

PUMP TESTING



MANUFACTURED

by

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PUMP TESTING

If the efficiency of a particular pump is in doubt, it is much more informative and satisfactory to check over its performance on the special Pump Test Stand, than to endeavour to obtain comprehensive information with the pump mounted on the car itself.

The test stand, originally designed for earlier type S.U. pumps, has now been extended in range for use with all pumps produced. This has been achieved by the provision of adaptor sets which simulate the specified performance conditions. Type HP pump adaptors incorporate a special restrictor on delivery which reproduces the high pressure test requirement. The output hole size varies with the type of pump being tested (see diagram).

(1) Preparation

Mount the pump on the test stand using the adaptor set specified (see key to diagram). Connect the feed and earth terminals to the test battery.

Check the contact point settings as described in the appropriate leaflet.

When the pump is mounted on the test stand, it is preferable to use a cut away moulded end cover, as this prevents the hinge pin from falling out, and at the same time makes it possible to observe the action of the contact breaker, or check for excessive sparking.

Use paraffin in the tank rather than petrol, as it will lessen the fire risk. Ensure an adequate supply.

Note. The AUF 400 range and Dual HP pumps (Fig. 4) should be tested with both sides working simultaneously, whereas the AUF 500 range pumps (Fig. 5) which comprise two separate pumping units must have each side tested independently.

Dual Type L pumps may be tested with the equipment shown in Fig. 4 and AUF Type 200 L with the equipment shown in Fig. 6 after removing the pressure head simulator and connecting the outlet pipe direct to the transfer block, using a length of plastic tubing to extend the inlet pipe in both cases.

(2) Priming and delivery check

When switched on, the pump should prime, from dry, within 10-15 seconds—the liquid should then rise in the glass tube until it flows over the top of the pipe, in which is drilled a side hole. If the output is **not** up to specification, the side hole will be able to carry off all the liquid pumped, and the paraffin will not flow over the top. This constitutes a form of flowmeter which establishes in a simple manner whether the pump is giving a sufficient output or not.

(3) Air leak check

When the pump is first started, air bubbles will be mixed with the liquid discharged from the pipe projecting downwards into the flowmeter, but these bubbles should cease after the pump has been running for a minute or so. If they do not, an air leak is indicated either in the pump itself or the connecting unions, and these must be rectified.

(4) Valve seat check

Let the pump run for about ten minutes and then test as follows:

With the delivery tap turned completely off, the pump should stand without repeating for a minimum of 20 seconds. If it repeats, this indicates that the inlet valve is not operating correctly. On earlier type pumps with metal disc valves this may be remedied by removing the discs and rubbing down the smooth face using fine lapping paste on a flat surface, or by dressing the valve seat. On pumps fitted with Melinex valves, malfunction of the inlet valve must be investigated.

(5) Maximum delivery check

On AUF 300, AUF 400, Dual L, and Dual HP pumps, in addition to the delivery check carried out in para. (2), it is necessary to time the delivery as follows:

AUF 300	..	..	..	..	1 pint in 30 seconds
AUF 400	..	..	..	..	1 pint in 15 seconds
Dual L	..	..	..	..	1 pint in 22 seconds
Dual HP	..	..	..	..	1 pint in 27 seconds

(6) Minimum delivery check

Check with the tap turned on only slightly. Also check that, if the tip of the spring blade is pressed gradually inwards to reduce the stroke, the pump continues to work with an increasing frequency until it eventually stops because there is no gap left between the points.

(7) Reduced voltage check

With the tap turned full on, test the pump on 9.5 volts if it is a 12-volt pump, or on 5 volts if it is a 6-volt pump, and it should work satisfactorily under these conditions although probably with a reduced output.

(8) Sparking check

Check that excessive sparking does not take place between the contact points—some moderate degree is permissible, but there is a special 'leak' wire incorporated in the coil winding, designed to keep this down to a minimum—if excessive sparking occurs it is probable that this comparatively delicate wire has fractured, and on these rare occasions the complete coil unit must be replaced.

