Operation, Parts

TapeLazer™ HP Automatic

3A8108B

EN

For application of traffic tape on roads and pavement. For professional use only.
For outdoor use only.
Not approved for use in explosive atmosphere or hazardous (classified) locations.

145 psi (1.0 MPa, 10.0 bar) Maximum Working Pressure

Models: 20A024, 20A140

Important Safety Instructions

Read all warnings and instructions in this manual and related manuals before using the equipment. Save these instructions.

Contents

Models

Part	Description	Maximum Working Pressure psi (MPa, bar)	Approvals
20A024	TapeLazer HP Automatic	145 psi (1 MPa, 10.0 bar)	
20A140	TapeLazer HP Automatic with LazerGuide 3000*		

* Refer to LazerGuide instruction manual 3A5294 (included with unit) for reference on how to operate the LazerGuide system.

Related Manuals

Manual in English	Description
312540	LineDriver® Operations, Parts, and Repair Manual
3A6623	LineDriver™ ES Operations, Parts, and Repair Manual
3A5294	LazerGuide™ Instructions
37Z4V611	Honda Engine Manual

Warnings

The following warnings are for the setup, use, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

⚠ WARNING


MOVING PARTS HAZARD
Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Before cleaning, checking, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

BURN HAZARD
Equipment surfaces and compressed air components can become very hot during operation. To avoid severe burns:

- Do not touch compressed air components or equipment.


TRAFFIC HAZARD
Vehicle strikes may result in serious injury or death.

- Do not operate in traffic.
- Use traffic control.
- Follow local highway and transportation regulations for traffic control. Refer to Manual on Uniform Traffic Control Devices (MUTCD), U.S. Department of Transportation, Federal Highway Administration, or local regulations.

FIRE AND EXPLOSION HAZARD
Flammable fumes in **work area** can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well-ventilated area.
- Do not fill fuel tank while engine is running or hot; shut off engine and let it cool. Fuel is flammable and can ignite or explode if spilled on hot surface.
- Keep work area free of debris, including solvent, rags and gasoline.
- Keep a working fire extinguisher in the work area.


BATTERY HAZARD
Lead-acid batteries produce explosive gases and contain sulfuric acid that can cause severe burns. To avoid sparks and injury when handling or working with a lead-acid battery:

- Read and follow the battery manufacturer's warnings.
- Exercise caution when working with metallic tools or conductors to prevent short circuits and sparks.
- Keep all sparks, flames, and cigarettes away from batteries.
- Always wear protective eyewear and protective equipment for face, hands, and body.
- If you have direct contact with battery fluid, flush with water and consult a physician immediately.
- Installation and maintenance must be performed by knowledgeable personnel only.

CARBON MONOXIDE HAZARD
Exhaust contains poisonous carbon monoxide, which is colorless and odorless. Breathing carbon monoxide can cause death.

- Do not operate internal combustion engine in an enclosed area.

⚠ WARNING

EQUIPMENT MISUSE HAZARD
Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

ELECTRIC SHOCK HAZARD
Hazardous voltage is present in control box while engine is running.

- Turn off engine before servicing equipment.

LASER LIGHT HAZARD: AVOID DIRECT EYE CONTACT
Eye exposure to Class IIIa3/3R levels of laser light can potentially present an eye (retinal) injury hazard, including spot blindness or other retinal injury. To avoid direct eye exposure:

- Never look directly in to a laser beam or point the beam into the eyes of others, even at long distances.
- Never shine the laser at mirror like surfaces which can cause specular reflections of the beam.
- Always set the laser at a height and angle that prevents the beam from shining into people's eyes.
- Immediately terminate laser emissions if personnel, animals or reflective objects approach the beam.
- Always turn off laser when unattended.
- Do not remove any warning labels from the laser.
- Only properly trained laser operators are to use this product.
- Never allow beams to be aimed toward traffic, vehicles, or heavy equipment. Even when not damaging at long distances, the high brightness of lasers can distract or disrupt vehicle operations.
- Never point a laser at an aircraft or law enforcement personnel. This is considered a felony in most locations, with the possibility of jail time, heavy fines or both.
- Do not disassemble laser product. Return to factory for all service procedures.
- Laser must be turned OFF when cleaning the lens, so as not to create unwanted laser refraction.

LASER RADIATION HAZARD
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

- Do not attempt to open or disassemble the laser housing under any circumstances. Doing so may cause exposure to potentially hazardous levels of laser radiation.
- No serviceable parts within. Unit is factory sealed.

PERSONAL PROTECTIVE EQUIPMENT
Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:

- Protective eyewear, protective clothing and gloves, and hearing protection.

Component Identification

1	LiveLook™ display
2	Carriage raise/lower and engine stop
3	USB charger/job logging download
4	Engine throttle
5	Carriage locking pin
6	Tape roll support spindle
7	Air drain valve
8	Cutting blade
9	Tape brake roller
10	12 volt battery

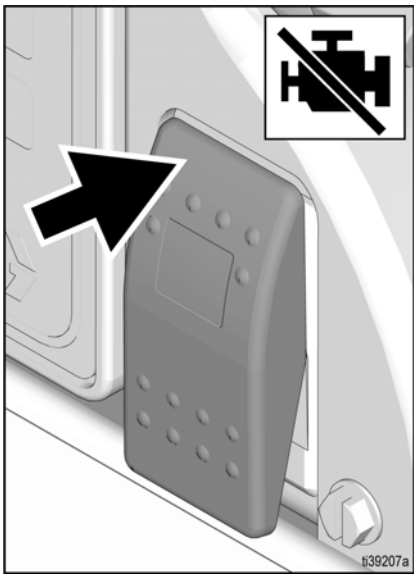
11	Handlebar
12	Front wheel release lever
13	Identification label
14	Tape application button
15	Carriage
16	LineDriver hitch
17	Parking brake
18	Tape brake
19	Tape application assembly
20	Solenoid manifold

Setup/Startup

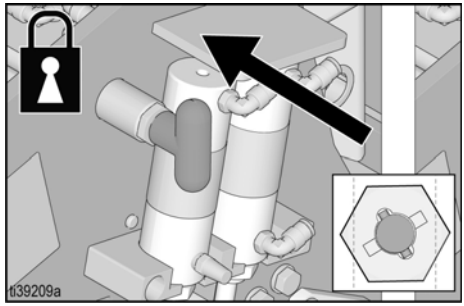
Pressure Relief Procedure

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from moving parts, follow the pressure relief procedure before cleaning, checking, or servicing the equipment.

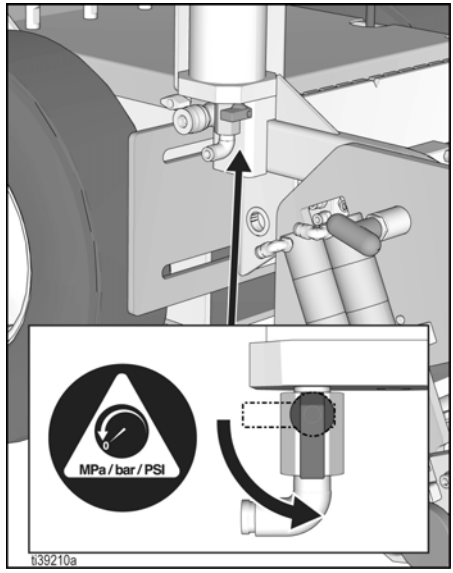
1. Turn engine off by pressing and holding the Engine Stop. The carriage will automatically raise when the engine is turned off.



2. Lock carriage in the up position by turning and pushing locking pins in on both sides of the carriage.



3. Open air drain valve, as shown, to relieve air pressure.

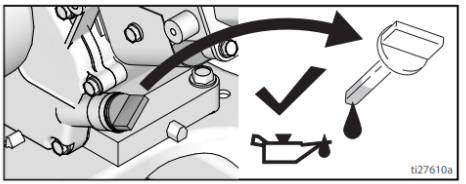


Initial Setup

To help prevent serious injury from pinching or cutting, keep clear of the cutting blade and moving carriage parts.

1. Turn engine off and perform **Pressure Relief Procedure**, page 7.
2. Check engine and air compressor oil levels.

NOTE: Use ONLY SAE 10W-30 (summer) or 5W-30 (winter) engine oil. Use ONLY synthetic air compressor oil for the compressor.

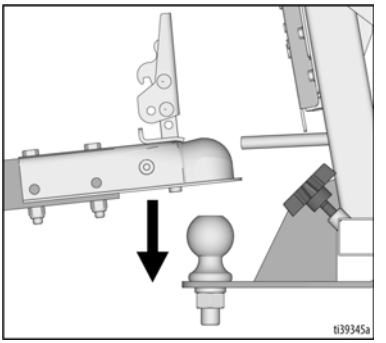


3. Fill fuel tank.
4. Remove blade guard. See, **Blade Guard Removal and Installation**, page 14

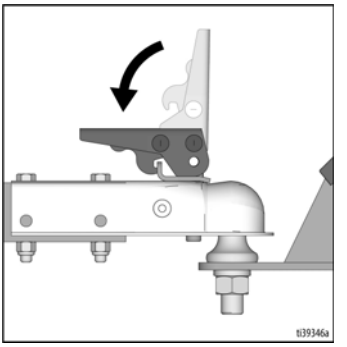
Connecting a LineDriver

It is recommended to use a LineDriver in conjunction with the TapeLazer. To connect the TapeLazer to a LineDriver, follow the steps below.

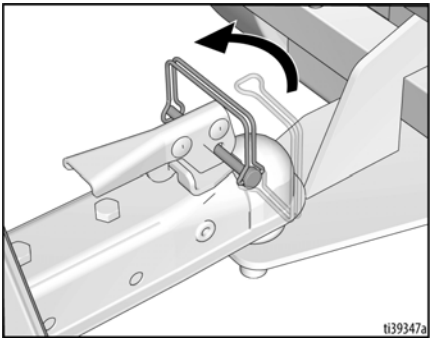
1. Install LineDriver coupler to TapeLazer hitch ball.



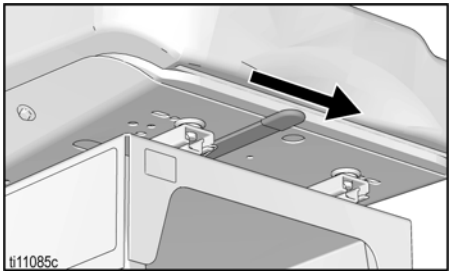
2. Latch coupler to locked position.



3. Insert safety pin into latch.

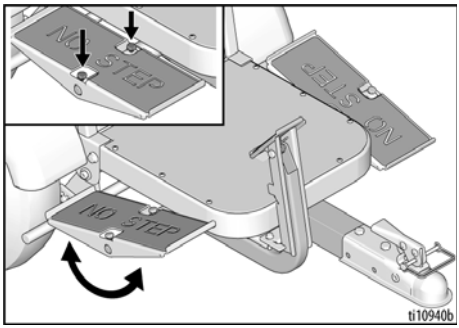


4. Adjust LineDriver seat forward/backward with lever below seat.



NOTE: To help reduce fatigue, adjust one pedal for a full motion forward and one for full motion in reverse.

5. Loosen two bolts on topside of pedals on LineDriver.



6. Rotate pedal on LineDriver to desired position. Tighten bolts.
7. See LineDriver manual for instructions on starting and operating LineDriver.

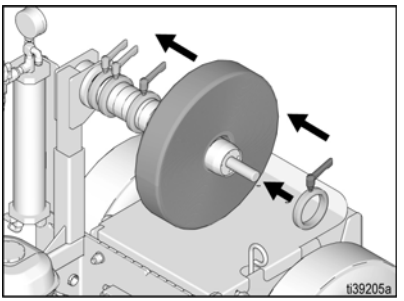
Tape and Roller Setup

To help prevent injury from cutting, install the blade guard or remove blade prior to adjusting rollers.

Accurate tape and roller setup is essential to ensuring that the tape properly aligns into road inlay grooves and to ensure rollers remain free from adhesive primer. Failure to properly set the tape and rollers could make taping difficult.

Loading Tape

1. Perform pressure relief procedure, see **Pressure Relief Procedure**, page 7.
2. Remove end collar from tape support spindle.
3. Align inside collar in proper location along spindle, depending on the width of the tape, to position it correctly on the spindle.
4. Lock inside collar into position.



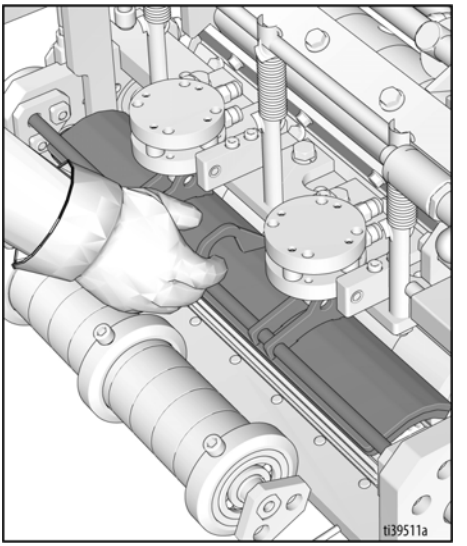
5. Load tape onto spindle so that the tape feeds from the bottom of the roll.
6. Re-install end collar.

NOTE: It is critical that the tape remain in tension during the application process. Prior to locking the end collar into place, press the collar into the tape roll so that the tape does not feed too fast during high speed applications.

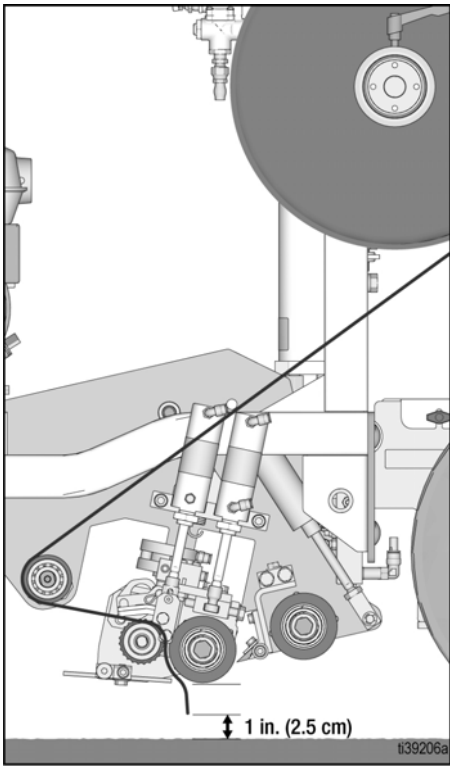
7. Lock end collar into position.
8. Adjust the collars on the tape guide roller and the segments on the applicator and tamping rollers to match the position and width of the tape, see **Roller Adjustment**, page 11. Matching lines are provided on the rollers to allow for easy alignment of tape.

NOTE: Applicator and tamping rollers should be set up to match the width of the tape. If rollers are wider than the tape, the tape may not properly affix into road inlay grooves.

NOTE: It may be helpful to lift the brake (as shown below) before feeding tape, or if tape is difficult to pass through the rollers.



9. Feed tape through rollers as shown.

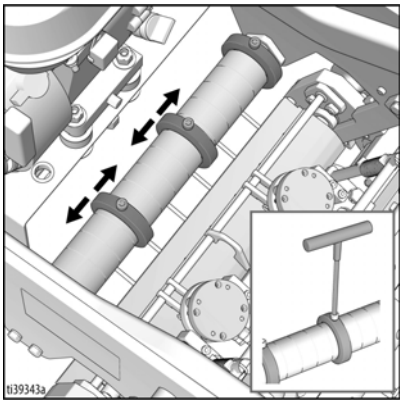


NOTE: When installing tape through the lower rollers, it is helpful to tamp the tape to the brake roller and feed it through by manually turning the roller (about half of a turn) until tape appears on the other side between the brake roller and applicator roller. Pull tape away from the brake roller and to within one inch of the ground.

Roller Adjustment

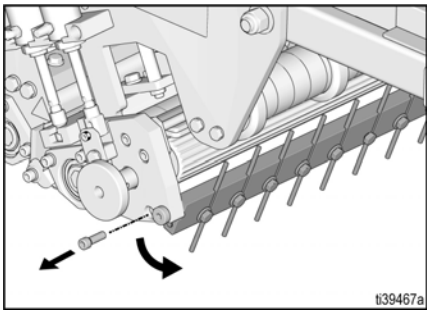
To help prevent injury from cutting, install the blade guard or remove blade prior to adjusting rollers.

1. Perform pressure relief procedure, see **Pressure Relief Procedure**, page 7.
2. Using a 1/4 in. Allen wrench, adjust the tape collars on the guide roller to match the width and position of the tape.

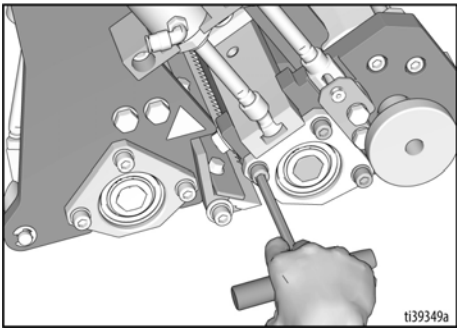


NOTE: It is recommended you either have the blade guard in place or remove the blade prior to removing the applicator roller. See **Blade Guard Removal and Installation**, page 14.

3. Remove front bolts on **both** sides of the carriage holding the pivot bar in place with a 1/4 in. Allen wrench.

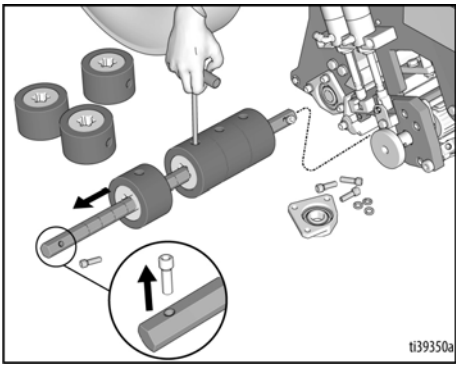


4. Rotate pivot bar away from applicator roller.
5. Using a 1/4 in. Allen wrench, remove the three bolts holding the end plate on the applicator roller.



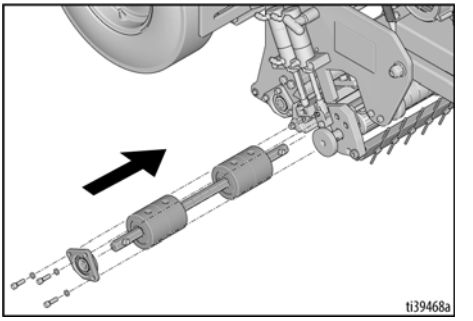
NOTE: It is only necessary to remove the end plate on one side of the carriage to remove the applicator roller.

6. Remove applicator roller and using a 1/4 in. Allen wrench remove the bolt on one end of the hex shaft. Loosen set screws in rollers to remove or adjust them to the necessary width and location to match the tape.

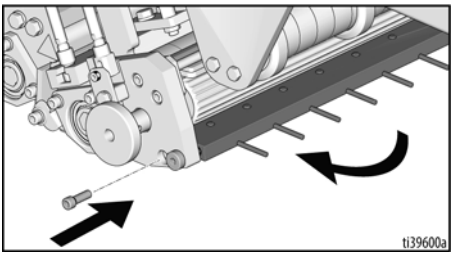


NOTE: Removed rollers can be stored on the vertical posts located in front of the handlebars.

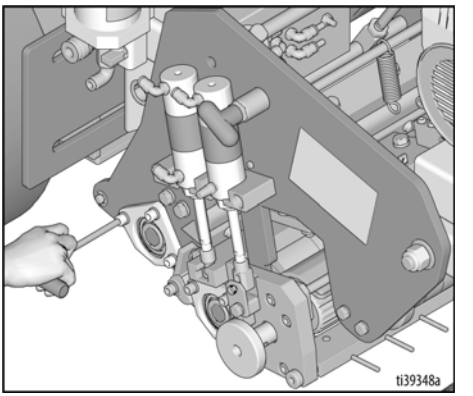
7. Tighten set screws on roller segments once in place and re-install bolt on end of hex shaft.
8. Re-install applicator roller, plate and bolts. Tighten bolts with 1/4 in. Allen wrench.



