

**UNITED STATES MARINE CORPS**  
WEAPONS TRAINING BATTALION  
MARINE CORPS COMBAT DEVELOPMENT COMMAND  
QUANTICO, VIRGINIA 22134-5040

## **INSTRUCTOR GUIDE**

MAINTAIN A SERVICE RIFLE

1002

0300-M16-1002  
0300-M16-1017 (REV.)

ANNUAL RIFLE TRAINING POI

APPROVAL \_\_\_\_\_  
(SLIDE #1)

DATE \_\_\_\_\_

**INTRODUCTION**

**(3 MIN)**

1. **GAIN ATTENTION**. The service rifle is designed to kill the enemy. However, the rifle cannot differentiate between enemies and friends. That is the responsibility of the rifleman. They must, at all times, use it effectively against the enemy and safely among their fellow Marines. Knowledge of the rifle, its capabilities, and the procedures for its safe handling are essential skills for everyone. A Marine in combat must handle their individual rifle instinctively. Mission accomplishment and survival in combat depend on it. Strict adherence to training and diligent practice will make weapons handling instinctive.

**NOTES:** \_\_\_\_\_  
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**(SLIDE #2)**

2. **OVERVIEW**. Good morning/afternoon my name is \_\_\_\_\_. This lesson will cover the disassembly of the weapon, maintenance of the weapon and assembly. The purpose of this lesson is to provide you with the knowledge and skills necessary to maintain your weapon by ensuring it is complete, clean, and serviceable.

**(SLIDE #3)**

**INSTRUCTOR NOTE:**  
**HAVE SELECTED SHOOTERS READ ALOUD THE LEARNING OBJECTIVES FROM THEIR HANDOUTS.**

3. **INTRODUCE LEARNING OBJECTIVES.**

a. **TERMINAL LEARNING OBJECTIVE:**

(1) Given a service rifle, Common Weapon Sling, and cleaning gear maintain a service rifle to ensure the weapon is complete, clean, and serviceable. (0300-M16-1002)

**(SLIDE #4)**

b. **ENABLING LEARNING OBJECTIVES:**

(1) Given a service rifle, Common Weapon Sling, and cleaning gear maintain a service rifle to ensure the weapon is

complete clean and serviceable, disassemble the weapon.  
(0300-M16-1002a)

(2) Given a service rifle, Common Weapon Sling, and cleaning gear maintain a service rifle to ensure the weapon is complete clean and serviceable, perform maintenance of the weapon. (0300-M16-1002b)

(3) Given a service rifle, Common Weapon Sling, and cleaning gear maintain a service rifle to ensure the weapon is complete clean and serviceable, assemble the weapon.  
(0300-M16-1002c)

**(SLIDE #5)**

4. **METHOD/MEDIA.** This period of instruction will be taught utilizing the informal lecture method, aided by the PowerPoint, and my assistant instructor.

**INSTRUCTOR NOTE:**

**ASSIGN SPECIFIC SHOOTERS TO FILL OUT INSTRUCTIONAL RATING FORMS (IRFS).  
HAVE THEM SET ASIDE AND FILL THEM OUT AFTER THE COMPLETION OF THE CLASS.**

5. **EVALUATION.** SHOOTERS are evaluated by a performance based evaluation.

6. **SAFETY/CEASE TRAINING (CT) BRIEF.** There are no safety hazards identified with this lesson.

**(SLIDE #6)**

**TRANSITION:** Are there any questions about the learning objectives, the method of instruction, or how you will be evaluated? Let's begin with a discussion of the general characteristics and capabilities of the service rifle?

**NOTES:** \_\_\_\_\_  
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**BODY**

**(25 MIN)**

**INSTRUCTOR NOTES:**

**INFORM THE SHOOTERS THAT THE SERVICE RIFLE IS DEFINED AS THE M16A4 WITH THE RIFLE COMBAT OPTIC (RCO). THE PROCEDURES IN THIS LESSON ARE WRITTEN FOR RIGHT-HANDED SHOOTERS. LEFT-HANDED SHOOTERS SHOULD REVERSE INSTRUCTIONS AS NEEDED.**

**(SLING #7)**

**1. CHARACTERISTICS AND DISSASSEMBLY: (8 MIN)**

a. The service rifle is a lightweight, 5.56mm, magazine-fed, gas-operated, air-cooled, shoulder-fired rifle.

