

SAE INTERNATIONAL

FORMULA SAE SERIES

COST MODULE GUIDE V.4

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COMMON MISTAKES

- Process “Lamination Manual” is needed for every individual layer CR.7.1.1
- Not following rules supplement section CL.4, CL.5, CL.6
- Improper raw material cost: 1mm added to outside and is not hollow (example gun drilled axles are not tubes). The only time tubing should be used as raw material is if it is a common tube size and common material. CR.1.2.b, CR.4.1, CR.4.4
 - You can only forgo the 1mm added dimension if the part shows up to competition with a mill formed surface
- Wheel bearings and suspension rod ends have their own special parts
- Using “Weld round tubing” improperly (read process description)
- Monocoque Production Volume Factor (PVF) is always 120
- Forgetting the reaction tool when a counterforce is needed to install a fastener
- Using “Connector, Single Wire” for multiple pin connectors. This is for single pin connectors as noted in its description

SUPPORTING DOCUMENTATION

- Drawings are absolutely critical to document how parts are made.
- Drawings and images are an integral part of the cost accuracy score.
- Drawings should have enough details to sufficiently verify part costing.
 - Material type
 - Dimensions to sufficiently assess
 - Raw material size
 - Finished material size
 - Material removal
 - Tooling size or quantity

WHERE TO ATTACH DRAWINGS

- **NOTE currently drawings need to be attached 1 page at a time in order to properly export to pdf report**
- Assemblies: Attach an assembly drawing, CAD rendering, CAD rendering exploded view or actual picture of the assembly on the same page as the assembly
- Parts: Attach a drawing (preferred) or CAD picture or actual picture(bought parts) of the individual part in the same page that makes the part
- Note that only .pdf, .jpeg file types will export images to the exported pdf report.
- Be careful not to make the file sizes too large

WHERE TO ATTACH
DRAWINGS

Vehicle Views

Vehicle Systems page
should have the same
drawing views as the
design report

Vehicle Systems

System	System Cost	Actions
Brake System	\$951.69	Manage Assemblies
Engine & Drivetrain	\$2,375.60	Manage Assemblies
Frame & Body	\$5,887.44	Manage Assemblies
Instruments, Wiring & Accessories	\$4,694.00	Manage Assemblies
Miscellaneous, Safety, Finish and Assembly	\$181.79	Manage Assemblies
Steering System	\$177.66	Manage Assemblies
Suspension & Shocks	\$2,350.48	Manage Assemblies
Wheels, Wheel Bearings & Tires	\$2,019.51	Manage Assemblies

Attachments

Title	Type	Actions
FRONT_VIEW	Drawing	Download Delete
SIDE_VIEW	Drawing	Download Delete
TOP_VIEW	Drawing	Download Delete

All types of file attachments under 25MB are allowed; however, only PDF and JPEG file types in Engineering Drawings & Photos will be included in the PDF report.

Upload Attachment

File	<input type="text" value="Choose File"/> No file chosen	Title	<input type="text"/>
Type	<input type="text" value="Engineering Drawing (PDF or JPC)"/>	<input type="button" value="Upload"/>	

RAW MATERIALS

- Label material dimensions when possible in “Use”
 - One exception would be near net shape parts such as 3d printed and castings
- Sheet thickness should always be noted
- Sheet area should be listed especially if it is CAD modeled
- Tubing can easily list diameter, wall thickness and length

TUBING

Cutting tubes:

- All tubes need at least 1 cut (assume it is cut from full length stock)
Process multiplier repeat can be used on tubes of same diameter in the same assembly
- All complex shape tube ends that get welded need surface prep for welding

Welding tubes:

- Weld round tubing is intended for butt welded custom tube welding that would be difficult to use welding jigs such as exhaust manifolds. Tooling is not required.
- Spaceframe tubing should use Weld and be cost per linear distance of weld. Tooling “Welds-Welding Fixture” must be used.

