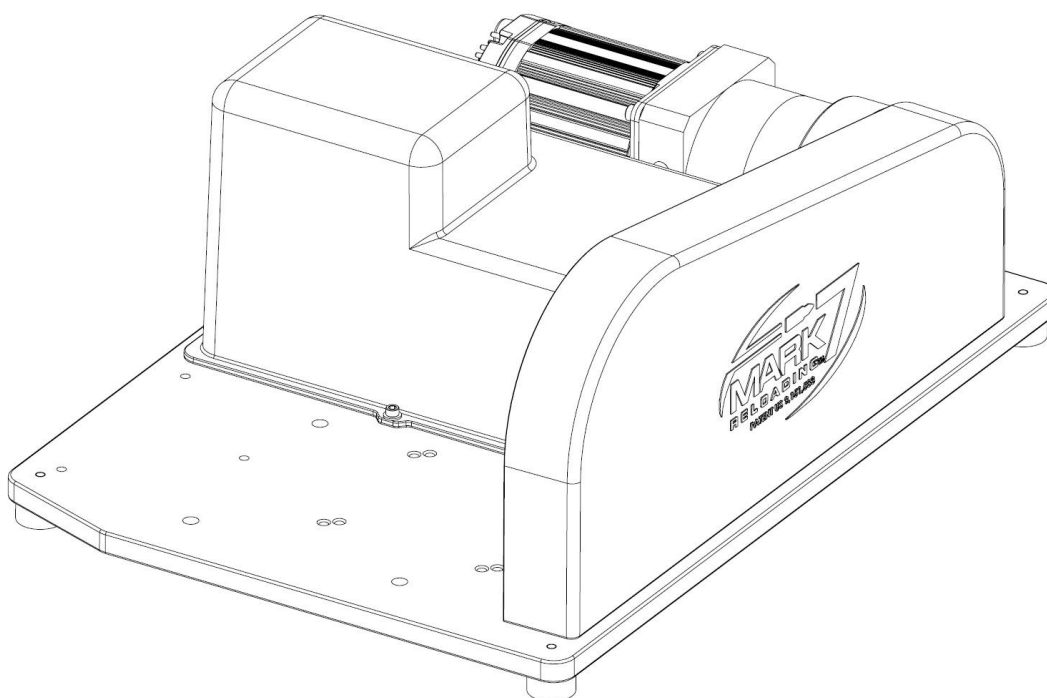# Mark 7® Evolution Autodrive

User Manual v 1.1

⚠	**Read this manual completely. Understand all safety and operating instructions. Failure to comply with the warnings and instructions may result in serious injury, illness or death.**

Table of Contents

Important Safety Instructions

Read this manual completely prior to installation and operation. Understand all safety and operating instructions. Failure to comply with the WARNINGS and instructions may result in serious injury or death. WARNINGS throughout this manual will be symbolized by the yellow WARNING symbols seen below.

WARNING – Activities using the Mark 7® Evolution Autodrive are inherently dangerous and may lead to injury and even death. Actions as a result of using the Mark 7® product are solely the responsibility of the user – if you get injured through the reloading process or through the use of ammunition as a result of the reloading process it is your fault.

WARNING - Mark 7® equipment should only be operated by trained personnel that follow all safety precautions. Failure to do so could result in serious injury or death.

WARNING - This product is designed to be used by reloading personnel in conjunction only with a fully functioning and well lubricated Evolution™ reloading press. Its use should be limited to experienced personnel only. This document contains basic operating and maintenance instructions only.

WARNING - Never leave your Mark 7® Autodrive unattended while it is operating.

WARNING – Never run the Mark 7® Autodrive without the belt guard fully attached to the baseplate.

WARNING – Never operate the Mark 7® Autodrive while impaired.

WARNING – Never operate the Mark 7® Autodrive without using high quality brass and always use sufficient lubrication on your brass while operating the Mark 7® Autodrive.

WARNING – The Mark 7® Autodrive is designed to help automate the process of loading and processing of ammunition. Never operate the Mark 7® Autodrive at speeds higher than you have tested and are comfortable with for the type of reloading or processing that you are undertaking. Run the Mark 7® Autodrive at the slowest possible setting to create quality ammunition.

WARNING –   Always wear protective eyewear to protect eyes from being injured. Flying debris may result when using this equipment. Always wear protective clothing that covers arms, legs and neck to protect from injury.

It is the responsibility of the user to ensure that appropriate protective clothing and equipment are used to provide protection from those hazards to which personnel are exposed or could be exposed while working with this product. Failure to do so could result in serious injury or death

Box Contents

Please review these contents and inform us right away if you appear to be missing any of these items:

Main: Mark 7® Evolution™ Autodrive Assembly (1 item)

Lower Insert:

    Left Side: Power Cable (1 item)

    Right side: Pocket 1: Large Sprocket and Cap (2 items)

             Pocket 2: Hardware (16 items)

- Link Bar
- ¼-20 X 1.25" socket Cap Screws (2X)
- 3/8-24 X 1.25" Set screw (1X)
- 3/8-24 X 1.75" Socket Cap Screws (4X)
- 3/8-24 hex jam nut (1X)
- 10-24 Thumb Screw (3X)

Middle Insert: (8 items)

- SwageSense® Sensor
- PrimerSense® communication cable
- Cable management (zip ties, zip tie mounts) (4X each)
- Tablet holder with right angle brackets and plugs (1X)
- Tablet mount (1X)
- Micro-USB Cable (1X)
- EMI Filter kit for bulletfeeder (1X)
- MicroSD Card: for software updates (1X)

Top Insert: (4 items)

- Tablet (1X)
- Belt (1X)
- Belt guard (1X)
- Setup instructions (1X)

Set-Up Procedures

Prior to installation perform the following manual press checks and adjustments (see Evolution^{TM} User Manual for location of some of the items below):

1. Ensure that the press/Autodrive combination is on a very solid surface that does not move. The Mark 7 Autodrive is designed to sit on the 4 rubber feet in the corners, but it can also directly be bolted to your work bench by removing the 4X rubber feet in the corners, use ¼-20 bolts to fasten the baseplate to the work surface from underneath. Small vibrations can have an unpredictable impact on the operation of the machine. Ensure that the machine does not move whatsoever when operating.

2. Ensure that the press operates according to Evolution^{TM} specifications defined in the user manual before you install the Autodrive. Ensure that the shell plate retaining collar is adjusted so that the shell plate turns freely but is not too loose. Ensure that the index pawl enables the shell plate to move completely from one index position to the next. Refer to the press user's manual for the location of the pawl adjustment screw. Verify that the alignment pins pass cleanly into their respective holes and are not used to complete the index motion.

3. Check that there is no powder or other debris under the shell plate. Lubricate the press as described in the Evolution^{TM} user's manual. Keep the shellplate clean.

4. There will likely be three (3) cables coming from the machine: the power to the case feeder, bullet feeder, and Autodrive. **For best performance we recommend to keep the case feeder and Mr.Bulletfeeder cables separated from our system cables if possible.**

⚠️

WARNING -Only use Mark 7® accessories with the Mark 7® Autodrive. Mark 7® equipment is prepared and tested by Mark 7® prior to delivery. To place the equipment into service, please review the following instructions carefully.

⚠️

WARNING - In order to ensure proper operation and avoid damage to your press perform the pre-installation steps.

1. Removal of Main Autodrive assembly from the packing carton

Upon removal carefully inspect contents for damage. Damage that occurs during shipment should be reported immediately to the carrier. Major system components listed below.
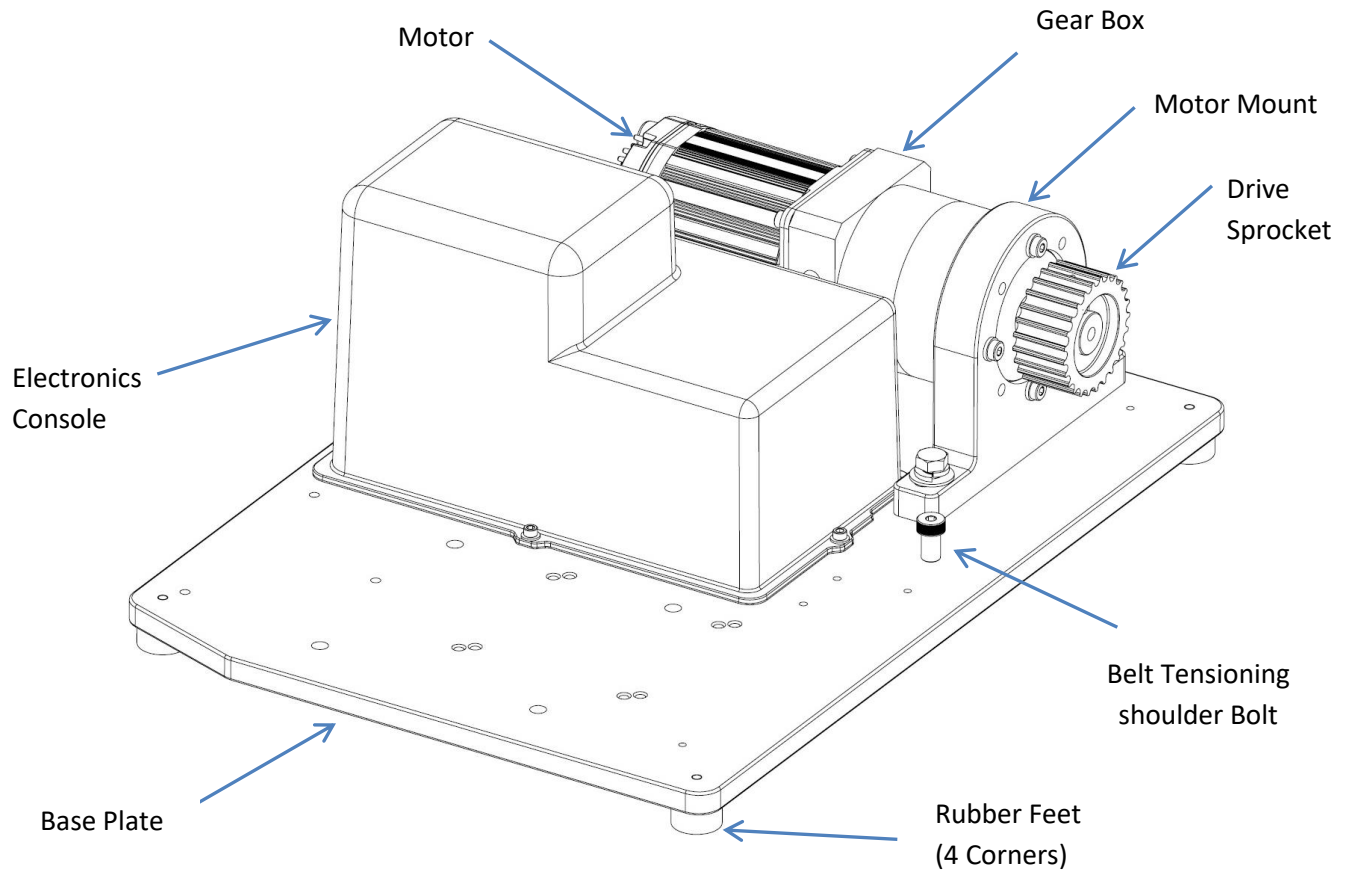

