

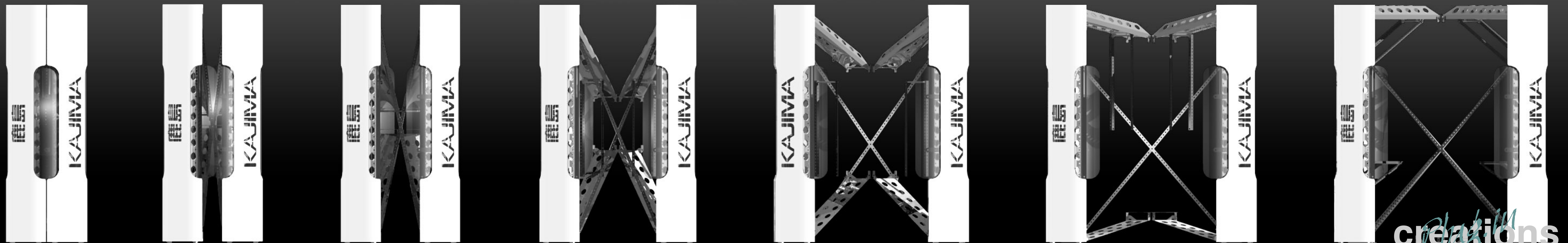
KAJIMA Digiosk

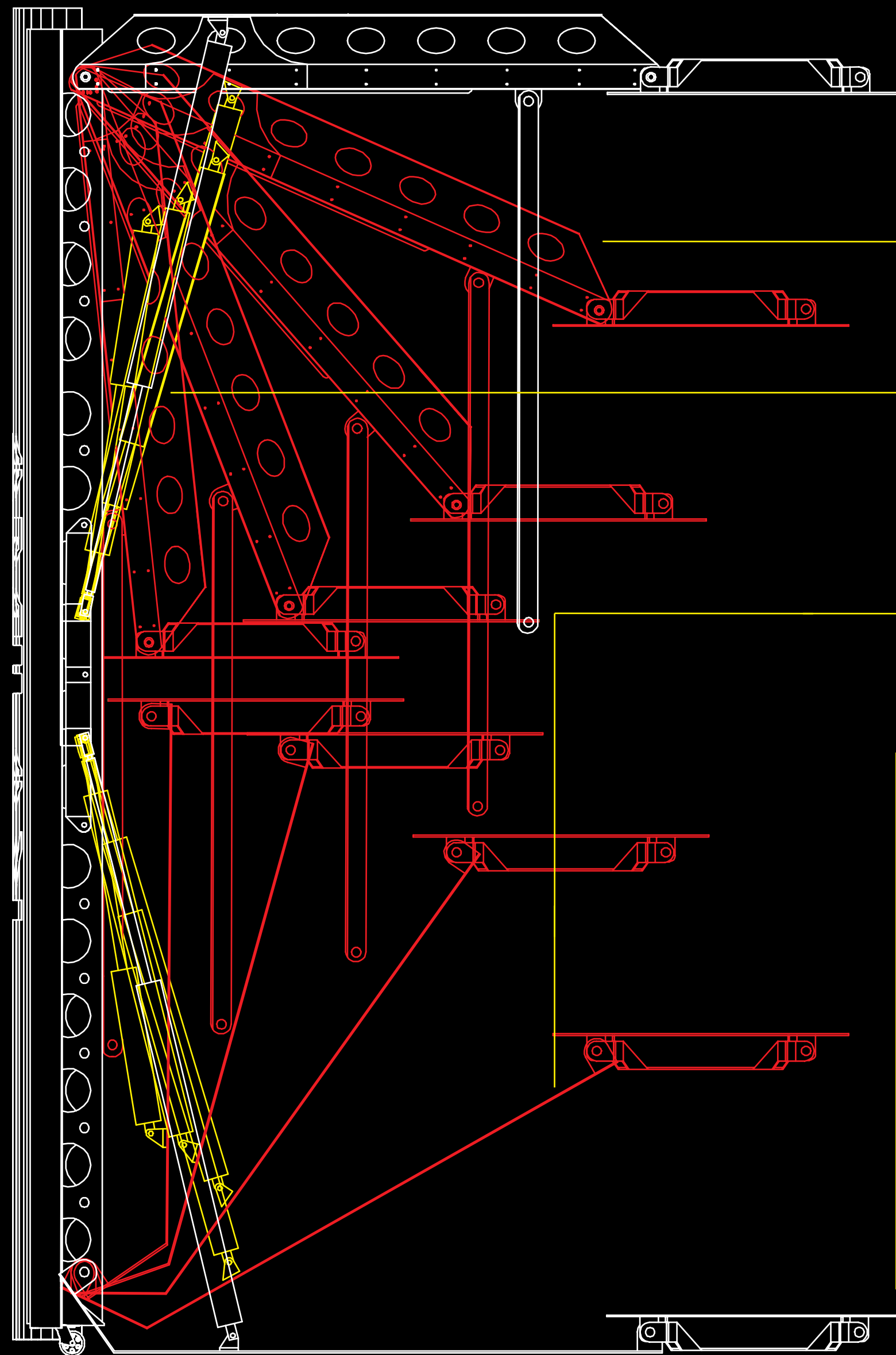
A. Scott Howe has been involved in a partnership with Kajima Corporation of Tokyo, Japan, conducting research on robotics and automation in construction since 1988. In 2001, Kajima commissioned an expo kiosk to showcase the technology, to be displayed at the Utsukushima Futures Exposition in Sendai, Japan. The kiosk is robotic in nature in order to demonstrate robotics in construction and deployable kit-of-parts technology. The kiosk was conceived, designed and manufactured in only two months due to the digital paperless process used in its production.

Design Team:

A. Scott Howe	Assistant Professor
Omid Naseri	Undergraduate
Padru C. Kang	Undergraduate

Robotic Kit-of-parts Exposition Kiosk





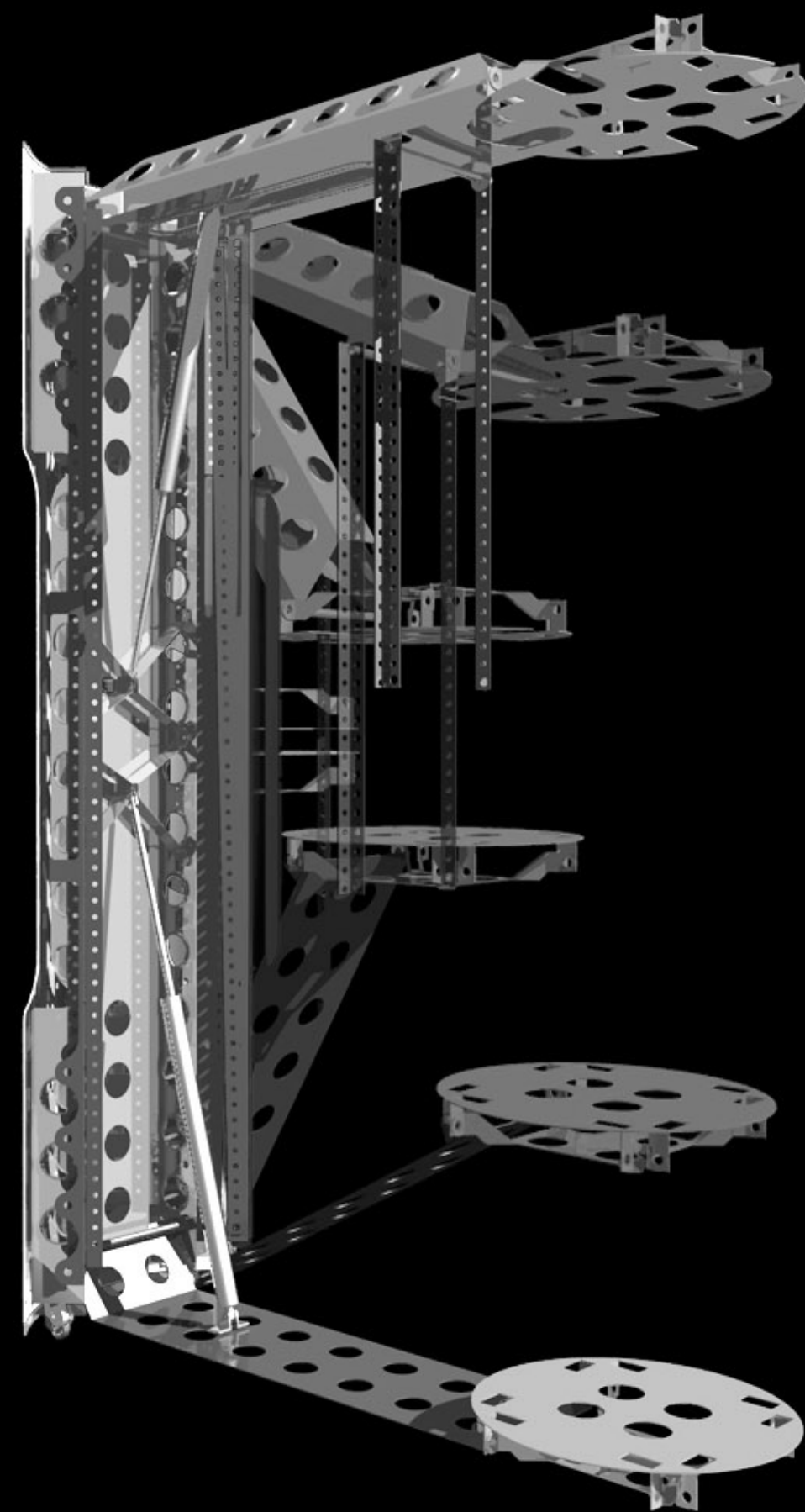
12 Ga. cold rolled steel center top plate assembly. See sheet 005 for details.

