

RESTRICTED

THE INFORMATION GIVEN IN THIS DOCUMENT IS NOT TO BE COMMUNICATED EITHER DIRECTLY OR INDIRECTLY TO THE PRESS OR TO ANY PERSON NOT AUTHORISED TO RECEIVE IT.

## USER HAND BOOK

*Relay Power driven 1A*  
COMPRESSOR ~~AIR FOR FLOATS~~ ENGINE DRIVEN *1A*  
CAT. PART NO.  
*220 m<sup>3</sup>/h at 9.5 kPa at 2300 rev/min*  
AND  
*63/63/0-000002*  
HOSE COMPLETE WITH CONNECTORS END *1A*  
CAT. PART NO.

(1971)

CHIEF INSPECTOR  
CIE  
DIGHI, PUNE 15.

RESTRICTED

## WARNING

1. Do not interfere with floater rod while unit is in operation.
2. Traces of oil in distributor sockets need not be bothered about.
3. Do not allow oil level in engine sump and blower gear box to go below the minimum level marks of dip-sticks.
4. If pressure gauge needle gets stuck up, run equipment on deflating for 5 minutes. (FOR DETAILS REFER PARA 10 OF APPENDIX ' E ').
5. Do not run the equipment if any metallic sound is heard from the blower.
6. In case of premature failures, inform director, R D E (E), Dighi Poona-15 with complete details.

# INDEX

## Chapter I: General Description

### Section 1—Introduction

	Para	Page
General	1	1
Purpose	2	1
Technical Data	3	1
	Section 2—Description	
General	4	1
Main Sub-Assemblies: Cradle	7	2
Blower	8	2
Prime mover	9	2
Change over mechanism	10	2
Distributor	11	2
Water Trap	12	3
Hoses	13	3
Pulleys	14	3
Packing case	15	3
Tool box	16	3

## Chapter II: Operation and Use

### Section 1—Preparation for use

General	17	4
Drill for setting up the equipment for inflation	19	4
Drill for setting up the equipment for deflation	20	4

Starting	24	7
Points to be checked when starting operation	25	7
Stopping	26	7
Performance	28	7

### Chapter III: Maintenance, Adjustment, Storage and Repairs

#### Section 1—Maintenance

General	29	8
Routine Maintenance	31	8
Periodical Maintenance	32	8

#### Section 2—Adjustments

Adjustments	35	9
-------------	----	---

#### Section 3—Storage

Storage for short duration	36	9
Storage for long duration	37	9

#### Section 4—Repairs

Repairs	38	9
---------	----	---

### Chapter IV: Transportation

General	40	10
---------	----	----

## APPENDICES

- Appendix 'A' : Technical Data
- Appendix 'B' : Preventive Maintenance Schedule.
- Appendix 'C' : List of spares.
- Appendix 'D' : List of Tools.
- Appendix 'E' : Fault Diagnosis Chart.
- Appendix 'F' : Lubrication Schedule.

## ILLUSTRATIONS

- Plate 1 : General View (Front).
- Plate 2 : General View (Rear).
- Plate 3 : General View (Top).
- Plate 4 : Hose complete with connectors end.
- Plate 5 : Mountings.
- Plate 6 : Change over Mechanism.
- Plate 7 : Distributor Assembly.
- Plate 8 : Trap Water.
- Plate 9 : Hose complete with connectors end (Exploded view).
- Plate 10 : Tool bag with tools.
- Plate 11 : Suction and compression—Change over Mechanism.
- Plate 12 : Direction of flow.

## Chapter 1: General Description

### Section 1—Introduction

#### General

This book covers the description, operation, instructions, maintenance, adjustments, repairs, storage and transportation details of compressor air for floats—Engine driven and hose complete with connectors end. The details of the prime-mover have not been included in this book. Separate operating instructions for the engine have been provided. Users are advised to study and make themselves fully conversant with the equipment and the contents of this book before attempting to use the equipment.

#### Purpose

2. This equipment has been developed to inflate and deflate the rubberised floats of KM bridges by connecting the hoses between the equipment and the floats. The compressor-air also helps removing moisture/water, if any, from the floats during deflation.

#### Technical Data

3. Relevant technical data for the equipment including prime-mover and hoses is given at Appendix 'A'.

### Section 2—Description

#### General

4. The compressor air for floats-engine driven consists of the followings:—

- (a) Cradle.
- (b) Blower.
- (c) Prime-mover.
- (d) Change-over mechanism.
- (e) Distributor with safety valve.
- (f) Water trap.
- (g) Tool box.

5. The blower and the prime-mover (Villiers Mk-25 HSP) are mounted on an aluminium-alloy cradle. The engine power is transmitted to the blower by two V-belts. The blower is connected to the distributor, having twelve sockets for inlet/outlet of air, through the change-over-mechanism. Distributor has been provided with a mechanical safety valve at one end. The safety valve ensures that the pressure inside the compartments of the rubberised float during inflation is not built up beyond 0.125 kg./cm.<sup>2</sup> (which is the working pressure for the floats). Suction line, from the change-over mechanism back to change-over mechanism, has been diverted via the water trap and comes into action at the time of deflating the float. Water-trap helps in separating moisture/water from the air and prevents it from entering into the blower. (Ref. Plates I, II and III).

