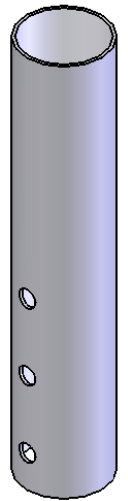
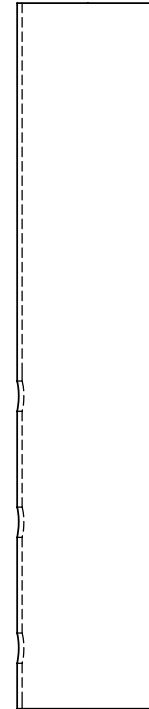
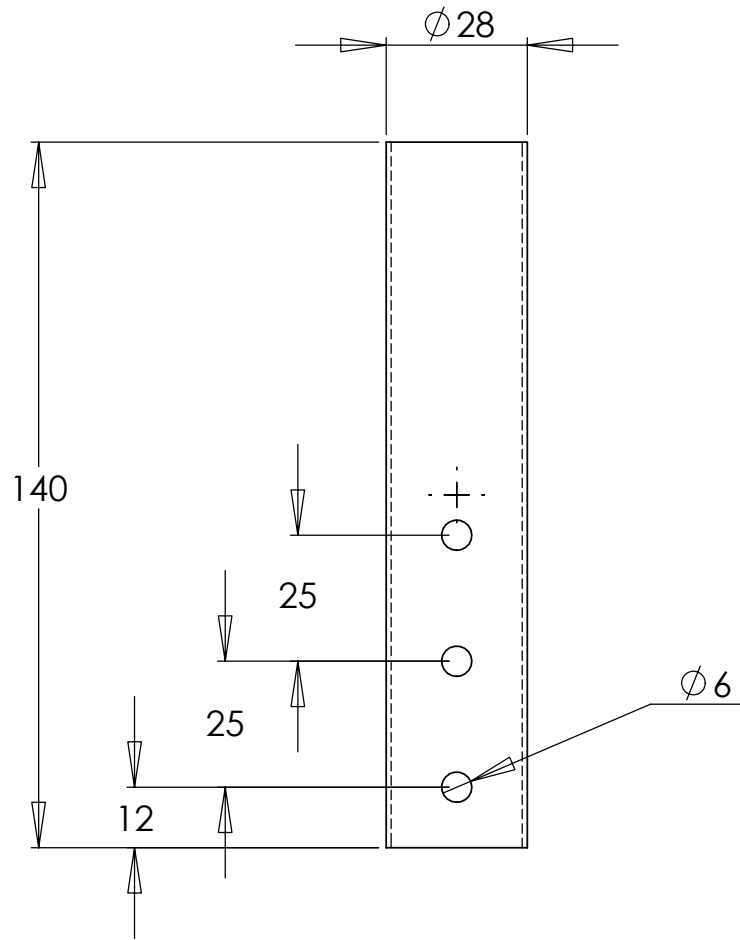


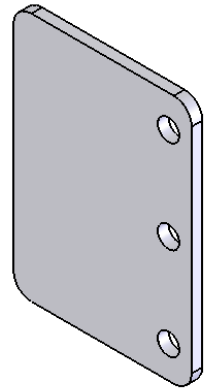
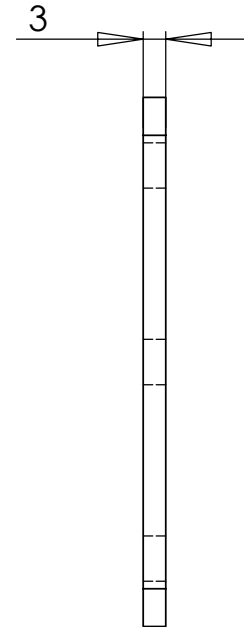
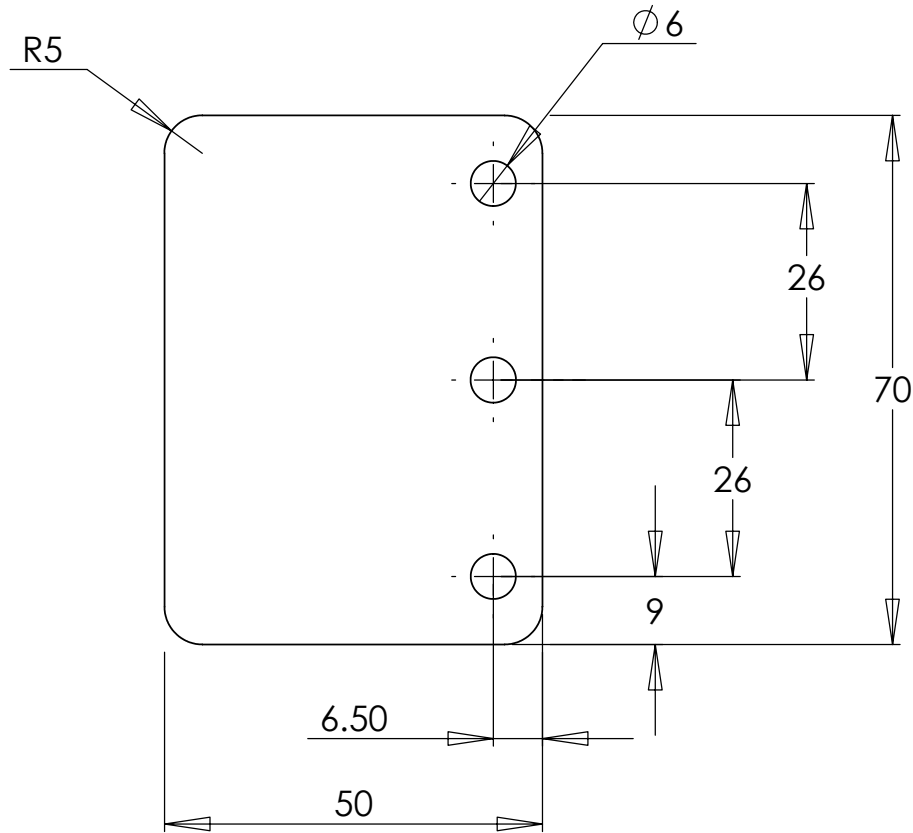
DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# fa3	PART NAME: Wheelchair assembly
	MATERIAL:	
FINISH: Powder Coat	PROJECT TITLE: India Wheelchair	
AUTHOR: Emily Zipfel	Human Engineering Research Lab	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper	SCALE:1:20	DATE: March 1, 2004

COMMENTS:
Some components (ie. wheel) removed



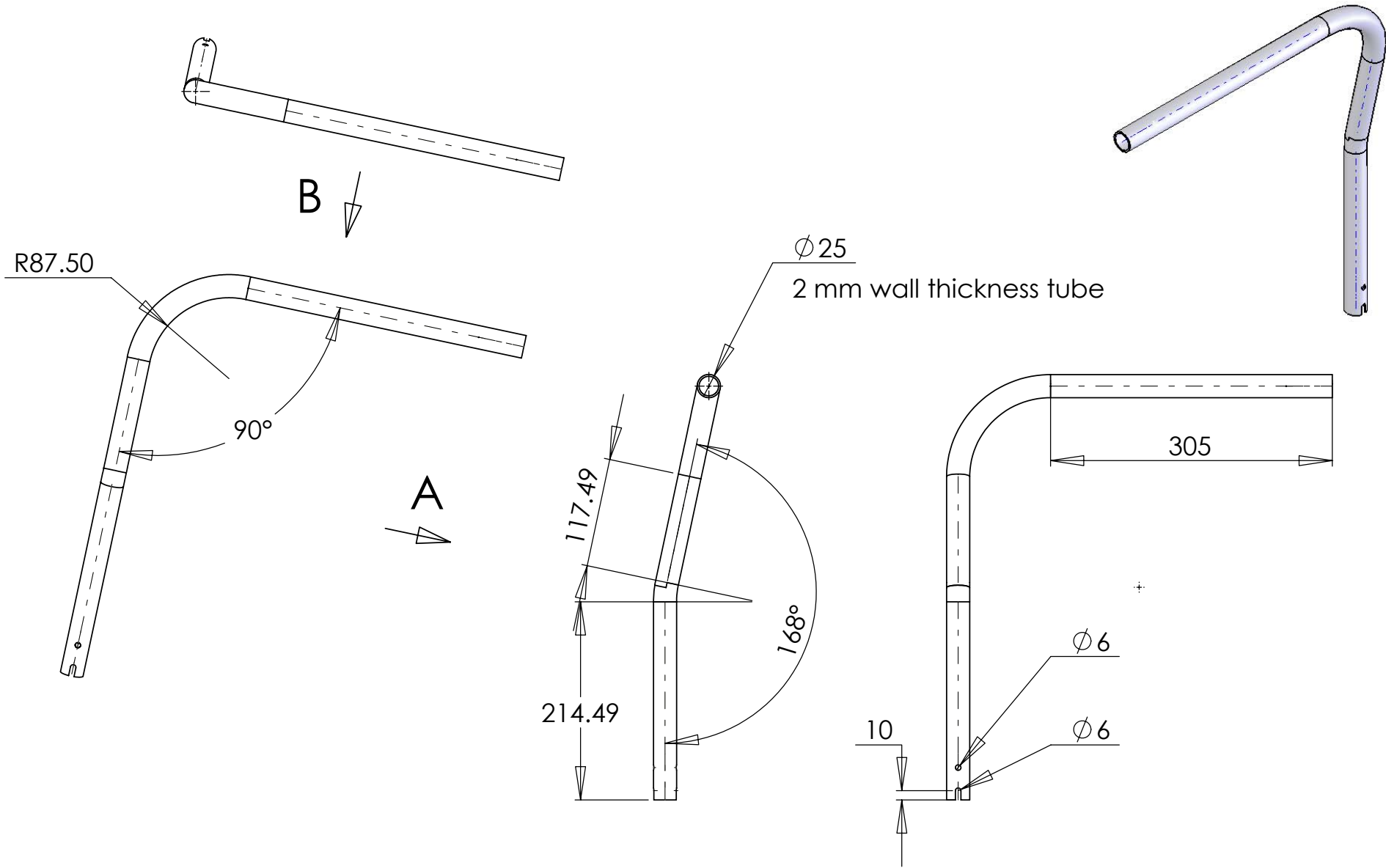
COMMENTS:
All holes drill to fit 6 mm bolt

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: A1	PART NAME: Armrest Attachment Bracket Tube	
	MATERIAL: Steel		PROJECT TITLE: India Wheelchair
FINISH: Powder Coat	Human Engineering Research Lab		
AUTHOR: Emily Zipfel	SCALE: 1:1.5	DATE: March 1, 2004	SHEET 2 OF 1
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

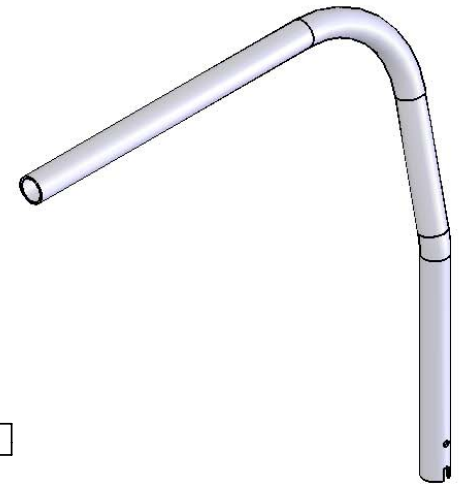
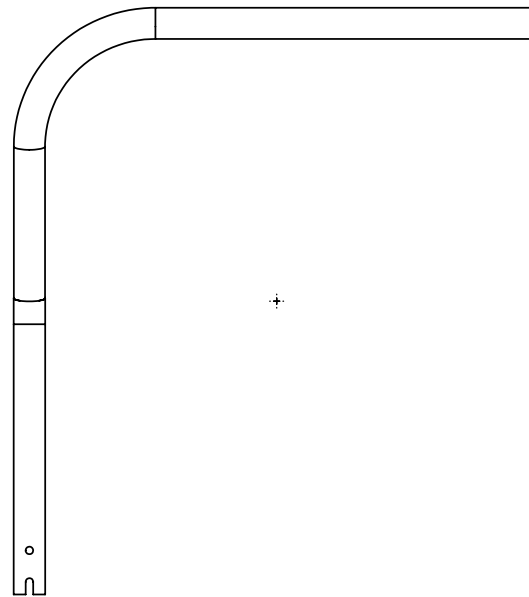
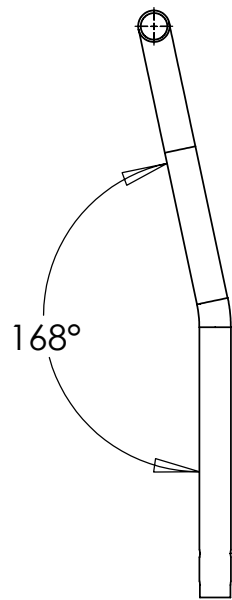


COMMENTS:
 Drill all holes to fit 6 mm bolt.
 Radius corners to remove sharp corners.

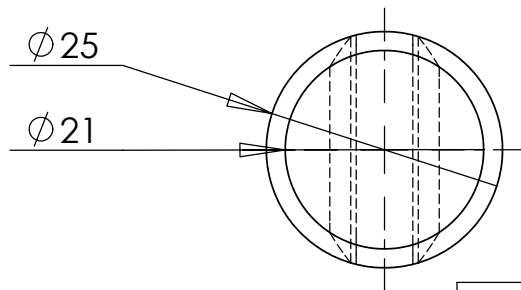
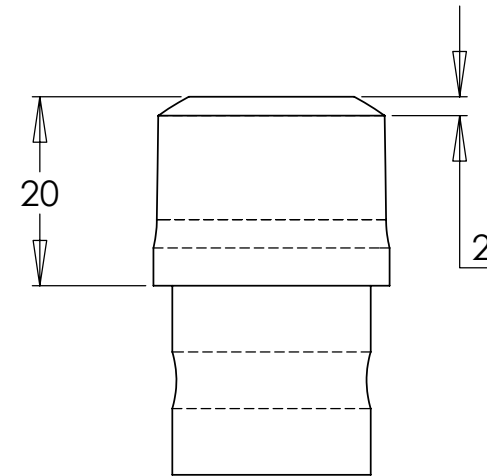
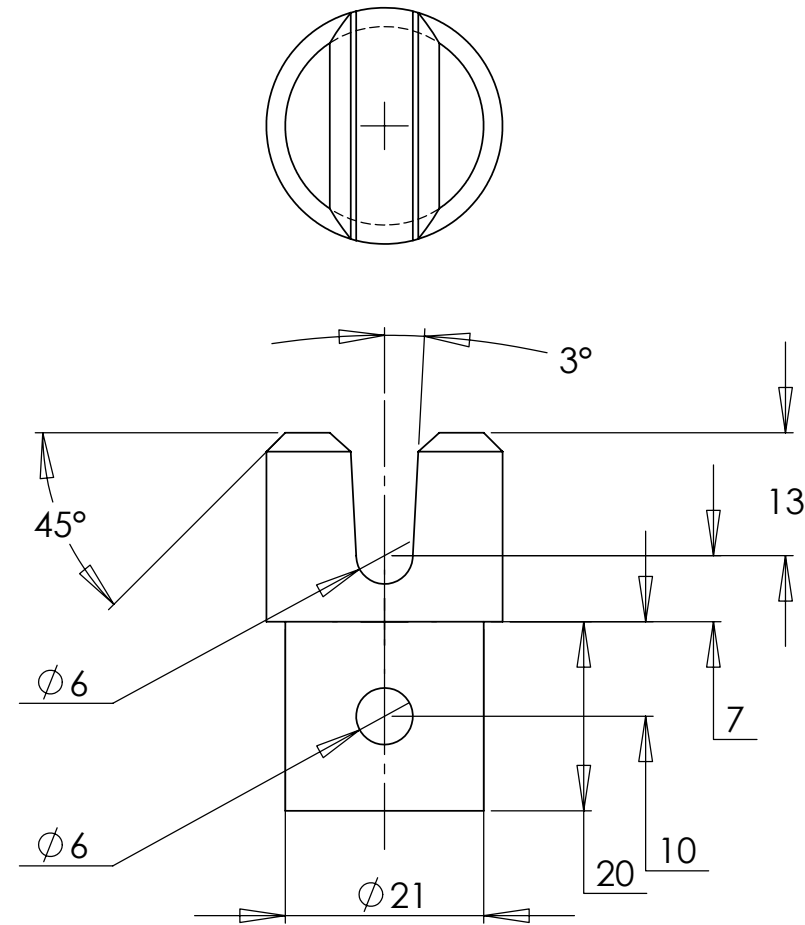
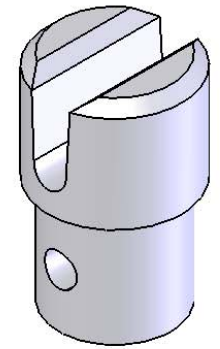
DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: A2	PART NAME: Armrest Attachment Bracket Plate	
		PROJECT TITLE: India Wheelchair	
MATERIAL: 1018 Carbon Steel	Human Engineering Research Lab		
FINISH: Powder Coat	SCALE:1:1		
AUTHOR: Emily Zipfel	DATE: March 1, 2004		
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper	SHEET 2 OF 1		



COMMENTS: Use 2mm wall thickness tubing. Left armrest tube and right armrest tube are identical except for direction of bend.	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: A3	PART NAME: Left Armrest Tube
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair
	FINISH: Powder Coat	HUMAN ENGINEERING RESEARCH LAB	
	AUTHOR: Emily Zipfel	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper	SCALE: 1:6



<p>COMMENTS:</p> <p>For more detail, see "Left Armrest Tube" (part A3) drawing. Part is identical except for direction of bend</p>	<p>DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified</p>	<p>PART #: A4</p>	<p>PART NAME: Right Armrest Tube</p>	
	<p>MATERIAL: 1018 Carbon Steel</p>		<p>PROJECT TITLE: India Wheelchair</p>	
	<p>FINISH: Powder Coat</p>		<p>Human Engineering Research Lab</p>	
	<p>AUTHOR: Emily Zipfel</p>	<p>PRINCIPAL INVESTIGATOR: Dr. Rory Cooper</p>	<p>SCALE: 1:10</p>	<p>DATE: March 1, 2004</p>



COMMENTS:

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: A6	PART NAME: Arm Rest Tube Plug	
		PROJECT TITLE: India Wheelchair	
MATERIAL: Aluminum		Human Engineering Research Lab	
FINISH: Powder Coat		SCALE: 1:25:1	
AUTHOR: Emily Zipfel		DATE: March 1, 2004	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SHEET 2 OF 1	

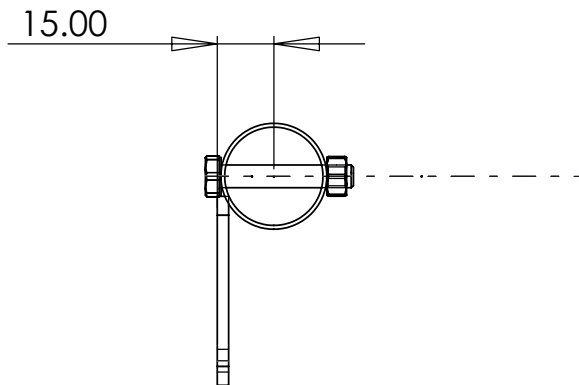
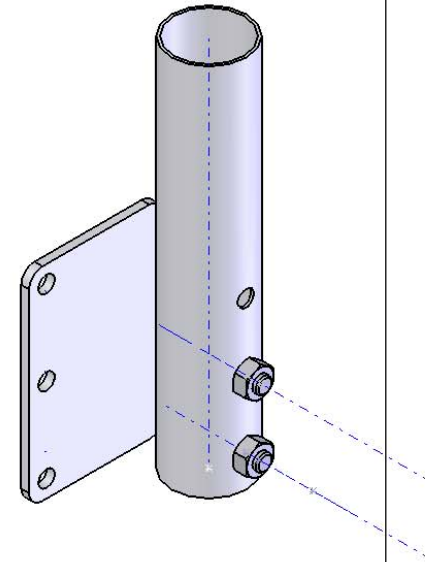
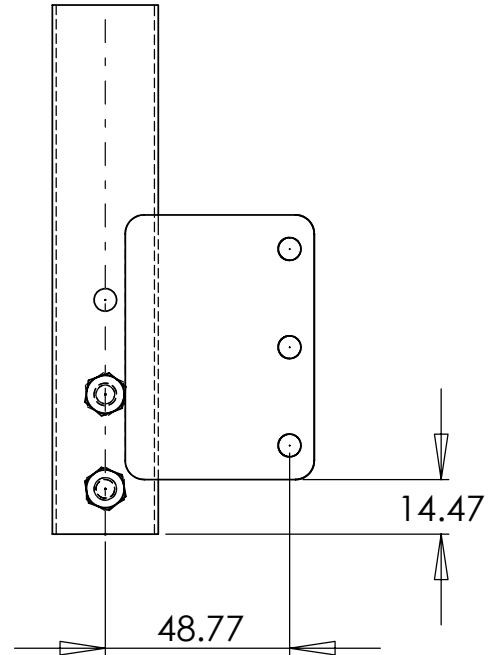
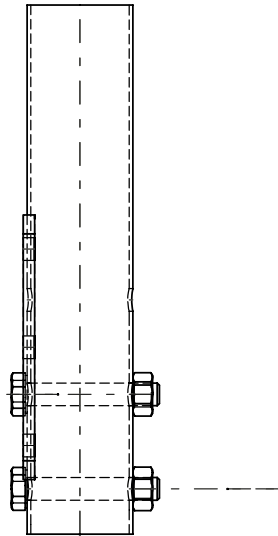
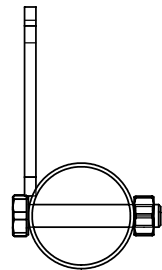
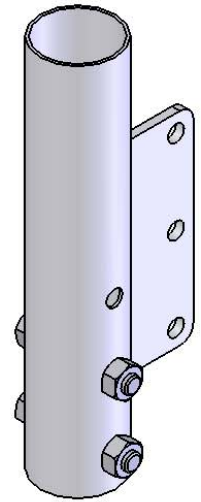
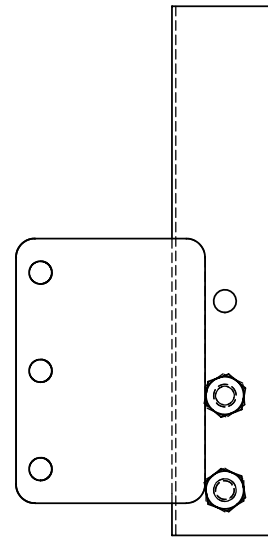
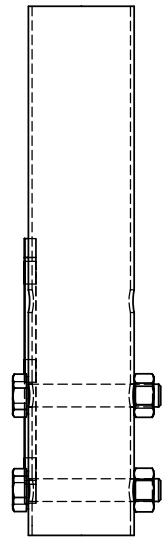


plate welded to tube

COMMENTS:

COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# aa1	PART NAME: Left Armrest Bracket Assembly		
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair		
	FINISH: Powder Coat		Human Engineering Research Lab		
	AUTHOR: Emily Zipfel		SCALE:1:5	DATE: March 1, 2004	SHEET 1 OF 1
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper				



COMMENTS:

COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# aa2	PART NAME: Right Armrest Bracket Assembly	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

