

INSTALLATION, OPERATION, & MAINTENANCE MANUAL

FOR

710EL MC ELECTRIC CELL SAMPLER

(MOTOR CONTROLLED VERSION)

This Jiskoot Product is designed to provide outstanding service if correctly installed, used and maintained recognising the effects of the process conditions (temperature, pressure, wax/pour point, sediment, etc.); however this equipment WILL NOT accurately perform without suitable recognition of the requirements for overall system design.

Truly representative sampling of crude oils etc., cannot be achieved by one single product in isolation,. A well designed system and operating procedures as laid down in the Sampling Standards ISO 3171, API 8.2 and IP Chapter VI section 2 are mandatory.

Please consult Jiskoot for further information and assistance.

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GENERAL

WARNING!

This unit is designed for connection to hazardous electric voltages. Ignoring this warning can result in severe personal injury or mechanical damage. To avoid the risk of electric shock and fire, the safety instructions of this manual must be observed and the guidelines followed.

The specifications must not be exceeded, and the unit must only be applied as described in the following.

Prior to the commissioning and installation of the unit, this manual must be examined carefully.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



ELECTRICAL
INSTALLATION

WARNING!

Installation may only be carried out by skilled electricians and instructed personnel in accordance with national legislation, including the relevant standards and, where applicable, in accordance with IEC 79.17 on electrical apparatus for explosive atmospheres.

The enclosure must not be operated in Zone 0 hazardous areas.

All technical data on the enclosure is to be observed.

Changes to the design and modifications to the equipment are not permitted.

The equipment shall only be operated as intended and only in undamaged and perfect condition.

The installation of this equipment must meet EN 60079.

A minimum air gap of at least 40mm is required around the whole enclosure.

All cable glands and stopping plugs must be certified according to EN 60079 for use with an EEx d enclosure in the hazardous area environment into which the unit is to be installed. Unused cable entries must be fitted with suitable stopping plugs. Any accessories used for cable entries are made in accordance to EN 60079.

All wires must be terminated, complete with crimping lugs. Unused cores should be terminated to the earth bus bar.

1 Warranty

This product should be supplied with a warranty card. Please complete and return it to register for warranty support.

In the event it is missing, to register for support, please contact us on +44 (0)1892 518000 or support@jiskoot.com, quoting the Jiskoot Order Number or Serial No with the following information:

- ◆ Date installed
- ◆ Full installation site details, including contact details
- ◆ Maintenance and operator contact details (where different from above)
- ◆ Product comments/feedback

If the product has been supplied as part of a Jiskoot system or assembly, please complete the warranty card for the system.

2 Introduction

The 710EL-MC flow-through Electric Cell Sampler provides a means of extracting a sample from liquids flowing in a pipeline. Designed for applications where instrument air is unavailable, the 710 Cell Sampler is installed in a 1" nominal bore "by-pass" loop from a main pipeline.

It is crucial that the bypass loop represents the flow in the main pipeline: please refer to ISO 3171, API 8.2, or to Jiskoot for advice.

The 710 Cell Sampler is designed to extract nominal 1cc samples from products ranging from Natural Gas Liquid at -20°C to crude oil, refined hydrocarbons, including non-lubricating products, and non-corrosive chemicals at up to 100°C, operating in a pressure range from 3 to 50 Barg, on viscosities 0.5 to 500cSt. The Sampler can operate in an ambient temperature range of -20°C to 40°C and has an Ingress Protection rating of IP55 (BS EN 60529: 1992).

The Sampler is designed for installation either as a wafer or flanged fitting between 1" 150# or 1" 300# raised face ANSI flanges and can withstand static pressure testing to full flange rating of 76 Barg.

The Sample Probe is supplied with a 3 phase motor, for use in a hazardous area, certified to either ATEX Zone 1, Gas Group IIB, T4 or UL/FM Class 1, Division 1, Gas Groups 2, 3 & 4. Voltage/frequency as specified at order placement. Where only single-phase supplies are available, an inverter can be supplied to generate the 3 phase supply.

Note: *When requesting assistance or spare parts, please advise the Sampler Model and Serial Numbers to ensure that the correct options are noted.*

3 Operating Instructions

The Sampler must be installed in accordance with the Installation Details, and be connected to a suitable sample receptacle. All isolating valves in the fast loop or by-pass pipeline from the main pipeline must be open and the pipe work flooded.

A suitable Sample Receiver must be connected to the Sample outlet.

The sample probe requires continuous power to the 3-phase motor via the MCU (Motor Control Unit, See Data Sheet S137-0706-2 and Handbook 710 Motor Control Unit (MCU), together with a signal, indicating sample at the required intervals. Any pipeline conditioning facility must be active to ensure a representative product is available to the Sample Probe.

Control of the Sample Probe, including changeover of Sample Receivers will be determined by the type of Sampler Control System being used.

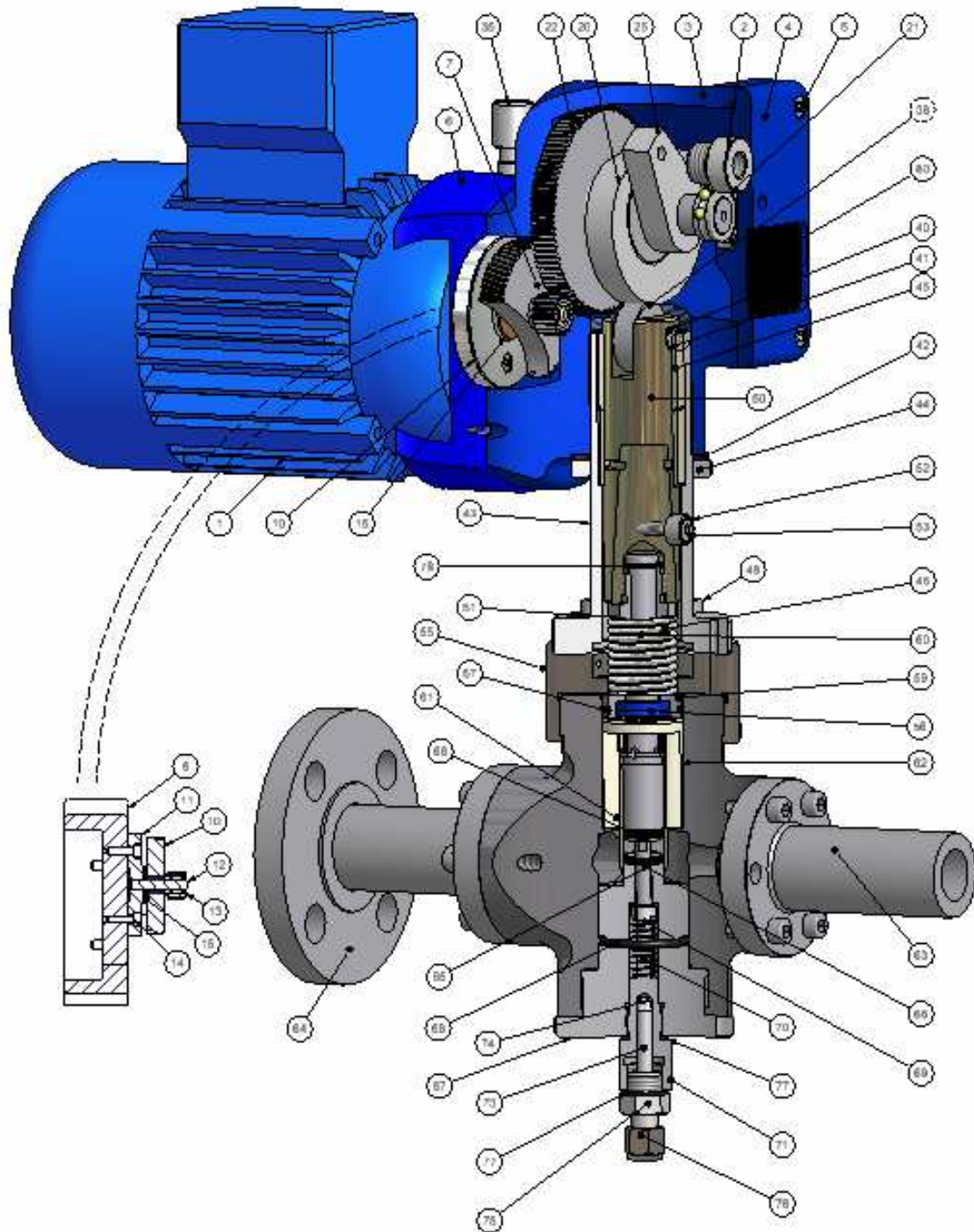
4 Glossary of Special Terms

- Grab - The action of taking an individual sample (normally 1 or 2 ml) from the pipeline.
- Fast Loop - A by-pass pipeline along side the main pipeline through which a proportion of the product is flowing. This may either be pumped by a dedicated pump, or utilise the pressure drop across the discharge to suction of Jet-Mix Pump or across an orifice.



