

Tests: Yamaha FJ1100, IT200, XT600  
Honda 500 Interceptor, Kawasaki KX125

HOW A GEARBOX WORKS

# CYCLE WORLD

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AUGUST 1984

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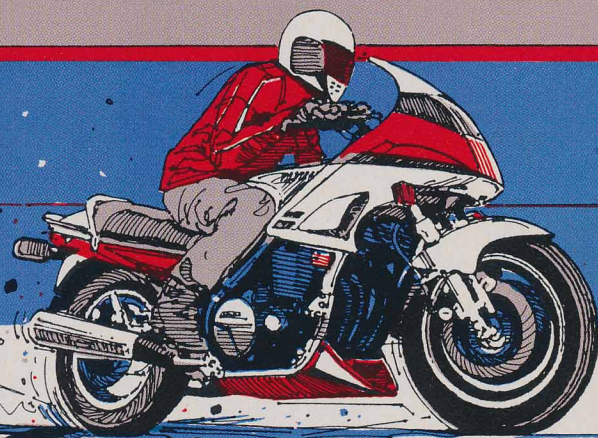
**HOT STUFF!**

**YAMAHA'S  
FJ1100  
STREET  
RACER**



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For years, Yamaha fans have played a waiting game, hoping for a big bore sportbike. Well, the wait is over, and the FJ1100 is everything they've been asking for.



# CYCLE WORLD

AUGUST 1984

VOL. 23 No. 8

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**Yamaha's fiery FJ1100 seen from a different angle.**

Photographed by Steve Kimball

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## **YAMAHA'S GO-ANYWHERE, DO-ANYTHING FLAGSHIP**

**Y**ou can't help but feel sorry for dual-purpose motorcycles. They've become trapped in a world they never built, saddled with a jack-of-all-trades, master-of-none role in an era of ever-increasing specialization.

It wasn't always this way. Back in the old days, there were no such things as specialized motorcycles, or even dual-purpose motorcycles. In effect, every bike was an *all-purpose* machine. You took the lights off of your street bike and stripped some weight if you wanted a cowtrailing machine. If you took off even more weight, hopped-up the engine and put on the appropriate tires and handlebars, you had either a road racer or a scrambler. And a touring bike? Well, that was the same basic street machine with a duffel bag strapped to the rear and some sort of aftermarket, handlebar-mount windshield up front.

Just like those bikes of yesteryear, today's dual-purpose motorcycles can do just about anything. It's just that they suffer anytime they're compared, one category at a time, to any of the specialized bikes. Yes, some dual-purpose machines can be used for long-distance touring, but compared to gliding along the highway on one of the big touring bikes, doing so is an ordeal. Off-road, a good rider can take a dual-purpose bike almost anywhere, but an equally skilled rider on a proper dirt bike will get there sooner with less effort—and fewer crashes. On twisty backroads, dual-purpose bikes account for themselves amazingly well, but a good sport bike remains a far better choice for doing Kenny Roberts imitations.

Still, dual-purpose motorcycles seem to maintain a small but loyal following of riders who believe in the one-bike-for-all-uses concept. And the prestige class for dual-purpose machinery is the big-bore division, bikes that displace from 500 to 600cc. Yamaha's entry in that category is the XT600, a 595cc thumper that can trace its lineage back to 1976 and the TT/XT500 models, the first modern reincarnation of the classic large-displacement, single-cylinder four-stroke.

As Yamaha's dual-purpose flagship, the XT has all the latest tricks. Styling, of course, is heavily biased towards the dirt side of things, which is apparent in the high-mounted plastic fenders front and rear. A red, motocross-style "safety seat" sweeps forward onto the gas tank to cushion a rider's delicate parts. The sidepanels and headlight cover have blacked-out panels meant >



to resemble number plates. There's a tool pouch mounted on the rear fender just like on the *real* enduro bikes. There are even air shrouds attached to the bottom of the gas tank, which seems a trifle gimmicky, although Yamaha claims they direct cooling air to the engine. But it's hard not to believe that the black plastic shrouds are there to resemble radiator shrouds. And, in fact, quite a few observers asked, "Water-cooled, eh?" as they gave the air-cooled XT a quick once-over.