(1) The service rifle fires in either semiautomatic (single shot) mode or a three-round burst through the use of a selector lever.

(2) The service rifle has a maximum effective range of 550 meters for individual or point targets and 800 meters for area targets.

(3) The maximum range of the service rifle is 3,534 meters.

(4) The service rifle fires at a velocity of 3,100 feet per second (fps).

(5) The service rifle's bore and chamber are chrome-lined to resist corrosion.

(6) The aluminum receiver is lightweight and corrosion resistant.

**(SLING #8)**



(7) The Modular Weapon System (MWS) rail enables mounting of various enhancements. The hand guards are vented to permit air to circulate around the barrel for cooling purposes and to protect the gas tube.

(8) The trigger guard is equipped with a spring-loaded retaining pin that, when depressed, allows the trigger guard to be rotated out of the way for access to the trigger while wearing heavy gloves.

(9) Selector Lever:

(1) Safe: When the selector lever is set on safe, it prevents the rifle from firing.

(2) Semi: Semiautomatic fire; when the trigger is pulled, the rifle will fire once (single shot mode).

(3) Burst: Three round burst; the rifle fires three times with each single trigger pull.

(10). Magazine Release Button: The magazine release button releases the magazine from the magazine well.

k. Charging Handle: When the charging handle is pulled to the rear, the bolt unlocks from the barrel extension locking lugs and the bolt carrier moves to the rear of the receiver.

l. Bolt Catch: If the charging handle is pulled to the rear when the lower portion of the bolt catch is depressed, the bolt will lock to the rear. When the bolt carrier group is locked to the rear and the upper portion of the bolt catch is depressed, the bolt carrier group will slide forward into the firing position.

m. Forward assist: Located on the right rear of the upper receiver, the forward assist permits manual locking of the bolt when this is not done by the force of the action spring.

n. Ejection port cover: Prevents dirt and sand from getting into the rifle through the ejection port. This ejection port cover should be closed when the rifle is not being fired. It is automatically opened by the action of the bolt carrier.

o. Muzzle compensator: Has been designed to serve as a flash suppressor and assists in reducing muzzle rise.

**(SLIDE #9 - 10)**

**(2) DISSASSEMBLY: (9 MIN)**

a. **Disassembly of the Service Rifle into Three Main Groups:**

(1) Clear the rifle, and Remove the Common Weapon Sling.

(2) Move the take down pin from left to right as far as it will go to allow the lower receiver to pivot down from the upper receiver.

(3) Move the receiver pivot pin from left to right as far as it will go and separate the upper and lower receivers.

(4) Pull the charging handle and bolt carrier back about three inches and remove the bolt carrier group.

(5) Remove the charging handle by sliding it back and down, out of the upper receiver.

b. **Detailed Disassembly**. The rifle is now disassembled into its three main groups: the upper receiver, the lower receiver, and the bolt carrier group. We will now begin a detailed disassembly of these groups.

**(SLIDE #11)**

(1) Upper Receiver. No further disassembly is conducted on the upper receiver group.

**(SLIDE #12)**

(2) Bolt Carrier Group

(a) Remove the firing pin retaining pin.

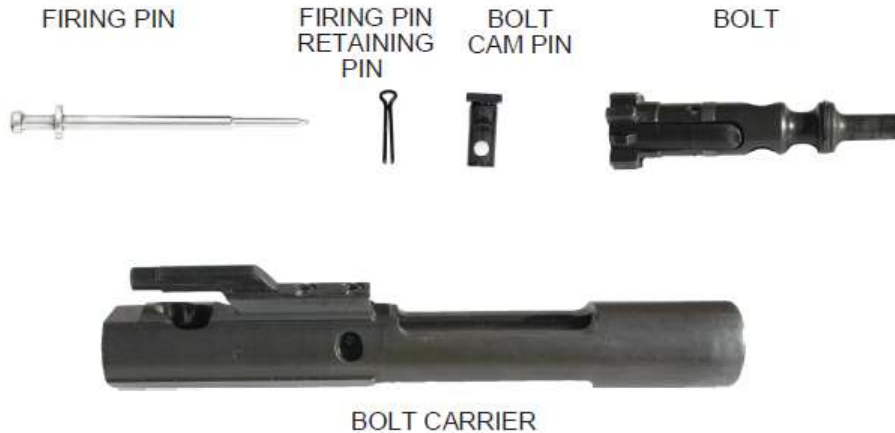
(b) Push the bolt back into the bolt carrier to the locked position.

