

Transfer Operations Techniques

**for
Efficient Refuse Removal**

compiled by

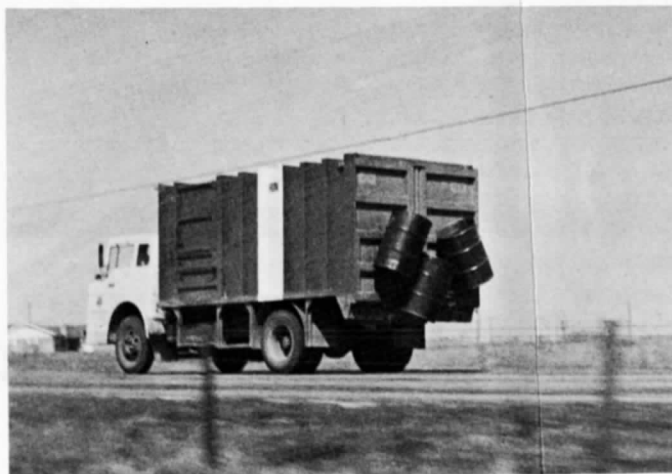
HOBBS HYD-PAK DEPARTMENT, HOBBS TRAILERS

609 North Main, Fort Worth, Texas

(a division of the Fruehauf Corporation)



Nowadays it can be a long, time-killing trip for individual refuse collection units to a dump site 10 miles outside town.



Transfer Operations Techniques For Efficient Refuse Removal

The Problem

... of efficient and rapid refuse removal in modern, growing cities of all sizes is a complicated one. It becomes more complex daily simply because of urban and industrial growth.

Briefly, here is the situation in most expanding urban areas:

- New residential areas plus commercial and industrial districts are continually pushing city limits farther out.
- Close-in former dump grounds are being reclaimed and put to more profitable use.
- The only available land for new dump sites is more than 10 — sometimes as much as 30 or 40 — miles outside the pick-up perimeter.
- Conventional refuse collection units and crews must now spend too much time going to and from the disposal area.

What Can Be Done About It?

... is a good question. Obviously there can be no substitute for good management. Available men and machines must be scheduled realistically over the territory to be serviced.

Pick-up routes must be regularly checked, and revised when necessary in order to keep pace with changing conditions. The most productive combination of economy and efficiency must be discovered and maintained.

New equipment must be purchased as it is needed, with an eye to the best possible return on the taxpayers' or investors' money — in terms of *initial cost, performance, durability and maintenance requirements.*

Today's high-capacity refuse packers, capable of compacting extremely large volumes of refuse with massive hydraulic pressure, are a vast improvement over the unsanitary open-top "garbage trucks" of a few years ago. They cover more territory in less time, require fewer man-hours, provide better service, and pay themselves out in only a few years in operational savings alone.



Modern packers handle larger volumes of all types of refuse — residential, commercial, institutional — and handle it much more efficiently.

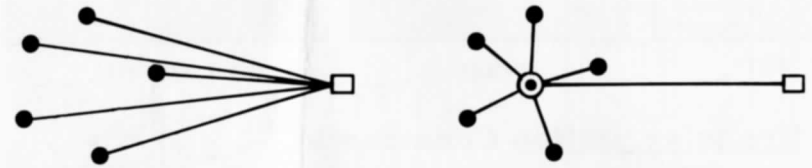
Yet even these fine units are handicapped when available disposal sites are too far away. The refuse removal unit must collect — and *dispose of* — refuse. And the "disposing-of" has become a major problem.

One Solution

... to this problem is now available. While the changing nature of our cities' growth and refuse removal requirements precludes any absolute and lasting solution, one concept has been developed that is saving thousands of dollars yearly where ever it has been applied.

It is the *transfer* concept. Many municipalities and private contractors have put it to effective use achieving savings for taxpayers and increased profits.

The transfer concept is simple, logical and practical: *loads from individual pick-up units are transferred to a larger unit, a truck-trailer, for the long trip to the final disposal area.* This approach parallels the manner in which motor freight companies use small trucks for city-wide pick-ups and then reload cargoes into large freight vans for inter-city transport.



