

4X \varnothing .217 THRU ALL
 \square \varnothing .394 ∇ .157
 (USE COUNTER BORE DRILL BIT
 MCMMASTER PART 29445A23)

4X \varnothing .217 THRU

\varnothing .625 THRU

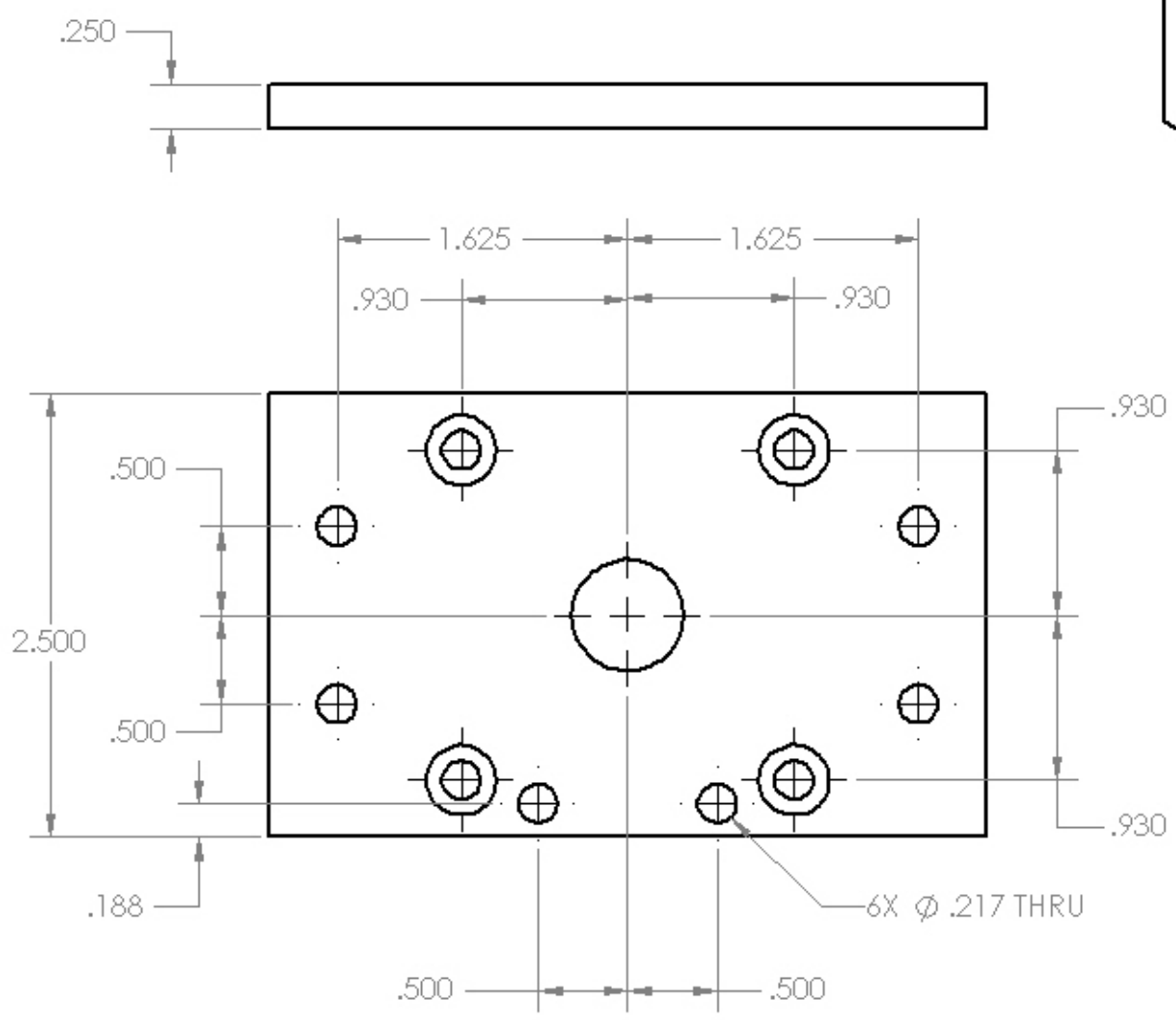
CNC ROUTER

STEPPER MOUNTING PLATE

MATERIAL | 6061 ALUMINUM

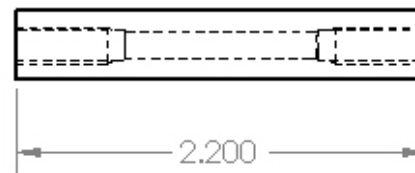
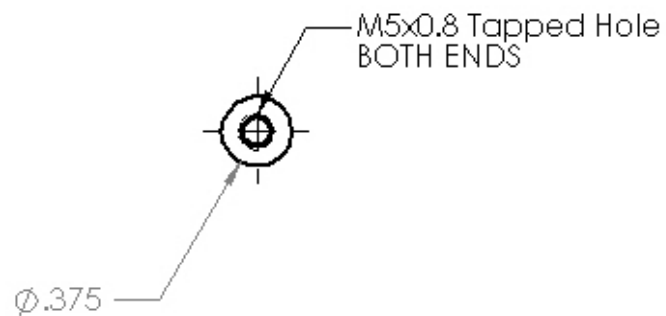
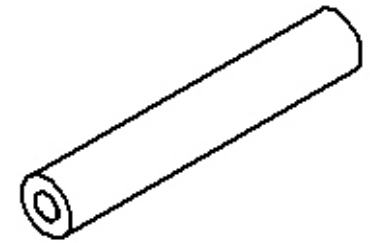
DWG BY | DC | DATE | 2/23/12

QTY | 4 | PART | SA-01



NOTE: THIS PLATE IS THE SAME AS THE OTHER STEPPER MOUNTING PLATE EXCEPT THE TWO EXTRA HOLES

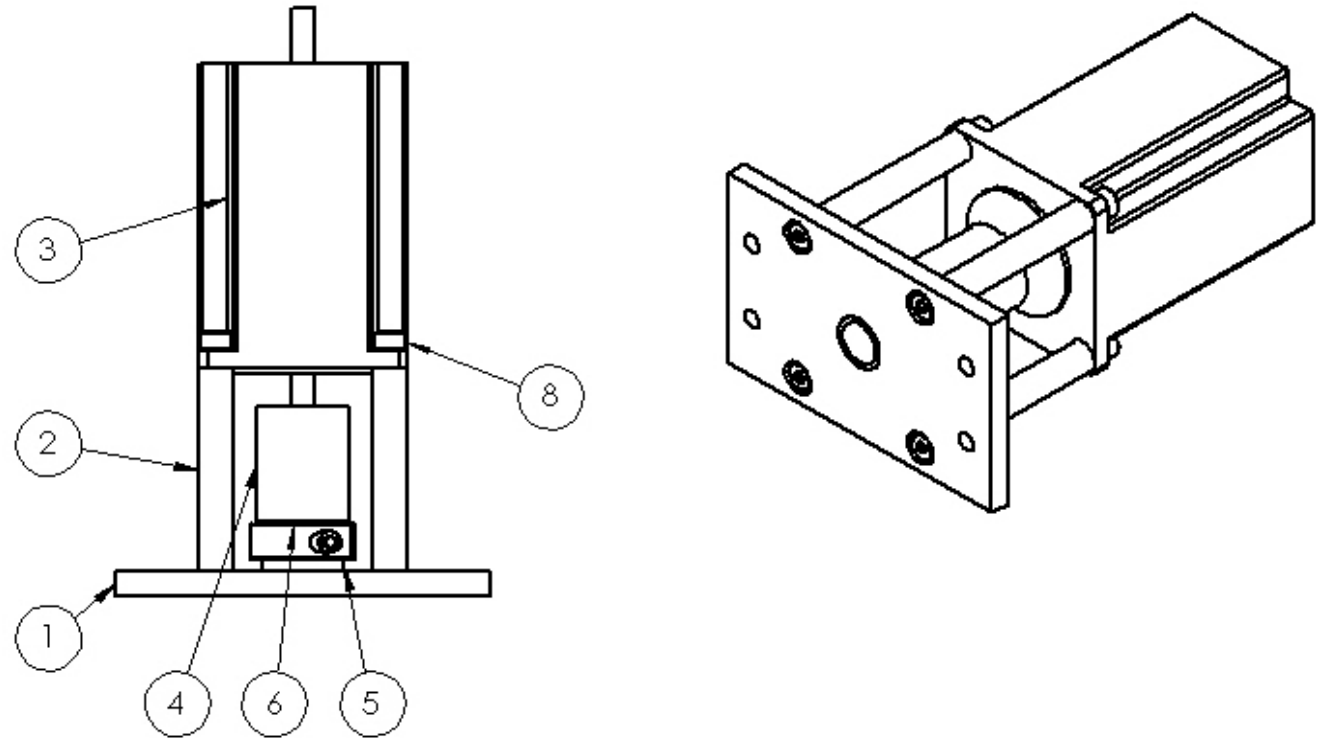
| | | | |
|----------------------------|---------------|------|---------|
| CNC ROUTER | | | |
| Z AXIS STEPPER MOUNT PLATE | | | |
| MATERIAL | 6061 ALUMINUM | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | SA-02 |



NOTE: I WOULD NOT RECOMMEND BUILDING THIS BUT ITS WHAT I DID SO I'M SHOWING IT TO YOU. THIS IS BUILT FROM ALUMINUM TUBE FROM MCMASTER CARR (PART #1658T43)

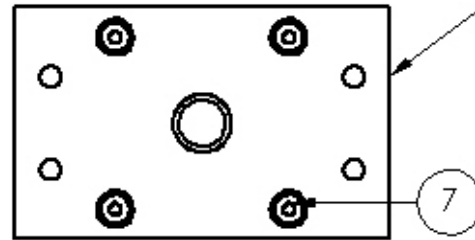
I DO RECOMMEND BUYING A 10-32 THEADED STANDOFF FROM MCMASTER (PART#91780A063) AND USING 10-32 HARDWARE TO MOUNT THE STEPPER MOTOR

| | | | |
|------------|---------------|------|---------|
| CNC ROUTER | | | |
| STANDOFF | | | |
| MATERIAL | ALUMINUM TUBE | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 12 | PART | SA-03 |



NOTE: THE OLDHAM COUPLER CONSISTS OF THREE PARTS FROM MCMASTER:

1. MC#9889T204 - 1/2" HUB
2. MC#5998K63 - CENTER DISC
3. MC#9889T201 - 1/4" HUB



| ITEM NO. | PART NUMBER | QTY. |
|----------|-------------------------------|------|
| 1 | Stepper Mount SA-01 | 1 |
| 2 | Standoff SA-03 | 4 |
| 3 | Gecko 280 oz in Stepper | 1 |
| 4 | Oldham Coupler | 1 |
| 5 | MC#2938T11 Bronze Bushing | 1 |
| 6 | MC#6157K14 1/2" SHAFT COLLAR | 1 |
| 7 | MC#93070A123 M5X12MM LOW HEAD | 4 |
| 8 | MC#91290A228 M5X12MM SHCS | 4 |

| CNC ROUTER | | | |
|----------------|----|------|---------|
| Motor Assembly | | | |
| MATERIAL | NA | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 3 | PART | NA |

[30]
1.181

[57]
2.238

[10]
.409

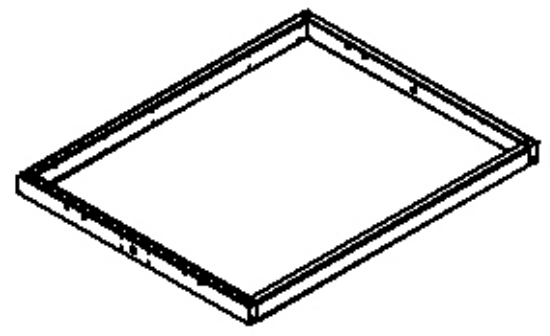
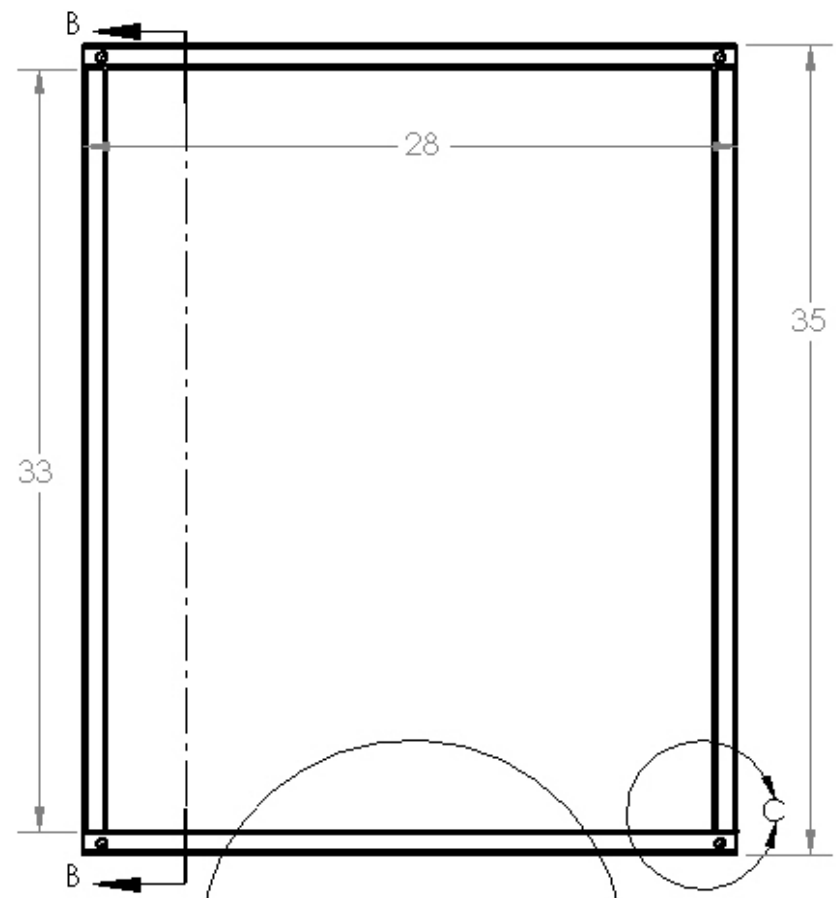
[150]
5.906

