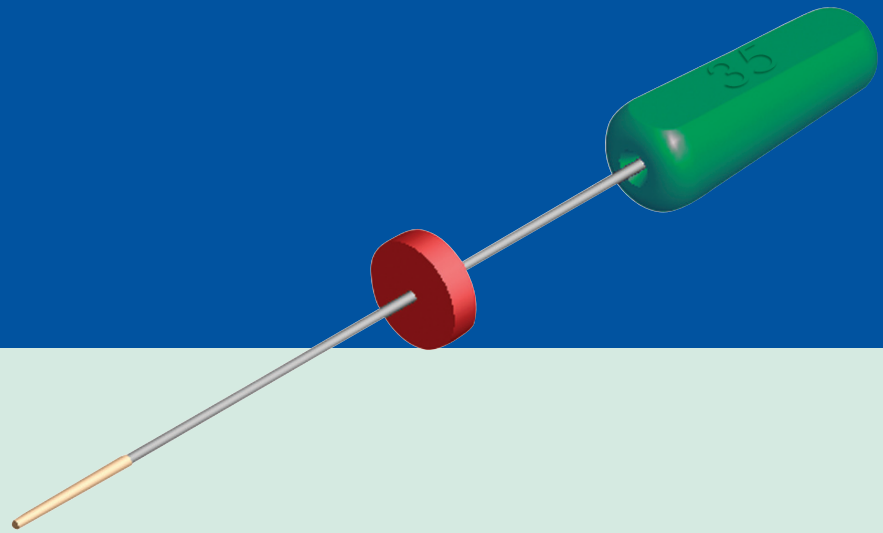
LIGHTSPEED®

and SimpliFill

Technique Guide



LIGHTSPEED ENDODONTICS

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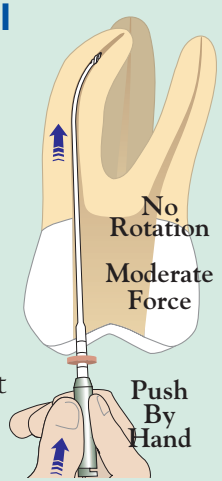
September 2003

LIGHTSPEED®

Before beginning instrumentation with LightSpeed, be sure to make access, flare coronally, determine working length (WL), and achieve canal patency with at least a size 15 K-type file. See StraightLine Access Guide for details.

Step 1

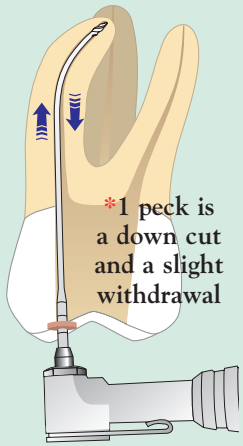
Determine the LightSpeed Size to Begin Mechanical Instrumentation (FLSB) (Gauge/Size Canal)



Concept: If a LightSpeed (LS) can be pushed to WL by **hand** it means the entire canal is larger than that LS size. If a LS cannot be pushed to WL it means the canal is smaller than the LS size. **Page 3, Fig. A explains how to find the correct LS size (FLSB) for starting mechanical instrumentation.**

Step 2

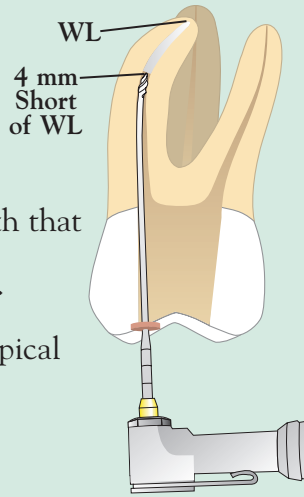
Determine the Apical Preparation Size



Begin instrumenting to WL with the FLSB determined in Step 1. Advance the FLSB slowly until resistance is felt (binds); **pause**, then continue apically by "pecking" until WL is reached. Count the number of pecks* required to reach WL (start pecking and counting the pecks when LS first begins to bind). Continue instrumentation to WL with sequentially larger LS instruments. The first LS requiring 12 or more pecks to reach WL is the MAR (Master Apical Rotary). See page 4, Figure B for estimated MAR sizes.

Step 3

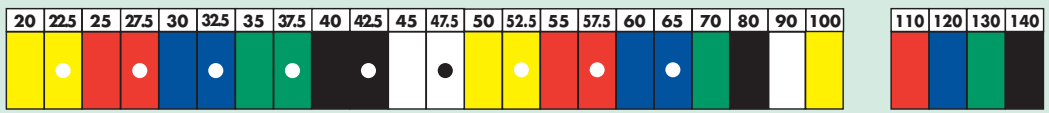
Complete Apical Instrumentation



With the very next larger size LS size (than the MAR) instrument to a length that is 4 mm short of WL. This completes the apical preparation to accept a SimpliFill GP Plug.

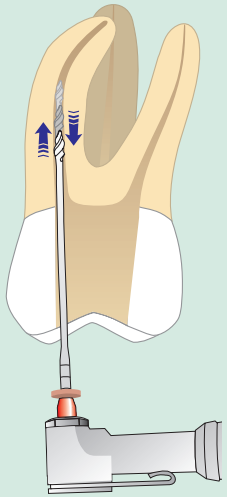
NOTE: When obturating with Standardized GP cones, step back in 1 mm increments from WL with sequentially larger instruments.

Instrument Color Guide



Step 4

Instrument Mid-Root



Continue instrumenting with the next larger whole-size LS (skip half-sizes). When resistance to apical advancement is felt, **pause**, then continue using a light pecking motion until LS will no longer advance easily*. Change to the next larger whole-size LS instrument and repeat the same process. Continue with sequentially larger LS whole-sizes until reaching a size that cannot easily advance apically beyond the coronal 1/3 of the canal.

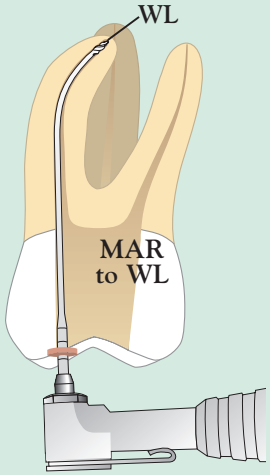
* **CAUTION:** Do not allow any mid-root instrument to advance into the apical 5mm as this may cause the SimpliFill Apical GP Plug to fit too loosely.

NOTE: When obturating with Standardized GP Cones, do not skip half-sizes for the mid-root preparation. Continue the step back to a LS size at least 25 larger than the MAR. Example: If the MAR is a size 40, step-back in 1mm increments to at least a size 65.

Step 5

Recapitulate

Recapitulate to WL with the MAR (Step 2). Recapitulation ensures a clear path for obturation.



Gauging The Canal (By Hand)

The purpose of gauging is to: 1) determine the pre-instrumentation size of the apical part of the canal to avoid under-preparation and; 2)determine the appropriate LS instrument size for beginning rotary instrumentation. The gauging process begins with the Suggested First LightSpeed Size to Bind (FLSB) (page 4, Figure B) and is done by hand, using moderate force and without rotation. Note that the FLSB is only a **suggested size** to begin the process. Try to advance the suggested FLSB instrument to WL. If it goes to WL it means the entire canal is larger than this size. Try **sequentially** larger sizes until one binds prior to WL and therefore doesn't go to WL; (Fig. A, red arrows). This size is the **actual** FLSB (# 30) with which to begin mechanical instrumentation. If the **suggested** FLSB doesn't go to WL (binds) try **sequentially** smaller instruments until one **does** go to WL. The very next **larger** instrument (**doesn't** go to WL) is the **actual** FLSB with which to begin mechanical instrumentation.

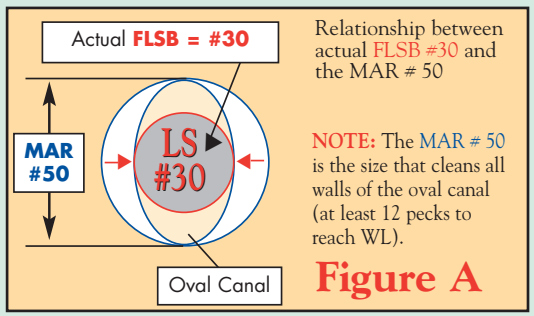


Figure A

Suggested First LightSpeed Size to Bind (FLSB)
Estimated Master Apical Rotary (MAR) Sizes

