

FOR NEW COMPETITORS

TOWNSVILLE ROBOT COMBAT

RULES GUIDE & WHAT TO EXPECT



A plain-English guide to how our plastic antweight combat events run — the classes, the safety basics, what you can build from, and how the tournament works.

TOWNSVILLE · QUEENSLAND · AUSTRALIA

Two plastic antweight classes: (AUS) Antweight 150 g and (US) Antweight 454 g (1 lb). Paraphrased and adapted for Townsville Robot Combat from the Robot Royale ruleset. For the full formal rules, see the Combat Robot Rules and Robot Construction Specifications documents.

01 WELCOME TO THE ARENA

Robot Royale—style plastic combat, run in Townsville. The goal is simple: creative designs, exciting fights, and a level playing field where a first-time builder can take on a veteran and win.

These rules keep costs low and the action safe. Robots are built almost entirely from 3D-printed plastic, weapons are limited to keep fights entertaining and the arena intact, and every robot passes a safety check before it competes. If anything here is unclear or you think you've found a loophole, talk to the event organiser first — safe innovation is always welcome; surprises on fight day are not.

FIGHT BASICS

Matches run for **3 minutes**. Win by knockout, by pushing your opponent out or into a hazard, or on a judges' decision if the match goes the distance.

WEIGHT

(AUS) Antweight — 150 g and (US) Antweight — 454 g (1 lb). Each robot competes in one class only. Weight bonuses apply for non-wheeled locomotion (see below).

02 SAFETY BASICS

To compete, your robot must pass a safety inspection. To pass, it must have all of the following:

POWER SWITCH

You must be able to turn off all power without taking the robot apart. Mount switches rigidly so they can't shift or become blocked during a fight.

POWER LED

An LED that's easily visible from the side of the arena when the robot is powered on. A receiver or control-board LED is **not** enough.

RADIO FAILSAFE

If the radio signal is lost (e.g. you switch off the transmitter), all drive and weapon motion must stop automatically. Bluetooth control is **not** permitted.

WEAPON LOCK

Any spinning weapon needs a physical lock that stops it activating by accident. It must not rely on a thread or delicate geometry — a squeeze clamp is ideal.

COVERED BATTERY

You must not be able to see the battery, and it must be reasonably protected from impacts.

TEST DISCIPLINE

Weapons must **never** be spun up outside a test box or the arena. When testing drive, physically lock the weapon and prop the wheels off the ground.

03 THE CLASSES

Townsville Robot Combat runs two antweight classes. Each runs a **Plastic** division — material-restricted under the “PLAstic” construction ruleset in section 06, which this guide covers — and an **Open Material** division with no material restrictions. Within the Plastic division, both classes are also split into two weapon brackets so you can fight the way that suits your robot.

CLASS	WEIGHT	BRACKETS
(AUS) Antweight	150 g	Destructive & Non-destructive
(US) Antweight	454 g (1 lb)	Destructive & Non-destructive

DESTRUCTIVE BRACKET

For robots with active kinetic weapons designed to damage opponents — spinners, flippers and the like. Higher risk, higher reward.

NON-DESTRUCTIVE BRACKET

For control-style robots — pushers, wedges and lifters. You don't need to destroy your robot (or anyone else's) to take part. These control-style robots can definitely still enter the Destructive bracket if they wish.

CLASS INTENT

Designed as an accessible entry point to the sport, the plastic antweight classes limit the materials and manufacturing methods you can use. That levels the playing field for new builders while challenging veterans to solve problems in new ways within the restrictions — all at a low cost and moderate destructiveness.

04 BUILD RESTRICTIONS & BANNED WEAPONS

We restrict weapons for three reasons: to keep fights entertaining, to keep everyone outside the arena safe, and to stop the arena getting wrecked.