(c) Tap the base of the bolt carrier against the palm of your hand so the firing pin will drop out.

(d) Rotate the bolt cam pin 1/4 turn and lift it out.

(e) Withdraw the bolt assembly from the carrier.

(f) Press on the rear of the extractor and use the firing pin to push out the extractor retaining pin. Remove the extractor and spring. Be careful not to damage the tip of the firing pin while pushing out the extractor retaining pin. The spring should be permanently attached to the extractor.



**(SLIDE #13)**

(3) Lower Receiver

(a) Press in the buffer and depress the buffer retainer (it may be necessary to use the edge of the charging handle to depress the buffer retainer).

(b) Press the hammer downward and ease the buffer and action spring forward and out of the receiver.

(c) Separate the parts.

(d) No further disassembly of the lower receiver is performed.



(4) Do not disassemble the rifle further than this. In active service or combat situations, the rifle may be partially disassembled in any sequence. However, this is the exception rather than the rule. Under normal circumstances, disassemble your rifle in the sequence just performed. Any further disassembly of the rifle is to be performed by a qualified armorer.

**TRANSITION:** Now that we have discussed the disassembly and characteristics of the service rifle are there any questions? I have one for you.

**QUESTION:** What are the three main groups of the service rifle?

**ANSWER:** Upper receiver, the lower receiver, and the bolt carrier group.

NOTES: \_\_\_\_\_

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Now let's turn our attention to the maintenance of the service rifle. Prior to disassembling the service rifle, it must be cleared. We will begin by discussing the proper clearing procedures.

## 2. MAINTENANCE OF THE SERVICE RIFLE.

(1) **Importance:** Clearing the service rifle means to ensure that the rifle is free of ammunition. To clear the service rifle, point the service rifle in a safe direction and perform the following steps:

a. Attempt to move the selector lever to the SAFE position. If the rifle is not cocked, the selector lever cannot be moved to safe.

b. Depress the magazine release button and remove the magazine.

c. Pull the charging handle to the rear and lock the bolt to the rear.

d. If the rifle would not go on safe before, place the rifle on safe now.

e. Look into the chamber to ensure it is empty.

f. Let the bolt go forward by depressing the top of the bolt catch and observe the bolt moving forward on an empty chamber.

g. Close the ejection port cover.

(SLIDE #14)

### (2) CLEANING THE SERVICE RIFLE

a. **Normal Care and Cleaning.** Normal care and cleaning will result in proper functioning of all parts of the rifle. Use only authorized cleaning materials because using non-authorized cleaning materials can result in stoppages, or even breakage, which will reduce your combat readiness and effectiveness.

b. **Inspection.** While cleaning the rifle, and during each succeeding step in the preventive maintenance process, inspect each part for cracks and chips and to ensure parts are not bent or badly worn. Report any damaged part to the armorer. Inspection is a critical step to ensure the combat readiness of



your rifle. An inspection is normally performed during rifle cleaning (prior to lubrication), however, it can be performed throughout the preventive maintenance process.

c. **Cleaning Materials.** The following cleaning materials will be used in preventive maintenance:

1. Brushes include bore, chamber, and general purpose brushes.

2. A rod in three sections and a handle assembly.

3. Patch holder section, swabs, patches, pipe cleaners, and rags.

4. **CLP (Cleaner, Lubricant and Preservative).** CLP does three things. It contains solvents to dissolve firing residue and carbon, it lays down a layer of Teflon as it dries to provide lubrication, and it prevents rust from forming. To use CLP:

a. Always shake the bottle well before use.

b. Place a few drops of CLP on a patch or rag

c. Clean your rifle with these patches and rags until they come out clean.

d. Take a clean patch or rag and apply a fresh, light coat of CLP.

**(SLIDE #15)**

d. **Upper Receiver.** Basic cleaning of the upper receiver group should include the following:

(1) Attach the three rod sections together but leave each one about two turns short of being tight.

