



ACCA Standard 4

2800 Shirlington Road
Suite 300
Arlington, VA 22206

703.575.4477
Fax 703.575.8107

www.acca.org

STANDARD NUMBER: ANSI/ACCA 4 QM – 2013

Maintenance of Residential HVAC Systems

Residential Heating, Ventilating, and
Air Conditioning (HVAC) Applications
for One- and Two-Family Dwelling of
Three Stories or Less

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Checklist 5.4 Gas Furnace		
#	Inspection Task	Recommended Corrective Actions
Cabinet		
a.	Inspect cabinet, cabinet fasteners, and cabinet panels.	Repair or replace insulation to ensure proper operation. Replace lost fasteners as needed to ensure proper integrity and of equipment (as applicable). Seal air leaks.
b.	Inspect the required clearance (e.g., combustion and service) around cabinet.	Record and report instances where the cabinet does not meet requirements.
Electrical		
c.	Inspect electrical disconnect box.	Ensure electrical connections are clean and tight. Ensure fused disconnects use the proper fuse size and are not bypassed. Ensure case is intact and complete. Replace as necessary.
d.	Ensure proper equipment grounding.	Tighten, correct and repair as necessary.
e.	Measure and record line voltage.	Compare to OEM specifications or equipment nameplate data. Notify homeowner and/or utility.
f.	Inspect and test contactors and relays.	Look for pitting or other signs of damage. Replace contactors and relays demonstrating evidence of excessive contact arcing and pitting.
g.	Inspect electrical connections and wire.	Ensure wire size and type match the load conditions. Tighten all loose connections, replace heat discolored connections, and repair or replace any damaged electrical wiring.
h.	Inspect motor capacitors.	Replace those that are bulged, split, incorrectly sized, or do not meet OEM specifications.
i.	Measure and record amperage draw to motor/nameplate data (FLA) as available.	If outside OEM rating or specification, inspect for cause and repair as necessary.
Blower Assembly		
j.	Determine and record airflow across heat exchanger.	Verify all grilles, registers, and balancing dampers are open and free of obstruction and operating properly. Adjust, clean, replace, and repair as necessary to ensure to proper airflow.
k.	Test variable frequency drive (e.g., ECM) for proper operation.	Replace if necessary to ensure proper operation.
l.	Inspect fan belt tension. Inspect belt and pulleys for wear and tear.	Repair or replace as necessary to ensure proper operation (if applicable).
m.	Confirm the fan blade or blower wheel has a tight connection to the blower motor shaft. Inspect fan for free rotation and minimal endplay. Measure and record amp draw.	Lubricate bearings as needed, only if recommended by OEM. If amp draw exceeds OEM specifications then adjust motor speed or otherwise remedy the cause. If due to motor failure recommend replacement of blower motor.
Condensate Removal		
n.	Inspect condensate drain piping (and traps) for proper operation.	Clean, insulate, repair, or replace as necessary.

Gas Combustion		
o.	Inspect burner and flue for signs of water, corrosion, and blockage.	Identify cause and clean, repair, or replace as necessary.
p.	Test inducer fan motor and blower assembly.	Correct as needed.
q.	Inspect heat exchanger for signs of corrosion, fouling, structural problems (e.g., cracks, perforations, and bulges), and erratic flame operation during blower operation.	Identify cause and clean, repair, or replace as necessary.
r.	Visually inspect burners for signs of contamination.	Clean, repair or replace as necessary.
s.	Inspect the burner blower wheel	Clean as needed to ensure proper operation.
t.	Inspect hot surface igniter for cracks (white spots when energized or check cold with ohmmeter and proper supply voltage).	Replace if outside OEM's specifications.
u.	Measure and record inlet gas pressure at inlet pressure tap.	If the inlet gas pressure is insufficient for OEM operation specifications, contact the gas supplier.
v.	Measure, record, and adjust manifold pressure as necessary.	Adjust the gas valve to provide proper manifold pressure.
w.	Inspect ceramic insulator, flame probe, and associated wiring for any cracks or abnormalities.	Clean according to OEM recommended procedures. Replace as needed.
x.	Test main burner ignition sequence and flame safety; verify proper operation.	Record micro-amps for comparison with OEM specifications. If outside of OEM operational range, correct combustion problem or replace components as needed.
y.	Test burners.	Fire unit and adjust air shutters (if used) for OEM specification compliance.
z.	Inspect the spark igniter and associated wiring. Verify that spark gap complies with OEM specifications.	If cracking of ceramic insulator or deterioration of spark electrodes is noted, igniter assembly shall be replaced. If cracking or deterioration of ignition wiring is observed, wiring shall be replaced.
aa.	Test inducer fan motor and blower assembly.	Correct as needed.
bb.	Ensure combustion air volume or provision is correct.	Ensure air volume is correct per OEM instructions and local code ⁴ .
cc.	Perform combustion analysis test. Measure and record test results.	Adjust as needed.
dd.	Measure and record TD across the heat exchanger.	If TD is outside OEM's specifications, identify cause and then clean, repair, or replace as necessary.
Venting		
ee.	Inspect vent exhaust system (e.g., chimney, chimney liner, flue, inlet and exhaust vent) for signs of improper condensation, water corrosion, cracks, fractures, and blockages.	Clean, remove blockages, repair, or replace as necessary.

⁴ Direct vent, non-direct vent, and natural draft appliances have differing code requirements for combustion air.

Venting (Continued)		
ff.	Inspect all vent connectors for rust discoloration, or signs of condensate.	Ensure they are securely fastened. Repair or replace as necessary.
gg.	Inspect inlet and exhaust vent pipe for proper support, slope, and termination.	Repair or replace as necessary.
hh.	Inspect for combustible materials placed too close to vent or pipe.	Relocate to safe place or provide approved clearance reduction.

Checklist 5.5 Oil Furnace		
#	Inspection Task	Recommended Corrective Actions
Cabinet		
a.	Inspect cabinet, cabinet fasteners, and cabinet panels.	Repair or replace insulation to ensure proper operation. Replace lost fasteners as needed to ensure proper integrity and fit/finish of equipment (as applicable). Seal air leaks.
b.	Inspect the required clearance (e.g., combustion and service) around cabinet.	Record and report instances where the cabinet does not meet the requirements.
Electrical		
c.	Inspect electrical disconnect box.	Ensure electrical connections are clean and tight. Ensure fused disconnects use the proper fuse size and are not bypassed. Ensure case is intact and complete. Replace as necessary.
d.	Ensure proper equipment grounding.	Tighten, correct and repair as necessary.
e.	Measure and record line voltage.	Compare to OEM specifications or equipment nameplate data. Notify homeowner and/or utility.
f.	Inspect and test contactors and relays.	Look for pitting or other signs of damage. Replace contactors and relays demonstrating evidence of excessive contact arcing and pitting.
g.	Inspect electrical connections and wire.	Ensure wire size and type match the load conditions. Tighten all loose connections, replace heat discolored connections, and repair or replace any damaged electrical wiring.
h.	Inspect motor capacitors.	Replace those that are bulged, split, incorrectly sized, or do not meet OEM specifications.
i.	Measure and record amperage draw to motor/nameplate data (FLA) as available.	If outside OEM rating or specification, inspect for cause and repair as necessary.
Blower Assembly		
j.	Determine and record airflow across heat exchanger.	Verify all grilles, registers, and balancing dampers are open and free of obstruction and operating properly. Adjust, clean, replace, and repair as necessary to ensure to proper airflow.
k.	Test variable frequency drive (e.g., ECM) for proper operation.	Replace if necessary to ensure proper operation.
l.	Inspect fan belt tension. Inspect belt and pulleys for wear and tear.	Repair or replace as necessary to ensure proper operation (if applicable).
m.	Confirm the fan blade or blower wheel has a tight connection to the blower motor shaft. Inspect fan for free rotation and minimal endplay. Measure and record amp draw.	Lubricate bearings as needed, only if recommended by OEM. If amp draw exceeds OEM specifications then adjust motor speed or otherwise remedy the cause. If due to motor failure recommend replacement of blower motor.
Oil Combustion		
n.	Inspect combustion chamber for structural problems (e.g., cracks, perforations, and deformities).	Identify cause and clean, repair, or replace as necessary.
o.	Inspect heat exchanger and internal flue for signs of corrosion, fouling, and erratic flame operation during blower operation.	Identify cause and clean, repair, or replace as necessary.

Oil Combustion (Continued)		
p.	Inspect all burner gaskets.	Replace any gaskets that are damaged or would fail to seal adequately.
q.	Inspect retention head, electrodes and ceramic insulation.	Clean retention head, electrodes and ceramic insulation of soot and carbon. Change electrodes with ceramic cracks or if tips are rounded.
r.	Inspect electrodes for proper positioning.	Position electrodes as necessary.
s.	Measure and record photo-cell (cad cell) resistance.	Remove photo-cell (cad cell), check resistance, and clean as necessary. Ensure resistance is within OEM specifications.
t.	Verify proper combustion air volume or provisions.	Ensure air volume is correct per OEM instructions and local code. Remove lint or other foreign material around burner combustion air openings that may obstruct airflow.
u.	Verify burner head or nozzle type and location per OEM's specifications.	Adjust as necessary.
v.	Replace oil burner nozzle.	Install new (never attempt cleaning) identical flow rated nozzle (verify gallons per hour, spray angle and pattern).
w.	Replace fuel filter.	Replace filter.
x.	Test burner motor and blower assembly for correct operation.	Correct as needed.
y.	Bleed oil line.	With open fuel supply (cap removed), on a one-pipe system, remove any air from oil line.
z.	Measure and record oil pressure.	Adjust oil pressure as needed, per OEM specification.
aa.	Inspect oil pump and connections for leaks.	Repair leaks as needed.
bb.	On a two line/pipe oil system verify that oil is returning to tank.	Adjust as needed per OEM specifications.
cc.	Measure and record ignition transformer secondary voltage.	Nominal range is 10,000 V ac for iron core transformers. Solid state igniters cannot be tested with an iron core transformer tester.
dd.	Perform combustion analysis test. Measure and record test results.	Adjust as needed.
ee.	Measure and record TD across heat exchanger.	Verify with furnace rating plate, adjust airflow until TD is within OEM's rating.
ff.	Check primary burner control safety timing.	Replace safety control if timing exceeds OEM's specifications.

Venting		
hh.	Inspect vent exhaust system (e.g., chimney, chimney liner, flue, L-vent and exhaust vent) for signs of improper condensation, water, corrosion, cracks, fractures, and blockages.	Clean, remove blockages, repair, or replace as necessary.
ii.	Inspect all vent or chimney connectors for rust discoloration, or signs of condensate.	Repair or replace as necessary.
jj.	Inspect inlet and exhaust vent pipe for proper support, slope, and termination. Ensure they are securely fastened.	Repair or replace as necessary.
kk.	Inspect for combustible materials placed too close to vent or pipe.	Relocate to safe place or provide approved clearance reduction.