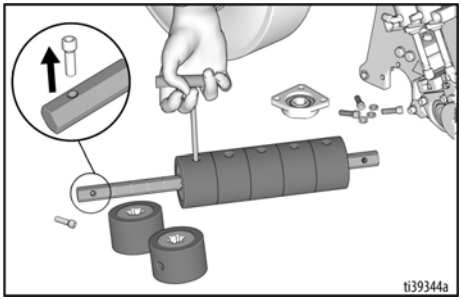
9. Rotate the pivot bar back into place and replace the bolts on both sides of the carriage.



10. Using a 1/4 in. Allen wrench, remove the three bolts holding the end plate on the tamping roller.

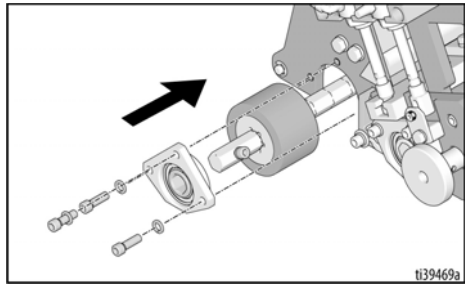


11. Remove tamping roller and using a 1/4 in. Allen wrench remove bolt on one end of the hex shaft. Loosen set screws in rollers to remove or adjust them to the necessary width and location to match the tape.



NOTE: Removed rollers can be stored on the vertical posts located in front of the handlebars.

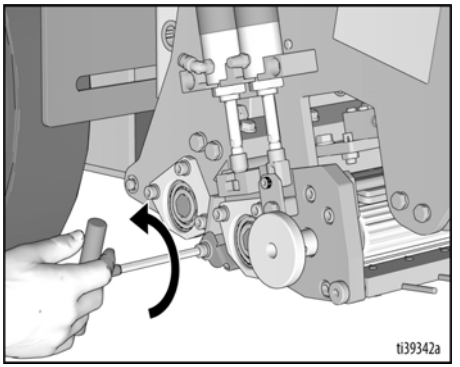
12. Tighten set screws on all roller segments once in place and re-install bolt on the end of hex shaft.
13. Re-install tamping roller, plate and bolts. Tighten bolts with 1/4 in. Allen wrench.



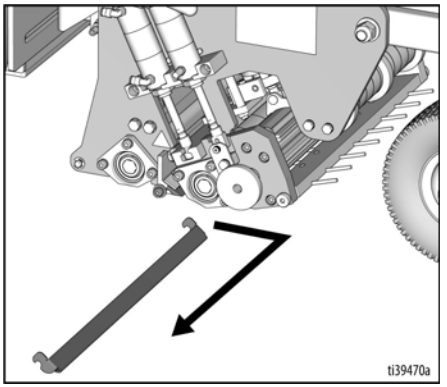
Blade Guard Removal and Installation

To help prevent injury from cutting, install the blade guard or remove blade prior to adjusting rollers.

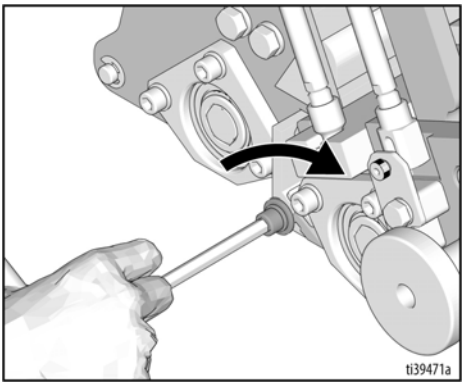
1. Perform pressure relief procedure, see **Pressure Relief Procedure**, page 7.
2. Using a 1/4 in. Allen wrench, loosen bolts holding blade guard in place on both sides of the unit.



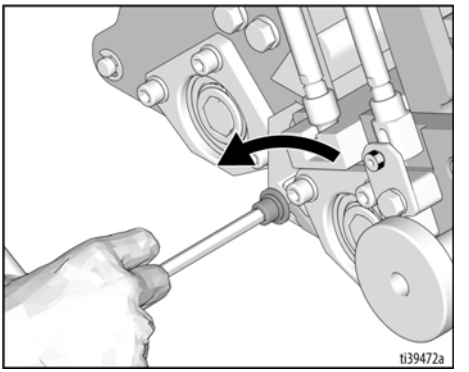
3. Remove blade guard.



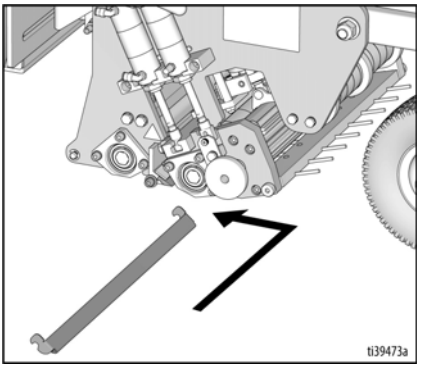
4. Tighten bolts.



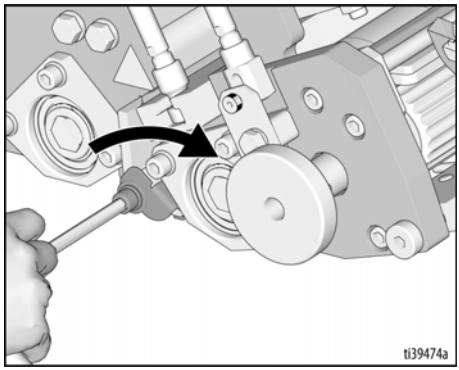
5. To re-install, use 1/4 in. Allen wrench to loosen bolts holding the blade in place.



6. Carefully re-install blade guard.



7. Using a 1/4 in. Allen wrench, tighten bolts.

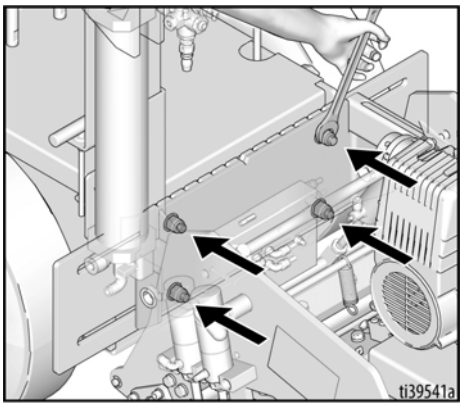


Carriage Adjustment

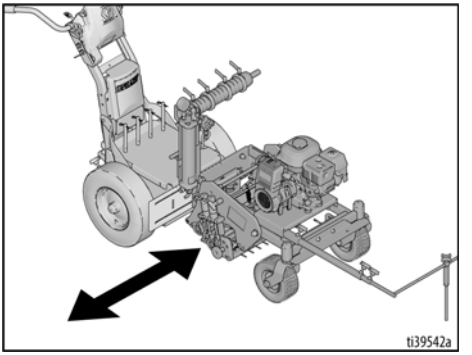
To help prevent serious injury from pinching or cutting, keep clear of the cutting blade and moving carriage parts.

Often it is desirable to adjust the carriage to an offset position to accommodate curbs or difficult areas along the road edge. To adjust the carriage into an offset position, follow the steps below:

1. Using a 3/4 in. wrench, loosen the four bolts connecting the carriage to the frame of theTapeLazer.

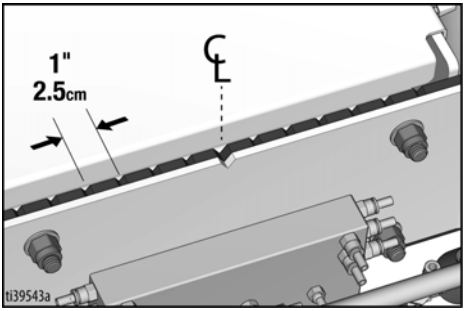


2. Slide carriage left or right to the desired location.



NOTE: Have a second person push down on the TapeLazer handlebars to relieve tension on the bolts while you slide the carriage right or left.

3. Notches are set in the carriage and frame at one inch intervals which match the lines on rollers to help with alignment. A larger center notch allows for easy reorientation to the center position.

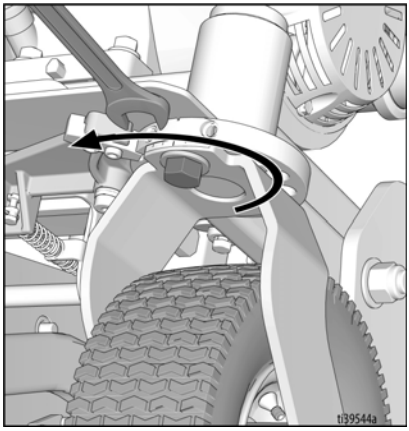


4. Tighten bolts.

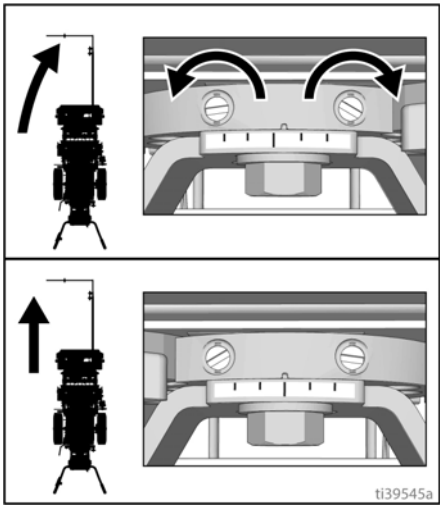
Caster Wheel Adjustments

Two front wheels allow the operator to lay tape in straight lines. Over time, the unit may become misaligned and will need to be adjusted. One wheel is adjustable to assist with alignment. To properly align the front wheels, perform the following steps:

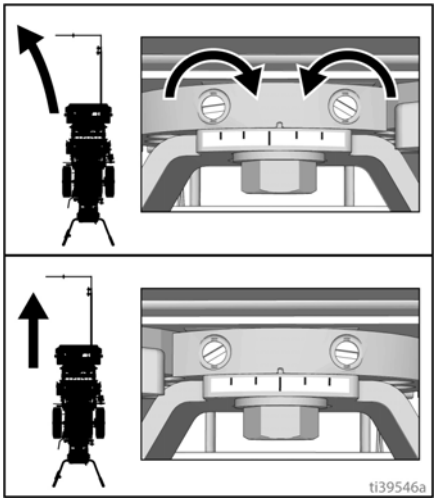
1. Loosen bolt on the front wheel bracket.



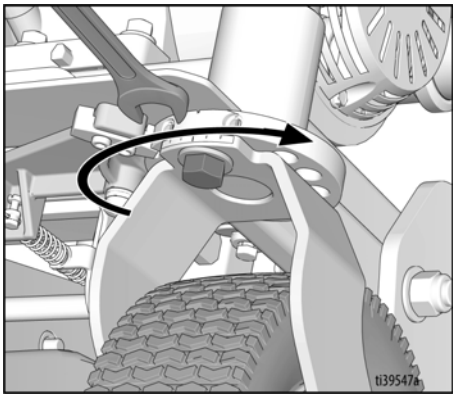
2. If taper arcs to the right, loosen left set screw and tighten right set screw for fine tune adjustment.



3. If taper arcs to the left, loosen right set screw and tighten left set screw.



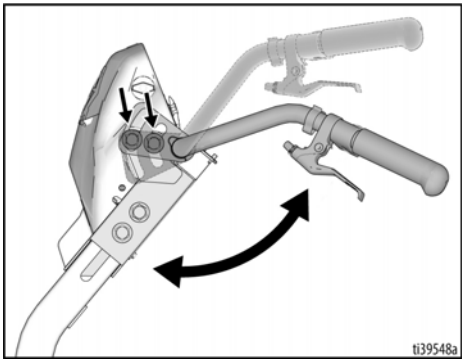
4. Roll the taper. Repeat steps 2 and 3 until taper rolls straight. Tighten bolt on wheel alignment plate to lock the new wheel setting.



Handlebar Adjustment

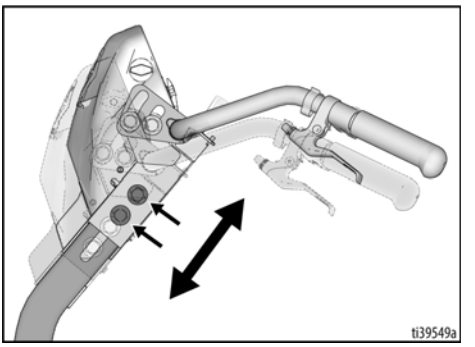
The handlebar is adjustable, allowing users to customize the height and tilt for comfortable performance. To adjust handlebar, follow the steps below:

1. To adjust the tilt, use a 3/4 in. wrench to loosen the four bolts (two on each side) holding the handlebars to the display unit.



2. Tilt handlebars until they are in the desired location.
3. Re-tighten bolts.

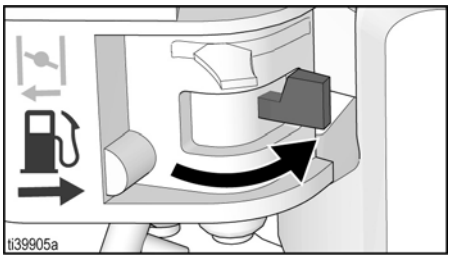
1. To adjust the height of handlebars use a 3/4 in. wrench to loosen the four bolts (two on each side) holding the handlebars to the frame of the unit.



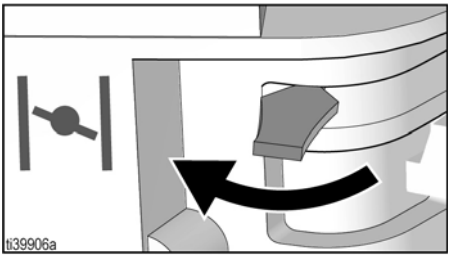
2. Slide handlebars and up or down to set the desired height.
3. Re-tighten bolts.

Engine Start

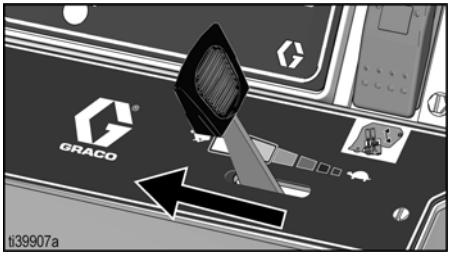
1. Perform **Pressure Relief Procedure**, page 7.
2. Move fuel valve to open.



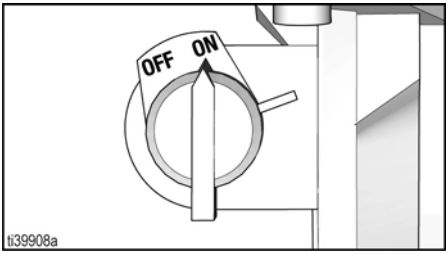
3. Move choke to closed.



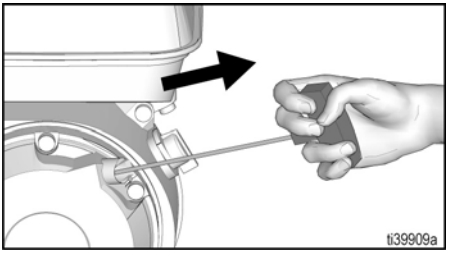
4. Set throttle to fast.



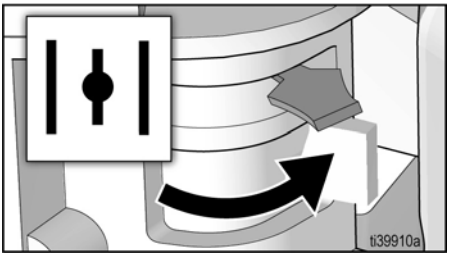
5. Set engine switch to on.



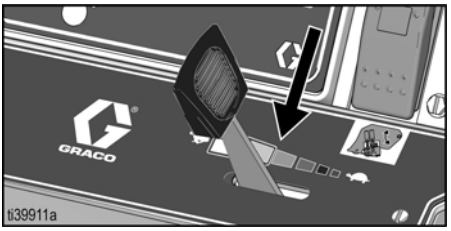
6. Pull starter cord.



7. After engine starts, move choke to open.



8. Set throttle to desired setting.



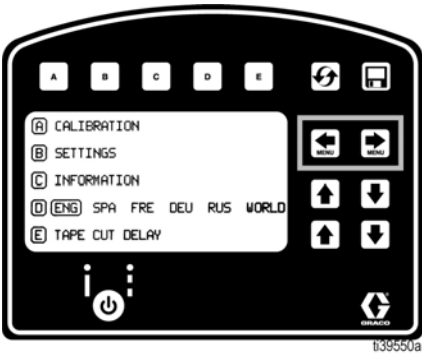
Initial Taping Setup

The initial setup prepares the taper for operation based on a number of user entered parameters. Language selections and the units of measure selections can be set before you start, or changed later.

Press MENU MENU to cycle through the various menu options.

Language

From SETUP/INFO select appropriate language by pressing “D” until the language is outlined.



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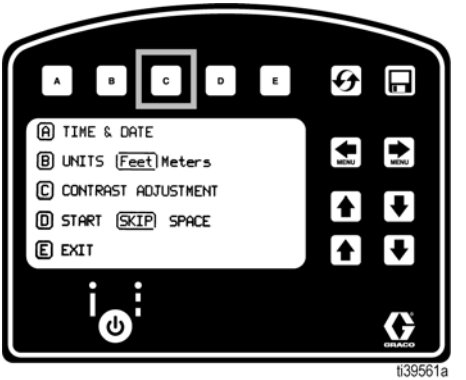
ENG = English
SPA = Spanish
FRE = French
DEU = German
RUS = Russian
WORLD = Symbols, see **Universal Symbols Key**, page 65.

NOTE: The default language can be changed at any time.

Time and Date, and Distance Units

Press SETTINGS “B” from the SETUP/INFO screen to access Time and Date, and Distance Units. Press “A” to adjust current date and time. Press “B” until the preferred distance measuring unit is outlined.



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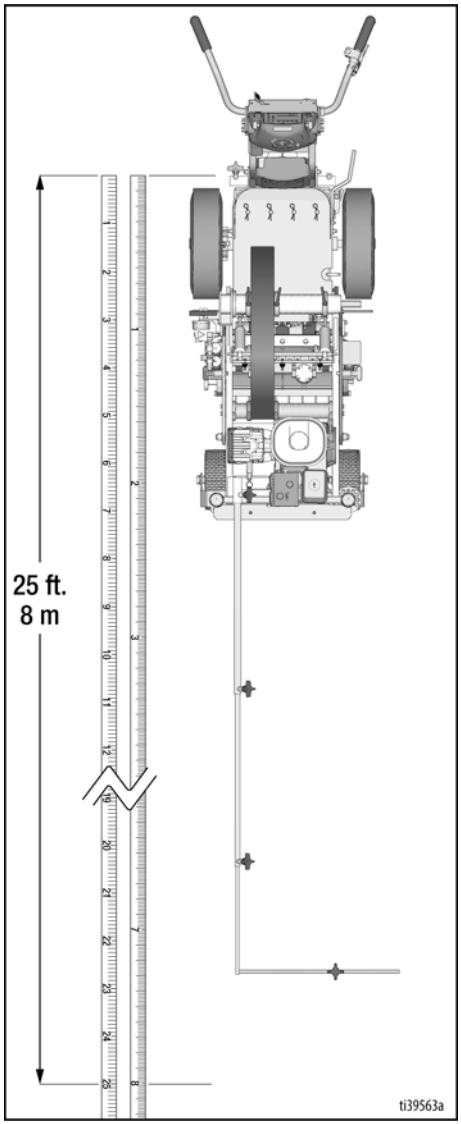
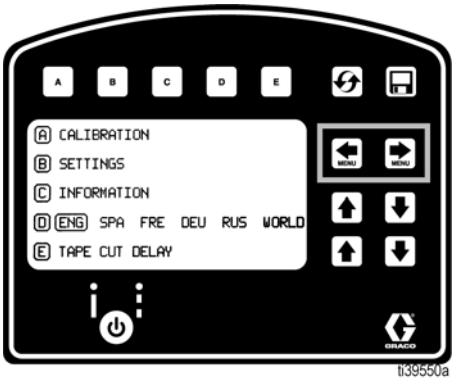
Calibration

1. Check rear tire pressure and fill to 55 +/- 5 psi (379 +/- 34 kpa), if necessary.
2. Extend steel tape to 25 ft (8 m) or longer.