Figure 1: Major Component Overview

2. Mounting Evolution to Baseplate

Remove the Handle from the Evolution™ and place the Press on front of the Autodrive baseplate in the orientation shown below. Using the 4X 3/8-24 by 1.75" Socket Cap Screws secure the press to the baseplate. Be mindful not to drag the bottom of the press against the baseplate.
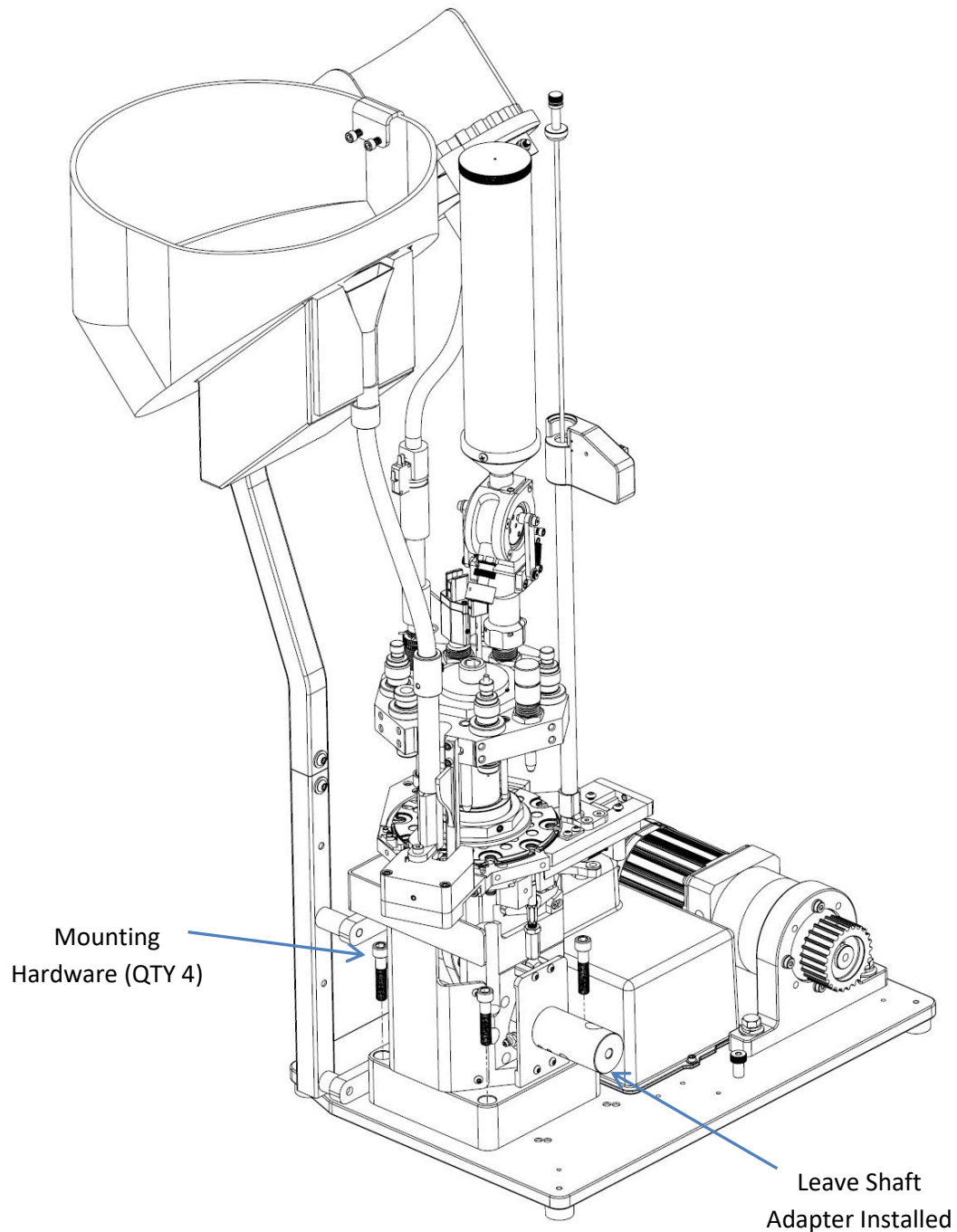
Mounting Hardware (QTY 4)

Leave Shaft Adapter Installed

Figure 2 : Mounting to Baseplate

3. Mounting Large Sprocket

Insert the link arm through the shaft Adapter then fasten the sprocket to the link bar with the 2X ¼-20 socket cap screws. Once the sprocket is secured insert the sprocket cap and thread in the 3/8 Set screw to lock in the link bar. Lock the set screw in place with the jam nut using a 9/16" socket.
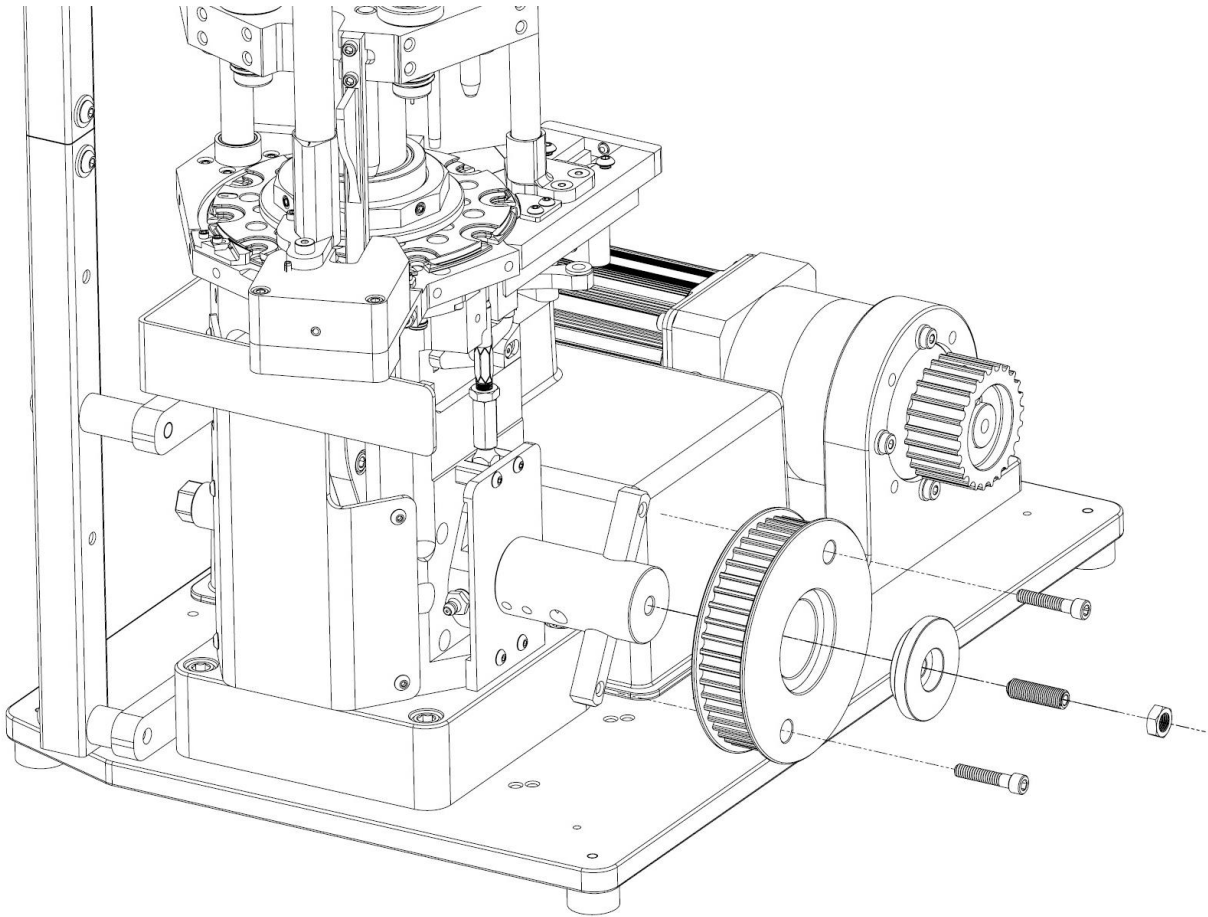

Figure 3: Mounting Large Sprocket

4. Belt installation

Loosen both motor mount hex bolts with a 9/16" wrench and move the Motor Assembly towards the Press.   Place the belt over the Large sprocket then around the small sprocket. Put the handle between the shoulder screw on the baseplate and the front of the motor mount and pry to tension the belt. Lock down the motor mount.
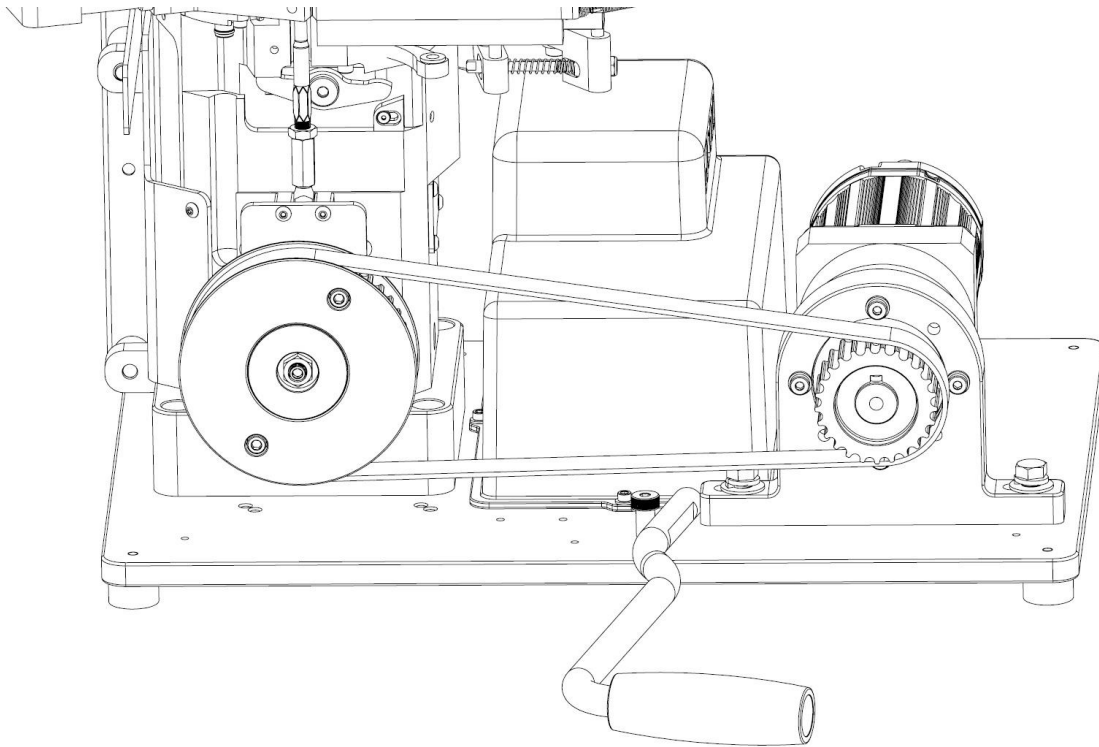

Figure 4: Installing the belt

WARNING ⚠️

Belt must be properly tensioned for the drive to operate correctly and safely. Belt tension should be checked periodically – A properly tensioned belt should have about a ¼" of slack between the two sprockets.

5. Belt Guard installation

Fasten the belt guard to the baseplate using the 3X 10-24 Thumb screws. Thread the two closest to the front of the machine about halfway then slide the Belt Guard into position. Once the belt guard is properly positioned the thumb screws can be fully tightened and the 3rd screw can be installed. Do not over-tighten.
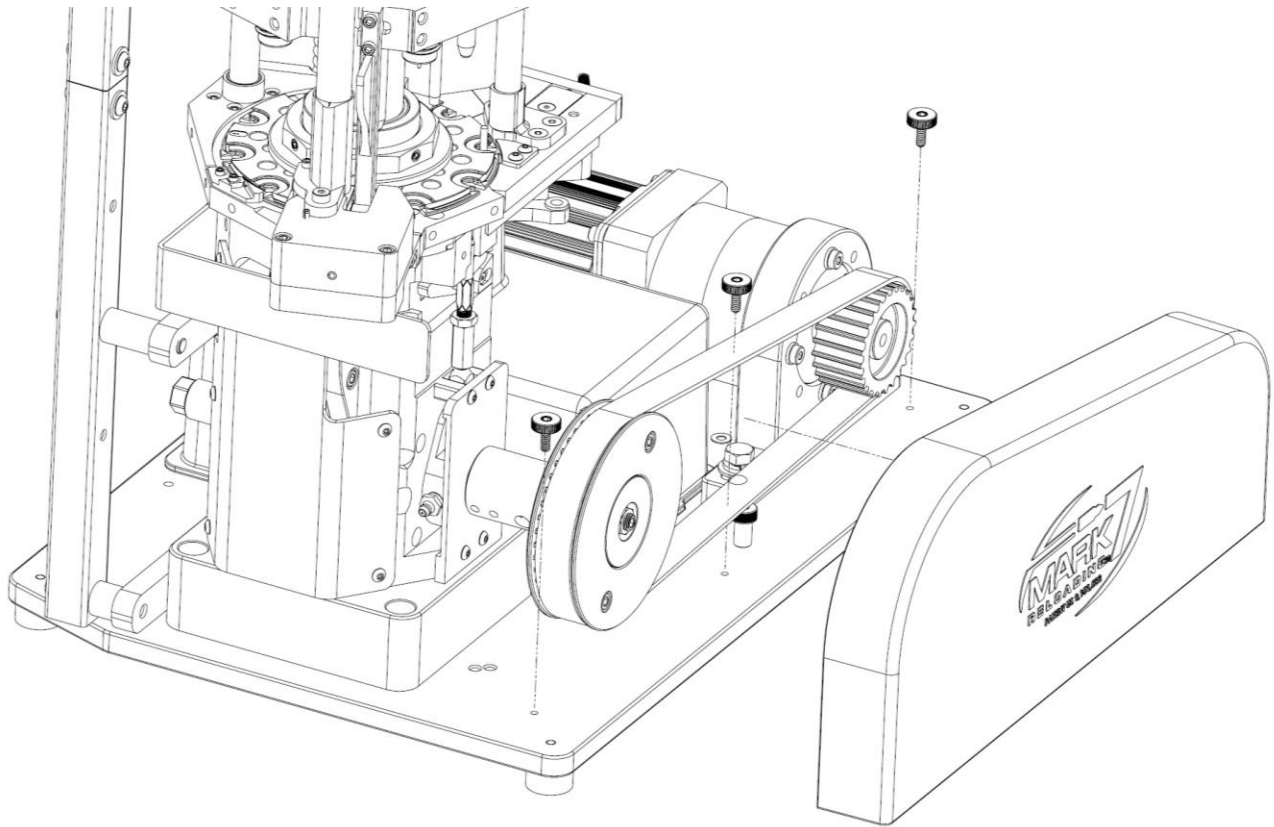

Figure 5: Installing Belt Guard

WARNING ⚠️

Never operate the machine without the belt guard installed properly.

