Description of Operation for the Discrete Signal Interface

INTRODUCTION.

The following information describes the discrete signal interface and its use. This interface is used with Avery and Barstrom labelers and in other applications where a simple method of remote control of bundle production is needed. All input lines are inactive when the external circuit is open. All output lines are inactive when the transistors are turned off. A drawing is supplied showing circuit characteristics. The discrete interface includes some commands that are used when working with the inserter control systems.

INTERFACE SIGNALS.

REM-REQ (Remote request). The discrete interface is requested to be "turned on" when the level on this line is activated (circuit closed). The closed circuit must be maintained during the entire period of use. If the signal is removed while in the label mode the stacker will immediately respond with a clear cycle and return to the standard batch mode.

REM-ACK (Remote acknowledge). This circuit is closed by the stacker in a timely manner in response to a REM-REQ. The circuit will be maintained during the entire period of use. REM-ACK is not immediately granted upon application of REM-REQ. either the stacker must be cleared or the present bundle being built must be completed. This action will insure that the first bundle produced will have the correct number of copies.

REM-CNT (Remote count). This is a pulsed output. A 15 millisecond pulse is generated on this line coincidence with the leading edge of every paper as it is detected by the infeed mounted sensor. This pulse is present even during periods when the interface is turned off.

ROTATE This is a pulsed input. This input is recognized only when REM-ACK is active. The duration of the pulse should be approximately 30 milliseconds. The stacker will intercept the next paper, drop the partially formed bundle and rotate the table.

EJECT This command is similar to the Rotate command except that the stacker will eject the collected contents of the table from the stacker after the intercept has been made. The eject command upon application also arms a one half second timer that will trigger a stacker clear, however this will happen only if a paper is not received during the half second interval.

LEFT/RIGHT If this line is active (closed circuit) when the Eject command is received the bundle will be ejected to the left, if the circuit is open the bundle will be ejected to the right

STACKER CLEAR A pulse on this line will cause the stacker to interrupt operation and initiate a clear contents cycle. This input is recognized only when REM-REQ is active.

CLEAR ACK (Clear acknowledge). This is a pulse output of variable length. It occurs whenever the stacker is cleared either by action of the operator or by remote command. This signal pulse can also be produced by the stacker should the Top of Batch sensor be activated. The pulse begins shortly after the command to clear is initiated and continues until the stacker makes the next intercept.

OPERATION.

The interface is turned "on" only after the stacker has received a REM-REQ and has responded with a REM-ACK. Hand shaking is required in order to produce bundles of correct size when transferring from internal to remote and again when transferring back to internal control

The remote device can activate the REM-REQ line at any time, however the stacker will not interrupt its operation immediately if it is in the process of building a bundle, instead the bundle will be completed before activating the interface.

- If the REM-REQ line is activated while stacking papers, the stacker will complete the bundle and then activate the REM-ACK line. This happens shortly after the last paper has been detected. The next PAPER COUNT pulse is for the first paper in the first bundle to be controlled by the remote device.

- If the REM-REQ line is activated when the stacker is idle (no papers received) the stacker will not grant REM-ACK until papers are received to complete the present transaction or alternately the stacker may be cleared. This can be accomplished by the operator depressing the clear push button or by the application of the STK-CLR signal. This action will cause the REM-ACK signal to be activated and the stacker made ready to produced bundles of a size determined by the device.

The remote mode can be interrupted at any time by removal of the REM-REQ command, however this action can cause the production of a mis-counted bundle if done while papers are being stacked. This can be prevented by using the following procedure.

- The remote device always generates an EJECT command at the end of each bundle. When the very last bundle is completed the device should simultaneously generate the ROTATE and EJECT command. Receipt of both is recognized by the stacker as the end of the remote mode and will respond by removing the REM-ACK signal and put the stacker back into the internal control mode. The REM-REQ can now be removed and must be removed at least momentarily before the remote mode can be re-entered.

Note: The remote device should output the Rotate and Eject commands shortly after the last paper in the batch has been counted. Batch count accuracy depends upon receipt of the commands prior to the arrival of the next paper (first paper of the next batch).