A2L
steps to success

Air Management® Rheem®

Why A2Ls

- R-454B is an environmentally friendly refrigerant with a low GWP of 466, which is 78% lower than the GWP of R-410A
- R-454B has an atmospheric life span of only 11 days
- R-454B offers similar performance to R-410A
- R-454B offers slightly lower operating pressures than R-410A
- R-454B systems use less charge than R-410A systems
- R-454B equipment will be lighter than R-410A systems
- R-454B is compatible with POE oils
- A2L refrigerants are used globally in HVACR equipment

What's Staying the Same

- Most installation procedures will be the same
- Recovery procedures stay the same
- Charging and servicing procedures stay the same
- Weigh in the charge and trim the charge based on target subcooling
- Calculate superheat and subcooling using the proper PT chart or PT calc app
- Line sets can be reused if they are properly sized, clean, pressure tested, free from leaks and comply with national and local codes
- Always install a liquid line filter drier
- Replace the liquid line filter drier when opening the system for service
- Charge A2L refrigerants as a liquid using a liquid charge adapter

What Rheem® Is Doing Differently

- All systems will have refrigerant sensors and a mitigation system for safety
- All components will be electrically sealed
- Equipment will be shipped with the proper A2L labels
- Equipment is being designed with lower refrigerant charges to comply with refrigerant concentration standards

What's Changing

- A2L refrigerant cylinders will use left-hand threads and adapters will be used to connect refrigerant hoses
- Cylinders for all refrigerants will be moving to gray tanks stamped with the refrigerant number
- A2L cylinders will have a red band near the top
- Cylinders will use a pressure relief valve to release refrigerant until the pressure in the cylinders drops to a safe level
- The refrigerant circuit should be cut open instead of using a torch
- Completely purge the refrigerant circuit with nitrogen before making connections
- Always flow nitrogen while brazing
- When disposing of cylinders, do not puncture the pressure relief valve, use a spark-proof method to rupture the side of the cylinder
- As of now, there is no drop-in replacement for R-410A

Myth & Facts

- **MYTH:** A2L refrigerants are likely to cause a fire
- **FACT:** It takes a tremendous amount of energy to ignite an A2L refrigerant compared to an A3 refrigerant
- **FACT:** While A2L refrigerants are "mildly flammable", they are hard to ignite in normal daily situations
- **MYTH:** If a leak occurs, the entire charge must be removed
- **FACT:** R-454B glide is so low that system can be topped off (approximately 1.6 F)
- **MYTH:** Additional EPA certification is required
- **FACT:** EPA Section 608-certified technicians will be grandfathered in with no additional exam
- **MYTH:** I will need to buy all new tools
- **FACT:** Many tools used today will not change as some current tools are already A2L-approved

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Installation & Service Procedures

- Always purge lines with nitrogen before making connections
- Always flow nitrogen while brazing
- Provide proper ventilation when working in confined spaces
- Use dedicated refrigerant manifolds and hoses for A2L refrigerants, or properly purge refrigerant and oil before connecting to a system using a different refrigerant
- Always weigh in the refrigerant charge
- Minimize ignition sources in the work area
- Ensure field-installed accessories are approved by OEM and listed for A2L refrigerants
- Mark the total refrigerant charge on the required label and record any refrigerant-related service work

Tool Changes

- Most tools used to install and service systems will be the same
- Many refrigerant-related tools are already approved for use with A2L refrigerants
- Contact the tool manufacturer to verify if a tool is approved for use with A2Ls

Safety Measures

- Wear appropriate personal protective equipment
- Always follow proper installation and service procedures
- Manufacturers are limiting refrigerant charge
- Manufacturers are using electrically sealed components
- Equipment is clearly labeled for A2L refrigerants
- Equipment manufactured with leak mitigation systems
- Purge line sets before brazing
- Flow nitrogen while brazing
- Minimize ignition sources in the work area
- Mark the total refrigerant charge on the required label and record any refrigerant-related service work

Tool Review

Analog gauge manifold	Will need to reflect A2L saturation temperatures
Digital gauge manifold	Set to proper refrigerant
Vacuum pump	Switch located away from the work zone
Dry powder / CO_2 fire extinguisher	Chemical compatible
Electronic leak detector	A2L certified
Refrigerant recovery cylinder	Flammable (GHS label, left-hand thread)
Recovery machines	A2L certified
Electric hand tools	Non-sparking preferred (AHRI-8017)

AHRI Safe Refrigerant Transition

NATE Low GWP Training Manual

ESCO

ACCA

HVAC KnowZone™