SHOCK BUYER'S GUIDE

SUSPENSION: Part 2

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Yamaha's Quick New 750E Super Hot For '78

Paradoxical Puch: 50cc 60mph 110mpg $1345

Superbowl '77: How Weinert Won

Yamaha's IT250

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TESTS

FEATURES

DEPARTMENTS

STAFF

COVER

The golden rays of the setting sun illuminate Rich Cox aboard our test Yamaha XS750E. Larry Willett caught the action for posterity . . . and our cover.

STREET TEST

Yamaha XS750E

More Horsepower For The Terrific Triple...

It's not often that a particular model, going on its third year of production, can generate gobs of excitement around the *Motorcyclist* offices, but Yamaha's new XS750E did just that. Rumors of the E model being "the fast one" packed with more engine performance and a livelier spirit had our adrenalin flowing almost as much as when the triple was first introduced. And, if that wasn't enough, our first glimpse of this flaming red beauty really impressed us. No more pale maroon paint job, instead, a bright red coat stripped in gold, that stands out more vividly than a fire engine going full tilt with sirens blaring. With the jet black engine gleaming of muscle and the alloy mag wheels reeking "expensive," the 750E is quite a looker.

Oh yes, it's no spoof, you can tell it's got more steam stuffed inside that triple cylinder, double-overhead cammer without even riding it—just start the engine. The exhaust tone is crisper and throatier, even though the pipes are identical to last year's models, and when cracking the throttle open and closed you'll notice the tach needle jumps quicker, as if it can't wait to violate the raised redline which now starts at 9000 instead of 7500 rpm.

Yamaha has no doubt experimented with different ways of increasing the 750's horsepower, keeping in mind that more ponies have a more direct effect on the vibration level of the triple cylinder design than other types of engines. This was obviously a touchy situation since the 750 is still basically Yamaha's prime touring machine and the last thing they want to do is turn it into a shaker. Therefore the engine modifications were kept subtle and affect only the top end of the engine. For example, the compression ratio has been upped from 8.5:1 to 9.5:1, which means it now requires premium fuel (at least 90.5 octane rating). The actual shape of the combustion chambers has also been altered and they now actually displace fewer cc's than earlier XSs. Cam profile has been altered slightly, retaining the same lift but now having sportier intake timing. And intake breathing has been further increased by changing the venturi shape in the carbs (they're still 34mm in size), modifying the main jets and adding on a larger, better breathing air box.

Totally new to the 750E, or any other Yamaha street bike (except for the DT series) is their new exclusive electronic ignition called TCI (Transistor Controlled Ignition) which totally eliminates the contact breaker points (see accompanying story). We figure electronic ignitions will be standard on virtually all models by 1980, but it raised one question: How come the RD400, which needed it most, didn't get it first? According to Yamaha, the ignition on the 750E is basically for emissions control because it never becomes detuned as there are no points to wear down. Still sounds like the RD should have been first—or are they trying to tell us something about it?

If you're skeptical that those few engine mods could create a truly significant performance increase, you should be—they really can't. You see, the real secret to the E's remarkable muscle building job lies deep inside the gearbox, out of sight. Anybody knows that by lowering overall gear ratio you'll get more performance, and that's just what Yamaha has done to the E. However, they haven't done it the obvious way, by changing the ring and pinion in the differential, but have instead gone inside the engine and changed the secondary ratio in the transmission (the bevel gears that bend the power 90 degrees into the U-joint); they've gone down from 3.262:1 to 3.582:1. Why change the bevel gears? It's simple—they're cheaper. For those with earlier 750s, those lower gears are interchangeable on all models, but you'll have to split the cases to install them.

There's no doubt about it, the gear change makes all the difference in the world. The E model doesn't have that bog between first and second gears like the earlier ones did; it pulls out around freeway traffic in fifth gear with authority and you needn't play with the shifter as much when pulling long uphills. And, the difference in dragstrip times is unbelievable. Our recently-tested 2D model turned a best time of 13.93 sec./93.45 mph, while our E model turned consistent 13.2 sec./100 mph times and dabbled occasionally in the twelves at 102 mph when Jody was "right on." We punished it pretty hard at the strip, power shifting it from first to second. It would actually light the tire in second, consistently, leading us to believe that the clutch, which now has friction plates made of cork material instead of resin, can handle the added horsepower. In reality, the lower gearing is easier on the entire motorcycle.

