



SHIPSHAPE
AND BRISTOLFASHION





Main Office & Factory, Douglas, Bristol.

WATKIN



Douglas Mark 'V'

The popular model in the specialist range of 350 c.c. machines, the Mark 'V' represents one of the most highly developed models in the Industry and has no rival for the motor-cyclist who needs efficiency, comfort, reliability and perfect road-holding.

The technical specification comprises:—

POWER UNIT

Horizontally opposed twin cylinder O.H.V. engine set transversely in the frame forming a single unit with the 'in-line' gearbox.

The layout provides a low centre of gravity giving faultless steering and cornering exclusive to DOUGLAS. Cooling is perfectly balanced as both cylinders have equal air frontage, and are not cast 'en bloc' but are two separate independent units. The 180° cylinder disposition also assures a power curve free from vibration—the crankshaft accepting a power impulse for every revolution.

DATA

Bore, 60.8 m.m. Stroke, 60 m.m. 348 c.c.

O.H. Valves set at 58° in cylinder heads, operated by push rods.

Compression ratio, 7.25 : 1.

Lubrication. Vane type submerged pump, circulation of oil through drillings—no exterior oil pipes.

Crankshaft. Made entirely from high grade steel forgings, built up by end and centre sections pressed on to massive crankpins.

Connecting rods. Of alloy steel forgings, balanced in pairs, big-ends ground to accept the bearings direct.

Valve operation. By two camshafts, gear driven, one for each cylinder allowing the use of short and light push rods through lever type rockers carried in well-proportioned bronze bearings.

Bearings. Crankshaft. Drive end. Large double row ball bearing.

Crankshaft. Timing end. Phosphor Bronze bush.

Camshafts. Phosphor Bronze both ends.

Big-ends. 20 Caged $\frac{1}{4}$ " diam. \times $\frac{1}{4}$ " Steel rollers.

Small-ends. Bronze bushes for $\frac{3}{8}$ " diam. gudgeon pins.

Ancillaries. Ground spindles working in bronze bushes.

Carburation by twin AMAL Carburettors.

Ignition by Lucas Magdyno. Gear driven unit, well protected, on top of crankcase.

Clutch. Car type, single dry plate 'Ferodo' lined $6\frac{1}{2}$ " diam. (171 m.m.). Totally enclosed in the bell-housing of the crankcase, light in operation and capable of a great reserve in torque transmission.

GEARBOX

The four speed gearbox of unit construction is operated by a positive footchange and is quiet in operation. Alloy steel gears run in constant mesh on large main and layshafts supported by ball and roller bearings. Final drive is by roller chain ($\frac{1}{2}$ " \times $\frac{1}{2}$ "") through a conventional type shock absorber.

Gear ratios: 5.86 : 1, 7.42 : 1, 10.1 : 1, and 16.3 : 1.

FRAME

The DOUGLAS frame is of duplex cradle type, developed to withstand the most arduous conditions in any part of the world. Patent and exclusive torsion bar rear suspension, operating through swinging rear forks provides a spring frame which sets a new standard of comfort.

FRONT FORKS

The patent DOUGLAS 'Radidraulic' forks are a worthy counterpart for the rear springing and provide some $5\frac{1}{2}$ " (139.7 m.m.) movement by *variable rate* springs. Oil damping is contained within the forks and the design has several features worthy of special note. The action is through swinging links which maintain equal wheel base throughout the entire travel. Unsprung weight is reduced to the minimum.

WHEELS and BRAKES

Large and totally enclosed journal ball bearing hubs carry WM 2 \times 19" Rims. The shoe type brakes are 7" diam. \times $1\frac{1}{4}$ ", giving $17\frac{1}{2}$ sq. ins. of frictional contact area. 3.25×19 " (480 m.m. \times 80 m.m.) Firestone Tyres are fitted as Standard, the front being of the ribbed pattern.

PETROL TANK

Of welded steel, rust-proofed inside, and of pleasing design, adjustable for height, carrying well-shaped knee-pads.

FOOTRESTS

Correctly stationed in relation to the saddle, and adjustable through a wide arc.

ELECTRICAL EQUIPMENT

LUCAS Magdyno with output of 48 watts at 6 volts, includes the Automatic Voltage control system. The accumulator is housed low in the frame and is well protected from accidental damage. The switchgear is integral with the headlamp and the head-light dipper control is on the handlebar.

MUDGUARDS

Steel, light in weight but affording ample protection. The front mudguard follows the movement of the wheel through a specially designed light but strong stay assembly. The rear guard is sprung with the frame.

SADDLE

Terry, spring mattress type, adjustable for height.

HANDLEBARS

Attached to the forks by links, adjustable for rake and reach, to give perfect positioning for every rider.

CONTROLS

Every Control is adjustable. Handlebar twist grip throttle and lever operated front brake, clutch and ignition. Horn push and magneto cut-out buttons mounted on handlebars. Rear brake controlled by a forged steel pedal, so adjustable that it follows any positioning of the footrest. The foot-change pedal is serrated for individual location.

STAND

Single centre stand, so arranged that the machine can be rolled to the raised position without effort.

EXHAUST SYSTEM

Large diameter dual chromium plated exhaust pipes fitted with barrel type silencers of pleasing appearance and high efficiency.

TOOL BOXES

The streamlined cast light alloy tool boxes carried each side of the rear sub-frame, are spacious and detachable.

EQUIPMENT

Includes high frequency electric horn, Smiths 80 m.p.h. Chronometric illuminated trip type speedometer. Footrest, kickstart and footchange rubbers, etc. The tool kit is comprehensive for running adjustments and includes tyre levers and grease gun. Pillion footrests are fitted as standard.

FINISH

All bright steel parts are heavily chromium plated and polished. Aluminium castings are highly polished. All parts are rust-proofed, enamelled parts being in distinctive DOUGLAS polychromatic blue, with special lacquer final finish. An alternative choice of colour is black and silver to order.

DIMENSIONS, WEIGHTS, CAPACITIES, ETC.

