ICD 08285

FineScale MODELER

MAY/JUNE 1984 / $2.25

Special Staff Report: New kit releases for 1984

SUPERDETAILING MOTORCYCLES

FSM SHOWCASE SPECIAL FEATURE
A spectacular 1/32 scale Fw 190D

Joe Berton's "Murat in Egypt"

Modeling smoke and fire — an Me 163 Komet diorama

06
0 74820 08285

Fig. 1. Removing the fairing and gas tank reveals the superdetailed 4-cylinder, water-cooled engine.

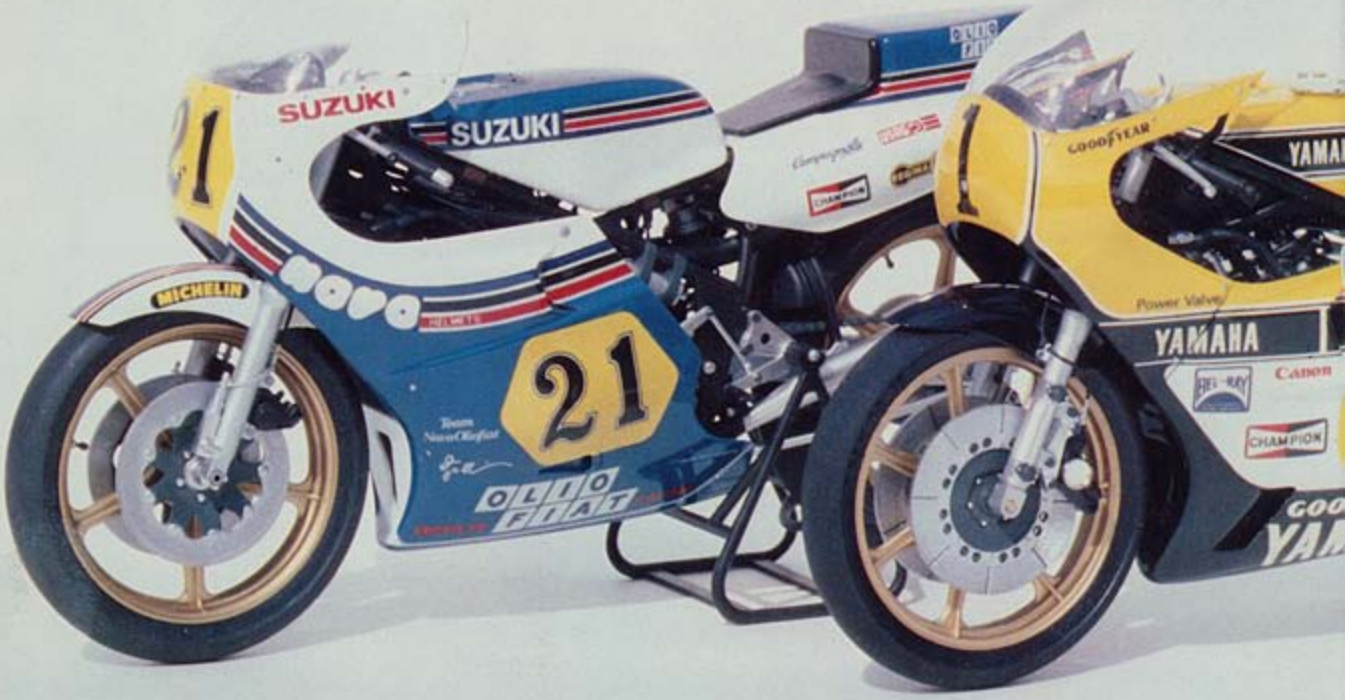
Superdetailing 1/12 scale motorcycles

Techniques you can use to improve any motorcycle model

BY PAUL BUDZIK

BEGINNERS CAN build outstanding motorcycle models. First, many of the kits now on the market, particularly the 1/12 scale plastic kits from Tamiya, are superb. Second, it's relatively easy to add texture and refine details on most parts. Third, the models lend themselves to simple but striking paint jobs.

