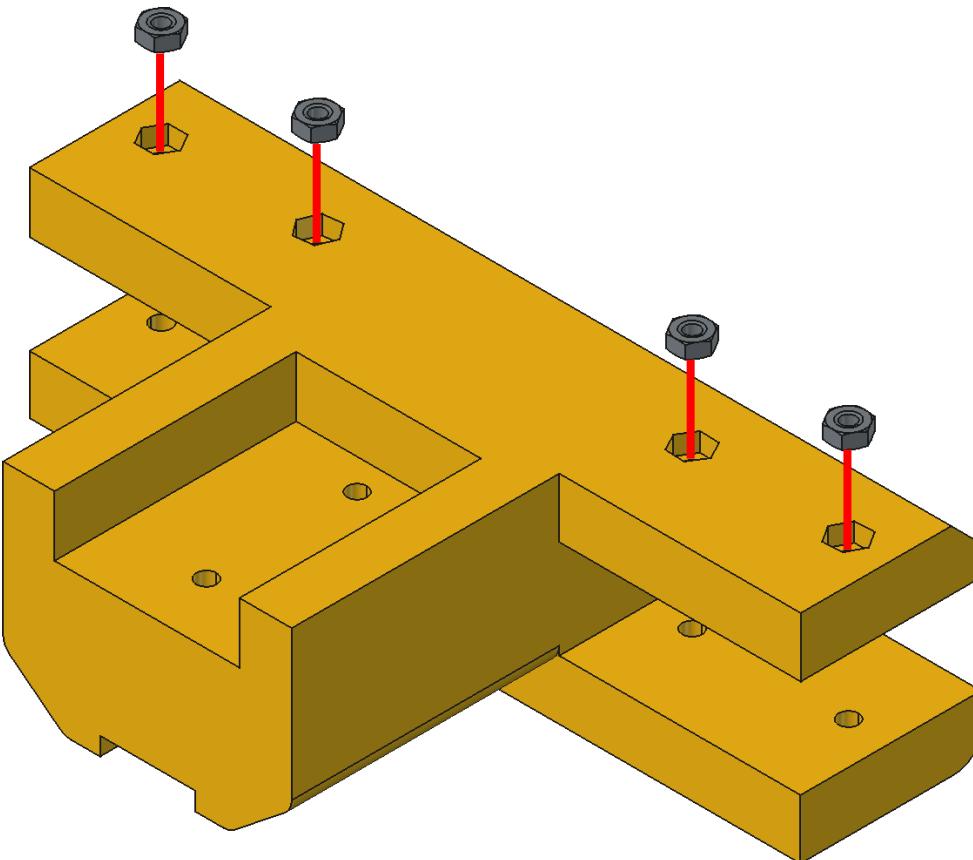


FLIP



 M3 HEX NUT

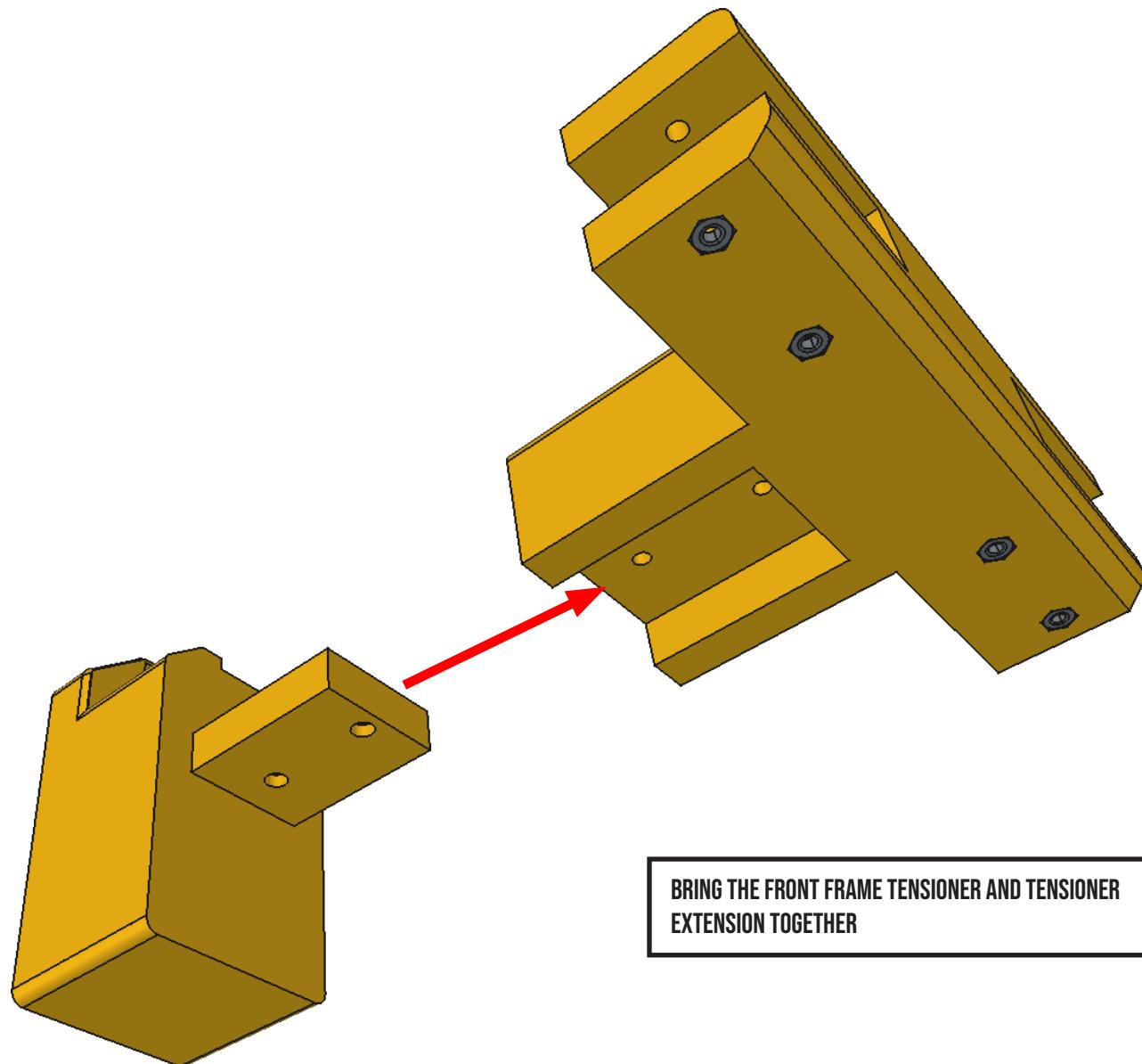
BOTTOM FRAME ASSEMBLY



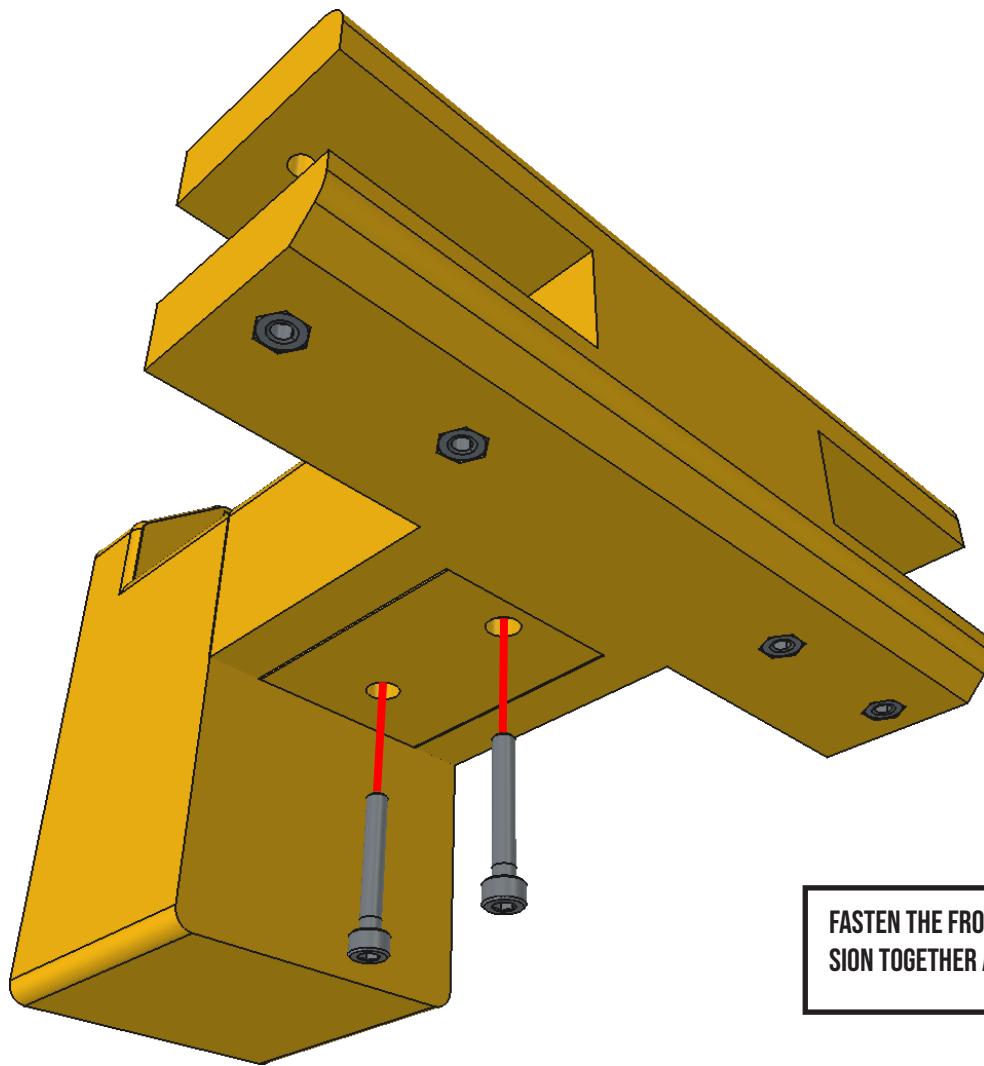
INSERT M3 HEX NUTS INTO THE FRONT FRAME TENSIONER
AS SHOWN



BOTTOM FRAME ASSEMBLY



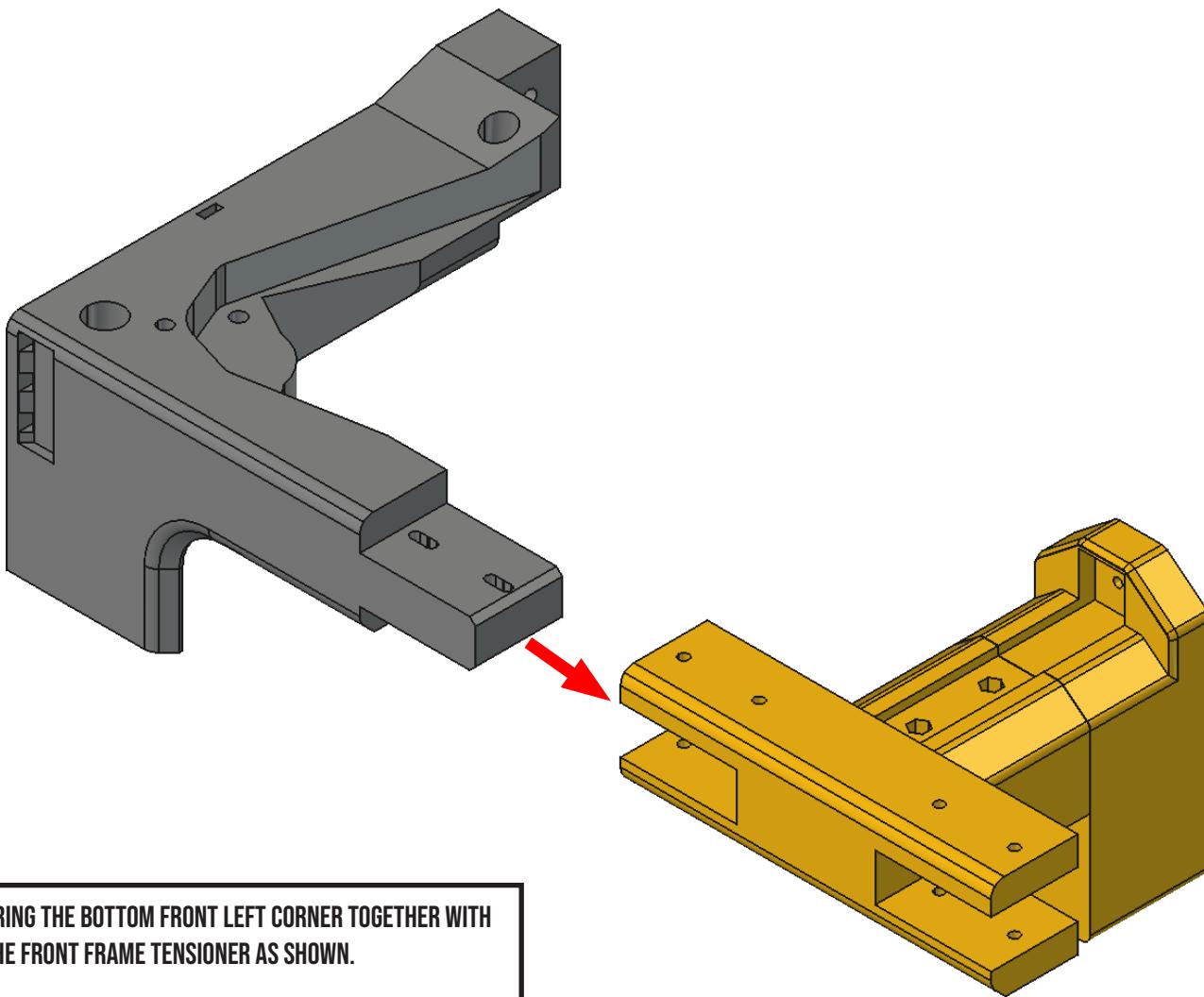
BOTTOM FRAME ASSEMBLY



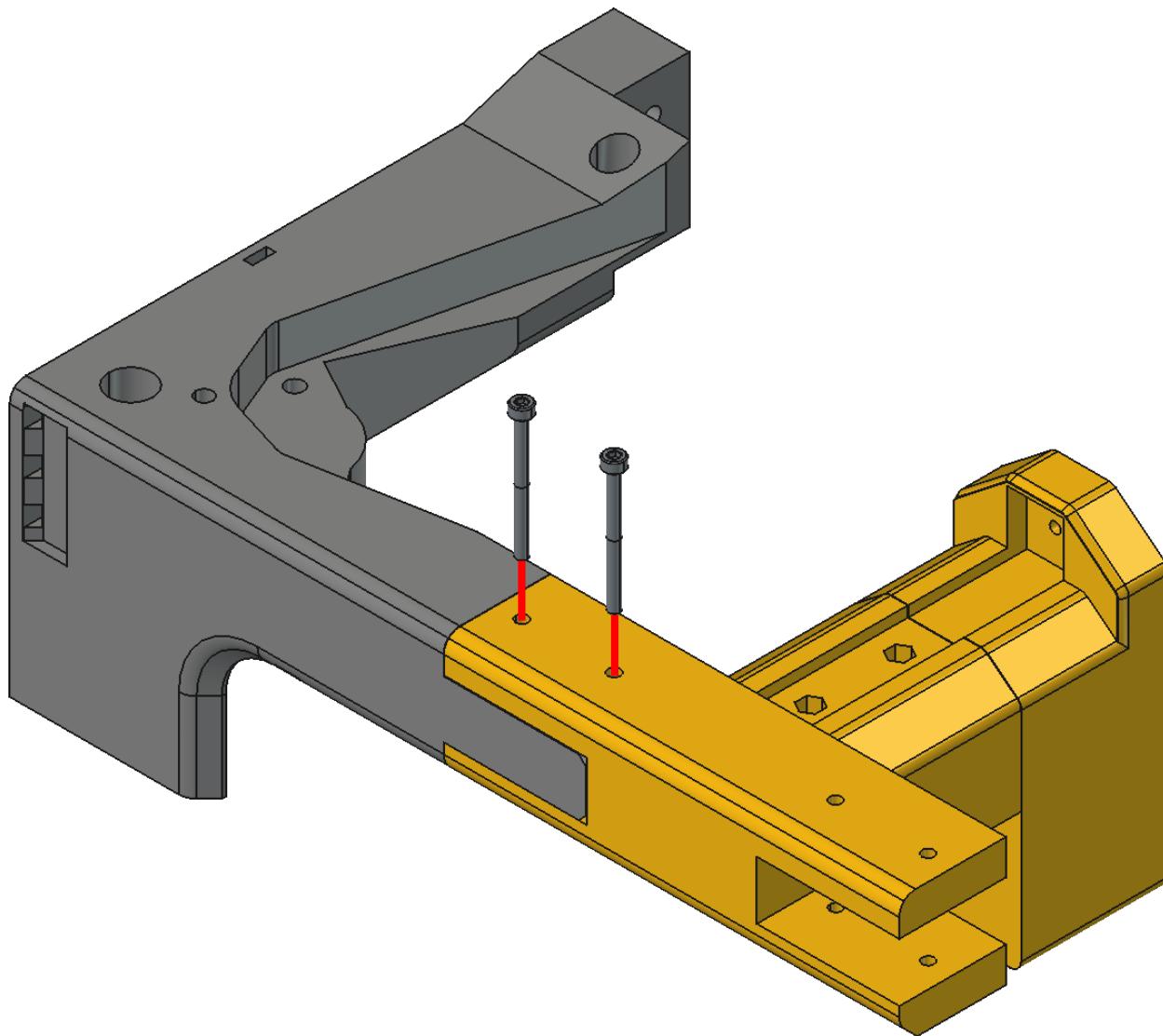
FASTEN THE FRONT TENSIONER AND TENSIONER EXTENSION TOGETHER AS SHOWN.