Capacity Petrol	3 gallons, main	} 15.3 litres
Capacity Petrol	3 pints, reserve	
Capacity Oil in sump	4 pints	2.27 litres
Weight (dry)	350 lbs.	158.9 kg.
Wheel base	54 $\frac{1}{2}$ ins.	138.4 c.m.
Overall length	84 ins.	214 c.m.
Overall width	27 $\frac{1}{2}$ ins.	69.8 c.m.
Overall height (loaded)	38 $\frac{1}{2}$ ins.	97.2 c.m.
Overall height (light)	39 $\frac{1}{2}$ ins.	99.7 c.m.
Min. ground clearance loaded	5 $\frac{1}{2}$ ins.	13.4 c.m.
Min. ground clearance light	6 $\frac{1}{2}$ ins.	15.8 c.m.

A comprehensive range of extras is available and is shown on a separate sheet.

DOUGLAS (SALES & SERVICE) LTD., KINGSWOOD, BRISTOL

BRISTOL 73013,8

Printed in Gt. Britain by Partridge & Love Ltd., Bristol, England.



Douglas Mark 'V'

(Fitted with cast alloy silencer and semi-straight handlebars)

The popular model in the specialist range of 350 c.c. machines, the Mark 'V' represents one of the most highly developed models in the Industry and has no rival for the motor-cyclist who needs efficiency, comfort, reliability and perfect road-holding.

The technical specification comprises:—

POWER UNIT

Horizontally opposed 'win cylinder O.H.V. engine set transversely in the frame forming a single unit with the 'in-line' gearbox.

The layout provides a low centre of gravity giving faultless steering and cornering exclusive to DOUGLAS. Cooling is perfectly balanced as both cylinders have equal air frontage, and are not cast 'en bloc' but are two separate independent units. The 180° cylinder disposition also assures a power curve free from vibration—the crankshaft accepting a power impulse for every revolution.

DATA

Bore, 60.8 m.m. Stroke, 60 m.m. 348 c.c.

O.H. Valves set at 58° in cylinder heads, operated by push rods.

Compression ratio, 7.25 : 1.

Lubrication. Vane type submerged pump, circulation of oil through drillings—no exterior oil pipes.

Crankshaft. Made entirely from high grade steel forgings, built up by end and centre sections pressed on to massive crankpins.

Connecting rods. Of alloy steel forgings, balanced in pairs, big-ends ground to accept the bearings direct.

Valve operation. By two camshafts, gear driven, one for each cylinder allowing the use of short and light push rods through lever type rockers carried in well-proportioned bronze bearings.

Bearings. Crankshaft. Drive end. Large double row ball bearing.

Crankshaft. Timing end. Phosphor Bronze bush.

Camshafts. Phosphor Bronze both ends.

Big-ends. 20 Caged $\frac{1}{8}$ " diam. \times $\frac{1}{8}$ " Steel rollers.

Small-ends. Bronze bushes for $\frac{1}{8}$ " diam. gudgeon pins.

Ancillaries. Ground spindles working in bronze bushes.

Carburation by twin AMAL Carburettors.

Ignition by Lucas Magdyno. Gear driven unit, well protected, on top of crankcase.

Clutch. Car type, single dry plate 'Ferodo' lined $6\frac{1}{2}$ " diam. (171 m.m.) Totally enclosed in the bell-housing of the crankcase, light in operation and capable of a great reserve in torque transmission.

GEARBOX

The four speed gearbox of unit construction is operated by a positive footchange and is quiet in operation. Alloy steel gears run in constant mesh on large main and layshafts supported by ball and roller bearings. Final drive is by roller chain ($\frac{1}{4}$ " \times $\frac{7}{16}$ ") through a conventional type shock absorber.

Gear ratios: 5.86 : 1, 7.42 : 1, 10.1 : 1, and 16.3 : 1.

FRAME

The DOUGLAS frame is of duplex cradle type, developed to withstand the most arduous conditions in any part of the world. Patent and exclusive torsion bar rear suspension, operating through swinging rear forks provides a spring frame which sets a new standard of comfort.

FRONT FORKS

The patent DOUGLAS 'Radidraulic' forks are a worthy counterpart for the rear springing and provide some $5\frac{1}{4}$ " (139.7 m.m.) movement by *variable rate* springs. Oil damping is contained within the forks and the design has several features worthy of special note. The action is through swinging links which maintain equal wheel base throughout the entire travel. Unsprung weight is reduced to the minimum.

WHEELS and BRAKES

Large and totally enclosed journal ball bearing hubs carry WM 2 \times 19" Rims. The shoe type brakes are 7" diam. \times $1\frac{1}{4}$ ", giving $17\frac{1}{2}$ sq. ins. of frictional contact area. 3.25×19 " (480 m.m. \times 80 m.m.) Firestone Tyres are fitted as Standard, the front being of the ribbed pattern.

PETROL TANK

Of welded steel, rust-proofed inside, and of pleasing design, adjustable for height, carrying well-shaped knee-pads.

FOOTRESTS

Correctly stationed in relation to the saddle, and adjustable through a wide arc.

ELECTRICAL EQUIPMENT

LUCAS Magdyno with output of 48 watts at 6 volts, includes the Automatic Voltage control system. The accumulator is housed low in the frame and is well protected from accidental damage. The switchgear is integral with the headlamp and the head-light dipper control is on the handlebar.

MUDGUARDS

Steel light in weight but affording ample protection. The front mudguard follows the movement of the wheel through a specially designed light but strong stay assembly. The rear guard is sprung with the frame.

SADDLE

Terry, spring mattress type, adjustable for height.

HANDLEBARS

Attached to the forks by links, adjustable for rake and reach, to give perfect positioning for every rider.

CONTROLS

Every Control is adjustable. Handlebar twist grip throttle and lever operated front brake, clutch and ignition. Horn push and magneto cut-out buttons mounted on handlebars. Rear brake controlled by a forged steel pedal, so adjustable that it follows any positioning of the footrest. The footchange pedal is serrated for individual location.

STAND

Single centre stand, so arranged that the machine can be rolled to the raised position without effort.

EXHAUST SYSTEM

Large diameter dual chromium plated exhaust pipes fitted with barrel type silencers of pleasing appearance and high efficiency.

TOOL BOXES

The streamlined cast light alloy tool boxes carried each side of the rear sub-frame, are spacious and detachable.

