

# Engaging Manufacturing's Next Generation



## NRL Safety Inspection Checklist 15# Internal Inspection

Organization \_\_\_\_\_

Inspector \_\_\_\_\_

Robot Name \_\_\_\_\_

Final PASS Time \_\_\_\_\_

Pit # \_\_\_\_\_ Weight \_\_\_\_\_

Pass  No Pass

Type of Controller \_\_\_\_\_

### General Inspection

- Name of Robot on exterior in 1/2" letters min.
- Appearance is acceptable
- Safety covers installed and secure
- Safety restraints installed and secure
- No disallowed materials
- Restricted material complies with rules

### Electrical Inspection

- Drive switch mechanically shuts off batteries
- Weapon switch mechanically shuts off batteries
- Master switches are 2-position and enclosed
- Master switch access requires no parts removal
- Access to all switches is outside weapon path
- External light for each switch is visible
- Legal Batteries **NO Li-Poly!**
- Batteries are mounted securely within chassis
- Battery terminals/connections covered/insulated
- All wiring is properly installed and insulated
- Maximum voltage does not exceed limit (28V)

### Powered Weapons

- Weapons are not electrical/electromagnetic
- Weapons do not use heat, fire or explosives
- Weapons are non-fouling
- Weapons/flywheels are securely attached
- Deactivated weapons pose no hazard to people
- Less than 20 minutes to charge modular weapon

### Large Springs

- Deactivated springs have less than 5 lbs. force
- All springs are mounted securely
- Manual safety release design is approved

### FAIL: Items to be Fixed

Inspector Signature: \_\_\_\_\_

Team Representative: \_\_\_\_\_

### Pneumatic System

#### **Verify that system is completely depressurized**

- LPA or CO2 disposable cartridges are allowed
- Tanks have pressure-reliefs or blowout plugs
- Tanks are mounted securely within chassis
- Tanks are properly rated and tested
- Max Capacity limit (8 cu.ft.) at 70 degrees F

#### **Mark max fill pressure on ALL tanks**

- Low pressure shut-off valves meet requirements
- Pressure regulator mounted directly to tank
- Pressure regulator has lock-down mechanism
- Mark max pressure on regulators
- LPA 150psi max at 70 degrees F
- CO2 853psi max at 70 degrees F
- 150psi max on low pressure side
- Armor is required to secure any vessels
- Pneumatic components are correctly rated
- Pneumatic components are mounted securely
- No damage to any pneumatic components
- Pressure purge valves meet requirements
- Purge and shut-offs are outside weapons area
- No heat source close to pneumatic components
- Access for tank filling is safe and stable
- Refilling system approved

### Additional Items

- MultiBot meets all specific requirements
- Any lighting/sound system can be deactivated

### Comments:

**FULL  
CONTACT  
INNOVATION**

[www.gonrl.org](http://www.gonrl.org)



15# Functional Inspection Checklist

Inspector: \_\_\_\_\_ Robot Name: \_\_\_\_\_

Pass  No Pass

Weight: \_\_\_\_\_

**Pneumatic System**

**Verify that system is completely pressurized**

- Tank pressures do not exceed sticker limits
- Regulated pressures do not exceed sticker limits

**Add colored tape to top and bottom of Robot**

**Activation of Robot**

**Move Robot to test box or arena**

- Robot is in full fight-ready configuration

**Verify Robot is completely Deactivated**

**Check that all Master switches are off**

**Turn the Transmitter ON**

- No Robot movement when transmitter is turned on

**Activate the Robot**

- Activation requires no more than 1 person
- Person NOT in weapon path during activation
- Activation can be done within 45 seconds
- No panels/parts removal during Activation
- Activation Safety procedure is acceptable

**Motion System Fail-Safe Test**

**Move the Robot under control**

- Robot motion control is continuous, not random
- Reliable control of the motion-producing parts
- Motion speed greater than 1 foot-per-second
- Move the Robot at high speed
- Turn transmitter OFF during motion

**Move the Robot at high speed**

**Turn transmitter OFF during motion**

- Power to drive system stops when transmitter is shut off

**Powered Weapon Systems Testing**

**Start EACH weapon system moving**

- Weapons systems are reliably controlled

**Turn transmitter OFF while weapon is on**

- Power to weapon system stops when transmitter is shut off
- Spinning parts come to a FULL stop within 30 seconds after transmitter is shut off
- Weapon will NOT cause damage to arena

**Deactivation of Robot**

**Turn the transmitter ON**

**Deactivate the Robot**

- Deactivation requires no more than 1 person
- Person NOT in weapon path during Deactivation
- Critical Deactivation Less than 15 seconds
- Complete Deactivation LESS than 60 seconds
- No panels/parts removal during Deactivation
- Deactivation Safety procedure is acceptable

FAIL: Items to be Fixed

Comments:

Inspector Signature: \_\_\_\_\_

Team Representative: \_\_\_\_\_

**FULL CONTACT INNOVATION**