NOTE: THESE TAPPED HOLES SHOULD BE CENTER PUNCHED ONCE YOU HAVE THE RAILS. THE DEMINIONS SHOWN ARE TYPICAL BUT NOT EXACT

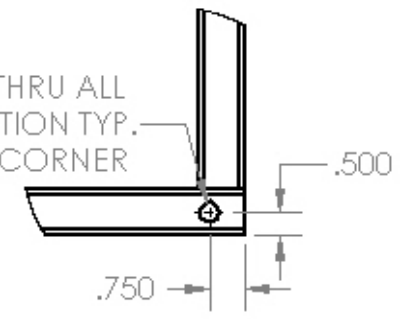
M5x0.8mm
TAP THRU
12 PLACES

[31]
1.234

SECTION B-B



4X ϕ .406 THRU ALL
HOLE LOCATION TYP.
FOR EACH CORNER

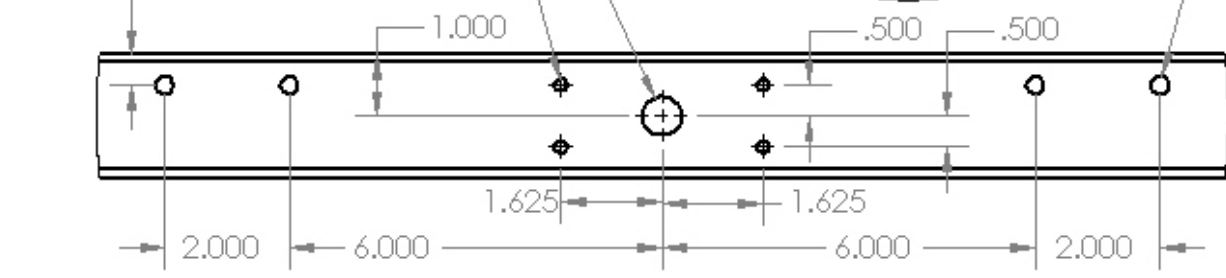


DETAIL C
SCALE 1 : 4

ϕ .625 THRU ALL

4X ϕ .165 THRU
M5X0.8 - 6H THRU

4X ϕ .281 THRU ALL



DETAIL A
SCALE 1 : 3

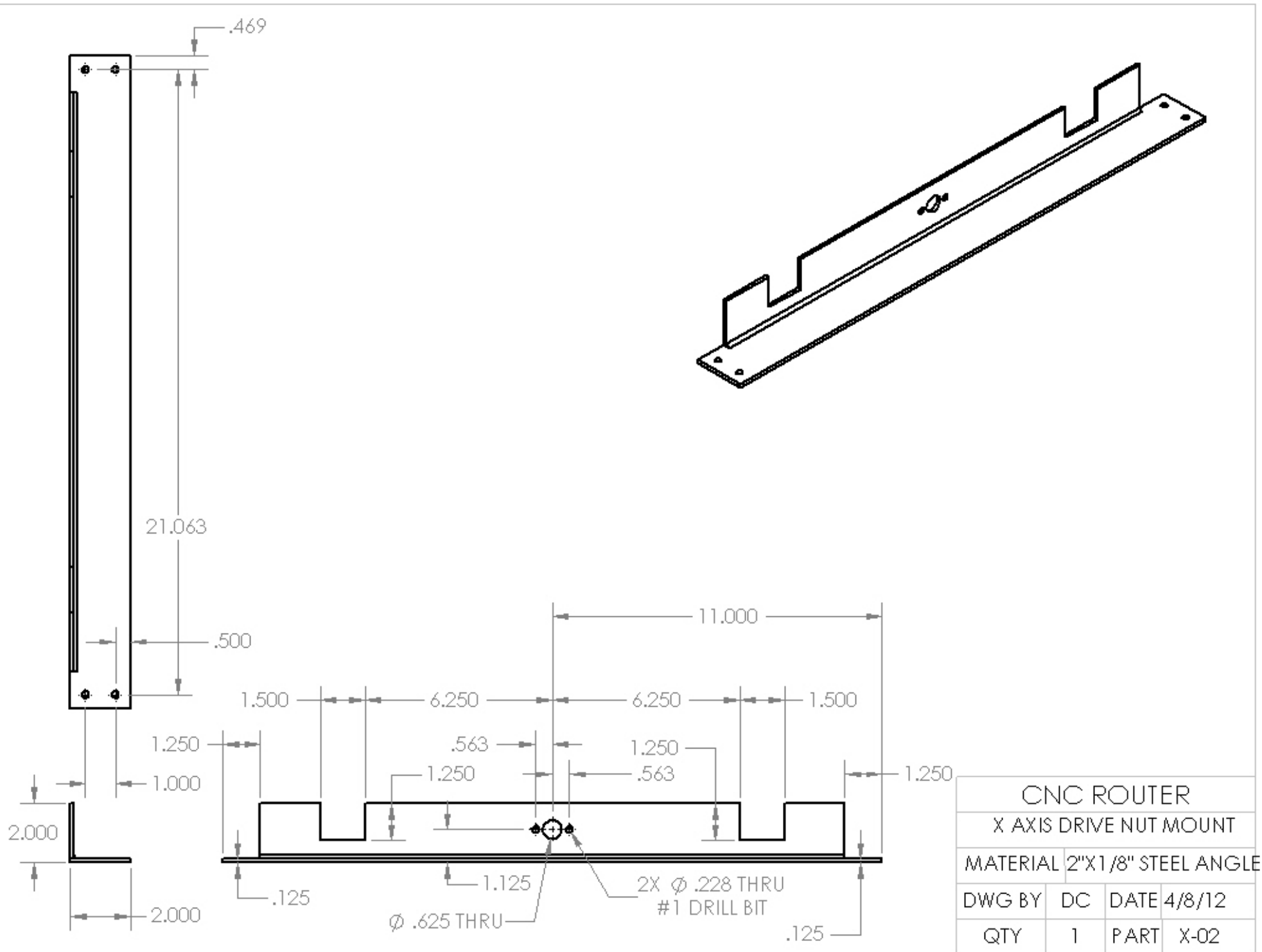
CNC ROUTER

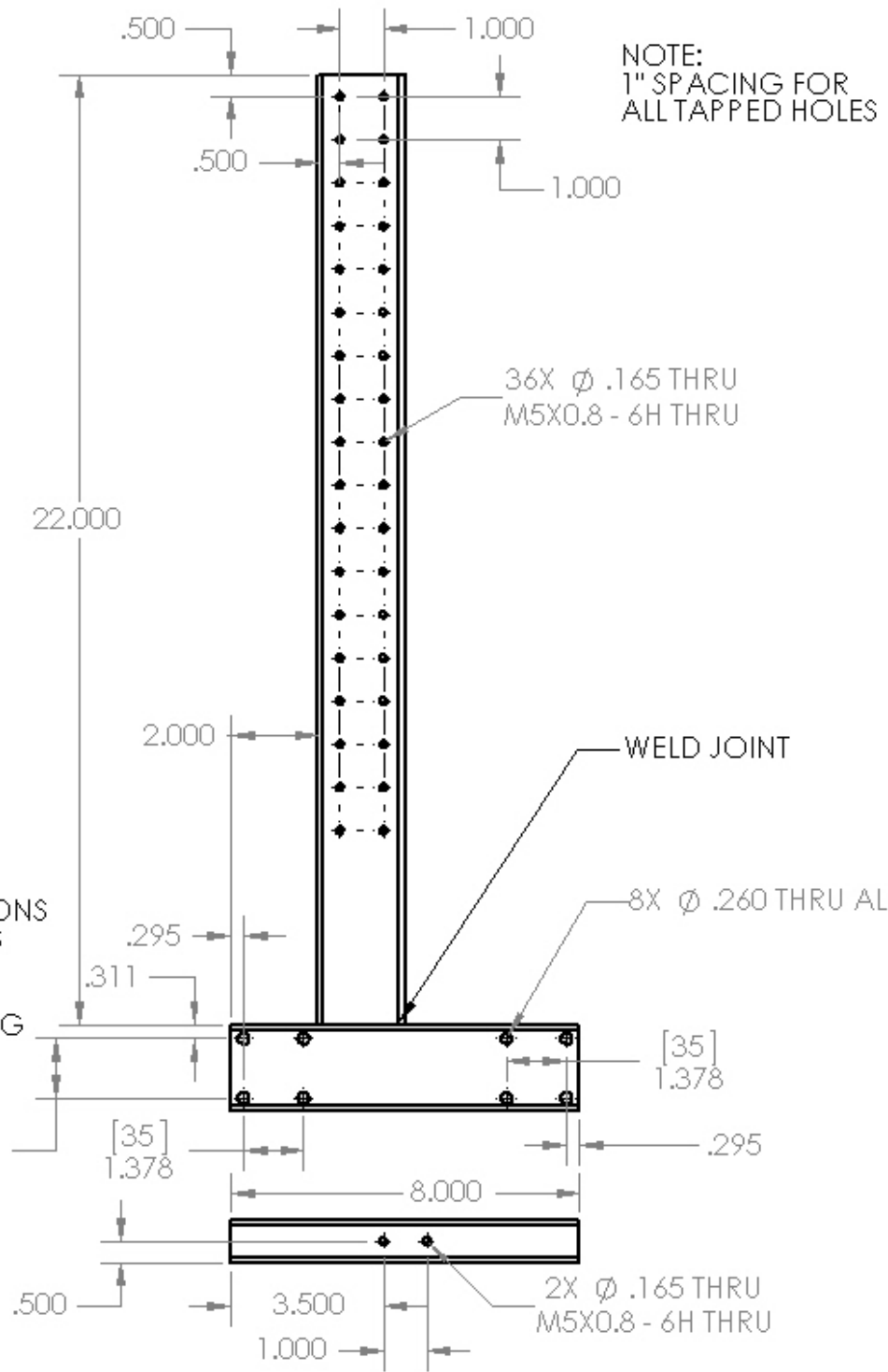
X AXIS FRAME

MATERIAL 1X2X0.065" STEEL

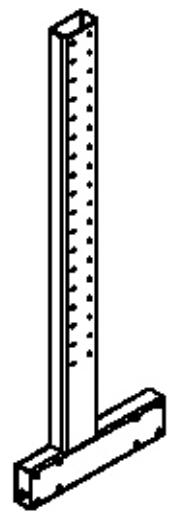
DWG BY DC DATE 4/8/12

QTY 1 PART X-01



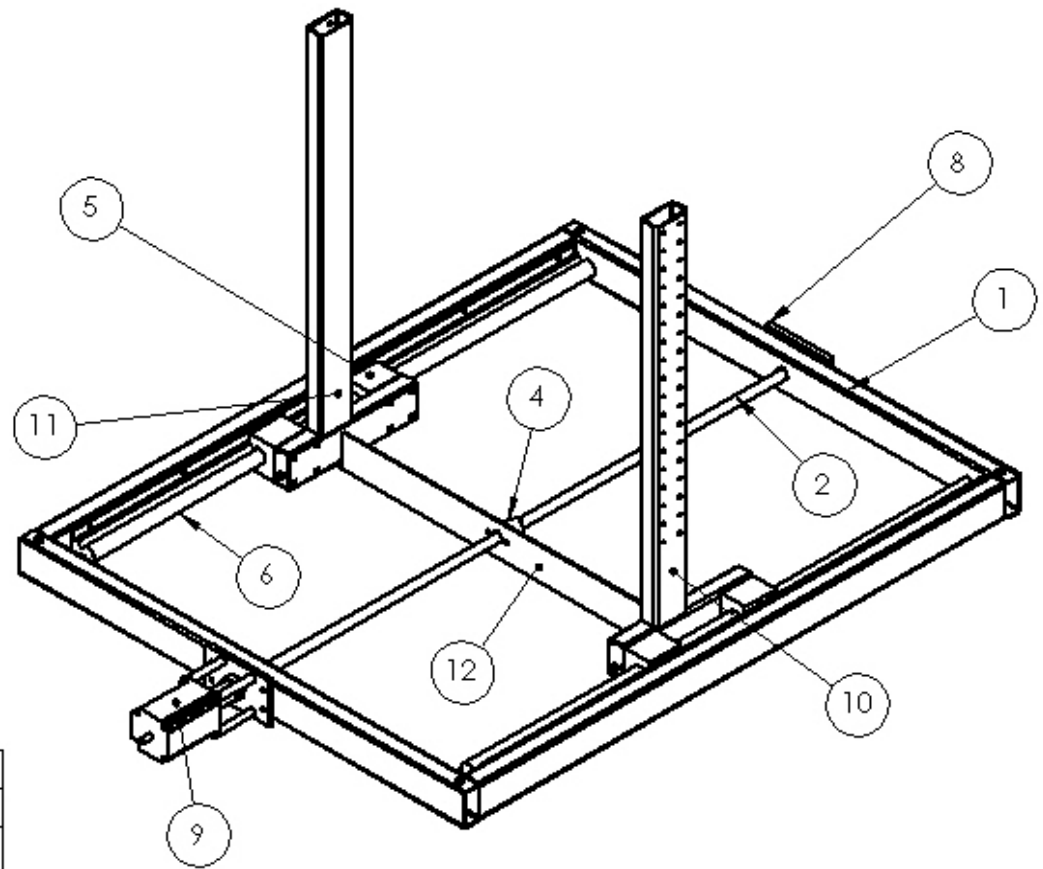
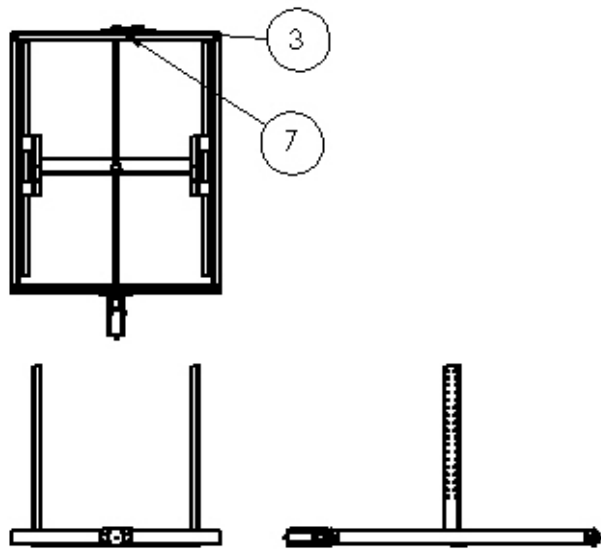


NOTE: DUEL DIMENSIONS
ARE MM AND INCHES
USE X AXIS BEARINGS
TO CONFIRM SPACING



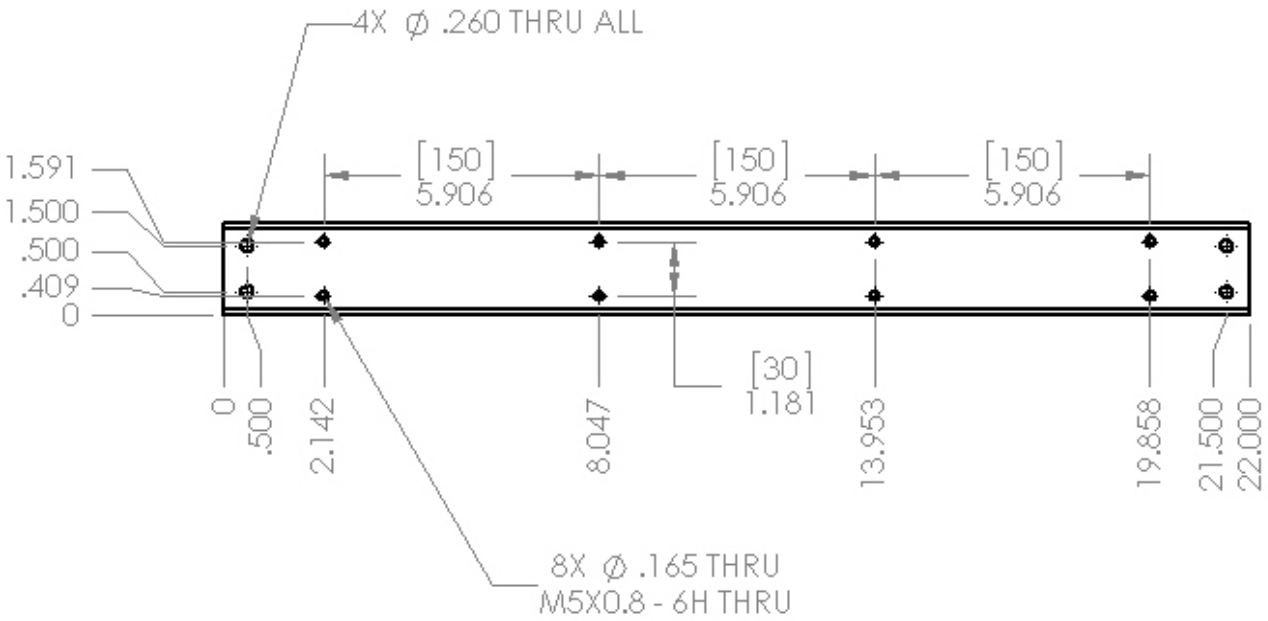
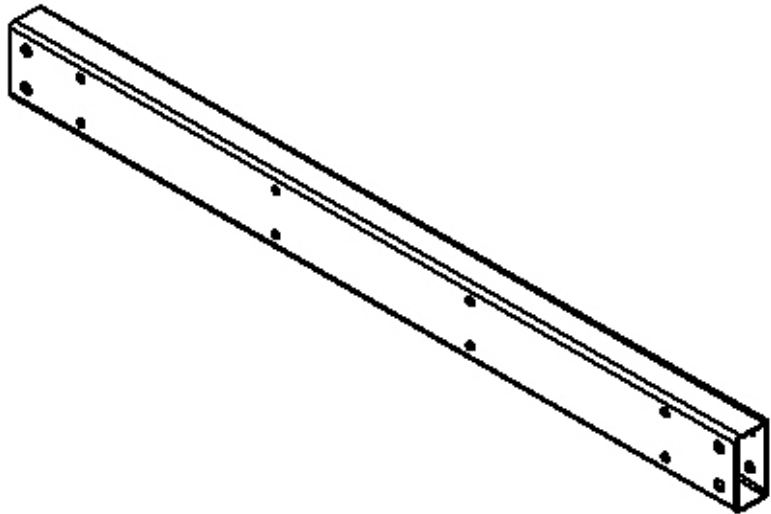
NOTE:
RIGHT SIDE UPRIGHT SHOWN
ALSO NEED A MIRRORED
PART FOR LEFT SIDE

| | | | |
|----------------|----------------------|------|---------|
| CNC ROUTER | | | |
| GANTRY UPRIGHT | | | |
| MATERIAL | 1X2X0.065 STEEL TUBE | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 2 | PART | G-01 |