- (b) Connectors end (metallic) bands.
- (c) Connectors end (metallic) bands.
- (d) Caps metallic.
- (e) Jubilee clips 31 mm.

#### Major sub-assemblies

7. **Cradle (Ref. Plate 5).**—It is a welded construction to form aluminium alloy box/ channel section super structure and base. Four carrying handles are provided for the transportation of the equipment over short distances. The cradle carries the blower, engine, change-over mechanism, water trap, distributor, fuel tank and the tool box. Two guards, one for engine exhaust and one for belts, have been provided for the safety of the operator.

8. **Blower.**—It is a positive displacement type Roots blower (GHP 635 model) mounted on the base of the cradle. Gear-box of the blower has been provided with an oil-level indicator and a dip-stick maximum & minimum marks for checking oil level pulley end cover of the blower with caps which are kept full with grease for lubrication of the bearings. Power to the blower from the prime-mover is transmitted through two standard V-belts. Tension of the belts can be adjusted by mounting the engine on the slotted holes of the base.

9. **Prime-mover.**—It is a villiers MK 25 HSP, air cooled, four stroke petrol engine, developing 3.00 HP at 3000 RPM. The engine is mounted on a base plate, welded to the base of the cradle, Resistoflex anti-vibration pads have been used under the engine for reduction of vibrations.

10. **Change-Over-Mechanism (Plate 6 and 11).**—It is an aluminium alloy casting arranged between the blower and the distributor pipe. It is divided in two compartments having four ports each. Each compartment has a slide valve which is operated by a lever or any handle provided on top for changing the position of slide valves and thereby the direction of air flow. The top of the change-over-mechanism is provided with two marking plates viz. BLOWING AND DEFLATING. When both the levers are positioned at BLOWING, air sucked from the atmosphere is directed to the distributor and when positioned at DEFLATING, air sucked from the float compartments is delivered to the atmosphere.

11. **Distributor (Plate 7).**—It is a L shaped aluminium pipe with twelve sockets for connecting the hoses. All the sockets have been provided with blind caps so that these can be locked when not in use. The distributor also carries a mechanical safety valve. The safety valve has been set up to blow-off at a pressure of 0.150 kg./cm<sup>2</sup>. (read on the pressure gauge). This is the pressure at which float compartments are inflated 0.125 kg./cm<sup>2</sup> pressure.

12. **Trap Water (Plate 8).**—It is a cylindrical aluminium container and fixed in between the blower and the distributor and operates only during deflation. An opening in the lower portion is covered with a rubber cap. It also has a floater with stem. The stem has been marked with a groove and painted with red fluorescent paint. The water trap separates water/moisture, from the air sucked during deflation and prevents from entering in to the blower. Water entering into the trap and collecting at the bottom raises the floater which can be observed by the movement of the floater rod. As soon as the groove on the floater rod is visible, lever No. 2 (bottom lever) of the change-over-mechanism is shifted to 'BLOWING', thereby disconnecting the blower from the float. The rubber cap covering the opening remains sealed but opens when the lever is shifted to BLOWING, thereby allowing the accumulated water inside the water-trap to flow-out.

13. **Hoses (Plate 4 and 9).**—A set of 12 hoses 10 metres in length with connectors and fitted to the hoses have been provided with each equipment. One end of each hose has straight (hollow) metallic connector and the other end has a bent connector with a pin side. These connectors have 'rings coupling' for leak-proof connections.

14. **Pulleys.**—The equipment has been supplied with four pulleys (including the two fitted), one for engine and three for the compressor. Pulley marked 'BLOWER A' fitted to the blower, is to be used for operating the equipment upto an altitude of 1500 metres (5000 ft.). With this pulley, belt Fenner A-35 is used. When the equipment is to be used between 1500 metres to 2100 metres (5000 and 7000 ft.) pulley marked 'BLOWER B' is used with belt Fenner A-35. For 2100-2400 metres (7000-8000 ft.), pulley marked 'BLOWER C' with belt Fenner A-36 is used.

15. **Packing Case.**—For transportation and storage of the equipment, a wooden packing case has been provided. It has four carrying handles, base and the cover. After securing the equipment to the base the cover is secured to the base with nuts and bolts. The equipment with the packing case can be carried by four men.

16. **Tool Box.**—It is a cylindrical aluminium alloy container having a lid and is securely mounted on the cradle. This carries the tool bag (Plate 10) with tools and one spare spark-plug for the engine.



17. The equipment can be operated by one man with a little training. For setting up of the equipment for operation-follow the procedure laid down in succeeding paragraphs.

18. Attend to the following prior to starting the equipment:—

- (a) Tighten all nuts and bolts. Also check pulley locking screws if required.
- (b) Top-up oil-level in engine sump. The equipment shall be level while checking the engine oil level.
- (c) Check blower gear box oil level from the dip-stick and ensure that oil is not below lower-mark.
- (d) Check that spark plug connections are tight.
- (e) Ensure that air-cleaner of the engine is free from any foreign matter and filled with engine oil to the level indicated on its bowl. This is more important if the equipment is operating under dusty conditions.
- (f) Lubricate governor linkages with few drops of engine oil.
- (g) Ensure that change-over-mechanism levers are functioning satisfactorily i.e. neither they are stuck up nor very freely moving.

