

QTP4Y0X2-1
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DENTAL LABORATORY SPECIALTY

Volume 1. General Dental Laboratory Experience



381st Training Squadron
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Qualification Training

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Volume 1, *General Dental Laboratory Experience*, Qualification Training Package (QTP) contains modules on use of infection control protocols, constructing casts and custom trays, mounting casts and repairing prostheses. This QTP is designed to enhance 5 skill-level on-the-job training (OJT) of dental laboratory personnel. Training references listed in each module may be used to compliment training. All QTPs are intended to be used by trainees, trainers, supervisors, and task certifiers. Before initiating any training you should review your responsibilities as a supervisor/trainer for conducting OJT per AFI 36-2651, Chapter 6, *Air Force On-The-Job Training Administration*.

QTPs are instructional packages designed to help you conduct and evaluate your field training. Once you begin upgrade training, you are required to use the QTPs. QTPs provide continuity to the trainee's upgrade training and are divided into the following volumes: 1) *General Dental Laboratory Experience*; 2) *Fixed Prosthodontics*; 3) *Treatment and Orthodontic Appliances, Complete and Removable Dental Prostheses*; and 4) *Dental Laboratory Administration*. The QTP modules were designed to assist you in preparing for and conducting training. Each module segments the major tasks into teachable elements. Your goal is to provide enough training and guidance so trainees can do all task related steps, without assistance and produce an appliance or prosthesis that meets local requirements and fabrication standards for speed and accuracy. QTPs also aid OJT task certifiers in evaluating the trainee's demonstrated performance. **If you have local training requirements not covered by a QTP module you should develop "steps in performance" and "performance checklists" that support and standardize those tasks.**

When you are satisfied the trainee meets standards, as prescribed in the QTP performance checklist, you must document each task completion in the QTP tab. If a person is being recertified on a task that is supported by a QTP, you must use that module to complete the recertification process.

Typically, you will manage each module by first, training the tasks and then, evaluating performance. **Your local steps in performance may vary from the method listed in the QTP module. If this is the case, you are authorized to make changes to the first half of each module, (i.e. steps in task performance); however, the "performance checklist" is considered a standard and cannot be altered.** You may train each QTP volume/module in any sequence; however, when conducting training use an organized and methodical approach. This will reduce your training time and enhance your efforts.

For effective use of this QTP, conduct training in the following manner:

1. Review the procedures in each module with the trainee.
2. Direct the trainee to review the training references listed to prepare for task performance.
3. Review the steps in task performance with the trainee, allowing enough time to adequately train each step (some modules may take longer to teach).
4. Evaluate the trainee's work at each critical step using the performance checklist
5. Evaluate the trainee's performance and provide feedback on any area for improvement.
6. Finally, when the trainee has successfully completed the task you must document the STS. If the trainee does not accomplish the module, conduct follow-up instruction until the trainee successfully completes the task.

The QTP project goal of the 381st Training Squadron, Joint Base San Antonio-Fort Sam Houston TX, is to publish a useable document for trainers and trainees. **You are encouraged to write-in changes or revisions to the QTPs. A corrections/improvements form is located on the last page of each QTP volume.** You may choose to call in your recommendations to DSN/Commercial 420-1950 or (210) 808-1950 or email the author at emily.e.jones.mil@mail.mil.

The inclusion of names of any specific commercial product, commodity, or service in this publication is for informational purposes only and does not imply endorsement by the Air Force.

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MODULE 1: APPLY INFECTION CONTROL PROTOCOL

STS TASK REFERENCE(S):

2.6 Apply infection control protocol

TRAINING REFERENCE(S):

AFI 44-108, *Infection Prevention and Control Program*

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*

CDC Z4Y052, Vol. 1, *Safety, Management, and Administration*

USAF Guideline for Infection Prevention and Control in Dentistry, (Current edition)

EVALUATION INSTRUCTIONS:

After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Disinfectant

Personal Protective Equipment (PPE)

STEPS IN TASK PERFORMANCE:

1. Before working on laboratory items; clean, disinfect, and rinse all dental prostheses, prosthodontic materials and case pans by using an EPA registered hospital disinfectant having at least an intermediate level activity
2. Use PPE when handling laboratory items until they have been disinfected (e.g., impressions, occlusal records, wax bite rims)
3. Place all disinfected laboratory items (e.g., casts, occlusal records, etc.) in a designated “clean area”
4. Prior to reuse, clean and disinfect any items (e.g., rag wheels, burs, and lathes) that were used on appliances previously worn by the patient; even if the appliance had already been disinfected
5. Any laboratory items (e.g., burs, polishing points, rag wheels, laboratory knives) that are used on contaminated or potentially contaminated appliances, prostheses, or other materials, should be cleaned and heat sterilized between cases
6. Clean and disinfect countertops and lab benches when visibly soiled and at the end of each day

MODULE 1: APPLY INFECTION CONTROL PROTOCOL

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to use infection control practices and satisfactorily perform all parts of the task without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

APPLY INFECTION CONTROL PROTOCOL		
DID THE TRAINEE...?	YES	NO
1. Wear proper PPE when handling laboratory items not yet disinfected		
2. Use appropriate disinfectant to disinfect laboratory items (impressions, occlusal records etc...)		
3. Place all disinfectant laboratory items in a designated "clean area"		
4. Disinfect countertops and lab benches daily		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 2: IDENTIFY ANATOMIC LANDMARKS - IMPRESSIONS

STS TASK REFERENCE(S):

2.8.1 Impressions

TRAINING REFERENCE(S):

AFI 44-108, *Infection Prevention and Control Program*

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*

CDC Z4Y052, Vol. 3, *General Laboratory Procedures and Orthodontic Appliances*

USAF Guideline for Infection Prevention and Control in Dentistry, (Current edition)

EVALUATION INSTRUCTIONS:

Demonstrate how to identify anatomic landmarks on impressions. Stress that the failure to understand the position and function of landmarks can result in an appliance that has poor retention and causes tissue damage and pain to the patient. After ensuring the trainee has received sufficient practice, evaluate their abilities using the performance checklist.

PERFORMANCE RESOURCES:

Disinfectant Solution

Maxillary and Mandibular Impression

STEPS IN TASK PERFORMANCE:

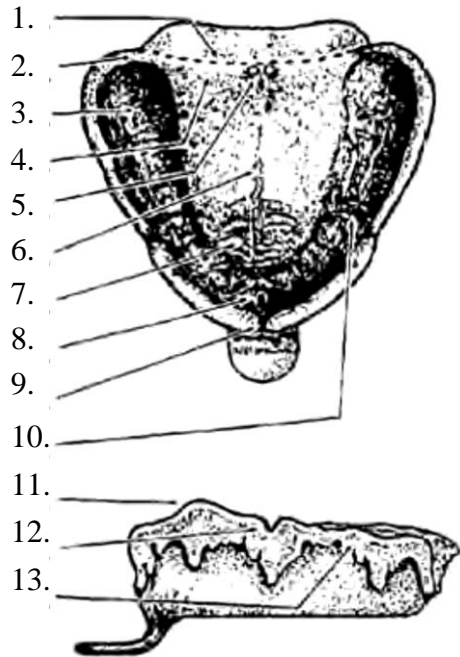
1. Disinfect impression IAW manufacturer's guidelines
2. Inspect impressions for defects
3. Locate landmarks in maxillary impression (figure 1-1.)
 - a. Vibrating Line
 - b. Hamular Notch
 - c. Tubercle Fossa
 - d. Posterior Palatal Seal
 - e. Palatine Fovea
 - f. Palatine Raphe
 - g. Rugae
 - h. Incisive Papilla
 - i. Labial Notch
 - j. Residual Ridge
 - k. Labial Flange
 - l. Buccal Notch
 - m. Buccal Flange
4. Locate landmarks in mandibular impression (figure 1-2.)
 - a. Retromolar Fossa
 - b. Retromylohyoid Eminence
 - c. Buccal Flange
 - d. Lingual Flange
 - e. Lingual Notch
 - f. Labial Notch
 - g. Residual Ridge

MODULE 2: IDENTIFY ANATOMIC LANDMARKS - IMPRESSIONS

STEPS IN TASK PERFORMANCE (CONTINUED):

- h. Buccal Notch
- i. Labial Flange

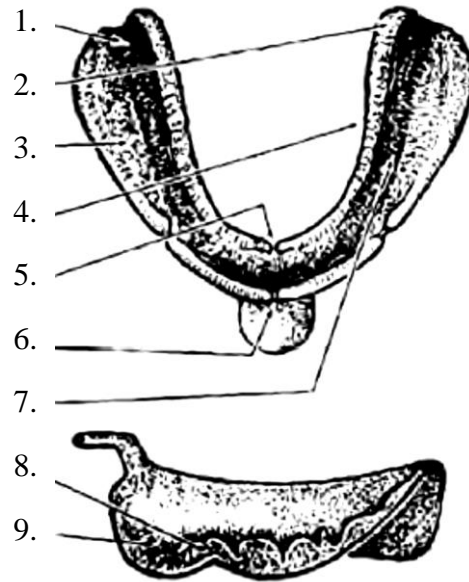
MAXILLARY IMPRESSION



- 1. Vibrating Line
- 2. Hamular Notch
- 3. Tubercle Fossa
- 4. Posterior Palatal Seal
- 5. Palatine Fovea
- 6. Palatine Raphe
- 7. Rugae
- 8. Incisive Papilla
- 9. Labial Notch
- 10. Residual Ridge
- 11. Labial Flange
- 12. Buccal Notch
- 13. Buccal Flange

Figure 1-1.

MANDIBULAR IMPRESSION



- 1. Retromolar Fossa
- 2. Retromylohyoid Eminence
- 3. Buccal Flange
- 4. Lingual Flange
- 5. Lingual Notch
- 6. Labial Notch
- 7. Residual Ridge
- 8. Buccal Notch
- 9. Labial Flange

Figure 1-2.

MODULE 2: IDENTIFY ANATOMIC LANDMARKS - IMPRESSIONS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to satisfactorily identify anatomic landmarks on impressions. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

IDENTIFY ANATOMIC LANDMARKS - IMPRESSIONS		
DID THE TRAINEE...?	YES	NO
1. Identify all landmarks on a maxillary impression		
2. Identify all landmarks on a mandibular impression		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 3: IDENTIFY ANATOMIC LANDMARKS - CASTS

STS TASK REFERENCE(S):

2.8.2 Casts

TRAINING REFERENCE(S):

AFI 44-108, *Infection Prevention and Control Program*

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*

CDC Z4Y052, Vol. 3, *General Laboratory Procedures and Orthodontic Appliances*

USAF *Guideline for Infection Prevention and Control in Dentistry, (Current edition)*

EVALUATION INSTRUCTIONS:

Demonstrate how to identify anatomic landmarks on casts. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Cast Trimmer	Resource
Die Stone	Saturated Dihydrate Solution (SDS)
Disinfectant Solution	Spatula
Distilled Water	Tray Holder
Graduated Cylinder	Vacuum Mixer
Mixing Bowl	Vibrator
Maxillary and Mandibular Casts	

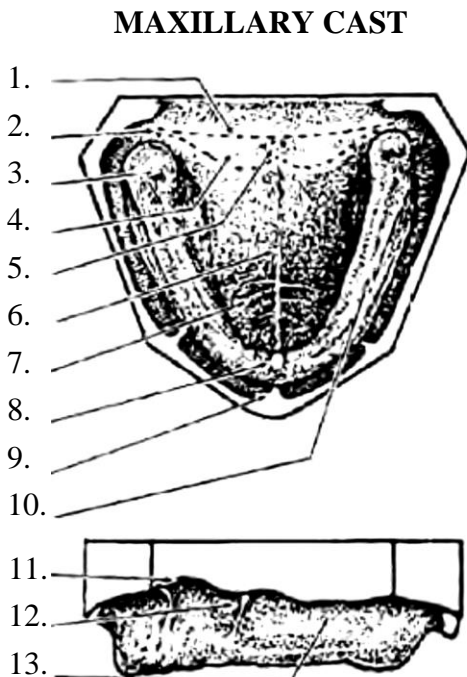
STEPS IN TASK PERFORMANCE:

1. Disinfect impression IAW manufacturer's guidelines
2. Inspect impressions for defects
3. Pour impression and construct cast
4. Locate landmarks on maxillary cast (figure 2-1.)
 - a. Vibrating Line
 - b. Hamular Notch
 - c. Tuberosity
 - d. Posterior Palatal Seal
 - e. Palatine Fovea
 - f. Palatine Raphe
 - g. Rugae
 - h. Incisive Papilla
 - i. Labial Frenum
 - j. Residual Ridge
 - k. Labial Vestibule (Sulcus)
 - l. Buccal Frenum
 - m. Buccal Vestibule (Sulcus)
5. Locate landmarks on mandibular cast (figure 2-2.)
 - a. Retromolar Pad
 - b. Retromylohyoid Space
 - c. Buccal Vestibule

MODULE 3: IDENTIFY ANATOMIC LANDMARKS - CASTS

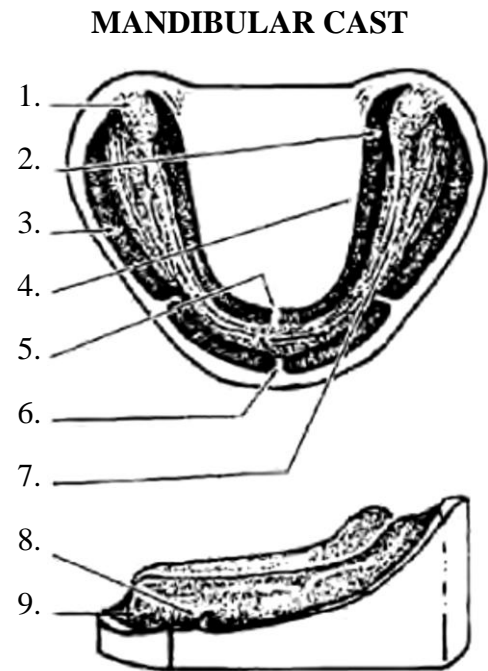
STEPS IN TASK PERFORMANCE (CONTINUED):

- d. Lingual Vestibule
- e. Lingual Vestibule
- f. Labial Frenum
- g. Residual Ridge
- h. Buccal Frenum
- i. Labial Vestibule



- 1. Vibrating Line
- 2. Hamular Notch
- 3. Tuberosity
- 4. Posterior Palatal Seal
- 5. Palatine Fovea
- 6. Palatine Raphe
- 7. Rugae
- 8. Incisive Papilla
- 9. Labial Frenum
- 10. Residual Ridge
- 11. Labial Vestibule (Sulcus)
- 12. Buccal Frenum
- 13. Buccal Vestibule (Sulcus)

Figure 2-1.