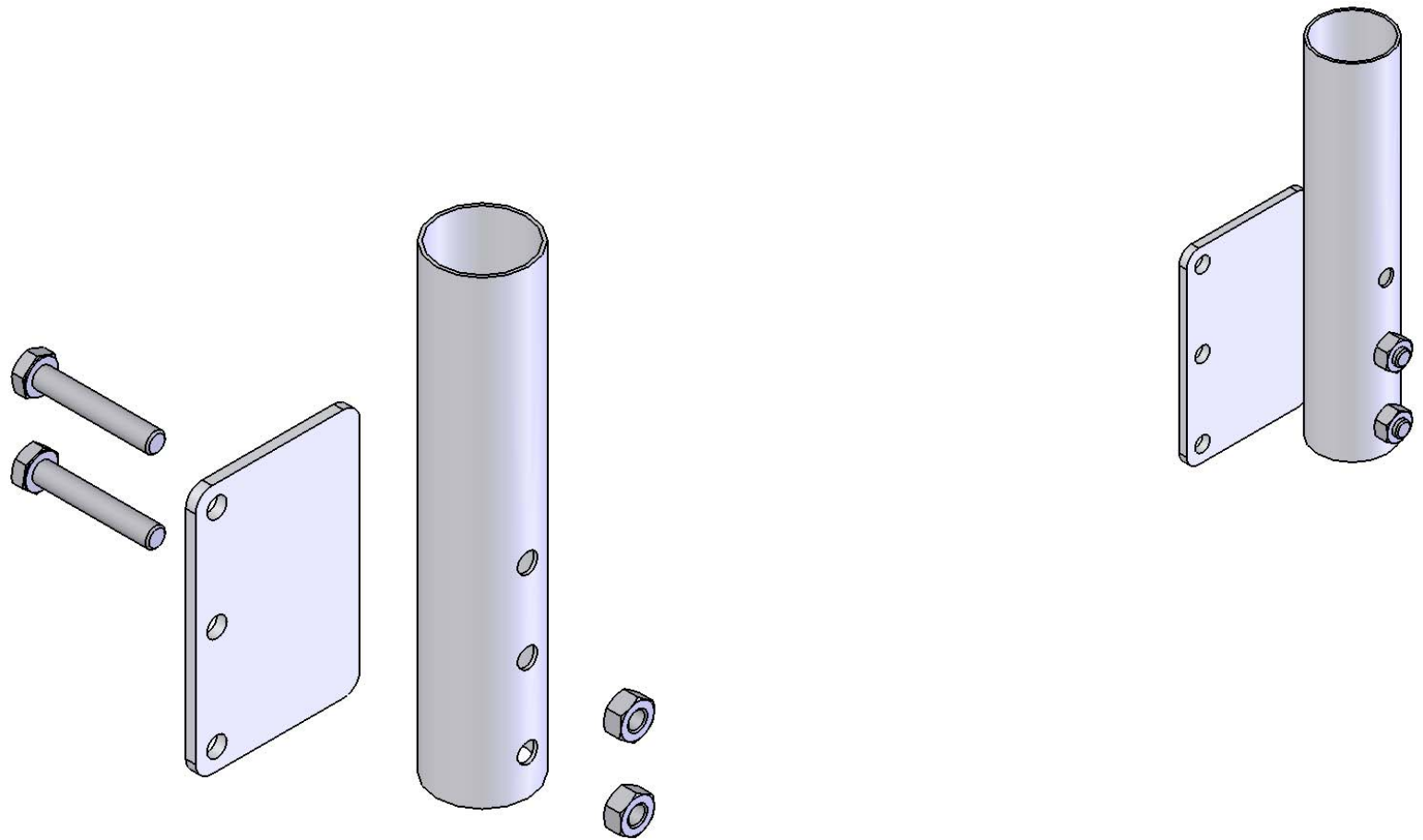
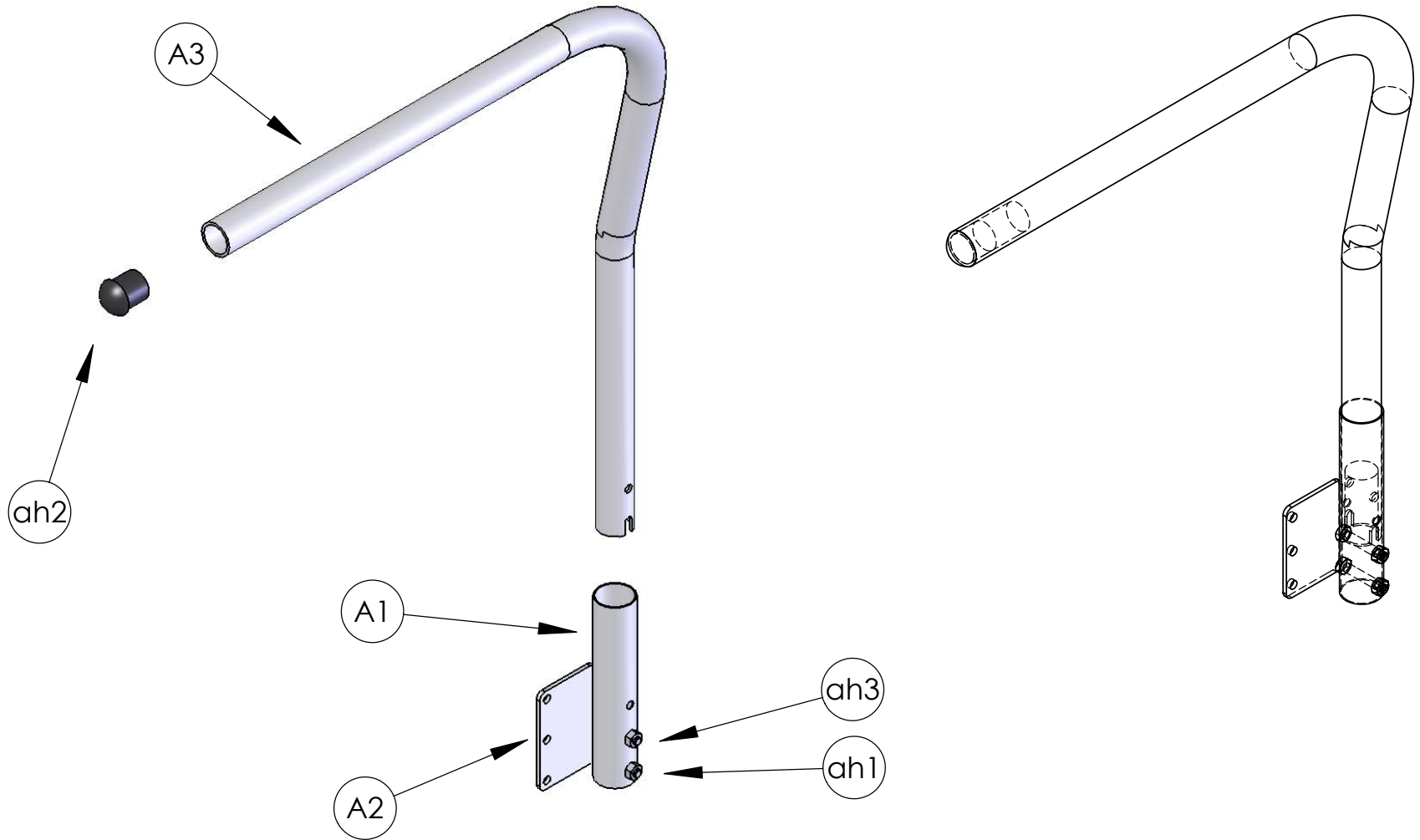
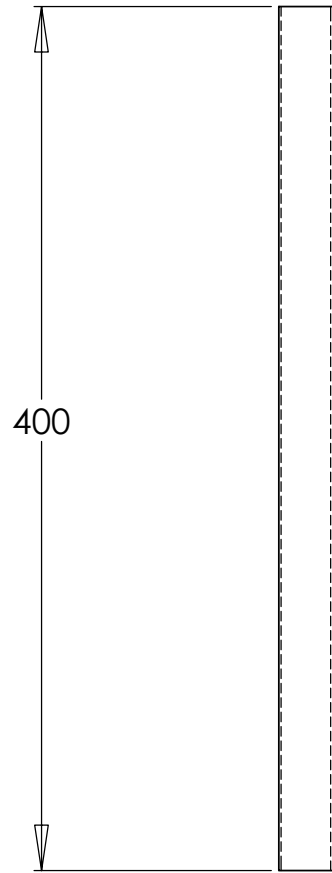


Plate welded to tube

COMMENTS: Use 6 mm, 35 mm long & nylon locknuts	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# aa3	PART NAME: Armrest Bracket Exploded		
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair		
	FINISH: Powder Coat	Human Engineering Research Lab			
	AUTHOR: Emily Zipfel	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper	SCALE:1:5	DATE: March 1, 2004	SHEET 2 OF 1



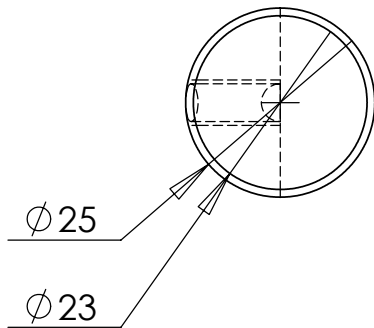
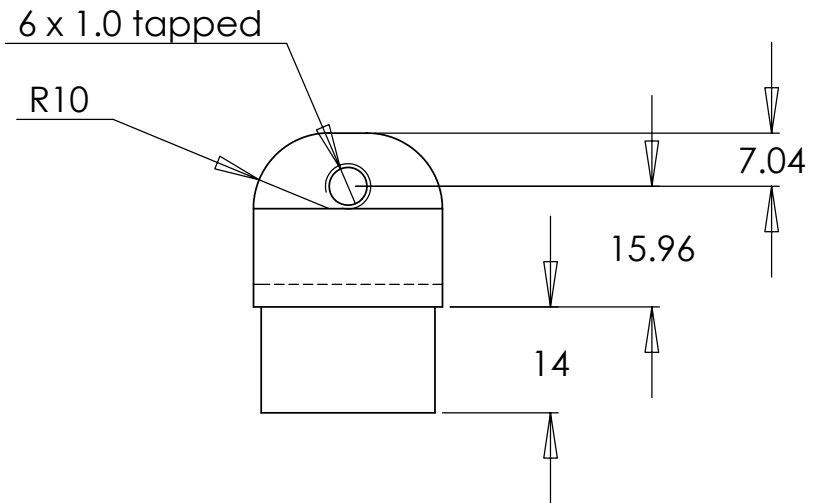
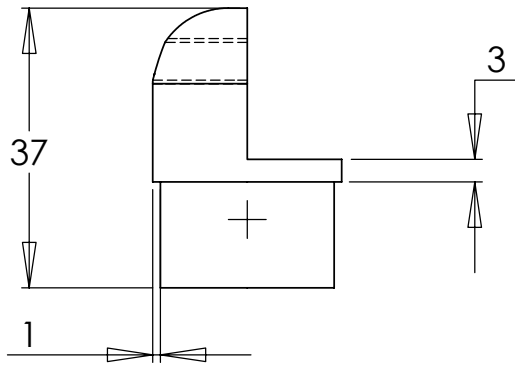
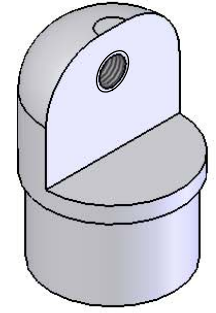
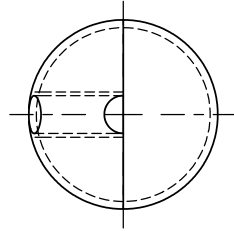
COMMENTS: See Materials spreadsheet for hardware specifications.	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# aa4	PART NAME: Arm Rest Exploded View		
	FINISH: Powder Coat		PROJECT TITLE: India Wheelchair		
	AUTHOR: Emily Zipfel	Human Engineering Research Lab			
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper	SCALE: 1:20	DATE: March 1, 2004	SHEET 2 OF 1	



$\phi 25$
 wall thickness: 1.0

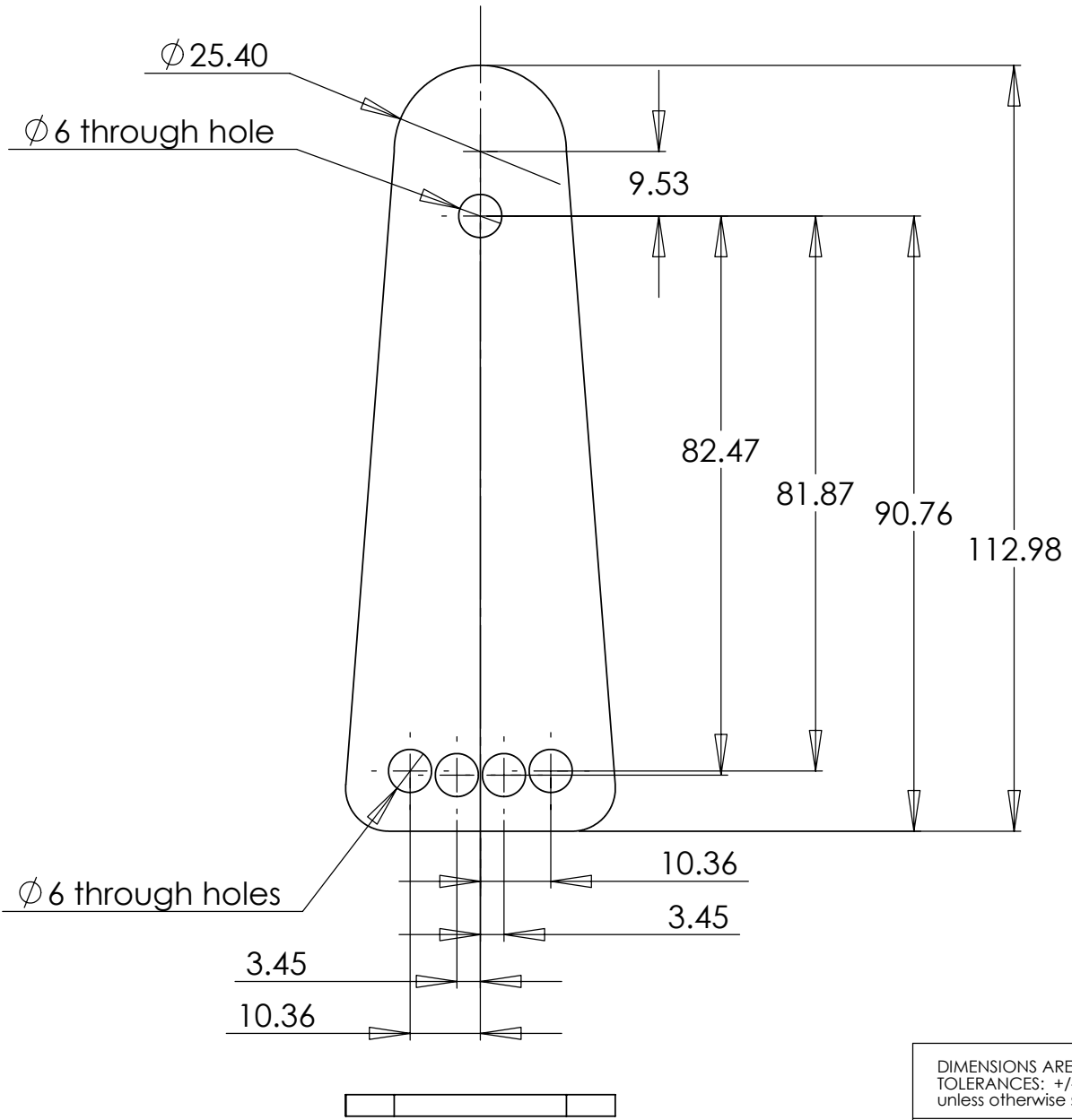
COMMENTS:

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: B1	PART NAME: Back Rest Tube	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair
FINISH: Powder Coat		Human Engineering Research Lab	
AUTHOR: Emily Zipfel		SCALE:1:3	DATE: March 1, 2004
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SHEET 2 OF 1	

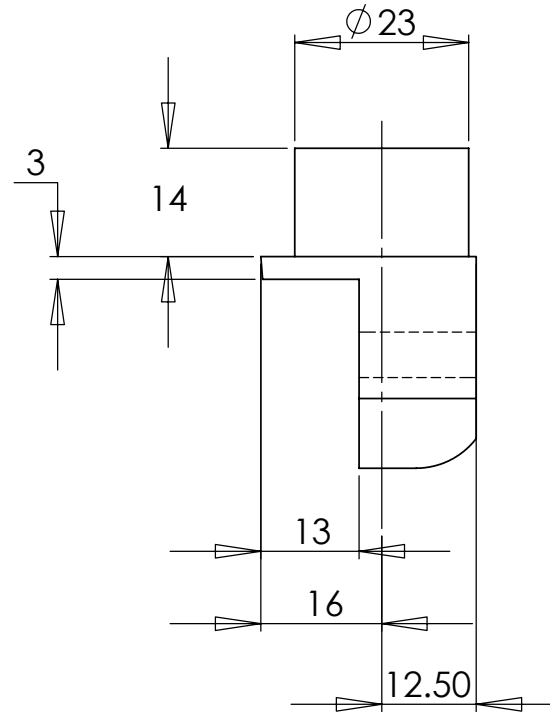
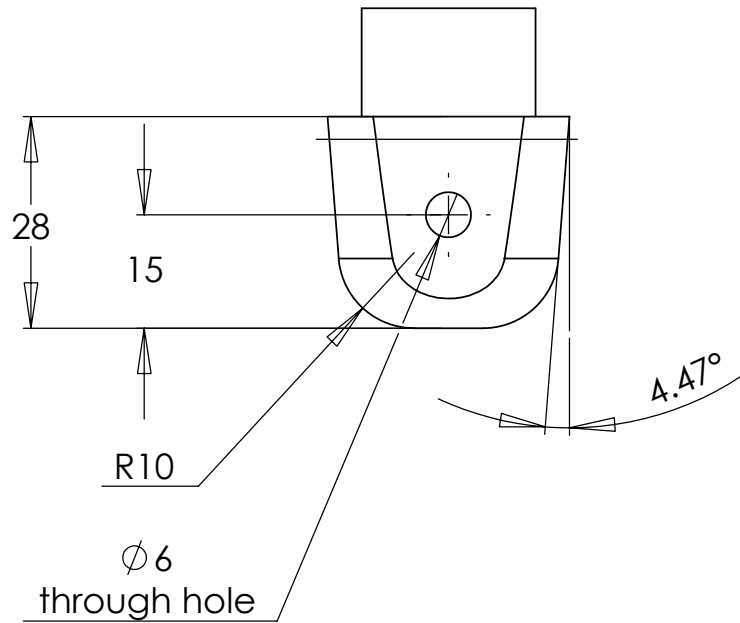
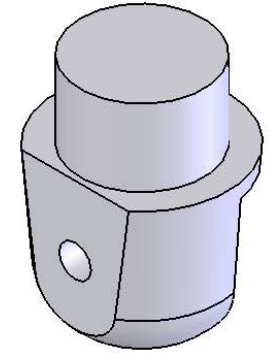
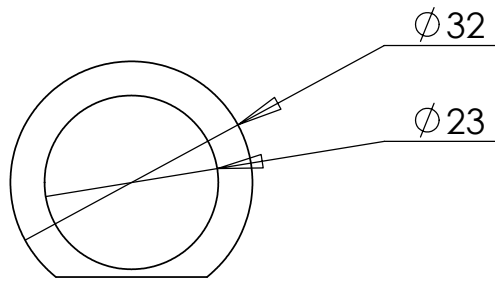


COMMENTS:

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: B2	PART NAME: Backrest Plug		
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat			
	AUTHOR: Emily Zipfel		Human Engineering Research Lab	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SCALE:1:1	DATE: March 1, 2004	SHEET 2 OF 1

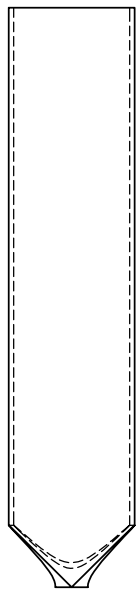
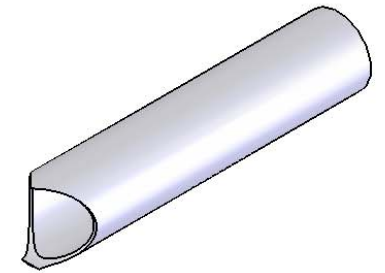
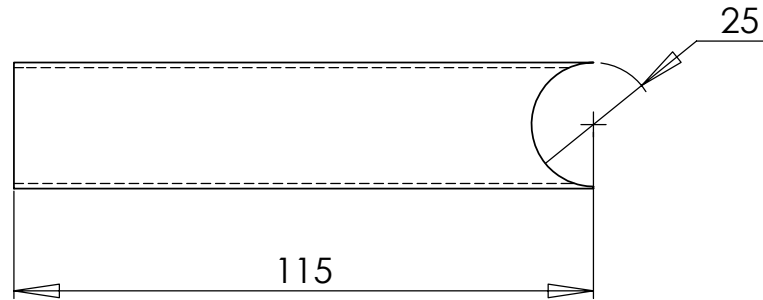
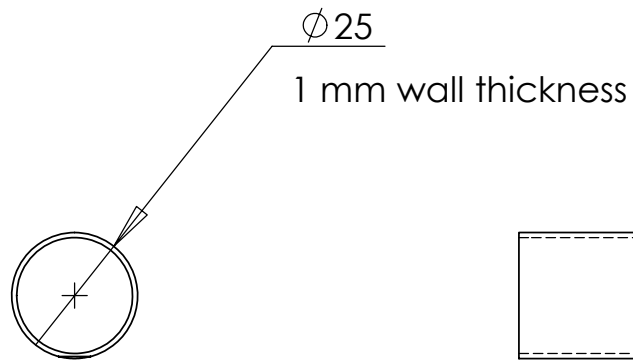


DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: B3	PART NAME: Adjustment Plate	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair
COMMENTS: All holes must be a through fit for 6mm bolts.	FINISH: Powder Coat	Human Engineering Research Lab	
	AUTHOR: Emily Zipfel	SCALE:1:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper	SHEET 2 OF 1	



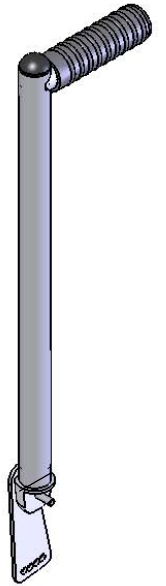
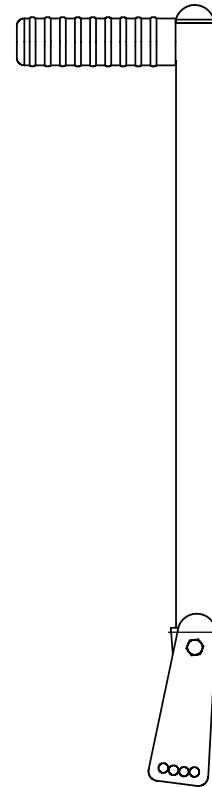
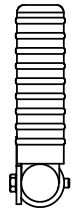
COMMENTS:
 Plug should fit inside tube and welded in place.

