



AIR CONDITIONING PRODUCTS GROUP

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City & Guilds 7543-001 (5101 04 301) Refrigerant Handling Assessment / Training.

ACP Group VACSAR (Vehicle Air Conditioning Service & Repair).

ACP Group AAACSAR (Advanced Automotive Air Conditioning Service and Repair).

Guidance notes Course contents and price list

- 1 Read the Criteria and Performance for C & G Handling of refrigerants and courses contents notes and decide the course that best suits your requirements. **I E do you want to be able to service and repair or just de-gas and recharge vehicle AC system.**
- 2 Fill out application form, terms and Conditions.

When filling out the application form please complete in black/blue ink and in **block capitals i.e. print!**
This is to alleviate mistakes in the processing of your assessment.

Forenames & Surname: This will be the name that goes on the Certificate and ID card.

If you are employed please put in your employers and your details.

If you are self employed please add your business address if different from your home.

Please make sure you have signed, dated and printed your name in block capitals.

If you are employed please make sure the section to be completed by employer is filled out.

Equal Opp's. Please state your nationality and select your ethnic origin.

Special needs: Please indicate any special needs, if you have none leave blank.
- 3 Decide method of payment:

Should you wish to send cheque with application please make cheque payable to: ACP Group.

Bacs payment Account No 49411225 Sort Code 60-22-32 Please put our invoice number as reference if you have one.

Credit cards accepted please advise and we will take details over phone.
- 4 Send application form and payment to us with 2 (optional at this stage) current passport size photos

When we have received application form, terms and conditions signed with payment.

We will send.

Pre course notes, a minimum of 2 weeks prior to assessment/ training. It is the candidate's responsibility to read and understand these notes prior to assessment unless they are attending training and assessment.
Assignment guide: for candidate's perusal prior to assessment.
VACSAR Pre course notes (if attending)
Directions to our premises (If applicable).
Invoice if not already supplied.

We will endeavour to facilitate any assessments / Training that we have bookings for with no dates set with our and your cooperation.

CRITERIA AND PERFORMANCE FOR

City & Guilds 7543-001 (5101 04 301) Level 3 Award: Handle refrigerants.

This Unit is recognised by the UK Government as exceeding the minimum requirements of European Commission Directive 307/2008.

This regulation requires that all persons handling fluorinated gases must be appropriately trained and possess a certificate attesting to the fact.

Task 1 – Refrigerant Handling/Transfer and Environmental-friendly Recovery of Fluorinated Greenhouse Gases from a R134a Motor Vehicle system.

You are required to complete the following tasks for this assignment and record all your evidence on the recording sheet provided.

| Task Element | Task |
|--------------|---|
| 1 | Ensure machine (vehicle) is immobilised before working on it. |
| 2 | Follow health and safety requirements, select appropriate personal protective equipment (PPE) and follow good working practice |
| 3 | Prepare the motor or machine vehicle for recovery |
| 4 | Select and use appropriate service equipment |
| 5 | Identify refrigerant and the difference between service ports/types. |
| 6 | Recover refrigerant from a motor vehicle containing fluorinated greenhouse gases (R134a) into recovery management station or appropriate recovery set. |
| 7 | Correctly handle fluorinated greenhouse gas (R134a) from source cylinder and transfer a minimum quantity of 300 grams to recovery management station or appropriate recovery set. |
| 8 | Complete activity record documentation. |
| 9 | 20 Theory Questions asked by the assessor orally. |

Note: in order to pass this assignment **ALL** aspects of safety **MUST** be demonstrated to the assessor at **ALL** times. Failure to do so will result in the assignment being halted and the candidate referred for further training.

The assignments are graded Pass/Fail and you will be notified on completion of assessment.

On successful completion we will forward your application to City & Guilds for approval.

Once City & Guilds have approved your application we will forward the Certificate and ID card.

Failure of the assessment would require the candidate requiring further training and retake the assessment at another date.

What to do next!

Decide from the above and following the course that best suits your requirements. **I E do you want to be able to service and repair or just de-gas and recharge vehicle AC system.**

Fill out application, Terms and Conditions form.

Send completed application form to the address above.

Should you require any further information please do not hesitate to contact us.

7543-001 Refrigerant Handling

Course Notes Contents 25 Pages sent out as pre course notes.

Safety-first, P.P.E & COSHH.

Fluorocarbons.

EC Directive 2006/40/EC & EC Regulation 842/2006.

EPA the effects of CFC's on the ozone, EPA the effects of HFC's on global warming.

Refrigerant containers & Cylinder capacities. Temperature pressure relationship & Refrigerant identity.

Expansion valve system & Orifice tube system & Expansion valve system (TXV) basic circuits.

Vehicle occupancy comfort, Service ports and Practical considerations.

VACSAR (vehicle Air Conditioning Service and Repair)

Course Notes Contents 114 Pages. Pre Course notes sent out. Full notes in CD format with Diagnostic flow chart supplied on course.

SAFETY FIRST: Handling refrigerants, COSHH regulations, Safety data sheet (SDS).

ENVIRONMENTAL PROTECTION ACT: The law section 33 & 34, Copy of waste transfer note.

TRANSPORTATION: Regulations & Copy of trencard.

ENVIRONMENTAL IMPACT: Fluorocarbons, Ozone (ODP), Global warming (GWP) & TEWI.

OIL: The most important item, Copy of Pag oil sheet, Copy of article.

REFRIGERANT HANDLING: Safety, CONTAINERS (CYLINDERS) Capacities.

REFRIGERANT PROPERTIES: Temp pressure relationship, Standing pressure, Identity & Decanting.

REFRIGERATION SYSTEM: Automotive A/C terms, Basic theory Expansion valve system & Expansion tube system.

COMPONENTS: Service ports, Compressors, Condensers, Receiver driers, Expansion valves, Evaporators, Orifice tubes, Accumulators, Clutches (compressor), Condenser fans, Hoses and fittings.

SAFETY & OPERATIONAL FEATURES TO PROTECT SYSTEM: Trinary switch, Thermal fuse, Fusible plug, Thermostatic controls, Basic Electrical wiring, Basic Control modules.

REFRIGERATION PRACTICAL: Fitting gauges, Evaluating system, Assessing pressures, Recovering refrigerant, Leak testing, Strength and pressure test, Oil levels and adding Dyes Evacuation, Charging various methods, Removing gauges, Commission and final inspection.

OTHER CONSIDERATIONS: Retrofitting, Invoicing, Equipment maintenance and other Considerations.

AAACSAR (Advanced Automotive Air Conditioning Service and Repair).

Course Notes Contents 46 pages plus hand outs supplied on course.

Environmental Impact : Fluorocarbons, Oxygen, Ozone Layer, Ultraviolet Radiation, 5 CFCs and HCFCs Effect of CFCs and HCFCs on the Ozone Layer, The Damage Done, Global Climate.

Fluorocarbon Control and Alternatives: The Montreal Protocol, European Union Regulation 2037/2000. The Kyoto Protocol, Ozone Depletion and Global Warming Potentials of Fluorocarbons, Refrigerant Replacement Categories, Blends, Retrofitting, Hydrocarbons, Anhydrous Ammonia.

Legislation and Regulations: COSHH, COSHH and Fluorocarbon Refrigerants, Management of Health and Safety at Work Regulations 1992, Environmental Protection Act 1990, British Standards, Refrigerant Cylinder Safety, The Carriage of Dangerous Goods by Road Regulations 1996.

Refrigerant Recovery and Handling: Identification of Common Refrigerants, Identification using Standing Pressure Test, Definitions, Options for the Reuse of Refrigerants, Refrigerant Recovery, Using Recovery Units, Safe Decanting Techniques.

Refrigeration Theory: Refrigeration Theory, Vapour Compression Refrigeration Cycle, Temperature Glide.

Refrigeration Practices: Testing Refrigeration for Contamination, Strength and Leak Pressure Testing, Leak Detection Methods, Evacuation and Dehydration, Measurement of Vacuums, Practical Considerations, Comparison of Pressures, Refrigerant Charging.

DIAGNOSTICS: Understanding Super Heat, Sub Cooling and Saturated on vehicle AC Systems. Using it for system performance and analysis including correct charge without knowing the refrigerant charge weight.

Trinary switch settings, Filling Refrigerant cylinders, Triple Evacuation technique, Recovery pump down, Determining OFN Pressures, uses of Oxygen Free Nitrogen including Flushing and Vehicle AC check sheet.

Pipe and Hose repairs: Different types of repairs and fittings and equipment.

Price List

City & Guilds Award 7543-001 (5101 04 301) Handle Refrigerants Assessment at our premises.

| No of Candidates | Time allowance | Cost | Cost Each | Cost Each Inc Vat |
|------------------|----------------|---------|-----------|-------------------|
| 1 | Depends on No | £180.00 | £180.00 | £216.00 |

City & Guilds Award 7543-001 (5101 04 301) Handle Refrigerants Training and assessment at our premises.

| No of Candidates | Time allowance | Cost | Cost Each | Cost Each Inc Vat |
|------------------|----------------|----------|-----------|-------------------|
| 1 | Depends on No | £280.00 | £280.00 | £336.00 |
| Max 4 | 8 Hours | £1120.00 | £280.00 | £336.00 |

ACP Group VACSAR Training & C & G Handling Refrigerant assessment at our premises.

| No of Candidates | Time allowance | Cost | Cost Each | Cost Each Inc Vat |
|------------------|----------------|----------|-----------|-------------------|
| 1 | 2 days | £620.00 | £620.00 | £744.00 |
| 4 | 2 days | £2480.00 | £620.00 | £744.00 |

ACP Group AAACSAR Training taken with VACSAR & C & G Refrigerant Handling assessment at our premises.

| | | | | |
|---|-------------|---------|---------|---------|
| 1 | 1 Extra day | £300.00 | £300.00 | £360.00 |
|---|-------------|---------|---------|---------|

ACP Group VACSAR and AAACSAR Training No C & G Refrigerant Handling assessment at our premises

| | | | | |
|---|--------|---------|---------|---------|
| 1 | 2 days | £600.00 | £300.00 | £720.00 |
|---|--------|---------|---------|---------|

All prices **include cost of certification.** E&OE.

Bookings of the above are on the understanding that with your co-operation we will endeavour to facilitate a date in the near future.

Payment methods

Should you wish to send cheque with application please make cheque payable to: ACP Group.

Bacs payment Account No 49411225 Sort Code 60-22-32 Please put our invoice no as reference.

Credit cards accepted please advise and we will take details over phone.

Candidates:

To process your assessment we will also need 2 current passport photos at the time of assessment or with application.

Please bring with you ALL pre course note material.

For workshop activity while training or practical assessments candidates must be wearing the following PPE. Steel-toe capped footwear and overalls. Gloves and Goggles will be provided at our premises.

Should you require any further information please do not hesitate to contact our assessor on 07860 436 657 or admin on 01440 762211