20 Ga. cold rolled steel truss arm assembly. See sheet 004 for details.

Bimba stainless steel pneumatic actuator. Powered by Gast, 115 V air compressor, typ.

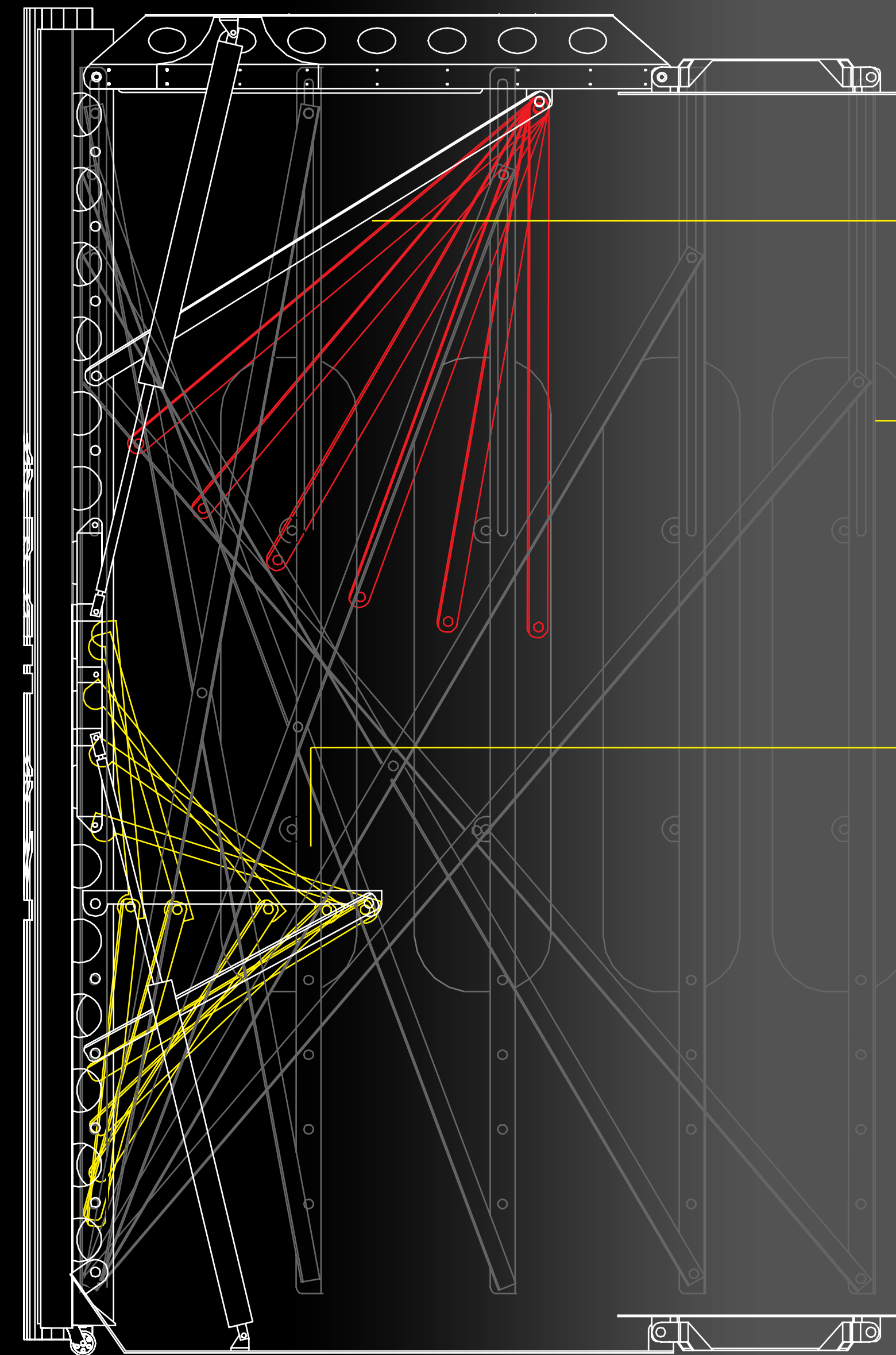
20 Ga. cold rolled steel leg plate assembly. See sheet 005 for details.

12 Ga. cold rolled steel center bottom plate assembly. See sheet 005 for details.



Pneumatic Motion

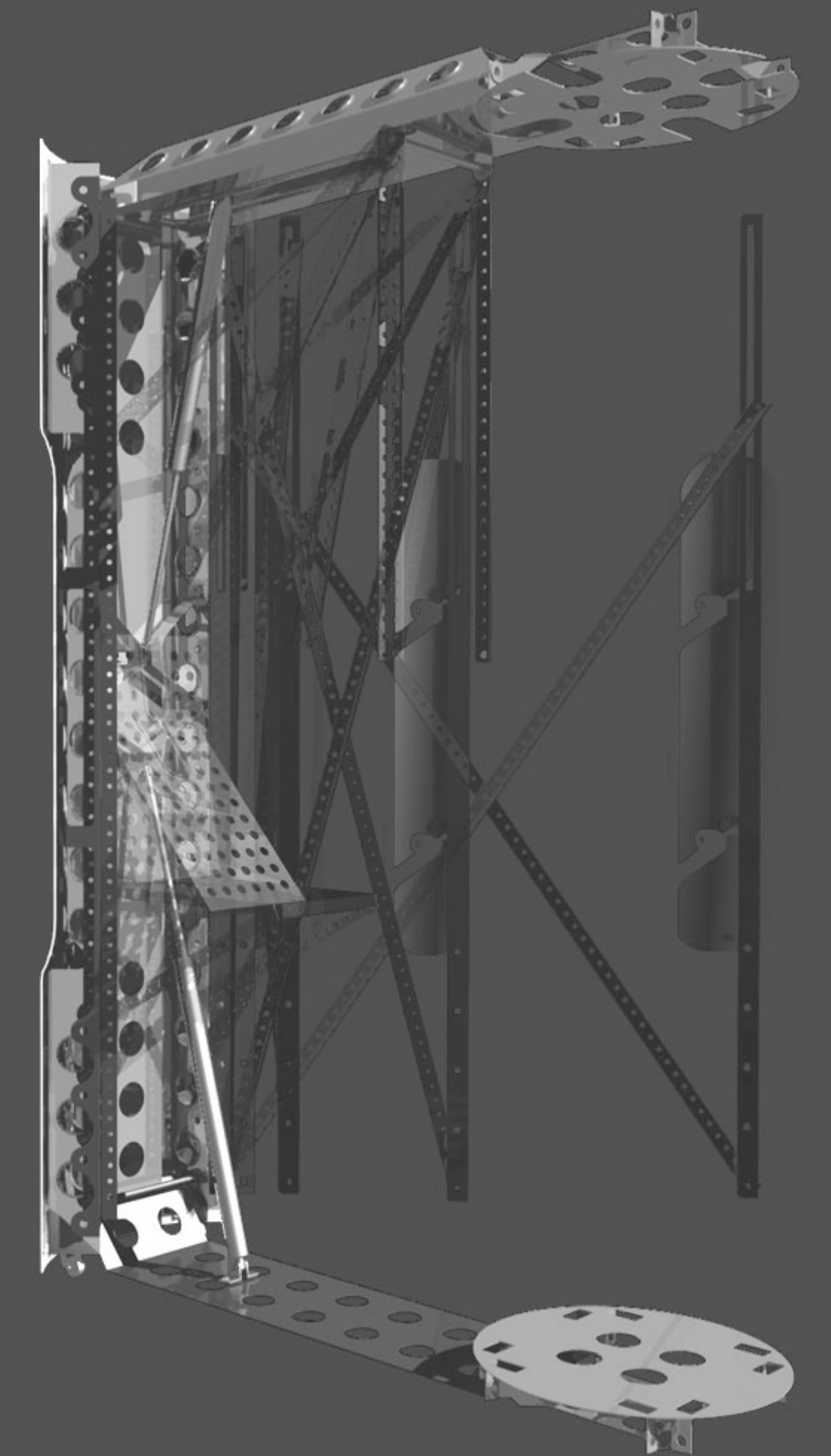
Power output is provided by a Gast 115V air compressor, which is externally connected to the capsule. The air compressor fuels four stainless steel Bimba pneumatic actuators within the mainframe to provide maximum control and containment internally, while in motion.



