External Midface Distractor System.
Multiple pre-, intra-, and postoperative adjustments for vertical, horizontal, sagittal, and occlusal vector control.

Technique Guide
# Table of Contents

## Introduction
- External Midface Distractor System  2
- System Components  3
- Indications  6

## Surgical Technique
- Distractor Construct—LeFort I and LeFort II Advancements  7
- Application of Internal Hardware for LeFort I and LeFort II Procedures  8
- Distractor Construct—LeFort III and Monobloc Advancements  12
- Application of Internal Hardware for LeFort III and Monobloc Procedures  13
- Optional Technique for Intraoral Fixation—Intraoral Splint  18
- Application of External Hardware  19

## Product Information
- Postoperative Considerations  29
- Emergency Airway Access  33
- Device Removal  35
- Screw Identification  37
- Instruments  38
- Set List  40

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*Synthes CMF*
Features and Benefits
– Preassembled components for quick device assembly in the OR
– Internal hardware options for bone-borne fixation
– Headframe design for incremental medial/lateral (ML) and anterior/posterior (AP) adjustments
– Cranial pin location options for stability of headframe placement
– Self-drilling or conical-tipped titanium cranial pins for secure bone engagement
– Multiple pre-, intra-, and postoperative adjustments for vertical, horizontal, sagittal and occlusal vector control
– Lightweight aluminum, titanium, and carbon fiber components for patient comfort
System Components

Zygomatic footplate and wire fixation screw
- The zygomatic footplate and wire fixation screw (available in several lengths) are used for fixation to either the infraorbital or supraorbital rim.
- The wire fixation screw can be removed percutaneously after the consolidation phase, avoiding the need for a second surgery.

Maxillary footplate assembly
- The maxillary footplate assembly consists of a maxillary footplate, a machine screw, a wire fixation clamp, a maxillary rod, and a hex socket head cap screw.
- Several maxillary rod styles are available for customization to the patient’s anatomy.
- The maxillary footplate assembly is intended for use where tooth-borne fixation with an orthodontic splint is not desirable or possible.
- A second surgical procedure under local anesthesia is required to remove the maxillary footplate assembly.

Headframe assembly
- The headframe assembly attaches to the cranium, parallel to the level of the Frankfort horizontal plane.\(^*\)
- AP adjustments of the headframe assembly are possible by rotating the rear adjustment screw.
- ML adjustments of the headframe assembly are possible by rotating the central adjustment screw.

\(^*\) A reference plane passing through the tragus (projection of cartilage in front of the ear) and the infraorbital rim.
System Components continued

Cranial pins
– Positioning pins are used for initial placement of the headframe assembly on the skull.
– Conical-tipped mounting pins, available in two lengths, provide rigid fixation of the headframe assembly to the skull.
– Self-drilling mounting pins, available in two lengths, engage the skull by threading into the bone.

Vertical rod assembly
– The vertical rod assembly is available in non-angulating and angulating configurations.
– The vertical rod assembly can be placed anywhere along the central hub of the headframe to precisely align the vertical rod with the patient’s midline.
– The angulating vertical rod assembly allows postoperative adjustments to achieve three-dimensional control of the mobile segment.
– A shorter length carbon fiber rod is available to customize the vertical rod assembly to the patient’s anatomy.
**Horizontal rod assembly**
- The horizontal rod assembly is available with rigid clamps or swivel clamps.
- Swivel clamps allow postoperative adjustments to achieve three-dimensional control of the mobile segment.
- 40 mm distraction arms attach the horizontal rod assembly to the midface segment using stainless steel surgical wire.
- Alternative connecting bars are available to customize the horizontal rod assembly to the patient’s anatomy.