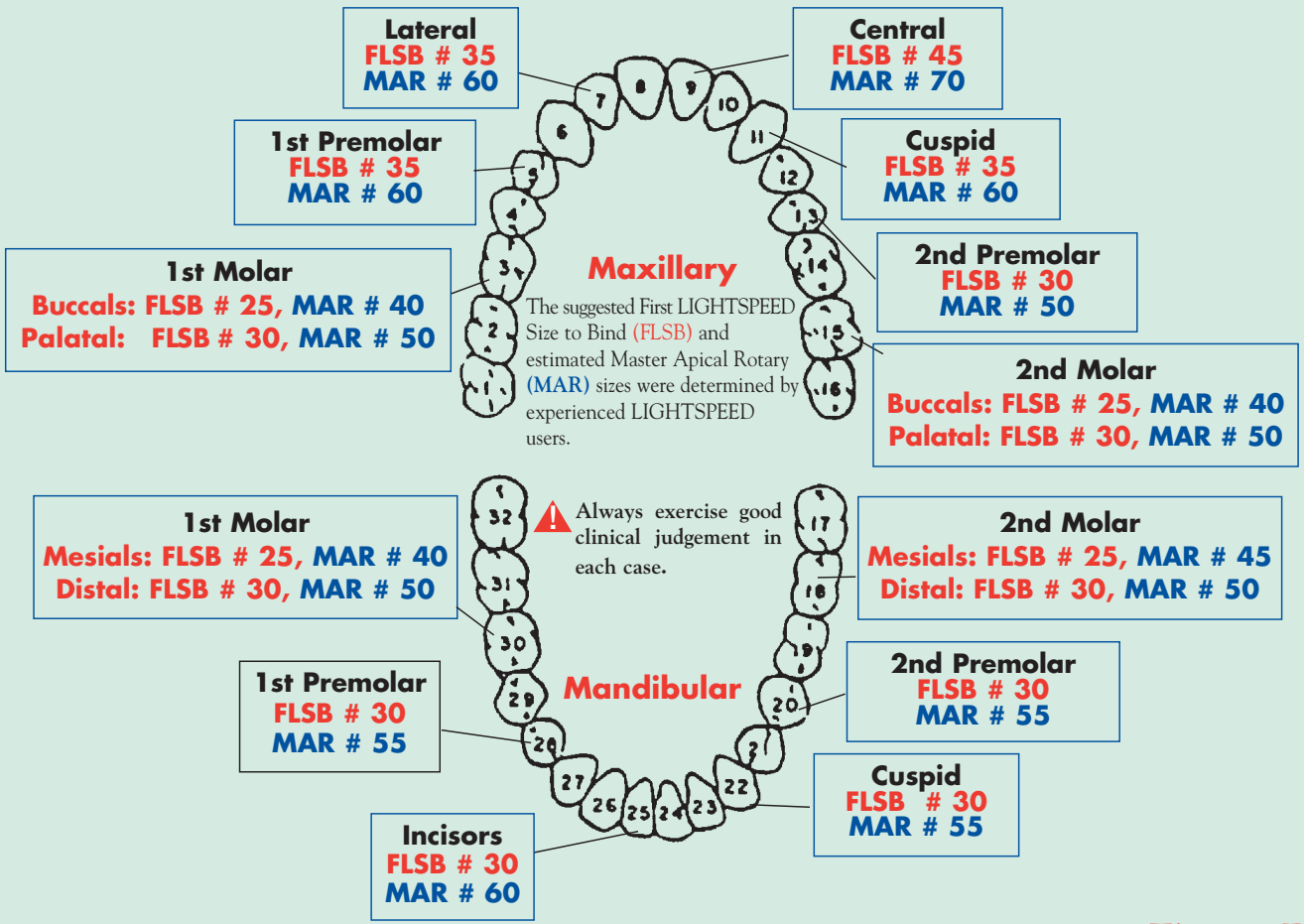
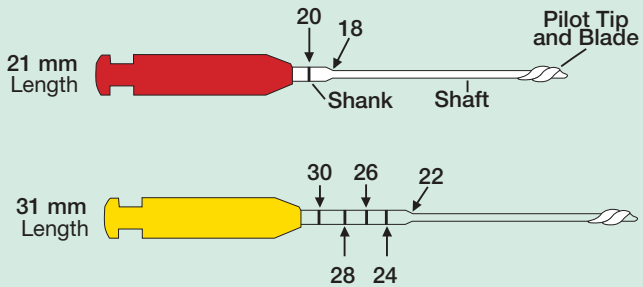
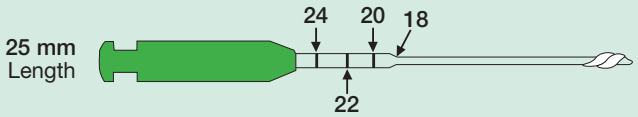


Figure B





Half-size instruments have a dot on end of handle (or ring on handle)