PUMP TEST SCHEDULE

Pump Type	Voltage	Test at Volts.	Starting Voltage Wet. Min.	Minimum Flow gal./hr.	At Suction Head	And Delivery Head	Bore of Pipe	Cut-off Pressure lb./sq. in.	Max. Safe Working Voltage
L	6	6.5	4.5	8	42 in.	6 in.	$\frac{1}{8}$ in.	1.5 max.	9
HP	6	6.5	5	7	30 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	9
L	12	13.5	8	8	42 in.	6 in.	$\frac{1}{8}$ in.	1.5 max.	18
HP	12	13.5	9.5	7	30 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	18
LCS	12	13.5	9.5	12.5	30 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	18
DUAL L	12	13.5	8	20	42 in.	6 in.	$\frac{1}{8}$ in.	1.5 max.	18
DUAL HP	12	13.5	9.5	16	30 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	18
LCS	24	26	19	12.5	30 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	30
HP	24	26	19	7	30 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	30
SP	12	13.5	9.5	7	18 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	18
AUF 200	12	13.5	9.5	7	18 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	18
AUF 300	12	13.5	9.5	15	18 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	18
AUF 400	12	13.5	9.5	30	18 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	18
AUF 500	12	13.5	9.5	12.5	18 in.	48 in.	$\frac{1}{8}$ in.	2 to 3.8	18
AUF 200L	12	13.5	8	8	42 in.	6 in.	$\frac{1}{8}$ in.	1.5 max.	18

Minimum interval between pulsations with outlet blanked off = 20 seconds

TEST STAND ADAPTORS

LOW PRESSURE (L P)

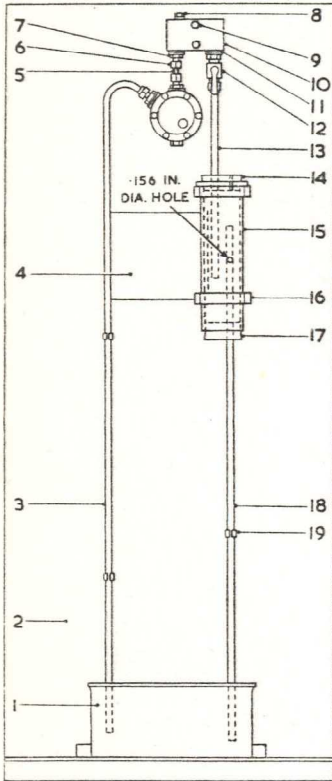


FIG. 1

HIGH PRESSURE (H P)

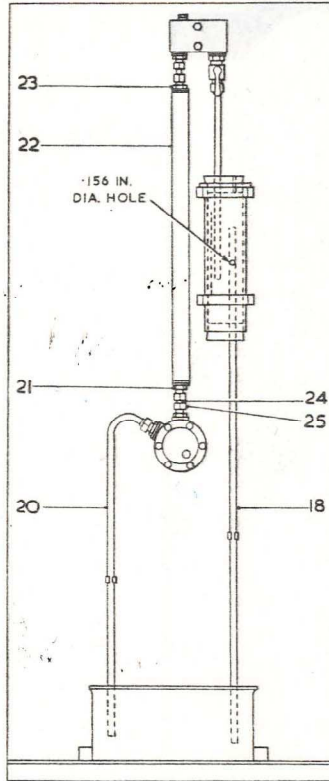


FIG. 2

AUF 300 RANGE & LCS (H P)

