

2007 FIRST Robotics 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*

GENERAL – (testing at the Inspection Station)				
ITEM	PASS	DESCRIPTION	RULE(S)	COMMENTS
1		Size: 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		Weight: Must weigh no more than permitted given robot class	R07	
3		Standard Bumper Weight: If standard bumpers are used, must be 15.0 lbs or less with no heavy spots	R11, R37	
4		Bicycle Flag: Must have an appropriate holder with correct installed height	R15	
5		Bill of Material: Attach BOM (either hardcopy or electronic). No exotic items. Less than \$3500 total cost with no individual component over \$400. No assembly of modules (total > \$400) that is only functional in a single configuration.	R26, R44, R48-R52	
6		Teams from outside North America: Attach confirming letter if the team has successfully petitioned FIRST for a component exemption	R25	

GENERAL				
ITEM	PASS	DESCRIPTION	RULE(S)	COMMENTS
7		Safety and Wedges: 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	
8		Energy Sources: No illegal energy sources, battery must be secured	R02	
9		Logos: School and sponsor logo and/or name must be clearly visible	R13	
10		Team Number: Must be clearly displayed on all 4 sides	R14	
11		Panel Signal Device: Must be clearly visible from the front of the robot	R16	
12		Interference Mechanisms: Robot cannot include devices or decorations that may interfere with the vision systems of other robots	R33	
13		Decorations: Cannot affect match, cannot broadcast using wireless comm w/o clearance from FIRST Engineering, cannot employ 900MHz cameras	R108-R110	

MECHANICAL SYSTEMS				
ITEM	PASS	DESCRIPTION	RULE(S)	COMMENTS
14		Acceptable Mechanical Parts: refer to details in reference material	R23, R48	
15		Specifically Prohibited Mechanical Parts: refer to details in reference material, confirm that the robot does not include any of the listed parts, carefully examine the robot for mechanisms that can harm people, other robots or the playing field (including game pieces)	R28, R34-R36, R42, R46	
16		Chemical Modifications: No KOP mods except – heat-treating, anodizing or plating metal and rope may have ends singed to prevent unraveling	R40	
17		Motor Modifications: refer to details in reference material, motors can only be modified by machining new mounting holes, modifying output shaft (including removal of gearbox and extraneous items) and altering leadwires	R38	
18		Standard Bumpers (if used): refer to details in reference material	R37	
19		Tube Access: tubes remaining in/on the robot at the end of match must be removable without powering-up the robot	G41	

ELECTRICAL SYSTEMS				
ITEM	PASS	DESCRIPTION	RULE(S)	COMMENTS
20		Acceptable Electrical Parts: refer to details in reference material	R27, R45, R48, R53, R64, R66	
21		Specifically Prohibited Electrical Parts: refer to details in reference material, confirm that the robot does not include any of the listed components	R29, R35, R42, R46, R47, R63, R64, R91	
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).	R57, R85	
24		Accessibility: 120A main circuit breaker, distribution circuit breakers and Robot Controller are all accessible for inspection (including lights on RC)	R57, R68	
25		No modifications to Robot Control System (including OI, RC, Victor, Spike, Modems, Batteries, Chargers, AC adapters or 9-pin cables) except DIP switches on OI, user code for RC, Victors can be calibrated and the fuse on the Spike Relay Module for the air compressor (if used) can be replaced with 20A Snap-Action circuit breaker	R65	
26		No 12V power, Victor or Spike Outputs or PWM Outputs can be connected to the analog or digital I/O headers on the RC	R71	
27		7.2V NiCad "backup" battery is connected to the Controller and, if desired, to the custom on-robot charging circuit designed by IFI	R55-R56, R73	
28		Wire Size and Color Rules: refer to details in reference material	R57, R85-R90	
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) must be wired to Spike Relay Modules or Victor 884 Speed Controllers and solenoid pneumatic valves and air compressor (if used) must be wired to Spike Relay Modules. Motors, valves and compressor cannot be wired directly to breakers or other devices for supplying power.	R85, R95	
33		The coast/brake headers on Victor 884 Speed Controllers can only be attached to either selection jumpers or digital outputs from the RC	R75	
34		Sensor Outputs: Refer to details in reference material. Sensor outputs can only be wired to Robot Controller ports or Custom Circuits.	R60-R63, R72	
35		Custom Circuits: Custom Circuits may only connect to the Robot Controller ports, sensors (KOP or COTS) or outputs of circuit breakers, Speed Controllers and Relay Modules. Custom Circuits cannot interfere with other robots, directly affect any output devices (e.g. generate PWM inputs for the Victor 884), be used for wireless communication or connect to the Radio or Tether Ports on the RC.	R60-R63, R72	
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	
37		If decorations require electrical power, only the robot's MK ES17-12 battery can be used. The decoration must be protected via either 20A or 30A circuit breaker and cannot interfere with other control system components.	R110	

PNEUMATIC SYSTEMS (if used)				
ITEM	PASS	DESCRIPTION	RULE(S)	COMMENTS
38		Acceptable Pneumatic Parts: refer to details in reference material	R23, R48, R102, R105, R106	
39		Specifically Prohibited Pneumatic Parts: refer to details in reference material, confirm that the robot does not include any of the listed parts	R42, R46	
40		No modifications to the 125PSIG relief valve attached to the compressor.	R102	
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	
44		No disallowed pneumatic component mods. Allowed mods include – cutting tubing, wiring for valves and pressure switch to accommodate interfacing to rest of system, the rear pin of air cylinders can be removed.	R99	
45		No extraneous tubing.	R102	
46		If the robot design uses an "off-robot" air compressor, only the compressor and attached tubing can be located off the robot. The drive electronics, software, sensors and miscellaneous pneumatics elements must all be present on the robot as when using an "on-robot" air compressor.	R95, R101	

DRIVER CONSOLE AND POWER-UP				
ITEM	PASS	DESCRIPTION	RULE(S)	COMMENTS
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. OI must be a 2007 model.	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		Pneumatics Operational Test: If the robot design includes pneumatics, confirm that the pressure in the air storage tanks does not exceed 120PSIG, 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	

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, 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: _____