EQUIPMENT

Includes high frequency electric horn, Smiths 80 m.p.h. Chronometric illuminated trip type speedometer. Footrest, kickstart and footchange rubbers, etc. The tool kit is comprehensive for running adjustments and includes tyre levers and grease gun. Pillion footrests are fitted as standard.

FINISH

All bright steel parts are heavily chromium plated and polished. Aluminium castings are highly polished. All parts are rust-proofed, enamelled parts being in distinctive DOUGLAS polychromatic blue, with special lacquer final finish. An alternative choice of colour is black and silver to order.

DIMENSIONS, WEIGHTS, CAPACITIES, ETC.

Capacity Petrol	3 gallons, main	} 15.3 litres
Capacity Petrol	3 pints, reserve	
Capacity Oil in sump	4 pints	2.27 litres
Weight (dry)	350 lbs.	158.9 kg.
Wheel base	54 $\frac{1}{2}$ ins.	138.4 c.m.
Overall length	84 ins.	214 c.m.
Overall width	27 $\frac{1}{2}$ ins.	69.8 c.m.
Overall height (loaded)	38 $\frac{1}{2}$ ins.	97.2 c.m.
Overall height (light)	39 $\frac{1}{2}$ ins.	99.7 c.m.
Min. ground clearance loaded	5 $\frac{1}{2}$ ins.	13.4 c.m.
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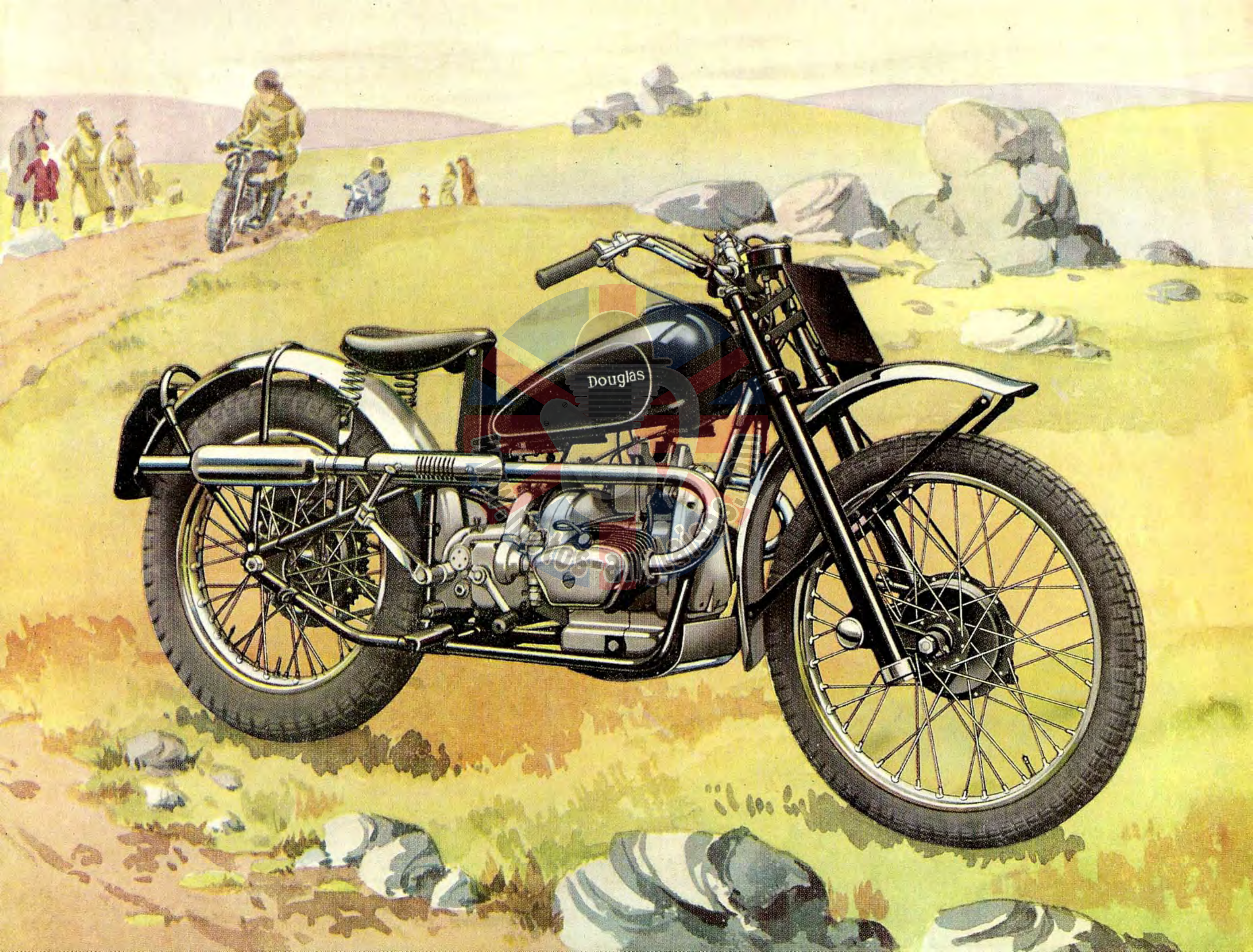
The machine illustrated is equipped with the following extras:—semi-straight handlebars with internal grip (19/- extra when fitted as initial equipment), and exhaust pipes with cast alloy silencer (£3/3/6 extra when fitted as initial equipment).

A comprehensive range of extras is available and is shown on a separate sheet.

DOUGLAS (SALES & SERVICE) LTD., KINGSWOOD, BRISTOL

BRISTOL 73013/8

Printed in Gt. Britain by Partridge & Love Ltd., Bristol, England.



Douglas

Douglas Competition Model

Developed from the world famous basic DOUGLAS design, the trials model has a rigid cradle duplex frame of great strength with special "Radidraulic" front forks, giving perfect control under adverse conditions.

The engine unit is developed to provide high torque at low speeds and is mounted high in the frame to allow ample ground clearance. Special attention has been given to provide a wide steering lock. Development tests and subsequent trial results are convincing proof that this machine is a worthy addition to the competition world of motor cycles.

