

## REPLACEMENT PARTS

Due to similarities in Hamilton's Multi-channel, Gel Loading Syringes, only the 8-channel GLS is shown in Figure 1. Installation of replacement parts is identical for all MC-GLS models. Please note that DNA syringe parts are not compatible as replacement parts for the MC-GLS.

### MC-GLS Part Numbers

MC-GLS 12-channel for 0.4 mm gels .....	84500	MC-GLS 6-channel for 0.4 mm gels .....	84507
MC-GLS 12-channel for 0.3 mm gels .....	84501	MC-GLS 6-channel for 0.3 mm gels .....	84508
MC-GLS 12-channel for 0.2 mm gels .....	84512	MC-GLS 6-channel for 0.2 mm gels .....	84513
MC-GLS 8-channel for 0.4 mm gels .....	84502	MC-GLS 4-channel for 0.4 mm gels .....	84509
MC-GLS 8-channel for 0.3 mm gels .....	84503	MC-GLS 4-channel for 0.3 mm gels .....	84510
MC-GLS 8-channel for 0.2 mm gels .....	84511	MC-GLS 4-channel for 0.2 mm gels .....	84514

### MC-GLS Replacement Parts

MC-GLS Replacement Syringes for 0.4 mm gels (includes barrel and plunger assembly) ....	80021	4. Guide Rod Stop Collar, 2/pk .....	1993-01
MC-GLS Replacement Syringes for 0.3 mm gels (includes barrel and plunger assembly) ....	80022	5. Guide Rod .....	15194
MC-GLS Replacement Syringes for 0.2 mm gels (includes barrel and plunger assembly) ....	80023	6. Guide Rod Stop Collar Set Screw .....	1992-01
1. MC-GLS 10 µL Barrel (0.4 mm gels) .....	10395	7. MC-GLS 1701 Plunger Assembly .....	15948
1. MC-GLS 10 µL Barrel (0.3 mm gels) .....	10396	8. 12-channel Plunger Locking Bar .....	15192
1. MC-GLS 10 µL Barrel (0.2 mm gels) .....	10398	8. 8-channel Plunger Locking Bar .....	15198
2. 12-channel Barrel Holder .....	15193	8. 6-channel Plunger Locking Bar .....	15161
2. 8-channel Barrel Holder .....	15197	8. 4-channel Plunger Locking Bar .....	15158
2. 6-channel Barrel Holder .....	15160	9. Locking Bar Set Screw .....	16685
2. 4-channel Barrel Holder .....	15157	10. Guide Rod Washer .....	16457
3. Barrel Holder Set Screw .....	19150	11. Guide Rod Nut .....	16460
		Allen Key .....	16476
		Needle Cleaning Wires (0.4, 0.3 mm) .....	18302
		Needle Cleaning Wires (0.2 mm) .....	18306

Single DNA Syringes are also available for individual sample transfers. DNA syringes and replacement parts are not interchangeable with the MC-GLS.

### DNA Syringe Part Numbers

DNA 1701SN 10 µL Syringe (0.4 mm gels) ....	84504
DNA 1701SN 10 µL Syringe (0.3 mm gels) ....	84505
DNA 1701SN 10 µL Syringe (0.2 mm gels) ....	80081

### DNA Syringe Replacement Parts

DNA 1701SN 10 µL Barrel (0.4 mm gels) .....	10391
DNA 1701SN 10 µL Barrel (0.3 mm gels) .....	10390
DNA 1701SN 10 µL Barrel (0.2 mm gels) .....	2065-01
DNA 1701SN Plunger Assembly .....	15949

Please reference Hamilton Company's general Product Catalog for additional items.

Trademarks:

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# HAMILTON

THE MEASURE OF EXCELLENCE<sup>SM</sup>

## MULTI-CHANNEL, GEL LOADING SYRINGE

*Congratulations! You have purchased the finest quality precision fluid measuring device available today. We at Hamilton Company combine top quality materials with skilled workmanship, ensuring the highest possible performance level of every precision fluid device we manufacture. With proper care and handling, the Multi-Channel, Gel Loading Syringe will provide unsurpassed performance in precision liquid handling year after year.*

The Hamilton Multi-channel, Gel Loading Syringe (MC-GLS) easily and accurately transfers 4, 6, 8, or 12 DNA samples to sequencing gels for electrophoresis, to another microwell plate for duplicate analysis, or to nylon membranes for visualization. Samples can be easily transferred by microwell plate column using the 4- or 8-channel pipette, or by row using the 6- or 12-channel pipette. A single DNA Syringe is also available for individual transfers.