For this article, I built three 1/12 scale Grand Prix racers from Tamiya kits — a Yamaha YZR500 (No. 1401) and two Suzuki RGB500s, one in Team Suzuki markings (No. 1403), and one in Team Galina markings (No. 1409). I will use them to show how you can make injection-molded plastic look like cast, machined, or stamped metal and to demonstrate how you can add realis-



tic details to injection-molded parts.

Turning plastic into metal. Metal parts on a full-size motorcycle are bare, chrome-plated, or painted, and they vary considerably in color and texture. For example, in Fig. 1, which shows one of the Suzukis with its fairing removed, and Fig. 2, which shows engine parts before assembly, note that the cylinder heads are semigloss black, the cylinder sides are flat aluminum, and the block is darker still.

Figure 3 shows portions of the Yamaha engine (also a water-cooled two-cycle) — the heads are shiny, the cylinders are dull aluminum, and the block is a grainy metallic gray. In both cases, it was easy to achieve the correct metallic shades. The shiny metal is airbrushed Testor Silver enamel (1146), while the darker metals are Floquil Old Silver (100) with varying amounts of Floquil Grimy Black (13) added. I apply the Old Silver and Grimy Black mixtures by airbrush using greater than normal air pressure. The extra pressure causes the paint particles to settle with a slightly grainy or pebbled effect that simulates the texture of cast metal.

After painting a cast-metal part the appropriate color, I often give it greater depth with a wash of three parts thinner to one part black (the type of paint isn't important). I apply the wash to the entire part, allowing it to flow into all of the recesses. After the wash has dried for several minutes, I moisten a cloth with thinner and remove all traces of the wash from raised or flat areas, leaving only a subtle darkening in depressions and corners.

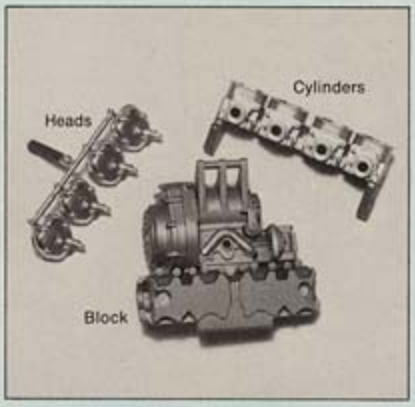


Fig. 2. Metal engine parts range in color from light gray to black and vary in texture as well. These are the major parts for the Suzuki engine.

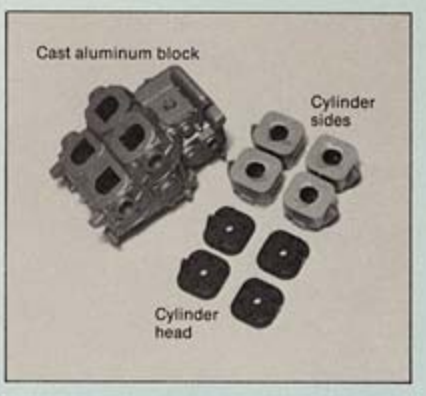


Fig. 3. On this 4-cylinder Yamaha engine the shiny aluminum on the heads is Testor Silver; the duller cylinders and block were painted with Floquil Old Silver mixed with varying proportions of Grimy Black.

After the wash has dried for a day or more, I sometimes apply a little Treasure Gold brand silver wax gilt paste* to the raised areas with a soft cloth. Treasure Gold products are available in at least three gold colors as well as silver and brass; they're packaged in 1-ounce jars and are sold in crafts and art supply stores for about $3.00 a jar.

As a rule, I highlight nuts and bolts with a different color than the parts to which they are attached. In other words, if a part is very shiny, I may make the bolts a darker steel color. If the part is dark a lighter-colored bolt often looks better. In all cases, I try to get some color down the sides of the nut or bolt to make the nut or bolt more visible when viewed from different angles.

Refining parts. Figure 4 shows the headset (handlebars) of one of the Suzuki bikes before and after I added details to this plastic part, and Fig. 5 shows the brake master cylinder parts before they were added to the headset. None of the changes to the brake, clutch, and throttle assemblies was dif-

*Plaid Enterprises, Inc., 1649 International Boulevard, Norcross, GA 30091.

Each of the author's 1/12 scale Grand Prix motorcycle models is approximately 7" long; all are built from Tamiya kits.

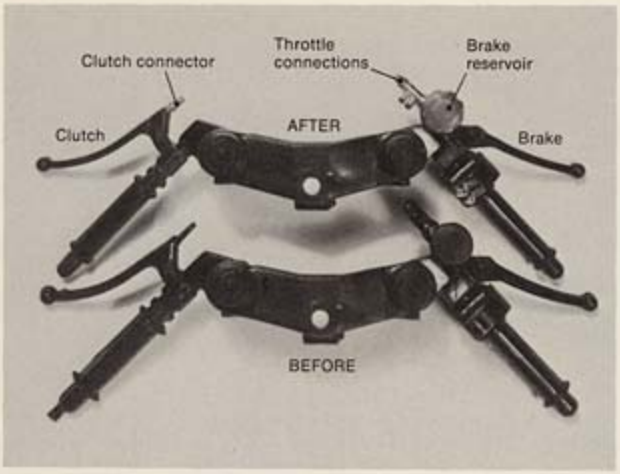


Fig. 4. The author's changes to the Suzuki headset give it a lighter, more precise appappearance.

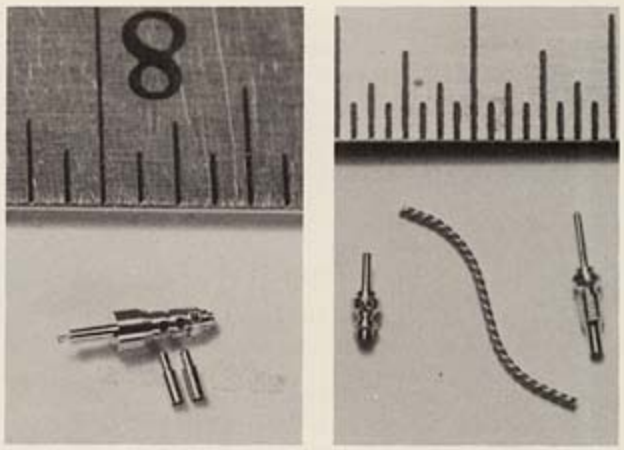


Fig. 5. Paul turned these parts for the Suzuki brake master cylinder from metal rod. Fig. 7. The couplers for the anti-dive mechanism are turned metal; the hose is twisted wire.

ficult to make, but collectively they greatly improve the appearance of this portion of the model.

It should be clear by now that I always use whichever techniques and materials give the best results with the least effort. In this case, the master cylinder parts are metal rods turned on a lathe while the reservoir is plexiglass.

The before-and-after photo of a Suzuki front fork, Fig. 6, makes the same point. The fittings on the anti-dive mechanism are lathe-turned metal, the connecting line is twisted wire, and the insert in the axle housing is .050" styrene cut and filed to shape. Figure 7 is a close-up of the anti-dive fittings and connecting line before installation and Figs. 8 and 9 show how I modified the axle housing. In each case note that I used as much of the kit parts as possible, adding or changing only those portions which the manufacturer could not adequately represent on an injection-molded part.

Wires, hoses, and clamps. All wires and hoses should have some sort of connector or clamp at each end, yet these seldom appear on molded parts. You can often simulate a connector for spark plug wires by slipping a piece of larger diameter tubing over the end of the wire, Fig. 10. Wire hose clamps are almost as easy — cut a shallow groove on the hose where the wire will go, wrap the wire around the hose, twist its ends tightly, and snip off the excess, Fig. 11. In Fig. 11 the upper hose, the one running from the radiator to the cylinder head, is a piece of miniature hose, while the lower hose, that running between the cylinder heads, is a molded kit part which I polished to match the texture of the real hose.

Clutch, brake, and speedometer cables and wires for lights and turn signals seldom exceed ¼" diameter on even the largest full-size motorcycle. Reduced to 1/12 scale that ¼" is only .020", about the diameter of the period at the end of this sentence, so replace oversize kit parts with smaller cables made from brass or copper wire or lengths of small-diameter solder meant for electronics assembly.

