MORGAN-PRESS

INJECTION SPEED CONTROL #70

The Injection Speed Control #70 enables variable ram injection speeds. It offers the user the capability of adjusting the ram speed from very slow to very fast depending on the requirement.

Plastic material filling the mold rapidly is advantageous in many areas of the molding process. Among the benefits of a faster injection speed:

- ¶ The resin can be run at lower temperatures minimizing degradation
- ¶ Reduction in knit lines, cold flow marks and short shots
- ¶ Allows use of lower injection pressures and compensates for air supply pressure limitations
- ¶ Facilitates use of glass-filled and high temperature engineering thermoplastics
- ¶ Helps attain full shots in large mold cavities

Reducing plastic fill rates into the mold can also be critical to the success of some applications. Some benefits of a slower injection speed:

- ¶ Minimization of mold cavity turbulence
- ¶ Reduction of material sheer rates during injection
- ¶ Lower resin impact forces when encapsulating delicate components

The Injection Speed Control is a system to increase and control the air flow to the Ram Air Cylinder. A pilot valve and a flow control valve along with large orifice fittings and hoses are mounted to the top cylinder cover and connected directly to the main air supply. The pilot valve is activated by the ram control valve on the lower panel which has mechanical and pneumatic interlocks to maintain safe operation.

The Injection Speed Control consists of a pilot valve, a flow control valve, an air regulator with gauge, and all appropriate pipe fittings, clamps, and hoses necessary for installation and proper operation of the system. This system has been partially installed on your Morgan-Press. However, due to shipping and packing requirements, it is necessary to connect that part of the system which extends from the main air supply to the pilot valve inlet of the system.

This Injection Speed Control system increases the utility and capability of your Morgan-Press and hence the benefits that you will derive from its use.

PNEUMATIC SETTINGS AND OPERATIONAL FEATURES
(Reference Figure 3)

Pilot Valve Pressure Gauge

This gauge, located on the upper right front panel, indicates the "trigger" air pressure for the pilot valve and is also the reservoir air pressure for the injection cycle/timer. The regulator which adjusts this gauge is on the lower control panel in front of machine labeled "Pilot Pressure Selector." A setting of 5 to 7 (the green zone) is adequate for all applications. This provides a positive actuation pressure to the pilot valve and a reservoir pressure with good variability in the injection timing circuit. Pressure for this circuit should never exceed "I0."

Pilot Valve

This valve, located on the top of the machine, acts as a gate for the injection air supply which is routed from the main air supply to the machine. It opens the "gate" when the injection cycle is initiated thus allowing air into the Ram Cylinder. When the ram pressure is released, the pilot valve closes the "gate."

Flow Control Valve

This valve is located on the upper rear of the machine. It is connected to the inlet port of the Pilot Valve. The valve controls the speed at which air enters the top cylinder, consequently controlling the speed of the barrel piston and ram shaft which push on the molten plastic during injection. To increase ram speed turn the knob counter clockwise until desired speed is attained. Of course, the knob is turned clockwise to slow ram speed until it reaches the off position (can't be turned any farther).

Injection Pressure Regulator

This valve, which is "tee'd" into the main air supply, is used to set the actual injection pressure that is to be applied by the machine. The gauge with faceplate (labeled "Ram Pressure x 1000 P.S.I.") is the readout for the selected setting.

After the proper settings and/or adjustments are chosen for the pilot valve, injection pressure regulator, and flow (speed) control, the operating sequence is the same as that described in the main body of the Morgan-Press Operating Instructions.

INSTALLATION INSTRUCTIONS

General Procedures

When installing hoses over fittings with barbed ends, put a drop or two of light, non-detergent oil inside end of hose to help hose slide over barbs.

Use of teflon tape on all pipe threads (except exhaust muffler) is recommended to insure good air seals.

Refer to Figures 1, 2 and 3 during installation.

1. Install the Flow Control Valve and fittings into the 'IN' port of the Pilot Valve (Fig. 1 & 2).

   NOTE: Insure that the teflon tape is in good condition before installation. DO NOT OVERTIGHTEN. Use a wrench to control the amount of torque applied.

2. Install the 3/8 NPT air muffler on the exhaust port of the pilot valve (Fig. 2).

3. Connect the regulator with tee and pressure gauge to the outlet side of your main filter-lubricator unit on the main air supply (Fig. 3).

   NOTE: A vented shut-off valve on the main air supply is recommended for positive shut-off and lock-out during equipment shutdown and servicing. It should be connected to the inlet side of the filter-lubricator unit. These components are provided with the optional Pneumatic Hook-up Kit #95.

4. Connect ½" I.D. hose segment provided from ram pressure regulator to inlet on the Flow Control Valve. Use the large hose clamps provided to secure (Fig. 1).

BASIC PARTS LIST

PART NAME	NOMENCLATURE
Pilot Valve	Fabco #34SP-3
Flow Control Valve	Alkon #JN4
Pressure Regulator	Watts #R11-O3-D
Injection Pressure Gauge	U.S. Gauge #1½" P590 160# 1/8"CBM Gauge
Nameplate	Morgan
Muffler, Pilot Valve	Allied Witan MET filter #P38

Not Listed: Standard industrial screws, brass fittings, hoses & hose clamps.

FIGURE 1

INJECTION SPEED CONTROL

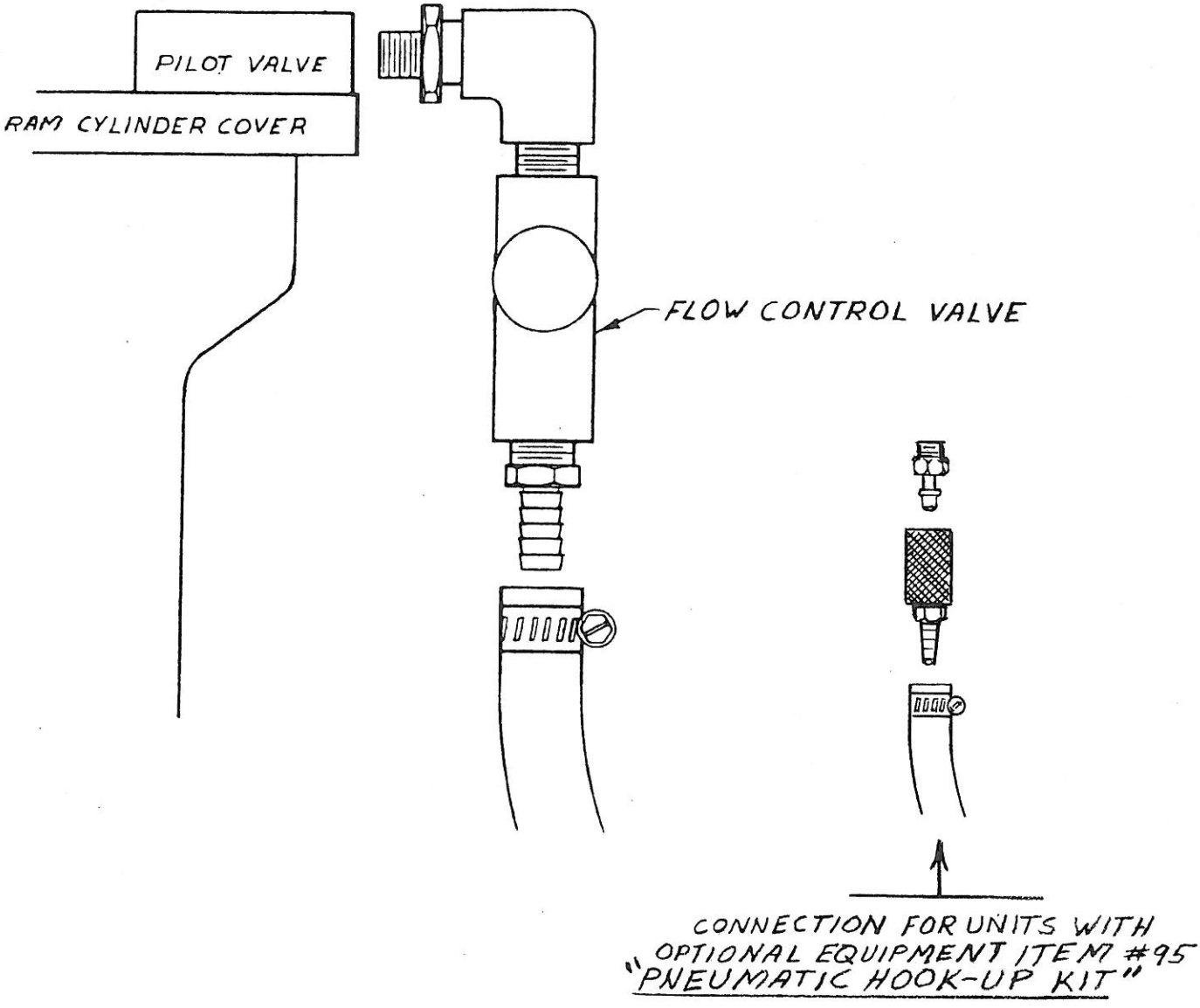
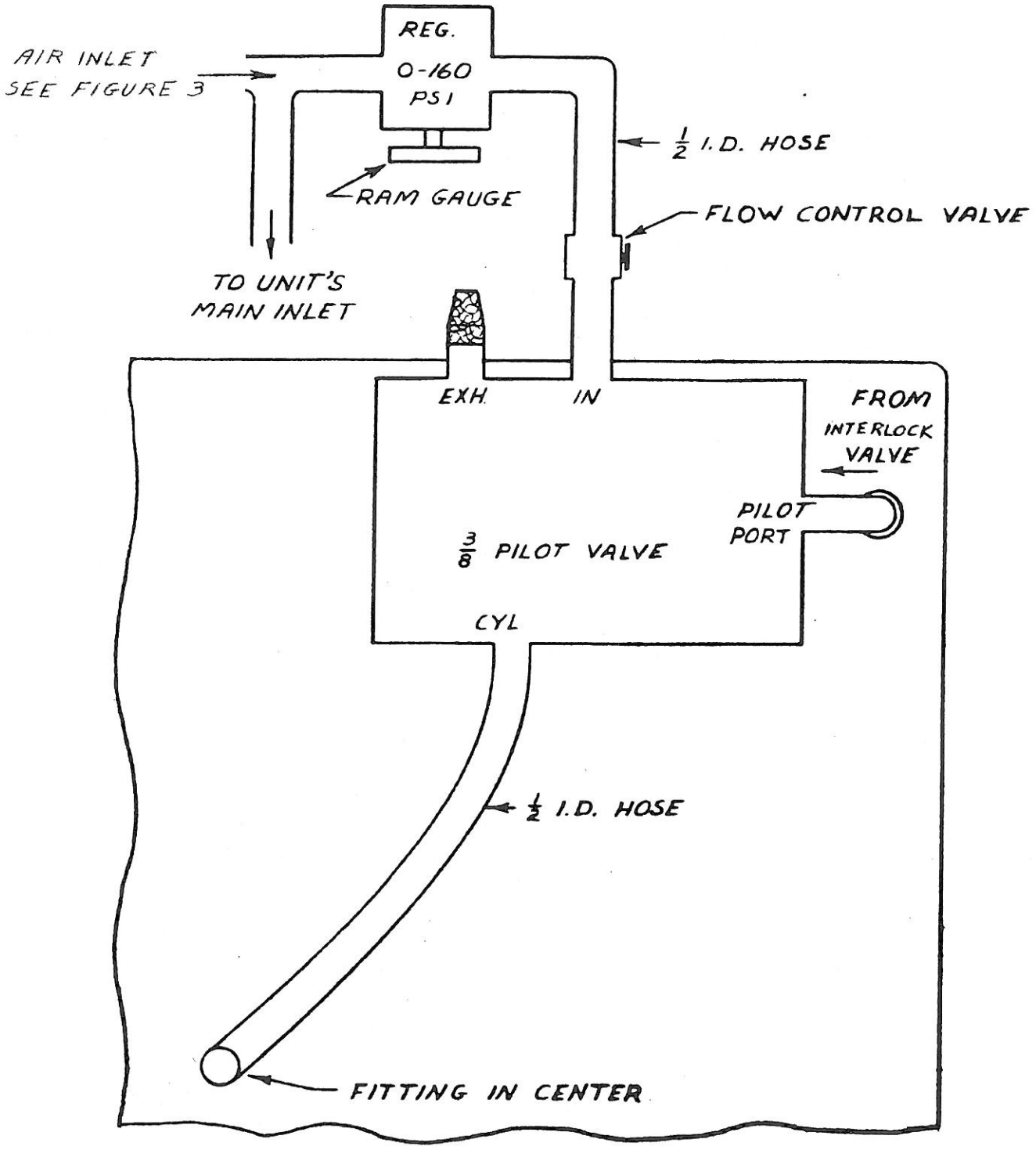


FIGURE 2
INJECTION SPEED CONTROL

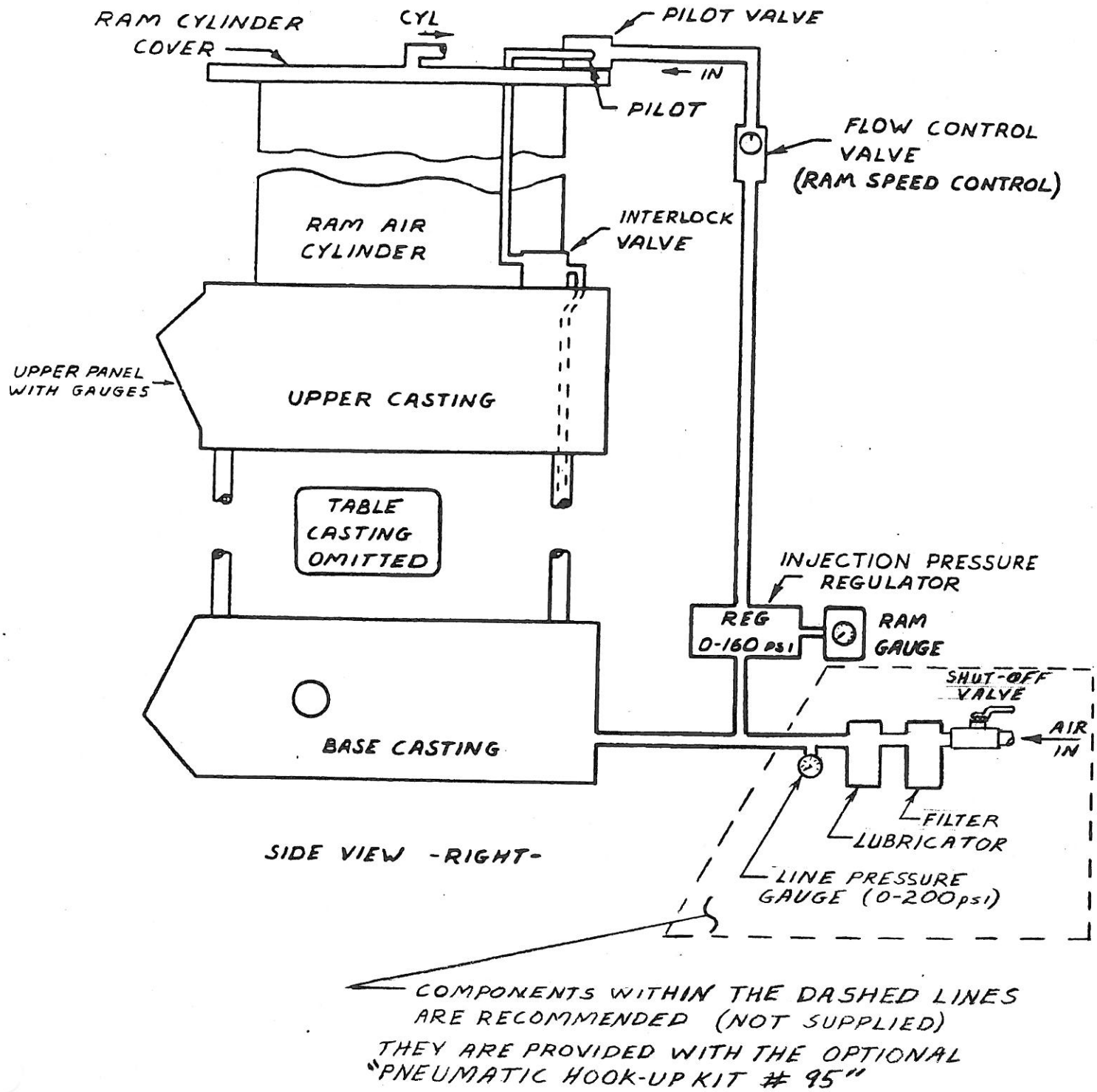


TOP VIEW
RAM CYLINDER COVER

MORGAN-PRESS
ALL MODELS

MORGAN INDUSTRIES
LONG BEACH, CA.
AGJ

FIGURE 3
INJECTION SPEED CONTROL ASSEMBLY DIAGRAM



COMPONENTS WITHIN THE DASHED LINES ARE RECOMMENDED (NOT SUPPLIED)
THEY ARE PROVIDED WITH THE OPTIONAL "PNEUMATIC HOOK-UP KIT # 95"