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PRESS KIT

Kawasaki 750 turbo (ZX750-E1)

Notes: • All data reflect results of tests by Kawasaki Heavy Industries, Ltd.
• All data subject to change without notice.
• European model shown in all photos.

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THE WORLD'S FASTEST TURBOBIKE

Any motorcycle manufacturer would be pleased to build a turbo that is the best in its class. But we've gone one step further: Under proper conditions, the Kawasaki Turbo may be the fastest production streetbike ever built.

That's a big claim for a turbobike -- motorcycles which have not lived up to performance expectations. Until now.

The numbers speak for themselves:

112 ps at 9,000 rpm.

10.1 kg/m at 6,500 rpm.

Top speed of 235 kph.

400 m in 10.9 seconds.

All this in a full-fairing bike that weighs about 11 kg less than our GPz1100, and from 3 to 13 kg less than other turbobikes.

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Incredible? Yes and no.

The original goal for turbobike builders was to create a relatively lightweight machine that could be docile and dominant. No manufacturer achieved the goal in the first round of development, including Kawasaki. The only difference was that the other factories put their turbos on the market, and we put ours back on the drawing board.

From the beginning Kawasaki decided that this turbobike would adhere to a well-known guideline: form follows function -- with the functions being top performance, predictable operation, and high reliability. These are the Kawasaki trademarks established by such previous winners as the Z-1, and, rather than compromise the design, we stuck to the guideline until the original goal had been achieved.

The result is a streetbike which reconfirms Kawasaki's position as a unique Japanese builder -- no nonsense, classic lines, premium value for the money. The Kawasaki Turbo is a motorcycle worth waiting for.

Development History

The Kawasaki turbo started in 1980 as a 650. The original prototype was track-tested in January, 1981, with results that would have placed it comfortably ahead of current 650-based turbobikes: 100 ps, top speed of 227 kph, and a 400 m time of 11.3.

Seeking to improve the bike's low-end tractability and long-term performance value, our engineers decided to base the bike on our 750. About the same time, Hitachi introduced a high-performance turbocharger (still the latest design), which was selected for the redesigned machine.

The next prototype bike, with a half-fairing, was shown in Tokyo in November, 1981. Extensive wind tunnel testing proved that the fairing was not performing well enough. Further testing yielded the final production fairing -- first with an integrated frame member and the most compact ever to deliver full aerodynamic coverage.

Meanwhile, all other components of the bike were thoroughly tested and fine-tuned to produce a turbobike that would best represent Kawasaki from Day 1, and serve as a model for further turbo projects.

Exclusive Features

There isn't enough space in this introduction to fully describe the special features of the Kawasaki Turbo, but here's a brief rundown.

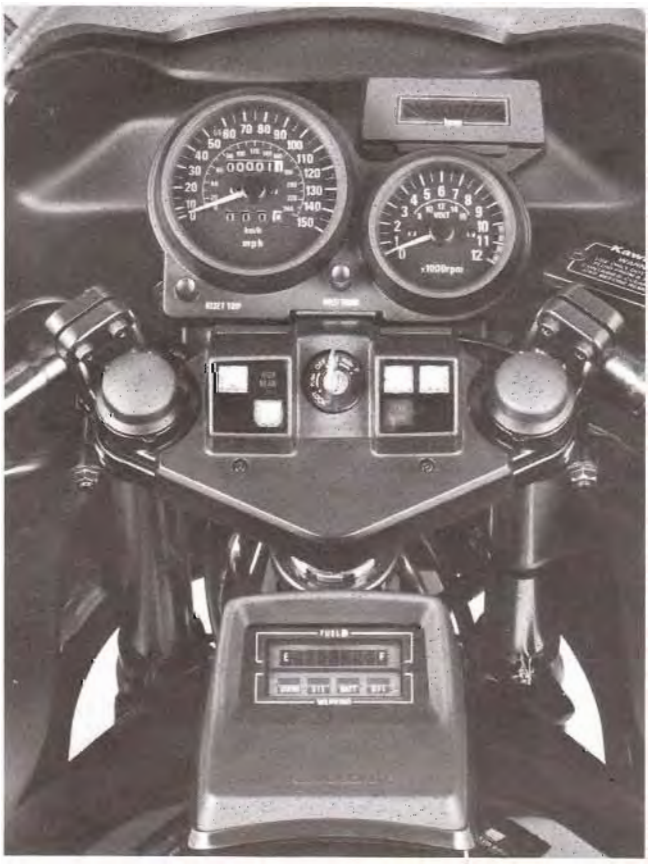
The outstanding feature of the Kawasaki Turbo is the unique placement of the turbo unit -- in front of the in-line Four, as close as possible to the exhaust ports. This position is best from a performance standpoint, but presented a variety of complex engineering problems -- such as routing four exhaust pipes to the turbo collector in a space of about 20 cm.

As already mentioned, the fairing represents a step forward in motorcycle engineering. The aluminum brace makes the frame more rigid and helps protect the turbocharger from damage. Both the fairing and undercowl are designed for maximum aerodynamic and engine cooling efficiency.

The wide front wheel is an exclusive design made of high-pressure diecast aluminum, more rigid than a conventional cast wheel but about 1 kg lighter.

Another exclusive is our sealed O-ring drivechain, a special silicone-lubricated chain which is lighter and more durable than conventional chains (see page 15).