#### Drill for Setting up the Equipment for Inflation

19. Follow the drill as under:—

- (a) Keep equipment on firm and level ground.
- (b) Open distributor socket caps.
- (c) Connect pin ends of the hoses to the distributor sockets and hollow ends to the float valves.
- (d) Fill fuel tank with fuel (MT-70).
- (e) Engage top lever (lever No. 1) of the change-over-mechanism on 'Deflating' and bottom lever (lever No. 2) on 'Blowing'.

#### Drill for setting up the Equipment for Deflation:

20. Follow the drill as under:—

- (a) Keep equipment on firm and level ground.
- (b) Open distributor socket caps.
- (c) Connect hollow ends of the hoses to the distributor and pin end to the float valves.
- (d) Fill fuel tank with fuel (MT-70).
- (e) Check floater-rod position. It should be in the bottom.
- (f) Engage both levers on 'Deflating'.

## Section 2—Operation, Use

## Starting up

21. Inflation.—Follow the procedure laid down as under:—

- (a) Set up the equipment as laid down in paras 18 and 19.
- (b) Start the engine as laid down in succeeding paragraphs:—
  - (i) **When the Engine is Cold.**—Open fuel tap and close the strangler fitted to the carburator. Wind the rope round the starting pulley in clockwise direction, as marked on the engine, with knotted end placed in the notch of the pulley and hold the other end in the hand. Give a brisk pull to rotate the engine, pulling the rope clear of the starting pulley. As soon as the engine starts, open the strangler gradually as the engine warms up.
  - (ii) **When the Engine is Hot.**—If the engine is still hot from recent run, procedure as stated in (i) above shall be followed except that the use of strangler is not required.
  - (iii) **Failure to Start.**—If the engine does not start after a reasonable number of attempts, cause for the trouble shall be found out by systematic check as per 'fault diagnosis chart' for the engine.
  - (iv) **Lack of Power.**—Refer 'Fault diagnosis chart' for the engine.
- (c) Shift lever No. 1 of change-over-mechanism to 'Blowing'. It will be observed that the pressure gauge will immediately show approximately 0.100 kg./m.<sup>2</sup>.
- (d) Continuous inflation till the pressure on the gauge touches the red mark at 0.150 kg./m.<sup>2</sup>. It takes approximately 7 minutes to inflate the float to the desired pressure. As soon as the pressure is built to 150 kg./cm.<sup>2</sup> the safety valve starts blowing and indicates the time when the operator should switch off the engine.

**Notes.**—A little quantity of oil may be noticed having accumulated in the sockets of the distributor. This oil is from the gear box of blower and need not be bothered about.

22. **Air Route (Inflation) (Plate 11 and 12).**—Initially when lever No. 1 is on 'Deflating' and lever No. 2 is on 'Blowing', the slide valve in the upper compartment of change-over mechanism connects air intake port 'A' to blower suction port B and in the lower compartment of change-over mechanism connects air intake port 'A' to blower suction compartment, the slide valve connects blower delivery port F to atmosphere (port G). Blower under this condition draws air from atmosphere through ports A-B and delivers to atmosphere through ports F-G. The blower, in this condition works at no load. On shifting lever No. 1 from 'Deflating' to 'Blowing', delivery port 'F' gets connected with port 'E' leading to distributor. The blower now sucks air from atmosphere through ports A-B, compresses it and delivers the air under pressure to distributor through ports F-E. For e equivalent to approximate 0.100 kg./m.<sup>2</sup> pressure is required to open the valve diaphragm. Air through air hoses enters the float chambers and pressurises the float ( ).

23. Deflation.—Follow the procedure laid down as under:—

- (a) Set up the equipment as laid down in paras 18 and 20.
- (b) Start the engine as laid down in para 21 (b).
- (c) Carry on deflating the float till it is completely deflated.
- (d) In case any water moisture exists in float compartments, water will collect in water-trap and floater will rise at the end of deflation. In such a case, follow the drill as under:—

- (i) Detect the compartments having water by detaching the hoses from this equipment one by one.
- (ii) Disconnect the compartments having water and complete the deflation for the rest.
- (iii) Connect up the compartments having water and commence deflation.

**Keep close watch on the water-trap floater rod**

- (iv) No sooner, the mark on the floater rod is visible, shift lever No. 2 to 'BLOWING'.
  - (v) Once the water has drained off and the floater has settled down to the bottom, shift lever No. 2 to 'DEFLATING' and repeat the process until complete water has been removed from the float.
  - (vi) During this process of water removal, it will be noticed that walls of the float sticks to the valve thereby blocking the passage and preventing further removal of water. This will become evident with the change in engine sound. In such a case, disconnect the hose from the float, separate the folds of the float, reconnect the hose and continue the process.
- (e) A word of caution for the operator, if the mark is not clearly visible on the floater rod, operator shall shift lever No. 2 to 'Blowing' as soon as approximately HALF INCH of the floater road has come up. If this is not done in time, water will enter the blower and delivered air will be mixed with water. Though blower is able to handle minor quantities of water without any adverse affects, but more quantity of water will damage the blower. This will entail opening and cleaning of the blower.