- 1. Retromolar Pad
- 2. Retromylohyoid Space
- 3. Buccal Vestibule
- 4. Lingual Vestibule
- 5. Lingual Vestibule
- 6. Labial Frenum
- 7. Residual Ridge
- 8. Buccal Frenum
- 9. Labial Vestibule

Figure 2-2.

MODULE 3: IDENTIFY ANATOMIC LANDMARKS - CASTS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to satisfactorily identify anatomic landmarks on casts and perform all steps without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

IDENTIFY ANATOMIC LANDMARKS - CASTS		
DID THE TRAINEE...?	YES	NO
1. Identify all landmarks on a maxillary cast		
2. Identify all landmarks on a mandibular cast		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 4: IDENTIFY ANATOMIC LANDMARKS - PROSTHESES

STS TASK REFERENCE(S):

2.8.3 Prostheses

TRAINING REFERENCE(S):

AFI 44-108, *Infection Prevention and Control Program*

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*

CDC Z4Y052, Vol. 2, *Dental Sciences*

CDC Z4Y052, Vol. 3, *General Laboratory Procedures and Orthodontic Appliances*

USAF *Guideline for Infection Prevention and Control in Dentistry, (Current edition)*

EVALUATION INSTRUCTIONS:

Demonstrate how to identify anatomic landmarks on prostheses. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Anterior and Posterior Fixed Restorations

Mandibular and Maxillary Denture

STEPS IN TASK PERFORMANCE:

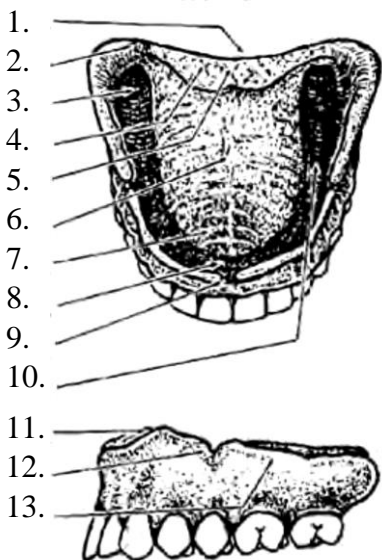
1. Disinfect impression IAW manufacture's guidelines
2. Locate landmarks on maxillary denture (figure 3-1.)
 - a. Posterior Palatal Border
 - b. Hamular Notch
 - c. Tubercle Fossa
 - d. Posterior Palatal Seal
 - e. Palatine Fovea
 - f. Palatine Raphe
 - g. Rugae
 - h. Incisive Papilla
 - i. Labial Notch
 - j. Residual Ridge
 - k. Labial Flange
 - l. Buccal Notch
 - m. Buccal Flange
3. Locate landmarks on mandibular denture (figure 3-2.)
 - a. Retromolar Fossa
 - b. Retromylohyoid Eminence
 - c. Buccal Flange
 - d. Lingual Flange
 - e. Lingual Notch
 - f. Labial Notch
 - g. Residual Ridge
 - h. Buccal Notch
 - i. Labial Flange

MODULE 4: IDENTIFY ANATOMIC LANDMARKS - PROSTHESES

STEPS IN TASK PERFORMANCE (CONTINUED)

4. Locate landmarks on fixed restorations (figure 3-3.)
 - a. Lingual Fossa
 - b. Triangular Fossa
 - c. Sulcus
 - d. Central Fossa
 - e. Cingulum
 - f. Triangular Ridge
 - g. Cusps
 - h. Marginal Ridge
 - i. Transverse Ridge
 - j. Oblique Ridge

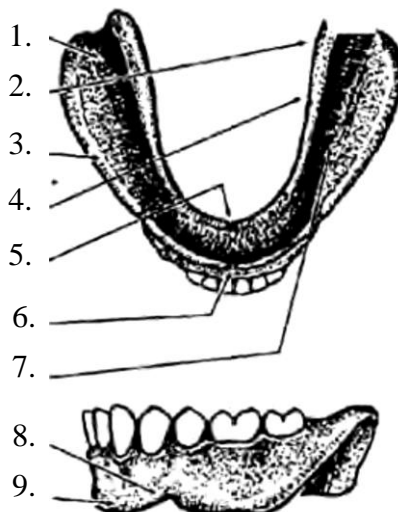
MAXILLARY DENTURE



1. Posterior Palatal Border
2. Hamular Notch
3. Tubercle Fossa
4. Posterior Palatal Seal
5. Palatine Fovea
6. Palatine Raphe
7. Rugae
8. Incisive Papilla
9. Labial Notch
10. Residual Ridge
11. Labial Flange
12. Buccal Notch
13. Buccal Flange

Figure 3-1.

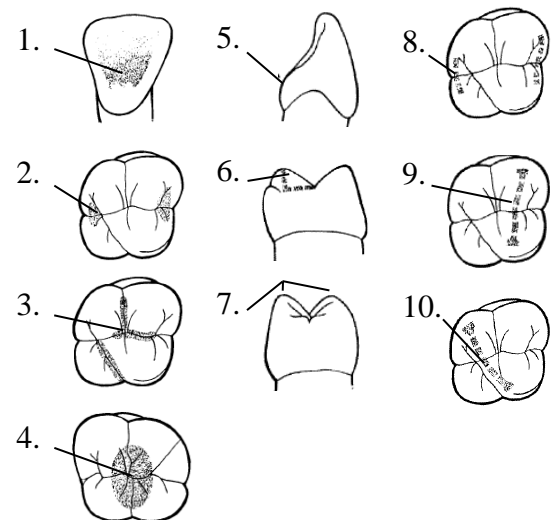
MANDIBULAR DENTURE



1. Retromolar Fossa
2. Retromylohyoid Eminence
3. Buccal Flange
4. Lingual Flange
5. Lingual Notch
6. Labial Notch
7. Residual Ridge
8. Buccal Notch
9. Labial Flange

Figure 3-2.

FIXED RESTORATION



1. Lingual Fossa
2. Triangular Fossa
3. Sulcus
4. Central Fossa
5. Cingulum
6. Triangular Ridge
7. Cusps
8. Marginal Ridge
9. Transverse Ridge
10. Oblique Ridge

Figure 3-3.

MODULE 4: IDENTIFY ANATOMIC LANDMARKS - PROSTHESES

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to satisfactorily identify anatomic landmarks on prostheses. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

IDENTIFY ANATOMIC LANDMARKS - PROSTHESES		
DID THE TRAINEE...?	YES	NO
1. Identify all landmarks on a maxillary and mandibular denture		
2. Identify all landmarks on a fixed restoration		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 5: CONSTRUCT DENTAL CASTS - DIAGNOSTICS

STS TASK REFERENCE(S):

2.9.1 Diagnostics

TRAINING REFERENCE(S):

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*

CDC Z4Y052, Vol. 3, *General Laboratory Procedures and Treatment Appliances*

Manufacturer's Instructions

EVALUATION INSTRUCTIONS:

Demonstrate how to construct maxillary and mandibular diagnostic casts by using the one-step and two-step pouring methods. Demonstrate trimming the casts, emphasizing the critical anatomical areas of the casts. Have the trainee construct diagnostic casts and suggest ways to improve performance. Throughout this process, stress the importance of a properly fabricated cast. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Cast Trimmer	Permanent Ink Marker
Die Stone	Saturated Dihydrate Solution (SDS)
Disinfectant Solution	Spatula
Distilled Water	Tray Holder
Graduated Cylinder	Vacuum Mixer
Mixing Bowl	Vibrator

