Clutch/Brake PanelView 600
for Cat. No. 6556-SCBK3 and -SCBK3DC

What this Contains

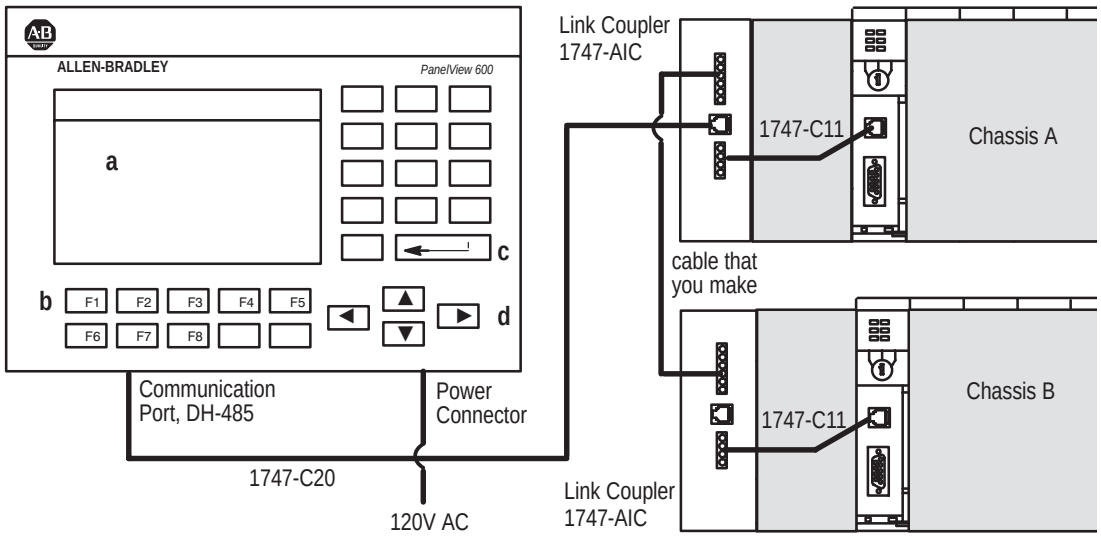
Use these instructions to:

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• use typical features	2
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– configure various functions of the control system	4
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– monitor various functions of the control system	25

Connect and Operate the PanelView 600 Terminal

Connect the PanelView 600 terminal (Cat. No. 6556-SPV600) to the Link Coupler (Cat. No. 1747-AIC) with the 1747-C20 cable.

The PanelView 600 terminal is factory-set for your application.

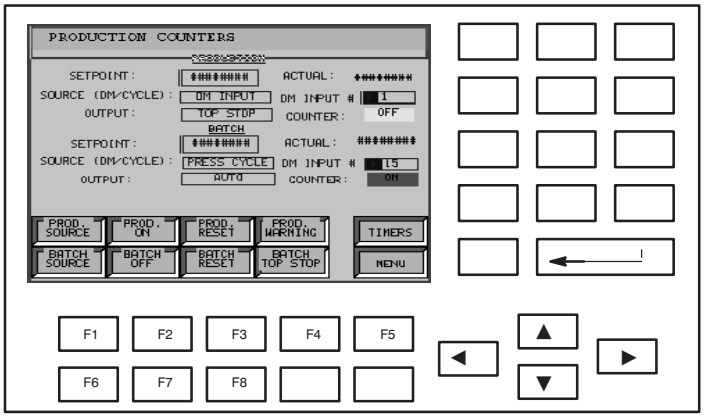


Locate and use these items on the front panel:

Locator:	This item:	Does this:
a	display area	presents screens (Displayed function keys define the purpose of hard function keys located immediately below the display area.)
b	hard function keys	when pressed, initiates the function defined by one of the soft function keys displayed on the screen immediately above
c	enter key	when pressed, enters the field that you moved the cursor to
d	cursor leys	when pressed, moves the cursor in the direction of the arrow

Using Typical Features

We illustrate typical features displayed on a PanelView 600 terminal.



Using Function Keys

Notice the double row of keys displayed at the bottom of the screen. The upper row of *displayed* keys matches hard keys [F1] – [F5], and that the lower row of *displayed* keys matches hard keys [F6] – [F10]. Displayed keys typically change from one screen to another.

To select choices from a function displayed on the screen such as [PROD SOURCE] or to select another screen such as [TIMERS], press the hard key associated with the displayed key. For example, the [PROD SOURCE] key lets you toggle between *DM channel* or *press cycles* as the source of a production counter.

Entering a Preset | [#####]

To enter a preset, cursor to the datafield. When you enter a digit from the keypad, the screen presents a numeric entry window showing valid-entry limits. Enter a preset and press the enter key (long-arrow).



Scrolling Multiple Values | [> 1]

To scroll multiple values such as selecting a number between 1–20, cursor to the datafield and repeatedly press the up or down arrow key on keypad.

Reading Machine Status

Information indicating machine status is displayed in reverse video. For example, ACTUAL: ######## shows the accumulated count.

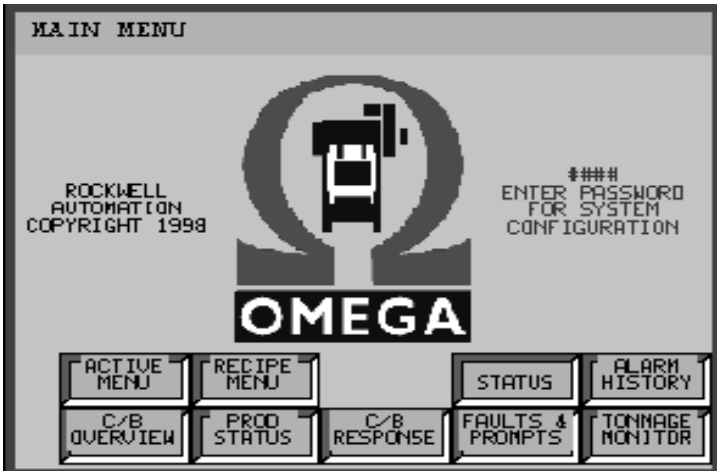
Reset an Alarm Message

Whenever the processor detects a fault condition, it displays an alarm message (banner) across whatever PanelView screen you are viewing. Proceed as follows to reset the alarm message and correct the condition:

1. Read the message.
2. Press [CLEAR] to clear the alarm message.
3. To learn more about the condition(s) causing the alarm,
   a) Go to the Main Menu and press [ALARM HISTORY].
   b) Observe the list of time–stamped alarm messages.
4. Take appropriate action to correct the condition(s). Otherwise, the alarm may continue to re–occur.
5. To return to the previous screen, press [RETURN].

Password Access from the Main Menu

At power up, the PanelView 600 terminal presents the Main Menu.



To gain access to security-sensitive screens, you must enter a password.

To access:	For this purpose:	Press:
Config Menu	Set passwords and access configuration screens	1234
Active Menu	Edit/monitor PLS and DM functions, online	[ACTIVE MENU]
Recipe Menu	Create PLS and DM functions, offline	[RECIPE MENU]

On the Configuration menu, we give you two levels of password access:

- system-level for access to the Configuration menu and screens
- edit-level for access to Active (online) and Recipe (offline) screens

Important: Set your 4–digit passwords (next) to establish system security.

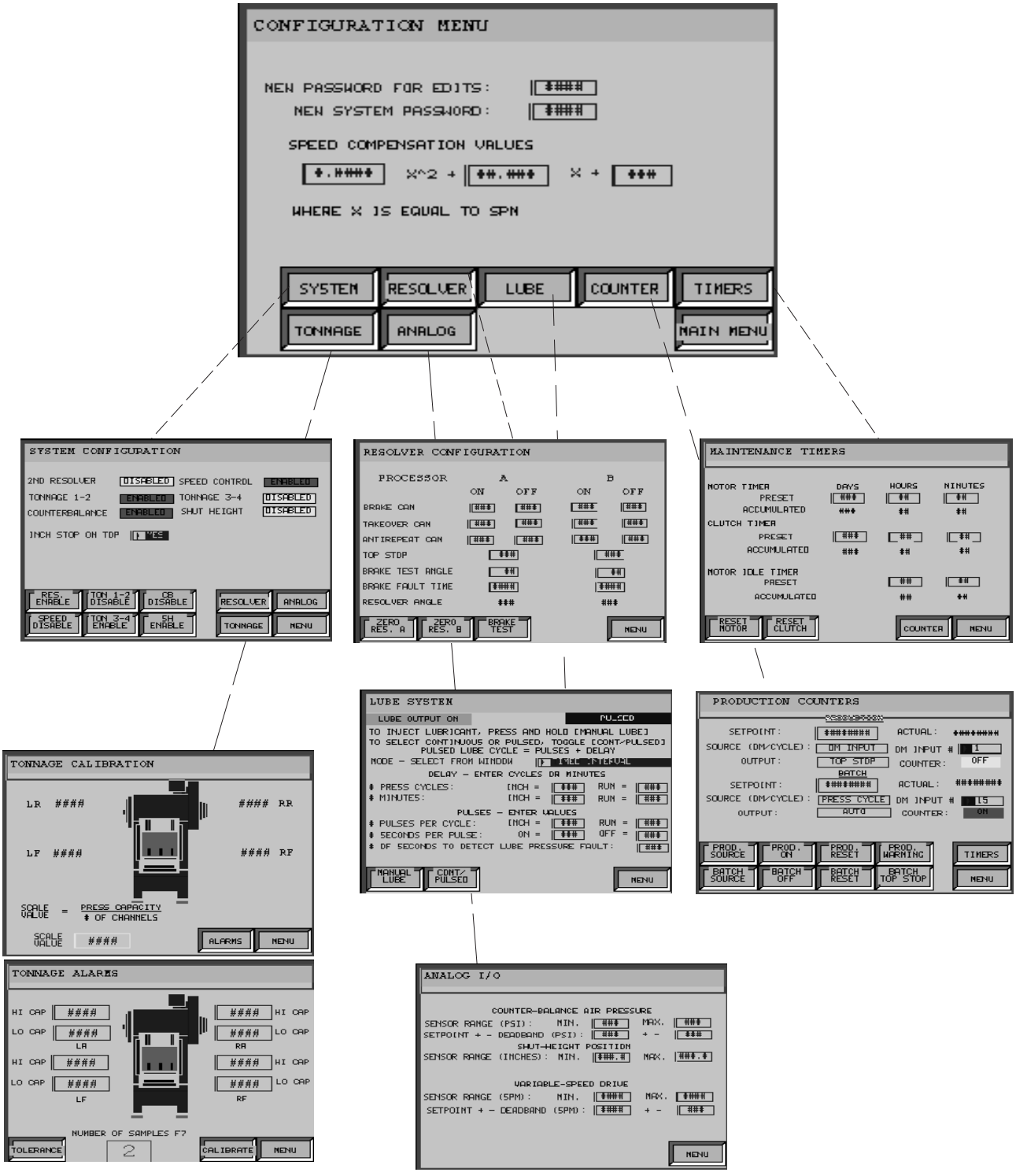
Without a password, you may access the monitor-level screens.

