

Road Bike

The step-by-step guide for every bike owner
on how to maintain, repair and improve your bike

Step by step airbrush skills



Torque tools



Euro-styled CB650



Honda CB650

Another bland four cylinder bike or a new and exciting machine from the largest manufacturer in the world? The CB650 is Honda's machine to compete in the newly popular 650 cc class. We find out exactly how well it fills its niche.

The Euro-styled Honda CB650 is a development of the old CB550 model. Unlike that model, however, it shares the new design look of angular tank and side panels. It also has the same type of riding position: a useful forward lean. Obviously not designed in the old sit-up-and-beg style.

The engine has the usual oversquare dimensions with the bore at 59.8 mm and the stroke at 55.8 mm. Clever design manages to combine a compression ratio of 9.0:1 with the use of 91 octane (2 star) petrol. The head has large valves for efficient engine breathing and fortunately from the home

mechanic's point of view there are only two valves per cylinder. Another good feature for the DIY mechanic is the single overhead cam.

Honda's FVQ shock absorbers keep the swinging fork under control and the front forks have a good length of travel. In fact the handling is supposed to be considerably uprated and improved compared with the old CB550.

We tested this machine over a considerable distance – some 3,000 km (2,000 miles) – and thoroughly got to know its vices and virtues both on long distance tours and about town, to find whether it lived up to the claims of the manufacturer that it is a sporty middleweight.



Andrew Mortland



The rear seat hump contains the tool kit which is held in a corrosion-proof plastic box. The tools were adequate



Under the right side panel is the battery. The electrolyte level must be checked every month

Ed Baxter



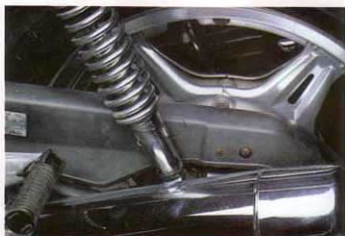
Fuses are held under a plastic panel over the handlebars. Despite the good looks, the screws are fiddly



The very neat electrical junctions are situated under the seat along with the ignition and regulating black boxes



The Comstar wheels are easy to clean and attractive. Twin discs are fine in the dry but suspect in wet weather.



A chain guard of plastic is a good idea, but the chain still needed frequent adjustment

On the road

The most impressive part of this bike was the high speed engine performance. From an engine with an actual capacity of 626 cc, Honda have extracted enough power to satisfy all but the megalomaniac rider. It compares very favourably with its direct competitors and it felt as if it could give some 750s a bit of a fright, especially perhaps the earlier 750 Honda fours. Also, for a six-fifty, it is not heavy by its competitors' standards making it easy on the engine.

The power from this high revving bike (the engine is red lined at 9,500 rpm) is not totally at the top end of the rev range, there is useful power on tap from quite low down. In fact it was possible to use the machine about town without struggling to find a power band and the gearbox did not need constant use to keep the machine running around happily. From only 2,000 rpm, it delivered enough power to enable the throttle to be rolled open and attain a smooth take off with no snatch or jerk.

This low down power was not all that

useful on the open road and it did not lend itself to a relaxed type of touring. But this engine is neither designed for, nor does it deliver, the kind of low torque that has the foot changing up for meaty acceleration: most of the power lies in the top third of the rev range. Indeed at the top of the range the engine is well endowed with the power that earns it the right to its sporty image. Taking the bike to the top of the range in the lower gears had the bike fairly flying along. The top speed of 184 km/h (115mph) could be attained without too much of a run up if use was made of all the revs in each gear.

But the usability of this machine as a long distance tourer has to be called into question because of the non-relaxed feel at a high cruising speed. On a long tour through mixed conditions of motorway, trunk road and small country roads, the whining from the engine was quite fatiguing and did not leave the rider fresh after a long day's ride. On test we were able to compare it directly with another Honda, the CX 500, over a 3,000 km (2,000 mile) tour

and the CX proved much more pleasant for covering a really long distance. An in-line four does not lend itself to really comfortable long distance work, unless it is smooth or well silenced. The noise, vibration and feel from a high revving four gives the rider a feeling of being hurried along rather than being allowed to cruise at a fast steady speed.

However, the 650 is not intended as a round-the-world machine and it does well in its environment which is the swervy and the areas where exhilarating speed is called for. Indeed, over a short section of twisty road it outpaced the CX500 thanks to its faster acceleration and the excellent adhesion of the tyres in a hard pressed situation.

This leads on to the topic of the bike's overall handling. Different test riders had different opinions on how good it was. The main split of opinion was between those who thought that the springing was too soft, especially at the front, and those who, despite this softness, found that it went round most corners well regardless of the springing. The main complaint was that the bike

wallowed round a bend if it hit a bump halfway. Indeed comparing the machine to others, the front forks were very soft. However, the damping rate seemed to match the softness of the springs and provided a balanced front end. On no occasion, despite the odd disconcerting lurching round an undulating corner,

did things get out of control sufficiently for the bike to break away. So looking at it overall, the bike can be said to be a good handler, not because it inspired confidence, but simply because it got round corners quickly.