The brake hoses are another exclusive feature. Made of braided synthetic fiber and strengthened with Teflon, the new hoses expand far less than conventional hoses, yet slightly more than stainless steel lines. The result is quick but forgiving brake response.

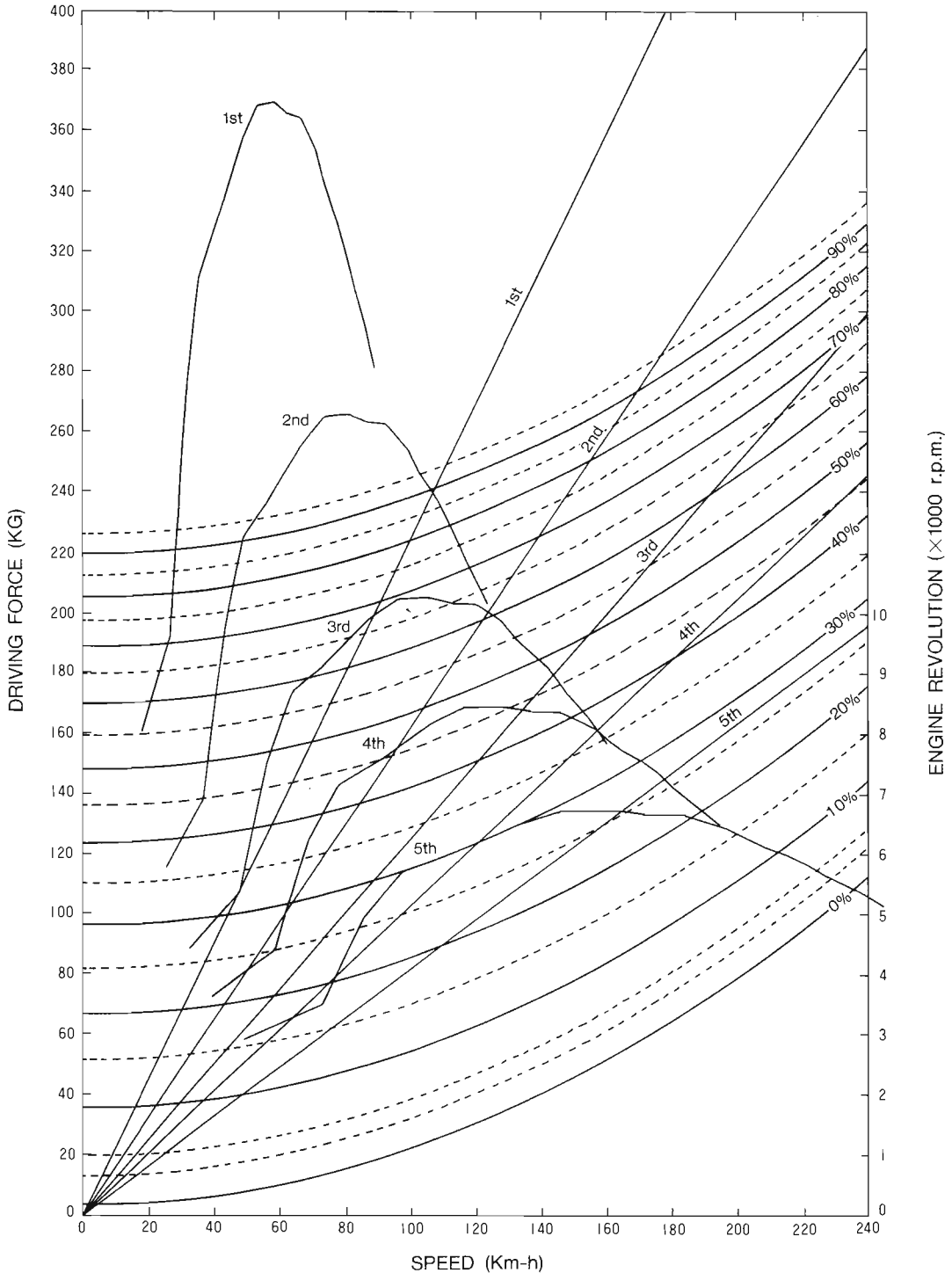


The Turbo also sports such familiar Kawasaki exclusives as D.F.I., Uni-Trak rear suspension, extruded aluminum swingarm with eccentric-cam adjusters, a special ball bearing in the swingarm pivot to improve stability, dog-leg levers, and sintered metal pads on all three discs.

