Mark 7® 1050 Autodrive User Manual

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

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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 1050 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.

This product is designed to be used by reloading personnel in conjunction only with a fully functioning and well lubricated Dillon 1050 reloading press. Its use should be limited to experienced personnel only. All personnel using this equipment are assumed to have prior experience setting up and operating a Dillon 1050 reloading press. 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 if it is out of factory specification.

WARNING – Never operate the Mark 7 Autodrive unless it is completely within Dillon Precision factory specifications and is operating within factory parameters. This includes the shell plate locating pins and other machine-specific features. Read and understand the latest Dillon Precision 1050 manual for your make and model machine and ensure that you fully understand the Dillon directions.

WARNING – Never operate the Mark 7 Autodrive with any third party accessories that substantially change the operation of the Mark 7 Autodrive

WARNING – Never operate the Mark 7 Autodrive while impaired.

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

WARNING - Mark 7 provides you with a tablet mount. Never operate the Mark 7 Autodrive without the tablet securely fastened in the tablet mount and fixed to the case feeder post. The operator must be in a position to operate the tablet while observing all critical operations of the press. Failure to do so can create an inherently dangerous situation.

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 clothing. Failure to do so could result in serious injury or death.

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 insure 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.

WARNING 

If you remove the ratcheting system please be very careful to not over or under index the machine – double loads and squibs can occur as a result of this situation and it is your responsibility to know when the press has created this situation. An example is as follows: The digital clutch engages at the bottom of the stroke. A primer is already inserted in one case and powder in another. You Jog Up to fix the jam and then activate 'Run' on the press. This would create a potentially dangerous situation. The correct resolution of this is to turn the press off, remove the power. Manually manipulate the press to fix the impacted areas, clear the press, and start the loading process again while discarding the affected rounds.

Box Contents

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

Main: Mark 7 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 hex head bolts (4X)
- ¼-20 lock washers (4X)
- ¼-20 socket head (2X)
- 3/8-24 X 1.25" Set screw (1X)
- 3/8-24 hex nut (1X)
- 10-24 Thumb Screw (3X)

Middle Insert: (7 items)

- Cable management (zip ties, zip tie mounts) (4X each)
- Tablet holder with 4X right angle inserts and plugs (1X)
- Tablet mount (1X)
- Micro-USB Cable (1X)
- Mr. Bulletfeeder Filter (1X)
- MicroSD Card: for software updates (1X)
- Low Primer Assembly (1X)

Top Insert: (5 items)

- Tablet (1X)
- Belt (1X)
- Mark7 Belt keeper (1X)
- Belt guard (1X)
- Setup instructions (1X)

Set-Up Procedures

The Mark 7 Autodrive is manufactured with superior craftsmanship and quality that is backed by a factory warranty.

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.

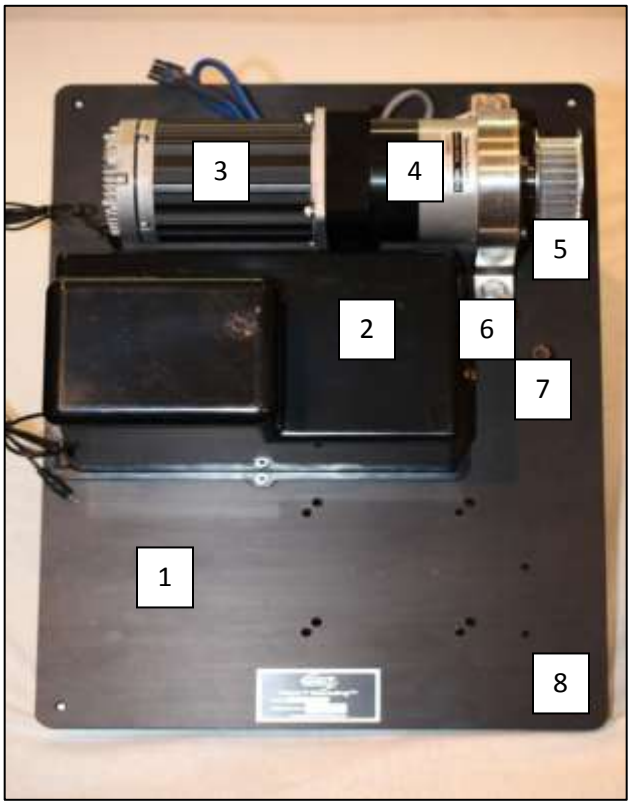
Prior to installation perform the following manual press checks and adjustments (see Dillon Precision Super 1050 Manual for location of some of the items below):

1. Ensure that the press/autodrive combination is on a very solid surface that does not move. It is *strongly* recommended that you bolt the Mark 7 1050 autodrive base into your workbench. The baseplate is strong aluminum but you will be able to drill holes after unscrewing the baseplate feet. You may make the holes any size that fits the bolts you are using. Small vibrations can have an unpredictable impact on the operation of the machine. Ensure that the machine does not move whatsoever when operating.
2. Always have your loader grounded to a high-quality, external grounding line.
3. Ensure that the press operates according to Dillon Precision specifications before you install the autodrive**. Any modifications to your machine outside of the Dillon standard configuration and parameters will void the Mark 7® warranty.** 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.
4. Check that there is no powder or other debris under the shell plate. Lubricate the press as described in the Dillon Precision user's manual. Keep the shell plate clean.
5. There will likely be three (3) cables coming from the machine: the power to the casefeeder, bullet feeder, and autodrive. **These must be connected to separate power strips and separate circuits if at all possible.**

1. Removal of equipment from the packing carton

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

Top view of the Mark 7 Autodrive assembly as it comes out of the box



Major components:

1. Baseplate
2. Electronics Console
3. Motor
4. Gearbox
5. Drive Sprocket
6. Motor Mount
7. Tensioner Bolt
8. Rubber Feet on underside (all corners)