**Headframe adjustment instruments**
- Headframe adjustment instruments are available in two lengths.
- The headframe adjustment instruments can be used interchangeably based on surgeon preference.
The Synthes External Midface Distractor is intended for use in craniofacial surgery, reconstructive procedures, and selective orthognathic surgery of the maxilla. Specifically, it is intended for distraction of the maxilla utilizing a LeFort I osteotomy, the midface utilizing a LeFort II or III osteotomy, and/or the cranium utilizing a monobloc osteotomy in adult and pediatric populations where gradual bone distraction is required.
1. Headframe Assembly (390.100) (use 1)
2. Vertical Rod Assemblies (choose 1)
   – Non-angulating (390.102)
   – Angulating (390.104)
3. Horizontal Rod Assemblies (choose 1)
   – Rigid clamps (390.106)
   – Swivel clamps (390.108)
4. Wire Fixation Clamp (03.307.001) (use 2)
5. Titanium Maxillary Rods (choose 2)
   – 80 mm (04.307.008)
   – 80 mm, tall offset (04.307.108)
   – 110 mm (04.500.000)
   – 110 mm, tall offset (04.307.111)
6. 1.5 mm Titanium Cortex Screws, self-drilling, with PlusDrive recess (use a minimum of 6, 3 per footplate)
   – 5 mm (400.055)
   – 6 mm (400.056)
   – 8 mm (400.058)
7. Titanium Machine Screw (04.500.001) (use 2)
8. Titanium Maxillary Footplate (04.307.001) (use 2)
9. Titanium Mounting Pins
   (use a minimum of 6, 3 per side)
   – 40 mm (390.122)
   – 50 mm (390.124)
   – 40 mm, self-drilling (390.126)
   – 50 mm, self-drilling (390.128)
   – Titanium Positioning Pin, 40 mm (390.120) (use 2)*
   – 2.0 mm Titanium Emergency Screws, with PlusDrive recess*
     – 5 mm (400.275)
     – 6 mm (400.276)
     – 8 mm (400.278)

* Not shown above
1
**Make intraoral incision**

Make a maxillary vestibular incision. Elevate the periosteum to expose the maxilla.

2
**Mark osteotomy**

Mark the approximate site of the osteotomy.

3
**Fit maxillary footplate assemblies**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>347.964</td>
<td>Combination Bending Pliers</td>
</tr>
<tr>
<td>391.990</td>
<td>Plate and Rod Cutter</td>
</tr>
</tbody>
</table>

Build two maxillary footplate assemblies. Each assembly includes a maxillary footplate, a maxillary rod, a wire fixation clamp, a machine screw, and a socket head cap screw. (See page 7 for options.)

Contour the maxillary footplates to the maxilla using the combination bending pliers.

If necessary, remove excess screw holes using the plate and rod cutter to allow proper positioning on the maxilla.

**Notes:**

- The maxillary footplate is symmetrical for use on both sides of the patient’s face.
- Footplates should be placed in areas of maxillary alveoli of adequate bone thickness and above tooth buds and roots.
4

Contour maxillary rods

Instrument

329.18 Bending Pliers

Contour the maxillary rods using the bending pliers so that the rods protrude medial to the lip commissures and in a position that does not irritate the lips.

Notes:
Etched lines provide a visual guide to simplify the bending process. Bend the rods along the corresponding etched line to enable them to protrude through the lips parallel to the sagittal plane.

A torsional bend may be necessary to achieve the proper position.

Position the wire fixation clamps on the maxillary rods so that both screwheads are facing laterally.
5
Mark positions of maxillary footplates

<table>
<thead>
<tr>
<th>Instrument</th>
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<tbody>
<tr>
<td>311.005 Screwdriver Handle with Hex Coupling, small</td>
</tr>
<tr>
<td>313.253 1.5 mm/2.0 mm Screwdriver Blade</td>
</tr>
</tbody>
</table>

Mark the positions of the maxillary footplates before making the osteotomy by inserting two appropriate length screws through each footplate using the 1.5 mm/2.0 mm screwdriver blade. Do not fully tighten the screws.

6
Perform osteotomy

Unscrew and remove the maxillary footplate assemblies. Perform the LeFort I or LeFort II osteotomy and ensure that the maxilla is completely mobilized.
7
Reattach maxillary footplate assemblies

Reattach the maxillary footplates to the bone using the proper length screws.

