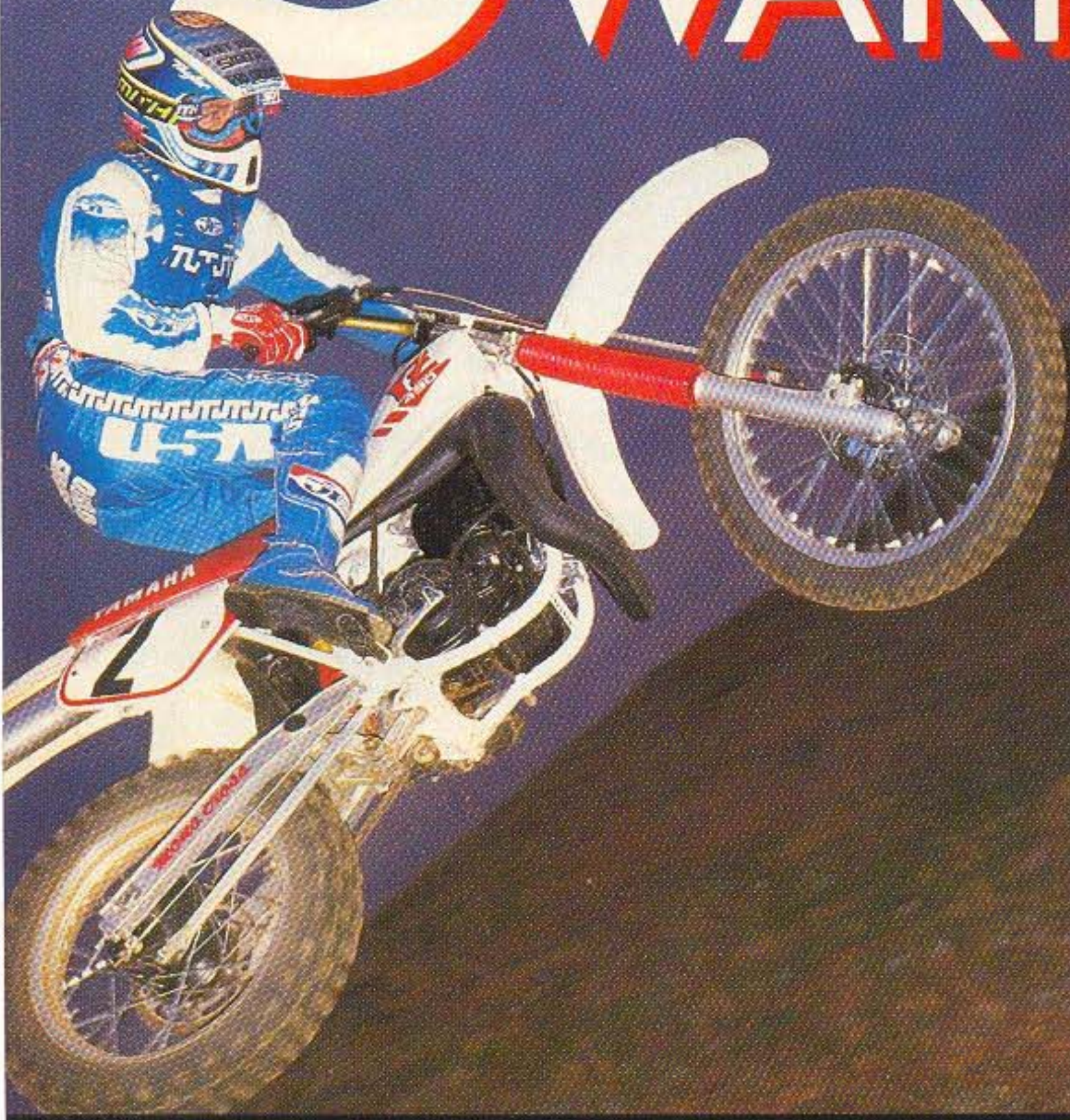


SPARTAN WARRIOR



PHOTOS: TOM WEBB



YZ490



**DIRT
RIDER**
MAGAZINE

SPARTAN WARRIOR

The '88 YZ490 looks pretty much like a relic in these days of water-cooled, double-disc-braked 500cc machines. Yet if we had received this same motorcycle last year, it would have *won* the Open bike shootout! Why? It's simple, really: the new suspension catapults the YZ490U into a more competitive league. This bike is tops in rideable Open-class power, stability, turning ability and versatility. Its major fault is purely cosmetic—it *looks* like it came from another era.