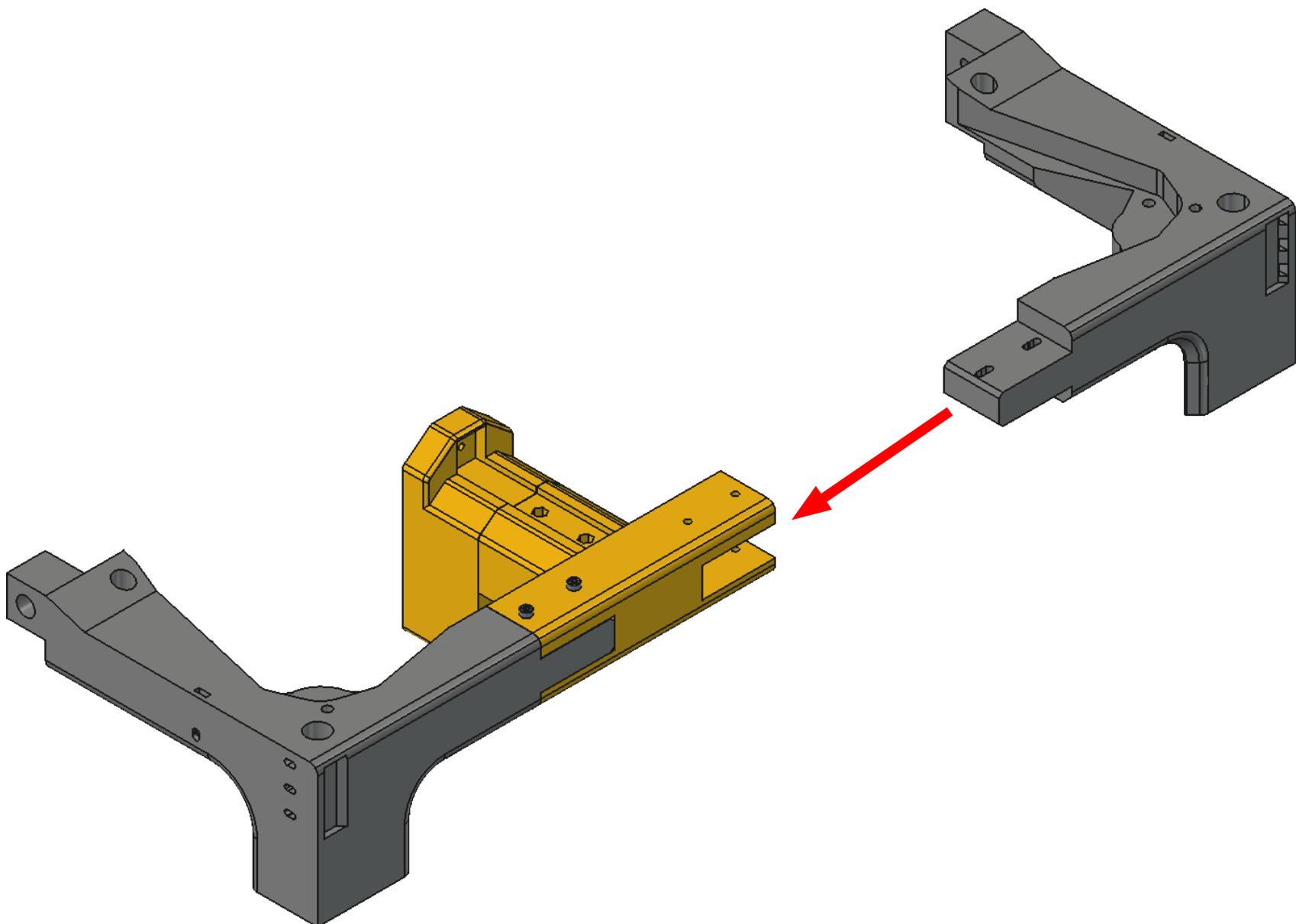
BOTTOM FRAME ASSEMBLY



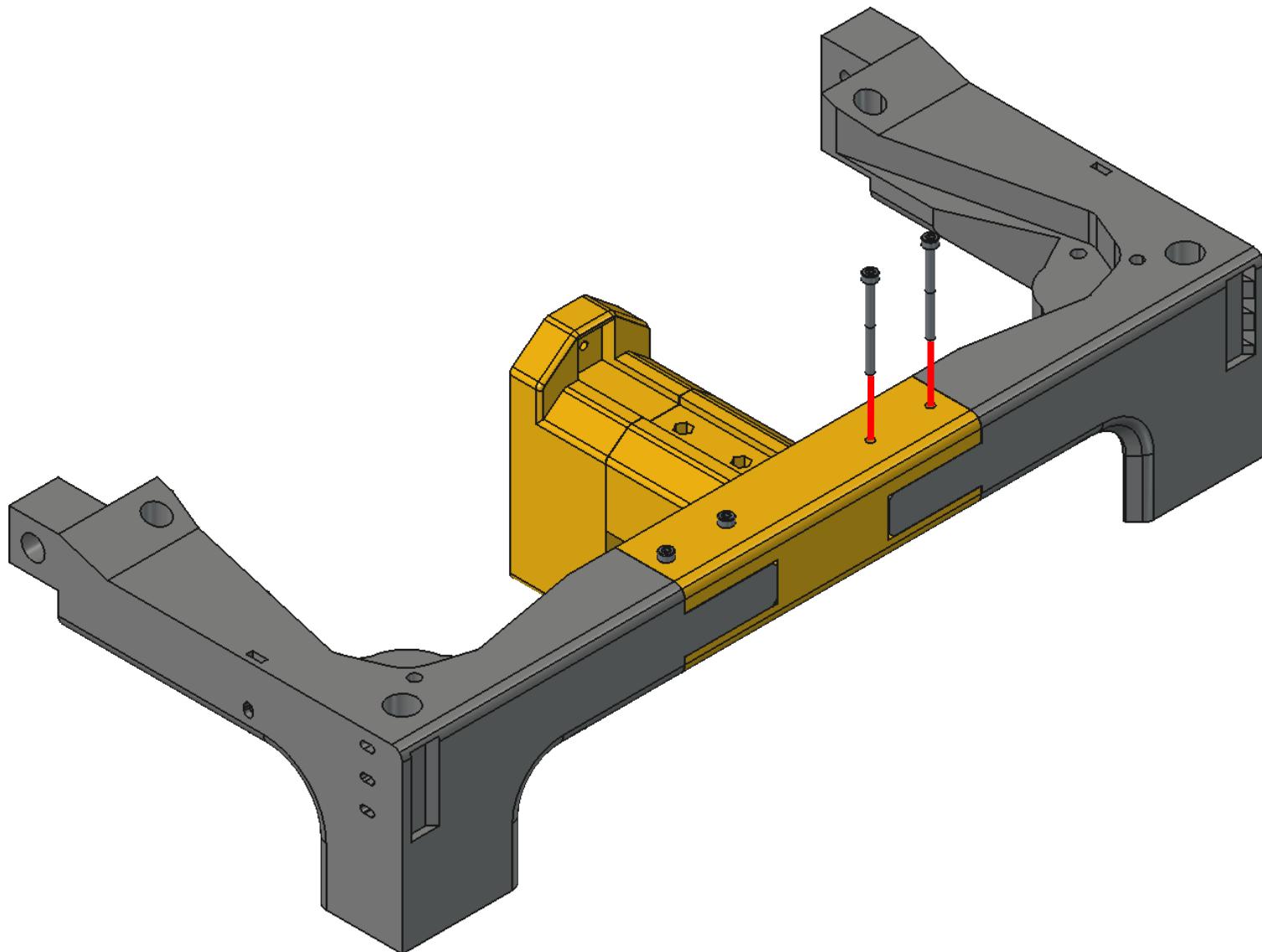
BOTTOM FRAME ASSEMBLY



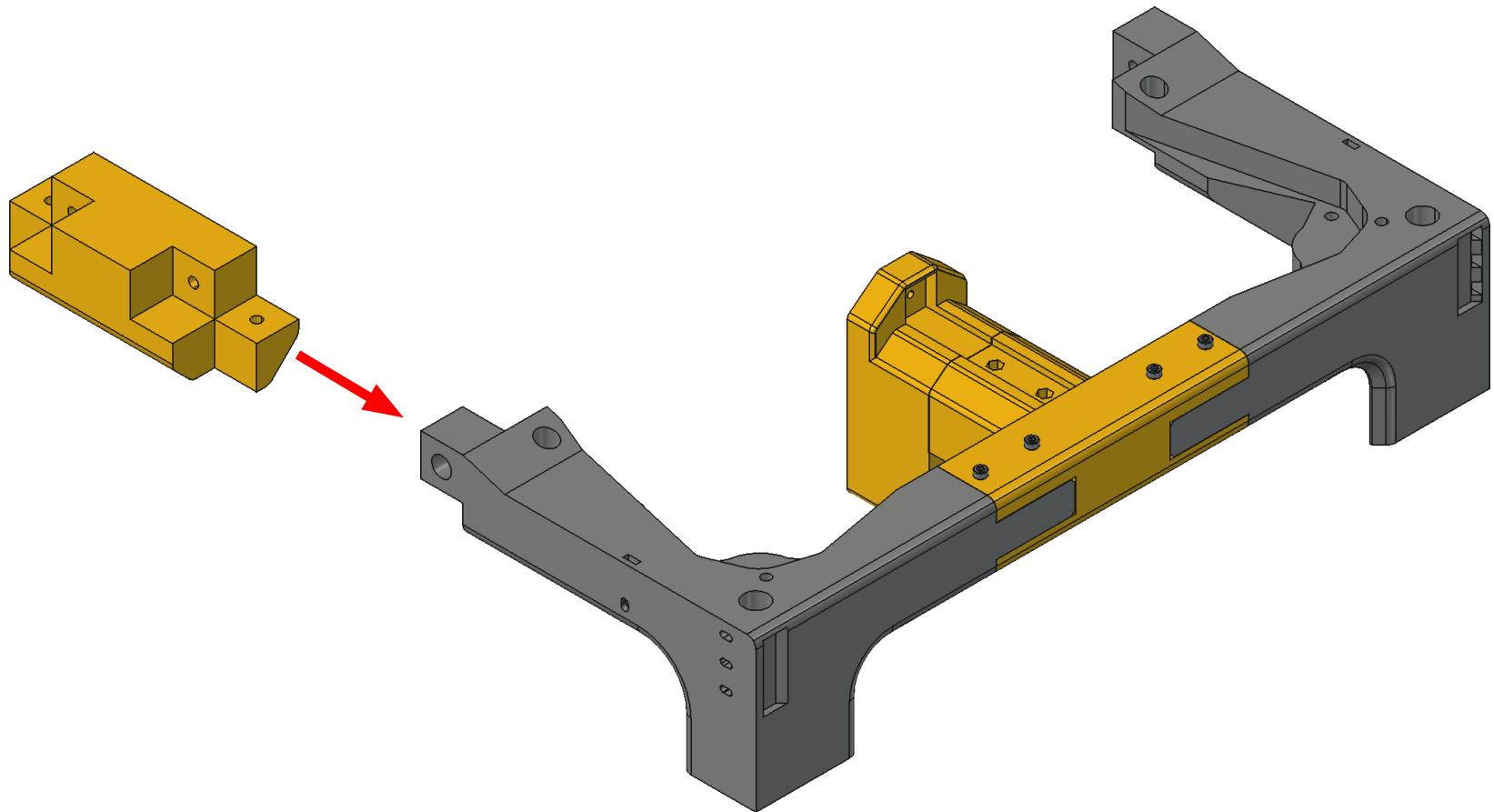
BOTTOM FRAME ASSEMBLY



BOTTOM FRAME ASSEMBLY

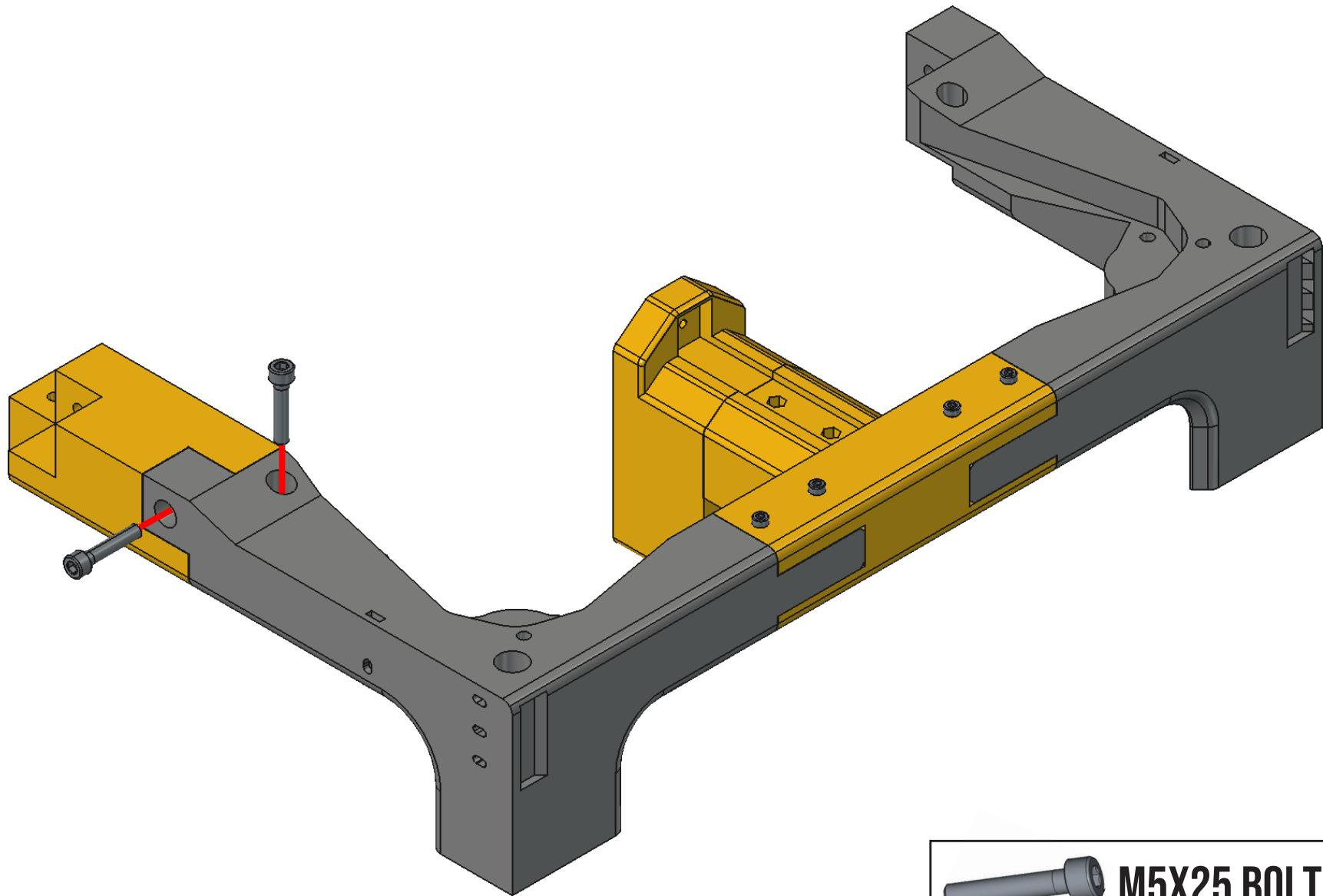


BOTTOM FRAME ASSEMBLY



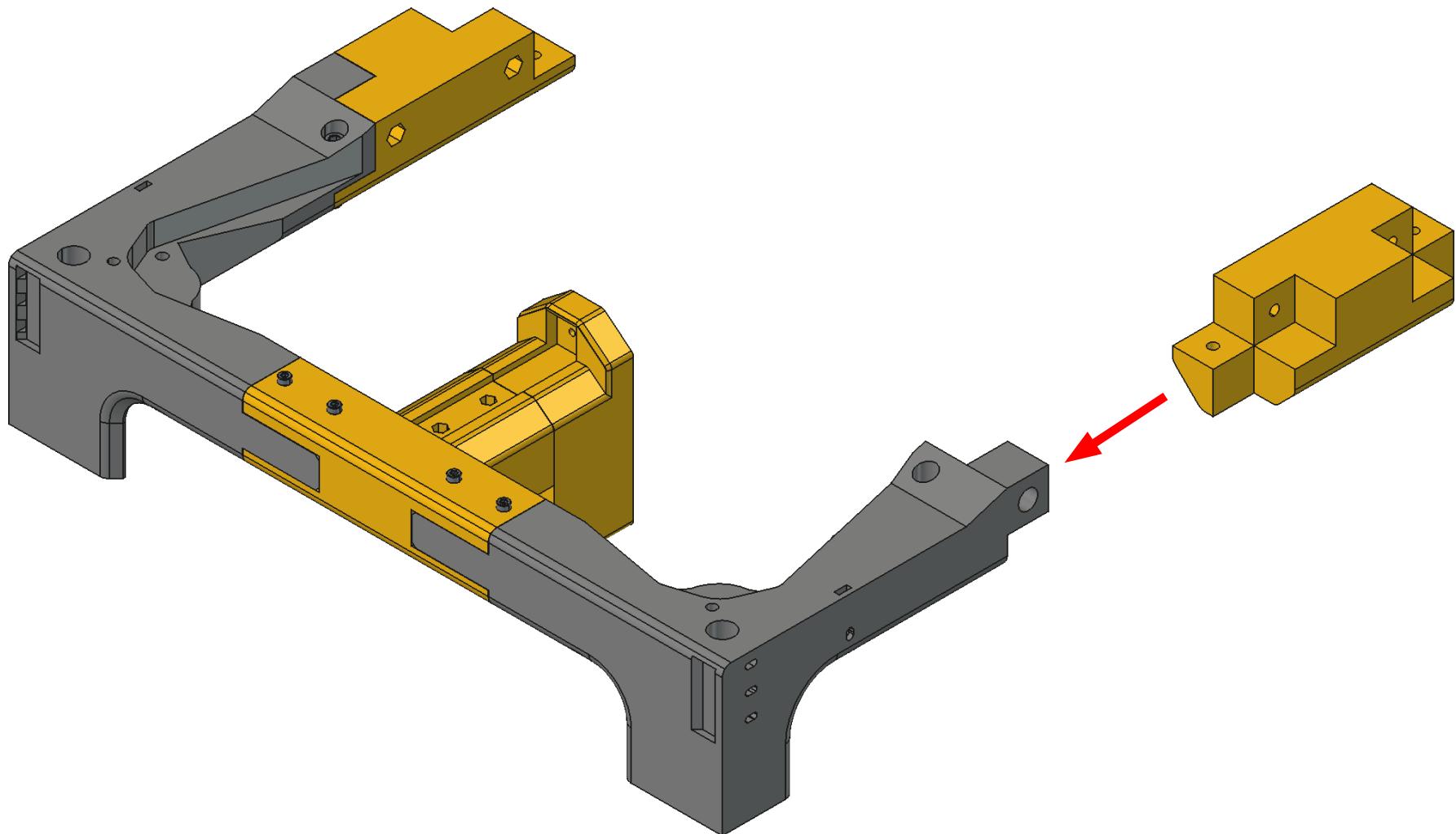
BRING THE FIRST SIDE CONNECTOR TOGETHER WITH THE
ASSEMBLY AS SHOWN

BOTTOM FRAME ASSEMBLY

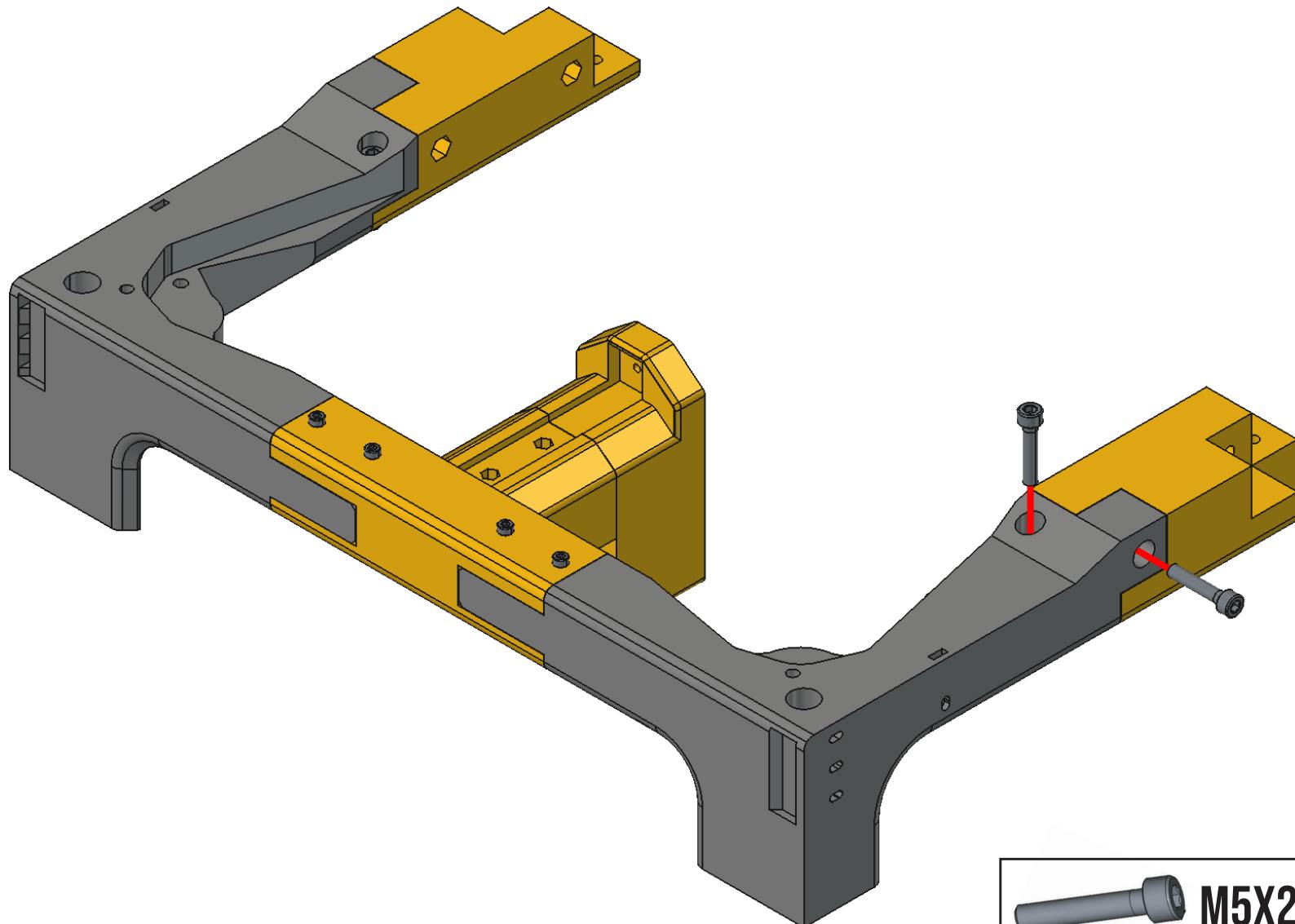


