Technical Bulletin

Title: Accumulator (pos, 503) service manual

Issue: Charging instructions and special tools

Project Engineer/s: Paul T. Uhrynowski

Scope: This bulletin covers the charging procedures for charging Indeco hydraulic breaker accumulators. It identifies the special tools needed to perform this procedure. Included is a parts breakdown for the Indeco charging tools. Finally, the safety hazards associated with compressed gases and charging accumulators are identified. Please review this entire bulletin before performing any work on the breaker.
Accumulator Removal and Rebuilding

Safety Instructions

WARNING

Before working on the Accumulator, PLEASE read the following safety procedures thoroughly. If you have any questions, consult your INDECO dealer or INDECO N.A.

Warnings

Compressed gases, by their nature, are hazardous. They are capable of creating environments that are oxygen deficient, flammable or explosive. Death has occurred during a routine repair on a carrier when a nitrogen-charged canister on the carrier exploded as it was being disassembled.

Nitrogen, which is present in our atmosphere, can still displace the oxygen in a room or enclosure and cause suffocation.

Never deliberately breathe, or allow others to breathe, any compressed gas of any type. It is possible to deplete the oxygen in the bloodstream and cause rapid suffocation and DEATH.

Always wear proper clothing for the job. Protective clothing, safety shoes and leather gloves should be worn, in addition to the required helmet or other protective gear. Any time compressed gases are handled, safety glasses should be worn.

Keep a fire extinguisher close at hand. Situate flammable gas cylinders in a location so that if a fire does occur, it may be easily extinguished. In some cases, it may be better to evacuate the area and let the cylinder burn, especially if escaping gas could collect and explode.

Never attempt to adapt fittings from one device or cylinder to another. Fittings or hoses may not be compatible with the gas products and may fail violently. Gases should never be transferred from one cylinder to another. The rate of flow of the gas itself may be sufficient to cause an explosion.

Check valves are an important safety feature, but don’t rely on them 100% to prevent a “backflow” condition. Always open the cylinder slowly Purge the regulator and hoses by allowing a small amount of gas to pass through the system.

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Potential Hazards

Fire or Explosion
Nitrogen may burn, but will not ignite readily. The Cylinder may explode in the heat of a fire.

Health Hazards
Vapors may cause dizziness or suffocation. Contact with liquid may cause frostbite. Fire may produce irritating or poisonous gases.

Emergency Action
Keep unnecessary people away. Isolate the hazard area and deny entry. Stay up-wind; keep out of low areas. Telephone local emergency professionals. Positive-pressure, self-contained breathing apparatus (SCBA) and structural firefighters’ protective clothing will provide limited protection.

Fires
Small Fires: Dry Chemical or C02
Large Fires: Water spray, fog or regular foam
Move container from fire area if you can do so without risk. Apply cool water to sides of container that is exposed to flames until well after the fire is out. Withdraw immediately in case of rising sound from venting safety device or any discoloration of container. If nitrogen is spilled, it may evaporate leaving a flammable residue.

Leaks
Stop leak if you can do it without risk.

First Aid
Move victim to fresh air and call emergency medical care. If the victim is not breathing, give artificial respiration. If breathing is difficult, give oxygen.

If you suspect a problem with the Accumulator, it should be bench-tested for the pressure. Before proceeding to any other operation, connect a charging unit to the inflating screw. If the pressure is within specs, it may be assumed the Accumulator is okay. If the pressure is low, note that it is normal for an Accumulator to lose pressure over time with no defects. If pressure has been lost in a short time, there may be a problem with the diaphragm, sealing ring or inflating screw. If the pressure is checked and it is zero, be suspect of a ruptured diaphragm.

WARNING: If the pressure is checked and the gauge creeps up past the original specs, exercise extreme care - the diaphragm may be ruptured. If so, the hydraulic oil may have leaked into the nitrogen chamber and the pressure in the chamber may be greater than 2000 psi. Bleed off the pressure slowly through the Inflating Screw, while guarding yourself from bodily injury. (Figure 06-01) (Please read the safety warnings at the beginning of this chapter.) (Explanation: The nitrogen is in at 500 lbs. pressure. The System pressure is 1500 -2000 psi. If the diaphragm ruptures at the edge, it lets the oil in to make up the pressure, thereby increasing the nitrogen chamber pressure. In other words, the fluid takes up the volume and increases the pressure on the gas.)

Figure 06-01: Loosen Inflation Screw Carefully
Accumulator Indicators

In order to ensure smooth operation of the hammer, it is necessary that the Accumulator be charged correctly. If the Hammer is exhibiting strong vibrations of the oil supply pipe, it is likely that Accumulator is discharged (flat).

We recommend that the Accumulator be disassembled every 500 working hours. At this time, the Diaphragm (Position 503) should be replaced, even if it appears to be in good condition. WHEN THE ACCUMULATOR GOES FLAT, THE RUBBER DIAPHRAGM MUST BE REPLACED, EVEN IF ITS CONDITION APPEARS SATISFACTORY.

When recharging the Accumulator, also replace the Sealing Ring (Position 505) and the O-Ring (Position 508). Before reassembling, wrap Teflon tape around the Inflating Screws (Position 504) in order to deter them from loosening.

**ATTENTION:**

The accumulator charging Specifications for all INDECO Breaker accumulators are:

475 PSI to 550 PSI  
(32 to 38 BAR)  
For all models up to and including the MES 1200.

520 PSI to 620 PSI  
(36 to 43 BAR)  
For all models MES 1500 HD and larger.
Nitrogen Recharge

Note: On Breaker Models MES 150 through MES 200, the accumulator must be assembled on the breaker prior to the nitrogen charge.

1. Carefully install the Pressure Reducer/Regulator assembly into the nitrogen tank, following the safety instructions. (Figure 06-20) The nitrogen bottle must not have a level below 45 bars (652.5 psi).

2. Attach the Rubber Hose to the Pressure Reducer/Regulator and the nitrogen tank valve.

3. Attach the Inflating Body so the hexagonal pin fits inside the Inflating Screw (Position 504). (8 mm HEX on Breakers up to 300 Series; 14 mm HEX on Breakers 500 Series and up). Check the O-Ring on the sealing face. (Figure 06-21)

- **Figure 06-20**: Assemble and Install Pressure Regulator onto Nitrogen Tank
- **Figure 06-21**: Attach and Install Inflation Body

4. Install the Inflating Body to the Accumulator. (Figures 06-22, 06-23 and 06-24)

- **Figure 06-22**: Installation of Inflation Body MES 121 and MES 150
- **Figure 06-24**: Installation of Inflation Body Assembly with Newer Style Holder MES 300 and Up (with two 8 mm - 1.25 Tapped holes in the top)
- **Figure 06-24**: Installation of Inflation Body Assembly with Older Style Holder MES 300 and Up

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5. Loosen the Accumulator Charge Plug (Position 34) by turning the Spanner Wrench in the Charging Fixture counter-clockwise.

6. Open the main valve on the nitrogen tank and purge the charge hose.

7. Charge the accumulator to the correct pressure. (See Nitrogen Recharge - Section 6 Page 41).

8. Tighten the Accumulator Charge Plug (Position 34) by turning the Spanner Wrench in the Charging Fixture clockwise.

9. Bleed the pressure from the charge hose and remove the Charging Fixture from the Accumulator.

10. Tighten Accumulator Charge Plug (Position 34) to specified torque.

11. Using some oil, verify that there are no nitrogen leaks from the Inflating Screw or on the sides. (Figure 06-25)

12. Turn the Accumulator upside down and fill the holes with oil to check the Diaphragm has no defects. If no bubbles appear, the Accumulator is correctly charged and ready to be installed on the breaker.

Figure 06-25: Check Accumulator for Leaks

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520 PSI to 620 PSI
(36 to 43 BAR)
For all models MES 1500 HD and larger.
Figure 1 - Inflation Body Assembly

Figure 2 - Inflation Kit Parts
<table>
<thead>
<tr>
<th>Figure</th>
<th>Position</th>
<th>Qty</th>
<th>Description</th>
<th>Part #</th>
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<td>* 2001</td>
<td>1 Body for Inflation Equipment</td>
<td>2720010</td>
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<td>2</td>
<td></td>
<td>* 2002</td>
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<td></td>
<td>* 2004</td>
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<td>1 Seeger (snap ring)</td>
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<td>1 Sealing Washer</td>
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<td>1 Basic Kit (Items Marked with*)</td>
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