All members are Octanorm M1000.
Tiger Drylac RAL 09/10126 Glossy White Powder Coat
2@1520 both ends drilled w/ locks
2@1162
1@996 both ends drilled w/ locks
3@961 both ends drilled w/ locks
2@703
4@690 both ends drilled w/ locks (1 has locks turned @ one end)
2@300 1 end drilled w/ lock
2@100 1 end drilled w/ locks.

Top
Scale: 3/4" = 1'-0"

Front
Scale: 3/4" = 1'-0"
Acrylic Panels

21 5/8" [549mm]

Plexiglass W2447 White

27 3/4" [704mm]

Plywood Parts

Scale: 1" = 1'-0"

3/4" Plywood

Formica Gloss White Laminate on all public surfaces.
Counterbore back of hole to .375" depth for button installation.

Drill & Tap for 1/2" pipe fitting.

Drill & counterbore for #10 Screws (2X).

Drill thru outside wall. Drill & Tap inside piece for #6-32 screws.

Drill & Tap blind hole for #6-32 screw.

MATERIAL:.500 Grey PVC
Build 2
Trim and finish outside welds. Seal inside seams.
Vitrine Details

Bump and Roll Gimbal Encl.

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3/16" Chamfer @ top and vertical edges.

Bolts pin vitrine into position on Drip Tray.

Verify hole spacing against Metal Grille.

3/16" CLEAR ACRYLIC
8" Aluminum Pie Pan coated by Isurtec, St Paul, MN. Dark spots have been masked to leave some parts of the pan bare.

Pans secured with Self-Lock Mushroom-Head Fastener (McMaster-Carr #9605K21)

DC Equipment Cooling Fan 2.36" SQ X 1" Depth, 12 CFM, 12 VDC (McMaster-Carr #1939K58)

13.6 mm Harsh Environment Push-Button Switch Round Button with 19.7" Length Wire Leads (McMaster-Carr #6919K34)

Return "Spring" 3/32" Polyurethane Round Belting (McMaster-Carr #5972K001) One end clamped in slot of Shaft Collar, other end secured with bolt and standoff to Drain Pan.

Steel Fan Guard for 2.36" (60 mm) Fan (McMaster-Carr #19155K93)

5" 430 SS Wall cover (McMaster-Carr #2043K23) Secured to pan with Self-Lock Mushroom-Head Fastener (McMaster-Carr #9605K21)

25" x .125" Rare Earth Magnets press-fit into .5" plastic balls to secure Cabbage leaf to plate.

5" 430 SS Wall cover (McMaster-Carr #2043K23) Secured to pan with Self-Lock Mushroom-Head Fastener (McMaster-Carr #9605K21)

Tube support made from 1/16" Stainless wire. Secured to side of Drain Pan with #6-32 SS screw.

8" Aluminum Pie Pan coated by Isurtec, St Paul, MN. Dark spots have been masked to leave some parts of the pan bare.
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Left Isometric

Bump and Roll - Gimbal

Sheet #2 of 10

MDA

04/20/2009

FULL

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DRAWN BY:

DATE DRAWN:

REVISED BY:

DATE REVISED:

SCALE:

EXHIBIT TITLE:

COMPONENT TITLE:

DRAWING TITLE:
2.000 Ø .78000 through Ø 1.000
1.500 .750
1.250 .188
1.250 .625
1.750 .625
3.000 .188
1.88
.625
1.750 .625
1.250 .625

1 Bearing Block - Front
3 Scale: Actual Size

3 Bearing Block - Isometric
3 Scale: Actual Size

(2X) BRONZE BUSHING .750 ID x 1.000 OD x .625
(2X) DRILL & TAP FOR 10-24 HELICOIL

Bearing Block
Bump and Roll - Gimbal

MATERIAL: BLACK DELRIN (ACETAL)
Shaft Stop Details

- Shaft Stop machined from .500 Aluminum
- (2X) Plastic Washers heat-formed into Belville washers

MATERIAL: 6061-T6 ALUMINUM

Shaft Stop Details

- 750 OD x .0625 wall SS tube
- Ends faced square and deburred.