- Triangle with an exclamation mark**
- Caution, risk of danger

5 General Assembly & Bill of Material



ITE	DESCRIPTION	PART NUMBE	ITE	DESCRIPTION	PART NUMBE
1	Motor	48-0690-00	46	Spring	40-0202-00
2	Sensor Adaptor	36-3456-00	47	Pre-load Spring	40-0207-00
3	Gearbox Hosing	36-3070-00	50	Cam Follower	36-3140-00
4	Gearbox Cover	36-3457-00	51	Capture tube nut	36-3352-00
5	Cap screw - M5 x 16	99-0016-00	52	Guide sleeve	36-3142-00
6	Motor Adaptor	36-3072-00	52	Cap Screw	M5x0.8 x 20
7	Helical Gear	39-0270-00	55	710 Cell Body Adaptor	36-3143-00
8	Cap Screw M5x30	99-0010-00	56	Seal	37-0730-00
10	Gear Cluster	39-0186-00	57	O ring	37-0733-00
11	Blanking Plug	36-3074-00	58	Cell Body	36-1347-00
12	Dowel	36-3075-00	59	Seal Adaptor	36-3151-00
13	INA	39-0150-00	60	Sample Ram	36-3144-00
14	Cap Screw M4 x 16	99-0011-00	61	1cc Sleeve	36-3141-00
15	Thrust Washer	39-0021-00	62	Wear Bush	39-0410-00
20	Gearbox Shaft	36-3458-00	63	Stub	36-1430-00
21	Bearing	39-0053-00	64	Flange Class 300	36-1362-00
22	Spur Gear	39-0231-00	64	Flange Class 150	36-1361-00
24	MC Sensor adaptor	36-3455-00	65	Sample Plunger	36-3145-00
25	Magnet	38-0015-00	66	Balseal 300-010-G	37-0540-00
26	Shaft Sensor Magnet	38-0015-00	67	Bottom Plug	36-3146-00
31	Sensor	42-0210-00	68	O-ring	37-0043-00
32	Cable	42-0211-00	69	Split Nut	36-3147-00
35	Lubricator	40-0206-00	71	Check Valve Insert	36-3148-00
37	Shim 15x24x0.5	48-0700-00	73	Valve stem	36-3149-00
38	Cam Roller	36-3061-00	74	Valve seat	36-1229-00
39	Shim 17x24x0.5	48-0702-00	75	Spring	40-0084-00
40	Dowel	36-3318-00	76	Swagelok fitting	48-0467-00
41	Needle roller	39-0164-00	77	Dowty Seal	37-0403-00
42	Washer	36-3138-00 -	78	Circlip	37-0582-00
43	710 Mounting tube	36-3089-00 -	80	710 Sampler Label	33-0270-00 -
44	Lock Ring	36-1134-00			
45	Wear Bush	39-0020-00			

6 Full Functional Description

The 710EL-MC Cell Sampler operates on grab principles similar to previous Jiskoot Samplers, but uses an electric motor to provide the motive power.

The speed of the Sampler Motor (1) is reduced through a gearbox to a free-wheel gear and cam arrangement. The magnet (81) within the Sensor Cam (79) pulses a signal to the control unit indicating one revolution, which in turn signals disconnection of the power supply to the motor.

The power to the sampler is controlled by the 710 MCU and sensor mounted on the side of the gearbox. On receipt of a grab signal from a sampler controller the 710 MCU applies power to the motor on the cell sampler and the sensor cam revolves, the Cam Follower (50) moves the Sample Ram (60) downwards past the Balseal (66) located on the top of the Bottom Plug (67), trapping a sample of product in the void between the Sample Plunger (65) and the Bottom Plug. Continuing downward motion depresses the Sample Plunger, forcing the trapped sample past the gap between the Plunger stem and the Bottom Plug and opens the Check Valve (74). The sample is then expelled through the Connector (76) via the external Check Valve to the sample receiver.

As the Cam continues to revolve, the Cam Follower moves the Sample Ram away from the Bottom Plug and back up to the dwell position, at this point the sensor cam position is detected by a sensor mounted on the side of the gearbox and power is removed from the motor. Both the 710 MCU and sampler are now ready for the next grab to be initiated, allowing fresh product to pass in the area between Sample Plunger and Bottom Plug.

7 Utilities Reference

AC Power	Available Motor Voltages*	400 VAC +10%/-6% 50/60 Hz
	Power Consumption	90 Watts (60 Watts Typical)
Maximum Grab Rate **		50 grabs/minute with a 50Hz 3-phase supply

* Other voltages are available upon request.

**Maximum grab rate is dependent on supply frequency and process conditions (i.e. line pressure and fluid viscosity)

8 Installation Details

8.1 **Sampler Installation**

The 710EL-MC Cell Sampler is designed to be bolted as a wafer fitting between 1" ANSI 150# or ANSI 300#RF flanges and can withstand static pressure testing to full flange rating.

The 710EL-MC Electric Cell Sampler weighs approximately 16 kg and the pipeline into which it is located will need to be adequately supported.

The Sampler will be supplied with the Motor facing across the Sampler pipeline, but may be rotated through 30° steps by removing the 4 off M5 Cap Head Screws (48) and turning the Mounting Tube/Gearbox Assembly. ***Under no circumstances must the Lock Nut (44) be loosened and the Mounting Tube rotated in the Gearbox Housing as this will disturb a critical internal alignment.***

The Motor is selected to suit the specific application and will require connecting to the 710 MCU via suitable glands and cables appropriate to the area classification. ATEX certified motors are supplied with an M20 cable entry; FM certified motors have a ½"NPT entry. Where electrical connections are to be made through conduit, flexible conduits should be used.

External earth tags are provided on the motor to permit adequate bonding of the equipment to the site earth/ground.

The MCU should be connected to the power feed via a suitably fused isolator switch. An Emergency Stop Button is fitted to the MCU with the option of adding an additional remote Emergency stop closer to the Sample Probe providing a means of shutting the Sample Probe off in an emergency.

Emergency Stop Button

Jiskoot recommend that an Emergency Stop Button should be fitted close to the Sampler to provide a means of shutting the sampler off in an emergency. If a Jiskoot 710 MCU has been supplied the emergency stop can be wired into this unit.