STEPS IN TASK PERFORMANCE:

One-step (Upright) Method

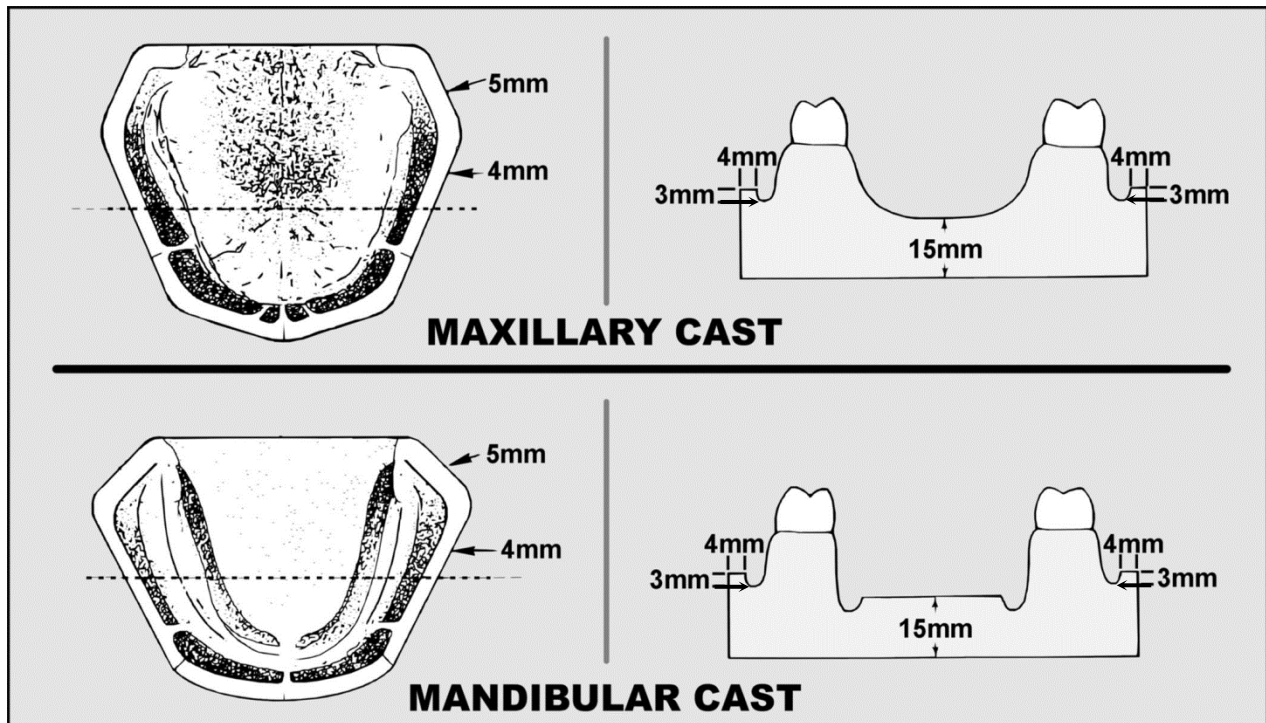
5. Disinfect impression IAW manufacturer's guidelines
6. Pour the impression as soon as possible; no more than 10 minutes after removal from the mouth
7. Inspect impressions for defects
8. Remove mucous film and debris
9. Rinse under running water
10. Place impression upside down in tray holder to remove excess water
11. Measure distilled water
12. Either weigh or use pre-weighed stone
13. Vacuum mix stone IAW manufacturer's instructions and vibrate stone into the anatomical portion of the impression, to include full-border coverage
14. Place poured impression into tray holder
15. Add enough stone on top for base (more successful with maxillary than with mandibular impressions)

NOTE: Impressions must never be poured, then inverted into a mound of gypsum material to form the entire cast in one-step. The stone tends to settle toward the base.

MODULE 5: CONSTRUCT DENTAL CASTS - DIAGNOSTICS

STEPS IN TASK PERFORMANCE (CONTINUED):

11. Allow stone to bench set for 45 minutes (Do not exceed 1 hour)
12. Separate cast from impression and soak cast in SDS
13. Do not trim a cast until 2 hours after it has reached the final set
14. Trim base and sides of cast using cast trimmer and use SDS for rinsing
15. Produce land area and cast thickness of proper dimensions (see image below)
16. Dry cast and print patient's name on heel using permanent ink



MODULE 5: CONSTRUCT DENTAL CASTS - DIAGNOSTICS

STEPS IN TASK PERFORMANCE:

Two-step Method

1. Disinfect impression IAW manufacturer's guidelines
2. Pour the impression as soon as possible; no more than 10 minutes after removal from the mouth
3. Inspect impressions for defects
4. Remove mucous film and debris
5. Rinse under running water
6. Place impression upside down in tray holder to remove excess water
7. Measure distilled water
8. Either weigh or use pre-weighed stone
9. Vacuum mix stone IAW manufacturer's instructions and vibrate stone into the anatomical portion of the impression, to include full-border coverage
10. Place poured impression into tray holder
11. Add stone to create nodules and roughened peaks that measure approximately 16 mm
12. Allow first pour to bench set for 45 minutes, then separate cast from impression
13. Wet the first pour with SDS
14. Trim the nodules on the cast so that they are 15 mm, and when set down the occlusal surface of the cast is parallel to the bench top
15. Measure distilled water
16. Either weigh or use pre-weighed stone
17. Vacuum mix stone and vibrate stone into the nooks and crannies of the nodules, for mechanical retention of the second pour.
18. Make a stone mound, roughly the shape of the cast
19. Invert the cast into a newly mixed mound of the same stone
20. Shape the mound up and around the borders to create the desired size and thickness of the base
21. Overbuild the base to compensate for trimming
22. Flatten the tongue area of a mandibular pour 1 mm above (occlusal to) the lingual sulcus
23. Do not final trim a cast until 2 hours after it has reached the final set
24. Trim base and sides of cast using cast trimmer and SDS for rinsing
25. Produce land area and cast thickness of proper dimensions
26. Dry cast and print patient's name on heel using permanent ink

MODULE 5: CONSTRUCT DENTAL CASTS - DIAGNOSTICS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to satisfactorily construct maxillary and mandibular diagnostic casts and perform all steps without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

CONSTRUCT DENTAL CASTS - DIAGNOSTICS		
DID THE TRAINEE...?	YES	NO
3. Inspect the impression for defects such as voids and tears, and if present, act accordingly to inform the dental officer or correct them		
4. Disinfect the impression IAW manufacture's guidelines		
5. Use proper water-powder ratio and vacuum mix stone		
6. Carefully pour the impression to prevent trapping air bubbles and create a cast surface with no voids		
7. Allow first pour to bench set 45 minutes		
8. Separate cast from impression within 1 hour of first pour		
9. Trim base and sides of cast to correct dimensions and preserve critical anatomical areas		
10. Legibly print the patient's name on the heel of the cast using permanent ink		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 6: CONSTRUCT DENTAL CASTS - FULL ARCH FIXED MASTER CAST

STS TASK REFERENCE(S):

2.9.4 Full arch fixed master cast

TRAINING REFERENCE(S):

AFPM 47-103, Vol.2, *Dental Laboratory Technology -Fixed and Special Prosthodontics*

CDC Z4Y052, Vol. 3, *General Laboratory Procedures and Treatment Appliances*

EVALUATION INSTRUCTIONS:

Demonstrate how to pour maxillary and mandibular polyvinyl siloxane impressions. Demonstrate pinning and basing casts using the Pindex ® method. You may choose to train and evaluate other dowel pinning techniques or dowel pin systems. Demonstrate trimming the working casts. Demonstrate sawing out and bulk trimming dies. Emphasize the strength and accuracy requirements of properly fabricated dies and working casts. Have the trainee construct fixed working casts and suggest ways to improve performance. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Base Former	Gypsum Separating Fluid (Super Sep)
Bard Parker Knife	Handpiece or Lathe
Carbide Burs (Large and Small)	Mixing Bowl
Cast Trimmer	Permanent Ink Marker
Crown and Bridge Saw	Pindex Pins and Sleeves
Cyanoacrylate Glue	Saturated Dihydrate Solution (SDS)
Dental Stone	Spatula
Die Stone	Surface Tension Reducing Agent
Disinfectant Solution	Vacuum Mixer
Distilled Water	Vibrator
Dowel Pin Drilling Machine	Wax Pencil (Red and Blue)
Graduated Cylinder	

STEPS IN TASK PERFORMANCE:

1. Disinfect impression and rinse under running water
2. Inspect impressions for defects
3. Trim periphery of impression material if needed to remove undercut
4. Use a wetting agent to reduce surface tension
5. Vacuum mix die stone IAW manufacturer's instructions
6. Vibrate die stone into impression without creating voids
7. Continue to fill impression until there is about 15 mm of die stone above the margins of the preparations

MODULE 6: CONSTRUCT DENTAL CASTS - FULL ARCH FIXED MASTER CAST

STEPS IN TASK PERFORMANCE (CONTINUED):

8. Allow die stone to set for 45 minutes
9. Remove first pour impression without damaging the cast
10. Flatten base of first pour parallel to the occlusal surfaces using cast trimmer
11. Allow first pour to dry overnight
12. Ready the first pour for pinning by marking pin locations on arch occlusals with wax pencil; two per preparation/adjacent tooth.
13. Each pin must be parallel with the other and positioned in line with the long axis of the preparation; one buccal and the other lingual, centered on each prepared posterior tooth. (Labial-lingual if it is an anterior tooth)
14. On the base of the first pour arch, drill holes corresponding to the marks
15. Drill two pin holes in bottom of each tooth adjacent to preparations that will be removable
16. Drill appropriate number of single pin holes in remaining cast area for indexing arch segments
17. Glue one long pin (labial/buccal) and one short pin (lingual) for each preparation and abutment tooth
18. Glue long pins in remaining holes for indexing
19. Place corresponding sleeves on pins, white for long and gray for short
20. Apply gypsum separating fluid (Super Sep) to entire base of cast
21. Vacuum mix dental stone IAW manufacturer's instructions (use dental stone to distinguish between pours)
22. Vibrate stone around sleeves and pins without creating voids between pours
23. Place remaining stone in base former
24. Invert arch in base former and vibrate gently
25. Allow stone to set for 45 minutes
26. Trim sides of base/cast with cast trimmer
27. Dry cast and print patient's name on heel using permanent ink
28. Separate cast from base; trim palatal/tongue areas of arch at 90° to the base using a large carbide of electric trimmer to produce a horseshoe shaped arch
29. Saw out dies, making saw cuts 90° to the cast base
30. Remove excess stone adjacent to gingival margin of preparation using pear shape bur
31. Ensure exposure does not exceed 4.0 mm of stone below margin; do not create a deep recess
32. Re-contour dies to resemble root contour of natural tooth
33. Return die to dentist for final trim

MODULE 6: CONSTRUCT DENTAL CASTS - FULL ARCH FIXED MASTER CAST

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to construct maxillary and mandibular working casts for fixed prosthodontics and satisfactorily perform all the parts of the task without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

CONSTRUCT DENTAL CASTS - FULL ARCH FIXED MASTER CAST		
DID THE TRAINEE...?	YES	NO
1. Inspect impression and remove excess material from impression periphery		
2. Use proper water-powder ratio and vacuum mix stone		
3. Pour the impression without creating voids and build an adequate base for the first pour		
4. Separate the cast from the impression without damaging the cast		
5. Flatten the base of the first pour parallel to the occlusal plane, leaving 10-12 mm of stone for a die base		
6. Correctly mark the cast for placement of pins		
7. Drill the correct number of pin holes in the arch and in the proper locations		
8. Cement pins fully in the arch and properly place the corresponding sleeves		
9. Base cast without creating voids between pours and adequately trim sides of cast base without damaging the teeth		
10. Trim the outside and lingual surfaces of the first pour and create a proper horseshoe arch preserving critical anatomical areas precluding excessive die trimming procedures		
11. Legibly print patient's name on the heel of the cast using permanent ink		
12. Saw out dies without damaging preparations, adjacent teeth, or dowel pins, ensuring the dies can be removed appropriately		
13. Sufficiently bulk trim dies without creating deep recess or weakening dies		
14. Recontour dies to resemble natural tooth contours		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 7: CONSTRUCT DENTAL CASTS - DUAL ARCH CASTS

STS TASK REFERENCE(S):

2.9.5 Dual arch casts

TRAINING REFERENCE(S):

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*

CDC Z4Y052, Vol. 3, *General Laboratory Procedures and Treatment Appliances*

EVALUATION INSTRUCTIONS:

Demonstrate how to construct casts using dual-arch impressions. This technique allows for a “two-step pour” process to obtain a counter (opposing) model, working (prepared) model, and setting the metal dowel pins, while simultaneously articulating the models. You may choose to train and evaluate on other dual-arch tray systems. **Note:** Instructions may vary slightly depending on the type of dual-arch tray system being used. Demonstrate pinning using the dowel pin system. Emphasize the strength and accuracy requirements of properly fabricated dies and working casts. Have the trainee construct dual-arch working casts and suggest ways to improve performance. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Bard Parker Knife	Graduated Cylinder
Carbide Burs (Large and Small)	Handpiece or Lathe
Dental Stone	Mixing Bowl
Die Stone	Spatula
Disinfectant Solution	Surface Tension Reducing Agent
Distilled Water	Vacuum Mixer
Dowel Pins	Vibrator
Dual Arch Pinning System	Wax Pencil (Red and Blue)

STEPS IN TASK PERFORMANCE:

1. Disinfect impression and rinse under running water
2. Inspect impression for defects
3. Trim periphery of impression material if needed to remove undercut
4. Use a wetting agent to reduce surface tension
5. Ensure the impression properly fits between the upper and lower members of the articulator while remaining fully closed
6. Ensure occlusal plane is horizontal and sufficient clearance is provided for proper pinning of arch and dies
7. Firmly place dowel pins into dowel pin holes that correspond to the tooth preparation areas, pontic areas (if applicable), and adjacent tooth structures
8. Vacuum mix die stone IAW manufacturer’s instructions
9. Without creating voids, vibrate die stone into impression of counter model (opposing side) first
10. Vibrate die stone over the exposed pins and retention ridges of articulator
11. Once stone begins to set, flip the poured working model (prepared side) over to the counter model (opposing side) of the articulator

MODULE 7: CONSTRUCT DENTAL CASTS - DUAL ARCH CASTS

STEPS IN TASK PERFORMANCE (CONTINUED):

