Road Star
10 GW

Instruction Manual

HPI RACING
Thank you for selecting this HPI racing car! This kit is designed to be easy to build and uses top quality parts for durability and performance. The staff at HPI Racing tries hard to make everything easy to build and trouble-free. If you have any problem with this kit, give us a call and we will do our best to help you.

**Tools**

- 3/32" Allen Wrench (included with this kit)
- 1.5mm Allen Wrench (included with this kit)
- 3/64" Allen Wrench (included with this kit)
- Z155 Heavy Silicone Lube (included with this kit)
- Snap-on Phillips Screwdriver (#1 and #2)
- Hobby Knife
- Needle Nose Pliers
- Z70 Shock Oil

**R/C Tips**

R/C cars are fun to drive, but be aware that driving them in the wrong places can cause serious damage. Never drive near real cars, animals, or people that are unaware that an R/C car is being driven.

When learning to drive, go to an area that has no obstacles that can damage your car if you have a crash. Stay away from curbs, parked cars, poles, etc. Always wear shoes when driving!

**Important basics...**

- Build this kit in an area out of reach from children. Tools, parts, and liquids can be dangerous!
- Follow the operating instructions for the radio equipment at all times.
- Always turn on the transmitter before you turn on the car.
- Keep the wheels of the car off the ground when checking the operation of the radio equipment.
- Always turn off the radio system and unplug the battery pack when not using the car.
- Follow the operating instructions for the Ni-Cd batteries and Ni-Cd battery charger at all times.
- Insulate any exposed electrical wiring with heat shrink tubing to prevent dangerous short-circuits.
### LET'S START!

#### OPEN BAG A, B, F, G

1. **Use needle-nose pliers to press balls into both lower arms and both socket arms. The surface of the pliers should be flat to prevent damage to the balls. The flange of all the balls should point toward the front axle.**

2. **Use needle-nose pliers to press the joint pins into both lower arms.**

3. **This kit is supplied with rising-rate and standard caster blocks. We recommend the standard block as a starting point. The rising-rate block is designed to provide more steering under hard cornering. Bolt the caster blocks to the lower arm mounts as shown.**

   **Install lower arms to lower arm mounts with pins and secure with E clip.**

4. **Install washer, spring, and secure with E clip. Compress spring with needle nose pliers if E clip does not slide on easily.**

   **Optional springs available:**
   - A096 0.70mm
   - A097 0.75mm
   - A060 0.80mm (kit)

5. **Screw turnbuckles into both upper arms. The turnbuckles are not symmetrical, so install them as shown.**

   **Use a 3/16 Allen Wrench to rotate turnbuckles.**

   **Flange points DOWN on these balls**

   **Rotate turnbuckles toward the front of car for more camber.**
6. Connect upper arms to upper arm mount using upper arm pins.
   Caster settings:
   6°: All shims toward rear of car
   4°: One shim on each side of Caster block
   2°: All shims toward front of car

   Additional caster positions can be obtained by using the included 2° front suspension shims under the lower arm mounts.

7. Press front axles into steering arms. Install ball ends and lock nuts as shown. Balls must point up. A 3/16" socket or a Tamiya wrench will make installation easier.

8. Connect suspension to chassis. Suspension shims can be used to adjust ride height. We recommend two 0° shims on each side.

   Install king pin and steering arms as shown. Ball ends must point up and toward the back of the car. The king pin spacers can be rearranged to adjust ride height.

9. Choose the adaptor that fits your servo.

   1. Tighten the screw included with the servo saver.
   2. Install ball ends and attach servo saver to the servo.
When installed as shown, rotating turnbuckles toward the front of the car will give more toe-in.

Install the servo mount to chassis and attach servo. Only two screws are needed to secure the servo mount to the chassis. The servo mount has extra mounting holes if you want to use more screws. The servo mount can be cut as shown to save a little weight.

When assembling, note that the center pivot socket is thinner than the outer pivot sockets. The pivot balls have been squared at the top so they can be gripped with pliers.

**IMPORTANT!!**
Insert the roll brace into the roll sockets BEFORE tightening the screws (Z221 and Z210). After tightening the screws, the roll sockets should slide smoothly. If the roll sockets are too tight, use a file to remove a small amount of graphite (or fiberglass) from the rectangular holes in the roll brace to provide more clearance for the roll sockets. Check again for smooth movement.

Optional springs available:

- A005 1.10mm
- A016 1.20mm (kit)
- A056 1.20mm
- A087 1.40mm
Assemble chassis brace as shown.

