HONDA GL1100 GOLD WING

CYCLE WORLD TEST

■ Honda didn't invent the touring motorcycle, although a look around the parking area of any major touring event makes one wonder. What Honda did do when it introduced the Gold Wing in 1975 was specialize a touring motorcycle to American tastes. It had liquid cooling so it wouldn't overheat and would last a long time and would be quiet. It had a shaft drive so there wouldn't be a chain to lube and chain lube to spray all over the back of the riders. The sohc opposed Four powering the original GL1000 was the smoothest motorcycle engine this side of a stalled Electra Glide and>

What It Lacks In Excitement Is Made Up For By Excellence

Photos by Dave Gooley

it had plenty of power all over a wide range of engine speeds.

The original Gold Wing was an instant hit, becoming the most popular touring motorcycle around. Everywhere there were Gold Wings, most covered with fairings and saddlebags and racks and some even pulling trailers. With its new 17-in. rear tire the GL could carry a big load and the suspension was designed to keep the bike from bottoming with the heaviest loads.

Changes on the Gold Wing over the years have been intended to specialize the bike even more and to remedy the occasional mechanical problem that crops up in a new design. There were bigger cam bolts added to keep them from backing out, grease fittings added to the driveshaft and a larger U-joint fitted to prevent a U-joint problem in the original Gold Wing. Of course carburetion became more and more lean due to emission regulations, and the exhaust system was changed to emit a little more sound. Several minor changes altered the power characteristics, reducing peak power but gaining more power at lower speeds where the bikes were most often ridden. Braking in wet weather was improved with a higher metallic content brake pad. Instruments have been added and shuffled around during the years.

What hasn't changed over the years is the *feel* of the Gold Wing, the smoothness, interrupted during deceleration by the rattle of the primary chain and the mass of the bike, easily steered by the long handlebars. The GL was never a handler, wanting to weave a bit in high speed sweepers and having limited cornering clearance, but it felt as though it should handle better with the relatively stiff suspension.

Now, for the first time, the basic machine has been changed. Not just a few pieces, but virtually the entire motorcycle has been replaced for 1980. Loyal Gold Wing owners need not fear, however, for the 1980 GL1100 still looks like a Wing and has enough similarities of design with the old Wing to please the faithful. In fact, without a close look the new Gold Wing appears to be just like last year's with a few new styling touches, different suspension and a 3mm larger bore to increase engine size.

Honda began development work on an all-new GL two years ago. There were owner surveys and meetings with present GL owners. Honda representatives went to touring events and talked with touring riders. The marketing men filled books with figures and eventually Honda learned more about Gold Wing owners than the owners of any other Honda.

What Honda found out was much the same as what we found out from the Gold Wing owners who returned the *Cycle World* owner survey. Gold Wing owners like their motorcycles. They would like a better suspension and lighter weight and more load carrying capacity and an elec-

tronic ignition and a better seat and more power and half of the owners wanted the motorcycle to be quieter and half of them wanted it louder. And that's what Honda did, partly.

Beginning at the engine, Honda has invested considerable money in the equipment that builds the GL engine. Enough not to change the engine shape to a Vee or a square or any other design. Besides, the Gold Wing has a following. With other big touring bikes growing cylinders and power, the GL had to have more power so bore size was increased 3mm. Crankshaft throws aren't moved out, so the stroke is still the same for a bore-stroke size of 75 x 61.4mm and a displacement of 1085cc. Right there the engine would gain low-end and mid-range power and torque, never mind what else happened. But while the engine was being revised the crankshaft journals were made 3mm larger for more strength. And the oiling system was changed with oil pressurized connecting rods being used on both sides of the 1100 for the first time.

Cam timing and compression ratio both have changed, once again, both in the interest of emissions and power. Compression ratio is back to 9.2:1 as it was originally, up from the 8.8:1 used the last couple of years. And cam timing is up to 228° on intake and 230° on exhaust, compared to 220 and 225° respectively on last year's model. The increase in duration in both tracts came with later closing. Intake valve lift is up 0.3mm to 8.8mm for the intake valves and stays the same at 8.5mm on the exhaust valves.

