

## Maintenance

### Lubricating

Occasionally, oil the pivot and connecting links in the handle and pistons. Do not oil the pistons near the seal. 306-23 Pump piston seals are lubricated by the resin and hardener, and can leak a few drops per hundred strokes.

### Seals

If a seal is passing more than a few drops per hundred strokes, it should be replaced. Although only one seal may be leaking, replace both seals at the same time. The proper seals can be ordered directly from West System Inc. Refer to the assembly diagram and parts list when ordering parts.

After emptying reservoirs and bleeding the system, remove the operating handle, the piston connecting links and the pistons. For easier access, remove the pump body from the mounting bracket before removing the pistons. The seals are in a recessed groove in the cylinder wall, approximately ¼" (6 mm) above the bottom lip. Slip a small, sharp tool or wire under the seals and lift them out. Be careful not to scratch the cylinder wall or seal recess. Clean the cylinder and pistons of any dried or sticky resin or hardener.

Push the new seals into the grooves in the appropriate cylinder walls with a wood dowel. Before replacing the pistons, inspect them for scratches or pitting. Small scratches or pits may be sanded out with fine emery cloth, but seriously scratched or pitted pistons should be replaced. Lubricate the resin piston with a few drops of resin and the hardener piston with a few drops of hardener before pressing into place. Do not get resin or hardener on the wrong piston. Check for freedom of movement before reassembling the handle and refilling with resin and hardener. Reprime, check for seal leaks and recheck the ratio before using the pump.

### Intake Valves

If the pump is idle for a period of months, it may be necessary to push down on the intake valve screw heads with dowels to loosen them. Resin or hardener flowing back through the intake valve into the reservoir, on the handle up-stroke is a sign of a leaking or sticking valve. The intake valve should be cleaned or replaced. The gasket between the reservoir and pump body should be replaced whenever the valve is removed.

### Exhaust Valves

More than one or two drops of resin or hardener dripping from an exhaust tube, or air being drawn back into an exhaust tube on the handle down-stroke, may mean the exhaust valve is not sealing properly. Before attempting to repair the exhaust valve, be sure the operating handle is returning completely to a firm stop. If necessary, clean

sticky resin or hardener from the pistons and oil the pivot points to assure free movement of the handle.

If the leak persists, disassemble the valve and clean or replace it. After emptying the reservoir and bleeding the system, remove the exhaust tube, tube connector and the exhaust spring and ball. Clean the exhaust ball and seat by wiping with a clean cloth or paper towel dampened with solvent. To reseal the ball, tap it smartly against its seat with a hammer and a wood dowel or brass punch. Be careful not to scratch the ball or seat. Install the exhaust spring (small end first). Stretch the spring slightly before installing for a tighter ball-to-seat seal. Replace the connector and exhaust tube. Fill the reservoir and reprime.

### Cleaning

Clean resin or uncured epoxy with one of the following solvents, listed here in order of their effectiveness: Lacquer thinner, Acetone, MEK (Methylethylketone), or Isopropyl alcohol. Clean hardener with Isopropyl alcohol.

### Changing between 207 and 209 Hardeners

When switching between hardeners, drain the reservoir and pump the operating handle until air is emitted from the spout. Fill the reservoir with the desired hardener and reprime. It is not necessary to thoroughly clean the system before refilling when changing between 207 and 209 Hardeners. The hardener pump body should be cleaned thoroughly if the pump is to be modified and used for a different ratio hardener. Failure to clean the hardener pump body thoroughly will temporarily result in an off-ratio mixture.

### Changing the ratio from 3:1 to 5:1

The 306-23 pump is setup to meter WEST SYSTEM 105 Resin and 207 and 209 Hardeners (3:1 ratio). The ratio can be switched to meter 205 or 206 Hardeners (5:1 ratio) by changing the position of the hardener pump body relative to the resin pump body. The position closer to the resin pump body is the 3:1 position. The position farther from the resin pump body is the 5:1 position. The resin pump body remains in a fixed position. After draining and cleaning the hardener reservoir, switch the ratio by moving the hardener pump body as follows:

1. Remove the clip and link plate from the connecting link between the operating handle and the piston on the hardener pump.
2. Remove the nut from the back of the pivot bolt.
3. Pull the pivot end of the operating handle away from the frame and off the hardener link. The pivot bolt may have to be "unscrewed" out of the frame.
4. Remove the nuts from the hardener body bolts. Move the pump body to the right and insert the bolts through the pair of holes in the ratio position plate marked

205/206 on the back of the mounting bracket. (The ratio position plate is held in position by one of the resin pump body bolts and is inscribed to indicate which of two pairs of holes are used for the 205/206 or 207/209 position.)

5. Replace the nuts on the hardener body bolts, but do not tighten.
6. Push the handle back into position inserting the connecting link into the appropriate hole in the handle below the new hardener pump body position.
7. Reassemble the link and pivot bolt.
8. Push the handle down to align line the pump body parallel to the resin bump body.
9. Tighten the nuts on the hardener body bolts while holding the handle down. Be sure the pump body is aligned vertically and parallel with the resin pump body.
10. Fill the reservoirs and follow the instructions for Priming and Ratio Verification. Contact West System Inc. for the acceptable ratio ranges for 5:1 hardeners.

