



700S

OWNERS HANDBOOK

SILK SERVICE SUPPORT

SILK ENGINEERING (DERBY) LIMITED
BOARS HEAD MILL
DARLEY ABBEY
DERBY DE3 1DZ
TEL: 0332-44375

THIS HANDBOOK APPLIES TO _____

COLLECTED BY H.P. MARSHALL FROM _____

ON 29.4.78.

CHASSIS NO. 700S/2/

ENGINE NO. 700/2/

WALTON AUTO SUPPLIES LTD.

223 Coatworth Road,

GATESHEAD NE8 1SR

NOTE: FIRST PART OF NUMBER DEFINES THE SPECIFICATION,
SECOND PART OF NUMBER IS SERIAL NUMBER.

SECOND ISSUE

MAY 1977

SILK ENGINEERING

(DERBY) LTD.



BOAR'S HEAD MILL, DARLEY ABBEY, DERBY DE3 1DZ DERBY 44375

SILK MOTOR CYCLES

ENGINEERING SERVICES ; INDUSTRIAL ENGINES ; TWO STROKE RESEARCH ; SCOTT SPECIALISTS

THE SILK 700S

The Silk 700S is designed by enthusiasts and produced in limited numbers for enthusiasts, with character in the tradition of the great classical British motor cycles and the added advantages of light weight and low maintenance. The aeronautical saying "Simplicate and Add More Lightness" summarises our technical philosophy.

Its main features are its light weight, and superb steering and road holding. A flexible, lively engine gives a high power/weight ratio throughout the speed range and fuel economy of 50 to 60 m.p.g. This combination makes it attractive not only for occasional use by the enthusiast, but also for everyday use for business as well as pleasure. It has been designed from the start for long life and low-cost, trouble-free maintenance.

The major features are:-

	660 cc, 760 mm bore, 720 mm stroke, 305 lb dry weight, 110 mph, 55 mpg.
For lightness	Rigid, robust duplex frame. Simple all-aluminium engine.
For performance	Special "velocity-contoured" charge/scavenge system. Tuned porting and exhaust system. Deflector pistons for low-speed torque.
For long life	Water cooled. Large safety factors, low stresses, large bearing areas. Designed for 60,000 miles between overhauls.
For simple, cheap maintenance	2 cylinders, 1 carburettor, 1 silencer. Valve-less 2-stroke, Lumenition ignition, without contact-breaker. Separate pumped oil system - 1000 miles between refilling. Enclosed rear chain with single eccentric adjustment. Stainless steel handlebars, nuts, bolts, etc.
For customer's choice	Colour scheme, <u>fuel tank capacity</u> , brakes, handlebars, footrest position, seat height, fairings, etc.

Production is now under way at a rate of 1 per week and orders can be accepted for deliveries in the Spring.

8th January 1976

S I L K 7 0 0 S

OWNER'S HANDBOOK

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SECTION A INTRODUCTION TO OWNER'S HANDBOOK

This handbook

The Silk 700 is a sophisticated and advanced engineering product. It is made only in limited numbers for an exclusive ownership. In writing this handbook for you, the owner of a Silk 700, we have assumed that you have previously owned and ridden a motor-cycle.

We want you to understand, to maintain and to overhaul your Silk 700 so that both in riding it and in working on it, you obtain the maximum pleasure. We have tried to use the minimum of words to do this.

However, few handbooks are perfect, and if we have left anything unclear, our service personnel are always available to answer your queries, and we shall use the extra knowledge so gained to improve the handbook for future owners.

"If in doubt, please ask."

Silk Owners' Club

We ourselves are keen motor-cyclists, and have for many years had very close associations with other one-make Clubs. We know how much pleasure is obtained by owners of exclusive motor-cycles getting together from time to time. We have therefore sponsored the Silk Owners' Club, and on your purchase of this Silk 700, have paid your first year's subscription to the Club.

Silk Service Support

Because of the special relationship which exists between all Silk owners and us, the manufacturers, we provide the facilities for all technical service, maintenance and overhaul at our works. We hope you will make use of these facilities. Please do telephone us first to make an appointment; this will help to avoid delays for you and will help us to plan our work more efficiently.

When telephoning us please quote the machine's Serial No. complete with all letters and numbers, which will be found stamped on the R.H.S. of the steering head. When writing, please address the letter to S.S.S. Silk Engineering (Derby) Limited etc..... and please quote the frame and engine serial numbers at the top of the letter.

The 500 mile service on your Silk 700 is free at the works, including both labour and materials; the work covered is specified in the section "Maintenance at a Glance". Should you prefer to do the 500 mile service yourself, then the equivalent work will be done free at any time you care to return the bike to the works.

In addition, to help you obtain the most pleasure from your Silk 700, we can offer you a renewable works maintenance and overhaul contract, and details of this will be supplied to you separately.