Has this sudden gift of power ruined its ability to tour comfortably and efficiently? No way! In fact, because of the changes it's actually able to pull more weight more easily. Low-end performance hasn't been affected any and it's still mildly mannered, being able to supply truck loads of torque smoothly and evenly. We put more than 1200 miles on the E traveling to San Francisco and back, and considering the lower gearing that turns the tach needle to 4000 rpm at the legal speed limit—instead of 3500 as on the 2D models—it actually got better gas mileage. The 2D averaged 39 mpg while the E stayed around 45 mpg and wouldn't drop below 40 no matter how hard we pushed it.

After being criticized strongly about an intermittent "mysterious" vibration in the first XS750 triple, Yamaha has done its best to cover its tracks on the E model—and has done so pretty successfully at that. Some say it vibrates a wee bit more than the 2D (which is nearly dead smooth) while others say it doesn't. We tend to lean toward the former opinion,

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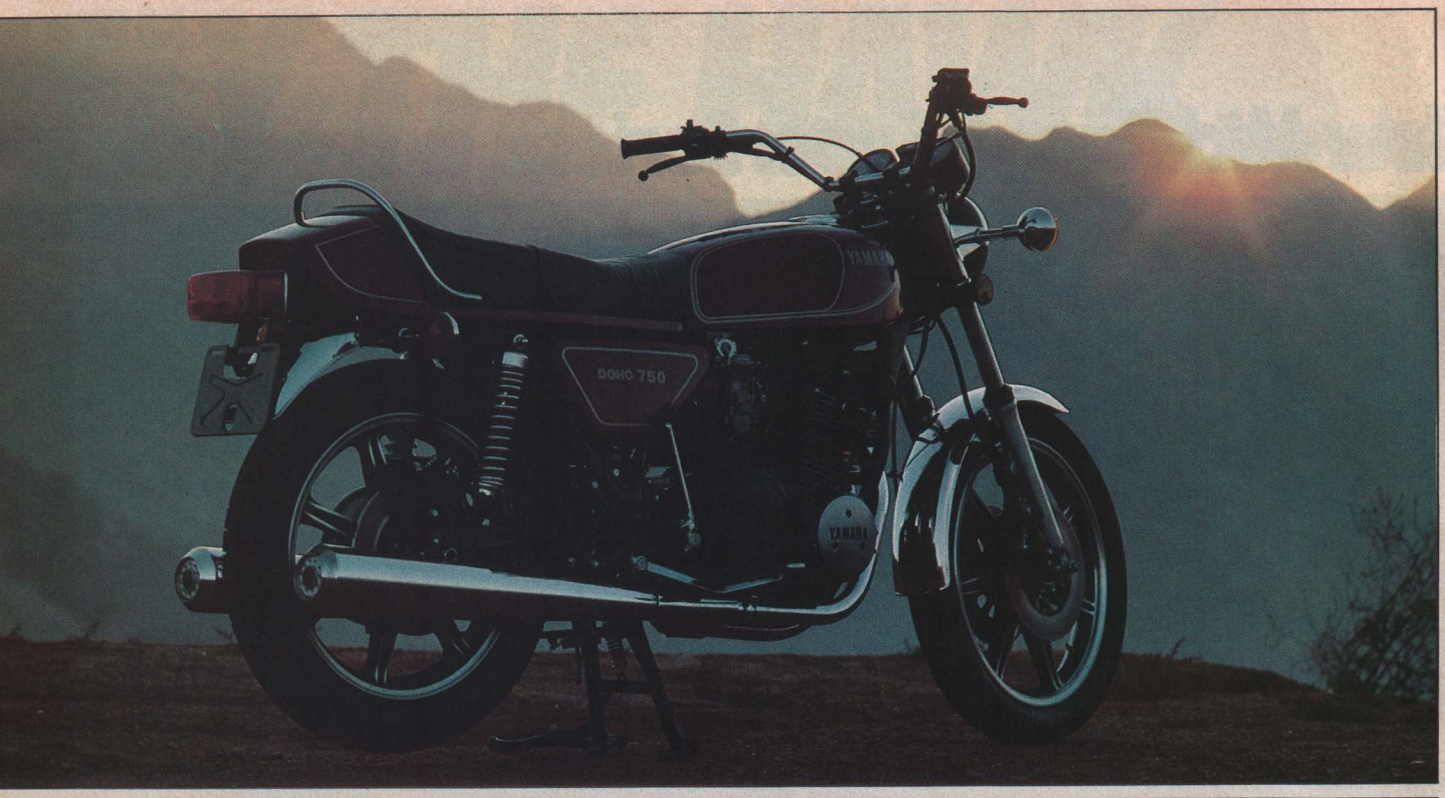
COLOR PHOTOGRAPHY: LARRY WILLETT


