



Troubleshooting Guide

Capacity Shut-Down System

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MANUAL PART NUMBER 99900372

20070220

Iowa Mold Tooling Co., Inc. is an Oshkosh Truck Corporation company.

CAPACITY SHUT-DOWN SYSTEM

SOME COMMON QUESTIONS

What does the Capacity Shut-Down System do?

The system prevents damage to the boom by sensing the base of the lift cylinder pressure and disables the offending function when the base of cylinder pressure reaches a preset level.

How does the operator get the function to work again?

The operator will be able to reverse the function, but will not be able to work the function both ways until the base of cylinder pressure has been lowered to below the preset level.

What valves make up the Capacity Shut-Down System?

A Sensing Valve (Part No. 73054425)
An Overstress Valve (Part No. 73054424)
A Boom Down Valve (Part No. 73054462)

Does the Capacity Shut-Down System affect inner boom up?

No, the inner boom up is not tied into the Capacity Shut-Down System, the main relief valve is what dumps this function, not the overstress valve.

What should the sensing valve be set to dump at?

Typically about 10% to 20% over system pressure which is what the main relief valve is set to dump at.

SERVICING OF THE SYSTEM

When the Capacity Shut-Down System needs to be serviced try to troubleshoot the system in this order:

1. Check the sensing valve first.
If the poppet in the sensing valve becomes jammed with a piece of hose or some other foreign part the overstress valve will stay dumped or act erratic.

If the unit had been shock loaded with a large load the sensing valve may need to be reset by loosening the lock nut on the adjustment bolt and resetting the sensing valve to the proper level.
2. Then check the overstress valve per the Service Bulletin.

NOTES:

One sensing valve controls 2-dump valves.

The boom down valve is plumbed in a3-way configuration

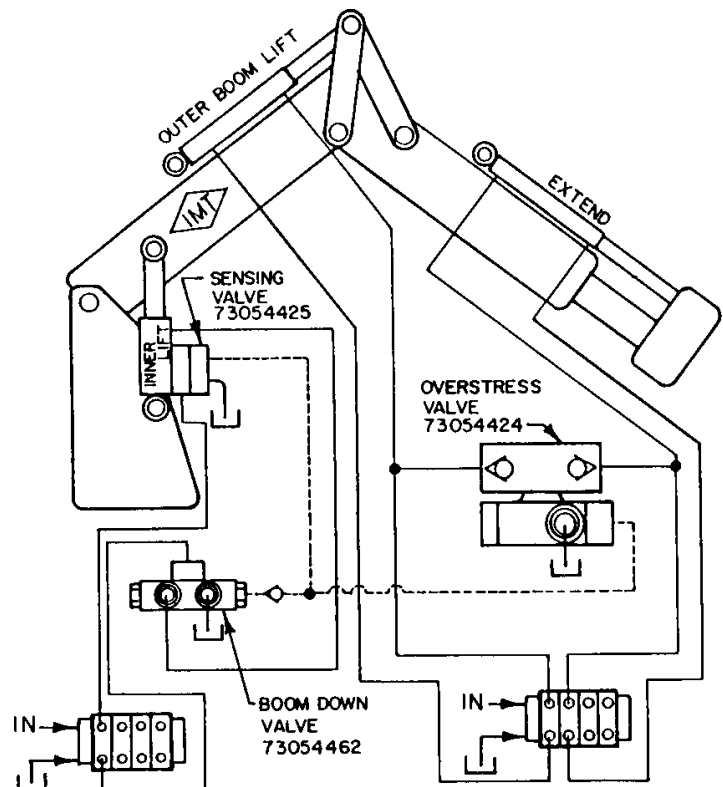


Figure 1.
Capacity Shut-Down System

SERVICE BULLETIN

May 15, 1990

HYDRAULIC OVERSTRESS VALVE

(Part Number 73054424)

The purpose of this bulletin is to point out some areas to check when the overstress valve is suspected of malfunction.

A. Overstress valve does not dump - no pilot pressure at sensing valve.

Check orifice leading from holding valve and orifice in the bottom of the sensing valve. The orifice hole in the holding valve body is small and may easily become plugged with foreign material.

NOTE: Orifices should not be larger than 1/16".

Check shuttle valve for an obstruction.

Check overstress fluid passage for an obstruction (i.e. tank line).

Check normal fluid passage for an obstruction.

B. Overstress valve stays dumped. Keep in mind the overstress valve only dumps when the hydraulic pressure on the biasing spring end of the spool is less than the opposite end. The fluid orifice through the center of the spool maintains the balanced position that allows the functions to work.

NOTE: This is why the sensing valve should be suspected first since it triggers the overstress valve to dump by dumping the biasing spring end of the spool to tank.

Check O-rings 4, 6 and 7 in the sensing valve for wear or damage. If O-rings are leaking the boom should creep down if left in an elevated position.

Check for broken or obstructed spring and/or poppet in the sensing valve. The spool in the overstress valve may also be sticking or binding.

Check fluid orifice through the center of the overstress valve spool for an obstruction.

Check poppet seat in the sensing valve for damage or foreign material causing a leaky condition.

C. Boom creeps down slowly when left in an elevated position. This can be caused in three areas:

Leakage in the lift cylinder piston seals. Leakage in the holding valve.

Leakage by the pilot piston O-ring in the sensing valve (i.e. O-rings 4, 6 and 7 again).

To determine if the sensing valve is causing the boom to creep down, place the boom in the boom rest and:

Disconnect the line from the overstress valve and the tank line on the sensing valve. Plug both the fittings and the line. The goal here is to trap any oil that is leaking by O-rings 6 or 7. O-ring 4 would leak visually by the plug pilot.

Raise the boom from the boom rest, rotate to the side and suspend a load of 500 to 1000 pounds. If the boom still creeps down the problem is in the holding valve, lift cylinder or O-ring 7. If the boom does creep down the problem is most likely the pilot piston O-ring 7 in the sensing valve.

D. Two functions operate at once or a function won't operate properly:

Extend outer boom and telescope out are connected to a common valve passageway. Each function is protected by a check ball which is installed in the inlet fittings in the overstress valve. If a check ball is leaking a multiple function may occur or the loss of pressure from another function may happen.

E. Boom down stays dumped. Keep in mind that the boom down valve blocks the flow of oil to boom down function when the sensing valve is dumped to tank and that the boom down valve is triggered by the sensing valve just like the over stress valve (i.e. The sensing valve dumps the boom down valve biasing spring end of the spool to tank causing the higher pressure at the opposite end of the boom down valve spool to shift the spool).

Check the sensing valve as outlined earlier in Part A.

Check the orifice through the center of the boom down valve spool as was outlined in Part B for the over stress valve.

If the other functions are performing poorly the spool fit in the over stress valve may have become damaged.

F. Boom won't cut out but other functions will.

Check over stress fluid passage for obstruction.

Check valve in fluid passage line.

Check boom down valve spool drain orifice to the tank port of the boom down valve for plugging by foreign material.

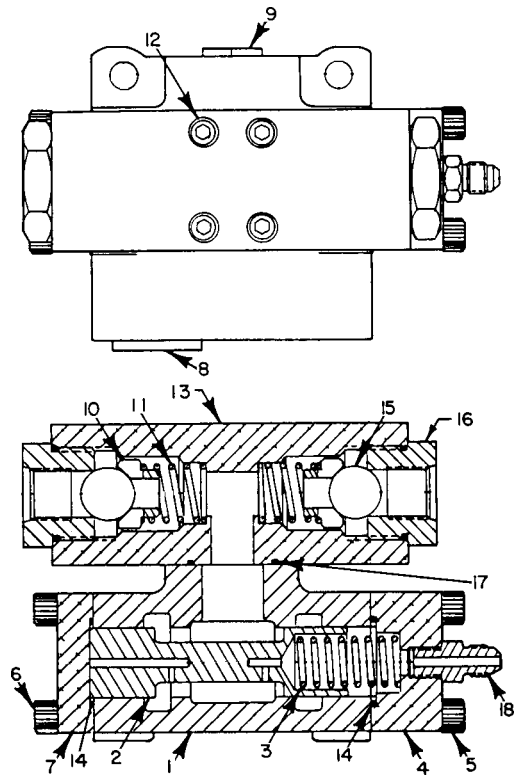


Figure 2.
Overstress Valve
(Part Number 73054424)

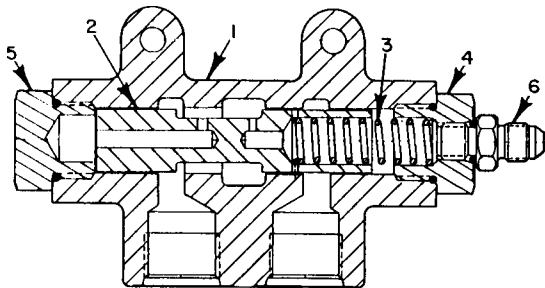


Figure 3.
Boom Down Valve
(Part Number 73054462)

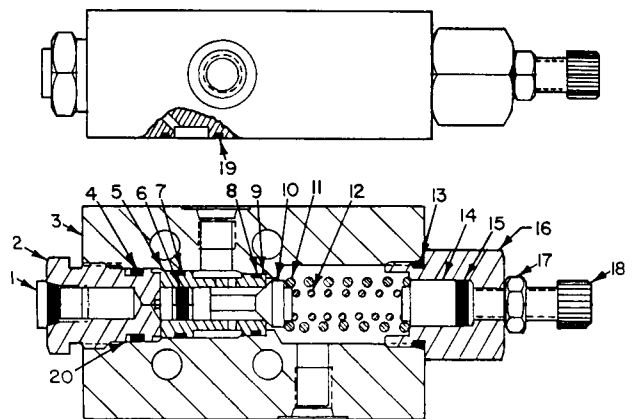


Figure 4.
Sensing Valve
(Part Number 73054425)