To monitor:	Press:
control system functions	any other key

Configuration Screens

Use the Configuration Menu to:

- Enter system- and edit-level passwords
- Configure the system for press-speed compensation (see page 13)
- access configuration screens



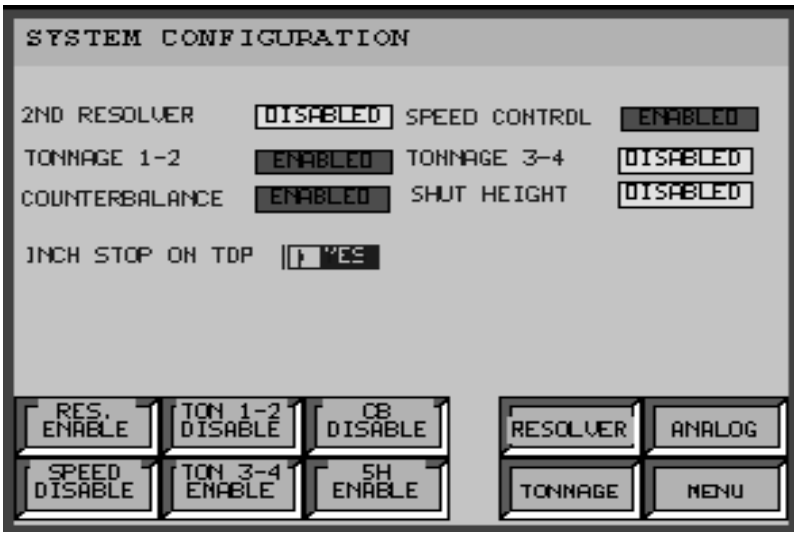
System Configuration

Use this screen to configure one or more of the following options:

- second resolver input (to chassis B)
- tonnage monitor
- analog I/O for automatic counterbalance, shut height adjustment, and/or variable-speed drive of the press motor

To add an option, you must enable it on the System Configuration screen and slot the associated I/O module. To enable or disable a function, you toggle the hard function key indicated by its corresponding soft function key at the bottom of the screen.

For this option:	Enable/Disable:	Be sure to slot this I/O module:	See wiring:
2nd resolver (chassis B)	RES	resolver module in slot 3, chassis B	sheet 8
tonnage monitor (chnls 1, 2)	TON 1–2	tonnage module in slot 7, chassis A	sheets 12
tonnage monitor (chnls 3, 4)	TON 3–4	tonnage module in slot 8, chassis A	sheet 13
counterbalance	CB	analog I/O module in slot 6, chassis B	sheets 9, 11
shut height	SH	same as counterbalance	
variable-speed drive	SPEED	same as counterbalance	



After completing this screen, go to the following as needed:

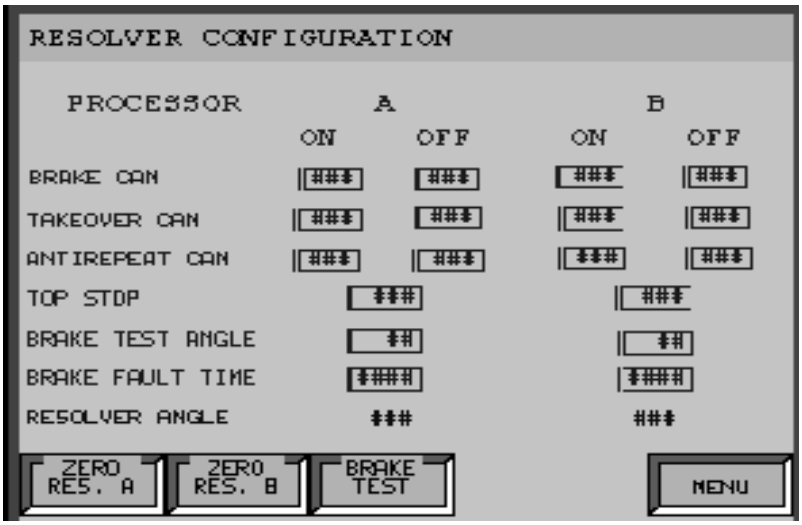
Press:	To:	On page:
[RESOLVER]	configure resolver(s)	6
[TONNAGE]	calibrate and set alarms for tonnage monitoring	10
[ANALOG]	set sensor ranges and setpoints for counterbalance, shut height position, and variable-speed drive	12
[MAIN MENU]	set variable-speed compensation, if used	13, 4

Resolver Configuration

Your C/B control requires a resolver input to chassis A. For the position input to chassis B, use either a second resolver or rotary cam switches.

Important: If using rotary cam switches for chassis B, adjust them mechanically, independent of this screen.

Important: If using a second resolver, you must enable it on the System Configuration screen and configure it on this screen If not, this screen ignores datafields for chassis B.



To enter data, place the cursor on the datafield. Enter values on the keypad.

1. Enter ON/OFF settings for the BCAM, TCAM, and ACAM.
   Important: For instructions, see User Manual (6556-6.5.11) chapter 3.
2. Enter an angular value for TOP STOP in the range of 0–359º.
   The faster the press speed, the larger the back off from 359º.
3. Enter a value for BRAKE-TEST ANGLE.
   The range is 30–90º inclusive, typically 90º.
4. Enter a value for BRAKE-FAULT TIME in units of milliseconds.
   When doing a brake test if the stopping time exceeds value, the processor declares a brake-test fault. **Replace or repair the brake.**
   Before you can re-start the press, you must press the Fault Reset button to reset the alarm.
5. Use these function keys as follows:

Press this key:	To do this:
ZERO	Determine the shaft position that you want to call 0º. First, rotate the shaft to that position.
BRAKE TEST	Test brake performance. First, take appropriate safety precautions. **ATTENTION:** Pressing this key E-STOPS the press.

Lube System

This screen lets you apply manual lubrication, or set up automatic lubrication for these lubrication modes:

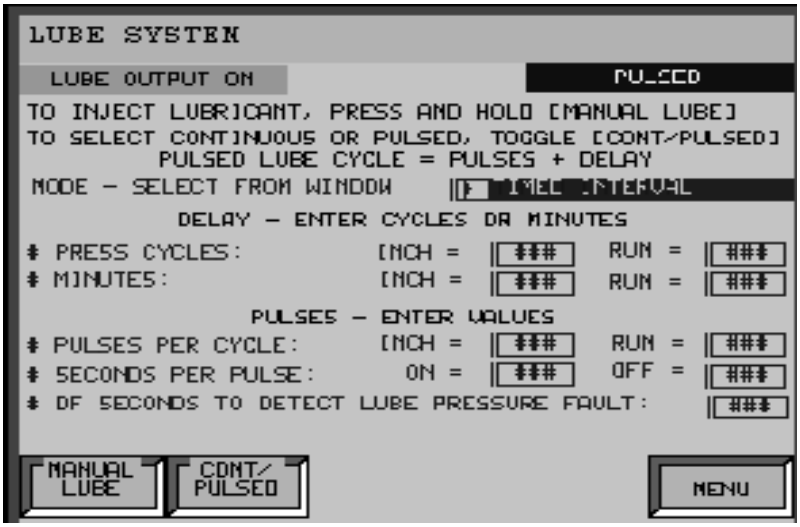
- continuous – lube output is on as long as the motor is running
- pulsed (timed intervals) – lube output goes off for a preset number of minutes, then pulses a preset number of times (then repeats)
- pulsed (press cycles) – lube output goes off for a preset number of press cycles, then pulses a preset number of times (then repeats)

You select the lubrication mode from the screen's selection window.

The module is designed to stop the press when it detects the absence of lube pressure during pulsed or continuous operation.

- For pulsed lube, you preset the pulse on and off times. You also preset a time delay to obtain full pressure with each pulse before the module tests for lube pressure.
- For continuous lube, lube output remains ON regardless of a detected low-pressure fault that stops the press.

Notice the separate setup for inch and other press control modes.

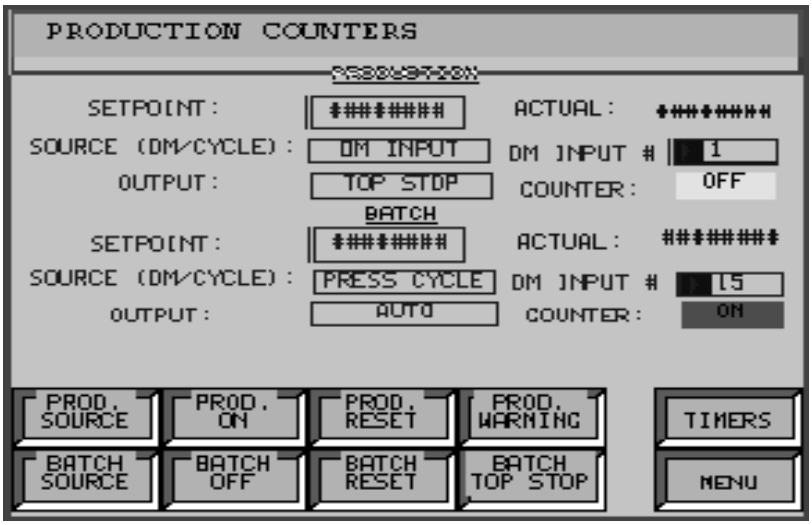


Press this key:	To do this:
MANUAL LUBE	apply lubrication manually
CONT/PULSE	select either continuous or pulsed lube mode

Production Counters

This screen compares the actual production count with a preset total, and lets you select the count source and action to be taken at completion for:

- production – total number of parts for the job
- batch – number of parts to fill the bin



The screen presents two rows of function keys, one row for production, the other for batch. The functions are similar for both.

