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Commando 850 Roadster

In Pacific Blue

What magazine road testers are saying:

"In England, you don't have to go looking for that narrow, twisty, back country road; chances are you live on it. It doesn't take long to realize what British motorcycling is all about. Over there the name of the game is *handling*."

"If a movie director were casting a motorcycle movie starring Burt Reynolds, he'd probably put him on a black Norton. Wherever I went, people looked and agreed: the Norton is one bloody good-looking motorcycle."

"The Norton got better gas mileage—about 40 m.p.g."

"Above 3,000 r.p.m. the Norton is the smoothest bike we've ever ridden, period."

"To our surprise the Norton was quiet."

"There is a certain mystique, possessed by the Norton, that affects certain girls. If we hadn't repeatedly experienced it so dramatically on Nortons, we wouldn't have believed it either so we won't blame you if you don't."

Commando 850 Interstate

In Traditional Black and Gold

Note the new slimline tank—
for greater comfort between the knees



**Norton's
unique answer
to vibration**

Leaves the opposition rigid!



Isolastic

The Norton prize-winning patented Isolastic construction insulates you from that hated motorcycle fault—vibration—and gives you a velvet-smooth ride with the excitement and simplicity of a high performance big twin. This construction, unique in the motorcycle industry, is particularly effective against the high frequency vibrations which cause an annoying tingle in handlebars and footpegs and which is so destructive to instruments and light bulbs. The illustration shows how the vibrating components in the right group are insulated by three scientifically located resilient mounts from the components in the left group which support the rider. The direct mounting of the swing arm on the engine cradle improves handling by preventing twisting between the countershaft and rear sprockets under load. The system, more fully described on the back page, is used in the same way in the John Player racing bikes too.



Above. The Butcher/White John Player Norton, winner of the 1973 annual International 500 Mile race at Thruxton for production class machines, providing Norton's third victory in four years in this event.

Left. The John Player F750 racing Norton in action winning the 1973 T.T. Isle of Man ridden by Peter Williams at record speed and inset at rest revealing its distinct individuality.



Peter Williams
Development Engineer
and No. 1 Rider
for Norton.

Specification:

Isolastic anti-vibration. Under this principle, the engine, transmission, swing arm and rear wheel are coupled together. Isolation of this assembly from the main frame, as shown in the illustration at the top of pages 4 and 5 of this leaflet, is achieved by the use of resilient mountings shown at A, B and C. Unlike earlier attempts at rubber mounting, the Commando is unique: its swing arm is mounted on the engine cradle and thus isolated from the main frame. This layout prevents twisting between the countershaft sprocket and rear sprocket under load which could otherwise cause premature chain wear or even displacement of the chain. The power unit in its mounting plates oscillates on the rear mounting (B) which has three bonded and two buffer rubbers. This arrangement provides maximum support, particularly to the swing arm and rear wheel, while isolating the power unit vibration from the frame. The front mounting (C) controls the degree of movement of the power unit on the rear mounting and the two bonded and two buffer rubbers allow more flexibility than does the rear mounting. Both the front and rear mountings incorporate bronze loaded PTFE thrust washers to permit side play to be kept within very restricted limits without transmitting engine and transmission vibrations to the rider. The degree of side play is controlled by shims to enable the figure to be kept within design limits even after considerable mileages. The engine head steady (A) completes the triangular formation of the resilient mountings and controls lateral movement of the engine unit in the frame. The insulating rubbers are fitted between the side plates and frame tube. U.S.A. Patent 3,542,146, British Patent 1,219,896 and Canadian Patent 866,584 have been granted on the Isolastic mounting system. Other patents are pending.

Frame
The unique Commando frame combines lightness with strength, giving exceptional torsional rigidity. It is constructed of high quality steel tube with a large diameter backbone supporting the steering head, twin downtubes anchoring the engine cradle. Pre-greased non-adjustable sealed bearings are fitted at the steering head. A strong steering lock abutment and substantial lock stops are provided. U.S.A. design Patent D212404, U.S.A. Patent 3,508,765, Canadian Patent 866,083 and British registered design 932,428 have been granted on the frame. Other patents and design registrations are pending.

