

BSR / ACCA 15 OBD – 201x

On-Board Diagnostic Codes for HVACR Equipment

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Purpose

Detail a nomenclature naming schema for **FAULT** and **PERFORMANCE** codes associated with:

- Residential HVAC systems
- Commercial HVAC systems
- Refrigeration systems

To uniformly and consistently designate F & P codes for use within, and across, OEM product offerings.

Scope

Applies to new HVACR equipment and components for use in new and existing residential and commercial buildings and commercial refrigeration applications.

Excluded

- HVACR equipment that do not provide electronic fault / performance codes.
- Legacy equipment that were not designed / manufactured to support the naming schema.

Component (\$4.1)

AC = ACcumulator	CO = COmpressor	EO = Exp. device, Outdc	ID = InDucer	SA = Solar Array
AH = Air Handler	CU = Condensing Unit	EU = Econom Unit	IT = Ice Tank	SC = SubCooler
BI = Board, Indoor	CR = Capacitor, Run	FB = Furnace Burner	MT = MicroTurbine	SD = Supply Duct
BO = Board, Outdoor	CT = Cooling Tower	FI = Fan, Indoor	PA = Pump, Absorber	VB = Valve, Balancing
BS = Boiler, Steam	DB = Damper, Bypass	FO = Fan, Outdoor	PC = Pump, Condenser	VG = Valve, Gas
BW = Boiler, Water	DE = Damper, Exhaust	FR = FuRnace	PE = Pump, Evaporator	VR = Valve, Reversing
CF = Condensor Fan	DR = Damper, Return	HI = Heat exchanger, Inc	PG = Pump, Generator	VS = Valve, Split condensor
CM = Condensor Motor	DS = Damper, Supply	HO = Heat exchanger, O	RC = ReCeiver	WD = Wheel, Desiccant
CN = CoNactor	EI = Exp. device, Indoor	HR = Heat Reclaim	RD = Return Duct	WH = Wheel, Heat

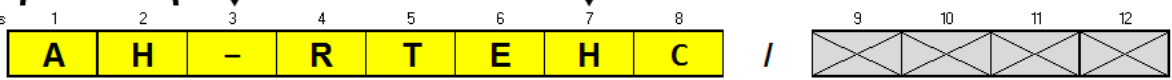
Interim Draft
(11 Sep 2017)

Component Modifier (\$4.2) : as applicable

- [multiple stages / components / positions]
 1 = First Stage (or, First Position, or First Unit)
 2 = Second Stage (or, Second Position, or Second Unit)
 --
 --
 n = "n" Stage (or, "n" Position, or "n" Unit)
 -- = Default for Base Scenario

Performance Descriptor (\$4.5)

- | | |
|---------------|-------------------------------|
| C = Closed | P = Polarity |
| G = Grounded | R = out of expected Range |
| H = High | S = Shorted |
| L = Low | T = Tripped |
| N = No signal | X = lockout / manual reset |
| O = Open | Y = lockout / automatic reset |
- # = Measured Operating Value



Process (\$4.3)

- A = Air movement / system
 - C = Combustion system
 - F = Fuel movement / System
 - L = Lubricant/oil movement/system
 - M = Moisture control system
 - P = Power production system
 - R = Refrigerant movement / system
 - W or H or F = Water movement / system
- (W = Water, H = Hydraulic, F = Fluid loop)*

Mode of Operation (\$4.6)

- A = Auxiliary heating mode
- C = Cooling mode
- D = Dehumidification mode
- E = Economizer mode
- F = deFrost mode
- H = Heating mode
- M = huMidification mode
- P = Purge mode
- U = Utility DR power reduction mode
- R = Reheat mode

Additional Characters (7th digit contingent)

- Optional Proprietary OEM Coding (\$4.7.1)
- Actual attribute values reported (\$4.7.2)

Attribute Type (\$4.4)