OP NUMBER

- OP number is purely for organizing purposes and teams can use any way they want.
 - For example if multiple parts are in the same assembly the OP numbers can be numbered in a way to show relationships between different processes
 - One part is 10.1, 10.2, 10.3 etc.
 - Another part could be 20-1, 20-2, 20-3 etc.
- Fasteners and installation processes should be with the part itself
 - Ex. the control arm bolts and installing the bolts should be listed on the control arm page

FRONT LOWER CONTROL ARM - EXAMPLE













- **Lower control arm**

- Parts
 - Machined components in parts
 - Control arm tubes in parts
- Materials
 - Rod end, Suspension
 - Bearing, Spherical
- Process
 - Weld
 - Assembly of control arm itself (install rod ends and bearing)
 - Assembly of control arm to vehicle (This could also be put in a different assembly page)
 - Hand start
 - Ratchet
 - Reaction tool
- Fasteners
 - Bolt
 - Nut
 - Washer
- Tools
 - Welds-Welding Fixture
- Attachments
 - Drawing(s) of control arm assy
 - Drawing(s) of individual machined components

FRONT LOWER CONTROL ARM – EXAMPLE

Materials

Materials

	Material	Use	Op Num	Size 1	Size 2	Area Name	Area	Length	Density	Quantity	Unit Cost	Subtotal	
↕1	Tubing, Steel	Front Lower A-Arm Tubes 0.75" x 0.035" x 1m length	10	0.398 kg						1	0.8955	0.90	 
↕2	Steel, Mild (per kg)	Front Lower A-Arm Inserts 21mmDia x 20mmLong	20	0.054 kg						2	0.1215	0.24	 
↕3	Steel, Mild (per kg)	Spherical Housing 32mmDia x 16mm Long	30	0.1 kg						1	0.225	0.22	 
↕4	Steel, Mild (per kg)	Gusset	40	0.026 kg						1	0.0585	0.06	 
↕5	Rod End, Suspension	Rod Ends 1/4"	50	6.35 mm						2	7.0161	14.03	 
↕6	Bearing, Spherical	Front Lower A-Arm Bearing 3/8" ID	60	9.54 mm						1	7.7303	7.73	 

 Add Material

Subtotal \$23.18

Tubing dimensions listed in description. List the length of tubing when possible.

Machined part raw materials are solid round bar with 1mm added to all surfaces.

All material dimensions are listed.

FRONT LOWER CONTROL ARM – EXAMPLE

Processes

Processes

	Process	Use	Op Num	Quantity	Multiplier	Mult. Val.	Unit Cost	Subtotal		
↑1	Tube cut	Cut Front Lower A-Arm Tubes	10-1	1.9	Repeat 2	2	0.15	0.57		
↑2	Tube end preparation for welding	Prepare Front Lower A-Arm Tubes for Welding	10-2	4		1	0.75	3.00		
↑3	Machining Setup, Install and remove	Front Lower A-Arm Inserts, Self-Feeding Lathe, 2 per Lower A-arm. 8 inserts per vehicle	20-1	0.1		1	1.3	0.13		
↑4	Machining	Front Lower A-Arm Inserts outer dimensions, quantity=2	20-2	3.32	Material - Steel	3	0.04	0.40		
↑5	Drilled holes < 25.4 mm dia.	Front Lower A-arm insert, 1/4"-28 tap drill hole, .75" hole length (< 4x diameter)	20-3	2		1	0.35	0.70		
↑6	Tapping holes	Front Lower A-Arm insert, 1/4"-28 tap, .75" hole length (< 4x diameter)	20-4	2		1	0.35	0.70		
↑7	Machining Setup, Install and remove	Spherical Housing, Self-Feeding Lathe, 1 per lower A-arm, 10 parts can be made from 1 bar stock	30-1	0.1		1	1.3	0.13		
↑8	Machining	Spherical housing, quantity =1	30-2	5.5	Material - Steel	3	0.04	0.66		
↑9	Machining Setup, Install and remove	Install gusset sheet metal onto laser cut machine, 10 gussets can be cut from 1 sheet	40-1	0.1		1	1.3	0.13		
↑10	Laser Cut	Gusset	40-2	24.745	Material - Steel	3	0.01	0.74		
↑11	Weld	TIG Weld Front Lower A-Arm Tubes, Inserts and spherical housing	70-1	52.25		1	0.15	7.84		
↑12	Weld	TIG Weld Gusset to Front Lower A-Arm Tubes	70-2	18.559		1	0.15	2.78		
↑13	Assemble, 1 kg, Interference	Press Fit Spherical Bearing into A-Arm spherical bearing housing	60-1	1		1	0.19	0.19		
↑14	Assemble, 1 kg, Line-on-Line	Install spherical bearing retaining ring	60-2	1		1	0.13	0.13		
↑15	Assemble, 1 kg, Loose	Loose Install jamb nut onto Rod End	50-1	1		1	0.06	0.06		
↑16	Assemble, 1 kg, Loose	Fasten Rod Ends into Front Lower A-Arm Inserts	50-2	2		1	0.06	0.12		