2. Determine mounting holes for either Super 1050 or RL 1050

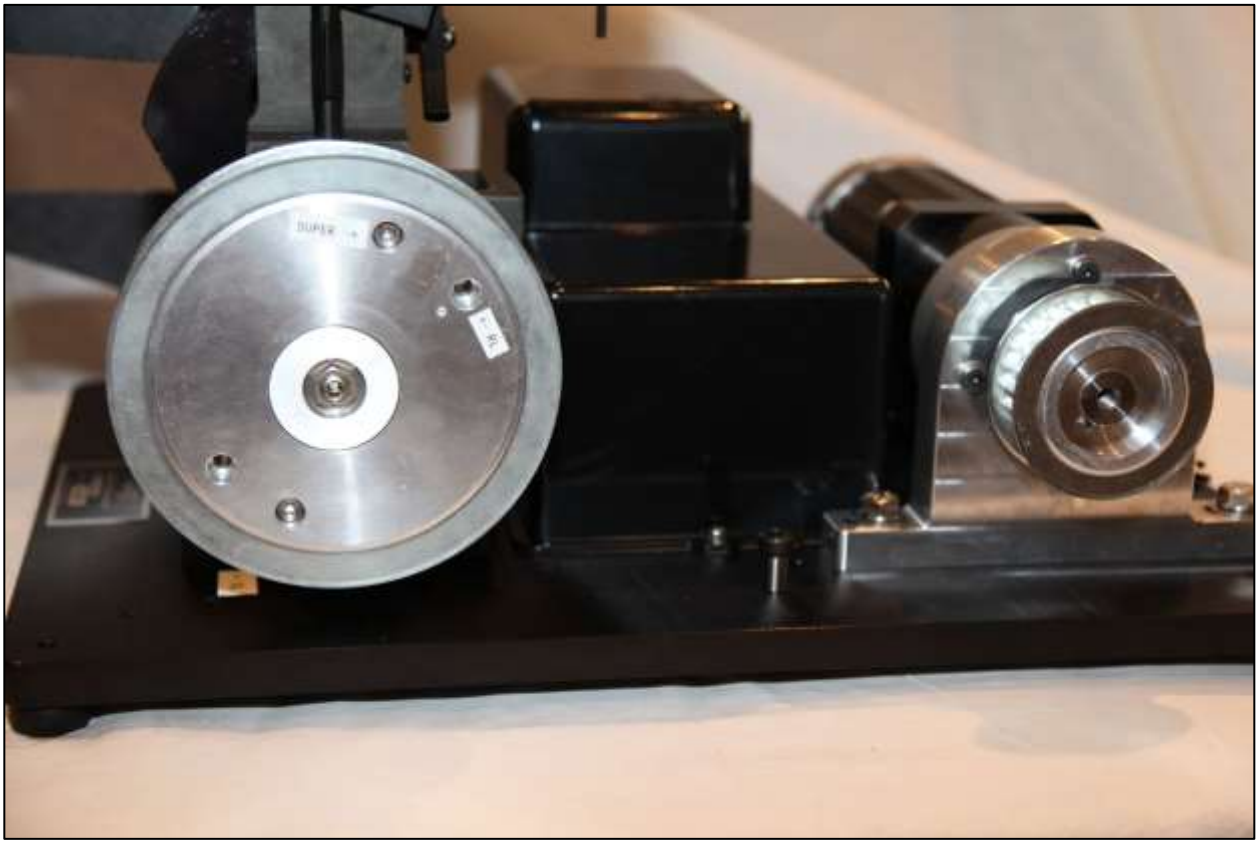
Depending on whether you have a Super 1050 or an RL 1050 there are specific mounting holes for each. You can see in the picture above the two sets of four holes each. When mounting either 1050 to the baseplate, thread all four bolts into the baseplate before final tightening. Torque the ¼-20 screws to 10-12 ft lbs (14-16 Nm).

The mounting holes in the super are the closest to the front of the baseplate and the holes for the RL are the farthest.

Be mindful not to drag the bottom of the press against the baseplate. We recommend that you place the bottom of the press as close to the mounting holes as possible in order to avoid unnecessary scratches to the anodized finish of the baseplate.

Once mounted articulate the handle so that the press is at the top of stoke and proceed to loosen and remove the set screw that holds the handle in place.

3. Mounting large sprocket



There are two sets holes in the sprocket; one set for the super and one set for the RL.