Three different needle specifications allow either loading of samples into thin sequencing gel wells that are 0.2, 0.3, or 0.4 mm or larger, or directly onto the top of the sequencing gel. The standard needle spacing of 9 mm allows spotting between the gel plates using most square or sharktooth combs with a microwell format. An adjustable stop collar on the MC-GLS allows you to pre-set the volume anywhere between 0.2µL to 10µL.

## WARRANTY STATEMENT

Hamilton Company unconditionally guarantees its products to be free of defects in materials and workmanship. Any product that fails due to such defects will be repaired or replaced at our discretion without cost, provided the device is returned with an explanation. It is the responsibility of the purchaser to determine the suitability of application and material compatibility of the products based on the published specifications of the products.

## RETURN OF GOODS

Hamilton Company's return and repair policy is written to protect its employees from potentially hazardous materials (e.g., serum, radioactive materials, carcinogenic chemicals, etc.) or any substance that may cause them partial or permanent disability during the inspection or repair process. When returning a product, the customer acknowledges that the product is free from any hazardous materials. Furthermore, the customer assumes responsibility should the returned product be determined to be hazardous.

Syringes and needles manufactured by Hamilton Company are intended for scientific research and laboratory use only and are not intended for human in vivo use.

## OPERATING INSTRUCTIONS

The Multi-channel, Gel Loading Syringe is shipped fully assembled and ready for use; however, the following steps will optimize the performance of the MC-GLS.

The 8-channel MC-GLS was chosen for display purposes (Figure 1), although the operation and functioning of the parts are identical for all MC-GLS models. Numbers in parentheses in the following text refer to part numbers in Figure 1.

1. Pre-rinse and lubricate the syringe barrels and plunger tips by completely filling and dispensing the syringes several times with deionized water or solvent (i.e. acetone).
2. If a reproducible, set volume is desired, adjust the two stop collars (4) using the Allen key provided. Loosen the stop collar set screws (6), and withdraw the plungers to the desired volume. Position the stop collars against the bottom of the barrel holder (2) and tighten the set screws.
3. When aspirating samples, draw the plungers up slowly to prevent formation of air bubbles.

**NOTE: If you have purchased an MC-GLS with the 0.2 mm needle dimension, special care must be taken in handling the needles. The only replacement option for these or any other needle dimension on the MC-GLS is to replace the entire syringe barrel.**

## CLEANING AND MAINTAINING THE MC-GLS

The life of your MC-GLS is directly related to its cleanliness and proper care and handling. Following are recommended procedures for cleaning and maintaining your MC-GLS.

1. Prior to cleaning the MC-GLS, ensure that the stop collars are set to allow full travel of the plungers to the 10  $\mu$ L volume of the syringe. Avoid separating the plungers from the syringe barrels by disengaging the two halves of the MC-GLS. In doing so, you risk bending the plungers.
2. After each use, rinse all the syringes with deionized water or solvent by filling and dispensing the MC-GLS several times. It is best to use solvents known to be effective in solvating the sample and preferably that are non-alkaline, non-phosphate, and non-detergent based. A biodegradable, non-phosphate, organic Cleaning Concentrate is available from Hamilton; order part number 18311. If sterilization is necessary, use cold sterilization techniques. Do not subject the MC-GLS to temperatures above 50 °C (122 °F).
3. If syringe needles become plugged, it may be possible to clear obstructions with Needle Cleaning Wires available from Hamilton (see Replacement Parts list). Do not force liquid under pressure to clear the needles, and do not heat needles with open flame.

## DISASSEMBLY AND INSTALLATION OF MC-GLS ASSEMBLY PARTS

1. With the plungers fully engaged into the syringes, loosen the plunger locking bar set screw (9) for the syringe requiring replacement (if replacing plunger only, remove plunger from syringe barrel by drawing out through plunger locking bar and proceed to number 5)
2. Loosen the barrel holder set screw (3) for the syringe requiring replacement.
3. Remove the syringe with the plunger inserted, then withdraw the plunger from the syringe barrel.