The following are **not permitted**:

- **Projectiles** (untethered) and **entanglement** devices (nets, tape, string).
- **Fire and heat** weapons, **explosives**, and flammable liquids or solids.
- **Liquids** and any weapon that needs significant clean-up or damages the arena.
- **EMPs**, **radio jamming** and other weapons that cause invisible damage.
- **High-voltage** / electrical weapons.
- **Light or smoke** weapons that impair viewing of the robots.

IF IN DOUBT, ASK FIRST

If you have a weapon that might exploit a loophole, or you're just not sure, contact the event organiser to confirm it's allowed before the day. We don't want to have to disqualify anyone.

05 WEIGHT & LOCOMOTION BONUSES

The vast majority of antweights roll on wheels at the standard weight. If your robot moves in a more unusual way, you may qualify for a weight bonus — your weapon must not be part of the movement system, and at least half of the bonus weight must be used in the moving parts of the locomotion mechanism (not motors or off-the-shelf gearboxes).

CLASS	STANDARD (WHEELS)	SHUFFLER	NON-TRADITIONAL	WALKER / FLYER
(AUS) Antweight	150 g	187.5 g	225 g	300 g
(US) Antweight	454 g	567 g	680 g	907 g

Your robot is weighed during safety. If it's overweight you will not be allowed to compete — no leeway is provided. Classification as a shuffler, non-traditional or walker is at the Event Organiser's discretion; contact us early if you plan a non-wheeled robot.

06 THE PLASTIC CONSTRUCTION RULESET

These are the material restrictions for the plastic antweight classes. Class intent and safety come first: robots should be built primarily from easy-to-work, 3D-printer-friendly plastics that don't have the strength of the standard (open) classes.

ALLOWED PRIMARY MATERIALS

These plastics should be the primary materials in your robot:



Unlisted materials may be permitted if they follow the class intent — check with the organisers ahead of time. Electronics are exempt.

What else you can use

- **Decorations** of any material are permitted, so long as they are not used as armour, impactors, or structural features.
- **Metal fasteners** (unmodified) can be used in mechanisms as axles or to fix parts together. A fastener is an off-the-shelf, threaded part designed to affix two or more components, easily obtainable from a common hardware store or online vendor (Jaycar, Bunnings, AliExpress, etc.) with a unit value of **AUD \$5 or less**. Washers are fine. A fastener that passes through multiple points of the chassis inherently adds some strength — that's permitted, so long as it isn't abused.
- **Bearings and bushings** are similarly permitted.
- **Grippy materials** (rubber, silicone, resins, etc.) can be used as wheel tread or tracks. **Rope, springs and elastics** can be used in actuators or for power transmission only.
- **Heat-set inserts** are permitted.

- **Foam** is permitted only as a weapon material.
- **Cheap recycled goods** such as takeaway containers are permitted.

Components

Any off-the-shelf or custom **electronics** are permitted — sensors, motor controllers, microcontrollers or PCBs. Use best practice to prevent short-circuits and fires. Robots can use any off-the-shelf **motors and gearboxes**. Components may be disassembled, swapped or interchanged as you like, but they must **not** be modified by cutting, drilling or any other destructive process (wiring is exempt).

07 THE TOURNAMENT

Robots must first pass safety checks before they can compete — do your best to make sure your robot is safe before you arrive. Robots are registered on the day under their driver's name. Only **one entry per driver, per class**.

Each class runs in two parts:

- **Round Robin** — play other robots to earn points (win = 1, loss = 0). Your points seed you for the next stage.
- **Elimination bracket** — a single-elimination bracket (finals, semi-finals, quarter-finals, etc.) until a winner is crowned.

Repairs & spares

When your robot takes damage, you'll have time between matches and over breaks to repair it. Bring as many **spare parts** as you like — but you cannot substitute a complete robot (including a different configuration). Swap components and mechanisms individually, accepting that your machine may slowly become a "Ship of Theseus."

LOAD-IN

Place your robot in the arena, turn it on via its switch, remove the weapon lock, then arm and confirm ready on the referee's call. Weapon covers come off inside the arena only.