Notes:
At least three screws should be inserted through each footplate to ensure adequate stability.

For maximum stability, screws should be inserted into the screw holes closest to the maxillary rod.

8
Close incisions

Refer to page 19 for application of the external hardware.
1. Headframe Assembly (390.100) (use 1)
2. Vertical Rod Assemblies (choose 1)
   - Non-angulating (390.102)
   - Angulating (390.104)
3. Horizontal Rod Assemblies (choose 2)
   - Rigid clamps (390.106)
   - Swivel clamps (390.108)
4. Titanium Wire Fixation Screws, self-drilling (choose 2)
   - 15 mm (400.996)
   - 21 mm (400.997)
   - 27 mm (04.500.002)
5. Wire Fixation Clamp (03.307.001) (use 2)
6. Titanium Maxillary Rods (choose 2)
   - 80 mm (04.307.008)
   - 80 mm, tall offset (04.307.108)
   - 110 mm (04.500.000)
   - 110 mm, tall offset (04.307.111)
7. Titanium Maxillary Footplate (04.307.001) (use 2)
8. Titanium Machine Screw (04.500.001) (use 2)
9. Titanium Zygomatic Footplate (447.007) (use 2)
10. 1.5 mm Titanium Cortex Screws, self-drilling, with
    PlusDrive recess (use a minimum of 10, 3 per maxillary
    footplate and 2 per zygomatic footplate)
    - 5 mm (400.055)
    - 6 mm (400.056)
    - 8 mm (400.058)
11. Titanium Mounting Pins (use a minimum of 6, 3 per side)
    - 40 mm (390.122)
    - 50 mm (390.124)
    - 40 mm, self-drilling (390.126)
    - 50 mm, self-drilling (390.128)
    - Titanium Positioning Pin, 40 mm (390.120) (use 2)*
    - 2.0 mm Titanium Emergency Screws, with PlusDrive recess*
      - 5 mm (400.275)
      - 6 mm (400.276)
      - 8 mm (400.278)

* Not shown above
1
**Make incisions**

Make incisions and elevate the periosteum to expose the maxilla and the midface.

2
**Mark osteotomy**

Mark the approximate site of the osteotomy.

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**Fit maxillary footplate assemblies**

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Build two maxillary footplate assemblies. Each assembly includes a maxillary footplate, a maxillary rod, a wire fixation clamp, a machine screw, and a socket head cap screw. (See page 12 for options.)

Contour the maxillary footplates to the maxilla using the combination bending pliers.

If necessary, remove excess screw holes using the plate and rod cutter to allow proper positioning on the maxilla.

**Notes:**
The maxillary footplate is symmetrical for use on both sides of the patient’s face.

Footplates should be placed in areas of maxillary alveoli of adequate bone thickness and above tooth buds and roots.
4

Contour maxillary rods

Instrument

329.18 Bending Pliers

Contour the maxillary rods using the bending pliers so that the rods protrude medial to the lip commissures and in a position that does not irritate the lips.

Notes:
Etched lines provide a visual guide to simplify the bending process. Bend the rods along the corresponding etched line to enable them to protrude through the lips parallel to the sagittal plane.

A torsional bend may be necessary to achieve the proper position.

Position the wire fixation clamps on the maxillary rods so that both screwheads are facing laterally.
5 Mark positions of maxillary footplates

Instrument

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<td>1.5 mm/2.0 mm Screwdriver Blade</td>
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</table>

Mark the positions of the maxillary footplates before making the osteotomy by inserting two appropriate length screws through each footplate, using the 1.5 mm/2.0 mm screwdriver blade. Do not fully tighten the screws.

6 Remove maxillary footplate assemblies

Unscrew and remove the maxillary footplate assemblies.
Perform osteotomy

Perform the LeFort III or monobloc osteotomy and ensure that the midface is completely mobilized.