### Warranty

West System Inc. will repair or replace a 306-23 Metering Pump found to be defective due to materials and/or workmanship. This warranty does not include the cost of extensive cleaning, freight charges, removal of foreign material, accidental damage, or repair if resin and hardener are accidentally mixed in reservoirs. This warranty is made in lieu of all other warranties, expressed or implied, including merchantability and fitness for purpose intended. Any alteration of the pump by the purchaser will void any warranty obligation of the manufacturer.

West System Inc. makes no warranty of any kind concerning the results obtained using the materials dispensed by this pump. It is the user's responsibility to monitor pump performance, mix ratio, and epoxy curing. West System Inc. will not be liable for incidental or consequential damages.

### Technical Information

Questions about the 306-23 Metering Pump or other WEST SYSTEM Brand products can be directed to the technical staff at 866-937-8797.

The 306-K235 Rebuild Kit or individual parts can be ordered by calling 866-937-8797.

West System Inc.  
P.O. Box 665, Bay City, MI 48707  
866-937-8797 (toll free)  
fax 989-684-1287  
westsystem.com

WEST SYSTEM is a registered trademark of West System Inc.  
©2005 West System Inc. G0305 R60-034

**WEST  
SYSTEM**  
BRAND®

# 306-23 Metering Pump

For use with WEST SYSTEM 105 Resin and 207 or 209 (3:1 ratio) Hardeners.

