

TEAM NUMBER: _____

INSPECTOR(S): _____

INITIALS (after passing): _____

DATE (after passing): ____/____/____

Size and Weight:____ **ROBOT Weight** - Must be $\leq 115\text{lbs}$ (52.16kg) excluding BUMPERS and battery. <R103> _____ pounds____ **Total Inspected Weight** - ROBOT + swappable mechanisms $\leq 150\text{lbs}$ (68.04kg). <R103> _____ pounds____ **BUMPER Weight** - ROBOT + BUMPERS Must be $\leq 135\text{lbs}$ (61.23kg). <R408>

Red BUMPER _____ pounds

Blue BUMPER _____ pounds

____ **ROBOT PERIMETER** - Perimeter must be non-articulated. Minor protrusions ≤ 0.25 in (0.64cm) OK. <R101>____ **STARTING CONFIGURATION** - Parts may not extend past the vertical projection of the ROBOT PERIMETER. <R102>____ **Starting Volume** - ROBOT PERIMETER $\leq 110\text{in}$ (2.794m), height $\leq 30\text{in}$ (76.2cm). <R104>**BUMPERS**

Rules in this section have the 0.25in (0.63cm) tolerance applied. ROBOTS must meet the dimensions in this checklist for compliance.

____ **Coverage** - BUMPERS protect the ROBOT PERIMETER, any gaps between segments $< 1.5\text{in}$ (3.8cm). Only one (1) gap larger than 1.5in (3.8cm) on one side allowed as long as 4.75in (12.07cm) from each corner protected. <R401>____ **Padding** - A minimum 2in (5.09cm) depth of solid pool noodle, backer rod, foam floor tiles, 1.5 to 3 lb/ft³ (24.03 to 48.05kg/m³) closed cell polyethylene foam, or 2 to 6 lb/ft³ (32.04 to 96.11kg/m³) closed cell EVA foam. <R402-A>____ **Backing** - At least 4.25in (10.8cm) tall backing which supports all BUMPER padding. <R402-B>____ **Cover** - Must use a cloth cover to cover all padding. <R402-C>____ **Attachment** - Must be securely mounted when attached and easily removable for inspection. <R402-D & R410>____ **Max size** - Must not extend $> 4.25\text{in}$ (10.79cm) from the ROBOT PERIMETER. <R403>____ **Hard BUMPER parts** - Must not extend $> 1.5\text{in}$ (3.8cm) beyond ROBOT PERIMETER. <R404>____ **Height** - Must entirely fill the space between 2.75in (6.98cm) and 5.5in (13.98cm) from the floor <R405>____ **Corners** - Must be filled with at least 2in (5.09cm), measured diagonally, of uncompressed padding. <R406>____ **No wedges** - Must not act as a wedge when interacting with other BUMPERS. <R407>____ **Passive** - Must be fixed relative to the ROBOT PERIMETER, may not move during the MATCH, no electrical elements. <R409>____ **Color** - Must be able to display red or blue to reflect alliance color. <R411>____ **Team number** - Displayed with Arabic numerals, min. font 3.5in (8.9cm) tall x 0.25in (0.64cm) stroke, in white, and be easily read from approximately 60ft (18.29m) when walking around the ROBOT. Must be on at least 3 sides approximately 90 degrees apart. No logos may be used for numerals. FIRST logos comparable to 2026 Virtual KOP permitted. <R411 & R412>**Mechanical**____ **No Risk of Damage to FIELD** - E.g. metal cleats on traction devices or sharp points on frame. <R201, R202, & R205>____ **No exposed sharp edges.** - Sharp Edges or Protrusions that are a hazard for participants, ROBOTS, ARENA, or FIELD. <R202>____ **No Prohibited Materials** - E.g. sound, lasers (other than class 1), flammable gases, or hazardous materials. <R203>____ **No Unsafe Energy Storage Devices** - Carefully consider safety of all stored energy or pneumatic systems. <R203>____ **No Risk of Damage to Other ROBOTS** - E.g. damaging, entangling, upending or adhering. <G413 & R203>____ **Post MATCH** - SCORING ELEMENTS can be removed from ROBOT and ROBOT from FIELD without power. <R204>____ **No Risk of Damage to SCORING ELEMENTS** - Interaction with SCORING ELEMENTS free of damaging surfaces. <R206>**Electrical**____ **Components** - Must not be modified, except for modifications/repairs/maintenance/calibrations specified <R503 & R710>____ **Battery** - A single 12V, 17-18.2Ah ROBOT battery, securely fastened inside ROBOT with vents unobstructed for charging. <R601, R605, & R606> All battery connections must be insulated at all times. <R607>____ **Other Batteries** - COTS USB batteries $\leq 100\text{Wh}$ (27,000mAh at 3.7V) and 5A or 12V/5A max per port for COTS computing devices and accessories only. Batteries integral to a COTS computing device, camera, or for CMOS/RTC OK. <R602>____ **Main Breaker Accessibility** - The single 120A main breaker must be quickly and safely accessible. <R612>____ **PD Visibility** - The single PD, PD breakers, and associated wiring must be easily visible for inspection. <R613>____ **Allowable PD Breakers** - Only VB3-A, AT2-A, MX5-A or -L Series Snap-Action breakers, REV Robotics ATO, or CTR Electronics ATO (all 40A or lower) may be inserted in the PD ATO or Maxi slots. Breakers \leq fuse values below in ATM slots <R619>____ **Allowable PD Fuses** - ATC/ATO fuses $\leq 10\text{A}$. For PDH, ATM fuses $\leq 15\text{A}$ with up to 1 20A fuse powering PCM or PH. For PDP 1.0, fuses matching values printed on device in corresponding ATM slot. <R620>____ **ROBOT Radio** - A single Vivid Hosting wireless bridge (P/N: VH-109, WCP-1538), mounted such that Radio LEDs are easily visible to FIELD Staff (not just for inspection). <R702, R707, & R708>____ **Radio power** - Powered by injection into the RIO port of the radio and/or direct to the 12V input from a PD <R616>____ **roboRIO Power** - Must be connected directly to power terminals on PD with a 10A fuse or breaker. <R615>____ **roboRIO Ethernet** - Must connect to VH-109 v1.5 (blue holo sticker) RIO port or to VH-109 v1.0 through PoE injector or modified Ethernet cable, or to an AUX port with DIP switch off (default). <R703>

