

SG FUTURA 111 TEST

by DAN RUTHERFORD

The SG car is a fairly new 1/8 car that is now being imported from Italy by Federico Catucci, under the company name of:

FPE-RC Model Car
P.O. Box 207
Manville, RI 02838

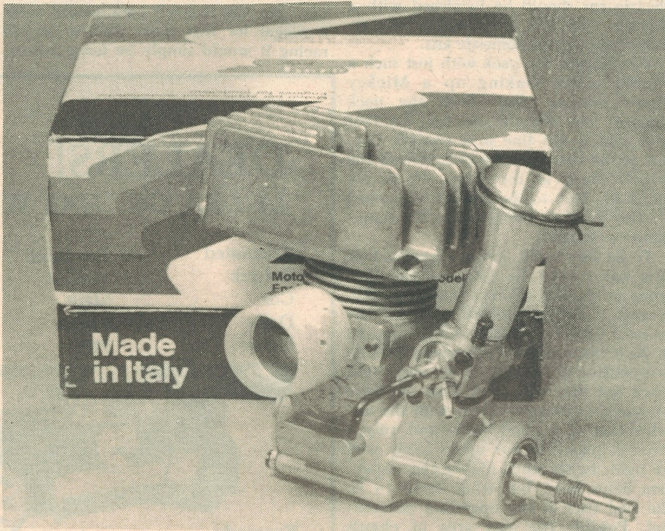
First thing to hit when the package from FPE was first opened was that somebody at SG knows how to properly wrap a car kit in something other than a "plain wrapper." When laying out a couple hundred dollars for a car, it is nice to have the box feature full-color art work; in this case it is a large picture of the assembled chassis.

Inside the box, everything is neatly arranged with chances of any pieces being damaged in transit extremely small. Further, all of the little bits and pieces are bagged according to which sub-assembly they make up. Nicely done and (almost) insuring that all the parts are there.

After a short rummage through the parts, it was onto the instruction manual, the total downfall of several current R/C car kits. I tend to be very critical concerning instruction manuals, probably because anybody paying the kind of money 1/8 kits cost certainly deserves to be told exactly how to build the thing without resorting to phone calls, help from friends and so on. In this respect, the SG kit is absolutely outstanding. If you can't build this car following the instructions, then chances are you won't be able to figure out that the wheel on the radio controls car direction, not throttle input.

The primary instruction manual used is an eight-page piece comprising no words at all, relying instead on 152 pictures of excellent contrast. If one picture is really worth a thousand words, then the SG manual comes in at 152,000 words. To read this description may not be enough to get the message across, so try this on for size. In one assembling sequence the first picture shows the bag of parts being emptied onto the building

table, this alone being enough to identify the particular bag you're after. The next picture shows the contents (6 body posts, 11 sheet metal screws, 1 grommet, 4 body clips and 2 spacers) lined up in orderly fashion and according to length in the case of the body posts and sheet metal screws. The next picture shows the assembler picking up a certain body post and one of the medium length screws. Moving to the next picture we see the screw coming through the appropriate hole in the chassis, the body post being held above it. Finally, there is a picture of the body post being



screwed to the chassis. The whole thing may sound like overkill but really isn't, especially for those assembling their very first car. The manual is extremely well done and has to serve as an example to all other 1/8 manufacturers that I am aware of. Incidentally, a neat trick to using the pictures is that you don't have to even be literate, let alone able to read Italian, to assemble the car.

As if the manual wasn't enough, SG also includes a very large exploded-view drawing of the car which is handy to refer to, even if a bit unnecessary. To go

one step further, Catucci is putting together a supplementary instruction manual, presumably showing any modifications he and Paolo have come up with, plus directions on mounting the Can-Am and GT bodies more commonly used here in the States. At this writing, we have not seen this supplement and in light of the SG supplied manual, wonder if it is even needed.

ABOUT THE CAR

The chassis pan is 2mm thick and made of Ergal, an alloy of German origin claimed to have tremendous tensile and torsional strength. The claims are probably correct, but it looks like black anodized aluminum to us. Also made of Ergal is the radio plate and the huge (10mm) machined rear axle.