1" dia. tubular stainless steel truss brace/support.

12 & 14 Ga. cold rolled steel retractable wall assembly. See sheet 006 for details.

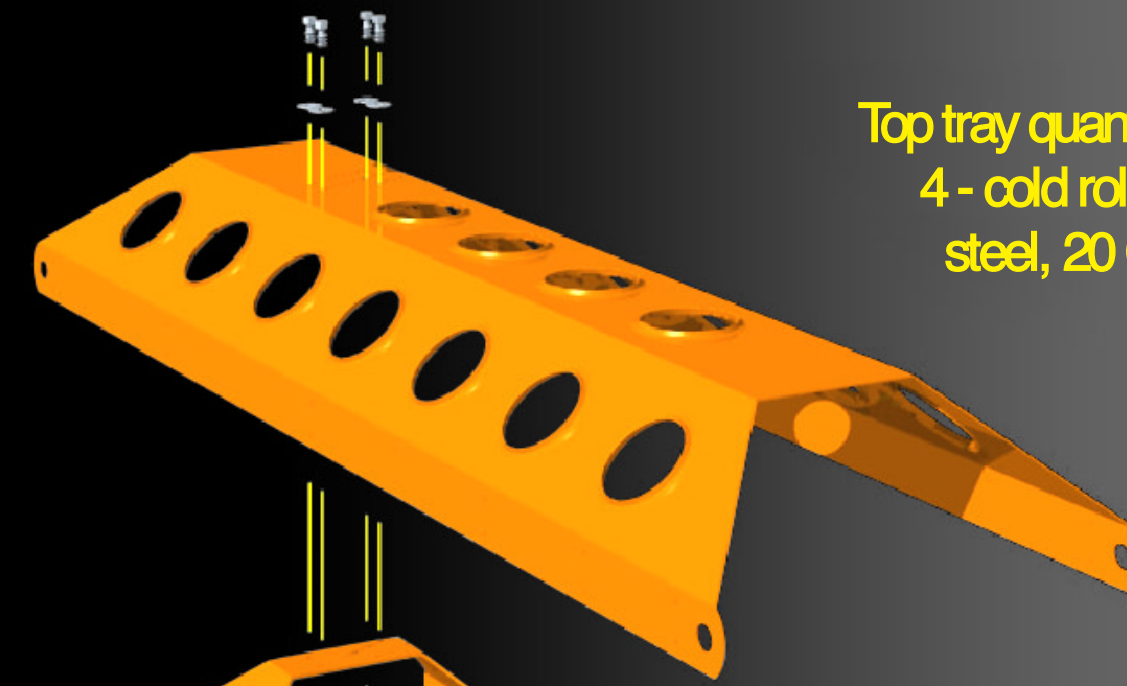
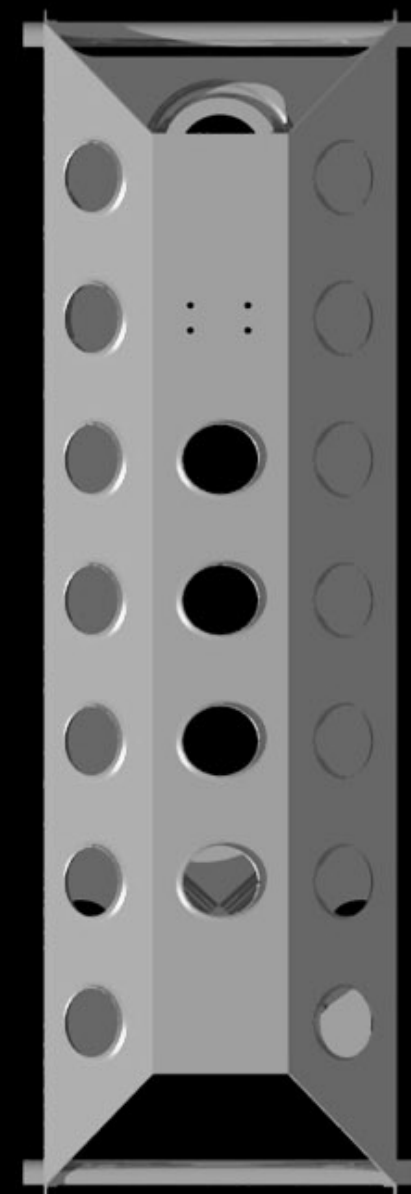
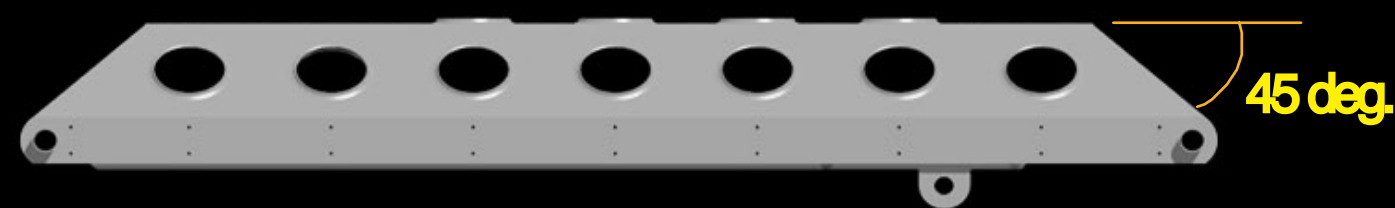
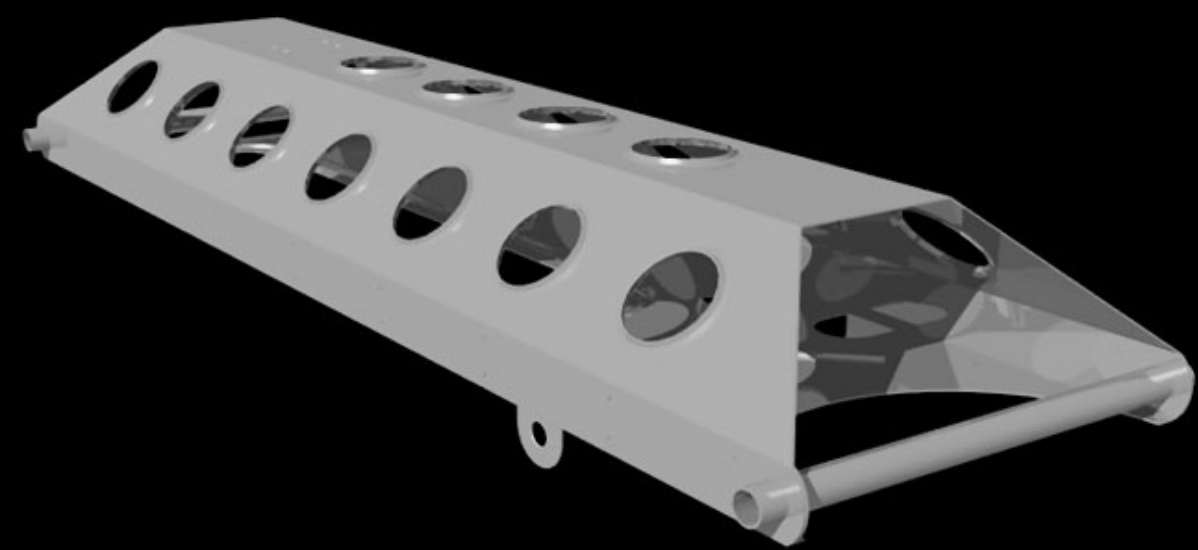
20 Ga. cold rolled steel fold down shelf assembly. See sheet 006 for details.