The technical specification comprises:—

ENGINE

Horizontally opposed Twin set transversely in frame. Bore 60.8 m.m. Stroke 60 m.m. Capacity 348 c.c. Compression ratio 6.5 : 1. Built up crankshaft, mounted at flywheel end in double row ball bearing and in large plain bearings at timing gear end. High tensile steel connecting rods fitted with plain bearing in small end and double row roller bearings at the crank pin. Aluminium alloy pistons. Twin camshafts located below the crankshaft. Valve mechanism is totally enclosed, the rockers being mounted on long plain bearings. Twin Amal carburettors. Gear driven Lucas magdyno or magneto, both with handlebar control. Ignition cut-out button mounted on handlebar.

LUBRICATION

Car type sump lubrication with vane type oil pump. Sump capacity $\frac{1}{2}$ gallon (2.27 litres).

CLUTCH

Single plate, dry clutch. $6\frac{3}{4}$ " diameter (171 m.m.). Ferodo linings. Totally enclosed.

GEARBOX

Unit construction with engine. Four speeds, operated by totally enclosed foot-change. The gearbox mainshaft is in line with the crankshaft. Bevel gearing transfers the drive from the mainshaft to the final drive chain sprocket through a shock absorber. Folding kick-start lever.

GEAR RATIOS

Standard trials gear ratios of 6.6, 8.35, 14.3 (optional 10.5) and 21.7 can be varied through a wide range by optional extra final drive and rear wheel sprockets.

TRANSMISSION

$\frac{5}{8}$ " \times $\frac{1}{4}$ " chain to rear wheel adequately shielded from mud.

FRAME

Cradle duplex unsprung frame specially designed for competition use.

STAND

Prop stand fitted to the near side of the machine.

FOOTRESTS

Of steel, flat pad type. Adjustable.

TANK

Welded steel saddle tank reduced in width to assist rider's control when out of saddle. $2\frac{1}{2}$ gallon capacity. Finished in stove enamel black with silver lining.

FRONT FORKS

DOUGLAS "Radidraulic" bottom link forks of special design for competition work giving adequate springing and wide steering lock.

WHEELS and BRAKES

Both wheels have 7" diameter brakes of normal DOUGLAS design fitted to W.M. 3-19 rim for rear and W.M. 1-21 front. Rear tyre 400 \times 19, front tyre 275 \times 21.

MUDGUARDS

"D" section polished aluminium mudguards, giving ample tyre clearance. 5" wide rear, 4" front. Rear lifting handle.

CONTROLS

Twist grip throttle, hand operated clutch and front brake. Left foot operated rear brake pedal, rod operated.

SADDLE

Trials pattern 49-150 Dunlop saddle. 11" wide. Adjustable.

HANDLEBARS

Upswept, giving perfect control. Fully adjustable. Chromium plated.

EXHAUST SYSTEM

Upswept, both pipes leading into common expansion chamber mounted high on offside of machine.

FINISH

Black stove enamel on rust proofed surface, ensuring maximum durability. Normal bright parts heavily chromium plated.

DIMENSIONS

Wheel base 54".

Ground clearance 8".

Weight (dry) 300 lb. approx.

Weight with magdyno lighting set. (dry) 320 lb.

EQUIPMENT

Single tool box mounted on nearside, carrying well furnished tool kit.

Inflator.

Solid "skid pan" undershield.

"Sports" type bulb horn (or electric lighting equipment).

Front trials number plate.

Speedometer.

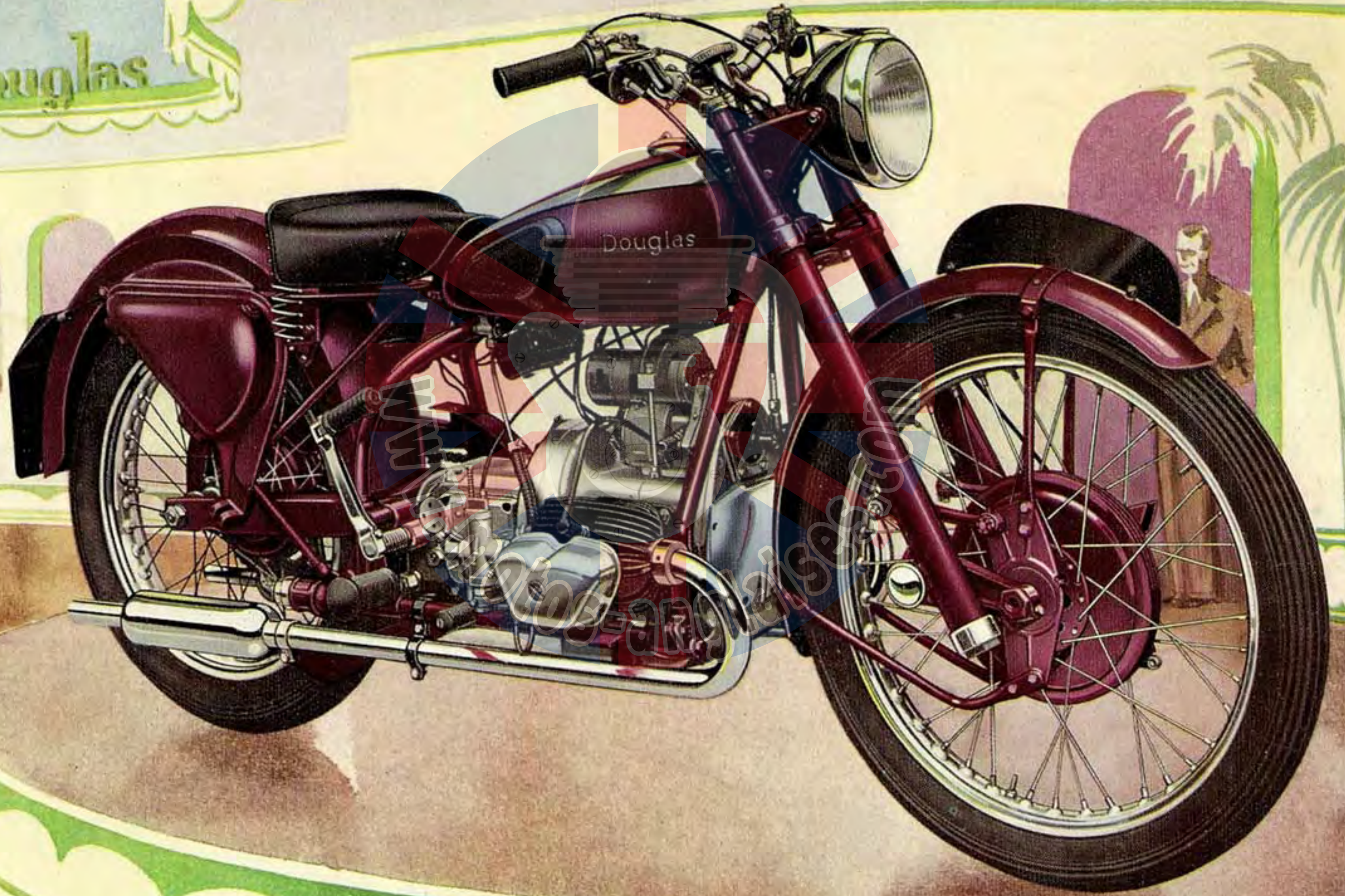
A wide range of optional alternatives and extras is available and is set out on a separate schedule.