M5X25 BOLT

BOTTOM FRAME ASSEMBLY

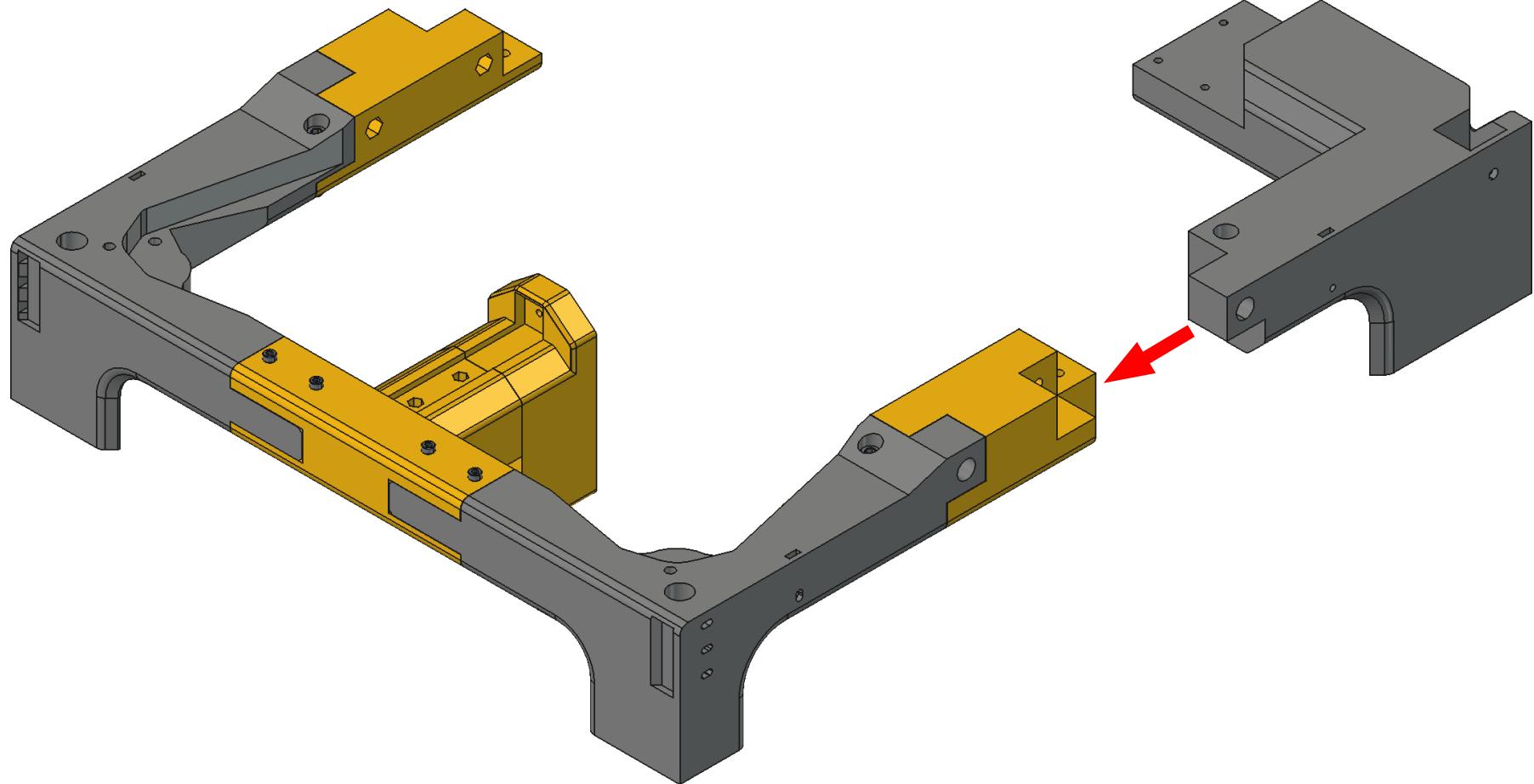


BOTTOM FRAME ASSEMBLY

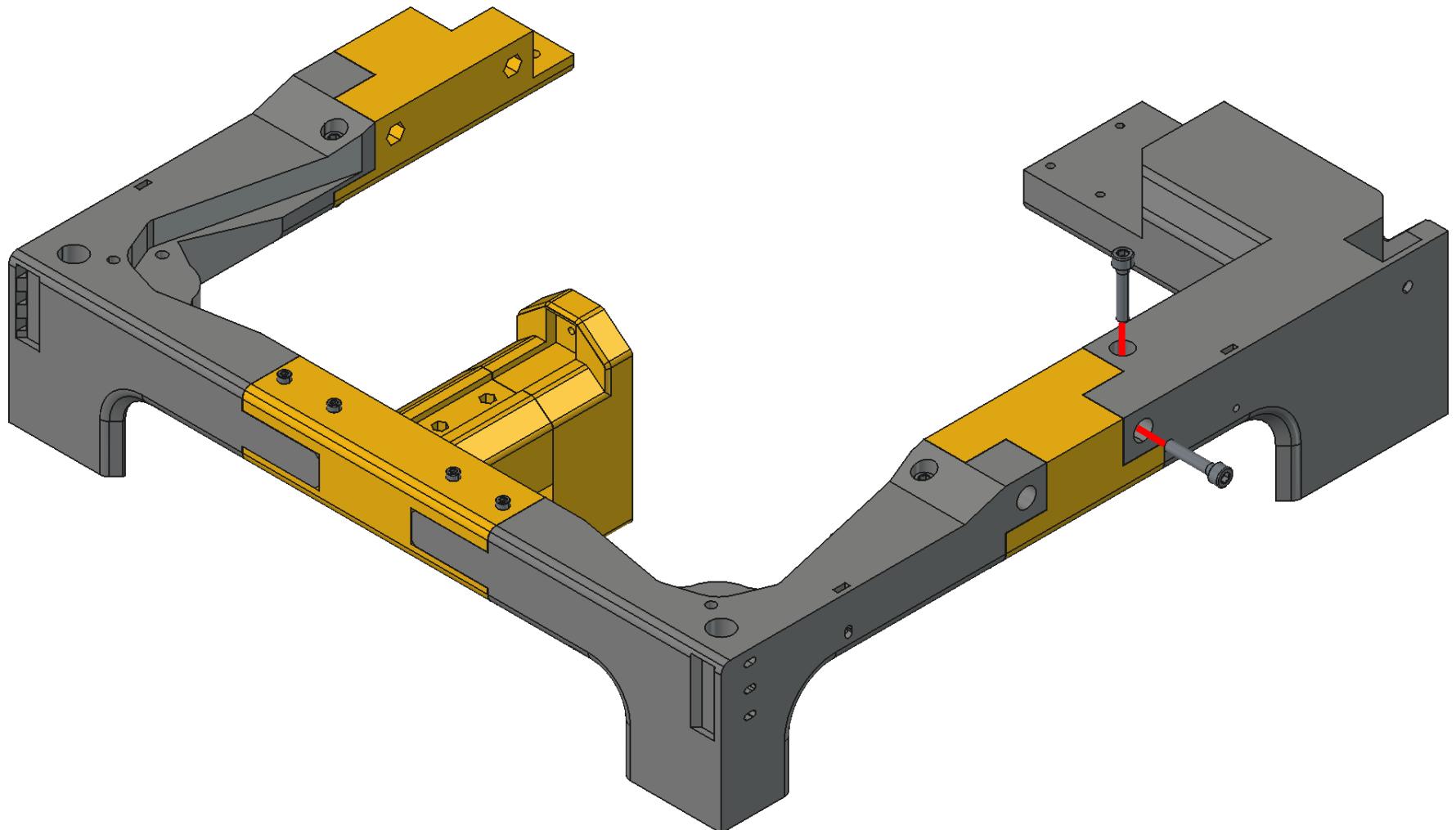


M5X25 BOLT

BOTTOM FRAME ASSEMBLY

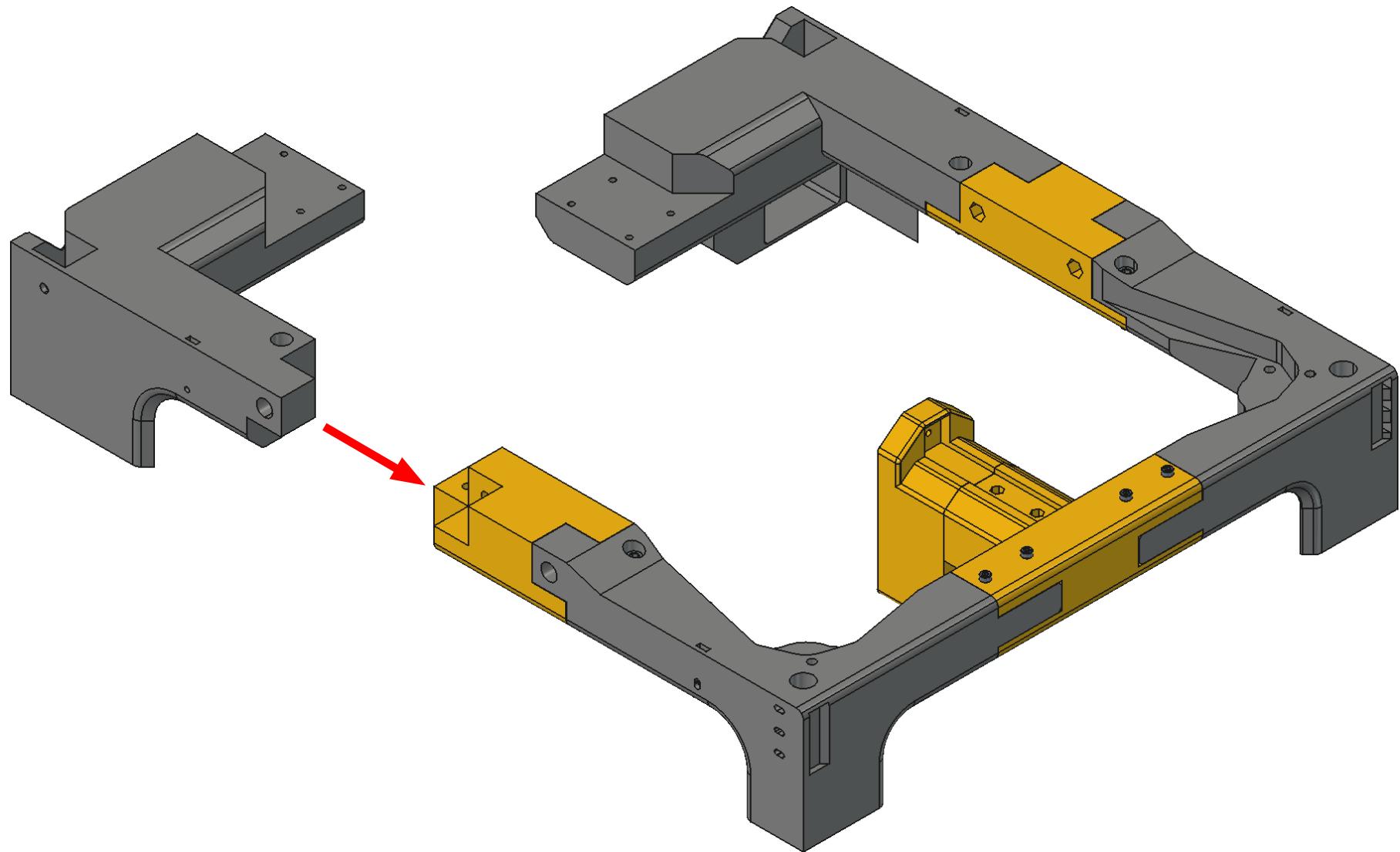


BOTTOM FRAME ASSEMBLY

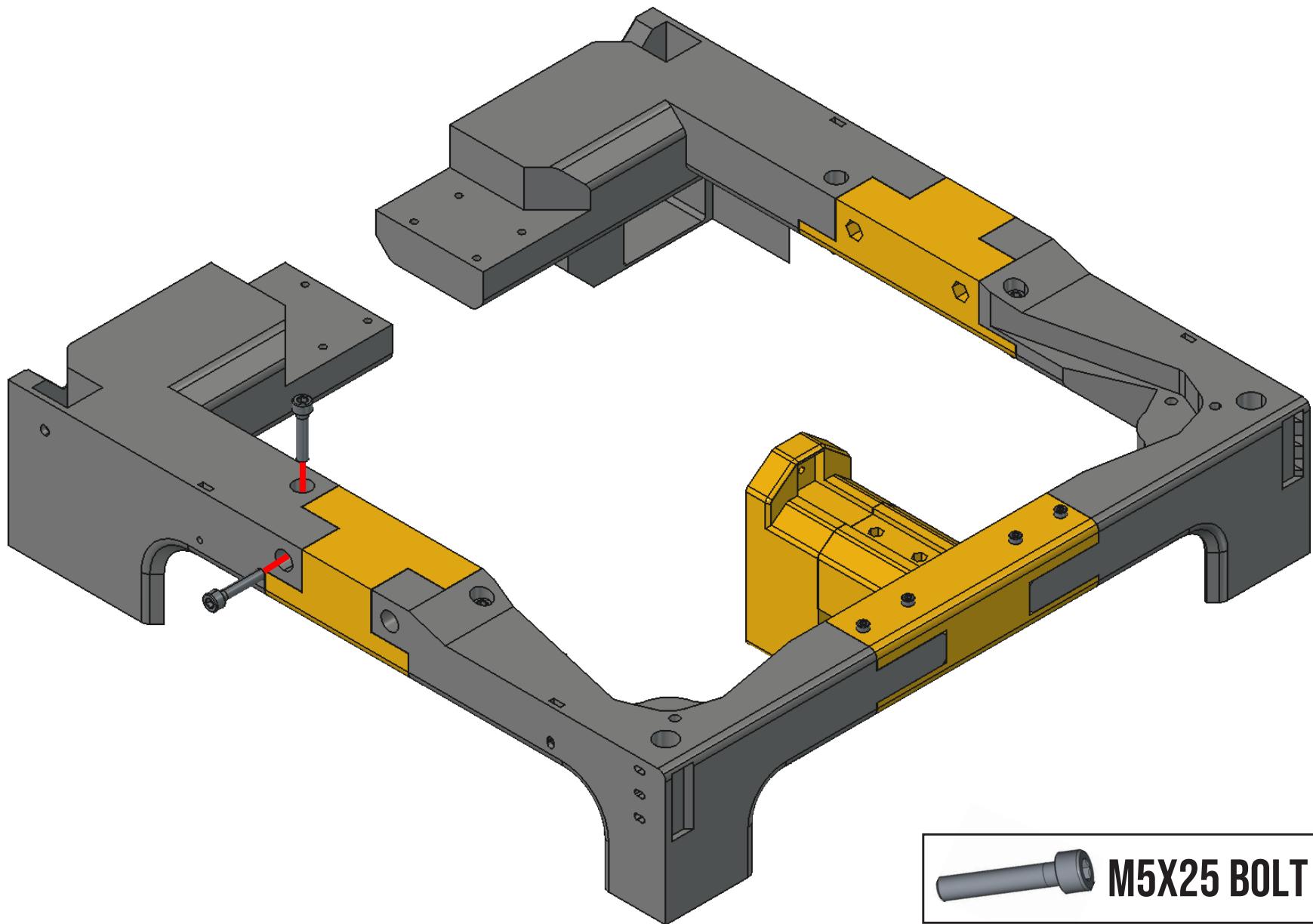


M5X25 BOLT

BOTTOM FRAME ASSEMBLY

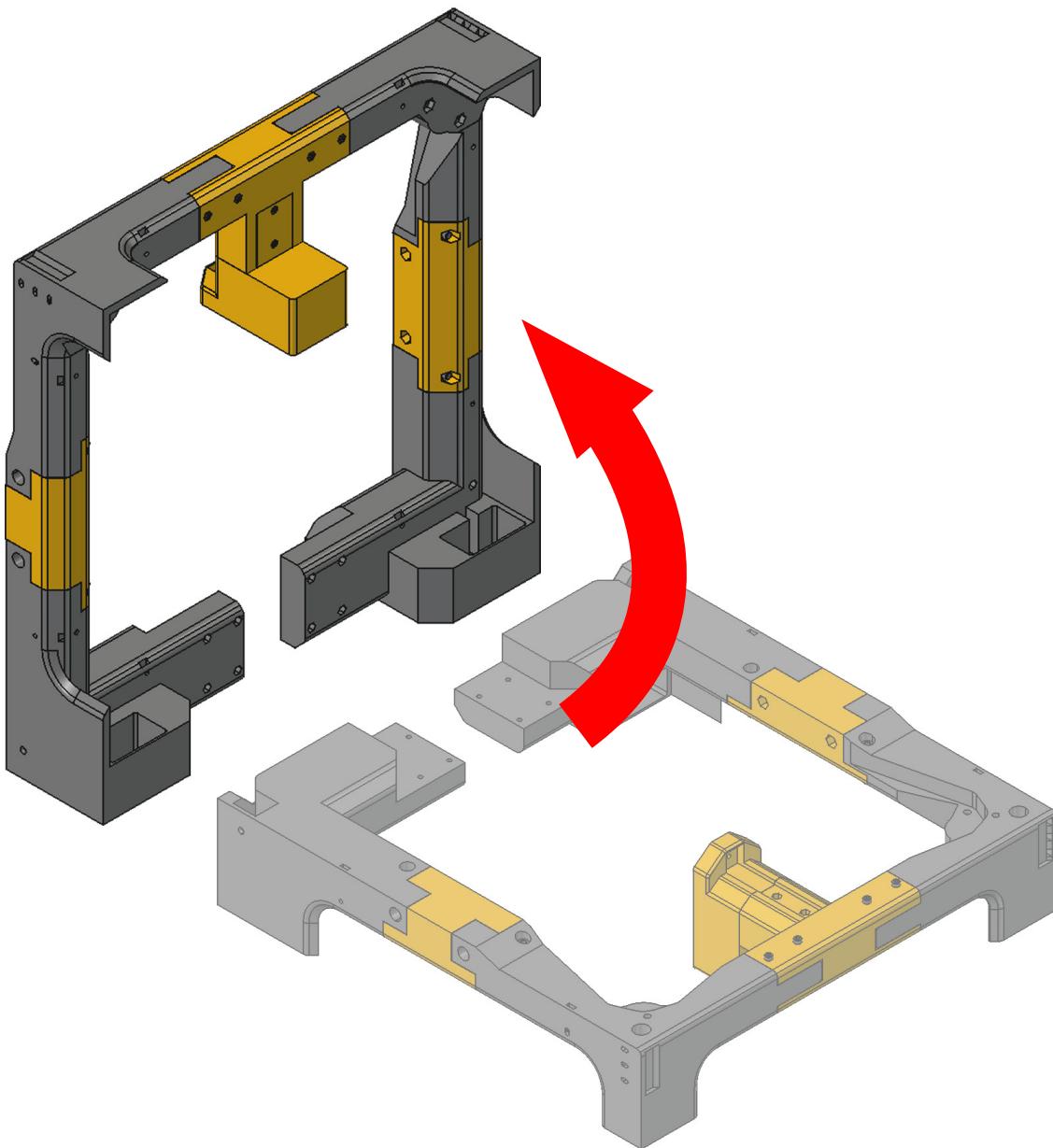


BOTTOM FRAME ASSEMBLY

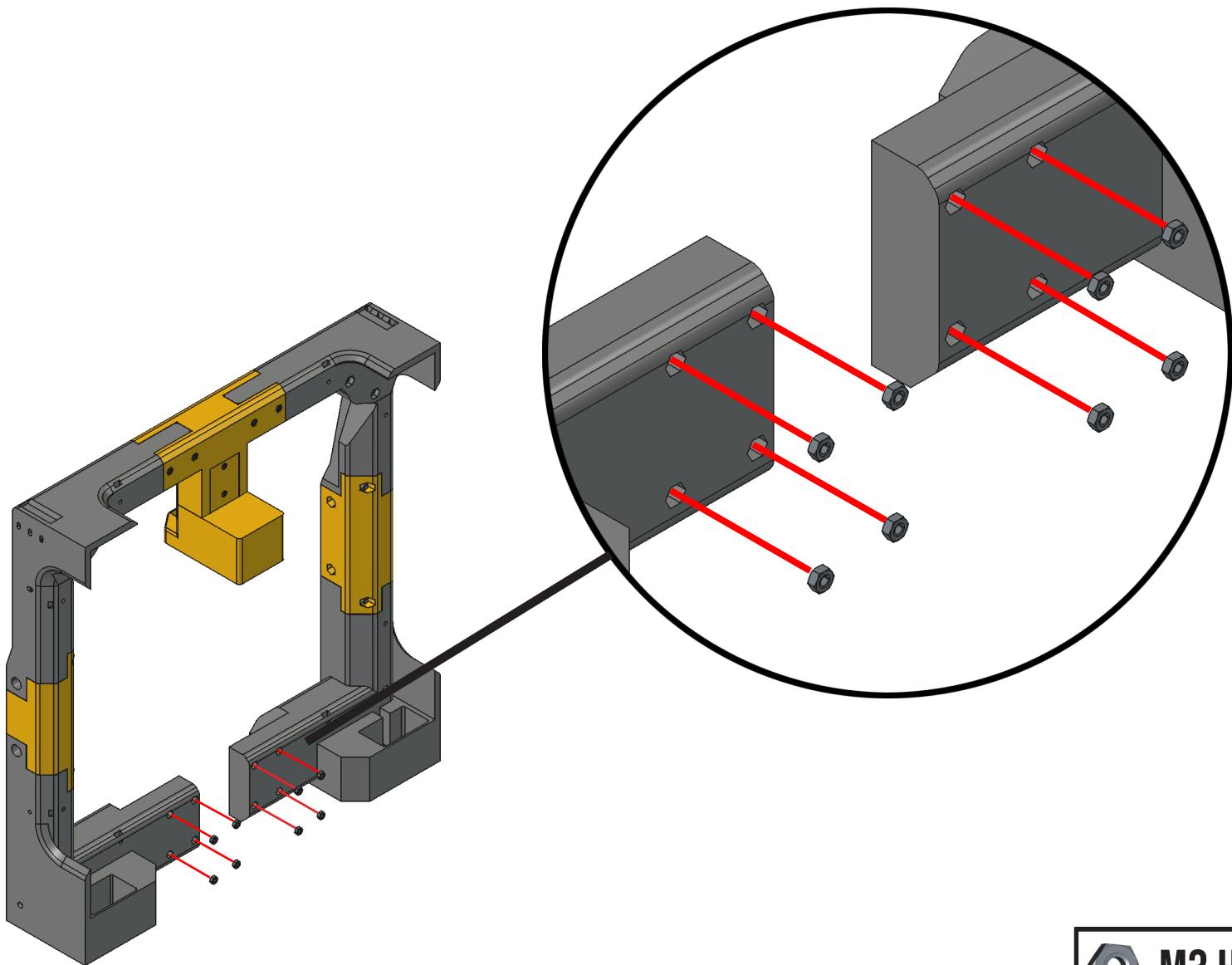


M5X25 BOLT

BOTTOM FRAME ASSEMBLY

