



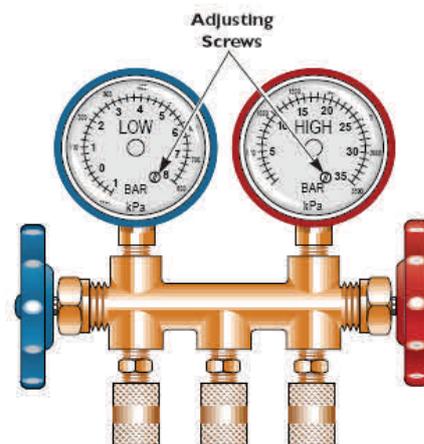
Subject: <b>A/C EQUIPMENT CARE AND MAINTENANCE</b>	TSB #: <b>6 3-08</b>
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Initial Once Read:	

## PRESSURE GAUGE

The pressure gauge set is the most important tool that the A/C technician can own as this is the only means for a technician to understand what is happening inside the A/C system from the pressure readings obtained.

### Pressure gauge operation and care

- Ensure that both the low and high side gauges are fitted with clear protective dial covers.
- Check the red, blue and yellow hose condition – If hose damage such as cuts, burns, cracks are evident, replace the hoses.
- Make sure that the hose colors are correct to the gauge ports. Red high to high gauge, blue hose to low gauge and yellow to manifold center port.
- Do not over tighten manifold hand valves, otherwise the hand valve seals and valve seats will be damaged and leak.
- Ensure that hand valves are turned off for A/C system pressure analysis. Hand valves are open for charging, recovery and evacuation.
- If the gauge needles do not sit on zero with no pressure *do not* bend the needles. See information / illustration regarding zero adjustment.
- Some gauge dials have an inner temperature reading (pressure / temperature relationship). This reading is the temperature of the refrigerant at the associated pressure reading. Example – Low side pressure 100kPa = 0oC refrigerant temperature.



### Pressure gauge zero adjustment

1. Remove all the hoses from the pressure gauge manifold.
2. Fully open the high and low side hand valves.
3. Locate the zero adjustment screw (if fitted)
4. Remove the plug or unscrew the dial covers.
5. Gently turn the adjusting screw clockwise or anticlockwise in small increments until the needle rests on zero.
6. Reassemble all parts including hoses, turn the hand valves to the off position.

## REFRIGERANT CHARGING SCALES

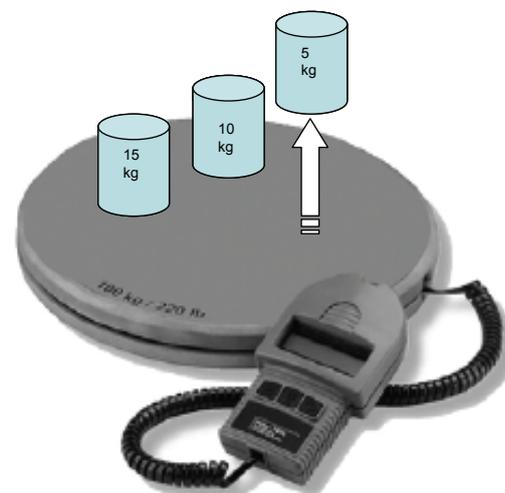
All the scales used for weighing the refrigerant filling cylinders are scientific strain gauge quality using a centrally located load cell in other words very accurate and easily put out of calibration, by dropping a heavy cylinder onto the scales or weighing body weight.

If the scales are out of calibration this would mean that the charging amount will be incorrect.

If the scales are battery operated ensure that the batteries are changed at regular intervals or connect a 240volt transformer in place of the batteries.

### Testing for calibration

- Place a quantity of known weight objects onto the scales. The known weights could be automotive parts that have been weighed at a weighing station and the weight marked on the object. If no weights are available water in a container can be used , 1 litre of water is 1 kg of weight.
- Check that the combined weight of the objects is displayed on the scales LCD screen.
- Remove one object at a time and view the scales LCD screen to see if that removed weight amount is displayed.
- If the displayed weight quantities displayed are out by more than 15 grams compared to the weighed objects, the scales will have

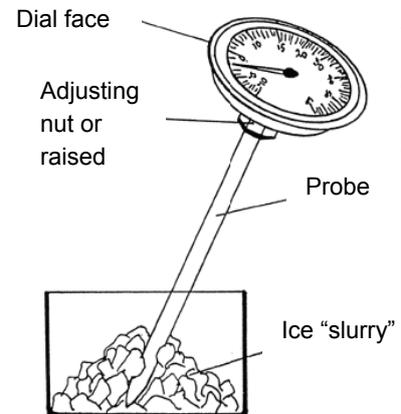




## DIAL TYPE ANALOG THERMOMETER

### Zero adjustment

- Insert the thermometer probe into an ice “slurry” for 5 minutes.
- After 5 minutes check the thermometer dial it must read zero.
- If the thermometer needle is not on zero, hold the thermometer face by hand. Use an appropriate spanner on the adjusting nut and twist the dial face until the needle rests in the zero position.
- NOTE: An ice slurry is created by finely crushing ice and adding a small amount of water and stirring.



## VACUUM PUMP

- Before commencing an A/C system evacuation always check the oil level sight glass of the vacuum pump to ensure that the oil level is correct. Never operate a vacuum pump with a low or no oil quantity otherwise internal damage will occur.
- The vacuum pump must be able to reach a vacuum of minus 100 kPa, minus 1 bar or 30 inches of mercury (in/hg) in 5 minutes. If the vacuum pump cannot reach the required value, the oil will require changing or incorrect oil viscosity used or low oil level or vacuum pump worn internally or leak at the gauge manifold / hoses or a large leak in the A/C system.
- Never cover up the vacuum pump exhaust cap otherwise the vacuum pump will be destroyed and could cause personal injury.
- Ensure all the refrigerant has been recovered from the A/C system before carrying out an evacuation, otherwise the vacuum pump will be damaged from the liquid refrigerant.
- After 20 evacuations, change the vacuum pump oil. Ensure that only the recommended oil type (normally 3GS) and specified quantity is used as per the manufacturers' specifications.
- If the vacuum pump is “rattling” internally, this is an indication that the vacuum pump oil is heavily contaminated with water. Change the vacuum pump oil.
- Avoid using extra long extension leads as these could cause a possible voltage drop that will reduce the vacuum pump operating speed.



## REFRIGERANT RECLAIM DEVICE

- Always check the oil removal reservoir on the machine at the end of each refrigerant recovery as the same quantity of oil removed must be replaced back into the A/C system before refrigerant recharging.
- Use an extension cord only when absolutely necessary as overheating could occur due to a higher current draw.
- Always start the device first before opening the inlet valve otherwise “liquid slugging” could occur to the internal pump.
- If seasonally storing the device, purge the device with nitrogen.
- Change any filters as recommended by the device manufacturer or when notified by the device.