DOUGLAS (SALES & SERVICE) LTD., KINGSWOOD, BRISTOL

BRISTOL 73013/8

Printed in Gt. Britain by Partridge & Love Ltd., Bristol, England.

Douglas



Douglas

www.douglas.com

Douglas '80' Plus

The Plus series comprises two similar machines which, whilst following the merits of the world famous DOUGLAS layout, are specially designed in every detail to afford high efficiency. Every aspect has been carefully conceived resulting in a super high speed machine, yet tractable with magnificent braking and suspension. The '80' Plus, in handsome maroon, is ideal for everyday motor-cycling and the week-ends' competitive speed events, now so popular with the Club motor-cyclist.

The technical specification comprises the following brilliant details:—

POWER UNIT

The world famous DOUGLAS transversely set horizontally opposed twin cylinder engine is retained together with the unit construction 'in-line' gearbox. In detail, the power unit is re-designed to not only provide very high power output but extreme acceleration and reliability. The most advanced technical character is reflected in this push-rod operated overhead valve engine.

DATA

Bore, 60.8 m.m. Stroke, 60 m.m. 348 c.c.
Compression ratio, 8.25 : 1. (Flat top pistons)
Safe operational crankshaft speed, 7,500 r.p.m.

CYLINDER HEADS

The new design allows straight-line inlet port efficiency. Large diameter valves, set at 58° in the heads, of finest quality austenitic steel, working in semi-steel guides incorporate stem lubrication. Triple valve springs are employed. Forged steel rockers carried in long bearings are operated by short strong light push-rods. The spring effort has ample control in reserve to cater for the reciprocating weights.

CYLINDERS

High grade close grain alloy cast iron cylinders ground and honed to fine limits are heavily flanged at either end.

CRANKSHAFT

The built up assembly comprises two end webs and centre section pressed on to massive drilled crankpins. The whole unit polished all over is strictly balanced to very fine limits.

CAMSHAFTS

Two gear driven camshafts are used, situated close to the outside of the crankcase under the cylinders, making for very light operation details. The cam form is harmonic, giving high lift to valves, economical petrol consumption, and quiet valve operation.

LUBRICATION

Vane type submerged pump circulating oil through drillings to crankshaft big-end bearings. No exterior oil pipes. The pump carries a well proportioned gauze filter, easily detachable.

ENGINE BEARINGS

Are all of ample size to withstand the high torque and crankshaft speeds.

Crankshaft: Double row ball bearing, drive end, single row ball bearing and bronze bush, timing end.
Big-ends: Twenty caged $\frac{1}{4}$ " diameter rollers to each big-end bearing, running direct on to the crankpins and hardened tracks in the conrods.
Small-ends: Phosphor Bronze small-end bushes pressed into the connecting rods to accept $\frac{3}{8}$ " diam. gudgeon pins.
Ancillaries: All Phosphor Bronze bushes running in or on ground hardened steel spindles or bores, well lubricated.

CARBURATION

Standard equipment comprises two large choke diameter AMAL carburettors mounted on suitably shaped induction stub-pipes.

IGNITION and LIGHTING

By Lucas Magdyno. Gear driven unit, well protected, on top of crankcase. The quickly detachable 48 w. dynamo is of the A.V.C. type.

CLUTCH

Car type, single plate of large diameter, with air vent; the unit is totally enclosed, linking the engine with the gearbox in a direct line. The driven plate is made of light alloy carrying cork inserts providing ample reserve torque capacity, ensuring minimum self inertia and ease in gear changing.

GEARBOX

Unit construction with the engine but easily detachable, all gears being in constant mesh and carried upon short stiff shafts. The main components run in needle roller bearings to eliminate friction and provide utmost reliability. The patent footchange ensures positive action with the minimum pedal movement. Final ratios may be varied through a wide selection of sprockets. Final drive by heavy roller chain ($\frac{3}{8}$ " x $\frac{1}{4}$ ") is transmitted through a conventional shock absorber.

Standard ratios: 6.17 : 1, 7.78 : 1, 10.6 : 1, 17.2 : 1.

FRAME

An immensely robust frame developed by competition experience, includes the DOUGLAS patent torsion bar rear suspension; of the swinging fork type it is the envy of the motor cycle industry.

FRONT FORKS

The patent DOUGLAS 'Radidraulic' forks are a worthy counterpart for the rear springing providing some 5 $\frac{1}{2}$ " (139.7 m.m.) movement by *variable rate* springs. Oil damping is contained within the forks—the design has several features worthy of special note. The action is through swinging links which maintain equal wheel base throughout the entire travel. Unsprung weight is reduced to the minimum. Steering Damper fitted as standard equipment.

WHEELS and BRAKES

Large totally enclosed journal ball bearing hubs incorporate shoe type brakes, the front being 9" diameter, heavily finned. The rear brake drum 7" diameter, carries the removeable sprocket. The front wheel has rim size WM1-21 carrying a 3.00 ribbed tyre and the rear is 3.25 on a WM2 x 19" Rim, carrying a studded tyre.