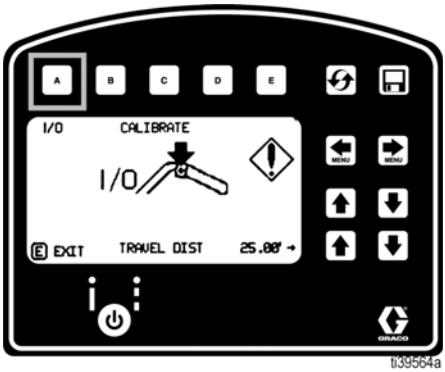


3. Move pointer to rear position.

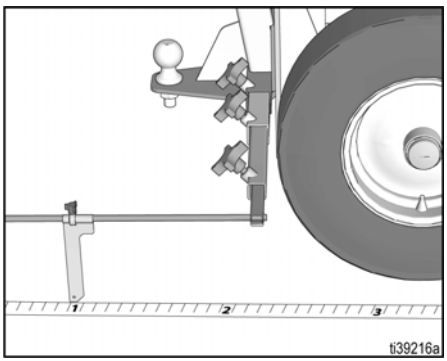
4. Press [◀ MENU] [▶ MENU] to select SETUP/INFO.



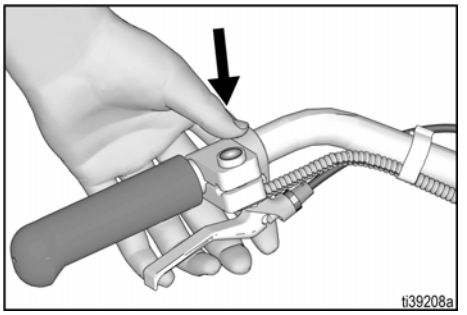
5. Press [A] for Calibration. Set TRAVEL DIST to 24 ft (7 m) or longer. Longer distances ensure better accuracy, depending on conditions.



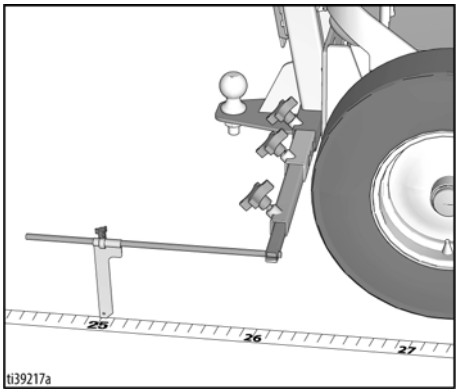
6. Set guide and align with one foot mark on steel tape, as shown in picture.



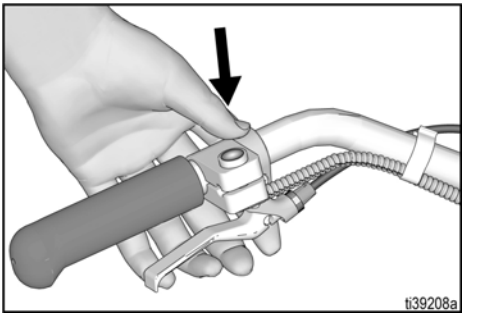
7. Press and release tape application button to start calibration.



8. Move TapeLazer forward. Keep guide on steel tape.
9. Stop when guide aligns with 25 ft mark on steel tape (a total traveled distance of 24 ft.), or to whatever distance you entered on the screen.



10. Press and release tape application button to complete calibration.



NOTE: Calibration is **NOT** complete when the exclamation symbol ⚠ is displayed.

NOTE: Calibration is finished when the check mark symbol ✓ is displayed.

11. Calibration is now complete.

Operation

Modes of Operation

The method used to apply tape is set by the combination of the **TAPE LINE TYPE** setting and the **MODE** setting. Once both are set via the display, tape application is started and stopped with the tape application button mounted on the handlebar.

Notes:

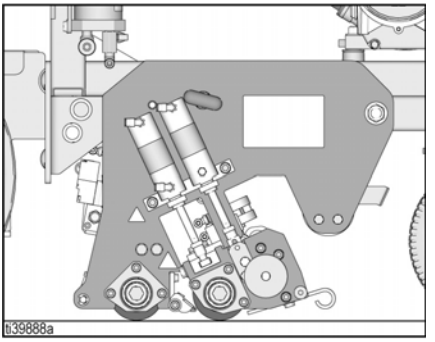
- If the carriage is in the UP position, the control will not allow taping to start.
- The lengths of skips and spaces are set on the Tape Skip and Space Lengths striping screen. Preset lengths can be selected by pressing the 'A', 'B', or 'C' button. New presets can be saved by pressing and holding the preset buttons.
- Semi-Auto and Skip is the most commonly used mode of operation and is recommended for majority of applications.
- Unit can begin laying with a space instead of a line, if desired. This can be accessed in the Settings Menu.
- CUT DELAY – the end of each skip can be adjusted if necessary to correct for mechanical variations that cause a discrepancy between the programmed skip length and the actual length of tape placed on the road. To adjust Cut Delay, see, **Cut Delay**, page 33. Note that in AUTO mode, the corresponding space distance is also adjusted to maintain the set cycle length (sum of the skip and space lengths).
- Discrepancies with line length accuracy, especially in AUTO MODE, can be improved by adding weight in the on-board payload compartment between the rear axle. **DO NOT** add weight to the front of the TapeLazer, as this will cause the rear tire to lose connection to the pavement causing loss of wheel sensor accuracy.
- Refer to LazerGuide manual (3A5294) for installation and operating instructions if using the LazerGuide instead of the mechanical pointer.

Tape Line Type (Press for solid and hold for skip)			
Solid	**Skip**		
Press the tape application button once to start applying a continuous line of tape, press again to cut.	Press the tape application button once to lay a single skip of a designated length.	**Semi-Auto**	**Mode (Press "D" button to cycle through modes)**
Press the tape application button once to start applying a continuous line of tape, press again to cut.	Press the tape application button once to start applying the set skip-space cycle. Press tape application button again to end cycle.	**Automatic**	
Press and hold the tape application button to lay a continuous line of tape. Release tape application button to cut.	Press and hold the tape application button to start applying the set skip-space cycle. Release tape application button to end cycle.	**Manual**	

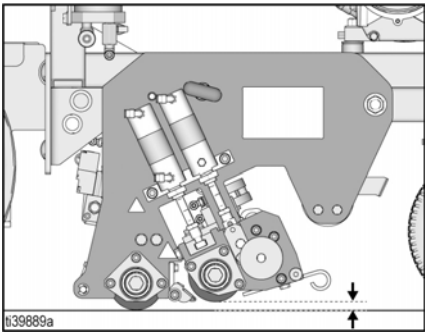
Tape Application Assembly Positions

The Tape Application Assembly uses three positions during operation. These positions may be relevant when operating, repairing, or assessing the TapeLazer.

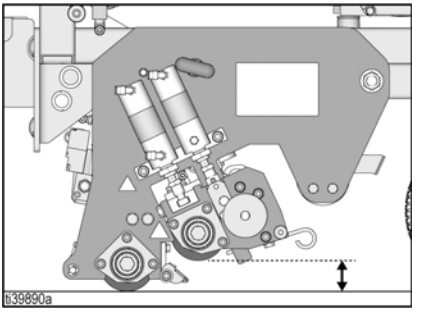
Application Position



Secondary Position

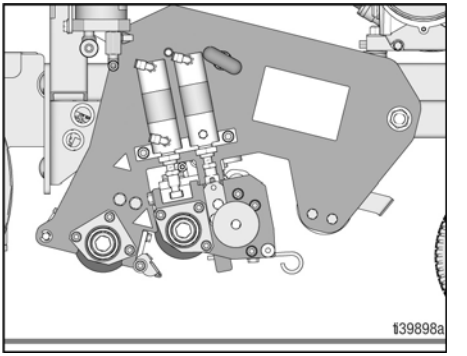


Cut Position

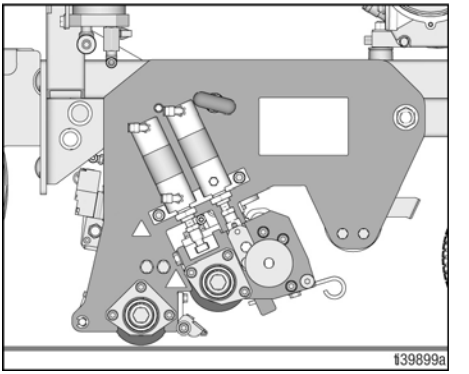


In addition, the TapeLazer Carriage uses two positions during operation, raised and lowered. These positions may be relevant when operating, repairing, or assessing the TapeLazer.

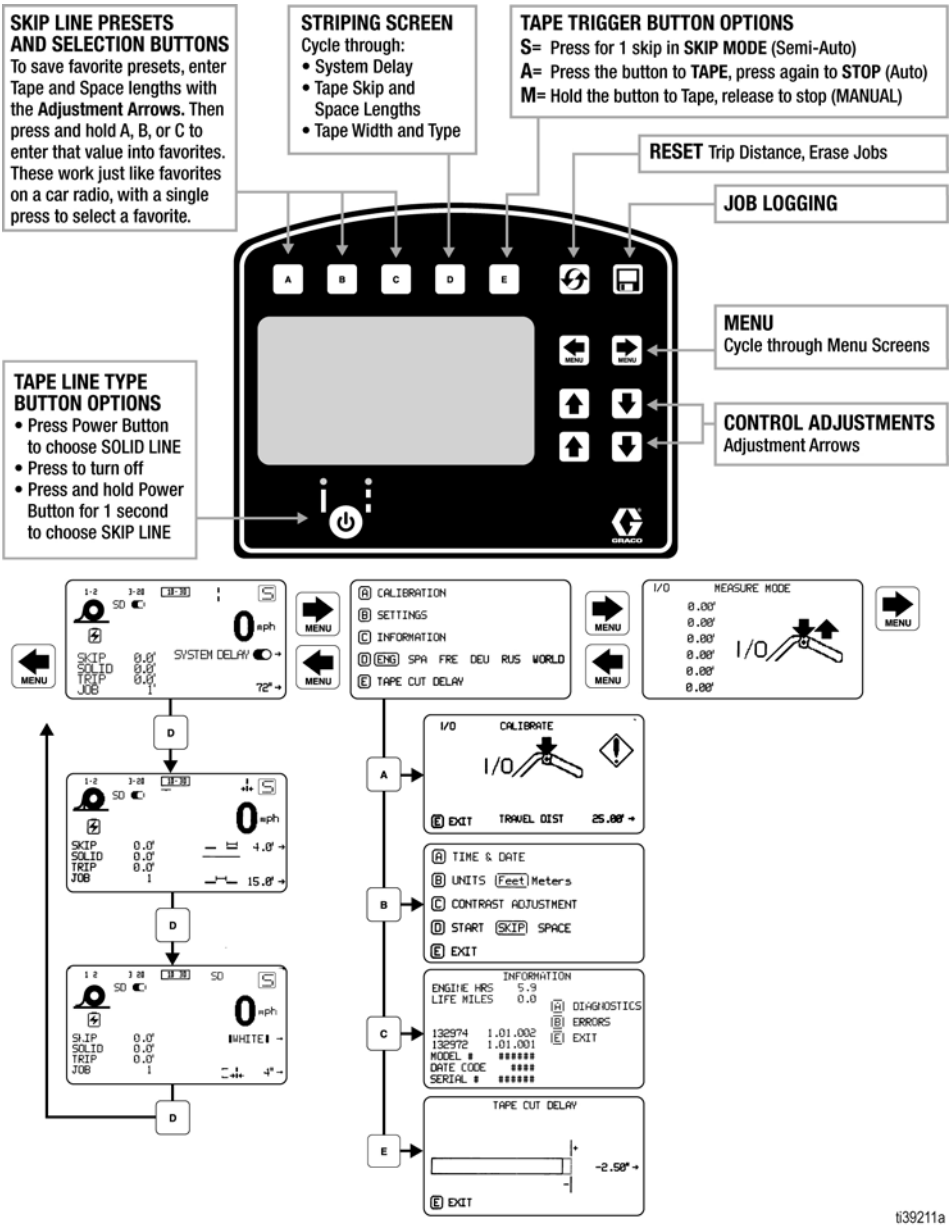
Carriage Raised



Carriage Lowered

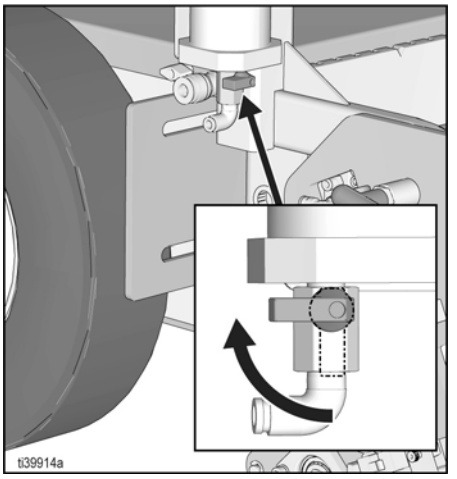


TapeLazer LiveLook Display

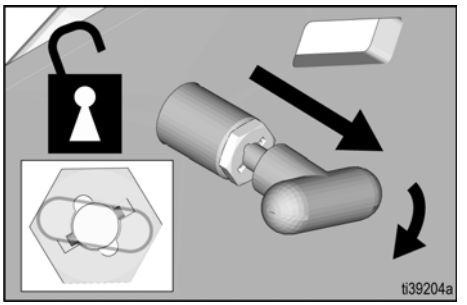


Applying Tape

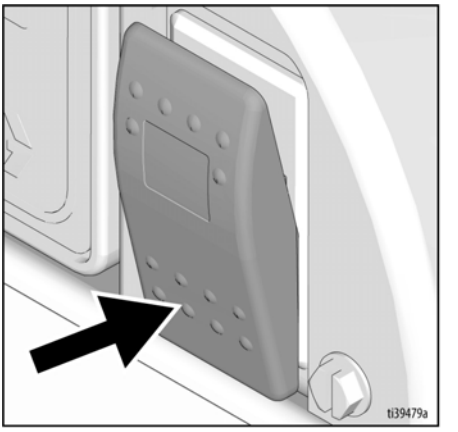
1. Start engine, see **Engine Start**, page 19.
2. Close air drain valve, as shown, to pressurize the system.



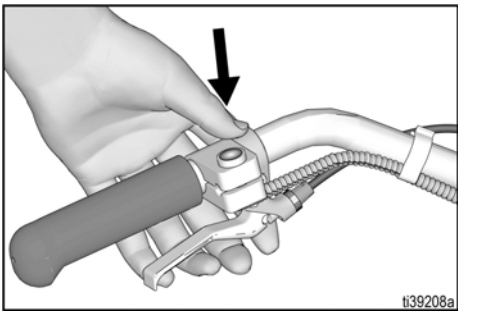
3. Unlock the locking pins on both sides of the carriage.



4. Press the carriage raise/lower and engine stop button to lower the carriage.



5. Move forward and press tape application button to start applying tape.

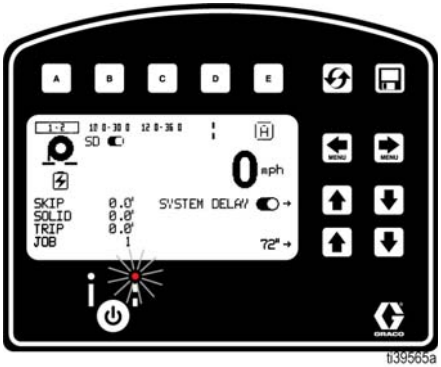


System Delay

System Delay (SD) improves tape placement accuracy by allowing the operator to look forward at the line guide mechanism, important for maintaining straight lines. With **System Delay** turned on, the line guide mechanism becomes the activation point for turning ON and OFF the placement of tape.

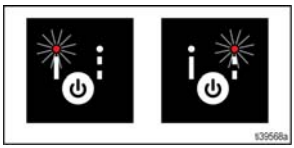
Setup System Delay

1. Turn System Delay ON.
2. Extend pointer to preferred distance necessary to achieve long straight lines.
3. Measure the System Delay Distance from the blade to the pointer [A] as shown in the example on the right. Due to the viewing angle from the operator position some amount of adjustment may be necessary to properly view the pointer.



Operating System Delay

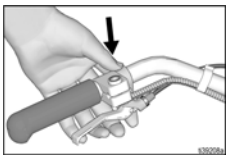
1. Turn System Delay ON.
2. With System Delay, the pointer [A] becomes the initiation point for all starts and stops activated by the tape application button.
3. Choose Line Type, SOLID or SKIP. Line Type is indicated by LED after selection.

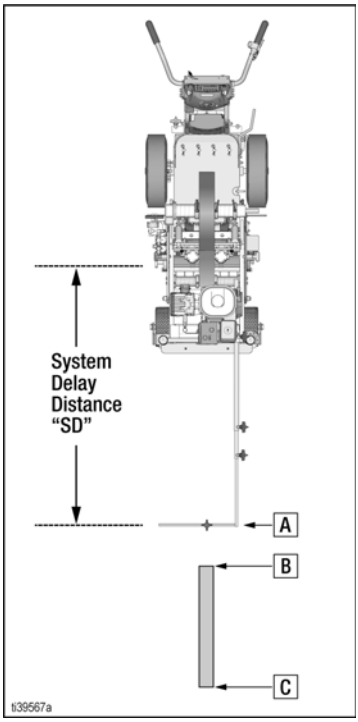


4. Choose Mode: Manual [M], Semi-Auto [S], or Auto [A].
5. Example below, when the pointer [A] reaches start point [B] press (or hold in manual mode) the tape application button. When the pointer reaches the end point [C] press tape application button a second time (or release in manual mode) to end the marking process.

NOTE: After the first button press a progress bar will appear on the display screen showing the delay travel distance. No tape is applied during this travel. In most situations, tape will begin to dispense at the end of this travel (the exception is with the START with SPACE setting). The progress bar will also display after the last button push. At the end of that travel, all taping will stop

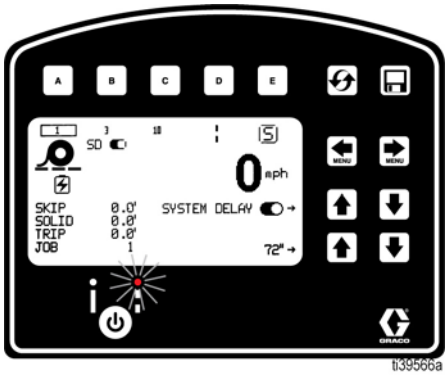
Tape Application Button





System Delay Example - Semi-Auto Mode/Skip Line

[S] Semi-Auto Mode Skip Line placement using SD example shown: 1 ft intermittent skip, 72 inch System Delay.



Tape Application Button Activity

Press and RELEASE auto tape application button when pointer [A] reaches the beginning of each line [B]. Each button press produces only one line at the programmed length (1 foot in this example). Repeat for all intermittent lines.