**Note:** The zygomatic footplates do not need to be removed to perform the LeFort III or monobloc osteotomy.
9
Reattach maxillary footplate assemblies

Reattach the maxillary footplates to the bone using the proper length screws.

Notes:
At least three screws should be inserted through each footplate to ensure adequate stability.

For maximum stability, screws should be inserted into the screw holes closest to the maxillary rod.

10
Insert wire fixation screws

Instruments

314.651 1.5 mm Cruciform Screwdriver Blade with Spring Holding Sleeve, short, hex coupling

Tent the skin and insert the wire fixation screws through small stab incisions in the soft tissue.

Engage each wire fixation screw with the threaded screw hole in the center of the zygomatic footplate.

Note: The wire fixation screw will thread into the footplate and the bone.

11
Close all incisions

Refer to page 19 for application of the external hardware.
In order to apply traction to the maxilla through the dentition, a rigid intraoral splint can be created to fit the patient.

1. Fit orthodontic bands with .05 inch headgear tubes to the patient’s second primary molars (under 6 years of age), or first primary molars (over 6 years of age).

2. Make an impression of the patient’s maxillary arch.

3. Fabricate a splint on a working model.

4. If the patient does not have orthodontic brackets, bend the labial and palatal wires so they are in close contact with most of the maxillary teeth.
   
   or
   
   If the patient has orthodontic brackets, bend the labial wire outward to clear the appliances.

5. Place the rigid splint in the patient’s mouth to ensure an adequate fit and mark the labial wire medial to the lip commissure.

6. Remove the splint from the patient’s mouth and solder two .06 inch rigid stainless steel orthodontic wires perpendicular to the labial wire. These vertical wires will serve as the external traction hooks.

7. Bend the ends of the vertical wire in a circle to form eyelets that will serve as the location to attach the splint to the distraction arms. Position the eyelets level with the floor of the nose or any other desired position to control rotational movements of the maxilla.

8. Cement the splint in the patient’s mouth either in the clinical setting or at the time of surgery.

**Warning:** Tooth movement may affect treatment outcomes and should be carefully considered when using an intraoral splint.
1
Insert positioning pins
Thread one positioning pin through the mounting plate on the headframe assembly until the thread of the pin begins to show on the medial side of the headframe.

Repeat on contralateral side.

2
Unlock headframe assembly for adjustment

<table>
<thead>
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</tr>
</tbody>
</table>

Loosen the two headframe lock screws using a headframe adjustment instrument.
3  
**Place headframe on skull**

**Instruments**

| 314.407 | Headframe Adjustment Instrument, 72 mm |
| 314.408 | Headframe Adjustment Instrument, 209 mm |

Place the headframe assembly with positioning pins in the mounting plates over the patient's head.

Insert a headframe adjustment instrument into either side of the headframe assembly to engage the central adjustment screw. Rotate the instrument in the opposite direction of the arrow marked “OPEN” on the side of the headframe to close the headframe and positioning pins against the skull. The headframe should be placed at a position that is parallel to the Frankfort horizontal plane and at a vertical distance 2 cm above each ear.

If necessary, rotate the rear adjustment screw, using a headframe adjustment instrument, until there is a gap of approximately 2 cm between the forehead and the headframe.

**Note:** A gap of approximately 2 cm between the scalp and the headframe assembly is recommended on all sides for easy access for cleaning. Once this is achieved, the device is appropriately sized for the patient.

4  
**Tighten headframe lock screws**

Once the proper position has been attained, tighten the headframe lock screws.
5

Insert titanium mounting pins

Thread at least three mounting pins through each mounting plate on the headframe assembly. Insert each mounting pin until it contacts the bone, but do not fully tighten. Remove positioning pins after inserting at least two mounting pins on each side, as positioning pins are not designed for permanent fixation. Tighten the mounting pins using a headframe adjustment instrument in a symmetrical manner and at regular intervals until they are finger-tight.

Notes:
Mounting pins can be inserted in the mounting plates in a radial or a linear pattern.

There are multiple mounting pin types and sizes available.