Processes section contains the processes for making several different parts of the assembly.

This is ok as long as the processes are labeled.

Fastener installation processes are in the same Assembly BOM location as the fasteners

FRONT LOWER CONTROL ARM – EXAMPLE Fasteners & Tooling

Make sure to put a number in Fraction Incl. Usually 1 unless the tooling is used on multiple parts.

Only PDF and JPEG files export to PDF

Type must be set to Engineering Drawing (PDF or JPG)

Drawing or picture of the CAD assembly model.
Drawings of individual machined parts.
PDF or JPEG

Fasteners

Fastener	Use	Op Num	Size 1	Size 2	Quantity	Unit Cost	Subtotal	
↑ Retaining Ring, Spiral	Retain Spherical Bearing		25.4 mm		1	0.154	0.15	
↓ Nut, Grade 8.8 (SAE 5)	jamb nut for 1/4" rod ends		6.35 mm		2	0.032	0.06	
							Subtotal	\$0.21

[+ Add Fastener](#)

Tooling

Tooling	Use	Op Num	Quantity	PVF	Fraction Incl.	Unit Cost	Subtotal	
↑ Welds - Welding Fixture	TIG Weld Front Lower A-Arms, tubes, spherical housing, gusset	10	5	3000	1	500	0.83	
							Subtotal	\$0.83

[+ Add Tooling](#)

Browse the Current Cost Catalog Tables

[Materials](#) [Fasteners](#) [Processes](#) [Processes Multipliers](#) [Tooling](#)

Attachments

Title	Type	Actions
A_ARM_ROD_END_INSERT	Drawing	
A_ARM_SPHERICAL_HOUSING	Drawing	
FRONT_LOWER_A_ARM_ASSY	Drawing	

Upload Attachment

File: No file chosen

Title:

Type:

All types of file attachments under 25MB are allowed; however, only PDF and JPEG file types in Engineering Drawings & Photos will be included in the PDF report.

Only PDF and JPEG will export to the PDF cost report.

Save & Close

MAKE SURE TO SAVE AND CLOSE!!

Frame Assembly typically consists of the Tube frame, Monocoque, any permanent attachments and fasteners that join any sub frames

- Frame assembly
 - Parts
 - Tube Frame
 - Tube Frame weld on attachment brackets
 - Monocoque
 - Monocoque permanent attachments (example: bonded on components)
 - Materials
 - Paint for rust prevention
 - Process
 - Aerosol or brush apply for paint
 - Any process to connect the frame sub assemblies together
 - Fasteners
 - Any fasteners that connect the frame sub assemblies together
 - Tools
 - Welds-Welding Fixture
 - Lamination – Mold Tool for Monocoque with PVF of 120
 - Attachments
 - Drawing or picture of CAD model of the assembly
 - The same drawing(s) submitted for SES with tubes labeled by thickness and color coded.