"Every Man for Himself"

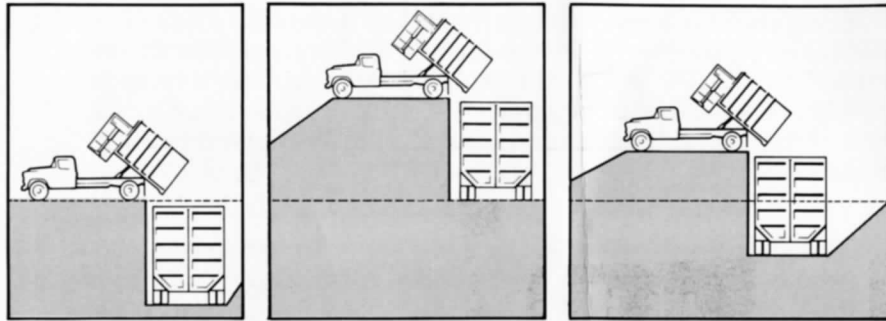
"Transfer Operation"

These diagrams illustrate graphically the savings possible with transfer operations. Not only are actual running miles cut in half; route trucks and their crews are able to double or even triple the amount of time spent on actual refuse removal.

In actual operation, a transfer station is established at or near the center of the area to be serviced by a given number of route trucks. These may number from three to six refuse collection-compaction units, depending on cubic capacity, or up to 25 8-cubic yard containers. The area itself may be an entire town, or in larger cities and metropolitan areas, only a section of a town.

At the station the transfer trailer works as a "portable dump site." Available in capacities of up to 60 cubic yards, it receives loads from pick-up units through its large roof doors and compresses (or re-compresses) these loads until it is full. It then goes to a specified outlying permanent dump site — one man, one truck, one round trip! Pick-up units meanwhile are back at work, picking up refuse on collection routes.

At first glance it perhaps appears that the expense of the "double handling" of refuse would cut into man-hour and mileage savings, unless the final disposal area were quite distant. However, *actual operational cost figures indicate significant savings are realized even when the dump site is as few as five or six miles away.* Maximum savings occur when the disposal area is about 10 or more miles out.



"CUT"

"FILL"

"CUT AND FILL"

Transfer Station Construction

... is relatively inexpensive. Three basic methods or types of station construction have been developed and proved successful. They are the "cut" or "trench" method, the "fill", and the combination "cut and fill".

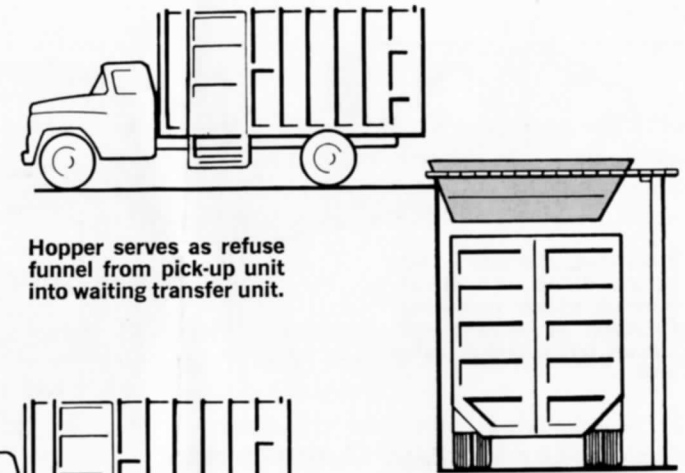
In many cases the type of station construction may be determined by surplus material — fill dirt, timbers, steel beams — available, favorable natural topographic formations, or other practical considerations.

A "cut" into an existing ridge or hill need not be as deep as one routed out of completely level ground. Leveling of adjacent lots may provide enough dirt for a "fill" station. Where terrain is level and no extra fill dirt is available, the combination "cut and fill" is most advantageous, with material from the trench piled up to form a ramp next to it.

