

Footrest/Left Base Bar
Drill this hole after attaching the Hitch Sleeve to the Base Frame that has been assembled. Use the Footrest as a guide.


| Revison History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original Drawing | Grant getts | $03 / 09 / 16$ |
| B | Added Suggested Steeps | Tyler Crouch | $04 / 0 / 16$ |
| C | Dimensional Corrections | Tyler Crouch | $04 / 01 / 16$ |

Suggested Steps for
Manufacturing this part:

1. Cut rectangle stock

| Revison History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original Drawing | Tyler Crouch | $03 / 12 / 16$ |
| B | Added Suggested Steps | Tyler Crouch | $04 / 01 / 16$ |
| C | Dimensional Corrections | Grant Getts | $04 / 08 / 16$ |

Spring Pin hole centers are on a 2 in radius from Center Hole. After assembling the complete trailer drill holes where needed for comfort of operator.



| Revison History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original Drawing | Grant Getts | $03 / 11 / 16$ |
| B | Added Suggested Steps | Aaron Skousen | $03 / 29 / 16$ |
| C | Updated Views | Grant Getts | $04 / 08 / 16$ |

Suggested Steps for
Manufacturing this part:

1. Cut correct length of stock.
2. Mark and drill Left Base Bar and

Right Base Bar holes.
3. Mark and drill Front Wheel Sleeve
holes and Front Wheel Mounting Bracket
holes, using the parts as stencils.
4. Deburr holes and grind corners and
rough edges.

NOTE: The leaders to the holes tell where that hole interfaces with other parts.

## Stock: 1"x2"x1/8"Wall



| Revison History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original Drawing | Tyler Crouch | $03 / 14 / 16$ |
| B | Modified Dimensions | Tyler Crouch | $03 / 23 / 16$ |



## Completed Modified Front Wheel Support Bar



Modified L-Bracke†
Suggested steps to make this part:

1. Cut one side length to 2.5 inches.
2. Enlarge the holes shown

Round the corners
——R. 250 or to personal preference (Step 3)
of the stock part and are for reference only.

| Revison History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original Drawing | Grant Getts | $03 / 11 / 16$ |


$\phi 0.250$ Thru, Typ
These four holes of the corner braces are too small without modifying the part. Using a $17 / 64$ drill bit, enlarge these four
holes by drilling them out.

| $\begin{array}{l\|l} \text { SIZE } & \text { DWG } \\ \mathbf{B} \end{array}$ | DWG. NO. | AEV |
| :---: | :---: | :---: |
| SCALE: 1:1 |  | SHEET 1 OF 1 |



Suggested Steps for
Manufacturing this part:

1. Cut off curved ends of handlebar with riveted brackets.
2. Mark and drill the holes in both sides of the handlebar
3. Deburr holes and grind any sharp corners or edges into radii.
4. Insert Spring Pin so the pin head comes out the outside of the handlebar.

NOTE: The leaders to the holes tell where that hole interfaces with other parts.



 CHECKED Devin Adams 3/11/16 | REVISED | Grant Getts |
| :--- | :--- |
| CHECKED | Aaron Skousen $3 / 29 / 16$ |

## Handlebar

 CHECKED Aaron Skousen 3/29/16 UNLESS OTHERWISE SPECIFED:$\qquad$
B $\quad$ Pq
$C^{\text {REV }}$
 Bigham Young Univesity. It is is itended
to be open source and tieely ved.

6063 Aluminum
do not scale drawing

| Revison History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original Drawing | Tyler Crouch | $03 / 11 / 16$ |
| B | Adjusted Comments | Grant Getts | $03 / 23 / 16$ |

Use a 17/64 drill to enlarge this hole to the desired diameter.

SIDE VIEW

| Revision History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original drawing with dimensions | Grant Getts | $3 / 11 / 16$ |
| B | Added manufacturing notes | Ty Crouch | $4 / 01 / 16$ |
| C | Unnecessary view deleted, stock <br> callout added | Ty Crouch | $4 / 08 / 16$ |


—Hitch Sleeve $1 \begin{aligned} & \text { Use the Footrest as a guide and } \\ & \text { Left Base Bar at the same time. }\end{aligned}$
Drill this hole first and use the Hitch Sleeve as a stencil to mark Driil this hole first and use
the Hitch Sleeve 2 Hole.
-Front Wheel Mounting Bar
_ Front Wheel Mounting Bar
To improve accuracy, drill this hole first and use the Front Wheel Mounting Bar as a stencil for the second hole.


To improve accuracy, drill this hole first

Suggested Steps for Manufacturing this part:

1. Cut correct length of stock. It is better to cut it longer than needed than to cut it too short.
2. Grind end smooth.
3. Mark and drill holes, following the notes, deburring the holes as you go.

NOTE: The leaders to the holes tell where that hole interfaces with other parts.