Enter a preset for total count in the SETPOINT data field.
Then, toggle function keys to select choices and enter values:

Press this key:	To do this:
SOURCE	toggle between a DM channel (also select the channel number) or press cycles (the processor counts each cycle)
ON / OFF	toggle between the counter turned OFF or ON
RESET	reset the SETPOINT value to zero
TOP-STOP/WARNING (for production)	toggle OUTPUT action at completion between WARNING and TOP-STOP
AUTO/MANUAL (for batch)	toggle OUTPUT action at completion between: MANUAL: The processor top-stops the press and sets an output. The operator must: – replace the bin – press the Fault Reset button – re-start the press. AUTO: The press continues, but an output (slot 5B) is set to initiate automation such as replace the bin. Automation must turn auto-batch input ON (slot 2A) which turns OFF the output.

Count information is *not* stored with the indicated part file.

Important: The indicated count depends on when the operator reset the counter. The count could indicate total strokes on the machine, strokes for the active job, strokes for the day or night shift, etc.

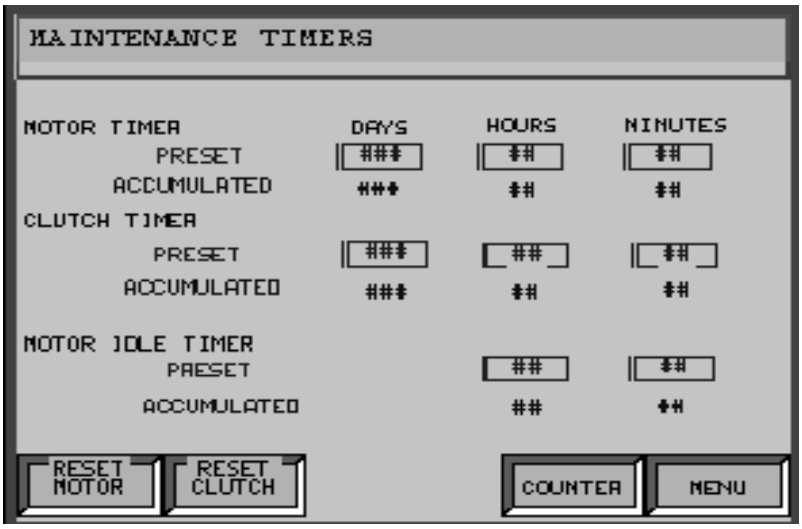
When you complete this screen, go to TIMERS or return to MAIN MENU.

Maintenance Timers

This screen compares accumulated time with a preset value for:

- motor running
- clutch engaged
- motor at idle

You can turn on, off, or reset the counters. You can preset a time interval to which you can compare accumulated time for maintenance purposes.



1. To reset a timer, press its [RESET] key.

2. Enter a preset time interval in the PRESET datafield.

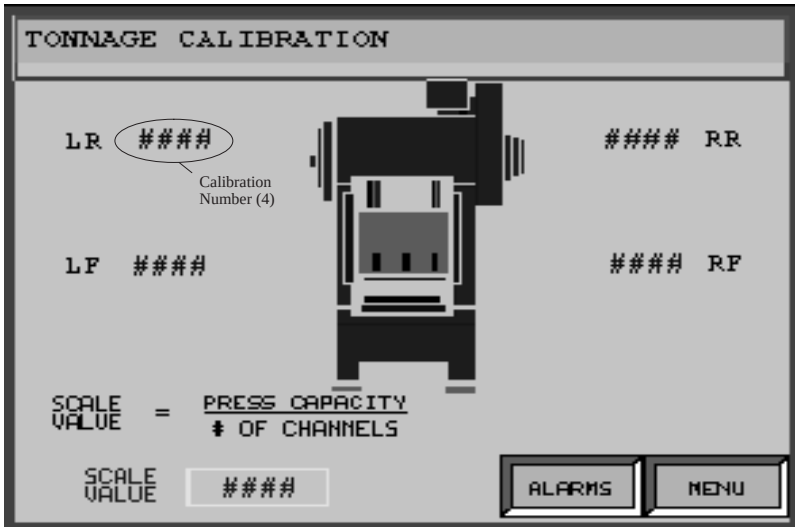
When you complete this screen, go to COUNTERS or return to MENU.

Tonnage

You calibrate and set alarms for tonnage monitoring with these screens:

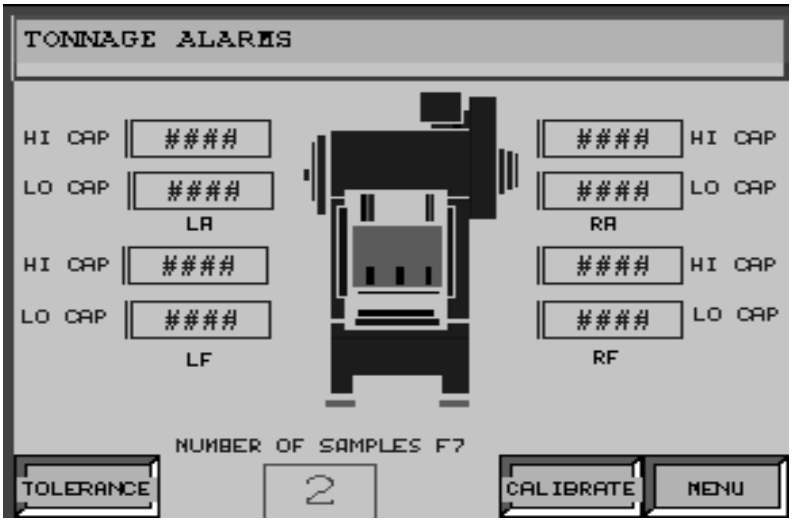
- Tonnage Calibration
- Tonnage Alarms

Tonnage Calibration
This screen lets you calibrate tonnage channels.
To do this, use the procedure on the next page.



Tonnage Alarms
This screen lets you preset:

- alarm limits for capacity and trend tonnage for each channel
- number of samples (die closures) that determines the benchmark to which trend tonnage is compared on the Tonnage Monitor screen



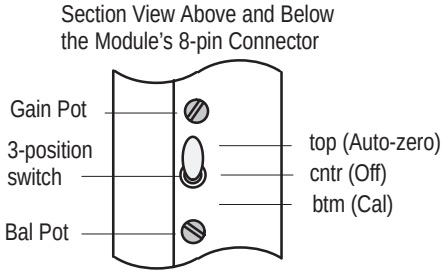
Procedure to Calibrate and Set Alarms for Tonnage Channels
This procedure assumes that:

- Helm tonnage modules are located in slots 7 and 8, as needed
- channel sensors are connected to tonnage module input terminals
- SLC chassis and tonnage module(s) are powered
- clutch/brake control system is operating correctly

The procedure starts with the Tonnage Calibration screen.

1. Enter the Scale Value on the Tonnage Calibration screen:

$$\text{Scale Value} = \frac{\text{Press Capacity}}{\text{\# of Channels (2 or 4)}}$$



2. Zero the Channel Calibration Numbers
(Balance sensor inputs to zero)
a) On the module, set the 3-position channel switch to OFF (center).
b) Turn the channel *Balance* pot until the corresponding channel calibration number (on Tonnage Calibration screen) reaches zero.
c) Return the 3-position channel switch to Auto-zero (top).
d) Repeat for each channel.

3. Obtain press calibration numbers (each channel) from your records. If not available, you must measure them with a load cell.
For the procedure, refer to the Helm manual, Installing Strain Gage Transducers, that accompanied your Helm sensors.

4. Set Channel Calibration Numbers to the Values of Step 3.
a) On the module, set the 3-position channel switch to CAL (bottom).
b) Turn the channel *Gain* pot until the corresponding channel calibration number (on Tonnage Calibration screen) reaches the press calibration value (from step 3) for that channel.
Important: For two channels, RL and RR values are ignored.
c) Return the 3-position channel switch to Auto-zero (top).
d) Repeat for each channel.

5. Set Tonnage Alarms
a) Go to the Tonnage Alarms screen.
b) Toggle the Trend/Capacity function key to Capacity mode (as indicated in the window at the top of the screen).
c) Enter High and Low capacity alarm limits for each channel:
High Capacity = max load rating of the press
Low Capacity = minimum load to stamp a quality part
(These are absolute values in units of psi.)
Important: For two channels, RL and RR values are ignored.

6. Set Trend Alarms

a) Toggle the Trend/Capacity function key to Trend mode (as indicated in the window at the top of the screen).

c) Enter High and Low trend alarm limits for each channel:
High Trend = upper limit of benchmark alarm deadband
Low Trend = lower limit of benchmark alarm deadband
(These are deviation values in units of tons.)

Important: For two channels, RL and RR values are ignored.

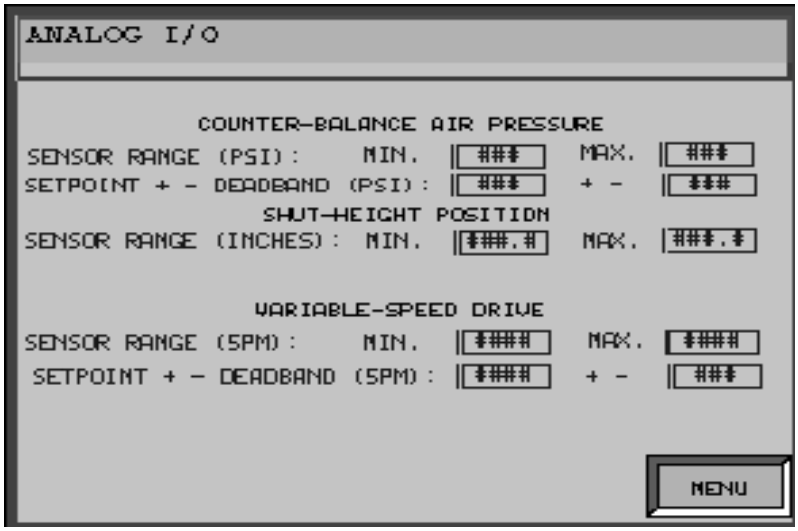
7. Set the Number of Samples
The module uses this number to compute the average (benchmark) trend pressure. The trend alarms of Step 6 set up the deadband above and below this value. During a production run, the Tonnage Monitor screen reports the %-deviation from this value for each channel. Enter a suitable value on the Tonnage Alarms screen.

Analog I/O

Enter sensor ranges, setpoints, and setpoint deadbands for:

- counter-balance air pressure
- shut-height position
- variable-speed drive

Enter these values in the units indicated on the screen.



To enable these features, go to the System Configuration screen, page 5.