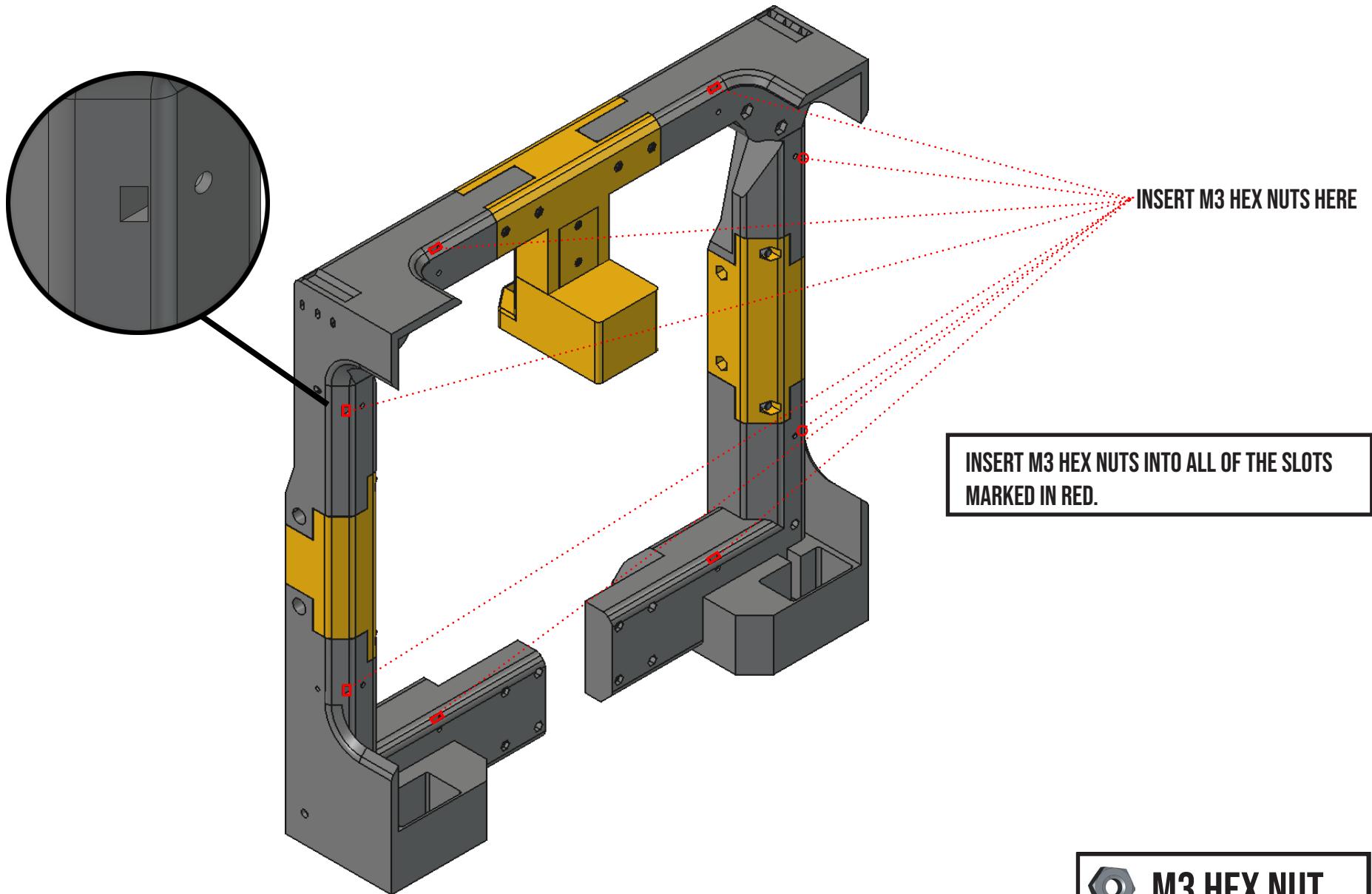


BOTTOM FRAME ASSEMBLY

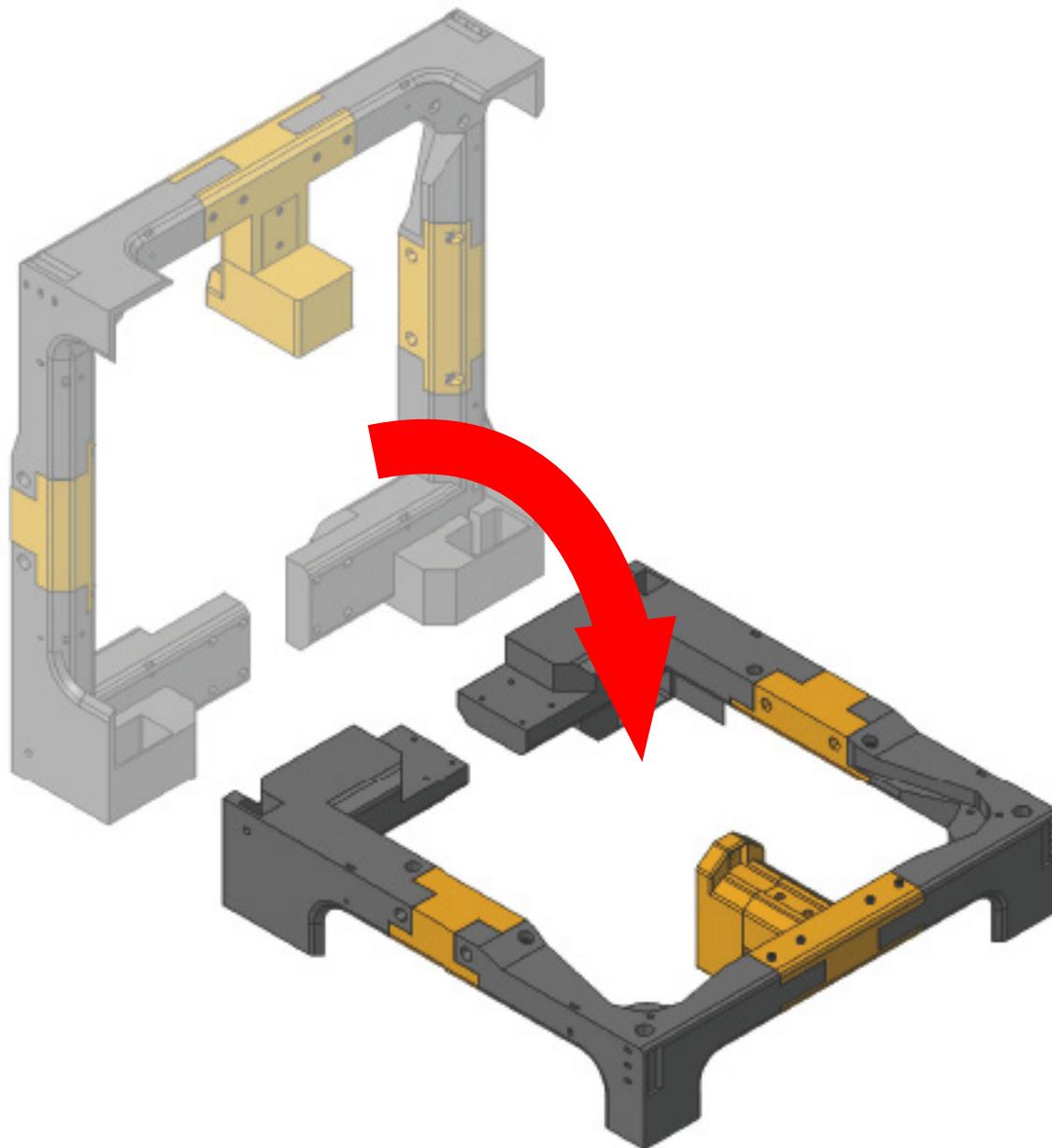


 M3 HEX NUT

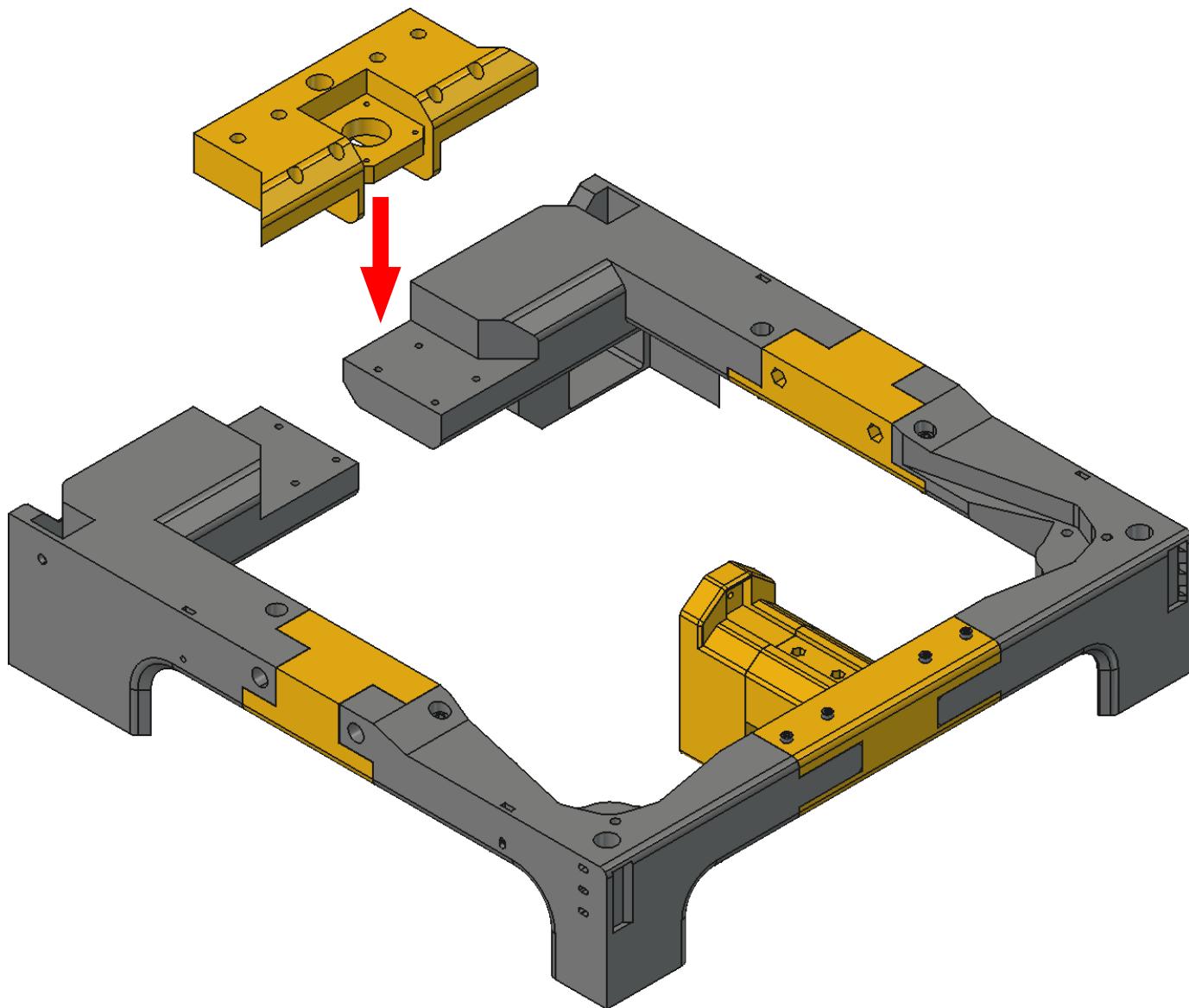
BOTTOM FRAME ASSEMBLY



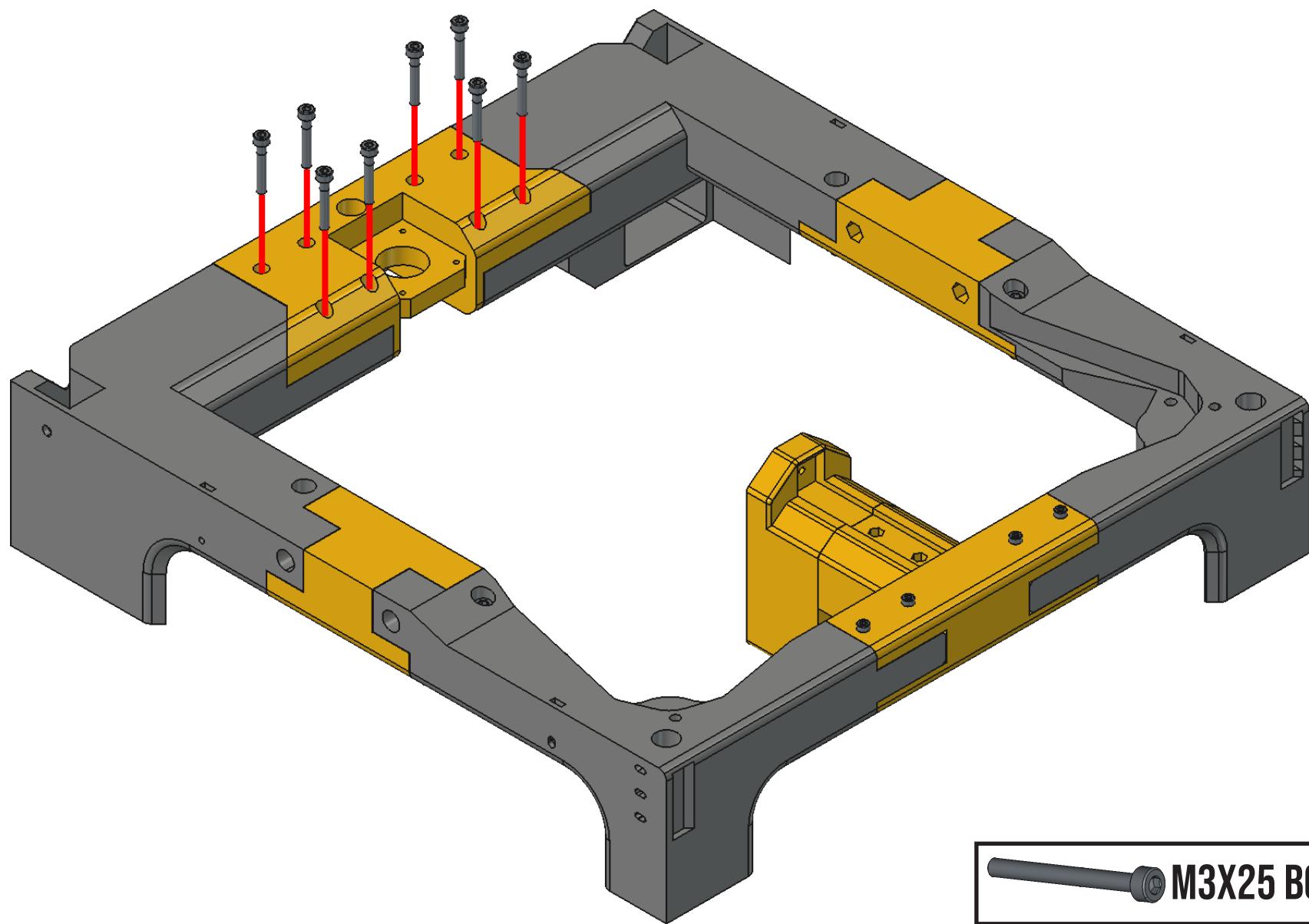
BOTTOM FRAME ASSEMBLY

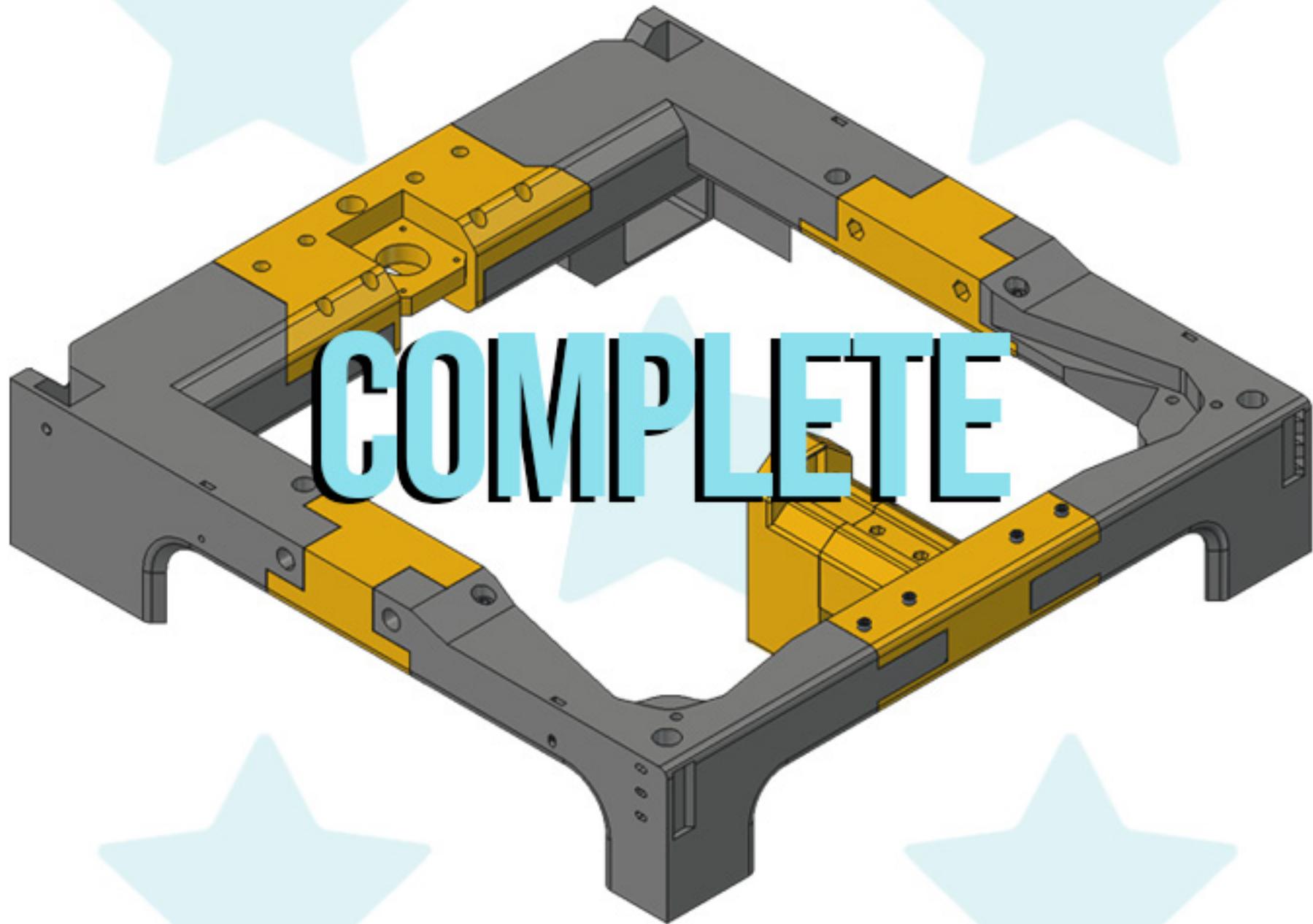


BOTTOM FRAME ASSEMBLY



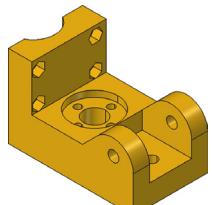
BOTTOM FRAME ASSEMBLY



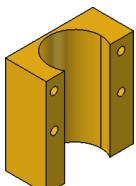


COMPLETE

