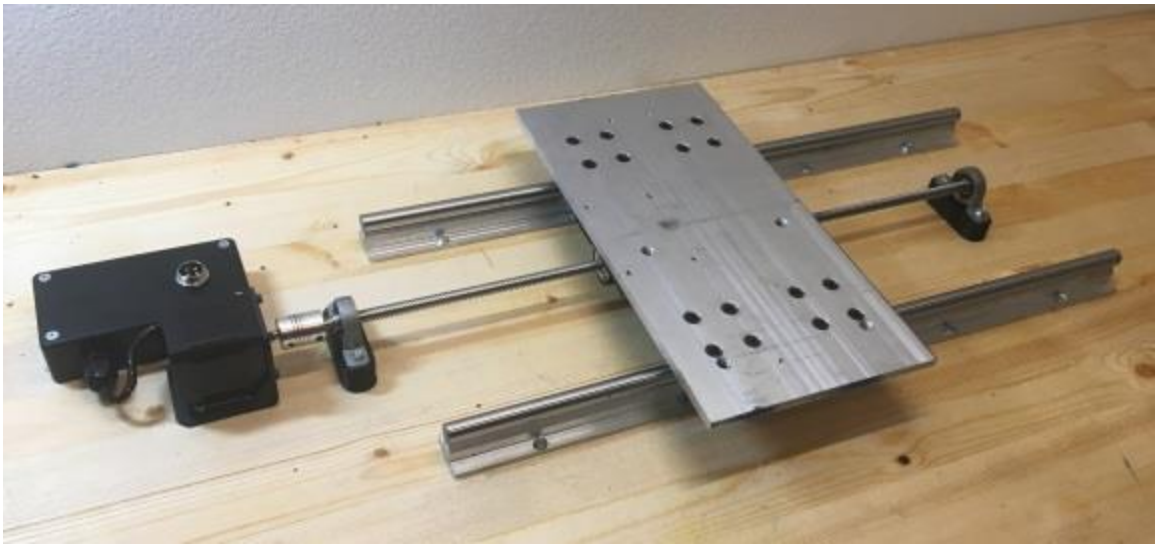


Model AR2 Travel Track

NOTE:

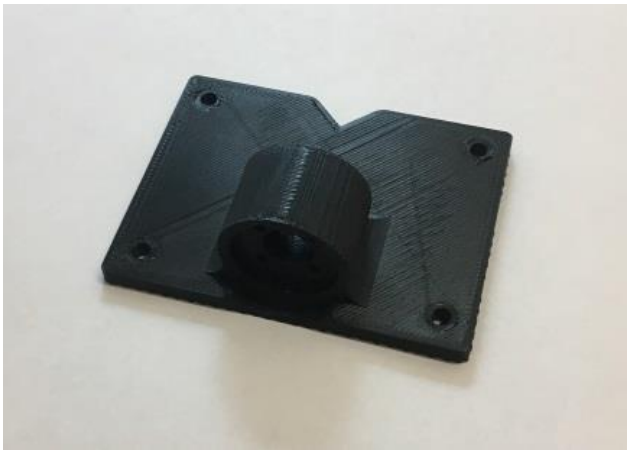
This manual shows the construction of the AR2 travel track using 500mm length guides but you can build the track any length you want. Tack can be screw drive as shown or you can design your own track or use a belt drive if desired.

Any stepper motor can be used as long as its wired as shown and in the electrical enclosure manual.

- 3D printed components require all threaded holes to be cleared with appropriate drill size.
- All printed components were printed at minimum 50% solid at 2mm layer height and thick shells.