- ___ **Wire Size Minimum and Breaker Size** – Only 1 breaker/fuse per circuit except per radio power per <R617>. <R610>
 - ___ All wire from battery to main breaker to PD must be min 6 AWG (7 SWG or 16 mm²) wire <R607, R609, & Fig.8-11>
 - ___ 40A breakers must have min 12 AWG (13 SWG or 4 mm²) wire connected <R621 & R622>
 - ___ 30A breakers must have min 14 AWG (16 SWG or 2.5 mm²) wire connected < R621 & R622>
 - ___ 20A breakers must have min 18 AWG (19 SWG or 1 mm²) wire connected < R621 & R622>
 - ___ <20A breakers or fuses follow appropriate wire sizing from Table 8-4
- ___ **Wire Colors** – All power wire must be color coded - red, yellow, white, brown, or black w/stripes for +24, +12, +5 VDC supply (positive) wires and black or blue for common (negative) wires except original wire by manufacturer. <R624>
- ___ **Copper or Copper-Clad Aluminum (CCA) Wire** – All wire used must be copper or CCA. (Signal wire excluded). <R622>
- ___ **1 Wire per WAGO** - Only 1 wire may be inserted in each WAGO terminal. Splices and/or terminal blocks, may be used to distribute power to multiple branch circuits but all wires in the splice are subject to the wire size rules. <R618>
- ___ **Motors** – Only motors listed per Table 8-1. There may be no more than four (4) propulsion motors. <R501 & R502>
- ___ **Actuators** – Electrical solenoid or linear actuators or electromagnets, downstream of 20A breaker or less <R501 & Table 8-1>
- ___ **Motor/Actuator Power** – Each legal motor controller may have one motor connected to the load terminals with exceptions in Table 8-2. Specified motors may be connected to Spike or Automation Direct Relay <R504, R505, & Table 8-2>
- ___ **Motor/Actuator Control** – Motors/actuators must be controlled by legal controllers and driven directly by PWM signals from roboRIO, through a legal MXP board, or by CAN bus. <R504, R506, R712-R717>
- ___ **Custom Circuits, Sensors and Additional Electronics** - Cannot directly alter power pathways between ROBOT battery, PD, motor controllers, relays, motors/actuators, pneumatic solenoid valves, or other elements described by R710. Custom Circuits may not produce voltage exceeding 24V except as per R614. <R614 & R625>
- ___ **Isolated Frame** – Frame must be electrically isolated: >120Ω between either PDP/PDH battery post and chassis. <R611>