PETROL TANK

Welded steel construction, of pleasing design, rust-proofed inside and adjustable for height.

FOOTRESTS

Correctly stationed in relation to the saddle position.

MUDGUARDS

Steel, light in weight, affording ample protection, the front mudguard follows the movement of the wheel through a specially designed light but strong stay assembly. The rear guard is sprung with the frame.

CONTROLS

Every Control is adjustable. Handlebar twist grip throttle and lever operated front brake, clutch and ignition. Horn push and magneto cut-out buttons mounted on handlebars. Rear brake controlled by a forged steel pedal, so adjustable that it follows any positioning of the footrest without the necessity of adjusting the brake cable. The footchange pedal is serrated for individual location. Folding kickstarter.

SADDLE

Terry, spring mattress type, adjustable for height.

HANDLEBARS

Attached to the forks by links, adjustable for rake and reach, to give perfect positioning for every rider.

STAND

The detachable single centre stand is so arranged that the machine can be rolled to the raised position without effort.

EXHAUST SYSTEM

Twin exhaust pipes are of the correct length when the efficient silencers of pleasing appearance are removed.

TOOL BOXES

Detachable streamlined cast light alloy tool boxes are carried each side of the rear sub-frame.

EQUIPMENT

The standard equipment includes high frequency electric horn, Smiths 120 m.p.h. Chronometric illuminated dial speedometer, rubbers for footrests, kickstart and footchange, pillion footrests. A comprehensive tool kit includes tyre levers, grease gun and inflator.

FINISH

All bright parts are heavily chromium plated and highly polished. The enamelled parts are rust-proofed and enamelled with hard wearing and distinctive DOUGLAS maroon, with special lacquer final finish.

DIMENSIONS, WEIGHTS, CAPACITIES

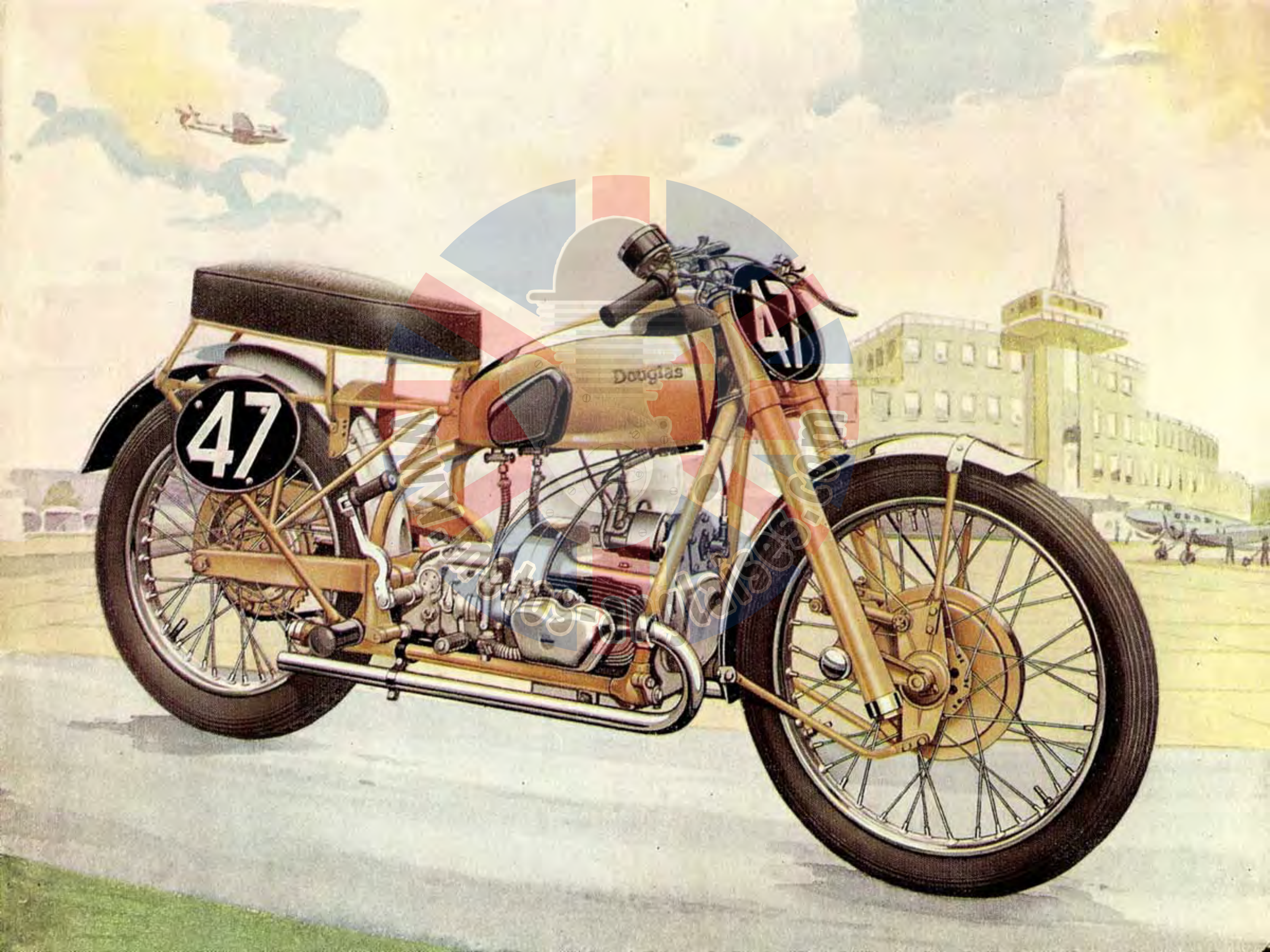
Petrol	3 gallons, main	} 15.3 litres
	3 pints, reserve	
Oil	4 " in sump	2.27 "
Weight in road trim, dry. Approx.	350 lbs.	158.75 kg.
Wheel base	54 $\frac{1}{2}$ ins.	138.4 c.m.
O/A length	84 $\frac{1}{2}$ "	214.5 ins.
" width	27 $\frac{1}{2}$ "	69.8 "
" height (loaded)	40 "	101.6 "
" " (unloaded)	40 $\frac{1}{2}$ "	102.9 "
Min. ground clearance	5 $\frac{1}{2}$ "	13.4 " loaded

A wide range of extras is available and is set out on a separate sheet.