6. Tablet Holder Install

Attach tablet holder arm to the tablet holder. Once attached, clamp tablet holder arm to brass feeder post at the desired position. Once tablet holder is positioned correctly, carefully pull the arms to expand enough to accommodate tablet as seen in picture. To power tablet, press and hold the button on the upper right-hand side of the tablet.   Be mindful that the arms do not cover the power or the micro-USB inputs on the tablet.

Figure 6: Tablet Installed in holder

7. Tablet Cable Outlet Installation

Power Button
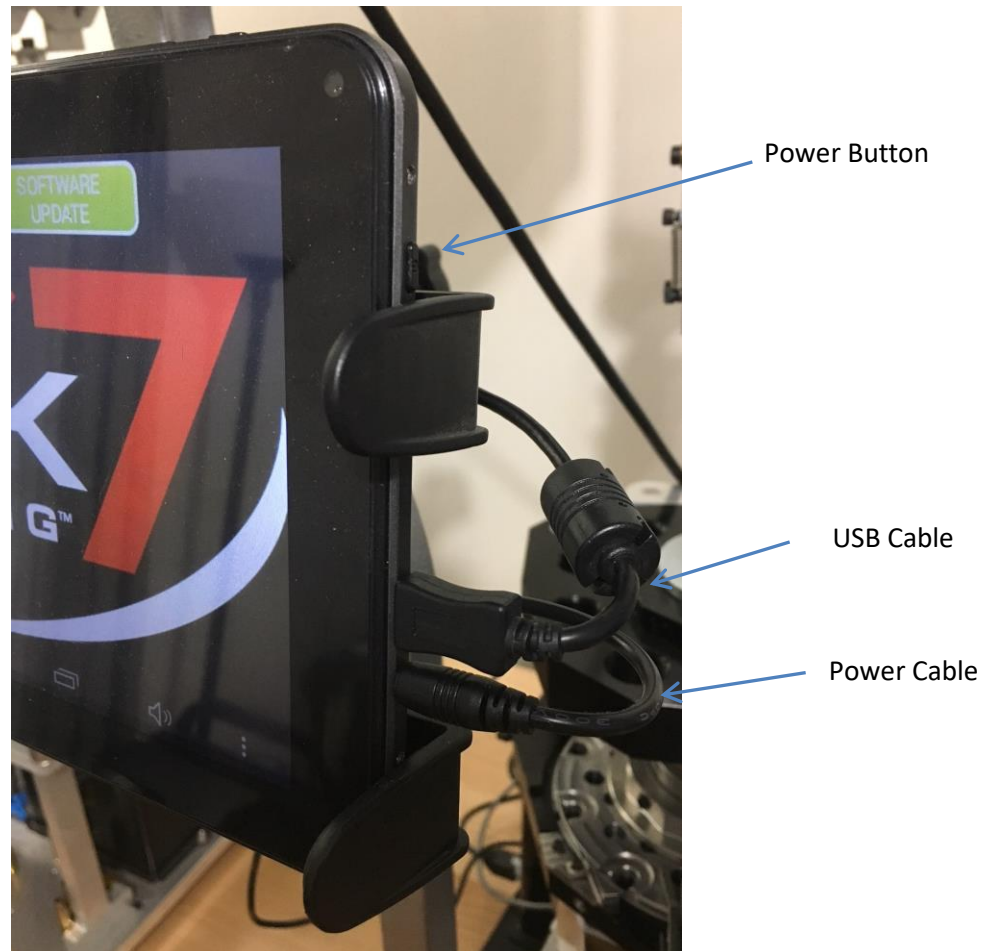
USB Cable

Power Cable

Figure 7: Tablet Connections (connections may be on top for some tablet models)

Locate and the insert power cable into the tablet's power jack located directly below the Micro-USB port. Insert Micro-USB into the input located directly above the power jack. The Micro-USB cable provided with the machine may be different from the picture above

WARNING ⚠️

Ensure that the cables are coming from the tablet to the right of the unit. They should be not interfere with the operator's vision of the unit and are completely out of the way of the operation of the unit. **Do not zip tie the tablet cables to case feeder pole, case feeder power cord or Mr. Bulletfeeder power cords.**

8. Console Rear inputs

Figure 8: Rear of console Inputs

Before powering on the Mark 7 Units please make the following connections:

Micro-USB: Tablet to Console USB data communication cable

USB: Motor to Console USB data communication cable

8-Pin: Motor to console signal cable

Port #7. Digital Powder Measure (optional)

Port #6. Remote Stop (optional)

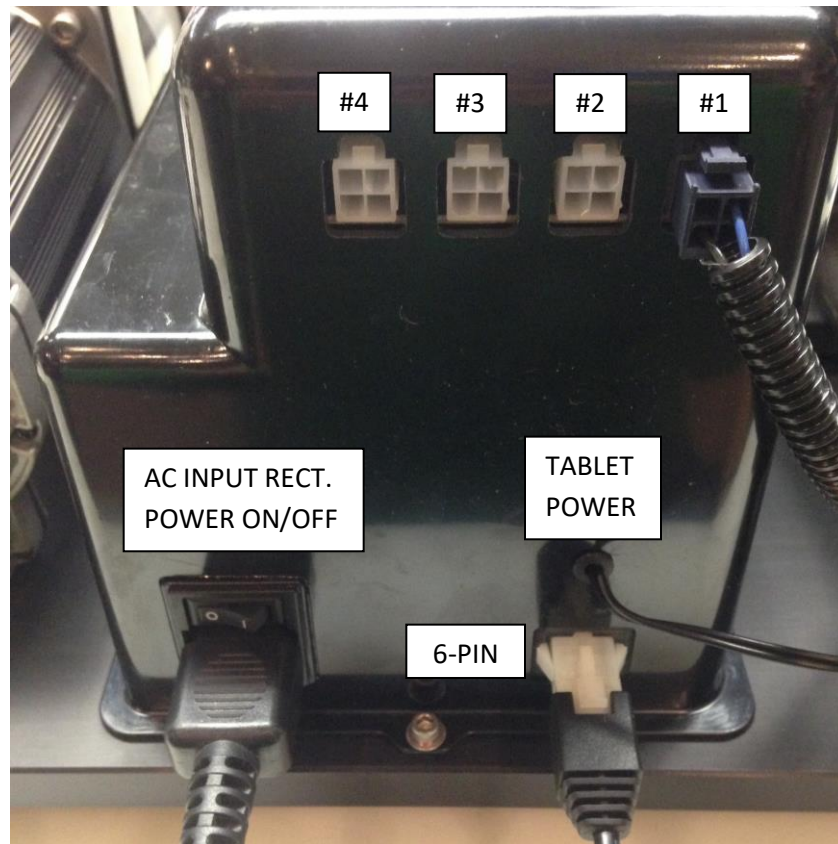Port #5. DecapSense (optional)

9. Console Side inputs

Figure 9: Side of Console Inputs

Port #4. **POWDERSense** (optional)

Port #3. **BULLETSense** (optional)

Port #2. Primer Orientation Sensor (optional)

Port #1. **PRIMERSense** & **SWAGESense**

AC INPUT & Power ON/OFF Receptacle: Units are configured in either 110V or 220V.

6-Pin: Motor to Console DC Power Cord

Tablet Power Cord: Connect to tablet

WARNING ⚠️

Never power on the console switch without the 6-pin molex connector plugged in and never install this connector with the power already on since the DC voltage would damage the motor's input contacts.

10. EMI Filter for Mr.BulletFeeder

There is an external capacitor cable assembly included with your Mark 7® Autodrive. Ensure that this is attached to the bullet dropper assembly between that assembly and the cables to the bullet feeder to ensure error-free operation.

Figure 10: Mr. Bulletfeeder filter (Double Alpha)

11. Manually Operating the Evolution™

The Evolution™ can still be operated manually with an 11/16" wrench or with a 2nd handle adapter attached the handle on the left side (optional). Having the ability to manually actuate the press is helpful in setup/machine adjustments and jam clearing situations.

 Check the following with a clear shell plate before powering on the machine:

- Toolhead moves the full stroke with no change in resistance
- Belt tension is consistent throughout the full stroke
- Belt tracking is consistent thought the full stroke.
- No cables are near the moving parts of the press, secure any loose cables away from the moving components
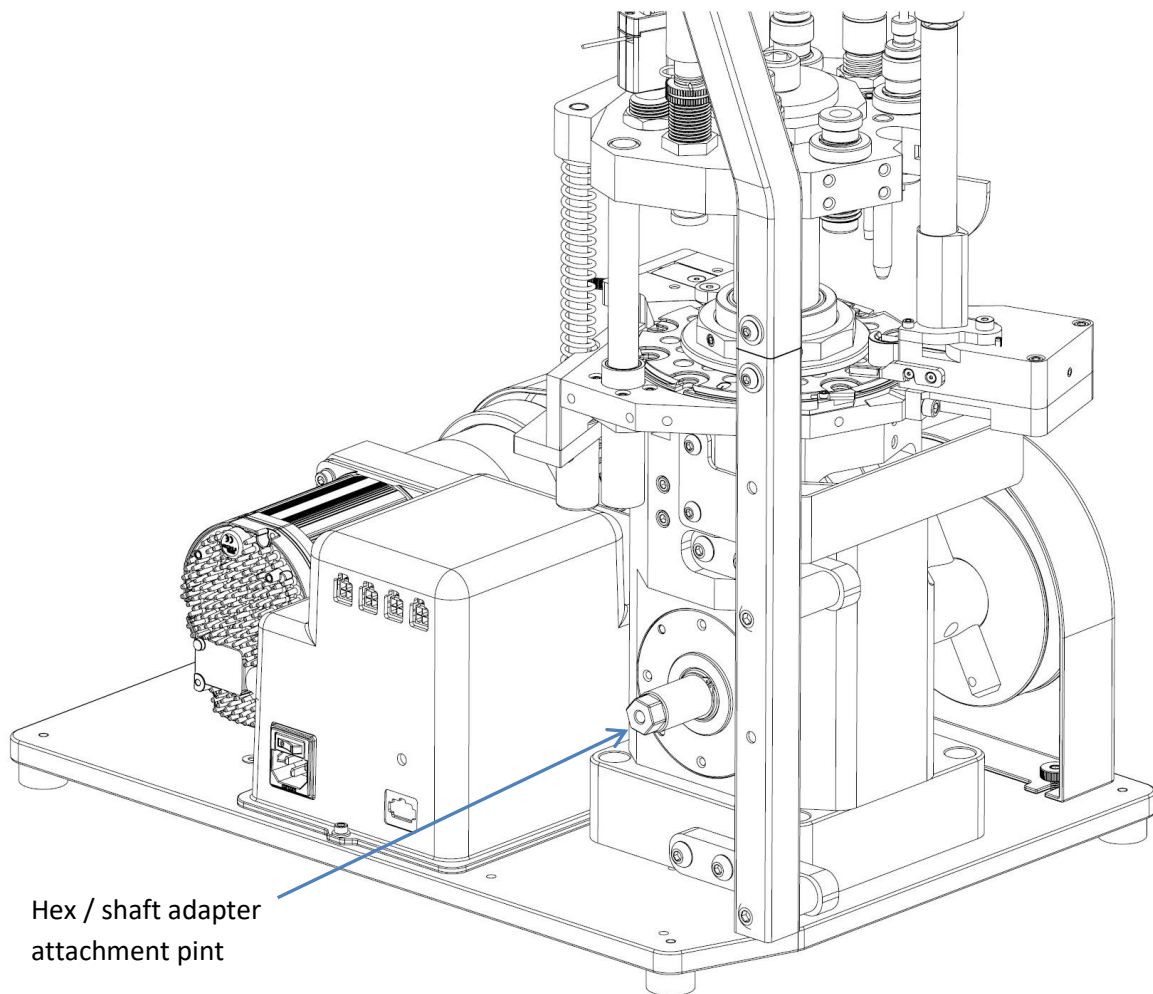

Hex / shaft adapter attachment pint

Figure 11: Manually driving the Evolution

Operating Instructions:

WARNING - This equipment uses a high-power motor and drive belt system. Avoid contact with any part of the drive belt or sprockets. Contact with the drive belt or sprockets could result in serious injury or death.

Main Screen

Figure 12: System Home Screen

When the tablet is powered on the main screen shown above will launch.   This screen contains the Reloader, firmware and software update applications. Before selecting the Reloader application, make sure the console is powered on, all system cables are connected and the shellplate is clear.

When powering down the machine, power off the main electronics console first then turn off the tablet using the turn off tablet icon in the lower left corner. Make sure quick boot mode is DISABLED (uncheck the "Quickboot mode" pop-up when it appears when you shut the tablet off).