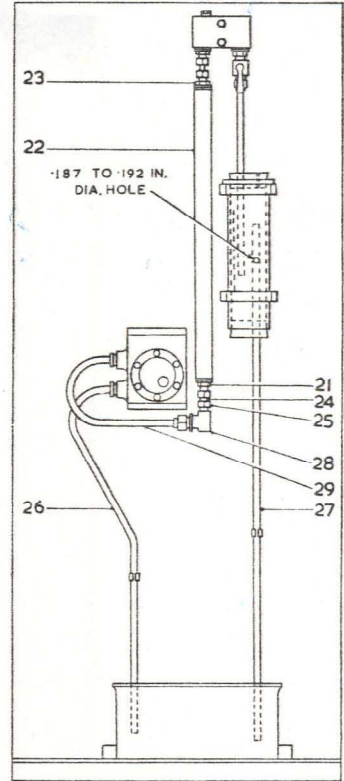


FIG. 3

AUF 400 RANGE & DUAL HP & LP

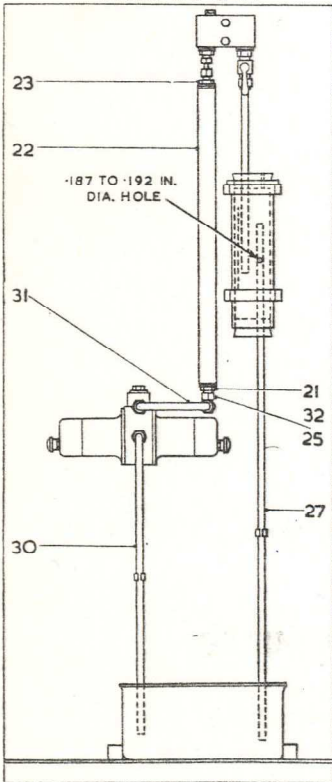


FIG. 4

AUF 500 RANGE DOUBLE ENTRY (H P)

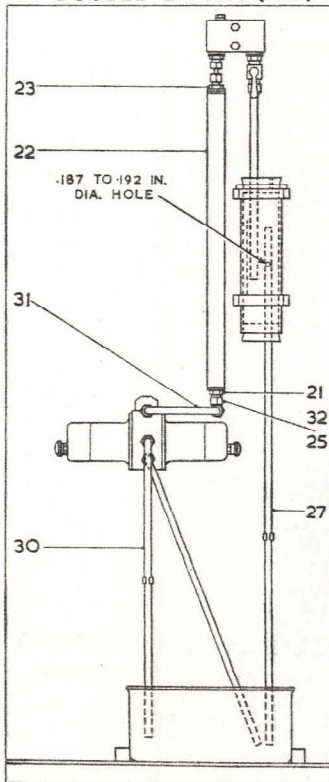


FIG. 5

S P & AUF 200 RANGE (HP&L)

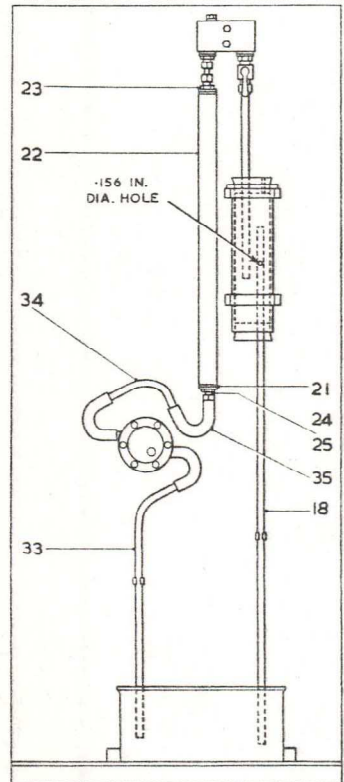


FIG. 6

KEY TO DIAGRAM

Parts required for basic test stand and for LP pumps (Fig. 1):