On top of the Gold Wing engine is still a tarantula-like intake system with four side-draft Keihin CV carbs joined at a central junction box. Now the carbs are 30mm, rather than 31mm in venturi size and there's an accelerator pump connected to one carb that pumps additional fuel to all four carbs. Each carb now has its own air cut-out anti-backfire valve, too.

Gold Wings have always had a problem with smoking when first started after they've sat on the sidestand for any length of time. The oil would collect in the left-hand cylinders and burn for several minutes when started. Now automotive-type oil control rings are used on the three-ring pistons and the problem appears solved. The Hy-Vo primary chain width went from 1 in. to 1.25 in. for greater strength and to minimize the rattling sound of the engine on deceleration.

Gold Wing clutches have been a weak point since they were introduced. Honda admitted the clutch was only good for five runs at a drag strip, but felt touring riders wouldn't make as tough demands on the clutch. But when riders hooked trailers behind and hundreds of pounds of accessories onto a GL and headed into the mountains, sometimes the clutch didn't hold up. For 1980 the clutch hub is made of aluminum rather than steel so it won't weigh as much, and it's 7mm larger in diameter. There are the same number of plates, just as thick, but rather than use a sandwich-type shock absorbing plate, there's a new three-piece bellows-type washer that does the same job and is smaller. The rubber cushions in the clutch hub that absorbed shock have been changed from a round to a triangular shape to increase strength.

Transmission ratios on the GL changed mostly to retain the same gear ratios with a new final drive ratio. All the ratios are slightly lower, overall, for 1980, meaning the engine spins a little bit faster on the highway, but there's more power in each gear. At 60 mph, for instance, the engine speed in high gear has increased from 3551 to 3722 rpm.

At the back of the GL's engine there are more surprises. Where the removable kick starter used to fasten there's now a breakerless electronic ignition. Like other Honda electronic ignitions, there's no adjustment for timing; that's fixed. And like some of the aftermarket electronic ignitions for Gold Wings, the two pickups for the triggering mechanism are in fixed positions so the relative timing between the two pickups depends on tight production tolerances for precise timing. Gold Wing owners have lived for years with a hesitation in their engines, mostly at low speeds, and particularly noticeable on the newer engines with leaner carburetor jetting. Honda felt the ignition advance was mostly at fault and has added a vacuum advance to the centrifugal advancer to cure the problem. With the addition of the vacuum advancer, total ignition advance increases from 37° BTDC to 50°. Also, the>

centrifugal advance operates at a higher speed now that the vacuum advancer helps out at light throttle, low speed operation.

Of course, locating the ignition on the end of the crankshaft rather than on the end of a camshaft connected to the crank with a toothed belt also reduced timing variations.

A byproduct of the relocated ignition is a longer engine, which means the transmission tailshaft has to be longer to fit in the longer frame used on the 1980 Gold Wing. Overall, the wheelbase of the Gold Wing has grown 2.5 in., a substantial change. The longer engine only accounts for part of the change, however, with a new swing arm being a little over an inch longer than last year's unit. Swing arm construction is also changed, with rectangular tube replacing the pressed round tube used before, so the swing arm will be both lighter and stronger.

At the end of the swing arm is a final drive unit that looks exactly like that of the CX500 and the new CB900. Even the final drive ratios are the same for all three bikes at 3.091:1. Turned out the original final drive unit on the GL1000 was more than is needed to handle the power and the load, so the lighter, more compact unit works better. A heavier sealed U-joint is used on the shaft this year.

Weight saving is an important theme on the Wing this year, even though the overall weight of the bike is almost the same as it was on the last model (1978) tested at 640 lb. Lighter weight means the same chassis can carry a greater payload and that's important on the Gold Wing. So Honda lightened up parts where possible, saving 15 lb. through the use of plastic and holding down weight elsewhere with the aluminum clutch basket and the reversed aluminum Comstar wheels.

Plastic parts include the huge front fender, imitation gas tank and its two top covers, airbox and seat base. The plastic pieces on the Honda aren't there because they're cheaper. They're not. Considering the number of units expected to be sold, the tooling for the plastic pieces is more expensive. But worth it, according to Honda.

All the weight saved was countered by weight gained in other areas. The engine is 2 lb. heavier and the frame is slightly heavier due to its longer length. One area where weight savings wasn't part of the design was the suspension. And the results are beyond criticism.

