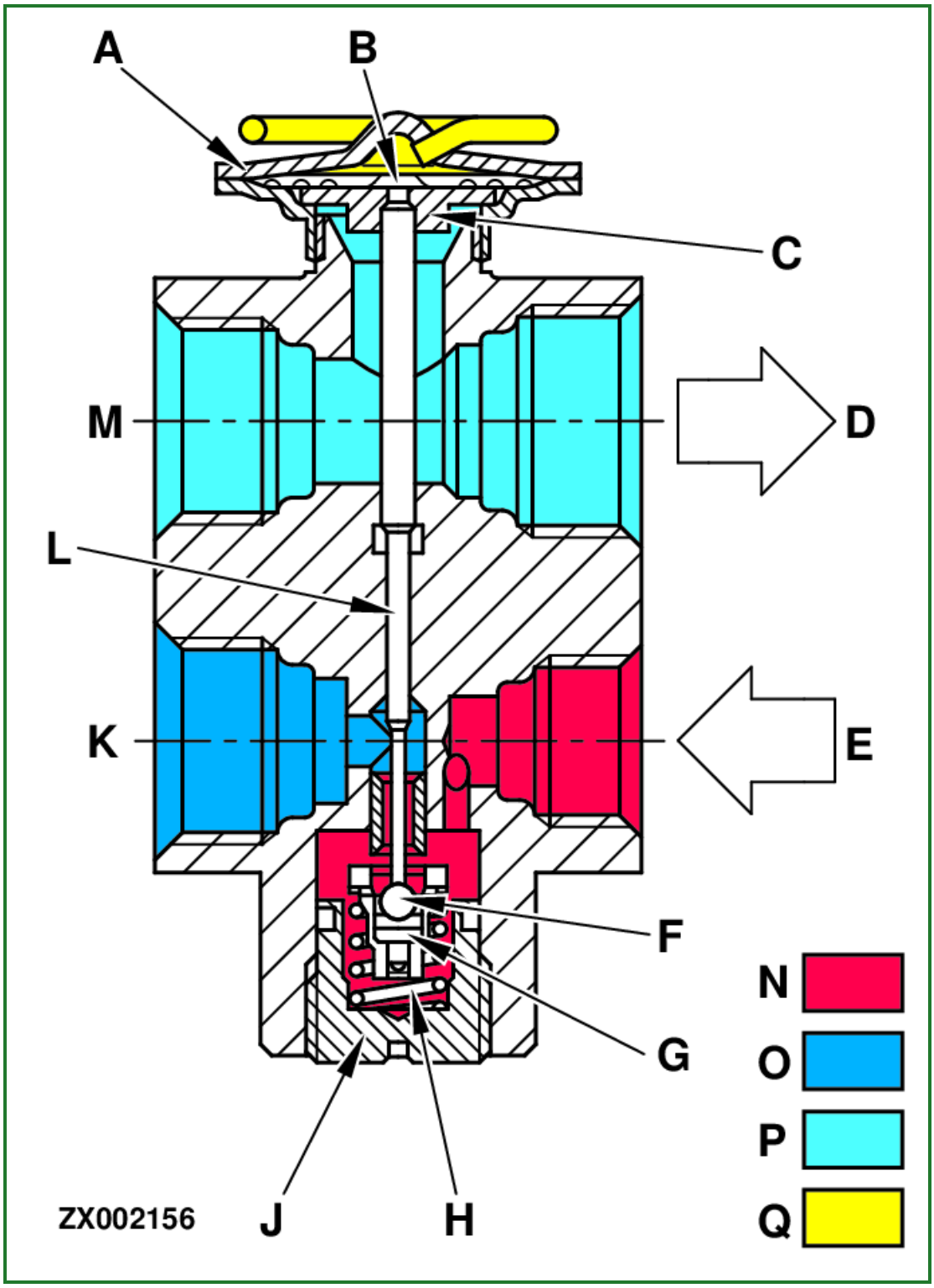
Expansion Valve



LX002156-UN: Expansion valve operation

LEGEND:

A - Thermal head

B - Diaphragm

C - Pressure plate

D - To compressor

E - From receiver-drier

F - Valve ball

G - Ball seat

H - Spring

J - Plug

K - To evaporator

L - Actuating pin

M - From evaporator

N - Liquid high pressure refrigerant

O - Liquid low pressure refrigerant

P - Gaseous low pressure refrigerant

Q - Gas in thermal head

The expansion valve is located on the right side of the evaporator looking in the direction of forward travel and is connected to the evaporator's inlet and return lines.

The expansion valve is a diaphragm valve with a stainless steel thermal head. Its purpose is to control the throughflow of refrigerant in relation to the return temperature from the evaporator.

If too much refrigerant flows through the evaporator, liquid refrigerant could reach the compressor via the return line, and cause damage to the compressor.

Too much liquid refrigerant is one reason why the system may not be performing well, as the refrigerant does not evaporate completely.

A variable throttle is located in the inlet to the expansion valve. This throttle is formed by valve ball (F) and actuating pin (L). At this point the pressure of the liquid refrigerant is reduced considerably. This allows the refrigerant to expand and change into its gaseous state in the evaporator, thus bringing down the temperature.

Once the refrigerant has left the evaporator, it has to flow through the expansion valve one again. However, it does not do so through the throttle, but through a passage where the refrigerant temperature can be registered by thermal head (A).

The thermal head is filled with gas, which expands and contracts as the temperature rises and falls. This process is employed to produce a movement at diaphragm (B) that is passed on to the throttle. This makes it possible to control the throughflow of refrigerant in relation to its temperature.

Go to Section_290:Group_20A

LX,290,20002584-19-1992/02/28