Electrical Isolation

For safety and maintenance reasons a lockable electrical 3-phase isolator should be fitted in the 3-phase supply to either the sampler or Motor Control Unit. The 24VDC supply must also have a means of disconnection or facility to be turned off.

8.2 **Motor Control Unit (MCU)**



Please refer to the 710 Motor Control Unit (MCU) for specific installation instructions.

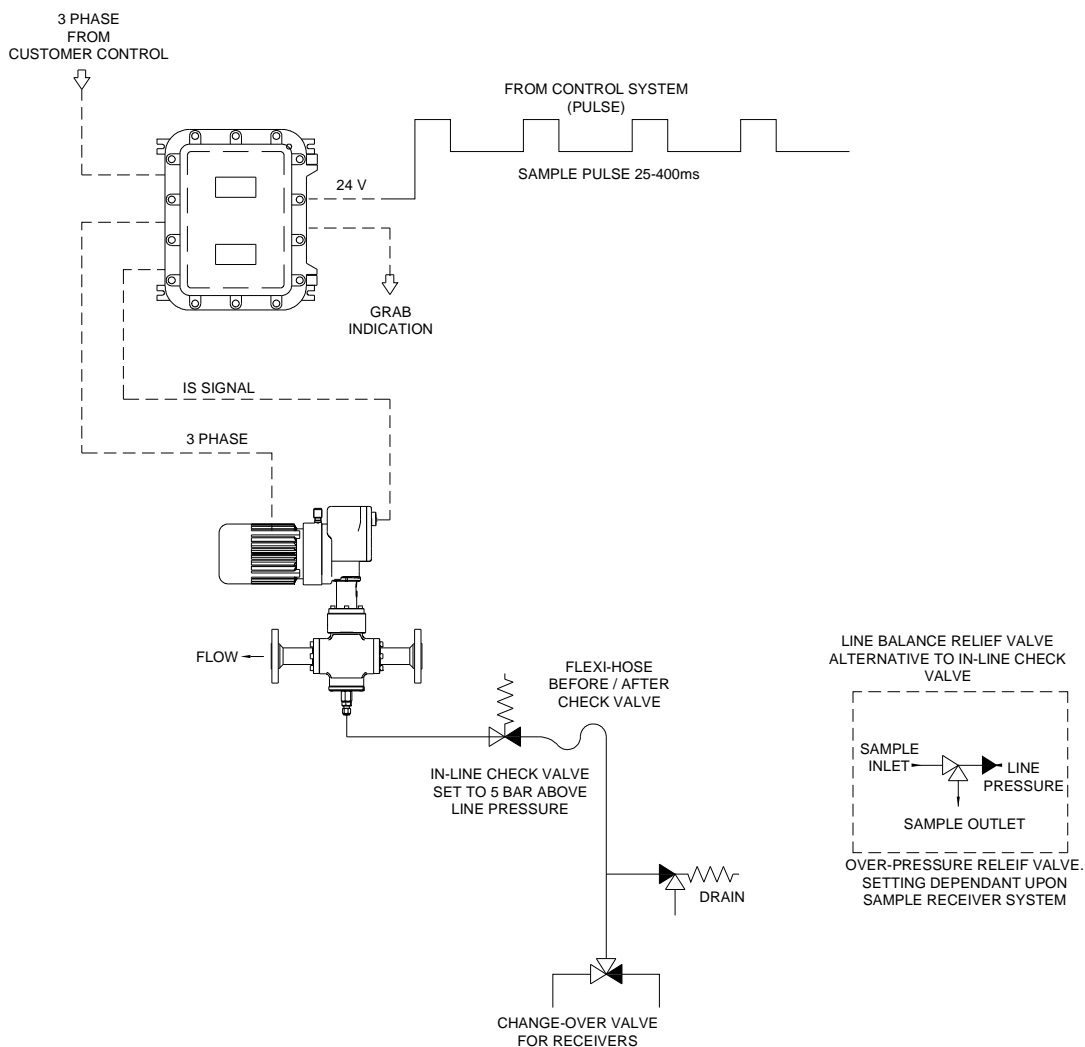
The MCU should be mounted adjacent to the Sampler, and connected to the Sampler via a suitably sized and protected cable.



During installation or Commissioning it is necessary to check the rotation of the motor. See Section 8.3.

The Sampler must not be operated with either the Shroud covering the Mounting Tube or the Gearbox Cover removed (Details to check the correct rotation of the motor are detailed below).

The 1/4" Swagelok Sample Outlet Port in the Bottom Plug (76) must be connected to the Sample Receiver System using 1/4" or 6mm stainless steel tubing via either an in-line Check Valve or a Jiskoot Line Balanced Relief Valve and a relief valve as shown in the diagram below - Failure to fit an external check valve may result in the Sampler continually discharging product from the outlet due to the line pressure exceeding the internal check valve setting.



The Check Valve will normally be set to 5 Bar above the maximum line pressure, ensuring that this is sufficient to allow for any additional pressure increase created by thermal expansion when any isolating valves are closed and the effects of trace heating and or solar energy. If the cracking pressure is set too low, the valve may open under adverse conditions, causing the Sample Receiver System to overfill and the sample to leak through the relief valve to atmosphere.