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: B4	PART NAME: Adjustment Plate Plug	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair
FINISH: Powder Coat	Human Engineering Research Lab		
AUTHOR: Emily Zipfel	SCALE:1:1	DATE: March 1, 2004	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



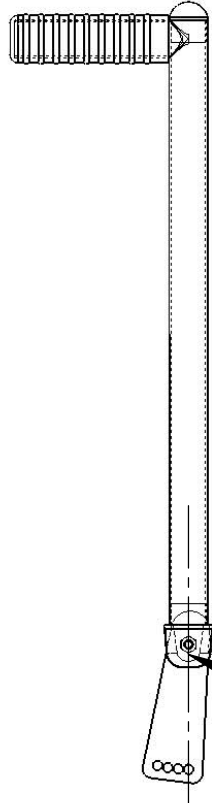
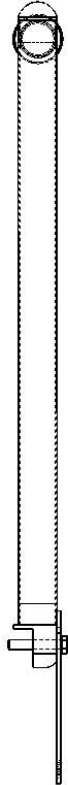
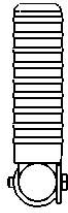
COMMENTS:

COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: B5	PART NAME: Push Handle Tube	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:1.5	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

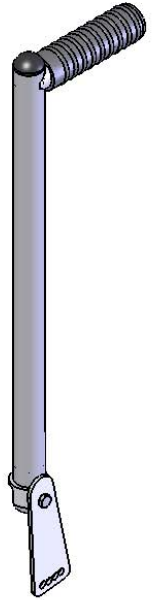


COMMENTS:

COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# ba1	PART NAME: Right armrest tube assembly	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:10	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

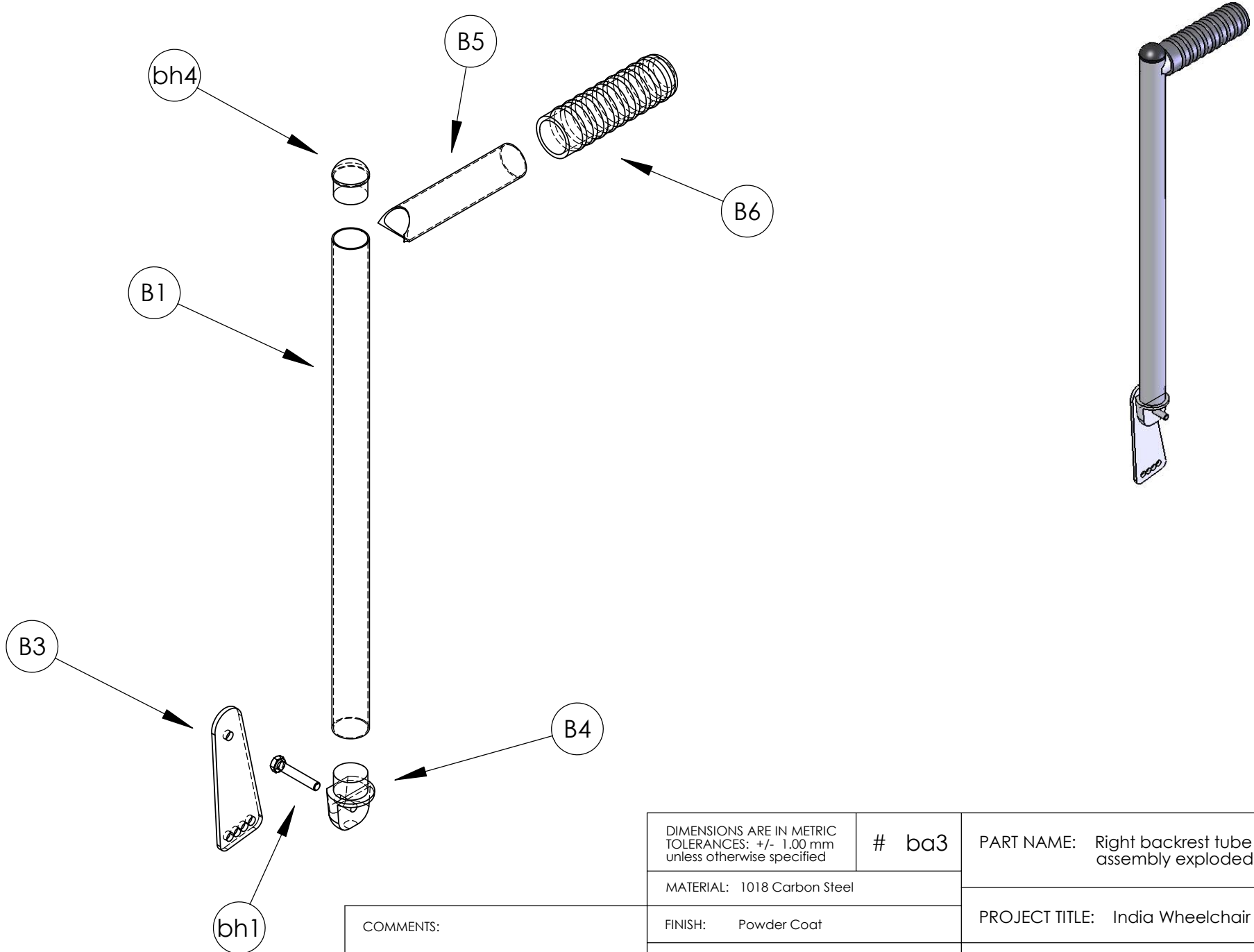


Pivot hole must be inline with adjustment holes & backrest tube



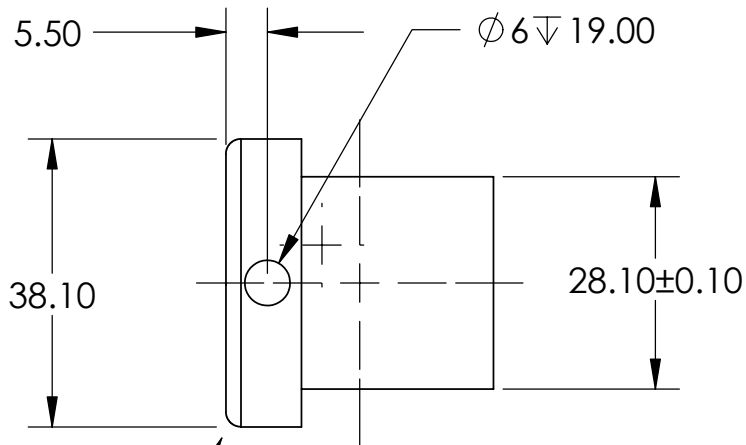
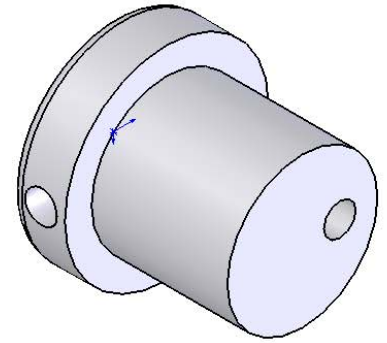
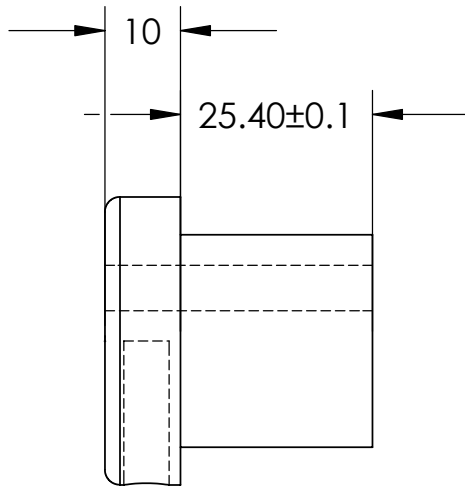
COMMENTS:

COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# ba2	PART NAME: left backrest tube assembly	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:10	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

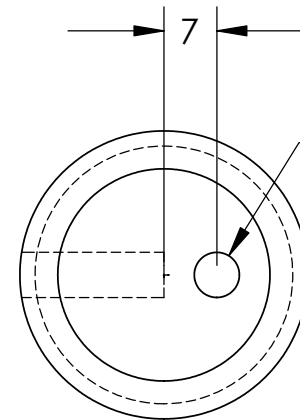


COMMENTS:

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# ba3	PART NAME: Right backrest tube assembly exploded	
		PROJECT TITLE: India Wheelchair	
MATERIAL: 1018 Carbon Steel		Human Engineering Research Lab	
FINISH: Powder Coat		SCALE:1:10	DATE: March 1, 2004
AUTHOR: Emily Zipfel			SHEET 2 OF 1
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



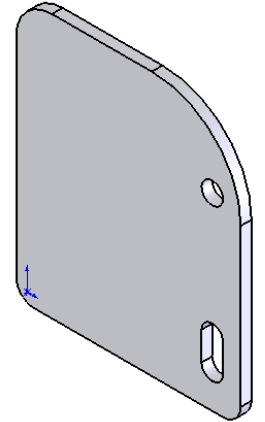
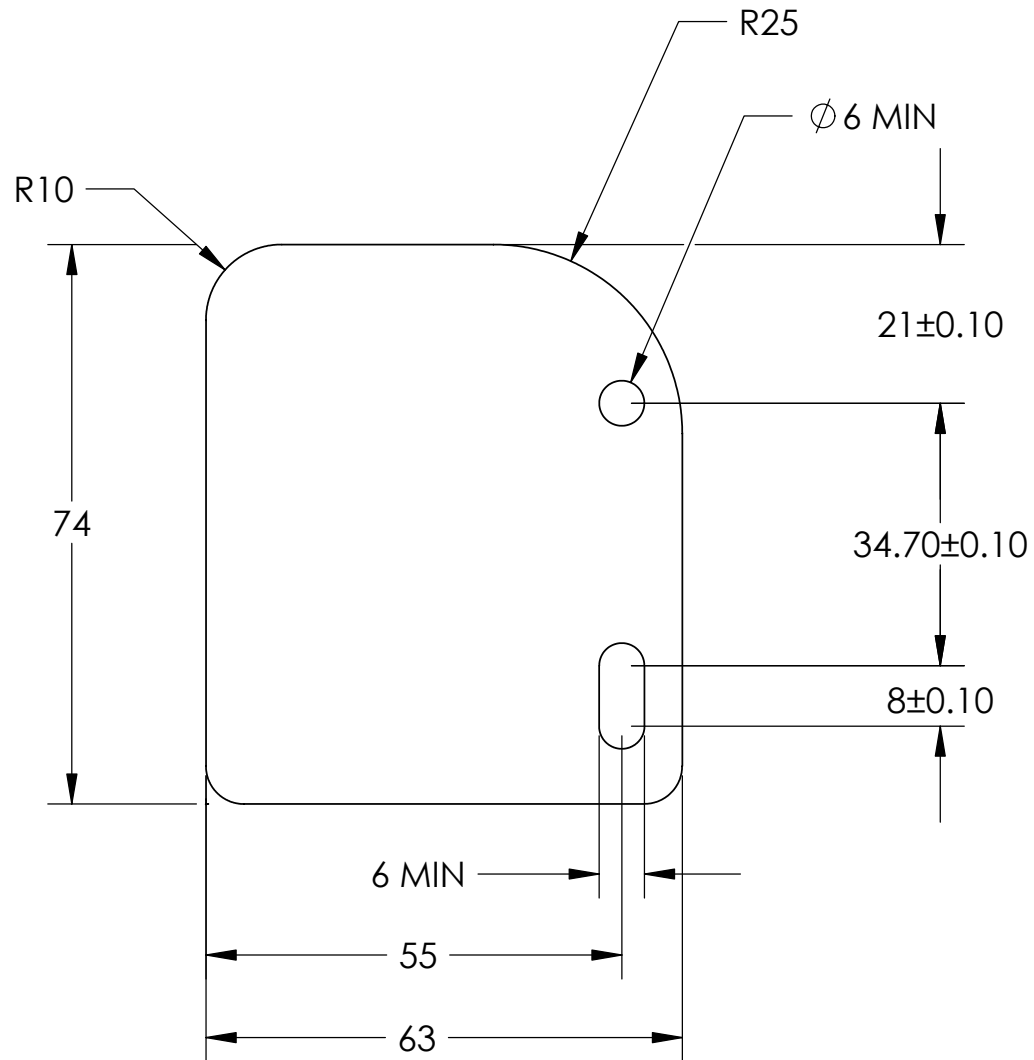
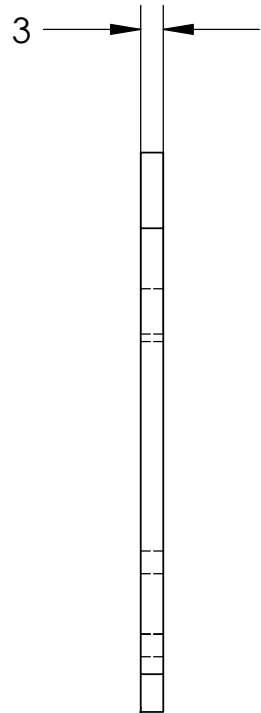
radius corners



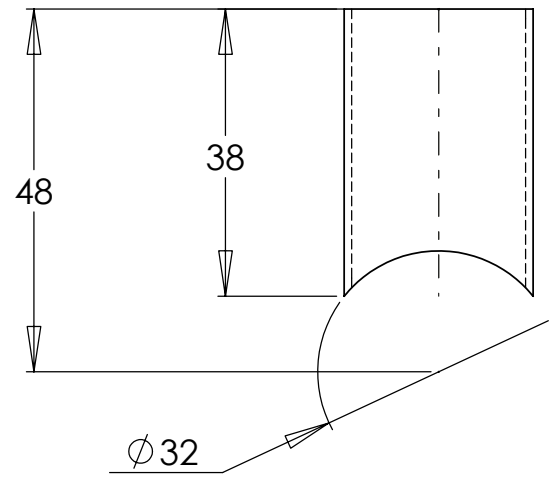
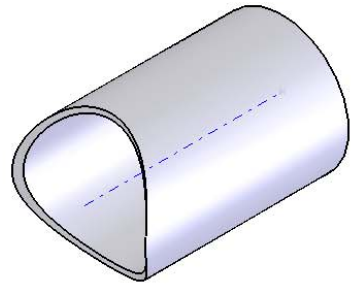
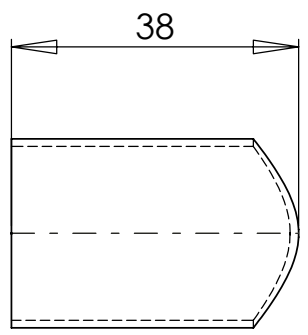
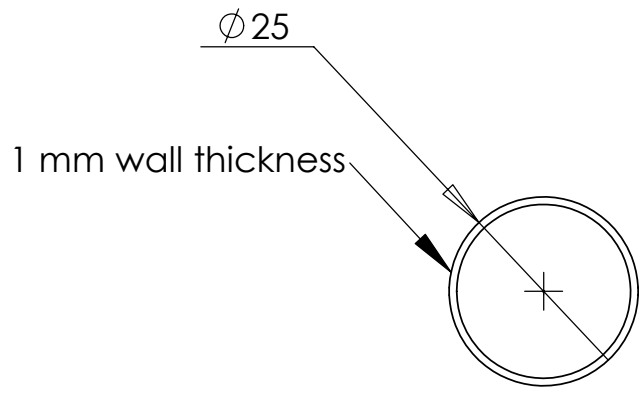
Ø6 35.40
through hole for 6 mm bolt

COMMENTS:
Part must turn freely in caster bushing housing (Part F1)

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: C1	PART NAME: Eccentric Caster Bushing	
		PROJECT TITLE: India Wheelchair	
MATERIAL: 6061 Aluminum		Human Engineering Research Lab	
FINISH: hard coat anodize		SCALE:1:1	
AUTHOR: Emily Zipfel		DATE: March 1, 2004	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

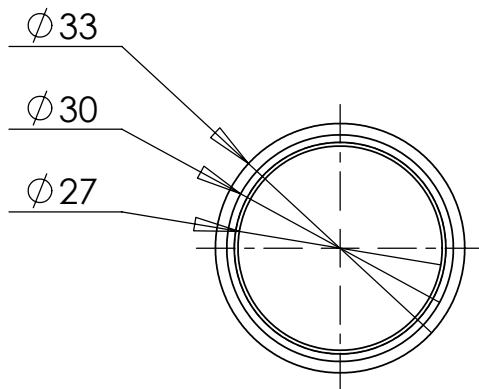
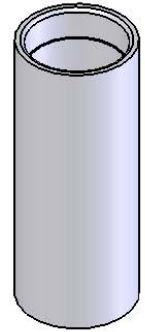
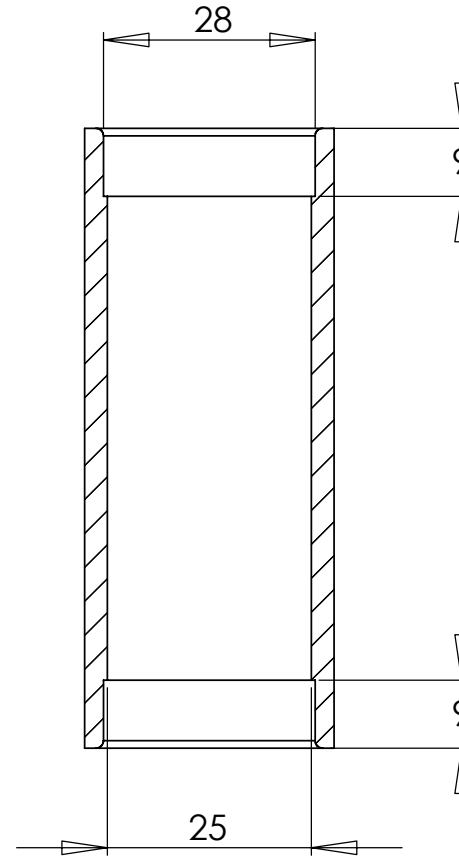
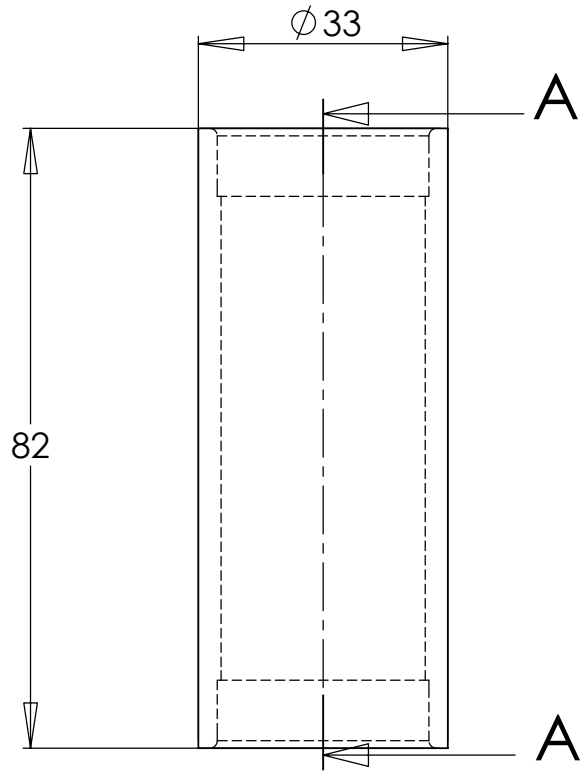


COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified		PART #: C2		PART NAME: Caster Plate	
	MATERIAL: 1018 Carbon Steel				PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat				Human Engineering Research Lab	
	AUTHOR: Emily Zipfel				SCALE:1:1	
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper				DATE: March 1, 2004	
				SHEET 3 OF 1		



COMMENTS:

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: C3	PART NAME: Caster Plate Standoff	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair
	FINISH: Powder Coat		Human Engineering Research Lab
	AUTHOR: Emily Zipfel		SCALE:1:1
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		DATE: March 1, 2004	SHEET 2 OF 1

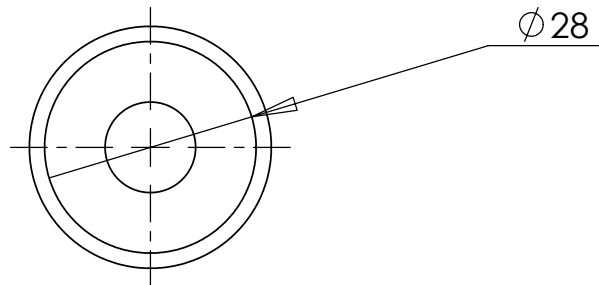
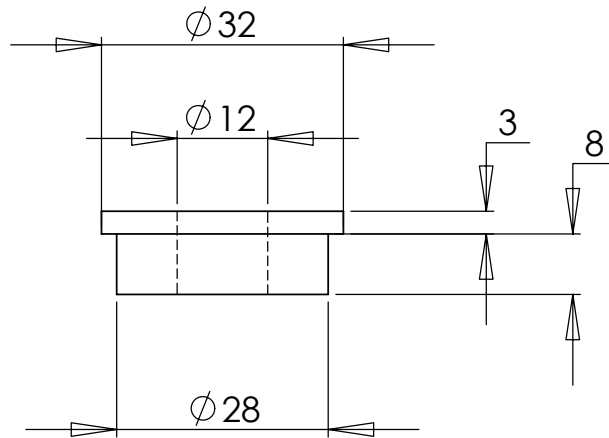
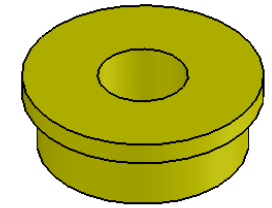
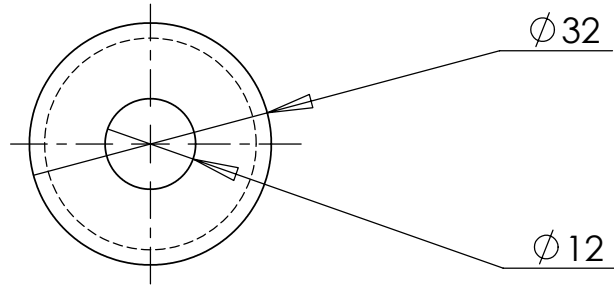


SECTION A-A

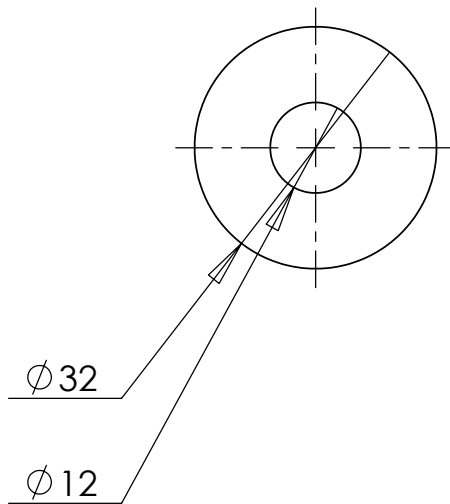
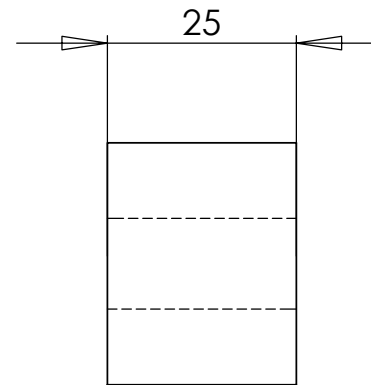
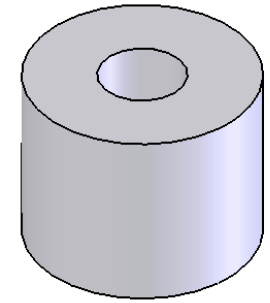
COMMENTS:

- 1) Bearings must press into ends of caster housing.
- 2) Round inside edges for easy bearing insertio.

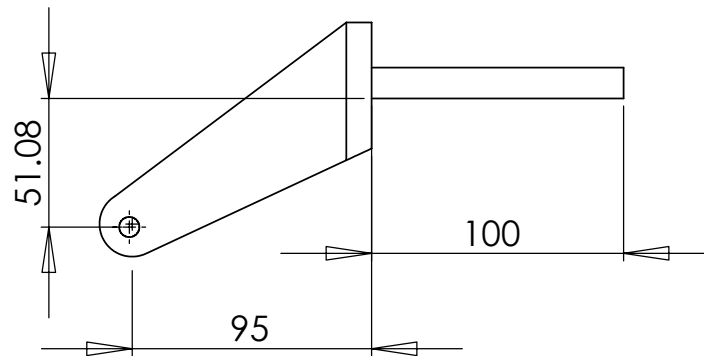
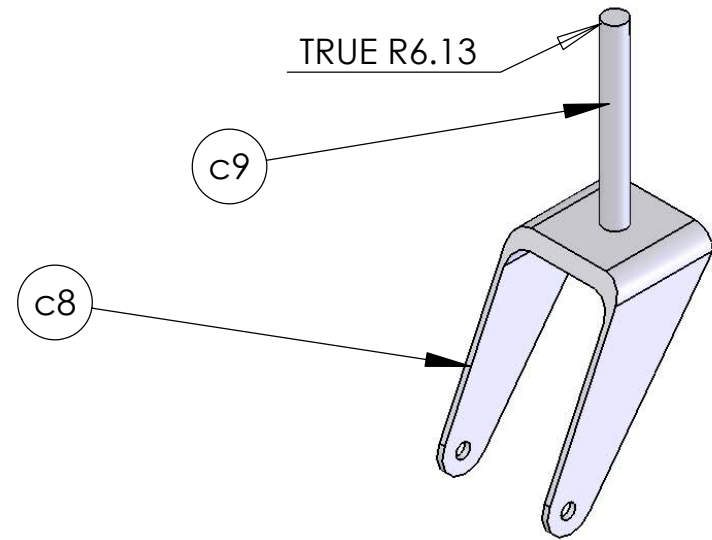
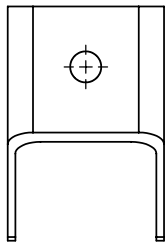
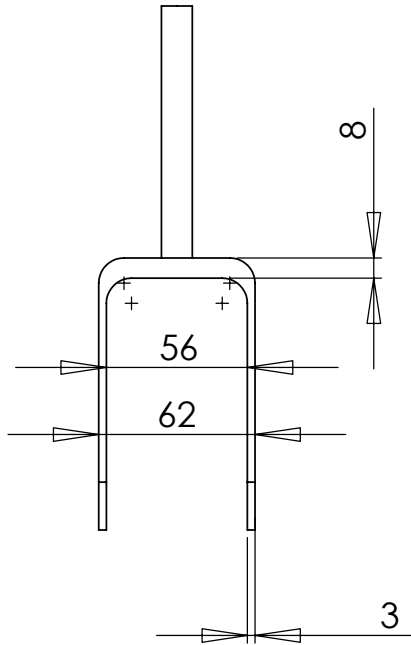
DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: C4	PART NAME: Caster Stem Housing	
		PROJECT TITLE: India Wheelchair	
MATERIAL: 1018 Carbon Steel		Human Engineering Research Lab	
FINISH: Powder Coat		SCALE:1:1	
AUTHOR: Emily Zipfel		DATE: March 1, 2004	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SHEET 2 OF 1	



COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified		PART #: C5		PART NAME: Caster Bushing	
	MATERIAL: Bronze				PROJECT TITLE: India Wheelchair	
	FINISH: NA				Human Engineering Research Lab	
	AUTHOR: Emily Zipfel					
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper				SCALE:1:1	DATE: March 1, 2004

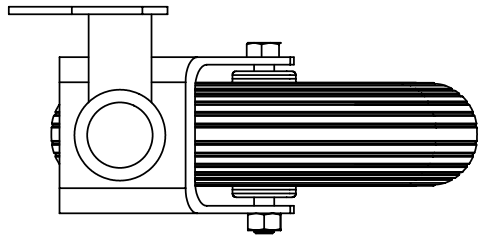
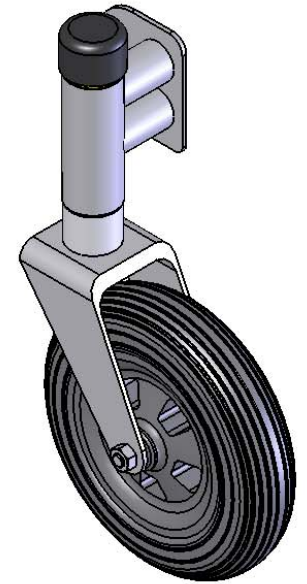
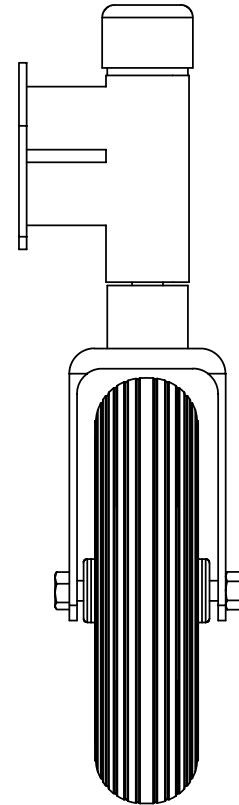
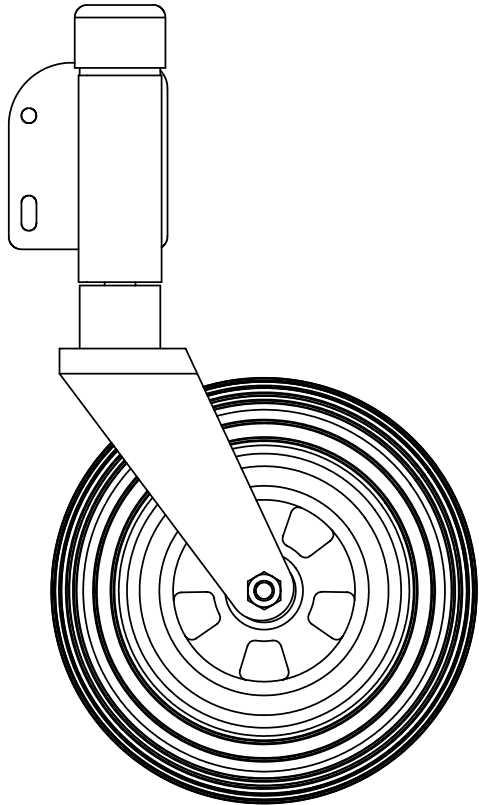


COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified		PART #: C7		PART NAME: Caster Stem Spacer	
	MATERIAL: 1018 Carbon Steel				PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		AUTHOR: Emily Zipfel		Human Engineering Research Lab	
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SCALE:1:1	DATE: March 1, 2004	SHEET 2 OF 1	



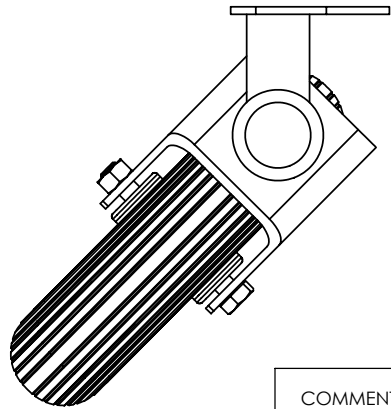
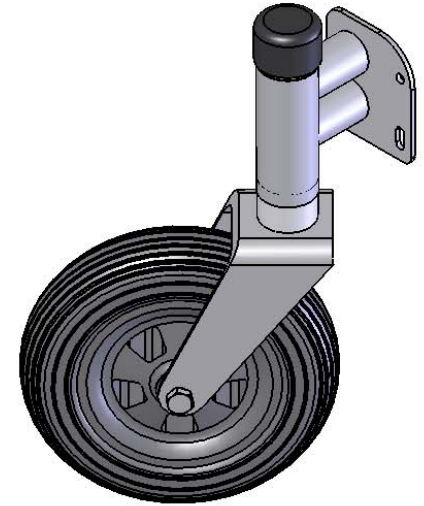
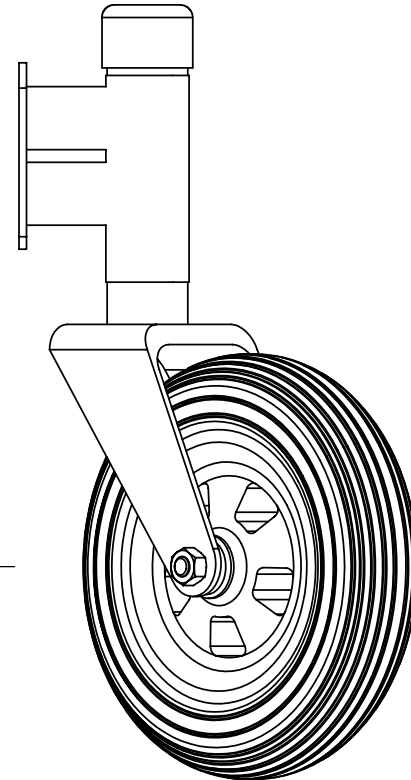
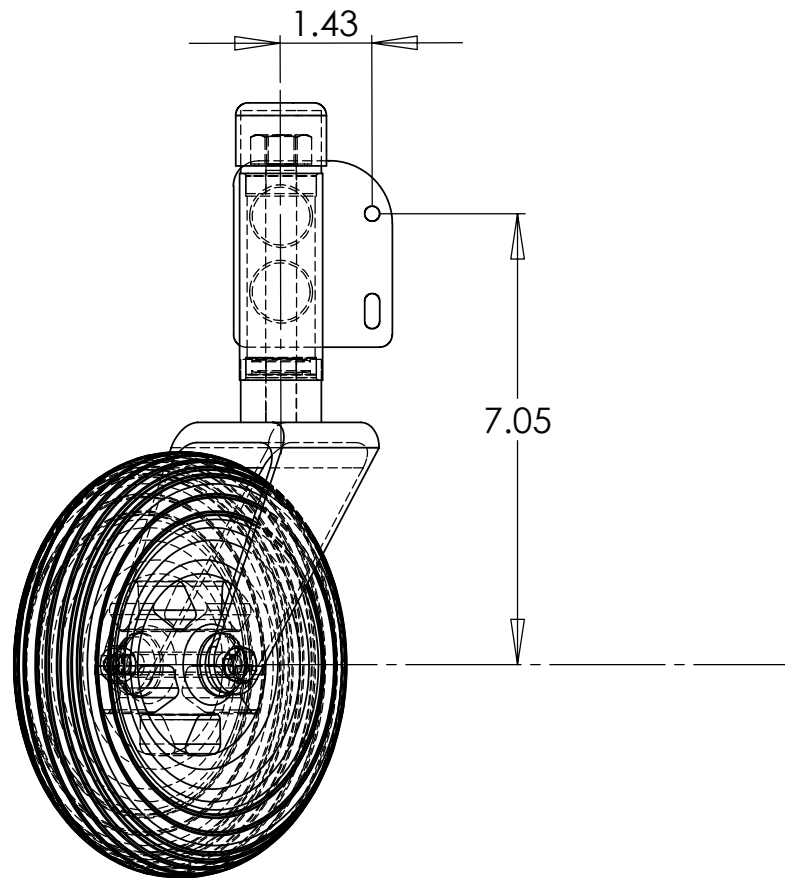
COMMENTS:
part made on wire EDM

COMMENTS: part made on wire EDM	DIMENSIONS ARE IN INCHES TOLERANCES: +/- 0.001	Part #: C8	PART NAME: Caster Fork
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair
	FINISH: Powder Coat		Human Engineering Research Lab
	AUTHORS: Emily Zipfel		
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SCALE:3
			SHEET 1 OF 1



COMMENTS:

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# ca1	PART NAME: Left Caster Assembly	
		PROJECT TITLE: India Wheelchair	
	HUMAN ENGINEERING RESEARCH LAB		SCALE: 1:5
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		DATE: March 1, 2004



COMMENTS:

DIMENSIONS ARE IN METRIC
TOLERANCES: +/- 1.00 mm
unless otherwise specified

ca2

PART NAME: Right Caster Assembly
Orthographic

MATERIAL: Steel

PROJECT TITLE: India Wheelchair

FINISH: Powder Coat

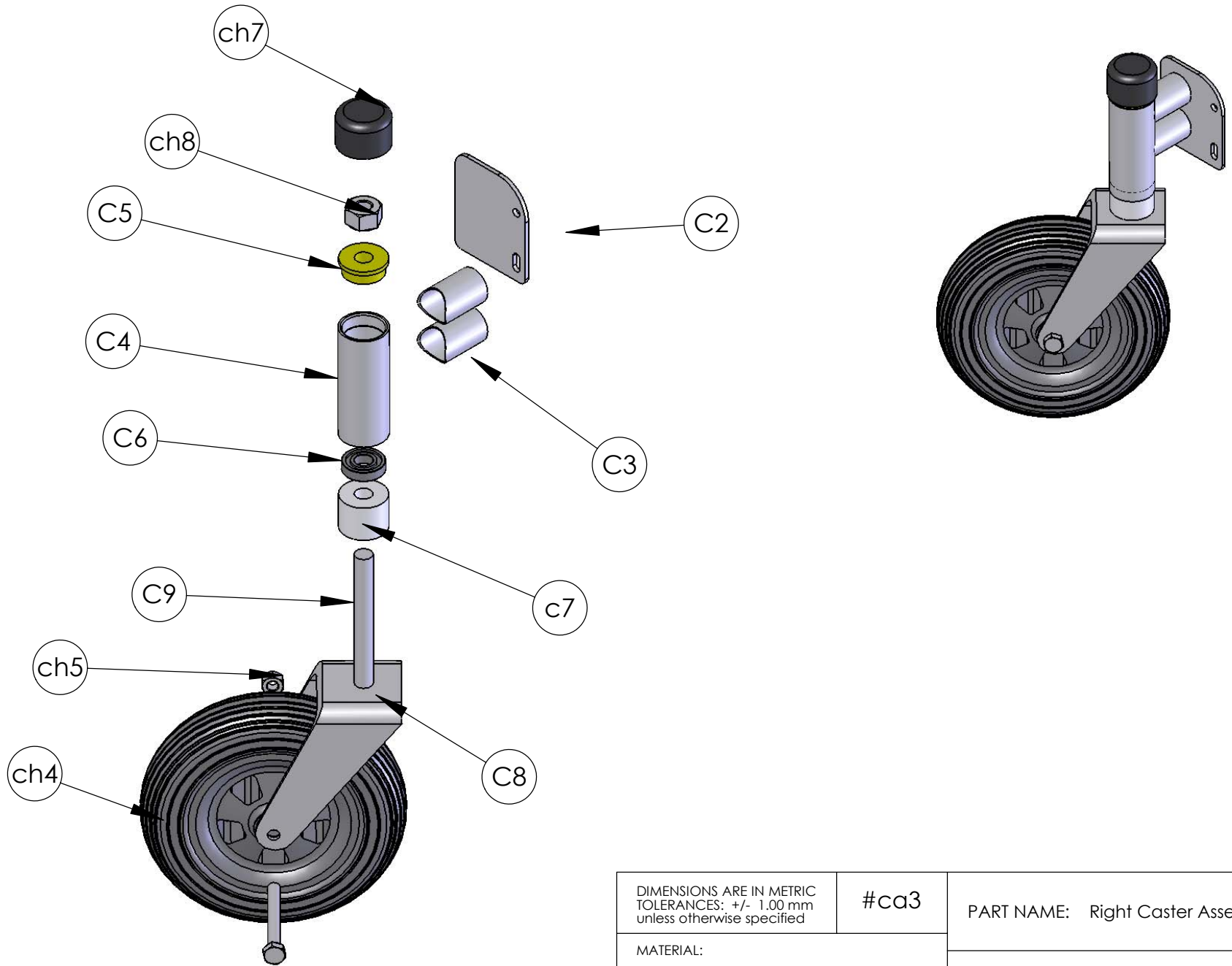
AUTHOR: Emily Zipfel

Human Engineering Research Lab

PRINCIPAL INVESTIGATOR: Dr. Rory Cooper

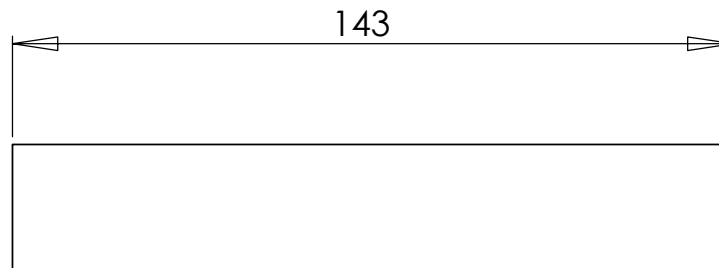
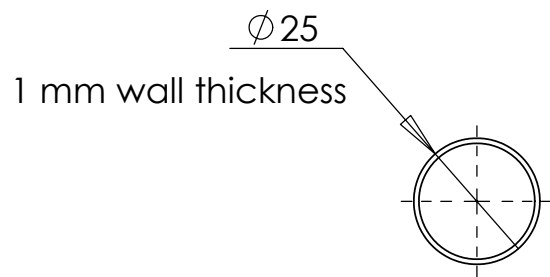
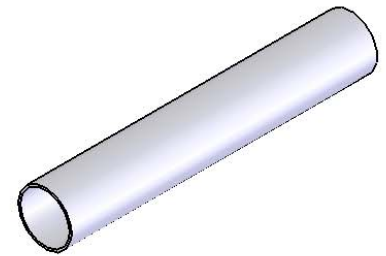
SCALE: 1:10

DATE: March 1, 2004



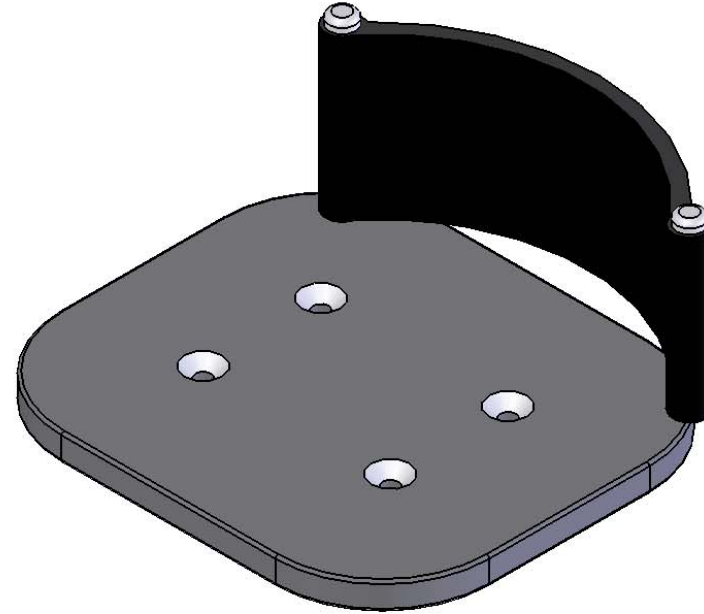
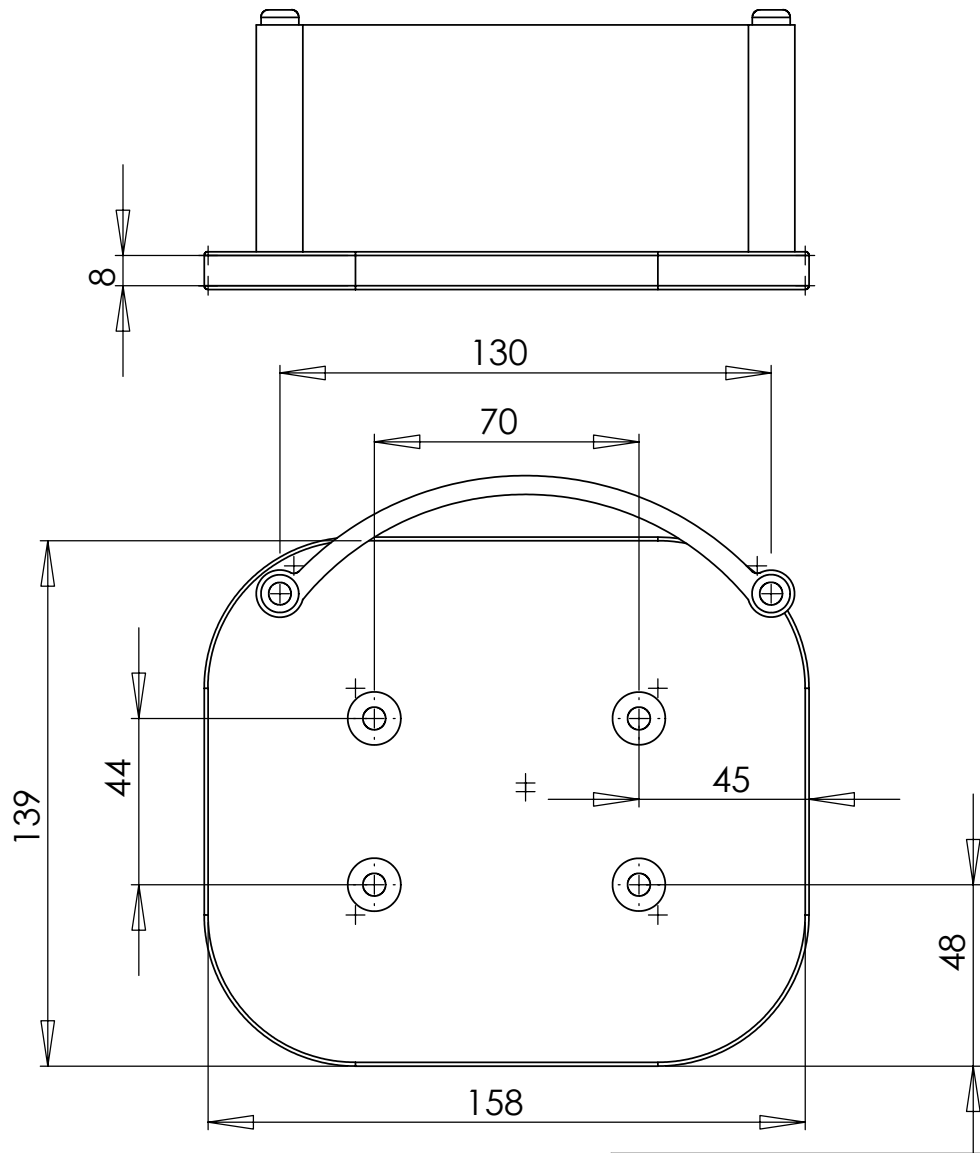
DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	#ca3	PART NAME: Right Caster Assembly	
		PROJECT TITLE: India Wheelchair	
		Human Engineering Research Lab	
		SCALE:1:20	DATE: March 1, 2004

COMMENTS:



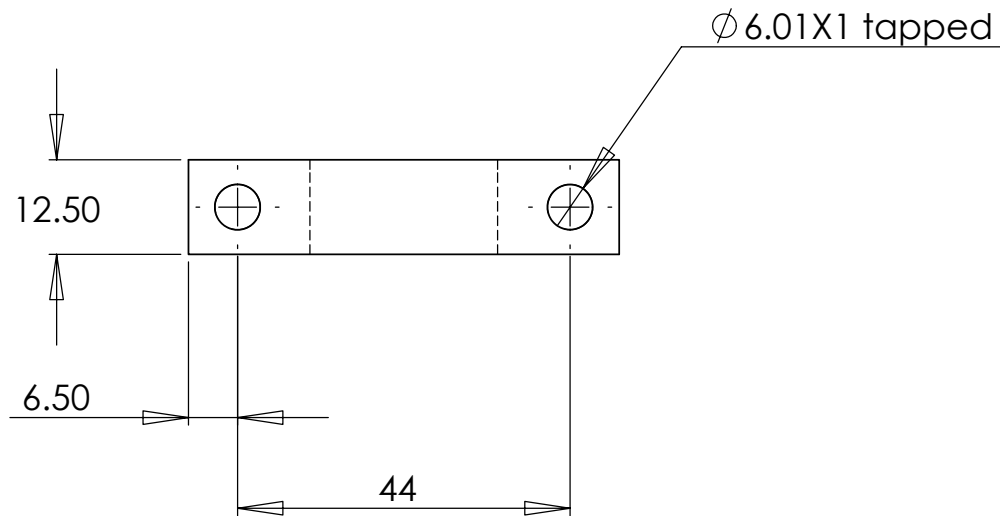
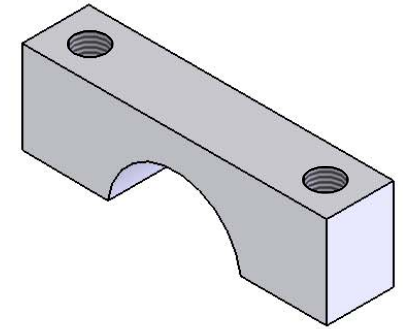
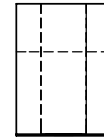
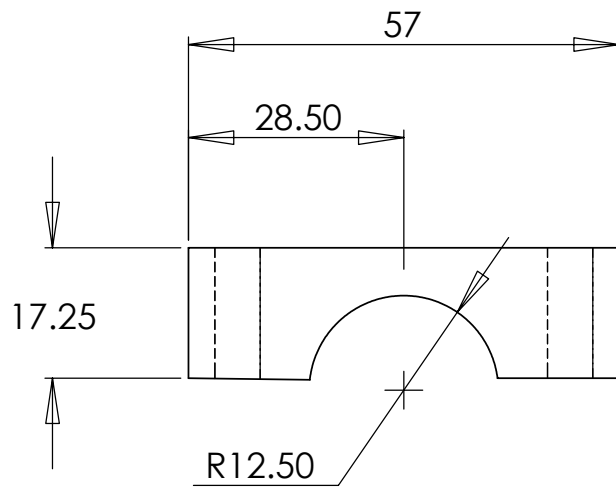
COMMENTS:

COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: D1	PART NAME: Foot Plate Tube	
	MATERIAL: 1018 Carbon tube		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel			
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SCALE:1:2	DATE: March 1, 2004
				SHEET 2 OF 1

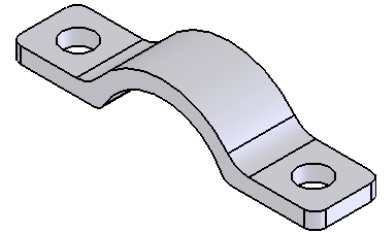
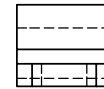
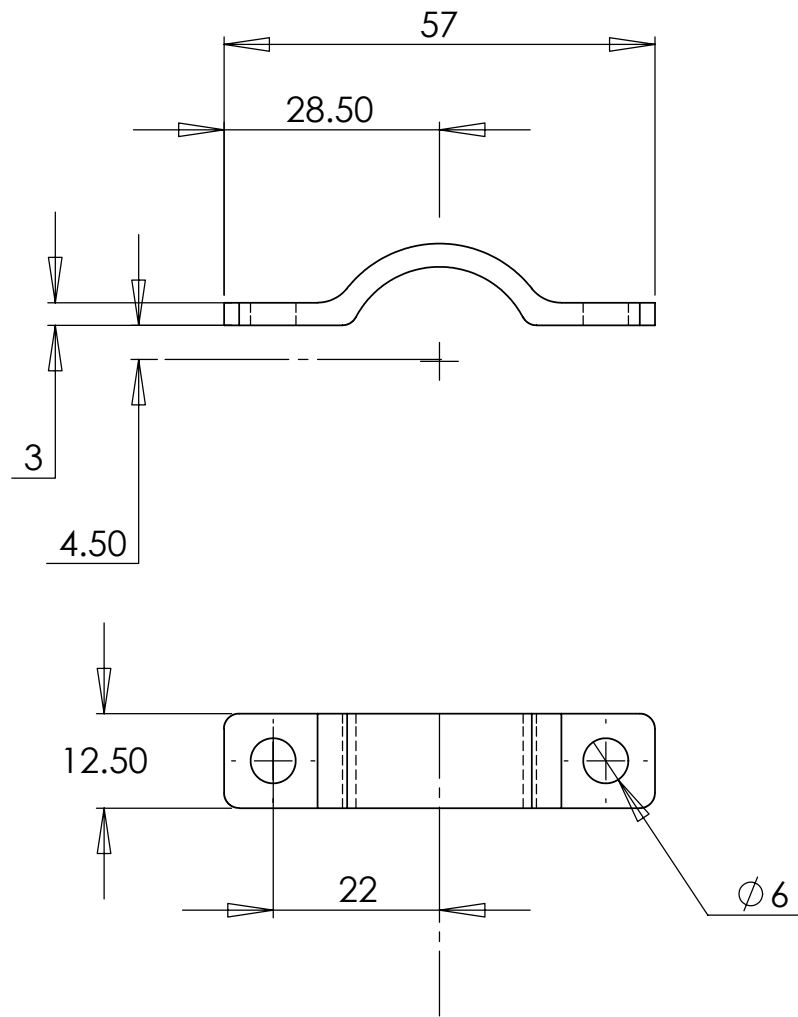


