



TRAY/CUTLERY UNLOADER



MAGNETIC CUTLERY CONVEYOR

TRAY/CUTLERY LOADER



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Bi-Line BULLETIN *Automatic Tray Loading/Unloading System Conveyors*

CANADIAN FORCES BASE, EDMONTON, ALBERTA

FOOD SERVICE CONSULTANT: Michener Planning Associates Calgary, Alberta

DESCRIPTION

Soiled trays are returned to the dishwashing room via tray trucks and unloaded onto a twin-belt polycord scrapping conveyor (See Bi-Line BULLETIN PC-90), which runs at right angles to, and crosses over top of, a flight-type wares washing machine.

A second wareswashing machine designed to wash and dry trays and cutlery is located adjacent to the first, and is fed by the polycord conveyor.

Food waste is removed from dishes en route and placed into an integral scrapping trough where the water recirculating system carries it to a pulper.

Flatware is removed from any of 4 workstations & placed directly onto the flight machine pegs.

Cups and glasses are placed in racks located on an overhead rack shelf. When full, the racks are placed on the same flight machine by the 4 operators with a minimum of movement.

Trays are left on the polycord conveyor and cutlery is left on the trays.

After turning 90-deg. to align with the #2 wareswasher, the trays pass under a cross-feeding magnetic cutlery picker conveyor (MCP – see Bi-Line BULLETIN Sheet #MAG-1), which picks up the cutlery and transfers it to a 6" wide transfer conveyor. This unit carries the cutlery to the conveyor built into the Hobart wareswasher, designed for washing cutlery exclusively.

The now empty trays continue past the MCP, down a slope and onto a high-speed feeder conveyor.

Integrated photo-cells and a "Q-stop" monitoring system ensure trays are positively loaded automatically into the wareswasher.

After passing completely through the wareswasher, the trays and cutlery exit, clean and dry, onto their respective unloading devices.

Cutlery is simply dumped from the end of the conveyor into open dish racks mounted on dollies located under the discharge chute at the exit end.

The trays, which go through the machine in an upright position, are tipped backwards by release bars, freeing them from the retaining fingers of the flight pegs.

The released trays fall onto a short unload polycord conveyor which propels them at high speed into a waiting tray collector.

Numerous checks and balances are built into the system. Remote photo-cells "report" conditions back to the electronic PLC computer controlled system.

Overloads, misalignment and human intervention are all but eliminated, as safety shut-downs are implemented where and as required.

Designed to handle 1200 trays per hour, the system is believed to be one of the first to use a micro-based processor and air operated rotary actuators. A 7-millisecond scan time allows back-to-back trays feeding into the washer with no loading problem.