Physical Motion

Once the pneumatic opening sequence is complete, a secondary action is initiated. The truss arm support is manually rotated in place and pinned to the "V" panel. The workstation shelf is folded out from within the quarter panel structure and physically placed with pin connectors. This shelf design allows for maximum use of installation location and position.

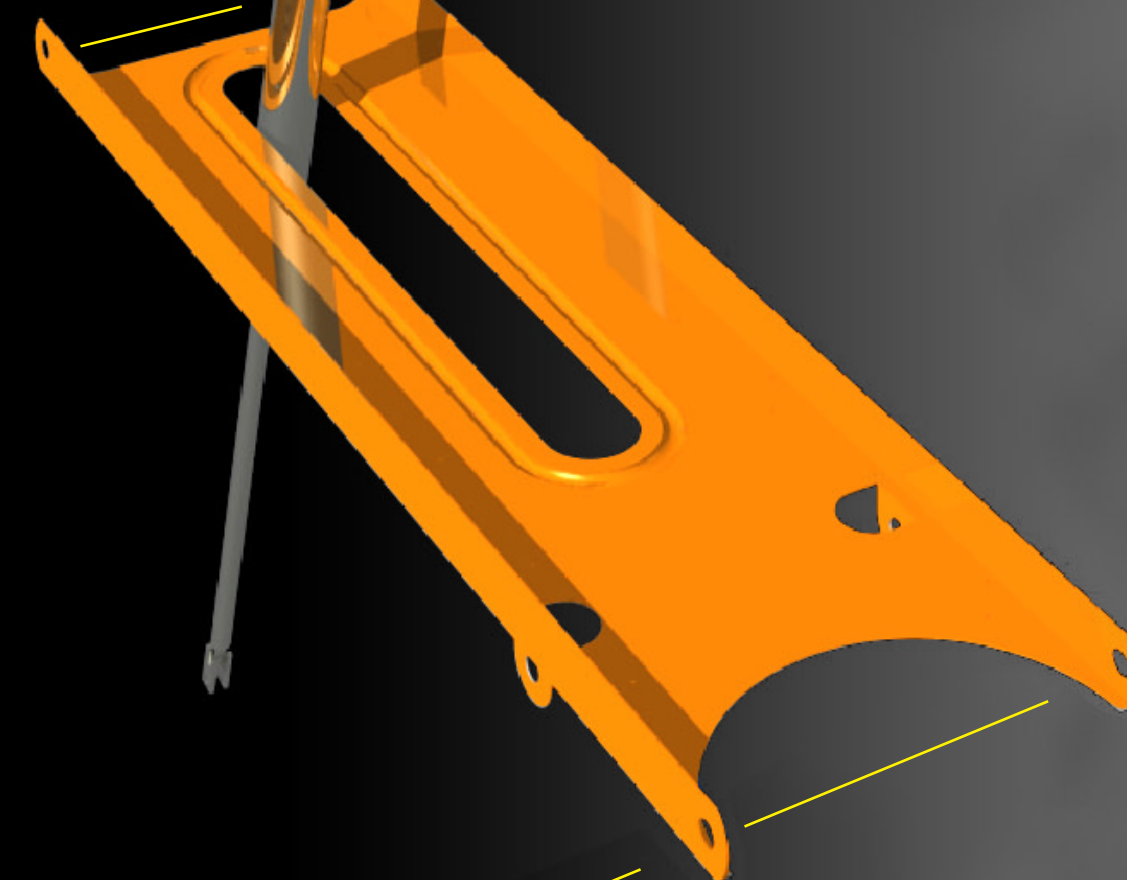
Kinematics



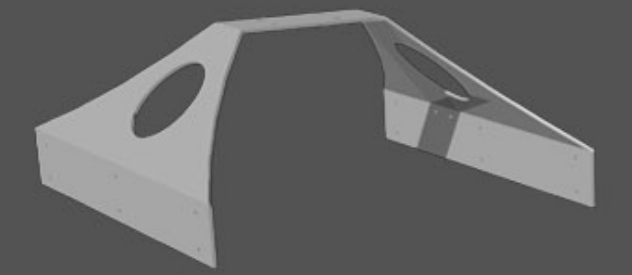
Top tray quantity:
4 - cold rolled
steel, 20 Ga.