Tube Frame Assembly typically consists of the Tubing (welded on tabs could also be included)

- Tube Frame
 - Parts
 - Probably none but parts are allowed
 - Materials
 - Tubing (separate each individual size)
 - Process
 - Tube cut (separate operation for each tube diameter)
 - Tube bends
 - Tube end preparation for welding (usually 2x tube cut)
 - Weld
 - Fasteners
 - Probably none but it is allowed
 - Tools
 - Welds-Welding Fixture
 - Attachments
 - Drawing or CAD picture which should identify tube sizes

Monocoque typically consists of composite materials and inserts

(This also applies to most composite parts)

- Monocoque
 - Parts
 - Probably none but parts are allowed
 - Materials
 - Composite raw materials
 - Insert raw material
 - Process
 - Lamination, Manual
 - Curing
 - Hand Finishing
 - Assembly
 - Cutting holes
 - Fabrication of inserts
 - Installing inserts
 - Fasteners
 - Probably none but it is allowed
 - Tools
 - Lamination- Mold Tool (PVF=120 for the monocoque)
 - Attachments
 - Drawing or CAD picture should identify layers and thicknesses
 - Should match the SES (SES documentation can also be used)

REAR SUBFRAME – EXAMPLE

- This example is of a rear subframe that would attach to a front monocoque (not pictured)
- Rear subframe has been divided into 2 parts to more easily organize (could be 1 part).

	Part	Part #	Op Num	Part Cost	Quantity	Subtotal	
↑1	Rear Tube Frame	31000-AA	10	223.52	1	223.52	  
↑2	Frame Tabs	31001-AA	20	174.03	1	174.03	  

REAR SUBFRAME – EXAMPLE

Tube Frame

Each tube size cost separately.

Tube size and length listed.













Each tube cut diameter cost separately.

CAD model or drawing of the tube frame assembly (should identify tube sizes)



Materials

	Material	Use	Op Num	Size 1	Size 2	Area Name	Area	Length	Density	Quantity	Unit Cost	Subtotal	
↑1	Tubing, Steel	Round 0.75" x 0.035" x 46"	10	0.471 kg						1	1.0598	1.06	 
↑2	Tubing, Steel	Round 1" x 0.035" x 63"	20	0.8824 kg						1	1.9854	1.99	 
↑3	Tubing, Steel	Round 1" x 0.049" x 232"	30	4.3595 kg						1	9.8089	9.81	 
↑4	Tubing, Steel	Round 1" x 0.065" x 78"	40	1.9417 kg						1	4.3688	4.37	 
↑5	Tubing, Steel	Round 1" x 0.095" x 116"	50	4.0659 kg						1	9.1483	9.15	 

Processes

	Process	Use	Op Num	Quantity	Multiplier	Mult. Val.	Unit Cost	Subtotal	
↑1	Tube bends	DOM Bend Frame Tubes	10	16		1	0.75	12.00	 
↑2	Tube cut	0.75" Tubing	20	1.905	Repeat 6	6	0.15	1.71	 
↑3	Tube cut	1" Tubing	30	2.54	Repeat 28	28	0.15	10.67	 
↑4	Tube end preparation for welding	Prepare Frame Tubes for Welding	40	68		1	0.75	51.00	 
↑5	Weld	TIG Weld 0.75" Tubing for Frame	50	45.72		1	0.15	6.86	 
↑6	Weld	TIG Weld 1" Tubing for Frame	60	726		1	0.15	108.90	 

Tooling

	Tooling	Use	Op Num	Quantity	PVF	Fraction Incl.	Unit Cost	Subtotal	
↑1	Welds - Welding Fixture	Tube Frame weld fixture, no tabs		36	3000	1	500	6.00	 