Gold Wing owners, magazine testers and no doubt test riders at Honda have asked for a better suspension, but Honda remained silent for five years. Because of the enormous weight of the Honda, particularly a fully-loaded GL, the springs must be stiff enough to keep the machine under control. Yet a stiff suspension makes for a hard ride. The answer is an air suspension. It offers adjustability with air pressure so the solo rider can reduce pressure for a soft ride, yet add air when he needs to carry a passenger and full saddlebags. Air suspension also provides highly progressive springing, so the more it gets compressed, the stiffer it is. That also lends itself to a touring motorcycle that will encounter wide variations in load.

There are shortcomings with an air suspension. If air pressure isn't balanced from side to side, suspension performance suffers. Air heats up as it is compressed and as the air heats its pressure builds and that changes the effective spring rate. And what happens if there's an air leak? A totally air suspension would be disabled if it lost air pressure.

Honda knows all these things. The suspension on the GL1100—or the CB900 Custom for that matter—has been in the planning stage for a couple of years. Though it appears on the 900 at the same time as on the 1100, it was a suspension for the Wing when it was designed and adapted to the 900 only because it was available. And it isn't even the same suspension on both, though the differences are in detail execution, not concept.

Most of the springing on the Wing is provided by coil springs, just like other motorcycles have. There are two coils in each fork, a two-rate and a single rate spring, one stacked on top of the other. That makes three separate spring rates, plus the air that provides a highly variable rate. In back there are two single rate coils, one inside the other, both inside the shock housing. Without any air pressure in either end, the Wing is rideable. The coil springs are strong enough not to bottom under ordinary use with one rider and no accessories. Honda doesn't recommend that, though.

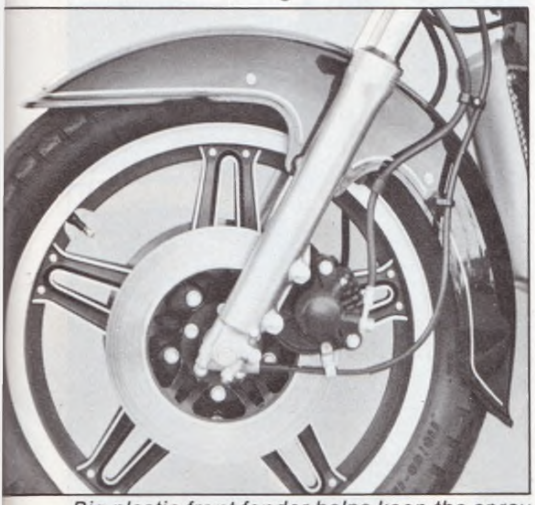
Air pressure in the forks is a recommended 14 to 21 psi. Rear air pressure should be between 28 and 43 psi. If shock pressure drops below 28 psi a red warning light in the tach blinks above a label that cautions the rider to slow down to under 50 mph. The range of air pressures on the Wing is narrower than that of the 900, due to a larger volume of air on the Wing. By varying the volume of oil in the huge fork tubes or rear shocks, the air volume is also changed. Less oil means more air and more air means a stiffer effective spring rate. So while the Wing has larger fork tubes and sliders than the 900, it also has a lower volume of oil as it comes from the factory, 220cc vs 265cc for the 900. Oil level can, of course, be changed, but the smaller volume of oil on the Wing gives it a greater percentage of its springing from the air.

Same thing goes for the shocks. Each shock has a 290cc oil volume standard, but that can be changed. Being rebuildable (and worth rebuilding, if they ever need it), the GL shocks can have oil drained from them, should more air be needed for stiffer springing, or more oil added to them, should less air volume be needed. The seals and general construction being the same on the 1100 and 900, the Wing's shocks should be capable of handling the higher air pressures recommended on the 900 if an owner feels the need for stiffer suspension.

A plastic seat base is lighter and the double bucket seat on the Gold Wing is adjustable fore and aft.

Damping isn't adjustable on the shocks, nor do the shocks need it. Being Honda's FVQ-type shock, there are four separate damping valves on the shocks, changing the rebound damping depending on how fast the shock is moved.

