# **HANDBOOK**

**FOR** 

# BENTLEY, MK. VI

WITH INSTRUCTIONS FOR RUNNING AND MAINTENANCE

Liable to Alteration without Notice

Number X

PRICE £1. 5. 0

Published by
BENTLEY MOTORS (1931) LTD.
DERBY, CREWE
AND 16 CONDUIT STREET, W.I.

THE information contained in this book has been arranged to facilitate reference, by condensing all essential driving and upkeep instructions in the first two chapters. Numerous references to other parts are provided, whereby any particular instruction may be amplified if required.

Subsequent chapters include explanations of the working of the various units or components of the chassis, and include detailed directions for lubrication and maintenance.

Owners and drivers should, therefore, familiarise themselves with the first two chapters in order to operate the car successfully, referring to the remainder of the book at leisure, or if necessary.

A set of special spanners and tools is supplied with the chassis. It is most desirable that these should be used when effecting any adjustment, as otherwise vital parts may be seriously damaged.

It is strongly recommended that this book be carefully studied, and the instructions faithfully followed, to ensure the greatest satisfaction.

### BENTLEY MOTORS (1931) LIMITED

Directors:

Dr. F. Llewellyn Smith

W. A. Robotham

R. F. Messervy

D. R. McDonald

J. E. Scott

London Office and Showroom:

#### 14 & 15 Conduit Street, London W.1

TELEGRAMS: "BENSPORT, PICCY, LONDON"
TELEPHONE: MAYFAIR 4412 (3 LINES)

CODES USED: A B C (5TH EDITION), BENTLEY'S, MARCONI,
MOTOR TRADE, WESTERN UNION

Main Service Station:

#### Hythe Road, Willesden, London N.W.10

TELEGRAMS: "BENSERDEP, WESPHONE, LONDON"

TELEPHONE: LADBROKE 2444

Crewe Repair Depot:

Pym's Lane, Crewe

TELEGRAMS: "BENSPORT, CREWE"

TELEPHONE: CREWE 3271

Works - - CREWE

TELEGRAMS: "BENSPORT, CREWE"
TELEPHONE: CREWE 3271 (10 Lines)

Authorised Paris Service Station:

Franco-Britannic Autos Ltd.

25 Rue Paul Vaillant Couturier, Levallois, Seine

TELEGRAMS: "FRANCOBRIT-LEVALLOIS-PERRET-FRANCE"

TELEPHONE: PEREIRE 60-24

# CONTENTS

$\mathbf{I}$	PAGE
CHAPTER I.—STARTING THE ENGINE AND DRIVING THE CAR	21
Starting the Engine—Throttle Control—Mixture Control—Ignition Control—Fuel Feed—Fuel Gauge—Maximum Engine Speed—Gear Changing—Controllable Shock Dampers—Battery Charging—Lighting Control and Switch—Accessories—Radiator Thermostat and Thermometer—Coolant Level in Radiator—Frost—Fitting of Snow Chains.	
CHAPTER II.—PERIODIC LUBRICATION AND ATTENTION	27
Lubricants Recommended—Capacities—Points for Regular Attention according to Use of Car—Adjusting Valve Rocker Clearances.	
CHAPTER III.—CENTRALISED CHASSIS LUBRICATION	35
General—Foot-operated Oil Pump—Drip Plugs.	
CHAPTER IV.—Engine Lubrication System	37
Filling the System—Oil Pump—Oil Filter—Crankshaft and Connecting Rods—Relief Valves—Valve Rockers, Push Rods and Tappets—Camshaft—Oil Sump—Oil Level Indicator—Oil Pressure.	
CHAPTER V.—THE FUEL SYSTEM	43
The Fuel System—Fuel Pumps—Faulty Operation of Pumps—Fuel Tank—Fuel Filters—Fuel Gauge—The Carburetters (Action)—Hand Starting Control—Adjustment of Carburetters—Automatic Air Valve—Throttle Control—Mixture Control and Slow Running—Float Feed Mechanisms—Further Dismantling of Carburetter—Air Cleaner and Silencer—Warning.	
CHAPTER VI.—THE BRAKING SYSTEM	53
General Description—Possible Variations—Adjustments—Adjustment of Hand Brake—Adjustment of Servo—Lubrication—Bleeding the Hydraulic System—Hydraulic Master Cylinder.	
CHAPTER VII.—CLUTCH, GEARBOX, PROPELLER SHAFT AND REAR	
AXLE	59
The Clutch—Clutch Pedal Mechanism—Clutch Pedal Adjustment—Gearbox—Universal Joints—Rear Axle.	
CHAPTER VIII.—STEERING, SHOCK DAMPERS, ROAD SPRINGS, WHEELS AND TYRES	65
Steering Box and Column—Steering—Front Suspension—Warning, Front Suspension Springs—Steering Arms and Joints—Front Stabiliser—Rear Hydraulic Shock Dampers—Rear Road Springs—Wheels—Wheel Discs—Lubrication of Wheel Bearings—Tyres—The Jacking System—Wheel Changing—Fitting and Removing Tyres—Inflation of Tyres—Balancing Road Wheels.	