LIGHTSPEED®

Do

Do follow the Technique Guide

Do use the LightSpeed low torque, cordless handpiece. It reduces the chance of instrument separation

Do use a light touch at all times. Use a pecking motion with a light touch whenever resistance to advancement is felt

Do irrigate and flood canal and chamber after every third LightSpeed instrument (more often if desired). Sodium hypochlorite and a liquid form of EDTA is highly recommended

Do use a hand watch-winding motion to instrument severe curves

Do Not

Do not ever push hard or force LightSpeed instruments

Do not continuously advance LightSpeed when resistance binding is felt. Change to an intermittent (pecking) motion

Do not instrument in a dry or semi-dry canal

Do not exceed 2000 RPM

Do not overuse LightSpeed instruments. Use LS sizes below ISO 50 in no more than 8 teeth. LS sizes ISO 50 and larger should not be used in more than 16 teeth.

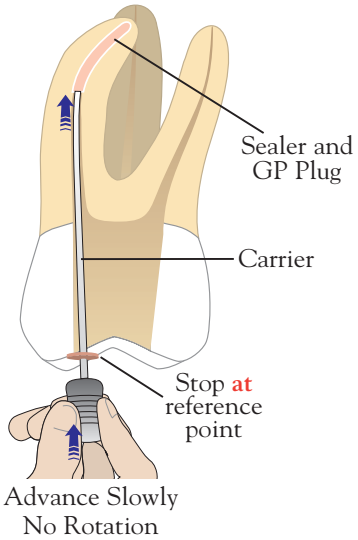
Do not use LightSpeed without rubber dam

When first learning SimpliFill, it is a good idea to begin by trial fitting the Apical GP Plug™. See page 6

Step 1

Place Apical GP Plug™ to WL

With a paper point or file, coat the apical part of the canal with a generous amount of sealer. Select a SimpliFill GP Plug (typically the same size as the MAR, see page 6) and set its rubber stop to WL. Coat Apical GP Plug with sealer, enter the canal and **slowly** advance the SimpliFill until the rubber stop is **at** the reference point (tip of GP Plug is at WL). Placing the GP Plug to WL may require a **firm push**.

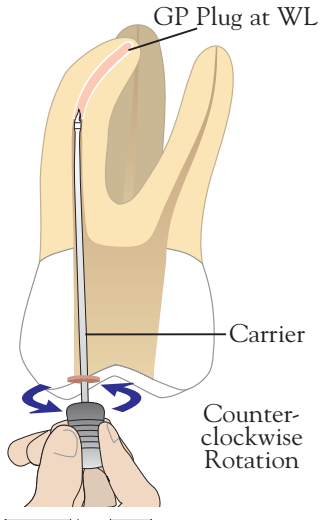


Step 2

Release GP Plug from Carrier

When the GP Plug is at WL (not before), quickly rotate the handle at least 4 complete counter-clockwise rotations to release the GP Plug. Obturation is now complete if a post will be used.

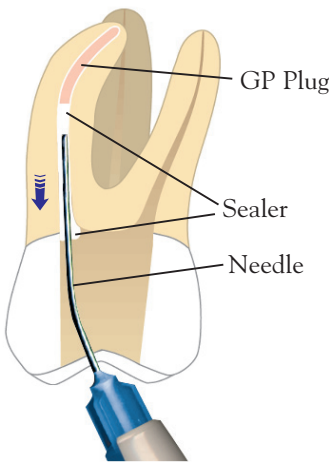
Note: If GP Plug does not release from Carrier, see page 6, Trial Fitting, Section A.



Step 3

Fill Remainder of Canal with Sealer

Advance the SimpliFill syringe needle in the canal until it contacts the GP Plug or binds in the canal. **Slowly** express the sealer until visible at the orifice. Continue expressing the sealer while withdrawing the needle from the canal.

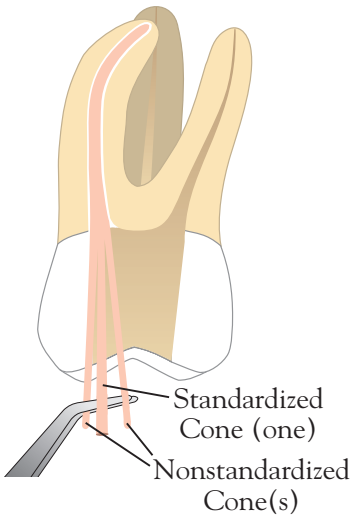


Step 4

Place Backfill Cone(s)