POWER BINGE

The 490 is fast . . . enough. The air-cooler received no motor mods other than

jetting updates and won't beat a Honda CR500 out of the hole or match the KX500 for its silky-smooth acceleration. But it gets the job done with an Old World approach to Open-class power. Heavy crank weight gives the YZ the ability to chug, lug and torque through situations that have other big-bores in a clutching frenzy.

A well-spaced transmission works hand in hand with the power delivery. Many people mistake the effect of the Yamaha's crank weight for low-end power. But while the YZ does have enough down-low ponies to get the job done, it's not a monster. The crank mass and gearing disguise the powerband. Its real strength is a strong mid-range and a good upper hook.

The jetting comes a bit on the crisp side, and the air-cooler talks to you by detonating when it's under too much of a load. For motocross or any high-

speed riding, plan on richening the needle position. Amazingly, the huge 40mm Mikuni gives decent gas mileage, though we're in the process of fitting a 38mm Keihin to the machine for evaluation.

The shifting can still be considered adequate at best. It's too notchy, though the clutch action has been improved. We did get our clutch to go away by lugging the bike in trail situations and hammering at the lever.

Vibration is still a problem with the big single. In MX and grand prix situations, it wasn't too offensive. During long rides or races it proved to be brutal. We worked on a cure (see sidebar), though it will never be as smooth as a water-cooler in this department. One area where the 490 shines is starting.

DANCING DIRTY

Yamaha did very little to refine the



PHOTO: KAREL KRAMER

Rake/trail	.....28.5°/4.7 in.
Front suspension	.....Type—43mm KYB cartridge fork
	Travel—12.6 in. (claimed)
	Compression damping—16-position adjustable
	Rebound damping—NA
	Preload adjuster—NA
Rear suspension	.....Type—Monocross with Ohlins-type shock
	Travel—12.6 in. (claimed)
	Compression damping—25-position adjustable
	Rebound damping—25-position adjustable
	Preload adjuster—threaded
	Reservoir—piggyback
Brakes	.....Front—Twin-piston caliper disc
	Rear—Single-leading shoe drum
Tires	.....Front—80/100-21 Bridgestone M23
	Rear—110/100-18 Bridgestone M22

MEASUREMENTS

Weight (wet, no fuel)	.....237.0 lb.
Weight (wet, tank full)	.....252.0 lb.
Wheelbase	.....58.1 in.
Fuel capacity	.....2.6 gal.
Reserve	.....None
Sound test	.....102 dbA
Ground clearance	.....13.3 in.
Seat height	.....36.8 in.

PARTS/COST

Maintenance manual	.....\$10.95
Carburetor jets	.....Main jet—\$2.20
	Pilot jet—\$2.60
	Needle jet—\$13.40
	Needle—\$12.50
Sprockets	.....Front—\$10.60
	Rear—\$36.25
Handlebar levers	.....Right—\$9.65
	Left—\$6.20
Shift lever	.....\$31.50
Piston kit	.....\$61.85
Rings only	.....\$20.50
Cylinder	.....\$273.80
Clutch plates	.....Friction (7)—\$9.60 ea.
	Steel (6)—\$4.60 ea.
Air filter	.....\$29.95
Brake pads	.....Front—\$27.40 ea.
	Rear—\$23.60 ea.
Chain	.....\$40.45
Seat	.....\$88.75
Fenders	.....Front—\$21.50
	Rear—\$16.00
Cables	.....Throttle—\$10.60
	Clutch—\$9.40
	Front brake (nose)—\$95.80

TECHNICALLY SPEAKING

Visually, the YZ490U is nearly an identical copy of the 1986 and '87 490. The frame, plastic, geometry and linkage ratios are virtually unchanged. Of course, the big news is the addition of the cartridge

PHOTO: FRAN KUHN



The cornering has improved substantially thanks in part to the new plush fork.

PHOTO: FRAN KUHN



The new bleed-style shock is more compliant on the smaller bumps, even with a nearly flat leverage curve.

Yamaha's version of the cartridge fork has elevated the 490's overall handling traits.

