HIDRACAR S.A.

INSTRUCTIONS OF USE OF THE HIDRACAR CHARGING & CONTROL GAS KIT FOR PULSATION DAMPENERS AND HYDRO-PNEUMATIC ACCUMULATORS

DESCRIPTION: [*follow drawing no. BV(***)A1TM*]

A complete kit includes:

a) A block.

b) A 1.5 meter long flexible hose (for a max. working pressure of 600 bar).

c) A female thread adapter for connecting the hose to the Nitrogen cylinder valve.

d) A plastic case for the protection and transport of the kit.

WARNING!: Charge with NITROGEN gas only. The use of OXYGEN is FORBIDDEN. Before proceeding with the filling or verification of gas pressure, be sure the pump is stopped and there's no pressure in the circuit

OPERATION: [*follow drawing no. BV(***)A1TM*]

I - Remove the cap of the accumulator charging valve (on top of the accumulator / pulsation dampener) and check that the o-ring of the charging valve is in its place.

II – Check that the core depressor pin of the block (***12***) is retracted into the block. For this, the valve core drive handle (***1***) must be completely turned counter-clockwise. Also, make sure that the gas purge valve handle (***4***) is firmly screwed in (closed). Once all this has been checked, proceed to attach the charging block to the charging valve and screw it by rotating the knurled nut (***5***) until firmly secured.

III – Now connect the flat seat end fitting of the flexible hose to the check valve (***3***) of the block (after removing its cap and checking that its o-ring is in place, all just as you did before with the accumulator one).

IV - Connect the fitting in the other end of the flexible hose, with the appropriate adapter already attached, to the Nitrogen cylinder valve and open the cylinder gas valve handle very slowly (the pressure gauge needle ought to move slowly). You should do this while keeping the accumulator in vertical position.

V – Once the needle of the manometer (***2***) is approximately 15% above the required gas charging pressure value, close the valve handle of the gas cylinder.

VI – Now, purge the gas inside the block by opening the gas purge valve handle (***4***) slowly, until the manometer (***2***) indicates 0 bar and no gas is released through the gas purge outlet hole (***11***), and then close again the gas purge valve handle.

VII – At this point, the accumulator has been filled with gas, and its pressure kept inside by the core valve. Keeping the knurled nut (***5***) connected to the accumulator charging valve, turn slowly the handle (***1***) clockwise until the core depressor pin (***12***) of the block pushes the core into the charging valve to open it. The manometer will then show the pressure inside the accumulator.

VIII - As the pressure is slightly above the required charging pressure, now it is necessary to purge out the gas excess by turning the gas purge valve handle (***4***) slowly until adjusted.

IX – Turn the handle (***1***) counter-clockwise so the gas charging valve of the accumulator gets closed.

X – Finally, open once again the gas purge valve handle to release all the gas that remains inside the block. Then you can unscrew the block from the accumulator by turning the knurled rotating nut (***5***) counter-clockwise.

Note: When the gas is compressed, its temperature increases. With high gas charging pressure values, it is necessary to wait a few minutes before checking the pressure in the manometer.

If the working temperature is higher than the room temperature, the following formula must be used to determine the charging pressure:

$$P_0 \text{ (fill)} = P_0 \text{ (required)} \times \frac{\text{charging temp} + 273}{\text{working temp.} + 273} \qquad (P_0 = \text{Charging pressure})$$

When detaching the flexible hose, you must be careful with the gas stored inside.

To check the pressure inside the accumulator, follow the actions in points I, II, VII, IX and X.

Weight of complete kit: 2 Kg. Dimensions of the case: 31 cm x 38 cm x 10 cm.

EXAMPLE OF REFERENCE CODE FOR A COMPLETE KIT: