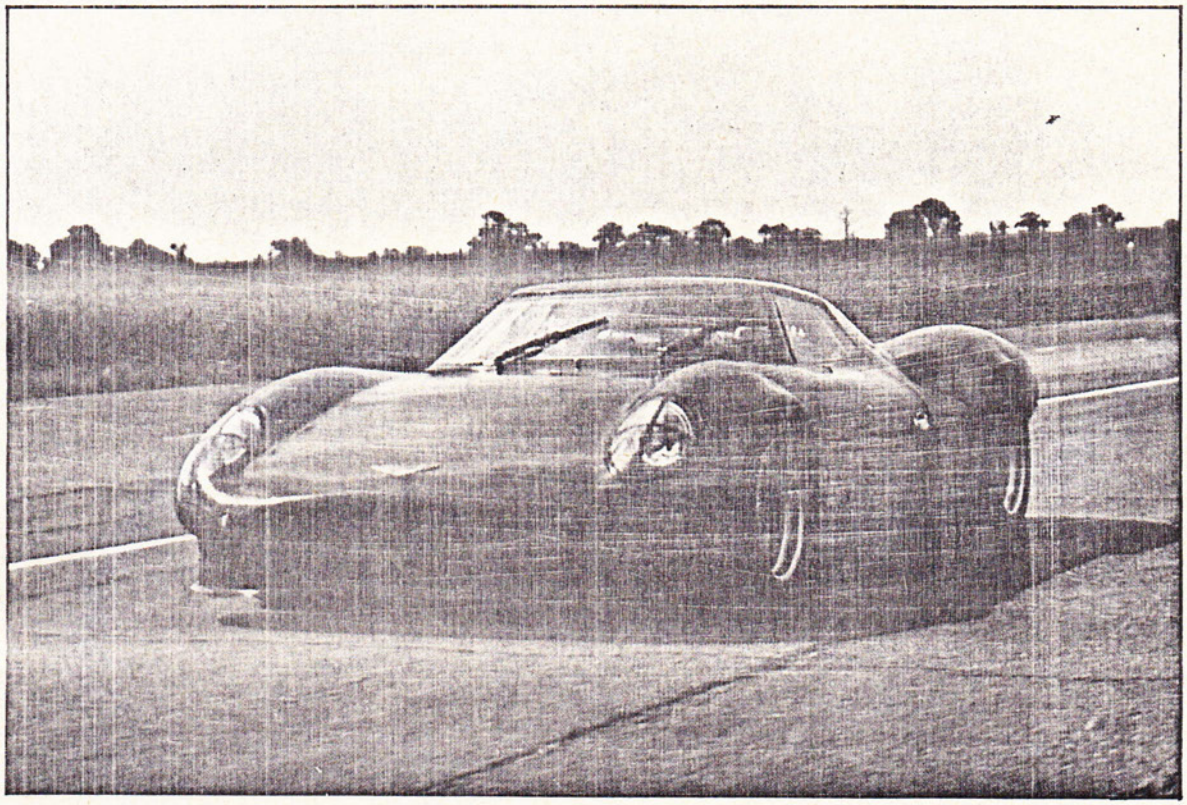
OWNERS HANDBOOK

Invicta XJ13. mid engine sports car.



B.L.E. Automotive
780 KINGSBURY ROAD, BIRMINGHAM B24 9PS
Tel: 021-384 8565 - Telex: 337682 EXMACH - Fax No: 021-350 6164

IMPORTANT

This high performance car enjoys the benefits of being able to be serviced by JAGUAR specialists anywhere. We hope the contents of this handbook will be sufficient to overcome any problem which might arise. However, in the case of difficulty please contact B.L.E. Automotive, or if the query concerns the engine please contact Mr Ron Beaty, Managing Director of The Forward Engineering Company Ltd, 780 Kingsbury Road, Erdington, Birmingham, B24 9PS. Tel: 021 384 6000.

Mr Beaty is also President of The Jaguar Specialists Association.