Make/model	.....Yamaha YZ490U
Serial number	.....Engine—2WH000290
	Frame—JYA2WHWOJA000290
Price	.....\$2999
Number of dealers (U.S.)	.....1700+
Warranty	.....30-day
Customer service	.....Yamaha Motor Corp.
	6555 Katella Ave.
	Cypress, CA 90630
	714/761-7439

Carburetion	.....40mm Mikuni
Ignition	.....CDI
Lubrication	.....Premix (24:1 Yamalube R recommended)
Air filtration	.....Oiled polyurethane foam element

DRIVE TRAIN

Transmission	.....Five-speed
Primary drive	.....2.625:1 (gear)
Final drive	.....3.428:1 (14/48)
Gear ratios (internal)	.....1st 1.933:1
	2nd 1.500:1
	3rd 1.222:1
	4th 1.000:1
	5th 0.833:1

CHASSIS

FrameHigh-tensile steel, semi-double cradle
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ENGINE

TypeAir-cooled, reed valve-inducted, two-stroke single
Displacement487.0cc
Bore x stroke	.....87.0 x 82.0mm
Compression ratio	.....6.9:1

chassis, but two changes proved to be monumental. By adding a cartridge fork, the Yamaha engineers pushed the YZ out of the front-boinger doldrums, and by trading in the BASS damper of the last few years in favor of a contemporary bleed-type damping system, the YZ490 has stepped up considerably in the handling department.

It came as quite a shock when we realized just how much better the cartridge fork was than the '87 TCV unit. The brutal, hacking ride was transformed by one of the smoothest-working front dampers on the market. The spring rate and damping were dead-on for everyone who tested our machine. Simple compression adjustments were all that were needed to dial in the fork's action.

The fork also reshaped the way the YZ corners. Supple action along with a good progressive stroke have made the

490 a nice carver. It hunts for the inside line and sticks to it with very little rider effort. Faster railer-type berms require nothing more than a point-it-and-go attitude.

While the new bleed-type Yamaha shock is an improvement over older systems, a nearly flat leverage ratio makes the rear end tough on the little bumps for lighter riders. Curb-type hits and smaller high-speed jumps are felt right in the rider's feet. Fiddling with the compression adjuster helps to alleviate some of the initial smack, but because of the leverage ratio the YZ will never be supple on the small stuff. Most racers send their shock to specialists like Race Tech or Scotts Scooter Service for a more progressive valving stack to overcome the linkage deficiency.

Stability at any speed is the 490's middle name. This bike refuses to be

nervous at high speeds—a credit to the bike's chassis and suspension. The front brake is strong enough, though the rear drum unit is positively archaic. This is one area where Yamaha shouldn't have gotten cheap, especially considering both the YZ125 and the 250 received rear discs. Still, the drum units have decent action and are strong enough to haul the big bike down from speed.

CURTAIN CALL

One of these years Yamaha will water-cool their Open bike. Still, as it stands, the YZ490 is one of the most popular bikes in *Dirt Rider's* stalls—proof enough that a bike doesn't have to be wet to be cool. Above all, it's the best do-it-all big-bore MXer on the market. It's reliable, a good handler and fun to ride. What more can you ask for from any machine? **DR**

damping system. The double-valve design regulates the oil through these valves rather than using the old forced-through-holes damper rod design. Like most of the cartridge designs, the action here is extremely plush yet firms up with no harshness whatsoever. It has 16 compression adjustments on the bottom of the fork and no external rebound clickers.

The BASS shock with its blow-off-type compression damping has been

shelved in favor of a bleed-type compression design. Internally, it resembles an Ohlins shock and has both compression and rebound adjustment capabilities.

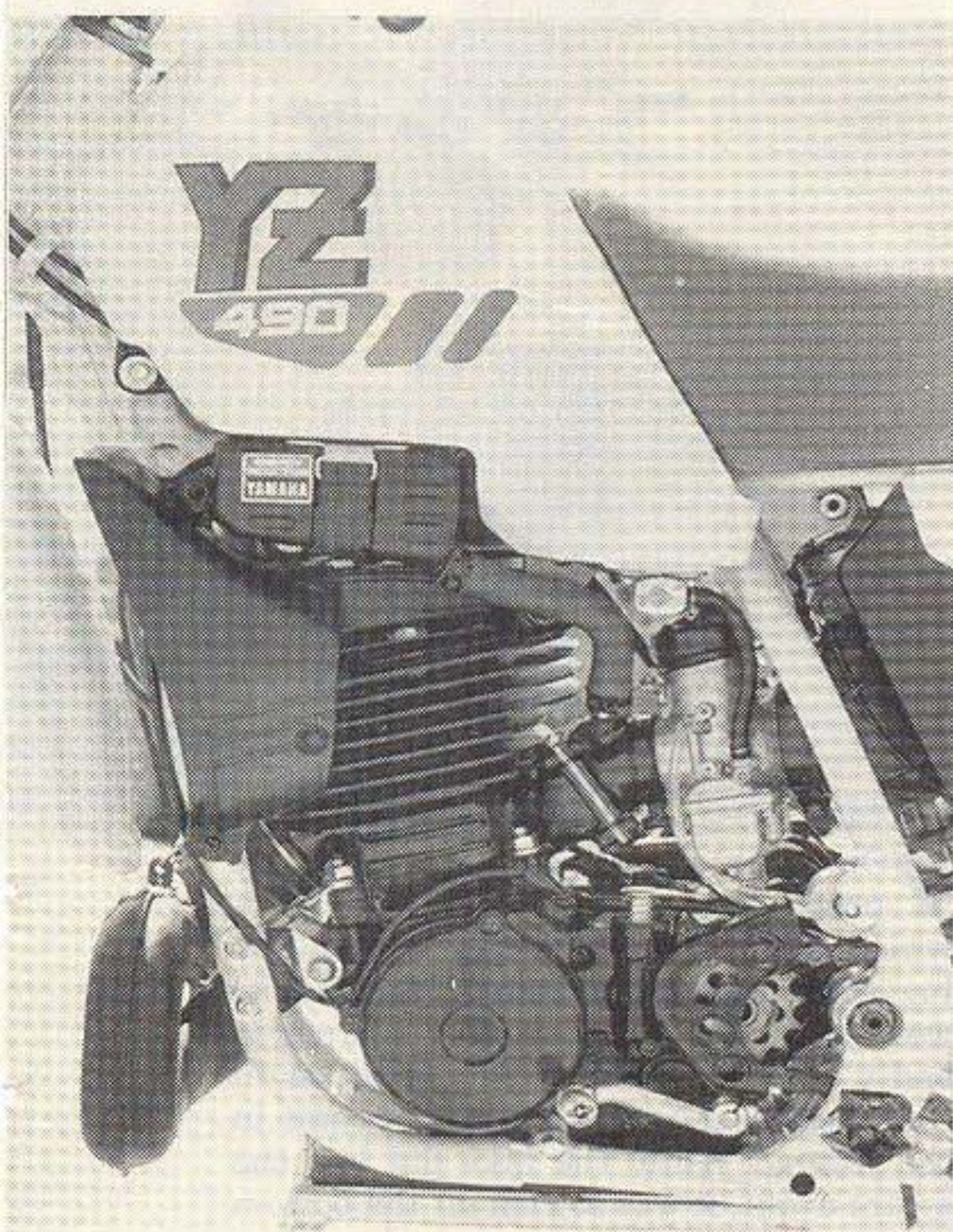
LOOSING TEETH

The air-cooled engine has six transfer ports, uses a monstrous 40mm Mikuni and came jetted pretty close to ideally for motocross. Many riders prefer dropping two teeth on the rear sprocket if versatility is their

game and it in no way hurts the YZ's performance.

The new handlebar bend is comfortable (finally), and the grips have been softened enough to make them usable. Excellent Bridgestone M22/23 tires come as stock equipment, and the rims are now silver color rather than gold.

Again, ergonomically the YZ gets top marks for an excellent saddle, slender tank and a good relationship between the bar, pegs and seat.



There's nothing new with the air-cooler other than the fact that it now puts out excellent, tractable power. It still suffers from a case of the pings.



PHOTOS: KEN FAUGHT

We recruited the testing services of Aussie Lyndon Heffernan. He was pleasantly surprised by the bike's performance.



SPARTAN WARRIOR

DESERT PREP

We decided to race test the 490 in several types of events. For motocross, the only setup needed was suspension tuning and another needle position on the carburetor. For long-distance events and GPs, we naturally had to make much more extensive preparations. Jetting, gearing, motor mounts, fuel consumption, tires, handlebar, etc., all came into play.

During the testing we finished Barstow-to-Vegas, two GPs, an enduro and two motocrosses along with a half-dozen long trail rides and test sessions. We did all this without a single mechanical problem.

