Space Age Weaponry

D-CAT: Deployable Compact Armorers Tool

Model PS145-3

Section A, Introduction

The D-CAT from Space Age Weaponry fits in the storage compartment of a standard AR-15/M-16 fixed butt stock. It weighs just 6 ounces. It is the only tool necessary to assemble the AR-15/M16 from component parts, or perform a complete disassembly. Every repair and maintenance task necessary to keep the gun running can be performed with the D-CAT. An optional accessory strap wrench is required for barrel nut, flash hider, and collapsible stock. A few operations require a field expedient hammer, such as a rock.

The D-CAT is manufactured from quality materials: 6061-T6 Aircraft Aluminum, 303 Stainless steel, and H13 Tool Steel. It is designed to provide a lifetime of service, replace an entire box full of tools, yet fit in a pocket, a web gear pouch, or in the butt stock of the rifle.

Without the D-CAT, your rifle is only one serious malfunction away from being reduced to an inefficient club. The D-CAT is more than an accessory, it is a necessity.

This manual is available at http://SpaceAgeWeaponry.com/manuals. Complete video manuals are also available at the same web site, demonstrating complete assembly of an AR-15 rifle using the D-CAT, as well as maintenance functions. These resources detail everything an operator needs to know to assemble the AR-15/M16 from its components, down to the last spring, pin, and detent, and to keep it running.

Remember, just as owning a rifle will not make you a marksman, owning a tool will not make you a craftsman. Assembling and repairing firearms is a complex task and the PS145-3 is a complex tool designed specifically for your weapon. Mastering these tasks requires a willingness to learn new skills as well as the development of mechanical aptitudes and methods that may be new to you. It is no different than purchasing new software for your computer. The level of functionality you can expect from your equipment is directly proportional to the amount of effort you are willing to invest in learning the system. With a little effort you will be able to greatly expand your knowledge, skills, and abilities with respect to this weapon system.

D-CAT functions:

C1.0: Lower receiver:

Removal and Installation of:

C1.1 Winter Trigger Guard

C1.2 Forward Push Pin

C1.3 Bolt Stop

C1.4 Receiver Pins

C1.5 Hammer and Trigger Pins

C1.6 Pistol Grip

C1.7 Buffer Tube

C1.8 Butt Stock

C1.8a Collapsible Stock (requires strap wrench)

C1.9 Rear Sling Swivel

C2.0: Upper Receiver:

Removal and Installation of:

C2.1 Forward Assist Pins

C2.2 A1 and A2 Rear Sight Pins

C2.3 Gas Tube

C2.4 Extractor

C2.5 Gas Block

C2.6 Flash Suppressor (requires strap wrench)

C2.7 Forward Sling Swivel

C2.8 Gas Key (including staking)

C2.9a Front Sight (including adjustment)

C2.9b A1 Rear Sight (including adjustment)

Adjustment of Large Optic Screws

C3.0 Magazine:

C3.1Remove floor plate

C3.2 Adjust feed lips

C4.0 Maintenance:

C4.1 Scrape carbon from bolt carrier

C4.2 Cleaning rod handle

C4.3 Remove Bolt Carrier Cotter Key

Figure 1: Tool Components

Table 1 Tool Components

Torque Handle	Roll Pin Starter,	Pivot Pin Detent Gate
Scraper Body	0.125 Punch	Roll Pin Set
Driver Body	Large Flat Blade	Front Sight Drive Lug Protector
Gas Tube Jaw	1/8" Hex Driver	Spring Clip
0.062/0.078 Punch	3/16" Hex Driver	Spare Trigger Pin
0.093 punch	9/64" Hex Driver	

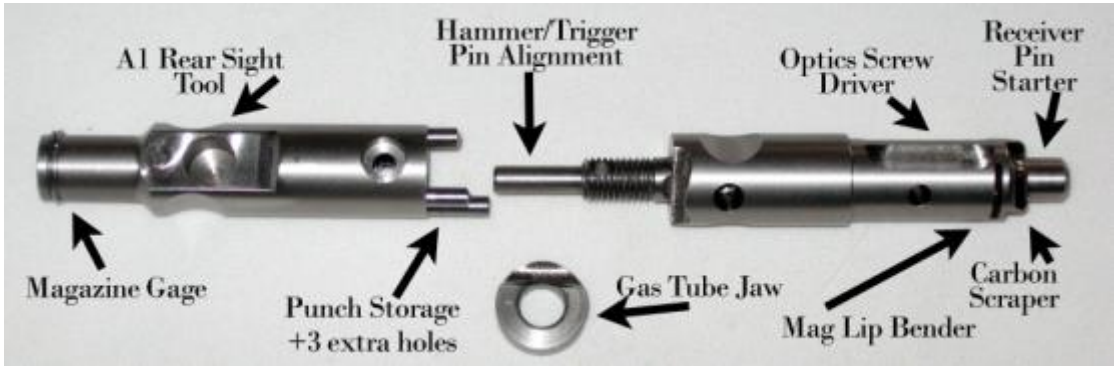

Figure 2: Inner Sub Assembly Function and Components

Maintenance and repair operations should NEVER be performed on a loaded weapon. Be sure your weapon is unloaded before you perform any of the functions described herein.

Section B: Conventions

The D-CAT packs immense functionality into a very compact package. Some of the functions of the tool may not be intuitively obvious. Refer to this section to learn how the parts of the tool function together. This section also explains the nomenclature used in the rest of the manual, regarding both the tool and the rifle it was designed for.

B1: AR-15/M16 Nomenclature and Orientation

This manual uses the naming conventions from the following exploded parts diagram

Rifle Orientation: This manual uses a naming convention to describe the orientation of the rifle and its parts, based upon the shooter's perspective when the rifle is held in a firing position. Thus, left and right sides of the rifle or part refer to the left and right sides from the operator's perspective. Forward is toward the muzzle, aft is toward the butt plate. Up is toward the sights, down is toward the magazine well.

Top

Fore **Aft**

Figure 3: Left Side View of AR-15/M16 type rifle

Bottom

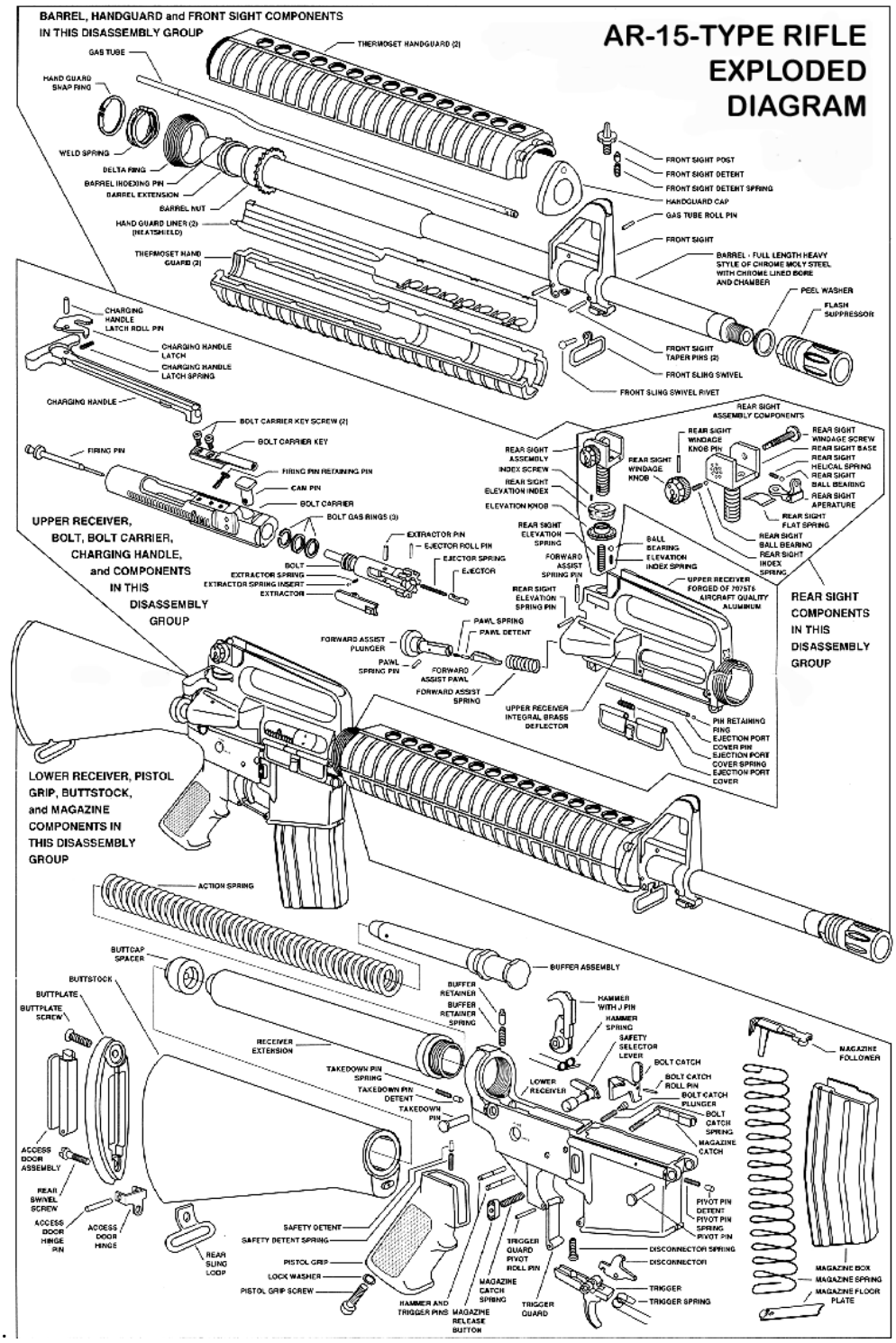

Figure 4: Exploded parts Diagram, AR-16/M16 type rifle

B2: Major Tool Modes

- The D-CAT is supplied in Storage Mode. Bits, punches, and other small parts are located in the tool magazine, within the torque handle, and can be accessed by rotating the magazine gate to expose the individual compartments. Within the magazine you will find a 1/8” punch, a flat blade driver, front sight adjustment tool, and a 3/16” and 9/64” hex driver. There is also a spare punch pocket and a Hammer/Trigger pin pocket. This is also the mode in which the D-CAT is used as a screwdriver. The driver makes use of a standard ¼” hex well so the tool can be augmented to serve as a general purpose driver for any bit that you choose to carry whether it be for another weapons system, vehicle, or other specialized purpose.

Figure 5: Screwdriver and Storage Mode

- To configure the tool in screwdriver mode, begin by removing the 1/8” hex bit from its inverted location in the ¼” hex well. Insert the desired bit and execute the desired operation. The tool is used in this mode, with the large flat blade bit, to stake the gas key screws as well. **Make sure that the roll pin set is in place in the end of the scraper body and the assembly pin is inserted before executing the staking operation. The roll pin set transfers the axial load through the tool and failure to use it can cause damage to the tool.**

Figure 6: Punch Mode with Roll Pin Set installed

Figure 7: Punch Mode with 1/16" punch

Figure 8: Punch Mode without Punch installed

To configure the tool in punch mode, the 1/8” hex bit is placed in the ¼” hex well in the inverted position. (**This step is critical to allow for transfer of the axial load through the tool body**). Insert the assembly pin in the secondary pin hole to secure the inner sub assembly in the torque handle. Place the desired punch in the end of the scraper body to complete configuration of the tool. In this mode, the tool can be used to drive push pins and roll pins. The tool can be configured with drive pins of 0.062” (one ring), 0.078” (designated by a single ring), 0.093” (designated by two rings), 0.125” (no ring) or the Roll Pin Set to drive roll pins flush with a surface. In punch mode with no pin installed, the tool can also be used to adjust magazine feed lips and push out tight receiver pins. **Helpful Hint: When using a punch on a firearm it is recommended to mask the area around the hole with tape to reduce the possibility of marring the finish of the weapon. Electrical tape works well for this purpose.**

Figure 9: Screwdriver Mode

Helpful Hint: Removing bits from the magazine is not difficult but it does require attention to detail. In order to keep debris out of the tool magazine the opening is necessarily kept to a minimum clearance. To remove the bit, align the window with the edges of the cavity holding the desired bit as shown below. Rotate the tool so the window faces downward and gently shake the tool or tap it against your palm and the bit will be ejected from the cavity.

When reinstalling the hex bits into the bit magazine, make sure the ¼" hex end is toward the strike face. Installing the hex bits backward in the tool magazine will result in a jam that is difficult to clear. Do NOT force the bits into the magazine!

Figure 10: Bit magazine with hex bit properly inserted

Please note that the bit magazine has 2 extra slots for user supplied items like hammer trigger pins.

An alternative method to remove the bits, is to grasp the tool as shown below. Point the unit face down and rotate the bezel slightly back and forth between the thumb and fore finger until the bit drops from the magazine.

Figure 11: Alternative method to remove bits from the bit magazine

Tee Handle Mode:

To configure the tool in Tee-handle mode, remove the inner sub-assembly from the torque handle. Insert the scraper end into the large hole adjacent to the tool magazine. Align the assembly pin hole and insert the assembly pin. This can be done with or without the spring clip in place however, if the spring clip is not removed you can fold it over the torque handle during use but you will not be able to secure the clip on the end of the assembly pin. This configuration operates as a Tee-handle 1/4" hex driver, providing the required torque to install and remove the buffer tube or pistol grip. **Warning: The D-CAT is designed to allow application of proper torques and forces. Use of "cheater bars" or similar leverage amplifying devices can cause damage to your tool or weapons system.**

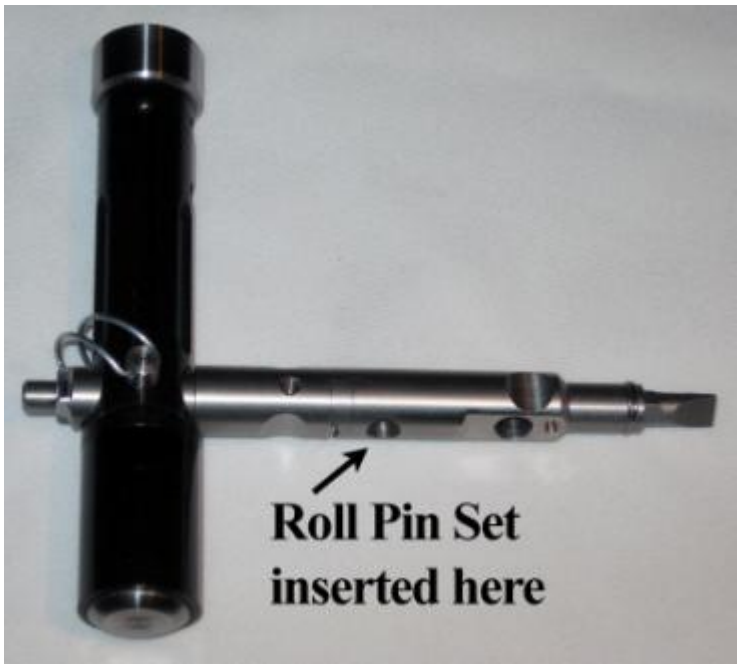

Figure 12: Tee Handle Mode

Scraper Mode

To configure the tool in scraper mode, simply remove the inner sub-assembly from the torque handle. In this mode the tool is used as a carbon scraper, cleaning rod handle, gas tube wrench, and optics screw driver.

Figure 13: Scraper Mode

Roll Pin Starter Mode

Figure 14: Roll Pin Starter

The Torque Handle can be used as a roll pin starter for 3/32” and 5/64” pins. It is particularly useful for starting the 3/32” roll pin for the bolt stop.

C1.0 Lower Receiver

C1.1 Trigger Guard

Configure the tool in Punch mode, with the roll pin set in place. Place the lower receiver with its right side facing up. (Be sure that the receiver is fully supported beneath the roll pin. Applying uneven force in this area can cause the receiver to break in the area shown in the image below.) Place the 1/8” roll pin in the 1/8” hole aft of the trigger. Insert the trigger guard as shown to provide support to the thin area of the receiver. Use the strike face on the back of the tool and gently tap the roll pin until it starts into the hole. Align the hole in the trigger guard with the pin. Place the punch over the roll pin and finish driving the pin until it is flush with the receiver.

Figure 15: Installing Trigger Guard

C1.2 Forward Push Pin

Remove Spring Clip # 16 from the pivot pin detent gate #13.

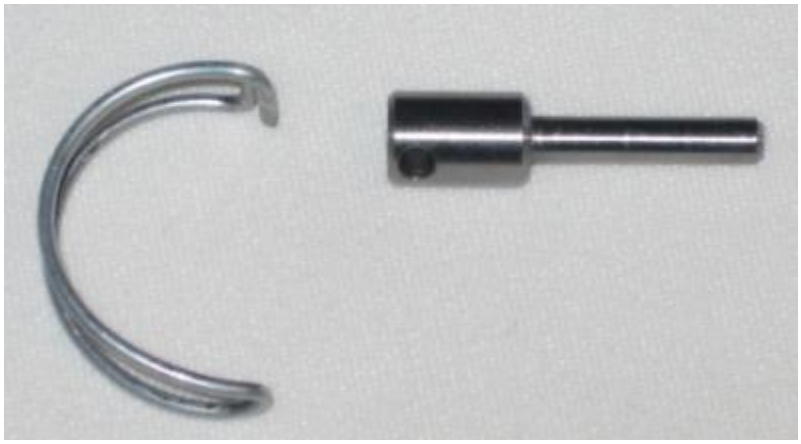

Figure 16: Spring clip assembly

Insert the gate into the forward push pin hole in the lower receiver and align the 3/32” hole in the gate with the corresponding hole in the lower receiver using the 3/32” punch.

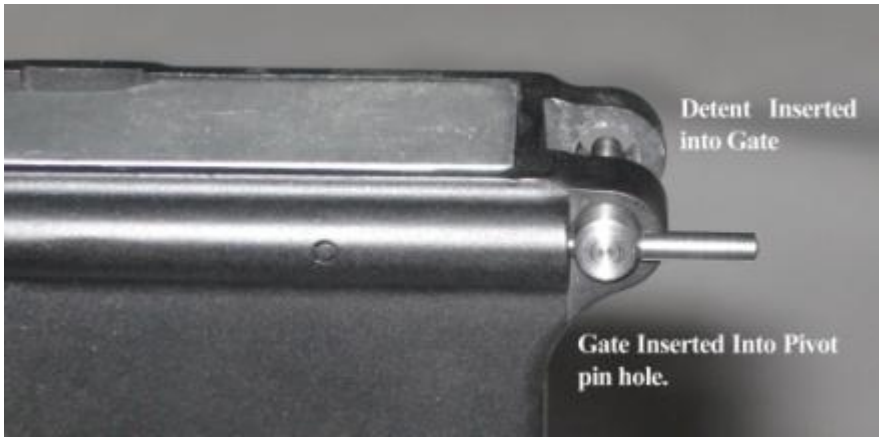

Figure 17: Use of the Gate to install Front Pivot Pin

Insert the spring and detent and compress the assembly using the 3/32” drive punch #7 until the gate can be rotated to retain the spring and detent.

Figure 18: Sprint and Detent for front pivot Pin:

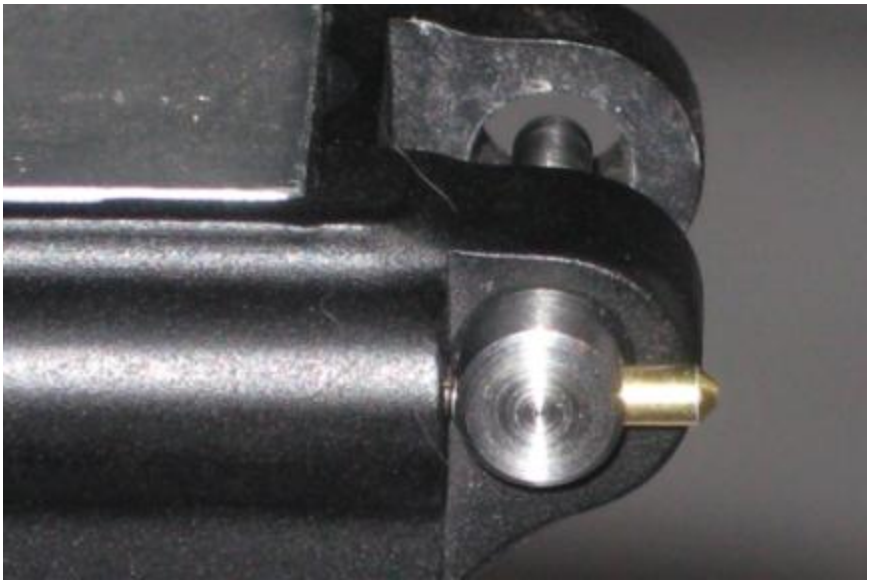

Figure 19: Spring and Detent inserted in Gate

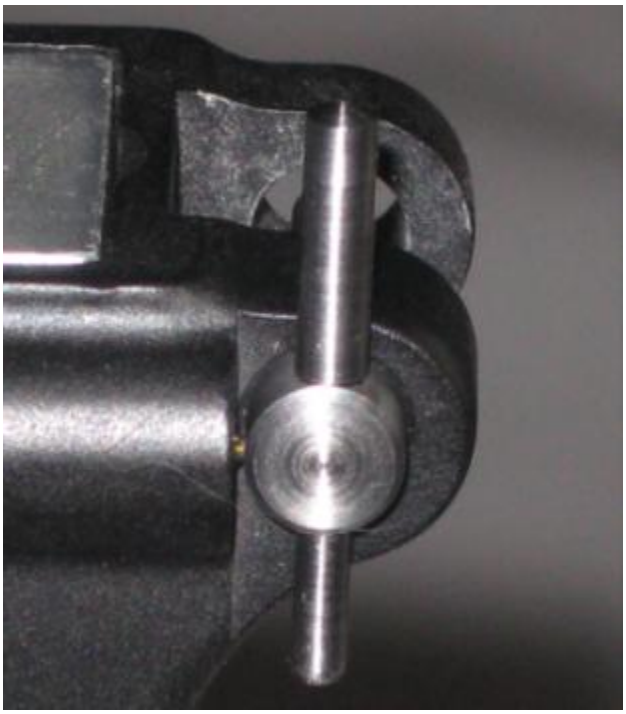

Figure 20: The punch used to rotate the gate, holding back the pivot pin detent.

Complete the operation by using the pivot pin (this is the receiver pin with the flat cut onto the head of the pin) to displace the gate as you push the pivot pin through the lower receiver. It helps to place the tip of the index finger on the periphery of the pivot pin as shown to guide the pin into the hole and counteract the spring pressure from the detent as the pivot pin starts into the receiver.

Figure 21: Pivot Pin is driven in to push the gate out.

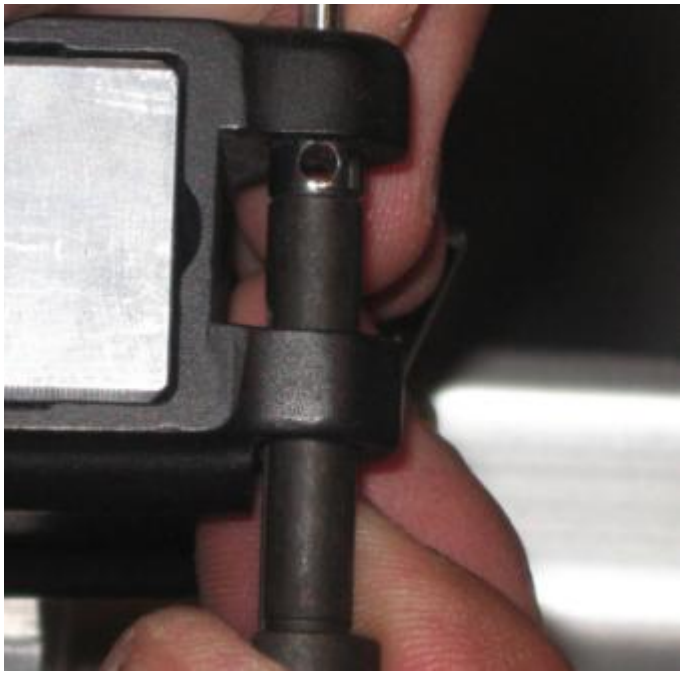

Figure 22: Receiver Pivot Pin is used to push the gate out

C1.4 Receiver Pins

Normally Receiver Pins can be pushed out without tools. If a pin is too tight to push out with finger pressure, the tool can be configured in punch mode, without a punch installed, and used as shown below.

Figure 23: Punch body is used to push out sticky receiver pins

C1.5 Hammer and Trigger Pins

Disassemble the tool to expose the pin driver boss on the scraper body as shown.

Figure 24: Scraper body, with Hammer/Trigger Pin Driver & alignment punch

Use the boss to push the hammer or trigger pins out of the receiver to a point where you can grasp the pin. Withdraw the tool to remove the hammer or trigger. The tool in this configuration can also be used to align the parts for reassembly. Use the boss to align the hammer or trigger with the holes in the receiver. Insert the hammer/trigger pin from the opposite side and press it into place to displace the tool boss.

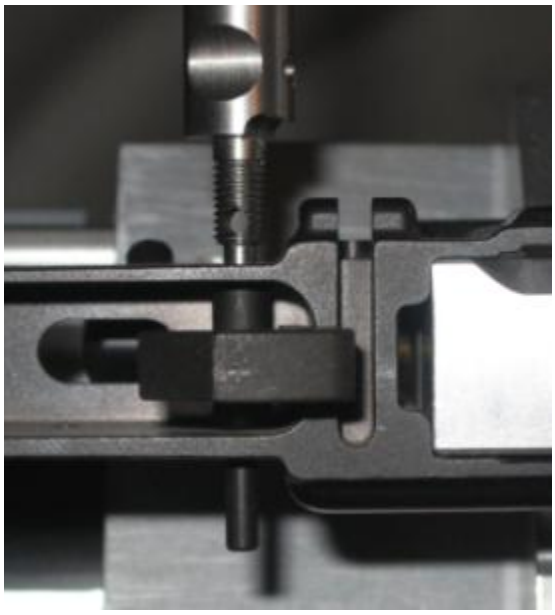

Figure 25: Hammer/Trigger Pin Alignment using Scraper Body

C1.3 Bolt Stop

Use the tool in Roll Pin Starter Mode. Insert the 3/32” roll pin for the bolt stop into the corresponding hole in the Torque Handle as shown. Align the pin with the hole in the receiver shown below and tap in the pin until it reaches the inner face of the receiver slot. Now install the spring, spring detent, and bolt stop so the hole in the stop is in alignment with the receiver. Continue driving in the roll pin until the nut driver is close to the receiver. (Do not allow the nut driver to be driven into the receiver as this can mar the finish of the firearm. As stated earlier us tape to mask the work area.) Convert the tool into drive punch mode and complete seating the roll pin using the roll pin set.

Figure 26: Roll Pin inserted in starter holes in Torque body

Figure 27: Roll Pin in Torque Body, inserted into Bolt Release

C1.6 Pistol Grip

First install the trigger group and safety in the lower receiver. Install the detent spring into the hole on top of the pistol grip and drop the detent into the corresponding hole in the lower. Align the top of the spring within the grip with the hole in the lower and carefully push the grip into place. (Apply slow even pressure during this step, rapid movements can cause misalignments that can damage the spring.)

Configure the tool in Tee Handle Mode and place the appropriate bit in the driver body. (The ¼”-28 screw that retains the grip can have either a slotted head or a 3/16” allen cap screw.) Insert the roll pin set into the assembly hole on the tool body to keep the tool from disassembling during use. Insert the driver up into the grip well to install or remove the screw.

Figure 28: Tee Handle Mode to tighten Pistol Grip

Magazine Release

Tools are not required to install the mag release. The parts are shown below. Start by inserting the magazine catch into the receiver from the left side.

Start by inserting the magazine catch into the receiver from the left side. And place the magazine catch spring over the threaded boss from the right side. Shown below.

Figure 29: Magazine Release Spring Inserted in Receiver.

Using your index finger, press the catch as far into the receiver as possible and thread the magazine release button onto the boss until it is nearly flush with the receiver as shown.

Figure 30: Magazine Catch Nut/button threaded onto Magazine Release catch

Using your thumb press the button as far into the receiver as possible. Rotate the catch on the right side until it is flush with the frame. (The image below shows the catch one turn away from final depth for clarity.) Align the catch with the receiver and release the button. Function check the catch with a magazine.

The image below illustrates how far the button is depressed into the receiver while rotating the mag catch.

Figure 31: Depress Magazine release Button flush with receiver.

C1.7 Lower Receiver Extension A.K.A. Buffer Tube

Configure the tool in Tee Handle mode to tighten or loosen the buffer tube on the lower receiver. When installing the buffer tube, depress the buffer stop into its hole prior to seating the buffer tube flange against the lower receiver. The buffer tube should be installed with 30 to 40 ft/lbs. of torque.

Figure 32: Buffer Tube Plunger Spring installed into lower Receiver.

Figure 33: Buffer Tube retaining plunger installed onto spring

Figure 34: Buffer tube screwed in to receiver, capturing buffer tube retaining plunger.

Figure 35: Torque handle being used to tighten buffer tube.

With the D-CAT configured in the Tee-Handle Mode, you can now apply torque to seat the receiver extension. **IMPORTANT NOTE: Be sure to apply force along the entire length of the inner sub-assembly as shown above. Application of force at the end of the handle alone will induce excessive stress at the point where the two halves of the sub-assembly meet and can cause the tool to fail. Also, there are several features on the sub-assembly that are sharp. Wear gloves or wrap the tool in a cloth when performing this operation to avoid injury.**

C1.8a Rifle Butt Stock

Once the receiver extension is in place the stock can be installed. The stock retains the spring and detent for rear receiver push pin. Start this operation by installing the rear pin with the detent slot pointed to the aft of the weapon and insert the detent as shown. (Note: The front and rear detents and springs are identical.)

Figure 36: Detent Installed

Insert the spring over the detent.

Figure 37: Detent Spring Installed

Slide the stock into place until it just touches the spring. Then, slowly push the stock forward ensuring that the spring slides completely into the receiver. (Failure to use care on this step can cause the spring to deflect and be caught between the face of the stock and the receiver.)

Figure 38: Slide Stock on Buffer Tube to capture spring

Slide the stock into place and insert the flat head screw into the back of the stock until it is finger tight.

Configure the tool in Tee Handle mode or screwdriver mode. Remove the top slotted screw at the rear of the butt stock.

Figure 39: Screwdriver Mode to remove butt plate on fixed stock

C1.8b Collapsible Stock (requires accessory strap wrench)

Figure 40: Use of Strap Wrench Accessory to tighten CAR stock nut

Install the new buffer tube and screw it into place so it retains the buffer stop. Tightening and loosening the collapsible stock lock nut is achieved by placing the drive lug on the strap wrench key into the corresponding notch on the lock nut. Wrap the strap around the nut and receiver extension in the desired direction for tightening or loosening. Thread the tool through the loop at the end of the strap and use it as a lever to apply torque to the locking ring. If desired you can stake the nut using the slotted driver bit. (The required torque for this operation is 35-40 in/lbs).

C1.9 Rear Sling Swivel

The rear sling swivel is retained by the lower stock screw. Remove this screw with the tool in the Tee Handle configuration or the screwdriver configuration and then slide the swivel downward out of the slot. Reassemble in reverse order.

C2.0 Upper Receiver:

C2.1 Forward Assist Pins

Configure the tool in drive punch mode and install the 3/32” punch. To install the forward assist, insert the forward assist into the receiver and use the 3/32” punch to align the assist mechanism with the hole in the receiver. Leave the punch in the hole and place the forward assist roll pin in the corresponding hole in the torque handle. Withdraw the punch from the receiver hole while maintaining pressure on the back of the forward assist button so it stays in alignment with the receiver hole. Drive the roll pin into the hole until the nut driver gets close to the receiver. Convert the tool to punch mode and finish seating the pin with the roll pin set. You can switch to the 3/32” punch to drive the pin below the receiver surface if you choose.

Figure 41: Forward Assist Roll Pin Installation

C2.2 A1 and A2 Rear Sight Pins

Configure the tool in punch mode and install the 1/16” drive punch Use this configuration to drive the pins retaining the sight wheel and sight knob on the A1 and A2 variants.

Figure 42: Rear Sight Roll Pin installation

C2.9a Front Sight

Configure the tool in Screwdriver Mode, using the Front Sight Adjustment bit. Place the front sight detent spring into the detent pocket and place the detent on top of the spring. Install the front sight post and start the threads by hand to ensure proper thread engagement. Place the front sight adjustment tool onto the post and screw in the sight until you begin to get interference between the tool and the front sight base. When this occurs you will now align the drive boss on the bit with the corresponding pocket on the sight post and turn the sight until the rotation is stopped by interference. Lift the tool off the post far enough to allow the drive boss to be repositioned on the next pocket and repeat this ratcheting operation until the sight post is at the desired height.

Reverse this process to remove the sight post.

Adjusting the Front Sight: Place the drive boss over the front sight detent and press down. Rotate the front sight in the direction desired one increment, then lift the tool slightly to disengage the drive boss. Reset the drive boss in the next appropriate location and repeat as required.

Figure 43: Front Sight Bit used in Screwdriver Mode.

C2.9b A1 rear sight

With the tool in scraper mode place the hole in the driver end over the boss on the rear sight windage adjustment wheel. Align the drive pin with the hole that corresponds to the spring detent location. Push the tool inward to depress the detent and rotate in the desired direction.

Figure 44: A1 Rear Sight Adjustment tool

Adjust Large Optics Screws

The raised boss adjacent to the scraper flutes is the correct size for optics screws which are designed to be adjusted using a US quarter. With the tool in scraper mode use the straight boss adjacent to the scraper flutes to engage the slot on the optics screw or nut. Rotate as required.

Figure 45: Large Optic Screw Driver

C2.3 Gas Tube

The inner sub-assembly clamps onto the gas tube as shown.

Figure 46: Gas Tube Removal: Clamped between scraper and driver bodies.

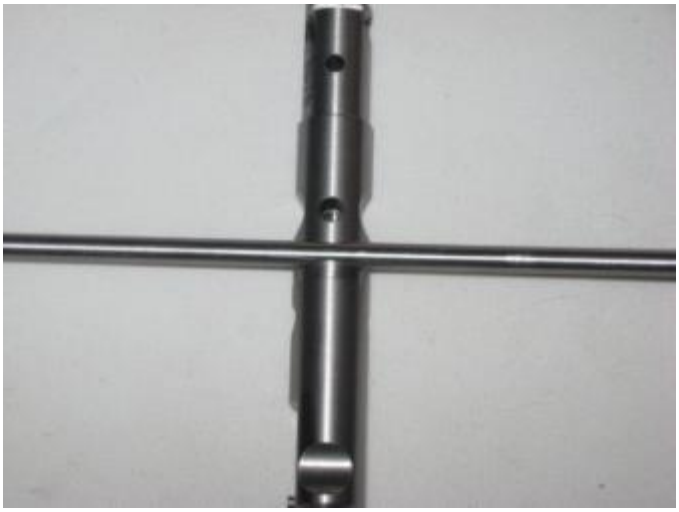

Figure 47: The gas tube is clamped between scraper and driver bodies using the gas tube wrench washer.

