

SLOTWAGEN™

NEWSLETTER

More Than Just Slot Cars!

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ISSUE 09

BUILD
PAINT
RACE
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Build and paint project of the month

Badd Ass Beetle by Albert Mostert

Build, rather than assemble

PAINTING
TECHNIQUES
TIPS FOR A
PRO FINISH

ICONIC
DESIGNS
CARS THAT
INSPIRE



WHITE KITS VS SCRATCH BUILD KITS

WHICH IS RIGHT FOR YOU?

Detail comparison

PARTS • PERFORMANCE • REALISM

SLOT CAR WHITE KITS VS SCRATCH BUILD KITS

Understanding the Difference, the Building Experience, and What You Should Expect

Within the world of 1:32 scale slot cars, the terms **White Kit** and **Scratch Build Kit** are often used interchangeably. Although the two may share certain similarities, they are not the same thing.

Both usually provide the enthusiast with an unpainted model that requires some degree of assembly and finishing. However, the philosophy behind each type of kit, the level of preparation required, the amount of technical involvement, and the final responsibility placed on the builder can be very different.

Understanding this distinction is important before purchasing a kit.

A White Kit is generally intended to provide the customer with a relatively straightforward route towards building and personalising an established slot car model.

A Scratch Build Kit, on the other hand, should be considered much closer to a modelling and engineering project.

It gives the builder the basic components from which a functioning slot car can be created, but it may require considerably more preparation, adjustment, fitting and individual workmanship.

The difference can perhaps best be described in one sentence:

A White Kit allows you to finish a slot car. A Scratch Build Kit allows you to build one.

WHAT IS A SLOT CAR WHITE KIT?

A traditional slot car White Kit is normally an unpainted or undecorated version of an existing production slot car.

The manufacturer has usually already completed most of the engineering required to make the car function correctly.

The body, chassis, interior, windows and mechanical components have generally been designed as one coordinated system.

The customer is primarily responsible for finishing and assembling that system.

Depending on the manufacturer, a typical White Kit may include:

- An unpainted body shell.
- A production chassis.
- Clear windows or glazing.
- Interior components.
- Driver figure.
- Mirrors, wings, lights and other detail parts.
- Wheels and tyres.



- Axles and bushings.
- Gears.
- Guide keel.
- Motor.
- Screws and mounting components.
- Decals or liveries.

Some White Kits may contain fewer components, but the principle remains similar.

The important point is that most of the major engineering decisions have already been made by the manufacturer.

The chassis has been designed specifically for that body.

The wheelbase has been established.

The wheel clearance has been predetermined.

The guide position has already been designed.

The motor location has been determined.

The body mounting points have been incorporated into the moulding or chassis.

The builder is therefore generally working within a completed production system.

WHAT DOES THE WHITE KIT BUILDER ACTUALLY DO?

The White Kit builder normally concentrates primarily on appearance and final assembly.

This can involve cleaning the body, removing moulding marks, sanding imperfections, applying primer, painting, installing decals and applying clear coat.

The builder may also assemble the chassis, install the interior and fit smaller detailing components.

There is certainly skill involved.

Producing a professional-looking White Kit can require considerable painting and modelling ability.

However, from a mechanical perspective, the expectation is generally that the supplied components should fit together with relatively minor preparation.

A White Kit therefore sits somewhere between a ready-to-run slot car and a traditional model kit.

The customer is still building and finishing the vehicle, but the underlying mechanical architecture has already been established.

WHAT IS A SCRATCH BUILD SLOT CAR KIT?

A Scratch Build Kit follows a very different philosophy.

The word **scratch building** comes from traditional model making, where a modeller creates an object from individual components rather than simply assembling a fully engineered commercial product.

In slot racing, a Scratch Build Kit provides the builder with a collection of components that form the foundation of a slot car.

However, the builder becomes part of the engineering process.

This means that adjustment, preparation, fitting and sometimes modification should be expected.

A Scratch Build Kit may include components such as:

- Resin or 3D-printed body shell.
- 3D-printed or resin chassis.
- Vacuum-formed or Lexan windows.
- Interior or driver pod.
- Motor.
- Motor pod.
- Axles.
- Bushings.
- Wheels.
- Tyres.
- Gears.
- Guide keel.
- Wiring.
- Mounting nuts and bolts.
- Body-detail components.
- Decals.



Having these components included does not automatically make the product equivalent to a conventional White Kit.

The fundamental difference is the expectation placed upon the builder.