#### Contents—continued.

PAGE
CHAPTER IX.—Engine Cooling System 77
Coolant—Coolant Pump and Fan—Fan Belt Adjustment—Overheating—Radiator Thermostat—Radiator Mounting—Coolant Level—Frost and Anti-freeze Mixtures—Car Heater.
CHAPTER X.—THE ELECTRICAL SYSTEM 83
General—Dynamo—Fuse Box—Fuse Data—Output Regulator and Cut-out—Switchbox—Ammeter—Battery and Connections— Ignition — Ignition Coil — Ignition Timing — Firing Order of Cylinders—Sparking Plugs—Starter Motor—Starter Motor Switch —Use of Starter Motor—Electric Fuel Pumps and Gauge—Electric
Horns—De-mister and De-froster—Electrical Fault Location— Recommended Lamp Bulbs—Headlamps—Replacing a Headlamp Bulb—Aligning the Headlamps—Side Lamps—Radio.
CHAPTER XI.—THE BODY AND COACHWORK 105
General—Windscreen Washing—Washing and Polishing—Doors— Seat Slides—Upholstery and Carpets—Sliding Roof—Luggage and Spare Wheel Compartments—Tools.
CHAPTER XII.—STORAGE AND RECOMMISSIONING OF CARS III
CHAPTER XIII.—BENTLEY SCHOOL OF INSTRUCTION 113

## **INDEX**

					P	AGE
Acid in Battery, Inspection of			 		29,	88
Adjustment of Contact Breakers		,	 			91
Adjustment of Carburetter	'		 			47
Adjustment, Clutch Pedal			 			59
Adjustment of Fan Belt			 			78
Adjustment of Brakes			 		30,	55
Adjustment of Hand Brake			 			56
Adjustment of Ignition Plugs			 		31,	93
Adjustment of Servo Motor			 			57
Adjustment of Valve Rockers			 			31
Aerial, Operation of			 		I	03
Air Silencer and Cleaner			 		32,	50
Aligning the Headlamps			 • • • • • • • • •		1	oi Oi
Ammeter			 			88
Anti-Freeze Mixtures			 		29,	80
Automatic Air Valve, Carburetter			 		30.	47
Axle, Lubrication of Rear			 	27,	30, 33,	53
Axle, Oil Capacity of Rear			 			28
Battery, Care of			 			89
Battery, Charging			 		24,	89
Battery, Topping up			 		29,	
Belt, Adjustment of Fan			 			78
Body, Washing and Polishing			 			07
Brakes, Adjustment of			 		30,	
Brake, Adjustment of Hand			 			56
Brushes, Dynamo			 		33,	
Brushes, Motor			 			93
						- 0

							P	AGE
Camshaft								40
Carburetter, Action of								46
Carburetter, Adjustment								47
Carburetter, Automatic Air V	Valve					;	30,	47
Carburetter, Float Feed Mec	hanism							50
Carburetter, Hand Starting (	Control				•••	21,	22,	47
Carburetter, Needle Valve								49
Centralised Chassis Lubrication	on							35
Chains on Road Wheels								25
Changing Gear								23
Changing a Wheel					•••			71
Chassis, Leading Particulars	of							17
Chassis Lubrication, Centralis	sed							35
Clutch								59
Clutch Pedal Adjustment								59
Clutch Spigot Bearing								59
Coil, Ignition					!			91
Cold Weather, Water in Coo	ling System				,		25,	80
Condenser of Contact Breake								91
Connecting Rods								38
Contact Breaker								91
Control Mechanism, Lubricat								31
Coolant Level in Radiator			1,6-1			25,	29.	
Coolant Mixture								80
Coolant Temperature								
								38
								85
Cylinders, Firing Order of				,	/··			93
Dampers, Hydraulic Shock					23,	-		
Dampers, Governor for Hydr					23,			67
De-froster and De-mister, Op								96
Distributor, Ignition								
_								91
Draining Engine Crankcase		•••					3, 1	
Draining Cooling System .		•••		•••			0.5	31
				•••			25,	
Drip Plugs		•••						36
Dynamo				•••				
			•••	•••	• • •		33,	
		•••	••					84
Dynamo Output Regulator								85

							P	AGE
Earth Connection of Batter	у				 			83
Electric Fuel Gauge					 	22,	46,	95
Electric Horns					 			95
Electric Lighting, Starting	and Ig	nition	System	n	 			83
Electrical Fault Location					 			97
Electrolyte, Inspection of					 		29,	88
Engine Cooling System, Cap	pacity				 			28
Engine Lubrication System.			• • •		 			37
Engine, Maximum Speed					 			22
Engine, Quantity of Oil in					 			28
Engine, Starting the					 			21
Exhaust Fumes in Garage,	Dange	er of			 			51
Fan, Engine Cooling					 			77
Fan Belt Adjustment					 			78
Filler Plug, Gearbox					 	30,	33,	60
Filling Rear Axle Casing					 27,			
Filter, Engine Oil	'				 		30,	
Filter, Cleaning Fuel		,			 		33,	
Firing Order of Cylinders					 			93
Float Feed Mechanism, Car	burette	er			 			50
D . D .: 1					 		25,	
Fuel, Failure of Supply of					 		0.	44
Fuel Feed System					 		22,	
Fuel Gauge					 		46,	
Fuel Pumps					 		44,	
Fuel Filters					 		33,	
Fuel Tank					 		28,	
Fuse Box					 			85
Fuse Data					 			86
Fuse Wire					 			85
Fuses, Failure of					 			97
Fuses, Replacing								85
Fuses, Spare					 			85
Gearbox					 7, 28,		22	
Gearbox, Oil for	•••						33,	
Gearbox, Oil Capacity of					 	•••		27 28
C					 	•••		
C1 1: C !: C :					 	•••		23
		 book I			 		25,	
Greeces Recommended					 			67
Greases, Recommended					 			27

							PAGE
Hand Starting Control							21
Headlamps	• • •						100
Headlamps, Alignment				•••			IOI
Headlamps, Replacing Bulb		•••					100
Heater, Car					•••		81
Horns, Electric				••••		•••	95
Hubs, Wheel							69
Hydraulic Brakes, Bleeding		•••				•••	57
Hydraulic Shock Dampers					23,	31, 6	56, 67
Hydraulic Master Cylinder				•••		3	33, 58
Ignition, Battery	•••				•••	• • • •	91
Ignition Coil					•••		91
Ignition Control	• • •						22
Ignition Plugs		• • • •				3	31, 93
Ignition Switch						21, 2	24, 87
Ignition, Timing							92
Instruction Class, Bentley							113
Jack, Portable Wheel							70
Joints, Universal				'		3	31, 62
Lamp Bulbs, Recommended							98
Lamps, Head							100
Lighting, Control							24, 87
Lubricating Oils and Greases Rec	comme	nded					27
Lubrication, Centralised Chassis							35
Lubrication, Engine							
Lubrication, Gearbox			***	•••			
Inbrigation Desiration							28, 60
Inbrigation Boom A-1-						•••	27
		•••	•••		27,	30 3	33, 63
Lubrication, Wheel Bearings		•••		•••	•••	•••	70
Luggage and Spare Wheel		*,* *	*,**	•••	•••	•••	109
Maximum Engine Speed				•••	•••	•••	22
Missing Fire			•••			•••	97
Mixture Control				•••	•••	2	21, 22
Motor, Servo							57
Motor, Starter						3	31, 93
Oil in Engine, Quantity of							28
Oil in Gearbox and Back Axle							28
Oil Level Indicator, Engine							41

					Pagi
Oil Pressure			 		41
Oil Relief Valve			 		39
Oil Relief Valve, Dismantling			 		39
Oil Pump, Chassis			 		36
Oil System, Engine			 		37
Oils Recommended for Bentley O	Cars		 		27
Output Regulator, Dynamo			 		85
Overheating			 	• • • • •	78
Pivots, Steering			 		67
Plugs, Standard Settings for			 		31, 93
Propeller Shaft Sliding Joint			 		31, 62
Pump, Engine Oil			 		38
Pumps, Fuel			 		44, 95
Pump, Coolant			 		77
Radiator, Draining			 		25, 80
Radiator Mounting			 		79
Radiator Thermostat			 		25, 78
Radiator, Coolant Level in			 		25, 29, 79
Radio		•	 		102
Rear Axle, Quantity of Oil			 		28
Replacing a Headlamp Bulb			 		100
Road Springs, Lubrication of			 		35, 69
Road Wheels, Balancing			 		73
Rocker Shaft			 		40
Rockers, Valve			 		40
Seat Slides			 		0
Service Facilities			 		16
Servo Motor, Action of			 		53
Servo Motor Adjustment of			 		
Shock Dampers Hydraulic			 	23	31, 66, 67
Side Lamps			 		101
Slow Running			 		49
Sliding Roof			 		109
Snow, Use of Chains for Driving	on		 		25
Spare Wheel Compartment			 		109
Spark Gaps, Standard			 		31, 93
Spring Shackles, Lubrication of			 		35, 69
Springs, Road			 		35, 69
Stabiliser, Front			 		67
Starter Motor			 		31, 93