HWI Cargo Accessory Team

Manufacturing Booklet

Introduction

This booklet of manufacturing drawings is designed so that anyone can effortlessly look at each drawing/part and understand what it looks like and what dimensions it has. With this in mind, one could replicate each part with ease and assemble them together in such a way that the end product can be attained simply. There are several things to be kept in mind if anyone tries to replicate the end products and they are:

- 1. All tubing used is 1 1/4ths inch Outer Diameter.
- 2. All of the joints of the supports and flat-stock are welded into place.
- 3. The materials are made of steel for easy welding capabilities.
- 4. 1/4ths inch bolts and nuts should be placed in every side wall hole to hold it in place.
- 5. A 3/8ths inch clevis pin should be placed in the tongue and receiver holes.
- 6. A metal tie clip should be placed in a hole in the axle to hold the axle to the axle sleeve.
- 7. Standard 18 inch wheels with a 5/8ths inch hole should be placed on the axle.

This booklet will address building specifications for the Trailer, Under-Seat Tray, and Backseat (in that order). It will also have an index of all the parts and assemblies.

Trailer Part Index

		Trailer Parts List		
REVISION	DONE	Name	Part #	# of Parts
х	х	Trailer Frame 1	1	4
х	х	Vertical Support	2	7
х	х	Axle Support	3	3
х	х	Wheel Axle Sleeve	4	2
х	x	Wheel Axle	5	2
х	x	Receiver	6	1
х	x	Tongue	7	1
х	x	Bottom Flatstock	8	3
х	x	Side Flatstock	9	2
х	x	Small Side Flatstock	10	2
х	x	Handle Bar	11	1
х	x	Bottom Plywood	12	1
х	x	Side Plywood	13	2
х	x	Small Side Plywood	14	2
х	x	Frame Assembly1	15	1
х	x	Frame Assembly2	16	1
х	x	Frame Assembly3	17	1
х	x	Wheel Axle Assembly	18	2
х	x	Hitching Assembly	19	1
х	x	Frame/Flatstock Assembly	20	1
х	x	Frame/Flatstock Assembly2	21	1
х	x	Frame/Flatstock Assembly3	22	1
х	x	Full Frame Assembly	23	1
х	х	Full Trailer Assembly	24	1

Frame Assembly1				
Parts include	Part #	# of Parts		
Trailer Frame 1	1	4		
Vertical Support	2	3		

Frame As			
Parts include	Part #	# of Parts	Par
Frame Assembly1	15	1	Fra
Vertical Support	2	4	Sid

Frame As			
Parts include	Part #	# of Parts	Part
Frame Assembly2	16	1	Frar
Axle Support	4	3	Sma
Handle Bar	11	1	

Wheel Axle Assembly				
Parts include Part # # of Parts				
Wheel Axle Sleeve 4 1				
Wheel Axle	5	1		

Hitching Assembly				
Parts include	Part #	# of Parts		
Receiver	6	1		
Tongue	7	1		

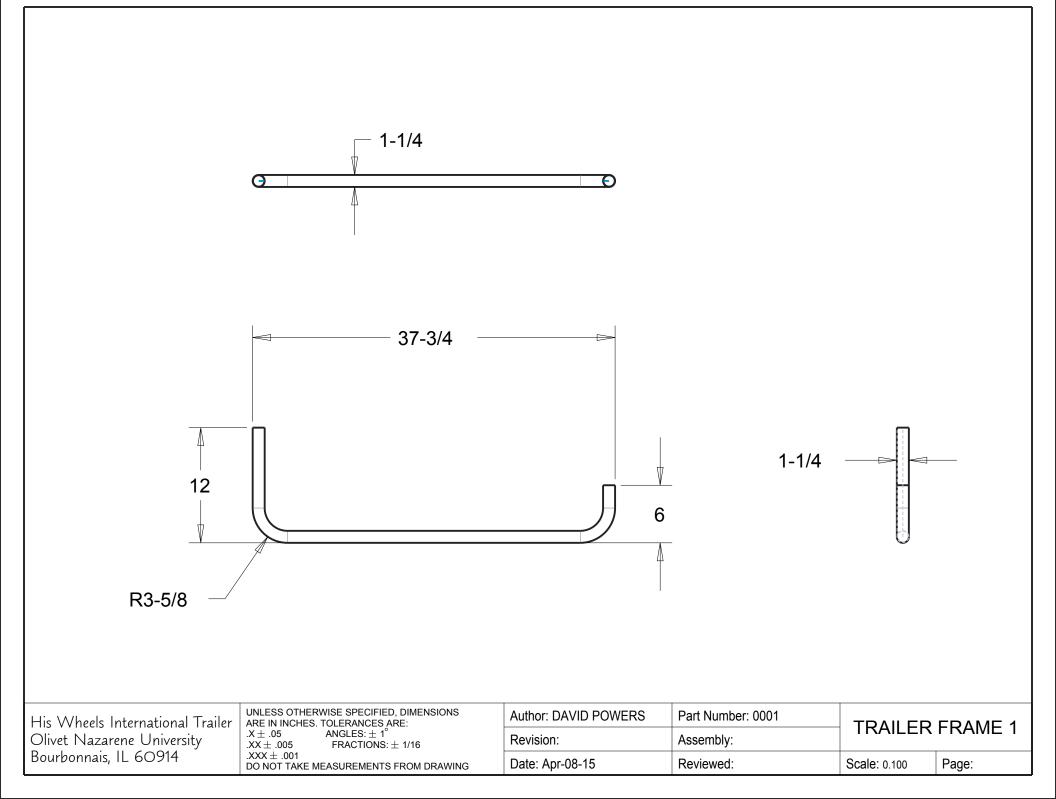
Frame/Flatstock Assembly				
Parts include	Part #	# of Parts		
Frame Assembly3	17	1		
Bottom Flatstock	8	3		

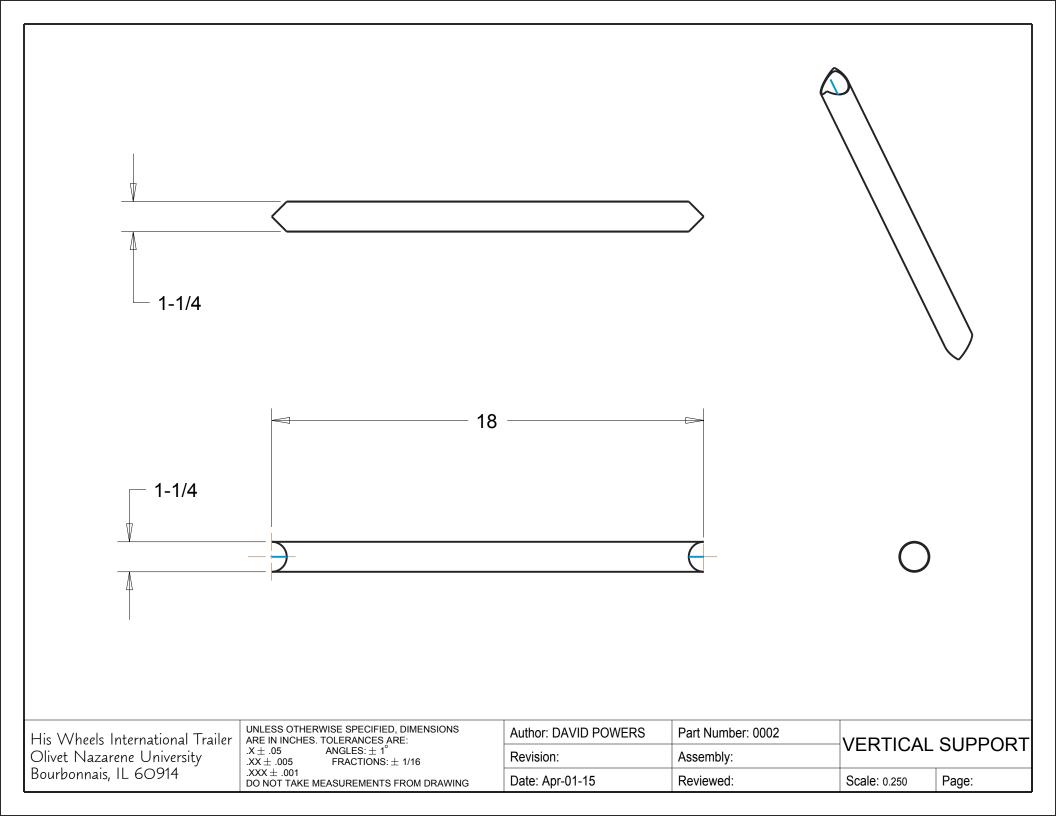
Frame/Flatstock Assembly2			
Parts include	Part #	# of Parts	
Frame/Flatstock Assembly	20	1	
Side Flatstock	9	2	

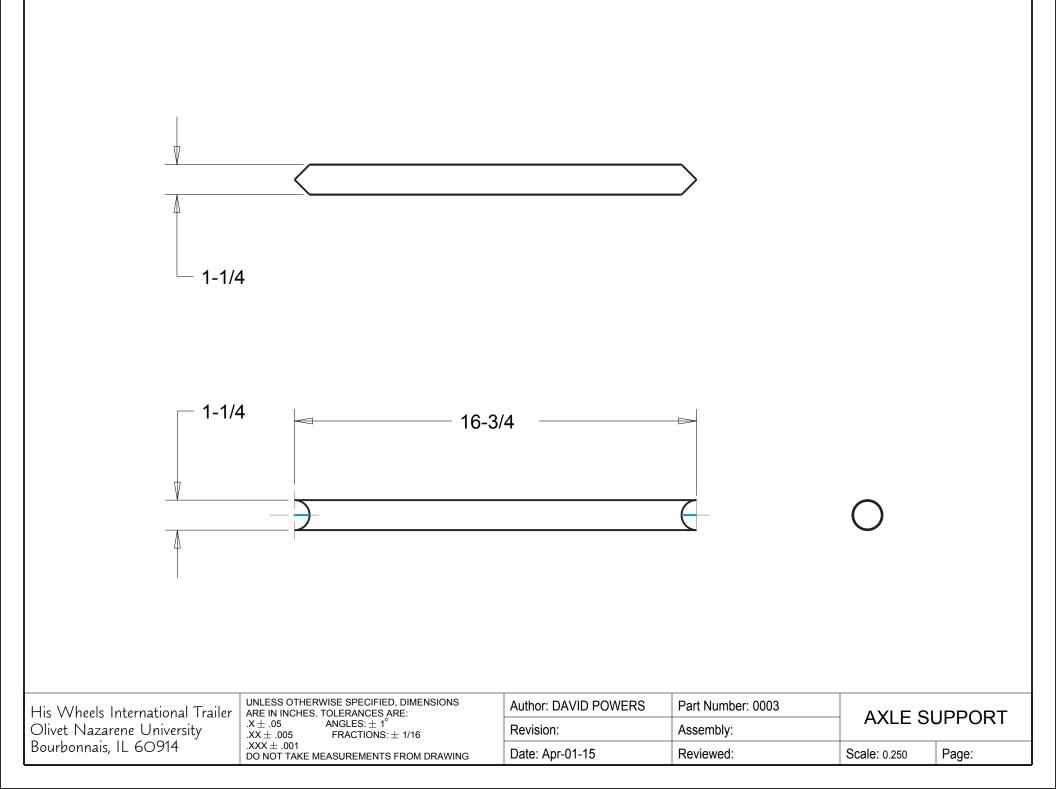
Frame/Flatstock Assembly3			
Parts include	Part #	# of Parts	
Frame/Flatstock Assembly2	21	1	
Small Side Flatstock	10	2	