Setting Up Press-speed Compensation

Typically, you use press-speed compensation for a *variable-speed* press when PLS or DM functions occur *too late* as press speed increases.

Press-speed compensation is the optional automatic adjustment of the angular value from the resolver. The compensation adds an offset to the value so that the control system responds *sooner* by the amount of the offset. The offset value reaches the setpoint before the actual value.

The compensation produces an offset value proportional to press speed:

$$\text{Offset} = \frac{Ax^2}{10{,}000} + \frac{Bx}{100} + \frac{C}{1}$$

where x = press speed

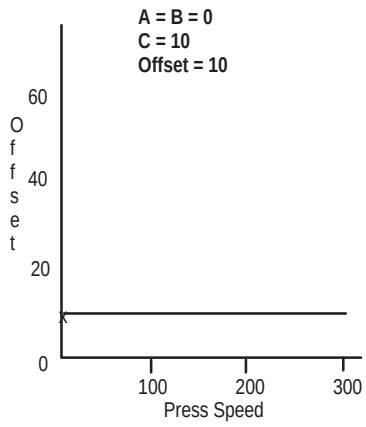
A, B, and C are constants that you enter into the Configuration Menu screen to obtain desired results. By choice of constants (unwanted ones = zero), you can make the offset:

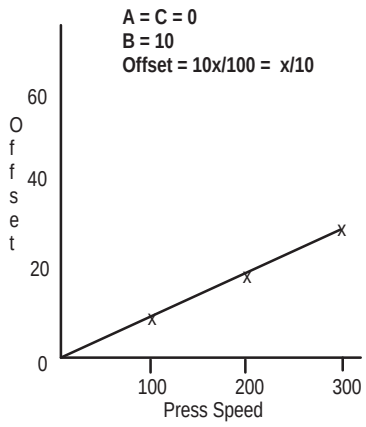
- a constant
- proportional to press speed (gets larger as press speed increases)
- exponentially proportional to press speed (gets larger faster)

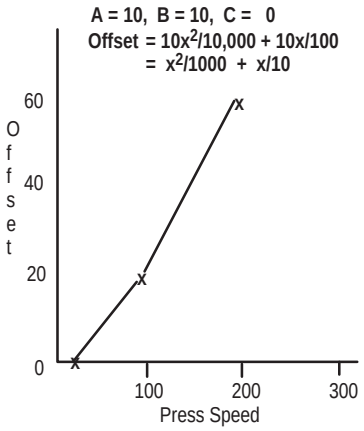
For this relationship:	Let:	Then Offset:
Offset = constant	A = B = 0	= C
Offset proportional to press speed	A = C = 0	= Bx/100
Offset exponentially proportional to speed	C = 0	= Ax^2 /10,000 + Bx/100

We suggest whole-number values 0-10.

To illustrate these relationships, we graphed examples of offset vs press speed for different constant values.



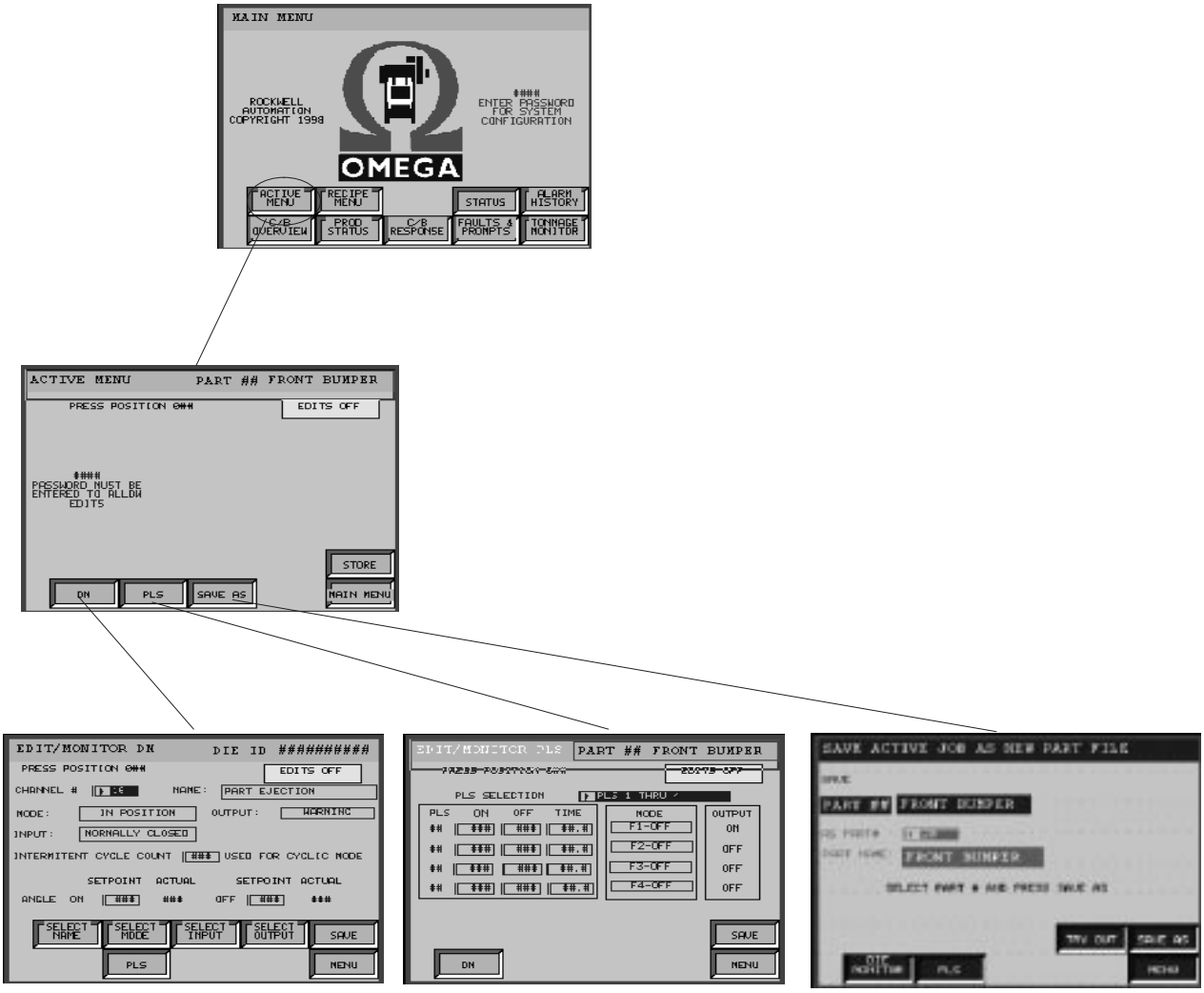




Enter values for constants A, B, and C on Configuration Menu, page 4.

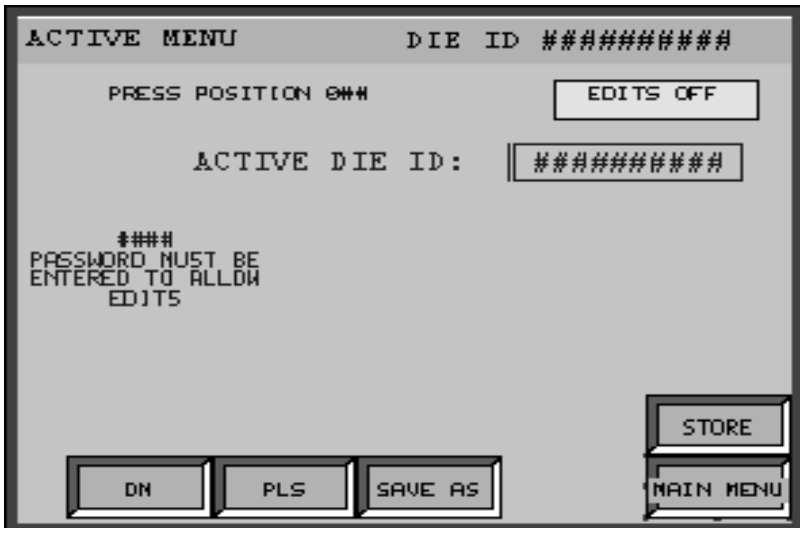
PLS/DM Active Screens

Use Active screens to edit/monitor PLS and DM functions. You access this path from the Active Menu key on the main menu.



PLS/DM Active Menu

Use this menu to access other screens to edit/monitor DM and PLS functions while the press is operating, and to save-as and/or store them.



Press:	To:
DM	access either screen to edit/monitor that function
PLS	
SAVE AS	access the screen to save the edited part file
STORE	store the current part file in SLC memory Recipe files

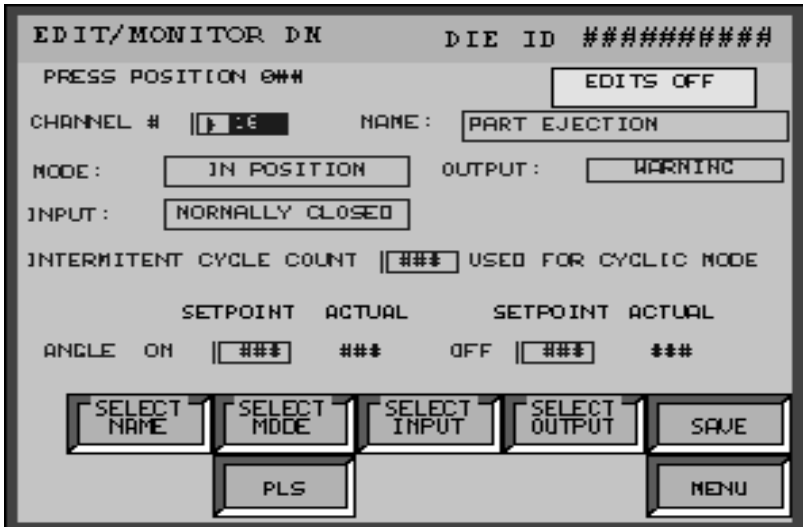
To Save, Store, or Save As

We differentiate among three similar terms for saving data associated with editing a part file:

This key:	When pressed, does the following:
[SAVE]	Temporarily saves edited data on an Active screen until you store the edited part file from the Active Menu, above. **Important:** When you press [SAVE] from an Active screen, the outputs are immediately energized for machine response.
[STORE]	Returns the current Active part file to SLC recipe storage. **Important:** After editing an Active screen, if you omit returning to the Active Menu and storing, the edits are lost.
[SAVE AS]	Copies the part file into SLC recipe storage, under the new part file number and die ID number. **Important:** The copied-from part file is retained.