DOHC 750
YAMAHA

Yamaha XS750E

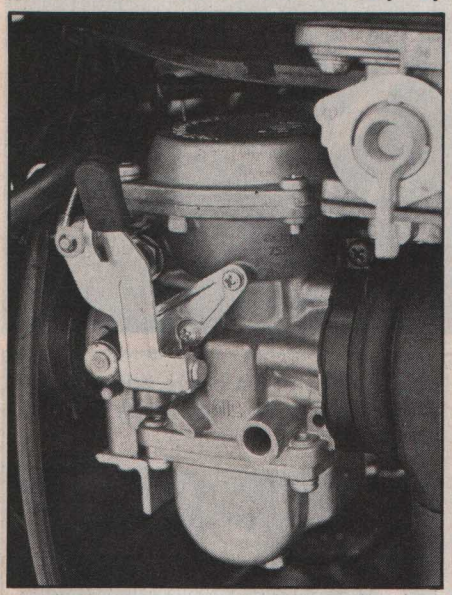
but it's still a small price to pay for its increased performance. A word to the wise. Don't count on the mirrors being able to distinguish black and whites behind you, they can't. We've got evidence to prove it again!

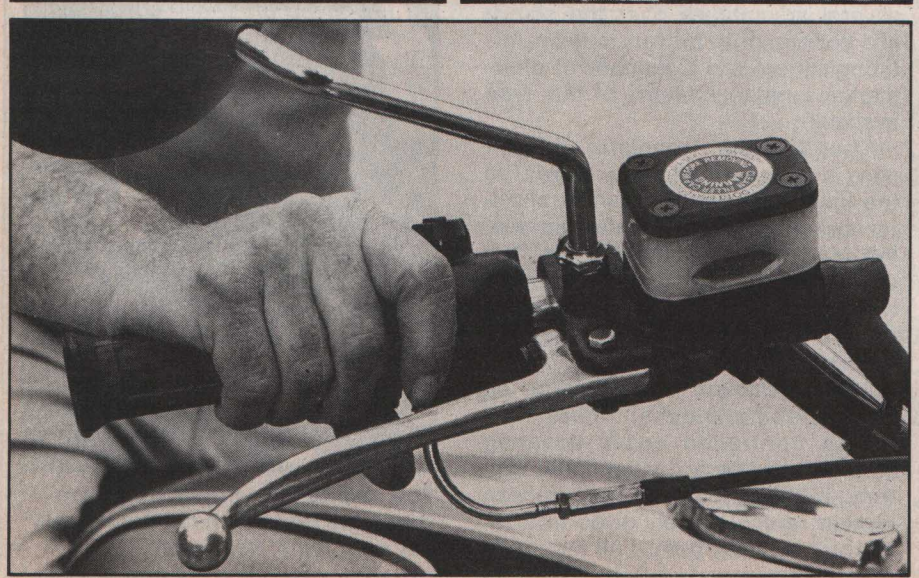
One little problem that will apparently follow this model around until it dies is the overly responsive CV carbs. While the single-pull vacuum-operated carburetor slides require only a light hand on the throttle for touring (which is good), they're too light and touchy for around town. That, combined with lash in the two driveline shock absorbers, and just the slightest bump in the pavement will send the rider and the chassis lurching to and fro. This little situation can be bypassed if you know what to do. Here's how: Merely lay an index finger over the throttle reel to act as a drag and it will provide full control in close quarters. Once this little trick is learned, the responsive E becomes as docile as any mount and almost devoid of driveline lurch.

The E is not totally overpowered by performance features, as it does possess one new trick item exclusively for the touring minded. Yamaha being the undisputed leader in adjustable suspension for MX machinery, it was only natural for them to carry it over onto the street models. Pulling the rubber caps off the tops of the fork tubes reveals Yamaha's latest gimmick: adjustable front forks. Yep, front fork spring pre-load can be adjusted to meet load conditions (such as when installing a fairing). To adjust tension, choose the most suitable position (it moves in clicks), and then depress and turn the spring tension adjuster with a large screwdriver. It's as easy as that.

Nothing drastic has been done to the chassis aside from reducing the fork trail from 110mm to 109mm, which is hardly noticeable. Rider positioning is unchanged, although Yamaha manages to throw on a different bend handlebar each year. The first XS had 26-inch-wide bars, the XS2D had 33-inch bars and this latest E model has 31-inch bars; the E model bars also swing back and in more. They're still pretty comfortable. Styling is still very "box-like," with the rider sitting on top overlooking the gas tank and instruments instead of sitting "in" the bike. However, as proven by the Sears Point race track times taken on the 7502D two months ago during our four-bike tour test, the XS handles surprisingly well despite its overweight 557-pound frame.