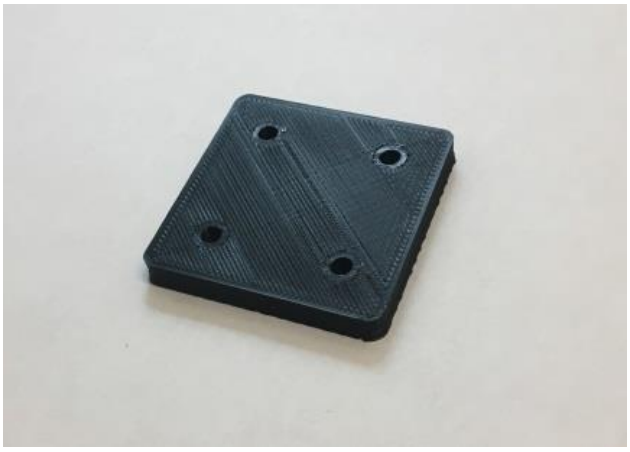
BILL OF MATERIALS

Plastic Components

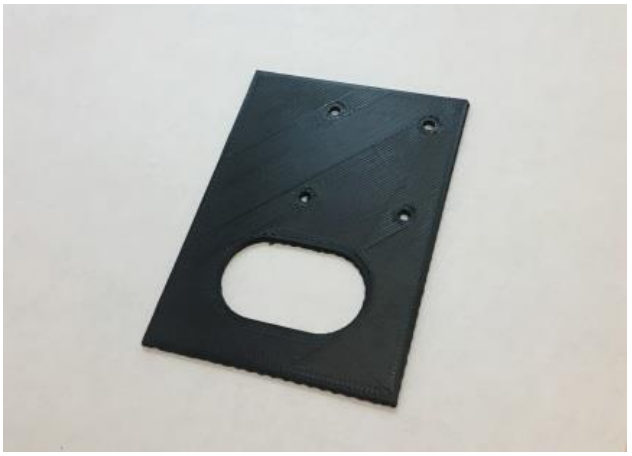


DRIVE MOUNT (x1)

BEARING SPACER (x2)



BLOCK SPACER (x4)



TEMPLATE (x1)

Stepper Motors

Stepper motors as well as stepper drivers and brackets are available from Stepper Online

http://www.omc-stepperonline.com/

Nema 17 Bipolar 59Ncm (84oz.in) 2A 42x48mm 4 Wires w/ 1m Cable & Connector

★★★★★ 19 reviews | Write a review

SKU: 17HS19-2004S1

$11.14 ~~$14.71~~

Bulk quantity price break:

Qty	3	10	30	100
Price	$10.70	$9.81	$9.36	$8.47
Save	27%	33%	36%	42%

Availability: 8126

* Ship from

China | United States | Germany | United Kingdom | Australia | Russian Federation

− 1 + ADD TO CART ♡

Report error / Notify inventory / Request bulk price

NEMA 17 stepper motor

SKU: 17HS19-2004S1

Nema 17 Bracket for Stepper Motor and Geared Stepper Motor Alloy Steel Bracket

★★★★★ 8 reviews | Write a review

SKU: ST-M1

$2.44

Bulk quantity price break:

Qty	3	10	30	100
Price	$2.28	$2.12	$1.96	$1.79
Save	6.67%	13.33%	20%	26.67%

Availability: 471

* Ship from

China | United States | Germany | United Kingdom | Australia | Russian Federation

− 1 + ADD TO CART ♡

Report error / Notify inventory / Request bulk price

Like 0 | Tweet | Pin it | Share

NEMA 17 bracket

SKU: ST-M1

Hardware

Witbot T8 500mm Stainless Steel Lead Screw+Copper Nut+Coupling Shaft+Mounted Ball Bearing Block Set for 3D Printer Parts

★★★★★ 1 customer review

Price: $17.99 ($3.60 / Item) prime

In Stock.

Want it Friday, March 9? Order within **3 hrs 29 mins** and choose **Two-Day Shipping** at checkout.
Details

Sold by Witbot and Fulfilled by Amazon. Gift-wrap available.

