Sabel

AUTOMATIC CASE PACKER

FARMERS COOPERATIVE CREAMERY
McMINNVILLE, OR

SERVICE MANUAL

BOTTOM LOADING SERIES
MODEL SE
SERIAL NO. 885

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INSTRUCTION MANUAL

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NOTE: Additional manuals can be purchased for $55.00 per copy when ordered with machine. After machine is shipped, additional manuals may be purchased for $95.00 per copy.

SECTION I - GENERAL DESCRIPTION AND SPECIFICATIONS

Theory of Operation

Packaging machines manufactured by Sabel Engineering are completely automatic case packing systems. Other than periodic reloading of flat cases (and pads if required), the equipment requires little or no attention from the operator. The case packing system generally provides the following operations:

(1) The lane divider (when supplied) splits the incoming lane(s) into the required number of balanced lanes for collation.

(2) Infeed conveyor transfers product from lane divider (or upstream machine) to case packer.

(3) Product is collated in the proper pack pattern (with pads between tiers if desired) and located on the elevator for case loading.

(4) A flat case is pulled from the case magazine, opened and positioned above the elevator.

(5) The collated product is gently elevated into the case through its open bottom.

(6) The bottom inner flaps are folded around the elevator platform and the case is pushed free of the elevator.

(7) Case is folded and sealed with glue or tape.

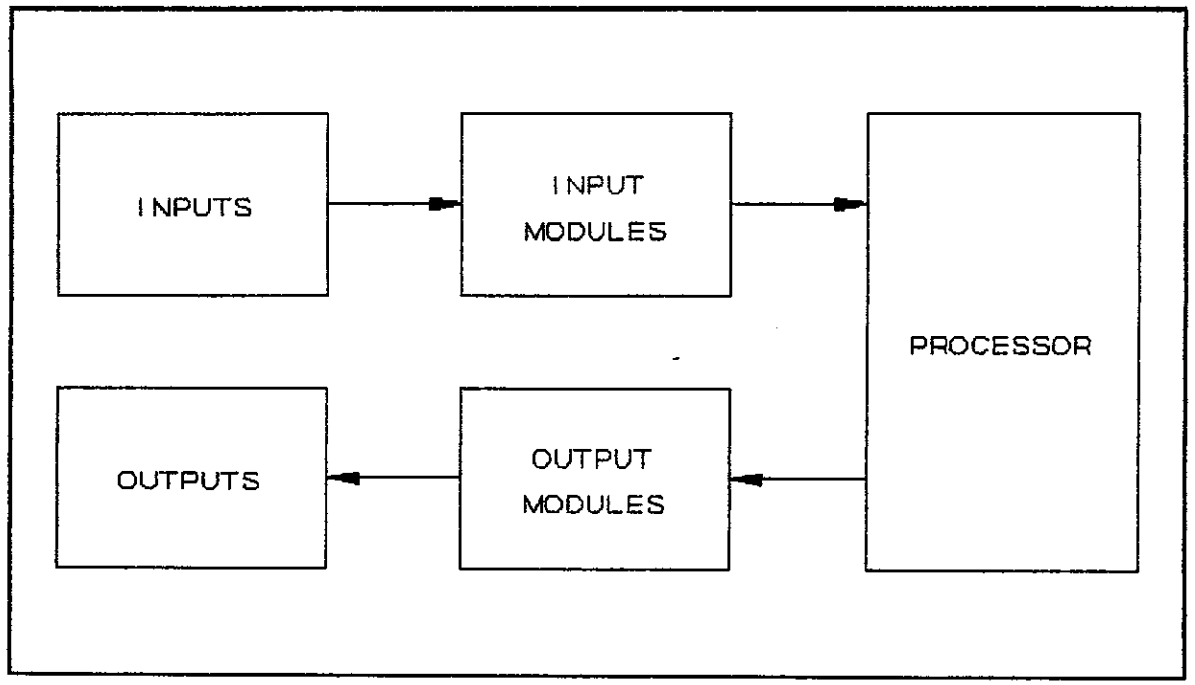
(8) The case is discharged ready for palletizing.

Mechanical Systems

All machine motions are driven by pneumatic cylinders ranging in bore size from 3/4" to 2". Linear motions are guided with Thompson ball bushings and hardened shafting. Rotary motions utilize either ball bearings or oil impregnated bronze bushings. An extensive system is provided for control of the pneumatic cylinders including cushions, speed controls, flow controls, and pressure regulators where required. Adjustable shock absorbers are used where it is necessary to stop a cylinder in a mid-stroke position.

Electronic Controls

Control of the machine cycle is accomplished with a programmable controller. The controller basically consists of input modules, output modules and the processor.



Inputs consist of the limit switches, proximity sensors, photoelectric controls, and push buttons that provide information on the status of the machine cycle to the processor.

The inputs are wired to the input modules via the mounting bases. Information received by the input modules is then transferred to the processor.

Upon analyzing this information, the processor directs certain outputs to energize in accordance with the programmed cycle stored in the memory. Signals commanding outputs to energize are transferred to the output modules.

Upon command from the processor, the output modules act as switches to energize the output devices. Outputs consist of the solenoid operated power valves and motor starters that drive the machine.

Power Air System

Filtration, regulation, and lubrication are provided for conditioning of the incoming plant air supply. The machine is designed to operate at about 80 PSIG. A slow build-up valve prevents sudden motion of the cylinders when the air is turned on (see Air Diagram).

Air is supplied to the cylinders with solenoid operated power valves. All valves are single (or double) solenoid, spool-type valves. Manual overrides are provided for setting cylinder speeds, etc. Speed controls are provided where required as follows:

(1) "Sandwich" type speed control unit mounted directly under the power valve. This method is used on 1-1/2" and 2" bore cylinders where a single power valve operates a single cylinder.

(2) Individual flow controls at the cylinder ports. This method is used to meter exhaust flow on 1-1/2" and 2" bore cylinders where a single power valve operates more than one cylinder or where metering of the inlet air to a cylinder is required for smooth operation.

(3) Port controls built into the cylinders themselves. All small bore cylinders (3/4", 1", 1-1/8") are supplied with integral port controls which function as meter out flow controls.

For some applications, it is desirable to operate a particular cylinder with air pressure lower than normal. This is usually done when the cylinder is pressing against the product itself. Pressure regulation is provided by piping the air to the solenoid valve through a regulator.

Vacuum System

The vacuum pumping system, either central or mounted on the machine, should provide approximately 17 cfm at 0" Hg. Vacuum filter(s) are provided to prevent debris from entering the pumping system.

Case Sealing System

Refer to sealing equipment manufacturers manual for specific information on the system provided with this case packer.

Service Requirements:

Air Supply

The plant air supply must be clean and dry and provide 80 PSIG with no more than 5% pressure drop during operation. Minimum size supply line is 1" I.D.

Electrical

Refer to Section II - Installation.