Note.—Some oil may be noticed dripping from the port G of the change-over mechanism. This oil is from the gear box of the blower and need not be bothered about.

24. Air Route (Deflation).—When both the levers are engaged at 'Deflating' the slide valve in the lower compartment of the change-over mechanism connects port 'E' to 'F' and 'F' to 'G' and the slide valve in the upper compartment connects port 'C' to 'B'. Air from float compartments through port E-H finds its way to the water trap. Water sucked in, if any, gets separated from the air by centrifugal force action and this air free from moisture is sucked by the blower through change-over mechanism (ports C-B), compressed and forced out into the atmosphere through ports F-G. At the time when lever No. 2 is shifted to 'Blowing', the ports 'C' and 'B' get disconnected and further action from float stops. Once again on shifting lever No. 2 to 'Deflating', the port 'C' connects up with 'B' and action from the float is resumed (plate 11 and 12).

25. Points to be checked/taken care of during operation/use:—

- (a) Ensure that levers of change-over mechanism do not change position.
- (b) Ensure that water-trap floater rod is not disturbed during deflation.
- (c) In case of any unusual noises, switch-off the engine and proceed to find the cause of fault with the help of 'Fault diagnosis chart' given at Appendix 'E'.
- (d) Floats are not over-inflated. Though safety valve checks over-inflation but in case it does not work, engine shall be switched off once the needle touches the red-mark on the pressure gauge. At times, though the desired pressure has been reached after 7 minutes 20 seconds but the float still has a few creases thus requiring an extra 10-15 seconds of operation.
- (e) **Jumping of belts.**—If the belts are jumping, equipment shall not be run further and defect rectified by referring to 'Fault diagnosis chart' 'E'.

### Stopping

26. To stop the engine, either press the ignition cut out strip till it touches the spark plug (keep the strip pressed till the engine stops) or close the fuel tap so that as soon as the carburator float chamber is empty, engine stops.

27. After the completion of inflation or deflation:—

- (a) Run the equipment on BLOWING for 5 minutes with all caps open to drive out any moisture/dust from the system.
- (b) Close fuel tap if not done.
- (c) Disconnect air hoses.
- (d) Close valve and socket caps of the float and the equipment.
- (e) Coil up the hoses and stack them properly (Plate 4).
- (f) Cover the equipment with polythene cover after the engine has cooled down.

### Performance

28. The equipment is capable of:—

- (a) Inflating the float in approximately 7 minutes.
- (b) Deflating the float in 6 minutes approximately.
- (c) Fuel consumption is approximately 2.50 litres per hour at full load.

The timings given above are exclusive of the time required for setting up the equipment and water removal during deflation.

General

29. This section deals with the maintenance of the complete equipment except for the engine, for which the users should refer to the users hand-book for the engine.

30. The equipment needs very little special maintenance and care. Routine and periodical maintenance tasks laid down in succeeding paragraphs are recommended to increase the life of the equipment and give trouble free service. Preventive maintenance chart is given at Appendix B.

Routine Maintenance

31. Carry-out the following tasks daily prior to running the equipment:—

- (a) Check blower gear-box oil level. Bring it upto the upper mark, if required, with oil HD-50.
- (b) Check all nuts and bolts and tighten, if required.
- (c) Check water-trap floater rod position. It should be in the bottom.
- (d) Lubricate engine governor linkages.

Periodical Maintenance

32. Every 50 Hours:—

- (a) Tighten all nuts and bolts.

Note.—Nylock nuts should not be used for more than three times after opening/screwing, reopening/rescrewing.

- (b) Check belt tension. Properly adjusted belts can be pushed by the thumb upto 10 mm between the pulleys.
- (c) Open grease-cups of blower bearings and fill them up with grease No. 1 after removing the old grease.
- (d) On screw cover shaft and remove collars with handle. On screw gruls screw securing the cover plate and unscrew cover plate. Lubricate pistons with oil HD-30 by pouring the same in the gap between the piston and the body. Rotate the pistons after repositioning the collars a few times to ensure that the Mechanism has been properly Lubricated."

33. Every 500 Hours:—

- (a) Drain out blower gear-box oil by opening the plug provided in the bottom of the gear-box and refill with fresh oil HD-50 upto the upper mark shown on the oil level indicator window. Check oil-level with dip-stick.

Note.—After filling the oil allow some time for oil to settle down so that false level is not indicated.

- (b) Change belts. Use standard Fenner A-35 section V-belts.
- (c) Over-haul the change-over mechanism.
- (d) Change all gaskets/rubber packings used between joints.
- (e) Check the pressure gauge and calibrate it if required.

34. Every 1500 Hours:—

- (a) Over-haul the blower unit completely.
- (b) Change resisto-flex pads used under the engine and the blower.

Note.—TO BE CARRIED OUT ONLY BY AUTHORISED REPAIR ORGANISATIONS.

## Section 2—Adjustments

35. The only adjustment required is adjusting the tension of the belts. Properly adjusted belts can be pushed by thumb up to 10 mm between the pulleys. In case the tension is not correct as stated above, loosen the engine securing bolts and adjust the tension by moving the engine in the slots provided in the base plate. After adjusting the tension, tighten the bolts.