There are other, non-gimmicky components on the XT600, like the open-cradle frame that closely resembles the one used on the dirt-only TT600. A substantial aluminum skid plate in the classic coal-shovel pattern protects the bottom of the engine from rock damage. The front fork assembly has 41mm stanchion tubes (down 2mm from the TT600's), air caps and 10 in. of travel. An impressively strong front disc brake easily hauls the 600 down from highway speeds yet is still controllable enough for effective use in the dirt.

Yamaha went all-out on the XT's rear suspension. Gone is the 550's old-style Monocross system that placed the shock in an almost-horizontal position above the engine, replaced by a lower-mounted shock and a link system that provides for progressive springing and damping rates. The bottom link pivots, as well as the swingarm pivots, have grease fittings, while the top pivot, where the shock attaches to the link, is protected from wheel-thrown debris by a pleated rubber boot. The shock itself is adjustable for both spring preload and rebound damping, and the adjustments are easily made at the lower end of the shock. Rear wheel travel is 9.3 in.

A nice touch is the aluminum box-section swingarm, lighter and better looking than the customary silver-painted steel unit. The arm pivots on needle roller bearings. Snail-cam chain adjusters and a quick-detach rear wheel make chain-tightening and tire-changing duties easier.

Power to move the XT down the road or the trail is provided by an engine that follows the modern thumper pattern. A single

overhead camshaft opens and closes four valves via rocker arms. Exhaust-valve size, 31mm, is one millimeter larger than on the 550 engine, but the engine's 84mm stroke is the same as the 550's. The 600's added displacement comes from increasing the bore to 95mm. The compression ratio is 8.5:1, the same as on the XT550.

As a weight-saving measure, Yamaha fitted the XT with a chrome-plated aluminum cylinder liner (the same as on the TT600) instead of a more-conventional iron liner. We've heard reports that some TT cylinder liners get out-of-round easily, causing oil consumption to go up. Some TT600 owners even have resorted to installing iron liners. When asked about the problem, a Yamaha spokesman said out-of-round liners and oil consumption shouldn't be a problem if the bike is broken-in carefully.

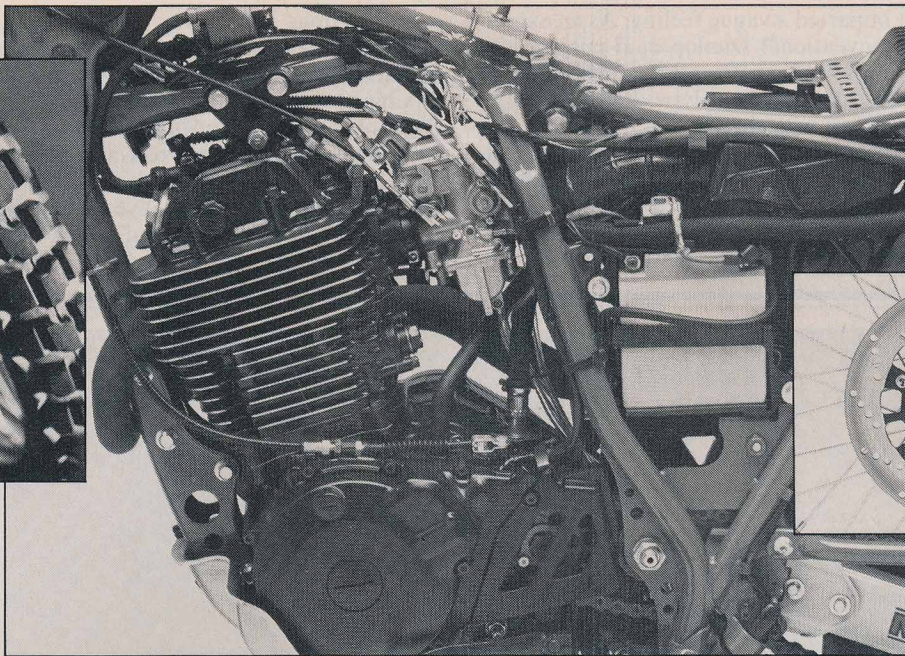
Instead of a single exhaust header pipe, two smaller pipes exit the cylinder, curving to the right before merging into a larger-diameter pipe that leads to a heavy-looking (but quiet) muffler under the right sidepanel.