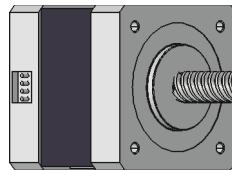
Z-AXIS ASSEMBLY



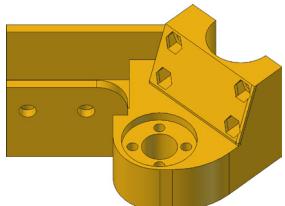
REAR BED CONNECTOR



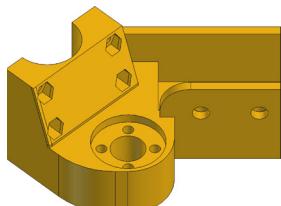
REAR BED COUPLER



NEMA 17 WITH 400MM LEADScrew



LEFT BED CONNECTOR



RIGHT BED CONNECTOR



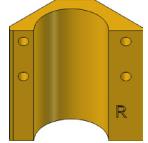
8MM X 400MM LEADScrew



12MM X 400MM LINEAR ROD



LEFT BED COUPLER



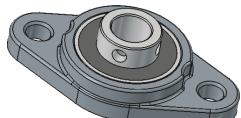
RIGHT BED COUPLER



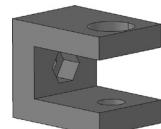
400MM 2020 ALUMINUM EXTRUSION



5MM BORE IDLER PULLEY



KLF08 BEARING



IDLER HOLDER



GT2 20T PULLEY
8MM INNER DIAMETER

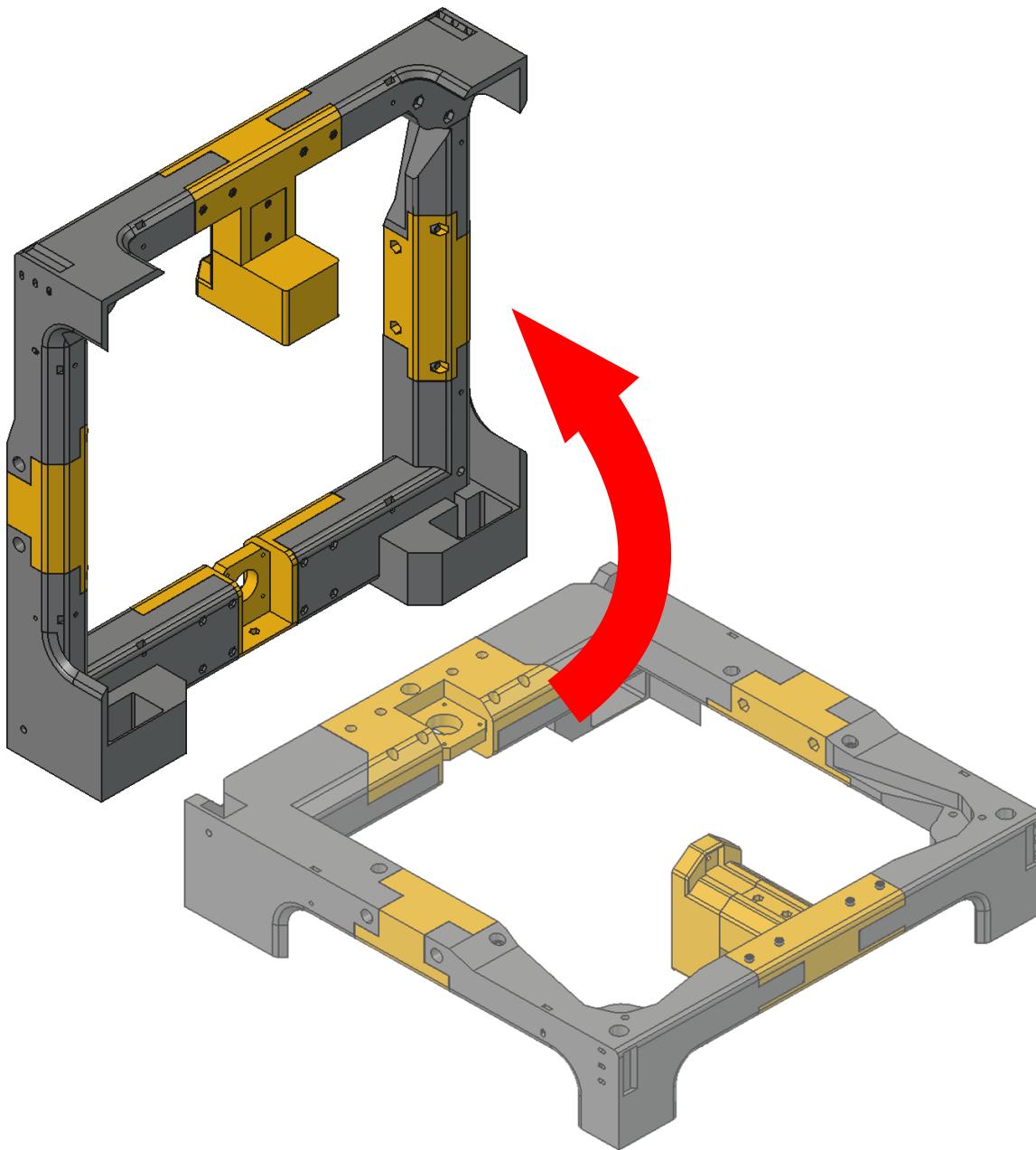


8MM POM NUT

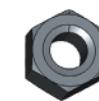
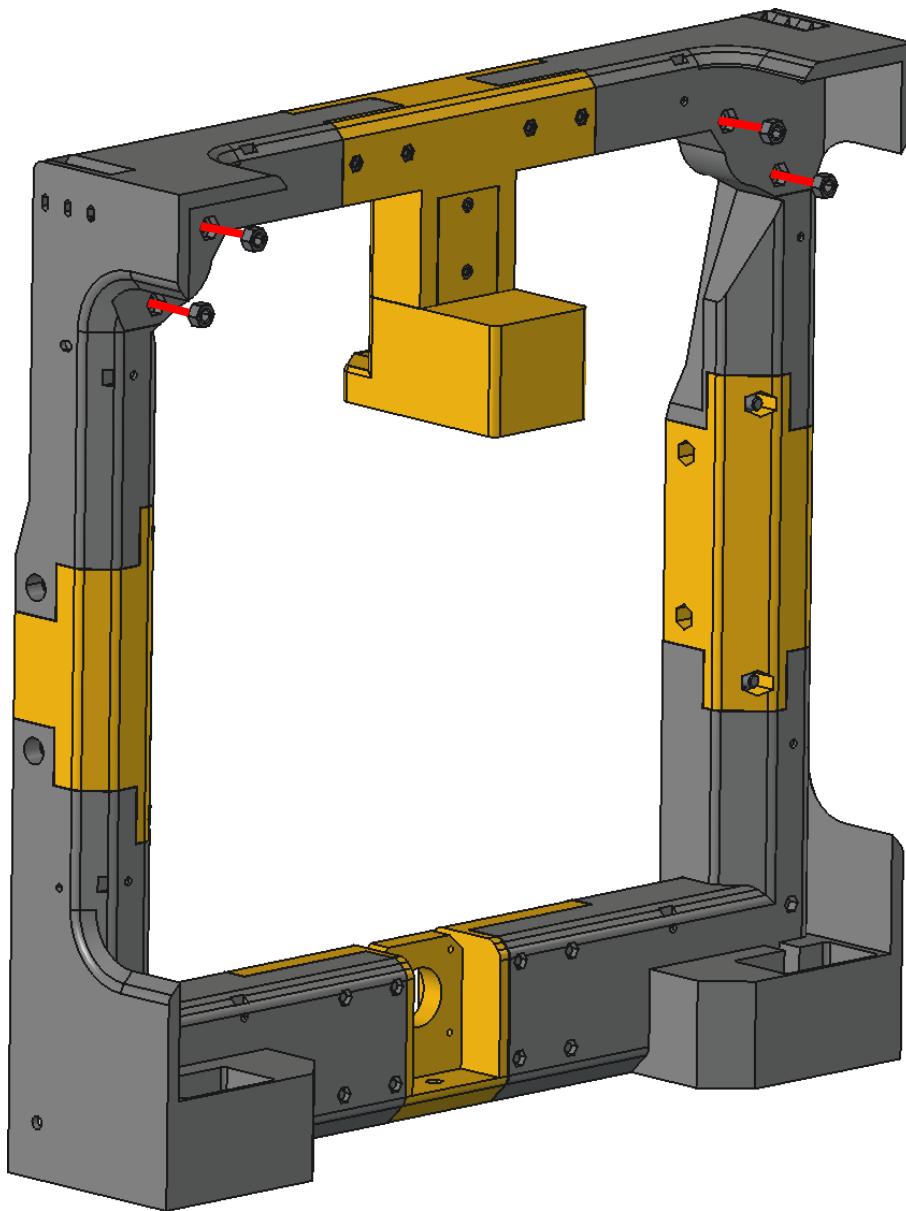


1 METER CLOSED LOOP BELT

Z-AXIS ASSEMBLY

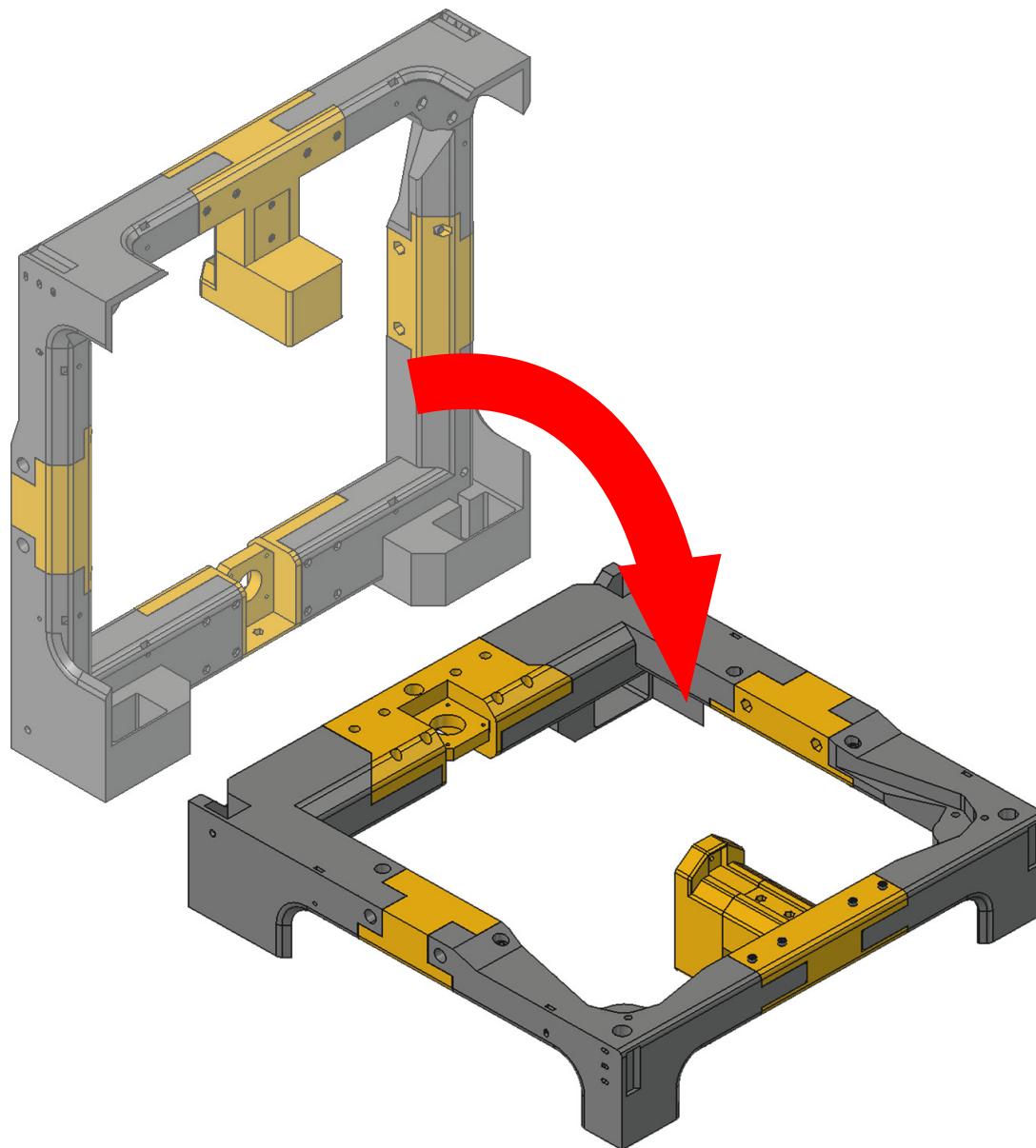


Z-AXIS ASSEMBLY

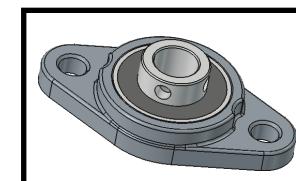
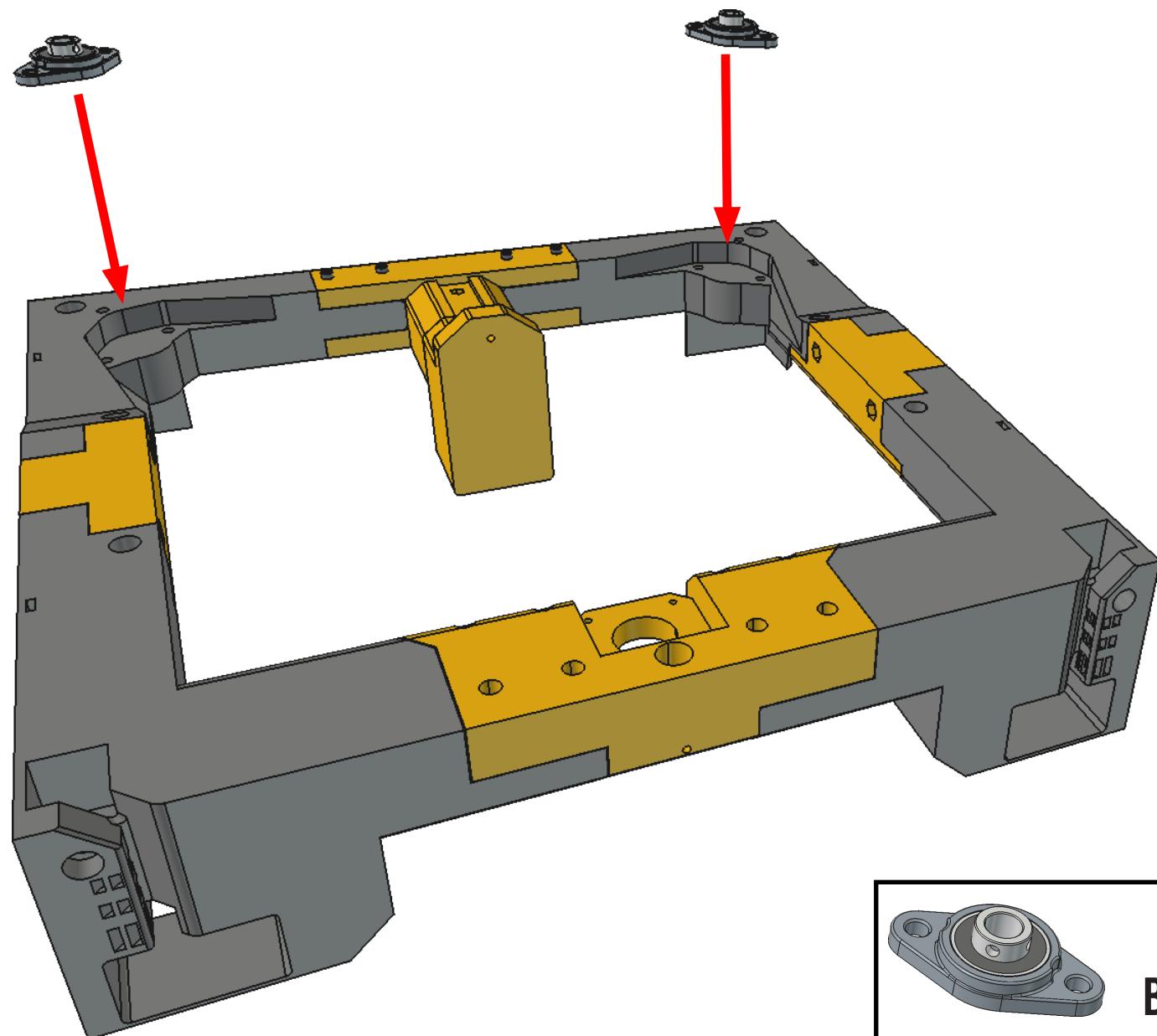