REAR SUBFRAME – EXAMPLE

Frame Tabs Materials

Materials

	Material	Use	Op Num	Size 1	Size 2	Area Name	Area	Length	Density	Quantity	Unit Cost	Subtotal		
↑1	Steel, Alloy (per kg)	Body Tabs .050" thick	10-2	0.0039 kg						7	0.0088	0.06		
↑2	Steel, Alloy (per kg)	Side Wall Tab .050" thick	10-3	0.0048 kg						16	0.0108	0.17		
↑3	Steel, Alloy (per kg)	Sensors and Electronics Tabs .050" thick	10-4	0.0028 kg						2	0.0063	0.01		
↑4	Steel, Alloy (per kg)	Starter Relay and Connector Base Mount .050" thick	10-5	0.0167 kg						1	0.0376	0.04		
↑5	Steel, Alloy (per kg)	Bell Crank Tab .080" thick	20-2	0.0205 kg						4	0.0461	0.18		
↑6	Steel, Alloy (per kg)	Damper Tab .080" thick	20-3	0.0144 kg						4	0.0324	0.13		
↑7	Steel, Alloy (per kg)	Air Tank Tabs .080" thick	20-4	0.0158 kg						2	0.0356	0.07		
↑8	Steel, Alloy (per kg)	Rear ARB Tab .080" thick	20-5	0.027 kg						2	0.0608	0.12		
↑9	Steel, Alloy (per kg)	Rear Wing Mounting Tabs .080" thick	20-6	0.0044 kg						8	0.0099	0.08		
↑10	Steel, Alloy (per kg)	Marriage Tabs .080" thick	20-7	0.046 kg						2	0.1035	0.21		
↑11	Steel, Alloy (per kg)	A-Arm Tab	20-8	0.0158 kg						16	0.0356	0.57		
↑12	Steel, Alloy (per kg)	Differential Tab .0125" thick	30-2	0.0103 kg						4	0.0232	0.09		
↑13	Steel, Alloy (per kg)	Bottom Engine Tab .0125" thick	30-3	0.0213 kg						2	0.0479	0.10		
↑14	Steel, Alloy (per kg)	Jacking Bar Tabs .0125" thick	30-4	0.0045 kg						8	0.0101	0.08		

Each tab is labeled individually with material thickness noted.

Op numbers used to distinguish thicknesses

REAR SUBFRAME – EXAMPLE

Frame Tabs Processes

Processes

	Process	Use	Op Num	Quantity	Multiplier	Mult. Val.	Unit Cost	Subtotal		
↕1	Machining Setup, Install and remove	Install .050" thick material into laser cutter	10-1	1		1	1.3	1.30		
↕2	Laser Cut	Body Tabs	10-2	17.71	Material - Steel	3	0.01	0.53		
↕3	Laser Cut	Side Wall Tab	10-3	221.76	Material - Steel	3	0.01	6.65		
↕4	Laser Cut	Sensors and Electronics Tabs	10-4	55.92	Material - Steel	3	0.01	1.68		
↕5	Laser Cut	Starter Relay and Connector Base Mount	10-5	24.77	Material - Steel	3	0.01	0.74		
↕6	Machining Setup, Install and remove	Install .080" thick material into Laser cutter	20-1	1		1	1.3	1.30		
↕7	Laser Cut	Bell Crank Tab	20-2	49.24	Material - Steel	3	0.01	1.48		
↕8	Laser Cut	Damper Tab	20-3	40.8	Material - Steel	3	0.01	1.22		
↕9	Laser Cut	Air Tank Tabs	20-4	49.6	Material - Steel	3	0.01	1.49		
↕10	Laser Cut	Rear ARB Tab	20-5	41.18	Material - Steel	3	0.01	1.24		
↕11	Laser Cut	Rear Wing Mounting Tabs	20-6	115.84	Material - Steel	3	0.01	3.48		
↕12	Laser Cut	Marriage Tab	20-7	60.6	Material - Steel	3	0.01	1.82		
↕13	Laser Cut	A-Arm Tab	20-8	251.2	Material - Steel	3	0.01	7.54		
↕14	Machining Setup, Install and remove	Install .125" thick material into laser cutter	30-1	1		1	1.3	1.30		
↕15	Laser Cut	Differential Tab	30-2	44.2	Material - Steel	3	0.01	1.33		
↕16	Laser Cut	Bottom Engine Tab	30-3	33.94	Material - Steel	3	0.01	1.02		
↕17	Laser Cut	Jacking Bar Tabs	30-4	88.4	Material - Steel	3	0.01	2.65		
↕18	Weld	TIG Weld Tabs to Tube Frame	40	750.1		1	0.15	112.52		