| ITEM NO. | PART NUMBER | QTY. |
|----------|--------------------------------|------|
| 1 | X AXIS FRAME | 1 |
| 2 | ACME Rod - 37 in LONG | 1 |
| 3 | MC#6157K14 - 1/2" COLLAR | 1 |
| 4 | Dumpster CNC Anti-Backlash Nut | 1 |
| 5 | 20mm Bearing | 4 |
| 6 | 20mm Supported Rail 800mm | 2 |
| 7 | MC#2938T11 - Bronze Bushing | 1 |
| 8 | Stepper Mount SA-01 | 1 |
| 9 | Motor Assembly | 1 |
| 10 | Gantry Upright (Right SIDE) | 1 |
| 11 | Gantry Upright (LEFT SIDE) | 1 |
| 12 | X Axis Drive Nut Mount | 1 |

| CNC ROUTER | | | |
|-----------------|----|------|---------|
| A AXIS ASSEMBLY | | | |
| MATERIAL | NA | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | NA |



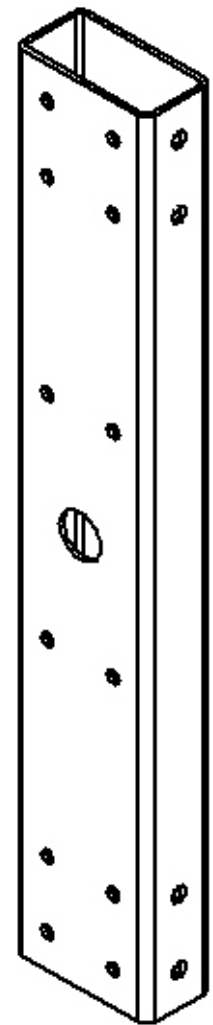
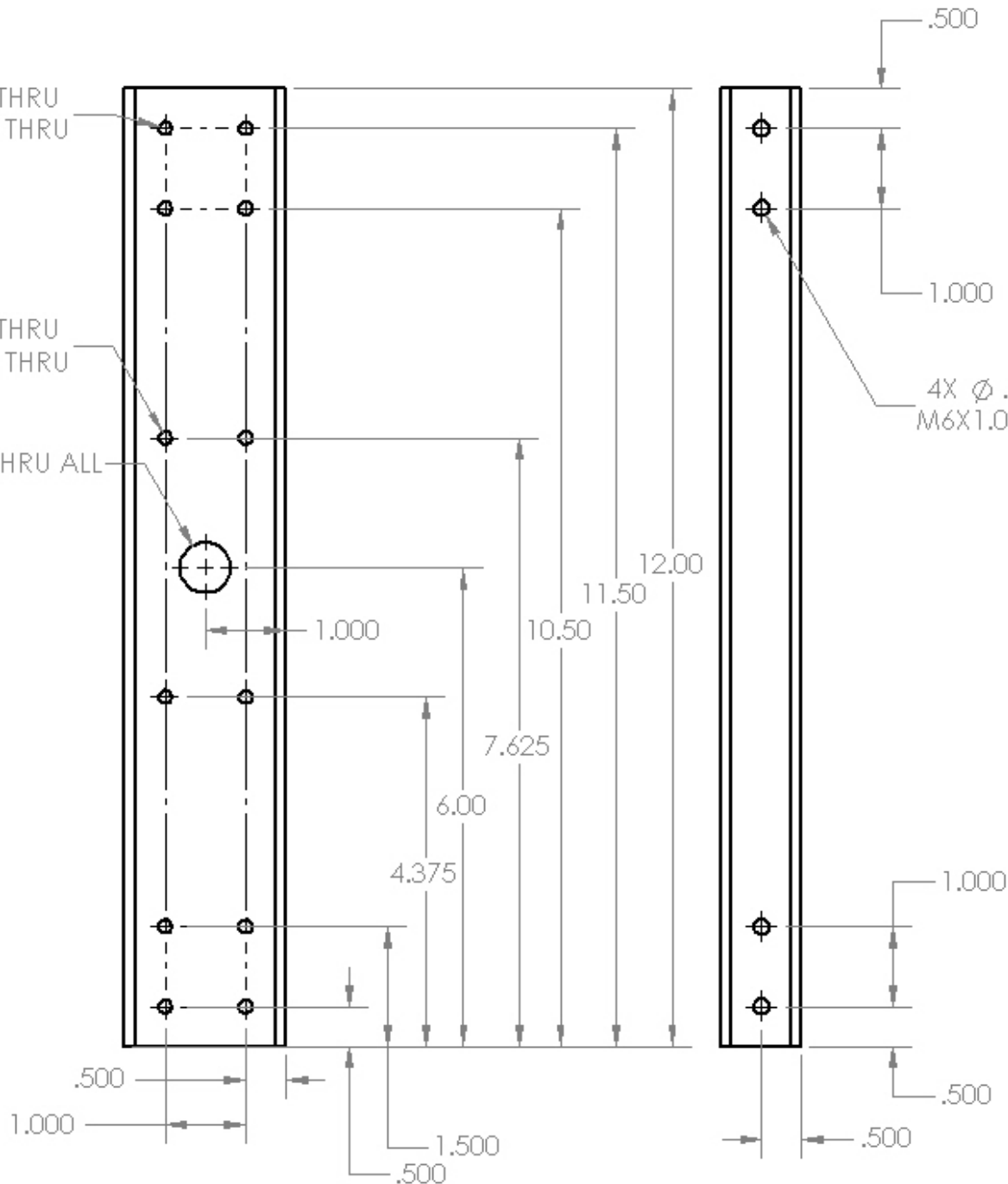
- NOTE:
1. TAPPED HOLES FOR RAIL SHOULD BE TRANSFER PUNCHED
 2. THROUGH HOLES SHOULD BE MARKED AND PUNCHED
 3. DUAL DIMENSIONS FOR REFERENCE ONLY

| | | | |
|-------------------|---------------------|------|---------|
| CNC ROUTER | | | |
| Y AXIS RAIL MOUNT | | | |
| MATERIAL | 1X2X.065 STEEL TUBE | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 2 | PART | Y-01 |

