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YAMAHA TDR 250
5 READER SPECIALS

5

OF THE
BEST

YAMAHA TDR TWO FIFTIES

Wide bars, low gearing and a two-stroke powerband are the fundamentals of TDR250 fun. Twenty years of owner development have made them even better

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YAMAHA'S TDR250 is credited as the first factory supermoto from a major manufacturer, and *PS* would argue, it's also the best.

Unlike the vibey, crude four-stroke single converted off-rovers currently favoured by the back-it-in brigade, the TDR has a purpose-designed chassis with the YPVS-equipped TZR250 engine, albeit with carb/ignition changes for more midrange and shorter gear ratios (for better wheelies, obviously).

The standard tyres might have off-road pretensions, but they don't really suit anything more taxing than a gravel path. Instead, the off-roader dimensions coupled with that frantic motor make for one of the greatest hooligan motorcycles ever built – the spirit is the same as the 350LC, even if the style isn't.

But time stands still for no bike and a world of owner fettling has spawned an endless list of improvements that have further advanced the 'Ultimate Dual' machine. 🍷

1 The one with 485cc and 80bhp



WE'VE STILL TO WORK OUT

whether we'd like to try Greg Reid's big-bore RD350YPVS-powered TDR. On the one hand it has double the power of the standard bike and could be a lot of fun. On the other, it has double the power of the standard bike and could be a briefly-hilarious way to put yourself in hospital.

Greg's managed a couple of thousand miles on his TDR and has so far avoided a stay with the NHS. But it's not been an easy project by any means.

"I bought the bike as a run-around five years ago and never sold it. Instead, I started tarting it up with a JMC swingarm and SZR660 forks and wheels with twin calipers from a Ducati. I'd also seen a couple of TDRs with 350 motors and I fancied one.

"My friend Andy Bown helped me modify the frame. He bent the tubing for the cradle to hold the output shaft at the right height

and cut the front engine mount from a YPVS to hold it, then I welded it together. The top frame rails needed to be reshaped to clear the carbs too, because they sit further back.

"I got the motor to fit, but then came across the Cheetah big-bore kits, so I bought one. The crankcase mouths are machined to accept bigger pistons with a 4mm stroker crank. I built it, but it got a water leak, overheated and seized.

"I got in touch with TSS in Australia who are building similar engines and they recommended Wossner forged pistons with flat tops and matching head inserts, plus servo-operated powervalves instead of pressure activated, which are inaccurate. They took eight months to arrive then seized after 150 miles. I got another set, got it set-up on a dyno, then it seized on the road again.

"I've fitted an electric water pump now and use a radiator from



a 2002 R6 with the water flowing backwards, so it cools the hot exhaust side first. I also have Wiseco pistons with a bit more clearance, so fingers crossed this time.

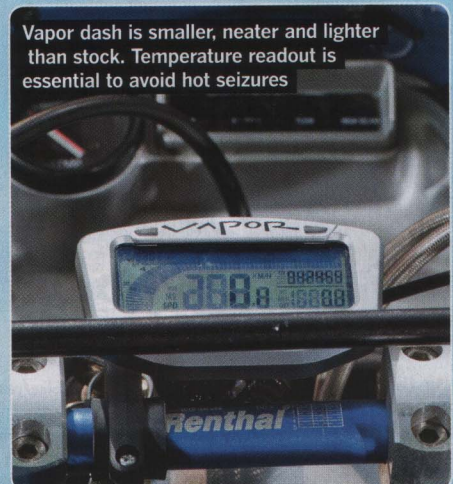
"I also replaced the stroker crank with one that has a balancing weight opposite the crank pin - YPVS cranks aren't really in balance because they're essentially a 250LC crank and when you add bigger rods and pistons they get vibey. The weighted crank is so much smoother and it revs harder too, it's so much nicer. I just hope it stays together this time."