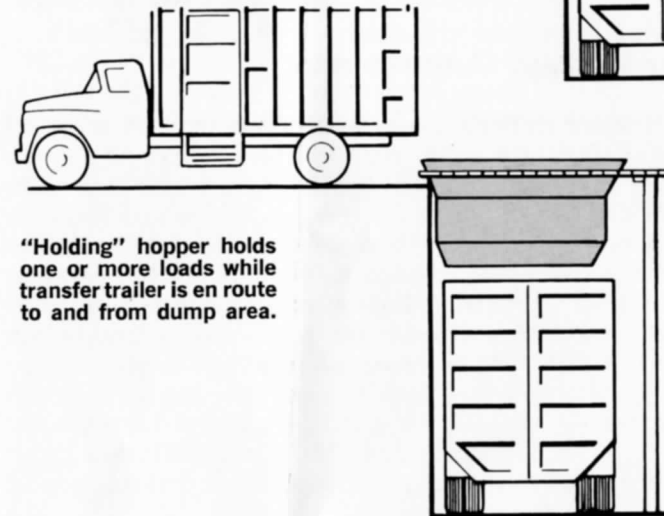
Modifications and Refinements

... of the way in which refuse is handled at any of these three types of transfer stations have also been developed. Since refuse collection is basically a problem in materials-handling it is useful to examine several methods. Those most common are the *hopper*, *holding hopper* and the *unloading platform*.

The *hopper* merely serves as a funnel through which the pick-up unit expels its refuse load into the transfer trailer at a lower level. A hopper with a larger "mouth" enables two or even more pick-up units to dump simultaneously. The hopper also serves as a wind block to minimize blowing refuse. For further prevention of refuse scattering, the hopper usually is enclosed by a wire, wood, or tin enclosure on three sides and top.



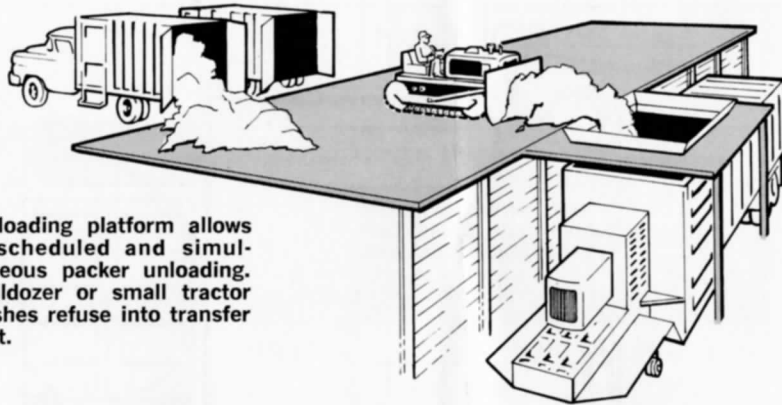
Hopper serves as refuse funnel from pick-up unit into waiting transfer unit.



"Holding" hopper holds one or more loads while transfer trailer is en route to and from dump area.

A "holding" hopper also functions as a funnel, but in addition it can "hold" one or several (depending on its size) pick-up unit loads while the trailer is en route to or from the disposal area. Of necessity, the holding hopper must be deeper (and thus the offset between the two levels greater) than in the strictly funnel-type hopper set-up.

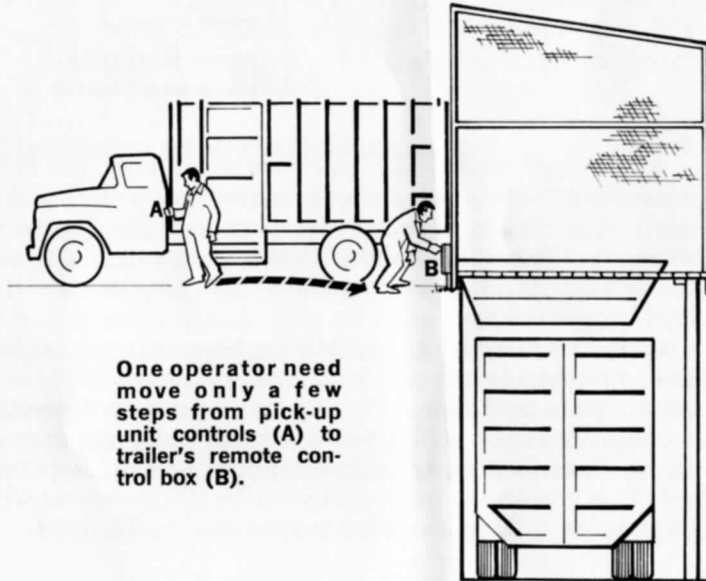
Similar in objective to the holding hopper is the *loading platform*, a random length platform flush with the rim of the hopper (see diagram next page). Pick-up units dump onto the platform at designated spots, from which a small bulldozer operating on the platform then pushes refuse into one or more hoppers which feed them into the transfer trailer below. With a series of hoppers, the transfer unit moves under each to receive the loads.