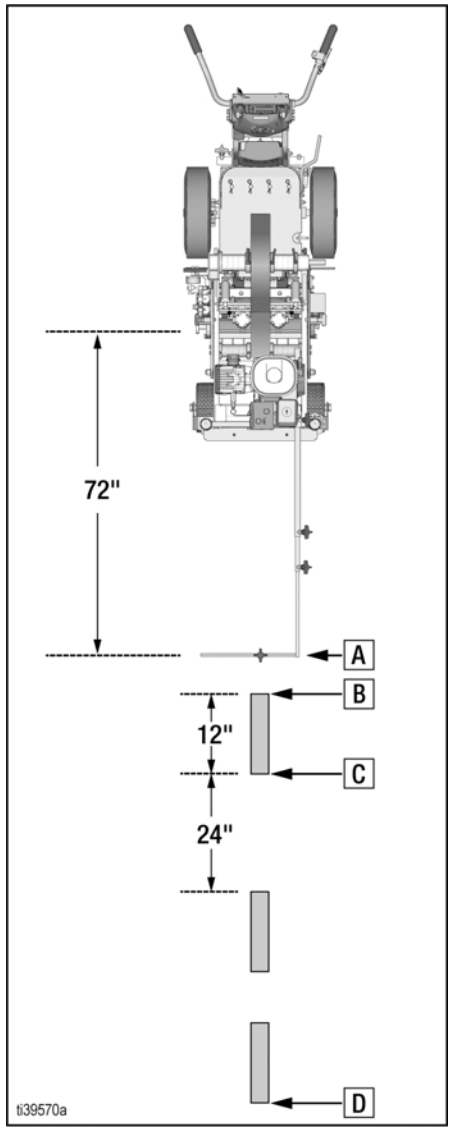
If the button is pressed before the end of the programmed length [C], that line will end at that point, except:

if the pointer is less than 1 foot from the start of the line [B], the button press will be ignored, with a message on the screen. The operator will need to travel further before pressing the button to end the line.

NOTE: The minimum achievable space between intermittent lines is approximately 1 ft. If the button press to start a new line is less than one foot from the end of the previous line that button press will be ignored. The operator will need to travel further before pressing the button to start a new line.

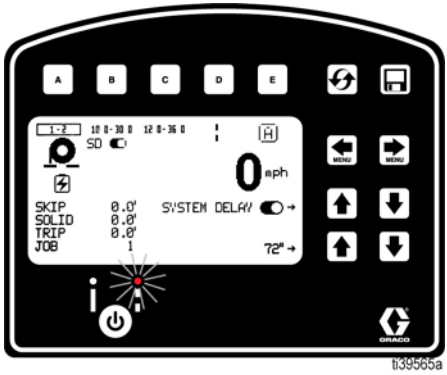
Tape Interrupt

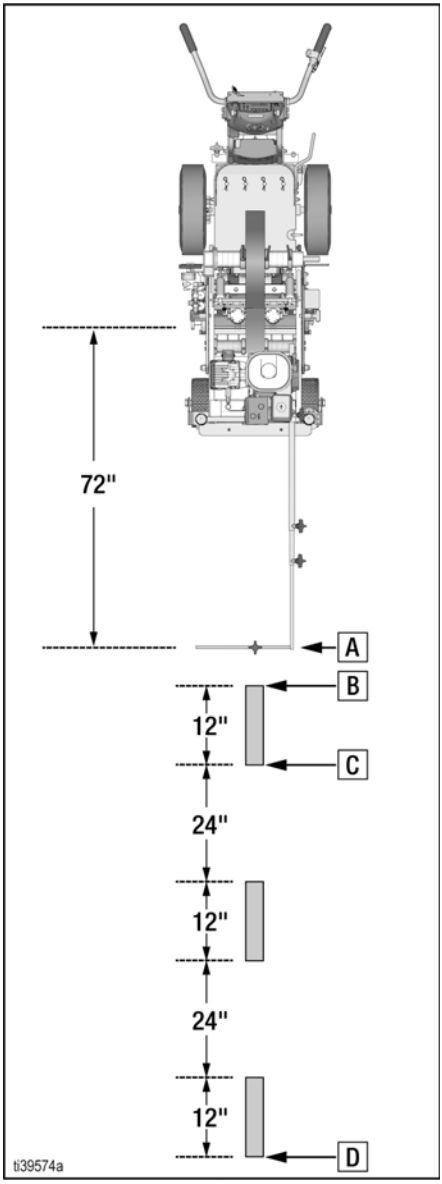
All system delay operation can be canceled by: turning System Delay OFF, turning the LINE TYPE button off (both LEDs off), or double pressing the tape application button.



System Delay Example - Auto Mode/Skip Line

[A] Auto Mode Skip Line placement using SD example shown: 1 ft line, 2 ft space, 72 inch System Delay.





Tape Application Button Activity

Press and RELEASE tape application button when pointer [A] reaches start point [B]. Press and RELEASE tape application button a second time after pointer [A] passes ending line [D]. Use this option when the spacing between lines remains consistent.

If the button is pressed before the end of the programmed length [C], that line will end at that point, except:

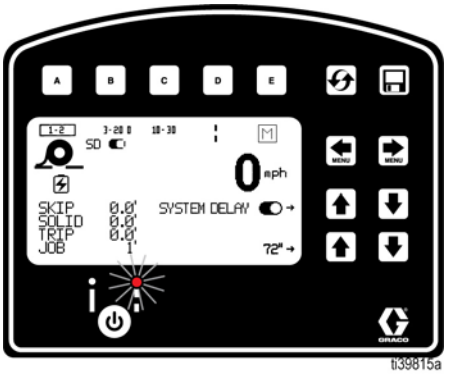
if the pointer is less than 1 foot from the start of the line [B], the button press will be ignored, with a message on the screen. The operator will need to travel further before pressing the button to end the line.

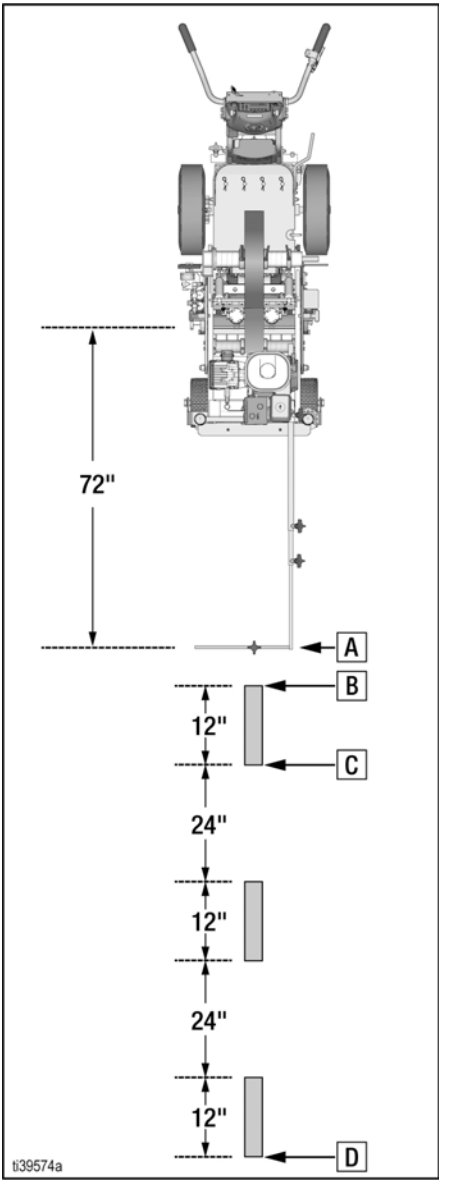
After pressing the button a second time (either after [D] or before [C]), the operator can press the button again to start another set of skips. However, if the press occurs less than 1' from the previous press, the press will be ignored, with a message on the screen. The operator will need to travel further before pressing the button to start the next skip.

Tape Interrupt
All system delay operation can be canceled by: turning System Delay OFF, turning the LINE TYPE button off (both LEDs off), or double pressing the tape application button.

System Delay Example - Manual Mode/Skip Line

[M] Manual Mode Skip Line placement using SD example shown: 1ft line, 2 ft space, 72 inch System Delay.





Tape Application Button Activity

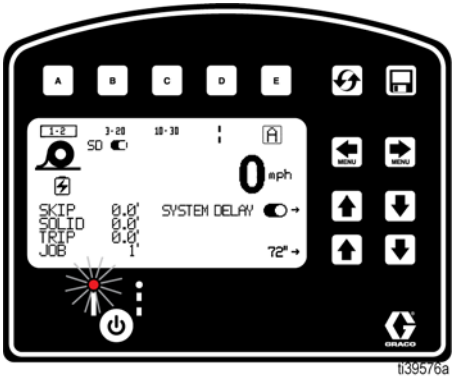
Option 1
Press and HOLD tape application button when pointer [A] reaches start point [B]. Release tape application button after pointer [A] passes ending skip line [D]. Use this option when the spacing between lines remains consistent.

Option 2
Press and HOLD tape application button when pointer [A] reaches beginning of skip line start point [B]. Release auto tape control button when pointer reaches end of skip line [C]. Repeat this process for all skip line placement. This is similar to Semi-Auto skip line placement. Use this option when the spacing between lines varies.

Tape Interrupt
All system delay operation can be canceled by: turning System Delay OFF, turning the LINE TYPE button off (both LEDs off), or double pressing the tape application button.

System Delay Example - Semi-Auto and Auto Mode/Solid Line

[S] Semi-Auto Mode and [A] Auto Mode
Continuous Line placement using SD Example shown: 72 inch System Delay.



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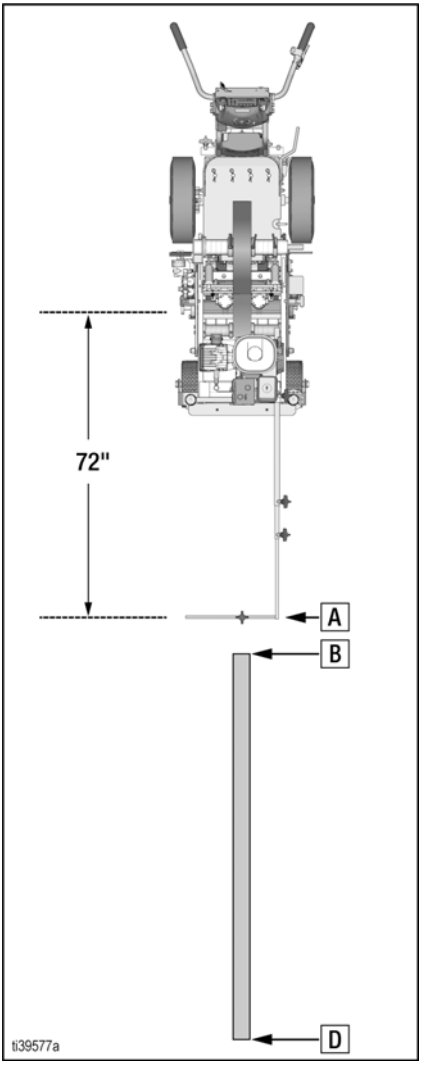
Tape Application Button Activity

NOTE: SEMI-AUTO MODE tape application button function for continuous line placement is identical to AUTO MODE.

Press and RELEASE tape application button when pointer [A] reaches start of line [B]. Press and RELEASE auto tape application button a second time at the end of continuous line [D].

Tape Interrupt
All system delay operation can be canceled by: turning System Delay OFF, turning the LINE TYPE button off (both LEDs off), or double pressing the tape application button.



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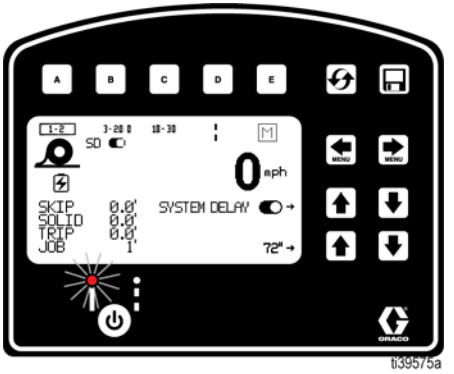
System Delay Example - Manual Mode/Solid Line

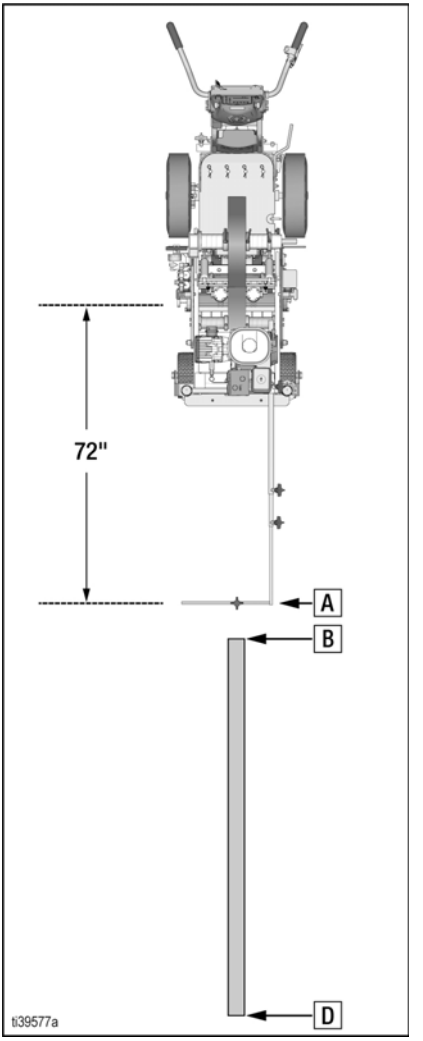
[M] Manual Mode Continuous Line placement using SD Example shown: 72 inch System Delay.



Tape Application Button activity

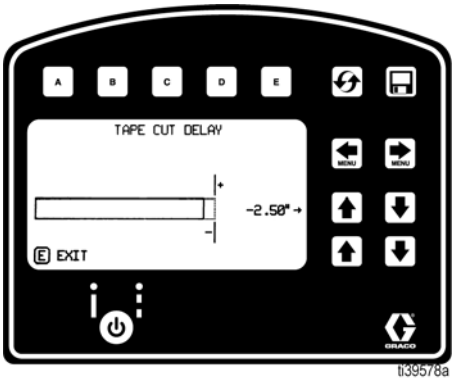
Press and HOLD tape application button when pointer [A] reaches start of line [B]. Release tape application button at the end of the continuous line [D].

Tape Interrupt
All system delay operation can be canceled by: turning System Delay OFF, turning the LINE TYPE button off (both LEDs off), or double pressing the tape application button.



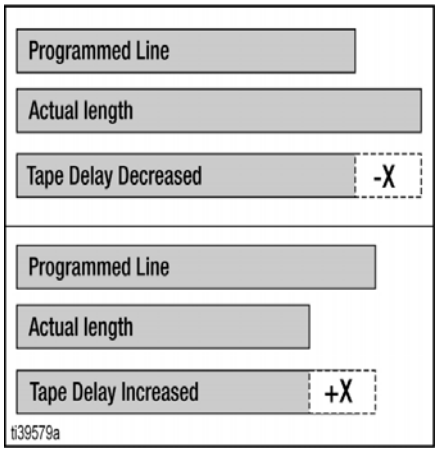
Cut Delay

Cut Delay allows adjustment for correcting discrepancies between the actual tape length placed on the road versus the programmed distance displayed. System mechanical inefficiencies can make this necessary. The factory default is pre-set for best results, but adjustments might be required from time to time.



If the skip line is longer or shorter than the displayed value follow the steps below.

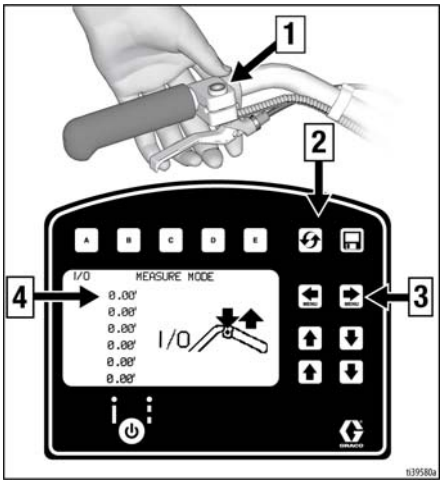
1. Negative Tape Cut Delay (-X) is used when actual tape length is longer than programmed length. Decreasing Tape Cut Delay will reduce tape length.
2. Positive Tape Cut Delay (+X) is used when actual tape length is shorter than programmed length. Increasing Tape Cut Delay will increase tape length.



Measure Mode

Measure Mode can be used in lieu of a tape measure to measure distances when laying out an area to be taped.

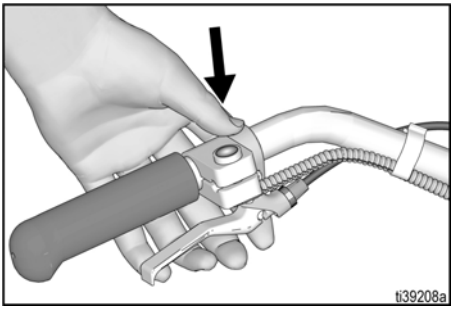
1. Press MENU MENU to select Measure Mode.



Ref.	Description
1	Press to start measurement. Press to stop measurement.
2	Hold to reset values to zero.
3	Scroll between main menu screens.
4	Last measurement taken.

2. Press and release tape application button. Move taper forwards or backwards.

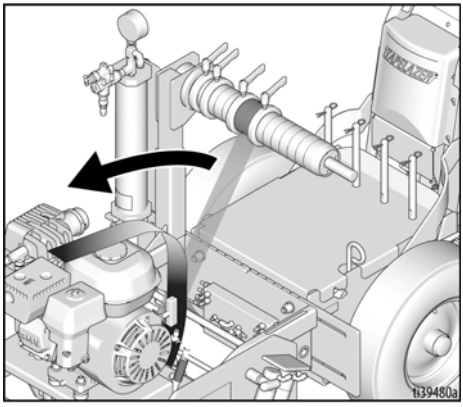
NOTE: Moving backwards displays a negative distance.



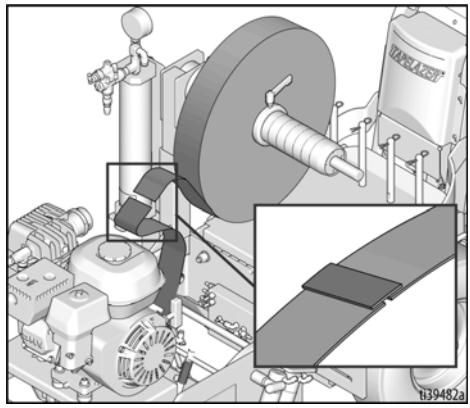
3. Press and release tape application button to end measured length. Up to six lengths are viewable.

Splicing Tape

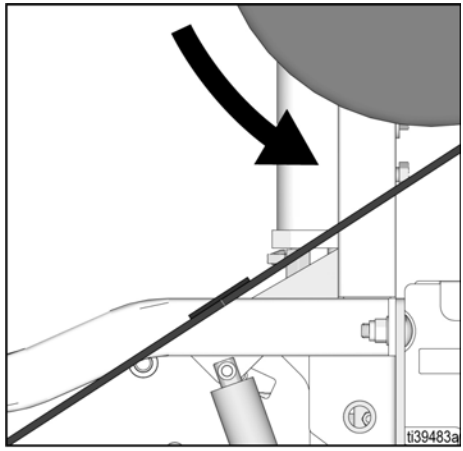
1. Halt TapeLazer before tape is finished to prevent tape from rolling off of the spindle and into the lower rollers.
2. Peel remaining tape from roll and prevent it from becoming dirty or otherwise compromised.



3. Install new tape on tape roll spindle, see **Loading Tape**, page 10.
4. Peel end of the tape from the new roll and match the ends of each tape roll. Apply splicing tape to tape seam.



5. Roll tape back onto the spindle to create tension on tape.

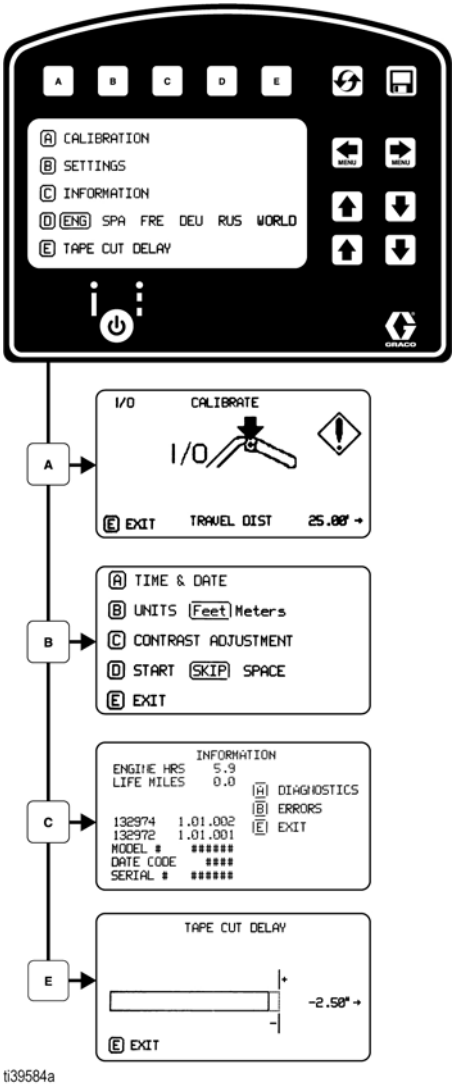


6. Resume taping.

Setup/Information

Use MENU MENU to select Setup/Information.

