DUAL-PURPOSE ROADSTERIZATION

PART ONE

Street/trail streetification tips

THE ON-ROAD/OFF-ROAD motorcycle has sliced out a substantial piece of the motorcycle sales pie since Yamaha first unveiled the 250cc DT1 in the late 1960s. Today, dual-purpose bike sales stand at nearly 15 percent of total transactions. Various studies show that as much as 70 percent of total mileage on the DPs is pavement oriented. The implication is that these bikes are bought for their sporty off-road appearance, but are used for tooling around town with some fire-road or easy trail expeditions slipped in on the side.

The dual-purpose bike is a compromise, built to perform in the dirt as well as on the street. Yet according to the figures, it spends most of its time on the street where it suffers a bit when compared to purebred roadsters. However, it does offer lightness and maneuverability.

Custom Rider's look at roadsterization of the DP has a dual purpose in itself: First, a reconstituted street/trail bike can be an economic alternative to current street machinery and escalating price tags. That economical street machine you're looking for may be gathering dust as a DP in the corner of your garage or at a bike shop.

The second purpose of this article is to offer specific suggestions and recommendations on how to make the on-road/off-road machine a better street machine. You'll find some tips that apply in general to converting any dual-purpose bike to regular street riding. And you'll read about a specific *Custom Rider* project bike which began life as a 1980 Honda XL500. In this installment you can take a look at some of the initial steps involved in converting the XL into—hopefully—an excellent street bike. The finished project bike will appear in Part II of this article, in the Dec/Jan issue.

SINGULARIZING THE DUAL-PURPOSE BIKE

WHAT, EXACTLY, do dual-purpose bikes have to offer? First of all, they're **narrow.** This means you can zig and zag around town. They also have **long travel,** and then some. Dual-purpose suspension, borrowing from off-road development, abounds in travel inches. DPs are **light,** increasing maneuverability and they are **not gas guzzlers.** These bikes are **long on low- and midrange power.** They are designed to handle *fair-to-middlin'* trail riding, giving them that kind of low-down, pull-out power that makes getting around town a pleasure. And they're **economical.** A new DP costs less money than a full-trot street bike. Of course, if you buy a used bike or activate one languishing about in the garage, the savings are even better.

OUTLINING THE PROJECT

ANY CUSTOMIZER is the captain of his course, but the following list may help make the sailing smoother for any planned streetification project:

—Road tires
—Street Fenders
—Handlebars
—Wheels
—Lowering the bike
—Brakes
—Reworked or custom seat
—Small luggage rack
—Headlight
—Exhaust system
—Sport Fairing
—Monocoque seat/tank body

Road tires. The trials tires found on dual-purpose bikes are a compromise between the off-road knobby pattern and basic street rubber. Fitting good street tires certainly will smooth out your ride and increase the lean-over road grip. The high-ground-clearance chassis of the DP bike, which is also unencumbered by a centerstand and low mufflers, permits enthusiastic cornering once street shoes are added. Be sure the rubber you select fits the bike physically; obviously, a wide-profile tire may not make it.

Street fenders. Off-road bikes use high fenders to keep mud and brush from jamming the tires against the fenders. Some scouting around should uncover a low front fender that will snuggle down over the new road rubber. Swapping the rear fender might be more of a problem; with many bikes this either won't be practical or necessary.

Handlebars. Off-road handlebars tend to be wider from grip to grip to allow more turning leverage when dirt riding. Sometimes, just using a hacksaw to shorten this distance will provide enough leverage. If not, select an acceptable street bend.

Taking the sporting look a bit further, you might go to low handlebars such as clubman, drag or clip-on bars. This might also inspire a switch to rearset footpegs.

Wheels. Most dual-purpose bikes have 21-inch front wheels rather than the 18- or 19-inchers found on street bikes. You may want to switch to the smaller front wheel diameter, but street tire selection for 21-inch wheels is rather restricted. You can select from either mags or wire spoke wheels. In some instances, finding wheels that fit, especially cast wheels, may be a problem. Remember that most cast alloy wheels are actually heavier than wire spoke wheels. But if you're willing to make that concession, given the weight advantage the DP bikes already offer, you can achieve a sporty look. Another reason for swapping wheels is to permit a different

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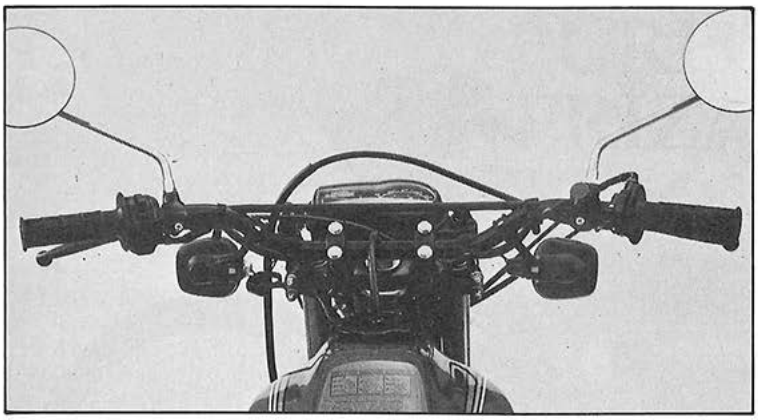
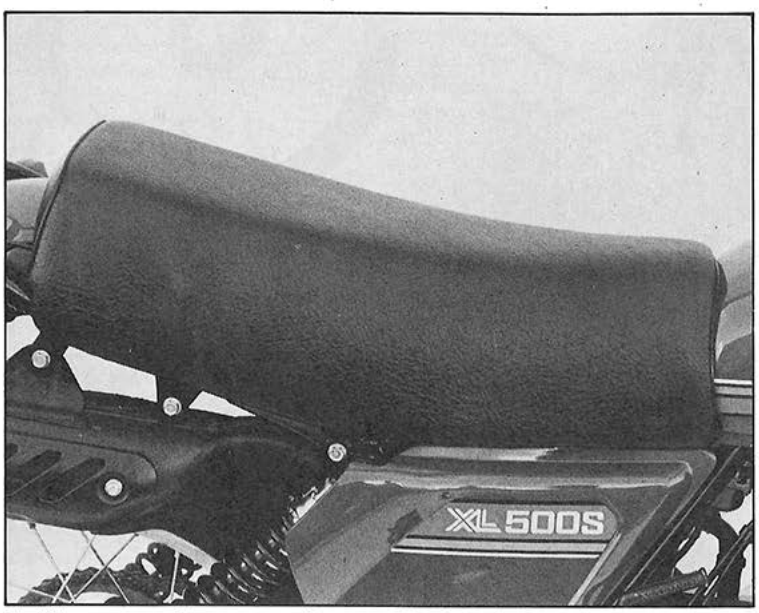
A stock 1980 Honda XL500S *(top) and a look at the roadsterization in progress.*

D-P ROADSTERIZATION *Continued*



Stock handlebars *were shortened three inches with a hacksaw. Width between bars is 30½ inches.*



The XL's passenger strap *was removed to create a sleeker look and a more comfortable ride.*

brake set up. Make sure the new wheel fits before you buy it. This is particularly true up front. Off-road forks often are narrower and some wheels won't slip on.

Lowering the bike. Here you can trade off some of that excess ground clearance and suspension travel for a lower, more street-like riding position. However, this will cost some cornering clearance and you may have to reposition the footpegs. The newer dual-purpose bikes are sporting as much as eight or nine inches of rear-wheel travel. Most street bikes offer little more than four inches.

The easiest way to lower a bike is through its suspension; it's much easier and less expensive than modifying the frame. On the rear end, it's just a matter of bolting on shorter shocks. It may be a good idea to use rubber snubbers on shorter shocks to short-circuit bottoming impact to the frame. Up front the simple thing to do is raise the fork tubes in the triple clamps. Actually, the triple clamps are lowered, thus lowering the front end of the bike.