Pneumatic System using one on-board compressor (n/a for ROBOTS that do not use pneumatics)

- ___ **Pressure Rating** – Only components listed in <R804> allowed. Components at working pressure must be rated for at least 70 psi (~483 kPa, 4.8 Bar). Components at stored pressure must be rated for at least 125 psi (~862 kPa, 8.6 Bar). <R801, R802>
- ___ **No Modifications** - Actuator mounting pins may be removed, small labels allowed. No painting or large labels. <R803>
- ___ **Compressor** - Only one onboard legal compressor (max 1.1cfm (519.1cm³/s) flow rate) may be used. <R806>
- ___ **Compressor Power** - Must use a PCM/PH or relay module. <R812 & Table 8-2>
- ___ **Compressor Control** – A Pressure Switch must be wired directly to the PCM/PH or roboRIO to control compressor. <R812>
- ___ **Vent Plug Valve** – Must include an easily-accessible manual vent plug valve to release all system pressure. <R813>
- ___ **Tubing** – Equiv. to KOP with a maximum OD of ¼" (.06cm) (documentation may be required). <R804-D>
- ___ **Gauges** - Must be on both the stored and working pressure side of the regulator and be readily visible. <R805-E, R810>
- ___ **Valve Control** - Pneumatic solenoid valves must have a max 1/8" NPT, BSPP, or BSPT port diameter, be controlled by either a PCM or PH or Relay Module and valve outputs may not be combined. <Table 8-2, R804-C, & R814>

Power On Check (Driver Station must be tethered to the ROBOT)

- ___ **Unauthorized Wireless Communication** – No wireless communication to/from ROBOT or OPERATOR CONSOLE without prior *FIRST* written permission. No radios allowed on the OPERATOR CONSOLE or in the pit <R707, R905>
- ___ **Extensions** – ROBOT may not extend beyond the ROBOT PERIMETER > 12in (30.48cm) <R105> and in one direction at a time <R106>, > 30in (76.2cm) vertically from the floor <R107>, and cannot lift the BUMPERS out of the BUMPER ZONE <R108>
- ___ **Confirm Pneumatics Operation** – With no pressure in system, compressor should start when ROBOT is enabled.
 - ___ **Compressor stops** – Stops automatically at ~120 psi (~827 kPa, 8.2 Bar) or less under roboRIO control. <R807>
 - ___ **Check Main Pressure** – Must be ≤ 120 psi (~827 kPa, 8.2 Bar) <R807> and Working Pressure must be ≤ 60 psi (~413 kPa, 4.1 Bar) <R808>
 - ___ **Compressor Relief Valve** – Set to 125 psi, attached to (or through hard fittings) the compressor outlet port. <R811>
 - ___ **Relieving Pressure Regulator** – Set to ≤ 60 psi (~413 kPa, 4.1 Bar), providing all working pressure. <R808>
- ___ **ROBOT Signal Light** - ROBOT Signal Light (two max.) must be easily visible while standing 36in (91.44 cm) away from at least one side of the ROBOT and be plugged into the RSL port on roboRIO. Confirm the RSL flashes in sync with roboRIO. <R709>.
- ___ **Team Number** – Verify on DS and Team has programmed the wireless bridge at kiosk for this event. <R702>
- ___ **Software Versions** – The roboRIO image (2026_v1.2 or later) and DS (26.0 or later) must be loaded <R701 & R901>
- ___ **Power Off** – Disable ROBOT, then open Main Breaker to remove power from the ROBOT, confirm all LEDs are off, actuate pneumatic vent plug valve and confirm that all pressure is vented to atmosphere and all gauges read 0 psi pressure. <R813>
- ___ **OPERATOR CONSOLE size** - less than 60in x 16in x 78in (1.524m x 40.64cm x 1.981m) above floor (approx.). <R904>

Team Compliance Statement

We, the Team Mentor and Team Captain, attest by our signing below, that our team's ROBOT was built after the 2026 Kickoff, and we are not aware of any rules it violates. We confirm that it and its MAJOR MECHANISMS are products of our team's work. We understand that the LRI at this event may be consulted, at any time, for questions arising from ROBOT inspection.

Team Captain: _____

Team Mentor: _____