COMMENTS:
part made on wire EDM

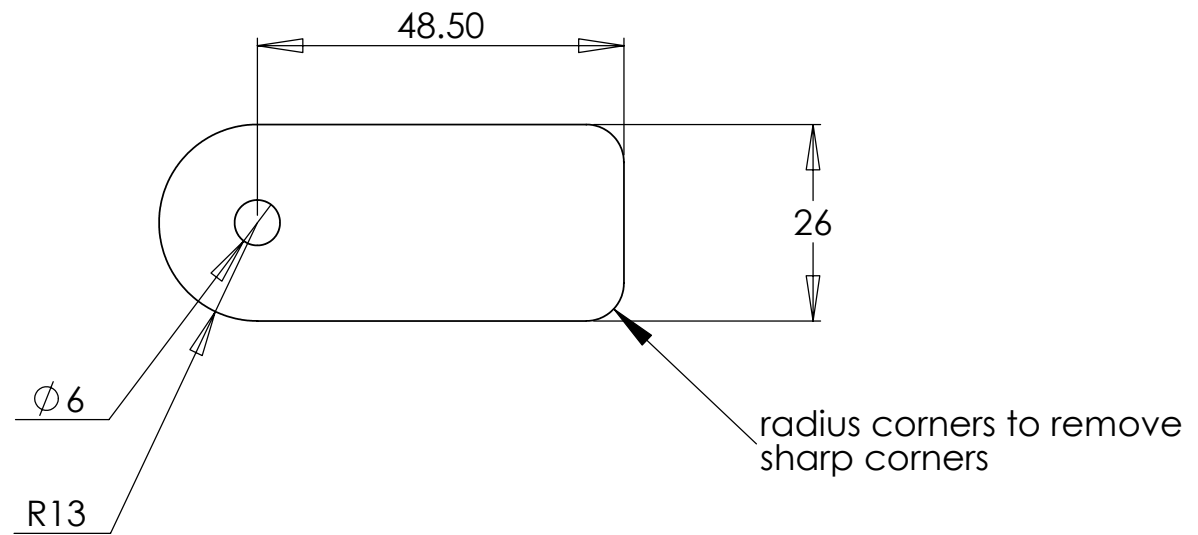
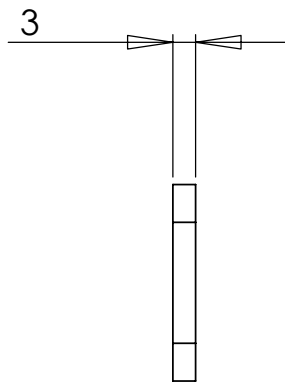
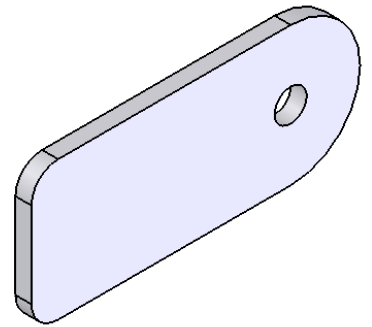
DIMENSIONS ARE IN INCHES TOLERANCES: +/- 0.001	Part#: D2	PART NAME: Foot Plate
MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair
FINISH: Powder Coat		Human Engineering Research Lab
AUTHORS: Emily Zipfel		
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SCALE:1:2
		SHEET 1 OF 1



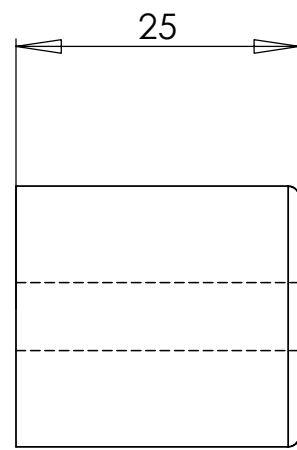
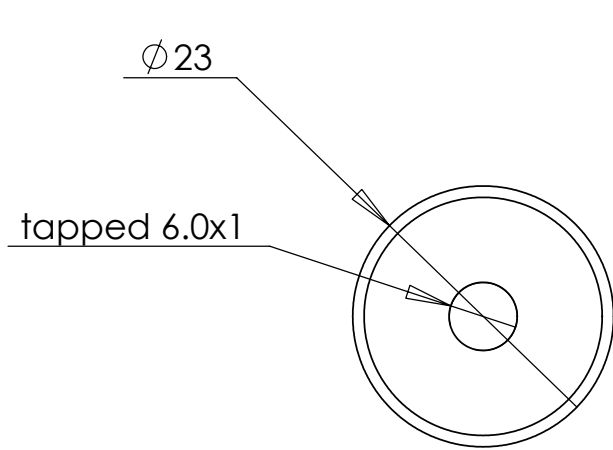
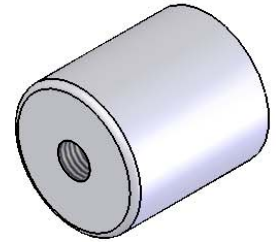
<p>COMMENTS:</p> <p>Tapped holes must line up with Foot plate bottom pinch clamp (F4)</p>	<p>DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified</p>	<p>PART #: D3</p>	<p>PART NAME: Foot Plate Top Pinch Clamp</p>
	<p>MATERIAL: 6061 Aluminum</p>		<p>PROJECT TITLE: India Wheelchair</p>
	<p>FINISH: Powder Coat</p>		<p>Human Engineering Research Lab</p>
	<p>AUTHOR: Emily Zipfel</p>		
	<p>PRINCIPAL INVESTIGATOR: Dr. Rory Cooper</p>	<p>SCALE: 1:1</p>	<p>DATE: March 1, 2004</p>



COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: D4	PART NAME: Foot Plate Bottom Pinch Clamp	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:2:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



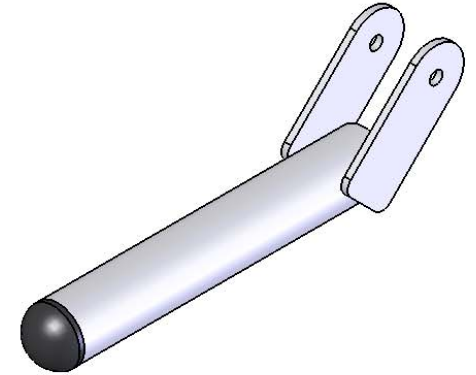
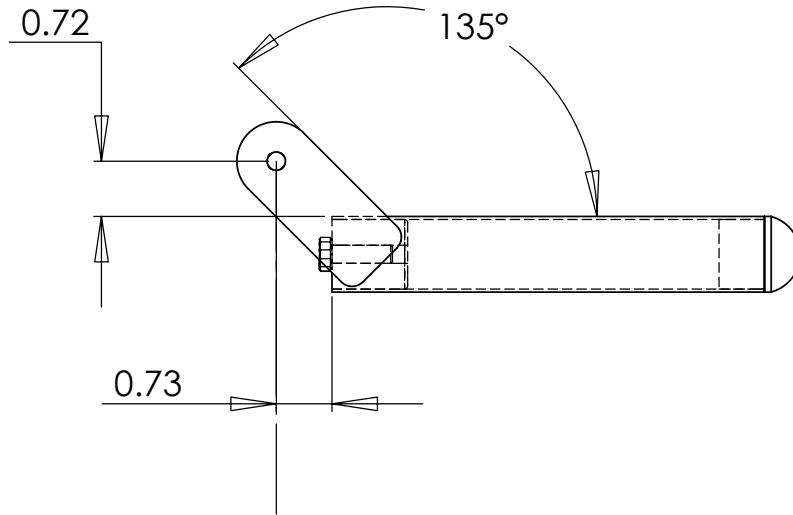
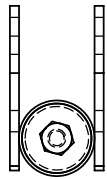
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified		PART #: D5		PART NAME: Foot plate Bracket	
	MATERIAL: 1018 Carbon Steel				PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat				Human Engineering Research Lab	
	AUTHOR: Emily Zipfel				SCALE:1:1	
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper				DATE: March 1, 2004	
				SHEET 2 OF 1		



radius corner for an easier press-fit

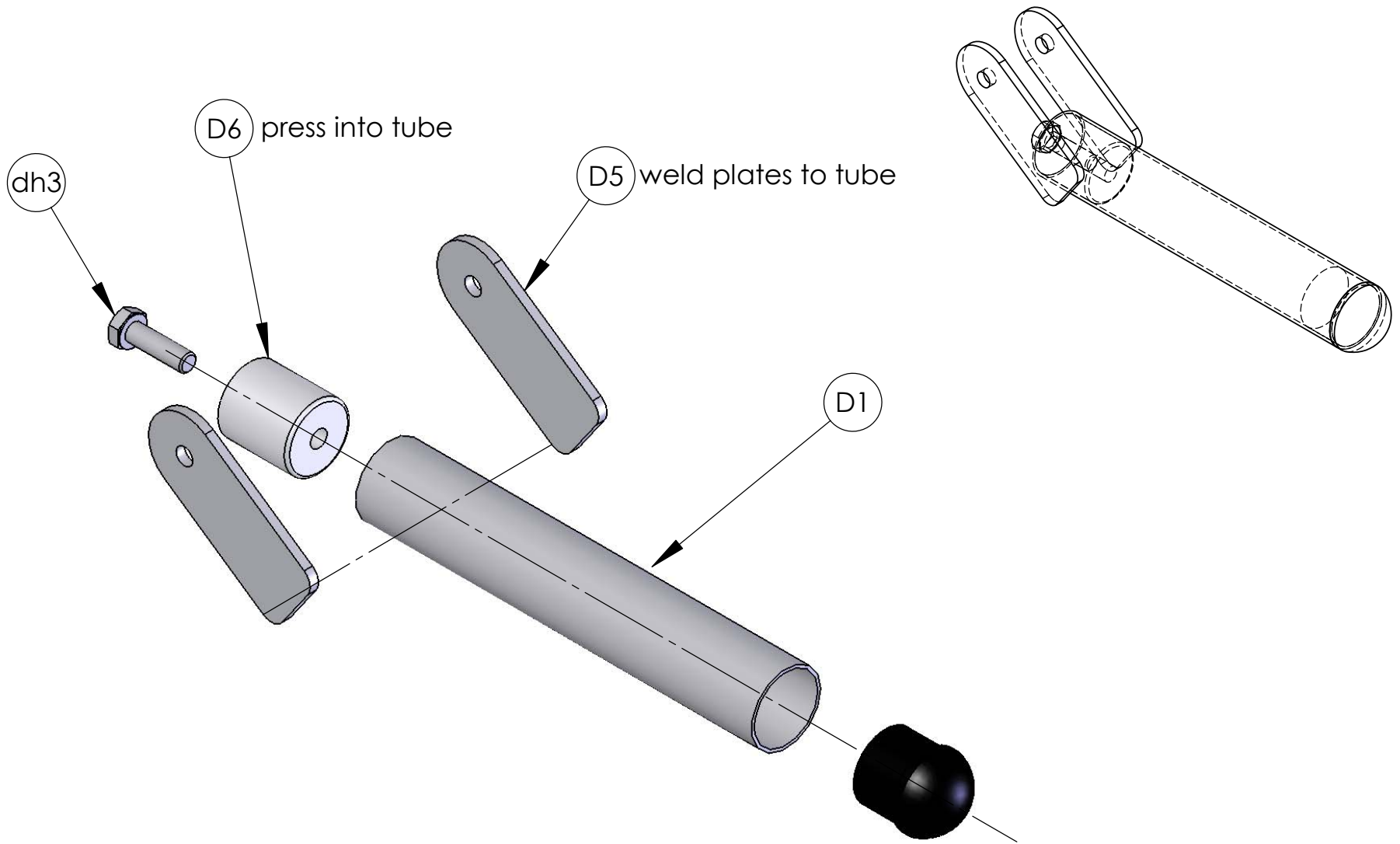
COMMENTS:
plug must press fit into foot plate tube (F1)

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: D6	PART NAME: foot plate tube plug
	MATERIAL: 6061 Aluminum	
	FINISH: Powder Coat	PROJECT TITLE: India Wheelchair
	AUTHOR: Emily Zipfel	Human Engineering Research Lab
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper	SCALE:2:1	DATE: March 1, 2004

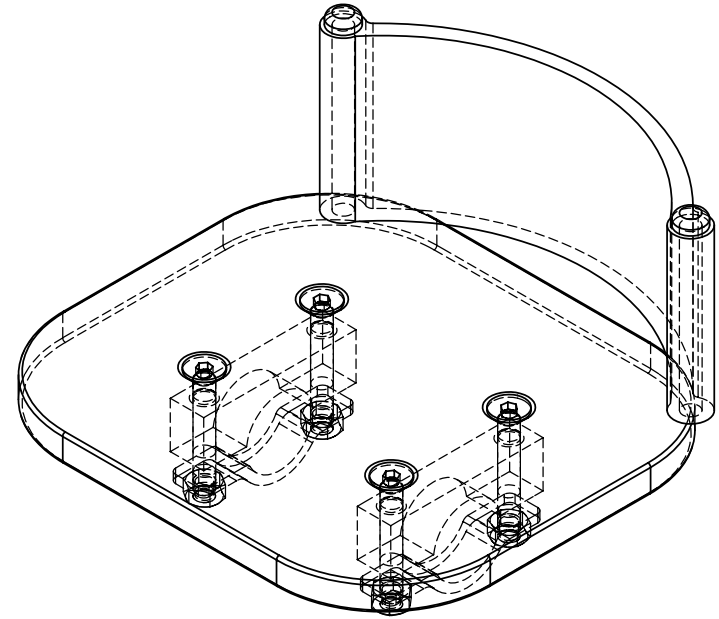
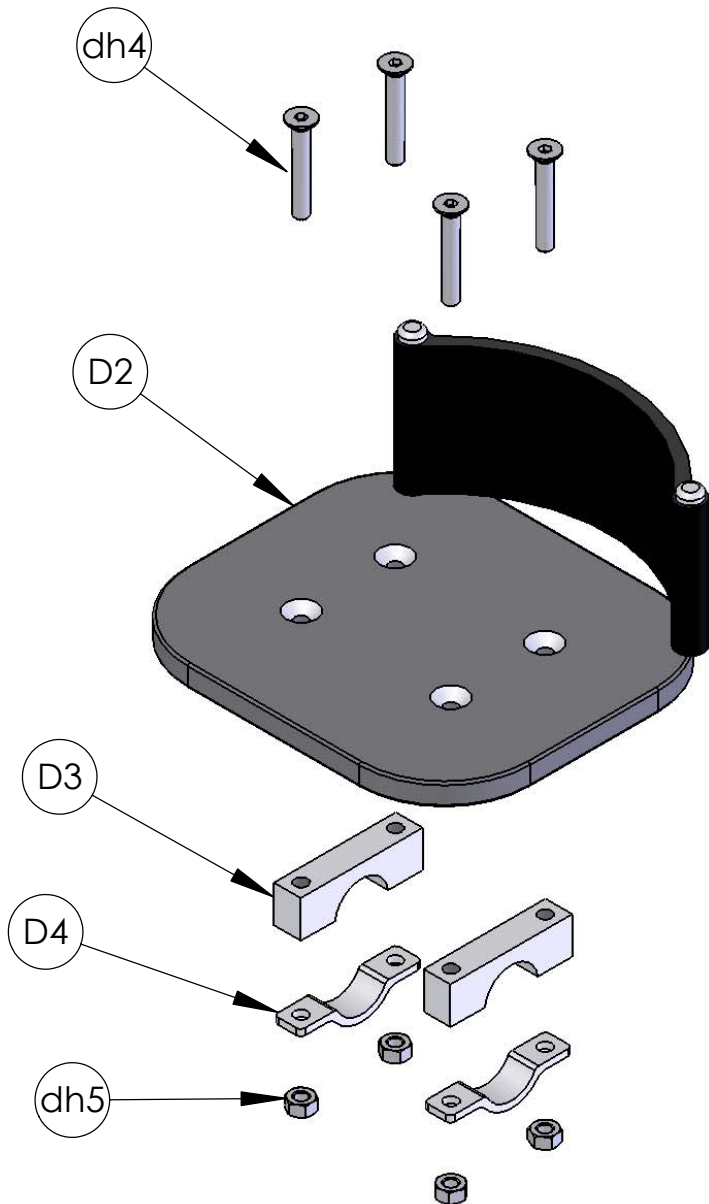


COMMENTS:

COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# da1	PART NAME: Right foot rest tube assembly	
	MATERIAL:		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:2	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

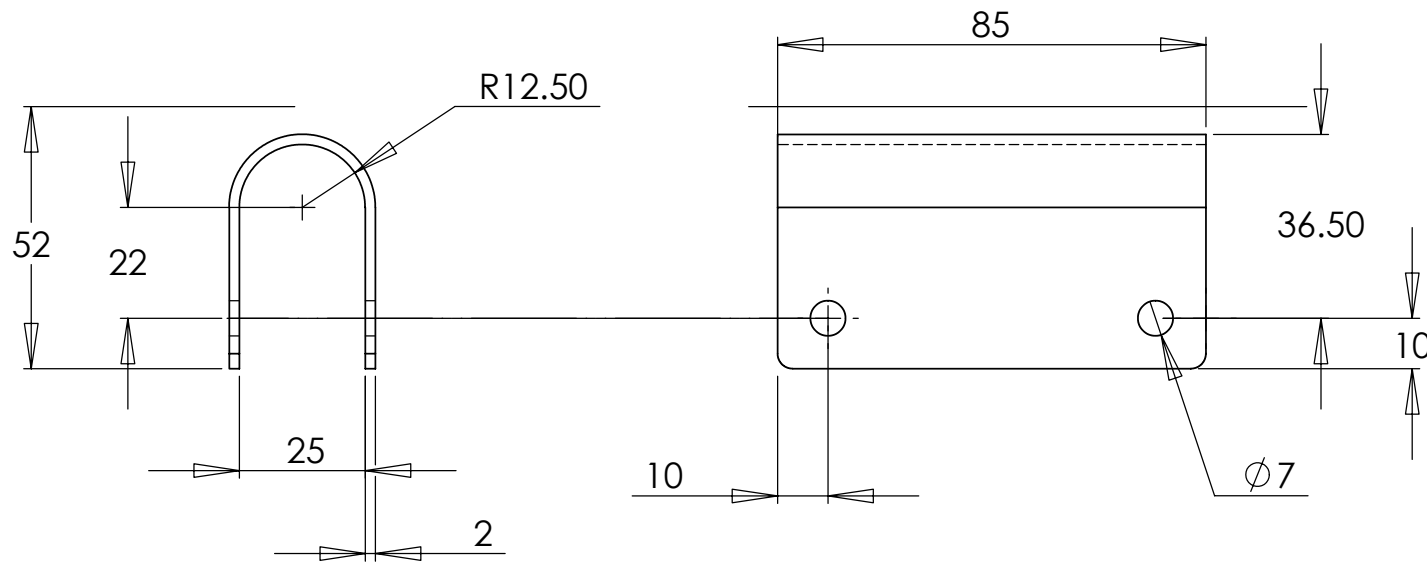
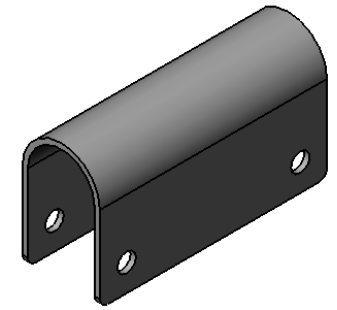
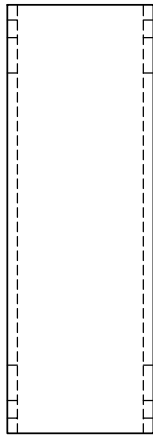


COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# da2	PART NAME: Foot rest tube assembly exploded view	
	MATERIAL:		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:2	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

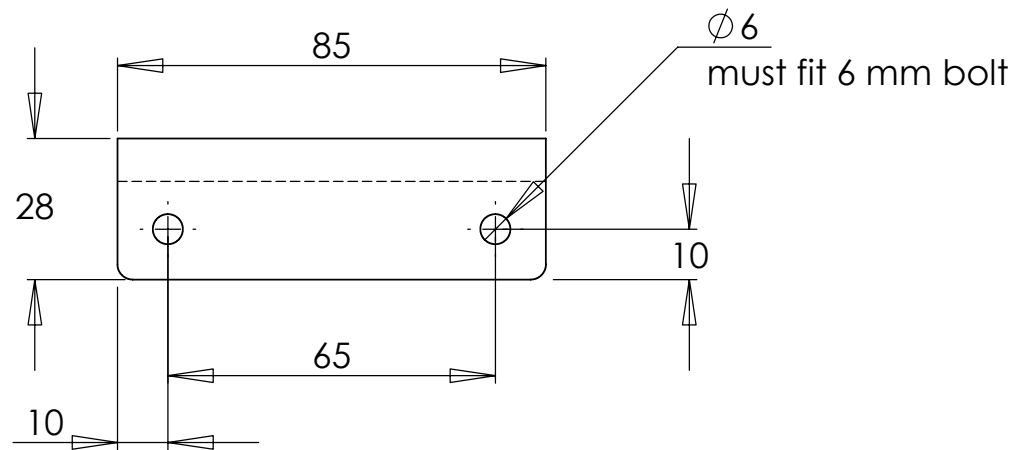
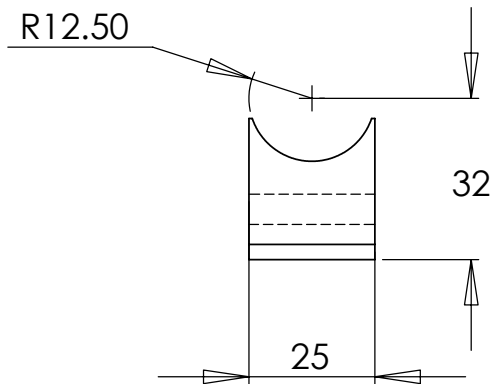
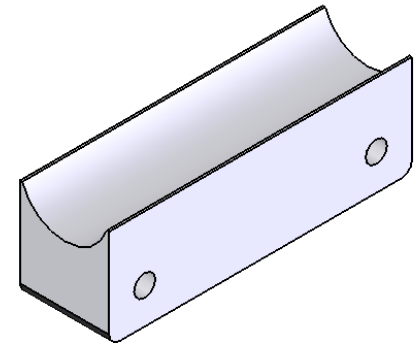
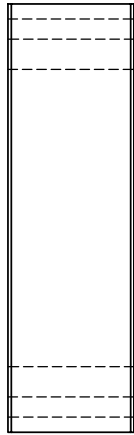


COMMENTS:

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# da3	PART NAME: Eccentric Caster Bushing Housing	
		PROJECT TITLE: India Wheelchair	
		Human Engineering Research Lab	
		SCALE:1:5	DATE: March 1, 2004
MATERIAL:			
FINISH: Powder Coat			
AUTHOR: Emily Zipfel			
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

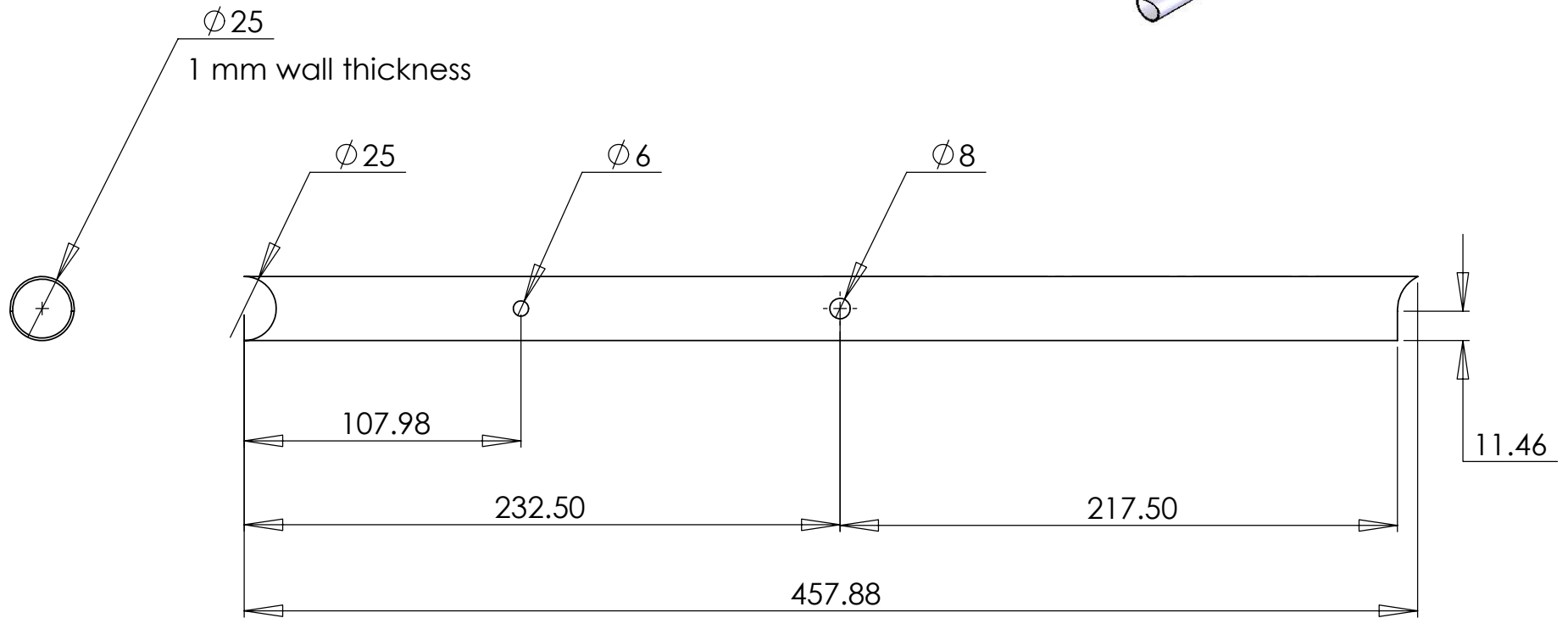
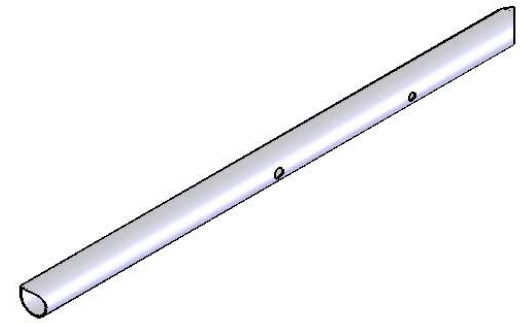


