

THIOKOL SWAMP SPRYTE EQUIPPED WITH AUTOMATIC COMPRESSED AIR SPRAYING UNITS FOR APPLYING GRANULE AND LIQUID INSECTICIDES¹

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The use of an amphibious track vehicle, called a "Weasel," and similar to the Thiokol Swamp Spryte Vehicle, is not new to the Orange County Mosquito Abatement District.

When the District was formed in 1947, a complete survey was made of large breeding sources consisting of some 6,000 acres of salt marsh, 1,025 acres of private duck club ponds, dairy pastures and other sources. At that time, it was decided an amphibious track vehicle was needed. Our first Weasel (Army surplus cargo carrier) was purchased through a war surplus dealer. Since then, we have purchased four more from other sources, using some for spare parts. Our last Weasel recently became inoperable because the tracks had worn beyond repair and the hull and bulkhead had rusted out.

At the present time, however, some 2,500 acres of the salt marsh remains in its natural state and is subject to fresh water flooding from rainfall and storm water run-off, as well as tidal water flooding. Also, there are approximately 300 acres of private duck club ponds under surveillance. It is the property owners' responsibility to prevent unnecessary mosquito breeding; but in cases of emergency, breeding sources will be treated by the District to protect the residents of the surrounding community from mosquito annoyance. In addition, there are rainwater depressions, flood channels and other

sources that cannot be adequately treated unless the right equipment is used.

At present our population is over 1,100,000, with subdivisions being built adjacent to or close to large mosquito sources. These sources cannot be adequately controlled with standard equipment so the District purchased a Thiokol Swamp Spryte, Amphibious Model 1301, and a Trailmaster Tilt-type Trailer for transporting the Spryte. Fig. 1 shows the Swamp Spryte in operation, with some of the equipment that was installed.

For the most effective control of mosquitoes and chironomid gnats, the following equipment was installed for dispensing both liquid and granule insecticides:

1. A mounting plate was built and installed above the clutch housing. A Bendix-Westinghouse Tu-Flo 500 water-cooled compressor was mounted on this plate. This compressor is driven by belt pulley, with the drive pulley installed on the front universal joint flange. This compressor runs continuously while the engine is running; but actual compression of air is controlled by a governor, which stops or starts the compression of air by loading or unloading the compressor in conjunction with its unloading mechanism. This is done when the air pressure in the system reaches the desired maximum or minimum pressures. The start recovery pressure differential is 15-20 P.S.I.
2. After the installation of the compressor, we mounted a 90-gallon horizontal hydro galvanized compressed air spray tank. This tank will be used for oil insecticide and is equipped with a 1/2" Wabco Air Regulator, pressure range 0-150 P.S.I.,

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FIG. 1.—Swamp Sprite in operation. Lower view shows most of equipment described in text.

number P55119-1 and a $\frac{1}{2}$ " Wabco R-2 line filter, number P7104. This filter assures dry compressed air for the granule gun. The tank also acts as an air reservoir for operating the Orange County Compressed Air Granule Gun.

3. The granule gun is a Kelco Model G790C sandblast gun equipped with $\frac{1}{16}$ " and $\frac{3}{32}$ " air jets in combination with $\frac{3}{16}$ ", $\frac{1}{4}$ " and $\frac{5}{32}$ " tungsten carbide nozzles. This has proved to be a reliable and trouble-free metering device for granules of many types and sizes.
4. A plastic diaper bucket, holding approximately 55 lbs. of granules, permits the operator to spray from the moving vehicle. In order to draw the granules from the bucket, a 16 gauge galvanized metal lid is made to fit tight on the bucket by crimping the edges. Then a round hole is cut in the center of the lid so that a $\frac{1}{2}$ " x 3" pipe can be soldered into the hole. A piece of $\frac{1}{4}$ " x 21" pipe, bent at one end to a 90° angle, is then inserted into the 3" pipe approximately $\frac{3}{4}$ " from the bottom of the bucket. Then a suction hose is attached from this pipe to the granule gun.
5. A Homelite Mist Blower, Model 24B4 (no longer manufactured) was mounted on the top center of Spryte rear deck. This blower is designed to apply liquid insecticides such as water emulsions, oil base or concentrate. The liquid is fed through a pressure relief valve into the air stream by the compressed air tank and is atomized and distributed by the 150 mile per hour blast from the blower.

Horizontal coverage is approximately 50-200 feet depending on the wind.

In modifying this blower, a 12-volt Ford tailgate window lift motor and transmission assembly was installed to rotate the blower housing 180° to the right and left by using a chain drive. To operate the motor, a Ford tailgate window lift switch (spring loaded to off position) was installed.

The rope starter was eliminated by installing an electric starter. A starter ring gear was installed on the fly wheel by a local machine shop. Then a used 6-volt electric starter assembly (Industrial) Model #MAK-4008, Auto-light was purchased. To install the starter, a mounting plate was bolted to the mist blower frame enabling the starter to line up with the ring gear on the fly wheel. A starter solenoid and starter button switch were used to actuate the starter.

To control the liquid insecticide to the air stream, a 12-volt $\frac{1}{8}$ " electric solenoid valve was installed, operated by an on-off switch.

A control panel was installed in reach of both the driver and the operator enabling either one to operate the mist blower by remote control, thus preventing accidents caused by crawling back and forth over the tank. Although the District uses a two-man crew to operate this vehicle, it was designed for a one-man operation if necessary.

A CORRECTION

(Letter from F. W. Harden)

"It has become apparent since the publication of our paper 'A History of Mosquitoes and Mosquito-Borne Diseases in Mississippi 1699-1965', in the March issue of *Mosquito News*, that there is an error that we somehow overlooked. The error occurs on page 64, Table 2, item 51. *Psorophora pygmaea* should not be listed, therefore reducing the totals for all regions, except the North.

"We have initiated a page change internally to correct this, and would appreciate your noting this error in *Mosquito News* at your earliest convenience."—Frederick W. Harden, Entomologist; June 28, 1967.