Where line-balanced, high-pressure sample receivers are being used (i.e. where the sample is being collected at, or close to line pressure), and the installation uses the Swagelok R3A or any similar valves unaffected by back pressure, to avoid placing unnecessary load on the Sampler seals, the Check Valve should be set to operate at 1 Bar. If the valve is found to lift and fill the Sample Receiver due to pressure surges, this setting may be increased slightly.

The relief valve fitted to the sample line is to provide protection to the Sampler in the event of the sampler being operated against a blocked sample line, e.g. without a sample receiver being fitted or with a full sample receiver. This relief valve should be within the maximum pressure rating of the receiver system, but may need to be increased slightly to allow for momentary pressure surges as the sample is being taken.

Ensure that lengths of tubing connecting the sampler to the receiver system are kept to a minimum to minimise "dead" i.e. trapped volume (long lengths of tubing also create extra back pressure and premature seal wear), and that the sample travels downhill at a minimum angle of 15 degrees from the Sampler Outlet to the Receiver to avoid water traps. The sample outlet piping may require heat tracing to prevent blockage.

8.3 Motor Rotation

Note: Before commissioning three phase versions of the Sample Probe is it essential to check that the motor will revolve in the correct direction. The 710 EL MC is designed for optimum performance, running in the correct orientation.

Connect power to the Motor, momentarily apply power to the motor. The **motor** must rotate **anticlockwise** when viewed from the fan end. To reverse direction, change over two phases of the motor supply.

9 Maintenance and Troubleshooting

9.1 Health and Safety Precautions

The 710 Sampler may be used in applications involving carcinogenic or other hazardous products. Care must be taken to avoid contamination by any product trapped within the internal components that may be released as the Sampler is stripped down.

Overhaul of this equipment should only be undertaken by suitably trained and competent service personnel utilising correct P.P.E. at all times.

9.2 Routine (8 Weekly) Maintenance

It is recommended that the Sampler be lubricated on an 8-week cycle, using a high melting point, general-purpose grease suitable for temperature range of -20°C to +200°C such as *Electrolube*.

Lubricate the motor-end of the gearbox by screwing in the Lubricator (35) fitted to the top of the Motor Adapter (6) until the gearbox is heard to run quietly. When the Lubricator has been fully screwed in, remove the cap and re-pack the Lubricator with grease.

Note :Avoid greasing the Sampler excessively, excess grease may solidify and prevent proper operation of the sampler.

9.3 Annual Maintenance (or as determined by site conditions)

The 710EL-MC Electric Cell Sampler is designed to operate for a period of about 1,000,000 grabs or 12 months before a major overhaul, however this service interval will be affected by the type of product being sampled, particularly the amount of particulate matter such as sand, and therefore can not be guaranteed. When used in crude oils with high levels of sediment or from mixed carrier shipments, the failure interval cannot be determined and may be random. The service intervals will therefore need to be determined from the experience gained on the particular application.

The Sampler should be removed from the pipeline and taken to a clean area for servicing.

NOTE: It is essential that soft vice jaws are used whenever components are required to be held, and that all components, particularly those with sealing faces are thoroughly cleaned of dirt and other contamination by degreasing and drying prior to re-assembly. If any of the sliding surfaces are damaged, leakage will occur from the seals.

All joints, 'O' Rings and moving parts must be lubricated on assembly using a general purpose grease such as Castrol "Speherol B2" grease or an equivalent lithium based water-resistant grease.

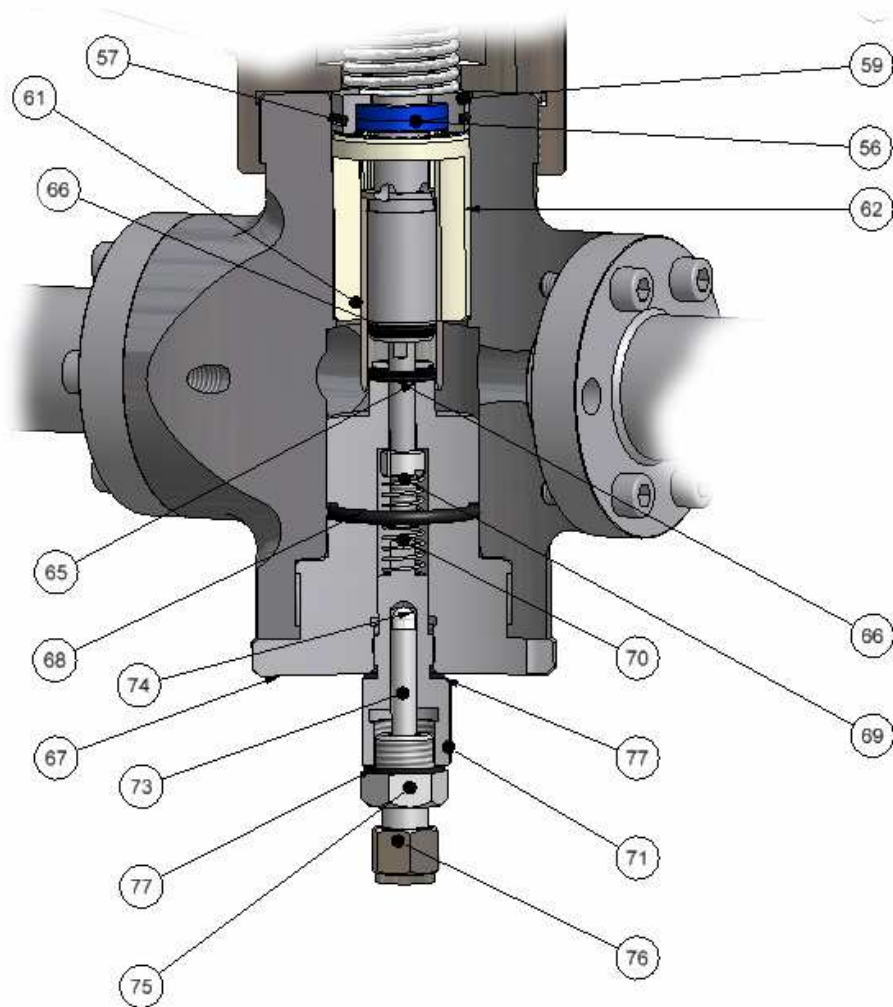
The motor and gearbox components must be lubricated with a high melting point grease such as "Electrolube".