The rear plate of the chassis is machined from 5mm thick Avional. Kingpins and front axles are of tool steel. The front cross-bar is molded of nylon and has been heat-treated. Of the same nylon are the front and rear wheels, all of these done up in black, the wheels being spoked.

The radio plate is pre-drilled and machined, accepting easily the Futaba and JoMac radios, among others. A Delta-type servo saver is supplied, as is all linkage required. Front and rear bumpers are of nylon. Metal motor mounts are supplied and they are designed for mounting the ST X-21 Car engine, although mounts for other motors are available.

The car comes complete with a disc brake, this being a steel rotor driven by a collar that is set-screwed to the rear axle. Pad material appears to be mica-ta. The brake assembly is contained within the left rear bearing block.

The tank is unusual, being molded of nylon and held together with six sheet metal screws. An "O" ring seals the joint between top and bottom halves. A sump is molded in to the bottom of the tank, as well as baffles to control fuel transfer during acceleration and braking. The top incorporates a tall riser tube fitted with a spring-loaded self-sealing top and is quite similar to the system Delta uses.

Tires supplied are cut foam rings for the rear and what appear to be extruded foam front tires. The compound of both front and rear tires is quite a bit harder than normal and, of course, the tires need to be mounted on the wheels and then trued.

A total of six ball bearings are supplied, two for each front wheel, two for the rear axle. The bearings look of good quality, the fronts being sealed, the rears being unsealed . . . unfortunately.

An interesting extra supplied with the car is the EFRA-legal muffler which is silver-soldered together from brass sheet and then nickel plated. It is complete with a pressure fitting and mounts to the chassis with two bolts, the connection between engine and muffler being a sleeve of silicone tubing.

ASSEMBLING IT

As you can imagine from description of the manual, assembly went very easily, it would be hard to imagine the car being any easier to put together. Everything fit, it was not necessary to do any filing, drilling or hammering to get it all together. Only two holes had to be laid out and drilled, these being for the bolts common to the muffler and rear part of the chassis plate.

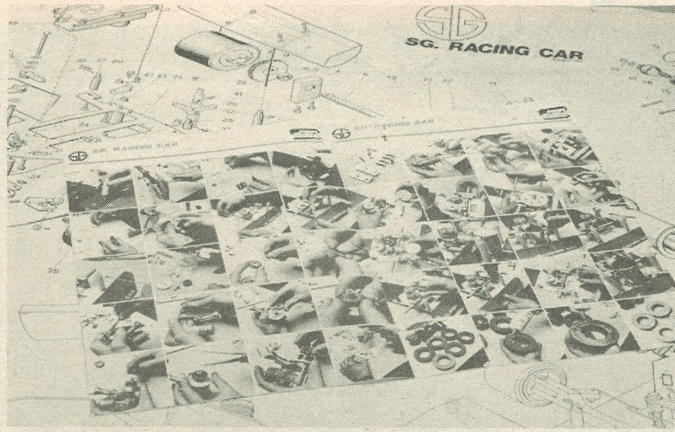
With the car almost completed, the first problem came up: several of the tricky little molded nylon gizmos illustrated were missing from the kit. This was a little problem cured by bending up wire linkage and using a stand-off on the supplied 90° bellcrank.

Steering linkage was installed as suggested but will be redone before the next

racing season. With the servo mounted high and upright, plus the servo saver linkage attach point being high, there is a considerable amount of bump-steering. As the chassis flexes up and down the steering link gets shorter and longer (in relation to the chassis pan) transferring this flex into left and right steering inputs. Definitely not the hot set-up for a bumpy track.

The nylon tank is unusual and one of the most attractive features of the kit. It is easy to assemble, drops right into the radio plate and gives even engine runs. It was expected that it might leak, but the "O" ring seals effectively and it hasn't leaked a drop, even though having been taken apart a couple of times. The tank even has a molded-in recess for catching over-flow when refueling. And the recess has a drain fitting to make everything truly complete.