Attached is a list of UK Jaguar specialists. We can put you in touch with Jaguar Specialists throughout the world if appropriate.

Remember - it is a development vehicle of a high performance nature and requires proper attention to be paid to the matters described in the handbook.

QUICK CHECKS

DAILY

1) Engine Oil Level - top up with Duckhams 10/40

2) Radiator coolant level

WEEKLY

1) Battery water level

2) Tyre pressures - front 28 p.s.i., rear 30 p.s.i.
(for speeds above 130 mph - front 30 p.s.i., rear 32 p.s.i)

3) Brake fluid level - topup with A.P. 550 Racing fluid.

EVERY 5000 MILES

Service as per instructions later in handbook.

STARTING PROCEDURE

- **Prior to starting** - ensure coolant and engine oil levels are correct **and manual fan switch 'S' is on**

- **When engine is cold** - depress throttle twice and switch to start with throttle slightly open. Gently squeeze throttle till engine runs cleanly.

- **When engine is warm** - switch to start and gently open throttle.

IMPORTANT NOTICE - as with all performance cars it is recommended that the habit is formed of reading the oil pressure, oil temperature and water temperature gauges frequently, as is safe and convenient. Any abnormal reading should be investigated immediately.

ENJOY THE HIGH PERFORMANCE HANDLING QUALITIES OF THIS SUPERCAR - but do so in safety.

GENERAL DATA

ENGINE - JAGUAR 5.3 litre V12 bored to 5.7 capacity and tuned by FORWARD ENGINEERING.

Carburettors - Twin choke Webers type 40 IDF

No. of cylinders	12
Bore	93 mm diameter
Stroke	70 mm
Cubic capacity	5700 cc
Compression ratio	10.75:1
Spark plug type	Champion N10Y/Unipart 1GSP151
(for prolonged 130 mph usage use Champion N7Y or Unipart GSP 181)	
Spark plug gap	0.025"
Ignition timing at 3500 rpm	34 B.T.D.C
Valve clearance (cold) inlet	0.012", exhaust - 0.014"
Valve seat angle	45 degrees
Firing order -	
(A right bank) (B left bank)	1A,6B,5A,2B,3A,4B,6A,1B,2A,5B,4A,3B.
Torque tightening figures -	
Main bearings (1/2" studs)	8.7 kg.m (63 lb.ft)
(3/8" studs)	3.8 kg.m (28 lb.ft)
Big end bearing capnuts	5.5 kg.m (40 lb.ft)
Cylinder head (7/16" studs)	7.2 kg.m (52 lb.ft)
(3/8" studs)	3.7 kg.m (27.5 lb.ft)
Flywheel	9.1 kg.m (66 lb.ft)
Camshaft bearings	1.24 kg.m (9 lb.ft)

GEARBOX - ZF 5DS 25 - see seperate catalogue for full specification.

FRONT SUSPENSION AND STEERING -

Jaguar XJ front suspension assembly. Spax dampers.
Castor angle
Camber angle
Front wheel alignment