Warnings:
Mounting pins should be inserted in areas with hard cortical bone at least 4 mm thick.

Overtightening the mounting pins or placement of pins in thin bone may cause bone fractures or dural penetration.

At least three mounting pins should be placed in each mounting plate before tightening the pins, to ensure equal force distribution.

Reminder: Mounting pins should be placed at least 2 cm above the ear.
6
Attach vertical rod assembly

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</table>

Select either the angulating or non-angulating vertical rod assembly depending on the need for AP and/or transverse adjustments.

Use a headframe adjustment instrument to loosen the set screw on the vertical rod assembly until it is flush with the underside. Slide the vertical rod assembly along the dovetail of the central hub on the headframe assembly.

Align the vertical carbon fiber rod with the patient’s midline and fully tighten the set screw.
7

Adjust vertical rod

Raise the carbon fiber rod by loosening the appropriate set screw to provide access to the patient’s mouth for eating and drinking.

Note: The carbon fiber rod can be replaced with a shorter length rod for smaller patients.
7

Adjust vertical rod continued

For angulating vertical rod assembly
Use a headframe adjustment instrument to adjust the angulating vertical rod assembly.

AP adjustments
To make AP adjustments, unlock the A-P lock screw.

Adjust the gold-colored screw that is etched “A-P” on the top of the angulating vertical rod assembly.

The angulating vertical rod assembly can be angled 50° anteriorly and 30° posteriorly. One full rotation equals 7.2° of AP movement. Fully tighten the A-P lock screw after completing the adjustments.
**Transverse adjustments**
To make transverse adjustments, unlock the R-L lock screw.

Adjust the gold-colored screw that is etched “R-L” on the side of the angulating vertical rod assembly.

The device can be angled up to 30° in either direction. One full rotation equals 7.2° of transverse movement. Fully tighten the R-L lock screw after completing adjustments.
Attach horizontal rod assembly

Instruments

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</table>

Depending on the necessary vectors of advancement, select the horizontal rod assembly with swivel clamps or rigid clamps. Use one horizontal rod assembly for LeFort I and LeFort II procedures, or two horizontal rod assemblies for LeFort III and monobloc procedures.

**Note:** If present, remove the packaging pin from the central clamp on the horizontal rod assembly by loosening the appropriate set screw.

Loosen the appropriate set screw on the central clamp of the horizontal rod assembly and slide it onto the vertical carbon fiber rod. For LeFort I and LeFort II procedures, bring the horizontal rod assembly to the level of the maxillary footplate.

For LeFort III and monobloc procedures, bring the first horizontal rod assembly to the level of the zygomatic footplates and the second to the level of the maxillary footplates.

Once the assembly/assemblies are in the desired position(s), fully tighten the set screw(s) onto the carbon fiber rod.
**9 Position distraction arms**

Adjust each rod clamp by loosening the set screw and sliding the rod clamp along the horizontal rod.

Distraction arms can be angled on the horizontal rod assembly for superior/inferior advancements.

If necessary, the rod clamps can be removed and inverted on the horizontal rod to accommodate the patient's anatomy.

Once the rod clamp is in the desired position, fully tighten the set screw.

**Note:** The horizontal rod can be replaced with different length connecting bars to accommodate patient anatomy.

**For horizontal rod assembly with swivel clamps**

The horizontal rod assembly with swivel clamps allows individual transverse plane adjustments of the distraction arms. Using a headframe adjustment instrument, loosen the appropriate set screw on each swivel clamp to release the vector. Adjust the angle of each distraction arm in the transverse plane. Retighten the set screw to lock the vector.
10
**Perform final adjustments, if necessary**

Adjust the device to ensure a comfortable fit with easy access to the distraction arms and A-P and R-L lock screws.

Cut the maxillary rods and adjust the position of the wire fixation clamps on the maxillary rods. Protective caps are available to place on the ends of the maxillary rods.

