

## Syllabus for introduction to LC maintenance training

At SCIEX, our Success Technology Programs follow the proven spaced learning approach to maximize learning retention. The training process includes a unique blend of self-paced eLearning, instructor led and hands-on training provided at the customer site.

### Course goals and outcome

This training course provides a variety of hands-on LC maintenance exercises with a focus on your LC system, and is supported by a series of easy-to-use Quick Reference Guides. It is intended for those who have completed a Success Program, or have some operational experience with SCIEX LC-MS systems.

You will learn how to recognize LC issues on your LC system, and troubleshoot various chromatography issues. You will also learn how to proactively maintain your LC system, and how to exchange various consumable parts to keep your system running properly between regular maintenance visits.

Upon completion of the course, you will have a deeper understanding of LC troubleshooting. This will enable you to increase your lab's productivity and uptime of your LC-MS system, and reduce the need for service call outs or remote assistance. You will gain knowledge of which consumables to keep on-site to increase your system uptime.

### Training program overview

Your Success Technology Training includes the following:

- 1 day of instructor led and hands-on training provided at your site by Service personnel
- Related self-paced eLearning courses, lectures, reference material and lab exercises
- Complimentary follow-up WebEx session with an Applications Support Scientist
- Workflow certification upon successful completion of final exam
- Access to SCIEX Now Learning Hub database of >100 eLearning courses
- Access to SCIEX Now online support tools available for up to 3 Learners

### Instructor-led training topics for Shimadzu and ExionLC AD/AC systems

- Replace the autosampler needle
- Replace pump seals
- Replace pump plunger
- Replace low pressure rotor seal
- Replace high pressure rotor seal
- Replace check valves
- Replace autosampler plunger and plunger seal
- Resetting counters

- Understanding access controls
- Autosampler calibration and position adjustment
- Routine maintenance tasks

### Instructor-led training topics for Agilent systems

- Using Lab Advisor software
- Disassemble and maintain pump heads (pistons, support rings, piston seals, wash seals and gaskets as applicable)

**Note:** for Agilent 1290 Infinity and Infinity II pumps, this task will only be performed for Easy Maintenance and Long Life pumps.

- Replace seal wash peristaltic pump (if applicable)
- Replace PTFE frit for purge valve and replace seal cap assembly in pump
- Replace inline and high pressure filter frits in pump
- Replace pump seal cap assembly for outlet valves (if applicable)
- Pump seal wear-in procedure
- EMF reset
- Replace autosampler needle
- Replace autosampler needle seat
- Replace autosampler rotor seal
- Replace autosampler peristaltic pump
- Autosampler calibration and position adjustment
- Replace autosampler plunger and plunger seals
- Replace sample loop
- Replace rotor seal in column oven if valve is installed
- Replace column oven flow cell

### Troubleshooting LC issues

- Constant carryover
- Classic carryover
- Retention time shift
- Poor chromatography

### Instructor-led training topics for ExionLC 2.0 and 2.0+ systems

- Replace pump seals
- Flush the autosampler
- Purge the pump
- Replace pump filter cartridge
- Replace autosampler air needle
- Replace autosampler sample needle
- Replace check valves
- Replace detector flow cell

- Replace pump mixer
- Replace autosampler syringe
- Replace pump rotor seals
- Replace autosampler rotor seals
- Replace wash system rotor seals
- Replace valve drive rotor seals

The LC system must be installed and configured before the training. Most of the maintenance tasks executed during the training will be performed by removing parts and replacing using the existing parts. However, for some tasks, the parts cannot be replaced. For these tasks, the course includes consumables for use during the training as detailed in [Required consumables for introduction to LC maintenance training](#).

Consumables for use during the training must be ordered and delivered prior to the start of the training. Please consult with your trainer to arrange the order of the appropriate consumables for your system prior to the delivery of your training.

For Agilent 1290 and 1290 Infinity and Infinity II pumps, disassembly of the pump heads will only be performed for Easy Maintenance and Long Life pumps. For Classic pumps, the pump heads will be removed and reinstalled with no disassembly.

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## Required consumables for introduction to LC maintenance training

Our training courses follow the proven spaced learning approach to maximize learning retention. The training process includes a blend of instructor-led training, hands-on exercises and self-paced eLearning, provided at the customer site. This training course provides a variety of hands-on LC maintenance exercises with a focus on your LC system delivered by experienced Service personnel.

For this training to be successful, the LC system must be installed and configured before the training. **Table 1** lists the parts that you are required to provide for use during the training course.

The course includes consumables for use during the training as shown in **Table 2**. Please consult with your service trainer to arrange the order of the appropriate consumables for your system prior to the delivery of your training.