DOUGLAS (SALES & SERVICE) LTD., KINGSWOOD, BRISTOL

BRISTOL 73013/8

Printed in Gt. Britain by Partridge & Love Ltd., Bristol, England.



Douglas '90' Plus

Basically similar to the '80' Plus DOUGLAS present the now famous '90' Plus model for the most discriminating sporting rider. It can be used with confidence either on the road or in competitive Club events. Made distinctive by its polychromatic gold finish, the engines in these machines are individually assembled and tested for a standard of horse power, torque and consumption. A very wide alternate specification schedule is set out on a separate sheet; the parts are interchangeable with the '80' and '90' Plus, and may be purchased as spares or supplied as original equipment at extra cost.

The technical specification comprises the following brilliant details:—

POWER UNIT

The world famous DOUGLAS transversely set horizontally opposed twin cylinder engine is retained together with the unit construction 'in-line' gearbox. In detail, the power unit is re-designed to provide not only very high power output but extreme acceleration and reliability. The most advanced technical character is reflected in this push-rod operated overhead valve engine.

DATA

Bore, 60.8 m.m. Stroke, 60 m.m. 348 c.c.
Compression ratio, 8.25 : 1. (Flat top pistons)
Safe operational crankshaft speed, 7,500 r.p.m.

CYLINDER HEADS

The new design allows straight-line inlet port efficiency. The large diameter valves set at 58° in the heads, of finest quality austenitic steel, working in semi-steel guides incorporate stem lubrication. Triple valve springs are employed. Forged steel rockers carried in long bearings are operated by short strong light push-rods. The spring effort has ample control in reserve to cater for the reciprocating weights.

CYLINDERS

High grade close grain alloy cast iron cylinders are ground and honed to fine limits and heavily flanged at either end.

CRANKSHAFT

The built up assembly comprises two end webs and centre section pressed on to massive drilled crankpins. The whole unit polished all over is strictly balanced to very fine limits.

CAMSHAFTS

Two gear driven camshafts are used, situated close to the outside of the crankcase under the cylinders, making for very light operation details. The cam form is harmonic, giving high lift to valves, economical petrol consumption, and quiet valve operation.

LUBRICATION

Vane type submerged pump circulating oil through drillings to crankshaft big-end bearings. No exterior oil pipes. The pump carries a well proportioned gauze filter, easily detachable.

ENGINE BEARINGS

Are all of ample size to withstand the high torque and crankshaft speeds.

Crankshaft: Double row ball bearing, drive end, single row ball bearing and bronze bush, timing end.

Big-ends: Twenty caged $\frac{1}{8}$ " diameter rollers to each big-end bearing, running direct on to the crankpins and hardened tracks in the conrods.

Small-ends: Phosphor Bronze small-end bushes pressed in to the connecting rods to accept $\frac{3}{8}$ " diam. gudgeon pins.

Ancillaries: All Phosphor Bronze bushes running in or on ground hardened steel spindles or bores, well lubricated.

CARBURATION

Standard equipment comprises two large choke diameter AMAL carburettors mounted on suitably shaped induction stub-pipes.

IGNITION and LIGHTING

By Lucas Magdyno. Gear driven unit, well protected, on top of crankcase. The quickly detachable 48 w. dynamo is of the A.V.C. type.

CLUTCH

Car type, single plate of large diameter, with air vent, the unit is totally enclosed, linking the engine with the gearbox in a direct line. The driven plate is made of light alloy carrying cork inserts providing ample reserve torque capacity, ensuring minimum self inertia and ease in gear changing.

GEARBOX

Unit construction with the engine but easily detachable, all gears being in constant mesh and carried upon short stiff shafts. The main components run in needle roller bearings to eliminate friction and provide utmost reliability. The patent footchange ensures positive action with the minimum pedal movement. Final ratios may be varied through a wide selection of sprockets. Final drive by heavy roller chain ($\frac{3}{8}$ " x $\frac{1}{4}$ ") is transmitted through a conventional shock absorber.

Standard ratios: 5.7 : 1, 6.67 : 1, 7.87 : 1, 11.44 : 1. Alternative special close ratio 3rd 6.17 : 1.

FRAME

An immensely robust frame developed by competition experience, includes the DOUGLAS patent and exclusive torsion bar rear suspension, of the swinging fork type, the envy of the motor-cycle industry.

FRONT FORKS

The patent DOUGLAS 'Radidraulic' forks are a worthy counterpart for the rear springing providing some $5\frac{1}{2}$ " (139.7 m.m.) movement by *variable rate* springs. Oil Damping is contained within the forks, the design has several features worthy of special note. The action is through swinging links which maintain equal wheel base throughout the entire travel. Unsprung weight is reduced to the minimum. Steering damper fitted, as standard.

WHEELS and BRAKES

Large totally enclosed journal ball bearing hubs incorporate shoe type brakes, the front being 9" diameter, heavily finned. The rear brake drum 7" diameter, carries the removable sprocket. The front wheel has rim size WM1-21 carrying a 3.00 ribbed tyre and the rear is 3.25 on a WM2 x 19" Rim, carrying a studded tyre.

PETROL TANK

Welded steel construction, of pleasing design, rust-proofed inside, and adjustable for height.

FOOTRESTS

Correctly stationed in relation to the saddle position.

MUDGUARDS

Steel, light in weight, affording ample protection, the front mudguard follows the movement of the wheel through a specially designed light but strong stay assembly. The rear guard is sprung with the frame.

CONTROLS

Every Control is adjustable. Handlebar twist grip throttle and lever operated front brake, clutch and ignition. Horn push and magneto cut-out buttons mounted on handlebars. Rear brake controlled by a forged steel pedal, so adjustable that it follows any positioning of the footrest without the necessity of adjusting the brake cable. The footchange pedal is serrated for individual location. Folding kickstarter.

SADDLE

Terry, spring mattress type, adjustable for height.

HANDLEBARS

Attached to the forks by links, adjustable for rake and reach, to give perfect positioning for every rider. They may be inverted to provide low swept position.