Edit/Monitor DM

Use this screen to edit/monitor die monitor functions, on line.



Important: For instructions on determining DM requirements, refer to User Manual (publication 6556-6.5.11), chapter 6.

Channel # and Name:
To select channel number 1–16, place the cursor on the datafield and repeatedly press the up or down arrow key.

To select the channel name, repeatedly press the [SELECT NAME] key through the list of prepared names.

Mode:
To select channel mode, repeatedly press the [SELECT MODE] key.

Mode:	Signal *must be seen* as follows, or function sets an output action:
static	continuously
cyclic	thru a preset angular window once every cycle.
transfer	thru consecutive DM inputs, following the part thru a progressive die
in position	thru a preset angular window (with part in place)
intermittent	thru a preset angular window after a preset number of press cycles. Intermittent mode reverts to cyclic mode after the number of cycle counts that you preset in the INTERMITTENT CYCLE COUNT data field.

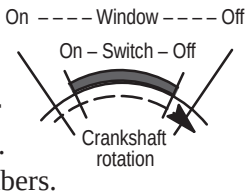
Input:
To select the type of input switch, toggle the [SELECT INPUT] key between NORMALLY CLOSED and NORMALLY OPEN.

Output:
Select from these actions to be taken when the system detects a DM fault.

Output:	Description:
warning	system displays warning message but does not stop the press
top stop	system displays warning message and top-stops the press
stop now	system displays warning message and immediately stops the press
bypassed	system ignores the output

Angle ON/OFF:
To preset the ON (open) and OFF (close) angles of the angular window, place the cursor on the datafield and enter the value from the keypad.

When editing DM presets, remember that:



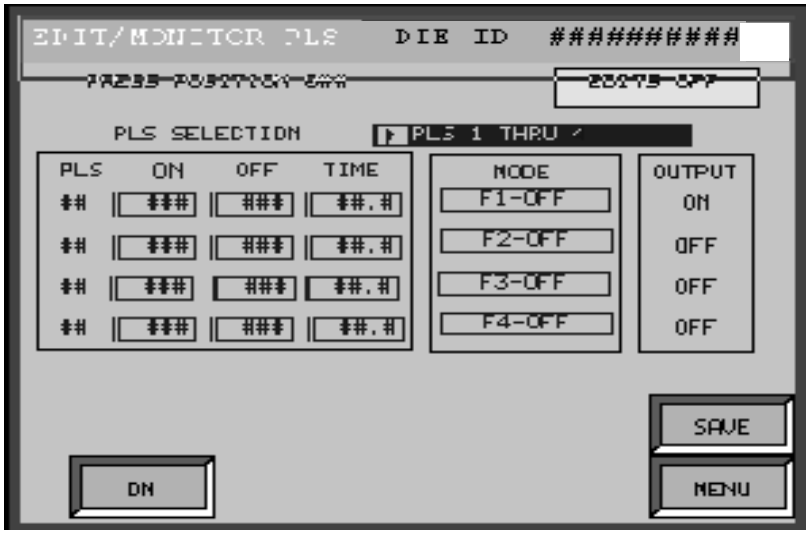
- For CYC and POS modes, the window defines the zone of rotation within which or outside of which the input must be detected. Enter ANGLE ON/OFF angles in whole numbers. Read *displayed* ANGLE ON/OFF values to help set up windows. They tell you when the *channel's input switch* turned On and Off.
- For XFR mode
  – entry station input is assigned to a channel with bypassed output
  – all sensor stations and channels in the sequence must be consecutive
  – all but first (entry) channel must set a stop command (detected fault)

Important: After editing *each channel*, press [SAVE] to temporarily save your edits. When you do, *the machine may respond immediately.* You must press [SAVE] before selecting the next channel, or your edits are lost.

Important: After completing (and testing) all edits to an Active screen, return to the Active Menu to store or save-as. If you omit storing, your edits will be lost when you retrieve the part file for future use.

Edit/Monitor PLS

Use this screen to edit/monitor programmable limit switch functions, online.



Important: For instructions on determining PLS requirements, refer to User Manual (publication 6556-6.5.11), chapter 6.

PLS Selection:
To select PLS function 1–8, place the cursor on the datafield and repeatedly press the up or down arrow key.

PLS Presets:
You can edit up to eight PLS functions, each with:

- angular turn-ON preset
- choice of turn-OFF preset:
  – angular, in units of degrees
  – time, in units of seconds

To enter presets, place cursor on datafield; enter value from keypad.

Mode:
To select the PLS mode, press the designated function key [F1] – [F4] repeatedly through the choices of OFF, TIMER, or ANGLE.

Output:
This area indicates whether the PLS is OFF or ON.

To edit PLS outputs:

- Always turn On a PLS output with an angular position
- Turn Off a PLS output with an angular position or a preset time
- When using PLS with track mode, give both channels the same number

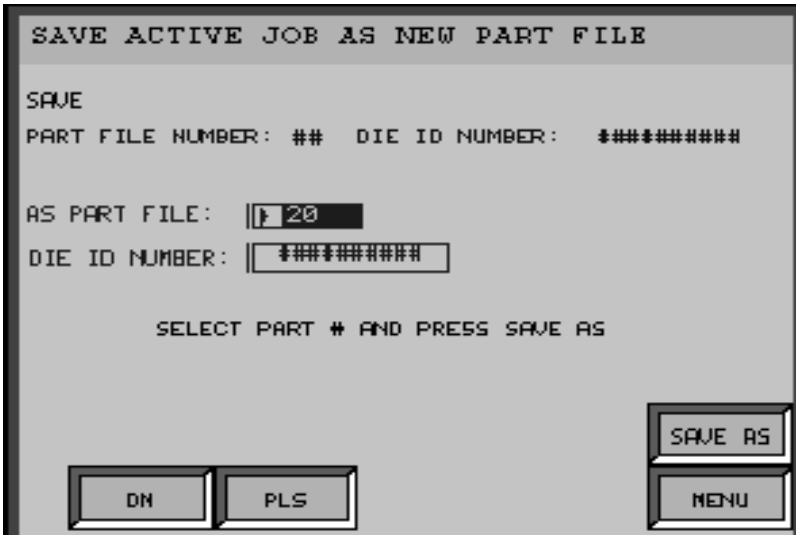
Use this procedure:

1. Move cursor with < > arrow keys to PLS SELECTION.
2. Select group of four PLS channels with ∧ ∨ × arrow keys.
3. Move cursor to PLS channel with < > arrow keys.
4. Edit/enter PLS ON angle and OFF time or angle with keypad into the displayed dialog box. Press return arrow to insert.
5. Correct entry errors in dialog box with backspace-delete arrow.
6. Complete PLS channels in groups of four.
7. **ATTENTION:** At completion of each *set of four PLS channels*, press [SAVE] to temporarily save setpoints. When you do, *the machine may respond immediately.*
8. If needed, go to the next set of four PLS channels.
9. You must press [SAVE] before you can exit the screen.
10. Return to the Active Menu screen to store or save-as.

Important: After completing (and testing) all edits to an Active screen, return to the Active Menu to store or save-as. If you omit storing, your edits will be lost when you retrieve the part file for future use.

Save Part File As

Use this screen to save the edited PLS or DM function, on line.



When you have completed the on–line editing of a DM or PLS function, you can save it on-line as a *new* part file.

SAVE
The windows display the part file number you have just edited.

AS PART FILE
To select a new part file to save-to, repeatedly press the up/down arrow key through the list of part file numbers, 1–20.

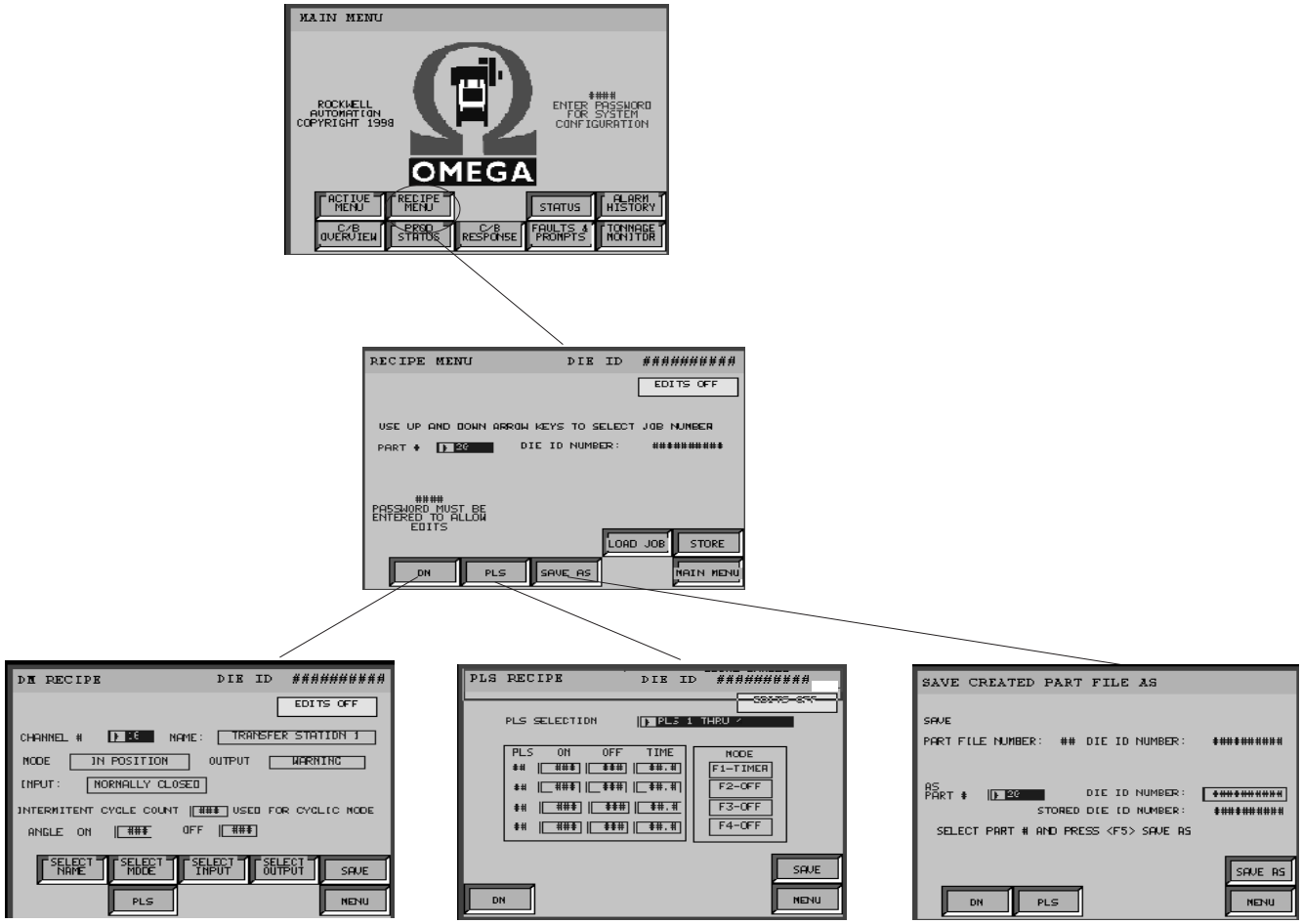
DIE ID NUMBER
The windows display the part file number you have just edited.
With cursor and keypad, enter your die ID number (10 digits, max).