If the oversize wire was meant to fit onto a molded stub of some sort, file off the stub, drill a hole a little larger than

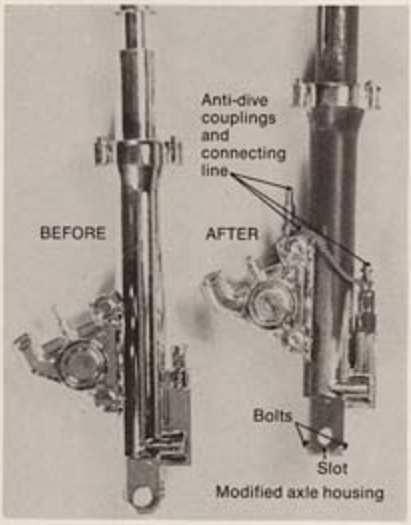
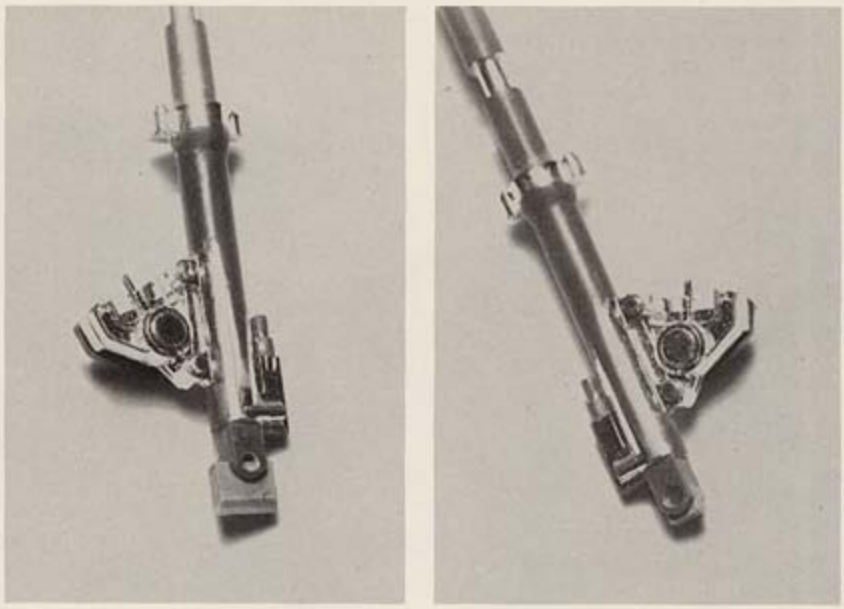


Fig. 6. The Suzuki front fork before and after Paul refined the details on the axle housing and anti-dive mechanism.



Figs. 8 and 9. Whenever possible Paul simply improves kit parts. These photos show how he refined the axle housing by first cementing a piece of .050" styrene into a slot at the lower end of the housing. Figure 6 shows that he then filed a V in the bottom of the housing and placed two bolts in its ends.

the diameter of your replacement wire, and glue the new part into the hole.

Concealing oversize screw heads. On many models the rear wheel is fastened with a machine screw whose head remains visible, Fig. 12. The screw head should be reworked to resemble a nut or bolt head or it should be countersunk and capped with a scratchbuilt part simulating a nut, bolt head, or axle end. When countersinking the screw, I first remove as much of the screw head as I dare, then deepen the hole in the part. If the part is thin, use a flat-ended cutter such as Dremel No. 193 rather than a drill because the taper on the end of a drill might weaken the screw's seat, allowing the screw to break right through the part. I usually make caps for screw heads from plexiglass rods, but sprue also works well.

Improving instrument panels. I told how to make instrument faces from photographic negatives in the Winter 1982 FSM, so I won't repeat myself here. I will say though that careful preparation of the kit instrument panel really pays off, Fig. 13. On my cycles, I carve a groove around the inside of the bezel just wide enough to accommodate the thickness of the negative. I then trim and file the instrument face so that it is round and only slightly larger than the diameter of the bezel. When the face is perfectly round and the correct size, I place one edge of it into the bezel and tease the remainder into the groove with a toothpick, Fig. 14. The instrument face must be round to begin with because the groove is not deep enough to conceal large discrepancies. Finally, install a glass or plastic cover or apply a clear varnish cover.