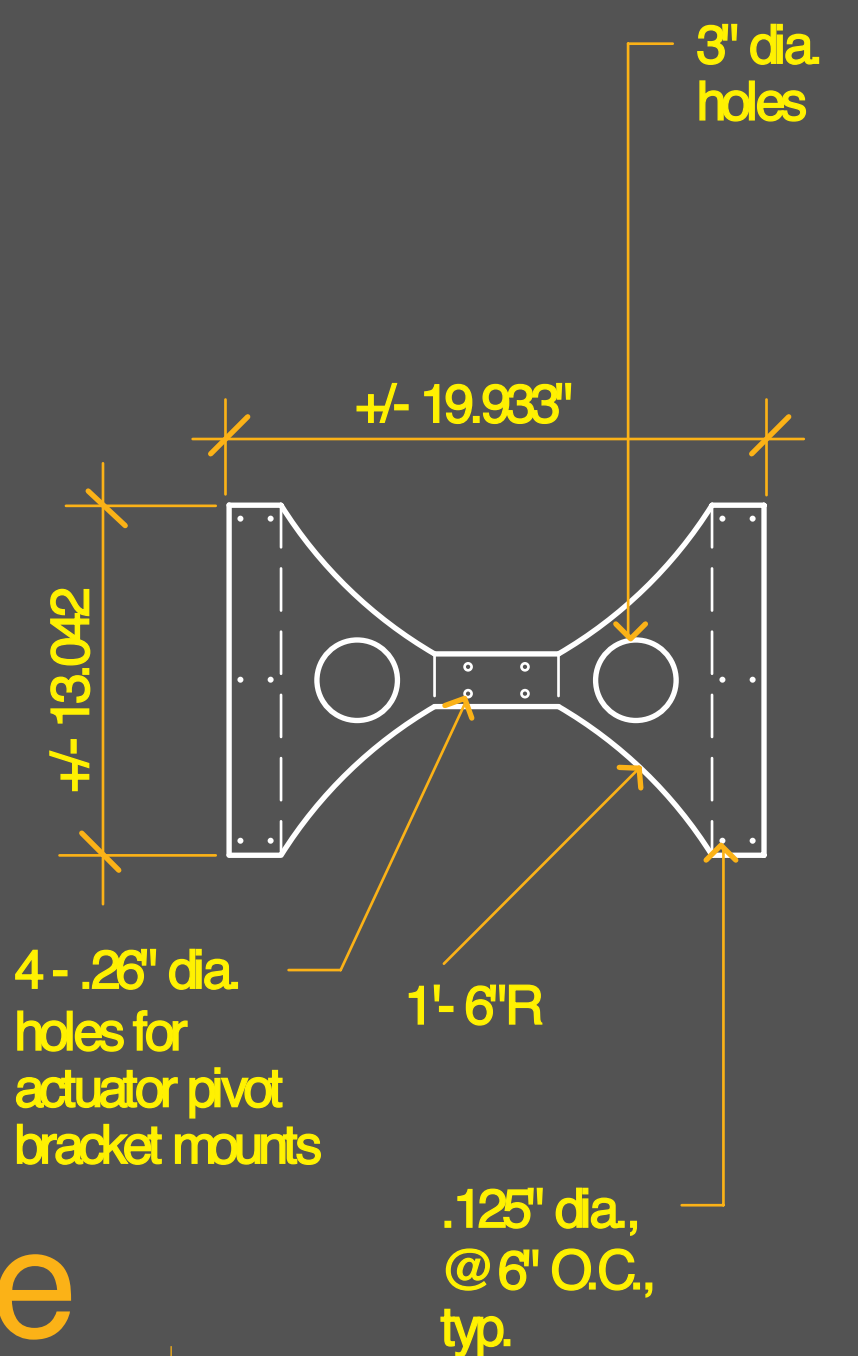
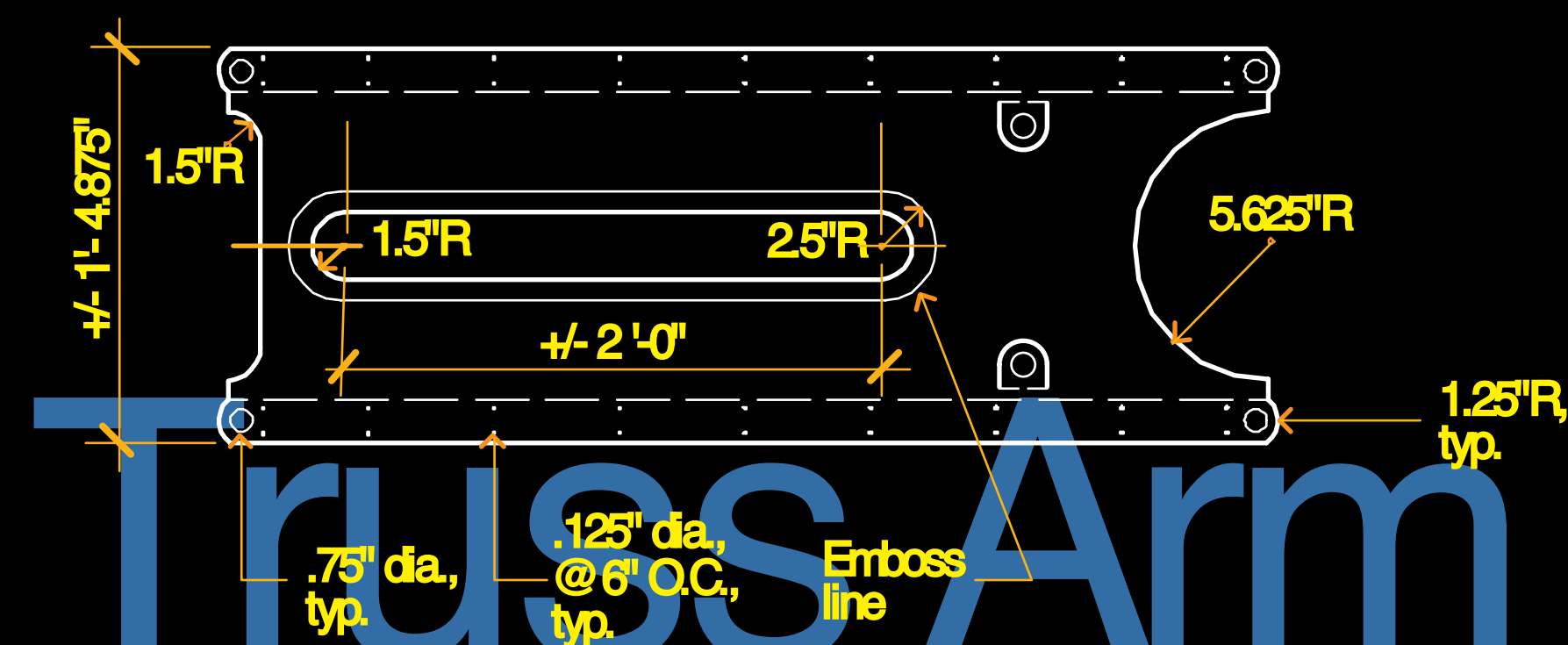
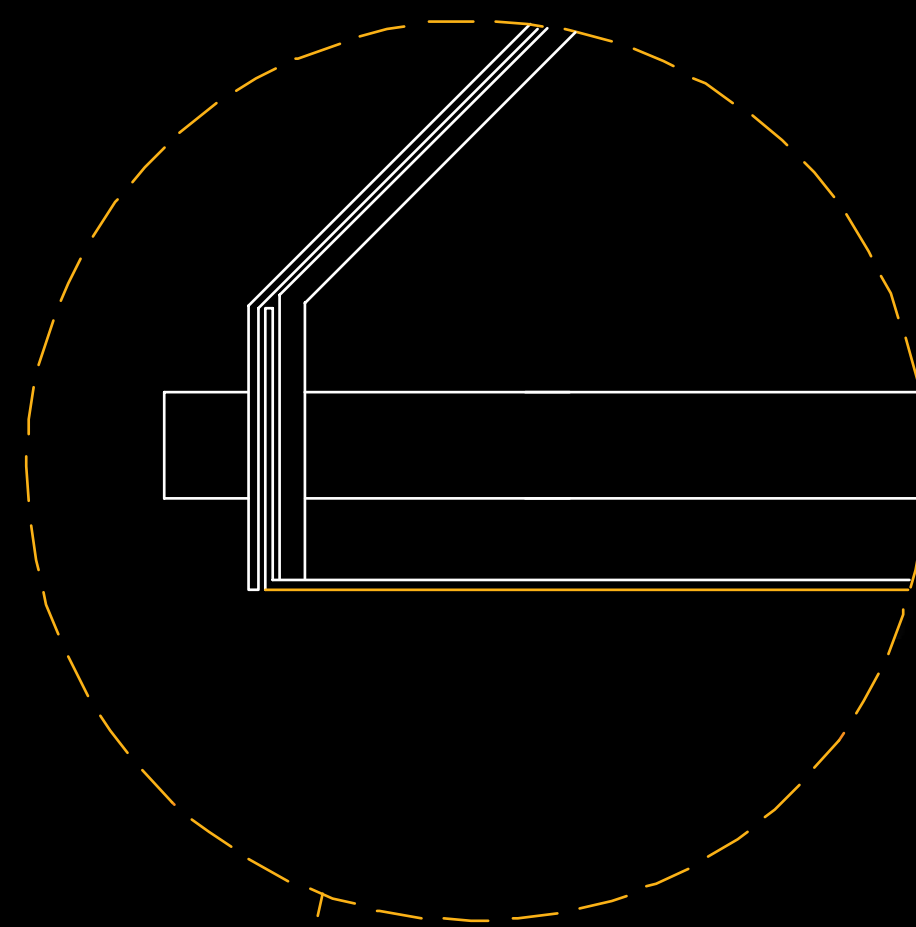
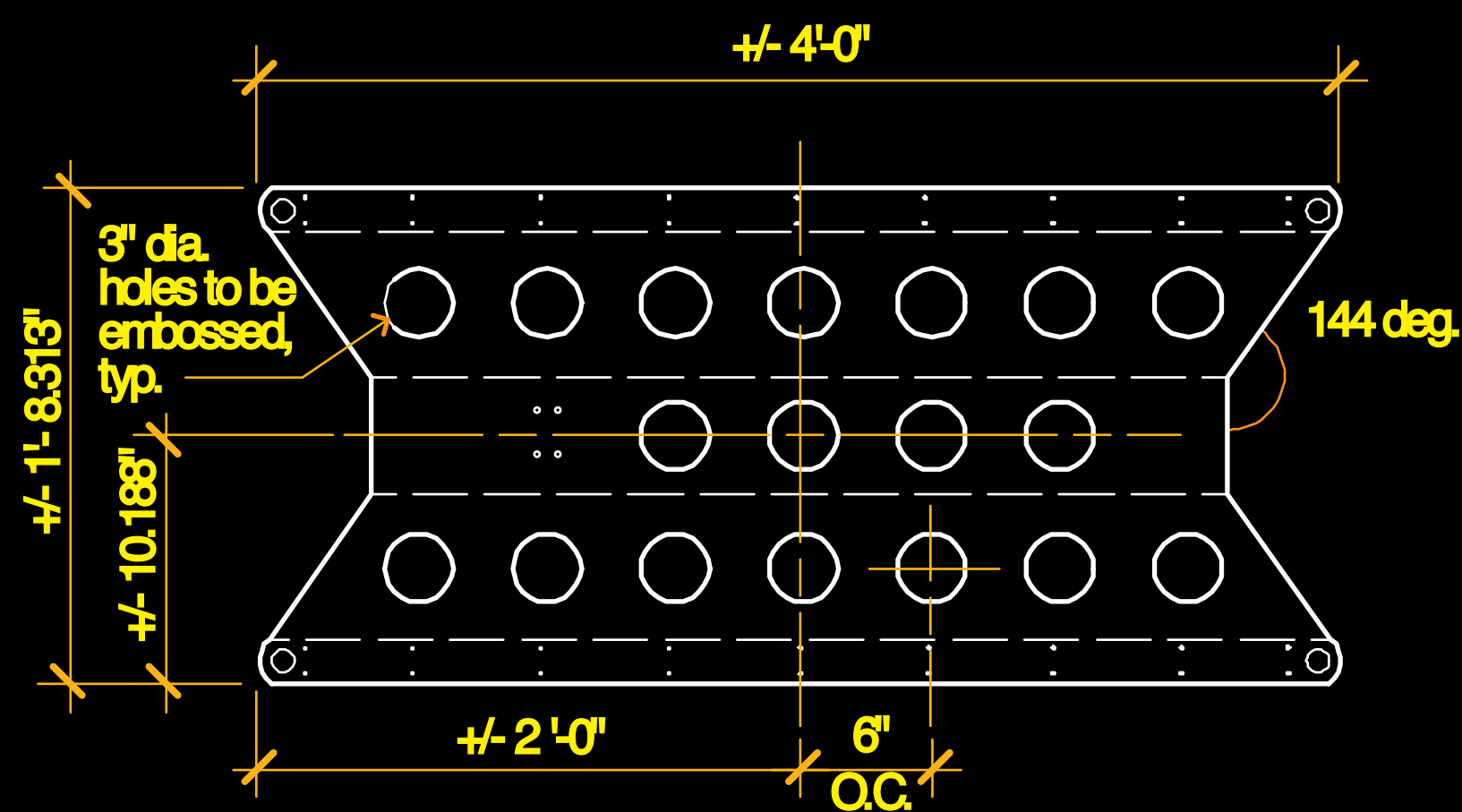
Brace quantity:
4 - cold rolled
steel, 12 Ga.