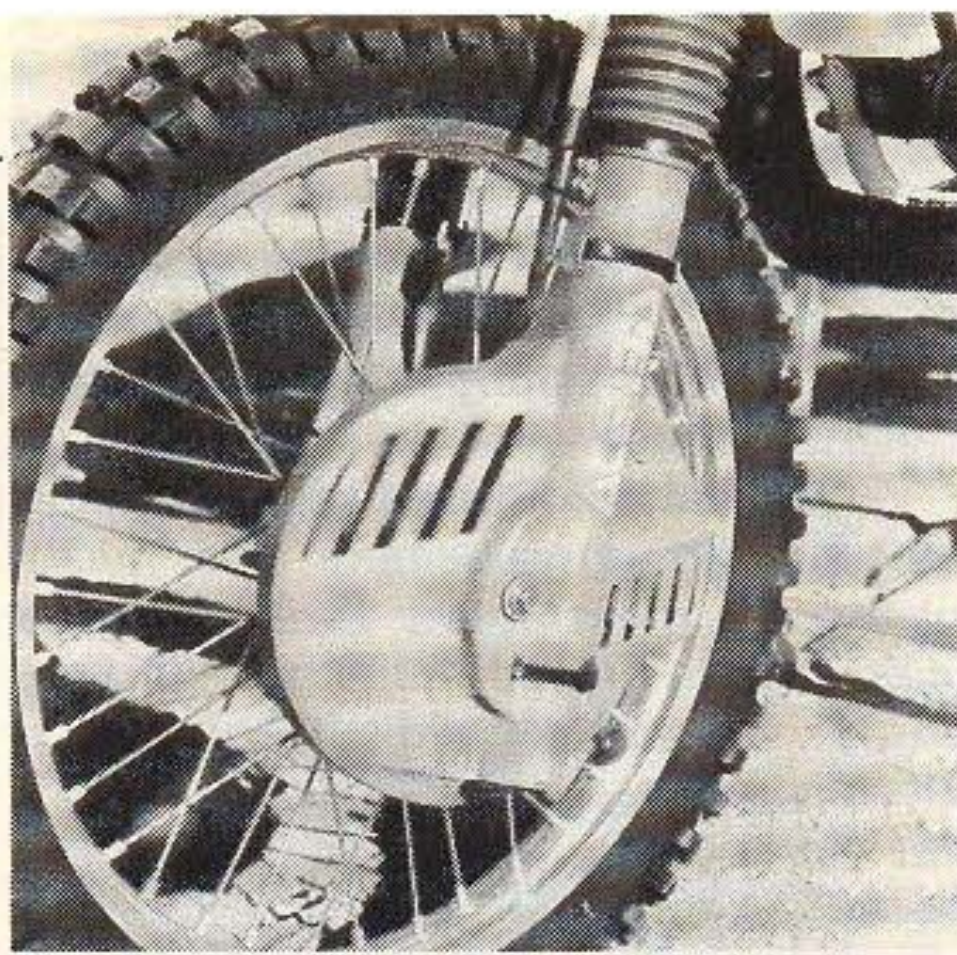
Here's the rundown for our desert prep:



1 The bike actually looks pretty stock just prior to the start of the Barstow-to-Vegas Hare and Hound desert race.



2 The stock handlebar and grips worked just fine. We fit the YZ with Fredette Handsavers and Acerbis handguards. Notice the larger Clarke tank is hardly any wider than the stocker.



3 Acerbis fork and disc guards handled the protection job for the front sliders. A 3.25-21 front Metzeler does a great job of aiding the high-speed stability of the machine, plus offers excellent traction. We opted for Metzeler heavy-duty tubes both front and rear.



4 SideWinder provided the sprockets—a 15-tooth front, 44-tooth rear. This gave the bike an honest 100-mph top end. At B-to-V, we should have run 16/42; the race was so fast that we had the 490 buzzing too much of the time and vibration became a problem. According to Scot Harden, a 16/42 combo lets the engine run a bit easier and cuts down on the time it spends screaming its guts out.

An O-ring Tsubaki chain only needed to be adjusted once during the entire test! It's great stuff. The chain guide *must* have a DeVol aluminum guard to protect it from the rocks.