Another way to lower your bike is to install a shorter fork. But unless you have one lying around you're looking at some big bucks. Try to keep the rear-end lowering compatible with the front-end lowering or you will change the bike's steering geometry. Then again, that may be just what you want to do. Lowering the shocks only, or lowering them more than the front end, will kick the front end out more and make the bike less interested in turning. Since the head angles of dual-purpose bikes tend to be rakier than street machinery, this is probably not a good idea. Of course, lowering the front end, or lowering it more than the rear, will steepen the steering geometry and make the bike a more nimble turner.

Brakes. Off-road bikes have drum brakes. Off-road brakes generally are not as strong or quick as street stoppers because they are designed to work over widely varying traction surfaces. Then too, the bikes are ridden at slower speeds. Usually off-road brakes won't have the same quick-stop feel, especially to a rider used to dual or triple discs. The drums also will fade quicker with heavy usage. There are aftermarket brake kits available, but finding one to fit a particular model of bike may be a problem.

Reworked or custom seat. Dual-purpose seats tend to be rather well padded because of their off-road development. You can lop off some seat height without appreciably affecting street comfort by having a saddle upholsterer reshape your foam. Or you may choose to have a custom saddle built on your seat base. Ready-to-fit aftermarket saddles for dual-purpose bikes are not exactly abundant.

Small luggage rack. Some dual-purpose bikes come with small racks. Sometimes OEM accessory racks are available but if not, you can scout the catalogs if you're in the market.

Headlight. You may want to switch to a stronger halogen lamp for street running. If you can't find one that will slip right into your headlight housing, you'll have to shop around for one of those, too. A cycle salvage shop is a good place to start.

Exhaust system. Since a good number of the older dual-purpose bikes floating around are two-strokes, you should be concerned about noise when

selecting an accessory expansion chamber. Make silence a primary concern. You should also consider fitting a super-quiet muffler or silencer—such as a Disco-Jet—if you retain stock pipes.

Sport fairing. Since you're building a sleek, nimble roadster, you might want to expand that image with some sporty—and functional—add-ons. A quarter fairing is one way to go. Refer to the **Fairing Buyer's Guide** in the January, 1980 issue of *Custom Rider* and you'll find out who makes what.

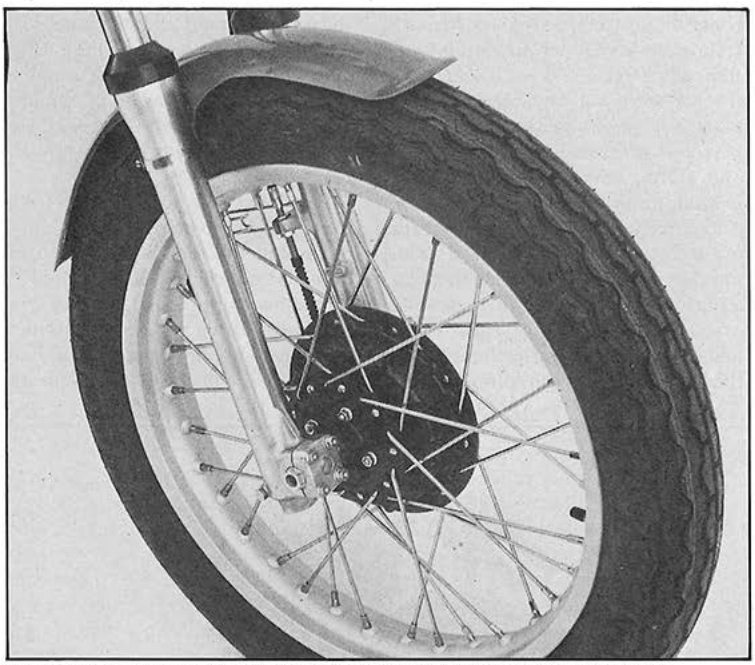
Monocoque seat/tank body. To top off your conversion to the sporting look, a monocoque tank/seat body may be considered. Tracy Designs is working on a universal body that should fit most dual-purpose machines. The body and fairing together cost about $350.00.