Modifying fairings. I'll use the Suzuki front fairing, Fig. 15, to show how to assemble and modify fairings, fuel tanks, and seats. On real cycles these are made from fiberglass or stamped metal and are invariably smoothly finished. If a clear plastic windshield is present, it is bolted to the fairing in such a way that the joint between the fairing and the clear plastic is flush or nearly so.

I began to assemble the front fairing by removing all locating pins on the fairing halves. Rubbing the edges of each half across a sheet of No. 320 or 400 sandpaper removes these lugs and also ensures a solid and flat joint that will require little filler when the halves are bonded.

I then glued the halves together with Testor liquid cement, forming a tiny bead of dissolved plastic and liquid cement along the seam. Next, I cemented the clear plastic windshield to the rest of the fairing, again using Testor liquid cement.

I make a home-brew filler by dissolv-

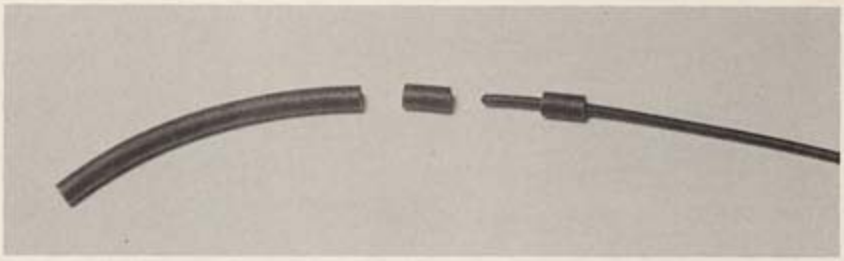


Fig. 10. One way to simulate a connector is to place a small piece of larger diameter tubing, such as black vinyl insulation stripped from hookup wire, over the cable or line. This technique is especially effective with spark plug wires.

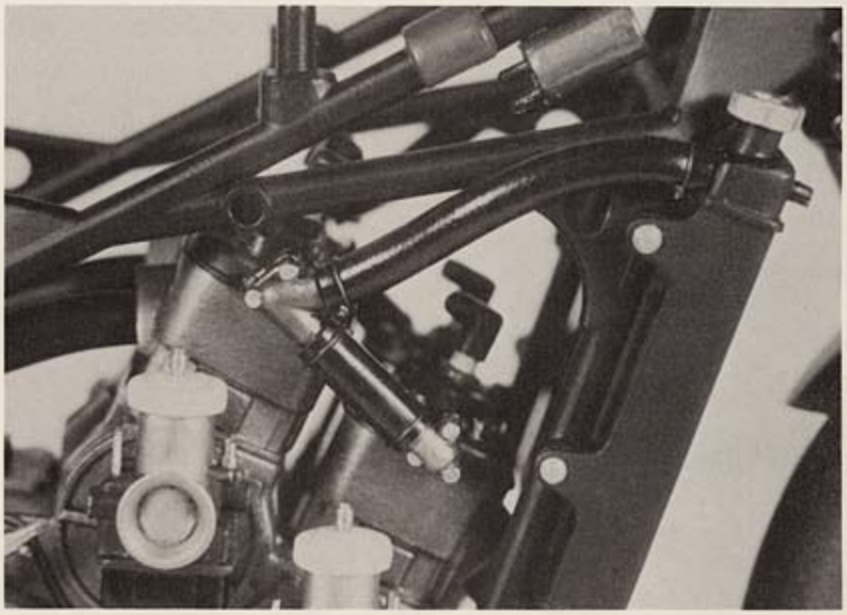


Fig. 11. File a shallow groove in the hose before adding a wire hose clamp so that the wire will seem to be actually compressing the hose.