*** SPECIFICATION** **GREG REID** Bike/year TDR250/1989 Year acquired 2006 Build time one year **Fave part** "The hand-built pipes and 46lb.ft of torque in a TDR." **ENGINE Type** liquid-cooled, reed-valve induction two-stroke, parallel twin with YPVS **Capacity** 485cc **Crank/rods** TSS full-balance 58mm **Pistons** Wiseco forged single-ring **Heads** Cheetah to suit bore kit **Barrels** Cheetah 485cc, TSS powervalves **Clutch** Pro-Design lock-up, windowed cover **Carbs** 35mm Mikuni Keihin supercross-spec **Induction** foam pods, carbon velocity stacks **Exhaust** one-offs by Andy Bown **Ignition** programmable digital Zeeltronic with powerlave servo control **CHASSIS Frame type** standard steel cradle, modified engine cradle and upper rails **Forks** USD SZR660 **Swingarm** JMC under/over-braced **Wheels** SZR660 front and rear **Front brakes** Ducati 748SP four-piston Brembo, ISR radial mastercylinder **Rear brake** TZR 3MA opposed piston caliper and disc **Estimated value** £4000



Venhill throttle unleashes 80bhp in ¼ turn. ISR mastercylinder brings it to a stop again



Vapor dash is smaller, neater and lighter than stock. Temperature readout is essential to avoid hot seizures

A TIGHT SQUEEZE
YPVS MOTOR IS BULKIER THAN THE TDR LUMP. NEW CRADLE, FRONT MOUNT AND TOP TUBES MAKE ROOM



PRO-ARM STYLE
NC30 SWINGER IS HEAVIER
THAN STOCK, BUT IS
UNIQUE IN THE UK AND
LOOKS FANTASTIC

2 The one with a single-sider



THE PROBLEM with TDRs is that they're so good looking it's impossible to build a distinctive one without getting rid of the original bodywork.

Mark Kaye wanted to build a TDR that stood out from the crowd, one that didn't use the tried and tested modifications.

"I'd seen a few TDRs fitted with TZR 3MA swingarms, so I didn't want to do that. Then I saw a picture of one with an NC30 swingarm in Japan and decided on that – I know it's heavier, I chose it because of the aesthetics. I fitted a resprung Aprilia RS250 shock and linkage because it was the best way to keep the geometry right for the swingarm. The arm has 3mm shaved off each side to fit.

"I also wanted upside-down forks for a more modern look while maintaining typical TDR characteristics. So, I chose SZR660 forks with a Cagiva Mito wheel.

"Kev at ARD rebuilt my engine with a midrange tune to suit the Martin Johnson pipes I bought, which are also designed with midrange in mind.

"I also wanted an MPL single seat unit from Japan, but it turned out it isn't quite as simple as that – you have to buy the fairing and then ask for a seat to be made. By the time the agent's fees were included it cost me £750. I've taken a mould from it to make more. The paint was done by a mate in a garage, but it looks really good.

"Overall I'm happy with it. I set a budget of £1200 but in the final tot-up it cost £1800, mainly because I had to spend so much on the bodywork. It's all been done by mates with the right skills, so I've managed to keep costs down that way.

"I can get as much fun out of a TDR at 80mph as you would at 140mph on any sportsbike I could mention."



*** SPECIFICATION** **MARK KAYE** Bike/year TDR250/1989 Year acquired 2009 Build time two years **Fave part** "The style of it, I wanted it to be different."
ENGINE Type liquid-cooled, reed-valve induction two-stroke, parallel twin with YPVS Capacity 249cc Crank/rods standard, ARD rebuild Pistons standard (new) Heads standard, ARD tune Barrels standard, ARD tune Clutch standard wet-multiplate Carbs standard 28mm Mikuni flat-slide, jetted to suit Induction standard Exhaust Martin Johnson expansions, Swarbrick silencer Ignition standard CDI **CHASSIS** Frame type standard steel cradle Forks USD SZR660 Swingarm VFR400R NC30, machined to fit, KR-1S linkage, Aprilia RS250 shock Wheels Cagiva Mito six-spoke front, RVF400 NC35 rear Front brakes four-piston Brembo, R1 mastercylinder Rear brake NC30 two-piston sliding Nissin caliper and disc **Estimated value** £2500

3 The trackday hack



THE TDR'S semi off-road origins hasn't stopped a great number of them ending up out on the track running cast alloy wheels and sticky tyres instead of spoked rims and knobblies.

Mark Ratcliffe's TDR circulates British race tracks five times a year, so a standard bike wouldn't really cut it. But that's exactly how Mark got this well used TDR...

"It was one of the bikes on my want-to-get-one list having seen them in magazines in the late '80s. I got it in 2005 and it was all standard. The first modifications I made were a set of Jim Lomas exhausts and I got the engine tuned by Road and Track Dyno: it's a midrange-biased race tune that peaks at 52bhp on a Dynojet dyno. I fitted new YPVS valves and seals at the same time, plus a Bandit 1200 inlet trumpet in the airbox, which lets it hold on to its power and over-rev.

"The TZR250 3MA swingarm was next to go on which I bought ready to fit a TDR. I rode the bike to the seller's house and fitted it on

his drive. It rolls in to corners much better than TDRs with a 2MA swingarm do.

"The front wheel is a 2.75in rim from a TZR125R and it takes 110-section rubber. It has a Kagizume disc, a Pretech caliper from my R1 and an R1 mastercylinder. The forks are standard but have a 5mm smaller air gap. The shock is Nitron.

"It's now got Martin Johnson pipes with NK Racing silencers, which give similar power with a little more top end and a better noise. I did try an ignition from a TZR250 2XT, but all that really did was blow the motor up, so I went back to the TDR CDI.

"I've taken the bike further than I wanted to go and it's reliable, so it's done now. Saying that, I've just fitted the shock and if the front is too soft now I'll have to see about fitting an FZR front end to it.

"It'd be nice to make it look good too, but it's about the way it works for me."



TRACK-READY
THE COSMETICS AREN'T MINT, BUT FORMER RACER MARTIN HAS MADE HIS TDR AN UNLIKELY TRACK TOOL

SPECIFICATION **MARTIN RATCLIFFE** Bike/year TDR250/1988 Year acquired 2005 Build time six years Fave part: "The way it turns you into an 18 year-old loon"
ENGINE Type liquid-cooled, reed-valve induction two-stroke, parallel twin with YPVS Capacity 249cc Crank/rods standard, Road and Track rebuild Pistons standard (new) Heads standard, R&T tune Barrels standard, R&T tune Clutch standard wet-multiplate Carbs standard 28mm Mikuni flatslide, jetted to suit Induction standard, Bandit 1200 airbox trumpet Exhaust Martin Johnson expansions, NK Racing silencers Ignition standard CDI **CHASSIS** Frame type standard steel cradle Forks standard RWU Swingarm TZR250 3MA under-braced, modified to fit **Wheels** TZR 3MA rear, TZR125R front **Front brakes** six-piston Pretech caliper, R1 14mm mastercylinder, braided hose **Rear brake** TZR 3MA opposed-piston caliper **Tyres** 110-section **Estimated value** £1900





HONOURS LIST
PAUL RODE HIS TDR TO 2ND
IN THE YPM ROOKIE CUP IN
HIS 1ST SEASON, AND 3RD
IN THE 2010 CLUBMAN CUP

4 The road racer



IN THE THREE years Paul Norris competed in the Yamaha Past Masters (YPM), there was one question spectators regularly asked: what the hell is that?

Paul's immaculately prepared TDR sticks out in the field of TZRs and 350 YPVSs like Graham Norton at a Millwall football riot. And it all came about for the cow-horned racer after a trackday on his modded road TDR.

"I bought back the TDR I owned in 1990, modified it and did some trackdays. I started going faster and faster and decided I wanted to race. I'd acquired enough parts to build one, so I sold the road bike to fund it, and then had a long discussion with the YPM coordinators to draw up some TDR rules.

"Martin Johnson tuned the engine with 2.6 oversize Wossner forged pistons. The crank was rebuilt by Grampian and I used TZR carbs; there's a small difference in the

powerjets, but I use TDR ignition for better drive. The radiator is NSR250 MC18. I've modified the airbox because as standard it's shaped to allow the exhausts to fit, but it obstructs flow in to the carbs. Removing the obstruction gained 3bhp.

"I kept the charging system, but fitted a battery eliminator to save weight. It made 52bhp on Crazy Katt's dyno.

"I used a Japanese-model aluminium swingarm and adjustable shock with a TZR125R rear wheel and TZR250 front. The forks are stock, with 15w oil instead of 10w. I've changed the footrests four times to improve ground clearance. Would you believe this is the fifth set of pipes Martin has made for improved power and clearance?