(2) Attach the patch holder onto the rod.

(3) Point the muzzle down and insert the non-patch end of the rod into the chamber. Attach the handle to the cleaning rod section and pull a CLP-moistened 5.56mm patch through the bore.

(4) Attach the bore brush to the rod but leave it two turns short of being tight. Put a few drops of CLP on the bore brush. Insert the rod into the barrel from the chamber end, attach the handle, and pull the brush through the bore.

(5) Inspect the bore for cleanliness by holding the muzzle to your eye and looking into the bore.

(6) Repeat the above steps until patches come out of the bore clean.

(7) Attach the chamber brush and one section of the cleaning rod to the handle. Moisten it well with CLP and insert it into the chamber.

(8) Scrub the chamber and bolt lugs using a combination of a plunging and clockwise rotating action.

(9) Clean the interior portion of the upper receiver with the general purpose brush and CLP.

(10) Dry the bore, chamber, and the interior of the receiver with rifle patches until they come out clean.

(11) Wipe the barrel, gas tube, and rail cover/heat shields clean with a rag.

**(SLIDE #16)**

e. **Bolt Carrier Group**

(1) Clean the outer and inner surfaces of the bolt carrier with a general purpose brush.

(2) Clean the bolt carrier key with a pipe cleaner.

(3) Clean the locking lugs, gas rings, and exterior of the bolt with the general purpose brush.

(4) Insert a swab into the rear of the bolt and swab out the firing pin recess and gas ports.

(5) Clean the extractor with the general purpose brush, ensuring all the carbon is removed from underneath the extractor lip.

(6) Clean the firing pin, firing pin retaining pin, and extractor pin using the general purpose brush and CLP.

(7) Clean the charging handle assembly with the general purpose brush and patches.

**(SLIDE #17)**

f. **Lower Receiver**

(1) Wipe dirt from the firing mechanism with a clean patch and general purpose brush/pipe cleaners.

(2) Clean the outside of the receiver with the general purpose brush and CLP. Clean the butt plate and rear Common Combat Sling swivel, ensuring the drain hole is clear of dirt.

(3) Wipe the inside of the buffer tube, buffer, and action spring.

(4) Wipe the inside of the magazine well with a rag.

(5) Wipe out the inside of the pistol grip, ensuring it is clean.

**(SLIDE #18)**

g. **The RCO**

(1) Remove sand or dirt from the lenses. Use water to remove mud or dried dirt. Take care not to scratch the lens.

(2) Gently apply felt cleaner to lenses to achieve clarity and cleanliness.

(3) Protect the RCO with the neoprene cover when not in use.

**(SLIDE #19)**

h. **Hot, Wet Tropical**

(1) Perform normal maintenance.

(2) Clean and lubricate your rifle more often. Inspect hidden surfaces for corrosion. Pay particular attention to spring-loaded detents.

(3) Use lubricant more liberally.

(4) Unload and check the inside of the magazine more frequently. Wipe dry and check for corrosion.

(5) When practical, keep the rifle covered.

i. **Hot, Dry Desert.** Hot dry climates are usually areas that contain blowing sand and fine dust. Dust and sand will get into the rifle and magazines, causing stoppages. It is imperative to pay particular attention to the cleaning and lubrication of the rifle in this type of climate.

(1) Corrosion is less likely to form in these environments, and lubrication will attract more dirt. For this reason, use lubrication more sparingly. Weapons in desert areas

will become dirty whether they are lubricated or not. A lubricated/dirty weapon will operate. A dry/dirty weapon will fail.

(2) Whenever practical, keep the rifle covered.

j. **Arctic or Low Temperature.** Clean and lubricate the rifle in a warm room, with the rifle at room temperature, if possible. Lubricating Oil, Arctic Weapons (LAW) can be used below a temperature of zero degrees Fahrenheit and must be used below -35 degrees Fahrenheit.

(1) Keep the rifle covered when moving from a warm to a cold environment to allow gradual cooling of the rifle. This prevents the condensation of moisture and freezing.

(2) Condensation will form on the rifle when it is moved from outdoors to indoors. If possible, leave the rifle in a protected, but cold area outdoors. When bringing the rifle inside to a warm place, it should be disassembled and wiped down several times as it warms.