Comparing it again to the CX500, the ride was much more 'immediate'. The

CX sailed over the bumps and bends with a detached relaxed smooth ride. The CB650 was much more in contact with what was going on below and gave a rougher but tauter ride. Whether the 650 would be as useful as the CX500 for as many functions is debatable.

About town the bike was docile and



A large alloy plate serves as the mounting for both the rear brake pedal and the passenger footrest



The air filter is located behind the plastic left side panel. It should be replaced every 6,000 km (3,600 miles)



The drum brake on the rear wheel provided safe deceleration in wet weather, and complemented the front discs.



A daily oil check is made simple by the plastic dipstick screwed into the right crankcase by the clutch adjuster



Between the two centre exhausts is the oil filter. The central nut is undone and the cover withdrawn for access.



Clutch adjustment is made by lock nut and screw adjuster. It is accessible behind the large dome headed screw.

slim enough to make easy the kind of gap squeezing experienced in traffic jams. A light clutch lever action contributed to the ease of town use and all in all the machine was very controllable.

The five speed box was slick and produced no false neutrals throughout the course of the test. Perhaps this was due to the firm pressure applied at all times to the lever. It was possible to make clutchless changes both up and down without any undue snatching; a credit to the smoothness of the transmission. In fact, the clutch action was progressive and smooth. The clutch also took as much power as could be fed into it and withstood the many fast getaways needed to establish the performance figures.

One disappointing figure established was the rather high petrol consumption. On long trips this meant that a stop was compulsory every 240 km (150 miles). With enthusiastic use the consumption went up to 13.3 km/l (37.6mpg) - poor for a 650 cc machine but an unavoidable penalty with the kind of performance available for exploitation.

After a day's riding the drive chain usually needed adjusting and over the course of the test, it stretched close to the end of the acceptable wear limit. Also, the rear tyre was approaching baldness in the centre, despite much cornering work riding on the side of the tyres. It seems that this machine might cost rather a lot to keep on the

road, what with high petrol consumption and the speedy wearing out of 'perishable' equipment.

The front tyre did not show any sign of rapid wear despite making full use of the stopping power of the brakes. These consisted of a twin front disc set up in front with a single drum at the back. This set proved very good in the dry weather, with enough performance to squeal either tyre. In the wet weather, there was the inevitable delay produced as the pads cleared the discs of water before they got to work. Fortunately, the rear drum was a good safety back up working well regardless of the wetness from either rain or thrown-up road spray. If braking was left until late into a corner, application of the front stopper would haul the bike up from a lean, so it was by far the best to get all deceleration over well before a line was chosen round any corner.

The finish on the test machine was of an acceptable standard. During the course of the test, nothing dropped off or broke and after being left out every night, there was no rust visible on chrome, paintwork or exposed nuts and bolts. The attractive blue paint finish was quite deep and the frame was well covered with a deep layer of black paint. Also, chrome appeared thick with the exhausts and silencers looking good on the outside. Not so good looking was the rear part of the silencer just round the gas exit. Some of the painted metal was beginning to flake away exposing rust which boded ill for longevity of an expensive item.

Rider comfort was quite well catered

Service schedule

After the initial 1,000 km (600 miles) service, follow the specified intervals.

Every month:

Check the battery electrolyte level
Check the front brake fluid level

Every 1,000 km (600 miles):

Inspect and lubricate the rear chain

Every 6,000 km (3,600 miles):

Change the engine oil
Replace the oil filter element
Clean the oil filter
Inspect the fuel lines
Inspect and gap the spark plugs
Check and adjust the valve clearances
Adjust the cam chain tension
Inspect and adjust the throttle operation
Inspect and adjust the carburettors
Check the battery electrolyte level
Check the front brake fluid level
Check the brake pads and shoes for wear
Check all the brake operating mechanisms
Inspect the brake light switch
Check the headlight aim
Check and adjust the clutch free play
Check the suspension
Tighten all nuts, bolts and fasteners
Check the wheels

Every 12,000 km (7,200 miles):

Replace the air filter
Replace the spark plugs
Inspect the steering head bearings

Every two years or 18,000 km (10,800 miles):

Replace the brake fluid

A good looking bike dressed out in light blue livery with fine pinstripping on the panels and petrol tank



for but the seat could have done with more padding, as an aching bottom was induced after about 160 km (100 miles) in the saddle. The riding position was just about right for maintaining a cruising speed of about 112 km/h (70mph) but became tiring if faster speeds were maintained where permitted on the test track. For a Japanese machine, the position was reasonably forward. One of the testers even complained about the 'racing crouch' though by and large, the position was found to be comfortable for middle range thrashings around. To get the best out of the machine, most riders adopted more of a crouch than that provided by the bars and the footpegs.