Suspension
"Roadholder" front forks with progressive two way oil damping and long single rate springs housed in high quality chromed steel stanchions in slimline profile. Light aluminum sliders to reduce unsprung weight for high speed roadholding. Slimline fork top covers incorporate rigid headlight brackets. Precision fork yokes and stem provide hairline steering geometry. Girling suspension units at rear with exposed chromed springs control the swing arm which pivots on oilite bushes.

Engine
Air-cooled four-stroke overhead valve vertical twin cylinder engine. Dry sump lubrication with full flow disposable element oil filter. Cast iron finned cylinder. Aluminum one-piece cylinder head and rocker box. Hemispherical combustion chambers with large ports, valves angled and inlet ports tapered for maximum power. Forged steel rocker arms. Austenitic nickel chrome steel exhaust valves. Inlet valve stem oil seals. Built-up forged steel crankshaft with central flywheel. High capacity superbled large diameter roller main bearings. Forged aluminum alloy connecting rods with inserted thin shell big end bearings. Aluminum pistons. Gear and short chain timing drive with silent rubber covered tensioner for forged, hardened and nitrided camshaft. High efficiency direct drive to tachometer. Profiled aluminum push rods. Cam followers with stellite face pads for long life. Polished aluminum timing cover. Positive crankcase ventilation from timing chest via non return valve to oil tank and air cleaner.

| | |
|--|-----------------------|
| Capacity | 828 c.c. (50 cu. in.) |
| Bore | 77 m.m. (3.03 in.) |
| Stroke | 89 m.m. (3.5 in.) |
| Compression Ratio | 8.5:1 |
| Maximum r.p.m. continuous cruising | 5,900 |
| B.H.P. at crankshaft at sea level, silenced to California legal requirement: | |
| At 5,900 r.p.m. | 60 |
| At 4,500 r.p.m. | 47 |

Exhaust Systems
Roadster and Hi-Rider: Twin linked downswept pipes with upswept full flow mufflers.
Interstate: Twin linked downswept pipes with low level full flow mufflers.
Mufflers designed to comply with Californian State noise legislation.

Carburetors
Twin Amal concentric carburetors, matched and tuned for easy starting, tractor-like torque through the mid range and crisp, powerful response at top end. The design of the carburetors gives consistent mixtures at any cornering angle and prevents surge or fuel starvation during acceleration or braking. High efficiency air cleaner with built-in induction silencer incorporates an automotive type replaceable filter element. Consult your Norton dealer for settings appropriate to altitude and climatic conditions in your area.

Clutch
Multi disc clutch with hardened steel center and large diameter diaphragm spring, the special design of which ensures light hand operation.

Transmission
Wide tooth four-speed gearbox with medium-close ratios in heavy duty casing vented at inner cover. Nickel chrome steel gear pinions for maximum dog strength. Sleeve gear with extra bushes located positively by circlips. Triple row heavy duty primary chain drive within streamlined aluminum housing. Oil feed pipe to rear chain. Efficient cush drive with reinforced polyurethane pads in rear wheel.
Primary drive ratio: 57 tooth clutch sprocket / 26 tooth engine sprocket / 2.19:1

Final drive ratios
Rear sprocket teeth: 42

| | Ratio | Speed at 7,000 r.p.m. m.p.h. |
|---------------------------------|--------|------------------------------|
| Countershaft sprocket teeth: 22 | | |
| 4th (Top) Gear | 4.2:1 | 125 |
| 3rd Gear | 5.1:1 | 102 |
| 2nd Gear | 6.8:1 | 76 |
| 1st (Bottom) Gear | 10.7:1 | 49 |
| Countershaft sprocket teeth: 21 | | |
| 4th (Top) Gear | 4.4:1 | 119 |
| 3rd Gear | 5.3:1 | 99 |
| 2nd Gear | 7.2:1 | 73 |
| 1st (Bottom) Gear | 11.2:1 | 47 |
| Countershaft sprocket teeth: 20 | | |
| 4th (Top) Gear | 4.6:1 | 114 |
| 3rd Gear | 5.6:1 | 94 |
| 2nd Gear | 7.5:1 | 69 |
| 1st (Bottom) Gear | 11.8:1 | 44 |

20T sprocket normally fitted at factory. Alternative sizes available on order through your Norton dealer.