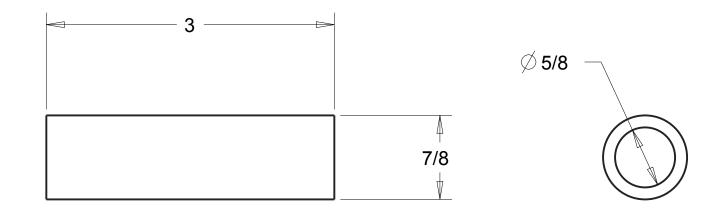
Full Frame Assembly			
Parts include	Part #	# of Parts	
Frame/Flatstock Assembly 3	22	1	
Hitching Assembly	19	1	
Wheel Axle Assembly	18	2	

Full Trailer Assembly			
Parts include	Part #	# of Parts	
Full Trailer Assembly	23	1	
Bottom Plywood	12	1	
Side Plywood	13	2	
Small Side Plywood	14	2	



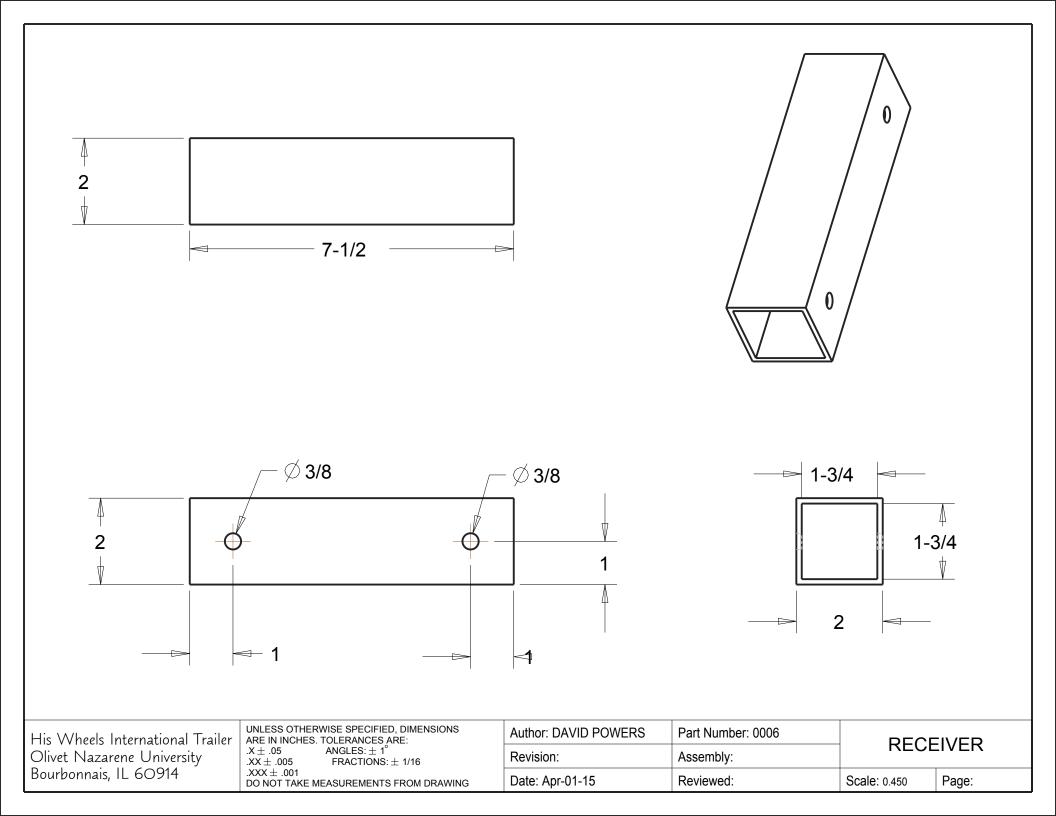


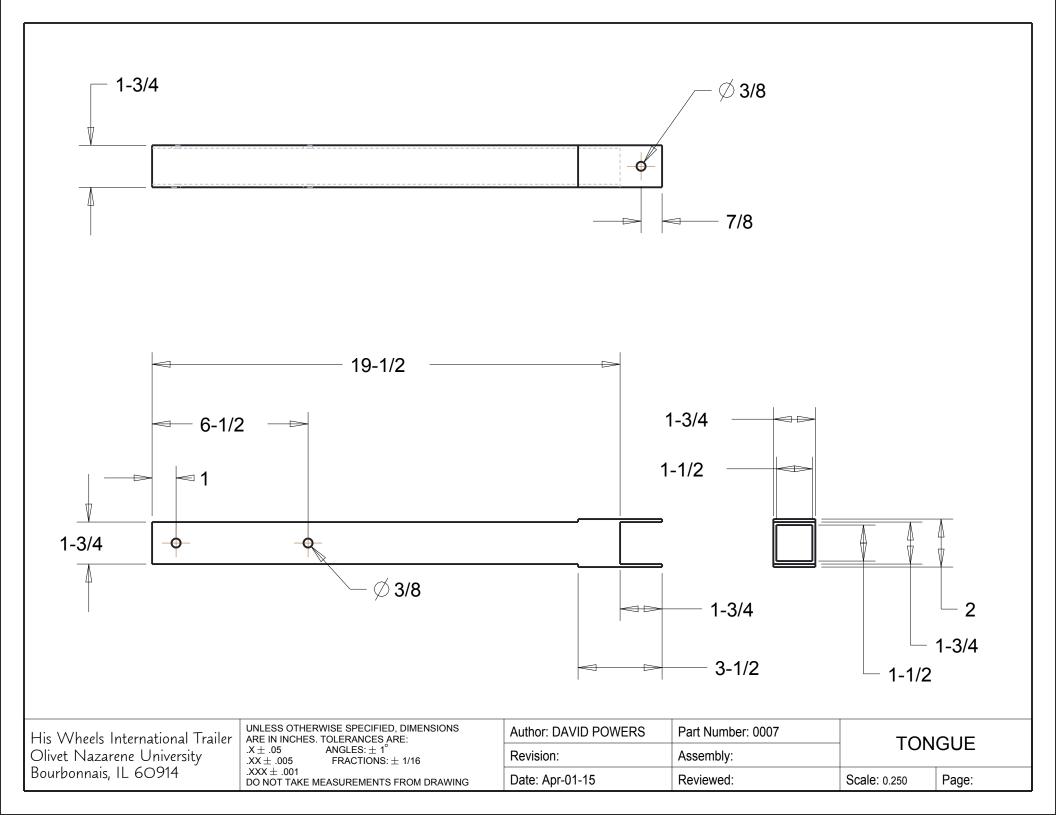


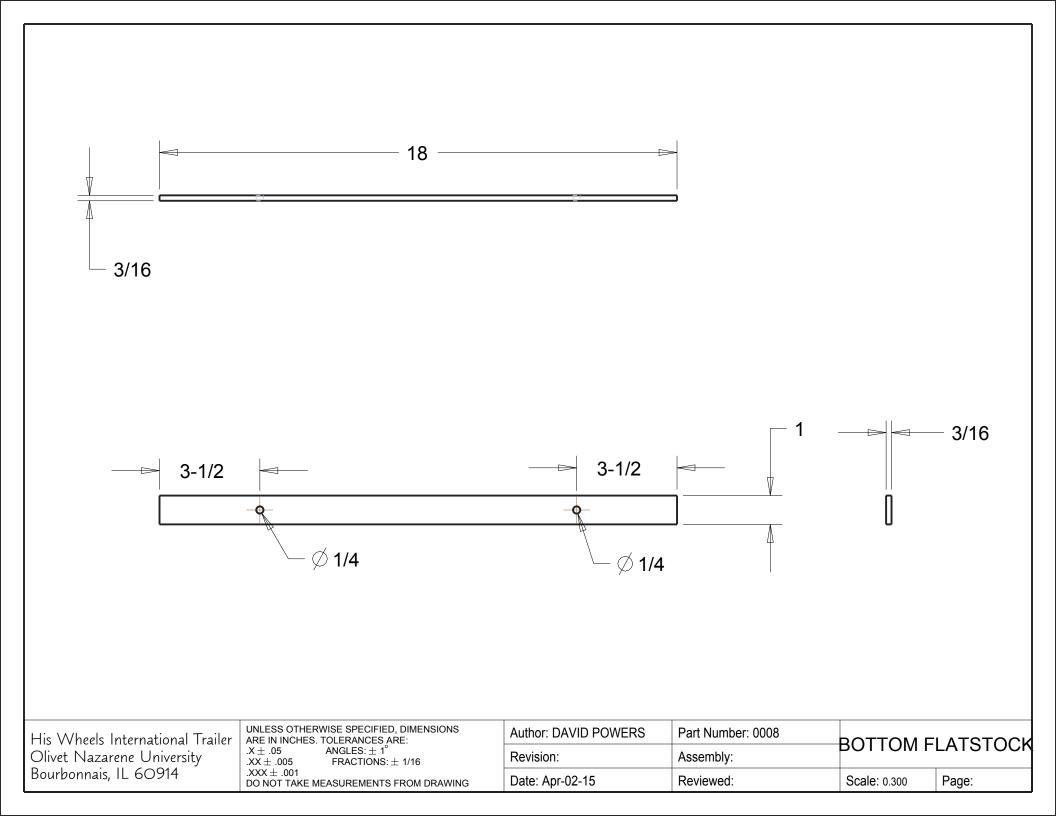


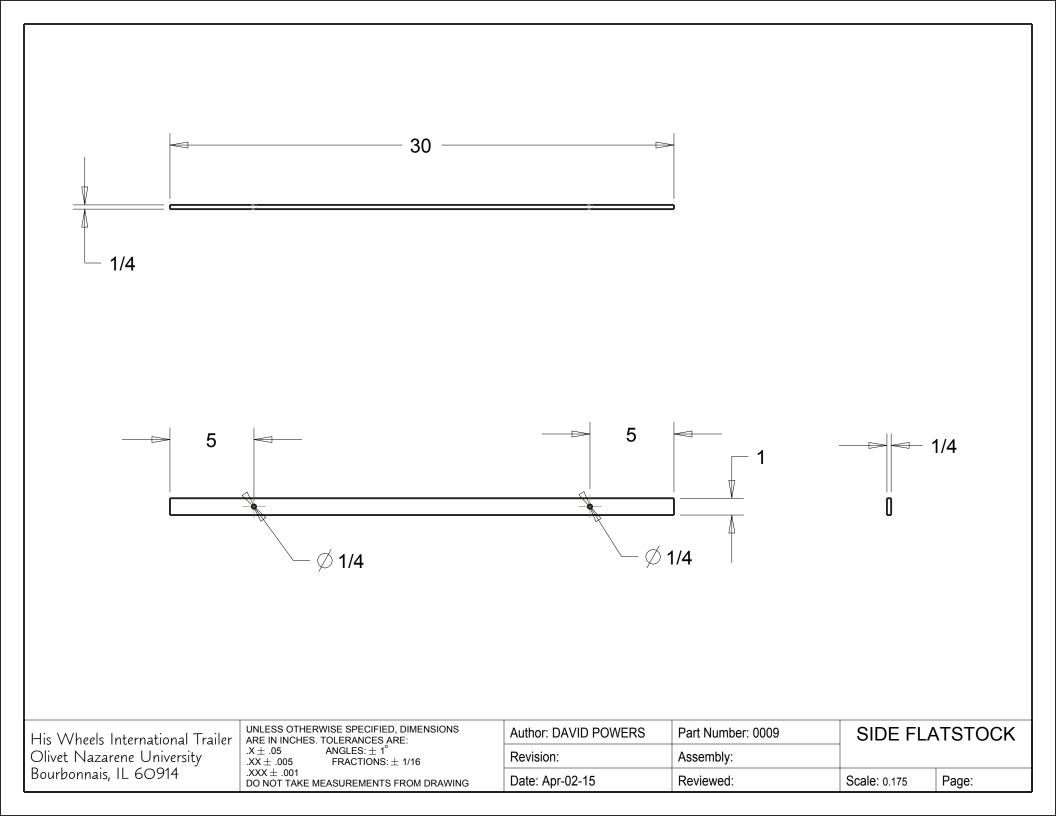
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Olivet Nazarene University	$X \pm 05$ ANGLES: $\pm 1^{\circ}$	Revision:	Assembly:		
Bourbonnais, IL 60914	.XXX \pm .001 DO NOT TAKE MEASUREMENTS FROM DRAWING	Date: Apr-01-15	Reviewed:	Scale: 1.000	Page:

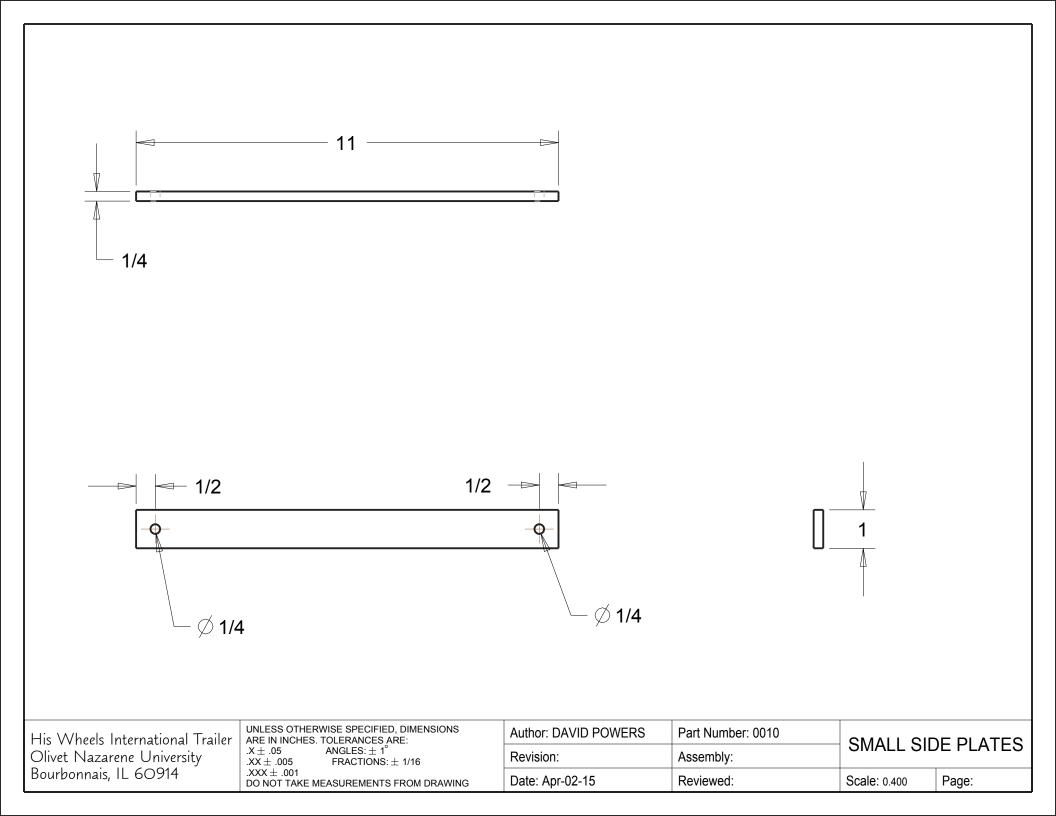
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His Wheels International Trailer	UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: .X \pm .05 ANGLES: \pm 1°	Author: DAVID POWERS	Part Number: 0005	WHEE	LAXLE
Olivet Nazarene University Bourbonnais, IL 60914	$\begin{array}{ccc} .X\pm .05 & ANGLES:\pm 1^{\circ} \\ .XX\pm .005 & FRACTIONS:\pm 1/16 \\ .XXX\pm .001 \\ DO NOT TAKE MEASUREMENTS FROM DRAWING \end{array}$	Revision: Date: Apr-01-15	Assembly: Reviewed:	Scale: 0.500	Page:

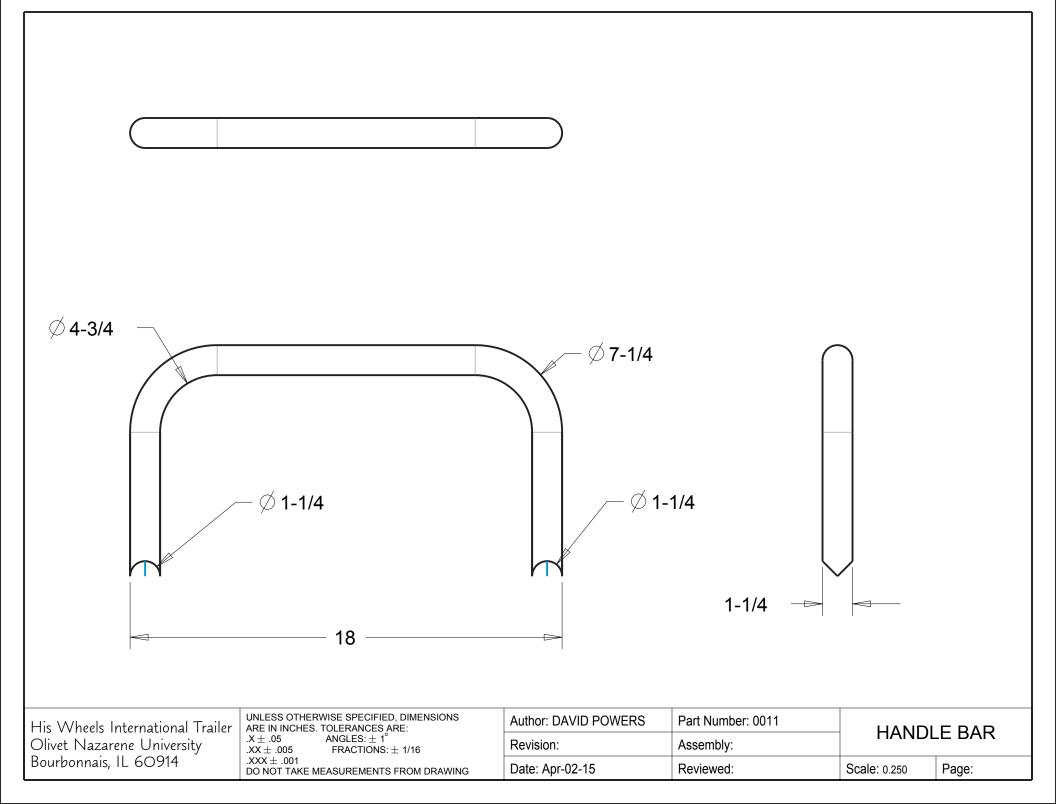


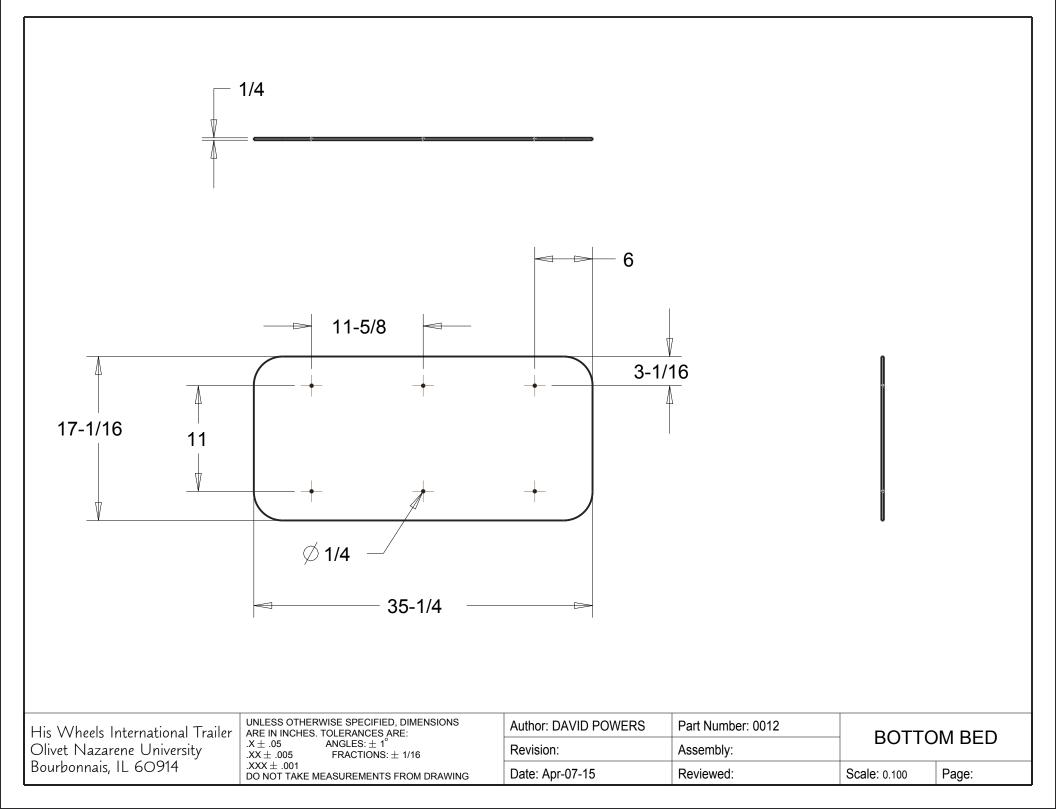


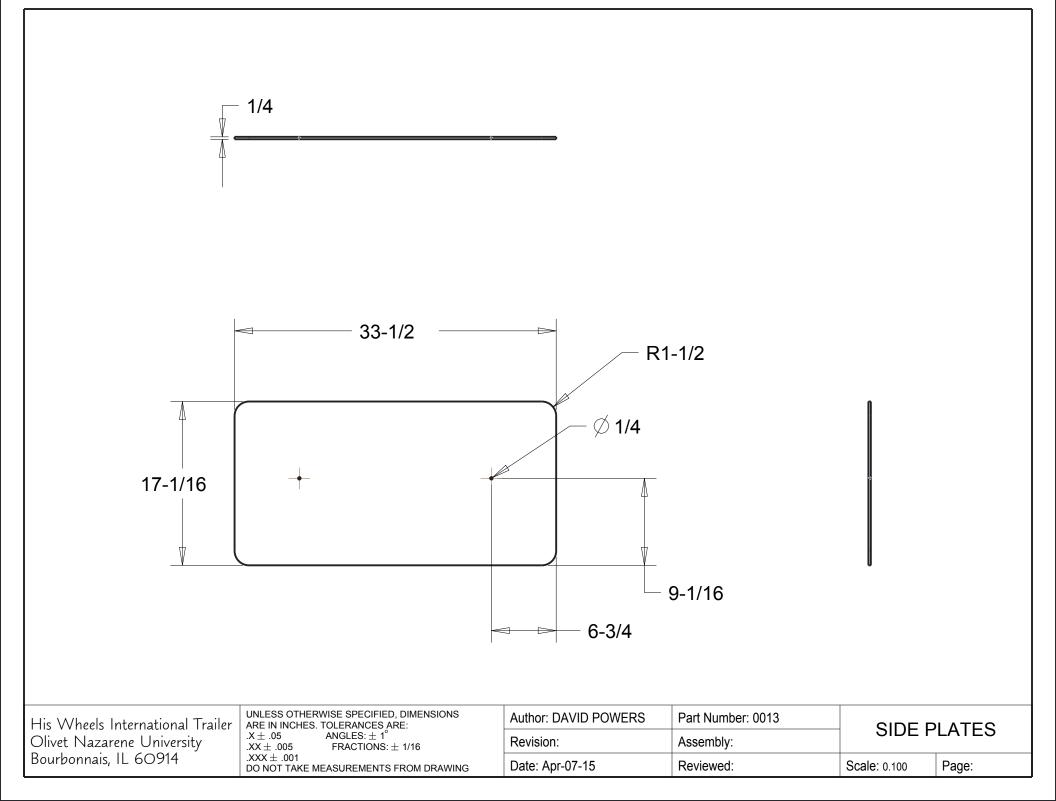


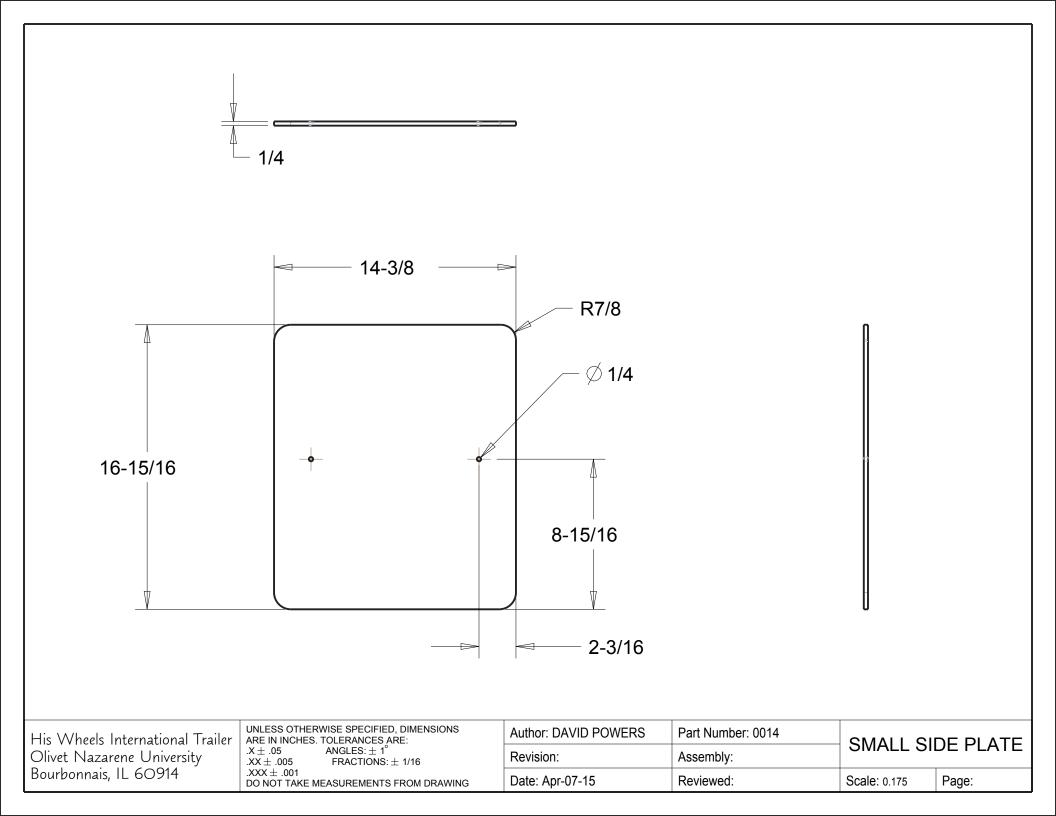




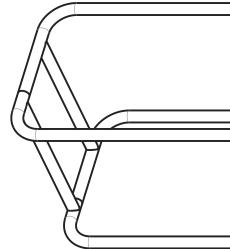


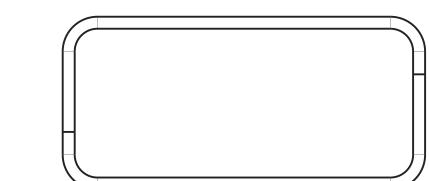


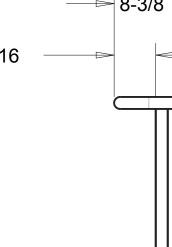


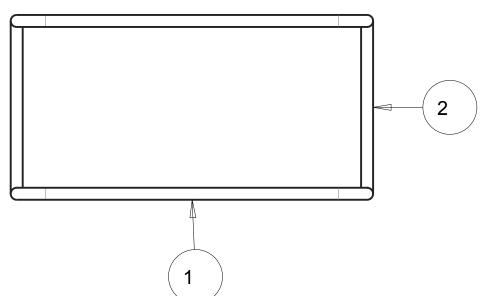


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	ITEM NO	PART NUM	BER	QTY	DES	SCRIPTION
	1	TRAILER_FRAI	ME_1	4	trailer_frame_1.	prt
	2	VERTICAL_SU	PPORT	3	vertical_support	prt
		4-5/16	PPORI			
•	4. 5					
<u> </u>		VID POWERS	Part Number: 0015	0	FRAM	/IE ASSEMBLY 1
<u> </u>	evision: 2 ate: Apr-		Assembly: Reviewed:		Scale: 0.100	
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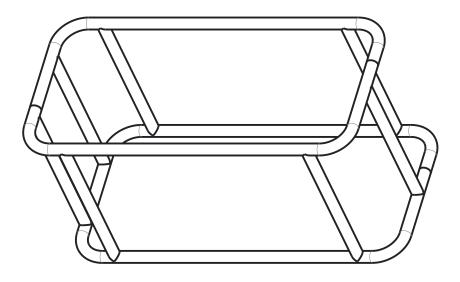


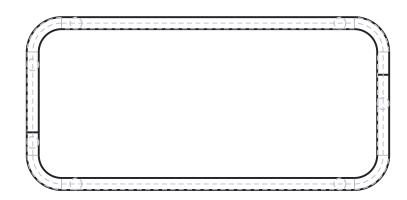


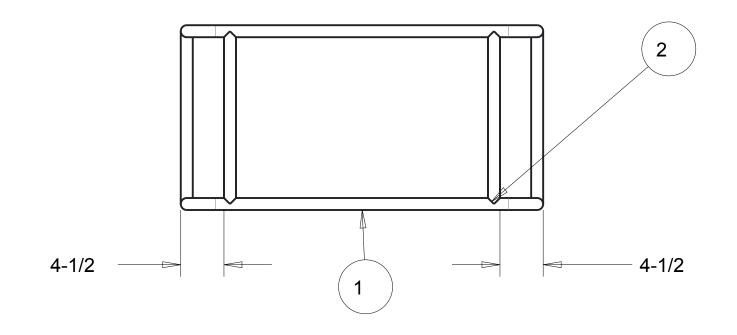


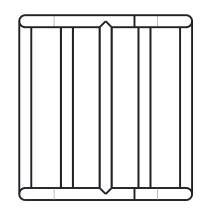