Configure the tool in punch mode, using the 1/16” drive punch. Use this to remove the roll pin from the gas block. Clamp the gas tube as shown and rock the tube from side to side to break up any carbon deposits. Apply rearward pressure to the tool while continuing to rock the assembly side to side until the gas tube clears the gas block. Reverse the process to reinstall the gas tube. *Hint: In cases where there is excessive carbon it might be necessary to wrap the gas tube with cellophane or a blade of grass to increase the clamping force on the gas tube.*

To reinstall the tube us the tool in punch mode and install the small roll pin starter into the punch hole as shown. Take the uninstalled 1/16” punch and use it to align the hole in the gas block with the hole in

the gas tube. Start the roll pin into the hole and then replace the roll pin starter with the roll pin set and finish driving the pin until it is flush with the gas block surface. (Some people prefer this pin to be slightly inset. If you choose you can use the 1/16” punch to seat the pin below the surface. Be careful not to drive the pin out the back side of the hole. This step is aesthetic and not required.)

Figure 48: Installation/Removal of the gas tube retaining roll pin.

C2.4 Extractor

Configure the tool in Punch Mode with the 3/32” punch installed. Remove the bolt from the bolt carrier and hold the bolt with your thumb over the back of the extractor and apply light pressure at this point. Use the punch to push on the extractor. You may need to vary your thumb pressure as you displace the pin but the pin should slip out of the hole with very little resistance.

Push the punch all the way into the hole until it stops. This will retain the spring beneath the extractor. Reposition your thumb over the middle of the extractor, apply light pressure and withdraw the punch. Gradually release thumb pressure until you no longer feel the spring pressure against you thumb then remove the extractor and spring from the bolt.

Figure 49: Extractor installation/removal

C2.6 Gas Block (Front Sight Base)

Configure the tool in punch mode with the roll pin set installed. Place the punch over the left side of the taper pin that retains the Gas Block. Strike the punch to drive out the pin until the end is flush with the surface of Gas Block. Repeat this step on the second pin. Install the 1/8” punch and finish driving out the pins.

Note: The pins that hold on the Front Sight Base are tapered. They are designed to lock into place. After repeated heating and cooling cycles on the barrel they can become extremely tight. This operation may require a great deal of force to complete so be sure you support the area under the FSB with a firm soft material like wood or hard plastic to avoid damage to the rifle. A hammer (rock) may be necessary for this operation.Note: Some weapons use roll pins instead of taper pins. This variant is also shown below.

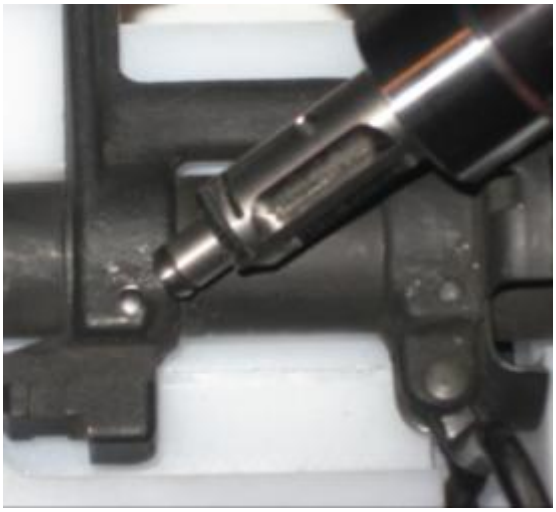

Figure 50: Setting the roll pins on the gas block

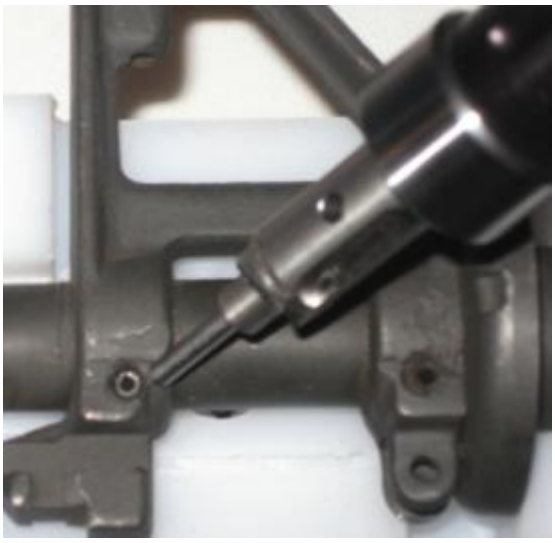

Figure 51: Some front sight base/gas block use roll pins instead of taper pins.

C2.6 Flash Suppressor (requires strap wrench)

Tightening and loosening the flash hider is achieved by placing the strap into the slots in the flash hider and pulling it through the hider until the strap wrench key contacts the flash hider as shown. Locate the appropriate notch on the top of the key onto the flash hider (again, the notch you use will depend on whether you are tightening or loosening the unit). Wrap the strap around the flash hider in the desired direction as shown. Insert the torque handle through the end of the strap and place the flash hider in the notch created by the intersection of the nut driver and inner sub-assembly as shown. Apply force as needed to complete the operation. (The required torque for this operation is 25-35 ft/lbs).