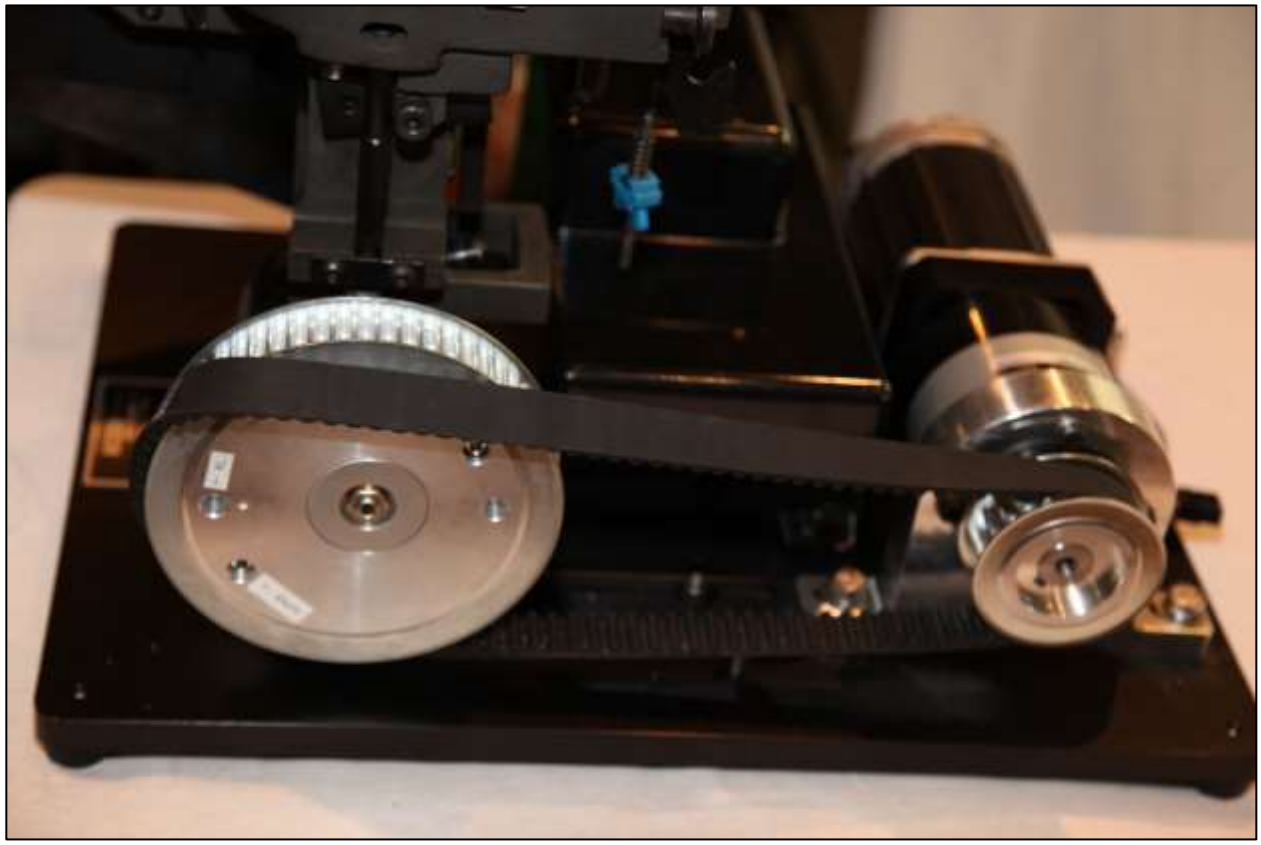
Make sure the press in in the UP position. Remove the lever and slide the large sprocket onto the 1050 input shaft. Position the sprocket so the labels are upright. Next insert the link bar and rotate the sprocket so the correct pair of holes lines up with the link bar.

Thread in the long ⅜-24 set screw into the 1050 input shaft in order to pinch the link bar.

Then insert the sprocket cap and fasten with the ⅜ nut. Torque to 10-12 ft lb (14 - 16 Nm).

Torque both 1/4 -20 screws 10-12 ft lbs.

4. Belt installation



Loosen both motor mount hex bolts with a 9/16 wrench. Then rotate the large sprocket counterclockwise so that press in the full downstroke position.

WARNING

The press may rotate back to the up position so you may need an assistant to hold it in position.

Place belt over small sprocket making sure motor mount is all the way forward. Loop belt under bottom section of large sprocket and rotate the large sprocket clockwise to properly seat the belt.

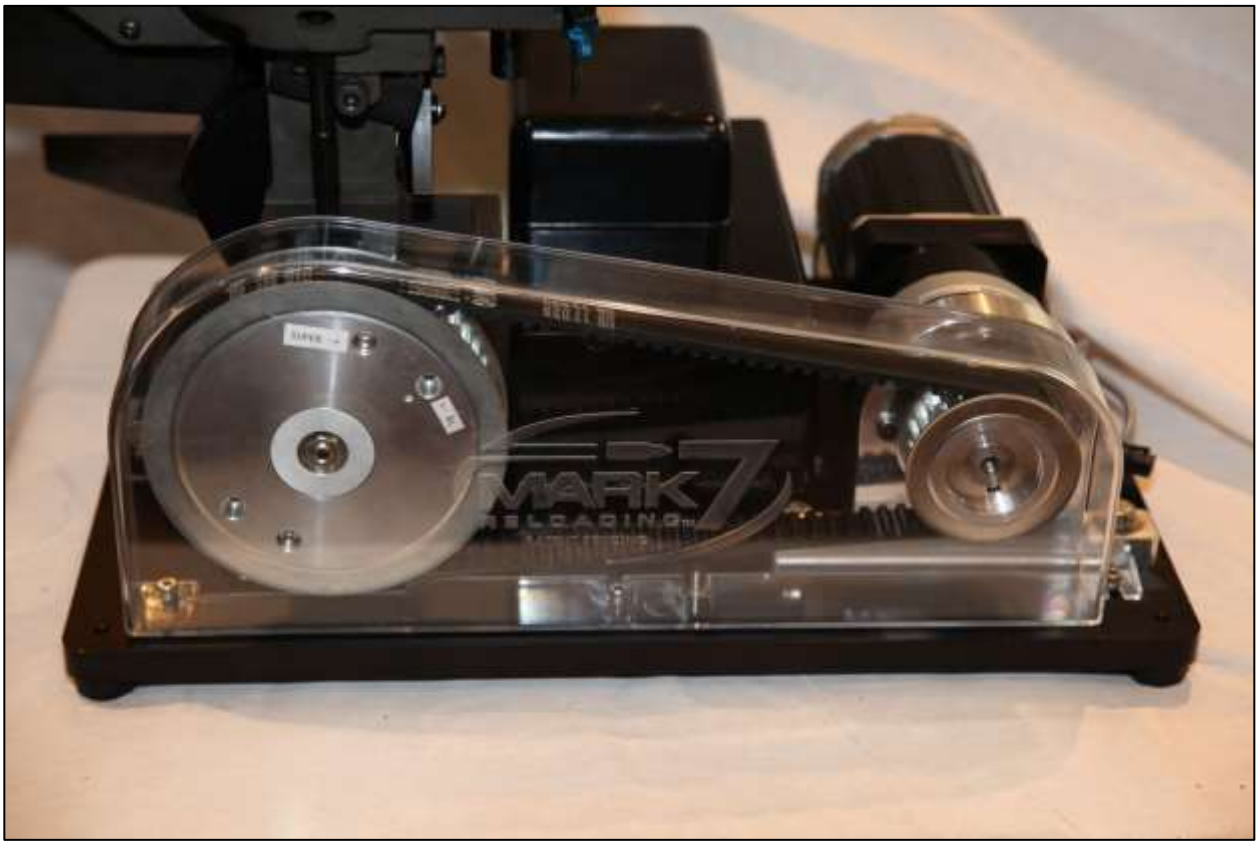
5. Belt tensioning

Using the 1050 lever that you removed from your machine, tension the belt by prying against the tensioning bolt and front of motor mount as shown in the illustration. A properly tensioned belt can only be moved about 1 cm. Tighten the two motor mount cap screws to maintain the tension. Torque them to 12-15 ft lb (16-20 Nm).

WARNING

Belt must be properly tensioned for the drive to operate correctly and safely. Belt tension should be checked periodically. – when tensioned properly it should be tight with just a little flexibility from the rubber material – you should be able to push down on the belt and it should feel firm.

6. Belt Guard installation



Remove the front and back belt guard mounting screws from the baseplate. While holding up the washer on the middle screw slide the belt guard into position. Then re-install the front and back washers and screws. The washers should rest against the inner surface of the guard into the baseplate. Tightening the screws is best done using a 5/32” ball end Allen wrench. Do not over-tighten.

WARNING

Never operate the machine without the belt guard installed properly.

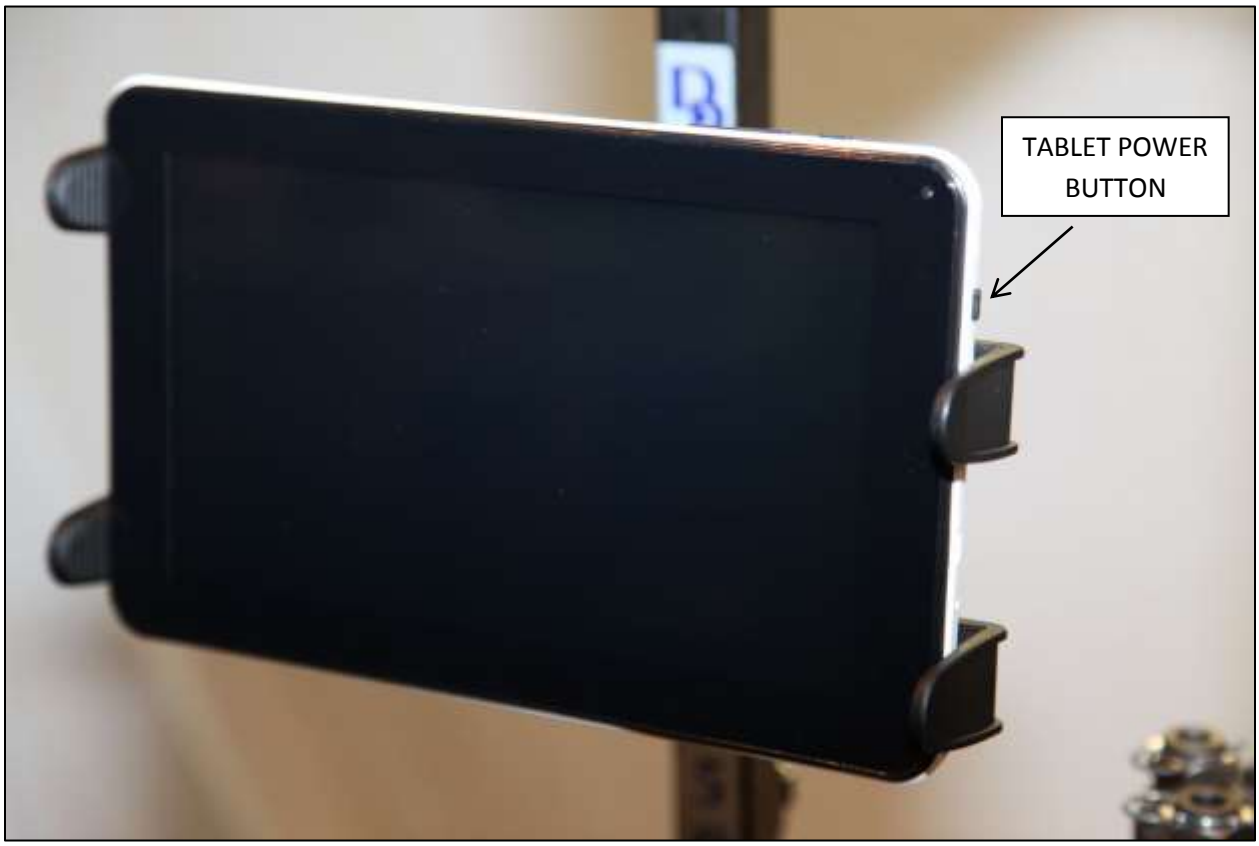
7. Removing the ratchet system on the 1050

The Mark 7 Autodrive works best if the ratcheting system on the Dillon is removed – but that is a decision best made by the user.

WARNING 

If you remove the ratcheting system please be very careful to not over or under index the machine – double loads and squibs can occur as a result of this situation and it is your responsibility to know when the press has created this situation. An example is: the digital clutch engages at the bottom of the stroke –a primer is already inserted in one case and powder in another. You Jog Up to fix the jam and then activate Run on the press. This would create a potentially dangerous situation. The correct resolution of this is to turn the press off, remove the power. Manually manipulate the press to fix the impacted areas, clear the press, and start the loading process again while discarding the affected rounds.

8. Tablet holder install



Attach tablet holder arm to the tablet holder. The tablet holder will make a positive clicking sound when it is seated correctly. Once attached, clamp tablet holder arm to brass feeder post at the desired position. To power tablet, press and hold the button on the upper right side of the tablet.