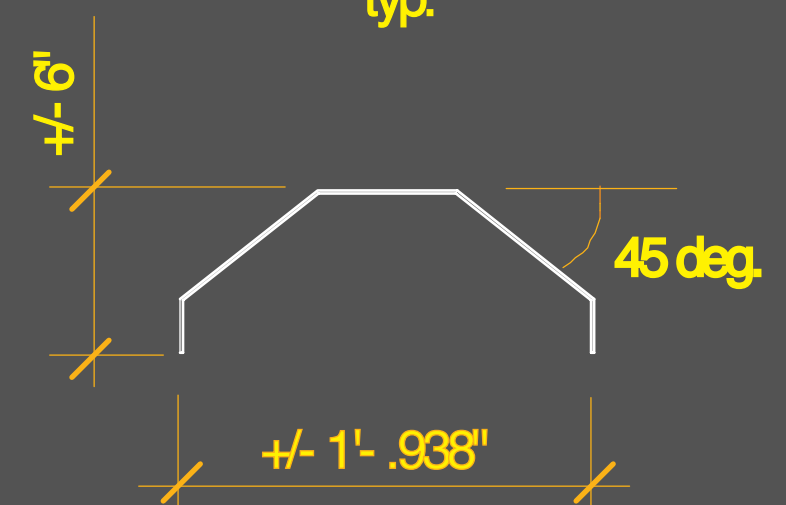
Bottom tray quantity:
4 - cold rolled
steel, 20 Ga.



Truss Arm



Truss Arm Brace



Truss Arm Assemblage

Stainless steel no. 4 finish

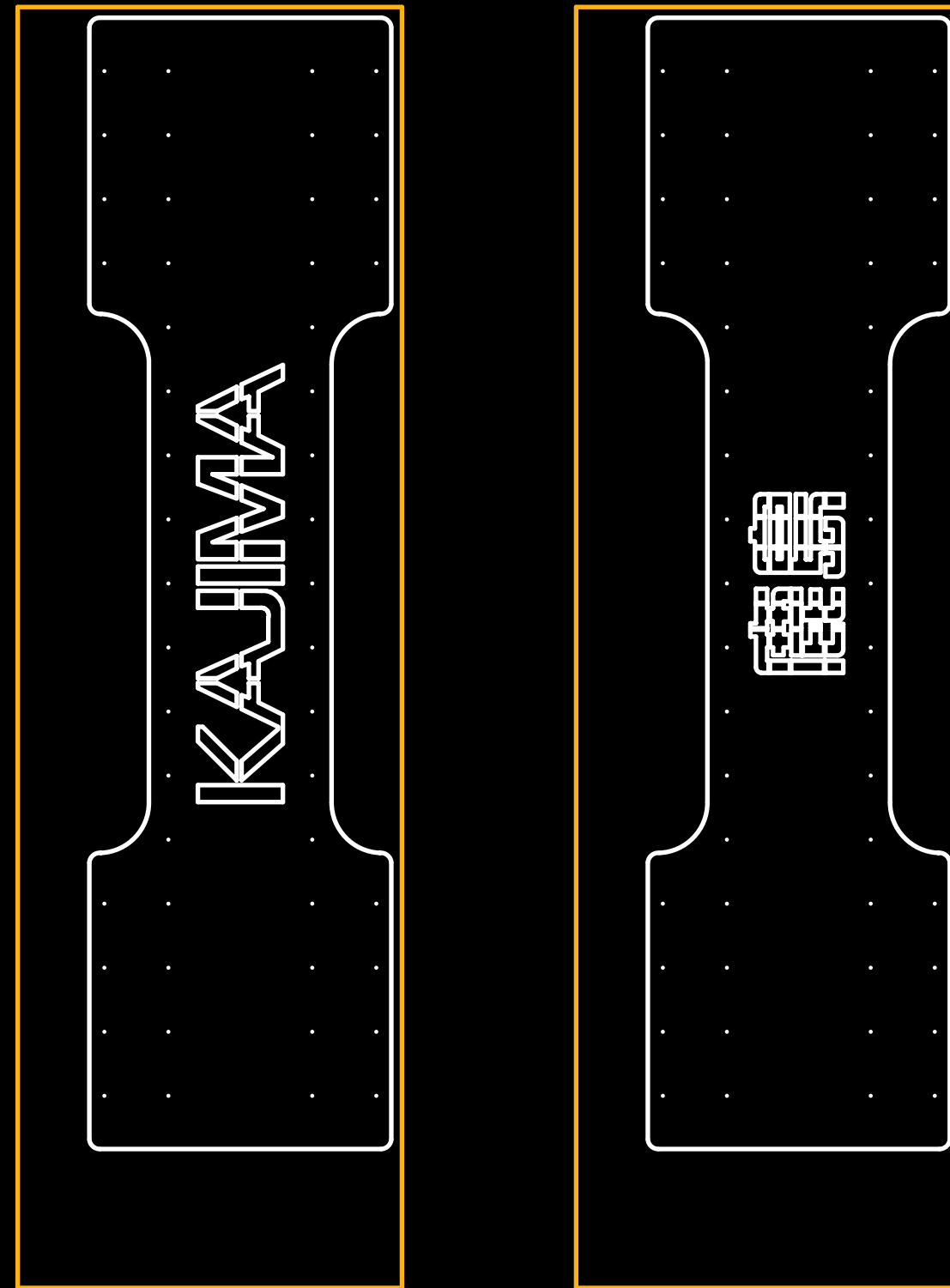
Sheet quantity:

Two each,
20 Ga., SS #4,
3' x 10' sheets

Stainless steel
1/2" x 8/32" dia.
Pem Studs
(FHS 8/32-8)
.163 dia holes,
typ.

