Multi-Purpose Field Sprayer

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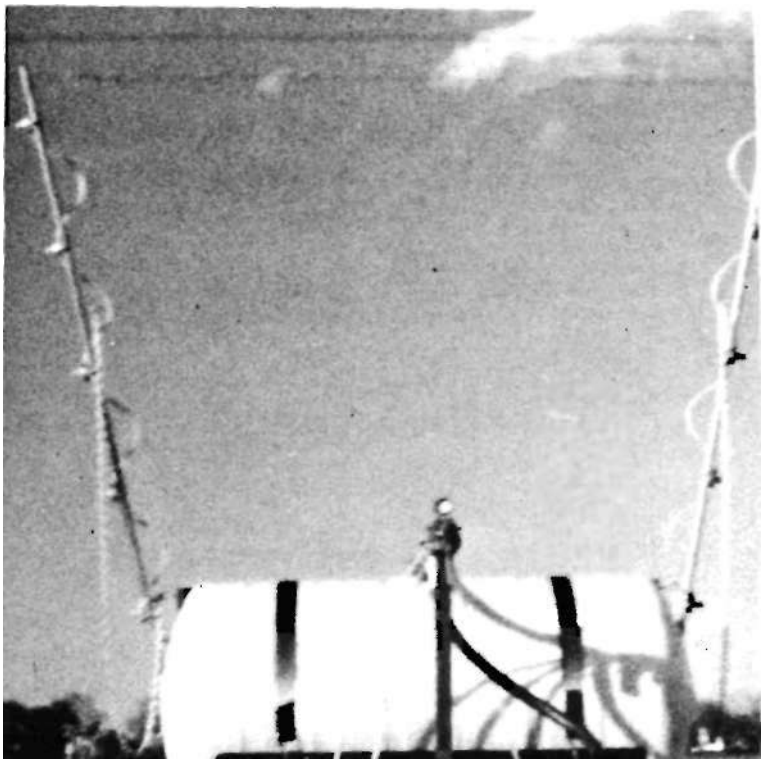


Construction of the basic frame work for the field sprayer was done with 2" x 4" mild steel tubing having a $^{1}/_{4}$" wall thickness. The various length pieces that were used in fabricating the carrier unit were hand cut with an oxyacetylene cutting torch.

Two 3" angle iron supports were welded to the stub wheel spindles. The total spindle unit was then welded into the field sprayer carrier unit approximately 1" to the rear of center.

To the tongue and carrier unit were welded two 1" angle irons. The two angle irons aided in combatting tongue side pressure while providing a place to rest a waffle plate platform from which the operator can add and also view the mixing of chemicals.