Advance a Standardized (ISO/ADA) gutta percha cone through the sealer until it **contacts** the GP Plug. The first cone (Standardized Cone) should be the same size as the Apical GP Plug. More cones (Nonstandardized) can be added if desired. All cones placed in the sealer are called **Backfill Cones.**

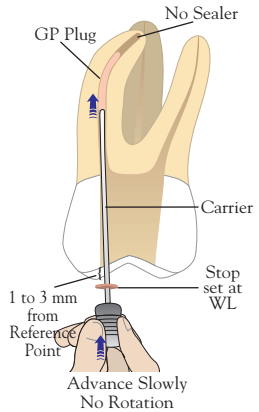
Note: Lateral or vertical condensation is optional (not necessary) if an epoxy resin sealer is used. The low viscosity of the sealer flows three-dimensionally.



Trial Fitting

Purpose

The purpose of trial fitting is to check that the SimpliFill GP Plug fits the apical preparation correctly.*Trial fit a GP Plug the same size as the MAR. Set the stop at WL. Do not use sealer. Enter the canal and without rotation **slowly** and **gently** advance the Carrier. **Stop** advancing **immediately** when feeling a **slight** snugness of the GP Plug. **Warning:** advancing beyond a slight snugness or rotating the Carrier may leave the GP Plug prematurely in the canal (GP Plug is easily removed with a Hedstrom file). Note how far the stop is from the reference point. If it is within 1 to 3 mm, the fit is correct. If the stop is less than 1 mm or more than 3 mm from the reference point, refer to A or B below.



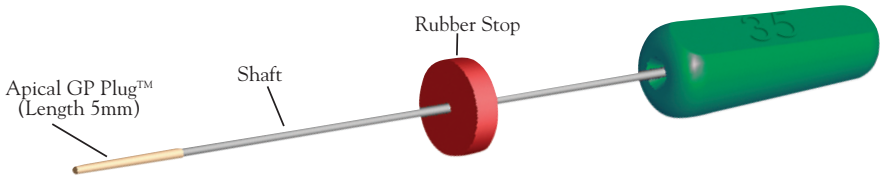
A. If the stop is less than 1 mm from the reference point, it means the GP Plug is too small for the preparation. Cut 1 mm from the tip of the Plug and trial fit again. With this adjustment the Plug usually trial fits correctly (rubber stop is 1-3 mm from reference point). If it is still too small (less than 1 mm from reference point), cut off another 1 mm and trial fit again. This should result in a correct fit and the Plug can be used for obturation. If not, try the next **larger** size SimpliFill. Do not use a GP Plug with more than 2 mm removed.

B. If the stop is more than 3 mm from the reference point, it means the GP Plug is too large for the preparation. Try the next smaller size GP Plug. If its stop is 1 to 3 mm from the reference point, the fit is correct. If its stop is less than 1 mm from the reference point, the GP Plug is too small. Refer to (A).

***Prior to Trial Fitting be sure that:**

- The apical preparation was done correctly (see pages 2 and 3)
- The canal is dry or semi-dry and free of debris
- The size of the Apical GP Plug is the same as the (MAR) Master Apical Rotary size. See page 2, Step 3. If the MAR is a half-size, trial fit the next **smaller** size GP Plug. Example: MAR = 42.5, trial fit a size 40 GP Plug
- The rubber stop is set at working length (WL)

SimpliFill®



Do

Do instrument canal using LightSpeed technique described on pages 2 and 3

Do sterilize the Apical GP Plug by submerging the Carrier and Plug in sodium hypochlorite for at least one minute

Do insert the syringe needle as far as possible into the canal when placing sealer. This eliminates air bubbles in the obturation

Do use a Backfill cone(s) to provide an easy path for a post or retreatment. The first Backfill Cone (Standardized) should be inserted into the canal until it contacts the top of the Apical GP Plug

Do use GP Plugs, Carriers and Needles only once. Discard Carriers and needles properly in a Sharps' type container

Do advance the GP Plug to WL slowly and without rotation

Do Not

Do not advance the GP Plug beyond the point of slight resistance when trial fitting. Doing so may leave it in the canal prematurely

Do not use SimpliFill if the canal is not properly prepared for it

Do not sterilize the GP Plug and Carrier with heat

Do not rotate the Carrier handle before the GP Plug has reached WL. After reaching WL rotate the Carrier counter clockwise to release the GP Plug

Do not twist the syringe needle. The needle may be bent if desired

Do not use SimpliFill without rubber dam