Waiver Screen & Software and Firmware version

★★★ WARNING ★★★

Reloading and the associated activities is inherently dangerous and can cause serious injury and even death. Using the Mark 7 Reloading machine is dangerous and can lead to serious bodily harm and even death.
Mark 7 Reloading makes no representations or warranties regarding this machine and is not responsible for any activities or results carried out on this machine. By using this machine and software you accept the terms and conditions and waiver on the Mark 7 Reloading Web site at http://www.markvii-loading.com/

ACCEPT   DENY

Version: 00.02.05 Firmware: Evolution PRO 2, Motor: 3432 (3) On USB
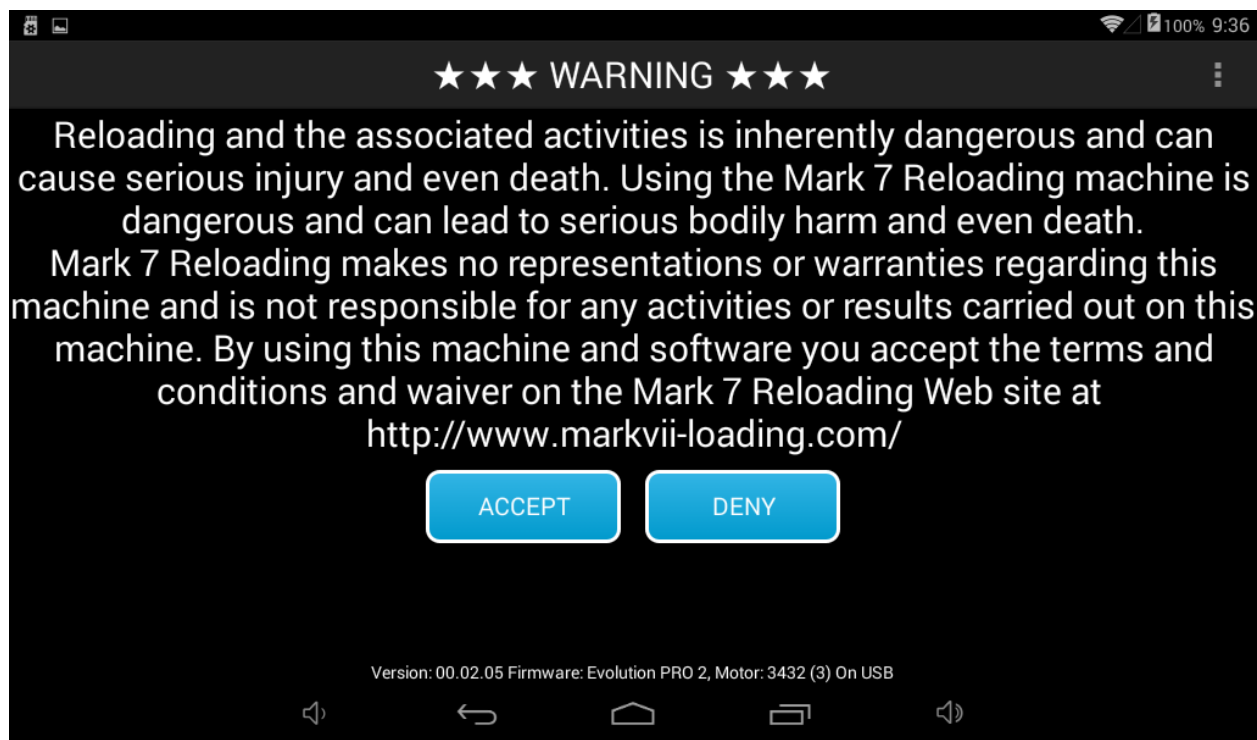
Figure 13: System Waiver Screen

The image above is the first screen displayed after launching the Reloader application. The operator must accept the terms and conditions on the waiver screen also available on the Mark 7® Reloading website. If the operator accepts these terms the operator can touch ACCEPT on the screen. If the operator does not accept these terms they must touch DENY which will immediately close the application.

The software and firmware version will be displayed at the bottom of the waiver screen as shown above.

Before each session of use of the machine

Before each loading session, fully inspect the machine – this will reduce the errors you may encounter. Some of the items to inspect include:

1. All components removed from shellplate
2. Shellplate lined up with indexing guide pins and indexing properly
3. No loose cables, components or accessories around the working areas of the press.
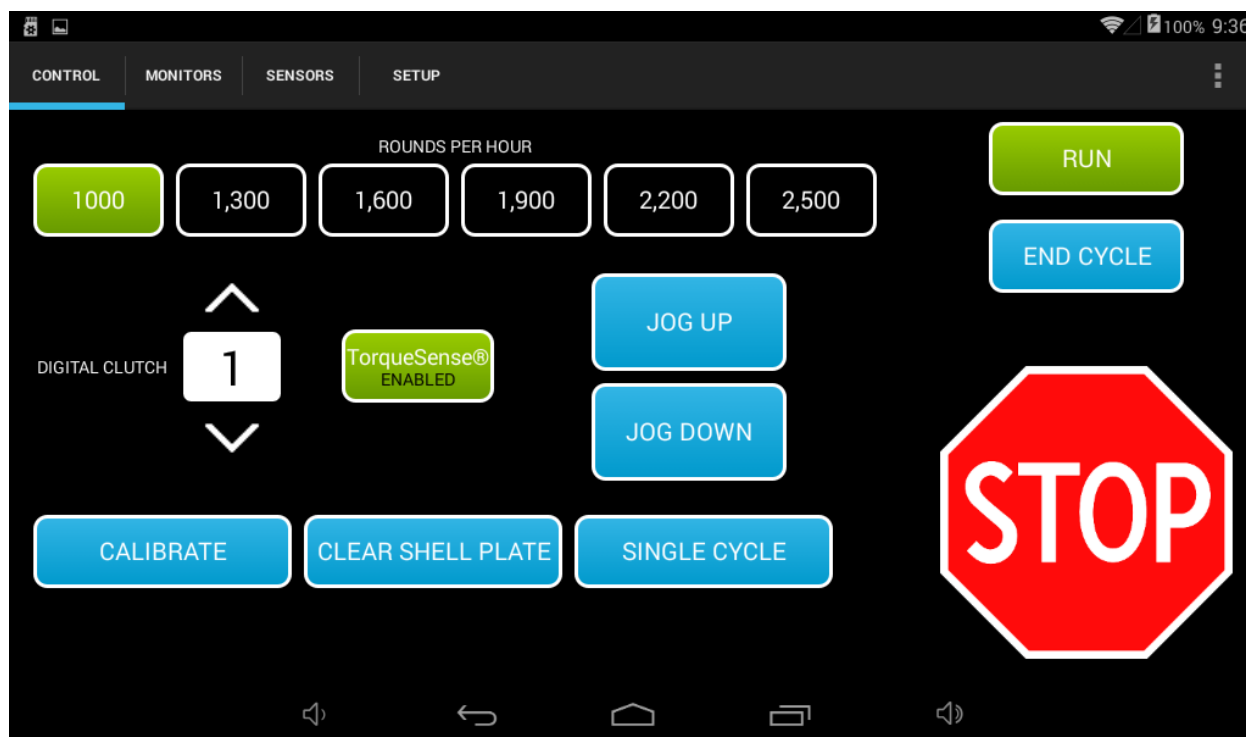
Control Screen

Figure 14: System Control Screen

CALIBRATE - CALIBRATE signals the Mark 7® Autodrive to find the top and bottom of the presses stroke. Once calibration is completed all Mark 7® Autodrive features can be used. The shellplate must be clear when calibrating. Calibration takes approximately 10 seconds to complete.

SPEED (Rounds Per Hour) – After Calibration is completed you may select the speed in which to operate the machine. These can also be changed on the fly while the press is in motion.

RUN - The RUN function signals the Mark 7® Autodrive to begin operation at the settings requested.

ROUNDS PER HOUR - The 100, 1300, 1600, 1900, 2200, 2500 options under ROUNDS PER HOUR give the operator the ability to choose their desired cycle speed.

CLEAR SHELL PLATE - The CLEAR SHELL PLATE command will lower the Tool Head just enough so the shellplate can be rotated to clear the brass at any point during loading. This command will only work when the press in the HOME position at the top of the stoke.

SINGLE CYCLE - The SINGLE CYCLE function allows the operator to run a single cycle. This command will only work when the press is stopped and in the top position.

END CYCLE - The END CYCLE function will complete the current cycle and return to the home position. After using the Jog UP/DOWN features select END CYCLE to bring the Tool Head to the home position.

JOG UP - The JOG UP function will incrementally move the press upwards. The JOG functions are useful in clearing jams that may occur. The JOG UP function will only work when the Mark 7® Autodrive is at a stop.

JOG DOWN - The JOG DOWN function will incrementally move the press downwards. The JOG DOWN function will only work when the Mark 7® Autodrive is at a stop.

STOP - The STOP function will stop the press from moving in any event. Pressing STOP twice will switch the motor into neutral which is helpful if the press needs to be manually actuated.

Digital Clutch Setting

The Digital Clutch adjusts the torque of the motor from the minimum torque required to drive the press to the maximum torque of the motor. This range is from 0-20. It is important to note that increasing the Digital Clutch only increases the motor torque when the tool head is in the down stroke approaching the shell plate (for sizing/decapping/swaging/bullet seating/crimping operations) when Torquesense® is enabled.

Figure 15: Digital Clutch Adjustment on control screen

1. All Mark7® Autodrives are shipped with the Digital Clutch at 0 This is the minimum torque required to run the press dry (without components).

2. When you are ready to process brass or reload once fired brass use the following table as a guide for starting torque levels. Always use lubed brass in order to run the Digital Clutch as low as possible. Depending on the condition of the brass you may be able to run the machine on lower settings than listed below. We recommend running the machine on the lowest Digital Clutch setting possible for the given caliber.

Table 1: Recommend Digital Clutch settings for general calibers

Digital Clutch	Small Pistol	Large Pistol	Small Rifle	Large Rifle
Evolution	2-5	3-10	5-12	12-20

3. If the Digital Clutch is set to low for a given operation the following notification will appear on the tablet usually close to the bottom of the stoke when the sizing/decap die is engaged.
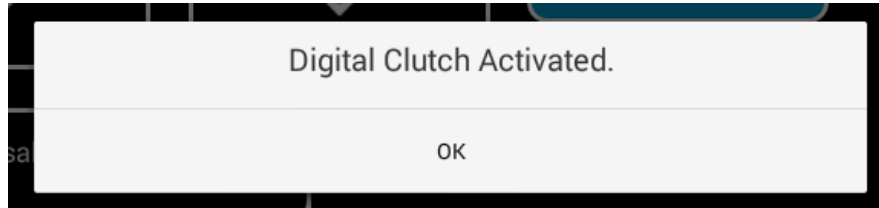

Figure 16: Digital clutch notification

4. Sometimes pressing RUN again will provide enough torque to push through the sizing operation. If the notification box appears again the clutch will need to be increased and or check for a hard jam causing the torque out condition.

5. Double Tap STOP to put the motor and neutral and to reset the motor.

6. Next JOG tool head up and inspect the shell plate area for a jam. If everything looks okay increase the Digital Clutch by 1-2 digits then press RUN or END CYCLE. Repeat the process until the machine pushes through and completes the stroke.

7. Continue to run at the new Digital Clutch setting until you get consistent stroke cycle completion.

Special Notes:

- The Digital Clutch is speed dependent; you may need to slightly increase the Digital Clutch as you increase the speed of the drive.
- Use caution when operating the machine with a Digital Clutch over 15.
- Always use Lubed brass for best results and to allow running on the lowest clutch setting possible.
- Check for proper belt tension and for play in the crank assembly regularly.

When clearing jams always check and or clear the case in station #5 (powder) to avoid a double or no charge before continuing.

TORQUESense® When enabled TorqueSense® varies the motor torque throughout the Stroke, dropping the torque primarily on the upstroke to a minimum baseline level. This increases the machines sensitivity if a jam occurs in the upstroke due to a case feed or shell plate indexing issue.