Service data

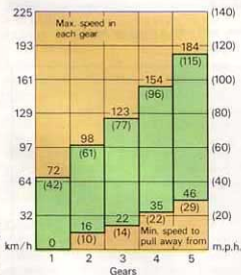
Plug type: NGK DR8ES-L,
NDX24ESR-V, NGKDR8EA,
NDX24ES-U
Plug gap: 0.6–0.7 mm (0.024–
0.028in.)
Idle rpm: 1,050 ±100 rpm
Valve clearances (engine cold)
Inlet: 0.05 mm (0.002in.)
Exhaust: 0.08 mm (0.003in.)
Engine oil: SAE 10W/40
Fork oil: Honda Fork oil
Brake fluid: SAEJ1703
Tyre pressures
Front solo: 2.0 kg/cm² (28psi)
Front dual: 2.0 kg/cm² (28psi)
Rear solo: 2.0 kg/cm² (28psi)
Rear dual: 2.8 kg/cm² (40psi)

Performance

Top speed attained: 184 km/h
(115mph)
Maximum power at 9,000 rpm
Maximum torque at 8,000 rpm
0–60mph (0–96 km/h): 5.5 seconds

Fuel consumption

Best: 17.8 km/l (51.5mpg)
Worst: 13.3 km/l (37.6mpg)
Average: 15.4 km/l (43.4mpg)
Oil consumption (approx): 1 litre
per 1,600 km (1.8 Imp.pt per 1,000
miles)



In the workshop

This machine is fitted with CDI ignition lending itself to extremely easy maintenance. Once set it should need no more adjustment as it has none of the

Technical data

Engine

Type: 4-stroke SOHC 4-cylinder
Bore: 59.8 mm
Stroke: 55.8 mm
Capacity: 626 cc
Compression ratio: 9.0:1
Carburation: 4 Keihin
Lubrication: Wet sump

Transmission

Gearbox: 5-speed constant mesh
Clutch: Wet multi-plate
Final drive: Chain
Overall drive ratios
1st: 17.1:1
2nd: 11.8:1
3rd: 9.12:1
4th: 7.35:1
5th: 6.06:1

Frame

Type: Full cradle with twin down tubes and triangulated rear sub-frame
Front suspension: Hydraulically damped telescopic forks

Rear suspension: Swinging fork with needle roller bearings and spring pre-load adjustable shock absorbers
Overall length: 2,135 mm (84.1in.)
Overall width: 855 mm (33.7in.)
Wheelbase: 1,430 mm (56.3in.)
Seat height: 795 mm (31.3in.)
Dry weight: 195 kg (429.9 lbs)
Kerb weight: 210 kg (462 lbs)
Front brake: Twin hydraulic discs
Rear brake: SLS drum brake
Front tyre size: 3.25H-19-4PR
Rear tyre size: 3.75H-18-4PR

Electrical

Ignition: CDI ignition
Charging system: crankshaft alternator with regulator
Battery: 12 volt 12AH
Headlight: 60/55 watt

Capacities

Fuel tank: 18 litres (4 Imp.gal)
Oil tank: 3.5 litres (6.4 Imp.pt)
Front fork oil: 170 cc

Handling characteristics (Marks out of ten)

In slow traffic	8	Controllable and nippy
Manoeuvrability in traffic	7	Slim and light enough for car dodging
Braking in the dry	9	Excellent double discs
Braking in the wet	6	Saved by the rear drum
High-speed cornering	8	Great on smooth surfaces
Rough road cornering	6	Tendency to wallow
High-speed motorway	7	Very quick and reasonable position
Country cruising	8	Gives fast exciting ride
Two-up touring	7	Can do it but possibly tiring

parts that can wear such as points and mechanical automatic advance/retard mechanisms. So the home mechanic is spared one of the most onerous of regular maintenance chores.

Oil changing is also simple. The bike is run until thoroughly warm and the dipstick removed. A drip tray is put beneath the engine and the sump plug undone. While the oil is draining, the filter can be changed. Mounted conveniently on the front of the engine between the two centre exhaust pipes, it is simply unbolted and the inner filter thrown away. The replacement filter kit should come complete with a new gasket to seal it.

Tappet clearances are set with the engine cold. The right and left covers on the cylinder head are removed along with the breather cover from the rocker cover. The points or rather the electronic ignition cover must be removed

and the engine rotated until the 'T' mark is aligned. Check which of the tappets are loose then check and set them in the normal manner for the clearances. The crankshaft is then rotated through 360 degrees until the other valves are loose.

The camchain is adjusted by loosening the locknut while the camshaft is being rotated clockwise.

Summary

In all, this bike is quick and it goes round corners well though some might say that it does all this in a rather ordinary way. Nonetheless, it does very well for its size and class and the only thing that might dissuade a potential buyer is its lack of economy. But in terms of sheer performance this bike is well up with its rivals and, for a change, a fairly simple 'four' to maintain.