New (2) from $17.99 prime

Qty.(1) T8 lead screw with bearing blocks and coupler - Amazon

CNC Linear Guide Way Rail Kit Set --- 2pcs Fully Support SBR 12-500mm 12mm Ball Bearing Linear Slide Rail Shaft + 4pcs SBR12UU Blockbearing

Be the first to review this item

Price: $61.29 & **FREE Shipping**

Note: Not eligible for Amazon Prime.

In Stock.

Get it as soon as March 28 - April 18 when you choose **Standard Shipping** at checkout.
Ships from and sold by nineone.

- Metal linear bearing rail and blocks with pre-drilled holes for ease of mounting
- Durable construction for long-lasting performance
- Can be used in automatic industry machines such as robot, calculator, automatic recorder, accurate printer, etc.
- This set included 2pcs SBR12-500mm Linear Bearing Rail and 4pcs SBR12UU Block Bearing.
- This linear bearing is durable and sturdy, which can prolong the transmission life span of your machines.

Qty.(1) 12mm linear slide with bearings - Amazon

Hammond 1591BSBK ABS Project Box Black

56 customer reviews | 8 answered questions

Price: $6.51 prime

FREE One-Day Pickup. Details

Get $70 off instantly: Pay $0.00 upon approval for the Amazon Prime Rew

In Stock.

Want it Friday, March 9? Order within **7 hrs 6 mins** and choose **Two-Day** Details

Sold by Gerber Electronics and Fulfilled by Amazon. Gift-wrap available.

- Black ABS Multipurpose Plastic Enclosure
- 4.4" x 2.4" x 1.1" (112mm x 62mm x 27mm)
- Integral card guides accept 1.5 mm (0.062") P.C. cards.

Electrical project box (x1)

Hilitchi 30 Piece Nylon Plastic Waterproof Adjustable 3.5 - 13mm Cable Glands Joints Cable Gland - PG7, PG9, PG11, PG13.5, PG16

2 customer reviews

Price: $10.41 Prime

Your cost could be **$5.41**. Qualified customers get $5 in Gift Card funds on first $100 reload of their Amazon Gift Card Balance. Learn more

In Stock

Sold by Hilitchi and Fulfilled by Amazon. Gift-wrap available.

Color: **Black 30pcs**

$10.41 Prime

$14.06

- High Quality Cable Gland Kit, Applied to Cable Fixing, Waterproof Design
- Package Includes: 30pcs (6 each size)
- Model: PG7, PG9, PG11, PG13.5, PG16

PG7 gland nut (x1)

4 Pin Metal Male Female Panel Connector 1
GX16-4 Silver Aviation Plug of 10 pcs

1 customer review

Note: This item is only available from third-party sellers (see all offers)

Available from these sellers.

- Product Name : Aviation Connector Plug;Model : 16-4;Type : Male Fe
- Contacts Pin Number : 4
- Rated : 125V/5A;WorkingVoltage : AC 200V;Withstand Voltage : AC
- Total Size : 4.7 x 1.9cm/ 1.8" x 0.7" (Lx Max.W);
- Material&Package: Metal;10 Pairs Aviation Connector Plug

› See more product details

Compare with similar items

New (1) from $12.99 + $5.27 shipping

GX-16 aviation plug (x1)

6061 Aluminum Sheets, Bars, and Cubes

Bars

Wd.	Temperature Range, °F		1 ft. Lg.
1/4" Thick. (-0.012" to 0.012" Tolerance)			
6"	-320° to 300°	**8975K437**	$13.37