1 machine setup process is used per thickness since the raw material weight can be moved by 1 operator.

The other option would be to cost the machine setups for each part but amortize based on how many pieces could be handled together

REAR SUBFRAME – EXAMPLE

Frame Tabs Tooling & Drawings

Each tab needs locating tooling

Quantity needs to match how many tabs you have on the car

Drawings of every tab, photos of every tab on the car, or a CAD model showing tabs on tube frame

Tooling

Tooling	Use	Op Num	Quantity	PVF	Fraction Incl.	Unit Cost	Subtotal
↕1 Welds - Welding Fixture	TIG Weld Tabs to Tube Frame	40	80	3000	1	500	13.33

+ Add Tooling

Subtotal \$13.33

Browse the Current Cost Catalog Tables

Materials



Fasteners

Processes

Processes Multipliers

Tooling

Attachments

Title	Type	Actions
FRAME_TABS	Drawing	 

Upload Attachment

File

Choose File No file chosen

Title

Type

Engineering Drawing (PDF or JPc)

Upload

All types of file attachments under 25MB are allowed; however, only PDF and JPEG file types in Engineering Drawings & Photos will be included in the PDF report.











UNDERTRAY– EXAMPLE Materials


Composite material cost mass must match the actual part mass.

Different types of Carbon for different pieces of overall assembly

Uses and specifications of the materials are listed in Use

Materials

	Material	Use	Op Num	Size 1	Size 2	Area Name	Area	Length	Density	Quantity	Unit Cost	Subtotal	
↑1	Carbon Fiber, 1 Ply	1 Top & 1 lower Layer Plain weave Carbon Fiber (5.7oz prepreg)	40	0.35 kg					1580 kg/m ³	2	70	140.00	 
↑2	Carbon Fiber, 1 Ply	1 top & 1 lower layer Unidirectional Carbon fiber (4.3oz prepreg)		0.34 kg					1580 kg/m ³	2	68	136.00	 
↑3	Aramid (Kevlar) Fiber, 1 Ply	Structural reinforcements plain weave fiber (5.4oz prepreg)	10	0.24 kg					1420 kg/m ³	1	36	36.00	 
↑4	Structural Foam	Undertray Core .125" thick 4lb density	20	0.27 kg						1	33.75	33.75	 
↑5	Edge protection	Protect All Sharp Edges		2 m						1	6	6.00	 

 Add Material


Subtotal \$351.75


UNDERTRAY– EXAMPLE Processes

No process is needed for cutting of uncured composite raw materials

Use “Hand Finish-Material Removal” or similar process for post processing including sanding and cutting excess

Processes

	Process	Use	Op Num	Quantity	Multiplier	Mult. Val.	Unit Cost	Subtotal	
↕1	Lamination, Manual	Layup Carbon Fiber		1.35	Repeat 4	4	35	189.00	 
↕2	Lamination, Manual	Layup core		1.35		1	35	47.25	 
↕3	Lamination, Manual	Layup Kevlar Fiber reinforcements		0.6		1	35	21.00	 
↕3	Cure, Autoclave	Cure Undertray		1.35		1	50	67.50	 
↕4	Hand Finish - Material Removal	Post process by sanding edges		1.5		1	0.2	0.30	 
↕5	Drilled holes < 25.4 mm dia.	Drill mounting holes		4		1	0.35	1.40	 
↕6	Assemble, 1 kg, Interference	Install 2 pieces of edge protector		2		1	0.19	0.38	 

 Add Process

Subtotal \$326.83

UNDERTRAY– EXAMPLE Tooling and Attachments

Include multiple “Mold Tools” as required.
 (“flat panel” tool for flat pieces and “mold tool” for contoured shapes.