With a Scratch Build Kit, the components are supplied as the starting point of the project rather than necessarily being completely finished production parts.

A SCRATCH BUILD KIT IS A BUILDING PLATFORM

Perhaps the most important concept to understand is that a Scratch Build Kit should be regarded as a **building platform**.

It provides the geometry, major components and design from which the model can be completed.

The builder then performs the final preparation required to turn those components into a functioning slot car.

This can include:

- Sanding.
- Filing.
- Drilling.
- Cleaning.
- Removing printing supports.
- Opening mounting holes.
- Enlarging or reducing clearances.
- Aligning axles.
- Adjusting body mounts.
- Setting ride height.
- Adjusting wheel position.
- Trimming interiors.
- Trimming windows.
- Adjusting guide depth.
- Correcting tyre clearance.
- Adjusting body float.
- Positioning wiring.
- Gluing components.
- Balancing the chassis.
- Testing drivetrain movement.
- Fine-tuning the completed car.

This is not necessarily evidence that something is wrong with the kit.

In many cases, this preparation is deliberately part of the scratch-building process.

WHITE KIT AND SCRATCH BUILD KIT – TECHNICAL COMPARISON

Feature	White Kit	Scratch Build Kit
Body	Usually production moulded	Often resin or 3D printed
Chassis	Production engineered	Small-production or printed
Mechanical fit	Generally predetermined	May require adjustment
Windows	Often moulded	Frequently vacuum formed
Painting	Required	Required
Sanding	Usually limited	Common
Filing	Occasionally	Frequently required
Drilling	Rare	May be required
Wheel alignment	Mostly predetermined	Builder checked and adjusted
Body float	Usually engineered	Builder adjustable
Mechanical skill	Basic–intermediate	Intermediate–advanced
Customisation	Moderate	Very high
Builder involvement	Assembly and finishing	Assembly, finishing and engineering
Final setup	Manufacturer-based	Builder-dependent

MANUFACTURING METHOD MAKES A DIFFERENCE

One reason Scratch Build Kits require more preparation is the way many of their components are manufactured.

Traditional mass-produced slot cars are usually manufactured using expensive injection moulds.

Injection moulding can produce thousands of almost identical components with extremely tight tolerances.

Scratch Build Kits are often produced in much smaller quantities using technologies such as:

- Resin casting.
- SLA resin printing.
- FDM printing.
- Vacuum forming.
- Small-batch machining.
- Hand finishing.

These processes make it possible for manufacturers to offer unusual cars, historic vehicles, limited-edition models and subjects that would never justify the enormous tooling cost of mass production.

The advantage is variety.

The compromise is that some final preparation may be required.

RESIN BODIES ARE DIFFERENT FROM INJECTION-MOULDED BODIES

A resin slot car body behaves differently from a mass-produced injection-moulded plastic body.

There may be subtle variations in:

- Wall thickness.
- Surface texture.
- Mounting points.
- Wheel arches.
- Panel openings.
- Overall flexibility.

The builder may therefore need to sand certain areas, clean openings or slightly adjust the body before painting and assembly.

This is normal modelling work.

The same principle applies to many scale-model resin kits used in aircraft, military modelling, railway modelling and automotive modelling.

Resin provides tremendous design freedom but generally expects greater participation from the modeller.

3D-PRINTED COMPONENTS ALSO REQUIRE PREPARATION

Modern slot car Scratch Build Kits increasingly use 3D printing.

This technology has transformed the hobby.

Designers can now create chassis, motor pods, interiors and structural components for extremely specialised vehicles without manufacturing expensive steel tooling.

However, 3D printing has its own characteristics.

A printed component may require:

- Removal of printing residue.
- Light sanding.
- Cleaning of holes.
- Smoothing of contact surfaces.
- Checking of bearing openings.
- Adjustment of screw holes.
- Fine filing of mounting locations.

Small dimensional variations can occur depending on material, printer calibration, temperature, orientation and curing.

For this reason, a Scratch Build Kit should not always be approached with the expectation that every component will simply snap together immediately.

The final fitting process is part of the build.

TOLERANCES ARE PART OF SCRATCH BUILDING

Tolerance is one of the most important concepts in any mechanical model.

If an axle is approximately 2.38 mm in diameter, for example, the opening through which it passes cannot simply be created without consideration for movement, alignment and manufacturing variation.

The same applies to:

- Motor pods.
- Axle bushings.

- Guide keels.
- Body mounts.
- Wheels.
- Chassis openings.
- Interior assemblies.

Sometimes an opening may need to be gently cleaned with a file or drill.

Sometimes a component may need to be lightly sanded.

Sometimes a mounting point needs adjustment.

This is normal engineering practice on small-scale mechanical models.

The experienced Scratch Build modeller expects to test-fit every component before final assembly.

TEST FITTING IS ESSENTIAL

One of the biggest differences between assembling a White Kit and building a Scratch Build Kit is the importance of test fitting.

Nothing should be permanently glued or painted before the major components have been checked together.

A good Scratch Build sequence would normally include:

1. Inspect the body.
2. Inspect the chassis.
3. Test-fit the chassis inside the body.
4. Check front and rear wheel positions.
5. Test-fit the motor.
6. Install the axles temporarily.
7. Check wheel arch clearance.
8. Check guide movement.
9. Check body mounting points.
10. Test-fit the interior.
11. Test-fit the windows.
12. Make necessary adjustments.
13. Disassemble the model.
14. Prepare and paint the body.

15. Complete the mechanical assembly.

16. Reassemble and tune the car.

This approach can prevent many problems later.

BODY THICKNESS AND STRENGTH

Scratch Build bodies are sometimes intentionally manufactured thicker than competition-grade injection-moulded bodies.

There are several reasons for this.

A thicker body can provide:

- Improved durability.
- Better resistance to shipping damage.
- Stronger mounting points.
- Greater stability during sanding.
- More material for modification.
- Better resistance to cracking.

An experienced builder who wants to reduce body weight may carefully remove material from selected internal areas.

That process itself can become part of the tuning exercise.

A Scratch Build body therefore gives the modeller a starting structure that can be modified according to personal requirements.

One builder may prioritise durability.

Another may prioritise minimum weight.

Another may want maximum realism.

Scratch building allows each person to make those decisions.

BODY MOUNTING AND BODY FLOAT

Body float is an important aspect of performance slot car tuning.

On many commercial racing cars, the body mounting system has been engineered specifically to allow movement between the chassis and body.

Scratch Build Kits may use completely different mounting systems.

These can include:

- Screws.

- Bolts.
- Captive nuts.
- Posts.
- Brackets.
- Magnetic mounts.
- Custom mounting plates.

A mounting system that is mechanically strong may not automatically provide competition-style body float.

If the builder wants additional movement, the system may need to be modified or tuned.

This is another example of the difference between buying a finished racing platform and building one.

WHEEL AND TYRE CLEARANCE

Wheel clearance is another area where Scratch Build Kits may require adjustment.

Even when the wheelbase is designed correctly, several factors influence the final position of a wheel:

- Axle length.
- Wheel hub depth.
- Bushing position.
- Chassis width.
- Body thickness.
- Tyre profile.
- Ride height.
- Gear position.

The builder may need to position wheels carefully on the axle or adjust the chassis slightly to obtain the preferred appearance and clearance.

The tyre supplied with a kit may also deliberately have sufficient material to allow sanding or truing.

Competition racers frequently true their tyres regardless of whether the car is supplied as a kit or ready-to-run model.

THE CHASSIS IS NOT NECESSARILY THE FINAL SETUP

With a White Kit, the supplied chassis is usually the manufacturer's final production configuration.

With a Scratch Build Kit, the chassis can be considered the manufacturer's starting configuration.

The builder may decide to modify:

- Weight distribution.
- Motor position.
- Axle height.
- Front axle movement.
- Ground clearance.
- Guide depth.
- Wheel spacing.
- Magnet position.
- Body movement.
- Gear ratios.
- Tyre diameter.

This freedom is one of the biggest attractions of scratch building.

The car becomes personal.

Two builders starting with exactly the same kit may ultimately produce two completely different handling cars.

WINDOWS AND INTERIORS

White Kit glazing is normally injection moulded and designed to clip or fit precisely into the body.

Scratch Build Kit windows are often vacuum-formed from thin clear material such as Lexan.

This provides several advantages.

It is lightweight.

It can follow complicated body shapes.

It is suitable for small production runs.

However, vacuum-formed windows generally require the modeller to trim them.

The builder should gradually cut the material, test-fit it and continue trimming until the correct fit is achieved.

The same principle applies to driver pods and interiors.

Some trimming may be necessary to provide clearance for:

- The motor.
- Wiring.
- Rear axle.
- Body mounts.
- Motor pod.
- Chassis.

Again, this should be considered part of the build rather than simply assembly.

PAINTING A WHITE KIT

A White Kit body is generally prepared much like a plastic model.

The typical process may be:

Clean the body thoroughly.

Lightly sand if necessary.

Apply suitable primer.

Allow the primer to cure.

Apply colour coats.

Allow the paint to cure.

Apply waterslide decals.

Allow the decals to dry.

Apply clear coat where appropriate.

Install windows and detailing.

Because the body surface is usually mass-produced, relatively little preparation may be required before primer.

PAINTING A SCRATCH BUILD BODY

A Scratch Build resin or 3D-printed body may require additional preparation.

The builder should inspect the body carefully under good lighting.

Potential preparation can include:

- Removing small support marks.
- Sanding printing lines.

- Correcting minor surface imperfections.
- Cleaning resin residue.
- Preparing panel openings.
- Cleaning wheel arches.
- Washing the body.
- Applying appropriate primer.

Primer is particularly important because it reveals imperfections that may not be visible on raw resin.

A professional result often comes from repeating the following process several times:

Prime – inspect – sand – prime again.

Patience during preparation normally produces a much better final finish than applying heavy paint immediately.

DECALS AND FINAL FINISH

Both White Kits and Scratch Build Kits may use waterslide decals.

The quality of the final appearance depends significantly on how those decals are applied.

The painted surface should ideally be smooth before decal application.

Decal-setting products can help decals conform around complex curves and panel lines.

Once completely dry, an appropriate clear coat can protect the finished livery.

The builder must always ensure compatibility between:

- Primer.
- Paint.
- Decals.
- Setting solution.
- Clear coat.

Different paint systems can react with one another if applied incorrectly.

MECHANICAL SKILL LEVEL

This is perhaps the most important distinction for prospective buyers.

A White Kit generally requires:

Basic to intermediate modelling ability.

A Scratch Build Kit generally requires:

Intermediate to advanced modelling and mechanical ability.

This does not mean that beginners cannot build Scratch Build Kits.

They certainly can.

However, beginners should approach the project with the understanding that learning, experimentation and adjustment are part of the experience.

Scratch building rewards patience.

TOOLS REQUIRED

A White Kit can often be completed using a relatively modest modelling toolkit.

A Scratch Build Kit benefits from a more comprehensive workshop setup.

Useful tools may include:

- Small screwdrivers.
- Hex drivers.
- Needle files.
- Hobby knife.
- Sandpaper in different grades.
- Small drill bits.
- Pin vice.
- Small pliers.
- Side cutters.
- Tweezers.
- Vernier caliper.
- Soldering iron.
- Superglue.
- Epoxy.
- Modelling adhesives.
- Masking tape.
- Tyre truer or sanding block.

The precise tools required will depend on the particular kit.

SCRATCH BUILDING IS ABOUT PROBLEM SOLVING

Perhaps the greatest difference between the two types of kits is philosophical.

White Kit building is largely about **finishing**.

Scratch building is largely about **problem solving**.

The Scratch Build modeller constantly asks questions.

Is the axle perfectly square?

Are both rear wheels sitting equally?

Does the guide rotate freely?

Does the motor move inside the pod?

Is the gear mesh correct?

Does the body touch the tyres?

Does the interior interfere with the chassis?

Can the body move independently?

Should weight be added?

Should material be removed?

This thinking process is part of the hobby.

For many enthusiasts, solving these small mechanical challenges provides as much enjoyment as racing the finished car.

SCRATCH BUILDING CREATES INDIVIDUAL CARS

A commercially produced ready-to-run car is designed to ensure that thousands of customers receive essentially the same product.

Scratch building does the opposite.

It encourages individuality.

The builder decides:

- How the car should look.
- How low it should sit.
- Which wheels should be used.
- Which motor should be installed.
- Which gearing should be selected.
- How much body movement should exist.
- How much weight should be added.
- Where that weight should be positioned.

- Which tyres should be fitted.
- How the chassis should be tuned.

The finished car becomes a reflection of the builder's decisions.

HISTORICALLY, SLOT CARS WERE SCRATCH BUILT

Scratch building is not a new concept created by 3D printing.

It goes directly back to the origins of competitive slot racing.

Early racers frequently constructed their own chassis from:

- Brass.
- Piano wire.
- Sheet metal.
- Aluminium.
- Plastic.
- Modified model-car bodies.

Motors were selected separately.

Axles were cut to length.

Gears were chosen according to track requirements.

Bodies were fitted manually.

Weight distribution was experimented with.

Modern Scratch Build Kits simply make this traditional form of slot-car construction more accessible.

Instead of manufacturing every component from raw material, the builder receives a collection of specially designed components as a starting point.