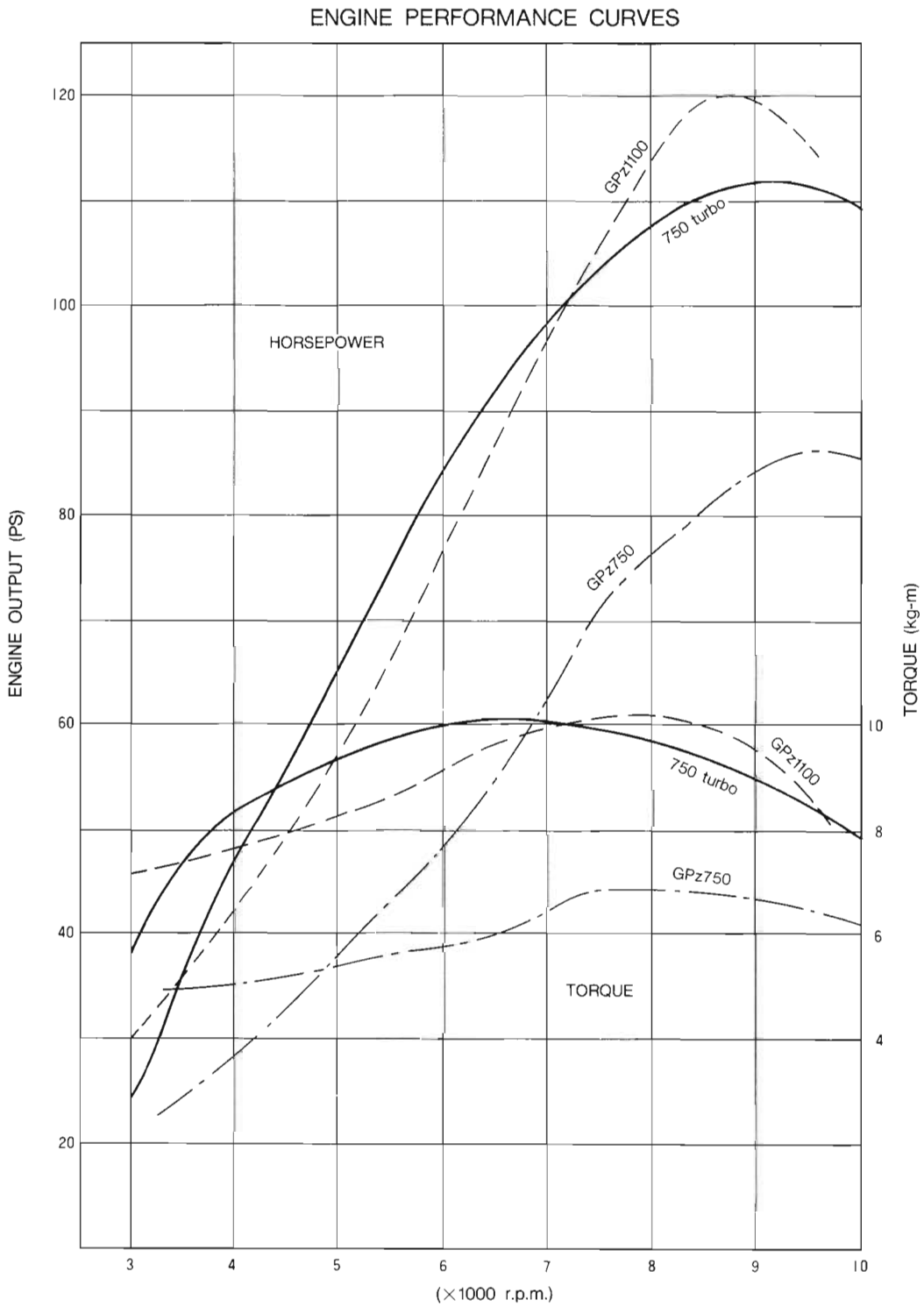
All these features contribute to performance.

RUNNING PERFORMANCE OF KAWASAKI 750 TURBO

RUNNING PERFORMANCE CURVES



ENGINE PERFORMANCE VS. GPz1100 AND GPz750



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DIFFERENCES BETWEEN TURBO AND STOCK GPz750

Kawasaki's Turbo is based on the 1983 GPz750. Aside from addition of the turbocharger and related equipment, modifications include the following (see specifications on following two pages for figures).

Engine: Shorter duration and less cam lift. Lower compression ratio. Heavy-duty pistons and other stressed components. Digital fuel injection (D.F.I.).

Transmission: New gearing and heavy-duty clutch due to increased power.

Frame: Longer steering head, and aluminum cross-frame member for improved stability. Frame-mounted full fairing and undercowl for improved aerodynamic performance. Stronger aluminum box swingarm (thicker walls).

Dimensions: Weight increase due to addition of full fairing and strengthened components. Lower seat.

Suspension: New initial set length and decreased stroke front and rear. Higher spring constant on rear only.

Brakes: Increased effective disc diameter. Heavy-duty anti-dive units.

Tires: V-rated Michelin tubeless tires.

Many standard features of the GPz750 were retained, including:

- Basic engine -- the one that has powered Kawasaki racers to four AMA Superbike Championships, two FIM Endurance Championships, and a number of drag racing championships.
- 4-tier oil cooler.
- Silent cam chain with automatic tensioner.
- Large-tube frame of high-tension steel.
- Air adjustable, equalized, 37 mm forks up front, and 4-way adjustable rebound damping plus air-adjustable preload in the rear.
- Wide 18-inch wheels.