SUMMARY

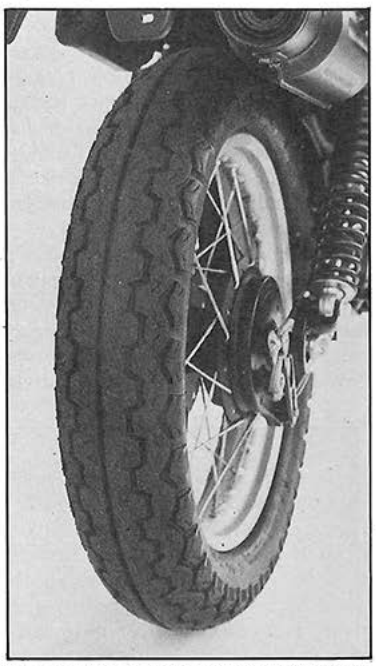
THAT WRAPS IT UP except for some finishing touches like painting and coloring. You might consider some gold-anodized wheels or a black engine. With a little money, some imagination and some shop time, you can come up with a dandy traffic dodger. Like the quarter horse, you may be down on long distance ponies, but you'll be able to get around town with the best of them.

And best of all, it's a low-bucks venture. All it takes is a dual-purpose bike and a single purpose—to convert the compromised DP bike into an uncompromised roadster. •

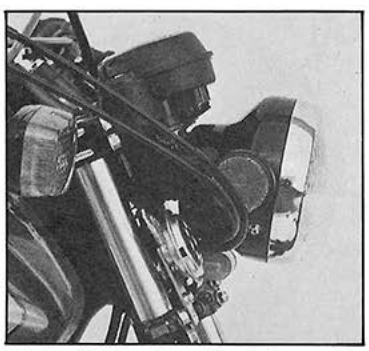
In Part II, appearing in the Dec/Jan issue of Custom Rider, you'll see the completed project bike along with a full report on how to build it.



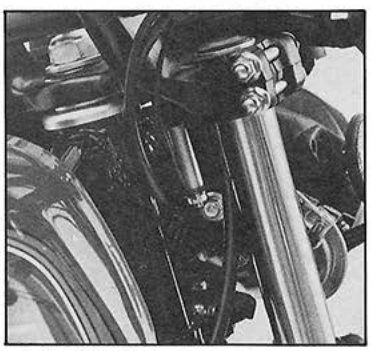
Racer's Supply fender. *DID WM3 rim, laced by Buchanan's. Dunlop 4.10H19 Mark IIR rubber.*



The rear wheel *sports a Dunlop 5.10H18 K81 Mark IIR tire with an extra-sticky compound.*



The headlight *was lowered by using longer 100 x 66mm bolts and 38 x 6mm spacers.*



The Honda's swingarm *was just wide enough to fit a 5.10 Dunlop rear tire.*

Dual-Purpose Roadsterization

Part II

Single-purpose modification completion

WE HAVE JUST COMPLETED a major alteration to the personality of a motorcycle—transforming it from dual-purpose to single-purpose. In a way we have limited severely the usefulness of a machine which had outstanding potential in its original form. But it now takes on the distinction of being the lightest, best-powered, finest-handling pavement scratcher in its displacement category. It's a machine you're not likely to see duplicated in a *Continued*

SINGLE-PURPOSE PROJECT *Continued*

day's ride. And it's a highly personalized machine that doubles as a canyon snake and crosstown cruise commuter—still a dual-purpose bike after all.

You may recall from Part One that the idea behind this project is to point out the undiscovered potential dual-purpose bikes offer most sporting riders. These machines are nimble by nature, they're generally suspended better than most light- and middleweight street bikes, they're economical in both fuel consumption and overall maintenance and they're usually priced lower than most street cruisers, new or used.

A reasonable amount of time and money can turn into a practical street conversion with a good part of your personality expressed in it. There are plenty of these 250cc-through-500cc machines sitting around gathering dust because their present owners don't appreciate their true worth. If you're good with your hands and have an eye for a bargain you can surely come up with a low-bucks machine that offers much more than just transportation.