Like most of today's big four-stroke Singles, the XT uses a dry-sump oiling system, which requires a separate oil tank. But instead of using a frame tube or backbone as a reservoir, the XT600 has a metal tank hung off the left side of the frame, tucked underneath the sidepanel. Yamaha explains that this type of oil tank was used to help achieve a lower center of gravity (the XT550's oil is carried in the backbone above the cylinder head), and to keep the hot oil away from the steering head, where it shortens bearing life. We never had any problems with the tank on our test bike, but an XT owner who rides a lot in rocky terrain would be well-advised to keep an eye on the tank, since it can easily get punctured by a fall onto a sharp rock.

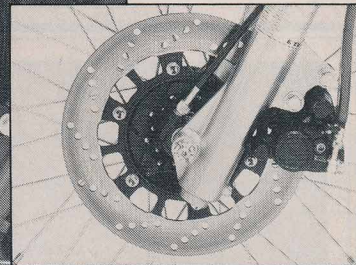
The XT600 uses a dual-carburetor setup, dubbed YDIS for Yamaha Duo Intake System. Most dual-purpose and off-road four-stroke singles now use some kind of dual-carb system, the theory being that at low rpm, where one large carburetor



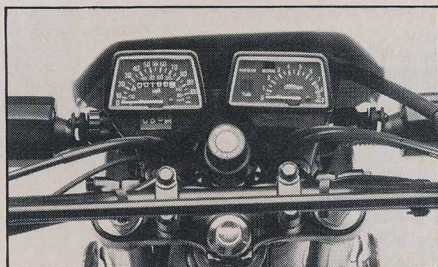
*Semi-knobby stock tire (right) worked well in the dirt but gave a heavy feel during low-speed street work. A closer-patterned tread (left) cleared up the heaviness but didn't work nearly as well off-road.*



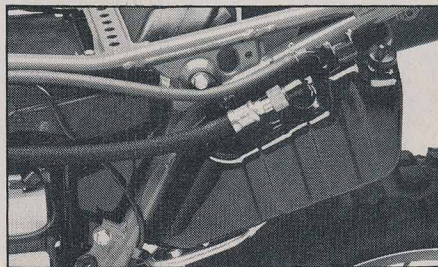
*Yamaha's version of the classic big-bore thumper, brought up to date with dual carbs, four valves, a gear-driven counterbalancer and an automatic decompression mechanism for easier starting.*



*The XT's front disc brake stopped the bike in 116 ft. from 60 mph, better than most sport bikes with double discs up front.*



*Simple but effective instrument pods are protected by the headlight shroud/number plate.*



*The XT600's side-mounted oil tank. The tank's oil pickup tube, visible at the bottom front, appears especially vulnerable to rock or crash damage.*

doesn't mix fuel and air very efficiently, a smaller carburetor will give better throttle response. At increased rpm the secondary carb kicks in to give the engine the fuel it needs for higher speeds. The XT's carbs—a 27mm slide-type primary linked to a 27mm CV-type secondary—are manufactured by Teikei. Most of the time they worked just as the theory dictates, although, there were instances when the engine would stumble, almost as if the secondary carburetor was taking a gulp before getting on with its job. The condition was especially annoying in passing situations on crowded freeways. Before reaching any firm conclusion about the performance of the carburetors, we cleaned and re-oiled the dual-stage foam air filter. This helped—it seems the new XT has inherited the TT600's trait of easily clogged air filters—but a slight hesitation was still there, between 4000 and 5000 rpm.

Hesitation or no, the carburetors metered fuel to the engine very efficiently. On the *Cycle World* mileage loop the XT returned 61 mpg, giving the bike nearly a 180-mi. range from its 2.9-gal. gas tank. The Yamaha usually went on reserve between 140 and 150 mi.

Carburetion also played a part in the way the big XT started—easily for a 600cc thumper, which is not to say easily compared with most motorcycles. First off, there is no electric starter, since a kick-only design is more in keeping with the bike's off-road, less-weight theme. There is, admittedly, an automatic decompressor that opens the exhaust valves when the kick starter is depressed, but it still takes a healthy kick to get things moving. In the morning it's best to use full choke with no throttle, and the XT will rumble to life in three or four kicks. The bike can be ridden away immediately with the choke still on, since no warm-up period is necessary—a pleasant change from the cold-blooded way many four-cylinder street bikes behave.