Unloading platform allows unscheduled and simultaneous packer unloading. Bulldozer or small tractor pushes refuse into transfer unit.

Remote Control

... of the transfer trailer's compressing cycle may be achieved through installation of a set of push-button controls at a given point on the station structure, usually somewhere near the hopper above the transfer unit. This control box is installed with an electric cable which plugs into a receptacle in the trailer control box. One man may then complete the entire operation at the upper level, actuating the controls on his pick-up unit to expel the load and activating the compressor plate in the trailer unit — without moving more than a few steps.



One operator need move only a few steps from pick-up unit controls (A) to trailer's remote control box (B).

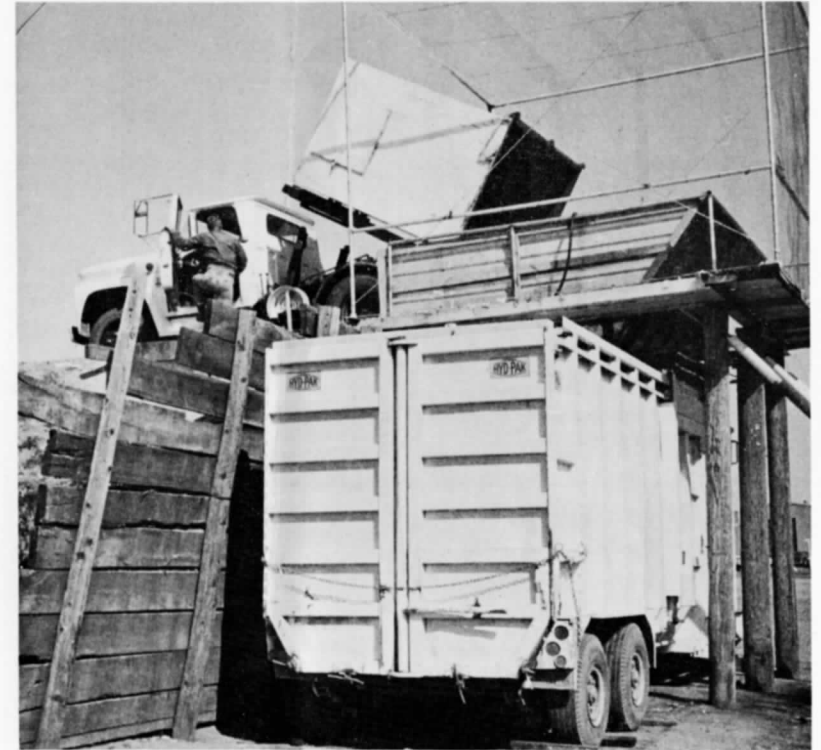
A Few Cases In Point

... illustrate various advantages of the transfer concept. The cities of Arlington, Abilene, and San Antonio in Texas; and Highland Park, Michigan, all have achieved operational savings in their individual transfer operations techniques.

Arlington, Texas

The Arlington Disposal Company is under private contract to the City of Arlington, Texas, for all residential and commercial refuse removal within the city.

Fundamental to this company's successful operation is its "fill-type" transfer station and its Hobbs HYD-PAK transfer trailer with a capacity of 42 cubic yards.



Dirt for Arlington Disposal Company's "fill" type station was obtained from leveling the plot of ground on which the company is located.

The ADC has more than 200 8- and 10-yard containers at specific commercial sites throughout the city, plus two short wave radio-equipped lift trucks. Some containers are picked up on call, others on a regular schedule at a set fee per pick-up.

Until March of 1963, the trucks carried the containers — filled with loose refuse — one at a time to the city dump located eight miles outside Arlington. Since establishment of the transfer station at that time, the trucks pick up and dump the containers' contents into the trailer at the transfer station.

The trailer, by compressing each load, can accommodate as many as 22 8-yard container loads before transfer to the city dump. The trailer makes an average of three trips every two days to the dump, under normal collection schedules.