Stock: 1"x 1" by 1/8" wall and use the Axle as a stencil for the other hole.


| DRAWN NAME DATE |
| :--- |


| DRAWN | Grant Getts | 3/10/16 | TItLE: |
| :--- | :--- | :--- | :--- |

CHECKED Tyler Crouch 3/10/16

| Revised | Grant Getts | $3 / 29 / 16$ |
| :--- | :--- | :--- |
| CHECKED | Tyler Crouch | $04 / 01 / 16$ |

## Left Base Bar

 Motion Source UNLESS OTHERWISE SPECIIFED: DIMENSIONS ARE ININCITOLERANCES: $\pm .05$

.

_Front Wheel Mounting Bar

To improve accuracy, drill this hole first and use the Front Wheel Mounting Bar as a stencil for the second hole.

SIDE VIEW


Suggested Steps for
Manufacturing this part:

1. Cut correct length of stock. It is better to cut it longer than needed than to cut it too short.
2. Grind end smooth.
3. Mark and drill holes, following the notes, deburring the holes as you go.

NOTE: The leaders to the holes tell where that hole interfaces with other parts.

| Revision History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original drawing with dimensions | Grant Getts | $3 / 11 / 16$ |
| B | Added manufacturing notes | Ty Crouch | $4 / 01 / 16$ |
| C | Stock callout added, manufacturing |  |  |
| notes edited |  |  |  | Ty Crouch $\quad 4 / 08 / 16$



Suggested Steps for Manufacturing this part:

1. Cut correct length of stock. It is better to cut it longer than needed than to cut it too short.
2. Grind end smooth.
3. Mark and drill holes, following the notes, deburring the holes as you go.

NOTE: The leaders to the holes tell where that hole interfaces with other parts.

Stock: 1" x 1" by 1/16" wall
1

| Revision History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original drawing with dimension | Grant Getts | 3/11/16 |
| B | Added manufacturing notes | Ty Crouch | 4/01/16 |
| C | Section view deleted, stock callout added | Ty Crouch | 4/08/16 |



Suggested Steps for
Manufacturing this part:

1. Cut correct length of stock. It
is better to cut it longer than needed than to cut it too short.
2. Grind end smooth.
3. Mark and drill holes, following
the notes, deburring the holes as
you go.

NOTE: The leaders to the holes tell where that hole interfaces with other parts.

Stock: 1" x 1" by 1/16" wall


|  | NAME |
| :--- | :--- |
| DRAWN GAte |  |


| DRAWN | Grant Getts | $3 / 10 / 16$ |
| :---: | :---: | :---: |
| CHECKED | Devin Adams | $3 / 11 / 16$ | Hypotenuse | REVISED | Grant Getts |
| :--- | :--- |
| CHECKED | Tyler Crouch | Bottom Bar - 0/01/16 UNLESS OTHERWISE SPECIFIED:


| Revision History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original drawing with dimension | Grant Getts | $3 / 11 / 16$ |
| B | Added manufacturing notes | Ty Crouch | $4 / 01 / 16$ |
| C | Section view deleted, stock callout |  |  |
| added |  |  |  | Grant Getts $\quad 4 / 08 / 16$

Handlebar Bracket
o improve accuracy, drill this hole first. Bolt through the tandlbar Bracket Center Hole here. Then use the Handlebar Bracket as a stencil to mark the other 2 holes.

Handlebar Bracket

Co improve accurack Cross Bar To improve accuracy, drill this hole first and then use
Base Bar-

| Revision History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original drawing with dimensions | Grant Getts | $3 / 11 / 16$ |
| B | Added manufacturing notes | Grant Getts | $3 / 23 / 16$ |
| C | Cross-section view deleted, stock |  |  |
| callout added |  |  |  | Ty Crouch $\quad 4 / 08 / 16$



SUGGESTED STEPS TO MAKE THIS PART:

1. CUT THIS BAR TO LENGTH.
2. MARK THE PAIR OF HOLES

ON EACH SIDE USING THE CORNER
BRACE AS A STENCIL. THE BRACES
FIT FLUSH AGAINST THE BAR ENDS.
3. BEFORE DRILLING THESE HOLES,

ASSEMBLE THE BASE FRAME. ENSURE THE
BASE CROSS BAR WITH THE CORNER BRACES FITS SNUGGLY BETWEEN THE BASE BARS. ADJUST AS NEEDED.

## Stock: 1" x 1" by 1/16" wall


ata date Aaron Skousen 03/10/16 TiTLE: CHECKED Grant Getts 03/11/16

Back Cross Bar


SIZE DWG. NO.
B
P 16
SCALE: 1:2 WEIGHT:
,

MAERRAL
6063
Aluminum
do not scale drawing

UNLESS OTHERWISE SPECIFIED:

| Revision History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Checked | Date |  |
| A | Original drawing with dimensions | Grant Getts | $3 / 11 / 16$ |
| B | Added manufacturing notes | Grant Getts | $3 / 23 / 16$ |
| C | Unnecessary view deleted, stock <br> callout added | Ty Crouch | $4 / 08 / 16$ |



SUGGESTED STEPS TO MAKE THIS PART:

1. CUT THIS BAR TO LENGTH.
2. MARK THE PAIR OF HOLES

ON EACH SIDE USING THE CORNER
BRACE AS A STENCIL. THE BRACES
FIT FLUSH AGAINST THE BAR ENDS.
3. BEFORE DRILLING THESE HOLES,

ASSEMBLE THE BASE FRAME. ENSURE THE
BASE CROSS BAR WITH THE CORNER BRACES FITS SNUGGLY BETWEEN THE BASE BARS. ADJUST AS NEEDED.

Stock: 1" x 1" by 1/16" wall


After lining up the Footrest, drill through the Hitch Sleeve and Left Base Bar with a hand drill, or use the hole to mark and drill with a drill press. This hole matches
the Hitch Sleeve b the Hitch Sleeve back hole. Bolt this hole hole. Bolt this hole
to line up the Footrest.


After lining up the Footrest, drill through the
left base bar with a hand drill using this hole as a guide left base bar with a hand drill using the hole to mark and drill with a drill press.

Optional 1.5"
radius fillet


Suggested Steps for Manufacturing this part (see Instructions for more details):

1. Mark the bend line $51 / 2^{\prime \prime}$ from back edge.
2. Heat plastic in oven at 220 degrees for 15 minutes. It should be pliable but not fluid.
3. Clamp the plastic to a table with a bar over the bend line.
4. Push the plastic to bend it. You will need to hold it for about 5 min at 90 degrees.
5. Repeat steps 2-4 until the plastic stays at the desired angle.
6. Cut out squares with hack saw or band saw.
7. Mark and drill holes, following the notes.

| Revison History |  |  |  |
| :---: | :---: | :---: | :---: |
| Revision | Description | Checked | Date |
| A | Original Drawing | Tyler Crouch | $03 / 11 / 16$ |
| B | Added Suggested Steps | Aaron Skousen | $03 / 29 / 16$ |
| C | Updated comments | Tyler Crouch | $04 / 08 / 16$ |


| Open Source | Materill HDPE |
| :---: | :---: |
| The design in this drawing was created by a team of engineering students from to be open source and freely used. | Do not scale drawing |

## Footrest

| CHECKED Tyler Crouch | $03 / 11 / 1 / 16$ |
| :--- | :--- |

REVISED Grant Getts 03/29/16 CHECKED Aaron Skousen 03/29/16
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES: $\pm .05$

P18
DIMENSIONS ARE IN INCHES
TOLRRANCES: .05
SCALE: 1:4 WEIGHT:

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | Hyp Top Bar | Custom (See Drawing P13) | 1 |
| 2 | Hyp Bottom Bar | Custom (See Drawing P14) | 1 |
| 3 | Brace Hinge | Custom (See Drawing P1) | 2 |
| 4 | 92865A546 | $1.5 \times 1 / 4-20 U N C$ Hex Bolt | 3 |
| 5 | 94945A205 | Low Profile Nylock 1/4-20 Nut | 3 |






Many components shown should have been assembled in previous steps. Some components, such as the Front Wheel Mounting Assembly, are not shown for clarity. The other assembly drawings will need to be referenced to understand this drawing completely.

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | Right Base Bar | Custom (See Drawing P12) | 1 |
| 2 | 1558A21 | L Bracket (See Drawing P7) | 4 |
| 3 | Hyp Bottom Bar | Custom (See Drawing P14) | 2 |
| 4 | Hyp Top Bar | Custom (See Drawing P13) | 2 |
| 5 | Brace Hinge | Custom (See Drawing P1) | 4 |
| 6 | Vertical Bar | Custom (See Drawing P15) | 2 |
| 7 | BurleyAxle |  | 1 |
| 8 | $92510 A 774$ | Custom (See Drawing P11) | 1 |
| 9 | Left Base Bar | See Drawing P10 | 2 |
| 10 | Brake | Washer 7/8" for 1/4" Bolt | 6 |
| 11 | $91090 A 107$ | Hex Bolt 1.5"x 1/4-20 UNC | 2 |
| 12 | $92865 A 546$ | Aluminum Spacer for .25" Bolt | 4 |
| 13 | $94945 A 205$ | Custom (See Drawing P9) | 1 |
| 14 | HandleBar | Hex Bolt 2.75"x 14/-20 UNC | 2 |
| 15 | $91247 A 553$ | Hex Bolt 3"x 1/4-20 UNC | 2 |
| 16 | $92865 A 554$ |  | 6 |

 Motion Source

MATERAL

Do not scale drawing

|  | NAME | DATE |  |
| :--- | :---: | :---: | :---: |
| DRAWN | tyercriouch 04/06/16 | TITLE: |  |

Giant Getis 04/07/16
Frame Connections Sub Assembly

B

A6
SHEET 1 OF 1