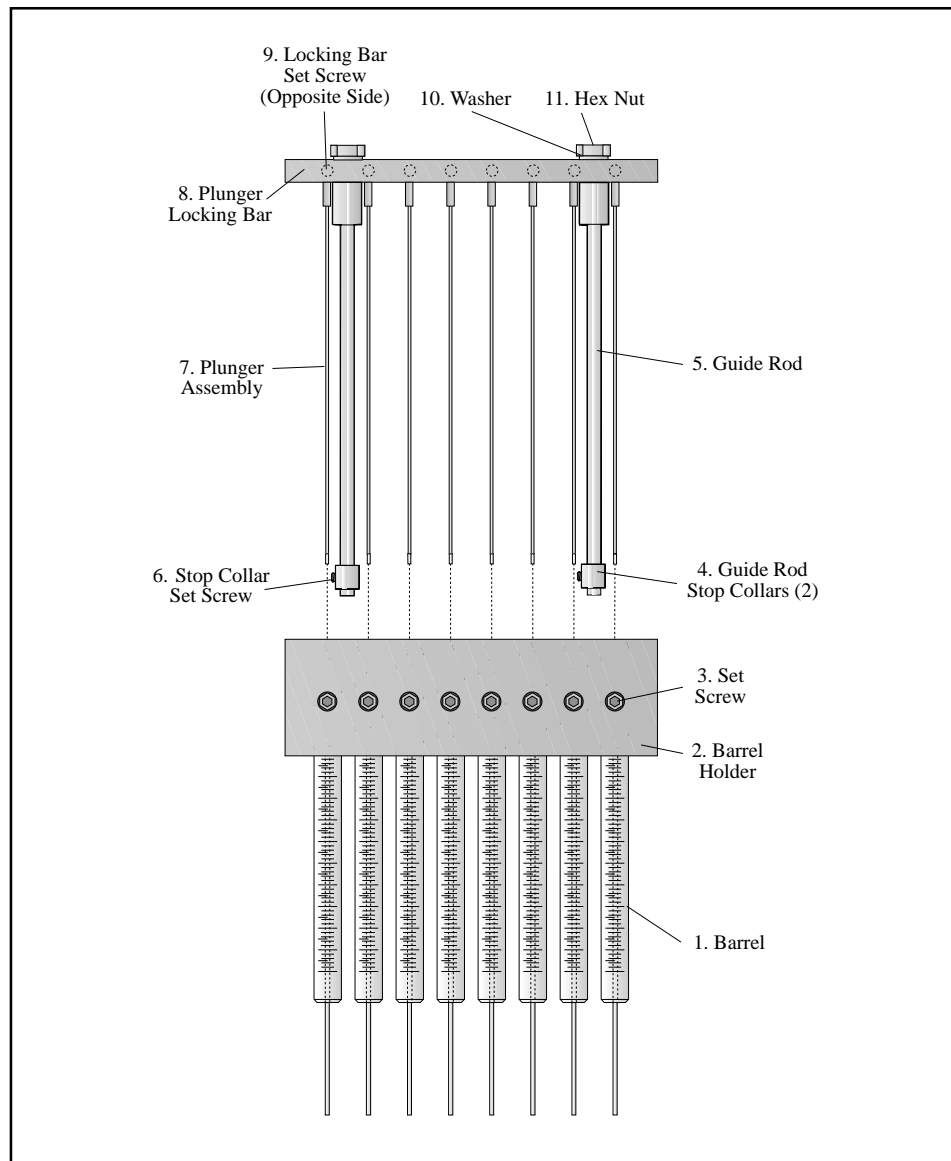


Figure 1

4. Install the replacement barrel assembly (1) into the barrel holder from the bottom of the barrel holder (2). Align the needle tips against a flat surface and tighten the barrel holder set screw (to avoid cracking the glass barrel, do not overtighten).
5. Wet the plunger tip with deionized water or solvent and install the replacement plunger assembly (7) through the top of the plunger locking bar (8). As you insert the plunger into the syringe barrel, run the plunger back and forth in the syringe barrel in short strokes to ensure smooth plunger action, taking care not to bend the plunger. Align the plunger tips at the zero graduation mark. Tighten the set screw (9) sufficiently to maintain the plunger position.