M5 HEX NUT

Z-AXIS ASSEMBLY

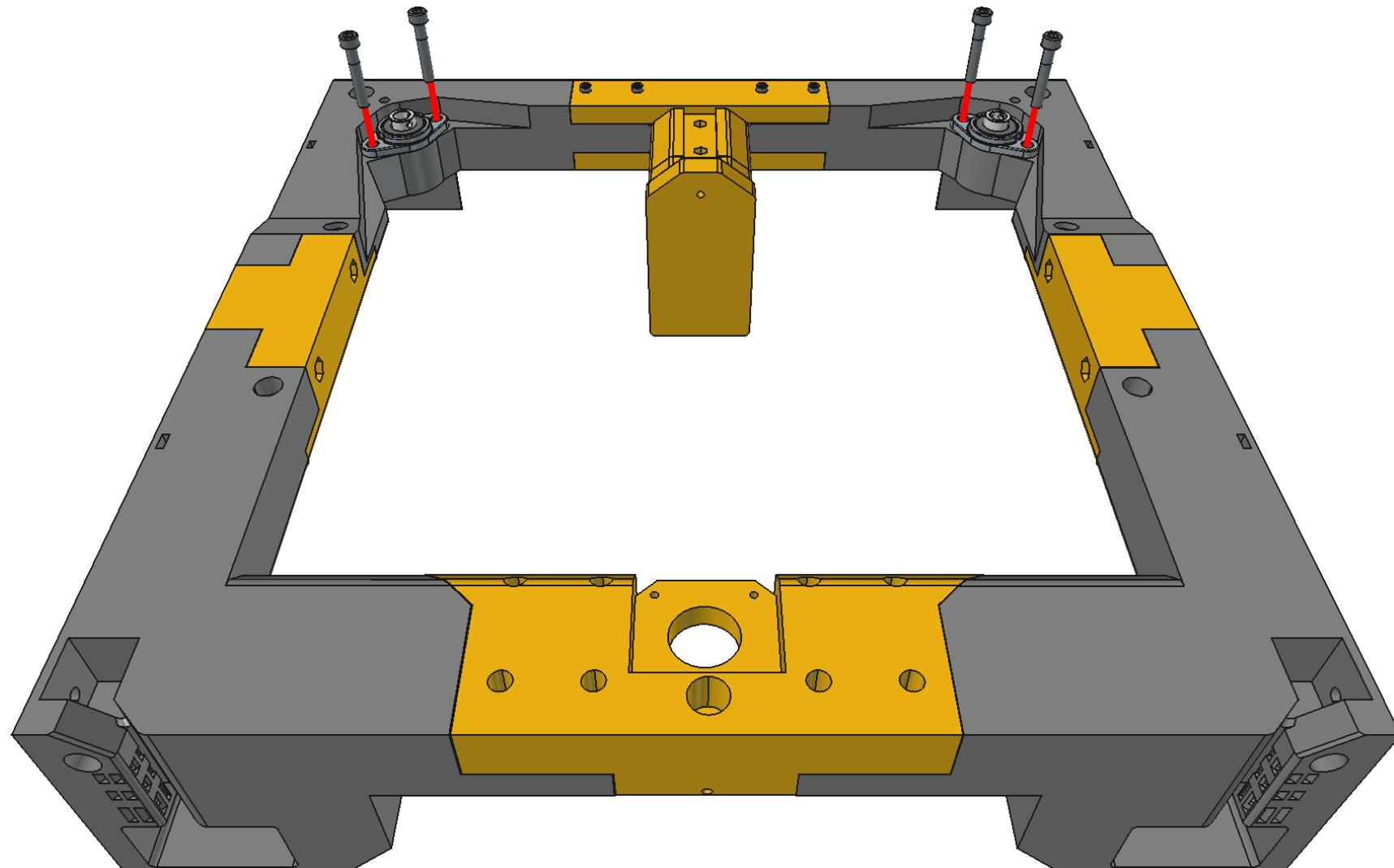


Z-AXIS ASSEMBLY

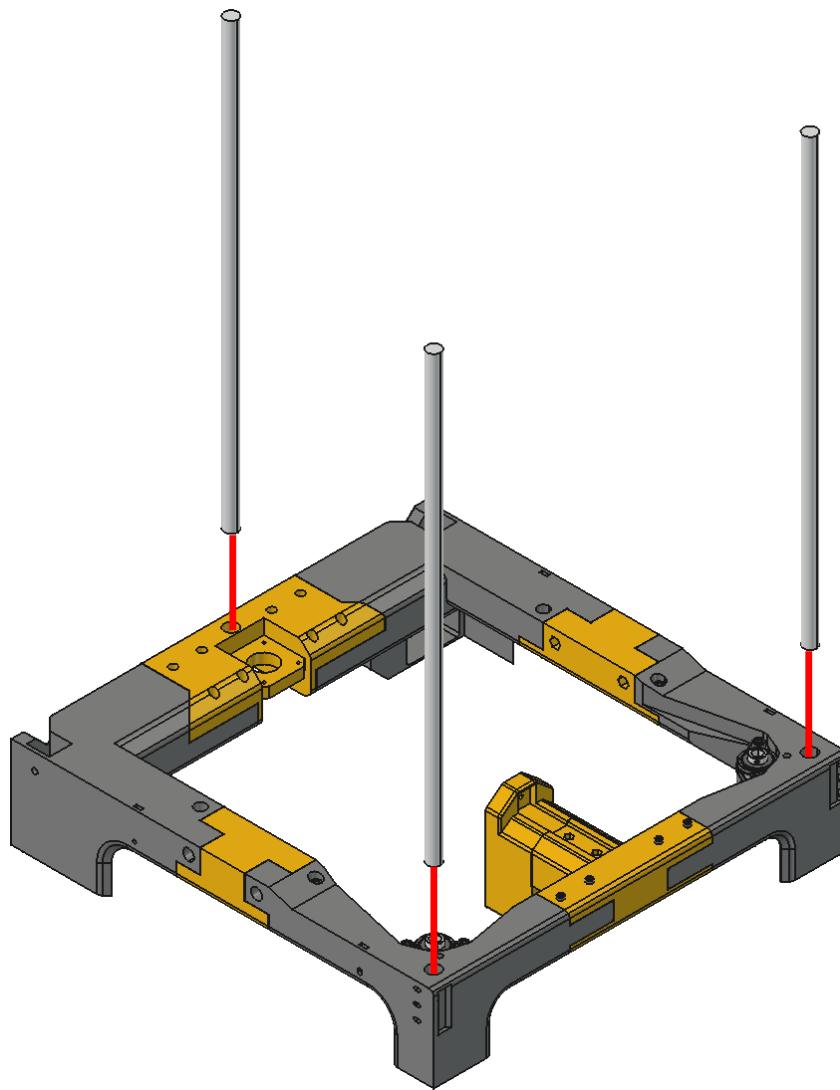


**KLF08
BEARING**

Z-AXIS ASSEMBLY

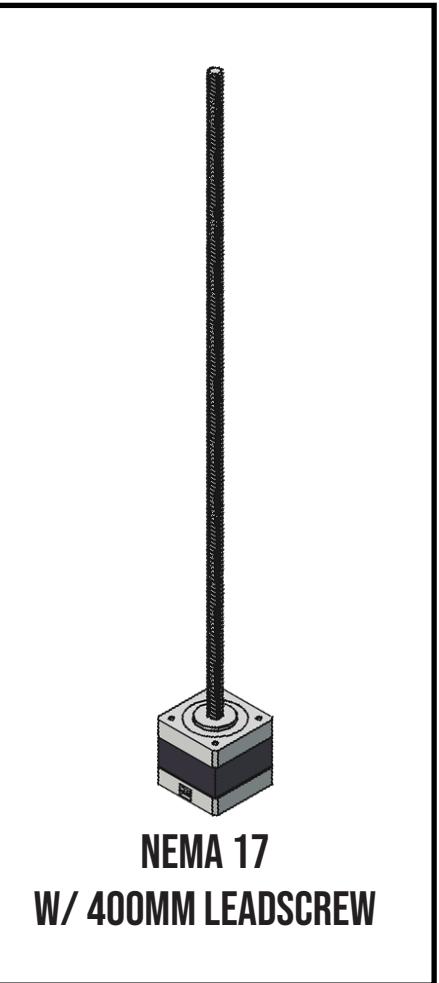
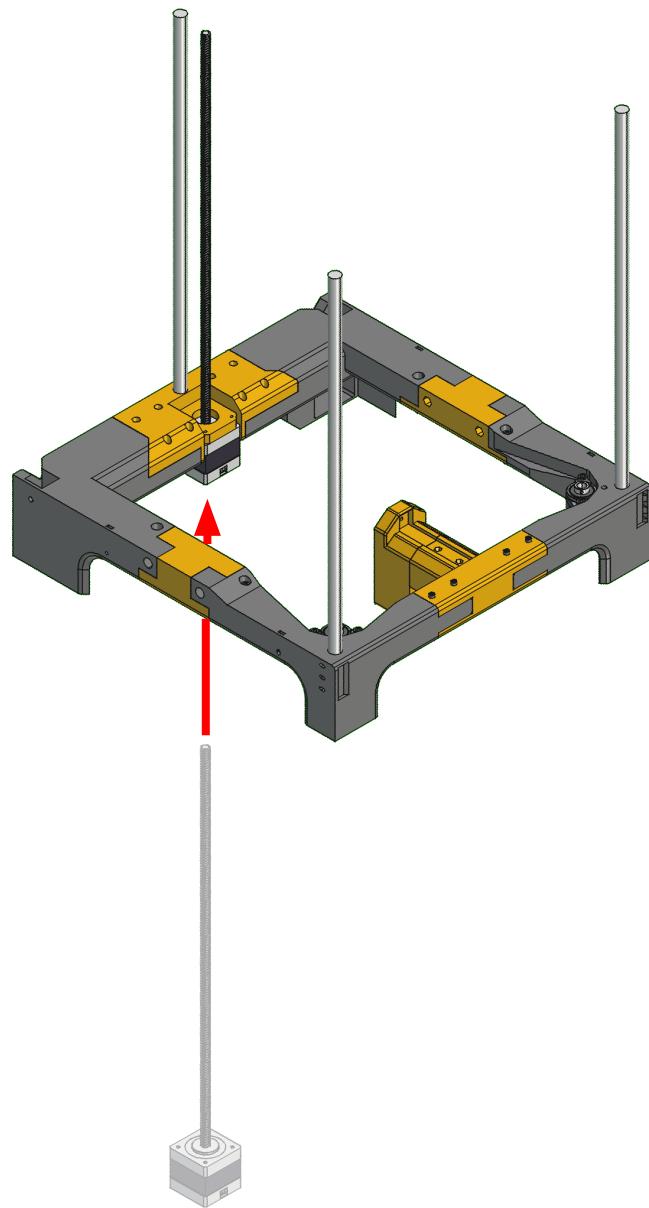