REAR SUSPENSION

Invicta double wishbone. Spax dampers type M73A.
Camber angle

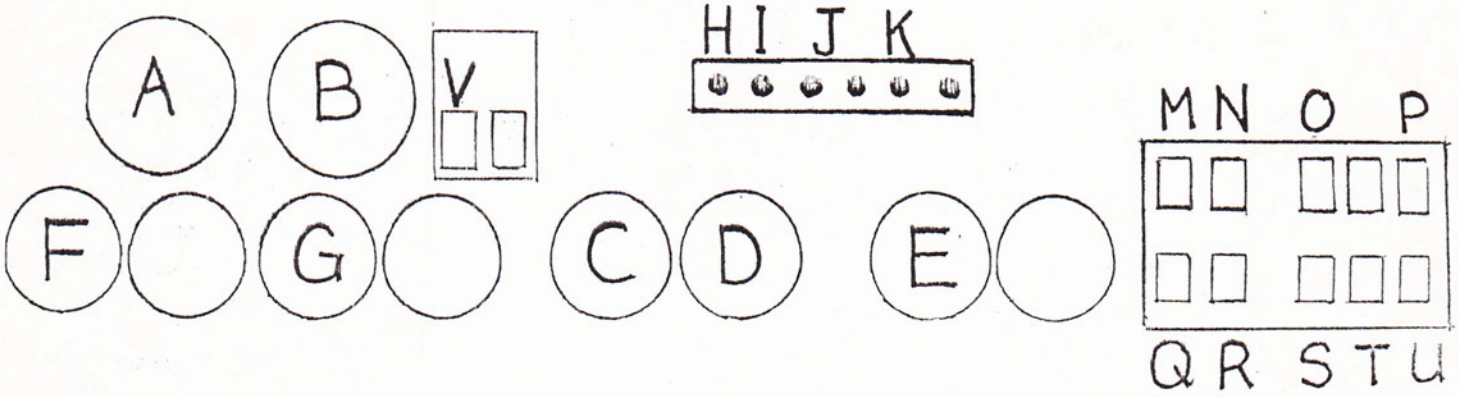
TYRES

Michelin high performance TRX.

Pressures :	up to 130 mph	28 p.s.i. front	30 p.s.i. rear
	above 130 mph	30 p.s.i. front	32 p.s.i. rear

CAPACITIES

Engine oil	19 pints -	10.7 litres
Gearbox	6.2 pints -	3.5 litres
Cooling system		
Petrol tank		



INSTRUMENTS and CONTROLS

A - **TACHOMETER** - indicates engine speed. Maximum recommended engine speed is 6500 rpm representing a road speed of approximately 195mph in 5th gear.

B - **SPEEDOMETER**

C - **OIL PRESSURE GAUGE**- under normal operating conditions should read 3-6 bars Investigate immediately should there be a considerable fall in pressure.

D - **OIL TEMPERATURE GAUGE** - should normally read between 80 deg and 120 deg.

E - **WATER TEMPERATURE GAUGE** - should normally read between 80 deg and 95 deg. Should a substantially higher temperature occur the engine should be switched off and after cooling down the water levels should be checked. IT IS HIGHLY RECOMMENDED THAT THE TWIN KENLOWE FANS SHOULD BE LEFT ON AT ALL TIMES OTHER THAN IN VERY COLD CONDITIONS. This is controlled by the Manual Heater Switch -S-.

F - **ELECTRIC CLOCK**

G - **FUEL LEVEL GAUGE**

H - **BRAKE WARNING LIGHT** - should be illuminated whenever handbrake is on. If it does not extinguish when handbrake is released it is a warning that brake fluid reservoirs require topping up. If it does not illuminate when handbrake is engaged a new bulb is required.

I - **IGNITION WARNING LIGHT** - should extinguish when engine is running at normal speeds - if not, investigate.

J - **FLASHING INDICATOR WARNING LIGHTS**

K - **HEADLAMP WARNING LIGHT** - blue light comes on when headlamps are switched on and extinguished if footswitch is used to engage 'dipped' beam.

L - **COMBINED INDICATOR SWITCH and HEADLAMP FLASH UNIT** - move lever towards you to flash main beam. Move lever up or down to indicate to left or right - IT IS NOT A SELF CANCELLING UNIT.

M - **LIGHTS** - two position switch for side lights/main beam.

N - **INSTRUMENTS PANEL LIGHT**

O & P - **WINDSCREEN WASHER AND WIPER** - the wiper blades are activated by 'O' a 2 position switch for 2 speed control. The screen washer is activated by 'P'. The reservoir is located under the front bonnet.

Q - **REAR FOG LIGHTS**

R - **HAZARD WARNING LIGHT**

S - **RADIATOR FANS** - RECOMMEMDED TO BE LEFT ON IN ALL BUT THE COLDEST CONDITIONS.

T - **FUEL CUT OUT** - marked 'Fuel reserve'- it is not a reserve but a fuel pump cut out switch to be used only in an emergency.