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			NO 1	TRAILER_FRAI			frame_1.prt
			2	VERTICAL_SU			_support.prt
			2	VERTICAL_SU			
				4-5/16	8-3/8		4-5/16
	1						
H	is Wheels International	UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: $X \pm .05$ ANGLES: $\pm 1^{\circ}$ $.XX \pm .05$ FRACTIONS: $\pm 1/16$		VID POWERS	Part Number: 0015		FRAME ASSEMBLY 1
	livet Nazarene University purbonnais, IL 60914	$X \pm .05$ ANGLES: $\pm 1^{\circ}$.XX $\pm .005$ FRACTIONS: $\pm 1/16$.XXX $\pm .001$	Revision: 2		Assembly:		
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2	VERTICAL_SUPPORT	4	vertical_support.prt









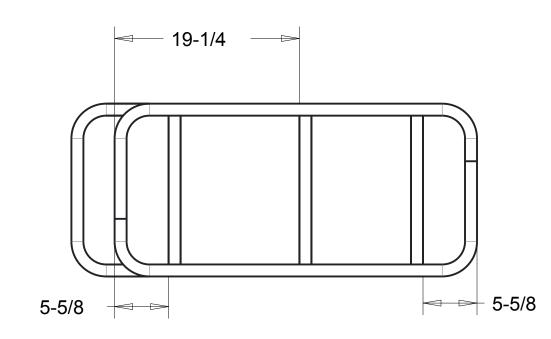
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Olivet Nazarene University	$X \pm .05$ ANGLES: $\pm 1^{\circ}$.XX $\pm .005$ FRACTIONS: $\pm 1/16$	Revision: 2	Assembly:
Bourbonnais, IL 60914	.XXX \pm .001 DO NOT TAKE MEASUREMENTS FROM DRAWING	Date: Apr-08-15	Reviewed:

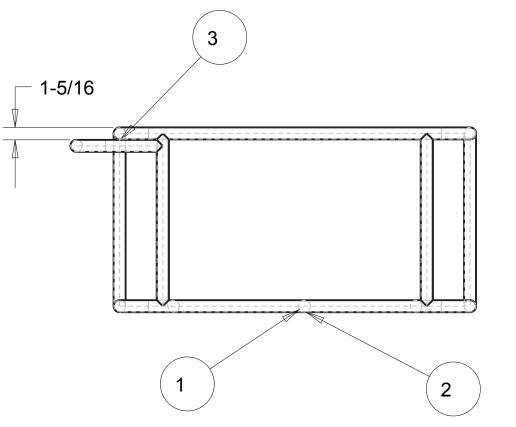
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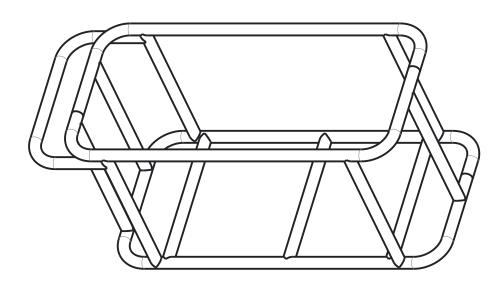
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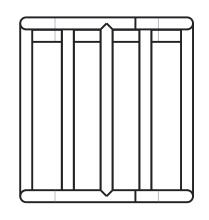
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ITEM NO	PART NUMBER	QTY	DESCRIPTION
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2	FRAME_ASSEMBLY_2	1	frame_assembly_2.asm
3	HANDLE_BAR	1	prt0001.prt

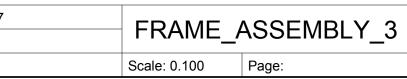








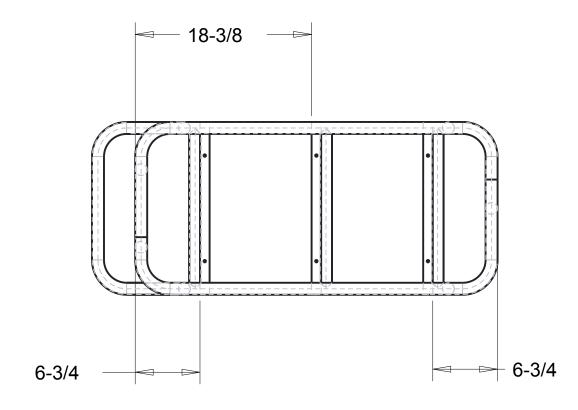
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Olivet Nazarene University	.X \pm .05ANGLES: \pm 1°.XX \pm .005FRACTIONS: \pm 1/16	Revision: 2	Assembly:
Bourbonnais, IL 60914	.XXX \pm .001 DO NOT TAKE MEASUREMENTS FROM DRAWING	Date: Apr-08-15	Reviewed:

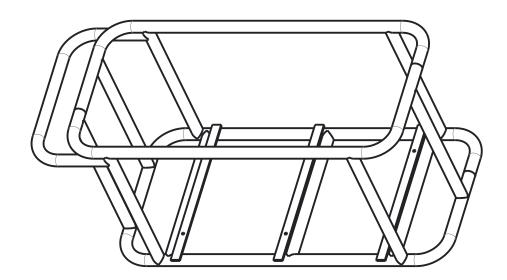


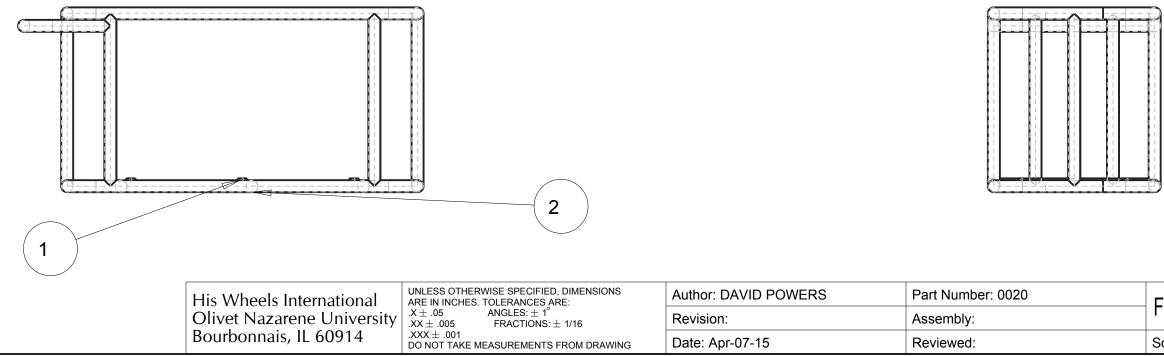
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	ſ	NO PAR	T NUMB	ER C	ΩTY	DESC	CRIPTION	
		1 WHEEL	_AXLE		1	wheel_axle.prt		
		2 WHEEL	_AXLE_	SLEEVE	1	wheel_axle_sleeve.prt		
	UNLESS OTHERWISE SPECIFIED	DIMENSIONS				Dati Number: 2040		
His Wheels International Trailer	ARE IN INCHES. TOLERANCES A	RE:		AVID POWEF	RS	Part Number: 0018		E ASSEMBL'
Olivet Nazarene University Bourbonnais, IL 60914	.XX ± .005 FRACTIONS: = .XXX ± .001		Revision: Date: Apr			Assembly: Reviewed:	Scale: 0.500	Page.
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		ITEM NO	PART NUMBER	QTY	DES	CRIPTION	
		1	RECEIVER	1	receiver.prt		
		2	TONGUE	1	tongue.prt		
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					0		
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	0						
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1 0	0				2		
1 0	0				2		
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(1)o	0				2		
	0				2		
	UNLESS OTHERWISE SPECI	FIED, DIMEN	NSIONS Author: DAVID PO		Part Number: 0019		
1 o This Wheels International Trailer Dlivet Nazarene University Bourbonnais, IL 60914	UNLESS OTHERWISE SPECI ARE IN INCHES. TOLERANCE X ± .05 ANGLES: ±	ES ARE:	NSIONS Author: DAVID POR	OWERS		HITCHING A	ASSEMB

ITEM NO	PART NUMBER	QTY	DESCRIPTION
1	FLAT_STOCK_BOTTOM	3	flat_stock_bottom.prt
2	FRAME_ASSEMBLY_3	1	frame_assembly_3.asm

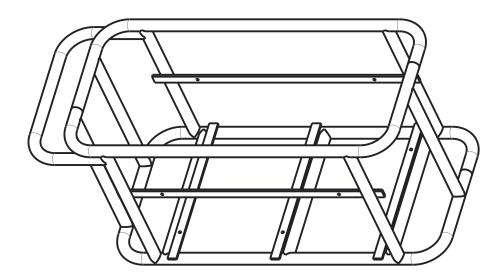


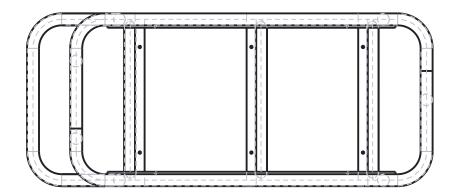


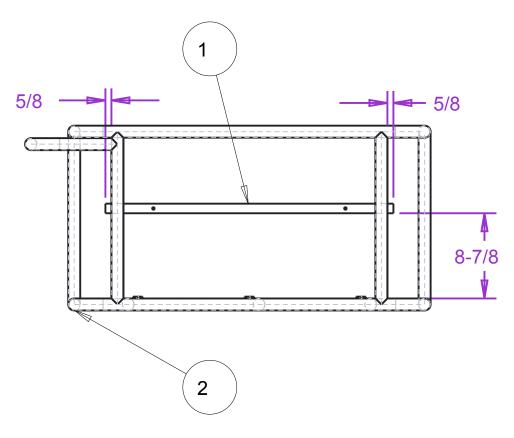


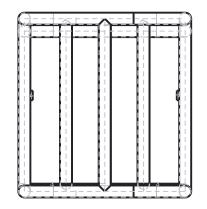
20	FRAME FLATS	STOCK ASSEMBLY1
	Scale: 0.100	Page:

ITEM NO	PART NUMBER	QTY	DESCRIPTION
1	FLAT_STOCK_SIDE	2	flat_stock_side.prt
2	FRAME_FLATSTOCK_ASSEMBLY	1	frame_flatstock_assembly.asm









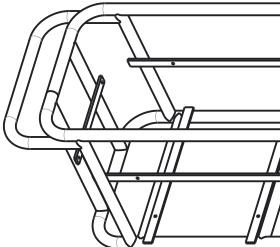
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Olivet Nazarene University	$X \pm .05$ ANGLES: $\pm 1^{\circ}$.XX $\pm .005$ FRACTIONS: $\pm 1/16$	Revision:	Assembly:
Bourbonnais, IL 60914	.XXX \pm .001 DO NOT TAKE MEASUREMENTS FROM DRAWING	Date: Apr-07-15	Reviewed:

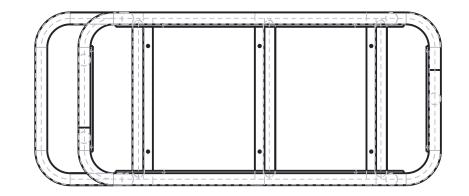
FRAME FLATSTOCK ASSEMBLY 2

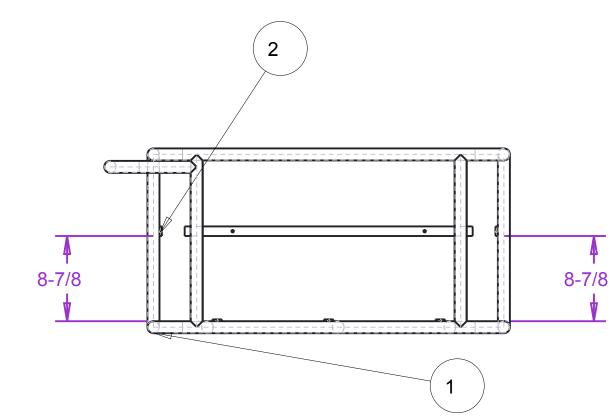
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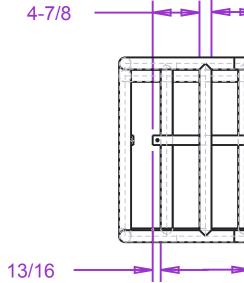
Page:

ITEM NO	PART NUMBER	
1	FRAME_FLATSTOCK_ASSEMBLY	2
2	SMALL_SIDE_PLATES	







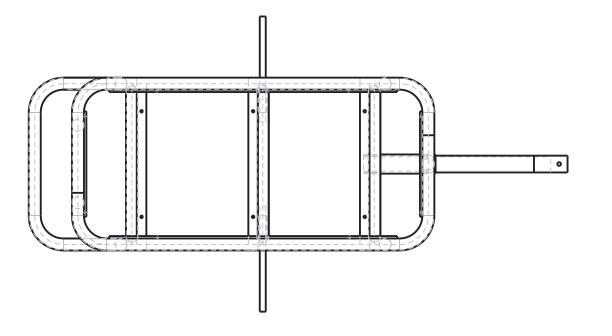


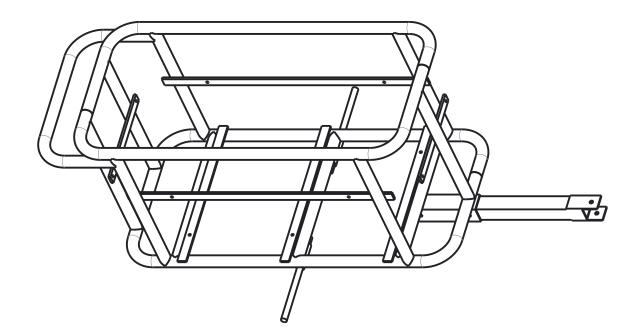
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Olivet Nazarene University	$X \pm .05$ ANGLES: $\pm 1^{\circ}$.XX $\pm .005$ FRACTIONS: $\pm 1/16$	Revision:	Assembly:
Bourbonnais, IL 60914	.XXX \pm .001 DO NOT TAKE MEASUREMENTS FROM DRAWING	Date: Apr-07-15	Reviewed:

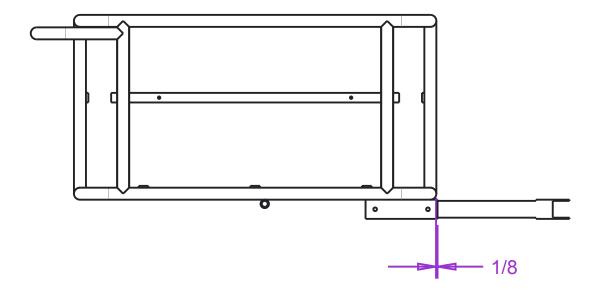
QTY	DESCRIPTION
2 1	frame_flatstock_assembly2.asm
2	small_side_plates.prt
-/h- //_``	
	4-7/8
	13/16

FRAME FLATS	STOCK ASSEMBLY 3
Scale: 0.100	Page:

ITEM NO	PART NUMBER	QTY	DESCRIPTION
1	FRAME_FLATSTOCK_ASSEMBLY3	1	frame_flatstock_assembly3.asm
2	HITCHING_ASSEMBLY	1	hitching_assembly.asm
3	WHEEL_AXLE_ASSEMBLY	2	wheel_axle_assembly.asm

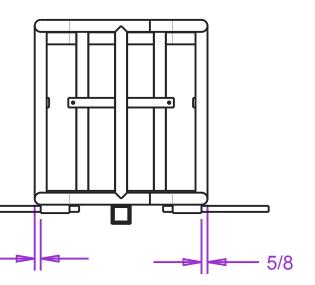




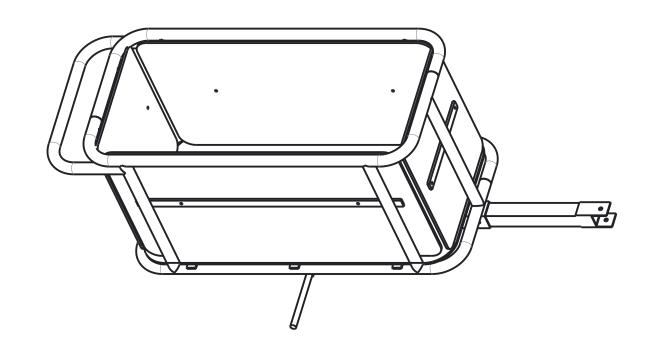


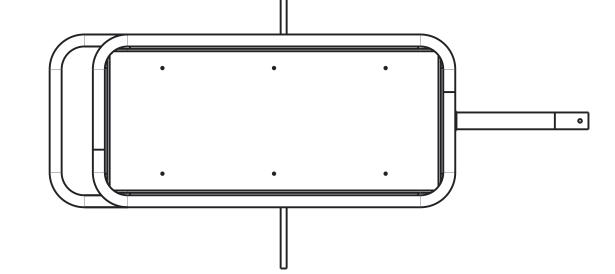
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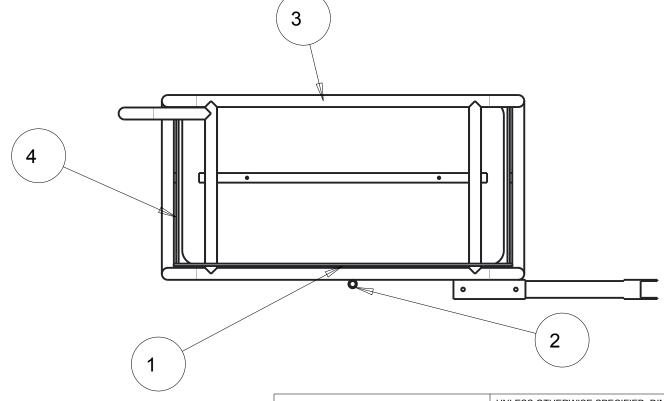
His Wheels International Olivet Nazarene University	UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: $.X \pm .05$ ANGLES: $\pm 1^{\circ}$.XX $\pm .005$ FRACTIONS: $\pm 1/16$	Author: DAVID POWERS Revision:	Part Number: 0023 Assembly:	FULI	FRAME
Bourbonnais, IL 60914	$.XXX \pm .001$ DO NOT TAKE MEASUREMENTS FROM DRAWING	Date: Apr-07-15	Reviewed:	Scale: 0.100	Page:

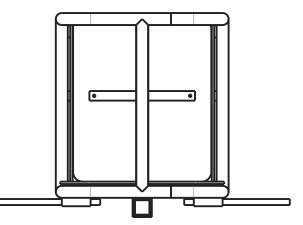


ITEM NO	PART NUMBER	QTY	DESCRIPTION
1	FLAT_BED	1	flat_bed.prt
2	FULL_FRAME	1	full_frame.asm
3	SIDE_PLATES	2	side_plates.prt
4	SMALL_SIDE_PLATE	2	small_side_plate.prt