THE IMPORTANCE OF EXPECTATIONS

Many misunderstandings surrounding Scratch Build Kits happen because they are approached with White Kit expectations.

If someone expects every component to clip together exactly like an injection-moulded commercial slot car, a Scratch Build Kit can initially appear demanding.

However, when approached as a modelling project, those same characteristics become part of the attraction.

A hole requiring cleaning is not necessarily a problem.

A window requiring trimming is not necessarily a problem.

A chassis requiring minor adjustment is not necessarily a problem.

An axle requiring alignment is not necessarily a problem.

These are typical scratch-building operations.

The key question is whether the kit provides the builder with a practical foundation from which the model can successfully be completed.

WHITE KIT VS SCRATCH BUILD KIT – THE SIMPLE COMPARISON

A **White Kit** is generally:

- Production engineered.
- Intended mainly for painting and assembly.
- Designed around predetermined components.
- Manufactured using repeatable production processes.
- Suitable for builders wanting custom appearance with limited mechanical modification.
- Closer to an unfinished commercial slot car.

A **Scratch Build Kit** is generally:

- A modelling platform.
- Intended for building, adjusting and personalising.
- More dependent on builder preparation.
- Often produced using resin casting or 3D printing.
- Suitable for enthusiasts who enjoy mechanical involvement.
- Closer to traditional model engineering.

WHICH ONE IS BETTER?

Neither format is inherently better.

They serve different types of enthusiasts.

The White Kit builder may enjoy creating beautiful liveries and personalised race cars without wanting extensive mechanical work.

The Scratch Build enthusiast may enjoy spending an entire weekend preparing, adjusting and tuning one car.

Both are valid forms of the slot-car hobby.

What matters is understanding what type of experience you are purchasing.

WHO SHOULD BUY A WHITE KIT?

A White Kit may be ideal for someone who:

- Wants a relatively predictable assembly process.
 - Primarily enjoys painting and decorating models.
 - Wants an established production chassis.
 - Prefers limited mechanical modification.
 - Wants to get the car onto the track relatively quickly.
 - Has limited workshop equipment.
-

WHO SHOULD BUY A SCRATCH BUILD KIT?

A Scratch Build Kit may be ideal for someone who:

- Enjoys model building.
 - Enjoys modifying components.
 - Likes mechanical problem solving.
 - Wants unusual or rare vehicle models.
 - Is comfortable sanding, filing and drilling.
 - Enjoys tuning chassis.
 - Wants to experiment with setup.
 - Enjoys creating something unique.
 - Accepts that adjustment forms part of the building process.
-

THE SATISFACTION OF THE FINISHED SCRATCH BUILD CAR

There is a particular satisfaction that comes from placing a Scratch Build car onto the track for the first time.

You know every component.

You know how the motor was installed.

You know how the wheels were aligned.

You know how the windows were fitted.

You know where material was removed.

You know where weight was added.

You know how the body was prepared.

You know how the gear mesh was adjusted.

You know how many coats of paint were applied.

Most importantly, you know that the car exists in its final form because you built it.

That sense of ownership is difficult to reproduce with a factory-built car.

BUILDING RATHER THAN SIMPLY ASSEMBLING

This is ultimately the most important distinction.

When purchasing a White Kit, you are normally purchasing an unfinished version of an already engineered slot car.

When purchasing a Scratch Build Kit, you are purchasing the components and foundation from which you will create your own finished slot car.

The first requires assembly.

The second requires craftsmanship.

Neither approach is right or wrong.

They simply represent two different experiences within the same hobby.

FINAL THOUGHTS

Modern technology has created an exciting new period for slot-car enthusiasts.

3D printing, resin manufacturing, digital design and small-scale production now allow manufacturers to produce cars that may never have been commercially viable through traditional mass-production methods. Historic touring cars, unusual race cars, prototype vehicles, regional racing legends and rare automotive subjects can now be recreated in 1:32 scale. Scratch Build Kits make this possible. But the freedom provided by small-scale manufacturing comes with an equally important responsibility for the builder.

A Scratch Build Kit asks you to participate.

It asks you to prepare.

It asks you to adjust.

It asks you to experiment.

It asks you to understand how a slot car actually works.

And ultimately, it allows you to create something that is genuinely yours.

That is the real difference between a **Slot Car White Kit** and a **Slot Car Scratch Build Kit**.

A White Kit gives you a slot car to finish.

A Scratch Build Kit gives you the opportunity to become part of building the slot car itself.