U - **HEATED WINDSCREEN** - for demisting

V - **INTERIOR VENTILATOR FANS SWITCH**

IMPORTANT - please ignore the remaining instruments which were originally installed for future developments.

ACCELERATOR PEDAL - operates a sealed cable for smooth operation and long service.

BRAKE PEDAL - operates the vacuum servo assisted ventilated disc brakes. Calipers are Jaguar XJ modified and accept standard brake pads type (front) and (rear)

CLUTCH PEDAL - operates the clutch.

NB There is no seat adjustment but drivers can set a pedal position to suit themselves through the adjustable pedal box unit, located under the front bonnet.

HANDBRAKE LEVER - located to right of driver. To apply brake pull lever upward. To release press in the knob and lower handbrake lever.

BONNET LOCKS - are located on either side below the door hinges. Pull out the red knobs and twist to hold out. Lift bonnet and place support stay in position.
To close - lower bonnet onto the locking bolts, pull out and twist back the knobs, allow bonnet to lower into final position and push red knobs home.

SPARE WHEEL, JACKING EQUIPMENT and TOOLS are located under the front bonnet. The spare wheel is a 'space saver' type and should not be used above 40 mph.

FROST PRECAUTIONS - IMPORTANT

The engine should be run on 90 - 100% antifreeze at all times - WINTER and SUMMER.

SERVICE RECOMMENDATIONS

We recommend a full service check every 5,000 miles.

A - Passenger compartment checks :-
1) Handbrake operation
2) Warning lights functioning
3) Light switches and lights functioning
4) All other instruments and controls functioning

B - Under front bonnet checks :-
1) Battery levels
2) Screen washer - clean jets and refill reservoir
3) Check spare wheel inflated (35 p.s.i)
4) Check brake & clutch fluid levels.

C - Under rear bonnet checks :-
1) Engine oil - drain & refill
(drain and refill every 3,000 miles if used extensively in town or extensively at very high speeds)
2) Spark plugs change at every 2nd service

3) Check all belt drives
4) Drain and refill Gearbox - also at 3,000 miles if driven extensively at high speed

NOTE: Most servicing methods are fully described in the Jaguar XJ12 handbook. If in doubt - consult B.L.E. or Forward Engineering.

NOTE: Weber carburretor settings should be made by a tuning specialist.

Drain and refill ZF gearbox (see seperate information)
Grease gear selection linkages
Grease lower hubs

D - Other checks :-
1) Oil door locks, hinges, bonnet bolts
2) Check tyres for wear and damage
3) Check all wheel nuts for proper fastening
4) Check front wheel alignment
5) Check condition windscreen wiper blade and renew if necessary
6) Lubricate all grease nipples

GENERALLY:- It is good practice to any high performance vehicle to check all joints, mountings, hoseclips etc. at every service and prior to any high speed driving.

RECOMMENDED LUBRICANTS

ENGINE OIL - Duckhams 10/40

GEARBOX - See ZF information

ALL GREASE POINTS - Duckhams LB10

RECOMMENDED HYDRAULIC FLUID FOR BRAKES & CLUTCH

- A.P. 550 RACING FLUID -

JACKING POINTS - are at the front and back of the substantial sills.

THE JACK and WHEELBRACE - are stored with the spare wheel.

THE TOOL KIT - is located behind the drivers seat.

FILLING PROCEDURE FOR COOLANT SYSTEM

Fill with 100% Antifreeze through header tank, with plug removed from top of radiator. Replace plug when radiator is full. Continue to fill header tank until full - allow time for air to escape.

Run engine at idling speeds for 5 minutes - with header tank open, continue to fill system until all air is removed. This is indicated by the flow of water from the B bank air bleed, which is visible through the filler neck. Replace header tank cap.

When engine has cooled remove plug from top of radiator, remove header tank cap and allow water to fill radiator completely and expel remaining air. Replace plug immediately and finally top up header tank.

This process is required if air is allowed into the system at anytime so it is much easier to keep the coolant level topped right up as recommended.