



**ACS.CGFE1  
SAFETY ASSESSMENT CRITERIA  
INITIAL  
NON-DOMESTIC  
NATURAL GAS & LPG  
GAS FUELLED ENGINES**

<b>CGFE1</b>	<b>INITIAL &amp; RE-ASSESSMENT</b>
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**Introduction**

Tests the gas safety competence of an operative in the work of install, commission, service, repair and break down of gas fuelled spark ignition and dual fuelled engines.

Candidates, who carry out work solely on individually sited gas engines in purpose-built enclosures, containing no other gas appliances, may hold COCNPI1LS as an alternative pre-requisite core.

These assessments do not include tightness testing and purging (see TPCP1A and TPCP1).

CBs may adopt Competence and Criteria numbering different to that used in this document.

CB documentation may adopt wording for criteria different to that used in this document, provided the meaning is unaffected.

**Range**

Full range of water cooled spark ignition gas and dual fuelled engines.

**Pre-requisites****Initial**

The Candidate shall have prior experience and knowledge of gas fuelled engines (demonstrated, for example through evidence of training) and hold:

COCN1 or

CCN1 + CoDNCO1 or

QCF or S/NVQ

+

ICPN1 if pipework diameter exceeds 50 mm.

**Exclusions**

Electrical or building, use of any mechanical lifting aids to position plant, acoustic enclosures, design of system requirements, installation and commissioning of heating/hot water system, installation and design of any duct work for ventilation, penetration of any structure for flueing/exhaust and testing or commissioning alternative fuels on dual fuelled engines.

Engines covered by CENWAT

**References and normative documents**

MIs.

All relevant documents as listed in the Legislative, Normative & Informative Document List (LINDL), inc.:

- HSL56
- GIUSP
- BS 7967-5
- IGE/UP/3 Edition 3
- IGEM/UP/2 Edition 3
- UKLPG CoP22.

ACS.SMB.003.ACRND identifies Normative Documents that should be held by ACs.

**Abbreviations**

AC. Assessment Centre

HP. High pressure

I. Initial

LP. Low pressure

MIs. Manufacturer's/manufacturers' instructions

NRV. Non-return valve

OP. Operating pressure

Ref. Reference

SSOV. Safety shut-off valve.

PERFORMANCE CRITERIA		REF	I	R
1.	(i) apply safety procedures, where appropriate, prior to entering engine enclosure	4	✓	
	(ii) position plant/equipment correctly and, where required, secure to suitable base	4.2	✓	
2.	check gas supply is of adequate size	6.1.1.1	✓	
3.	check ventilation supply to engine plant room meets requirements for total combustion; cooling air and interlocks are operating correctly	4.3	✓	
		10.5.4	✓	
4.	install acoustic enclosure with sufficient air gap between hot surfaces and acoustic material, where applicable	4.5	✓	
		4.8	✓	
5.	terminate exhaust to MIs	IGEM/UP/3 Section 12	✓	
<b>6. assemble gas control train in sequence to MIs inc.:</b>				
(i)	manual isolation valve	6.1.9	✓	
(ii)	filter, when required	6.1.8	✓	
(iii)	gas pressure regulator, when required	6.1.10	✓	
		.2	✓	
(iv)	LP cut off switch	13.1.2 & Appendix 4	✓	
(v)	HP cut off switch	13.2	✓	
(vi)	1st SSOV	13.4.2	✓	
(vii)	2nd SSOV	13.4.2	✓	
(viii)	NRV, when required	13.4.2	✓	
(ix)	adequate testing and purging points	6.1.2.3.	✓	
(x)	pressure relief valves, when required	7.1.2	✓	
7.	check work carried out is gas tight	A10.6	✓	
8.	dismantle, clean and adjust plant operational gas safety components (spark gaps) using appropriate cleaning methods and agents, or replace as necessary	MI'S	✓	
9.	ensure correct documentation e.g. gas tightness, purging and for any associated driven system requirements, is available before commissioning	16.3.7	✓	
10.	test gas SSOVs for correct operation and tight shut off for all forward pressure differentials at 1.5 times OP	13.4.2.2	✓	
<b>11. test SSOV systems for leaks:</b>				
(i)	atmospheric pressure check	A7.1.1	✓	
(ii)	pressure checks	A7.1.2	✓	
(iii)	check of pressure proving systems	A7.1.3	✓	
12.	check HP and LP cut-off switches are operating correctly	A4.4	✓	
13.	adjust gas regulator, if applicable, to MIs	MI's	✓	
14.	test NRV, where fitted, for correct operation and shut off	13.4.2.2	✓	
15.	set up engine in conjunction with appropriate cooling tube requirements	MI's	✓	
<b>16. commission engine to MIs:</b>				
(i)	set up engine to correct run rate	16.3.5	✓	
(ii)	adjust air gas mixture to achieve optimum performance	14.1	✓	
17.	display appropriate notices adjacent to plant	16.3	✓	
<b>KNOWLEDGE &amp; UNDERSTANDING</b>				
1.	siting and safety of gas fuelled engines, inc. isolation valves (IGEM/UP/3 section 4)	6.1.9.2	✓	
2.	ventilation for cooling and combustion	4.3	✓	
		10.3.2	✓	
3.	exhaust termination positions	12	✓	
4.	vents for lighter-than-air gases	8.1	✓	
5.	vents for heavier-than-air-gases	8.2	✓	
6.	safety precautions when fanned ventilation systems are incorporated	10.5	✓	
7.	combined exhaust systems	12.5	✓	
8.	air fuel ratio control systems	14.1	✓	
9.	identification of gas safety control faults	13.5 13.4.4	✓	
10.	plant testing and purging procedures	Appendix 10.6	✓	
11.	checking safety shut-off systems for gas tightness (Appendix 7)	17.4	✓	
12.	condensate drainage requirements for exhausts	12.2.	✓	
		5.		

13 risk assessment responsibilities for engine enclosures.	3.2.18	✓	✓
14 Requirements when boosters or compressors are installed with engine Installations	5.1	✓	✓
15 Requirements when boosters or compressors are installed with engine Installations	10.4	✓	✓
16 Flexible connections and failure implication	Sections 9 & 6.1.2.4, 6.1.7.1	✓	✓
17 Requirements for multi gas engine / exhaust or combined systems	12.1.9	✓	✓
18 Emergency stops requirements	13.5	✓	✓
19 Automatic Isolation Valves requirements	6.1.9.5	✓	✓
20 Purging engines in associated with CHP	15 & 12.5	✓	✓
21 Requirements for Gas detection equipment	18.2	✓	✓
22 Fan failure requirements	10.5.3	✓	✓
23 Exhaust testing	Section 17 or UP/10	✓	✓