We got to sample the 750's superb brakes once again, although we'd rather have done it on the race track. While returning from San Francisco, sailing 80 mph through the dark, mountainous pass towards Coalinga, we came across a deer standing directly on the center line, and not the least bit afraid of playing a quick game of Russian Roulette. Normally





Above Left: *E Model comes with new style choke that pulls out from side in two stages: two clicks for a cold engine and one click for warming up.* ***Above Center:*** *Rubber fork caps hide Yamaha's new front fork adjusters. A screwdriver is the only tool required to change the spring pre-load.* ***Above Right:*** *Full-sized license plate holders are "in" this year and it really enhances the XS's appearance; it makes it look even boxier.* ***Left:*** *Trick to riding the E Model around town is to employ your index finger as a drag—it counteracts the overresponsiveness of the CV carbs.*

PHOTOGRAPHY: RICH COX
UNLESS OTHERWISE INDICATED

COLOR PHOTOGRAPHY: LARRY WILLETT

Yamaha XS750E

they try and split car headlights and the single light definitely had him confused—he didn't move a muscle. It's lucky too—we still brushed by him at 50 mph.

The first day we rode our 750E home we discovered one of the E's peculiar quirks, known among Yamaha officials as "the flaw." They hope it will go undetected by the majority of riders—and it probably will because it takes a prescribed set of circumstances to provoke it.

As fate would have it this occurred less than a mile from our offices. First, you need a pretty steep hill (30 degrees); you have to be in a tall gear such as fourth or fifth, and you've got to lug the engine down below 4000 rpm. Do all these things just right and the engine will start to surge, as if it wants to go but something is holding it back; sometimes it'll lose one cylinder momentarily. Keep the revs above 4000, or stay on level ground and it won't do it. The problem seems to be common to the E model, as it occurred in two identical models that we rode. We returned our bike to have the floats checked but it didn't help. Yamaha is

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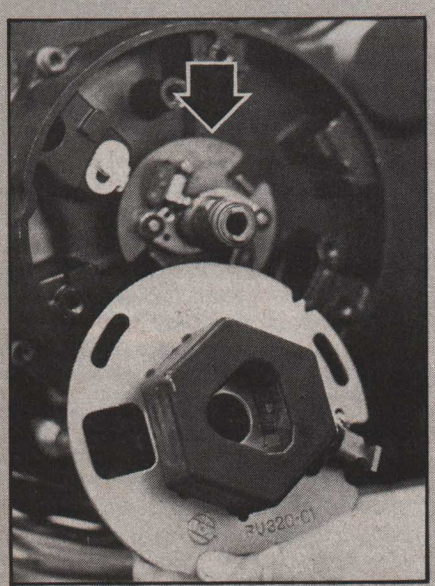
Yamaha XS750E Transistor Ignition

By Jody Nicholas

Many American and foreign automobiles have gone to breakerless transistorized ignition systems as have many competition motorcycles. However, not many street machines have been introduced with this type ignition system, which has several advantages over the standard points/coil/battery set-up, although there are a number of aftermarket ignition systems of this type available.

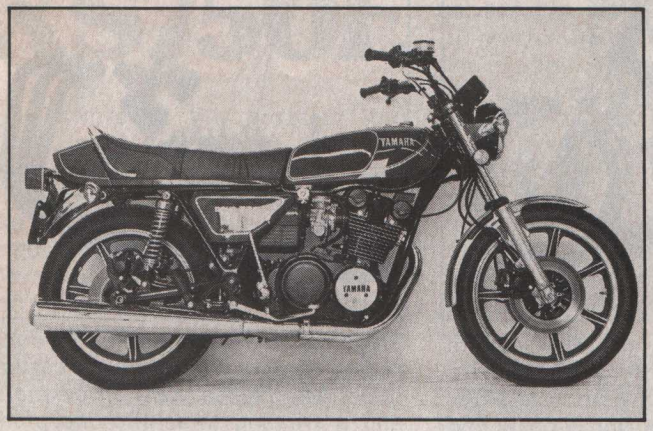
The Yamaha transistor system uses a pick-up coil, also known as the ignition pulser coil, and transistor switching circuit contained near the *Magic Box* to interrupt the flow of current in the ignition coil primary circuit. There are no contact points to get dirty, pit from the wrong capacity condenser, or get out of adjustment from wear of the fiber rubbing blocks. There is a spring controlled spark advance mechanism like a conventional system, but this part of the ignition system rarely, if ever, gives trouble. It won't be long before all manufacturers wake up to these advantages and equip their machines with a similar system.