12. Verify occlusal plane is horizontal and tooth alignment is correctly oriented to articulator and its hinge axis
13. Before die stone sets, ensure articulator is completely closed, indicated by fully seated hinge flats
14. Pour the counter model (opposing side) of the impression (repeat steps 10, 11 and 13)
15. Clean off excess die stone, allow to set for 45 minutes
16. Saw out dies, make saw cuts 90° to cast base
17. Remove excess stone adjacent to gingival margin of preparation using pear shape bur
18. Ensure exposure does not exceed 4.0 mm of stone below margin; do not create a deep recess
19. Recontour dies to resemble root contour of natural tooth
20. Return die to dentist for final trim

MODULE 7: CONSTRUCT DENTAL CASTS - DUAL ARCH CASTS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to construct working casts using the dual arch impression technique for fixed prosthodontic and satisfactorily perform all the parts of the task without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

CONSTRUCT DENTAL CASTS - DUAL ARCH CASTS		
DID THE TRAINEE...?	YES	NO
1. Inspect the impression and remove excess material from the periphery of the impression		
2. Place dowel pins in correct position on both sides of articulator		
3. Use proper water-powder ratio and vacuum mix stone		
4. Carefully pour the impression without creating voids		
5. Close the articulator completely (verified by complete hinge closure)		
6. Saw out die without damaging preparations, adjacent teeth, or dowel pins, ensuring the dies can be removed appropriately		
7. Sufficiently bulk trim dies without creating deep recess or weakening dies		
8. Recontour dies to resemble natural tooth contour		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should certify performance by appropriately documenting the training record.

MODULE 8: CONSTRUCT DENTAL CASTS - DUPLICATE CASTS

STS TASK REFERENCE(S):

2.9.8 Duplicate casts

TRAINING REFERENCE(S):

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics* and *Orthodontics*
Manufacturer's Instructions

EVALUATION INSTRUCTIONS:

Demonstrate how to create a duplicate cast. You may choose to evaluate the trainee using reversible hydrocolloid (preferred) or an alginate. Stress the importance of strength, accuracy, and appearance of the final product. Have the trainee create a duplicate cast and suggest ways to improve performance. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Alginate (slow set)	Hydrocolloid
Blockout wax	Hydrocolloid dispensing machine
Bunsen burner	Master cast
Clay	Mixing bowl (spatulating paddle removed)
Dental stone	Mixing bowl (with spatulating paddle)
Dental Vibrator	Rubber bowl
Duplicating flask	Spatula
Electric waxer	Sulfate Dihydrate Solution (SDS)
Graduated cylinder	Wax spatula
Graphite pencil	Vacuum mixer

STEPS IN TASK PERFORMANCE:

1. Identify undesirable undercuts on master cast (e.g., gingival third, interproximals, diastema, vestibule, etc.)
2. Mark undesirable undercuts with graphite pencil
3. Heat up blockout wax and fill undercuts
4. Soak master cast thoroughly to avoid duplicating material from adhering to dry stone, using one of two methods
 - a. Super soak via vacuum mixer
 - i. Place master cast in a mixing bowl with spatula removed and enough water to cover completely
 - ii. Attach bowl to vacuum mixer and turn on vacuum suction until all air has escaped cast (no more than 1 minute)
 - b. Soak in SDS
 - i. Only halfway submerged in SDS, stood up on its heels, soak cast in rubber bowl for 30 minutes

MODULE 8: CONSTRUCT DENTAL CASTS - DUPLICATE CASTS

STEPS IN TASK PERFORMANCE (CONTINUED):

5. Select a duplicating flask that provides at least ½ inch clearance from the edge of the cast to the rim of the base
6. Place soaked master cast in the center base of the duplicating flask, teeth side up
7. Secure cast in place with three small balls of clay; place one in labial/facial and one on each heel
8. Attach the body of the flask to the base, with cast directly under spout
9. Use one of two duplicating materials to fill flask
 - a. Alginate (6-7 minute set time)
 - i. Mix enough material to fill flask, according to manufacturer's instructions
 - ii. Fill the body of the flask until the spout is at least 2/3 full
 - b. Hydrocolloid
 - i. Position flask under the hydrocolloid dispensing machine's pouring valve
 - ii. Open the valve and let the material flow into the body of the flask until the spout is at least 2/3 full
10. Cool the flask by placing it in a flat pan that circulates cold water (30 min for small flask, 45 min for large flask)
11. Once duplicating material is set (7 minutes for alginate, cool for hydrocolloid) separate body from base of flask
12. Carefully extract master cast from duplicating material, rinse out any particles from mold
13. Place body of flask over dental vibrator
14. Measure distilled water
15. Either weigh or use pre-weighed stone
16. Vacuum mix dental stone
17. Vibrate stone into the anatomical portions of the mold and fill until flush with top of duplicating material
18. Set aside poured mold and let set for 45 minutes
19. Once stone is set, remove both duplicate cast and material from flask
20. Trim base and sides of cast using cast trimmer and SDS for rinsing
21. Dry cast and print patient's name on heel using permanent ink
22. Properly dispose of or process the duplicating material IAW manufacturer's instructions

MODULE 8: CONSTRUCT DENTAL CASTS - DUPLICATE CASTS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to satisfactorily create a duplicate cast and perform all steps without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

CONSTRUCT DENTAL CASTS - DUPLICATE CASTS		
DID THE TRAINEE...?	YES	NO
1. Blockout any undesirable undercuts		
2. Soak the master cast sufficiently		
3. Select appropriate size flask and correctly position master cast in flask		
4. Correctly assemble flask and pour duplicating material		
5. Allow duplicating material to set appropriately		
6. Extract master cast without tearing the duplicating material		
7. Use proper water-powder ratio and vacuum mix stone		
8. Pour stone into mold to prevent trapping air bubbles and create a cast surface with no voids		
9. Separate cast from mold after final set of dental stone		
10. Trim base and sides of cast to correct dimensions and preserve critical anatomical areas		
11. Legibly print the patient's name on the heel of the cast using permanent ink		
12. Appropriately dispose/process used duplicating material		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 9: MOUNT CASTS USING ARBITRARY METHOD

STS TASK REFERENCE(S):

2.10.2 Mount casts using arbitrary method

TRAINING REFERENCE(S):

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*

CDC Z4Y052, Vol. 3, *General Laboratory Procedures and Treatment Appliances*

EVALUATION INSTRUCTIONS:

Demonstrate how to key and occlude maxillary and mandibular casts for mounting. Demonstrate how to mount casts in a semi-adjustable articulator using the arbitrary method. Stress proper setting and maintenance of articulators and accuracy of cast mountings. Have the trainee mount casts and suggest ways to improve performance. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Buffalo Knife

Bunsen Burner

Clay

Dental Stone

Glue Gun or Impression Compound

Gypsum Separating Fluid (Super Sep)

Hanger Wire or Old burs

Large Wheel or Bur

Mixing Bowl

Mounting Rings

Paper Towel

Rubber Band

Sandpaper

Semi-adjustable Articulator

Spatula

STEPS IN TASK PERFORMANCE:

1. Cut keys in maxillary and mandibular casts using large wheel or bur
2. Remove stone nodules and heel areas which can interfere with occlusion
3. Hands articulate casts in centric occlusion or occlude casts using intraoral records (if provided)
4. Lute casts together using glue gun or compound wax and hanger wires or old burs
5. Apply separating medium to keys of casts
6. Ensure articulator incisal guide pin is flush with upper member (does not apply to all articulators, some articulators have a dual-end incisal pin and use a midline marker)
7. Lock articulator left and right horizontal guidance at 30°
8. Lock articulator lateral guidance at 15°
9. Set incisal guide table and wings at 0° (if applicable)
10. Place mounting rings on articulator and position rubber band plane
11. Tripod piece of clay on lower member of articulator
12. Ensure adequate clearance between cast and upper member for mounting stone
13. Center casts on articulator with occlusal plane parallel with bench surface and even with rubber band plane
14. Place moist paper towel on base of maxillary cast

