

## Network Regulator Maintenance Operatives LS (Non-Accredited)

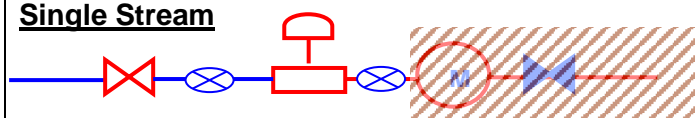
### Background

- Network Maintenance Operative (NMO) would be trained to perform work on pressure reducing equipment upstream of the ECV on pressures ranging over HP, IP & MP. This type of work is undertaken on GT sites that regulate pressures to cities or towns; in addition this also covers pressure reducing equipment that feeds villages, individual properties and non-domestic properties upstream of the ECV.
- An operative's competence is measured against in house assessments which are part of the safety case submitted to the HSE and OFGEM in order for the Gas Distribution Network (GDN) to work under a Licence to Operate allowing GDN to transport gas.
- All NMO hold a NVQ Level 3 Diploma in Engineering Maintenance, the qualification takes three years to complete, once complete a new operative should be shadowed for a period of six months before undertaking any network activities on their own.

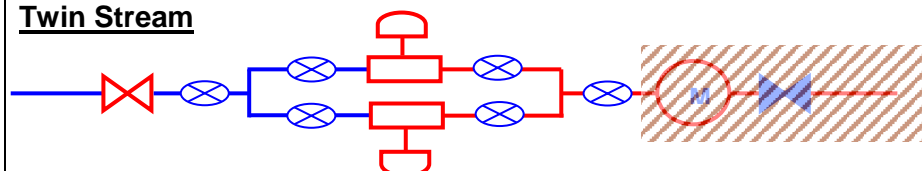
### Scope

- To undertake routine inspections on single and twin stream MP – LP fed regulators downstream of the ECV at non domestic properties. This involves undertaking working pressure readings only of the regulators. In the instances of twin regulators each stream will be tested independently. There is no requirement to interrupt the gas supply to the property.
- Undertake functional checks on single and twin stream MP – LP fed regulators downstream of the ECV at non domestic properties. This involves testing working pressures and functional test of slam shut safety devices, which as a consequence will interrupt the downstream supply. Single stream installations will require an appropriately qualified First Call Operative (FCO) to be on site at all times to perform purge and relight activities in accordance with responsible person on site. This also applies to situations where regulators require exchanging or mechanical operating parts upgrading.
- Functional inspections (test slam shut pressures and function of slam shut, inspect loading spring of regulator, etc.). Twin stream will be alternated between streams for maintenance ensuring no loss of supply

#### Single Stream



#### Twin Stream



#### Key

Medium pressure ———— Low pressure ———— MP – LP regulator 

Gas meter  ECV  Isolation valve  Outlet valve 

Area not covered or worked on by Network **Control** Maintenance Operatives 

**Exclusions:**

- The NMO is not qualified to work on the meter installation in regards testing, purging and relighting of any appliances. If the supply is to be interrupted on planned work a competent FCO will work alongside the NMO to ensure the supply is reinstated and cause minimal disruption to the downstream customer. In instances where a NMO identifies a potential downstream problem, e.g. inadequate pressure. He / she will cease work and call for the assistance of a competent FCO.

**Pre-requisites:**

- NVQ Level 3 Diploma in Engineering Maintenance

**Practical Provisions**

To facilitate this practical assessment, it may be of benefit for a suitable 'On the Job' site to be selected

1	Written scenario providing details of the installation design, network supply, settings for meter regulators, creep relief and SSVs, as appropriate, and extent of hazardous area zoning for relief valve vent stacks
2	Appropriate pre-assembled strength tested (certificated) MP single and twin stream regulator/control rig.
3	Diaphragm meter; with appropriate active pressure regulator, monitor regulator, SSVs, relief valves and filters:
4	Medium pressure gas supply (may be simulated using compressed air with a controlled discharge point). Twin streaming with active and monitor regulators. Candidates can demonstrate setting of each regulator to the MIs and installation design requirements.
5	Steel pipework, flanges, gaskets, regulators, relief valves, SSVs, filters, fittings and valves suitable and safe for the conditions of intended use and complying with all relevant specifications and Standards (regulator only)
6	Range of suitable and unsuitable fittings and materials to complete installation e.g. regulator seals. <b>Note:</b> this would only apply to the single or twin stream regulator, the meter installation is not included
7	Regulator/control MIs
8	Access to IGEM/GM/8 Parts 1 to 5 Edition 2; GM/7A & 7B; IGEM/UP2 Edition 3: HSL56; IGEM/UP1 (Appliance Pipework Connection Test only)

Enable demonstration of:

1	Adjusting controls to prescribed set points (regulator only)
2	Completing necessary safety checks on equipment provided (regulator only)
3	Ensuring notices and labels are correctly displayed
4	Ensuring regulators and safety devices have been correctly sealed
5	Ensuring High pressure gas is safely removed from installation (bleed plug)
6	Jointing of intermediate pressure pipework with flange and union fittings (regulator only)
7	Setting SSVs/relief valves
8	Setting active and monitoring regulators to determined set points
9	PAWS may be used containing a series of written scenarios, drawings, slides and photographs etc.