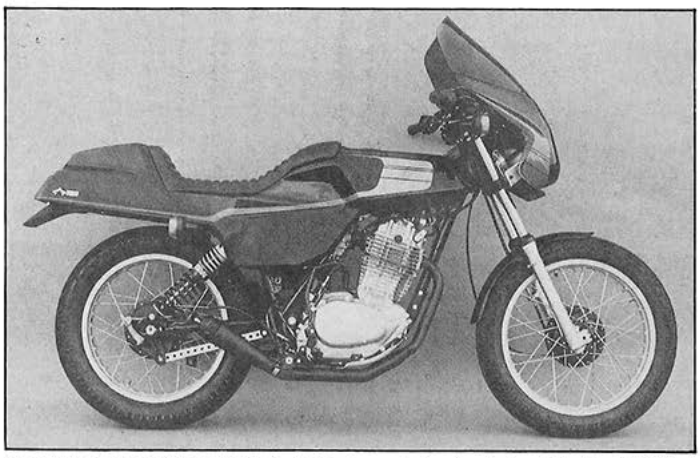
Our starting point was the finest dual-purpose mount in mass-production today—Honda's XL500S. In stock form it's about 60 pounds lighter than an SR500 Yamaha single-cylinder streetster. The engine is by far the most technically advanced single in production and it puts out the kind of power that enables you to handle any road-going situation with ease.

Both Australia and Japan are fortunate to have a very sporty 250cc street machine based on the XL250S, the XL500's smaller brother. The CB250RS features a small fairing, twin exhausts, ComStar wheels, a front disc brake and very pleasing styling. While our Honda (now affectionately known as the XL500SC) is not patterned after that machine, it is surely a step in the same direction.

PROJECT OUTLINE Part I

IN PART ONE OF OUR PROJECT we concerned ourselves with the basic transformation of the bike—changing to full street operation for minimum cost.

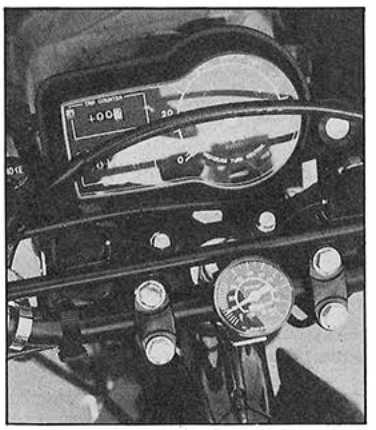
The stock Bridgestone Trail Wing 4.50x18 and 3.00x23 street/trail tires were swapped for a set of Dunlop K81 MkII Rs—a street-legal roadracing



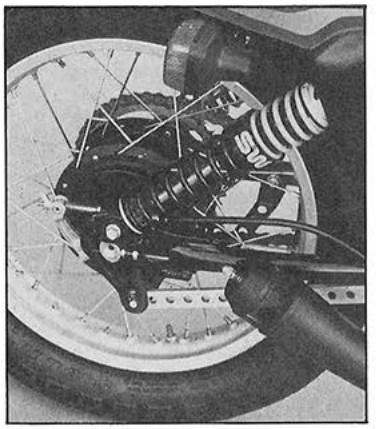
Stock 1980 Honda XL500S *(top), Part 1 at completion (center) and the Part 2 finished artwork (bottom).*

CB250RS is designed around *the XL250 engine; available in Japan and Australia.*

Marchal quartz-halogen *headlight with Suzuki GS1100E bezel replaces 5¾-inch unit.*



Deluxe air boost kit *with pressure gauge by S&W.*



S&W Strokers *prior to installation of travel-limiting snubbers.*

compound in a 5.10H18 and 4.10H19. The tire-size switch necessitated the installation of a new rim, so we had Buchanan's lace a DID WM3 to the stock conical front hub with its eight-gauge stainless-steel spokes.

Next we changed the high front fender to a street-style R&T fender from Racer's Supply. Because the XL uses a leading-axle fork, we modified the mounting points of the fender to correspond with the radius of the wheel.

Next we dropped the fork tubes in the crowns approximately ten millimeters below the tops of the crowns in order to regain more suitable fork rake and trail dimension. Otherwise, because of the decrease in front-tire diameter, the bike would tend to turn too quickly and be slightly unstable at higher speeds. Since dual-purpose bikes are raked-out a bit more than street bikes, the amount of adjustment necessary was minimal.