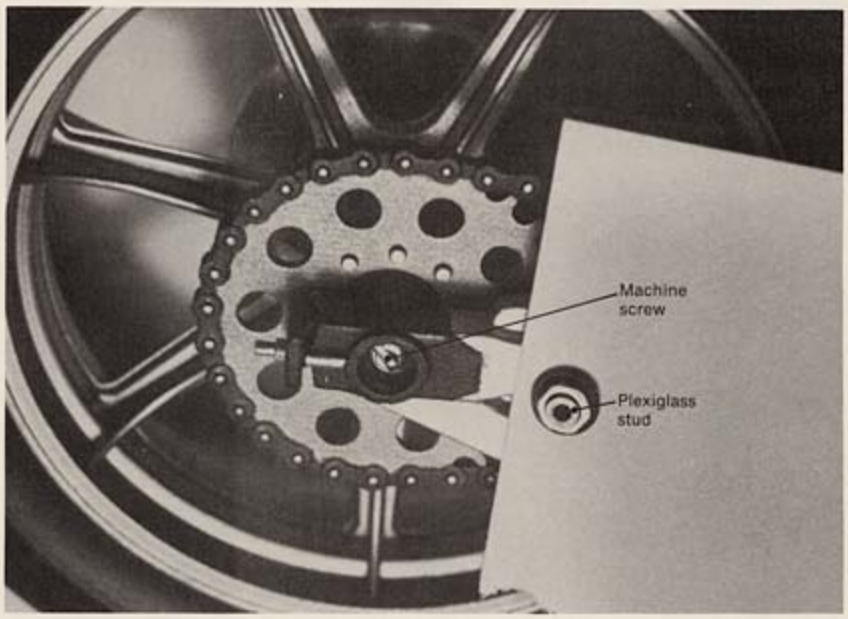


Fig. 12. Modify or conceal the heads of machine screws. Here Paul's about to cap the countersunk screw head on the rear axle with a turned plexiglass stud.

Fig. 13. Before mounting an instrument face, carve a shallow groove in the bezel to which it will be attached.

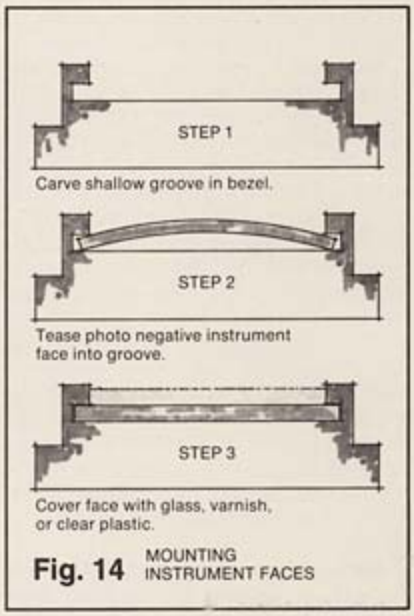


Fig. 14 MOUNTING INSTRUMENT FACES

ing bits of chopped sprue in Testor plastic cement, adding pieces of sprue until the mixture has the consistency of molasses. This filler strengthens the joints to which it is applied, though it takes a long time to set and should only be used in small quantities. In Fig. 15 note that I've filled and sanded the joint between the clear plastic windshield and the fairing until the seam is perfectly smooth and that I've sanded off all details such as rivet and bolt heads, which can be restored after the fairing is painted.

I then polished all parts and masked the windshield to protect it while I primed and painted the fairing.

Applying undercoatings for light-colored decals. Still using one of the Suzukis as an example, observe that most areas where two colors meet feature a white stripe. Note also that the yellow backgrounds around the black numerals are surrounded by blue. The kit provides decals for these stripes and for the numerals and yellow backgrounds but because the white stripes and yellow backgrounds are so much lighter than the base colors, the base colors can show through the decals, ruining the effect. For example, if the yellow decal were applied directly over the blue base color, the background would appear muddy green, not bright yellow. Similarly, the white stripes would appear pink.

If the bare plastic is light colored, a solution is to carefully mask the light area, paint the darker colors, remove the masking over the light area, mask the dark areas, and apply the light-colored decals.

If the bare plastic is dark colored, mask all of the dark areas, apply a white primer to the light areas, remove the masking from the dark areas, paint and mask over them, and apply the decals to the white-primed areas.