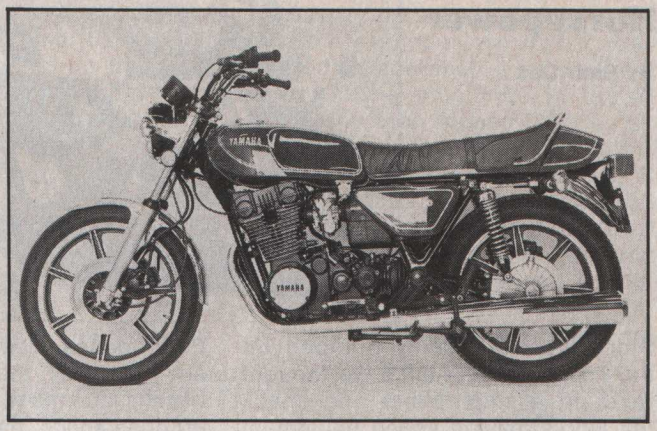


Pick-up coil is mounted on plate that can be moved to adjust timing. Ignition advance mechanism (arrow) is the same as last year's XS7502D.

The distributing circuit is located in the Magic Box which nestles beneath the right-hand side cover.

YAMAHA XS750E





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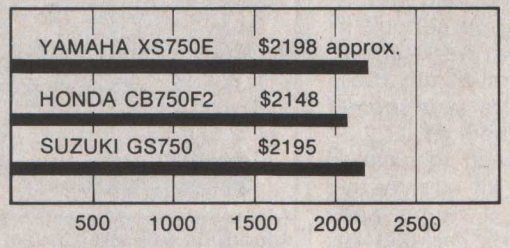
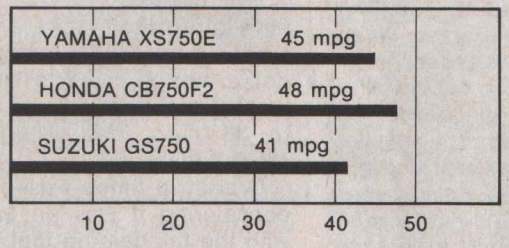
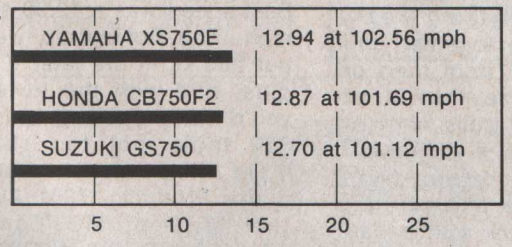


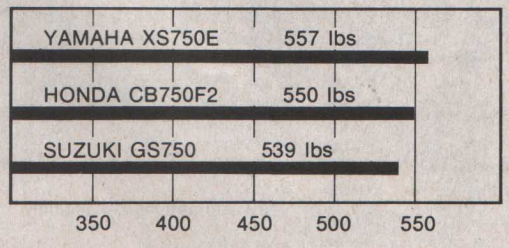
AVERAGE FUEL ECONOMY



QUARTER-MILE



WEIGHT



TEST BIKE: YAMAHA XS750E
Price, sugg. retail.....$2198 approx.

ENGINE
Type.....DOHC transverse triple
Bore/stroke.....68 x 68.6mm (2.68 x 2.70 in.)
Piston displacement.....747 cc (45.6 cu. in.)
Compression ratio.....9.5:1
Carburetion.....(3) Mikuni BS34-II constant velocity
Air filtration.....Dry foam
Ignition.....Magnetically-triggered transistorized
BHP @ rpm.....n.a.
Torque @ rpm.....n.a.
Lubrication.....Wet sump, trochoid pump
Electrical power.....210-watt alternator
Battery.....12V, 14AH

DRIVETRAIN
Primary transmission.....Hy-Vo chain, 1.66 ratio
Clutch.....Multi-plate, wet
Secondary transmission.....Shaft and bevel gear
Gear ratios, overall :1..1st 14.63; 2nd 9.48; 3rd 7.76; 4th 6.53; 5th 5.71