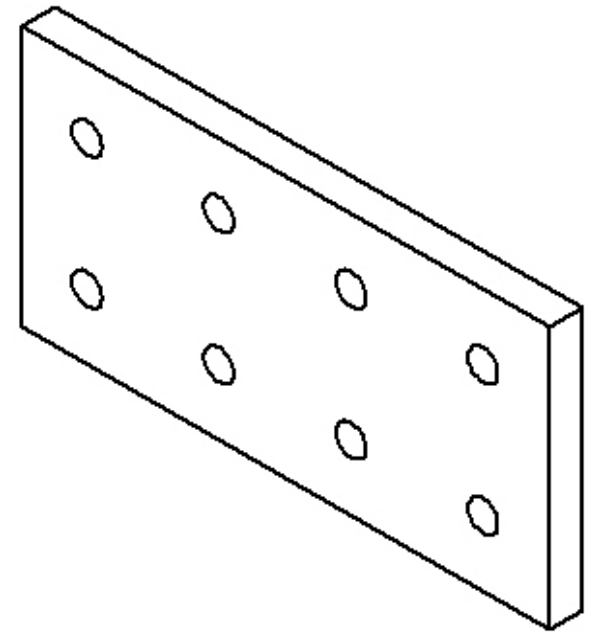
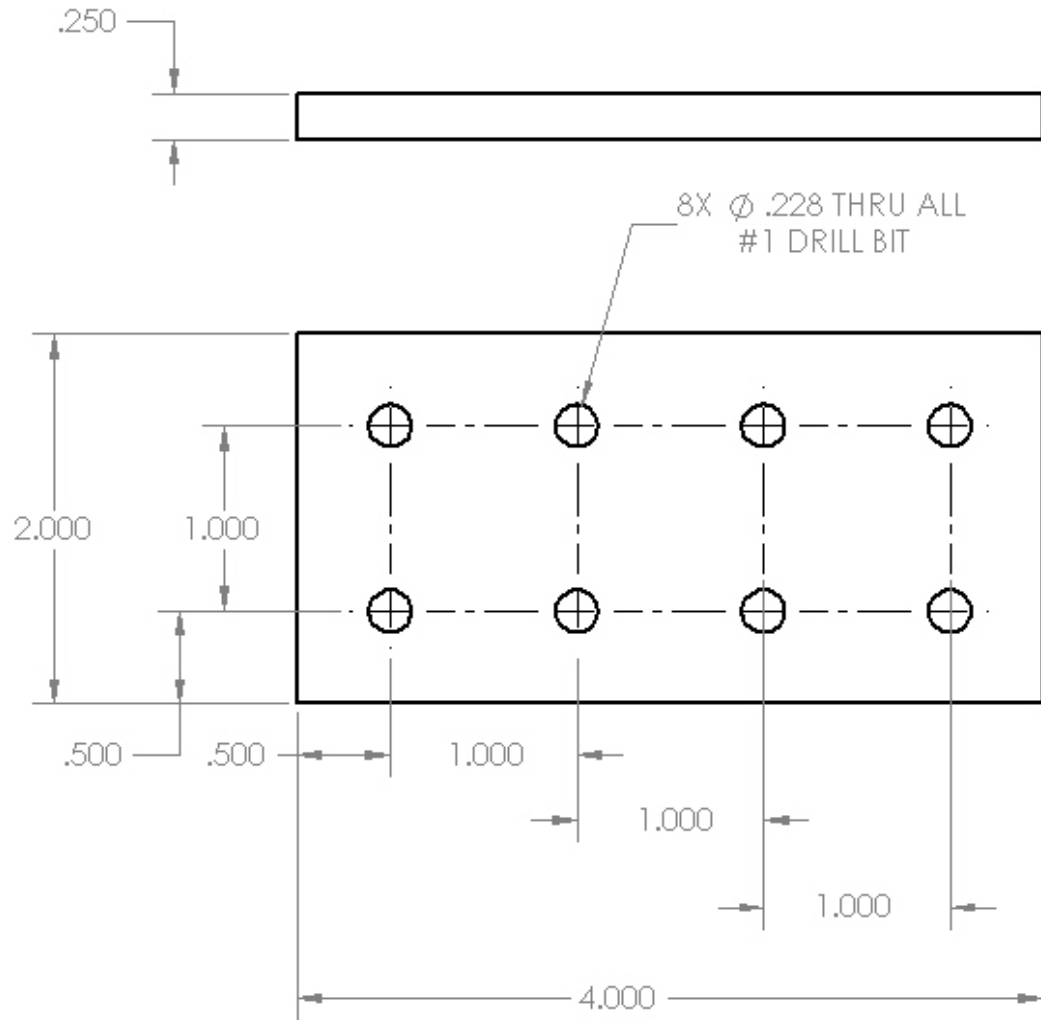
8X \varnothing .165 THRU
M5X0.8 - 6H THRU

5X \varnothing .165 THRU
M5X0.8 - 6H THRU

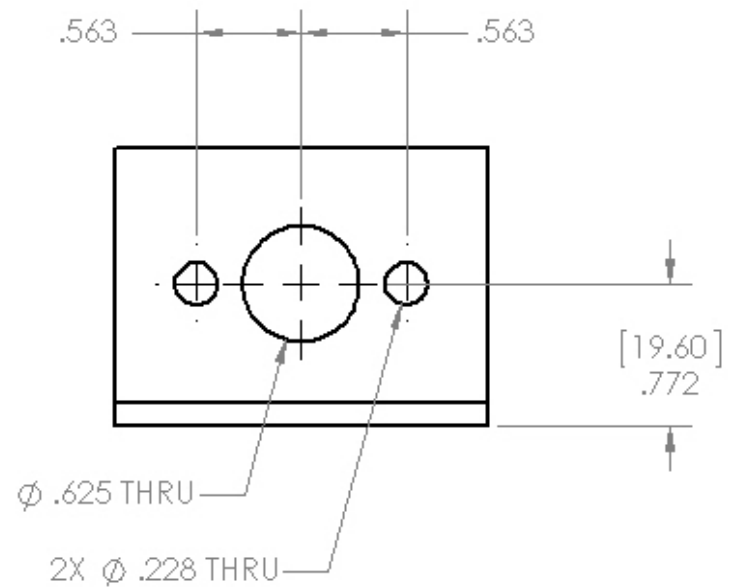
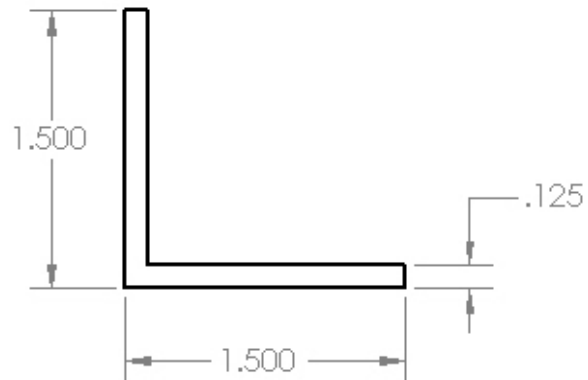
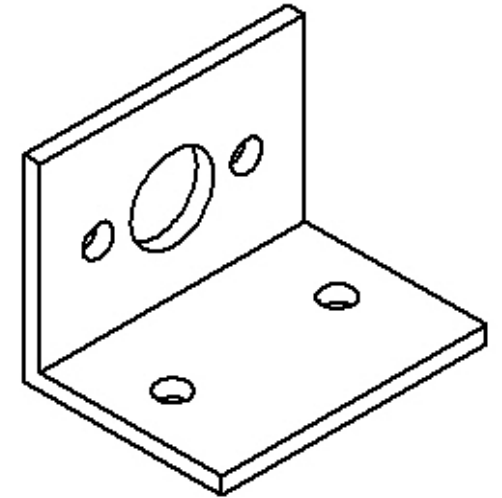
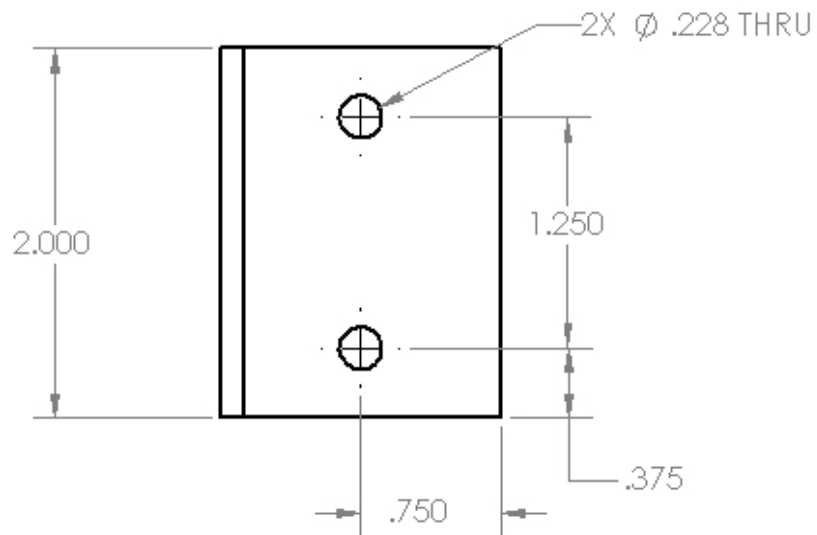
\varnothing .625 THRU ALL



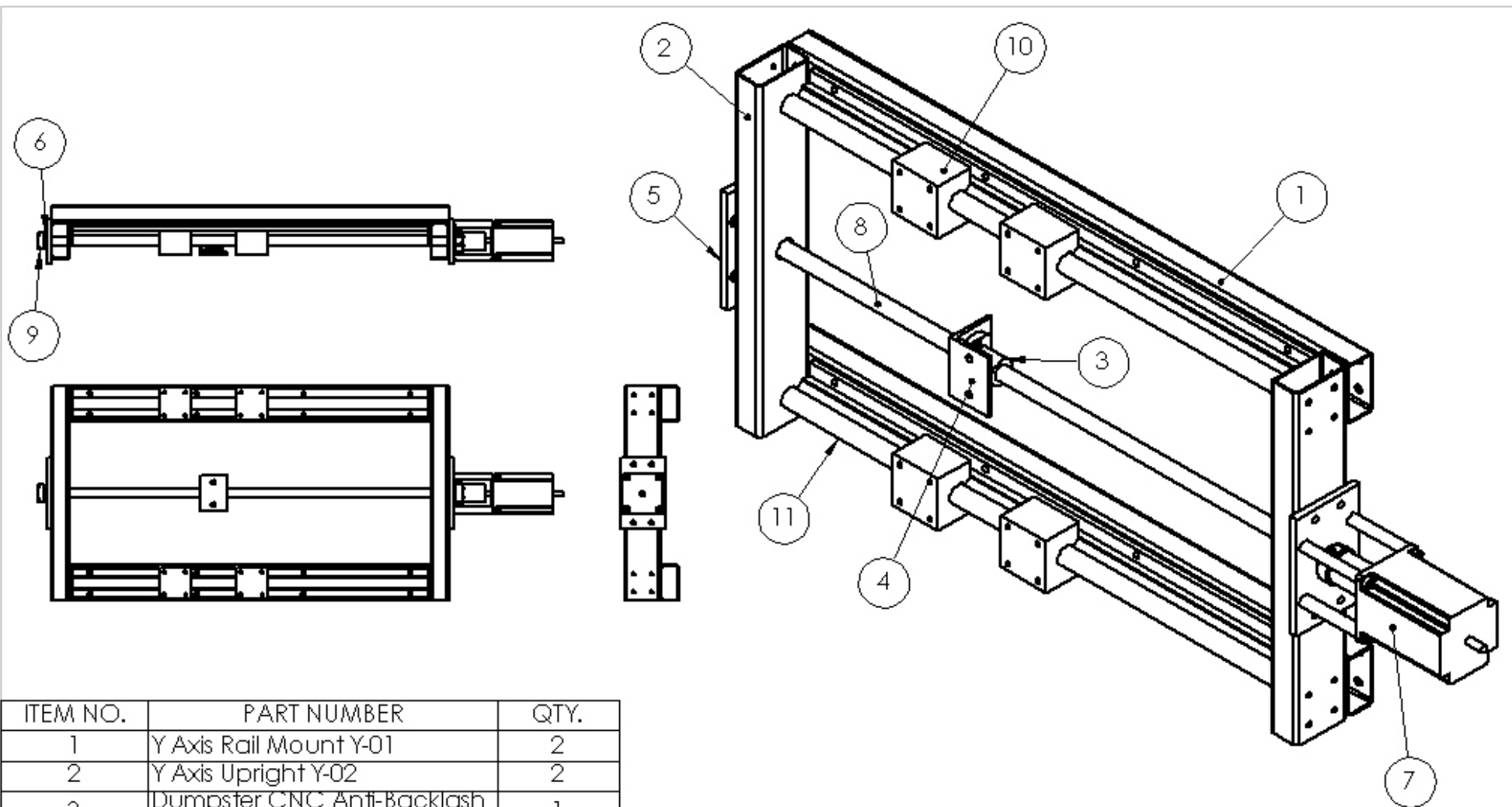
| | | | |
|----------------|--------------------|------|---------|
| CNC ROUTER | | | |
| GANTRY UPRIGHT | | | |
| MATERIAL | 1X2X.065 STL. TUBE | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 2 | PART | Y-02 |



| | | | |
|-----------------------|---------------|------|---------|
| CNC ROUTER | | | |
| GANTRY MOUNTING PLATE | | | |
| MATERIAL | 6061 ALUMINUM | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 4 | PART | G-02 |