There may be some instances when TorqueSense® will need to be disabled so the motor torque on the upstroke can be increased via the digital clutch, such as if the system torques out half-way through sizing a rifle case. If the TorqueSense torque limit is exceeded the machine will stop and notify you on the tablet. TorqueSense® can be enabled or disabled by pressing the ToqueSense® icon.
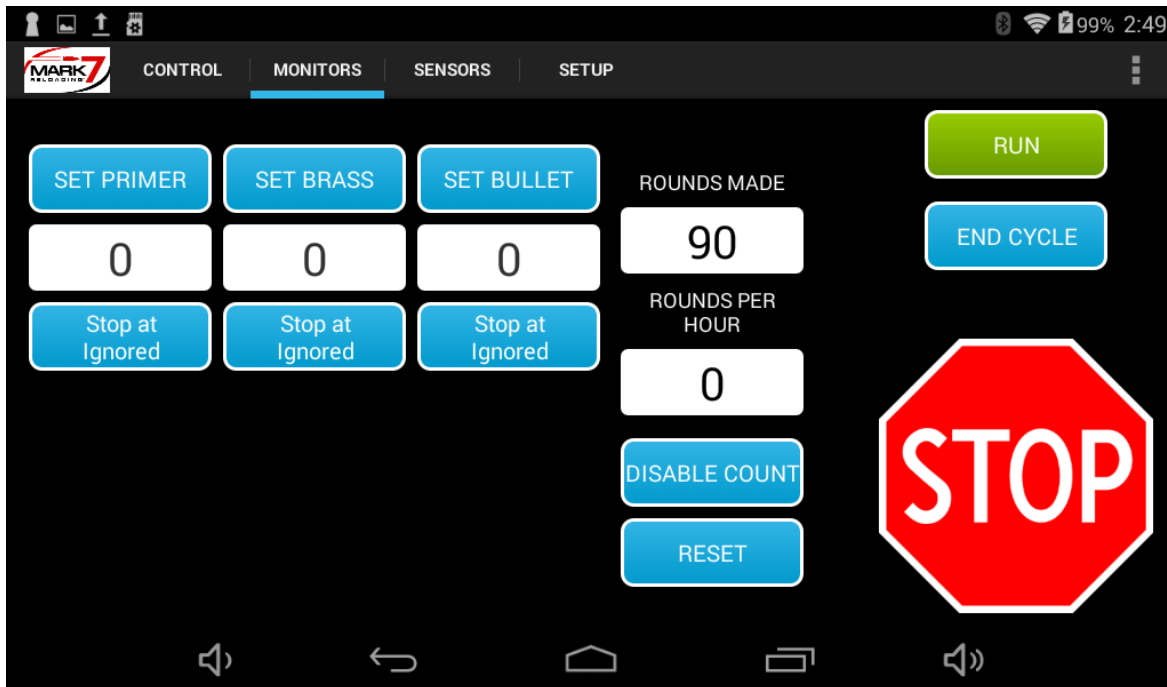
Monitors Screen

SET PRIMER - The operator has the ability to set the number of primers used before the Mark 7® Autodrive ends its current run.

SET BRASS - The operator has the ability to set the number of brass used before the Mark 7® Autodrive ends its current run.

SET BULLET - The operator has the ability to set the number of bullets used before the Mark 7® Autodrive ends its current run.

DISABLE COUNT - The DISABLE COUNT function gives the operator the ability to not count the number of rounds made.

RESET - the RESET function allows the user to reset the ROUNDS MADE and ROUNDS PER HOUR fields.

RUN, END CYCLE, and STOP functions have the same functionality on the Monitors Screen as they do on the Control Screen.

The buttons underneath the screen either state – STOP at XX or Stop at Ignored. If the latter, the machine will not stop – the monitor is not in use. If the former, the value that you set is the value that the machine will stop on. If you set primers to 100 and the stop at value of 10, then the machine will stop when it has reached 10 primers left (a value of 90 rounds made).

Sensors Screen

Figure 18: System Sensor screen

On the sensors page all optional sensors can be enabled or disabled at any point during machine operation. We recommend disabling any of the sensors you don't have installed on your system.

RUN, END CYCLE, and **STOP** functions have the same functionality on the Setup Screen as they do on the Control Screen and the Monitors Screen

Setup Screen

Figure 19: System Setup screen

INDEX SPEED - The INDEX SPEED function allows the operator the ability to incrementally reduce the index speed of the shell plate. The higher the value in the INDEX SPEED field the slower the shell plate will index.

TOP DWELL – The TOP DWELL function allows the operator the ability to add a slight pause at the top of the stroke. This allows for a little extra time for the cases to fully settle before the tool head comes down.

BOTTOM DWELL - The BOTTOM DWELL function allows the operator the ability to increase the time in which the press remains at the bottom of the stroke. The higher the value in the BOTTOM DWELL field the longer the press remains at the bottom of the stroke.

MOVE TO BOTTOM - This command will move the press head to the bottom of the stroke which is helpful for setting up the dies and adding powder.

RUN, END CYCLE, and **STOP** functions have the same functionality on the Setup Screen as they do on the Control Screen and the Monitors Screen

JAMSense® - Clearing Jams

When a jam occurs, the motor will stop and a notification on the tablet will appear saying *Digital Clutch Activated*. It's important to note that this message may not always mean there is a jam in the press, sometimes motor may have just torqued out due to the Digital Clutch being set too low for a given operation.

We recommend taking the following steps when a jam occurs.

1. Inspect the tool head and shell plate area of the press to determine the cause of stoppage.

2. Press STOP twice to put the motor in neutral (the LED on the back of the motor will change from green to orange in this state)

3. If you are able to determine the cause of the jam or stoppage, Use the JOG commands to back off the Tool head in order to rectify the issue. Once cleared hit RUN to continue as normal.

4. If you are not able to determine the cause of the jam, manually actuate the press. Once the jam is clear perform a full stroke manually before continuing.

In some cases, a hard jam may occur. If the jog buttons do not move the tool head then the Mark 7® Autodrive needs to be powered down. Once powered down you may attempt to manually clear the jam. In doing so you must clear the shell plate and confirm that the press can manually index. Run the full cycle of the machine a couple of times by manipulating the belt manually and ensure the machine is in good working order. Then you can repower the machine and continue.

WARNING -Never attempt to clear a jam by placing your fingers in the mechanism of the Mark 7® Autodrive. Always ensure that the Mark 7® Autodrive is off and power is cut off to the Mark 7® Autodrive before attempting to clear a jam.

If you experience a jam or any type of activity that requires you to turn off the Mark 7® Autodrive at the console, you may decide or be required to calibrate the Mark 7® Autodrive again. Always repeat the process of ensuring that the measurements on your brass or ammunition are that same that they were in your previous calibration – they will likely be within acceptable tolerances.

PRIMERSense® Installation Instructions

Before connecting the PrimerSense® to the electronics console with the cable included. Remove the back cover and take out the battery. When the sensor is plugged into the Autodrive the machine can stop and send a notification to the tablet when the sensor is activated.
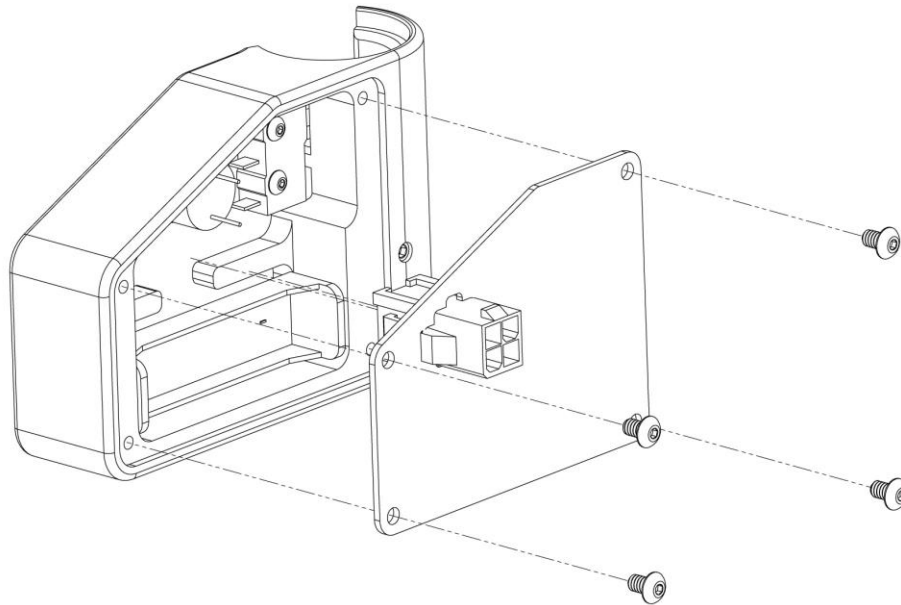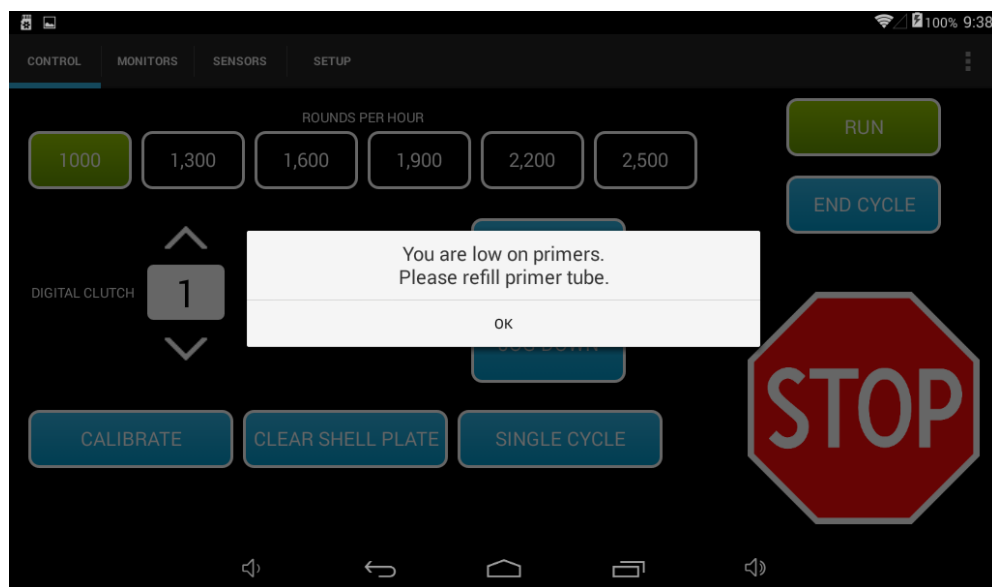
Figure 20: Removing Battery from PrimerSense

Figure 21: PrimerSense® Sensor Notification

Figure 22: Mark 7® SwageSense®

Installation Instructions

1. Remove the Fixed swage rod installed on the Evolution and Replace with the Swagesense Assembly. Refer to the exploded view for details.
2. SwageSense® plugs into the cable assembly pigtail off of the PrimerSense® into port #1 on the console

1. Back the Swage back-up expander die and swage rod off a few threads and insert a decapped case into station 3. Move the press head to the bottom position. Adjust the swage back-up expander so it bottoms out against the bottom of the case and lock down the die. Next using 5/16" wrench, thread the swage rod up until it bottoms out into the case pocket. Then turn it a ¼ turn more and lock down the jam nut. See the figure below.

Figure 23: Cross-section of properly adjusted Swage Rod

2. The microswitch is pre-adjusted so it will be triggered immediately when the SwageSense® assembly starts to close. If you want to change the engagement of the switch use a .05" allen key and a ¼" open end wrench. We do not recommend adjusting the setting unless it becomes out of adjustment. To adjust tighten the setscrew until you hear the switch trigger, then back it off a ¼ turn and lock down with the jam nut.
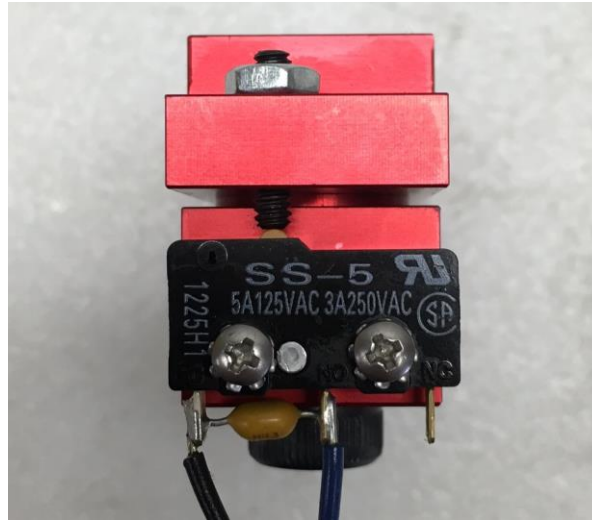
Figure 24: Micro switch Adjustment

3. When the SwageSense® switch is triggered the following notification will appear on the reloader application.
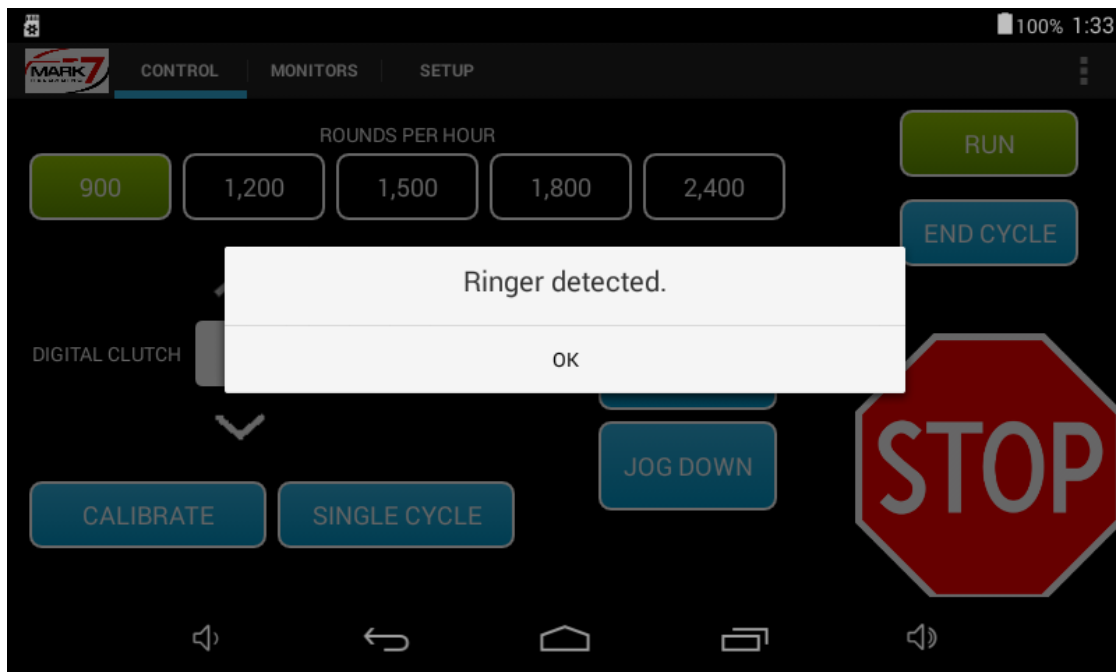

Figure 25: SwageSense® Notification

DECAPSense™ Installation Instructions (Optional Sensor)

Replace the Evolution Decap Mount with the DecapSense® sensor and re-attach the hose. The Decap sensor plugs into Port #5 – Refer to the Console port section for more information.
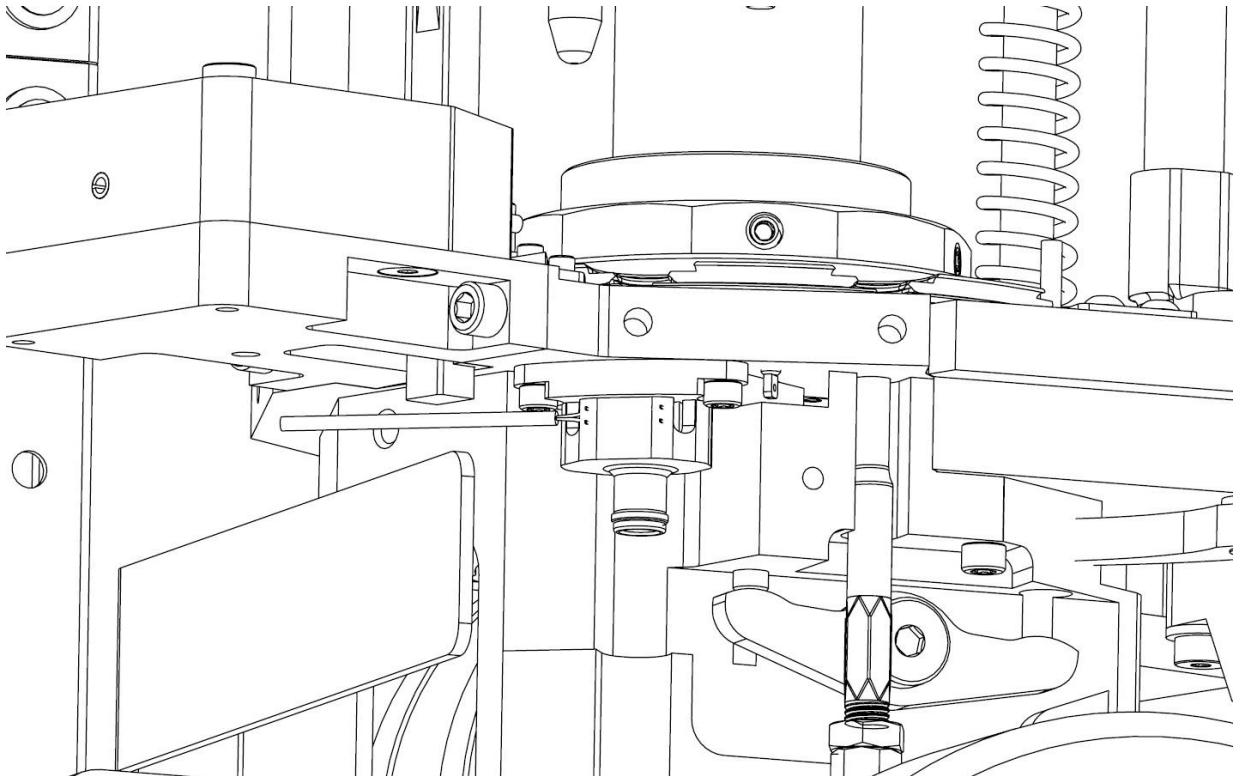

Figure 26: Evolution DecapSense®™

DecapSense® Sensor™ Operating Instructions

1. The Mark 7® DecapSense ® must be connected to the console before you enter the Reloading application and enabled on the sensor tab.

2. Calibrate and run the machine as normal. When a spent primer is not ejected the following notification box will appear. After you rectify the issue press okay and proceed with normal operation.
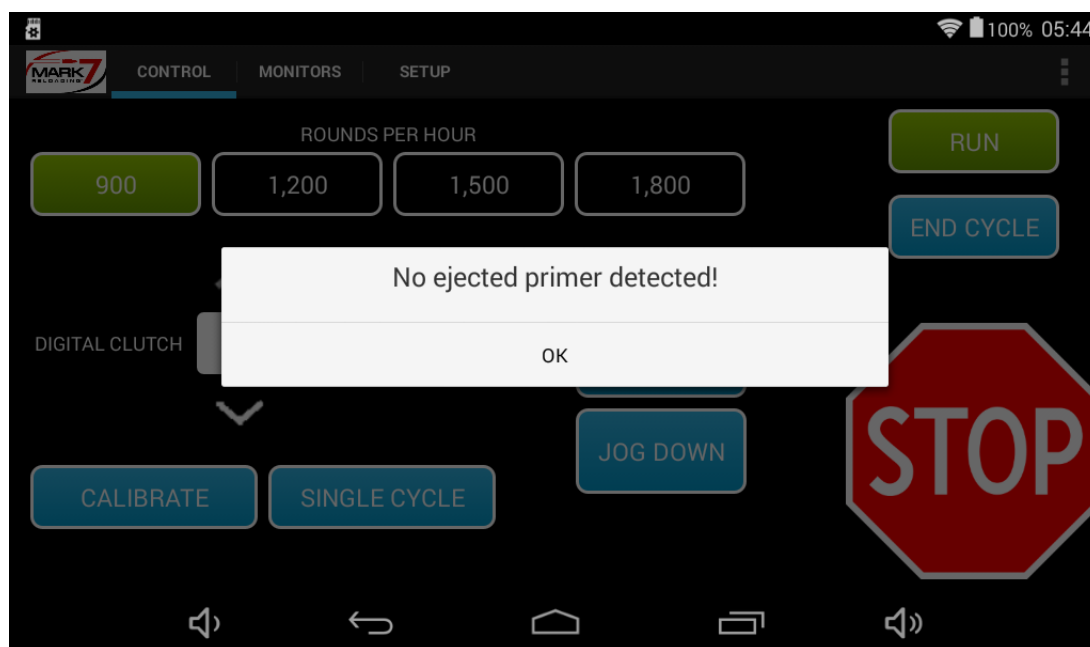
Figure 27: No ejected Primer Notification

3. As with all sensors the decapping sensor can be enabled or disabled on the sensors screen.

4. During operation the optical sensor may become dirty and require cleaning. The following notification box MAY appear when cleaning is required. In either case we recommend cleaning and spraying down the spent primer hole with compressed air every few thousand rounds.
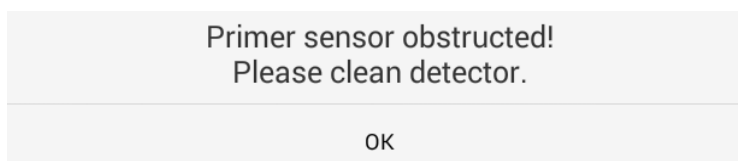

Figure 28: Sensor Obstructed Cleaning required Message

⚠️

WARNING – cleaning intervals of the Mark 7® DecapSense® will vary dramatically based upon many factors. WE SUGGEST CLEANING THE MARK 7® DecapSense™ AS OFTEN AS PRACTICAL – IT IS UP-TO YOU TO ENSURE THE SENSOR IS CLEAN.

This is a product that is designed to improve the safety of the reloading operation. NEVER RELY ON THE DECAPPING SENSOR. You must monitor its use – ALWAYS. Always be close to your machine and available to stop the machine if it needs to be stopped

Primer Orientation Sensor Instructions

The Primer Orientation Sensor is compatible on all Revolution and Evolution Press platforms, including systems equipped with No priming, Standard priming and Automated priming Systems. The sensor is packaged in a single corrugated box (6" X 6" X 1-1/4"). Please check the packaging contents below before installing the sensor.
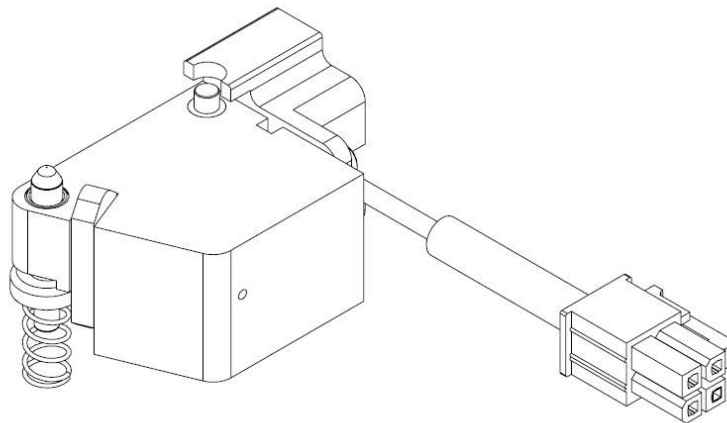

Figure 29: Primer Orientation Sensor

Packaging Contents:

Bag 1: Primer Orientation Sensor Main Body (QTY 1)

Bag 2: Hardware

1. Probe (QTY 1)
2. Probe Spring (QTY 1)
3. Indicator Spring (QTY 1)

Bag 3: Spare Hardware

1. Mounting Hardware: 8-32 Thread Size, 1/2" Long, Socket Head Screw (QTY 2)
2. Extra Springs: Probe and Indicator (QTY 1 Each)

Installation Instructions:

The Primer orientation sensor installs into station # 5, the station after the primer seating station. In order to install the sensor, the Shellplate must be removed or lifted up to remove the spacer housing. Although it's not required, we do recommend to remove the tool head for full access. Below are the installation steps for installing the sensor on a Revolution (shown) or Evolution Press (same procedure).

Step 1: Removing Press Top End

1. Remove Tool Head
2. Remove Shellplate nut
3. Loosen the Shellplate retainer clamps and remove the Shellplate spring.
4. Remove the Shellplate
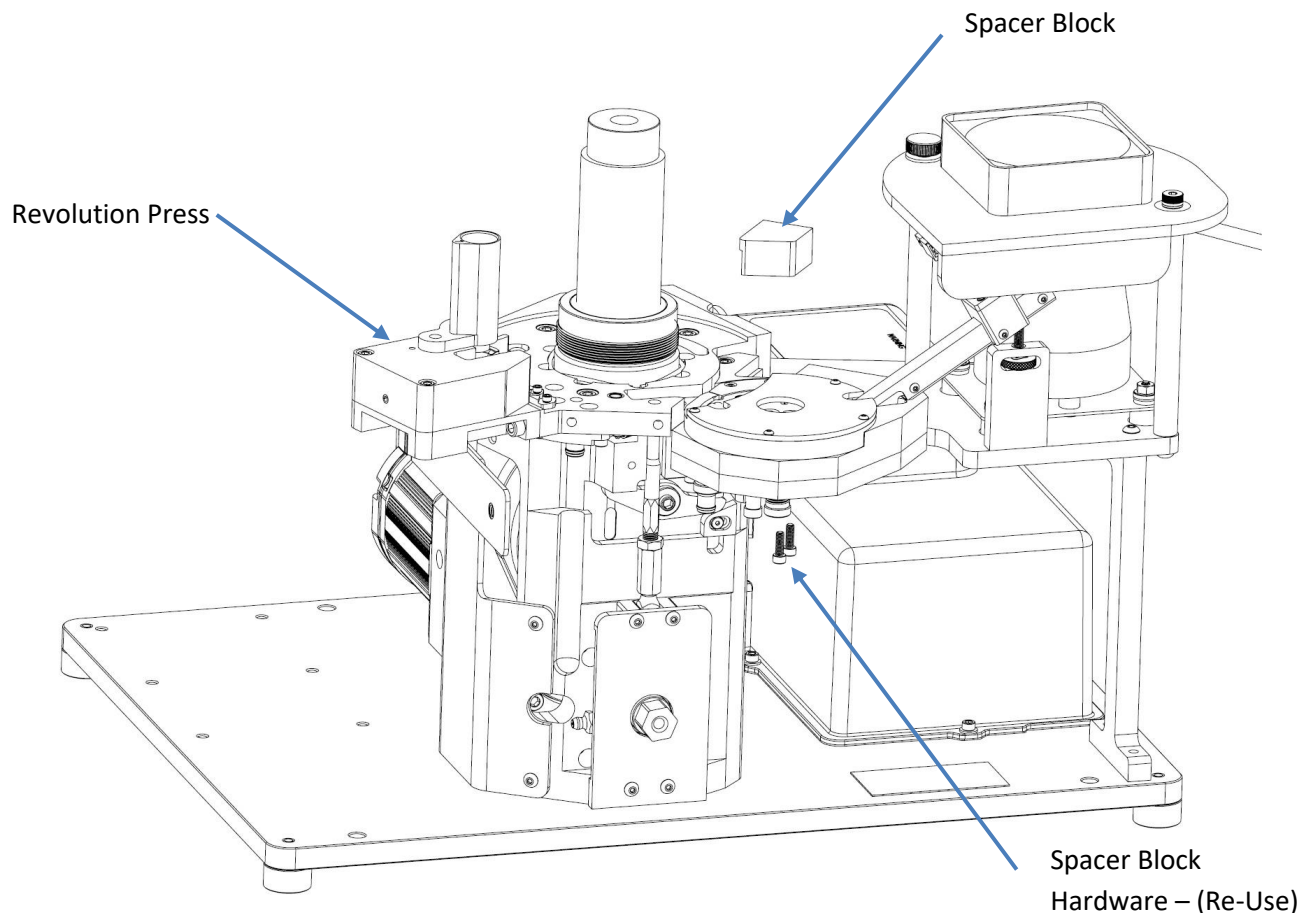5. Remove Spacer Block by loosening 2X 10-32 from the underside of the Priming Assembly with a 9/64" Allen Key.