Because the air volumes on the 1100 are larger than those of the 900, the spring rates aren't as progressive. Honda is reluctant to release exact figures on spring and damping rates, but a graph of the Wing's spring rate shows a fairly constant spring rate effective through the first half of the stroke for both the shocks and forks. During the second half of the stroke, however, the spring rate can double, due to the progressive nature of the air suspension. Again, air volume and pressure determines how progressive the spring rate is.



Big plastic front fender helps keep the spray under control and is lighter than previous chromed fender. Double discs are strong and progressive, losing little effectiveness in moderate rain.

Besides the suspension, the rest of the GL is also tuned to the needs of touring riders. The frame is basically the same shape as it's always been, but it's longer to house the longer engine, lower for a lower seat height, and slightly wider so a larger fuel tank can be fitted. There are double pinch bolts on the lower triple clamp for greater strength and reinforcement where needed.

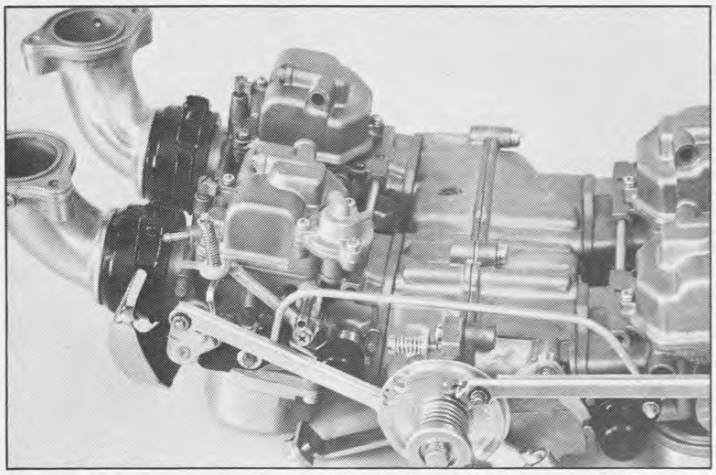
All the instruments are placed above the steering head in a normal position. The speedometer and tachometer are round, have white numerals on black dials and are easy to read day or night. Both the fuel gauge and temperature gauge are mounted with the other instruments and are just as easy to read and reasonably accurate. The fuel gauge is overly pessimistic and runs halfway into the red zone before the bike requires a switch to reserve. Because Honda uses a highly reflective lens on warning lights, the lights have to be excessively bright. The neutral light or signal light indicator can nearly blind a rider at night because of the intensity of the lights.

Of course Honda doesn't use a turn signal canceler like most of the competition does, so it has a loud beeper that functions above 40 mph, a loud click below 40 and the blinding light. Wouldn't a canceler be a better solution, Honda?

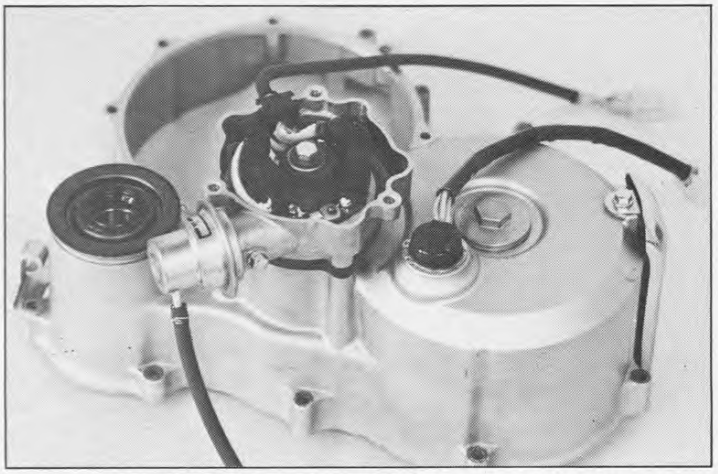
Handlebars on the Wing are, as usual, huge. They are 33.2 in. wide and extend far back. As awkward as they seem at first, when riding with a fairing (as 92 percent of the GL owners in the CW survey do), the bars are reasonably comfortable.

Controls are convenient and easy to use. The clutch has wide engagement and light pressure. Because of the outboard cylinders, shifting can be a bit tight for some with big feet as there is little room between the bottom of the left cylinders and the top of the shift lever.