"I've achieved all I wanted to when I decided to race a TDR. It has a daytime MoT though, and I'm never going to sell it. It's part of the family now."

★ SPECIFICATION **PAUL NORRIS** Bike/year TDR250 1989 Year acquired 2007 Build time ongoing **Fave part** "It's the only one - I like that it stands out." **ENGINE**

Type liquid-cooled, reed-valve induction two-stroke, parallel twin with YPVS **Capacity** 273cc **Crank/rods** standard, Grampian rebuild **Pistons** Wossner 59mm forged **Heads** standard, Martin Johnson tune **Barrels** oversize bore, Martin Johnson tune **Clutch** standard wet-multiple **Carbs** TZR250 28mm Mikuni flatslide, jetted to suit **Air filter** standard, modified airbox **Exhaust** Martin Johnson expansions, Tyga silencers **Ignition** standard CDI **CHASSIS** Frame standard steel cradle **Forks** standard RWU **Swingarm** Japanese-spec TDR **Wheels** TZR125R rear, TZR250 2MA front **Front brakes** R6 caliper, TDR mastercylinder, braided hose, Ferodo CP211 pad **Rear brake** standard opposed-piston caliper **Estimated value** £1800

5 The subtly updated one



THE TDR'S styling is aging well. It's still a handsome bike, but the '80s detail lets it down: clumsy rear light; floppy indicators and skinny, rot-prone wheels.

Mark Lindley's Japanese import isn't as deliberately different as the other bikes here, but it's no less sorted. It's just stayed truer to the original.

"I had one in the early '90s and moved on to bigger bikes. Then I started thinking about another TDR to slow me down – I was riding big bikes like a lunatic. At about that time this one came up. It was totally original apart from the SS Ishii exhausts. It even had the original knobbles still fitted.

"I've updated it to make it a little more modern. The rims are Morad – 3.5in front, 4.5 rear so I can use decent tyres.

But I kept the stock look with stainless spokes and powder coated hubs.

"The mudguard is from an RGV250

VJ21 and it's fitted to a Tom Mac fork brace because the original is too high for the small rim size. The dash is a Vapor digital and I replaced the redundant speedo drive with a polished spacer.

"The front caliper is an R6 blue-spot and I've got an ISR 15mm mastercylinder with adjustable ratio, and a matching clutch lever. It's just bling really, but they work really well. I swapped the disc for a wavy Galfer.

"I've had the top end rebuilt, but it's in standard tune. I took the carbs apart once, and it had already been re-jetted to suit the exhausts. Which was a bit of luck.

"The 'bars are Renthal Fatbars with special risers and clamps – the stock 'bars have a really high rise so it's hard to get a replacement. The shock and fork springs are Hagon and the suspension tie bars are 5mm shorter for more ride height. Other than that it has stainless steel fittings and a neater tail light and indicators. I'm not sure what it owes me, but I know I wouldn't want the missus to find out at any cost."



LOVELY RIMS
GOLD MORAD RIMS AND STAINLESS SPOKES ON YAMAHA HUBS GIVE BETTER CHOICE OF STICKY TYRES

*** SPECIFICATION** **MARK LINDLEY** Bike/year TDR250 1988 Year acquired 2003 Build time ongoing **Fave part** the wheels **ENGINE** Type liquid-cooled, reed-valve induction two-stroke, parallel twin **Capacity** 249cc **Crank/rods** standard pistons, standard (top end rebuilt) **Heads** standard **Barrels** standard **Clutch** standard wet-multiplate **Carbs** TDR250 28mm Mikuni flatslide, jetted to suit **Air filter** Pipercross airbox **Exhaust** SS Ishii system with carbon-kevlar silencer **Ignition** standard CDI **CHASSIS** **Frame** standard steel cradle **Forks** standard RWU **Swingarm** standard aluminium beam (Jap-spec) **Wheels** Morad 17in rim (3.5 front, 4.5 rear), stainless spokes, standard hubs **Front brakes** R6 Sumitomo 'blue-spot' four-piston caliper, ISR adjustable ratio mastercylinder, Galfer disc **Rear brake** standard opposed-piston caliper, Galfer disc **Estimated value** £2500