Once tablet holder is positioned correctly, carefully pull tablet holder laterally to expand enough to accommodate tablet as seen in picture. Be mindful that the arms do not cover the power or the micro-USB inputs on the tablet.

The tablet holder is a two piece design and the bracket holding the tablet can slide laterally from the ball join – this is by design. If the tablet holder becomes loose at this point, slide the tablet holder back into position at the ball joint.

WARNING

Ensure that the cables are coming from the tablet to the right of the unit. They should be zip tied or otherwise gathered so that they do not interfere with the operator's vision of the unit and are completely out of the way of the operation of the unit.

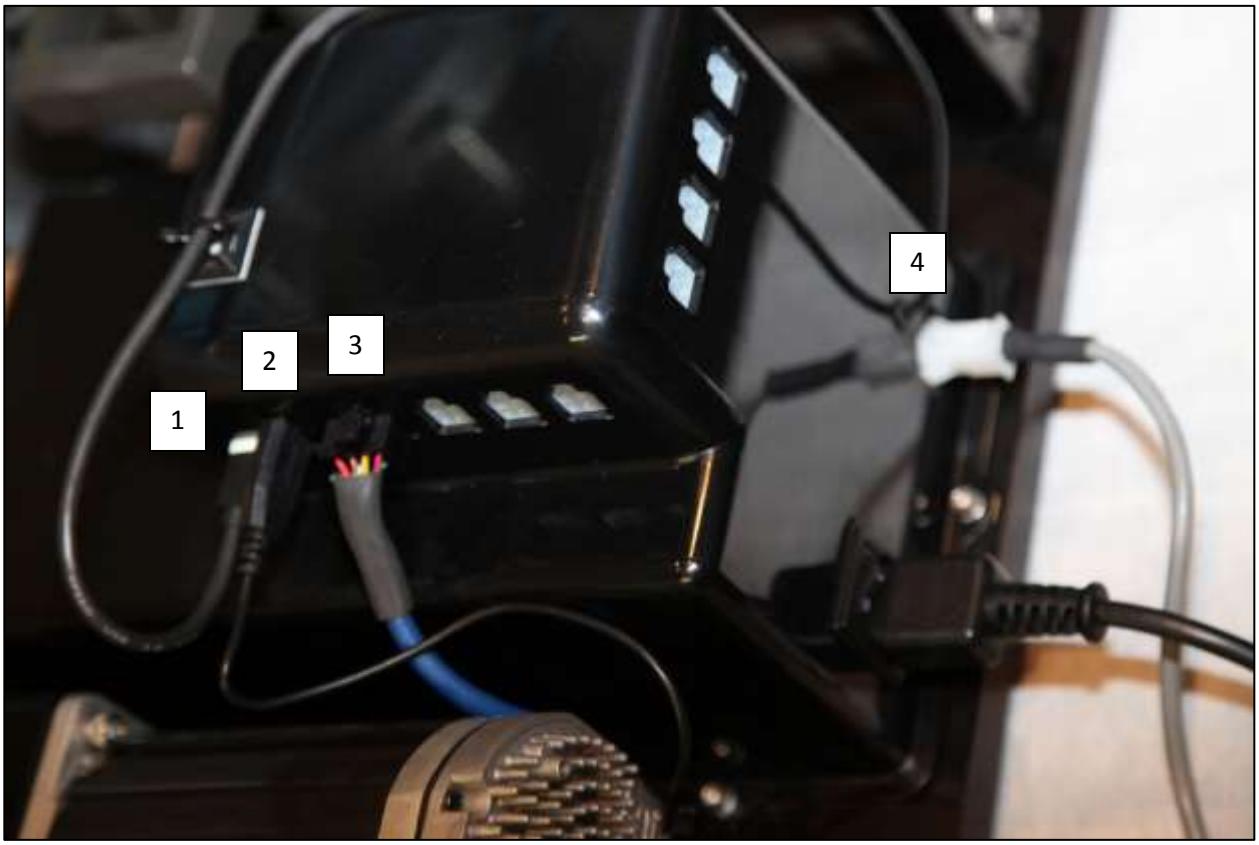
WARNING 

The operator of the press should always stand in front of the machine, facing the tablet with hands near the tablet to press the STOP button in the event the press needs to stop. You should visually see the decapping die decap primers and watch for bullets toppling or powder spilling. The best vantage point for this is standing immediately infront of the press.

9. Tablet cable outlet installation

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

10. Console inputs



Make the following inputs into the console:

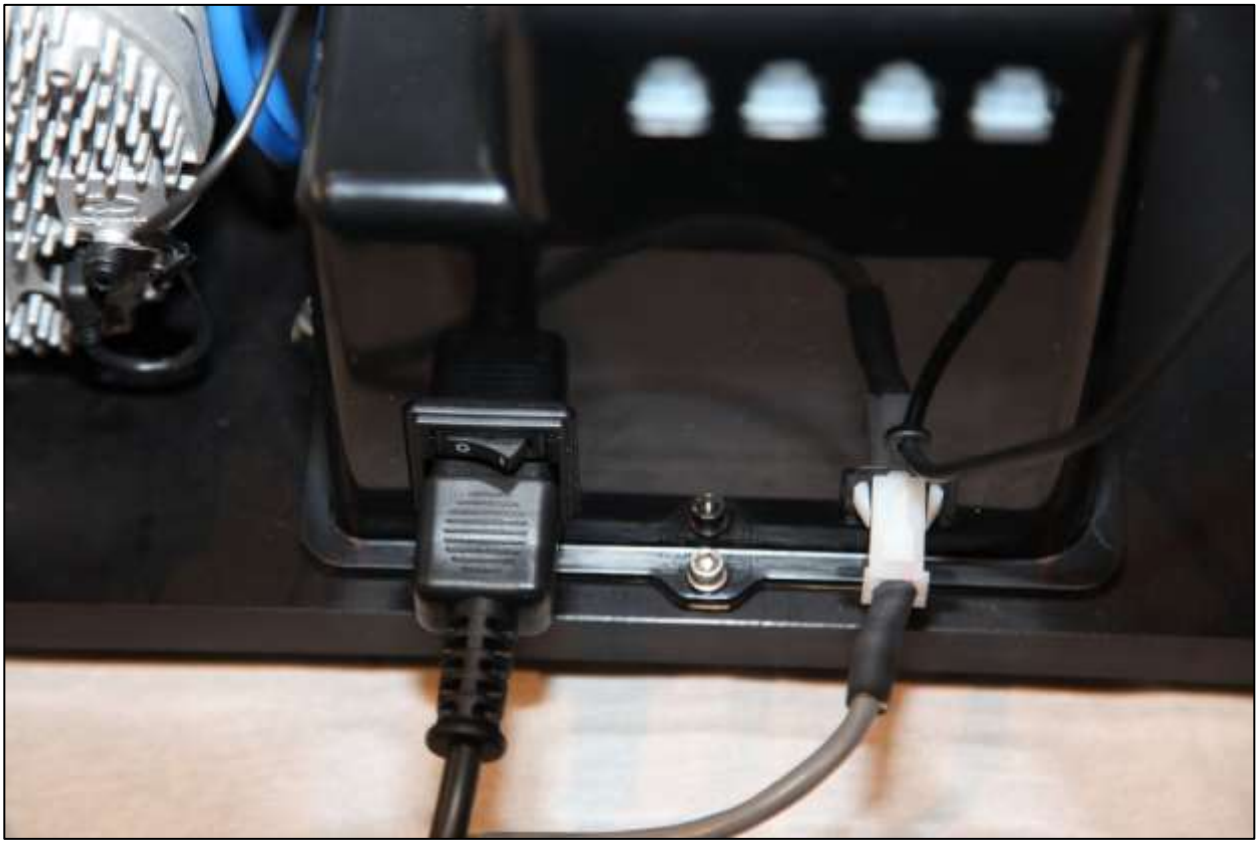
1. Micro-USB cable coming from tablet into left most micro-USB input on console

2. Standard USB A coming from motor to standard USB input on console (input is to the right of micro-USB input on console)

3. Eight pin Molex connector from the motor to the eight pin input to the right of the USB input on the console.

4. Four pin Molex connector from the motor to the bottom on the console, to the right of the power connection

11. Power connection input



Make power connection by inserting the power cord connection into the console

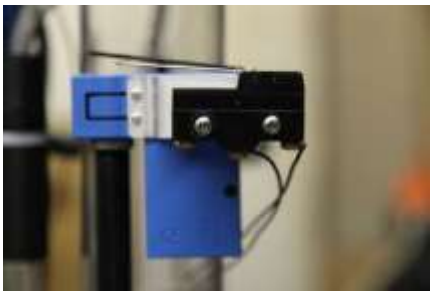
WARNING

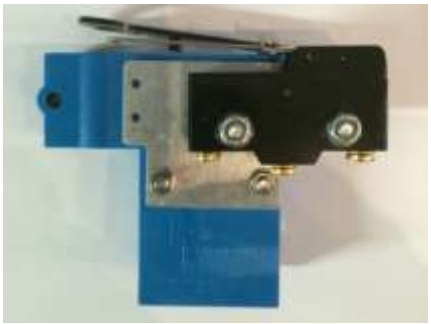
Never power on the console switch without the 4-pin molex connector plugged in and never install this connector with the power already on since the DC voltage would damage the motor's input contacts.

12. Low primer sensor install (New alarm style on left. Old alarm style on right)

New style primer alarm mount

Old style primer alarm mount





Upon checkout for your purchase of the Mark 7 Autodrive you would have been asked the style of primer alarms you have with your existing 1050. We supply the appropriate mounts based on this answer. Mounting on the new style primer alarm requires a Torx screws that thread into existing holes in side. Mounting for the old style requires replacing the bottom 8-32 screws with the screws supplied with the mount.

A weight can be put at the top of the primer follower stick if needed to ensure accurate depression of the hardware primer sensor.

Plug in the Low primer sensor to the connector port on the right side of the console shown below.

13. For Double Alpha or KISS bullet feeder users

There is an external capacitor 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.

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.

Waiver Screen

Following proper installation of the Mark 7 Autodrive the user will be able to power up their tablet and launch the Mark 7 Autodrive application. The picture below is the first screen the operator will see. The operator must accept the terms and conditions and waiver 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.

If the ACCEPT and DENY icons do not appear on the waiver screen, check that the ON/OFF switch on the console is power ON. Power cycle the console if necessary.

Before each session of use of the machine

WARNING 

Before each loading session, fully inspect the machine – this will reduce the errors you may encounter. Some of the items to inspect (for exhaustive list please refer to the Dillon Precision manual) include: Ensure the index arm is tightly seated against the machine and the shoulder screw that attaches it is tight. The spring for the index arm must be properly installed. The index pawl must not be damaged or have a dent it the front where it indexes the plate. The index plate must be free of debris. Visually inspect all lubrication points. Check the need for lubrication before every session and apply it as necessary at the key lubrication points outlined in the Dillon Precision manual. Insufficient lubrication creates a potentially dangerous situation and may lead to unreliable results as well.

Control Screen

The control screen is the first screen the operator will see once they accept the waiver.

CALIBRATE - The function is the first operation that must be run before fully running the Mark 7 Autodrive. 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 shell plate must be clear when calibrating. Calibration takes approximately 30 seconds to complete.

DIGITAL CLUTCH - The Digital Clutch setting is the way in which the operator controls the torque output of the motor. We recommend keeping the digital clutch at the lowest level required to complete a desired action, whether it is re-sizing, or making complete ammunition. When the operator hits the torque limit the Mark 7 Autodrive will stop. To continue operations increase the digital clutch value and hit RUN until the cycle is completed.

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

ROUNDS PER HOUR - The 900, 1200, 1500, and 1800 options under ROUNDS PER HOUR give the operator the ability to choose their desired cycle speed.

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.

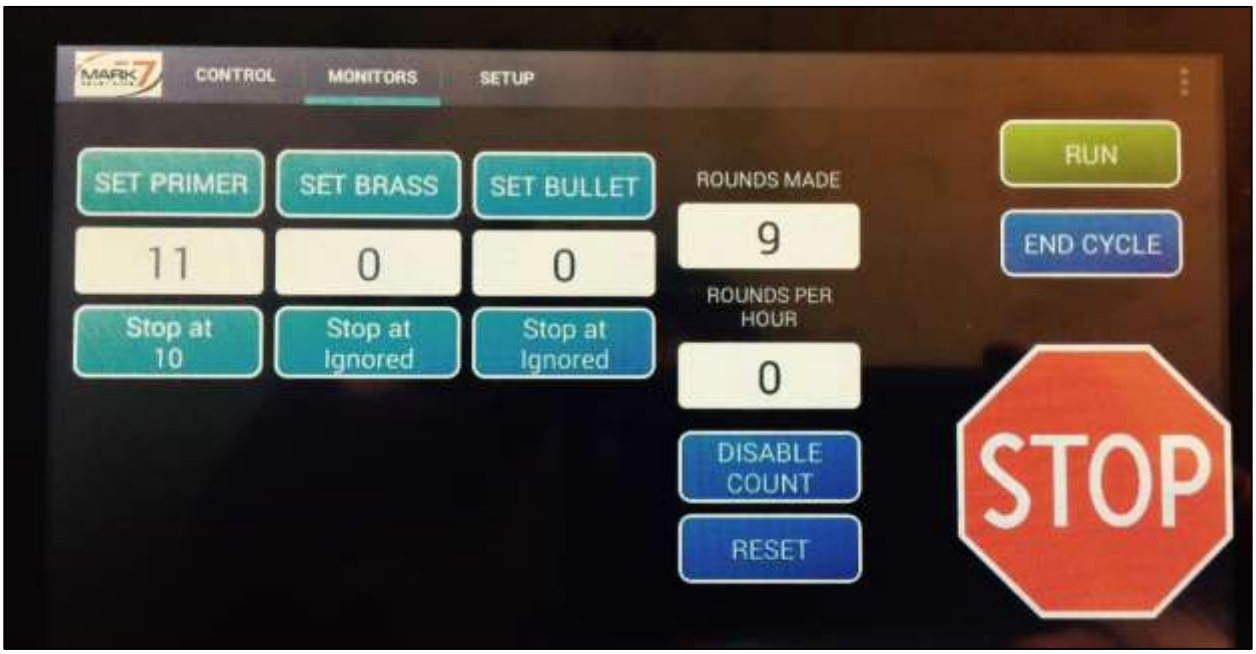
END CYCLE - The END CYCLE function will complete the current cycle and return to the top position.

JOG UP - The JOG UP function will incrementally move the press upwards. The JOG UP functions is 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.

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.

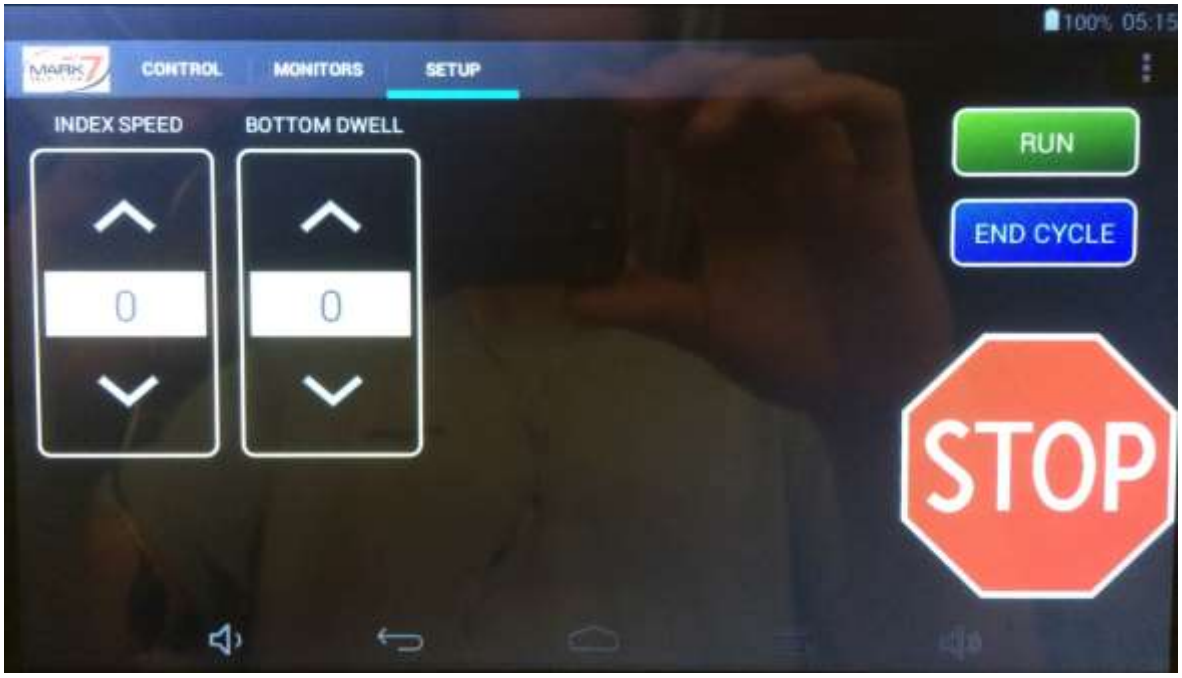
DISABLE COUNT - The DISABLE COUNT function gives the operator the ability to not count the amount of rounds made.