**Table 3** lists consumables that you may wish to purchase from SCIEX after the training.

**Table 1: General parts required**

Applicable System	Description	Part Number
All LC systems	MS-grade Methanol	N/A
All LC systems	MS-grade Water	N/A
All LC systems	MS-grade Isopropanol	N/A
All LC systems	Lint-free wipe	018027
All LC systems	PEEK tubing red (0.13 × 3000 mm)	4425163
All LC systems	Peek tube cutter	011281
All LC systems	Triazine	4376887
Shimadzu LC 20A	Nuts & ferrule	4426018
Shimadzu LC 20	Seal tool	4413357
Shimadzu LC 20XR/30	As needle seal remover	228-50570-00
Shimadzu LC 30	Toolkit	5047014
Shimadzu LC 30	Seal tool	5050409
All Shimadzu systems	Stop joint	4426109
All Shimadzu systems	AS plunger tool	4425115
All Shimadzu systems	Pump plunger driver	4425148
All Sil HPV	FTG, UHPLC one-piece fitting	4466409
ExionLC 2.0+	Seal tool	5082414
ExionLC 2.0	Seal tool	5082707
Agilent systems	Seal tool	4400682

Table 2: Consumables included with on-site training course

Applicable System	Description	Part Number
<i>Shimadzu LC 20AD</i>	<i>Essential LC20 Kit</i>	<i>5045275</i>
<i>Shimadzu LC 20XR</i>	<i>Essential XR Kit</i>	<i>5045276</i>
<i>Shimadzu LC 30AD</i>	<i>Essential LC30 Kit</i>	<i>5045277</i>
<i>Agilent 1260 Infinity II</i>	<i>Essential LC 1260 Kit</i>	<i>5063009</i>
<i>Agilent 1290 Infinity/Infinity II</i>	<i>Essential LC 1290 Kit</i>	<i>5063009</i>
<i>Agilent 1200/1260</i>	<i>Pump seal</i>	<i>4463767</i>
<i>ExionLC AD</i>	<i>Essential AD Kit</i>	<i>5045277</i>
<i>ExionLC AC</i>	<i>Essential AC Kit</i>	<i>5045276</i>
<i>ExionLC 2.0+</i>	<i>High pressure pump seal</i>	<i>5083188</i>
<i>ExionLC 2.0+</i>	<i>Low pressure pump seal</i>	<i>5083190</i>
<i>ExionLC 2.0</i>	<i>High pressure pump seal</i>	<i>5081224</i>
<i>ExionLC 2.0</i>	<i>Low pressure pump seal</i>	<i>5081221</i>

**Table 3: Optional consumables available for purchase from SCIEX**

Applicable System	Description	Part Number
Shimadzu LC 20AD	Essential LC20 Kit Complete	5045275
Shimadzu LC 20XR	Essential XR Kit Complete	5045276
Shimadzu LC 30AD	Essential LC30 Kit Complete	5045277
Agilent 1260 Infinity II	Essential LC 1260 Infinity II Kit Complete	5063009
Agilent 1290 Infinity II	Essential LC 1290 Infinity II Kit Complete	5063009
Agilent 1200 G1329A	Rotor seal	4400229
Agilent 1200 G1329B / Agilent 1260 G1367	Rotor seal	4400918
Agilent 1290 G4226A	Rotor seal	4457448
Agilent 1200 G1329	Needle	4391945
Agilent 1200 G1367C/D	Needle assembly	4455008
Agilent 1260 G1367E / Agilent 1290	Needle assembly	4456318
Agilent 1200	Seat assembly	5041619
Agilent 1290	Seat assembly	4456696
ExionLC AD	Essential AD Kit Complete	5047079
ExionLC AC	Essential AC Kit Complete	5050502
ExionLC 2.0 Autosampler	PM Kit	5081469
ExionLC 2.0+ Autosampler	PM Kit	5081470
ExionLC 2.0 Binary Pump	PM Kit	5081563
ExionLC 2.0 Quaternary Pump	PM Kit	5081562
ExionLC 2.0+ Binary Pump	PM Kit	5087211
ExionLC 2.0+ Binary Pump	Pump head wear parts kit	5083203
ExionLC 2.0+ Binary Pump	Rotor seal, purge valve	5083194
ExionLC 2.0 Autosampler	Rotor seal, 1000 bar	5081228
ExionLC 2.0+ Autosampler	Rotor seal, 6+1 port	5080729
ExionLC 2.0 and 2.0+ Autosampler	Sample needle, 15 µL	5080744
ExionLC 2.0 and 2.0+ Autosampler	Sample needle, 60 µL	5080732
ExionLC 2.0 and 2.0+ Autosampler	Syringe, 250 µL	5080726
ExionLC 2.0 Wash System	Rotor seal, 6 port	5080853
ExionLC 2.0 Wash System	Rotor seal, 8 port	5086109
ExionLC 2.0 Valve Drive	Rotor seal, 8 port	5081232
ExionLC 2.0 Valve Drive ExionLC 2.0 Wash System	Rotor seal, 6 port, 2 position	5080853
ExionLC 2.0 and 2.0 systems	SecurityLink 100 µm ID x 500 mm	5078666

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