

ELECTRIC VEHICLE KIT MODIFICATION GUIDANCE 2027

KIT MODIFICATION GUIDANCE

If a team chooses to build their Electric Vehicle using a kit, the 2027 Electric Vehicle rules require teams to make two functional modifications (3.j.) during the build process, with at least two changes made to the Vehicle from the Kit Modification List below. This document provides additional guidance on the recommended modification list on the required form.

KIT MODIFICATION LIST WITH RECOMMENDATIONS

1. Change the alignment method
 - change open sight to scope,
 - move the alignment from the vehicle to the launcher or vice versa).

(Changing location of the current alignment hardware on the vehicle is not a valid modification.)
2. Replace the primary electronic controller/microprocessor with a different type
 - Changing Arduino to ESP32 or others
 - Changing VEX to Arduino or others
 - Changing Micro:bit to ESP32-S3 or others

(Changing the model/version of the microprocessor is not valid (e.g. Arduino UNO R3 to Arduino UNO R4 or ESP32 to ESP32-S3 is not a valid modification)).
3. Replace the electric motor with a different type of motor
 - Changing a DC brushed to DC brushless or vice versa
 - Changing DC brushed to Stepper or vice versa.

(Changing the size of the motor or the motor's internal gear ratio is not a valid modification)
4. Change the rotational energy transfer method from motor to wheels
 - Changing belt drive to pinion gears
 - Changing spur gears to belt drive,
 - Changing so the wheel directly connected to motor, or other mechanical system.

(Changing the ratio by itself is not a valid modification.)
5. Change the drive wheel from front wheel(s) to back wheel(s) or vice versa.
6. Change wheel diameter *
 - Recommended to be at least 1 cm difference.
7. Change front-to-rear axle spacing
 - Recommended to be at least 10 cm difference.
8. Change wheel-to-wheel spacing width (side to side) *
 - Recommended to be at least 4 cm difference.
9. Change the mass of the vehicle
 - Recommended to be at least 200-gram difference.

* Making the same modification more than once will only count as one modification