In either case, the secret to success is accurate masking. Here are two masking techniques I've found useful. First, make a photocopy of the decal sheet, Fig. 16, then cut stencils from the copy. You may choose to wet the paper stencil with water, apply it directly to the model, and trace around its edges with a pencil. You could also lay the stencil on a piece of masking tape and trace its outline onto the tape.

Occasionally, you may find it easier to apply two identical decals over a darker base color than to apply a light undercoat — that's what I did when applying the yellow decal against a blue background in Fig. 17.

Achieving equal thickness for all colors of paint. Let's say that you've painted an entire fairing a light color and then decide to apply a darker color

Fig. 15. All parts of the fairing must be smooth before any paint is applied. The plastic windshield on the Suzuki fairing is milky at this stage but will be polished until it is perfectly clear.

over only part of the fairing. Use the thinnest possible paint, often a Floquil lacquer, for the second coat or you'll end up with an unsightly ridge where the colors join. Even with Floquil, after you've removed the masking and the paint has dried thoroughly, lightly scrape the edge of the raised line where the colors join. If you used an enamel for the second color, you'll probably also have to sand this edge with No. 400 wet-or-dry sandpaper used wet. I have found 3M Wetordry to be the best brand — pieces of abrasive don't come loose and embed themselves in the paint as sometimes happens with other brands.

Applying a clear gloss coat. I protect parts painted in a gloss finish on the real motorcycle (for example, fenders, fairings, and gas tank, but not the frame or engine) with a clear gloss coat. I'm presently using Delclear, a two-part acrylic urethane from PPG Industries, Fig. 18. I prepare a mix of 2 ounces of Delclear, ¼ ounce of hardener (called Delthane Ultra Urethane Additive), and ½ ounce of thinner (Delstar Acrylic Enamel Reducer) and airbrush this onto the parts.

After the clear has dried for several days, I gently wet sand the parts with No. 600 wet-or-dry until all parts have a uniform dull finish. The idea here is to remove any tiny irregularities on the surfaces — be careful not to sand all the way through the clear into the decals. If any irregularities remain, apply a second coat of clear and sand again.

The final coat of clear is meant only to restore the gloss, so dilute the mixture with an additional ½ ounce to 1 ounce of thinner and mist it onto the parts.

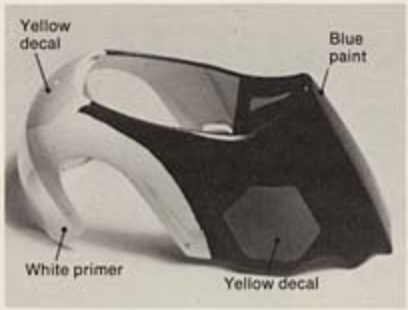


Fig. 17. A light-colored decal applied over a darker background can change color. Here the yellow decal appears a muddy green because the blue shows through. Paul solved this problem by applying a second yellow decal over the first, though he usually prefers to mask around the area to be decaled and then primes it with a light-colored paint.

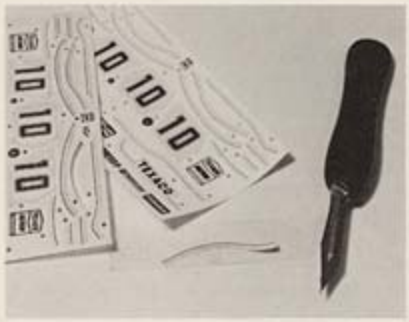


Fig. 16. Photocopy the decal sheet, then cut stencils from the copy.

I hope you find these tips useful. Perhaps the photos of the completed models and the knowledge that 1/12 scale cycles are not difficult to build will inspire you to try one. FSM

Fig. 18. Paul reports that Delclear acrylic urethane from PPG Industries is an excellent non-yellowing clear coat. It is sold in auto parts stores.

BOLIDI
A DUE RUOTE

Le tecniche per migliorare qualsiasi modello di motocicletta in scala 1/12

TESTO E FOTO:
PAUL BUDZIK

Chi ha detto che i principianti non siano capaci di realizzare modelli di un certo pregio? Innanzitutto, molti dei kit attualmente sul mercato, in particolare quelli Tamiya in scala 1/12, sono di per se stessi superbi. In secondo luogo, è relativamente facile migliorare e rifinire i dettagli di molte loro parti e, come se non bastasse, i modelli in parola si prestano a colorazioni semplici ma d'effetto.