We have provided extra holes to position stick packs in two locations. We recommend starting with the pack in the back position. Moving the pack forward will provide more steering on high grip tracks.

When using saddle pack batteries, remove the battery mount (A053). Use a file to round the sharp edges of the chassis slot to prevent damage to the batteries.

Road Star cages have an optional chassis brace that can be used when saddle pack batteries are being used.

Attach body poles. There are extra holes to mount the body poles in different locations to fit a variety of bodies.

Assemble rear pod as shown. The ride height of the car can be adjusted using Height Adaptors #1 or #2. When using the tires provided in this kit, Height Adaptor #1 should be used in the position shown.

Attach rear pod to chassis as shown. A small drop of thread-lock will prevent the screws from vibrating loose.
### A810 Upper Brace (Graphite) x 1
### A767 Friction Shock x 1
### Z208 Button Head Screw x 4
### Z126 Ball End x 2
### A40 x 4
### Z127 Lock Nut x 2

#### Shock Body
- 6801 Shock Body (Part #12: 45-56)
- 6807 Shock Shaft (Part #3: 31)
- 6813 Shock Cap (Part #12)
- 6814 Bladder (Part #10 x 4)
- 6817 Shock Parts Set (Part #10 Shock Parts)
- 6818 Shock Pistons (Teflon) (Part #10)

#### O-Ring P3 (Red)
- 6819 O-Ring P3 (Red) x 2

#### Spring 1.55mm (Black)
- 6836 Spring 1.55mm (Black) x 1

#### Ball Cup
- Z25 Ball Cup (Part #25: 36)

#### Ball End 4-40 Aluminum
- Z26 Ball End 4-40 Aluminum x 1

#### Silicone Shock Oil (30wt.)
- Z70 Silicone Shock Oil (30wt.) x 1

#### Screw 4-40 x 5/16"
- Z208 Button Head Screw x 1

#### E-Clip E2
- Z242 E-Clip E2 (Part #242: 40) x 2

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**SHOCK ASSEMBLY**

1. **Remove the shock shaft and insert two O-rings and snap on the cap.**
   - P3 O-rings to be inserted.

2. **Cut cap.**
   - Cut cap off of the oil bottle and fill shock.

3. **No Bubbles!**
   - Ensure no bubbles present.

4. **Move the shaft up and down to remove bubbles, then put on the bladder and cap.**
   - Place bladder and cap securely.

5. **Use masking tape to protect shock shaft.**
   - Tape to protect shock shaft.

6. **Screw the ball cup all of the way onto the shock shaft.**
   - Ensure ball cup is fully screwed on.

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*Note Placement.*

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**Page 7**
16. Press diff balls into outer holes of spur gear. Apply a small amount of diff lube to each ball. Assemble differential as shown. Adjust the diff slippage by tightening or loosening the nylon locknut.

To test diff, hold both wheels and try to spin the spur gear with your thumb. The spur gear should be difficult to rotate when properly adjusted.

17. Insert a small piece of paper between the hub and spacer. Tighten the set screw using the 3/32 Allen wrench. Remove the paper after tightening the set screw.

Slide the axle spacer onto the diff axle and slide axle through bearings in the rear pod. The axle spacers have a flanged side that should contact the bearing. File a small flat spot on the axle to prevent the hub from getting stuck when the set screw is tightened. Slide on the axle spacer and left hub.

18. Insert an .05 type motor through the lower pod and secure using the metric motor screws. Slide the pinion gear onto the motor shaft so that the teeth fully contact the spur gear teeth.

There should be a small amount of free-play when properly adjusted.

Tighten set screw on the flat spot of the motor shaft using the 1.5mm Allen wrench.

19. Remove the paper side of tire tape and stick tire tape to wheels. Leave the plastic side on the tape and slide the tires onto the wheels.

Pull out and remove the plastic side of the tape to secure tires.

The tires can be moved slightly until the edges match the edges of the wheels.
20. Press the bearings into the front wheels. Slide front wheels onto steering axles and tighten nut. The wheel should spin freely.

21. Press antenna tube into the antenna mount. Slide receiver antenna through tube and secure with antenna tube cap.

22. Install batteries as shown.

Don’t forget to file the sharp edges of the chassis to prevent damage to the batteries.
Use the adjustable body mount to adjust the height of the body. Body not included. We recommend our HPI #7002 NPT '92 body that is designed to fit perfectly on this chassis.