Spacer Block

Revolution Press

Spacer Block Hardware – (Re-Use)

Figure 30 : Revolution Press Top End disassembled for Sensor Installation

Step 2: Installing Probe Retractor and Springs

Place the two springs into the spring wells in the primer housing as shown. Apply a small amount of red and tacky grease on the springs. Once the springs are installed, insert the probe retractor into the large spring.
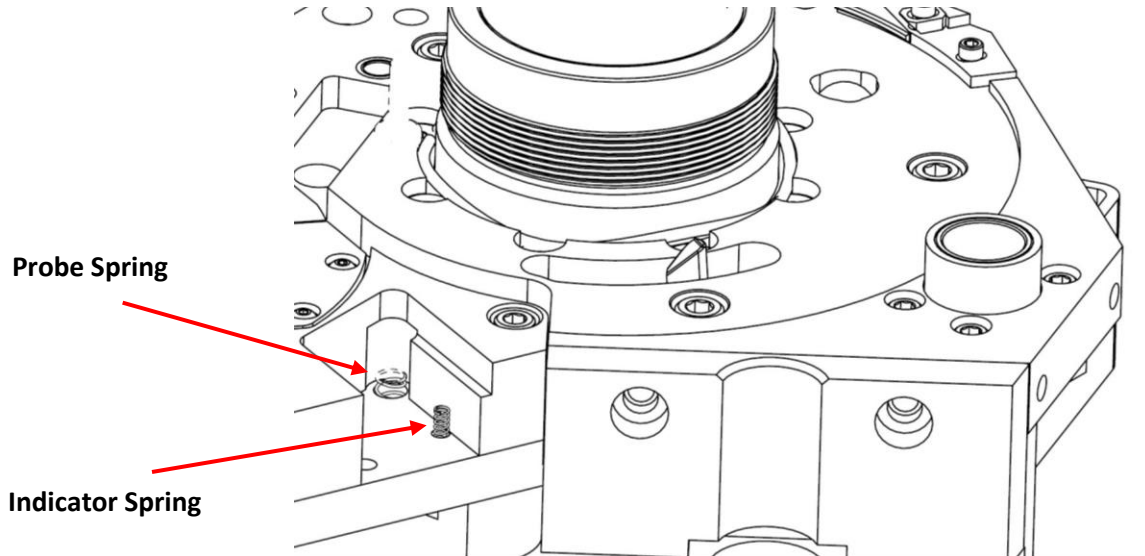
Probe Spring

Indicator Spring

Figure 31 : Pace Probe Retractor and Indicator Springs in Spring Pockets as shown.
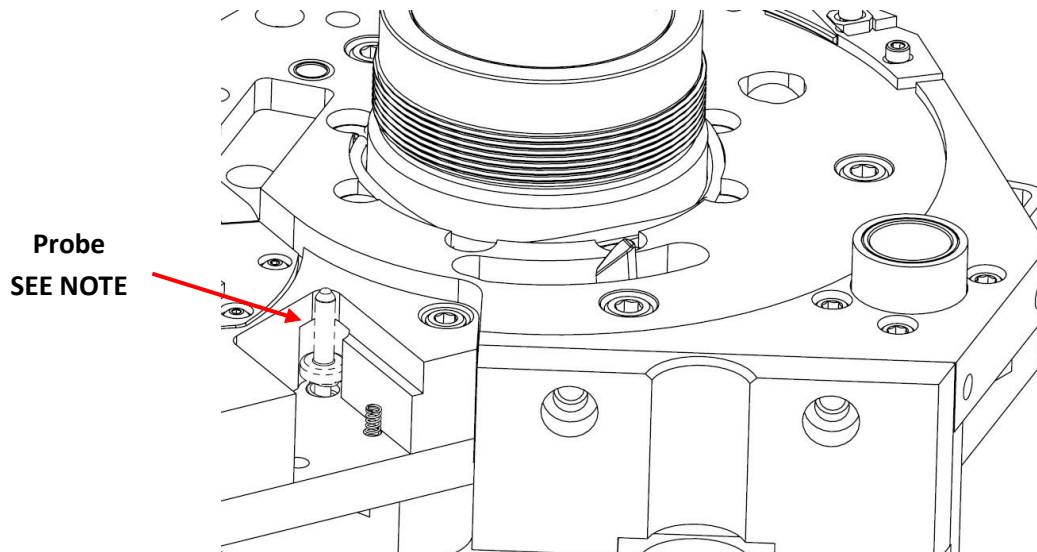
Probe
SEE NOTE

Figure 32: Probe Retractor Installed with Springs

NOTE: The probe must be installed at a slight angle in order to clear the undercut in the priming housing.

Step 3: Installing the Primer Orientation Sensor Main Body

Carefully lower the sensor body straight down so the probe retractor enters the bronze sleeve bearing and the indicator finger pin enters the spring. The sensor should mount fully flush into the pocket with no resistance. If it does not seat properly remove and reseat. Re-use the QTY 2 8-32 screws from the underside of the priming system to secure the sensor the priming assembly. Spare screws are included if needed.
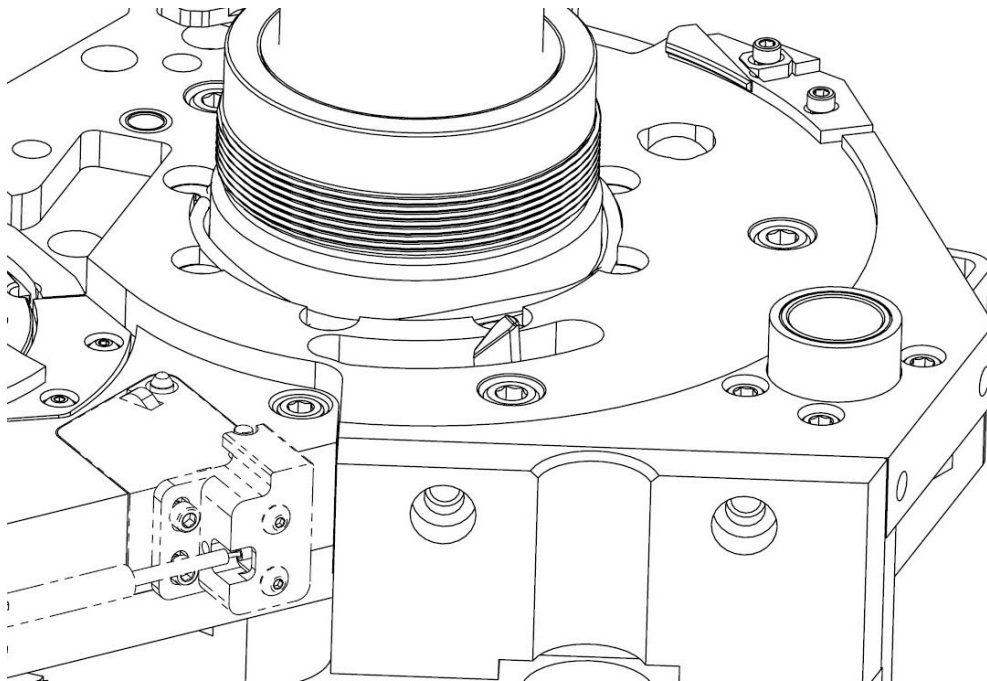

Figure 33: Primer Orientation Sensor Installed

Once the Sensor is fully installed add a couple drops of light weight oil on the probe retractor and moving components and manually actuate the sensor to make sure it is moving smoothly.

Step 4: Re-install the Press components

1. Install Shellplate
2. Install Shellplate Spring and set tension
3. Install Shellplate Nut
4. Install Tool Head*

Note: When installing the Tool Head always perform the final tightening of the Tool Head with the crank assembly in the down position.

Step 5: Adjusting Optical Sensor to Desired Primer Depth

With the machine powered off and the tool head in the **UP POSITION** place a case with a seated primer to the desired depth into station #5. Make sure the Shellplate nut is fully threaded down to the desired tightness. When you Install the Primed case, you will notice the indicator Pin will move up slightly. With the case installed the top of the indicator pin should be **FLUSH** with the top of the Sensor Housing. If the sensor Housing is higher or lower loosen the two socket head Screws on the back of the sensor housing and reset the height.
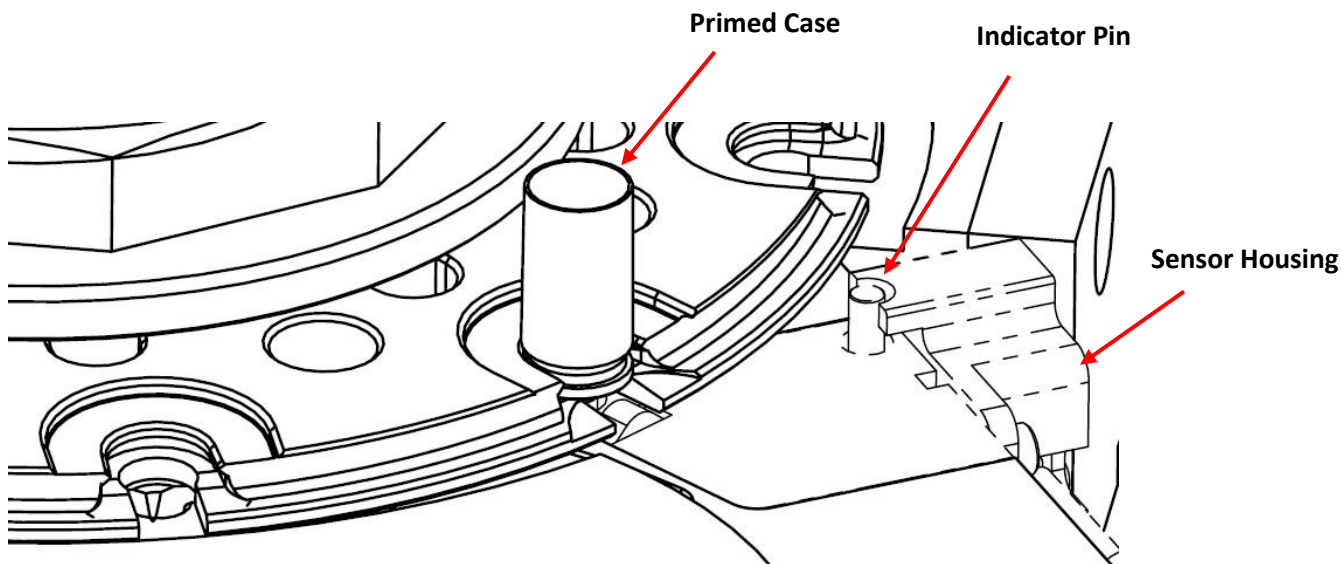

Primed Case   Indicator Pin

Sensor Housing

Figure 34 : Setting Optical Sensor Position

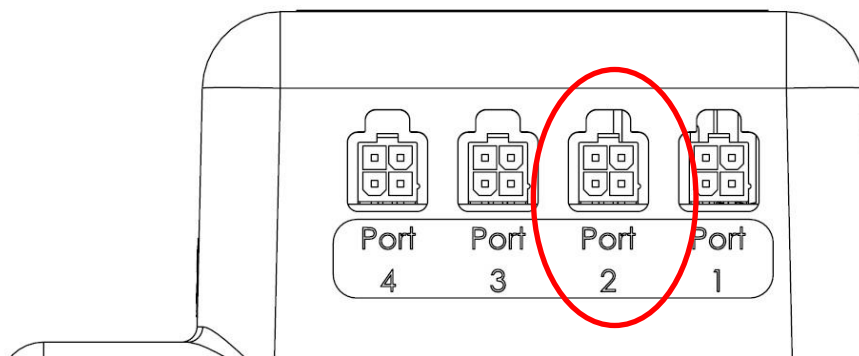**Step 6: Plug the Sensor into Port #2 on the rear of the electronics unit**

Figure 35 : Plug Sensor into Port #2 as Shown

Operating Instructions:

Software version 2.11 or newer is required for the sensor to operate properly. Visit www.mark7comunity.com and under the forums tab select Revolution or Evolution Autodrive depending on your unit. Then scroll down to find the Software update 2.11 post.