CA = Capacity (e.g., MBTU/h)	PO = Power, elec. (e.g., watts)
CC = Communications/controls	PR = PRessure
CD = Carbon Dioxide (CO ₂)	RH = Relative Humidity
CL = Charge Level	RS = Rotational Speed (e.g. RPM)
CM = Carbon Monoxide (CO)	SC = SubCool
CX = Composition	SH = SuperHeat
EC = Elec. Current (e.g., amps)	SM = Smoke
FR = Flame Rollout	TE = Temperature
FV = Flow Vol. (e.g., CFM, gpm)	VE = flow VElocity (e.g., FPM)
NO = Nitrogen Oxide (NO _x)	VO = Voltage
OX = Oxygen (O ₂)	

Example Shown:
AH - RTEHC = Air Handler - Refrigerant Temperature High in the Cooling Mode

Naming Schema

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(11 Sep 2017)

Component (§4.1)

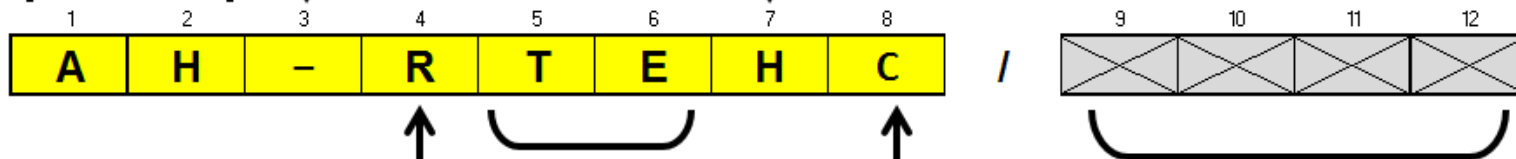
- AH = Air Handler
- CO = COmpressor
- DB = Damper, Bypass
- HO = Heat exchanger, Outdoor
- SD = Supply Duct
- VR = Valve, Reversing

Component Modifier (§4.2) - as applicable

- [multiple stages / components / positions]
- 1 = First Stage (or, First Position, or First Unit)
- 2 = Second Stage (or, Second Position, or Second Unit)
- n = "n" Stage (or, "n" Position, or "n" Unit)
- = Default for Base Scenario

Performance Descriptor (§4.5)

- C = Closed
- G = Grounded
- H = High
- L = Low
- N = No signal
- O = Open
- P = Polarity
- R = out of expected Range
- S = Shorted
- T = Tripped
- X = lockout / manual reset
- Y = lockout / automatic reset
- # = Measured Operating Value



Process (§4.3)

- A = Air movement / system
- R = Refrigerant movement / system
- W or H or F = Water movement / system
(W = Water, H = Hydraulic, F = Fluid loop)

Attribute Type (§4.4)

- EC = Elec. Current (e.g., amps)
- FV = Flow Vol. (e.g., CFM, gpm)
- PO = Power, elec. (e.g., watts)
- PR = Pressure
- TE = Temperature
- VE = flow VElocity (e.g., FPM)
- VO = Voltage

Mode of Operation (§4.6)

- C = Cooling mode
- D = Dehumidification mode
- H = Heating mode

Additional Characters (7th digit contingent)

- Optional Proprietary OEM Coding (§4.7.1)
- Actual attribute values reported (§4.7.2)

Example Shown:

AH - RTEHC = Air Handler - Refrigerant Temperature High in the Cooling Mode

Example: Fault Code

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Component (§4.1)

AH = Air Handler

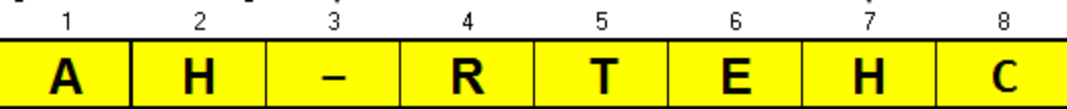
Component Modifier (§4.2); as applicable

- = Default for Base Scenario

Performance Descriptor (§4.5)

H = High

= Measured Operating Value



Process (§4.3)

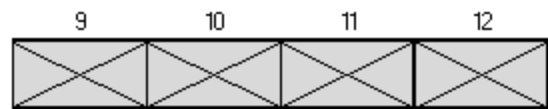
R = Refrigerant movement / system

Attribute Type (§4.4)

TE = Temperature

Mode of Operation (§4.6)

C = Cooling mode



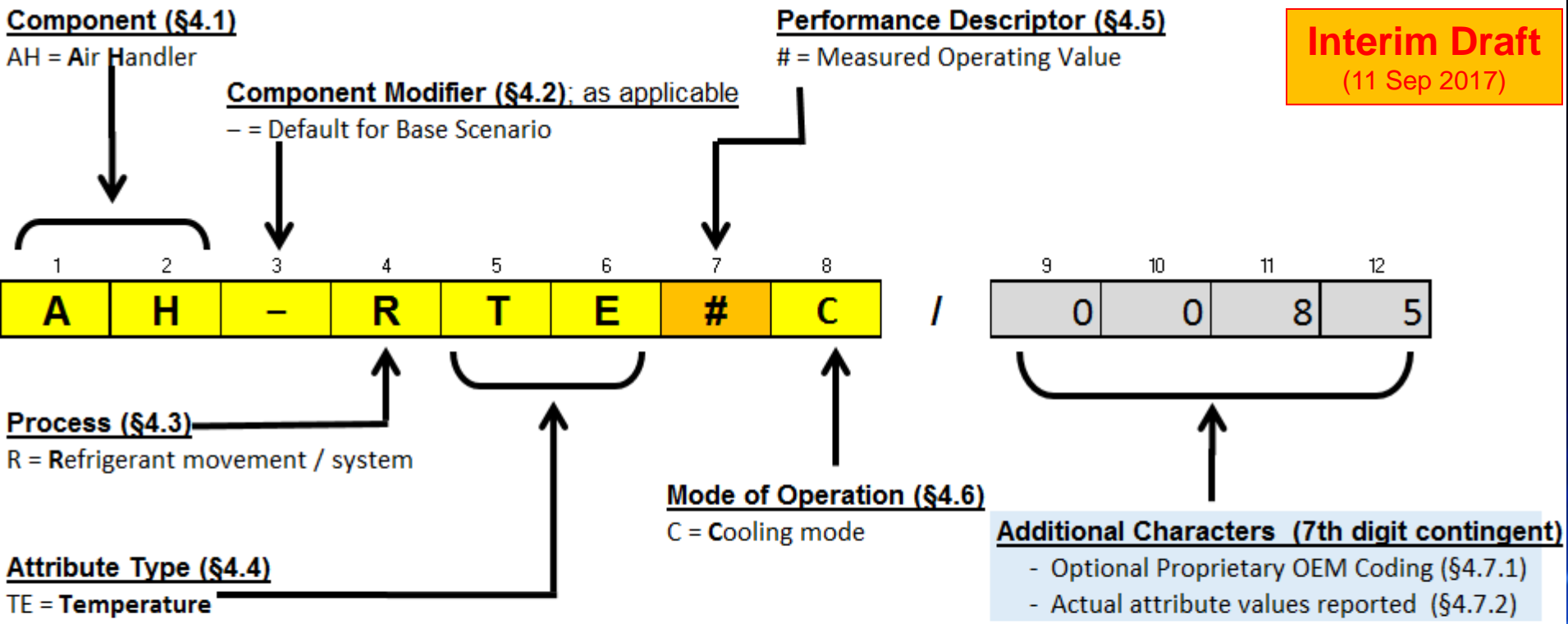
Additional Characters (7th digit contingent)

- Optional Proprietary OEM Coding (§4.7.1)
- Actual attribute values reported (§4.7.2)

Example Shown:
AH - RTEHC = Air Handler - Refrigerant Temperature High in the Cooling Mode

Example: Performance Code

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(11 Sep 2017)



Example Shown:
A H - R T E # C = Air Handler - Refrigerant Temperature in the Cooling Mode is 85°F

Standard intent:

To the extent that HVACR equipment / components convey information regarding:

- a *fault code*, or
- an operating *performance metric*

said information is identified by the naming schema.

Standard does not define, require, or detail:

- Any minimum set or level of fault/performance identifications.
- Any minimum equipment communication capabilities.
- Any causes / diagnostic information associated w/ the codes.

Moving Forward

(Anticipated Activities)

End-Sept: ACCA OBD Committee meets to review latest working draft.

Nov: Standard is released for a 45-day, ANSI Public Review Period.

Jan 2018: Review comments processed, changes effected, next steps ascertained.

Questions ?