Stud count:
50 per panel

Total stud count:
200

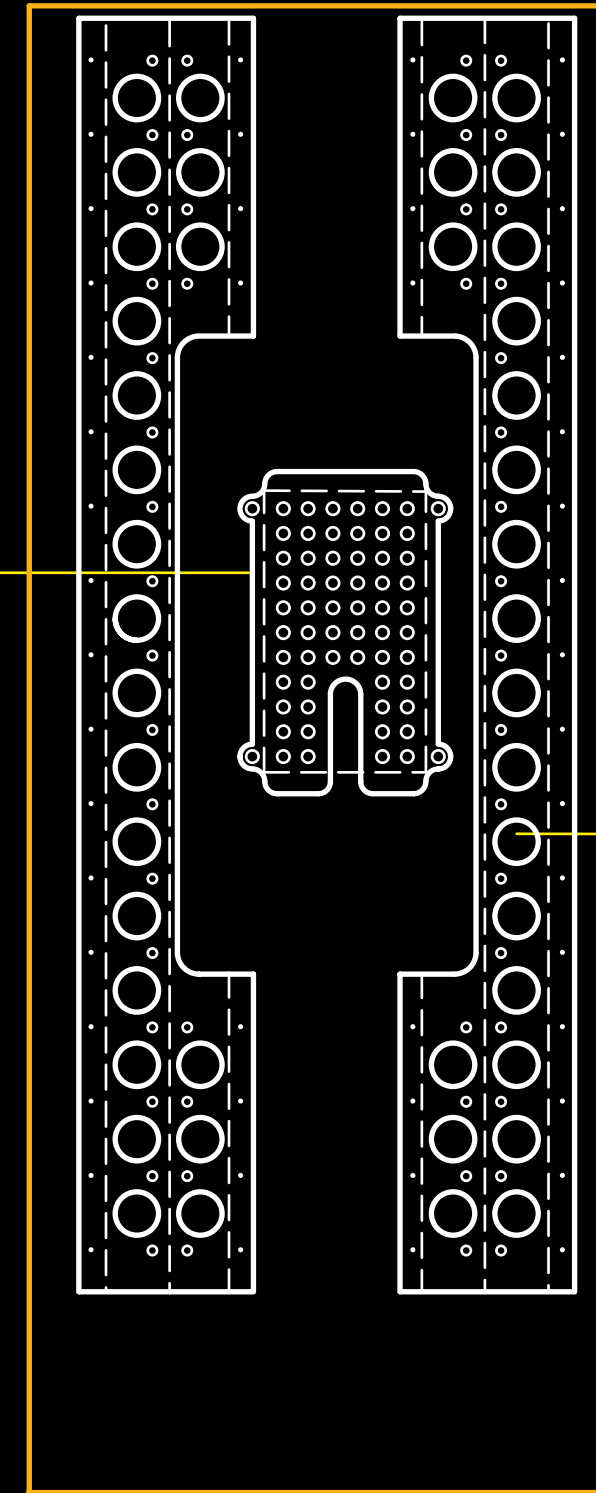


20 Ga. sheets

Sheet quantity:

Four, 20 Ga.
cold rolled steel
4' x 10' sheets

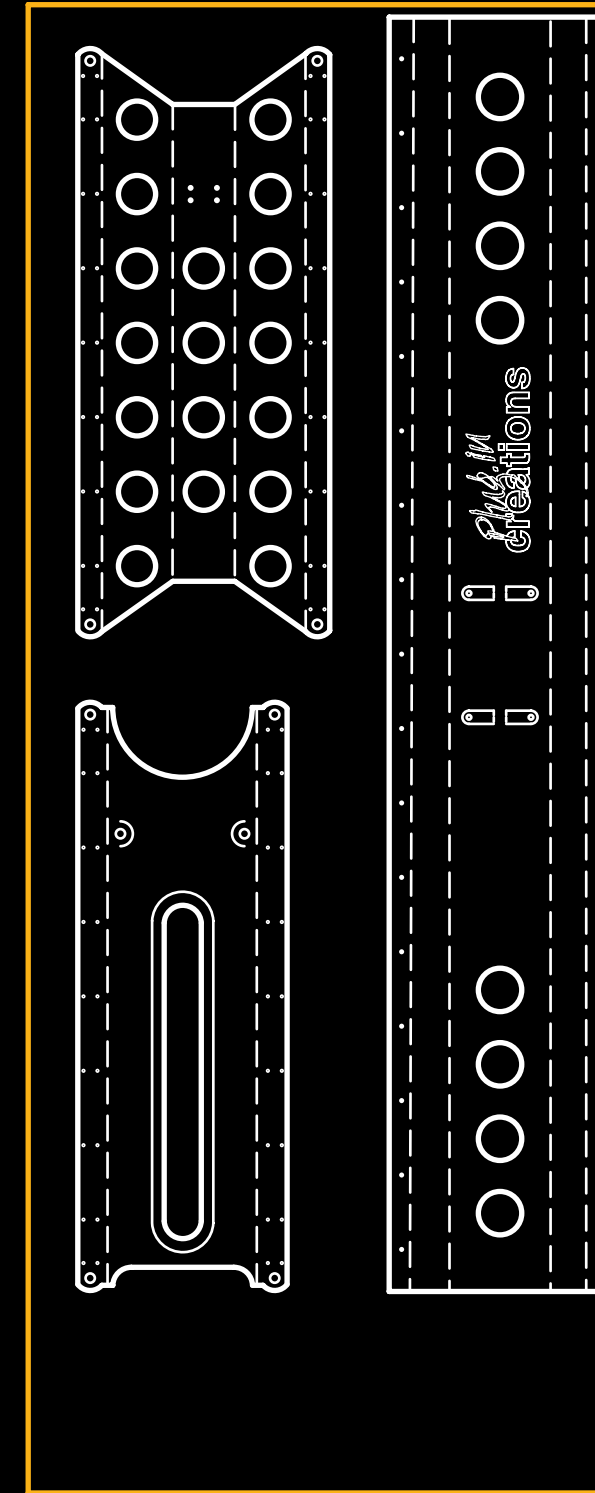
Total count: 4
pieces, folding
shelf.



Sheet quantity:

One, 20 Ga.
cold rolled steel
4' x 10' sheet

Total count: 8 pieces
"V" panel. 3.5"
holes to be extruded,
typ.