Before entering the Loader application make sure the press manually cycles smoothly with the sensor installed and the sensor is plugged into Port #2. Enter the Loader Application and Perform Calibration. Once the calibration is complete, select the sensor tab and enable the sensor as shown below.
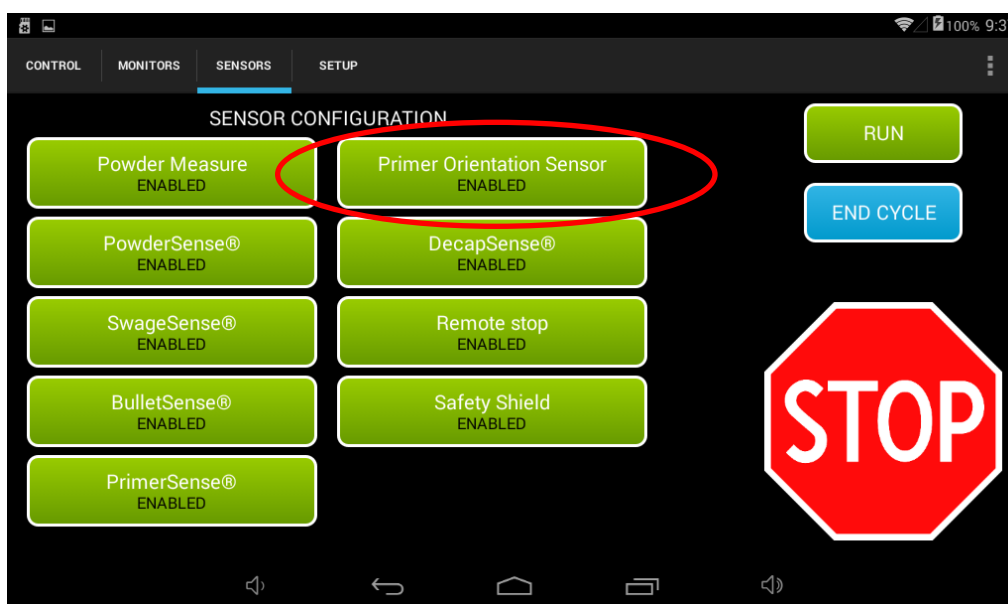
The sensor checks the primer depth when initiating a single cycle or pressing Run. If a case is not present in station #5 or a case has an upside down, no primer or a primer set at a depth +/- .025" off of the desired primer depth a notification can appear. You must clear the notification before continuing or disable the sensor.

The Primer Orientation sensor if set properly will also detect a Shellplate index fault. If the sensor is enabled and a case is located in station 5 with a primer installed properly the sensor will allow the machine to perform a cycle. During the cycle if the sensor doesn't detect the advancement of the Shellplate on the upstroke a notification can appear. If the notification appears on the screen clear the Shellplate and check the mechanical indexing components before continuing operating the press.

Software and Firmware Update Instructions

1. Download the latest software/firmware from the support section of our website. Installation instructions specific to the update will be included in the downloaded file. These are general update instructions.

2. Unzip the downloaded file and make sure your file manager doesn't change the name of the zipped files or file extensions. This sometimes happens if the same file is downloaded twice or multiple times. Confirm the downloaded files read exactly as shown below:

   Firmware: __Mark7_mot.hex

   Software: Mark7Reloader.apk and Firmup.apk*

   *May only be included in some update packages

3. Insert the Micro SD card into the SD card adapter that was provided with the Mark 7® Autodrive and load the downloaded .hex and .apk file(s) onto the SD card via a SD card reader.

4. Remove the micro SD card from the SD adapter and insert it into the back of the tablet. Make sure the SD is inserted in the orientation shown below with the text facing out.

Figure 37: Orientation of Micro SD card

5. Power on the tablet and the Mark 7® console and clear shell plate; make sure all system cables are fully connected as in normal operation.

6. Select SOFTWARE UPDATE on the main screen then press INSTALL and DONE after the installation is finished. Depending on the software release there may be more than one software application to install. The additional file will automatically launch after the first file is finished.
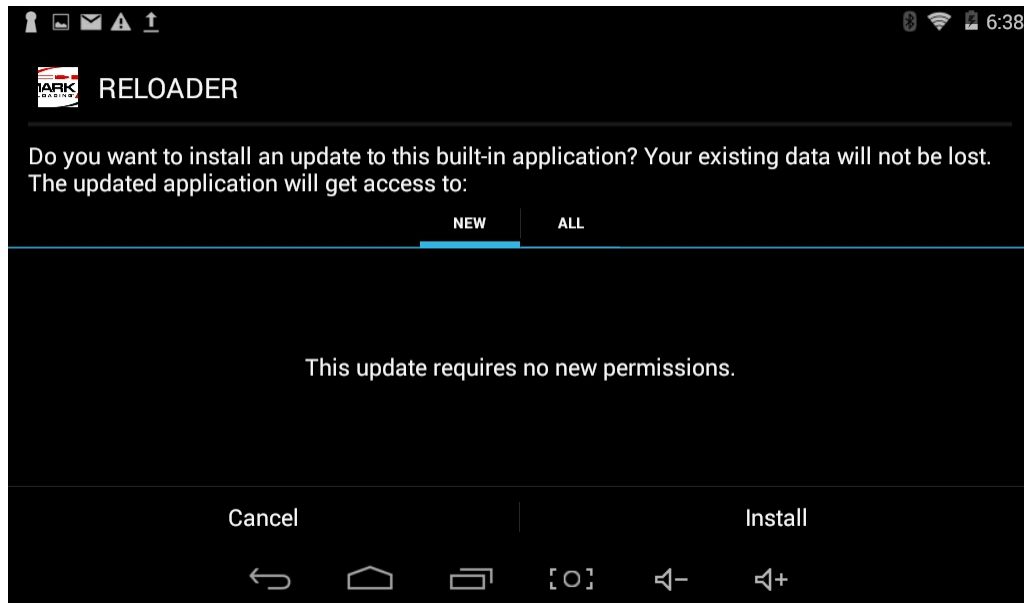

Figure 38: Software installation Screen

7. Once the software has been updated return to the main screen select FIRMWARE UPDATE, then press UPLOAD and press CLOSE when complete. Select the Reloader application and confirm that software version and firmware at the waiver screen is the same as what was just installed.
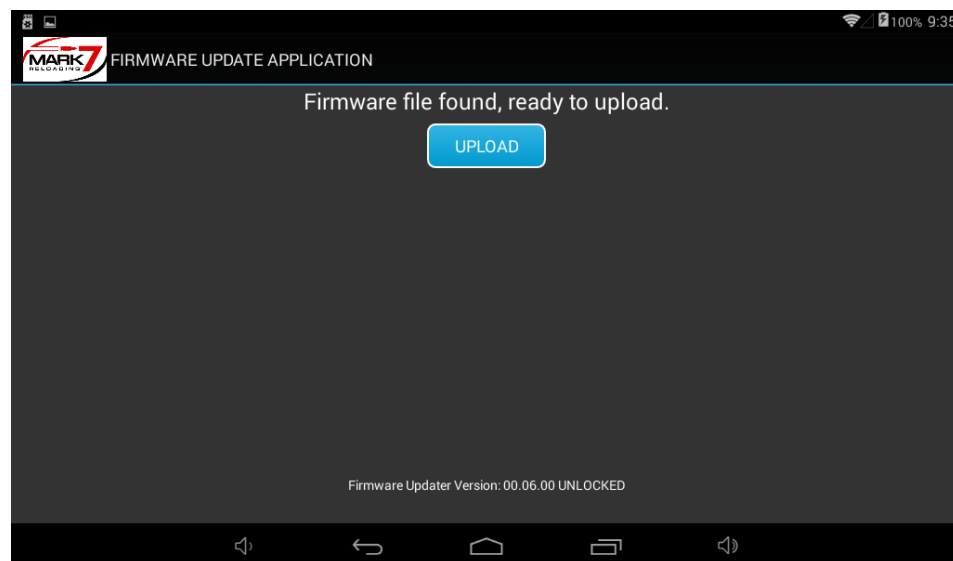

Figure 39: Firmware installation Process

Maintenance Intervals

Gearbox Shaft Collar Connection

If you have experienced failed calibrations or if the motor seems to lose track of its position within the stroke especially after a jam it's likely the gearbox to motor shaft collar connection has loosened causing the motor to slip. If this is occurring the Autodrive will not be functioning properly.

1. To check the connection first identify the 5/8" diameter hole on the side of the gearbox flange at the rear of the Autodrive.

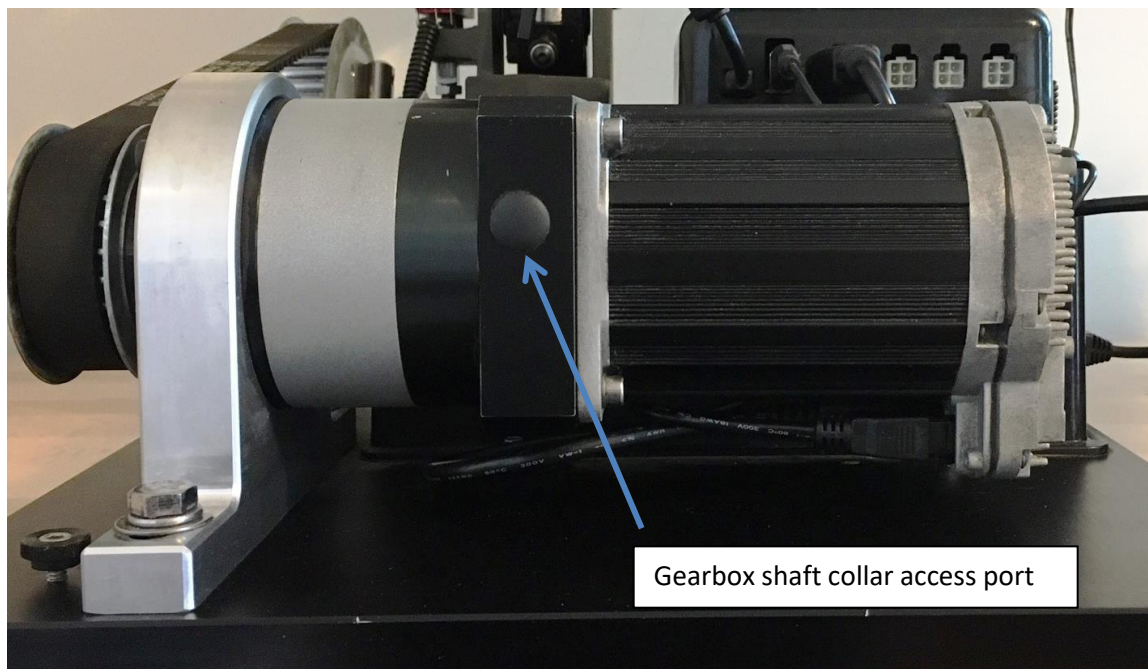2. Remove the plastic cap plugging the hole.

Gearbox shaft collar access port

Figure 40: Gearbox Shaft connection

3. Using a light look directly into the hole.

4. While looking into the hole rotate the small sprocket very slowly. You will see the shaft collar spinning inside the hole

5. There are 2X Metric socket head cap screws clamping the gearbox shaft collar to the motor output shaft.

Figure 41: Socket head cap screw lined up with access hole.

6. Using an 4MM Allen wrench check both screws for tightness. Using an allen key will not provide enough leverage to fully tighten the connection useless you add more mechanical advantage. We recommend to use a T-handle or ratchet with a deep 4MM Allen socket driver to achieve proper torque.

7. DO NOT over tighten, if they are loose, you will feel it. Make sure the 4 mm Allen is fully seated before tightening, be careful not to strip the socket head screws.

Storage Recommendations

The following is the proper procedure for storage after a session of use:
1. Ensure that the shell plate is clear of any brass
2. Check the need for lubrication after every session and apply it as necessary at the key lubrication points outlined in the Evolution™ press Manual. Insufficient lubrication creates a potentially dangerous situation and may lead to unreliable results
3. Turn off the power to the console of the autodrive
4. Turn off the power to the case feeder and the bullet feeder
5. Turn off the power to the tablet

System Errors

During operation if the system stops and produces an error or crash report please contact us.

In order to minimize system errors, we recommend the following steps:

- Check USB connection between Tablet and Console is secure at connections.
- Install the Mr.Bulletfeeder filter included with the system.
- Route the Case feeder power cord and Mr.Bulletfeeder power cables away from tablet USB and power cords.
- Make sure the USB connectors are secure and away from the moving components.

Troubleshooting

Refer to the Mark 7 Digital Community at www.markvii-loading.com/community for articles and videos to assist with troubleshooting.

Please contact us for technical support

Phone: 1-888-462-7577 (option #3 Technical Support)

Hours: 8:30am-5:00pm, ET, M–F

To submit a Support Ticket please visit: https://www.markvii-loading.com/contact-us_ep_64-1.html