Important: If the Die ID window of the selected part file already contains a Die ID number, the part file number you selected already has an active file. Either select another part file number without an active file or purposely allow your edits to overwrite the existing file.

To save your edits to the designated file, press the SAVE AS hard key [F5].

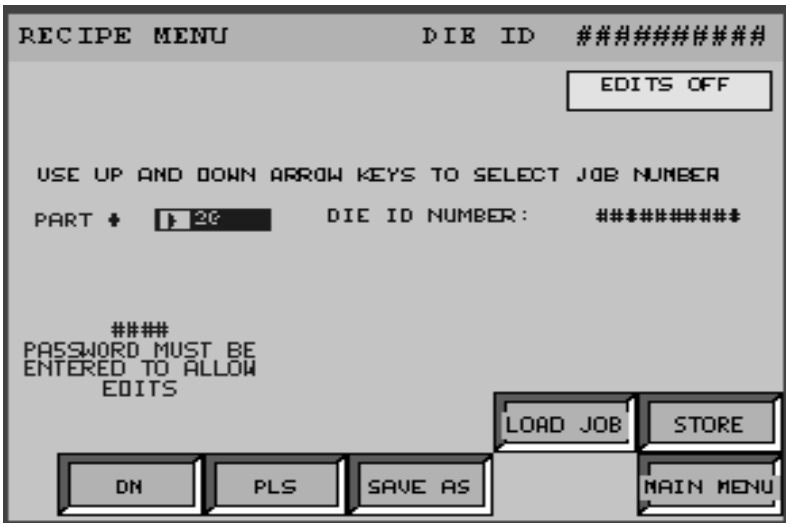
PLS/DM Recipe Screens

Use Recipe screens to create PLS and DM functions, off-line. You access this path from the Recipe Menu key on the main menu.



PLS/DM Recipe Menu

Use this menu to access other screens to create DM and PLS functions independent of press operation, and to store, save as, and/or load them.



Press:	To:
DM	access either screen to create that part file
PLS	
SAVE AS	access the screen to save the part file under another name/number
LOAD JOB	upload a stored part file to the SLC processor for execution
STORE	store the part file in SLC memory Recipe files

To Save, Store, or Save As

We differentiate among three similar terms for saving data associated with *creating* a new part file:

This key:	When pressed, does the following:
[SAVE]	Temporarily saves the data of one DM channel, a group of four PLS channels, or entire screen until you store the part file from the Recipe Menu.
[STORE]	Returns the current part file to storage in the file management area. **Important:** If you omit storing a part file from the Recipe Menu, the part file is *erased* when you store some other part file, later.
[SAVE AS]	Copies the part file, under a new part file number and die ID number, into SLC memory Recipe files. **Important:** The copied-from part file is retained.

To Download a Part File with [LOAD JOB] Key

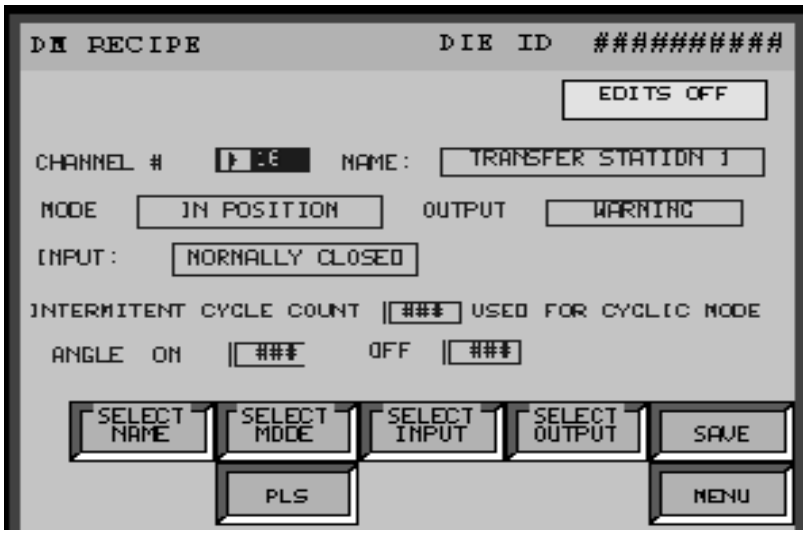
To set up and run a new part, download the new part file as follows:

1. Select the part file number with ∧ ∨ arrow keys.
2. Press [LOAD JOB]. This will overwrite the existing active job.
3. Verify the new part file #/name on an Edit/Monitor (Active) screen.

If the part file is undefined (no setpoints), active memory is cleared.

DM Recipe

Use this screen to create die monitor functions, off line.



Important: For instructions on determining DM requirements, refer to User Manual (publication 6556-6.5.11), chapter 6.

Channel Number and Name

Select channel number with cursor and arrow keys. Scroll the list of pre–determined channel names by repeatedly pressing [SELECT NAME].

Mode

Select the mode by repeatedly pressing the [SELECT MODE] key:

Select Mode:	Description (If mode malfunctions, system triggers an output):
static	seen continuously
cyclic	seen thru preset angular window once every cycle
transfer	seen thru consecutive DM inputs, following the part thru a progressive die
in position	part in place, seen thru preset angular window
intermittent	waits a preset number of press cycles, then reverts to cyclic mode

If setting up transfer-mode channels, channel numbers must be sequential. The first channel must be the “upstream” channel with bypassed output. Remaining channels must have a stop-action output response.

Output

Select from these responses if mode detects a DM malfunction:

Select Output:	Description (If mode malfunctions, system triggers an output):
warning	system displays warning message but does not stop the press
top stop	system displays warning message and top-stops the press
stop now	system displays warning message and immediately stops the press
bypassed	system ignores the output

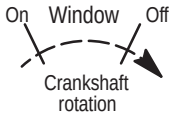
Input

Toggle [SELECT INPUT] key between normally closed and normally open.

Intermittent Count
If using intermittent mode, enter the number of cycle counts during which the mode does nothing until it reverts to cyclic mode.

Angle ON/OFF
Enter the turn-ON and turn-OFF angles for the DM window.

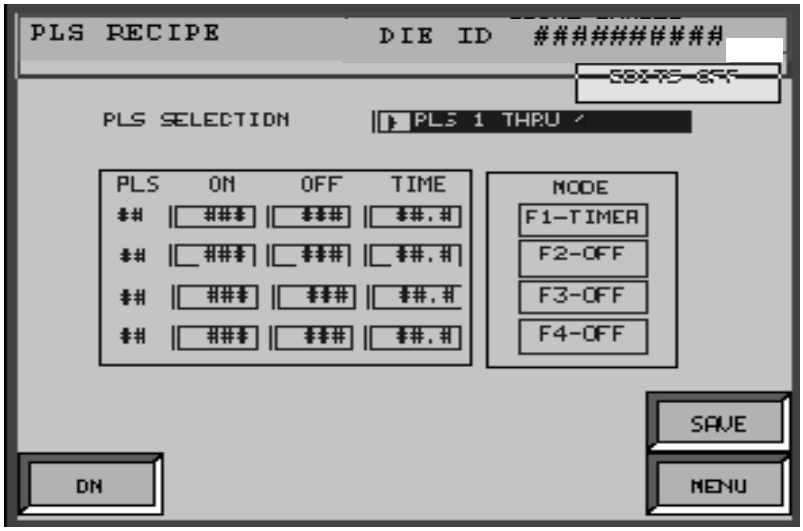
For CYC and POS modes, the window defines the zone of rotation within which or outside of which the input must be detected. Enter angles in whole numbers, 0–359º.



Important: At completion of *each channel*, press [SAVE] to temporarily save setpoints. After completing all needed channels, you must return to the Recipe Menu to store the completed part file. If you omit storing it from the Recipe Menu, **the part file is *erased*** when you store some other part file, later.

PLS Recipe

Use this screen to create programmable limit switch functions, off line.



Important: For instructions on determining PLS requirements, refer to User Manual (publication 6556-6.5.11), chapter 6.

You can create up to eight PLS channels, each with an angular turn-on preset, and a choice of turn-off preset: either angular or timed mode.

PLS Selection
Select the PLS number with cursor and arrow keys.

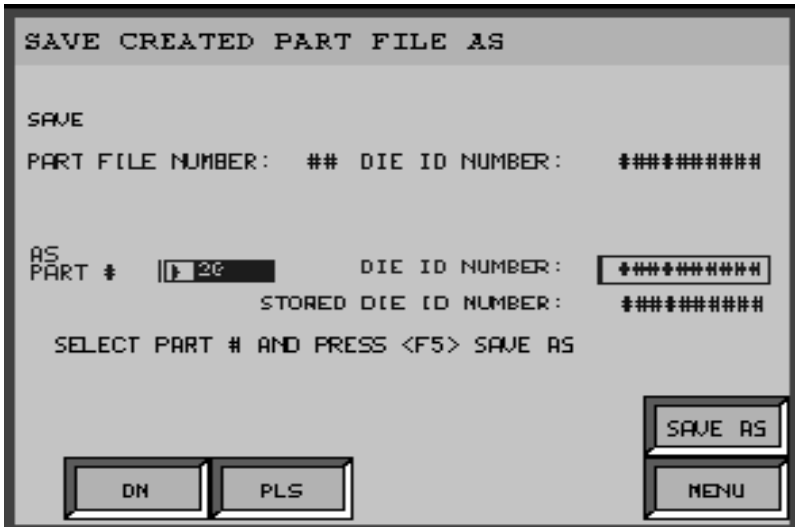
Set Up PLS Outputs

- Always turn On a PLS output with an angular position.
- Turn Off a PLS output with an angular position or a preset time (ms).
- When using PLS with track mode, give both channels the same number.

Important: After completing *each set of four PLS channels*, press [SAVE] to temporarily save setpoints. When you have completed all needed PLS channels, you must return the Recipe Menu to store, copy, or download the completed part file. If you omit storing it from the Recipe Menu, **the part file is *erased*** when you store some other part file, later.

Save Recipe Part File As

Use this screen to save a new or edited part file, off line, under a new part file number and die ID number, or to locate the file associated with a particular Die ID.



Important: PanelView 600 stores part files with these identifiers:

- part file number 1–20
- die ID number having up to 10 digits

SAVE
The part file and die ID numbers identify the current part file.

AS
For the new part file: select a part number, then enter a die ID number. Press the [SAVE AS] key. The original part file is retained.

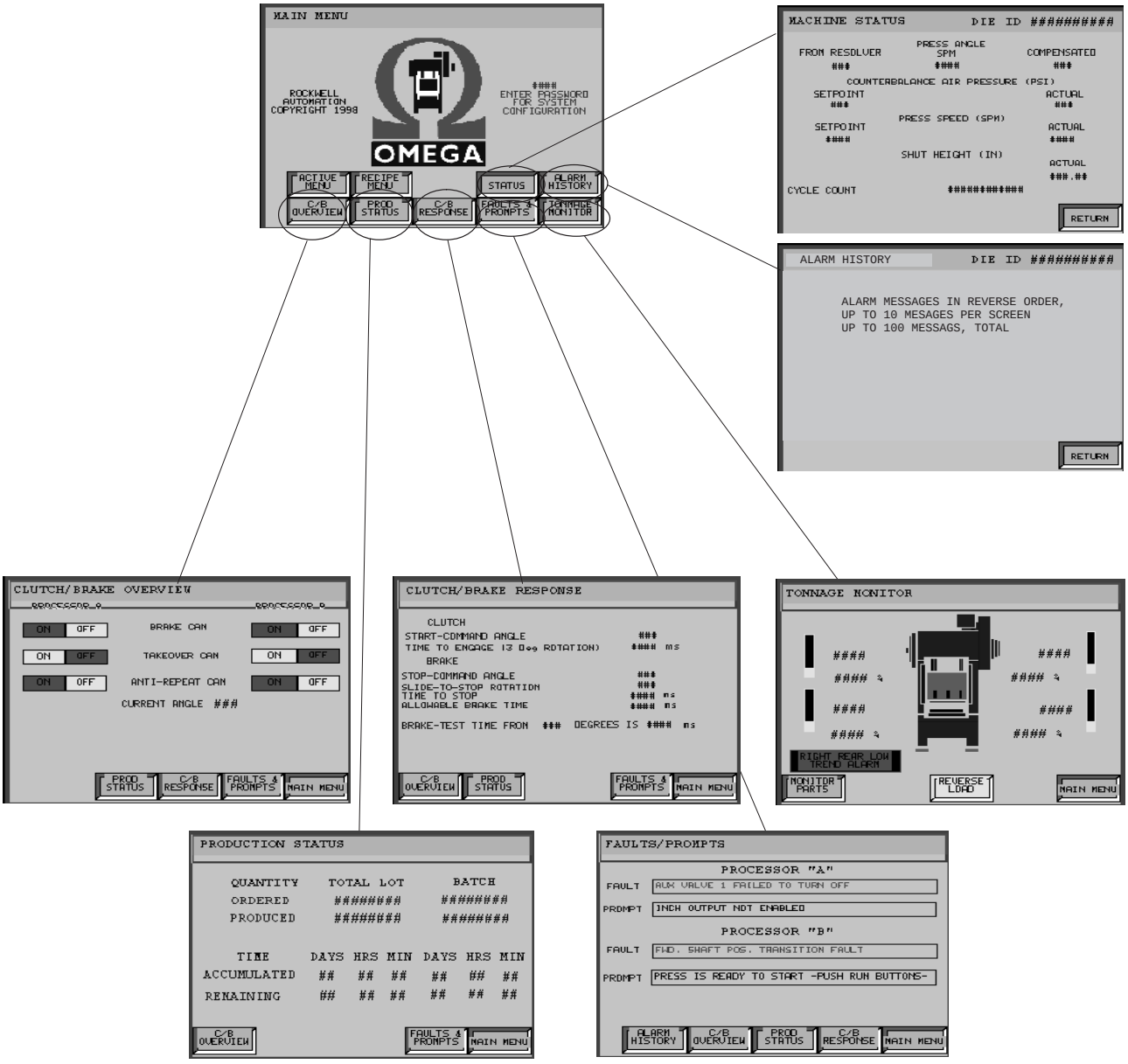
Important: If you need to locate a Die ID number, scroll through the list of 20 part file numbers by repeatedly pressing the up/down arrow key and observing the corresponding Die ID numbers displayed in that window.

Monitor Screens

Use monitor screens to observe the following system operations:

- Machine Status to observe press speed, current position, counter-balance air presure, shut height, and cycle count
- Alarm History to read up to 100 alarm messages in reverse order
- C/B Overview to observe on/off status of rotary cams
- Production Status to compare parts produced with total required
- C/B Response to observe wear of the clutch mechanism
- Faults & Prompts to troubleshoot detected faults, operator errors
- Tonnage Monitor to observe the deviation from expected tonnage

You access these screens from the main menu.

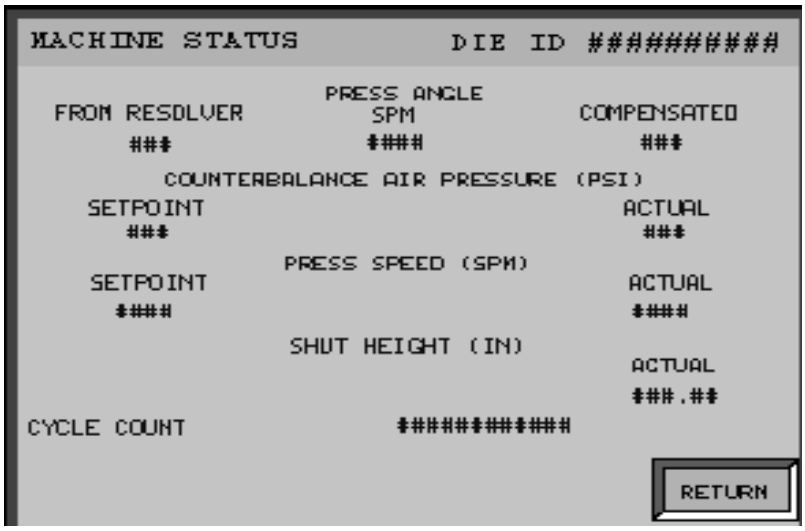


Machine Status

This screen reports:

- shaft rotational position (press angle): from resolver vs. compensated
- computed strokes per minute (SPM) used for speed compensation
- counterbalance air pressure (PSI): setpoint vs. actual
- closed-loop press speed (SPM): setpoint vs. actual
- shut-height position (inches)
- cycle count

Use it to observe how your machine is operating.



Alarm History

This screen reports the most current alarm messages:

- up to 10 alarm messages per screen (in reverse order)
- up to 100 alarm messages, total

C/B Overview

This screen reports:

- on/off status of cam limit switches as seen by processors A and B
- shaft rotational position (current angle)

Use it to verify proper operation and sequencing of your cam switches.



From this screen, you can go to any one of the following:

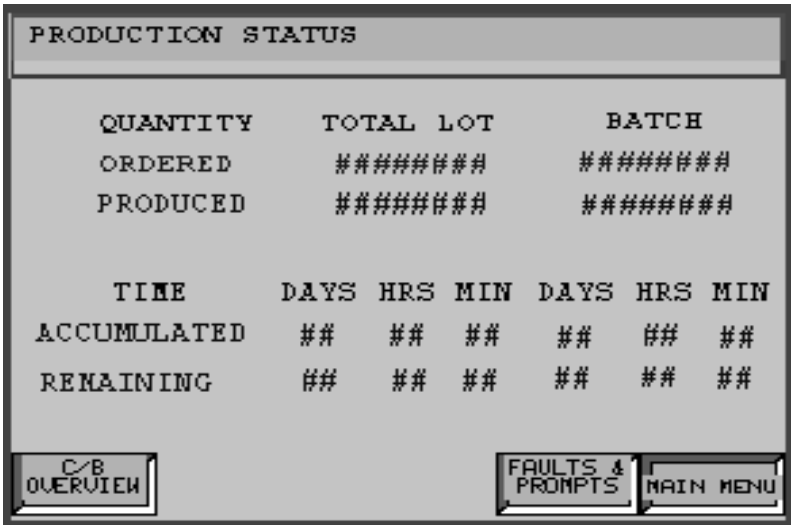
Touch this function key:	To do this:
MONITOR	View progress of the production run
BRAKE MONITOR	Set up your brake monitor
FAULTS/PROMPTS	View fault and prompt messages
MAIN MENU	Access other screens

Production Status

This screen reports the number of counts for production and batch:

- quantity of parts stamped compared with quantity required
- accumulated time compared with estimated time remaining

Use it to observe progress of the production run.



From this screen, you can go to any one of the following;

Touch this function key:	To do this:
C/B OVERVIEW	View on/off status of cam limit switches and shaft position
FAULTS/PROMPTS	View fault and prompt messages
MAIN MENU	Access other screens

C/B Response

Use this screen to observe detected performance of:

Clutch (normal operation)

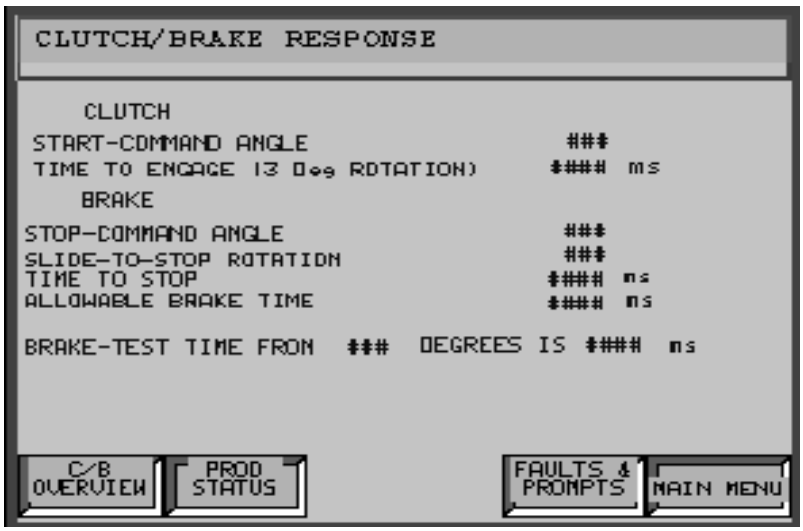
- shaft position at which the command to engage was given
- time to engage (as defined by a shaft rotation of 13 degrees)

Brake (normal operation)

- shaft position at which the command to brake was given
- shaft position when rotation stops
- time to stop as compared with a displayed allowable-time preset

Brake-test Performance

- brake-test stop-time when the command is applied at a preset angle (**Important:** Refer to Resolver Configuration screen (password) to:
  – enter the brake-test command position
  – apply the brake-test command



From this screen, you can go to any one of the following:

Touch this function key:	To do this:
C/B OVERVIEW	View on/off status of cam limit switches and shaft position
PROD MONITOR	View progress of the production run
FAULTS/PROMPTS	View fault and prompt messages
MAIN MENU	Access other screens

Faults and Prompts

This screen displays:

- fault messages associated with faults detected by processor A or B
- prompts for operator errors detected by processor A or B

Important: When a fault message is displayed, the machine stops. You must correct the fault and reset clutch/brake power by pressing the Fault Reset button on the front panel until all conditions are corrected.



Using tables for Fault Messages and Operator Prompts

We list fault messages in table A and operator prompts in table B *by priority.* When either is displayed, look for the same fault message or operator prompt in the corresponding table. Both tables indicate the cause/effect and suggest how to correct the condition.

If multiple fault conditions are detected, the next lower priority fault message will be displayed as soon as you correct the higher priority fault condition. Continue in this manner until you correct all detected faults associated with a machine stoppage.

Table A. Fault Messages

Fault Message	Cause of Fault	Effect of Fault	How to Correct the Fault
Communication Timeout	Link Coupler failed.	C/B power is de-energized.	Check link coupler cable.
PLC-OK Relay-Test Failed	PLC OK relay failed to close.	C/B power will not turn ON.	Check PLC OK relay and wiring. Check operation of input module in slot 2.
Seal-Relay Timeout Fault	Seal relay A failed to close.	C/B power will not turn ON.	Check seal relay and wiring. Check operation of input module in slot 1.
Seal-Relay Weld Fault	Seal relay A welded closed.	C/B power is de-energized and will not turn ON.	Check seal relay and wiring. Check operation of input module in slot 1.
E-Stop Relay Failed to Turn ON.	E-Stop relay failed to close.	C/B power will not turn ON.	Check E-Stop CRM relay circuit. Check operation of input module in slot 1.
E-Stop Relay Weld Fault	CRMA relay welded closed.	C/B power is de-energized and will not turn ON.	Check E-Stop CRM relay circuit. Check operation of input module in slot 1.
No Valid Mode	Mode-select failed.	C/B power will not turn ON.	Check mode selector switch and wiring. Check operation of input module in slot 1.
C/B Mode Mismatch	Each processor sees a different mode.	Press will not stroke.	Check mode selector switch and wiring. Check operation of input module in slot 1.
Run Station Tiedown (single or continuous)	Time between pressing Run/inch buttons was too long.	Press will not start a stroke in single or continuous mode.	Release, then press run buttons simultaneously. Check button wiring.
Inch Button Tiedown	Time between pressing Run/inch buttons was too long.	Press will not inch.	Release, then press inch buttons simultaneously. Check button wiring.
Illegal RCLS Combination	Cams produced invalid combination.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
Forward Transition from Top	Cams did not go from top to downstroke.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
Forward Transition from Downstroke	Cams did not enter upstroke.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
Forward Transition from Upstroke	Cams did not enter near top zone.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
Forward Shaft Position Transition Faults	Any of 027-029 detected.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
ACAM Upstroke	ACAM did not cycle in upstroke.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
C/B Air Pressure Not Detected	No air pressure after energizing main valves.	Clutch valves are de-energized.	Check I/O wiring. Check air pressure switch.
Brake Monitor Cam Mismatch	One processor sees the BCAM while the other does not.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
Takeover Cam Mismatch	One processor sees the TCAM while the other does not.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
Anti-repeat Cam Mismatch	One processor sees the ACAM while the other does not.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
Cam Mismatch Faults	Any of 041-043 detected.	Press will stop or not run in single or continuous mode.	Check cams for proper operation or settings.
Brake Monitor Fault	On a stop-on-top command, the press slid onto the BCAM before stopping.	Press cannot operate in single or continuous mode until it stops in the near top zone.	Check the brake and brake monitor cam settings.
No Motion Detected	Upon command to move, no motion was detected.	The press will not start in single or continuous mode.	Check motion detector switch and wiring.
Uncommanded Motion Detected	Motion was detected when no motion was commanded.	C/B outputs are de-energized.	Check motion detector switch and wiring.

Fault Message	Cause of Fault	Effect of Fault	How to Correct the Fault
At Rest Inch Button Tiedown	On switching to inch, detected a held inch button.	The press will not inch.	Check prompts for reasons why press will not inch. Check inch button wiring.
At Rest Run Button Tiedown	On switching to run, detected a held run button.	The press will not run in single or continuous mode.	Check prompts for reasons why press will not run. Check run button wiring.
Clutch Valve 1 Failed to Turn ON	Valve failed to energize when output was turned ON.	Press will not cycle.	Check valve and valve wiring.
Clutch Valve 1 Failed to Turn OFF	Valve failed to de-energize when output was turned OFF.	C/B power is removed.	Check valve and valve wiring.
Clutch Valve 2 Failed to Turn ON	Valve failed to energize when output was turned ON.	Press will not cycle.	Check valve and valve wiring.
Clutch Valve 2 Failed to Turn OFF	Valve failed to de-energize when output was turned OFF.	C/B power is removed.	Check valve and valve wiring.
Clutch Valve Fault	Any of 066-069 detected.	C/B power is removed.	Check valve and valve wiring.

* To clear this message, you must turn the mode-select switch to OFF.

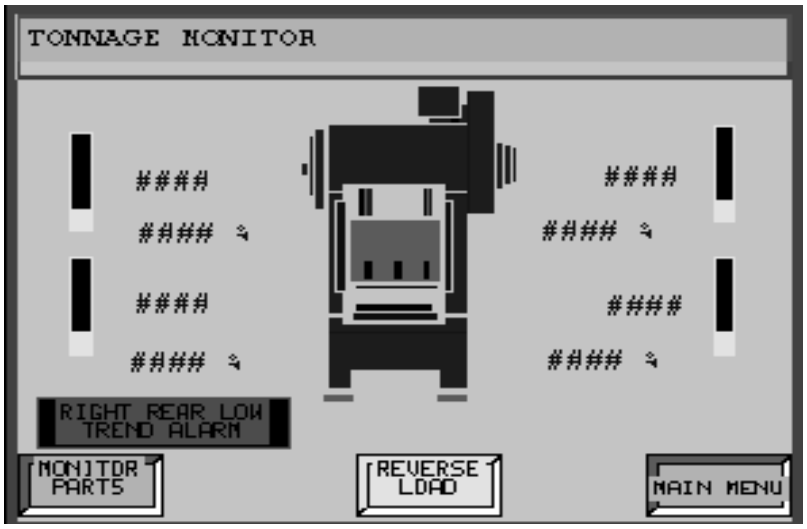
Table B. Operator Prompts

Operator Prompt	Cause of the Prompt Condition	Effect of Prompt Condition	How to Correct the Condition
E-Stop actuated	E-stop button was pressed, or E-stop circuit failed.	CRM and seal relays opened.	Release E-stop btn. Press control reset and C/B power reset btns.
Select mode	The press has stopped. You have not yet selected the operating mode.	You cannot reset C/B power.	Select either Inch, Single, or Continuous mode.
Release buttons	Static-state tiedown fault:, with either fault message 051 (inch) or 052 (run).	You cannot start the press.	Release run/inch buttons. Look for other fault or prompt messages.
Push buttons	Logic is ready to start, but you haven't pressed run/inch buttons.	Press is ready to start.	Press run/inch buttons.
Main motor is not running forward.	Main motor not running forward in single or continuous mode.	Valve outputs turn OFF.	Start the main motor (forward).
C/B power is not reset.	Seal relay is not closed.	Valve outputs remain OFF.	Clear faults. Reset control power.
All run buttons are not released.	The press has stopped and all run buttons are not released.	You cannot start the press.	Release all run buttons.
Release inch buttons.	The press has stopped and inch buttons are not released.	None	Release inch buttons.
Software stop-on-top is enabled.	The software stop-on-top bit is set.	The press will complete the cycle and stop at top.	None
Stop-on-top button pressed.	The stop-on-top button is pressed.	The press will complete the cycle and stop at top.	None
Continuous mode not armed.	You did not press the arm continuous button.	You cannot start the press in continuous mode.	Press the arm continuous button.
Release inch buttons	You did not release inch buttons after reaching the top.	You cannot start the press until you release the buttons.	Release the inch buttons.

Tonnage Monitor

This screen displays for each channel used (either 2 or 4 channels):

- die tonnage
- %-deviation from "benchmark" die tonnage
- detected alarms



Use this screen when:

- setting up the die - toggle the function key to Peak
- producing parts – toggle the function key to Monitor Parts

Toggle this mode:	When you:	because:
PEAK	set up the die	– only capacity alarms are active (trend alarms and %-deviations are ignored)
MONITOR PARTS	produce parts	– trend and capacity alarms are active – %-deviations from benchmark tonnage are displayed

Alarm Window displays these detected alarms:

- peak capacity (maximum allowable load)
- low capacity (minimum load to produce a quality part)
- high trend (deadband limit above benchmark die tonnage)
- low trend (deadband limit below benchmark die tonnage)

Note: A 2-channel setup displays data in the LF and RF windows.

Reverse Load displays the "snap-thru" force. This is the *negative* force exerted on the *machine frame* at the moment the die breaks through the metal. (%-deviations are NOT displayed in this mode.) Use the Reverse Load/Normal Load function key to toggle between these two modes of display.

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