See **Universal Symbols Key**, page 65, for explanation of screen symbols.



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Press A to select Calibration.

See **Calibration**, page 21.

Press B to select Settings.

See **Settings**, page 37.

Press C to select Information.

See **Information**, page 38.

Press D to select Language.

See **Language**, page 20.

Press E to select Cut Delay.

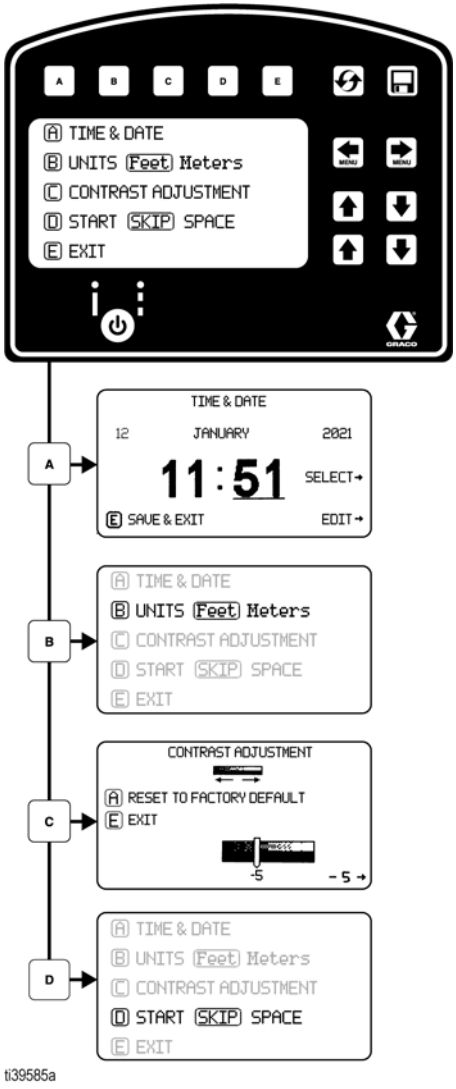
See **Cut Delay**, page 33.

Settings

Use MENU MENU to select Setup/Information.

Press B to open Settings Menu.

See **Universal Symbols Key**, page 65, for explanation of screen symbols.



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Press A to open Time an Date.

Set Time an Date on this screen. This is needed for accurate Data Logging.

Press B to set Units as feet or meters.

Press C to set Contrast Adjustment.

Adjust screen contrast to desired value.

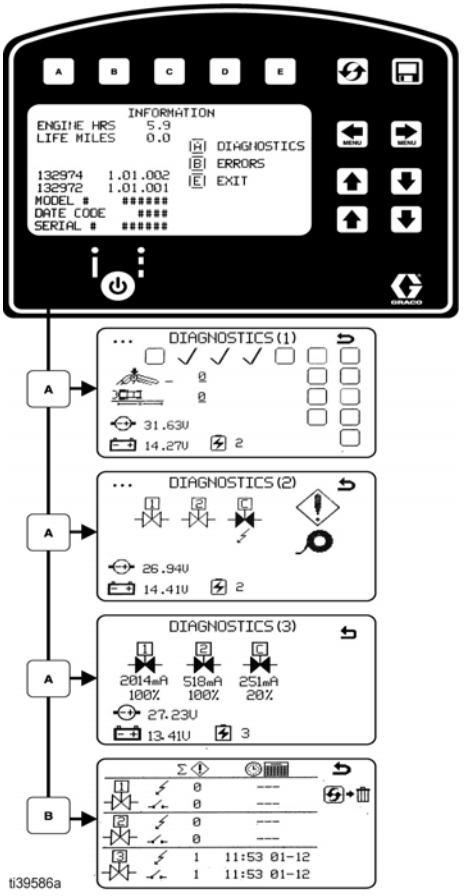
Press D to choose start programmed lines with Skip or Space.

Information

Use [MENU] [MENU] to select Setup/Information.

Press [C] to access information.

See **Universal Symbols Key**, page 65, for explanation of screen symbols.



Press [A] to open Diagnostics.

These screens are used to view and test functionality of components.

Press [A] to cycle forward to diagnostic screen #2 and screen #3, and [E] to cycle back to diagnostic screen #1

Diagnostic screens #2 and #3 display alternator, battery, and charger information, and provide a live look at which outputs are operating properly, or are open/short. Diagnostic screen #3 displays each output's approximate current and duty cycle.

Control board outputs affect the following solenoids, as referenced by label on solenoid assembly, see **Air Line Schematic**, page 62 and **Solenoid Locations on Control Board**, page 48.

Control Board Output	Connected Solenoids
1	1, 2, 5, 6
2	3
C	4

Press [B] to open the error screen.

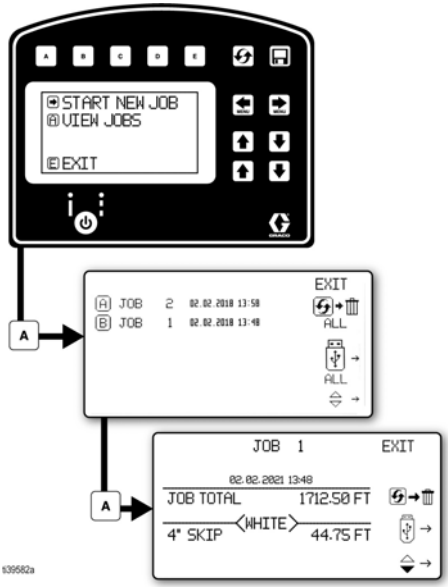
This screen tracks the number of occurrences and the time/date of the most recent open/short.

If errors. are encountered, refer to **Troubleshooting**, page 43.

Data Logging

The TapeLazer control is equipped with Data Logging, which allows the user to recall job data and export the data from the machine to a USB drive.

See **Universal Symbols Key**, page 65, for explanation of screen symbols.



Press the to open the Data Logging pop up window.

Choose to start recording a new job or view jobs previously done.

Start recording a new job.

Erase all jobs.

Export all jobs to USB.

Erase displayed job.

Export job to USB.

Job data is compiled while taping. It keeps track of distance taped, tape color, and line width, but tracks skips and solids separately.

Maintenance

Periodic Maintenance

DAILY: Check engine and compressor oil level and fill as necessary.

DAILY: Check hoses for wear and damage.

DAILY: Check pressure drain valve for proper operation.

DAILY: Check and fill gas tank.

DAILY: Verify calibration.

AFTER THE FIRST 20 HOURS OF OPERATION: Drain engine oil and refill with clean oil. Reference Honda Engines Owner's Manual for correct oil viscosity.

WEEKLY: Remove engine air filter cover and clean element. Replace element, if necessary. If operating in an unusually dusty environment: check filter daily and replace, if necessary.

Replacement elements can be purchased from your local HONDA dealer.

AFTER EACH 100 HOURS OF OPERATION: Change engine oil. Reference Honda Engines Owner's Manual for correct oil viscosity.

SPARK PLUG: Use only BPR6ES (NGK) or W20EPR-U (NIPPONDENSO) plug. Gap plug to 0.028 to 0.031 in. (0.7 to 0.8 mm). Use spark plug wrench when installing and removing plug.

Air Compressor

Before operation, ensure oil is visible on threads of fill port. If not full, fill with oil until visible on threads.

NOTICE

Failure to properly fill compressor with oil can result in severe or catastrophic damage to the compressor.

To check oil level:

1. If unit is equipped with drain plug, remove drain plug and verify oil is visible on threads of drain port. If not full, fill with oil through drain port until visible on threads.
2. If unit is equipped with sight glass, verify oil level is above red dot. If not, remove oil breather and fill with oil through breather port until level is above red dot.

NOTE: Oil level will change at slower rate than poured as it makes its way into the crankcase. Pour small amounts at a time, checking between pours.

Routine maintenance is important to ensure proper operation of your compressor.

Maintenance includes performing routine actions to keep your compressor in operation and prevent trouble in the future.

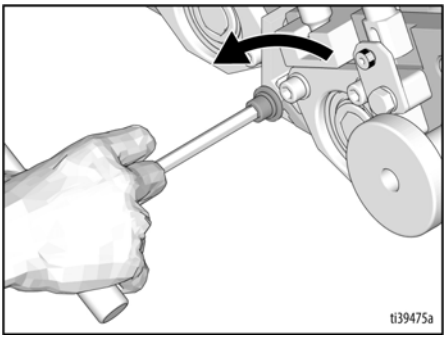
Activity	Interval
Replace air filter	Every 200 hours, or as needed.
Change oil*	After first 50 hours, then every 200 hours or every three months.

*Drain oil by siphoning from drain port. Use approximately 4 fl. oz. of SAE 30W air compressor oil. If equipped with a drain plug, proper oil level is attained when oil is visible on threads of drain port. If equipped with a sight glass, proper oil level is attained when oil is above red dot.

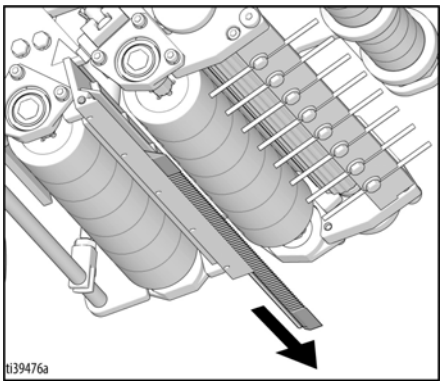
Blade Replacement

To help prevent serious injury from cutting, wear gloves when handling the cutting blade.

1. Perform pressure relief procedure, see **Pressure Relief Procedure**, page 7.
2. Using a 1/4 in. Allen wrench, remove bolt holding blade in place from either side of the TapeLazer.

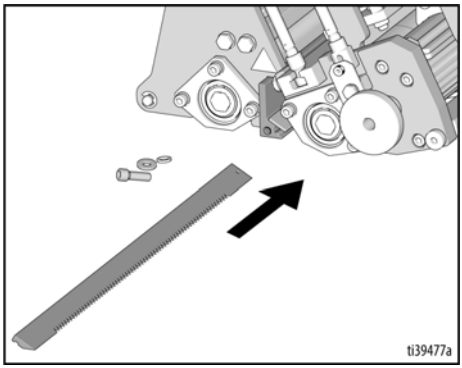


3. Gently pull blade to remove it.

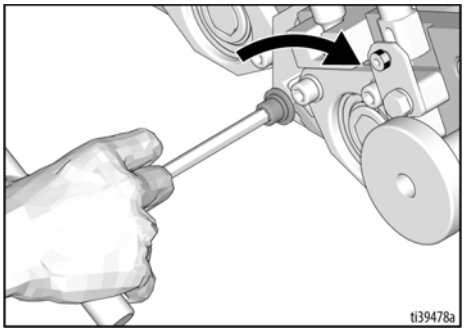


NOTE: Blade may become stuck from rust or debris. If blade is stuck, remove bolt on opposite side of the unit and place new blade against the old one. Using a hammer, gently tap new blade into place, pushing the old blade out the opposite side.

4. Install new blade into place.



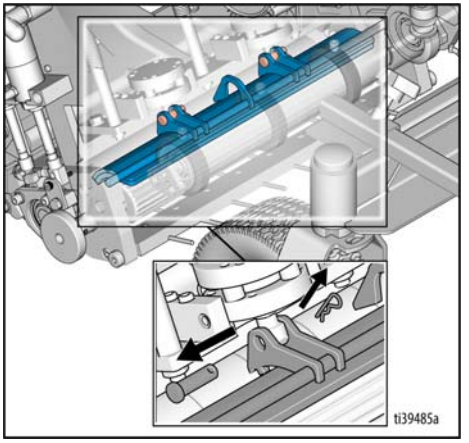
5. Using a 1/4 in. Allen wrench, reinstall bolt and washers holding blade in place.



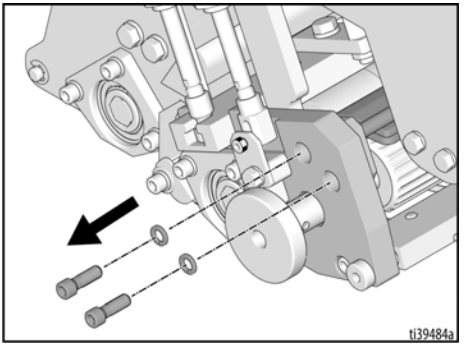
Brake Removal and Replacement

To help prevent injury, install the blade guard or remove blade prior to adjusting rollers.

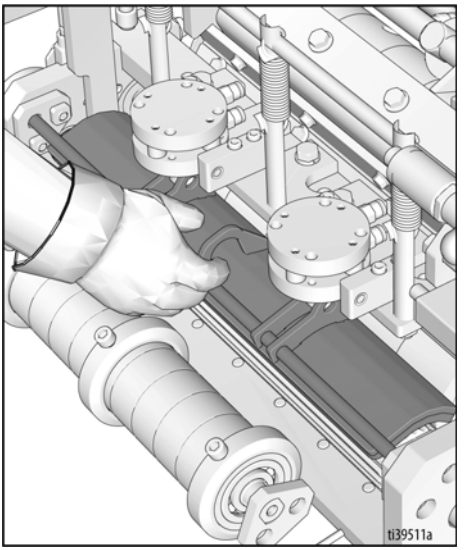
1. Perform pressure relief procedure, see **Pressure Relief Procedure**, page 7.
2. Remove two pins holding brake in place. Set aside to reuse.



3. Using a 1/4 inch Allen wrench, remove four bolts and washers (two on each side).

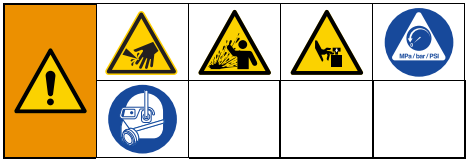


4. Pivot brake forward and remove.



5. Replace brake and re-attach four bolts and washers.
6. Replace pins.

Troubleshooting



1. Follow **Pressure Relief Procedure**, page 7, before checking or repairing unit.

Problem	Cause	Solution
Engine won't start.	Engine switch is OFF.	Turn engine switch ON.
	Engine is out of gas.	Refill gas tank. Refer to Honda Engines Owner's Manual.
	Engine oil level is low	Try to start engine. Replenish oil, if necessary, see **Maintenance**, page 40. Honda Engine Owner's Manual.
	Spark plug cable is disconnected or damaged.	Connect spark plug cable or replace spark plug.
	Cold engine.	Use choke.
	Fuel shutoff lever is OFF.	Move lever to ON position.
	Oil is seeping into combustion chamber.	Remove spark plug. Pull starter 3 to 4 times. Clean or replace spark plug. Start engine. Keep TapeLazer upright to avoid oil seepage.
Engine rope is difficult to pull, making engine starting hard.	Air pressure in the cylinder makes it harder to pull-start the engine.	Relieve air pressure, see **Pressure Relief Procedure**, page 7.
High engine speed at no load.	Mis-adjusted throttle setting.	Reset throttle to 3000 engine RPM at no load.
	Worn engine governor.	Replace or service engine governor. Refer to Honda Engines Owner's Manual.
Distance not adding properly (measure mode and speed will be inaccurate.)	Unit is not calibrated.	Re-calibrate unit. See, **Calibration**, page 21.
	Pavement is uneven and rear right tire is not remaining on pavement when applying tape.	Add weight to the back of the TapeLazer. There is an area under the spare roller storage area for this purpose.
		Remove segment(s) of application and/or taping roller(s) to match width of tape. See **Roller Adjustment**, page 11.
Blade doesn't cut tape or provides poor cuts.	Blade guard is attached.	Remove blade guard from blade.
	Blade is dull or worn.	Replace blade.
	No or low air pressure.	Pressurize unit. Verify system is achieving full pressure. Check for air leaks or damaged air lines and cylinders. See **Air Cylinder Internal Leaks**, page 50
	Brake is worn.	Replace brake.
	Low system pressure.	Check for leaks.

Troubleshooting

Problem	Cause	Solution
Unit won't activate (application roller will not drop down).	Tape line type not selected.	Select "solid" or "skip" tape line type, see **Modes of Operation**, page 23.
	Carriage is in the raised position.	Lower carriage. See **Tape Application Assembly Positions**, page 24, for information on carriage positions.
	Low system pressure.	Check for air leaks, see **System is not holding pressure/not generating pressure**, page 49.
	Mechanically jammed.	Check for obstructions in taping application assembly.
	Solenoids damaged.	Check solenoids and replace if necessary. Refer to unit error screen. See **Information**, page 38 and **Solenoid Manifold Operation**, page 46.
Tape is spooling off roll too fast.	Tape roll not tensioned properly.	Press tape collar (with red tension ring) into the tape roll prior to tightening clamp.
	Taping too fast.	Slow down.
Actuates, but won't deploy tape.	Tape is not fed far enough through the rollers.	Ensure tape is sticking down appropriate distance. See **Loading Tape**, page 10.
	Inlay groove too deep.	Adjust rollers to fit into groove. See **Roller Adjustment**, page 11.
	Tape is curled in front of guide rods.	Adjust guide rods back, see **Carriage Applicator Parts**, page 56.
Control board and display will not start up (red LED on control board not flashing while engine is running).	No power to board.	With engine running, check voltage to control board at red and red/white wires. See **Wiring Diagram**, page 64. If voltage is present, replace board. If no voltage, check for voltage from gray engine leads where red and white/red wires connect. If not voltage there, consult Honda engine owner's manual. If voltage exists there, replace wiring harness.
	Control board faulty.	
	Wiring harness is faulty.	
Will not lay tape.	Carriage is in the raised position.	Release carriage locking pins and pivot carriage down. See **Tape Application Assembly Positions**, page 24, for information on carriage positions.
	Tape line type not selected.	Select solid or skip line. See **Modes of Operation**, page 23.
Control display is blank, will not light up.	Bad connection between control display and control board.	Check for loose or faulty connection between control board and control display.
		Replace control display.
Engine stop switch will not kill engine.	Red connector tapped to engine line is disconnected.	Check for good connection to black engine wire, see **Wiring Diagram**, page 64.
	Unit not grounded.	Check for proper grounding from engine to frame, see **Wiring Diagram**, page 64.
No button response.	Tape application button not connected.	Check for faulty connection. Replace button if necessary.
Unit actuates, but there is no secondary position.	Control board output #2 is open.	Check for faulty connection to main board and any broken wires. Replace solenoid if necessary. Refer to unit error screen, see **Information**, page 38.