6061 Aluminum, 1/4" Thick x 6" Wide, 1 Foot Long

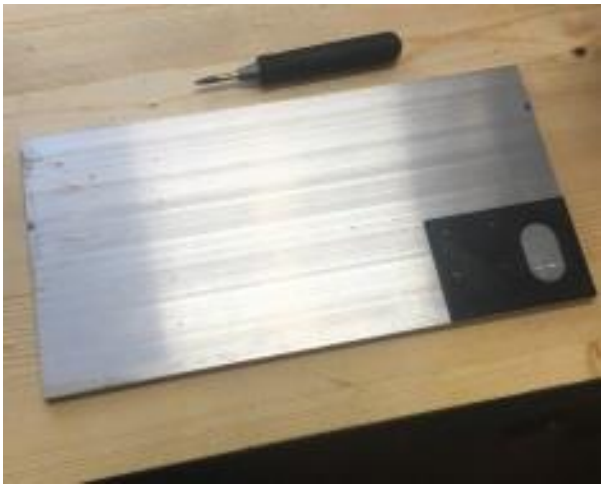
1 Each

ADD TO ORDER

In stock

12” x 6” x ¼” aluminum plate (x1)- McMaster Carr

ASSEMBLY



Place template on corner of aluminum plate as shown and then use spring loaded center punch to mark the 4 holes. Rotate and flip template to each corner and repeat until all 16 holes are marked.

Drill all 16 holes to clearance 5mm screw.

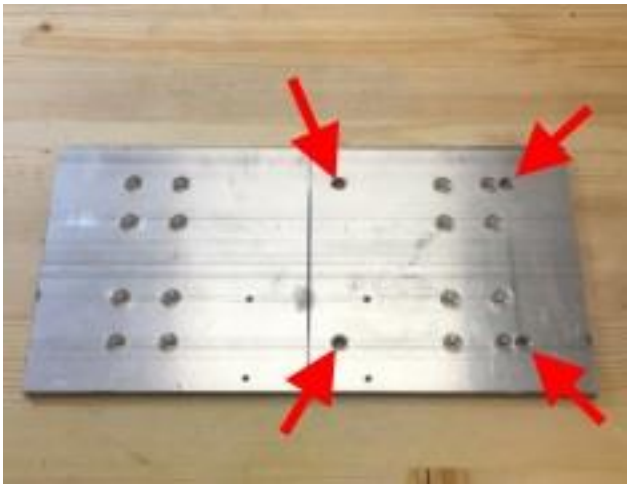
Countersink all 16 holes.

Draw centerline on aluminum plate as shown.

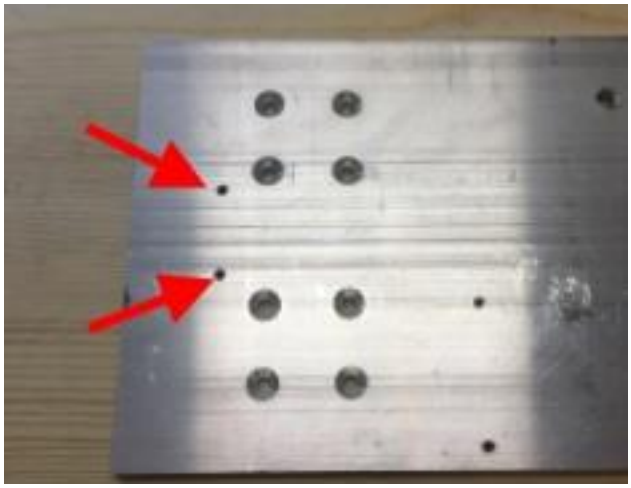
Place drive mount on plate aligned on centerline. Use spring loaded center punch to mark (x4) holes.

Drill and tap (x4) M4 holes as shown.