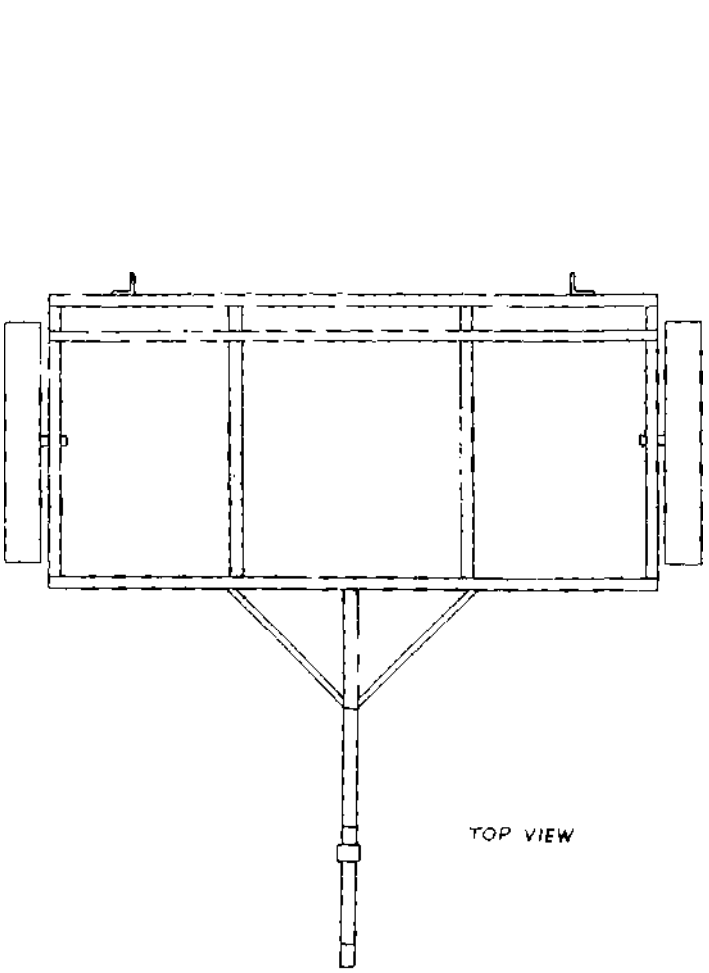
On the rear of the field sprayer were welded two 4" angle irons that are used to carry the spray boom. The spray boom is U-shaped to two 1" angle irons 20" in length which can be fastened to the 4" angle irons at any height desired. This adjustable feature is quite essential because various chemicals require that their application be at a specific height.

The large 2" angle iron frame at the rear of the field sprayer carries the weight of the spray booms keeping them at the proper spraying height. Also during travel to and from the fields the angle iron frame supports the spray booms in their travel positon.

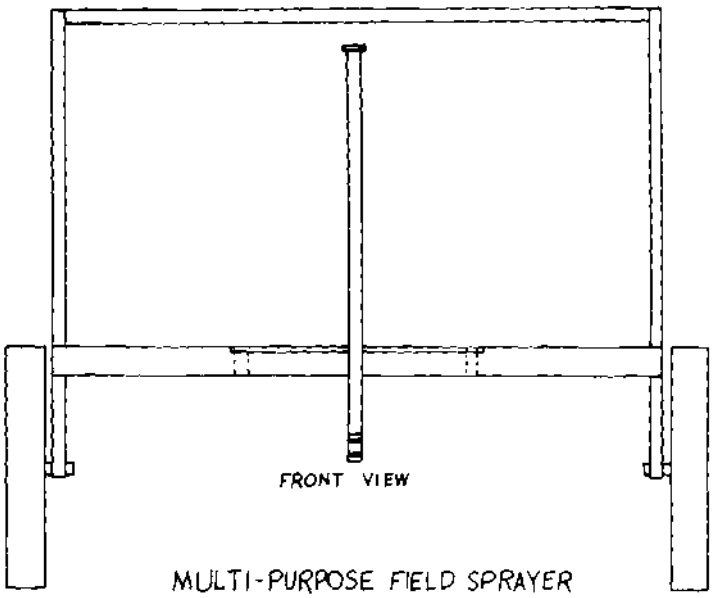
Protecting the spray booms from collision damage, a breakaway system was used that consists of a modified universal joint. The pair of universal forks were welded to four %" round bar stock pieces 4" in length enabling the universal units to be slipped inside the $^{3}/_{4}$" galvanized pipe spray booms and fastened into position by bolts. The universal unit, acting as a 4-way hinge provided a breakaway system to guard against spray boom damage and also allowed the spray booms to be raised for road travel or storage.

A 300 gallon polyethylene spray tank was supported on the carrier unit by a saddle. The angle iron legs on the saddle were placed on the carrier unit so that part of the legs needed to be cut away. This design enabled the weight of the saddle and tank to be placed directly on the carrier unit and not on the bolts that hold the saddle and tank in position. In positioning the saddle and tank unit it was moved 1" forward of center; this setting plus the offset in the wheel spindles placed a greater amount of weight in front of the wheels than to the rear. On older field sprayers that have everything centered over the wheels it was not uncommon for the unit to fall over backwards when unhitched.