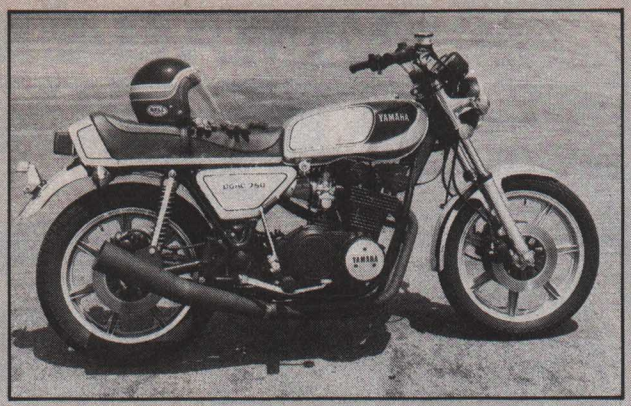
CHASSIS & SUSPENSION
Suspension, front.....Telescopic fork, 175 mm (6.9 in.) travel
Suspension, rear.....Swing arm, 80 mm (3.15 in.) travel
Tire, front.....3.25 H 19
Tire, rear.....4.00 H 18
Brake, front...Disc, 267 x 36.9 mm (10.51 x 1.45 in.) x 4
Brake, rear....Disc, 265 x 36.9 mm (10.45 x 1.45 in.) x 2
Brake swept area.....628.9 sq. cm. (247.6 sq. in.)
Rake/trail.....26 30'/109mm (4.29 in.)
Wheelbase.....57.8 in.
Seat height.....823 mm (32.4 in.)
Handlebar width.....787 mm (31.0 in.)
Ground clearance.....147 mm (5.8 in.)
Instruments.....Speedometer, trip reset, tachometer, oil pres., neutral, turn signal, headlight filament out.
Stands.....Side and center
Tire retention device(s).....None

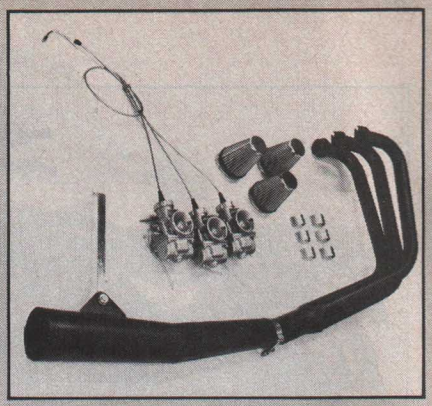
WEIGHTS & CAPACITIES
Fuel capacity.....17 lit. (4.5 gal.)
Oil capacity.....3.8 lit. (4.0 qt.)
Weight, wet, unladen.....252.6 kg. (557 lb.)

PERFORMANCE
Standing start quarter-mile.....12.94 sec./102.56
Average fuel consumption.....45 mpg

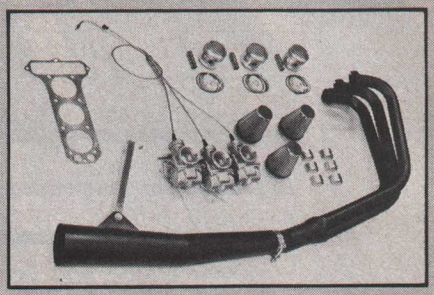
Building Your Own Horsepower

By Rich Cox





Stage I is your basic bolt-on kit consisting of: 34mm Mikuni slide carburetors with cables, K&N air cleaners and a Winning three-into-one pipe.



According to Powerhouse, this Stage II kit gives the largest percentage gain in horsepower per dollar.

Since we were really pumped on the 750E's performance we thought we'd go a step farther and check out who's making speed equipment for the Yamaha triples. Most of the big-time speed suppliers, who build their reputations on racing what they sell, have shied away from the 750, not because the engine can't be hot-rodded or can't take the punishment, but because the triple has two distinct disadvantages that make it useless for circle or drag-strip racing: It's way overweight and it's got shaft-drive that makes gear changing a bit difficult. But what about the street rider who doesn't want to race, but just wants a little more pizaaaaz from his triple? Powerhouse Products, a small firm in Canoga Park, California, feels there are enough 750 owners out there who want to buy some speed that they're going to work exclusively on satisfying them. They're offering kits in four different stages depending on how much speed you want to buy. For example: Stage I is your basic bolt-on performance kit consisting of a set of 34mm manual slide carbs and a three-into-one pipe; Stage II includes an 850cc big-bore kit among other things; Stage III goes a step farther by including a pair of Stage I cams and Stage IV gives you all these goodies, plus a port job on the head.

You might be interested in what kinds of parts you'll be getting. The three-into-one pipe is a Winning Performance pipe; the air cleaners are from K&N; the forged aluminum pistons are made by Arias to Powerhouse specs; the Norris cams and springs are also to Powerhouse specs; and Powerhouse does all its own porting. They've also got a complete machine shop service if you don't do your own work, and if you have any doubts at all, they prefer you send them your complete engine and let them do it.