The Wing's imitation gas tank has gone through another change this year, and the results do seem an improvement. The shell is plastic now, lighter, and it doesn't have the opening side panels that are difficult to use when a fairing is installed. Instead, there are two doors on top; a large one hinged at the front and a smaller one at the back, hinged at the rear. The idea here is that a tank bag or CB radio mounted on the "tank" won't have to be disturbed when the bike needs gas. Only the small rear door need be opened to reach the fuel filler. The fuse box (including auxiliary circuit) and tool kit are contained beneath the large lid, with electrical components at the sides of the frame where the shell has to be removed to reach them. There is less storage room inside the shell used this year.>



Accelerator pump on one carb operates through all four carbs via passageways in the carburetor junction box.



Gone are the points at the end of the left camshaft. Now this ignition unit at the back of the engine provides spark with magnetic triggers, vacuum and centrifugal advance.

which is too bad, but at least the shell has a nicer, leaner shape now.

No one here has ever liked a Gold Wing seat used before and many owners change the seats to the large double bucket seats offered by many accessory manufacturers. Honda has produced a seat like some of the aftermarket models, with a plastic seat base that doesn't rust and is lightweight. The upholstery has separate pockets for the rider and passenger to sit in. Seat height is moderate at 31.8 but not notably lower than previous Wing seats. Comments on the seat varied, but the rider who put the most miles on the GL liked the seat the best. There is an adjustment on seat position; it can be moved forward or backward a total of 1.6 in. with different bolt holes on its mounting. For most touring riding the rearward position moved the pegs relatively forward, making for more comfort on long trips.

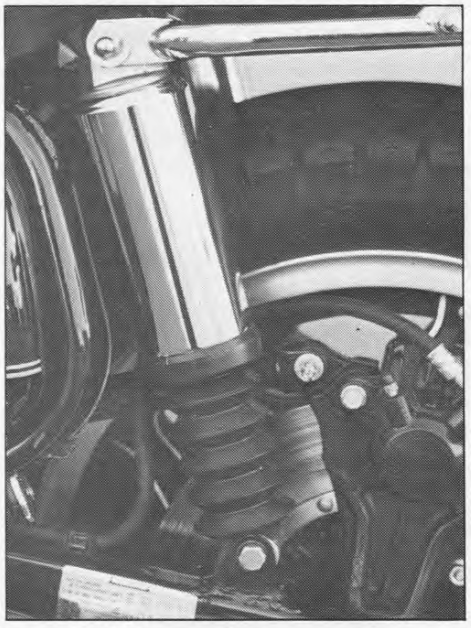
When the first Gold Wings were introduced, Honda said fairings and saddlebags would be offered soon. Last year Honda sold its first saddlebags, a set of bags and rear box much like the excellent Samsonite luggage system. For 1980 Honda has the Interstate fairing. The Interstate is available with a full radio/stereo sound system mounted in one side and including speakers. There are integrated turn signals and a shape that's slightly reminiscent of the BMW RT fairing, though a bit more angular. When the bike comes fully equipped with the Interstate package it becomes a new model of the GL, called the Interstate. In any case, production of the fairing has been building slowly and there will likely be a greater demand than supply.

Unlike some other large Japanese motorcycles, Honda doesn't make the Wing easily adaptable to all accessories. There are no fairing brackets on frame downtubes. Rather, the Interstate mounts to the frame solidly and unobtrusively. No hoseclamps needed.

