**PISTON CUP ROLL CAGE SPECIFICATION SHEET**

SCHOOL NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TEAM NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 CAR NUMBER \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (to be filled out when you arrive for competition)

**NOTE**: **This sheet MUST be completed and submitted by the competition rules. Failure to do so will result in a penalty.**

**PURPOSE:** **The purpose of this sheet is to facilitate verification of the proper fuel system and to provide a safety standard for the competition events**.

1. Academic year the cage was constructed? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Material Type (i.e.: 4130): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_OD: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Thickness: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Primary Welder: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Welding Method Used: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Type of Filler Material: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Shielding Gas Used: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Equivalency calculations if needed (attach to this sheet).

5. All welds and/or other attachment methods must be checked for integrity. Faculty advisor and team captains are requested to do destructive testing on sample joints that represent the integrity of similar welds on their frame.

6. Have any welds been grounded/sanded or modified? \_\_\_\_\_\_\_\_\_\_\_

7. Maximum length of straight members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Maximum bend of bend members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Are all junctions of Primary and Secondary members between 51 mm of the Named Point? \_\_\_\_\_\_\_\_\_\_\_\_\_

10. Minimum wall thickness of Secondary members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Minimum outside diameter of Secondary members: \_\_\_\_\_\_\_\_\_\_\_\_\_

12. Minimum length of Lateral Cross members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. Width of RRH measured 686 mm (27 in.) above the inside seat bottom: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. Are all vertical members continuous tubes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. Distance of top and bottom intersections of LDB and RRH vertical members from points A and B: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. Angle between LDB and RRH vertical members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. Distance of Points CR and CL forward of the intersection of the RHO members and a vertical line rising from the aft of the seat bottom: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. Height of points CR, CL, BR and BL above the seat: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. Lengths of SIM members above the inside seat bottom: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. Are the feet of the driver behind the plane defined by points FR, L and DR, L? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. Are all FBMs continuous tubes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. Angle between FBMUP and the vertical: \_\_\_\_\_\_\_\_\_\_

23. Are the total weld lengths of all gussets two times the tubing circumference? \_\_\_\_\_\_\_\_\_\_\_\_\_

24. Maximum length of members for FAB systems: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. Triangulation angles (projected to the side view) between members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

26. Distance of the intersection of the Front Systems of FAB with the FBMUP members from the centerline of Point C

27. Do the rear systems of FAB create a structural triangle? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

28. Are the members of this structural triangle continuous? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

29. Distances of the rear system FAB from Points B, S and A on each side of the vehicle: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30. Angle of members connecting to Point A: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

31. Length of LC joined to the aft vertex of each rear bracing triangle: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

32. Are welded roll cage member tubes at an angle of greater than 5 degrees reinforced with a welding sleeve? \_\_\_\_\_\_\_\_\_\_\_

33. Are the lengths of all sleeves two times the diameter of the tubes being reinforced? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

34. Diameter of holes for rosette welds: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

35. Length of linear weld to secure the sleeve inside the joint: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

36. Has each team member who has made any welding joint on the roll cage submitted two welding samples using the same material and processes as the roll cage welds? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

37. Does the material used for Primary Roll Cage Members and bracing meet the requirements outlined in Section B.3.2.16? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

38. Is the documentation of equivalency complete? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

39. Clearance of driver’s helmet: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

40. Clearance of driver’s shoulders, torso, hips, thighs, knees, arms, elbows and hands: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

41. Clearance of driver’s helmet from members at the top of the roll cage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

42. Is the entire vehicle free from any and all sharp edges? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

43. Do the bolted roll cage joints follow the requirements outlined in Figure B-23? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

44. Are all drilled members reinforced with a weld-in sleeve according to Figure B-24? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Figure**

**B**

**-**

**24**

**:**



**Roll Cage,**

**Required sleeve for drilled holes**



45. Is the Roll Cage Documentation Package complete according to Section B.3.7.1? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

46. Has the Roll Cage Documentation Package been uploaded according to Section B.3.7.2? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date of inspection \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**NOTE: It is extremely important that such an inspection be made to ensure the welds have good penetration and joints are completely welded.**

**WE HAVE EXAMINED THE ABOVE INFORMATION AND TO THE BEST OF OUR KNOWLEDGE DEEM IT TO BE ACCURATE.**

 TEAM CAPTAIN \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (SIGNATURE) \_\_\_\_\_\_\_\_\_\_\_\_\_ (DATE)

FACULTY ADVISOR \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (SIGNATURE)

 \_\_\_\_\_\_\_\_\_\_\_\_\_ (DATE)