Located on the 2" angle iron stand just behind the tractor operator was placed the spray boom selector valve. The height of the stand was at a level that required the operator to only make a quarter turn to manipulate the selector valve. Besides being an on-off valve the boom selector valve could designate what section of the spray boom it would operate. This eliminated chemical overlap and reduced total cost in chemically treating a field.

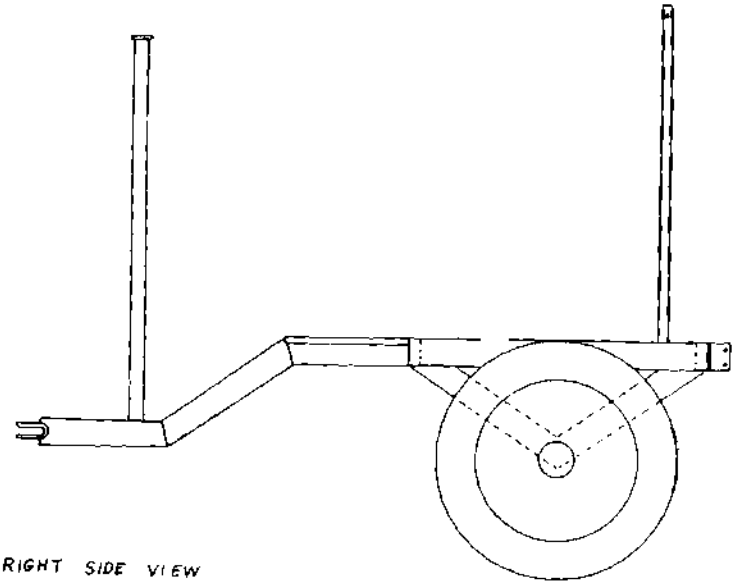


TOP VIEW

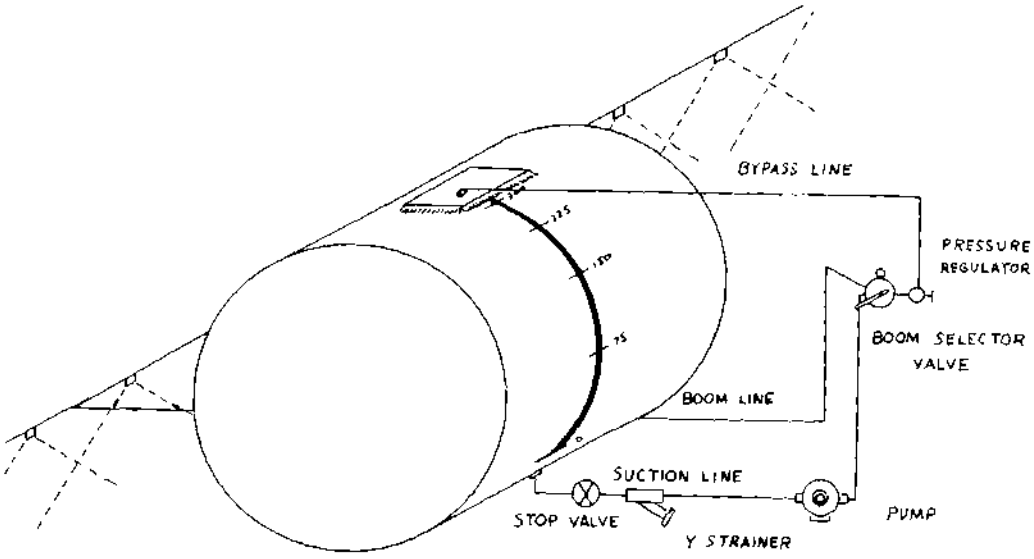


FRONT VIEW

MULTI-PURPOSE FIELD SPRAYER



RIGHT SIDE VIEW



SCHEMATIC FOR SPRAY SYSTEM