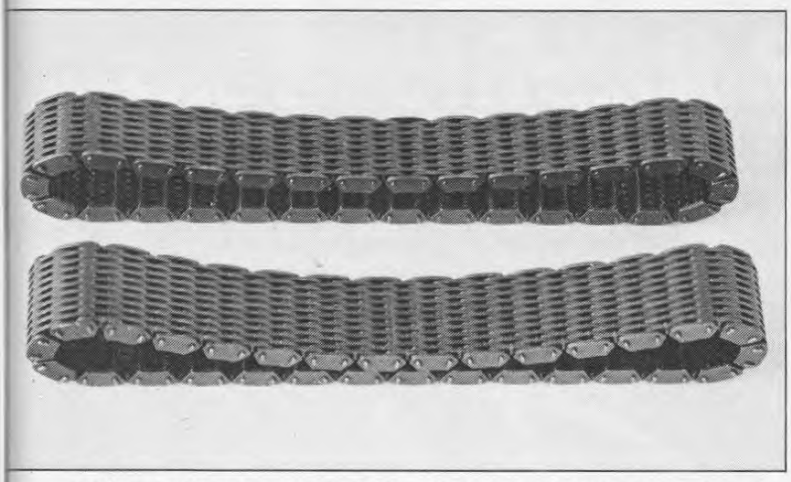
Saddlebags attach without problem. The signal lights are mounted far back by the license plate bracket on the steel fender, leaving room for bags without having to remount the signals.

How does the GL1100 stack up as a touring bike? Excellently. The suspension is simply the best there is. Even with maximum air pressure the ride is more comfortable and controlled than on any other big bike. It absorbs little ripples and huge holes with no drama. It carries two people and a load without bottoming and without wallowing. Most unusual, the suspension that improved comfort also improved handling. The high speed weave loaded Gold Wings went through on high speed sweepers is gone. The adjustable suspension even increased cornering clearance slightly, giving the sportier touring riders more lean before the footpegs scraps on either side. This doesn't mean that the GL1100 is a sporting motorcycle. It is still ponderous in weight and handles less nimbly than sporting machinery, though the low center of gravity mean it responds with little effort. The low CG does make the

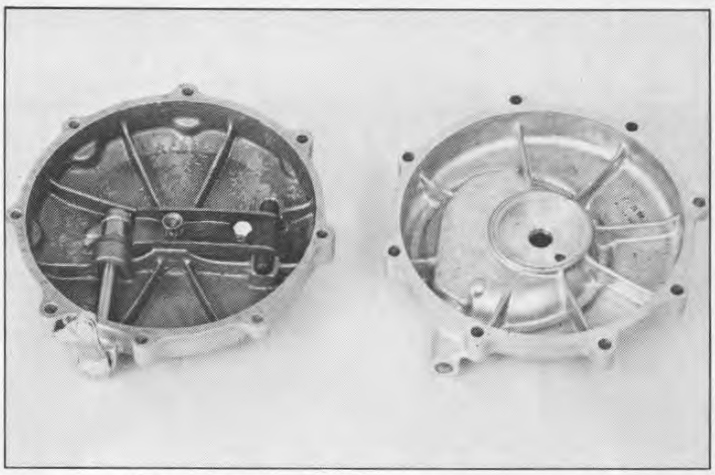
Two piece cover on the imitation gas tank enables fuel to be added while tank bag holds down the larger lid.



Rear shocks contain two coil springs, huge supply of oil and pressurized air to increase springing.



Larger 1.25 in primary chain (lower) replaces 1.0 in chain of earlier Wings and reduces deceleration rattle.



Like other Hondas, the new GL uses a cam and lever (left) clutch throw out mechanism instead of the previous ball and ramp (right).

Wing less stable in crosswinds and easily thrown off course by ridges in the pavement. What it is, handling wise, is a stable platform that holds no surprises, is adaptable to any load or road and still delivers the softest ride on two wheels. It's better than any competition, greatly better than some of the competition.

The engine and drive train is simply more of a good thing. Lower gearing makes for more power in every gear at every speed. Coupled with the larger engine and engine modifications, the new Wing doesn't need to be downshifted as often as Wings of old did. It still revs happily and smoothly, every bit as nicely as before, but it's needed less. There really is more torque there.

There isn't, nearly as we can tell, the same amount of low-end grunt as the Yamaha XS1100 has. Honda proudly says its tests show the GL does have as much torque as the Yamaha, but not at as low an engine speed. Figure 5500 rpm is the maximum torque speed and 7200 is maximum power output, though Honda doesn't quote figures for either.

More important for the touring rider than power, however, is the engine's driveability and flexibility. Remember that little hesitation on old GL's? It's 99 percent gone now, thanks to the carburetion and ignition changes. The new GL requires full choke for cold starts and revs to 4000 rpm when full choke is used, but can be ridden away immediately. There is a little difficulty keeping the bike running right away if the choke isn't left on, the engine preferring to spin away merrily when cold. When first riding the new GL it feels as though there's a hesitation off idle and poor carburetion. Trust the Wing and it behaves fine, though.