Jiskoot recommend that to prevent seizure, all screwed components are lubricated with copper grease on assembly.

A Special Tool Kit, Part No. 45-0174-00, is available to assist in fitting some components and seals. Failure to use the correct tools may damage seals and other components, and will have a direct effect on the future performance of the Sampler.

9.3.1 **Sampler Seal Replacement**

Bottom Plug Assembly



The Bottom Plug Assembly is unscrewed from the Cell Sampler Body using the 'C' Spanner provided in the Special Tool Kit. Note the location of any shims located between the Bottom Plug and the Cell Sampler Body. These will be retained on the Bottom Plug by 'O' Ring (68).

To strip down and overhaul the component parts, carefully unscrew the Male Connector (76) being prepared to catch any of the spring loaded components of the Check Valve Assembly (Items 73, 74 and 75) as they are released.

Note : *The removal of the Sample Tube Plunger is not recommended unless the sealing surface is worn or damaged, as the adjustment of the plunger affects the sample size.*

Using small wire cutters, carefully cut off the two Balseals (66) from the Sample Plunger and the pedestal of the Bottom Plug, taking care not to damage the surfaces of the components.

Examine all components for signs of wear and thoroughly clean to remove any debris. Discard all seals.

Fit new Balseals after first warming them in hot water to make them more pliable.

Grease and slide the Balseal over the Sampler Tube Plunger and onto the Bottom Plug ensuring that the open spring end faces away from the body of the Plug. Press the seal firmly into the groove using fingers.

Grease and slide the Balseal onto the Sample Plunger ensuring that the open spring end faces towards the shaft of the Plunger. Press the seal firmly into the groove using fingers.

Unscrew the Check Valve Insert (71) and remove the Spring (70) to expose the Split Nut (69).

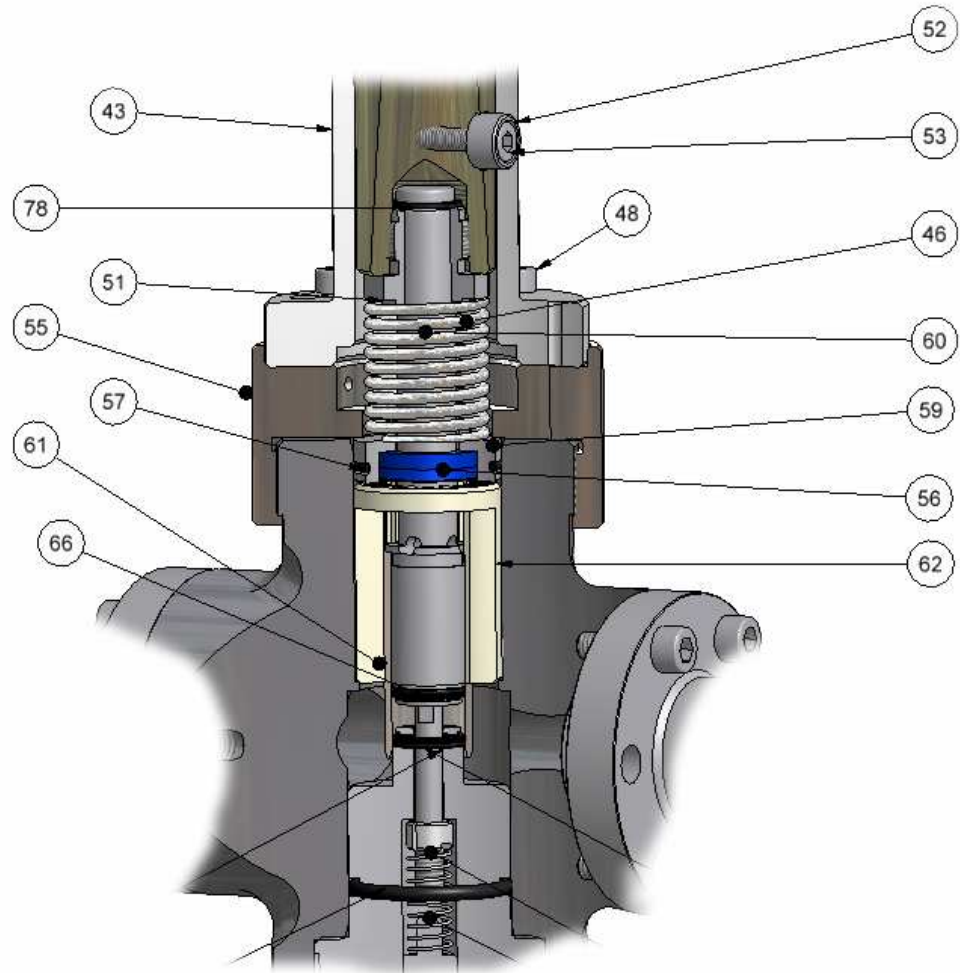
If the Sample Tube Plunger is to be replaced, using the Split Nut Driver and depending upon the style of the Sample Plunger, either the circlip pliers supplied in the Special Tool Kit or a 5.5mm AF Spanner, unscrew the Split Nut (69) from the end of the Sample Plunger (65).