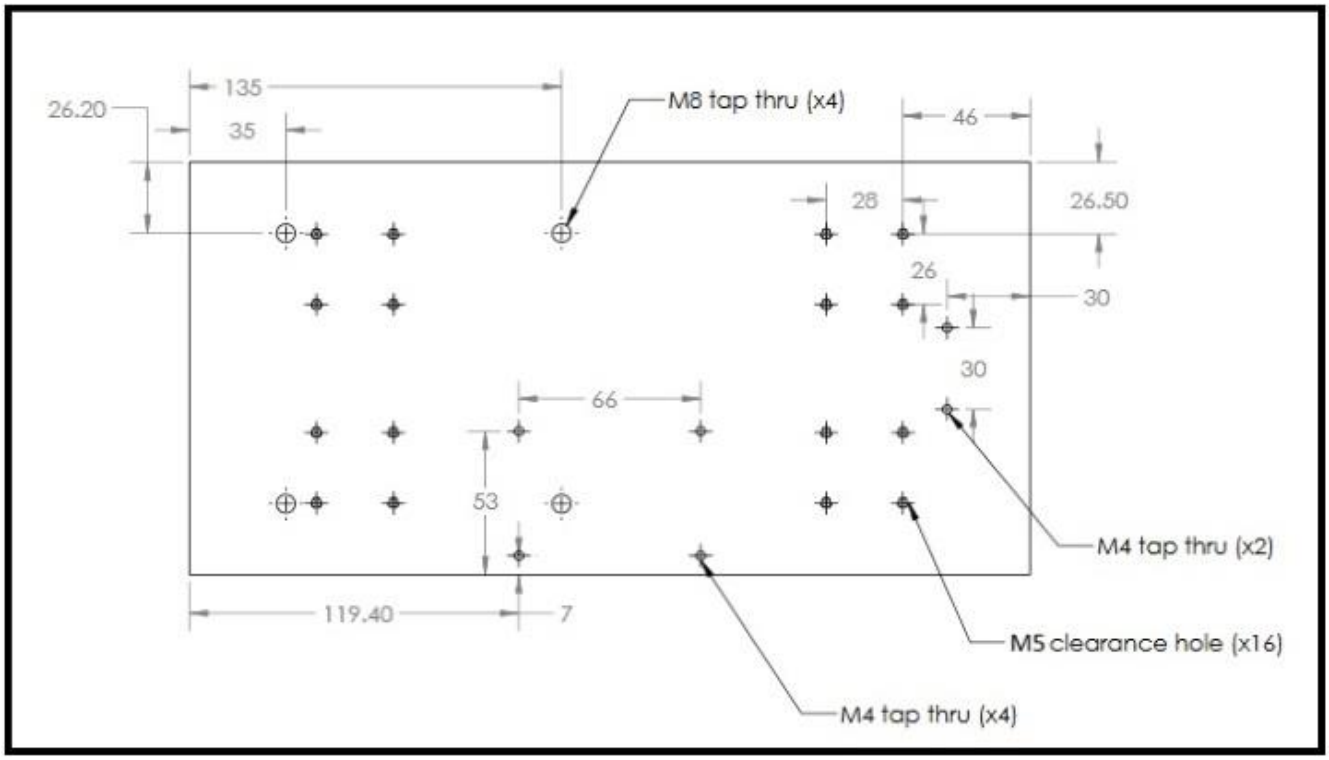
Center J1 support spacer as shown and mark (x4) mounting holes.



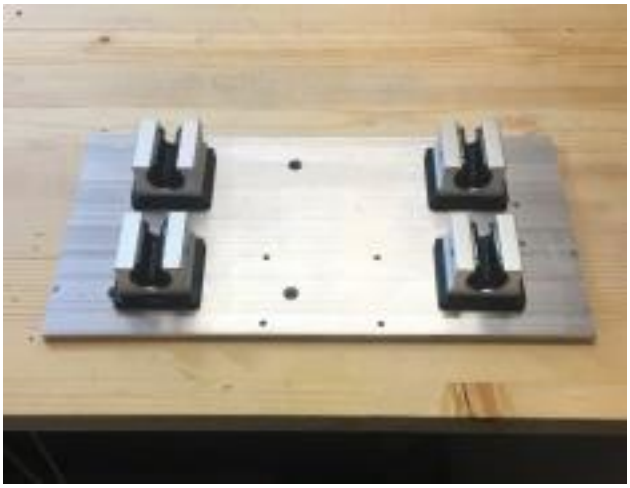
Drill and tap (x4) M8 holes as shown.