(3) Always try to keep the rifle dry

(4) If possible, unload and hand function the rifle every 30 minutes to help prevent freezing of functional parts.

(5) Do not lay a warm rifle in snow or ice.

(6) Keep the inside of the magazine and ammunition wiped dry. Moisture will freeze and cause stoppages.

k. **Heavy Rain**

(1) When practical, keep the rifle dry and covered.

(2) Always try to keep water out of the barrel. If water does get in, drain and (if possible) dry with a patch.

(3) When water is in the barrel, it is necessary to break the seal by pulling back slightly on the charging handle so the water will drain. Make sure the drain hole in the stock is clear so the water can run out.

(4) Perform normal maintenance.

Let's now turn our focus on how to properly lubricate the service rifle.

**(SLIDE #20)**

l. **Lubricant.** In all but the coldest arctic conditions, CLP is the lubricant for the rifle. Remember to remove excess CLP from the bore and chamber before firing.

(1) Lightly lube means that a film of CLP barely visible to the eye should be applied.

(2) Generously lube means that the CLP should be applied heavily enough that it can be spread with the finger.

m. **Upper Receiver**

(1) Lightly lube the inside of the upper receiver, bore, chamber, outer surfaces of the barrel, and surfaces under the handguard.

(2) Depress the front sight detent and apply two or three drops of CLP to the front sight detent. Depress several times to work lubrication into the spring.

(3) Lubricate the moving parts and elevation screw shaft of the rear sight.

n. **Bolt Carrier Group**

(1) Generously lube the outside of the cam pin area, bolt rings, and outside the bolt body.

(2) Lightly lube the charging handle and inner and outer surfaces of the bolt carrier.

o. **Lower Receiver**

(1) Lightly lube the inside of the lower receiver extension.

(2) Generously lube the moving parts inside the lower receiver and their pins.

**TRANSITION:** Now that we have discussed how to clean and maintain the service rifle in abnormal conditions, as well as how to properly lubricate the service rifle, are there any questions? I have one for you.

**QUESTION:** What are the four abnormal weather conditions that will affect the service rifle the most are?

**ANSWER:** Hot, Wet Tropical; Hot, Dry Desert; Arctic Or Low Temperature; and Heavy Rain.

**NOTES:** \_\_\_\_\_  
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Now that we have lubricated our service rifle and a magazine, let's now discuss how to properly reassemble it.

**(SLING #21)**

### 3. ASSEMBLE THE SERVICE RIFLE

(8 MIN)

#### a. Rifle Assembly

(1) Return all cleaning gear into the buttstock of the rifle and close the butt plate.

(2) Lower Receiver. Connect the buffer and action spring and insert into the buffer tube/stock.

#### (3) Bolt Carrier Group

(a) Place the extractor and spring back on the bolt. Depress the extractor to align the holes and reinsert the extractor pin.

(b) Stagger the gas rings on the bolt to stop gas loss; then insert the bolt into the carrier. Do not switch bolts between rifles.

(c) Hold the bolt carrier with the bolt carrier key at 12 o'clock. Insert the bolt into the bolt carrier with the extractor at 12 o'clock.

(d) Rotate the bolt counterclockwise until the cam pin hole aligns to the cam pin slot in the bolt carrier.

(e) Insert the bolt cam pin through the bolt carrier and into the bolt. Rotate the cam pin 1/4 turn right or left. Pull the bolt forward until it stops.

(f) Drop in the firing pin from the rear of the bolt carrier and seat it.

(g) Replace the firing pin retaining pin. Ensure the head of the firing pin retaining pin is recessed inside the bolt carrier. The firing pin should not fall out when the bolt carrier group is turned upside down.

#### (4) Upper Receiver

(a) Place the charging handle in the upper receiver by lining it up with the grooves in the receiver. Push the charging handle partially in.

(b) With the bolt in the unlocked position, place the bolt carrier key into the groove of the charging handle.

(c) Push the charging handle and bolt carrier group into the upper receiver until the charging handle locks.

(d) Join the upper and lower receivers and engage the

receiver pivot pin.

(e) Ensure the selector lever is on safe before closing the upper receiver. Close the upper and lower receiver groups. Push in the takedown pin.