Problem	Cause	Solution
Unit does not stabilize between 125 and 145 psi.	Unloader valve is broken.	Replace unloader valve.
No battery voltage.	Charging board is disconnected.	Check charging board connection. If necessary, replace charging board.
Will not actuate tape application assembly.	Control board output #1 is open.	Check for faulty connection(s). Replace solenoid assembly if necessary. Refer to unit error screen. See **Information**, page 38 and solenoid troubleshooting (above).
	Control board output#1 is shorted.	
	Control board output # 2 is shorted.	
Will not actuate tape application assembly, shows solenoid #1 and #2 are open.	Battery is unplugged/fuse is blown.	Check fuse. Replace if necessary. If battery is suspect, restart unit and try to actuate the TapeLazer tape application assembly. Unit will detect a bad battery.
Will not count distance.	Distance sensor is not connected.	Diagnose in measure mode. Check for faulty connections. Replace distance sensor if necessary.
Will not lower carriage.	Mechanical lock(s) engaged.	Disengage the mechanical lock(s).
	Control board output # 3 is shorted.	Check for faulty connection. Replace solenoid if necessary. Refer to unit error screen. See **To Check if Solenoids are Functioning Properly**, page 49.
	Control board output #3 is open.	
	Tape carriage button is not connected.	Check for faulty connection. Replace switch if necessary.
Will not pressurize.	Relief valve on unloader valve is flipped open.	Flip to closed.
	Air hose leaks.	Find leak and replace hose or tighten connection(s).
	Solenoid leaks.	Double check air cylinders to make sure there is not an internal leak. See **Air Cylinder Internal Leaks**, page 50. If not, replace solenoid manifold.
	Cylinder leaks.	Replace cylinder.
	Loose air connection(s).	Tighten connection(s).
	Compressor failure/not spinning.	Verify compressor is spinning while engine is running. If not, replace compressor.
	Pressure relief valve is open.	Close valve.
Will not recognize a USB or charge.	USB board is not connected.	Check for faulty connection. Replace USB board if necessary.
Will not show system pressure.	Pressure gauge is broken.	Replace gauge.

Solenoid Manifold Operation

To help prevent injury from moving parts, keep clear of carriage when actuating solenoid outputs. Perform **Pressure Relief Procedure**, page 7, before working on equipment.

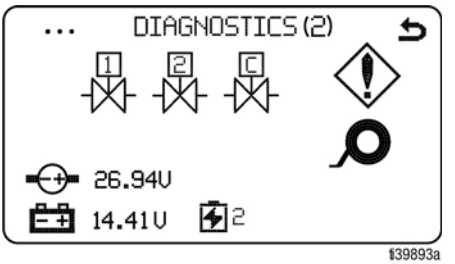
To diagnose a malfunctioning unit, begin with diagnostics, see **Information**, page 38.

Cycle to Diagnostic Screen #2 to assess what condition your unit is in.

Reference the table conditions and screens below to determine the operating condition. Note, the unit must be running and pressurized.

Operating Condition #	Output '1'	Output '2'	Output 'C'	Description
#1	Off	Off	Off	Tape application assembly is in cut position. Carriage is in the raised position
#2	Off	Off	On	Tape application assembly is in cut position. Carriage is in the lowered position
#3	On	On	On	Tape application assembly is in application position. Carriage is in the raised position
#4	On	Off	On	Tape application assembly is in secondary position. Carriage is in the raised position

Operating Condition #1



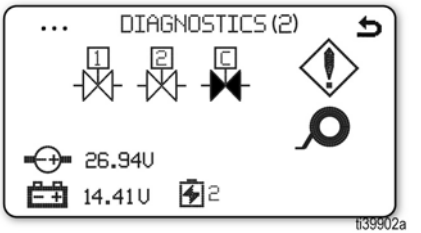
Tape application assembly is in cut position. Carriage is in the raised position, see **Tape Application Assembly Positions**, page 24.

Output ‘1’ = OFF

Output ‘2’ = OFF

Output ‘C’ = OFF

Operating Condition #2



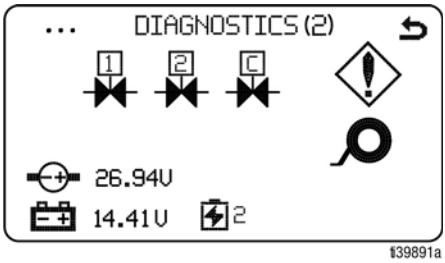
Tape application assembly is in cut position. Carriage is in the lowered position, see **Tape Application Assembly Positions**, page 24.

Output ‘1’ = OFF

Output ‘2’ = OFF

Output ‘C’ = ON

Operating Condition #3



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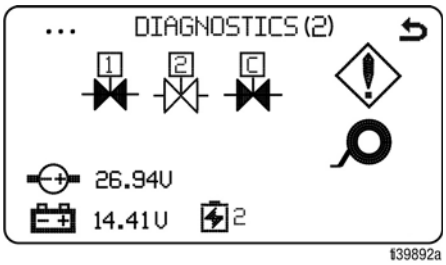
Tape application assembly is in application position. Carriage is in the raised position, see **Tape Application Assembly Positions**, page 24.

Output ‘1’ = ON

Output ‘2’ = ON

Output ‘C’ = ON

Operating Condition #4



t39892a

Tape application assembly is in secondary position. Carriage is in the raised position, see **Tape Application Assembly Positions**, page 24.

Output ‘1’ = ON

Output ‘2’ = OFF

Output ‘C’ = ON

Notes:

1. To energize solenoid outputs ‘1’ and ‘2’, press the tape application button once.
2. To energize solenoid output ‘1’ by itself, press the tape application button twice.
3. To energize solenoid output ‘C’, use the carriage raise/lower switch.
4. To energize outputs ‘1’ and ‘2’ either solid or skip line must be selected and highlighted red on the display.

If unit does not function as described above, check the following:

1. Mechanical jam. Check to make sure there is no obstruction or binding that is restricting movement. Make sure that the carriage locking pins are in the retracted position.
2. Wiring is incorrect. Check **Wiring Diagram**, page 64.
3. Air line routing is incorrect. Check **Air Line Schematic**, page 62. When connecting air lines follow the **Air Line Connection Sequence**, page 63.
4. Unit has a short circuit. See **Diagnosing a Short Circuit**, page 48.
5. Unit has an open circuit. See **Diagnosing an Open Circuit**, page 48.
6. Solenoids are not functioning properly. See **To Check if Solenoids are Functioning Properly**, page 49.

Diagnosing a Short Circuit

1. A short can be the result of two faulty components: faulty solenoid manifold or faulty control board.
2. Unplug all solenoid manifold wires connected to control board outputs ‘1’, ‘2’, and ‘C’, see **Solenoid Locations on Control Board**, page 48.
3. Navigate to Diagnostics Screen #2 on control display, see **Information**, page 38.
4. Actuate outputs ‘1’, ‘2’, and ‘C’, see the **Notes:**, page 47, under **Solenoid Manifold Operation**, page 46.
5. If the control board is still registering a short, the board is bad and needs to be replaced. If the control board is now registering an open, the solenoid manifold is bad and needs to be replaced.

Diagnosing an Open Circuit

1. An open can be the result of two faulty components: faulty solenoid manifold, or faulty control board.
2. Unplug all solenoid manifold wires connected to control board outputs ‘1’, ‘2’, and ‘C’, see **Solenoid Locations on Control Board**, page 48
3. Navigate to Diagnostic Screen #2 on control display, see **Information**, page 38.
4. Actuate outputs ‘1’, ‘2’, and ‘C’, see the **Notes:**, page 47, under **Solenoid Manifold Operation**, page 46.
5. Measure the DC voltage across the three solenoid outputs:

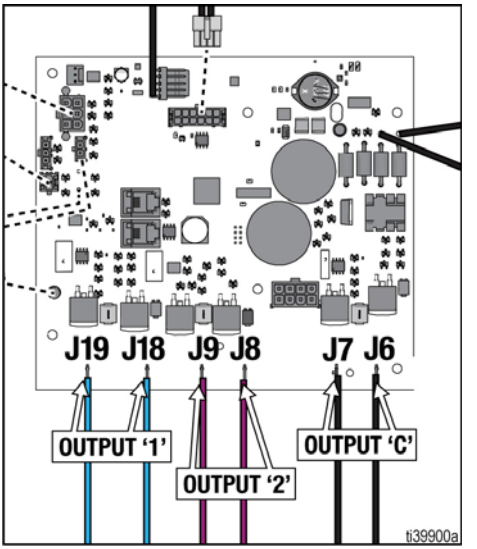
Without Solenoids Connected		
Control Board Output ‘1’ Reading	Control Board Output ‘2’ Reading	Control Board Output ‘C’ Reading
13.5 +/- 1 VDC	13.5 +/- 1 VDC	16-34 VDC

6. If control board voltages are in this range, the control board is good. The solenoid manifold needs to be replaced.
7. In the Diagnostics Screen #3, check the amperage of the three solenoid outputs using he diagnostics screen, see **Information**, page 38.

Minimum Amps with Solenoids Connected		
Control Board Output ‘1’ Reading	Control Board Output ‘2’ Reading	Control Board Output ‘C’ Reading
1850 mA	--	--

8. If any of the outputs are reading lower than shown in the table, there is an open in the solenoid manifold and it must be replaced.

Solenoid Locations on Control Board

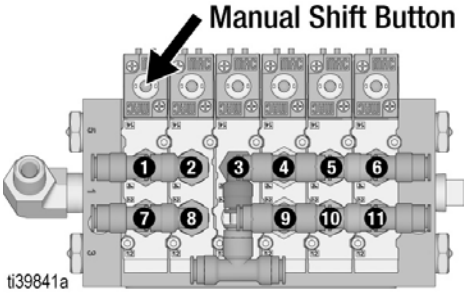


To Check if Solenoids are Functioning Properly

1. Run unit in diagnostics screen under the following conditions, see **Information**, page 38.

Output '1'	Output '2'	Output 'C'	Ports to unplug and check
Off	Off	Off	1, 2, 3, 4, 5, 6
On	On	On	7, 8, 9, 10, 11

2. Checked ports should not have any air flowing from them. If they do, the solenoid manifold is not functioning correctly and may need to be replaced. Try to shift the solenoid by depressing the 'manual shift button' to dislodge a stuck valve. If that does not work, the solenoid manifold must be replaced.



System is not holding pressure/not generating pressure

This indicates that there is a leak in the system. This procedure details how to find and fix the leak.

NOTE: The system will bypass air through unloader valve once at 145 psi.

1. Check main pressure relief valve to make sure it is closed and not leaking air.
2. Check pressure relief lever on the unloader valve to make sure it is in the closed position and not leaking air.
3. Run unit to determine if the air compressor is outputting air. Open the pressure relief valve to check for air flow. Also look for the compressor fan to be in motion while the unit is running.
   a. **Compressor is outputting air:** there is a leak elsewhere in the system. Proceed with step 4.
   b. **Compressor is not outputting air:** compressor has failed. Replace compressor and follow recommended maintenance intervals to prevent future failure.
4. Close off system by turning pressure relief valve shut and check for external leaks. There should be no air leaking out of any external piece of the equipment, besides the unloader valve. Potential leak points to check:
   a. Air lines: If an air line is damaged (kinked, torn) replace with replacement tube and install properly to avoid future damage and kinking. If air lines are loose from the push connect fitting, reconnect and ensure that hose marking is flush with push to connect collet.
   b. Fittings: Damaged fittings will need to be replaced. If a loose fitting is causing the issue, tighten the fitting to stop the leak.
   c. Manifold Exhaust valves: If air is leaking from exhaust valves on manifold, this is usually indicative of an air cylinder failure, NOT a solenoid failure. Follow procedure outlined below to thoroughly check for air cylinder leaks.

Air Cylinder Internal Leaks

To help prevent injury from moving parts, keep clear of carriage when actuating solenoid outputs. Perform **Pressure Relief Procedure**, page 7, before working on equipment.

1. Run unit in Diagnostics Screen #3 in the following conditions (See **Information**, page 38**).**

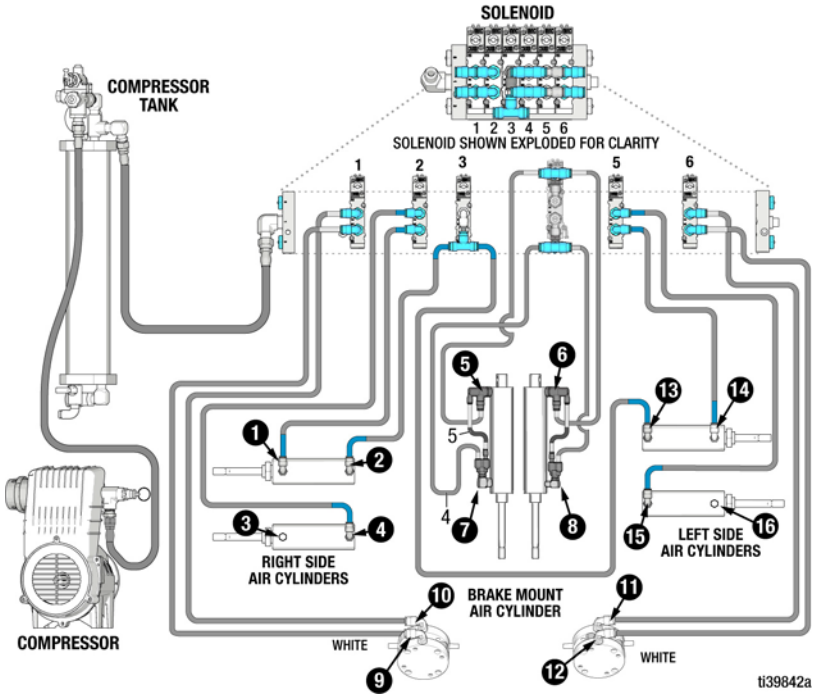
NOTE: Unit will actuate while in the diagnostics screen.

2. Perform pressure relief procedure, see, **Pressure Relief Procedure**, page 7.
3. To diagnose air cylinder internal leaks, unplug the air lines connected to the solenoid parts listed in the table below, starting with the top row. See, **Solenoid Ports Reference**, page 51, for port locations.

Output '1'	Output '2'	Output 'C'	Ports to unplug and check
Off	Off	Off	2, 5, 6, 10, 11, 13
Off	Off	On	7,8
On	On	Off	1, 3, 9, 12, 14, 16

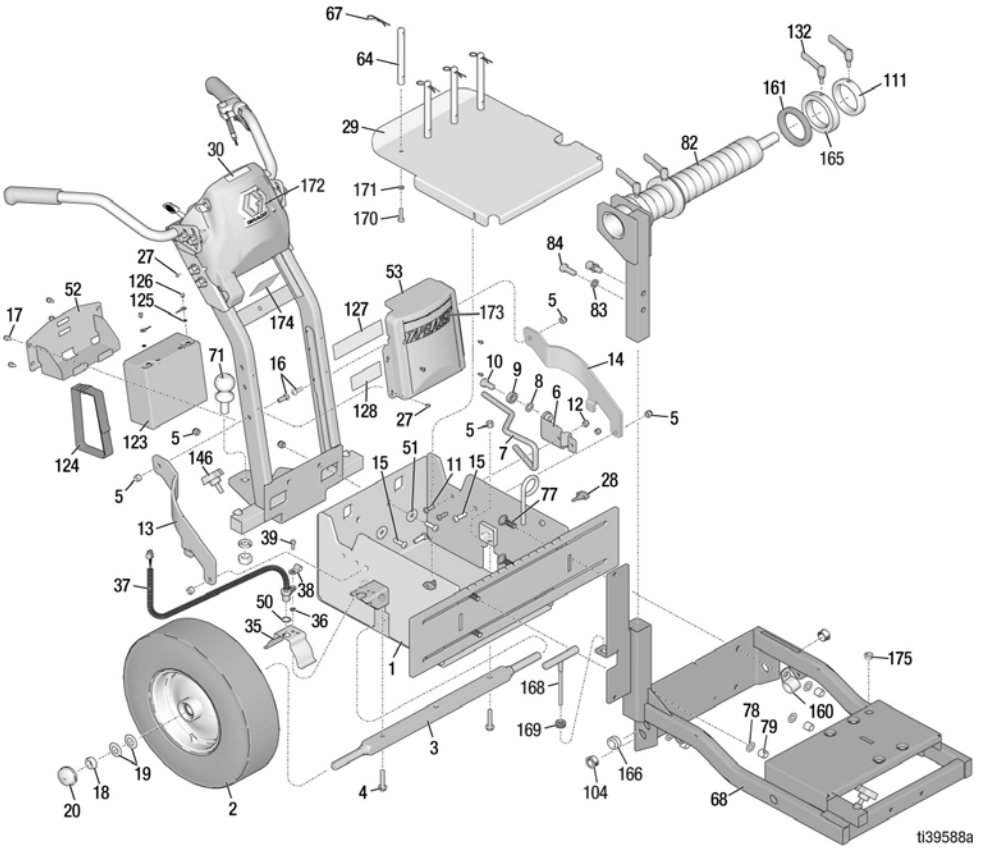
4. Close air drain valve.
5. There should be **NO** air flow from air cylinders to these ports. If there is air flow, the cylinder has an internal leak and needs to be replaced. Refer to **Air Line Connection Sequence**, page 63, when re-connecting air lines.
6. If no airflow is observed, perform pressure relief procedure, see **Pressure Relief Procedure**, page 7.
7. Reconnect air lines disconnected in step 3. Disconnect the air lines in the second row of the table above.
8. Close air drain valve.
9. Actuate control board output 'C', see the **Notes:**, page 47, under **Solenoid Manifold Operation**, page 46.
10. If no airflow is observed, deactivate control board output 'C; and preform pressure relief procedure, see **Pressure Relief Procedure**, page 7.
11. Reconnect air lines disconnected in step 7 and disconnect those in the third row of the table above
12. Close air drain valve.
13. Actuate control board outputs '1', '2', and 'C', see the **Notes:**, page 47, under **Solenoid Manifold Operation**, page 46.
14. If no airflow is observed, deactivate control board output 'C; and preform pressure relief procedure, see **Pressure Relief Procedure**, page 7.
15. Reconnect air lines disconnected in step 11.
16. If there are no leaks on any of the ports, then there is an internal leak inside the solenoid manifold, and the solenoid manifold will need to be replaced.