<p>COMMENTS:</p> <p>Holes should be slightly larger than 6mm in order to fit bolts through plastic spacers (E2)</p>	<p>DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified</p>	<p>PART #: E1</p>	<p>PART NAME: Cross Brace Frame Clamp</p>
	<p>MATERIAL: 1018 Carbon Steel</p>	<p>PROJECT TITLE: India Wheelchair</p>	
	<p>FINISH: Powder Coat</p>	<p>Human Engineering Research Lab</p>	
	<p>AUTHOR: Emily Zipfel</p>	<p>SCALE:1:1.5</p>	<p>DATE: March 1, 2004</p>
	<p>PRINCIPAL INVESTIGATOR: Dr. Rory Cooper</p>		

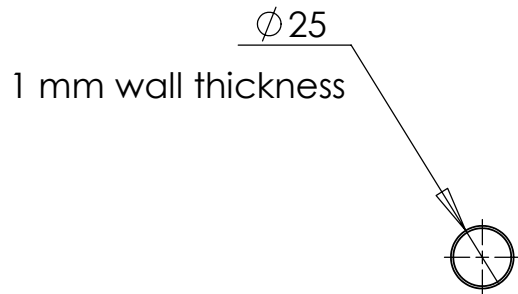
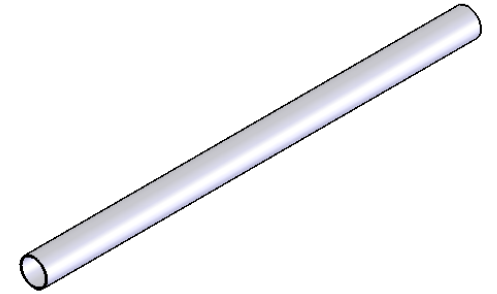


COMMENTS:

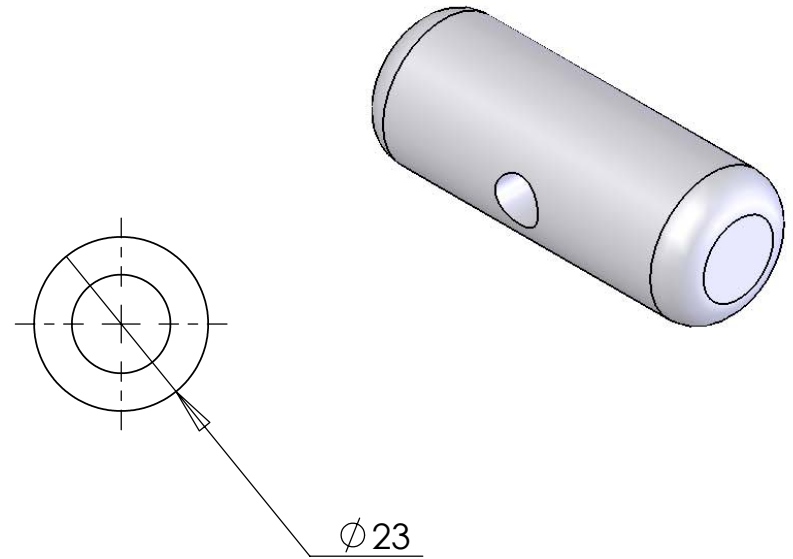
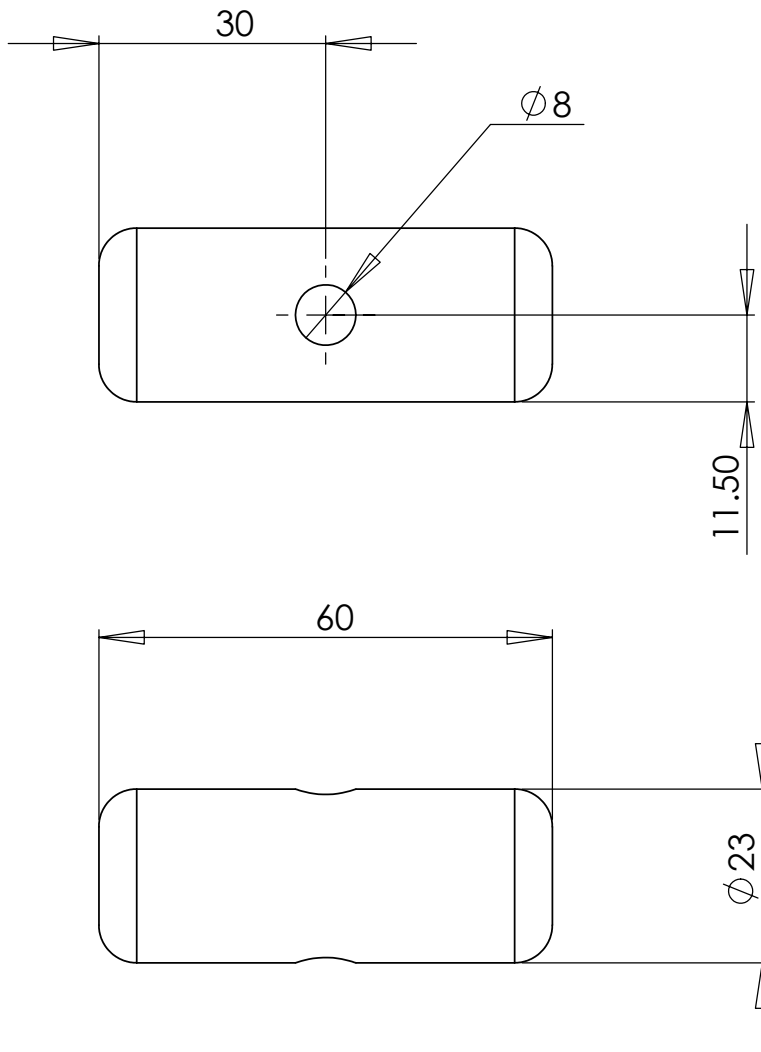
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: E2	PART NAME: Cross Brace Plastic Spacer
	MATERIAL: Delrin		PROJECT TITLE: India Wheelchair
	FINISH: none		Human Engineering Research Lab
	AUTHOR: Emily Zipfel		
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper	SCALE:1:1.5	DATE: March 1, 2004



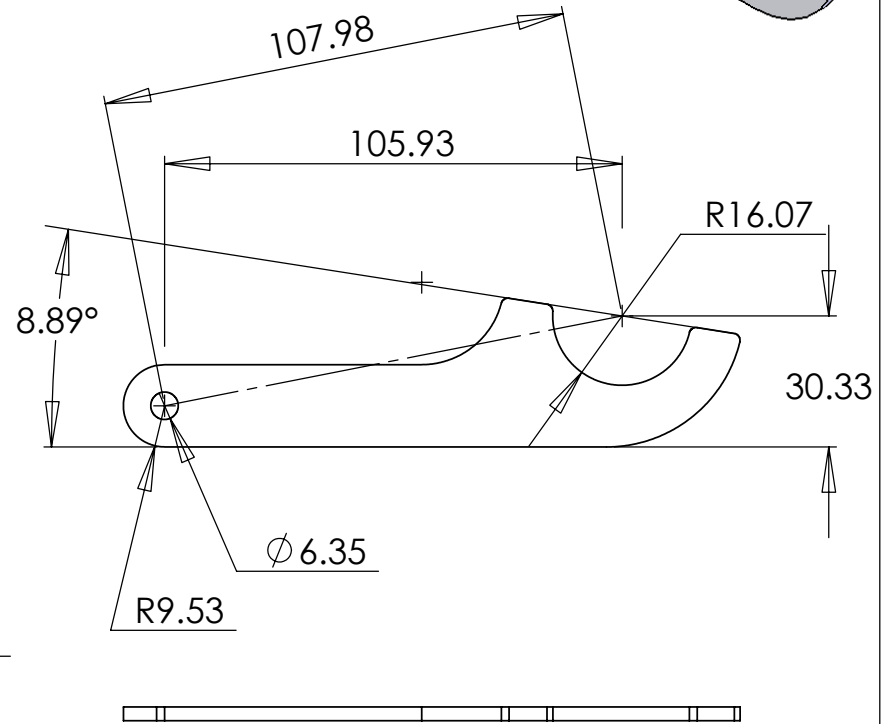
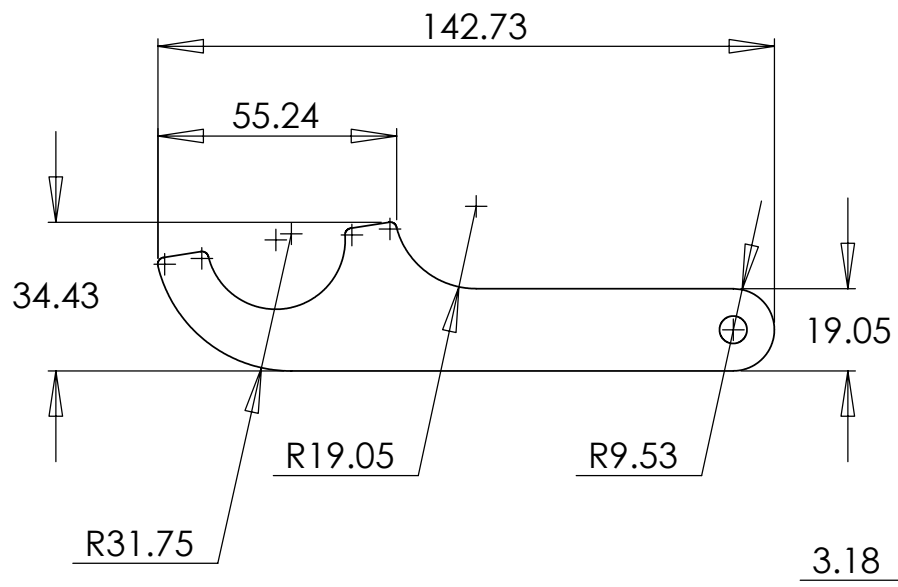
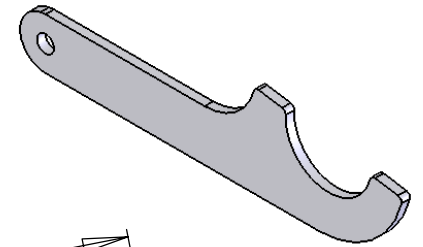
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified		PART #: E3		PART NAME: Cross Brace Main Tube	
	MATERIAL: 1018 Carbon Steel				PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat				Human Engineering Research Lab	
	AUTHOR: Emily Zipfel				SCALE:1:4	
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper				DATE: March 1, 2004	



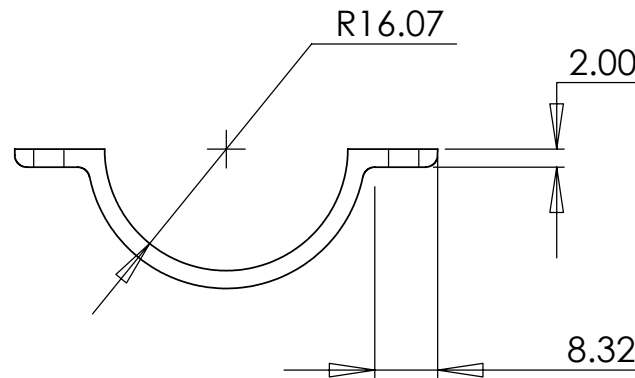
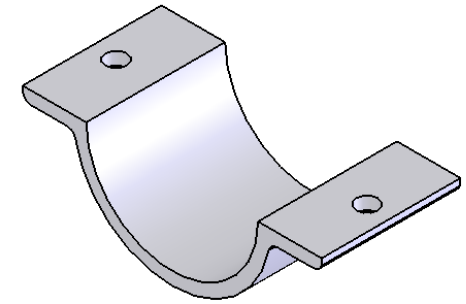
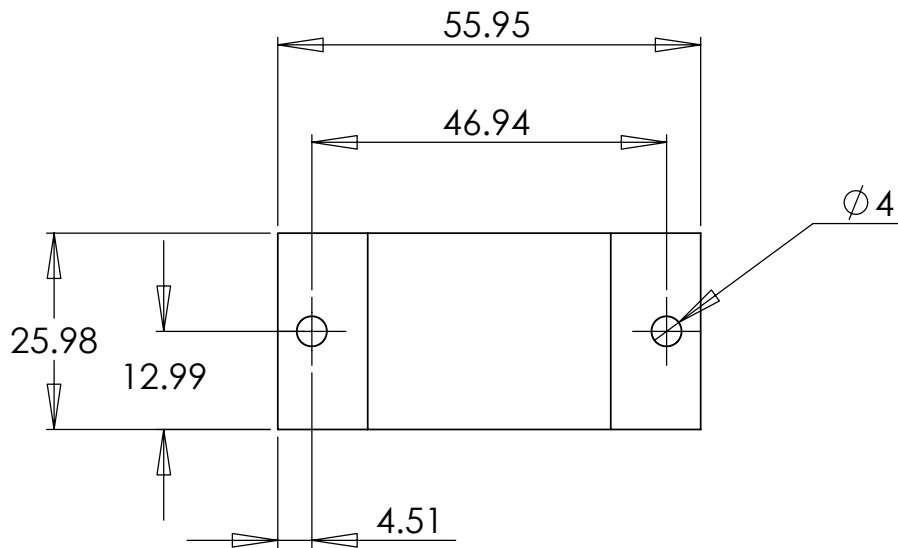
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: E4	PART NAME: Cross Brace Seat Tube		
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair		
	FINISH: Powder Coat		Human Engineering Research Lab		
	AUTHOR: Emily Zipfel				
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SCALE:1:3	DATE: March 1, 2004	SHEET 2 OF 1



COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: E5	PART NAME: Cross Brace Pivot Plug	
	MATERIAL: 6064 Solid Aluminum		PROJECT TITLE: India Wheelchair	
	FINISH:		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

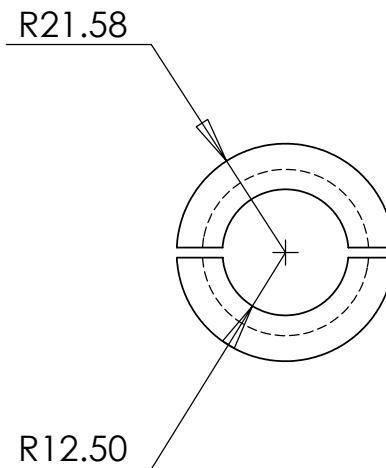
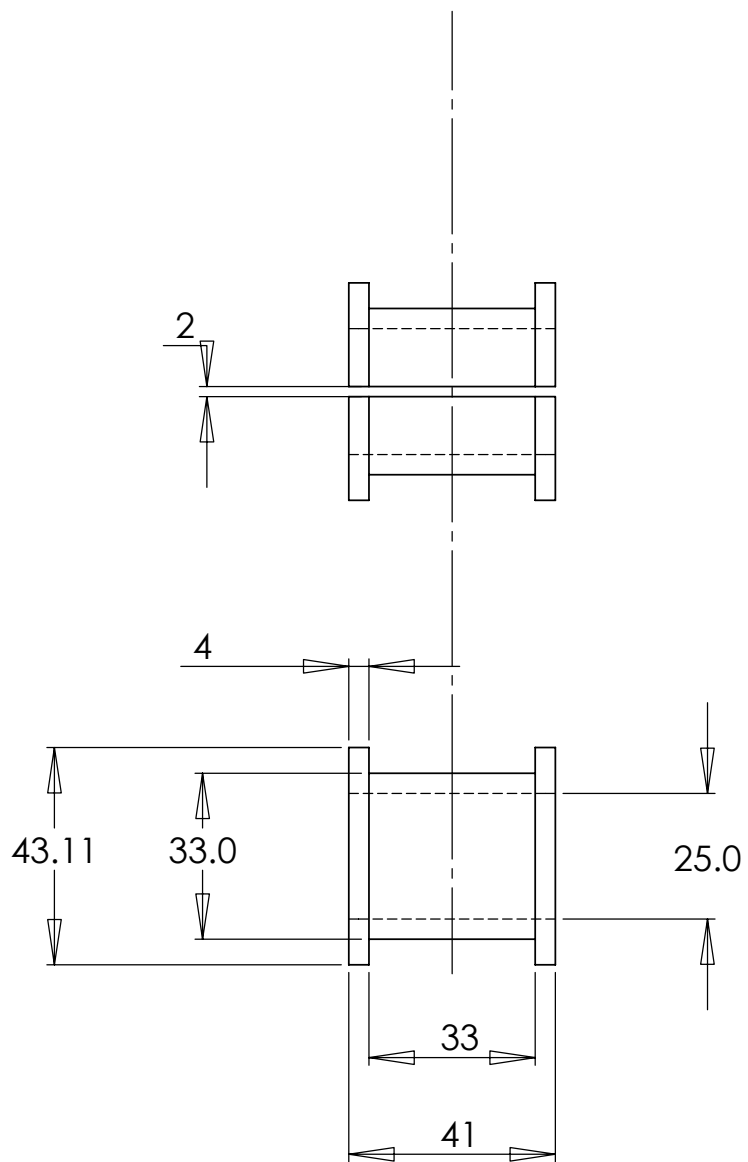
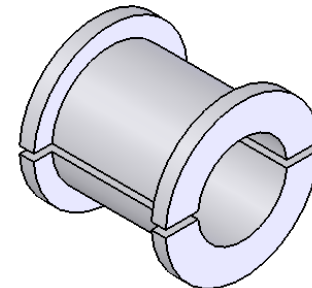


COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: E6	PART NAME: Linkage Arm	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:1.75	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			SHEET 2 OF 1



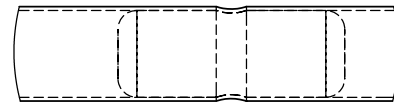
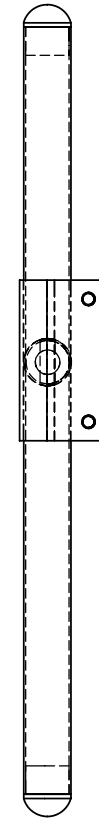
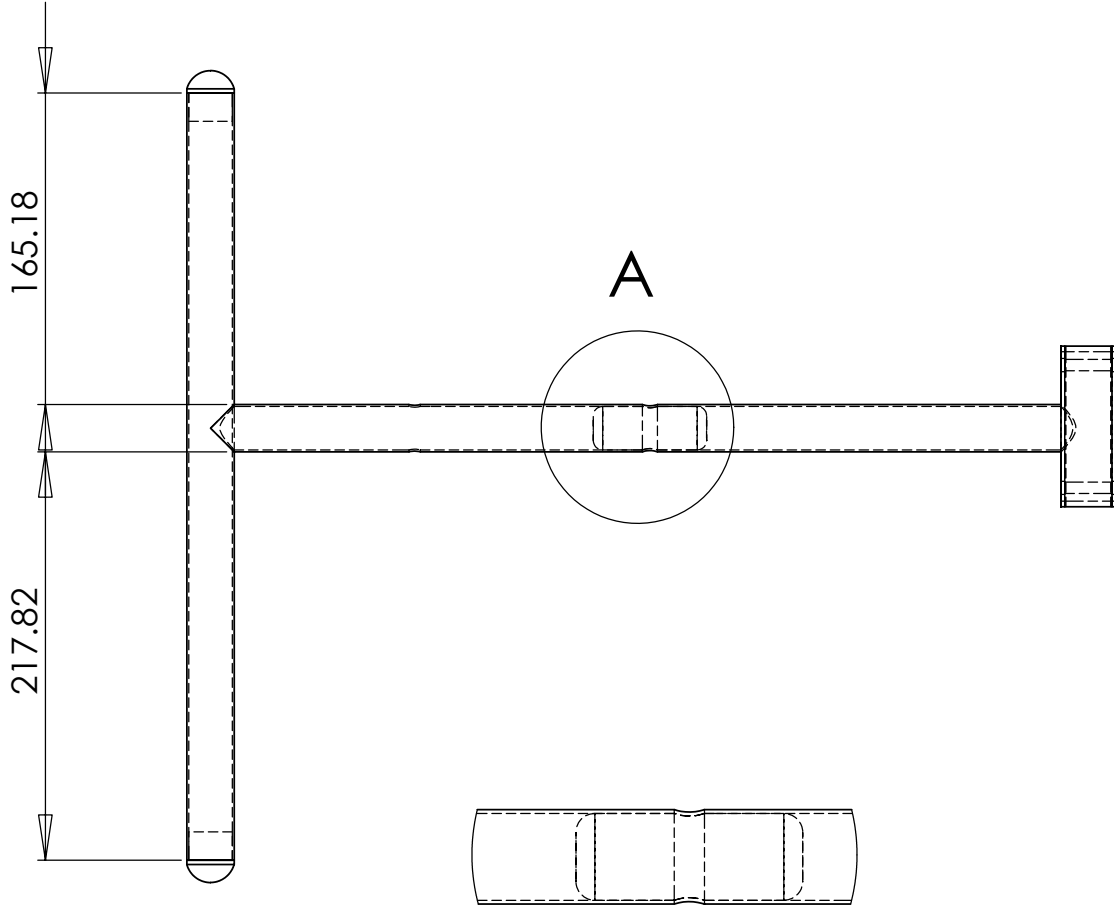
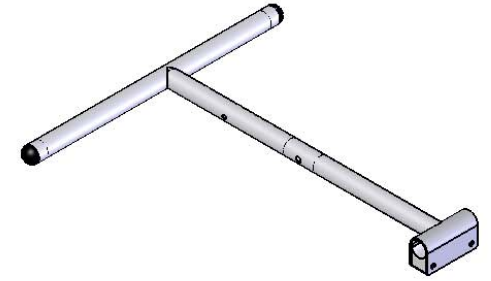
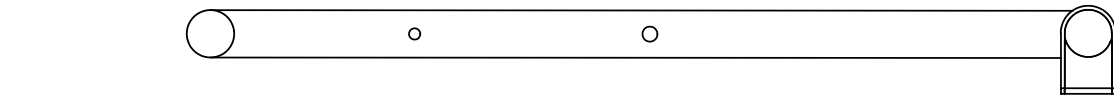
COMMENTS:

COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: E7	PART NAME: Linkage Clamp	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



COMMENTS:

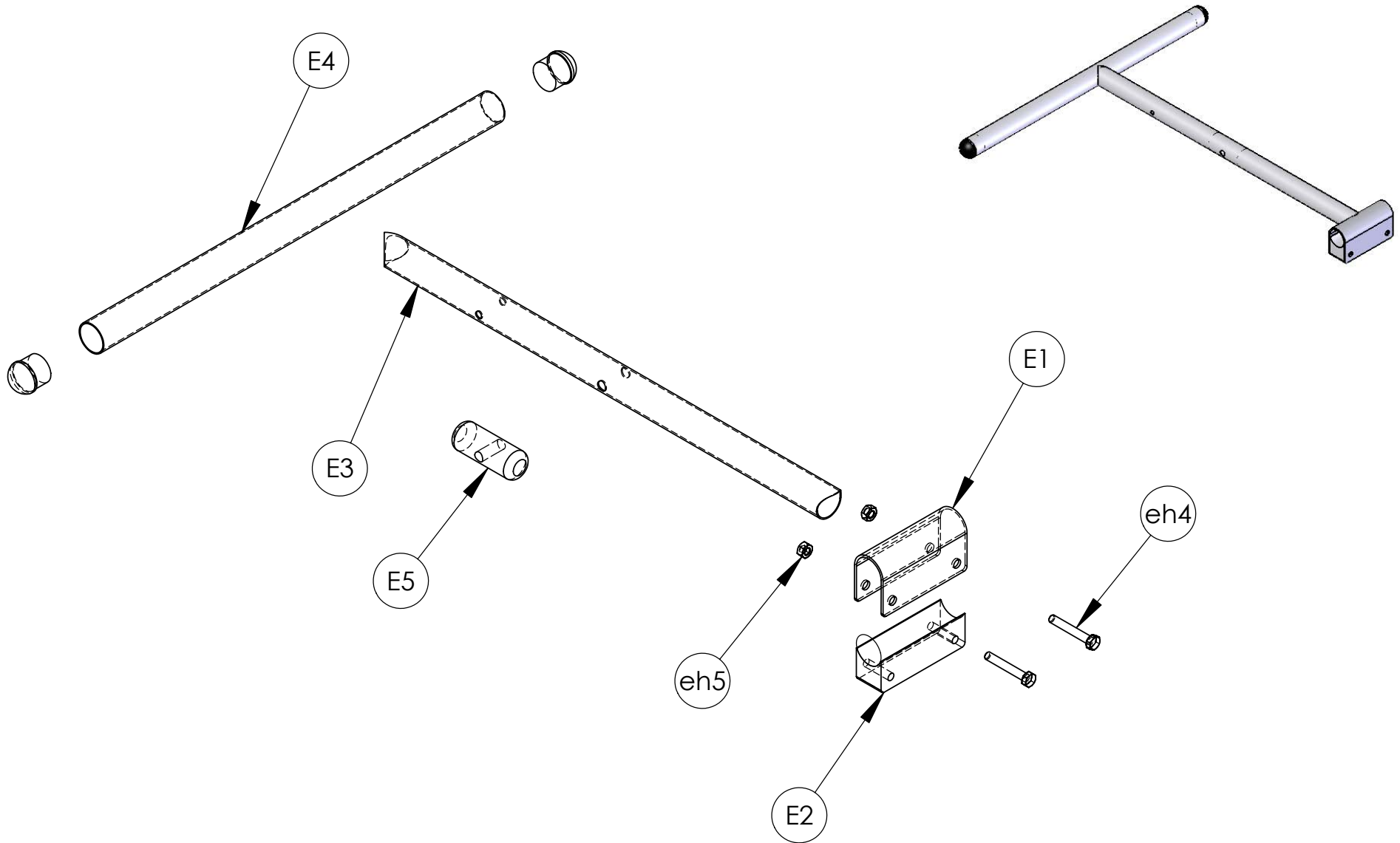
DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: E8	PART NAME: Linkage Split Plastic Bushing	
		PROJECT TITLE: India Wheelchair	
MATERIAL: Delrin		Human Engineering Research Lab	
FINISH: None		SCALE:1:1.5	
AUTHOR: Emily Zipfel		DATE: March 1, 2004	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SHEET 2 OF 1	



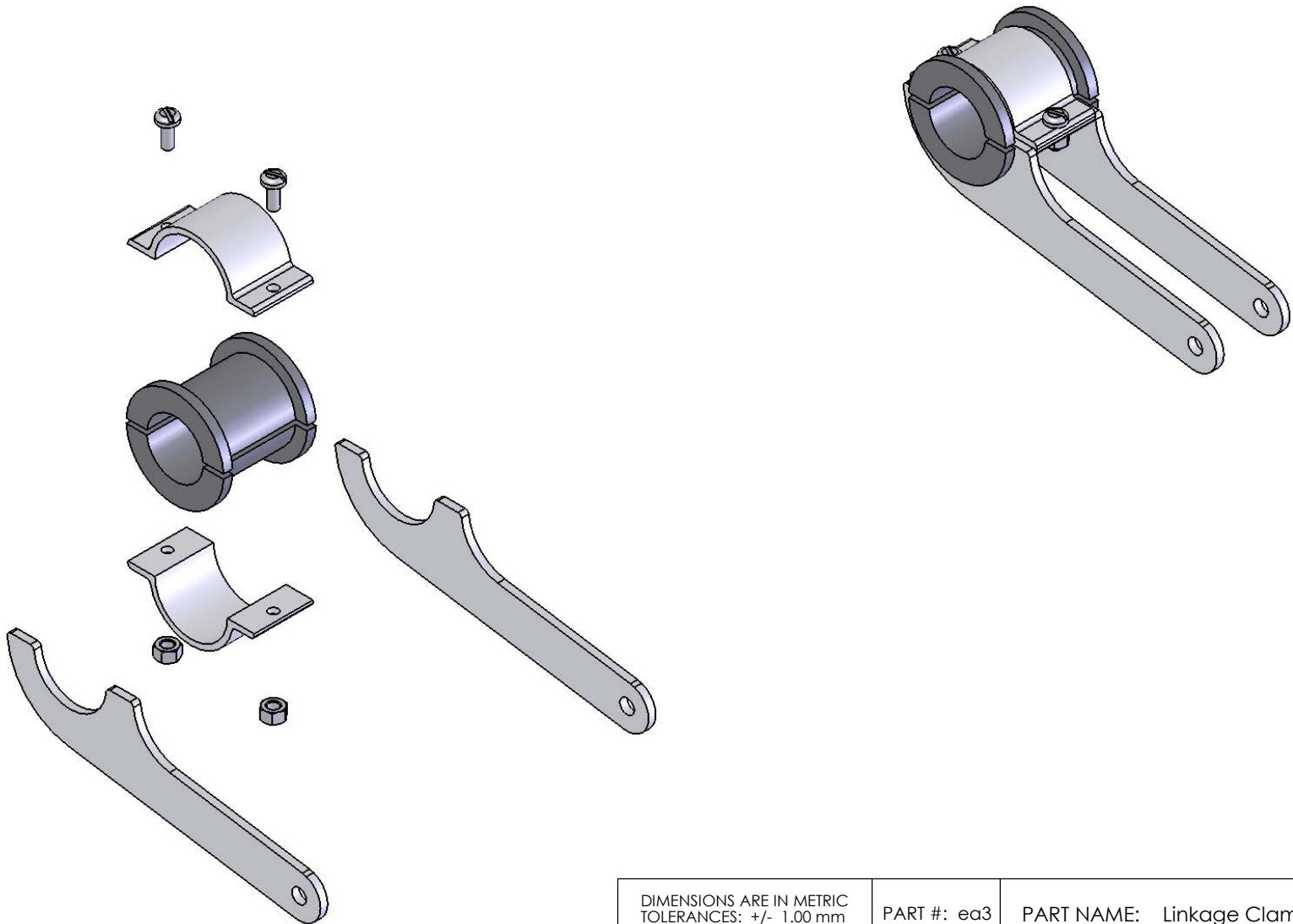
**DETAIL A
SCALE 1 : 2**

COMMENTS:
Spacer tube (E5) must stick out 2 mm
beyond tube

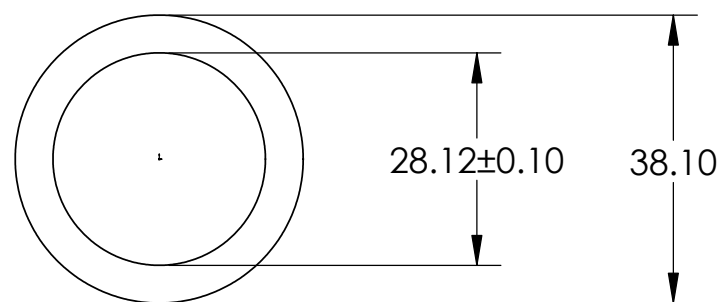
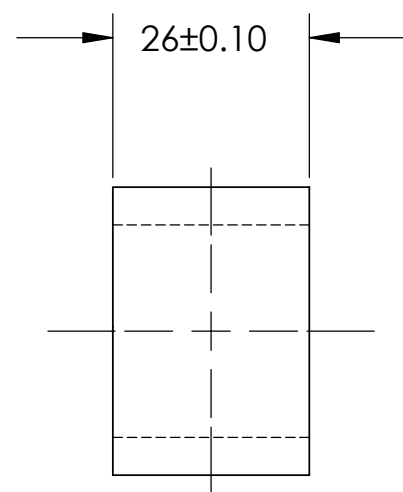
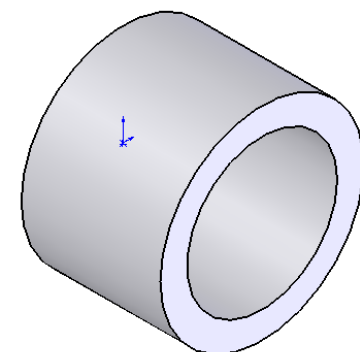
DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# ea1	PART NAME: Cross Brace Assembly Orthographic	
	MATERIAL:		PROJECT TITLE: India Wheelchair
FINISH: Powder Coat		Human Engineering Research Lab	
AUTHOR: Emily Zipfel		SCALE:1:10	DATE: March 1, 2004
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



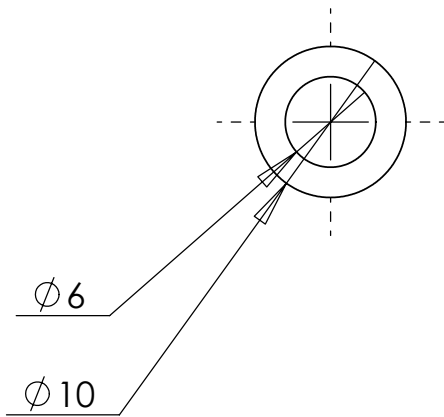
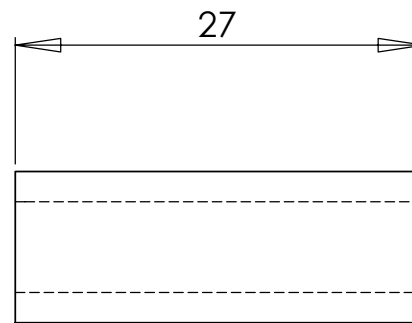
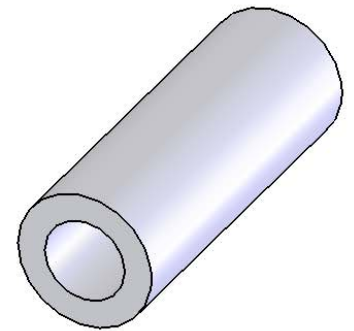
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# ea2	PART NAME: Cross Brace Assembly Exploded	
	MATERIAL:		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:10	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



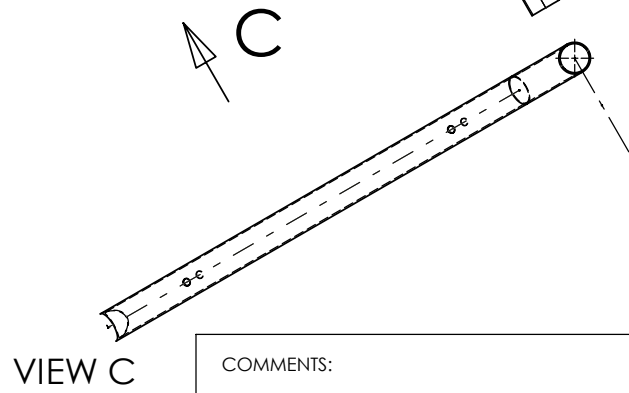
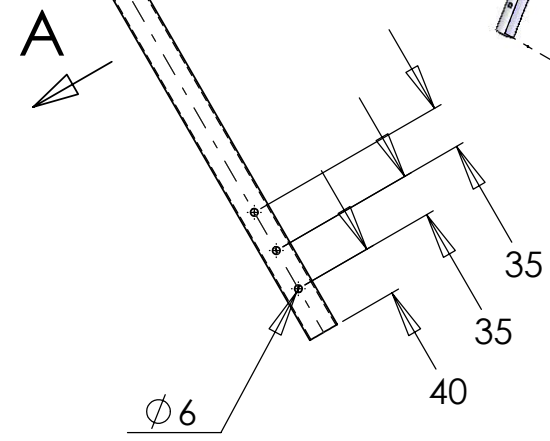
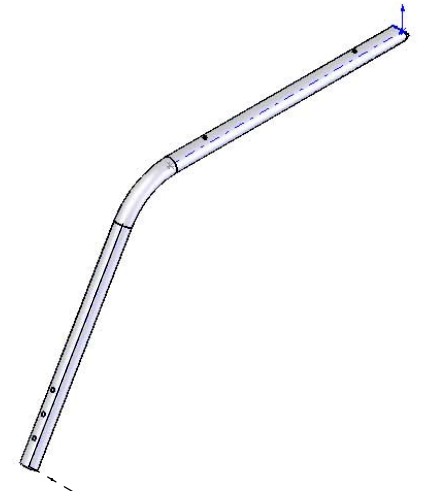
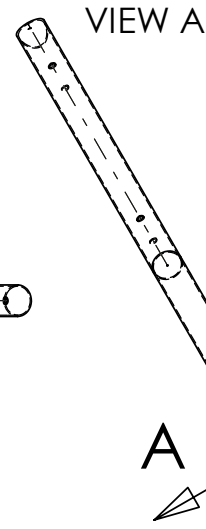
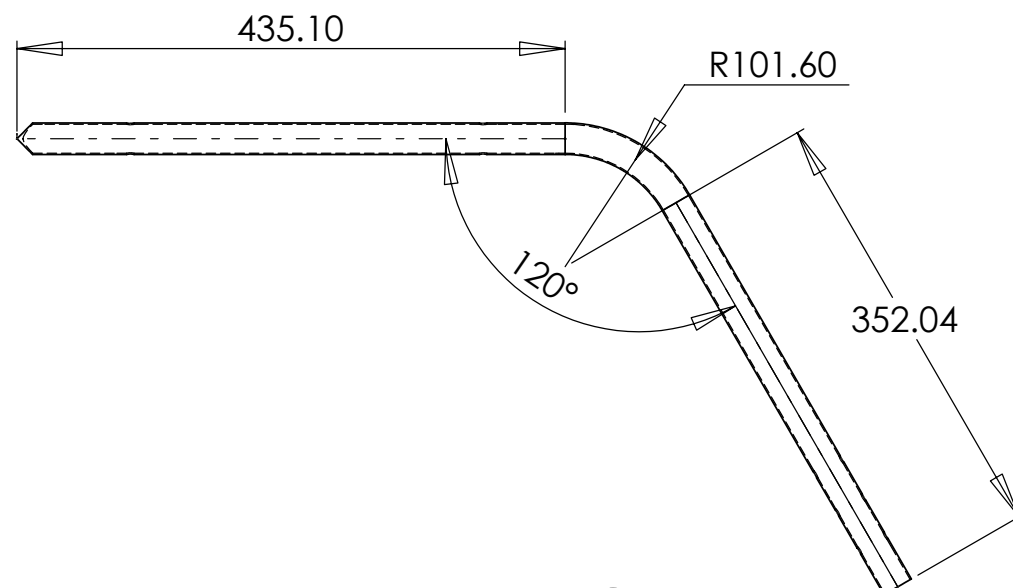
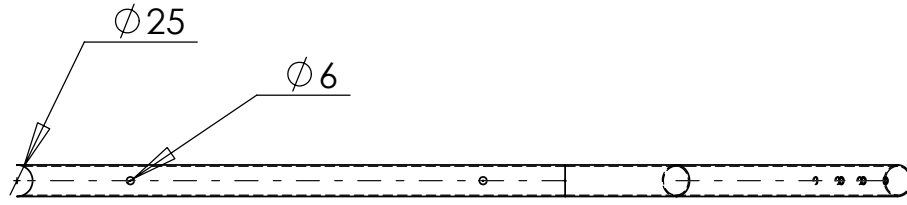
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: ea3	PART NAME: Linkage Clamp Assembly	
	MATERIAL: 1018 Carbonm Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:5	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			SHEET 2 OF 1



COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: F1	PART NAME: Eccentric Caster Bushing Housing	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

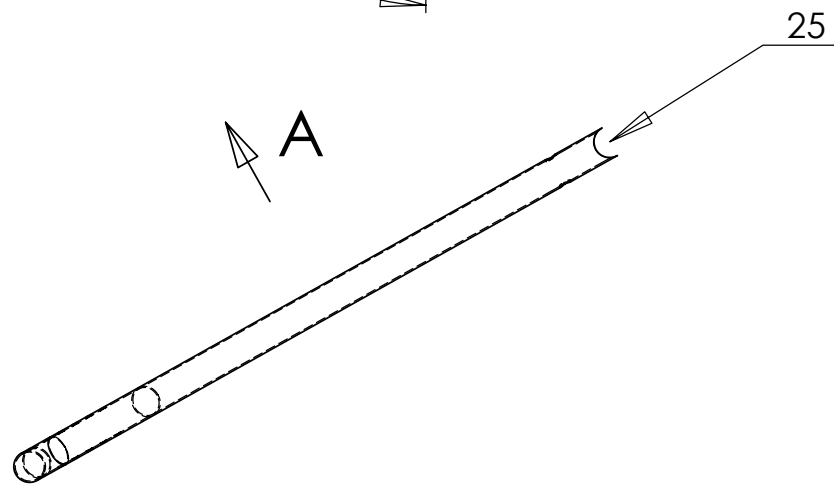
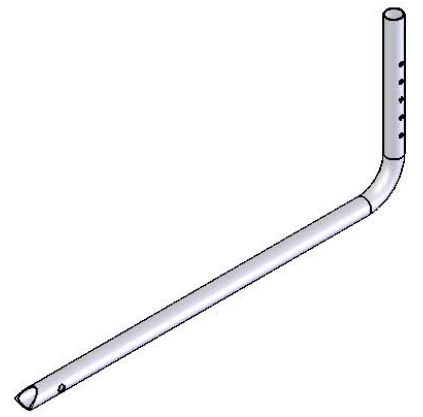
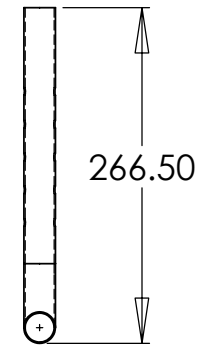
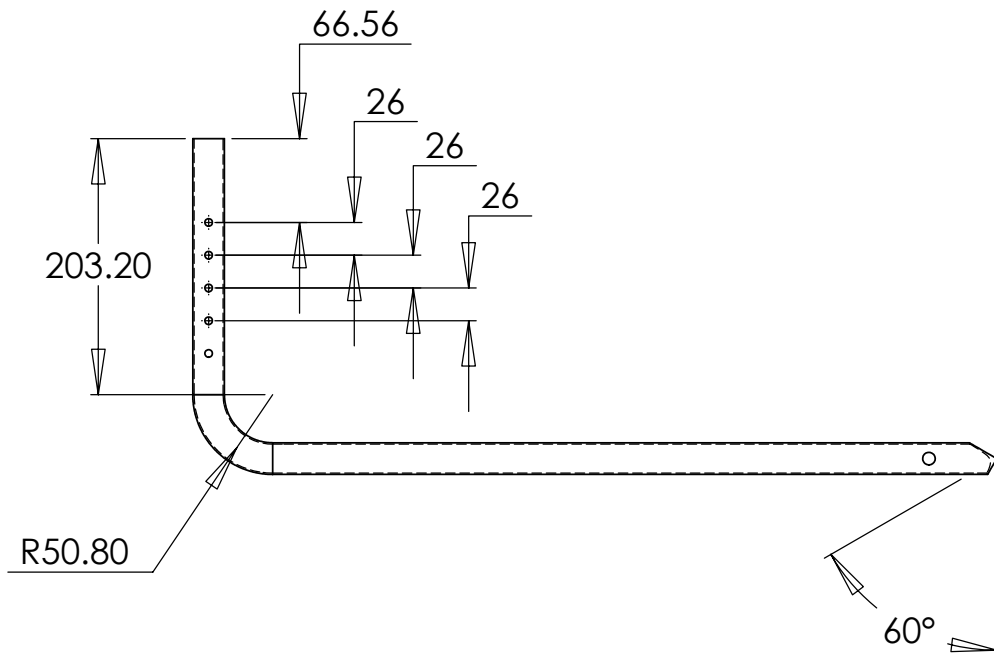


COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: F2	PART NAME: Caster Adjustment Spacer Tube	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:2:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



COMMENTS:
 25 mm OD tubing
 1 mm wall thickness
 Drill all holes to 6 mm

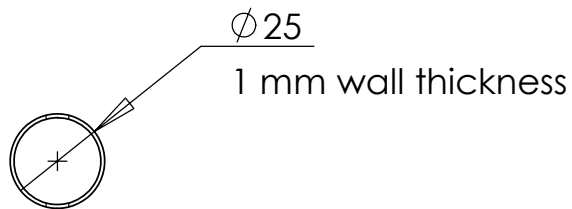
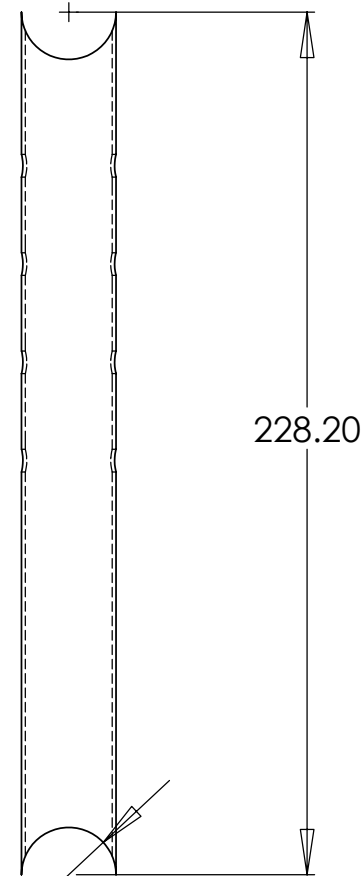
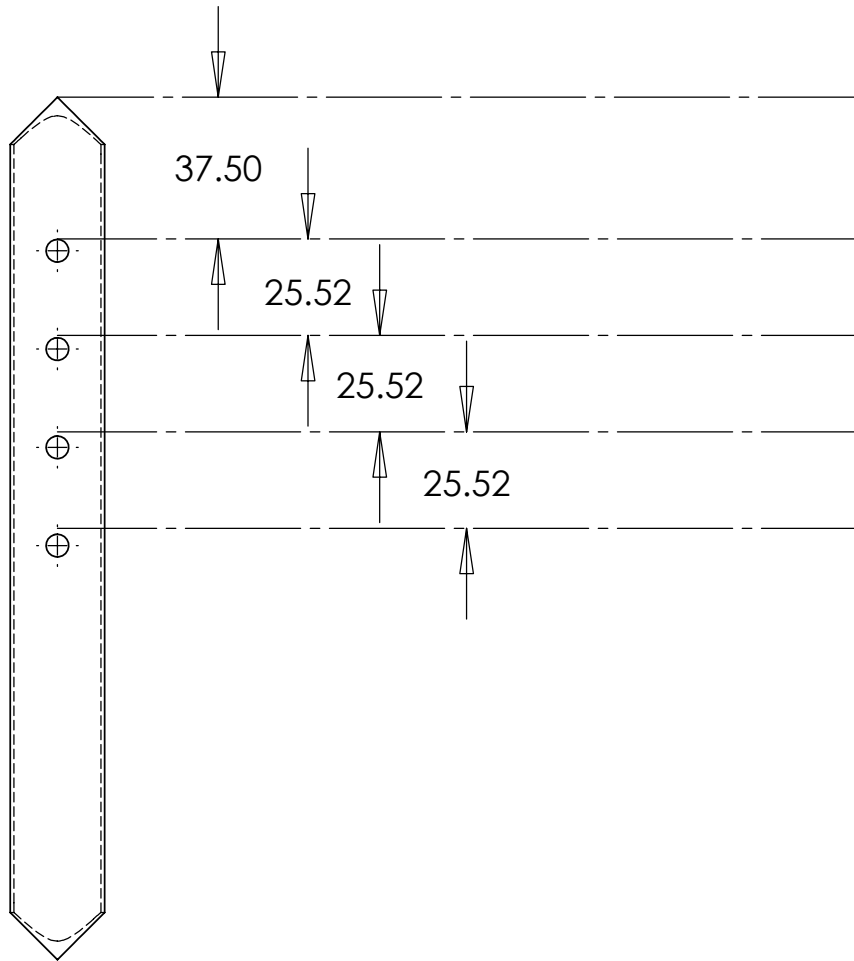
DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified		PART #: F3	PART NAME: Seat Down Tube	
MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair		
FINISH: Powder Coat		Human Engineering Research Lab		
AUTHOR: Emily Zipfel		SCALE:1:6	DATE: March 1, 2004	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper				



VIEW A

COMMENTS:
25 mm OD tubing
1 mm wall thickness

DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: F4	PART NAME: Frame Upright Tube
	MATERIAL: 1018 Carbon Steel	
	FINISH: Powder Coat	
	AUTHOR: Emily Zipfel	
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		PROJECT TITLE: India Wheelchair
		Human Engineering Research Lab
		SCALE: 1:6
		DATE: March 1, 2004