Powerhouse happened to have a 750 with a Stage IV kit already installed so we took it riding and here's what we found. The 850 kit definitely causes a heavier throbbing under the seat and it does vibrate more than a stock 750, but that's pretty much expected when you start making holes bigger. Normally the Stage IV kit comes with 36mm carbs, but you can get it with 34mm as this one had. The smaller carbs work better for street use but the 36mm jobs pull a little harder on the top-end. Bottom-end torque didn't seem to be affected by the racier Stage II cams and it seemed to lope around town as easily as a stock engine. Everything really doesn't start coming together until about 5500 rpm and from then on you suddenly realize this is no stock 750 engine—it pulls hard on up to redline and past if you let it.

For cruising around town you'll find the manual slide Mikunis have stiff springs which are a little hard on the throttle hand, and the Winning pipe, that looks and sounds similar to a Kerker pipe, is a nice noise maker if that's what you're looking for. Gas mileage figured out to 33 mpg just driving it easy around town.

Dragstrip times were impressive considering it was an early XS750 with the tall gearing that forces it to trip the lights in fourth gear. Best time was a 12.04 sec./108.82 mph. Best speed was a 12.30 sec./111.52 mph. The hot set-up would be to put this kit in the later E model engine, and with the lower gearing you'd have yourself an 11-second 750 triple—not too shabby! For more information contact: Powerhouse Products, 7801 Alabama St., Unit 13, Dept. MC, Canoga Park, CA 91304, (213) 884-5379.

Stage I	
34mm Carburetors with cables	$182.50
3-1 Exhaust System	155.00
	337.50
Installation Labor	45.00
	$382.50

Stage II	
34mm Carburetors with cables	$182.50
3-1 Exhaust System	155.00
850cc Big Bore Kit (9.5:1)	125.00
Head Gasket	19.50
Air Cleaners	25.00
Cylinder Boring	45.00
Valve Job and Head Assembly	110.00
(includes shimming valves)	662.00
Installation Labor	75.00
	$737.00

Stage III	
34mm Carburetors with cables	$182.50
3-1 Exhaust System	155.00
850cc Big Bore Kit (9.5:1)	125.00
Stage I Cams (Hot Street)	140.00
Valve Springs	19.50
Head Gasket	19.50
Air Cleaners	25.00
Cylinder Boring	45.00
Valve Job and Head Assembly	110.00
	821.50
Installation Labor	85.00
	$906.50

Stage IV	
36mm Carburetors with cables	$192.50
3-1 Exhaust System	155.00
850cc Big Bore Kit (10.5:1)	175.00
Stage II Cams (Street/Race)	140.00
Valve Springs	19.50
Head Gasket	19.50
Air Cleaners	25.00
Porting	140.00
Boring	45.00
Valve Job and Head Assembly	110.00
	1,021.50
Installation Labor	95.00
	$1,116.50