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COMPARISON OF SELECTED TURBO AND GPz750 SPECIFICATIONS

		750 Turbo	GPz750
Engine			
Compression ratio		7.8:1	9.5:1
Carburetion		D.F.I.	Carburetors
Spark plug		NGK BR9EV	NGK B9ES/ND W27ES-U
Valve timing Inlet	Open	22 BTDC	38 BTDC
	Close	52 ABDC	68 ABDC
	Duration	254	286
Exhaust	Open	60 BBDC	68 BBDC
	Close	20 ATDC	38 ATDC
	Duration	260	286
Cam profile	In. lift	7.5	8.5
	Ex. lift	7.5	8.5
Transmission			
Primary reduction ratio		1.935 (23/23x60/31)	2.550 (27/23x63/29)
Gear ratio	1	2.285 (32/14)	2.333 (35/15)
	2	1.647 (28/17)	1.631 (31/19)
	3	1.272 (28/22)	1.272 (28/22)
	4	1.045 (23/22)	1.040 (26/25)
	5	0.833 (20/24)	0.875 (21/24)
Final reduction ratio		3.066 (46/15)	2.533 (38/15)
Overall reduction ratio		4.946	5.653
Dimensions			
Seat height		780	790
Dry weight		233	219
Curb weight	Front	123	116
	Rear	131	122

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SELECTED TURBO AND GPz750 SPECIFICATIONS(CONT.)

		750 Turbo	GPz750
Suspension			
Front spring rate (kg/mm)			
Initial set length (mm)		40	35
Stroke (mm)		130	150
Rear spring rate (kg/mm)			
Spring constant		9.1	8.6
Initial set length (mm)		9	10
Stroke (mm)		60	65
Brakes			
Eff. dia.	Front	246	236
	Rear	236	226
Tires			
Size	Front	Michelin A48	110/90 V18 Dunlop
	Rear	Michelin M48	130/80 V18 Dunlop

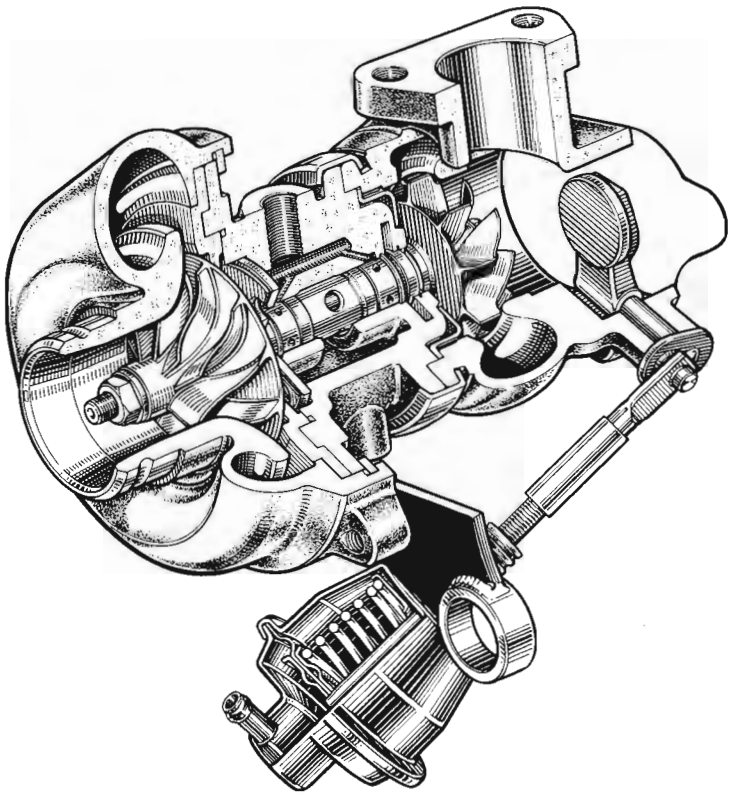
ADVANTAGES OF KAWASAKI TURBO SYSTEM

The purpose of a turbocharger is to make use of the large amount of energy carried away by exhaust gas. This energy, readily available when an engine is under load and exhaust flow high, is used to force a higher volume of air through the engine, increasing its effective displacement. Thus turbocharging delivers extra power from an engine in the middle and high rpm ranges.

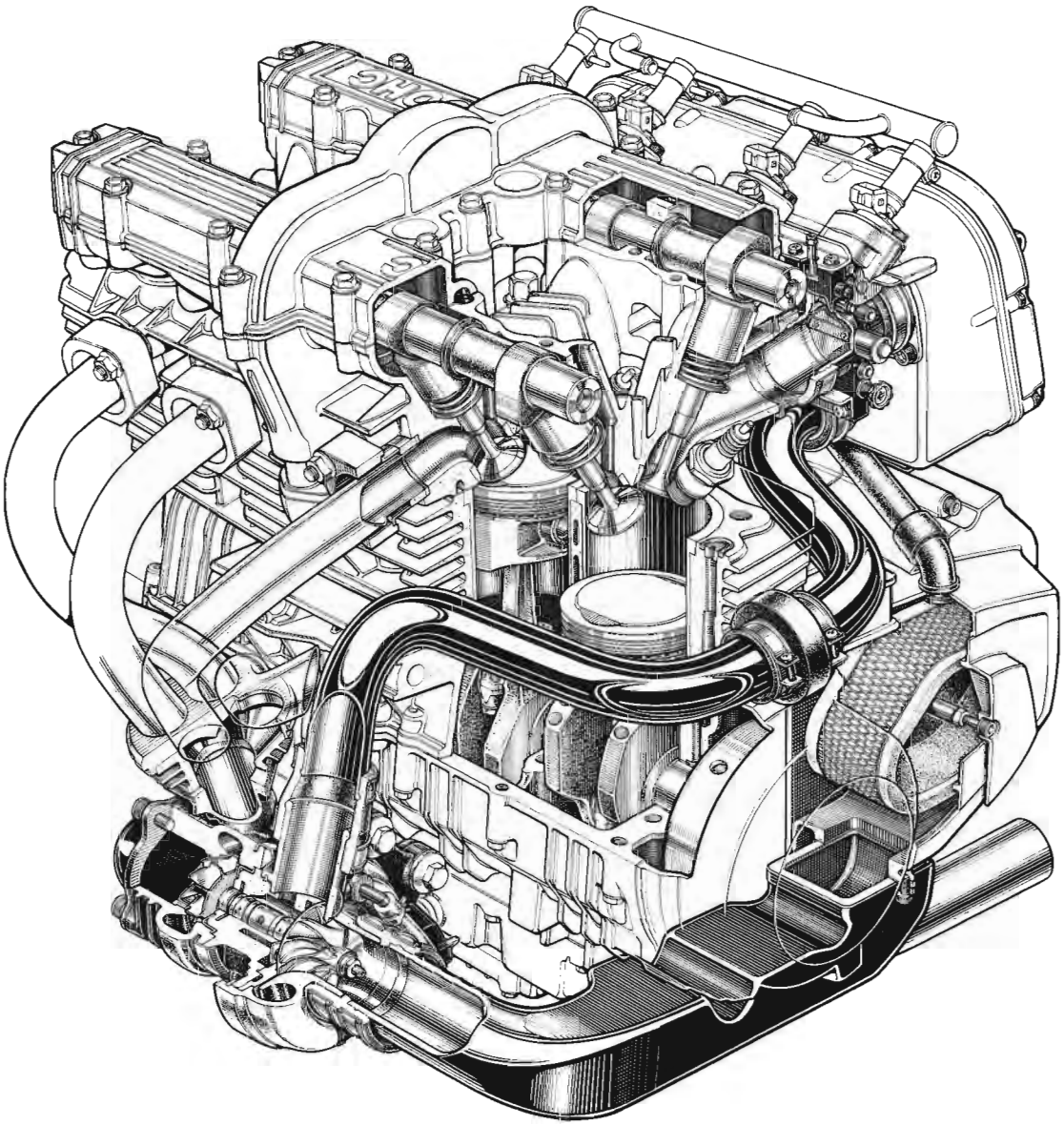
The general advantages of this are obvious: a given amount of power can be extracted from a relatively small, light engine. When extra power isn't needed, the engine can be run economically at relatively low rpm.

Japan's motorcycle factories have applied turbocharging in different ways -- from simple to ultra-complex -- with mixed results. Two makers place turbos behind their in-line Four engines, which makes routing of the exhaust pipes relatively easy but increases response time because the turbo is far from exhaust ports. Another company places the turbo near the exhaust ports of its V-Twin but high in the frame, which contributes to an already high center of gravity.

To combat turbo lag, some makers use reed intake valves to bypass the turbo until boost pressure surpasses atmospheric pressure. The intention is to let the engines run efficiently without boost, but because of relatively low compression ratios power output is still less than it would be with non-turbocharged engines.



Kawasaki was able to place the turbo next to the exhaust ports and eliminate the need for a low-rpm bypass. Using highly heat-resistant steel (to prevent cracking), we were able to route pipes from the exhaust ports to a specially designed 4-into-1 collector for the turbocharger. While this was a difficult engineering problem, test results (and the final product) prove that the faster turbo response thus gained more than makes up for a slightly longer induction path.



But we didn't stop there. To eliminate the low-rpm bypass found on early Kawasaki prototypes, and further improve response time, our designers shortened the induction path as much as possible by placing the air cleaner near the engine sprocket. (This was done without affecting the bank angle.)

The result is the Kawasaki 750 Turbo, offering these benefits:

- Minimal lag between the time exhaust gas leaves ports and starts driving turbine.
- Minimal loss of heat energy in turbo system.
- Relatively low center of gravity.
- Heat isolated far from rider.

Other Kawasaki turbo features

The Kawasaki turbocharging system is protected by a wastegate which passes exhaust gas around the turbo if boost pressure reaches the maximum of 650 mm/kg. As a further safety measure, the D.F.I. system cuts off fuel supply to the engine whenever maximum boost is exceeded.