## 1. Gas Safety Legislation and Standards

### Knowledge & Understanding

1	HSL56
i	Reg.2 General interpretation and application 2(1), (3)
ii	Reg.3 Qualification and supervision 3(1), (2), (3), (6), (7) and (8)
iii	Reg.4 Duty on employer
iv	Reg.5 Materials and workmanship 5(1) to (3)
v	Reg.6 General safety precautions 6(1) to (6)
vi	Reg.7 Protection against damage 7(1) to (3)
vii	Reg.8 Existing gas fittings 8(1) to (3)

## 2. Gas Emergency Actions and Procedures

### Knowledge & Understanding

1	Priorities of actions and responsibilities:
i	action to stop a gas escape downstream of ECV
ii	action if gas continues to escape after turning off supply
2	Limits of flammability
3	Specific gravity and its effect in relation to air
4	Hazardous ignition sources and their elimination
5	Methods of preventing/reducing dangerous concentrations of gas in atmosphere
6	Advice to occupants
7	HSL56 Reg.37 Escape of gas 37(1) to (4)

## 3. Installation of Pipework and Fittings

### Performance Criteria

1	Join steel pipe using appropriate union fittings, methods and agents (regulator only)
2	Connect threaded joint with washer using appropriate fittings, methods and agents (regulator only)
3	Join steel pipe using flanges and appropriate jointing material (regulator only)
4	Use of temporary earth continuity bond
5	Check pipework (disturbed joints) is gas tight - LDF and Appliance Pipework Connection Test (regulator only)
6	Purge pipework of air and apply protective coating if necessary (regulator only) Supplementary oral questions will satisfy this PC

### Knowledge & Understanding

1	Jointing agents for threaded and connections with washers
2	Mild steel pipe and fittings
3	Flexible and rigid connections
4	Pipe supports, clips and fixing for outside pipework
5	Main equipotential bonding (requirement)
6	HSL56
i	Reg.10 Maintaining electrical continuity
iv	Reg.20 Protection of buildings (meter housings only)
vii	Reg.23 Marking of pipes 23 (1) and (2)

## 4. Checking and/or Setting Regulators

Performance Criteria	
1	Obtain and study details of the installation design
2	Obtain correct information concerning network to which installation is to be connected
3	Check details for settings for meter regulators, creep relief and SSVs are available
4	Check new control train (regulators, valves, safety devices and the inlet assembly) has been strength tested at minimum pressure of 3 bar
5	Check certificate confirming date and results of strength test
6	Identify and assemble regulators, valves and safety devices, to MIs, and system design plan
7	Identify extent of hazardous area zoning for relief valve vent stacks and position stacks accordingly
8	Join intermediate pressure pipework with flange and union fittings (regulator only)
9	Check installation is gas tight- LDF and Appliance Pipework Connection Test
10	Purge installation (regulator only)
11	Carry out functionality tests on train controls, to MIs (regulator only)
12	Commissioning - General
i	check all components function correctly to MIs (regulator only)
ii	set safety system control pressures and test, prior to regulator
iii	ensure regulator is operating in full control prior to opening outlet valves
iv	check set points of regulators under flow conditions (simulation can be used)
13	Set points – metering pressure – single stream meter installation – Figures 20/21 IGE/GM/8 Part 1
i	set active regulator at determined set point
ii	set SSV above relief valve set pressure (take into account accuracy of class of relief valve and SSV to ensure relief valve is not restricted) (47.5 mbar)
iii	check SSV set point plus accuracy group tolerance (MIP) $\leq$ STP of downstream system
14	Set points – metering pressure (twin stream installation, IGE/GM/8 Part 1)
i	set active regulator at determined set point
ii	set monitor regulator at determined set point
iii	set SSV above relief valve set pressure (take into account accuracy of relief valve and SSV to ensure relief valve is not restricted)
iv	check SSV set point plus accuracy group tolerance (MIP) does not exceed STP of downstream system
15	Test any disturbed joints/pipework for gas tightness
16	Display notices and labels
17	Seal regulators and safety devices
1	Specific requirements for MP fed diaphragm meter installations
2	Specific requirements for MP fed RD meter installations
3	Commissioning instrumentation (calibration)
4	Handover (only to a competent FCO if supply is interrupted)
5	Terms and acronyms used
6	Understanding regulated network standard operating conditions

9	Maintenance of regulators and safety controls on meter installations
10	Set points and tolerances for twin stream meter installations with 21 mbar metering pressure
11	Setting monitor regulators above active regulators
12	Setting relief valves above monitor regulators
13	Understanding zoning distances of hazardous areas surrounding meter installation fittings and components
14	Understanding ventilation requirements to meet area/hazardous area classifications
15	HSL56
	Reg. 13 Meter Housings 13 (1) to (4)
	Reg. 14 Regulators 14 (1) & (5 to 7)
	Reg. 15 Emergency Notices 15 (1 & 2)
16	Actions undertaken following work (recording and passing on data)
<b>5. Operation and Positioning of ECV/Isolation Controls and Valves</b>	
<b>Knowledge &amp; Understanding</b>	
1	Identify incorrectly positioned valves
2	Identify correctly positioned valves
3	Demonstrate dealing with incorrectly positioned valves
4	Identify correct labels and attach to valves
5	HSL56
i	Reg.9 1 & 2

<b>10. Unsafe situations and emergency notices and warning labels</b>	
<b>Knowledge &amp; Understanding</b>	
1.	Explain dealing with ID installations
2.	Explain dealing with AR installations
3.	Explain dealing with AR installations when turning off does not remove the risk
4.	Situations reportable under RIDDOR – explain reporting to HSE
5.	Identify correct notices and labels to be used:
(i)	MP gas supply
(ii)	Warning notice forms
(iii)	Advisory notices e.g. work in progress; electrical bonding
6.	Situations reportable under RIDDOR – explain reporting to HSE
7.	HSL56. Reg.34 Use of appliances 34 (1) to (3)