Rear wheel attachment is unusual. Each end of the axle has a flat spot machined on it and this indexes to a flat-sided hole in the rear wheels. Set-screws are used in the hubs, but only to locate the wheels laterally on the axle, drive being accomplished by the mentioned indexing of the wheels to the axle. The nylon gear drives the right wheel through short steel pins that are a press fit in the wheel and locate to molded-in holes in the gear itself. The gear is not locked to the rear axle in any way, merely sliding over it. This comes in handy when working on the car, a gear change being quickly and easily accom-



The excellent instruction manual laid open on the also excellent exploded-view drawing supplied with the SG car.

plete with an X-21 that is ready to drop into the car. The engine comes complete with a clamp-on heat sink, exhaust stub for attaching the silicone tubing to, a Mag III carb, a venturi/air cleaner and a crankshaft that was made expressly for car use. The shaft is much longer than usual and is machined down to accept not only the flywheel but the clutch assembly as well, eliminating union nuts, separate drive shafts and the like.

And this shaft was where we had the only real problem in building up the

mid-range. Although the choke area is fairly large, a big spraybar occupies most of that space, leaving only a little room for air to get by. FPE sells a special spraybar that can be used, giving the carb a choke area equivalent to a 50 size carb and it would be recommended if you want more shove from the engine.

The only potential problem with this carb is that as the throttle barrel rotates from low to high throttle, it also moves in and out of the body slightly. It would seem that dirt could work its way into the carb, either wearing it out quickly

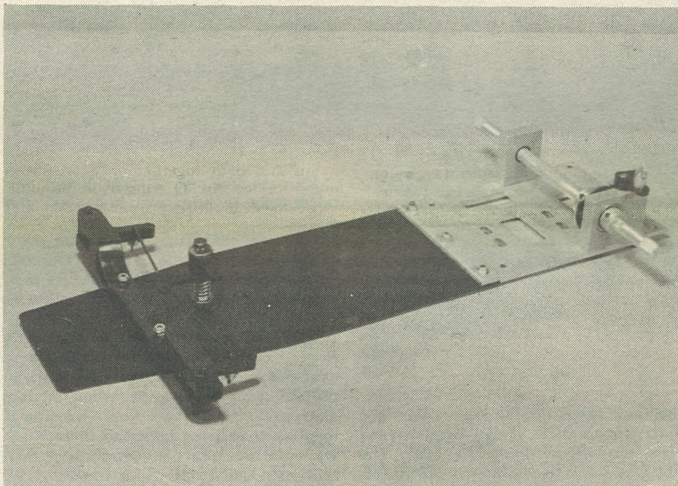
construction of the receiver more than makes up for that.

Did have an intermittent problem with the receiver switch. When new, the radio would not always come alive when the switch was turned on, but tapping the switch would fix that. The problem seems to have gone away on its own (I hope!) as the switch got used more.