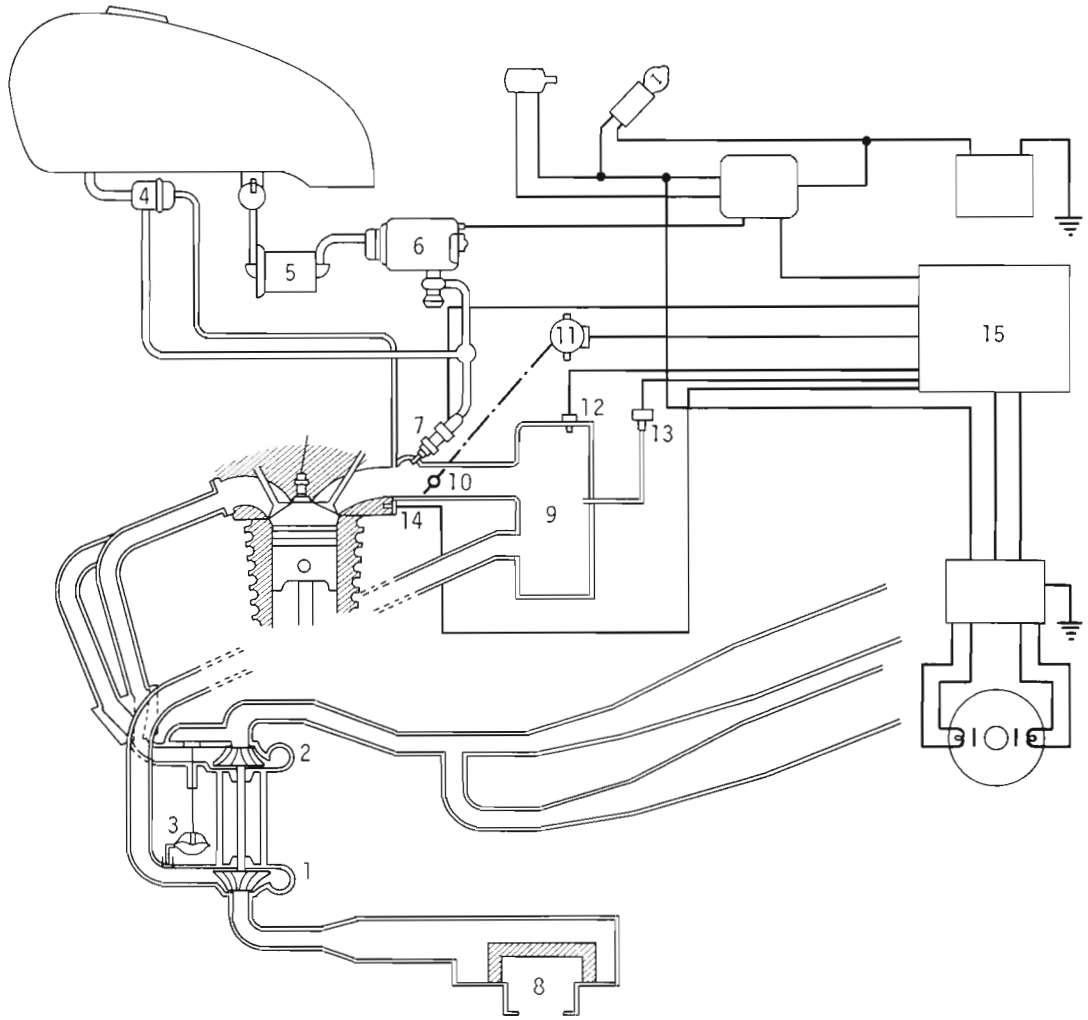
For those who may want to race the bike without the standard air cleaner, the compressor wheel is specially treated to withstand increased abrasion from unfiltered air.

Finally, an LCD boost gauge is fitted in easy view on top of the tachometer.

TURBO/D.F.I. SYSTEM

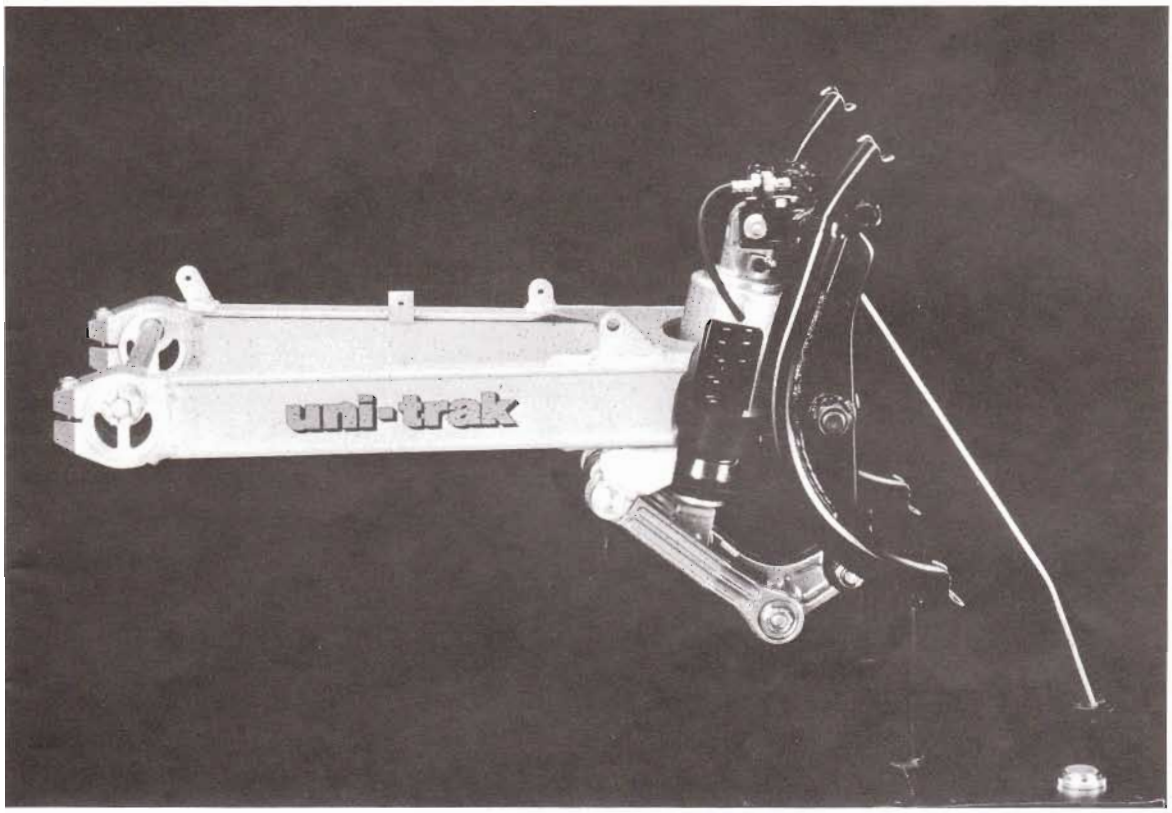
The digital fuel injection (D.F.I.) system used on the Kawasaki Turbo is similar to that on the 1983 GPz1100. Sensors constantly keep track of throttle position, engine rpm, pressure in the intake manifold, engine temperature, and intake air temperature, and the correct injection rate is instantaneously calculated by the system's electronic brain. The result is instant throttle response and maximum fuel economy.