Use “Hand Finish-Material Removal” or similar process for post processing including sanding and cutting excess

Include a drawing detailing part dimensions
 Pictures of the completed or in work part are also helpful

Tooling

Tooling	Use	Op Num	Quantity	PVF	Fraction Incl.	Unit Cost	Subtotal
↕1 Lamination - Mold Tool	Undertray Mold		1.35	3000	1	20000	9.00

+ Add Tooling

Subtotal \$9.00

Browse the Current Cost Catalog Tables

Materials

Fasteners

Processes

Processes Multipliers

Tooling

Attachments

Title	Type	Actions
FINISHED UNDERTRAY	Photo	↓ 🗑️
UNDERTRAY_LAYUP	Drawing	↓ 🗑️

Upload Attachment

File	<input type="text" value="Choose File"/> No file chosen	Title	<input type="text"/>
Type	<input type="text" value="Engineering Drawing (PDF or JPG)"/> ▼	<input type="button" value="Upload"/>	

All types of file attachments under 25MB are allowed; however, only PDF and JPEG file types in Engineering Drawings & Photos will be included in the PDF report.

WIRING

- Cut wire
- Strip wire
- Attach wire
 - Crimp on connector or connector pin
 - Install connector pins into multi pin connector
- Bundle wires
 - Tape, heat shrink tubing,
- Lay wires
- Secure wires
- Connect connectors and wire ends
 - Attach single wire ends to terminal blocks, terminal posts, lugs etc.
 - Join connectors

SUBMIT eAIR

Teams entering any international competition prior to competitions in North America must first inquire with those organizing bodies via their process found online their competition websites.

With the online question and answer system teams should submit requests for additional items to be added to the cost tables through the Rules Q&A system.

To find out how to do this follow this [link](#). However, you must include documentation to support the retail price for the item or we will not be able to add it to the tables.

[Excel format AIR](#) - please attach to the online submission through the Rules Q&A system

GENERAL RULES QUESTION

With the online question and answer system teams should submit inquiries regarding the rules or onsite operations via the Rules Q&A system.

To find out how to do this follow this [link](#).

HOW TO TURN IN YOUR COST REPORT

Start at the main page for the Online Cost Report System.

Note the Title of the Vehicle you intend to turn in. The BOM should be completed and all supporting drawings/photos attached at the appropriate levels within the BOM by this point.

In the Manage Competitions section, click the “Submission Workflow” button for the appropriate competition

The screenshot displays the 'Your University : Your Team' dashboard. The 'Manage Vehicles' section features a table with columns for Vehicle Title, Date Created, Last Modified, Total Cost, and Actions. Two vehicles are listed: '2019 Car' and '2018 Car'. The '2019 Car' has a total cost of \$21,576.64 and was last modified on 3/18/2019. The '2018 Car' has a total cost of \$13,556.13 and was last modified on 3/31/2018. Each vehicle entry has a 'Manage Cost Report' button and 'Export/Print' and 'Other Actions' dropdown menus. A 'Create a New Vehicle' button is located in the top right corner of this section.

The 'Manage Competitions' section features a table with columns for Registered Competition, Car Number, Report Due, Cost Report Status, and Actions. One competition is listed: 'Formula SAE Michigan 2020' with Car Number 123 and Report Due on 3/30/2020. The 'Cost Report Status' is 'Not Submitted', and the 'Actions' column contains a 'Submission Workflow' button. A blue arrow points from the 'Submission Workflow' button to a text box on the left.