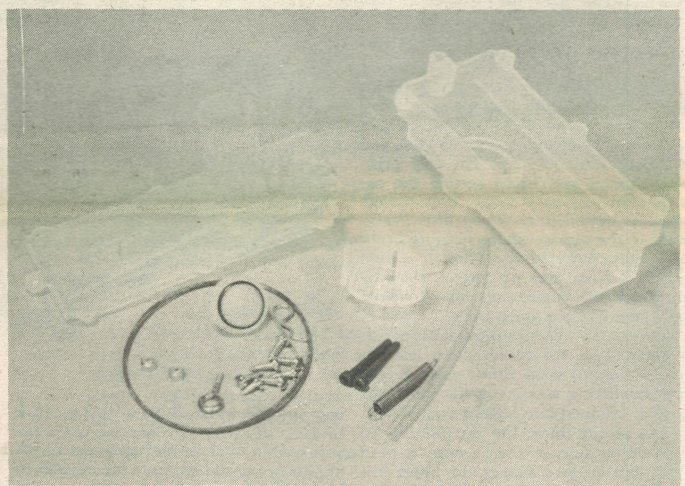
MAKING NOISE

Firing up the motor for the first time was almost impossible, even with a strong Pylon starter. The motor is difficult to get to turn over until a little fuel gets in. Once primed (not an easy trick), it fires up easily, however. This continues to be a problem, incidentally. First run on the motor found settings to be close, just a little fiddling with high and low speed needles was required to get the mix close enough. I set the idle fairly high, as I like fast idling car engines, and we ran it for the first time. Turned out that the clutch is a quick locker, not wanting to slip even a little bit. As we had too much brake dialed in, and the idle was high, the clutch got hot real fast and melted the nylon gear. After phoning for some more gears and a few other spare parts (all of which were in stock at FPE), the linkage was set up to kick off the brake before advancement of the throttle and the idle was lowered a bunch.

Next time out it was found that the



Basic chassis before addition of engine, radio plate and wheels. Left bearing block houses disc brake unit.



The tricky nylon tank, notice internal baffling, sump, spring-loaded filler and "O" ring seal.

plished.

When finishing off the car, installing the front cross-bar, there was a lot of slop, the cross-bar being relatively free to change position. A much more solid method of mounting this piece is required, possibly going to larger bolts and/or adding another bolt or two would help some.

Also, the cross-bar is quite flexible. Seems strong enough but all that flex is worrying; it wouldn't be surprising to see it get whacked hard and take a set, or worse get sagged out after lots of running, especially on hot tracks. The same piece is made available in Ergal and may be the way to go.

In box-stock condition, the car sits quite high off the ground, especially in the front. FPE supplies shims to space the cross-bar up about 7mm. Still, even with the shims in place, the car has to be considered to have a lot of ground clearance.

THE ST X-21

Our kit was the deluxe version, com-

car. The groove in the end of the shaft would not protrude far enough from the clutch bell to allow installation of the "E" ring retaining the clutch bell. I don't know who was at fault here, ST for cutting the groove in the wrong place or SG for making clutch bells that are too wide, but the fix was to clamp the motor in a vise and cut the groove in the shaft wider, using a suitably clamped-down Dremel tool. A real "hackers" fix, but it was effective.

The X-21 is of the normal ABC piston/liner construction, has strong cases, large front and rear bearings, etc. Porting is "kind-of" Schnuerle, being more accurately called a five-port engine. Workmanship is up to the usual standard expected from ST, meaning it is good. Did find a couple of loose metal particles in the engine, however, plus some flash on the crankcase casting immediately above the back door (rear cover).

The Mag III carb is very good and works reliably. It gives a lower, more reliable idle than any Perry I've ever used, plus has no tendency to go lean in

or even jamming it, if the car were to run on dirty tracks. We haven't had this problem so far, however.

The supplied venturi looks pretty, but I just couldn't go along with using a piece of old t-shirt as the filtering element. The top of the venturi was cut off, a Fram paper gas filter "Hot Stuffed" onto it and then reinforced with lots of silicone glue. It's a little shaky, but works OK.

THE RADIO

In the first issue of *RCW* we tested a JoMac radio, so won't get into it heavily here, just to say that the radio has worked fine from the start. The strong servos are quick, especially on the five cell battery pack used. The JoMac receivers have been improved recently, making them much more resistant to interference than before and not surprisingly we haven't had any interference problems at all.

The large size of the receiver made it a close fit in the radio plate, but the ease of changing crystals and rugged

X-21 will idle very slow and do it with absolute reliability, so we now have it set lower than any car motor I've ever been around. Doing this eliminated any further problems with melting gears.

As slipper clutches are regarded as the hot set-up, the SG clutch with its instant lock-up feature started getting looked into. But before cutting the shoes (in itself not an easy trick with the circular spring used for shoe return), we ran the car again and decided to leave the clutch alone. The saving feature here is the X-21 has very little low-end power. Punch the throttle and not much happens, the car just accelerates away without wheelspin. About 40 feet out you can hear the timing of the engine start to work, the engine changing exhaust note drastically, where it finally starts to get it on.