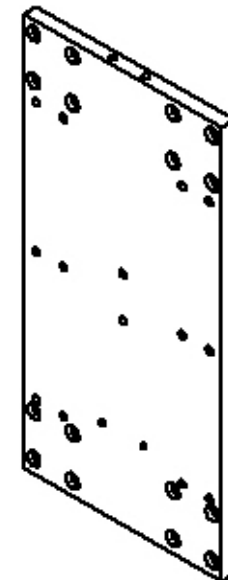
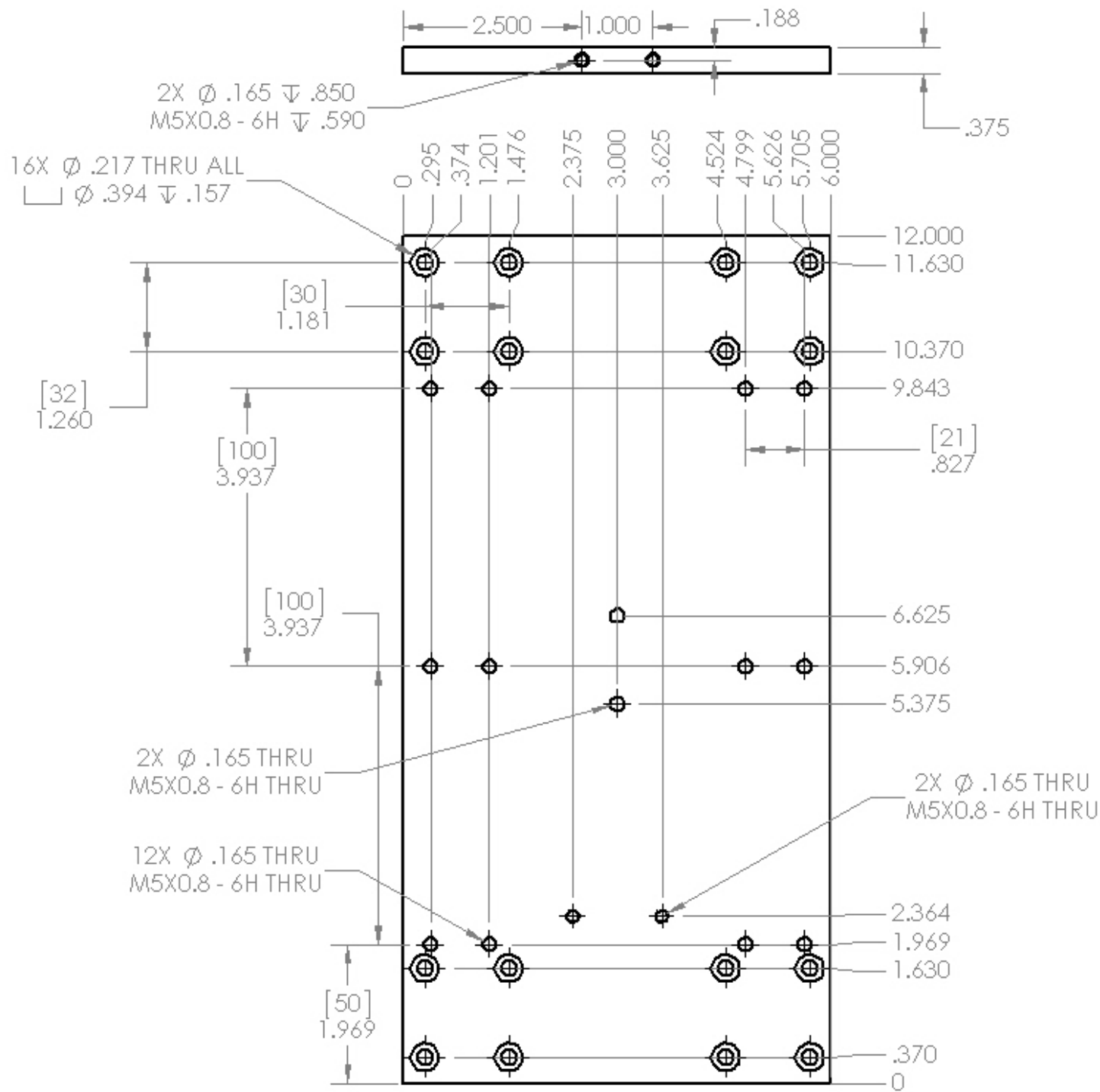


| | | | |
|------------------------|---------------------|------|---------|
| CNC ROUTER | | | |
| Y AXIS DRIVE NUT MOUNT | | | |
| MATERIAL | 1.5X1/8" ALUM ANGLE | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | Y-03 |

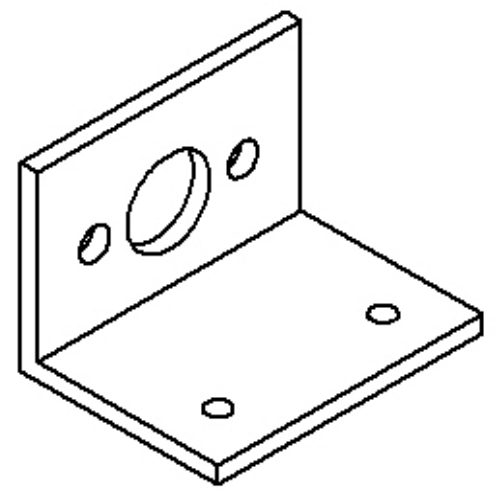
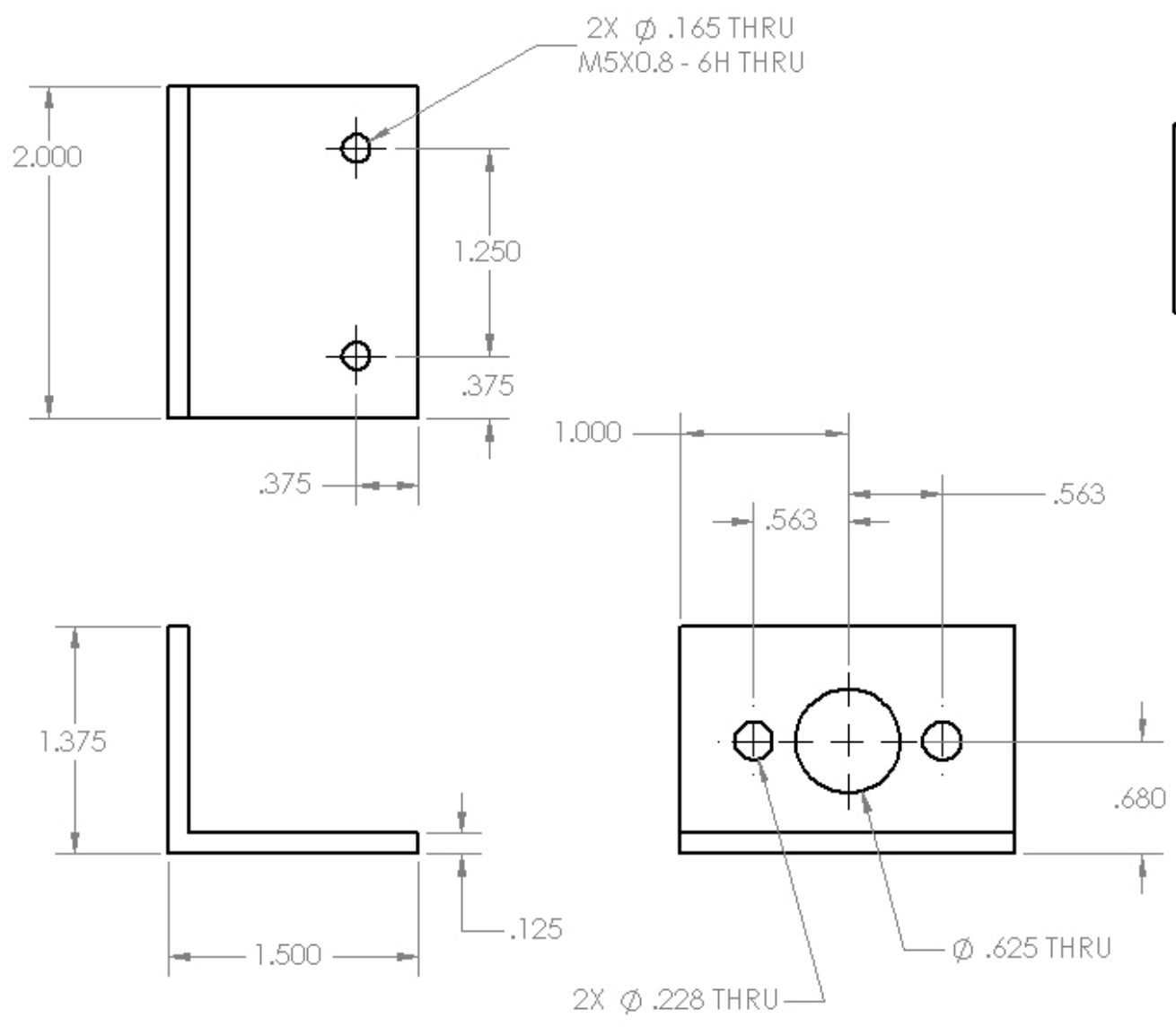


| ITEM NO. | PART NUMBER | QTY. |
|----------|--------------------------------|------|
| 1 | Y Axis Rail Mount Y-01 | 2 |
| 2 | Y Axis Upright Y-02 | 2 |
| 3 | Dumpster CNC Anti-Backlash Nut | 1 |
| 4 | Y Axis Drive Nut Mount Y-03 | 1 |
| 5 | Stepper Mount SA-01 | 1 |
| 6 | MC#2938T11 Bronze Bushing | 1 |
| 7 | Motor Assembly | 1 |
| 8 | ACME Rod 24 in LONG | 1 |
| 9 | Dumpster CNC Clamp | 1 |
| 10 | 16mm Bearing | 4 |
| 11 | 16mm Supported Rail 500mm | 2 |

