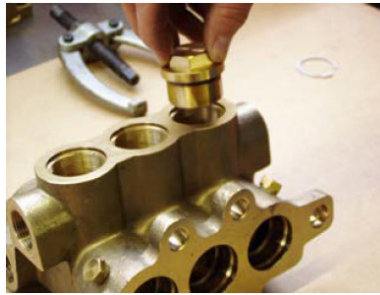


# MP Repair Instructions

## Removal/Assembly - MP Valve and Seal

### Dismantling Valves on the Discharge Side

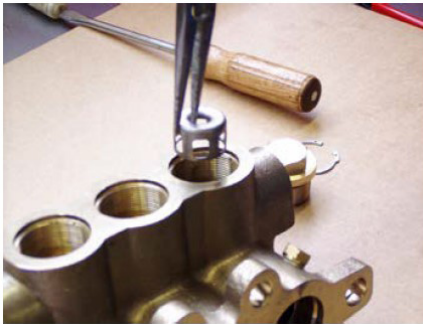
Remove the plugs (photo 1).



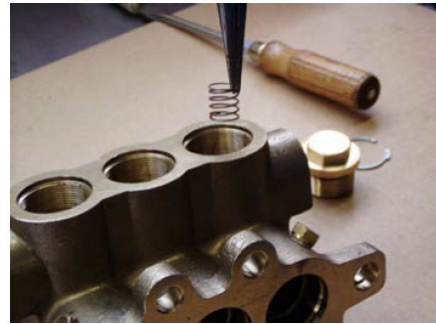
(Photo 1)

Remove the spring tension cap with needle nose pliers (Photo 2).

Take out valve spring with needle nose pliers (photo 3).



(Photo 2)



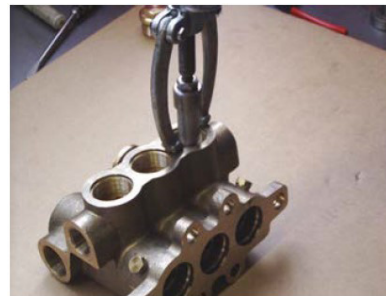
(Photo 3)

Remove the valve plate (photo 4).

Put the extractor tool on to the valve seat and turn to lock (photo 5).



(Photo 4)



(Photo 5)

Pull out the valve seat (photo 6).

Remove o-ring from the valve seat (photo 7).



(Photo 6)



(Photo 7)

# MP Repair Instructions

## Valve Assembly on the Discharge Side

Place the new o-ring in the groove of the valve seat (photo 8).

Insert the valve plate flat side up (photo 9).

Put the valve spring on the valve plate making sure the spring stands vertically (photo 10).



(Photo 8)



(Photo 9)



(Photo 10)

Put on the spring tension cap (photo 11).

Press it into position with a clamping device (photo 12).

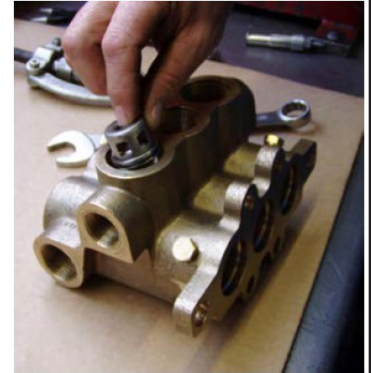
Put the discharge valve into the valve casing (photo 13).



(Photo 11)



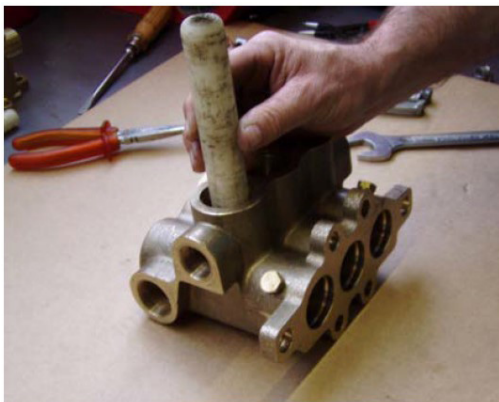
(Photo 12)



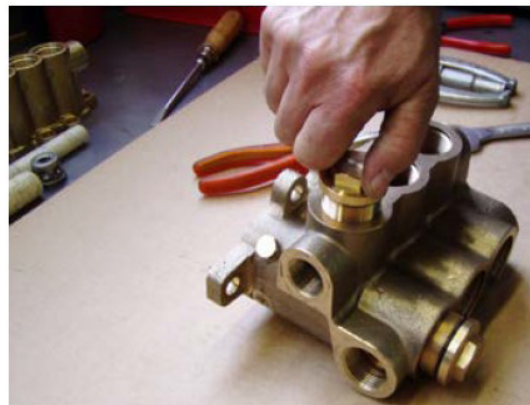
(Photo 13)

Tap on the discharge valve carefully using a plastic rod (photo 14).

Fasten the plugs and tension at 107 ft.-lbs.(145 Nm) [photo 15].



(Photo 14)



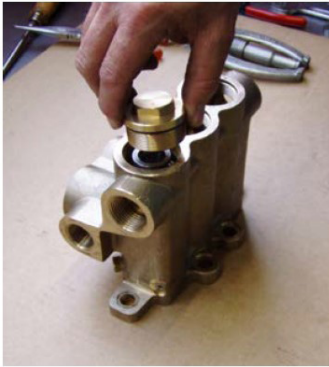
(Photo 15)

# MP Repair Instructions

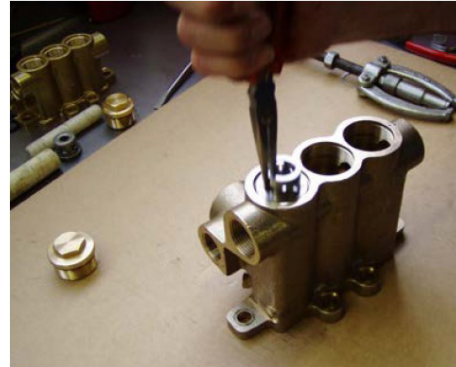
## Valve and Seal Sleeve Disassembly on Suction Side

Screw out plugs (photo 16).

Remove the suction valve retainer with needle nose pliers (photo 17).



(Photo 16)



(Photo 17)

## Dismantling the Suction Valve Retainer

Press out the spacer pipe (photo 18).

Remove the valve seat and valve plate (photo 19 & 20).



(Photo 18)



(Photo 19)



(Photo 20)

Take out the valve spring (photo 21).

Remove the o-ring from the suction valve retainer (photo 22).

Remove the o-ring from the valve seat (photo 23).



(Photo 21)



(Photo 22)



(Photo 23)

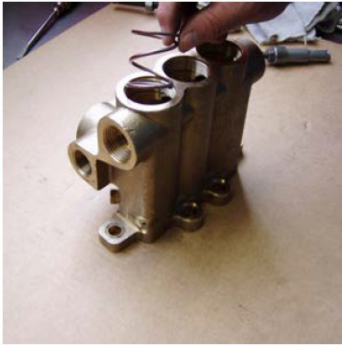
# MP Repair Instructions

## Disassembling the Seal Sleeves

Take out the pressure spring (photo 24).

Tap out the v-sleeves, support ring and pressure ring with a Ø31mm plastic rod (photo 25).

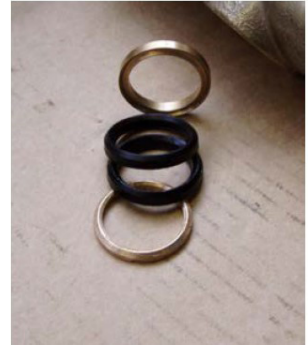
Disassembled v-sleeves with support and pressure ring (photo 26).



(Photo 24)



(Photo 25)



(Photo 26)

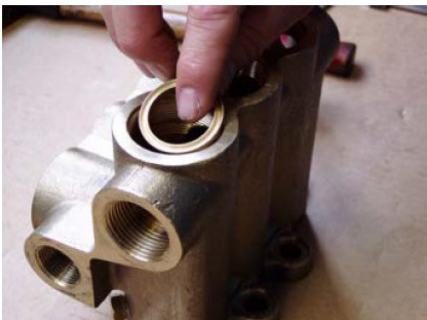
## Mounting Valves & Seal Sleeves on the Suction Side

### Assembling the Seal Sleeves

Insert pressure ring with the groove facing up (photo 27).

Pressure down the pressure ring with a plastic rod Ø38mm (photo 28).

Put the v-sleeve in vertically, then turn into position making sure the groove faces up (photo 29).



(Photo 27)



(Photo 28)



(Photo 29)

Press down the v-sleeve with a plastic rod (photo 30).  
Insert the support ring flat side up, wedge side down (photo 31).  
Insert tension spring (photo 32).



(Photo 30)



(Photo 31)



(Photo 32)

# MP Repair Instructions

## Assembling the Suction Valve Retainer

Put the o-ring on the suction valve retainer (photo 33).

Put the o-ring on the valve seat (photo 34).



(Photo 33)

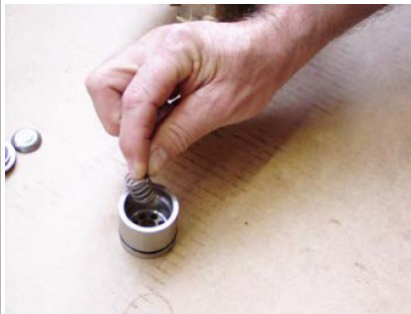


(Photo 34)

Insert the valve spring to stand vertically (photo 35).

Insert the valve plate flat side down (photo 36).

Put on the valve seat polished side down (photo 37).



(Photo 35)



(Photo 36)



(Photo 37)

Press the valve seat with the space pipe into the suction valve retainer (photo 38).

Insert the suction valve retainer (photo 39).

Fasten the plugs and tighten to 107 ft.-lbs. (145 Nm) [photo 40].



(Photo 38)



(Photo 39)



(Photo 40)

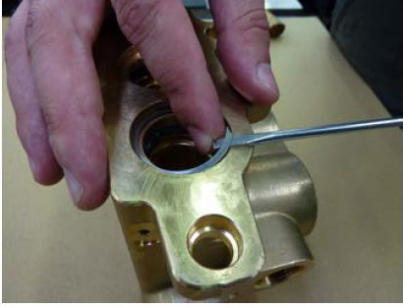
# MP Repair Instructions

## Disassembling Weep-Return Seals

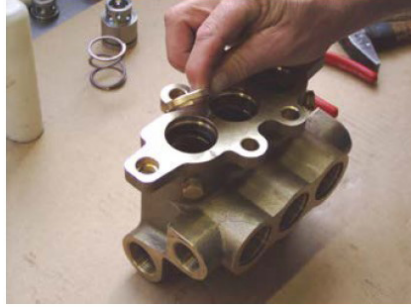
Remove the clip ring (photo 41).

Remove the pressure ring (photo 42).

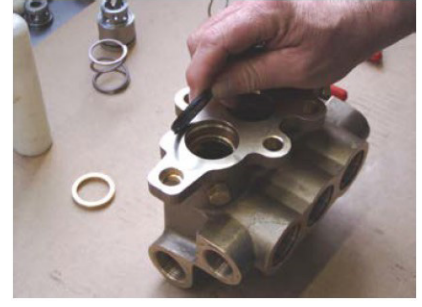
Remove the seal (photo 43).



(Photo 41)

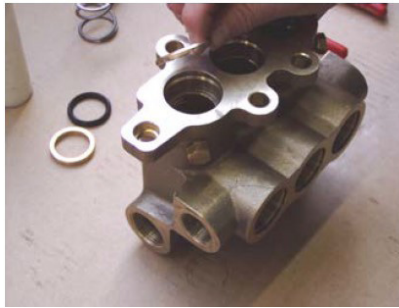


(Photo 42)



(Photo 43)

Remove the support ring (44).



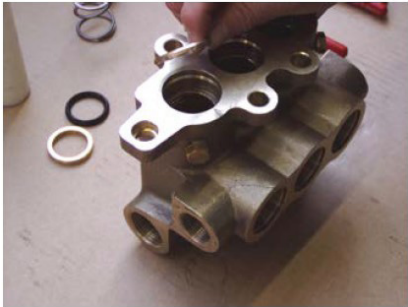
(Photo 44)

## Assembling Weep-Return Seals

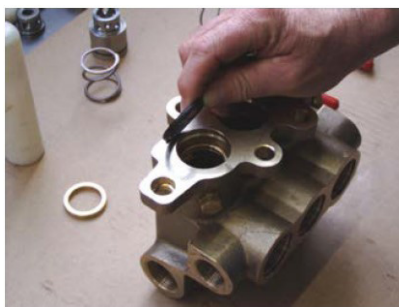
Insert the support ring flat side down, wedge side up (photo 45).

Insert the v-sleeve flat-side up (photo 46).

Insert the pressure ring flat side up, groove side down (photo 47).



(Photo 45)



(Photo 46)



(Photo 47)

Position the clip ring (photo 48) and tap it with a plastic rod (photo 49).



(Photo 48)



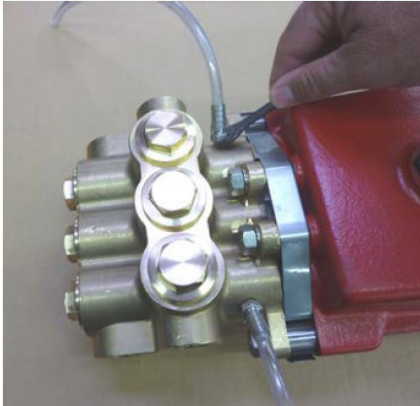
(Photo 49)

# MP Repair Instructions

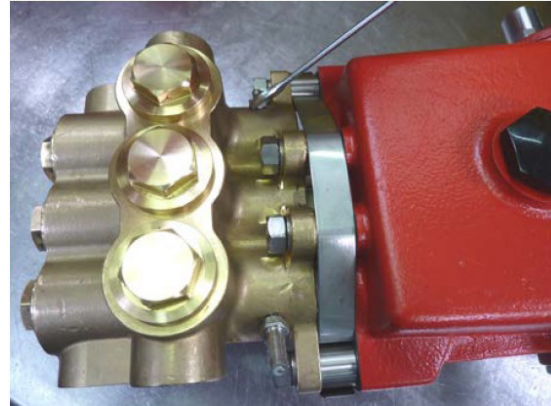
## Fixing and Removing the Valve Casing

### Taking off the valve casing

For high temperature pumps, remove cooling (photo 50) or grease lubrication with leakage drain (photo 51).



(Photo 50)



(Photo 51)

Remove nuts from stud bolts (photo 52).  
Using a plastic hammer, knock off the valve casing straight to the front.  
Do not remove sideways as this can damage the plungers (photo 53).



(Photo 52)



(Photo 53)

Remove any dirt from the plunger pipes using fine polishing paper (grain size 4000) [photos 54 & 55].



(Photo 54)



(Photo 55)

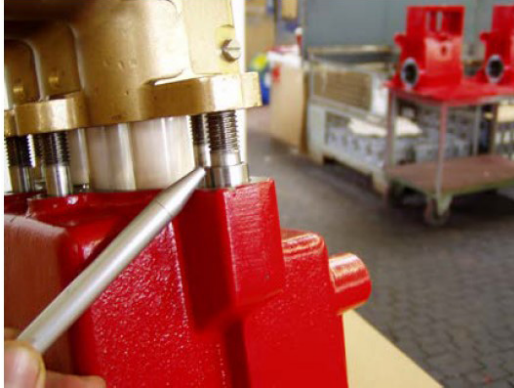
# MP Repair Instructions

## Mounting the valve casing

Position two plungers at the same height. Mount the valve casing straight on (photo 56).  
Make sure the fixing screws are correctly aligned (photo 57).



(Photo 56)



(Photo 57)

Carefully press the valve casing evenly on to the drive -  
using a plastic hammer if necessary (photo 58).  
Secure the valve casing with nuts and tighten to 59 ft.-lbs. (80 Nm) [photo 59].

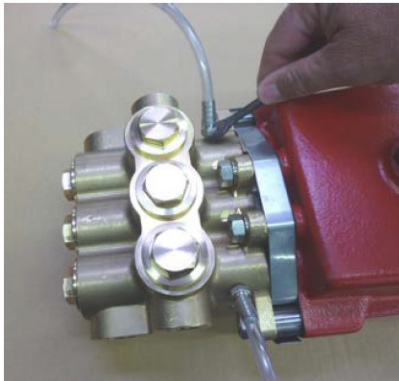


(Photo 58)

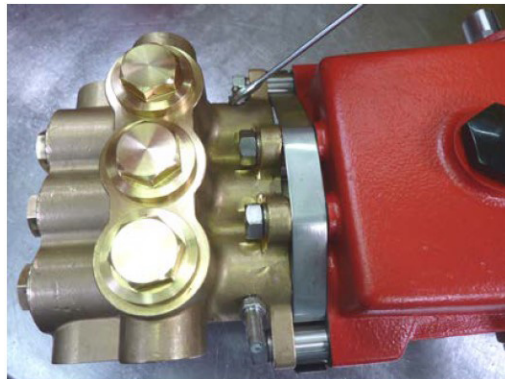


(Photo 59)

For high temperature pumps, reinstall cooling (photo 60) or  
grease lubrication with leakage drain (photo 61).



(Photo 60)



(Photo 61)

**GIANT**  
Performance Under Pressure

GIANT INDUSTRIES, INC.  
900 N. Westwood Ave.  
Toledo, Ohio 43607  
PHONE (419) 531-4600  
FAX (419) 531-6836  
www.giantpumps.com  
© Copyright 2022 Giant Industries, Inc.