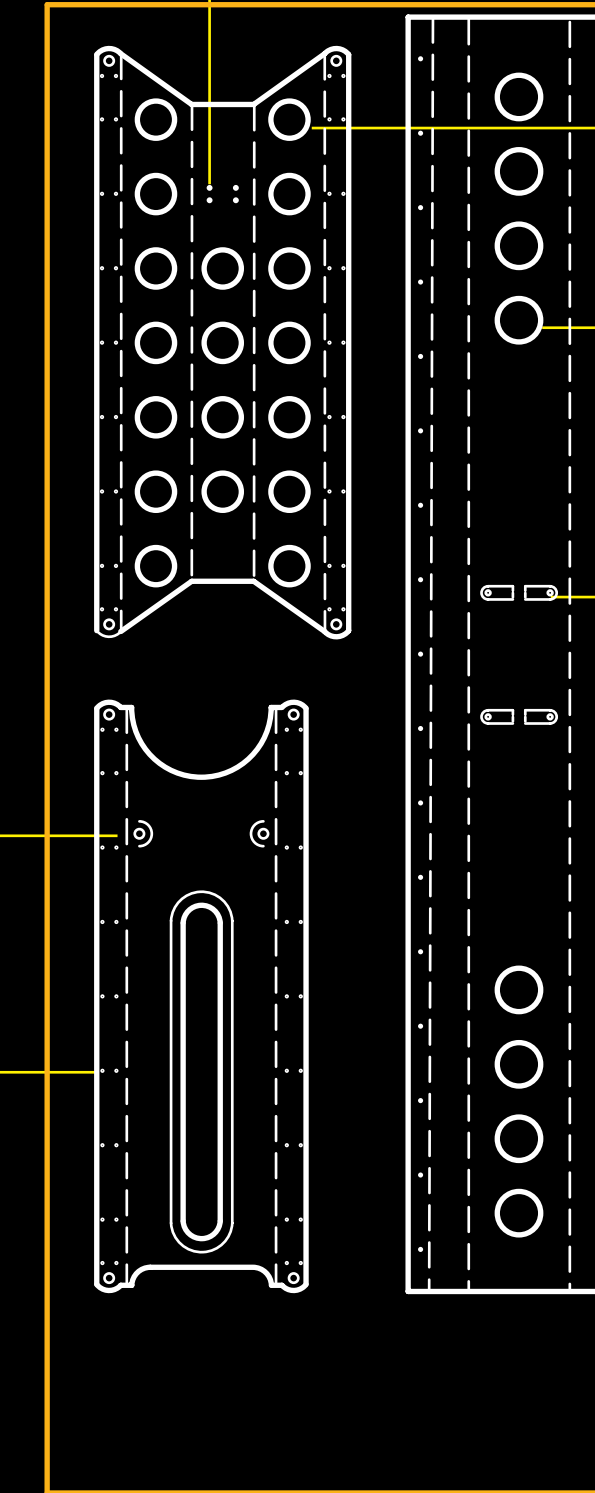


Sheet quantity:

Three, 20 Ga.
cold rolled steel
4' x 10' sheets

Fold-up tab, typ.

.125 dia. holes, typ.



4 holes, .26 dia.

3" dia. holes to be
extruded, typ.

3.5" dia. holes to be
extruded, typ.

Fold-up tab, typ.

.195 dia. holes, typ.

12 Ga. sheets

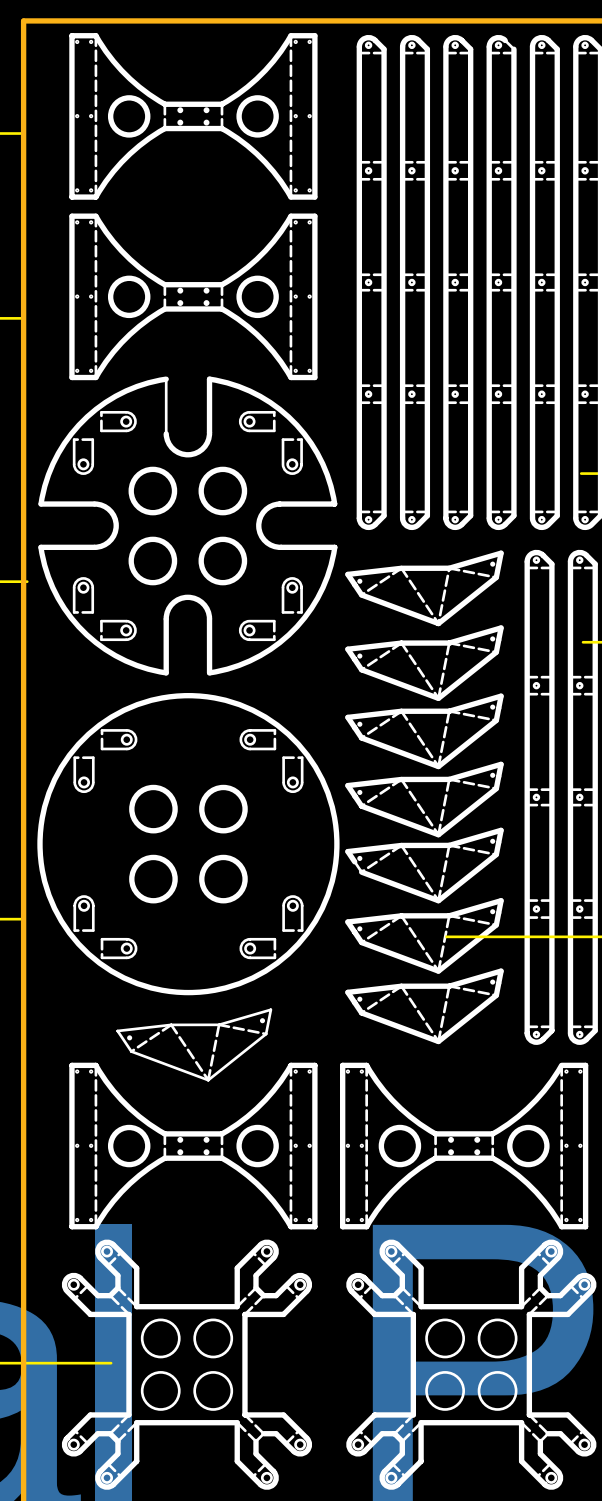
Sheet quantity:

One, 12 Ga.
cold rolled steel
4' x 10' sheet

Total count:
4 pieces, truss
arm brace.

Total count:
2 pieces, top
& bottom center
plates.

Total count:
2 pieces, top
& bottom center
plate brace.



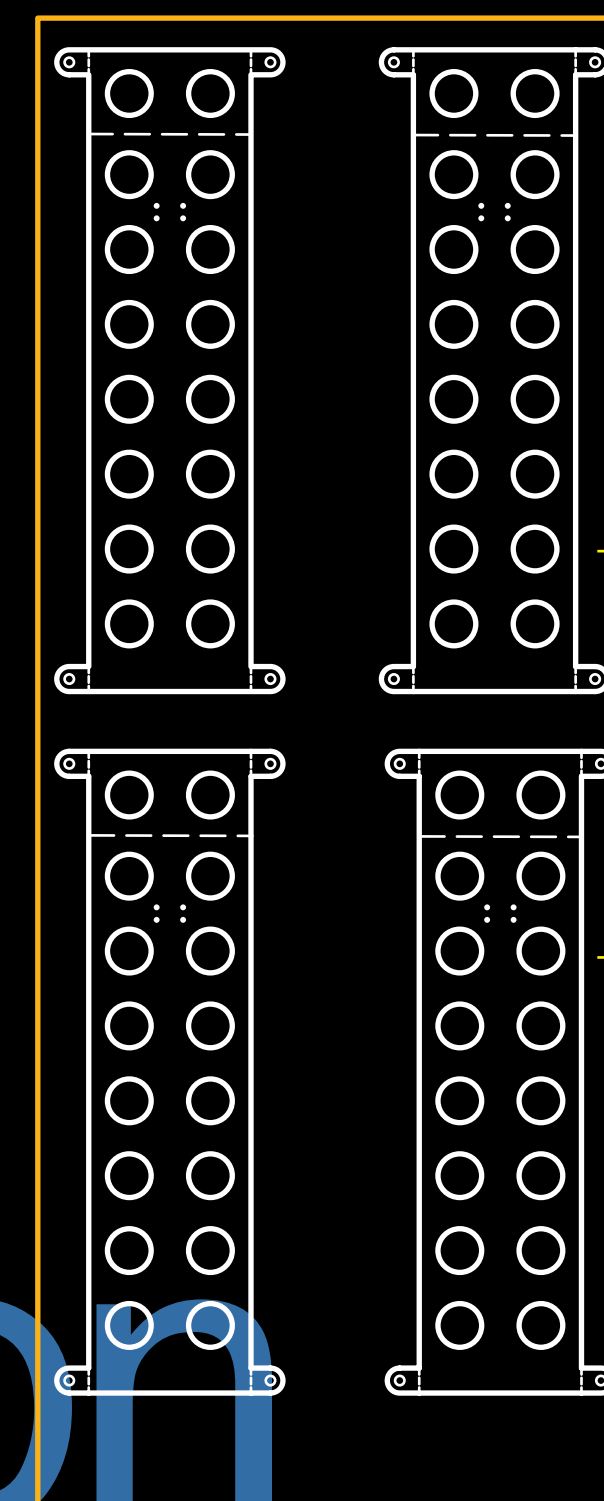
Total count: 8 pieces,
actuator brace

Total count: 8 pieces
caster brace plate.
4 - left, 4 - right.

Sheet quantity:

One, 12 Ga.
cold rolled steel
4' x 10' sheet

Total count: 4 pieces
leg assembly.



Sheet quantity:

One, 12 Ga.
cold rolled steel
4' x 10' sheet

Total count: 8 pieces
wall assembly,
4 w/tabs 4 w/o tabs.