When warm, the XT will fire with just one kick . . . usually. There were times—two or three during the 1400-mi. test pe-

riod—that the XT just refused to start. Kicks, curses and push-starting had little effect. After a few minutes rest and some more kicking on the part of the rider, the XT would spring happily into its 1500-rpm idle.

Once started, the engine is a joy. Around town, shifting at 3500 rpm (redline is 7000 rpm) and letting the bike lug its way around corners seems to work best. So with its generous suspension and torquey engine, the XT makes the ideal urban commuter. Potholes, cobblestones and all other normal road hazards don't bother the bike in the least.

Out on the open road, things change a little. Even with the XT's gear-driven counterbalancer and rubber-mounted handlebars, for instance, the rider can feel vibration; this is, after all, a big Single. The vibration doesn't really intrude until the bike is running along at 60 mph, but from that point on the XT shakes in earnest. Not bad for short blasts down the highway, but an Interstate tour at 70 mph will have the rider wishing for something smoother.

Better to stick to two-lane backroads with lots of dips and twists and places to stop and enjoy the scenery. But those stops are almost mandatory, thanks to the hard seat. Thin on top to allow for non-bow-legged standing on the pegs in the dirt, the seat just doesn't offer much support. Fifty miles has the rider shifting his weight around and 100 non-stop miles is a true accomplishment.

Handling-wise, the 600 is nimble in terms of street maneuverability but, naturally, not the most agile dirt bike on the market. But for a bike that can do *both* kinds of riding, the XT is quite competent. The only handling quirk we did notice was that the bike steers heavily and sluggishly at low speeds. And the culprit is the OEM front tire, a new-pattern Bridgestone Trail Wing. For a dual-purpose tire the Bridgestone has a really aggressive tread design; it would be fair to call the tire a semi-knobby rather than a typical trials-universal dual-purpose design. The tire worked nicely on the street and got surprising traction in the >

dirt, but at low speeds it imparted a vague feeling. As an experiment we fitted a more conventional Dunlop dual-purpose tire and effected an instant improvement. Even riders who thought that the XT hadn't handled all that heavily with the stock tire noticed a lighter front-end feel with the Dunlop.

Regardless of tire choice, however, the XT makes an excellent off-road explorer. It will splash through streams, climb impressively steep hills and slide around smooth turns at a good clip. On a fire road a talented rider can really hustle the XT along. But, at 318 lb., the bike can become a handful through

rough sections in a hurry. Pushed hard, sooner or later, the weight or lack of *real* off-road suspension and tires will catch up with the XT; and dumping a heavy bike at the speeds the 600 is capable of is a sobering (and slowing) thought.

Granted, as with any dual-purpose motorcycle, the XT has its limitations both on the street and in the dirt. But that assessment really isn't fair. If you're looking at what a dual-purpose bike won't do well, then you've missed the point. Better to look at what the bike *will* do; and in the XT600's case, that's just about everything. □



## YAMAHA XT600 TÉNÉRÉ: THE FRENCH-AFRICAN CONNECTION

**D**ual-purpose motorcycles might not be the best-selling models in this country, but in Europe, trail bikes, as they're called, are all the rage.

And, as the 7000-mi. Paris-to-Dakar Rally gains more and more popularity Over There (see *African Madness*, *CW* May 1984), bike makers are selling road-going replicas of the rally bikes. Honda has the XL600, which gets equipped with a big gas tank and "Paris-Dakar" decals. Honda also has an air-cooled, shaft-drive, 750cc V-Twin that is rumored to be the basis for next year's Paris-to-Dakar entries. BMW, the winner of the race for the past two years, missed the boat after its 1983 victory and didn't market a replica. There was such a demand in France that BMW dealers there made their own replicas out of the street-and-dirt R80 G/S. This year the thinking is that BMW will market a factory-authorized replica. Even some of the smaller Italian factories are getting in on the act, offering 125cc bikes with 5-gal. gas tanks

and Paris-Dakar cosmetics.