To achieve a more conventional road-going appearance and to fill the gap between the headlight and fender on those long-travel forks, another modification was in order. This involved lowering the headlight/speedo assembly 68mm and required the installation of longer 6mm x 100 mounting bolts and 6mm x 68 spacers. This hardware allowed mounting the assembly under the top fork crown rather than above it.

Finishing touches included removing the bar-end vibration-damping weights and sawing off 1.5 inches from each handlebar to achieve a more reasonable 30.5-inch width. This allows snaking between door handles during rush hour.

Part II

THIS BRINGS US to the start of Part Two and the eventual completion of our project. Even though the modifications we made gave us a much more *streetable* machine, we went a few steps further just for the fun of it.

We decided to drop the entire chassis in order to achieve a lower center of gravity and to reduce the seat height slightly. This was done by installing S&W Stroker shocks in the rear and dropping the fork crowns so that the fork tubes extend above them. Switching from 15.75-inch to 15-inch shocks translated to a 1.25-inch lower chassis height due to the laid-down angle of the shock mounting.

The fork-crown design of the XL is well suited allowing adjustments to the steering geometry that match changes in

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SINGLE-PURPOSE PROJECT *Continued*

rear-end height. Since the handlebar mounts are rear-set, there is plenty of clearance to let the fork tubes extend above them, thus resuming a more correct trail dimension in the steering geometry.

In order to retain use of the sidestand with the new chassis height it was necessary to remove an inch from the stand's length. This was a simple matter of cutting a piece from the stand and then welding it back together.

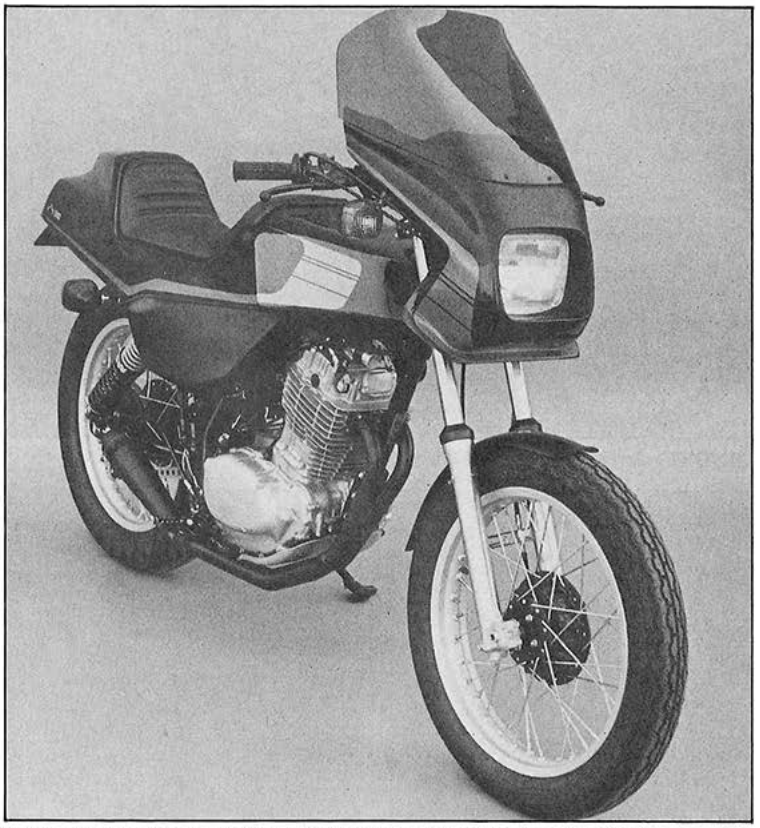
To trick-out the front end even further and to add a new dimension to suspension tuning, we installed an S&W Deluxe Air Boost Fork Kit. This kit is complete with slip-in air lines to make equal-side air filling a snap and includes special fork caps and a nifty pressure gauge that helps you keep track of firmness adjustments.

Next we added a White Brothers two-into-one TT pipe with a Super Trapp spark arrestor/silencer attached. This modification cut seven pounds from the bike's weight and still maintains a relatively quiet exhaust note. It made quite a visual improvement as well, even though the low pipe necessitated removal of the passenger pegs for clearance.