Solenoid Ports Reference



Parts

TapeLazer Parts

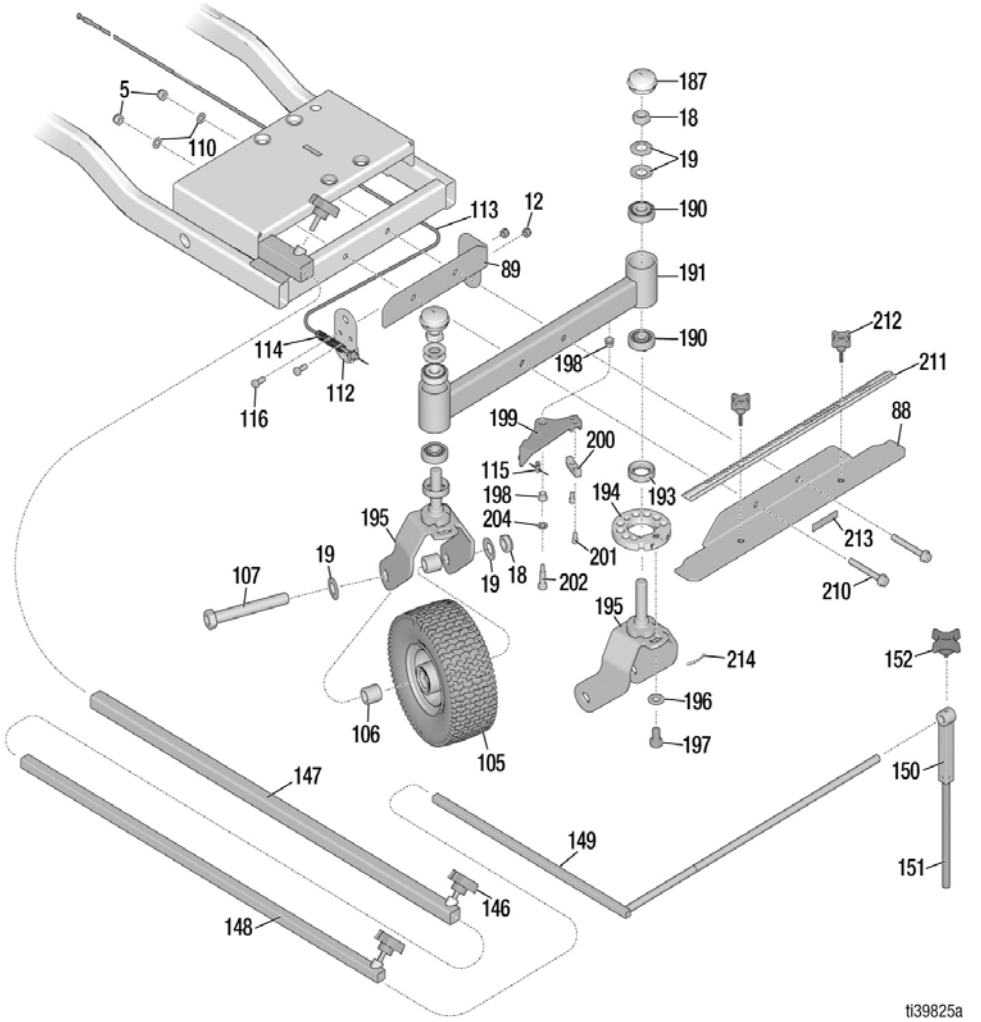


TapeLazer Parts List

Ref.	Part	Description	Qty.
1	18C621	FRAME, TapeLazer	1
2	111020	WHEEL, pneumatic without sensor ring	2
	255162	WHEEL, pneumatic, with sensor ring	2
3	193405	AXLE	1
4	114982	SCREW, cap, flange hd.	2
5	101566	NUT, lock	10
6	198891	BRACKET	1
7	198930	ROD, brake	1
8	195134	SPACER, ball, guide	1
9	198931	BEARING	1
10	113961	SCREW, cap, hex hd.	1
11	125112	SCREW, cap, 5/16 x 1	2
12	111040	SCREW, cap, hex hd.	2
13	15F576	BRACE, right	1
14	15F577	BRACE, left	1
15	129601	SCREW, cap, button hd., 3/8 x 1.25	4
16	128977	SCREW, cap, button hd. 3/8 x 1	2
17	107257	SCREW	4
18	112405	NUT, lock	4
19	112825	WASHER, Belleville	8
20	114648	CAP, dust	2
27	128978	SCREW, mach., slot hex wash hd.	12
28	16W408	KNOB, T-handle, 1/4-20	4
29	18C712	PLATE, cover, frame, rear	1
30	17P925	LABEL, A+ service	1
35	15J088	SHEILD, distance sensor	1
36	15K452	SPACER, round	1
37	18C574	SENSOR, distance	1
38	108868	CLAMP, wire	1
39	260212	SCREW, hex washer hd.	1
50	155500	PACKING, O-ring	1
51	108851	WASHER, plain	10
52	20A473	SHELF, battery	1
53	17K377	COVER, pointed	1
64	18C716	SHAFT, roller, holder	4
67	123906	PIN, cotter, hairpin	4
68	18C632	FRAME, front, painted	1
71	116913	BALL, trailer, *includes nut and lock washer*	1
77	18C667	BOLT, carriage	4
78	109052	WASHER, plain	4
79	101580	NUT, lock	4
82	18C645	FRAME, weldment, upper tape roll	1
83	100018	WASHER, lock, spring	2
84	109012	BOLT, hex hd.	2
104	18C736	BUSHING, strain relief	2
111	18C666	COLLAR, tape guide	2
123	16U160	BATTERY	1
124	126949	STRAP, battery	1
125	111307	WASHER, lock, external	2
126	128131	SCREW, cap, hex hd., M5 x 6mm	2
127 ▲	17K396	LABEL, safety	1
128 ▲	17K397	LABEL, notice	1
132	20A290	LEVER, clamping, adjustable	4
146	111145	KNOB, pronged	1
160	20A626	CLAMP, wire	1
161	15A552	SEAL, replacement	2
165	20A647	COLLAR, tape guide	2
166	20A595	GROMMET	1
168	20A443	TOOL, Allen	1
169	20A435	GROMMET	1
170	18C661	BOLT	4
171	100214	WASHER	4
172	17K379	LABEL, Graco	1
173	18C730	LABEL, TapeLazer	1
174	17H742	LABEL, brand	1
175	119569	BUSHING, strain relief	1

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Front End Parts

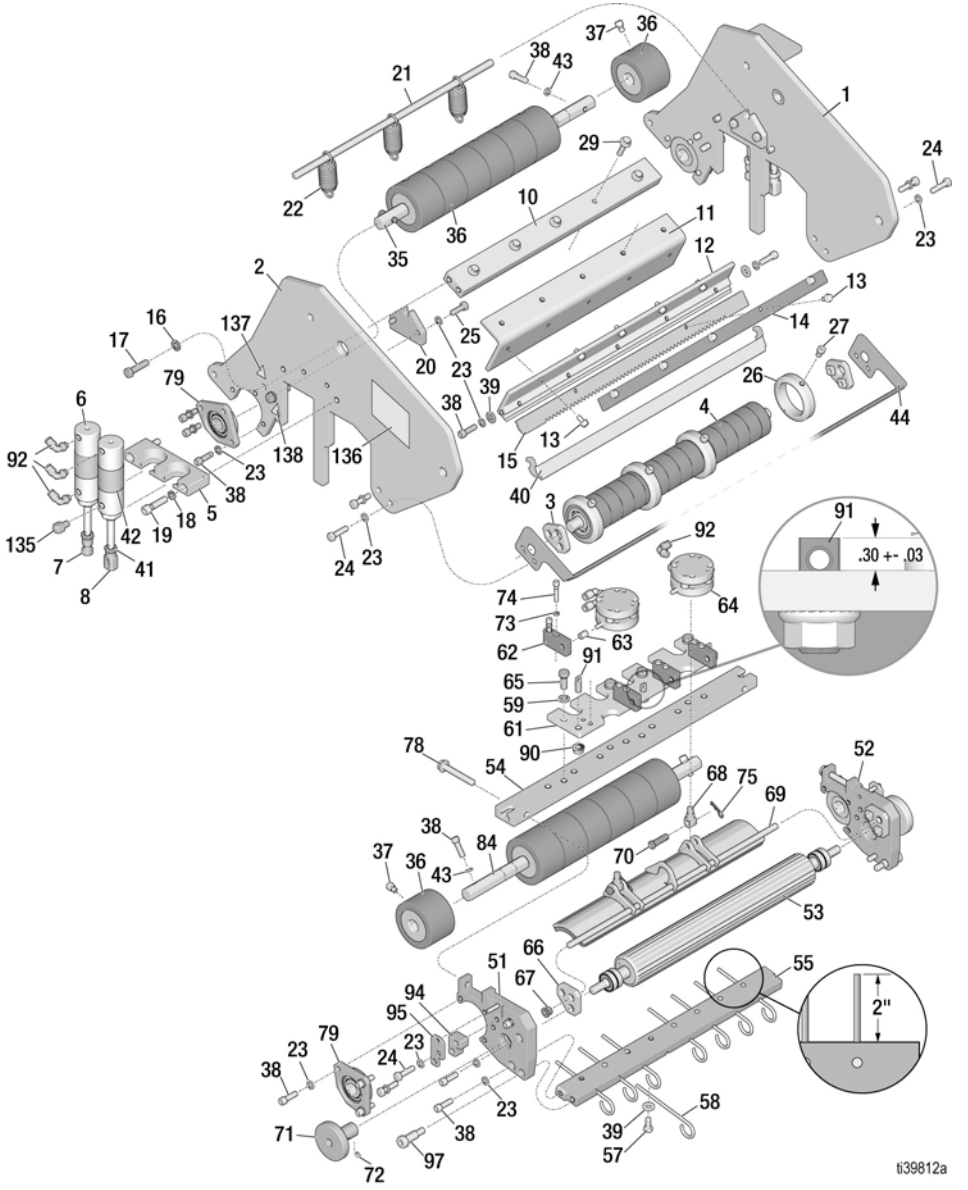


Front End Parts List

Ref.	Part	Description	Qty.
5	101566	NUT, lock	10
12	111040	NUT, lock	5
18	112405	NUT, lock	4
19	112825	WASHER, Belleville	8
88	18C619	GUARD, frame, painted	1
89	18C617	BRACKET, wheel lock, painted	1
105	114549	WHEEL, pneumatic	2
106	193658	SPACER, seal	4
107	113471	SCREW, cap, hex hd.	2
110	112914	WASHER, plain	2
112	15F910	BRACKET, cable	1
113	20A220	CABLE, wheel lock	1
114	114682	SPRING, compression	1
115	114802	STOP, wire	1
116	100057	SCREW, cap, hex hd.	2
146	111145	KNOB, pronged	3
147	24N171	ARM, pointer	1
	24N162	KIT, accessory, pointer, *includes 146, 147, 148, 149, 150, 151, 152*	1
148	17H438	TUBE, weldment, pointer	1
149	17H441	EXTENSION, pointer, weldment	1
150	17H445	TUBE, pointer hose, weldment	1
151	17H719	HOSE, pointer (1 pack)	1
	24Y511	HOSE, pointer (5 pack)	1
152	114966	KNOB, pronged	1
187	114648	CAP, dust	2
190	113485	BEARING, cup/cone	4
191	18C620	FRAME, caster	1
193	113484	SEAL, grease	2
194	17H486	DISK, adjuster, assembly	1
195	17H485	FORK, weldment	2
196	113962	WASHER, hardened, SAE	1
197	114681	SCREW, cap, hex hd.	1
198	114548	BEARING, bronze	2
199	193528	ARM, detent	1
200	18C724	STOP, wedge	1
201	110754	SCREW, cap	2
202	120476	BOLT, shoulder, 5/16	1
204	15J603	SPACER, round, 0.625 O.D.	1
210	125626	SCREW, hex, flanged	2
211	20A484	BLADE (1 pack)	1
	20A652	BLADE (3 pack)	1
212	15D862	NUT	2
213	17H683	LABEL, brand	1
214	17H489	LABEL, disk adjustment	1

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Carriage Applicator Parts



Carriage Applicator Parts List

Ref.	Part	Description	Qty.
1	20A201	BRACKET, roller mount, left	1
2	20A203	BRACKET, roller mount, right	1
3	18C582	BRACKET, roller mount, 3-hole	2
4	18C579	ROLLER, tape guide	1
5	20A338	BRACKET, cylinder mount	2
6	18C598	CYLINDER, air	4
7	18C599	BRACKET, cylinder rod mound end	2
8	18C606	BRACKET, cylinder rod mount	2
10	18C577	BRACKET, cross-member	1
11	18C967	BRACKET, blade mount	1
12	20A216	BRACKET, blade mount	1
13	113161	SCREW, flange, hex hd.	10
14	18C602	BRACKET, blade holder top	1
15	20A484	KIT, blade (1 pack), *includes 23, 38, 39, 40,*	1
	20A652	KIT, blade (3 pack), *includes 23, 38, 39, 40*	1
16	100133	WASHER, lock, 3/8	4
17	102637	SCREW, cap	4
18	106115	WASHER, lock, 3/8	4
19	102886	SCREW, cap	4
20	18C613	BRACKET, spring mount	2
21	18C614	ROD, spring mount	1
22	18C612	SPRING, extension	3
23 ◆	100214	WASHER, lock	16
24	18C661	SCREW, cap, hex hd.	4
25	124227	SCREW, cap, hex hd., 5/16 - 18 x 1.00	4
26	18C615	COLLAR, tape guide	4
27	128167	SCREW, cap, 5/16 - 18	4
29	126596	SCREW, flange, hex, 5/16 - 18 x 1.25	5
35 *	18C952	SHAFT, tamper roller, hex	1
36 *†	20A487	KIT, cylinder, roller, *includes 37*	14
37 *†	126953	SCREW, sch, 5/16 - 18 x 3/8	14
38 *†◆	128190	SCREW, cap, socket hd., 5/16 - 18	10
39	100527	WASHER, plain	10
40	20A327	GUARD, blade	1
41	150513	NUT, hex, jam, 7/16 x 20	4
42	18C731	LABEL, brand, side	4
43 *†	104008	WASHER, lock, spring	2
44	20A648	BRACKET, tape break	1
51	20A654	KIT, bracket, right, swing arm	1
52	20A655	KIT, bracket, left, swing arm	1
53	18C571	ROLLER, tape applicator	1
54	18C583	BRACKET, cylinder rod support	1
55	18C584	BRACKET, tape guides lead wire	1
57	100057	SCREW, cap, hex hd.	8
58	20A653	BRACKET, lead in	8
59	100133	WASHER, lock, 3/8	4
61	20A198	PLATE, air cylinder mount	1
62	20A211	BLOCK, air cylinder mount	4
63	18C592	BEARING, sleeve	4
64	20A210	CYLINDER, air	2
65	123942	FASTENER, screw	4
66 ◆	18C608	BRACKET, brake, rod mount	2
67 ◆	18C636	BEARING, bronze	2
68	18C635	ADAPTER, rod	2
69	20A488	KIT, brake, *includes 23, 38, 66, 67, 70, 75*	1
70 ◆	18C637	PIN	2
71	18C594	HANDLE, roller advance	2
72	126943	FASTENER, set screw, 1/4 - 20	2
73	105510	WASHER, lock	8
74	103345	SCREW, cap sch.	8
75 ◆	120592	PIN, cotter, hairpin	2
78	123443	SCREW, cap, flange hd.	2
79	20A521	KIT, housing, bearing, *includes 23, 38*	4
84 †	18C958	SHAFT, application roller	1
90	112958	NUT, hex 3/8 - 16	3
91	18C593	BRACKET, spring mount	3
92	112698	FITTING, male swivel	10
94	18C586	BRACKET, cylinder rod support	2
95	18C971	PLATE, support	2
97	126833	SCREW, shoulder	2
135	100839	FITTING, elbow	2
136 ▲	20A264	LABEL, tape feed	1
137 ▲	15H108	LABEL, safety	2
138 ▲	20A263	LABEL, safety, blade	2
	20A485	KIT, roller, tamper, *includes 35, 36, 37, 38, 43*	1
	20A486	KIT, roller, application, *includes 84, 36, 37, 38, 43*	1
	20A488	KIT, tape break, *includes 23, 38, 66, 67, 70, 75*	1

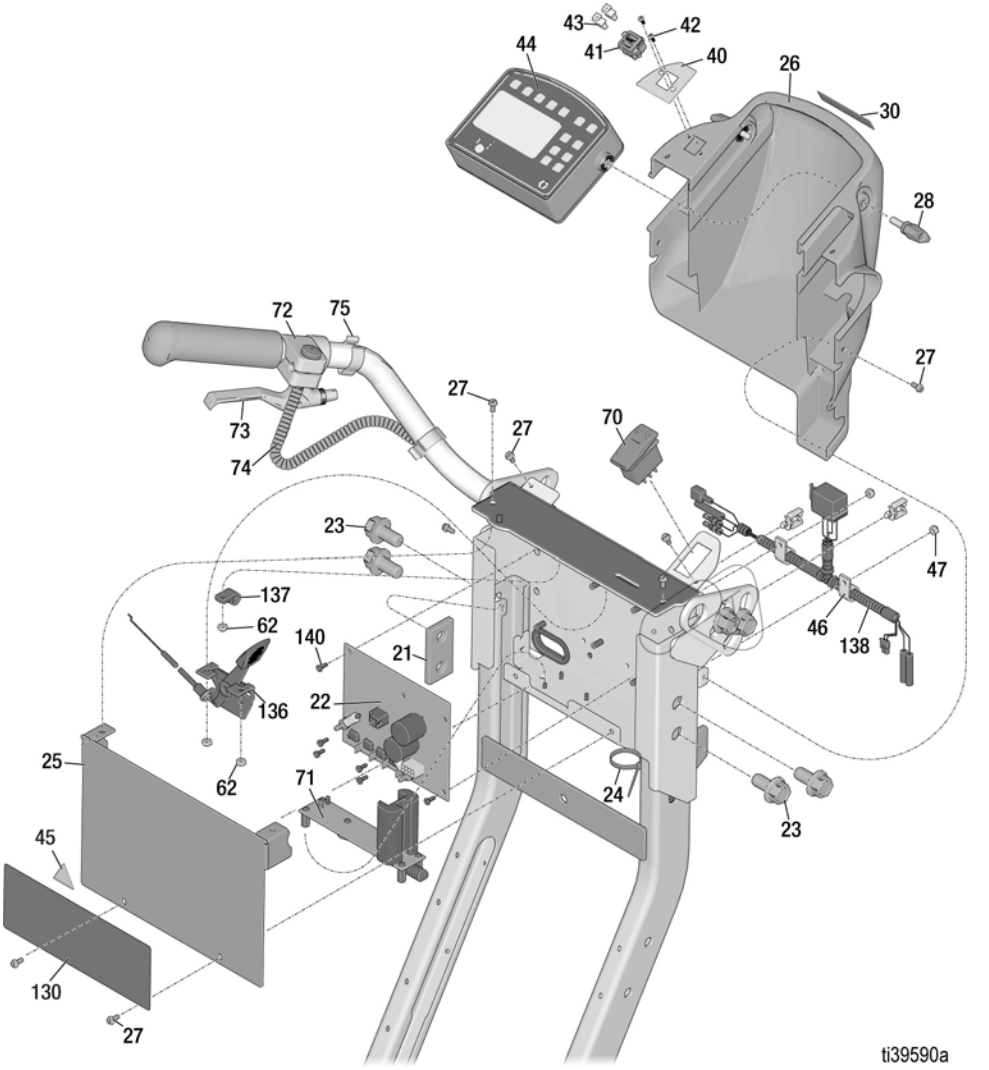
▲ *Replacement safety labels, tags, and cards are available at no cost.*

* *Included in KIT 20A485*

† *Included in KIT 20A486*

◆ *Included in KIT 20A488*

Display Unit Parts

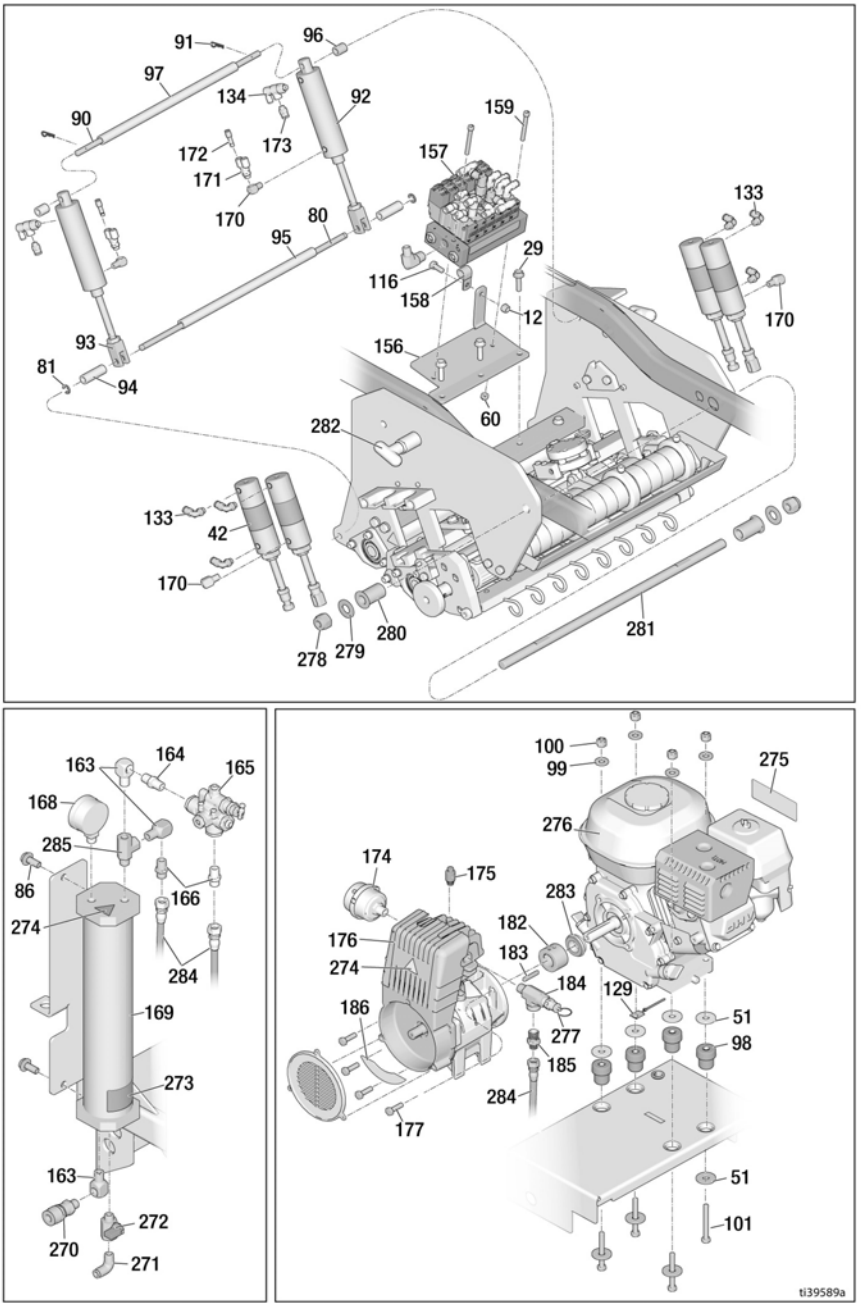


Display Unit Parts List

Ref.	Part	Description	Qty.
21	17J125	BRACKET, slide	2
22	20A658	KIT, control, auto, TapeLazer	1
23	17J136	SCREW, hex, flange hd.	4
24	17H720	STRAP, tie	4
25	17J123	PLATE, cover	1
26	17V517	COVER, control, USB, painted	1
27	128978	SCREW, mach, slot hex wash hd.	12
28	16W408	KNOB, T-handle	4
30	17P925	LABEL, A+	1
40	17V520	LABEL, USB	1
41	17Z084	KIT, board, USB, *includes 40, 42, 43*	1
42	17V519	SCREW, pan hd.	2
43	131718	COVER, dust, USB	2
44	20A659	KIT, box, display, *includes 28*	1
45 ▲	189930	LABEL, caution	1
46	128856	CLAMP, cable, nylon	2
47	115483	NUT, lock	2
62	111280	NUT, locking	5
70	128783	SWITCH, rocker	1
71	25A495	KIT, board, charger, battery, *includes 62,*	1
72	15K162	BLOCK, switch	1
73	194310	LEVER, actuator	1
74	17J236	SWITCH, pushbutton	1
75	178342	CLIP, spring	2
130 ▲	198918	LABEL, warning	1
136	20A657	KIT, control, throttle, *includes 62, 137*	1
137	119736	CLAMP, cable	1
138	18C575	HARNESS, wiring, TapeLazer	1
140	120593	SCREW, torx	10