If a circuit in the D.F.I. system ever fails, an over-ride function keeps the bike running until service is available.



1. Compressor
2. Turbine
3. Wastegate actuator
4. Fuel pressure regulator
5. Fuel filter
6. Fuel pump
7. Injector
8. Air cleaner
9. Surge chamber
10. Throttle valve
11. Throttle sensor
12. Air pressure sensor
13. Air temperature sensor
14. Engine temperature sensor
15. D.F.I. microcomputer

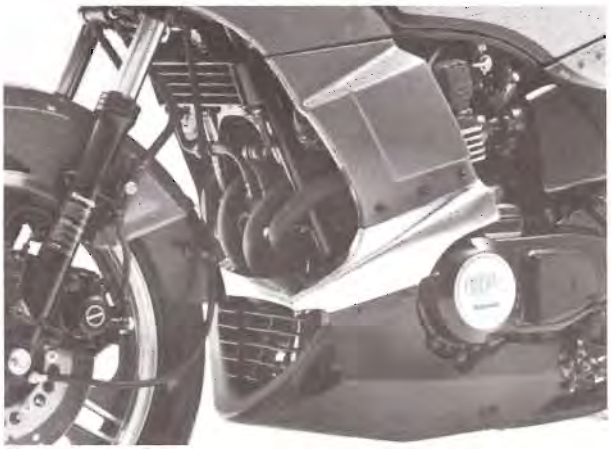
UNI-TRAK SUSPENSION



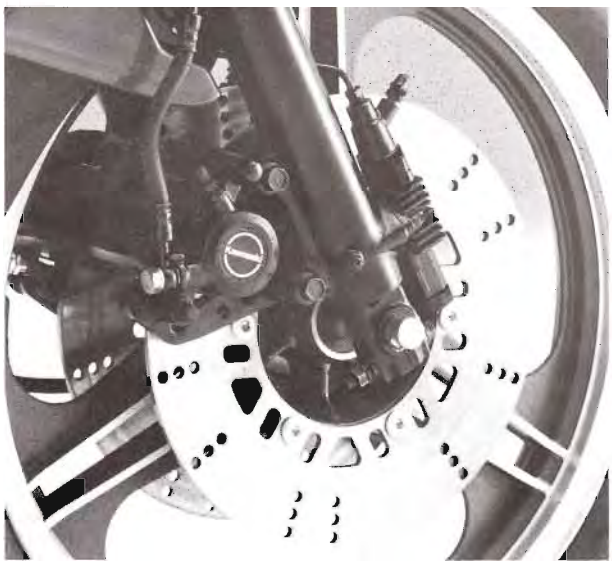
The Uni-Trak suspension on the Kawasaki 750 Turbo is similar to that on the GPz1100 and GPz750. The benefits of this rising-rate system include superior tire adhesion and ride comfort under all conditions and a lower overall center of gravity. An air hose fitting and 4-way control lever under the right side cover allow easy adjustment of preload and rebound damping.

QUICK REFERENCE: SPECIAL KAWASAKI TURBO FEATURES

Engine: The bulletproof Kawasaki 750 powerplant now has the most efficient turbo system ever fitted on a production motorcycle. Just below the 4-tier oil cooler are the specially engineered pipes which allow optimal turbocharger placement.



Fairing: This unique production fairing is the first to integrate a frame member (made of aluminum and placed in front of the turbo). The fairing was designed for maximum aerodynamic and engine cooling performance.



Front wheel and brake: The wide wheel is high-pressure diecast aluminum — more rigid yet lighter than conventional wheels, and the two discs and anti-dive units are larger than those on the GPz750.

Rear wheel and swingarm: This assembly easily accommodates the wide V-rated Michelin, and the heavy-duty extruded aluminum swingarm is fitted with eccentric-cam adjusters.

Drivechain: Another first, this sealed O-ring chain is lubricated with silicone for more reliable service under all conditions. Cutouts in every other link mean less heat build-up and less weight.