## Section 3—Storage

### Storage for short duration (Upto 3 months)

36. Following should be done prior to storage for short duration:—

- (a) Open all blind caps on sockets and run the equipment on "Blowing" for 15 minutes so as to remove traces of moisture/oil. Clean rubber seals of distributor sockets. Drain the water trap.
- (b) Close the petrol tap and let the engine stop automatically so as to drain carburattor.
- (c) Close all distributor sockets with blind caps.
- (d) Empty fuel tank.
- (e) Clean the equipment and cover it with polythene cover.
- (f) Coil up the hoses properly and stack them in cool, dry place.

### Storage for long duration (Above 3 months)

37. Following should be done besides the actions enumerated in para 35 above prior to storing the equipment for long duration:—

- (a) Tighten all nuts and bolts.
- (b) Lubricate springs of safety valve as per lubrication schedule at Appendix 'F'.
- (c) Cover the equipment with polythene cover and store it in packing case provided.

## Section 4—Repairs

38. In case the equipment gives any trouble, refer to the fault diagnosis chart at Appendix 'E' and ascertain the cause of the Fault. If unit repair organisation cannot carry out the repairs, the equipments shall be sent to EME workshop.

39. The lists of spares and tools for unit repairs are given at Appendices 'C' and 'D' respectively.

## Chapter III--Transportation

40. The equipment has been provided with a polythene cover and packing case. For carrying the equipment through short distances, four carrying handles have been provided and two men can easily carry the equipment, by hand. For transportation by road, rail, air, the equipment should be covered with the polythene cover and packed in the packing case specially provided. Overall dimensions and weight of the packing case are as under:—

- (a) Over all length : 1075 mm.
- (b) Over all width : 945 mm.
- (c) Over all height : 776 mm.
- (d) Total weight of the packing case along with equipment : 130 Kgs.

41. The hoses should be coiled properly. Set of four hoses each shall be wrapped in hessain cloth duly protecting the end connectors for transportation.

Appendix 'A' (Refer to para 3)

Technical Data

42. **Blower—**
- (a) Type : Position displacement type Roots blowers (Model OHP 635).
  - (b) Speed (Working) : 2000 RPM.
  - Speed (Max. safe) : 2650 RPM.
  - (c) Weight : 23 Kgs.
  - (d) Cooling : Air Cooled.
  - (e) Material : Aluminium alloy (LM-6) casting.
43. **Prime-mover—**
- (a) Make and model : Villiers Mk 25 HSP Engine.
  - (b) Type : Four stroke, petrol engine.
  - (c) HP : 3.0 at 3000 rpm.
  - (d) Speed, No load : 3120 rpm.
  - Full load : 2940 rpm.
  - (e) Cooling : Air cooled.
  - (f) Weight : 25 Kgs.
44. **Frame—**
- (a) Material : Aluminium alloy (B 51 SWP).
  - (b) Weight : 19 Kgs.
  - (c) Length : 805 mm.
  - (d) Width : 700 mm.
  - (e) Reight : 732 mm.
45. **Hoses—**
- (a) Material : PVC with nylon thread reinforcement.
  - (b) Length : 10 metres.
  - (c) OD : 31.0 mm.
  - (d) ID : 25.0 mm.
  - (e) Weight : 0.4 kg./meter length.
  - (f) Material of connectors end : Brass.



Appendix 'L' (Ref. to para. 30)

Preventive Maintenance Schedule

46. Following maintenance tasks must be carried out to ensure maximum service of the equipment. The period stated may be modified as per the operating conditions:—

Serial No.	Maintenance task/operation	Daily	Every 50 hours	Every 500 hours	Every 1500 hours
1	Oil-level checking	*			
2	Checking nuts-bolts	*			
3	Checking levers functioning	*			
4	Tightening all nuts-belts		*		
5	Checking belt Tension		*		
6	Greasing blower bearings		*		
7	Replacing gear-box oil			*	
8	Replacing belts			*	
9	Cleaning and greasing change-over mechanism			*	
10	Lubricate safety valve spring			*	
11	Complete over-hauling				*
12	Lubricate change-over mechanism pistons every 50 Hrs.		*		

Appendix ' C ' (Ref. to para. 39)

List of Spares

	Qty. with each eqpt.
1. Spark plug MICO HW 160T2	1
2. Belts Fenner V section A-35 and A-36	2 each.
3. Engine gaskets	1 Set.
4. Blower gaskets	1 set.
5. Nut nylock	1 Set.
6. Ignition Strip for engine	1
7. Tube Fuel	1

Appendix ' D ' (Refers to para 39)

