# **3M** Electronic Roll Feed (ERF) Registration System

# **Information Folder 9.6**

## **Safety**

**Blanking Die Guard:** Fabricated guards enclose the blanking die to prevent accidental access by fingers and hands. Safety switches are mounted on the press to prevent the press from operating when the guards are removed. Always block the die before servicing or removing the die. Never attempt to run the press without the proper safety guards in place.

#### CAUTION!!!

The roll feed guards must always be in place when operating the press.

Electrical Connections: The press, 3M<sup>™</sup>

Registration System and 3M<sup>™</sup> Squeeze Roll Applicator are electrically connected. Disconnect the electrical power on all machines before servicing.

#### **CAUTION!!**

All electrical panel doors/covers must be closed during operation.

# Introduction

The 3M<sup>™</sup> Electronic Roll Feed (ERF) Registration System is designed to accurately control the feed length of the laminated graphic strip into the blanking die. In the GRAPHIC mode, the system automatically detects registration marks on the graphic sheeting and feeds the laminated strip into the press for accurate graphic blanking. In the STANDARD mode (plain sheeting), the registration system is by-passed and the ERF system simply feeds the laminated strip into the blanking die a set length. May 2014

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This information folder is designed to provide the operator with enough information to operate the registration system in conjunction with the blanking press to manufacture graphic and/or plain license plate blanks. The manual covers changeover procedures between graphic and standard sheetings, as well as the proper setup needed for running different graphic designs.

# **Specifications**

Electrical panel dimensions: 38 inches wide x 10 inches deep x 54" high.

Power supply required: 208/240 V, 60 cycle, 3 phase power - 20 amp service.

Operating temperature: 60 - 90°F

Roll feed required: CWP DDR 1614G, CWP DDR 128G or equivalent.

# **Controls - Operator Panel**

a. Control Power - On/Off d. Indicator Lights e. Nip Roll - Close/Open/Auto



Figure 1

- a. **CONTROL POWER OFF/ON** (two-position selector switch): turn the switch to ON to power up the machine. The RESET indicator lights when the power is turned on, and must be pushed in to reset the machine before beginning operation.
- b. CONTROL MODE JOG/RUN (two position selector and push-button switch): select RUN for normal production, and press the push-button to start the machine. If the green APP'L & PRESS OK light is illuminated the system will run. Select JOG for manual feed into and out of the press. The roll feed will jog as long as the button is pushed.
- c. **HARD STOP** (red mushroom maintained pushbutton): pressing the HARD STOP button will stop the roll feed instantly and open the roll feed. The press will top stop and the applicator will continue to feed until the web slack switch is actuated. To restart the registration system after a HARD STOP, pull out the HARD STOP button, press the RESET button and restart the system.
- d. **Indicator Light** (4 cluster pilot light): BLUE LIGHT indicates the registration system, applicator and press are ready for normal operation. GREEN LIGHT indicates the applicator and press are ready for normal operation. WHITE LIGHT indicates the registration system has been powered up and is waiting on an operator command. If a RED LIGHT appears, the registration system has made 3 consecutive feeds and has not sensed a registration mark.

--- To reset a RED LIGHT, the CONTROL MODE switch must be pushed while the selector switch is in the RUN position ---

- e. **NIP ROLL CLOSE/OPEN/AUTO** (three position selector switch): OPEN or CLOSE the nip roll with this switch. In the AUTO mode, the roll feed will automatically open (pilot release) when the press is at the bottom of its stroke. Use the CLOSE mode for normal operating conditions.
- f. **RESET** (white illuminated push-button): when the registration system is first powered up or when the HARD STOP button has been pressed, the RESET indicator light turns on. Press the RESET button to clear the machine controls and prepare to run.
- g. MODE STAND/GRAPHIC (two position selector switch): select STAND to run plain reflective sheeting or GRAPHIC to run preprinted graphic product.

#### h. JOG DIRECTION - REV/FWD (two

position selector switch): select REV to jog the laminated strip out of the press and FWD to jog the strip into the press. This switch DOES NOT affect the direction of the laminated strip while in the RUN mode.



**Operator Interface Terminal (OIT)** 

Figure 2

# Maple Touch Screen (OIT) (Operator interface terminal)

The Maple touch screen is used to communicate operating data to the SERVO Drive controller.

To apply power to the ERF system and the Maple touch screen; At the operator control panel, Turn the Power ON OFF selector switch to ON.

Push the Pilot lit Reset Button.

Wait until the Maple OIT communicates with the controller (A Beep confirms communication)

The default screen (Fl) will appear on the OIT

#### **Plate length**

#### **Registration Distance**

#### PLATE LENGTH (F1)

To change the Plate length, move the curser by touching the up or down arrow icon buttons on the touch screen. Once the curser is under the plate length number, touch the Clear icon button. The number in the Plate length will disappear.