Z-AXIS ASSEMBLY

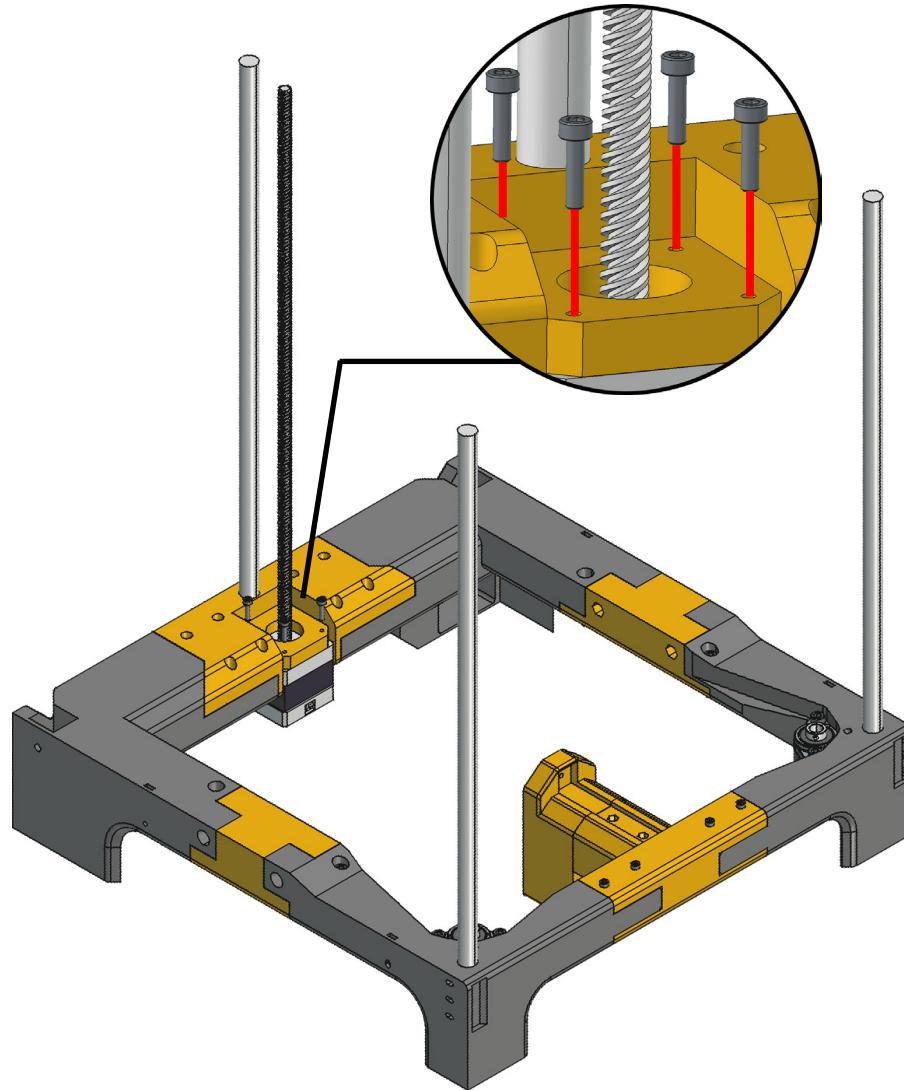


12MM X 400MM LINEAR ROD

Z-AXIS ASSEMBLY

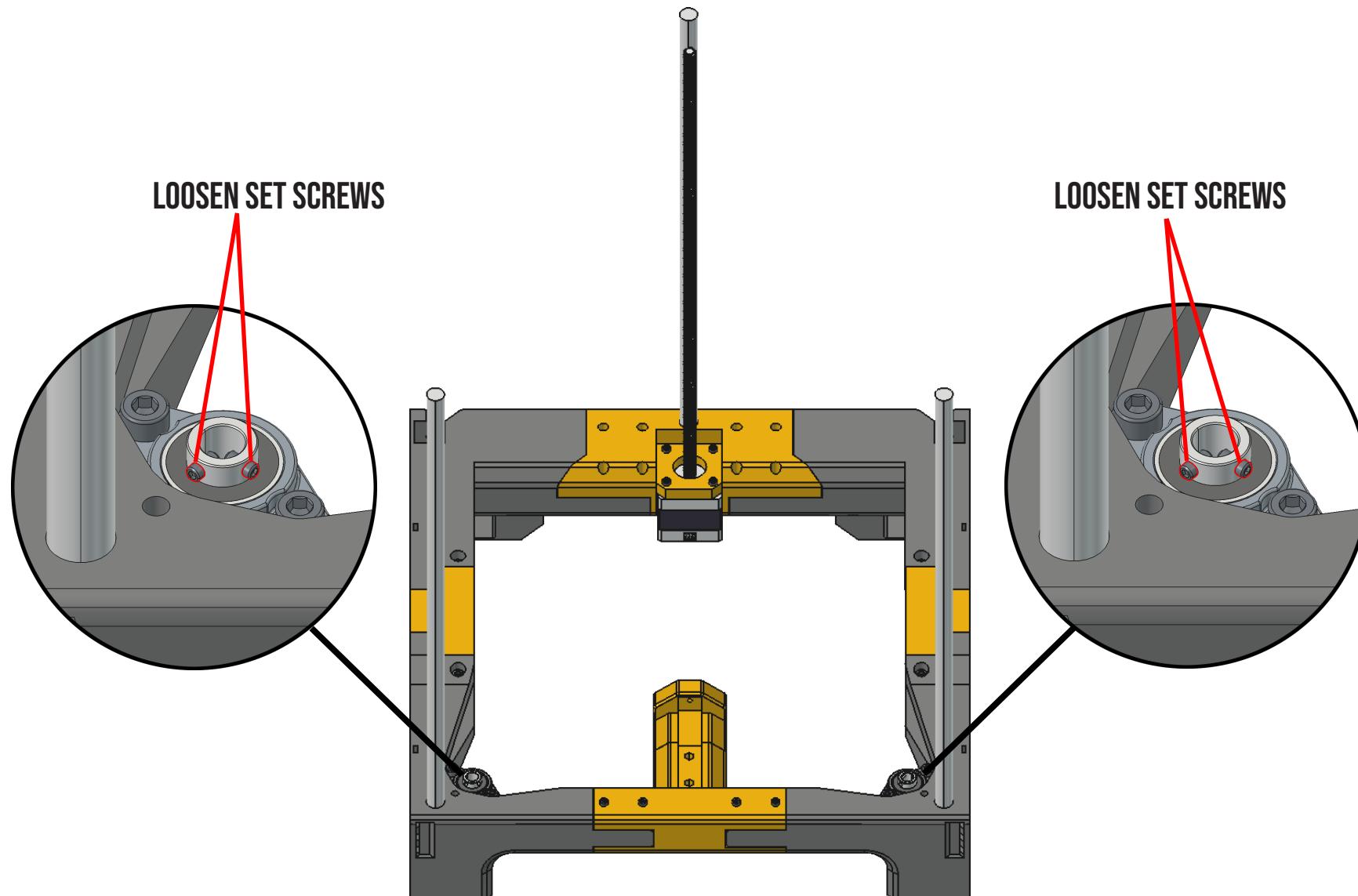


Z-AXIS ASSEMBLY

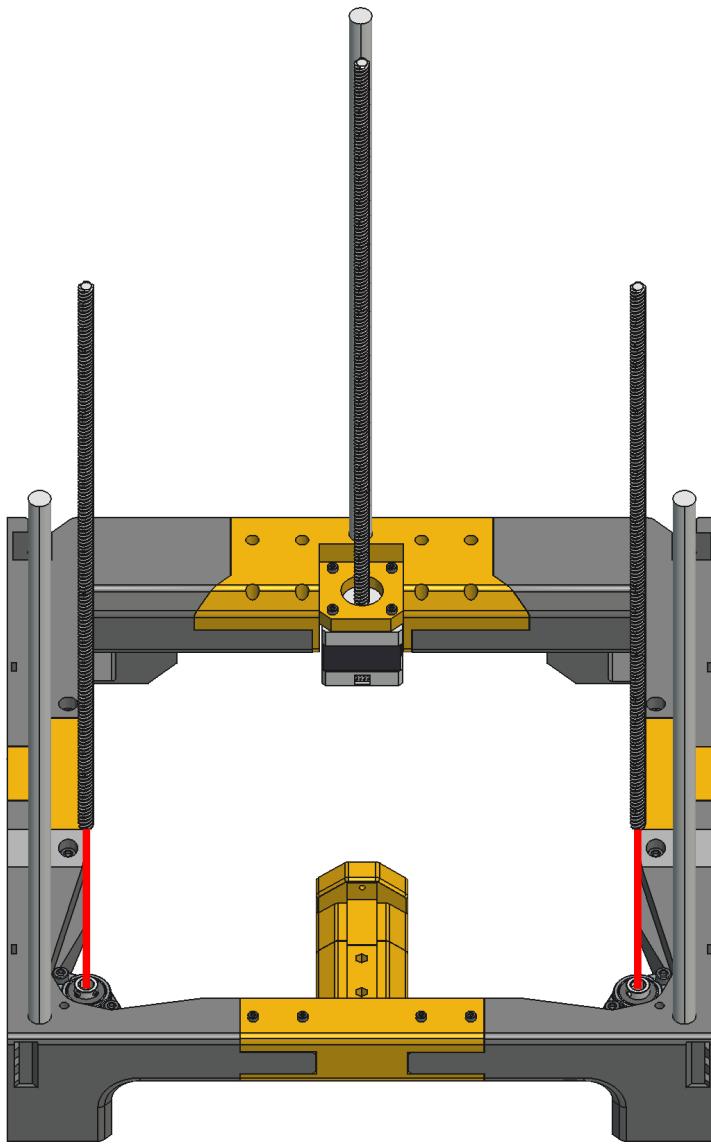


 **M3X12 BOLT**

Z-AXIS ASSEMBLY

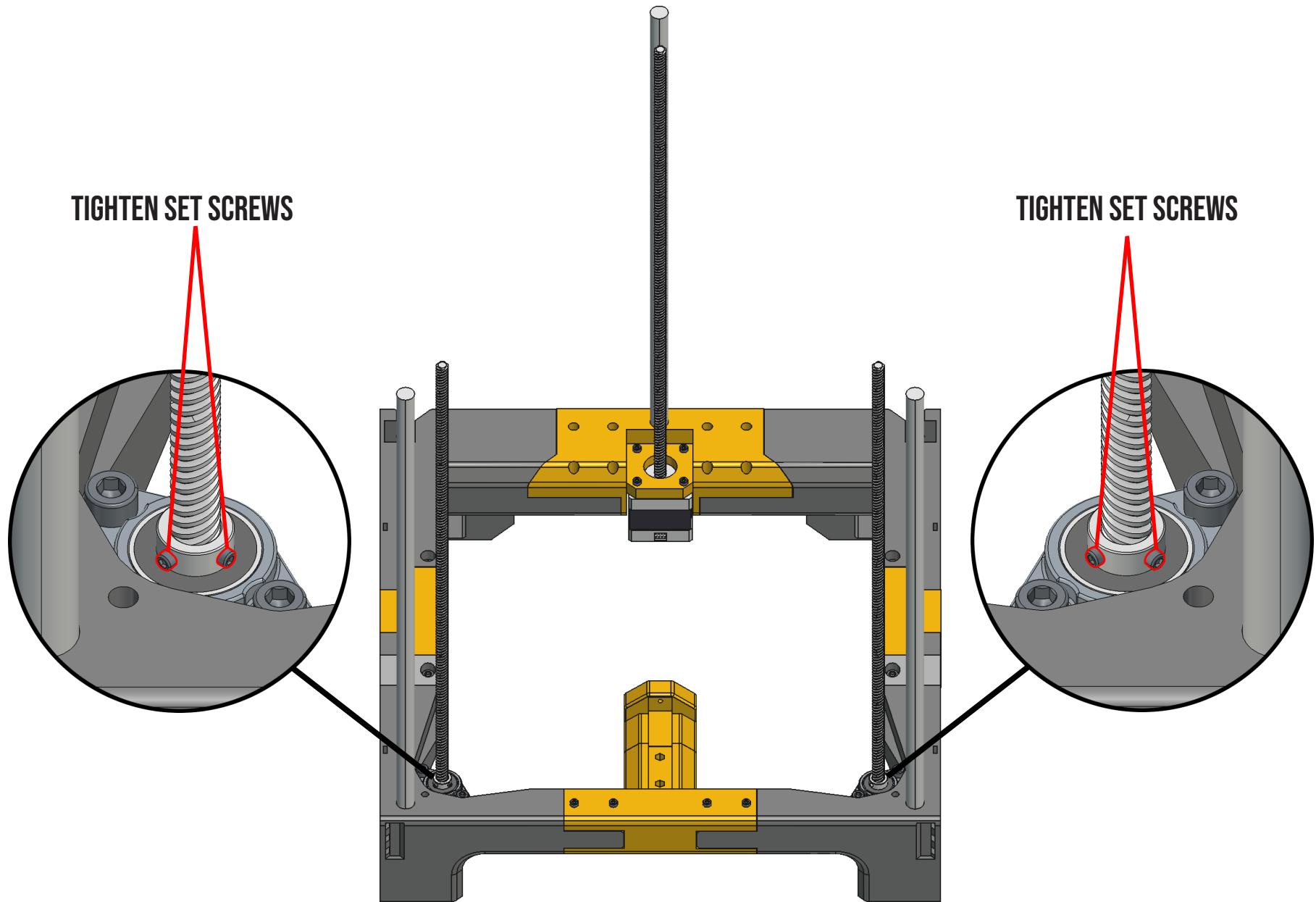


Z-AXIS ASSEMBLY

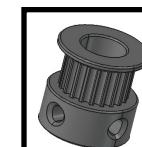
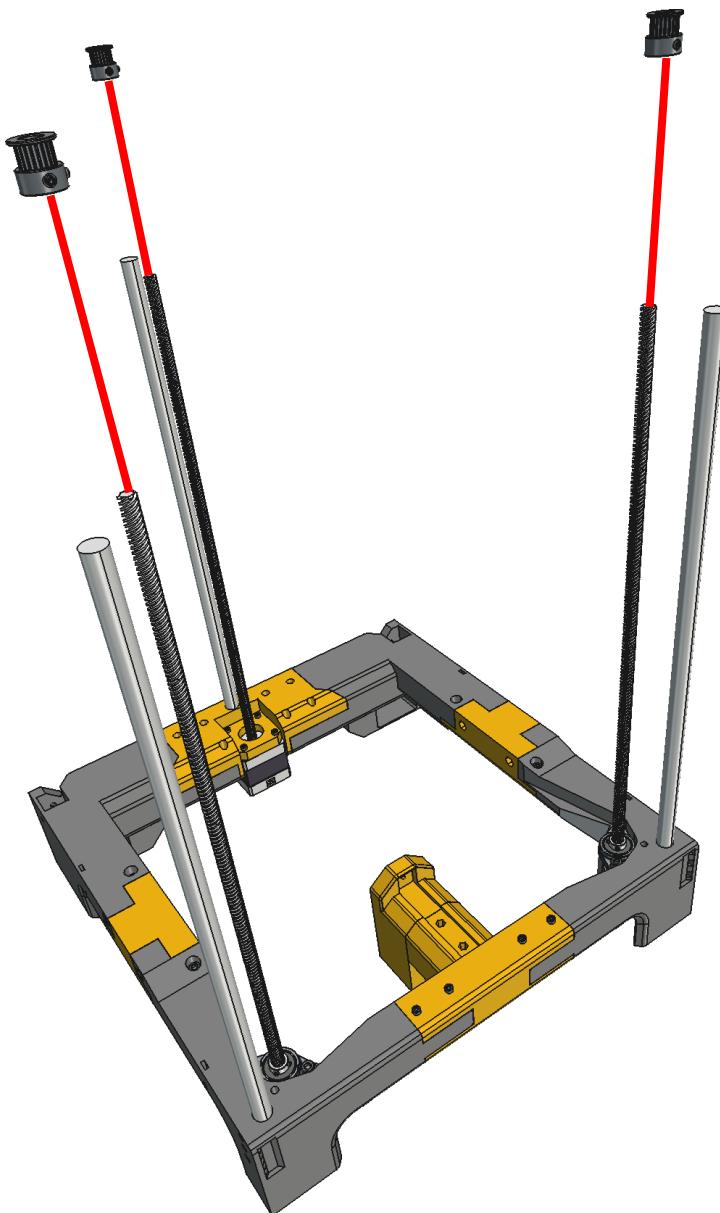


8MM X 400MM LEADScrew

Z-AXIS ASSEMBLY

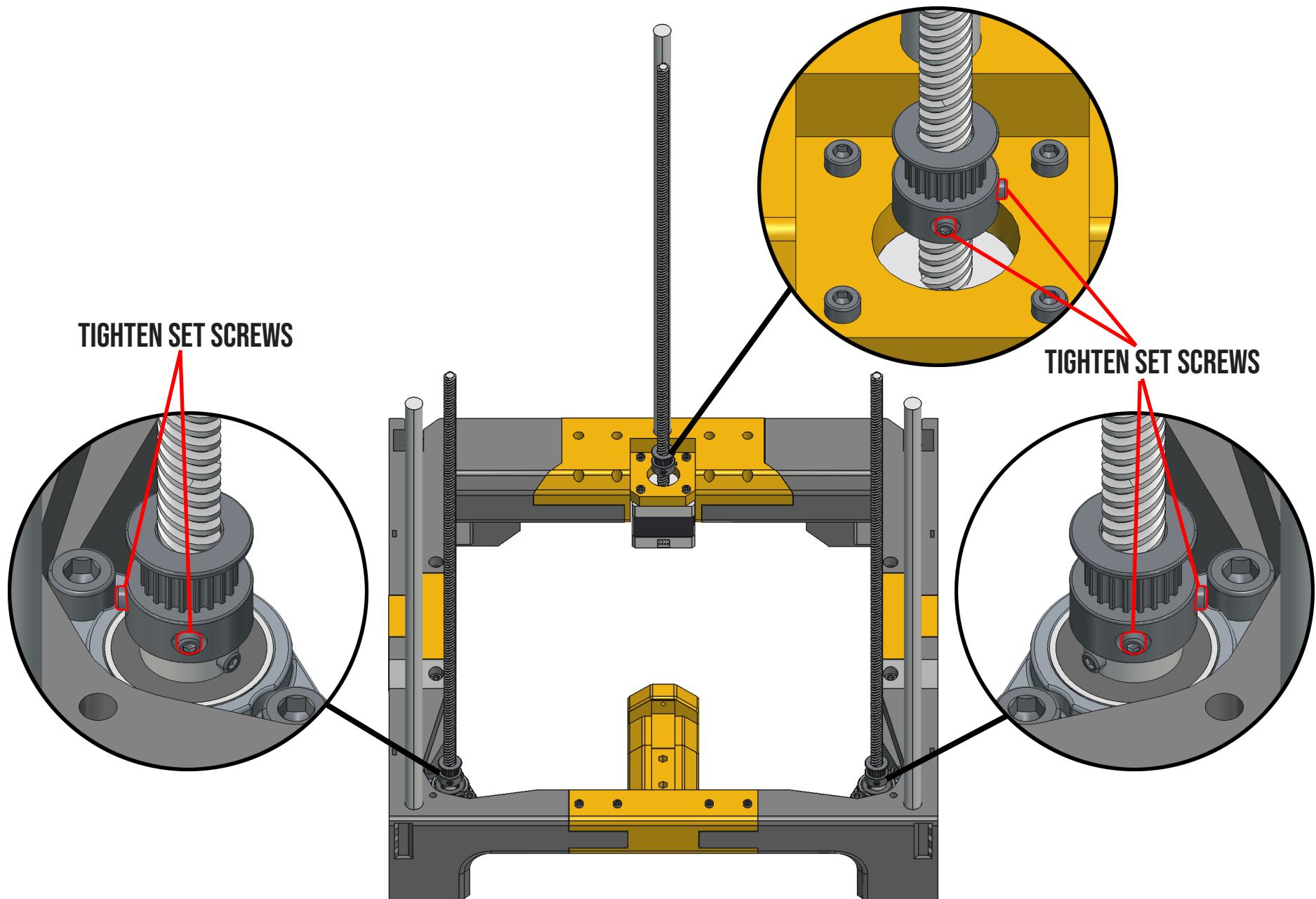


Z-AXIS ASSEMBLY

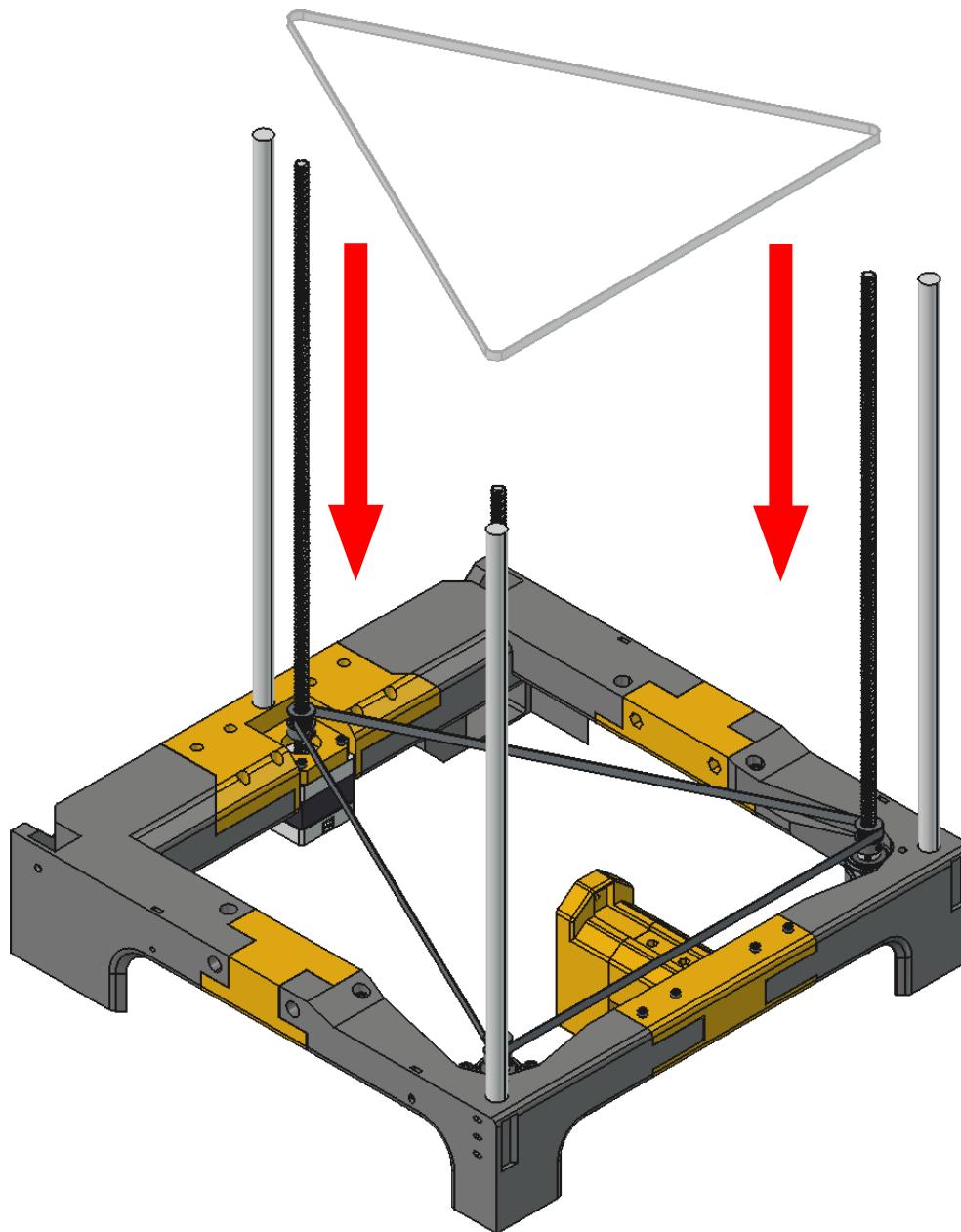


GT2 20T PULLEY 8MM

Z-AXIS ASSEMBLY



Z-AXIS ASSEMBLY



BRING THE 1 METER CLOSED LOOP BELT DOWN ONTO THE
ON THE 20 TOOTH PULLEYS.



Z-AXIS ASSEMBLY