Yamaha is not immune to the rally-replica craze, either. Although that company hasn't won the race since 1980, it does have the XT600 Ténéré, named after the brutal African desert that Paris-to-Dakar rallyists must cross. The Ténéré chassis is basically the same as the stateside XT's, with differences that are mainly cosmetic. Dominant is the 8-gal. gas tank, big enough to allow the Ténéré almost 500 mi. between fill-ups. The Ténéré's seat, because of the huge tank, is mounted more rearward, and it uses softer foam. A nifty front fender, featuring cooling slats at the rear, pop-ripped-on mud shrouds and a red-and-blue diagonal slash decal, keeps muck off the rider. A sturdy luggage rack and plastic tool box take the place of the U.S. model's vinyl tool pouch. Plastic handguards take the sting out of brushing past bushes and help keep hands warm in cold weather.

Closer inspection reveals a myriad of smaller differences. The Ténéré

gets a three-tier oil cooler that is rubber-mounted to the left frame tube behind the engine, and that even has its own little air shroud. The oil pickup line is moved forward on the side-mounted oil tank to a less vulnerable position. The headlight/number plate assembly is slightly larger, and the front turn signals mount differently. The front brake's hydraulic line is routed over the number plate instead of behind it, and the brake disc is slotted, not drilled as on the U.S. model. Even the cam-snail chain adjusters are different.

Like all the other rally replicas, the Ténéré is not for sale in the U.S., the manufacturers believing—properly, no doubt—that the bikes would have limited sales appeal here. Nevertheless, the Italian company Cagiva is looking into the possibilities of bringing in its 650cc Elephant, a twin-cylinder, Ducati-engined machine patterned after the Paris-Dakar bikes. If it succeeds in the least, the larger companies, Yamaha included, just might follow suit. □

## SPECIFICATIONS

### GENERAL

List price	\$2399
Importer	Yamaha Motor Corp. 6555 Katella Ave. Cypress, Calif. 90630
Customer service phone	(714) 761-7439
Warranty	12 mo./unlimited mi.

### CHASSIS

Test weight (w/half-tank fuel)	318 lb.
Weight distribution front/rear, percent	44/56
Fuel capacity	2.9 gal.
Wheelbase	57.8 in.
Rake/trail	28°/4.2 in.
Handlebar width	32 in.
Seat height	34.5 in.
Seat width	8.5 in.
Footpeg height	14.8 in.
Ground clearance	11 in.
Headlight	60/55w halogen
GVWR	675 lb.
Load capacity	357 lb.

### SUSPENSION/ BRAKES/TIRES

Suspension:	
Front	telescopic fork travel 10 in.
Rear	single-shock swingarm travel 9.3 in.
Wheels:	
Front	21 x MT 1.60
Rear	18 x MT 2.50
Tires:	
Front	3.00 x 21 Bridgestone Trail Wing
Rear	4.60 x 18 Bridgestone Trail Wing
Rear tire revs. per mi.	803
Brakes:	
Front	10.5 in. disc
Rear	5.9 in. drum
Brake swept area	103.1 sq. in.
Brake loading (160 lb. rider)	4.64 lb./sq. in.

### ENGINE/GEARBOX

Engine	sohc four-stroke Single
Bore x stroke	95 x 84mm
Displacement	595cc
Compression ratio	8.5:1
Carburetion	27/27mm dual-stage Teikei
Air filter	oiled foam
Ignition	CD
Claimed power	41 bhp @ 6500 rpm
Claimed torque	34 lb.-ft. @ 5500 rpm
Lubrication	dry sump
Oil capacity	2.5 qt.
Electrical power	136w alternator
Starter	kick
Battery	12v-4ah
Primary drive	helical gear
Clutch	multi-plate wet
Final drive	O-ring chain
Gear ratios, overall: 1	
6th	5.19
5th	6.3
4th	8.02
3rd	10.61
2nd	17.26

### PERFORMANCE

#### ACCELERATION

Time to distance:	
1/4 mi.	13.76 sec. @ 94.83 mph
Time to speed, sec.	
0-30 mph	1.6
0-40 mph	2.6
0-50 mph	3.8
0-60 mph	5.1
0-70 mph	7.2
0-80 mph	8.8
0-90 mph	10.9
Top gear time to speed, sec.	
40-60 mph	4.6
60-80 mph	5.6