Also gone is most of the rattle on deceleration. The irritating noise is now reduced to an occasional presence. Exhaust noise sounded louder to our ears than previous Wings, but Honda says the sound level was reduced from the last Wing, which, in turn, was increased from the first model. In any case, it's not annoying, but then we haven't had a chance to ride with a fairing yet.

Like most of the other Honda's we've tested recently, the Gold Wing shifted easily but occasionally slipped out of gear. The problem is apparently caused by imprecise casting of the engagement dogs.

A powerful engine with good low-end pull, easy shifting transmission, light clutch pull and strong brakes (they even work acceptably in the wet) make for a pleasant bike to ride around town too.

Bad points? It takes a hard look, but the first to appear is a limited range on the smallish 5.3 gal. gas tank. Honda's own CBX has a 6.3 gal. tank and the smaller, more economical CB750 has the same size tank and much better range. Normal riding returned about 40 mpg and the bike would go onto its 1 gal. reserve at about 170 miles under normal riding. That's just not far enough for a touring bike, folks. As long as Honda was changing the frame and every other part of the bike, the gas tank should have been expanded more than a quart.

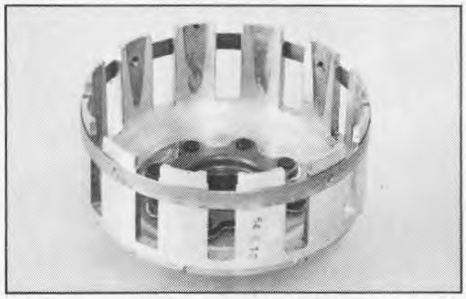
Load capacity of the Wing is good at 465 lb., but that's less than the capacity of Yamaha's XS1100 or Kawasaki's KZ1300 and, considering how many Wings are loaded, it could be better still.

Servicing the GL is no problem. It has the longest service interval in motorcycling at 7500 miles. And then the plugs are ridiculously easy to change, there's no ignition adjustment and the valves are a cinch to work on.

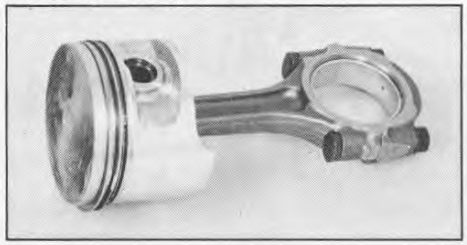
So Honda's second generation Gold Wing is successful. Everything GL owners disliked has been changed, while the strong points remain. Because it's not an all-around superbike, as some other big bore machines are, it's able to be a superior touring bike. That specialization won't please everyone. Sporting riders won't like the upright seating position and fairing-minded bars, but for those who buy them, the touring riders, it could hardly be better.

Now can we please have some brighter colors than the dark maroon or black? ■

A new crankshaft uses larger diameter journals for greater strength, though the stroke of the engine remains 61.4mm.



Aluminum clutch basket is lighter than previous steel basket and 7mm larger for greater strength.



