Ram Command™ Option Adjustment

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This document addresses two activities involving the Ram Command™ option (also called soft squeeze) for 1-station press models:

- Set pressures either to use different pressures than those set at the factory or because components were replaced.
- Disable the Ram Command™ option to make it easier to troubleshoot the hydraulic system.

This document, which covers all versions of the 1-station press, replaces document BIPPMM24, which only covers multi-manifold versions.

NOTICE: Understand the press servicing hazards

- Do this procedure only if you understand and work with hydraulic systems.
- Review the press safety guide and the safety information in the parts and service manual.

1. Concept of Operation

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In summary, the Ram Command™ system applies a very gradual build-up of pressure, which gives sensitive goods time to release water without damage. This system pressurizes the ram in a timed sequence of low, but increasing pressure steps. The factory-set pressures can be reset by the customer. The step durations are specified in programmable press codes.

The system uses two electrically operated valves, each with an associated, adjustable relief valve. Each combination of valve and relief valve limits ram pressure and allow excess fluid to drain to the tank. The electrically operated valves are named VE100 and VE250 in the electrical schematic manual. VE100 and VE250 are normally open. If the electric circuit for either valve is closed, the light on the valve is illuminated and the valve is closed. When a Ram Command™ press code is not in effect, VE100 and VE250 must both be closed so that the press will operate at standard pressures. When the electric circuit for either valve opens, the light on the valve goes out and the valve opens. When this occurs, ram pressure cannot exceed the pressure set on the associated relief valve. The amount of time that a valve remains open is controlled by a programmable software timer. There are three timers, referred to as timers A, B, and C.

The Ram Command™ system builds up pressure in a four step sequence, as follows:

1. VE100 (the lowest pressure) opens for the Timer A duration then closes.
2. VE250 (the next lowest pressure) opens for the Timer B duration then closes.
3. The ram remains at standby pressure (see : Ram Command™ Factory Specifications, page 2) for the Timer C duration.
4. The Ram Command™ sequence ends and standard pressures take effect.

NOTE: On machines with the Ram Command™ option, the standard ram up relief pressure is permanently set to 950 psi. This pressure is set to 1500 psi on machines without the option. Although this setting is determined by whether or not the machine has the Ram Command™ option, it is otherwise, independent of the Ram Command™ system.

2. How Ram Command™ Press Codes Work

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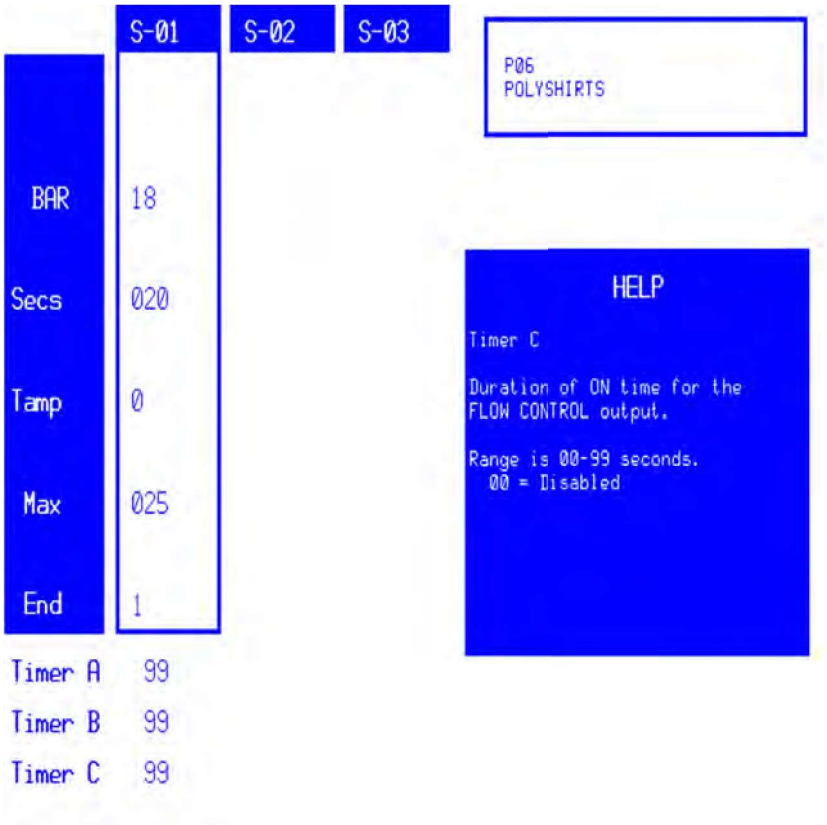
When you apply the Ram Command™ function to a press code, the pressing cycle begins with a sequence of three low, but increasing pressure steps. The press code controls the length of time that each pressure will occur, but not the pressures themselves. The times appear on the press code screen as Timers A, B and C, shown at the bottom left of the figure below. You can specify up to 99 seconds for each timer. A value of 00 for any timer causes the machine to skip that pressure step and proceed to the next pressure.

Figure 1. Enter time values in the fields for Timers A, B, and C at the bottom left of the screen.



3. Pressure Adjustment Preparations

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When To Adjust Pressures — If you replace pressure components, it can be necessary to re-establish all hydraulic pressures, including the Ram Command™ pressures on site. If you wish to use pressure values different from the factory settings, you can change the Timer A and Timer B pressures without affecting the standard pressures.

Pressure Adjustment Rules

- Timer A pressure must be lower than Timer B pressure.
- The Timer A and Timer B pressures must not exceed standby pressure (400 or 500 psi, depending on model).

Requirements

Tools Each relief valve has a locknut and an adjustment screw. Provide a 9/16" crescent wrench for the locknut and a 5/32" Allen wrench for the adjustment screw. Also provide a safe platform to work at the location of the valves. on newer press models, the pressure gauges are not permanently attached; however, the necessary pressure gauges are provided with the machine. Make sure these gauges are on hand.

Two personnel One person (referred to herein as the **operator**) starts and stops the press code at the operator controls. The other person (referred to herein as the **technician**) makes the adjustments at the valves. The personnel must be able to clearly communicate with each other. Review this instruction to understand the necessary coordination between the operator and the technician.

Adjustment press code Create a dedicated press code or temporarily modify an existing press code that you will use to make the adjustments. **You must do these pressure adjustments with goods in the machine** and a press code running in automatic, and you must do each adjustment during the programmed time that the valve is open. For this reason, temporarily set the Timer A and Timer B durations to the maximum value (99 seconds). The only important part of this press code is the Timer A and Timer B values. See the 1-station press reference manual for general programming information.

Press loaded If you cannot do these procedures with an actual load of goods while production is paused, load and wet down a batch of goods in the press by any safe means.

TIP: Electrical schematics W6PM1SSQ and W6PM1SVSB in the 1-Station press schematic manual and parts document BPP1UH01 “Delicate Goods Option (Ram Command™ Ram Control)” in the parts and service manual can assist with troubleshooting the Ram Command system.

Ram Command™ Factory Specifications

Model Family	MP1540	1556	1640	1650	1656	1A50	1A56	Means of Measuring
Bar Rating	40	56	40	50	56	50	56	
Ram Bore (inch)	14	14	14	16	16	17	19	
Settings (PSI)								
Standby** (Timer C)	500	500	500	400	400	525	*	Pressure gauge
Ram Up Relief	950	950	950	950	950	950	*	
Valve A (VE100) (Timer A)	220	220	250	200	200	275	*	
Valve B (VE250) (Timer B)	320	320	400	300	300	400	*	

Model Family	MP1540	1556	1640	1650	1656	1A50	1A56
* Not yet implemented							
** Standby pressure is also referred to as idle pressure or ram down relief pressure.							

4. Pressure Adjustment Operator Procedure

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This is a brief explanation. Review the 1-station press reference manual if necessary.

1. When a suitable batch is in the press, put the tunnel in hold to suspend production.
2. Set the press to Manual mode then return it to Automatic mode to initiate the sequence of operator prompts. Respond to the prompts as appropriate. In particular:
   a. Answer yes to "Does press have a cake?"
   b. At the Cake Data screen, leave all data as displayed except for the press code. Take note of the press code assigned to this batch then change it to the adjustment press code that you prepared.
   c. When the technician is ready, answer no to "Discharge cake in can?" The machine will operate and permit the technician to do the adjustments explained in Section 5 : Pressure Adjustment Technician Procedure, page 4 .
3. When valve VE250 closes (which ends the available adjustment time) and before the press code is complete, set the machine to Manual mode then return it to Automatic mode. If the adjustments are not complete, respond to the prompts the same way as before to restart the adjustment press code. Otherwise, respond as appropriate to resume production and permit this batch to process according to its actual press code.

5. Pressure Adjustment Technician Procedure

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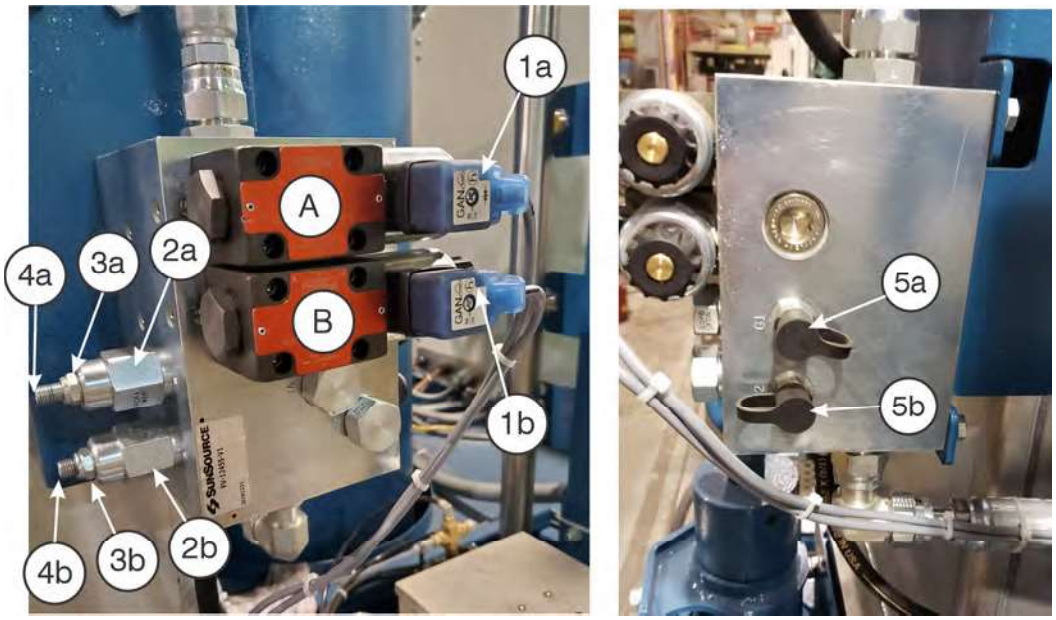
This instruction tells how to set the first two pressures (for Timers A and B). The third pressure (for Timer C) is idle (standby) pressure, which is a standard pressure. The procedure to set idle pressure is explained in document BIPPMT02 “Set Standard and Booster Pump Pressures—1-station Press”.

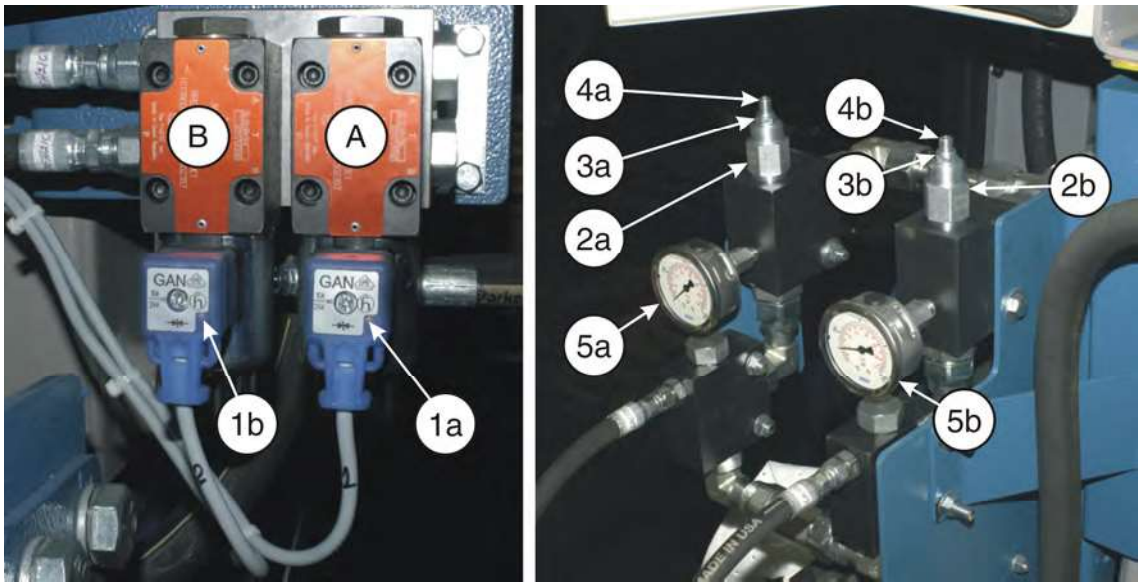
You adjust the pressures for Timers A and B on the relief valves associated with the electrically operated hydraulic valves VE100 and VE250 (see the figure below).

Figure 2. Ram Command™ System Hydraulic Adjustment Components

Views of Adjustment Components on Single-manifold Presses



Views of Adjustment Components on Multi-manifold Presses



Legend

A	Valve VE100 (electrically operated hydraulic valve for Timer A pressure).
B	Valve VE250 (electrically operated hydraulic valve for Timer B pressure).
1a,1b	Light on electric connector. **Light on=valve closed**. **Light off=valve open**. All "_a" items are for the Timer A pressure adjustment. All "_b" items are for the Timer B pressure adjustment.
2a,2b	Relief valve that must be adjusted for the factory pressure specified in : Ram Command™ Factory Specifications, page 2 or the customer-defined pressure.
3a,3b	Lock nut (9/16" hex)
4a,4b	Adjustment screw (5/32" Allen)
5a,5b	Pressure gauge connection point or pressure gauge. Read the pressure here during adjustment.

NOTICE: These adjustments are done with the machine in automatic operation.

- Do not use the maintenance key to set the machine to Maintenance mode.

Refer to Figure 2 . The lowest pressure adjustment is the relief pressure for valve A (VE100). This is the Timer A pressure. The adjustment components are those with "_a" item numbers in Figure 2 . Adjust as follows:

1. When the operator starts the adjustment press code, observe light 1a. Wait for the light to go out to indicate that valve VE100 is open. This will occur when the descending ram clears the PXSM proximity switch (ram in container).
2. Loosen locknut 3a. Observe pressure gauge 5a and turn adjustment screw 4a until the gauge displays the pressure that you previously determined. If you cannot complete the adjustment in the 99 seconds that valve VE100 is open (that the light is off), have the operator repeat the adjustment press code.
3. When the relief valve is correctly adjusted, tighten locknut 3a. The second lowest pressure adjustment is the relief pressure for valve B (VE250). This is the Timer B pressure. Adjust this pressure the same way as above. The adjustment components are those with "_b" item numbers in Figure 2 .

6. Disconnect the Ram Command™ System for Ease of Troubleshooting

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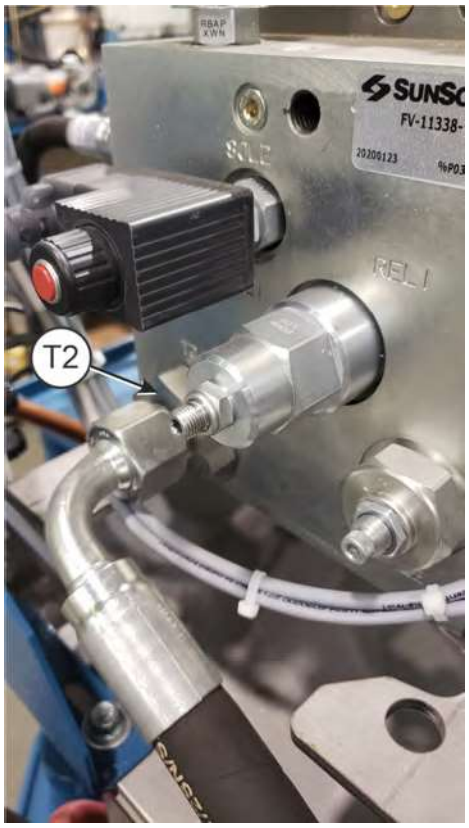
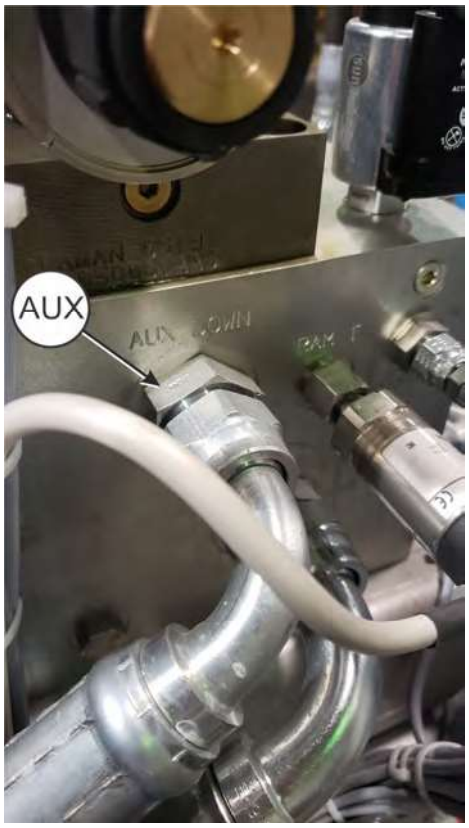
If it is necessary to troubleshoot the press hydraulic system, it can help to isolate the Ram Command™ manifold from the rest of the system. This is done by installing plugs at two hydraulic line connection points on the main manifold. The plugs are available from the Milnor® Parts department. The plug locations and part numbers are given in the figure below.

Figure 3. Plug Locations on the Main Manifold





Legend

T2.. Disconnect and plug port T2. Use 1.25” hex plug (p/n 52PY0GR004)

AUX. Disconnect and plug port AUX DOWN. Use 1” hex plug (p/n 52PY1AR001)

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