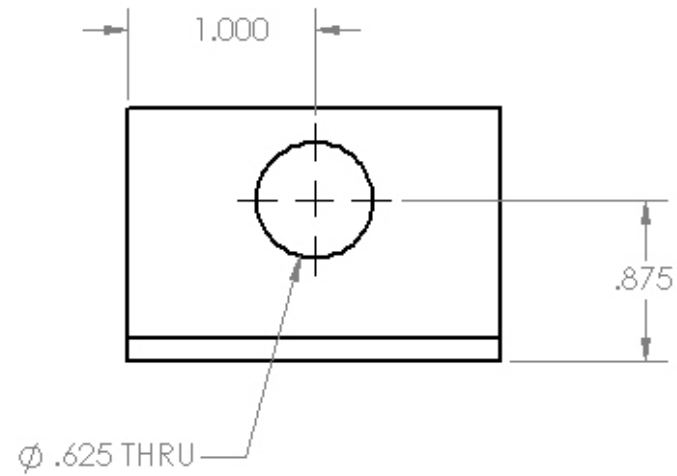
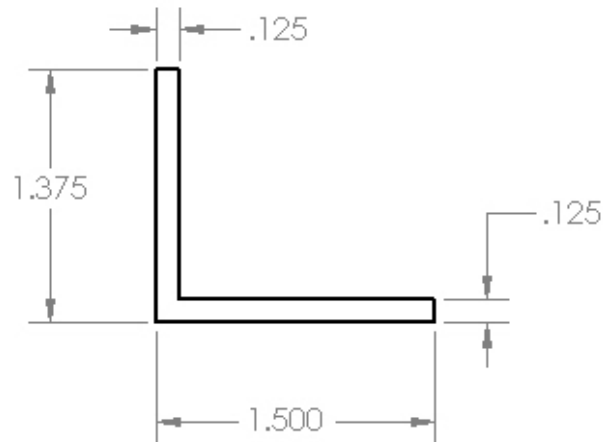
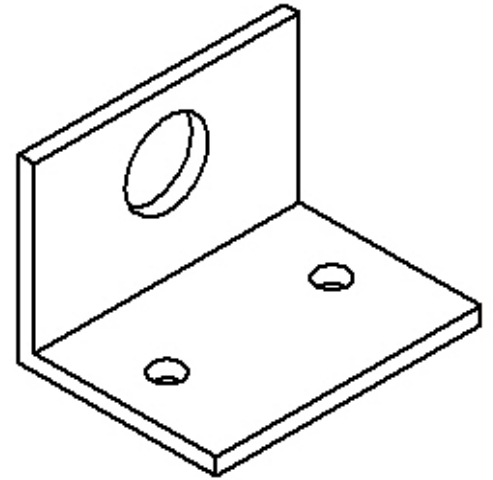
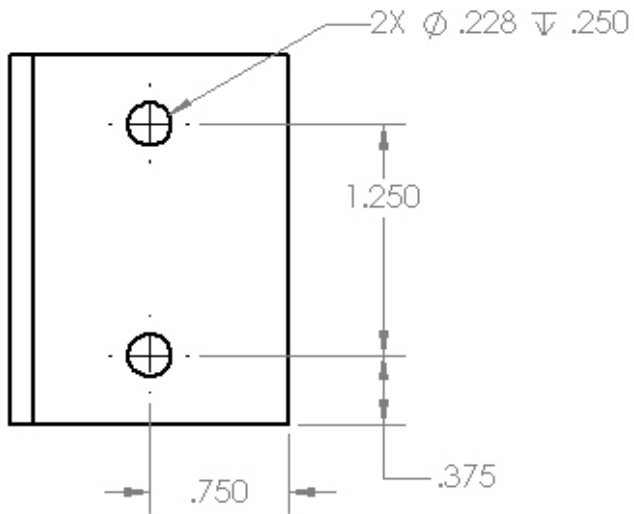
| CNC ROUTER | | | |
|-----------------|----|------|---------|
| Y AXIS ASSEMBLY | | | |
| MATERIAL | NA | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | NA |



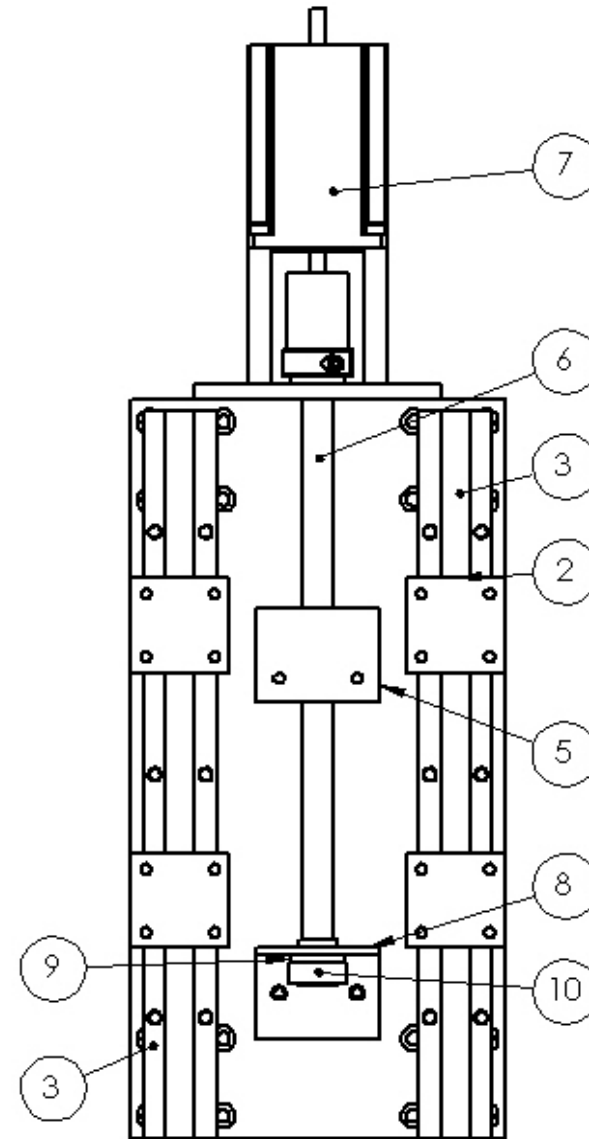
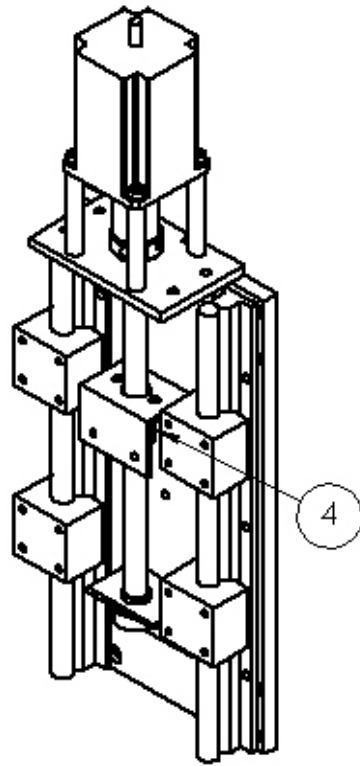
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|-----------------------|---------------|------|---------|
| CNC ROUTER | | | |
| Z AXIS MOUNTING PLATE | | | |
| MATERIAL | 6061 ALUMINUM | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | Z-01 |



| | | | |
|------------------------|---------------------|------|---------|
| CNC ROUTER | | | |
| Z AXIS DRIVE NUT MOUNT | | | |
| MATERIAL | 1.5X1/8" ALUM ANGLE | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | Z-02 |

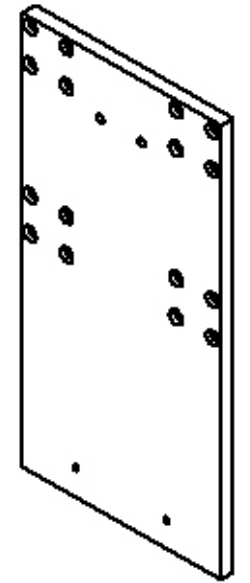
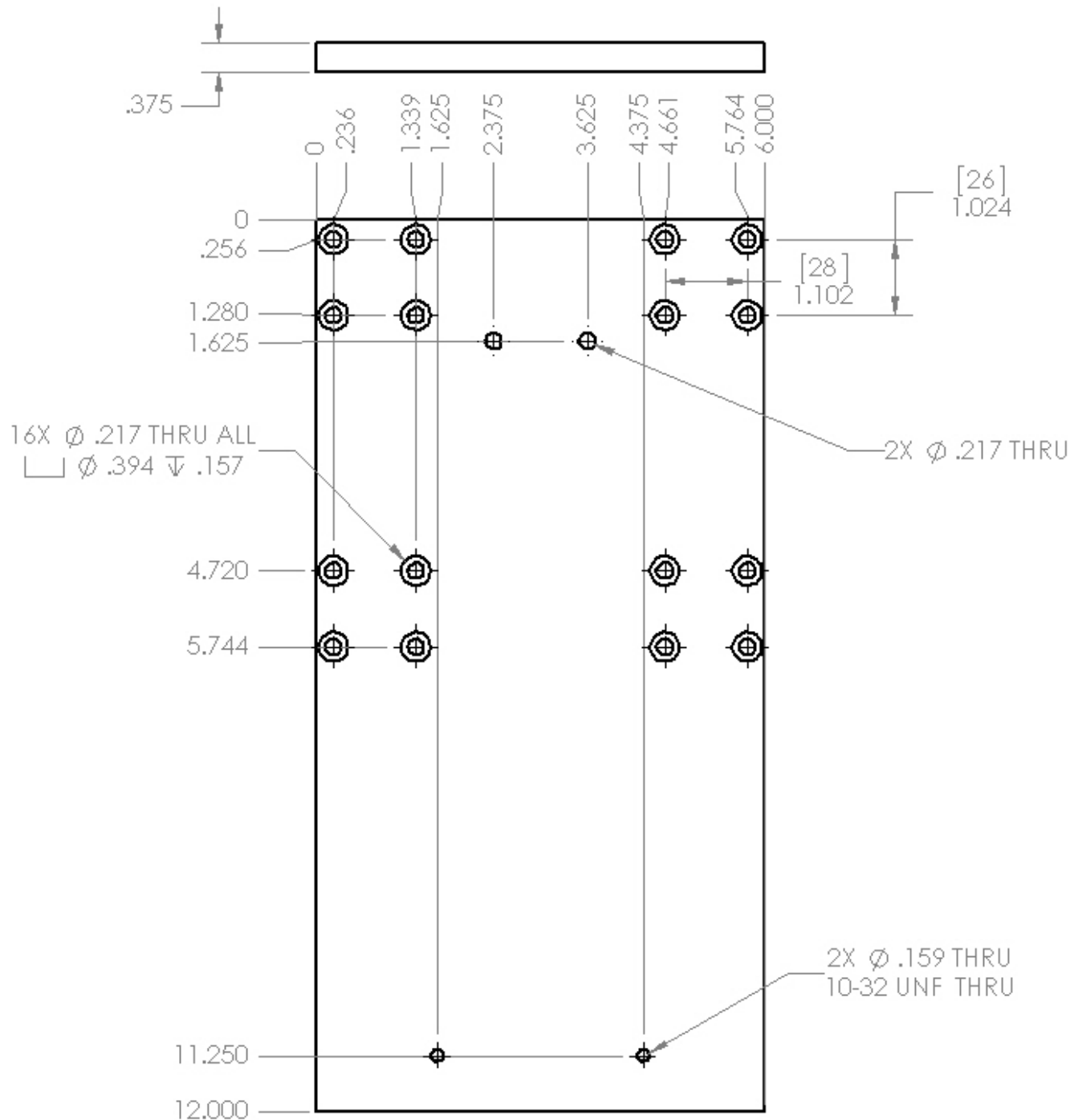


| | | | |
|------------------------|---------------------|------|---------|
| CNC ROUTER | | | |
| Z AXIS SCREW END MOUNE | | | |
| MATERIAL | 1.5X1/8" ALUM ANGLE | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | Z-03 |