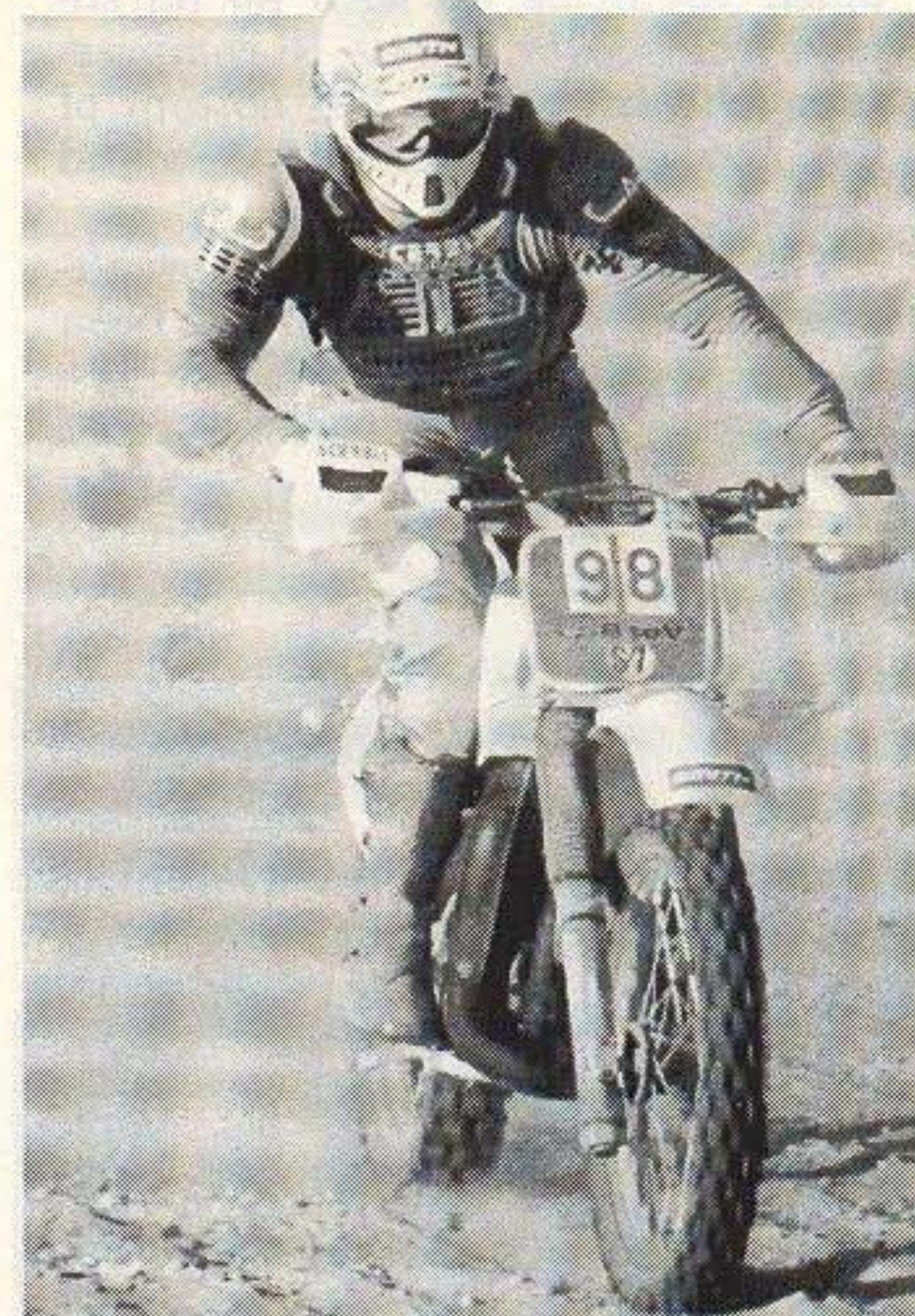


5 On the rear, a Sparky add-on spark arrestor tip made it spark-legal. Though there's a Dunlop pictured in the photo, we ran a Metzeler Multi-Cross on the rear during the desert race.



6 The Clarke tank gives the 490 3.5 gallons of fuel. It's super skinny and virtually no bother to ride with. Carburetor jetting was changed to a 490 main, Q-6 needle jet, 7-F8 needle in the second or third position, stock pilot jet and a 3.0 slide cutaway. Yamaha recommends running Texaco regular gas.

In conjunction with the jetting, fast desert races demand the Malcolm Smith choke kit. This kit allows you to hit the choke during prolonged speeds in top gear via a handlebar-mounted lever. During B-to-V, this proved critical. Even with the rich jetting we didn't blow the bike up, though it sounded close to it many times.