Replace the Sample Plunger in the Bottom Plug, and locate with the Split Nut (69), ensuring that the free play in the Sample Plunger is exactly 6.5mm (measure with a vernier). This setting will determine the size of the sample taken per grab.

Using a new Spring (70) and Dowty Seal (77), refit the Check Valve Insert (71) into the Bottom Plug. Reassemble the Check Valve Assembly and refit into the Bottom Plug with the Spring (75), greasing threads with copper grease. Apply copper grease to the Male Connector and replace, also using a new Dowty Seal (77).

Apply copper grease to the threads of the Bottom Plug. Replace the 'O' Ring (68) taking care to refit any shims found when the Bottom Plug was removed, and screw the Assembly into the Cell Body.

Capture Tube Seal Replacement



Note the orientation of the Motor/Gearbox Assembly to the Cell Body.

Rotate the plastic cover on the side of the Mounting Tube (43) to expose the Guide Sleeve (52) and its Retaining Screw (53). Remove the Guide Sleeve from the side of the Cam Follower and the 4 off Cap Head Screws (48), securing the Mounting Tube (43) to the Cell Body Adapter (55).

Lift the complete Motor/Gearbox Assembly from the Cell Body Adapter and Cam Follower/Sample Ram Assembly.

If the Cell Body Adapter has slots for use with a 'C' Spanner, hold the Cell Body (58) in a soft jawed vice and unscrew the Cell Body Adapter using the 'C' Spanner provided in the Special Tool Kit. Alternatively, where there are no slots provided for using a 'C' Spanner, hold the Cell Body Adapter in a soft jawed vice and unscrew the Cell Body from the Adapter.

Remove the Cam Follower/Sample Ram Assembly, complete with the Seal Adapter (59), Seal (56) and 'O' Ring (57) from the Cell Body.

Hold the Cam Follower in the soft jaws in a vice and unscrew the Capture Tube Retaining Nut (51).

Carefully remove the Circlip (78) from the end of the Sample Ram (60), taking care to catch the Capture Tube Retaining Nut and Spring (46) as they are released. Remove the Seal Adapter (59), Seal (56) and the 'O' Ring (57).

Examine the Sample Ram Assembly for wear where it passes through the Seal (56) and replace if worn.

Using a small screw driver or similar tool, extract the Slydring (62) from the Cell Body and replace, using the Sample Ram Assembly to finally form the new Slydring into shape.

Fit new Seal (56) into the Seal Adapter and replace 'O' Ring (57), greasing the seal surfaces on assembly.

Replace the Seal Adapter Assembly over the Sample Ram, replace the Spring (46), Capture Tube Retaining Nut ((51) and secure with Circlip (78).

Apply copper grease to the threads of the Capture Tube Retaining Nut and screw into the Cam Follower. Tighten the Capture Tube Retaining Nut.

Grease the Cam Follower/Sample Ram Assembly and carefully slide the Assembly into the Cell Body.

Apply copper grease to the threads of the Cell Body and the Cell Body Adapter, and reassemble (handtight).

Slide the Motor/Gearbox Assembly over the Cam Follower and replace the Guide Sleeve (52) and Screw (53) to secure the Cam Follower in the Mounting Tube. Secure the Gearbox in position with the 4 off Cap Head Screws (48); ensuring the Motor/Gearbox Assembly is in approximately the same position as originally found.

9.3.2 Motor, Gearbox Assembly

The gearbox assembly will normally only require to be stripped down, old grease removed and then reassembled.

Motor/Gearbox Replacement

Due to the need for special tools and the fine tolerance of the internal gears, field servicing or replacement of the Motor and Gearbox is not recommended. In the event of failure of these components, the entire Sampler should be returned to Jiskoot for repair.