Item No.	Part No.	Description	Item No.	Part No.	Description
1	EXP 102-2	Tank	10	EXP 102-9	Block
2	EXP 102-1	Test stand	11	AUC 3521	Washer
3	EXP 102-8	Suction pipe	12	EXP 102-16	Tap
	EXP 102-19	Nipple	13	EXP 102-7	Outlet pipe
4	EXP 102-20	Nut		EXP 102-19	Nipple
	EXP 102-41	Plate		EXP 102-20	Nut
	EXP 102-37	Screw	14	EXP 102-15A	Bung
	AUC 2673	Nut	15	EXP 102-6	Glass jar
5	EXP 102-13	Nipple	16	EXP 102-3	Clip
6	AUA 1487	Nut		EXP 102-37	Screw 4 B.A.
	AUA 1486	Olive		AUC 2673	Nut 4 B.A.
7	AUC 1290	Union	17	EXP 102-15	Bung
8	AUC 1453	Screw 2 B.A.	18	EXP 102-5	Tube
	AUC 1863	Washer	19	EXP 102-4	Clip
9	EXP 102-35	Bolt		EXP 102-38	Washer
	EXP 102-36	Nut		EXP 102-39	Nut 6 B.A.
				EXP 102-40	Screw

Additional parts required for HP pumps (Fig. 2):

Item No.	Part No.	Description	Item No.	Part No.	Description
18	EXP 102-5	Tube	22	EXP 102-27	Tube
20	EXP 102-34	Tube		EXP 102-28	Weight
	EXP 102-19	Nipple		EXP 102-29	Needle
	EXP 102-20	Nut		AUC 3127	Spring
21	EXP 102-31	Union	23	EXP 102-26	Union
	EXP 102-30	Bush		AUC 1542	Washer
	AUC 1542	Washer	24	EXP 102-33	Nipple
			25	AUA 1487	Nut (2 off)
				AUA 1486	Olive

Additional parts required for LCS and AUF 300 pumps (Fig. 3):

Item No.	Part No.	Description	Item No.	Part No.	Description
21	EXP 102-31	Union	25	AUA 1487	Nut (2 off)
	EXP 102-30	Bush		AUA 1486	Olive
	AUC 1542	Washer	26	EXP 102-46	Tube
22	EXP 102-27	Tube		AUA 4649	Nipple
	EXP 102-28	Weight		AUA 4650	Nut
	EXP 102-29	Needle	27	EXP 102-25	Tube
	AUC 3127	Spring	28	EXP 102-25	Elbow
23	EXP 102-26	Union	29	EXP 102-45	Tube
	AUC 1542	Washer		EXP 102-23	Nut
24	EXP 102-33	Nipple		AUA 4649	Nipple (2 off)
				AUA 4650	Sleeve nut

Additional parts required for Dual HP and LP and AUF 400 and 500 range pumps (Figs. 4 and 5):

Item No.	Part No.	Description	Item No.	Part No.	Description
21	EXP 102-31	Union	27	EXP 102-25	Tube
	EXP 102-30	Bush	30	EXP 102-47	Tube
	AUC 1542	Washer		EXP 102-19	Nipple
22	EXP 102-27	Tube		EXP 102-20	Nut
	EXP 102-28	Weight		EXP 102-50	Pipe
	EXP 102-29	Needle	31	EXP 102-20	Nut (2 off)
	AUC 3127	Spring		EXP 102-19	Nipple (2 off)
23	EXP 102-26	Union		AUA 1479	Adaptor
	AUC 1542	Washer	32		
25	AUA 1486	Olive			
	AUA 1487	Nut			

Additional parts required for Type SP and AUF 200 HP and L pumps (Fig. 6):

Item No.	Part No.	Description	Item No.	Part No.	Description
18	EXP 102-5	Tube	23	EXP 102-26	Union
21	EXP 102-31	Union		AUC 1542	Washer
	EXP 102-30	Bush	24	EXP 102-33	Nipple
	AUC 1542	Washer	25	AUA 1487	Nut
22	EXP 102-27	Tube	33	EXP 102-49	Pipe
	EXP 102-28	Weight	34	EXP 102-48	Pipe
	EXP 102-29	Needle	35	21G 2019 or AUA 1953	Elbow (3 off)
	AUC 3127	Spring			