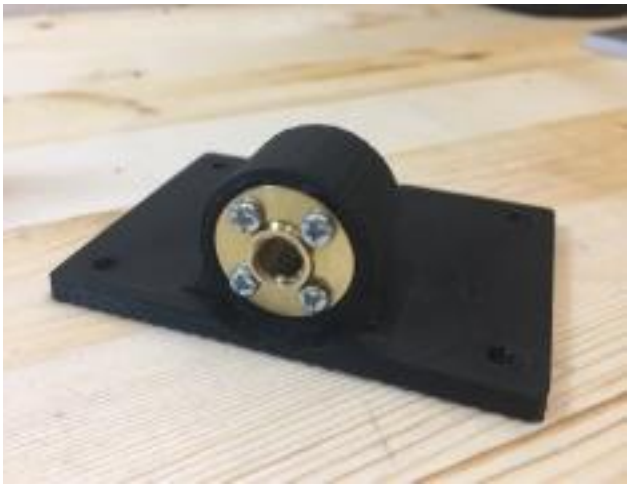
Drill and tap (x2) M4 holes centered 30mm apart and 30mm from edge as shown.



When complete aluminum plate should be drilled as shown in this drawing.

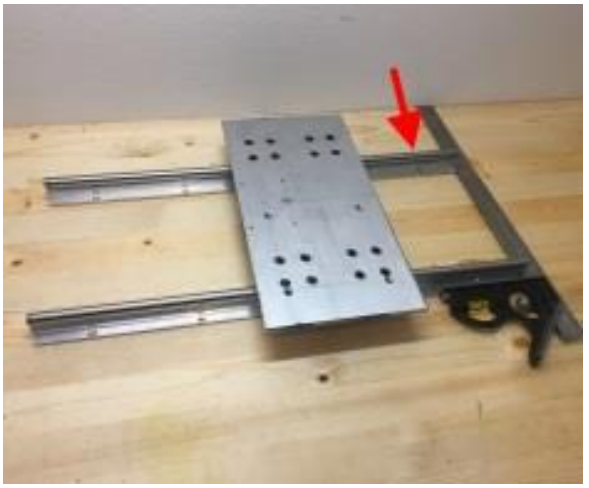


Install (x4) linear bearings with block spacers between auminum plate and bearing as shown. Secure with (x16) M5x20 flat head screws. (do not fully tighten M5 screws yet)

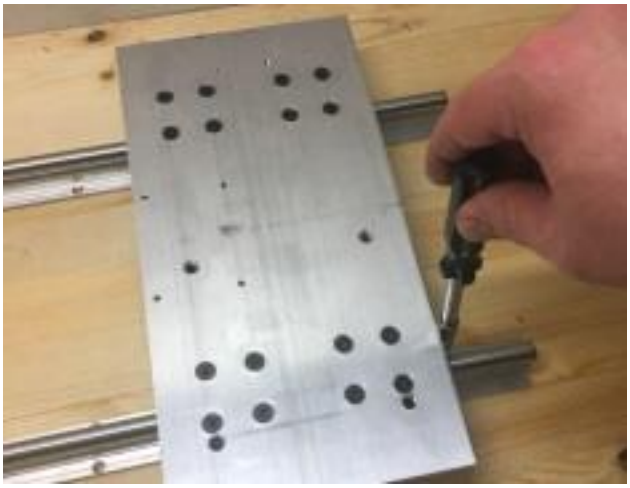


Install T8 nut into drive mount as shown and secure with (x4) #2 screws.

