

## 2007 WRRF Robotics CalGames Competition - Inspection Check List

**Team No.** \_\_\_\_\_ **Robot Class** \_\_\_\_\_ (1 = 4' + 120lbs, 2 = 5' + 110lbs, 3 = 6' + 100lbs)

**Inspector** \_\_\_\_\_

Signature time/date printed name and initials

*\*signature above indicates that the robot has passed inspection*

CGRC – rule change for Calgames 2007

Item	PASS	DESCRIPTION	RULE	COMMENTS
1		<b>Size:</b> Must fit in sizing box (28" x 38" x class height), bumpers removed, robot must be in largest starting config, no bicycle flag, decorations present	R07-R11, R107, R114	
2		<b>Weight:</b> Must weigh no more than permitted given robot class	R07	
4		<b>Bicycle Flag:</b> Must have an appropriate holder with correct installed height. The flag needs to remain approximately vertical while the robot is in its PLAYING CONFIGURATION (the orientation of the robot beginning sometime soon after the start-of-match and for the remainder of the match).	R15	
7		<b>Safety and Wedges:</b> No sharp protrusions or edges that could harm players, field or tubes, no entanglement risks, no exposed pinch points, no wedge-shaped robot bases that may potentially affect other robots	R03-R06, R32	
9		<b>Logos:</b> School and sponsor logo and/or name must be clearly visible	R13	
10		<b>Team Number:</b> Must be clearly displayed on all 4 sides	R14	
12		<b>Interference Mechanisms:</b> Robot cannot include devices or decorations that may interfere with the vision systems of other robots	R33	
13		<b>Decorations:</b> Cannot affect match, cannot broadcast using wireless comm w/o clearance from <i>FIRST</i> Engineering, cannot employ 900MHz cameras	R108-R110	
19		<b>Tube Access:</b> tubes remaining in/on the robot at the end of match must be removable without powering-up the robot	G41	
22		Insulated 12V battery terminals with copper lugs from FCI Burndy bag or similar lugs. Confirm that the battery is securely fastened within the robot.	R57	

23		Battery connected to 120A main breaker via Anderson Quick-Disconnect connector. Main breaker and battery ground must be connected to the Rockwell power distribution block for driving breaker panels (refer to the FIRST power distribution diagram). Previous years distribution blocks from IFI are allowed to be used instead of the Rockell Block.	R57, R85, CGRG <RR4>	
24		<b>Accessibility:</b> 120A main circuit breaker, distribution breakers and RC are all accessible for inspection. In addition, the RC lights must be visible while standing 3' from front of the robot while in its STARTING CONFIGURATION.	R57, R68	
27		7.2V NiCad "backup" battery is connected to the Controller and, if desired, to the custom on-robot charging circuit R55-R56, R73 designed by IFI	R55- R56, R73	
29		Either a 20A, 30A or 40A circuit breaker must be used in series with each Victor 884 Speed Controller.	R59, R93, R97	
30		20A circuit breakers must be used to provide power to all Spike Relay Modules, the Air Compressor (if used), Custom Circuits, Additional Electronics and the Robot Controller. Multiple loads may be attached to each Spike Relay Module but only one motor per module is allowed. No other loads may be attached to the Circuit Breakers that provide power to the Robot Controller and Air Compressor.	R59, R93- R96, R98	
31		CIM and Fisher Price motors can only be connected to Victor 884 Speed Controllers (they cannot be connected to Spike Relay Modules). Motors can only be driven by one Victor (although a Victor can drive more than 1 motor).	R85, R91, R92	
32		Motors (other than Hitec servos and fans) must be wired to Spike Relay Modules or Victor 884 Speed Controllers. Solenoid valves and compressor (if used) must be wired to Spikes. Motors, valves and compressor <b>cannot</b> be wired directly to breakers or other devices for supplying power.	R85, R95	
36		No exposed electrical conductors and no electrical contact with robot metal chassis. No chassis parts used to carry electrical currents. Using an ohmmeter, confirm that the resistance between the chassis and each battery terminal is "large" (greater than 100k Ohms).	R58	
41		The manually operated pressure vent valve from the KOP must be present on the compressor output (if located on the robot) or Clippard tank(s) and be easily accessible.	R100, R103	
42		Must include pressure gauges on the Clippard accumulator(s) and all regulator outputs. Must use the Norgren adjustable regulator at compressor output ("post-accumulator(s)").	R100	