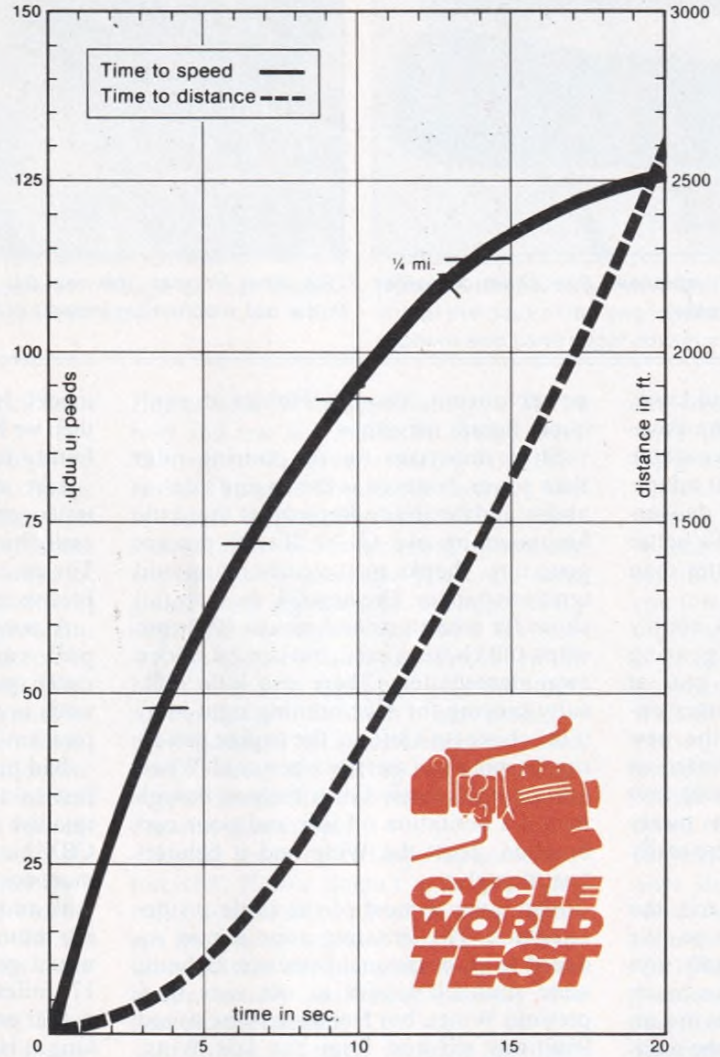
Larger 75mm diameter pistons bring displacement up to 1085cc. Automotive-type oil control ring eliminates smoking on start-up.

HONDA GL1100 GOLD WING

SPECIFICATIONS

List price	$3798
Engine	sohc opposed Four
Bore x stroke	75 x 61.4mm
Displacement	1085cc
Compression ratio	9.2:1
Carburetion	(4) 30mm Keihin
Air filter	paper
Ignition	breakerless electronic
Claimed power	na
Claimed torque	na
Lubrication system	wet sump
Oil capacity	4.2 qts.
Fuel capacity	5.2 gal.
Fuel type	any 91 octane
Starter	electric
Electrical power	12v 300w alternator
Battery	12v 20ah
Headlight	55/60w halogen
Primary drive	Hy Vo chain
Clutch	wet multi-disc
Final drive	shaft
Gear ratios, overall:1	
5th	4.67
4th	5.47
3rd	6.61
2nd	8.56
1st	12.84
Suspension:	
Front	air assisted forks
travel	5.8 in.
Rear	air assisted shocks
travel	3.1 in.
Tires:	
Front	Dunlop F11 110/90-19
Rear	Dunlop K127 130/90-17
Brakes:	
Front	dual disc
Rear	disc
Brake swept area	287 sq. in.
Brake loading (160-lb. rider)	2.79 lb./sq. in.
Wheelbase	63.2 in.
Rake/Trail	29°/5.3 in.
Handlebar width	33.2 in.
Seat height	31.8 in.
Seat width	13 in.
Footpeg height	10.8 in.
Ground clearance	5.5 in.
Test weight (w/half-tank fuel)	640 lb.
Weight bias, % front/rear	45/55
GVWR	1105 lb.
Load capacity	465 lb.

ACCELERATION



PERFORMANCE

Standing ¼-mile	12.42 sec. at 108.04 mph
Top speed in ½-mile	126 mph
Fuel consumption	40.0 mpg
Range (to reserve tank)	168 mpg
Acceleration	
0–30	2.2 sec.
0–40	3.0 sec.
0–50	3.9 sec.
0–60	4.9 sec.
0–70	6.3 sec.
0–80	7.6 sec.
0–90	9.1 sec.
0–100	11.0 sec.
Top gear acceleration:	
40–60 mph	4.23 sec.
60–80 mph	4.70 sec.
Maximum speed in gears:	
1st	47 mph
2nd	70 mph
3rd	91 mph
4th	110 mph
5th	129 mph
Speedometer error:	
30 mph indicated	30.0
60 mph indicated	59.7
Braking distance:	
from 30 mph	41 ft.
from 60 mph	158 ft.
Engine speed at 60 mph	3722 rpm