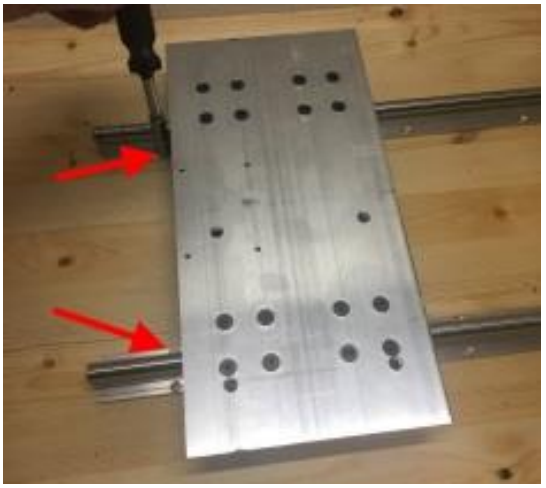
Secure drive mount assembly to aluminum plate as shown using (x4) M4x20 socket head cap screws.



Use square to align tracks and then install one screw in right upper track securing it to worktable.



With platform slid to right end install one more screw in lower track.



Slide platform to other end and secure each rail to worktable.

Make sure platform glides easily from end to end and then install all remaining screws to secure rails to worktable.

Install T8 screw, bearing and motor coupler as shown.

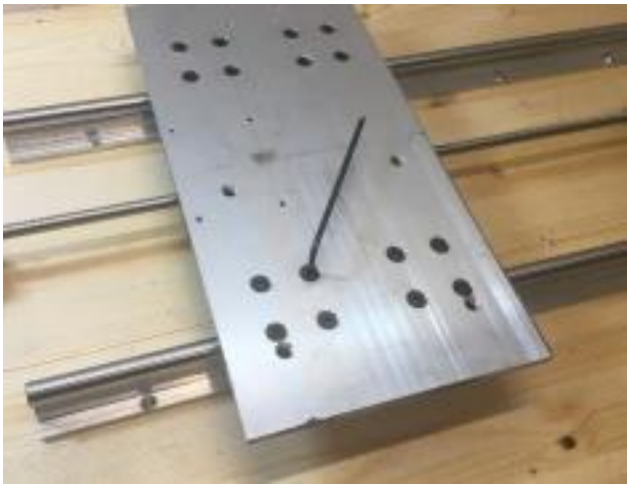
With platform at maximum travel to the left side secure lead screw bearing and bearing spacer to work table as shown.

Tighten bearing and coupler set screws.

Turn screw manually and drive platform to far end. Secure opposite lead screw bearing and bearing spacer as shown at very end of screw.

Tighten bearing set screws.

Note that the drive mount should bottom out against the bearing and not allow the platform to go off the end of the rails.



Make sure platform moves smoothly and easily down rails and then tighten the (x16) M5 screws securing platform to rail bearings.

Temporarily install motor and bracket and use pencil to mark motor mount location.

Remove motor and secure motor mount to work table as shown.

Reinstall motor using (x4) M3x10 socket head cap screws.

Tighten shaft coupler set screws.

Install PG7 gland nut in side of enclosure as shown. Also drill 2 mounting holes in bottom of enclosure.

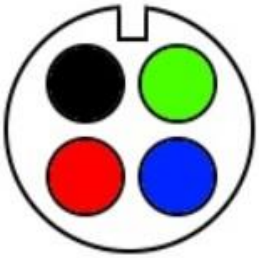
Wrap base of motor wires with spiral wrap.

Feed wires and spiral wrap through gland nut and secure enclosure to worktable as shown.

Install aviation plug in enclosure faceplate as shown.

Solder motor wires as shown to back side of aviation plug. (see next step)

Looking at the back of the connector solder the black wire to upper left , green wire upper right, red wire to lower left and the blue wire to lower right.



VIEW FROM BACKSIDE OF CONNECTOR

Secure enclosure panel to project box as shown.

Secure robot to platform using (x4) M8x35 metric bolts.

Drill 5mm holes 30mm apart in bottom of enclosure and mount to back of platform as shown.

Travel Track assembly is now complete. Please review the wiring harness, electrical enclosure and startup manuals to complete the build.