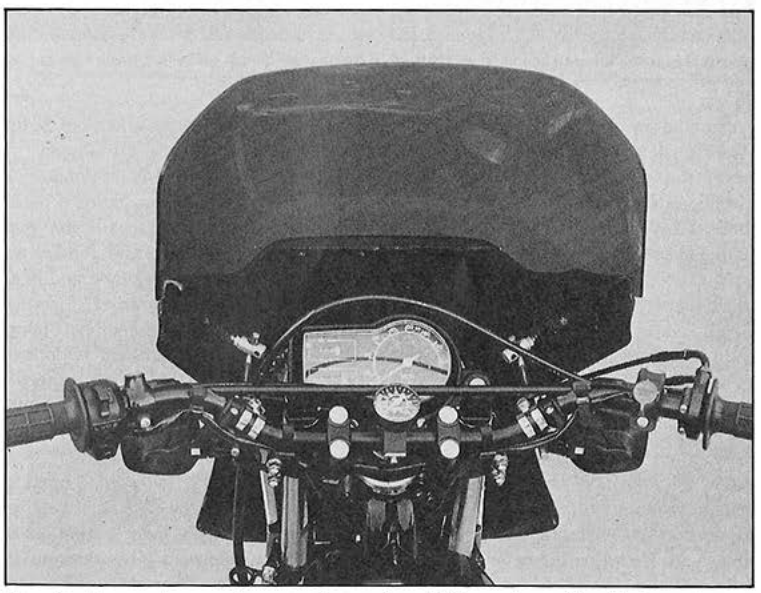
If you're wondering why a two-into-one system, remember that this engine sports twin exhaust ports for improved cooling and more efficient fuel passage through twin exhaust and intake valves. Other engine features include built-in counterbalancers to smooth out the single's vibration, an automatic compression release for easy starting and, of course, primary kickstarting.

While working with the rear end, we threw on lighter and more sporty components from the XR500, the XL's full off-road counterpart. These components included a non-cushioned hub/rear-wheel assembly, drilled aluminum alloy rear-brake torque arm and the XR's light alloy brake actuating arm.

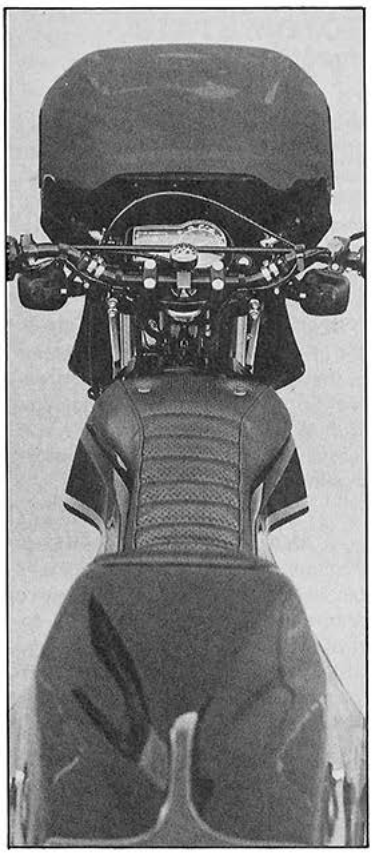
At last it was time for a major appearance modificaton—the installation of a fiberglass seat/fender/sidepanel combination and quarter fairing. This is Tracy Design's one-off, fully modified SR500 Yamaha boat-tail body which required three months to make. Was it worth the wait? You be the judge. (As a side note we should add that anyone wanting to use Tracy's SR500 body on an