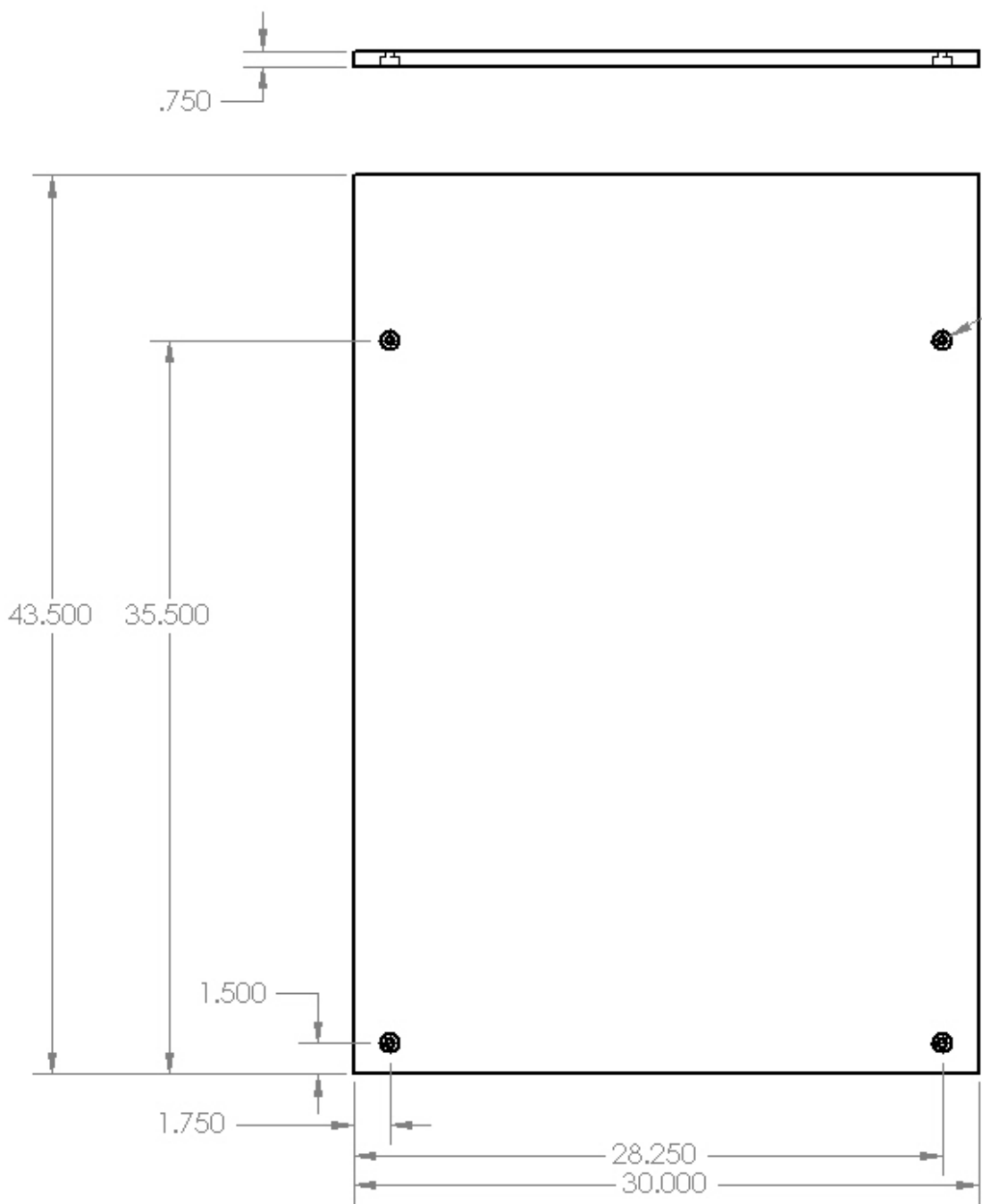


| ITEM NO. | PART NUMBER | QTY. |
|----------|-----------------------------------|------|
| 1 | Z Axis Plate Z-01 | 1 |
| 2 | 12mm Bearing | 4 |
| 3 | 12mm Supported Rail 300mm | 2 |
| 4 | Dumpster CNC Anti-Backlash Nut | 1 |
| 5 | Z Axis Drive Nut Mount Z-02 | 1 |
| 6 | ACME Threaded Rod 10.75 in LONG | 1 |
| 7 | Motor Assembly Z Axis | 1 |
| 8 | Z Axis Drive Screw End Mount Z-03 | 1 |
| 9 | MC#2938T11 Bronze Bushing | 1 |
| 10 | Dumpster CNC Clamp | 1 |

| | | | |
|-----------------|----|------|---------|
| CNC ROUTER | | | |
| Z AXIS ASSEMBLY | | | |
| MATERIAL | NA | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | NA |

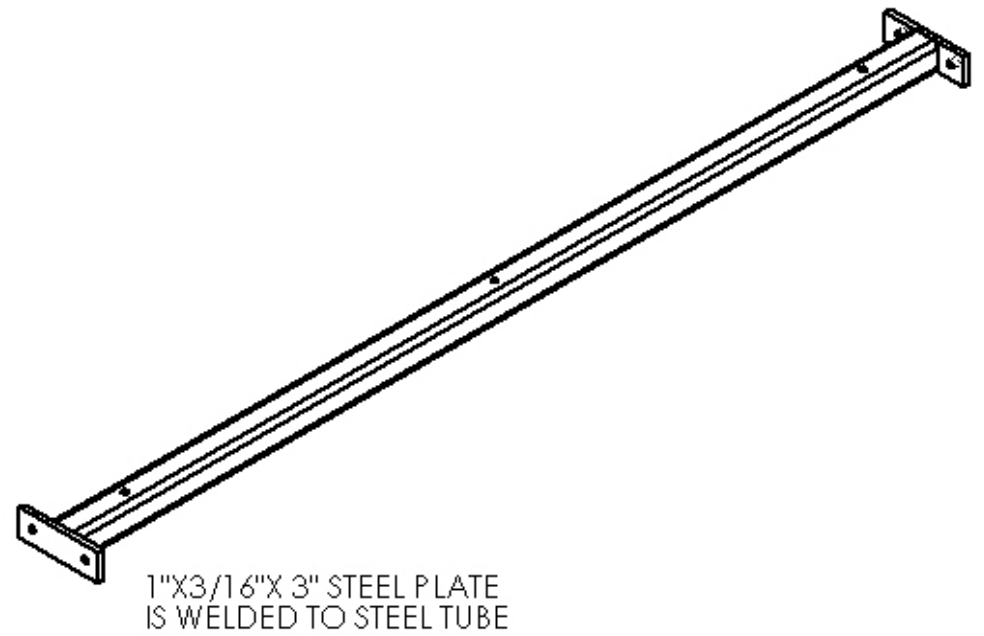
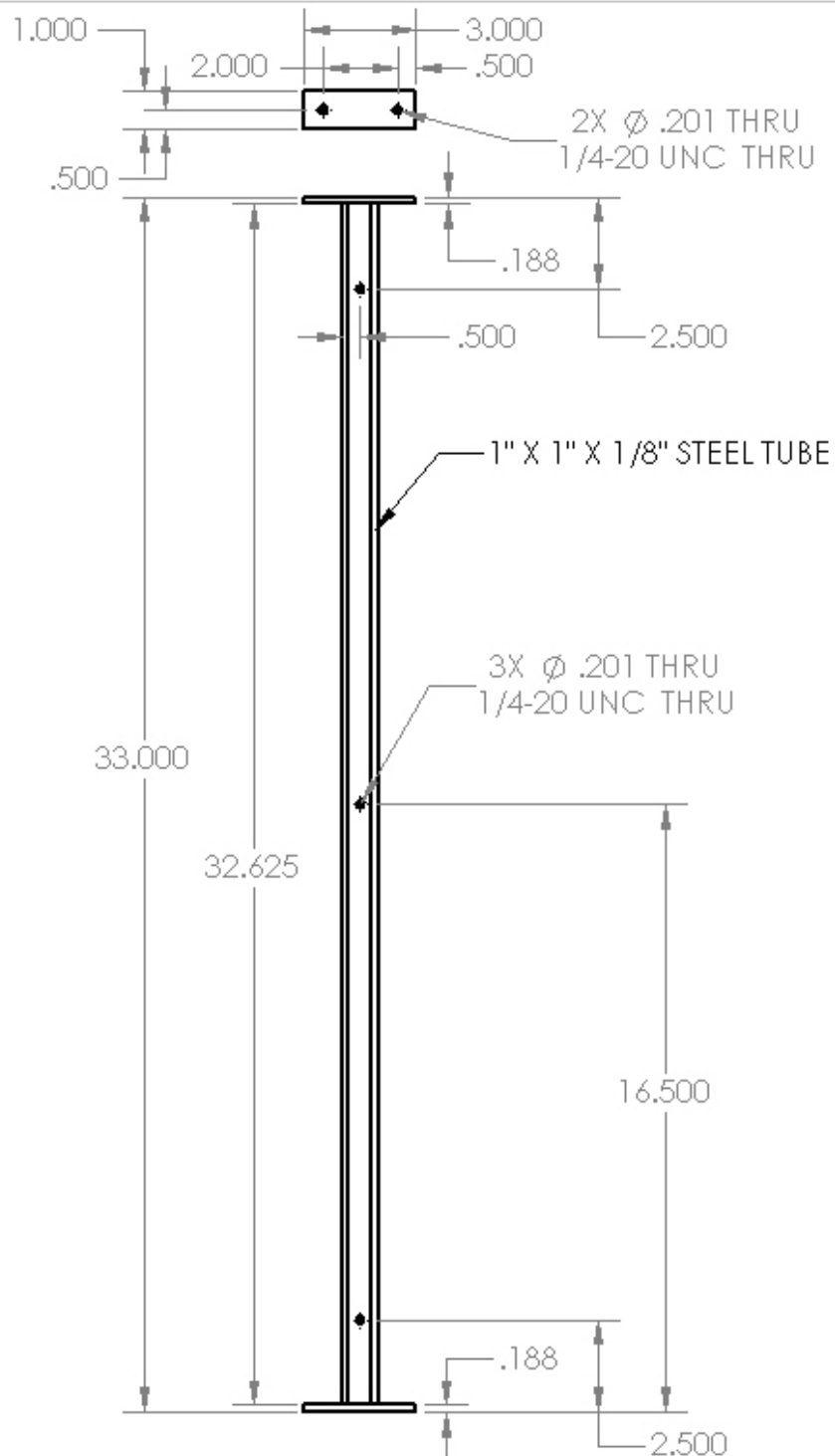


| | | | |
|--------------|---------------|------|---------|
| CNC ROUTER | | | |
| ROUTER PLATE | | | |
| MATERIAL | 6061 ALUMINUM | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | R-01 |

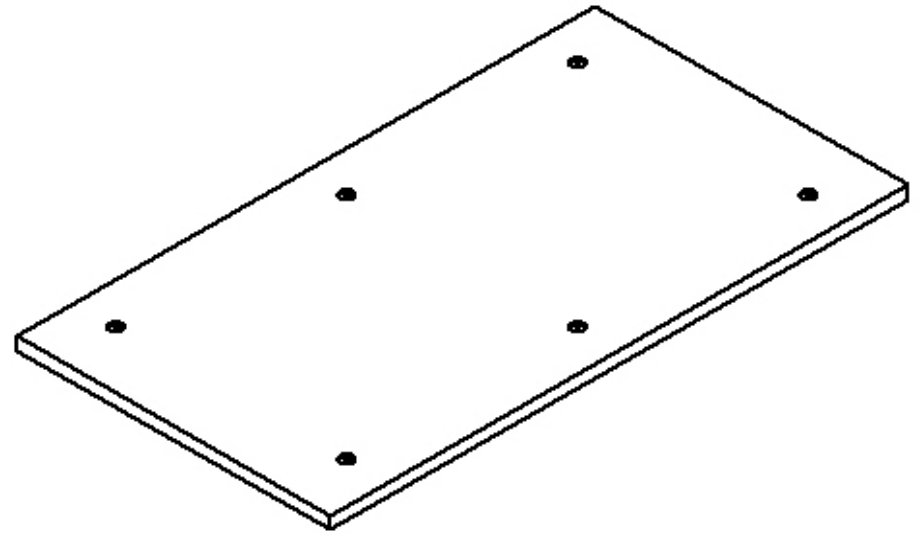
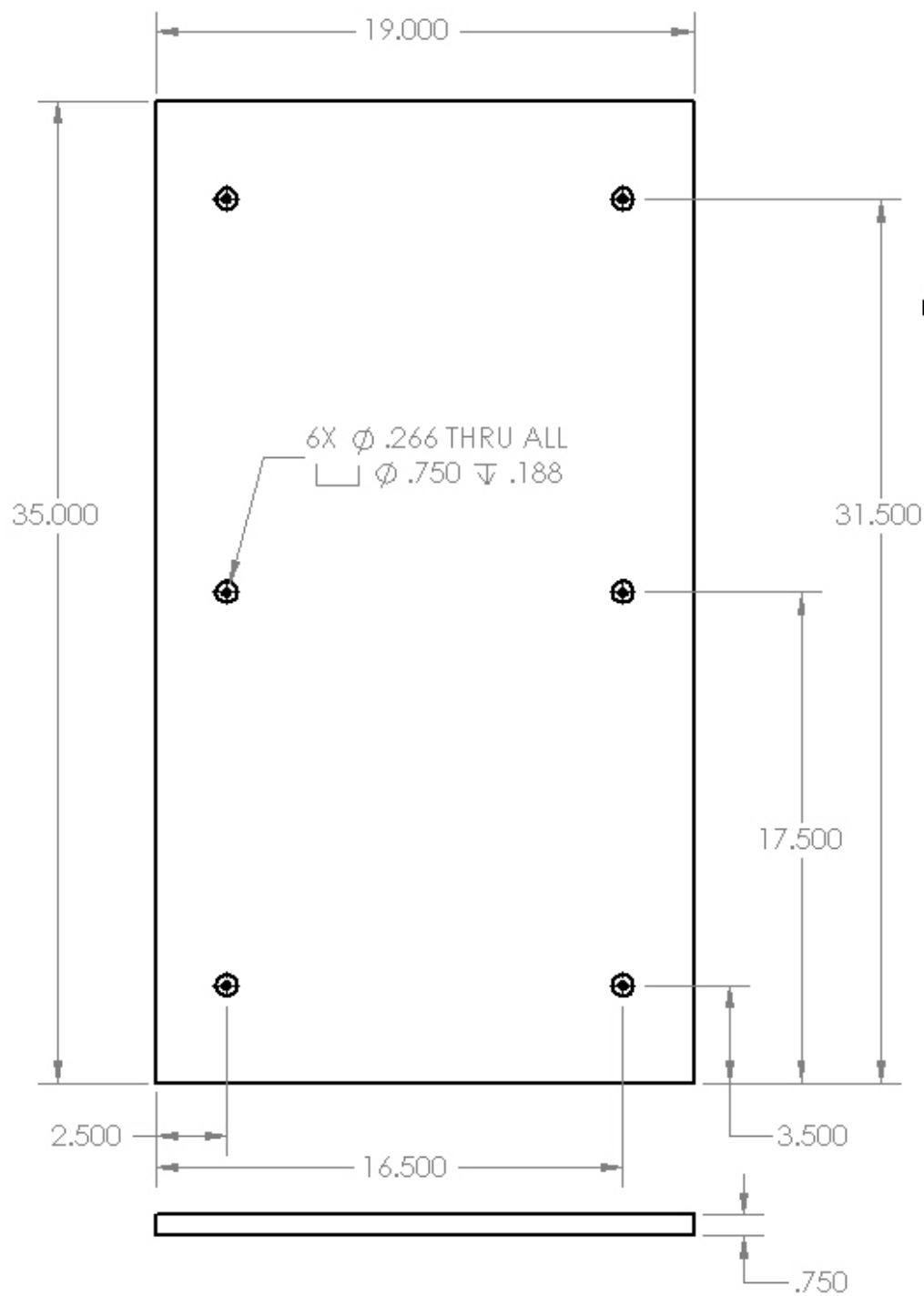