11
**Attach wire**

Thread prestretched 24 or 26 gauge stainless steel surgical wire through the holes in the internal hardware to the holes in the distraction arms.

**Reminder:** The position of each wire fixation clamp can be adjusted along the maxillary rod by using a headframe adjustment instrument.

Twist the wire until there is enough tension to stabilize the osteotomized bone. Trim any excess wire, taking care not to leave any exposed sharp edges.
Postoperative Considerations

Suggested distraction protocol

Instrument

| 314.406 | Activation Instrument, 5.5 mm hex |

It is recommended to begin active distraction three to five days after device placement. To advance, place the activation instrument over each distraction arm, taking care to engage the linear activation nut, and rotate clockwise (in the direction of the arrow marked on the instrument). Each complete rotation equals 0.5 mm of linear movement.

**Note:** A minimum of 1.0 mm of linear advancement per day (one turn twice daily) is recommended to prevent premature consolidation. In young patients, a rate of 1.5 mm to 2.0 mm per day may be considered (one turn three or four times a day).

**Technique tip:** Distraction arms are capable of 40 mm of distraction. Advancements greater than 40 mm can be achieved by repositioning the distraction arms and shortening the surgical wires.

Document progress

Distraction progress should be observed by documenting the movement of the midface at the appropriate levels. A Patient Care Guide is included with the system to help record and monitor distraction progress.
**Postoperative vector adjustments**

**Instruments**

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**For horizontal rod assembly**

Transverse adjustments of each distraction arm may be performed at any time during the distraction phase, using a headframe adjustment instrument.

Individual vectors can be adjusted by loosening the appropriate set screw on each clamp, and repositioning the distraction arm along the horizontal rod. Retighten the set screw to lock the clamp in position.

If the horizontal rod assembly with swivel clamps was used, loosen the appropriate set screw on each clamp and adjust the angle of each distraction arm in the transverse plane. Retighten the set screw to lock the vector.
For angulating vertical rod assembly
If the angulating vertical rod assembly was used, AP and transverse adjustments may be performed at any time during the distraction phase, using a headframe adjustment instrument.

AP adjustments
To make AP adjustments, unlock the A-P lock screw.

Adjust the gold-colored screw that is etched “A-P” on the top of the angulating vertical rod assembly. The device may be angled 50° anteriorly and 30° posteriorly. One full rotation equals 7.2° of AP movement. Fully tighten the A-P lock screw after completing adjustments.
Postoperative vector adjustments continued

Transverse adjustments
To make transverse adjustments, unlock the R-L lock screw. Adjust the gold-colored screw that is etched “R-L” on the side of the angulating vertical rod assembly. The device can be angled up to 30° in either direction. One full rotation equals 7.2° of transverse movement. Fully tighten the R-L lock screw after completing adjustments.

Notes:
It is important to tension all wires after changing the vector of advancement. This will ensure that movement of the midface is not disrupted.

Only small incremental adjustments should be made to the vertical rod assembly, as they will result in pronounced movements of the mobile bone segment.
Patient care

Cranial pins may need to be tightened 24 hours postoperatively and at regular intervals to maintain headframe stability. Pin sites should be cleaned twice per day with hydrogen peroxide. A normal routine of shampooing the hair and regular scalp hygiene is recommended. It is also recommended that the patient lie on his or her back while sleeping, to prevent discomfort or disruption of the distraction process.

Notes:
Keeping the hair short during the distraction and consolidation phases will be beneficial and enhance patient comfort.

It is recommended that surgeons keep one headframe adjustment instrument readily accessible for postoperative adjustments.

Warning: Patients should be advised to avoid high risk activities, as serious injury can occur if the patient falls on the device.

Emergency airway access

Instruments

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In instances where emergency intubation is necessary, the device can be removed quickly using wire cutters and a headframe adjustment instrument.

1

Remove wires

Cut the stainless steel surgical wires which attach the distraction arms to the midface.
Emergency airway access continued

2
Detach vertical carbon fiber rod

Using a headframe adjustment instrument, loosen the appropriate set screw on the vertical rod assembly.

