 # Test & Tune Plan

Great timing to get your cars dialed in before the season starts! Let's create a structured test plan that maximizes your 5 hours to establish solid baselines for both vehicles.

Hour 1: Track Assessment & Initial Runs (45 min)

1. **Walk the track** (15 min)
   - Identify challenging sections and surface changes
   - Note grip levels in different areas
   - Study potential racing lines
   - Look for any unique features that might require specific setup attention

2. **Baseline Runs** (30 min)
   - Run both cars with factory base setups
   - Alternate between BUGGY and TRUGGY (10 min each, twice)
   - Focus on consistent laps to establish reference times
   - Note handling characteristics without making any changes

Hour 2: Engine Tuning (60 min)

BUGGY Engine (30 min)

1. Start with high-speed needle 2.5 turns out from fully closed
2. Set idle gap at 1mm
3. Low-speed needle at 3.5 turns out
4. Run 3-4 tanks through the following sequence:
   - Rich break-in (first tank)
   - Gradually lean high-speed needle until blue smoke is visible but consistent
   - Fine-tune low-speed needle for smooth transition
   - Test acceleration and top speed on straights

TRUGGY Engine (30 min)

1. Same procedure as BUGGY, but note the different pipe setup

2. Pay attention to clutch engagement differences with the 13T bell

3. Ensure proper temperature (200-230°F) at the head

Hour 3: Roll Center Tuning - BUGGY (60 min)

1. **Front Roll Center** (30 min)
   - Test caster settings: Start at 24° (2mm shim)
   - Run 3-lap sessions with 21° (4mm), 24° (2mm), and 27° (0mm)
   - Test inner and outer positions on front suspension arms
   - Note steering response and stability

2. **Rear Roll Center** (30 min)
   - Test anti-squat settings
   - Adjust rear hub link positions (inner/outer, upper/lower)
   - Run 3-lap sessions after each change
   - Focus on drive out of corners and stability

Hour 4: Roll Center Tuning - TRUGGY (60 min)

1. **Front Roll Center** (30 min)
   - Test C-hub positions
   - Adjust front shock tower positions
   - Run 3-lap sessions after each change
   - Note steering response and stability

2. **Rear Roll Center** (30 min)
   - Same procedure as BUGGY, but note the different weight distribution
   - Pay special attention to jump landings and stability

Hour 5: Fine-Tuning & Documentation (60 min)

1. **Final Adjustments** (30 min)

- Apply the best roll center settings from testing
- Make final engine tuning adjustments
- Test combined changes with 5-lap sessions

2. **Documentation** (30 min)
- Record all successful settings for both cars
- Note track conditions and temperatures
- Create baseline setup sheets for future reference
- Take photos of final setups for reference

Unconventional: Crossover Testing

Try your BUGGY roll center settings on the TRUGGY and vice versa for 2-3 laps each. This can reveal unexpected performance gains that wouldn't be found through conventional testing methods. The weight distribution differences might actually complement certain setup combinations.

Top 3 Things to Monitor:

1. **Consistency** - Are lap times becoming more consistent with each change?

2. **Transition Handling** - How does the car behave when transitioning from acceleration to braking and vice versa?

3. **Jump Control** - Is the car maintaining proper attitude through jumps and landings?

Let me know how your testing goes and what improvements you discover! Would you like me to elaborate on any specific part of this test plan?

 # Universal Base Setup Plan for Multiple Tracks

Great question! Developing a versatile baseline setup that requires minimal track-specific changes will save you time and create consistency in your racing program. Let's modify the plan to focus on finding that universal setup.

Hour 1: Establish Versatile Mechanical Platform (60 min)

1. **Start with Middle-Ground Settings** (15 min)
- Set both cars to these compromise positions:
  - BUGGY: 24° caster (2mm shim)

- Both cars: Middle position on all suspension links
- Middle droop settings
- Middle camber settings (-2.5° front, -2° rear)

2. **Initial Testing** (45 min)
   - Run both cars with these settings
   - Focus on identifying any major handling issues
   - Look for a balanced feel rather than ultimate performance

Hour 2: Diff Tuning for Versatility (60 min)

Diff settings are critical for a universal setup as they affect traction across various surfaces.

1. **BUGGY Diff Testing** (30 min)
   - Start with: Front 7,500 CST / Center 10,000 CST / Rear 4,000 CST
   - This slightly lighter setup provides better adaptability across tracks
   - Run 3-lap sessions, focusing on consistent handling rather than pure speed

2. **TRUGGY Diff Testing** (30 min)
   - Start with: Front 7,500 CST / Center 12,000 CST / Rear 4,000 CST
   - The center diff is slightly thicker to manage the electric power delivery
   - Test acceleration, cornering, and jump landings

Hour 3: Suspension Geometry Optimization (60 min)

1. **Find Neutral Roll Center** (30 min)
   - Test middle positions on all suspension links
   - Make small adjustments to find a neutral handling balance
   - Focus on positions that work well on both smooth and rough sections

2. **Shock Position Testing** (30 min)
   - Test middle shock positions on towers and arms

- Find positions that provide good overall stability without sacrificing responsiveness
- Document the positions that offer the best compromise

Hour 4: Tire and Shock Testing (60 min)

1. **Universal Tire Selection** (20 min)
   - Test JConcepts Dirt Webs in Blue compound
   - This tread pattern and compound works across various surfaces
   - Run 3-lap sessions to evaluate consistency

2. **Shock Setup for Adaptability** (40 min)
   - BUGGY: Test 6-hole 1.4mm pistons (front) and 6-hole 1.5mm (rear)
   - TRUGGY: Test 7-hole 1.3mm pistons (front) and 7-hole 1.4mm (rear)
   - Use 450 CST oil front and rear as your baseline
   - These slightly more open pistons allow for easier adjustment via oil weight changes

Hour 5: Sway Bar Testing and Documentation (60 min)

1. **Sway Bar Baseline** (30 min)
   - BUGGY: Test 2.2mm front / 2.4mm rear as your middle ground
   - TRUGGY: Test 2.4mm front / 2.8mm rear as your middle ground
   - Document how the car feels with these settings
   - Run a few laps with thicker and thinner bars to understand the adjustment range

2. **Create Your Track-Specific Adjustment Chart** (30 min)
   - Document your universal base setup
   - Create a simple adjustment matrix for different track conditions:
     - High grip: +50 CST shock oil, +0.2mm sway bars
     - Low grip: -50 CST shock oil, -0.2mm sway bars
     - Rough track: -50 CST shock oil, -0.2mm sway bars
     - Smooth track: +50 CST shock oil, +0.2mm sway bars

Unconventional: The "50% Rule" for Universal Setup

When testing each component, find the setting that gives you the best performance, then find the setting that gives you the worst performance. Your universal setup should be at approximately 50% between these extremes, slightly biased toward the better setting. This creates a setup that's never perfect for any single track but works reasonably well everywhere.

Top 3 Things to Monitor:

1. **Consistency Across Different Sections** - Does the car maintain similar handling characteristics in both smooth and rough sections?

2. **Recovery From Mistakes** - How forgiving is the car when you make a driving error?

3. **Adaptability to Changing Grip** - Does the car remain drivable as the track evolves from dusty to higher grip?

This approach focuses on finding a mechanical platform that works everywhere, then using your sway bars and shock oil as your primary tuning tools at each track. Remember to document everything thoroughly so you can quickly reference your adjustments at each venue you visit.

Would you like me to elaborate on any specific aspect of this universal setup approach?