4X ϕ .397 THRU ALL
 \square ϕ .875 ∇ .484

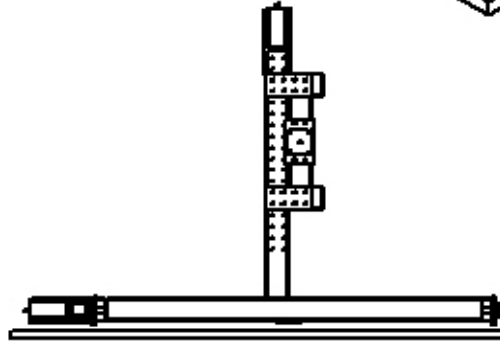
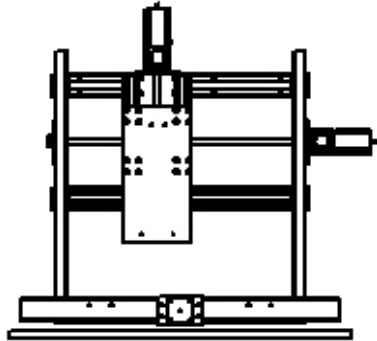
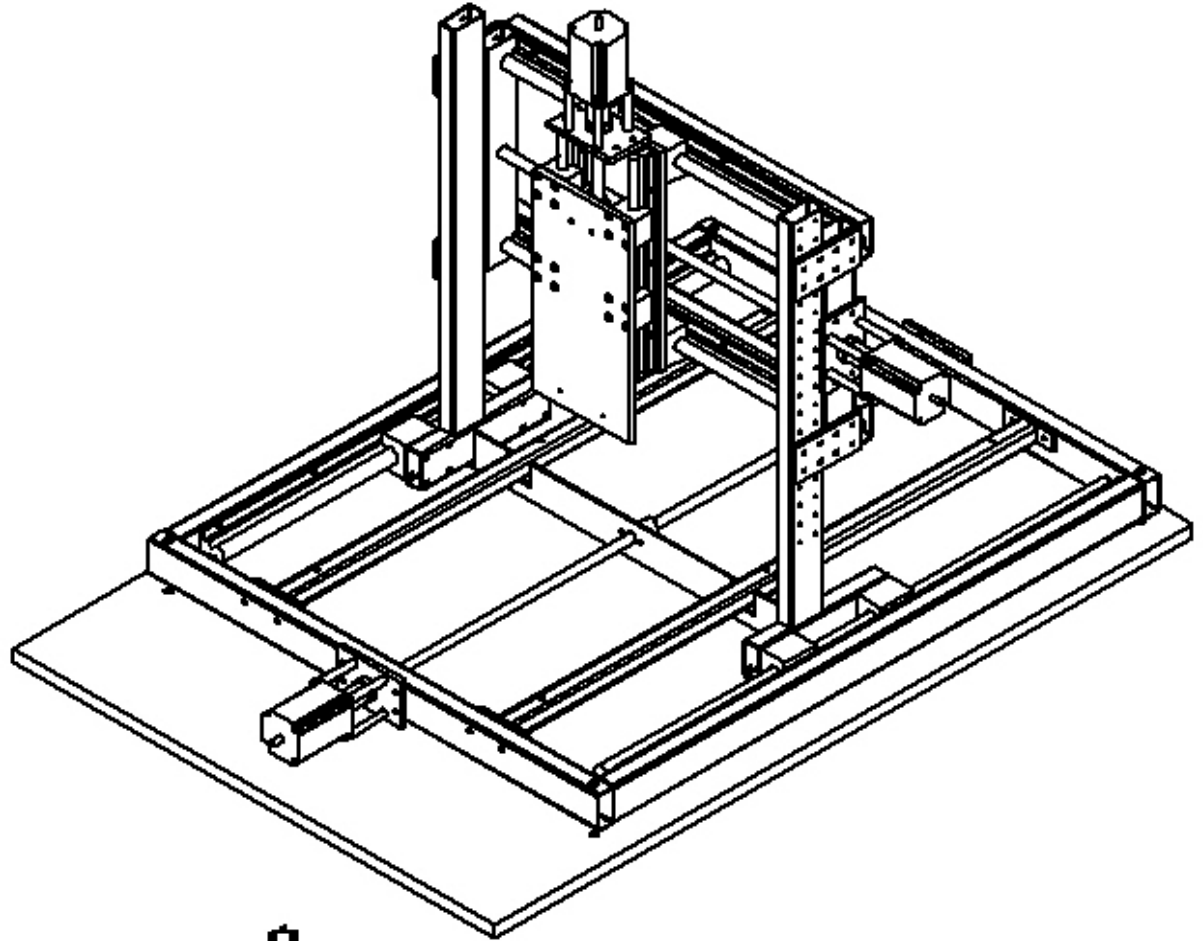
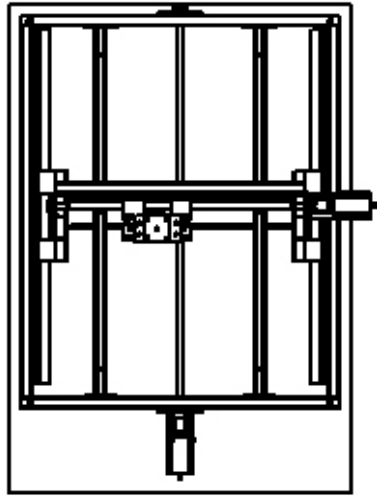
| | | | |
|------------|-----|------|---------|
| CNC ROUTER | | | |
| MDF BASE | | | |
| MATERIAL | MDF | | |
| DWG BY | DC | DATE | 2/23/12 |
| QTY | 1 | PART | B-01 |



| | | | |
|---------------|---------------------------------|------|--------|
| CNC ROUTER | | | |
| TABLE SUPPORT | | | |
| MATERIAL | 1X1 STL TUBE, 3/16"X1" STL. BAR | | |
| DWG BY | DC | DATE | 4/8/12 |
| QTY | 1 | PART | T-01 |



| | | | |
|------------|----------|------|--------|
| CNC ROUTER | | | |
| WORK TABLE | | | |
| MATERIAL | 3/4" MDF | | |
| DWG BY | DC | DATE | 4/8/12 |
| QTY | 1 | PART | T-02 |



WORK TABLE NOT SHOWN

CNC ROUTER

CNC Router Assembly

MATERIAL N/A

DWG BY DC DATE 2/26/12

QTY 1 PART N/A

| Category | Part Number | Description | Supplier | Qty | Price/ea | Total | |
|--------------------|-------------|--|--|---------------------------|------------|------------|----------|
| Hardware | 91290A228 | M5x12mm SHCS, (sold in packs of 100, 2 packs needed) | McMaster | 2 | 6.89/pack | 13.78 | |
| | 93070A123 | M5x12mm SHCS Low Head (sold in packs of 50) | McMaster | 1 | 9.63/pack | 9.63 | |
| | 91290A334 | M6x35mm SHCS (sold in packs of 100) | McMaster | 1 | 10.16/pack | 10.16 | |
| | N/A | 8-32 Machine Screws with nuts | lowes | 1 | \$1.00 | \$1.00 | |
| | N/A | 3/8" Threaded Rod with nuts and washers | lowes | 1 | \$10.00 | \$10.00 | |
| CNC Specific Parts | AC12105-LN | 1/2"-10, 5 start Acme clamping shaft collar | dumpsterCNC | 3 | \$25.00 | \$75.00 | |
| | AC12105-TC | 1/2"-10, 5 start Acme anti-backlash nut | dumpsterCNC | 3 | \$10.25 | \$30.75 | |
| | 9889T201 | Oldham coupler, 1/4" bore, clamping | McMaster | 3 | \$15.75 | \$47.25 | |
| | 9889T204 | Oldham coupler, 1/2" bore, clamping | McMaster | 3 | \$15.75 | \$47.25 | |
| | 59985K63 | Oldham Coupler Disc | McMaster | 3 | \$5.02 | \$15.06 | |
| | 99030A704 | 1/2"-10, 5 start Precision Acme Screw, 6ft long | McMaster | 1 | \$57.50 | \$57.50 | |
| | 6157K14 | 1/2" bore clamping shaft collar | McMaster | 3 | \$2.47 | \$7.41 | |
| | 2938T11 | 1/2" bore bronze bushing w/ flange | McMaster | 6 | \$0.63 | \$3.78 | |
| | N/A | Router mount | k2CNC | 1 | \$55.00 | \$55.00 | |
| | N/A | Bosch Colt Hand Held Router | Amazon | 1 | \$100.00 | \$100.00 | |
| | N/A | Linear Rails and Bearings | linearmotionbearings, Ebay | 1 | \$223.00 | \$223.00 | |
| | Electronics | G540 | G540 Stepper Motor Controller | Danmauch, Ebay | 1 | \$240.00 | \$240.00 |
| | | G723-280-4 | Gecko 280oz-in Stepper motor, dual shaft | Gecko | 3 | \$60.00 | \$180.00 |
| 295929 | | 48V 12.5A Power Supply | Jameco | 1 | \$114.95 | \$114.95 | |
| 15748 | | DB9 Male Connector, Solder | Jameco | 3 | \$0.55 | \$1.65 | |
| 15771 | | DB9 Female Connector, Solder | Jameco | 3 | \$0.55 | \$1.65 | |
| 15722 | | DB9 connector Hood | Jameco | 6 | \$0.49 | \$2.94 | |
| 645722 | | Cat 5e Cable, 100ft (only about 30ft is needed) | Jameco | 1 | \$14.95 | \$14.95 | |
| 611928 | | 48V Relay | Jameco | 2 | \$4.49 | \$8.98 | |
| 1945268 | | Lever Switch | Jameco | 6 | \$1.35 | \$8.10 | |
| 69792 | | Combination Power Switch with light | Lowe's | 1 | \$7.99 | \$7.99 | |
| 70684 | | Outlet | Lowe's | 1 | \$0.48 | \$0.48 | |
| 56592 | | 8ft 12-3 power cord | Lowe's | 1 | \$10.00 | \$10.00 | |
| 246922 | | grounded(3 prong) powerconector | Lowe's | 1 | \$2.77 | \$2.77 | |
| 103392 | | Enclosure | Lowe's | 1 | \$35.00 | \$35.00 | |
| Material | | N/A | 1x2x.065" Steel Tubing | Industrial Tube and Steel | 1 | \$48.00 | \$48.00 |
| | 8975K683 | Aluminum 6061, 1/4" Thick X 2-1/2" Wide X 3' Length | McMaster | 1 | \$17.88 | \$17.88 | |
| | 8975K441 | Aluminum 6061, 3/8" Thick, 6" Width, 1' Length | McMaster | 2 | \$17.72 | \$35.44 | |
| | 1658T43 | Aluminum Tube, 3/8" OD x 0.145" ID x 8ft long | McMaster | 1 | \$6.61 | \$6.61 | |
| | 8975K713 | Aluminum 6061, 1/4" Thick X 2" Wide X 3' Length | McMaster | 1 | \$17.23 | \$17.23 | |
| | | | | | Total | \$1,461.19 | |