STAND

Easily detachable single centre stand so arranged that the machine can be rolled to the raised position without effort.

EXHAUST SYSTEM

Twin exhaust pipes are of the correct length when the efficient silencers of pleasing appearance are removed.

EQUIPMENT

The standard equipment includes high frequency electric horn, Smiths 120 m.p.h. Chronometric illuminated dial speedometer, rubbers for footrests, kickstart and footchange, pillion footrests. A comprehensive tool kit includes tyre levers, grease gun and inflator.

FINISH

All bright parts are heavily chromium plated and highly polished. The enamelled parts are rust-proofed and enamelled with hard wearing and distinctive DOUGLAS polychromatic gold, with special lacquer final finish.

DIMENSIONS, WEIGHTS, CAPACITIES

Petrol	3 gallons, main	} 15.3 litres
	3 pints, reserve	
Oil	4 " in sump	2.27 "
Weight in road trim, dry	Approx: 350 lbs.	158.75 kg.
Wheel base	54 $\frac{1}{2}$ ins.	138.4 c.m.
O/A length	84 $\frac{1}{2}$ "	214.5 "
" width	27 $\frac{1}{2}$ "	69.8 "
" height (loaded)	40 "	101.6 "
" " (unloaded)	40 $\frac{1}{2}$ "	102.9 "
Min. ground clearance	5 $\frac{1}{2}$ "	13.4 " loaded

The '90' Plus illustrated is equipped with the alternative specification, which includes revolution counter, road racing tyres, racing magneto, racing seat and light alloy guards, in place of the speedometer, standard tyres, magdyno lighting set, steel mudguards, tool boxes and saddle, without extra cost. A further wide range of extras is available. It is essential when ordering to state 'alternative specification' required.

DOUGLAS (SALES & SERVICE) LTD., KINGSWOOD, BRISTOL

BRISTOL 73013/8

Printed in Gt. Britain by Partridge & Love Ltd., Bristol, England.

Guarantee

WARRANTY

The Company warrants that in the manufacture of new vehicles and engines all precautions have been taken which are usual and reasonable to secure excellence of materials and workmanship and undertakes that if any defect is disclosed in any part of the same within six months of the date of delivery to the retail customer it will (provided such defective part is returned to the works carriage paid) examine the part alleged to be defective and if on such examination the fault is found to be due to defective materials or workmanship for which it is responsible it will repair or replace the defective part free of charge.

This Warranty is given only in respect of a vehicle or engine purchased by the retail customer as new, for which the Company's current retail List Price has been paid.

The foregoing Warranty is in lieu of any Warranty (or Condition) whether expressed or implied by Common Law, Statute or otherwise as to the description, quality or fitness for their purpose of any goods sold, replaced or repaired by the Company every such Warranty (or Condition) whether expressed or implied being in all cases excluded and the liability of the Company under the terms of this Warranty is strictly limited to the replacement or repair and despatch to the Sender carriage forward of the part replaced or repaired. The Company shall not be responsible for any other liability, expenses, damages, or loss which may occur consequent upon any misdescription, defective material or workmanship of any description.

The Warranty shall be void if the goods are fitted with any part not made by Douglas (Kingswood) Limited. Any vehicle fitted with a body not approved by us is not covered by this or any Warranty.

No Warranty shall apply to defects caused or arising under the following conditions:—

- (a) During or caused by racing.
- (b) Wear and tear, accident, misuse or neglect or failure to follow the instructions contained in the Instruction Books, if any.
- (c) Defects in any vehicle or engine which has been altered in any manner whatsoever or upon which the identification numbers have been altered or removed.
- (d) Defects in any vehicle or engine which has been or is let out on hire.
- (e) The use of unsuitable fuel or lubricants.
- (f) The operation of the vehicle or engine in excess of its rated capacity or under conditions detrimental to its successful operation or likely to cause excessive wear and tear.

This Warranty shall be construed as including and is limited to:—

- (a) Vehicles or engines bought direct from the Company or from one of its duly authorised Distributors, Dealers or Retail Dealers.
- (b) Repairs done or replacements supplied by the Company direct.

The Company gives no Warranty of any description in respect of any Secondhand Vehicles or Engines.

All Agreements and quotations by the Company to supply goods, execute repairs or make replacements shall be deemed to include the above Warranty and to exclude all expressed or implied Warranties and/or Conditions.

The Company does not warrant the Specialities of other manufacturers fitted to its vehicles such as tyres, electrical fittings, lamps and horns. It endeavours to secure satisfactory quality in these articles and the Makers whose names usually appear thereon are generally willing to replace any defective part. The Company will be pleased at all times to furnish the Maker's name and address.

In the Export Markets and in lieu of any Warranty or Condition implied by Law we give a Warranty in similar terms (delivering the new parts F.O.B. English Port) to our distributors to whom alone the purchaser must look for his Warranty and for service.

CONDITIONS OF WARRANTY

If a defective part be found in any vehicle or engine it must be sent to the Company, Douglas (Sales & Service) Ltd., Kingswood, Bristol, carriage paid and accompanied by an intimation from the Sender in writing that he desires to have it repaired or replaced free of charge under this Warranty. The Sender must also furnish at the same time:—

- (a) The number of the vehicle or engine.
- (b) The name of the Dealer, if any, from whom he purchased.
- (c) The date of the purchase or the date when the repairs were executed or replacements made as the case may be.

The Sender shall accept the Company's decision as final and conclusive on all claims for replacement or repairs, under this Warranty.

If these conditions are not strictly complied with, the goods received by the Company will be at the risk of the Sender and this Warranty shall not be enforceable.

The Company shall not be responsible for the cost of any labour involved in connection with the removal or replacement of any defective parts from or to any vehicle or engine. Replaced parts become the Company's property.

Vehicles sent for repairs will only be driven by the Company's employees at the risk and responsibility of the owners and repairs are undertaken only on the assumption that the owners give authority to drive the vehicles on their behalf.

The Company accepts no responsibility for damage by fire or otherwise to customers' vehicles or engines or parts thereof whilst on the Company's premises.



University Tower
Bristol



DOUGLAS (SALES AND SERVICE) LTD. KINGSWOOD · BRISTOL · ENGLAND