Insert Hood Pins Here.

All Bodies include a FREE decal sheet.

#7002 NPT '92 Body for Road Star with decal sheet $22.00
This HPI car has several ways to adjust the handling of the car for maximum performance. The following information will help you tune the car to the track conditions. The best way to learn how to adjust the car is to practice and test as much as possible.

SLIPPERY TRACK CONDITIONS
- Adjust front suspension to 6° caster position, see diagram below and page 4.
- Set the front axle to "Mild Steering" position, see page 4.
- Use a mild motor, large pinion gear, and an ESC with a current limiter set for smooth throttle response.
- Check turning radius in both directions, adjust steering radius to smallest amount that allows you to steer around sharpest corner.
- Try a harder front tire compound. Use tire traction sauce on rear tires. Make sure rear tires are in good condition.
- Make sure car is "tweeted" flat, see diagram below.

BUMPY TRACK CONDITIONS (Use the same settings as for slippery conditions, plus the following settings)
- Adjust ride height for more ground clearance to prevent chassis from "bottoming out" over bumps, see page 4 and 6.
- Use very light silicone lube on the damper washers, see page 7.

VERY HIGH GRIP TRACK CONDITIONS
- Adjust front suspension to 2° caster position, see diagram below and page 4.
- Set the front axle to "Quick Steering" position, see page 4.
- Use extra amount of silicone lube or heavier silicone lube on damper washers, see page 7.
- Lower the chassis by using small tire front and rear, or adjusting the front kingpin spacers and rear height adaptors.

TUNING THE FRONT SUSPENSION
This HPI car has a unique double-wishbone front suspension that allows you to make adjustments that will help the car perform better.

CASTER
The caster of the suspension can be adjusted using the supplied caster shims. The goal of adjusting the caster is to make the car easy to drive. When built with both shims toward the rear of the car, the steering will be mild and the car will return to a very stable straight line. When built with both shims toward the front of the car, the steering will be more sensitive to small steering movements.

CAMBER
The camber of the suspension can be adjusted by rotating the turnbuckles. The goal of adjusting the camber is to adjust the suspension to provide even wear across the entire front tire. The turnbuckles have asymmetrical threads that allow you to make easy changes to the settings without removing any components. When built as described in Step 5, rotating the turnbuckles toward the front of the car will give more camber. Since foam tires have a small amount of deflection during hard cornering, we recommend a small amount of negative camber for proper tire wear. If more negative camber is needed to make the tire wear flat, rotate the turnbuckles a small amount toward the front of the car.

TUNING THE REAR SUSPENSION
This HPI car features a Triple-Pivot rear suspension that allows you to make adjustments that will help the car perform better.

TWEETING THE CAR FLAT
The "twee" of the car can be adjusted. The goal of adjusting the twee is to provide equal weight on the rear tires so that the car corners equally when turned to the left and right. To test the twee of the rear tires, place the car on a flat surface and use a small screwdriver to lift the center of the lower brace. When the tires lift off the ground, they should both lift at the same time. If one tire lifts later than the other, then that tire has more weight being applied to it, making the car unbalanced. Use the twee screw to adjust the pressure applied to the spring brace until both rear tires lift at the same time. Rotating the twee screw in the clockwise direction makes that tire heavier.

ADJUSTING THE RIDE HEIGHT OF THE CHASSIS
The shock can be used to adjust the ride height of the chassis. The goal of adjusting the ride height is to make the chassis flat from the front of the car to the rear of the car. To check the ride height, place the car (with battery, radio, and motor installed) on a flat surface. Shim the shock using the spacers from Part #6817.
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<td>ROLL CAGE (GRAPHITE)</td>
<td>22.50</td>
<td>488</td>
<td>6</td>
<td>WASHER M3 x 8</td>
<td>2.00</td>
</tr>
<tr>
<td>7001</td>
<td>6</td>
<td>ROLL CAGE (GRAPHITE)</td>
<td>22.50</td>
<td>490</td>
<td>6</td>
<td>4-40 x 1/2&quot; FLAT HEAD SCREW</td>
<td>2.00</td>
</tr>
<tr>
<td>7001</td>
<td>6</td>
<td>HUB (LEFT) (WITH SCREW)</td>
<td>15.00</td>
<td>492</td>
<td>6</td>
<td>ALLEN WRENCH SET (3/64&quot;, 1.5mm, 3/32&quot;)</td>
<td>1.50</td>
</tr>
</tbody>
</table>