MODULE 9: MOUNT CASTS USING ARBITRARY METHOD

STEPS IN TASK PERFORMANCE (CONTINUED):

15. Mix dental stone to thickened consistency
16. Remove paper towel from cast base
17. Apply mounting stone mix to base of cast
18. Lower upper articulator member into stone
19. Shape mounting stone and remove the excess; do not create an under contoured junction
20. Smooth mounting stone with spatula, leaving stone/cast junction visible
21. Allow stone to set for 45 minutes
22. Invert articulator and raise lower member of articulator
23. Prepare second stone mix and repeat mounting procedure for mandibular cast
24. Remove luting materials from casts
25. Unscrew mountings from articulator and smooth them with sandpaper
26. Replace mounting on articulator
27. Ensure original occlusal relationship is unchanged and incisal guide pin contacts incisal guide table

MODULE 9: MOUNT CASTS USING ARBITRARY METHOD

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to mount maxillary and mandibular casts using a semi-adjustable articulator using the arbitrary method and satisfactorily perform all the parts of the task without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

MOUNT CASTS USING THE ARBITRARY METHOD		
DID THE TRAINEE...?	YES	NO
1. Key casts and apply separator correctly		
2. Remove occlusal interferences, occlude casts accurately, and lute the casts together securely		
3. Ensure the articulator was in proper working order and correctly set		
4. Center the maxillary cast under the mounting ring and position the occlusal plane at the correct height and orientation		
5. Attach maxillary cast firmly to upper member and contour stone to expose cast junction and smooth the mounting		
6. Attach mandibular cast firmly to lower member and contour stone to expose cast junction and smooth the mounting		
7. Remove luting material and clean up mountings		
8. Ensure original occlusal relationship is unchanged and incisal guide pin contacts table		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record

MODULE 10: MOUNT CASTS USING FACEBOW TRANSFER TECHNIQUE

STS TASK REFERENCE(S):

2.10.3 Mount casts using facebow transfer technique

TRAINING REFERENCE(S):

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*

CDC Z4Y052 Vol. 3, *General Laboratory Procedures and Treatment Appliances*

EVALUATION INSTRUCTIONS:

Demonstrate how to mount casts in a semi-adjustable articulator using the facebow transfer technique. Facebow shapes and mechanics differ slightly from brand to brand. Follow directions in the manufacturer's instructions. Stress proper setting and maintenance of articulators and accuracy of cast mountings. Have the trainee mount casts and suggest ways to improve performance. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Buffalo Knife	Gypsum Separating	Paper Towels
Bunsen Burner	Fluid (Super Sep)	Rubber Band
Case Pan	Hanger Wire or Old burs	Sand Paper
Clay	Large Wheel or Bur	Spatula
Glue Gun or Impression	Mixing Bowl	Semi-adjustable
Compound	Mounting Rings	Articulator
	Mounting Stone	

STEPS IN TASK PERFORMANCE:

1. Adjust the intercondylar distance using the width indicated on the facebow.
2. Set the each condylar guide to 30° and the incisal table at 0°
3. Once the mounting plate is attached to the upper member, remove the incisal guide pin
4. Loosen the three thumbscrews on the top of the facebow frame to allow attachment to the articulator
NOTE: Placing the upper member of the articulator on top of a case pan at this time for stability would be helpful
5. Place pins on the outer surfaces of the condylar guides into the holes on the inner surfaces of the plastic earpieces
6. Tighten the three thumbscrews on the facebow
7. Place the upper frame and attached facebow back onto the lower frame of the articulator
8. Seat cast into the occlusal bite registration record
9. Attach maxillary cast to upper frame with mounting stone
10. Support the cast as you close upper frame down until it touches the transverse bar of the facebow
11. Remove the facebow after the stone reaches its final set
12. Mount the mandibular cast in the manner described in the arbitrary mounting method

MODULE 10: MOUNT CASTS USING FACEBOW TRANSFER TECHNIQUE

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to mount maxillary and mandibular casts with a semi-adjustable articulator using the facebow transfer method and satisfactorily perform all the parts of the task without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

MOUNT CASTS USING FACEBOW TRANSFER TECHNIQUE		
DID THE TRAINEE...?	YES	NO
1. Adjust the intercondylar distance using width indicated on the facebow		
2. Ensure the articulator was in proper working order and correctly set		
3. Attach facebow to the upper member of articulator correctly		
4. Place the upper frame and attached facebow back onto the lower frame of the articulator		
5. Accurately seat the maxillary cast into the occlusal bite registration record		
6. Attach maxillary cast firmly to upper member, ensure upper frame touches transverse bar of facebow		
7. Contour stone to expose cast junction and smooth the mounting		
8. Mount the mandibular cast using arbitrary method		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record

MODULE 11: PERFORM CAST EQUILIBRATION

STS TASK REFERENCE(S):

2.10.5 Perform cast equilibration

TRAINING REFERENCE(S):

AFPAM 47-103V1, *Basic Sciences, Removable Prosthodontics, and Orthodontics*

AFPAM 47-103V2, *Fixed and Special Prosthodontics*

CDC Z4Y052, Vol. 3, *General Laboratory Procedures and Treatment Appliances*

EVALUATION INSTRUCTIONS:

Demonstrate how to perform cast equilibration. Throughout this process, stress the importance of achieving even and balanced contacts across the entire arch, with only minor adjustments. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Articulator

Mounted casts

Articulating film

Shim stock

Carving instrument

STEPS IN TASK PERFORMANCE:

1. Ensure casts are mounted in maximum intercuspation (MI) on articulator
2. Verify incisal guide pin is touching the incisal guide table
3. Using articulating film to mark all occlusal contact points
4. Lightly remove all marks with a carving instrument
5. Repeat steps 3 and 4 until even marks are achieved across occlusal arch
6. Using one thickness of shim stock ensure holding contacts are stable and even across the arch

NOTE: Adjustments should only be made on ridges and fossae, never adjust cusp tips. Adjustments should be made on the upper and lower teeth so each tooth carries an equal share of the occlusal load.