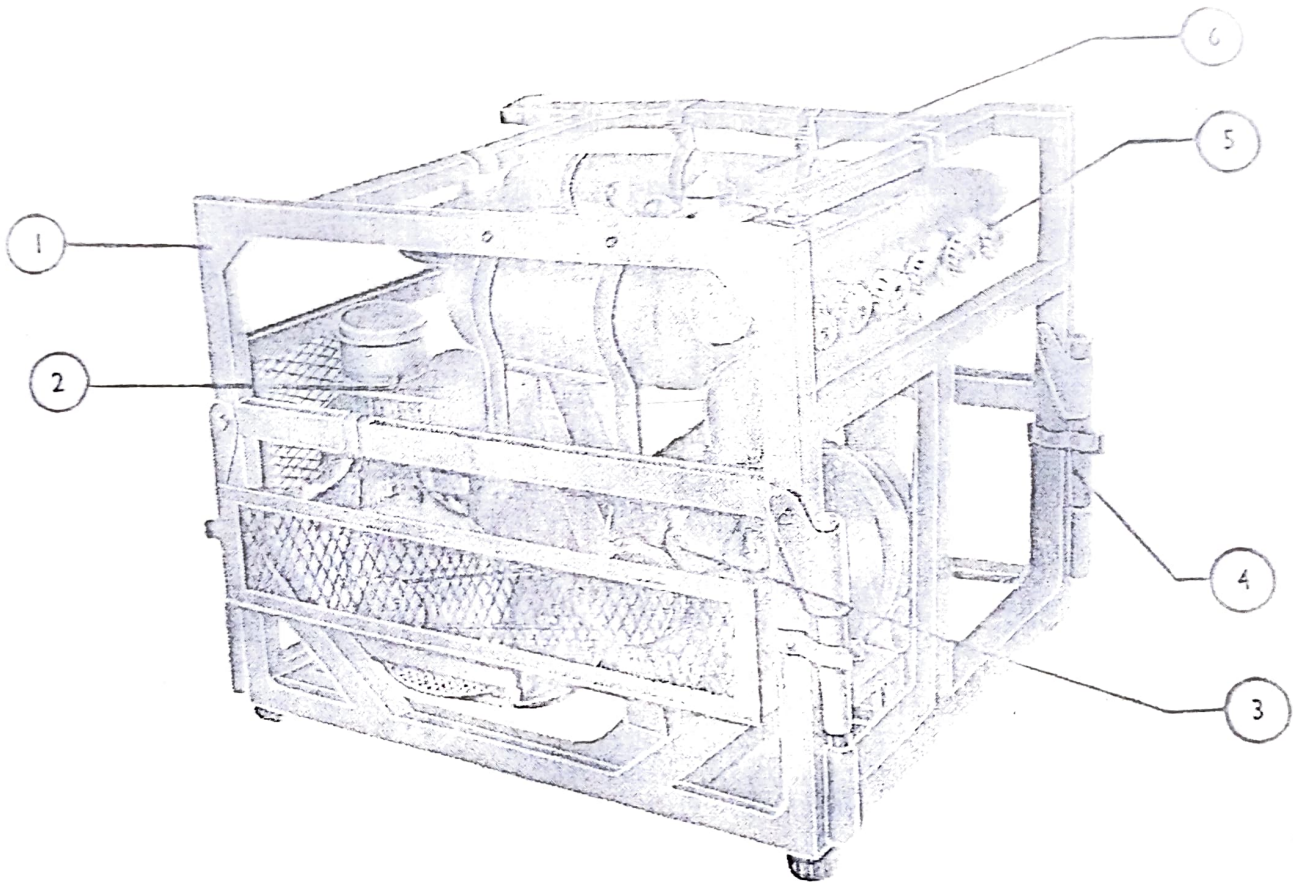
List of Tools

	Qty. with each eqpt.
1. Spanner Double ended size 10-11	1
2. Spanner Double ended size 14-15	1
3. Spanner Double ended size 16-17	1
4. Spanner Double ended size 21-22	1
5. Screw Driver 100 mm.	1
6. Plier insulated 150 mm.	1
7. Spanner Tong Large	1
8. Spanner Tong Small	1
9. Spark plug spanner	1

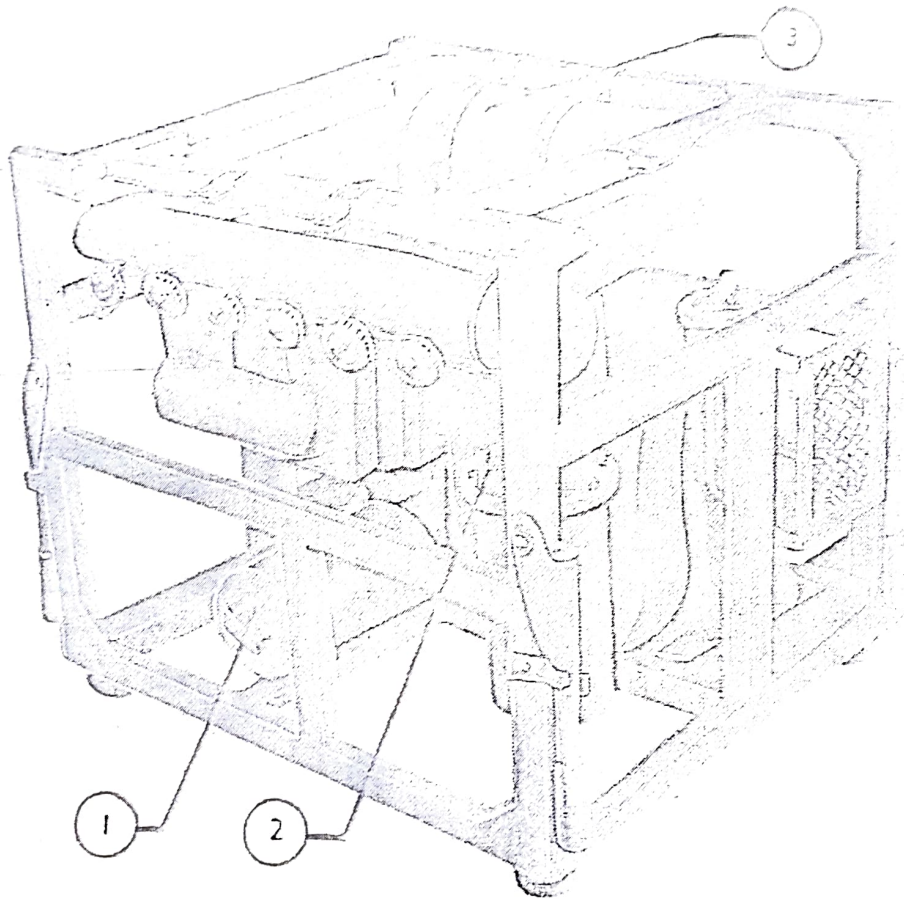
Serial No.	Part	Defect	Causes	Remedies
1	Blower noise	gear knocking	<ul style="list-style-type: none"> <li>(a) Foundation bolts of blower are loose.</li> <li>(b) Tighten foundation bolts of blower and check the blower shaft to run misaligned.</li> <li>(c) Clear pin has come out.</li> <li>(d) Bearings worn out.</li> <li>(e) Improper alignment of engine and blower pulleys.</li> </ul>	<ul style="list-style-type: none"> <li>(a) Tighten nuts and bolts.</li> <li>(b) Place the equipment on level ground as far as possible.</li> <li>(c) Open the gear-box of the blower and put the gear pin properly.</li> <li>(d) Open the blower and replace worn out bearings.</li> <li>(e) Align properly the pulleys the blower and engine.</li> </ul>
2	Blower gear-box requires frequent filling up of oil.		<ul style="list-style-type: none"> <li>(a) Leakage through joints.</li> <li>(b) Oil seals worn out.</li> <li>(c) Blower drain plug loose.</li> </ul>	<ul style="list-style-type: none"> <li>(a) Block joints/holes through which oil leaks.</li> <li>(b) Replace oil seals.</li> <li>(c) Tighten the plug.</li> </ul>
3	Twisting of blower shaft and cracking of lobes.		<ul style="list-style-type: none"> <li>(a) Alignment of engine and blower pulleys incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>(a) Replace both the lobes with a pair of balanced lobes and align the pulleys correctly.</li> </ul>
4	Stalling of engine indicating its overloading.		<ul style="list-style-type: none"> <li>(a) Blower drawing * excessive power.</li> <li>(b) Float is over inflated.</li> <li>(c) Safety valve not * operating.</li> <li>(d) Float has been completely deflated.</li> </ul>	<ul style="list-style-type: none"> <li>(a) Dismantle the blower and examine the fault with reference to repair manual.</li> <li>(b) Check from pressure gauge and stop the engine.</li> <li>(c) Repair safety valve.</li> <li>(d) Stop the engine.</li> </ul>

Plate 1 : General View (Front)

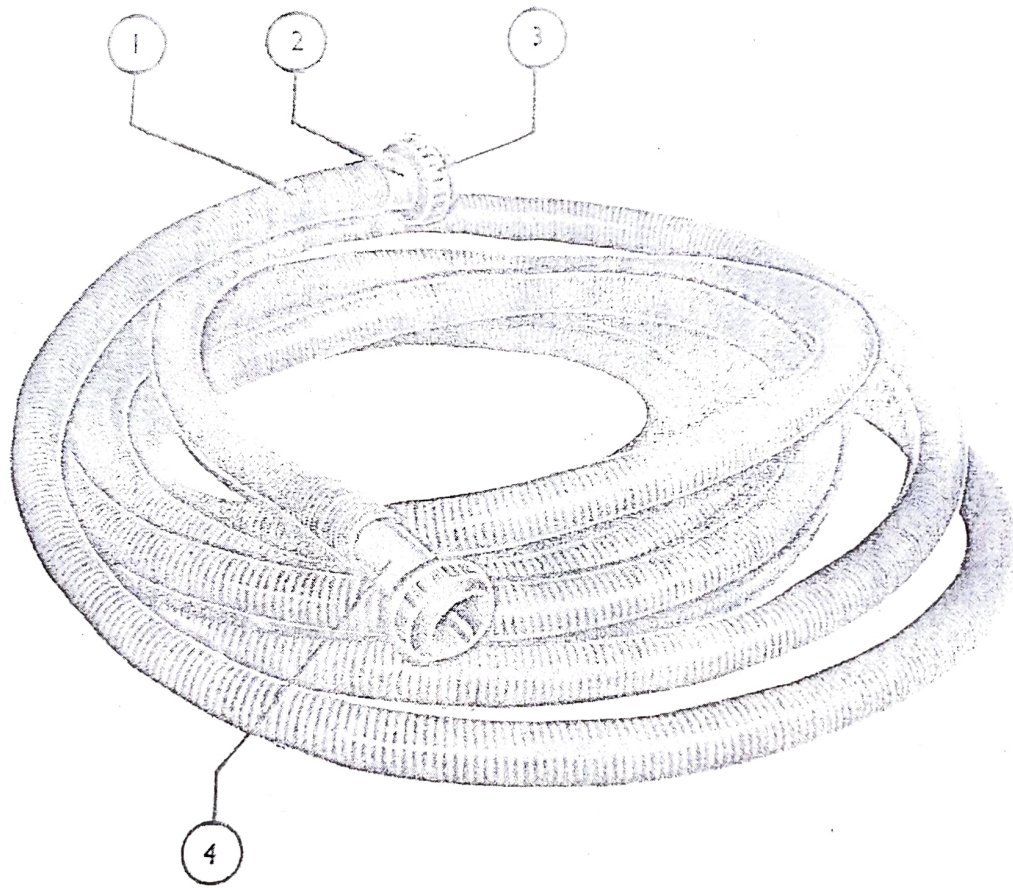
Item No.	Designation
1	Cradle.
2	Prime mover.
3	Blower.
4	Handle Carrying.
5	Distributor Socket with cap.
6	Distributor Assembly.