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ZX750-E1 SPECIFICATIONS (EUROPE)

ENGINE	
Type	4-stroke, 4-cylinder, air-cooled, DOHC
Displacement	738 cc
Bore and stroke	66.0 x 54.0 mm
Compression ratio	7.8 : 1
Ignition system	Transistorised ignition
Starting system	Electric starter
Lubrication system	Forced lubrication (wet sump)
Engine oil	SAE SE 10W40, 3.5 litres
Carburetion	D.F.I.
Spark plug	NGK BR9EV
Valve timing : Inlet	Open : 22° BTDC, Close : 52° ABDC
: Exhaust	Open : 60° BBDC, Close : 20° ATDC
Charging current & voltage	Voltage : 14.5 V
(night time @4,000 rpm)	Current : 5 A
DRIVETRAIN	
Transmission	5-speed, return shift
Primary reduction ratio	1.935 (23/23 x 60 /31)
Gear ratios : 1st	2.285 (32/14)
: 2nd	1.647 (28/17)
: 3rd	1.272 (28/22)
: 4th	1.045 (23/22)
: 5th	0.833 (20/24)
Final reduction ratio	3.066 (46/15)
Overall reduction ratio	4.946 @top gear
Clutch	Wet, multi-disc
FRAME	
Type	Tubular, double cradle
Suspension & : Front	Air adjustable telescopic fork, 130 mm
wheel travel : Rear	UNI-TRAK, 105 mm
Tyre size, : Front	110/90 V18, Michelin A48 tubeless
make & type : Rear	130/80 V18, Michelin M48 tubeless
Tyre inflation : Front	2.25 kg/cm^2
: Rear	2.75 kg/cm^2
	Over 210 kph: 2.9 kg/cm^2
Castor (Rake angle)	28°
Trail	117 mm

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ZX750-E1 SPECIFICATIONS (EUROPE)

BRAKES	
Front	Dual discs, dia. 280 mm
Rear	Disc, dia. 270 mm
Braking distance	12.5 m @50 kph
ELECTRICAL EQUIPMENT	
Battery	12 V 14 AH
Headlight	12 V 60/55 W
Tail/Brake light	12 V 5/21 W x 2
DIMENSIONS	
Overall length	2,220 mm
Overall width	740 mm
Overall height	1,260 mm
Wheelbase	1,490 mm
Ground clearance	155 mm
Seat height	780 mm
Dry weight	233 kg
Curb weight : Front	123 kg
: Rear	131 kg
Fuel tank capacity	18 litres
PERFORMANCE	
Maximum power	112 ps/9,000 rpm
Maximum torque	10.1 kg-m/6,500 rpm
S.S. 400 m (1/4 mile)	10.9 sec.
COLOUR	
	Ebony/Firecracker Red (two tone)

The specifications mentioned here apply to and have been achieved by production models under standard operating conditions.
We intend only to give a fair description of the motorcycles and their performance capabilities but these specifications may not apply to every machine supplied for sale. Kawasaki Heavy Industries, Ltd. reserves the right to alter specifications without prior notice.
Equipment illustrated may vary to meet individual markets.

Kawasaki

ZX750-E1 SPECIFICATIONS (U.S.A)

ENGINE	
Type	4-stroke, 4-cylinder, air-cooled, DOHC
Displacement	738 cc (45.0 cu. in.)
Bore and stroke	66.0 x 54.0 mm (2.60 x 2.13 in.)
Compression ratio	7.8 : 1
Ignition system	Transistorized ignition
Starting system	Electric starter
Lubrication system	Forced lubrication (wet sump)
Engine oil	SAE SE 10W40, 3.5 liters
Carburetion	D.F.I.
Spark plug	NGK BR9EV
Valve timing : Inlet	Open : 22° BTDC, Close : 52° ABDC
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Final reduction ratio	3.066 (46/15)
Overall reduction ratio	4.946 @top gear
Clutch	Wet, multi-disc
FRAME	
Type	Tubular, double cradle
Suspension & : Front	Air adjustable telescopic fork, 130 mm (5.1 in.)
wheel travel : Rear	UNI-TRAK, 105 mm (4.1 in.)
Tire size, : Front	110/90 V18, Michelin A48 tubeless
make & type : Rear	130/80 V18, Michelin M48 tubeless
Tire inflation : Front	2.25 kg/cm^2 (32.0 psi)
: Rear	2.75 kg/cm^2 (39.1 psi)
	Over 130 mph: 2.9 kg/cm^2 (41.2 psi)
Caster (Rake angle)	28°
Trail	117 mm (4.61 in.)

Kawasaki

ZX750-E1 SPECIFICATIONS (U.S.A)

BRAKES	
Front	Dual discs, dia. 280 mm (11.0 in.)
Rear	Disc, dia. 270 mm (10.6 in.)
Braking distance	12.5 m (41.0 ft.) @31 mph
ELECTRICAL EQUIPMENT	
Battery	12 V 14 AH
Headlight	12 V 60/55 W
Tail/Brake light	12 V 8/27 W x 2
DIMENSIONS	
Overall length	2,190 mm (86.2 in.)
Overall width	740 mm (29.1 in.)
Overall height	1,260 mm (49.6 in.)
Wheelbase	1,490 mm (58.7 in.)
Ground clearance	155 mm (6.1 in.)
Seat height	780 mm (30.7 in.)
Dry weight	233 kg (513.7 lbs)
Curb weight : Front	123 kg (271.2 lbs)
: Rear	131 kg (288.8 lbs)
Fuel tank capacity	18 liters (19.0 qt)
PERFORMANCE	
Maximum torque	73.1 ft·lbs/6,500 rpm
S.S. 400 m (1/4 mile)	10.9 sec.
COLOR	
	Ebony/Firecracker Red (two tone)

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