Per questo articolo ho realizzato tre moto da Gran Premio in scala 1/12 della Tamiya: una Yamaha YZR500 (Kit n°1401) e due Suzuki RGB500, una nei colori del team Suzuki (Kit n°1403), e l'altra del team Gallina (Kit n°1408). Le prenderò ad esempio per mostrare come sia possibile far sì che la plastica assuma l'aspetto del metallo fuso, laminato o stampato, oltre che per descrivere l'aggiunta di realistici dettagli alle parti stampate ad iniezione e offerte dal kit.

Trasformare la plastica in metallo. Sulle vere motociclette le parti metalliche sono scoperte, cromate o verniciate, e variano sensibilmente in quanto a forma e colore. Per fare un

Fig.1. La rimozione della carenatura e del serbatoio rivela il dettagliatissimo motore a quattro cilindri raffreddato ad acqua.

esempio, nella Fig.1, che mostra una delle Suzuki priva della carenatura e nella Fig.2, in cui sono visibili alcune parti del motore prima dell'assemblaggio, si può notare che le testate sono in nero semilucido, il corpo dei cilindri è in alluminio opaco, mentre il monoblocco è più scuro. Nella Fig.3 si vedono invece alcune parti del motore

tà variabili. Questa miscela è stata applicata ad aeropenna con una pressione superiore al normale, in modo che le particelle della vernice si posassero sulla superficie con un effetto leggermente granuloso, tale da suggerire l'aspetto delle fusioni metalliche. Dopo avere verniciato le parti del motore nel colore appropriato, è possibi-

lumeggiate con la cera dorata "Treasure Gold", passata con un panno morbido. I prodotti della Treasure Gold sono disponibili in almeno tre tonalità di oro, ma anche in argento ed ottone, nei negozi di belle arti ed in barattoli da 30 grammi.

Di regola, per enfatizzare la presenza di dadi e bulloni uso un colore di-

Ognuna delle motociclette da Gran Premio in scala 1/12 realizzate dall'autore è lunga circa 18 cm; i modelli in foto sono stati tutti costruiti basandosi su kit Tamiya.

Fig.2. Le parti in metallo del motore variano nei colori dal grigio chiaro al nero, così come nella finitura. Queste in foto sono le parti principali del motore Suzuki.

Fig.3. In questo motore Yamaha a quattro cilindri, l'alluminio brillante sulle testate è il Silver della Testor; i cilindri e il monoblocco, più scuri, sono verniciati con l'Old Silver Floquil, miscelato in dosi diverse con il Grimy Black della stessa marca.

Yamaha (anch'esso un due tempi raffreddato ad acqua): le teste appaiono brillanti, i cilindri in alluminio opaco e il monoblocco in grigio metallico sabbiato. In entrambi i casi non è stato poi così difficile ottenere le corrette sfumature metalliche. Il metallo brillante appena menzionato è il Silver della Testor (1146) passato ad aeropenna, mentre le tonalità più scure derivano dall'Old Silver (100) e dal Grimy Black (13) della Floquil mescolati in quanti-

le conferire loro maggiore profondità con un "lavaggio" di tre parti di diluente ed una di nero (il tipo di vernice non è importante), stendendo il colore sull'intera superficie e facendolo accumulare in ogni rientranza. Con uno straccetto inumidito nel diluente si elimina infine ogni eccesso di colore dalle superfici lisce o sporgenti, lasciando solo una leggera traccia (l'ombra) negli angoli ed interstizi. Passati alcuni giorni, le parti sporgenti possono essere

verso da quello delle superfici su cui sono fissati. In altre parole, se una parte è molto brillante, i bulloni vengono dipinti in un colore acciaio più scuro. Se la parte è scura, un bullone di tonalità più chiara si rivela di migliore aspetto. In ogni caso, cerco di trasportare col pennello un po' di colore lungo i fianchi dei bulloni o dei dadi per renderli ancora più evidenti nel caso risultassero visibili da diverse angolazioni.