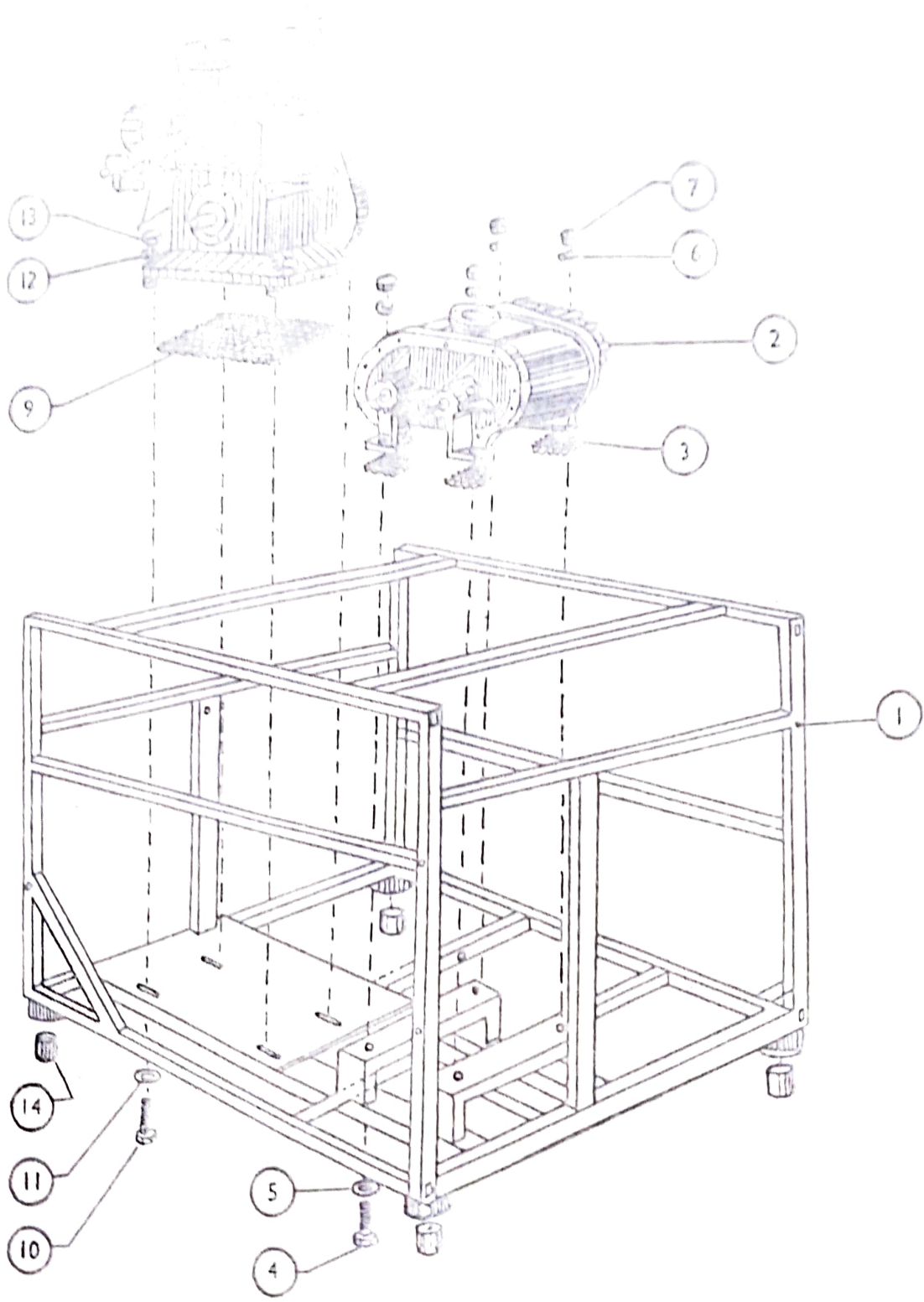
GENERAL VIEW (FRONT)



GENERAL VIEW (REAR)



HOSE COMPLETE WITH CONNECTORS END



MOUNTINGS