R12.50

228.20

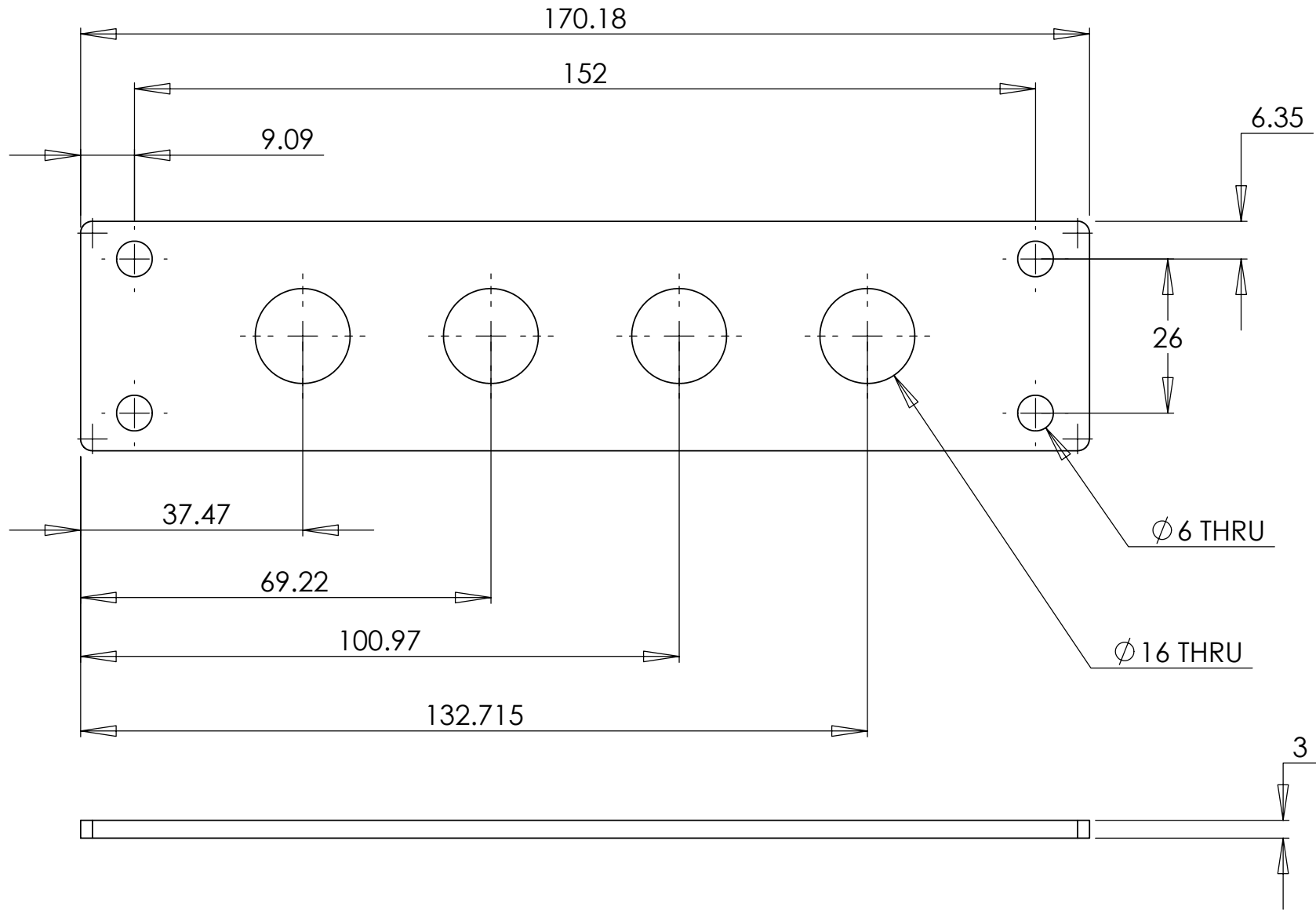
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25.52

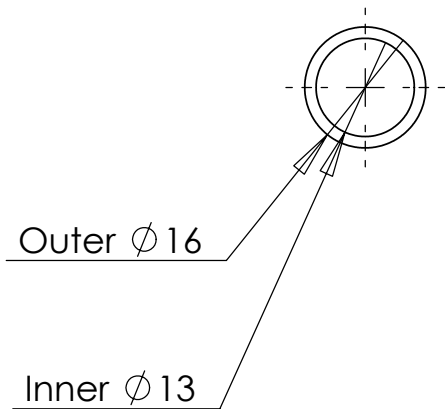
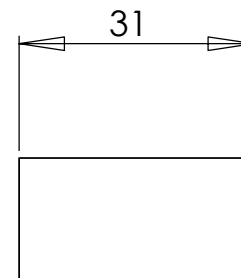
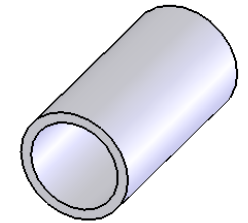
25.52

25.52

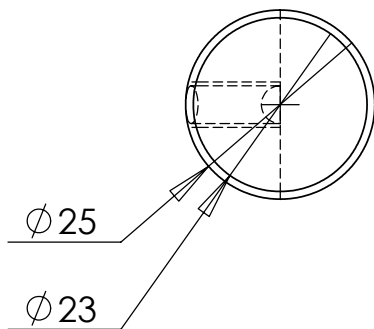
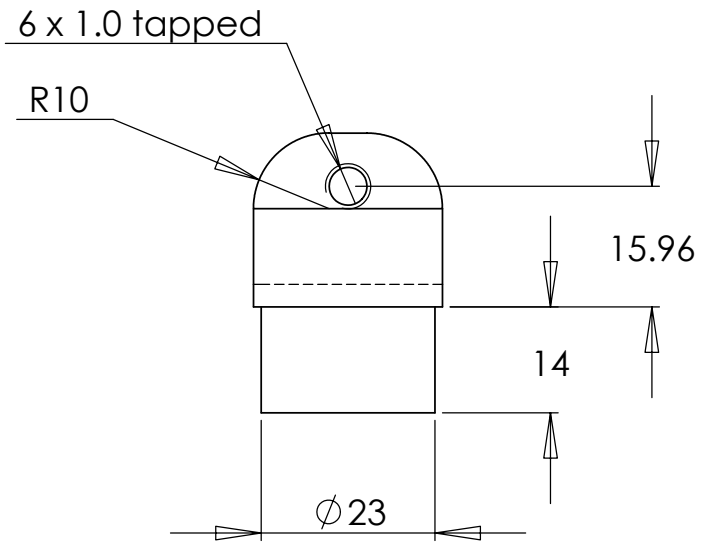
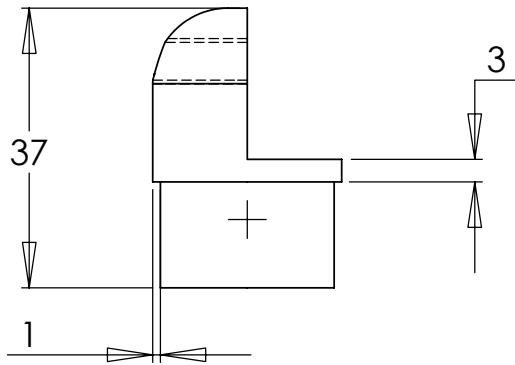
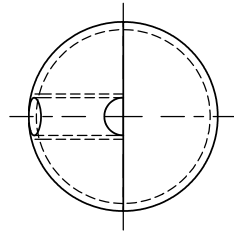
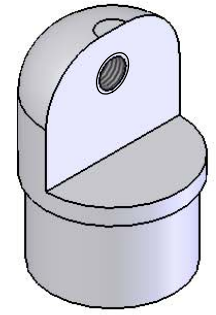
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: F5	PART NAME: Frame Support Tube	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:5	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: F6	PART NAME: Axle Plate	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			

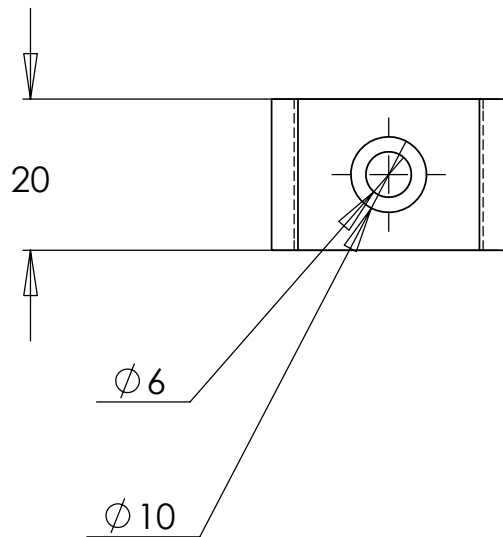
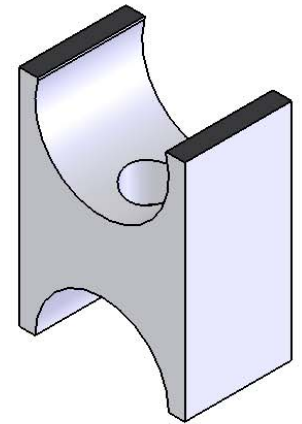
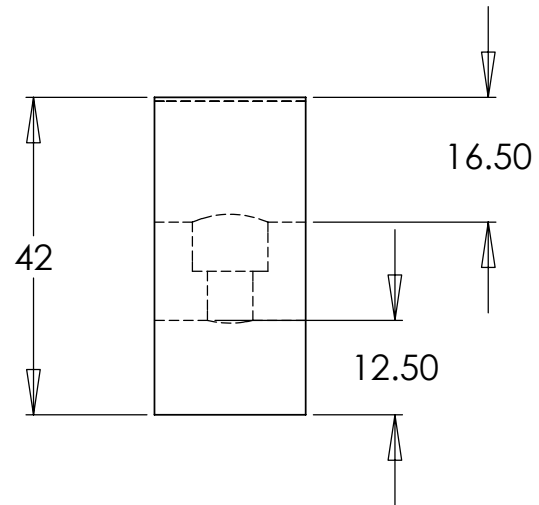
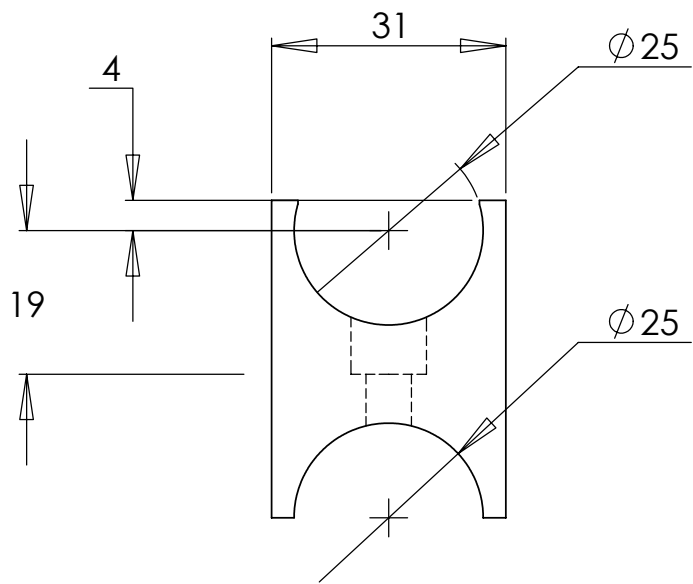


COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified		PART #: F7		PART NAME: Axle Plate Spacer Tube	
	MATERIAL: 1018 Carbon Steel				PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat				Human Engineering Research Lab	
	AUTHOR: Emily Zipfel				SCALE:1:1	
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper				DATE: March 1, 2004	

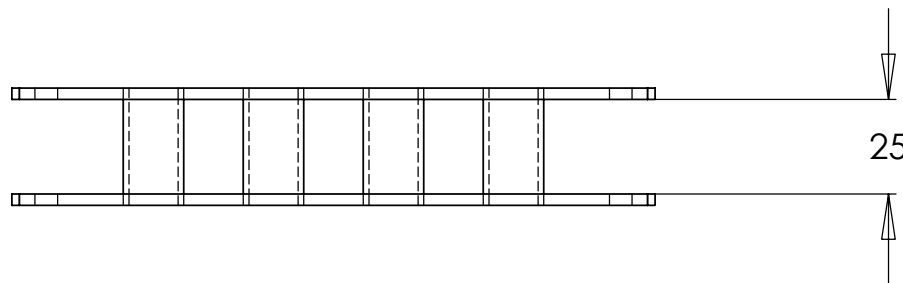
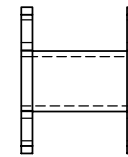
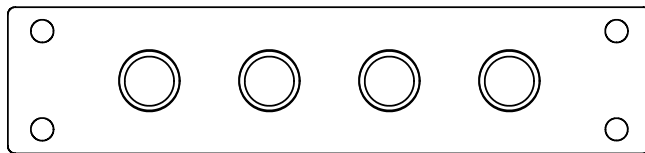
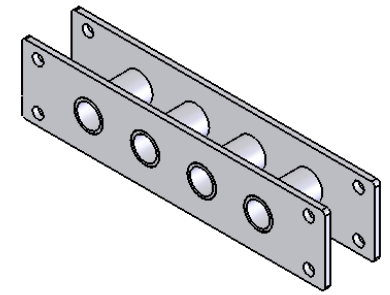


COMMENTS:

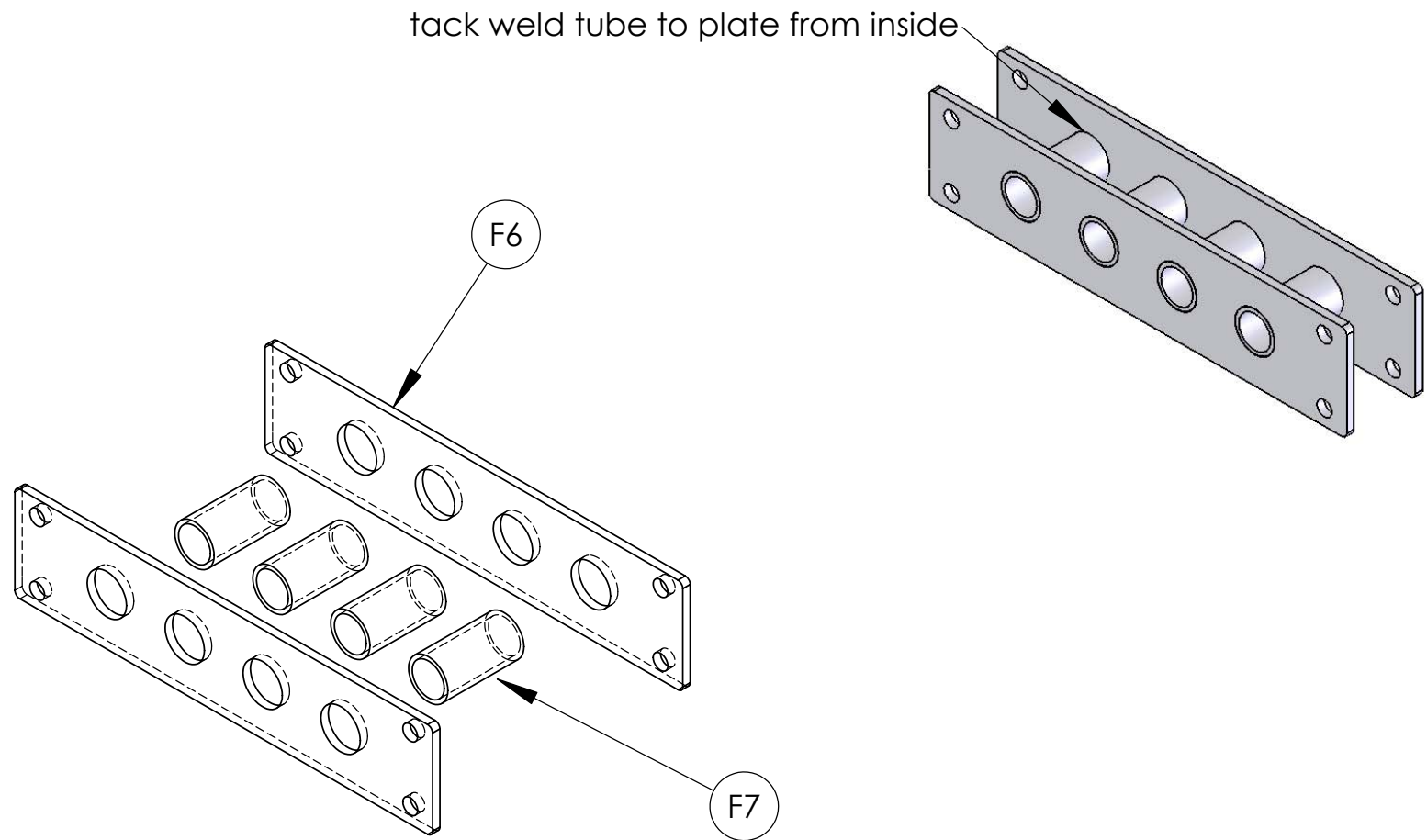
DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: F8	PART NAME: Back Rest Frame Pivot Plug	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair
	FINISH: Powder Coat		
	AUTHOR: Emily Zipfel		Human Engineering Research Lab
PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SCALE:1:1	DATE: March 1, 2004



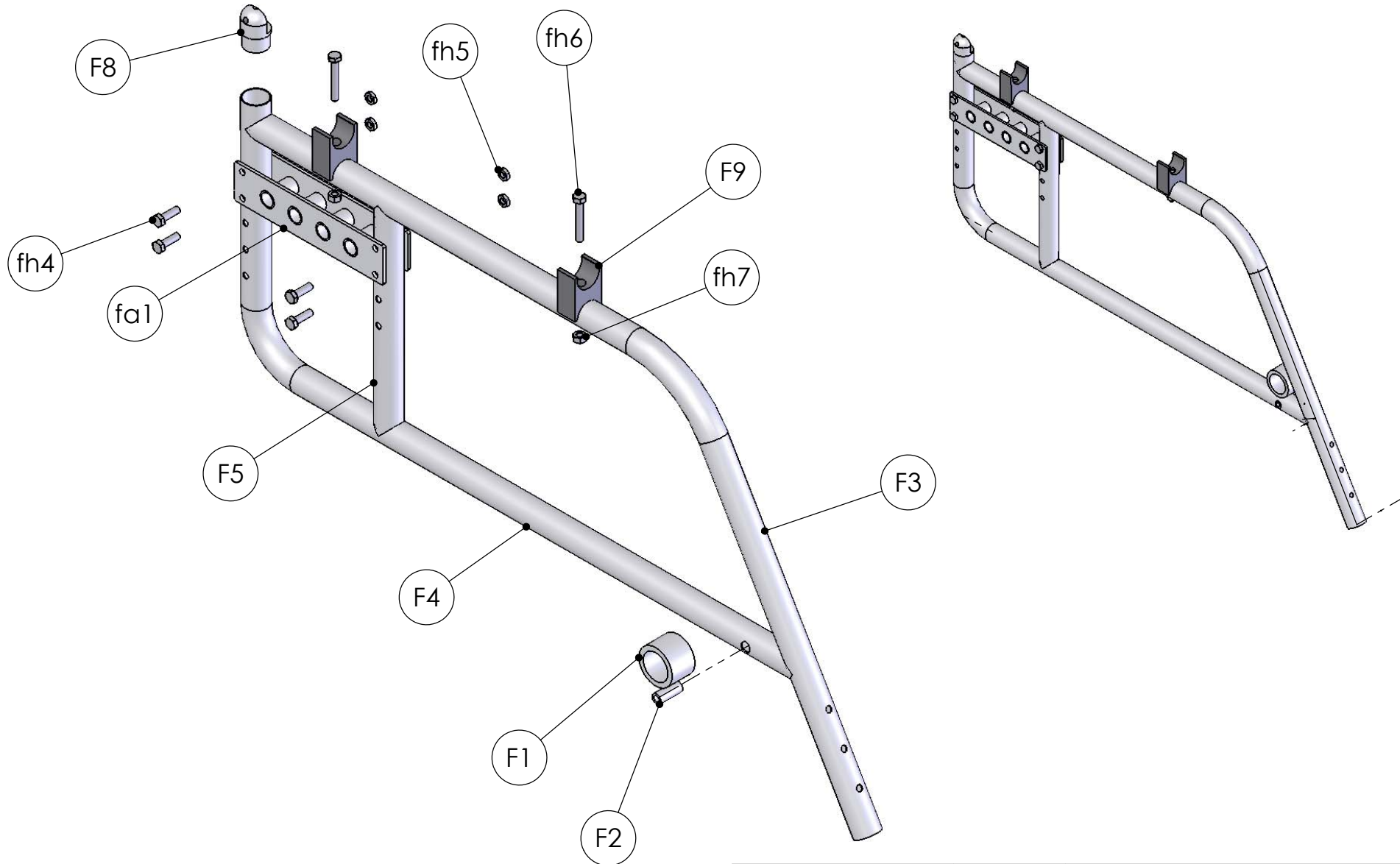
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	PART #: F9	PART NAME: Cross Brace Seat Spacers	
	MATERIAL: Plastic		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:1	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



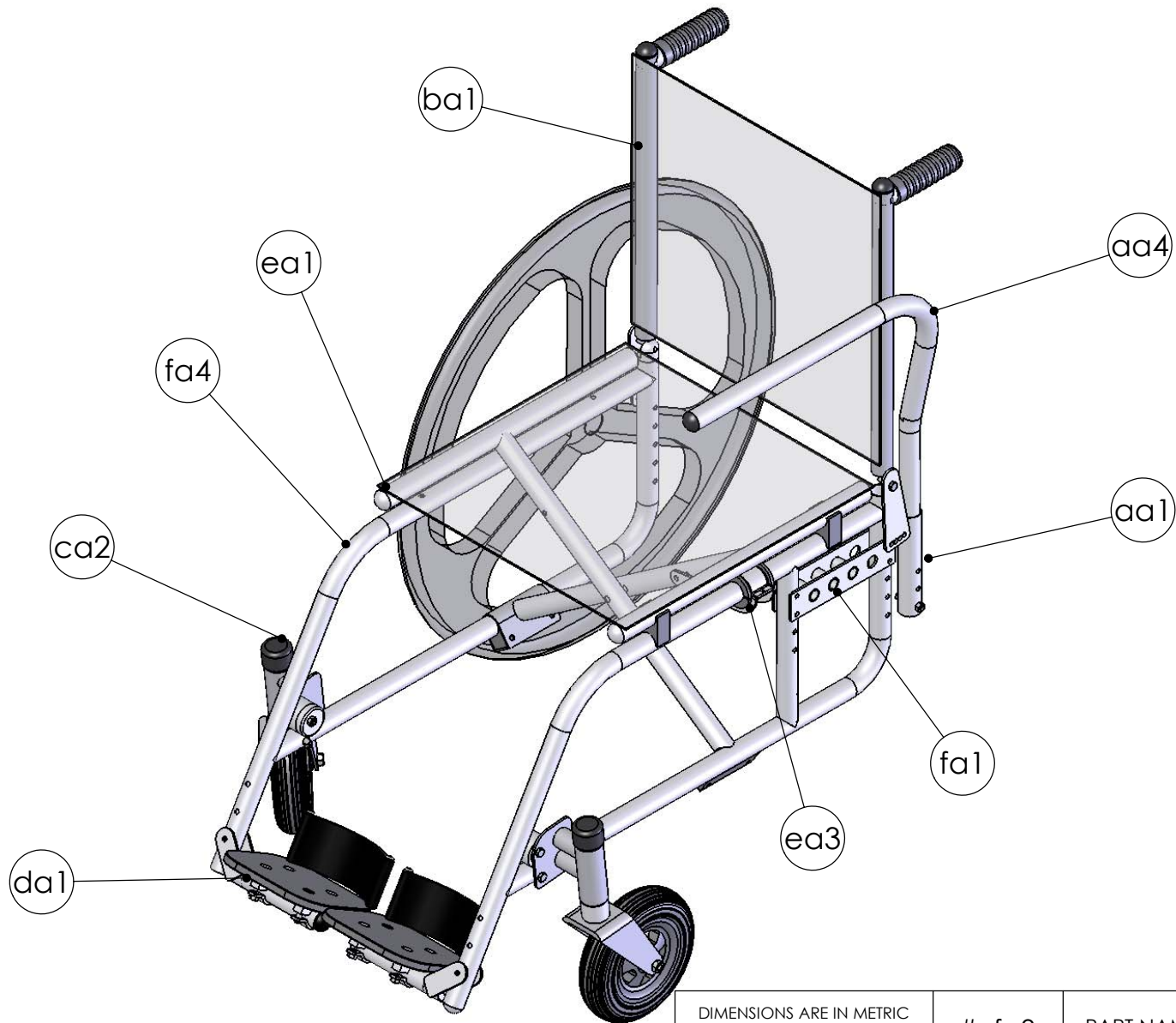
COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	#: fa1	PART NAME: Eccentric Caster Bushing Housing	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:2	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# fa2	PART NAME: Axle Plate Assembly Exploded	
	MATERIAL: 1018 Carbon Steel		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:2	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			



COMMENTS:	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified		# fa4	PART NAME: Side FFrame Assembly	
	MATERIAL:			PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat			Human Engineering Research Lab	
	AUTHOR: Emily Zipfel				
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper		SCALE:1:50	DATE: March 1, 2004	



COMMENTS: Some components (ie. wheel) removed from drawing for clarity.	DIMENSIONS ARE IN METRIC TOLERANCES: +/- 1.00 mm unless otherwise specified	# fa3	PART NAME: Wheelchair assembly	
	MATERIAL:		PROJECT TITLE: India Wheelchair	
	FINISH: Powder Coat		Human Engineering Research Lab	
	AUTHOR: Emily Zipfel		SCALE:1:20	DATE: March 1, 2004
	PRINCIPAL INVESTIGATOR: Dr. Rory Cooper			