Detach the carbon fiber rod from the headframe assembly by pulling the rod downward.

Consolidation

After the desired advancement has been achieved, the new bone must be given time to consolidate. The consolidation period should be approximately six to eight weeks. This time period may vary in relation to the patient's age. Adequate bone consolidation can be confirmed by manually verifying midface stability.

Note: An optional consolidation technique is to remove the entire device early in the consolidation phase and place Synthes orthognathic plates and screws over the distraction gap. At this time, special consideration can be given to the occlusion, and the maxilla or midface can be adjusted to maximize the dental interdigitation with the mandibular teeth.
1

**Remove wires**

Using wire cutters, cut the stainless steel wires that attach the distraction arms to the midface.

2

**Remove headframe assembly**

**Instruments**

| 314.407  | Headframe Adjustment Instrument, 72 mm |
| 314.408  | Headframe Adjustment Instrument, 209 mm |

Loosen each mounting pin individually with a headframe adjustment instrument until the headframe assembly disengages from the skull.

**Note:** If only conical-tipped mounting pins were used, it is possible to remove the headframe assembly without loosening each pin. Instead, unlock the headframe lock screws with a headframe adjustment instrument and turn the central adjustment screw in the direction marked “OPEN” until the device separates from the skull.
### 3

**Remove intraoral/internal fixation**

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<td>313.253</td>
<td>1.5 mm/2.0 mm Screwdriver Blade, self-retaining, PlusDrive, hex coupling, 76 mm</td>
</tr>
<tr>
<td>314.651</td>
<td>1.5 mm Cruciform Screwdriver Blade with Spring Holding Sleeve</td>
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If the maxillary footplate assemblies were used, it will be necessary to make a maxillary vestibular incision to remove the bone screws and the footplates.

For LeFort III and monobloc procedures, remove the wire fixation screws using the 1.5 mm cruciform screwdriver blade with spring holding sleeve. It is not necessary to remove the zygomatic footplates.
Screw Identification

The headframe, vertical rod, and horizontal rod assemblies contain multiple cap screws and set screws. The diagram below indicates the type of screw used in each assembly.

**Note:** Cap screws or set screws may become loose during shipping, and may need to be loosened for sterilization. Extra screws are provided in the module, in the event that replacements are needed.
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<td>314.406</td>
<td>Activation Instrument, 5.5 mm hex</td>
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<td>Headframe Adjustment Instrument, 72 mm</td>
</tr>
<tr>
<td>314.408</td>
<td>Headframe Adjustment Instrument, 209 mm</td>
</tr>
<tr>
<td>314.651</td>
<td>1.5 mm Cruciform Screwdriver Blade with Spring Holding Sleeve, short, hex coupling</td>
</tr>
<tr>
<td>317.18</td>
<td>1.1 mm Drill Bit, Stryker J-latch, with 8 mm stop, 44.5 mm</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>329.18</td>
<td>Bending Pliers</td>
</tr>
<tr>
<td>347.964</td>
<td>Combination Bending Pliers</td>
</tr>
<tr>
<td>391.990</td>
<td>Plate and Rod Cutter</td>
</tr>
<tr>
<td>392.18</td>
<td>Protective Caps</td>
</tr>
</tbody>
</table>
**External Midface Distractor Set (115.660)**

### Graphic Cases
- 304.754 Graphic Case for External Midface Distractor System
- 304.756 Implant Module

### External Hardware
- 390.100 Headframe Assembly, 2 ea.
- 390.102 Vertical Rod Assembly, non-angulating
- 390.104 Vertical Rod Assembly, angulating
- 390.106 Horizontal Rod Assembly, with rigid clamps, 2 ea.
- 390.108 Horizontal Rod Assembly, with swivel clamps, 2 ea.

### Cranial Pins
- 390.120 Titanium Positioning Pin, 40 mm, 4 ea.
- Titanium Mounting Pins
  - 390.122 40 mm, 8 ea.
  - 390.124 50 mm, 10 ea.
- 390.126 Self-drilling, 40 mm, 8 ea.
- 390.128 Self-drilling, 50 mm, 10 ea.