Product Improvement

From time to time, we shall introduce improvements to the Silk 700S. You will hear of these through the Silk Owners' Club. If you would like to keep your Silk right up to date, we can retrofit the latest production modifications in our own factory, at a reasonable cost - please ask us to quote.

SECTION BGENERAL DESCRIPTION OF THE MOTORCYCLEINDEX

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SECTION B DESCRIPTION OF THE MOTOR CYCLE

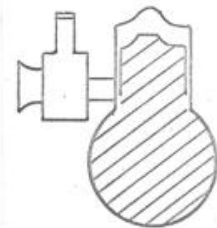
This section describes those features of the Silk 700 which may be unfamiliar to motor cyclists who are used to other makes of machine.

1. The 2-stroke cycle

The performance of the Silk 700 stems from its high power/weight ratio and from the abundant torque in the mid-RPM range. These characteristics arise from the special features of the Silk "Velocity Contoured" 2-stroke charge/scavenge system.

In the Silk 700, the piston performs four largely separate functions:

1. The usual 2- and 4-stroke functions of compressing the gas above the piston and then transmitting the power from the combustion into the con-rod and crankshaft.
2. The usual 2-stroke function of using the underside of the piston to draw in the charge and to do the primary, or "crankcase" compression. Whilst all 2-strokes do this, we have developed a new "Velocity-Contoured" charge system which is largely responsible for the Silk engine's outstanding performance.
3. The special feature of the Silk 700 piston is the shape of the ports in the piston skirt which control the inflow of the charge to the underside of the piston and the transfer of the charge to the combustion chamber.
4. The specially shaped top of the piston controls the flow of the charge into the combustion chamber, and ensures efficient combustion and scavenging.



The outstanding power and flexibility of the Silk 700 stem from the aerodynamics of the inlet and transfer passages, the crankcase, the piston ports and the piston top. These features have been developed and patented by Silk Engineering over the last few years and checked on a computer programme at Belfast University. These unique features have given rise to their description "Velocity Contoured".

2. The oil system

Oil is supplied to the bearings by a pump. After discharge from the bearings, the oil is picked up by the intake gases and carried into the combustion chamber, where it is burned. The lubrication system is therefore of the "Total Loss" type.

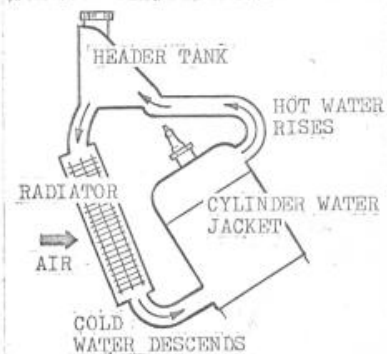
The objective of the lubricating system is to ensure the longevity and reliability of the bearings and piston rings with the minimum possible oil supply.

On the Silk 700, this is achieved by the Silk "Duplex" positive displacement pump. The pump is driven from the crankshaft and controlled by the throttle twist-grip, so that the rate of oil flow varies with RPM and with throttle opening, and therefore with the load on the bearings. The pump delivers through a spring loaded non-return valve, and this together with the ability of the pump to deliver at pressure, minimises any change in lubrication characteristics due to variations in crankcase pressure. Each half of the pump feeds the two crankshaft bearings on one cylinder. The oil is centrifugally channelled from the mains to the big end bearings and then to the underside of the pistons. Oil consumption is better than 300 miles per pint.

3. Water cooling

On modern high-performance engines, water cooling gives much better cooling around such critical areas as the exhaust ports and sparking plugs, at the back of the block and between adjacent cylinders. The water pipes and internal passages of the Silk 700S have been carefully designed to take care of these potential hot spots and to give the most even possible temperature all round the combustion chamber.

The small size and low profile of the Silk 700 enable a Thermosyphon cooling system to be used. The reduction in density of the water as it heats up causes the water to circulate; the system is self-regulating, as the hotter the water in the cylinder block, the faster the circulation, and the more the cooling from the radiator. Also, because no flow occurs until the cylinder block has heated up, quick warming up is achieved. And all without the complications of water pumps and thermostats!



4. The Ignition System

Accurate control of ignition timing, and a really positive spark, are important on all engines but are especially beneficial on 2-strokes. The Silk 700 therefore uses a "Lumenition" transistorised system to eliminate the variations encountered with a contact breaker. The "Lumenition" system has no wearing parts and, once correctly set, should be trouble-free and require no further adjustment. A Silk-designed centrifugal advance-retard gives correct advance for starting and throughout the range of RPM.

5. Other Features

The rigid light-weight frame, race-proved front forks, and other features, although contributing to the overall outstanding performance and handling qualities, are relatively conventional. Sufficient descriptions will be found in the relevant sections of this handbook.