Wire enclosure surrounding hopper at upper level prevents refuse from scattering.



Remote controls are in box at discharge level.

In monitoring the effectiveness of this operation, ADC discovered that labor expenses for a typical 8-hour period were about the same as before it employed the transfer technique. However, the number of containers emptied during the same 8-hour period jumped from 10 to 18. Total miles driven dropped from 173 to 108. Per-container mileage figures fell from 17.3 to 6; and per-container handling time was cut from 48 minutes to 27 minutes.

The ADC's station is wire-enclosed and equipped with remote controls for operation of the transfer trailer's compression cycle from the upper level.

Abilene, Texas

One of the oldest users of transfer trailers is the City of Abilene, Texas. Its station and accompanying equipment, which includes two truck-tractors and two 42-yard-capacity Hobbs HYD-PAK transfer trailers, were instituted at an original investment of \$32,330, including station construction costs.

Each trailer can hold as many as three or four loads from the 16-yard-capacity route packers. Arrival time for these packers is carefully scheduled to avoid congestion at the station and to allow the trailers time for trips to the disposal area.

Operational savings are estimated at \$95 per day since the transfer system was instituted. The estimate is based on a schedule of six trailer loads per day to the dump area. The refuse is collected by four small and six medium (16-yard) route packers with crews of three men each. Travel time and mileage are reduced by 1/2 hour and 14 miles respectively per round trip to the transfer station — rather than to the ultimate disposal area.

Advantages to Abilene residents are reduced costs, improved service due to greater personnel and equipment efficiency.



Abilene's transfer station shows dirt fill ramp construction. Shown in receiving position is one of city's two 42-yard Hobbs HYD-PAK transfer trailers.

Highland Park, Michigan

One of the finest and most efficient transfer stations in the country is the combination "cut and fill" station operated by the City of Highland Park, Michigan.

The station was designed around a 50-yard capacity Hobbs HYD-PAK transfer trailer. It features a concrete-finish permanent ramp and trench. A permanent type hopper is enclosed in a corrugated tin wind-block structure. At the top of the inclined ramp to the hopper, the driveway is bordered on either side by a tall wire fence to snare blowing refuse.



Highland Park's system relies on this Hobbs HYD-PAK transfer trailer.

Full packer loads are discharged directly through the funnel-type hopper into the transfer unit where refuse is recompressed.

The transfer unit can hold four 16-yard packer loads and makes three to four trips per day to the permanent dump area.

Pick-up unit dumps . . .



Hobbs HYD-PAK transfer unit receives this load and more before trip to permanent dump area.



San Antonio, Texas

Industrial Disposal Service, Inc. of San Antonio, Texas, a private contractor for industrial and commercial refuse removal, reports vastly-improved service since installation of its centrally-located transfer station.

The company loads both containers and 24-yard packer bodies into two Hobbs HYD-PAK trailers, which are rotated — one at the station, while the other is making the 30-mile round trip to the dump grounds — by *one* driver who can make five or six trips per day.

Folding roof doors of the trailer plus permanent transfer station slide plate form wind block hopper. Remote control connection permits safe and convenient operation of trailer packing cycle from the crosswalk above the trailer.



Strategically located transfer station handles refuse from 35 containers and five packer bodies for Industrial Disposal Service, Inc.

This transfer station is located strategically in the industrial district of San Antonio and saves countless individual lift truck-container trips to the disposal area.



The beginning of a successful transfer operation.

As this is written, more and more municipalities are turning to the transfer concept, because of its *economy*, *versatility*, and its *adaptability* to changing refuse collection conditions. Each city has its own individual problems, but in virtually every case where they have been employed, transfer trailers have solved these problems with more operational savings than were anticipated!

The transfer concept may well be the solution to the refuse removal needs of *your* city.

Analysis of your present system should provide helpful and enlightening information. Hobbs HYD-PAK representatives will be happy to assist you, with absolutely no obligation, to arrive at a planned program to meet the growing challenge of efficient refuse removal. Equipment demonstrations can be arranged.

Call, write, or wire HYD-PAK Division, Hobbs Trailers, 609 North Main, Fort Worth, Texas. ED 6-0404, Area Code 817.



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