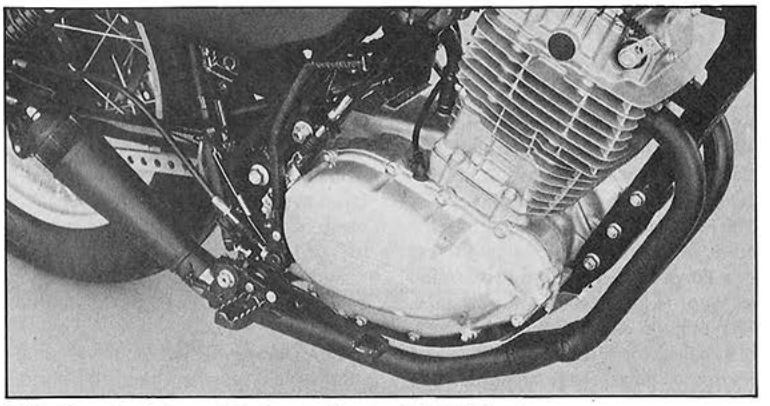


While parked or at speed, *XL500SC never fails to command attention of passers by.*

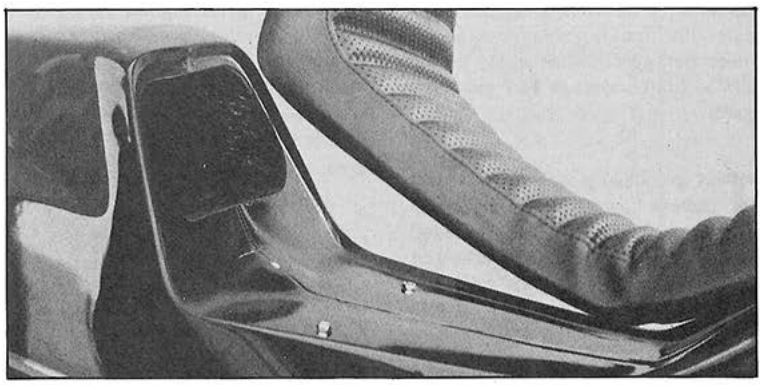


New rider's-eye-view *reveals rearward cosmetics of fairing and repositioned instruments.*





White Bros. two-into-one TT pipe *provides an excellent styling change.*



Small tool compartment *is provided behind solo seating unit.*

XL Honda—or any other machine, for that matter—should be sure to order the body unit C.O.D. Ours was a pre-production prototype and there may be some delays before actual production begins.)

The rear frame loop, from the stock seat mounts rearward, was cut away to accommodate the body's shape. Virtually no frame rigidity was sacrificed in this move due to the frame's excellent triangulation and heavy gusseting in this area.

A bit more mounting and fabrication were needed before the XL500SC could really take shape. To ensure that the rear wheel wouldn't impact the body when the six-inch-plus suspension compresses, we added a number or rubber snubbers to limit the travel. Finishing touches included fabrication of two small brackets to cant the instruments to a more readable angle, and carefully measuring and adjusting the trail dimension to equal that of the SR500 Yamaha.

The end result is nothing less than what we expected. We now have a narrow, sleek-looking, fine-handling, great-powered street blazer that even offers enough comfort for long-distance road work. We're quite pleased with our project and it never fails to generate considerable interest wherever it goes.

Our immediate plans for the SC include some time on the road to enjoy the fruits of our labor. Then, although this is the kind of project machine we want to keep forever, we may consider selling it to provide a budget for future projects. You may direct you inquiries directly to CUSTOM RIDER Magazine.

We had some good fun building the SC and we're going to have still more fun snaking it down the twisties. But now it's your turn. Dig out your old scooter or take a look at your local newspaper's classified section. There are some serious bargains to be had out there and some good times to come. ●

DIRECTORY

Buchanan's Frame Shop
629 East Garvey Ave.
Monterey Park, CA 91754
(213) 280-4003

Marchal Division/SEV Corp.
33205 Harper Ave.
St. Clair Shores, MI 48082
(313) 294-1700

Dunlop Tires
P.O. Box 1109
Buffalo, NY 14240 (716) 879-8200.

Racer's Supply
6959 Van Nuys Blvd.
Van Nuys, CA 91405
(213) 873-6100

S&W Engineered Products
2617 West Woodland Drive
Anaheim, CA 91801
(213) 581-1402

Tracy Manufacturing
709 E. Gutierrez
Santa Barbara, CA 93103
(805) 963-3521

White Brothers Cycle Specialties
11611 Salinaz Drive "M"
Garden Grove, CA 92643
(714) 638-1653