Front View @ Shaft Stop

Right View @ Shaft Stop

DRAWN BY: [Signature]
DATE DRAWN: 04/20/2009
SHEET #: 5
REVISED BY: [Signature]
DATE REVISED: 04/20/2009
SCALE: 1:1
EXHIBIT TITLE: Tubular Shaft and Stop
COMPONENT TITLE: Bump and Roll - Gimbal
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Joystick Assembly
Bump and Roll - Gimbal

Scale: Actual Size

Material: Brass Rod

1. Joystick Assy. Left Isometric
2. Joystick Assy. Front
3. Joystick Assy. Left Side
4. Joystick Details

(2x) Flat Bearing Surface for Nylon Washers
Drill for Slip Fit @ 3/16 Shoulder Bolt
Drill & Tap for #6-32 Machine Screw

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MATERIAL: BRASS ROD
Joystick Assembly Parts

1. Joystick Cover Details
   Scale: Actual Size

2. Shaft Receiver Details
   Scale: Actual Size

3. Joystick Mount Plate Details
   Scale: Actual Size

MATERIAL: 6061-T6 ALUMINUM

DRILL & TAP THIS FOR #10-24 HELICOIL.

(3X) Ø .156
MATERIAL: 125 LEXAN

RIGHT SIDE VIEW
@ JOYSTICK COVER

RIGHT SIDE VIEW
@ JOYSTICK MOUNT PLATE

MATERIAL: 6061-T6 ALUMINUM

(3X) DRILL & TAP FOR #6-32 MACHINE SCREWS

(2X) DRILL & COUNTERSINK FOR #8-32 MACHINE SCREWS.

DRAWING TITLE: Joystick Assembly Parts
COMPONENT TITLE: Bump and Roll - Gimbal
REVISED BY: NISE Network Exhibits
EXHIBIT TITLE: MDA

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Tilt Block Detail

1

Scale: Actual Size

Pivot Arm Detail

2

Scale: Actual Size

Tilt Mechanism

3

Scale: Actual Size

Mcmaster Part #11175A12
316 SS Surface-Mount Hinge
with Holes Polished Finish,
Non-Removable Pin, 1-1/2" H,
2-7/8" W

DRILL, COUNTERBORE & TAP FOR #6-32 SOCKET HEAD CAP SCREW.

(2X) DRILL & TAP FOR #10-24 MACHINE SCREWS.

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Tilt Mechanism Parts

Bump and Roll - Gimbal

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1. Threaded Rod and Ends

2. Pie Pan Platform

(2X) #6-32 MINIATURE TIE-ROD ENDS

#6-32 STAINLESS STEEL ALL-THREAD

1.335
1.335
1.750
1.750
9.625 NOM.

3. Isometric

MATERIAL: 6061-T6 ALUMINUM

1.335
.830
1.335
3.500

1.335
.830
1.335
3.500

DRILL & TAP FOR #10-24 MACHINE SCREW.

(2X) DRILL & COUNTERSINK FOR #10-24 FLAT HEAD MACHINE SCREWS.

Isometric

Scale: Actual Size

Scale: Actual Size
AC power into cabinet

Entire electrical system protected by GFCI

Outlets for AV. GFCI protected.

12V Sealed Lead Acid Battery for fan power. The fans run constantly to discourage mold in the vitrines.

DPST toggle disconnects Battery and turns power supply off.

Powerstream Power supply provides 12VDC for fans and relays as well as charging the battery.

1A Fuse block for Battery

12v relays for peristaltic pumps. Each relay has an onboard fuse.

(2X) GFI outlets
 Supply posts run to rest of cabinet.

(2X) 12V Relay and fan for each side of exhibit. Relay controls power to peristaltic pumps.

Fan @ vitrine

12V sealed lead acid battery

1Amp fuse

AC power out to peristaltic pumps.

Button @ table top

Fan @ vitrine

Powerstream 12V power supply w/ battery backup

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Bump and Roll Electrical

Bump and Roll

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