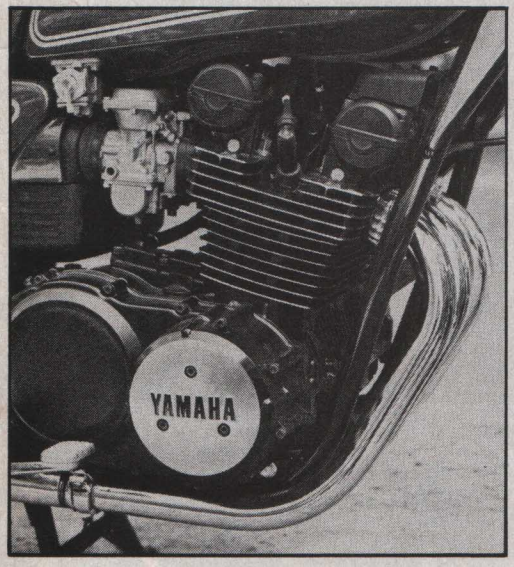
Prices subject to change without notice

Yamaha XS750E

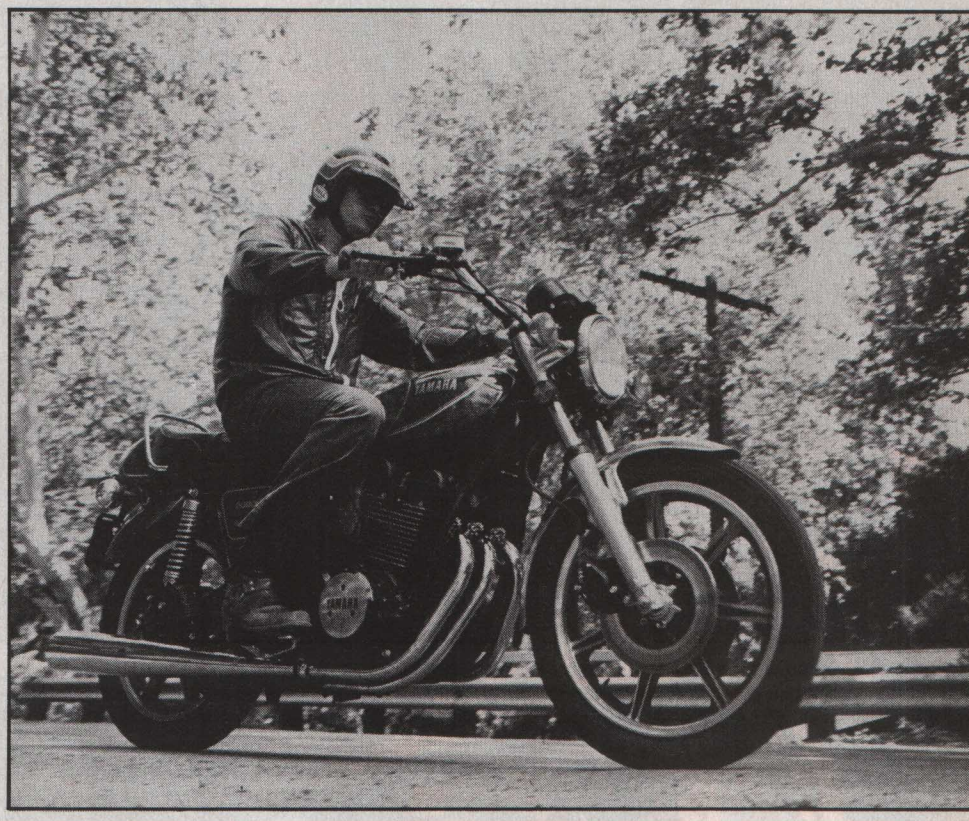
quite aware of the problem and they're trying to narrow it down between ignition and carburetion; lowering the needles seemed to help. Like we said, one of fifty riders might detect it (given the right conditions) and we don't think it's anything to worry about. They'll probably have it solved by the time production models hit the showrooms anyway.

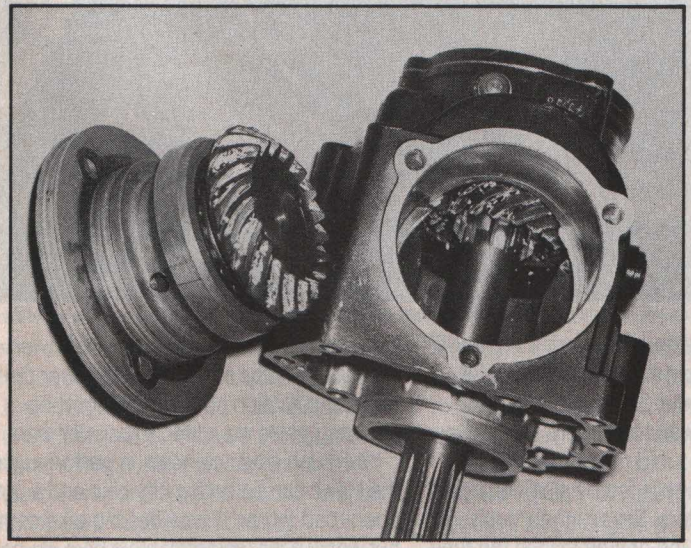
And incidentally, just because this baby is suddenly a rocketship doesn't mean you have to give up any of the convenient gadgets that the 750 has become famous for. You still get those fuel petcocks that work under vacuum and automatically shut themselves off when the engine isn't running, and then automatically open again when it's time to do business. You also get self-canceling turn signals that automatically snuff themselves after 10 seconds and 490 feet, a warning light on the instrument panel that warns you that the headlight element has burned out and automatically lights the remaining good one for you, and the luxury of having two taillight bulbs out back, so in case one goes south the back-up lets you wander on home.

Yamaha had the 750's whole life planned out pretty well. They introduced it as a mild-mannered shaft-driven triple that would appeal to the touring public (a hyped-up superbike-type wouldn't have worked), established it as one of the best touring machines in the 750 class, and then topped it off by adding additional performance without sacrificing comfort and reliability. The E model does everything the earlier models did, but it does it just a little bit faster. Those who originally looked at the XS750 and found it boring and slow, better look again. It is likely to surprise even the most jaded among you. M



Double overhead cam triple remains basically the same from the head down. Right case still has that ¼-inch-thick rubber piece imbedded in the side to deaden primary and clutch noise.





Fifty percent of the E's performance gain comes from lowering the overall gear ratios by way of changing these two bevel gears in the secondary transmission.

Tool kit resides under the flip-up seat and supplies the basics for on-road repairs. Plastic dipstick is for differential.