Using the numeric icon buttons, enter a new number for the plate length. EG 6.125.

Press the Enter icon button. The new number is now entered into the computer for the next feed cycle. The Plate Length parameter is determined by measuring a uniform plate, cut from the die in the blanking press. EG. 6.125 inches. A Motor Cycle die would typically require a Plate Length of 4.125 inches.

#### **REGISTRATION DISTANCE (F1)**

Move the curser under the Registration distance number. Touch the Clear icon button to remove the existing registration distance number.

Enter a new registration distance by entering a new number using the numeric icon buttons. Press the Enter icon button to load the new number into the computer.

#### **Set Registration Distance**

1. Measure the distance from the leading edge of a plate (or cut line) to the chosen registration mark. (ex. 4-1/2" distance = 4500).

2. Enter this number on the touch screen located in the registration control panel titled REGISTRATION DISTANCE.

Note:

The Plate length and Registration distances can also be accessed by touching the F1 icon button anytime during operation.

#### EYE TO DIE DISTANCE (F2)

The Eye to Die distance is accessed by touching the F2 icon button.

The Eye to Die distance can be changed in the same sequence as the Plate and Registration Distances.

The Eye to Die distance is the measured distance from the 12 inch cutting edge of the blanking die, to the SICK optic sensor LED.

#### EG. 14.750

Note: Whenever a change is made to the EYE TO DIE parameter, the power must be cycled off and on for the controller to accept the change.

#### **MISSED REGISTRATION (F3)**

Number of missed registration plates is accessed by touching the F3 icon button. This is an information only screen and cannot be changed by the operator.

#### PLATE LENGTH (F4)

Plate length is a read only number and is accessed by touching the F4 icon button. The measured plate is recorded at each feed cycle. The plate length cannot be changed by the operator.

#### **COUNTER (F5)**

The counter is accessed by touching the F5 icon button. The number can be changed to zero by touching the Clear icon button, and then entering 0, followed by pressing the Enter icon button.

# **SICK Optic Sensor Calibration**



Figure 3

#### **Calibration:**

Turn the adjustment arrow on the top of the sensor from the Run position to the Teach position.

Place the registration mark under the sensor LED (located on the bottom of the sensor)

Push down on the teach button for one (1) second and release.

Slide the sheeting so that the contrast color (background color) is now under the LED.

Push down on the teach button for one (1) second.

Turn the adjustment arrow to the Run position. The sensor should now be adjusted.

**Note:** With the SICK Optic sensor in the Teach mode, the Amber LED on the top of the sensor will start to strobe slowly after the Teach button is pushed the first time. This indicates that the sensor has identified the target color and is now ready to be calibrated to ignore the background color of the license plate.

After moving the background color under the optic sensor, push the Teach button again for one (1) second. The Amber LED should now turn off. Note that the sensing LED lights may change color from Red, Blue or Green.

The optic sensor determines the best LED color array to contrast between the targeted color and the background color.

The Amber LED on the top of the sensor should only come on when the targeted color is under the LED's on the bottom of the sensor.



#### Figure 4

# **Operation - Standard (plain sheeting) Setup**

A. Using the MODE switch on the operator panel (upper right switch), select STAND (Figure 1).

B. Set Plate Length

1. Measure or Calculate the finished plate length in decimal form using three decimals (6-1/8" plate = 6125).

2. Enter this number on the touch screen located in the registration control panel titled PLATE LENGTH (Figure 4).

# **Operation - General Operation**

A. Using the CONTROL POWER switch on the operator panel, turn the power ON (Figure 1).

B. Depress the white illuminated RESET button to clear the system and turn off the white light.

C. Setup the system as needed (see above setup procedures).

D. Using the NIP switch on the operator panel, select CLOSE.

E. Using the CONTROL MODE switch on the operator panel, rotate the outer sleeve to JOG.

F. Jog the laminated material to position it in the die on the reference line, ready for blanking (Figure 5).



Reference Line

Figure 5

G. Switch the CONTROL MODE switch to RUN.

H. Start the applicator. Start the press motor while in the continuous mode (the green light will come on).

I. Press the CONTROL MODE button to activate the registration system (blue light).

The blanking press will now operate.

# **Operation - Shutdown**

The system will automatically shutdown when the press motor is shut off or the applicator is shut off.

To manually shut off the registration system, simply rotate the CONTROL MODE switch to the JOG position.

## Maintenance

Maintenance Schedule based on a 40 hour work week:

# **Roll Feed**

Weekly:

-Fill Top & Bottom Roll Bearings (4) oil cups daily

**TEXACO SPINDURA 22** 

#### Monthly:

-Add Oil to filler fitting, 2 drops monthly

#### FOR INFORMATION OR ASSISTANCE CALL: 1-877-777-3571 IN CANADA CALL: 1-800-265-1840 Internet: www.3M.com/mvss

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