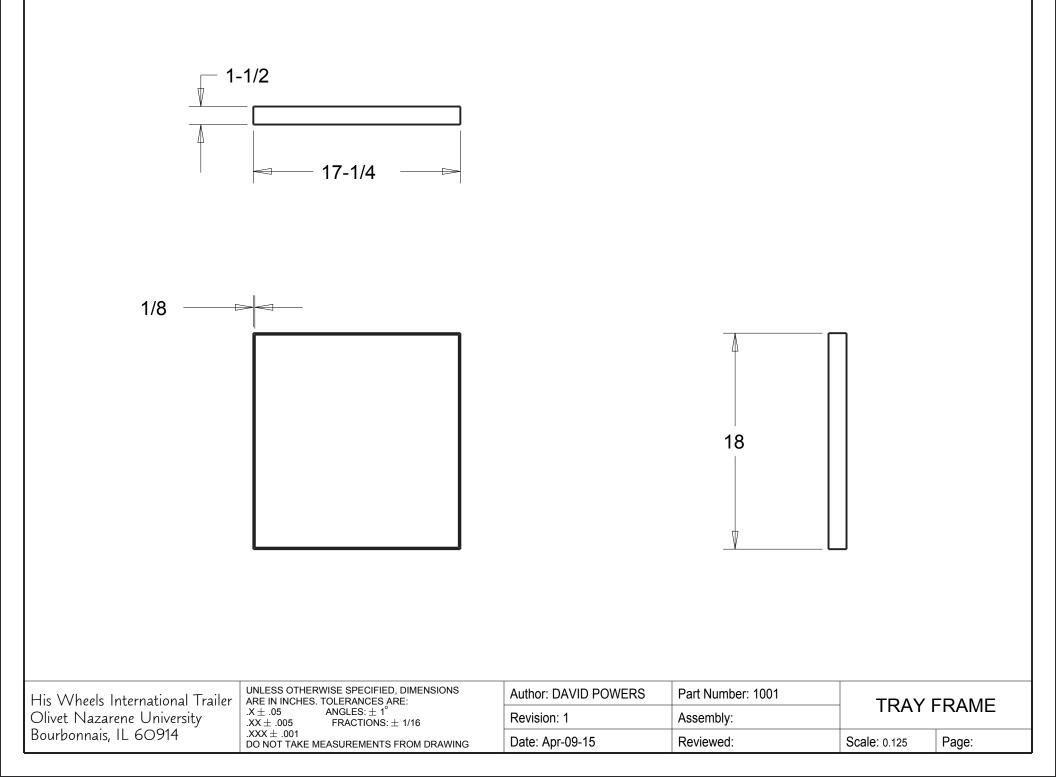


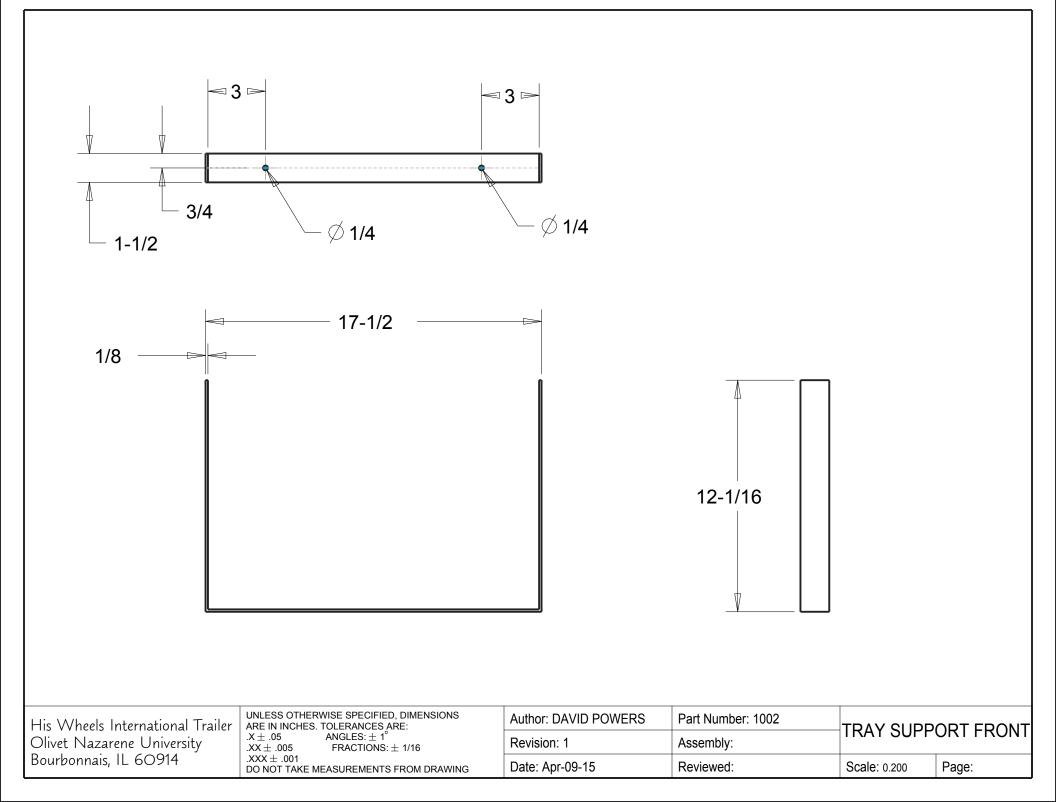
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Olivet Nazarene University	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Revision:	Assembly:	FULL	
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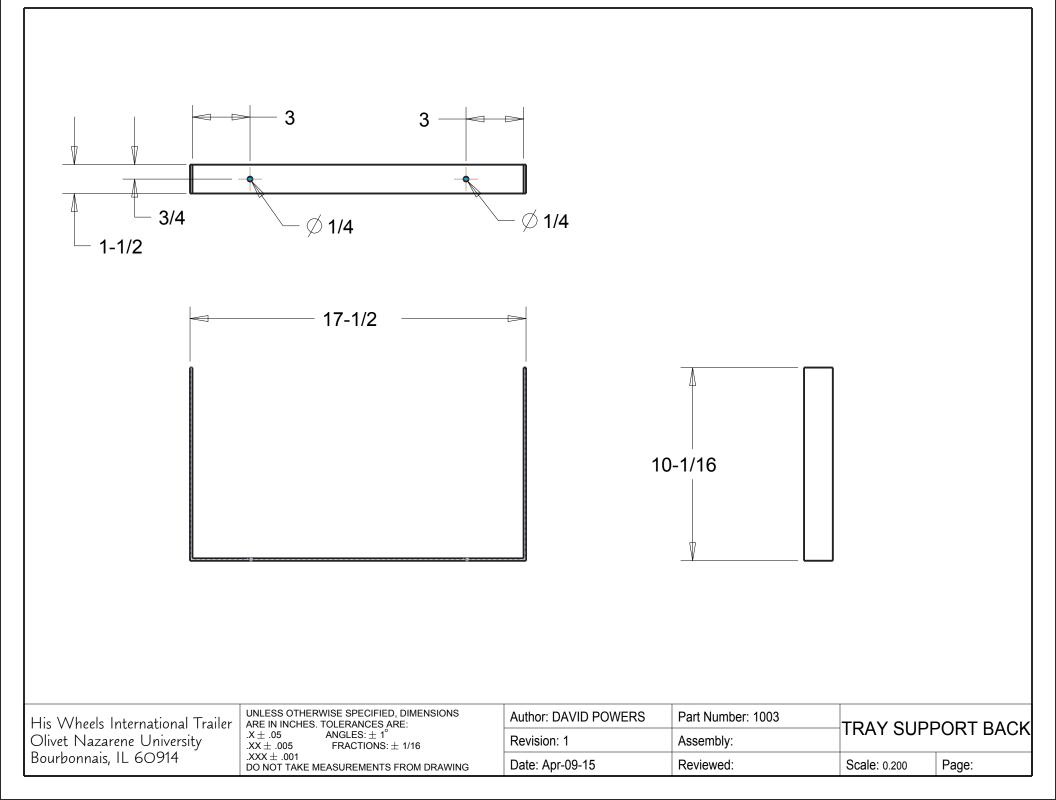
Under-Seat Part Index

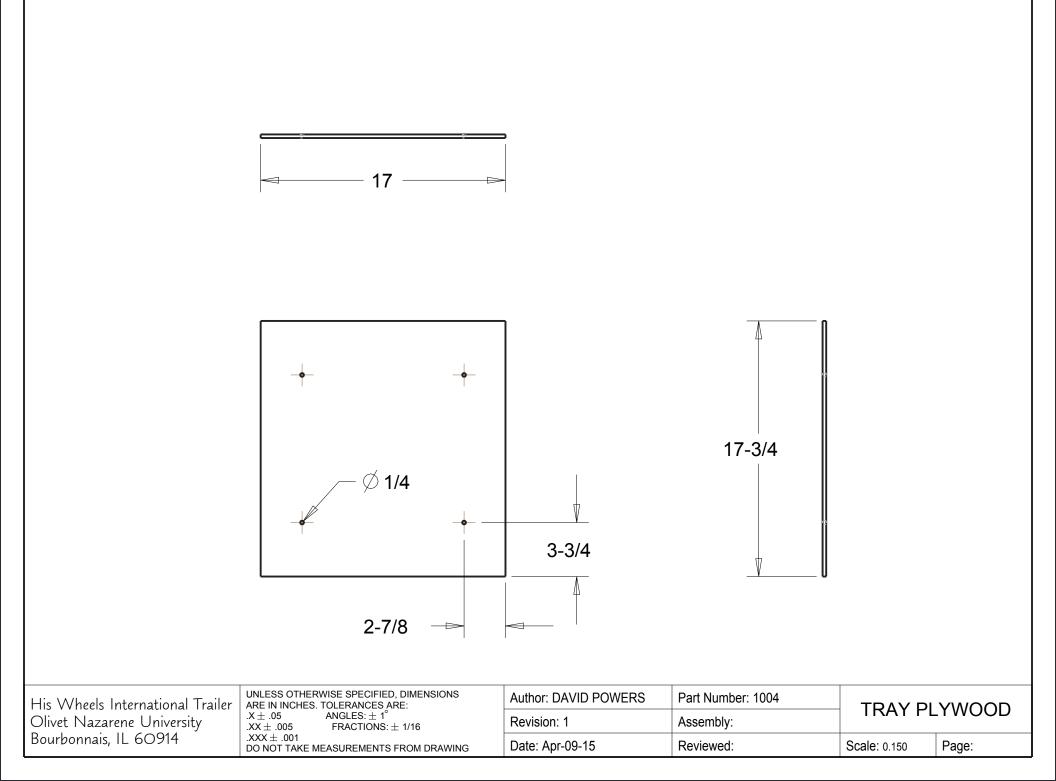
	Trailer Parts List							
REVISION	DONE	Name	Part #	# of Parts				
х	х	Tray Frame	1001	1				
х	х	Tray Support Front	1002	1				
х	х	Tray Support Back	1003	1				
х	х	Tray Plywood	1004	1				
х	x	Full Tray	1005	1				

Full Tray					
	Part				
Name	#	# of Parts			
Tray Frame	1001	1			
Tray Support Front	1002	1			
Tray Support Back	1003	1			
Tray Plywood	1004	1			

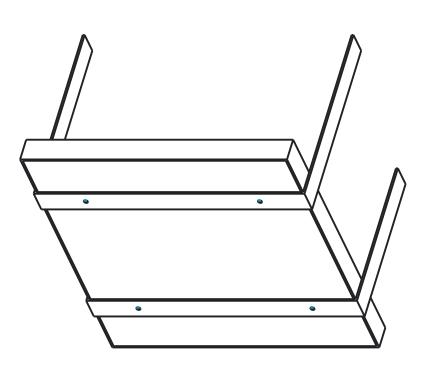


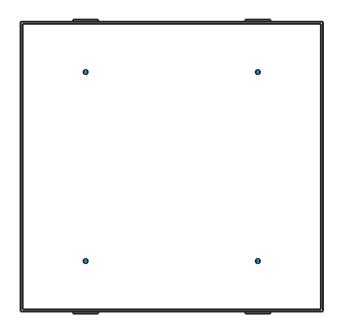


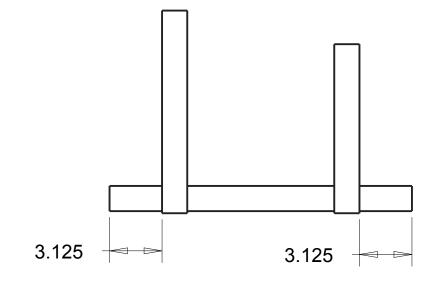




ITE NC	PART NUMBER	QTY	DESCRIPTION
1	TRAY	1	tray.prt
2	TRAY-SUPPORT1	1	tray-support1.prt
3	TRAY-SUPPORT2	1	tray-support2.prt
4	TRAY_PLYWOOD	1	tray_plywood.prt







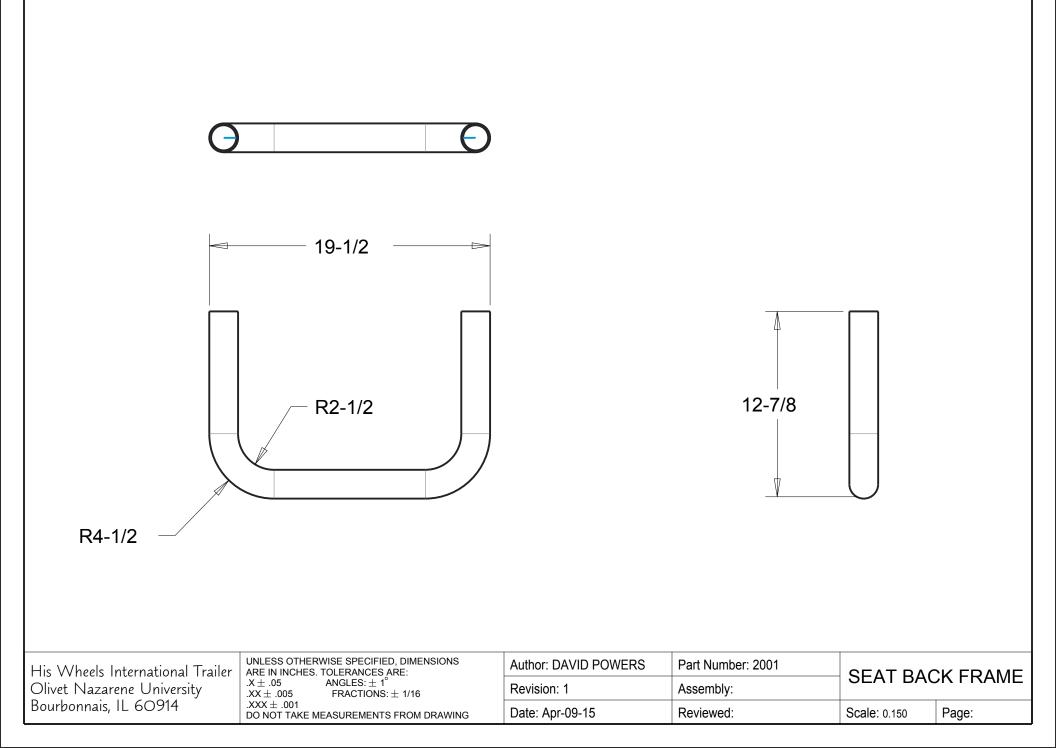
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Olivet Nazarene University	$X \pm .05$ ANGLES: $\pm 1^{\circ}$.XX $\pm .005$ FRACTIONS: $\pm 1/16$	Revision: 1	Assembly:	
Bourbonnais, IL 60914	.XXX \pm .001 DO NOT TAKE MEASUREMENTS FROM DRAWING	Date: Apr-09-15	Reviewed:	