#### SPEED IN GEARS

Measured top speed in 1/2 mi.	
	100 mph
Calculated at 7000 rpm redline:	
1st gear	30 mph
2nd	49 mph
3rd	65 mph
4th	82 mph
5th	101 mph
Engine speed at 60 mph	
	4158 rpm

#### FUEL CONSUMPTION

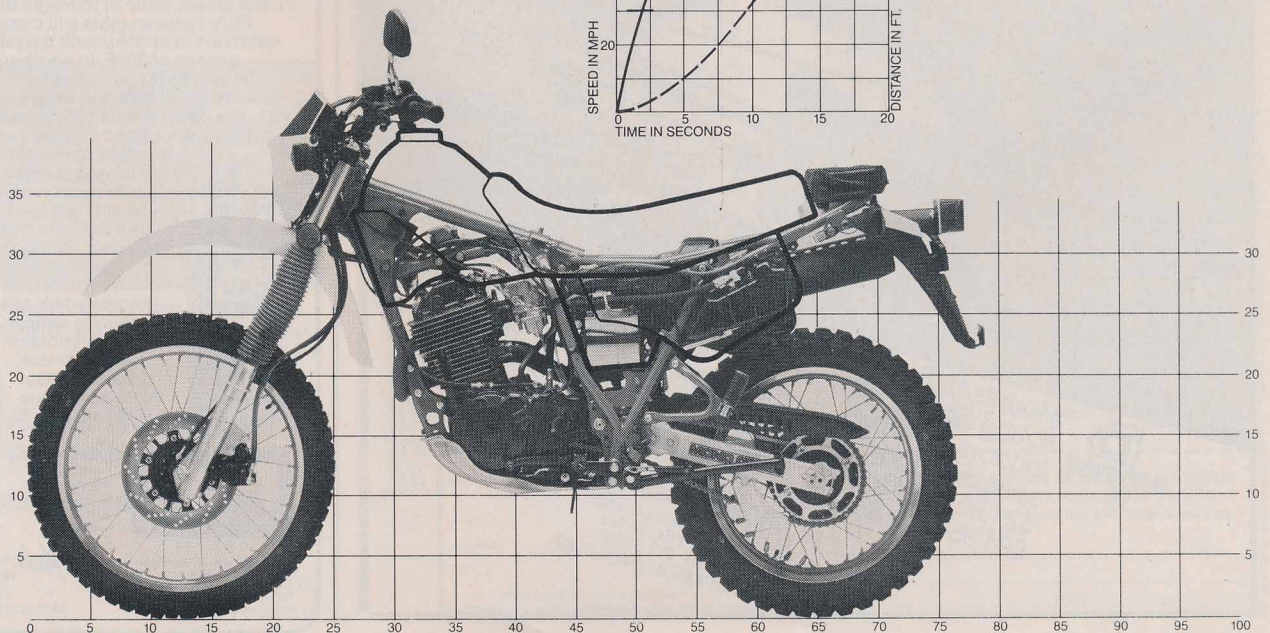
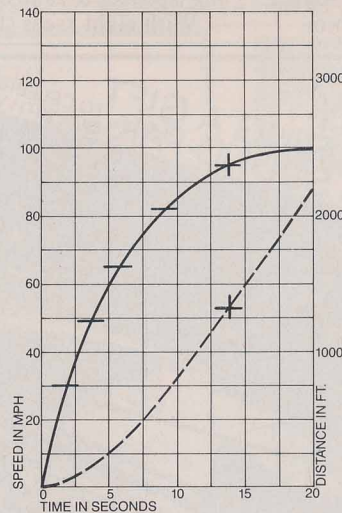
Test loop	61 mpg
Range (to reserve)	152 mi.

#### BRAKING DISTANCE

from 30 mph	35 ft.
from 60 mph	116 ft.

#### SPEEDOMETER ERROR

30 mph indicated	28 mph
60 mph indicated	55 mph



**CYCLE  
WORLD  
TEST:  
YAMAHA  
XT600**