▲ *Replacement safety labels, tags, and cards are available at no cost.*

Additional Parts



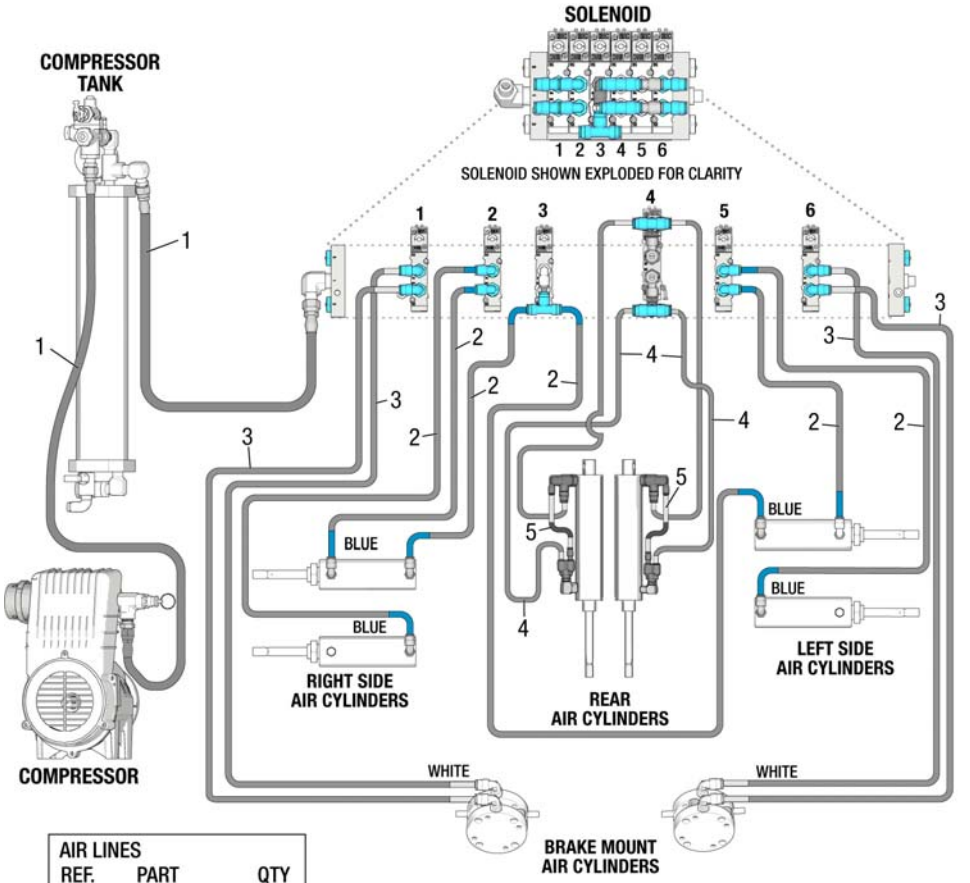
Additional Parts List

Ref.	Part	Description	Qty.
12	111040	NUT, lock	5
29	126596	SCREW, flange	5
42	18C731	LABEL, brand, side	4
51	108851	WASHER, plain	10
60	102040	NUT, lock, hex	4
80	18C638	ROD, cylinder mount lower	1
81	101134	RING, retaining	2
86	111192	SCREW, cap flange hd.	2
90	18C647	SHAFT, air cylinder mount upper	1
91	120592	PIN, cotter, hairpin	2
92	18C648	CYLINDER, air	2
93	18C649	CLEVIS, cylinder, air and nut	2
94	18C650	TUBE, cylinder, lift	2
95	18C651	TUBE, cylinder, lift	1
96	18C652	TUBE, cylinder, lift	2
97	18C653	TUBE, cylinder, lift	1
98	15E888	DAMPENER, motor mount	4
99	100023	WASHER, flat	4
100	110838	NUT, lock	4
101	113664	SCREW, cap, hex hd.	4
116	100057	SCREW, cap, hex hd.	3
129	240997	CONDUCTOR, ground	1
133	112698	ELBOW, male, swivel	6
134	20A642	VALVE, unidirectional	1
156	20A587	BRACKET, valve mount	1
157	20A588	VALVE, air solenoid (6 pack)	1
158	17H721	CLAMP, wire	1
159	C19817	SCREW, cap, socket hd.	2
163	187357	ELBOW, street	3
164	156971	FITTING, nipple	1
165	20A206	REGULATOR, unloader	1
166	162453	FITTING,	2
168	101180	GAUGE, pressure	1
169	16U174	TANK, pressure	1
170	100839	FITTING, elbow, street	4
171	20A644	FITTING, tube	2
172	125423	FITTING, reducer, plug	2
173	115671	FITTING, connector	2
174 †	25R115	FILTER, air	1
175 †	25R114	BREATHER, oil	1
176	19C950	KIT, compressor, *includes 174, 175, 182a, 183, 283, 177, 186*	1
177	100184	SCREW	4
182a †	19B286	KIT, collar, shaft, *includes 182b, 183c, and 184d*	1
182b	25R109	COLLAR, shaft	1
182c	25R110	SET SCREW, M5x8	1
182d	25R111	SET SCREW, M8x10	4
183	25R126	KEY, square, 3/16 x 1.34	1
184	124490	FITTING, tee	1
185	164672	ADAPTER	1
186	25R330	GASKET, adhesive	1
270	116720	COUPLER, quick disconnect	1
271	113321	FITTING, elbow, tube	1
272	15B565	VALVE, ball	1
273 ▲	20A265	LABEL, relief, pressure, air	1
274 ▲	15K616	LABEL, caution	2
275 ▲	194126	LABEL, safety, warning	1
276	114530	ENGINE, Honda	1
277	20A303	VALVE, safety	1
278	101712	NUT, lock	2
279	111841	WASHER, plain	2
280	18C646	BUSHING, flanged	2
281	18C633	SHAFT, roller frame mount	1
282	18C654	PLUNGER, spring	2
283 †	19C949	SPACER, motor	1
284	16T939	HOSE, coupled	2
285	116504	FITTING, tee, run	1

▲ *Replacement safety labels, tags, and cards are available at no cost.*

† *Parts included with 19C950 (Compressor).*

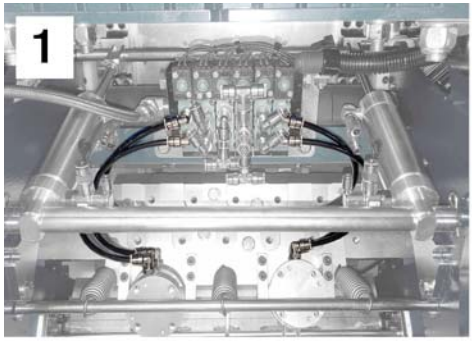
Air Line Schematic

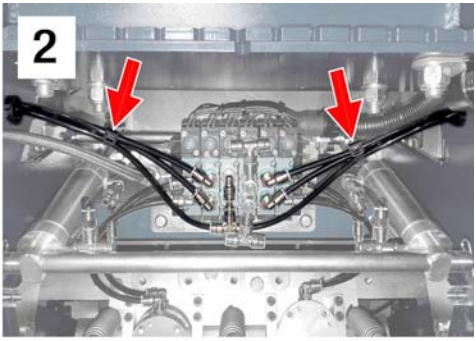


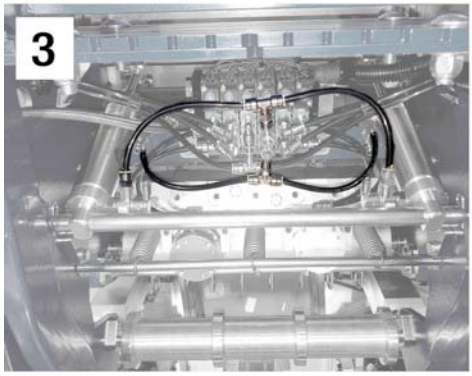
AIR LINES REF.	PART	QTY
1	16T939	2
2	20A438	6
3	20A437	4
4	20A439	4
5	20A628	2

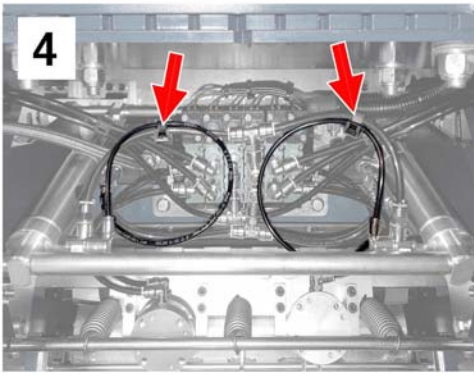
Air Line Connection Sequence

When connecting air lines to solenoids they can often be difficult to lay into the unit. It is helpful to connect them in the order shown in the pictures below to avoid difficult connections later on. Connection order doesn't matter for performance, only for the ease of the user.

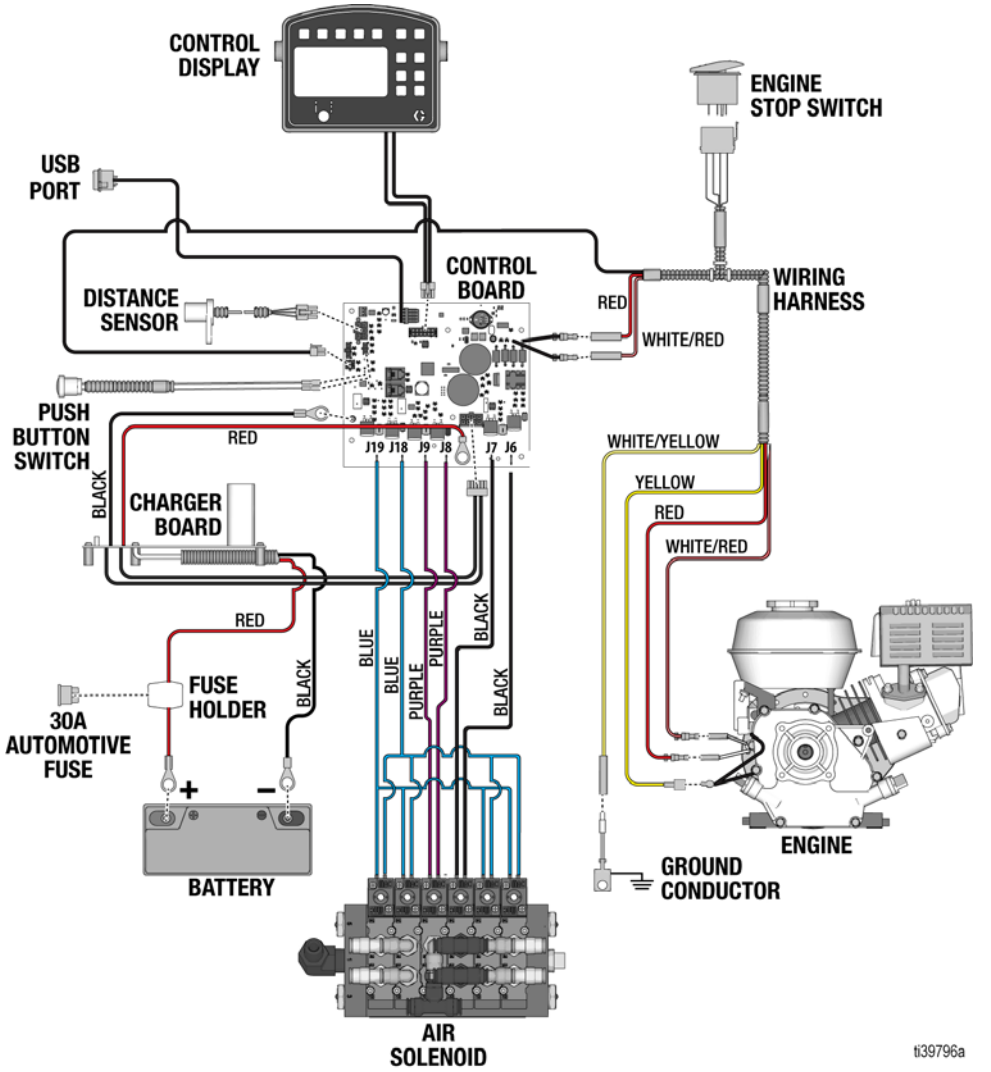




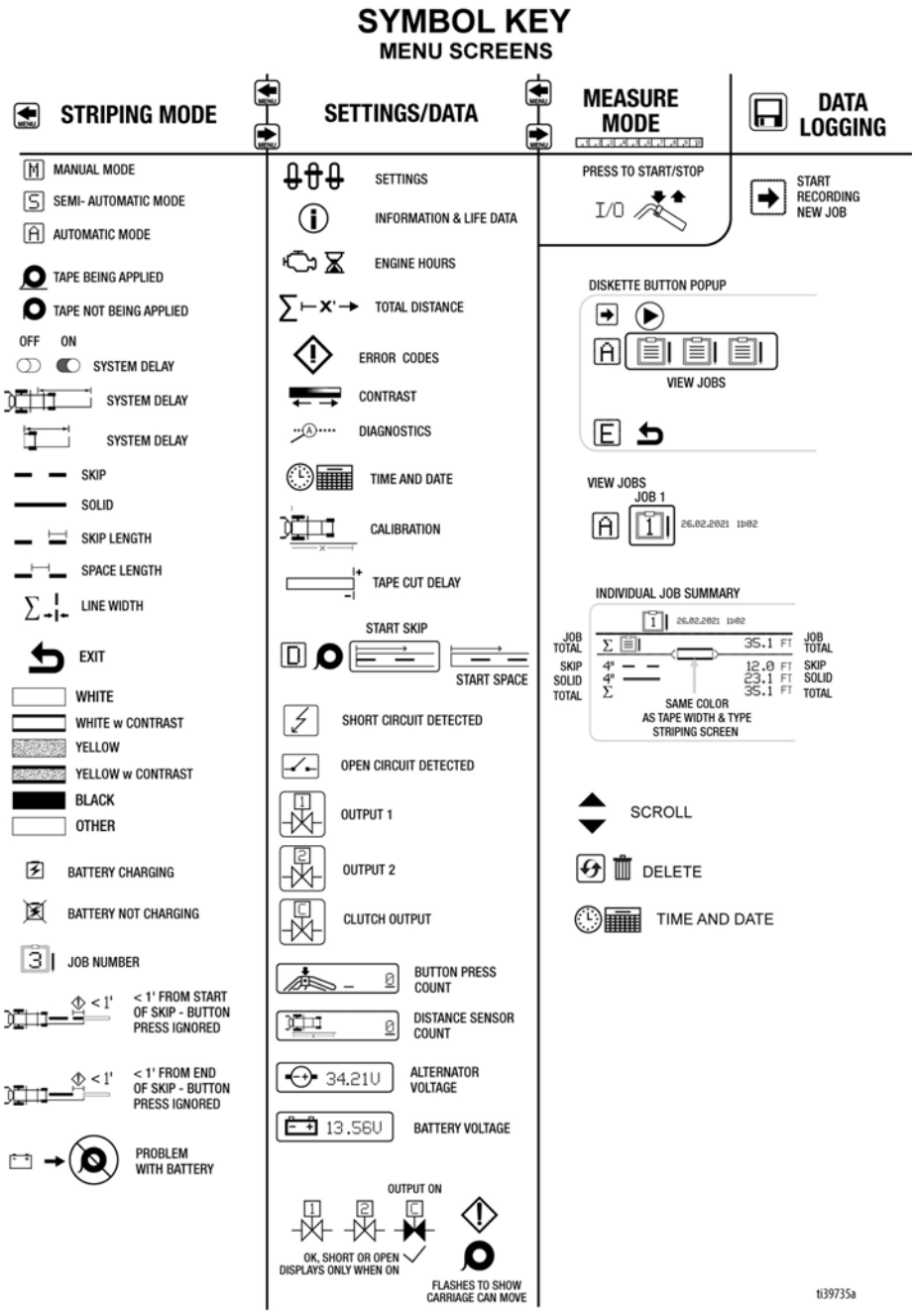




Wiring Diagram



Universal Symbols Key



Technical Specifications

TapeLazer		
	U.S.	**Metric**
Dimensions		
Height (with handlebar down)	Unpackaged - 41 in. Packaged - 53 in.	Unpackaged - 104 cm Packaged - 135 cm
Width	Unpackaged - 28 in. Packaged - 33 in.	Unpackaged - 71 cm Packaged - 84 cm
Length (with handlebar down)	Unpackaged - 74 in. Packaged - 81 in.	Unpackaged - 188 cm Packaged - 206 cm
Weight (without tape)	Unpackaged - 512 lbs Packaged - 613 lbs	Unpackaged - 232 kg Packaged - 278 kg
Noise (dBa)		
Sound Power per ISO 3744:	104 dBa	
Sound Pressure per ISO 3744 (measured at 3.1 feet/1.0 m):	84 dBa	
Vibration (m/s^2) (8 hours daily exposure)		
Hand Arm (per ISO 5349)		
TapeLazer Only	Left hand: 6.2 Right hand: 5.4	
TapeLazer Coupled to Gas LineDriver	Left hand: 6.5 Right hand: 5.6	
Power Rating (Horsepower)		
Power Rating (Horsepower) per SAE J1349	5.5 HP @ 3600 rpm	4.1 kW @ 3600 rpm
Maximum Tape Width	14 inches	35 cm
Maximum Speed*	6 MPH	
Maximum Working Pressure	145 psi	1.0 MPa, 10 bar
Electrical Capacity	84 W @ 3600 rpm	
Battery	12V, 22Ah, Sealed lead acid, Deep cycle	
Compressor Flow @ 120 psi	6.0 ScFM	

* **Note:** Follow application instructions provided by tape manufacturer.

California Proposition 65

CALIFORNIA RESIDENTS

⚠ **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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For the latest information about Graco products, visit www.graco.com.
For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor or call 1-800-690-2894 to identify the nearest distributor.

All written and visual data contained in this document reflects the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 3A8108

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International Offices: Belgium, China, Japan, Korea

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