If the Motor or Gearbox are required to be replaced on site, detailed assembly instructions will be supplied with the spare parts.

Sensor Overhaul

The only regular maintenance required is to remove as much of the old grease from the Housing as possible, ensuring the sensor is clean.

Remove the 4 off M5 x 16 Cap Head Screws (5). The Gearbox Cover (4) is a push fit onto the Outer Bearing 21 and may be removed by rotating the Cover against the Gearbox Housing and pulling off with a rocking motion. DO NOT LEVER APART.

Note the location of the Bearing Pre-Load Spring(s) (47) inside the bearing housing of Gearbox Cover.

Lightly grease the Gearbox Shaft front Bearing and Gearbox Housing face and fit Gearbox Cover to Gearbox Housing with 4 off M5 x 16 Cap Head Screws.

Sensor Overhaul

The sensor is sealed and shall require replacement if failure occurs.

Remove the Gearbox Cover as described above, unscrew and withdraw the sensor (82) and clean off old grease.

Ensure that the sensor is not damaged and replace if necessary.

Replace the Gearbox Cover as described above.

10 Frequently Asked Questions

10.1 Sampler Fails to take any sample

Check product is available to sampler

Check all valves are open

Check motor is running - feel or listen for operation.

Check Sampler Controller is demanding a grab and that any interposing relays are operating satisfactorily.

Check that Sample Receiver is not either full, blocked by wax, or isolated (Carefully loosen ¼" connections in sample discharge tubing to test).

If the above are satisfactory, than the Sampler will require a change of internal seals.

10.2 Sampler fails to take adequate sample

Check Sample Receiver is not full or the sample outlet piping blocked through waxing.

Check the external Check Valve fitted to Sampler Outlet Adapter is set to 5 Bar above line pressure for normal low-pressure receiver systems and to 1 Bar where high-pressure sample receivers are being used. If pressure is too high, excessive wear will be caused to the Sampler internal seals.

Check that the relief valve fitted to the sample discharge lines is not passing.

Check the sensor cam is sensing and not clogged through excessive grease in the mechanism.

Ensure that the Sampler Controller is not either demanding too fast a sample grab rate (60 grabs per minute maximum at 50 Hertz), or that the signal to the controller is too fast.

If the above are satisfactory, than the Sampler will require a change of internal seals.

10.3 Sampler takes excessive sample

Check the external Check Valve fitted to Sampler Outlet is set to 5 Bar above line pressure for normal low-pressure receiver systems and to 1 Bar where high-pressure sample receivers are being used. If pressure is too low, then the internal Check Valve may be lifting allowing sample to pass at all times.

Ensure that the Sampler Controller is not either demanding too fast a sample grab rate (60 grabs per minute maximum at 50 Hz), or that the signal to the controller is too slow, and not signalling for the engagement of the motor.

If the above are satisfactory, than the Sampler will require a change of internal seals, permitting the Sampler to grab continuously

11 Sub Supplier Information

The following sub supplied items are used in the 710EL-MC Electric Cell Sampler:

- Euromotori Motor Series ASA 56, selected to suit the application specific hazardous area and power supply requirements.
- Pepperl & Fuchs Type MC60 Sensor (selected to suit application specific hazardous area requirements and power supply).

Neither component contains any user serviceable parts.

12 Product Specific Drawings

Series 710 Cell Sampler Installation Details D24036

Series 710 Cell Sampler General Arrangement Drawing B23935

13 Recommended Spares List

When requesting assistance or spare parts, please advise the Sampler Model and Serial Numbers to ensure that the correct options are supplied.

Part/Sub- Assembly			Commissioning	1 Year Operation	2 Year Operation
Spare Parts Kit 45-0128-00 comprising:			1	1	1
Item No.	Description	Part No.			
32	Spring	40-0201-00			
36	'O' Ring	37-0702-00			
47	Spring	40-0207-00			
56	Seal	37-0730-00			
57	'O' Ring	37-0733-00			
62	Slydring	37-0518-00			
66 (2 off)	Balseal	37-0540-00			
68	'O' Ring	37-0043-00			
70	Spring	40-0205-00			
74	Check Valve Tip	36-1229-00			
75	Spring	40-0084-00			
77 (2 off)	Dowty Seal	37-0403-00			
78	Circlip	37-0582-00			
Special Tool Kit 45-0174-00 comprising:			1	-	-
Description		Part No.			
Split Nut Driver		36-2051-00			
External Circlip Pliers		36-2042-00			
'C' Spanner		36-2000-00			
4mm Allen Key		36-2045-00			

Disclaimer

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Jiskoot pursue a policy of continuous improvement, and information given herein may be updated without notice.

Further, this information is proprietary to Jiskoot Limited, and must not be disclosed to any third party except as may be required to operate the equipment supplied in accordance with the purposes for which it was sold by the persons properly licensed to operate it.

1	Updated Motor Controller Information	N.McGee	P.Whittle	10/10/2007
0	First issued – Based 710 Cell Rev8	N.McGee	P.Whittle	21/03/2006
Issue	Revision History	Issued	Approved	Date

Notes

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