

APPLICATION PROFILE

REFUSE TRUCK INDUSTRY

Mobile Hydraulics

Challenge: **FRONT LOADER REFUSE TRUCK DUMP DISTRIBUTION VALVE**

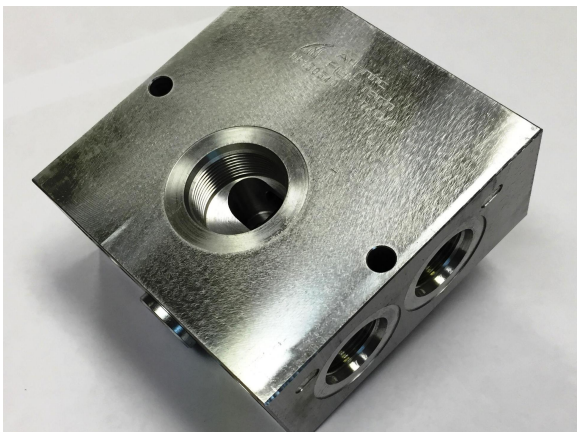
Location: **IOWA**

Flodraulic was called upon to evaluate the efficiency and effectiveness of a major refuse truck manufacturer's existing dump valve.

Dump valves have been used in the retract circuit of the Pack double-acting telescopic cylinders of refuse trucks for years. The problem is most dump valves have been undersized for the large return flows from the base end of the telescopic cylinder.

While retracting the telescopic cylinders there is a small annular area for the hydraulic pressure to act upon while the base end of the cylinder is full bore size. This area differential can be as large as 6 to 1. With a retract flow up to 45gpm that means there could be as much as 270gpm trying to evacuate the base end of the two Pack cylinders. With the current available dump valves, when attempting to retract with flows over about 30gpm the pump pressure would exceed main relief valve setting and any retract flow above 30gpm was going across the main relief valve at high pressure. This resulted in lost energy which all went into heat.

The Dump Distribution Valve was designed specifically for this application. The dump valve poppet was designed to handle much larger flows. The valve has ports sized for the specific flows of each function. It also acts as a distribution valve having ports for each valve work port and both telescopic cylinders. Even though the valve costs twice what the current dump valve costs there is a cost savings in the plumbing which is dramatically simplified and a reduction in assembly cost. The retract cycle time was reduced by at least a second. This doesn't sound like much but when the cylinders are cycled between 500 to 1500 times a load it adds up and the end user notices! The other benefit is a system that operates at a lower temperature because no fluid is being dumped across the main relief valve. This is a big factor in the warm southern climates.



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