7 Our only complaint with the desert preparation was a lack of top speed, which meant that the engine couldn't be lugged; it had to be buzzed. The results were ugly. The bar started to vibrate so badly that we could barely hold on in some sections! Another sore spot came in the jetting. While the bike did last the entire event, it was so rich off the bottom that it lost all of its snap, making it a handful in the slower sections of the course. Still, if it had been any leaner it surely would have exploded. Tom Webb ended up 30th overall on the bike.

8 Installing rubber hose in between the cylinder fins helps control some of the vibration.



9 Overall, our Project YZ490 finished the famed desert classic looking like it does here. Tires, gearing, jetting and a big tank, plus the right suspension setup for the rider, did the job.



10 Here's another important mod for the desert racer: an Accurate bolt kit. We drilled out the smallish stock holes and replaced the bolts with monstrous 3/8-inch American bolts. This aids in reliability and cuts down on vibration.

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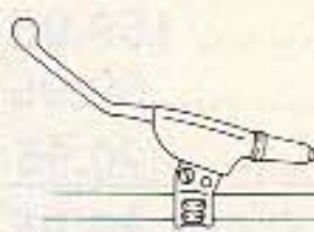
The MAGURA 312-Throttle as tested in the May 1987 issue of Dirt Wheels was the only throttle to receive the top rating in all areas of the throttle shoot-out.



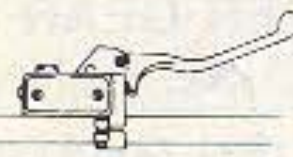
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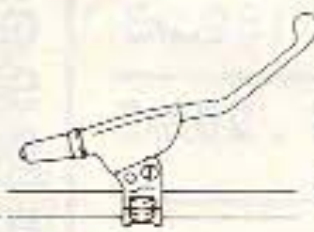
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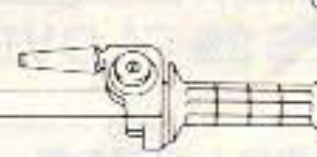
**Clutch
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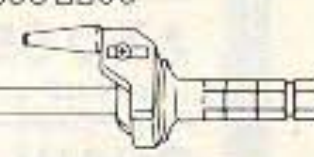
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OPINIONS

I'd race this thing in a minute. I normally race in 125 and 250cc classes, but I think I'd be very competitive racing the YZ490U. It turns great for an Open-classer, and the suspension works well, too.

The engine does ping when I ride the bike hard, but I think I could find a tuner to remedy that. The YZ doesn't look as trick or modern as some of the liquid-cooled Open-class motocrossers, but it worked fine for me on the track.

—Rich Taylor

Age/Ht./Wt.: 19/5'8"/150 lb.

Motorcycle(s) currently raced/ridden:

Honda CR125RJ, CR250RJ

Riding ability: Pro motocrosser

I was one of the few riders who really liked the YZ490 last year, and I can't tell you how happy I am with the changes in it this year.

I've always needed to run YZ490s with fork springs so stiff the bike didn't turn, but Yamaha now has the cartridge fork dialed. The front settles nicely to let the bike turn sharply, then firms up for big landings. Yamaha made the YZ narrow and the sitting position roomy and comfortable.

There are better brakes on other bikes, and I'd need to get rid of the pinging, but if I were spending my own money, the YZ490U would be one of the first bikes I'd shop for.

—Karel Kramer

Age/Ht./Wt.: 33/6'1"/185 lb.

Motorcycle(s) currently raced/ridden:

Honda CR500R, XR600R,

Suzuki RM250H

Riding ability: Vet Intermediate motocrosser

Because of the fork and shock updates, the '88 490 is a vastly improved motorcycle over the '87.

I like the YZ's air-cooled performance, although the detonation is irritating. The bike has so much flywheel effect that it's easier to race than the rocket-fast Honda CR500. You actually feel slow on the bike, but that's because it puts nearly all of the power into a workable range.

Ironically, I thought the 490 would make a great desert racer for Barstow-to-Vegas, and this was the one area where I didn't like the vibration of the motor. It put my hands to sleep. But for motocross, enduros and GPs, I think the bike is a winner.

—Tom Webb

Age/Ht./Wt.: 33/6'2"/215 lb.

Motorcycle(s) currently raced/ridden:

Suzuki RM250J

Riding ability: Vet Expert motocrosser