## Operating Instructions

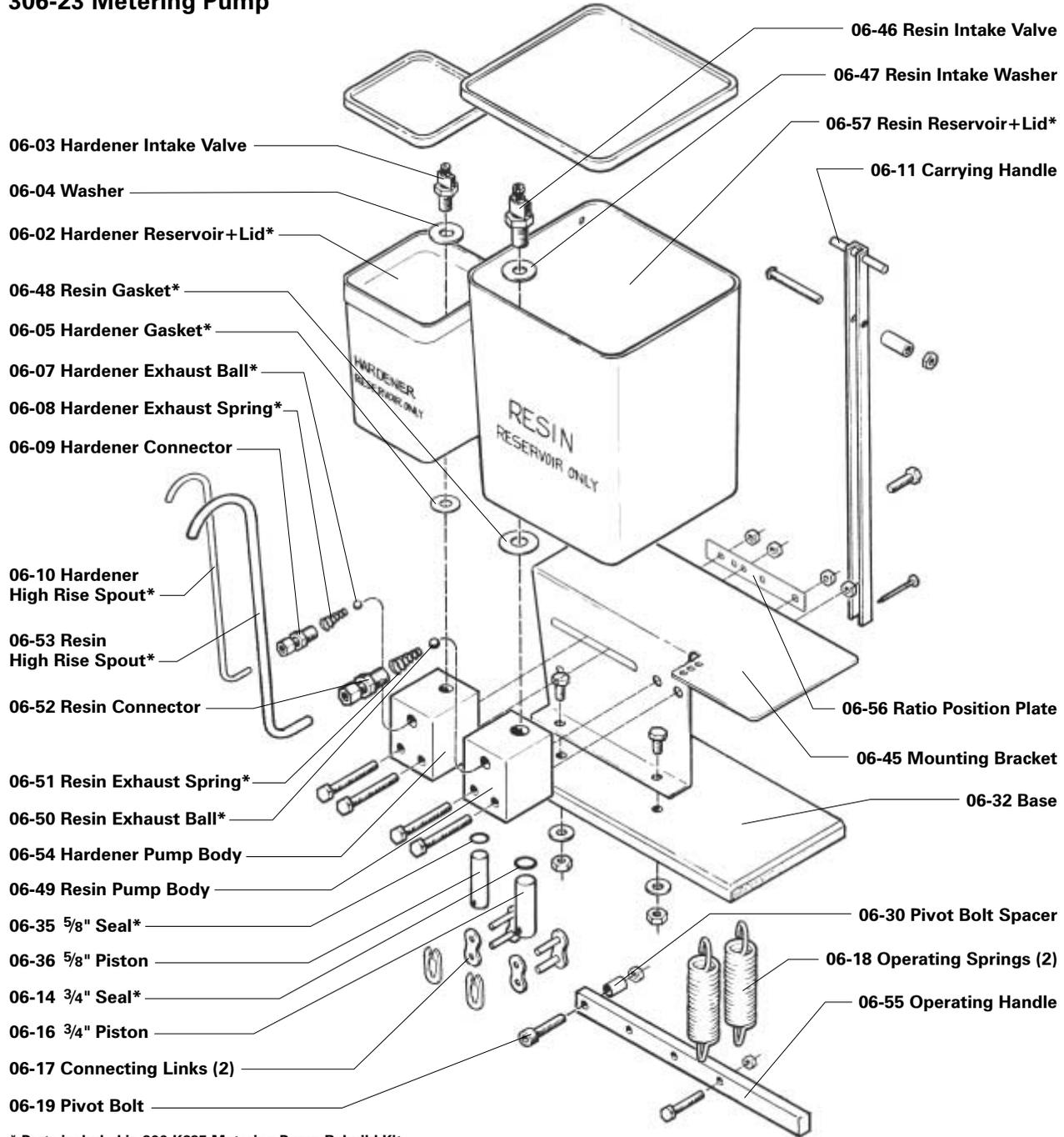
### Assembly Diagram and Parts List

The 306-23 Metering Pump consists of two separate, parallel systems, one for the resin and one for the hardener. Each has a spring-loaded poppet-type intake valve, a piston with O-ring seal, and a spring-loaded ball check exhaust valve. The pump will deliver approximately ½ oz. of resin/hardener per pump stroke. The reservoirs hold one gallon of resin and one quart of hardener. The 3:1 resin/hardener ratio metered by this pump can be changed to meter WEST SYSTEM 5:1 ratio resin/hardener combinations.

**Read all instructions before using pump.  
Keep these instructions for future reference.**

# Assembly Diagram and Parts List

## 306-23 Metering Pump



\* Parts included in 306-K235 Metering Pump Rebuild Kit

## Assembly

The high-rise spouts have been removed for shipment. Insert the appropriate spout into each tube connector (see assembly diagram) and tighten the compression nuts with the spouts in the vertical position.

## Priming

**CAUTION**—Remove all materials from Resin and Hardener reservoirs and be sure the reservoirs are clean before filling.

Prime the hardener system first. Fill the hardener reservoir with 207 or 209 Hardener. Pump the operating handle until hardener flows evenly from the spout without emitting air. Ten to twenty strokes of the handle should produce hardener at the spout. If not, use a stick or dowel to hold down the intake valve screw head inside the reservoir while slowly pumping the handle. This will allow trapped air to escape the valve and hardener to reach the piston.

After the hardener side is working properly, fill the resin reservoir and prime the resin system. Dispense the resin and hardener into separate, clean containers, or the original resin and hardener cans. After both systems are working, return the dispensed resin and hardener to the proper reservoirs.

**CAUTION**—When filling the reservoirs **do not** get any resin in the hardener reservoir, or hardener in the resin reservoir. Always keep one reservoir covered while filling the other. Keep reservoirs covered at all other times to prevent contamination.

Once primed, the pump should not be allowed to dry out. Dried hardener can damage the piston seal and clog the passages and valves. For this reason, the ratio is not checked at the factory.

## Operation

The 306-23 Metering Pump is designed to be operated with full or partial pump strokes at a reasonable stroke speed. It is possible to depress the operating handle too quickly for the resin or hardener to flow into the cylinder on the intake stroke. This can cause inaccurate metering.

Maintain a minimum of one inch of resin and hardener above the intake valve in the reservoirs to prevent air from being drawn into the system. If air is drawn into the pump and discharged from the spout, do not use the mixture, as the ratio may be unreliable. Reprime the pump after refilling the reservoir.

At lower temperatures, resin and hardener viscosity increase—slow down the operating speed and pause at the bottom of the stroke to give the thicker resin and hardener time to flow into the cylinder.

## Ratio Verification

**WARNING**—Check the ratio of resin to hardener dispensed by the pump before using the epoxy on your project. Recheck the ratio periodically or if you later experience incomplete or unusually fast or slow curing.

### By weight

The most accurate method of checking the ratio is by weight. Dispense at least five strokes of resin and hardener into separate, pre-weighed containers. Weigh each of the samples on an accurate balance or gram scale to determine the net weight of each. Divide the net weight of the resin by the net weight of the hardener to find the ratio of resin to hardener. The acceptable ratio range is shown in the chart below. Deviations beyond the acceptable range in either direction will result in an incomplete cure and weakening of the epoxy.

### By volume

While not as accurate as weight verification, the ratio can also be checked by volume using two identical, narrow, cylindrical containers. Measure the levels of the dispensed resin and hardener in the containers with a ruler. Divide the measured height of the resin by the measured height of the hardener to find the ratio.

The acceptable ratio range is shown in the chart below. The ratio by volume is different than the ratio by weight because the specific gravity of the resin and hardener varies.

Monitor the resin/hardener ratio by examining the cured epoxy left in the mixing cup. If the residue is not sufficiently hard after the appropriate cure time has passed, recheck the pump ratio.

### Acceptable ratio ranges for WEST SYSTEM 3:1 ratio Resin and Hardeners

Resin/Hardener	Weight Ratio		Volume Ratio	
	Maximum	Minimum	Maximum	Minimum
105/207	3.3 : 1	4.1 : 1	2.9 : 1	3.6 : 1
105/209	3.3 : 1	4.0 : 1	2.8 : 1	3.4 : 1

For additional information about the 306-23 Metering Pump or to order the 306-K235 Rebuild Kit or individual parts call 866-937-8797 (toll free) or 989-684-7286.