MODULE 11: PERFORM CAST EQUILIBRATION

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The following is the canned statement for this section, feel free to update if necessary:
The trainee must be able to satisfactorily perform cast equilibration without assistance.
Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

PERFORM CAST EQUILIBRATION		
DID THE TRAINEE...?	YES	NO
1. Inspect the mounting for accuracy (in MI)		
2. Ensure articulator pin was touching table		
3. Mark contacts and lightly remove from only ridges and fossae		
4. Repeat process until achieving even contacts		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 12: REPAIR REMOVABLE PROSTHESES

STS TASK REFERENCE(S):

2.11 Repair removable prostheses

TRAINING REFERENCE(S):

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*
CDC Z4Y052, Vol. 4, *Removable Prosthodontics*

EVALUATION INSTRUCTIONS:

Due to the availability of cases in your laboratory, training on acrylic repair procedures may be limited. Select actual cases or use “training” cases for demonstration and performance. Demonstrate how to assemble broken denture pieces and construct casts or stone matrices. Demonstrate repairing fractured complete or removable partial denture bases. Discuss probable causes for denture breakage and solutions to prevent the problem from recurring. Stress returning the repaired appliance to the dentist as quickly as possible. Have the trainee perform acrylic repair procedures and suggest ways to improve performance. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Acrylic Bur	Dental Stone	Pumice
Acrylic Mixing Spatula	Distilled Water	Rag Wheel
Alginate Separating Medium	Disinfectant Solution	Repair Monomer/Polymer
Block Out Wax, Clay, or Impression Putty	Hanger Wire or Old Burs	Rubber Mixing Bowl
Bard Parker Knife	Handpiece or Lathe	Small Acrylic Brush
Bunsen Burner	Identification (ID) Material	Spatula
Cast Trimmer	Mixing Bowl	Sticky Wax
Dappen Dishes (2)	Polishing Compound	Vacuum Mixer
	Pressure Pot	Vibrator

STEPS IN TASK PERFORMANCE:

1. Align fragments or pieces of denture base
2. Sticky wax broken denture pieces together
3. Stabilize large repair areas using hanger wire or old burs and sticky wax
4. Blockout undercuts of denture base areas not in the repair site
5. Vacuum mix dental stone
6. Vibrate stone into denture base to construct matrix/cast
7. Separate matrix/cast from denture base
8. Trim cast using cast trimmer
9. Soak cast in saturated calcium sulfate dihydrate solution (SDS) for 10 minutes
10. Dry surface of cast and apply separating medium
11. Cut rabbet joints in denture base fragments to be joined using bur
12. Align fragments onto cast and sticky wax fragments in place
13. Moisten repair site with monomer

MODULE 12: REPAIR REMOVABLE PROSTHESES

STEPS IN TASK PERFORMANCE (CONTINUED):

14. Make alternate applications of monomer/polymer described below or use sprinkle method
15. Place repair monomer in dappen dish
16. Place repair polymer in separate dappen dish
17. Dip acrylic brush in liquid, then powder to pick up ball of repair acrylic
18. Apply repair monomer/polymer to repair sites
19. Cure denture repair in pressure pot filled with 115° F water at 20 psi for 30 minutes
20. Remove denture from pressure pot
21. Carefully separate denture from cast
22. Apply repair monomer/polymer to any voids, if present
23. Repeat curing process if repair resin added
24. Place patient identification (if required)
25. Finish and polish repair area
26. Clean and disinfect denture

MODULE 12: REPAIR REMOVABLE PROSTHESES

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to repair the fractured denture base of a complete or removable partial denture and satisfactorily perform all the parts of the task without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

REPAIR REMOVABLE PROSTHESES		
DID THE TRAINEE...?	YES	NO
1. Accurately align and secure broken denture base pieces together so repaired denture base fits properly		
2. Construct matrix/cast for the repair areas without damaging the denture base or matrix/cast		
3. Adequately prepare joints in the denture base to improve the strength of the repair		
4. Accurately reassemble broken denture base pieces with matrix/cast		
5. Correctly apply and process repaired resin, producing a void free surface which is dense and strong		
6. Finish and polish repaired areas so new acrylic blends with original acrylic		
7. Clean and disinfect denture		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

MODULE 13: FABRICATE TREATMENT APPLIANCE - CUSTOM IMPRESSION TRAYS

STS TASK REFERENCE(S):

4.11 Custom impression trays

TRAINING REFERENCE(S):

AFPAM 47-103V1, *Dental Laboratory Technology-Basic Sciences, Removable Prosthodontics and Orthodontics*
Manufacturer's Instructions

EVALUATION INSTRUCTIONS:

Demonstrate how to construct maxillary and mandibular custom impression trays for complete denture and fixed prosthodontic casts using the light-cured material method. Stress the importance of strength, accuracy, and appearance of the final products. Have the trainee construct impression trays and suggest ways to improve performance. After ensuring the trainee has received sufficient practice, evaluate his/her abilities using the performance checklist.

PERFORMANCE RESOURCES:

Acrylic Bur	Mixing Cup
Air Barrier Coating	Petrolatum
Artist Brush	Rubber Gloves
Bard Parker Knife	Steam or Ultrasonic Cleaner
Baseplate Wax	Tray Material
Bunsen Burner	Wax Pencil (Red and Blue)
Disinfectant Solution	Wax Spatula
Handpiece or Lathe	Wire (optional)
Light-Curing Unit	

STEPS IN TASK PERFORMANCE:

1. Identify and mark borders of tray on cast
2. If tray will be made without a spacer, blockout undercuts on cast
3. Heat baseplate wax sheet until softened
4. Form two sheets of softened wax over cast to create spacer
5. Trim excess wax to specified tray design and apply petrolatum
6. Cut out tissue stops in wax spacer IAW provider's directions
7. Apply separating medium to cast
8. Do not handle resin with ungloved hands
9. Adapt the tray material to the cast
10. Form handle according to provider's preference, but do not add to tray yet (using wire for support is optional)
11. Trim excess material

MODULE 13: FABRICATE TREATMENT APPLIANCE - CUSTOM IMPRESSION TRAYS

STEPS IN TASK PERFORMANCE (CONTINUED):

12. Place in curing unit and cure IAW manufacturer's instructions
13. When impression tray reaches initial set and still warm, remove tray from cast
14. Remove wax from tray and cast (this will prevent melting the wax in the curing unit)
15. Add material for the handle and cure for 2 minutes
16. Apply manufacturer's air barrier coating and cure tray IAW manufacturer's instructions
12. Finish tray with bur to design line
13. Clean and disinfect tray

MODULE 13: FABRICATE TREATMENT APPLIANCE - CUSTOM IMPRESSION TRAYS

PERFORMANCE CHECKLIST

INSTRUCTIONS:

The trainee must be able to construct maxillary and mandibular custom impression trays for complete dentures and fixed prosthodontic casts. The trainee must satisfactorily perform all the parts of the task without assistance. Ensure proper safety precautions are followed. Evaluate the trainee's performance using this checklist.

FABRICATE TREATMENT APPLIANCE - CUSTOM IMPRESSION TRAYS		
DID THE TRAINEE...?	YES	NO
1. Adequately block out undercuts on casts for custom trays made without spacers		
2. Identify and mark borders of tray on casts.		
3. Identify locations of tissue stops. Create wax spacer of the correct thickness and properly cut out tissue stops		
4. Adapt tray material to cast so custom tray is not too thick or too thin		
5. Shape tray handle according to the dentist's preference		
6. Remove custom tray from cast without damaging tray or cast		
7. Finish tray borders to the desire outline (no sharp edges)		
8. Clean and disinfect custom tray		

FEEDBACK:

Use this checklist as a source of information; discuss the trainee's performance indicating strengths and weaknesses, suggested improvements, etc. If the trainee performed all steps of the task satisfactorily, both the trainer and the trainee should acknowledge performance by appropriately documenting the training record.

Quality Training Package (QTP) Corrections/Improvements Form

Volume #	Module(s) #

The QTP project goal of the 381st Training Squadron, Joint Base San Antonio-Fort Sam Houston TX, is to publish useable document for trainers and trainees. Utilize this form to suggest changes or revisions to this QTP volume. If necessary, submit additional forms for each module. Email the form to emily.e.jones.mil@mail.mil.

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Item	Reference within Document <small>(e.g., page #, paragraph, sentence, etc.)</small>	Recommended Changes
STS Task		
Training References		
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