### Cap and Set Screws
- 390.130 Hex Socket Head Cap Screw, 5 mm, 10 ea.
- Hex Socket Set Screws, 6 ea.
- 390.131 Flat point, 4 mm
- 390.132 Cone point, 5 mm
- 390.133 Dog point, 6 mm

### Internal Hardware
- 03.307.001 Wire Fixation Clamp, 4 ea.
- Titanium Wire Fixation Screws, self-drilling, 4 ea.
- 400.996 15 mm
- 400.997 21 mm
- 04.500.002 27 mm
- 04.307.001 Titanium Maxillary Footplate, 40 mm, 4 ea.
- 04.500.001 Titanium Machine Screw, 8 ea.
- Titanium Maxillary Rods, 4 ea.
- 04.307.008 80 mm
- 04.500.000 110 mm
- 04.307.108 Tall offset, 80 mm
- 447.007 Titanium Zygomatic Footplate, 3 holes, 4 ea.

*Note: For additional information, please refer to package insert.*
### Internal Hardware continued

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 mm Titanium Cortex Screw, self-drilling, with PlusDrive recess, 5/pkg., 3 pkgs. ea.</td>
<td></td>
</tr>
<tr>
<td>400.055</td>
<td>5 mm</td>
</tr>
<tr>
<td>400.056</td>
<td>6 mm</td>
</tr>
<tr>
<td>400.058</td>
<td>8 mm</td>
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<tr>
<td>400.275</td>
<td>2.0 mm Titanium Emergency Screw, with PlusDrive recess, 5/pkg., 1 pkg. ea.</td>
</tr>
<tr>
<td></td>
<td>5 mm</td>
</tr>
<tr>
<td>400.276</td>
<td>6 mm</td>
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<tr>
<td>400.278</td>
<td>8 mm</td>
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</tbody>
</table>

### Instruments

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>311.005</td>
<td>Screwdriver Handle with Hex Coupling, small, 2 ea.</td>
</tr>
<tr>
<td>313.253</td>
<td>1.5 mm/2.0 mm Screwdriver Blade, self-retaining, PlusDrive, hex coupling, 76 mm, 2 ea.</td>
</tr>
<tr>
<td>314.406</td>
<td>Activation Instrument, 5.5 mm hex, 2 ea.</td>
</tr>
<tr>
<td></td>
<td>Headframe Adjustment Instruments, 2 ea.</td>
</tr>
<tr>
<td>314.407</td>
<td>72 mm</td>
</tr>
<tr>
<td>314.408</td>
<td>209 mm</td>
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</tr>
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<td>Bending Pliers, 2 ea.</td>
</tr>
<tr>
<td>347.964</td>
<td>Combination Bending Pliers, 2 ea.</td>
</tr>
<tr>
<td>391.990</td>
<td>Plate and Rod Cutter</td>
</tr>
<tr>
<td>392.18</td>
<td>Protective Caps, 1 pkg. of 10</td>
</tr>
<tr>
<td></td>
<td>Screw Length Markers, for self-drilling screws, 3 ea.</td>
</tr>
<tr>
<td>304.105W</td>
<td>5 mm</td>
</tr>
<tr>
<td>304.106W</td>
<td>6 mm</td>
</tr>
<tr>
<td>304.108W</td>
<td>8 mm</td>
</tr>
</tbody>
</table>

### Also Available

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>03.307.010</td>
<td>Carbon Fiber Rod, notched, 100 mm</td>
</tr>
<tr>
<td>03.307.105</td>
<td>Connecting Bar, 50 mm</td>
</tr>
<tr>
<td>03.307.112</td>
<td>Connecting Bar, 120 mm</td>
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<tr>
<td>04.307.111</td>
<td>Titanium Maxillary Rod, tall offset, 110 mm</td>
</tr>
</tbody>
</table>