Being used to the fierce low-end grunt offered by the K&B 21, we were ready to pronounce the X-21 a dog, but then realized that the X-21 would accelerate the car right alongside others powered by K&Bs but that were throwing away all the low-end power through clutch
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slip. A bonus here, in addition to having a car/engine/clutch combination that is easy to drive in the twisty stuff, is that the X-21 gets much better fuel mileage than any other car engine we've used to date.

Even though an effective engine, the X-21 has to be regarded as only fair in power output. Both the K&B and the OPS will outrun it, even on the top end where the X-21 is at its best. And don't regard that statement as necessarily being negative. I see more and more people going faster (elapsed time per lap) the further they de-tune their honkin' engines. People like Kyes, Jianas and Carbonell want all the power they can get and seem to be able to utilize it effectively. But for majority of racers running in local club races and on less than ideal surfaces, enough power to get you around the track quickly, all the while pointed in roughly the same direction as the rest of the cars.

At this point the car was judged ready to race . . . almost. That hard rubber had to go, it just wasn't working well at all. As this is MRP country, I mounted up some of their rubber that is known to work well on our tracks. On the back went three-ring "D" rubber, up front it was a set of the new moldeds.

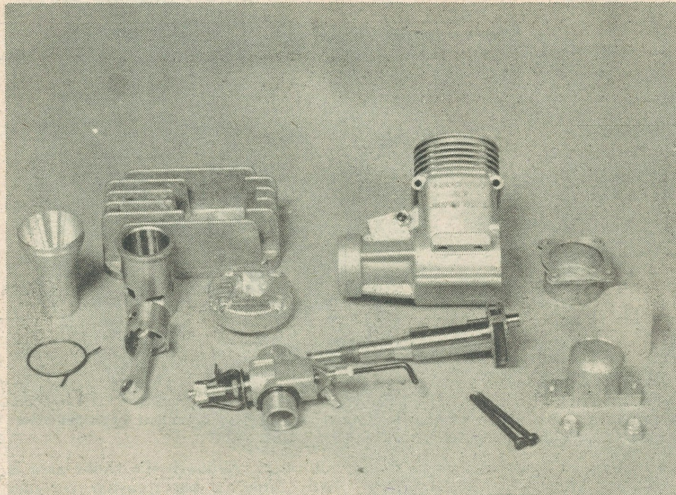
Last addition was one seen on many cars at the Nationals, even Brand A's Team Cars, and that was the MRP tweak plate. The SG chassis did have a bit of tweak in it, but a couple of turns on the tweak plate got it neutralized.

OFF TO THE RACES

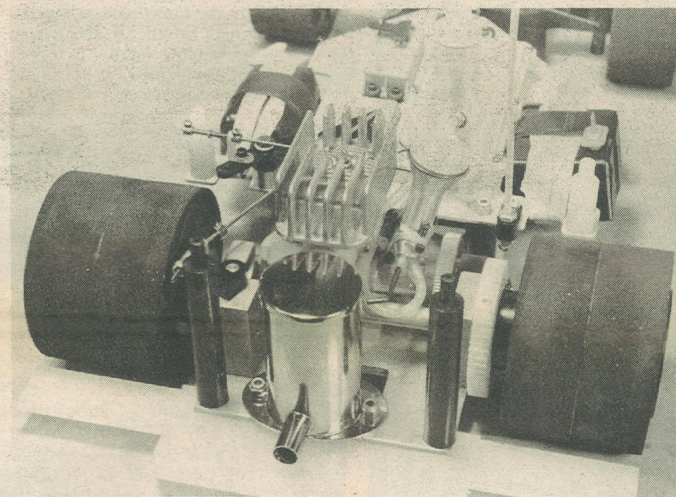
One of our area's better 1/12 racers, Brian Kosinski from Canada, was asked to run the SG car in its first race. Brian had never before raced in 1/8, but was certainly willing to try! The first practiced session saw Brian getting the car around in very good shape, even though the car seemed to have too little brake. Back in the pits we dialed in more brake and again lowered the idle . . . that clutch is a real lock-up special. Back on the track the engine still idles reliably, but now had too much brake.