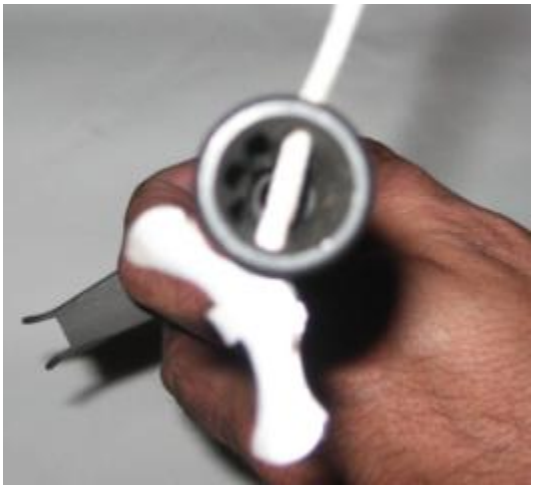

Figure 52: Strap Wrench used to tighten or remove flash hider. Step 1

Figure 53: Strap Wrench used to tighten/loosen flashhider, step 2

C2.7 Forward Sling Swivel

Configure the tool in punch mode and install the 3/32” drive punch. Drive the roll pin retaining the Front Sling Swivel out from either side. To re-install use the roll pin starter on the edge of the Torque Handle to start the pin in the sling swivel and finish with the roll pin set. (Some swivels are riveted into place and cannot be removed without drilling out the rivet.)

Figure 54: Sling Swivel installation/removal

Example of a riveted sling swivel.

Figure 55: Riveted Sling swivel, grind or drill to remove.

C2.8 Gas Key

Configure the tool in Tee Handle Mode, using the 9/64” or 1/8 “ hex bit. Use the bit which corresponds to cap screws on your gun. Both sizes are in common use. Apply torque as required to tighten or loosen the key. If the bolts are staked they can usually be removed without grinding the stakes.

Figure 56: Gas Key Screw installation/removal

Stake gas key

Configure the tool in screwdriver mode with the slotted bit installed. Place the screwdriver bit on the edge of the counter bore of the cap screw. Strike the tool sharply with a field expedient hammer to roll the gas key material over the cap screw. This operation should be performed at least twice on each of the cap screws as shown.

Figure 57: Staking Gas Key Screws

C3.0 Magazine:

C3.1 Remove Magazine Floor Plate

Configure the tool in screwdriver mode with the 1/8” hex bit installed. Insert the bit into the hole in the magazine floor plate. Rotate the tool at an angle as shown and pull in an upward direction to clear the assembly detent while pushing outward to displace the floor plate from the magazine body. Once the plate has been freed from the detent remove the tool and grasp the floor plate pulling it free from the mag body while using your other hand to grip the magazine and capture the spring with your thumb.

Figure 58: Lift Magazine Floor Plate

Figure 59: Finish Removal of Magazine Floor Plate

C3.2 Adjust Magazine Feed Lips

Configure the tool in Scraper Mode. Use the slot on the scraper body to bend the magazine feed lip as required to restore the proper feed angle to the magazine. When the magazine is properly tuned the bullet tip should align with the center of the bit retention spring when the end of the driver body is

place on the flat at the front of the magazine as shown. If you are not sure of the proper angle use a separate loaded magazine as a reference.

Figure 60: Adjust magazine feed lips

Figure 61: Magazine Lip Gauge use: Bullet tip should align on retention spring.

C4.0 Maintenance:

C4.1 Scrape Carbon from Bolt Carrier

To remove carbon from the interior of the bolt carrier, remove the scraper body from the torque handle and insert the scraper into the bolt carrier until the scraper contacts the back face of the carrier. Rotate the scraper in a clockwise direction while applying forward pressure to tool. This will allow the flutes of the scraper to engage and break apart carbon deposits.

Figure 62: Bolt Carrier carbon may be scraped using the scraper body.

C4.2 Cleaning Rod Handle

Configure the tool in scraper mode. Insert the threaded end of a standard 8-32 thread cleaning rod into the threaded hole in the side of the scraper body. The tool can now be used as a Tee handle for the cleaning rod.

Figure 63: The tool may be used with the military cleaning rods.

C4.3 Remove Bolt Carrier Cotter Key

Configure the tool in screwdriver mode with the front sight adjustment tool installed. Place the boss on the Front Sight adjustment tool into the eye of the cotter pin. Pull outward from the centerline of the bolt carrier to remove the cotter pin. This operation can also be performed with the bit alone.

Figure 64: Remove Bolt Carrier Cotter Key with Front sight Tool

C4.4 Muzzle Protector

The vinyl tool cap can be used to protect the muzzle and keep it free from debris, should conditions warrant. The weapon may be fired with the muzzle cap in place if necessary. Replacement tool caps are available.

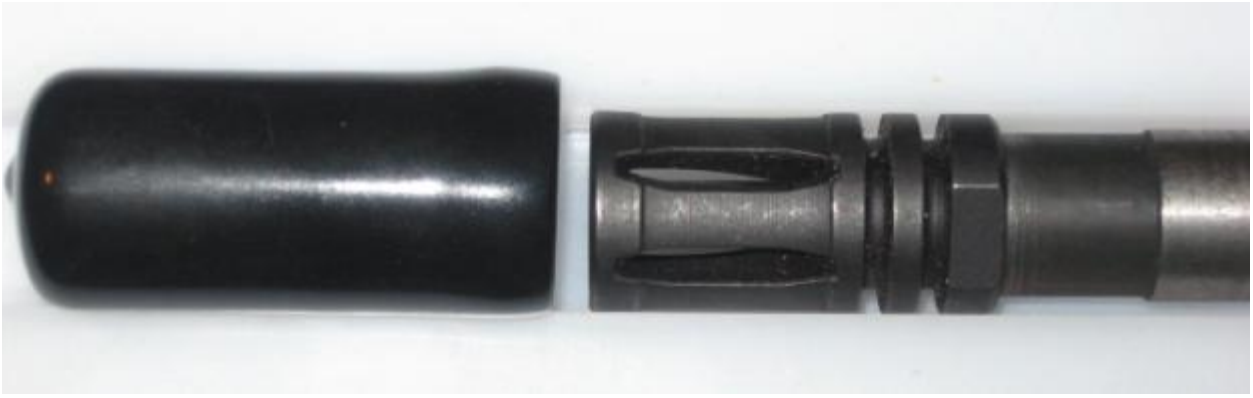

Figure 65: Muzzle cap