Electrics
12 volt electrical system fed by high output alternator which provides an output balance point at 27 m.p.h. Zener diode charge control and silicon diode bridge connected rectifier. Coil ignition by twin contact breakers and two 6 volt coils with ballast resistor. Capacitors mounted in common pack with neat rubber cover. Capacitor discharge auxiliary ignition system for operation without battery. 7 inch headlight—5½ inch on Hi-Rider—with 45/40 watt tungsten filament bulb or high brilliancy halogen unit. Windtone horn. Charge warning light with sealed and spring mounted assistor. Warning light for headlight high beam. Four position master switch for ignition and lights and light selection switch in headlight shell. Neat ergonomically designed switch clusters on handlebar controls for dip switch, engine kill button and turn signals. External live socket for auxiliaries or battery charging mounted conveniently on the side of the battery tray.

Gastanks
Capacity:
Interstate (Steel) 6½ gal.
Roadster (Steel) 3 gal.
Hi-Rider (Steel) 2½ gal.
All tanks fitted quick filler cap and reserve supply gas tap. Interstate tank baffled internally to reduce surge under braking and acceleration.

Oil Tank
All steel construction for heat conduction. Capacity 6 pints. Drain plug and dipstick concealed by neat cover. Reinforced flexible feed and return pipe.

Seat
All models except Hi-Rider fitted with luxurious deep cushion contoured seats with supple black cover having patterned top panel of attractive appearance. Hi-Rider has patterned top dual seat.

Stands
Robust easy-lift high-tuck-up center stand mounted on rear engine plates. Strong extra length propstand angled to give maximum support even on poor surfaces.

Wheels
Chromed rims with plated steel spokes laced to aluminum hubs. Polished front hub. Quickly detachable rear wheel, removable without disturbing the rear chain or brake.

Brakes
Front: High efficiency hydraulically operated Norton-Lockheed disc brake with light weight aluminum hydraulic units and 10.7 inch precision ground disc.
Rear: Cable operated 7 inch drum brake.

Tires
Front: 4.10 x 19
Rear: 4.10 x 19
Consult your Norton dealer or manufacturer's tire chart for correct pressures particularly for heavy loads and sustained high speeds.

Other Equipment
Matching easy-to-read tachometer and speedometer in individual enclosed nacelles, passenger footpegs, tool kit, side reflectors, steering lock, cushion handgrips, rear chain oiler with restrictor screw adjustment, mudflaps on Interstate, optional amber turn signals, rear view mirrors and grabrail.

Colors
Gastank and side panels. Range of colors available. Consult your Norton dealer.

Dimensions

| | |
|------------------|--|
| Wheelbase | 57 in. |
| Length | 88 in. |
| Width | 26 in. |
| Ground Clearance | 6 in. |
| Dry Weight | 418-430 lb. depending on specification |

Performance
Depending on conditions, an elapsed time of 12¼-12½ seconds with terminal speed of 103-105 m.p.h. for a standing start quarter mile and, subject to final drive sprocket fitted, a top speed approaching 125 m.p.h. may be expected from a machine to the foregoing specification.
On September 23rd, 1973, at Elvington, Yorkshire, England, a Commando 850 carefully run in and tuned in accordance with Service Release M3/56 dated June, 1973, fitted with a small fairing and a 24T countershaft sprocket and ridden by a Company staff development tester was electronically timed over a flying start quarter mile at a speed of 142.74 m.p.h. average of two runs in opposite directions.
On October 6th, 1973, at Santa Pod drag strip, Northamptonshire, England, the same machine, with the same rider, without fairing and fitted with a 19T countershaft sprocket was electronically timed over a standing start quarter mile at an elapsed time of 12.00 seconds and a terminal speed of 114.68 m.p.h.

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Capacity measurements in this leaflet are stated in U.S. gallons and pints.



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