SECTION CTECHNICAL DATAINDEX

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SECTION C TECHNICAL DATA

Note: See "Maintenance Data at a Glance" for all quantities etc.
at back of book - Section Z

* See cutaway drawing (Fig. 1)

<u>1. Engine</u>	The engine number is located on the right hand side of the crankcase.
Type:	Inclined twin-cylinder piston-port 2-stroke, water-cooled, with pump lubrication.
Displacement:	656 c.c.
Bore and stroke:	76 mm x 72 mm
B.H.P. at RPM	48 at 6,000 rpm
Max torque:	45 ft.lb at 3,000 rpm
Carburettor:	34 mm Amal concentric Mk II
Lubrication:	Silk "Duplex" micrometering pump fed from separate oil tank
Fuel/oil ratio:	50 : 1 approx.
Ignition:	"Lumination" transistorised type, with centrifugal advance and retard. Twin 6v. coils in series. 37½° BTDC on full advance
Sparking plugs:	Champion L10 - Gap 0.025" (.65 mm.) - For running in and sustained low speeds KLG F 220) - Gap 0.025 (.65 mm). - For high speed touring. NGK B8 HC)
Exhaust system:	Siamese expansion type.
<u>2. Transmission</u>	
Primary:	Renolds Duplex .437 roller chain, ratio 24 : 49
Clutch:	6 plate running in oil mist
Gearbox:	Four speeds: First 2.29 Second 1.59 Third 1.21 Top Direct
Final Drive:	Renolds 5/8" x 1/4" roller chain, ratio 19 : 36 Alternative front sprocket - 18 or 20 Dirt excluding chain enclosure Cush drive in rear hub

Overall gearing:		MPH/1000 RPM	Theoretical Speed at 6000 RPM
First	8.874	8.049	48
Second	6.143	11.628	70
Third	4.669	15.298	92
Top	3.868	18.467	111

3. Frame and Suspension

The frame number is located on the right hand side of the steering head.

- Frame: Duplex cradle type.
- Forks: Hydraulically damped telescopic. Dual rate springs
- Rear Suspension: Swinging arm with Girling suspension units.
Dual rate 90 springs with 3 position variable pre-load.
- Brakes: Front - Single or Twin Lockheed 10" hydraulic disc.
Rear - 7" drum.
- Wheels: Aluminium hubs and rims.
Rustless steel spokes.
- Tyres: Avon Roadrunners or) (3.80 x 18 front
Dunlop TT 100) (4.10 x 18 rear
Front: 24 psi Rear: 27 psi (solo)
24 psi 30 psi (two up depending
on load)

4. Cooling System

- Type: Water, with or without antifreeze. Circulation by thermo-syphon.

5. Electrical Equipment

- Generator: Crankshaft-driven 150w. 12v. alternator
- Battery: Yuasa 12V 7 AH
- Headlamp: Lucas 7" halogen H4 60/55 w.
- Parking light: Built-in with headlamp
- Rear light: Combined tail/stop unit with reflector
- Trafficators: Amber flashing indicators front and rear
- Indicator lamps: High-beam and trafficator
- Horn: Lucas 6H.

6. Dimensions

- Overall length: 81" (206 cm.) approx.
- Wheelbase: 56" (142 cm.)
- Width: 26" (67 cm.) approx. with standard handlebar & mirror
- Ground clearance: 8" (20 cm.) approx.
- Seat height: From 28" (71 cm.)
- Weight: Approx. 300 lb dry weight, depending on specification

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SECTION D CONTROLS AND ADJUSTMENTS

The Silk 700 has conventional motor-cycle hand and foot controls.

1. Handlebar controls

Left side: Clutch lever with cable adjuster. Combined headlamp dip, horn and trafficator switch.

Right side: Throttle twistgrip, with twin pull to operate throttle and oil metering system. Combined front brake lever and hydraulic cylinder.

2. Instrument display

Left side: Speedo

Right side: Rev. counter or clock

Top centre: Ammeter

Centre: Light switch

Lower centre: Ignition switch

Right and left of ignition switch: Head beam
Trafficator

3. Foot controls

Left foot: Rear brake pedal

Right foot: Gear change lever
Folding kick-start pedal

4. Choke control

Location: On carburettor

Operation: Depress lever fully to bring choke into operation.

Usage: For cold start only. Lever should be in upper, running, position at all other times.

5. Petrol tap

Type: On/off and reserve

Location: Centrally at rear of tank

Reserve: Pull under tank

6. Rear shock-absorber adjustment (See Fig. 2)

Three-position adjustment for ride height.

Adjustment: Turn casing clockwise, viewed from top, to stiffen suspension

Setting: The machine is delivered with the adjustment in the mid-position