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).

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.

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.

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

General Maintenance and Storage

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 Dillon Precision 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

Reloading Manual

Ensuring proper system operation

Before using any Mark 7 equipment you must ensure that your Dillon 1050 works perfectly in manual mode. This includes proper settings for the type of ammunitions you are reloading at each of the die stations. You must load your perfect ammo in manual mode before installing the Mark 7 Autodrive on your 1050.

There is a delicate interaction between the bullet dropper and the amount of brass flair provided by powder funnel. A strategy that may be helpful is to remove the bullet feeder leaving just the bottom portion of the bullet dropper. Loosen the locknut to the powder assembly as well as the two screws holding the bracket in-place under the powder funnel so that you can readily adjust the depth of the powder funnel. Run the machine on slow adjusting both dies until you get the operation you are looking for. You can manually insert bullets Into the dropper and single cycle the machine . Make sure that bullets are not toppling over. If so you may need to increase flair and/or increase depth of the dropper mechanism. Once you have run several cycles without issue you can tighten everything up and continue operation.

WARNING 

Bullet heads behave differently and in an autodrive setting, small variations in bullet dimensions have unpredictable results in bullet feeding. Take good care that if you are getting results you are not expecting like excessive bullet topple, bullets stuck in the dropper, etc. Check the dimenions of the bullet heads.

Calibration

WARNING 

Calibration can only be done when the Mark 7 Autodrive is empty with no casings in the shell plate. Only after calibration is complete you may start reloading ammunition

Test Rounds

Once calibration is completed, and you have loaded the shell plate with brass you must take the first round produced and remove it. Take the next two rounds and check the measurements with high quality calipers. Adjust dies if necessary and repeat to ensure that setting meet the specifications that you are loading.

Digital Clutch Setting

The digital clutch should be set at the lowest possible setting to produce quality ammunition. The Mark 7 Autordrive is shipped with the digital clutch set at 0; this will need to be increased for operation. Settings “1”, “2” or “3” should accommodate the vast majority of pistol calibers. Rifle calibers require higher settings.

WARNING 

Never put more than 100 primers in your Dillon press.

WARNING 

If you remove the ratcheting system please be very careful to not over or under index the machine – double loads and squibs can occur as a result of this situation and it is your responsibility to know when the press has created this situation. An example is: the digital clutch engages at the bottom of the stroke –a primer is already inserted in one case and powder in another. You Jog Up to fix the jam and then activate Run on the press. This would create a potentially dangerous situation. The correct resolution of this is to turn the press off, remove the power. Manually manipulate the press to fix the impacted areas, clear the press, and start the loading process again while discarding the affected rounds.

WARNING 

The digital clutch setting will have an effecting change at higher production rates of the Mark 7 Autodrive. For example, loading .40 S&W at 1200 rounds per hour with the digital clutch setting of 2, you may be able to reduce the digital clutch setting to 1. You should always have the digital clutch setting at the appropriate level for you desired production rate.

Jams

There are many types of jams that can occur when operating the Mark 7 Autodrive. Some are obvious and some are not.

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.

Because there are some many types of jams in reloading it is beyond the scope of this manual to cover all types. However, we will cover strategies to employ in clearing jams.

1. When the press stops due to the digital clutch engaging you should first attempt to clear the issue causing the jam and then use the jog buttons to see if you can clear the jam. If you run into a jam where you can't jog up but can see what has caused the jam press STOP twice, this will put the motor in neutral. The LED on the back of the motor will be a solid orange in this state. Then proceed to hit jog up, clear the jam and proceed operation.

   WARNING 

   Whenever the Mark 7 Autodrive stops due to the clutch engaging and you believe you have cleared the jam always drop the clutch setting down and the speed of the Mark 7 Autodrive down to the lowest level and only run one cycle for safety.

2. Hard jam. If the jog buttons do not move the shell plate than the Mark 7 Autodrive needs to be powered down. Once powered down cut the power and when you are sure that the power is cut to the Mark 7 Autodrive 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 

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.

Manually indexing the Mark 7 Autodrive requires removal of the belt guard. Once removed, you can manually index the sprockets to ensure that the shell plate indexes properly. Pu the belt guard back on to ensure smooth, uninterrupted use.

WARNING 

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

Settings

There are a number of settings that your mark 7 Mark 7 Autodrive came with. They include: Production rate, digital clutch, dwell, index speed. You can experiment with different settings to ensure that you are making the highest quality ammunition

WARNING 

It is up the user to develop the right kind of settings to support the particular type of operation that they are undertaking.

Communications Errors

If you see the following communications errors on the tablet interface when you are running the machine:

- USB Disconnected
- Unable to connect to USB

They caused by electrical interference. Please ensure your machine is set-up with the following:

1. Power from the console, brass feeder, and bullet feeder on DIFFERENT power strips. Separate as many of these three cables from each other – particularly the power from the Dillon Brass feeder needs to be on a separate power strip at a minimum. ** In the event this is difficult for you based upon your electrical set-up, you can put a strip of Armaflex pipe insulation (available at your local Home Depot or similar) lining the Dillon case feeder post.
2. Power strips not being used for each of the above items
3. External capacitor not installed above bullet dropper mechanism on KISS and Double Alpha bullet feeders
4. Machine not externally grounded to quality ground source
5. Our USB data communication cable being zip tied along with the brass feeder power cable to the brass feeder post. These cables need to be separated and not tied together

In the event of this error you must clear the shell plate from all brass, rectify the situation above that caused the error, turn on the machine, proceed with calibration, and restart your operation.

If you continue to have Communications Errors please contact us for technical support.

Troubleshooting

Refer to the knowledge base section on our website for troubleshooting articles relating to setup and operation.

http://www.markvii-loading.net/

Please contact us for technical support. (617) 545-4890