Some more linkage adjustment, a little fiddling with the tweak plate and we had it close to what Brian wanted. The first qualifying was going fine until the car got bumped into hitting a plow-disc. It was no big thing, the car just flipped over on its top; it wasn't even a hard shot. But it was enough to break the riser tube on that trick nylon tank. This was especially surprising as the car was cloaked with a Cobra GT body that offers some protection to the tank.

Thanks to the spring that keeps the quick-fill lid on the tank, the riser tube stayed in place for the rest of the heat. In the pits we decided there was no



The S.T. X-21 broken down for a look at its internals. ABC piston/liner construction. Rear view of completed SG car, notice the shiny muffler which is very effective in keeping noise to a reasonable level. Two-bolt mounting avoids any potential problems with the muffler twisting around, slipping the silicone sleeve.



way to fix it up right then, so we ran it broken. It caused anxious moments the next couple of times the car went on its top but never did separate far enough to lose any fuel.

Brian went on to win the "C" Main that day, a good showing for a driver new to 1/8 driving a brand new car.

BACK HOME

After the race, a few observations.

The tank needs reinforcing at the base of the riser and as it can be shortened some, we will be doing that also. The tube was easily fixed with Hy-Sol Epoxi-Patch, incidentally. The muffler is effective and does a good job of getting the glop exhausted out of the car. The nylon rear bumper may be OK, the front one definitely needs to be replaced with a bumper made of Kydex. The nylon Cross-bar had shifted some in the banging around and needs a more

secure method of mounting. The disc brake worked fine, even with the short lever arm supplied. The front ball bearings stayed clean, the rear ones did not. Better to run simple oillites than unsealed bearings in my opinion. If the first race is any indication, the rear bearings will require cleaning after each race. The front and rear body posts are held to the chassis with sheet metal screws, and this won't last for long. All of them were loose after the race and when retightened gave every indication of being ready to strip out next time. Once adjusted with the tweak plate, the chassis stayed neutral, even after considerable banging around. Other than screwing the high speed needle in some, as the engine was by then broken in, the needle adjustments have been left alone. The engine and carb both seem to be very tolerant to different fuels and varying ambient temperatures. None of the really important nuts and bolts, like those holding the radio tray in place, the ones common to motor mounts and chassis, etc., came loose. The fact that they are metric is a continual pain, however. The steering linkage will have to be lowered as much as possible to get rid of the bump-steer. If reassembling the SG unit upside down doesn't work out, then we'll try either the new Delta or MRP servo savers. And, of course, the steering servo will have to be mounted upside down, but that's easy enough. Gearing seems about right for any track I've run on. Good thing too, as SG only offers one pinion/main gear set, the pinion being 12 tooth, the main gear 58 tooth. Many prefer to gear lower than that, but many also gear too low only to resort to clutch slip to keep the car controllable on low speed turns.

SUMMARY

Even though the SG car is not the latest word in ultra-tick, high-zoot race equipment, it is basically a good, solid car. There are a few things that need changing to make the car more durable for the typical American racer/board-smasher, but none of them are difficult or expensive.

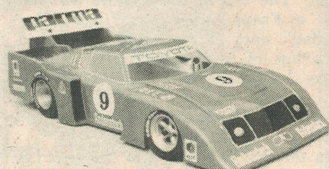
The car is easy to work on and don't forget that it is real easy to build. Parts availability so far has been good, an important thing to consider when buying any race car. However, we must mention that being imported there is always the possibility of temporary parts shortages. Only time will tell here.

We've told you about all we know concerning the SG car and the ST X-21. Now it's up to you to decide if it is the car and/or engine for you to use in the coming racing season. We'll definitely be campaigning our car . . . and we don't bother with racing any junker cars. **RCW**

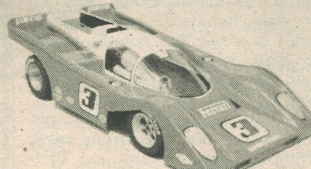
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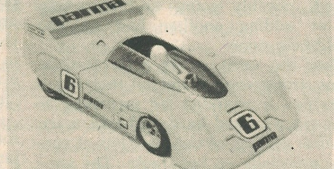
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