Below the 'Manage Competitions' section is a 'Browse the Current Cost Catalog Tables' section with buttons for Materials, Fasteners, Processes, Processes Multipliers, and Tooling.

HOW TO TURN IN YOUR COST REPORT

This page walks you through all steps for turning in your cost report for the competition you selected.

First, choose which Vehicle (BOM) will be submitted to this competition

NOTE: Many teams who are attending more than one competition will select the same vehicle here for each competition. That is OK, but in that case, submitting the electronic report for any competition submits it to ALL competitions because the vehicle is shared among them. You still need to export and turn in eBOMs for each competition individually and this page helps ensure that you have done that.

Next, click the Submit Now button.

New in 2020, immediately after you click Submit Now, the system will automatically begin generating a PDF version of your report that will be available to both your team and the cost judges. Therefore, **YOU DO NOT NEED TO UPLOAD A PDF REPORT** before the due date any longer. Your team will get an email as soon as your PDF has finished and is available.

Vehicle Report Submission Walkthrough

Submit Electronic Report

1. Assign Vehicle

2019 Car- As Built

Completed by , on 11/15/2019 12:45:23 AM

2. Submit Report

Submit Now

Not Done

PDF Status

Click "Submit Now" to generate a PDF report.

HOW TO TURN IN YOUR COST REPORT

You have now completed the Submission Workflow for the selected competition.



New in 2022, there is no longer a need to export an eBOM Excel document and turn it in. The electronic report is now the only submission.

Vehicle Report Submission Walkthrough

Submit Electronic Report

1. Assign Vehicle

2019 Car- As Built

Completed by Your Team Member, on 11/15/2019 12:45:23 AM

2. Submit Report

Completed by Your Team Member, on 11/15/2019 12:45:23 AM

PDF Status

Processing... You will receive an email when complete.

HOW TO TURN IN YOUR COST REPORT

IF ATTENDING MULTIPLE NORTH AMERICAN COMPETITIONS, your team must repeat this Submission Workflow process for each competition listed in the Manage Competitions section!

Your University : Your Team

Manage Vehicles

Create a New Vehicle

Vehicle Title	Date Created	Last Modified	Total Cost	Actions
2019 Car	11/20/2018 6:34:09 PM	3/18/2019 12:33:00 AM	\$21,576.64	Manage Cost Report Export/Print Other Actions
2018 Car	3/26/2018 5:58:00 PM	3/31/2018 3:36:51 PM	\$13,556.13	Manage Cost Report Export/Print Other Actions

Manage Competitions

Registered Competition	Car Number	Report Due	Cost Report Status	Actions
Formula SAE Michigan 2020	123	3/30/2020 12:00:00 AM EST	Submitted On-Time	Submission Workflow
Formula SAE North 2020	134	3/30/2020 12:00:00 AM EST		Submission Workflow
Formula SAE California 2020	145	3/30/2020 12:00:00 AM EST		Submission Workflow

Browse the Current Cost Catalog Tables

[Materials](#) [Fasteners](#) [Processes](#) [Processes Multipliers](#) [Tooling](#)

HOW TO TURN IN YOUR COST REPORT

When following the Submission Workflow for a second or third competition for the season,

IF you select a vehicle that has already been “Submitted” for another competition, steps 1 and 2 will already show as completed. This is normal.

Vehicle Report Submission Walkthrough

Submit Electronic Report

1. Assign Vehicle

2019 Car- As Built

2. Submit Report

View

PDF Status

Click "Submit Now" to generate a PDF report.



Completed by Your Team Member, on 2/25/2020 9:22:14 PM



Completed by Your Team Member, on 2/25/2020 9:22:14 PM

SAE CONTACT

With all other inquiries you may email collegiatecompetitions@sae.org.

Be sure to include the following in your email:

1. Full university name
2. Team Name and Car Number
3. Competition registered for
4. Purpose of email