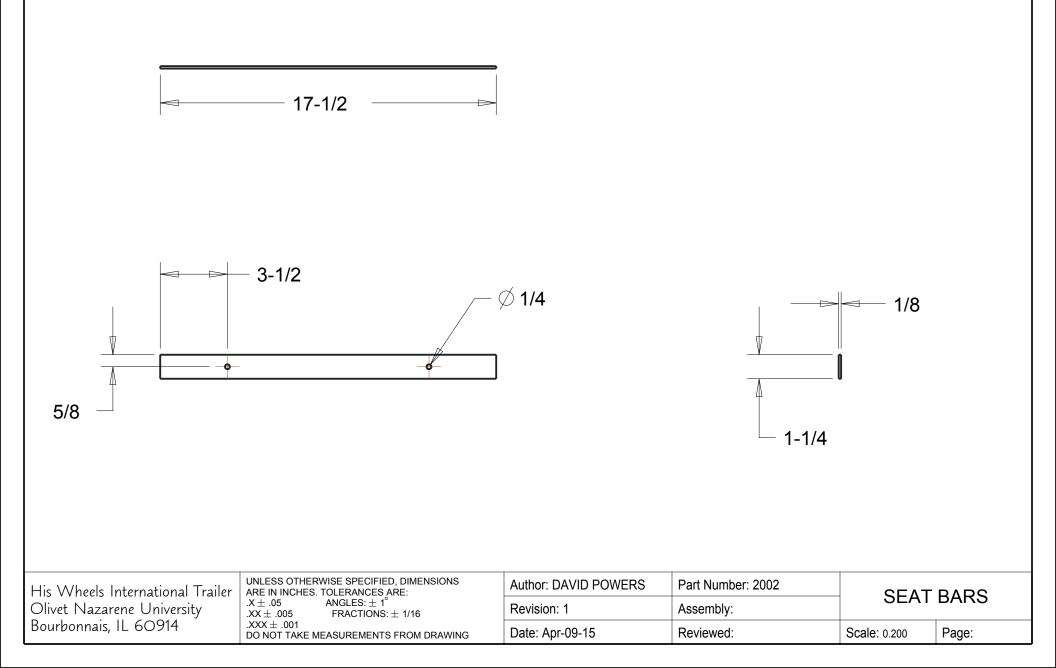
5	FUL	L TRAY
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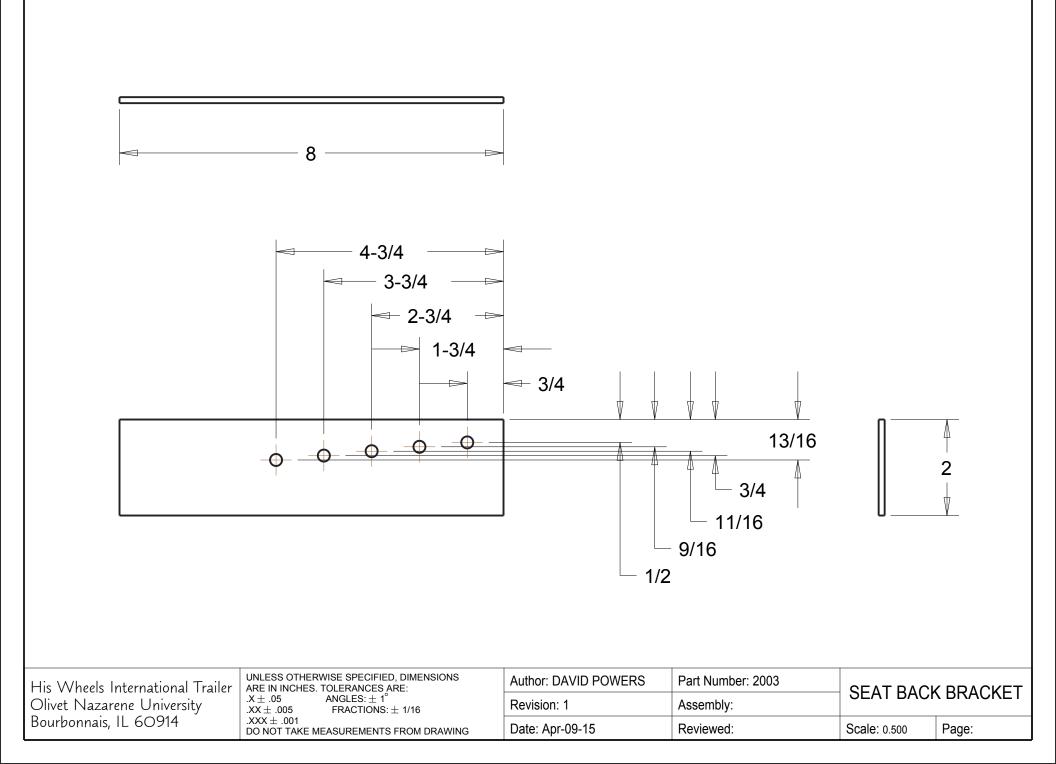
Back-Seat Part Index

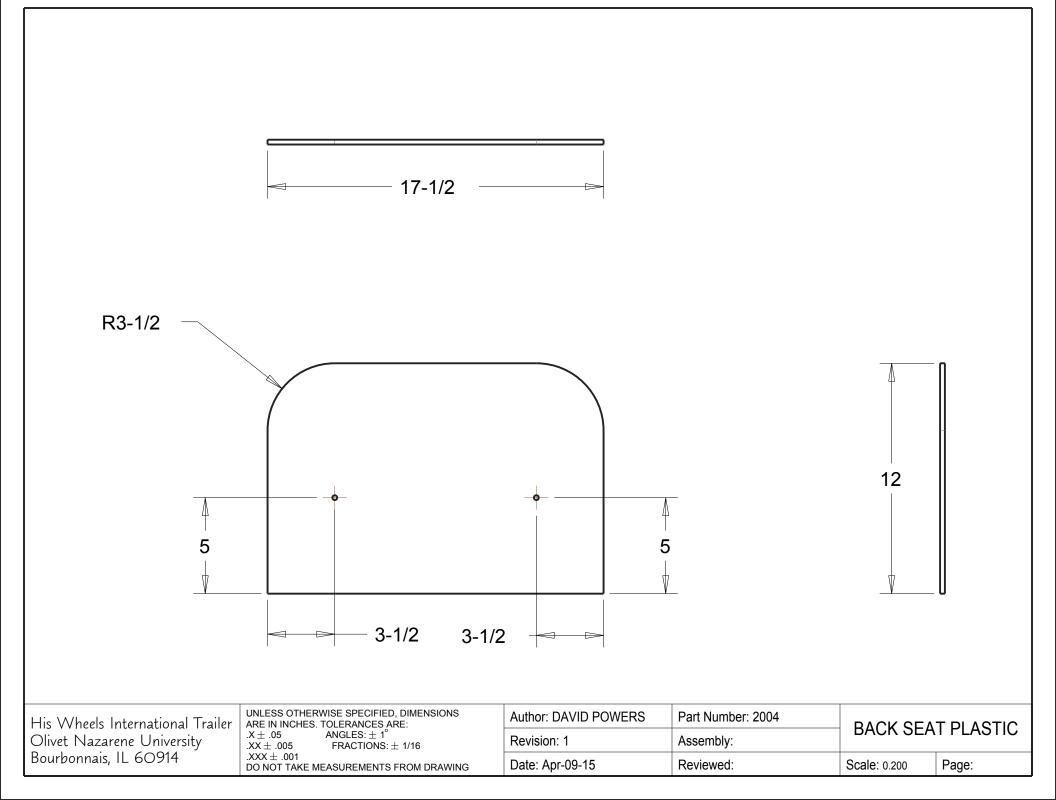
Back Seat Parts List					
REVISION	DONE	Name	Part #	# of Parts	
х	x	Seat Back Frame	2001	1	
х	x	Seat Bars	2002	1	
х	x	Seat Back Bracket	2003	1	
x	x	Back Seat Plywood	2004	1	
х	x	Full Back Seat	2005	1	

Full Back Seat			
Name	Part #	# of Parts	
Seat Back frame	2001	1	
Seat Bars	2002	1	
Seat Back Bracket	2003	1	
Back Seat Plywood	2004	1	



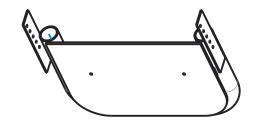


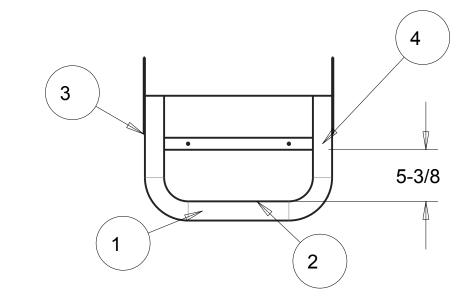


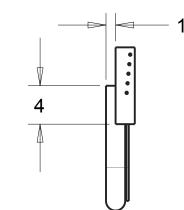


ITEM NO	PART NUMBER	QTY	DESCRIPTION
1	BACK-SEAT-PLASTIC	1	back-seat-plastic.prt
2	SEAT-BACK	1	seat-back.prt
3	SEAT-BACK-BRACKET	2	seat-back-bracket.prt
4	SEAT-BARS	1	seat-bars.prt









His Wheels International Trailer	UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE:	Author: DAVID POWERS	Part Number: 2005	FULL BACK SEAT	
Olivet Nazarene University	vet Nazarene University IX ± .05 ANGLES: ± 1° .XX ± .005 FRACTIONS: ± 1/16		Assembly:	FULL DACK SEAT	
Bourbonnais, IL 60914 .xxx ± .001 DO NOT TAKE MEAS	.XXX \pm .001 DO NOT TAKE MEASUREMENTS FROM DRAWING	Date: Apr-09-15	Reviewed:	Scale: 0.100	Page: