

## AFC Smartpac® Operating Instructions

### THEORY OF OPERATION

Concrete and mold combinations each have unique vibratory characteristics. Each has an optimum amplitude and frequency for filling and consolidating. Concrete units can be made to the highest quality in the shortest time by matching the optimum frequency and amplitude for feed and for finish.

Limits have been preset for both low and high speed of the motors to prevent operation outside optimum parameters. Amplitude is adjustable from 0 to 100% of 9000, 13,000 or 15,000 lbs. depending on the model of concrete products machine and which shaft assemblies are used. Amplitude should not be set below 30% as vibration will not synchronize and will be erratic.

Installation of the system can be made on machines with mold locks or pin guidance. Make mechanical and electrical changes according to print and check that all parts are aligned properly. Attach correct length shafts to the mold you want to run. Make sure the right hand shaft is on right side and the left one is on left side.

Disconnect lower hoses from “V” fitting on dump valve assemblies and fill with ATF fluid. Make sure all air is removed from the hoses. Fill control unit tank with ATF fluid. Keep tank 3/4 full during setup and operation. Connect 80 psi 5 cfm air supply to control unit. Set air pressure for rod end of cylinder to 60 psi and Cap End of cylinder to 30 psi. Operate air valve to extend rod of air cylinder. Install mold with SmartPac vibrator shafts and attach hoses to dump valve assemblies. Retract air cylinder, wait 2 seconds, then extend rod, repeat process until both vibrators shift 90 degrees when rod is retracted. If vibrators don't shift fully: Refill bottom hoses on dump valves. When rod is extended both weights return to balanced position. DO NOT run system if vibrators or control unit are not functioning properly.

To set AFC frequency of vibrator: stop machine with feed drawer over the mold. Start vibrator motors with vibration off. Check that the top belts are both going towards the center of the machine. Bring up the SmartPac screen on the monitor and set the speed of shafts to 2900 rpm. Check the speed with a strobe light or photo tachometer, then adjust one motor so it runs exactly the same speed as the other. On non AFC units adjust frequency drive to match shaft speeds.

AFC amplitude adjustments are made with vibrator motors stopped and large cylinder rod fully extended. Adjust the transducer to read zero by monitoring register #467 if your machine uses a PLC® 2, or monitor register #N10:21 if your system uses a SLC™-500.

To adjust transducer, loosen mounting screws, move transducer to get zero in register, then retighten screws. Retract rod on air cylinder by manually activating valve, the reading should go to between 900 and 1000 and both weights should be shifted 90 degrees. Extend rod and

## AFC Smartpac® Operating Instructions

recheck zero. Set amplitude to 500 and with vibrator motors off, turn on vibration. Check register reading and subtract 500, enter this into register #543 on PLC2 or #N10:26 on SLC500™. This is your Offset to compensate for delays in the system.

### SMARTPAC MAINTENANCE AND CARE

- Store in clean dry area.
- Lubricate bearings before storing.
- Prevent concrete spillage from accumulating on shafts.
- Keep quick disconnects clean and capped.
- For extended storage, spray rust preventive in tube hole & seals.
- Warning: Vibrator bolts must be torqued to 250 ft lbs (do not use an air impact wrench).

**Note:** Spray lubrication (Besser part number 114044) in tube hole periodically in order to reduce drag on interior parts.

- Handle units with care, DO NOT hit or pry the weights.
- Mount to good mold side bars and make sure Bearing Housings are seated directly to bar and vibrator bolts are properly torqued.
- Inspect vibrator bearing at least every 500,000 cycles by removing the old seals and replacing with new ones. Look for contamination and excessive movement or signs of wear.
- Lift unit by the shaft not Bearing Housing as this can damage the seals.
- Use Mobil 21- or an equivalent automatic transmission fluid. Mark sure there are no contaminants in the fluid. Change oil filter every 3 months. Note: Make sure the oil filter is full of hydraulic fluid, before putting filter back on. Otherwise excessive air will be in the system.
- Clean quick disconnects before engaging.
- Replace “O” ring in quick disconnects at least every month or immediately when they become worn or damaged.
- Never operate system pressure above 80 psi.
- Use only new clean fluid when filling the system. Contamination will cause erratic operation.
- Do not disassemble unit.
- Tighten sheave recommended torque to 18 ft. lbs. Over tightening will cause rotary union to bind, or reduce its life.
- Never put undue pressure on rotary union fittings or connection hose.
- Lubricate vibrator bearing every 8 hours with 1 fluid oz. of clean high temperature synthetic grease (Besser part number 114135) per housing.
- Always have guards in place when operating vibrator motors.

---

## AFC Smartpac® Operating Instructions

- Keep system in top condition by replacing any worn belts, sheaves, and/or hoses.
- Use of a Photo Tachometer to synchronize vibrators is necessary to maintain smooth operation.
- Use high temperature synthetic grease (Besser part number 114135) to:
  - Extend bearing life.
  - Lower the running temperature by 20 degrees Fahrenheit.
  - Reduce grease consumption.

### **SAFETY BULLETIN**

This notice is issued to advise you that some previously accepted shop practices may not be keeping up with changing Federal and State Safety and Health Standards. Your current shop practices may not emphasize the need for proper precautions to insure safe operation and use of machines, tools, automatic loaders and allied equipment and/or warn against the use of certain solvents or other cleaning substances that are now considered unsafe or prohibited by law. Since many shop practices may not reflect current safety practice and procedures, particularly with regard to the safe operation of equipment, it is important that you review your practices to ensure compliance with Federal and State Safety and Health Standards.

### **IMPORTANT**

The operation of any machine or power-operated device can be extremely hazardous unless proper safety precautions are strictly observed. Observe the following safety precautions:

#### **ALWAYS:**

- ✓ Be sure proper guarding is in place for all pinch, catch, shear, crush, and nip points.
- ✓ Be sure that all personnel are clear of the equipment before starting it.
- ✓ Be sure the equipment is properly grounded.
- ✓ Turn the main electrical panel off and lock it out in accordance with published lockout/tagout procedures prior to making adjustments, repairs, and maintenance.
- ✓ Wear appropriate protective equipment such as safety glasses, safety shoes, hearing protection, and hard hats.
- ✓ Keep chemical and flammable material away from electrical or operating equipment.
- ✓ Maintain a safe work area that is free from slipping and tripping hazards.
- ✓ Be sure appropriate safety devices are used when providing maintenance and repairs to all equipment.

## AFC Smartpac® Operating Instructions

---

### **NEVER:**

- ✓ Exceed the rated capacity of a machine or tool.
- ✓ Modify machinery in any way without prior written approval of the Besser Engineering Department.
- ✓ Operate equipment unless proper maintenance has been regularly performed.
- ✓ Operate any equipment if unusual or excessive noise or vibration occurs.
- ✓ Operate any equipment while any part of the body is in the proximity of potentially hazardous areas.
- ✓ Use any toxic flammable substance as a solvent cleaner.
- ✓ Allow the operation or repair of equipment by untrained personnel.
- ✓ Climb or stand on equipment when it is in operation.

It is important that you review Federal and State Safety and Health Standards on a continual basis. All shop supervisors, maintenance personnel, machine operators, tool operators, and any other person involved in the setup, operation, maintenance, repair or adjustment of Besser-built equipment should read and understand this bulletin and Federal and State Safety and Health Standards on which this bulletin is based.