



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

CGFE1	INITIAL & RE-ASSESSMENT
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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

MIIs.

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
MIIs. 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		✓	
	(ii) position plant/equipment correctly and, where required, secure to suitable base		✓	
2.	check gas supply is of adequate size		✓	
3.	check ventilation supply to engine plant room meets requirements for total combustion; cooling air and interlocks are operating correctly		✓	✓
4.	install acoustic enclosure with sufficient air gap between hot surfaces and acoustic material, where applicable		✓	✓
5.	terminate exhaust to MIs		✓	✓
6.	assemble gas control train in sequence to MIs inc.:			
	(i) manual isolation valve		✓	✓
	(ii) filter, when required		✓	✓
	(iii) gas pressure regulator, when required		✓	✓
	(iv) LP cut off switch		✓	✓
	(v) HP cut off switch		✓	✓
	(vi) 1st SSOV		✓	✓
	(vii) 2nd SSOV		✓	✓
	(viii) NRV, when required		✓	✓
	(ix) adequate testing and purging points		✓	✓
	(x) pressure relief valves, when required		✓	✓
7.	check work carried out is gas tight		✓	✓
8.	dismantle, clean and adjust plant operational gas safety components (spark gaps) using appropriate cleaning methods and agents, or replace as necessary		✓	✓
9.	ensure correct documentation e.g. gas tightness, purging and for any associated driven system requirements, is available before commissioning		✓	✓
10.	test gas SSOVs for correct operation and tight shut off for all forward pressure differentials at 1.5 times OP		✓	✓
11.	test SSOV systems for leaks:			
	(i) atmospheric pressure check		✓	✓
	(ii) pressure checks		✓	✓
	(iii) check of pressure proving systems		✓	✓
12.	check HP and LP cut-off switches are operating correctly		✓	✓
13.	adjust gas regulator, if applicable, to MIs		✓	✓
14.	test NRV, where fitted, for correct operation and shut off		✓	✓
15.	set up engine in conjunction with appropriate cooling tube requirements		✓	✓
16.	commission engine to MIs:			
	(i) set up engine to correct run rate		✓	✓
	(ii) adjust air gas mixture to achieve optimum performance		✓	✓
17.	display appropriate notices adjacent to plant		✓	✓
KNOWLEDGE & UNDERSTANDING				
1.	siting and safety of gas fuelled engines, inc. isolation valves (IGEM/UP/3 section 4)		✓	
2.	ventilation for cooling and combustion		✓	
3.	exhaust termination positions		✓	
4.	vents for lighter-than-air gases		✓	
5.	vents for heavier-than-air-gases		✓	
6.	safety precautions when fanned ventilation systems are incorporated		✓	
7.	combined exhaust systems		✓	
8.	air fuel ratio control systems		✓	
9.	identification of gas safety control faults		✓	
10.	plant testing and purging procedures		✓	
11.	checking safety shut-off systems for gas tightness			
12.	condensate drainage requirements for exhausts		✓	
13.	risk assessment responsibilities for engine enclosures.		✓	✓
14.	Requirements when boosters or compressors are installed with engine Installations		✓	✓
15.	Requirements when boosters or compressors are installed with engine Installations		✓	✓
16.	Flexible connections and failure implication		✓	✓
17.	Requirements for multi gas engine / exhaust or combined systems		✓	✓
18.	Emergency stops requirements		✓	✓
19.	Automatic Isolation Valves requirements		✓	✓

20 Purging engines in associated with CHP		✓	✓
21 Requirements for Gas detection equipment		✓	✓
22 Fan failure requirements		✓	✓
23 Exhaust testing		✓	✓