43		The Nason Co. pressure switch must be attached to the compressor output or Clippard tank(s) and be wired to the digital I/O port on the RC. The pressure switch CANNOT be used to directly power the compressor.	R103	
45		No extraneous tubing.	R102	
47		OI/Driver Station console must fit on shelf that is 60" wide and 12" deep	R78	
48		Confirm that any device attached to the OI's Dashboard Port is battery-powered (since there is no AC voltage available at the station)	R79	
49		OI indicator lights and ports must be visible and accessible.	R80, R81	
50		Anything attached to the OI's joystick ports (other than a USB-Chicklet from IFI) must derive power from the port. If a USB-Chicklet is used, it must be powered from a 7.2V battery pack similar to the back-up battery for the RC and the indicator lights must be visible.	R83	
51		Connect the OI to the tether port of the RC and power-up the robot. Confirm that the team number is properly displayed on the Operator Interface. Confirm that firmware version number _____ is being used.	R70, R77	
52		<b>Pneumatics Operational Test:</b> If the robot design includes pneumatics, confirm that the pressure in the air storage tanks does not exceed 120 PSIG, the "working" pressure does not exceed 60PSIG and confirm that the manually operated vent valve functions as required.	R103, R104	
53		While the robot is running, manually operate the 120A Main Breaker to disable the robot. Confirm that the RC has lost power (lights must go out)	R57, R85	
CGRC1		Video cameras that do not connect to the electrical system of a robot, and do not emit radio signals that may interfere with robot communication, will be allowed, but the weight of the video camera will count towards the robot weight.	CGRC <RR11>	
CGRC2		2007 or earlier radios, in matched pair, may be used. However, there OI radios will not be allowed in the pits and must be turned in at the Inspector Station. Please label the OI radio with your team number in several places. A Tether must be used outside the play field.	CGRG <RR8>, <RR14>	
CGRC3		OI and Robot Controller from prior years, in matched pairs, may be used.	CGRC <RR8>	
CGRC4		OI Channel dipswitches are easily accessible and visible.	CGRC <RR13>	

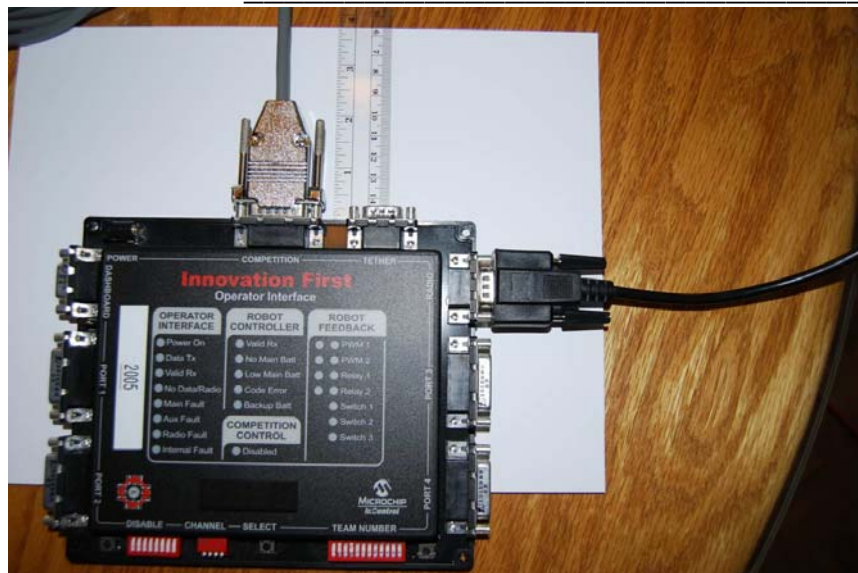
CGRC5		The competition port on the OI must be easily accessible by the plug shown in picture below,	CGRG <RR15>	
CGRG6		Operator Interface power source of any form will not be allowed at the player station.	CGRG <RR16>	
CGRG7		No exposed electrical conductors on the Operator Interface. If there is a metal operator board- Using an ohmmeter, confirm that the resistance between the metal frame and ground (another metal object) (greater than 100k Ohms).	CGRG <RR17>	

## Team Compliance Statement

We, the Team Mentor and Team Captain, attest by our signing below, that our team's robot was built after the 2007 Kickoff on January 6, 2007 and in accordance with all of the 2007 FRC rules and 2007 CalGames modified rules, including all Fabrication Schedule rules (reference Section 8.3.3). We have conducted our own inspection and determined that our robot satisfies all of the 2007 FRC rules for robot design.

Team Captain: \_\_\_\_\_

Team Mentor: \_\_\_\_\_



## Rule changes for CalGames--- **Robot related rules:**

<RR1> It is expected that teams will weigh their robots as accurately as their means allows, and the scale used by the WRRF at the Cal Games may, in fact, be less accurate than the method used by a team. As we do not desire to penalize a team for using more accurate weighing methods, the likely error of the scale used at the Cal Games will be accounted for when weighing robots. The error will not be known until the scale to be used is inspected at the event.

<RR2> Legal main batteries from prior competition years may be used.

<RR3> The orange blinking signal light is strongly recommended, but not required.

<RR4> The IFI power distribution panel, no longer sold by IFI, but available used from teams who participated in prior seasons, may be used if the electrical rules that applied to this power distribution panel are followed.

<RR5> The two CIM KOP gearbox from prior seasons may be used.

<RR6> Fix-it times are unlimited, from Feb 2007 to October 13, 2007.

<RR7> No bill of materials is required, but it is expected that teams will stay within the spirit of FIRST rules on robot cost.

<RR8> Operator Interfaces and Robot Controllers from prior years, in matched pairs, may be used. Radios from prior years, in matched pairs, may be used. If the event staff becomes aware of incompatibilities, this will be managed at the event.

<RR9> Cell phones, and other equipment that emits radio signals, that may interfere with robot communication may not be used on, or near, the competition field.

<RR10> All 2007 FIRST rules and 2007 CalGames modified rules will apply. However, a streamlined inspection process with a shortened checklist will be implemented in order to limit impact to the timely execution of the event. If it is obvious a team is violating an unchecked rule, it is the inspectors' right to require modifications on the robot until the problem is resolved.

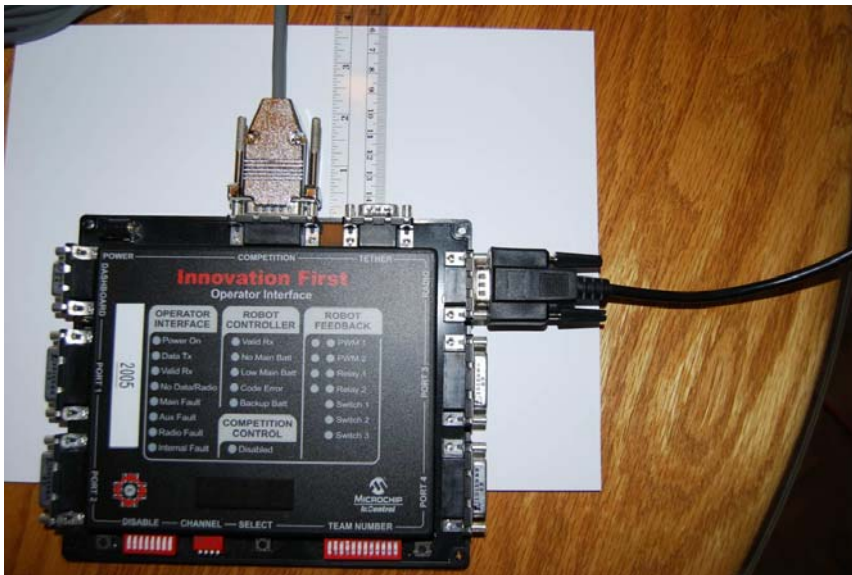
<RR11> Video cameras that do not connect to the electrical system of a robot, and that do not emit radio signals that may interfere with robot communication, will be allowed, but the weight of the video camera will count towards the robot weight.

<RR12> Just a reminder: FIRST 2007 rules with regard to the operation of pneumatic components and systems will apply.

<RR13> We may require manual radio channel selection at the event. The switches and display used to set radio channels on the OI must be accessible to facilitate this activity and should be easily visible to allow confirmation that the correct channel has been selected.

<RR14> To prevent radio interference, accidents, and injuries through out CalGames 2007, OI radios must be turned in at the inspection station as soon as a team arrive with the robot. Team numbers must be clearly marked on the radio in several places before it is turned in. All teams will connect their OI to a radio attached to the player station before a match, and disconnect it after a match. All radios will be returned to teams after the last match is over. A tether must be used outside the playing field.

<RR15> The competition port on the OI must be easily accessible by the plug shown in picture below:



<RR16> Operator Interface power source of any form will not be allowed at the player station.

<RR17> No exposed electrical conductors on the Operator Interface. If there is a metal operator board- Using an ohmmeter, confirm that the resistance between the metal frame and ground (another metal object) (greater than 100k Ohms).

## Rule changes for CalGames--- **Game related rules:**

<GR1> For safety reasons, the arena lighting will remain constant during the event.

<GR2> We will be using a wooden rack that will not slide easily without damaging the carpet. Additionally, there will wiring positioned in the bottom of the rack that may be damaged should the rack be allowed to move in the manner that occurred during the 2007 season. Because of this, the rack will be stationary, with the lights positioned roughly 45 degrees relative to the direction towards the drivers station. This opens up further possibilities for autonomous scoring.

<GR3> A 15 points bonus will be award to each keeper scored during autonomous mode.

<GR4> Yellow card and red cards will be available to the referees, but some sort of marking system that does not require flags will be used.

<GR5> Just a reminder: FIRST 2007 rules for tube scoring will apply.

<GR6> Just a reminder: FIRST 2007 rules with regard to robots being supported by field elements, tubes, walls, etc..., will apply.

<GR7> Just a reminder: FIRST 2007 rules with regard to tube possession will apply.

<GR8> Just a reminder: FIRST 2007 rules with regard to the position of a robot during the end game will apply.

<GR9> Just a reminder: FIRST 2007 rules with regard to tube herding will apply.