

POWER CHARGING OF KNAPSACK SPRAYERS

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A power operated charge pump unit tested out on St.Coombs Estate during the past six months has proved to be highly satisfactory.

Since a considerable amount of labour and time is expended in charging knapsacks by hand-operated pumps, especially when nozzles having outputs of up to 20 gallons per hour at the normal knapsack working pressures are used, the advantages of power charging are obvious. The daily spraying task on St.Coombs requires 600 gallons of water and since the tank on the unit has a capacity of 200 gallons a tractor must be available at specified times to move the unit to points convenient for re-filling and for operating. Although the tractor is used mainly for leaf transport no difficulty has been experienced in co-ordinating the two duties.

The unit consists of a channel iron chassis fitted with axle, wheels and brakes. The brake lever is positioned for operation from the tractor seat. The fore-end of the chassis is designed for use with the automatic hitch assembly on a Ferguson tractor. Mounted on the chassis is a 200 gallon tank and a pumping group. A framework, fitted with base blocks and straps to position each knapsack, surrounds three sides of the tank. The number of knapsacks carried is 16. A metal tray is fitted on top of the tank to carry hoses and lances, also a 3 gallons mixer for the fungicide. The pump and motor were supplied by Messrs. Cooper, Pegler & Co. Ltd., England and their specification is as follows:—

* CHARGING GROUP No. 647

3 h.p. 4 stroke engine.

2 throw high pressure pump.

Output 6 gallons per minute.

Pressure up to 200 lbs. per square inch.

Belt driven.

This group, designed for charging batteries of "Favori-Colibri" knapsacks, consists of a powerful belt driven liquid pump and air compressor mounted on a strong chassis. It is fitted with handles for the mounting of bearers if necessary. The air compressor will charge one "Favori-Colibri" with up to 70 lbs. per square inch of air in two minutes.

The pump has six outlets enabling six "Favori-Colibri" to be charged simultaneously with liquid up to 170 lbs. per square inch in three minutes. The six outlets are arranged in two groups of three. By means of an instantaneous valve all six, or either three, can be closed as desired. Each charge hose is fitted with a tap and instantaneous bayonet joint, which prevent surplus liquid being wasted between the pump and the sprayers. A regulator and safety valve (adjusted before deatch to give a working pressure of 170 lbs. per square inch) can be varied to give lower working pressures, if desired, and ensures the return to the tank of any surplus or unused liquid, for example when fewer than six "Favori-Colibri" sprayers are being charged at once. A readily accessible clutch throws the pump out of gear when it is only necessary for the air compressor to be in use.

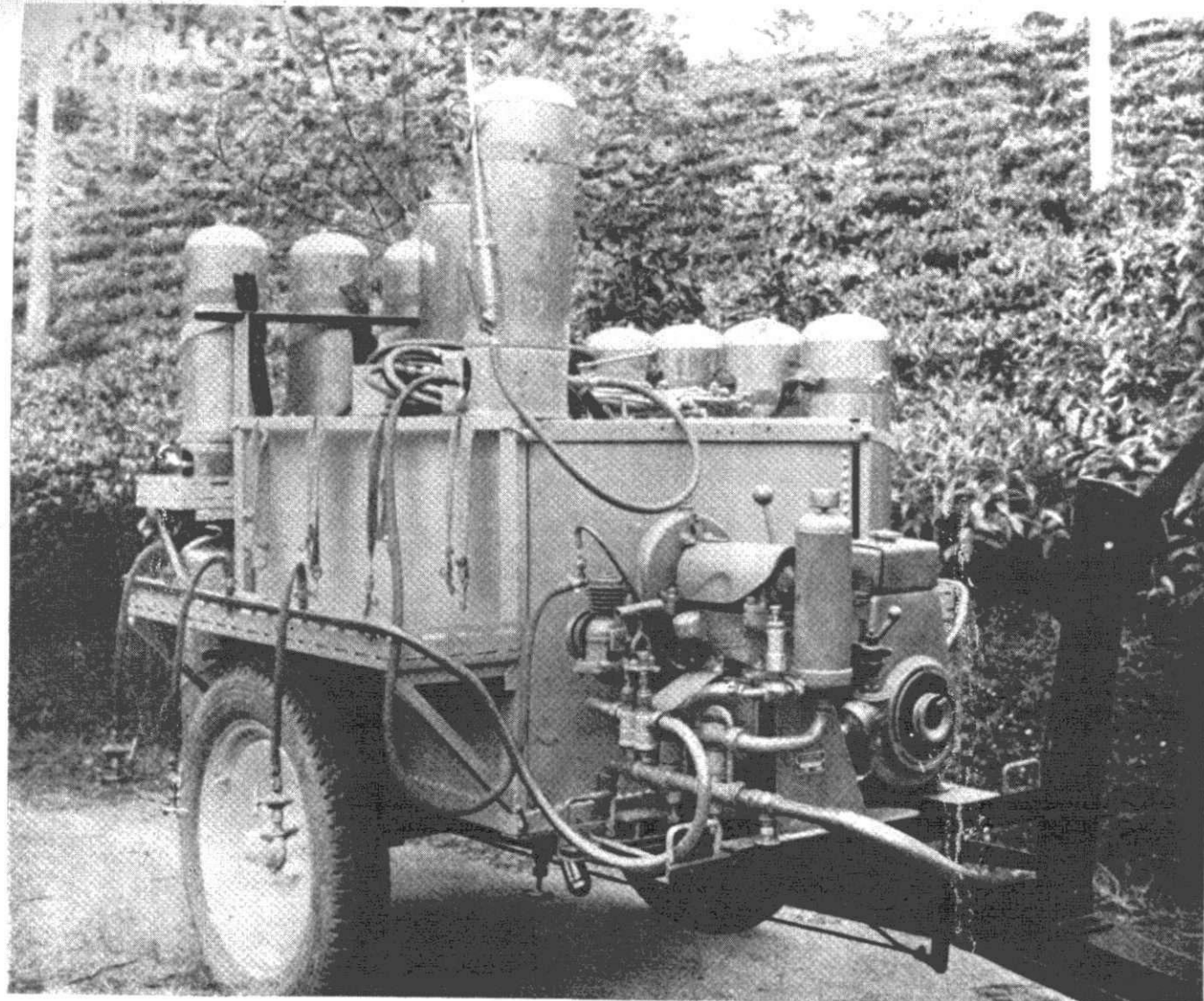
* Since writing the foregoing we have been advised that Charging Group No. 647 has been superseded by an improved version called the "Vitiver".

The unit is supplied with a 9'6" length of suction hose fitted with a strainer and a 9'6" length of return hose. The overall dimensions are:—

Length	38"
Width	24"
Height	25"

Several modifications were made to the standard pipelines to meet our particular requirements. On the suction side of the pump there are two hose connections. One of these was taken to a 100 mesh line strainer and a wheel valve fitted at the base of the fungicide tank. The other is fitted with a wheel valve and length of hose which can be inserted into a bucket or drum of clean water to facilitate washing of the pump and knapsacks at the end of a day's work. A pressure gauge has also been fitted to the air compressor which facilitates the topping up and checking of the air pressure in knapsacks not fitted with pressure gauges.

Petrol consumption is approximately half a gallon per 6 hour working day, when the machine is serving 12 sprayers. Since the machine was introduced the spraying labourers have covered approximately 3 acres each, per day.



General view of the new power charging unit now in use at St. Coombs. The knapsacks normally carried on the near-side of the tank have been removed to show fixing straps and charging units.

(Photo C. A. Loos)