(5) Replace the Common Weapon Sling.

**(SLIDE #22)**

b. **Function Check.** A function check is performed to ensure the rifle operates properly after the weapon has been reassembled. To perform a function check:

(1) Ensure the service rifle is in Condition 4: The magazine is removed, the chamber is empty, the bolt is forward, the safety is on, and the ejection port cover is closed.

(2) Pull the charging handle to the rear and release. Ensure the selector lever is on SAFE and pull the trigger to the rear - the hammer should not fall.

(3) Place the selector lever on SEMI. Pull the trigger to the rear and hold it to the rear - the hammer should fall. While holding the trigger to the rear, pull the charging handle to the rear and release. Release the trigger until you hear a "clunk."

(4) Place the selector lever on BURST. Pull the trigger and hold it to the rear - the hammer should fall. While holding the trigger to the rear, pull the charging handle to the rear three times and release. Release the trigger until you hear a "clunk", and pull to the rear again - the hammer should fall.

(5) Pull the charging handle to the rear and release. Place the selector lever on SAFE and close the ejection port cover.

**(SLIDE #23)**

c. **User's Serviceability Inspection.** Perform a user serviceability inspection before beginning any live fire event to ensure the weapon is in an acceptable operating condition. This inspection is done prior to any combat operation such as a patrol, being posted for guard duty, etc. To perform a user serviceability inspection:

(1) Ensure the service rifle is in Condition 4.

(2) Check the service rifle to ensure the following:

(a) The compensator is centered and tight.

(b) The barrel is tight.

(c) The rail covers/heat shields (Rail System) are serviceable: No cracks, chips, severe dents, rail covers present, no cracks, not excessively loose. Ensure the screw on the top aft portion of the rail system is present and tight.

(d) Sighting System: Proper model RCO for weapon, attached correctly/throw levers secures, lenses not cracked, scratched, or broken, and reticle not canted. The fiber optic cable is serviceable. Protective caps are present and secure. The RCO is securely mounted to the rail system. Check the screws that secure the RCO to the rail to ensure they are secure. The thumbscrews on the RCO are mounted over the ejection port cover.

(e) Stock: Tight on lower receiver, then break weapon down "shotgun style." The buffer tube is straight and not cracked. The Common Weapon Sling keeper can be adjusted and secured.

**(SLIDE #24)**

(f) Chamber/Barrel: Remove bolt carrier group; clear of obstructions, no major pits or cracks.

(g) Gas Tube (from chamber end): Not bent or damaged, in uniform shape; is securely fixed in the front sight assembly (replace rail cover/heat shields).

(h) Bolt Carrier Group: Properly assembled, rotates freely, and gas rings are staggered evenly around the bolt.

(i) Lubrication: Lubricated for operational conditions and climate; replace bolt carrier group, and reassemble the weapon.

(j) The pistol grip is tight.

(k) The trigger guard release pin is locked into place.

(l) The ejection port operates correctly.

(3) Load the rifle with an empty magazine. Ensure that the magazine can be seated. Pull the charging handle to the rear. Ensure that the bolt locks to the rear. Repeat this procedure with all magazines.

**(SLIDE #25)**

**TRANSITION:** Now that we have discussed the function check and user serviceability inspection for the service rifle, are there any questions?



**QUESTION:** What is the purpose of the function check?

**ANSWER:** To ensure the rifle operates properly after the weapon has been reassembled.

Are there any questions on anything that I have covered during this period of instruction?

**NOTES:** \_\_\_\_\_  
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Let's summarize.

**(SLIDE #26)**

**SUMMARY**

**(2 MIN)**

Throughout this period of instruction we have covered disassembly of the weapon, maintenance of the weapon and assembly. Your service rifle must be maintained in a state of operational readiness at all times. It is imperative to become familiar with its weaknesses, strengths, parts, and accessories and to guard it against damage caused by the environment. Following correct preventive maintenance procedures reduces the likelihood of stoppages, maintains mechanical accuracy, and extends the service life of the rifle.

**INSTRUCTOR NOTE:**

**HAVE THOSE SHOOTERS WITH INSTRUCTIONAL REVIEW FORMS (IRFS)  
FILL THEM OUT AND TURN THEM IN AT THIS TIME.**